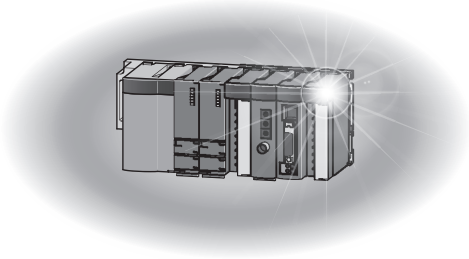
MITSUBISHI ELECTRIC

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".

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

[Security Precautions]

⚠ WARNING

● To maintain the security (confidentiality, integrity, and availability) of the C Controller module and the system against unauthorized access, denial-of-service (DoS) attacks, computer viruses, and other cyberattacks from external devices via the network, take appropriate measures such as firewalls, virtual private networks (VPNs), and antivirus solutions.

[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) MELSEC programmable controller ("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 ELECTRIC 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 ELECTRIC USER'S, 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 Electric 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 Electric 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 Electric representative in your region.

(3) Mitsubishi Electric shall have no responsibility or liability for any problems involving programmable controller trouble and system trouble caused by DoS attacks, unauthorized access, computer viruses, and other cyberattacks.

REVISIONS

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Japanese manual version SH-080765-P

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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 taskDalay) 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

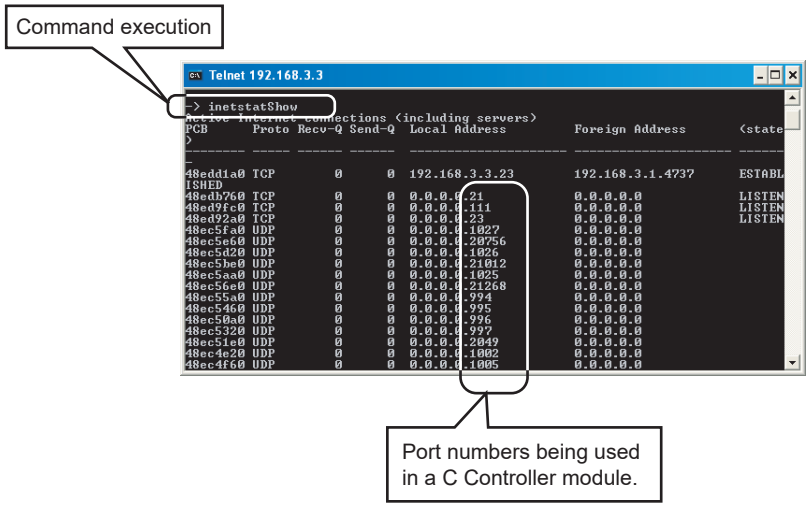


Figure A.1 When using Telnet tool on the Q12DCCPU-V

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 Sysct1() 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 Sysct1() 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.

Timeout time = tcp_keepidle + (tcp_keepintvl ÷ 2 × tcp_keepcnt) [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.

CONTENTS

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 (Utility Operation, Programming) Describes the installation and uninstallation of VxWorks-based setting and monitoring tool for C Controller module (SW3PVC-CCPU), utility operations, and functions and programming. (This manual) (Sold separately)	SH-080767ENG (13JZ18)
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)

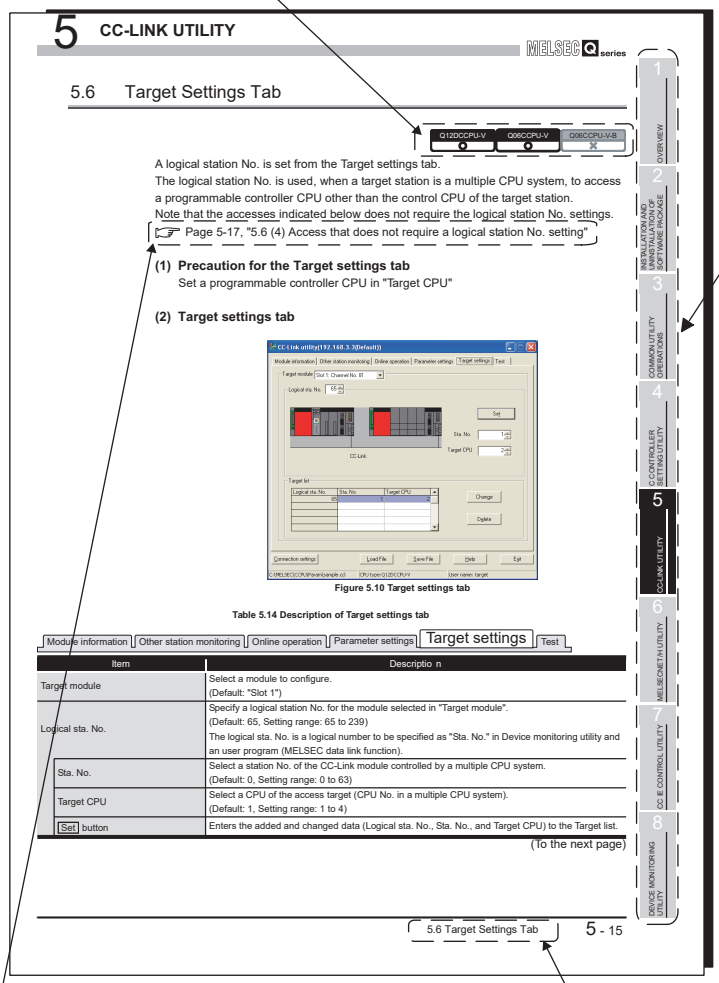
MANUAL PAGE ORGANIZATION

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

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. • 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	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)	1
	Industrial development tool purchasing form (Tornado)	

DISCONTINUED MODELS

The following models are described in this manual, but have no longer been produced. For the onerous repair term after discontinuation of production, refer to "WARRANTY" in this manual.

Model name	Production discontinuation
Q06CCPU-V-B	November 2015
Q06CCPU-V	March 2022

CHAPTER 1 OVERVIEW

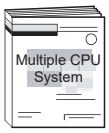
This manual explains the parameter setting, monitoring, and programming required for operation of the C Controller module.

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	Outline	Details *1			
Checking the specifications and method of selecting, mounting, and installing the power supply module and base units				Details	
Checking the connecting methods of the power supply module, base units, and I/O module	Outline	Details *1			
Checking the functions of the C Controller module		Details *1			
Configuring a single CPU system (Start-up procedure and I/O No. assignment)		Details *1			
Configuring a multiple CPU system (Start-up procedure and I/O No. assignment)		Outline *1			Details

(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	 (Packed)				
	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			Details *2		
Programming			Details *1		
Troubleshooting and checking error codes		Details *1			
Checking Event No.			Details *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"

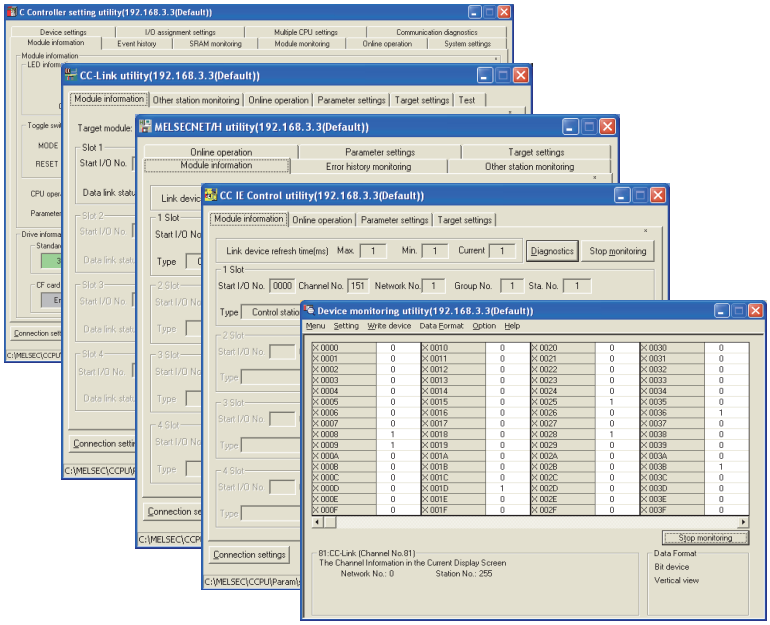


Figure 1.1 Utility screens

(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.

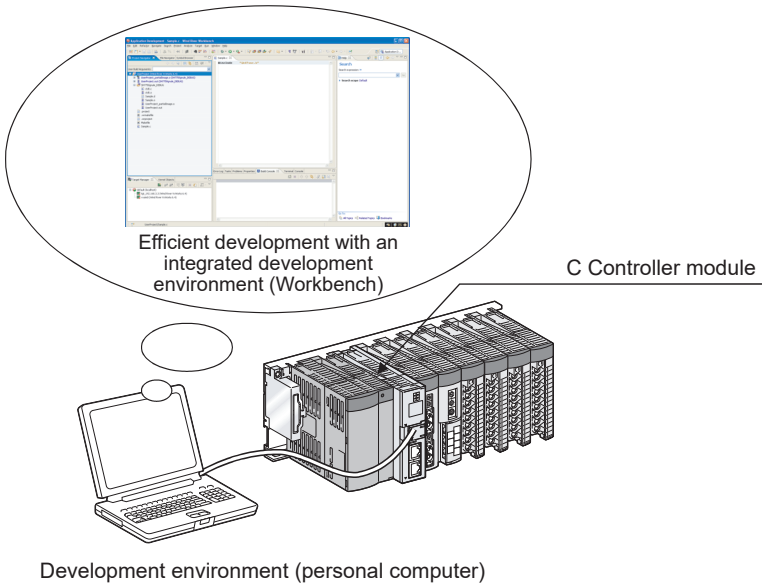


Figure 1.2 Development with Workbench

(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)		•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*2 •Windows XP® (Professional SP2 or later)*1*2 •Windows 2000 (Professional SP4 or later)*2
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: 32-bit version only.
* 2: For SW3PVC-CCPU with Version 3.13N or earlier only.

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)		

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
   - Tablet mode
   - Virtual Desktops
   - Unified Write Filter
4. In the following cases, the screen of this product may not work properly.
   - The size of the text and other items on the screen is other than 100% (96 DPI, 9 pt etc.).
   - The resolution of the screen is changed in operation.
   - Windows theme is changed in operation.
   - The multi-display is set.
5. Use the product as a standard user or an administrator for Windows 10, Windows8.1, 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.

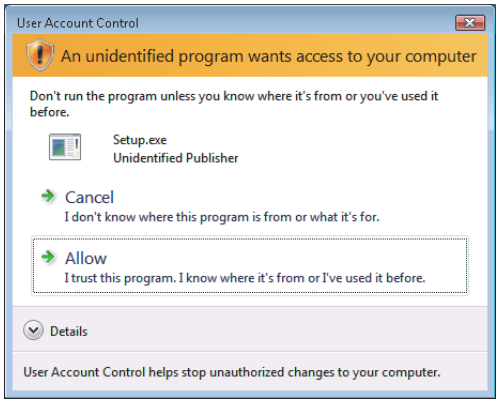
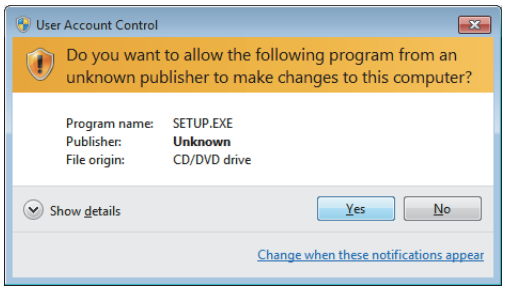
POINT

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

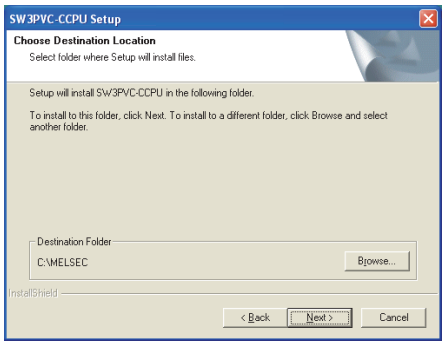
1) Insert a CD-ROM, this product, to the CD-ROM drive.
2) Double-click "Setup.exe" in the Disk1 folder on the CD-ROM to start the installer of SW3PVC-CCPU.
3) Proceed the installation following the instructions provided by the installer. For the setting selection, refer to the following instruction.
☞ 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

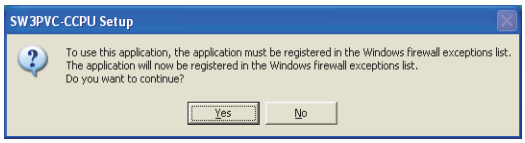


Specify the folder of installation destination.

•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.

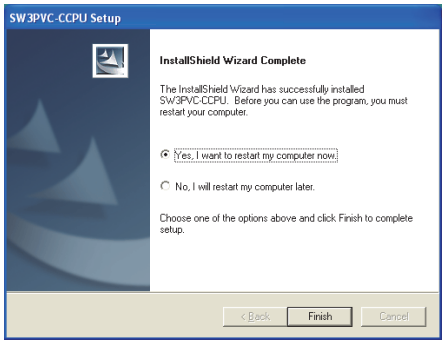
However, if the Windows® Firewall is set up not to allow exceptional connections, manually set the Windows® Firewall, referring to the following.

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

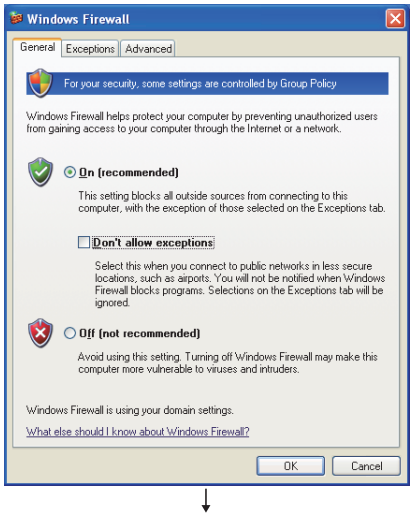
(a) For Windows® XP or Windows Vista®

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

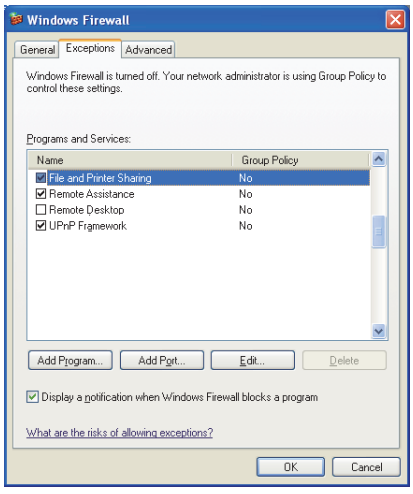
Operating system	Option
Windows® XP	Security Center
Windows Vista®	Security



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

Table 2.4 Checkbox

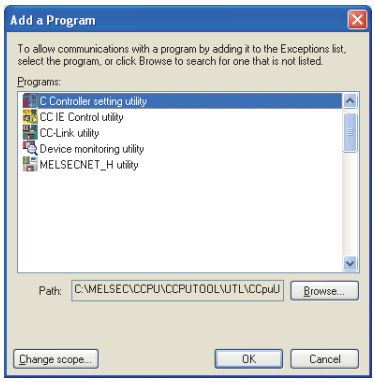
Operating system	Option
Windows® XP	Don't allow exceptions
Windows Vista®	Block all programs

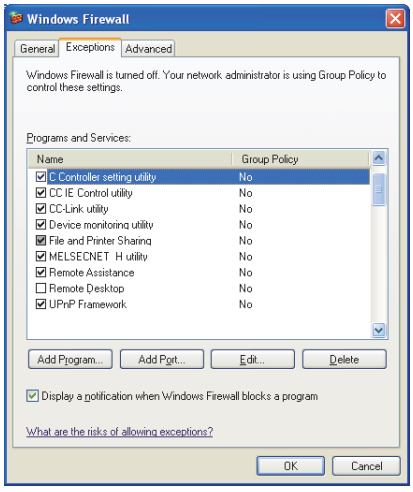


3 Open the <<Exceptions>> tab.
Check if all of the SW3PVC-CCPU utilities are displayed on the screen.

(To the next page)

(From the previous page)





(Completed)

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

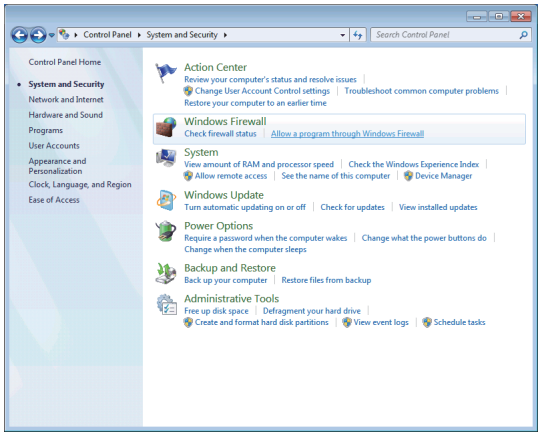
Select a utility of SW3PVC-CCPU, and click the OK button. Repeat this operation until all utilities of SW3PVC-CCPU are added.

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

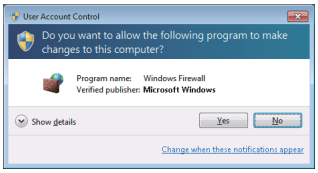
(b) For Windows® 7 or later

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

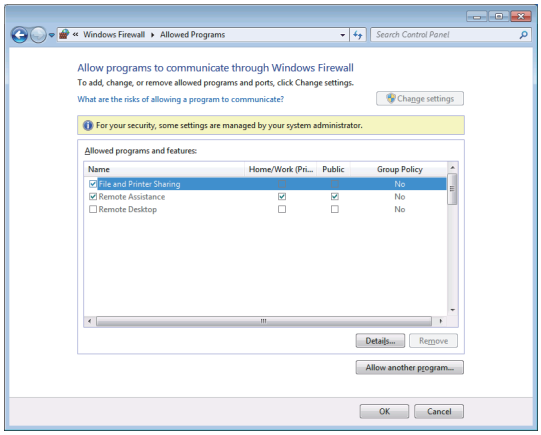
1 Open the Control Panel of Windows®, and click "System and Security".



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



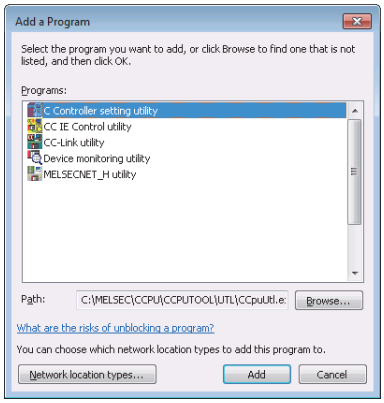
3 If the left dialog box appears, click the Yes button.



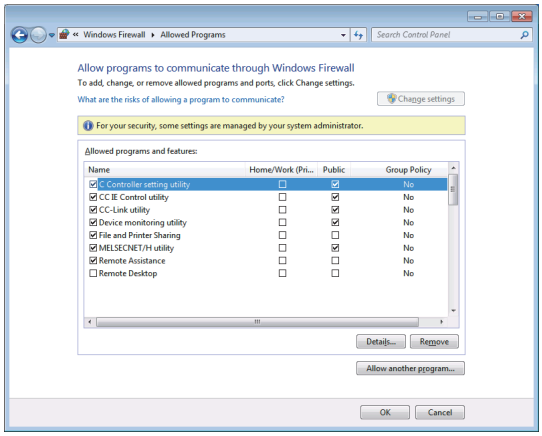
4 Check if all utilities of SW3PVC-CCPU are displayed on the screen.

(To the next page)

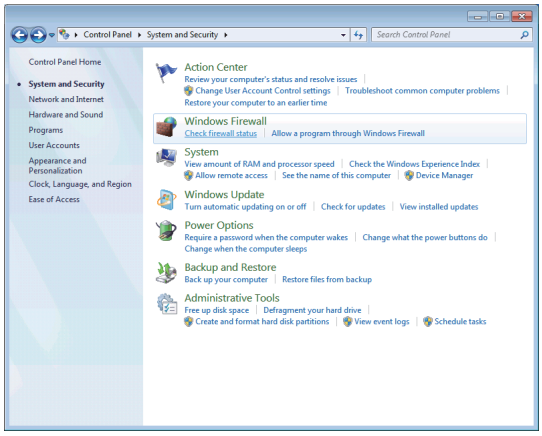
(From the previous page)



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".

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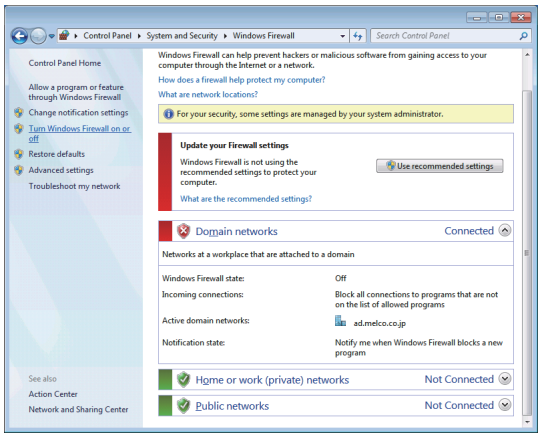
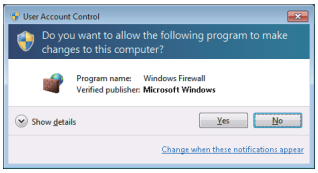
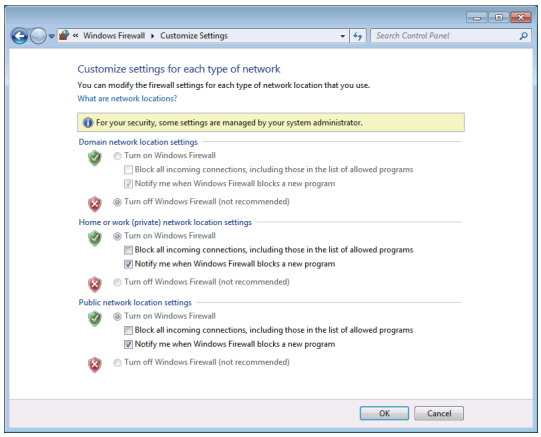
(From the previous page)



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

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

(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
   - CClnkUtl.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.

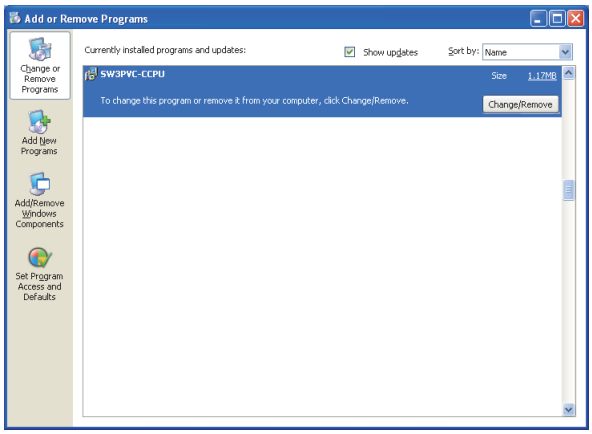


Figure 2.1 Add or Remove Programs

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. •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).

3.2 Activating Utility

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

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]

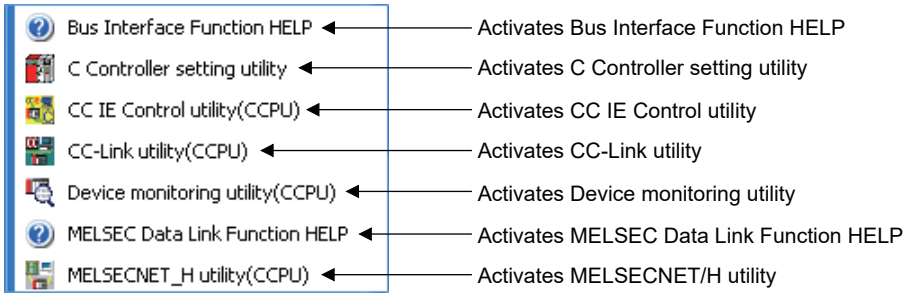


Figure 3.1 Items added to the Start menu

3.3 Exiting Utility

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

(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.

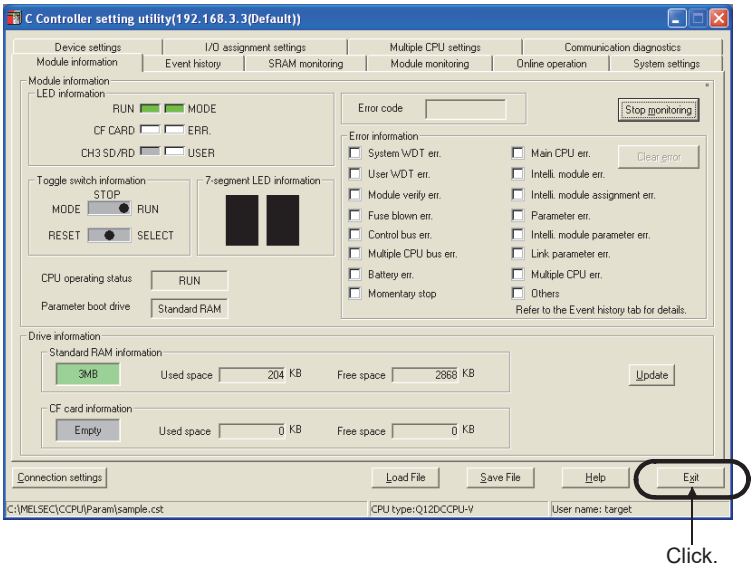


Figure 3.2 Exiting C Controller setting utility

(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.

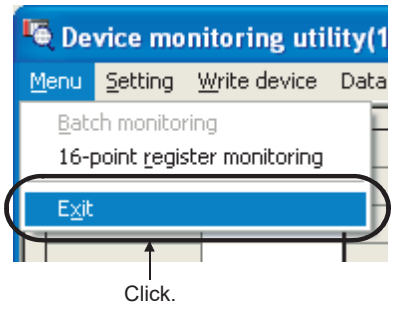


Figure 3.3 Exiting Device monitoring utility

3.4 Specifying CPU Type

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

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

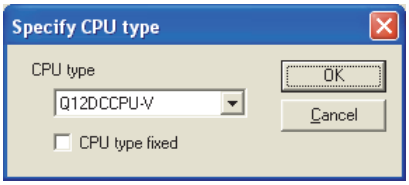


Figure 3.4 Specify CPU type screen

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

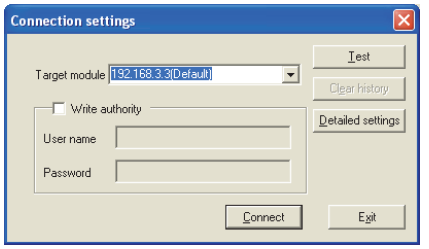
1. Changing CPU type
   Select [Specify CPU type] from the system menu and change the CPU type.
   (☞ Page 4-46, Section 4.12, Page 5-21, Section 5.8, Page 6-42, Section 6.8, Page 7-37, Section 7.7)
2. When writing parameters or performing communication processing such as monitoring to any other CPU 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

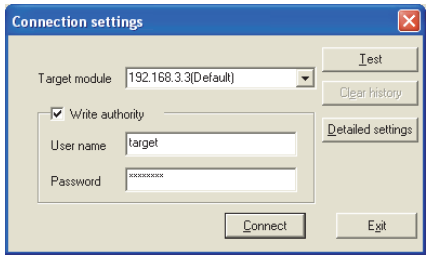
Q12DCCPU-V	Q06CCPU-V	Q06CCPU-V-B
○	○	○

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

(1) Operating procedure



↓



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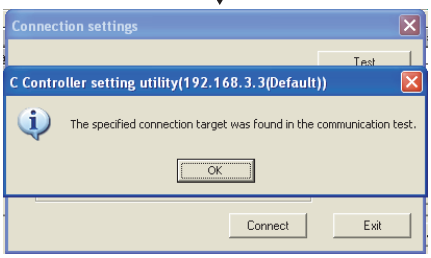
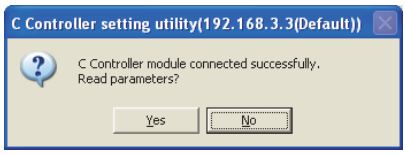


↓



↓

(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 Start monitoring button or set the connection target again in Connection settings.

(2) Connection settings screen

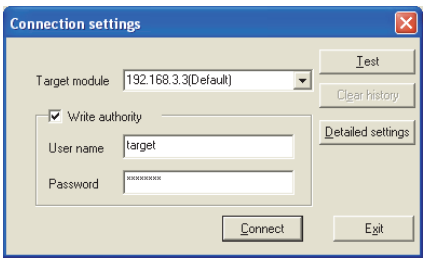


Figure 3.5 Connection settings screen

Table 3.4 Description of the Connection settings screen

Item	Description
Target module	Enter the IP address or host name of the C Controller module to be connected. Click ▼ to allow selection from the following. •Connection target history (Up to 8 data, common to all utilities) •"192.168.3.3 (Default)" •"Offline" (other than Device monitoring utility) 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.)
Write authority	Select the checkbox when writing parameters to the C Controller module. For "User name" and "password", enter the user name and password set to the account of the C Controller. Parameters cannot be written to the C Controller module if these are not set. These items cannot be set when: •"Offline" is selected for "Target module" or •This screen has been opened from Device monitoring utility. For restrictions on accessing to a login user, refer to the C Controller Module User's Manual (Hardware Design, Function Explanation).
User name	
Password	
Test button	Checks the connectivity with the C Controller module specified in "Target module".
Clear history button	Clears the connection target log of "Target module".
Detailed settings button	Opens the Detailed settings screen. (☞ Page 3-8, Section 3.5 (2) (a))
Connect 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.
Exit 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.

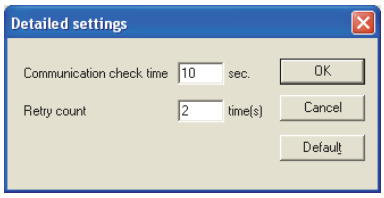


Figure 3.6 Detailed settings screen

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)
OK button	Enables the current settings and closes the Detailed settings screen.
Cancel button	Closes the Detailed settings screen without enabling the settings.
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

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

(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.

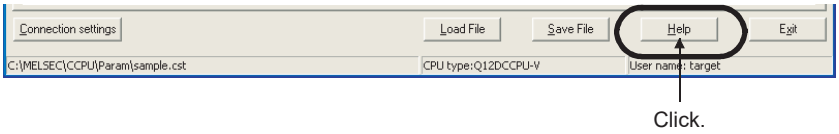


Figure 3.7 Starting Help of C Controller setting utility

(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.

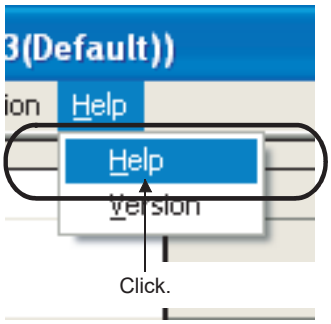


Figure 3.8 Starting Help of Device monitoring utility

(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

Windows® 7

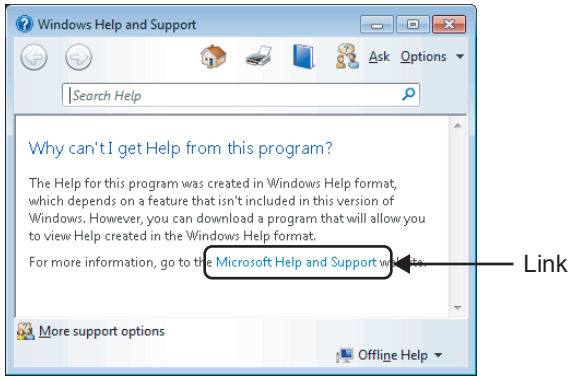


Figure 3.9 When the Help screen does not appear on Windows® 7

(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

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

(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.

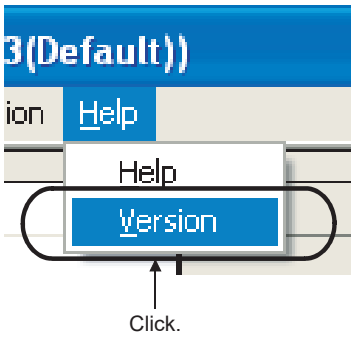


Figure 3.10 Checking version

(b) Version information screen

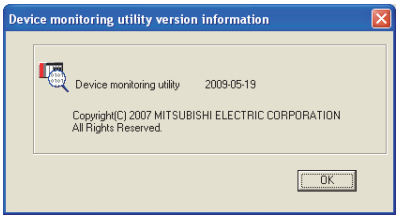


Figure 3.11 Version information screen

Table 3.6 Version information

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

3.8 Parameter Setting File

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

(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.

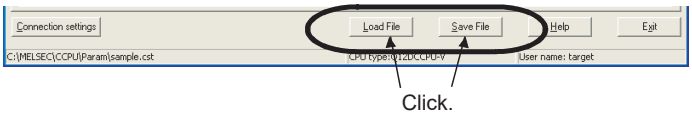


Figure 3.12 Loading/saving parameter setting file

2) Load/save the settings.

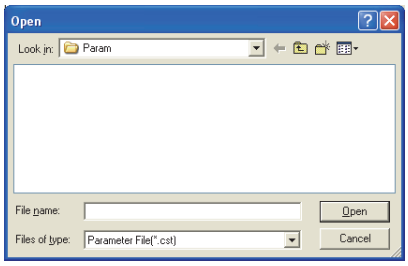


Figure 3.13 Open screen

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 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 Write 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

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

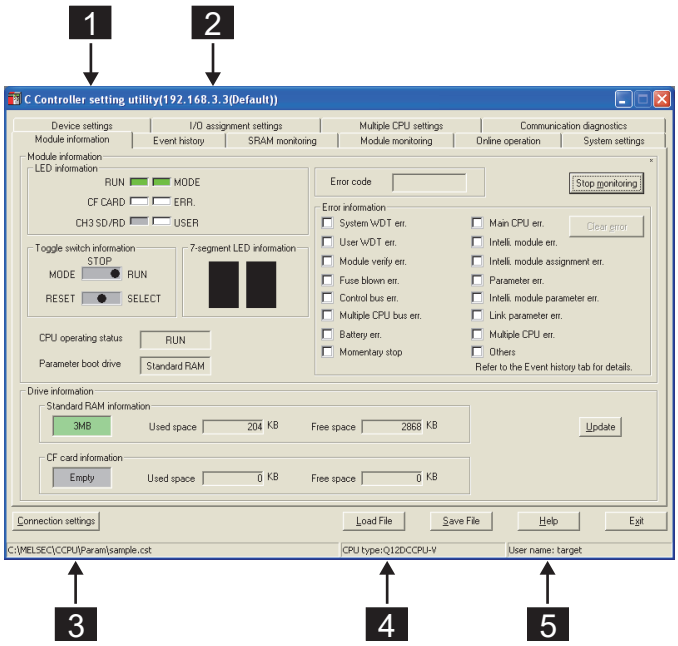


Figure 3.14 Title bar and status bar

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 "Offiline" 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

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

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	Performs the following operations to the modules installed on slots. •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	Performs the following operations to the C Controller module. •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

4.2 Module Information Tab

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

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

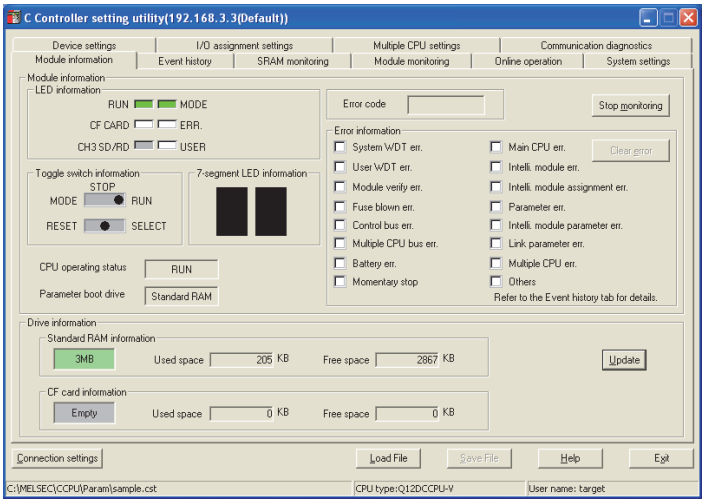
(a) Switching a tab during monitoring
Monitoring stops when a tab is switched to another during monitoring. Monitoring resumes when the <<Module monitoring>> tab is opened next time.

(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.

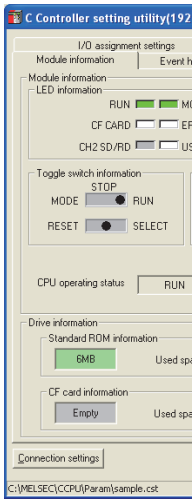
(c) During reset
Communications are not available while the C Controller module is being reset. Start communications after the reset is complete.

(2) Module information tab

Q12DCCPU-V



Q06CCPU-V



Q06CCPU-V-B

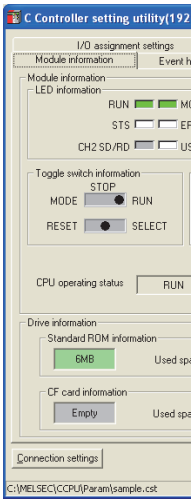


Figure 4.1 Module information tab

Table 4.2 Description of the Module information tab

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

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 | Event history | SRAM monitoring | Module monitoring | Online operation | 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
	[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.	—
	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 □ (white) to ■ (red).	*2
	[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
	[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).

4.3 Event History Tab

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

(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.

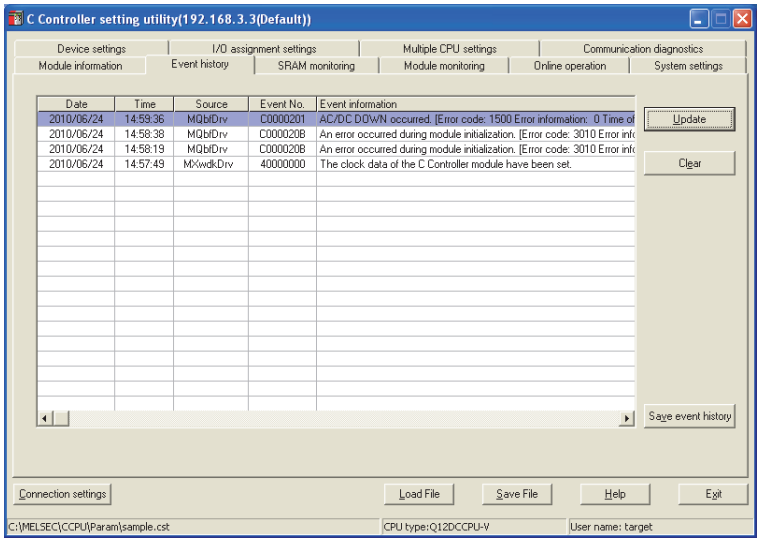


Figure 4.2 Event history tab

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
Update button		Acquires and displays the latest event history in the C Controller module.	—
Clear button		Deletes the event history in the C Controller module.	—
Save event history button		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).

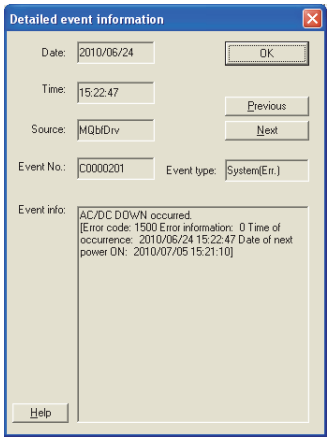


Figure 4.3 Detailed information screen

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.

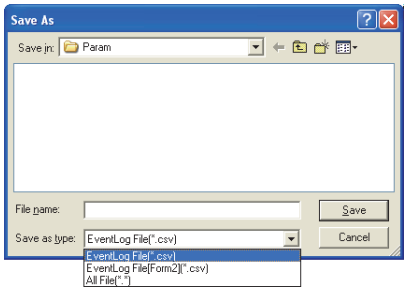


Figure 4.4 Save As screen

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

```
Event history,192.168.3.3(Default)
4
Date,Time,Source flag,Source,Event No.,Event information
2009/04/21,14:45:45,0001,MQbfDrv,C0000201,AC/DC DOWN occurred. [Error code:
2009/04/21,14:45:02,0001,MQbfDrv,C000020B,An error occurred during module i
2009/04/21,14:44:28,0001,MQbfDrv,C000020B,An error occurred during module i
2009/04/21,14:43:59,0002,MXwdkDrv,40000000,The clock data of the C Controll
```

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

[Event history]	[192.168.3.3(Default)]				
[4]					
[Date]	[Time]	[Source flag]	[Source]	[Event No.]	[Event information]
[2009/04/21]	[14:45:45]	[0001]	[MQbfDrv]	[C0000201]	[AC/DC DOWN occurred. [Error code:
[2009/04/21]	[14:45:02]	[0001]	[MQbfDrv]	[C000020B]	[An error occurred during module initial
[2009/04/21]	[14:44:28]	[0001]	[MQbfDrv]	[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	MQbfDrv	Bus interface driver (bus part) related
0002	MXwdkDrv	Bus interface driver (system part) related
0003	MUtlIfQbf	Utility communication interface (bus interface part) related
0004	MUtlIfMd	Utility communication interface (MELSEC communication part) related
0005	MUtlIfCom	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

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

⚠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.

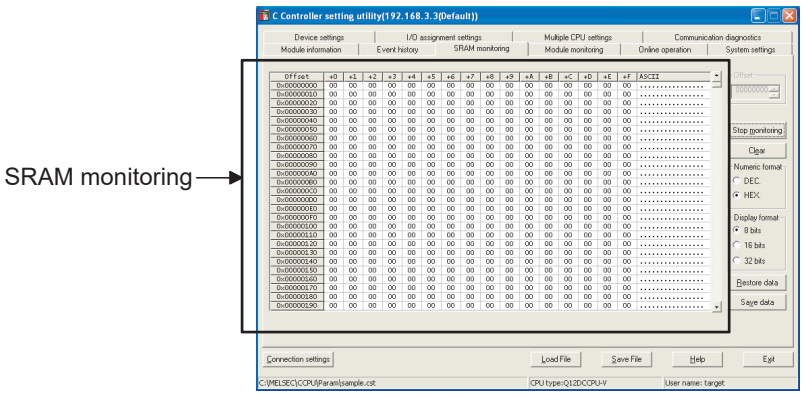


Figure 4.6 SRAM monitoring tab

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

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

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)	—
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.	—
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")	—
Data restoration button	Restores the buttery-backed-up RAM data, which were saved by the Save data button, to the C Controller module. Monitoring is stopped from the time the Data restoration button is pressed until restoration is completed.	Page 4-11
Save data button	Saves all battery-backed-up RAM data. Monitoring stops from when the 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.

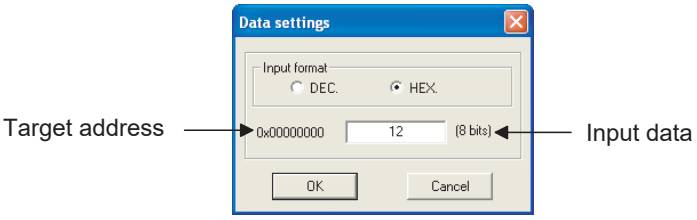


Figure 4.8 Data settings screen

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.

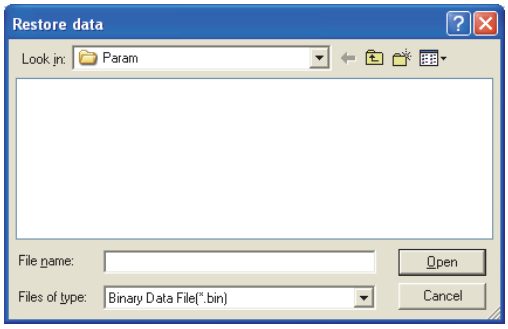


Figure 4.9 Restore data dialog box

(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.

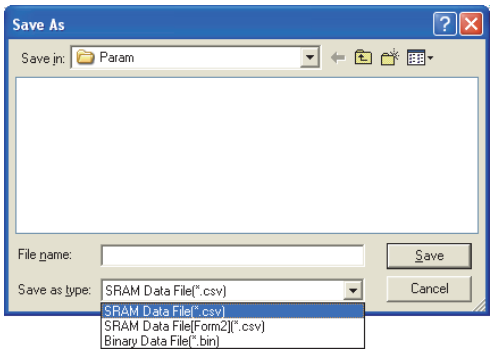


Figure 4.10 Save As screen

(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

```
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
0x00000010,00,00,00,00,00,00,00,00,00,00,00,00,00,00,00,00
0x00000020,00,00,00,00,00,00,00,00,00,00,00,00,00,00,00,00
0x00000030,00,00,00,00,00,00,00,00,00,00,00,00,00,00,00,00
0x00000040,00,00,00,00,00,00,00,00,00,00,00,00,00,00,00,00
0x00000050,00,00,00,00,00,00,00,00,00,00,00,00,00,00,00,00
0x00000060,00,00,00,00,00,00,00,00,00,00,00,00,00,00,00,00
0x00000070,00,00,00,00,00,00,00,00,00,00,00,00,00,00,00,00
0x00000080,00,00,00,00,00,00,00,00,00,00,00,00,00,00,00,00
0x00000090,00,00,00,00,00,00,00,00,00,00,00,00,00,00,00,00
0x000000A0,00,00,00,00,00,00,00,00,00,00,00,00,00,00,00,00
```

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

[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

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

⚠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 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.

(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 Start monitoring button in the <<Module monitoring >> tab.
- Click the System info 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.

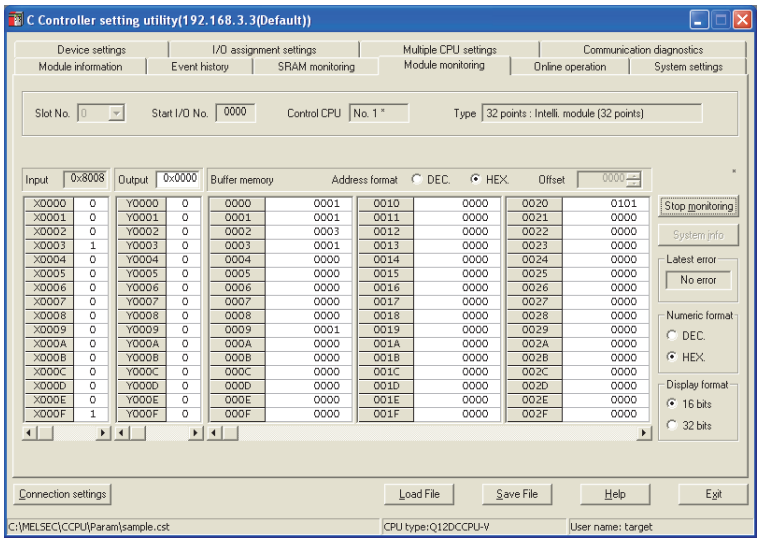


Figure 4.12 Module monitoring tab

Table 4.9 Description of the Module monitoring tab

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

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.

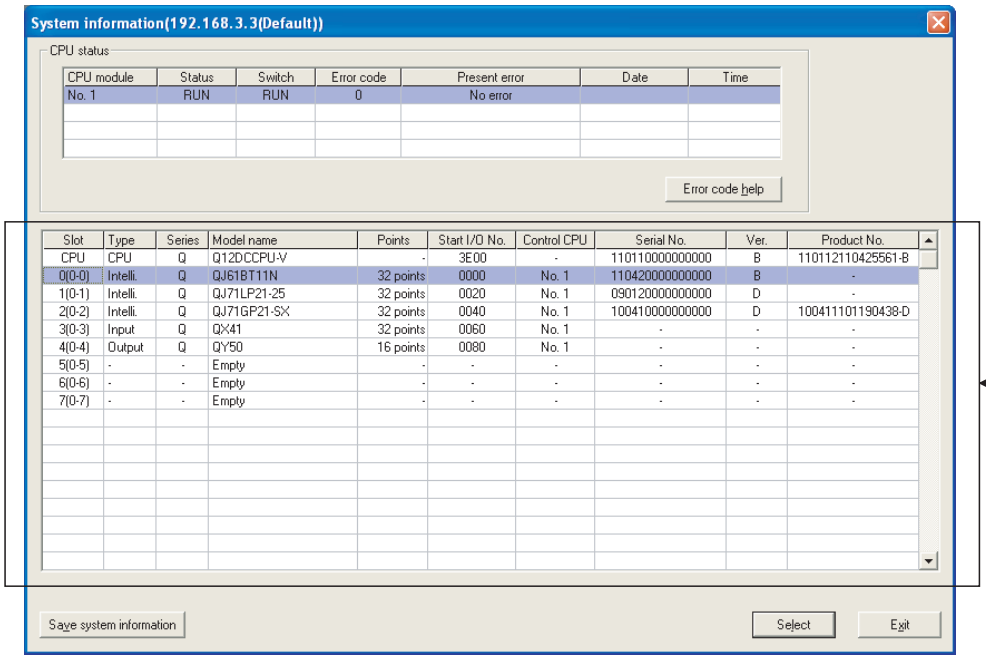


Figure 4.13 System information screen

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 an 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	—	—
[Error code help] button	Selecting a C Controller module (own station) and clicking the [Error code help] button starts Help of C Controller setting utility, which displays help information of a current error. This button is available only when the C Controller module (own station) is selected. For errors of programmable controller CPU(s), refer to the manual for the programmable controller CPU used.	—
System configuration	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. Note that CPU module selection is not allowed for a single CPU system.	—
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.	—
[Save system information] button	Saves the displayed information of the C Controller system into the system information file.	Page 4-20
[Select] button	Selecting a module and clicking the [Select] button changes the display to information of the selected module, and closes the System information screen.	Page 4-15
[Exit] 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

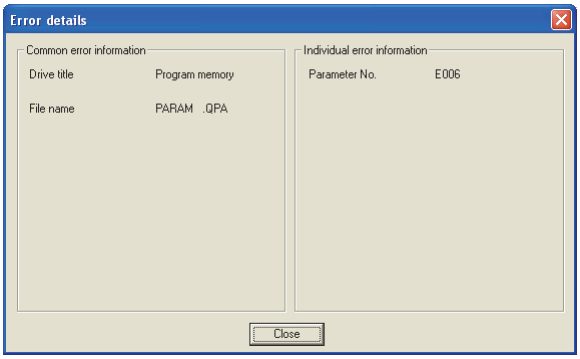


Figure 4.14 Error details screen

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.

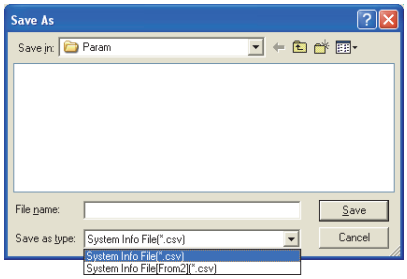


Figure 4.15 Save As screen

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

```
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,-,-,-,-,-,-
```

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

[System inform	[192.168.3.3(Default)]						
[CPU status]							
[CPU module]	[Status]	[Switch]	[Error code]	[Present e	[Date]	[Time]	
[No. 1]	[RUN]	[RUN]	[0]	[No error]			
[Slot]	[Type]	[Series]	[Model name]	[Points]	[Start I/O N	[Control CF	[Serial No.	[Ver.
[CPU]	[CPU]	[Q]	[Q12DCCPU-V]	[-]	[3E00]	[-]	[110110000	[B]
[0(0-0)]	[Intelli.]	[Q]	[QJ61BT11N]	[32 points]	[0000]	[No. 1]	[110420000	[B]
[1(0-1)]	[Intelli.]	[Q]	[QJ71LP21-25]	[32 points]	[0020]	[No. 1]	[090120000	[D]
[2(0-2)]	[Intelli.]	[Q]	[QJ71GP21-SX]	[32 points]	[0040]	[No. 1]	[100410000	[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

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

(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.

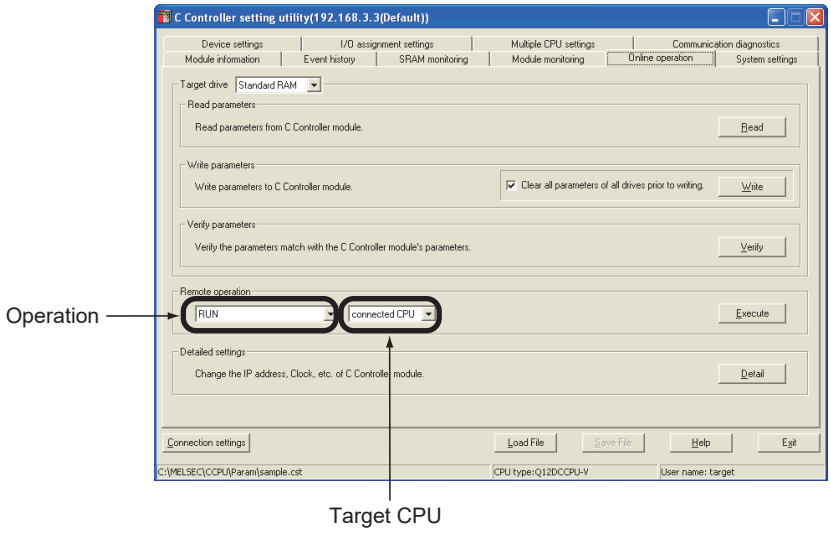


Figure 4.17 Online operation tab

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 [Read] button	Reads parameters from the C Controller module.	—
Write parameters [Write] button	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 [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 [Verify] button	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
[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
[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.

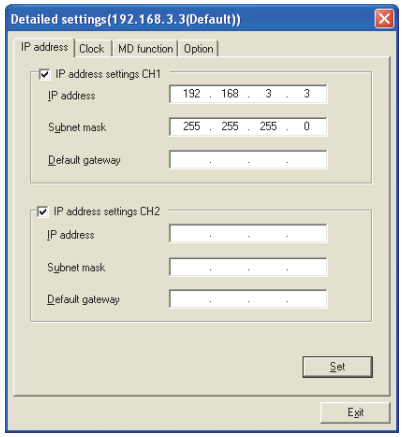


Figure 4.18 Detailed settings screen

Table 4.13 Description of the Detailed settings screen

IP address | Clock | MD function | Option

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.

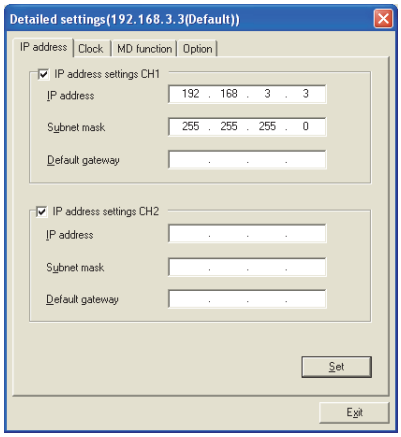


Figure 4.19 IP address tab

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))	—
Set 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 potion where the subnet mask is corresponding to bit 1 in a IP address.
The host portion is the potion 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. •The least significant bit is 0.	255.255.0.0

• 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.

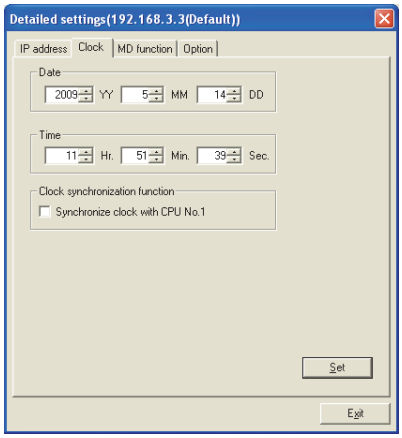


Figure 4.20 Clock tab

Table 4.18 Description of the Clock tab

IP address | Clock | MD function | Option

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.

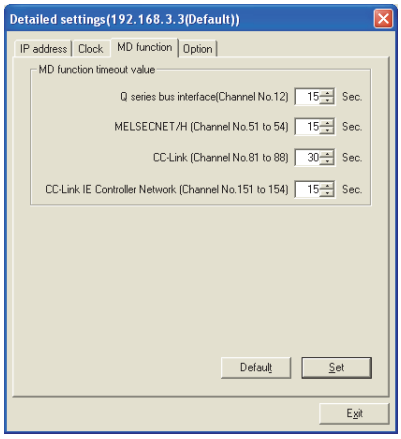


Figure 4.21 MD function tab

Table 4.19 Description of the MD function tab

IP address | Clock | MD function | Option

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)	—
Default button	Change the settings back to default.	—
Set 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.

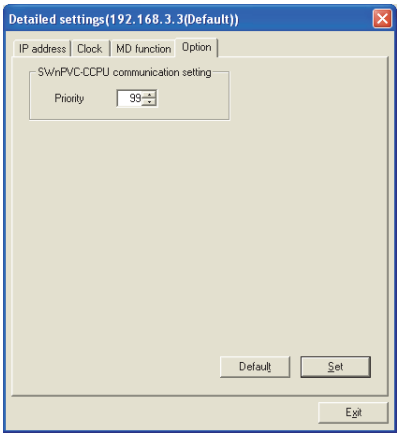


Figure 4.22 Option tab

Table 4.20 Description of the Option tab

IP address | Clock | MD function | Option

Item	Description	Reference page
SW3PVC-CCPU communication setting Priority	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" 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

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

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

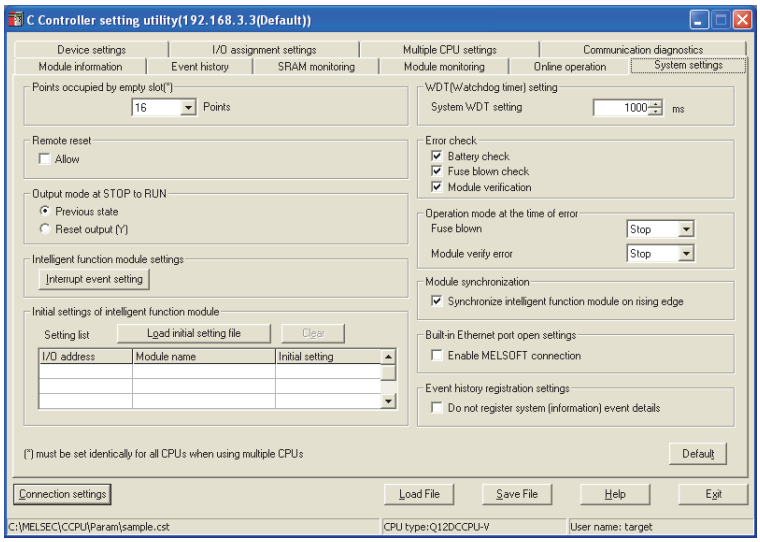


Figure 4.23 System settings tab

Table 4.21 Description of the System settings tab

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

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	Set whether to register the event history data. This setting is not available for the following: •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.	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. If this is selected, System (Info.) events, such as clock data setting or correction, will not be registered to the event history. Therefore, if System (Info.) events have occurred frequently, overwriting and deletion of System (Err.) or System (Warning) events can be prevented. (Default: not checked (not register))	

(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).

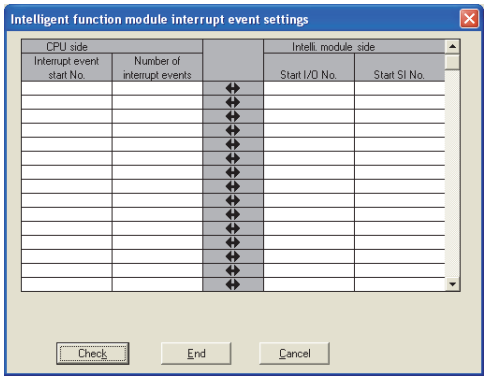


Figure 4.24 Intelligent function module interrupt event settings screen

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)	—
Check button	Checks whether the settings are correct.	—
End button	Saves the settings and closes the Intelligent function module interrupt event settings screen.	—
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

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

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

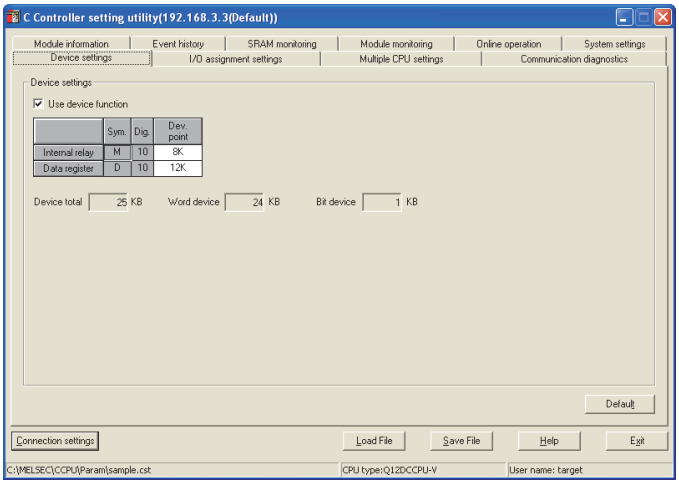


Figure 4.25 Device settings tab

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.)) 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.					*1
	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

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

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

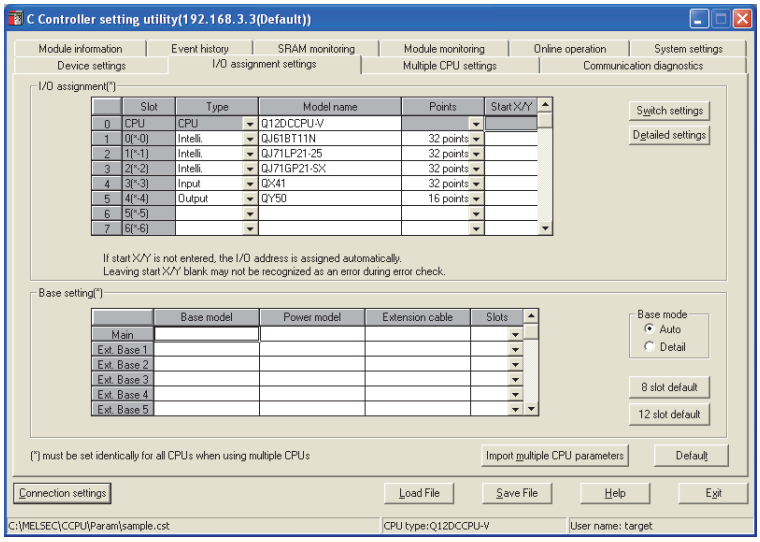


Figure 4.26 I/O assignment settings tab

Table 4.25 Description of the I/O assignment settings tab

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

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).

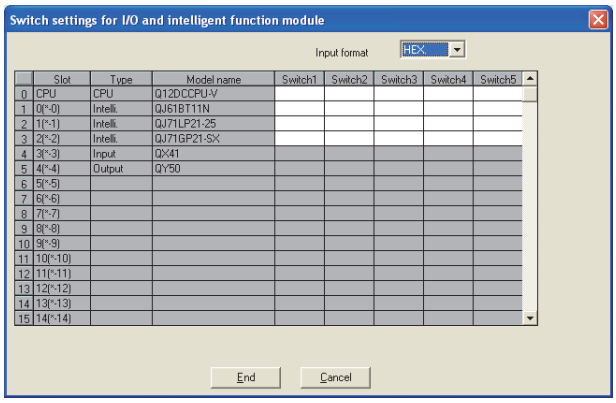


Figure 4.27 Switch settings for I/O and intelligent function module screen

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).

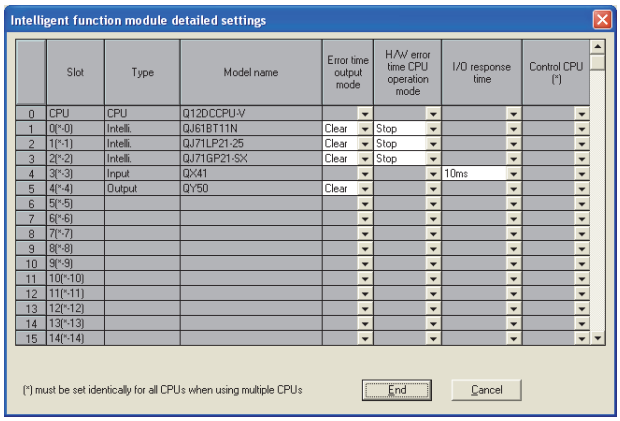


Figure 4.28 Intelligent function module detailed settings screen

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")	—
End button	Saves the settings and closes the Intelligent function module detailed settings screen.	—
Cancel button	Closes the Intelligent function module detailed settings screen without saving the settings.	—

4.10 Multiple CPU Settings Tab

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

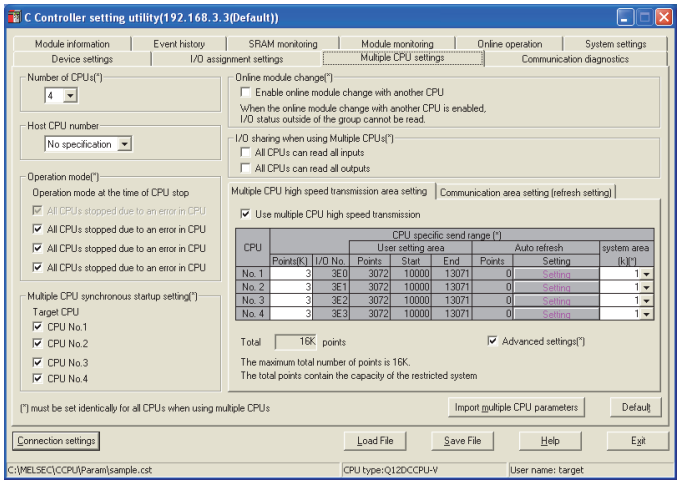
Parameters of the C Controller module (multiple CPU setting) for configuring a multiple CPU system can be set in this tab.
Set parameters regarding the multiple CPU system.

(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

Q12DCCPU-V



Q06CCPU-V(-B)

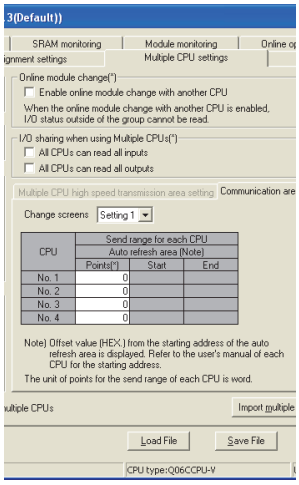


Figure 4.29 Multiple CPU settings tab

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

<table>
<tr><th>Item</th><th>Description</th><th>Reference page</th></tr>
<tr><td>Operation mode</td><td>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))</td><td>—</td></tr>
<tr><td>Multiple CPU synchronous startup setting</td><td>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))</td><td>—</td></tr>
<tr><td>Online module change</td><td>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".</td><td>—</td></tr>
<tr><td>I/O sharing when using Multiple CPUs</td><td>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)</td><td>—</td></tr>
<tr><td>Multiple CPU high speed transmission area setting</td><td>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".</td><td>—</td></tr>
<tr><td>Use multiple CPU high speed transmission</td><td>Set when using multiple CPU high-speed transmission.
(Default: checked (the function is enabled))</td><td>—</td></tr>
<tr><td>CPU specific send range</td><td>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))
<table>
<tr><th rowspan="2">Setting of "Number of CPUs"</th><th colspan="4">Send range for each CPU</th></tr>
<tr><th>CPU No.1</th><th>CPU No.2</th><th>CPU No.3</th><th>CPU No.4</th></tr>
<tr><td>2</td><td>7</td><td>7</td><td>—</td><td>—</td></tr>
<tr><td>3</td><td>7</td><td>3</td><td>3</td><td>—</td></tr>
<tr><td>4</td><td>3</td><td>3</td><td>3</td><td>3</td></tr>
</table></td><td>—</td></tr>
<tr><td>User setting area</td><td>Displays usable range in the user setting area.</td><td>—</td></tr>
<tr><td>Auto refresh</td><td>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))</td><td>—</td></tr>
<tr><td>system area</td><td>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)</td><td>—</td></tr>
<tr><td>Advanced settings</td><td>Check when using the system area.
(Default: not checked (not use))</td><td>—</td></tr>
</table>

(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.

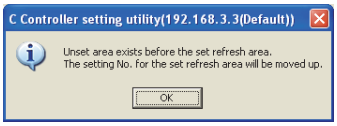


Figure 4.30 Dialog box

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

Example)

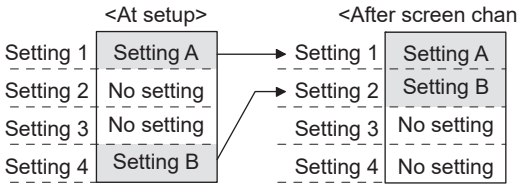


Figure 4.31 Refresh settings example

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.

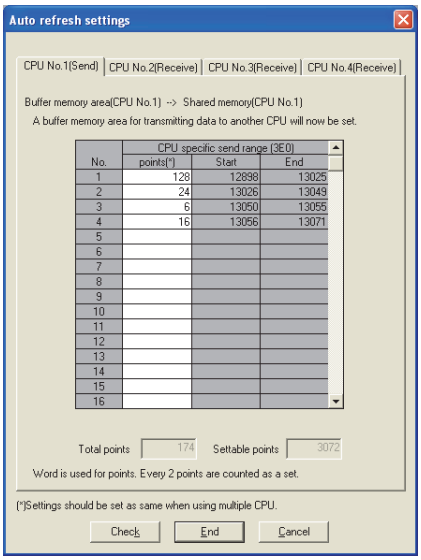


Figure 4.32 Auto refresh settings screen

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 points	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")
Start End	Displays the Multiple CPU high speed transmission area set in "Auto refresh" by address. The C Controller module calculates the value to display.
Total points	Displays total of the points set in "Auto refresh".
Settable points	Displays the maximum points that can be set in "Auto refresh".
Check button	Check for incorrect setting.
End button	Saves the settings and closes the Auto refresh settings screen.
Cancel button	Closes the Auto refresh settings screen without saving the settings.

4.11 Communication Diagnostics Tab

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

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

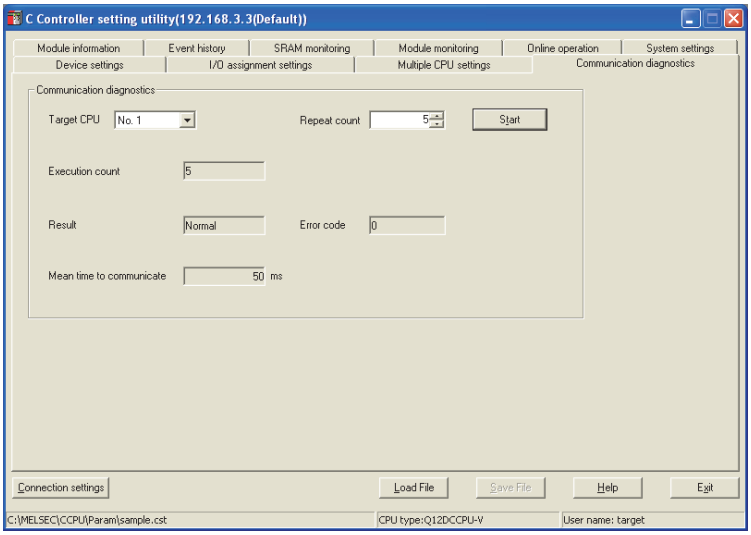


Figure 4.33 Communication diagnostics tab

Table 4.30 Description of the Communication diagnostics tab

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

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

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

(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.

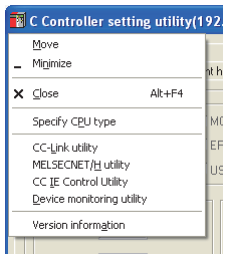


Figure 4.34 System menu

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.

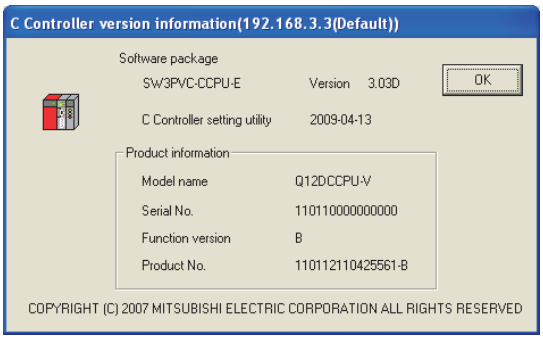


Figure 4.35 Version information screen (Example: Version 3.03D)

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. This information cannot be displayed offline. In a multiple CPU system, the information can also be confirmed in the system monitor (product information list) of GX Developer. For the Q06CCPU-V(-B), "-" appears for the product No.	—
Model name		
Serial No.		
Function version		
Product No.		
OK button	Closes the version information screen.	—

4.13 Reading Initial Setting File and Importing Multiple CPU Parameters

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

(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.

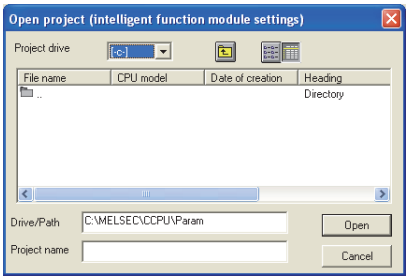


Figure 4.36 Open project screen

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

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

(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

5.2 Module Information Tab

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

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

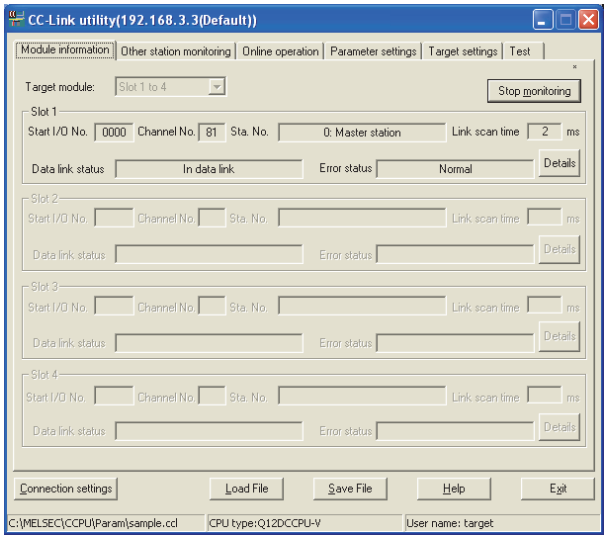


Figure 5.1 Module information tab

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.

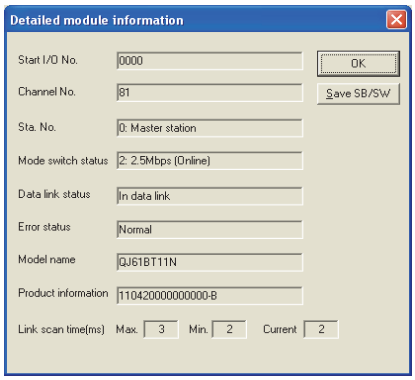


Figure 5.2 Detailed module information screen

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 ☐)	156Kbps	Line test When ☐ =1, station No. is 0. When ☐ =2, station No. is 1 to 64.
6: 625kbps (Line test ☐)	625Kbps	
7: 2.5Mbps (Line test ☐)	2.5Mbps	
8: 5Mbps (Line test ☐)	5Mbps	
9: 10Mbps (Line test ☐)	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.

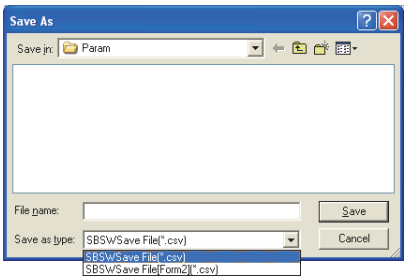


Figure 5.3 Save As screen

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

```
SB/SW,192.168.3.3(Default)
QJ61BT11N          ,110420000000000-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
```

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

[SB/SW]	[192.168.3.3(Default)]			
[QJ61BT11N]	[110420000000000-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]

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

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

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

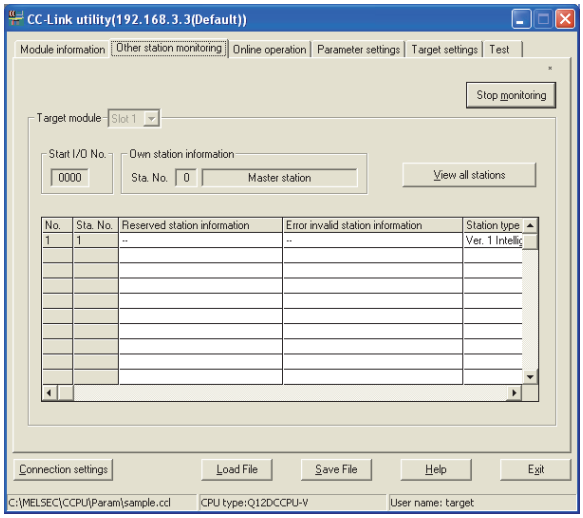


Figure 5.5 Other station monitoring

Table 5.8 Description of the Other station monitoring tab

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

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)

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

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).
[Start monitoring], or [Stop monitoring] 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.

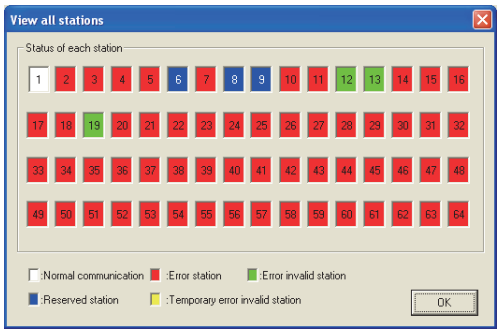


Figure 5.6 View all stations screen

Table 5.10 Description of View all stations screen

Item	Description
Status of each station	Communication status of each station is coded in color as follows. White: Normal communication Red: Error station Green: Error invalid station Blue: Reserved station Yellow: Temporary error invalid station The information displayed on the screen is based on the communication status when the screen was opened. Any changes on the communication status after opening the screen does not take effect to the display.
OK button	Closes the View all stations screen.

5.4 Online Operation Tab

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

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

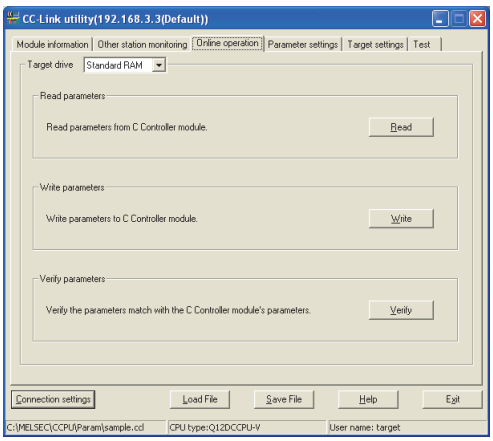


Figure 5.7 Online operation tab

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)

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

Item	Description
Write parameters 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 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

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

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

(1) Parameter settings tab

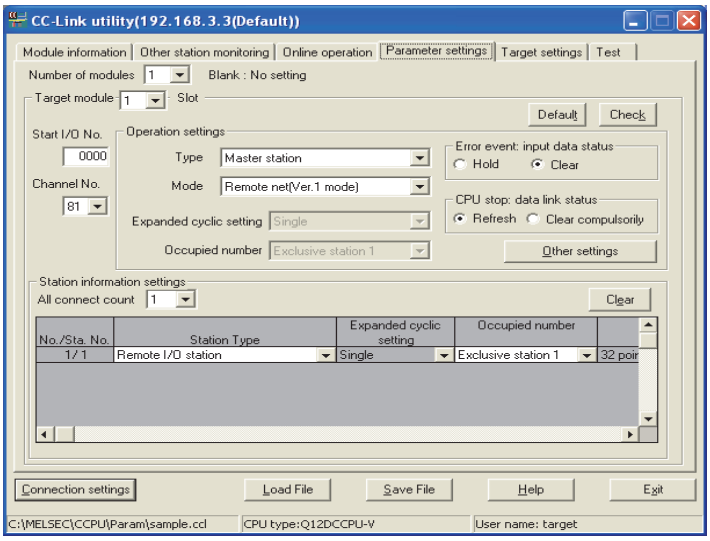


Figure 5.8 Parameter settings tab

Table 5.12 Description of Parameter settings tab

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

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)

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

Item		Description
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")
	Other settings 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)
Clear button		Clears parameters set in "Station information setting" and set defeat values instead.

(2) Other settings screen

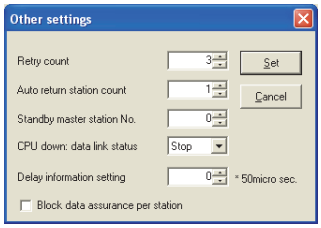


Figure 5.9 Other settings screen

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

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

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

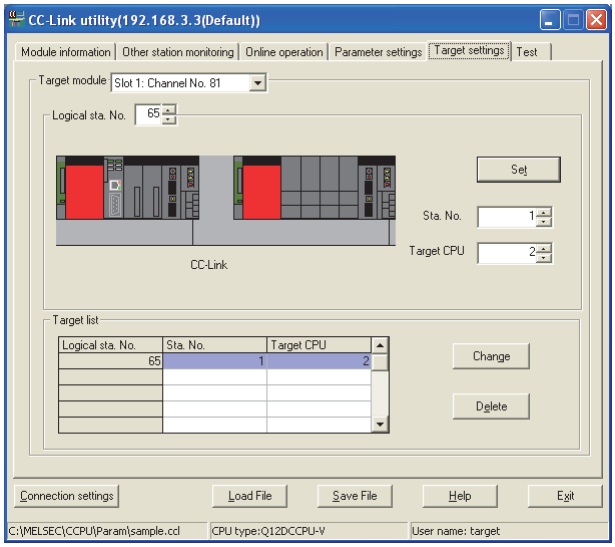


Figure 5.10 Target settings tab

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).

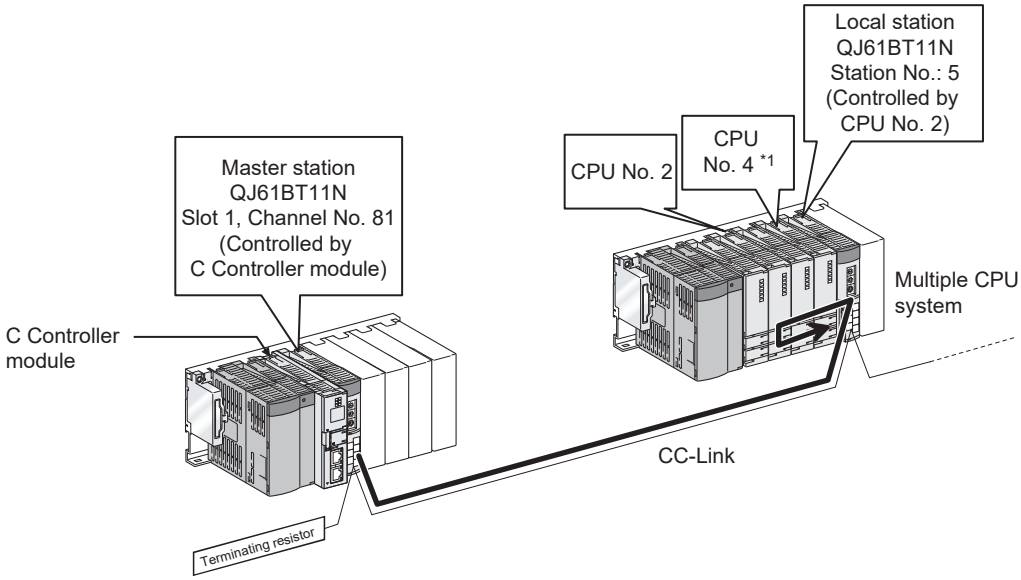


Figure 5.11 System configuration example

* 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.

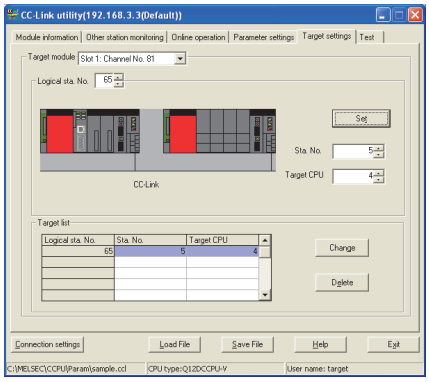


Figure 5.12 Target settings tab setting

(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.

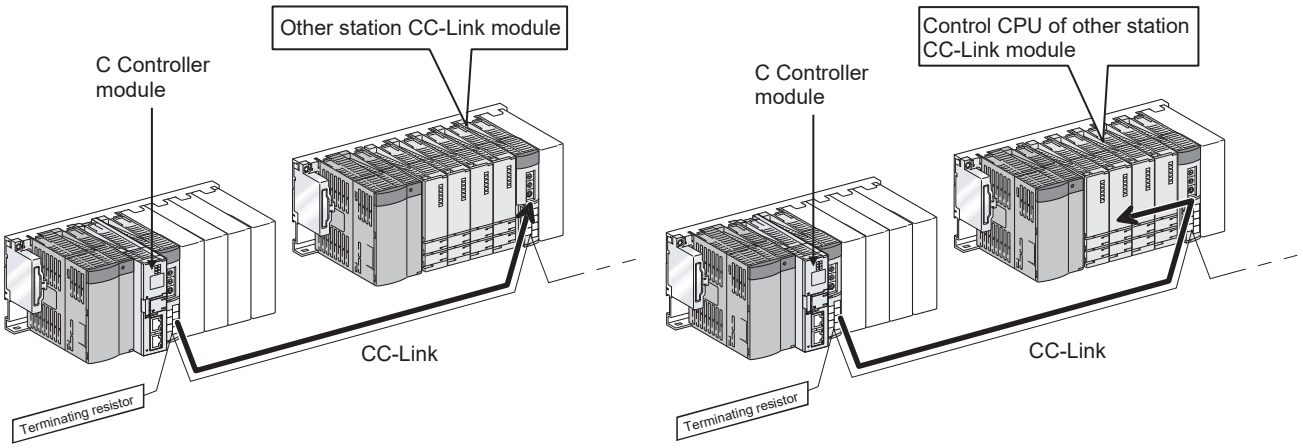


Figure 5.13 Access that does not require a logical station No. setting

5.7 Test Tab

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

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

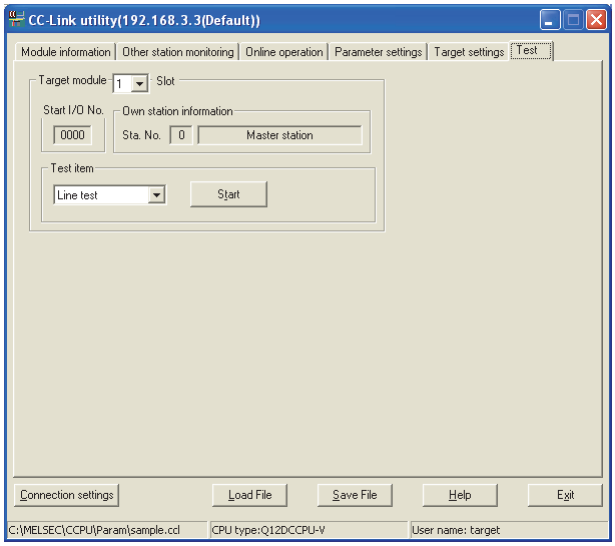


Figure 5.14 Test tab

Table 5.15 Description of the Test tab

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

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)
		Network test	Tests a data link start and stop.
	Start button	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.

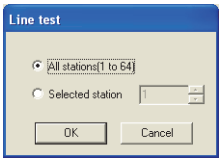
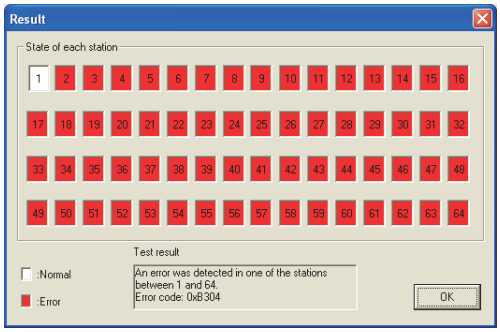


Figure 5.15 Line test screen

2) Results

For "All stations (1 to 64)"



For "Selected station"

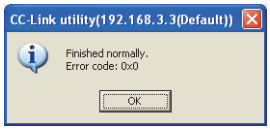


Figure 5.16 Result screen

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.

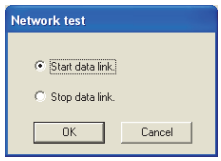


Figure 5.17 Network test screen

2) Result

The test result is displayed on the following screen.

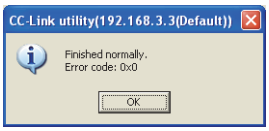


Figure 5.18 Network test result screen

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

5.8 System Menu

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

(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.

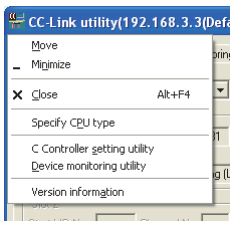


Figure 5.19 System menu

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.

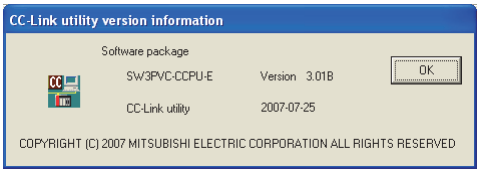


Figure 5.20 Version information screen (Example: Version 3.01B)

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

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

(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

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

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

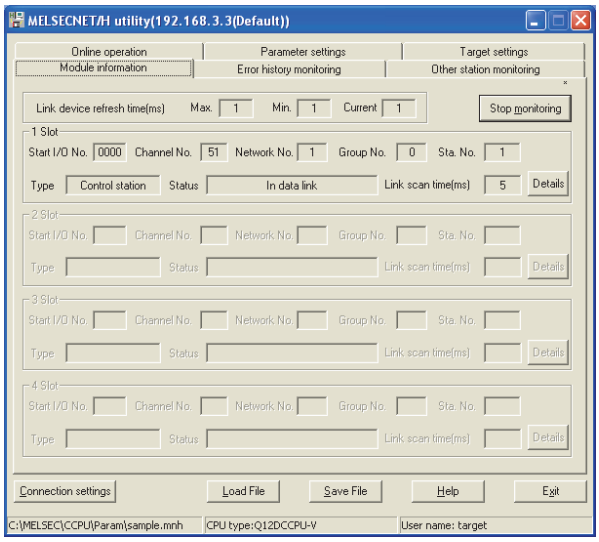


Figure 6.1 Module information tab

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.

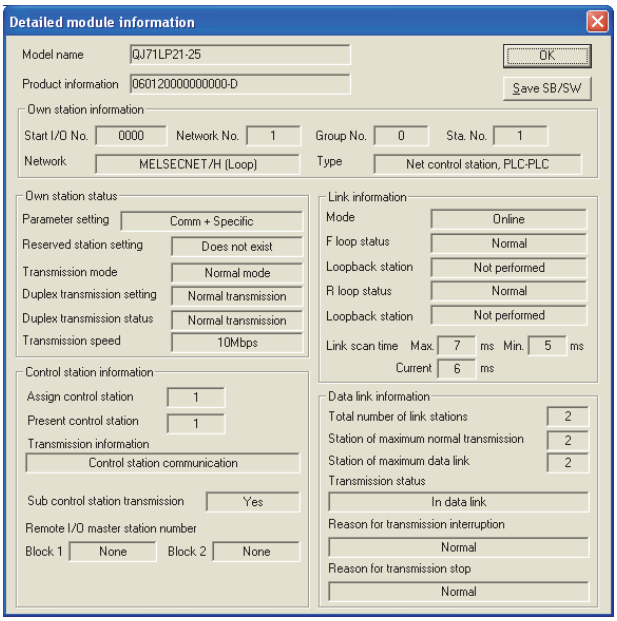


Figure 6.2 Detailed module information screen

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.

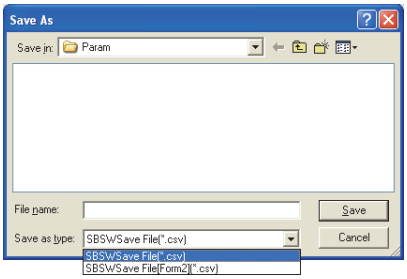


Figure 6.3 Save As screen

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

```
SB/SW,192.168.3.3(Default)
QJ71LP21-25       ,0901200000000000-D
Start I/O No., Network No., Group No., Station No., Networ
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
```

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

[SB/SW]	[192.168.3.3(Default)]				
[QJ71LP21-25]	[0901200000000000-D]				
[Start I/O No.]	[Network I	[Group Nc	[Station N	[Network]	[Type]
[0000]	[1]	[0]	[1]	[MELSEC	[Net contr PLC-PL
[SB/SW information]					
[Device]	[Value]		[Device]	[Value]	
[SB0000]	[0]		[SW0000]	[0000]	
[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

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

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

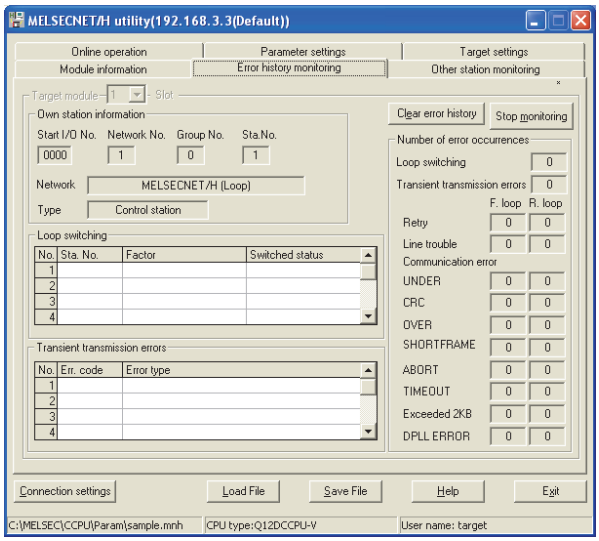


Figure 6.5 Error history monitoring tab

Table 6.7 Description of the Error history monitoring tab

Module information | Error history monitoring | Other station monitoring

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)

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	—
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.

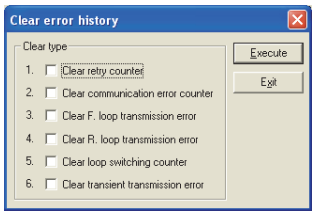


Figure 6.6 Clear error history screen

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

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

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

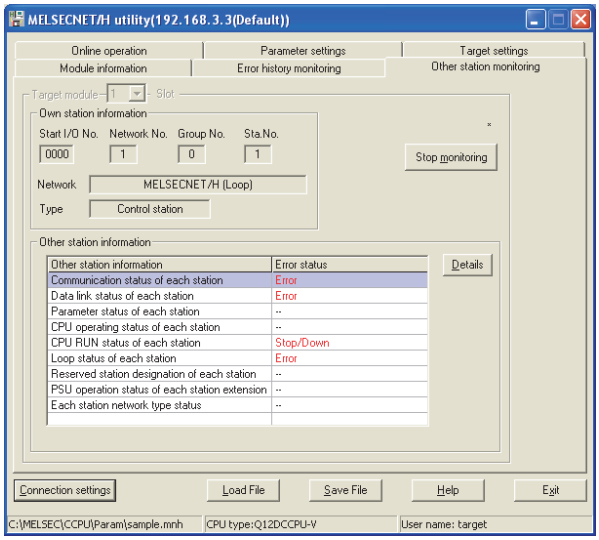


Figure 6.7 Other station monitoring tab

Table 6.10 Description of the Other station monitoring tab

Module information | Error history monitoring | Other station monitoring

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.

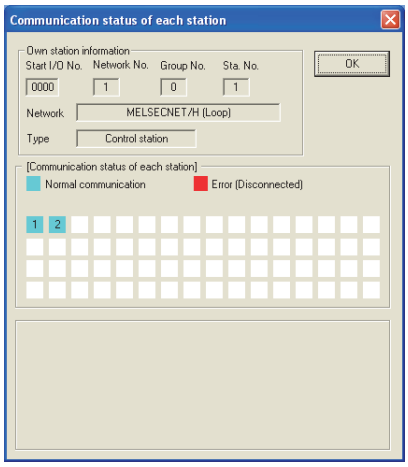


Figure 6.8 Communication status of each status screen

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.

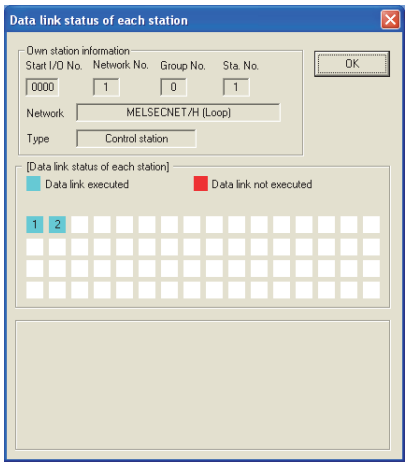


Figure 6.9 Data link status of each station screen

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.

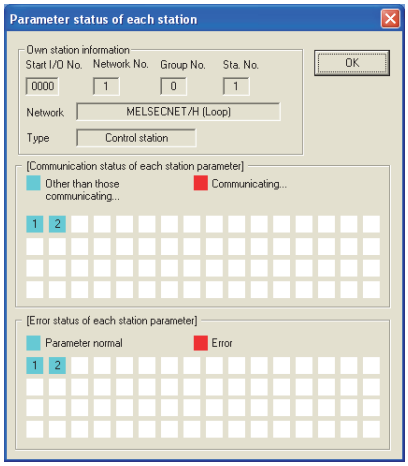


Figure 6.10 Communication status of each station screen

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.

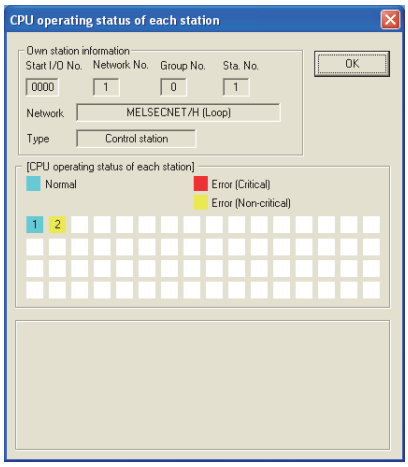


Figure 6.11 CPU operation status of each station screen

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.

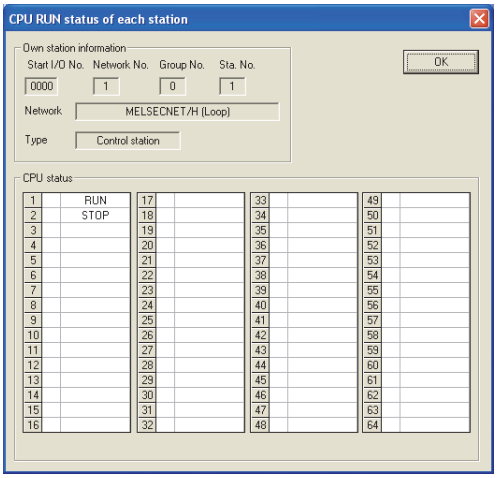


Figure 6.12 CPU RUN status of each station screen

Table 6.16 CPU RUN status of each station screen

Item	Description	Corresponding SB	Corresponding SW
OK 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.

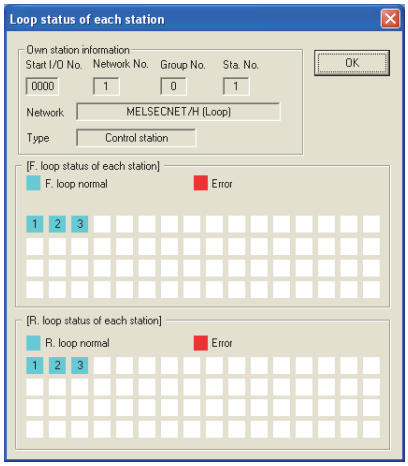


Figure 6.13 Loop status of each station screen

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.

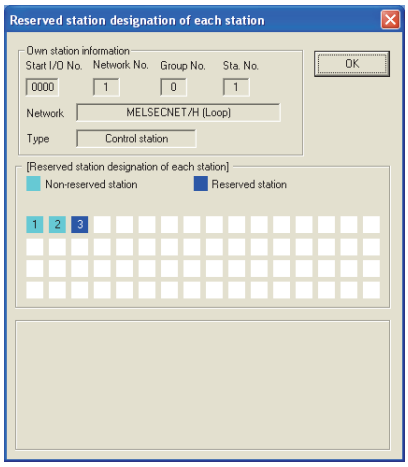


Figure 6.14 Reserved station designation of each station screen

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.

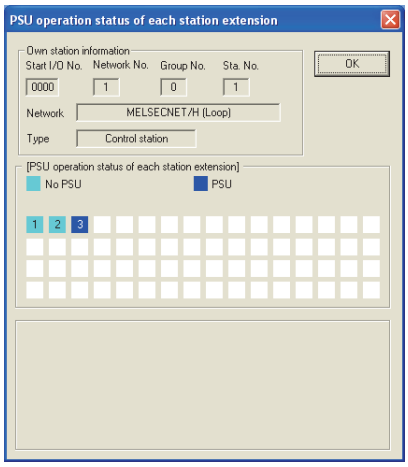


Figure 6.15 PSU operation status of each station extension

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.

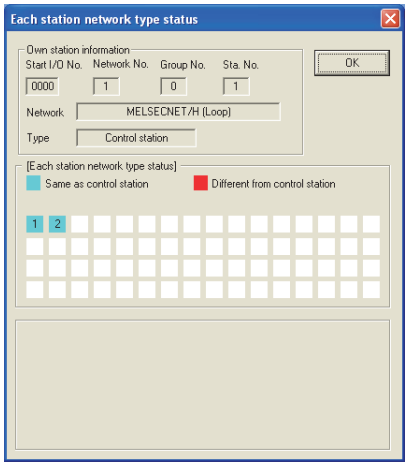


Figure 6.16 Each station network type status screen

Table 6.20 Description of the Each station network type status screen

Item	Description	Corresponding SB	Corresponding SW
OK 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

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

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

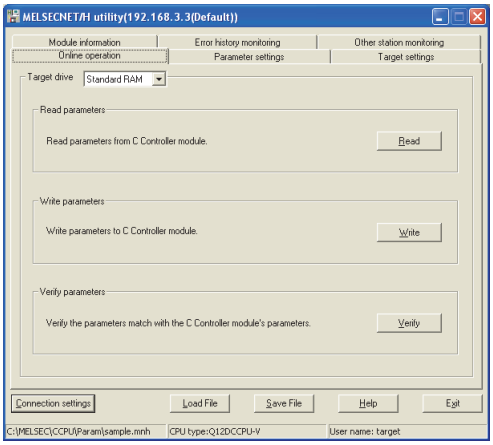


Figure 6.17 Online operation tab

Table 6.21 Description of the Online operation tab

Online operation | 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)
Read parameters Read 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 Write button	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 Verify button	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.

6.6 Parameter Settings Tab

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

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.

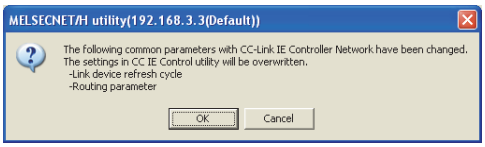


Figure 6.18 Dialog box

(2) Parameter settings tab

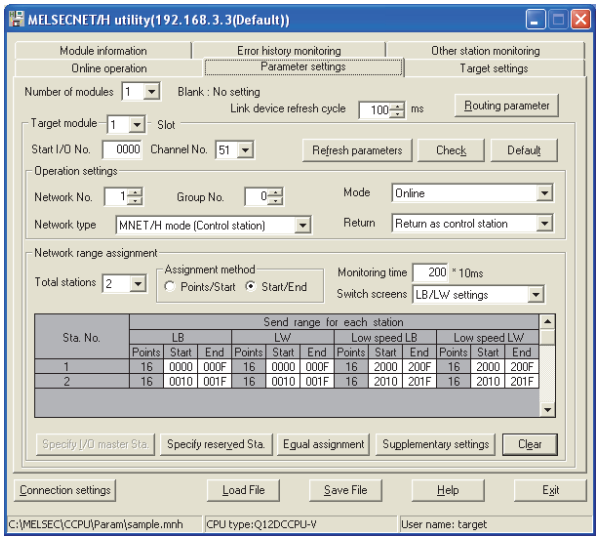


Figure 6.19 Parameter setting tab

Table 6.22 Description of the Parameter setting tab

Online operation | Parameter settings | Target settings

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)

Online operation | Parameter settings | Target settings

Item	Description
Link device refresh cycle	Set the refresh cycle of the link device. (In increments of ms) 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. 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". If 0 is set, refresh is not performed, all the settings for the refresh are cleared, and the [Refresh parameters] button is disabled. (Default: 100, Setting range: 0, 10 to 1000) For details of the link device refresh cycle, refer to the C Controller Module User's (Hardware Design, Function Explanation).
[Routing parameter] button	Displays the Routing parameter settings screen. (☞ Page 6-31, Section 6.6 (3))
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 the start I/O No. of the MELSECNET/H module. (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.)
Channel No.	Set the channel No. of the MELSECNET/H module. Use this value when opening the channel from Device monitoring utility or a user program (MELSEC data link function). For the Q06CCPU-V-B, this setting is not available. The channel No. must be unique and cannot be duplicated with a channel No. of other MELSECNET/H modules.
[Refresh parameters] button	Displays the Refresh parameter setting screen. (☞ Page 6-33, Section 6.6 (4)) 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".
[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	Return setting of the control station. This setting is available when any of the following is selected for "Network type". •MNET/H mode (Control station) •MNET/10 mode (Control station) •MNET/H Ext. mode (Control station) (Default: "Return as control station")

(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))
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".
Specify reserved Sta. button	Sets the selected station as a reserved station, or cancels the setting.
Equal assignment button	Displays the Equal assignment screen. (☞ Page 6-35, Section 6.6 (5))
Supplementary settings button	Displays the Supplementary settings screen. (☞ Page 6-37, Section 6.6 (6))
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 3FF0*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
		End	200F to 3FFF*2
	Low-speed LW	Points	1 to 8192
		Start	2000 to 3FFF
		End	2000 to 3FFF
When "Network type"*3 is "MNET/10 mode (Control station)	LB	Points	16 to 8192*1
		Start	0000 to 1FF0*1
		End	000F to 1FFF*2
	LW	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)

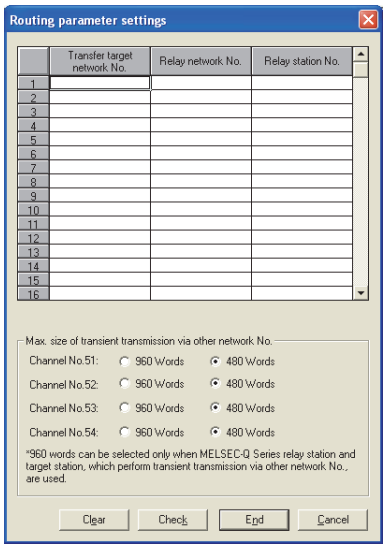


Figure 6.20 Routing parameter settings screen

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)

(To the next page)

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)
Clear button	Clears the "Transfer target network No.", "Relay network No.", and "Relay station No." settings.
Check button	Checks the "Transfer target network No.", "Relay network No.", and "Relay station No." settings.
End button	Saves the settings and closes the Routing parameter settings screen.
Cancel button	Closes the Routing parameter settings screen without saving the settings.

(4) Refresh parameter settings screen

Set refresh parameters.

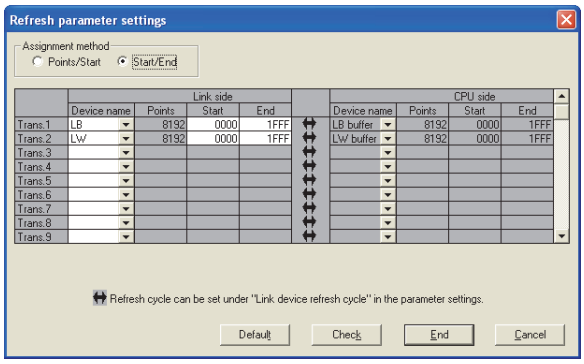


Figure 6.21 Refresh parameter settings screen

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.

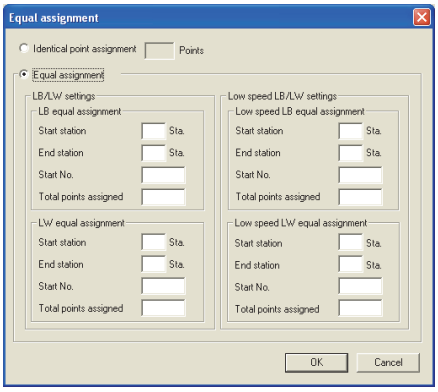


Figure 6.22 Equal assignment screen (for LB/LW settings)

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)
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.
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.

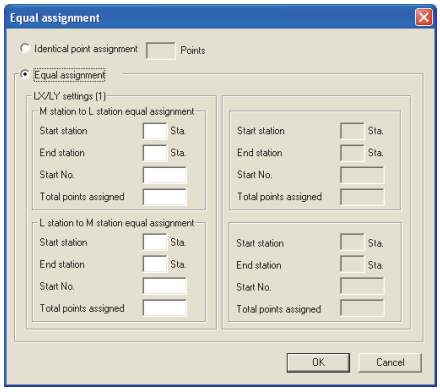


Figure 6.23 Equal assignment screen (for LX/LY settings (1))

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.

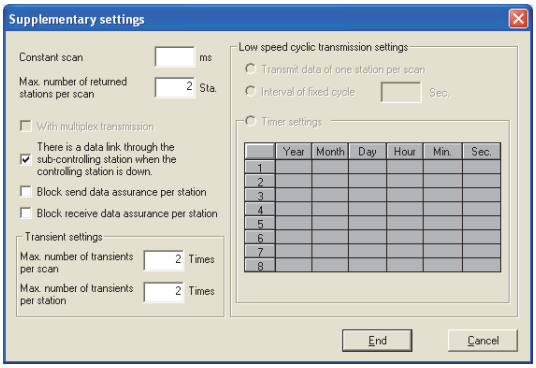


Figure 6.24 Supplementary settings screen

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 thorough 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 Block receive 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. •"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)
End button	Saves the settings and closes the Supplementary setting screen.
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

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

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

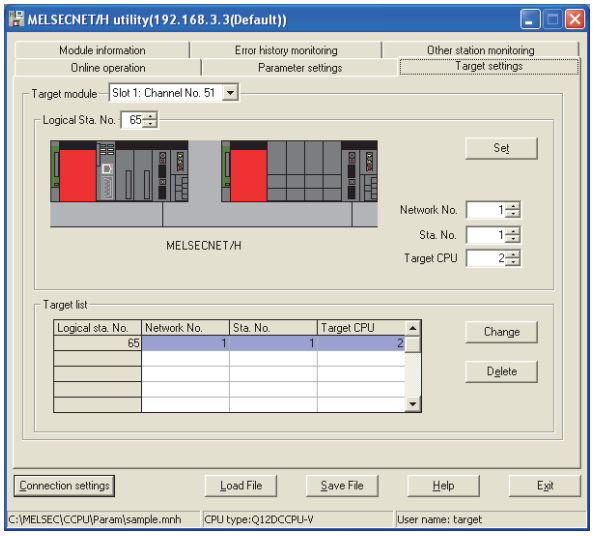


Figure 6.25 Target settings tab

Table 6.33 Description of the Target settings tab

Online operation | Parameter settings | Target settings

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
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.)
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).

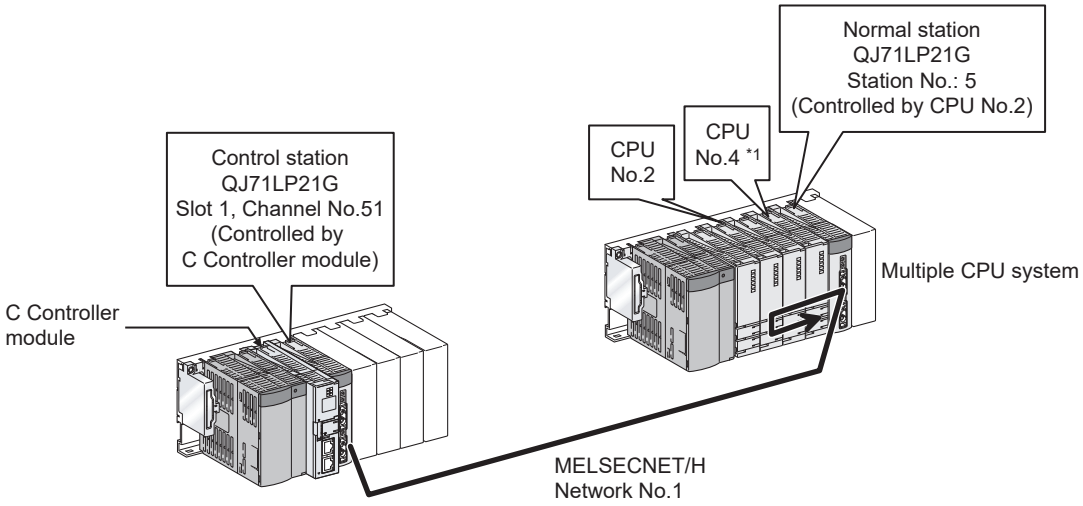


Figure 6.26 System configuration

* 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.

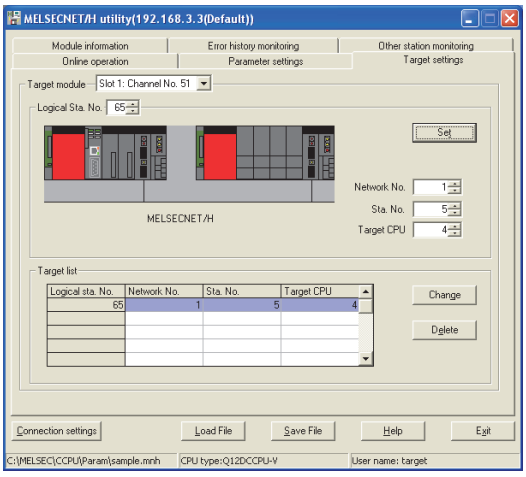


Figure 6.27 Target settings tab

(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.

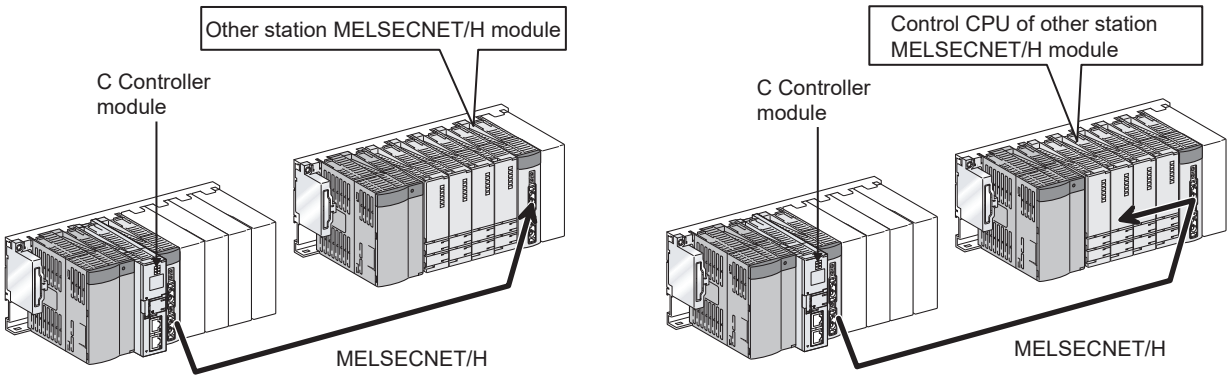


Figure 6.28 Access that does not require a logical station No. setting

6.8 System menu

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

(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.

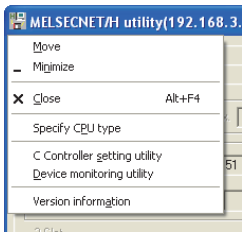


Figure 6.29 System menu

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.

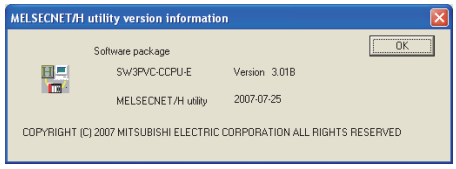


Figure 6.30 Version information screen (Example: Version 3.01B)

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

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

(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

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

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

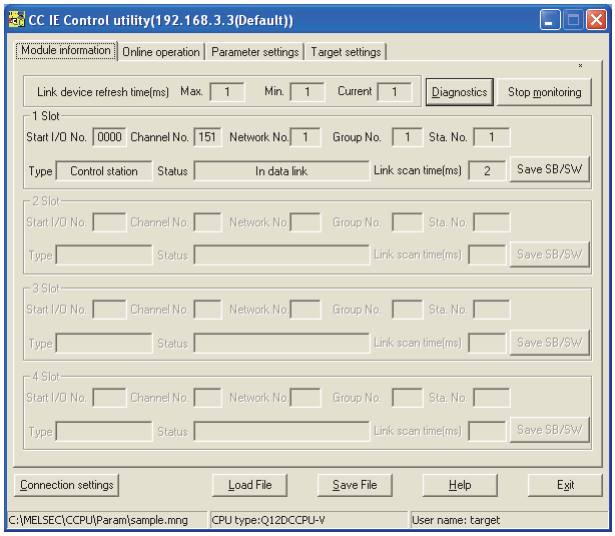


Figure 7.1 Module information tab

Table 7.2 Description of Module information tab

Module information | Online operation | Parameter settings | Target settings

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.

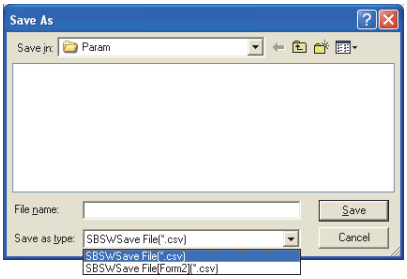


Figure 7.2 SaveAs screen

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

```
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
```

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

[SB/SW]	[192.168.3.3(Default)]				
[QJ71GP21-SX]	[100410000000000-D]				
[Start I/O No.]	[Network I	[Group No	[Station N	[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]	

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

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

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

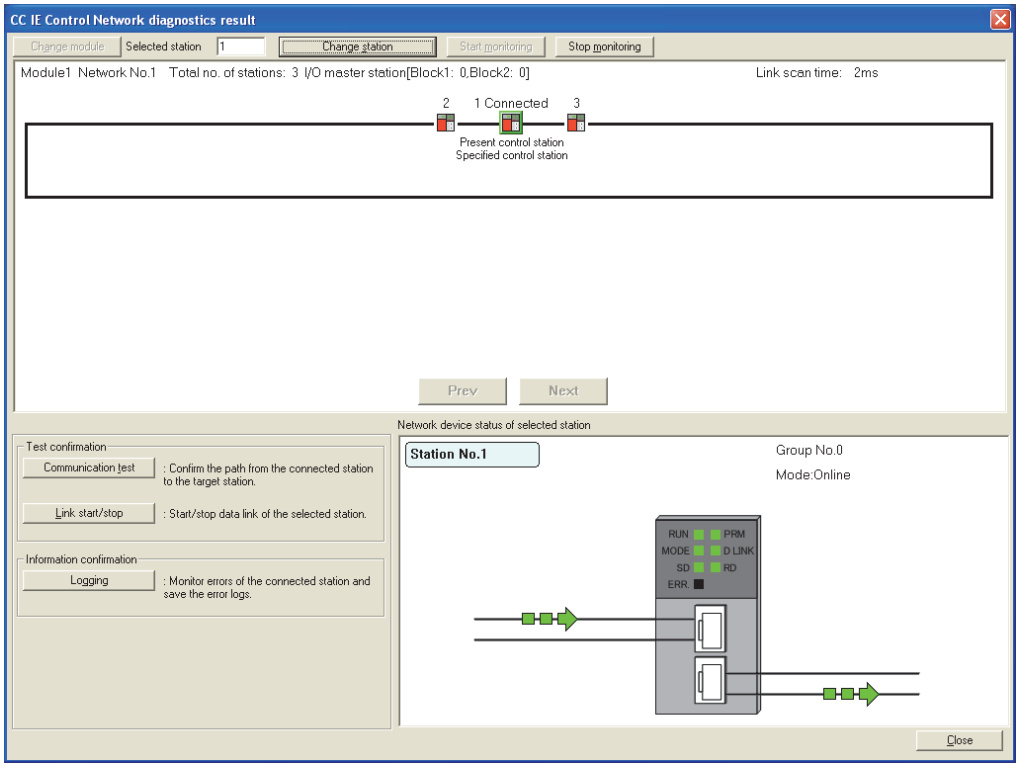


Figure 7.4 CC IE Control Network diagnostics result screen

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.

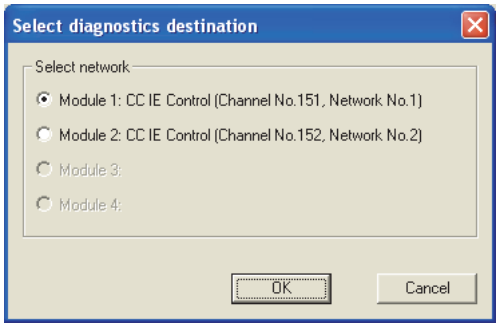


Figure 7.5 Select diagnostics destination screen

Table 7.3 Description of Select diagnostics destination

Item	Description
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 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)
Change station button	Determines the entry in "Selected station".
Start monitoring button	Starts automatic updating of "CC IE Control Network diagnostics result".
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))
Communication test button	Displays the "Communication Test" screen. (☞ Page 7-13, Section 7.3 (3))
Link start/stop button	Displays the "Link start/stop" screen. (☞ Page 7-15, Section 7.3 (4))
Logging button	Displays the "Logging" screen. (☞ Page 7-16, Section 7.3 (5))
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.

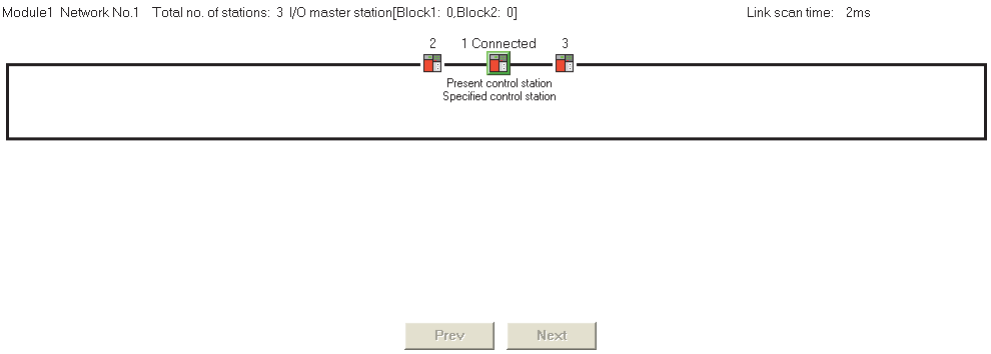


Figure 7.6 Network information display

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.

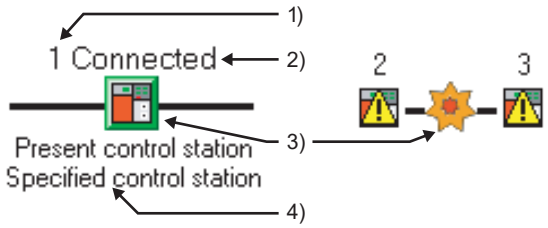


Figure 7.7 Displaying each station status and inter-station status

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.

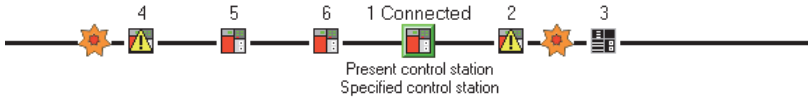


Figure 7.8 When the disconnected station has obtained normal connection information

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.

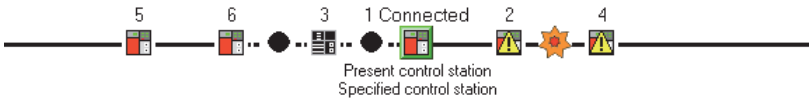


Figure 7.9 When the disconnected station has not obtained normal connection information

(2) Network device status of selected station

The detailed information of a selected station is displayed.

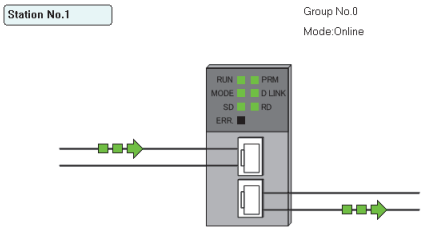


Figure 7.10 Network device status of selected station

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	Station No.1	Normal operation
	Station No.1 Error occurs.	Error (data link continued) (yellow)
	Station No.1 Error occurs.	Error (data link stopped) (red)
LEDs of selected station network device	RUN PRM MODE D LINK SD RD ERR.	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	Module error, 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.

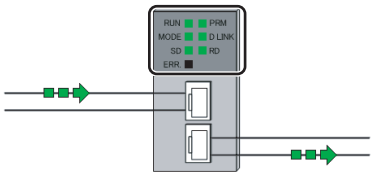


Figure 7.11 LEDs of the selected station network device

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	•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.

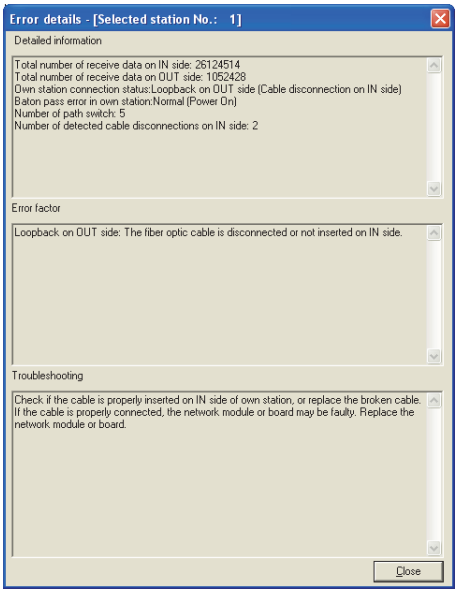


Figure 7.12 Error details screen

(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.

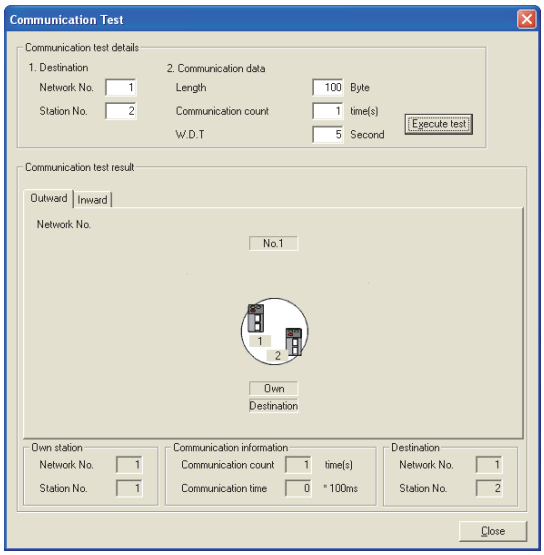


Figure 7.13 Communication Test screen

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 (connected9 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.

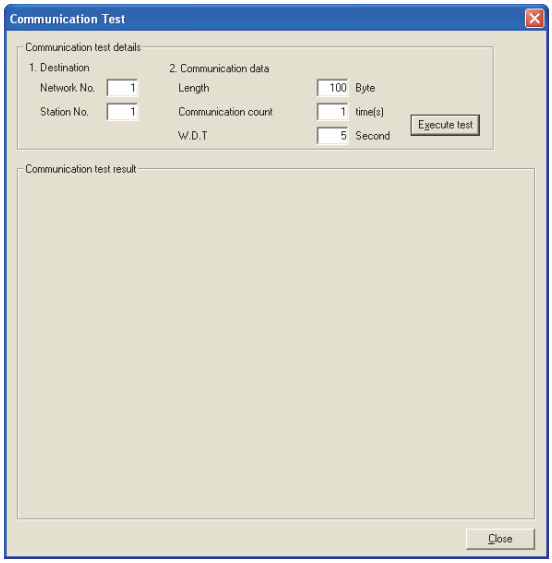


Figure 7.14 Default Communication Test screen

(4) Link start/stop screen

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

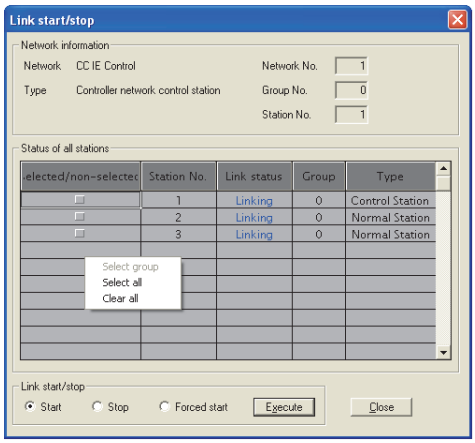


Figure 7.15 Link start/stop screen

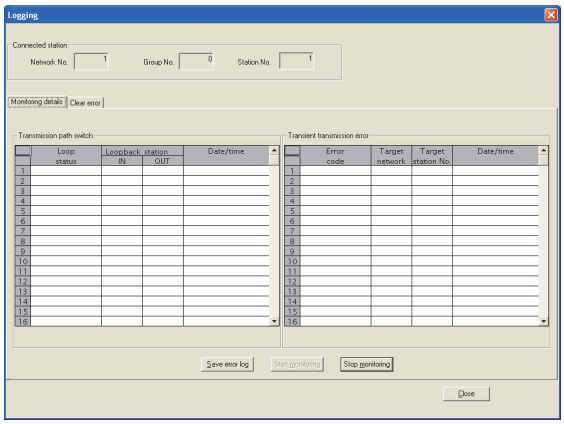
Table 7.9 Description of Link start/stop screen

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	Displayed 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

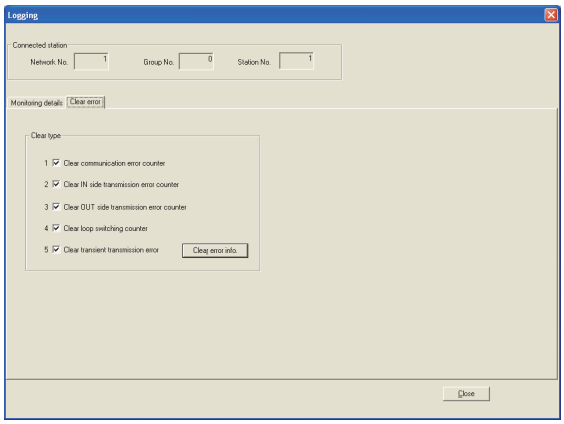


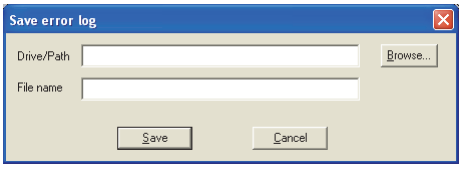
Figure 7.16 Logging screen

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	Up to 100 transmission path switch logs can be displayed. If more than 100 logs have occurred, the oldest log will be deleted to record the latest log.
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	Displays up to 100 transient transmission error logs. If more than 100 logs have occurred, the oldest log will be deleted to record the latest log.
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	Saves the <<Monitoring details>> tab data to a CSV file. Select a CSV file format by clicking the Browse button. (Page 7-19, Section 7.3 (6))  •Drive/Path: Specify where the CSV file is saved. •File name: Specify a name for the CSV file to be saved.(*.csv)
Start monitoring button Stop monitoring button	Starts or stops the on-screen Logging monitoring. During monitoring, the Start monitoring button is enabled. While monitoring is stopped, the Start monitoring button is enabled. When a utility communication error has occurred, the Start monitoring and Stop monitoring buttons will be disabled.

(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) cam be cleared to zeros. (Default: Checked (Clears to 0))
Clear error info. button	Clears the selected information.
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.

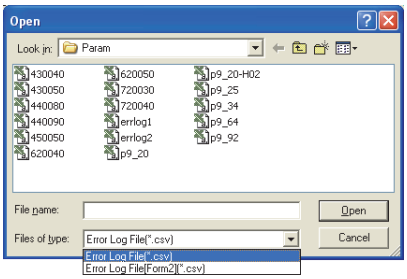


Figure 7.17 Open screen

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

```
Loop status, Loopback station IN, Loopback static
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
```

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

[Loop stat	[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

```
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
```

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

[Error code	[Target ne	[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

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

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

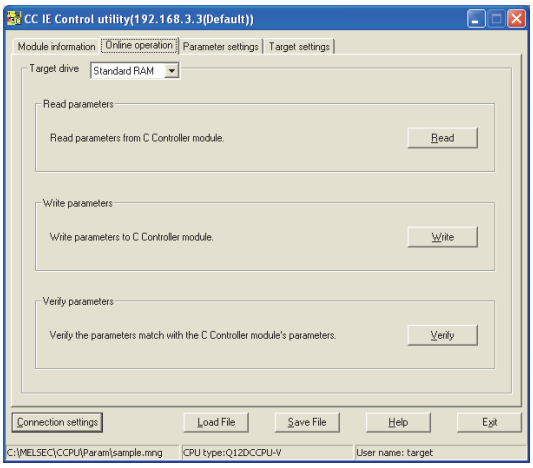


Figure 7.20 Online operation tab

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

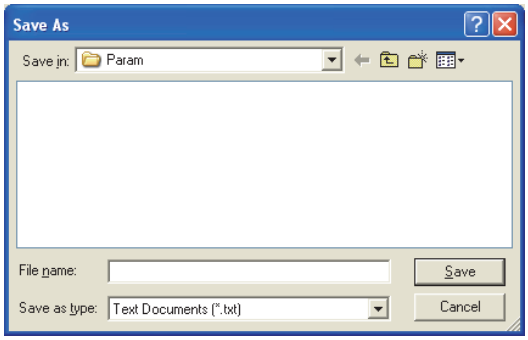


Figure 7.21 Save As screen

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

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

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.

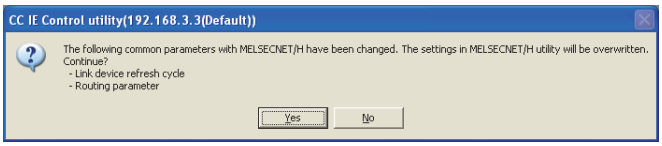


Figure 7.22 Dialog box

(2) Parameter settings tab

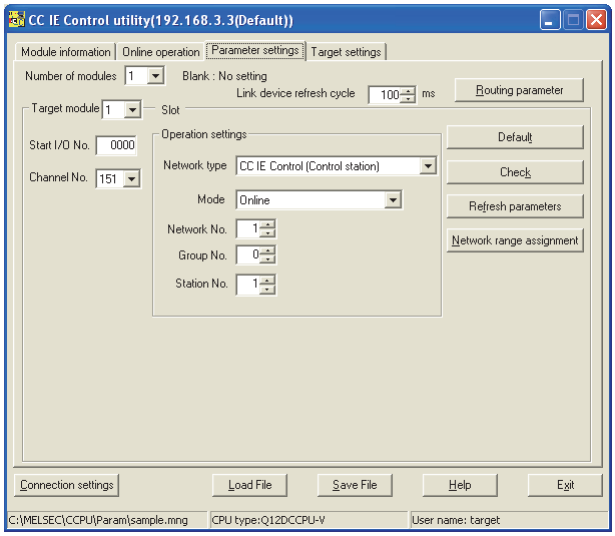


Figure 7.23 Parameter settings tab

Table 7.12 Description of Parameter settings tab

Module information | Online operation | Parameter settings | Target settings

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	Set a refresh cycle for link devices. (In increments of ms) 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. 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. Setting 0 for "Link device refresh cycle" disables any refresh with all refresh parameter settings deleted, and disables the Refresh parameters button. (Default: 100, Setting range: 0, 10 to 1000) For further details, refer to the C Controller Module User's Manual (Hardware Design, Function Explanation).
Routing parameter button	Displays the "Routing parameter settings" screen. (☞ Page 7-25, Section 7.5 (3))
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). Channel No. must be unique, and not duplicated with the one for another CC-Link IE Controller Network module.
Default button	Sets the operation settings, network range assignments, and refresh parameters to default values.
Check button	Checks for any setting error.
Refresh parameters button	Displays the "Refresh parameter settings" screen. (☞ Page 7-27, Section 7.5 (4)) 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.
Network range assignment button	Displays the "Network range assignment" screen. (☞ Page 7-29, Section 7.5 (5)) When "CC IE Control (Control station)" is selected for "Network type", this button is enabled.
Operation settings	Specify the CC-Link IE Controller Network module operation.
Network type	Set a type of the CC-Link IE Controller Network module. (Default: "CC IE Control (Control station)")
Mode	Set a mode of the CC-Link IE Controller Network module. "Line test" can be set when "CC IE Control (Control station)" is selected for "Network type". (Default: "Online")
Network No.	Set a network No. of the CC-Link IE Controller Network module. (Default: 1, Setting range: 1 to 239)
Group No.	Set a group No. of the CC-Link IE Controller Network module. (Default: 0, Setting range: 0 to 32)
Station No.	Set a station No. of the CC-Link IE Controller Network module. (Default: 1, Setting range: 1 to 120)

(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)

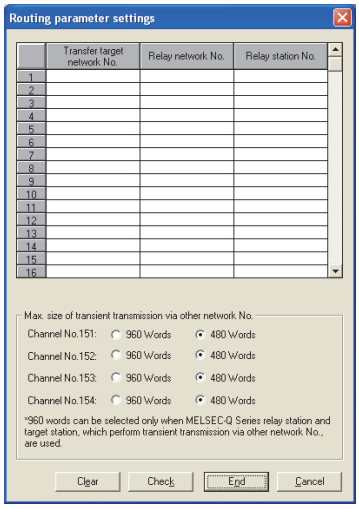


Figure 7.24 Routing parameter settings screen

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)
Clear button	Clears the "Transfer target network No.", "Relay network No.", and "Relay station No." settings.
Check button	Checks the "Transfer target network No.", "Relay network No.", and "Relay station No." settings.
End button	Saves the settings and closes the "Routing parameter settings" screen.
Cancel button	Closes the "Routing parameters settings" screen without saving the settings.

(4) Refresh parameter settings screen

Refresh parameters are set on this screen.

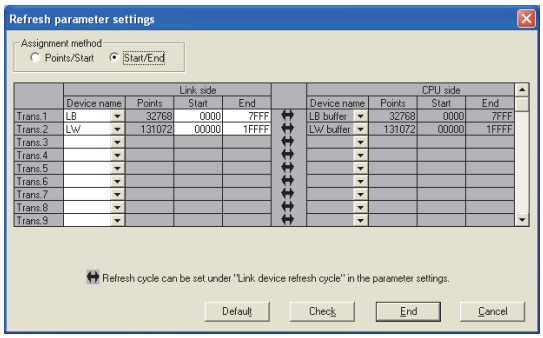


Figure 7.25 Refresh parameter settings screen

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 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.

(5) Network range assignment screen

For each station, set cyclic transmission ranges of LB, LW, LX, and LY.

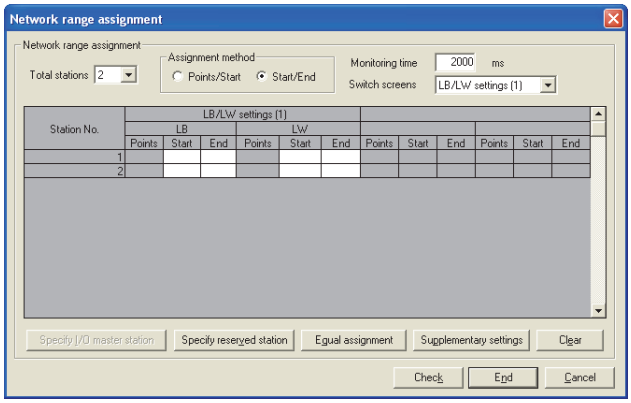


Figure 7.26 Network range assignment screen

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"

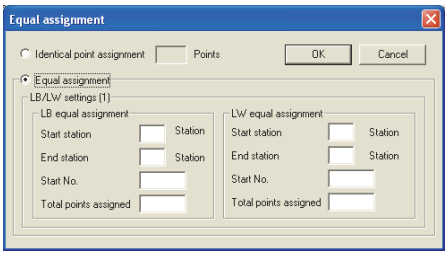


Figure 7.27 Equal assignment screen (for LB/LW settings (1))

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)
OK button			Executes equal assignment according to the settings, and closes the "Equal assignment" screen.
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"

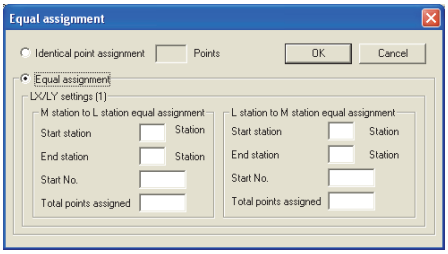


Figure 7.28 Equal assignment screen (for LX/LY settings (1))

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)
OK button			Executes equal assignment according to the settings, and closes the "Equal assignment" screen.
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.

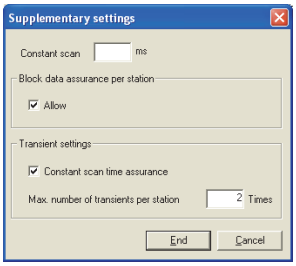


Figure 7.29 Supplementary settings screen

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. •"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	•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	•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

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

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

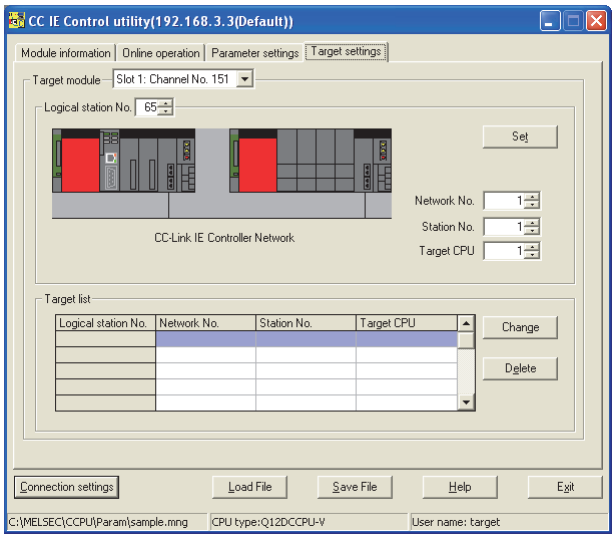


Figure 7.30 Target settings tab

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)
Set 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.
	Change button	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.)
	Delete button	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).

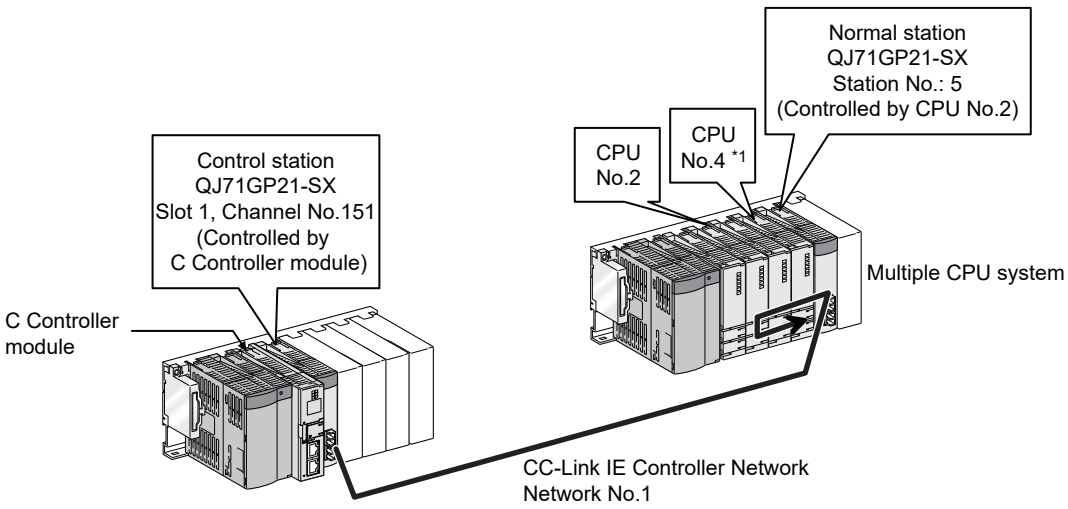


Figure 7.31 System configuration

* 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.

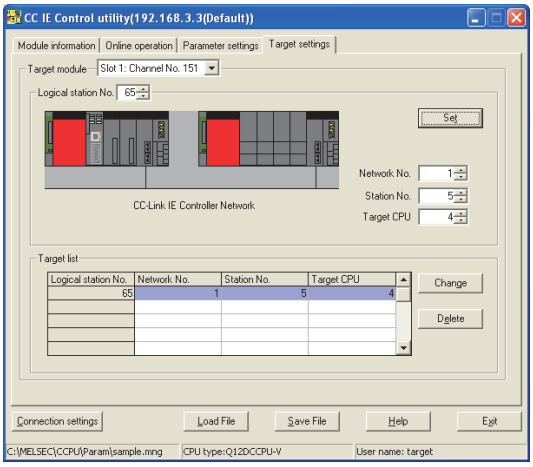


Figure 7.32 Target settings tab setting

(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.

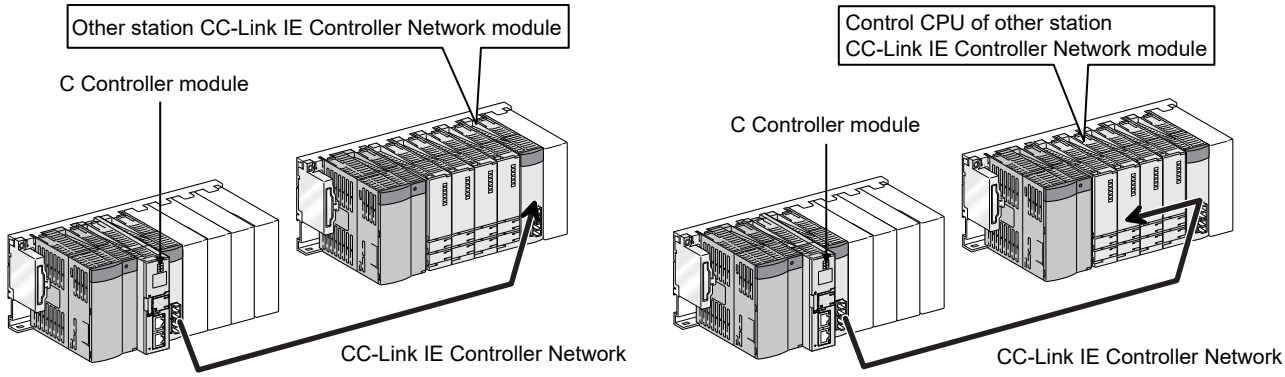


Figure 7.33 Access that does not require a logical station No. setting

7.7 System Menu

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

(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.

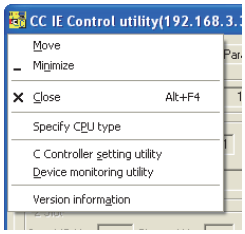


Figure 7.34 System menu

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.

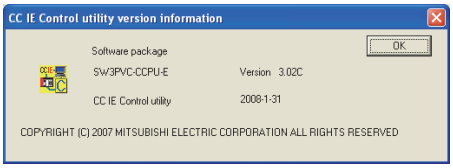


Figure 7.35 Version information screen (Example: Version 3.02C)

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.
OK button	Closes the "Version information" screen.

7.8 Precautions

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

(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

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

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

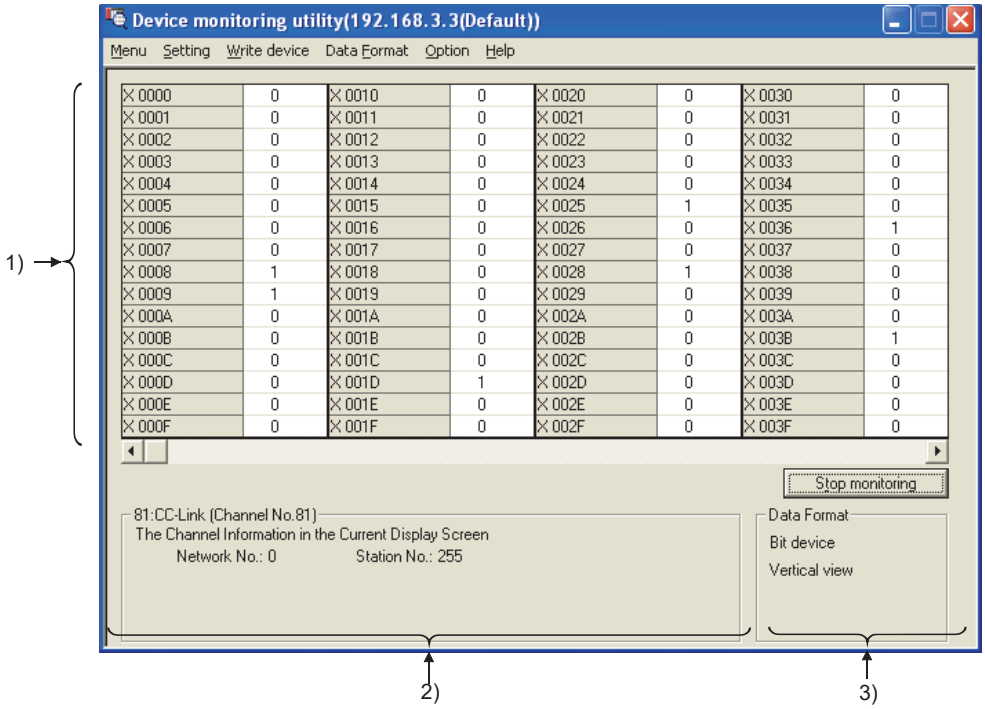


Figure 8.1 Batch monitoring

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

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

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

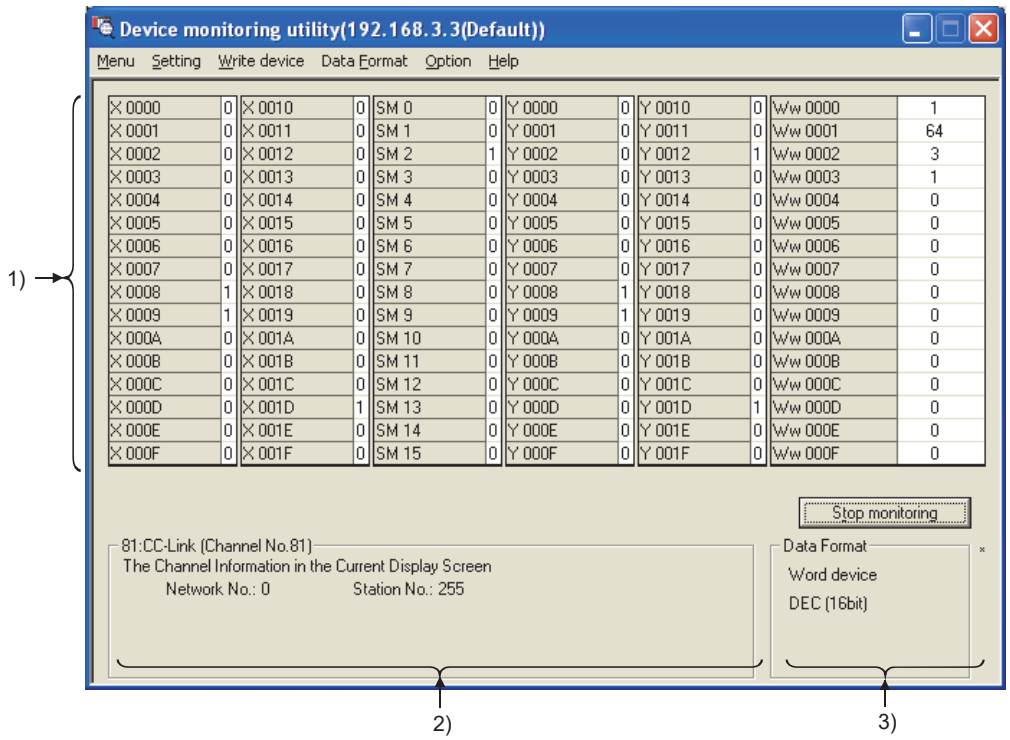


Figure 8.2 16-point register monitoring

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

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

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

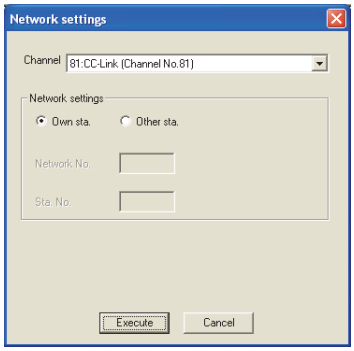


Figure 8.3 Network settings dialog box

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

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

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.

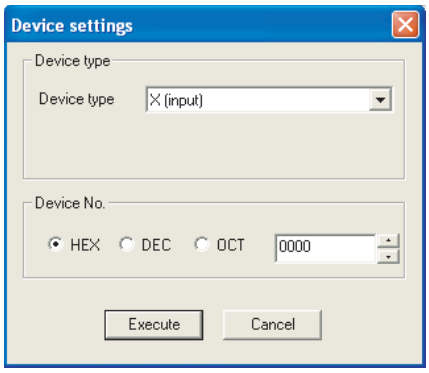
☞ Page 10-17, Section 10.13

(2) Selected menu items

From the menu bar, select [Setting]→[Device settings].

(3) Dialog box

Batch monitoring



16-point register monitoring

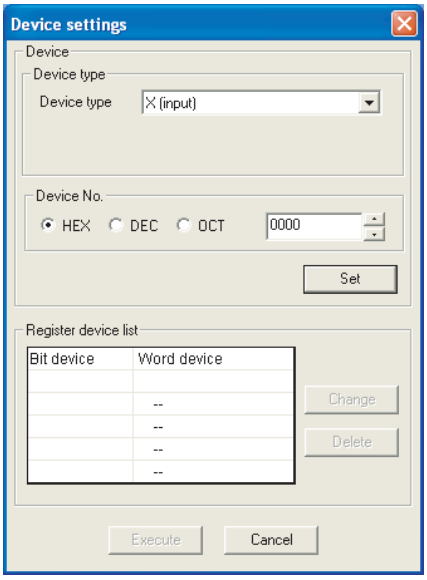


Figure 8.4 Device settings dialog box

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

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

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

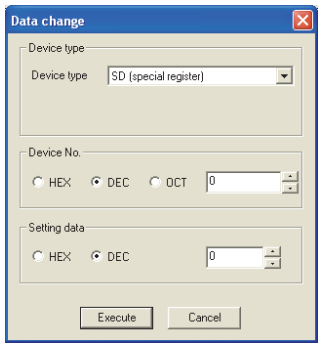


Figure 8.5 Data change dialog box

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

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

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

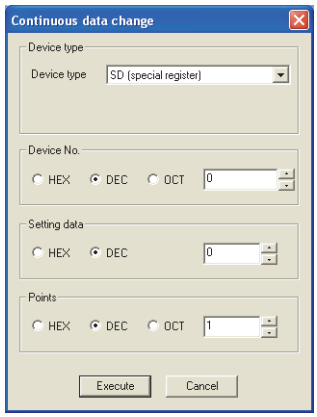


Figure 8.6 Continuous data change dialog box

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

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

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

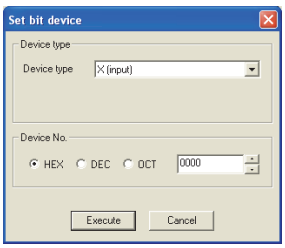


Figure 8.7 Set bit device dialog box

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

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

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).

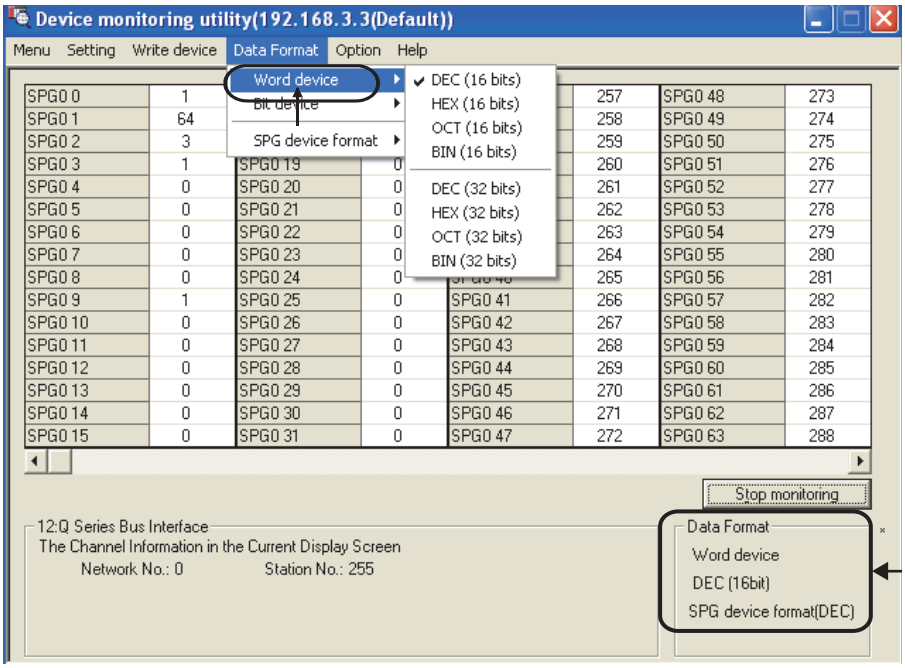
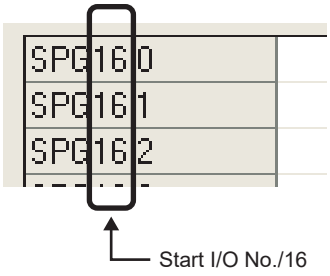


Figure 8.8 Data Format menu

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

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

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

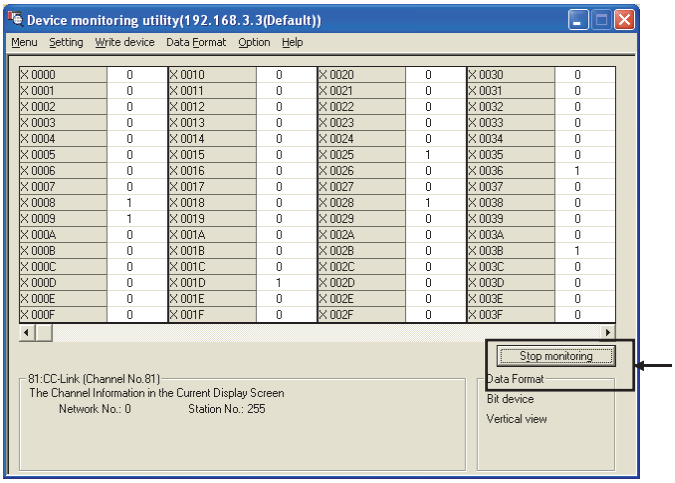


Figure 8.9 Screen for monitoring start and stop

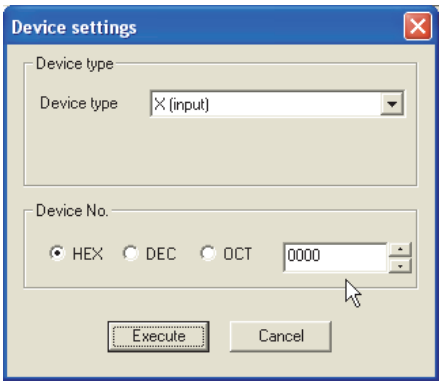
Table 8.10 Description of buttons

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.

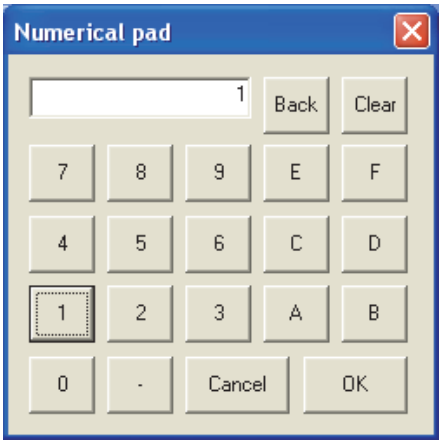
8.11 Numerical Pad

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

From the menu bar, select [Option]→[Numerical pad] so that device values can be entered using the Numerical pad.

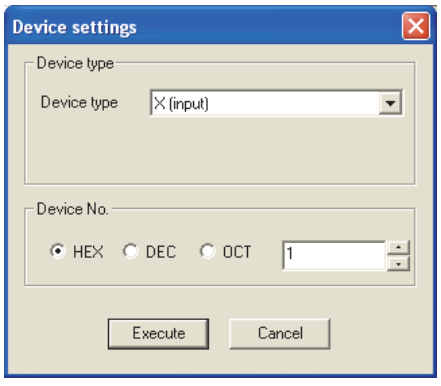


1 Click the "Device No." entry field.



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

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

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.

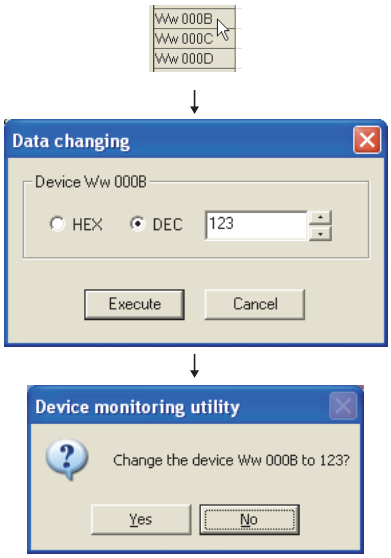
However, data are automatically refreshed only when device writing has been performed within the range set in "Station information settings" for the master station.
The range set in "Station information settings" can be confirmed by "Slave station offset, size information" (buffer memory address: 3E0H 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

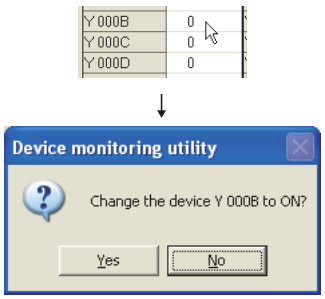
The following describes how to change a word device.



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

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

(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

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

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

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

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.

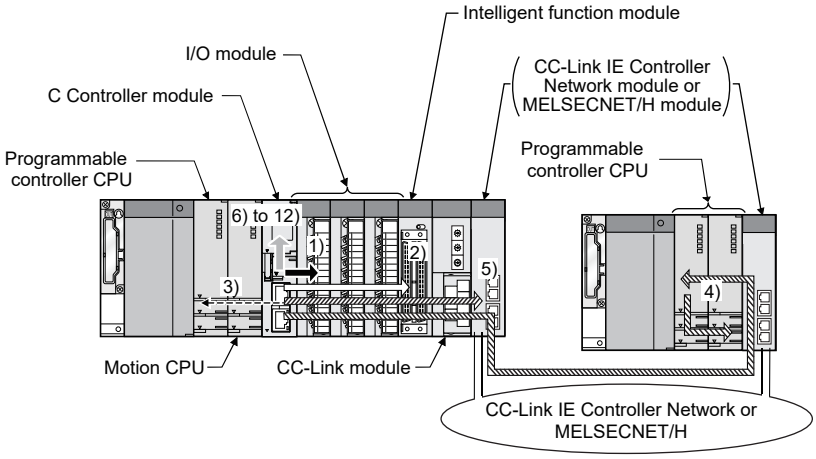


Figure 9.1 Bus interface function image

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

9.2 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, ×: 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)

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_EntryCpuInt	Registers an interrupt so that the routine can be called when the interrupt is issued from another CPU.	○*2	×	×
	QBF_EnableCpuInt	Enables the routine registered for an interrupt from another CPU.	○*2	×	×
	QBF_DisableCpuInt	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_MotionDDRD	Reads data from the Motion CPU devices. (Equivalent to S(P).DDRD instruction or D(P).DDRD 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

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

This section provides the procedure for programming using the bus interface functions or MELSEC data link functions.

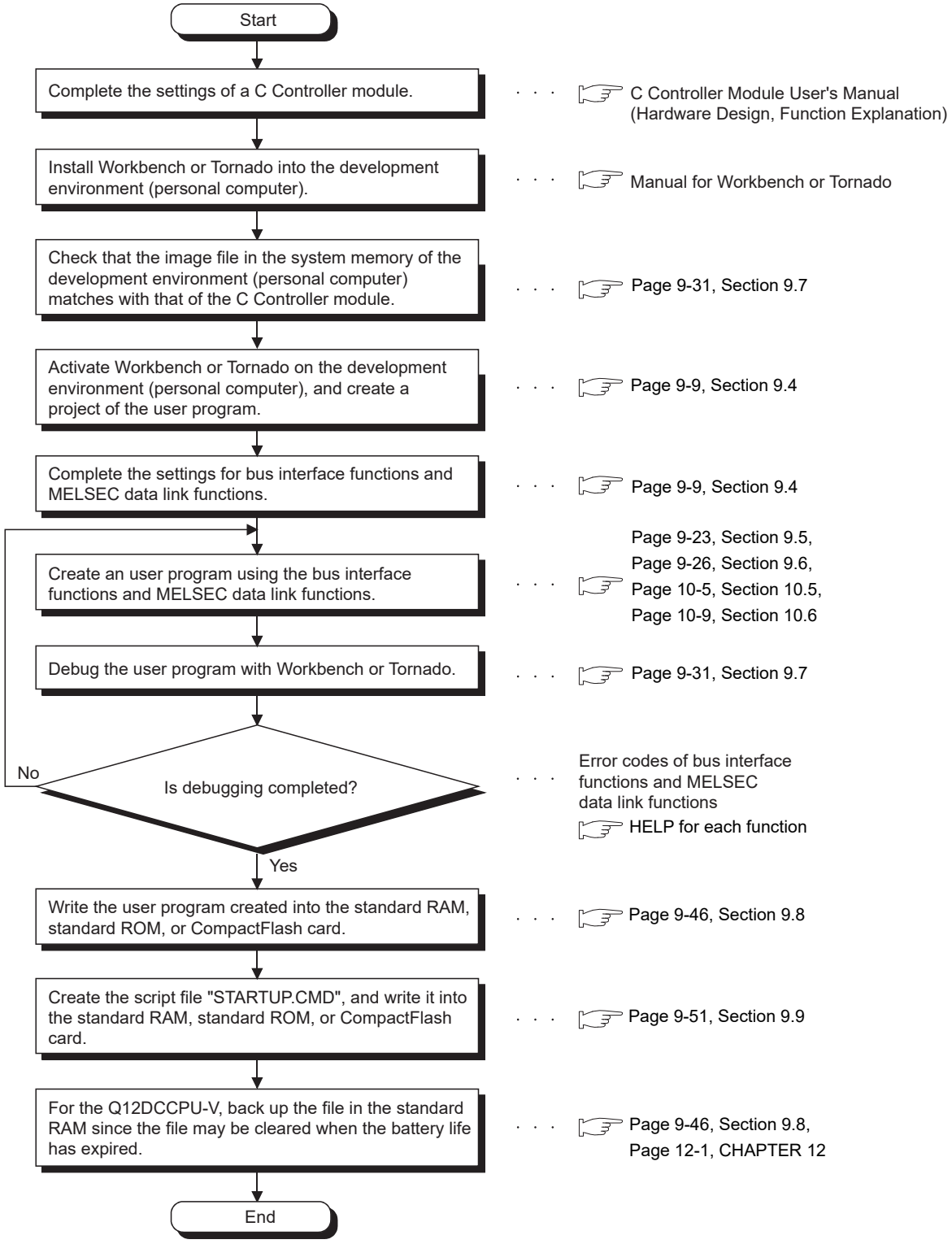


Figure 9.2 Programming procedure

9.4 Creating and Compiling a New Project of User Program

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

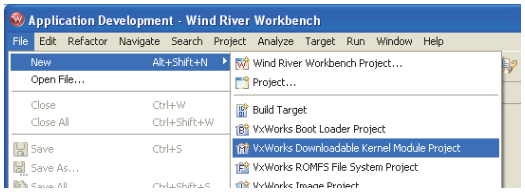
9.4.1 For the Q12DCCPU-V

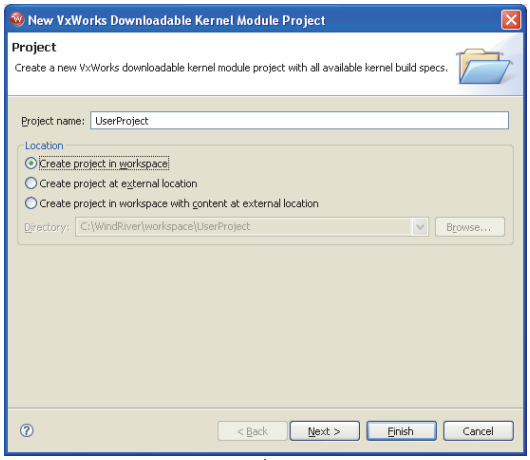
This section explains:

- 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





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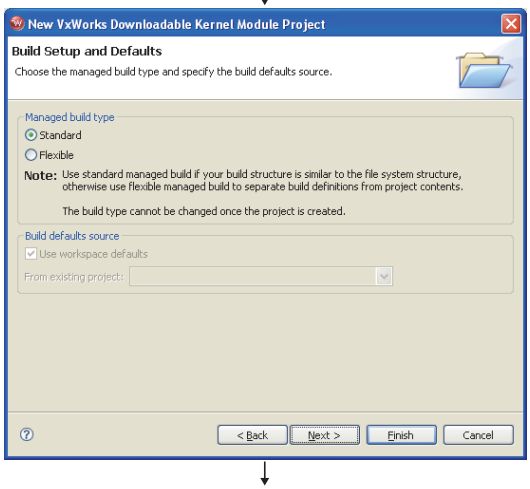
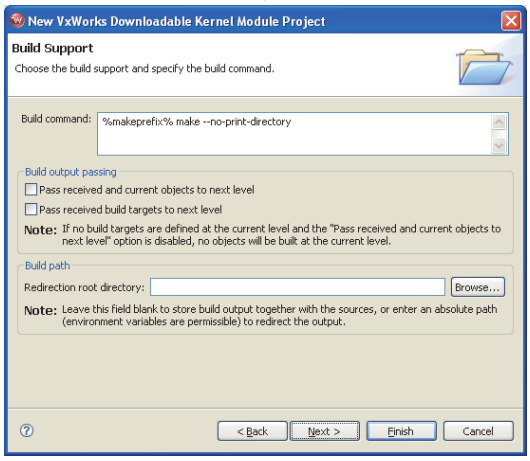
1. Start Wind River Workbench.
2. Select [File]→[New]→[VxWorks Downloadable Kernel Module Project] from the menu bar.
3. Enter a project name in "Project name" and click the Next> button.

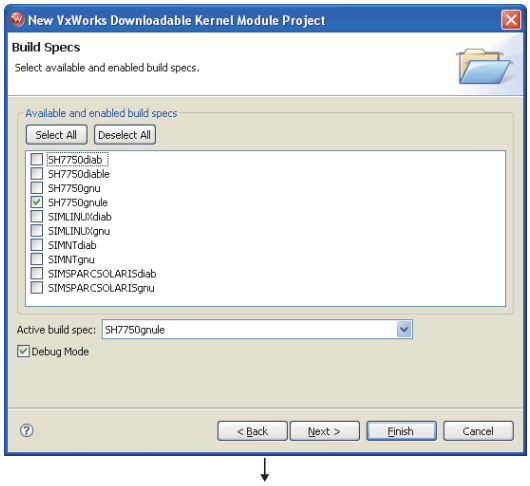
(From the previous page)



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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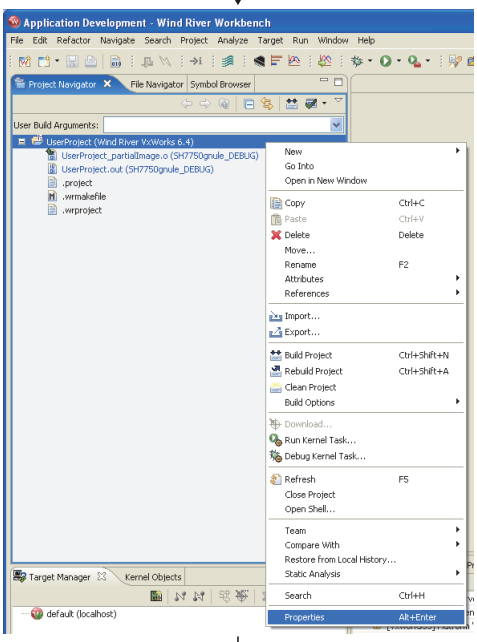
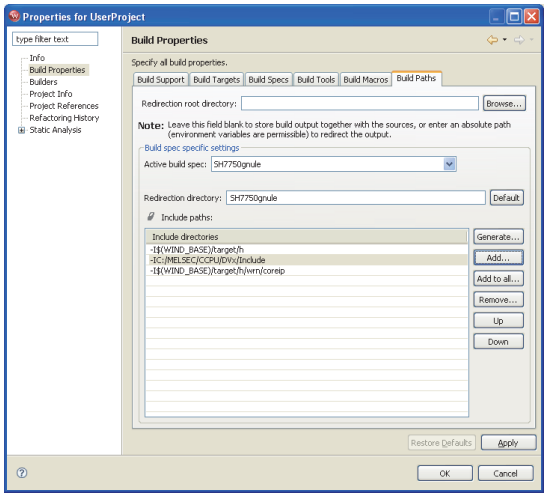


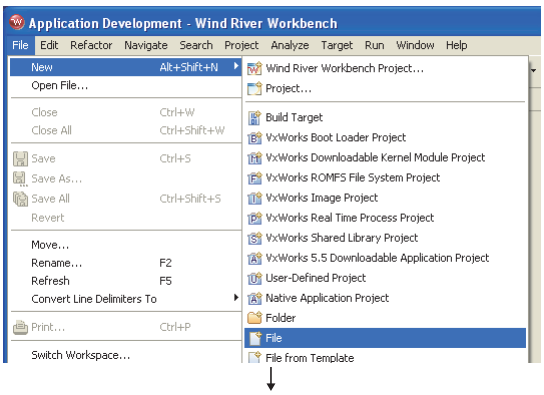
7 Right-click on the created project on the "Project Navigator" window and select [Properties] from the menu.



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 OK 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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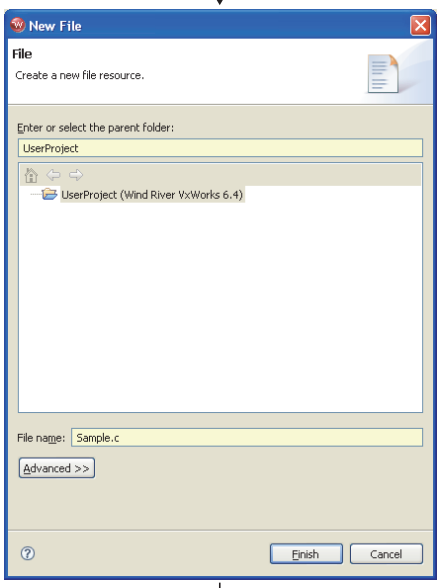
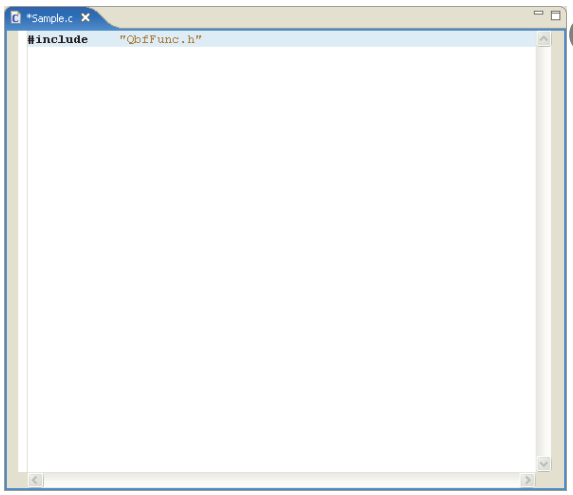


10 Enter the file name of the source file in the "File name:" field and click the Finish button.



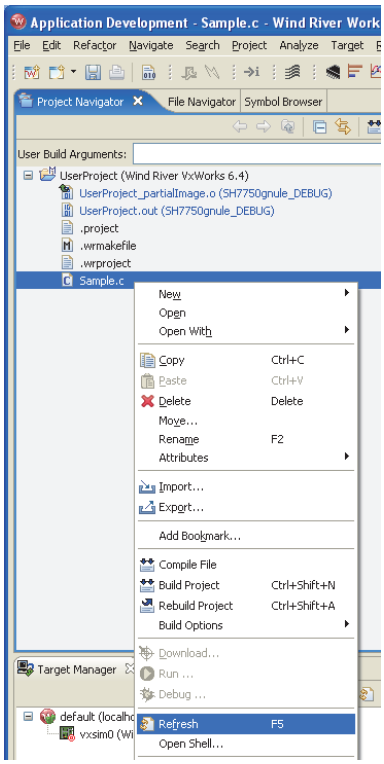
11 Edit the source file and include the following include files.
Bus interface function: "QbfFunc.h"
MELSEC communication function: "Mdfunc.h"

(Completed)

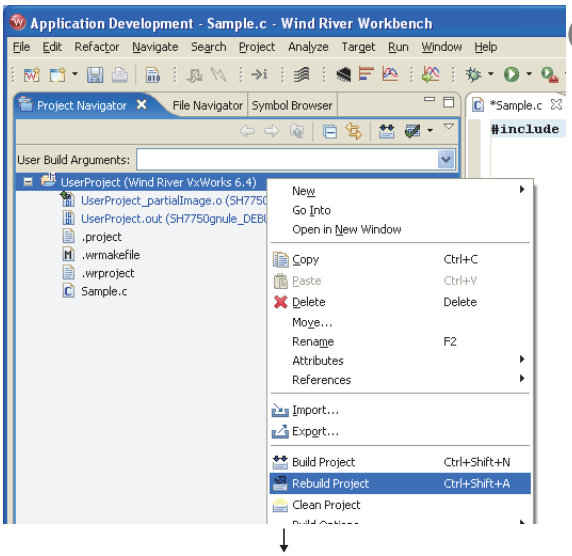
(2) How to compile

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.

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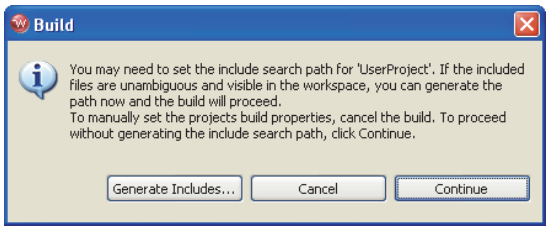
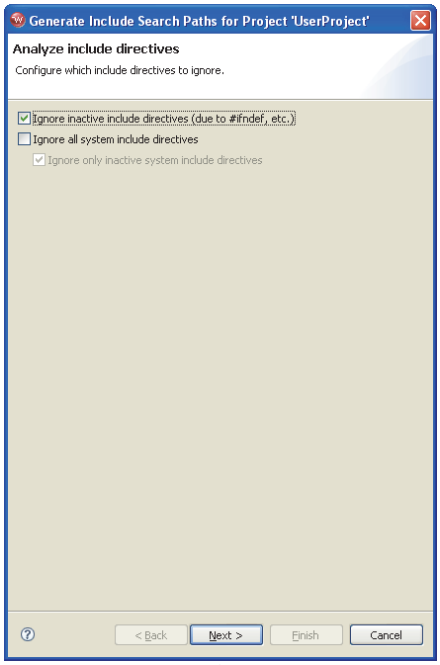
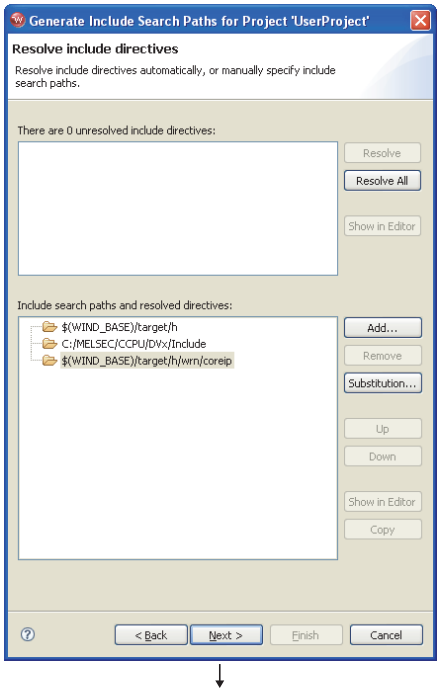


3 Click the Generate Includes button.



4 Click the Next> button. (No setting is necessary.)



5 Click the Next> button. (No setting is necessary.)

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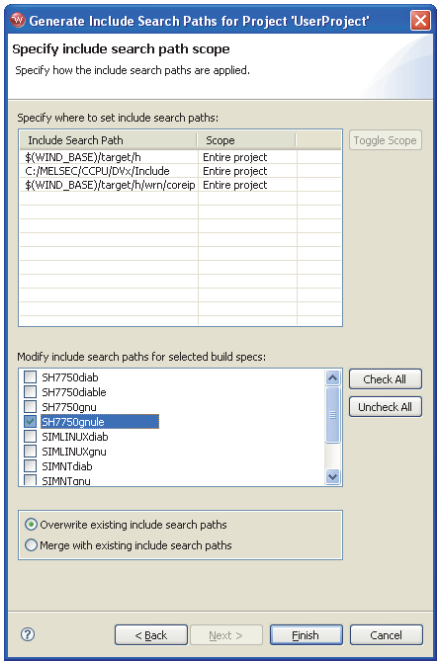
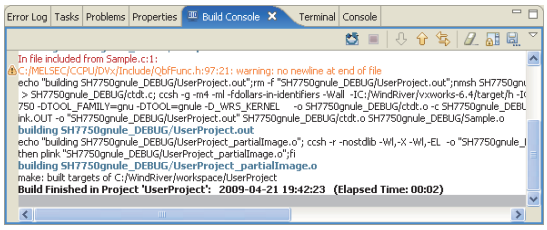
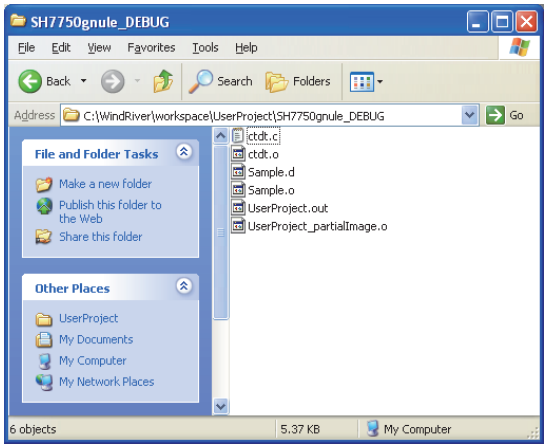
(From the previous page)



6 Select only "SH7750gnule" 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>\SH7750gnule_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.

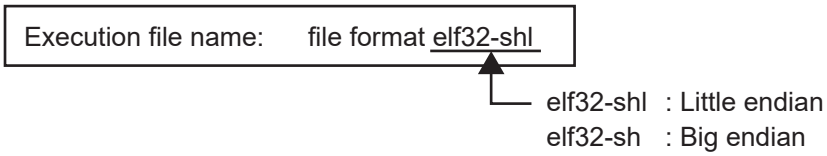
Execute the objdumpsh command on the VxWorks Development Shell from the development environment (personal computer) as follows:*1

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.



9.4.2 For the Q06CCPU-V(-B)

The following information is provided in this section.

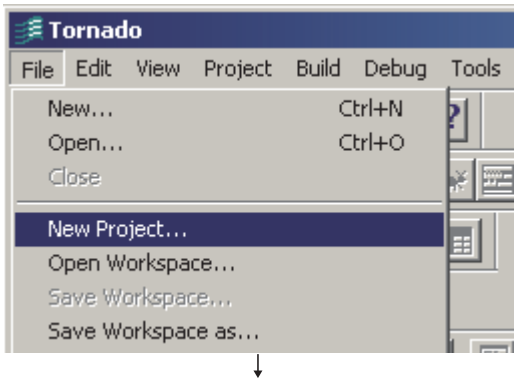
- How to create a new project (☞ Page 9-17, Section 9.4.2 (1))
- How to compile (☞ Page 9-21, Section 9.4.2 (2))
- How to check the endian format (memory layout) of the execution file (☞ Page 9-22, Section 9.4.2 (3))

(1) How to create a new project

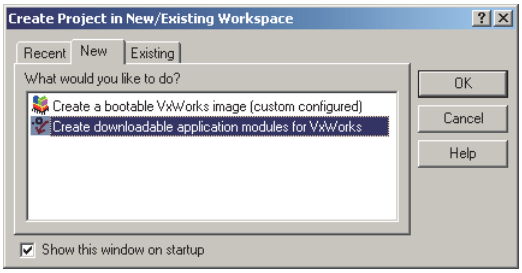
The screens shown in this section are of the Q06CCPU-V.

For the Q06CCPU-V-B, refer to REFERENCE.

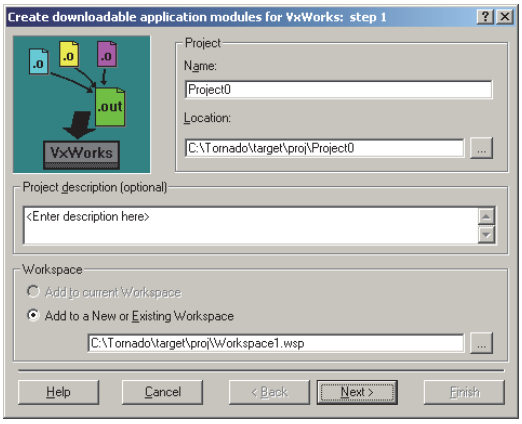
1 Start Tornado.
When the work space automatically opens, proceed to step 7.
If not, perform the following operations.



2 Select [File]→[New Project] from the menu bar.



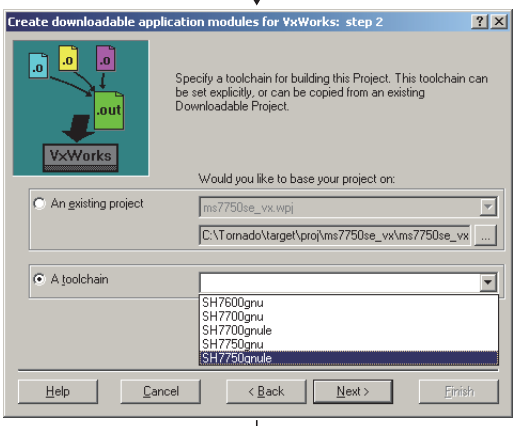
3 Select "Create downloadable application modules for VxWorks" and click the OK button.



4 Enter "Name", "Location", and "Workspace" and then click the Next> button.

(To the next page)

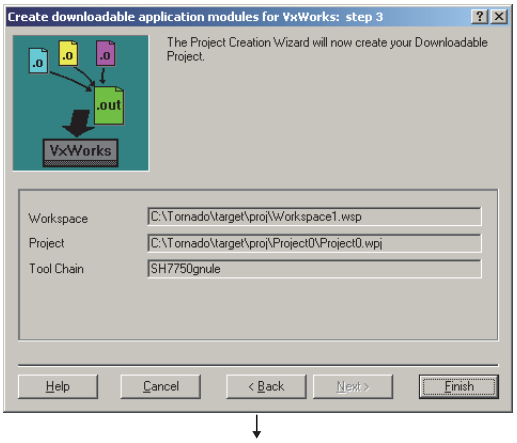
(From the previous page)



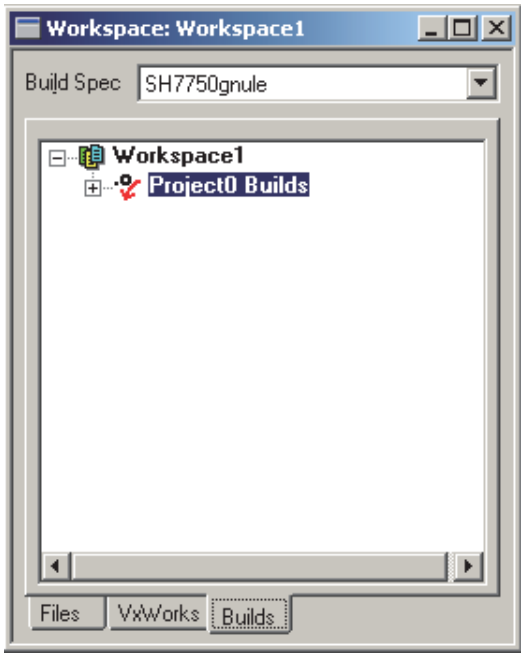
5 Select "A toolchain" and select the setting corresponding to the modules below in the pull-down menu and click the Next> button.
Q06CCPU-V: SH7750gnule (Little endian)
Q06CCPU-V-B: SH7750gnu (Big endian)

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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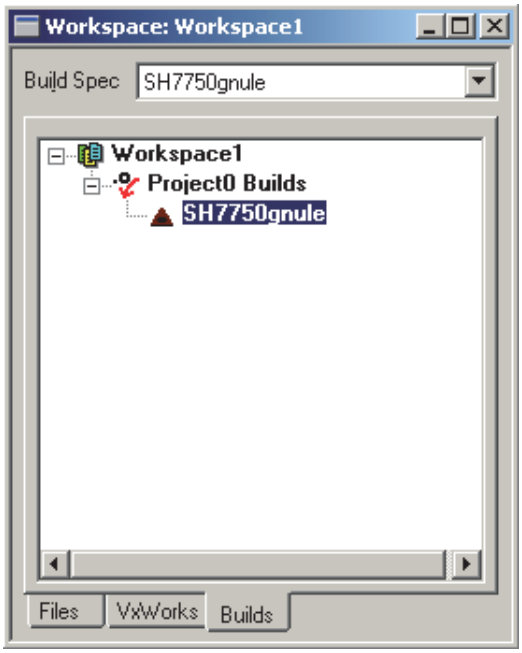
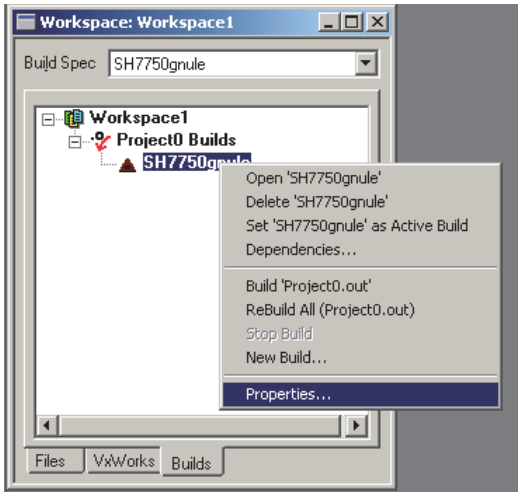
(From the previous page)



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.

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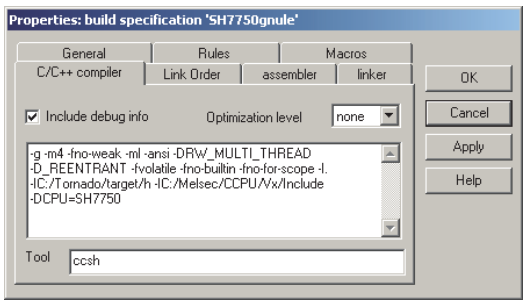
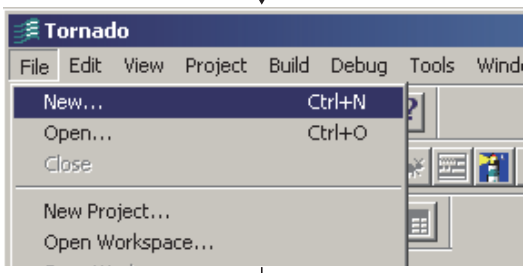
(From the previous page)



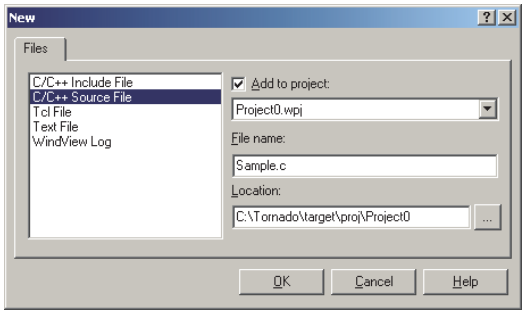
10 Open the <<C/C++ compiler>> tab. In the center text area on the screen, add the folder settings where the include files of the bus interface functions and MELSEC data link functions are installed, and click the OK button.

IMPORTANT
Use "/" as a delimiter of the folder path.
"\" cannot be used.

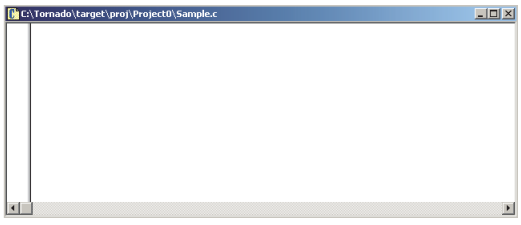
For the include file setting, add the following according to the model.(When the SW3PVC-CCPU is installed to "C:\MELSEC")
Q06CCPU-V: "-IC:/Melsec/CCPU/Vx/Include"
Q06CCPU-V-B: "-IC:/Melsec/CCPU/VxB/Include"



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.



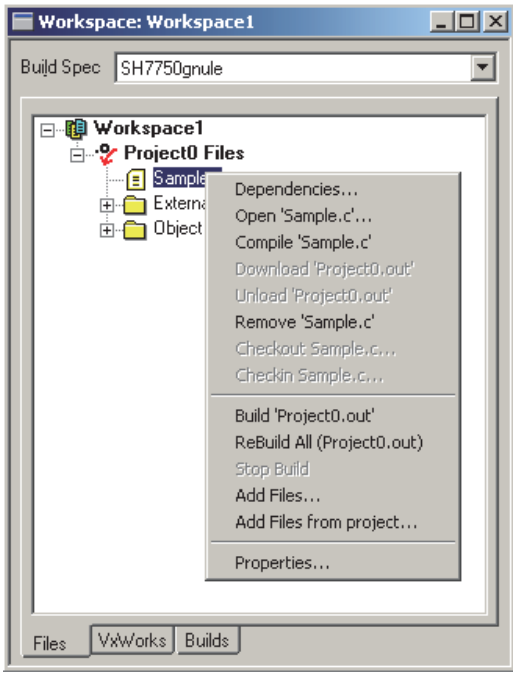
13 A screen to edit the source file appears.
Include "QbfFunc.h" when using the bus interface functions.
Include "MdFunc.h" when using the MELSEC communication functions.

(Completed)

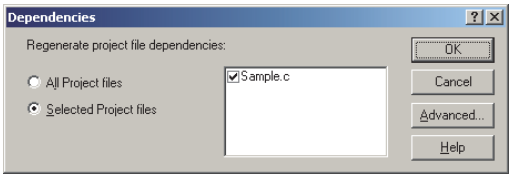
(2) How to compile

POINT

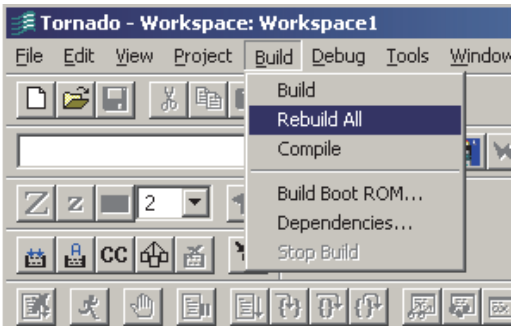
The following operations are required for compiling.



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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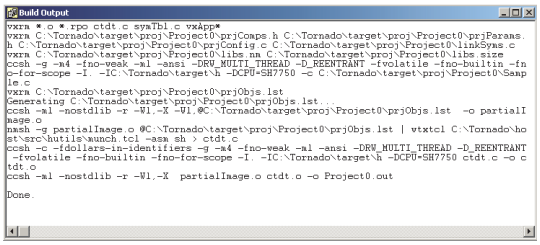
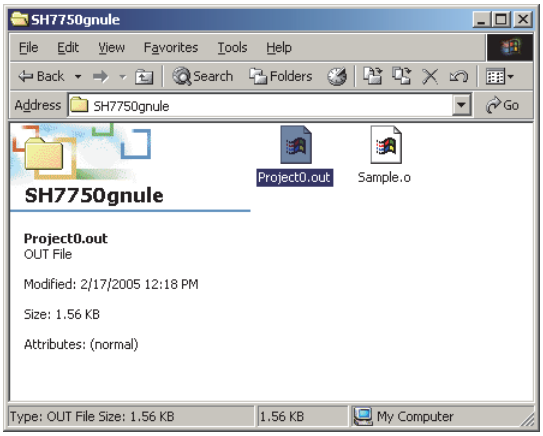




(Completed)

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>\SH7750gnule
File name: <Project name>.out

REFERENCE
For the Q06CCPU-V-B, user programs are generated in the "SH7750gnu" folder.

(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> \host\x86-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

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

(1) Programming flow

The following flowchart shows the procedure for programming using the bus interface functions.

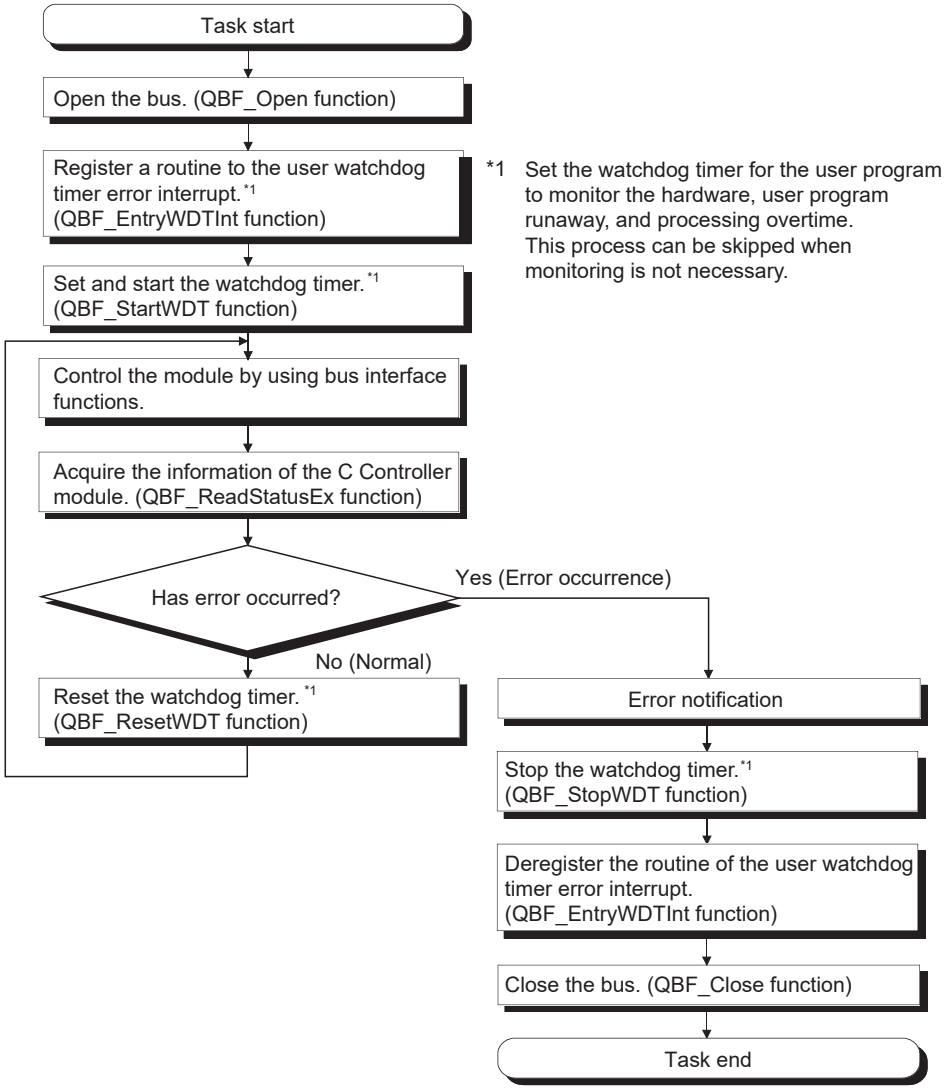
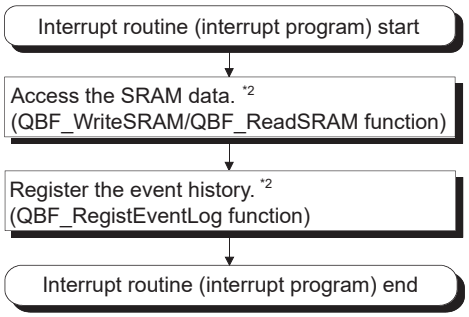


Figure 9.3 Bus interface function programming flow

The following flowchart shows the outline in the case of a user watchdog timer error interrupt.



*2 Specify "1" (ISR) for the argument of the function, "sFlg" since starting from inerrupt routine (interrupt program).

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 funtions, 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

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

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 taskDalay) 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.

(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

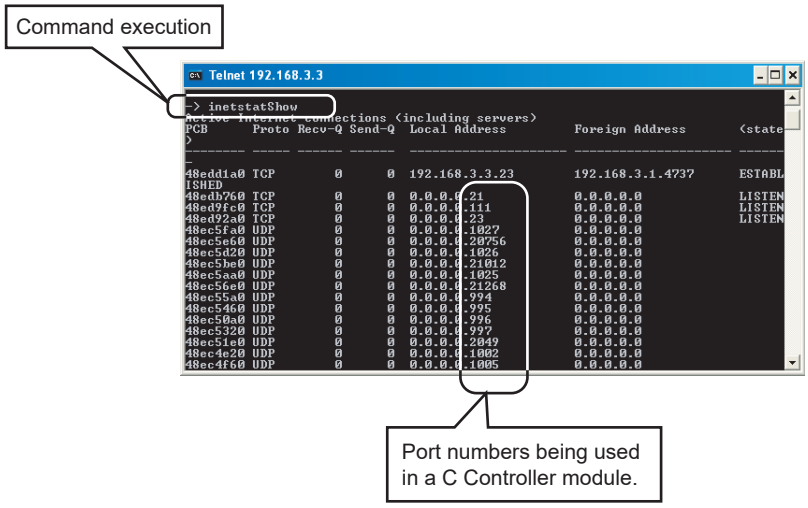


Figure 9.5 When using Telnet tool on the Q12DCCPU-V

(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 of 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

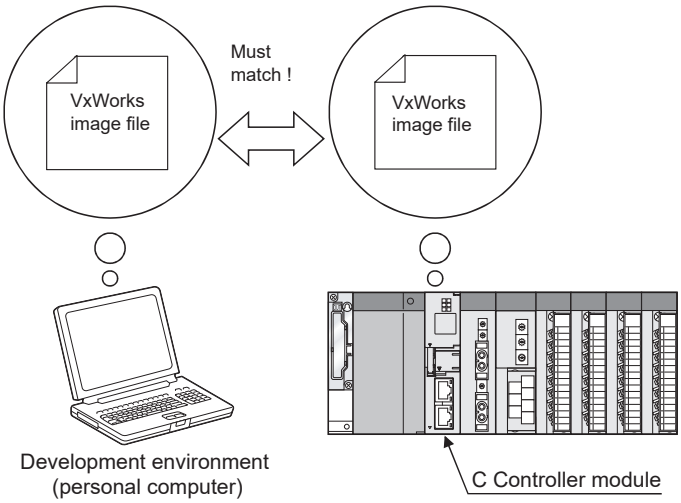
Q12DCCPU-V	Q06CCPU-V	Q06CCPU-V-B
○	○	○

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 Next> button.

5) Set "Backend settings" as follows.

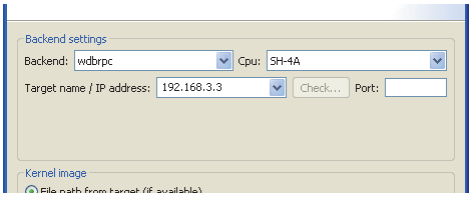
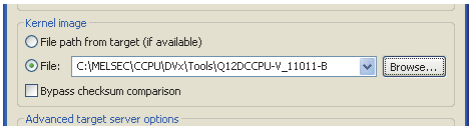


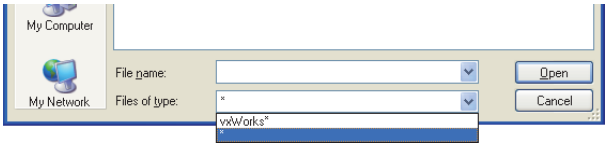
Table 9.4 Backend settings

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.

```
Timeout time =  net.inet.tcp.keepidle
              + (net.inet.tcp.keepintvl × 8 (Retry count)*1) [ms]

               Default value of the C Controller module: 30000 (30 sec.)
               Default value of VxWorks: 7800000 (2 hr. 10 min.)
```

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 Sysct1() 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 Sysct1() 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.

(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.

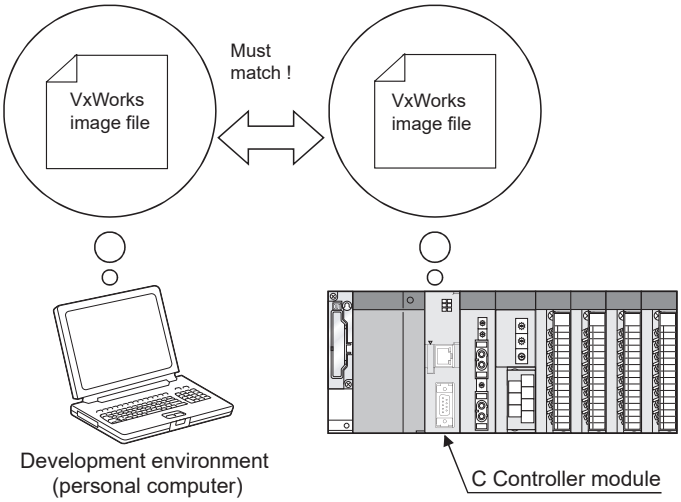
An interrupt to the C Controller module may be disabled during debugging.
During the time, processing called from an interrupt routine (interrupt program) (example: bus interface functions for ISR) is not executed.
Interrupts that are expected to occur at fixed intervals, such as multiple CPU synchronous 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 OK 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.

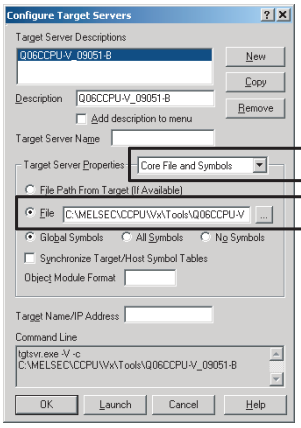


Figure 9.6 VxWorks image file specification

(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\Vx\Tools\
Q06CCPU-V-B	C:\MELSEC\CCPU\VxB\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 "wdbrpc" 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.

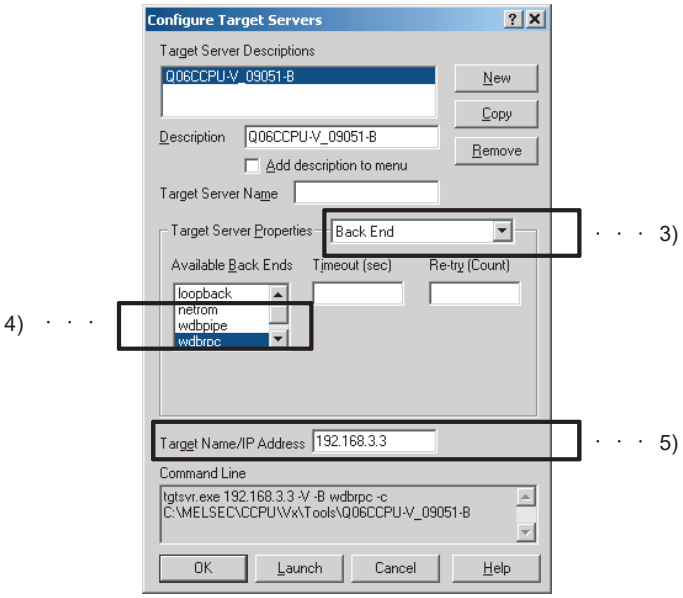


Figure 9.7 IP address setting of the C Controller module

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.

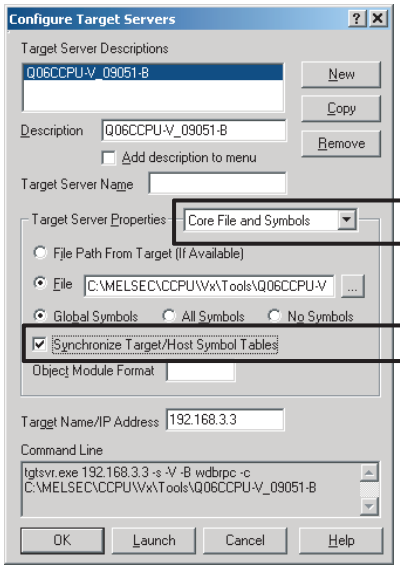


Figure 9.8 Symbol information synchronization setting

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.

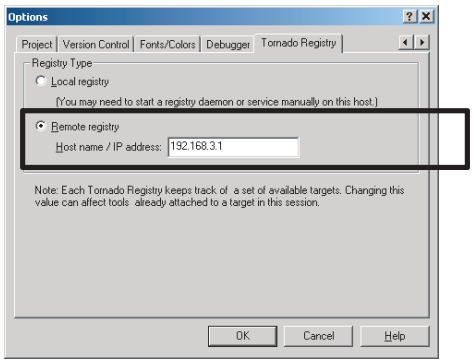


Figure 9.9 Development environment (personal computer) IP address setting

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 OK button.

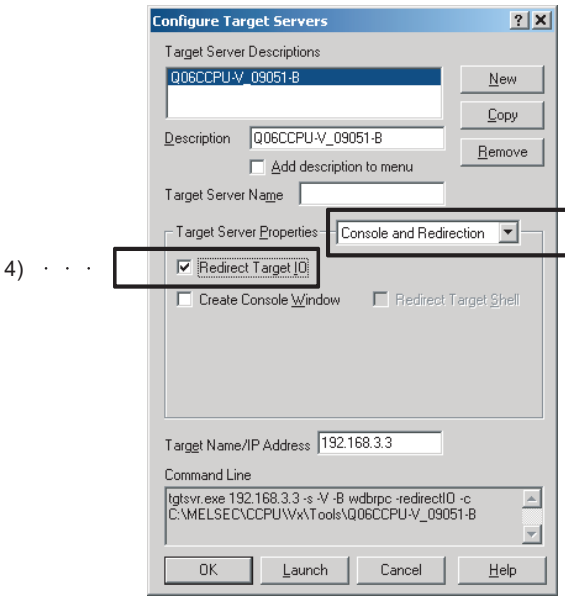


Figure 9.10 Shell display setting

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.

Timeout time = tcp_keepidle + (tcp_keepintvl ÷ 2 × tcp_keepcnt) [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

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

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.

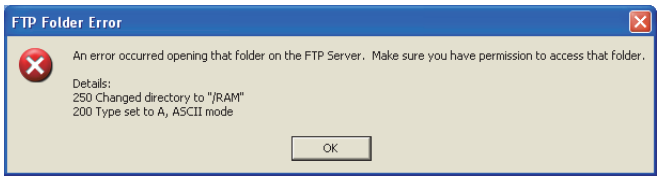


Figure 9.11 Dialog box

- 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

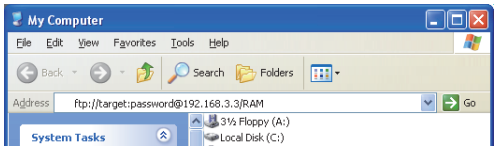


Figure 9.12 Logging into the standard RAM with the settings for module initialization

2) The screen display after logging in to the C Controller module is as follows.

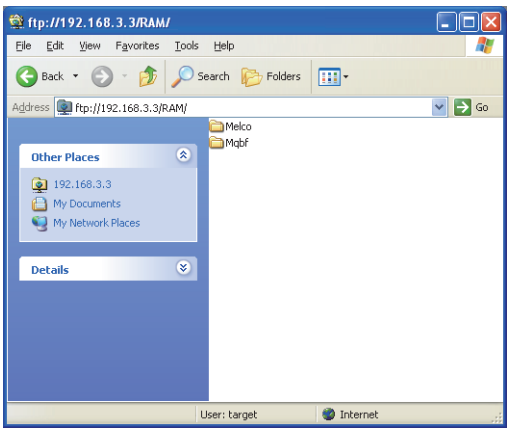


Figure 9.13 Connection via FTP

3) After logging in to the C Controller module, perform write and read just as normal file operations in Explorer.

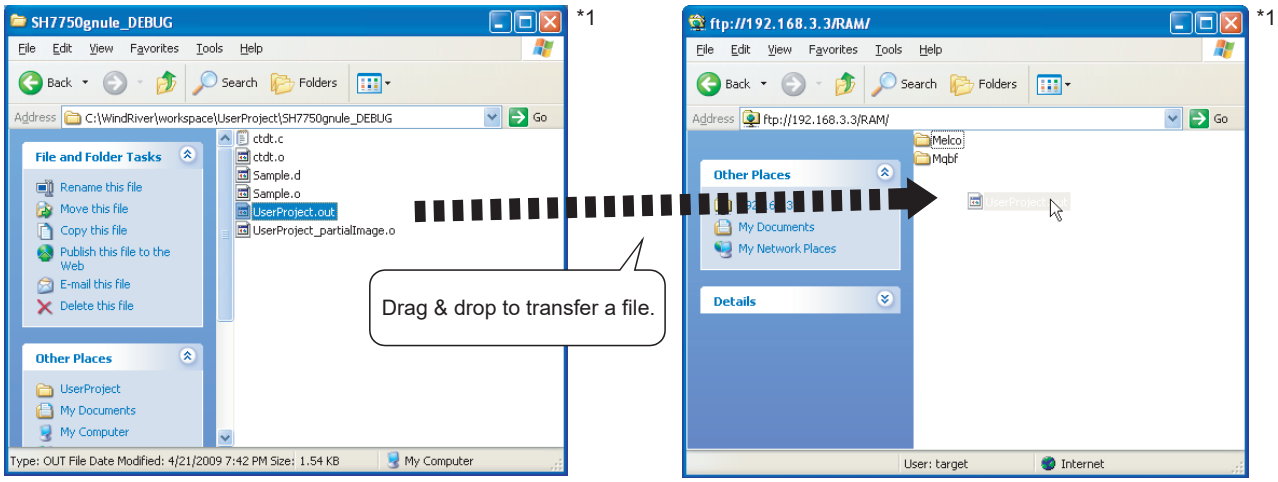


Figure 9.14 File operation

POINT

1. 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.)
2. 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.

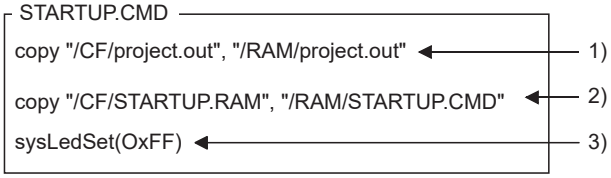
4) The installation script file "STARTUP.CMD" in the CompactFlash card is started and each file in the CompactFlash card is copied to the standard RAM of the C Controller module.

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



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"

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

(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.

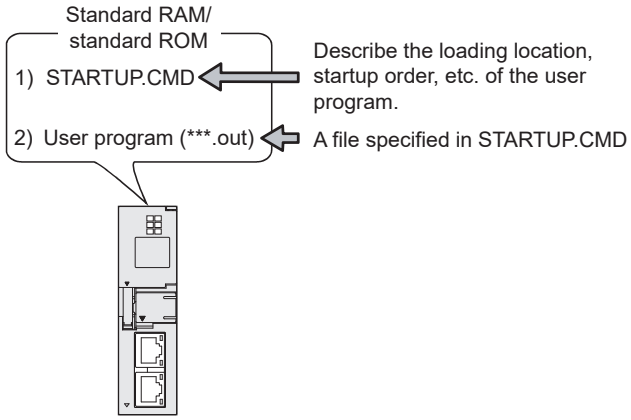


Figure 9.16 Script file is stored into the standard RAM or standard ROM

(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,0,0,0,0,0,0,0)
```

<For the Q06CCPU-V(-B)>

```
taskSpawn("taskA",100,0x8,20000,funcA,0,0,0,0,0,0,0)
```

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.

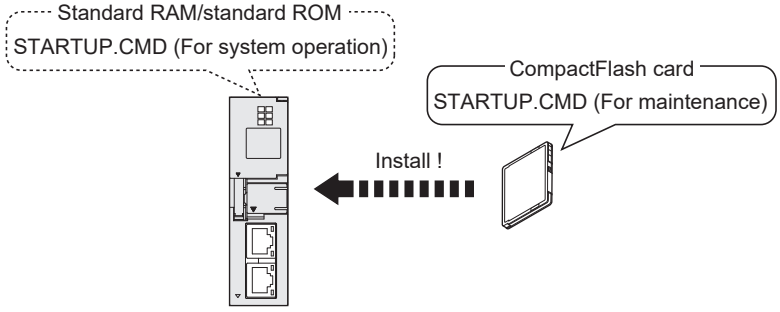


Figure 9.17 Example of the use when script files are stored in both locations

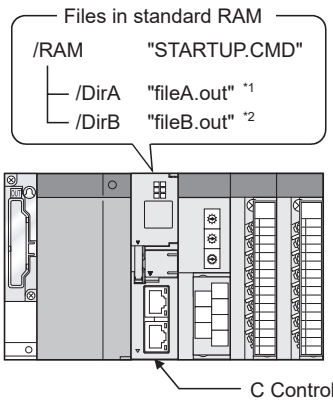
(4) Example of script file description

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.

<Stored files>



*1 "funcA" function already included in fileA.out
*2 "funcB" function already included in fileB.out

<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	/RAM/DirA/fileA.out
2	taskB	120	5000	funcB	Specified (First argument: 10)	/RAM/DirB/fileB.out

<Example of script file description >

```
ld (1, 0, "/RAM/DirA/fileA.out")        1)
ld (1, 0, "/RAM/DirB/fileB.out")        2)
sp (funcA, 0, 0, 0, 0, 0, 0, 0, 0, 0)   3)
taskSpawn ("taskB", 120, 0, 5000, funcB,10, 0, 0, 0, 0, 0, 0)   4)
```

1) The "fileA.out" file is loaded from the standard RAM "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 9.18 Example of script file description (loaded from standard RAM)

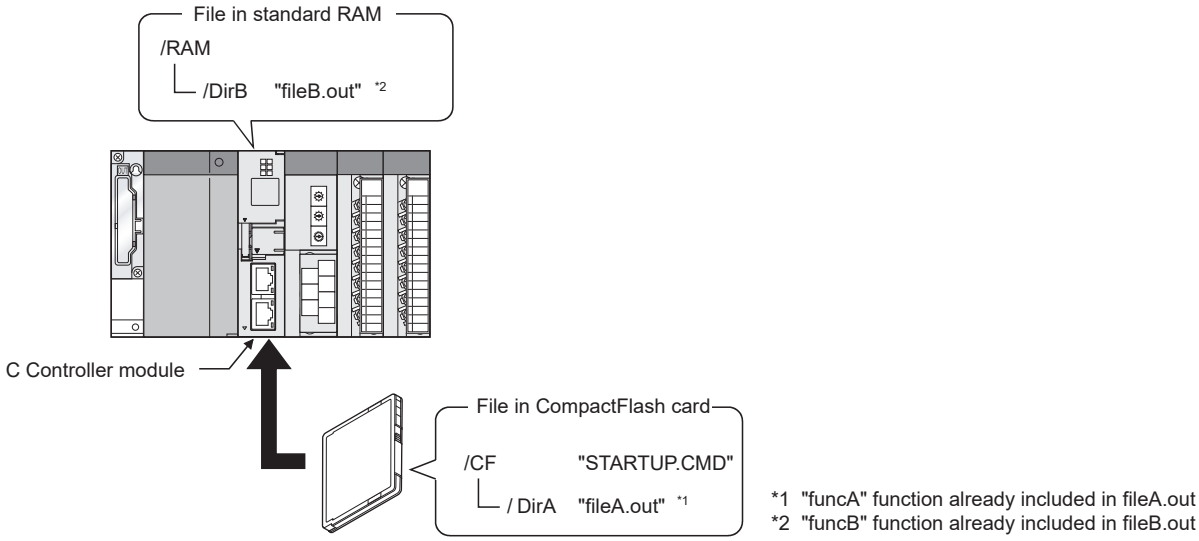
POINT

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, 0)                    3)
taskSpawn ("taskB", 120, 0, 5000, funcB,10, 0, 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

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

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

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

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

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

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.

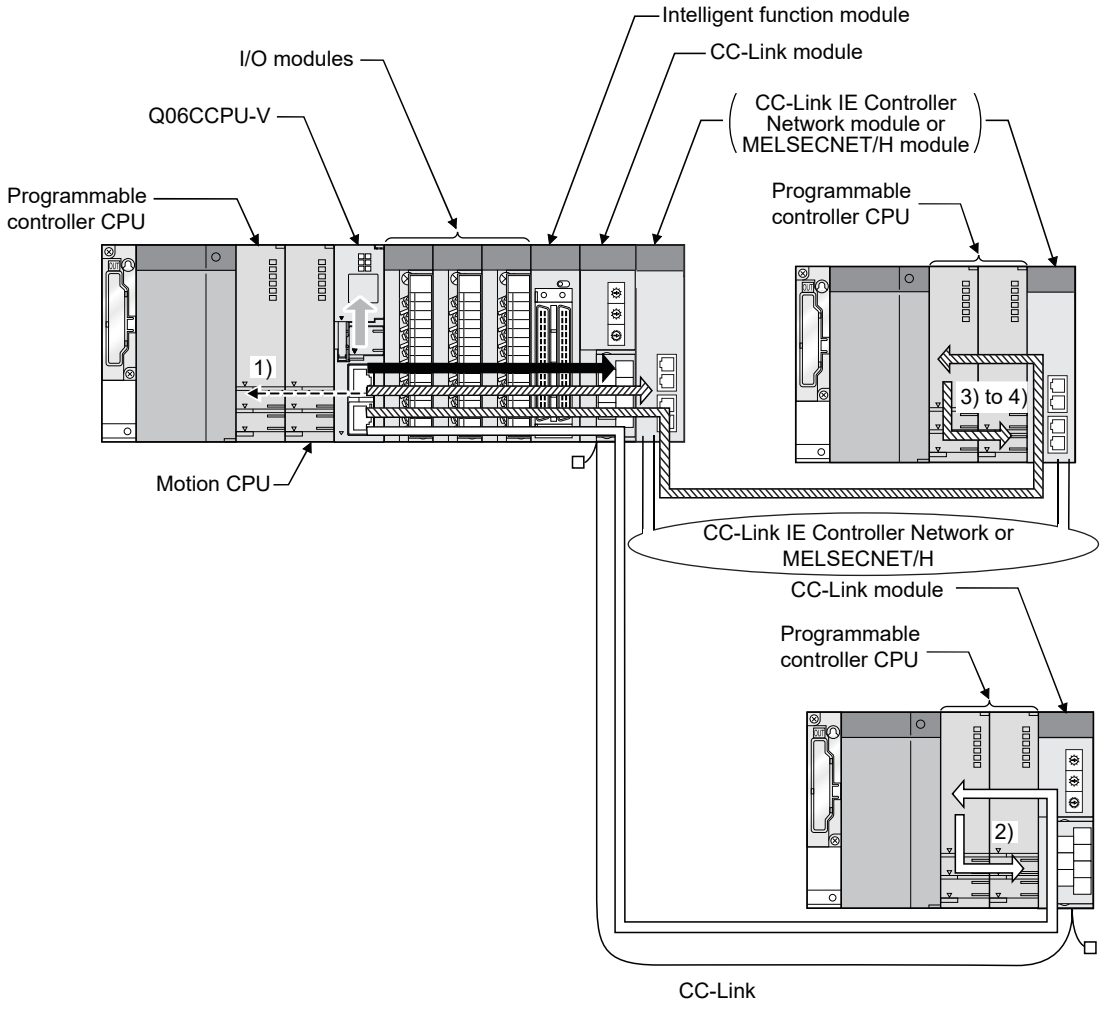


Figure 10.1 MELSEC data link function image

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.

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

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

For details of creating a new project of user program and compiling, refer to the following.

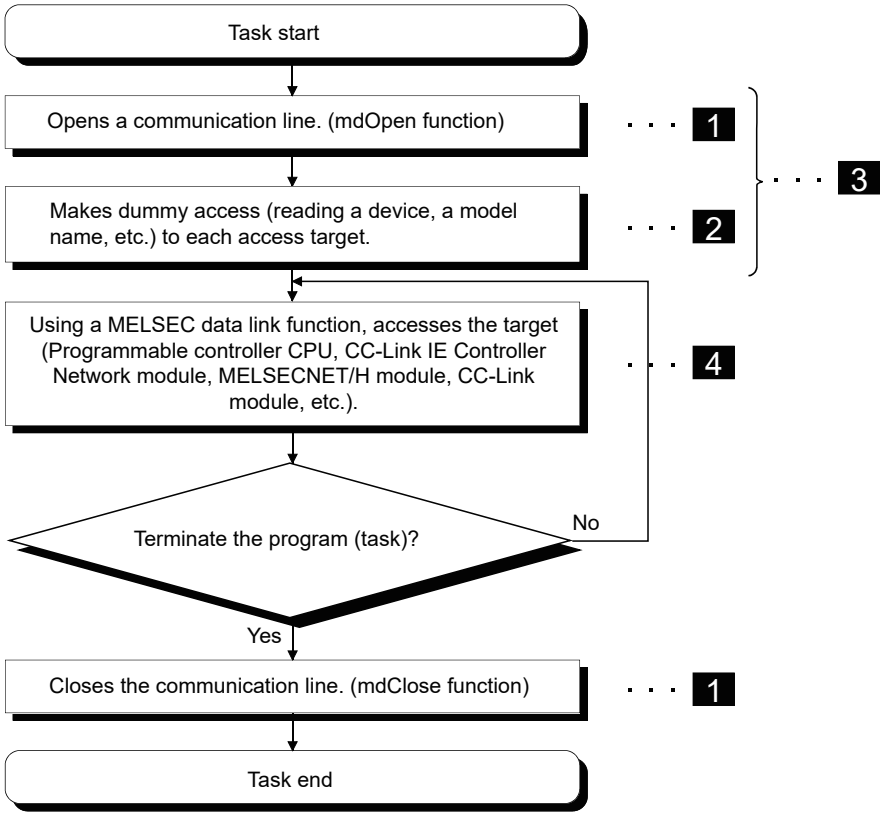
☞ Page 9-9, "9.4 Creating and Compiling a New Project of User Program"

10.5 MELSEC Data Link Function Programming Flow

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

(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.

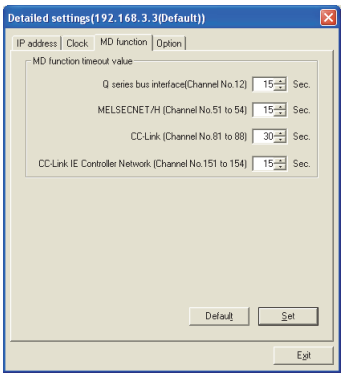


Figure 10.3 MD function communication timeout value setting screen

10.6 Precautions for the MELSEC Data Link Function

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

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

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

For details of precautions for program debugging, refer to the following.

☞ Page 9-31, "9.7 Precautions for Program Debugging"

10.8 Program Registration

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

For details of program registration, refer to the following.

☞ Page 9-46, "9.8 Program Registration"

10.9 Creating a Script File "STARTUP.CMD"

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

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

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

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

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

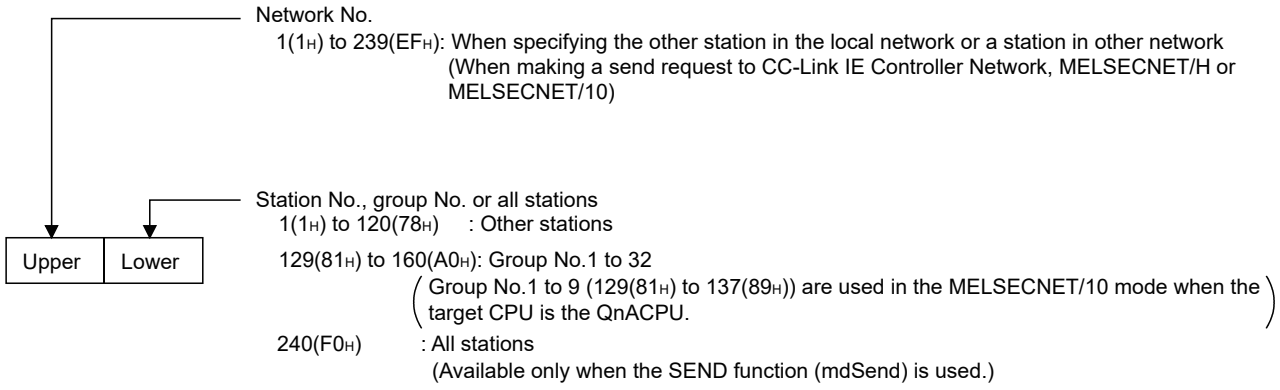
(1) Functions other than extended functions

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)

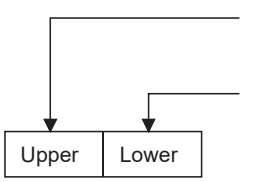


<Logical station No. setting method>
Set "0" in the upper byte (network No.) and a logical station No. in the lower byte (station No.).

<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)



<Logical station No. setting method>
Set "0" in the upper byte (network No.) and a logical station No. in the lower byte (station No.).
<The setting range of logical station No.>
Set it in the target settings of the CC-Link utility.
65 (41H) to 239 (EFH): CC-Link communication
(Page 5-15, Section 5.6)

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(0H)	Own station: 255(FFH)*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(0H) Other station: 1(1H) to 239(EFH) Logical station: 0(0H)	Own (Host) station: 255(FFH) Other station: 1(1H) to 120(78H)*1 Logical station: 65(41H) to 239(EFH)*2
CC-Link	0(0H)	Own station: 255(FFH) Other station: 0(0H) to 63(3FH)*3 Logical station: 65(41H) to 239(EFH)*2

* 1 65(41H) to 120(78H) 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

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

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).

(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 name*1	Device
Code			
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 name*1	Device
Code			
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 name*1	Device
Code			
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)

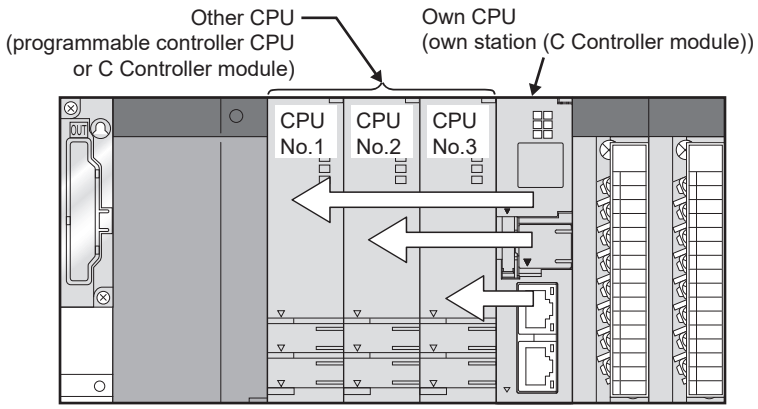


Figure 10.6 Range accessible via a bus

(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	•Batch write (mdSend, mdSendEx functions) •Batch read (mdReceive, mdReceiveEx functions)
Random	•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.

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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, Intellligent 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 (2710_H) 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

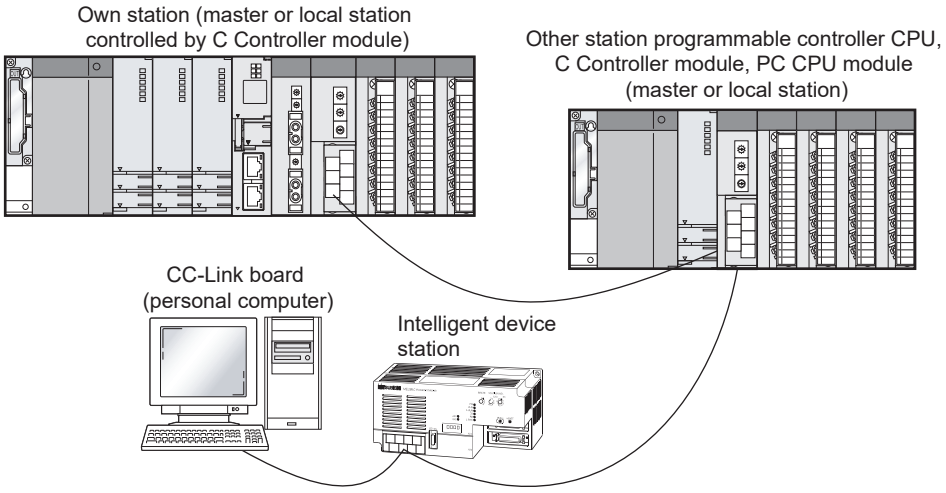

Figure 10.7 Accessible range for access via CC-Link

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	•Batch write (mdSend, mdSendEx functions) •Batch read (mdReceive, mdReceiveEx functions)
Random	•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
6)	Q2ACPU(-S1), Q3ACPU, Q4ACPU, Q4ARCPU, Q2ASCPU(-S1), Q2ASHCPU(-S1)
	Q00JCPU, Q00CPU, Q01CPU
	Q02(H)CPU, Q06HCPU, Q12HCPU, Q25HCPU
	Q02PHCPU, Q06PHCPU, Q12PHCPU, Q25PHCPU
	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	DevX	○
	Random		
Own station RY	Batch	DevY	○
	Random		
Own station SB (link special relay for CC-Link)	Batch	DevSM	○
	Random		
Own station SW (link special register for CC-Link)	Batch	DevSD	○
	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		
Own station random access buffer	Batch	DevMRB	○
	Random		

○: Accessible ×: 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	DevX	○	○	○	○	○	○	○*2	○
	Random									
Y	Batch	DevY	○	○	○	○	○	○	○*2	○
	Random									
L	Batch	DevL	○	○	○	○	○	○	×	○
	Random									
M*3,*4	Batch	DevM	○	○	○	○	○	○	○*2,*5	○
	Random									
SM (special relay), SB (link special relay for MELSEC/H, CC-Link IE Controller Network, and CC-Link)	Batch	DevSM	○	○	○	○	○	○	○*2,*5	○
	Random									
F	Batch	DevF	○	○	○	○	○	○	×	○
	Random									
T (contact)	Batch	DevTT	○	○	○	○	○	○	×	○
	Random									
T (coil)	Batch	DevTC	○	○	○	○	○	○	×	○
	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)
* 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)

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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									
SD (special register), SW (link special register for MELSECNET/H and CC-Link)	Batch	DevSD	○	○	○	○	○	○	○*2,*5	○
	Random									
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).

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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	×	○	○	○	○	×*8	×	○
	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.

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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)	×	×	×	×	×	○	○*2	×
	Random									
Direct link output (Other station side)	Batch	DevLY(1) to DevLY(255)	×	×	×	×	×	○	○*2	×
	Random									
Direct link relay (Other station side)	Batch	DevLB(1) to DevLB(255)	×	×	×	×	×	○	○*2	×
	Random									
Direct link register (Other station side)*3	Batch	DevLW(1) to DevLW(255)	×	×	×	×	×	○	○*2	×
	Random									
Direct link special relay (Other station side)	Batch	DevLSB(1) to DevLSB(255)	×	×	×	×	×	○	○*2	×
	Random									
Direct link special register (Other station side)	Batch	DevLSW(1) to DevLSW(255)	×	×	×	×	×	○	○*2	×
	Random									
Special direct buffer register, Intelligent function module buffer memory	Batch	DevSPG(0) to DevSPG(255)	×	×	×	×	×	○	○*2	○
	Random									
Other station buffer memory*14	Batch	DevRBM	○	○	○	○	○	○	○	○
	Random		×	×	×	×	×	×	×	×
Other station random access buffer*14	Batch	DevRAB	○	○	○	○	○	○	○	○
	Random		×	×	×	×	×	×	×	×
Other station RX*14	Batch	DevRX	○	○	○	○	○	○	○	○
	Random		×	×	×	×	×	×	×	×
Other station RY*14	Batch	DevRY	○	○	○	○	○	○	○	○
	Random		×	×	×	×	×	×	×	×
Other station link register*14	Batch	DevRW	○	○	○	○	○	○	○	○
	Random		×	×	×	×	×	×	×	×
Other station SB (Link special relay for CC-Link) *14	Batch	DevSB	○	○	○	○	○	○	○	○
	Random		×	×	×	×	×	×	×	×
Other station SW (Link special register for CC-Link)*14	Batch	DevSW	○	○	○	○	○	○	○	○
	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 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.

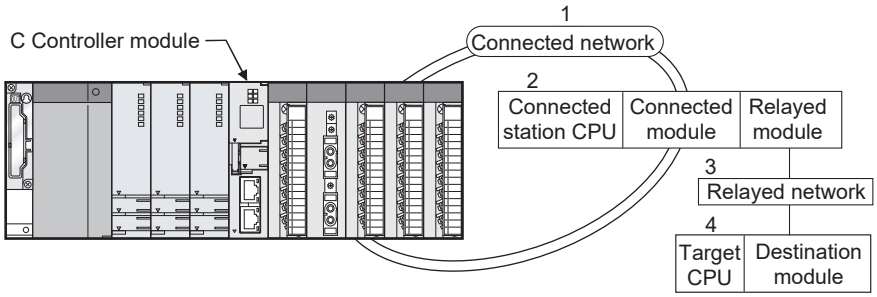

Figure 10.8 Accessible range via MELSECNET/H

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

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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 ×: 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	•Batch write (mdSend, mdSendEx functions) •Batch read (mdReceive, mdReceiveEx functions)
Random	•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
6)	Q2ACPU(-S1), Q3ACPU, Q4ACPU, Q4ARCPU, Q2ASCPU(-S1), Q2ASHCPU(-S1)
	Q00JCPU, Q00CPU, Q01CPU
	Q02(H)CPU, Q06HCPU, Q12HCPU, Q25HCPU
	Q02PHCPU, Q06PHCPU, Q12PHCPU, Q25PHCPU
	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 / Random	DevX	○	○	○	○	○	○	○*1	×
Y	Batch / Random	DevY	○	○	○	○	○	○	○*1	×
L	Batch / Random	DevL	○	○	○	○	○	○	×	×
M*2,*3	Batch / Random	DevM	○	○	○	○	○	○	○*1,*4	×
SM (special relay), SB (link special relay for MELSECNET/H, CC-Link IE Controller Network and CC-Link)	Batch / Random	DevSM	○	○	○	○	○	○	○*1	×
F	Batch / Random	DevF	○	○	○	○	○	○	×	×
T (contact)	Batch / Random	DevTT	○	○	○	○	○	○	×	×
T (coil)	Batch / Random	DevTC	○	○	○	○	○	○	×	×
C (contact)	Batch / Random	DevCT	○	○	○	○	○	○	×	×
C (coil)	Batch / Random	DevCC	○	○	○	○	○	○	×	×
T (current value)	Batch / Random	DevTN	○	○	○	○	○	○	×	×
C (current value)	Batch / Random	DevCN	○	○	○	○	○	○	×	×
D*2,*5	Batch / Random	DevD	○	○	○	○	○	○	○*1,*4	×
SD (special register), SW (link special register for MELSECNET/H, CC-Link IE Controller Network and CC-Link)	Batch / Random	DevSD	○	○	○	○	○	○	○*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

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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)
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.

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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)
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)*13	Batch	DevMAIL	×	×	×	×	×	○	○*14	×
	Random							×	×	
Q/QnA SEND function (no arrival confirmation)*13	Batch	DevMAILNC	×	×	×	×	×	○	○*14	×
	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)	×	×	×	×	×	○	×	×
	Random									
Other station buffer memory	Batch	DevRBM	×	×	×	×	×	×	×	×
	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)
* 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.

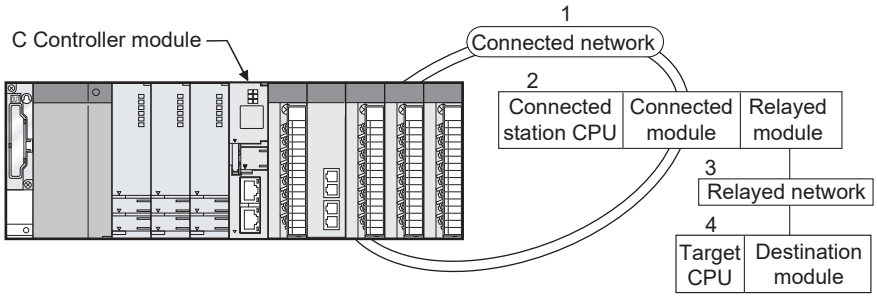


Figure 10.9 Accessible range via CC-Link IE Controller Network

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	•Batch write (mdSend, mdSendEx functions) •Batch read (mdReceive, mdReceiveEx functions)
Random	•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
6)	Q2ACPU(-S1), Q3ACPU, Q4ACPU, Q4ARCPU, Q2ASCPU(-S1), Q2ASHCPU(-S1)
	Q00JCPU, Q00CPU, Q01CPU
	Q02(H)CPU, Q06HCPU, Q12HCPU, Q25HCPU
	Q02PHCPU, Q06PHCPU, Q12PHCPU, Q25PHCPU
	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)

(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									
Y	Batch	DevY	○	○	○	○	○	○	○*1	×
	Random									
L	Batch	DevL	○	○	○	○	○	○	×	×
	Random									
M*2,*3	Batch	DevM	○	○	○	○	○	○	○*1,*4	×
	Random									
SM (special relay), SB (link special relay for MELSECNET/H, CC-Link IE Controller Network and CC-Link)	Batch	DevSM	○	○	○	○	○	○	○*1	×
	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,*5	Batch	DevD	○	○	○	○	○	○	○*1,*4	×
	Random									
SD (special register), SW (link special register for MELSECNET/H, CC-Link IE Controller Network and CC-Link)	Batch	DevSD	○	○	○	○	○	○	○*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)
* 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 10.32 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 (8000H) 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 (8000H) 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 BFFFFH 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	×	×	×	×	×	○	×	×
	Random									
Retentive timer (coil)	Batch	DevSTC	×	×	×	×	×	○	×	×
	Random									
Q/QnAlink 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)*13	Batch	DevMAIL	×	×	×	×	×	○	○*14	×
	Random							×	×	
Q/QnA SEND function (no arrival confirmation)*13	Batch	DevMAILNC	×	×	×	×	×	○	○*14	×
	Random							×	×	
Direct link input (other station)	Batch	DevLX(1) to DevLX(255)	×	×	×	×	×	○	○*1	×
	Random									
Direct link output (other station)	Batch	DevLY(1) to DevLY(255)	×	×	×	×	×	○	○*1	×
	Random									
Direct link relay (other station)	Batch	DevLB(1) to DevLB(255)	×	×	×	×	×	○	○*1	×
	Random									
Direct link register (other station)*2	Batch	DevLW(1) to DevLW(255)	×	×	×	×	×	○	○*1	×
	Random									
Direct link special relay (other station)	Batch	DevLSB(1) to DevLSB(255)	×	×	×	×	×	○	○*1	×
	Random									
Direct link special register (other station)	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)
* 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

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

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

Memo

CHAPTER 12 SAMPLE PROGRAMS

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

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
	SntpTimeSet.c	SntpTimeSet.c	For setting clock data by acquiring the data from the SNTP server computer
QBFtest	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.
	QBFMessage	QBFMessage.c	For sending messages via MELSECNET/H
Script	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

(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\DevAccessChanCCIEC	DevAccessChanCCIEC.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\DevAccessChanCCL	DevAccessChanCCL.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\DevAccessChanMNH	DevAccessChanMNH.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\DevAccessChanQBF	DevAccessChanQBF.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
	SntpTimeSet.c	SntpTimeSet.c	For setting clock data by acquiring the data from the SNTP server computer
QBFtest	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
	Shutdown	ROMShutdown.c	For shutting down the standard ROM when X0 turns on
Script	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

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

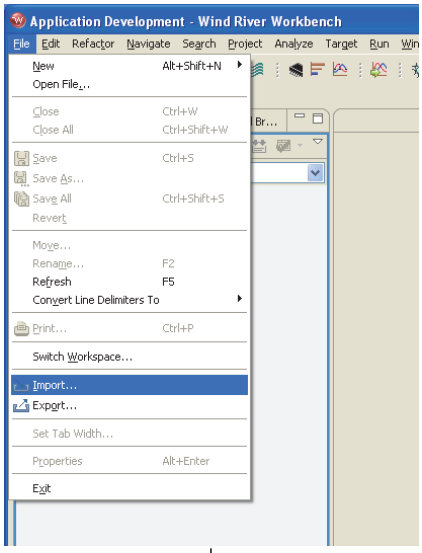
This section describes the procedure for opening sample programs when SW3PVC-CCPU is installed in "C:\MELSEC".

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.



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1. Start Workbench.
2. Select the [File] → [Import].

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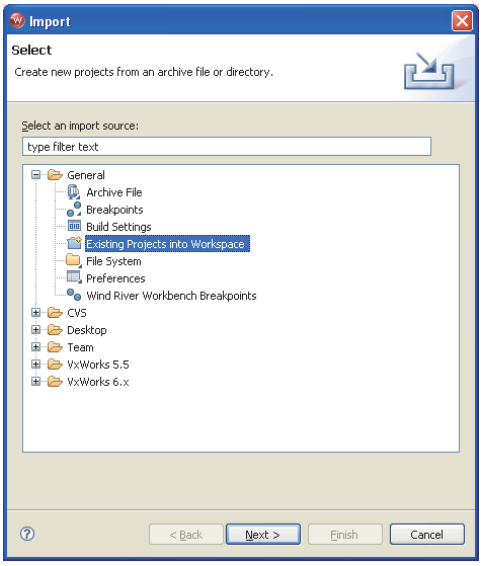
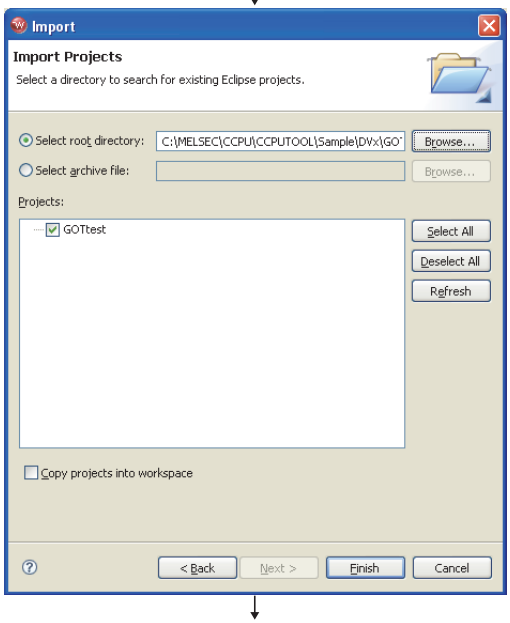
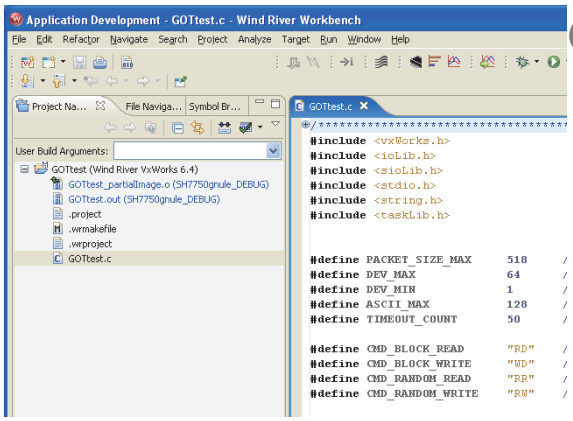


3 Select "General" → "Existing Projects into Workplace", and click the Next> button.



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.

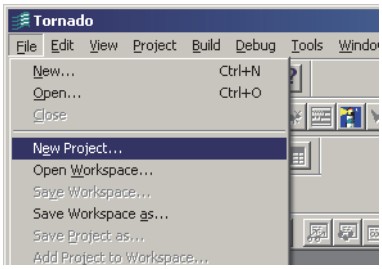


5 Double click the file name of the sample program with imported project so that the sample program is opened to use.

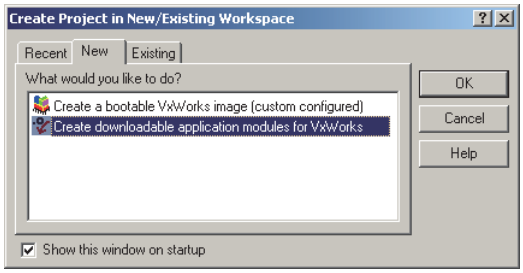
(Completed)

(2) Procedure for opening the sample program for the Q06CCPU-V(-B)

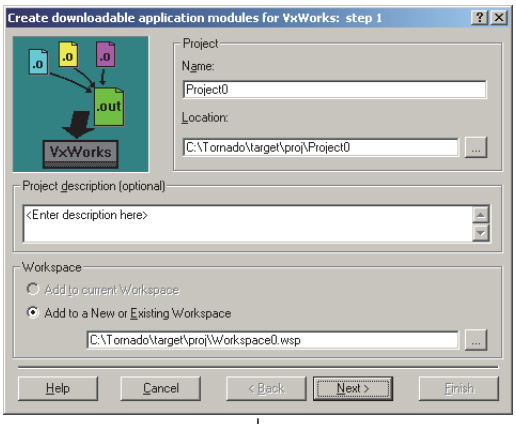
1 Start Tornado.
When Workspace is opened automatically, perform procedure of 7 or later.
When Workspace is not opened automatically, perform the following operations continuously.



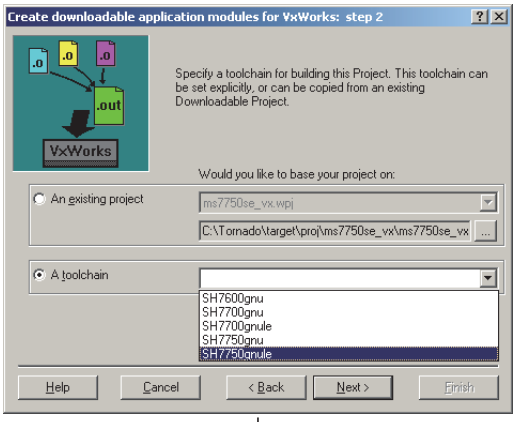
2 Select the [File] → [New Project] from the menu bar.



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: SH7750gnule (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.

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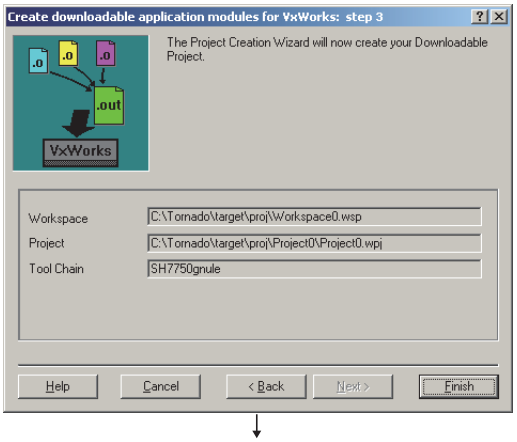
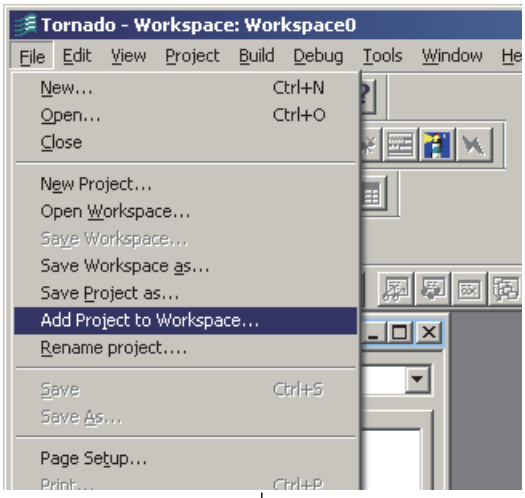
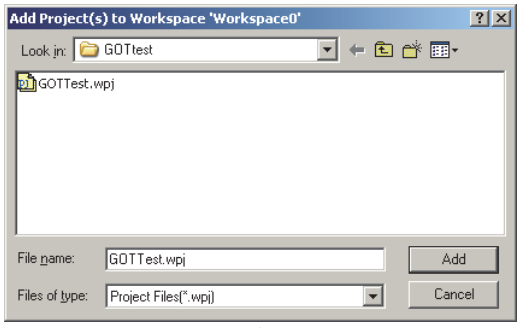


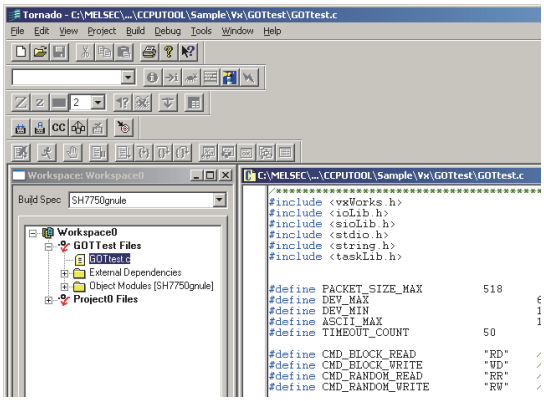
6 After confirming the setting of "Workspace", "Project", and "Tool Chain" are correct, click the Finish button.



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.

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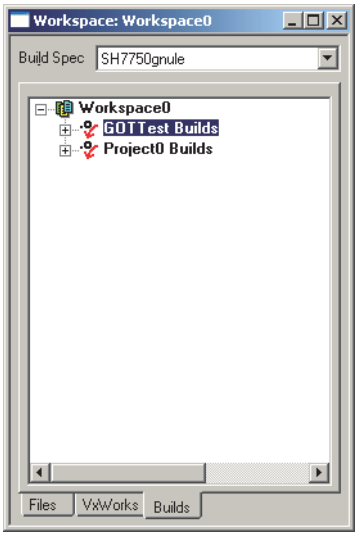
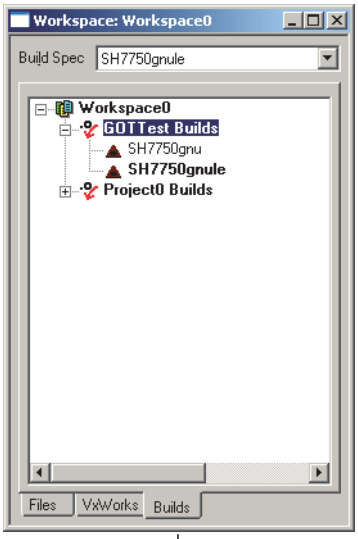
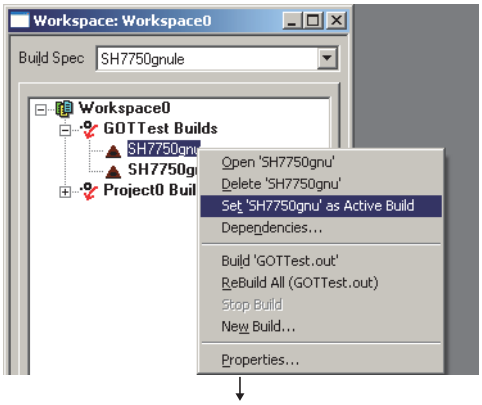


10 Open the <<Build>> tab of "Workspace" window.



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.

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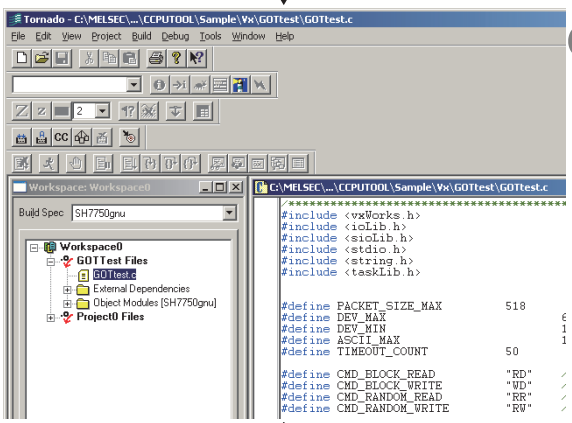

(Completed)

13 The sample program can be opened from the project when opening the <<Files>> tab of the "Workspace" window.

CHAPTER 13 EVENT NUMBER LIST

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

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))

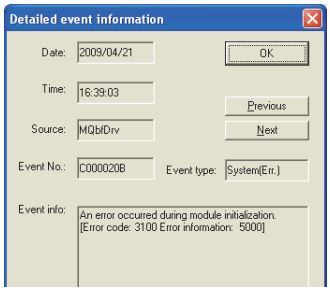

Figure 13.1 Detailed event information screen

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
MUtlIfQbf	Utility communication interface (bus interface part) related	Page 13-3
MUtlIfMd	Utility communication interface (MELSEC communication part) related	Page 13-4
MUtlIfCom	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 "MUtlIfQbf"

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 "MUtlIfMd"

Table 13.5 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 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. A port acquisition error occurred.
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.

(5) When the source is "MUtlIfCom"

Table 13.6 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 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.

(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.)	•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)	•Q12DCCPU-V The standard ROM drive was illegally accessed. •Q06CCPU-V(-B) The number of standard ROM drive "/ROM" deletions exceeded 100 thousand times.	•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 ruotine (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.

(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.

APPENDICES

Appendix 1 VxWorks Component List

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

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_DHCPC_SHOW
DHCP client timestamp setup	INCLUDE_DHCPC_LEASE_GET
DHCP Core files	INCLUDE_DHCP_CORE
DHCPv4 boot-time client	INCLUDE_DHCPC_BOOT
DHCPv4 client common library	INCLUDE_DHCPC_SHARE
DHCPv4 Client Lease Verification/Assignment	INCLUDE_DHCPC_LEASE_TEST
DHCPv4 client timestamp storage	INCLUDE_DHCPC_LEASE_SAVE
DHCPv4 runtime client	INCLUDE_DHCPC
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 snprintf 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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Table APPX.1 VxWorks component list (continued)

Component	Macro
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_SOCKLIB
Socket API System Call support	INCLUDE_SC_SOCKLIB
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_TSFSSOCK
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

(To the next page)

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_DHCPC_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.

(To the next page)

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.

(To the next page)

Table APPX.2 VxWorks component list (continued)

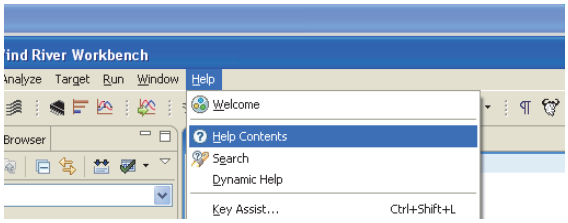
Component	Macro
watchdog timers	INCLUDE_WATCHDOGS
WDB agent	INCLUDE_WDB
WDB banner	INCLUDE_WDB_BANNER
WDB breakpoints	INCLUDE_WDB_BP
WDB call functions	INCLUDE_WDB_FUNC_CALL
WDB callouts	INCLUDE_WDB_DIRECT_CALL
WDB END driver connection	INCLUDE_WDB_COMM_END
WDB eventpoints	INCLUDE_WDB_EVENTPOINTS
WDB 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

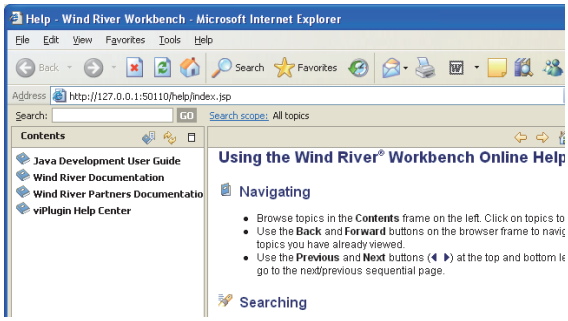
VxWorks component information can be checked by the following procedure.
VxWorks image cannot be created (changed).

(a) For the Q12DCCPU-V

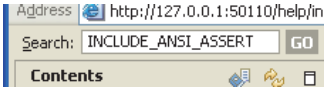
The following windows are those of Wind River Workbench, but the procedure is the same when CW Workbench is used.



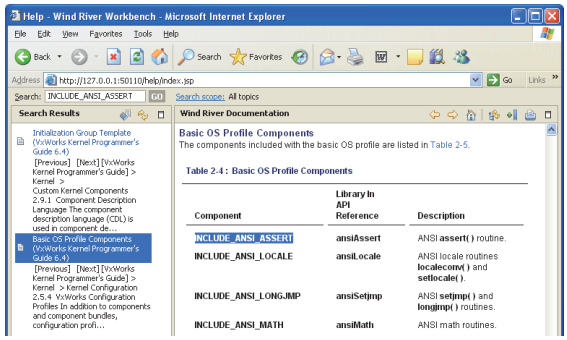
1 Select [Help]→[Help Contents] from the menu bar.



2 HELP information for Workbench is displayed in a web browser.



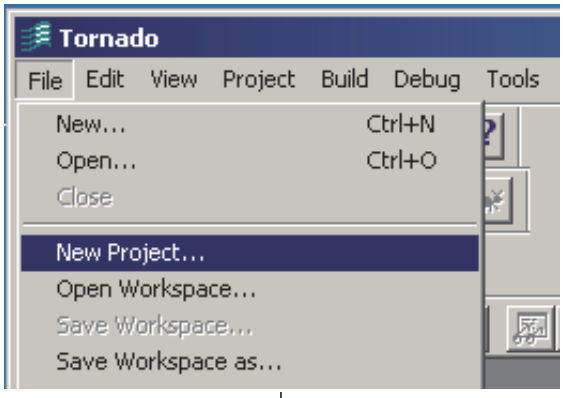
3 Enter the string to be searched in the "Search:" combo box and click the GO button.



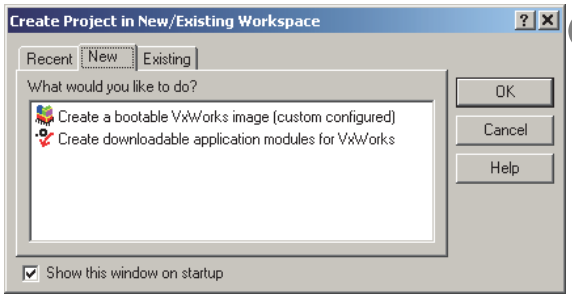
4 Select the information to review from "Search Result" and review the component information.

(Completed)

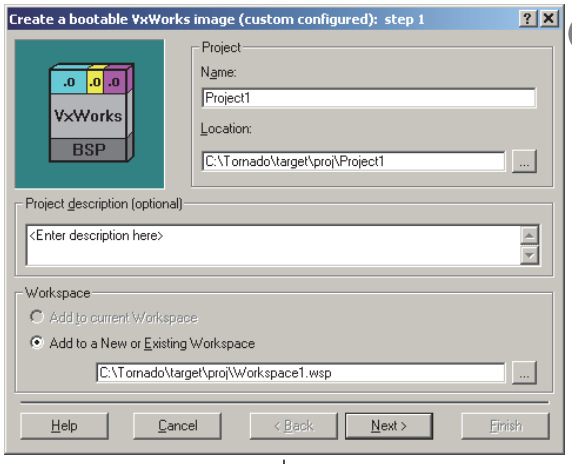
(b) For the Q06CCPU-V(-B)



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)

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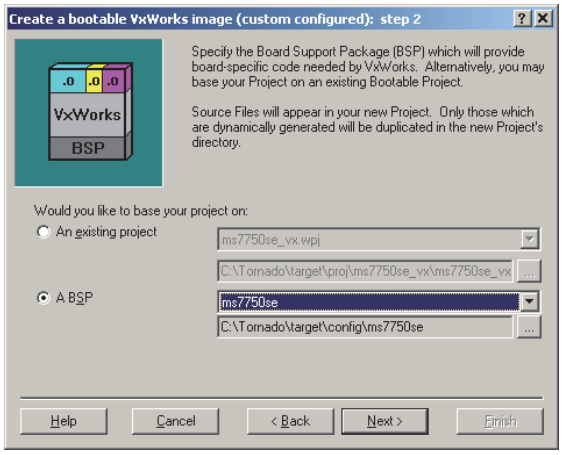
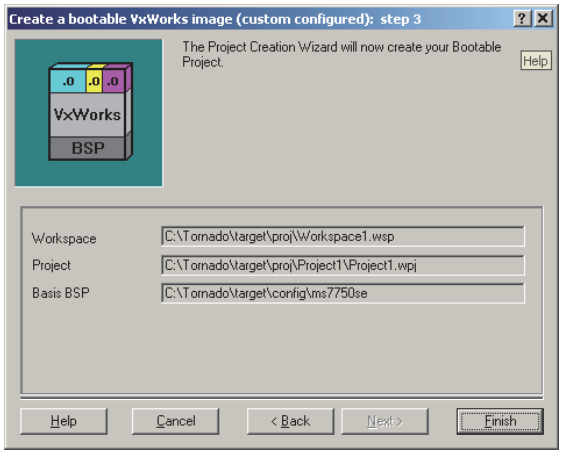


4 Select "A BSP" and click the Next> button.



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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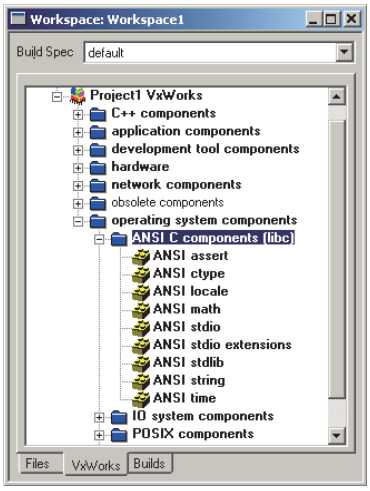
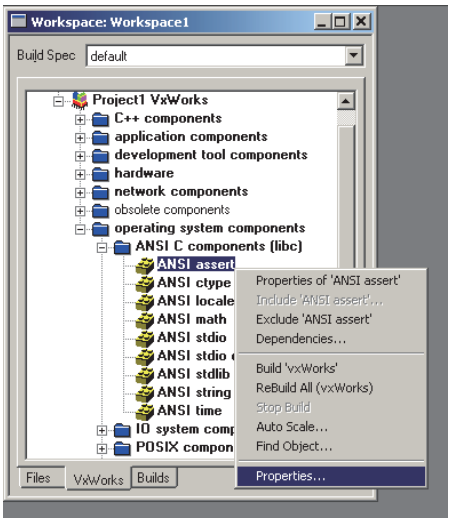
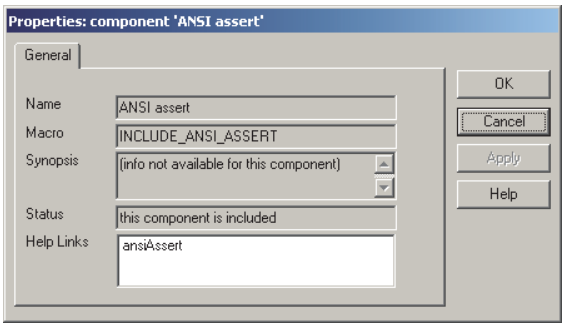


7 Click the (⊞) icon to expand the items at this level of the hierarchy.



8 Right-click on "ANSI assert" and select [Properties] from the menu.

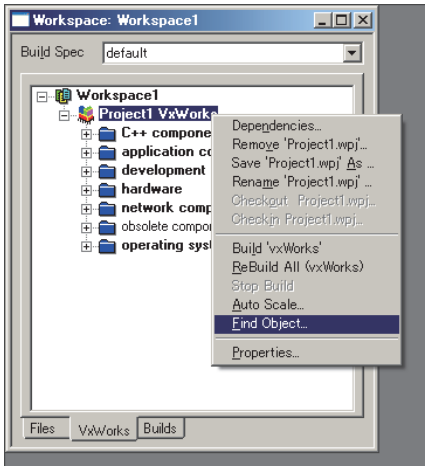


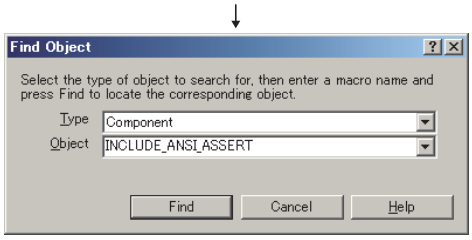
9 Check the information of VxWorks components with the Properties screen displayed.

(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

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

(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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WARRANTY

Please confirm the following product warranty details before using this product.

1. Gratis Warranty Term and Gratis Warranty Range

If any faults or defects (hereinafter "Failure") found to be the responsibility of Mitsubishi occurs during use of the product within the gratis warranty term, the product shall be repaired at no cost via the sales representative or Mitsubishi Service Company.

However, if repairs are required onsite at domestic or overseas location, expenses to send an engineer will be solely at the customer's discretion. Mitsubishi shall not be held responsible for any re-commissioning, maintenance, or testing on-site that involves replacement of the failed module.

[Gratis Warranty Term]

The gratis warranty term of the product shall be for one year after the date of purchase or delivery to a designated place. Note that after manufacture and shipment from Mitsubishi, the maximum distribution period shall be six (6) months, and the longest gratis warranty term after manufacturing shall be eighteen (18) months. The gratis warranty term of repair parts shall not exceed the gratis warranty term before repairs.

[Gratis Warranty Range]

(1) The range shall be limited to normal use within the usage state, usage methods and usage environment, etc., which follow the conditions and precautions, etc., given in the instruction manual, user's manual and caution labels on the product.

(2) Even within the gratis warranty term, repairs shall be charged for in the following cases.

1. Failure occurring from inappropriate storage or handling, carelessness or negligence by the user. Failure caused by the user's hardware or software design.
2. Failure caused by unapproved modifications, etc., to the product by the user.
3. When the Mitsubishi product is assembled into a user's device, Failure that could have been avoided if functions or structures, judged as necessary in the legal safety measures the user's device is subject to or as necessary by industry standards, had been provided.
4. Failure that could have been avoided if consumable parts (battery, backlight, fuse, etc.) designated in the instruction manual had been correctly serviced or replaced.
5. Failure caused by external irresistible forces such as fires or abnormal voltages, and Failure caused by force majeure such as earthquakes, lightning, wind and water damage.
6. Failure caused by reasons unpredictable by scientific technology standards at time of shipment from Mitsubishi.
7. Any other failure found not to be the responsibility of Mitsubishi or that admitted not to be so by the user.

2. Onerous repair term after discontinuation of production

(1) Mitsubishi shall accept onerous product repairs for seven (7) years after production of the product is discontinued. Discontinuation of production shall be notified with Mitsubishi Technical Bulletins, etc.

(2) Product supply (including repair parts) is not available after production is discontinued.

3. Overseas service

Overseas, repairs shall be accepted by Mitsubishi's local overseas FA Center. Note that the repair conditions at each FA Center may differ.

4. Exclusion of loss in opportunity and secondary loss from warranty liability

Regardless of the gratis warranty term, Mitsubishi shall not be liable for compensation to:

(1) Damages caused by any cause found not to be the responsibility of Mitsubishi.

(2) Loss in opportunity, lost profits incurred to the user by Failures of Mitsubishi products.

(3) Special damages and secondary damages whether foreseeable or not, compensation for accidents, and compensation for damages to products other than Mitsubishi products.

(4) Replacement by the user, maintenance of on-site equipment, start-up test run and other tasks.

5. Changes in product specifications

The specifications given in the catalogs, manuals or technical documents are subject to change without prior notice.

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SH(NA)-080767ENG-N(2204)KWIX
MODEL: Q12DCCPU-V-U-UP-E
MODEL CODE: 13JZ18

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