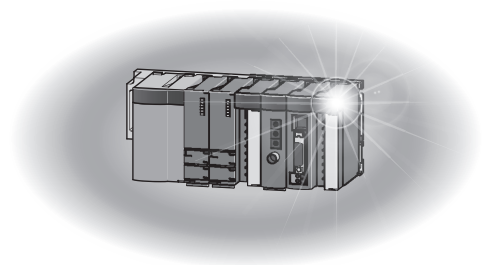


Programmable Controller

MELSEC **Q** series

C Controller Module User's Manual (Utility Operation, Programming)

- Q12DCCPU-V (Basic mode)
- Q06CCPU-V
- Q06CCPU-V-B
- SW3PVC-CCPU-E



● SAFETY PRECAUTIONS ●

(Read these precautions before using this product.)

Before using this product, please read this manual and the relevant manuals carefully and pay full attention to safety to handle the product correctly.

The instructions given in this manual are concerned with this product only. For the safety instructions of the programmable controller system, please read the CPU module user's manual.

In this manual, the safety precautions are classified into two levels: "⚠ WARNING" and "⚠ CAUTION".



Indicates that incorrect handling may cause hazardous conditions, resulting in death or severe injury.



Indicates that incorrect handling may cause hazardous conditions, resulting in minor or moderate injury or property damage.

Under some circumstances, failure to observe the precautions given under "⚠ CAUTION" may lead to serious consequences.

Observe the precautions of both levels because they are important for personal and system safety.

Make sure that the end users read this manual and then keep the manual in a safe place for future reference.

[Design Precautions]

⚠ WARNING

- Configure safety circuits external to the C Controller module to ensure that the entire system operates safely even when a fault occurs in the external power supply or the C Controller module. For the following controls, configure an interlock circuit in the user program to ensure that the entire system will always operate safely.
 - (1) Changing data of the running C Controller module from the development environment (personal computer) connected
 - (2) Changing the operating status
 - (3) Operating from the development environment (personal computer)Especially, in the case of control from an external device to a remote C Controller module, immediate action cannot be taken for a problem on the C Controller module due to a communication failure. To prevent this, configure an interlock circuit in the user program, and determine corrective actions to be taken between the external device and C Controller module in case of a communication failure.

[Setup and Maintenance Precautions]

WARNING

- Configure safety circuits external to the C Controller module to ensure that the entire system operates safely even when a fault occurs in the external power supply or the C Controller module. For the following controls, configure an interlock circuit in the user program to ensure that the entire system will always operate safely.

- (1) Changing data of the running C Controller module from the development environment (personal computer) connected
- (2) Changing the operating status
- (3) Operating from the development environment (personal computer)

Especially, in the case of control from an external device to a remote C Controller module, immediate action cannot be taken for a problem on the C Controller module due to a failure of data communication.

To prevent this, configure an interlock circuit in the user program, and determine corrective actions to be taken between the external device and C Controller module in case of a failure of data communication.

CAUTION

- Before performing online operations (especially, program modification, forced output, and operation status change) for the running C Controller module from the peripheral connected, read relevant manuals carefully and ensure the safety.

Improper operation may damage machines or cause accidents.

● CONDITIONS OF USE FOR THE PRODUCT ●

- (1) Mitsubishi C Controller system ("the PRODUCT") shall be used in conditions;
 - i) where any problem, fault or failure occurring in the PRODUCT, if any, shall not lead to any major or serious accident; and
 - ii) where the backup and fail-safe function are systematically or automatically provided outside of the PRODUCT for the case of any problem, fault or failure occurring in the PRODUCT.

- (2) The PRODUCT has been designed and manufactured for the purpose of being used in general industries.

MITSUBISHI SHALL HAVE NO RESPONSIBILITY OR LIABILITY (INCLUDING, BUT NOT LIMITED TO ANY AND ALL RESPONSIBILITY OR LIABILITY BASED ON CONTRACT, WARRANTY, TORT, PRODUCT LIABILITY) FOR ANY INJURY OR DEATH TO PERSONS OR LOSS OR DAMAGE TO PROPERTY CAUSED BY the PRODUCT THAT ARE OPERATED OR USED IN APPLICATION NOT INTENDED OR EXCLUDED BY INSTRUCTIONS, PRECAUTIONS, OR WARNING CONTAINED IN MITSUBISHI'S USER, INSTRUCTION AND/OR SAFETY MANUALS, TECHNICAL BULLETINS AND GUIDELINES FOR the PRODUCT.

("Prohibited Application")

Prohibited Applications include, but not limited to, the use of the PRODUCT in;

- Nuclear Power Plants and any other power plants operated by Power companies, and/or any other cases in which the public could be affected if any problem or fault occurs in the PRODUCT.
- Railway companies or Public service purposes, and/or any other cases in which establishment of a special quality assurance system is required by the Purchaser or End User.
- Aircraft or Aerospace, Medical applications, Train equipment, transport equipment such as Elevator and Escalator, Incineration and Fuel devices, Vehicles, Manned transportation, Equipment for Recreation and Amusement, and Safety devices, handling of Nuclear or Hazardous Materials or Chemicals, Mining and Drilling, and/or other applications where there is a significant risk of injury to the public or property.

Notwithstanding the above, restrictions Mitsubishi may in its sole discretion, authorize use of the PRODUCT in one or more of the Prohibited Applications, provided that the usage of the PRODUCT is limited only for the specific applications agreed to by Mitsubishi and provided further that no special quality assurance or fail-safe, redundant or other safety features which exceed the general specifications of the PRODUCTS are required. For details, please contact the Mitsubishi representative in your region.

REVISIONS

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Japanese manual version SH-080765-O

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PRECAUTIONS

The following precautions are given in this section.

Precautions	Reference page
For installation, uninstallation	Page A-6
For each utility	Page A-6
For programming	Page A-7
For debugging a program	Page A-11
For using FTP	Page A-16
For the Wind River Systems product	Page A-16

(1) Precautions for installation and uninstallation

(a) Installation by overwriting

- When installing utility by overwriting, the same folder where the existing one is installed must be used.
Any other folders cannot be used.
- Installation by overwriting is available only onto the same version of SW3PVC-CCPU.
To install another version of utility, uninstall existing one before installation.

(b) Uninstallation

Do not terminate uninstallation during processing.
If terminated, redo the uninstallation all over again.
If the uninstallation fails after terminating the uninstallation, reinstall the software and then uninstall it again.

(2) Precautions for utility

(a) Communication error of utility

When the line is congested, communication errors (time out errors) are more likely to occur (monitoring stops if running) in each utility.
If a utility communication error has occurred, set the connection target again in Connection setting.

(b) Connection during script file processing

Connection from utility to a C Controller module may not be available during processing a script file (while the RUN LED is flashing).
Finish the script file processing before connecting utility to a C Controller module.
If the RUN LED remains flashing, refer to the C Controller Module User's Manual (Hardware Design, Function Explanation) and troubleshoot the problem.

(c) Terminating Microsoft® Windows®

Do not terminate Microsoft® Windows® while utility other than Device monitoring utility is running.
Terminate all the running utility (other than Device monitoring utility) first and then Microsoft® Windows®.

(d) Parameters

Parameters written from utility other than Device monitoring utility to a C Controller module will take effect when the C Controller module is powered off and then on or is reset.

Written parameters will not take effect by changing the C Controller module status from STOP to RUN by remote operation or by a switch.

(3) Precautions for programming

(a) Restrictions on the bus interface functions and MELSEC data link functions

1) Endian format (memory layout)

There are two models of the Q06CCPU-V(-B), which are in little endian format (memory layout) and in big endian format.

Create user programs in either little or big endian that is appropriate to the model used.

(Set the compiler by selecting "A toolchain" when creating a project on Tornado. (☞ Page 9-17, Section 9.4.2))

2) User program execution

Execute a user program by starting a task from the script file.

(☞ Page 9-51, Section 9.9)

The system may malfunction if the user program is executed without a task being started.

3) Execution type priority

Set the priority of a task for executing the FTP user program as described below.

[When access is not made via FTP during user program execution]

Set the priority of the user program task to 100 or more (100 to 255).

If the priority is set within 0 to 99, the system may not operate properly.

[When access is made via FTP during user program execution]

The actual FTP processing (task) of the C Controller module is performed at the priority of 200.

When accessing via FTP during executing a user program, perform programming as described below.

- Set the priority of the user program task within 201 to 255.
- When setting the priority of the user program task within 100 to 200, insert a wait processing (such as taskDelay) in the user program to let the actual FTP processing operate.

- 4) To communicate with a target device by Ethernet communication (excluding utility communications)
 Check the port number being used in the C Controller module by using the VxWorks- standard "inetstatShow" command.
 Do not use any port number that has already been used. Normal communication may not be available if used.

Execute the "inetstatShow" command as follows:

[For the Q12DCCPU-V]

Use the Telnet tool.

[For the Q06CCPU-V(-B)]

Execute from the Tornado Shell.

Example) When using the Telnet tool on the Q12DCCPU-V

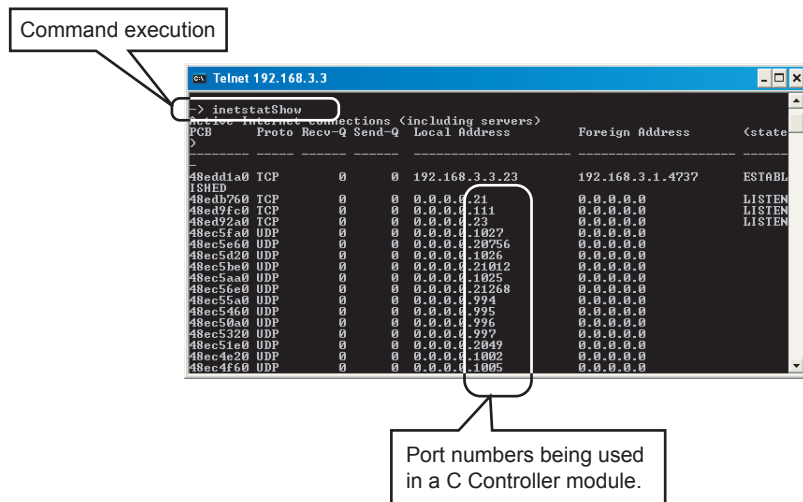


Figure A.1 When using Telnet tool on the Q12DCCPU-V

- 5) When writing a file from a user program in the Q06CCPU-V(-B)
 Do not write a file to the standard ROM.
 Write it to a CompactFlash card, network device (such as FTP/NFS/netDrv driver) file, or RAM disk.
 For details of network devices and RAM disks, refer to the manual for VxWorks.
- 6) When the operation status is changed from RUN to STOP/PAUSE
 When the operation status of the C Controller module is changed from RUN to STOP/PAUSE, the user program task does not stop.
 Use the QBF_Read StatusEx function when splitting the user program processing according to the operation status of the C Controller module.

7) Relation between system tasks and the system watchdog timer, user watchdog timer, and link device refresh cycles

When using any of the following functions, set a sufficiently long time for each of the system watchdog timer, user watchdog timer, and link device refresh cycles.

- Shell command
- Workbench/Tornado connection
- File access
- Mount/unmount of CompactFlash card
- Ethernet communications
- NFS server communication

If any of the above is used, CPU utilization for a system task with high priority may increase and a system watchdog timer error, a user watchdog timer error, and link refresh timeout may occur more frequently.

For the link refresh timeout, the rate of occurrence may also increase when bus interface driver processing (connections with peripheral devices or communication with an intelligent function module, etc.) is used.

8) Common restrictions

For restrictions common to the bus interface functions and MELSEC data link functions, refer to the following.

 Page 9-26, "9.6 Precautions for Functions"

(b) Restrictions on the bus interface function

1) Clock setting

Do not set the clock of the C Controller module while the QBF_WaitEvent function or the QBF_WaitUnitEvent function is in process.

2) Execution results of remote STOP/PAUSE and the bus interface function


When the operation status of the C Controller module is either the remote STOP or remote PAUSE, the following execution results will be an error during STOP/PAUSE.

- Output (Y) (QBF_Y_OutBitEx function, QBF_Y_OutWordEx function)
- Writing to buffer memory (QBF_ToBuf function)

The Y output and writing to buffer memory can be executed from the <<Module monitoring>> tab of the C Controller setting utility.

3) Restrictions on the bus interface function

Refer to the following.

 Page 9-23, "9.5 Programming Flow for Bus Interface Functions"

(c) Precautions on MELSEC data link functions

Opening and closing of a communication line (mdOpen and mdClose functions) is allowed only once each at the start (task start) and the end (task end) of each user program.

Repeating opening/closing in every communication degrades communication performance.

For the Q06CCPU-V-B, the MELSEC data link functions cannot be used.

For restrictions on MELSEC data link functions, refer to the following.

 Page 10-5, "10.5 MELSEC Data Link Function Programming Flow"

(d) Login user

1) Default account

To prevent illegal access, delete the default account (User name and password) using the loginUserDelete function.

2) Retaining login user setting

The login user settings are cleared and return to default when the C Controller module is powered off or is reset.

To retain the login user settings, describe a registration (adding/deleting) of the settings in a script file.

Describe either of the following in the script file.

- Directly describe the login user operation commands (loginUserAdd function or loginUserDelete function).
- Provide a description that starts the user program task for login user operation.


For login user settings, refer to the C Controller Module User's Manual (Hardware Design, Function Explanation).

(e) Power off and reset during writing a user file


Data corruption or a file system error may occur if the C Controller system is powered off or is reset (including remote RESET) during writing data to a user file in the standard RAM, standard ROM, or CompactFlash card.

To power off or reset the C Controller system during writing data to a user file in the standard RAM, standard ROM, or CompactFlash card, perform the following first.

1) When writing data to a file in the standard RAM or standard ROM

Close the file where data are being written. (Program example  Page 12-1, CHAPTER 12)

2) When writing data to a file in a CompactFlash card

Close the file where data are being written, and unmount the CompactFlash card. (Program example  Page 12-1, CHAPTER 12)

For the stop processing of the CompactFlash card, refer to the C Controller Module User's Manual (Hardware Design, Function Explanation).

(f) Watchdog timer

A user watchdog timer error occurs when the user watchdog timer cannot be reset due to some reasons such as user program runaway.

When a user watchdog timer occurs, perform the following.

- Increase the WDT time set by the QBF_StartWDT function.
- Lower the CPU utilization of tasks that require high utilization.
Or set them not to operate.
- Review user programs.

After the above operations, reset the C Controller system.

For resetting, refer to the C Controller Module User's Manual (Hardware Design, Function Explanation).


(g) IP address

The IP address of the C Controller module cannot be set from a user program. Set in the <<Online operation>> tab of C Controller setting utility.


(h) Script file "STARTUP.CMD"

In the script file, describe commands for setting a login user (adding/deleting) and user program startups as necessary.

- Setting a login user

 C Controller Module User's Manual (Hardware Design, Function Explanation)

- Creating a script file

 Page 9-51, "9.9 Creating a Script File "STARTUP.CMD""


(i) Task activation

Always specify the VX_FP_TASK option for the third argument of taskSpawn when activating a task that:


- Performs floating-point operations.
- Calls a function that returns a floating-point value.
- Calls a function that takes a floating-point value as an argument.

If the above task is activated without the VX_FP_TASK option specified, the operating system may run away.

When specifying the VX_FP_TASK option in a script file, refer to the following.

 Page 9-51, Section 9.9 (2)


For details on the VX_FP_TASK option, refer to the following.

 Manuals for VxWorks


(4) Precautions for program debugging

(a) VxWorks image file

When debugging a user program, specify the VxWorks image file same as the one in the C Controller module to Workbench or to Tornado.

The serial No. and function version of the file to be specified must be identical with those of the C Controller module. (Example for Q12DCCPU-V: Q12DCCPU-V_10121-B) ( Page 9-31, Section 9.7)


1) When VxWorks image files are not identical

When the VxWorks image file in the development environment (personal computer) and in the C Controller module are not identical, copy the image file in the C Controller module into the development environment (personal computer). ( Page 9-46, Section 9.8)

The image file of the C Controller is stored in the system drive (/SYSTEMROM/OS_IMAGEFILE).

2) When connected with the different VxWorks image file specified

When the VxWorks image file in the C Controller module and in Workbench or Tornado are not identical, a system watchdog timer error may occur in the C Controller module.

In addition, debugging cannot be performed normally. ( Page 9-31, Section 9.7)

(b) Precautions for Telnet connection

If the line is disconnected during use of Telnet, it cannot be reconnected until TCP connection including the Telnet on the C Controller module side is timed out. If this occurs, reconnect it after timeout.

The timeout time for the C Controller module side Telnet (TCP) connection can be changed by setting the values in the calculation formula by the following setting methods.

[Calculation formula for the Q12DCCPU-V]

The timeout time is determined by the following calculation formula.

Timeout time =	net.inet.tcp.keepidle
	+ (net.inet.tcp.keepintvl × 8 (number of retries) ^{*1}) [ms]
	Initial value for C Controller module: 30000 (30 seconds)
	Initial value for VxWorks: 7800000 (2 hours and 10 minutes)

net.inet.tcp.keepidle: Time from line disconnection to the first retry (ms)

Initial value for C Controller module: 22000

Initial value for VxWorks: 7200000

net.inet.tcp.keepintvl: Retry interval (ms)

Initial value for C Controller module: 1000

Initial value of VxWorks: 75000

* 1 The number of retries cannot be changed.

[Setting method for the Q12DCCPU-V]

The following explains how to set the initial value to 30 seconds.

• Setting while the C Controller module is in operation

- 1) Connect the line to the C Controller module with the Telnet tool.
- 2) Execute the following two Sysctl() commands with the Telnet tool to set the timeout time to the initial value.

Sysctl("net.inet.tcp.keepidle = 22000") Sysctl("net.inet.tcp.keepintvl = 1000")
--

- 3) Close the Telnet connection.

• Setting at the timing of starting C Controller module

- 1) Describe the following two Sysctl() commands on the script file, "STARTUP.CMD".

Sysctl("net.inet.tcp.keepidle = 22000") Sysctl("net.inet.tcp.keepintvl = 1000")
--

- 2) Write the above script file, "STARTUP.CMD" to a CompactFlash card, and insert it into the C Controller module.
- 3) Upon start of the C Controller module, the timeout time is set to the initial value.

[Calculation for the Q06CCPU-V(-B)]

The timeout time is determined by the following calculation formula.

$$\text{Timeout time} = \text{tcp_keepidle} + (\text{tcp_keepintvl} \div 2 \times \text{tcp_keepcnt}) [\text{s}]$$

Initial value: 15000 (4 hours and 10 minutes)

tcp_keepidle: Time from line disconnection to the first retry (s)

Initial value: 14400

tcp_keepintvl: Retry interval (in 0.5s units)

Initial value: 150

tcp_keepcnt: Number of retries

Initial value: 8

[Settings methods for the Q06CCPU-V(-B)]

The following explains how to set the initial value to 4 hours and 10 minutes.

- Setting while the C Controller module is in operation
 - 1) Connect the line to the C Controller module with the Telnet tool.
 - 2) Set the following three external variables with the Telnet tool to change the timeout time to the initial value.

```
tcp_keepidle = 14400
tcp_keepintvl = 150
tcp_keepcnt = 8
```

- 3) Close the Telnet connection.

- Setting at the timing of starting the C Controller module
 - 1) Describe the following three external variable settings on the script file, "STARTUP.CMD".

```
tcp_keepidle = 14400
tcp_keepintvl = 150
tcp_keepcnt = 8
```

- 2) Write the above script file, "STARTUP.CMD" to a CompactFlash card, and insert it into the C Controller module.
- 3) Upon start of the C Controller module, the timeout time is set to the initial value.

(c) Precautions for executing the Shell command from Workbench Shell or Tornado Shell, or the Telnet tool

1) When executing the Shell command from Workbench Shell or Tornado Shell

Pay attention to the following since the entered Shell commands operate on the task of priority 1 in the C Controller module.

- Only alphanumeric characters and special characters can be used.
- Some commands, such as those exclusively using the CPU module and those including characters other than alphanumeric characters and special characters, may be regarded as a command causing a watchdog timeout error, a control code (such as "CTRL + X"), or being garbled. As a result, a system error, such as a system watchdog timer error, or stop may occur in the C Controller module. Pay full attention to the command when entering it.
- Some commands (example: the status-indicating Show command) may disable an interrupt for a long time.

During the time, processing called from an interrupt routine (interrupt program) (example: bus interface function for ISR) is not executed.

Interrupts that are expected to occur at fixed intervals, such as multiple CPU synchronous interrupt, may delay. When executing a command, pay attention to the above.

A VxWorks message may appear on Shell during connecting from Shell to the C Controller module.

For messages of VxWorks, refer to the manual for VxWorks, Workbench, or Tornado.

2) When executing the Shell command from the Telnet tool

When executing a Shell command from the Telnet tool, make one-to-one connection between the Telnet tool and the C Controller module.

Connection cannot be made from multiple Telnet tools to the same C Controller module.

When exchanging the Telnet tool with another, first close the connection with the currently used Telnet tool, and then connect the line to the C Controller module from another Telnet tool.

For Telnet functions, refer to C Controller Module User's Manual (Hardware Design, Function Explanation).

The Shell commands entered by the Telnet tool of the development environment (personal computer) operate on the task of the following priorities in the C Controller module.

C Controller module	Priority
Q12DCCPU-V	1
Q06CCPU-V(-B)	2

When using Shell commands, pay attention to the following:

- Only alphanumeric characters and special characters can be used.
- Some commands, such as those exclusively using the CPU module and those including characters other than alphanumeric characters and special characters, may be regarded as a command causing a watchdog timeout error, a control code (such as "CTRL + X"), or being garbled. As a result, a system error, such as a system watchdog timer error, or stop may occur in the C Controller module. Pay full attention to the command when entering it.
- Some commands (example: the status-indicating Show command) may disable an interrupt for a long time.
During the time, processing called from an interrupt routine (interrupt program) (example: bus interface function for ISR) is not executed. Interrupts that are expected to occur at fixed intervals, such as multiple CPU synchronous interrupt, may delay. When executing a command, pay attention to the above.

A VxWorks message may appear on the Telnet tool screen during a Telnet connection to the C Controller module.

For messages of VxWorks, refer to the manual for VxWorks, Workbench, or Tornado.

3) When executing the Shell command from Workbench Shell or Tornado Shell, or the Telnet tool

- Execution of VxWorks reboot command
Do not reboot VxWorks by executing the reboot function or pressing the CTRL + X keys.*1
If VxWorks is rebooted, the C Controller module does not start properly. Reset it in the C Controller module.
For resetting, refer to the C Controller Module User's Manual (Hardware Design, Function Explanation).

* 1 Do not enter characters other than alphanumeric characters or special characters in Shell either since they may be regarded as a control code.

- Execution of command without argument specified
If a command that requires an argument is executed without an argument specified, 0 is substituted for the argument. Some commands causes a system error or stop (such as a system watchdog timer error) in the C Controller module.
Before executing a command, confirm the specifications and specified argument of the command.

Example)

Do not execute the "close" command without an argument. If executed, the resource reserved in the VxWorks system will be closed.

(5) Precautions for use of FTP

(a) When reading out files from the C Controller module

A 426 (Data connection error) occurs if many files are read (downloaded) by using FTP.

In that case, take following actions and read files again.

- Decrease the number of files to read
- Read the files in several batches.

(6) Precautions for the Wind River Systems product

The C Controller module has an embedded real-time operating system, VxWorks, made and sold by Wind River Systems, Inc. in the United States.

We, Mitsubishi, make no warranty for the Wind River Systems product and will not be liable for any problems and damages caused by the Wind River Systems product during use of the C Controller module.

For the problems or specifications of the Wind River Systems product, refer to the corresponding manual or consult Wind River Systems, Inc.

Contact information is available on the following website.

www.windriver.com

INTRODUCTION

Thank you for purchasing the C Controller module.

Before using this product, please read this manual carefully and develop familiarity with the functions and performance of the C Controller module to handle the product correctly.

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ABOUT MANUALS

The following manuals are relevant to this product.
Order each manual as needed, referring to the table below.

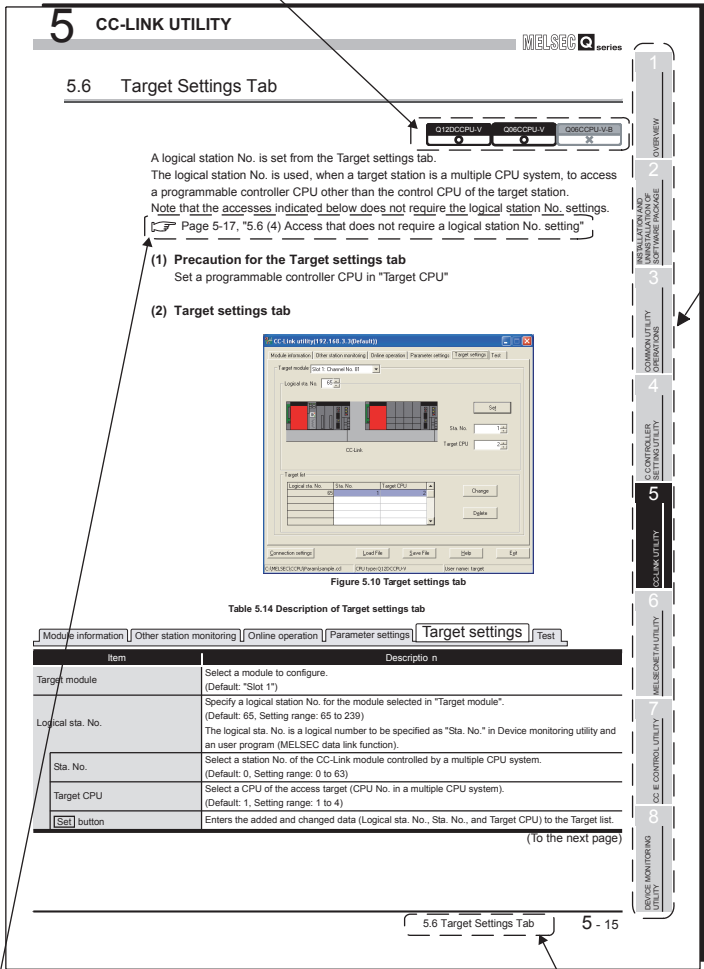
Relevant manuals

Manual name	Manual number (code)
C Controller Module User's Manual (Hardware Design, Function Explanation) Describes the system configuration, specifications, functions, handling instructions, wiring, and troubleshooting of the C Controller module (Q12DCCPU-V (Basic mode), Q06CCPU-V, Q06CCPU-V-B). (Sold separately)	SH-080766ENG (13JZ17)
MELSEC-Q C Controller Module User's Manual Describes the system configuration, specifications, functions, handling instructions, wiring, troubleshooting, and programming and function of C Controller module (Q24DHCCPU-V, Q24DHCCPU-VG, Q24DHCCPU-LS, Q26DHCCPU-LS, and Q12DCCPU-V (Extended mode)). (Sold separately)	SH-081130ENG (13JZ75)
Setting/Monitoring Tools for the C Controller Module Version 4 Operating Manual Describes the system configuration and operation method of Setting/Monitoring Tools for the C Controller Module (SW4PVC-CCPU). (Sold separately)	SH-081131ENG (13JU76)
CW Workbench Operating Manual Describes the system configuration, installation/uninstallation, specifications, functions, and troubleshooting of the product. (Sold separately)	SH-080982ENG (13JU71)
CW-Sim Operating Manual Describes the system configuration, specifications, functions, and troubleshooting of CW-Sim. (Sold separately)	SH-081159ENG (13JU77)
QCPU User's Manual (Hardware Design, Maintenance and Inspection) Describes the specifications of CPU modules, power supply modules, base units, extension cables, and memory cards, and others. (Sold separately)	SH-080483ENG (13JR73)
QCPU User's Manual (Multiple CPU system) Describes the information on configuring a multiple CPU system: overview, system configuration, I/O numbers, communication between CPU modules, and communication with the I/O modules and intelligent function modules. (Sold separately)	SH-080485ENG (13JR75)
MELSEC-Q CC-Link System Master/Local Module User's Manual Describes the system configurations, performance specifications, functions, handling instructions, wiring, and troubleshooting for the CC-Link modules. (Sold separately)	SH-080394E (13JR64)
Q Corresponding MELSECNET/H Network System Reference Manual (PLC to PLC network) Describes the PLC-to-PLC network specifications, preparatory procedures and settings, parameter setting, programing, and troubleshooting for the MELSECNET/H network system. (Sold separately)	SH-080049 (13JF92)
MELSEC-Q CC-Link IE Controller Network Reference Manual Describes the system configurations, performance specifications, functions, handling instructions, wiring, and troubleshooting for the CC-Link IE Controller Network system. (Sold separately)	SH-080668ENG (13JV16)

MANUAL PAGE ORGANIZATION

Relevant models
Whether the description of the section applies to each model or not is shown in the table.

Chapter
The chapter of the current page can be easily identified by this indication on the right side.



Reference
The section in this manual or another relevant manual that can be referred to is shown after .

Section and title
The section number and title of the current page can be easily identified.

* The above page illustration is for explanation purpose only, and is different from the actual page.

Icon			Description
Q12DCCPU-V	Q06CCPU-V	Q06CCPU-V-B	
			All or part of the description applies each model.
			The description applies to each model with some restrictions.
			The description does not apply to each model.

HOW TO USE THIS MANUAL

This manual is used to develop familiarity with parameter settings, monitoring, and programming required for using the C Controller module.

Refer to the following list when using this manual.

Chapter	Description
CHAPTER 1	Features of SW3PVC-CCPU
CHAPTER 2	Operating environment, installing, uninstalling of SW3PVC-CCPU
CHAPTER 3 to CHAPTER 8	Parameter settings and monitoring using utility
CHAPTER 9 to CHAPTER 12	Programming of the C Controller module
CHAPTER 13	Event numbers of the C Controller module

Remark

.....







This manual does not explain the features, system configurations, specifications, handling instructions, wiring, or troubleshooting of the C Controller module. For details of the above, refer to C Controller Module User's Manual (Hardware Design, Function Explanation).

.....

GENERIC TERMS AND ABBREVIATIONS

Unless otherwise specified, this manual uses the following generic terms and abbreviations to explain the C Controller module.

(1) C Controller module and SW3PVC-CCPU

Generic term/abbreviation	Description
Q12DCCPU-V	Abbreviation for the Q12DCCPU-V C Controller module In principle, 'Q12DCCPU-V' indicates Q12DCCPU-V (Basic mode). When the classification is needed for such as comparison with other modes, 'Q12DCCPU-V (Basic mode)' and 'Q12DCCPU-V (Extended mode)' are mentioned.
Q12DCCPU-V (Basic mode)	Status that Q12DCCPU-V is initialized with the basic mode
Q12DCCPU-V (Extended mode)	Status that Q12DCCPU-V is initialized with the extended mode For Q12DCCPU-V (Extended mode), refer to the following manual.  MELSEC-Q C Controller Module User's Manual
Q06CCPU-V	Abbreviation for the Q06CCPU-V C Controller module
Q06CCPU-V-B	Abbreviation for the Q06CCPU-V-B C Controller module
Q06CCPU-V(-B)	Generic term for the Q06CCPU-V and Q06CCPU-V-B
Q24DHCCPU-V	Abbreviation for the Q24DHCCPU-V C Controller module For Q24DHCCPU-V, refer to the following manual.  MELSEC-Q C Controller Module User's Manual
Q24DHCCPU-VG	Abbreviation for the Q24DHCCPU-VG C Controller module For Q24DHCCPU-VG, refer to the following manual.  MELSEC-Q C Controller Module User's Manual
Q24DHCCPU-LS	Abbreviation for the Q24DHCCPU-LS C Controller module For Q24DHCCPU-LS, refer to the following manual.  MELSEC-Q C Controller Module User's Manual
Q26DHCCPU-LS	Abbreviation for the Q26DHCCPU-LS C Controller module For Q26DHCCPU-LS, refer to the following manual.  MELSEC-Q C Controller Module User's Manual
C Controller module	Generic term for the Q12DCCPU-V, Q06CCPU-V, Q06CCPU-V-B, Q24DHCCPU-V, Q24DHCCPU-VG, Q24DHCCPU-LS, and Q26DHCCPU-LS
SW3PVC-CCPU	Abbreviation for Setting/Monitoring Tools for the C Controller Module (SW3PVC-CCPU-E)
SW4PVC-CCPU	Abbreviation for Setting/Monitoring Tools for the C Controller Module (SW4PVC-CCPU-E) For SW4PVC-CCPU, refer to the following manual.  Setting/Monitoring Tools for the C Controller Module Operating Manual

(2) CPU modules

Generic term/abbreviation	Description
ACPU	Generic term for the A1NCPU, A0J2HCPU, A1SCPU, A1SHCPU, A1SJCPU, A1SJHCPU, A2CCPU, A2CJCPU, A2NCPU, A2NCPU-S1, A2SCPU, A2SHCPU, A2ACPU, A2ACPU-S1, A2UCPU, A2UCPU-S1, A2USCPU, A2USCPU-S1, A2USHCPU-S1, A3NCPU, A3ACPU, A3UCPU, and A4UCPU
QnACPU	Generic term for the Q2ACPU, Q2ACPU-S1, Q2ASCPU, Q2ASCPU-S1, Q2ASHCPU, Q2ASHCPU-S1, Q3ACPU, Q4ACPU, and Q4ARCPU
QCPU (A mode)	Generic term for the Q02CPU-A, Q02HCPU-A, and Q06HCPU-A
Basic model QCPU	Generic term for the Q00CPU and Q01CPU
High Performance model QCPU	Generic term for the Q02CPU, Q02HCPU, Q06HCPU, Q12HCPU, and Q25HCPU
Process CPU	Generic term for the Q02PHCPU, Q06PHCPU, Q12PHCPU, and Q25PHCPU
Redundant CPU	Generic term for the Q12PRHCPU and Q25PRHCPU
Universal model QCPU	Generic term for the Q00UJCPU, Q00UCPU, Q01UCPU, Q02UCPU, Q03UDCPU, Q04UDHCPU, Q06UDHCPU, Q10UDHCPU, Q13UDHCPU, Q20UDHCPU, Q26UDHCPU, Q03UDECPU, Q04UDEHCPU, Q06UDEHCPU, Q10UDEHCPU, Q13UDEHCPU, Q20UDEHCPU, Q26UDEHCPU, Q50UDEHCPU, Q100UDEHCPU, Q03UDVCPU, Q04UDVCPU, Q06UDVCPU, Q13UDVCPU, and Q26UDVCPU
QCPU (Q mode)	Generic term for the Basic model QCPU, High Performance model QCPU, Process CPU, Redundant CPU, and Universal model QCPU
LCPU	Generic term for the L02CPU and L26CPU-BT
Motion CPU	Generic term for the Q172CPUN, Q172CPUN-T, Q172HCPU, Q172HCPU-T, Q173CPUN, Q173CPUN-T, Q173HCPU, Q173HCPU-T, Q172DCPU and Q173DCPU
CPU module	Generic term for the C Controller module, QCPU(Q mode), and Motion CPU
Single CPU system	Control system where the C Controller module is mounted in the CPU slot
Multiple CPU system	Control system where multiple CPU modules are mounted on a main base unit
Control CPU	CPU module that controls I/O modules and intelligent function modules mounted on the main base unit and extension base units. Example: When CPU No. 2 controls a module mounted in Slot 3, CPU No.2 is the control CPU of the module in Slot 3.
Controlled module	I/O module and intelligent function module controlled by a control CPU. Example: When CPU No.2 controls a module mounted in Slot 3, the module in Slot 3 is the controlled module of CPU No.2.
Non-controlled module (Non-group module)	I/O module and intelligent function module other than controlled modules. Example: When CPU No. 2 controls a module mounted in Slot 3, the module in the Slot 3 is the non-controlled module of CPU No.1 and 3.
Non-control CPU	CPU module that is not a control CPU. Example: When CPU No. 2 controls the module mounted in Slot 3, the module in Slot 3 is a non-control CPU of CPUs No.1 and No.3.
Battery	Generic term for the Q6BAT and Q7BAT batteries for CPU module
PC CPU module	Abbreviation for the MELSEC-Q series PC CPU module manufactured by CONTEC Co., Ltd

(3) Network modules and PC boards

Generic term/abbreviation	Description
CC-Link module	Generic term for the QJ61BT11 and QJ61BT11N
CC-Link/LT module	Generic term for the QJ61CL12
CC-Link board	Generic term for the Q81BD-J61BT11 and Q80BD-J61BT11N CC-Link system master/local interface boards, A80BD-J61BT11 CC-Link system master/local interface board, and A80BD-J61BT13 CC-Link interface board
CC-Link IE Controller Network module	Generic term for the QJ71GP21-SX and QJ71GP21S-SX
CC-Link IE Controller Network interface board	Generic term for the Q80BD-J71GP21-SX and Q80BD-J71GP21S-SX CC-Link IE Controller Network interface boards
CC-Link IE Field Network master/local module	Abbreviation for the QJ71GF11-T2 CC-Link IE Field Network master/local module
MELSECNET/H module	Generic term for the QJ71LP21-25, QJ71LP21S-25, QJ71LP21G, QJ71LP21GE, QJ72LP25-25, QJ72LP25G, QJ72LP25GE, QJ71BR11, QJ72BR15, and QJ71NT11B
MELSECNET/H interface board	Generic term for the Q81BD-J71LP21-25, Q80BD-J71LP21-25, Q80BD-J71LP21G, Q80BD-J71LP21S-25, and Q80BD-J71BR11 MELSECNET/H interface boards

(4) Power supply modules and base units

Generic term/abbreviation	Description
Q3□B	Generic term for the Q33B, Q35B, Q38B, and Q312B main base units on which the CPU modules, Q series power supply module, Q series I/O modules, and intelligent function modules can be mounted
Q3□SB	Generic term for the Q32SB, Q33SB, and Q35SB slim type main base units on which the C Controller module, Basic model QCPU, High Performance model QCPU, Universal model QCPU, slim type power supply module, Q series I/O modules, and intelligent function modules can be mounted
Q3□RB	Generic term for the Q38RB main base unit for redundant power supply system on which the CPU modules, redundant power supply module, Q series I/O modules, and intelligent function modules can be mounted
Q3□DB	Generic term for the Q35DB, Q38DB, and Q312DB multiple CPU high speed main base unit on which the CPU modules, Q series power supply module, Q series I/O modules, and intelligent function modules can be mounted
Q5□B	Generic term for the Q52B and Q55B extension base units on which the Q series I/O modules and intelligent function modules can be mounted
Q6□B	Generic term for the Q63B, Q65B, Q68B, and Q612B extension base units on which the Q series power supply modules, Q series I/O modules, and intelligent function modules can be mounted
Q6□RB	Generic term for the Q68RB extension base unit for redundant power supply system on which the redundant power supply modules, Q series I/O modules, and intelligent function modules can be mounted
QA1S6□B	Generic term for the QA1S65B and QA1S68B extension base units on which the AnS series power supply modules, AnS series I/O modules, and special function modules can be mounted
Main base unit	Generic term for the Q3□B, Q3□SB, Q3□RB, and Q3□DB
Extension base unit	Generic term for the Q5□B, Q6□B, Q6□RB, and QA1S6□B
Slim type main base unit	Generic term for the Q3□SB
Redundant power main base unit	Generic term for the Q3□RB
Redundant power extension base unit	Generic term for the Q6□RB
Multiple CPU high speed main base unit	Generic term for the Q3□DB
Base unit	Generic term for the main base unit, extension base unit, slim type main base unit, redundant power main base unit, redundant power extension base unit, and multiple CPU high speed main base unit
Redundant power supply base unit	Generic term for the redundant power main base unit and redundant power extension base unit
Q series power supply module	Generic term for the Q61P-A1, Q61P-A2, Q61P, Q61P-D, Q62P, Q63P, Q64P, and Q64PN power supply modules
Slim type power supply module	Generic term for the Q61SP slim type power supply module
Redundant power supply module	Generic term for the Q63RP, Q64RP power supply module for redundant power supply system
Power supply module	Generic term for the Q series power supply module, slim type power supply module, and redundant power supply module
Extension cable	Generic term for the QC05B, QC06B, QC12B, QC30B, QC50B, and QC100B extension cables
CPU slot	The slot on the right side of the power supply module on the main base unit

(5) Others

Generic term/abbreviation	Description
Q series	Abbreviation for the programmable controllers, MELSEC-Q series
AnS series	Abbreviation for the programmable controllers, compact MELSEC-A series
Ethernet	Generic term for the 100BASE-TX and 10BASE-T network systems
MELSECNET/H	Generic term for the Q series MELSECNET/H network system
GOT	Abbreviation for the Mitsubishi Graphic Operation Terminal
GX Works2	Product name of the software package for the MELSEC programmable controllers
GX Developer	
Windows Vista® or later	Generic term for the Windows Vista®, Windows® 7, Windows® 8, Windows® 8.1, Windows® 10
Windows® 7 or later	Generic term for the Windows® 7, Windows® 8, Windows® 8.1, Windows® 10
CW Workbench	The abbreviation for the engineering tool for C Controller, CW Workbench
Wind River Workbench	Abbreviation for Workbench 2.6.1 Update manufactured by Wind River Systems, Inc. For specifications and inquiries of Wind River Workbench, visit the website of Wind River Systems, Inc.: www.windriver.com
Workbench	Generic term for the CW Workbench and Wind River Workbench
Tornado	Abbreviation for Tornado 2.1.0 for Hitachi SuperH Cumulative patch 1 manufactured by Wind River Systems, Inc. For specifications and inquiries of Tornado, visit the website of Wind River Systems, Inc.: www.windriver.com
VxWorks	Product name of the real-time operating system manufactured by Wind River Systems, Inc.

GLOSSARY

Definitions of the terms used in this manual are explained below.

Term	Description
FTP	FTP is an abbreviation for File Transfer Protocol, which is used to transfer data files.
Telnet	Network protocol, or virtual terminal software, that enables remote login in TCP/IP networks.
CompactFlash card (CF card)	A storage card regulated by the 'CF+ and CompactFlash Specification' issued by the CompactFlash Association.
Bus interface functions	Functions offered by SW3PVC-CCPU The functions allow input to and output from the I/O modules that are controlled by C Controller modules, access to intelligent function module's buffer memories, and the status reading or control of the C Controller module.
MELSEC data link functions	Functions offered by SW3PVC-CCPU Communication-protocol-independent and standardized communication library. When creating programs for communication with programmable controller CPUs and C Controller modules, there is no need to consider the hardware or communication protocol of the communication target. The MELSEC data link functions support the following. <ul style="list-style-type: none">• Q series bus interface communication• CC-Link communication• MELSECNET/H communication• CC-Link IE Controller Network communication For the Q06CCPU-V-B, The MELSEC data link functions cannot be used.

PRODUCT ORGANIZATION

The following shows the C Controller-compatible software.

Supported software	C Controller			
	Q12DCCPU-V			Q06CCPU-V Q06CCPU-V-B
	"15102" or later* ¹		Earlier than "15102"* ¹	-
	Extended mode	Basic mode* ²		-
SW4PVC-CCPU	○	×	×	×
SW3PVC-CCPU	×	○	○	○

○: Available, ×: Not available

* 1 First five digits of serial number

* 2 For Q12DCCPU-V earlier than "15102", the mode cannot be changed. Q12DCCPU-V earlier than "15102" is regarded as the basic mode in this manual.

PACKING LIST

The following is the product line of the C Controller module.

Model name	Product name	Quantity
Q12DCCPU-V	Q12DCCPU-V C Controller module (Endian format (memory layout): Little endian)	1
	Battery (Q6BAT)	1
Q06CCPU-V	Q06CCPU-V C Controller module (Endian format (memory layout): Big endian)	1
	Battery (Q6BAT)	1
Q06CCPU-V-B* ¹	Q06CCPU-V-B C Controller module (Endian format (memory layout): Big endian)	1
	Battery (Q6BAT)	1
SW3PVC-CCPU-E	Setting/Monitoring Tools for the C Controller Module (Volume license product) (CD-ROM)	1
	Software License Agreement	1
	Software Registration Form	1
	License Agreement	1
	Industrial development tool purchasing form (Wind River Workbench) Industrial development tool purchasing form (Tornado)	1

* 1 Production of the Q06CCPU-V-B was discontinued in November, 2015.

CHAPTER 1 OVERVIEW

This manual explains the parameter setting, monitoring, and programming required for operation of the C Controller module.

For the features, system configuration, specifications, handling, wiring, and troubleshooting of the C Controller module, refer to the C Controller Module User's Manual (Hardware Design, Function Explanation).

(1) Manuals relevant to the C Controller module

The following list shows the manuals relevant to the C Controller module.

For details such as a manual No, refer to "ABOUT MANUALS" section in this manual.

Page A-21)

Table 1.1 Manuals relevant to the C Controller module






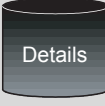
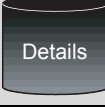
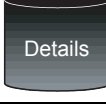

Purpose	C Controller Module User's Manual (Hardware)	C Controller Module User's Manual (Hardware Design, Function Explanation)	C Controller Module User's Manual (Utility Operation, Programming)	QCPU User's Manual (Hardware Design, Maintenance and Inspection)	QCPU User's Manual (Multiple CPU System)
Checking the part names and specifications of the C Controller module		*1			
Checking the specifications and method of selecting, mounting, and installing the power supply module and base units					
Checking the connecting methods of the power supply module, base units, and I/O module		*1			
Checking the functions of the C Controller module		*1			
Configuring a single CPU system (Start-up procedure and I/O No. assignment)		*1			
Configuring a multiple CPU system (Start-up procedure and I/O No. assignment)		*1			

(To the next page)


* 1 For Q24DHCCPU-V, Q24DHCCPU-VG, Q24DHCCPU-LS, Q26DHCCPU-LS, or Q12DCCPU-V (Extended mode), refer to the following manual.

MELSEC-Q C Controller Module User's Manual


Table 1.1 Manuals relevant to the C Controller module (continued)

					
Purpose	C Controller Module User's Manual (Hardware)	C Controller Module User's Manual (Hardware Design, Function Explanation)	C Controller Module User's Manual (Utility Operation, Programming)	QCPU User's Manual (Hardware Design, Maintenance and Inspection)	QCPU User's Manual (Multiple CPU System)
Parameter settings and monitoring			 *2		
Programming			 *1		
Troubleshooting and checking error codes		 *1			
Checking Event No.			 *1		

* 1 For Q24DHCCPU-V, Q24DHCCPU-VG, Q24DHCCPU-LS, Q26DHCCPU-LS, or Q12DCCPU-V (Extended mode), refer to the following manual.

 MELSEC-Q C Controller Module User's Manual

* 2 For Q24DHCCPU-V, Q24DHCCPU-VG, Q24DHCCPU-LS, Q26DHCCPU-LS, or Q12DCCPU-V (Extended mode), refer to the following manual.

 Setting/Monitoring Tools for the C Controller Module Operating Manual

1.1 Features

(1) Easy setting with utilities

Various settings, such as parameter setting for the C Controller module and multiple CPU setting, can be easily configured by using C Controller setting utility. Also, parameters for the following modules can be set, and device monitoring of an access target can be configured and executed.

- CC-Link modules
- MELSECNET/H modules
- CC-Link IE Controller Network modules

The setting items and functionalities vary depending on the model of the C Controller module.

For the functions of each utility, refer to the following.

☞ Page 3-1, "3.1 Utility List"

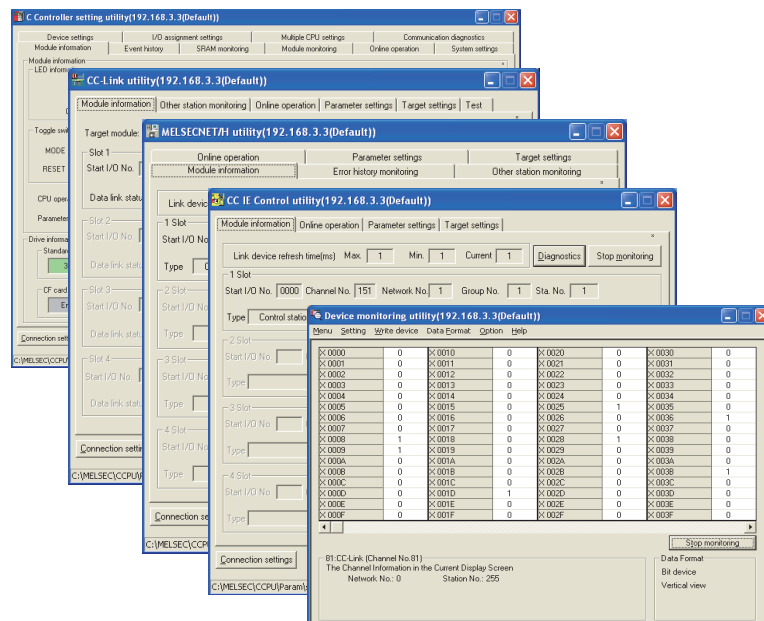


Figure 1.1 Utility screens

(2) Efficient development of user programs with integrated development environment

(a) For the Q12DCCPU-V

Workbench (CW Workbench or Wind River Workbench), an integrated development environment, provides efficient development of user programs with C or C++ language.

Providing a development group that covers all the developing processes from "software development", "system diagnostics", "testing", to "manufacturing", Workbench allows users to shorten development period and improve the quality. ICE is not required since debugging is available from a development environment (personal computer) by connecting it to the C Controller module by Ethernet. CW Workbench is an OEM product of Wind River Systems, Inc. The product has only basic functions required for user program development, such as coding, building, and debugging, as a subset product of Wind River Workbench3.2.

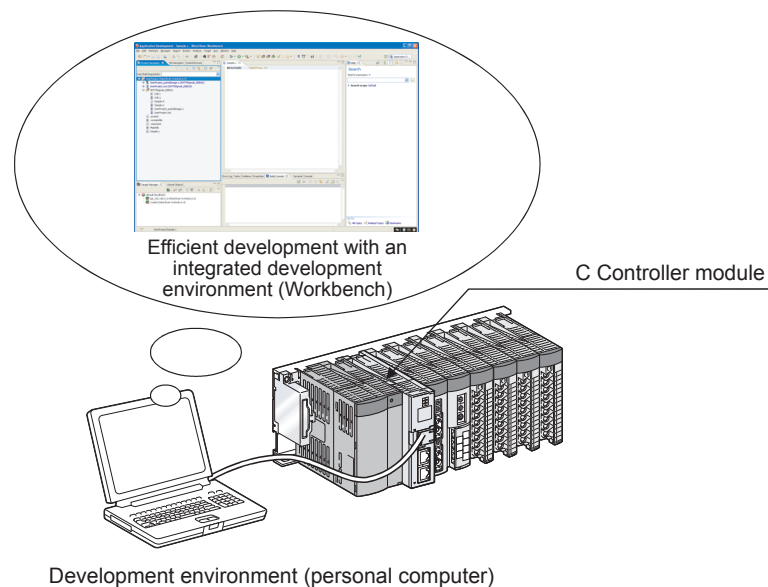


Figure 1.2 Development with Workbench

(b) For the Q06CCPU-V(-B)

Tornado, an integrated development environment, provides efficient development of user programs by using C or C++ language.

ICE is not required since debugging is available from a development environment (personal computer) by connecting it to the C Controller module by Ethernet.

CHAPTER 2 INSTALLATION AND UNINSTALLATION OF SOFTWARE PACKAGE

2.1 Development Environment

Table 2.1 Product requirements for SW3PVC-CCPU

Item	Description
Personal computer	PC-AT compatible machine running the following operating systems For writing user programs into a CompactFlash card, a personal computer supporting CompactFlash card is required.
CPU	☞ Page 2-2, "Table 2.2 Requirements for operating system and personal computer"
Memory	
Operating system (English version)	<ul style="list-style-type: none"> •Windows 10 (Home, Pro, Enterprise, Education) •Windows 8.1, Windows 8.1 (Pro, Enterprise) •Windows 8, Windows 8 (Pro, Enterprise) •Windows 7 (Starter, Home Premium, Professional, Ultimate, Enterprise)*¹ •Windows Vista[®] (Home Basic, Home Premium, Ultimate, Business, Enterprise)*¹ •Windows XP[®] (Professional SP2 or later)*¹ •Windows 2000 (Professional SP4 or later)
Development tool	—
Q12DCCPU-V	CW Workbench For product requirements for CW Workbench, refer to the CW Workbench Operating Manual. Wind River Workbench 2.6.1 Update For product requirements for Wind River Workbench, refer to the manual of Wind River Workbench.
Q06CCPU-V, Q06CCPU-V-B	Tornado 2.1.0 for Hitachi SuperH Cumulative patch 1 For product requirements for Tornado, refer to the manual of Tornado.
Display	Resolution 1024 × 768 dots or more
Disk space	250MB or more
Disk drive	CD-ROM disk drive
Ethernet card, board	10BASE-T, 100BASE-TX

* 1: 64-bit version is not supported.

2 INSTALLATION AND UNINSTALLATION OF SOFTWARE PACKAGE

Table 2.2 Requirements for operating system and personal computer

Operating system	Personal computer	
	CPU	Memory
Windows 10 (Home, Pro, Enterprise, Education)	Intel® Core™2 Duo 1GHz or more	1GB or more
Windows 8.1, Windows 8.1 (Pro, Enterprise)		
Windows 8, Windows 8 (Pro, Enterprise)		
Windows 7 (Starter, Home Premium, Professional, Ultimate, Enterprise)	Pentium® 1GHz or more	1GB or more
Windows Vista® (Home Basic, Home Premium, Ultimate, Business, Enterprise)		512MB or more
Windows XP® (Professional SP2)		256MB or more
Windows 2000 (Professional SP4)		

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C CONTROLLER SETTING UTILITY

5

CC-LINK UTILITY

6

MELSECNET/H UTILITY

7

CC IE CONTROL UTILITY

8

DEVICE MONITORING UTILITY

☒ POINT

1. When installing or uninstalling SW3PVC-CCPU and when operating utility, logon as a user with Administrator attribute.
 2. When using Windows 2000 Professional, large fonts (detailed setting in the screen properties) cannot be used.
If used, this product may not operate properly.
 3. When the following functions are used, this product may not run properly.
 - Application start-up in Windows compatibility mode
 - Fast user switching
 - Remote desktop
 - Windows XP Mode
 - Sleep mode
 - Windows Touch or Touch
 - Modern UI
 - Client Hyper-V
 4. In the following cases, the screen of this product may not work properly.
 - The size of the text and/or other items on the screen are changed to values other than default values (such as 96 DPI, 100%, and 9 pt).
 - The multi-display is set.
 5. Use the product as a standard user or an administrator for Windows 10, Windows 8.1, Windows 8, Windows 7, and Windows Vista.
-

2.2 Installation

(1) Preparation for installation

Before installation, perform the following.

- 1) Logon as a user with Administrator attribute.
- 2) Remove all the applications in the start up, restart Windows[®], and logon again as a user with Administrator attribute.
- 3) Change settings not to allow any update program of OS, such as Windows[®] Update, or other manufacturer's software, such as Java, to start automatically. The installer may not operate normally if an update program is activated.

☒ POINT

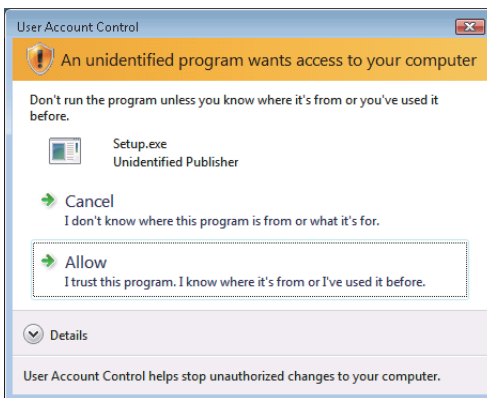
1. Installation of SW3PVC-CCPU by overwriting is available only onto the same version.
When installing any other version, uninstall the existing one before installation.
2. When installing SW3PVC-CCPU by overwriting, file backups are not necessary for the files stored by utility including a parameter setting file. Files stored in the "C:\MELSEC\CCPU\Param" folder will not be removed when installing SW3PVC-CCPU by overwriting.
3. If the installation failed, uninstall the SW3PVC-CCPU, restart Windows[®], and reinstall it.
4. Do not execute more than one "Setup.exe" in the CD-ROM at the same time. Doing so may cause the installation not to complete normally.
To reinstall the SW3PVC-CCPU, uninstall it and restart Windows[®].

(2) Installation procedure

- 1) Insert a CD-ROM, this product, to the CD-ROM drive.
- 2) Double-click "Setup.exe" in the CD-ROM folder to start the installer of SW3PVC-CCPU.
- 3) Proceed the installation following the instructions provided by the installer.
For the setting selection, refer to the following instruction.
☞ Page 2-5, "2.2 (2) (a) Selection operation during installation"
- 4) In Windows® XP, Windows Vista®, or Windows® 7 or later, if the Windows® Firewall was not turned on during the installation, turn it on, referring to the following.
☞ Page 2-7, "2.2 (3) Operation after installation"

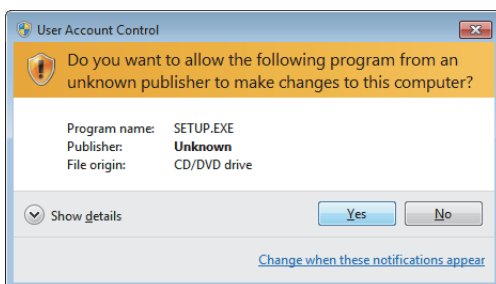
(a) Selection operation during installation

User Account Control (For Windows Vista®)



Click "Allow".

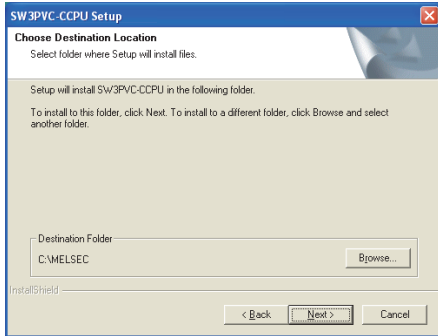
User Account Control (Windows® 7 or later)



Click the **YES** button.

(To the next page)

Selecting installation destination



Specify the folder of installation destination.

- When installation destination is "C:\MELSEC", click the **Next>** button.
- When installation destination is other than "C:\MELSEC", click the **Browse** button and specify the folder of installation destination.

Windows® Firewall setting (for Windows® XP, Windows Vista®, or Windows® 7 or later)

To connect the development environment (personal computer) to the C Controller module, turn on the Windows® Firewall.

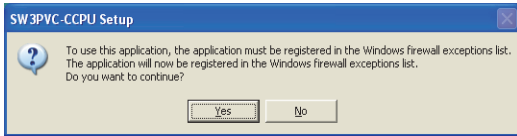
- For a quick setup, click the **YES** button. The connection will be automatically enabled.

However, if the Windows® Firewall is set up not to allow exceptional connections, manually set the Windows® Firewall, referring to the following.

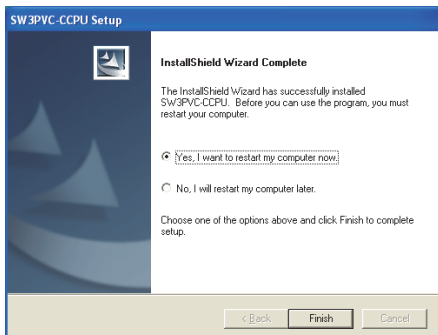
☞ Page 2-7, "2.2 (3) Operation after installation"

- To set it after installation, click the **NO** button. Be sure to refer to the following before manually setting the Windows® Firewall.

☞ Page 2-7, "2.2 (3) Operation after installation"



End of InstallShield Wizard



Restart Windows® at the end of the installation.

- (1) Eject the CD-ROM from the CD-ROM drive.
- (2) Select "Yes, I want to restart my computer now." and click the **Finish** button. Windows® is restarted and now SW3PVC-CCPU is operable.

(3) Operation after installation

(a) For Windows® XP or Windows Vista®

If the Windows® Firewall was not turned on during the installation, turn it on, referring to the following.

- 1 Open the Control Panel of Windows®, click the following option for the operating system, and then click Windows® Firewall.

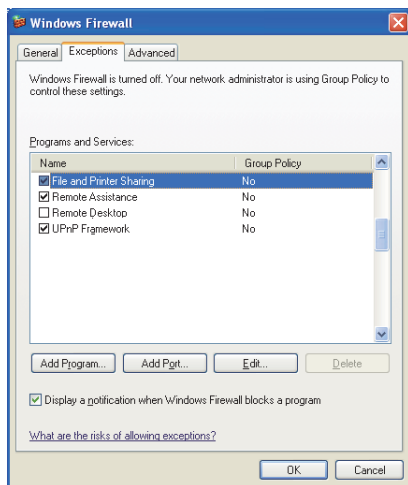
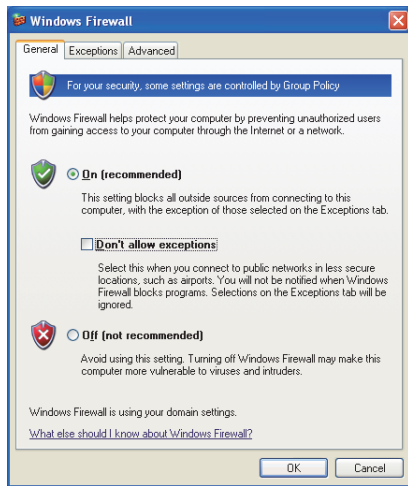
Table 2.3 Option

Operating system	Option
Windows® XP	Security Center
Windows Vista®	Security

- 2 Open the <<General>> tab, and clear the following checkbox.

Table 2.4 Checkbox

Operating system	Option
Windows® XP	Don't allow exceptions
Windows Vista®	Block all programs

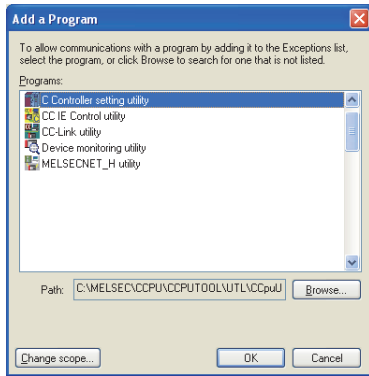


(To the next page)

- 3 Open the <<Exceptions>> tab. Check if all of the SW3PVC-CCPU utilities are displayed on the screen.

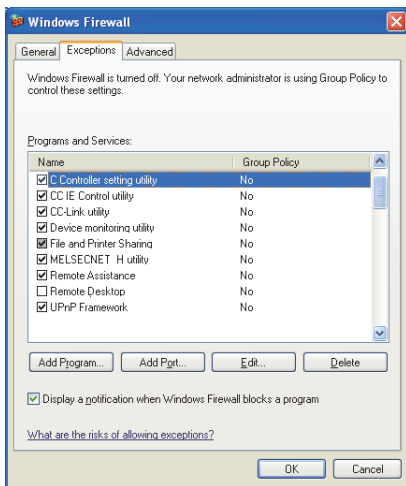
2 INSTALLATION AND UNINSTALLATION OF SOFTWARE PACKAGE

(From the previous page)



- 4 If no utility is displayed or any one is missing, click the **Add Program** button.

Select a utility of SW3PVC-CCPU, and click the **OK** button. Repeat this operation until all utilities of SW3PVC-CCPU are added.



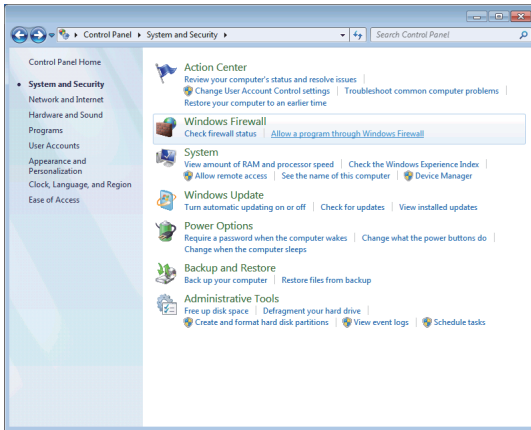
- 5 Select all utilities of SW3PVC-CCPU, and click the **OK** button.

(Completed)

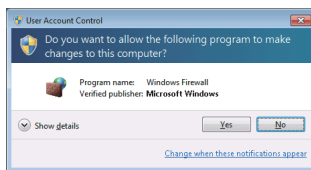
(b) For Windows® 7 or later

If the Windows® Firewall was not turned on during the installation, turn it on, referring to the following.

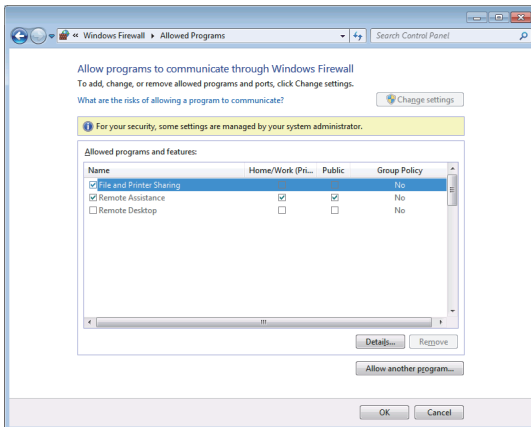
1 Open the Control Panel of Windows®, and click "System and Security".



2 Select "Allow a program through Windows Firewall" and click the **Change settings** button.



3 If the left dialog box appears, click the **Yes** button.

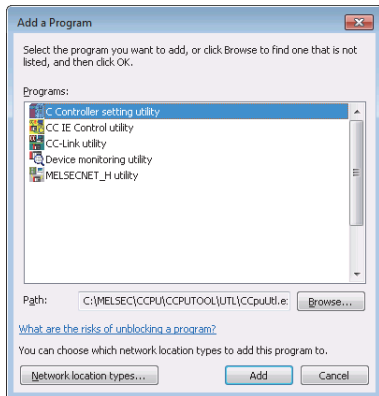


4 Check if all utilities of SW3PVC-CCPU are displayed on the screen.

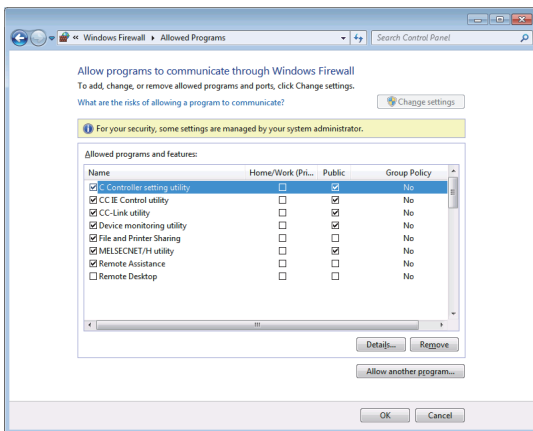
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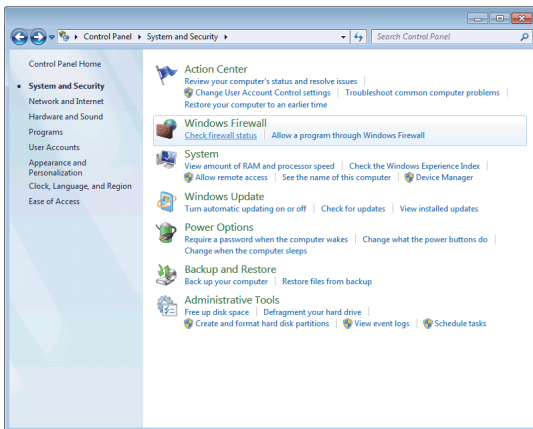
(From the previous page)



- 5 If no utility is displayed or any one is missing, click the **Allow another program** button to display the left dialog box. Select a utility of SW3PVC-CCPU, and click the **Add** button. Repeat this operation until all utilities of SW3PVC-CCPU are added.



- 6 Select the "Name" and "Public" checkboxes for all utilities of SW3PVC-CCPU, and click the **OK** button.



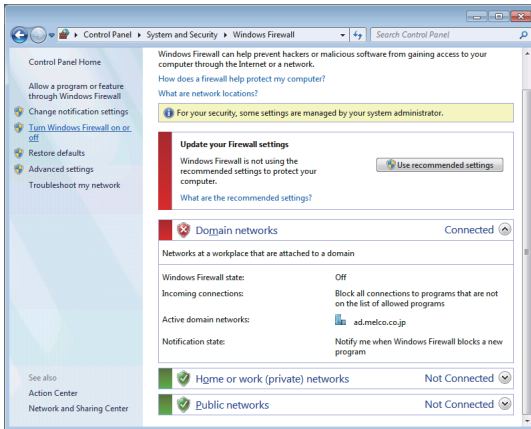
- 7 Click "Check firewall status".

(To the next page)

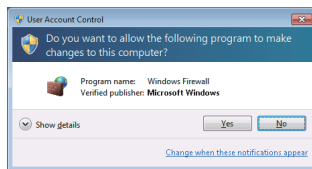
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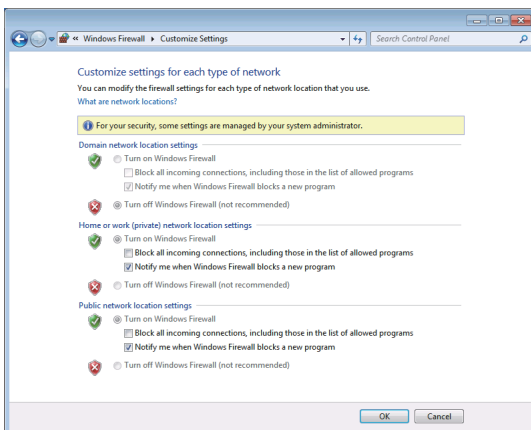
(From the previous page)



8 Click "Turn Windows Firewall on or off".



9 If the left dialog box appears, click the **Yes** button.



10 Check that the "Block all incoming connections, including those in the list of allowed programs" checkbox is not selected, and click the **OK** button.
If it is selected, clear the checkbox and click the **OK** button.



(Completed)

2.3 Uninstallation



(1) Preparation for uninstallation

Perform the following before uninstallation.

- 1) Logon as a user with Administrator attribute.
- 2) Terminate all the running utilities.

☒ POINT

1. If uninstallation cannot be performed, check if the following file names are displayed as image names in the process of task manager.
If displayed as image names, terminate the process before uninstalling again.
 - CCIECUtl.exe
 - CCInkUtl.exe
 - CCpuUtl.exe
 - MnethUtl.exe
 - RtDvmonUtl.exe
2. Uninstallation must be started from Control Panel.
3. To reinstall SW□PVC-CCPU, uninstall it, restart Windows®, and then reinstall.
4. Do not terminate uninstallation during processing.
If terminated, redo the uninstallation all over again.
If the uninstallation fails after terminating the uninstallation, reinstall the software and then uninstall it again.

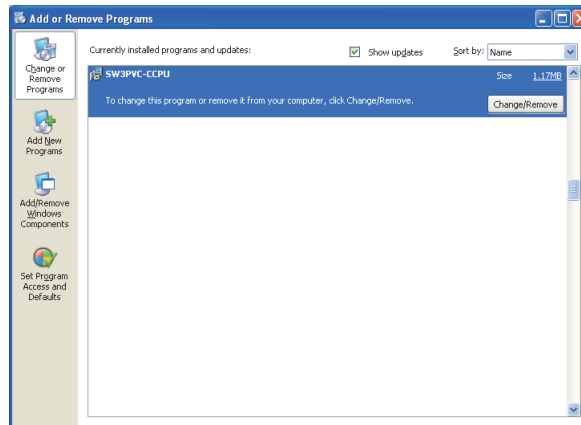
(2) Uninstallation procedure

- 1) Open the Control Panel of Windows®.
- 2) Open the screen for uninstallation on applicable operating system.

Table 2.5 Screen for uninstallation

Operating system	Screen
Windows® 2000 Professional	Add/Remove Programs
Windows® XP	Add or Remove Programs
Windows Vista® or later	Uninstall or Change a Program

- 3) Select SW3PVC-CCPU and activate the uninstaller.

**Figure 2.1 Add or Remove Programs**

- 4) Perform the uninstallation, following the instructions provided by the uninstaller.

CHAPTER 3 COMMON UTILITY OPERATIONS

3.1 Utility List

Q12DCCPU-V	Q06CCPU-V	Q06CCPU-V-B
○	○	△

Table 3.1 Utilities in SW3PVC-CCPU

Utility	Description	Availability			Reference page
		Q12DCCPU-V	Q06CCPU-V	Q06CCPU-V-B	
C Controller setting utility	Functions of C Controller setting utility are as follows. <ul style="list-style-type: none"> •Displays the module information (LED status, switch status, and error information and others) of a C Controller module •Displays event history •Monitors states (input, output, and buffer memories) of each module mounted with the C Controller module •Sets parameters •Operates the C Controller module online 	○	○	△	Page 4-1
CC-Link utility	Performs parameter setting, network monitoring, etc. of the CC-Link module controlled by the C Controller module.	○	○	△	Page 5-1
MELSECNET/H utility	Performs parameter setting, network monitoring, etc. of the MELSECNET/H module controlled by the C Controller module.	○	○	△	Page 6-1
CC IE Control utility	Performs parameter setting, network monitoring, etc. of the CC-Link IE Controller Network module controlled by the C Controller module.	○	○	×	Page 7-1
Device monitoring utility	Monitors and tests device data of the programmable controller CPU.	○	○	×	Page 8-1

○: Available, △: Available but partially restricted, ×: N/A

Remark

For functions added to the C Controller module and SW3PVC-CCPU and function versions and serial No.s of the CPU module that support the added functions, refer to the C Controller Module User's Manual (Hardware Design, Function Explanation).

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3.2 Activating Utility



To activate a utility, select the menu in [MELSEC] → [C Controller] from "Start" of Windows®*1.

* 1 [Start screen] → [All apps] or [Start] → [All Programs]

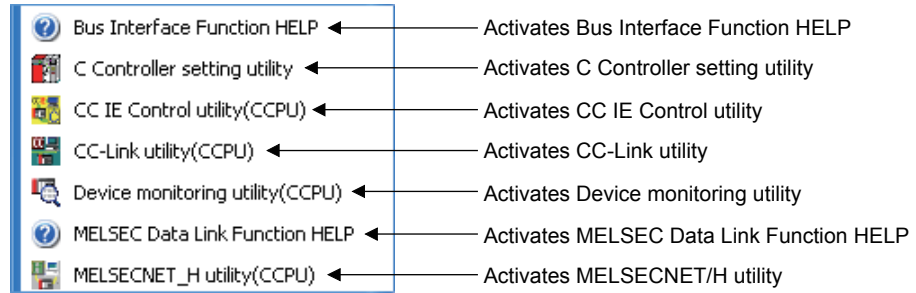


Figure 3.1 Items added to the Start menu

3.3 Exiting Utility



(1) Utility other than Device monitoring utility

To exit utility other than Device monitoring utility, click the **[Exit]** button at the bottom right of the screen.

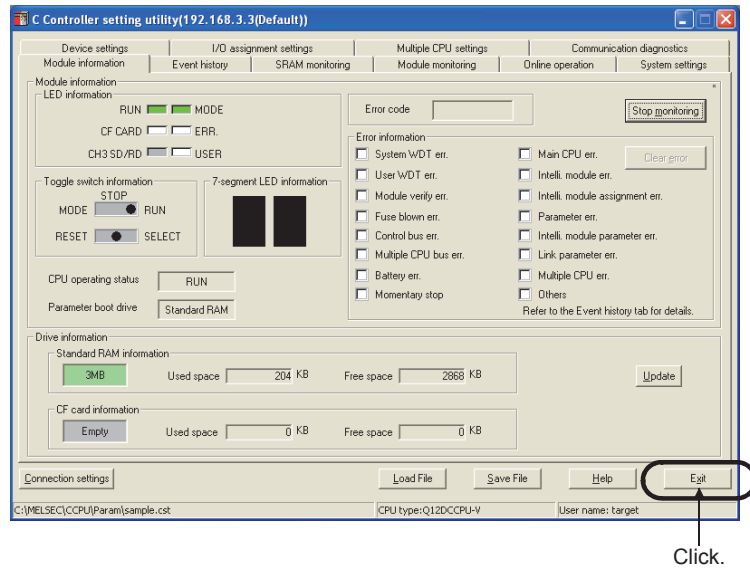


Figure 3.2 Exiting C Controller setting utility

(2) Device monitoring utility

To exit Device monitoring utility, select [Menu]→[Exit] on the menu bar.
As a dialog box appears, click the **[Yes]** button.

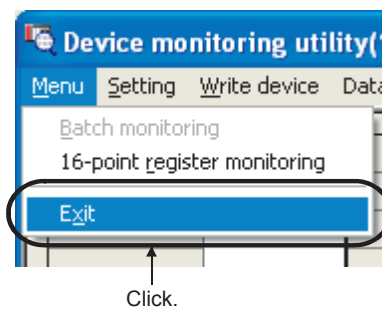


Figure 3.3 Exiting Device monitoring utility

3.4 Specifying CPU Type



Select the C Controller module for parameter setting and monitoring in utility other than Device monitoring utility.

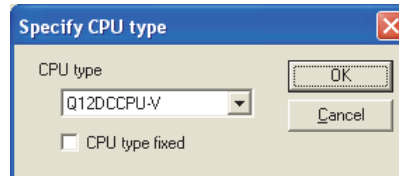


Figure 3.4 Specify CPU type screen

Table 3.2 Description of the Specify CPU type screen

Item	Description
CPU type	Specifies a C Controller module to which parameters are set or to be monitored. (Default: "Q12DCCPU-V")
CPU type fixed	The specified CPU type is fixed and this screen will not be displayed on and after next utility operation. To set back to the default (CPU type not fixed), select [Specify CPU type] in the system menu to open this screen and deselect the check box. (Default: Deselected (CPU type not fixed))
OK button	Sets the selected C Controller module as the CPU type and closes this screen.
Cancel button	Closes this screen without changing the CPU type.

Remark

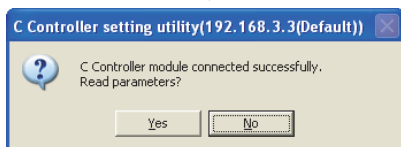
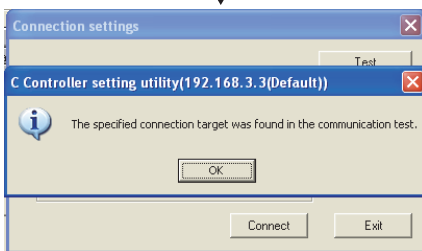
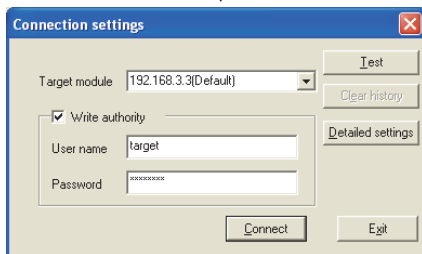
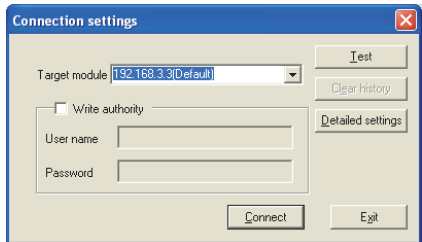
1. Changing CPU type
Select [Specify CPU type] from the system menu and change the CPU type.
(☞ Page 4-46, Section 4.12, Page 5-21, Section 5.8, Page 6-42, Section 6.8, Page 7-37, Section 7.7)
2. When writing parameters or performing communication processing such as monitoring to any other CPU type, change the CPU type on this screen in advance.
For the following communication processing, CPU type change is available in the processing.
 - Connection target settings
 - Parameter read

3.5 Setting Connection Target



Connect an development environment (personal computer) and the C Controller module.

(1) Operating procedure



(Completed)

- 1 Select "192.168.3.3 (Default)" in "Target module".
When the IP address of the C Controller module has been changed, enter the IP address or host name currently set.
- 2 Select the "Write authority" check box and enter the following.
User name: target
Password: password
When the account of the C Controller module has been changed, enter the user name and password currently set to the account.
- 3 Check the connectivity with the C Controller by clicking the **Test** button.
Note that in startup or after reset of the C Controller module, the timing to click the button differs according to the script file "STARTUP.CMD" usage.
The timing to click the **Test** button;
When executing "STARTUP.CMD":
After the RUN LED finished flashing
When not executing "STARTUP.CMD":
15 seconds after the startup or reset of the module.
- 4 Clicking the **Connect** button establishes a connection with the C Controller module, and the screen shown on the left appears.
Click the **Yes** button when reading out parameters from the C Controller module.

Remark

1. To read parameters from the C Controller module online, use the following drive.

Table 3.3 Drives used for reading parameters

Model	Drive
Q12DCCPU-V with serial No. (first 5 digits) "12042" or later	The drive in which parameters of the operating C Controller module are stored (Standard RAM or CompactFlash card)
Q12DCCPU-V with serial No. (first 5 digits) "12041" or earlier	Standard RAM
Q06CCPU-V(-B)	Standard ROM

2. If a utility communication error occurred after connecting, restart monitoring by clicking the button or set the connection target again in Connection settings.

(2) Connection settings screen

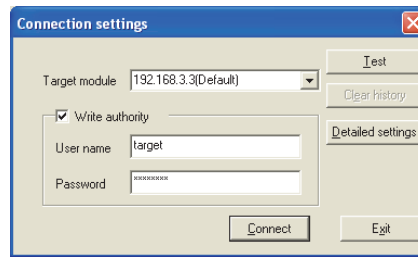


Figure 3.5 Connection settings screen

Table 3.4 Description of the Connection settings screen

Item	Description
Target module	<p>Enter the IP address or host name of the C Controller module to be connected.</p> <p>Click to allow selection from the following.</p> <ul style="list-style-type: none"> •Connection target history (Up to 8 data, common to all utilities) •"192.168.3.3 (Default)" •"Offline" (other than Device monitoring utility) <p>When entering a host name, do not set multiple IP addresses under the same host name. (If set, a communication is performed with the host whose IP address is last acquired.)</p>
Write authority	<p>Select the checkbox when writing parameters to the C Controller module.</p> <p>For "User name" and "password", enter the user name and password set to the account of the C Controller.</p>
User name	<p>Parameters cannot be written to the C Controller module if these are not set.</p> <p>These items cannot be set when:</p> <ul style="list-style-type: none"> •"Offline" is selected for "Target module" or •This screen has been opened from Device monitoring utility.
Password	<p>For restrictions on accessing to a login user, refer to the C Controller Module User's Manual (Hardware Design, Function Explanation).</p>
button	Checks the connectivity with the C Controller module specified in "Target module".
button	Clears the connection target log of "Target module".
button	Opens the Detailed settings screen. (Page 3-8, Section 3.5 (2) (a))
button	Establishes a connection with the C Controller module specified in "Target module". When "Write authority" is selected, the C Controller module authenticates the account.
button	Closes the Connection settings screen without changing the connection target.

(a) Detailed settings screen

Enter values in "Communication check time" and "Retry count" used in Ethernet communication between a development environment (personal computer) and the C Controller module.

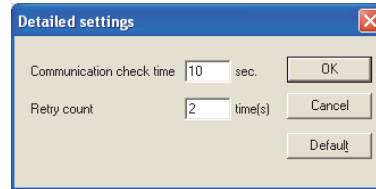


Figure 3.6 Detailed settings screen

Table 3.5 Description of the Detailed settings screen

Item	Description
Communication check time	Set a communication check time in Ethernet communication between the development environment (personal computer) and C Controller module. (Unit: seconds) (Default: 10, Setting range: 1 to 360)
Retry count	Set the number of retries in Ethernet communication between the development environment (personal computer) and C Controller module. (Default: 2, Setting range: 0 to 9)
<input type="button" value="OK"/> button	Enables the current settings and closes the Detailed settings screen.
<input type="button" value="Cancel"/> button	Closes the Detailed settings screen without enabling the settings.
<input type="button" value="Default"/> button	Sets the values entered in "Communication check time" and "Retry count" back to default.

POINT

Communication errors may occur in Ethernet communication between the development environment (personal computer) and the C Controller module depending on the line status. When a communication error has occurred, increase the setting value for "Communication check time" and/or "Retry count".

Remark

1. Offline operation
Parameters can be written to each utility offline.
When writing parameters, a connection must be established with the C Controller module.
2. Changing connection target
To connect with other target, open the "Connection settings" screen with the following operations and change the IP address or host name.
 - For other than Device monitoring utility
Click the Connection settings button at the bottom left of the screen.
 - For Device monitoring utility
Select [Setting]→[Connection settings] from the menu bar.
3. The connection target when other utility is started from the system menu.
Connection is established with the same C Controller module.
4. How to check the connection target and user name
Check on the title bar and status bar. (☞ Page 3-16, Section 3.9)
5. When the C Controller module specified in the CPU type on utility (other than Device monitoring utility) and the connection target C Controller module are not the same type.
Change the setting to the C Controller module that is to be connected as the CPU type, and then set it in Connection settings.
For changing the CPU type, refer to the following.
☞ Page 3-4, "3.4 Specifying CPU Type"

3.6 Displaying the Help Screen



(1) Utilities other than Device monitoring utility

To display the Help screen of utilities other than Device monitoring utility, click the **[Help]** button at the bottom right of the screen.

Alternatively, press the **[F1]** key while the utility is active.

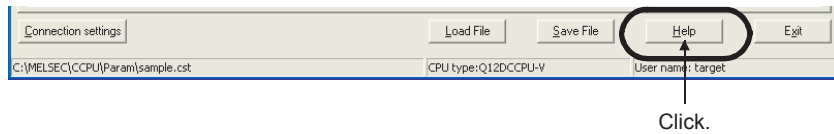


Figure 3.7 Starting Help of C Controller setting utility

(2) Device monitoring utility

To display the Help screen of Device monitoring utility, select **[Help]**→**[Help]** from the menu bar.

Alternatively, press the **[F1]** key while the utility is active.

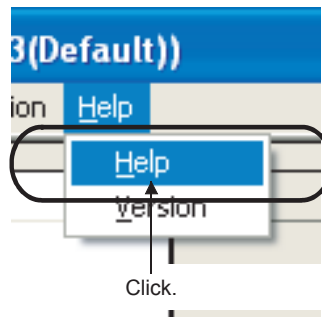


Figure 3.8 Starting Help of Device monitoring utility

(3) Windows Vista® or Windows® 7 or later

When using Windows Vista® or Windows® 7 or later, the screen below may appear instead of the Help screen.

Install the required software following the corrective action

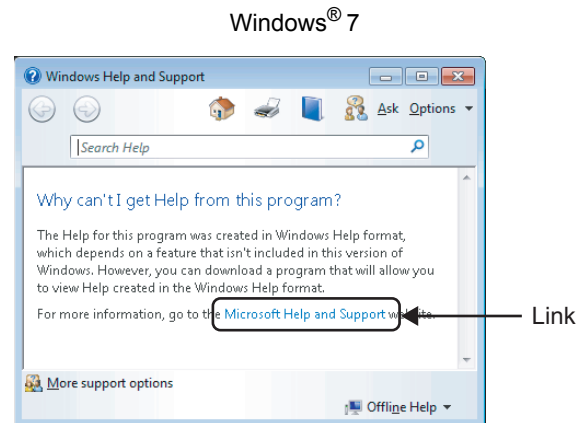


Figure 3.9 When the Help screen does not appear on Windows® 7

- (a) When a development environment (personal computer) is connectable to the internet:
- 1) Click the link shown on the screen above to display Microsoft® Help and Support article ID No.917607 on the web browser.
 - 2) Install WinHlp32.exe according to the instruction provided in the article ID No. 917607.
- (b) When a development environment (personal computer) is not connectable to the internet:
- 1) Use another personal computer connectable to the internet and go to the address below on the web browser to display Microsoft® Help and Support article ID No.917607.
support.microsoft.com/kb/917607
 - 2) Install WinHlp32.exe according to the instruction in the article ID No. 917607.
 - 3) Transfer WinHlp32.exe to the development environment (personal computer) and install it.

Remark

1. The Help screens in SW3PVC-CCPU cannot be displayed simultaneously.
Display one screen at a time.
If another Help screen is started while a Help screen is being displayed, the first one is closed to display the one last opened.
2. If an error occurs in the C Controller module (host CPU), the Help screen can be displayed from the System information screen of the C Controller setting utility. (☞ Page 4-17, Section 4.5 (3))

3.7 Checking Version



(1) Utilities other than Device monitoring utility

To check the version of utilities other than Device monitoring utility, select [Version information] in the system menu.

C Controller setting utility Page 4-46, Section 4.12

CC-Link utility Page 5-21, Section 5.8

MELSECNET/H utility Page 6-42, Section 6.8

CC IE Control utility Page 7-37, Section 7.7

(2) Device monitoring utility

To check the version of Device monitoring utility

(a) Operation

Click [Help]→[Version] from the menu bar to open the Version information screen.

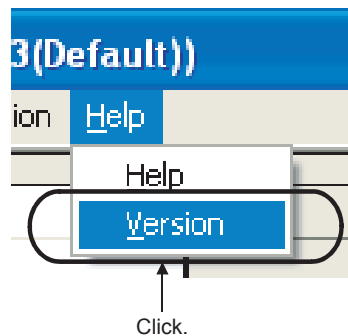


Figure 3.10 Checking version

(b) Version information screen

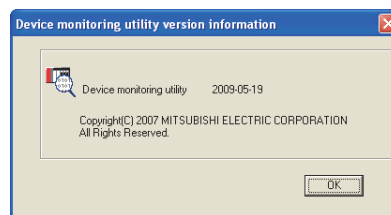


Figure 3.11 Version information screen

Table 3.6 Version information

Item	Description
Device monitoring utility	Displays the update date of Device monitoring utility.
button	Closes the version information screen.

3.8 Parameter Setting File



(1) Loading and saving parameter setting file

The following indicates the procedure of reading/saving a parameter setting file.

1) Click the **Load File** button to load a parameter setting file.

Click the **Save File** button to save a parameter setting file.



Figure 3.12 Loading/saving parameter setting file

2) Load/save the settings.

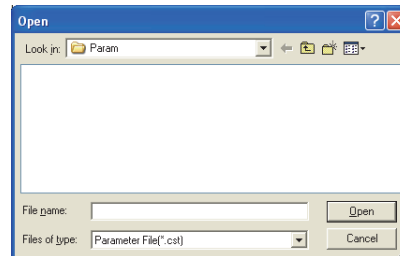


Figure 3.13 Open screen

Table 3.7 Description of the Open and Save As screen

Item	Description
Look in (Save in)	Specify the location where the parameter setting file is to be loaded (or saved).
File name	Enter the file name to be loaded (or saved).
Open button Save button)	Loads (or saves) the file specified in "File name".
Cancel button	Closes the screen without loading (or saving).

Remark

1. The name of the parameter setting file currently used is displayed on the status bar in utilities other than Device monitoring utility.
2. The following table lists the extensions for parameter setting files.

Table 3.8 Extensions for parameter setting file

Utility	Extension for parameter setting file
C Controller setting utility	cst
CC-Link utility	ccl
MELSECNET/H utility	mnh
CC IE Control utility	mng

3. The standard folder, where utilities other than Device monitoring utility save parameter setting files, is "C:\MELSEC\CCPU\Param". (When SW3PVC-CCPU has been installed in "C:\MELSEC")
4. Double-clicking any saved parameter setting file (*.cst, *.ccl, *.mnh, or *.mng) starts the corresponding utility with the saved parameter setting loaded.
5. When a parameter setting file is loaded, utility will be in the following status.

Table 3.9 Utility status

Item	Status
CPU type	Changed back to the one set when the parameter setting file was saved.
Connection	Disconnected and monitoring is stopped. To restart monitoring, click the <input type="button" value="Start monitoring"/> button or set data again in Connection settings.

(2) Utilizing existing parameter settings in the parameter setting file

Multiple modules can be used under the same parameter setting by loading a existing parameter file into multiple development environments (personal computers).

Remark

Parameter settings can be utilized without a parameter setting file with the following procedure.

1. Set parameters in utility other than Device monitoring utility.
2. Open the Connection settings screen and connect to the module where the parameters are written.
3. Write the parameters to the C Controller module by clicking the button in the <<Online operation>> tab of each utility.
4. By repeating steps 2 and 3, the same parameter setting can be set to multiple modules.

3.9 Displays on the Title Bar and Status Bar

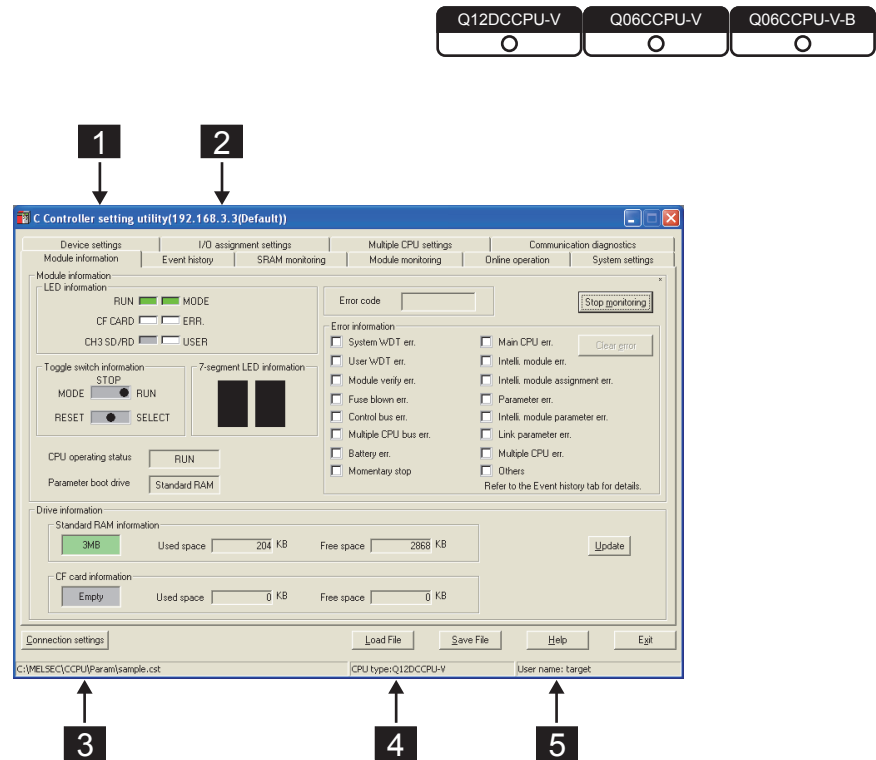


Figure 3.14 Title bar and status bar

Table 3.10 Display on the title bar and status bar

No.	Display
1	Utility name
2	IP address or host address of the connection target C Controller module "Offline" is displayed when in offline.
3	Name of a parameter setting file "New" is displayed when no parameter setting file has been loaded or saved.
4	CPU type specified in the Specify CPU type screen.
5	User name who has been logged in to the C Controller module.

CHAPTER 4 C CONTROLLER SETTING UTILITY

4.1 C Controller Setting Utility Function List



Table 4.1 C Controller setting utility function list

Name	Description	Availability			Reference page
		Q12DCCPU-V	Q06CCPU-V	Q06CCPU-V-B	
Specify CPU type	Specifies a C Controller module to which parameters are set or to be monitored.	○	○	○	Page 3-4
Connection settings	Sets parameters to a C Controller module which is to be connected with this utility.	○	○	○	Page 3-5
Parameter setting file saving/loading	Saves parameters set in C Controller setting utility into a file, or loads the file.	○	○	○	Page 3-14
Module information	Displays the LED and switch states, error information, and drive information of the C Controller module.	○	△	△	Page 4-2
Event history	Displays and saves the event history of a C Controller module.	○	○	○	Page 4-4
SRAM monitoring	Monitors the battery-backed-up RAM, changes and saves data.	○	○	○	Page 4-8
Module monitoring	<p>Performs the following operations to the modules installed on slots.</p> <ul style="list-style-type: none"> •Monitors inputs (X), outputs(Y), buffer memories, and CPU shared memory. •Executes forced output of outputs (Y) and forced write to buffer memories and CPU shared memory. •Displays an error code of the latest error occurred in an intelligent function module. •Displays the information of the C Controller system. 	○	○	○	Page 4-13
Online operation	<p>Performs the following operations to the C Controller module.</p> <ul style="list-style-type: none"> •Reads, writes, and verifies parameters or remotely operates the module. •Sets IP address, clock, the MD function, and Option settings. For the Q06CCPU-V-B, the MD function setting is not available. 	○	△	△	Page 4-21
System settings	Sets parameters (System settings) of a C Controller module.	○	△	△	Page 4-30
Device setting	Sets parameters (Device settings) of a C Controller module.	○	×	×	Page 4-35
I/O assignment	Sets parameters (I/O assignment settings) of a C Controller module.	○	○	○	Page 4-37
Multiple CPU settings	Sets parameters (Multiple CPU settings) of a C Controller module.	○	○	○	Page 4-41
Communication diagnostics	Diagnoses whether communication with another CPU is available when the C Controller module is in a multiple CPU configuration.	○	○	×	Page 4-45

○: Available, △: Available but partially restricted, ×: N/A

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 6 MELSECNET/H UTILITY
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 8 DEVICE MONITORING UTILITY

4.2 Module Information Tab



The Module information tab displays the LED status, switch status, error information, and drive information of the C Controller module.

(1) Precautions for the Module information tab

- (a) Switching a tab during monitoring
Monitoring stops when a tab is switched to another during monitoring. Monitoring resumes when the <<Module monitoring>> tab is opened next time.
- (b) When a utility communication error has occurred
When a utility communication error has occurred during connection, click the Start monitoring button or set the connection target again in the Connection settings so that the communication can be restarted.
- (c) During reset
Communications are not available while the C Controller module is being reset. Start communications after the reset is complete.

(2) Module information tab

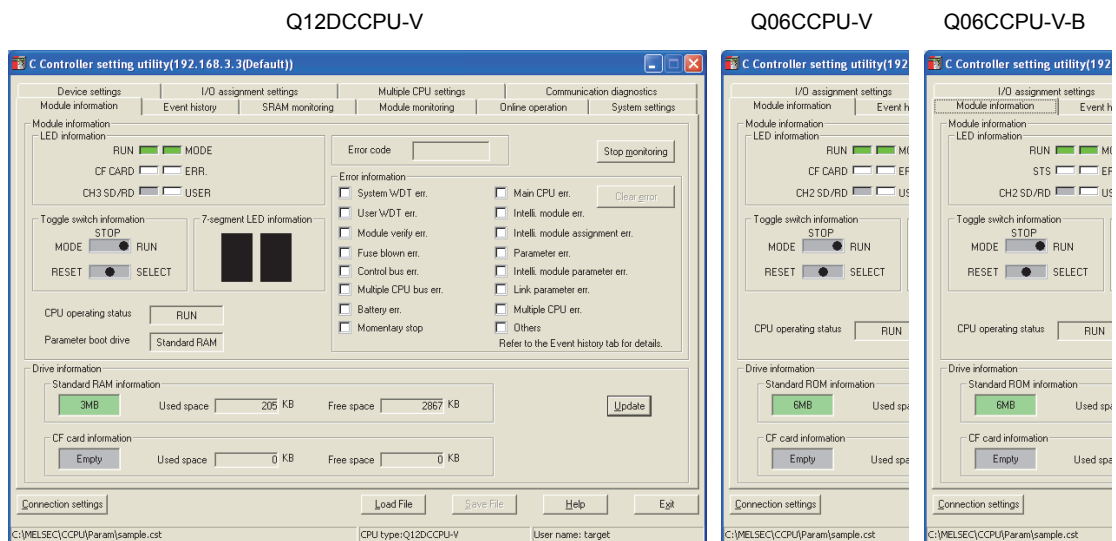


Figure 4.1 Module information tab

Table 4.2 Description of the Module information tab



Item	Description	Reference page
Module information	Displays the information of the C Controller module.	—
LED information	Displays the LED states of the C Controller module. Note that the CH3 SD/RD indication for the Q12DCCPU-V and the CH2 SD/RD indication for the Q06CCPU-V(-B) are disabled.	*1

* 1 For part names and functions of the C Controller module, refer to the C Controller Module User's Manual (Hardware Design, Function Explanation)

(To the next page)

Table 4.2 Description of the Module information tab (continued)

Module information		
<input type="checkbox"/> Event history <input type="checkbox"/> SRAM monitoring <input type="checkbox"/> Module monitoring <input type="checkbox"/> Online operation <input type="checkbox"/> System settings		
Item	Description	Reference page
Module information	—	—
Toggle switch information	Displays the RUN/STOP/MODE switch and RESET/SELECT switch states of the C Controller module.	*1
7-segment LED information	Displays the 7-segment LED status of the C Controller module. For the Q06CCPU-V(-B), this indication is disabled.	*1
CPU operating status	Displays the operating status ("RUN", "STOP", "PAUSE") of the C Controller module, including remote operation.	*1
Parameter boot drive	Displays the drive in which the parameters of the operating C Controller module are stored.	—
Error code	Displays the latest error code among stop/continue errors currently occurring.	Help in this utility
<input type="button" value="Start monitoring"/> or <input type="button" value="Stop monitoring"/> button	Starts or stops monitoring the C Controller module. *** flashes in the upper right of the button during monitoring. These buttons are disabled in the offline status.	—
Error information	When a stop or continue error has occurred in the C Controller module, corresponding error item for stop or continue error changes from <input type="checkbox"/> (white) to <input type="checkbox"/> (red).	*2
<input type="button" value="Error clear"/> button	Clears a continuation error detected in a C Controller module when appropriate actions were taken for the cause of the error and the problem was resolved. This button cannot be clicked when: •A stop error has occurred. •The Q12DCCPU-V with serial number (first 5 digits) "12041" or earlier is used. •The Q06CCPU-V(-B) is used.	—
Drive information	Displays drive information of the C Controller module.	—
Standard RAM information	Displays its size, used space, and free space of a standard ROM.*3 For the Q06CCPU-V(-B), this information is not displayed.	*4
Standard ROM information	Displays its size, used space, and free space of a standard ROM.*3 For the Q12DCCPU-V, this information is not displayed.	*4
CF card information	When a CompactFlash card is installed, entire space, used space, and free space of the CompactFlash card are displayed.*3 "Empty" is displayed for the following cases. •A CompactFlash card is not installed when the Q12DCCPU-V or Q06CCPU-V is used. •When the Q06CCPU-V-B is used.	*4
<input type="button" value="Update"/> button	Updates either of the "Standard RAM information" or "Standard ROM information", and "CF card information".	—

- * 1 For part names and functions of the C Controller module, refer to the C Controller Module User's Manual (Hardware Design, Function Explanation).
- * 2 For corrective actions for errors, refer to the C Controller Module User's Manual (Hardware Design, Function Explanation).
- * 3 "Used space" indication of the "Standard RAM information", "Standard ROM information", and "CF card information" includes the space used by the file system.
- * 4 For data and size that can be stored, refer to the C Controller Module User's Manual (Hardware Design, Function Explanation).

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4.3 Event History Tab



(1) Precautions for the Event history tab

- (a) Event history update timing
Event history is updated by acquiring the data from the C Controller module when a connection is established to the C Controller module in Connection settings or when the **Update** button is clicked.
- (b) Event history displays the data registered by QBF_RegistEventLog function
The event history displays the data registered by QBF_RegistEventLog function.
(☞ Page 9-3, Section 9.2)
- (c) When a utility communication error has occurred
When a utility communication error has occurred during connection, set the connection target again in the Connection settings so that the communication can be restarted.
- (d) During reset
Communications are not available while the C Controller module is being reset. Start communications after the reset is complete.
- (e) Precautions for using QBF_RegistEventLog function
If the same data as in "source flag" (☞ Page 4-7, "Table 4.5 Source flag") is specified into the argument SrcStr[] of the QBF_RegistEventLog function, it will be difficult to differentiate the data in the <<Event history>> tab.
Do not specify the same character string as in "source flag".

The event occurrence can be located in the following ways.

- Checking "Event type" of the Detailed event information screen
(☞ Page 4-6, "4.3 (3) Detailed event information screen")
- Checking the event history file
(☞ Page 4-7, "4.3 (4) Specifications of the Event history file")

(2) Event history tab

The events occurred in the C Controller module are displayed or saved in this tab.

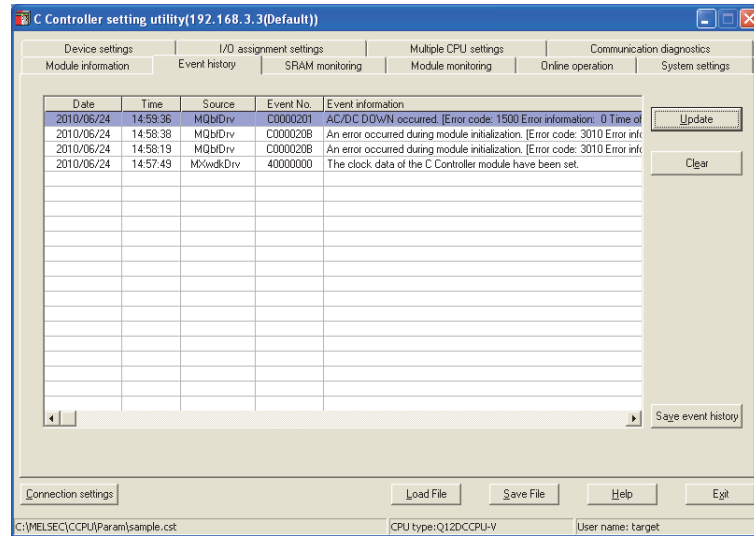


Figure 4.2 Event history tab

Table 4.3 Description of the Event history tab

Module information **Event history** SRAM monitoring Module monitoring Online operation System settings

Item	Description	Reference page
Event history	Displays the history up to 512 events occurred in the C Controller module. If 513 or more events have occurred, a new event is inserted by deleting the oldest one. The event history is displayed in reverse chronological order. Double-clicking an event opens the Detailed event information screen.	Page 4-6 Page 13-1
Date	Displays the date of event occurrence.	Page 13-1
Time	Displays the time of event occurrence.	Page 13-1
Source	Displays the source of event occurrence. (Example "MQbfDrv" is displayed when a event occurred in the bus interface drive (bus part).)	Page 13-1
Event No.	Displays the No. of event occurred.	Page 13-1
Event information ^{*1}	Displays event information of the event occurred.	Page 13-1
<input type="button" value="Update"/>	Acquires and displays the latest event history in the C Controller module.	—
<input type="button" value="Clear"/>	Deletes the event history in the C Controller module.	—
<input type="button" value="Save event history"/>	Saves the displayed event history into a CSV format file.	Page 4-7

* 1 Displaying all event information at once may not be available when too many events occurred.
To check all data of the event information, double-click the event to display the Detailed event information screen and confirm the information.

(3) Detailed event information screen

The detailed information of the event that is double-clicked on the Event history tab is displayed. (☞ Page 4-5).

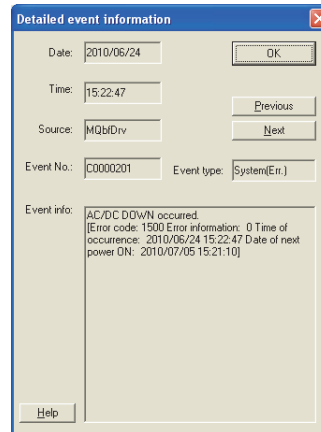


Figure 4.3 Detailed information screen

Table 4.4 Description of the Detailed information screen

Item	Description	Reference page	
Date, Time, Source, Event No., Event info	Displays the Detailed event information.	Page 4-5 Page 13-1	
Event type	Displays the type of the event.	Page 13-1	
	Indication		Description
	System (Err.)		The event is a C Controller system error.
	System (Warning)		The event is a C Controller system warning.
	System (Info.)	The event is a C Controller system information.	
	Application	The event is registered from a user program (QBF_RegistEventLog function).	
[OK] button	Displays the Detailed event information screen.	—	
[Previous] button	Displays the next latest detailed event information than the currently displayed one. Clicking the [Previous] button while the latest detailed event information is displayed, a message appears and the oldest detailed event information is displayed.	—	
[Next] button	Displays the next oldest detailed event information than the currently displayed one. Clicking the [Next] button while the oldest detailed event information is displayed, a message appears and the latest detailed event information is displayed.	—	
[Help] button	Starts a Help of C Controller setting utility and displays the information of the event.	—	

(4) Specifications of the Event history file

A file format can be selected in "Files of type" on the following screen.

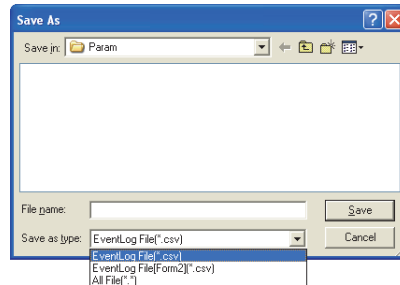


Figure 4.4 Save As screen

To use the text data of the Event history file in a user program etc., select "EventLog File(*.csv)" when saving.

To use them on Microsoft® Excel etc., select "EventLog File[Form2](*.csv)" when saving.

When "EventLog File(*.csv)" is selected

When "EventLog File[Form2](*.csv)" is selected

<pre>Event history,192.168.3.3(Default) 4 Date,Time,Source Flag,Source,Event No.,Event information 2009/04/21,14:45:45,0001,MQbDrv,C0000201,AC/DC DOWN occurred. [Error code: 2009/04/21,14:45:02,0001,MQbDrv,C000020B,An error occurred during module i 2009/04/21,14:44:28,0001,MQbDrv,C000020B,An error occurred during module i 2009/04/21,14:43:59,0002,MXwdkDrv,40000000,The clock data of the C Control</pre>	<table border="1"> <thead> <tr> <th>[Date]</th> <th>[Time]</th> <th>[Source flag]</th> <th>[Source]</th> <th>[Event No.]</th> <th>[Event information]</th> </tr> </thead> <tbody> <tr> <td>[2009/04/21]</td> <td>[14:45:45]</td> <td>[0001]</td> <td>[MQbDrv]</td> <td>[C0000201]</td> <td>[AC/DC DOWN occurred. [Error code:</td> </tr> <tr> <td>[2009/04/21]</td> <td>[14:45:02]</td> <td>[0001]</td> <td>[MQbDrv]</td> <td>[C000020B]</td> <td>[An error occurred during module initial</td> </tr> <tr> <td>[2009/04/21]</td> <td>[14:44:28]</td> <td>[0001]</td> <td>[MQbDrv]</td> <td>[C000020B]</td> <td>[An error occurred during module initial</td> </tr> <tr> <td>[2009/04/21]</td> <td>[14:43:59]</td> <td>[0002]</td> <td>[MXwdkDrv]</td> <td>[40000000]</td> <td>[The clock data of the C Controller moc</td> </tr> </tbody> </table>	[Date]	[Time]	[Source flag]	[Source]	[Event No.]	[Event information]	[2009/04/21]	[14:45:45]	[0001]	[MQbDrv]	[C0000201]	[AC/DC DOWN occurred. [Error code:	[2009/04/21]	[14:45:02]	[0001]	[MQbDrv]	[C000020B]	[An error occurred during module initial	[2009/04/21]	[14:44:28]	[0001]	[MQbDrv]	[C000020B]	[An error occurred during module initial	[2009/04/21]	[14:43:59]	[0002]	[MXwdkDrv]	[40000000]	[The clock data of the C Controller moc
[Date]	[Time]	[Source flag]	[Source]	[Event No.]	[Event information]																										
[2009/04/21]	[14:45:45]	[0001]	[MQbDrv]	[C0000201]	[AC/DC DOWN occurred. [Error code:																										
[2009/04/21]	[14:45:02]	[0001]	[MQbDrv]	[C000020B]	[An error occurred during module initial																										
[2009/04/21]	[14:44:28]	[0001]	[MQbDrv]	[C000020B]	[An error occurred during module initial																										
[2009/04/21]	[14:43:59]	[0002]	[MXwdkDrv]	[40000000]	[The clock data of the C Controller moc																										

Figure 4.5 Example of Event history files

(a) Source flag

The source file (the third column) of the event history file indicates the following information.

Table 4.5 Source flag

Source flag	Source ^{*1}	Data type
0000	Character string specified by the QBF_RegistEventLog function.	An event registered from QBF_RegistEventLog function.
0001	MQbDrv	Bus interface driver (bus part) related
0002	MXwdkDrv	Bus interface driver (system part) related
0003	MUtlfQbf	Utility communication interface (bus interface part) related
0004	MUtlfMd	Utility communication interface (MELSEC communication part) related
0005	MUtlfCom	Utility communication interface (common part) related
0006	MMain	C Controller module main body part related
0007	MFDrv	Flash ROM and standard RAM related
0008	MCfDrv	CompactFlash card related
0009	MEtherDrv	Ethernet related

* 1 Corresponding to "Source" in the Event history tab.

Remark

The folder to save the event history file is "C:\MELSEC\CCPU\Param" by default (when SW3PVC-CCPU has been installed in "C:\MELSEC").

4.4 SRAM Monitoring Tab



! WARNING ● For the following controls, configure an interlock circuit in the user program to ensure that the entire system will always operate safely.

- (1) Changing data of the running C Controller module by connecting a development environment (personal computer) to the C Controller module, configure an interlock circuit in the user program to ensure that the entire system will always operate safely.
- (2) Changing the operating status
- (3) Operating from the development environment (personal computer)

Especially, in the case of a control from an external device to a remote C Controller module, immediate action cannot be taken for a problem on the C Controller due to a communication failure. To prevent this, configure an interlock circuit in the user program, and determine corrective actions to be taken between the external device and C Controller module in case of a communication failure.

(1) Precaution for SRAM monitoring tab

The SRAM monitoring tab is updated when the Start monitoring button is clicked by acquiring data only in the display area from the battery-backed-up RAM of the C Controller module.

(2) SRAM monitoring tab

Monitoring of battery-backed-up RAM and changing/saving data can be performed on this screen.

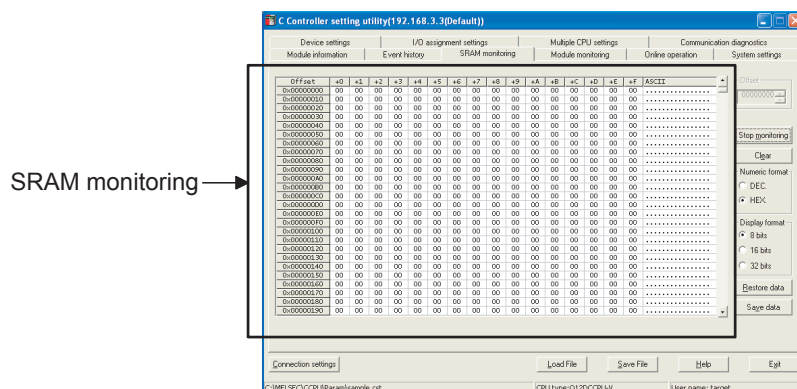


Figure 4.6 SRAM monitoring tab

Remark

The battery-backed-up RAM data, which were entered, cleared, or restored from the SRAM monitoring screen, can be accessed by the following functions. (☞
Page 9-3, Section 9.2)

- QBF_ReadSRAM function
- QBF_WriteSRAM function

Table 4.6 Description of the SRAM monitoring tab

Item	Description	Reference page
SRAM monitoring	Monitors battery-backed-up RAM data. Double-click one of the data being monitored, or select one and then press the [Enter] key to enter data. (☞ Page 4-10)	—
Offset	Set the start address of the data to be monitored. (In increments of 0x10) When a value is set other than in increments of 0x10, the fraction is dropped at the start of monitoring. When a value outside the setting range is set, it will automatically be corrected to a value within the range, at the start of monitoring. (Default: 0, Setting range: 0 to 1FFFF)	—
<input type="button" value="Start monitoring"/> or <input type="button" value="Stop monitoring"/> button	Starts or stops monitoring the C Controller module. *** flashes in the upper right of the button during monitoring. These buttons are disabled in the offline status.	—
<input type="button" value="Clear"/> button	Changes all battery-backed-up RAM data to 0.	—
Numeric format	Select a value format to display in the SRAM monitoring. (Default: "HEX.")	—
Display format	Select a display format of SRAM monitoring.*1(Default: "8 bits")	—
<input type="button" value="Data restoration"/> button	Restores the battery-backed-up RAM data, which were saved by the <input type="button" value="Save data"/> button, to the C Controller module. Monitoring is stopped from the time the <input type="button" value="Data restoration"/> button is pressed until restoration is completed.	Page 4-11
<input type="button" value="Save data"/> button	Saves all battery-backed-up RAM data. Monitoring stops from when the <input type="button" value="Save data"/> button is clicked until all data are saved.	Page 4-12

* 1 Endian format (memory layout) of the C Controller module is applied when "16 bits" or "32 bits" is selected.

Example) Display format when "32 bits" is selected



Figure 4.7 Display example when "32 bits" is selected

(3) Data settings screen

Data can be entered into the battery-backed-up RAM from this screen.

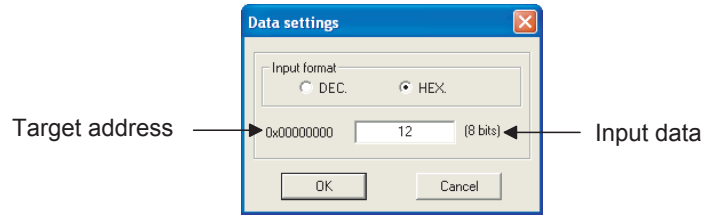


Figure 4.8 Data settings screen

Table 4.7 Description of the Data settings screen

Item	Description	Reference page
Input format	Select a format of the value to be entered in "Input data". (Default: "Numeric format" of the screen which opened this screen.)	—
Target address	Displays the address of the battery-backed-up RAM where the data are to be entered.	—
Input data	Enter data to be entered into the battery-backed-up RAM.	—
[OK] button	Writes data entered in "Input data" to the battery-backed-up RAM.	—
[Cancel] button	Closes the Data settings screen without writing the input data to the battery-backed-up RAM.	—

(4) Restoration of battery-backed-up RAM data

Binary battery-backed-up RAM data, which were saved in the personal computer, are restored to the C Controller module.

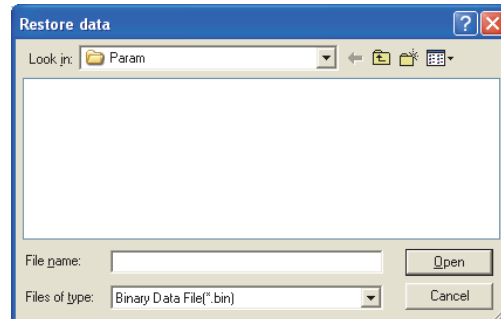


Figure 4.9 Restore data dialog box

(a) Restorable file specification

Table 4.8 Restorable file specification

Item	Description
Extension	bin
Capacity	The capacity of the destination battery-backed-up RAM in the C Controller module, or less

(5) Specifications of the battery-backed-up RAM data save file

Battery-backed-up RAM data can be saved either in the CSV or binary format.
A file format can be selected in "Files of type" on the following screen.

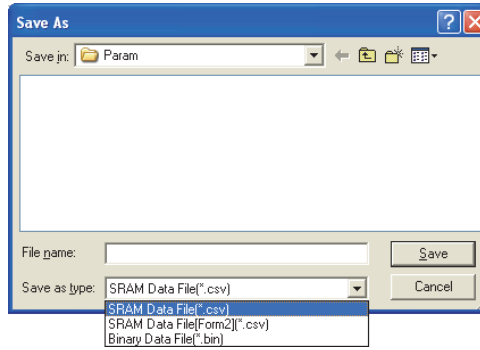


Figure 4.10 Save As screen

(a) Specifications of the CSV format

To use the text data of the Battery-backed-up RAM data save file in a user program, select "SRAM Data File (*.csv)" when saving.

To use them on Microsoft[®] Excel etc., select "SRAM Data File[Form2] (*.csv)" when saving.

When "SRAM Data File (*.csv)" is selected	When "SRAM Data File[Form2] (*.csv)" is selected
Battery backup RAM data,192.168.3.3(Default) offset,[+0],[+1],[+2],[+3],[+4],[+5],[+6],[+7],[+8],[+9],[+A],[+B] 0x00000000,00,00,00,00,00,00,00,00,00,00,00,00,00,00,00,00 0x00000010,00,00,00,00,00,00,00,00,00,00,00,00,00,00,00 0x00000020,00,00,00,00,00,00,00,00,00,00,00,00,00,00,00 0x00000030,00,00,00,00,00,00,00,00,00,00,00,00,00,00,00 0x00000040,00,00,00,00,00,00,00,00,00,00,00,00,00,00,00 0x00000050,00,00,00,00,00,00,00,00,00,00,00,00,00,00,00 0x00000060,00,00,00,00,00,00,00,00,00,00,00,00,00,00,00 0x00000070,00,00,00,00,00,00,00,00,00,00,00,00,00,00,00 0x00000080,00,00,00,00,00,00,00,00,00,00,00,00,00,00,00 0x00000090,00,00,00,00,00,00,00,00,00,00,00,00,00,00,00 0x000000A0,00,00,00,00,00,00,00,00,00,00,00,00,00,00,00	[Battery backup RAM data] [192.168.3.3(Default)] [Offset] [+0] [+1] [+2] [+3] [+4] [+5] [0x00000000] [00] [00] [00] [00] [00] [00] [0x00000010] [00] [00] [00] [00] [00] [00] [0x00000020] [00] [00] [00] [00] [00] [00] [0x00000030] [00] [00] [00] [00] [00] [00] [0x00000040] [00] [00] [00] [00] [00] [00] [0x00000050] [00] [00] [00] [00] [00] [00] [0x00000060] [00] [00] [00] [00] [00] [00] [0x00000070] [00] [00] [00] [00] [00] [00]

Figure 4.11 Example of save files

(b) Specifications of the binary format


- The extension is "bin".
- When data are saved in the binary format, the battery-backed-up RAM data are saved as is.

Remark

The standard folder to store the battery-backed-up RAM data is "C:\MELSEC\CCPU\Param" by default (when SW3PVC-CCPU has been installed in "C:\MELSEC").

4.5 Module Monitoring Tab



 **WARNING** ● For the following controls, configure an interlock circuit in the user program to ensure that the entire system will always operate safely.

- (1) Changing data of the running C Controller module by connecting a development environment (personal computer) to the C Controller module, configure an interlock circuit in the user program to ensure that the entire system will always operate safely.
- (2) Changing the operating status
- (3) Operating from the development environment (personal computer)

Especially, in the case of a control from an external device to a remote C Controller module, immediate action cannot be taken for a problem on the C Controller due to a communication failure. To prevent this, configure an interlock circuit in the user program, and determine corrective actions to be taken between the external device and C Controller module in case of a communication failure.

(1) Precautions for Module monitoring tab

- (a) Switching a tab during monitoring
Monitoring stops when the tab is switched to another during monitoring.
Monitoring resumes when the <<Module monitoring>> tab is opened next time.
- (b) When a utility communication error has occurred
When a utility communication error has occurred during connection, click the button or set the connection target again in the Connection settings so that the communication can be restarted.
- (c) During reset
Communications are not available while the C Controller module is being reset.
Start communications after the reset is complete.

(d) Monitored or tested module

The monitoring from this screen and the following tests are performed for the module selected by "Slot No."

- Forced output of Output (Y)
- Forced write to buffer memory
- Forced write to CPU shared memory

The setting in the "Type" field of Parameter settings (I/O assignment settings) does not affect the target.

Note that tests can be performed for only the modules that are controlled by the C Controller module.

(e) Monitoring of CC-Link module

When monitoring or forced write to buffer memory has been performed to the CC-Link module where the block data assurance per station function is enabled, cyclic data will be automatically refreshed.

However, data are automatically refreshed only when monitoring or forced write to buffer memory has been performed within the range set in "Station information settings" for the master station.

The range set in "Station information settings" can be confirmed by "Slave station offset, size information" (buffer memory address: 3E0H to 5DFH) of the CC-Link module.

For details of the block data assurance per station function, refer to the C Controller Module User's Manual (Hardware Design, Function Explanation).

The following area will not be refreshed when monitoring or forced write to buffer memory has been performed.

- The write (send) area of link refresh devices (buffer memory) will not be refreshed when monitoring has been performed.
- The read (receive) area of link refresh devices (buffer memory) will not be refreshed when forced write to buffer memory has been performed.

(f) Precautions for changing module configuration

When module configuration is changed after starting C Controller setting utility, any of the following operation updates the module configuration information.

- Set the Connection settings.
- Click the button in the <<Module monitoring >> tab.
- Click the button in the <<Module monitoring >> tab.

(2) Module monitoring tab

The status of input (X), output (Y), and buffer memory of the module installed to the selected slot are monitored on this tab.

The forced output of the output (Y) and forced write to the buffer memory are allowed.

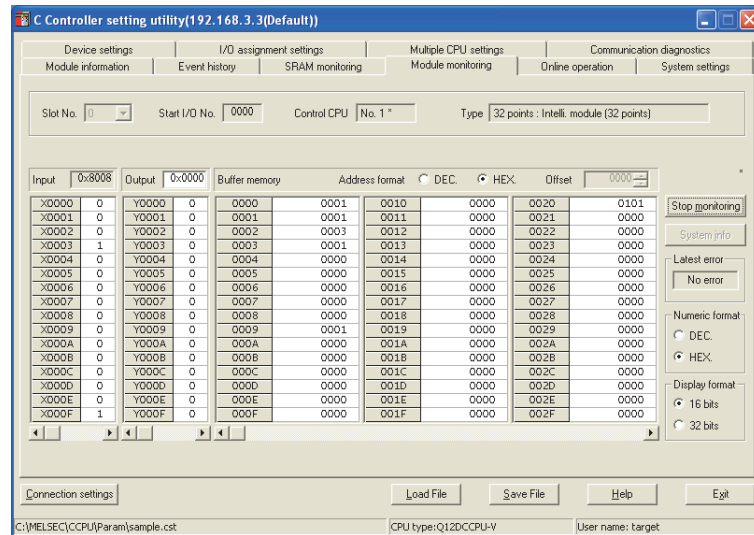


Figure 4.12 Module monitoring tab

Table 4.9 Description of the Module monitoring tab

Item	Description	Reference page
Slot No.	Specify a slot No. to be monitored. This item cannot be changed during monitoring. Stop monitoring for changing. In a multiple CPU system, the CPU shared memory can be monitored by setting the slot No. where a CPU module is mounted. "CPU" can be set only in a multiple CPU system configuration. (Default: 0, Setting range: "CPU", 0 to 63)	—
Start I/O No.	Displays the start I/O No. of the module installed to the slot specified in "Slot No."	—
Control CPU	Displays the CPU No. that controls a module installed in the slot specified in "Slot No." Displays " " (blank) when the slot where a CPU module is installed, or the slot to which "CPU (Empty)" is set as I/O assignment, is specified in "Slot No." ("*" appears on the right side of the CPU No. of the C Controller module when it is connected with C Controller setting utility and is a control CPU.)	—
Type	Displays the I/O points and type of the module if the slot where other than a CPU module is installed is specified in "Slot No." Within parentheses, the value set in "points" in Parameter settings (I/O assignment settings) is displayed. Displays CPU No. and "connected CPU" when the slot where a CPU module (own station) is mounted is specified in "Slot No." Displays CPU No. when the slot where a CPU module (another CPU) is mounted is specified in "Slot No." Displays "CPU (Empty)" when the slot to which "CPU (Empty)" is set as I/O assignment is specified in "Slot No."	—

(To the next page)

Table 4.9 Description of the Module monitoring tab (continued)

Module information | Event history | SRAM monitoring | **Module monitoring** | Online operation | System settings

Item	Description	Reference page
Start monitoring or Stop monitoring button	Starts or stops monitoring the C Controller module. "*" flashes in the upper right of the button during monitoring. These buttons are disabled in the offline status.	—
System info button	Displays the System information screen. This button is disabled during monitoring.	Page 4-17
Input* ¹	Monitors the input (X) of the module specified in "Slot No." 0: OFF 1: ON	—
Output* ¹	Monitors the output (Y) of the module specified in "Slot No." 0: OFF 1: ON Double-clicking this item enables forced output using the data setting screen. (☞ Page 4-10, Section 4.4 (3))	—
Buffer memory, CPU shared memory	Specifying an intelligent function module in "Slot No." enables monitoring of the buffer memory. Specifying a CPU module in "Slot No." enables monitoring of the CPU shared memory. Double-clicking this item enables forced output by using the data setting screen. (☞ Page 4-10, Section 4.4 (3)) (Default: the value to be monitored, Setting range: see below) •"Display format" is "16 bits": -32768 to 32767 (0H to FFFFH) •"Display format" is "32 bits": -2147483648 to 2147483647 (0H to FFFFFFFFH)	—
Address format	Select the numeric format for "Address" (Default: "HEX.")	—
Offset	Select an address of the buffer memory or CPU shared memory to be monitored. (Default: 0, Setting range: see below) •Buffer memory: 0 or more (☞ Manual for the CPU used) •CPU shared memory: 0 to FFFH, 2710H to 5F0FH For the Q06CCPU-V(-B), the range from 2710H to 5F0FH are not available. ☞ C Controller Module User's Manual (Hardware Design, Function Explanation)	—
Latest error	Displays an error code of the latest error occurred in an intelligent function module. "No error" is displayed when the error code is "0". "." is displayed when monitoring other than an intelligent function module. For error codes of the intelligent function module, refer to the manual for each module.	—
Numeric format	Select a numeric format for the buffer memory or CPU shared memory. (Default: "HEX.")	—
Display format	Select a display format for the buffer memory or CPU shared memory. (Default: "16 bits")	—

* 1 The displayed input and output data covers the points assigned in Parameter settings (I/O assignment settings) for the module mounted to the specified slot No.

(3) System information screen

Information of the C Controller system can be displayed on this screen.

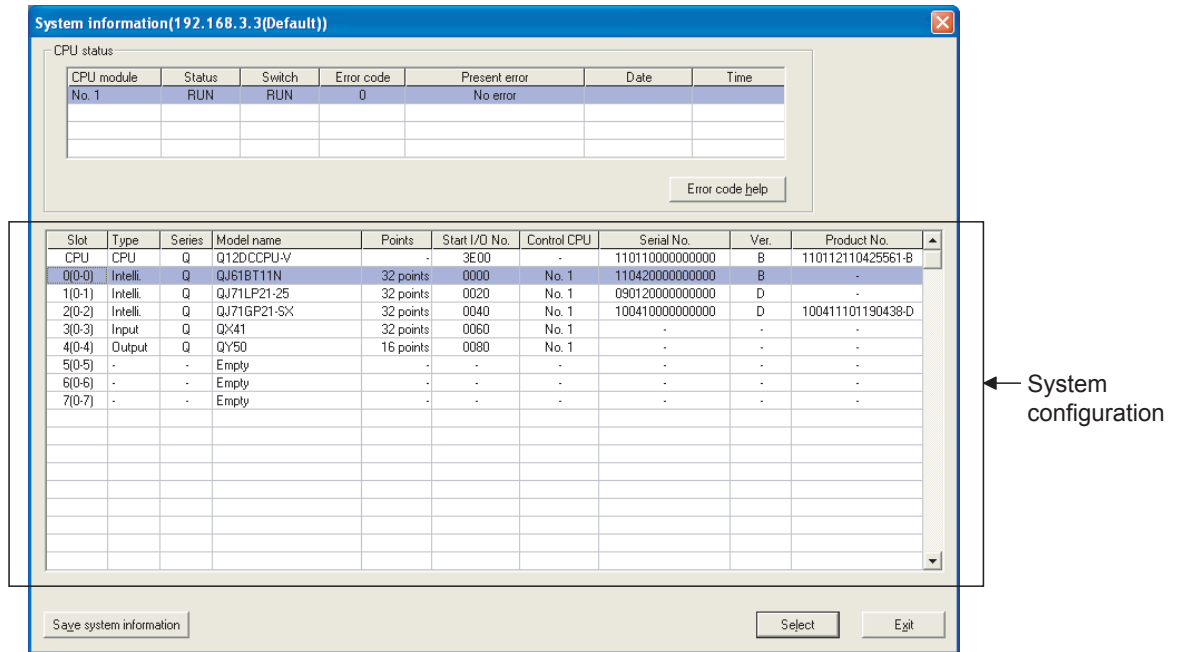


Figure 4.13 System information screen

Table 4.10 Description of the System information screen

Item	Description	Reference manual
CPU status	Displays the status of CPU modules that configure the C Controller system. Double-clicking the C Controller module or programmable controller CPU with an error opens the Error details screen. (Page 4-19, Section 4.5 (3) (a))	—
CPU module	Displays CPU No. of the CPU module. "Empty" is displayed when no CPU module is mounted. (Display: "No.1" to "No.4", "Empty")	—
Status	Displays the operation status of the CPU module. (Display: "RUN", "STOP", "PAUSE", and "RESET")	—
Switch	Displays the switch status of the CPU module. (Display: "RUN", "STOP", and "RESET")	—
Error code	Displays an error code of the first stop error and continuous error occurred in the CPU module. The other errors can be confirmed on the Module information tab (Page 4-2, Section 4.2) or the Event history tab (Page 4-4, Section 4.3).	—
Present error	Displays a message corresponding to the "Error code"	—
Date	Displays the date of the error occurrence.	—
Time	Displays the time of the error occurrence.	—

(To the next page)

Table 4.10 Description of the System information screen (continued)

Item	Description	Reference page
CPU status	—	—
button	<p>Selecting a C Controller module (own station) and clicking the button starts Help of C Controller setting utility, which displays help information of a current error.</p> <p>This button is available only when the C Controller module (own station) is selected.</p> <p>For errors of programmable controller CPU(s), refer to the manual for the programmable controller CPU used.</p>	—
System configuration	<p>Displays the information of CPU modules that configure the C Controller system. Double-clicking a module (or selecting a module and pressing the [Enter] key) updates the display to information of the selected module, and closes the System information screen.</p> <p>Note that CPU module selection is not allowed for a single CPU system.</p>	—
Slot	Displays the "slot No." of the module. In the parenthesis, module's base No. and mounting position in the base unit are displayed.	—
Type	Displays the module type. (Display: "Empty", "Input", "Hi.Input", "Output", "I/O mix", "Intelli.", "Interrupt", and "CPU")	—
Series	Displays the series name of the module. (Display: "Q" (fixed))	—
Model name	Displays the model name of the module.	—
Points	Displays the I/O points of the module. (Display: 0, 16, 32, 48, 64, 128, 256, 512, 1024)	—
Start I/O No.	Displays the I/O No. of the module. (Display: 0000 to 0FF0, 3E00 to 3E30)	—
Control CPU	Displays the CPU No. of the control CPU of the module. (Display: "No.1" to "No.4")	—
Serial No.	Displays the serial No. of the module.	—
Ver.	Displays the function version of the module.	—
Product No.	Displays the product No. of the C Controller module. When the model does not have product No. indication, "-" is displayed. For the Q06CCPU-V(-B), this item is not displayed.	—
button	Saves the displayed information of the C Controller system into the system information file.	Page 4-20
button	Selecting a module and clicking the button changes the display to information of the selected module, and closes the System information screen.	Page 4-15
button	Closes the System information screen.	—

Remark

The information displayed on the System information screen is based on the configuration when the screen was opened.
To update the information, close and reopen the System information screen.

(a) Error details screen

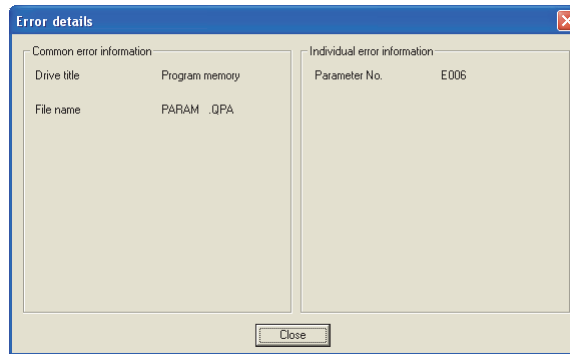


Figure 4.14 Error details screen

Table 4.11 Description of the Error details screen

Item	Description	Reference
Common error information	Displays common information corresponding to the error code.	*1
Individual error information	Displays individual information corresponding to the error code.	*1

* 1 For errors of the C Controller module, refer to the C Controller Module User's Manual (Hardware Design, Function Explanation).
For errors of the programmable controller CPU, refer to the manual for the programmable controller CPU used.

(4) Specifications of the system information save file

A file format can be selected in "Files of type" on the following screen.

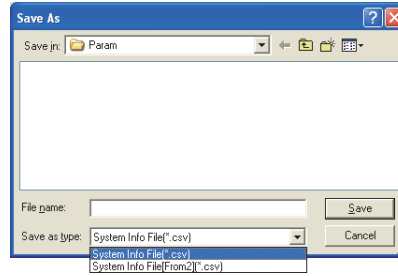


Figure 4.15 Save As screen

To use the text data of the system information save file in a user program, select "System Info File(*.csv)" when saving.

To use them on Microsoft® Excel etc., select "System Info File[Form2](*.csv)" when saving.

When "System Info File(*.csv)" is selected	When "System Info File[Form2](*.csv)" is selected																																																																																								
<pre>System information,192.168.3.3(Default) CPU status CPU module,Status,Switch,Error code,Present error,Date,Time No. 1,RUN,RUN,0,No error Slot,Type,Series,Model name,Points,start I/O No.,Control CPU,Serial No.,Ver CPU,CPU,Q,Q12DCCPU-V,-,3E00,-,110110000000000,B,110112110425561-B 0(0-0),Intelli.,Q,QJ61BT11N,32 points,0000,No. 1,110420000000000,B,- 1(0-1),Intelli.,Q,QJ71LP21-25,32 points,0020,No. 1,090120000000000,D,- 2(0-2),Intelli.,Q,QJ71GP21-SX,32 points,0040,No. 1,100410000000000,D,100411 3(0-3),Input,Q,QX41,32 points,0060,No. 1,-,-,- 4(0-4),Output,Q,QY50,16 points,0080,No. 1,-,-,- 5(0-5),-, -,Empty,-,-,-,-,- 6(0-6),-, -,Empty,-,-,-,-,- 7(0-7),-, -,Empty,-,-,-,-,-</pre>	<table border="1"> <thead> <tr> <th colspan="8">[System inform:192.168.3.3(Default)]</th> </tr> <tr> <th>[CPU status]</th> <th>[Status]</th> <th>[Switch]</th> <th>[Error code]</th> <th>[Present e]</th> <th>[Date]</th> <th>[Time]</th> <th></th> </tr> </thead> <tbody> <tr> <td>[No. 1]</td> <td>[RUN]</td> <td>[RUN]</td> <td>[0]</td> <td>[No error]</td> <td></td> <td></td> <td></td> </tr> <tr> <th>[Slot]</th> <th>[Type]</th> <th>[Series]</th> <th>[Model name]</th> <th>[Points]</th> <th>[Start I/O #]</th> <th>[Control Cf]</th> <th>[Serial No.][Ver]</th> </tr> <tr> <td>[CPU]</td> <td>[CPU]</td> <td>[Q]</td> <td>[Q12DCCPU-V]</td> <td>[-]</td> <td>[3E00]</td> <td>[-]</td> <td>[11011000][B]</td> </tr> <tr> <td>[0(0-0)]</td> <td>[Intelli.]</td> <td>[Q]</td> <td>[QJ61BT11N]</td> <td>[32 points]</td> <td>[0000]</td> <td>[No. 1]</td> <td>[11042000][B]</td> </tr> <tr> <td>[1(0-1)]</td> <td>[Intelli.]</td> <td>[Q]</td> <td>[QJ71LP21-25]</td> <td>[32 points]</td> <td>[0020]</td> <td>[No. 1]</td> <td>[09012000][D]</td> </tr> <tr> <td>[2(0-2)]</td> <td>[Intelli.]</td> <td>[Q]</td> <td>[QJ71GP21-SX]</td> <td>[32 points]</td> <td>[0040]</td> <td>[No. 1]</td> <td>[10041000][D]</td> </tr> <tr> <td>[3(0-3)]</td> <td>[Input]</td> <td>[Q]</td> <td>[QX41]</td> <td>[32 points]</td> <td>[0060]</td> <td>[No. 1]</td> <td>[-] [-]</td> </tr> <tr> <td>[4(0-4)]</td> <td>[Output]</td> <td>[Q]</td> <td>[QY50]</td> <td>[16 points]</td> <td>[0080]</td> <td>[No. 1]</td> <td>[-] [-]</td> </tr> <tr> <td>[5(0-5)]</td> <td>[-]</td> <td>[-]</td> <td>[Empty]</td> <td>[-]</td> <td>[-]</td> <td>[-]</td> <td>[-] [-]</td> </tr> </tbody> </table>	[System inform:192.168.3.3(Default)]								[CPU status]	[Status]	[Switch]	[Error code]	[Present e]	[Date]	[Time]		[No. 1]	[RUN]	[RUN]	[0]	[No error]				[Slot]	[Type]	[Series]	[Model name]	[Points]	[Start I/O #]	[Control Cf]	[Serial No.][Ver]	[CPU]	[CPU]	[Q]	[Q12DCCPU-V]	[-]	[3E00]	[-]	[11011000][B]	[0(0-0)]	[Intelli.]	[Q]	[QJ61BT11N]	[32 points]	[0000]	[No. 1]	[11042000][B]	[1(0-1)]	[Intelli.]	[Q]	[QJ71LP21-25]	[32 points]	[0020]	[No. 1]	[09012000][D]	[2(0-2)]	[Intelli.]	[Q]	[QJ71GP21-SX]	[32 points]	[0040]	[No. 1]	[10041000][D]	[3(0-3)]	[Input]	[Q]	[QX41]	[32 points]	[0060]	[No. 1]	[-] [-]	[4(0-4)]	[Output]	[Q]	[QY50]	[16 points]	[0080]	[No. 1]	[-] [-]	[5(0-5)]	[-]	[-]	[Empty]	[-]	[-]	[-]	[-] [-]
[System inform:192.168.3.3(Default)]																																																																																									
[CPU status]	[Status]	[Switch]	[Error code]	[Present e]	[Date]	[Time]																																																																																			
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[Slot]	[Type]	[Series]	[Model name]	[Points]	[Start I/O #]	[Control Cf]	[Serial No.][Ver]																																																																																		
[CPU]	[CPU]	[Q]	[Q12DCCPU-V]	[-]	[3E00]	[-]	[11011000][B]																																																																																		
[0(0-0)]	[Intelli.]	[Q]	[QJ61BT11N]	[32 points]	[0000]	[No. 1]	[11042000][B]																																																																																		
[1(0-1)]	[Intelli.]	[Q]	[QJ71LP21-25]	[32 points]	[0020]	[No. 1]	[09012000][D]																																																																																		
[2(0-2)]	[Intelli.]	[Q]	[QJ71GP21-SX]	[32 points]	[0040]	[No. 1]	[10041000][D]																																																																																		
[3(0-3)]	[Input]	[Q]	[QX41]	[32 points]	[0060]	[No. 1]	[-] [-]																																																																																		
[4(0-4)]	[Output]	[Q]	[QY50]	[16 points]	[0080]	[No. 1]	[-] [-]																																																																																		
[5(0-5)]	[-]	[-]	[Empty]	[-]	[-]	[-]	[-] [-]																																																																																		

Figure 4.16 Example of system information save files

Remark

The standard folder of the system information save file is "C:\MELSEC\CCPU\Param" (when SW3PVC-CCPU has been installed in "C:\MELSEC").

4.6 Online Operation Tab



(1) Precautions for the Online operation tab

- (a) When a utility communication error has occurred
When a utility communication error has occurred during connection, set the connection target again in the Connection settings so that the communication can be restarted.
- (b) During reset
Communications are not available while the C Controller module is being reset. Start communications after the reset is complete.
- (c) The drive to which parameters are written
When writing parameters from each of the utilities to the following C Controller module, write them to the same drive.
 - Q12DCCPU-V whose serial number (first five digits) is "12042" or later
 If the parameters are written to different drives, those of the drive, which include C Controller setting parameters, will take effect.

(2) Online operation tab

Read, write, and verification of parameters, and remote operation, clock setting, and IP address setting for the C Controller module are available in this tab.

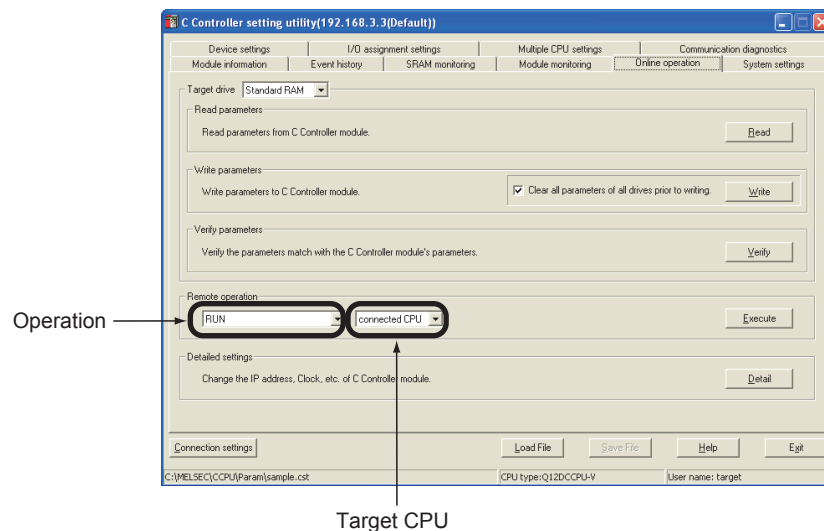


Figure 4.17 Online operation tab

Table 4.12 Description of the Online operation tab

Module information | Event history | SRAM monitoring | Module monitoring | **Online operation** | System settings

Item	Description	Reference page
Target drive	Set a target drive for reading, writing, or verifying parameters. This setting is not available for the Q06CCPU-V(-B). (Default: Parameter boot drive)	*1
Read parameters <input type="button" value="Read"/>	Reads parameters from the C Controller module.	—
Write parameters <input type="button" value="Write"/>	Writes parameters set in C Controller setting utility into the C Controller module. The written parameters take effect when the C Controller module is powered off and then on or is reset. Parameters can be written only when "Write authority" is selected in Connection settings. If "Write authority" is not selected, select it in the Connection settings screen before writing parameters. (☞ Page 3-5, Section 3.5)	—
"Clear all parameters of all drives prior to writing." checkbox (for the Q12DCCPU-V)	If the <input type="button" value="Write"/> button is clicked with this checkbox selected, all parameters (including the following) of all drives will be cleared before parameter writing. •CC-Link module parameters •MELSECNET/H module parameters •CC-Link IE Controller Network module parameters •Intelligent function module parameters	—
"Clear all parameters before writing." checkbox (for the Q06CCPU-V(-B))		
Verify parameters <input type="button" value="Verify"/>	Cross-check the parameters set in the C Controller module and in C Controller setting utility. The result is displayed in a message box.	—
Remote operation	Remotely controls a C Controller module or programmable controller CPU.	*2
Operation	Select a remote operation. (Default: "RUN")	*2
Target CPU	Select a CPU that is remote operation target. To remotely operate a own station in a multiple CPU system configuration, select "connected CPU". Selecting a CPU No. causes an error. (Default: "connected CPU")	*2
<input type="button" value="Execute"/> button	Executes a specified remote operation. For precautions for the remote RESET operation during writing a user file, refer to the C Controller Module User's Manual (Hardware Design, Function Explanation).	*2
<input type="button" value="Detail"/> button	Opens the Detailed settings screen. Sets the IP address, clock, MD function, and Option settings. Detailed settings is available only when "Write authority" is checked in Connection settings. If "Write authority" is not checked, check it in Connection settings and then set the Detailed settings. (☞ Page 3-5, Section 3.5) For the Q06CCPU-V-B, the MD function setting is not available.	Page 4-23

* 1 For the drives to which parameters can be written (user memory), refer to the C Controller Module User's Manual (Hardware Design, Function Explanation).

* 2 For remote operation, refer to the C Controller Module User's Manual (Hardware Design, Function Explanation).

(3) Detailed settings screen

The IP address, clock, MD function and Option for the C Controller module can be set on this screen.

For the Q06CCPU-V-B, the MD function setting is not available.

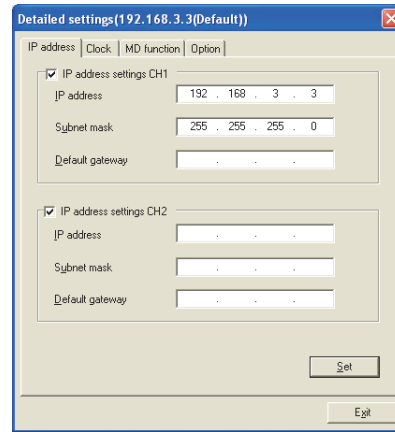
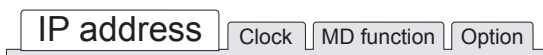


Figure 4.18 Detailed settings screen

Table 4.13 Description of the Detailed settings screen



Item	Description	Reference page
<<IP address>> tab	Set the IP address for the C Controller module.	Page 4-24
<<Clock>> tab	Set the clock of the C Controller module.	Page 4-27
<<MD function>> tab	Set the timeout value of the communications made by the MELSEC data link function. For the Q06CCPU-V-B, this item is not available.	Page 4-28
<<Option>> tab	Set priority of the processing for communications with the C Controller module.	Page 4-28
Exit button	Closes the Detailed settings screen.	—

(a) IP address tab

The IP address for the C Controller module can be set in this tab.

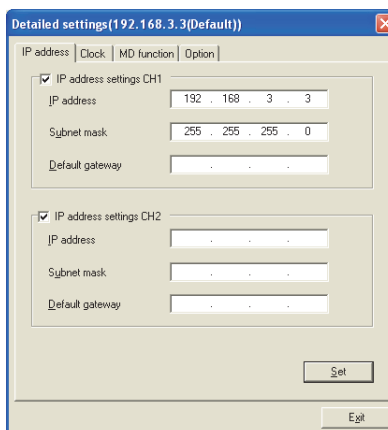


Figure 4.19 IP address tab

Table 4.14 Description of the IP address tab

IP address | Clock | MD function | Option

Item	Description	Reference page
IP address settings CH1	Set whether to enable or disable the 10BASE-T/100BASE-TX interface of CH1. CH1 and CH2 cannot be set to blank (disable) simultaneously. (Default: checked (enable))	—
IP address	Set the IP address for the 10BASE-T/100BASE-TX interface of CH1. (Default: 192.168.3.3, Setting range: Page 4-25, Section 4.6 (3) (a) 1))	—
Subnet mask	Set the subnet mask for the 10BASE-T/100BASE-TX interface of CH1. (Default: 255.255.255.0, Setting range: Page 4-25, Section 4.6 (3) (a) 1))	—
Default gateway	Set the IP address of the default gateway for the 10BASE-T/100BASE-TX interface of CH1. (Default: blank, Setting range: Page 4-25, Section 4.6 (3) (a) 1))	—
IP address settings CH2	Set whether to enable or disable the 10BASE-T/100BASE-TX interface for CH2. For the Q06CCPU-V(-B), this item is not available. CH1 and CH2 cannot be set to blank (disable) simultaneously. (Default: not checked (enable))	—
IP address	Set the IP address for the 10BASE-T/100BASE-TX interface of CH2. (Default: blank, Setting range: Page 4-25, Section 4.6 (3) (a) 1))	—
Subnet mask	Set the IP address for the default gateway for the 10BASE-T/100BASE-TX interface of CH2. (Default: blank, Setting range: Page 4-25, Section 4.6 (3) (a) 1))	—
Default gateway	Set the IP address for the default gateway for the 10BASE-T/100BASE-TX interface of CH2. (Default: blank, Setting range: Page 4-25, Section 4.6 (3) (a) 1))	—
button	Writes the settings of "IP address settings CH1" and "IP address settings CH2" into the C Controller module.	—

1) IP address setting

- IP address setting range

The following table indicates the IP addresses settable to the C Controller module.

For the IP address setting, consult your network administrator (network planner or person in charge of IP addresses)

Table 4.15 IP address setting range

Class	High-order bits of IP address	IP address range
A	0	0.0.0.0 to 126.255.255.255 (excluding 0.x.x.x)
B	10	128.0.0.0 to 191.255.255.255
C	110	192.0.0.0 to 223.255.255.255

Note that the IP address must satisfy all the conditions indicated in the following table.

Table 4.16 Conditions of the IP address

Conditions
•Bits in the network address portion ^(*1) are not set with only 0s or only 1s.
•Bits in the host portion ^(*1) are not set with only 0s or only 1s.
•Network address of CH1 and CH2 are different.

* 1 The network address portion is the portion where the subnet mask is corresponding to bit 1 in a IP address.

The host portion is the portion where the subnet mask is corresponding to bit 0 in a IP address.

Example)

	Network address portion			Host portion
IP address	192.	168.	3.	3
Subnet mask (Binary)	11111111.	11111111.	11111111.	00000000

- Subnet mask setting range

Note that the subnet mask must satisfy all the conditions indicated in the following table.

Table 4.17 Conditions of the subnet mask

Conditions	Setting example
•Set with only 1s including the most significant bit. 0 is not inserted between 1s.	255.255.0.0
•The least significant bit is 0.	

- Update of the settings

The settings made in this tab are displayed by reading out from the C Controller module when this tab is opened.

If failed to read out the settings, an error message appears and the settings will be back to default.

- Setting IP address back to the initialization status or factory setting

To set the IP address of the C Controller module back to the initialization status or factory setting, execute the "Default IP setting" mode by the hardware self-diagnostic function.

For details of the hardware self-diagnostic function, refer to the C Controller Module User's Manual (Hardware Design, Function Explanation).

- To enable the settings
The entered IP address takes effect when the C Controller module is powered off and then on or is reset.
When the IP address is changed, set the connection target with the new IP address in Connection setting.

(b) Clock tab

Clock data of the C Controller can be set in this tab.

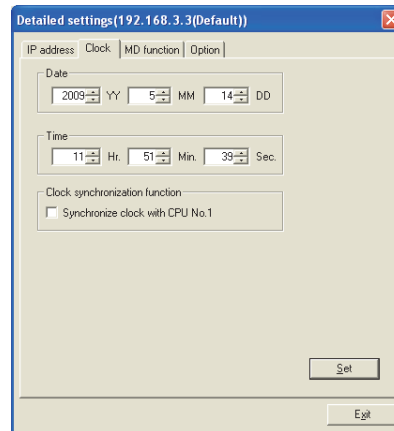


Figure 4.20 Clock tab

Table 4.18 Description of the Clock tab



Item	Description	Reference page
Date* ¹	Set the clock of the C Controller module and displays it. This setting is disabled when "Synchronize clock with CPU No.1" is checked. (Setting range:2000/1/1 to 2099/12/31)	*2
Time* ¹	Set the clock of the C Controller module and displays it. This setting is disabled when "Synchronize clock with CPU No.1" is checked. (Setting range: 00:00:00 to 23:59:59)	*2
Clock synchronization function	Set the multiple CPU clock synchronization function of the C Controller module. For the Q06CCPU-V(-B), this setting is not available.	—
Synchronize clock with CPU No.1	Set whether to enable or disable the multiple CPU clock synchronization function of the C Controller module. When the checkbox is checked, the clock of the C Controller module synchronizes with the CPU No.1 in the multiple CPU system. This item cannot be set when the connected C Controller module is in a single CPU system or is CPU No. 1 in a multiple CPU system. The setting takes effect when the C Controller module is powered off and then on or is reset. (Default: Selected (synchronized))	*2
Set button	Writes the "Date" and "Clock" data into the C Controller module.	—

* 1 The clock data are displayed by reading from the C Controller module when this tab is opened. When failed to read the data, an error message appears and the clock data of a personal computer is displayed.

* 2 For the clock function, refer to the C Controller Module User's Manual (Hardware Design, Function Explanation).

1) Precautions for the clock setting

When "Synchronize clock with CPU No.1" is disabled (deselected), power off and then on or reset the C Controller module before setting "Date" and "Time". Set "Date" and "Time" after powering off and then on or resetting the C Controller module.

(c) MD function tab

The timeout value used in the MELSEC data link function can be set in this tab.
For the Q06CCPU-V-B, this setting is not available.

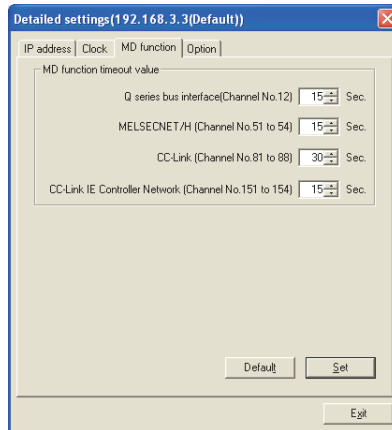


Figure 4.21 MD function tab

Table 4.19 Description of the MD function tab



Item	Description	Reference page
MD function timeout value	Set the timeout value for the communication made by the MELSEC data link function. Default value is recommended to use unless any problem, such as too late response from the MD function, is concerned. Change the timeout time value from the default in the above case. For details of precautions for the MELSEC data link function, refer to the following. Page 10-5, Section 10.5	—
Q series bus interface (Channel No.12)	Set the timeout value for the communication on the Q series bus interface (Channel No.12). (In units of seconds) (Default: 15, Setting range: 1 to 360)	—
MELSECNET/H (Channel No. 51 to 54)	Set the timeout value for the communication on the MELSECNET/H (Channel No.51 to 54). (In units of seconds) (Default: 15, Setting range: 1 to 360)	—
CC-Link (Channel No.81 to 88)	Set the timeout value for the communication on the CC-Link (Channel No.81 to 88). (In units of seconds) (Default: 30, Setting range: 1 to 360)	—
CC-Link IE Controller Network (Channel No. 151 to 154)	Set the timeout value for the communication on the CC-Link IE Controller Network (Channel No. 151 to 154). (In units of seconds) (Default: 15, Setting range: 1 to 360)	—
button	Change the settings back to default.	—
button	Write the "MD function timeout value" data into the C Controller module. The timeout value takes effect after powering off and on or resetting the C Controller module.	—

(d) Option tab

The priority of processing for communications with the C Controller module can be set in this tab.

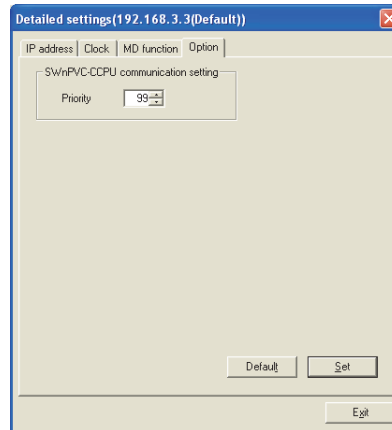


Figure 4.22 Option tab

Table 4.20 Description of the Option tab



Item	Description	Reference page
SW3PVC-CCPU communication setting	Set the processing priority for communications with the C Controller module. The smaller the value, the higher the priority. Conversely, the larger the value, the lower the priority.	
Priority	"Priority" setting may affect the communication between each utility and a C Controller module or behavior of the user program. •Priority for utility..... Page 4-29, Section 4.6 (3) (d) 1) •Priority for user program... Page 9-26, Section 9.6 (Default: 99, Setting range: 99 to 255)	—
Default button	Changed the settings back to default.	—
Set button	Write the "Priority" data into the C Controller module. The "Priority" takes effect after powering off and on or resetting the C Controller module.	—

1) "Priority" for "SW3PVC-CCPU communication setting"

- The default setting can be used for normal system operation.
- Change the "Priority" value when the default value may affect the behavior of user programs.

Note that changing "Priority" value may cause timeout in a communication between utility and the C Controller module.

4.7 System Settings Tab



Parameters (system settings) of the C Controller module and system-related parameters can be set in this tab.

(1) Precautions for the System settings tab

(a) Multiple CPU system configuration

Set the multiple CPU parameters on the CPU No. 1.

For the CPU module No.2 and later, utilize the parameters set on the CPU No.1.

For the multiple CPU parameter, refer to the C Controller Module User's Manual (Hardware Design, Function Explanation).

(2) System settings tab

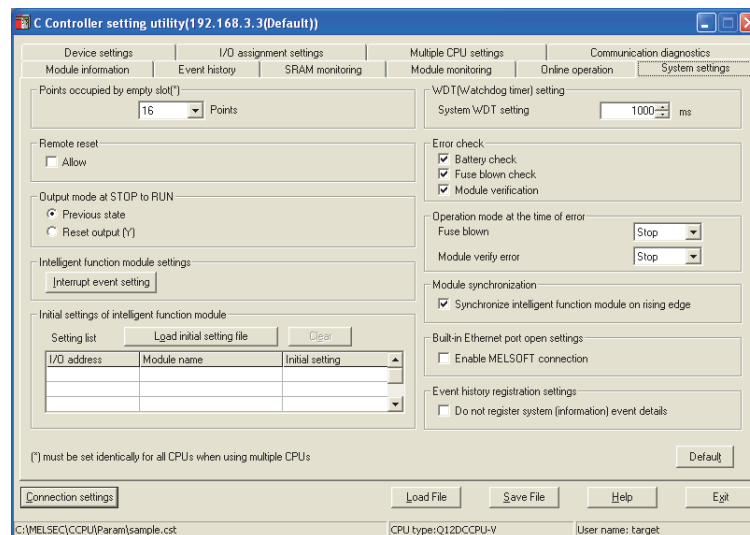
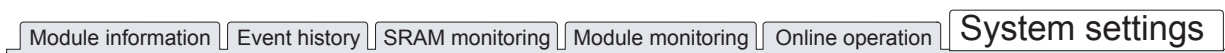


Figure 4.23 System settings tab

Table 4.21 Description of the System settings tab



Item	Description	Reference page
Points occupied by empty slot	Set the points to each empty slot of the main base unit and extension base unit. In a multiple CPU, the settings for each CPU module must be identical. (Default: 16 points)	—
Remote reset	Set whether to allow remote reset of the C Controller module. (Default: not checked (not allowed))	—

(To the next page)

Table 4.21 Description of the System settings tab (continued)

Module information Event history SRAM monitoring Module monitoring Online operation System settings		
Item	Description	Reference page
Output mode at STOP to RUN	Select the output (Y) status in the case where the C Controller module is switched from STOP to RUN, either from "Previous state" or "Reset output (Y)". (Default: "Previous state")	—
Intelligent function module settings	Clicking the Interrupt event setting button opens the Intelligent function module interrupt event settings screen.	Page 4-33
Initial settings of intelligent function module	Reads the Initial settings of intelligent function module. The Initial settings are written to the C Controller module along with other parameters. Subsequently, they are written to the buffer memory of the intelligent function module when the bus interface driver starts up.	—
Load initial setting file button	Loads the Initial settings of intelligent function module from a project file of GX Developer.	Page 4-48
Setting list	Displays "I/O address", "Module name", and "Initial setting" loaded by clicking the Load initial setting file button.	—
Clear button	Deletes the information displayed in the setting list.	—
Default button	Change the settings back to default.	—
WDT (Watchdog timer) setting	Set the time of the system watchdog timer. (Default: 1000, Setting range: 20 to 2000)	*1
Error check	Select desired error detection. "Battery check" "Fuse blown check" "Module verification" (Default: all checked (detect errors))	—
Operation mode at the time of error	Set whether to continue or stop operation of the C Controller when an error is detected in "Fuse blown" or "Module verify error" (Default: Stop)	—
Module synchronization	Set whether to synchronize the startup of the bus interface driver with that of the intelligent function module. Check the checkbox when making the startup of the C Controller module synchronized with that of the intelligent function module (positioning module). When not setting "Module synchronization", interlocks must be provided between the C Controller module and intelligent function module. (Default: checked (synchronize))	—
Built-in Ethernet port open settings	Set this for communication with peripheral devices through Ethernet. This setting is not available for the following: •Q12DCCPU-V whose serial No. (first five digits) is "12041" or earlier •Q06CCPU-V(-B)	*1
Enable MELSOFT connection	Set whether to enable connection with a peripheral such as GX Developer. (Default: not checked (disable))	

* 1 For the system watchdog timer and communication with peripheral devices through Ethernet, refer to the C Controller Module User's Manual (Hardware Design, Function Explanation).

(To the next page)

Table 4.21 Description of the System settings tab (continued)

Module information Event history SRAM monitoring Module monitoring Online operation System settings		
Item	Description	Reference page
Event history registration settings	<p>Set whether to register the event history data.</p> <p>This setting is not available for the following:</p> <ul style="list-style-type: none"> •Q12DCCPU-V whose serial No. (first five digits) is "12041" or earlier •Q06CCPU-V(-B) 	Page 13-1
Do not register system (information) event details.	<p>Set whether to register System (Info.) events to the event history or not. Events of System (Err.) and System (Warning) are registered to the event history regardless of this setting.</p> <p>If this is selected, System (Info.) events, such as clock data setting or correction, will not be registered to the event history.</p> <p>Therefore, if System (Info.) events have occurred frequently, overwriting and deletion of System (Err.) or System (Warning) events can be prevented.</p> <p>(Default: not checked (not register))</p>	

(3) Intelligent function module interrupt event settings screen

Interrupt event data of an intelligent function module can be set on this screen. The interrupt event is an event for interrupt notification that occurs in response to an interrupt from an intelligent function module.

For interrupt events from the intelligent function module, refer to the C Controller Module User's Manual (Hardware Design, Function Explanation).

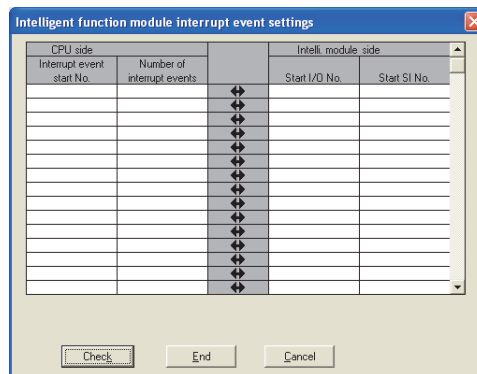



Figure 4.24 Intelligent function module interrupt event settings screen

Table 4.22 Description of the Intelligent function module interrupt event settings screen

Item	Description	Reference page
Interrupt event start No.	Set the start No. of the interrupt event. (Default: blank, Setting range: 50 to 255)	—
Number of interrupt events	Set the No. of the interrupt events. (Default: blank, Setting range: 1 to 16)	—
Start I/O No.	Set the start I/O No. of the intelligent function module. (Default: blank, Setting range: 0000 to 0FF, 3E00 to 3E30)	—
Start SI No.	Set the SI No. (Interrupt event No.  Page 4-34, Section 4.7 (3) (a)) of the intelligent function module. (Default: blank, Setting range: 0 to 15)	—
<input type="button" value="Check"/> button	Checks whether the settings are correct.	—
<input type="button" value="End"/> button	Saves the settings and closes the Intelligent function module interrupt event settings screen.	—
<input type="button" value="Cancel"/> button	Closes the Intelligent function module interrupt event settings screen without saving the settings.	—

(a) List for No. and factors of interrupt event

Table 4.23 List for Event No. and factor of event

Interrupt event No.	Interrupt factor	
0	Interrupt by interrupt module	1st point
1		2nd point
2		3rd point
3		4th point
4		5th point
5		6th point
6		7th point
7		8th point
8		9th point
9		10th point
10		11th point
11		12th point
12		13th point
13		14th point
14		15th point
15		16th point
16 to 49	Not used	
50 to 255	Intelligent function module interrupt	Using parameters, set which intelligent function module uses the No.

4.8 Device Settings Tab



Parameters (device settings) of the C Controller module can be set in this tab. Set whether to enable the device function or the points of the devices used. For the device function, refer to the C Controller Module User's Manual (Hardware Design, Function Explanation).

The devices set on this screen cannot be used for the following C Controller module.

- Q12DCCPU-V whose serial No. (first five digits) is "12041" or earlier

(1) Device settings tab

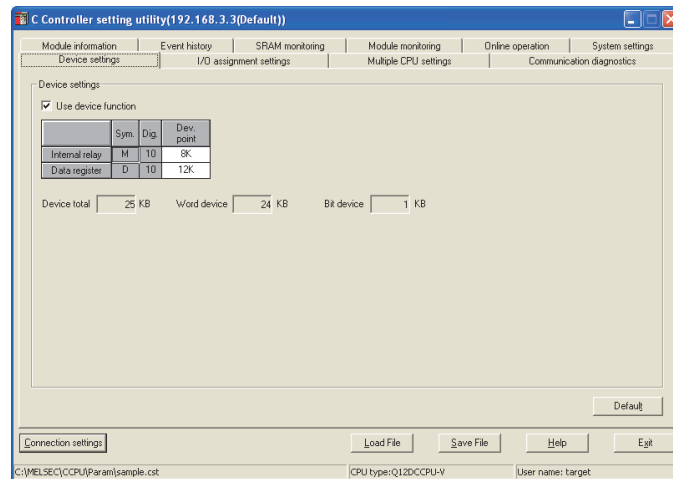


Figure 4.25 Device settings tab

Table 4.24 Description of the Device settings tab

Device settings						
		I/O assignment settings	Multiple CPU settings	Communication diagnostics		
Item	Description				Reference page	
Use device function	Set whether to use the device function or not. (Default: not checked (Do not use the device function.))					*1
	When using the device function, the device points can be changed in 16-point units within the ranges shown below. Enter a value for each "Dev. point" in the number format specified in the "Dig." field.					
	Description	Sym.	Dig.	Default	Setting range	
	Internal relay	M	10	8K	0 to 60K	
	Data register	D	10	12K	0 to 4086K	
Device total	Displays the total size of the devices in K bytes.*2				—	
Word device	Displays the total size of the word devices in K bytes.*2				—	
Bit device	Displays the total size of the bit devices in K bytes.*2				—	
Default button	Changes the settings to default values.				—	

* 1 For the device function, refer to the C Controller Module User's Manual (Hardware Design, Function Explanation).

* 2 The total size is displayed as a value rounded up to the nearest integer.
(Example: When the total size is 0.1KB, "1" is displayed before KB.)

Remark

Special relays (SM) and special registers (SD) can be used regardless of the above setting.

4.9 I/O Assignment Settings Tab



Parameters (I/O assignment) of the C Controller module can be set in this tab.

Assign I/O to slots and set parameters related to the base units where modules are installed.

For the I/O assignment, refer to the C Controller Module User's Manual (Hardware Design, Function Explanation).

(1) Precautions for the I/O assignment settings tab

(a) Multiple CPU system configuration

Set the multiple CPU parameter on the CPU No. 1.

For the CPU module No.2 and later, utilize the parameters set on the CPU No.1.

For the multiple CPU parameter, refer to the C Controller Module User's Manual (Hardware Design, Function Explanation).

(2) I/O assignment settings tab

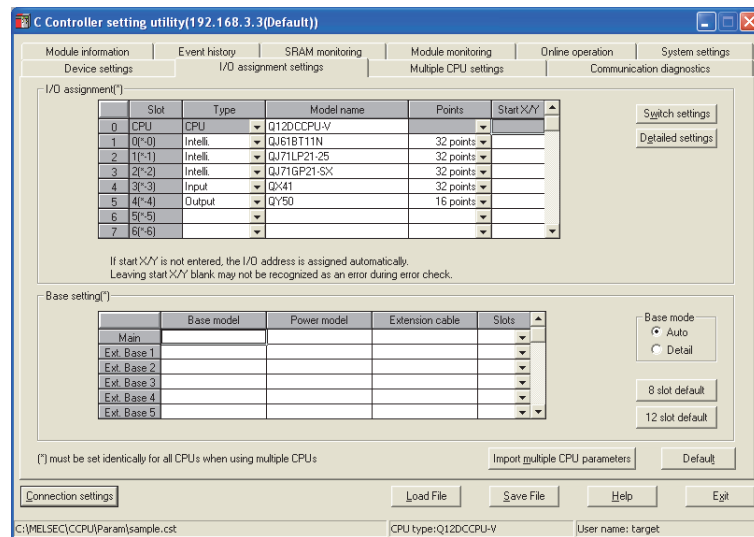


Figure 4.26 I/O assignment settings tab

Table 4.25 Description of the I/O assignment settings tab



Item	Description	Reference page
I/O assignment	I/O assignment setting. In a multiple CPU system, the settings for each CPU module must be identical.	—
Slot	Displays "slot No." of the module. In the parenthesis, module's base No. and mounting position in the base unit are displayed.	—

(To the next page)

Table 4.25 Description of the I/O assignment settings tab (continued)

Device settings | **I/O assignment settings** | Multiple CPU settings | Communication diagnostics

Item	Description	Reference page
I/O assignment	—	—
Type	Select the type of the mounted module. In a multiple CPU system, no error will be displayed when "CPU (Empty)" is set to the position where the C Controller module does not support. Check for incorrect setting. (Default: "(blank)")	—
Model name	Enter the model name of the mounted module.	—
Points	When changing I/O points, select the I/O points of the slot. (Default: "(blank)")	—
Start X/Y	When changing I/O No., select the I/O No. of the slot.	—
[Switch settings] button	Opens the Switch settings for I/O and intelligent function module screen.	Page 4-39
[Detailed settings] button	Opens the Intelligent function module detailed settings screen.	Page 4-40
Base setting	Base unit setting. In a multiple CPU system, the settings for each CPU module must be identical.	—
Base model	Enter the model name of the base unit.	—
Power model	Enter the model name of the power supply module.	—
Extension cable	Enter the model name of the extension cable.	—
Slots	Select the number of slots of the base unit. (Default: none)	—
Base mode	Select Base mode either from "Auto" or "Detail" (Default: "Auto")	—
[8 slot default], [12 slot default] button	Batch-sets the base unit to the specified number of slots.	—
[Import multiple CPU parameters] button	Reads out multiple CPU parameters either from the following file. •Project file created with GX Developer •Parameter setting file created with C Controller setting utility.	Page 4-48
[Default] button	Changes the settings back to default.	—

(3) Switch settings for I/O and intelligent function module screen

Switch settings for I/O and intelligent function module can be set on this screen. For the switch settings, refer to the C Controller Module User's Manual (Hardware Design, Function Explanation).

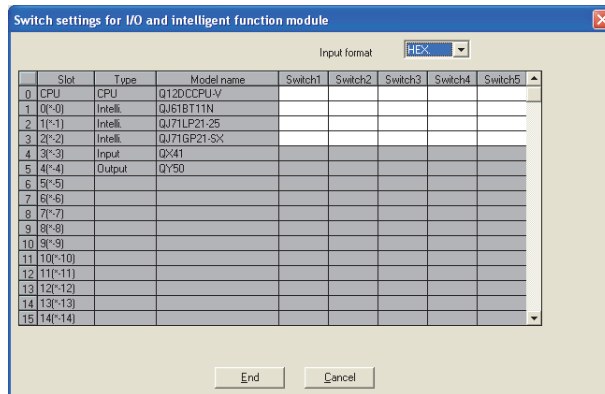


Figure 4.27 Switch settings for I/O and intelligent function module screen

Table 4.26 Description of the Switch settings for I/O and intelligent function module screen

Item	Description	Reference page
Input format	Select the numerical input format. (Default: "HEX.")	—
Slot, Type, Model name	Displays the "Slot", "Type", and "Model" set on the I/O assignment screen.	Page 4-37
Switch 1 to Switch 5	Set the switches of the programmable controller CPU or intelligent function module. In a multiple CPU system, the settings for each CPU module must be identical. Switch settings of the programmable controller CPU is available only in the 12DCCPU-V.	—
[End] button	Saves the settings and closes the Switch settings for I/O and intelligent function module screen.	—
[Cancel] button	Closes the Switch settings for I/O and intelligent function module screen without saving the settings.	—

(4) Intelligent function module detailed settings screen

Detailed settings for I/O modules and intelligent function modules can be set on this screen.

For setting items on this screen, refer to the C Controller Module User's Manual (Hardware Design, Function Explanation).

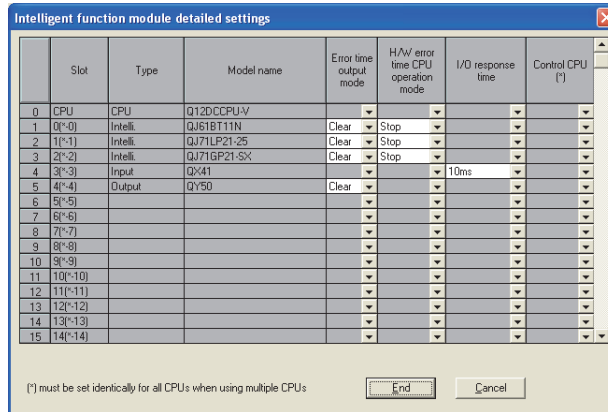


Figure 4.28 Intelligent function module detailed settings screen

Table 4.27 Description of the Intelligent function module detailed settings screen

Item	Description	Reference page	
Slot, Type, Model name	Displays the "Slot", "Type", and "Model" set on the I/O assignment screen.	Page 4-37	
Error time output mode	Select the output mode for error detection. (Default: "Clear")	—	
H/W error time CPU operation mode	Select the operation mode of the C Controller module for H/W error detection. (Default: "Stop")	—	
I/O response time	Set the I/O response time.	—	
	Mounted module		Default
	High-speed input module, interrupt module		0.2
	Input module, I/O combined module		10
	(In increments of ms)		
Control CPU	Set the control CPU In a multiple CPU system, the settings for each CPU module must be identical. (Default: "No.1")	—	
<input type="button" value="End"/> button	Saves the settings and closes the Intelligent function module detailed settings screen.	—	
<input type="button" value="Cancel"/> button	Closes the Intelligent function module detailed settings screen without saving the settings.	—	

4.10 Multiple CPU Settings Tab



Parameters of the C Controller module (multiple CPU setting) for configuring a multiple CPU system can be set in this tab.

Set parameters regarding the multiple CPU system.

(1) Precautions for the Multiple CPU settings tab

(a) Parameter setting

Set the multiple CPU parameters on the CPU No.1.

For the CPU module No.2 or later, utilize the parameters set on the CPU No.1.

For the multiple CPU parameter, refer to the C Controller Module User's Manual (Hardware Design, Function Explanation).

(2) Multiple CPU settings tab

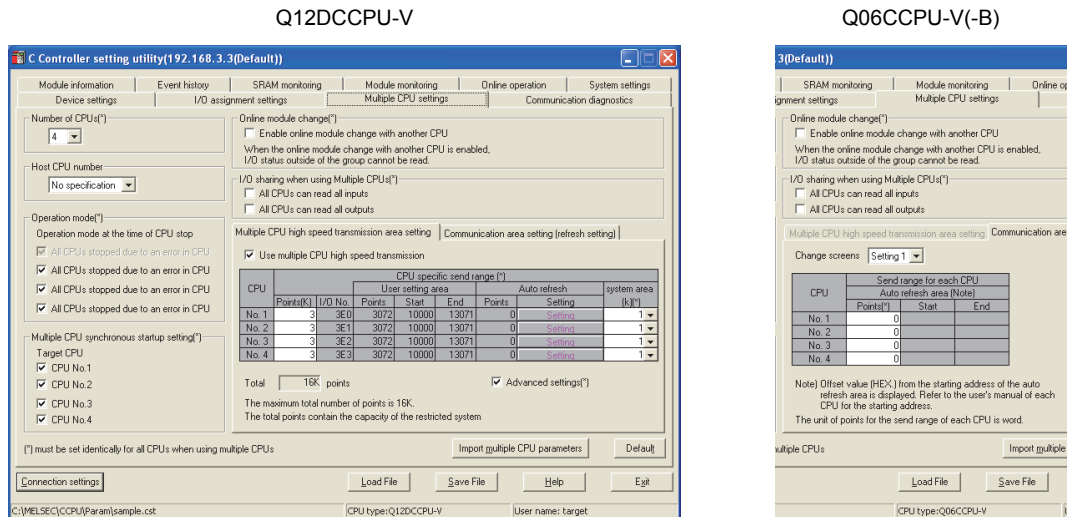


Figure 4.29 Multiple CPU settings tab

Table 4.28 Description of the Multiple CPU settings tab

Device settings I/O assignment settings Multiple CPU settings Communication diagnostics			
Item	Description		Reference page
Number of CPUs	Set the total number of the programmable controller CPUs, C Controller modules, and Motion CPUs that comprise the multiple CPU system. In a multiple CPU system, the settings for each CPU module must be identical. (Default: 1)		—
Host CPU number	Set the CPU No. of the host CPU (C Controller module). For the Q06CCPU-V(-B), this setting is not available. This item is disabled when "Number of CPUs" is set to "1". (Default: No specification)		—

(To the next page)

Table 4.28 Description of the Multiple CPU settings tab (continued)

Device settings		I/O assignment settings		Multiple CPU settings		Communication diagnostics	
Item	Description				Reference page		
Operation mode	Set the operation mode for a CPU stop error on each programmable controller CPU. In a multiple CPU system, the settings for each CPU module must be identical. This item is disabled when "Number of CPUs" is set to "1". (Default: checked (all CPUs are to be stopped for an error on each CPU module))				—		
Multiple CPU synchronous startup setting	Check the target CPU module(s) of the multiple CPU synchronized boot-up. For the Q06CCPU-V(-B), this setting is not available. In a multiple CPU system, the settings for each CPU module must be identical. This item is disabled when "Number of CPUs" is set to "1". (Default: checked (Multiple CPU synchronized boot-up is enabled))				—		
Online module change	Set whether to allow online change on the Process CPU. In a multiple CPU system, the settings for each CPU module must be identical. This item is disabled when "Number of CPUs" is set to "1".				—		
I/O sharing when using Multiple CPUs	Set whether to import the non-group input and/or output states. In a multiple CPU system, the settings for each CPU module must be identical. This item is disabled when "Number of CPUs" is set to "1". (Default: not checked (not import the input and output states))				—		
Multiple CPU high speed transmission area setting	Set the Multiple CPU high speed transmission area. For the Q06CCPU-V(-B), this item is disabled. In a multiple CPU system, the settings for each CPU module must be identical. This item is disabled when "Number of CPUs" is set to "1".				—		
	Use multiple CPU high speed transmission	Set when using multiple CPU high-speed transmission. (Default: checked (the function is enabled))				—	
	CPU specific send range	Set the points to the multiple CPU high-speed transmission area where each CPU module uses to send data. (Default: see below, Setting range: 12 to 14 points or less (Note that total 16 points or less including the system area))				—	
		Setting of "Number of CPUs"		Send range for each CPU			
				CPU No.1	CPU No.2	CPU No.3	CPU No.4
		2		7	7	—	—
	3		7	3	3	—	
	4		3	3	3	3	
User setting area	Displays usable range in the user setting area.				—		
Auto refresh	Displays the points of the multiple CPU high-speed transmission area where each CPU module performs auto refresh. For setting the multiple CPU high-speed transmission area, open the Auto refresh settings screen by clicking the Setting button. (☞ Page 4-44, Section 4.10 (3))				—		
system area	Set size for the system area that is used as the multiple CPU high-speed transmission area. This item is disabled when "Advanced settings" is not checked. (Default: 1)				—		
Advanced settings	Check when using the system area. (Default: not checked (not use))				—		

(To the next page)

Table 4.28 Description of the Multiple CPU settings tab (continued)

Device settings | I/O assignment settings | **Multiple CPU settings** | Communication diagnostics

Item	Description	Reference page
Communication area setting (refresh setting) ^{*1}	Set the auto refresh area within CPU modules	—
Change screens	Select any of registered refresh setting. (Default: "Setting1")	—
Send range for each CPU	Set the points of a shared memory by which each CPU module use to send data. Points for "Start" and "End" are automatically calculated and displayed. (Default: 0, Setting range: 0 to 2048)	—
Import multiple CPU parameters button	Reads out multiple CPU parameters either from the following file. •Project file created with GX Developer •Parameter setting file created with C Controller setting utility.	Page 4-48
Default button	Changes the settings back to default.	—

* 1 The following dialog box appears when switching this screen to another without setting the number smaller than the refresh setting.

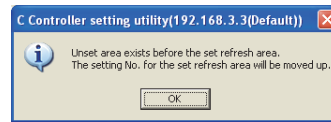


Figure 4.30 Dialog box

Clicking the **OK** button moves up the preset refresh setting to an empty area with the smaller No.

Example)

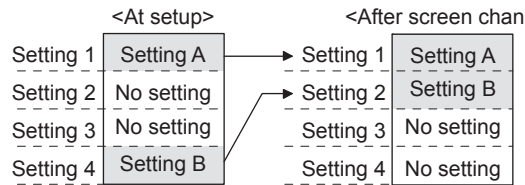


Figure 4.31 Refresh settings example

POINT

Points for the system area used for dedicated instructions can be changed to 2K by selecting "Advanced settings" which increases the number of dedicated instructions to be simultaneously executed.

For dedicated instructions, refer to the manual for the Motion CPU used.

(3) Auto refresh settings screen

Points of the Multiple CPU high speed transmission area to which each CPU module performs auto refresh can be set on this screen.

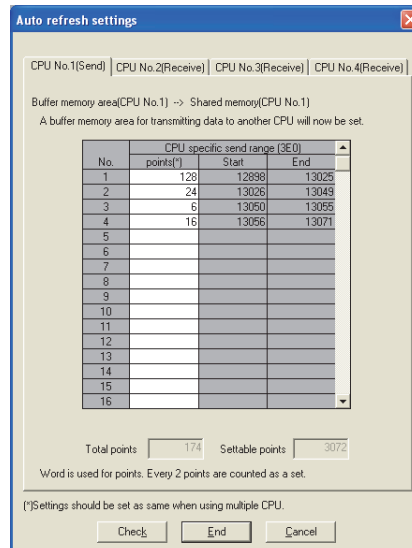


Figure 4.32 Auto refresh settings screen

Table 4.29 Description of the Auto refresh settings screen

Item	Description
<<CPU No.1>> tab to <<CPU No.4>> tab	Select the CPU module to be configured. Either "(Send)" or "(Receive)" is displayed with a tab name when "No.1" to "No.4" are selected for "Host CPU number". "(Send)" and "(Receive)" indicates whether respective CPU data are sent to or received from the C Controller module.
CPU specific send range	Set the points to the Multiple CPU high speed transmission area where each CPU module performs auto refresh. (Default: " "(blank), Setting range: up to "Max. points")
points	Displays the Multiple CPU high speed transmission area set in "Auto refresh" by address.
Start	The C Controller module calculates the value to display.
End	Displays total of the points set in "Auto refresh".
Total points	Displays the maximum points that can be set in "Auto refresh".
Settable points	Check for incorrect setting.
<input type="button" value="Check"/> button	Saves the settings and closes the Auto refresh settings screen.
<input type="button" value="End"/> button	Closes the Auto refresh settings screen without saving the settings.
<input type="button" value="Cancel"/> button	

4.11 Communication Diagnostics Tab



Whether access from the C Controller module in a multiple CPU system to another CPU is available or not can be checked in this tab.

(1) Precautions for the Communication diagnostics tab

- (a) When a utility communication error has occurred
When a utility communication error has occurred during diagnosing, set the connection target again in the Connection settings so that the communication can be restarted.

(2) Communication diagnostics tab

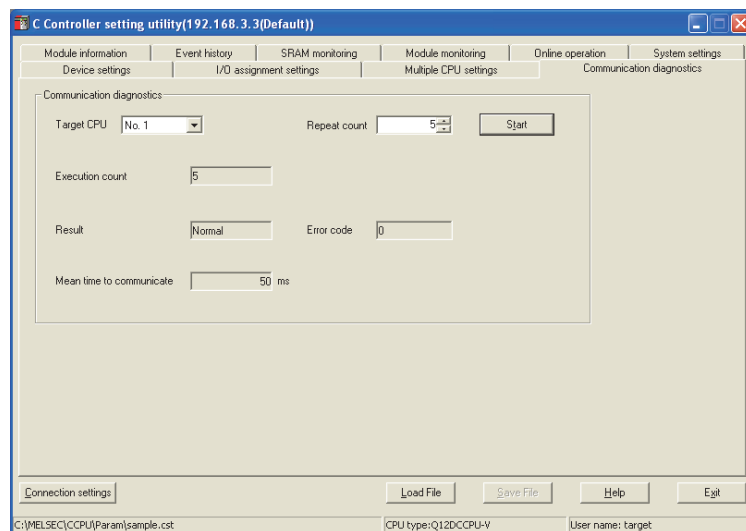
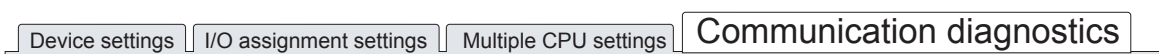


Figure 4.33 Communication diagnostics tab

Table 4.30 Description of the Communication diagnostics tab





Item	Description	Reference page
Communication diagnostics	Performs communication diagnostics	—
Target CPU	Select the CPU to diagnose. Selecting the host CPU displays the error code "19203". Selecting an empty slot displays the error code "19200". (Default: "No.1")	—
Repeat count	Specify the number of times that communication diagnostics is performed. (Default: 5, Setting range 1 to 32767)	—
[Start] or [Stop] button	Executes or stops the communication diagnostics.	—
Execution count	Displays the number of times that communication diagnostics has been executed.	—
Result	"Normal" appears when the execution result is normal. "Error" appears when the execution was resulted in an error. "Diagnosing" appears during diagnosing.	—
Mean time to communicate	Displays the mean time required for communication.	—
Error code	Displays an error code of communication diagnostics. For details of error codes, refer to HELP of the MELSEC data link function.	—

4.12 System Menu



(1) System menu

System menu in C Controller setting utility can be accessed either in the following three way.

- Right-click on the title bar.
- Click the () icon on the title bar.
- Press the [Alt] key and then the [↓] key.
- For Windows® 7 or later, right-click the icon () on the task bar while pressing the [Shift] key.

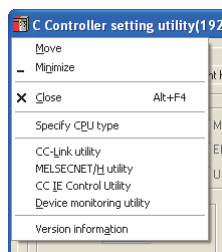


Figure 4.34 System menu

Table 4.31 Description of the System menu

Item	Description	Reference page
Move, Minimize, Close	Refer to manuals for Microsoft® Windows®.	—
Specify CPU type	Specifies a C Controller module to which parameters are set or to be monitored. This item cannot be selected during monitoring.	Page 3-4
CC-Link utility	Starts CC-Link utility. When C Controller setting utility is connected online, this utility is started with the same connection target connected.	Page 5-1
MELSECNET/H utility	Starts MELSECNET/H utility. When C Controller setting utility is connected online, this utility is started with the same connection target connected.	Page 6-1
CC IE Control utility	Starts CC IE Control utility. When C Controller setting utility is connected online, this utility is started with the same connection target connected. For the Q06CCPU-V-B, this utility cannot be used.	Page 7-1
Device monitoring utility	Starts Device monitoring utility. When C Controller setting utility is connected online, this utility is started with the same connection target connected. For the Q06CCPU-V-B, this utility cannot be used.	Page 8-1
Version information	Opens the version information screen.	Page 4-47

(2) Version information screen

Version information of C Controller setting utility can be checked on this screen.

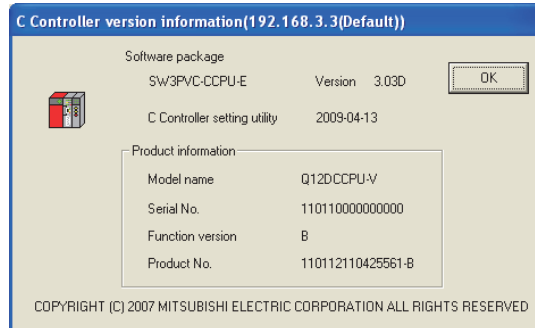


Figure 4.35 Version information screen (Example: Version 3.03D)

Table 4.32 Description of the version information screen

Item	Description	Reference page
Software package	—	—
SW3PVC-CCPU-E	Displays the version of SW3PVC-CCPU.	—
C Controller setting utility	Displays the update date of C Controller setting utility.	—
Product information	Displays the product information of the C Controller module (Model name, Serial No., and product No.) when this utility is connected to the module online. The System information screen also displays the same information.	—
Model name	This information cannot be displayed offline.	
Serial No.	In a multiple CPU system, the information can also be confirmed in the system monitor (product information list) of GX Developer.	
Product No.	For the Q06CCPU-V(-B), "-" appears for the product No.	
OK button	Closes the version information screen.	—

4.13 Reading Initial Setting File and Importing Multiple CPU Parameters



(1) Displaying the screen

Display the Open project screen in either of the following ways.

- Click the **Load initial setting file** button in the System settings tab.
- Click the **Import multiple CPU parameters** button in the I/O assignment settings tab.
- Click the **Import multiple CPU parameters** button in the Multiple CPU settings tab

(2) Open project screen

A project of the set data can be selected on this screen.

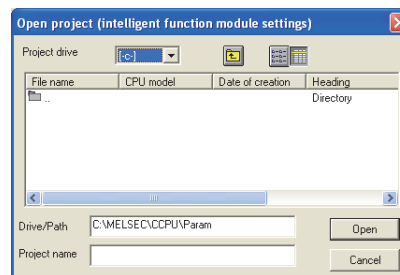


Figure 4.36 Open project screen

Table 4.33 Description of the Open project screen

Item	Description
Project drive	Select the drive where a project is saved.
Drive/Path	Enter the drive and path for the project.
Project name	Enter the project name to be read.
Open button	Reads out the project.
Cancel button	Closes the screen without reading out the project.

(3) Precautions for utilizing set data

- (a) Initial setting file of intelligent function modules and multiple CPU parameters can be imported from the following files.

Table 4.34 Files to import

Item	Description
Initial setting file of intelligent function module	Project file in GX Developer (☞ Page 4-49, Section 4.13 (3) (d)) For GX Works2, the projects saved in the format of GX Developer can be reused.
Multiple CPU parameters	•Project file in GX Developer For GX Works2, the projects saved in the format of GX Developer can be reused. •Parameter setting file in C Controller setting utility

- (b) When transferring data of GX Developer set by another personal computer, to a development environment (personal computer), transfer the project folder of GX Developer.
The project cannot be specified if only file was transferred.
- (c) When multiple CPU parameters are utilized between different CPU types, (☞ Page 3-4, Section 3.4) default values will be displayed for the parameters not supported by the CPU type.
- (d) Reading out a project file of GX Developer
On the C Controller module, the Initial settings of intelligent function module can be read out through a project file of GX Developer.
Note that only the initial settings made by GX Configurator can be read out.

Table 4.35 Availability of intelligent function module parameter read

Name	Availability	Measures for unreadable GX Configurator
GX Configurator-AD	○	—
GX Configurator-DA	○	—
GX Configurator-SC	×	Write each parameter of the serial communication module to the buffer memory using the Bus interface function (QBF_ToBuf).
GX Configurator-CT	○	—
GX Configurator-TC	○	—
GX Configurator-TI	○	—
GX Configurator-FL	○	—
GX Configurator-PT	○	—
GX Configurator-AS	○	—
GX Configurator-QP	×	•For the Q12DCCPU-V To write parameters to a positioning module, connect a development environment (personal computer) and the C Controller module with a USB, and use GX Configurator-QP Version 2.30G or later. ☞ GX Configurator-QP Version 2 Operating Manual •For the Q06CCPU-V(-B) Write parameters to a positioning module to the buffer memory using the Bus interface function (QBF_ToBuf). By using the sample program (QPParamSet.c), the parameter file created with GX Configurator-QP can be transferred to the positioning module. (☞ Page 12-1, CHAPTER 12)
GX Configurator-CC	×	Set parameters for the CC-Link module using CC-Link utility of SW3PVC-CCPU.

○: Read available, ×: Read N/A

4.14 Precautions



(1) Simultaneous use of utility

Up to eight C Controller setting utilities can be simultaneously activated.

(2) Written parameters

Parameters written to the C Controller module take effect when the C Controller module is powered off and then on or is reset.

(3) Tabs available to operate offline

When C Controller setting utility connection is offline, data can be set only in the System settings tab, I/O assignment settings tab, and Multiple CPU settings tab.

(4) Terminating Microsoft® Windows®

Do not terminate Microsoft® Windows® while C Controller setting utility is running. Terminate C Controller setting utility first and then Microsoft® Windows®.

(5) Connection during script file processing

Connection from utility to a C Controller module may not be available during processing a script file (while the RUN LED is flashing).

If the RUN LED remains flashing, refer to the C Controller Module User's Manual (Hardware Design, Function Explanation) and troubleshoot the problem.

(6) Time required for connection from each utility to the C Controller module

The following time is required for the C Controller module to connect to each utility after power-on or reset.

- When executing a script file, "STARTUP.CMD":
Upon completion of the RUN LED flashing.
- When not executing a script file, "STARTUP.CMD":
Fifteen (15) seconds after completion of start or reset

Do not attempt a connection before the above time has elapsed after completion of power-on or reset.

Changing "Priority" to a larger value in the Option tab of C Controller setting utility increases the time after which the C Controller module can be connected.

CHAPTER 5 CC-LINK UTILITY

5.1 CC-Link Utility Function List

Q12DCCPU-V	Q06CCPU-V	Q06CCPU-V-B
○	○	△

Table 5.1 CC-Link utility function list

Name	Description	Availability			Reference page
		Q12DCCPU-V	Q06CCPU-V	Q06CCPU-V-B	
Specify CPU type	Specifies a C Controller module to which parameters are set or to be monitored.	○	○	○	Page 3-4
Connection settings	Sets parameters to a C Controller module which is to be connected with this utility.	○	○	○	Page 3-5
Parameter setting file saving/loading	Saves parameters set in C Controller setting utility into a file or loads the file.	○	○	○	Page 3-14
Module information display	Displays information of the CC-Link module (own station) controlled by the connected C Controller module.	○	○	○	Page 5-2
Other station monitoring	Displays line states of other stations (CC-Link network stations).	○	○	○	Page 5-6
Online operation	Reads, writes, verifies the CC-Link parameter.	○	△	△	Page 5-9
Parameter settings	Sets parameters for the CC-Link modules.	○	○	○	Page 5-11
Target settings	Sets a logical station number for access to a CPU module in a multiple CPU system where a CC-Link module is mounted.	○	○	×	Page 5-15
Test	Tests the mounted CC-Link modules.	○	○	○	Page 5-18

○: Available, △: Available but partially restricted, ×: N/A

1	OVERVIEW
2	INSTALLATION AND UNINSTALLATION OF SOFTWARE PACKAGE
3	COMMON UTILITY OPERATIONS
4	C CONTROLLER SETTING UTILITY
5	CC-LINK UTILITY
6	MELSECNET/H UTILITY
7	CC-IE CONTROL UTILITY
8	DEVICE MONITORING UTILITY

5.2 Module Information Tab



The Module information tab displays information of the CC-Link module (own station) controlled by the connected C Controller module.

(1) Precautions for the Module information tab

- (a) When a utility communication error has occurred
When a utility communication error has occurred during connection, click the **Start monitoring** button or set the connection target again in the Connection settings so that the communication can be restarted.
- (b) During reset
Communications are not available while the C Controller module is being reset. Start communications after the reset is complete.

(2) Module information tab

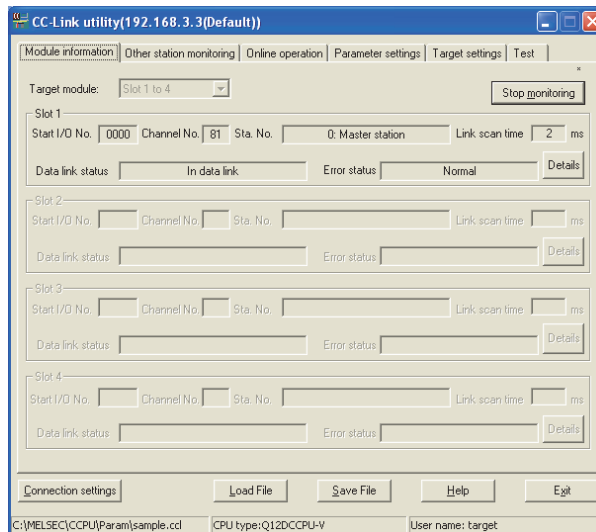


Figure 5.1 Module information tab

Table 5.2 Description of Module information tab

Module information		Other station monitoring	Online operation	Parameter settings	Target settings	Test
Item	Description					
Target module	Select the CC-Link module to display its information. (Default: "Slot 1 to 4")					
Start monitoring button, Stop monitoring button	Starts/stops monitoring of the CC-Link module. *** flashes in the upper right of the button during monitoring. These buttons are disabled in the offline status.					
Slot n (n is within the range set to "Target module")	Displays information of the CC-Link module. The information is displayed in ascending order of start I/O No.					
Start I/O No.	Displays the start I/O No. of the CC-Link module.					
Channel No.	Displays the channel No. of the CC-Link module whose parameters have been set. "- " appears when "Channel No." has not been set.					

(To the next page)

Table 5.2 Description of Module information tab (continued)

Module information Other station monitoring Online operation Parameter settings Target settings Test	
Item	Description
Slot n	—
Sta. No.	Displays the station No., Station type, and Operation mode. (Display example: "0: Master station (Ver.2 mode)", "1: Local station") For details of operation mode, refer to the following. Page 5-3, Section 5.2 (2) (a)
Link scan time	Displays current link scan time of the CC-Link module. (In increments of ms)
Data link status	Displays data link status of the CC-Link module. (Page 5-3, Section 5.2 (2) (b))
Error status	Displays error status of the CC-Link module. (Page 5-4, Section 5.2 (2) (c))
Details button	Opens the Detailed module information screen. (Page 5-4, Section 5.2 (3)) This button is disabled during monitoring.

(a) Operation mode

The following indicates details of the Operation mode.

Table 5.3 Details of Operation mode

Display	Description
No display	Cyclic transmission data size has not been increased. Remote net(Ver.1 mode)
(Additional mode)	Both the CC-link module supporting/not supporting the cyclic transmission data size increase exist. Remote net(Add. mode)
(Ver.2 mode)	Cyclic transmission data size has been increased. Remote net(Ver.2 mode)

(b) Data link status

The following indicates details of the Data link status.

Table 5.4 Details of Data link status

Display	Description
In data link	Data link is being performed.
Suspended data link	Data link is suspended.
Initial status	In initial status (before parameter update)
Waiting for receiving parameters	Parameters have not been received.
Disconnecting (no request polling)	Disconnected from data link network due to no request from the master station.
Disconnecting (Link error)	Disconnected from data link network due to a line error.
Disconnecting (Other)	Disconnected from data link network due to any other factor.
Performing line test	Line test is in process.
Performing parameter setting test	Parameter setting test is in process from the master station.
Performing auto-return	Processing for automatically returning to data link network is being performed.
Resetting	CC-Link module is being reset.

(c) Error status

The following indicates details of the Error status.

Table 5.5 Details of error status

Display	Description
Normal	Normal status.
Transport error	Transmission channel error was detected.
Parameter error	Parameter error was detected.
CRC error	CRC error was detected.
Timeout error	Timeout error was detected.
Abort error	CC-Link module (gate array) error was detected.
Setting error	Setting error was detected.
Other error	Any other error was detected. Refer to the manual for the CC-Link module and troubleshoot the problem.

(3) Detailed module information screen

Detailed information of the CC-Link module are displayed on this screen.

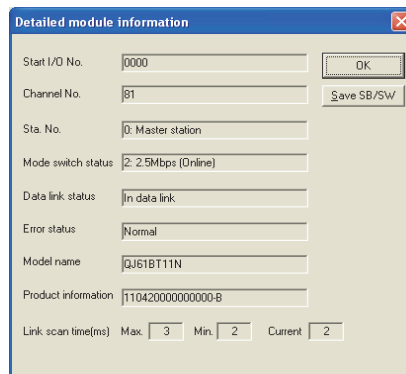


Figure 5.2 Detailed module information screen

Table 5.6 Description of Detailed module information screen

Item	Description
Start I/O No., Channel No., Sta. No.	Displays detailed information of the CC-Link module. (Page 5-2, Section 5.2 (2))
Mode switch status	Displays the mode switch status of the CC-Link module. (Page 5-5, Section 5.2 (3) (a))
Data link status	Displays data link status of the CC-Link module. (Page 5-3, Section 5.2 (2) (b))
Error status	Displays error status of the CC-Link module. (Page 5-4, Section 5.2 (2) (c))
Model name	Displays the model name of the CC-Link module.
Product information	Displays the product information (serial No. and function version) of the CC-Link module.
Link scan time (ms)	Displays the maximum, minimum, and current scan time of the CC-Link module. (In increments of ms)
OK button	Closes the Detailed module information screen.
Save SB/SW button	Saves the link special relay (SB) and link special register (SW) data of the CC-Link module into a CSV format file. (Page 5-5, Section 5.2 (4))

Remark

The information displayed on the Detailed module information screen is based on the setting when the screen was opened.
To update the information, close and reopen the Detailed module information screen.

(a) Mode switch status

The following indicates details of the Mode switch states.

Table 5.7 Details of Mode switch states

Display	Transmission speed	Mode
0: 156kbps (Online)	156Kbps	Online
1: 625kbps (Online)	625Kbps	
2: 2.5Mbps (Online)	2.5Mbps	
3: 5Mbps (Online)	5Mbps	
4: 10Mbps (Online)	10Mbps	
5: 156kbps (Line test <input type="checkbox"/>)	156Kbps	Line test When <input type="checkbox"/> =1, station No. is 0. When <input type="checkbox"/> =2, station No. is 1 to 64.
6: 625kbps (Line test <input type="checkbox"/>)	625Kbps	
7: 2.5Mbps (Line test <input type="checkbox"/>)	2.5Mbps	
8: 5Mbps (Line test <input type="checkbox"/>)	5Mbps	
9: 10Mbps (Line test <input type="checkbox"/>)	10Mbps	
A: 156kbps (Hardware test)	156Kbps	Hardware test
B: 625kbps (Hardware test)	625Kbps	
C: 2.5Mbps (Hardware test)	2.5Mbps	
D: 5Mbps (Hardware test)	5Mbps	
E: 10Mbps (Hardware test)	10Mbps	
F: Not available	—	

(4) Specifications of the SB/SW save file

A file format can be selected in "Save as" on the following screen.

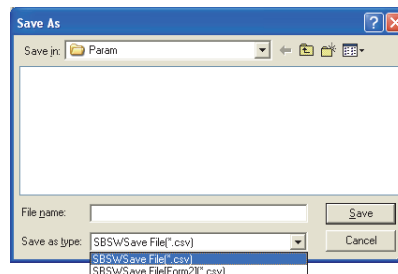


Figure 5.3 Save As screen

To use the text data of the SB/SW save file in a user program etc., select "SBSWSave File(*.csv)" when saving.

To use them on Microsoft® Excel etc., select "SBSWSave File[Form2](*.csv)" when saving.

When "SBSWSave File(*.csv)" is selected	When "SBSWSave File[Form2](*.csv)" is selected																																																
<pre>SB/Sw,192.168.3.3(Default) QJ61BT11N ,1104200000000000-B Start I/O No., Station No., Station type 0000, 0, Master station SB/Sw information Device, Value, , Device, value SB0000, 0, , SW0000, 0000 SB0001, 0, , SW0001, 0000 SB0002, 0, , SW0002, 0000 SB0003, 0, , SW0003, 0000 SB0004, 0, , SW0004, 0000 #####</pre>	<table border="1"> <tr> <td>[SB/SW]</td> <td>[192.168.3.3(Default)]</td> <td></td> <td></td> </tr> <tr> <td>[QJ61BT11N]</td> <td>[1104200000000000-B]</td> <td></td> <td></td> </tr> <tr> <td>[Start I/O No.]</td> <td>[Station N]</td> <td>[Station type]</td> <td></td> </tr> <tr> <td>[0000]</td> <td>[0]</td> <td>[Master station]</td> <td></td> </tr> <tr> <td colspan="4">[SB/SW information]</td> </tr> <tr> <td>[Device]</td> <td>[Value]</td> <td>[Device]</td> <td>[Value]</td> </tr> <tr> <td>[SB0000]</td> <td>[0]</td> <td>[SW0000]</td> <td>[0000]</td> </tr> <tr> <td>[SB0001]</td> <td>[0]</td> <td>[SW0001]</td> <td>[0000]</td> </tr> <tr> <td>[SB0002]</td> <td>[0]</td> <td>[SW0002]</td> <td>[0000]</td> </tr> <tr> <td>[SB0003]</td> <td>[0]</td> <td>[SW0003]</td> <td>[0000]</td> </tr> <tr> <td>[SB0004]</td> <td>[0]</td> <td>[SW0004]</td> <td>[0000]</td> </tr> <tr> <td>[#####]</td> <td>[#####]</td> <td>[#####]</td> <td>[#####]</td> </tr> </table>	[SB/SW]	[192.168.3.3(Default)]			[QJ61BT11N]	[1104200000000000-B]			[Start I/O No.]	[Station N]	[Station type]		[0000]	[0]	[Master station]		[SB/SW information]				[Device]	[Value]	[Device]	[Value]	[SB0000]	[0]	[SW0000]	[0000]	[SB0001]	[0]	[SW0001]	[0000]	[SB0002]	[0]	[SW0002]	[0000]	[SB0003]	[0]	[SW0003]	[0000]	[SB0004]	[0]	[SW0004]	[0000]	[#####]	[#####]	[#####]	[#####]
[SB/SW]	[192.168.3.3(Default)]																																																
[QJ61BT11N]	[1104200000000000-B]																																																
[Start I/O No.]	[Station N]	[Station type]																																															
[0000]	[0]	[Master station]																																															
[SB/SW information]																																																	
[Device]	[Value]	[Device]	[Value]																																														
[SB0000]	[0]	[SW0000]	[0000]																																														
[SB0001]	[0]	[SW0001]	[0000]																																														
[SB0002]	[0]	[SW0002]	[0000]																																														
[SB0003]	[0]	[SW0003]	[0000]																																														
[SB0004]	[0]	[SW0004]	[0000]																																														
[#####]	[#####]	[#####]	[#####]																																														

Figure 5.4 Examples of SB/SW save files

Remark

The folder of the SB/SW save file is stored in "C:\MELSEC\CCPU\Param" by default. (When SW3PVC-CCPU has been installed in "C:\MELSEC").

5.3 Other Station Monitoring Tab



This tab displays the line states of other stations (CC-Link network stations).

(1) Precautions for the Other station monitoring tab

- (a) Monitoring status
Monitoring is stopped while CC-Link utility is being started.
To start monitoring, click the **Start monitoring** button.
- (b) When a utility communication error has occurred
When a utility communication error has occurred during connection, click the **Start monitoring** button or set the connection target again in the Connection settings so that the communication can be restarted.
- (c) During reset
Communications are not available the C Controller module is reset. Start communications after the reset is complete.

(2) Other station monitoring tab

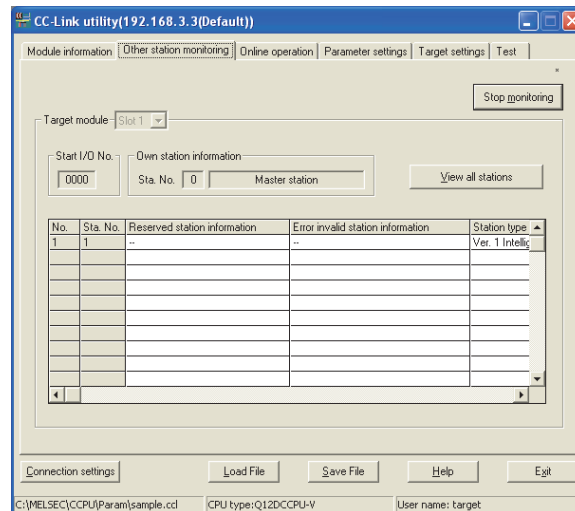


Figure 5.5 Other station monitoring

Table 5.8 Description of the Other station monitoring tab



Item	Description
Target module	Select the module to monitor as other station monitoring. (Default: "Slot 1", Setting range: "Slot 1" to "Slot 8")
Start I/O No.	Displays the start I/O No. of the CC-Link module selected in "Target module".
Own station information	Displays the station No., station type, and operation mode. For details of operation mode, refer to the following. ☞ Page 5-3, Section 5.2 (2) (a)
View all stations button	Opens the View all stations screen. (☞ Page 5-8, Section 5.3 (3))
No.	Displays the connection number.

(To the next page)

Table 5.8 Description of the Other station monitoring tab (continued)

<div style="display: flex; justify-content: space-between; border-bottom: 1px solid black; padding-bottom: 5px;"> Module information Other station monitoring Online operation Parameter settings Target settings Test </div>	
Item	Description
Target module	—
Sta. No.	Displays the station No.
Reserved station information	Displays the reserved station.
Error invalid station information	Displays the error invalid station.
Station type	Displays the error invalid station.
Occupied number	Displays the number of occupied stations.
Status	Displays the status of each station module. (☞ Page 5-7, Section 5.3 (2) (a))
Transient error	Displays the transient error of each module.
Expanded cyclic setting	Displays the expanded cyclic setting. This item are not displayed when the status of the target module is "Remote net(Ver.1 mode).
Remote station points	Displays the number of remote station points. This item are not displayed when the status of the target module is "Remote net(Ver.1 mode).
<div style="border: 1px solid black; padding: 2px; display: inline-block;">Start monitoring</div> , or <div style="border: 1px solid black; padding: 2px; display: inline-block;">Stop monitoring</div> button	Starts or stops monitoring the CC-Link module. "***" flashes in the upper right of the button during monitoring. These buttons are disabled in the offline status.

(a) States

Details of states are given below.

Table 5.9 Details of states

Display	Description
Normal	Normal
Temporary error invalidity status	Temporary error is invalid.
Data link error	Link status is in error.
WDT error	Watchdog timer error has occurred.
Blown fuse confirmation error	There is a station that has a fuse blow.
Station No. duplication	Station number is duplicated.
Switch changing	Switch setting was changed.

(3) View all stations screen

The following indicates communication states of other stations.

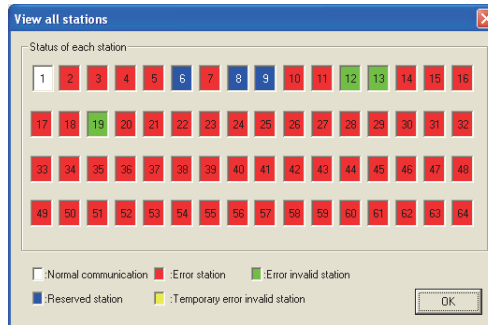


Figure 5.6 View all stations screen

Table 5.10 Description of View all stations screen

Item	Description
Status of each station	<p>Communication status of each station is coded in color as follows.</p> <ul style="list-style-type: none"> White: Normal communication Red: Error station Green: Error invalid station Blue: Reserved station Yellow: Temporary error invalid station <p>The information displayed on the screen is based on the communication status when the screen was opened.</p> <p>Any changes on the communication status after opening the screen does not take effect to the display.</p>
OK button	Closes the View all stations screen.

5.4 Online Operation Tab



The CC-Link parameters can be read, written, or verified from this tab.

(1) Precautions for the Online operation tab

- (a) When a utility communication error has occurred
When a utility communication error has occurred during connection, set the connection target again in the Connection settings so that the communication can be restarted.
- (b) During reset
Communications are not available while the C Controller module is being reset. Start communications after the reset is completes.
- (c) The drive to which parameters are written
When writing parameters from each of the utilities to the following C Controller module, write them to the same drive.
 - Q12DCCPU-V whose serial No. (first five digits) is "12042" or later
 If the parameters are written to different drives, those of the drive, which include C Controller setting parameters, will take effect.

(2) Online operation tab

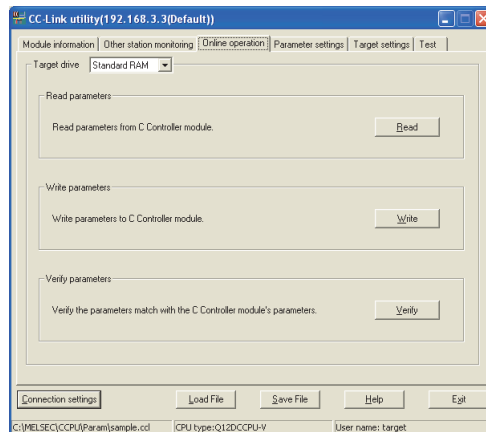


Figure 5.7 Online operation tab

Table 5.11 Description of Online operation tab

Module information Other station monitoring Online operation Parameter settings Target settings Test	
Item	Description
Target drive	Set a target drive for reading, writing, or verifying parameters.*1 This setting is not available for the Q06CCPU-V(-B). (Default: Parameter boot drive)
Read parameters Read button	Reads out the CC-Link parameter from the C Controller module.

* 1 For the drives to which parameters can be written (user memory), refer to the C Controller Module User's Manual (Hardware Design, Function Explanation).

(To the next page)

Table 5.11 Description of Online operation tab (continued)

Item	Description
Write parameters <input type="button" value="Write"/> button	Writes the CC-Link parameter to the C Controller module. The written parameters take effect when the C Controller module is powered off and then on or is reset. Parameters can be written only when "Write authority" is selected in Connection settings. If "Write authority" is not selected, select it in the Connection settings screen before writing parameters. (☞ Page 3-5, Section 3.5)
Verify parameters <input type="button" value="Verify"/> button	Verifies the CC-Link parameters set in the C Controller module and in CC-Link utility. The verification result is displayed in a message box.

Remark

To read, write, or verify parameters, connect the C Controller module and the development environment (personal computer) online.

5.5 Parameter Settings Tab



Set the CC-Link module parameter in the Parameter settings tab.

(1) Parameter settings tab

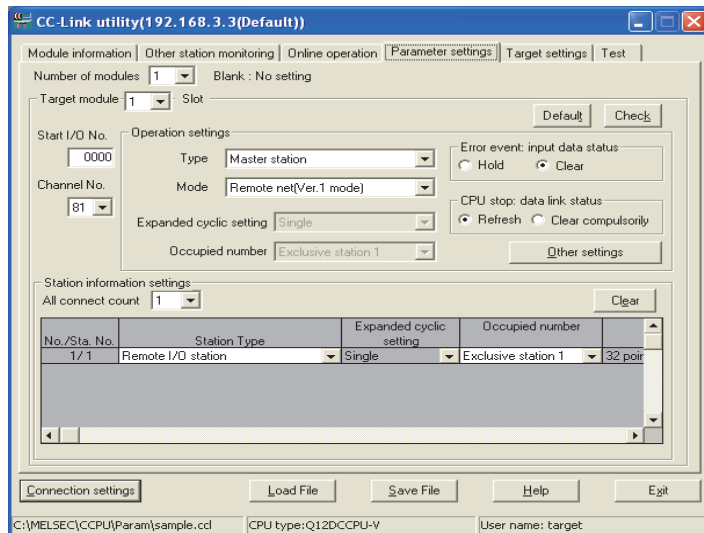
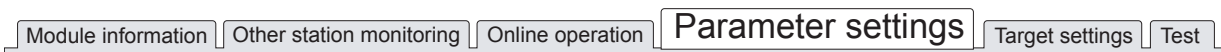


Figure 5.8 Parameter settings tab

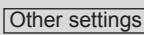
Table 5.12 Description of Parameter settings tab



Item	Description
Number of modules	Set the number of CC-Link modules that are to be controlled by the C Controller module. Selecting "(Blank)" means no setting (Setting cleared). (Default: "(Blank)")
Target module	Select a module to configure. (Default: 1) The numbers for this item will be automatically rearranged in ascending order of start I/O numbers when saving the parameter setting file or when switching the tab.
Start I/O No.	Set a start I/O No. of a CC-Link IE Controller Network module. (Setting range: 0 to FE0H (The set value must be unique, and not duplicated with the one for another CC-Link IE Controller Network module.))
Channel No.	Set a channel No. of a CC-Link IE Controller Network module. The set value is used to open the channel from Device monitoring utility or a user program (MELSEC data link functions). For the Q06CCPU-V-B, this setting is not available. Channel No. must be unique, and not duplicated with the one for another CC-Link IE Controller Network module.
Default button	Sets the parameters for Operation settings and Station information settings back to default.
Check button	Checks for any setting error.

(To the next page)

Table 5.12 Description of Parameter settings tab (continued)

Item	Description
Module information Other station monitoring Online operation Parameter settings Target settings Test	
Operation settings	Set the operation mode of the CC-Link module.
Type	Select a type of the CC-Link module. (Default: "Master station")
Mode	Select a mode of the CC-Link module. (Default: "Remote net(Ver.1 mode)")
Expanded cyclic setting	Select the expanded cyclic setting of the CC-Link module. This setting is available only when "Local station" is set in "Type" and other than "Remote net(Ver.1 mode)" is specified in "Mode". (Default: "Single")
Error event: input data status	Set how the input data be handled in the event of data link error. (Default: "Clear")
CPU stop: data link status	Set how the link data to be handled in the event of CPU stop. This setting is available for the J61BT11N. For the QJ61BT11, the "Refresh" is applied regardless of the setting on this tab. (Default: "Refresh")
Occupied number	Set the number of occupied stations of the CC-Link module (local station). This setting is available only when "Local station" is set in "Type". (Default: "Exclusive station 1")
 button	Opens the "Other settings" screen. (Page 5-14, Section 5.5 (2))
Station information settings	Set the total of connected modules and each CC-Link module station information. This setting is available only when "Master station" is set in "Type", and any of the following is set in "Mode". •Remote net(Ver.1 mode) •Remote net(Ver.2 mode) •Remote net(Add. mode)
All connect count	Set the number of modules that are to be connected to the CC-Link module. (Default: 64)
Station Type	Select a type of the station. Default values are given below. •When "Remote net(Ver.1 mode)" is set in "Mode": "Remote I/O station" •When "Remote net(Ver.2 mode)" or "Remote net(Add. mode)" is set in "Mode": "Ver.1 Remote I/O station"
Expanded cyclic setting	Select a expanded cyclic points of the CC-Link module. (Default: "Single") This setting is available only when the following conditions are satisfied. •When "Remote net(Ver.2 mode)" or "Remote net(Add. mode)" is set in "Mode". •When "Ver.2 Remote device station" or "Ver.2 Intelligent device station" is set in "Type".
Occupied number	Select the number of occupied stations. (Default: "Exclusive station 1")
Remote station points	Select the points of remote station. This setting is available only when "Remote net(Ver.2 mode)" is set in "Mode". For defaults and setting range, refer to the CC-Link System Master/Local Module User's Manual.

(To the next page)

Table 5.12 Description of Parameter settings tab (continued)

Module information | Other station monitoring | Online operation | **Parameter settings** | Target settings | Test

Item	Description
Station information settings	
Reserve/invalid station select	Set the CC-Link module as a reserved or invalid station. (Default: "No setting")
Intelligent buffer select (word)	This setting is available when any of the following is set in "Type". •Intelligent device station •Ver.1 Intelligent device station •Ver.2 Intelligent device station
	Send Specify the send area. (In increments of words) (Default: 64, Setting range: 0, 64 to 4096)
	Receive Specify the receive area. (In increments of words) (Default: 64, Setting range: 0, 64 to 4096)
	Automatic Specify the automatic update area. (In increments of words) (Default: 128, Setting range: 0, 128 to 4096)
<input type="button" value="Clear"/> button	Clears parameters set in "Station information setting" and set defeat values instead.

(2) Other settings screen

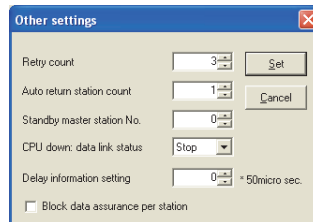


Figure 5.9 Other settings screen

Table 5.13 Description of Other settings screen

Item	Description
Retry count ^{*1}	Set the number of retries in the case of a communication error (transient transmission error occurrence) (Default: 3, Setting range: 1 to 7)
Auto return station count ^{*1}	Set the number of modules that can be automatically reconnected in one link scan. (Default: 1, Setting range: 1 to 10)
Standby master station No. ^{*1}	Set a station No. of the standby master station. (Default: 0 (no setting), Setting range: 0 to 64)
CPU down: data link status ^{*1}	Set the data link status when an error occurs in the C Controller module. (Default: "Stop")
Delay information setting ^{*1}	Set "0".
Block data assurance per station	Set whether to use the block data assurance per station function. (Default: unchecked (not use))
[Set] button	Applies the settings and closes the Other settings screen.
[Cancel] button	Closes the Other settings screen without applying the settings.

* 1 This setting is available when "Master station" is set in "Type", and any of the following is set in "Mode".

- Remote net(Ver.1 mode)
- Remote net(Ver.2 mode)
- Remote net(Add mode)

5.6 Target Settings Tab



A logical station No. is set from the Target settings tab.

The logical station No. is used, when a target station is a multiple CPU system, to access a programmable controller CPU other than the control CPU of the target station.

Note that the accesses indicated below does not require the logical station No. settings.

☞ Page 5-17, "5.6 (4) Access that does not require a logical station No. setting"

(1) Precaution for the Target settings tab

Set a programmable controller CPU in "Target CPU"

(2) Target settings tab

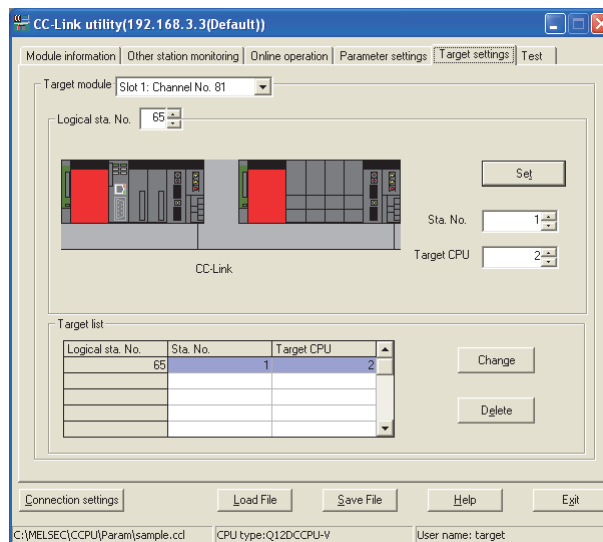


Figure 5.10 Target settings tab

Table 5.14 Description of Target settings tab

Module information Other station monitoring Online operation Parameter settings Target settings Test	
Item	Description
Target module	Select a module to configure. (Default: "Slot 1")
Logical sta. No.	Specify a logical station No. for the module selected in "Target module". (Default: 65, Setting range: 65 to 239) The logical sta. No. is a logical number to be specified as "Sta. No." in Device monitoring utility and a user program (MELSEC data link function).
Sta. No.	Select a station No. of the CC-Link module controlled by a multiple CPU system. (Default: 0, Setting range: 0 to 63)
Target CPU	Select a CPU of the access target (CPU No. in a multiple CPU system). (Default: 1, Setting range: 1 to 4)
[Set] button	Enters the added and changed data (Logical sta. No., Sta. No., and Target CPU) to the Target list.

(To the next page)

Table 5.14 Description of Target settings tab (continued)

Module information		Other station monitoring		Online operation		Parameter settings		Target settings		Test	
Item		Description									
Target list		Displays the logical No. set to the module selected in "Target module", corresponding station No., and target CPU in a list.									
Change button		Displays the setting data (of Logical sta. No.) selected from the target list into a Logical sta. No. field to change. (Clicking the row also displays the setting to change.)									
Delete button		Deletes the setting data (of Logical sta. No.) selected from the target list.									

(3) Access example

When the settings in the following tab are applied in the below system, a CC-Link module controlled by the C Controller module can access CPU No.4 via another CC-Link module (whose control CPU is CPU No.2) by using the logical station No. "65". The access is also available by opening channel No.81 and setting 65 for the station No. in Device monitoring utility or a user program (MELSEC data link function).

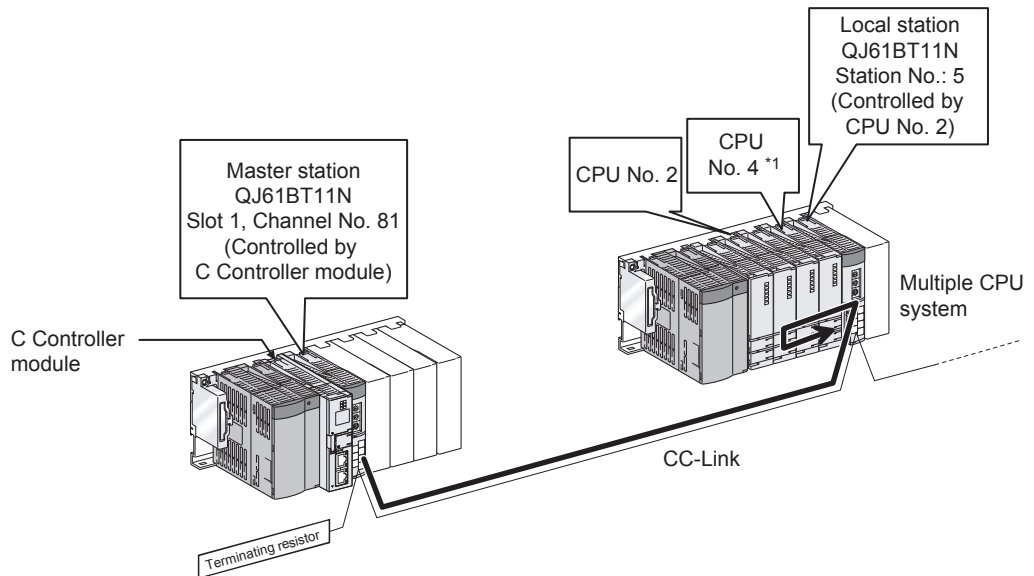


Figure 5.11 System configuration example

* 1 When CPU No.4 cannot configure a multiple CPU system, access to CPU No. 4 is not available by using a logical station No.

The following indicates the Target settings for the above access example.

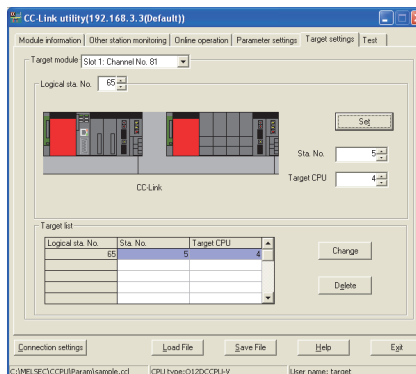


Figure 5.12 Target settings tab setting

(4) Access that does not require a logical station No. setting

In the following access, use the station No. of a CC-Link module on other station.
The logical station No. setting is not required.

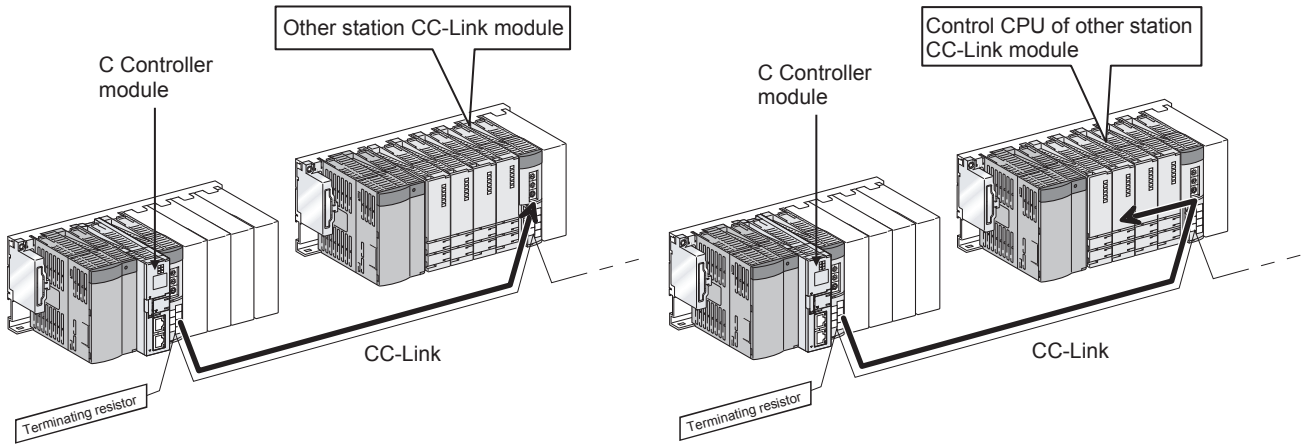


Figure 5.13 Access that does not require a logical station No. setting

5.7 Test Tab



A network test and line test for the mounted CC-Link module can be executed from this tab.

(1) Precautions for the Test tab

- (a) Connection status for testing
The network and line test can be executed while the CC-Link module is online. While in offline, the both tests cannot be executed.
- (b) Line test
Select station(s) to be tested by selecting either "All stations (1 to 64)" or "Selected station" as necessary and then conduct the test.
(Page 5-19, Section 5.7 (3))
- (c) When an communication error has occurred
To restart the communication, set data again in the Connection settings.

(2) Test tab

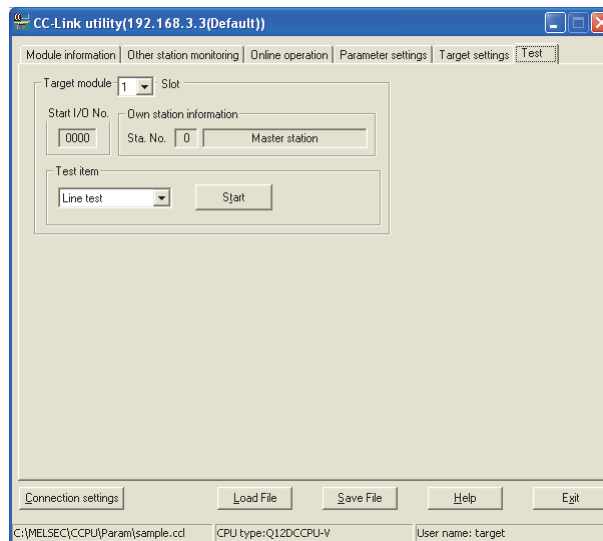
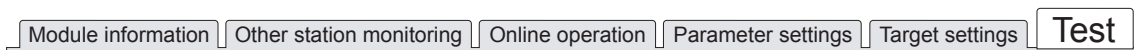


Figure 5.14 Test tab

Table 5.15 Description of the Test tab



Item	Description
Target module	Select a module for testing. (Default: "1" slot)
Start I/O No.	Displays the start I/O No. of the CC-Link module.

(To the next page)

Table 5.15 Description of the Test tab (continued)

Module information		Other station monitoring		Online operation		Parameter settings		Target settings		Test	
Item		Description									
Target module		—									
Own station information		Displays a station No., type of the station, and operation mode. For details of the operation mode, refer to the following. ☞ Page 5-3, Section 5.2 (2) (a)									
Test item		Select the test to conduct.									
		Display					Description				
		Line test					Tests the connected station for connectivity with a data link. (Selectable for the Master station only)				
Start button		Network test					Tests a data link start and stop.				
		Conduct a test selected in the above "Test item". Line test..... ☞ Page 5-19, Section 5.7 (3) (a) Network test.... ☞ Page 5-20, Section 5.7 (3) (b)									

(3) Testing procedure

(a) Line test

The line test can be conducted only when the data link status of the CC-Link module (☞ Page 5-2, Section 5.2) is "In data link" or "Perform auto-return". When the line test for "All stations (1 to 64)" resulted in error, which indicates possible error station, conduct the line test again selecting "Selected station".

1) Setting

Select the target station of the line test and click the **OK** button to start the test.

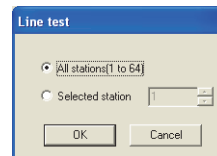


Figure 5.15 Line test screen

2) Results

For "All stations (1 to 64)"

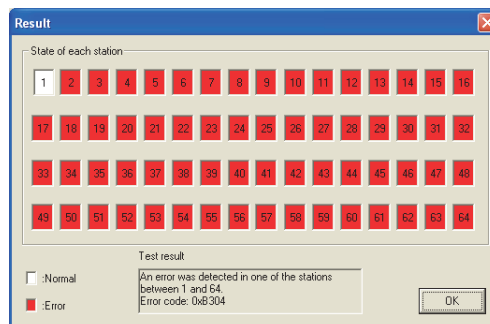
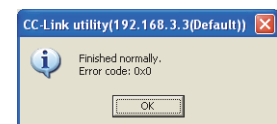


Figure 5.16 Result screen

For "Selected station"



For details of error codes, refer to Help of the bus interface function.

(b) Network test

The network test can be conducted only when the data link status of the CC-Link module is "In data link" or "Perform auto-return". (☞ Page 5-2, Section 5.2)

1) Setting

Select whether to start or stop a data link and then click the **OK** button to start the test.

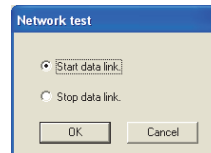


Figure 5.17 Network test screen

2) Result

The test result is displayed on the following screen.

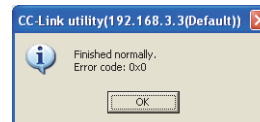


Figure 5.18 Network test result screen



For details of error codes, refer to Help of the bus interface function.

5.8 System Menu



(1) System menu

System menu in CC-Link utility can be accessed either in the following three way for operation.

- Right-click on the title bar.
- Click the () icon on the title bar.
- Press the [Alt] key and then the [↓] key.
- For Windows® 7 or later, right-click the icon () on the task bar while pressing the [Shift] key.

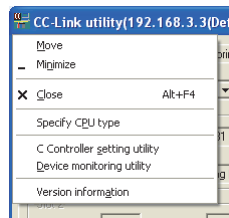






Figure 5.19 System menu

Table 5.16 Description of System menu

Item	Description
Move, Minimize, Close	Refer to manuals for Microsoft® Windows®.
Specify CPU type	Specifies a C Controller module to which parameters are set or to be monitored. ( Page 3-4, Section 3.4) This item is disabled during monitoring.
C Controller setting utility	Starts C Controller setting utility. ( Page 4-1, CHAPTER 4) When CC-Link utility is connected online, this utility is started with the same connection target connected.
Device monitoring utility	Starts Device monitoring utility. ( Page 8-1, CHAPTER 8) When CC-Link utility is connected online, this utility is started with the same connection target connected. For the Q06CCPU-V-B, this utility cannot be used.
Version information	Opens the Version information screen. ( Page 5-22, Section 5.8 (2))

(2) Version information screen

Version information of CC-Link utility can be checked on this screen.

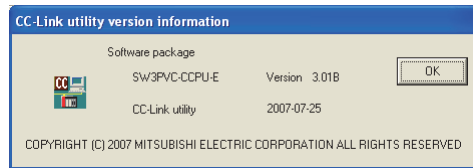


Figure 5.20 Version information screen (Example: Version 3.01B)

Table 5.17 Description of Version information screen

Item	Description
Software package	—
SW3PVC-CCPU-E	Displays the version of SW3PVC-CCPU.
CC-Link utility	Displays the update date of CC-Link utility.
OK button	Closes the Version information screen.

5.9 Precautions



(1) Parameter details

For details of respective parameters, refer to CC-Link System Master/Local Module User's Manual.

(2) Simultaneous use of utilities

Up to eight CC-Link setting utilities can be used simultaneously.

(3) Written parameters

Parameters written to the C Controller module take effect when the C Controller is powered off and then on or is reset.

(4) Tabs available to operate offline

When CC-Link utility connection is offline, data can be set only in the Parameter settings tab and the Target settings tab.

For the Q06CCPU-V-B, only parameters shown in the Target settings tab can be set.

(5) Terminating Microsoft® Windows®

Do not terminate Microsoft® Windows® while CC-Link utility is running.

Terminate CC-Link utility first and then Microsoft® Windows®.

(6) Connection during script file processing

Connection from utility to a C Controller module may not be available during processing a script file (while the RUN LED is flashing).

If the RUN LED remains flashing, refer to the C Controller Module User's Manual (Hardware Design, Function Explanation) and troubleshoot the problem.

(7) Time required for connection from each utility to the C Controller module

The following time is required for the C Controller module to connect to each utility after power-on or reset.

- When executing a script file, "STARTUP.CMD":
Upon completion of the RUN LED flashing.
- When not executing a script file, "STARTUP.CMD":
Fifteen (15) seconds after completion of start or reset

Do not attempt a connection before the above time has elapsed after completion of power-on or reset.

Changing "Priority" to a larger value in the Option tab of C Controller setting utility increases the time after which the C Controller module can be connected.

CHAPTER 6 MELSECNET/H UTILITY

6.1 MELSECNET/H Utility Function List

Q12DCCPU-V	Q06CCPU-V	Q06CCPU-V-B
○	○	△

Table 6.1 MELSECNET/H Utility function list

Item	Description	Availability			Reference page
		Q12DCCPU-V	Q06CCPU-V	Q06CCPU-V-B	
Specify CPU type	Specifies a C Controller module to which parameters are set or to be monitored.	○	○	○	Page 3-4
Connection settings	Sets parameters to a C Controller module which is to be connected with this utility.	○	○	○	Page 3-5
Parameter setting file saving/loading	Saves parameters set in MELSECNET/H utility into a file or loads the file.	○	○	○	Page 3-14
Module information	Displays information of the MELSECNET/H (host station) controlled by the connected C Controller module.	○	○	○	Page 6-2
Error history monitoring	Displays the history of errors that occurred in the MELSECNET/H module.	○	○	○	Page 6-9
Other station monitoring	Displays line states of other stations (MELSECNET/H network stations).	○	○	○	Page 6-14
Online operation	Reads, writes, verifies the MELSECNET/H parameter.	○	△	△	Page 6-25
Parameter settings	Sets parameters for the MELSECNET/H modules.	○	○	○	Page 6-27
Target settings	Sets a logical station number for access to a CPU module in a multiple CPU system where a MELSECNET/H module is mounted.	○	○	×	Page 6-39

○: Available, △: Available but partially restricted, ×: N/A

6.2 Module Information Tab



The Module information tab displays information of the MELSECNET/H module (host station) controlled by the connected C Controller module.

(1) Precautions for the Module information tab

- (a) When a utility communication error has occurred
When a utility communication error has occurred during connection, click the **Start monitoring** button or set the connection target again in the Connection settings so that the communication can be restarted.
- (b) During reset
Communications are not available while the C Controller module is being reset. Start communication after the reset is complete.

(2) Module information tab

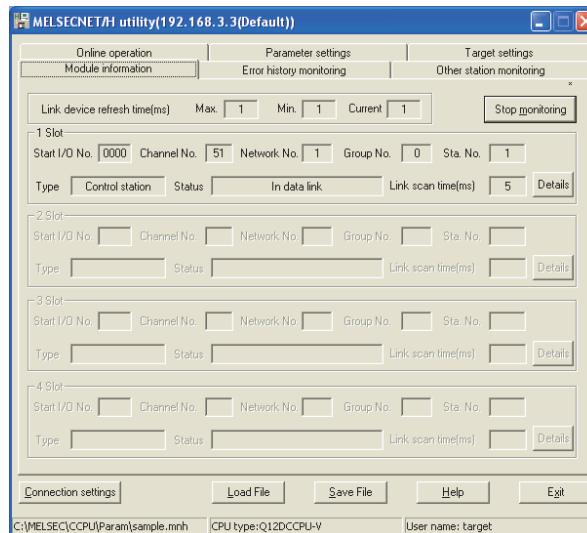


Figure 6.1 Module information tab

Table 6.2 Description of the Module information tab

Module information			
		Error history monitoring	Other station monitoring
Item	Description	Corresponding SB	Corresponding SW
Link device refresh time	Displays total link device refresh time required to refresh the MELSECNET/H and CC-Link IE Controller Network controlled by the C Controller module (host CPU). (In increments of ms)	—	—
Max.	Displays the maximum total link device refresh time in the past record. "-" appears when Link device refresh cycle (☞ Page 6-27, Section 6.6) is 0ms.	—	—
Min.	Displays the minimum total link device refresh time in the past record. "-" appears when Link device refresh cycle (☞ Page 6-27, Section 6.6) is 0ms.	—	—

(To the next page)

Table 6.2 Description of the Module information tab (continued)

Module information		Error history monitoring	Other station monitoring
Item	Description	Corresponding SB	Corresponding SW
Link device refresh time	—	—	—
Current	Displays current total link device refresh time. "." appears when Link device refresh cycle (☞ Page 6-27, Section 6.6) is 0ms.	—	—
Start monitoring or Stop monitoring button	Starts or stops monitoring of the MELSECNET/H module. *** flashes in the upper right of the button during monitoring. These buttons are disabled in the offline status.	—	—
1 Slot to 4 Slot	Displays information of the CC-Link module. The information is displayed in ascending order of start I/O No.	—	—
Start I/O No.	Displays the start I/O No. of the MELSECNET/H module.	—	—
Channel No.	Displays the channel No. of the MELSECNET/H module. "." appears when "Channel No." has not been set. (☞ Page 6-27, Section 6.6)	—	—
Network No.	Displays the network No. of the MELSECNET/H module. "." appears when "Network No." has not been set. (☞ Page 6-27, Section 6.6)	—	SW0040
Group No.	Displays the group No. of the MELSECNET/H module. "." appears when "Group No." has not been set. (☞ Page 6-27, Section 6.6)	—	SW0041
Sta. No.	Displays the station No. of the MELSECNET/H module.	—	SW0042
Type	Displays the type of the MELSECNET/H module.	SB0044	—
Status	Displays the communication status of the MELSECNET/H module. (☞ Page 6-3, Section 6.2 (2) (a))	—	SW0047
Link scan time	Displays the scan time of the MELSECNET/H module. (In increments of ms)	—	—
Details button	Opens the Module information tab. (☞ Page 6-4, Section 6.2 (3)) This button is disabled during monitoring.	—	—

(a) Communication status

Details of communication states are given below.

Table 6.3 Details of communication states

Display	Description
In data link	Data link is being performed.
Suspend data link (Other)	Cyclic transmission was stopped from the other station.
Suspend data link (Hostself)	Cyclic transmission was stopped by the host station.
Baton pass (No area)	No B/W transmission assignment to the host station.
Baton pass (Parameter Halt)	An error has detected in any of the host station parameter.
Baton pass (No Receive)	Common parameters have not been received.
Disconnecting (no baton)	Station No. duplication, or cable not connected.
Disconnecting (Link error)	Cable not connected.
Testing	Online or offline test is being conducted.
Resetting	Hardware error.

(3) Detailed module information screen.

Detailed information of the MELSECNET/H module are displayed on this screen.

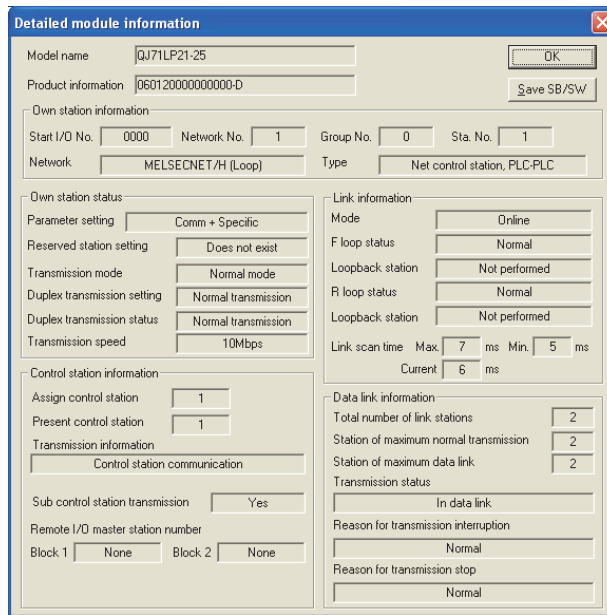


Figure 6.2 Detailed module information screen

Table 6.4 Description of the Detailed module information screen

Item	Description	Corresponding SB	Corresponding SW
Model name	Displays the model name of the MELSECNET/H module.	—	—
Product information	Displays the product information (serial No. and version) of the MELSECNET/H module.	—	—
OK button	Closes the Detailed module information screen.	—	—
Save SB/SW button	Saves the link special relay (SB) and link special register (SW) information of the MELSECNET/H module into a CSV format file. (☞ Page 6-8, Section 6.2 (4))	—	—
Own station information	Displays the own station information of the MELSECNET/H module.	—	—
Start I/O No.	Displays the start I/O No. of the own station.	—	—
Network No.	Displays the network to of the own station.	—	SW0040
Group No.	Displays the group No. of the own station.	—	SW0041
Sta. No.	Displays the station No. of the own station.	—	SW0042
Network	Displays the network to which the MELSECNET/H module is connected.	SB0057, SB005A	SW0046
Type	Displays the type of the own station.	SB0044	—

(To the next page)

Table 6.4 Description of the Detailed module information screen (continued)

Item	Description	Corresponding SB	Corresponding SW
Own station information	Displays operation setting status of the own station.	—	—
Parameter setting	Displays the parameter setting status of the host station with any of the following. •Common parameter •Common + Specific parameter •Default parameter •Default + Specific	SB0054	SW0054
Reserved station setting	Displays whether a reserved station exists in the network.	SB0064	—
Transmission mode	Displays the transmission mode of the own station. (Display: "Normal mode", "Constant scan XX ms" (XX represents the constant link scan setting time))	—	SW0068
Duplex transmission setting	Displays the multiplex transmission setting of the own station. "-" is displayed in the case of a coaxial bus system. (Display: "Normal transmission", "Multiplex transmission")	SB0069	—
Duplex transmission status	Displays the multiplex transmission status of the own station. "-" is displayed in the case of a coaxial bus system. (Display: "Normal transmission", "Multiplex transmission", "-")	SB006A	—
Transmission speed	Displays the transmission speed of the own station. (Display: "10Mbps", "25Mbps")	—	—
Control station information	Displays the control station information of the MELSECNET/H network system.	—	—
Assign control station	Displays the specified control station in the MELSECNET/H network system. "0" appears when the control station is faulty.	—	SW0057
Present control station	Displays the current control station in the MELSECNET/H network system. "0" appears when the control station is faulty.	—	SW0056
Transmission information	Displays the transmission information of the MELSECNET/H network system. (Display: "Control station communication", "Sub control station transmission")	SB0056	—
Sub control station transmission	Displays the sub control station transmission status of the MELSECNET/H network system. (Display: "Yes", "No")	SB0058	—
Remote I/O station number	Displays the station No. of the remote I/O master station for each block.	—	—
Block 1	Displays the station No. of the remote I/O master station of Block 1.	—	SW005C
Block 2	Displays the station No. of the remote I/O master station of Block 2.	—	SW005D

(To the next page)

Table 6.4 Description of the Detailed module information screen (continued)

Item	Description	Corresponding SB	Corresponding SW
Link information	Displays the network status	—	—
Mode	Displays the operation mode of the own station. (Display: "Online", "Offline", "Loop test")	—	SW0043
F loop status	Displays the forward loop status. "-" is displayed in the case of a coaxial bus system. (Display: "Normal", "Loopback transmission", "Data link disable", "-")	SB0091, SB0099	—
Loopback station	Displays the No. of the station that is performing loopback on the forward loop side. "-" is displayed in the case of a coaxial bus system. The field goes blank when data link is not available. (Display: 1 to 64, "Not performed", "-", "(blank)")	—	SW0099
R loop status	Displays the reverse loop status. "-" is displayed in the case of a coaxial bus system. (Display: "Normal", "Loopback transmission", "-")	SB0095, SB009A	—
Loopback station	Displays the No. of the station that is performing loopback on the reverse loop side. "-" is displayed in the case of a coaxial bus system. The field goes blank when data link is not available. (Display: 1 to 64, "Not performed", "-", "(blank)")	—	SW009A
Link scan time	Displays link scan time. (In increments of ms)	—	—
Max.	Displays the maximum link scan time in the past record. The field goes blank when data link is not available.	—	SW006B
Min.	Displays the minimum link scan time in the past record. The field goes blank when data link is not available.	—	SW006C
Current	Displays the current link scan time. The field goes blank when data link is not available.	—	SW006D
Data link information	Displays the data link status of the MELSECNET/H.	—	—
Total number of link stations	Displays the total number of linked stations on MELSECNET/H.	—	SW0059
Station of maximum normal transmission	Displays the maximum number of stations that are communicating normally.	—	SW005A
Station of maximum data link	Displays the maximum number of data link stations on MELSECNET/H.	—	SW005B
Transmission status	Displays the transmission status of MELSECNET/H. (☞ Page 6-3, Section 6.2 (2) (a))	—	SW0047
Reason for transmission interruption	Displays the reason for transmission interruption on MELSECNET/H. (☞ Page 6-7, Section 6.2 (3) (a))	—	SW0048
Reason for transmission stop	Displays the reason for transmission stop on MELSECNET/H. (☞ Page 6-7, Section 6.2 (3) (b))	—	SW0049

Remark

The information displayed on the Detailed module information screen is based on the information when the screen was opened.

To display the updated information, close and reopen the Detailed module information screen.

(a) Reason for transmission interruption

The following lists the display in Reason for transmission interruption.

Table 6.5 Details of Reason for transmission interruption

Display	Description/Action
Normal	Communicating normally
Offline	Offline
Offline test	Offline test being conducted.
Initial status	Error occurred. (Error code: F101, F102, F105)
Shift control station	Error occurred. (Error code: F104, F106)
Online testing	Error occurred. (Error code: F103, F109, F10A)
Baton disappearance	Error occurred. (Error code: F107)
Baton repetition	Error occurred. (Error code: F108)
Same station present	Error occurred. (Error code: F10B)
Control Station repetition	Error occurred. (Error code: F10C)
Reception retry error	Error occurred. (Error code: F10E)
Transmission retry error	Error occurred. (Error code: F10F)
Timeout error	Error occurred. (Error code: F110)
Link error	Error occurred. (Error code: F112)
Disconnecting	Error occurred. (Error code: F11B)
No baton to own station	Error occurred. (Error code: F11F)
Error code: XXXX	Error (Refer to the displayed error code)

(b) Cause of transmission stop

The following lists the description of display in the Reason for transmission stop field on the screen.

Table 6.6 Details of Reason for transmission stop

Display	Description
Normal	Communicating normally
Stop instruction present (All)	Cyclic transmission of all stations was stopped from the own or other station.
Stop instruction present (HostSelf)	Cyclic transmission of the own station was stopped.
Stop instruction present (Station □)	Cyclic transmission of the own station was stopped from the other station (Station No. □).
No parameter	No parameter can be received.
Illegal parameter	The set parameter is invalid.
Connected CPU error	Medium or critical error has occurred on the CPU module in the own station.
Suspend communication	Data link error occurred on the own station.

(4) Specifications of the SB/SW save file

A file format can be selected in "Save as" on the following screen.

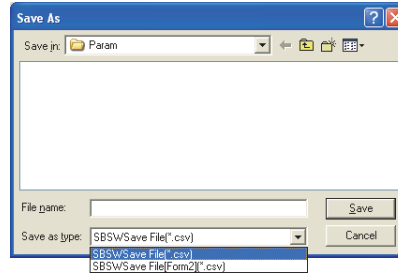


Figure 6.3 Save As screen

To use the text data of the SB/SW save file in a user program, select "SBSWSave File(*.csv)" when saving.

To use them on Microsoft® Excel etc., select "SBSWSave File[Form2](*.csv)" when saving.

When "SBSWSave File(*.csv)" is selected	When "SBSWSave File[Form2](*.csv)" is selected																																																												
<pre>SB/SW,192.168.3.3(Default) QJ71LP21-25 ,09012000000000-D Start I/O No., Network No., Group No., Station No., Network 0000, 1, 0, 1, MELSECNET/H (Loop), Net control station, PL SB/SW information Device, value, , Device, value SB0000, 0, , SW0000, 0000 SB0001, 0, , SW0001, 0000 SB0002, 0, , SW0002, 0000 SB0003, 0, , SW0003, 0000 SB0004, 0, , SW0004, 0000 SB0005, 0, , SW0005, 0000</pre>	<table border="1"> <thead> <tr> <th>[SB/SW]</th> <th>[192.168.3.3(Default)]</th> <th></th> <th></th> <th></th> <th></th> </tr> </thead> <tbody> <tr> <td>[QJ71LP21-25]</td> <td>[09012000000000-D]</td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <th>[Start I/O No.]</th> <th>[Network I]</th> <th>[Group No.]</th> <th>[Station No.]</th> <th>[Network]</th> <th>[Type]</th> </tr> <tr> <td>[0000]</td> <td>[1]</td> <td>[0]</td> <td>[1]</td> <td>[MELSEC]</td> <td>[Net contr. PLC-PI]</td> </tr> <tr> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <th colspan="6">[SB/SW information]</th> </tr> <tr> <th>[Device]</th> <th>[Value]</th> <th>[Device]</th> <th>[Value]</th> <th></th> <th></th> </tr> <tr> <td>[SB0000]</td> <td>[0]</td> <td>[SW0000]</td> <td>[0000]</td> <td></td> <td></td> </tr> <tr> <td>[SB0001]</td> <td>[0]</td> <td>[SW0001]</td> <td>[0000]</td> <td></td> <td></td> </tr> <tr> <td>[SB0002]</td> <td>[0]</td> <td>[SW0002]</td> <td>[0000]</td> <td></td> <td></td> </tr> </tbody> </table>	[SB/SW]	[192.168.3.3(Default)]					[QJ71LP21-25]	[09012000000000-D]					[Start I/O No.]	[Network I]	[Group No.]	[Station No.]	[Network]	[Type]	[0000]	[1]	[0]	[1]	[MELSEC]	[Net contr. PLC-PI]							[SB/SW information]						[Device]	[Value]	[Device]	[Value]			[SB0000]	[0]	[SW0000]	[0000]			[SB0001]	[0]	[SW0001]	[0000]			[SB0002]	[0]	[SW0002]	[0000]		
[SB/SW]	[192.168.3.3(Default)]																																																												
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[0000]	[1]	[0]	[1]	[MELSEC]	[Net contr. PLC-PI]																																																								
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[SB0001]	[0]	[SW0001]	[0000]																																																										
[SB0002]	[0]	[SW0002]	[0000]																																																										

Figure 6.4 Example of the SB/SW save file

Remark

The folder of the SB/SW save file is "C:\MELSEC\CCPU\Param" by default.
(When SW3PVC-CCPU has been installed in "C:\MELSEC").

6.3 Error History Monitoring Tab



The Error history monitoring tab displays the historical data of loop errors, communication errors, and transient transmission errors.

(1) Precautions for the Error history monitoring tab

(a) Number of historical data

Up to 16 loop switching or transient transmission errors are stored.

When the number of stored data reaches to 16, the next error will be stored by deleting the oldest.

(No.1 (oldest) to No. 16 (newest))

(b) Transient transmission error

For the error codes and error types displayed in the Transient transmission errors, refer to the Q Corresponding MELSECNET/H Network System Reference Manual (PLC to PLC network)

(2) Error history monitoring tab

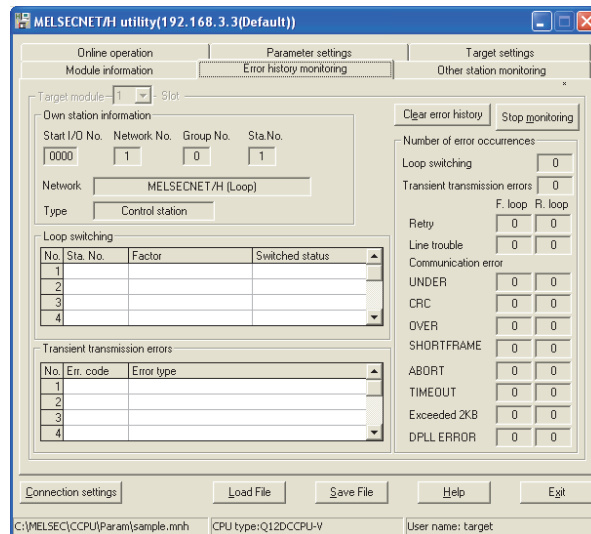


Figure 6.5 Error history monitoring tab

Table 6.7 Description of the Error history monitoring tab



Item	Description	Corresponding SB	Corresponding SW
Target module	Specify a MELSECNET/H for error history monitoring. (Default: 1)	—	—
[Clear error history] button	Opens the Clear error history screen. (☞ Page 6-12, Section 6.3 (3))	—	—
[Start monitoring], or [Stop monitoring] button	Starts or stops monitoring MELSECNET/H module. "*" flashes in the upper right of the button during monitoring. These buttons are disabled in the offline status.	—	—


(To the next page)

Table 6.7 Description of the Error history monitoring tab (continued)

Item	Description	Corresponding SB	Corresponding SW
<div style="display: flex; justify-content: space-between; border-bottom: 1px solid black; padding-bottom: 5px;"> Module information Error history monitoring Other station monitoring </div>			
Own station information	Displays the own station information of the MELSECNET/H module.	—	—
Start I/O No.	Displays the start I/O No. of the own station.	—	—
Network No.	Displays the network No. of the own station.	—	SW0040
Group No.	Displays the group No. of the own station.	—	SW0041
Sta.No.	Displays the station No. of the own station.	—	SW0042
Network	Displays the network to which the MELSECNET/H module is connected.	SB0057, SB005A	SW0046
Type	Displays the type of the own station.	SB0044	—
Loop switching	Displays the factor of loop switching and the status after the switching. (For optical loop only)	—	—
Sta. No.	Displays the number of the station that requested loop switching or loopback.	—	SW00E0 to SW00E7
Factor	Displays the factor of loop switching or loopback.	—	SW00D0 to SW00DF
Switched status	Displays the data link status after loop switching.	—	SW00D0 to SW00DF
Transient transmission errors	Displays error codes for transient transmission errors that occurred on the own station. For details of errors, refer to the Q Corresponding MELSECNET/H Network System Reference Manual (PLC to PLC network).	—	—
Err. code	Displays error codes that are reported during transient transmission.	—	SW00F0 to SW00FF
Error type	Displays types of errors that occurred during transient transmission.	—	—

(To the next page)

Table 6.7 Description of the Error history monitoring tab

Module information		Error history monitoring	Other station monitoring	
Item		Description	Corresponding SB	Corresponding SW
Number of error occurrences		Displays the number of error occurrences. For details of factors and corrective actions, refer to the following.  Page 6-13, Section 6.3 (4)	—	—
Loop switching		Displays the number of times that loop switching and loopback has been executed. "-" is displayed in the case of a coaxial bus system.	—	SW00CE
Transient transmission errors		Displays the number of transient transmission errors that has been occurred.	—	SW00EE
Retry		Displays the number of retries (for transmission errors).	—	SW00C8, SW00C9
Line trouble		"-" is displayed in the case of a coaxial bus system.	—	SW00CC, SW00CD
Communication error	UNDER	Displays the number of UNDER errors that has been occurred.	—	SW00B8, SW00C0
	CRC	Displays the number of CRC errors that has been occurred.	—	SW00B9, SW00C1
	OVER	Displays the number of OVER errors that has been occurred.	—	SW00BA, SW00C2
	SHORTFRAME	Displays the number of short frame (too short data message) errors that has been occurred.	—	SW00BB, SW00C3
	ABORT	Displays the number of AB.IF errors that has been occurred.	—	SW00BC, SW00C4
	TIMEOUT	Displays the number of timeout errors that has been occurred.	—	SW00BD, SW00C5
	Exceeded 2KB	Displays the number of errors exceeding 2K bytes that has been occurred.	—	SW00BE, SW00C6
	DPLL ERROR	Displays the number of DPLL (data not properly recognized in synchronization/modulation) errors.	—	SW00BF, SW00C7

(3) Clear error history screen

Clear the number of errors to 0.

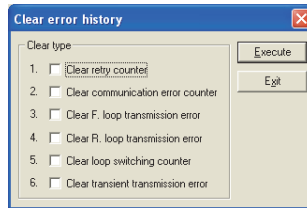


Figure 6.6 Clear error history screen

Table 6.8 Description of the Clear error history screen

Item	Description	Corresponding SB	Corresponding SW
Clear type	Select the item(s) for clearing the number of error occurrences.	—	—
Clear retry counter	Select to clear the number of retries (link special register SW00C8, SE00C9) to 0. (Default: not checked (not cleared to 0))	SB0005	—
Clear communication error counter	Select to clear the number of communication errors (link special register SW00B8 to SW00C7) to 0. (Default: not checked (not cleared to 0))	SB0006	—
Clear F. loop transmission error	Select to clear the number of forward loop side line errors (link special register SW00CC) to 0. (Default: not checked (not cleared to 0))	SB0007	—
Clear R. loop transmission error	Select to clear the number of reverse loop side line errors (link special register SW00CD) to 0. (Default: not checked (not cleared to 0))	SB0008	—
Clear loop switching counter	Select to clear the number of loop switching (link special register SW00CE to SW00E7) to 0. (Default: not checked (not cleared to 0))	SB0009	—
Clear transient transmission error	Select to clear the number of transient transmission errors (link special register SW00EE, SW00EF) to 0. (Default: not checked (not cleared to 0))	SB000A	—
Execute button	Clears the item(s) selected on this screen. (Turns the corresponding SB of the selected item(s) from on to off.)	—	—
Exit button	Closes the Clear error history screen.	—	—



(4) Factors and actions

The following table shows factors and corrective actions for each error.

The information can also be checked from the following link special registers (SW) as well as on the Error history monitoring tab.

For details of special registers (SW), refer to the Q Corresponding MELSECNET/H Network System Reference Manual (PLC to PLC network).

Table 6.9 Error factors and corrective actions

Item	Link special register	Factor	Corrective action
Loop switching	SW00CE	Station's power on/off, cable fault, noise, etc.	 Page 6-13, Section 6.3 (4) (a)
Transient transmission errors	SW00EE	Target station's power off, target station's CPU failure, cable fault, noise, etc.	Check the error code of the transient transmission error, and take corrective actions.
Retry	SW00C8, SW00C9	Station's power on/off, cable fault, noise, etc.	 Page 6-13, Section 6.3 (4) (a)
Line trouble	SW00CC, SW00CD	Adjacent station's power off, cable fault, noise, etc.	
UNDER	SW00B8, SW00C0	Adjacent station's power on off, cable fault, etc.	
CRC	SW00B9, SW00C1	Source station of data transmission was disconnected, cable fault, hardware fault, noise, etc.	
OVER	SW00BA, SW00C2	Cable fault, hardware fault, noise, etc.	
SHORTFRAME	SW00BB, SW00C3		
ABORT	SW00BC, SW00C4	Source station of data transmission was disconnected, cable fault, hardware fault, noise, etc.	
TIMEOUT	SW00BD, SW00C5	Too-short data link monitoring time, cable fault, noise, etc.	
Exceeded 2KB	SW00BE, SW00C6	Cable fault, hardware fault, noise, etc.	
DPLL ERROR	SW00BF, SW00C7		

(a) Errors other than transient transmission errors

Unless the error count frequently increases during operation, no specific action is required.

Take the following corrective actions if the error count frequently increases.

- 1) Check the status (on/off) of power supply for the own and other stations.
- 2) Check cables and connectors (for disconnection, loose connectors, broken cables, and improper cable lengths).
- 3) Conduct a self-loopback test, internal self-loopback test, and hardware test.
- 4) Conduct a station-to-station test and forward/reverse loop test.
- 5) Review its wiring, referring to the manuals for the network module and/or MELSECNET/H board used.

Or, reinstall the system, referring to the user's manual for the CPU module used.

6.4 Other Station Monitoring Tab



The Other station monitoring tab displays the status of the other stations (MELSECNET/H network stations).

(1) Precautions for the Other station monitoring tab

- (a) Monitoring status
When MELSECNET/H utility is started, monitoring is in stop status.
Click the **Start monitoring** button to start monitoring.
- (b) When a utility communication error has occurred
When a utility communication error has occurred during connection, click the **Start monitoring** button or set the connection target again in the Connection settings so that the communication can be restarted.
- (c) During reset
Communications are not available while the C Controller module is being reset.
Start communications after the reset is complete.

(2) Other station monitoring tab

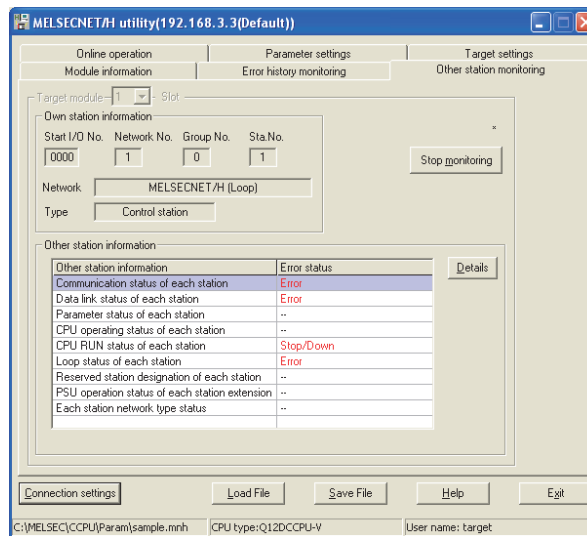


Figure 6.7 Other station monitoring tab

Table 6.10 Description of the Other station monitoring tab

Item	Description	Corresponding SB	Corresponding SW
Target module	Select the MELSECNET/H module for monitoring. (Default: 1)	—	—
Start monitoring or Stop monitoring button	Starts or stops monitoring the MELSECNET/H module. *** flashes in the upper right of the button during monitoring. These buttons are disabled in the offline status.	—	—

(To the next page)

Table 6.10 Description of the Other station monitoring tab (continued)

Module information Error history monitoring **Other station monitoring**

Item	Description	Corresponding SB	Corresponding SW
Own station information	Displays the own station information of the MELSECNET/H module.	—	—
Start I/O No.	Displays the start I/O No. of the own station.	—	—
Network No.	Displays the network No. of the own station.	—	SW0040
Group No.	Displays the group No. of the own station.	—	SW0041
Sta.No.	Displays the station No. of the own station.	—	SW0042
Network	Displays the network to which the MELSECNET/H module is connected.	SB0057, SB005A	SW0046
Type	Displays the type of the own station.	SB0044	—
Other station information	Displays the error occurrence of the other stations. (☞ Page 6-15, Section 6.4 (3)) Double-clicking an item opens the Details screen that displays the detailed information of the item.	—	—
Details button	Opens the Details screen to display the detailed information of the selected item. (☞ Page 6-15, Section 6.4 (3))	—	—
Other station information	Displays errors in "Error status" when an error corresponding to the item in "Other station information" has occurred.	—	—
Error status			

(3) Details screens

Detailed information of the item selected on the Other station monitoring tab are displayed on each screen below.
The following lists the details screen corresponding to each item selected on the Other station monitoring tab.

Table 6.11 Other station monitoring tab selection and corresponding Details screen

Selection on the Other station monitoring tab	Corresponding Details screen	Reference page
Communication status of each station	Communication status of each station screen	Page 6-16, Section 6.4 (3) (a)
Data link status of each station	Data link status of each station screen	Page 6-17, Section 6.4 (3) (b)
Parameter status of each station	Parameter status of each station screen	Page 6-18, Section 6.4 (3) (c)
CPU operating status of each station	CPU operating status of each station screen	Page 6-19, Section 6.4 (3) (d)
CPU RUN status of each station	CPU RUN status of each station screen	Page 6-20, Section 6.4 (3) (e)
Loop status of each station	Loop status of each station screen	Page 6-21, Section 6.4 (3) (f)
Reserved station designation of each station	Reserved station designation of each station screen	Page 6-22, Section 6.4 (3) (g)
PSU operation states of each station extension	PSU operation states of each station extension screen	Page 6-23, Section 6.4 (3) (h)
Each station network type status	Each station network type status screen	Page 6-24, Section 6.4 (3) (i)

Remark

The information on the Details screens is based on the information when the screen was opened.
To display the updated information, close and reopen the Details screen.

- (a) Communication status of each status screen
 Displays the baton pass status. (Availability of transient transmission)
 Displayed number of the stations is based on the "Total stations" set on the
 Parameter settings tab.

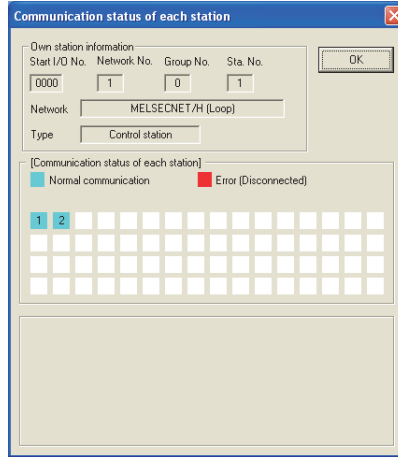


Figure 6.8 Communication status of each status screen

Table 6.12 Description of the Communication status of each status screen

Item	Description	Corresponding SB	Corresponding SW
OK button	Closes the Communication status of each station screen.	—	—
Own station information	Displays the own station information of the MELSECNET/H module. (☞ Page 6-14, Section 6.4 (2))	SB0044, SB0057, SB005A	SW0040, SW0041, SW0042, SW0046
Communication status of each station	Displays baton pass status (Availability of transient transmission) in the following color code. Light blue: Normally communicating station or reserved station Red: Communication error status (disconnected)	—	SW0070 to SW0073

- (b) Data link status of each station screen
 Displays the cyclic transmission status.
 The number of displayed stations is based on the "Total stations" set in the Parameter settings tab.

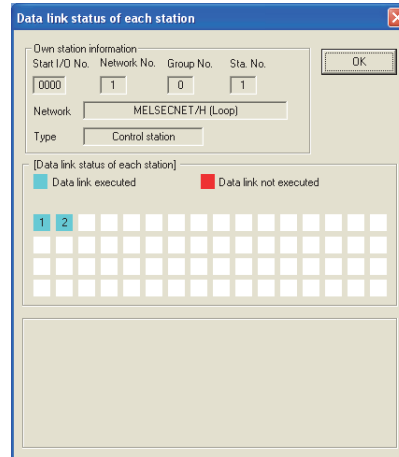



Figure 6.9 Data link status of each station screen

Table 6.13 Description of the Data link status of each station screen

Item	Description	Corresponding SB	Corresponding SW
OK button	Closes the Data link status of each station screen.	—	—
Own station information	Displays the own station information of the MELSECNET/H module.  Page 6-14, Section 6.4 (2))	SB0044, SB0057, SB005A	SW0040, SW0041, SW0042, SW0046
Data link status of each station	Displays the cyclic transmission status in the following color code. Light blue: Normal or reserved station Red: Error station (Data link not performed)	—	SW0074 to SW0077

- (c) Parameter status of each station screen
 Displays the parameter communication status and parameter error status of each station.
 The number of displayed stations is based on the "Total stations" set in the Parameter settings tab.

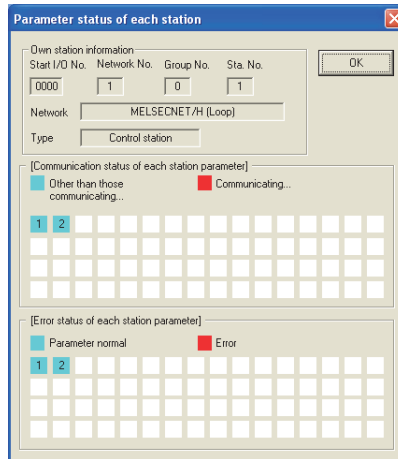


Figure 6.10 Communication status of each station screen

Table 6.14 Description of the Communication status of each station screen

Item	Description	Corresponding SB	Corresponding SW
OK button	Closes the Communication status of each station screen.	—	—
Own station information	Displays the own station information of the MELSECNET/H module. (☞ Page 6-14, Section 6.4 (2))	SB0044, SB0057, SB005A	SW0040, SW0041, SW0042, SW0046
Communication status of each station parameter	Displays the parameter communication status of each station in the following color code. Light blue: Status other than "communicating with parameters", reserved station, or unconnected station Red: Communicating with parameters	—	SW0078 to SW007B
Error status of each station parameter	Displays the parameter error status of each station in the following color code. Light blue: Parameters normal, reserved station, or unconnected station Red: Parameter error	—	SW007C to SW007F

- (d) CPU operation status of each station screen
 Displays the CPU operation status.
 The number of displayed stations is based on the "Total stations" set in the Parameter settings tab.

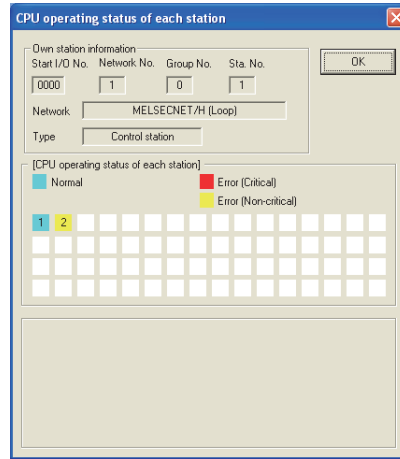


Figure 6.11 CPU operation status of each station screen

Table 6.15 Description of the CPU operation status of each station screen

Item	Description	Corresponding SB	Corresponding SW
OK button	Closes the "CPU operation status of each station" screen.	—	—
Own station information	Displays the own station information of the MELSECNET/H module. (☞ Page 6-14, Section 6.4 (2))	SB0044, SB0057, SB005A	SW0040, SW0041, SW0042, SW0046
CPU operation status of each station	Displays the CPU operation status in the following color code. Light blue: CPU normal, reserved station, unconnected station Red: CPU fault Medium error (WDT error, etc.) or, critical error (Hardware error, etc.) Yellow: CPU fault minor error	—	SW0080 to SW0083, SW0088 to SW008B

- (e) CPU RUN status of each station screen
 Displays the RUN/STOP states of the CPUs.
 The number of displayed stations is based on the "Total stations" set in the Parameter settings tab.

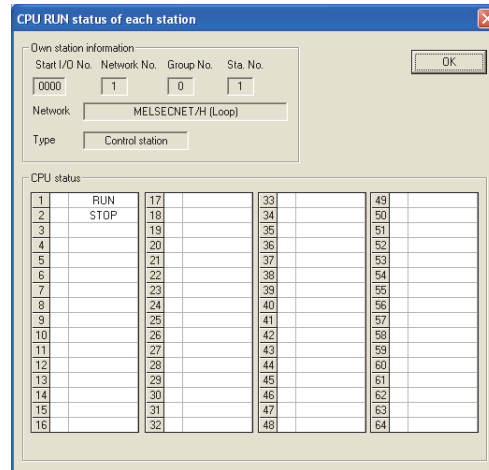


Figure 6.12 CPU RUN status of each station screen

Table 6.16 CPU RUN status of each station screen

Item	Description	Corresponding SB	Corresponding SW
button	Closes the CPU RUN status of each station screen.	—	—
Own station information	Displays the own station information of the MELSECNET/H module. Page 6-14, Section 6.4 (2)	SB0044, SB0057, SB005A	SW0040, SW0041, SW0042, SW0046
CPU status	Displays the RUN/STOP status of each CPU. RUN: RUN, STEP RUN STOP: STOP, PAUSE DOWN: ERROR, or unconnected station Reserved Sta.: Reserved station	—	SW0084 to SW0087

(f) Loop status of each station screen

In the case of the optical loop system, this screen displays the forward and reverse loop states.

The number of displayed stations is based on the "Total stations" set in the Parameter settings tab.

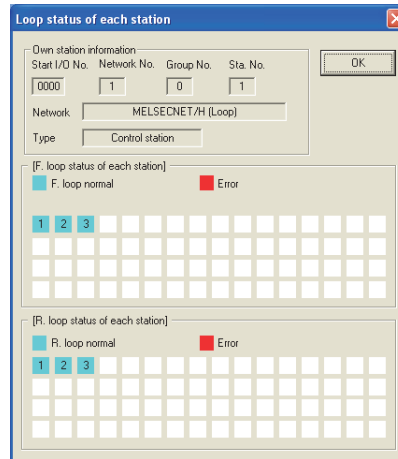


Figure 6.13 Loop status of each station screen

Table 6.17 Description of the Loop status of each station screen

Item	Description	Corresponding SB	Corresponding SW
OK button	Closes the Loop status of each station screen.	—	—
Own station information	Displays the own station information of the MELSECNET/H module. (☞ Page 6-14, Section 6.4 (2))	SB0044, SB0057, SB005A	SW0040, SW0041, SW0042, SW0046
F. loop status of each station	Displays the forward loop status in the optical loop system in the following color code. Light blue: Normal, reserved station, or unconnected station Red: Error station	—	SW0091 to SW0094
R. loop status of each station	Displays the reverse loop status in the optical loop system in the following color code. Light blue: Normal, reserved station, or unconnected station Red: Error station	—	SW0095 to SW0098

- (g) Reserved station designation of each station screen
 Displays the setting status of the reserved status.
 The number of displayed stations is based on the "Total stations" set in the Parameter settings tab.

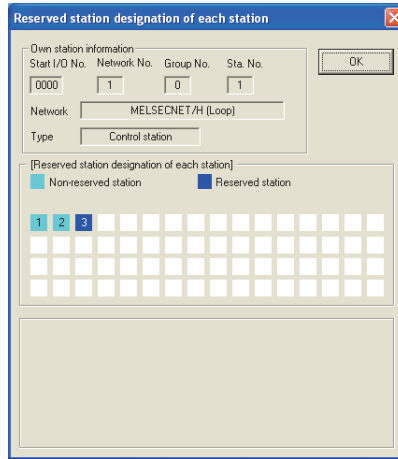



Figure 6.14 Reserved station designation of each station screen

Table 6.18 Description of the Reserved station designation of each station screen

Item	Description	Corresponding SB	Corresponding SW
OK button	Closes the Reserved station designation of each station screen.	—	—
Own station information	Displays the own station information of the MELSECNET/H module.  Page 6-14, Section 6.4 (2)	SB0044, SB0057, SB005A	SW0040, SW0041, SW0042, SW0046
Reserved station designation of each station	Displays the reserved station setting status in the following color code. Light blue: Non-reserved station Blue: Reserved station	—	SW0064 to SW0067

(h) PSU operation status of each station extension screen

Displays the status of 24VDC external power supply for MELSECNET/H module. The number of displayed stations is based on the "Total stations" set in the Parameter settings tab.

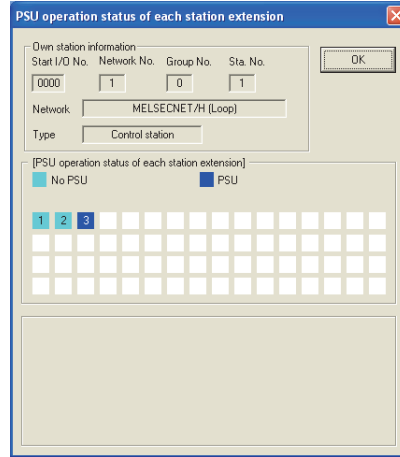


Figure 6.15 PSU operation status of each station extension

Table 6.19 Description of the PSU operation status of each station extension

Item	Description	Corresponding SB	Corresponding SW
OK button	Closes the PSU operation status of each station extension.	—	—
Own station information	Displays the own station information of the MELSECNET/H module. (☞ Page 6-14, Section 6.4 (2))	SB0044, SB0057, SB005A	SW0040, SW0041, SW0042, SW0046
PSU operation status of each station extension	Displays the 24VDC external power supply status of the MELSECNET/H module in the following color code. Light blue: No external power supply Blue: External power supply	—	SW008C to SW008F

- (i) Each station network type status screen
 Displays consistency of the network types that are set in the control station and in the normal station.
 The number of displayed stations is based on the "Total stations" set in the Parameter settings tab.

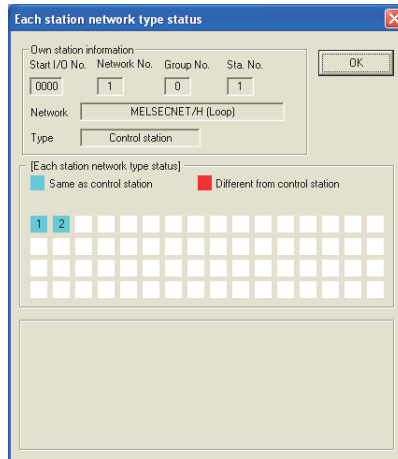


Figure 6.16 Each station network type status screen

Table 6.20 Description of the Each station network type status screen

Item	Description	Corresponding SB	Corresponding SW
button	Closes the Each station network type status screen.	—	—
Own station information	Displays the own station information of the MELSECNET/H module. Page 6-14, Section 6.4 (2))	SB0044, SB0057, SB005A	SW0040, SW0041, SW0042, SW0046
Each station network type status	Displays the consistency of the network types set in the control station and in the normal station in the following color code. Light blue: Normal, reserved, or communication error station whose network type is the same as that of the control station. Red: Normal station whose network type is different from that of the control station.	—	SW01E0 to SW01E3

6.5 Online Operation Tab



MELSECNET/H parameters can be read, written, or verified from this tab.

(1) Precautions for the Online operation tab

- (a) When a utility communication error has occurred
When a utility communication error has occurred during connection, set the connection target again in the Connection settings so that the communication can be restarted.
- (b) During reset
Communications are not available while the C Controller module is being reset. Start communications after the reset is complete.
- (c) The drive to which parameters are written
When writing parameters from each of the utilities to the following C Controller module, write them to the same drive.
 - Q12DCCPU-V whose serial No. (first five digits) is "12042" or later
 If the parameters are written to different drives, those of the drive, which include C Controller setting parameters, will take effect.

(2) Online operation tab

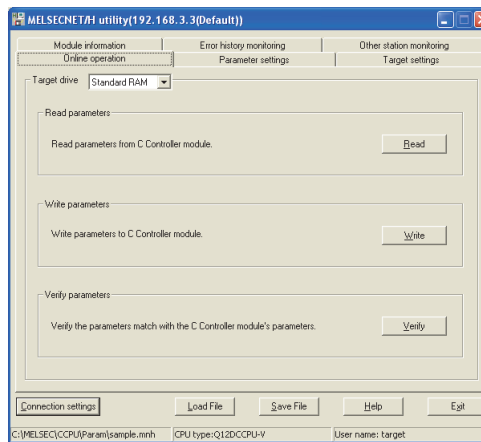


Figure 6.17 Online operation tab

Table 6.21 Description of the Online operation tab

Online operation	
Item	Description
Target drive	Set a target drive for reading, writing, or verifying parameters.*1 This setting is not available for the Q06CCPU-V(-B). (Default: Parameter boot drive)
Read parameters button	Reads out MELSECNET/H parameters from the C Controller module.

* 1 For the drives to which parameters can be written (user memory), refer to the C Controller Module User's Manual (Hardware Design, Function Explanation).

(To the next page)

Table 6.21 Description of the Online operation tab (continued)

Online operation	
	Parameter settings Target settings
Item	Description
Write parameters <input type="button" value="Write"/>	Writes MELSECNET/H parameters to the C Controller module. The written parameters take effect when the C Controller module is powered off and then on or is reset. Parameters can be written only when "Write authority" is selected on the Connection settings screen. If "Write authority" is not selected, select it in the Connection settings screen before writing parameters. (☞ Page 3-5, Section 3.5)
Verify parameters <input type="button" value="Verify"/>	Compares the MELSECNET/H parameters of the C Controller module with those of the MELSECNET/H utility. The results are displayed in a message box.

Remark

Reading, writing, and verification of parameters can be performed only when the C Controller module and a development environment (personal computer) is connected online.

1	OVERVIEW
2	INSTALLATION AND UNINSTALLATION OF SOFTWARE PACKAGE
3	COMMON UTILITY OPERATIONS
4	C CONTROLLER SETTING UTILITY
5	CC-LINK UTILITY
6	MELSECNET/H UTILITY
7	CC-IE CONTROL UTILITY
8	DEVICE MONITORING UTILITY

6.6 Parameter Settings Tab



Parameters of the MELSECNET/H module can be set in this tab.

(1) Precautions for the Parameter settings tab

(a) Link device refresh cycle and Routing parameter

"Link device refresh cycle" and "Routing parameter" are parameters common to CC-Link IE Controller Networks.

When the defined parameters written from CC IE Control utility differs from that in this utility, the following dialog box appears after clicking the **Write** button in the <<Online operation>> tab.

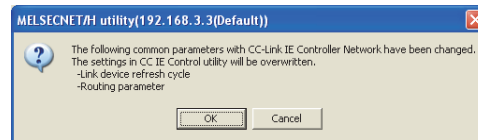


Figure 6.18 Dialog box

(2) Parameter settings tab

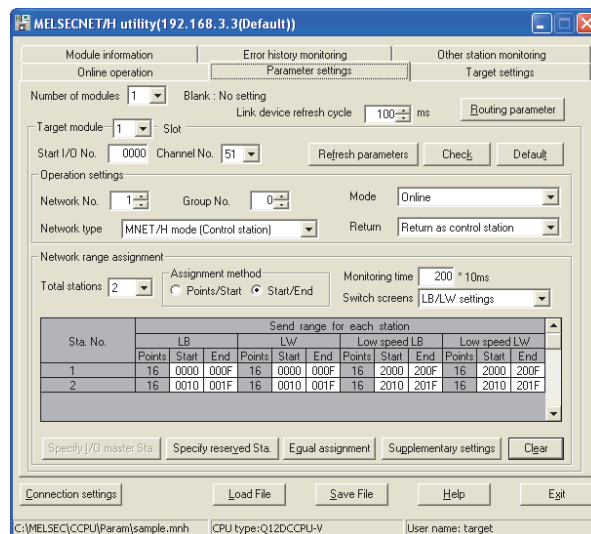


Figure 6.19 Parameter setting tab

Table 6.22 Description of the Parameter setting tab



Item	Description
Number of modules	Set the number of MELSECNET/H modules controlled by the C Controller module. Selecting "(blank)" is regarded as no setting (setting clear). (Default: "(blank)")

(To the next page)






Table 6.22 Description of the Parameter setting tab (continued)

Item	Description
<p>Online operation</p> <p>Parameter settings</p> <p>Target settings</p>	
Link device refresh cycle	<p>Set the refresh cycle of the link device. (In increments of ms)</p> <p>When using both the CC-Link IE Controller Network and MELSECNET/H, set the same value as the value set in CC IE Control utility.</p> <p>When enabling Block data assurance per station (☞ Page 6-37, Section 6.6 (6)), set 10 or more to the "Link device refresh cycle" and set "Refresh parameters".</p> <p>If 0 is set, refresh is not performed, all the settings for the refresh are cleared, and the Refresh parameters button is disabled.</p> <p>(Default: 100, Setting range: 0, 10 to 1000)</p> <p>For details of the link device refresh cycle, refer to the C Controller Module User's (Hardware Design, Function Explanation).</p>
Routing parameter button	Displays the Routing parameter settings screen. (☞ Page 6-31, Section 6.6 (3))
Target module	<p>Select a module to configure. (Default: 1)</p> <p>The numbers for this item will be automatically rearranged in ascending order of start I/O numbers when saving the parameter setting file or when switching the tab.</p>
Start I/O No.	<p>Set the start I/O No. of the MELSECNET/H module.</p> <p>(Setting range: 0 to FE0H (Note that the number must be unique and cannot be duplicated with the start I/O No. of other MELSECNET/H module.))</p>
Channel No.	<p>Set the channel No. of the MELSECNET/H module.</p> <p>Use this value when opening the channel from Device monitoring utility or a user program (MELSEC data link function).</p> <p>For the Q06CCPU-V-B, this setting is not available.</p> <p>The channel No. must be unique and cannot be duplicated with a channel No. of other MELSECNET/H modules.</p>
Refresh parameters button	<p>Displays the Refresh parameter setting screen. (☞ Page 6-33, Section 6.6 (4))</p> <p>When enabling Block data assurance per station, (☞ Page 6-37, Section 6.6 (6)), set 10 or more to the "Link device refresh cycle" and set "Refresh parameters".</p>
Check button	Checks for any setting error.
Default button	Set the operation settings, network range assignments, and refresh parameters back to default.
Operation settings	Operation settings for the MELSECNET/H module.
Network No.	Set the network No. of the MELSECNET/H module. (Default: 1, Setting range: 1 to 239)
Group No.	Set the group No. of the MELSECNET/H module. (Default: 0, Setting range: 0 to 32)
Network type	Set the type of the MELSECNET/H module. (Default: "MNET/H mode (Control station)")
Mode	Set the mode of the MELSECNET/H module. (Default: "Online")
Return	<p>Return setting of the control station.</p> <p>This setting is available when any of the following is selected for "Network type".</p> <ul style="list-style-type: none"> •MNET/H mode (Control station) •MNET/10 mode (Control station) •MNET/H Ext. mode (Control station) <p>(Default: "Return as control station")</p>

(To the next page)

Table 6.22 Description of the Parameter setting tab (continued)

Online operation **Parameter settings** Target settings

Item	Description
Network range assignment	Assign network ranges. •MNET/H mode (Control station) •MNET/10 mode (Control station) •MNET/H Ext. mode (Control station)
Total stations	Set a total number of stations (including the control station) to the target network. (Default: 2)
Assignment method	Switches the device range input method between Points/Start and Start/End. (Default: "Start/End")
Monitoring time	Set the monitoring time for the link scan time. (In increments of 10ms) (Default: 200, Setting range: 1 to 200)
Switch screens	Select the link device to which network range is to be assigned. "Low speed LB" and "Low speed LW" can be set when MNET/H mode (Control station) or MNET/H Ext. mode (Control station) is selected for "Network type". (Default: "LB/LW settings")
Points	Set the No. of the link device points assigned to the target station. This setting is available when "Point/Start" is selected for "Assignment method". (Default: "(blank)", Setting range:  Page 6-30, Section 6.6 (2) (a))
Start	Set the start No. of the link device assigned to the target station. (Default: "(blank)", Setting range:  Page 6-30, Section 6.6 (2) (a))
End	Set the end No. of the link device assigned to the target station. This setting is available when "Start/End" is selected for "Assignment method". (Default: "(blank)", Setting range:  Page 6-30, Section 6.6 (2) (a))
<input type="button" value="Specify I/O master Sta."/> button	Sets the selected station as an I/O master station of the link device (LX/LY), or cancels the setting. This button is enabled when "(LX/LY) settings (1)" or "(LX/LY) settings (2)" is selected for "Switch screens".
<input type="button" value="Specify reserved Sta."/> button	Sets the selected station as a reserved station, or cancels the setting.
<input type="button" value="Equal assignment"/> button	Displays the Equal assignment screen. ( Page 6-35, Section 6.6 (5))
<input type="button" value="Supplementary settings"/> button	Displays the Supplementary settings screen. ( Page 6-37, Section 6.6 (6))
<input type="button" value="Clear"/> button	Clears the "Points", "Start", and "End" settings and then sets the "Total stations" and "Monitoring time" settings back to default.

(a) Network range assignment

The following table indicates the setting ranges of network assignment.

Table 6.23 Setting ranges of network range assignment

Device		Points/Start/End	Setting range
LX		Points	16 to 8192 ^{*1}
		Start	0000 to 1FF0 ^{*1}
		End	000F to 1FFF ^{*2}
LY		Points	16 to 8192 ^{*1}
		Start	0000 to 1FF0 ^{*1}
		End	000F to 1FFF ^{*2}
When "Network type" ^{*3} is either of the following •MNET/H mode (Control station) •MNET/H Ext. mode (Control station)	LB	Points	16 to 16384 ^{*1}
		Start	0000 to 3FFF ^{*1}
		End	000F to 3FFF ^{*2}
	LW	Points	1 to 16384
		Start	0000 to 3FFF
		End	0000 to 3FFF
	Low-speed LB	Points	16 to 8192 ^{*1}
		Start	2000 to 3FF0 ^{*1}
	Low-speed LW	End	200F to 3FFF ^{*2}
		Points	1 to 8192
		Start	2000 to 3FFF
	When "Network type" ^{*3} is "MNET/10 mode (Control station)"	LB	End
Points			16 to 8192 ^{*1}
Start			0000 to 1FF0 ^{*1}
LW		End	000F to 1FFF ^{*2}
		Points	1 to 8192
		Start	0000 to 1FFF
		End	0000 to 1FFF

* 1 Only a multiple of 16 can be set to "Points" and "Start" of LX, LY, and LB.

* 2 Only a (multiple of 16 minus 1) can be set to "End" of LX, LY, and LB.

* 3 Set the "Network type" in the Parameter settings tab.

Page 6-27, Section 6.6 (2))

(3) Routing parameter settings screen

Transfer destination, relay network No., and relay station No. are set on this screen.

POINT

1. The MELSECNET/H module controlled by the C Controller module cannot be used a relay station which operates as a bridge.
For a relay station, use the MELSECNET/H module that is controlled by a programmable controller CPU which is capable of configuring multiple network systems.
2. Routing parameters are common in the following channels.
Different parameters cannot be set for each channel No.
 - MELSECNET/H (Channel No.51 to 54)
 - CC-Link IE Controller Network (Channel No.151 to 154)

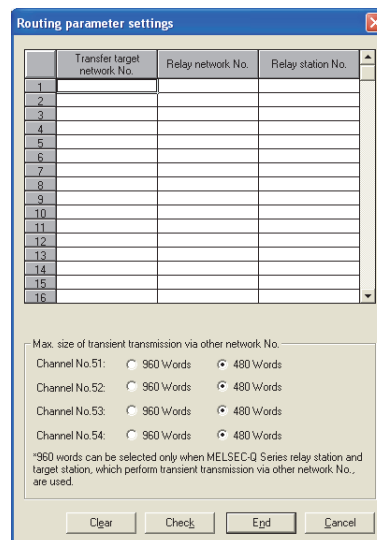


Figure 6.20 Routing parameter settings screen

Table 6.24 Description of the Routing parameter settings screen

Item	Description
Transfer target network No.	Set the transfer target network No. (Default: "(blank)", Setting range: 1 to 239)
Relay network No.	Set the relay network No. (Default: "(blank)", Setting range: 1 to 239)
Relay station No.	Set the relay station No. (Default: "(blank)", Setting range: 1 to 120)

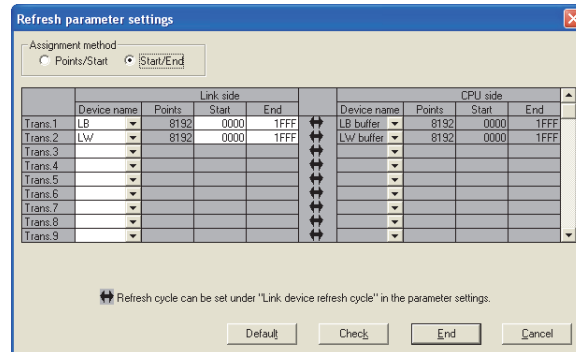
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








Table 6.24 Description of the Routing parameter settings screen (continued)

Item	Description
Max. size of transient transmission via other network No.	For each channel No., set the maximum transmission size of data sent by transient transmission from a user program via another network (No.).
Channel No.51 to Channel No.54	For each channel No., set the maximum transmission size for the case where data are sent by transient transmission to another network (No.) via a MELSECNET/H module. Only when the relay stations and target stations of transient transmission are the MELSEC-Q series network modules, select 960 words. When the relay stations and target stations of transient transmission are other than the MELSEC-Q series network modules, select 480 words. If 960 words is set for this case, data may be cut off, resulting in incorrect transient transmission. (Default: 480 words)
<input type="button" value="Clear"/> button	Clears the "Transfer target network No.", "Relay network No.", and "Relay station No." settings.
<input type="button" value="Check"/> button	Checks the "Transfer target network No.", "Relay network No.", and "Relay station No." settings.
<input type="button" value="End"/> button	Saves the settings and closes the Routing parameter settings screen.
<input type="button" value="Cancel"/> button	Closes the Routing parameter settings screen without saving the settings.

(4) Refresh parameter settings screen

Set refresh parameters.

**Figure 6.21 Refresh parameter settings screen****Table 6.25 Description of the Refresh parameter settings screen**

Item	Description
Assignment method	The device range input method can be switched between Points/Start and Start/End. (Default: "Start/End")
Link side	Set the refresh parameters of the target module selected on the Parameter settings tab. Up to 64 refresh parameters can be set. Set a unique value for each device. Duplicated devices are not allowed.
Device name	Set the name of the link device to be refreshed. (Default:  Page 6-34, Section 6.6 (4) (a), Setting range:  Page 6-34, Section 6.6 (4) (b))
Points	Set the points of the link device to be refreshed. (Default:  Page 6-34, Section 6.6 (4) (a), Setting range:  Page 6-34, Section 6.6 (4) (c))
Start	Set the start No. of the link device to be refreshed. (Default:  Page 6-34, Section 6.6 (4) (a), Setting range:  Page 6-34, Section 6.6 (4) (c))
End	Set the end No. of the link device to be refreshed. (Default:  Page 6-34, Section 6.6 (4) (a), Setting range:  Page 6-34, Section 6.6 (4) (c))
CPU side	Displays refresh parameters of the CPU module. Displayed data are corresponding to each setting in "Link side".
Device name	Displays the name of the device to be refreshed on the CPU module. (Display:  Page 6-34, Section 6.6 (4) (b))
Points	Displays the points of the device to be refreshed on the CPU module. Displays the same start No. as the one in "Points" in the "Link side" field.
Start	Displays the start No. of the device to be refreshed on the CPU module. Displays the same start No. as the one in "Start" in the "Link side" field.
End	Displays the start No. of the device to be refreshed on the CPU module. Displays the same start No. as the one in "End" in the "Link side" field.
Default button	Set the "Link side" and "CPU side" settings back to default.
Check button	Checks the "Link side" and "CPU side" settings for error.
End button	Saves the settings and closes the Refresh parameter settings screen.
Cancel button	Closes the Refresh parameter settings screen without saving the settings.

(a) Default

The following indicates the default for "Device name", "Points", "Start", and "End".

Table 6.26 Default for "Device name", "Points", "Start", and "End"

Setting item	Device name	Points	Start	End
Trans.1	LB	8192	0000	1FFF
Trans.2	LW	8192	0000	1FFF
Trans.3 to Trans.64	"(Blank)"			

(b) Device names

The following indicates the setting ranges of the "Device names" on the "Link side", and the display of the "Device names" on the "CPU side".

Table 6.27 "Device names" on "Link side" and "CPU side"

"Link side" setting range	"CPU side" display
LX	LX buffer
LY	LY buffer
LB	LB buffer
LW	LW buffer

(c) Setting range on the link side

The following indicates the setting ranges of the link side "Points", "Start", and "End".

(The same setting ranges are applied to "Trans.1" to "Trans.64".)

Table 6.28 Setting ranges of link side "Points", "Start", and "End"

Device name	Points/Start/End	Setting range
LX	Points	16 to 8192 ^{*1}
	Start	0000 to 1FF0 ^{*1}
	End	000F to 1FFF ^{*2}
LY	Points	16 to 8192 ^{*1}
	Start	0000 to 1FF0 ^{*1}
	End	000F to 1FFF ^{*2}
LB	Points	16 to 16384 ^{*1}
	Start	0000 to 3FF0 ^{*1}
	End	000F to 3FFF ^{*2}
LW	Points	1 to 16384
	Start	0000 to 3FFF
	End	0000 to 3FFF

* 1 Only a multiple of 16 can be set to "Points" and "Start" of LX, LY, and LB.

* 2 Only a (multiple of 16 minus 1) can be set to "End" of LX, LY, and LB.

(5) Equal assignment screen

The link device points of all stations can be equally assigned on this screen.

For the start and end stations, set values within the number of the stations for equal assignment target, which can be calculated in the following expression:

(Total link stations - (Start station No. - 1))

(a) When "LB/LW settings" is set for "Switch screens" in the Parameter settings tab.

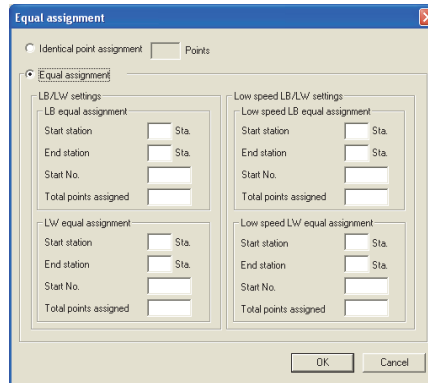


Figure 6.22 Equal assignment screen (for LB/LW settings)

Table 6.29 Description of the Equal assignment screen (for LB/LW settings)

Item	Description
Identical point assignment	Equally assigns entered points to the link devices of each station. (In increments of 16) (Default "(Blank)", Setting range: 16 or more)
<input type="button" value="OK"/> button	Validates the equal assignment setting according to entered values and closes the Equal assignment screen.
<input type="button" value="Cancel"/> button	Discard the settings and closes the Equal assignment screen.
Equal assignment	Equally divides the entered points and assigns them to the link devices of each station.
LB equal assignment	Set the method for equal assignment to LB
Start station	Set the first of the stations to which equal assignment will be performed. (Default "(Blank)", Setting range: 1 to (Value set in "Total stations")) The value for "Total stations" can be set in the "Network range assignment" in the Parameter settings tab. (Page 6-27, Section 6.6 (2))
End station	Set the last of the stations to which equal assignment will be performed. (Default "(Blank)", Setting range: (Value set in "Start station" to "Total stations")) The value for "Total stations" can be set on the "Network range assignment" in the Parameter settings tab. (Page 6-27, Section 6.6 (2))
Start No.	Set the start No. of the link device to be equally assigned. (Default "(Blank)", Setting range: Page 6-30, Section 6.6 (2) (a))
Total points assigned	Set the total points of the link devices to be equally assigned. (Default "(Blank)", Setting range: Page 6-30, Section 6.6 (2) (a))
LW equal assignment	Set the method for equal assignment to LW. Set each item the same as for "LB equal assignment"
Low speed LB equal assignment	Set the method for equal assignment to low-speed LB. Setting method is the same as for "LB equal assignment" described above.
Low speed LW equal assignment	Set the method for equal assignment to low-speed LW. Setting method is the same as for "LB equal assignment" described above.

(b) When "LX/LY settings (1)" or "LX/LY settings (2)" is set for "Switch screens" in the Parameter settings tab.

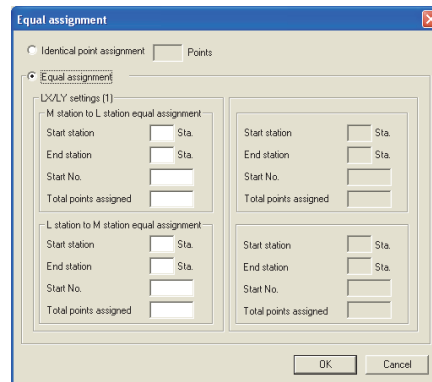


Figure 6.23 Equal assignment screen (for LX/LY settings (1))

Table 6.30 Description of the Equal assignment screen (for LX/LY settings (1) and (2))

Item	Description
Identical point assignment	Equally assigns entered points to the link devices of each station. (In increments of 16) Note that the points will not be assigned to the station, which is set as the I/O master station. (☞ Page 6-27, Section 6.6 (2)) (Default "(Blank)", Setting range: 16 or more)
OK button	Validates the equal assignment setting according to entered values and closes the Equal assignment screen.
Cancel button	Discard the settings and closes the Equal assignment screen.
Equal assignment	Equally divides the entered points and assigns them to the link devices of each station.
M station to L station equal assignment	Set the method for equal assignment to LY(1) or LY(2).
Start station	Set the first of the stations to which equal assignment will be performed. (Default "(Blank)", Setting range: 1 to (Value set in "Total stations")) The value for "Total stations" can be set in the "Network range assignment" in the Parameter settings tab. (☞ Page 6-27, Section 6.6 (2))
End station	Set the last of the stations to which equal assignment will be performed. (Default "(Blank)", Setting range: (Value set in "Start station" to "Total stations")) The value for "Total stations" can be set in the "Network range assignment" in the Parameter settings tab. (☞ Page 6-27, Section 6.6 (2))
Start No.	Set the start No. of the link device to be equally assigned. (Default "(Blank)", Setting range: ☞ Page 6-30, Section 6.6 (2) (a))
Total points assigned	Set the total points of the link devices to be equally assigned. (Default "(Blank)", Setting range: ☞ Page 6-30, Section 6.6 (2) (a))
L station to M station equal assignment	Set the method for equal assignment to LX(1) or LX(2). Setting method is the same as for "M station to L station equal assignment" described above.

(6) Supplementary settings screen

The supplementary settings is used for advanced settings.
Default values can be applied for normal usage.

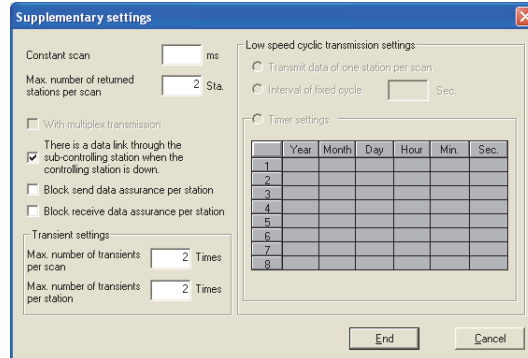


Figure 6.24 Supplementary settings screen

Table 6.31 Description of the Supplementary settings screen

Item	Description
Constant scan	Constant scan is used to maintain the link scan time at a constant time. Set a value to prevent fluctuation of the link scan time. (Unit: ms) (Default: "(Blank)"), Setting range: 1 to 500
Max. number of returned stations per scan	Set the number of communication error stations that can return during one link scan. (Default: 2, Setting range: 1 to 64 ("Total stations" setting)) "Total station" can be set in the "Network range assignment" field in the Parameter settings tab. (Page 6-27, Section 6.6 (2))
With multiplex transmission	Select this when executing the multiplex transmission function. Multiplex transmission is used in the optical loop system to increase the transmission speed by using both the forward and reverse loops simultaneously when they are in a normal condition. This setting is available only when "Total stations" is set to 4 or more. "Total station" can be set in the "Network range assignment" field in the Parameter settings tab. (Page 6-27, Section 6.6 (2)) (Default: Not selected (Not execute))
There is a data link through the sub-controlling station when the controlling station is down.	Select this when allowing another normal station on the network to continue communication (the control station switch function) as a alternate station (sub-control station) when the specified control station is disconnected due to some fault. (Default: Selected (Enable the control station switch function))
Block send data assurance per station	Select this when securing consistency*1 of link data for each station in cyclic transmission. This enables to handle multiple word data without providing interlocks in the program. Note that this function*1 can be used only for the link device refresh processing between the C Controller module and MELSECNET/H module. Set the following parameters when selecting any of these items for assuring data per station.
Block receive data assurance per station	<ul style="list-style-type: none"> •"Link device refresh cycle" in the "Parameter settings" tab. (Page 6-27, Section 6.6 (2)) •Refresh parameters in the "Refresh parameter settings" tab. (Page 6-33, Section 6.6 (4)) (Default: Page 6-38, Section 6.6 (6) (a))

* 1 Securing consistency means preventing 2-word (32 bits) link data, such as the current value of the positioning module, from being divided into new and old data in units of 1 word (16 bits) due to cyclic transmission timing.
The link device refresh processing between the C Controller module and MELSECNET/H module can be set in the "Refresh parameter settings" tab. (Page 6-33, Section 6.6 (4)).

(To the next page)

Table 6.31 Description of the Supplementary settings screen (continued)

Item	Description
Transient settings	Determine the conditions for transient transmission.
Max. number of transients per scan	Enter the number of transient transmissions (total of entire network) that can be performed by one network during one scan. (Default: 2, Setting range: 1 to 255)
Max. number of transients per station	Enter the number of transient transmissions that can be performed by one station during one scan. (Default: 2, Setting range: 1 to 10 ("Max. number of transients per scan" setting))
Low speed cyclic transmission settings	Set the execution conditions when sending link data (LB, LW) in slow cycles (low speed cyclic transmission) in addition to the normal cyclic transmission. This setting is available only when "Low speed LB" and "Low speed LW" of "Network range assignment" are set on the "Parameter settings" tab.
Transmit data of one station per scan	Select this when collectively sending data to another station per link scan.
Interval of fixed cycle	Low-speed cyclic transmission is performed at specified intervals. (Default: "(Blank)", Setting range: 1 to 65535 (Unit: Sec.))
Timer settings	Low-speed cyclic transmission is performed at specified time. Any of "Hour", "Min.", and "Sec." settings cannot be skipped. When no value are set to "Year", "Month", and "Day", the transmission is executed at specified time every day. When no value are set to "Year" and "Month", the transmission is executed at specified time every month. When no value is set to "Year", the transmission is executed at specified time every year. (Default: "(Blank)", Setting range: 00:00:00, January 1, 2000 to 23:59:59, December 31, 2099)
<input type="button" value="End"/> button	Saves the settings and closes the Supplementary setting screen.
<input type="button" value="Cancel"/> button	Closes the Supplementary setting screen without saving the settings.

(a) "Block send data assurance per station" "Block receive data assurance per station"

Default settings differ depending on the network type as follows. (☞ Page 6-27, Section 6.6 (2))

Table 6.32 Network types and default

Network type	Default
MNET/H mode (Control station)	Send and receive both deselected
MNET/10 mode (Control station)	
MNET/H Extended mode (Control station)	Send and receive both selected

6.7 Target Settings Tab



Logical station numbers are set on this tab.

Logical station numbers are used when the target station is a multiple CPU system to access the programmable controller other than control CPU in the target station.

Note that the logical station number setting is not required for the following access.

☞ Page 6-41, "6.7 (4) Access that does not require a logical station No. setting"

(1) Precaution for the Target settings tab

Select a programmable controller CPU for the "Target module".

(2) The Target settings tab

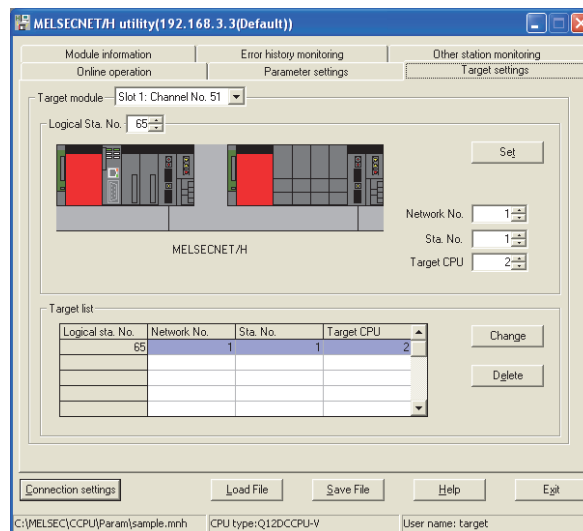
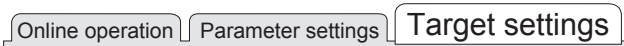


Figure 6.25 Target settings tab

Table 6.33 Description of the Target settings tab



Item	Description
Target module	Select the module to be configured. (Default: "Slot 1")
Logical Sta. No.	Specify the logical station No. of the module selected in "Target module". (Default: 65, Setting range: 65 to 239) The logical station No. is logical numbers to be set in "Sta. No." in Device monitoring utility and MELSEC data link function (MELSECNET data link function).
Network No.	Set the network No. of the CC-Link IE Controller Network module and MELSECNET/H module controlled by the multiple CPU system. (Default: 1, Setting range: 1 to 239)
Sta. No.	Set the station No. of the CC-Link IE Controller Network module and MELSECNET/H module controlled by the multiple CPU system. (Default: 1, Setting range: 1 to 120)
Target CPU	Set the CPU (CPU No. used in the multiple CPU system) to be accessed. (Default: 1, Setting range: 1 to 4)
[Set] button	Registers the settings (Logical Sta. No., Network No., Sta. No., and Target CPU) to the Target list.

(To the next page)

Table 6.33 Description of the Target settings tab (continued)

Online operation | Parameter settings | **Target settings**

Item	Description
Target list	Displays a list of the Logical Sta. No. set to the module selected in "Target module" and the corresponding network No., station No., and target CPUs
<input type="button" value="Change"/> button	Displays the data of the selected row (Logical sta. No.) in the Target list. (Setting for the logical sta. No. can also be changed by double-clicking the row.)
<input type="button" value="Delete"/> button	Deletes the line (Logical sta. No.) selected in the Target list area.

(3) Access example

When the settings in the following screen are applied in the below system, a MELSECNET/H module controlled by the C Controller module can access to the CPU No.4 via the MELSECNET/H module (controlled by CPU No. 2, network No. 1) by using the logical station No. "65".

The access is also available by opening channel No. 51 and setting 65 for the station No. in Device monitoring utility or a user program (MELSEC data link function).

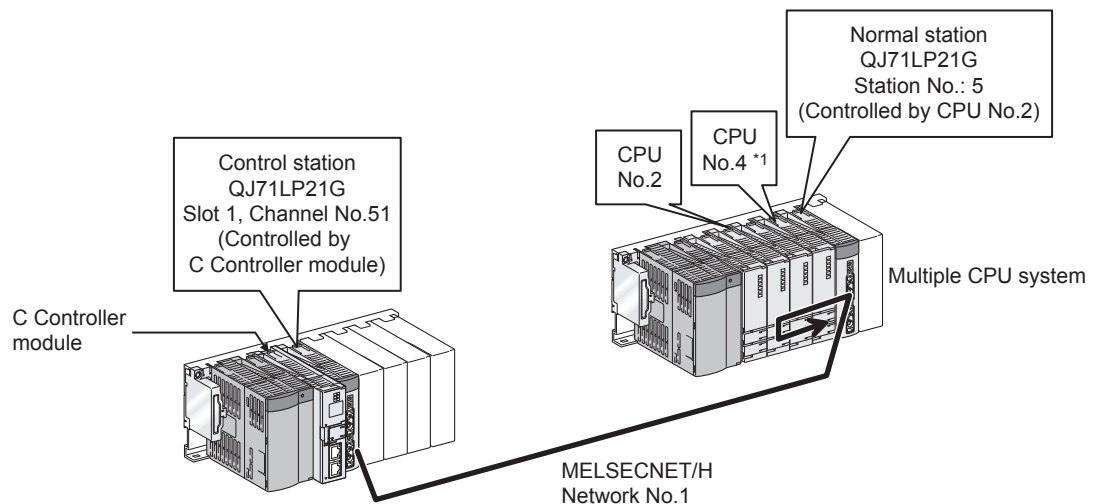


Figure 6.26 System configuration

* 1 When CPU No. 4 cannot configure a multiple CPU system, access to the CPU No. 4 is not available by using the logical station number.

The target settings for the above access is shown below.

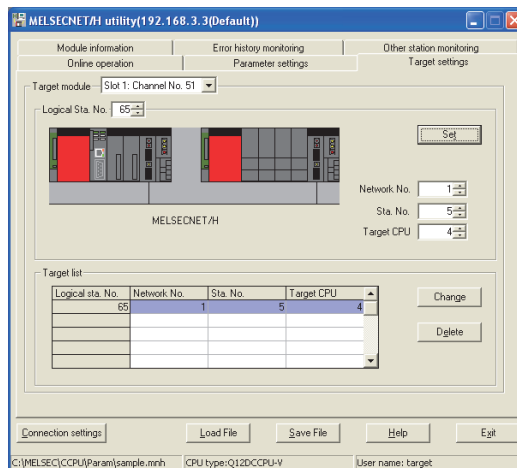


Figure 6.27 Target settings tab

(4) Access that does not require a logical station No. setting

In the following access, use the station No. of a MELSECNET/H module on other station.

The logical station number setting is not required.

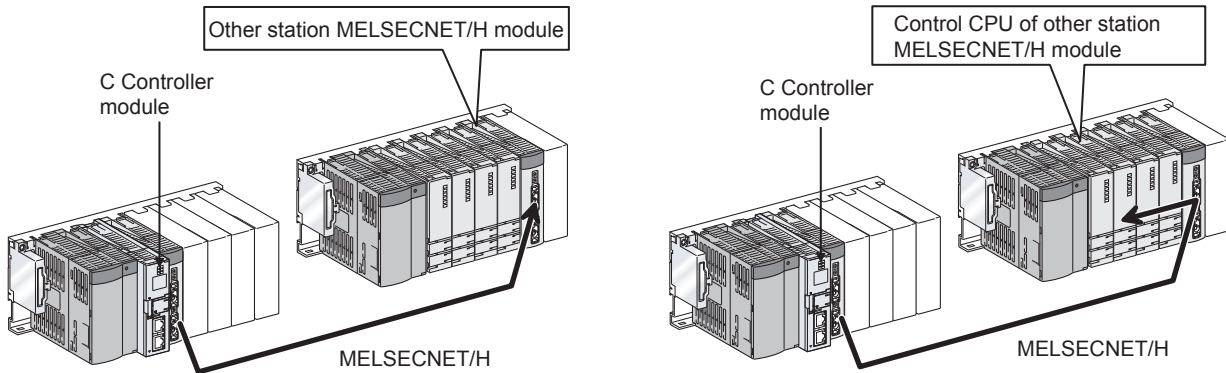


Figure 6.28 Access that does not require a logical station No. setting

6.8 System menu



(1) System menu

Open the system menu of MELSECNET/H utility in any of the following three methods.

- Right-click on the title bar.
- Click the icon on the title bar.
- Press the [Alt] key and then the [↓] key.
- For Windows® 7 or later, right-click the icon on the task bar while pressing the [Shift] key.

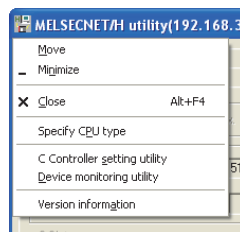


Figure 6.29 System menu

Table 6.34 Description of the System menu

Item	Description
Move, Minimize, Close	Refer to the Microsoft® Windows® manual.
Specify CPU type	Specifies a C Controller module to which parameters are set or to be monitored. (☞ Page 3-4, Section 3.4) This item is not selectable during monitoring.
C Controller setting utility	Starts C Controller setting utility. (☞ Page 4-1, CHAPTER 4) While online, check that C Controller setting utility is connected to the same target device as for MELSECNET/H utility.
Device monitoring utility	Starts Device monitoring utility. (☞ Page 8-1, CHAPTER 8) While online, check that Device monitoring utility is connected to the same target device as for MELSECNET/H utility. For the Q06CCPU-V-B, Device monitoring utility is not available.
Version information	Opens the Version information screen. (☞ Page 6-43, Section 6.8 (2))

(2) Version information screen

Displays the version information of MELSECNET/H utility.

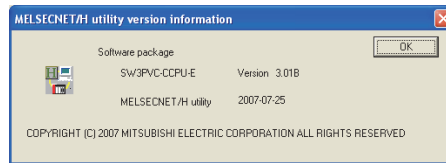


Figure 6.30 Version information screen (Example: Version 3.01B)

Table 6.35 Description of the Version information screen

Item	Description
Software package	—
SW3PVC-CCPU-E	Displays the version of SW3PVC-CCPU.
MELSECNET/H utility	Displays the update date of MELSECNET/H utility.
OK button	Closes the Version information screen.

6.9 Precautions



(1) Parameter details

For details of each parameter, refer to Q Corresponding MELSECNET/H Network System Reference Manual (PLC to PLC network).

(2) Simultaneous use of utility

Up to eight MELSECNET/H utilities can be simultaneously activated.

(3) Written parameters

Parameters written to the C Controller module take effect when the C Controller module is powered off and then on or is reset.

(4) Tabs available to operate offline

When MELSECNET/H utility connection is offline, data can be set only in the Parameter settings tab and the Target settings tab.

For the Q06CCPU-V-B, only parameters shown in the Target settings tab can be set.

(5) Terminating Microsoft® Windows®

Do not terminate Microsoft® Windows® while MELSECNET/H utility is running. Terminate MELSECNET/H utility first and then Microsoft® Windows®.

(6) Connection during script file processing

Connection from utility to a C Controller module may not be available during processing a script file (while the RUN LED is flashing).

If the RUN LED remains flashing, refer to the C Controller Module User's Manual (Hardware Design, Function Explanation) and troubleshoot the problem.

(7) Time required for connection from each utility to the C Controller module

The following time is required for the C Controller module to connect to each utility after power-on or reset.

- When executing a script file, "STARTUP.CMD":
Upon completion of the RUN LED flashing.
- When not executing a script file, "STARTUP.CMD":
Fifteen (15) seconds after completion of start or reset

Do not attempt a connection before the above time has elapsed after completion of power-on or reset.

Changing "Priority" to a larger value in the Option tab of C Controller setting utility increases the time after which the C Controller module can be connected.

CHAPTER 7 CC IE CONTROL UTILITY

7.1 CC IE Control Utility Function List

Q12DCCPU-V	Q06CCPU-V	Q06CCPU-V-B
○	○	×

Table 7.1 CC IE Control utility function list

Name	Description	Applicability		Reference page
		Q12DCCPU-V	Q06CCPU-V	
Specify CPU type	Specifies a C Controller module for parameter setting and monitoring.	○	○	Page 3-4
Connection settings	Sets the C Controller module to which CC IE Control utility is to be connected.	○	○	Page 3-5
Parameter setting file saving/loading	Saves parameters set in CC IE Control utility into a file or loads the file.	○	○	Page 3-14
Module information display	Displays information on the CC-Link IE Controller Network module (own station) that is controlled by the connected C Controller module.	○	○	Page 7-2
Online operation	Reads, writes, or verifies CC-Link IE Controller Network parameters.	○	△	Page 7-20
Parameter settings	Sets parameters for the CC-Link IE Controller Network modules.	○	○	Page 7-23
Target settings	Sets a logical station number for access to a CPU module in a multiple CPU system when a CC-Link IE Controller Network module is mounted in the system.	○	○	Page 7-34

○: Applicable, △: Applicable but partially restricted, ×: N/A

7.2 Module Information Tab



The Module information tab displays information of the CC-Link IE Controller Network module (own station) that is controlled by the connected C Controller module.

(1) Precautions for the Module information tab

- (a) When a utility communication error has occurred
When a utility communication error has occurred during connection, click the **Start monitoring** button or set the connection target again in the Connection settings so that the communication can be restarted.
- (b) During reset
Communications are not available while the C Controller module is being reset. Start communications after the reset is complete.

(2) Module information tab

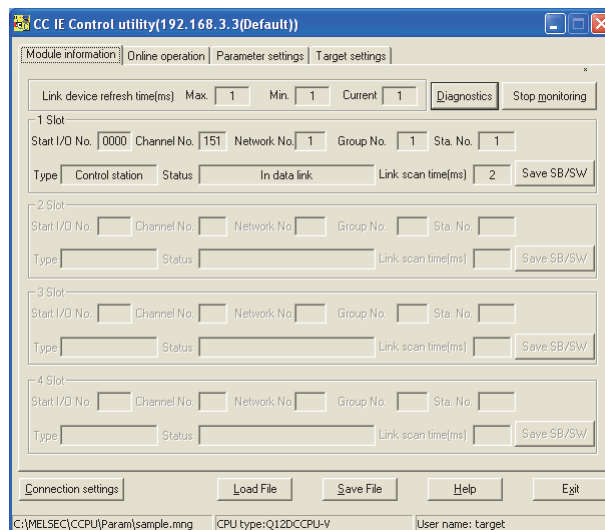


Figure 7.1 Module information tab

Table 7.2 Description of Module information tab



Item	Description	Corresponding SB	Corresponding SW
Link device refresh time	Displays the total link device refresh time required to refresh the MELSECNET/H and CC-Link IE Controller Networks, which are controlled by the C Controller module (host CPU). (In increments of ms)	—	—
Max.	Displays the maximum total link device refresh time recorded in the past. When Link device refresh cycle (☞ Page 7-23, Section 7.5) is 0ms, "-" appears.	—	—
Min.	Displays the minimum total link device refresh time recorded in the past. When Link device refresh cycle (☞ Page 7-23, Section 7.5) is 0ms, "-" appears.	—	—

(To the next page)

Table 7.2 Description of Module information tab (continued)

Module information				
		Online operation	Parameter settings	Target settings
Item	Description	Corresponding SB	Corresponding SW	
Link device refresh time	—	—	—	
Current	Displays the current total link device refresh time. When Link device refresh cycle (☞ Page 7-23, Section 7.5) is 0ms, "-" appears.	—	—	
Diagnostics button	Displays the "CC IE Control Network diagnostics result" screen. (☞ Page 7-5, Section 7.3) This button cannot be clicked in the offline status.	—	—	
Start monitoring or Stop monitoring button	Starts or stops monitoring the CC-Link IE Controller Network module. "*" flashes in the upper right of the button during monitoring. These buttons are disabled in the offline status.	—	—	
1 Slot to 4 Slot	Displays CC-Link IE Controller Network module information in order of start I/O No.	—	—	
Start I/O No.	Displays the start I/O No. of the CC-Link IE Controller Network module.	—	—	
Channel No.	Displays the channel No. of the CC-Link IE Controller Network module. When the "Channel No." parameter is not specified (☞ Page 7-23, Section 7.5), "-" appears.	—	—	
Network No.	Displays the network No. of the CC-Link IE Controller Network module. When the "Network No." parameter is not specified (☞ Page 7-23, Section 7.5), "-" appears.	—	SW0040	
Group No.	Displays the group No. of the CC-Link IE Controller Network module. When the "Group No." parameter is not specified (☞ Page 7-23, Section 7.5), "-" appears.)	—	SW0041	
Sta. No.	Displays the station No. of the CC-Link IE Controller Network module.	—	SW0042	
Type	Displays the type of the CC-Link IE Controller Network module.	SB0044	—	
Status	Displays the communication status of the CC-Link IE Controller Network module as one of the following. • In data link • Suspend data link • Baton passing • Suspend baton pass • Offline testing • Offline	—	SW0047	
Link scan time	Displays the link scan time of the CC-Link IE Controller Network module. (In increments of ms)	—	—	
Save SB/SW button	Saves information of the CC-Link IE Controller Network module's link special relay (SB) and link special register (SW) into a CSV file. (☞ Page 7-4, Section 7.2 (3))	—	—	

(3) Specifications of the SB/SW save file

A file format can be selected in "Save as type" on the following screen.

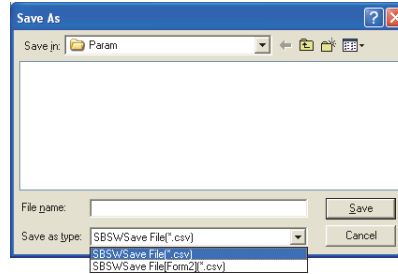


Figure 7.2 SaveAs screen

To use the text data of the SB/SW save file in a user program etc, select "SBSWSave File(*.csv)" when saving.

To use them on Microsoft® Excel etc., select "SBSWSave File[Form2](*.csv)" when saving.

When "SBSWSave File(*.csv)" is selected	When "SBSWSave File[Form2](*.csv)" is selected																																																						
<pre>SB/sw,192.168.3.3(Default) QJ71GP21-SX ,100410000000000-D Start I/O No., Network No., Group No., Station No., Network 0000, 1, 1, 1, CC-Link IE Controller Network, Control stati SB/sw information device, value, , device, value SB0000, 0, , SW0000, 0000 SB0001, 0, , SW0001, 0000 SB0002, 0, , SW0002, 0000 SB0003, 0, , SW0003, 0000 SB0004, 0, , SW0004, 0000 SB0005, 0, , SW0005, 0000</pre>	<table border="1"> <tr> <td>[SB/SW]</td> <td>[192.168.3.3(Default)]</td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td>[QJ71GP21-SX]</td> <td>[100410000000000-D]</td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td>[Start I/O No.]</td> <td>[Network I]</td> <td>[Group No.]</td> <td>[Station No.]</td> <td>[Network]</td> <td>[Type]</td> </tr> <tr> <td>[0000]</td> <td>[1]</td> <td>[1]</td> <td>[1]</td> <td>[CC-Link I]</td> <td>[Control station]</td> </tr> <tr> <td colspan="6">[SB/SW information]</td> </tr> <tr> <td>[device]</td> <td>[value]</td> <td>[device]</td> <td>[value]</td> <td></td> <td></td> </tr> <tr> <td>[SB0000]</td> <td>[0]</td> <td>[SW0000]</td> <td>[0000]</td> <td></td> <td></td> </tr> <tr> <td>[SB0001]</td> <td>[0]</td> <td>[SW0001]</td> <td>[0000]</td> <td></td> <td></td> </tr> <tr> <td>[SB0002]</td> <td>[0]</td> <td>[SW0002]</td> <td>[0000]</td> <td></td> <td></td> </tr> </table>	[SB/SW]	[192.168.3.3(Default)]					[QJ71GP21-SX]	[100410000000000-D]					[Start I/O No.]	[Network I]	[Group No.]	[Station No.]	[Network]	[Type]	[0000]	[1]	[1]	[1]	[CC-Link I]	[Control station]	[SB/SW information]						[device]	[value]	[device]	[value]			[SB0000]	[0]	[SW0000]	[0000]			[SB0001]	[0]	[SW0001]	[0000]			[SB0002]	[0]	[SW0002]	[0000]		
[SB/SW]	[192.168.3.3(Default)]																																																						
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[0000]	[1]	[1]	[1]	[CC-Link I]	[Control station]																																																		
[SB/SW information]																																																							
[device]	[value]	[device]	[value]																																																				
[SB0000]	[0]	[SW0000]	[0000]																																																				
[SB0001]	[0]	[SW0001]	[0000]																																																				
[SB0002]	[0]	[SW0002]	[0000]																																																				

Figure 7.3 Example of SB/SW save files

Remark

The folder of the SB/SW save file is "C:\MELSEC\CCPU\Param" by default (when SW3PVC-CCPU has been installed in "C:\MELSEC").

7.3 Diagnostics Result Screen



Clicking the **Diagnostics** button in the <<Module information>> tab displays this screen.

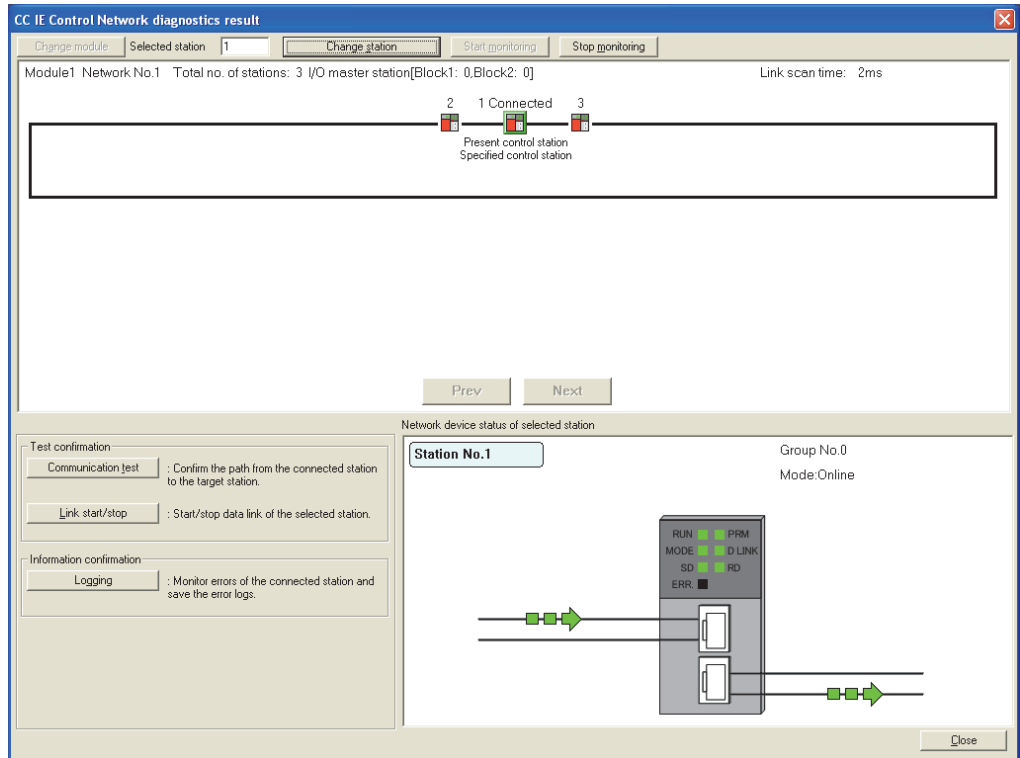


Figure 7.4 CC IE Control Network diagnostics result screen

POINT

When there are two or more CC-Link IE Controller Network modules that are controlled by the C Controller module, the following "Select diagnostics destination" window is displayed prior to "CC IE Control Network diagnostics result".

Select a network to be diagnosed and click the **OK** button.

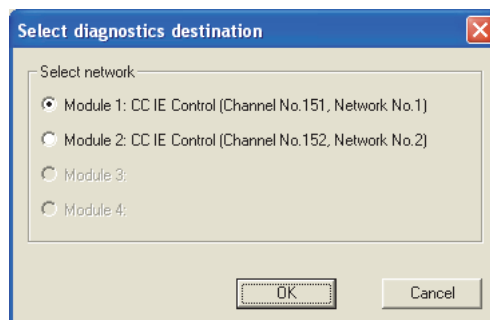







Figure 7.5 Select diagnostics destination screen

Table 7.3 Description of Select diagnostics destination

Item	Description
<input type="button" value="Change module"/> button	Displays the "Select diagnostics destination" screen when there are two or more CC-Link IE Controller Network modules that are controlled by the C Controller module. Change the network to one that is to be diagnosed.
Selected station	Entering a station No. and clicking the <input type="button" value="Change station"/> button changes the display to the one for the selected station. The status of the selected station is displayed in the "Network device status of selected station" area. (Default: Station No. of the connected station, Setting range: 1 to 120)
<input type="button" value="Change station"/> button	Determines the entry in "Selected station".
<input type="button" value="Start monitoring"/> button	Starts automatic updating of "CC IE Control Network diagnostics result".
<input type="button" value="Stop monitoring"/> button	Stops automatic updating of "CC IE Control Network diagnostics result".
Network information	Displays the link status and station status of the network. ( Page 7-7, Section 7.3 (1))
Network device status of selected station	Displays the detailed information on the selected station. ( Page 7-10, Section 7.3 (2))
<input type="button" value="Communication test"/> button	Displays the "Communication Test" screen. ( Page 7-13, Section 7.3 (3))
<input type="button" value="Link start/stop"/> button	Displays the "Link start/stop" screen. ( Page 7-15, Section 7.3 (4))
<input type="button" value="Logging"/> button	Displays the "Logging" screen. ( Page 7-16, Section 7.3 (5))
<input type="button" value="Close"/> button	Closes the "CC IE Control Network diagnostics result" screen.

(1) Network information

The link status and station status of the network are displayed.

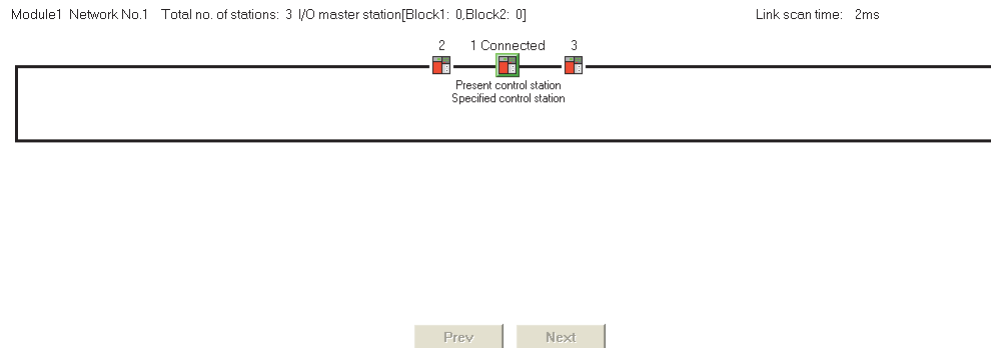


Figure 7.6 Network information display

Table 7.4 Description of Network information display

Item	Description
Module	Displays the module on the network, which is being diagnosed. The number corresponds to one of Slots 1 to 4 on the "Module information" screen.
Network No.	Displays the network No. of the network being diagnosed.
Total no. of stations	Displays the total number of connected and reserved stations.
I/O master station	Displays the station No. of the I/O master station on the network being diagnosed.
Link scan time	Displays the current link scan time. (In increments of ms)
Icons	Displays each station status or inter-station status. (☞ Page 7-8, Section 7.3 (1) (a))
Prev button	Switches the screen when the total number of stations is 61 or more.
Next button	

(a) Icons

Each icon represents its station status or inter-station status.

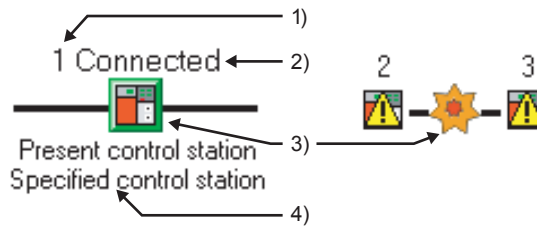


Figure 7.7 Displaying each station status and inter-station status

- 1) Station No.
Station No. of each CC-Link IE Controller Network module is displayed.
- 2) Connected
This word is shown for the station connected to the CC IE Control utility (own station).
- 3) Icons
The meanings of the icons are listed below.

Table 7.5 Descriptions of icons

Icon	Description
	Normally operating station
	Faulty station Although cyclic transmission is performed, a fault has occurred on any of the following: •CC-Link IE Controller Network module •CC-Link IE Controller Network interface board •Cable
	Faulty station (Cyclic station is stopped.)
	Disconnected station (black)
	Reserved station (gray)
	Selected station (an icon in a green frame) •To select, click a station icon, or move the focus with the left and right arrow keys and press the space key. •The detailed information is displayed in "Network device status of selected station". •Disconnected or reserved stations are not selectable.
	Being focused (an icon in a dotted line frame) •To make it selected, press the space key. •Disconnected or reserved stations are not selectable.
	Communication error •Selecting the station next to a faulty station will display the detailed information in the "Network device status of selected station" area.

- 4) Present control station and Specified control station
Present control station: Station that is actually operating as a control station
Specified control station: Control station that is set with a parameter

(b) Position of a disconnected station

1) If the station has obtained normal connection information

The disconnected station is displayed in the position where it was connected when it was normal.

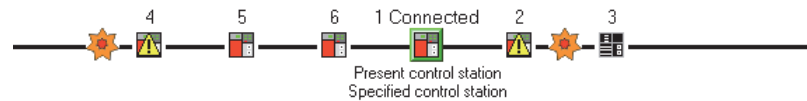


Figure 7.8 When the disconnected station has obtained normal connection information

Conditions and timing for normal connection information acquisition

When all of the following conditions are met, normal connection information is stored in a CC-Link IE Controller Network module.

- All stations are in data link status. (Cyclic transmission status of each station (SB00B0) is off.)
- No loopback station (Loopback status (SB0065) is off.)
- No station has a parameter error. (Parameter status of each station (SB00E0) is off.)
- The number of actually connected stations is the same as the total number of stations (except reserved stations) set on the control station.

If all the above conditions are met again after any of them was not met, the normal connection information will be updated.

POINT

- (1) For acquisition of normal connection information, there are restrictions on the version of the CC-Link IE Controller Network module that is directly connected to CC IE Control utility.

Check the version of the CC-Link IE Controller Network module.

CC-Link IE Controller Network Reference Manual

- (2) After acquisition of normal connection information, if the network configuration is changed with a cable or station disconnected, the changes cannot be displayed correctly.

Update the information as instructed below.

(If the network has an error, however, normal connection information cannot be obtained, and the condition is displayed as it is.)

- Set Normal connection information refresh instruction (SB000C) to on.

CC-Link IE Controller Network Reference Manual

- Power off and then on, or reset the connected station.
- Take corrective actions to set all stations into normal states.

- (3) If a station that is not included in the normal connection information is added, it is displayed on the IN side of the CC IE Control utility connected station.

2) If the station has not obtained normal connection information

A disconnected station is displayed on the IN side of the CC IE Control utility connected station.

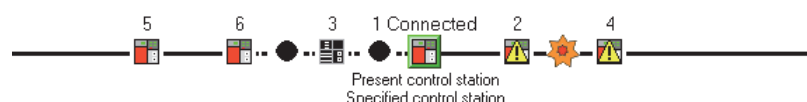


Figure 7.9 When the disconnected station has not obtained normal connection information

(2) Network device status of selected station

The detailed information of a selected station is displayed.

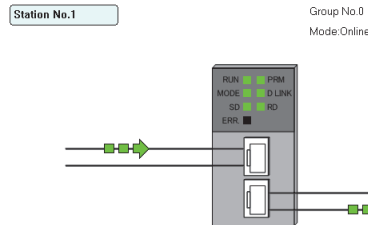


Figure 7.10 Network device status of selected station

Table 7.6 Description of Network device status of selected station

Item	Display	Description
Group No.	—	Displays the group No. of the selected station. (Range: 0 to 32)
Mode	—	Displays the mode of the selected station. (Display item: "Online", "Line test")
Operating status		Normal operation
		Error (data link continued) (yellow)
		Error (data link stopped) (red)
LEDs of selected station network device		Displays the operating status of the selected station. (Page 7-11, Section 7.3 (2) (a))
Communication status		In data link
		Cable disconnection
		Communication error (other than cable disconnection)
		Module error (CC-Link IE Controller Network parameter error or transient transmission error)
Error details button	, etc.	Displayed in the faulty area. (Page 7-12, Section 7.3 (2) (b))

(a) LEDs of the selected station network device
 The operating status of the selected station is displayed.

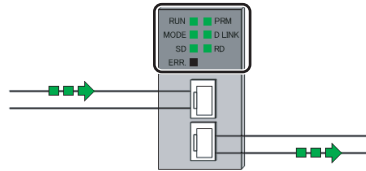


Figure 7.11 LEDs of the selected station network device

Table 7.7 Description of LEDs of the selected station network device

LED	LED status	Description
RUN	On, green	In normal operation
	Off	Hardware fault or watchdog timer error
MODE	On, green	Online mode
	Flashing, green	Test mode
	Off	Offline mode
SD	On, green	Sending data
	Off	Not yet sending data
ERR.	On, red	<ul style="list-style-type: none"> Received data are erroneous. (Receive frame error) A certain level frame error has occurred between stations. Control station or station No. is duplicated. Cables are disconnected or incorrectly connected between OUT and IN. Network parameters are corrupted, or some settings (reserved station setting, total number of stations, network No., etc.) are inconsistent between control and normal stations.
	Off	Normal status
PRM	On, green	Operating as a control station
	Off	Operating as a normal station
D LINK	On, green	In data link (cyclic transmission operated)
	Flashing, green	In data link (cyclic transmission stopped)
	Off	Not yet in data link (being disconnected)
RD	On, green	Receiving data
	Off	Not yet receiving data
EXT.PW ^{*1}	On, green	External power is being supplied
	Off	External power not yet supplied

* 1 Displayed only when the module is equipped with an external power supply.

(b) Error details button

Clicking the button displays the "Error details" screen.

The detailed information, error factor, and troubleshooting tips are displayed.

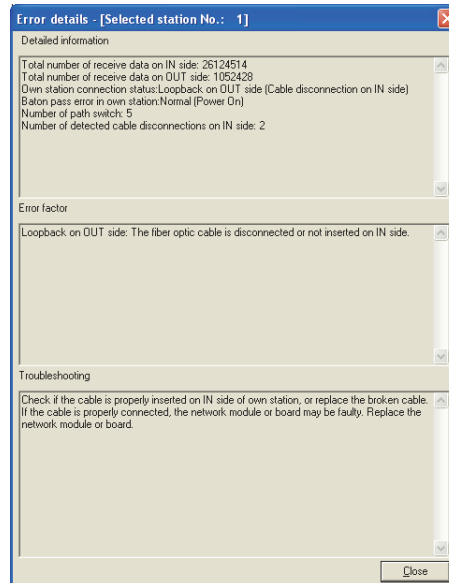


Figure 7.12 Error details screen

(3) Communication Test screen

The route from the own station to the specified destination is displayed on this screen, and whether transient transmissions can be performed correctly or not is checked. Upon completion of the communication test, the test result is displayed. If an error occurs, take actions according to the error message.

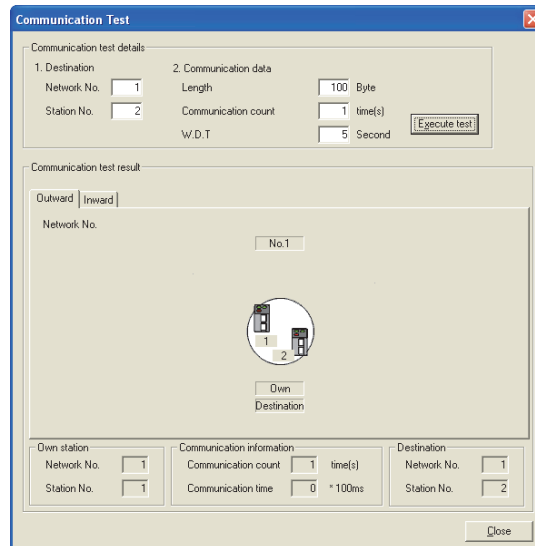


Figure 7.13 Communication Test screen

Table 7.8 Description of Communication Test screen

Item	Description
Communication test details	Set the destination and communication data.
Network No.	Set a network No. of the destination. (Default:1, Setting range: 1 to 239)
Station No.	Set a station No. of the destination. (Default: 1, Setting range: 0 (I/O master station), 1 to 120 (control/normal station))
Length	Set a communication data length. (Default: 100, Setting range: 1 to 900)
Communication count	Specify how many times the communication is to be made. (Default: 1, Setting range: 1 to 100)
W.D.T.	Set a timeout time for the communication test (in units of seconds). (Default: 5, Setting range: 1 to 100)
Execute test button	Executes the communication test.
Communication test result	Displays the destination and communication data.
<<Outward>> tab	Displays the numbers of the networks and stations that are on the route from the source station (connected station) to the specified destination.
<<Inward>> tab	Displays the numbers of the networks and stations that are on the route back from the specified destination to the source station (connected station).
Network No.	Displays the network No. of the turn-around point on the way from the source station (connected station) to the specified destination. (Range: 1 to 239)
Station No.	Displays the station No. of the turn-around point on the way from the source station (connected station) to the specified destination). (Range: 0 to 120)

(To the next page)

Table 7.8 Description of Communication Test screen (continued)

Item	Description
Own station	Displays the information on the own (connected) station.
Network No.	Displays the network No. of the own (connected) station.
Station No.	Displays the station No. of the own (connected) station.
Communication information	Displays the communication information.
Communication count	Displays how many times the communication has been made. (Range: 1 to 100)
Communication time	Displays the communication time. (In increments of 100ms) (Range: 0 or greater)
Destination	Displays the information on the destination.
Network No.	Displays the network No. that was entered in the Target settings.
Station No.	Displays the station No. that was entered in the Target settings.
Close button	Closes the "Communication Test" screen.

Remark

On the default screen, only the communication test setting area is displayed as below.

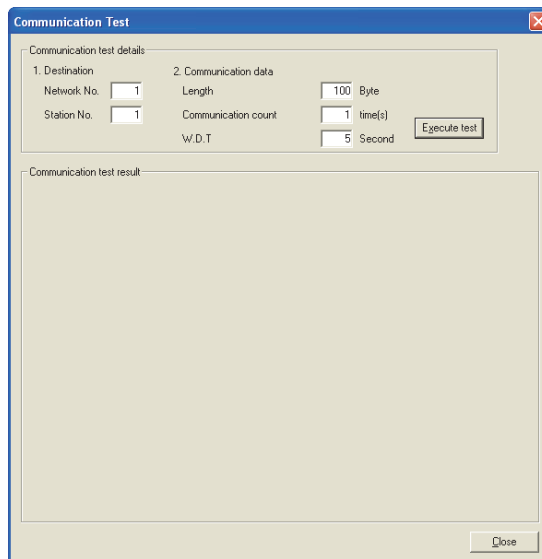


Figure 7.14 Default Communication Test screen

(4) Link start/stop screen

From this screen, data link of the specified station can be started or stopped.

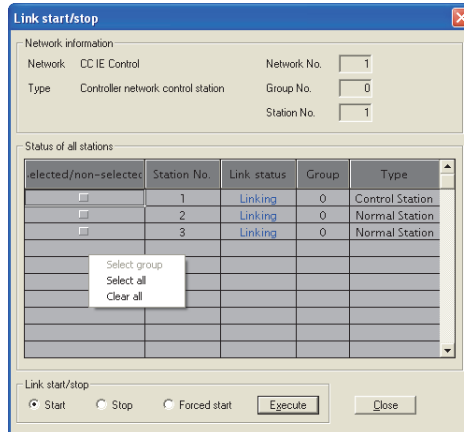


Figure 7.15 Link start/stop screen

Table 7.9 Description of Link start/stop screen

Item	Description
Network information	Displays the information on the selected network (own station).
Network	Displays the name of the selected network (own station). (Display item: "CC IE Control" (fixed))
Type	Displays the station type of the selected network (own station). (Display item: "Controller network control station", "Controller network normal station")
Network No.	Displays the network No. of the selected network (own station).
Group No.	Displays the group No. of the selected network (own station).
Station No.	Displays the station No. of the selected network (own station).
Status of all stations	Displays the information on each station that is connected to the selected network (own station).
Selected/non-selected	Select a station to start or stop the link. By right-clicking on each information area in "Status of all stations", a pop-up menu appears. From the pop-up menu, the displayed status can be changed. (Default: Not checked (Link start or stop))
Station No.	Displays station No. on the specified network. Reserved station numbers are not displayed. (Range: 1 to 120)
Link status	Displays the link status of a station on the specified network. (Display item: "Linking (blue)", "Suspended (red)")
Group	Displays the group No. of a station on the specified network. (Range: 0 to 32)
Type	Displays the type of a station on the specified network. (Display item: "Control station", "Normal station")
Link start/stop	Specify the link start or stop. When "Forced start" is selected, the link can be started from a station other than the stop-requested station. (Default: "Start")
Execute button	Executes the operation selected in the Link start/stop setting for the selected station.
Close button	Closes the "Link start/stop" screen.

(5) Logging screen

Transmission pass switching and transient transmission error logs can be monitored, and error information can be cleared.

<<Monitoring details>> tab

<<Clear error>> tab

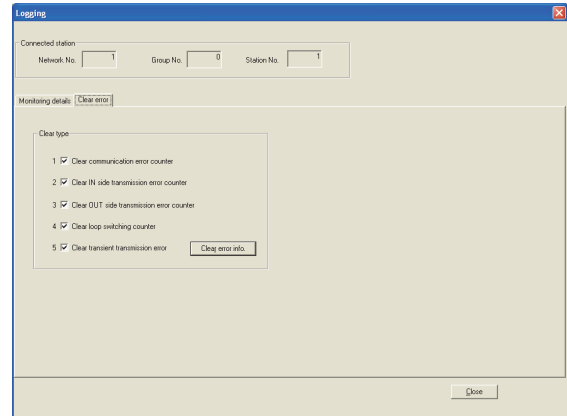
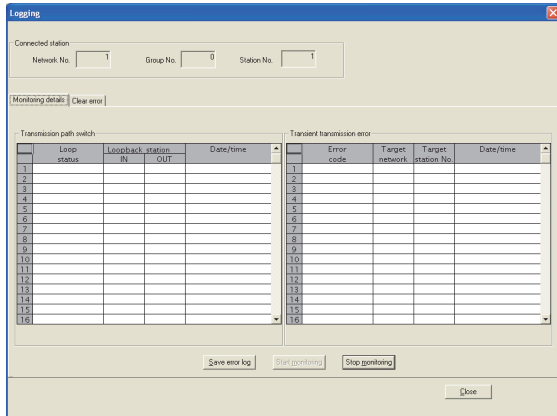



Figure 7.16 Logging screen

Table 7.10 Description of Logging screen

Item	Description
Connected station	Displays the information on the connected stations.
Network No.	Displays the network No. of the connected station. (Range: 1 to 239)
Group No.	Displays the group No. of the connected station. (Range: 0 to 32)
Station No.	Displays the station No. of the connected station. (Range: 1 to 120)

(To the next page)

Table 7.10 Description of Logging screen (continued)

Item	Description
<<Monitoring details>> tab	Displays logs in the Transmission path switch and Transient transmission error areas.
Transmission path switch	<p>Up to 100 transmission path switch logs can be displayed.</p> <p>If more than 100 logs have occurred, the oldest log will be deleted to record the latest log.</p>
Loop status	Displays the information on the transmission lines on the entire network. (Display item: "Normal", "Loopback", "Error in all stations")
Loopback station IN	Displays the station No. of the station where an IN-side loopback has occurred. (Range: 1 to 120)
Loopback station OUT	Displays the station No. of the station where an OUT-side loopback has occurred. (Range: 1 to 120)
Date/time	Displays the date and time at which the transmission path was switched.
Transient transmission error	<p>Displays up to 100 transient transmission error logs.</p> <p>If more than 100 logs have occurred, the oldest log will be deleted to record the latest log.</p>
Error code	Displays error codes. For details of the error codes, refer to the CC-Link IE Controller Network Reference Manual.
Target network	When a transient transmission error has occurred, the network No. of the error-detected station is displayed. (Range: 1 to 239)
Target station No.	When a transient transmission error has occurred, the station No. of the error-detected station is displayed. (Range: 1 to 120)
Date/time	Displays the date and time at which the transient transmission error occurred.
Save error log button	<p>Saves the <<Monitoring details>> tab data to a CSV file.</p> <p>Select a CSV file format by clicking the Browse button.</p> <p>( Page 7-19, Section 7.3 (6))</p> <div data-bbox="758 1144 1217 1305" style="border: 1px solid black; padding: 5px; width: fit-content; margin: 10px auto;"> <p style="text-align: center; margin: 0;">Save error log ✖</p> <p>Drive/Path <input type="text"/> Browse...</p> <p>File name <input type="text"/></p> <p style="text-align: center;">Save Cancel</p> </div> <p>•Drive/Path: Specify where the CSV file is saved. •File name: Specify a name for the CSV file to be saved.(*.csv)</p>
Start monitoring button Stop monitoring button	<p>Starts or stops the on-screen Logging monitoring.</p> <p>During monitoring, the Start monitoring button is enabled.</p> <p>While monitoring is stopped, the Start monitoring button is enabled.</p> <p>When a utility communication error has occurred, the Start monitoring and Stop monitoring buttons will be disabled.</p>

(To the next page)

Table 7.10 Description of Logging screen (continued)

Item	Description
<<Clear error>> tab	Clears the errors.
Clear communication error counter	The communication error counter can be cleared to zeros. (Default: Checked (Clears to 0))
Clear IN side transmission error counter	The areas for detected IN-side line errors (SW0068, SW0069, SB006E, SB0140, SW0074, and SW0140 to SW0147) can be cleared to zeros. (Default: Checked (Clears to 0))
Clear OUT side transmission error counter	The areas for detected OUT-side line errors (SB006F, SB0150, SW006A, SW006B, SW0084, and SW0150 to SW0157) can be cleared to zeros. (Default: Checked (Clears to 0))
Clear loop switching counter	The areas for path switch detection of the own station (SB008E, SB0160, SW006E, and SW0160 to SW0167) can be cleared to zeros. (Default: Checked (Clears to 0))
Clear transient transmission error	The areas for transient transmission errors of the own station (SB008F, SB0170, SW006F, and SW0170 to SW0177) can be cleared to zeros. (Default: Checked (Clears to 0))
<input type="button" value="Clear error info."/> button	Clears the selected information.
<input type="button" value="Close"/> button	Closes the "Logging" screen. The 17th and later logs displayed are deleted when this screen is closed. To save all of the displayed logs, click the "Save error log" button.

(6) Specifications of the error log file

A file format can be selected in "Files of type" on the following screen.

To save the file, go back to the error log save screen by clicking the **Open** button after selecting the format.

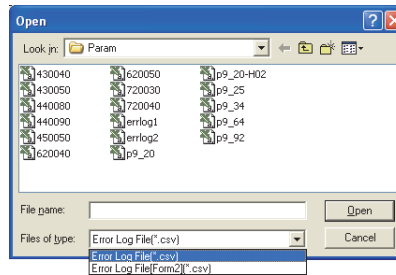


Figure 7.17 Open screen

To use the text data of the SB/SW save file in a user program etc, select "Error Log File(*.csv)" when saving.

To use them on Microsoft® Excel etc., select "Error Log File[Form2](*.csv)" when saving.

(a) For Transmission path switch

The following data are saved in an error log file for transmission path switch.

- Loop status
- Loopback station No. (IN side)
- Loopback station No. (OUT side)
- Date and time

The following is an example error log file for transmission path switch.

When "Error Log File(*.csv)" is selected	When "Error Log File[Form2](*.csv)" is selected																														
<pre> Loop status, Loopback station IN, Loopback stati Normal,-,-,2009/04/21 18:48:30 Loopback,2,1,2009/04/21 18:48:26 Error in all stations,-,-,2009/04/21 18:47:59 Loopback,2,1,2009/04/21 18:47:56 </pre>	<table border="1"> <thead> <tr> <th>[Loop stati</th> <th>[Loopback</th> <th>[Loopback</th> <th>[Date]</th> <th></th> <th></th> </tr> </thead> <tbody> <tr> <td>[Normal]</td> <td>[-]</td> <td>[-]</td> <td>[2009/04/21 18:48:30]</td> <td></td> <td></td> </tr> <tr> <td>[Loopback</td> <td>[2]</td> <td>[1]</td> <td>[2009/04/21 18:48:26]</td> <td></td> <td></td> </tr> <tr> <td>[Error in al</td> <td>[-]</td> <td>[-]</td> <td>[2009/04/21 18:47:59]</td> <td></td> <td></td> </tr> <tr> <td>[Loopback</td> <td>[2]</td> <td>[1]</td> <td>[2009/04/21 18:47:56]</td> <td></td> <td></td> </tr> </tbody> </table>	[Loop stati	[Loopback	[Loopback	[Date]			[Normal]	[-]	[-]	[2009/04/21 18:48:30]			[Loopback	[2]	[1]	[2009/04/21 18:48:26]			[Error in al	[-]	[-]	[2009/04/21 18:47:59]			[Loopback	[2]	[1]	[2009/04/21 18:47:56]		
[Loop stati	[Loopback	[Loopback	[Date]																												
[Normal]	[-]	[-]	[2009/04/21 18:48:30]																												
[Loopback	[2]	[1]	[2009/04/21 18:48:26]																												
[Error in al	[-]	[-]	[2009/04/21 18:47:59]																												
[Loopback	[2]	[1]	[2009/04/21 18:47:56]																												

Figure 7.18 Examples of error log files (Transmission path switch)

(b) For Transient transmission error

The following data are saved in an error log file for transient transmission errors.

- Error code
- Network No.
- Station No.
- Date and time

The following is an example error log file for transient transmission errors.

When "Error Log File(*.csv)" is selected	When "Error Log File[Form2](*.csv)" is selected																																				
<pre> Error code, Target network, Target station No., Da E5F0,1,3,2009/04/21 18:54:52 E5F0,1,3,2009/04/21 18:54:51 E5F0,1,3,2009/04/21 18:54:50 E5F0,1,3,2009/04/21 18:54:49 E5F0,1,3,2009/04/21 18:54:48 </pre>	<table border="1"> <thead> <tr> <th>[Error codé</th> <th>[Target né</th> <th>[Target st:</th> <th>[Date]</th> <th></th> <th></th> </tr> </thead> <tbody> <tr> <td>[E5F0]</td> <td>[1]</td> <td>[3]</td> <td>[2009/04/21 18:54:52]</td> <td></td> <td></td> </tr> <tr> <td>[E5F0]</td> <td>[1]</td> <td>[3]</td> <td>[2009/04/21 18:54:51]</td> <td></td> <td></td> </tr> <tr> <td>[E5F0]</td> <td>[1]</td> <td>[3]</td> <td>[2009/04/21 18:54:50]</td> <td></td> <td></td> </tr> <tr> <td>[E5F0]</td> <td>[1]</td> <td>[3]</td> <td>[2009/04/21 18:54:49]</td> <td></td> <td></td> </tr> <tr> <td>[E5F0]</td> <td>[1]</td> <td>[3]</td> <td>[2009/04/21 18:54:48]</td> <td></td> <td></td> </tr> </tbody> </table>	[Error codé	[Target né	[Target st:	[Date]			[E5F0]	[1]	[3]	[2009/04/21 18:54:52]			[E5F0]	[1]	[3]	[2009/04/21 18:54:51]			[E5F0]	[1]	[3]	[2009/04/21 18:54:50]			[E5F0]	[1]	[3]	[2009/04/21 18:54:49]			[E5F0]	[1]	[3]	[2009/04/21 18:54:48]		
[Error codé	[Target né	[Target st:	[Date]																																		
[E5F0]	[1]	[3]	[2009/04/21 18:54:52]																																		
[E5F0]	[1]	[3]	[2009/04/21 18:54:51]																																		
[E5F0]	[1]	[3]	[2009/04/21 18:54:50]																																		
[E5F0]	[1]	[3]	[2009/04/21 18:54:49]																																		
[E5F0]	[1]	[3]	[2009/04/21 18:54:48]																																		

Figure 7.19 Examples of error log files (Transient transmission error)

Remark

Only the logs displayed in the <<Monitoring details>> tab can be saved in an error log file by clicking the **Save error log** button.

7.4 Online Operation Tab



The CC-Link IE Controller Network parameters can be read, written, or verified from this tab.

(1) Precautions for the Online operation tab

- (a) When a utility communication error has occurred
When a utility communication error has occurred during connection, set the connection target again in the Connection settings so that the communication can be restarted.
- (b) During reset
Communications are not available while the C Controller module is being reset. Start communications after the reset is complete.
- (c) The drive to which parameters are written
When writing parameters from each of the utilities to the following C Controller module, write them to the same drive.
 - Q12DCCPU-V whose serial No. (first five digits) is "12042" or later
 If the parameters are written to different drives, those of the drive, which include C Controller setting parameters, will take effect.

(2) Online operation tab

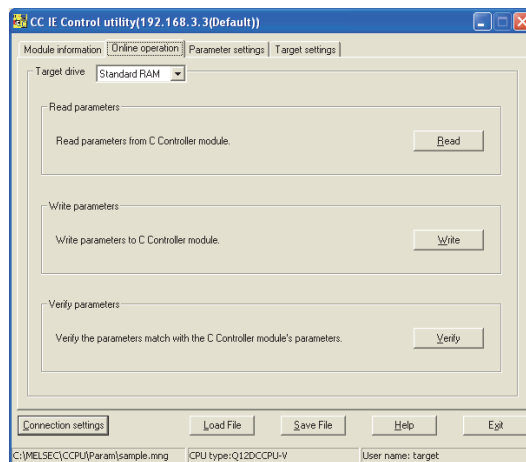


Figure 7.20 Online operation tab

Table 7.11 Description of Online operation tab

Module information Online operation Parameter settings Target settings	
Item	Description
Target drive	Set a target drive for reading, writing, or verifying parameters.* ¹ This setting is not available for the Q06CCPU-V(-B). (Default: Parameter boot drive)

* 1 For the drives to which parameters can be written (user memory), refer to the C Controller Module User's Manual (Hardware Design, Function Explanation).

(To the next page)

Table 7.11 Description of Online operation tab (continued)

Module information **Online operation** Parameter settings Target settings

Item	Description
Read parameters Read button	Reads CC-Link IE Controller Network parameters from the C Controller module.
Write parameters Write button	Writes CC-Link IE Controller Network parameters to the C Controller module. The written parameters take effect when the C Controller module is powered off and then on or is reset. Parameters can be written only when "Write authority" is selected in Connection settings. If "Write authority" is not selected, select it in the Connection settings screen before writing parameters. (☞ Page 3-5, Section 3.5)
Verify parameters Verify button	Check for consistency between the CC-Link IE Controller Network parameters of the C Controller module and those set in CC IE Control utility. The verification results are shown in a message box. If a mismatch is found, a message appears and prompts the user to save the results to a file. (☞ Page 7-22, Section 7.4 (3))

Remark

Reading, writing, and verification are available while the C Controller module is connected online to the development environment (personal computer).

(3) Verification results file

If a mismatch is found, a message appears and prompts the user to save the results to a file.

To save a verification results file, click the **Yes** button and enter appropriate data on the following screen.

The verification results file is saved in text format.

For "Save as" operations, refer to the following.

☞ Page 3-14, Section 3.8

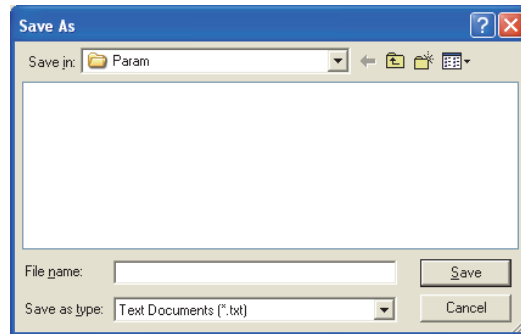


Figure 7.21 Save As screen

The following is an example of a verification results file.

```
QJ71GP21-SX  
Collation result  
Module 1's channel does not match.  
Module 2's logical station No. 65 does not match. (Target settings)
```

Remark

The default folder for saving a verification results file is "C:\MELSEC\CCPU\Param" (when SW3PVC-CCPU has been installed in "C:\MELSEC").

7.5 Parameter Settings Tab



Parameters of the CC-Link IE Controller Network module can be set in this tab.

(1) Precautions for the Parameter settings tab

(a) Link device refresh cycle and Routing parameter

"Link device refresh cycle" and "Routing parameter" are parameters common to MELSECNET/H.

When some of the set values written from MELSECNET/H utility are different from those set in this utility, clicking the **Write** button in <<Online operation>> will display the following dialog box.

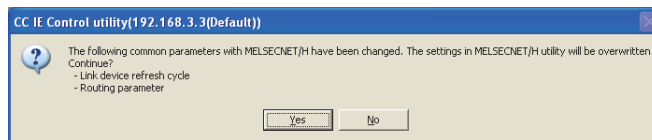


Figure 7.22 Dialog box

(2) Parameter settings tab

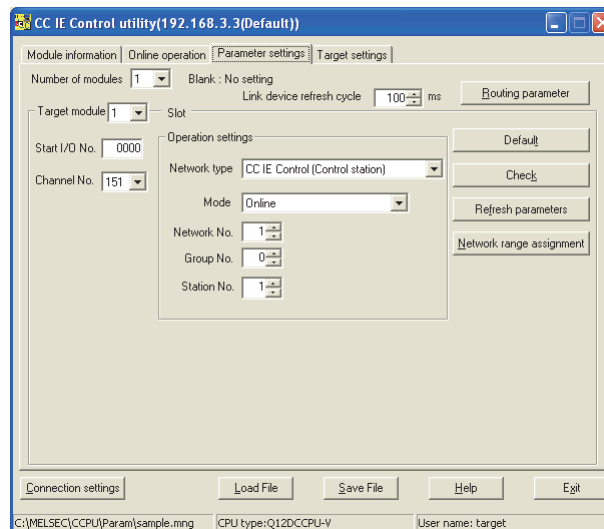


Figure 7.23 Parameter settings tab

Table 7.12 Description of Parameter settings tab



Item	Description
Number of modules	Set the number of CC-Link IE Controller Network modules that are to be controlled by the C Controller module. Selecting "(Blank)" means no setting (Setting cleared). (Default: "(Blank)")

(To the next page)

Table 7.12 Description of Parameter settings tab (continued)

Module information | Online operation | **Parameter settings** | Target settings

Item	Description
Link device refresh cycle	<p>Set a refresh cycle for link devices. (In increments of ms)</p> <p>When using both the CC-Link IE Controller Network and MELSECNET/H network, set the same value as the value set in MELSECNET/H utility.</p> <p>To enable the "Block data assurance per station" setting (☞ Page 7-33, Section 7.5 (7)), enter 10ms or more for "Link device refresh cycle", and set refresh parameters.</p> <p>Setting 0 for "Link device refresh cycle" disables any refresh with all refresh parameter settings deleted, and disables the <input type="button" value="Refresh parameters"/> button.</p> <p>(Default: 100, Setting range: 0, 10 to 1000)</p> <p>For further details, refer to the C Controller Module User's Manual (Hardware Design, Function Explanation).</p>
<input type="button" value="Routing parameter"/> button	Displays the "Routing parameter settings" screen. (☞ Page 7-25, Section 7.5 (3))
Target module	<p>Select a module to configure. (Default: 1)</p> <p>The numbers for this item will be automatically rearranged in ascending order of start I/O numbers when saving the parameter setting file or when switching the tab.</p>
Start I/O No.	<p>Set a start I/O No. of a CC-Link IE Controller Network module.</p> <p>(Setting range: 0 to FE0H (The set value must be unique, and not duplicated with the one for another CC-Link IE Controller Network module.))</p>
Channel No.	<p>Set a channel No. of a CC-Link IE Controller Network module.</p> <p>The set value is used to open the channel from Device monitoring utility or a user program (MELSEC data link functions).</p> <p>Channel No. must be unique, and not duplicated with the one for another CC-Link IE Controller Network module.</p>
<input type="button" value="Default"/> button	Sets the operation settings, network range assignments, and refresh parameters to default values.
<input type="button" value="Check"/> button	Checks for any setting error.
<input type="button" value="Refresh parameters"/> button	<p>Displays the "Refresh parameter settings" screen. (☞ Page 7-27, Section 7.5 (4))</p> <p>To enable the "Block data assurance per station" setting (☞ Page 7-33, Section 7.5 (7)), enter 10ms or more for "Link device refresh cycle", and set refresh parameters.</p>
<input type="button" value="Network range assignment"/> button	<p>Displays the "Network range assignment" screen. (☞ Page 7-29, Section 7.5 (5))</p> <p>When "CC IE Control (Control station)" is selected for "Network type", this button is enabled.</p>
Operation settings	Specify the CC-Link IE Controller Network module operation.
Network type	<p>Set a type of the CC-Link IE Controller Network module.</p> <p>(Default: "CC IE Control (Control station)")</p>
Mode	<p>Set a mode of the CC-Link IE Controller Network module.</p> <p>"Line test" can be set when "CC IE Control (Control station)" is selected for "Network type".</p> <p>(Default: "Online")</p>
Network No.	<p>Set a network No. of the CC-Link IE Controller Network module.</p> <p>(Default: 1, Setting range: 1 to 239)</p>
Group No.	<p>Set a group No. of the CC-Link IE Controller Network module.</p> <p>(Default: 0, Setting range: 0 to 32)</p>
Station No.	<p>Set a station No. of the CC-Link IE Controller Network module.</p> <p>(Default: 1, Setting range: 1 to 120)</p>

(3) Routing parameter settings screen

The transfer target network, relay network, and relay station can be specified on this screen.

POINT

1. The CC-Link IE Controller Network module controlled by a C Controller module cannot be a relay station that is supposed to act as a bridge. As a relay station, use a CC-Link IE Controller Network module controlled by a programmable controller CPU with which multiple network systems can be constructed.
2. Common routing parameters must be used for the following channels. Different settings for each channel No. are not allowed.
 - CC-Link IE Controller Network (Channel No.151 to 154)
 - MELSECNET/H (Channel No.51 to 54)

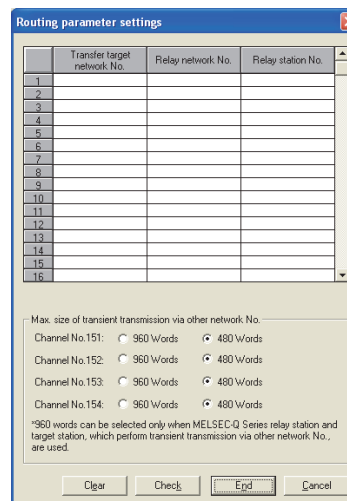


Figure 7.24 Routing parameter settings screen

Table 7.13 Description of Routing parameter settings screen

Item	Description
Transfer target network No.	Set a transfer target network No. (Default: "(Blank)", Setting range: 1 to 239)
Relay network No.	Set a relay network No. (Default: "(Blank)", Setting range: 1 to 239)
Relay station No.	Set a relay station No. (Default: "(Blank)", Setting range: 1 to 120)

(To the next page)

Table 7.13 Description of Routing parameter settings screen (continued)

Item	Description
Max. size of transient transmission via other network No.	For each channel No, set the maximum size of transient transmission data sent from a user program via another network (No.)
Channel No.151 to Channel No.154	For each channel, set the maximum size of transient transmission data sent to another network (No.) via a CC-Link IE Controller Network module. Only when all of the relay and target stations of the transient transmission are MELSEC-Q series network modules, select 960 words. Select 480 words if a module other than the MELSEC-Q series network modules is included in the relay and target stations. Setting 960 words in this case may truncate some of the data, disabling normal transient transmission. (Default: 480 words)
<input type="button" value="Clear"/> button	Clears the "Transfer target network No.", "Relay network No.", and "Relay station No." settings.
<input type="button" value="Check"/> button	Checks the "Transfer target network No.", "Relay network No.", and "Relay station No." settings.
<input type="button" value="End"/> button	Saves the settings and closes the "Routing parameter settings" screen.
<input type="button" value="Cancel"/> button	Closes the "Routing parameters settings" screen without saving the settings.

(4) Refresh parameter settings screen

Refresh parameters are set on this screen.

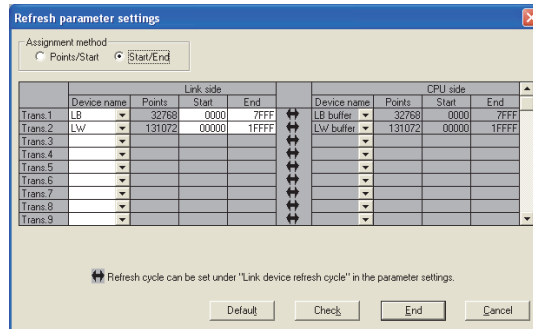


Figure 7.25 Refresh parameter settings screen

Table 7.14 Description of Refresh parameter settings screen

Item	Description
Assignment method	How to enter the device range data can be switched between Points/Start and Start/End styles. (Default: "Start/End")
Link side	Set refresh parameters of the module selected on the "Parameter settings" tab. Up to 64 refresh parameters can be set. Since duplicated device setting is not allowed, prevent any overlapped settings.
Device name	Set a link device name to be refreshed. (Default: Page 7-28, Section 7.5 (4) (a), Setting range: Page 7-28, Section 7.5 (4) (b))
Points	Set points of the link device to be refreshed. (Default: Page 7-28, Section 7.5 (4) (a), Setting range: Page 7-28, Section 7.5 (4) (c))
Start	Set the start No. of the link device to be refreshed. (Default: Page 7-28, Section 7.5 (4) (a), Setting range: Page 7-28, Section 7.5 (4) (c))
End	Set the end No. of the link device to be refreshed. (Default: Page 7-28, Section 7.5 (4) (a), Setting range: Page 7-28, Section 7.5 (4) (c))
CPU side	Displays refresh parameters of the CPU module. Data corresponding to respective "Link side" settings are shown.
Device name	Displays the name of the device whose data are refreshed onto the CPU module. (Range: Page 7-28, Section 7.5 (4) (b))
Points	Displays the points of the device whose data are refreshed onto the CPU module. The points is the same as those shown in "Points" of "Link side".
Start	Displays the start No. of the device whose data are refreshed onto the CPU module. The start No. is the same as that shown in "Start" of "Link side".
End	Displays the end No. of the device whose data are refreshed onto the CPU module. The end No. is the same as that shown in "END" of "Link side".
Default button	Resets the "Link side" and "CPU side" settings back to defaults.
Check button	Checks the "Link side" and "CPU side" settings for errors.
End button	Saves the settings and closes the "Refresh parameter settings" screen.
Cancel button	Closes the "Refresh parameter settings" screen without saving the settings.

- (a) Default values for "Device name", "Points", "Start", and "End"

The following table lists the default values for "Device name", "Points", "Start", and "End".

Table 7.15 Default values for "Device name", "Points", "Start", and "End"

Setting item	Device name	Points	Start	End
Trans.1	LB	32768	0000	7FFF
Trans.2	LW	131072	00000	1FFFF
Trans.3 to Trans.64	"(blank)"			

- (b) "Device names" on "Link side" and "CPU side"

The following table lists the setting range for "Device name" of "Link side" and "CPU side" "Device name" displays.

Table 7.16 "Device names" on "Link side" and "CPU side"

"Link side" setting range	"CPU side" display
LX	LX buffer
LY	LY buffer
LB	LB buffer
LW	LW buffer

- (c) Setting ranges for the link side "Points", "Start", and "End"

The following table lists the setting ranges for the link side "Points", "Start", and "End".

(These setting ranges apply to all of "Trans.1" to "Trans.64".)

Table 7.17 Setting ranges for the link side "Points", "Start", and "End"

Device name	Points/Start/End	Setting range
LX	Points	16 to 8192 ^{*1}
	Start	0000 to 1FFF ^{*1}
	End	000F to 1FFF ^{*2}
LY	Points	16 to 8192 ^{*1}
	Start	0000 to 1FFF ^{*1}
	End	000F to 1FFF ^{*2}
LB	Points	16 to 32768 ^{*1}
	Start	0000 to 7FF0 ^{*1}
	End	000F to 7FFF ^{*2}
LW	Points	1 to 131072
	Start	00000 to 1FFFF
	End	00000 to 1FFFF

* 1 Only a multiple of 16 can be set for "Points" and "Start" of LX, LY, and LB.

* 2 Only (a multiple of 16 minus 1) can be set for "End" of LX, LY, and LB.

(5) Network range assignment screen

For each station, set cyclic transmission ranges of LB, LW, LX, and LY.

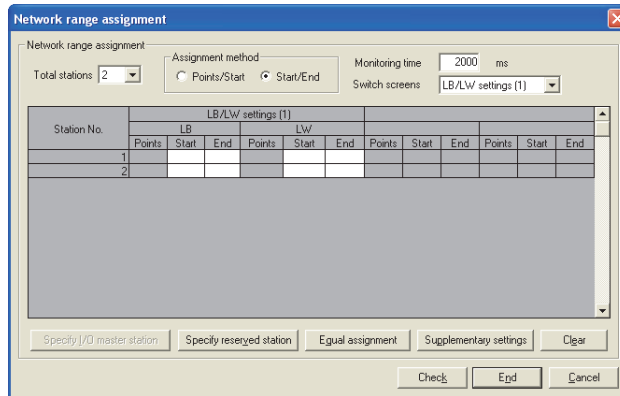


Figure 7.26 Network range assignment screen

Table 7.18 Description of Network range assignment screen

Item	Description
Total stations	Set the total number of stations (including control stations) on the network. (Default: 2)
Assignment method	How to enter the device range data can be switched between Points/Start and Start/End styles. (Default: "Start/End")
Monitoring time	Set a monitoring time for the link scan time. (In increments of ms) (Default: 2000, Setting range: 5 to 2000)
Switch screens	Select a link device for which network ranges are assigned. (Default: "LB/LW settings (1)")
Points	Set the number of link device points assigned to the target station. This setting is available when "Points/Start" is selected for "Assignment method". (Default: "(Blank)", Setting range: Page 7-30, Section 7.5 (5) (a))
Start	Set the start No. of the link device, which is assigned to the target station. (Default: "(Blank)", Setting range: Page 7-30, Section 7.5 (5) (a))
End	Set the end No. of the link device, which is assigned to the target station. This setting is available when "Start/End" is selected for "Assignment method". (Default: "(Blank)", Setting range: Page 7-30, Section 7.5 (5) (a))
Specify I/O master station button	Specifies the selected station as an I/O master station of the link device (LX/LY), or cancels the setting. This button can be used when "LX/LY settings (1)" or "LX/LY settings (2)" is selected for "Switch screens".
Specify reserved station button	Specifies the selected station as a reserved station, or cancels the setting.
Equal assignment button	Displays the "Equal assignment" screen. (Page 7-31, Section 7.5 (6))
Supplementary settings button	Displays the "Supplementary settings" screen. (Page 7-33, Section 7.5 (7))
Clear button	Erases the "Points", "Start", and "End" settings, and sets "Total stations" and "Monitoring time" back to defaults.
Check button	Checks the "Points", "Start", "End", "Total stations", and "Monitoring time" settings for errors.
End button	Saves the settings and closes the "Network range assignment" screen.
Cancel button	Closes the "Network range assignment" screen without saving the settings.

(a) Setting ranges for Network range assignment

The following are the setting ranges for Network range assignment.

Table 7.19 Setting ranges for Network range assignment

Device name	Points/Start/End	Setting range
LX	Points	16 to 8192 ^{*1}
	Start	0000 to 1FF0 ^{*1}
	End	000F to 1FFF ^{*2}
LY	Points	16 to 8192 ^{*1}
	Start	0000 to 1FF0 ^{*1}
	End	000F to 1FFF ^{*2}
LB	Points	16 to 32768 ^{*1}
	Start	0000 to 7FF0 ^{*1}
	End	000F to 7FFF ^{*2}
LW	Points	1 to 131072
	Start	00000 to 1FFFF
	End	00000 to 1FFFF

* 1 Only a multiple of 16 can be set for "Points" and "Start" of LX, LY, and LB.

* 2 Only (a multiple of 16 minus 1) can be set for "End" of LX, LY, and LB.

(6) Equal assignment screen

The link device points of all stations can be equally assigned to each station.

The Start and End stations for equal assignment can be set within (Total link stations - (Start station No. - 1)).

(a) When "LB/LW settings (1)" or "LB/LW settings (2)" is set for "Switch screens" in "Network range assignment"

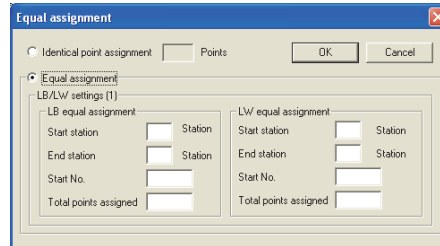


Figure 7.27 Equal assignment screen (for LB/LW settings (1))

Table 7.20 Description of Equal assignment screen (for LB/LW settings (1) or LB/LW settings (2))

Item	Description
Identical point assignment	Equally assigns the entered points to link devices of each station. (In increments of 16 points) (Default: "(Blank)", Setting range: 16 or greater)
<input type="button" value="OK"/> button	Executes equal assignment according to the settings, and closes the "Equal assignment" screen.
<input type="button" value="Cancel"/> button	Closes the "Equal assignment" screen without executing equal assignment.
Equal assignment	Equally divides the entered points and assigns them to link devices of each station.
LB equal assignment	Set data for equal assignment of LB (1) or LB (2).
Start station	Specify the start station. (Default: "(Blank)", Setting range: 1 to ("Total stations" setting)) "Total stations" is set on the "Network range assignment" screen. (☞ Page 7-29, Section 7.5 (5))
End station	Specify the end station. (Default: "(Blank)", Setting range: (Start station" setting) to ("Total stations" setting)) "Total stations" is set on the "Network range assignment" screen. (☞ Page 7-29, Section 7.5 (5))
Start No.	Set the start No. of the link device. (Default: "(Blank)", Setting range: ☞ Page 7-30, Section 7.5 (5) (a))
Total points assigned	Set the total link device points. (Default: "(Blank)", Setting range: ☞ Page 7-30, Section 7.5 (5) (a))
LW equal assignment	Set data for equal assignment of LW (1) or LW (2). Set respective items as in "LB equal assignment".

(b) When "LX/LY settings (1)" or "LX/LY settings (2)" is set for "Switch screens" in "Network range assignment"

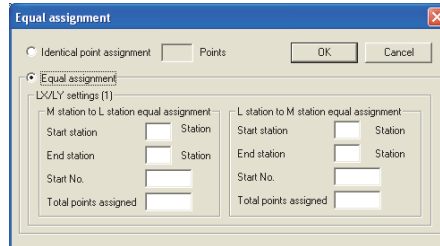


Figure 7.28 Equal assignment screen (for LX/LY settings (1))

Table 7.21 Description of Equal assignment screen (for LX/LY settings (1) or LX/LY settings (2))

Item	Description
Identical point assignment	Equally assigns the entered points to link devices of each station. (In increments of 16 points) Note that no points are assigned to any I/O master station. (☞ Page 7-29, Section 7.5 (5)) (Default: "(Blank)", Setting range: 16 or greater)
<input type="button" value="OK"/> button	Executes equal assignment according to the settings, and closes the "Equal assignment" screen.
<input type="button" value="Cancel"/> button	Closes the "Equal assignment" screen without executing equal assignment.
Equal assignment	Equally divides the entered points and assigns them to link devices of each station.
M station to L station equal assignment	Set data for equal assignment of LY (1) or LY (2).
Start station	Specify the start station. (Default: "(Blank)", Setting range: 1 to ("Total stations" setting)) "Total stations" is set on the "Network range assignment" screen. (☞ Page 7-29, Section 7.5 (5))
End station	Specify the end station. (Default: "(Blank)", Setting range: ("Start station" setting) to ("Total stations" setting)) "Total stations" is set on the "Network range assignment" screen. (☞ Page 7-29, Section 7.5 (5))
Start No.	Set the start No. of the link device. (Default: "(Blank)", Setting range: ☞ Page 7-30, Section 7.5 (5) (a))
Total points assigned	Set the total link device points. (Default: "(Blank)", Setting range: ☞ Page 7-30, Section 7.5 (5) (a))
L station to M station equal assignment	Set data for equal assignment of LX (1) or LX (2). Set respective items as in "M station to L station equal assignment".

(7) Supplementary settings screen

The Supplementary settings screen is useful for advanced applications. Use the default settings normally.

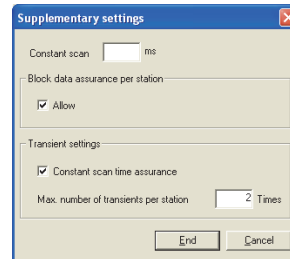


Figure 7.29 Supplementary settings screen

Table 7.22 Description of Supplementary settings screen

Item	Description
Constant scan	Constant scan is a feature provided for keeping a fixed link scan time. Set a value if variation in link scan time undesirable. (In increments of ms) (Default: "(Blank)", Setting range: 1 to 500, "(Blank)")
Block data assurance per station	Select this to assure the station-based link data consistency in cyclic transmissions.* ¹ No interlock program is needed for operation of multiple word data if this item is selected. Note that this function* ¹ is available only for link device refresh processing between a C Controller module and a CC-Link IE Controller Network module. When selecting this item, make sure the following parameters are set. <ul style="list-style-type: none"> •"Link device refresh cycle" on the "Parameter settings" tab Page 7-23, Section 7.5 (2) •Refresh parameters on the "Refresh parameter settings" tab Page 7-27, Section 7.5 (4) (Default: Checked (Allow))
Transient settings	Set execution conditions for transient transmissions.
Constant scan time assurance	Set whether or not to assure the constant scan time. Page 7-33, Section 7.5 (7) (a) (Default: Checked (Enabled))
Max. number of transients per station	Set the number of transient transmissions that one station can execute during one link scan. (Default: 2, Setting range: 1 to 10)
End button	Saves the settings and closes the "Supplementary settings" screen.
Cancel button	Closes the "Supplementary settings" screen without saving the settings.

* 1 A two-word (32-bit) link data, such as a present value of a positioning module, may be divided into two one-word data (new 16-bit data and old 16-bit data) at a timing of cyclic transmission. This function prevents this situation from occurring. Set link device refresh processing between a C Controller module and a CC-Link IE Controller Network module on the "Refresh parameter settings" screen. Page 7-27, Section 7.5 (4)

(a) Link scan operations by the Constant scan time assurance setting

Table 7.23 Link scan operations by Constant scan time assurance setting

Constant scan time assurance	Link scan operation
Selected	<ul style="list-style-type: none"> •Link scan time is kept constant. •Link scan time is longer compared with the deselected setting. •The larger the "Max. number of transients per station" value is, the longer the link scan time will become.
Deselect	<ul style="list-style-type: none"> •Link scan time varies when a transient transmission is requested. •The larger the "Max. number of transients per station" value is, the larger the link scan time variation will become.

7.6 Target Settings Tab



Logical station No. can be set on this tab.

When the target station is on a multiple CPU system, a logical station No. is used for accessing a programmable controller CPU that is controlled by another CPU.

For the access in the following section, however, the logical station No. setting is not required.

Page 7-36, "7.6 (4) Access that does not require a logical station No. setting"

(1) Precautions for the Target settings tab

Set a programmable controller CPU for "Target CPU".

(2) Target settings tab

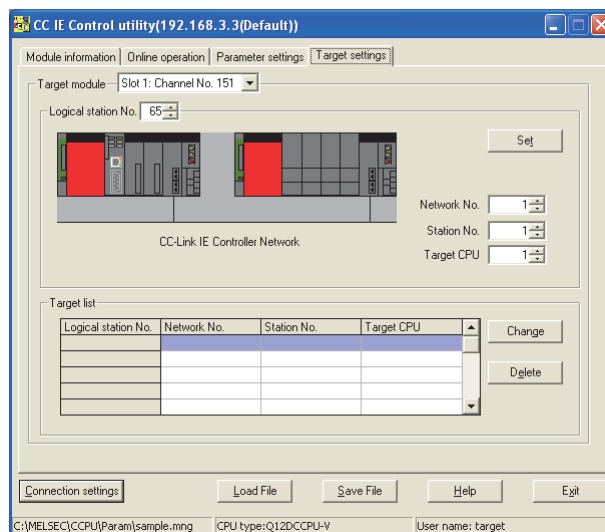


Figure 7.30 Target settings tab

Table 7.24 Description of Target settings tab

Module information Online operation Parameter settings Target settings	
Item	Description
Target module	Select a module to configure. (Default: "Slot 1")
Logical station No.	Specify a logical station No. of the module selected for "Target module". (Default: 65, Setting range: 65 to 239) Logical station No. is a logical number that is specified as "station No." in Device monitoring utility or user programs (MELSEC data link functions).
Network No.	Set a network No. of a CC-Link IE Controller Network module or MELSECNET/H module that is controlled by a multiple CPU system. (Default: 1, Setting range: 1 to 239)
Station No.	Set a station No. of a CC-Link IE Controller Network module or MELSECNET/H module that is controlled by a multiple CPU system. (Default: 1, Setting range: 1 to 120)
Target CPU	Set an access target CPU (CPU No. used in the multiple CPU system). (Default: 1, Setting range: 1 to 4)
button	Registers the set or modified data (Logical station No., Network No., Station No., and Target CPU) to the Target list.

(To the next page)

Table 7.24 Description of Target settings tab (continued)

Module information		Online operation		Parameter settings		Target settings	
Item	Description						
Target list	Displays the logical station No. set for the selected "Target module", the relevant network No. and station No., and the target CPU in the list.						
<input type="button" value="Change"/>	Updates a setting change (logical station No.) of a row selected in the Target list into the above Logical station No. box. (Logical No. setting can be also changed by double-clicking the row.)						
<input type="button" value="Delete"/>	Deletes the selected row (logical station No.) from the Target list.						

(3) Access example

When the settings in the following screen are applied in the below system, a CC-Link IE Controller Network module controlled by a C Controller module can access CPU No. 4 via another CC-Link IE Controller Network module (controlled by CPU No.2, network No.1) by using logical station No."65".

The access is also available by opening channel No.151 and setting 65 for the station No. in Device monitoring utility or a user program (MELSEC data link functions).

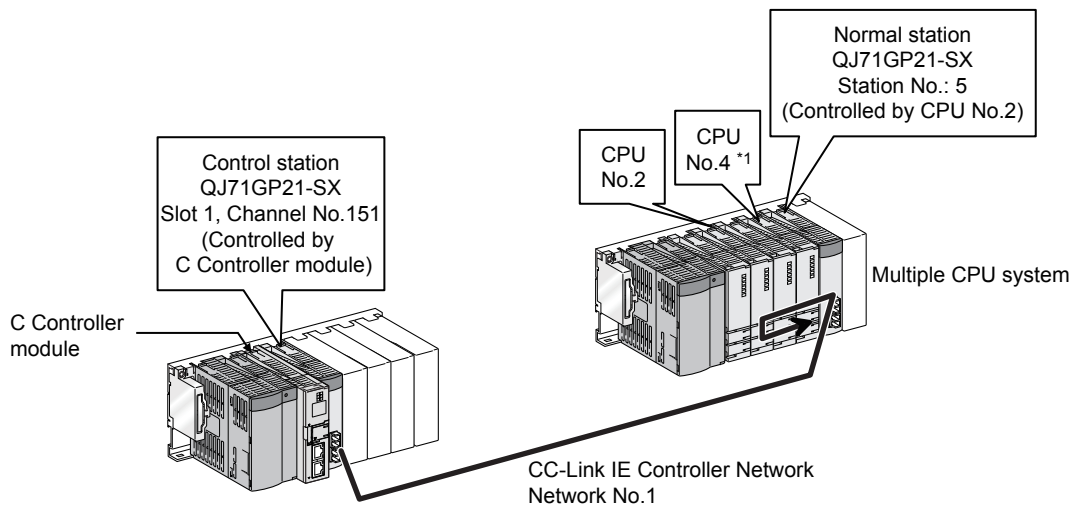


Figure 7.31 System configuration

* 1 When CPU No.4 cannot configure a multiple CPU system, access to CPU No. 4 is not available by using the logical No.

The following is the target setting for the above access.

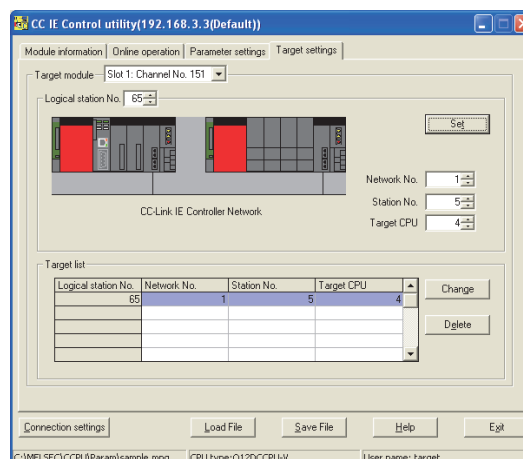


Figure 7.32 Target settings tab setting

(4) Access that does not require a logical station No. setting

In the following cases, use the station No. of a CC-Link IE Controller Network module on other station.

The logical station number setting is not required.

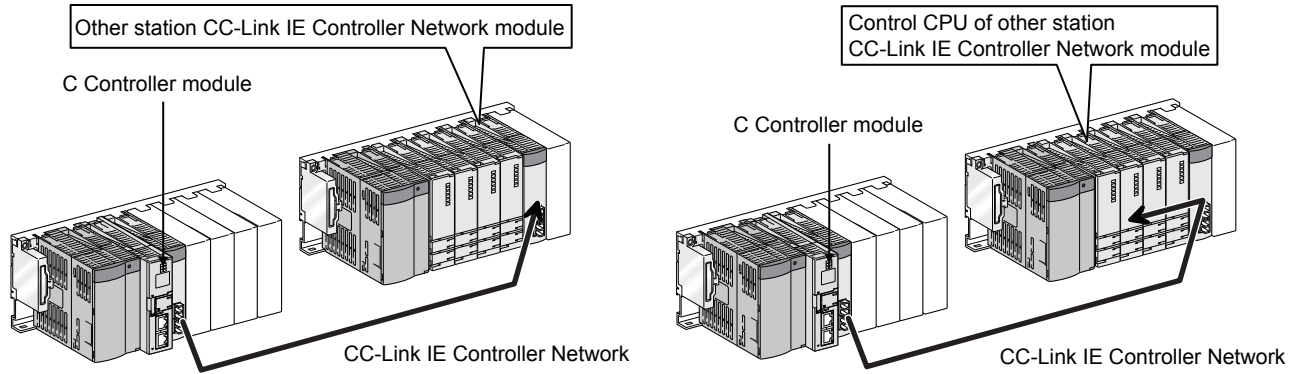




Figure 7.33 Access that does not require a logical station No. setting

7.7 System Menu



(1) System menu

To open the system menu of CC IE Control utility, use any of the following three methods:

- Right-click on the title bar.
- Click the  icon on the title bar.
- Press the [Alt] key and then the [↓] key.
- For Windows® 7 or later, right-click the icon  on the task bar while pressing the [Shift] key.

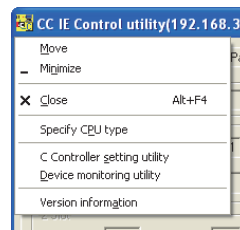


Figure 7.34 System menu

Table 7.25 Description of System menu

Item	Description
Move, Minimize, and Close	Refer to the Microsoft® Windows® manual.
Specify CPU type	Specifies a C Controller module to which parameters are set or to be monitored. (☞ Page 3-4, Section 3.4) This item is not selectable while monitoring is active.
C Controller setting utility	Starts C Controller setting utility. (☞ Page 4-1, CHAPTER 4) If CC IE Control utility is connected online, this utility is started with the same target being connected.
Device monitoring utility	Starts Device monitoring utility. (☞ Page 8-1, CHAPTER 8) If CC IE Control utility is connected online, this utility is started with the same target being connected.
Version information	Opens the "Version information" screen. (☞ Page 7-38, Section 7.7 (2))

(2) Version information screen

Version information of the CC IE Control utility is displayed.

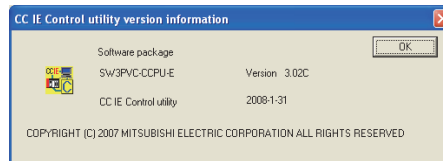


Figure 7.35 Version information screen (Example: Version 3.02C)

Table 7.26 Description of Version information screen

Item	Description
Software package	—
SW3PVC-CCPU-E	Displays the version of SW3PVC-CCPU.
CC IE Control utility	Displays the update date of the CC IE Control utility.
<input type="button" value="OK"/> button	Closes the "Version information" screen.

7.8 Precautions



(1) Parameter details

For details of respective parameters, refer to the CC-Link IE Controller Network Reference Manual.

(2) Simultaneous use of utilities

Up to eight CC IE Control utilities can be used simultaneously.

(3) Written parameters

Parameters written to the C Controller module take effect when the C Controller module is powered off and then on or is reset.

(4) Tabs available to operate offline

When CC IE Control utility connection is offline, data can be set only in the Parameter settings and the Target settings tab.

(5) Terminating Microsoft® Windows®

Do not terminate Microsoft® Windows® while CC IE Control utility is running. Terminate CC IE Control utility first and then Microsoft® Windows®.

(6) Connection during script file processing

Connection from utility to a C Controller module may not be available during processing a script file (while the RUN LED is flashing). If the RUN LED remains flashing, refer to the C Controller Module User's Manual (Hardware Design, Function Explanation) and troubleshoot the problem.

(7) Time required for connection from each utility to the C Controller module

The following time is required for the C Controller module to connect to each utility after power-on or reset.

- When executing a script file, "STARTUP.CMD":
Upon completion of the RUN LED flashing.
- When not executing a script file, "STARTUP.CMD":
Fifteen (15) seconds after completion of start or reset.

Do not attempt a connection before the above time has elapsed after completion of power-on or reset.

Changing "Priority" to a larger value in the Option tab of C Controller setting utility increases the time after which the C Controller module can be connected.

CHAPTER 8 DEVICE MONITORING UTILITY

8.1 Device Monitoring Utility Function List

Q12DCCPU-V	Q06CCPU-V	Q06CCPU-V-B
○	○	×

Table 8.1 Device monitoring utility function list

Name	Description	Applicability		Reference page
		Q12DCCPU-V	Q06CCPU-V	
Connection setting	Sets the connection target of Device monitoring utility.	○	○	Page 3-5
Batch monitoring	Monitors only one specified device.	○	○	Page 8-2
16-point register monitoring	Monitors up to five bit devices and one word device at the same time.	○	○	Page 8-4
Setting monitoring target	Sets a network for which Device monitoring utility is used.	○	○	Page 8-6
Setting device to be monitored	Sets the device(s) to be monitored.	○	○	Page 8-7
Word device value change	Changes the specified word device data.	○	○	Page 8-8
Continuous word device value change	Changes the specified points of word device data to the specified data.	○	○	Page 8-10
ON/OFF of bit device	Turns on or off the specified bit device.	○	○	Page 8-12
Changing the format	Changes the display format for device monitoring.	○	○	Page 8-14
Start/stop monitoring	Starts or stops monitoring by Device monitoring utility.	○	○	Page 8-15
Numerical pad	Enters numerical data by a mouse.	○	○	Page 8-16

○: Applicable, △: Applicable but partially restricted, ×: N/A

8.2 Batch Monitoring



Only one specified device can be monitored.

(1) Precautions for batch monitoring

(a) When a utility communication error has occurred

When a utility communication error has occurred during connection, set the connection target again in the Connection settings so that the communication can be restarted.

(b) CC-Link module monitoring

When monitoring has been performed to the CC-Link module (specified as own station) where the block data assurance per station is enabled, cyclic data are will be automatically refreshed.

However, data are automatically refreshed only when monitoring has been performed within the range set in "Station information settings" for the master station.

The range set in "Station information settings" can be confirmed by "Slave station offset, size information" (buffer memory address: 3E0H to 5DFH) of the CC-Link module.

For details of the block data assurance per station, refer to the C Controller Module User's Manual (Hardware Design, Function Explanation).

Note also that the write (send) area of the link refresh devices (the buffer memory) will not be refreshed when monitoring has been performed.

(2) Selected menu items

From the menu bar, select [Menu]→[Batch monitoring].

(The above procedure is available only when 16-point register monitoring is active.)

Batch monitoring is displayed immediately after start of Device monitoring utility.)

Select [Setting]→[Device settings] and set the device to be monitored. (☞ Page 8-7, Section 8.5)

(3) Display screen

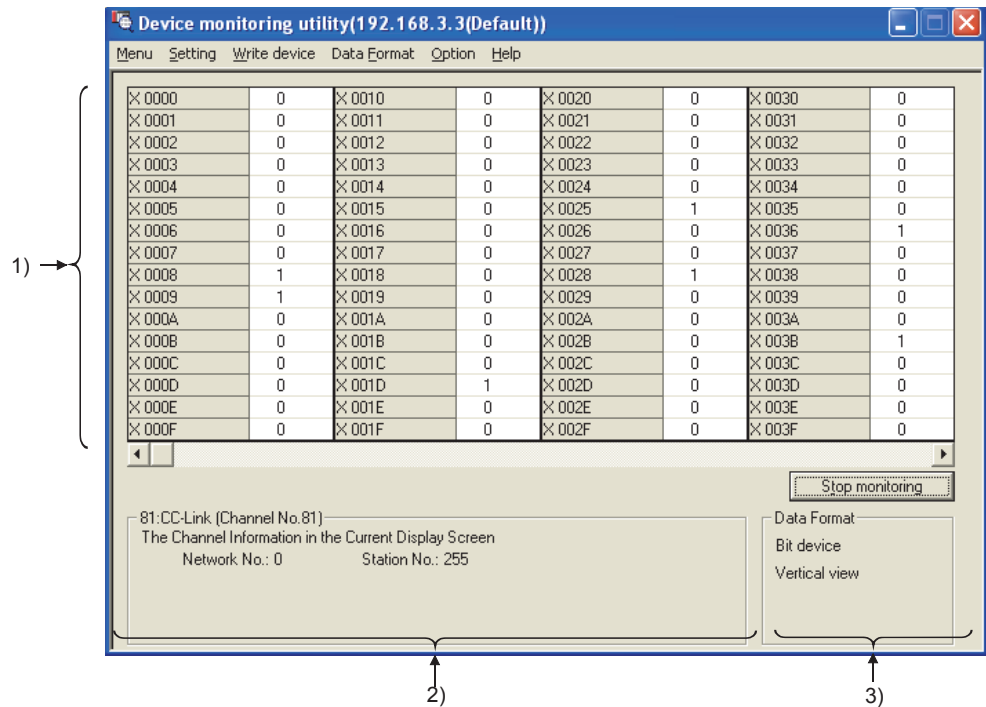


Figure 8.1 Batch monitoring

Table 8.2 Description of Batch monitoring screen

Item	Description
1) Device information	Displays the current device status. Changing display format (☞ Page 8-14, Section 8.9)
2) Network status	Displays the status of the currently specified network. Network setting (☞ Page 8-6, Section 8.4)
3) Display format	The following items describe devices shown on the display. •Device type (word device or bit device) •Display format •Display format for a SPG device (special direct buffer register or intelligent function module buffer memory) (only when monitoring a SPG device) Changing device type (☞ Page 8-7, Section 8.5) Changing display format (☞ Page 8-14, Section 8.9)

8.3 16-Point Register Monitoring



Up to five bit devices and one word device can be monitored at the same time.

(1) Precautions for 16-point register monitoring

(a) When a utility communication error has occurred

When a utility communication error has occurred during connection, set the connection target again in the Connection settings so that the communication can be restarted.

(b) CC-Link module monitoring

When monitoring has been performed to the CC-Link module (specified as own station) where the block data assurance per station is enabled, cyclic data will be automatically refreshed.

However, data are automatically refreshed only when monitoring has been performed within the range set in "Station information settings" for the master station.

The range set in "Station information settings" can be confirmed by "Slave station offset, size information" (buffer memory address: 3E0H to 5DFH) of the CC-Link module.

For details of the block data assurance per station, refer to the C Controller Module User's Manual (Hardware Design, Function Explanation).

Note also that the write (send) area of the link refresh devices (the buffer memory) will not be refreshed when monitoring has been performed.

(2) Selected menu items

From the menu bar, select [Menu]→[16-point monitoring].

(The above procedure is available only when batch monitoring is active.)

Select [Setting]→[Device settings] and set the device to be monitored. (☞ Page 8-7, Section 8.5)

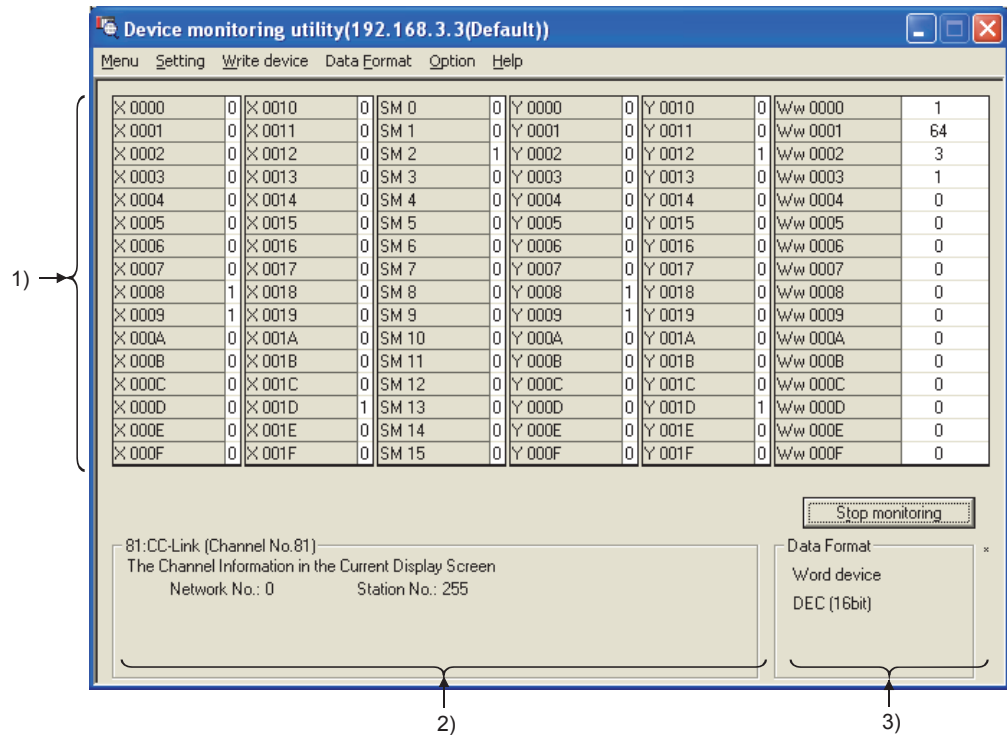
(3) Display screen

Figure 8.2 16-point register monitoring

Table 8.3 Description of 16-point register monitoring

Item	Description
1) Device information	Displays the current device status. Changing display format (☞ Page 8-14, Section 8.9)
2) Network status	Displays the status of the currently specified network. Network setting (☞ Page 8-6, Section 8.4)
3) Display format	Displays the device type (word device or bit device) and display format. Changing device type (☞ Page 8-7, Section 8.5) Changing display format (☞ Page 8-14, Section 8.9)

8.4 Setting Monitoring Target



Set a network for which Device monitoring utility is used.
Set the network at startup of Device monitoring utility.

(1) Precautions for network setting

When the own station is selected in "Network settings", network No."0" and station No."255" are displayed in the network status area.

(2) Selected menu items

From the menu bar, select [Setting]→[Network settings].

(3) Dialog box

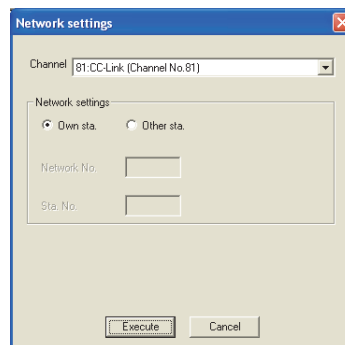


Figure 8.3 Network settings dialog box

Table 8.4 Description of Network settings dialog box

Item	Description
Channel	Select a channel. (☞ Page 10-1, Section 10.1, Page 10-9, Section 10.10)
Network settings	Select Own or Other station, and set network No. and station No. (☞ Page 10-1, Section 10.1, Page 10-10, Section 10.11)

8.5 Setting Device to Be Monitored



Set the device to be monitored.

(1) Precautions for device setting

- (a) Devices available for 16-point register monitoring
 Only the randomly accessible devices can be monitored by 16-point register monitoring.
 If random access is not allowed for the specified device, a device type error (-3) will occur.
 For random accessibility of each device, refer to the following.
 ➔ Page 10-17, Section 10.13

(2) Selected menu items

From the menu bar, select [Setting]→[Device settings].

(3) Dialog box

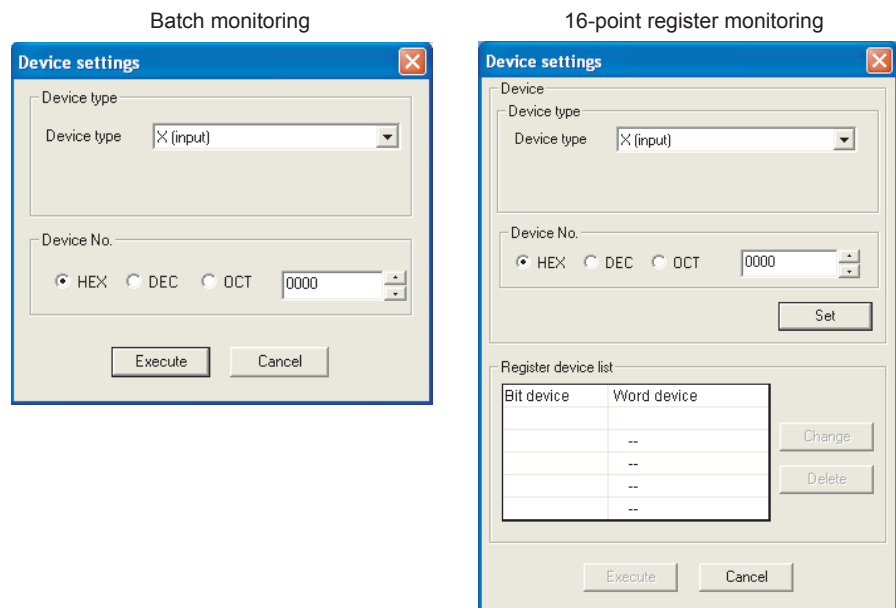


Figure 8.4 Device settings dialog box

Table 8.5 Description of Device settings dialog box

Item	Description
Device type	Set the type (➔ Page 10-12, Section 10.12), block No., and network No. of the device to be monitored.
Device No.	Set the start No. of the device to be monitored. (HEX: Hexadecimal, DEC: Decimal, OCT: Octal)
Register device list	Lists the registered devices.
[Set] button	Registers the device type and device No. settings, and adds the information in the Register device list.
[Change] button	Changes the registered data of the selected device.
[Delete] button	Deletes the registered data of the selected device from the Register device list.

8.6 Changing Word Device Values



Data of the specified word device can be changed.



WARNING

- Configure safety circuits external to the C Controller module to ensure that the entire system operates safely even when a fault occurs in the external power supply or the C Controller module. For the following controls, configure an interlock circuit in the user program to ensure that the entire system will always operate safely.
 - (1) Changing data of the running C Controller module from the development environment (personal computer) connected
 - (2) Changing the operating status
 - (3) Operating from the development environment (personal computer)

Especially, in the case of a control from an external device to a remote C Controller module, immediate action cannot be taken for a problem on the C Controller module due to a communication failure. To prevent this, configure an interlock circuit in the user program, and determine corrective actions to be taken between the external device and C Controller module in case of a communication failure.

(1) Precautions for changing word device values

- (a) When a utility communication error has occurred
When a utility communication error has occurred during connection, set the connection target again in the Connection settings so that the communication can be restarted.
- (b) CC-Link module monitoring
When devices has been written to a CC-Link module (specified as own station) where the block data assurance per station is enabled, cyclic data will be automatically refreshed.

However, data are automatically refreshed only when device writing has been performed within the range set in "Station information settings" for the master station.

The range set in "Station information settings" can be confirmed by "Slave station offset, size information" (buffer memory address: 3E0H to 5DFH) of the CC-Link module.

For details of the block data assurance per station, refer to the C Controller Module User's Manual (Hardware Design, Function Explanation).

Note also that the read (receive) area of the link refresh devices (the buffer memory) will not be refreshed when devices have been written.

(2) Selected menu items

From the menu bar, select [Write device]→[Data change].

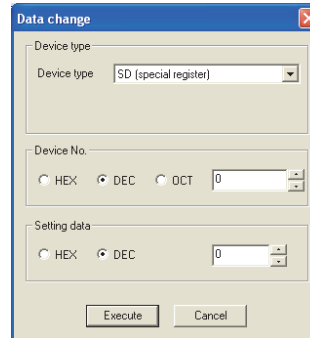
(3) Dialog box

Figure 8.5 Data change dialog box

Table 8.6 Description of Data change dialog box

Item	Description
Device type	Set the type (☞ Page 10-12, Section 10.12), block No. and network No. of the device of which data are changed.
Device No.	Set the start No. of the device of which data are changed. (HEX: Hexadecimal, DEC: Decimal, OCT: Octal)
Setting data	Set new data. (HEX: Hexadecimal, DEC: Decimal)

8.7 Continuously Changing Word Device Values



The specified points of word device data can be changed to the specified data.



WARNING

- Configure safety circuits external to the C Controller module to ensure that the entire system operates safely even when a fault occurs in the external power supply or the C Controller module. For the following controls, configure an interlock circuit in the user program to ensure that the entire system will always operate safely.
 - (1) Changing data of the running C Controller module from the development environment (personal computer) connected
 - (2) Changing the operating status
 - (3) Operating from the development environment (personal computer)

Especially, in the case of a control from an external device to a remote C Controller module, immediate action cannot be taken for a problem on the C Controller module due to a communication failure. To prevent this, configure an interlock circuit in the user program, and determine corrective actions to be taken between the external device and C Controller module in case of a communication failure.

(1) Precautions for continuous change of word device values

- (a) When a utility communication error has occurred

When a utility communication error has occurred during connection, set the connection target again in the Connection settings so that the communication can be restarted.
- (b) CC-Link module monitoring

When devices have been written to a CC-Link module (specified as own station) where the block data assurance per station is enabled, cyclic data will be automatically refreshed.

However, data are automatically refreshed only when device writing has been performed within the range set in "Station information settings" for the master station.

The range set in "Station information settings" can be confirmed by "Slave station offset, size information" (buffer memory address: 3E0H to 5DFH) of the CC-Link module.

For details of the block data assurance per station, refer to the C Controller Module User's Manual (Hardware Design, Function Explanation).

Note also that the read (receive) area of the link refresh devices (the buffer memory) will not be refreshed when devices have been written.

(2) Selected menu items

From the menu bar, select [Write device]→[Continuous data change].

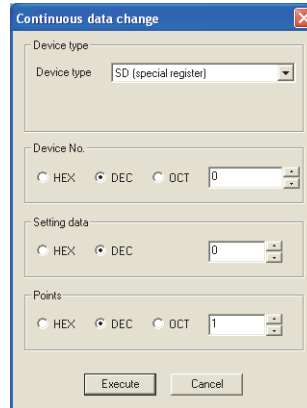
(3) Dialog box

Figure 8.6 Continuous data change dialog box

Table 8.7 Description of the Continuous data change dialog box

Item	Description
Device type	Set the type, block No., and network No. of the device whose data are changed. (☞ Page 10-12, Section 10.12)
Device No.	Set the start No. of the device whose data are changed. (HEX: Hexadecimal, DEC: Decimal, OCT: Octal)
Setting data	Set the data to be changed continuously. (HEX: Hexadecimal, DEC: Decimal)
Points	Set the points for which data are to be changed continuously. (HEX: Hexadecimal, DEC: Decimal, OCT: Octal)

8.8 Tuning On and Off Bit Device



The specified bit device can be turned on and off.



WARNING

- Configure safety circuits external to the C Controller module to ensure that the entire system operates safely even when a fault occurs in the external power supply or the C Controller module. For the following controls, configure an interlock circuit in the user program to ensure that the entire system will always operate safely.
 - (1) Changing data of the running C Controller module from the development environment (personal computer) connected
 - (2) Changing the operating status
 - (3) Operating from the development environment (personal computer)

Especially, in the case of a control from an external device to a remote C Controller module, immediate action cannot be taken for a problem on the C Controller module due to a communication failure. To prevent this, configure an interlock circuit in the user program, and determine corrective actions to be taken between the external device and C Controller module in case of a communication failure.

(1) Precaution for turning on and off the bit device

- (a) When a utility communication error has occurred

When a utility communication error has occurred during connection, set the connection target again in the Connection settings so that the communication can be restarted.
- (b) CC-Link module monitoring

When devices have been written to a CC-Link module (specified as own station) where the block data assurance per station is enabled, cyclic data will be automatically refreshed.

However, data are automatically refreshed only when device writing has been performed within the range set in "Station information settings" for the master station.

The range set in "Station information settings" can be confirmed by "Slave station offset, size information" (buffer memory address: 3E0H to 5DFH) of the CC-Link module.

For details of the block data assurance per station, refer to the C Controller Module User's Manual (Hardware Design, Function Explanation).

Note also that the read (receive) area of the link refresh devices (the buffer memory) will not be refreshed when devices have been written.

(2) Selected menu

From the menu bar, select [Write device]→[Set (Reset) bit device].

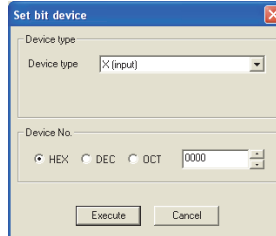
(3) Dialog box

Figure 8.7 Set bit device dialog box

Table 8.8 Description of the Set (reset) bit device dialog box

Item	Description
Device type	Set the type, block No., and network No. of the device to be turned on or off. (☞ Page 10-12, Section 10.12)
Device No.	Set the bit device No. of the device to be turned on or off. (HEX: Hexadecimal, DEC: Decimal, OCT: Octal)

8.9 Changing the Display Format



The display format in device monitoring can be changed.

Note that the menu options for Batch monitoring and 16-point register monitoring are different.

(1) Selected menu

After selecting the [display switch] on the menu bar, select the display format of Word device, Bit device, or SPG device (special direct buffer register and intelligent function module buffer memory).

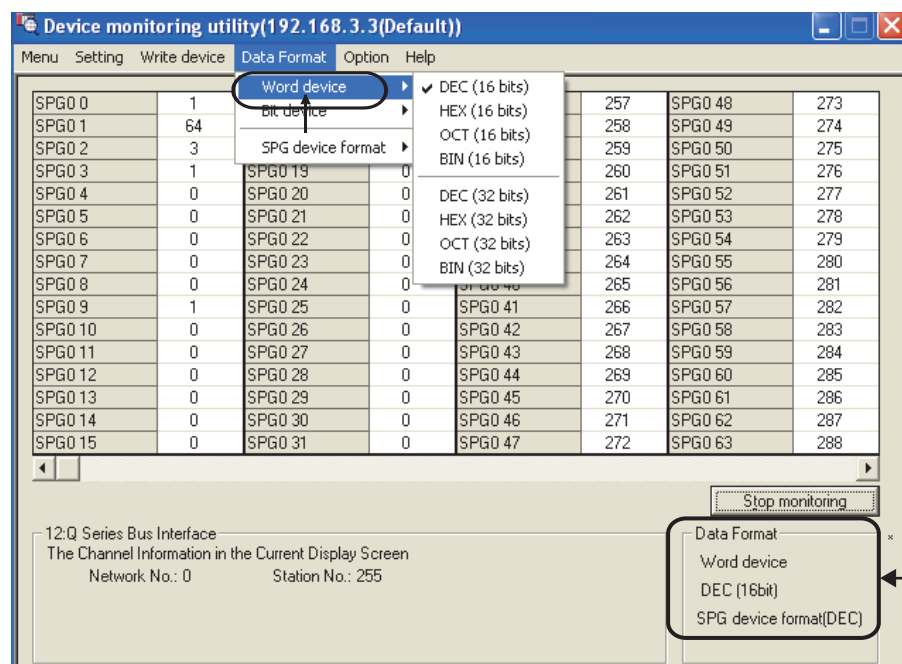
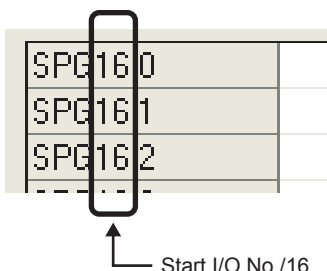


Figure 8.8 Data Format menu

Table 8.9 Display format

Item	Description
Word device	Selects the numeric format and units of displays for values to be monitored.
Bit device	Selects the numeric format, units of displays, and order of the bits for values to be monitored.
SPG device display format	Selects the numeric format for the following values when a SPG device is monitored. 

8.10 Start and Stop Monitoring



The **Start monitoring** and **Stop monitoring** buttons of Device monitoring utility are operated on this screen.

The **Start monitoring** and **Stop monitoring** buttons become operable after completing the Device setting.

(1) Operation

Monitoring can be started and stopped by using the **Start monitoring** and **Stop monitoring** buttons.

(2) Screen

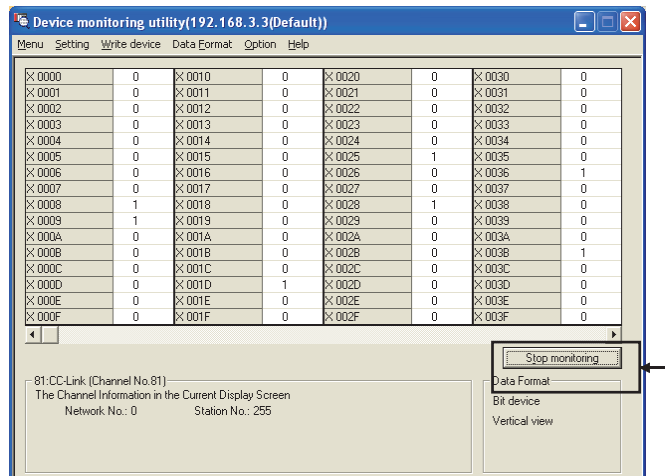


Figure 8.9 Screen for monitoring start and stop

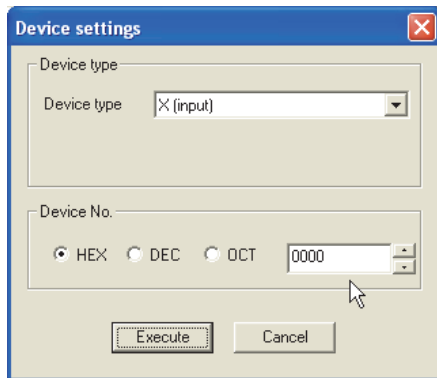
Table 8.10 Description of buttons

Item	Description
Start monitoring button and Stop monitoring button	Starts or stops monitoring. "*" flashes in the bottom right of the button during monitoring. These buttons are disabled in the offline status.

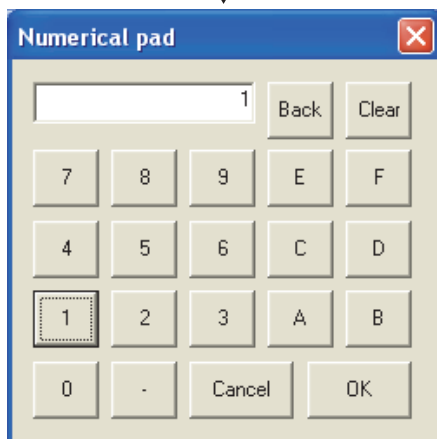
8.11 Numerical Pad



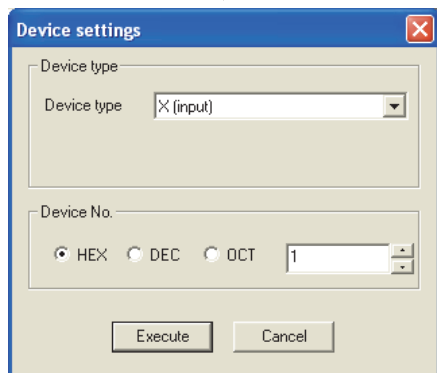
From the menu bar, select [Option]→[Numerical pad] so that device values can be entered using the Numerical pad.



1 Click the "Device No." entry field.



2 As the Numerical pad appears, enter a numerical value using buttons. Then click the **OK** button.



3 The numerical value is entered.

8.12 Other Operations



Double-clicking the device No. on the screen during monitoring enables to change word device data and to turn on and off bit devices.

**WARNING**

- Configure safety circuits external to the C Controller module to ensure that the entire system operates safely even when a fault occurs in the external power supply or the C Controller module. For the following controls, configure an interlock circuit in the user program to ensure that the entire system will always operate safely.
 - (1) Changing data of the running C Controller module from the development environment (personal computer) connected
 - (2) Changing the operating status
 - (3) Operating from the development environment (personal computer)

Especially, in the case of a control from an external device to a remote C Controller module, immediate action cannot be taken for a problem on the C Controller module due to a communication failure. To prevent this, configure an interlock circuit in the user program, and determine corrective actions to be taken between the external device and C Controller module in case of a communication failure.

(1) Precautions for changing the word device and bit device

- (a) When a utility communication error has occurred

When a utility communication error has occurred during connection, set the connection target again in the Connection settings so that the communication can be restarted.
- (b) CC-Link module monitoring

When devices have been written to a CC-Link module (specified as own station) where the block data assurance per station is enabled, cyclic data will be automatically refreshed.

However, data are automatically refreshed only when device writing has been performed within the range set in "Station information settings" for the master station.

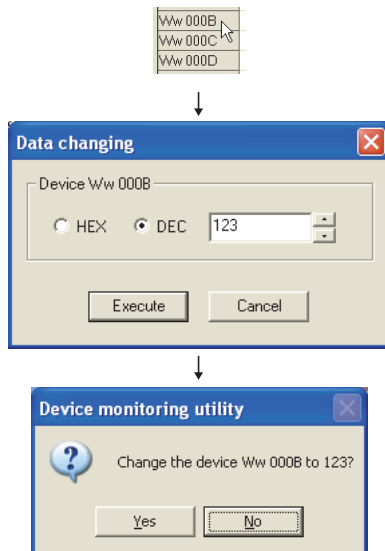
The range set in "Station information settings" can be confirmed by "Slave station offset, size information" (buffer memory address: 3E0H to 5DFH) of the CC-Link module.

For details of the block data assurance per station, refer to the C Controller Module User's Manual (Hardware Design, Function Explanation).

Note also that the read (receive) area of the link refresh devices (the buffer memory) will not be refreshed when devices have been written.

(2) Changing a word device

The following describes how to change a word device.



1 Double-click the word device No. of which value is to be changed.

2 As the dialog box shown on the left appears, enter any given values.

Click the **Execute** button.

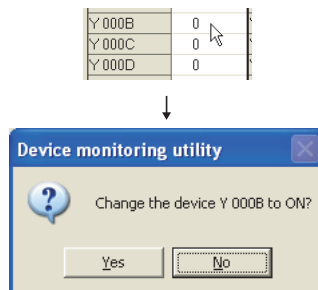
3 To accept the change, click the **Yes** button in the dialog box shown on the left.

To cancel the change, click the **No** button.

(3) Changing a bit device

The following describes how to turn on and off a bit device.

Note that this operation is available only when the display format is set to "Vertical".



1 Double-click the bit device No. of which value is to be changed.

2 To accept the change, click the **Yes** button in the dialog box shown on the left.

To cancel the change, click the **No** button.

8.13 Precautions



(1) Connection during script file processing

Connection from utility to a C Controller module may not be available during processing a script file (while the RUN LED is flashing).

If the RUN LED remains flashing, refer to the C Controller Module User's Manual (Hardware Design, Function Explanation) and troubleshoot the problem.

(2) Time required for connection from each utility to the C Controller module

The following time is required for the C Controller module to connect to each utility after power-on or reset.

- When executing the script file, "STARTUP.CMD":
Upon completion of the RUN LED flashing.
- When not executing the script file, "STARTUP.CMD":
Fifteen (15) seconds after completion of start or reset.

Do not attempt a connection before the above time has elapsed after completion of power-on or reset.

Changing "Priority" to a larger value in the Option tab of C Controller setting utility increases the time after which the C Controller module can be connected.

(3) When accessing Q24DHCCPU-V/-VG

The accessible range of B device in Device monitoring utility is within 0 to 65534.

CHAPTER 9 PROGRAMMING USING BUS INTERFACE FUNCTIONS



When applying program examples introduced in this chapter into actual systems, fully examine the applicability, and confirm that they will not cause system control problems.

9.1 Outline of Bus Interface Functions



To access and control programmable controllers and each module in a user program, functions provided by SW3PVC-CCPU must be used.

(1) The following indicates features of bus interface functions.

- 1) Input and output control of I/O modules controlled by the C Controller module.
- 2) Access to the buffer memories of the intelligent function modules controlled by the C Controller module.
(X/Y access, buffer memory access, and wait for an interrupt event from an intelligent function module or an interrupt module are available)
- 3) Linkage between the programmable controller CPU and the Motion CPU that are in the same system as the C Controller module.
- 4) Message exchange with the following modules or personal computers via CC-Link IE Controller Network module(s) or MELSECNET/H module(s) controlled by the C Controller module.
 - C Controller module (another station)
 - Programmable controller CPU (another station)
 - Personal computer equipped with MELSECNET/H board (only via MELSECNET/H module(s))
- 5) Access to link devices of the CC-Link IE Controller Network module or MELSECNET/H module controlled by the C Controller module.
- 6) Start of a routine from the user watchdog timer error interrupt.
- 7) Remote RUN/STOP/PAUSE control of the C Controller module.
- 8) Registration of the event log to the event history file.
- 9) Mounting and unmounting of the CompactFlash card.
- 10) Shutdown of the standard ROM.
- 11) Setting and reading of the clock data.
- 12) Writing data to or reading data from the battery-backed-up RAM.

The system illustration below represents a system image based on the features described on the previous page.

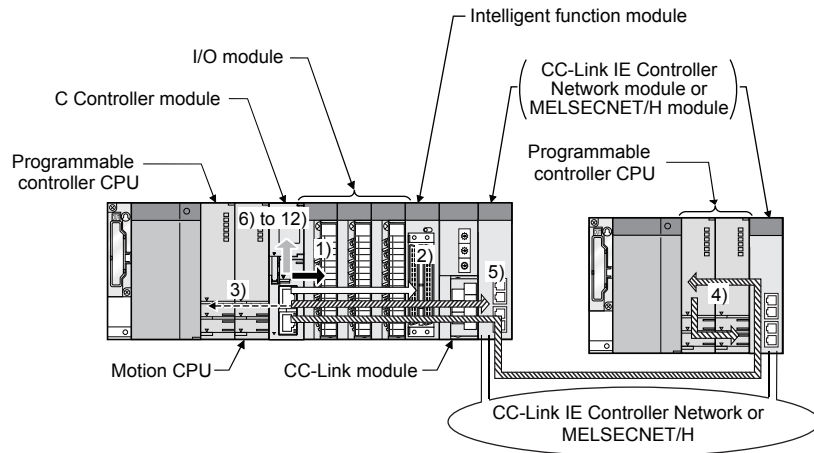


Figure 9.1 Bus interface function image

Table 9.1 Access targets of bus interface functions

Arrow	Access target	No. given above	Remarks
←	Input module/output module	1)	•Input (X): Reading enabled •Output (Y): Reading and writing enabled
←	Intelligent function module	2)	Reading from and writing to buffer memory enabled
←---	Programmable controller CPU/MotionCPU	3)	—
←	CC-Link IE Controller Network module (another station), or MELSECNET/H module (another station)	4)	—
←	CC-Link IE Controller Network module (own station), or MELSECNET/H module (host station)	5)	—
←	C Controller module	6) to 12)	The following operations are available. •Remote RUN/STOP/PAUSE •Setting and reading clock data •Reading from and writing to battery-backed-up RAM

9
PROGRAMMING USING BUS INTERFACE FUNCTIONS
10
PROGRAMMING USING MELSEC DATA LINK FUNCTIONS
11
PROGRAMMING USING VxWorks API FUNCTIONS
12
SAMPLE PROGRAMS
13
EVENT NUMBER LIST

A

I

9.2 Bus Interface Function List

Q12DCCPU-V	Q06CCPU-V	Q06CCPU-V-B
○	△	△

(1) Bus interface function list

Table 9.2 Bus interface function list

1)Q12DCCPU-V 2)Q06CCPU-V 3)Q06CCPU-V-B

Category	Function name	Function	Availability		
			1)	2)	3)
Open/close	QBF_Open	Opens a bus.	○	○	○
	QBF_Close	Closes a bus.	○	○	○
I/O access	QBF_X_In_BitEx	Reads a single point in the input signal (X).	○	○	○
	QBF_X_In_WordEx	Reads input signal (X) in 1-word units.	○	○	○
	QBF_Y_Out_BitEx	Outputs a single point in the output signal (Y).	○	○	○
	QBF_Y_Out_WordEx	Outputs output signal (Y) in 1-word units.	○	○	○
	QBF_Y_In_BitEx	Reads a single point in the output signal (Y).	○	○	○
	QBF_Y_In_WordEx	Reads output signal (Y) in 1-word units.	○	○	○
CPU shared memory/buffer memory access	QBF_ToBuf	Writes data to the CPU shared memory of the specified module and the buffer memory of the intelligent function module (To instruction).	○	○	○
	QBF_FromBuf	Reads data from the CPU shared memory of the specified module and the buffer memory of the intelligent function module (From instruction).	○	○	○
Link device refresh	QBF_RefreshLinkDevice	Refreshes the CC-Link module link device.	○	○	○
Link device access	QBF_WriteLinkDevice	Writes data to link devices of a CC-Link IE Controller Network module (own station) or MELSECNET/H module (own station).	○	○	○
	QBF_ReadLinkDevice	Reads data from link devices of a CC-Link IE Controller Network module (own station) or MELSECNET/H module (own station).	○	○	○
Message communication	QBF_SEND	Sends messages to another station via CC-Link IE Controller Network module or MELSECNET/H module. (Equivalent to SEND instruction of CC-Link IE Controller Network module or MELSECNET/H module.)	○	○	○
	QBF_RECV	Receives messages from another station via CC-Link IE Controller Network module or MELSECNET/H module. (Equivalent to RECV instruction of CC-Link IE Controller Network module or MELSECNET/H module.)	○	○	○
Acquisition of module information	QBF_UnitInfo	Reads module configuration information.	○	○	○
WDT control	QBF_StartWDT	Sets an interval of WDT and starts up the user WDT.	○	○	○
	QBF_ResetWDT	Resets the user WDT.	○	○	○
	QBF_StopWDT	Stops the user WDT.	○	○	○
	QBF_EntryWDTInt	Registers a routine for the user WDT error interrupt.	○	○	○

○: Available, x: N/A

(To the next page)

Table 9.2 Bus interface function list (continued)

1)Q12DCCPU-V 2)Q06CCPU-V 3)Q06CCPU-V-B

Category	Function name	Function	Availability		
			1)	2)	3)
Timer event control	QBF_EntryTimerEvent	Registers timer events.	○	○	○
	QBF_WaitTimerEvent	Waits for an occurrence of a timer event.	○	○	○
Acquisition of module status information	QBF_ReadStatusEx	Reads the status information (LED, error, etc.) of C Controller module.	○	○	○
User LED control	QBF_ControlLED	Controls USER LED of C Controller module.	○	○	○
	QBF_Control7SegLED	Controls the 7-segment LED of C Controller module.	○	×	×
CPU operating status control	QBF_Reset* ¹	Resets the bus master CPU (CPU No.1).	○	○	○
	QBF_Control	Controls remote operations (RUN/STOP/PAUSE) for the C Controller module.	○	○	○
	QBF_ControlEx	Controls remote operations (RUN/STOP/PAUSE) for specified CPU.	○	○	○
Event registration	QBF_RegistEventLog	Registers event logs in the event history file.	○	○	○
CF card mount/unmount	QBF_MountCfCard	Mounts a CompactFlash card. (Q06CCPU-V only)	○	○	×
	QBF_UnmountCfCard	Unmounts a CompactFlash card. (Q06CCPU-V only)	○	○	×
Standard ROM shutdown	QBF_ShutdownRom	Sets C Controller module to power-off-available condition. (Shuts down the standard ROM.)	×	○	○
Clock data	QBF_SetTime	Sets up clock data.	○	○	○
	QBF_GetTime	Reads clock data.	○	○	○
Battery backed-up RAM access	QBF_WriteSRAM	Writes data to the battery-backed-up RAM.	○	○	○
	QBF_ReadSRAM	Reads data from the battery-backed-up RAM.	○	○	○
Interrupt event control	QBF_WaitUnitEvent	Waits for an interrupt event notification from an intelligent function module or an interrupt module.	○	○	○
	QBF_WaitEvent	Waits for an interrupt event notification from another CPU.	○	○	○
	QBF_GINT	Issues an interrupt to another CPU. (Equivalent to the S(P). GINT instruction of programmable controller CPU.)	○	○	○
	QBF_EntryMultiCPUSyncInt	Registers a routine so that it can be called when a multiple CPU synchronization interrupt occurs.	○	×	×
	QBF_EnableMultiCPUSyncInt	Enables the routine registered for the multiple CPU synchronization interrupt.	○	×	×
	QBF_DisableMultiCPUSyncInt	Disables the routine registered for the multiple CPU synchronization interrupt.	○	×	×

○: Available, ×: N/A

* 1 For precautions on remote RESET during writing a user file, refer to the C Controller Module User's Manual (Hardware Design, Function Explanation).

(To the next page)

9 PROGRAMMING USING BUS INTERFACE FUNCTIONS
 10 PROGRAMMING USING MELSEC DATA LINK FUNCTIONS
 11 PROGRAMMING USING VxWORKS API FUNCTIONS
 12 SAMPLE PROGRAMS
 13 EVENT NUMBER LIST

A

Table 9.2 Bus interface function list (continued)

1)Q12DCCPU-V 2)Q06CCPU-V 3)Q06CCPU-V-B

Category	Function name	Function	Availability		
			1)	2)	3)
Interrupt event control	QBF_EntryCpulnt	Registers an interrupt so that the routine can be called when the interrupt is issued from another CPU.	○*2	×	×
	QBF_EnableCpulnt	Enables the routine registered for an interrupt from another CPU.	○*2	×	×
	QBF_DisableCpulnt	Disables the routine registered for an interrupt from another CPU.	○*2	×	×
	QBF_EntryUnitInt	Registers an interrupt so that the routine can be called when the interrupt is issued from an intelligent function module or an interrupt module.	○*2	×	×
	QBF_EnableUnitInt	Enables the routine registered for an interrupt from an intelligent function module or an interrupt module.	○*2	×	×
	QBF_DisableUnitInt	Disables the routine registered for an interrupt from an intelligent function module or an interrupt module.	○*2	×	×
Ladder program control	QBF_ControlProgram	Controls execution type of a ladder program.	○	○	○
Motion CPU control (program start)	QBF_MotionSFCS	Requests to start the specified Motion SFC program. (Equivalent to S(P).SFCS instruction of programmable controller CPU.)	○	○	○
Motion CPU control (operations)	QBF_MotionSVST	Requests to start the specified servo program. (Equivalent to S(P).SVST instruction of programmable controller CPU.)	○	○	○
	QBF_MotionCHGA	Requests to change the current value of the specified axis. (Equivalent to S(P).CHGA instruction of programmable controller CPU.)	○	○	○
	QBF_MotionCHGV	Requests to change the speed of the specified axis. (Equivalent to S(P).CHGV instruction of programmable controller CPU.)	○	○	○
	QBF_MotionCHGT	Requests to change the torque limit value of the specified axis. (Equivalent to S(P).CHGT instruction of programmable controller CPU.)	○	○	○
Motion device access	QBF_MotionDDWR	Writes data to the Motion CPU devices. (Equivalent to S(P).DDWR instruction or D(P).DDWR instruction of programmable controller CPU.)	○	○	○
	QBF_MotionDDRDRD	Reads data from the Motion CPU devices. (Equivalent to S(P).DDRDRD instruction or D(P).DDRDRD instruction of programmable controller CPU.)	○	○	○
C Controller module's internal user or system device access	QBF_WriteDevice	Writes data to the internal user or system devices of the C Controller module.	○*2	×	×
	QBF_ReadDevice	Reads data from the internal user or system devices of the C Controller module.	○*2	×	×
	QBF_SetDevice	Sets the internal user or system devices (bit devices) of the C Controller module.	○*2	×	×
	QBF_ResetDevice	Resets the internal user or system devices (bit devices) of the C Controller module.	○*2	×	×
Error clear	QBF_ClearError	Clears an error.	○*2	×	×

○: Available, ×: N/A

* 2 Not available for the following C Controller module.

• Q12DCCPU-V with serial number (first five digits) "12041" or earlier

(2) Bus interface function for ISR list

Table 9.3 Bus interface function for ISR

1)Q12DCCPU-V 2)Q06CCPU-V 3)Q06CCPU-V-B

Category	Function name	Function	Availability		
			1)	2)	3)
I/O access	QBF_X_In_Word_ISR	Reads input signal (X) in 1-word units.	○	×	×
	QBF_Y_Out_Word_ISR	Outputs output signal (Y) in 1-word units.	○	×	×
	QBF_Y_In_Word_ISR	Reads output signal (Y) in 1-word units.	○	×	×
CPU shared memory	QBF_ToBuf_ISR	Writes data to the CPU shared memory of a specified module and a buffer memory* ¹ in an intelligent function module (To instruction).	○	×	×
	QBF_FromBuf_ISR	Reads data from the CPU shared memory of a specified module and a buffer memory* ¹ in an intelligent function module (From instruction).	○	×	×
User LED control	QBF_ControlLED_ISR	Controls USER LED of C Controller module.	○	×	×
	QBF_Control7SegLED_ISR	Controls the 7-segment LED of the C Controller module.	○	×	×
Battery-backed-up RAM access	QBF_WriteSRAM_ISR	Writes data to the battery backup RAM (user area).	○	×	×
	QBF_ReadSRAM_ISR	Reads data from the battery backup RAM (user area).	○	×	×

○: Available, ×: N/A

* 1 For the following C Controller module, intelligent function modules cannot be accessed (reading and writing).

- Q12DCCPU-V with serial number (first five digits) "12041" or earlier.

(To the next page)

Table 9.3 Bus interface function for ISR (continued)

1)Q12DCCPU-V 2)Q06CCPU-V 3)Q06CCPU-V-B

Category	Function name	Function	Availability		
			1)	2)	3)
Interrupt event control	QBF_EnableMultiCPUSyncInt_ISR	Enables a routine registered for a multiple CPU synchronization interrupt.	○	×	×
	QBF_DisableMultiCPUSyncInt_ISR	Disables a routine registered for a multiple CPU synchronization interrupt.	○	×	×
	QBF_EnableCpuInt_ISR	Enables a routine registered for an interrupt from another CPU.	○*2	×	×
	QBF_DisableCpuInt_ISR	Disables a routine registered for an interrupt from another CPU.	○*2	×	×
	QBF_EnableUnitInt_ISR	Enables a routine registered for an interrupt from an intelligent function module or an interrupt module.	○*2	×	×
	QBF_DisableUnitInt_ISR	Disables a routine registered for an interrupt from an intelligent function module or an interrupt module.	○*2	×	×
C Controller's internal user or system device access	QBF_WriteDevice_ISR	Writes data to the internal user or system devices of the C Controller module.	○*2	×	×
	QBF_ReadDevice_ISR	Reads data from the internal user or system devices of the C Controller module.	○*2	×	×
	QBF_SetDevice_ISR	Sets the internal user or system devices (bit devices) of the C Controller module.	○*2	×	×
	QBF_ResetDevice_ISR	Resets the internal user or system devices (bit devices) of the C Controller module.	○*2	×	×

○: Available, ×: N/A

* 2 Not available for the following C Controller module.

- Q12DCCPU-V with serial number (first five digits) "12041" or earlier

POINT

For details of the bus interface functions, refer to the Bus Interface Function HELP of SW3PVC-CCPU.

9.3 Programming Procedure



This section provides the procedure for programming using the bus interface functions or MELSEC data link functions.

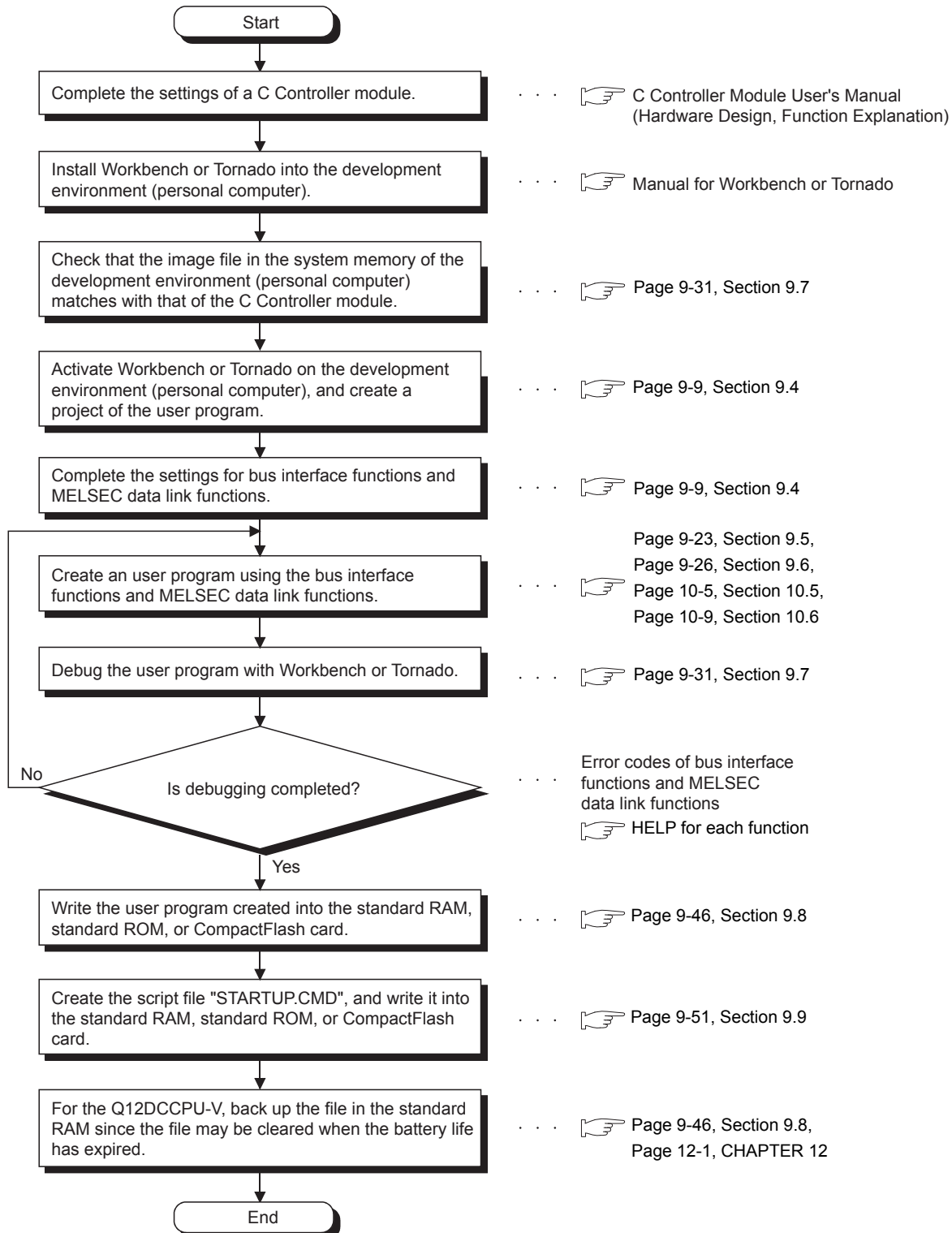


Figure 9.2 Programming procedure

9.4 Creating and Compiling a New Project of User Program



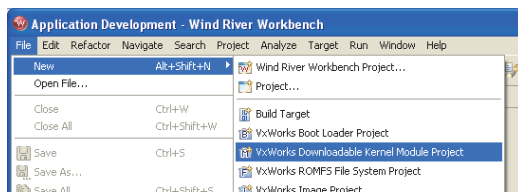
9.4.1 For the Q12DCCPU-V

This section explains:

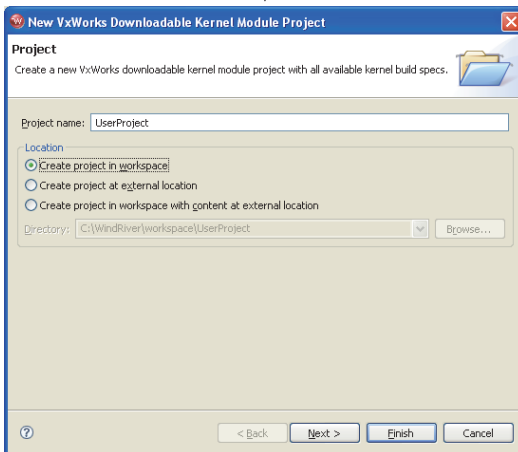
- How to create a new project (☞ Page 9-9, Section 9.4.1 (1))
- How to compile (☞ Page 9-13, Section 9.4.1 (2))
- How to check the endian format (memory layout) of the execution file (☞ Page 9-16, Section 9.4.1 (3))

This section explains the procedures of when Wind River Workbench is used. When using CW Workbench, refer to the CW Workbench Operating Manual.

(1) How to create a new project



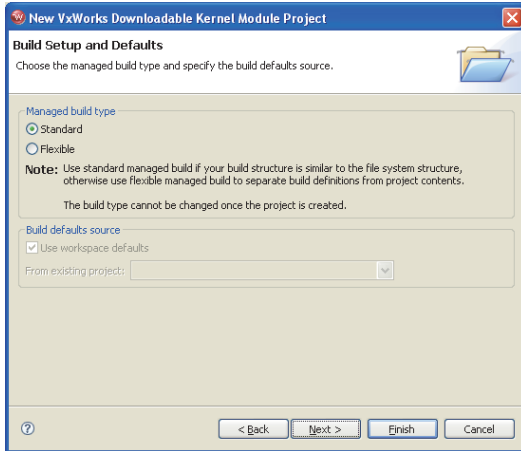
- 1 Start Wind River Workbench.
- 2 Select [File]→[New]→[VxWorks Downloadable Kernel Module Project] from the menu bar.



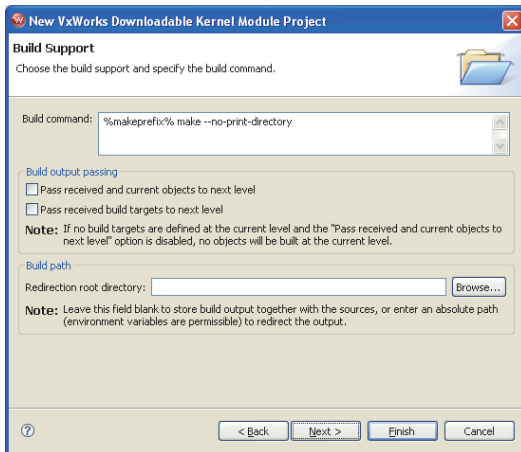
- 3 Enter a project name in "Project name" and click the **Next >** button.

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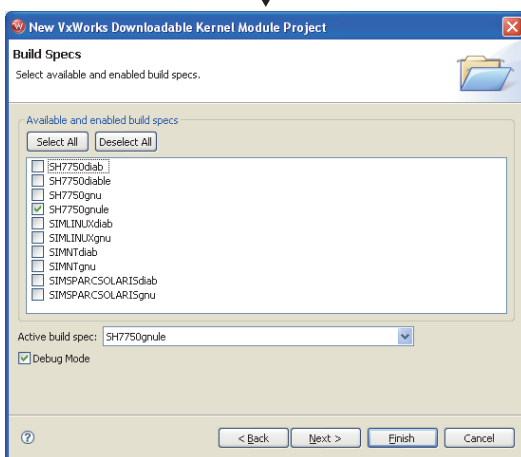
(From the previous page)



4 Click the **Next >** button. (No setting is necessary.)



5 Click the **Next >** button. (No setting is necessary.)



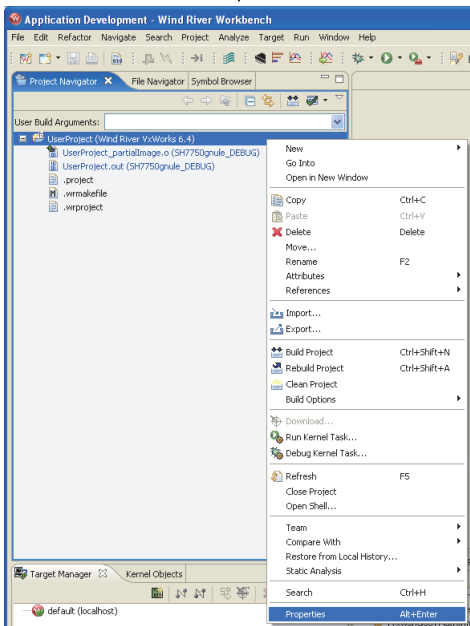
6 Select "SH7750gnule" and click the **Finish** button.

REFERENCE

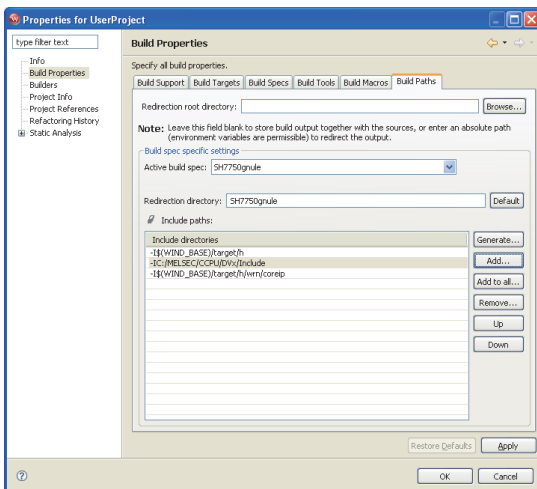
To set the release mode, deselect "Debug Mode".

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- 7 Right-click on the created project on the "Project Navigator" window and select [Properties] from the menu.



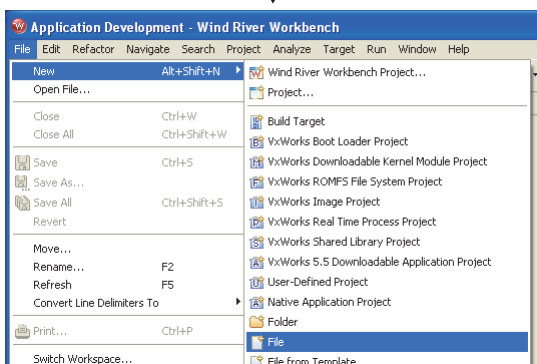
- 8 Open the <<Build Paths>> tab by selecting "Build Properties" in the tree on the left side of the screen. Add the settings of the include files for each function to "Include paths:" and click the button.

REFERENCE

Use "/" as a delimiter of the folder path.

"\" cannot be used.

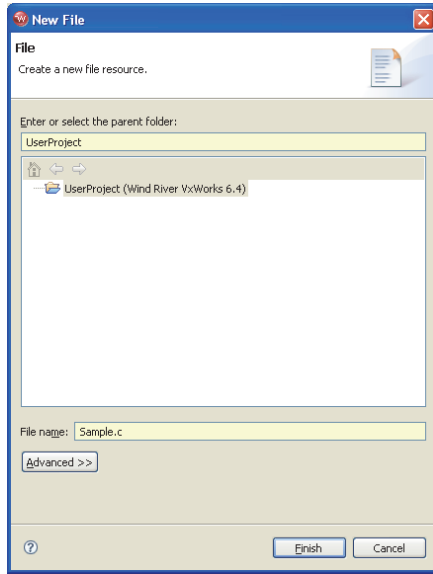
Add "-IC:/MELSEC/CCPU/DVx/Include" to the setting of the include file. (When SW3PVC-CCPU is installed to "C:\MELSEC")



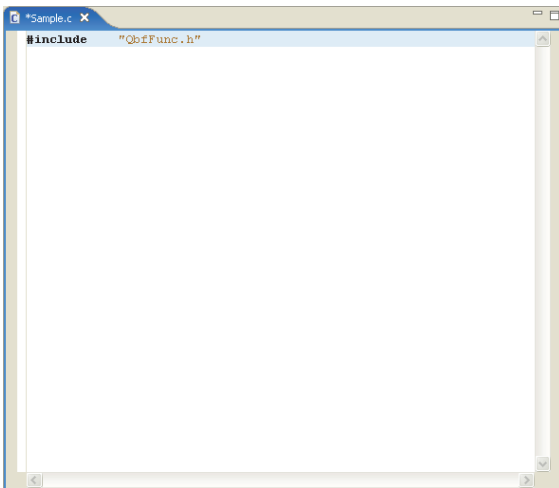
- 9 Select [File]→[New]→[File] from the menu bar.

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- 10 Enter the file name of the source file in the "File name:" field and click the **Finish** button.



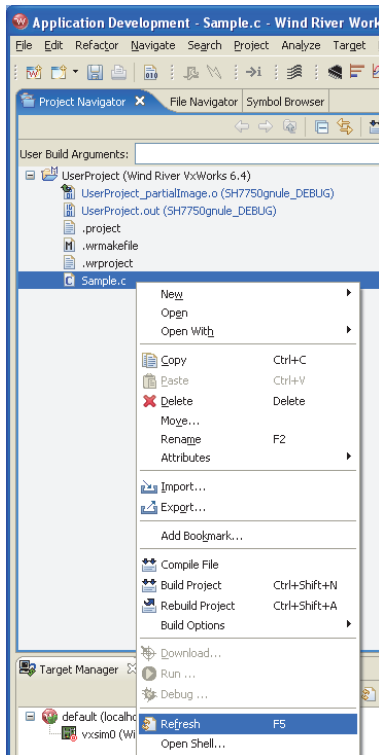
- 11 Edit the source file and include the following include files.
Bus interface function: "QbfFunc.h"
MELSEC communication function: "Mdfunc.h"

(Completed)

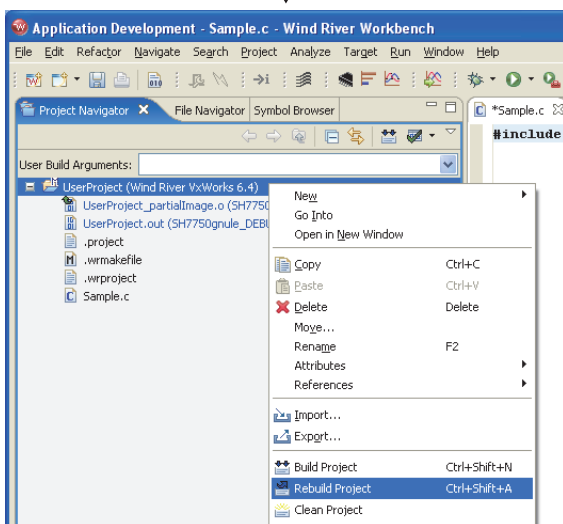
(2) How to compile

POINT

The following operations are required for compiling.



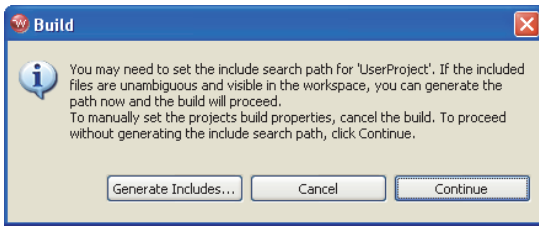
- 1 Right-click on the source file to be compiled on the "Project Navigator" window and select [Refresh] from the menu.



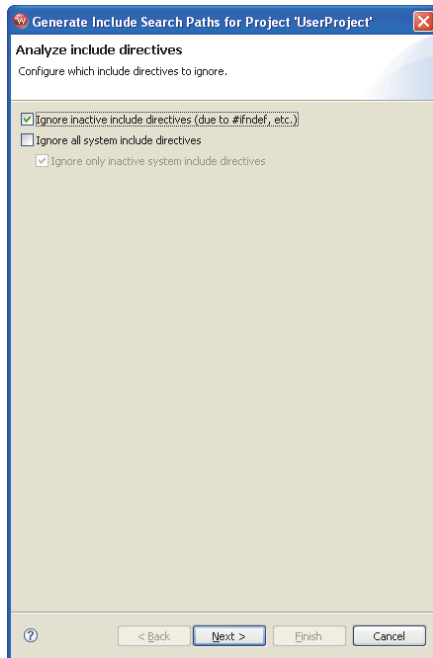
- 2 Right-click on the project to be compiled on the "Project Navigator" window and select [Rebuild Project] from the menu.

(To the next page)

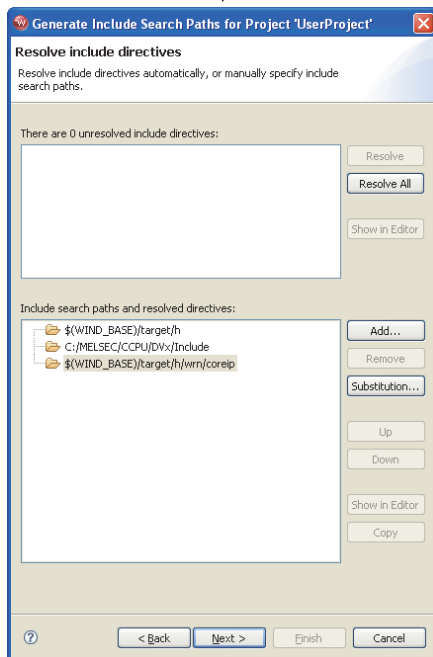
(From the previous page)



3 Click the **Generate Includes** button.



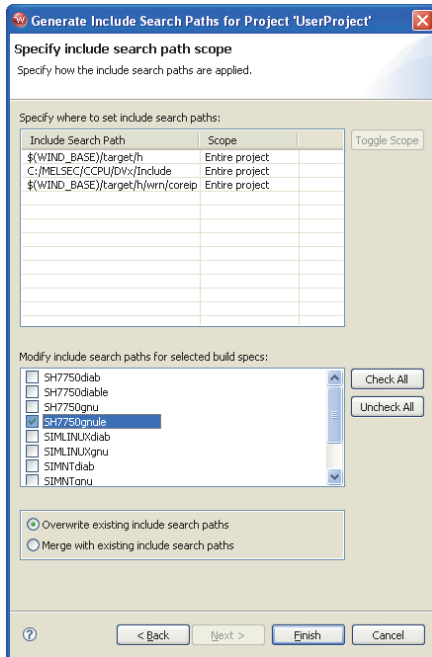
4 Click the **Next>** button. (No setting is necessary.)



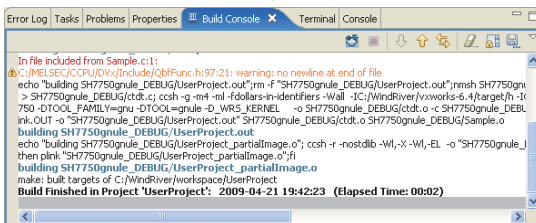
5 Click the **Next>** button. (No setting is necessary.)

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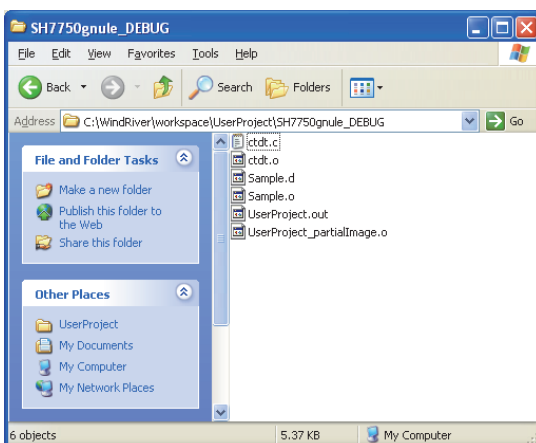
(From the previous page)



- 6 Select only "SH7750gnu" to "Modify include search paths for selected build specs:" and click the **Finish** button.



- 7 Compiling process appears on the "Build Console" window as shown on the left.



When compiling is finished, user programs that are executable in the C Controller module are generated.

The user programs are not generated if an error occurred during compiling.

The user programs are saved with the following folder and file names.

Folder: <Folder where the project is

saved>SH7750gnu_DEBUG

File name: <Project name>.out

REFERENCE

In the release mode, the user programs are saved in the folder where the project is saved.

(Completed)

(3) How to check the endian format (memory layout) of the execution file

(a) Checking method

The endian format of the execution file can be checked by the `objdumpsh` command of VxWorks.

Execute the `objdumpsh` command on the VxWorks Development Shell from the development environment (personal computer) as follows: *1

```
objdumpsh -p Execution file name [Enter]
```

* 1 Start the VxWorks Development Shell by selecting [Start] → [All Programs] → [Wind River] → [VxWorks 6.4 and General Purpose Technologies] → [VxWorks Development Shell].

(b) Checking result

The checking result is indicated as below.

```
Execution file name:  file format elf32-shl
                                     ^
                                     |
                                     | elf32-shl : Little endian
                                     | elf32-sh  : Big endian
```

9.4.2 For the Q06CCPU-V(-B)

The following information is provided in this section.

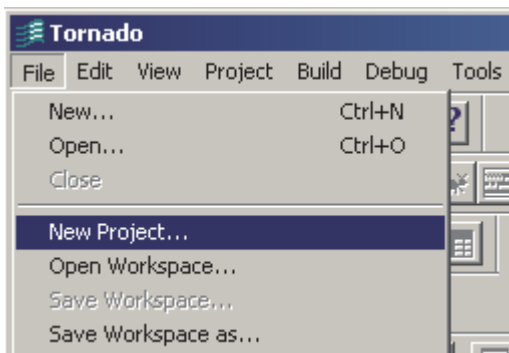
- How to create a new project (☞ Page 9-17, Section 9.4.2 (1))
- How to compile (☞ Page 9-21, Section 9.4.2 (2))
- How to check the endian format (memory layout) of the execution file (☞ Page 9-22, Section 9.4.2 (3))

(1) How to create a new project

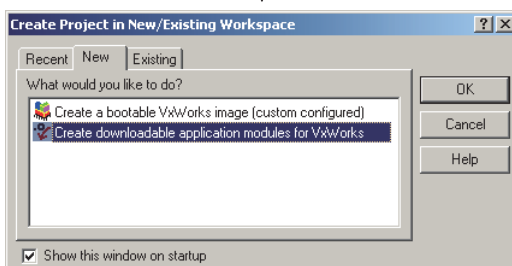
The screens shown in this section are of the Q06CCPU-V.

For the Q06CCPU-V-B, refer to [REFERENCE](#).

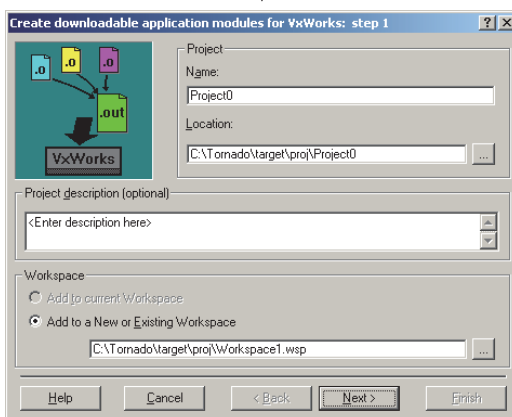
- 1 Start Tornado.
When the work space automatically opens, proceed to step 7.
- 2 Select [File]→[New Project] from the menu bar.



- 2 Select [File]→[New Project] from the menu bar.



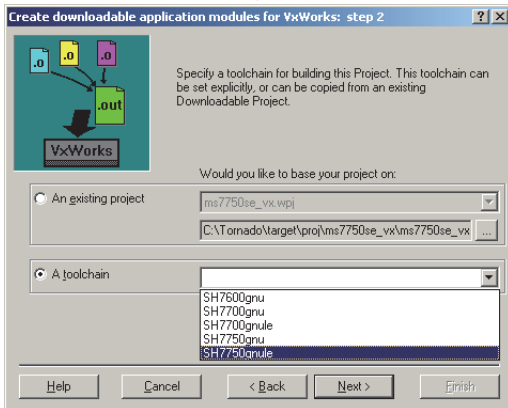
- 3 Select "Create downloadable application modules for VxWorks" and click the **OK** button.



- 4 Enter "Name", "Location", and "Workspace" and then click the **Next>** button.

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(From the previous page)

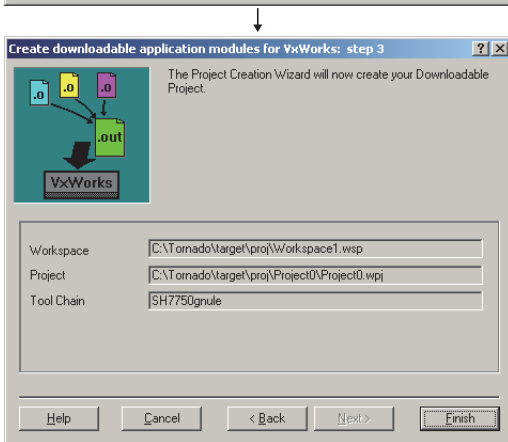


- 5 Select "A toolchain" and select the setting corresponding to the modules below in the pull-down menu and click the **Next>** button.

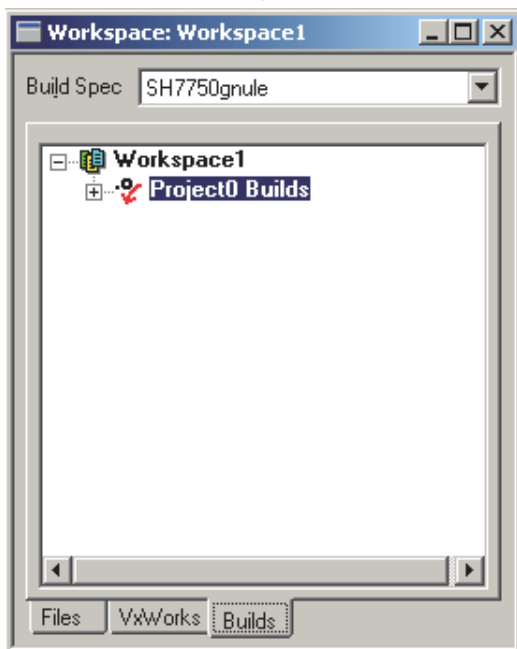
Q06CCPU-V: SH7750gnu (Little endian)
Q06CCPU-V-B: SH7750gnu (Big endian)

REFERENCE

This setting defines the endian format. The program does not run if the setting with a different endian format is selected.



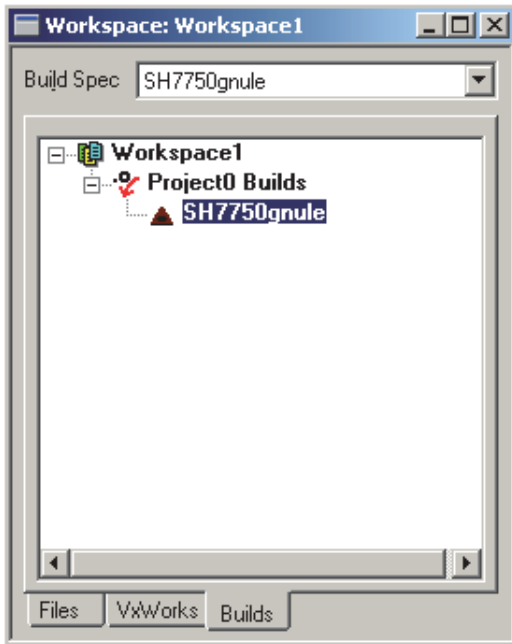
- 6 Check that the settings of "Workspace" and "Tool Chain" are valid and then click the **Finish** button.



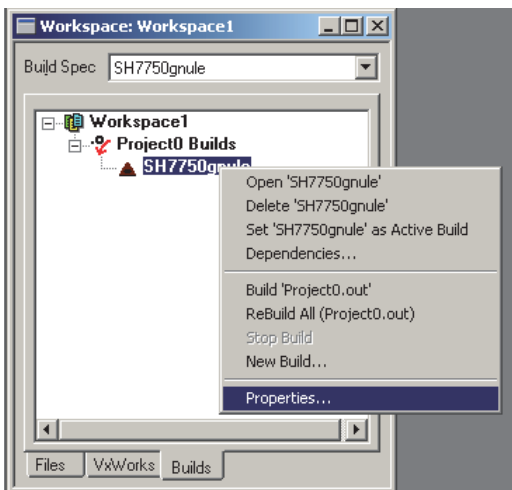
- 7 Open the <<Builds>> tab on the "Workspace" window.

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- 8 Double-click the (🔍) icon to display the lower item.



- 9 Right-click "SH7750gnule" and select [Properties] from the menu.

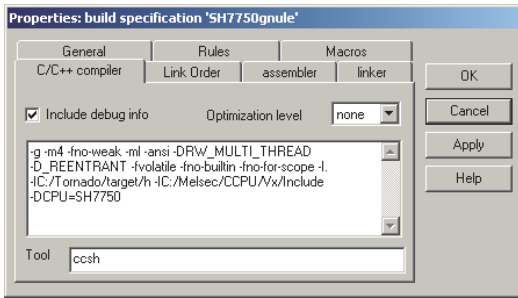
REFERENCE

For the Q06CCPU-V-B, right-click "SH7750gnu" and select [Properties] from the menu bar.



(To the next page)

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- 10 Open the <<C/C++ compiler>> tab. In the center text area on the screen, add the folder settings where the include files of the bus interface functions and MELSEC data link functions are installed, and click the **OK** button.

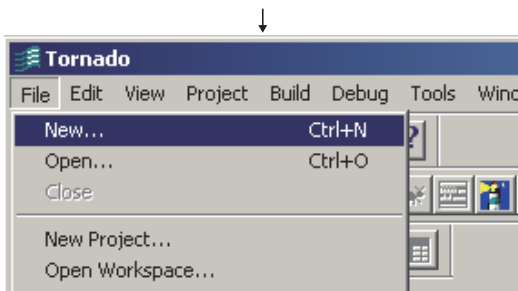
IMPORTANT

Use "/" as a delimiter of the folder path. "<\" cannot be used.

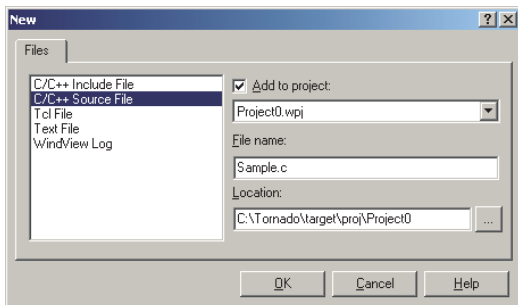
For the include file setting, add the following according to the model. (When the SW3PVC-CCPU is installed to "C:\MELSEC")

Q06CCPU-V: "-IC:/Melsec/CCPU/Vx/Include"

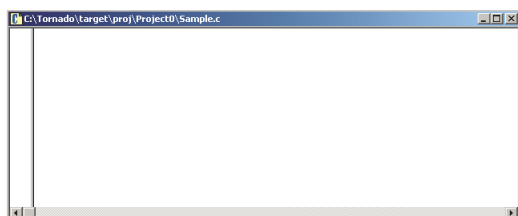
Q06CCPU-V-B: "-IC:/Melsec/CCPU/VxB/Include"



- 11 Select [File]→[New] from the menu bar.



- 12 Select "C/C++ Source File", enter the source file name into "File name", and click the **OK** button.



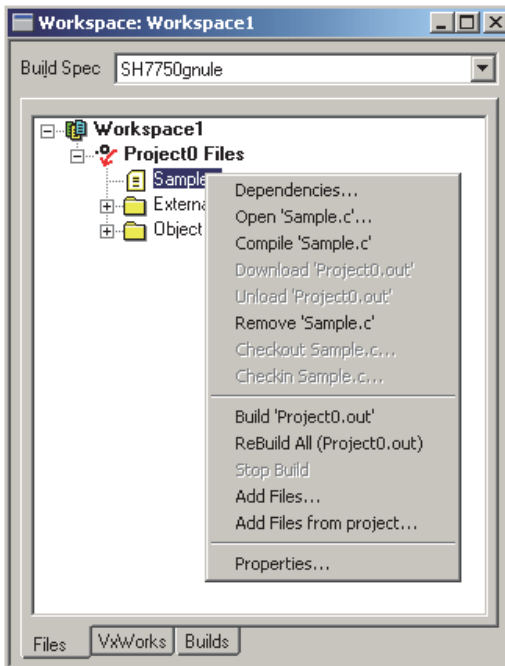
- 13 A screen to edit the source file appears. Include "QbfFunc.h" when using the bus interface functions. Include "MdFunc.h" when using the MELSEC communication functions.

(Completed)

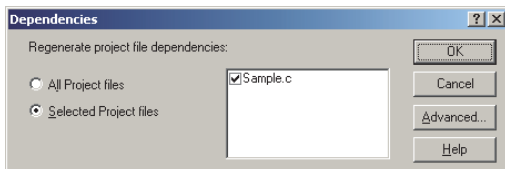
(2) How to compile

POINT

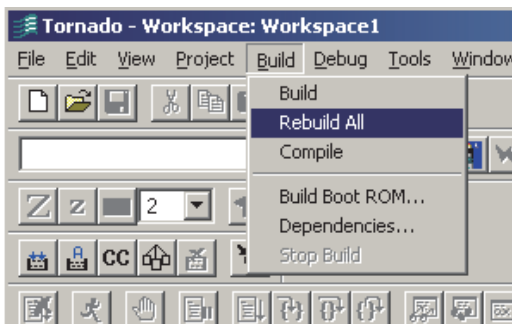
The following operations are required for compiling.



- 1 In the <<Files>> tab on the "Workspace" window, right-click on the source file name to be compiled, and select [Dependencies] from the menu.



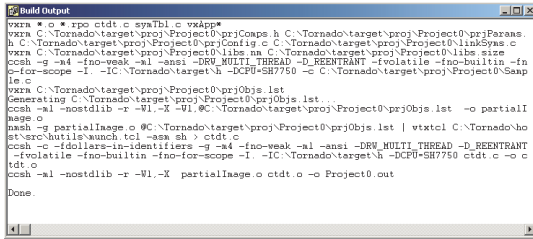
- 2 Check the source file name to be compiled, and click the **OK** button.



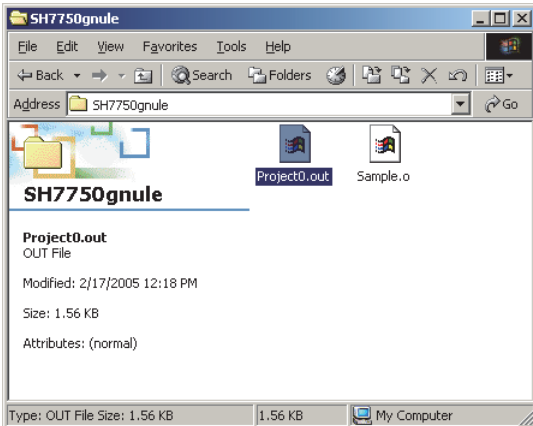
- 3 Select [Build]→[Rebuild All] from the menu bar.

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(From the previous page)



4 Compiling process appears on the screen as shown on the left.



5 When compiling is finished, user programs that can be executed in the C Controller module are generated. The user programs are not generated if an error occurred during compiling.

The user programs are saved with the following folder and file names.

Folder: <Folder where the project is saved>\SH7750gnu

File name: <Project name>.out

REFERENCE

For the Q06CCPU-V-B, user programs are generated in the "SH7750gnu" folder.

(Completed)

(3) How to check the endian format (memory layout) of the execution file

(a) Checking method

The endian format of the execution file can be checked by the objdumpsh command of VxWorks.

Execute the objdumpsh command on the command prompt from the development environment (personal computer) as follows.*1

objdumpsh -p Execution file name [Enter]

* 1 To use the objdumpsh command, execute the following file and set environment variable.
 <Tornado InstallDir> \hostx86-win32\bin\torVars.bat
 (<Tornado InstallDir> is a folder where Tornado has been installed.)

(b) Checking result

The checking result is indicated as below.

Execution file name: file format elf32-shl

elf32-shl : Little endian
 elf32-sh : Big endian

9.5 Programming Flow for Bus Interface Functions



(1) Programming flow

The following flowchart shows the procedure for programming using the bus interface functions.

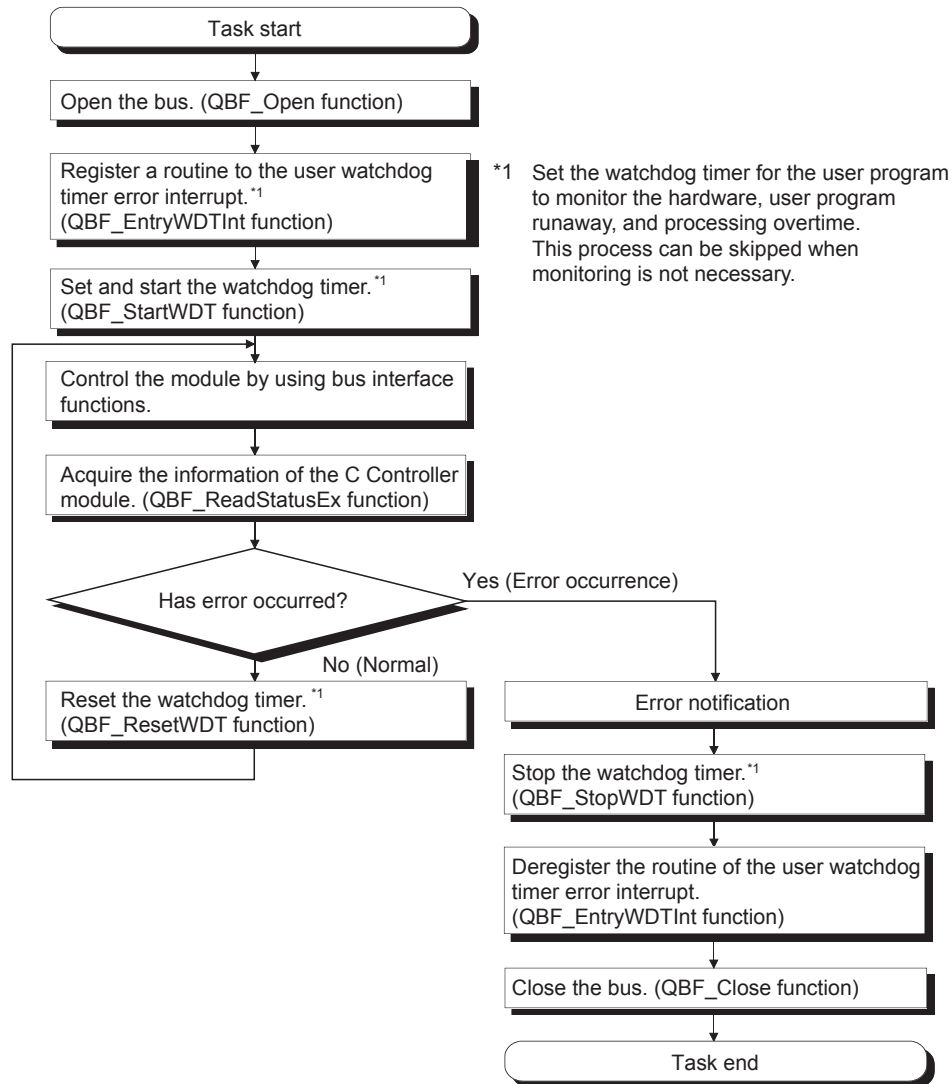


Figure 9.3 Bus interface function programming flow

The following flowchart shows the outline in the case of a user watchdog timer error interrupt.

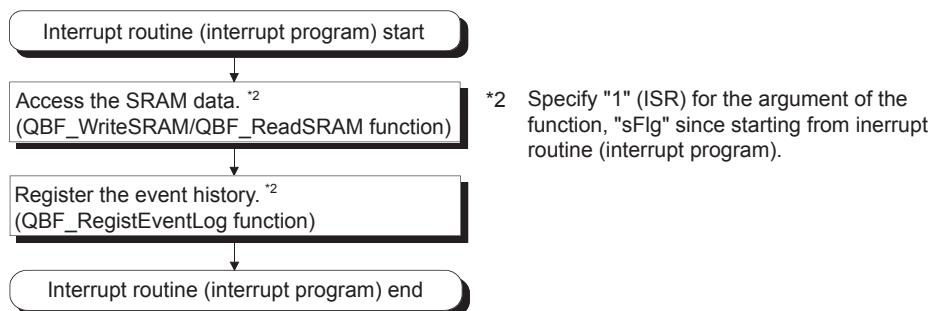


Figure 9.4 User watchdog timer error interrupt programming outline

(2) Precautions for using the bus interface functions

(a) Programming precautions

- 1) Open/close processing
Perform the bus open and close processing (QBF_Open function/QBF_Close functions) only once at the beginning and end of the program respectively. Communication performance will decrease if open/close is repeated at each communication.
- 2) Simultaneous processing of bus interface functions
Bus interface functions are serialized in the C Controller module for processing.
When the MELSEC data link function are requested simultaneously in multiple tasks, one of the task starts its processing and the other tasks will have to wait until the processing is complete.
- 3) User watchdog timer error interrupt
When using the bus interface functions on multiple tasks, register the routine for the user watchdog timer error interrupt from one of the tasks.
- 4) Clock setting
When setting the clock of the C Controller module, confirm that both the QBF_WaitEvent and QBF_WaitUnitEvent functions are not in process.
- 5) Remote STOP/PAUSE and bus interface function execution result
When the operation status of the C Controller module is remote STOP or remote PAUSE, the execution result of the following operations by the user program will be STOP/PAUSE error.
 - Output (Y) (QBF_Y_OutBitExfunction, QBF_Y_OutWordEx function)
 - Buffer memory writing (QBF_ToBuf function)
 Y output and buffer memory writing can be executed from the <<Module monitoring>> tab of the C Controller setting utility.
- 6) The sequence program control function (QBF_ControlProgram function) can be executed only to the High Performance model QCPU.
- 7) For tasks that use bus interface functions, do not use a mutual-exclusion semaphore that specifies the SEM_INVERSION_SAFE option.

(b) Precautions for own station device access via CC-Link module

When accessing via a CC-Link module, create a user program that provides interlocks to enable write to/read from the own station device.

Data become effective only when the following conditions are satisfied.

- Module error (Xn0) is off (normal)
- Module ready (XnF) is on (operable)
- Own data link status (Xn1) is on (in data link)

Write to/read from the own station is terminated normally irrespective of the above conditions.

(c) Precautions for host station device access via MELSECNET/H module

When accessing via MELSECNET/H module, create a user program that provides interlocks to enable writing to/reading from the host station device.

Data become valid only when the following conditions are satisfied.

- Module status (SB20) is off (normal)
- Baton pass status of host station (SB47) is off (normal)
- Data link status of host station (SB49) is off (in data link)

Write to/read from the host station is terminated normally irrespective of the above conditions.

(d) Precautions for own station device access via CC-Link IE Controller Network module

When accessing via CC-Link IE Controller Network module, create a user program that provides interlocks to enable write to/read from the own station device.

Data become effective only when the following conditions are satisfied.

- Data link status of own station (SB49) is off (in data link)
- Data link status (the bit corresponding to the communication targets in SWB0 to B7 which is read from the own station) is off (normal)

Write to/read from the own station is terminated normally irrespective of the above conditions.

9.6 Precautions for Functions



This section provides precautions for the bus interface function and MELSEC data link function.

(1) Endian format (Memory layout)

There are two types of models for the Q06CCPU-V(-B), which are in little endian format (memory layout) and in big endian format.

Create user programs in either little or big endian that is appropriate to the model used.

(Set the compiler by selecting "A toolchain" when creating a project on Tornado.

(Page 9-17, Section 9.4.2)

(2) Execution type priority

Set the priority of a task for executing the FTP user program as described below.

(a) When access is not made via FTP during user program execution

Set the priority of the user program task to 100 or more (100 to 255).

If the priority is set within 0 to 99, the system may not operate properly.

(b) When access is made via FTP during user program execution

The actual FTP processing (task) of the C Controller module is performed at the priority of 200.

When accessing via FTP during user program execution, perform programming as described below.

- Set the priority of the user program task within 201 to 255.
- When setting the priority of the user program task within 100 to 200, insert wait processing (such as taskDelay) in the user program to enable the actual FTP processing.

(3) User program execution

Execute a user program by starting a task from the script file.

(Page 9-51, Section 9.9)

The system may malfunction if the user program is executed without a task being started.

(4) When communicating from utility while a user program is running

If a communication from utility may affect the user program, lower the task priority of utility communication than that of the user program.

9
PROGRAMMING USING BUS INTERFACE FUNCTIONS

10
PROGRAMMING USING MELSEC DATA LINK FUNCTIONS

11
PROGRAMMING USING VxWorks API FUNCTIONS

12
SAMPLE PROGRAMS

13
EVENT NUMBER LIST

(5) To communicate with a target device by Ethernet communication (excluding utility communications)

Check the port number being used in the C Controller module by using the VxWorks-standard "inetstatShow" command.

Do not use any port number that has already been used. Normal communication may not be available if used.

Execute the "inetstatShow" command as follows:

[For the Q12DCCPU-V]

Use the Telnet tool.

[For the Q06CCPU-V(-B)]

Execute from the Tornado Shell.

Example) When using the Telnet tool on the Q12DCCPU-V

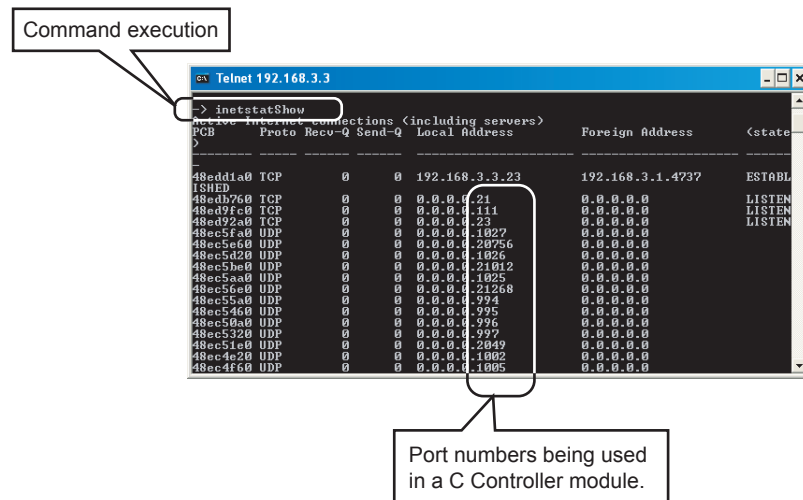


Figure 9.5 When using Telnet tool on the Q12DCCPU-V

(6) When writing a file from the user program by the Q06CCPU-V(-B)


Do not write a file to the standard ROM.

Write it to a CompactFlash card, network device (such as FTP/NFS/netDrv driver) file, or RAM disk.

For details of network devices and RAM disks, refer to the manual for VxWorks.

(7) CompactFlash card replacement

Refer to the C Controller Module User's Manual (Hardware Design, Function Explanation) when replacing the CompactFlash card while the power is on.

Close all the files being written if any. (Program example  Page 12-1, CHAPTER 12)

(8) When the operation status is changed from RUN to STOP/PAUSE

When the operation status of the C Controller module is changed from RUN to STOP/PAUSE, the user program task does not stop.

Use the QBF_Read StatusEx function when splitting the user program processing according to the operation status of the C Controller module.

(9) When a user watchdog timer cannot be reset

A user watchdog timer error occurs when the user watchdog timer cannot be reset due to some reasons such as user program runaway.

When a user watchdog timer has occurred, perform the following.

- Increase the WDT time set by the QBF_StartWDT function.
- Lower the CPU utilization of tasks that require high utilization.
Or set them not to operate.
- Review the user program.

After the above operations, reset the C Controller system.

For resetting, refer to the C Controller Module User's Manual (Hardware Design, Function Explanation).

(10) Relation between system tasks and the system watchdog timer, user watchdog timer, and link device refresh cycles

When using any of the following functions, set a sufficiently long time for each of the system watchdog timer, user watchdog timer, and link device refresh cycles.

- Shell command
- Workbench/Tornado connection
- File access
- Mount/unmount of CompactFlash card
- Ethernet communications
- NFS server communication

If any of the above is used, CPU utilization for a system task with high priority may increase and a system watchdog timer error, a user watchdog timer error, and link refresh timeout may occur more frequently.

For the link refresh timeout, the rate of occurrence may also increase when bus interface driver processing (connections with peripheral devices or communication with an intelligent function module, etc.) is used.

(11) IP address setting


The IP address of the C Controller module cannot be set from the user program. Set it in the <<Online operation>> tab of C Controller setting utility.

(12) Power off and reset during writing a user file

Data corruption or file system error may occur if the C Controller system is powered off or is reset (including remote RESET) during writing data to the user file in the standard RAM, standard ROM, or CompactFlash card.

To power off or reset the C Controller system, perform the following first.

(a) When writing data to a file in the standard RAM or standard ROM

Close the file where data are being written. (Program example  Page 12-1, CHAPTER 12)

(b) When writing data to a file in a CompactFlash card

Close the file where data are being written, and unmount the CompactFlash card.

(Program example  Page 12-1, CHAPTER 12)

For halting the CompactFlash card processing, refer to the C Controller Module User's Manual (Hardware Design, Function Explanation)

(13) Login user

The login user settings are cleared and return to default when the C Controller module is powered off or is reset.

To retain the login user settings, describe a registration (adding/deleting) of the settings in a script file.

Describe either of the following in the script file.

- Directly describe the login user operation commands (loginUserAdd function or loginUserDelete function).
- Provide a description that starts the user program task for login user operation.

For login user settings, refer to the C Controller Module User's Manual (Hardware Design, Function Explanation).

(14) VxWorks real-time process applications

The C Controller module does not support applications running in VxWorks real-time process.

Create a user program as an application based on the VxWorks kernel.

(15) Functions that can be used in the interrupt routine (interrupt program) of the Q12DCCPU-V

The following functions can be used in the interrupt routine (interrupt program) of the Q12DCCPU-V.

- Bus interface function for ISR
- QBF_RegistEventLog
- QBF_WriteSRAM
- QBF_ReadSRAM

Do not use bus interface functions and MELSEC data link functions other than the above in the interrupt routine (interrupt program). Using any of those functions may cause the operating system to run away.

When using the functions offered by the operating system, understand the restrictions on Interrupt Service Routine of VxWorks 6.4.

For the restrictions on Interrupt Service Routine of VxWorks 6.4, refer to VxWorks Kernel Programmer's Guide 6.4.

(16) Functions that can be used in the interrupt routine (interrupt program) registered by the QBF_EntryWDTInt function when using the Q06CCPU-V(-B)

The following functions can be used in the interrupt routine (interrupt program) registered by the QBF_EntryWDTInt function when using the Q06CCPU-V(-B).

- QBF_RegistEventLog
- QBF_WriteSRAM
- QBF_ReadSRAM

Do not use bus interface functions other than the above or MELSEC data link functions in the interrupt routine (interrupt program). Using any of those functions may cause the operating system to run away.

When using the functions offered by the operating system, understand the restrictions on Interrupt Service Code of VxWorks 5.4.

For the restrictions on Interrupt Service Code of VxWorks 5.4, refer to VxWorks Kernel Programmer's Guide 5.4.

9.7 Precautions for Program Debugging

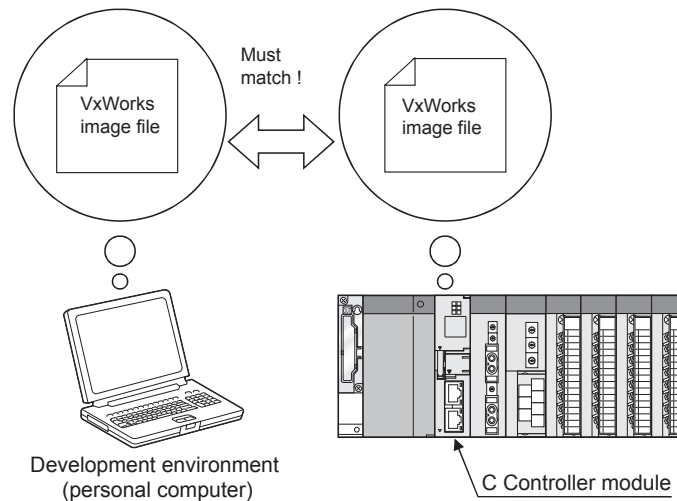


9.7.1 For Q12DCCPU-V

(1) Specifying a VxWorks image file and IP address

To debug the user program, specify the following for Workbench.

- IP address of the C Controller module
- The same VxWorks image file as that of the C Controller module



(a) Specifying method

- 1) Check that the VxWorks image file in the system memory of the development environment (personal computer) is identical with that of the C Controller module.

(☞ Page 9-33, Section 9.7.1 (1) (b))

- 2) Start Workbench.
- 3) Right-click on the "Target Manager" window.
Select [New] → [Connection] to open the "New Connection" dialog box.
- 4) Select "Wind River VxWorks 6.x Target Server Connection" and click the button.

5) Set "Backend settings" as follows.

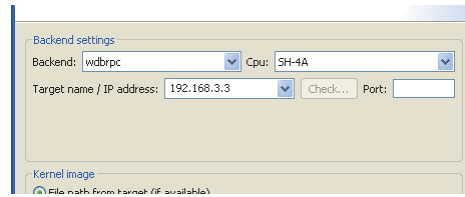
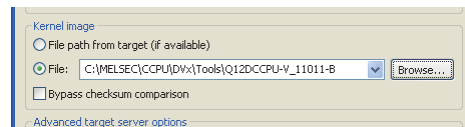


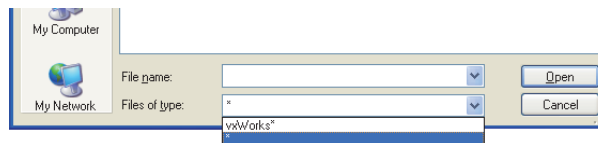
Table 9.4 Backend settings

Item	Value
Backend:	wdbrpc
Cpu:	SH-4A
Target name / IP address:	192.168.3.3 (If the IP address of the C Controller module has been changed, enter the latest one.)
Port:	" " blank

6) Select the "File" radio button in the "Kernel image" field and click the **Browse** button.



7) Select "*" in "Files of type" to select the VxWorks image file and click the **Finish** button.



For the folder where the VxWorks image file is stored, refer to the following.

Page 9-33, Section 9.7.1 (1) (b)

(b) VxWorks image file

VxWorks image files are required to be copied from C Controller module to the development environment (personal computer) by FTP.

1) VxWorks image file storage source

VxWorks image files are stored in the following system drive of C Controller module.

Table 9.5 VxWorks image file storage source

Model	File
Q12DCCPU-V (Basic mode)	\\SYSTEMROM\OS_IMAGEFILE\Q12DCCPU-V_XXXXX-Y*1
Q12DCCPU-V (Extended mode)	\\SYSTEMROM\OS_IMAGEFILE\Q12DCCPU-V_XXXXX-Y_ModeEX*1

* 1 XXXXX: First five digits of the serial No. of the C Controller module

Y : Function version of the C Controller module

For the checking method of the serial No. and function version, refer to the following manuals.

Q12DCCPU-V(Basic mode):

C Controller Module User's Manual (Hardware Design, Function Explanation)

Q12DCCPU-V(Extended mode):

Setting/Monitoring Tools for the C Controller Module Operating Manual

2) VXWorks image file copy destination

Copy the VxWorks image files from C Controller module to the development environment (personal computer) by FTP. (Page 9-46, Section 9.8)

Table 9.6 Example of VXWorks image file copy destination

Model	File
Q12DCCPU-V (Basic mode)	C:\MELSEC\CCPU\DVx\Tools\
Q12DCCPU-V (Extended mode)	

3) When VxWorks image files are not identical

When the VxWorks image file of the development environment (personal computer) is not identical with that of the C Controller module, copy the image file from the C Controller module to the development environment (personal computer) via FTP. (Page 9-46, Section 9.8)

POINT

When the VxWorks image files in the C Controller module and in Workbench are not identical, a system watchdog timer error may occur in the C Controller module.

In addition, debugging cannot be performed normally.

Remark

For other debugging methods, refer to the manual for Workbench.

(2) Precautions for Telnet connection

If the line is disconnected during use of Telnet, it cannot be reconnected until TCP connection including the Telnet on the C Controller module side is timed out. If this occurs, reconnect it after timeout.

The timeout time for the C Controller module side Telnet (TCP) connection can be changed by setting the values in the calculation formula by the following setting methods.

[Calculation formula]

Timeout time is determined by the following calculation formula.

$\text{Timeout time} = \text{net.inet.tcp.keepidle} + (\text{net.inet.tcp.keepintvl} \times 8 \text{ (Retry count)}^{*1}) \text{ [ms]}$ <p>Default value of the C Controller module: 30000 (30 sec.) Default value of VxWorks: 7800000 (2 hr. 10 min.)</p>
--

net.inet.tcp.keepidle: Time from line disconnection to the first retry (ms)
Initial value for C Controller module: 22000
Initial value for VxWorks: 7200000

net.inet.tcp.keepintvl: Retry interval (ms)
Initial value for C Controller module: 1000
Initial value for VxWorks: 75000

* 1 The number of retries cannot be changed.

[Setting method]

The following explains how to set the initial value to 30 seconds.

- Setting while the C Controller module is in operation
 - 1) Connect the line to the C Controller module with the Telnet tool.
 - 2) Execute the following two Sysctl() commands with the Telnet tool to set the timeout time to the initial value.

<pre>Sysctl("net.inet.tcp.keepidle = 22000") Sysctl("net.inet.tcp.keepintvl = 1000")</pre>
--

- 3) Close the Telnet connection.

- Setting at the timing of starting C Controller module
 - 1) Describe the following two Sysctl() commands on the script file, "STARTUP.CMD".

<pre>Sysctl("net.inet.tcp.keepidle = 22000") Sysctl("net.inet.tcp.keepintvl = 1000")</pre>
--

- 2) Write the above script file, "STARTUP.CMD" to a CompactFlash card, and insert it into the C Controller module.
- 3) Upon start of the C Controller module, the timeout time is set to the initial value.

(3) Precautions for executing a Shell command from Workbench Shell or the Telnet tool

1) When executing a Shell command from Workbench Shell

When executing a Shell command from Workbench Shell, pay attention to the following since the entered Shell commands operate on the task of priority 1 in the C Controller module.

- Only alphanumeric characters and special characters can be used.
- Some commands, such as those exclusively using the CPU module and those including characters other than alphanumeric characters and special characters, may be regarded as a command causing a watchdog timeout error, a control code (such as "CTRL + X"), or being garbled. As a result, a system error, such as a system watchdog timer error, or stop may occur in the C Controller module. Pay full attention to the command when entering it.
- Some commands (example: the status-indicating Show command) may disable an interrupt for a long time.

During the time, processing called from an interrupt routine (interrupt program) (example: bus interface functions for ISR) is not executed.

Interrupts that are expected to occur at fixed intervals, such as multiple CPU synchronous interrupt, may delay. When executing a command, pay attention to the above.

A VxWorks message may appear on Shell during connecting from Shell to the C Controller module.

For messages of VxWorks, refer to the manual for VxWorks or Workbench.

2) When executing the Shell command from the Telnet tool

Make one to one connection between the Telnet tool and the C Controller module.

Connection cannot be made from multiple Telnet tools to the same C Controller module.

When exchanging the Telnet tool with another, first close the connection with the currently used Telnet tool, and then connect the line to the C Controller module from another Telnet tool.

The Shell commands entered by the Telnet tool of the development environment (personal computer) operate on the task of priority 1 in the C Controller module.

Pay full attention to the command when entering it.

When using a Shell command, pay attention to the following.

- Only alphanumeric characters and special characters can be used.
- Some commands, such as those exclusively using the CPU module and those including characters other than alphanumeric characters and special characters, may be regarded as a command causing a watchdog timeout error, a control code (such as "CTRL + X"), or being garbled. As a result, a system error, such as a system watchdog timer error, or stop may occur in the C Controller module. Pay full attention to the command when entering it.
- Some commands (example: the status-indicating Show command) may disable an interrupt for a long time.
During the time, processing called from an interrupt routine (interrupt program) (example: bus interface functions for ISR) is not executed. Interrupts that are expected to occur at fixed intervals, such as multiple CPU synchronous interrupt, may delay. When executing a command, pay attention to the above.

A VxWorks message may appear on the Telnet tool screen during a Telnet connection to the C Controller module.

For messages of VxWorks, refer to the manual for VxWorks or Workbench.

- 3) When executing the Shell command from Workbench Shell or the Telnet tool
 - Execution of VxWorks reboot command
Do not reboot VxWorks by executing the reboot function or pressing the CTRL + X keys.*1
If VxWorks is rebooted, the C Controller module does not start properly. Reset it in the C Controller module.
For resetting, refer to the C Controller Module User's Manual (Hardware Design, Function Explanation).

* 1 Do not enter characters other than alphanumeric characters or special characters in Shell either since they may be regarded as a control code.

- Execution of command without argument specified
If a command that requires an argument is executed without any argument specified, 0 is substituted for the argument. A system error or stop (such as a system watchdog timer error) may occur in the C Controller module depending on the command (example: command that occupies CPU processing).
Before executing a command, confirm the specifications and specified argument of the command.

Example)

Do not execute the "close" command without an argument. If executed, the resource reserved in the VxWorks system will be closed.

(4) Precautions for debugging from Workbench

- (a) When downloading by specifying the user program from Workbench

A system error or stop (such as a system watchdog timer error) may occur in the C Controller module during downloading if the program is too large.

When a system error or stop (such as a system watchdog timer error) has occurred, take either of the following measures.

- Increase the value of "WDT (watchdog timer) setting" on the System settings tab of the C Controller setting utility.
- Load the program in the C Controller module before debugging.

An interrupt to the C Controller module may be disabled during debugging.

During the time, processing called from an interrupt routine (interrupt program) (example: bus interface functions for ISR) is not executed.

Interrupts that are expected to occur at fixed intervals, such as multiple CPU synchronous interrupt, may delay. For debugging from Workbench, pay attention to the above.

- (b) When restarting the C Controller module

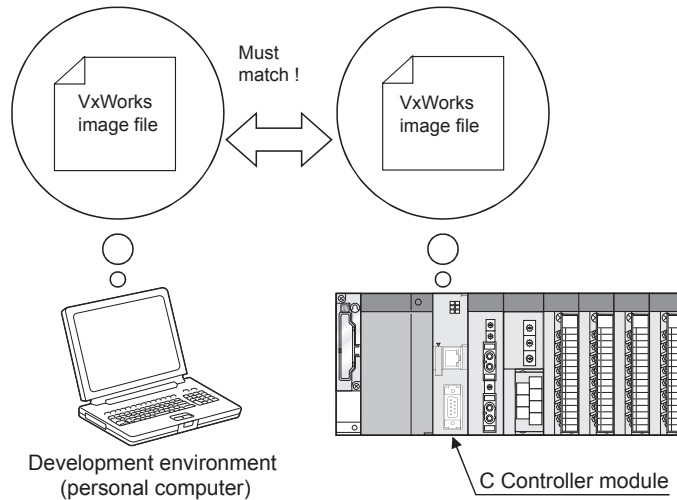
Before restarting the C Controller module, disconnect the connection with Workbench.

Failure to do so may cause an error in the C Controller module.

9.7.2 For the Q06CCPU-V(-B)

(1) Specifying a VxWorks image file

To debug the user program, specify the same VxWorks image file as that of the C Controller module for Tornado.



(a) Specifying method of VxWorks image file

- 1) Check that the VxWorks image file in the system memory of the development environment (personal computer) is identical with that of the C Controller module.
(☞ Page 9-39, Section 9.7.2 (1) (b))
- 2) Start Tornado.
- 3) Select [Tools]→[Target Server]→[Configure] to open the "Configure Target Servers" dialog box.
- 4) Select "Core File and Symbols" in the "Target Server Properties" pull-down menu.
- 5) Select the "File" radio button and specify the storage location of the VxWorks image file to the text box.
For the VxWorks image file copy destination, refer to the following section.
(☞ Page 9-39, Section 9.7.2 (1) (b))
- 6) Click the button.

The following screen provides an example of specifying the VxWorks image file whose serial No. (first five digits) and the function version is "09051" and "B" respectively.

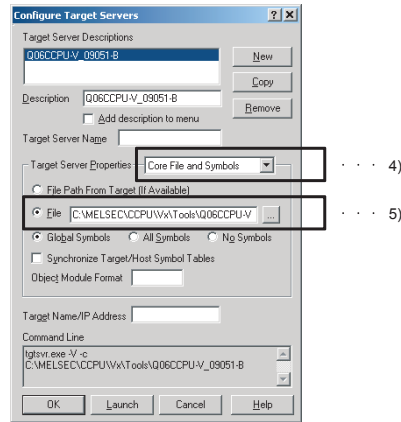


Figure 9.6 VxWorks image file specification

(b) VxWorks image file

VxWorks image files are required to be copied from C Controller module to the development environment (personal computer) by FTP.

1) VxWorks image file storage source

VxWorks image files are stored in the following system drive of C Controller module.

Table 9.7 VxWorks storage source

Model	File
Q06CCPU-V	\SYSTEMROM\OS_IMAGEFILE\Q06CCPU-V_XXXXX-Y*1
Q06CCPU-V-B	\SYSTEMROM\OS_IMAGEFILE\Q06CCPU-V-B_XXXXX-Y*1

* 1 XXXXX: First five digits of the serial No. of the C Controller module

Y : Function version of the C Controller module

For the checking method of the serial No. and function version, refer to the C Controller Module User's Manual (Hardware Design, Function Explanation).

2) VxWorks image file copy destination

Copy the VxWorks image files from C Controller module to the development environment (personal computer) by FTP. (☞ Page 9-46, Section 9.8)

Table 9.8 Example of VxWorks image file copy destination

Model	File
Q06CCPU-V	C:\MELSEC\CCPU\Wx\Tools\
Q06CCPU-V-B	C:\MELSEC\CCPU\WxB\Tools\

3) When VxWorks image files are not identical

When the VxWorks image file in the development environment (personal computer) is not identical with that of the C Controller module, copy the image file from the C Controller module to the development environment (personal computer) via FTP. (☞ Page 9-46, Section 9.8)

POINT

When the VxWorks image files in the C Controller module and in Workbench are not identical, a system watchdog timer error may occur in the C Controller module. In addition, debugging cannot be performed normally.

Remark

For other debugging methods, refer to the manual for Tornado.

(2) IP address setting of C Controller module

To debug the user program by connecting the development environment (personal computer) with the C Controller module in Ethernet, specify the IP address of the C Controller module to Tornado.

- 1) Start Tornado.
- 2) Select [Tools]→[Target Server]→[Configure] from the menu bar to open the "Configure Target Servers" dialog box.
- 3) Select "Back End" in the "Target Server Properties" pull-down menu.
- 4) Select "wdbipc" from the "Available Back Ends" list.
- 5) In "Target Name/IP Address", set the IP address of the C Controller module to be connected.

As the IP address for the C Controller module, set the same value as in "IP address" in the <<Online operation>> tab of the C Controller setting utility.

- 6) Click the **OK** button.

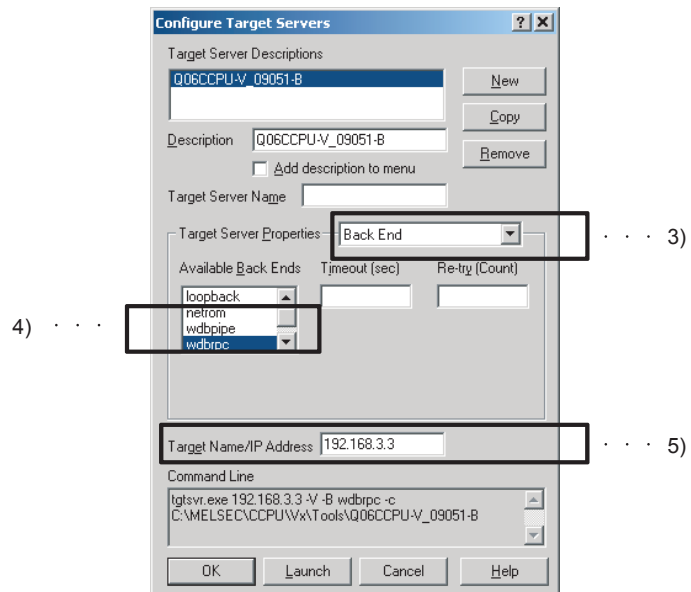


Figure 9.7 IP address setting of the C Controller module

Remark

For other debugging methods, refer to the manual for Tornado.

(3) Symbol information synchronization setting

To debug the user program, the symbol information of the C Controller module and that of the development environment (personal computer) must be synchronized.

- 1) Start Tornado.
- 2) Select [Tools]→[Target Server]→[Configure] to open the "Configure Target Servers" dialog box.
- 3) Select "Core File and Symbols" in the "Target Server Properties" pull-down menu.
- 4) Check the "Synchronize Target/Host Symbol Tables" checkbox.
- 5) Click the **OK** button.

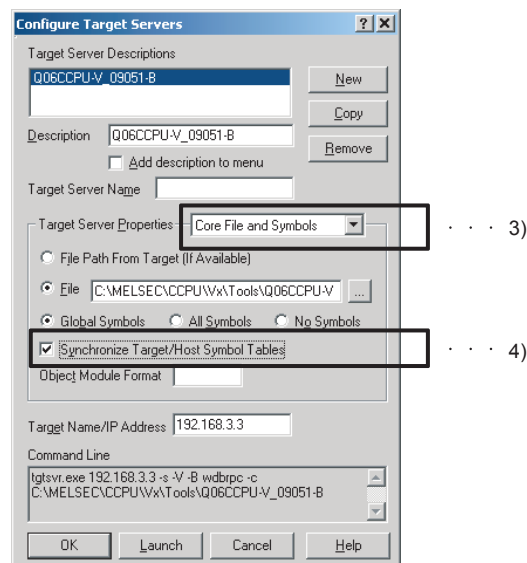


Figure 9.8 Symbol information synchronization setting

- 6) Select [Tools]→[Options] from the menu bar to open the "Options" dialog box, and select the "Tornado Registry" tab.
- 7) Select the "Remote registry" radio button and specify the IP address or host name of the development environment (personal computer).
- 8) Click the **OK** button.

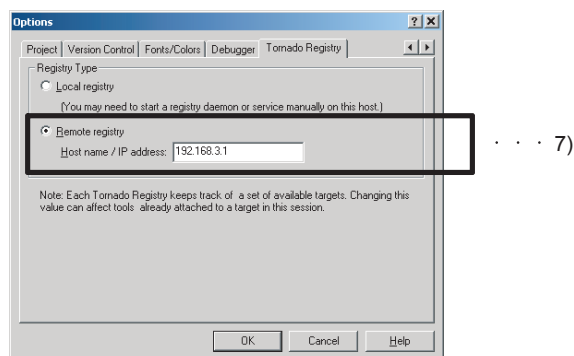


Figure 9.9 Development environment (personal computer) IP address setting

Remark

For other debugging methods, refer to the manual for Tornado.

(4) Shell display setting

To display output information (such as printf) from each task of the C Controller module, the following setting is required.

Without the following setting, only the output information on the Shell task is displayed.

- 1) Start Tornado.
- 2) Select [Tools]→[Target Server]→[Configure] to open the "Configure Target Servers" dialog box.
- 3) Select "Console and Redirection" in the "Target Server Properties" pull-down menu.
- 4) Check the "Redirect Target IO" checkbox.
- 5) Click the button.

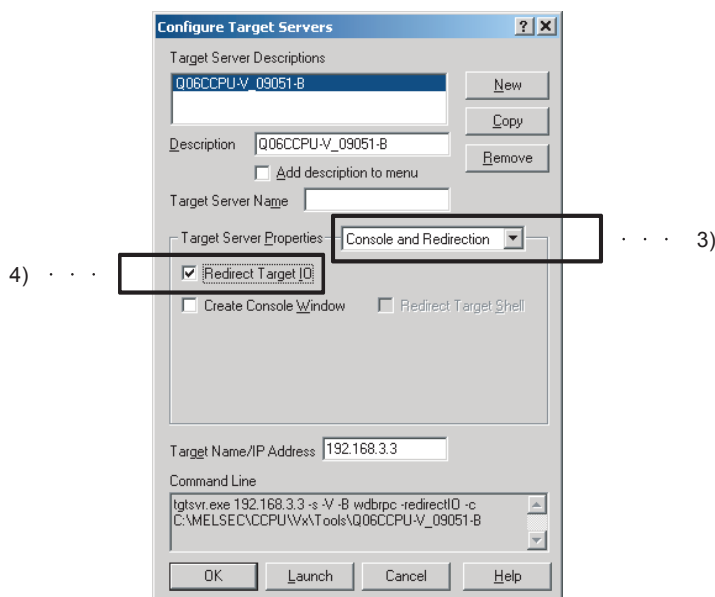


Figure 9.10 Shell display setting

Remark

For other debugging methods, refer to the manual for Tornado.

(5) Precautions for Telnet connection

If the line is disconnected during use of Telnet, it cannot be reconnected until TCP connection including the Telnet on the C Controller module side is timed out. If this occurs, reconnect it after timeout.

The timeout time for the C Controller module side Telnet (TCP) connection can be changed by setting the values in the calculation formula by the following setting methods.

[Calculation formula]

The timeout time is determined by the following calculation formula.

$$\text{Timeout time} = \text{tcp_keepidle} + (\text{tcp_keepintvl} \div 2 \times \text{tcp_keepcnt}) [\text{s}]$$

Initial value: 15000 (4 hours and 10 minutes)

tcp_keepidle: Time from disconnection to the first retry (s)

Initial value: 14400

tcp_keepintvl: Retry interval (in 0.5s units)

Initial value: 150

tcp_keepcnt: Number of retries

Initial value: 8

[Setting method]

The following explains how to set the initial value to 4 hours and 10 minutes.

- Setting while the C Controller module is in operation
 - 1) Connect the line to the C Controller module with the Telnet tool.
 - 2) Set the following three external variables with the Telnet tool to change the timeout time to the initial value.

```
tcp_keepidle = 14400
tcp_keepintvl = 150
tcp_keepcnt = 8
```

- 3) Close the Telnet connection.

- Setting at the timing of starting C Controller module
 - 1) Describe the following three external variable settings on the script file, "STARTUP.CMD".

```
tcp_keepidle = 14400
tcp_keepintvl = 150
tcp_keepcnt = 8
```

- 2) Write the above script file, "STARTUP.CMD" to a CompactFlash card, and insert it into the C Controller module.
- 3) Upon start of the C Controller module, the timeout time is set to the initial value.

(6) Precautions for executing Shell commands from Tornado Shell or the Telnet tool

- 1) When executing the Shell command from Tornado Shell, pay attention to the following since the entered Shell commands operate on the task of priority 1 in the C Controller module.
 - Only alphanumeric characters and special characters can be used.
 - Some commands, such as those exclusively using the CPU module and those including characters other than alphanumeric characters and special characters, may be regarded as a command causing a watchdog timeout error, a control code (such as "CTRL + X"), or being garbled. As a result, a system error, such as a system watchdog timer error, or stop may occur in the C Controller module. Pay full attention to the command when entering it.

A VxWorks message may appear on the Telnet tool screen during a Telnet connection to the C Controller module.

For messages of VxWorks, refer to the manual for VxWorks or Tornado.

- 2) When executing the Shell command from the Telnet tool
Make one-to-one connection between the Telnet tool and the C Controller module.

Connection cannot be made from multiple Telnet tools to the same C Controller module.

When exchanging the Telnet tool with another, first close the connection with the currently used Telnet tool, and then connect the line to the C Controller module from another Telnet tool.

Pay attention to the following since the Shell commands entered by the Telnet tool of the development environment (personal computer) operate on the task of priority 2 in the C Controller module.

When using Shell commands, pay attention to the following.

- Only alphanumeric characters and special characters can be used.
- Some commands, such as those exclusively using the CPU module and those including characters other than alphanumeric characters and special characters, may be regarded as a command causing a watchdog timeout error, a control code (such as "CTRL + X"), or being garbled. As a result, a system error, such as a system watchdog timer error, or stop may occur in the C Controller module. Pay full attention to the command when entering it.

A VxWorks message may appear on the Telnet tool screen during a Telnet connection to the C Controller module.

For messages of VxWorks, refer to the manual for VxWorks or Tornado.

3) When executing the Shell command from Tornado Shell or the Telnet tool

- Execution of VxWorks reboot command

Do not reboot VxWorks by executing the reboot function or pressing the CTRL + X keys.*1

If VxWorks is rebooted, the C Controller module does not start properly. Reset it in the C Controller module.

For resetting, refer to the C Controller Module User's Manual (Hardware Design, Function Explanation).

* 1 Do not enter characters other than alphanumeric characters or special characters in Shell either since they may be regarded as a control code.

- Execution of command without argument specified

If a command that requires an argument is executed without any argument specified, 0 is substituted for the argument. Some commands may cause a system error or stop (such as a system watchdog timer error) in the C Controller module. Before executing a command, confirm the specifications and specified argument of the command.

Example)

Do not execute the close command without the argument specified. If executed, the resource reserved in the VxWorks system will be closed.

9.8 Program Registration



To register respective file to the C Controller module, write the file to a standard RAM or standard ROM of the C Controller module or a CompactFlash card.

Table 9.9 How to write to each drive

Writing method	Program storage location			
	Standard RAM	Standard ROM	CompactFlash card	RAM disk (When creating a RAM disk)
Registration via FTP	○	○	○	○
Copy registration from CompactFlash card	○	○	×	○
Copy registration from development environment (personal computer) to CompactFlash card	×	×	○	×

○: Available, ×: N/A

POINT

Before registering a file to the standard RAM, standard ROM, or a CompactFlash card, close all the tasks running on the C Controller module.

(1) Registration via FTP

This section explains file registration to the C Controller module via FTP.

(a) Drives and operations allowed via FTP

The following table indicates the drive names and operations allowed for registration via FTP.

Table 9.10 Drives available for FTP

Drive	Drive name	Operation
Standard RAM	/RAM	Write/read available
Standard ROM	/ROM	Write/read available
CompactFlash card	/CF	Write/read available
System drive	/SYSTEMROM	Only read available
RAM disk (When creating a RAM disk) ^{*2}	/RAMDISK ^{*1}	Write/read available

* 1 This drive name is for the sample program (MakeRAMDisk.c).

Do not use "/RAM", "/ROM", "/CF", or "/SYSTEMROM" for a drive name of a RAM disk. The system may not operate properly if any of the above name is used.

* 2 The RAM disk drive name is not displayed in Windows® Explorer for the following C Controller module.

- Q12DCCPU-V with serial number (first five digits) "12041" or earlier

- The Q06CCPU-V(-B) with the serial No. (first five digits) "12081" or higher.

For the above C Controller module, enter the drive name directly in the address field of Explorer.

Example) When the RAM disk drive name is "/RAMDISK," enter the following.

ftp://192.168.3.3/RAMDISK

(b) Login user when using FTP

The following indicates the login user data (user name, password) when using FTP.

Table 9.11 Login user defaults

Item	Value
User name	"target"
Password	"password"

For addition or change of the login user etc. other than above, refer to the C Controller Module User's Manual (Hardware Design, Function Explanation).


(c) Precautions for program registration via FTP

1) Login user setting

The user login setting of the C Controller module is for limiting users and setting operation of the C Controller module. It does not completely prevent illegal access from the outside.

2) When security against illegal access from the outside is needed

Take measures at user's discretion when it is necessary to secure the safety of the C Controller system against illegal access from the outside.

( C Controller Module User's Manual (Hardware Design, Function Explanation))

3) When registering by overwriting using FTP

Before registering a file of the C Controller module by overwriting using FTP, close the file being opened by a user program.

If the registering the file by overwriting without closing them, the registration may fail.

4) Number of FTP tools that are simultaneously connectable

Up to 10 FTP tools can be simultaneously connected to the C Controller module.

Connection may become unavailable if the FTP tool is repeatedly used since Windows® Explorer does not immediately disconnect the connection when terminated.

When a connection is not available in Explorer, perform either of the following.

- Terminate Explorer from Windows® Task Manager.
- Reconnect 200 seconds after terminating Explorer.
- Use the FTP tool other than in Explorer.

5) Precautions for Internet Explorer6 Service Pack2

- When the following dialog box appeared, restart Internet Explorer6 Service Pack2 or use another FTP tool.

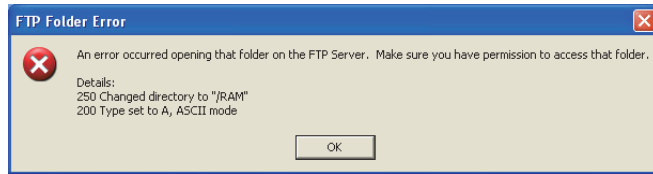


Figure 9.11 Dialog box

- When the file is not displayed in Internet Explorer6 Service Pack2 after registering it to the C Controller module, update the information by pressing the [F5] key.
If the file is found not registered, check the free space of the registration destination.
- When too many files are registered into the directory created in the C Controller module, the total size may not be displayed correctly.
In this case, use another FTP tool.

(d) Registration procedure using FTP

The following indicates an example procedure of a registration of a user program via FTP using Windows® Explorer.

- 1) Start Explorer and enter the address of the C Controller module into the Address bar in the following format.

ftp://<User name>:<Password>@<IP address of the C Controller module>
<Drive name.>

- Example) When logging into the standard RAM using the settings for module initialization of the Q12DCCPU-V
ftp://target:password@192.168.3.3/RAM

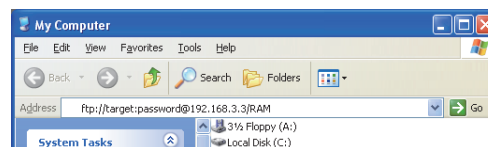


Figure 9.12 Logging into the standard RAM with the settings for module initialization

2) The screen display after logging in to the C Controller module is as follows.

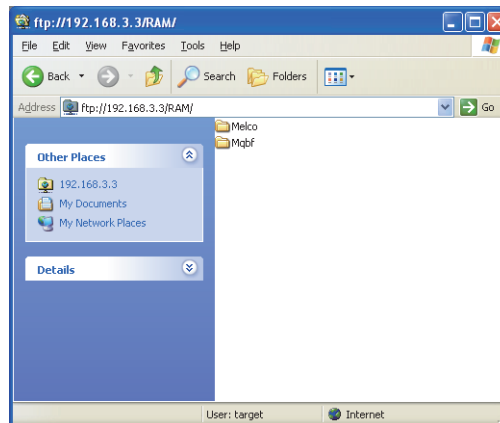


Figure 9.13 Connection via FTP

3) After logging in to the C Controller module, perform write and read just as normal file operations in Explorer.

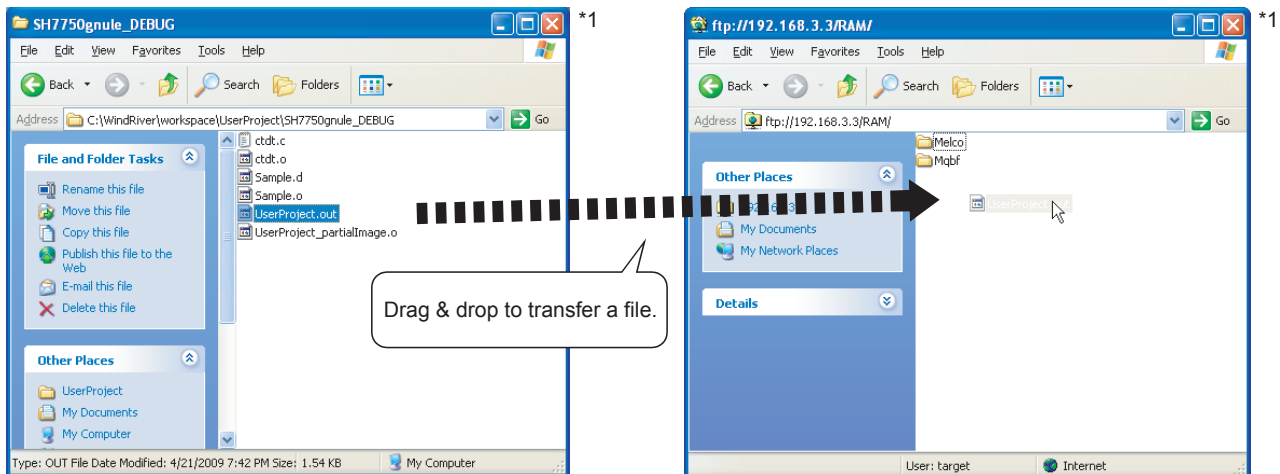


Figure 9.14 File operation

POINT

- Other than Explorer, registration via FTP is available by Internet Explorer and the FTP command which is started up from command prompt.
(For error messages of Internet Explorer, go to Microsoft® Help and Support, enter keyword such as "Internet Explorer" and "FTP", and check the information.)
- If registration by FTP fails when using Internet Explorer7, use other FTP tools such as Explorer.

(2) Copy registration from a CompactFlash card to the standard RAM

The following explains copy registration of the files in the CompactFlash card to the standard RAM of the C Controller module.

This operation is not available on the Q06CCPU-V(-B).

This operation allows to easily register the same user programs to multiple C Controller modules.

In the following copy registration procedure, an example with "STARTUP.CMD" is used as a script file for installation into the standard RAM.

(a) Copy registration procedure from CompactFlash card to standard RAM

- 1) Install the CompactFlash card into the development environment (personal computer) and write the following files to it.

Table 9.12 Written file list

File name	Description
STARTUP.CMD	Script file for installation into the standard RAM
STARTUP.RAM	Script file to be used in the standard RAM
*****.out	User program to be used in the standard RAM

- 2) Remove CompactFlash card from the development environment (personal computer), and install it in the C Controller module.
- 3) Power on the C Controller module.
- 4) The installation script file "STARTUP.CMD" in the CompactFlash card is started and each file in the CompactFlash card is copied to the standard RAM of the C Controller module.
- 5) When copying is completed, the "sysLedSet" command is executed, and "FF" is displayed in the 7-segment LED.
- 6) After confirming that "FF" is displayed in the 7-segment LED, power off the C Controller module and remove the CompactFlash card.
- 7) When the C Controller module is powered on, the script file copied into the standard RAM is started and a user program is executed.

(b) Program example of script file for installation into standard RAM

```
STARTUP.CMD
copy "/CF/project.out", "/RAM/project.out" ← 1)
copy "/CF/STARTUP.RAM", "/RAM/STARTUP.CMD" ← 2)
sysLedSet(0xFF) ← 3)
```

- 1) The user program "project.out" in the CompactFlash card is copied as the user program "project.out" of the standard RAM.
- 2) The script file for standard RAM "STARTUP.ROM" in the CompactFlash card is copied as the script file "STARTUP.CMD" of the standard RAM.
- 3) Describe the command "sysLedSet(0xFF)" at the end of the installation script file for confirmation of the completion of the copy.

Figure 9.15 Program example of a script file for installation

9.9 Creating a Script File "STARTUP.CMD"

**(1) Definition of script file**

"STARTUP.CMD" is a script file of a user program which starts in booting up of the C Controller module, and it contains the loading location, startup order, parameter setting, etc. of the user program.

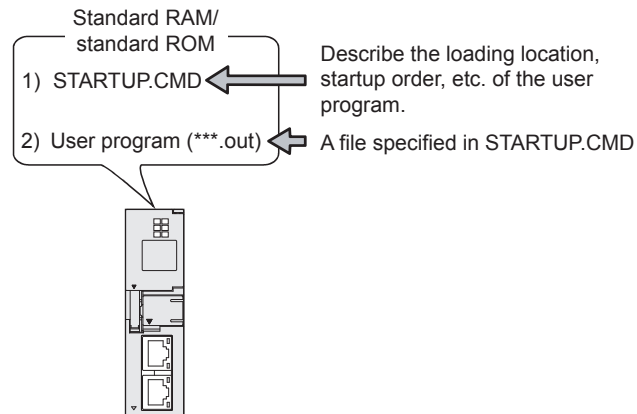


Figure 9.16 Script file is stored into the standard RAM or standard ROM

(2) Precautions for creating a script file**(a) Restrictions on command description**

In the script file, only one command can be described in one line.

For the Q06CCPU-V(-B), up to 128 characters can be specified in one command (in one line).

If more than 128 characters are specified, the following stop error occurs.

- Other (error code: 2502, CAN'T EXE.PRG.)

The error (event No.:0xC0000111) is registered to the event history. (☞ Page 13-5, CHAPTER 13 (6))

(b) Argument that can be specified for one command.

Up to 12 arguments can be specified for one command.

(c) When C++ function is executed in a script file

Describe the function declaration part of C++ source code as follows.

```
extern "C" { Function declaration part }
```

(d) At user program start

Describe a command that starts the task (priority 100 to 255) when the user program is executed.

The system may malfunction if the user program is executed without the task being started.

(e) Description of comment statement

To describe a comment statement, describe "/" at the beginning of a command (line).

The line where "/" has been described is handled as a comment statement.

No restrictions are applied on the number of characters in a comment statement.

(f) Task activation

Always specify the VX_FP_TASK option for the third argument of taskSpawn when activating a task that:

- Performs floating-point operations.
- Calls a function that returns a floating-point value.
- Calls a function that takes a floating-point value as an argument.

If the above task is activated without the VX_FP_TASK option specified, the operating system may run away.

Use the following value when specifying a VX_FP_TASK option for the third argument of taskSpawn in a script file.

Table 9.13 VX_FP_TASK values

C Controller module	VX_FP_TASK value
Q12DCCPU-V	0x1000000
Q06CCPU-V(-B)	0x8

Example) When activating the "funcA" function with the VX_FP_TASK option specified:

```
< For the Q12DCCPU-V>
taskSpawn("taskA",100,0x1000000,20000,funcA,0,0,0,0,0,0)
<For the Q06CCPU-V(-B)>
taskSpawn("taskA",100,0x8,20000,funcA,0,0,0,0,0,0)
```

For details on the VX_FP_TASK option, refer to the following.

Manuals for VxWorks

Remark

1. Depending on the description in the script file, the following operation can be performed from the CompactFlash card to the standard RAM or standard ROM (excluding the Q06CCPU-V-B).
 - Copy registration of a program to the standard RAM or standard ROM (Page 9-46, Section 9.8)
 - Standard RAM and standard ROM formatting (C Controller Module User's Manual (Hardware Design, Function Explanation))
2. Commands described in a script file are identical with those described in the startup script file for VxWorks. (Manual for VxWorks)
3. The RUN LED of the C Controller module flashes while the script file (command) is in process.
4. For precautions for the user program, refer to the following.
 - Page 9-23, "9.5 Programming Flow for Bus Interface Functions"
 - Page 9-26, "9.6 Precautions for Functions"
 - Page 10-5, "10.5 MELSEC Data Link Function Programming Flow"

In the script file, describe commands used for login user setting (addition/change) and user program task start as necessary.
For login user, refer to the C Controller Module User's Manual (Hardware Design, Function Explanation).
6. For the sample program of the script file, refer to the following.
 - Page 12-1, "CHAPTER 12 SAMPLE PROGRAMS"

(3) Script file storage location

The script file can be stored into the standard RAM, standard ROM, and CompactFlash card.

(a) Script file storage location

Store the script file in the root directory.

- Standard RAM
Root directory of standard RAM "/RAM"
- Standard ROM
Root directory of standard ROM "/ROM"
- CompactFlash card
Root directory of CompactFlash card "/CF"

(b) When a script file is stored into either the standard RAM or standard ROM and CompactFlash card

When a script file is stored into either the standard RAM or standard ROM and CompactFlash card, the one in the CompactFlash card is started by priority. (The script file in the standard RAM or standard ROM is ignored.)

For example, the script file used for maintenance can be processed by installing the Compact Flash card with a maintenance script file stored, even when the script file in the standard RAM or standard ROM is used for system operation.

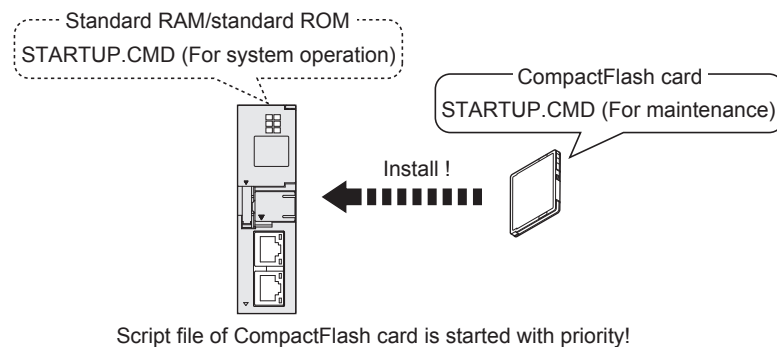


Figure 9.17 Example of the use when script files are stored in both locations

(4) Example of script file description

The following provides an example of describing the script file to start user programs on the Q12DCCPU-V.

(a) When loading the user program from the script file in the standard RAM

The following is an example of loading a user program ("fileA.out", "fileB.out") in the standard RAM from the script file in the standard RAM.

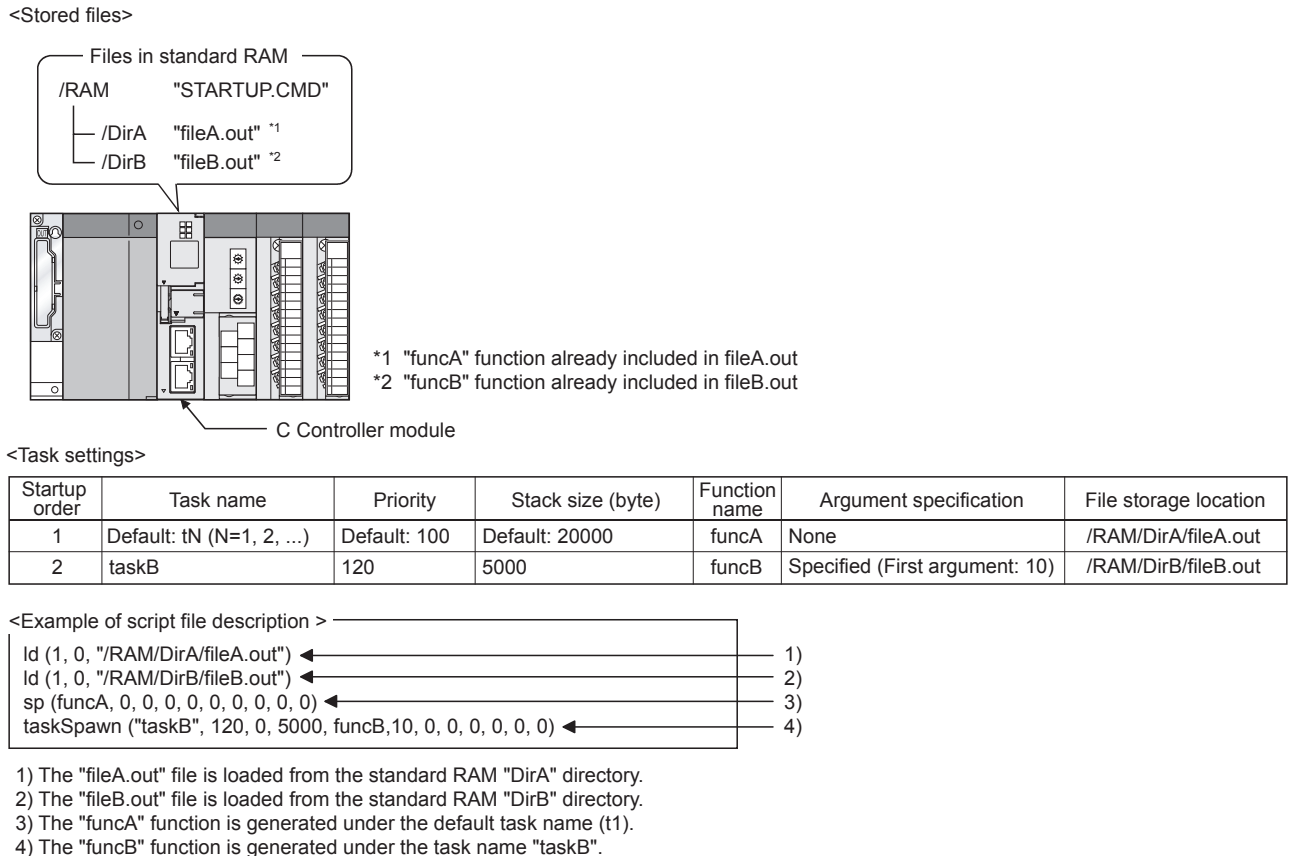


Figure 9.18 Example of script file description (loaded from standard RAM)

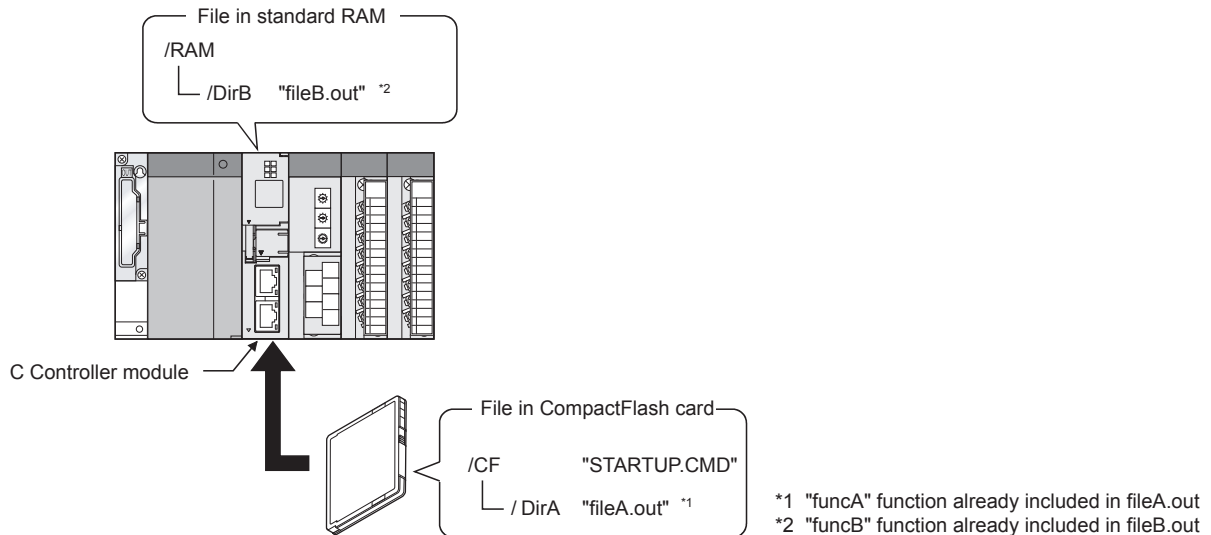
POINT

Since the maximum number of arguments to be specified for one command is 12, up to seven arguments can be given to the function entry specified in taskSpawn (funcB in the above example).

The task will not start if eight or more arguments are specified for the function entry specified in task Spawn (funcB in the above example).

(b) When loading the user program from the script file in CompactFlash card
 The following provides an example of loading user programs ("fileA.out", "fileB.out") in the standard RAM and CompactFlash card from the script file in the CompactFlash card.

<Stored files>



<Task settings>

Startup order	Task name	Priority	Stack size (byte)	Function name	Argument specification	File storage location
1	Default: tN (N=1, 2, ...)	Default: 100	Default: 20000	funcA	None	/CF/DirA/fileA.out
2	taskB	120	5000	funcB	Specified (First argument: 10)	/RAM/DirB/fileB.out

<Script file description example>

```

ld (1, 0, "/CF/DirA/fileA.out") ← 1)
ld (1, 0, "/RAM/DirB/fileB.out") ← 2)
sp (funcA, 0, 0, 0, 0, 0, 0, 0, 0) ← 3)
taskSpawn ("taskB", 120, 0, 5000, funcB, 10, 0, 0, 0, 0, 0) ← 4)
    
```

- 1) The "fileA.out" file is loaded from the CompactFlash card "DirA" directory.
- 2) The "fileB.out" file is loaded from the standard RAM "DirB" directory.
- 3) The "funcA" function is generated under the default task name (t1).
- 4) The "funcB" function is generated under the task name "taskB".

Figure 9.19 Example of script file description (loaded from CompactFlash card)

POINT

Since the maximum number of arguments to be specified for one command is 12, up to seven arguments can be given to the function entry specified in taskSpawn (funcB in the above example).

The task will not start if eight or more arguments are specified for the function entry specified in task Spawn (funcB in the above example).

9.10 Device Types for Bus Interface Functions



The device types used for the bus interface functions can be specified either by the code number or device name indicated in this section.

(1) Motion CPU dedicated device types

The motion CPU dedicated device types can be specified in the argument sDevType of the QBF_MotionDDWR, QBF_MotionDDRD function.

Table 9.14 Motion CPU dedicated device types

| Device type | | | Device |
|--------------------|------|------------------------------|--------------------------|
| Code specification | | Device name specification *1 | |
| Dec. | Hex. | | |
| 1 | 1H | QBFDev_MCPU_X | Input (X) |
| 2 | 2H | QBFDev_MCPU_Y | Output (Y) |
| 3 | 3H | QBFDev_MCPU_L | Latch relay (L) *2 |
| 4 | 4H | QBFDev_MCPU_M | Internal relay (M) |
| 5 | 5H | QBFDev_MCPU_SM | Special relay (SM) *3 |
| 6 | 6H | QBFDev_MCPU_F | Annunciator (F) |
| 13 | DH | QBFDev_MCPU_D | Data register (D) |
| 14 | EH | QBFDev_MCPU_SD | Special register (SD) *4 |
| 23 | 17H | QBFDev_MCPU_B | Link relay (B) |
| 24 | 18H | QBFDev_MCPU_W | Link register (W) |
| 61 | 3DH | QBFDev_MCPU_MR | Motion register (#) |

* 1 The device name specification (macro) is defined in the include file "QbfFunc.h" of the bus interface function. (Page 9-9, Section 9.4)

* 2 For the Q172DCPU and Q173DCPU, L (latch relay) cannot be used.

* 3 When SM (special relay) is specified in sDevType, the ulDevNo specification is as follows.
 [When using the Q172DCPU or Q173DCPU]
 0 to 1999 (SM2000 to SM2255 are SM compatibility areas in the Motion CPU other than the Q172DCPU and Q173DCPU.)
 [When using the Motion CPU other than the Q172DCPU and Q173DCPU]
 0 and higher (corresponds to M9000 and higher areas in the Motion CPU)

* 4 When SD (special register) is specified in sDevType, the ulDevNo specification is as follows.
 [When using the Q172DCPU or Q173DCPU]
 0 to 1999 (SD2000 to SD2255 are SD compatibility areas in the Motion CPU other than the Q172DCPU and Q173DCPU.)
 [When using the Motion CPU other than the Q172DCPU and Q173DCPU]
 0 and higher (corresponds to M9000 and higher areas in the Motion CPU)

(2) Device types for accessing CC-Link IE Controller Network modules or MELSECNET/H modules

Specify the device type for accessing a CC-Link IE Controller Network module or MELSECNET/H module with the argument QBF_WriteLinkDevice or QBF_ReadLinkDevice function.

In the user program, either of the following two link device accessing methods can be selected by specifying the device.

(a) Internal buffer access**Table 9.15 Device types for internal buffer access**

| Device type | | | Device |
|--------------------|------|---|---|
| Code specification | | Device name specification ^{*1} | |
| Dec. | Hex. | | |
| 1 | 1H | QBFDev_LXBuf | Link input internal buffer (LX buffer) |
| 2 | 2H | QBFDev_LYBuf | Link output internal buffer (LY buffer) |
| 23 | 17H | QBFDev_LBBuf | Link relay internal buffer (LB buffer) |
| 24 | 18H | QBFDev_LWBuf | Link register internal buffer (LW buffer) |

* 1 The device name specification (macro) is defined in the include file "QbfFunc.h" of the bus interface function. (Page 9-9, Section 9.4)

(b) Direct access**Table 9.16 Device types for internal direct access**

| Device type | | | Device |
|--------------------|-------|---|---|
| Code specification | | Device name specification ^{*1} | |
| Dec. | Hex. | | |
| 1000 | 3E8H | QBFDev_LX | Direct link input (LX) |
| 2000 | 7D0H | QBFDev_LY | Direct link output (LY) |
| 23000 | 59D8H | QBFDev_LB | Direct link relay (LB) ^{*2} |
| 24000 | 5DC0H | QBFDev_LW | Direct link register (LW) ^{*2} |
| 25000 | 61A8H | QBFDev_LSB | Direct link special relay (SB) |
| 28000 | 6D60H | QBFDev_LSW | Direct link special register (SW) |

* 1 The device name specification (macro) is defined in the include file "QbfFunc.h" of the bus interface function. (Page 9-9, Section 9.4)

* 2 Only CC-Link IE Controller Network modules can access to the areas of LB4000 and higher and LW4000 and higher.

(3) Device types for internal user or system device access

The device type for access to the internal user device or the internal system device can be specified with an argument, sDevType, of the following functions.

- QBF_WriteDevice
- QBF_ReadDevice
- QBF_SetDevice
- QBF_ResetDevice
- QBF_WriteDevice_ISR
- QBF_ReadDevice_ISR
- QBF_SetDevice_ISR
- QBF_ResetDevice_ISR

Table 9.17 Device types for internal user or system device access

| Device type | | | Device |
|--------------------|------|---|-----------------------|
| Code specification | | Device name specification ^{*1} | |
| Dec. | Hex. | | |
| 4 | 4H | QBFDev_CCPU_M | Internal relay (M) |
| 5 | 5H | QBFDev_CCPU_SM | Special relay (SM) |
| 13 | DH | QBFDev_CCPU_D | Data register (D) |
| 14 | EH | QBFDev_CCPU_SD | Special register (SD) |

* 1 The device name specification (macro) is defined in the include file "QbfFunc.h" of the bus interface function. (Page 9-9, Section 9.4)

POINT

1. Use the internal link device buffers (LX buffer, LY buffer, LB buffer, and LW buffer) by setting the following items and refresh them with link devices (LX, LY, LB, and LW).

Table 9.18 Setting link device refresh cycle and ranges

| Network | Item | Reference page |
|-------------------------------|---------------------------|----------------------------|
| CC-Link IE Controller Network | Link device refresh cycle | Page 7-23, Section 7.5 (2) |
| | Refresh parameters | Page 7-27, Section 7.5 (4) |
| MELSECNET/H | Link device refresh cycle | Page 6-27, Section 6.6 (2) |
| | Refresh parameters | Page 6-33, Section 6.6 (4) |

2. The link devices (SB, SW) are accessible only by direct access. The internal link device buffers cannot be used for access since the setting of the CC IE Control utility or MELSECNET/H utility (setting of link device refresh cycle and ranges) does not enable the refresh.

Remark

For the link device accessing method, refer to the C Controller Module User's Manual (Hardware Design, Function Explanation).

CHAPTER 10 PROGRAMMING USING MELSEC DATA LINK FUNCTIONS



When applying program examples introduced in this chapter into actual systems, fully examine the applicability, and confirm that they do not cause system control problems.

10.1 Outline of MELSEC Data Link Functions



To access and control a programmable controller CPU and each module in a user program, the functions provided by SW3PVC-CCPU must be used.

(1) The following indicates features of bus interface functions.

- 1) Access to the programmable controller CPU that is in the same system as the C Controller module.
- 2) Access to the programmable controller on another station via CC-Link module(s) controlled by the C Controller module.
- 3) Access to the programmable controller on another station via CC-Link module(s) or MELSECNET/H module(s) controlled by the C Controller module.
- 4) Message exchange with the following modules or personal computers via CC-Link IE Controller Network module(s) or MELSECNET/H module(s) controlled by the C Controller module.
 - C Controller module (another station)
 - Programmable controller (another station)
 - Personal computer equipped with MELSECNET/H board (only via MELSECNET/H module(s))

The system illustration below represents a system image based on the features described on the previous page.

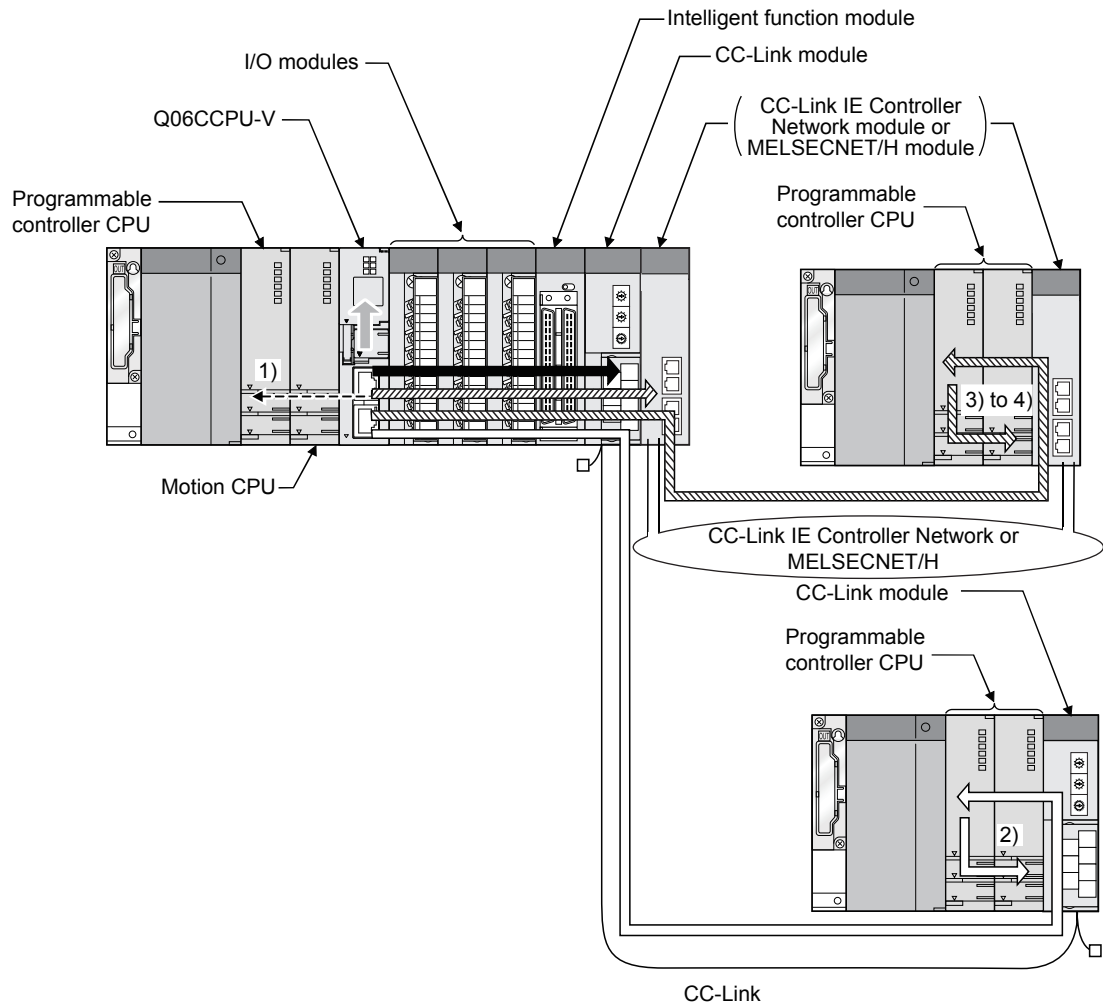


Figure 10.1 MELSEC data link function image

Table 10.1 Access targets of MELSEC data link functions

| Arrow | Access target | No. given above | Communication path | Setting of Device monitoring utility | | Remarks |
|-------|--|-----------------|-------------------------------|---|------------|--|
| | | | | Channel name | Station | |
| ←--- | Programmable controller CPU | 1) | Q series bus | 12: Q series bus interface | Other sta. | — |
| ← | C Controller module | — | Q series bus | 12: Q series bus interface | Own sta. | Only CPU shared memory accessible |
| ← | CC-Link module (own station) | — | CC-Link | 8n: CC-Link (Channel No.8n) ^{*1} | Own sta. | — |
| ← | Programmable controller CPU (other station) | 2) | CC-Link | 8n: CC-Link (Channel No.8n) ^{*1} | Other sta. | Station No.: 0 to 63 (access to control CPU of other station CC-Link module) |
| ← | Programmable controller CPU (other station in multiple CPU system) | 2) | CC-Link | 8n: CC-Link (Channel No.8n) ^{*1} | Other sta. | Station No.: 65 to 239 ^{*2} (access to CPU that does not control other station CC-Link module) |
| ← | MELSECNET/H module (host station) | — | MELSECNET/H | 5n: MELSECNET/H (Channel No.5n) ^{*3} | Own sta. | — |
| | CC-Link IE Controller Network module (own station) | | CC-Link IE Controller Network | 15n: CC-Link IE Controller Network (Channel No.15n) ^{*4} | | |
| ← | Programmable controller (other station) | 3), 4) | MELSECNET/H | 5n: MELSECNET/H (Channel No.5n) ^{*3} | Other sta. | Station No.: 1 to 64 (access to control CPU of other station MELSECNET/H module) |
| | | | CC-Link IE Controller Network | 15n: CC-Link IE Controller Network (Channel No.15n) ^{*4} | | Station No.: 1 to 120 (access to control CPU of other station CC-Link IE Controller Network module) |
| ← | Programmable controller CPU (other station in multiple CPU system) | 3), 4) | MELSECNET/H | 5n: MELSECNET/H (Channel No.5n) ^{*3} | Other sta. | Station No.: 65 to 239 ^{*5} (access to CPU that does not control other station MELSECNET/H module) |
| | | | CC-Link IE Controller Network | 15n: CC-Link IE Controller Network (Channel No.15n) ^{*4} | | Station No.: 65 to 239 ^{*6} (access to CPU that does not control other station CC-Link IE Controller Network) |

- * 1 "n" indicates the last digit of the channel No. set in the CC-Link utility.
- * 2 The logical station No. must be set in the <<Target settings>> tab of the CC-Link utility to access the CPU that does not control other station CC-Link module.
- * 3 "n" indicates the last digit of the channel No. set in the MELSECNET/H utility.
- * 4 "n" indicates the last digit of the channel No. set in the CC IE Control utility.
- * 5 The logical station No. must be set in the <<Target settings>> tab of the MELSECNET/H utility to access the CPU that does not control the other station MELSECNET/H module.
- * 6 The logical station No. must be set in the <<Target settings>> tab of the CC IE Control utility to access the CPU that does not control the other station CC-Link IE Controller Network module.

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10.2 MELSEC Data Link Function List

| | | |
|------------|-----------|-------------|
| Q12DCCPU-V | Q06CCPU-V | Q06CCPU-V-B |
| ○ | ○ | × |

Table 10.2 MELSEC data link function list

1)Q12DCCPU-V 2)Q06CCPU-V

| Category | Function name | Description | Availability | |
|----------------|--|--|--------------|----|
| | | | 1) | 2) |
| Open/close | mdOpen | Opens a communication line. | ○ | ○ |
| | mdClose | Closes a communication line. | ○ | ○ |
| Remote control | mdControl | Remote operations (RUN/STOP/PAUSE) of the programmable controller CPU. | ○ | ○ |
| CPU model read | mdTypeRead | Reads the model name of the programmable controller CPU. | ○ | ○ |
| Device access | mdSend | •Batch writes devices.
•Sends messages (SEND function) | ○ | ○ |
| | mdSendEx | Batch writes devices. (Extended function) | ○ | ○ |
| | mdReceive | •Batch reads devices.
•Receives messages. (RECV function) | ○ | ○ |
| | mdReceiveEx | Batch reads devices. (Extended function) | ○ | ○ |
| | mdDevSet | Sets bit devices. | ○ | ○ |
| | mdDevSetEx | Sets bit devices. (Extended function) | ○ | ○ |
| | mdDevRst | Resets bit devices. | ○ | ○ |
| | mdDevRstEx | Resets bit devices. (Extended function) | ○ | ○ |
| | mdRandR | Reads devices randomly. | ○ | ○ |
| | mdRandREx | Reads devices randomly. (Extended function) | ○ | ○ |
| | mdRandW | Writes devices randomly. | ○ | ○ |
| mdRandWEx | Writes devices randomly. (Extended function) | ○ | ○ | |
| Initialize | mdInit | Refreshes the programmable controller device address table. | ○ | ○ |

○: Available, ×: N/A

POINT

For details of the MELSEC data link functions, refer to the MELSEC data link function HELP of SW3PVC-CCPU.

10.3 Programming Procedure

| | | |
|------------|-----------|-------------|
| Q12DCCPU-V | Q06CCPU-V | Q06CCPU-V-B |
| ○ | ○ | × |

For details of programming procedures, refer to the following.

☞ Page 9-8, "9.3 Programming Procedure"

10.4 Creating a New Project of User Program and Compiling



For details of creating a new project of user program and compiling, refer to the following.

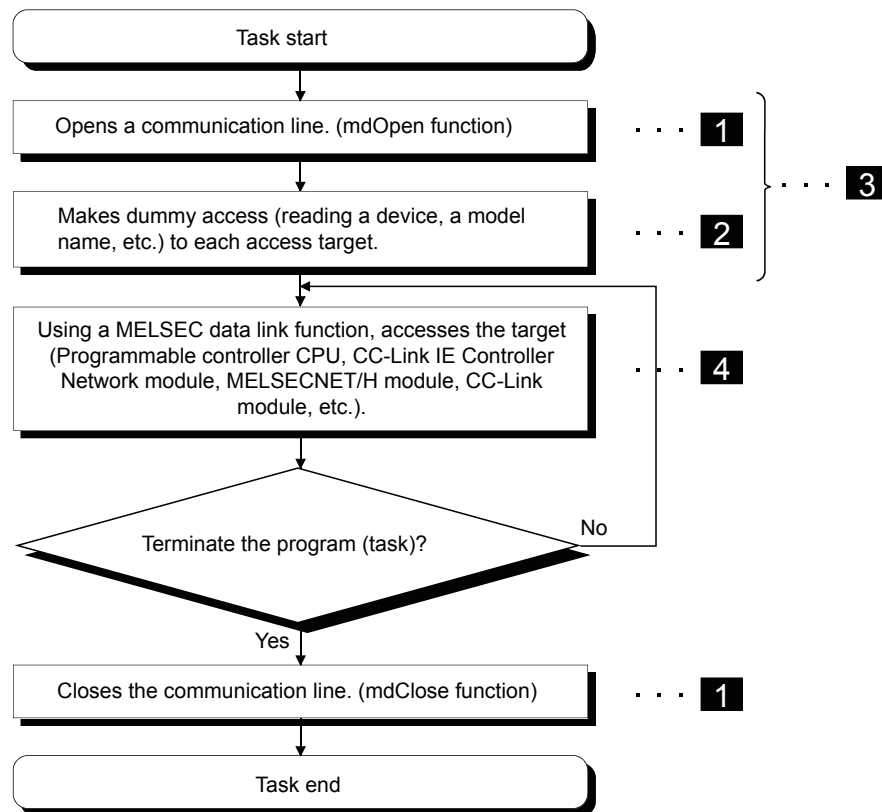
Page 9-9, "9.4 Creating and Compiling a New Project of User Program"

10.5 MELSEC Data Link Function Programming Flow



(1) Programming flow

The following flowchart shows the procedure for programming using the MELSEC data link functions.



For details of precautions for each process, refer to the following.

Page 10-6, "10.5 (2) (a) Precautions for programming"

Figure 10.2 Programming using MELSEC data link functions

(2) Precautions for using MELSEC data link functions

(a) Precautions for programming

1) Opening and closing of communication lines (1)

Opening and closing of a communication line (mdOpen and mdClose functions) is allowed only once each at the start (task start) and the end (task end) of the user program task.

Repeating opening and closing for every communication degrades communication performance.

2) Execution time for initial execution (2)

When a device is added, the function collects information of the programmable controller in detail at first execution, which increases the execution time.

To avoid the increase, make dummy access to each target in advance.

3) MELSEC data link function execution in multiple tasks (3)

The MELSEC data link functions cannot be simultaneously processed in multiple tasks within the C Controller module.

When processing by the MELSEC data link function are requested simultaneously in multiple tasks, one of the tasks starts its processing and the other tasks will be in waiting status since the processing is performed one at a time.

Create a program that completes all preparatory processing (3) first and then execute the main processing(4).

4) Accessing to other station (4)

When accessing other station from the C Controller module via any of the following, one of the communication processing starts and the others will be in the waiting status.

- Q series bus interface
- CC-Link IE Controller Network module
- MELSECNET/H module
- CC-Link module

Note that if one communication processing times out, the other communication processing may time out.

- (b) Precautions for accessing to CC-Link module own station devices and other station programmable controller devices.
- When accessing via CC-Link module, provide interlocks according to the link states of the own and other stations.
- 1) Access to own station device
Create a user program that provides interlocks to enable write to/read from the own station device.
Data take effect only when the following conditions are satisfied.
 - Module error (Xn0) is off (normal)
 - Own station link status (Xn1) is off (in data link)
 - Module ready (XnF) is on (operable)Write to/read from the own station is terminated normally irrespective of the above conditions.
 - 2) Transient access to other stations (other station programmable controller CPU remote operation and device access)
Create a user program that allows to access under the following conditions, in addition to the interlocks for own station device access.
 - Data link status of the access target station (Bits corresponding to a communication target station of SW80 to 83, which are read from the own station) is off (normal communication).
- (c) Precautions for access to MELSECNET/H module host station devices and other station programmable controller devices
- When accessing via MELSECNET/H module, provide interlocks according to the link status of the host station.
- 1) Access to host station device
Create a user program that provides interlocks to enable write to/read from the host station devices.
Data take effect only when the following conditions are satisfied.
 - Module status (SB20) is off (normal)
 - Baton pass status of the host station (SB47) is off (normal)
 - Data link status of the host station (SB49) is off (in data link)Write to/read from the host station is terminated normally irrespective of the above conditions.
 - 2) Transient access to other stations (other station programmable controller CPU remote operation and device access)
Create a user program that makes access when any of the following conditions is satisfied, in addition to the interlocks for the host station device access.
 - Baton pass status of the access target station (Bits corresponding to a communication target station of SW70 to 73, which are read from the host station) is off (normal communication).
 - Data link status (Bits corresponding to the communication target station of SW74 to 77, which are read from the host station) is off (normal communication).

(d) Precautions for access to CC-Link IE Controller Network module own station devices and other station programmable controller devices

When accessing via a CC-Link IE Controller Network module, provide interlocks according to the link status of the own station.

1) Access to own station devices

Create a user program that provides interlocks to enable write to/read from the own station device.

Data take effect only when the following conditions are satisfied.

- Data link status of own station (SB49) is off (in data link)
- Data link status (Bits corresponding to the communication target station of SWB0 to B7, which are read from the own station) is off (normal communication).

Write to/read from the own station is terminated normally irrespective of the above conditions.

2) Transient access to other stations (other station programmable controller CPU remote operation and device access)

Create a user program that allows to access under the following conditions, in addition to the interlocks for own station device access.

- Baton pass status of own station (SB47) is off (normal)
- Baton pass status of the access target station (Bits corresponding to the communication target station of SWA0 to A7, which are read from the own station) is off (normal communication)

(e) Other precautions

1) Time out value setting for MELSEC data link function

When either of the following problems occur, change the communication timeout value for the MELSEC data link function in C Controller setting utility.

(☞ Page 4-28, Section 4.6 (3) (c))

- Frequent communication timeouts due to line congestion.
→ Increase the timeout value
- To allow communication timeout at shorter timing
→ Decrease the timeout value

When the above problems do not occur, operate by default setting.

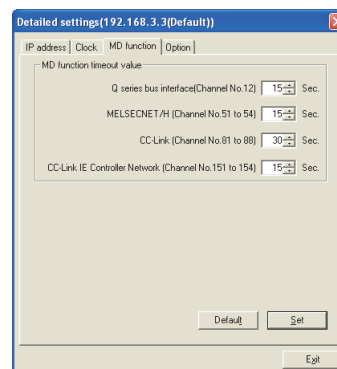


Figure 10.3 MD function communication timeout value setting screen

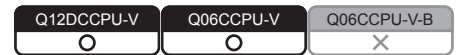
10.6 Precautions for the MELSEC Data Link Function



For details of precautions for the MELSEC data link function, refer to the following.

Page 9-26, "9.6 Precautions for Functions"

10.7 Precautions for Program Debugging



For details of precautions for program debugging, refer to the following.

Page 9-31, "9.7 Precautions for Program Debugging"

10.8 Program Registration



For details of program registration, refer to the following.

Page 9-46, "9.8 Program Registration"

10.9 Creating a Script File "STARTUP.CMD"



For details of creating a script file "STARTUP.CMD", refer to the following.

Page 9-51, "9.9 Creating a Script File "STARTUP.CMD""

10.10 Channel



Table 10.3 Channels used for MELSEC data link functions

| No. | Channel name | Description |
|------------|--|---|
| 12 | Q series bus interface | Used when communication is performed via a bus. |
| 51 to 54 | MELSECNET/H
(Channel No.51 to 54) | Used when communication is performed via a MELSECNET/H module controlled by the C Controller module.
Channel No. is set for each target module in the <<Parameter settings>> tab of MELSECNET/H utility. (Page 6-27, Section 6.6) |
| 81 to 88 | CC-Link
(Channel No.81 to 88) | Used when communication is performed via CC-Link module controlled by the C Controller module.
Channel No. is set for each target module in the <<Parameter settings>> tab of CC-Link utility. (Page 5-11, Section 5.5) |
| 151 to 154 | CC-Link IE Controller Network
(Channel No.151 to 154) | Used when communication is performed via CC-Link IE Controller Network module controlled by the C Controller module.
Channel No. is set for each target module in the <<Parameter settings>> tab of CC IE Control utility. (Page 7-23, Section 7.5) |

10.11 Station No. Setting for MELSEC Data Link Functions



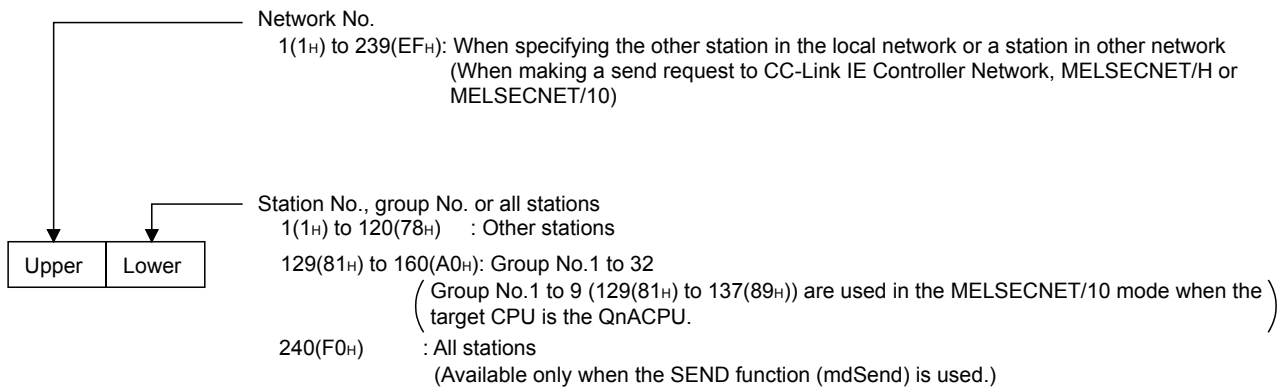
(1) Functions other than extended functions

Table 10.4 Functions other than extended functions

| Communication | Station No. specification |
|-------------------------------|--|
| Q series bus interface | Own station: 255 (FF _H) ^{*1}
Other station: 1 (CPU No.1), 2 (CPU No.2), 3 (CPU No.3), 4 (CPU No.4) |
| CC-Link IE Controller Network | Own station: 255 (FF _H)
Other station: Page 10-10, Section 10.11 (1) (a) |
| MELSECNET/H | Host station: 255 (FF _H)
Other station: Page 10-10, Section 10.11 (1) (a) |
| CC-Link | Own station: 255 (FF _H)
Other station: 0 (0 _H) to 63 (3F _H), 65 (41 _H) to 239 (EF _H)
Page 10-11, Section 10.11 (1) (b) |

* 1 Transmission to the C Controller module (own station) using a MELSEC data link function may take a longer time than the one using a bus interface function.
Use bus interface functions when creating a user program for which performance quality is required (such as a control program).

(a) Station No. setting for CC-Link IE Controller Network module (other station) and MELSECNET/H (other station)



<Logical station No. setting method>

Set "0" in the upper byte (network No.) and a logical station No. in the lower byte (station No.).

<Setting range of logical station No.>

Set it in the target settings of the MELSECNET/H utility, CC IE Control utility.

65 (41_H) to 239 (EF_H): MELSECNET/H communication

65 (41_H) to 239 (EF_H): CC-Link IE Controller Network communication

Page 6-39, Section 6.7, Page 7-34, Section 7.6)

Figure 10.4 Station No. setting for CC-Link IE Controller Network module and MELSECNET/H module

(b) Station No. setting for CC-Link module (other station)

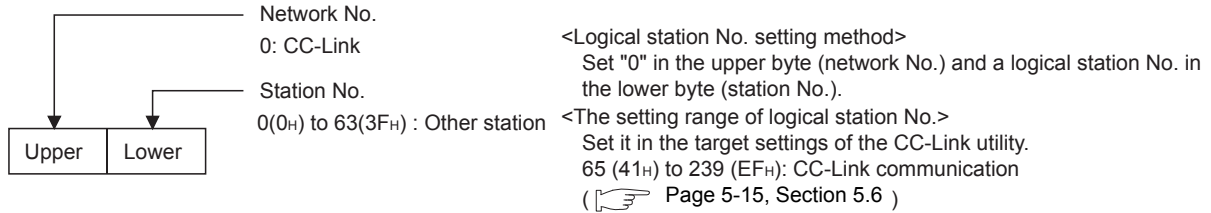


Figure 10.5 Station No. setting for CC-Link module

Station No. 64 cannot be specified for the CC-Link (other station).
When the own station No. is 64, the other station cannot be specified. (Access is allowed only to the own station.)
Specify the station No. other than 64.

(2) Extended functions

Table 10.5 Extended function

| Communication | Network No. specification | Station No. specification |
|---|---|---|
| Q series bus interface | 0(0 _H) | Own station: 255(FF _H)* ⁴
Other station: 1 (CPU No.1), 2 (CPU No.2),
3 (CPU No.3), 4 (CPU No.4) |
| CC-Link IE Controller Network, or MELSECNET/H | Own (host) station: 0(0 _H)
Other station: 1(1 _H) to 239(EF _H)
Logical station: 0(0 _H) | Own (Host) station: 255(FF _H)
Other station: 1(1 _H) to 120(78 _H)* ¹
Logical station: 65(41 _H) to 239(EF _H)* ² |
| CC-Link | 0(0 _H) | Own station: 255(FF _H)
Other station: 0(0 _H) to 63(3F _H)* ³
Logical station: 65(41 _H) to 239(EF _H)* ² |

- * 1 65(41_H) to 120(78_H) can be specified for other station on a CC-Link IE Controller Network.
- * 2 Logical station No. is set in the <<Target settings>> tab of CC IE Control utility (Page 7-34), MELSECNET/H utility (Page 6-39), or CC-Link utility (Page 5-15).
- * 3 For CC-Link (other station), station No. 64 cannot be specified.
When the own station No. is 64, other station cannot be specified. (Access is allowed only to the own station.)
Specify the station No. other than 64.
- * 4 Transmission to the C Controller module (own station) using a MELSEC data link function may take a longer time than the one using a bus interface function.
Use bus interface functions when creating a user program for which performance quality is required (such as a control program).

10.12 Device Types for the MELSEC Data Link Function



Device type used for the MELSEC data link functions can be specified either by code numbers or device names.

(1) Common device types

Table 10.6 Common device types of MELSEC data link functions

| Device type | | | Device |
|----------------|----------------|------------------------|--|
| Code | | Device name *1 | |
| DEC. | HEX. | | |
| 1 | 1H | DevX | X |
| 2 | 2H | DevY | Y |
| 3 | 3H | DevL | L |
| 4 | 4H | DevM | M |
| 5 | 5H | DevSM | SM(special relay), SB(link special relay for MELSECNET/H, CC-Link IE Controller Network, 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 | SD (special register), SW(link special register for MELSECNET/H, CC-Link IE Controller Network, and CC-Link) |
| 15 | FH | DevTM | T (main setting) |
| 16 | 10H | DevTS | T (sub setting 1) |
| 16002 | 3E82H | DevTS2 | T (sub setting 2) |
| 16003 | 3E83H | DevTS3 | T (sub setting 3) |
| 17 | 11H | DevCM | C (main setting) |
| 18 | 12H | DevCS | C (sub setting 1) |
| 18002 | 4652H | DevCS2 | C (sub setting 2) |
| 18003 | 4653H | DevCS3 | C (sub setting 3) |
| 19 | 13H | DevA | A |
| 20 | 14H | DevZ | Z*2 |
| 21 | 15H | DevV | V (index register) |
| 22 | 16H | DevR | R (file register)*2 |
| 220 | 00DCH | DevZR | ZR (file register)*2 |
| 22000 to 22256 | 55F0H to 56F0H | DevER(0) to DevER(256) | ER (extended file register)
Argument value of device name (0 to 256*2) is Block No. |
| 23 | 17H | DevB | B |
| 24 | 18H | DevW | W |
| 25 | 19H | DevQSB | Q/QnA link special relay (within Q/QnACPU) |
| 26 | 1AH | DevSTT | Retentive timer (contact) |
| 27 | 1BH | DevSTC | Retentive timer (coil) |

* 1 The device name specification (macro) is defined in this function's include file "MdFunc.h". (Page 9-9, Section 9.4)

* 2 Even if a non-existing device is specified in mdRandR or mdRandREx functions, they complete normally. (The read data is "-1".)

(To the next page)

Table 10.6 Common device types of MELSEC data link functions (continued)

| Device type | | | Device |
|----------------|--|---------------------------|--|
| Code | | Device name ^{*1} | |
| DEC. | HEX. | | |
| 28 | 1C _H | DevQSW | Q/QnA link special register (within Q/QnACPU) |
| 30 | 1E _H | DevQV | Q/QnA edge relay (within Q/QnACPU) |
| 35 | 23 _H | DevSTN | Retentive timer (current value) |
| 101 | 65 _H | DevMAIL | Q/QnA SEND function (with arrival confirmation) and RECV function |
| 102 | 66 _H | DevMAILNC | Q/QnA SEND function (no arrival confirmation) |
| 1001 to 1255 | 3E9 _H to 4E7 _H | DevLX(1) to DevLX(255) | Direct link input (other station side)
Argument value of device name (1 to 255 ^{*2}) is Network No. |
| 2001 to 2255 | 7D1 _H to 8CF _H | DevLY(1) to DevLY(255) | Direct link output (other station side)
Argument value of device name (1 to 255 ^{*2}) is Network No. |
| 23001 to 23255 | 59D9 _H to 5AD7 _H | DevLB(1) to DevLB(255) | Direct link relay (other station side)
Argument value of device name (1 to 255 ^{*2}) is Network No. |
| 24001 to 24255 | 5DC1 _H to 5EBF _H | DevLW(1) to DevLW(255) | Direct link register (other station side)
Argument value of device name (1 to 255 ^{*2}) is Network No. |
| 25001 to 25255 | 61A9 _H to 62A7 _H | DevLSB(1) to DevLSB(255) | Direct link special relay (other station side)
Argument value of device name (1 to 255 ^{*2}) is Network No. |
| 28001 to 28255 | 6D61 _H to 6E5F _H | DevLSW(1) to DevLSW(255) | Direct link special register (other station side)
Argument value of device name (1 to 255 ^{*2}) is Network No. |
| 29000 to 29255 | 7148 _H to 7247 _H | DevSPG(0) to DevSPG(255) | Special direct buffer register,
Intelligent function module buffer memory
Argument value of device name (1 to 255 ^{*2}) is start I/O No. divided by 16 |
| 31000 to 31255 | 7918 _H to 7A17 _H | DevEM(0) to DevEM(255) | EM (shared device) ^{*3}
Argument value of device name (0 to 255 ^{*2}) is Block No. |
| 32000 to 32255 | 7D00 _H to 7DFF _H | DevED(0) to DevED(255) | ED (shared device) ^{*3}
Argument value of device name (0 to 255 ^{*2}) is Block No. |

- * 1 The device name specification (macro) is defined in this function's include file "MdFunc.h". (☞ Page 9-9, Section 9.4)
- * 2 Even if a non-existing device is specified in mdRandR or mdRandREx functions, they complete normally. (The read data is "-1".)
- * 3 Available for accessing other station's personal computers. (Only when the communication target is on Microsoft® Windows NT® Workstation 4.0 where MX Links (SW2D5F-CSKP or later) is running).

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(2) Dedicated device types for Q series bus interface

Table 10.7 Q series bus interface dedicated device types

| Device types | | | Device |
|--------------|------|---------------------------|--|
| Code | | Device name* ¹ | |
| DEC. | HEX. | | |
| 501 | 1F5H | DevSPB1 | CPU shared memory (area for CPU No.1) ² |
| 502 | 1F6H | DevSPB2 | CPU shared memory (area for CPU No.2) ² |
| 503 | 1F7H | DevSPB3 | CPU shared memory (area for CPU No.3) ² |
| 504 | 1F8H | DevSPB4 | CPU shared memory (area for CPU No.4) ² |

* 1 The device name specification (macro) is defined in this function's include file "MdFunc.h". (☞
Page 9-9, Section 9.4)

* 2 The device cannot be used in the mdRandR, mdRandREx, mdRandW, mdRandWEx, mdDevSet, mdDevSetEx, mdDevRst, or mdDevRstEx function.

(3) Device types for accessing the CC-Link modules

Table 10.8 Device types for accessing CC-Link module

| Device type | | | Device |
|-------------|-------|---------------------------|---|
| Code | | Device name* ¹ | |
| DEC. | HEX. | | |
| 1 | 1H | DevX | Own station RX ⁵ |
| 2 | 2H | DevY | Own station RY ⁵ |
| 5 | 5H | DevSM | Own station SB (link special relay for CC-Link) ³ |
| 14 | EH | DevSD | Own station SW (link special register for CC-Link) ⁴ |
| 25 | 19H | DevQSB | Own station SB (link special relay for CC-Link) ³ |
| 28 | 1CH | DevQSW | Own station SW (link special register for CC-Link) ⁴ |
| 33 | 21H | DevMRB | Own station random access buffer |
| 36 | 24H | DevWw | Own station link register (for sending) ⁵ |
| 37 | 25H | DevWr | Own station link register (for receiving) ⁵ |
| 50 | 32H | DevSPB | Own station buffer memory ⁵ |
| -32768 | 8000H | DevRBM | Other station buffer memory ² |
| -32736 | 8020H | DevRAB | Other station random access buffer ² |

* 1 The device name specification (macro) is defined in this function's include file "MdFunc.h". (☞
Page 9-9, Section 9.4)

* 2 The device cannot be used in the mdRandR, mdRandREx, mdRandW, mdRandWEx, mdDevSet, mdDevSetEx, mdDevRst, or mdDevRstEx functions.

* 3 These (DevSM, DevQSB) are the same device.

* 4 These (DevSD, DevQSW) are the same device.

* 5 Note that maximum of one scan time may delay when the block data assurance per station function is enabled and the link device is continuously accessed (mdSend, mdSendEx(1), mdReceive(1), mdReceiveEx, mdDevSet, mdDevSetEx, mdDevRst, mdDevRstEx). (This is the same behavior when the auto refresh method is selected as CC-Link refreshing method in the QBF_ToBuf and QBF_FromBuf functions.)

Moreover, block data assurance per station cannot be used in dReadR, mdRandREx, mdReadW, and mdRandWEx functions.

For details, refer to the following.

For block data assurance per station, refer to the C Controller Module User's Manual (Hardware Design, Function Explanation).

For the MELSEC data link functions, refer to the HELP of the MELSEC data link function.

(To the next page)

Table 10.8 Device types for accessing CC-Link module (continued)

| Device type | | | Device |
|-------------|-------|---------------------------|--|
| Code | | Device name ^{*1} | |
| DEC. | HEX. | | |
| -32735 | 8021H | DevRX | Other station RX |
| -32734 | 8022H | DevRY | Other station RY |
| -32732 | 8024H | DevRW | Other station link register ^{*2} |
| -32669 | 8063H | DevSB | Other station SB (link special relay for CC-Link) |
| -32668 | 8064H | DevSW | Other station SW (link special register for CC-Link) ^{*2} |

* 1 The device name specification (macro) is defined in this function's include file, "MdFunc.h". (☞
Page 9-9, Section 9.4)

* 2 The device cannot be used in the mdRandR, mdRandREx, mdRandW, mdRandWEx, mdDevSet, mdDevSetEx, mdDevRst, or mdDevRstEx functions.

(4) Device types for accessing CC-Link IE Controller Network modules or MELSECNET/H modules

In a user program, link device access methods and message send/receive can be selected by specifying a device.

(a) Internal buffer access

Table 10.9 Device types for internal buffer access

| Device Type | | | Device |
|-------------|------|---------------------------|---|
| Code | | Device name ^{*1} | |
| DEC. | HEX. | | |
| 1 | 1H | DevX | Own station link input internal buffer (LX buffer) |
| 2 | 2H | DevY | Own station link output internal buffer (LY buffer) |
| 23 | 17H | DevB | Own station link relay internal buffer (LB buffer) |
| 24 | 18H | DevW | Own station link register internal buffer (LW buffer) |

* 1 The device name specification (macro) is defined in this function's include file, "MdFunc.h". (☞
Page 9-9, Section 9.4)

(b) Direct access

Table 10.10 Device types for direct access

| Device Type | | | Device |
|-------------|-------|---------------------------|---|
| Code | | Device name ^{*1} | |
| DEC. | HEX. | | |
| 5 | 5H | DevSM | Own station direct link special relay (SB) ^{*2} |
| 14 | EH | DevSD | Own station direct link special register (SW) ^{*3} |
| 25 | 19H | DevQSB | Own station direct link relay (SB) ^{*2} |
| 28 | 1CH | DevQSW | Own station direct link register (SW) ^{*3} |
| 1000 | 3E8H | DevLX(0) | Own station direct link input (LX) |
| 2000 | 7D0H | DevLY(0) | Own station direct link output (LY) |
| 23000 | 59D8H | DevLB(0) | Own station direct link relay (LB) ^{*4} |
| 24000 | 5DC0H | DevLW(0) | Own station direct link register (LW) ^{*4} |
| 25000 | 61A8H | DevLSB(0) | Own station direct link special relay (SB) ^{*2} |
| 28000 | 6D60H | DevLSW(0) | Own station direct link special register (SW) ^{*3} |

* 1 The device name specification (macro) is defined in this function's include file, "MdFunc.h". (☞
Page 9-9, Section 9.4)

* 2 These (DevSM, DevQSB, and DevLSB(0)) are the same device.

* 3 These (DevSD, DevQSW, and DevLSW(0)) are the same device.

* 4 Only for CC-Link IE Controller Network modules, access can be made to areas of LB4000 and higher and LW4000 and higher.

(c) Message send/receive

Table 10.11 Device types for message send receive

| Device type | | | Device |
|-------------|------|---------------|---|
| Code | | Device name*1 | |
| DEC. | HEX. | | |
| 101 | 65H | DevMAIL | Q/QnA SEND function (with arrival confirmation) and RECV function |
| 102 | 66H | DevMAILNC | Q/QnA SEND function (no arrival confirmation) |

* 1 The device name specification (macro) is defined in this function's include file, "MdFunc.h". (☞
Page 9-9, Section 9.4)

POINT

1. Use the internal link device buffers (LX buffer, LY buffer, LB buffer, and LW buffer) by setting the following items and refresh them with link devices (LX, LY, LB, and LW).

Table 10.12 Setting link device refresh cycle and ranges

| Network | Item | Reference page |
|-------------------------------|---------------------------|----------------------------|
| CC-Link IE Controller Network | Link device refresh cycle | Page 7-23, Section 7.5 (2) |
| | Refresh parameters | Page 7-27, Section 7.5 (4) |
| MELSECNET/H | Link device refresh cycle | Page 6-27, Section 6.6 (2) |
| | Refresh parameters | Page 6-33, Section 6.6 (4) |

2. The link devices (SB and SW) are accessible only by direct access. Access by using internal link device buffers cannot be made since the settings (link device refresh cycle and ranges) of the CC IE Control utility and MELSECNET/H utility cannot perform link device refresh.

Remark

For the link device accessing method, refer to the C Controller Module User's Manual (Hardware Design, Function Explanation).

10.13 Accessible Ranges and Devices of the MELSEC Data Link Function

| | | |
|------------|-----------|-------------|
| Q12DCCPU-V | Q06CCPU-V | Q06CCPU-V-B |
| ○ | ○ | × |

This section explains accessible ranges and devices for the following accesses.

Table 10.13 Access list

| Access route | Reference page |
|-------------------------------|----------------|
| Bus | Page 10-17 |
| CC-Link | Page 10-23 |
| MELSECNET/H | Page 10-29 |
| CC-Link IE Controller Network | Page 10-38 |

10.13.1 Access via a bus

| | | |
|------------|-----------|-------------|
| Q12DCCPU-V | Q06CCPU-V | Q06CCPU-V-B |
| ○ | ○ | × |

(1) Accessible range

Via a bus connection, access to the following is allowed.

- Own station (Own station (C Controller module))
- Other station (Programmable controller CPU or C Controller module)

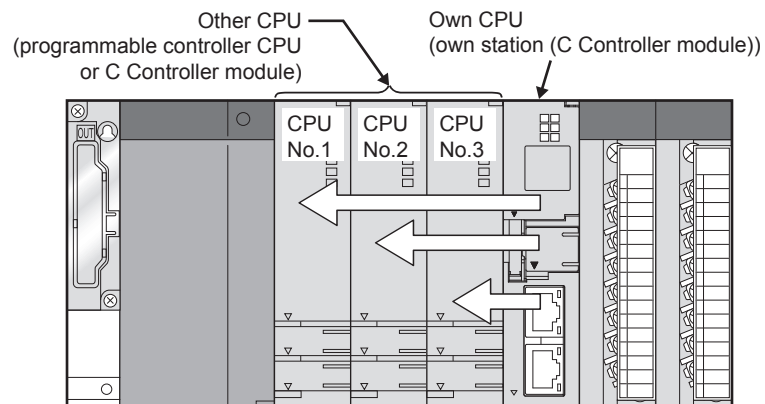


Figure 10.6 Range accessible via a bus

(2) Accessible devices

(a) How to read the table

1) Batch and random of devices

Table 10.14 Batch and random

| Item in the table | Description |
|-------------------|---|
| Batch | <ul style="list-style-type: none"> •Batch write (mdSend, mdSendEx functions) •Batch read (mdReceive, mdReceiveEx functions) |
| Random | <ul style="list-style-type: none"> •Random write (mdRandW, mdRandWEx functions) •Random read (mdRandR, mdRandREx functions) •Bit set (mdDevSet, mdDevSetEx functions)
Only bit devices can access. •Bit reset (mdDevRst, mdDevRstEx functions)
Only bit devices can access. |

(b) Accessible device range for accessing own CPU

Table 10.15 Accessible devices for accessing own CPU

| Device | | Device type
(Device name specification) | Access target |
|---|--------|---|-----------------------------------|
| | | | Own station (C Controller module) |
| X | Batch | DevX | ○*1 |
| | Random | | |
| Y | Batch | DevY | ○*1 |
| | Random | | |
| M*2 | Batch | DevM | ○*1, *3 |
| | Random | | |
| SM (special relay), SB | Batch | DevSM | ○*1 |
| | Random | | |
| D*2 | Batch | DevD | ○*1, *3 |
| | Random | | |
| SD (special register), SW | Batch | DevSD | ○*1 |
| | Random | | |
| Special direct buffer register,
Intelligent function module
buffer memory | Batch | DevSPG(0) to DevSPG(255) | ○*1 |
| | Random | | |
| CPU shared memory*4,*5 | Batch | DevSPB1 (for CPU No.1),
DevSPB2 (for CPU No.2),
DevSPB3 (for CPU No.3),
DevSPB4 (for CPU No.4) | ○ |
| | Random | | × |

○: Accessible ×: Inaccessible

* 1 The following C Controller module is not accessible.

- Q12DCCPU-V with serial number (first five digits) "12041" or earlier
- Q06CCPU-V

* 2 To access a device of device No.32768 (8000H) or higher, use an extended function. (☞ Page 10-4, Section 10.2)

* 3 Available only when the device function is used. (☞ Page 4-35, Section 4.8)

* 4 The CPU shared memory is accessible only when multiple CPU setting has been done.

(☞ Page 4-41, Section 4.10)

* 5 Specify the device No.10000 (2710H) or later for accessing to the Multiple CPU high speed transmission area.

(c) Accessible device range for accessing other CPU

Table 10.16 Accessible devices for accessing other CPU

| Device | Device type
(Device name specification) | Access target | | |
|--|--|--------------------------------|------------------------|--------------------|
| | | Programmable controller
CPU | C Controller
module | |
| X | Batch | DevX | ○ | ○ ^{*1} |
| | Random | | | |
| Y | Batch | DevY | ○ | ○ ^{*1} |
| | Random | | | |
| L | Batch | DevL | ○ | × |
| | Random | | | |
| M ^{*2} | Batch | DevM | ○ ^{*3} | ○ ^{*1,*4} |
| | Random | | | |
| SM (special relay), SB (link special relay for MELSECNET/H, CC-Link IE Controller Network and CC-Link) | Batch | DevSM | ○ | ○ ^{*1,*4} |
| | Random | | | |
| F | Batch | DevF | ○ | × |
| | Random | | | |
| T (contact) | Batch | DevTT | ○ | × |
| | Random | | | |
| T (coil) | Batch | DevTC | ○ | × |
| | Random | | | |
| C (contact) | Batch | DevCT | ○ | × |
| | Random | | | |
| C (coil) | Batch | DevCC | ○ | × |
| | Random | | | |
| T (current value) | Batch | DevTN | ○ | × |
| | Random | | | |
| C (current value) | Batch | DevCN | ○ | × |
| | Random | | | |
| D ^{*2} | Batch | DevD | ○ ^{*5} | ○ ^{*1,*4} |
| | Random | | | |
| SD (special register), SW (link special register for MELSECNET/H, CC-Link IE Controller Network and CC-Link) | Batch | DevSD | ○ | ○ ^{*1,*4} |
| | Random | | | |

○: Accessible ×: Inaccessible

- * 1 The following C Controller module is not accessible.
 - Q12DCCPU-V with serial number (first five digits) "12041" or earlier
 - Q06CCPU-V
- * 2 To access a device of device No.32768 (8000H) or higher, use an extended function. (☞ Page 10-4, Section 10.2)
- * 3 The following C Controller module cannot access the internal relay (M) of device No.32768 (8000H) or higher.
 - Q06CCPU-V
- * 4 Available only when the device function is used. (☞ Page 4-35, Section 4.8)
- * 5 The following C Controller module cannot access the extended data register (D).
 - Q06CCPU-V with serial number (first five digits) "10011" or earlier

(To the next page)

Table 10.16 Accessible devices for accessing other CPU (continued)

| Device | Device type
(Device name specification) | Access target | | |
|--|--|-----------------------------|---------------------|---------------------|
| | | Programmable controller CPU | C Controller module | |
| T (main setting) | Batch | DevTM | × | × |
| | Random | | | |
| T (sub setting 1) | Batch | DevTS | × | × |
| | Random | | | |
| T (sub setting 2) | Batch | DevTS2 | × | × |
| | Random | | | |
| T (sub setting 3) | Batch | DevTS3 | × | × |
| | Random | | | |
| C (main setting) | Batch | DevCM | × | × |
| | Random | | | |
| C (sub setting 1) | Batch | DevCS | × | × |
| | Random | | | |
| C (sub setting 2) | Batch | DevCS2 | × | × |
| | Random | | | |
| C (sub setting 3) | Batch | DevCS3 | × | × |
| | Random | | | |
| A | Batch | DevA | × | × |
| | Random | | | |
| Z | Batch | DevZ | ○ | × |
| | Random | | | |
| V (index register) | Batch | DevV | × | × |
| | Random | | | |
| R (file register) | Batch | DevR | × ^{*6} | × |
| | Random | | | |
| ZR (file register) ^{*2} | Batch | DevZR | ○ | × |
| | Random | | | |
| ER (extended file register) | Batch | DevER(0) to DevER(256) | ○ | × |
| | Random | | | |
| B ^{*2} | Batch | DevB | ○ ^{*7} | ○ ^{*9,*10} |
| | Random | | | |
| W ^{*2} | Batch | DevW | ○ ^{*8} | ○ ^{*9} |
| | Random | | | |
| Q/QnA link special relay (within Q/QnACPU) | Batch | DevQSB | ○ | × |
| | Random | | | |

○: Accessible ×: Inaccessible

* 2 When accessing to the device of No.32768 (8000H) or higher, use an extended function.

(Page 10-4, Section 10.2)

* 6 For the access, use ZR (file register) or ER (extended file register).

* 7 The following C Controller module cannot access the link relay (B) of device No.32768 (8000H) or higher.

- Q06CCPU-V

* 8 The following C Controller module cannot access the extended link register (W).

- Q06CCPU-V with serial number (first five digits) "10011" or earlier

* 9 Only the following C Controller module is accessible.

- Q12DCCPU-V (Extended mode)
- Q24DHCCPU-V with serial number (first five digits) "14081" or later
- Q24DHCCPU-VG

* 10 BFFFFH or later cannot be accessed.

(To the next page)

Table 10.16 Accessible devices for accessing other CPU (continued)


| Device | Device type
(Device name specification) | Access target | | |
|---|--|-----------------------------|---------------------|-----------------|
| | | Programmable controller CPU | C Controller module | |
| Retentive timer (contact) | Batch | DevSTT | ○ | × |
| | Random | | | |
| Retentive timer (coil) | Batch | DevSTC | ○ | × |
| | Random | | | |
| Q/QnA link special register
(within Q/QnACPU) | Batch | DevQSW | ○ | × |
| | Random | | | |
| Q/QnA edge relay (within Q/
QnACPU) | Batch | DevQV | ○ | × |
| | Random | | | |
| Own station random access
buffer | Batch | DevMRB | × | × |
| | Random | | | |
| Retentive timer (current value) | Batch | DevSTN | ○ | × |
| | Random | | | |
| Own station link register
(for sending) | Batch | DevWw | × | × |
| | Random | | | |
| Own station link register
(for receiving) | Batch | DevWr | × | × |
| | Random | | | |
| Own station buffer memory | Batch | DevSPB | × | × |
| | Random | | | |
| Direct link input (other station
side) | Batch | DevLX(1) to DevLX(255) | ○ | ○ ^{*1} |
| | Random | | | |
| Direct link output (other station
side) | Batch | DevLY(1) to DevLY(255) | ○ | ○ ^{*1} |
| | Random | | | |
| Direct link relay (other station
side) | Batch | DevLB(1) to DevLB(255) | ○ | ○ ^{*1} |
| | Random | | | |
| Direct link register (other station
side) ^{*2} | Batch | DevLW(1) to DevLW(255) | ○ | ○ ^{*1} |
| | Random | | | |
| Direct link special relay (other
station side) | Batch | DevLSB(1) to DevLSB(255) | ○ | ○ ^{*1} |
| | Random | | | |
| Direct link special register
(other station side) | Batch | DevLSW(1) to DevLSW(255) | ○ | ○ ^{*1} |
| | Random | | | |
| Special direct buffer register,
Intelligent function module
buffer memory | Batch | DevSPG(0) to DevSPG(255) | ○ | ○ ^{*1} |
| | Random | | | |

○: Accessible ×: Inaccessible

* 1 The following C Controller module is not accessible.

- Q12DCCPU-V with serial number (first five digits) "12041" or earlier
- Q06CCPU-V

* 2 When accessing to the device of number 32768 (8000H) or higher, use an extended function.

 Page 10-4, Section 10.2

(To the next page)

Table 10.16 Accessible devices for accessing other CPU (continued)

| Device | | Device type
(Device name specification) | Access target | |
|---|--------|---|-----------------------------|---------------------|
| | | | Programmable controller CPU | C Controller module |
| Other station buffer memory | Batch | DevRBM | × | × |
| | Random | | | |
| Other station random access buffer | Batch | DevRAB | × | × |
| | Random | | | |
| Other station RX | Batch | DevRX | × | × |
| | Random | | | |
| Other station RY | Batch | DevRY | × | × |
| | Random | | | |
| Other station link register | Batch | DevRW | × | × |
| | Random | | | |
| Other station SB (link special relay for CC-Link) | Batch | DevSB | × | × |
| | Random | | | |
| Other station SW (link special relay for CC-Link) | Batch | DevSW | × | × |
| | Random | | | |
| CPU shared memory*6,*7 | Batch | DevSPB1 (for CPU No.1),
DevSPB2 (for CPU No.2),
DevSPB3 (for CPU No.3),
DevSPB4 (for CPU No.4) | × | × |
| | Random | | | |

○: Accessible ×: Inaccessible

* 6 The CPU shared memory is accessible only when multiple CPU setting has been done. (☞
Page 4-41, Section 4.10)

* 7 Specify the device number 10000 (2710H) or and higher for accessing to the multiple CPU high speed transmission area.

10.13.2 Access via CC-Link

| | | |
|------------|-----------|-------------|
| Q12DCCPU-V | Q06CCPU-V | Q06CCPU-V-B |
| ○ | ○ | × |

(1) Accessible range

The following accesses are allowed via CC-Link.

- Master station where the CC-Link module is connected
- Local station where the CC-Link module is connected
- C Controller module
- PC CPU module
- Intelligent device station of CC-Link
- Personal computer with the CC-Link board is installed

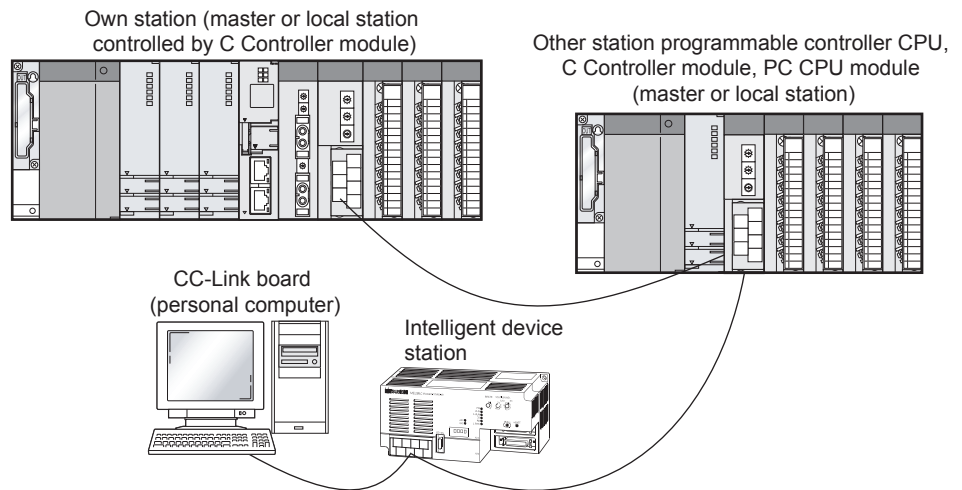


Figure 10.7 Accessible range for access via CC-Link

POINT

When the own station is station No.64, access to another station is not allowed. Access is allowed only to the own station.

(2) Accessible devices

(a) How to read the table

1) Batch and random of devices

Table 10.17 Batch and random of devices

| Item in the table | Description |
|-------------------|---|
| Batch | <ul style="list-style-type: none"> •Batch write (mdSend, mdSendEx functions) •Batch read (mdReceive, mdReceiveEx functions) |
| Random | <ul style="list-style-type: none"> •Random write (mdRandW, mdRandWEx functions) •Random read (mdRandR, mdRandREx functions) •Bit set (mdDevSet, mdDevSetEx functions)
Only bit devices can access. •Bit reset (mdDevRst, mdDevRstEx functions)
Only bit devices can access. |

2) Access targets for accessing other station

Table 10.18 Access targets for accessing other station

| No. | Access target |
|-----|--|
| 1) | A1NCPU |
| 2) | A0J2HCPU, A1S(H)CPU, A1SJ(H)CPU, A2NCPU(-S1), A2S(H)CPU |
| 3) | A2ACPU(-S1), A2UCPU(-S1), A2USCPU(-S1), A2USHCPU-S1
Q02(H)CPU-A, Q06HCPU-A |
| 4) | A3NCPU, A3ACPU, A3UCPU |
| 5) | A4UCPU
Q2ACPU(-S1), Q3ACPU, Q4ACPU, Q4ARCPU, Q2ASCPU(-S1), Q2ASHCPU(-S1)
Q00JCPU, Q00CPU, Q01CPU
Q02(H)CPU, Q06HCPU, Q12HCPU, Q25HCPU
Q02PHCPU, Q06PHCPU, Q12PHCPU, Q25PHCPU |
| 6) | Q00UJCPU, Q00UCPU, Q01UCPU, Q02UCPU, Q03UDCPU, Q04UDHCPU, Q06UDHCPU, Q10UDHCPU, Q13UDHCPU, Q20UDHCPU, Q26UDHCPU, Q03UDECPU, Q04UDEHCPU, Q06UDEHCPU, Q10UDEHCPU, Q13UDEHCPU, Q20UDEHCPU, Q26UDEHCPU, Q50UDEHCPU, Q100UDEHCPU, Q03UDVCPU, Q04UDVCPU, Q06UDVCPU, Q13UDVCPU, Q26UDVCPU |
| 7) | C Controller module that controls a CC-Link module,
PC CPU module that controls a CC-Link module,
Personal computer with a CC-Link board,
Intelligent device station on CC-Link |
| 8) | L02CPU, L26CPU-BT |

(b) Accessible devices for accessing own station

Table 10.19 Accessible devices for accessing own station

| Device | Device type
(Device name specification) | Accessibility |
|--|--|---------------|
| Own station RX | Batch | ○ |
| | Random | |
| Own station RY | Batch | ○ |
| | Random | |
| Own station SB (link special relay for CC-Link) | Batch | ○ |
| | Random | |
| Own station SW (link special register for CC-Link) | Batch | ○ |
| | Random | |
| Own station link register (for sending) | Batch | ○ |
| | Random | |
| Own station link register (for receiving) | Batch | ○ |
| | Random | |
| Own station buffer memory | Batch | ○ |
| | Random | |
| Own station random access buffer | Batch | ○ |
| | Random | |

○: Accessible x: Inaccessible

(c) Accessible devices for accessing other station

Table 10.20 Accessible devices for accessing other station

| Device | Device type
(Device name specification) | Access target | | | | | | | | | |
|--|--|---------------|----|----|----|----|----|----|------------------|-------------------|---|
| | | 1) | 2) | 3) | 4) | 5) | 6) | 7) | 8) ¹⁾ | | |
| X | Batch | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ ²⁾ | ○ |
| | Random | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ ²⁾ | ○ |
| Y | Batch | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ ²⁾ | ○ |
| | Random | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ ²⁾ | ○ |
| L | Batch | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | x | ○ |
| | Random | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | x | ○ |
| M ^{3,4)} | Batch | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ ^{2,5)} | ○ |
| | Random | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ ^{2,5)} | ○ |
| SM (special relay), SB (link special relay for MELSEC/H, CC-Link IE Controller Network, and CC-Link) | Batch | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ ^{2,5)} | ○ |
| | Random | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ ^{2,5)} | ○ |
| F | Batch | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | x | ○ |
| | Random | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | x | ○ |
| T (contact) | Batch | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | x | ○ |
| | Random | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | x | ○ |
| T (coil) | Batch | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | x | ○ |
| | Random | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | x | ○ |

○: Accessible x: Inaccessible

- * 1 The following C Controller module is not accessible.
 - Q06CCPU-V with serial number (first five digits) "10101" or earlier
- * 2 The following C Controller module is not accessible.
 - Q12DCCPU-V with serial number (first five digits) "12041" or earlier
 - Q06CCPU-V
- * 3 When accessing to the device of No.32768 (8000H) or higher, use an extended function. (☞ Page 10-4, Section 10.2)
- * 4 The following C Controller module cannot access the internal relay (M) of device No.32768 (8000H) or higher.
 - Q06CCPU-V
- * 5 Available only when the device function is used. (☞ Page 4-35, Section 4.8)

(To the next page)

Table 10.20 Accessible devices for accessing other station (continued)

| Device | | Device type
(Device name specification) | Access target | | | | | | | | |
|---|--------|--|---------------|----|-----------------|----|----|----|----|--------------------|---|
| | | | 1) | 2) | 3) | 4) | 5) | 6) | 7) | 8) ^{*1} | |
| C (contact) | Batch | DevCT | ○ | ○ | ○ | ○ | ○ | ○ | ○ | × | ○ |
| | Random | | ○ | ○ | ○ | ○ | ○ | ○ | ○ | × | ○ |
| C (coil) | Batch | DevCC | ○ | ○ | ○ | ○ | ○ | ○ | ○ | × | ○ |
| | Random | | ○ | ○ | ○ | ○ | ○ | ○ | ○ | × | ○ |
| T (current value) | Batch | DevTN | ○ | ○ | ○ | ○ | ○ | ○ | ○ | × | ○ |
| | Random | | ○ | ○ | ○ | ○ | ○ | ○ | ○ | × | ○ |
| C (current value) | Batch | DevCN | ○ | ○ | ○ | ○ | ○ | ○ | ○ | × | ○ |
| | Random | | ○ | ○ | ○ | ○ | ○ | ○ | ○ | × | ○ |
| D ^{*3,*6} | Batch | DevD | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ ^{*2,*5} | ○ |
| | Random | | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ ^{*2,*5} | ○ |
| SD (special register), SW (link special register for MELSECNET/H and CC-Link) | Batch | DevSD | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ ^{*2,*5} | ○ |
| | Random | | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ ^{*2,*5} | ○ |
| T (main setting) | Batch | DevTM | ○ | ○ | ○ | ○ | ○ | ○ | × | × | × |
| | Random | | × | × | × | × | × | × | × | × | × |
| T (sub setting 1) | Batch | DevTS | × | × | ○ ^{*7} | ○ | ○ | ○ | × | × | × |
| | Random | | × | × | × | × | × | × | × | × | × |
| T (sub setting 2) | Batch | DevTS2 | × | × | × | × | ○ | ○ | × | × | × |
| | Random | | × | × | × | × | × | × | × | × | × |
| T (sub setting 3) | Batch | DevTS3 | × | × | × | × | ○ | ○ | × | × | × |
| | Random | | × | × | × | × | × | × | × | × | × |
| C (main setting) | Batch | DevCM | ○ | ○ | ○ | ○ | ○ | ○ | × | × | × |
| | Random | | × | × | × | × | × | × | × | × | × |
| C (sub setting 1) | Batch | DevCS | × | × | ○ ^{*7} | ○ | ○ | ○ | × | × | × |
| | Random | | × | × | × | × | × | × | × | × | × |
| C (sub setting 2) | Batch | DevCS2 | × | × | × | × | ○ | ○ | × | × | × |
| | Random | | × | × | × | × | × | × | × | × | × |
| C (sub setting 3) | Batch | DevCS3 | × | × | × | × | ○ | ○ | × | × | × |
| | Random | | × | × | × | × | × | × | × | × | × |
| A | Batch | DevA | ○ | ○ | ○ | ○ | ○ | ○ | × | × | × |
| | Random | | ○ | ○ | ○ | ○ | ○ | ○ | × | × | × |
| Z | Batch | DevZ | ○ | ○ | ○ | ○ | ○ | ○ | ○ | × | ○ |
| | Random | | ○ | ○ | ○ | ○ | ○ | ○ | ○ | × | ○ |

○: Accessible ×: Inaccessible

- * 1 The following C Controller module is not accessible.
 - Q06CCPU-V with serial number (first five digits) "10101" or earlier
- * 2 The following C Controller module is not accessible.
 - Q12DCCPU-V with serial number (first five digits) "12041" or earlier
 - Q06CCPU-V
- * 3 When accessing to the device of No.32768 (8000H) or higher, use an extended function. (☞ Page 10-4, Section 10.2)
- * 5 Available only when the device function is used. (☞ Page 4-35, Section 4.8)
- * 6 The following C Controller module cannot access the extended data register (D).
 - Q06CCPU-V with serial number (first five digits) "10011" or earlier
- * 7 Access is not allowed for the A2ACPU(-S1).

(To the next page)

Table 10.20 Accessible devices for accessing other station (continued)

| Device | | Device type
(Device name specification) | Access target | | | | | | | |
|---|--------|--|---------------|----|----|----|----|-----------------|----------------------|------------------|
| | | | 1) | 2) | 3) | 4) | 5) | 6) | 7) | 8) ^{*1} |
| V (index register) | Batch | DevV | ○ | ○ | ○ | ○ | ○ | × | × | × |
| | Random | | | | | | | | | |
| R (file register) | Batch | DevR | × | ○ | ○ | ○ | ○ | × | × | ○ |
| | Random | | | | | | | | | |
| ZR (file register) ^{*3} | Batch | DevZR | × | × | × | × | × | ○ ^{*9} | × | ○ |
| | Random | | | | | | | | | |
| ER (extended file register) | Batch | DevER(0) to DevER(256) | × | ○ | ○ | ○ | ○ | ○ ^{*9} | × | ○ |
| | Random | | | | | | | | | |
| B ^{*3,*10} | Batch | DevB | ○ | ○ | ○ | ○ | ○ | ○ | ○ ^{*12,*13} | ○ |
| | Random | | | | | | | | | |
| W ^{*3,*11} | Batch | DevW | ○ | ○ | ○ | ○ | ○ | ○ | ○ ^{*12} | ○ |
| | Random | | | | | | | | | |
| Q/QnA link special relay (within Q/QnACPU) | Batch | DevQSB | × | × | × | × | × | ○ | × | ○ |
| | Random | | | | | | | | | |
| Retentive timer (contact) | Batch | DevSTT | × | × | × | × | × | ○ | × | ○ |
| | Random | | | | | | | | | |
| Retentive timer (coil) | Batch | DevSTC | × | × | × | × | × | ○ | × | ○ |
| | Random | | | | | | | | | |
| Q/QnA link special register (within Q/QnACPU) | Batch | DevQSW | × | × | × | × | × | ○ | × | ○ |
| | Random | | | | | | | | | |
| Q/QnA edge relay (within Q/QnACPU) | Batch | DevQV | × | × | × | × | × | ○ | × | ○ |
| | Random | | | | | | | | | |
| Own station random access buffer | Batch | DevMRB | × | × | × | × | × | × | × | × |
| | Random | | | | | | | | | |
| Retentive timer (current value) | Batch | DevSTN | × | × | × | × | × | ○ | × | ○ |
| | Random | | | | | | | | | |
| Own station link register (for sending) | Batch | DevWw | × | × | × | × | × | × | × | × |
| | Random | | | | | | | | | |
| Own station link register (for receiving) | Batch | DevWr | × | × | × | × | × | × | × | × |
| | Random | | | | | | | | | |
| Own station buffer memory | Batch | DevSPB | × | × | × | × | × | × | × | × |
| | Random | | | | | | | | | |
| Q/QnA SEND function (with arrival confirmation) | Batch | DevMAIL | × | × | × | × | × | × | × | × |
| | Random | | | | | | | | | |
| Q/QnA SEND function (no arrival confirmation) | Batch | DevMAILNC | × | × | × | × | × | × | × | × |
| | Random | | | | | | | | | |

○: Accessible ×: Inaccessible

- * 1 The following C Controller module is not accessible.
 - Q06CCPU-V with serial number (first five digits) "10101" or earlier
- * 3 When accessing to the device of number 32768 (8000H) or higher, use an extended function.

(☞ Page 10-4, Section 10.2)
- * 8 For the access, use ZR (file register) or ER (extended file register).
- * 9 Access is not allowed for the Q00JCPU.
- * 10 The following C Controller module cannot access the link relay (B) of device No.32768 (8000H) or higher.
 - Q06CCPU-V
- * 11 The following C Controller module cannot access the extended link register (W).
 - Q06CCPU-V with serial number (first five digits) "10011" or earlier
- * 12 Only the following C Controller module is accessible.
 - Q12DCCPU-V (Extended mode)
 - Q24DHCCPU-V with serial number (first five digits) "14081" or later
 - Q24DHCCPU-VG
- * 13 BFFFFH or later cannot be accessed.

(To the next page)

Table 10.20 Accessible devices for accessing other station (continued)

| Device | | Device type
(Device name specification) | Access target | | | | | | | |
|---|--------|--|---------------|----|----|----|----|----|-----------------|------------------|
| | | | 1) | 2) | 3) | 4) | 5) | 6) | 7) | 8) ^{*1} |
| Direct link input (Other station side) | Batch | DevLX(1) to DevLX(255) | x | x | x | x | x | ○ | ○ ^{*2} | x |
| | Random | | x | x | x | x | x | ○ | ○ ^{*2} | x |
| Direct link output (Other station side) | Batch | DevLY(1) to DevLY(255) | x | x | x | x | x | ○ | ○ ^{*2} | x |
| | Random | | x | x | x | x | x | ○ | ○ ^{*2} | x |
| Direct link relay (Other station side) | Batch | DevLB(1) to DevLB(255) | x | x | x | x | x | ○ | ○ ^{*2} | x |
| | Random | | x | x | x | x | x | ○ | ○ ^{*2} | x |
| Direct link register (Other station side) ^{*3} | Batch | DevLW(1) to DevLW(255) | x | x | x | x | x | ○ | ○ ^{*2} | x |
| | Random | | x | x | x | x | x | ○ | ○ ^{*2} | x |
| Direct link special relay (Other station side) | Batch | DevLSB(1) to DevLSB(255) | x | x | x | x | x | ○ | ○ ^{*2} | x |
| | Random | | x | x | x | x | x | ○ | ○ ^{*2} | x |
| Direct link special register (Other station side) | Batch | DevLSW(1) to DevLSW(255) | x | x | x | x | x | ○ | ○ ^{*2} | x |
| | Random | | x | x | x | x | x | ○ | ○ ^{*2} | x |
| Special direct buffer register, Intelligent function module buffer memory | Batch | DevSPG(0) to DevSPG(255) | x | x | x | x | x | ○ | ○ ^{*2} | ○ |
| | Random | | x | x | x | x | x | ○ | ○ ^{*2} | ○ |
| Other station buffer memory ^{*14} | Batch | DevRBM | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ |
| | Random | | x | x | x | x | x | x | x | x |
| Other station random access buffer ^{*14} | Batch | DevRAB | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ |
| | Random | | x | x | x | x | x | x | x | x |
| Other station RX ^{*14} | Batch | DevRX | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ |
| | Random | | x | x | x | x | x | x | x | x |
| Other station RY ^{*14} | Batch | DevRY | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ |
| | Random | | x | x | x | x | x | x | x | x |
| Other station link register ^{*14} | Batch | DevRW | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ |
| | Random | | x | x | x | x | x | x | x | x |
| Other station SB (Link special relay for CC-Link) ^{*14} | Batch | DevSB | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ |
| | Random | | x | x | x | x | x | x | x | x |
| Other station SW (Link special register for CC-Link) ^{*14} | Batch | DevSW | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○ |
| | Random | | x | x | x | x | x | x | x | x |

○: Accessible ×: Inaccessible

* 1 The following C Controller module is not accessible.

- Q06CCPU-V with serial number (first five digits) "10101" or earlier

* 2 The following C Controller module is not accessible.

- Q12DCCPU-V with serial number (first five digits) "12041" or earlier
- Q06CCPU-V

* 3 When accessing to the device of number 32768 (8000_H) or higher, use an extended function.

(Page 10-4, Section 10.2)

* 14 Indicates the access to the buffer memory of a CC-Link module (intelligent device station) installed with each CPU module.

Access is not allowed to multiple CPU systems (when the logical station number is specified).

10.13.3 Access via MELSECNET/H

| | | |
|------------|-----------|-------------|
| Q12DCCPU-V | Q06CCPU-V | Q06CCPU-V-B |
| ○ | ○ | × |

(1) Accessible range

(a) How to read the table

The items from [1.Connected network] to [4.Target CPU] in Table 10.22 correspond to the numbers indicated in the figure below.

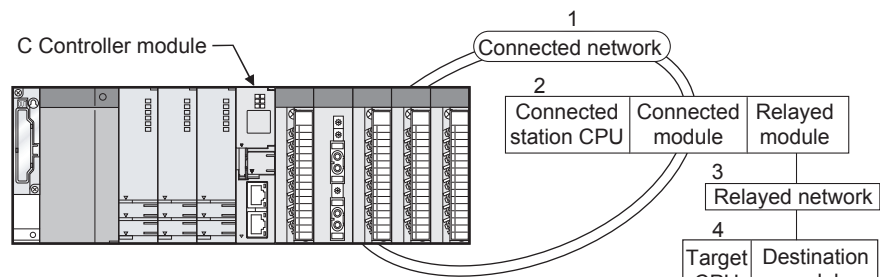


Figure 10.8 Accessible range via MELSECNET/H

The numbers in the [4.Target CPU] column indicate the modules or boards for personal computer as in the table below.

Table 10.21 Routing target CPU

| No. | CPU type |
|-----|---|
| 1) | C Controller module, PC CPU module |
| 2) | MELSECNET/H board (personal computer) |
| 3) | CC-Link IE Controller Network interface board (personal computer) |

(b) Accessible range for own station and [2.Connected station CPU]
The own station and [2.Connected station CPU] are all accessible.

(c) Accessible range for [4.Target CPU]

Table 10.22 Accessibility table

| 1.Connected network | 2.Connected station CPU | 3.Relayed network | 4.Target CPU | | | | | | | |
|---------------------|----------------------------------|---|--------------|--------|---------|------|------------------|-----------------------------|----|------|
| | | | QCPU | | QnA CPU | ACPU | 1) | Board for personal computer | | LCPU |
| | | | Q mode | A mode | | | | 2) | 3) | |
| MELSECNET/H | QCPU (Q mode) | CC-Link IE Controller Network* ¹ | ○ | × | × | × | ○ ^{4,5} | × | × | × |
| | | CC-Link IE Field Network | × | × | × | × | × | × | × | × |
| | | MELSECNET/H ² | ○ | × | × | × | ○ | ○ | × | × |
| | | MELSECNET/10 ³ | ○ | ○ | ○ | ○ | ○ | ○ | × | × |
| | | MELSECNET(II) | × | × | × | × | × | × | × | × |
| | | Ethernet | ○ | × | × | × | × | × | × | × |
| | | Computer link | × | × | × | × | × | × | × | × |
| | CC-Link | × | × | × | × | × | × | × | × | |
| | C Controller module ⁶ | CC-Link IE Controller Network | × | × | × | × | × | × | × | × |
| | | CC-Link IE Field Network | × | × | × | × | × | × | × | × |
| | | MELSECNET/H | × | × | × | × | × | × | × | × |
| | | MELSECNET/10 | × | × | × | × | × | × | × | × |
| | | MELSECNET(II) | × | × | × | × | × | × | × | × |
| | | Ethernet | × | × | × | × | × | × | × | × |
| Computer link | | × | × | × | × | × | × | × | × | |
| CC-Link | × | × | × | × | × | × | × | × | | |

○: Accessible ×: Inaccessible

- * 1 Only when all the CPU module connected and relay stations are Universal model QCPU, a CC-Link IE Controller Network module of station number 65 or higher can be accessed.
- * 2 Access is allowed when the MELSECNET/H module of the connected station is in the MELSECNET/H mode.
- * 3 Access is allowed when the MELSECNET/H module of the connected station is in the MELSECNET/10 mode.
- * 4 The following C Controller module cannot access the C Controller module allocated to [4. Target CPU].
 - Q06CCPU-V with serial number (first five digits) "10011" or earlier
- * 5 Access is not allowed to PC CPU modules.
- * 6 The following C Controller module is not accessible.
 - Q12DCCPU-V with serial number (first five digits) "12041" or earlier
 - Q06CCPU-V

(To the next page)

Table 10.22 Accessibility table (continued)

| 1.Connected network | 2.Connected station CPU | 3.Relayed network | 4.Target CPU | | | | | | | |
|---------------------|-----------------------------------|---|--------------|--------|---------|------|--------------------|-----------------------------|----|------|
| | | | QCPU | | QnA CPU | ACPU | 1) | Board for personal computer | | LCPU |
| | | | Q mode | A mode | | | | 2) | 3) | |
| MELSECNET/10 | QCPU (Q mode) | CC-Link IE Controller Network ^{*1} | ○ | × | × | × | ○ ^{*4,*5} | × | × | × |
| | | CC-Link IE Field Network | × | × | × | × | × | × | × | × |
| | | MELSECNET/H | ○ | × | × | × | ○ ^{*5} | ○ | × | × |
| | | MELSECNET/10 | ○ | ○ | ○ | ○ | ○ ^{*5} | ○ | × | × |
| | | MELSECNET(II) | × | × | × | × | × | × | × | × |
| | | Ethernet | ○ | × | × | × | × | × | × | × |
| | | Computer link | × | × | × | × | × | × | × | × |
| | | CC-Link | × | × | × | × | × | × | × | × |
| | QnACPU | CC-Link IE Controller Network | × | × | × | × | × | × | × | × |
| | | CC-Link IE Field Network | × | × | × | × | × | × | × | × |
| | | MELSECNET/H | × | × | × | × | × | × | × | × |
| | | MELSECNET/10 | ○ | ○ | ○ | ○ | ○ ^{*5} | ○ | × | × |
| | | MELSECNET(II) | × | × | × | × | × | × | × | × |
| | | Ethernet | × | × | ○ | × | × | × | × | × |
| | | Computer link | × | × | × | × | × | × | × | × |
| | | CC-Link | × | × | × | × | × | × | × | × |
| | QCPU (A mode), ACPU | CC-Link IE Controller Network | × | × | × | × | × | × | × | × |
| | | CC-Link IE Field Network | × | × | × | × | × | × | × | × |
| | | MELSECNET/H | × | × | × | × | × | × | × | × |
| | | MELSECNET/10 | ○ | ○ | ○ | ○ | ○ ^{*5} | ○ | × | × |
| | | MELSECNET(II) | × | × | × | × | × | × | × | × |
| | | Ethernet | × | × | × | × | × | × | × | × |
| | | Computer link | × | × | × | × | × | × | × | × |
| | | CC-Link | × | × | × | × | × | × | × | × |
| | C Controller module ^{*6} | CC-Link IE Controller Network | × | × | × | × | × | × | × | × |
| | | CC-Link IE Field Network | × | × | × | × | × | × | × | × |
| | | MELSECNET/H | × | × | × | × | × | × | × | × |
| | | MELSECNET/10 | × | × | × | × | × | × | × | × |
| | | MELSECNET(II) | × | × | × | × | × | × | × | × |
| | | Ethernet | × | × | × | × | × | × | × | × |
| | | Computer link | × | × | × | × | × | × | × | × |
| | | CC-Link | × | × | × | × | × | × | × | × |

○: Accessible x: Inaccessible

- * 1 Only when all the CPU module connected and relay stations are Universal model QCPU, a CC-Link IE Controller Network module of station number 65 or higher can be accessed.
- * 4 The following C Controller module cannot access the C Controller module allocated to [4. Target CPU].
 - Q06CCPU-V with serial number (first five digits) "10011" or earlier
- * 5 Access is not allowed to PC CPU modules.
- * 6 The following C Controller module is not accessible.
 - Q12DCCPU-V with serial number (first five digits) "12041" or earlier
 - Q06CCPU-V

(2) Accessible devices

(a) How to read the table

1) Batch and random of devices

Table 10.23 Batch and random of devices

| Item in the table | Description |
|-------------------|---|
| Batch | <ul style="list-style-type: none"> •Batch write (mdSend, mdSendEx functions) •Batch read (mdReceive, mdReceiveEx functions) |
| Random | <ul style="list-style-type: none"> •Random write(mdRandW, mdRandWEx functions) •Random read(mdRandR, mdRandREx functions) •Bit set(mdDevSet, mdDevSetEx functions)
Only bit devices can access. •Bit reset(mdDevRst, mdDevRstEx functions)
Only bit devices can access. |

2) Access target for accessing other station

Table 10.24 Access target for accessing other station

| No. | Access target |
|-----|--|
| 1) | A1NCPU |
| 2) | A0J2HCPU, A1S(H)CPU, A1SJ(H)CPU, A2NCPU(-S1), A2S(H)CPU |
| 3) | A2ACPU(-S1), A2UCPU(-S1), A2USCPU(-S1), A2USHCPU-S1
Q02(H)CPU-A, Q06HCPU-A |
| 4) | A3NCPU, A3ACPU, A3UCPU |
| 5) | A4UCPU
Q2ACPU(-S1), Q3ACPU, Q4ACPU, Q4ARCPU, Q2ASCPU(-S1), Q2ASHCPU(-S1)
Q00JCPU, Q00CPU, Q01CPU
Q02(H)CPU, Q06HCPU, Q12HCPU, Q25HCPU
Q02PHCPU, Q06PHCPU, Q12PHCPU, Q25PHCPU |
| 6) | Q00UJCPU, Q00UCPU, Q01UCPU, Q02UCPU, Q03UDCPU, Q04UDHCPU, Q06UDHCPU, Q10UDHCPU, Q13UDHCPU, Q20UDHCPU, Q26UDHCPU, Q03UDECPU, Q04UDEHCPU, Q06UDEHCPU, Q10UDEHCPU, Q13UDEHCPU, Q20UDEHCPU, Q26UDEHCPU, Q50UDEHCPU, Q100UDEHCPU, Q03UDVCPU, Q04UDVCPU, Q06UDVCPU, Q13UDVCPU, Q26UDVCPU |
| 7) | C Controller module that controls a CC-Link IE Controller Network module,
C Controller module that controls a MELSECNET/H module,
PC CPU module that controls a MELSECNET/H module,
Personal computer with a CC-Link IE Controller Network interface board,
Personal computer with a MELSECNET/H board |
| 8) | L02CPU, L26CPU-BT |

(b) Accessible devices for accessing own station

Table 10.25 Accessible devices for accessing own station

| Device | | Device type (Device name specification) | Accessibility |
|---|--------|---|---------------|
| Own station input internal buffer (LX buffer) | Batch | DevX | ○ |
| | Random | | |
| Own station output internal buffer (LY buffer) | Batch | DevY | ○ |
| | Random | | |
| Own station link relay internal buffer (LB buffer) | Batch | DevB | ○ |
| | Random | | |
| Own station link register internal buffer (LW buffer) | Batch | DevW | ○ |
| | Random | | |
| Q/QnA RECV function | Batch | DevMAIL | ○ |
| | Random | | × |
| Own station direct link input (LX) | Batch | DevLX(0) | ○ |
| | Random | | |
| Own station direct link output (LY) | Batch | DevLY(0) | ○ |
| | Random | | |
| Own station direct link relay (LB) | Batch | DevLB(0) | ○ |
| | Random | | |
| Own station direct link register (LW) | Batch | DevLW(0) | ○ |
| | Random | | |
| Own station direct link special relay (SB) | Batch | DevSB(0) | ○ |
| | Random | | |
| Own station direct link special register (SW) | Batch | DevSW(0) | ○ |
| | Random | | |

○: Accessible ×: Inaccessible

(c) Accessible devices for accessing other station

Table 10.26 Accessible devices for accessing other station

| Device | | Device type
(Device name specification) | Access target | | | | | | | |
|--|--------|--|---------------|----|----|----|----|----|--------------------|----|
| | | | 1) | 2) | 3) | 4) | 5) | 6) | 7) | 8) |
| X | Batch | DevX | ○ | ○ | ○ | ○ | ○ | ○ | ○ ^{*1} | × |
| | Random | | ○ | ○ | ○ | ○ | ○ | ○ | ○ ^{*1} | × |
| Y | Batch | DevY | ○ | ○ | ○ | ○ | ○ | ○ | ○ ^{*1} | × |
| | Random | | ○ | ○ | ○ | ○ | ○ | ○ | ○ ^{*1} | × |
| L | Batch | DevL | ○ | ○ | ○ | ○ | ○ | ○ | × | × |
| | Random | | ○ | ○ | ○ | ○ | ○ | ○ | × | × |
| M ^{*2,*3} | Batch | DevM | ○ | ○ | ○ | ○ | ○ | ○ | ○ ^{*1,*4} | × |
| | Random | | ○ | ○ | ○ | ○ | ○ | ○ | ○ ^{*1,*4} | × |
| SM (special relay), SB (link special relay for MELSECNET/H, CC-Link IE Controller Network and CC-Link) | Batch | DevSM | ○ | ○ | ○ | ○ | ○ | ○ | ○ ^{*1} | × |
| | Random | | ○ | ○ | ○ | ○ | ○ | ○ | ○ ^{*1} | × |
| F | Batch | DevF | ○ | ○ | ○ | ○ | ○ | ○ | × | × |
| | Random | | ○ | ○ | ○ | ○ | ○ | ○ | × | × |
| T (contact) | Batch | DevTT | ○ | ○ | ○ | ○ | ○ | ○ | × | × |
| | Random | | ○ | ○ | ○ | ○ | ○ | ○ | × | × |
| T (coil) | Batch | DevTC | ○ | ○ | ○ | ○ | ○ | ○ | × | × |
| | Random | | ○ | ○ | ○ | ○ | ○ | ○ | × | × |
| C (contact) | Batch | DevCT | ○ | ○ | ○ | ○ | ○ | ○ | × | × |
| | Random | | ○ | ○ | ○ | ○ | ○ | ○ | × | × |
| C (coil) | Batch | DevCC | ○ | ○ | ○ | ○ | ○ | ○ | × | × |
| | Random | | ○ | ○ | ○ | ○ | ○ | ○ | × | × |
| T (current value) | Batch | DevTN | ○ | ○ | ○ | ○ | ○ | ○ | × | × |
| | Random | | ○ | ○ | ○ | ○ | ○ | ○ | × | × |
| C (current value) | Batch | DevCN | ○ | ○ | ○ | ○ | ○ | ○ | × | × |
| | Random | | ○ | ○ | ○ | ○ | ○ | ○ | × | × |
| D ^{*2,*5} | Batch | DevD | ○ | ○ | ○ | ○ | ○ | ○ | ○ ^{*1,*4} | × |
| | Random | | ○ | ○ | ○ | ○ | ○ | ○ | ○ ^{*1,*4} | × |
| SD (special register), SW (link special register for MELSECNET/H, CC-Link IE Controller Network and CC-Link) | Batch | DevSD | ○ | ○ | ○ | ○ | ○ | ○ | ○ ^{*1} | × |
| | Random | | ○ | ○ | ○ | ○ | ○ | ○ | ○ ^{*1} | × |

○: Accessible ×: Inaccessible

- * 1 The following C Controller module is not accessible.
 - Q12DCCPU-V with serial number (first five digits) "12041" or earlier
 - Q06CCPU-V
- * 2 When accessing to the device of number 32768 (8000_H) or higher, use an extended function. (☞ Page 10-4, Section 10.2)
- * 3 The following C Controller module cannot access the internal relay (M) of device No.32768 (8000_H) or higher.
 - Q06CCPU-V
- * 4 Available only when the device function is used. (☞ Page 4-35, Section 4.8)
- * 5 The following C Controller module cannot access the extended data register (D).
 - Q06CCPU-V with serial number (first five digits) "10011" or earlier

(To the next page)

Table 10.26 Accessible devices for accessing other station (continued)

| Device | | Device type
(Device name specification) | Access target | | | | | | | |
|--|--------|--|---------------|----|-----------------|----|----|-----------------|----------------------|----|
| | | | 1) | 2) | 3) | 4) | 5) | 6) | 7) | 8) |
| T (main setting) | Batch | DevTM | ○ | ○ | ○ | ○ | ○ | × | × | × |
| | Random | | × | × | × | × | × | | | |
| T (sub setting 1) | Batch | DevTS | × | × | ○ ^{*6} | ○ | ○ | × | × | × |
| | Random | | × | × | × | × | × | | | |
| T (sub setting 2) | Batch | DevTS2 | × | × | × | × | ○ | × | × | × |
| | Random | | × | × | × | × | × | | | |
| T (sub setting 3) | Batch | DevTS3 | × | × | × | × | ○ | × | × | × |
| | Random | | × | × | × | × | × | | | |
| C (main setting) | Batch | DevCM | ○ | ○ | ○ | ○ | ○ | × | × | × |
| | Random | | × | × | × | × | × | | | |
| C (sub setting 1) | Batch | DevCS | × | × | ○ ^{*6} | ○ | ○ | × | × | × |
| | Random | | × | × | × | × | × | | | |
| C (sub setting 2) | Batch | DevCS2 | × | × | × | × | ○ | × | × | × |
| | Random | | × | × | × | × | × | | | |
| C (sub setting 3) | Batch | DevCS3 | × | × | × | × | ○ | × | × | × |
| | Random | | × | × | × | × | × | | | |
| A | Batch | DevA | ○ | ○ | ○ | ○ | ○ | × | × | × |
| | Random | | ○ | ○ | ○ | ○ | ○ | | | |
| Z | Batch | DevZ | ○ | ○ | ○ | ○ | ○ | ○ | × | × |
| | Random | | ○ | ○ | ○ | ○ | ○ | | | |
| V (index register) | Batch | DevV | ○ | ○ | ○ | ○ | ○ | × | × | × |
| | Random | | ○ | ○ | ○ | ○ | ○ | | | |
| R (file register) | Batch | DevR | × | ○ | ○ | ○ | ○ | × ^{*7} | × | × |
| | Random | | × | ○ | ○ | ○ | ○ | | | |
| ZR (file register) ^{*2} | Batch | DevZR | × | × | × | × | × | ○ ^{*8} | × | × |
| | Random | | × | × | × | × | × | | | |
| ER (extended file register) | Batch | DevER(0) to DevER(256) | × | ○ | ○ | ○ | ○ | ○ ^{*8} | × | × |
| | Random | | × | ○ | ○ | ○ | ○ | | | |
| B ^{*2,*9} | Batch | DevB | ○ | ○ | ○ | ○ | ○ | ○ | ○ ^{*11,*12} | × |
| | Random | | ○ | ○ | ○ | ○ | ○ | | | |
| W ^{*2,*10} | Batch | DevW | ○ | ○ | ○ | ○ | ○ | ○ | ○ ^{*11} | × |
| | Random | | ○ | ○ | ○ | ○ | ○ | | | |
| Q/QnA link special relay (within Q/QnACPU) | Batch | DevQSB | × | × | × | × | × | ○ | × | × |
| | Random | | × | × | × | × | × | | | |

○: Accessible ×: Inaccessible

- * 2 When accessing to the device of number 32768 (8000_H) or higher, use an extended function.
(☞ Page 10-4, Section 10.2)
- * 6 Access is not allowed for the A2ACPU(-S1).
- * 7 For the access, use ZR (file register) or ER (extended file register).
- * 8 Access is not allowed for the Q00JCPU.
- * 9 The following C Controller module cannot access the link relay (B) of device No.32768 (8000_H) or higher.
 - Q06CCPU-V
- * 10 The following C Controller module cannot access the extended link register (W).
 - Q06CCPU-V with serial number (first five digits) "10011" or earlier
- * 11 Only the following C Controller module is accessible.
 - Q12DCCPU-V (Extended mode)
 - Q24DHCCPU-V with serial number (first five digits) "14081" or later
 - Q24DHCCPU-VG
- * 12 BFFFF_H or later cannot be accessed.

(To the next page)

Table 10.26 Accessible devices for accessing other station (continued)

| Device | | Device type
(Device name specification) | Access target | | | | | | | |
|---|--------|--|---------------|----|----|----|----|----|------------------|----|
| | | | 1) | 2) | 3) | 4) | 5) | 6) | 7) | 8) |
| Retentive timer (contact) | Batch | DevSTT | x | x | x | x | x | ○ | x | x |
| | Random | | x | x | x | x | x | ○ | x | x |
| Retentive timer (coil) | Batch | DevSTC | x | x | x | x | x | ○ | x | x |
| | Random | | x | x | x | x | x | ○ | x | x |
| Q/QnA link special register (within Q/QnACPU) | Batch | DevQSW | x | x | x | x | x | ○ | x | x |
| | Random | | x | x | x | x | x | ○ | x | x |
| Q/QnA edge relay (within Q/QnACPU) | Batch | DevQV | x | x | x | x | x | ○ | x | x |
| | Random | | x | x | x | x | x | ○ | x | x |
| Own station random access buffer | Batch | DevMRB | x | x | x | x | x | x | x | x |
| | Random | | x | x | x | x | x | x | x | x |
| Retentive timer (current value) | Batch | DevSTN | x | x | x | x | x | ○ | x | x |
| | Random | | x | x | x | x | x | ○ | x | x |
| Own station link register (for sending) | Batch | DevWw | x | x | x | x | x | x | x | x |
| | Random | | x | x | x | x | x | x | x | x |
| Own station link register (for receiving) | Batch | DevWr | x | x | x | x | x | x | x | x |
| | Random | | x | x | x | x | x | x | x | x |
| Own station buffer memory | Batch | DevSPB | x | x | x | x | x | x | x | x |
| | Random | | x | x | x | x | x | x | x | x |
| Q/QnA SEND function (with arrival confirmation)* ¹³ | Batch | DevMAIL | x | x | x | x | x | ○ | ○* ¹⁴ | x |
| | Random | | x | x | x | x | x | x | x | |
| Q/QnA SEND function (no arrival confirmation)* ¹³ | Batch | DevMAILNC | x | x | x | x | x | ○ | ○* ¹⁴ | x |
| | Random | | x | x | x | x | x | x | x | |
| Direct link input (other station side) | Batch | DevLX(1) to DevLX(255) | x | x | x | x | x | ○ | ○* ¹ | x |
| | Random | | x | x | x | x | x | ○ | ○* ¹ | |
| Direct link output (other station side) | Batch | DevLY(1) to DevLY(255) | x | x | x | x | x | ○ | ○* ¹ | x |
| | Random | | x | x | x | x | x | ○ | ○* ¹ | |
| Direct link relay (other station side) | Batch | DevLB(1) to DevLB(255) | x | x | x | x | x | ○ | ○* ¹ | x |
| | Random | | x | x | x | x | x | ○ | ○* ¹ | |
| Direct link register (other station side)* ² | Batch | DevLW(1) to DevLW(255) | x | x | x | x | x | ○ | ○* ¹ | x |
| | Random | | x | x | x | x | x | ○ | ○* ¹ | |
| Direct link special relay (other station side) | Batch | DevLSB(1) to DevLSB(255) | x | x | x | x | x | ○ | ○* ¹ | x |
| | Random | | x | x | x | x | x | ○ | ○* ¹ | |
| Direct link special register (other station side) | Batch | DevLSW(1) to DevLSW(255) | x | x | x | x | x | ○ | ○* ¹ | x |
| | Random | | x | x | x | x | x | ○ | ○* ¹ | |
| Special direct buffer register, Intelligent function module buffer memory | Batch | DevSPG(0) to DevSPG(255) | x | x | x | x | x | ○ | x | x |
| | Random | | x | x | x | x | x | ○ | x | |
| Other station buffer memory | Batch | DevRBM | x | x | x | x | x | x | x | x |
| | Random | | x | x | x | x | x | x | x | |

○: Accessible x: Inaccessible

* 1 The following C Controller module is not accessible.

- Q12DCCPU-V with serial number (first five digits) "12041" or earlier
- Q06CCPU-V

* 2 When accessing to the device of number 32768 (8000_H) or higher, use an extended function.

(Page 10-4, Section 10.2)

* 13 This function is used to send messages to a network module on the other station via a MELSECNET/H module.

Access is not allowed to a multiple CPU system (when the logical station numbers are specified).

* 14 Access is not allowed for MELSECNET/H modules (PC CPU modules) and CC-Link IE Controller Network interface boards (personal computers).

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Table 10.26 Accessible devices for accessing other station (continued)

| Device | Device type
(Device name specification) | Access target | | | | | | | | |
|--|--|---------------|----|----|----|----|----|----|----|---|
| | | 1) | 2) | 3) | 4) | 5) | 6) | 7) | 8) | |
| Other station random access buffer | Batch | DevRAB | × | × | × | × | × | × | × | × |
| | Random | | × | × | × | × | × | × | × | × |
| Other station RX | Batch | DevRX | × | × | × | × | × | × | × | × |
| | Random | | × | × | × | × | × | × | × | × |
| Other station RY | Batch | DevRY | × | × | × | × | × | × | × | × |
| | Random | | × | × | × | × | × | × | × | × |
| Other station link register | Batch | DevRW | × | × | × | × | × | × | × | × |
| | Random | | × | × | × | × | × | × | × | × |
| Other station SB (link special relay for CC-Link) | Batch | DevSB | × | × | × | × | × | × | × | × |
| | Random | | × | × | × | × | × | × | × | × |
| Other station SW (link special register for CC-Link) | Batch | DevSW | × | × | × | × | × | × | × | × |
| | Random | | × | × | × | × | × | × | × | × |

○: Accessible ×: Inaccessible

10.13.4 Access via CC-Link IE Controller Network

| | | |
|------------|-----------|-------------|
| Q12DCCPU-V | Q06CCPU-V | Q06CCPU-V-B |
| ○ | ○ | × |

(1) Accessible range

(a) How to read the table

The items from [1.Connected network] to [4.Target CPU] in the Accessibility table correspond to the numbers indicated in the figure below.

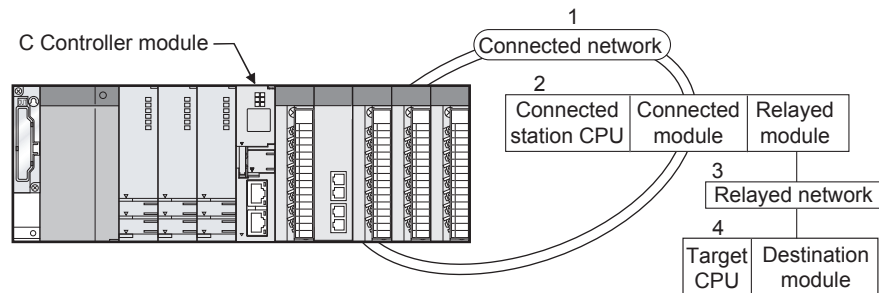


Figure 10.9 Accessible range via CC-Link IE Controller Network

The numbers in the [4.Target CPU] column indicate the modules or boards for personal computer as in the table below.

Table 10.27 Routing target CPU

| No. | CPU type |
|-----|---|
| 1) | C Controller module, PC CPU module |
| 2) | MELSECNET/H board (personal computer) |
| 3) | CC-Link IE Controller Network interface board (personal computer) |

(b) Accessible range for own station and [2.Connected station CPU]
The own station and [2.Connected station CPU] are all accessible.

(c) Accessible range for [4.Target CPU]

Table 10.28 Accessibility table

| 1.Connected network | 2.Connected station CPU | 3.Relayed network | 4.Target CPU | | | | | | | |
|-------------------------------|-------------------------|---------------------------------|--------------|--------|--------|------|--------|-----------------------------|----|------|
| | | | QCPU | | QnACPU | ACPU | 1) | Board for personal computer | | LCPU |
| | | | Q mode | A mode | | | | 2) | 3) | |
| CC-Link IE Controller Network | QCPU (Q mode) | CC-Link IE Controller Network*1 | ○*2 | × | × | × | ○*3,*4 | × | × | × |
| | | CC-Link IE Field Network | × | × | × | × | × | × | × | × |
| | | MELSECNET/H | ○*2 | × | × | × | ○*4 | ○ | × | × |
| | | MELSECNET/10 | ○*2 | ○ | ○ | ○ | ○*4 | ○ | × | × |
| | | MELSECNET(II) | × | × | × | × | × | × | × | × |
| | | Ethernet | ○ | × | × | × | × | × | × | × |
| | | Computer link | × | × | × | × | × | × | × | × |
| | | CC-Link | × | × | × | × | × | × | × | × |
| | C Controller module*5 | CC-Link IE Controller Network | × | × | × | × | × | × | × | × |
| | | CC-Link IE Field Network | × | × | × | × | × | × | × | × |
| | | MELSECNET/H | × | × | × | × | × | × | × | × |
| | | MELSECNET/10 | × | × | × | × | × | × | × | × |
| | | MELSECNET(II) | × | × | × | × | × | × | × | × |
| | | Ethernet | × | × | × | × | × | × | × | × |
| Computer link | × | × | × | × | × | × | × | × | | |
| CC-Link | × | × | × | × | × | × | × | × | | |

○: Accessible ×: Inaccessible

- * 1 Only when all the CPU module on the connected and relay stations are Universal model QCPU, a CC-Link IE Controller Network module of station number 65 or higher can be accessed.
- * 2 Access is not allowed when the connected station CPU is the Q00CPU or Q01CPU.
- * 3 The following C Controller module cannot access the C Controller module allocated to [4. Target CPU].
 - Q06CCPU-V with serial number (first five digits) "10011" or earlier
- * 4 Access is not allowed to the PC CPU modules.
- * 5 The following C Controller module is not accessible.
 - Q12DCCPU-V with serial number (first five digits) "12041" or earlier
 - Q06CCPU-V

(2) Accessible devices

(a) How to read the table

1) Batch and random of devices

Table 10.29 Batch and random of devices

| Item in the table | Description |
|-------------------|---|
| Batch | <ul style="list-style-type: none"> •Batch write (mdSend, mdSendEx functions) •Batch read (mdReceive, mdReceiveEx functions) |
| Random | <ul style="list-style-type: none"> •Random write(mdRandW, mdRandWEx functions) •Random read(mdRandR, mdRandREx functions) •Bit set(mdDevSet, mdDevSetEx functions)
Only bit devices can access. •Bit reset(mdDevRst, mdDevRstEx functions)
Only bit devices can access. |

2) Access target for accessing other station

Table 10.30 Access target for accessing other station

| No. | Access target |
|-----|--|
| 1) | A1NCPU |
| 2) | A0J2HCPU, A1S(H)CPU, A1SJ(H)CPU, A2NCPU(-S1), A2S(H)CPU |
| 3) | A2ACPU(-S1), A2UCPU(-S1), A2USCPU(-S1), A2USHCPU-S1
Q02(H)CPU-A, Q06HCPU-A |
| 4) | A3NCPU, A3ACPU, A3UCPU |
| 5) | A4UCPU
Q2ACPU(-S1), Q3ACPU, Q4ACPU, Q4ARCPU, Q2ASCPU(-S1), Q2ASHCPU(-S1)
Q00JCPU, Q00CPU, Q01CPU
Q02(H)CPU, Q06HCPU, Q12HCPU, Q25HCPU
Q02PHCPU, Q06PHCPU, Q12PHCPU, Q25PHCPU |
| 6) | Q00UJCPU, Q00UCPU, Q01UCPU, Q02UCPU, Q03UDCPU, Q04UDHCPU, Q06UDHCPU, Q10UDHCPU, Q13UDHCPU, Q20UDHCPU, Q26UDHCPU, Q03UDECPU, Q04UDEHCPU, Q06UDEHCPU, Q10UDEHCPU, Q13UDEHCPU, Q20UDEHCPU, Q26UDEHCPU, Q50UDEHCPU, Q100UDEHCPU, Q03UDVCPU, Q04UDVCPU, Q06UDVCPU, Q13UDVCPU, Q26UDVCPU |
| 7) | C Controller module that controls a CC-Link IE Controller Network module,
C Controller module that controls a MELSECNET/H module,
PC CPU module that controls a MELSECNET/H module,
Personal computer with a CC-Link IE Controller Network interface board,
Personal computer with a MELSECNET/H board |
| 8) | L02CPU, L26CPU-BT |

(b) Accessible devices for accessing own station

Table 10.31 Accessible devices for accessing own station

| Device | | Device type (Device name specification) | Accessibility |
|---|--------|---|---------------|
| Own station input internal buffer (LX buffer) | Batch | DevX | ○ |
| | Random | | |
| Own station output internal buffer (LY buffer) | Batch | DevY | ○ |
| | Random | | |
| Own station link relay internal buffer (LB buffer) | Batch | DevB | ○ |
| | Random | | |
| Own station link register internal buffer (LW buffer) | Batch | DevW | ○ |
| | Random | | |
| Q/QnA RECV function | Batch | DevMAIL | ○ |
| | Random | | × |
| Own station direct link input (LX) | Batch | DevLX(0) | ○ |
| | Random | | |
| Own station direct link output (LY) | Batch | DevLY(0) | ○ |
| | Random | | |
| Own station direct link relay (LB) | Batch | DevLB(0) | ○ |
| | Random | | |
| Own station direct link register (LW) ^{*1} | Batch | DevLW(0) | ○ |
| | Random | | |
| Own station direct link special relay (SB) | Batch | DevSB(0) | ○ |
| | Random | | |
| Own station direct link special register (SW) | Batch | DevSW(0) | ○ |
| | Random | | |

○: Accessible ×: Inaccessible

* 1 When accessing to the device of number 32768 (8000_H) or higher, use an extended function.

(☞ Page 10-4, Section 10.2)

9
PROGRAMMING USING BUS INTERFACE FUNCTIONS
10
PROGRAMMING USING MELSEC DATA LINK FUNCTIONS
11
PROGRAMMING USING VxWorks API FUNCTIONS
12
SAMPLE PROGRAMS
13
EVENT NUMBER LIST

A
I

(c) Accessible devices for accessing other station

Table 10.32 Accessible devices for accessing other station

| Device | | Device type
(Device name specification) | Access target | | | | | | | |
|--|--------|--|---------------|----|----|----|----|----|--------------------|----|
| | | | 1) | 2) | 3) | 4) | 5) | 6) | 7) | 8) |
| X | Batch | DevX | ○ | ○ | ○ | ○ | ○ | ○ | ○ ^{*1} | × |
| | Random | | ○ | ○ | ○ | ○ | ○ | ○ | ○ ^{*1} | × |
| Y | Batch | DevY | ○ | ○ | ○ | ○ | ○ | ○ | ○ ^{*1} | × |
| | Random | | ○ | ○ | ○ | ○ | ○ | ○ | ○ ^{*1} | × |
| L | Batch | DevL | ○ | ○ | ○ | ○ | ○ | ○ | × | × |
| | Random | | ○ | ○ | ○ | ○ | ○ | ○ | × | × |
| M ^{*2,*3} | Batch | DevM | ○ | ○ | ○ | ○ | ○ | ○ | ○ ^{*1,*4} | × |
| | Random | | ○ | ○ | ○ | ○ | ○ | ○ | ○ ^{*1,*4} | × |
| SM (special relay), SB (link special relay for MELSECNET/H, CC-Link IE Controller Network and CC-Link) | Batch | DevSM | ○ | ○ | ○ | ○ | ○ | ○ | ○ ^{*1} | × |
| | Random | | ○ | ○ | ○ | ○ | ○ | ○ | ○ ^{*1} | × |
| F | Batch | DevF | ○ | ○ | ○ | ○ | ○ | ○ | × | × |
| | Random | | ○ | ○ | ○ | ○ | ○ | ○ | × | × |
| T (contact) | Batch | DevTT | ○ | ○ | ○ | ○ | ○ | ○ | × | × |
| | Random | | ○ | ○ | ○ | ○ | ○ | ○ | × | × |
| T (coil) | Batch | DevTC | ○ | ○ | ○ | ○ | ○ | ○ | × | × |
| | Random | | ○ | ○ | ○ | ○ | ○ | ○ | × | × |
| C (contact) | Batch | DevCT | ○ | ○ | ○ | ○ | ○ | ○ | × | × |
| | Random | | ○ | ○ | ○ | ○ | ○ | ○ | × | × |
| C (coil) | Batch | DevCC | ○ | ○ | ○ | ○ | ○ | ○ | × | × |
| | Random | | ○ | ○ | ○ | ○ | ○ | ○ | × | × |
| T (current value) | Batch | DevTN | ○ | ○ | ○ | ○ | ○ | ○ | × | × |
| | Random | | ○ | ○ | ○ | ○ | ○ | ○ | × | × |
| C (current value) | Batch | DevCN | ○ | ○ | ○ | ○ | ○ | ○ | × | × |
| | Random | | ○ | ○ | ○ | ○ | ○ | ○ | × | × |
| D ^{*2,*5} | Batch | DevD | ○ | ○ | ○ | ○ | ○ | ○ | ○ ^{*1,*4} | × |
| | Random | | ○ | ○ | ○ | ○ | ○ | ○ | ○ ^{*1,*4} | × |
| SD (special register), SW (link special register for MELSECNET/H, CC-Link IE Controller Network and CC-Link) | Batch | DevSD | ○ | ○ | ○ | ○ | ○ | ○ | ○ ^{*1} | × |
| | Random | | ○ | ○ | ○ | ○ | ○ | ○ | ○ ^{*1} | × |

○: Accessible ×: Inaccessible

* 1 The following C Controller module is not accessible.

- Q12DCCPU-V with serial number (first five digits) "12041" or earlier
- Q06CCPU-V

* 2 When accessing to the device of number 32768 (8000_H) or higher, use an extended function.

(Page 10-4, Section 10.2)

* 3 The following C Controller module cannot access the internal relay (M) of device No.32768 (8000_H) or higher.

- Q06CCPU-V

* 4 Available only when the device function is used. (Page 4-35, Section 4.8)

* 5 The following C Controller module cannot access the extended data register (D).

- Q06CCPU-V with serial number (first five digits) "10011" or earlier


(To the next page)

Table 10.32 Accessible devices for accessing other station (continued)

| Device | | Device type
(Device name specification) | Access target | | | | | | | |
|--|--------|--|---------------|----|-----------------|----|----|-----------------|-----------------------|----|
| | | | 1) | 2) | 3) | 4) | 5) | 6) | 7) | 8) |
| T (main setting) | Batch | DevTM | ○ | ○ | ○ | ○ | ○ | × | × | × |
| | Random | | × | × | × | × | × | | | |
| T (sub setting 1) | Batch | DevTS | × | × | ○ ^{*6} | ○ | ○ | × | × | × |
| | Random | | × | × | × | × | × | | | |
| T (sub setting 2) | Batch | DevTS2 | × | × | × | × | ○ | × | × | × |
| | Random | | × | × | × | × | × | | | |
| T (sub setting 3) | Batch | DevTS3 | × | × | × | × | ○ | × | × | × |
| | Random | | × | × | × | × | × | | | |
| C (main setting) | Batch | DevCM | ○ | ○ | ○ | ○ | ○ | × | × | × |
| | Random | | × | × | × | × | × | | | |
| C (sub setting 1) | Batch | DevCS | × | × | ○ ^{*6} | ○ | ○ | × | × | × |
| | Random | | × | × | × | × | × | | | |
| C (sub setting 2) | Batch | DevCS2 | × | × | × | × | ○ | × | × | × |
| | Random | | × | × | × | × | × | | | |
| C (sub setting 3) | Batch | DevCS3 | × | × | × | × | ○ | × | × | × |
| | Random | | × | × | × | × | × | | | |
| A | Batch | DevA | ○ | ○ | ○ | ○ | ○ | × | × | × |
| | Random | | ○ | ○ | ○ | ○ | ○ | | | |
| Z | Batch | DevZ | ○ | ○ | ○ | ○ | ○ | ○ | × | × |
| | Random | | ○ | ○ | ○ | ○ | ○ | | | |
| V (index register) | Batch | DevV | ○ | ○ | ○ | ○ | ○ | × | × | × |
| | Random | | ○ | ○ | ○ | ○ | ○ | | | |
| R (file register) | Batch | DevR | × | ○ | ○ | ○ | ○ | × ^{*7} | × | × |
| | Random | | × | ○ | ○ | ○ | ○ | | | |
| ZR (file register) ^{*2} | Batch | DevZR | × | × | × | × | × | ○ ^{*8} | × | × |
| | Random | | × | × | × | × | × | | | |
| ER (extended file register) | Batch | DevER(0) to DevER(256) | × | ○ | ○ | ○ | ○ | ○ ^{*8} | × | × |
| | Random | | × | ○ | ○ | ○ | ○ | | | |
| B ^{*2, *9} | Batch | DevB | ○ | ○ | ○ | ○ | ○ | ○ | ○ ^{*11, *12} | × |
| | Random | | ○ | ○ | ○ | ○ | ○ | | | |
| W ^{*2, *10} | Batch | DevW | ○ | ○ | ○ | ○ | ○ | ○ | ○ ^{*11} | × |
| | Random | | ○ | ○ | ○ | ○ | ○ | | | |
| Q/QnA link special relay (within Q/QnACPU) | Batch | DevQSB | × | × | × | × | × | ○ | × | × |
| | Random | | × | × | × | × | × | | | |

○: Accessible ×: Inaccessible

- * 1 The following C Controller module is not accessible.
 - Q12DCCPU-V with serial number (first five digits) "12041" or earlier
 - Q06CCPU-V
- * 2 When accessing to the device of number 32768 (8000_H) or higher, use an extended function.

( Page 10-4, Section 10.2)
- * 6 Access is not allowed for the A2ACPU(-S1).
- * 7 For the access, use ZR (file register) or ER (extended file register).
- * 8 Access is not allowed for the Q00JCPU.
- * 9 The following C Controller module cannot access the link relay (B) of device No.32768 (8000_H) or higher.
 - Q06CCPU-V
- * 10 The following C Controller module cannot access the extended link register (W).
 - Q06CCPU-V with serial number (first five digits) "10011" or earlier
- * 11 Only the following C Controller module is accessible.
 - Q12DCCPU-V (Extended mode)
 - Q24DHCCPU-V with serial number (first five digits) "14081" or later
 - Q24DHCCPU-VG
- * 12 BFFFF_H or later cannot be accessed.

(To the next page)

Table 10.32 Accessible devices for accessing other station (continued)

| Device | | Device type
(Device name specification) | Access target | | | | | | | |
|---|--------|--|---------------|----|----|----|----|----|------------------|----|
| | | | 1) | 2) | 3) | 4) | 5) | 6) | 7) | 8) |
| Retentive timer (contact) | Batch | DevSTT | x | x | x | x | x | ○ | x | x |
| | Random | | x | x | x | x | x | ○ | x | x |
| Retentive timer (coil) | Batch | DevSTC | x | x | x | x | x | ○ | x | x |
| | Random | | x | x | x | x | x | ○ | x | x |
| Q/QnA link special register
(within Q/QnACPU) | Batch | DevQSW | x | x | x | x | x | ○ | x | x |
| | Random | | x | x | x | x | x | ○ | x | x |
| Q/QnA edge relay (within Q/
QnACPU) | Batch | DevQV | x | x | x | x | x | ○ | x | x |
| | Random | | x | x | x | x | x | ○ | x | x |
| Own station random access
buffer | Batch | DevMRB | x | x | x | x | x | x | x | x |
| | Random | | x | x | x | x | x | x | x | x |
| Retentive timer (current value) | Batch | DevSTN | x | x | x | x | x | ○ | x | x |
| | Random | | x | x | x | x | x | ○ | x | x |
| Own station link register
(for sending) | Batch | DevWw | x | x | x | x | x | x | x | x |
| | Random | | x | x | x | x | x | x | x | x |
| Own station link register
(for receiving) | Batch | DevWr | x | x | x | x | x | x | x | x |
| | Random | | x | x | x | x | x | x | x | x |
| Own station buffer memory | Batch | DevSPB | x | x | x | x | x | x | x | x |
| | Random | | x | x | x | x | x | x | x | x |
| Q/QnA SEND function (with
arrival confirmation) ^{*13} | Batch | DevMAIL | x | x | x | x | x | ○ | ○ ^{*14} | x |
| | Random | | x | x | x | x | x | x | x | |
| Q/QnA SEND function (no
arrival confirmation) ^{*13} | Batch | DevMAILNC | x | x | x | x | x | ○ | ○ ^{*14} | x |
| | Random | | x | x | x | x | x | x | x | |
| Direct link input (other station) | Batch | DevLX(1) to DevLX(255) | x | x | x | x | x | ○ | ○ ^{*1} | x |
| | Random | | x | x | x | x | x | ○ | ○ ^{*1} | |
| Direct link output (other station) | Batch | DevLY(1) to DevLY(255) | x | x | x | x | x | ○ | ○ ^{*1} | x |
| | Random | | x | x | x | x | x | ○ | ○ ^{*1} | |
| Direct link relay (other station) | Batch | DevLB(1) to DevLB(255) | x | x | x | x | x | ○ | ○ ^{*1} | x |
| | Random | | x | x | x | x | x | ○ | ○ ^{*1} | |
| Direct link register (other
station) ^{*2} | Batch | DevLW(1) to DevLW(255) | x | x | x | x | x | ○ | ○ ^{*1} | x |
| | Random | | x | x | x | x | x | ○ | ○ ^{*1} | |
| Direct link special relay (other
station) | Batch | DevLSB(1) to DevLSB(255) | x | x | x | x | x | ○ | ○ ^{*1} | x |
| | Random | | x | x | x | x | x | ○ | ○ ^{*1} | |
| Direct link special register (other
station) | Batch | DevLSW(1) to DevLSW(255) | x | x | x | x | x | ○ | ○ ^{*1} | x |
| | Random | | x | x | x | x | x | ○ | ○ ^{*1} | |
| Special direct buffer register,
Intelligent function module
buffer memory | Batch | DevSPG(0) to DevSPG(255) | x | x | x | x | x | ○ | ○ ^{*1} | x |
| | Random | | x | x | x | x | x | ○ | ○ ^{*1} | |

○: Accessible x: Inaccessible

* 1 The following C Controller module is not accessible.

- Q12DCCPU-V with serial number (first five digits) "12041" or earlier
- Q06CCPU-V

* 2 When accessing to the device of number 32768 (8000H) or higher, use an extended function.

(Page 10-4, Section 10.2)

* 13 This function is used to send messages to a network module on the other station via a CC-Link IE Controller Network module.

Access is not allowed to a multiple CPU system (when the logical station numbers are specified).

* 14 Access is not allowed for MELSECNET/H modules (PC CPU modules) and CC-Link IE Controller Network interface boards (personal computers).

(To the next page)

Table 10.32 Accessible devices for accessing other station (continued)

| Device | | Device type
(Device name specification) | Access target | | | | | | | |
|--|--------|--|---------------|----|----|----|----|----|----|----|
| | | | 1) | 2) | 3) | 4) | 5) | 6) | 7) | 8) |
| Other station buffer memory | Batch | DevRBM | × | × | × | × | × | × | × | × |
| | Random | | × | × | × | × | × | × | × | × |
| Other station random access buffer | Batch | DevRAB | × | × | × | × | × | × | × | × |
| | Random | | × | × | × | × | × | × | × | × |
| Other station RX | Batch | DevRX | × | × | × | × | × | × | × | × |
| | Random | | × | × | × | × | × | × | × | × |
| Other station RY | Batch | DevRY | × | × | × | × | × | × | × | × |
| | Random | | × | × | × | × | × | × | × | × |
| Other station link register | Batch | DevRW | × | × | × | × | × | × | × | × |
| | Random | | × | × | × | × | × | × | × | × |
| Other station SB (link special relay for CC-Link) | Batch | DevSB | × | × | × | × | × | × | × | × |
| | Random | | × | × | × | × | × | × | × | × |
| Other station SW (link special register for CC-Link) | Batch | DevSW | × | × | × | × | × | × | × | × |
| | Random | | × | × | × | × | × | × | × | × |

○: Accessible ×: Inaccessible

CHAPTER 11 PROGRAMMING USING VxWorks API FUNCTIONS




For the component list and information checking method of the VxWorks component implemented in the C Controller module, refer to the following.

 Page APPX-1, "Appendix 1 VxWorks Component List"

For each component functionality and VxWorks API functions, refer to the manual for VxWorks.

(1) Sample program using VxWorks functions

Installing SW3PVC-CCPU registers the sample programs of the following functions.

 Page 12-1, CHAPTER 12)

- The Connect function between C Controller module and GOT (Microcomputer connection)
- The RAM disk function

(2) Precautions for using VxWorks API functions

(a) Changing the system clock rate

The C Controller module supports system clock rate of 60 to 1000. (Default: 60)

When changing the system clock rate, use the sysClkRateSet function.

For setting and changing the system clock rate, refer to the manual for VxWorks.

(3) Precautions for the Wind River Systems product

We, Mitsubishi, make no warranty for the Wind River Systems product and will not be liable for any problems and damages caused by the Wind River Systems product during use of the C Controller module. For the problems or specifications of the Wind River Systems product, refer to the corresponding manual or consult Wind River Systems, Inc.

Contact information is available on the following website.

www.windriver.com

CHAPTER 12 SAMPLE PROGRAMS



Sample programs are provided as a reference used in creating user programs.
Please use the sample programs at user's own discretion.

(1) Sample programs for the Q12DCCPU-V

Sample programs for the Q12DCCPU-V are installed in
"C:\MELSEC\CCPU\CCPUTOOL\Sample\DVx" (When SW3PVC-CCPU has been
installed in "C:\MELSEC").

For opening sample programs, refer to the following.

Page 12-5, Section 12.1

Table 12.1 Registered sample programs

| Folder name | | File name | Description of sample program |
|-------------|------------------------------|----------------------|--|
| GOTtest | | GOTtest.c | For connection to GOT. |
| MDtest | DevAccess\DevAccessChanCCIEC | DevAccessChanCCIEC.c | For access to the following modules using MELSEC data link functions
•A CC-Link IE Controller Network module (own station) controlled by the C Controller module.
•CC-Link IE Controller Network modules or programmable controller CPUs on other stations via a CC-Link IE Controller Network module controlled by the C Controller module. |
| | DevAccess\DevAccessChanCCL | DevAccessChanCCL.c | For access to the following modules using MELSEC data link functions
•A CC-Link module (own station) controlled by the C Controller module.
•CC-Link modules or programmable controller CPUs on other stations via a CC-Link module controlled by the C Controller module. |
| | DevAccess\DevAccessChanMNH | DevAccessChanMNH.c | For access to the following modules using MELSEC data link functions
•A MELSECNET/H module (host station) controlled by the C Controller module.
•MELSECNET/H modules or programmable controller CPUs on other stations via a MELSECNET/H module controlled by the C Controller module. |
| | DevAccess\DevAccessChanQBF | DevAccessChanQBF.c | For access to the following module using MELSEC data link functions
•CPU No.1 mounted together with the C Controller module in a multiple CPU system. |

(To the next page)

Table 12.1 Registered sample programs (continued)

| Folder name | File name | Description of sample program | |
|-------------|--|-------------------------------|--|
| Others | CCIEField\
LocalStation | LocalStation.c | For performing cyclic transmission with the master station in the CC-Link IE Field Network (local station). |
| | CCIEField\
MasterStation_LocalStation | MasterStation_LocalStation.c | For performing cyclic transmission with the local station in the CC-Link IE Field Network (master station). |
| | CCIEField\
MasterStation_RemoteIO | MasterStation_RemoteIO.c | For performing cyclic transmission with the intelligent device station in the CC-Link IE Field Network (master station). |
| | CFTaskPrioritySet.c | CFTaskPrioritySet.c | For priority (default: 50) change of the system task (XBD service task) which operates when accessing to a CompactFlash card. |
| | FTPGet.c | FTPGet.c | For FTP communications |
| | MakeRAMDisk.c | MakeRAMDisk.c | For RAM disk creation |
| | QD75Status.c | QD75Status.c | For 1-shot monitoring of the positioning module status (current feed value, axis error No., and axis warning No.) |
| | QPParamSet.c | QPParamSet.c | For automatic transfer of the parameter file created in GX Configurator-QP to a positioning module |
| QBFtest | SntpTimeSet.c | SntpTimeSet.c | For setting clock data by acquiring the data from the SNTP server computer |
| | CFChange | CFChange.c | For unmounting a CompactFlash card when X0 turns on |
| | EntryWDTInt | EntryWDTInt.c | For user watchdog timer error interrupt registration |
| | MotionLink\
MotionLink | MotionLink.c | The linkage with the Motion CPU is utilized for this sample program. |
| | MotionLink\
MotionSyncInt | MotionSyncInt.c | For execution of the interrupt process synchronizing with the multiple CPU high speed transmission with either the Q172DCPU or Q173DCPU. |
| Script | QBFMessage | QBFMessage.c | For sending messages via MELSECNET/H |
| | LoginUserRegist | STARTUP.CMD | Sample script file for login user registration |
| | ParamBackUp | STARTUP.CMD | Sample script file for parameter backup |
| | ParamRestore | STARTUP.CMD | Sample script file for parameter restoration |
| | RAMFormat | STARTUP.CMD | Sample script file for standard RAM formatting |

9

PROGRAMMING USING
BUS INTERFACE
FUNCTIONS

10

PROGRAMMING USING
MELSEC DATA LINK
FUNCTIONS

11

PROGRAMMING USING
VxWorks API
FUNCTIONS

12

SAMPLE PROGRAMS

13

EVENT NUMBER LIST

A

I

(2) Sample programs for the Q06CCPU-V(-B)

Sample programs for the Q06CCPU-V(-B) are installed in "C:\MELSEC\CCPU\CCPUTOOL\Sample\Vx" (When SW3PVC-CCPU has been installed in "C:\MELSEC").

For opening sample programs, refer to the following.

Page 12-5, Section 12.1

Table 12.2 Registered sample programs

| Folder name | | File name | Description of sample program |
|-------------|--------------------------------------|--------------------------|--|
| GOTtest | | GOTtest.c | For connection to GOT |
| MDtest | DevAccess\
DevAccessChanC
CIEC | DevAccessChanC
CIEC.c | For access to the following modules using MELSEC data link functions
For the Q06CCPU-V-B, this sample program cannot be used.
•A CC-Link IE Controller Network module (own station) controlled by the C Controller module.
•CC-Link IE Controller Network modules or programmable controller CPUs on other stations via a CC-Link IE Controller Network module controlled by the C Controller module. |
| | DevAccess\
DevAccessChanC
CL | DevAccessChanC
CL.c | For access to the following modules using MELSEC data link functions
For the Q06CCPU-V-B, this sample program cannot be used.
•A CC-Link module (own station) controlled by the C Controller module.
•CC-Link modules and programmable controller CPUs on other stations via a CC-Link module controlled by the C Controller module. |
| | DevAccess\
DevAccessChanM
NH | DevAccessChanM
NH.c | For access to the following modules using MELSEC data link functions
For the Q06CCPU-V-B, this sample program cannot be used.
•A MELSECNET/H module (host station) controlled by the C Controller module.
•MELSECNET/H modules and programmable controller CPUs on other stations via a MELSECNET/H module controlled by the C Controller module. |
| | DevAccess\
DevAccessChanQ
BF | DevAccessChanQ
BF.c | For access to the following module using MELSEC data link functions
For the Q06CCPU-V-B, this sample program cannot be used.
•CPU No.1 configuring a multiple CPU system with the C Controller module. |

(To the next page)

Table 12.2 Registered sample programs (continued)

| Folder name | File name | Description of sample program |
|-------------|--------------------------------------|--|
| Others | CCIEField\LocalStation | LocalStation.c
For performing cyclic transmission with the master station in the CC-Link IE Field Network (local station). |
| | CCIEField\MasterStation_LocalStation | MasterStation_LocalStation.c
For performing cyclic transmission with the local station in the CC-Link IE Field Network (master station). |
| | CCIEField\MasterStation_RemoteIO | MasterStation_RemoteIO.c
For performing cyclic transmission with the intelligent device station in the CC-Link IE Field Network (master station). |
| | FTPGet.c | FTPGet.c
For FTP communication |
| | MakeRAMDisk.c | MakeRAMDisk.c
For RAM disk creation |
| | QD75Status.c | QD75Status.c
For 1-shot monitoring of the positioning module status (current feed value, axis error No., and axis warning No.) |
| | QPParamSet.c | QPParamSet.c
For automatic transfer of the parameter file created in GX Configurator-QP to a positioning module |
| QBFtest | SntpTimeSet.c | SntpTimeSet.c
For setting clock data by acquiring the data from the SNTP server computer |
| | CFChange | CFChange.c
For unmounting a CompactFlash card when X0 turns on
For the Q06CCPU-V-B, this sample program cannot be used. |
| | EntryWDTInt | EntryWDTInt.c
For user watchdog timer error interrupt registration |
| | MotionLink | MotionLink.c
The linkage with the Motion CPU is used for this sample program. |
| | QBFMessage | QBFMessage.c
For sending messages via MELSECNET/H |
| Script | Shutdown | ROMShutdown.c
For shutting down the standard ROM when X0 turns on |
| | LoginUserRegist | STARTUP.CMD
Sample script file for login user registration |
| | ParamBackUp | STARTUP.CMD
Sample script file for parameter backup |
| | ParamRestore | STARTUP.CMD
Sample script file for parameter restoration |
| | ROMFormat | STARTUP.CMD
Sample script file for standard ROM formatting |

Remark

Sample programs which cannot be used in the C Controller module contain the notification message as shown below.

```

/*****
/*  Sample program
/*  When X0 is ON, unmount the CF card.
/*  Note)
/*  This sample program cannot be used because
/*  Q06CCPU-V-B does not support CF card interface.
/*  If the following functions are executed, unsupported
/*  communications path error (19203 [0x4B03]) will be
/*  returned.
*/
/*****/

```

Figure 12.1 A sample program which cannot be used in the Q06CCPU-V-B

12.1 Procedure for Opening Sample Programs



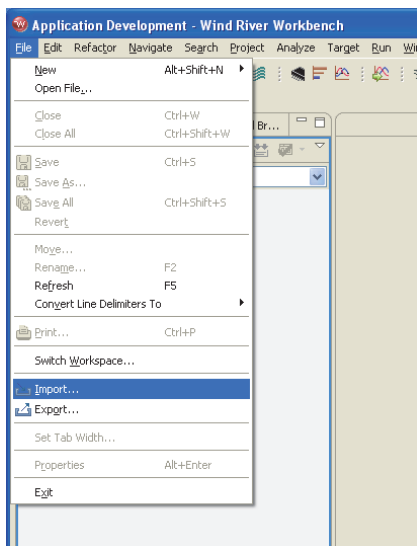
This section describes the procedure for opening sample programs when SW3PVC-CCPU is installed in "C:\MELSEC".

When installing SW3PVC-CCPU in folders other than "C:\MELSEC", create a new project with reference to the following procedure. Copying the contents of the sample program to the source file enables the compiling.

☞ Page 9-9, Section 9.4

(1) Procedure for opening the sample program for the Q12DCCPU-V

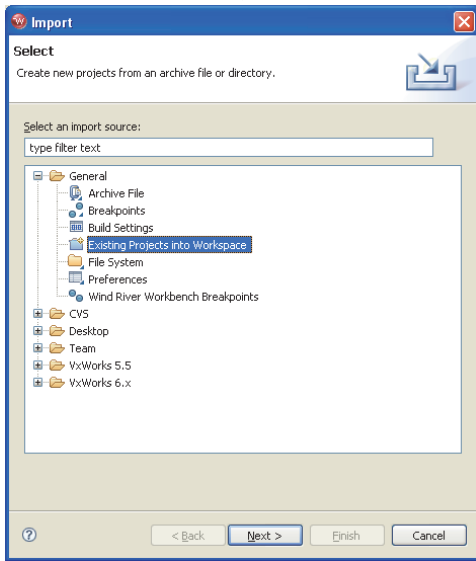
The following windows are those of Wind River Workbench, but the procedure is the same when CW Workbench is used.



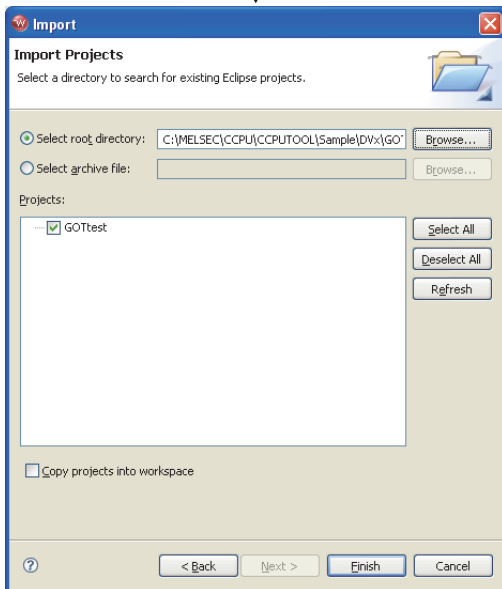
(To the next page)

- 1 Start Workbench.
- 2 Select the [File] → [Import].

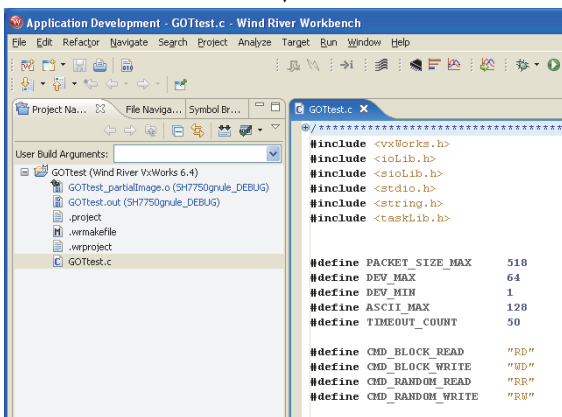
(From the previous page)



- 3 Select "General" → "Existing Projects into Workspace", and click the **Next >** button.



- 4 Specify a directory name to "Select root directory" which the source file of the sample program are stored. Confirm the sample program in "Projects" is selected, and click the **Finish** button.



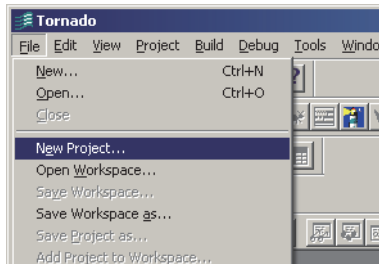
- 5 Double click the file name of the sample program with imported project so that the sample program is opened to use.

(Completed)

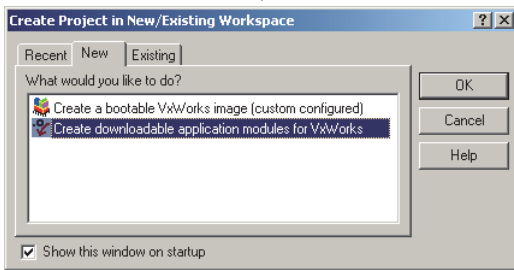
(2) Procedure for opening the sample program for the Q06CCPU-V(-B)

- 1 Start Tornado.
When Workspace is opened automatically, perform procedure of 7 or later.
When Workspace is not opened automatically, perform the following operations continuously.

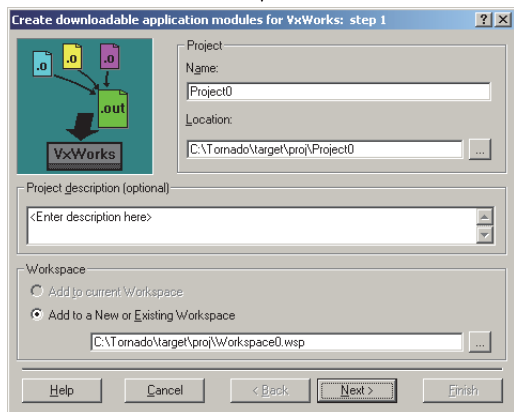
- 2 Select the [File] → [New Project] from the menu bar.



- 3 Select "Create downloadable application modules for VxWorks", and click the **OK** button.



- 4 Enter the "Name", "Location", and "Workspace", and click the **Next>** button.

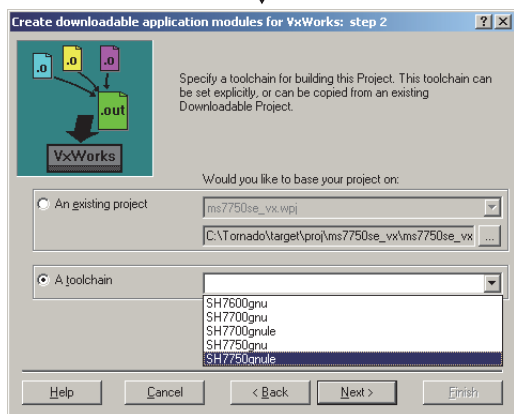


- 5 Select "A toolchain", a setting corresponding to the machine from a pull down menu shown below, and click the **Next>** button.

Q06CCPU-V: SH7750gnu (Little endian)
Q06CCPU-V-B: SH7750gnu (Big endian)

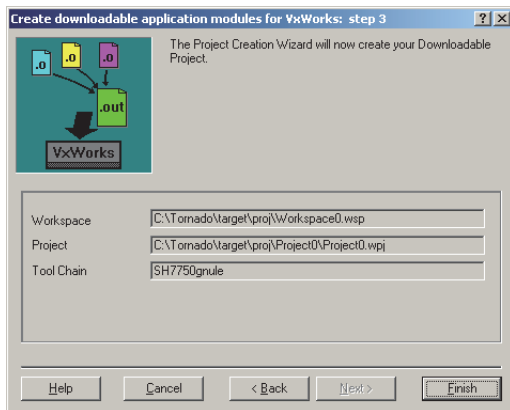
REFERENCE

An endian format will be decided by this setting. When other setting is selected by the endian format, the program does not operate.

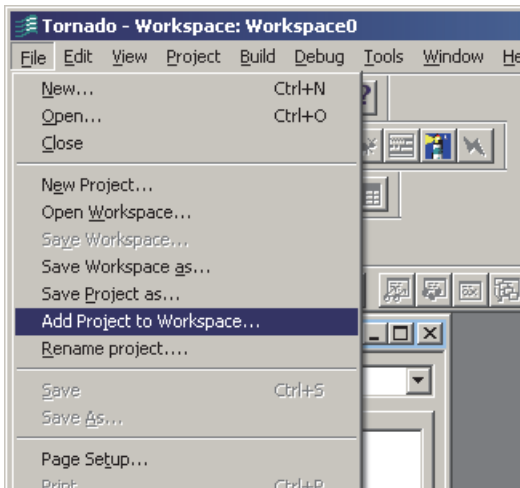


(To the next page)

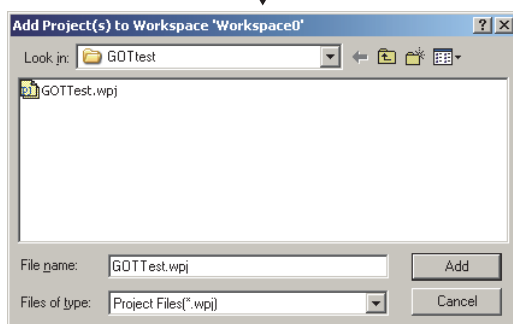
(From the previous page)



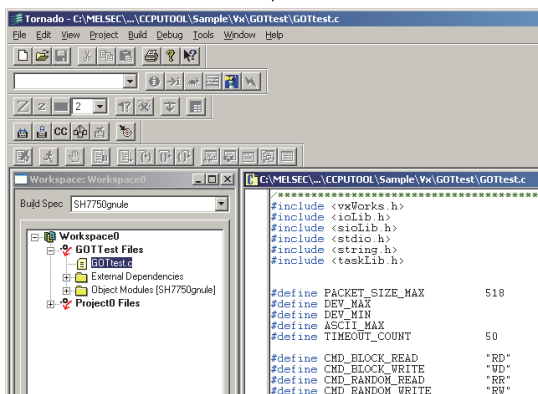
- 6 After confirming the setting of "Workspace", "Project", and "Tool Chain" are correct, click the **Finish** button.



- 7 Select the "File" → "Add Project to Workspace".



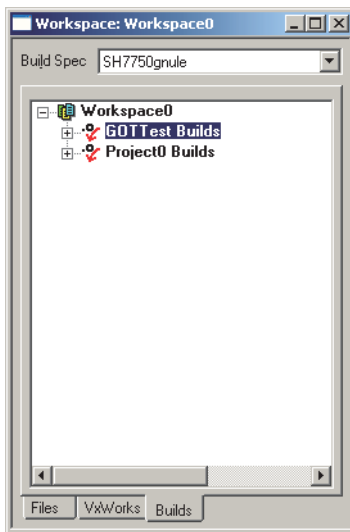
- 8 Select the file whose extension is wpi in the same folder of the sample program, and click the **Add** button.



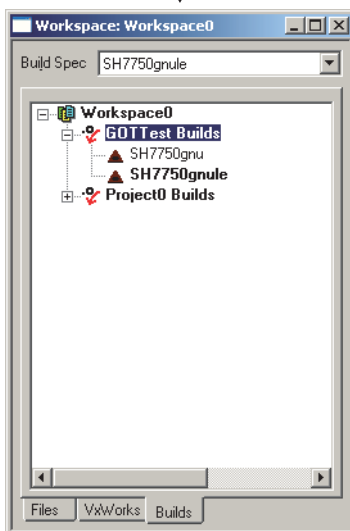
- 9 For the Q06CCPU-V, the sample program can be opened from the project added to Workspace.
For the Q06CCPU-V-B, operate the following procedures.

(To the next page)

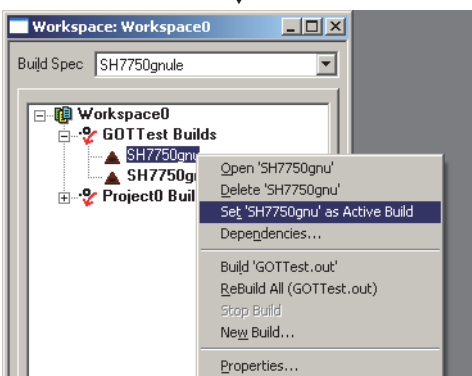
(From the previous page)



10 Open the <<Build>> tab of "Workspace" window.



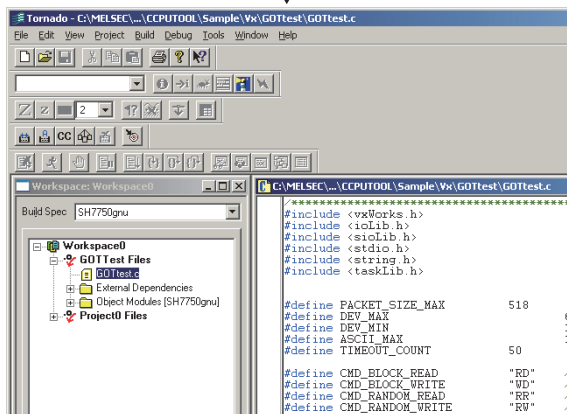
11 Double click the icon (-) to display the following items.



12 Right click "SH7750gnu" and select "Set 'SH7750gnu' as Active Build" from the menu bar.

(To the next page)

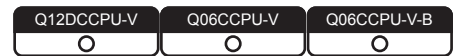
(From the previous page)



13 The sample program can be opened from the project when opening the <<Files>> tab of the "Workspace" window.

(Completed)

CHAPTER 13 EVENT NUMBER LIST



When an event such as an error occurs in the C Controller system, information required to correct errors such as an event No. is displayed on the Event history tab. When an event has occurred, check the event No. in the following procedure and take corrective actions.

POINT

When more than one event occur, take corrective actions for each event in chronological order.

- 1) Open the "Detailed event information" screen by double-clicking on a event to correct on the history screen of C Controller setting utility. (☞ Page 4-6, Section 4.3 (3))

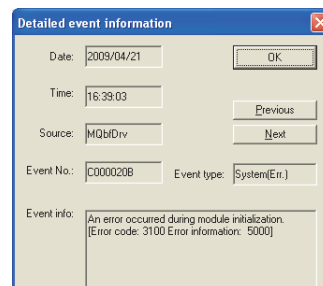


Figure 13.1 Detailed event information screen

- 2) When "Application" is shown in the "Event type" field, it indicates that the event was registered by the user program (QBF_RegistEventLog function). Take corrective actions determined by user.
- 3) The following "Event type" indicate that the event has occurred in the C Controller system.
 - System (Info.)
 - System (Warning)
 - System (Err.)

Check "source" and "event No." on the Detailed event information screen, and take corrective actions referring to the following table.

Table 13.1 Source list

| Source | Data type | Reference page |
|-----------|---|----------------|
| MQbfDrv | Bus interface driver (bus part) related | Page 13-2 |
| MXwdkDrv | Bus interface driver (system part) related | Page 13-3 |
| MUtlfQbf | Utility communication interface (bus interface part) related | Page 13-3 |
| MUtlfMd | Utility communication interface (MELSEC communication part) related | Page 13-4 |
| MUtlfCom | Utility communication interface (common part) related | Page 13-4 |
| MMain | C Controller module main part related | Page 13-5 |
| MFDrv | Flash ROM and standard RAM related | Page 13-5 |
| MCfDrv | CompactFlash card related | Page 13-7 |
| MEtherDrv | Ethernet related | Page 13-8 |

(1) When the source is "MQbfDrv"

When taking corrective actions of corresponding error code, refer to HELP of C Controller setting utility.

Table 13.2 Corrective actions

| Event No. | Event type | Event | Corrective action |
|-----------|--------------|---|--|
| C000011EH | System(Err.) | Failed to allocate memory required for the driver start-up. | Increase the system memory.
Reduce the memory usage of other programs. |
| C0000127H | System(Err.) | SYSTEM WDT ERROR occurred. | Take corrective actions for error code 5000. |
| C0000131H | System(Err.) | USER WDT ERROR occurred. | Take corrective actions for error code 5001. |
| C0000201H | System(Err.) | AC/DC DOWN occurred. | Take corrective actions for error code 1500. |
| C0000202H | System(Err.) | CONTROL-BUS.ERR. occurred. | Take corrective actions for error code 1413, 1414, 1415, and 1416. |
| C0000204H | System(Err.) | UNIT VERIFY ERR. occurred. | Take corrective actions for error code 2000. |
| C0000206H | System(Err.) | FUSE BREAK OFF occurred. | Take corrective actions for error code 1300. |
| C0000207H | System(Err.) | SP.UNIT DOWN occurred. | Take corrective actions for error code 1401 and 1403. |
| C0000208H | System(Err.) | CONTROL-BUS.ERR. occurred. | Take corrective actions for error code 1412. |
| C0000209H | System(Err.) | SP.UNIT LAY ERR. occurred. | Take corrective actions for error code 2100, 2103, 2106, 2107, 2108, 2120, 2121, 2122, 2124, 2125, 2126, and 2150. |
| C000020AH | System(Err.) | PARAMETER ERROR occurred. | Take corrective actions for error code 3000, 3001, 3010, 3012, 3014, 3015, and 3016. |
| C000020BH | System(Err.) | An error occurred during module initialization.
(Only the first error is displayed.) | Take corrective actions corresponding to the error code displayed in the event information. |
| C000020EH | System(Err.) | A CPU module built-in battery error occurred. | Take corrective actions for error code 1600. |
| C0000210H | System(Err.) | MULTI CPU DOWN occurred. | Take corrective actions for error code 7000 and 7002. |
| C0000211H | System(Err.) | MULTI EXE.ERROR occurred. | Take corrective actions for error code 7010, 7011, and 7013. |
| C0000212H | System(Err.) | MULTI CPU ERROR occurred. | Take corrective actions for error code 7020. |
| C0000213H | System(Err.) | SP.PARAMETER ERROR occurred. | Take corrective actions for error code 3300, 3301, 3302, and 3303. |
| C0000214H | System(Err.) | LINK PARAMETER ERROR occurred. | Take corrective actions for error code 3100, 3101, 3102, 3103, 3104, 3105, and 3107. |
| C0000215H | System(Err.) | I/O INT.ERROR occurred. | Take corrective actions for error code 1310. |
| C0000216H | System(Err.) | MAIN CPU DOWN occurred. | Take corrective actions for error code 1000 and 1009. |
| C0000217H | System(Err.) | A momentary stop occurred. | Take corrective actions for error code 1500. |
| C0000218H | System(Err.) | LINK REFRESH TIME OVER occurred. | Take corrective actions for error code 5012. |
| C0000219H | System(Err.) | SINGLE PS.DOWN occurred. | Take corrective actions for error code 1510. |
| C000021AH | System(Err.) | SINGLE PS.ERROR occurred. | Take corrective actions for error code 1520. |
| C000021BH | System(Err.) | MULTI-C.BUS.ERR. occurred. | Take corrective actions for error code 1430, 1431, 1432, 1433, 1434, 1435, 1436, 1437, and 1439. |
| C000021CH | System(Err.) | CPU LAY ERROR occurred. | Take corrective actions for error code 7036. |

(2) When the source is "MXwdkDrv"

Table 13.3 Corrective action

| Event No. | Event type | Event | Corrective action |
|-----------|---------------|--|--|
| 40000000H | System(Info.) | The clock data of the C Controller module have been set.
This event occurs when:
•Clock data was set by executing the QBF_SetTime function.
•Clock data was set by C Controller setting utility.
•Clock data was set by peripheral devices such as GOT and MX Component. | — |
| C0000001H | System(Err.) | An exceptional error occurred. | Reexamine the user program by checking the event detail information (such as error details, task names, and program counters). Check the operation methods of Workbench or Tornado as well.
Please consult your local Mitsubishi service center or representative, explaining the details of the problem. |
| 40000002H | System(info.) | The clock data were corrected by the clock synchronization function.
This event is registered when a clock data difference from a CPU No. 1 is detected after enabling the Clock synchronization function. | — |

(3) When source is "MUtilfQbf"

Table 13.4 Corrective action

| Event No. | Event type | Event | Corrective action |
|-----------|--------------|-------------------------------------|---|
| C0000000H | System(Err.) | An illegal packet error occurred. | Check the port No. used and change it if necessary.
Change the IP address. |
| C0000001H | System(Err.) | An instruction error occurred. | Check the utility and the C Controller module versions. |
| C0000002H | System(Err.) | A socket generation error occurred. | Restart the C Controller module.
Please consult your local Mitsubishi service center or representative, explaining the details of the problem. |
| C0000003H | System(Err.) | A port acquisition error occurred. | Check the port No. used.
Check for overlap between the C Controller module ports. |
| C0000004H | System(Err.) | A bind error occurred. | Restart the C Controller module.
Please consult your local Mitsubishi service center or representative, explaining the details of the problem. |

(4) When source is "MUtilfMd"

Table 13.5 Corrective action

| Event No. | Event type | Event | Corrective action |
|-----------|--------------|-------------------------------------|---|
| C000000H | System(Err.) | An illegal packet error occurred. | Check the port No. used and change it if necessary.
Change the IP address. |
| C000001H | System(Err.) | An instruction error occurred. | Check the utility and C Controller module versions. |
| C000002H | System(Err.) | A socket generation error occurred. | Restart the C Controller module.
Please consult your local Mitsubishi service center or representative, explaining the details of the problem.
A port acquisition error occurred. |
| C000003H | System(Err.) | A port acquisition error occurred. | Check the port No. used.
Check for overlap between the C Controller module ports. |
| C000004H | System(Err.) | A bind error occurred. | Restart the C Controller module.
Please consult your local Mitsubishi service center or representative, explaining the details of the problem. |

(5) When the source is "MUtilfCom"

Table 13.6 Corrective action

| Event No. | Event type | Event | Corrective action |
|-----------|--------------|-------------------------------------|---|
| C000000H | System(Err.) | An illegal packet error occurred. | Check the port No. used and change it if necessary.
Change the IP address. |
| C000001H | System(Err.) | An instruction error occurred. | Check the utility and C Controller module versions. |
| C000002H | System(Err.) | A socket generation error occurred. | Restart the C Controller module.
Please consult your local Mitsubishi service center or representative, explaining the details of the problem. |
| C000003H | System(Err.) | A port acquisition error occurred. | Check the port No. used.
Check for overlap between the C Controller module ports. |
| C000004H | System(Err.) | A bind error occurred. | Restart the C Controller module.
Please consult your local Mitsubishi service center or representative, explaining the details of the problem. |

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(6) When the source is "MMain"

When taking corrective actions for an error code, refer to HELP of C Controller setting utility.

Table 13.7 Corrective action

| Event No. | Event type | Event | Corrective action |
|-----------|--------------|--|--|
| C0000110H | System(Err.) | A script execution error occurred. | A system error in the C Controller module is possible.
Please consult your local Mitsubishi service center or representative, explaining the details of the problem. |
| C0000111H | System(Err.) | <ul style="list-style-type: none"> •One of commands (lines) in the script file has more than 129 characters. •The command in the script file cannot be executed. (An error exists in the syntax, or the command does not exist.)
(A stop error occurs in the C Controller module [CPU error code 2502] and the module stops execution of the script command.) | Take corrective actions for error code 2502. |
| C0000330H | System(Err.) | Failed to access LAN. | The parameter file (IP address setting area) does not exist. Using the C Controller setting utility, set the IP address or write the parameters.
A system error in the C Controller is possible cause.
Please consult your local Mitsubishi service center or representative, explaining the details of the problem. |

(7) When the source is "MFDrv"

When taking corrective actions for an error code, refer to HELP of C Controller setting utility.

Table 13.8 Corrective action

| Event No. | Event type | Event | Corrective action |
|-----------|-----------------|---|--|
| 80000000H | System(Warning) | <ul style="list-style-type: none"> •Q12DCCPU-V
The standard ROM drive was illegally accessed. •Q06CCPU-V(-B)
The number of standard ROM drive "/ROM" deletions exceeded 100 thousand times. | <ul style="list-style-type: none"> •Q12DCCPU-V
It might be a breakdown of the C Controller module.
Please consult your local Mitsubishi service center or representative, explaining the details of the problem. •Q06CCPU-V(-B)
Change the writing media from the standard ROM drive to the CompactFlash card "/CF", or replace the C Controller module. |
| C0000400H | System(Err.) | A standard ROM drive "/ROM" format error occurred. | Reformat the standard ROM drive "/ROM". |
| C0000401H | System(Err.) | Usage of the battery backup RAM exceeded the capacity | A system error in the C Controller is possible cause.
Please consult your local Mitsubishi service center or representative, explaining the details of the problem. |

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Table 13.8 Corrective action (continued)

| Event No. | Event type | Event | Corrective action |
|-----------|-----------------|---|---|
| 80000406H | System(Warning) | A timeout occurred during writing to file in the standard ROM drive "/ROM". | Write the file again if the file was not written correctly.
If this event occurs frequently, reexamine the user program (processing, task priority, etc.) that runs on the C Controller module. |
| C0000408H | System(Err.) | A battery backup RAM error was detected. | Check if an interrupt routine (interrupt program) is writing data into the same SRAM area.
If the error persists, a system error in the C Controller module is probable. Please consult your local Mitsubishi service center or representative, explaining the details of the problem. |
| C0000409H | System(Err.) | An internal ROM ("/ROM", "/SYSTEMROM") error was detected. | A system error in the C Controller module is probable. Please consult your local Mitsubishi service center or representative, explaining the details of the problem. |
| C000040AH | System(Err.) | MAIN CPU DOWN occurred. | It refers to the Error Code 1000. |
| C0000410H | System(Err.) | A standard RAM drive "/RAM" format error occurred. | Reformat the standard RAM drive "/RAM".
When this event is generated even if it formats it again, it might be a breakdown of the C Controller module. Please consult your local Mitsubishi service center or representative, explaining the details of the problem. |
| C0000416H | System(Err.) | A standard RAM drive "/RAM" error was detected. | It refers to the Error Code 1106. |
| C0000417H | System(Err.) | RAM ERROR occurred. | It refers to the Error Code 1106. |

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(8) When the source is "MCfDrv"

Table 13.9 Corrective action

| Event No. | Event type | Event | Corrective action |
|-----------|--------------|--|--|
| C0000480H | System(Err.) | The CompactFlash card is not responding. | The CompactFlash Card is pulled out once, and it inserts it again.
Replace the CompactFlash card. |
| C0000481H | System(Err.) | An error occurred while obtaining the CompactFlash card drive information. | The CompactFlash Card is pulled out once, and it inserts it again.
Replace the CompactFlash card. |
| C0000482H | System(Err.) | An error occurred while reading master boot record (MBR). | The CompactFlash Card is pulled out once, and it inserts it again.
Reformat the CompactFlash card on a personal computer, etc.
Replace the CompactFlash card. |
| C0000483H | System(Err.) | The master boot record (MBR) cannot be recognized in this format. | Reformat the CompactFlash card on a personal computer, etc.
Replace the CompactFlash card. |
| C0000490H | System(Err.) | A resource shortage error occurred. | Check the utilization of the memory, provide a free space, and execute again. |
| C0000491H | System(Err.) | A CF driver initialization error occurred. | A system error in the C Controller is possible cause.
Please consult your local Mitsubishi service center or representative, explaining the details of the problem. |
| C0000492H | System(Err.) | A device name registration error occurred. | A system error in the C Controller is possible cause.
Please consult your local Mitsubishi service center or representative, explaining the details of the problem. |
| C0000493H | System(Err.) | A block No. error occurred. | A system error in the C Controller is possible cause.
Please consult your local Mitsubishi service center or representative, explaining the details of the problem. |

(9) When the source is "MEtherDrv"

Table 13.10 Corrective action

| Event No. | Event type | Event | Corrective action |
|-----------|--------------|---|--|
| C0000200H | System(Err.) | An initialization parameter error occurred. | A system error in the C Controller is possible cause.
Please consult your local Mitsubishi service center or representative, explaining the details of the problem. |
| C0000201H | System(Err.) | A resource shortage error occurred. | A system error in the C Controller is possible cause.
Please consult your local Mitsubishi service center or representative, explaining the details of the problem. |
| C0000202H | System(Err.) | An END or MIB-II structure initialization error occurred. | A system error in the C Controller is possible cause.
Please consult your local Mitsubishi service center or representative, explaining the details of the problem. |
| C0000203H | System(Err.) | An interrupt registration error occurred. | A system error in the C Controller is possible cause.
Please consult your local Mitsubishi service center or representative, explaining the details of the problem. |
| C0000210H | System(Err.) | An MII clock stop was detected. | A system error in the C Controller is possible cause.
Please consult your local Mitsubishi service center or representative, explaining the details of the problem. |

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APPENDICES

Appendix 1 VxWorks Component List



This section describes the components implemented in the C Controller module and how to check information of the components.

(1) VxWorks component list

(a) For the Q12DCCPU-V

The following list shows the components implemented in the C Controller module.

Table APPX.1 VxWorks component list

| Component | Macro |
|--|-----------------------------|
| Address Space Allocator Show Routines | INCLUDE_ADR_SPACE_SHOW |
| address space shell commands | INCLUDE_ADR_SPACE_SHELL_CMD |
| ANSI assert | INCLUDE_ANSI_ASSERT |
| ANSI ctype | INCLUDE_ANSI_CTYPE |
| ANSI errno to erro string conversion function | INCLUDE_ANSI_STRERROR |
| ANSI locale | INCLUDE_ANSI_LOCALE |
| ANSI math | INCLUDE_ANSI_MATH |
| ANSI stdio | INCLUDE_ANSI_STDIO |
| ANSI stdio extensions | INCLUDE_ANSI_STDIO_EXTRA |
| ANSI stdlib | INCLUDE_ANSI_STDLIB |
| ANSI string | INCLUDE_ANSI_STRING |
| ANSI string duplication function | INCLUDE_ANSI_STRDUP |
| ANSI time | INCLUDE_ANSI_TIME |
| application initialization | INCLUDE_USER_APPL |
| arpLib | INCLUDE_ARP_API |
| Attach END to IPv4 | INCLUDE_IPATTACH |
| AUX clock | INCLUDE_AUX_CLK |
| basic memory allocator | INCLUDE_MEM_MGR_BASIC |
| basic MMU | INCLUDE_MMU_BASIC |
| basic network support | INCLUDE_NETWORK |
| Basic PPP Components*1 | INCLUDE_BASIC_PPP |
| binary semaphore creation routine | INCLUDE_SEM_BINARY_CREATE |
| binary semaphores | INCLUDE_SEM_BINARY |
| Boot parameter process | INCLUDE_NET_BOOT |
| BPF Support | INCLUDE_BPF |
| BSD socket support | INCLUDE_BSD_SOCKET |
| BSP Memory Configuration | INCLUDE_MEMORY_CONFIG |
| buffer manager | INCLUDE_BUF_MGR |
| built-in symbol table | INCLUDE_STANDALONE_SYM_TBL |
| c line interpreter | INCLUDE_SHELL_INTERP_C |
| C++ symbol demangler | INCLUDE_CPLUS_DEMANGLER |
| C++ compiler support routines | INCLUDE_CPLUS_LANG |
| C++ core runtime | INCLUDE_CPLUS |
| C++ iostream and other standard library facilities | INCLUDE_CPLUS_Iostream |

* 1 The following C Controller module cannot be used.

- The Q12DCCPU-V with the serial No. (first five digits) "12041" or higher.

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Table APPX.1 VxWorks component list (continued)

| Component | Macro |
|--|-----------------------------|
| cache support | INCLUDE_CACHE_SUPPORT |
| command line interpreter | INCLUDE_SHELL_INTERP_CMD |
| coprocessor | INCLUDE_COPROCESSOR |
| coprocessor show routine | INCLUDE_COPROCESSOR_SHOW |
| Core NFS client | INCLUDE_CORE_NFS_CLIENT |
| counting semaphore creation routine | INCLUDE_SEM_COUNTING_CREATE |
| counting semaphores | INCLUDE_SEM_COUNTING |
| Create Basic PPP Framework ^{*1} | INCLUDE_PPP_FRAMEWORK |
| debug shell commands | INCLUDE_DEBUG_SHELL_CMD |
| debugging facilities | INCLUDE_DEBUG |
| Device Manager | INCLUDE_DEVICE_MANAGER |
| DHCP client show routines | INCLUDE_DHCP_SHOW |
| DHCP client timestamp setup | INCLUDE_DHCP_LEASE_GET |
| DHCP Core files | INCLUDE_DHCP_CORE |
| DHCPv4 boot-time client | INCLUDE_DHCP_BOOT |
| DHCPv4 client common library | INCLUDE_DHCP_SHARE |
| DHCPv4 Client Lease Verification/Assignment | INCLUDE_DHCP_LEASE_TEST |
| DHCPv4 client timestamp storage | INCLUDE_DHCP_LEASE_SAVE |
| DHCPv4 runtime client | INCLUDE_DHCP |
| DNS resolver | INCLUDE_DNS_RESOLVER |
| DNS resolver debug output | INCLUDE_DNS_RESOLVER_DEBUG |
| DOS File System Consistency Checker | INCLUDE_DOSFS_CHKDSK |
| DOS File System FAT12/16/32 Handler | INCLUDE_DOSFS_FAT |
| DOS File System Old Directory Format Handler | INCLUDE_DOSFS_DIR_FIXED |
| DOS File System VFAT Directory Handler | INCLUDE_DOSFS_DIR_VFAT |
| DOS File System Volume Fomatter Module | INCLUDE_DOSFS_FMT |
| DOS filesystem backward-compatibility | INCLUDE_DOSFS |
| dosfs File System Main Module (dosFs2) | INCLUDE_DOSFS_MAIN |
| doubly linked lists | INCLUDE_DLL |
| ED&R shell commands | INCLUDE_EDR_SHELL_CMD |
| ED&R show routines | INCLUDE_EDR_SHOW |
| enable caches | INCLUDE_CACHE_ENABLE |
| enable guard pages for kernel task stacks | INCLUDE_PROTECT_TASK_STACK |
| enable non-executable kernel task stacks | INCLUDE_TASK_STACK_NO_EXEC |
| END driver polled statistics support | INCLUDE_END_POLLED_STATS |
| END interface support | INCLUDE_END |
| error status table | INCLUDE_STAT_SYM_TBL |
| Ethernet interface support | INCLUDE_ETHERNET |
| Event Reporting Framework | INCLUDE_ERF |
| exception handling | INCLUDE_EXC_HANDLING |
| exception show routines | INCLUDE_EXC_SHOW |
| exception task | INCLUDE_EXC_TASK |
| Extended Block Device | INCLUDE_XBD |
| extended object library | INCLUDE_OBJ_OPEN |
| File System and Disk Utilities | INCLUDE_DISK_UTIL |
| File System Event Utilities | INCLUDE_FS_EVNET_UTIL |
| File System Monitor | INCLUDE_FS_MONITOR |
| file system shell commands | INCLUDE_DISK_UTIL_SHELL_CMD |
| file upload path initialization | INCLUDE_WVUPLOAD_FILE |

* 1 The following C Controller module cannot be used.

- The Q12DCCPU-V with the serial No. (first five digits) "12041" or higher.

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Table APPX.1 VxWorks component list (continued)

| Component | Macro |
|---|-------------------------------------|
| floating point show routine | INCLUDE_WH_FP_SHOW |
| formatted IO | INCLUDE_FORMATTED_IO |
| formatted output routines | INCLUDE_FORMATTED_OUT_BASIC |
| fpp formatting for printf | INCLUDE_FLOATING_POINT |
| FTP client | INCLUDE_FTP |
| full featured memory allocator | INCLUDE_MEM_MGR_FULL |
| General BSP macros | INCLUDE_BSP_MACROS |
| get name info | INCLUDE_GETNAMEINFO |
| get serv by name | INCLUDE_GETSERVBYNAME |
| GNU compiler support routines | INCLUDE_GNU_INTRINSICS |
| GTF support | INCLUDE_GTF |
| gtf_timer_start | INCLUDE_GTF_TIMER_START |
| handle show routines | INCLUDE_HANDLE_SHOW |
| hardware fpp support | INCLUDE_HW_FP |
| hash library | INCLUDE_HASH |
| high resolution timestamping | INCLUDE_TIMESTAMP |
| Highly Reliable File System | INCLUDE_HRFS |
| host table | INCLUDE_HOST_TBL |
| Host/target breakpoint synchronization | INCLUDE_WDB_BP_SYNC |
| host/target modules and symbols synchronization | INCLUDE_WDB_MDL_SYM_SYNC |
| ICMP show routines* ¹ | INCLUDE_ICMP_SHOW |
| ICMP v4 | INCLUDE_ICMPV4 |
| IF | INCLUDE_IF |
| ifIndex Initialization | INCLUDE_IFINDEX |
| IGMP v2/v3 | INCLUDE_IGMP |
| Include Protocol Framework* ¹ | INCLUDE_PROTOCOL_FRAMEWORK |
| inetLib | INCLUDE_INETLIB |
| initialize system symbol table | INCLUDE_SYM_TBL_INIT |
| IO system | INCLUDE_IO_SYSTEM |
| IP v4 | INCLUDE_IPV4 |
| IPv4 interface address library | INCLUDE_IFLIB |
| Job Queue support | INCLUDE_JOB_QUEUE |
| job task | INCLUDE_JOB_TASK |
| kernel | INCLUDE_KERNEL |
| link BufPool | INCLUDE_LINKBUFPOOL |
| linked list library | INCLUDE_LSTLIB |
| logical set library | INCLUDE_SET |
| loopback interface support | INCLUDE_LOOPBACK |
| mapped files shell commands | INCLUDE_MAPPED_FILES_SHOW_SHELL_CMD |
| md5 | INCLUDE_NET_MD5 |
| memory allocator info routines | INCLUDE_MEM_MGR_INFO |
| memory show routine | INCLUDE_MEM_SHOW |
| message logging | INCLUDE_LOGGING |
| message queue creation and deletion library | INCLUDE_MESSAGE_Q_CREATE_DELETE |
| message queue info routines | INCLUDE_MESSAGE_Q_INFO |
| message queue show routine | INCLUDE_MSG_Q_SHOW |
| message queues | INCLUDE_MESSAGE_Q |
| MIB2 ICMP Management APIs | INCLUDE_MIB2_ICMP |
| MIB2 IF Counter Instrumentation | INCLUDE_MIB2_IF |

* 1 The following C Controller module cannot be used.

- The Q12DCCPU-V with the serial No. (first five digits) "12041" or higher.

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Table APPX.1 VxWorks component list (continued)

| Component | Macro |
|---|-------------------------------------|
| MIB2 TCP Management APIs | INCLUDE_MIB2_TCP |
| MIB2 UDP Management APIs | INCLUDE_MIB2_UDP |
| MMU global map | INCLUDE_MMU_GLOBAL_MAP |
| module manager | INCLUDE_MODULE_MANAGER |
| mutex semaphore creation routine | INCLUDE_SEM_MUTEX_CREATE |
| mutex semaphores | INCLUDE_SEM_MUTEX |
| MUX support | INCLUDE_MUX |
| netBufLib | INCLUDE_NETBUFLIB |
| netBufPool | INCLUDE_NETBUFPOOL |
| NetDrv for remote IO | INCLUDE_NET_DRV |
| netstat | INCLUDE_NETSTAT |
| netstat for IPv4 | INCLUDE_NETSTAT_IPV4 |
| network boot device configuration | INCLUDE_NET_BOOT_CONFIG |
| Network Daemon Support | INCLUDE_NET_DAEMON |
| network device netmask setup | INCLUDE_NETMASK_GET |
| Network function binding | INCLUDE_NET_FUNCBIND |
| network init | INCLUDE_NET_INIT |
| Network interface show routines | INCLUDE_NET_IF_SHOW |
| network remote I/O access | INCLUDE_NET_REM_IO |
| Network route show routines | INCLUDE_NET_ROUTE_SHOW |
| Network route show sprintf buffering | INCLUDE_NET_ROUTE_SHOW_SNPRINTF |
| Network Stack Memory Pool Configuration | INCLUDE_NET_POOL |
| NETWORK SYSCTL | INCLUDE_NET_SYSCTL |
| NFS client All | INCLUDE_NFS_CLIENT_ALL |
| NFS server | INCLUDE_CORE_NFS_SERVER |
| NFS server All | INCLUDE_NFS_SERVER_ALL |
| NFS server V2 | INCLUDE_NFS2_SERVER |
| NFS server V3 | INCLUDE_NFS3_SERVER |
| NFS v2 client | INCLUDE_NFS2_CLIENT |
| NFS v3 client | INCLUDE_NFS3_CLIENT |
| non-blocking message logging | INCLUDE_NBIO_LOG |
| object management | INCLUDE_OBJ_LIB |
| object management ownership | INCLUDE_OBJ_OWNERSHIP |
| old route | INCLUDE_OLDROUTE |
| persistent error log | INCLUDE_EDR_ERRLOG |
| persistent memory | INCLUDE_EDR_PM |
| PING client | INCLUDE_PING |
| pipes | INCLUDE_PIPES |
| pool allocation library | INCLUDE_POOL |
| POSIX advisory file locking | INCLUDE_POSIX_ADVISORY_FILE_LOCKING |
| POSIX AIO driver | INCLUDE_POSIX_AIO_SYSDRV |
| POSIX asynchronous IO | INCLUDE_POSIX_AIO |
| POSIX clocks | INCLUDE_POSIX_CLOCKS |
| POSIX directory utilities | INCLUDE_POSIX_DIRLIB |
| POSIX ftruncate | INCLUDE_POSIX_FTRUNC |
| POSIX Memory Mapped Files for RTPs | INCLUDE_POSIX_MAPPED_FILES |
| POSIX message queue show routine | INCLUDE_POSIX_MQ_SHOW |
| POSIX message queues | INCLUDE_POSIX_MQ |
| POSIX mman | INCLUDE_POSIX_MEM |

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|---|-------------------------------------|
| POSIX process scheduling | INCLUDE_POSIX_SCHED |
| POSIX PSE52 support for RTPs | INCLUDE_RTP_POSIX_PSE52 |
| POSIX scheduling policies SCHED_FIFO/SCHED_RR/
SCHED_OTHER support in RTPs | INCLUDE_PX_SCHED_DEF_PLICIES |
| POSIX semaphore | INCLUDE_POSIX_SEM |
| POSIX semaphore show routine | INCLUDE_POSIX_SEM_SHOW |
| POSIX Shared Memory Objects | INCLUDE_POSIX_SHM |
| POSIX signal | INCLUDE_POSIX_SIGNALS |
| POSIX thread CPU-time clock | INCLUDE_POSIX_THREAD_CPUTIME |
| POSIX thread scheduler in RTPs | INCLUDE_POSIX_PTHREAD_SCHEDULER |
| POSIX threads | INCLUDE_POSIX_PTHREADS |
| POSIX timers | INCLUDE_POSIX_TIMERS |
| process shell commands | INCLUDE_RTP_SHELL_CMD |
| process show shell commands | INCLUDE_RTP_SHOW_SHELL_CMD |
| Pseudo terminal driver | INCLUDE_PTYDRV |
| public hostname setup | INCLUDE_NET_HOST_SETUP |
| RAM Disk | INCLUDE_RAM_DISK |
| RAM disk driver | INCLUDE_RAMDRV |
| random | INCLUDE_KERN_RANDOM |
| raw filesystem | INCLUDE_RAWFS |
| RAW v4 | INCLUDE_RAWV4 |
| rBuff library | INCLUDE_RBUFF |
| read the bootline | INCLUDE_BOOT_LINE_INIT |
| Remote Command | INCLUDE_REMLIB |
| Reverse ARP client | INCLUDE_RARP |
| ring buffers | INCLUDE_RING_BUF |
| route | INCLUDE_ROUTE |
| route_storage | INCLUDE_ROUTE_STORAGE |
| Routing Socket | INCLUDE_ROUTING_SOCKET |
| RPC | INCLUDE_RPC |
| RTP | INCLUDE_RTP |
| RTP Hook Support | INCLUDE_RTP_HOOKS |
| RTP Show | INCLUDE_RTP_SHOW |
| RTP Startup Facility: User-defined code | INCLUDE_RTP_APPL_USER |
| run static initializers | INCLUDE_CTORS_DTORS |
| select | INCLUDE_SELECT |
| semaphore deletion routines | INCLUDE_SEM_DELETE |
| semaphore info routines | INCLUDE_SEM_INFO |
| semaphore show routine | INCLUDE_SEM_SHOW |
| SH-4A 32-Bit Address Extended Mode | INCLUDE_SH4A_EXTENDED_32BIT_SUPPORT |
| shared data region support in RTPs or kernel | INCLUDE_SHARED_DATA |
| Shared Data Show | INCLUDE_SHARE_DATA_SHOW |
| shared data show shell commands | INCLUDE_SHARED_DATA_SHOW_SHELL_CMD |
| shared library commands | INCLUDE_SHL_SHELL_CMD |
| Shared Library Show | INCLUDE_SHL_SHOW |
| shared library support in RTPs | INCLUDE_SHL |
| shell banner | INCLUDE_SHELL_BANNER |
| Show routines for memory mapped objects | INCLUDE_MAPPED_FILES_SHOW |
| sigevent notification library | INCLUDE_SIGEVENT |

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Table APPX.1 VxWorks component list (continued)

| Component | Macro |
|---------------------------------------|----------------------------|
| signals | INCLUDE_SIGNALS |
| SIO | INCLUDE_SIO |
| SNTP client | INCLUDE_SNTPC |
| Socket API | INCLUDE_SOCKETLIB |
| Socket API System Call support | INCLUDE_SC_SOCKETLIB |
| spy | INCLUDE_SPY |
| Stack/Application Logging Utility | INCLUDE_APPL_LOG_UTIL |
| stdio | INCLUDE_STDIO |
| stricmp | INCLUDE_STRICMP |
| strnicmp | INCLUDE_STRNICMP |
| Support for reboot hooks | INCLUDE_REBOOT_HOOKS |
| symbol shell commands | INCLUDE_SYM_SHELL_CMD |
| symbol table show routine | INCLUDE_SYM_TBL_SHOW |
| SYSCTL | INCLUDE_SYSCTL |
| SYSCTL CLI | INCLUDE_SYSCTL_CLI |
| sysctl System Call | INCLUDE_SC_SYSCTL |
| System Call Hook Support | INCLUDE_SYSCALL_HOOKS |
| System clock | INCLUDE_SYSClk_INIT |
| system debug flag | INCLUDE_EDR_SYSDBG_FLAG |
| System Viewer class instrumentation | INCLUDE_WINDVIEW_CLASS |
| System Viewer library | INCLUDE_WINDVIEW |
| system-defined timestamping | INCLUDE_SYS_TIMESTAMP |
| target loader | INCLUDE_LOADER |
| target loader shell command | INCLUDE_MODULE_SHELL_CMD |
| target symbol table | INCLUDE_SYM_TBL |
| target unloader | INCLUDE_UNLOADER |
| target-resident kernel shell | INCLUDE_SHELL |
| task hook show routine | INCLUDE_TASK_HOOKS_SHOW |
| task hooks | INCLUDE_TASK_HOOKS |
| task shell commands | INCLUDE_TASK_SHELL_CMD |
| task show routine | INCLUDE_TASK_SHOW |
| task variables | INCLUDE_TASK_VARS |
| TCP v4 | INCLUDE_TCPV4 |
| Telnet server | INCLUDE_TELNET |
| TELNET/FTP password protection | INCLUDE_SECURITY |
| terminal driver | INCLUDE_TTY_DEV |
| terminal driver support | INCLUDE_TYLIB |
| TFTP client | INCLUDE_TFTP_CLIENT |
| timex | INCLUDE_TIMEX |
| TSFS upload path initialization | INCLUDE_WVUPLOAD_TSFS SOCK |
| UDP v4 | INCLUDE_UDPV4 |
| uipc_domain | INCLUDE_DOMAIN_INIT |
| unix compatible environment variables | INCLUDE_ENV_VARS |
| unloader shell command | INCLUDE_UNLOADER_SHELL_CMD |
| vi-like editing mode | INCLUDE_SHELL_VI_MODE |
| VIO driver | INCLUDE_WDB_VIO |
| virtual memory show shell commands | INCLUDE_VM_SHOW_SHELL_CMD |
| Virtual Root File Sytem | INCLUDE_VRFS |
| VM library show routine | INCLUDE_VM_SHOW |

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Table APPX.1 VxWorks component list (continued)

| Component | Macro |
|---|---------------------------------|
| VxWorks events | INCLUDE_VXEVENTS |
| watchdog timers | INCLUDE_WATCHDOGS |
| watchdog timers creation and deletion library | INCLUDE_WATCHDOGS_CREATE_DELETE |
| WDB agent | INCLUDE_WDB |
| WDB banner | INCLUDE_WDB_BANNER |
| WDB breakpoints | INCLUDE_WDB_BP |
| WDB call functions | INCLUDE_WDB_FUNC_CALL |
| WDB callouts | INCLUDE_WDB_DIRECT_CALL |
| WDB eventpoints | INCLUDE_WDB_EVENTPOINTS |
| WDB events | INCLUDE_WDB_EVENTS |
| WDB exception notification | INCLUDE_WDB_EXC_NOTIFY |
| WDB gopher | INCLUDE_WDB_GOPHER |
| WDB memory access | INCLUDE_WDB_MEM |
| WDB network connection | INCLUDE_WDB_COMM_NETWORK |
| WDB post kernel initialization | INCLUDE_WDB_POST_KERNEL_INIT |
| WDB register access | INCLUDE_WDB_REG |
| WDB RTP breakpoints | INCLUDE_WDB_RTP_BP |
| WDB RTP control support | INCLUDE_WDB_RTP_CONTROL |
| WDB RTP support | INCLUDE_WDB_RTP |
| WDB target server file system | INCLUDE_WDB_TSFS |
| WDB task breakpoints | INCLUDE_WDB_TASK_BP |
| WDB task creation | INCLUDE_WDB_START_NOTIFY |
| WDB task debugging | INCLUDE_WDB_TASK |
| WDB task exit notification | INCLUDE_WDB_EXIT_NOTIFY |
| WDB task hooks | INCLUDE_WDB_TASK_HOOKS |
| WDB task registers | INCLUDE_WDB_TASK_REG |
| WDB tasks | INCLUDE_WDB_CTXT |
| WDB user event | INCLUDE_WDB_USER_EVENT |
| WDB virtual I/O library | INCLUDE_WDB_VIO_LIB |
| XBD Block Device | INCLUDE_XBD_BLK_DEV |
| XBD Disk Partition Handler | INCLUDE_XBD_PART_LIB |
| XBD Ram Drive | INCLUDE_XBD_RAMDRV |
| XDR | INCLUDE_XDR |

(b) For the Q06CCPU-V(-B)

The following list shows the components implemented in the C Controller module.

Table APPX.2 VxWorks component list

| Component | Macro |
|--|----------------------------|
| ANSI assert | INCLUDE_ANSI_ASSERT |
| ANSI ctype | INCLUDE_ANSI_CTYPE |
| ANSI locale | INCLUDE_ANSI_LOCALE |
| ANSI math | INCLUDE_ANSI_MATH |
| ANSI stdio | INCLUDE_ANSI_STDIO |
| ANSI stdio extensions | INCLUDE_ANSI_STDIO_EXTRA |
| ANSI stdlib | INCLUDE_ANSI_STDLIB |
| ANSI string | INCLUDE_ANSI_STRING |
| ANSI time | INCLUDE_ANSI_TIME |
| API to ARP tables | INCLUDE_ARP_API |
| application initialization | INCLUDE_USER_APPL |
| basic C++ iostreams | INCLUDE_CPLUS_IOSTREAMS |
| basic network support | INCLUDE_NETWORK |
| binary semaphores | INCLUDE_SEM_BINARY |
| BOOT protocol client library | INCLUDE_BOOTP |
| BSD 4.4 TCPv4 | INCLUDE_TCP |
| BSD 4.4. UDPv4 | INCLUDE_UDP |
| BSD SOCKET | INCLUDE_BSD_SOCKET |
| BSP hardware initialization | INCLUDE_SYSHW_INIT |
| BSP Memory Configuration | INCLUDE_MEMORY_CONFIG |
| buffer manager | INCLUDE_BUF_MGR |
| built-in symbol table | INCLUDE_STANDALONE_SYM_TBL |
| C++ runtime support | INCLUDE_CPLUS |
| C++ standard template library | INCLUDE_CPLUS_STL |
| C++ string i/o | INCLUDE_CPLUS_STRING_IO |
| C++ string type | INCLUDE_CPLUS_STRING |
| C++ symbol demangler | INCLUDE_CPLUS_DEMANGLER |
| cache support | INCLUDE_CACHE_SUPPORT |
| CBIO (Cached Block I/O) Support, cbioLib | INCLUDE_CBIO |
| configure the network boot device | INCLUDE_NETDEV_CONFIG |
| counting semaphores | INCLUDE_SEM_COUNTING |
| DHCP client timestamp removal | INCLUDE_DHCP_LEASE_CLEAN |
| Disk Cache Handler | INCLUDE_DISK_CACHE |
| Disk Partition Handler | INCLUDE_DISK_PART |
| DNS resolver | INCLUDE_DNS_RESOLVER |
| DOS File System Consistency Checker | INCLUDE_DOSFS_CHKDSK |
| DOS File System FAT12/16/32 Handler | INCLUDE_DOSFS_FAT |
| DOS File System Old Directory Format Handler | INCLUDE_DOSFS_DIR_FIXED |
| DOS File System VFAT Directory Handler | INCLUDE_DOSFS_DIR_VFAT |
| DOS File System Volume Formatter | INCLUDE_DOSFS_FMT |
| DOSFS2 File System Primary Module | INCLUDE_DOSFS_MAIN |
| doubly linked lists | INCLUDE_DLL |

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Table APPX.2 VxWorks component list (continued)

| Component | Macro |
|---------------------------------|------------------------------|
| enable caches | INCLUDE_CACHE_ENABLE |
| END attach interface | INCLUDE_END_BOOT |
| END interface support | INCLUDE_END |
| environment variables | INCLUDE_ENV_VARS |
| exception handling | INCLUDE_EXC_HANDLING |
| exception task | INCLUDE_EXC_TASK |
| file upload path initialization | INCLUDE_WVUPLOAD_FILE |
| floating point show routine | INCLUDE_HW_FP_SHOW |
| formatted IO | INCLUDE_FORMATTED_IO |
| fpp formatting for printf | INCLUDE_FLOATING_POINT |
| full C++ iostreams | INCLUDE_CPLUS_IOSTREAMS_FULL |
| full featured memory allocator | INCLUDE_MEM_MGR_FULL |
| hardware fpp support | INCLUDE_HW_FP |
| hash library | INCLUDE_HASH |
| HOST TBL | INCLUDE_HOST_TBL |
| ICMP show routines *1 | INCLUDE_ICMP_SHOW |
| ICMPv4 | INCLUDE_ICMP |
| IGMPv4 | INCLUDE_IGMP |
| initialize network at boot time | INCLUDE_NET_INIT |
| initialize symbol table | INCLUDE_SYM_TBL_INIT |
| IO system | INCLUDE_IO_SYSTEM |
| IPv4 | INCLUDE_IP |
| kernel | INCLUDE_KERNEL |
| loopback driver | INCLUDE_LOOPBACK |
| message logging | INCLUDE_LOGGING |
| message queue show routine | INCLUDE_MSG_Q_SHOW |
| message queues | INCLUDE_MSG_Q |
| minimal memory allocator | INCLUDE_MEM_MGR_BASIC |
| module manager | INCLUDE_MODULE_MANAGER |
| mutex semaphores | INCLUDE_SEM_MUTEX |
| network buffer initialization | INCLUDE_NET_SETUP |
| network device name selection | INCLUDE_NETDEV_NAMEGET |
| network device netmask setup | INCLUDE_NETMASK_GET |
| network host setup | INCLUDE_NET_HOST_SETUP |
| network library support | INCLUDE_NET_LIB |
| network mux initialization | INCLUDE_MUX |
| network remote I/O access | INCLUDE_NET_REM_IO |
| NetWork show routines *1 | INCLUDE_NET_SHOW |
| NFS client | INCLUDE_NFS |
| NFS mount all | INCLUDE_NFS_MOUNT_ALL |
| NFS server | INCLUDE_NFS_SERVER |
| PING client | INCLUDE_PING |
| pipes | INCLUDE_PIPES |
| POSIX AIO driver | INCLUDE_POSIX_AIO_SYSDRV |
| POSIX asynchronous IO | INCLUDE_POSIX_AIO |
| POSIX clocks | INCLUDE_POSIX_CLOCKS |
| POSIX ftruncate | INCLUDE_POSIX_FTRUNC |
| POSIX message queues | INCLUDE_POSIX_MQ |

* 1 The following C Controller module cannot be used.

- The Q06CCPU-V(-B) with the serial No. (first five digits) "11101" or higher.

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Table APPX.2 VxWorks component list (continued)

| Component | Macro |
|--|---------------------------|
| POSIX mman | INCLUDE_POSIX_MEM |
| POSIX scheduler | INCLUDE_POSIX_SCHED |
| POSIX semaphores | INCLUDE_POSIX_SEM |
| POSIX signals | INCLUDE_POSIX_SIGNALS |
| POSIX timers | INCLUDE_POSIX_TIMERS |
| RAM disk driver | INCLUDE_RAMDRV |
| rBuff library | INCLUDE_RBUFF |
| read the bootline | INCLUDE_BOOT_LINE_INIT |
| Remote Procedure Call system | INCLUDE_RPC |
| ring buffers | INCLUDE_RNG_BUF |
| RLOGIN/TELNET password protection | INCLUDE_SECURITY |
| select | INCLUDE_SELECT |
| sequential timestamping | INCLUDE_SEQ_TIMESTAMP |
| shell banner | INCLUDE_SHELL_BANNER |
| signals | INCLUDE_SIGNALS |
| SIO component | INCLUDE_SIO |
| SNTP client | INCLUDE_SNTPC |
| software fpp support | INCLUDE_SW_FP |
| stdio | INCLUDE_STDIO |
| symbol table | INCLUDE_SYM_TBL |
| synchronize host and target symbol tables | INCLUDE_SYM_TBL_SYNC |
| System clock component | INCLUDE_SYSClk_INIT |
| system startup code | INCLUDE_SYS_START |
| target debugging | INCLUDE_DEBUG |
| target loader | INCLUDE_LOADER |
| target shell | INCLUDE_SHELL |
| target unloader | INCLUDE_UNLOADER |
| task hooks | INCLUDE_TASK_HOOKS |
| task show routine | INCLUDE_TASK_SHOW |
| task variables support library | INCLUDE_TASK_VARS |
| TCP show routines* ¹ | INCLUDE_TCP_SHOW |
| TELNET server | INCLUDE_TELNET |
| terminal driver | INCLUDE_TTY_DEV |
| TFTP client | INCLUDE_TFTP_CLIENT |
| TSFS upload path initialization | INCLUDE_WVUPLOAD_TSFSSOCK |
| UDP show routines* ¹ | INCLUDE_UDP_SHOW |
| utility to measure function execution time | INCLUDE_TIMEX |
| VIO driver | INCLUDE_WDB_VIO |

* 1 The following C Controller module cannot be used.

- The Q06CCPU-V(-B) with the serial No. (first five digits) "11101" or higher.

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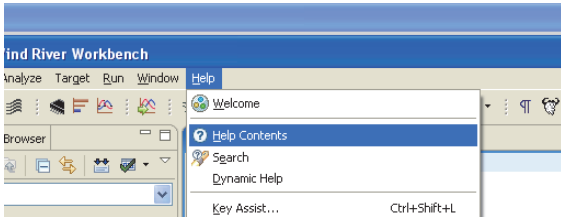
| Component | Macro |
|---------------------------------------|--------------------------|
| watchdog timers | INCLUDE_WATCHDOGS |
| WDB agent | INCLUDE_WDB |
| WDB banner | INCLUDE_WDB_BANNER |
| WDB breakpoints | INCLUDE_WDB_BP |
| WDB call functions | INCLUDE_WDB_FUNC_CALL |
| WDB callouts | INCLUDE_WDB_DIRECT_CALL |
| WDB END driver connection | INCLUDE_WDB_COMM_END |
| WDB eventpoints | INCLUDE_WDB_EVENTPOINTS |
| WDB events | INCLUDE_WDB_EVENTS |
| WDB exception notification | INCLUDE_WDB_EXC_NOTIFY |
| WDB gopher | INCLUDE_WDB_GOPHER |
| WDB hardware fpp support | INCLUDE_WDB_HW_FP |
| WDB memory access | INCLUDE_WDB_MEM |
| WDB register access | INCLUDE_WDB_REG |
| WDB system agent hardware fpp support | INCLUDE_WDB_SYS_HW_FP |
| WDB system debugging | INCLUDE_WDB_SYS |
| WDB target server file system | INCLUDE_WDB_TSFS |
| WDB task breakpoints | INCLUDE_WDB_TASK_BP |
| WDB task creation | INCLUDE_WDB_START_NOTIFY |
| WDB task debugging | INCLUDE_WDB_TASK |
| WDB task exit notification | INCLUDE_WDB_EXIT_NOTIFY |
| WDB task hardware fpp support | INCLUDE_WDB_TASK_HW_FP |
| WDB tasks | INCLUDE_WDB_CTXT |
| WDB user event | INCLUDE_WDB_USER_EVENT |
| WDB virtual I/O library | INCLUDE_WDB_VIO_LIB |
| windview class instrumentation | INCLUDE_WINDVIEW_CLASS |
| windview library | INCLUDE_WINDVIEW |

(2) VxWorks component information checking method

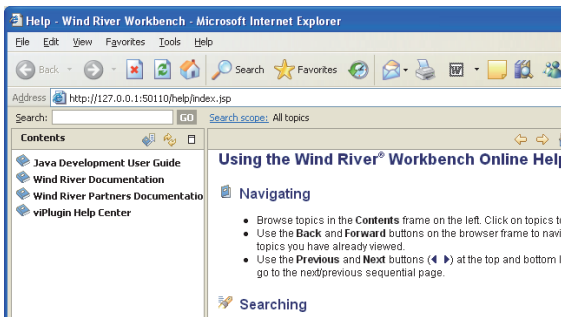
VxWorks component information can be checked by the following procedure.
VxWorks image cannot be created (changed).

(a) For the Q12DCCPU-V

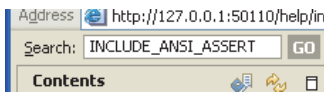
The following windows are those of Wind River Workbench, but the procedure is the same when CW Workbench is used.



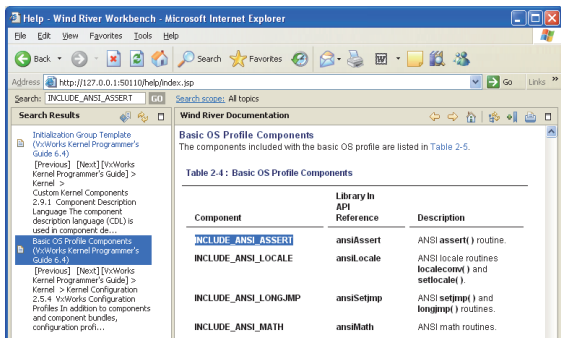
1 Select [Help]→[Help Contents] from the menu bar.



2 HELP information for Workbench is displayed in a web browser.



3 Enter the string to be searched in the "Search:" combo box and click the [GO] button.



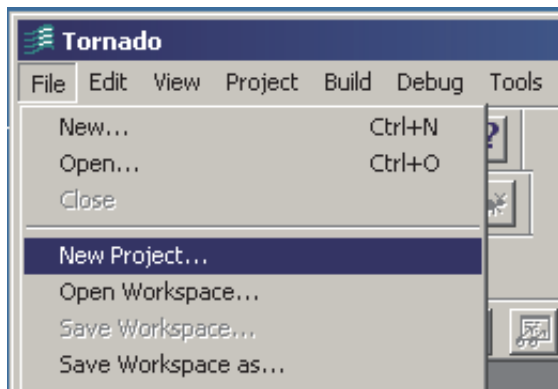
4 Select the information to review from "Search Result" and review the component information.

(Completed)

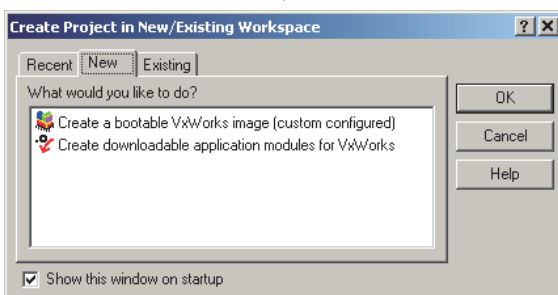
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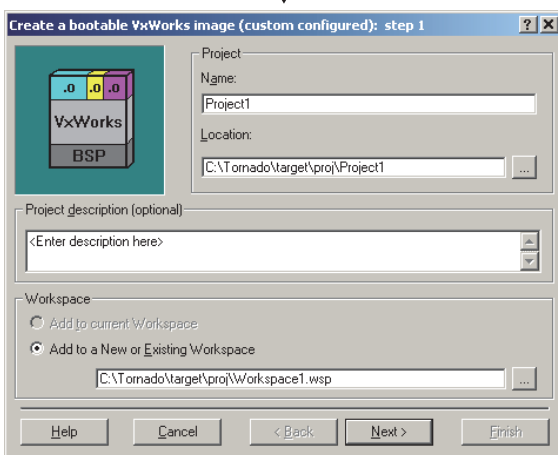
(b) For the Q06CCPU-V(-B)



1 Select [File]→[New Project] from the menu bar.



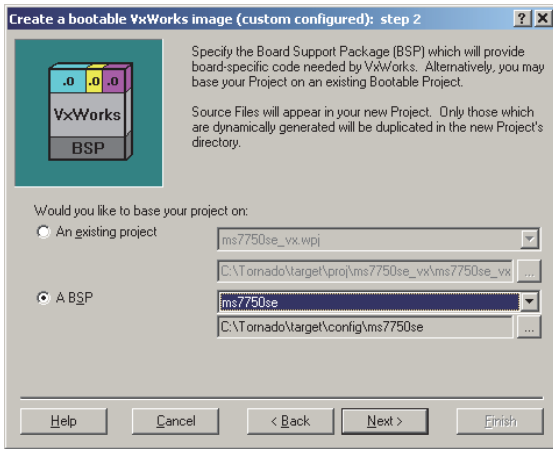
2 Select "Create a bootable VxWorks image (custom configured)" and click the **OK** button.



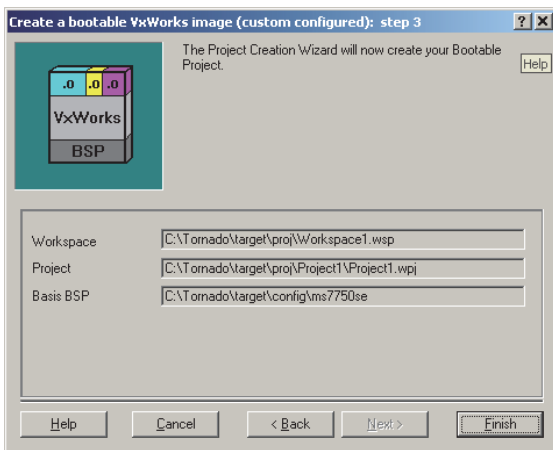
3 Enter "Name", "Location", and "Workspace" and then click the **Next>** button.

(To the next page)

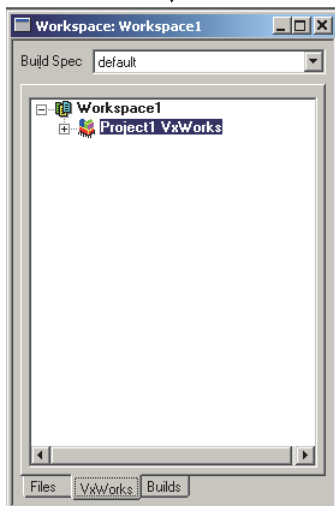
(From the previous page)



4 Select "A BSP" and click the **Next>** button.



5 Check that the values in "Workspace", "Project", and "Basis BSP" are correct and then click the **Finish** button.



6 Open the <<VxWorks>> tab of the "Workspace" window.

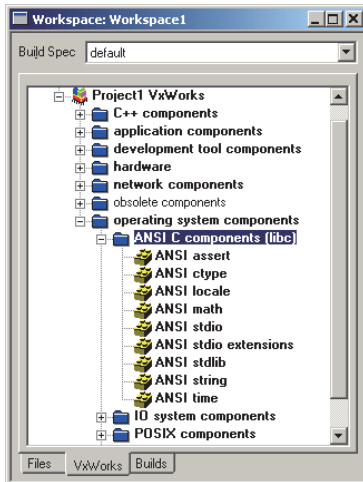
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9 PROGRAMMING USING BUS INTERFACE FUNCTIONS
 10 PROGRAMMING USING MELSEC DATA LINK FUNCTIONS
 11 PROGRAMMING USING VxWorks API FUNCTIONS
 12 SAMPLE PROGRAMS
 13 EVENT NUMBER LIST

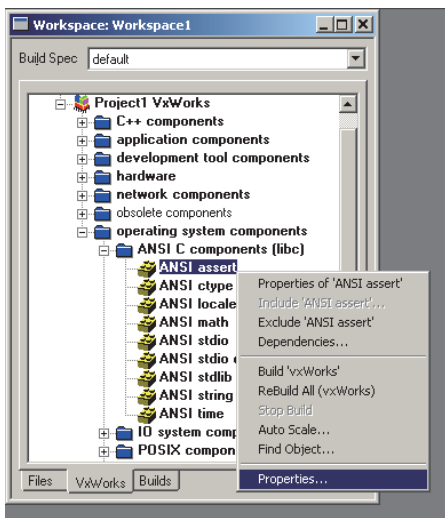
A

I

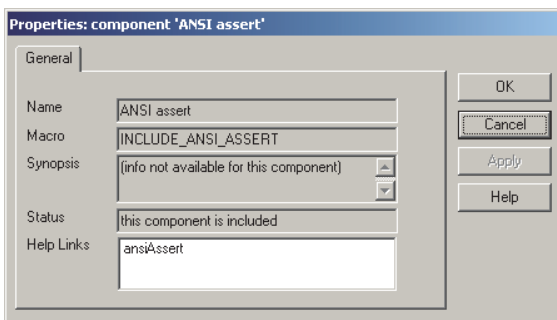
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- 7 Click the (+) icon to expand the items at this level of the hierarchy.



- 8 Right-click on "ANSI assert" and select [Properties] from the menu.

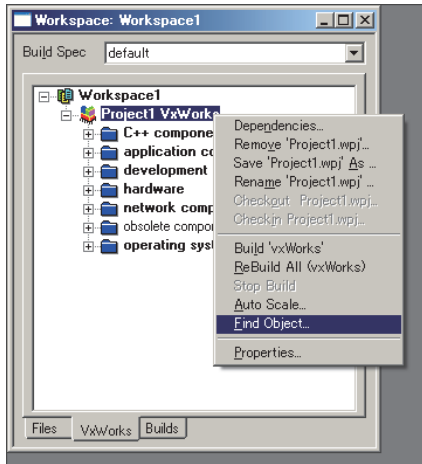


- 9 Check the information of VxWorks components with the Properties screen displayed.

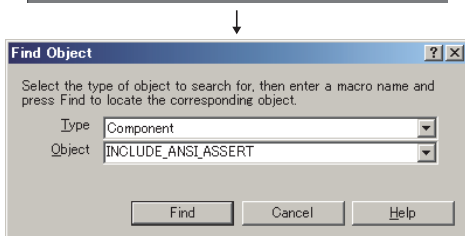
(Completed)

Remark

The VxWorks components can be located by the following procedure.



1 Right click to select [Find Object] from the menu.



2 Click the **Find** button.

Appendix 2 Precautions for Program Replacement



(1) When the Q06CCPU-V has been replaced with the Q12DCCPU-V

When porting the programs developed by Tornado to Workbench, refer to the Migration Guide provided by Wind River Systems, Inc.

The Migration Guide can be downloaded from the website:

(www.windriver.com).

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SH(NA)-080767ENG-M(1710)KWIX

MODEL: Q12DCCPU-V-U-UP-E

MODEL CODE: 13JZ18

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