MITSUBISHI ELECTRIC

Industrial PC

MELIPC

MELIPC MI5000 Series
User's Manual (Application)

-MI5122-VW

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 precautions given in this manual are concerned with this product only.

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 product to ensure that the entire system operates safely even when a fault occurs in the external power supply or the product. Failure to do so may result in an accident due to an incorrect output or malfunction.
  (1) Emergency stop circuits, protection circuits, and protective interlock circuits for conflicting operations (such as forward/reverse rotations or upper/lower limit positioning) must be configured external to the product.
  (2) When the product detects an abnormal condition, it stops the operation and all outputs are:
    - Turned off if the overcurrent or overvoltage protection of the power supply module is activated.
    - Held or turned off according to the parameter setting if the self-diagnostic function of the product detects an error such as a watchdog timer error.
- Configure a circuit so that the product is turned on first and then the external power supply. If the external power supply is turned on first, an accident may occur due to an incorrect output or malfunction.
- For the operating status of each station after a communication failure, refer to manuals relevant to the network. Incorrect output or malfunction due to a communication failure may result in an accident.
- Before performing operations for the product from the peripheral connected, read the relevant manuals carefully and ensure the safety.

[Design Precautions]

⚠CAUTION

- Do not install the control lines or communication cables together with the main circuit lines or power cables. Keep a distance of 100 mm or more between them. Failure to do so may result in malfunction due to noise.
- When selecting fuses and breakers for external circuits, consider the specification values of fusing/detection characteristics and inrush current.
- When using an uninterruptible power supply (UPS), do not use the one that outputs square waves.

[Security Precautions]

⚠WARNING

- To maintain the security (confidentiality, integrity, and availability) of the product 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.

[Installation Precautions]

⚠CAUTION

- Use the product in an environment that meets the general specifications described in MELIPC MI5000 Series User's Manual (Startup). Failure to do so may result in electric shock, fire, malfunction, or damage to or deterioration of the product.
- To mount a power supply module, place the concave parts located at the bottom onto the guides of the main module, and push in the power supply module until the hooks located at the top snaps into place. Incorrect interconnection may cause malfunction, failure, or drop of the module.
- When using the product in an environment of frequent vibrations, fix the power supply module with a screw.
- Tighten the screws within the specified torque range. Undertightening can cause drop of the screw, short circuit, or malfunction. Overtightening can damage the screw and/or module, resulting in drop, short circuit, or malfunction.
- To connect a fan module, set the fan module at the correct position of the main module, and push in the fan module until the fan module fixing hook snaps into place. Check that the fan module fixing hook is fixed to the main module securely. If the fan module is not connected properly, the fan may not rotate or it may cause malfunction due to rise in temperature of the main module.
- To disconnect a fan module, securely press the fan module fixing hook with your finger. Then, pull the module forward while pressing the hook.
- Do not touch the exposed heatsink after removing the fan module. The heatsink is very hot immediately after the power is switched off and may cause burns. Additionally, touching the heat sink may deform it and decrease cooling efficiency.
- Do not apply shock such as falling and dropping to the fan module during transportation. Doing so may result in damage to the product or deterioration in performance.
- When using a CFast card, fully insert it into the CFast card slot. Check that it is inserted completely. Poor contact may cause malfunction.
- Place hands to hold a CFast card when removing it from the slot because the card may be jumped out. If not placing hands, the card may fall, resulting in damage or failure.
- Do not directly touch any conductive parts and electronic components of the module or CFast card. Doing so can cause malfunction or failure of the module.
- Do not remove the protective sheets attached to the plate of the base part. The plate of the base part also acts as a heat sink and may be very hot during operation. To prevent a burn, do not remove these sheets or touch them during operation or immediately after the power supply is switched off.

[Wiring Precautions]

⚠WARNING

- Shut off the external power supply (all phases) used in the system before installation and wiring. Failure to do so may result in electric shock or cause the module to fail or malfunction.
- After installation and wiring, close the terminal cover before turning it on for operation. Failure to do so may result in electric shock.

[Wiring Precautions]

⚠CAUTION

- Individually ground the FG and LG terminals of the product with a ground resistance of 100 ohms or less. Failure to do so may result in electric shock or malfunction.
- Use applicable solderless terminals and tighten them within the specified torque range. If any spade solderless terminal is used, it may be disconnected when the terminal screw comes loose, resulting in failure.
- Check the rated voltage and signal layout before wiring to the power supply module, and connect the cables correctly. Connecting a power supply with a different voltage rating or incorrect wiring may cause fire or failure.
- Solderless terminals must be crimped with the tool specified by the manufacturer. Incomplete crimping may cause short circuit, fire, or malfunction.
- Securely connect the connector of an external device to the product. Poor contact may cause malfunction.
- Do not install the control lines or communication cables together with the main circuit lines or power cables. Keep a distance of 100 mm or more between them. Failure to do so may result in malfunction due to noise.
- Place the cables in a duct or clamp them. (Cable ties made of nylon can be used as well.) If not, dangling cable may swing or inadvertently be pulled, resulting in damage to the module or cables or malfunction due to poor contact.
- Check the interface type and correctly connect the cable. Incorrect wiring (connecting the cable to an incorrect interface) may cause failure of the module and external device.
- Tighten the terminal screws or connector screws within the specified torque range. Undertightening can cause drop of the screw, short circuit, fire, or malfunction. Overtightening can damage the screw and/or module, resulting in drop, short circuit, fire, or malfunction.
- Prevent foreign matter such as dust or wire chips from entering the product. Such foreign matter can cause a fire, failure, or malfunction.
- A protective film is attached to the top of the module to prevent foreign matter, such as wire chips, from entering the product during wiring. Do not remove the film during wiring. Remove it for heat dissipation before system operation.
- When disconnecting the cable from the product, do not pull the cable by the cable part. For the cable with connector, hold the connector part of the cable. For the cable connected to the terminal block, loosen the terminal screw. Pulling the cable connected to the module may result in malfunction or damage to the module or cable.
- The product must be installed in a control panel. Connect the main power supply to the power supply module in the control panel through a relay terminal block. Wiring and replacement of a power supply module must be performed by qualified maintenance personnel with knowledge of protection against electric shock. For wiring methods, refer to the MELIPC MI5000 Series User's Manual (Startup).

[Startup and Maintenance Precautions]

⚠WARNING

- Do not touch any terminal while power is on. Doing so will cause electric shock or malfunction.
- Correctly connect the battery connector. Do not charge, disassemble, heat, short-circuit, solder, or throw the battery into the fire. Also, do not expose it to liquid or strong shock. Doing so will cause the battery to produce heat, explode, ignite, or leak, resulting in injury and fire.
- Shut off the external power supply (all phases) used in the system before cleaning the module or retightening the terminal screws, connector screws, or module fixing screws. Failure to do so may result in electric shock.
- Tighten the terminal screws or connector screws within the specified torque range. Undertightening can cause drop of the screw, short circuit, fire, or malfunction. Overtightening can damage the screw and/or module, resulting in drop, short circuit, fire, or malfunction.

[Startup and Maintenance Precautions]

⚠CAUTION

- Do not disassemble or modify the product. Doing so may cause failure, malfunction, injury, or a fire.
- Use any radio communication device such as a cellular phone or PHS (Personal Handy-phone System) more than 25cm away in all directions from the product. Failure to do so may cause malfunction.
- Shut off the external power supply (all phases) used in the system before mounting or removing the product. Failure to do so may cause the product to fail or malfunction.
- Do not touch any part of your body or contact any object to the rotating fan. Doing so may result in injury or failure of the fan module.
- After the first use of the product, do not connect/disconnect the power supply module or fan module to/from the main module more than 50 times. Exceeding the limit may cause malfunction.
- After the first use of the product, do not insert/remove a CFast card to/from the product more than 10000 times. Exceeding the limit may cause malfunction.
- Place hands to hold a CFast card when removing it from the slot because the card may be jumped out. If not placing hands, the card may fall, resulting in damage or failure.
- Do not drop or apply shock to the battery to be installed in the product. When removing the battery, hold the connector part so that the battery cable is not damaged.
- Before handling the product, touch a conducting object such as a grounded metal to discharge the static electricity from the human body. Failure to do so may cause the product to fail or malfunction.
- Do not remove the protective sheets attached to the plate of the base part and the center of the upper section of the module case. The plate of the base part also acts as a heat sink and may be very hot during operation. To prevent a burn, do not remove these sheets or touch them during operation or immediately after the power supply is switched off.
- Usage under high temperature and humidity may cause the fan module to change colors, but this does not affect performance.
- Do not turn OFF the power, reset this product, or remove the USB device during access of the USB device. This may cause data corruption on the USB device or a malfunction of the USB device. Stop access, and then remove the USB device.

[Power-on Precautions]

⚠CAUTION

- If input power is supplied again immediately after power supply shutdown of the product, an inrush current that exceeds the specification value may flow.
- To avoid this, wait for five seconds or more after power supply shutdown of the product. Then, supply input power again.

[Transportation Precautions]

⚠CAUTION

- When transporting lithium batteries, follow the transportation regulations. For details on regulated models, refer to the MELIPC MI5000 Series User's Manual (Startup).

[Disposal Precautions]

⚠CAUTION

- When disposing of this product, treat it as industrial waste.
- When disposing of batteries, separate them from other waste according to the local regulations. For details on battery regulations in EU member states, refer to the MELIPC MI5000 Series User's Manual (Startup).

CONDITIONS OF USE FOR THE PRODUCT

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

(2) The PRODUCT has been designed and manufactured for the purpose of being used in general industries.
MITSUBISHI SHALL HAVE NO RESPONSIBILITY OR LIABILITY (INCLUDING, BUT NOT LIMITED TO ANY AND ALL RESPONSIBILITY OR LIABILITY BASED ON CONTRACT, WARRANTY, TORT, PRODUCT LIABILITY) FOR ANY INJURY OR DEATH TO PERSONS OR LOSS OR DAMAGE TO PROPERTY CAUSED BY the PRODUCT THAT ARE OPERATED OR USED IN APPLICATION NOT INTENDED OR EXCLUDED BY INSTRUCTIONS, PRECAUTIONS, OR WARNING CONTAINED IN MITSUBISHI'S USER, INSTRUCTION AND/OR SAFETY MANUALS, TECHNICAL BULLETINS AND GUIDELINES FOR the PRODUCT.
("Prohibited Application")
Prohibited Applications include, but not limited to, the use of the PRODUCT in;
- Nuclear Power Plants and any other power plants operated by Power companies, and/or any other cases in which the public could be affected if any problem or fault occurs in the PRODUCT.
- Railway companies or Public service purposes, and/or any other cases in which establishment of a special quality assurance system is required by the Purchaser or End User.
- Aircraft or Aerospace, Medical applications, Train equipment, transport equipment such as Elevator and Escalator, Incineration and Fuel devices, Vehicles, Manned transportation, Equipment for Recreation and Amusement, and Safety devices, handling of Nuclear or Hazardous Materials or Chemicals, Mining and Drilling, and/or other applications where there is a significant risk of injury to the public or property.

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

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

PRECAUTIONS FOR USING THE PRODUCT

For the product manufactured by Microsoft® Corporation in the United States

The product is equipped with Windows® 10 IoT Enterprise manufactured by Microsoft Corporation in the United States as OS. For using this product, our company does not have any responsibility for a problem and the damage caused by the product manufactured by Microsoft Corporation in the United States.

For the problems or specifications of the Microsoft Corporation product, refer to the corresponding manual or consult Microsoft Corporation.

Contact information is available on the following website.

- Microsoft Corporation: support.microsoft.com/en-us/contactus

For the Wind River Systems product

This product is loaded with VxWorks, manufactured by Wind River Systems, Inc., as a real-time operating system. Mitsubishi Electric accepts no responsibility for dealing with or damage from problems caused by products manufactured by Wind River Systems, Inc. when using this product.

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.

Wind River Systems, Inc.: www.windriver.com

INTRODUCTION

Thank you for purchasing the Mitsubishi Electric Industrial PC.
This manual describes the functions and parameter settings of the product.
Before using this product, please read this manual and the relevant manuals carefully and develop familiarity with the functions and performance to handle the product correctly.
Please make sure that the end users read this manual.

Relevant product

MI5122-VW

CONTENTS

RELEVANT MANUALS

Manual name [manual number]	Description	Available form
MELIPC MI5000 Series User's Manual (Application) [SH-081932ENG](this manual)	Functions and parameters of a MELIPC	Print book e-Manual PDF
MELIPC MI5000 Series User's Manual (Startup) [SH-081930ENG]	Performance specifications, procedures before operation, and troubleshooting of a MELIPC	Print book e-Manual PDF
MELIPC MI5000 Series Programming Manual (Windows) [SH-081934ENG]	Programming specifications and dedicated function libraries of the Windows part of a MELIPC	e-Manual PDF
MELIPC MI5000 Series Programming Manual (VxWorks) [SH-081936ENG]	Programming specifications and dedicated function libraries of the VxWorks part of a MELIPC	e-Manual PDF
MI Configurator Operating Manual [SH-081938ENG]	System configurations, parameter settings, and the operation methods of online functions in MI Configurator	e-Manual PDF

Point

e-Manual refers to the Mitsubishi Electric FA electronic book manuals that can be browsed using a dedicated tool.

e-Manual has the following features:

- Required information can be cross-searched in multiple manuals.
- Other manuals can be accessed from the links in the manual.
- The hardware specifications of each part can be found from the product figures.
- Pages that users often browse can be bookmarked.

Terms

Unless otherwise specified, this manual uses the following terms.

Terms	Description
CW Workbench 4	An abbreviation for the engineering tool for Mitsubishi Electric Industrial PC, CW Workbench 4.
C Controller module dedicated function	A dedicated function library used for controlling a MELIPC.
GOT	Another term for Mitsubishi Graphic Operation Terminal.
MELIPC	An abbreviation for Mitsubishi Electric Industrial PC, MI5122-VW It comprises a main module, a power supply module, and a fan module.
MELSEC data link function	A dedicated function library used for accessing another station on a network.
MI Configurator	A product name for SWnDNN-MICONF. ("n" indicates its version)
VxWorks	A product name for a real-time operating system manufactured by Wind River Systems, Inc.
VxWorks part	A device in which a real-time operating system VxWorks is embedded. The information acquired from a programmable controller CPU or a CC-Link IE Field Network connected device via CC-Link IE Field Network can be processed in this section.
Windows part	A device in which Windows is embedded. Applications for processing complex calculations, such as data analysis, to process various information can run in this section.
Intelligent device station	Station that carries out cyclic transmission of bit unit input/output signals and word unit input/output data. This also supports transient transmission. Sends responses to transient transmissions (requests) from other stations. Additionally, this issues transient transmissions (requests) to other stations.
Cyclic Transmission	This function uses a link device to periodically exchange data between stations on a network.
Slave station	Generic term for local stations, remote I/O stations, remote device stations, and intelligent device stations.
Data link	Generic term for cyclic transmission and transient transmission.
Transient transmission	Function that carries out communications with other stations at a request from the product.
Fan module	An abbreviation for a fan module for Mitsubishi Electric Industrial PC, MI5FAN.
Master station	Station that controls the whole network. This can carry out cyclic transmission and transient transmission with all stations. Only one can be situated on each network.
Remote I/O station	Station that carries out cyclic transmission of bit unit input/output signals with the master station.
Remote device station	A station that performs cyclic transmission for bit input/output signals and word input/output data. This station responds to a transient transmission (request) from another station.
Link scan (link scan time)	Time required for every station on the network to transmit data in order one time. The link scan time will vary depending on the data quantity and transient transmission requests.
Local station	Station that carries out cyclic transmission and transient transmission with master station and other local stations.
Virtual Ethernet	A virtual network that connects the Windows part and VxWorks part in a MELIPC.
Disconnection	Process that stops data linkage at data link abnormality.
Relay Station	Station that relays data links to other networks.
Power supply module	An abbreviation for a power supply module for Mitsubishi Electric Industrial PC, MI5A1P.
Reset	Process that restarts a data link when a faulty station returns to normal status.
Main module	An abbreviation for a main module for Mitsubishi Electric Industrial PC, MI5122.

MEMO

PART 1 FUNCTIONS FOR Windows PART

This part explains the functions for the Windows part.

1 DIAGNOSTIC AND MAINTENANCE FUNCTIONS

This section explains the diagnostic and maintenance functions of the Windows part.

1.1 Watchdog Timer (WDT) Function

This function detects hardware errors of the Windows part of this product.

Watchdog timer types

The watchdog timers that run on the Windows part are as follows.

Point

The watchdog timers of the Windows part and VxWorks part run independently. For the watchdog timers of the VxWorks part, refer to the following page.

☞ Page 98 Watchdog Timer (WDT) Function

Function name		Description
Windows part	System watchdog timer	Detects errors (system hang-ups, etc.) in the system programs of the Windows part stemming from hardware abnormalities. *1

*1 Time-up errors may be detected from hang-ups of the user application.

Monitoring time setting

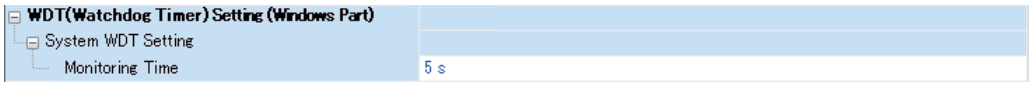
This section shows the method for setting a watchdog timer monitoring time.

System watchdog timer

A system watchdog timer can be set in "System WDT Setting" of "WDT(Watchdog Timer) Setting (Windows part)".

Window

[Basic Parameter] ⇨ [RAS Setting] ⇨ [WDT(Watchdog Timer) Setting (Windows part)]



Displayed items

Item	Description	Setting range
Monitoring time	Set the system watchdog timer monitoring time.	1 to 600 (s) (1 s units) (Default: 5 s)

Monitoring start and reset

This section shows the timing to start and reset monitoring a watchdog timer.

Function name		Description
Windows part	System watchdog timer	The system automatically starts monitoring, and resets using periodic processing. The system can acquire the actual measured value of the time interval to reset the system watchdog timer. (☞ Page 19 Reset interval of system watchdog timer) If system processing has been suspended for a long time because of a hardware failure of this product or execution of an interrupt program, a watchdog timer timeout occurs. (☞ Page 19 Operation during a timeout of the watchdog timer)

Reset interval of system watchdog timer

The system watchdog timer is reset by the system at fixed cycles. However, the reset time interval may be longer than the prescribed cycle due to the execution of an interrupt program or other issue. The time taken for a reset[*1] can be checked by the buffer memory. (☞ Page 280 List of Buffer Memory)

*1 Time for the initial reset after the power supply of this product was turned ON, or time from a reset of the watchdog timer to the next reset.

Operation during a timeout of the watchdog timer

This section shows the operating statuses during a timeout of the watchdog timer.

If the watchdog timer is timed-up, this provides a notification displaying an error (a watchdog timer error) to the effect that a time in excess of that set in watchdog timer monitoring settings has elapsed.

Point

The following table lists the LED display and operation statuses that change due to a timeout of the watchdog timer. LED display and operation statuses other than those listed do not change due to a timeout.

Function name		Description
Windows part	System watchdog timer	■Operating status • Windows restart determination(☞ Page 95 Self Diagnostics Function) • Notification of error (watchdog timer error) ■LED status • MAIN ERR LED: On

MEMO

PART 2 FUNCTIONS FOR VxWorks PART

This part explains the functions for the VxWorks part.

2 CLOCK FUNCTION

On this product, the Windows part and VxWorks part have clocks that run independently. This function manages the clock of the system functions of this product, such as the dates of event history.

2.1 Clock Setting Function

This function sets the clock data of the clock managed by the VxWorks part.

Clock data

The following shows clock data handled by the product.

Name	Description
Year	Four digits (from 1980 to 2079)
Month	1 to 12
Day	1 to 31 (leap year automatic adjustment)
Hour	0 to 23 (24 hours)
Minute	0 to 59
Second	0 to 59
Day of week	Sunday, Monday, Tuesday, Wednesday, Thursday, Friday, Saturday

Clock data setting

The clock data can be configured as follows.

■ MI Configurator

Data is configured by the clock settings of MI Configurator.

[Online] ⇨ [Clock Settings]

■ C Controller module dedicated function

Data is configured by the C Controller module dedicated function (CCPU_SetRTC).

• Function list

Function name	Description
CCPU_SetRTC	Sets the clock data (local time) of a MELIPC.

For details on the C Controller module dedicated functions, refer to the following manual.

MELIPC MI5000 Series Programming Manual (VxWorks)

■ SNTP Server

Acquires and applies time information from an SNTP server constructed externally. (☞ Page 30 Time Setting Function (SNTP Client))

Point

When the clock data is changed, the following operation is performed.

• Milliseconds are reset to 0.

• Clock settings (event code: 24000H) are logged in the event history.

Clock data reading

Data is read by the C Controller module dedicated function (CCPU_GetRTC).

• Function list

Function name	Description
CCPU_GetRTC	Acquires the clock data (local time) of a MELIPC.

For details on the C Controller module dedicated functions, refer to the following manual.

MELIPC MI5000 Series Programming Manual (VxWorks)

Precautions

■ Clock data during initial operation

Since the clock data is not set at the factory, be sure to set the certain data.

■ Configuration of clock data by a user application

Always use the C Controller module dedicated function (CCPU_SetRTC) to configure the clock data by a user application. If another function is used, the correct clock data may not be configured.

■ Clock date and time zone

The clock data range is the range when the time zone is 'UTC'.

When clock data will be changed from MI Configurator or another tool, consider the time zone setting, and then set a value within the range.

■ Operation during momentary power failure

The clock (RTC) managed by the VxWorks part continues running on battery (backup power supply) even when the power of this product is turned OFF or a momentary power failure exceeds the allowable time. However, if a battery (backup power supply) is not installed, clock data is not retained.

2.2 Time Zone Setting Function

This function configures the time zone of the clock managed by the VxWorks part.

The clock managed by the VxWorks part can be set to the time zone of the region in which it will be used.

Point

Use Windows standard functions to set time zone settings for the clock in Windows.

Time zone settings

The time zone is configured by "Clock Settings" of "Clock Simple Settings".

The configured time zone will be applied after the power supply of this product is turned OFF to ON or this product is reset.

Window

[Basic Parameter] ⇨ [Operation Related Setting] ⇨ [Clock Related Setting] ⇨ [Clock Simple Settings] ⇨ [Clock Settings]

Displayed items

Item	Description	Setting range
Time Zone (Hour)	Configures the hour of the time zone.	• UTC+14 • UTC+13 • UTC+12 • UTC+11 • UTC+10 • UTC+9 • UTC+8 • UTC+7 • UTC+6 • UTC+5 • UTC+4 • UTC+3 • UTC+2 • UTC+1 • UTC+0 • UTC-0 • UTC-1 • UTC-2 • UTC-3 • UTC-4 • UTC-5 • UTC-6 • UTC-7 • UTC-8 • UTC-9 • UTC-10 • UTC-11 • UTC-12 (Default: UTC+9)
Time Zone (Minute)	Configures the minute of the time zone.	• 00 • 15 • 30 • 45 (Default: 00)
Comment	Configures a comment for the time zone.	32 characters or less (Unicode) (Default: Blank)

Point

When changing the time zone, the product time is changed to that of the new time zone.
If the time zone is changed to 'UTC+0' when the time zone of this product is 'UTC +9' and the time is '9:00', the time of this product will be '0:00'.

Precautions

■ If the time zone has been changed from the default

When this product is initialized, the parameters become the default settings. When the time zone is configured again, change the clock data as well.

■ Time zone settings on the Windows part

Match the time zone settings of the VxWorks part with the time zone settings of the Windows part. If the settings of the VxWorks part and Windows part do not match, time data such as error and event occurrence times may not match.
The time zone of the Windows part is configured by "Date and time".

Windows Start ⇨ [Windows System Tools] ⇨ [Control Panel] ⇨ [Clock, Language, and Region] ⇨ [Date and Time]

Point

- If the time zone is changed, the start time and end time of daylight saving time is changed automatically when switching between daylight saving time and winter time to match the changed time zone in accordance with Windows specifications. For details, check the specifications of Windows.
- By using the Clock Simple Settings of MI Configurator, the VxWorks part setting can be matched easily with the setting of the Windows part. (☞ Page 162 Clock Related Setting)

2.3 Daylight Saving Time Setting

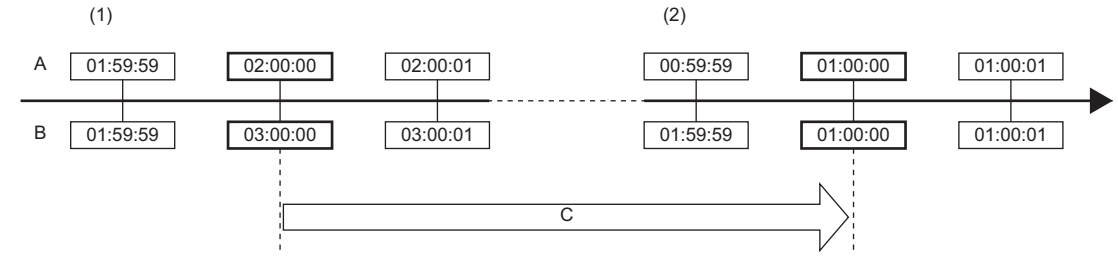
This function configures daylight saving time (summer time) of the clock managed by the VxWorks part.
The time of the clock managed by VxWorks part moves forward and backward one hour on the start and end dates of daylight saving time, respectively.

Point

Use Windows standard functions to set daylight saving time settings for the clock in Windows.

Ex.

If daylight saving time starts from 2:00 on the second Sunday in March (1), and ends at 2:00 on the first Sunday in November (2)



A: Before correction
B: After correction
C: Daylight saving time

Daylight saving time settings

Daylight saving time is configured by "Setting to Adjust Clock for Daylight Saving Time" of "Clock Settings".

Restriction

- The same month cannot be specified for the start and end of daylight saving time.
- February 29 cannot be specified directly. This can be specified by selecting the last day of February.

Window

[Basic Parameter] ⇨ [Operation Related Setting] ⇨ [Clock Related Setting] ⇨ [Clock Simple Settings] ⇨ [Clock Settings] ⇨[Setting to Adjust Clock for Daylight Saving Time]

Setting to Adjust Clock for Daylight Saving Time	
Adjust Clock for Daylight Saving Time	Disable
Start/End Time Specification Method	Week
Week	
Start	
Month	3
Week	2nd Week
Day of Week	Sunday
Time	2:00
End	
Month	11
Week	1st Week
Day of Week	Sunday
Time	2:00
Date	
Start	
Month	3
Day	1
Time	2:00
End	
Month	11
Day	1
Time	2:00

Displayed items

Item			Description	Setting range
Adjust Clock for Daylight Saving Time			Set to enable or disable daylight saving time.	• Disable • Enable (Default: Disable)
Start/End Time Specification Method			Set the timing of the switch to daylight saving time.	• Week • Date (Default: Week)
Week	Start	Month	Set the daylight saving time start date.	1 to 12 (Default: 3)
		Week		The Last Week, 1st Week to 4th Week (Default: 2nd Week)
		Day of week		Sunday to Saturday (Default: Sunday)
		Time		0:00 to 23:00 (Default: 2:00)
	End	Month	Set the daylight saving time end date.	1 to 12 (Default: 11)
		Week		The Last Week, 1st Week to 4th Week (Default: 1st Week)
		Day of Week		Sunday to Saturday (Default: Sunday)
		Time		0:00 to 23:00 (Default: 2:00)
Date	Start	Month	Set the daylight saving time start date.	1 to 12 (Default: 3)
		Day		The Last Date, 1 to 31 (Default: 1)
		Time		0:00 to 23:00 (Default: 2:00)
	End	Month	Set the daylight saving time end date.	1 to 12 (Default: 11)
		Day		The Last Date, 1 to 31 (Default: 1)
		Time		0:00 to 23:00 (Default: 2:00)

Daylight saving adjustment timing

The following shows the daylight saving adjustment timing.

Product daylight saving time is adjusted at the following times.

- On the start date and end date of daylight saving time
- When turning the power supply of this product OFF to ON or at a reset of this product

Operation during daylight saving time

The following shows the product operation during daylight saving time.

While using daylight saving time, functions that use clock data operate as follows.

Function name	Description
Clock data reading	Reads clock data following adjustment for daylight saving time.
Clock data writing	Writes clock data following adjustment for daylight saving time.

Daylight saving time operation check

Daylight saving time function operation can be checked as follows.

■ Event history

The start/end history of daylight saving time is saved. (☞ Page 109 Event History Function)

Precautions

■ On the start date and end date of daylight saving time

- The clock data cannot be changed to less than one hour from the starting time of the daylight saving time.
- For the period less than one hour from the start time or less than one hour until the end time of daylight saving time, functions that are triggered by time may not work because of a time condition not being met or may work twice because of a time condition being met twice.
- Setting of clock data within one hour from the daylight saving time end will result in different set execution times being set depending on whether within or outside daylight saving time.

■ Occurrence dates during daylight saving time

When daylight saving time setting is enabled, operation occurs using the date and time information after the correction for daylight saving time. As a result, dates and times output by functions that use clock data switch from "before correction" to "after correction", and sorting in order of occurrence number and date and time of occurrence may not match. Consequently, when checking output results in chronological order, sort by occurrence number, not date and time of occurrence.

■ Daylight saving time settings of the Windows part

Match the daylight saving time settings of the VxWorks part with the daylight saving time settings of the Windows part. If the settings of the VxWorks part and Windows part do not match, time data such as error and event occurrence times may not match.

To enable the time zone settings of the Windows part, browse to "Date and Time", "Time Zone Settings", and then select the "Automatically adjust clock for Daylight Saving Time" check box. *1

*1 Daylight saving time can be configured if a time zone that uses daylight saving time is set.

Windows Start ⇨ [Windows System Tools] ⇨ [Control Panel] ⇨ [Clock, Language, and Region] ⇨ [Date and Time]

Point

If the time zone is changed, the start time and end time of daylight saving time is changed automatically when switching between daylight saving time and winter time to match the changed time zone in accordance with Windows specifications. For details, check the specifications of Windows.

2.4 Clock Data Synchronization Setting Function

This function synchronizes the clock managed by the Windows part and the clock managed by the VxWorks part.

Precautions

If the clock data synchronization setting is used, data is overwritten by the clock data of the synchronization origin even if the clock data of the synchronization destination is changed. When the time synchronization setting is used, always manipulate the clock of the synchronization origin.

Synchronization setting

The synchronization of clock data is configured by "Clock data synchronization setting" of "Time Setting".

Window

[Basic Parameter] ⇨ [Operation Related Setting] ⇨ [Time Setting] ⇨ [Clock Data Synchronization Settings]

Displayed items

Item	Description	Setting range
To Use or Not to Clock Data Synchronization Settings	Configure whether to use the clock date synchronization setting.	• Use • Not Use (Default: Use)
Synchronous Source	Specify the clock data to be the basis of synchronization.	VxWorks part
Synchronous Cycle	Specify the cycle interval to synchronize the clock data.	1 to 1440 minutes (Default: 60 minutes)

■ When the synchronization setting is not used

The clock managed by the Windows part and the clock managed by the VxWorks part run independently. Therefore, if one clock is changed, the other clock is not synchronized. If necessary, configure the clock data of both clocks managed by the Windows part and VxWorks part.

Synchronization timing

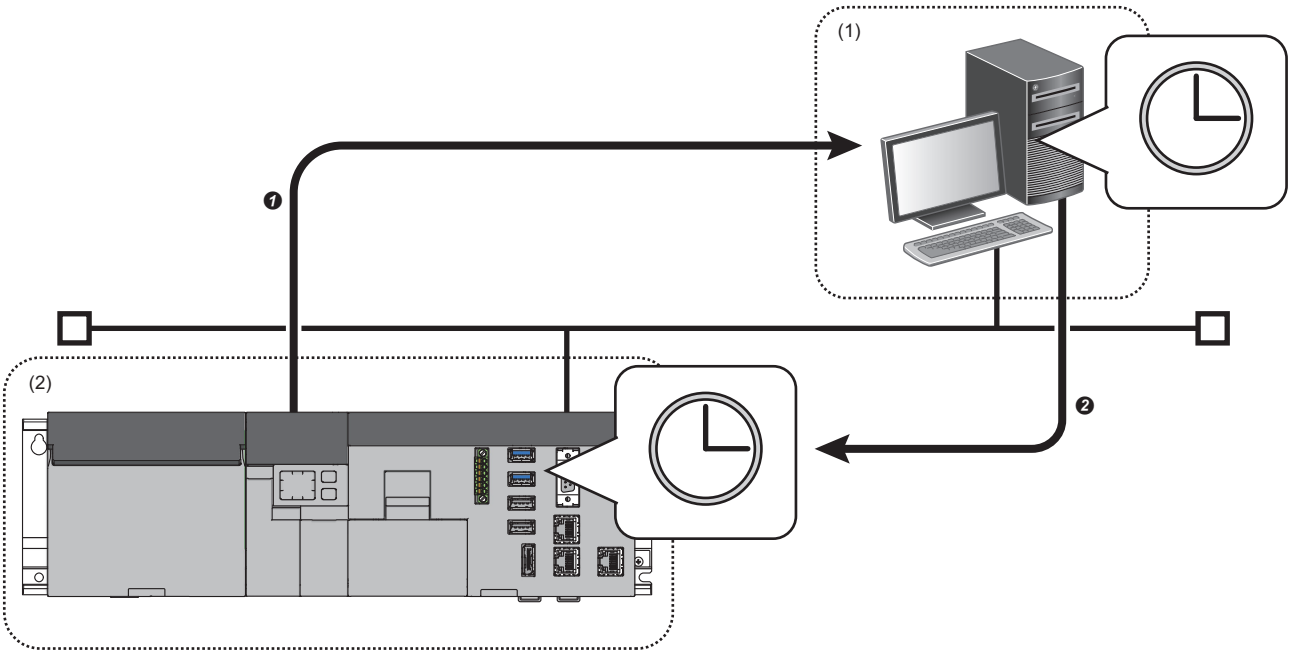
When "Use" was configured for "To Use or Not to Clock Data Synchronization Settings", clock data is synchronized at the following times.

- Synchronous cycle
- When the power supply of this product is turned ON
- When the clock managed by the VxWorks part is changed*1

*1 Synchronization occurs with a change by any of the following operations.
·Time is configured by MI Configurator
·Time is configured from the SNTP server
·Time is configured by the C Controller module dedicated function (CCPU_SetRTC).

2.5 Time Setting Function (SNTP Client)

This function collects time information at the specified time from the time information server (SNTP server) connected to the network and automatically configures the time of the VxWorks part of this product.



(1) SNTP server
(2) MELIPC

❶A time inquiry message is sent to the SNTP server.
❷The time acquired from the SNTP server is configured to the clock managed by the VxWorks part of this product.

Point

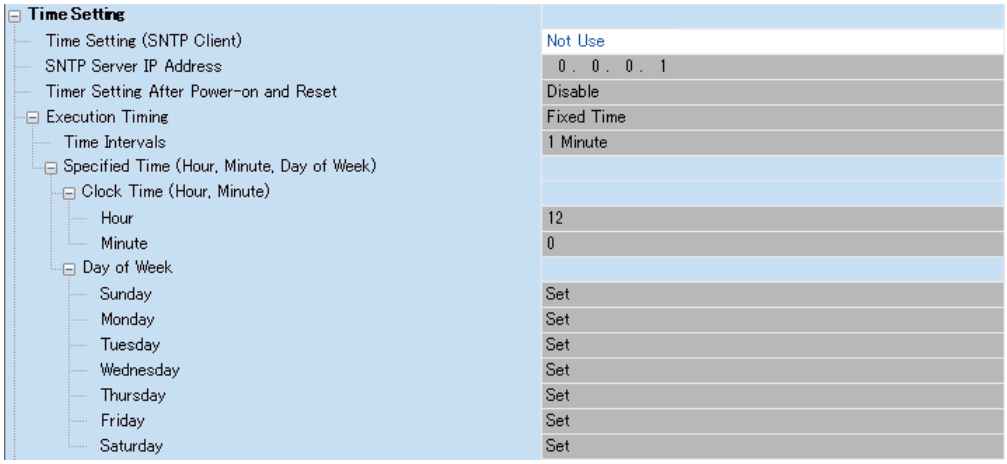
The time information acquired from the SNTP server is Coordinated Universal Time (UTC). The time configured to the VxWorks part is the time after correction of the acquired time information to match the time zone configured for the VxWorks part.

Time Setting

Time is configured by "Time Setting" of "Operation Related Setting".

Window

[Basic Parameter] ⇨ [Operation Related Setting] ⇨ [Time Setting]



Displayed items

Item			Description	Setting range
Time Setting (SNTP Client)			Configure whether to use time setting (SNTP client).	• Not Use • Use (Default: Not Use)
SNTP Server IP Address			Set the IP address of the SNTP server.	0.0.0.1 to 223.255.255.254 (Default: 0.0.0.1)
Timer Setting After Power-on and Reset			Configure whether to configure the time after the power supply is turned ON or a reset.	• Not Execute • Execute (Default: Not Execute)
Execution Timing			Set the execution timing of the time setting.	• Specified Time • Regular Intervals (Default: Specified Time)
—	Regular Intervals		When "Regular Intervals" is selected, set the time interval (minute) for the time setting.	1 to 1440 minutes (Default: 1 minute)
	Specified Time (Hour, Minute, Day of Week)	Clock Time (Hour, Minute)	When "Specified Time" is selected for the execution timing, set the time (hour, minute) at which time is configured.	• Hour: 0 to 23 (Default: 12) • Minute: 0 to 59 (Default: 0)
		Day of Week	When "Specified Time" is selected for the execution timing, set the day of the week on which time is configured.	• Set • Not Set (Default: Set)

Execution timing of time setting

When "Use" was configured for "Time configuration (SNTP client)", time is configured at the following times.

- When the power supply of this product is turned ON or this product is reset
- Specified fixed cycle interval
- Specified fixed time

Precautions

■ Communication timeout

A communication timeout results when there is no response from the SNTP server within 20 seconds from the time inquiry.

When a communication timeout occurs, there is no error, but the event of the timeout occurrence is saved to the event history.

(☞ Page 251 Event List)

■ SNTP Server

An SNTP server is necessary on the network connecting this product.

■ Delay by communication time

The time to be set may be delayed by the time required to communicate with the SNTP server.

For a high-accuracy time setting, specify an SNTP server on the network that is as close to this product as possible.

3 PROGRAMMABLE CONTROLLER DEVICE MEMORY FUNCTION

This function enables access from external devices to devices of programmable controller CPUs held in memory by this product.
Use this function to issue control commands from GOT and MELSOFT products or display the operating status or other information.

Supported devices

For details on accessible devices, refer to the following page.
☞ Page 254 Device List

Access to devices

Device values can be changed and current values can be checked on the devices of this product by using one of the following methods.

Point

Buffer memory access devices of this product can be accessed by specifying the CPU buffer memory access device. Access using CPU No.1 (U3E0) as the I/O number of the CPU module and CPU buffer memory (Gn) as the area of the CPU buffer memory.

■ MI Configurator

Access using device/buffer memory batch monitoring of MI Configurator.

[Online]⇨[Monitor]⇨[Device/buffer memory batch monitoring]

Point

A device can be accessed in the same way as Device/buffer memory batch monitoring by registering the device to the watch window.

■ C Controller module dedicated functions and MELSEC data link functions

Use C Controller module dedicated functions and MELSEC data link functions.

• Function list

Objective	Function name	Description
Writing data to device	CCPU_ResetDevice	Resets internal user devices and internal system devices (bit devices) of a MELIPC.
	CCPU_SetDevice	Sets internal user devices and internal system devices (bit devices) of a MELIPC.
	CCPU_ToBuf	Writes data to the buffer memory of a MELIPC.
	CCPU_WriteDevice	Writes data to internal user devices and internal system devices of a MELIPC.
	CCPU_WriteLinkDevice	Writes data to link devices of CC-Link IE Field Network.
	mdDevRstEx	Resets bit devices.
	mdDevSetEx	Sets bit devices.
	mdRandWEx	Writes data by specifying a device type and a range to be written.
	mdSendEx	Writes data to devices in a batch.
Writing data to device (During interrupt)	CCPU_ResetDevice_ISR	Resets internal user devices and internal system devices (bit devices) of a MELIPC.
	CCPU_SetDevice_ISR	Sets internal user devices and internal system devices (bit devices) of a MELIPC.
	CCPU_ToBuf_ISR	Writes data to the buffer memory of a MELIPC.
	CCPU_WriteDevice_ISR	Writes data to internal user devices and internal system devices of a MELIPC.
	CCPU_WriteLinkDevice_ISR	Writes data to link devices of CC-Link IE Field Network.
Reading data from device	CCPU_FromBuf	Reads data from the buffer memory of a MELIPC.
	CCPU_ReadDevice	Reads data from the internal user devices and internal system devices of a MELIPC.
	CCPU_ReadLinkDevice	Reads data from link devices of CC-Link IE Field Network.
	mdRandREx	Reads data by specifying a device type and a range to be read.
	mdReceiveEx	Reads data from devices in a batch.
Reading data from device (During interrupt)	CCPU_FromBuf_ISR	Reads data from the buffer memory of a MELIPC.
	CCPU_ReadDevice_ISR	Reads data from the internal user devices and internal system devices of a MELIPC.
	CCPU_ReadLinkDevice_ISR	Reads data from link devices of CC-Link IE Field Network.

For details on the C Controller module dedicated functions and MELSEC data link functions, refer to the following manual.

MELIPC MI5000 Series Programming Manual (Windows)

MELIPC MI5000 Series Programming Manual (VxWorks)

■ GOT and MELSOFT products

Refer to the manual of the product to be used.

Clearing of device values

The values of devices of this product can be cleared.

The following table shows devices that can be cleared.

Item	Description
Clearing of device	The all values of the devices (M, B, D, and W) of the product are set to 0.
Clearing of file register	The all values of the file register (ZR) of the product are set to 0.

Point

During clearing of devices, the values of other than devices (not M, B, D, and W) and the buffer memory are not cleared.

Operating procedure

Device values are cleared by an MELIPC memory operation.

[Online]⇨[MELIPC memory operation]⇨[Clearing of values]

Precautions

- Clear device values when the operating status of this product is STOP. If the status is RUN, an error occurs.
- If the power supply of this product is turned OFF to ON or the product is reset while the file register is being cleared, the clearing of the file register may not be completed normally. Clear the file register again.

4 SLMP FUNCTION

This function reads and writes data using SLMP between the VxWorks part and SLMP compatible products or the Windows part of this product.

Function

The following table shows the SLMP communication functions compatible with this product.

○: Supported ×: Unsupported

Function		Supported
SLMP server functions	Returns SLMP response messages for SLMP request messages from external devices or the Windows part of this product.	○
SLMP client functions	Sends SLMP request messages to devices supporting SLMP.	×

For details on SLMP, refer to the following manual.

SLMP Reference Manual

4.1 SLMP Server Functions

This product supports the SLMP server function. This function can write and read device data of the VxWorks part of this product from SLMP compatible devices, such as personal computers and display equipment (GOT, etc.), or the Windows part using SLMP.

Operation monitoring and data analysis of this product can be performed by this function.

Point

Use the following routes for communication with SLMP compatible devices or the Windows part.

- SLMP compatible device: communicate via Ethernet using the Ethernet port (CH1).
- Windows part: communicate using virtual Ethernet. (☞ Page 150 Virtual Ethernet Function)

Precautions

This product does not support the relay function.

SLMP requests cannot be relayed to other stations via the CC-Link IE Field Network.

Data Exchange Frame/Data Code

The following table shows the data exchange frames and data codes compatible with this product.

○: Supported ×: Unsupported

Frame	Data code	Compatibility
4E frame	ASCII code	×
	Binary code	
QnA compatible 3E frame	ASCII code	×
	Binary code	○
A compatible 1E frame	ASCII code	×
	Binary code	

Connection method

This section shows the connection method with an SLMP supported device.

Settings of this product

Set a connection configuration in "External Device Configuration" of "Basic Settings". (☞ Page 181 External Device Configuration)

Supported commands

This section shows the SLMP commands supported by this product.

For details on SLMP commands, refer to the following manual.

SLMP Reference Manual

Item		Command	Subcommands*1	Description
Type	Operation			
Device	Read	0401	• 00□1 • 00□3	Reads values from bit devices (consecutive device number) in 1-point units.
			• 00□0 • 00□2	• Reads values from bit devices (consecutive device number) in 16-point units. • Reads values from word devices (consecutive device number) in 1-word units.
	Write	1401	• 00□1 • 00□3	Writes values to bit devices (consecutive device number) in 1-point units.
			• 00□0 • 00□2	• Writes values to bit devices (consecutive device number) in 16-point units. • Writes values to word devices (consecutive device number) in 1-word units.
	Read Random	0403	• 00□0 • 00□2	Reads values from word devices in 1-word units or 2-word units by specifying device number. Nonconsecutive device numbers can be specified.
	Write Random	1402	• 00□1 • 00□3	Writes values to bit devices in 1-point units by specifying device number. Nonconsecutive device numbers can be specified.
			• 00□0 • 00□2	• Writes values to bit devices in 16-point units by specifying device number. Nonconsecutive device numbers can be specified. • Writes values to word devices in 1-word units or 2-word units by specifying device number. Nonconsecutive device numbers can be specified.
	Read Block	0406	• 00□0 • 00□2	Reads data by specifying multiple blocks as regarding one block as n-point of word devices or bit devices (1-point is 16-bit). Nonconsecutive device numbers can be specified.
	Write Block	1406	• 00□0 • 00□2	Writes data by specifying multiple blocks as regarding one block as n-point of word devices or bit devices (1-point is 16-bit). Nonconsecutive device numbers can be specified.
Remote Control	Remote Run	1001	0000	Performs remote RUN to the access target module.
	Remote Stop	1002	0000	Performs remote STOP to the access target module.
	Remote Reset	1006	0000	Performs remote RESET to the access target module.
	Read Type Name	0101	0000	Reads model and model code of the access target module.
File	Read Directory/ File	1810	0040	Reads information list of the file.
	Search Directory/ File	1811	0040	Reads fine number and existence of the specified file.
	New File	1820	0040	Reserves the storage area in the specified file.
	Delete File	1822	0040	Deletes files.
	Copy File	1824	0040	Copies the specified file.
	Change File State	1825	0040	Changes the file attribute.
	Change File Date	1826	0040	Changes the file creation date.
	Open File	1827	0040	Locks the file in order that the file content is not changed form other devices.
	Read File	1828	0000	Reads the content of a file.
	Write File	1829	0000	Writes content to a file.
	Close File	182A	0000	Unlocks a file with open processing.

*1 The □ section of the command depends on the device to be specified.
For details, refer to the following manual.
SLMP Reference Manual

Precautions

■ Processing points for tests (random write)

For the processing points for tests (random write), refer to the following manual.

📖SLMP Reference Manual

■ drive number

The drive number of a drive that performs file control is handled in the same way as a module of the MELSEC iQ-R series.

The following table shows the correspondence of the specified drive number and the drive number of this product.

(Incompatible drives cannot be accessed.)

drive number	Target drive	Target drive of this product
0001H	Device/label memory	/ROM
0002H	SD memory card	(Incompatible)
0003H	Device/label memory	/ROM
0004H	Data Memory	/ROM

Available devices

The following table shows devices that can be used in the SLMP server function.

Classification	Device name (device)	Device code	device range	
Internal user device	Internal relay (M)	90H	☞ Page 254 Device List	DEC
	Data register (D)	A8H		DEC
	Link relay (B)	A0H		HEX
	Link register (W)	B4H		HEX
Internal system device	Special relay (SM)	91H		DEC
	Special register (SD)	A9H		DEC
CC-Link IE Field Network link direct device*1,*2	Link input (X)	9CH		HEX
	Link output (Y)	9DH		HEX
	Link special relay (SB)	A1H		HEX
	Link register (W)	B4H		HEX
	Link special register (SW)	B5H		HEX
File register (ZR)		B0H		HEX
Buffer memory access device (G)*3		ABH		DEC

*1 To use link direct devices, it is necessary to specify subcommands and extension specifications in addition to device codes.
For details, refer to the following manual.
📖SLMP Reference Manual

*2 Link direct devices of CC-Link IE Field Network Basic are accessed by buffer memory access devices. (☞ Page 254 Device List)

*3 To use buffer memory devices, it is necessary to specify subcommands and extension specifications (03E0H) in addition to device codes.
For details, refer to the following manual.
📖SLMP Reference Manual

Error codes at communication

For error codes stored in exit codes of response messages, refer to the following.

- 4000H to 4FFFH: ☞ Page 218 List of Error Codes
- C000H?CFFFH: 📖MELSEC iQ-R Ethernet User's Manual (Application)

5 iQSS FUNCTION

This function makes this product compatible with the iQ Sensor Solution (iQSS).
Device detection and communication configuration can be performed by using MI Configurator for iQSS compatible devices connected to this product.

Supported functions

This product supports the following iQSS functions.

■ CC-Link IE Field Network

Function	Description	Reference
Automatic detection of connected devices	Uses an engineering tool to automatically generate a "Device configuration diagram" of iQSS compatible devices connected to this product.	📖iQ Sensor Solution Reference Manual
Sensor parameter read/write function	Reads or writes parameters of iQSS compatible devices.	

■ Ethernet

Function	Description	Reference
Automatic detection of connected devices	Uses an engineering tool to automatically generate a "Device configuration diagram" of iQSS compatible devices connected to this product.	📖iQ Sensor Solution Reference Manual
Reflection of the communication setting	Reflect communication settings (such as an IP address) to an iQSS supported device connected with Ethernet on the 'Device map area'.	
Sensor parameter read/write function	Reads or writes parameters of iQSS compatible devices.	

■ CC-Link IE Field Network Basic

Function	Description	Reference
Automatic detection of connected devices	Uses an engineering tool to automatically generate a "Device configuration diagram" of iQSS compatible devices connected to this product.	☞ Page 175 Network Configuration Settings
Reflection of the communication setting	Reflect communication settings (such as an IP address) to an iQSS supported device connected with Ethernet on the 'Device map area'.	
Sensor parameter read/write function	Reads or writes parameters of iQSS compatible devices.	

MEMO

6 CC-Link IE Field Network FUNCTION

This function communicates with data and devices on the network through the CC-Link IE Field Network.

6.1 Cyclic Transmission

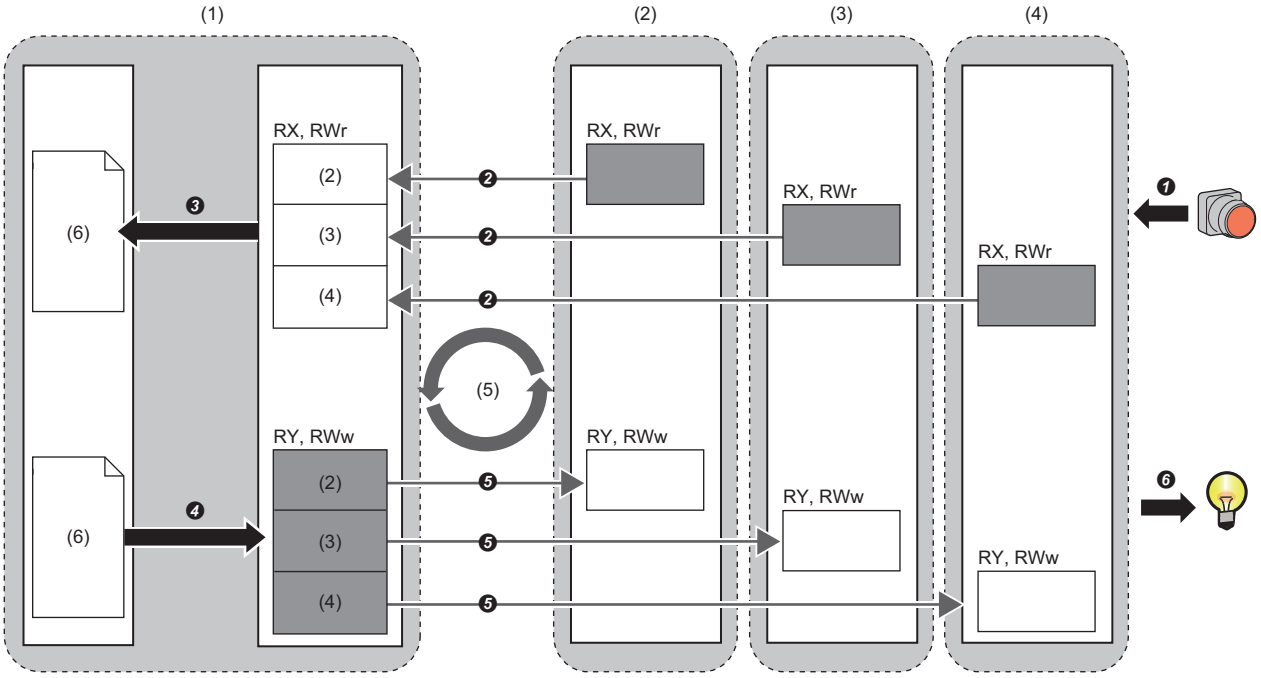
This uses a link device (RX, RY, RWr, RWw), to periodically exchange data between stations on the same network.
Cyclic transmission applies to the data communication for which high-speed, high-frequency read-write is required.

Data flow and link device assignment

This section shows data flow and link device assignment.

If master station and slave station (with exception of local stations)

This can communicate 1:1 between master stations and slave stations.
The input status from slave station external devices is stored in the master station link device (RX, RWr), in the master station link device status (RY, RWw) is output to the slave station external device.



: Transmission area to other station
(1) Master station
(2) Slave station 1
(3) Slave station 2
(4) Slave station 3
(5) Link scan
(6) User program

Point

The order of slave stations is the same as the one set in the network configuration settings. (☞ Page 193 Network Configuration Settings)

• At input from slave station

❶ The slave station link device (RX, RWr) status is output to external devices.

❷ The slave station link device (RX, RWr) status is stored in the master station link device (RX, RWr) using link scan.

❸ The master station link device (RX, RWr) status is read by a user program.

• At output from master station

❹ The master station link device (RY, RWw) status is changed by a user program.

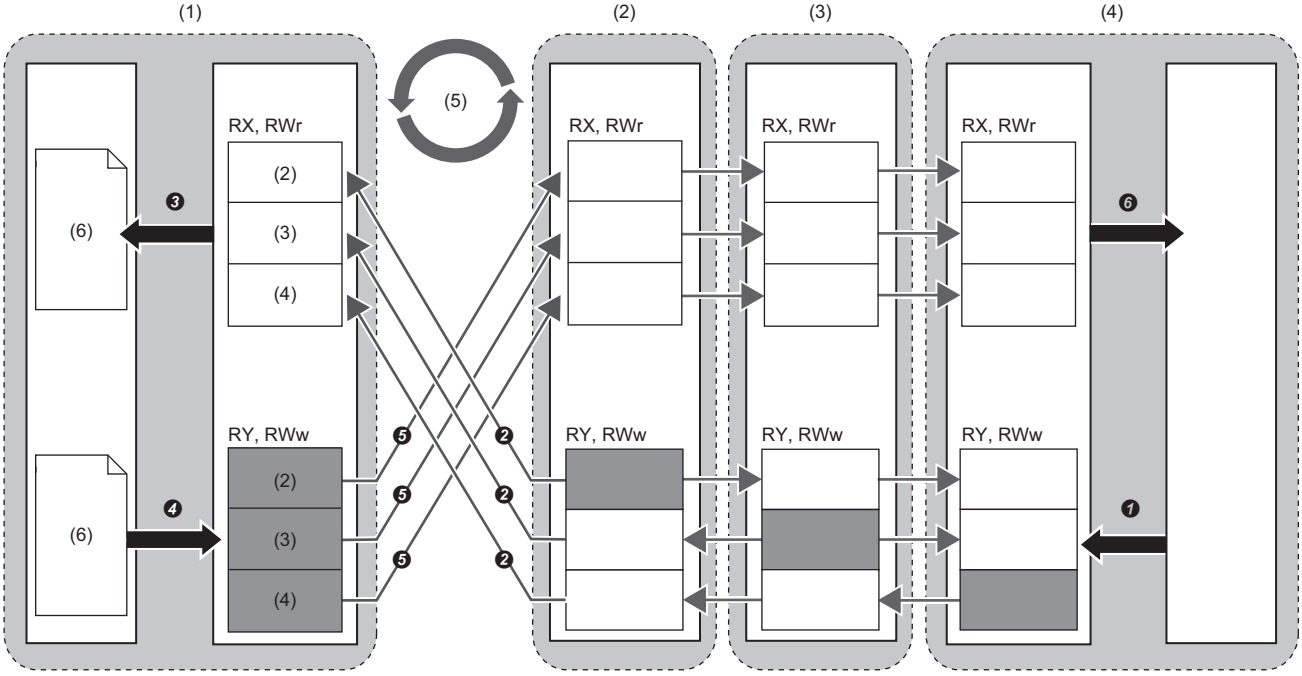
❺ The master station link device (RY, RWw) status is stored in the slave station link device (RY, RWw) using link scan.

❻ The slave station link device (RY, RWw) status is output to external devices.

If master station and local station

Network stations write data to link device (RY, RWw) transmission ranges, and send data to all stations on the network. The master station link device (RY, RWw) status is stored in the local station link device (RX, RWr).

The local station link device (RY, RWw) status is stored in the master station link device (RX, RWr) and other local station link devices (RY RWw).



: Transmission area to other station

(1) Master station
(2) Local station 1
(3) Local station 2
(4) Local station 3
(5) Link scan
(6) User program

• At input from local station

❶ CPU module device status is stored in the link device (RY, RWw) own station transmission range.

❷ The local station link device (RY, RWw) status is stored in the master station link device (RX, RWr) using link scan.

❸ The master station link device (RX, RWr) status is read by a user program.

• At output from master station

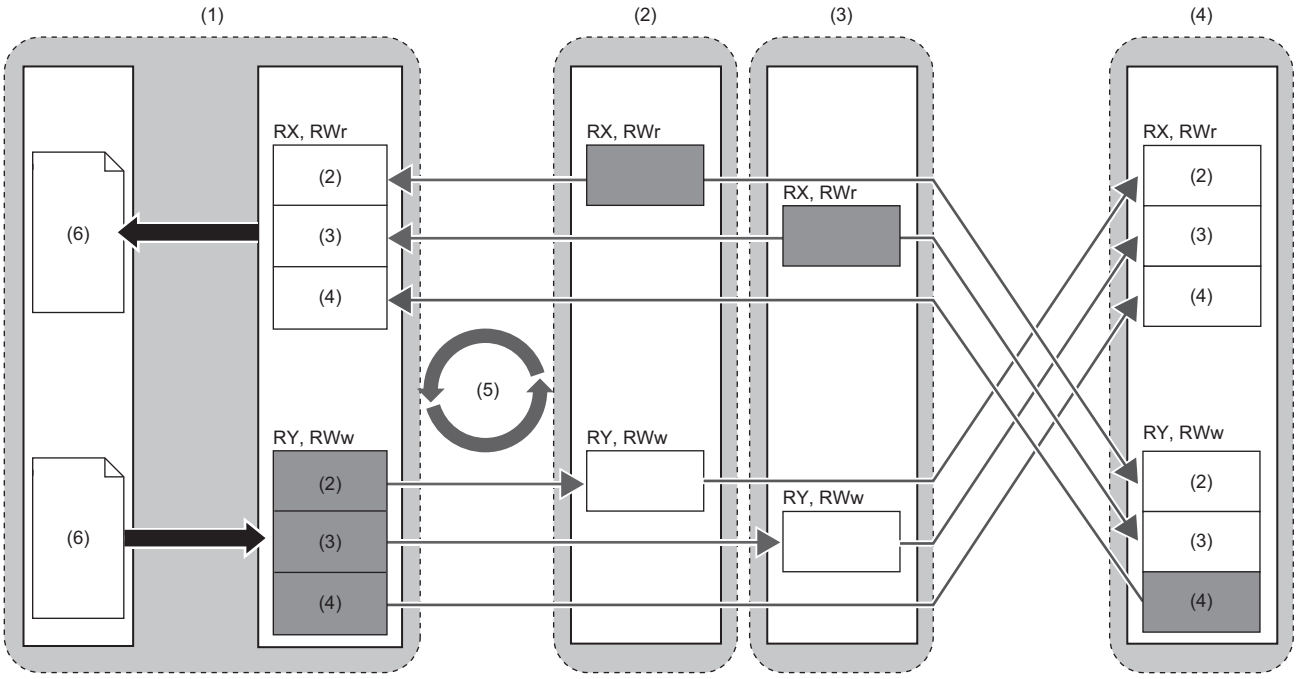
❹ The master station link device (RY, RWw) status is changed by a user program.

❺ The master station link device (RY, RWw) status is stored in the local station link device (RX, RWr) using link scan.

❻ The local station link device (RX, RWr) status is stored in the CPU module device.

If slave station (with exception of local stations) and local stations are mixed

As with master stations, data for all slave stations is stored in the local station as well.



: Transmission area to other station

(1) Master station

(2) Slave station 1*1

(3) Slave station 2*1

(4) Local station

(5) Link scan

(6) User program

*1 The order of slave stations is the same as the one set in the network configuration settings. (☞ Page 193 Network Configuration Settings)

Assignment of link devices

Assign link devices using "Network Configuration Settings" of "Required settings". (☞ Page 193 Network Configuration Settings)

Link scan time

The link scan time will differ depending on the numbers of slave stations and total assigned point numbers of link devices. The link scan time can be set for "Synchronous Communication Settings" under "Required Settings". (☞ Page 191 Required settings (if master station is selected by station type))

Point

Shorten the link scan time by reducing the numbers of slave stations or total assigned point numbers of link devices. At this time, the total assigned point numbers of link devices will be the number of points from the links device start to final number as set in the link device assignment settings.

Effective link device assignment is shown below.

- Use from 0000H for the start device.
- Ensure there are no blanks in the device number.

Access to link devices

Direct access from a user program to link devices (RX, RY, RWr, RWw, SB, and SW) of this product is possible.

Access method

Use C Controller module dedicated functions and MELSEC data link functions to access link devices.

■ Function list

Objective	Function name	Description
Writing data to device	CCPU_WriteLinkDevice	Writes data to link devices of CC-Link IE Field Network.
	mdDevRstEx	Resets bit devices.
	mdDevSetEx	Sets bit devices.
	mdRandWEx	Writes data by specifying a device type and a range to be written.
	mdSendEx	Writes data to devices in a batch.
Writing data to device (During interrupt)	CCPU_WriteLinkDevice_ISR	Writes data to link devices of CC-Link IE Field Network.
Reading data from device	CCPU_ReadLinkDevice	Reads data from link devices of CC-Link IE Field Network.
	mdRandREx	Reads data by specifying a device type and a range to be read.
	mdReceiveEx	Reads data from devices in a batch.
Reading data from device (During interrupt)	CCPU_ReadLinkDevice_ISR	Reads data from link devices of CC-Link IE Field Network.

For details on the C Controller module dedicated functions and MELSEC data link functions, refer to the following manual.

📖MELIPC MI5000 Series Programming Manual (Windows)

📖MELIPC MI5000 Series Programming Manual (VxWorks)

Precautions

■ Assurance of cyclic data

Use assurance of cyclic data (block data assurance per station) to assure cyclic data. (☞ Page 46 Block data assurance per station)

Furthermore, access the link device that underwent data assurance to assure cyclic data that was read or written by a user program. (☞ Page 47 Access to guaranteed linked devices)

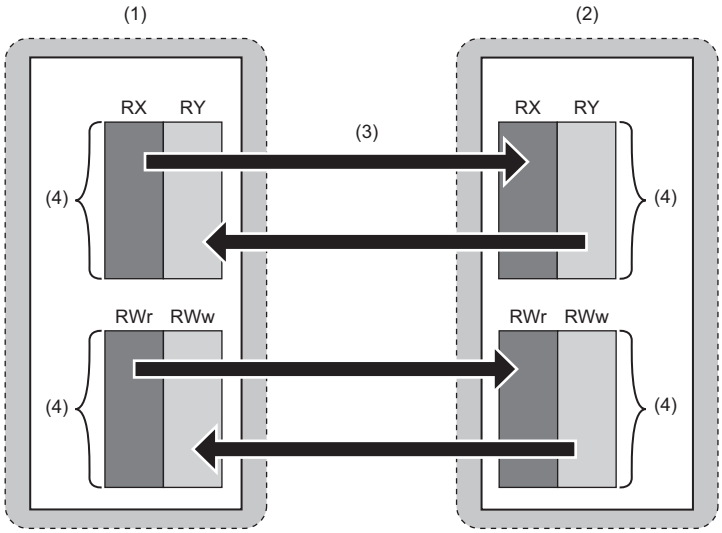
■ Assignment of link devices

If multiple network ranges are assigned during the assignment of link devices, and there is an empty range in the network range assignment, do not change the values of link devices in the empty range. If the values of link devices in the empty range are changed, local stations and other systems may malfunction. When accessing link devices, access devices in the assigned range of the network range.

Block data assurance per station

This guarantees that former data and new data within cyclic data is not mixed.

Devices covered by block data assurance per station are link devices (RX, RY, RWr, RWw).



(1) Master station
(2) Slave station
(3) Cyclic transmission
(4) Data guarantee

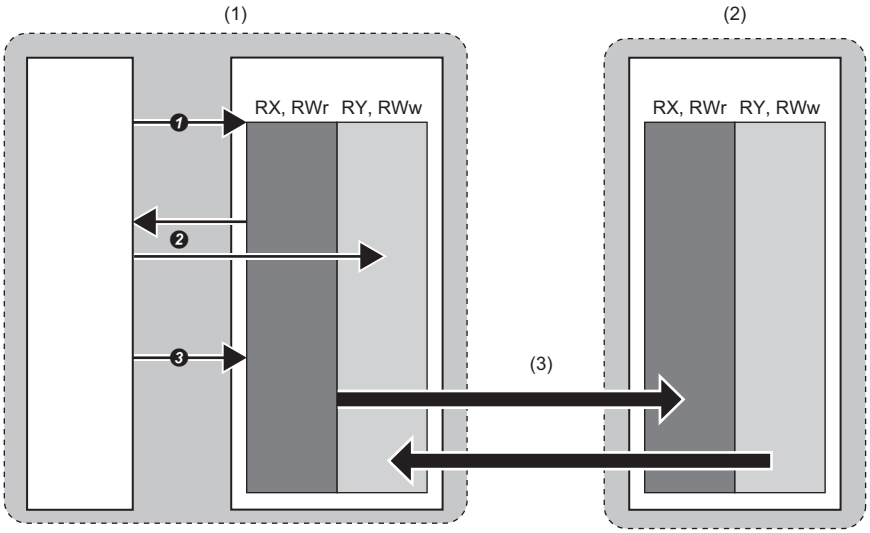
Setting method

The block data assurance per station can be set for "Supplementary Cyclic Settings" in the master station. (☞ Page 185 CC-Link IE Field Network Parameters List)

Setting these in the master station guarantees that data for all stations is managed by station unit.

Access to guaranteed linked devices

This section shows the method for accessing link devices for which block data assurance per station is enabled.
Before and after normal access to linked devices, read/write data is assured manipulating the start and end of assurance of read/write data.



(1) Master station
(2) Slave station
(3) Cyclic transmission

No.	Operation	Status
❶	Start the assurance of read/write data. • CCPU_StartLinkDeviceAssurance	Update stops of the link device input status for own station (RX, RWr) and the output status (RY, RWw) from own station to other stations.
❷	Read/write the link device. • CCPU_ReadLinkDevice • CCPU_WriteLinkDevice	■Read data Update is stopped of the link device input status for own station (RX, RWr), so the read data is assured. ■Write data Update of the link device input status from own station (RY, RWw) to other stations is stopped, so the read data is not sent to slave stations.
❸	Assurance of read/write data is ended. • CCPU_EndLinkDeviceAssurance	Restart refresh of link device input status for own station (RX, RWr) and for output status (RY, RWw) for own station to other stations. (The own station output status written in Step ❷ undergoes data assurance and is sent to other stations.)

■ Function list

Function name	Description
CCPU_StartLinkDeviceAssurance	Starts data assurance for access to a link device of CC-Link IE Field Network.
CCPU_EndLinkDeviceAssurance	Ends data assurance for access to a link device of CC-Link IE Field Network.
CCPU_ReadLinkDevice	Reads data from link devices of CC-Link IE Field Network.
CCPU_WriteLinkDevice	Writes data to link devices of CC-Link IE Field Network.

For details on the C Controller module dedicated functions, refer to the following manual.
MELIPC MI5000 Series Programming Manual (VxWorks)

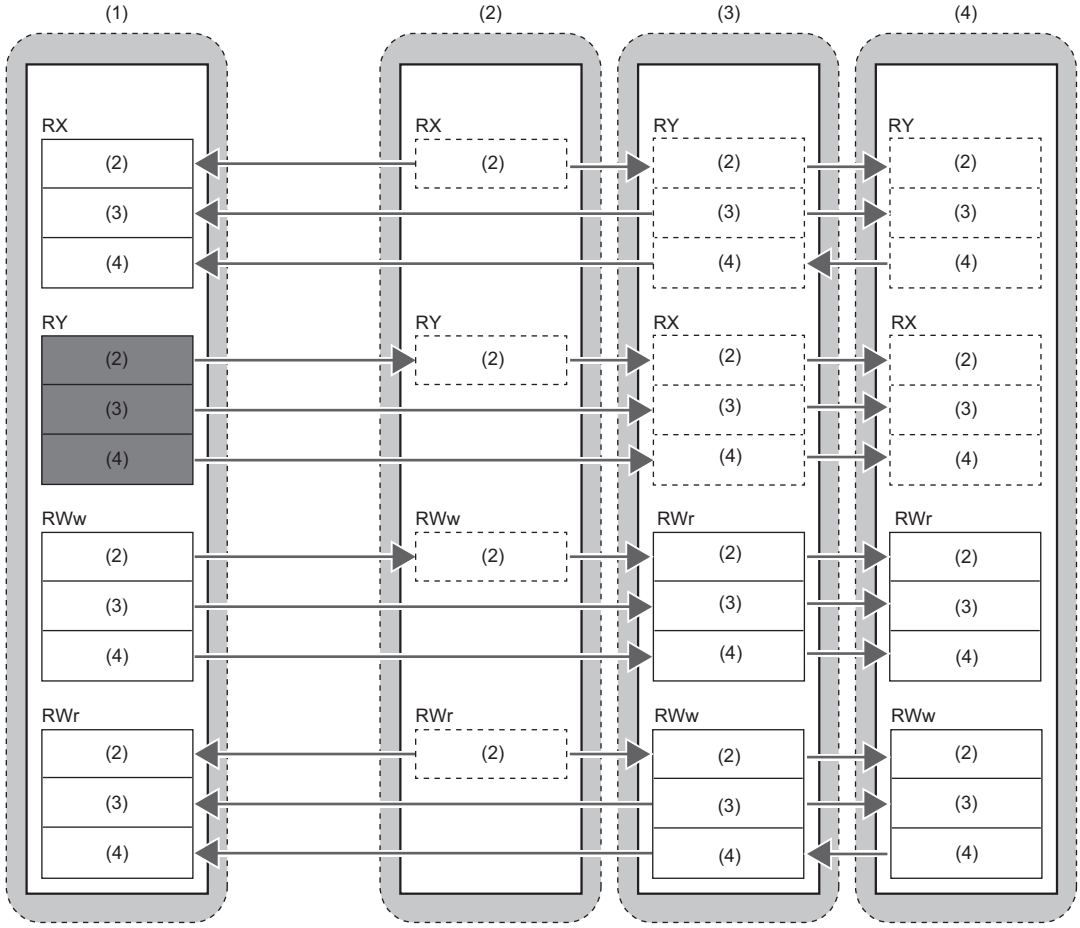
Precautions

After starting data assurance of link devices, always end it. Otherwise, the updating of the input status for own station link devices and the output status of link devices from own station to other stations does not restart.

Operations of input status and output status during an error

The following table shows the operations of the input status from data-link error stations and the output status of cyclic data when a stop-error occurred on this product.

Status	Operation
Input status from data-link error stations	RX and RWr are held.
Output status of cyclic data when a stop-error occurred on this product	• RY is cleared. • RWw is held.



: Area for which data is cleared when a stop error occurs with this product
: Area for which data is held
: Area dependent on configuration at slave station
(1) Station No. 0 (master station)
(2) Station No. 1 (slave station (excluding local station))
(3) Station No. 2 (Local station)
(4) Station No. 3 (Local station)

Output status when this product is STOP

Set whether to hold or clear the output of cyclic data when this product enters a STOP condition.

Setting method

Configure the output status when the MELIPC is STOP by using "Supplementary Cyclic Settings" of "Applicable settings". (☞ Page 185 CC-Link IE Field Network Parameters List)

Link device output status

The following table shows the relationship between link devices and output statuses of a MELIPC (hold or clear).

Link device	Output Hold/Clear Setting during MELIPC STOP	
	When 'Hold' is selected	When 'Clear' is selected
RY	Held	Cleared
RWw	Held	Held

Cyclic transmission stop & restart

Cyclic transmission can be stopped (stopping of data receiving from slave stations and data sending from own station) during debugging and other situations. Furthermore, stopped cyclic transmission can be restarted. Transient transmission does not stop.

Stop and restart of cyclic transmission is carried out in CC-Link IE Field Network diagnosis link start/stop. (☞ Page 53 CC-Link IE Field Network diagnosis)

Synchronization of link scan and user programs

The routine of a user program can be executed in sync with the operations of a link scan of cyclic transmission.

Execution of routine synced with a link scan

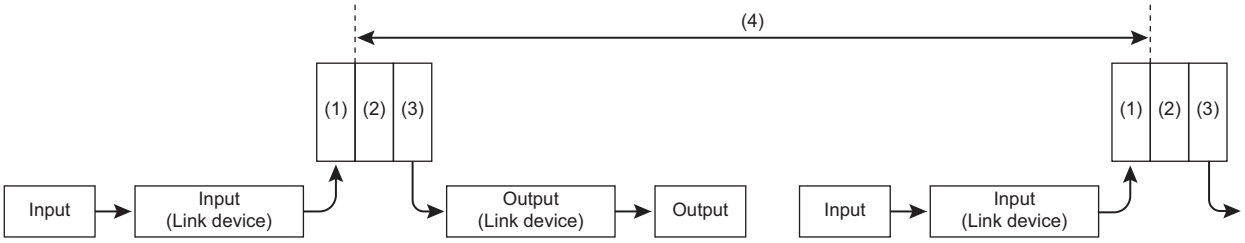
A user program synced with a link scan is executed by registering a routine to be called automatically at the completion of a link scan.

Registration and clearing of routines

Use the C Controller module dedicated function (CCPU_EntryLinkScanEndFunc) to register routines.
After registration, the registered routine is repeatedly called each time a link scan is completed. When NULL is specified to a routine to be registered, the routine is deregistered.

• During CC-Link IE Field Network synchronous communication

Registered routines are called at the following timing during CC-Link IE Field Network synchronous communications.



(1) Input refresh
(2) Registered routine
(3) Output refresh
(4) Network synchronization cycle (1 link scan)

■ Function list

Function name	Description
CCPU_EntryLinkScanEndFunc	Registers a routine to be called when the link scan of CC-Link IE Field Network is completed.

For details on the C Controller module dedicated functions, refer to the following manual.
📖MELIPC MI5000 Series Programming Manual (VxWorks)

6.2 Transient Transmission

This function communicates with other stations during execution of MELSEC data link functions.

Transient transmission applies to communication of low-frequency reading and writing data and large-sized data.

Communication within the same network

Transient transmission to other stations is performed by MELSEC data link functions.

Access to devices on another station

Devices of other stations are accessed directly by a user program.

Connected network modules and control CPU modules can be accessed.

■ Function list

Function name	Description
mdDevRstEx	Resets bit devices.
mdDevSetEx	Sets bit devices.
mdRandREx	Reads data by specifying a device type and a range to be read.
mdRandWEx	Writes data by specifying a device type and a range to be written.
mdReceiveEx	Reads data from devices in a batch.
mdSendEx	Writes data to devices in a batch.
mdRemBufReadEx	Reads data from the buffer memory of a remote device station on CC-Link IE Field Network.
mdRemBufWriteEx	Writes data to the buffer memory of a remote device station on CC-Link IE Field Network.

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

📖MELIPC MI5000 Series Programming Manual (VxWorks)

■ When accessing another CPU module in a multiple CPU system

When accessing another CPU in a multiple CPU system on another station by transient transmission, setting a logical number is required. (Logical station number is a logical station number that can be used in a user program.)

Specify a logical station number in MI Configurator or a user program.

For the specification method in MI Configurator, refer to the following section.

☞ Page 189 Access target settings

For the specification method in a user program, refer to the following manual.

📖MELIPC MI5000 Series Programming Manual (VxWorks)

6.3 CC-Link IE Field Network Synchronous Communications

This carries out synchronous communications with the slave station using the synchronization cycle specified in the master station.
This product operates as a master station using the CC-Link IE Field Network synchronous communication function, and carries out link scanning for each cycle in the synchronization cycle, and synchronized control of slave stations.
Additionally, for networks with the product as the master station, connections are possible to slave stations that do not support synchronous communications, as well as to those not set for synchronous communications. Slave stations not used for synchronization operate in a non-synchronous manner.

Network synchronous communication settings of this product

The network synchronization cycle of this product can be configured automatically or manually.
Set the synchronization cycle of this product for "Synchronous Communication Settings" under "Required Settings". (☞ Page 185 CC-Link IE Field Network Parameters List)

■ Automatic setting

To set a synchronization cycle automatically, select "Auto setting" in "Synchronization Cycle Setting Method".
The optimal synchronization cycle required for the number of slave connections and number of cyclic assignment points is configured automatically when this product starts.
The synchronization cycle is selected from 1 ms, 2 ms, or 4 ms, and the set value can be confirmed in the link special register "synchronous communication cycle settings value" (SW01EA to SW01EB).

■ Manual setting

To set a synchronization cycle manually, select "Manual setting" in "Synchronization Cycle Setting Method".

Slave station network synchronization communication settings

To synchronize a slave station with the master station, browse to "Network Configuration Settings", and then set "Network Synchronous Communication Setting" of the slave station to be synchronized to "Synchronize". (☞ Page 193 Network Configuration Settings)

Precautions

■ To use this product as a master station

If any one of the following value is set for "Synchronization Cycle Manual Setting" when this product is used as a master station, the CC-Link IE Field Network synchronous communication function is not available. (☞ Page 191 Required settings (if master station is selected by station type))

- 0.888 ms
- 1.777 ms
- 3.555 ms

For a product which does not support the CC-Link IE Field Network synchronous communication function, a link scan cycle is set for "Synchronization Cycle Manual Setting". Therefore, for a slave station which operates within the range above, set "Do not Synchronize" for "Network Synchronous Communication Setting. "(☞ Page 193 Network Configuration Settings)

■ If using the product as a local station

For the product which is used as a local station, the CC-Link IE Field Network synchronous communication function is not available. When using this product as a local station, do not set "Synchronize" for "Network Synchronous Communication" of the slave station to be synchronized in "Network Configuration Settings". (☞ Page 193 Network Configuration Settings)

6.4 CC-Link IE Field Network diagnosis

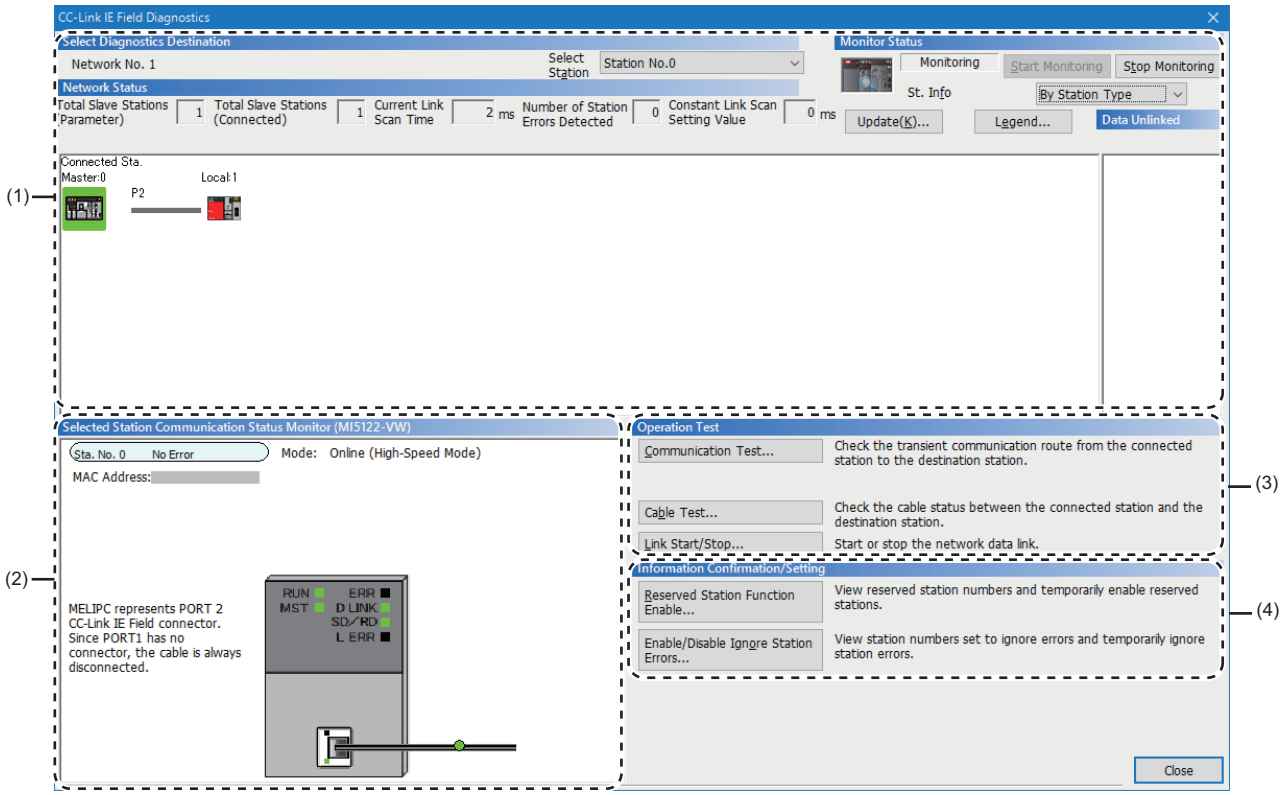
The CC-Link IE Field Network diagnosis checks network status, error content, and communication via operation tests to check and troubleshoot the network status.

Precautions

A connector for CC-Link IE Field Network on this product is displayed as PORT2. Therefore, the status of PORT1 will always be disconnected when diagnosing CC-Link IE Field Network on this product.

List of diagnosis items

The following items can be confirmed using CC-Link IE Field Network diagnosis.



○: Diagnosable, △: Usable with restrictions, ×: Not diagnosable

Item		Connection destination of MI Configurator		Restricted items	Reference
		master station	local station		
(1)	Network configuration diagram, error status display	○	○	—	☞ Page 60 Network configuration diagram
	Cable disconnection, disconnected station display	○	○		
(2)	Selected station status and fault details display	○	○	If the module does not support the selected station communication status monitor of MI Configurator, then it is not displayed.	
	Slave station No. settings	○	×	—	
(3)	Communications Test	○	○		☞ Page 63 Communications test
	Cable Test	○	○		☞ Page 64 Cable test
	Link Start/Stop	○	△	Link start/stop for other stations is only available if connected to a master station.	☞ Page 65 Link start/stop

Item		Connection destination of MI Configurator		Restricted items	Reference
		master station	local station		
(4)	Reserved Station Function Enable	○	△	If connected to a local station, then only display of reserved stations is possible.	☞ Page 67 Reserved station temporary clear/ remove
	Enable/Disable Ignore Station Errors	○	△	If connected to a local station, then only display of temporary error disabled stations is possible.	☞ Page 69 Temporary error disabled station settings/ remove

Point

The production information of network modules can be checked by the following operation.

• Select a Module⇨Right-click⇨Shortcut menu⇨[Production information]

However, this function cannot be used when the module does not comply with production information or there is an error with a connection station.

Usage

The following shows the method for using the CC-Link IE Field diagnoses function.

1. Start CC-Link IE Field diagnoses.
2. Select the station to diagnose using "Selected Station" or "Network Status".

- Stations that have generated an error will be displayed with an error icon above the module.
- Disconnected stations after a data link will be shown on the network configuration diagram with a "Disconnected station" icon.

  However, disconnected stations such as those below will be displayed on the right edge of the window.

Items displayed on the right edge of the window

- Stations that have had network reconnection processing as a result of the cable being removed and then reinserted or OFF to ON, or that are disconnected after reconnection has completed
- Disconnected stations that have been removed from the network configuration by clicking the [Update] button

- Communications errors are displayed with an "Error" icon above the cable. To confirm details on communications errors, click stations to both sides of the "Error" icon.
- For a ring connection when "Network topology settings" of "Basic Settings" in "CC-Link IE Field Network Parameters" is set to "Line/Star", the "Error (Illegal ring connection detected/Execute loopback)" icon is displayed.
- If a loopback is executed because an error has occurred such as a cable disconnection, then the "Error (Illegal ring connection detected/Execute loopback)" icon is displayed.

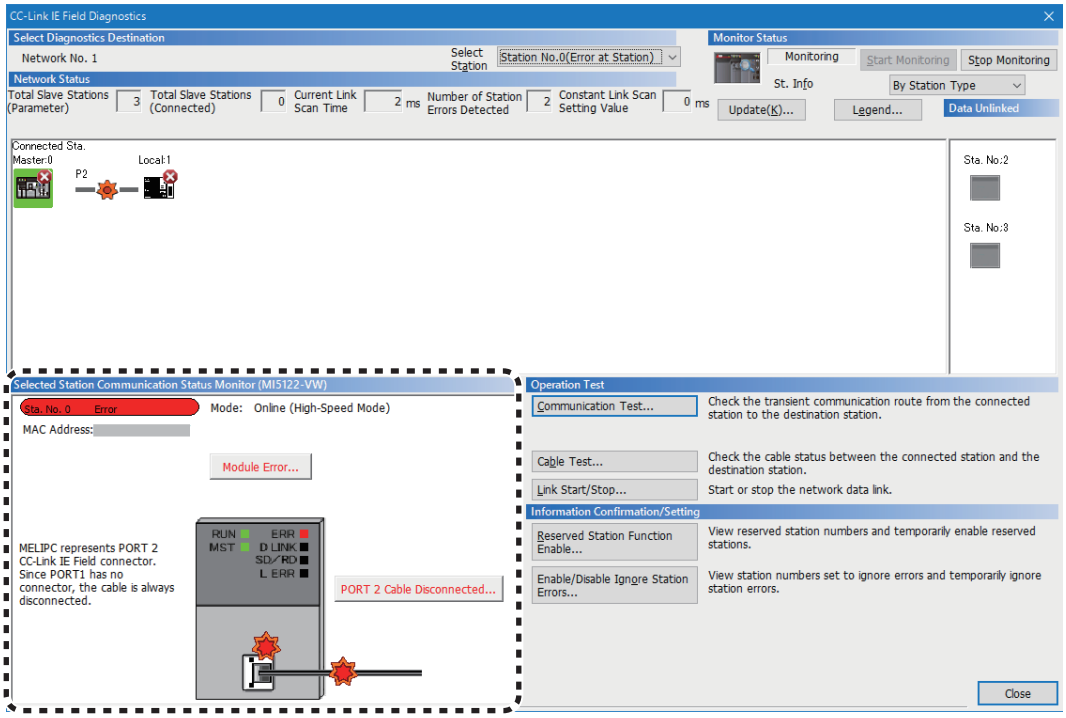
Point

If the station to diagnose cannot be selected, a network number mismatch, master station duplication, or station No. duplication statuses cannot be confirmed using CC-Link IE Field Network diagnosis. Confirm details of the error by directly connecting an engineering tool that supports the slave station upon which the error occurred and using the "System monitor" window of the engineering tool that support the slave station.

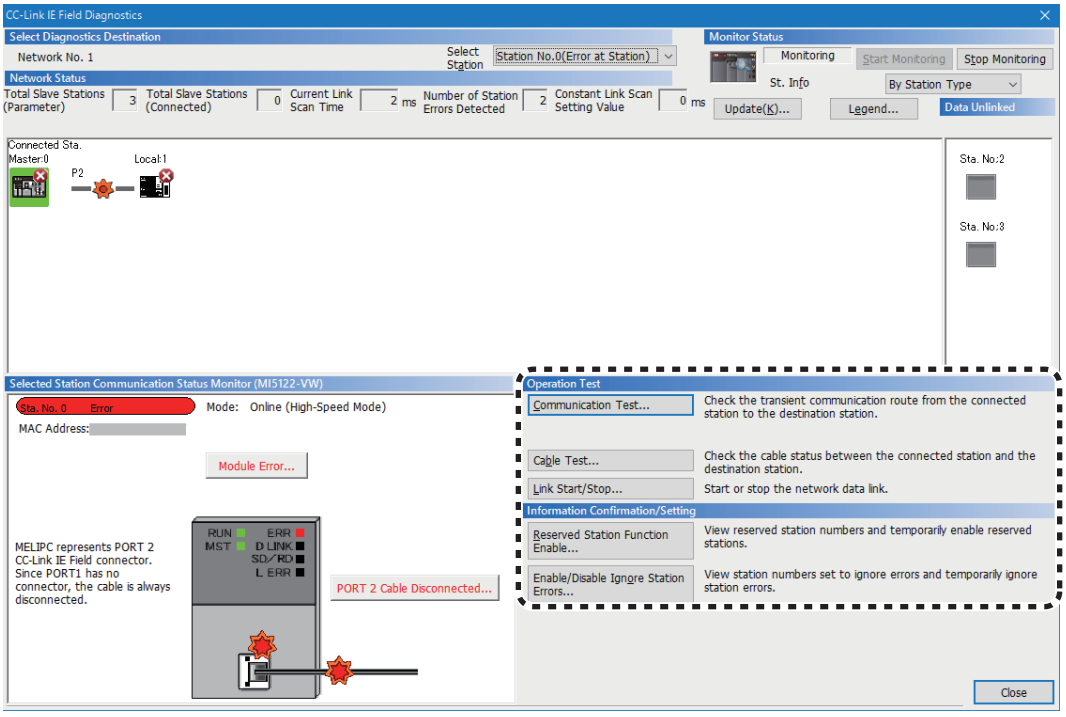
3. The station selected for "Network Status" is displayed in "Selected Station Communication Status Monitor". (☞ Page 57 Diagnostic screen)

The status of the selected station will be displayed above the "Selected Station Communication Status Monitor".

During an error, a button such as [PORT 2 Cable Disconnected] is displayed on the "Selected Station Communication Status Monitor". Click this button to confirm the details and solution for the error.

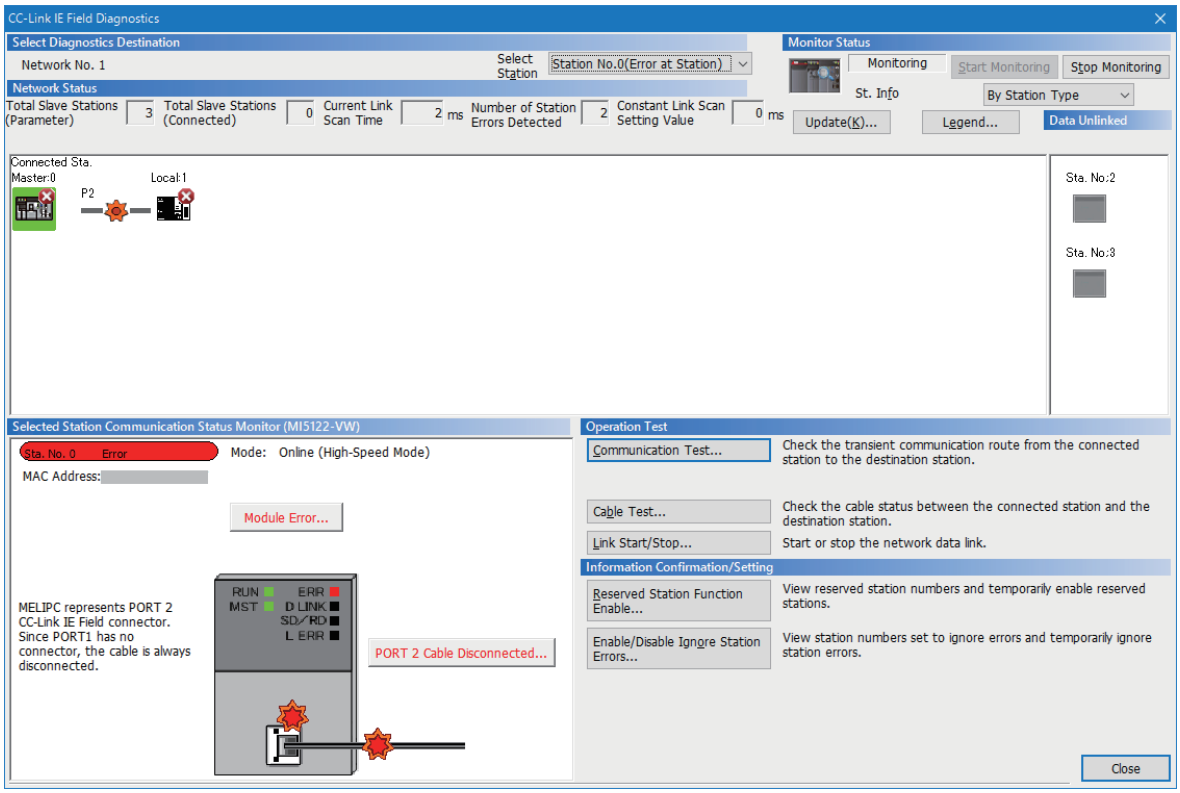


4. From "Operation Test" and "Information Confirmation/Setting" at the bottom right of the window, carry out various tests and operations.

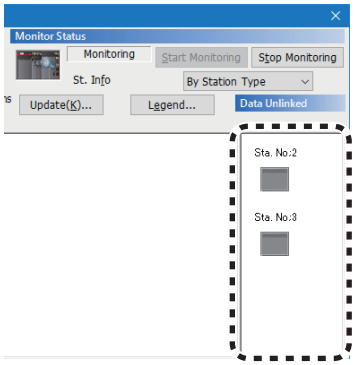


Diagnostic screen

[Diagnostics] ⇨ [CC-Link IE Field Diagnostics]



Item		Description
Select Diagnostics Destination	Select Station	Selects the station No. of the station to diagnose. It is also possible to select the station to diagnose by clicking the icon of the module displayed on the network configuration diagram.
Monitor Status	[Start Monitoring] button	Starts CC-Link IE Field diagnoses monitoring.
	[Stop Monitoring] button	Stops CC-Link IE Field diagnoses monitoring.
[Update] button		When the actual network configuration and the network configuration diagram of the diagnosis screen do not match, update the network configuration diagram so that it matches. Updating the network configuration diagram reconnects all stations on the network, which results in a momentary data link error for all stations, and output may be OFF for connected slave stations. Configure so that output is held, if necessary.
[Legend] button		Indicates the legend for icons displayed in CC-Link IE Field diagnoses.
St. Info		Select the slave station display name from "By Device Name" and "By Station Type". If "By Device Name" is selected, then this will display content input into the "Alias" in "Network Configuration Settings" under "Basic Settings". Pay attention to the following as regards device name display. • If the "Device name" is not input into the "Alias" in "Network Configuration Settings" under "Basic Settings", then the device type will be displayed.

Item		Description
Network Status	Total Slave Stations (Parameter)	Displays the total number of slave stations (No. of slave stations) set in "Network Configuration Settings" under "Basic Settings".
	Total Slave Stations (Connected)	Displays the total number of slave stations (No. of slave stations) actually carrying out baton pass in the CC-Link IE Field Network.
	Current Link Scan Time	The displayed network link scan time is displayed.
	Number of Station Errors Detected	Displays the number of stations with error occurrences on the displayed network.
	Constant Link Scan Settings Value	Displays values set in "Application Settings" "Supplementary Cyclic Settings" "Constant Link Scan Time".
	Network configuration diagram	Displays CC-Link IE Field Network topology and each station status. If the status of each station is not displayed, confirm that there is no master station or station number duplication. (☞ Page 60 Network configuration diagram)
	Disconnected station monitoring status	Displays disconnected stations in station settings in "Basic Settings" "Network Configuration Settings", but have never been data linked. However, even if they have been data linked once, disconnected stations such as those below will be displayed. • Stations that have had network reconnection processing as a result of the cable being removed and then reinserted or OFF to ON, or that are disconnected after reconnection has completed • Disconnected stations that have been removed from the network configuration by clicking the [Update] button  The "Other Modules" icon indicates a station that have not carried out data link. Other than "Other Modules" icons indicate stations that have been disconnected after carrying out data link. Click the [Legend] button to confirm details of displayed icons.
Selected Station Communication Status Monitor		Displays status of the station selected in "Network Status". (☞ Page 62 Selected station communication status monitor)
Operation Test	[Communication Test] button	Test communication. (☞ Page 63 Communications test)
	[Cable Test] button	Test the cable. (☞ Page 64 Cable test)
	[Link Start/Stop] button	Start/stop a link. (☞ Page 65 Link start/stop)
Information Confirmation/Setting	[Reserved Station Function Enable] button	Temporarily clear reserved stations and return temporarily cleared stations to reserved stations. (☞ Page 67 Reserved station temporary clear/remove)
	[Enable/Disable Ignore Station Errors] button	Temporarily set slave stations to error disabled stations. (☞ Page 69 Temporary error disabled station settings/remove)

If the "Error (Illegal ring connection detected/Execute loopback)" icon is displayed

If the "Error (Illegal ring connection detected/Execute loopback)" icon is displayed in the network station, handle as below.

■ For system topologies without switching hubs

Ring connections when the "Basic Settings" "Network Topology" are set to "Line/Star", but this is a ring connection.

Handle as below.

Corrective action
Remove an Ethernet cable from one of the stations on the network. (One of P1 or P2) The network topology becomes line connection, and data link starts.

■ For system topologies incorporating switching hubs

If the "Error (Illegal ring connection detected/Execute loopback)" icon is displayed for the following reasons.

- Ring connections when "Network Topology" of "Basic Settings" is set to "Line/Star", but this is ring connection.

Handle as below.

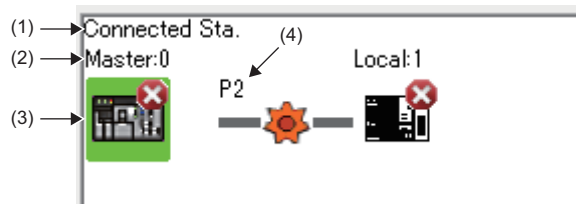
Corrective action

1. Check whether "Network Topology" of "Basic Settings" is different from the configuration of the network. If it is different, correct "Network Topology" of "Basic Settings", and then write to the CPU module again. When data link starts for the entire network, this solution is completed.
   If data link does not start, perform Solution 2 and 3 below.
2. If "Line/Star" is set for "Network Configuration Settings" of "Basic Settings", then handle as below.

- Remove one Ethernet cable connected to the switching hub and turn the switching hub power OFF to ON. (Repeat until data link starts on the entire network.)
- When data link starts on the entire network, confirm the network configuration using CC-Link IE Field Network diagnosis. This solution is completed. (☞ Page 53 CC-Link IE Field Network diagnosis)

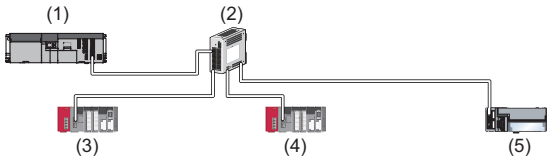
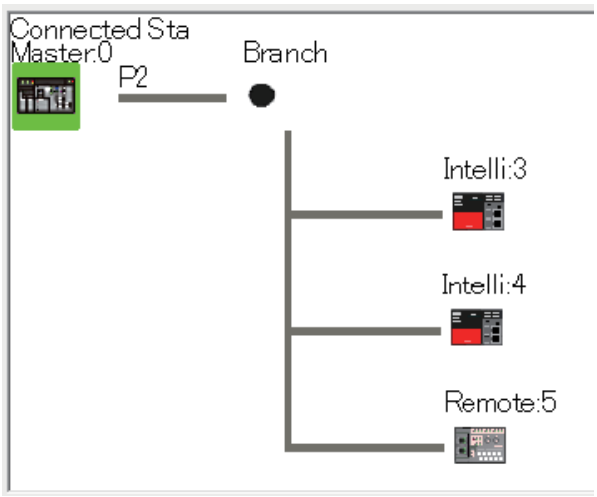
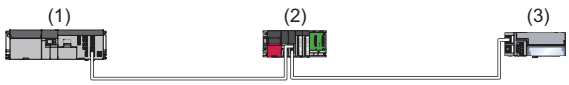
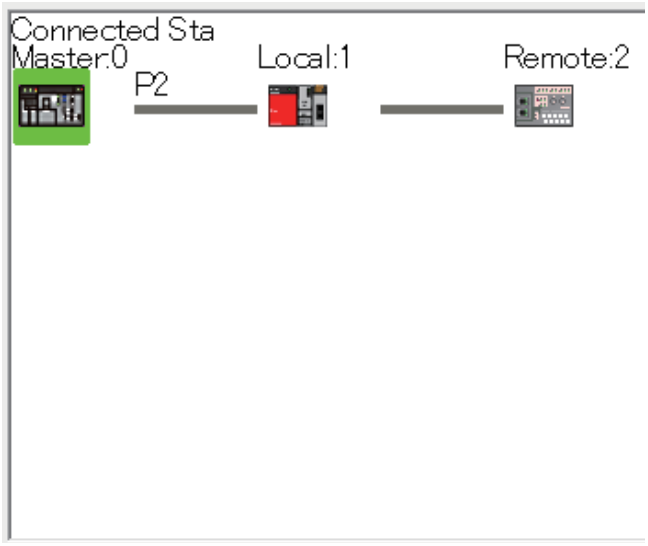
Network configuration diagram

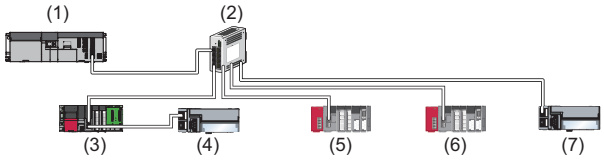
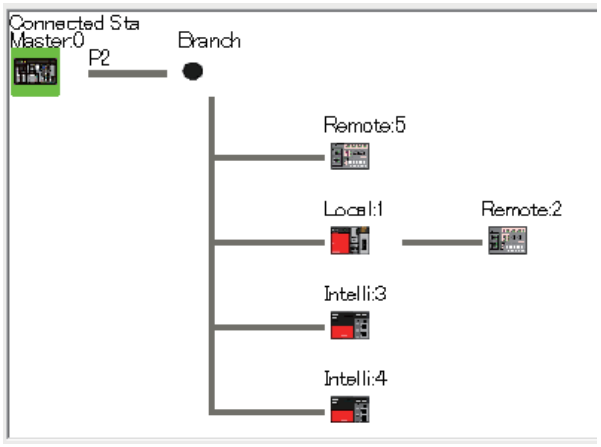
■ Icon



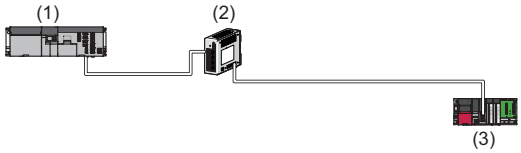
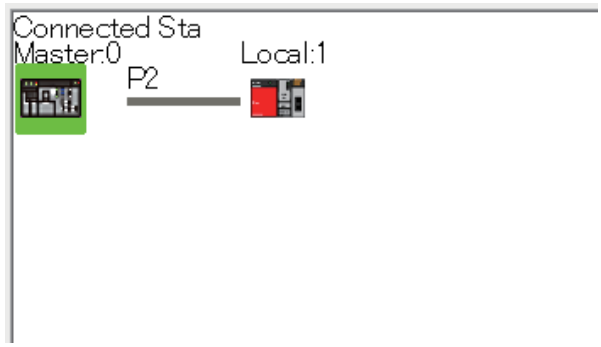
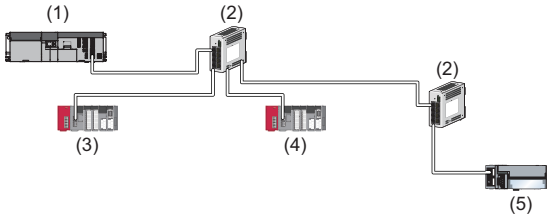
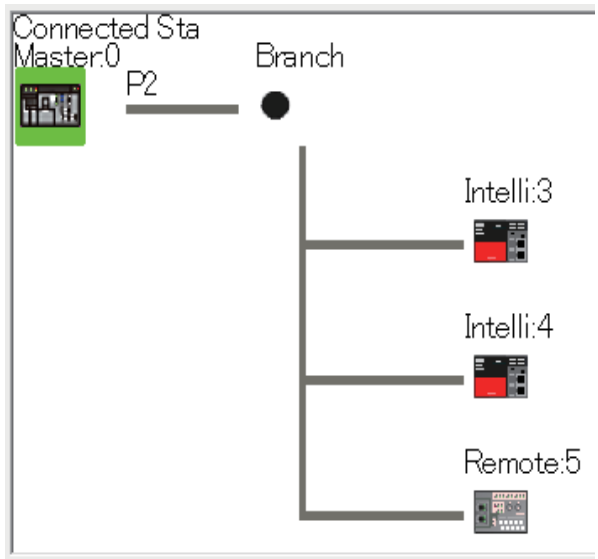
No.	Description
(1)	Displays a station (own station) connected to MI Configurator.
(2)	The network type and station number are displayed. If the station number is not configured, a "?" is displayed. If the text has a colored background, the corresponding station is set to, for example, a reserved station. Use the [Legend] button to confirm details of the background color.
(3)	The module status is displayed. Use the [Legend] button to confirm details of icons. If the "Error (Illegal ring connection detected/Execute loopback)" icon is displayed, handle as shown in "Troubleshooting" of "Error Details".
(4)	Displays the PORT to which the Ethernet cable is connected.

■ Displays network configuration

system configuration	Displays network configuration diagram
Star connection  (1) Master station (Station No.0) (2) Switching hub (3) Intelligent device station (Station No.3) (4) Intelligent device station (Station No.4) (5) Remote device station (Station No.5)	
Line connection  (1) Master station (Station No.0) (2) Local station (Station No.1) (3) Remote device station (Station No. 2)	

system configuration	Displays network configuration diagram
Star connection/line connection mixed  (1) Master station (Station No.0) (2) Switching hub (3) Local station (Station No.1) (4) Remote device station (Station No.2) (5) Intelligent device station (Station No.3) (6) Intelligent device station (Station No.4) (7) Remote device station (Station No.5)	

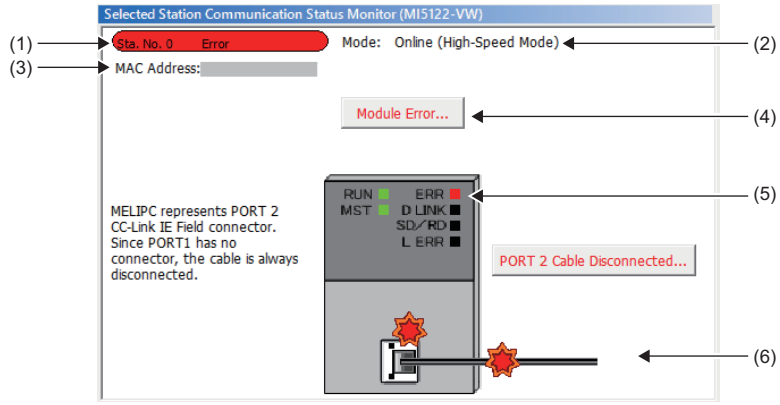
- In the following cases, the network configuration diagram display will show a different display to the actual system topology.

system configuration	Displays network configuration diagram
Two stations connected to a switching hub  (1) Master station (Station No.0) (2) Switching hub (3) Local station (Station No.1)	Branching is not displayed in the network configuration diagram. 
Switching hub connected in cascade  (1) Master station (Station No.0) (2) Switching hub (3) Intelligent device station (Station No.3) (4) Intelligent device station (Station No.4) (5) Remote device station (Station No.5)	Only one branch is displayed. 

Selected station communication status monitor

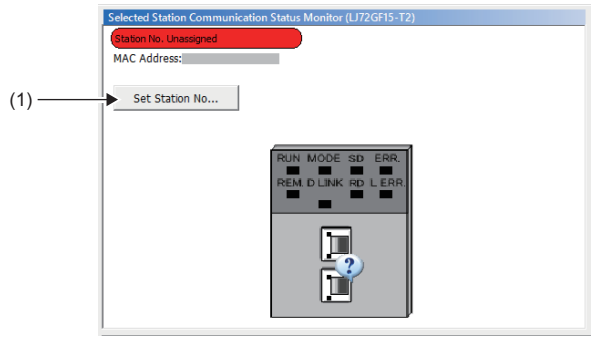
Displays status of the station selected in "Network Status".

■ If the station with error is selected



No.	Description
(1)	Indicates the operating status. • Station No.☐: Normal operation • Station No.☐ Error occurrence (yellow): Error occurrence (data link running) • Station No.☐ Error occurrence (red): Error occurrence (data link stopped)
(2)	Displays the mode.
(3)	Displays the MAC address.
(4)	Click the displayed button to confirm details of the error. Handle in accordance with the displayed "Error Factor" and "Troubleshooting".
(5)	Displays the module LED status, as well as the P1 and P2 communication status will be displayed.
(6)	Displays the cable status.

■ If a station without network number or station No. set is selected



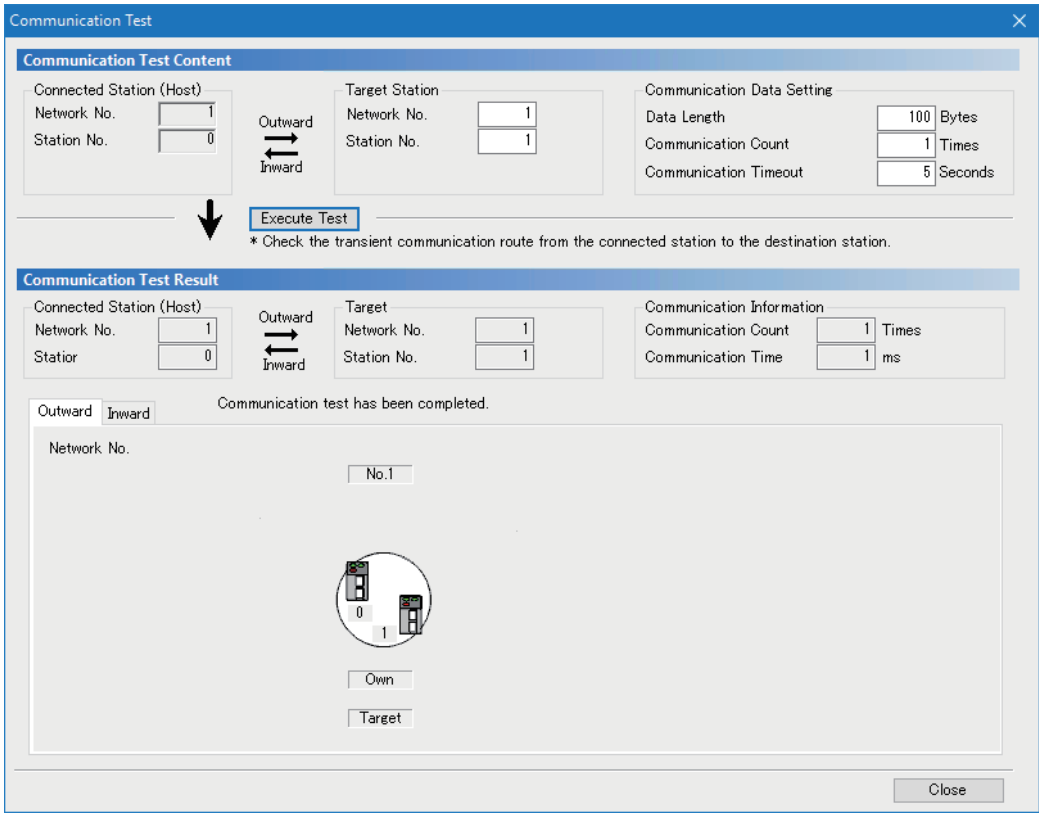
No.	Description
(1)	Set the station No. to a slave station that does not have a number set. In "Network Status", this is only displayed if slave stations that fulfill all of the following conditions are selected. • The slave station does not support station No. setting from the master station • A station No. is not set for the slave station*1 If adding a station set in "Network Configuration Settings" of "Basic Settings", the output from the master station at the same time as the station number setting is output from the external device of the slave station. Check whether the CPU module is in STOP status, and make sure there is no problem even when there is output from the external device of the slave station.

*1 Refer to the user manual for the slave station being used as to methods to use CC-Link IE Field diagnoses to clear the station No. set in the slave station.

Communications test

The communications test checks that the transient transmission communication route from the own station to the communications destination is correct.

Window



■ Execution procedure

1. Click the [Communications Test] button in the "CC-Link IE Field Diagnostics" window
2. Input "Target Station" and "Communication Data Setting".
3. Click the [Execute Test] button.

If an error occurs, then handle in accordance with the error message.

Precautions

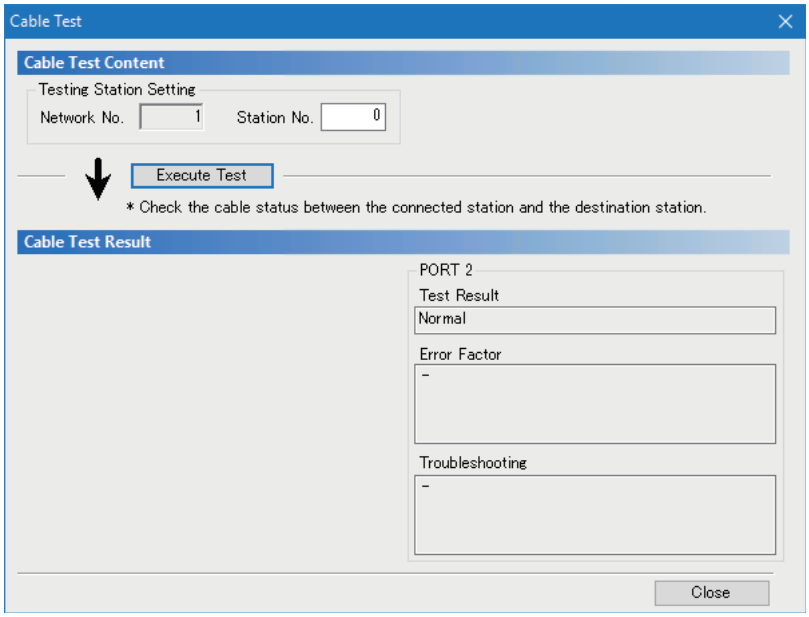
If a relay transmission station is set for "Target Station", an error message is not displayed and only the error code is displayed. In "Communications destination settings", set the relay transmission station.

Cable test

The cable test checks for disconnected or broken Ethernet cables.

Only Ethernet cables connected to P1 or P2 of the station implementing the test are subject to testing. Check the status of the entire network by the network configuration diagram of the CC-Link IE Field diagnosis or the selected station communication status monitor. (☞ Page 60 Network configuration diagram, Page 62 Selected station communication status monitor)

Window



■ Execution procedure

1. Click the [Cable Test] button in the "CC-Link IE Field Diagnostics" window.
2. Input the station No. for which to carry out a cable test, then click the [Execute Test] button.

If an error occurs, then handle in accordance with the error message.

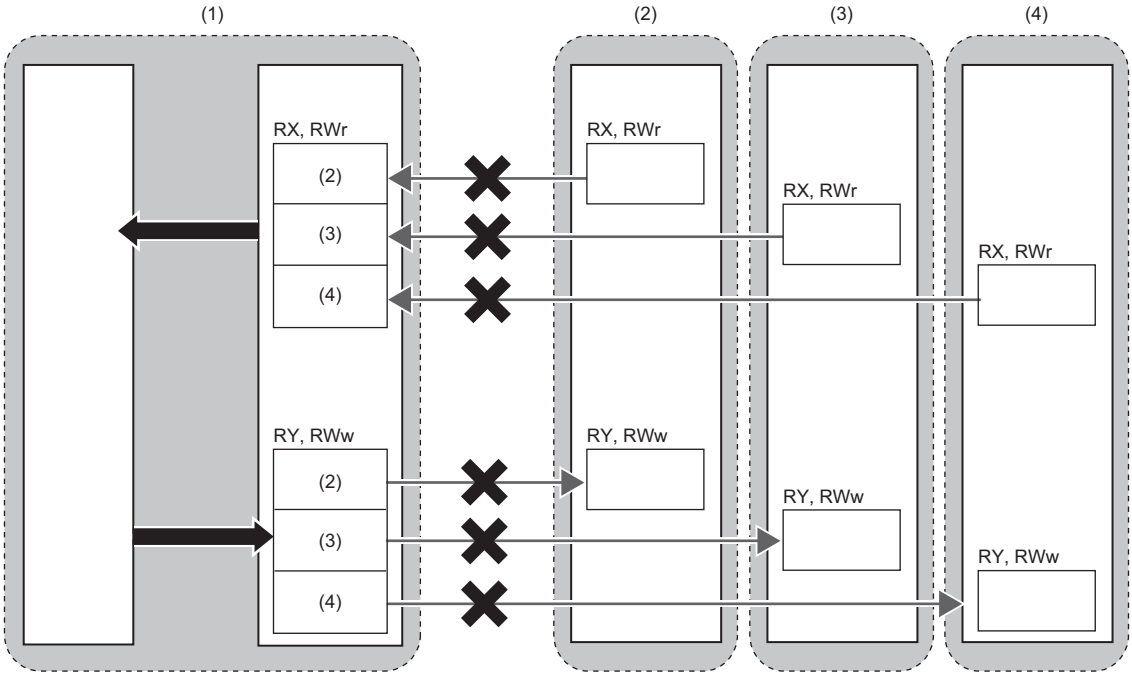
Link start/stop

Stop cyclic transmission (stopping of data receiving from slave stations and data sending from own station) during debugging and other situations. Furthermore, restart stopped cyclic transmission.

In link start/stop, transient transmission does not stop.

Point

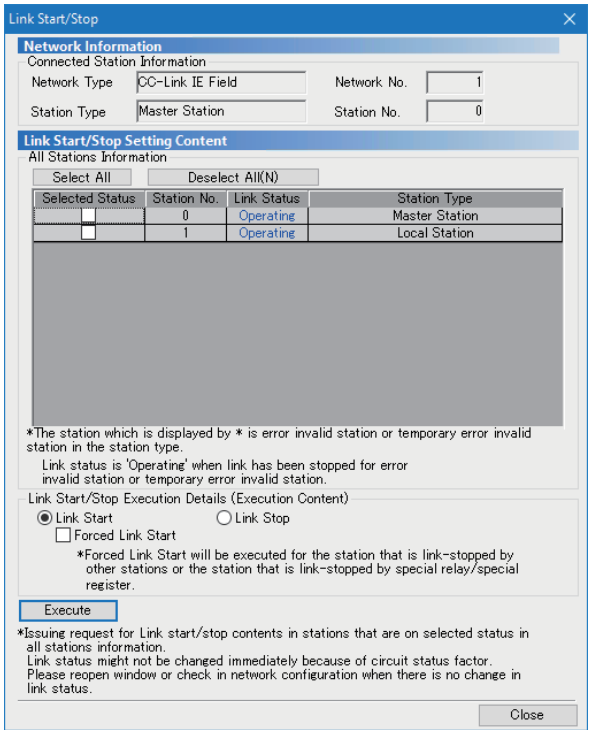
Cyclic transmission start and stop is possible even in Link special relay (SB) and Link special register (SW).



(1) Master station
(2) Slave station 1
(3) Slave station 2
(4) Slave station 3

Window

Confirm cyclic transmission status in "Link Status".



■ Execution procedure

1. Click the [Link Start/Stop] button in the "CC-Link IE Field Diagnostics" window.

2. In "Selected Status", select the station for which to start or stop cyclic transmission.

If the station connected to MI Configurator is a local station, only the own station can be selected. The connected station can be checked in "Connected Station Information".

3. In "Link Start/Stop Execution Details (Execution Content)", select whether to start or stop cyclic transmission.

If "Force Link Start" is selected, then forced cyclic transmission can be started for stations that have had cyclic transmissions stopped from other stations, or from Link special relay (SB) and Link special register (SW).

4. Click the [Execute] button.

■ If the product has been reset or the power turned OFF to ON

Even if cyclic transmission has been stopped through Link stop, if the product is reset or power turned OFF→ON, then cyclic transmission will restart.

■ If link stopped to error disabled stations or temporary error disabled stations

Be aware that stations that stopped a link are displayed as data linking in the CC-Link IE Field Network diagnosis. If links were stopped to error disabled stations or temporary error disabled stations, confirm the stoppage by checking that 'Data link stop status of own station' (SB0049) is ON.

■ Stations that cannot start link

In the following cases, link start is not possible.

- Stations that have stopped cyclic transmission because of an error
- Stations that are link stopped because of a link stop in another station*1
- Stations that are link stopped because of Link special relay (SB) and Link special register (SW).*1

*1 If "Forced Link Start" is selected, then link start is possible.

Reserved station temporary clear/remove

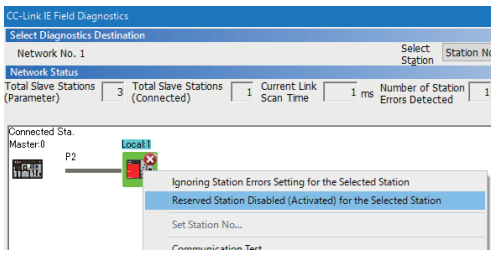
Temporarily clear reservations of slave stations specified to reserved stations. Use this feature when connecting a slave station specified to a reserved station to the network.
Furthermore, slave stations that had reserved status canceled again become reserved stations.

Point

A reserved station can be cleared/removed temporarily by a master station by using Link special relay (SB) and Link special register (SW).

■ Method to select module in "Network Status" and carry out

- Reserved station temporary clear

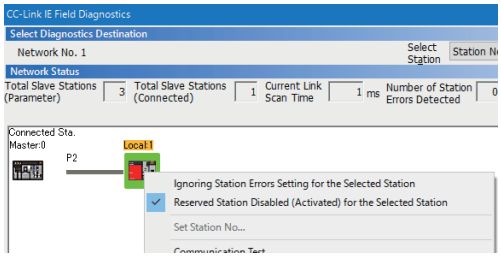


1. Connect slave stations specified as reserved stations to the network.
2. In "Network Status" of the "CC-Link IE Field Diagnostics" window, select the icon for the station for which to temporarily clear reserved station status.
3. Right click the selected icon, and select "Reserved Station Disabled (Activated) for the Selected Station".

The text background color becomes orange, and the reserved station is temporarily canceled.

4. Debug added slave stations.

- Remove reserved station temporary remove



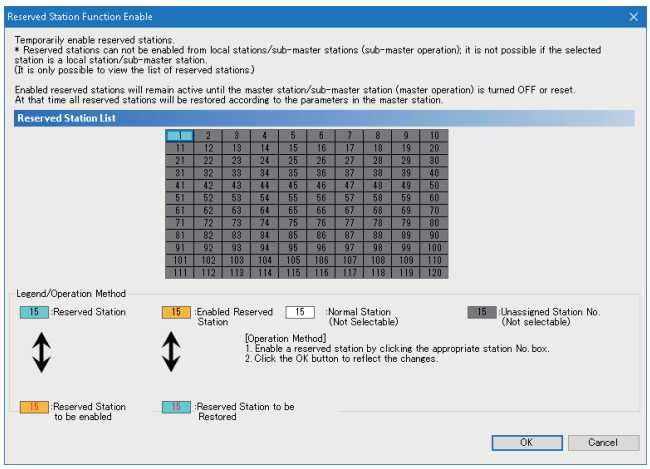
1. In "Network Status" of the "CC-Link IE Field Diagnostics" window, select the icon for the station for which to remove temporarily clear of reserved station status.
2. Right click the selected icon, and select "Reserved Station Disabled (Activated) for the Selected Station".

The text background color becomes aqua, and the station returns to a reserved station.

■ Method to select module in "Reserved Station Function Enable" window

In the "Reserved Station Function Enable" window, reserved station temporary clear of multiple slave stations with a single operation is possible.

- Reserved station temporary clear

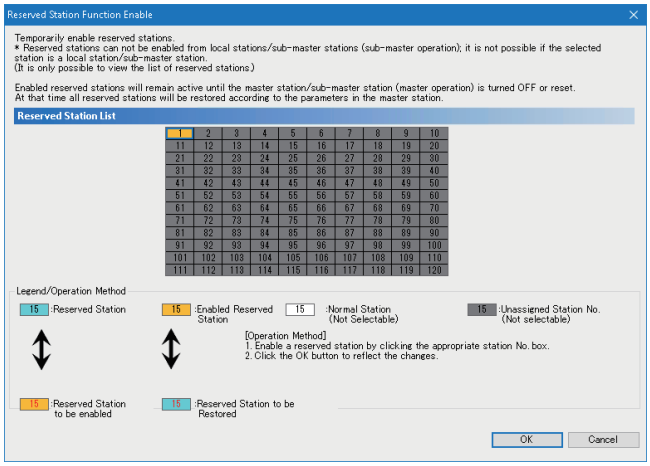


1. Connect slave stations specified as reserved stations to the network.
2. In the "CC-Link IE Field Diagnostics" window, click the [Reserved Station Function Enable] button.
3. In the "Reserved Station List", click the station to clear as a reserve station temporarily. If clicked, the station display changes to red letters on an orange background.

Only reserved stations can be selected. Reserved stations are displayed in light blue.

4. Click the [OK] button to temporarily clear the reserve station.
5. Debug added slave stations.

- Remove reserved station temporary remove



1. Display the "Reserved Station Function Enable" window using the same method as with reserve station temporary clear.
2. In the "Reserved Station List", click a station to cancel the temporary clearing of the reserved station. If clicked, the station display changes to red letters on a light blue background.

Only stations that have had reserved station status temporarily cleared can be selected.
Stations that have had reserved station status temporarily cleared are displayed in orange.

3. Click the [OK] button to return to reserved stations.

■ Relationship with parameters

Reserved station temporary clear is not reflected to "Network Configuration Settings" of "Basic Settings".

■ If the master station has been reset or the power turned OFF

Reserved station temporary clear becomes not specified, and returns to the status set in master station "Basic Settings" "Network Configuration Settings".

■ If stations with reserved station temporary clear are removed from the network

Resetting the master station product or turning the power OFF results in the following differences between the master station and local station.

- ERR LED status
- 'Reserved station settings status' (SW00C0 to SW00C7) and 'reserve station temporary clear sitting status' (SW0180 to SW0187) information

If a difference occurs, return to normal status as in the procedure below.

1. Reconnect the disconnected station.
2. Carry out reserve station temporary clear settings, and remove temporary clear for the station to remove.

■ Confirm the station No. set in the reserved station

Confirm the station No. set in the reserved station in the "Reserved Station Function Enable" window.

Temporary error disabled station settings/remove

Temporarily set slave stations that have not been set as error disabled stations to error disabled stations. Use this feature so that slave station errors are not detected temporarily.

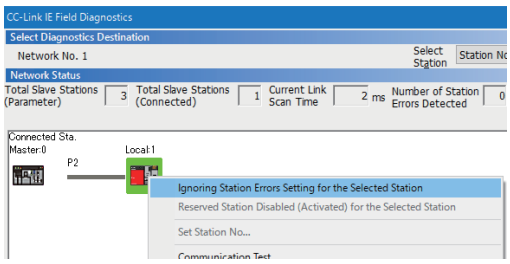
Additionally, remove temporary error disabled station settings for slave stations that are temporarily error disabled stations.

Point

A reserved station can be configured or cleared as an error invalid station temporarily by a master station by using Link special relay (SB) and Link special register (SW).

■ Method to select module in "Network Status" and carry out

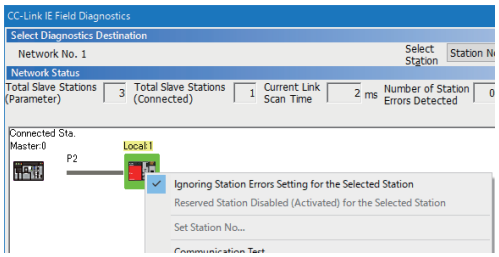
- Temporary error disabled station settings



1. In "Network Status" of the "CC-Link IE Field Diagnostics" window, select the icon for the station for which to temporarily set error invalid station status.
2. Right click the selected icon, and select "Ignoring Station Errors Setting for the Selected Station".

The text background color becomes yellow, and the station temporarily set to an error disabled station.

- Temporary error disabled station settings/remove



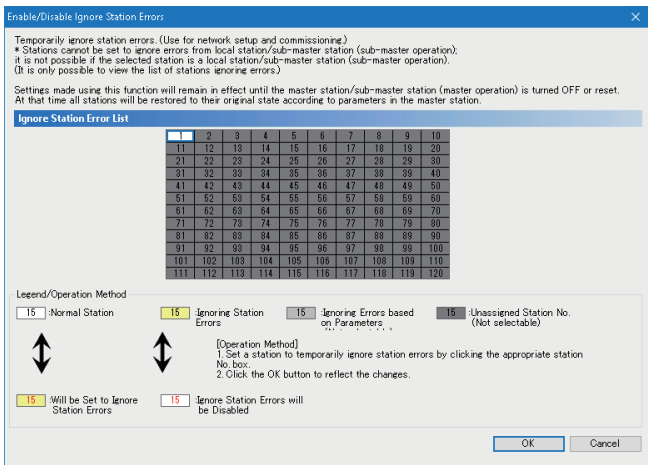
1. In "Network Status" of the "CC-Link IE Field Diagnostics" window, select the icon for the station for which to remove error invalid station settings.
2. Right click the selected icon, and select "Ignoring Station Errors Setting for the Selected Station".

The text background color becomes white, and the temporary error disabled station setting is removed.

■ Method to select module in "Enable/Disable Ignore Station Errors" window

In the "Enable/Disable Ignore Station Errors" window, reserved station temporary error disabled stations settings of multiple slave stations with a single operation is possible.

- Temporary error disabled station settings

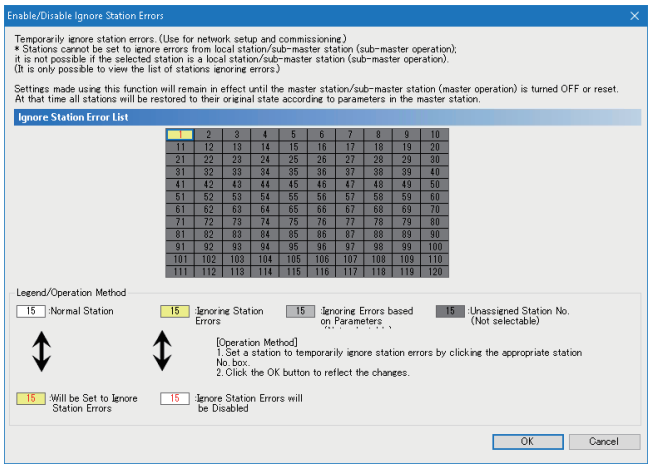


1. In the "CC-Link IE Field Diagnostics" window, click the [Enable/Disable Ignore Station Errors] button.
2. In the "Ignore Station Error List", click the station to be set temporarily as an error disabled station. If clicked, the station display changes to red letters on a yellow background.

Only stations that are not set temporarily as an error disabled stations can be selected. Stations that are not set temporarily as an error disabled stations are displayed in white.

3. Click the [OK] button to temporarily set as an error disabled station.

- Temporary error disabled station settings/remove



1. Displays the "Enable/Disable Ignore Station Errors" windows in the same way as with the temporary error disabled station settings.
2. In the "Ignore Station Error List", click a station to clear as a temporary error disabled station. If clicked, the station display changes to red letters on a white background.

Only temporary error disabled stations can be selected. Temporary error disabled stations are displayed in yellow.

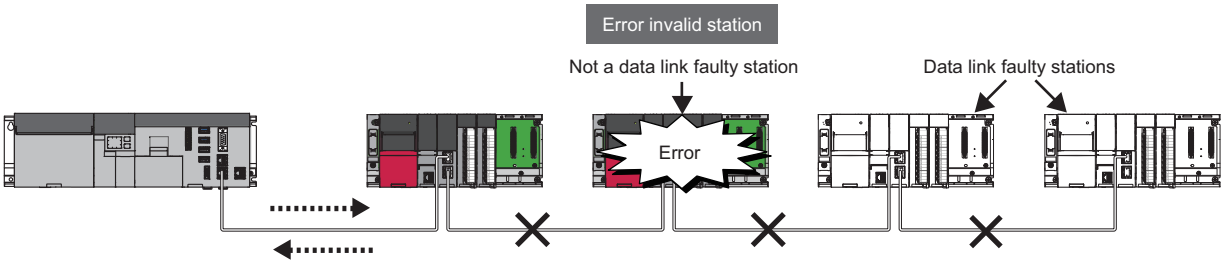
3. Click the [OK] button to remove the temporarily error disabled station settings.

■ Stations that can not be set as temporary error disabled stations

Stations that are reserved station temporary clear stations cannot be set as temporary error disabled stations.

■ If using in line connection

In the following cases, the stations sit in the error disabled station will not be detected as a data link abnormal station, however other than the disconnected stations will become data link abnormal stations.



■ Relationship with parameters

Reserved station temporary clear is not reflected to "Network Configuration Settings" of "Basic Settings".

■ If the master station has been reset or the power turned OFF

Temporary error disabled station setting is not reflected to "Network Configuration Settings" of "Basic Settings".

■ If a station set as a temporary error disabled station is removed from the network

Resetting the master station product or turning the power OFF results in the following differences between the master station and local station.

- ERR LED status
- 'Temporary error disabled station settings status' (SW00E0 to SW00E7)

If a difference occurs, return to normal status as in the procedure below.

1. Reconnect the disconnected station.
2. Carry out reserve station temporary clear settings, and remove temporary clear for the station to remove.

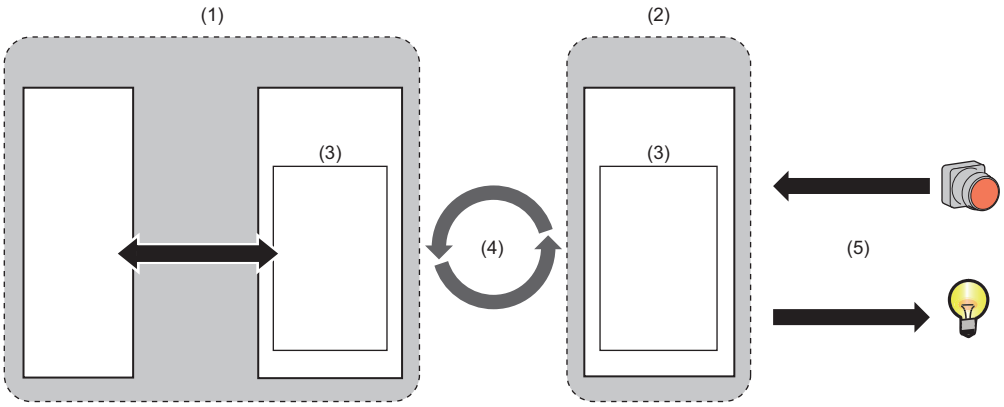
■ Confirmation of station No. set in the error disabled stations.

Confirm the station No. set in the error disabled station in the "Enable/Disable Ignore Station Errors" window.

6.5 Processing Time

The CC-Link IE Field Network processing time comprises the following items.

- Link scan time + slave station response processing time = transmission delay time



(1) Master station
(2) Slave station
(3) Link device
(4) Link scan time
(5) Slave station response processing time

Transmission delay time of cyclic transmission

This section shows the transmission delay time of cyclic transmission.

Point

When the local station is a C Controller module, change SL to the following processing time.

- SL=P=R+α

  P: Processing time on a C Controller system

  R: Refresh cycle

  α: Link refresh time

When the local station is this product, use direct access to the link device or buffer memory access. Change SL to the processing time of the function.

In case of a master station and intelligent device station / remote device station

■ Master station (RX, RWr) ← intelligent device station/remote device station (input)

Times are shown below.

- The time from signal input into the intelligent device station / remote device station until the link device of the master station is turned ON or OFF
- The time from data input into the intelligent device station / remote device station until data is stored in the link device of the master station

Calculated value	Transmission delay time (no block data assurance per station setting)
Normal value	(CT×1)+Rio
Maximum value	(CT×2)+Rio

CT: Synchronous communication cycle

Rio: Processing time of intelligent device station / remote device station (Manual of intelligent device station / remote device station being used)

■ Master station (RY, RWw) → intelligent device station/remote device station (output)

Times are shown below.

- The time from when the link device of the master station is turned ON or OFF until the output of the intelligent device station / remote device station is turned ON or OFF.
- The time from data setting to the link device of the master station until data is output to the intelligent device station / remote device station

Calculated value	Transmission delay time (no block data assurance per station setting)
Normal value	(CT×1)+Rio
Maximum value	(CT×2)+Rio

CT: Synchronous communication cycle

Rio: Processing time of intelligent device station / remote device station (Manual of intelligent device station / remote device station being used)

If master station and local station

■ Master station (RX) ← Local station (RY)

The following table shows the time from the device of the CPU module of the local station turning ON or OFF until the link device of the master station is turned ON or OFF.

• m=1

Calculated value	Transmission delay time (no block data assurance per station setting)
Normal value	(CT×1)+(SL×1)
Maximum value	(CT×2)+(SL×1)

• m=2 to 4

Calculated value	Transmission delay time (no block data assurance per station setting)
Normal value	(CT×m)+(SL×n)
Maximum value	(CT×m)+(SL×2)

CT: Synchronous communication cycle

SL: Sequence scan time of local station

m: A constant set for "RWw/RWr Setting" of the local station which was set for "Network Configuration Settings" of "Basic Settings"

Item	Constant set for "RWw/RWr Setting"			
	0 to 256 words	257 to 512 words	513 to 768 words	769 to 1,024 words
m	1	2	3	4

n: (CT×m)÷value of SL rounded up to an integer

■ Master station (RY) to Local station (RX)

The following table shows the time from the link device of the master station turning ON or OFF until the device of the CPU module of the local station is turned ON or OFF.

Calculated value	Transmission delay time (no block data assurance per station setting)
Normal value	(CT×1)+(SL×1)
Maximum value	(CT×2)+(SL×2)

CT: Synchronous communication cycle

SL: Sequence scan time of local station

■ Master station (RWr) ← Local station (RWw)

The following table shows the time from when data was configured to the device of the CPU module of the local station until data was stored to the link device of the master station.

• m=1

Calculated value	Transmission delay time (no block data assurance per station setting)
Normal value	(CT×1)+(SL×1)
Maximum value	(CT×2)+(SL×1)

• m=2 to 4

Calculated value	Transmission delay time (no block data assurance per station setting)
Normal value	(CT×m)+(SL×n)
Maximum value	(CT×m)+(SL×2)

CT: Synchronous communication cycle

SL: Sequence scan time of local station

m: A constant set for "RWw/RWr Setting" of the local station which was set for "Network Configuration Settings" of "Basic Settings"

Item	Constant set for "RWw/RWr Setting"			
	0 to 256 words	257 to 512 words	513 to 768 words	769 to 1,024 words
m	1	2	3	4

n: (CT×m)÷value of SL rounded up to an integer

■ Master station (RWw) to Local station (RWr)

The following table shows the time from when data was configured to the link device of the master station until data was stored to the device of the CPU module of the local station.

Calculated value	Transmission delay time (no block data assurance per station setting)
Normal value	(CT×1)+(SL×1)
Maximum value	(CT×2)+(SL×2)

CT: Synchronous communication cycle

SL: Sequence scan time of local station

7 CC-Link IE Field Network Basic FUNCTION

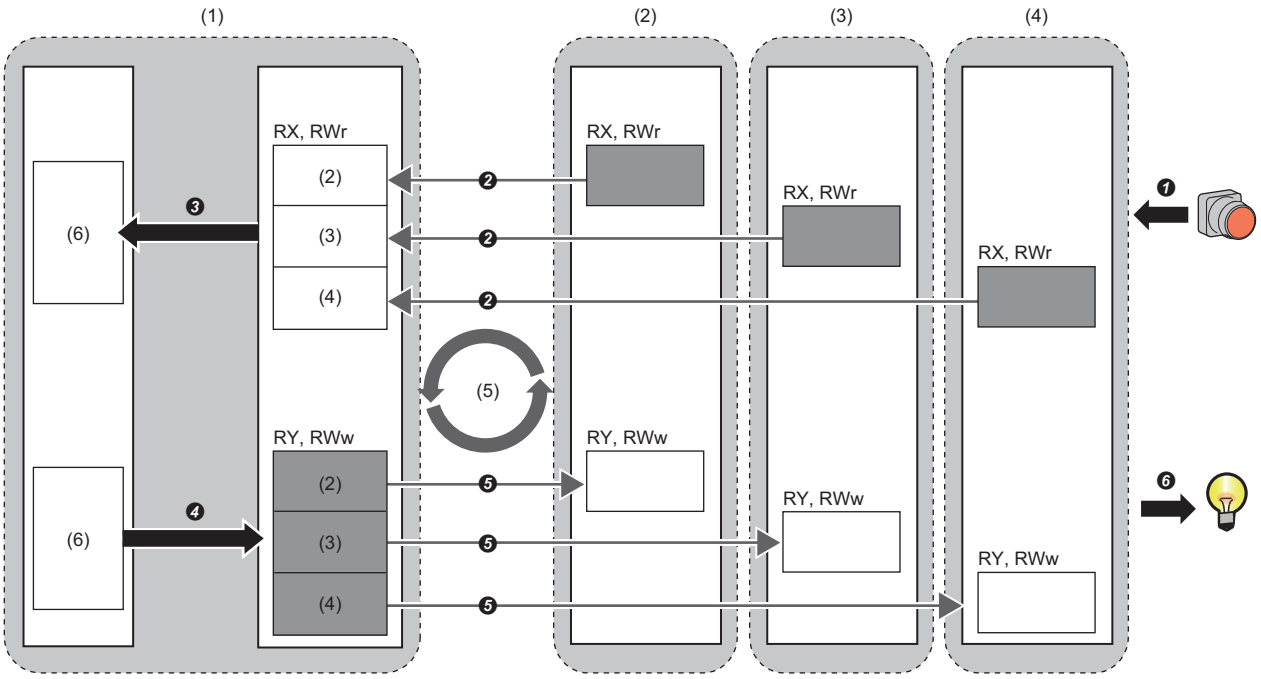
Function that uses the FA network over general-purpose Ethernet, using this product's Ethernet port (CH1).

7.1 Cyclic Transmission

A link device (RX, RY, RWr, and RWw) is used to periodically exchange data between master station and slave stations.

Data flow and link device assignment

This shows the data flow between master station and slave station through a link device.



: Transmission area to other station

(1) Master station
(2) Slave station 1
(3) Slave station 2
(4) Slave station 3
(5) Link scan
(6) Device

Point

The order of slave stations is the same as the one set in the network configuration settings. (☞ Page 175 Network Configuration Settings)

- At input from slave station

❶ The slave station link device (RX, RWr) status is output to external devices.
❷ The slave station link device (RX, RWr) status is stored in the master station link device (RX, RWr) using link scan.
❸ The status of the link device (RX, RWr) of the master station is stored to a device of the master station by a link refresh.

- At output from master station

❹ The status of the device of the master station is stored to the link device (RY. RWw) of the master station by a link refresh.
❺ The master station link device (RY, RWw) status is stored in the slave station link device (RY, RWw) using link scan.
❻ The slave station link device (RY, RWw) status is output to external devices.

Setting method

Assign link devices in "Network Configuration Settings". (☞ Page 175 Network Configuration Settings)
Assign link refreshes in "Refresh Settings". (☞ Page 180 Refresh Settings)

Point

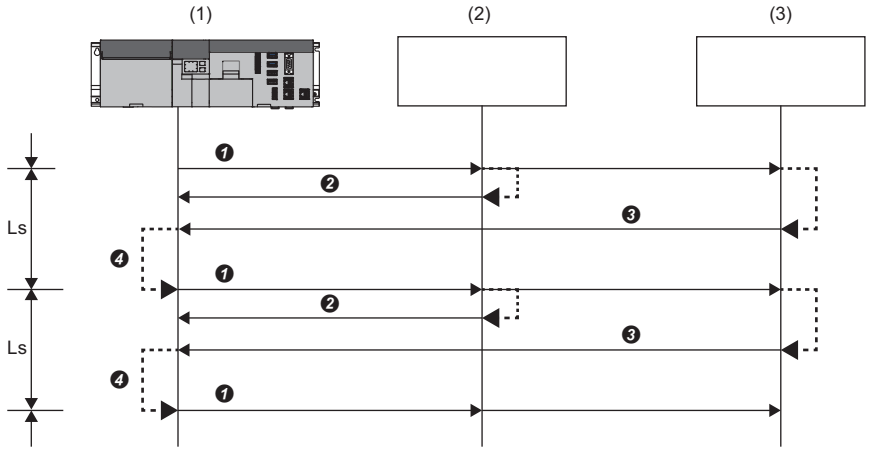
Cyclic transmission is performed for a group which consists of up to 16 stations. For assignments of link devices and the one for link refreshes, however, the group number is not required to be taken into consideration.

Cyclic transmission data flow

This shows the cyclic transmission data flow.

■ Basic operation

The master station sends a request to all slave stations. (Including Ethernet devices within the same network address. After sending requests to all slave stations, the master station starts another link scan after the set link scan time elapses. A link scan refers to the operation from sending a request to sending another request, and the link scan time refers to the time required for a link scan. (☞ Page 83 Link scan operation)



Ls: Link scan
(1) Master station
(2) Slave station 1
(3) Slave station 2

❶ The master station sends requests to slave station 1/slave station 2.
❷ Slave station 1 returns a response to the master station.
❸ Slave station 2 returns a response to the master station.
❹ After the configured link scan time elapses, the master station starts sending another request.

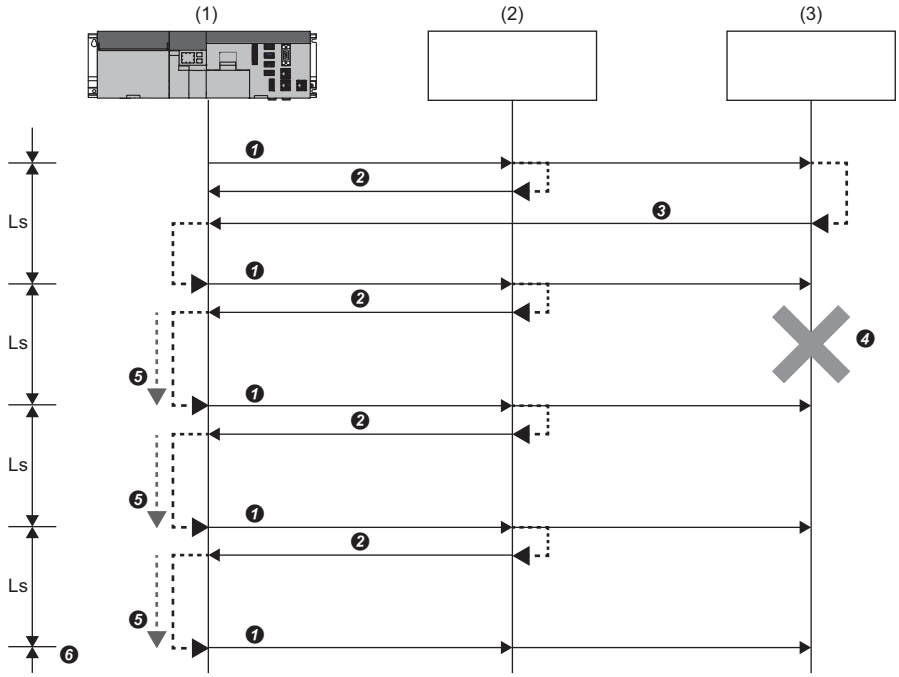
Point

- When the master station sends a request (when a cyclic transmission is started) to all slave stations, 'Cyclic transmission status' (SM1536) turns ON, and when the master station receives responses from each slave station, a bit, which corresponds to the station number of the slave stations that have sent a response of 'Cyclic transmission status of each station' (SD1536 to SD1539), turns ON.
- When the master station starts cyclic transmission, if no response has been received from a slave station, the slave station is not regarded as an error station. ('Data link status' (SM1540) does not turn ON.) In addition, the transmission status of CC-Link IE Field Network Basic diagnostics becomes "Unfixed".

■ If no response from the slave station

If the master station is unable to receive a response from the slave station because of the slave station power being interrupted or a cable disconnected, etc. then the master station will wait for a response from the slave station for the timeout period specified in link scan settings, and will disconnect slave stations from which there was no response within the set disconnect detection count.

In these cases, this is different to a data link error, and a cyclic transmission error (slave station) error (error code: CFE8H) will be generated.



(Slave station disconnection detection settings: Data timeout period = 500 ms, count = 3 times)
Ls: Link scan
(1) Master station
(2) Slave station 1
(3) Slave station 2

❶ The master station sends requests to slave station 1/slave station 2.

❷ Slave station 1 returns a response to the master station.

❸ Slave station 2 returns a response to the master station.

❹ An error such as the slave station power being interrupted or a cable disconnected, etc. has occurred, therefore slave station 2 cannot return a response to the master station.

❺ The master station cannot receive a response from slave station 2, so it waits for a response from slave station 2 until the timeout period (500 ms) has passed, and then sends a request to slave station 1 / slave station 2. However, because there is no response from slave station 2, the link scan time is extended until the timeout period (500 ms).

❻ The master station is unable to receive a response from the slave station 2 within the disconnect detection count (3 times), therefore the master station disconnects slave station 2.

The following table shows the operations of special relays and special registers when a slave station which did not send a response is disconnected.

Special relay, special register	Operation
'Cyclic transmission status' (SM1536)	The device remains ON.
'Cyclic transmission status of each station' (SD1536 to SD1539)	The bit corresponding to the station number of the disconnected slave station turns OFF.
'Data link status' (SM1540)	OFF to ON
'Data link status of each station' (SD1540 to SD1543)	The bit corresponding to the station number of the disconnected slave station turns ON (indicating that the slave station is an error station).

Link scan time after timeout

If a timeout occurs due to the failure of a slave device, the link scan time will be changed depending on the setting value of the timeout time.

- When the timeout time is shorter than the link scan time, operation follows the configured "Link Scan Time". (☞ Page 83 Link scan time settings)
- When the timeout time is longer than the link scan time, operation follows the "Timeout time" configured for "Link scan settings". (☞ Page 179 Link Scan Setting)

Point

To minimize the effect of communication transmission delays with normal slave stations during a timeout, adjust the timeout time. For example, using CC-Link IE Field Network Basic diagnosis, check the current link scan time (when all slave stations are operating normally), and then set a timeout time about five times as long as the link scan time. (When the current link scan time is 10 ms, set 50 ms for the timeout time.)

■ If the master station receives a faulty response from a slave station

The master station immediately disconnects that slave station regardless of the timeout period and disconnection detection count set in link scan settings. The corresponding slave station generates a data link error. (The error code will be generated by the slave station.)

The following table shows the operations of special relays and special registers when a slave station is disconnected.

Special relay, special register	Operation
'Cyclic transmission status' (SM1536)	The device remains ON.
'Cyclic transmission status of each station' (SD1536 to SD1539)	The bit corresponding to the station number of the disconnected slave station turns OFF.
'Data link status' (SM1540)	OFF to ON
'Data link status of each station' (SD1540 to SD1543)	The bit corresponding to the station number of the disconnected slave station turns ON (indicating that the slave station is an error station).

Point

Some slave stations are equipped with a function that makes them disconnected without being an error station. For details, refer to the manual of the slave station used. (Since the slave station does not become an error station, 'Data link status' (SM1540) and 'Data link status of each station' (SD1540 to SD1543) do not change.)

Link refresh

This function automatically transfers data between devices and link devices of the master station.
Link refresh is performed in sync with link scan. (☞ Page 83 Link scan operation)

Setting method

A refresh target device is assigned by "Refresh Settings" under "CC-Link IEF Basic Setting". (☞ Page 160 BASIC PARAMETERS)

Precautions

■ When a file register is specified for a refresh target device

A file register is a latching device, so the value is retained when the power supply of this product is turned OFF to ON or during the reset. Therefore, if product file register data being latched is cleared to '0' by turning the power supply OFF to ON or resetting, depending on the timing of link scan and link refresh, the latched data is output without being cleared to '0'.
To prevent the output of file register data of this product being latched, perform the following operation.

Item	Description
File register (ZR)	• Change the refresh target device to a user device. • Clear the file register values to "0" before turning the power supply of this product OFF to ON or resetting this product.

Operation during refresh

■ During output from a master station (this product)

The programmable controller device (user device, file register) is refreshed to the link device (RY, RWw) at the start of link scan of each group number.

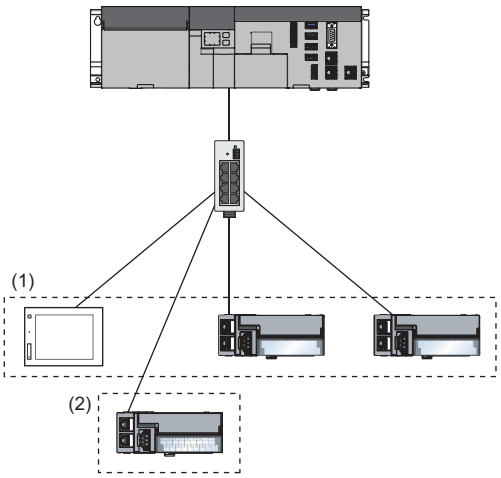
■ At input from slave station

The link device (RY, RWr) is refreshed to the programmable controller device (user device, file register) at the end of link scan of each group number.

Group number setting

This function divides slave stations into groups by setting a group number to each slave station and each of groups performs cyclic transmission.

By separating slave stations with a shorter response processing time and slave stations with a longer response processing time into groups, the differences of the standard response times of each slave station does not affect the cyclic transmission.



(1) The total number of occupied stations for one group is 16 maximum.

(2) Slave stations can be divided into up to four groups.

Group number setting

Group numbers are set in "Network Configuration Settings" of "CC-Link IEF Basic Setting". (☞ Page 175 Network Configuration Settings)

How to organize groups

Consider the following when organizing groups.

■ Dividing slave stations into groups

- Organizing two or more groups can configure a network with slave stations that occupy 17 or more stations in total.
- Organizing slave stations into groups with similar standard response times reduces the effect of differences of the standard response times of slave stations. For the standard response times, check the manual of the slaves station to be used. Because link scan times differ by group, slave stations with the longest standard response time of the groups are affected. (☞ Page 77 Cyclic transmission data flow)

■ Merging slave stations into one group

- To perform operation among slave stations in cooperation, merge them into the same group.
- When the line load is large, merging slave stations into the fewest number of groups as possible according to the number of slave stations connected to the master station is recommended. For example, merge slave stations into one group if the slave stations are 16 or less. When two or more groups are organized, the master station sends requests to each of them. Since the packets of the cyclic transmissions performed for each group are sent on the line, the more groups are organized, the larger the line load becomes.

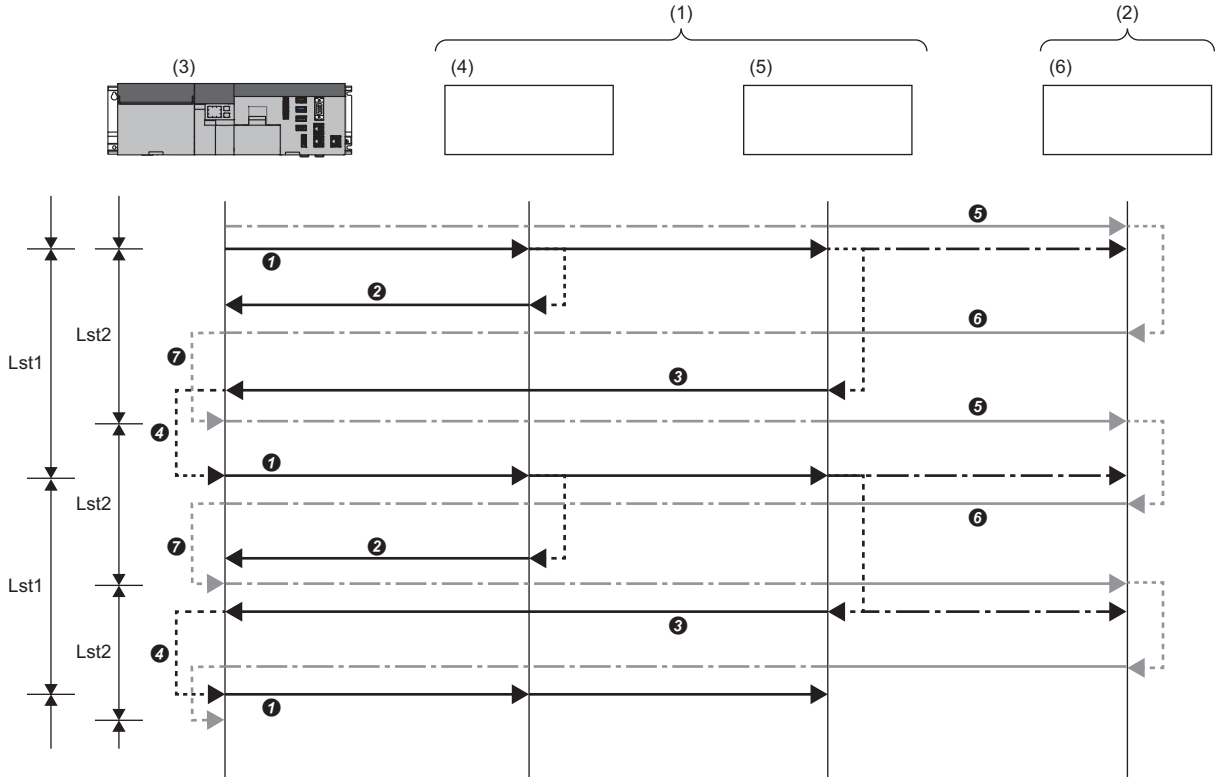
Cyclic transmission data flow

The following figure shows the data transitions of cyclic transmission when a group number is set.

■ Basic operation

The master station sends requests, that vary from a group to group, to all salve stations. The slave stations receive multiple request messages from the master station; however, each slave station handles a request message for a group where each slave stations belong to.

After the link scan time set for each group has elapsed, the master station starts sending another request to the group. Since the link scan setting can be configured for each group, the setting can be configured according to the response processing time of each group. (☞ Page 83 Link scan time settings)



Lst1: Link scan time of group 1 (link scan)
Lst2: Link scan time of group 2 (link scan)
(1) Group No.1
(2) Group No.2
(3) Master station 1
(4) Slave station 1
(5) Slave station 2
(6) Slave station 3

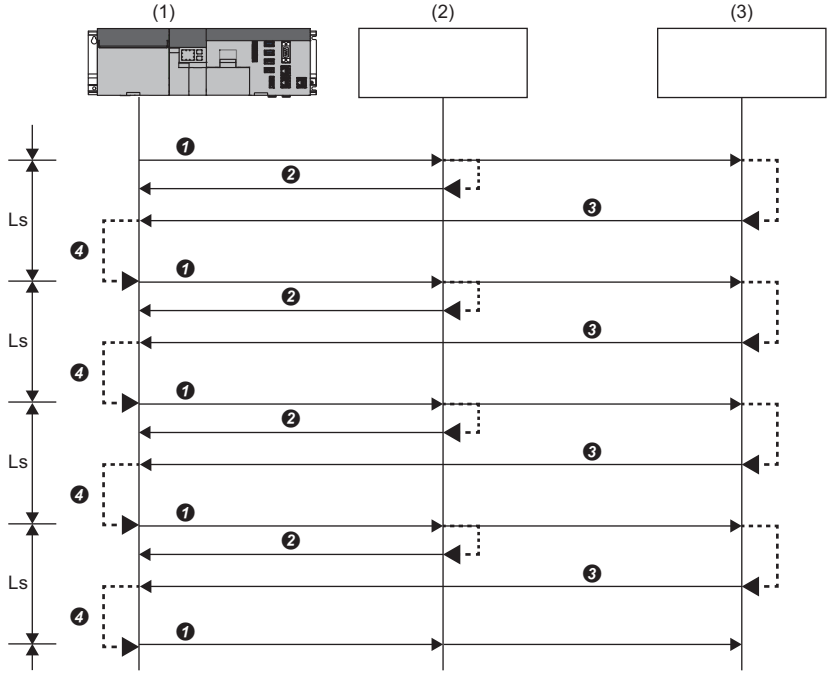
❶ The master station sends requests to the slave station 1 and slave station 2 that belong to group 1.
❷ The slave station 1 returns a response to the master station.
❸ The slave station 2 returns a response to the master station.
❹ After the link scan time set to the group 1 is elapsed, the master station starts sending another request.
❺ The master station sends a request to the slave station 3 that belongs to group 2.
❻ The slave station 3 returns a response to the master station.
❼ After the link scan time set to the group 2 is elapsed, the master station starts sending another request.

Link scan operation

This section shows the operation of link scan.

After sending requests to all slave stations, the master station starts another link scan after the configured link scan time has elapsed.

A link scan is carried out for each configured link scan time.



Ls: Link scan
(1) Master station
(2) Slave station 1
(3) Slave station 2

❶ The master station sends requests to slave station 1/slave station 2.

❷ Slave station 1 returns a response to the master station.

❸ Slave station 2 returns a response to the master station.

❹ After the configured link scan time elapses, the master station starts sending another request.

Link scan time settings

Configure the link scan time using "Link Scan Time Settings" of "CC-Link IEF Basic Setting". (☞ Page 160 BASIC PARAMETERS)

■ When the link scan time setting is disabled (setting value: 0 ms)

After completion of a link scan, the next link scan starts immediately.

■ When the link scan setting is enabled

After completion of a link scan, link scan is stopped until the configured link scan time passes.

The next link scan is started after the configured link scan time passes.

Link scan time check

Link scan time maximum, minimum, and current values can be confirmed using the following method. *1

*1 The maximum and minimum values of the link scan time indicate the maximum and minimum values from the time the power supply of this product was turned ON until it was turned OFF. When the transmission cycle was changed by a C Controller dedicated function (CCPU_ChangeCCIEFBCycPrm) during cyclic transmission, the maximum and minimum values of the link scan time are reset.

- CC-Link IE Field Network Basic diagnosis(☞ Page 90 CC-Link IE Field Network Basic diagnostics)
- Buffer Memory (☞ Page 280 List of Buffer Memory)

Access to link devices

Access from a user program to link devices (RX, RY, RWr, RWw, SB, and SW) of this product is possible.

Access method

Use C Controller module dedicated functions and MELSEC data link functions to access link devices.

Point

Access the device of the refresh target assigned by "Refresh Setting" using C Controller module dedicated functions and MELSEC data link functions.

■ Function list

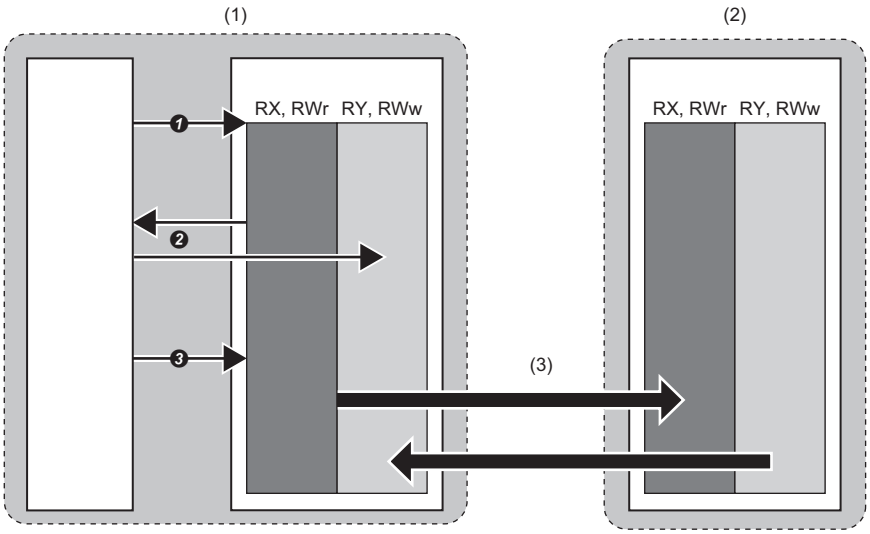
Objective	Function name	Description
Writing data to device	CCPU_WriteDevice	Writes data to internal user devices and internal system devices of a MELIPC.
	mdDevRstEx	Resets bit devices.
	mdDevSetEx	Sets bit devices.
	mdRandWEx	Writes data by specifying a device type and a range to be written.
	mdSendEx	Writes data to devices in a batch.
Writing data to device (During interrupt)	CCPU_WriteDevice_ISR	Writes data to internal user devices and internal system devices of a MELIPC.
Reading data from device	CCPU_ReadDevice	Reads data from the internal user devices and internal system devices of a MELIPC.
	mdRandREx	Reads data by specifying a device type and a range to be read.
	mdReceiveEx	Reads data from devices in a batch.
Reading data from device (During interrupt)	CCPU_ReadDevice_ISR	Reads data from the internal user devices and internal system devices of a MELIPC.

For details on the C Controller module dedicated functions and MELSEC data link functions, refer to the following manual.

MELIPC MI5000 Series Programming Manual (Windows)
MELIPC MI5000 Series Programming Manual (VxWorks)

Access to guaranteed linked devices

Before and after normal access to linked devices, read/write data is assured manipulating the start and end of assurance of read/write data.



(1) Master station
(2) Slave station
(3) Cyclic transmission

No.	Operation	Status
❶	Start the assurance of read/write data. • CCPU_StartCCIEFBDataAssurance	Update stops of the link device input status for own station (RX, RWr) and the output status (RY, RWw) from own station to other stations.
❷	Read/write the link device.	■Read data Update is stopped of the link device input status for own station (RX, RWr), so the read data is assured. ■Write data Update of the link device input status from own station (RY, RWw) to other stations is stopped, so the read data is not sent to slave stations.
❸	Assurance of read/write data is ended. • CCPU_EndCCIEFBDataAssurance	Restart refresh of link device input status for own station (RX, RWr) and for output status (RY, RWw) for own station to other stations. (The own station output status written in Step ❷ undergoes data assurance and is sent to other stations.)

■ Function list

Function name	Description
CCPU_StartCCIEFBDataAssurance	Starts data assurance for access to a link device of CC-Link IE Field Network Basic.
CCPU_EndCCIEFBDataAssurance	Ends data assurance for access to a link device of CC-Link IE Field Network Basic.

For details on the C Controller module dedicated functions, refer to the following manual.
MELIPC MI5000 Series Programming Manual (VxWorks)

Precautions

After starting data assurance of link devices, always end it. Otherwise, the updating of the input status for own station link devices and the output status of link devices from own station to other stations does not restart.

Synchronization of link scan and user programs

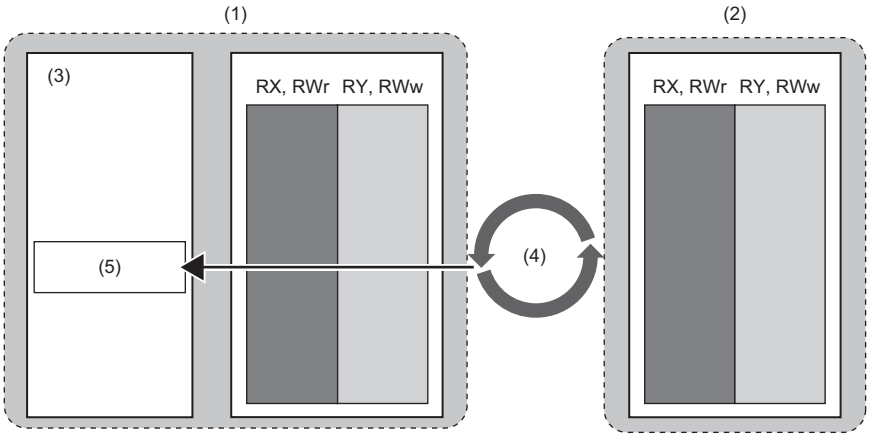
The routine of a user program can be executed in sync with the operations of a link scan of cyclic transmission.

Execution of routine synced with a link scan

A user program synced with a link scan is executed by registering a routine to be called automatically at the completion of a link scan.

Registration and clearing of routines

Use the C Controller module dedicated function (CCPU_EntryCCIEFBLinkScanEndFunc) to register routines.
After registration, the registered routine is repeatedly called each time a link scan is completed. When NULL is specified to a routine to be registered, the routine is deregistered.



(1) MELIPC
(2) Network module
(3) User program
(4) Link scan
(5) Registered routine

■ Function list

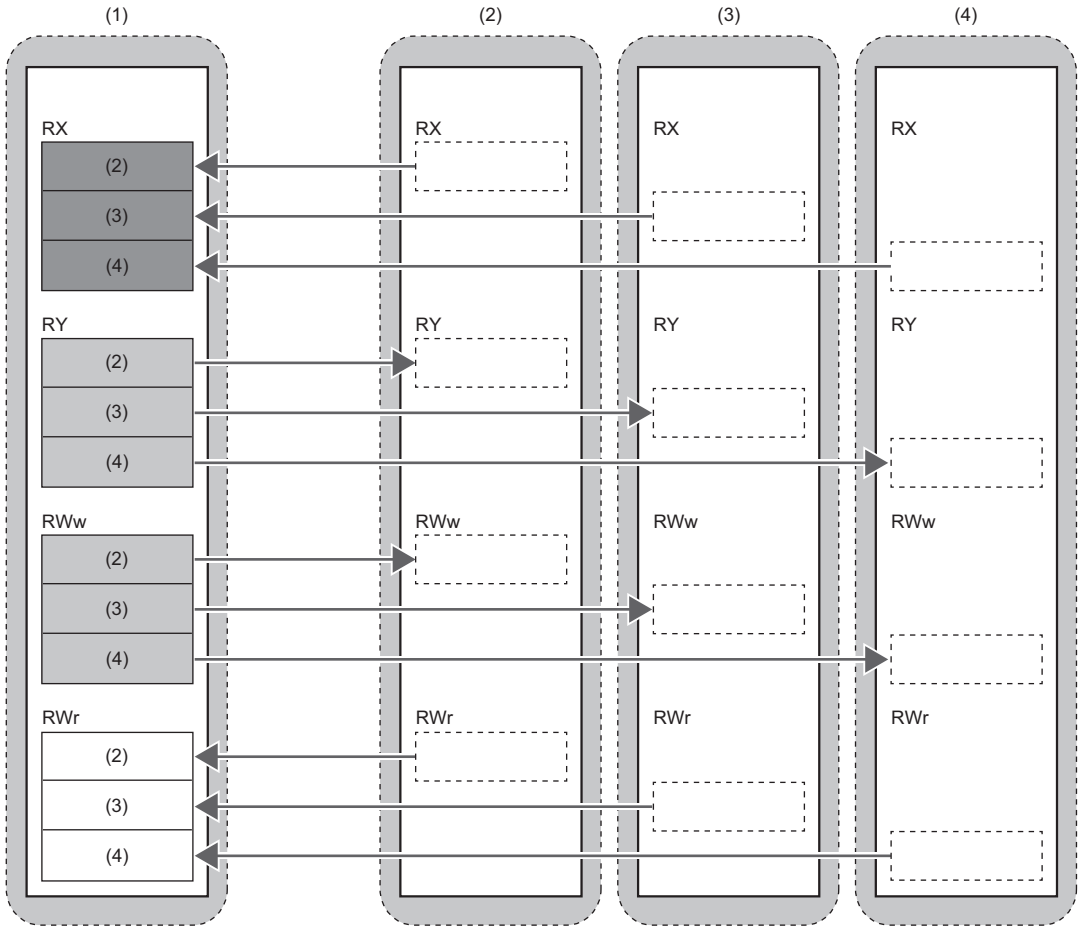
Function name	Description
CCPU_EntryCCIEFBLinkScanEndFunc	To register a routine to be called when the link scan of CC-Link IE Field Network Basic is completed.

For details on the C Controller module dedicated functions, refer to the following manual.
MELIPC MI5000 Series Programming Manual (VxWorks)

Operations of input status and output status during an error

The following table shows the operations of the input status from data-link error stations and the output status of cyclic data when a stop-error occurred on this product.

Status	Operation
Data link abnormal station input status	• RX is cleared. • Data from before RWr generates an error is held.
Output status of cyclic data when a stop-error occurred on this product	RY and RWw are held.



: Area for which input from faulty station is cleared
: Area for which hold/save are different from this product
: Area for which data is held
: Area dependent on slave station settings
(1) Master station
(2) Slave station 1
(3) Slave station 2
(4) Slave station 3

Output status when this product is STOP

Set whether to hold or clear the output of cyclic data when this product enters a STOP condition.

Setting method

The output status when this product is STOP can be set in "Output Setting when MELIPC Stopped" of "CC-Link IEF Basic Settings". (☞ Page 160 BASIC PARAMETERS)

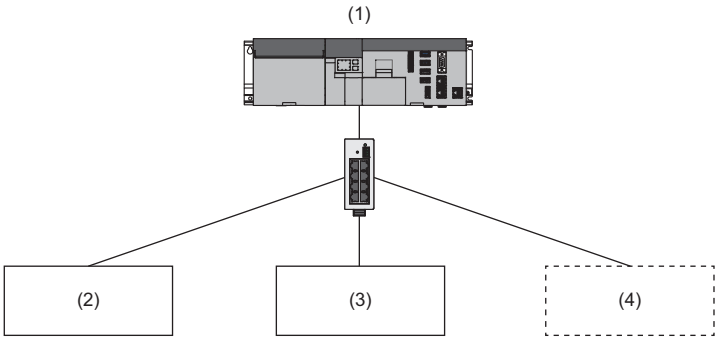
Link device output status

The following table shows the relationship between link devices and output statuses of a MELIPC (hold or clear).

Link device	Output Hold/Clear Setting during MELIPC STOP	
	When 'Hold' is selected	When 'Clear' is selected
RY	Held	Cleared
RWw	Held	Held

7.2 Reserved Station Specification

Reserved station specification can reserve stations to connect in the future (not actually connected, but those counted as being on the network).
Reserved stations do not become faulty stations even if they are not actually connected.



(1) Master station
(2) Slave station 1
(3) Slave station 2
(4) Slave station 3 (not actually connected reserved station)

Setting method

In network configuration settings, specify the slave station as a reserved station. (☞ Page 175 Network Configuration Settings)

Point

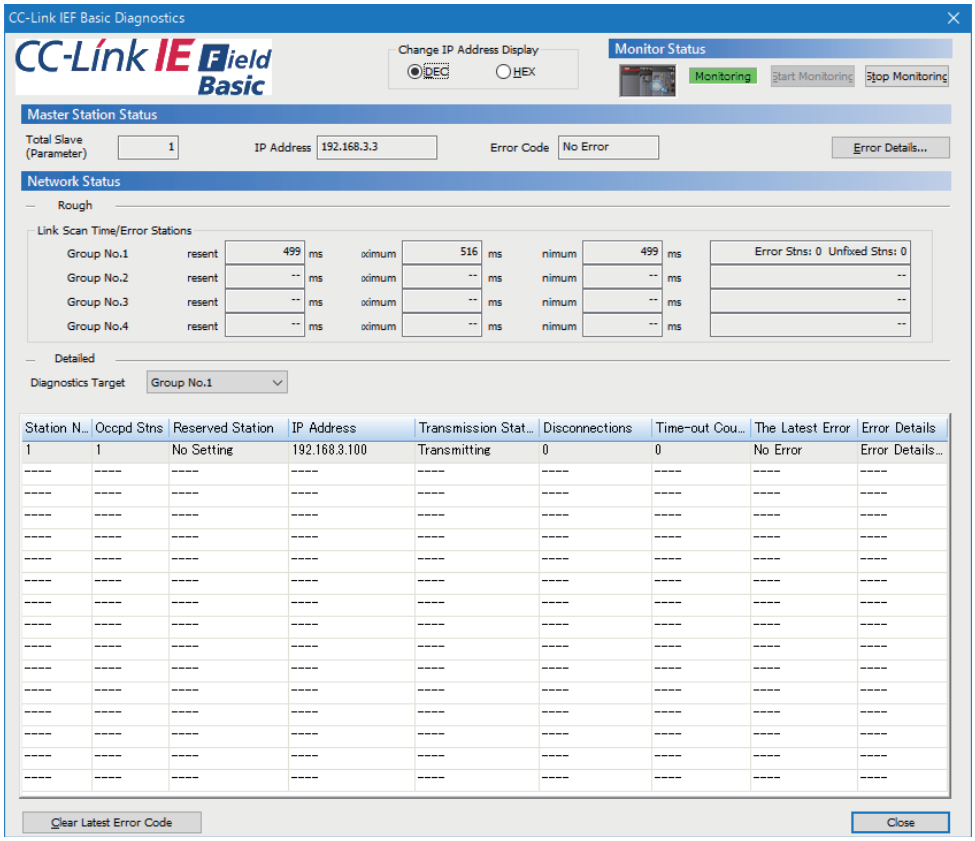
Reserve station settings such as occupied station number and IP address can also be input.

7.3 CC-Link IE Field Network Basic diagnostics

Perform troubleshooting by performing the CC-Link IE Field Network Basic diagnostics and checking the network status and error details.

Window

[Diagnostics] ⇨ [CC-Link IEF Basic Diagnostics]



Displayed items

Item	Description
Total Slave Stations (Parameter)	Displays the number of slave stations set in parameters.
IP Address	Displays the IP address of the master station. Switch between decimal and hexadecimal display with "Switch IP address display".
Error Code	Displays master station error codes.
[Error Details] button	Displays details of occurring errors, and of handling methods.
Link Scan Time/Error Stations	The link scan time (current, maximum, minimum)*1 of each group and the number of error stations and number of unconfirmed stations are displayed. The following items show the status of error stations and unconfirmed stations. • Error Stns: station at which an error is occurring • Unfixed Stns: station with an unconfirmed transmission status (not including reserved stations)
Diagnostics Target Group	Select a group displayed in the list of diagnosis information.
Station No.	Displays the station No. of the slave station.
Occpd Stns	Displays the exclusive station number set in parameters.
Reserved Station	Displays the reserved station set in parameters.
IP Address	Displays the IP address set in parameters. If An IP address is not set in the reserved station, then "—" will be displayed.
Transmission Status	Station transmission status. • Unfixed: Transmission with a master station unfixed*2 • Transmitting: In cyclic transmission • Disconnecting: Disconnected from master station
Disconnections	Displays the accumulated number of disconnections that were detected. • 0: No disconnections • 1 to 65535: Number of disconnection detections (accumulated number)*3
Time-out Count	Displays the accumulated number of timeouts that occurred. • 0: No timeouts • 1 to 65535: Number of timeouts (accumulated number)*3
The Latest Error	Displays the latest error code of the slave station. The latest error remains the same even with a change from slave station disconnection (error occurring) to reconnection. The error is updated (overwritten) when a new separate error occurs. Detailed errors of slave stations cannot be confirmed by CC-Link IE Field Network Basic diagnosis. For errors that occur at slave stations, check the value stored in 'Diagnostic information 2' (Un\G1068 to Un\G1077).
Error Details...	Displays details of occurring errors, and of handling methods.
[Clear Latest Error Code] button	Clears the error code. *4 Only those buttons on the monitor can be clicked.

*1 The maximum and minimum values of the link scan time indicate the maximum and minimum values from the time the power supply of this product was turned ON until it was turned OFF. When the transmission cycle was changed by a C Controller dedicated function (CCPU_ChangeCCIEFBCycPrm) during cyclic transmission, the maximum and minimum values of the link scan time are reset.

*2 When the transmission status is unconfirmed, potential causes are as follows: a slave station configured by parameters has not started, the cable between a master station and slave station is disconnected, or the IP address or subnet mask of the master station/slave station is configured incorrectly.

*3 When the count exceeds 65,535, counting continues from 1.

*4 Clear after dealing with the errors of slave stations.

Acquiring diagnostic information of slave stations

If an error occurs in a slave station or the cyclic data cannot be read or written correctly, check the status of each slave station with the following method for acquiring diagnostic information of slave stations.

Diagnostic information can be acquired through the following means.

- C Controller module dedicated function (CCPU_GetCCIEFBDiagnosticInfo)
- Buffer memory

■ Procedure to acquire diagnostic information with buffer memory

Perform buffer memory operations to acquire diagnostic information.

1. Sets the station number with the diagnoses information you wish to acquire to 'Diagnosis request information' (U3E0\G4635).
2. Turning 'Diagnosis information display request' (U3E0\G4634.0) from OFF to ON will store diagnosis information in 'Diagnosis information 1' (U3E0\G4637 to U3E0\G4648) and 'Diagnosis information 2' (U3E0\G4652 to U3E0\G4661). (If diagnosis information is stored, then "Diagnosis information display request" (U3E0\G4634.0) is OFF.)

■ When acquiring by a C Controller module dedicated function

Acquires by the C Controller module dedicated function (CCPU_GetCCIEFBDiagnosticInfo)

- Function list

Function name	Description
CCPU_GetCCIEFBDiagnosticInfo	Acquires the diagnostic information of CC-Link IE Field Network Basic.

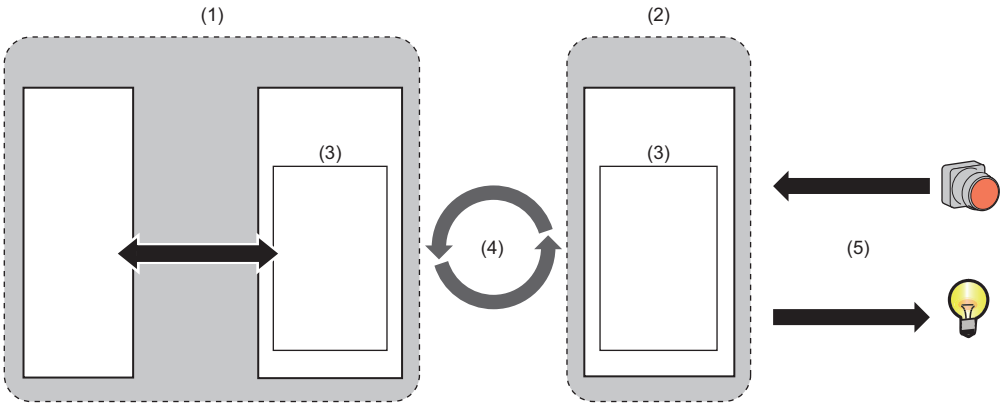
For details on the C Controller module dedicated functions, refer to the following manual.

MELIPC MI5000 Series Programming Manual (VxWorks)

7.4 Processing Time

The CC-Link IE Field Network Basic processing time comprises the following.

- Link scan time + slave station response processing time = transmission delay time



(1) Master station
(2) Slave station
(3) Link device
(4) Link scan time
(5) Slave station response processing time

Link scan time

This product operates according to a link scan time that is set in "Link Scan Time Settings" of "CC-Link IEF Basic Setting". (☞ Page 160 Basic Parameter List)

Link scan time check

Link scan time maximum, minimum, and current values can be confirmed using the following method.

- CC-Link IE Field Network Basic diagnosis(☞ Page 90 CC-Link IE Field Network Basic diagnostics)
- Buffer Memory (☞ Page 280 List of Buffer Memory)

Transmission delay time

The transmission delay time includes the input transmission delay time and the output transmission delay time.

Input transmission delay time

The input transmission delay time shows the following.

- The time from signal (RX) input into the slave station until the master station device turns ON or OFF.
- The time from data (RWr) input into the slave station until the time data is stored in the master station device.

■ Calculation method for input transmission delay time

- Input transmission delay time (max.)=Ls×2+SS[ms]

Item	Description
Ls	Link scan time [ms]
SS	Slave station input reflection processing time [ms] (📖manual for slave station in use)

Output transmission delay time

The output transmission delay time shows the following.

- The time from master station device turning ON or OFF until the slave station output (RY) turns ON or OFF.
- The time from setting data in the master station device until the data is output to the slave station (RWw).

■ Calculation method for output transmission delay time

- Output transmission delay time (max.)=Ls+SS[ms]

Item	Description
Ls	Link scan time [ms]
SS	Slave station output reflection processing time [ms] (📖manual for slave station in use)

8 DIAGNOSTIC AND MAINTENANCE FUNCTIONS

This chapter shows the various RAS functions.

8.1 Self Diagnostics Function

This function diagnoses errors with the product.
This can prevent erroneous operation with the product, as well as carry out detection and replacement when an error is detected.

Self-diagnosis locations

The following items are diagnosed at startup and during operation of this product.

Diagnostic timing	Diagnosis locations
Startup	Memory, CPU fan, CPU temperature
During operation	

Self diagnostics timing

When the product power is turned ON, or when an error is detected during operation, the self-diagnosis function detects problems and displays error messages. Additionally, depending on the details of the problem, this product will be shut down or restart.

Point

Depending on the status of the error, detection of the error using self-diagnostics may not be possible. Additionally, configure external safety circuits to ensure that the entire system operates safely even if stop processing using self diagnostics does not occur.
Data processing of a user program continues even when the operating status of this product is remote STOP due to the self-diagnosis function. To separate the processing of a user program by operating status, use the C Controller module dedicated function (CCPU_GetCpuStatus). (MELIPC MI5000 Series Programming Manual (VxWorks))

Checking errors

The error conditions for the overall system, and errors being currently generated can be checked in the MELIPC diagnostics window. (MI Configurator Operating Manual)
Information of errors that occurred are also stored in the special relays and special registers. (Page 255 List of Special Relays, Page 256 List of Special Registers)

Error information

- MELIPC diagnostics error information displays up to a maximum of 16 errors currently occurring on the product. However, when an additional error occurs after a stop error, the error information for the additional error is not updated.
- The history of errors that occur is can be checked in the event history. (Page 109 Event History Function)

Point

The maximum number of these that can be displayed from the product is 15 for continuation errors, and 1 for stop errors. When 15 continuation errors are displayed and another one occurs, the new continuation error is not displayed. When an error with the same code has already been displayed, the date and time of occurrence and detailed information of the relevant error are not updated.

Operation upon error occurring

The product operating status and LED status will differ depending on the type of error generated.
For error types, see the following page.
☞ Page 218 List of Error Codes

MELIPC operation setting at error detected

Set operation settings upon error detection.

MELIPC operation setting at error detected

Configure the operation of this product when a problem is detected by using "MELIPC Operation Setting at Error Detected" of "RAS Setting".

Window

[Basic Parameter] ⇨ [RAS Setting] ⇨ [MELIPC Operation Setting at Error Detected]

Displayed items

Item	Description	Setting range
MELIPC Temperature Error*1	Set the device operation upon detection of a Main module temperature error. If "Shutdown" is set, the VxWorks part and Windows part shut down when an error is detected.	• Shutdown • Not Shutdown (Default: Shutdown)
Windows part Stop*2	Set operation of the Windows part when a stop state is detected due to a Windows blue screen including timeout detection from the Windows part system watchdog timer or other issue.	• Not Reboot*3 • Reboot (Default: Not Reboot)

*1 If "Shutdown" is selected, the operation upon error detection is the same as when the SHUTDOWN switch is pressed. (☞ Page 118 MELIPC Shutdown Function)
*2 If the Windows part continuously restarts, a window to select whether to start Windows in safe mode is displayed.
*3 If "Not Reboot" is selected, the error code is recorded in the event history at error detection, the MAIN ERR LED is lit, and the WIN RDY LED is off.
If "Reboot" is selected, the Windows part is restarted at error detection, and an event stating it restarted automatically is saved in the event history.

Point

For details on the internal configuration of this product (Windows part and VxWorks part), refer to the following manual.
MELIPC MI5000 Series User's Manual (Startup)

Precautions

■ Automatic restart at a Windows system error

If Windows automatic restart is enabled, and "Reboot" is selected for when the Windows part stops, this product may restart repeatedly. If "Reboot" is selected, disable Windows automatic restart.

Windows Start ⇨ [Windows System Tools] ⇨ [Control Panel] ⇨ [System and Security] ⇨ [System] ⇨ [Advanced system settings] ⇨ [Advanced] ⇨ [Startup and Recovery] ⇨ [Settings] ⇨ [System failure] ⇨ [Automatically restart]

■ If "Shutdown" is selected for 'MELIPC Temperature Error'

The product may not shut down if MI Configurator or programs that make file accesses are operating, or depending on the status of Windows.

LED display setting

Configure the applicability of MAIN ERR LED display during continuation errors using "LED Display Setting" of "RAS Setting".

Window

[Basic Parameter] ⇨ [RAS Setting] ⇨ [LED Display Setting]

Displayed items

Item		Description	Setting range
MAIN ERR LED	Minor Error (Continue Error)	Set whether to display MAIN ERR LED when Minor Error (Continue Error) was detected.	• Display • Not Display (Default: Display)

8.2 Watchdog Timer (WDT) Function

This function detects errors of hardware and user applications (used programs) of this product.

Watchdog timer types

The watchdog timer runs on the VxWorks part as follows.

Point

The watchdog timers of the Windows part and VxWorks part run independently. For the watchdog timer of the Windows part, refer to the following page.

☞ Page 18 Watchdog Timer (WDT) Function

Function name		Description
VxWorks part	System watchdog timer	Detects problems (system hang-ups, etc.) in the system programs of the VxWorks part stemming from hardware abnormalities. *1
	User watchdog timer	Detects invalid statuses (system hang-ups, occupation of processing, etc.) of user applications of the VxWorks part.

*1 Time-up errors may be detected from hang-ups of the user application.

Monitoring time setting

This section shows the method for setting a watchdog timer monitoring time.

System watchdog timer

A system watchdog timer can be set in "System WDT Setting" of "WDT(Watchdog Timer) Setting (VxWorks part)".

Window

[Basic Parameter] ⇨ [RAS Setting] ⇨ [WDT (Watchdog Timer) Setting (VxWorks part)]

Displayed items

Item	Description	Setting range
Monitoring Time	Set the system watchdog timer monitoring time.	20 to 2000 [ms](10 ms units) (Default: 1000 ms)

User watchdog timer

Set the user watchdog timer by using the C Controller module dedicated function (CCPU_StartWDT).

Set a monitoring time for the user watchdog timer within the range of 100 to 10,000 ms (in 10 ms units).

Point

The user watchdog timer does not run if it is not configured by the C Controller module dedicated function (CCPU_StartWDT).

■ Function list

Function name	Description
CCPU_StartWDT	Sets the user WDT of the VxWorks part and starts the user WDT.
CCPU_ResetWDT	Resets a user WDT of the VxWorks part.

For details on the C Controller module dedicated functions, refer to the following manual.

MELIPC MI5000 Series Programming Manual (VxWorks)

Monitoring start and reset

This section shows the timing to start and reset monitoring a watchdog timer.

Function name		Description
VxWorks part	System watchdog timer	The system automatically starts monitoring, and resets using periodic processing. The system can acquire the actual measured value of the time interval to reset the system watchdog timer. (☞ Page 99 Reset interval of system watchdog timer) If system processing has been suspended for a long time because of a hardware failure of this product or execution of an interrupt program, a watchdog timer timeout occurs. (☞ Page 99 Operation during a timeout of the watchdog timer)
	User watchdog timer	Monitoring starts by executing the C Controller module dedicated function (CCPU_StartWDT), and the monitoring time is reset by executing the C Controller module dedicated function (CCPU_ResetWDT). The watchdog timer times out when processing of a user application is not completed within the specified time, and the C Controller module dedicated function (CCPU_ResetWDT) cannot be executed. (☞ Page 99 Operation during a timeout of the watchdog timer)

Reset interval of system watchdog timer

The system watchdog timer is reset by the system at fixed cycles. However, the reset time interval may be longer than the prescribed cycle due to the execution of an interrupt program or other issue. The time taken for a reset[*1] can be checked by the buffer memory. (☞ Page 280 List of Buffer Memory)

*1 Time for the initial reset after the power supply of this product was turned ON, or time from a reset of the watchdog timer to the next reset.

Operation during a timeout of the watchdog timer

This section shows the operating statuses during a timeout of the watchdog timer.
If the watchdog timer is timed-up, this provides a notification displaying an error (a watchdog timer error) to the effect that a time in excess of that set in watchdog timer monitoring settings has elapsed.

Point

The following table lists the LED display and operation statuses that change due to a timeout of the watchdog timer. LED display and operation statuses other than those listed do not change due to a timeout.

Function name		Description
VxWorks part	System watchdog timer	■Operating status • Stop in communications using the CC-Link IE Field Network • Notification of error (watchdog timer error) ■LED status • VX RDY LED: Off • MAIN ERR LED: On
	User watchdog timer[*1]	■Operating status • Stop in communications using the CC-Link IE Field Network • Notification of error (watchdog timer error) ■LED status • MAIN ERR LED: flashing

*1 A registered routine can be executed when a timeout occurred. (☞ Page 100 Registration of routines)

Registration of routines

A user registered routine is called when the user watchdog timer of the VxWorks part times out.
Use the C Controller module dedicated function (CCPU_EntryWDTInt) to register routines.

■ Function list

Function name	Description
CCPU_EntryWDTInt	Registers a routine to be called when a user WDT error interrupt of the VxWorks part occurs.

For details on the C Controller module dedicated functions, refer to the following manual.
MELIPC MI5000 Series Programming Manual (VxWorks)

Point

When the C Controller module dedicated function (CCPU_EntryWDTInt) is executed multiple times, the registered routine of the C Controller module dedicated function (CCPU_EntryWDTInt) executed most recently is enabled. (The registered routine is executed as an interrupt service routine (ISR).) Set the routine to be registered to minimize the routine processing and keep the processing time as a short as possible.

Precautions

- The registered routine is not executed while the operating system is in the interrupt-disabled state on the VxWorks part.
- Registered routines can use only C Controller module dedicated functions for ISR. Do not use other functions. (An error check of registered functions is not performed.)

8.3 Operating Status Management Function

This function manages the operating status (including STOP/RUN status) of this product.

This product has the following operating statuses.

Item		Description
Operating status of the VxWorks part	—	Displays the operating status of the VxWorks part.
	VxWorks part preparing	Status when the VxWorks part is starting while this product is turning ON or resetting.
	VxWorks part running	Status when the VxWorks part starts and is operating normally.
	VxWorks part stopping	Status in which a system watchdog timer error is occurring.
Operating status of Windows part*1	—	Displays the operating status of the Windows part.
	Windows part preparing	Status when the Windows part is starting while this product is turning ON or resetting or Windows is restarting.
	Windows part running	Status when the Windows part starts and is operating normally.
	Windows part shutting down	Status when the Windows shutdown processing is being executed from the SHUTDOWN switch, abnormal temperature error, or the Start menu of Windows.
	Windows part stopping	The Windows part shutdown processing status.
STOP/RUN status of the VxWorks part	—	Displays the STOP/RUN status when the VxWorks part is operating.
	STOP	Status when the STOP/RUN status became STOP due to the STOP/MAIN RUN switch, a remote operation, a dedicated function, or a stop error.
	RUN	Status when the STOP/RUN status became RUN due to the STOP/MAIN RUN switch, a remote operation, or a dedicated function.
User drive status of the VxWorks part	—	Displays the user drive writing status of the VxWorks part
	Writing not possible	Status when writing to the user drive is restricted by the SHUTDOWN switch or a function.
	Writing possible	Status when the VxWorks part starts and is operating normally.

*1 The operating status of the Windows part is not guaranteed when a blue screen or other system error occurred on Windows part. Therefore, the operating status immediately before the system error occurred may be acquired.

Acquisition of operating status

The operating status of this product can be acquired by the C Controller module dedicated function (CCPU_GetCpuStatus)

■ Function list

Function name	Description
CCPU_GetCpuStatus	To acquire the operating status of a MELIPC.

For details on the C Controller module dedicated functions, refer to the following manual.

MELIPC MI5000 Series Programming Manual (VxWorks)

STOP/RUN status change function

This function changes the STOP/RUN status of the VxWorks part at an arbitrary time.
For example, the cyclic data of the CC-Link IE Field Network function can be cleared or conditional branches of user programs can be used.
The operation status of the VxWorks part has the following types. The status can be changed at an arbitrary time when a stop error is not occurring on this product.

- RUN
- STOP

Point

- Changes to the STOP/RUN status of the VxWorks part do not affect the operation on the Windows part.
- To change the STOP/RUN status by a remote operation or function, change the position of the STOP/MAIN RUN switch to 'MAIN RUN'. If the STOP/MAIN RUN switch is in the Stop position, the STOP/RUN status will be fixed to STOP.
- After changing the STOP/RUN status to STOP by a remote operation or a function, the STOP/RUN status will not change to RUN even if the position of the STOP/MAIN RUN switch is changed to RUN. Change the STOP/RUN status to RUN by a remote operation or a function.
- Even when the operating status of the VxWorks part is either STOP or RUN, the data processing of a user program is performed. To divide program processing depending on the operating status of the VxWorks part, use the C Controller module dedicated function (CCPU_GetCpuStatus). (MELIPC MI5000 Series Programming Manual (VxWorks))

Change of the operating status

Use one of the following methods to change the operating status.

■ Switch operations

Use the STOP/MAIN RUN switch.
(MELIPC MI5000 Series User's Manual (Startup))

■ remote operation

Use a remote operation of MI Configurator. (☞ Page 104 Remote operation function)

■ C controller module dedicated function

Use the C Controller module dedicated function (CCPU_Control)

- Function list

Function name	Description
CCPU_Control	Performs a remote operation (remote RUN/STOP) of the MELIPC.

For details on the C Controller module dedicated functions, refer to the following manual.
MELIPC MI5000 Series Programming Manual (VxWorks)

STOP/RUN status

Changes to the STOP/RUN status of the VxWorks part affect the following functions.

Function	Description	Reference
CC-Link IE Field Network FUNCTION	When the status is changed to STOP, whether to clear or retain the output of cyclic data can be selected.	☞ Page 49 Output status when this product is STOP
CC-Link IE Field Network Basic function		☞ Page 88 Output status when this product is STOP

Point

- Buffer memory values are retained even when the STOP/RUN status is changed.
- If the VxWorks part is in the STOP state, writing data to the buffer memory using a C Controller dedicated function will be disabled.

Error clear function

This function clears all continuation errors on the product at once.

For details on error codes, refer to the following.

☞ Page 218 List of Error Codes

How to clear errors

Use one of the following methods to clear errors.

- MI Configurator
- C Controller module dedicated function

Precautions

- Since the function clears all continuation errors at once, error codes that should not yet be cleared may be cleared.
- Running the error clear function does not remove the cleared errors from the event history.

■ MI Configurator

Use MELIPC diagnosis.

[Diagnostics] ⇨ [MELIPC Diagnostics]

■ C Controller module dedicated function

Use the C Controller module dedicated function (CCPU_ClearError).

This section shows the procedure to clear errors by a user program.

1. Execute the C Controller module dedicated function (CCPU_GetErrInfo).

Acquire information of errors that occurred on this product.

2. Clear the cause of continuation errors detected by this product.

3. Execute the C Controller module dedicated function (CCPU_ClearError).

Continuation errors occurring on this product are cleared.

- Function list

Function name	Description
CCPU_ClearError	Clears the continuation errors of the MELIPC.
CCPU_GetErrInfo	Acquires error information of a MELIPC.

For details on the C Controller module dedicated functions, refer to the following manual.

MELIPC MI5000 Series Programming Manual (VxWorks)

User drive write-protected function

This function restricts access (protects writing) to the user drive of the VxWorks part of this product.
File corruption due to access of the user drive can be prevented when the power supply of this product is turned OFF.

Write protect settings

Configure the write-inhibiting of the user drive by using the C Controller module dedicated function (CCPU_ShutdownRom).

■ Function list

Function name	Description
CCPU_ShutdownRom	Shuts down the user drive of the VxWorks part.

For details on the C Controller module dedicated functions, refer to the following manual.
MELIPC MI5000 Series Programming Manual (VxWorks)

Precautions

When writing of the user drive is inhibited, it is not possible to write to the user drive until the power supply of this product is turned from OFF to ON or the product is reset. (An error occurs during writing.) Furthermore, parameter writing and user drive initialization from MI Configurator and other functions that access the user drive cannot be used. To access the user drive, try again after turning the power supply of this product OFF to ON or resetting the product.

Remote operation function

This function operates this product through MI Configurator or external devices using SLMP.
The following table shows the remote operations.

remote operation	Description
Remote RUN/STOP	Set this product to a RUN/STOP status remotely while the STOP/MAIN RUN switch of this product is in the MAIN RUN position.
Remote RESET	Reset this product through an external operation when this product is in a STOP status. A reset is also possible when this product is stopped due to an error or in the case of a remote STOP status.
Windows part forced restart	Force a restart of the Windows part of this product remotely. A restart is also possible when the Windows part is stopped due to an error or other problem while control of the VxWorks part is maintained.

Point

When using remote operations via a network, use service setting functions, IP filters, and other security functions as security measures.

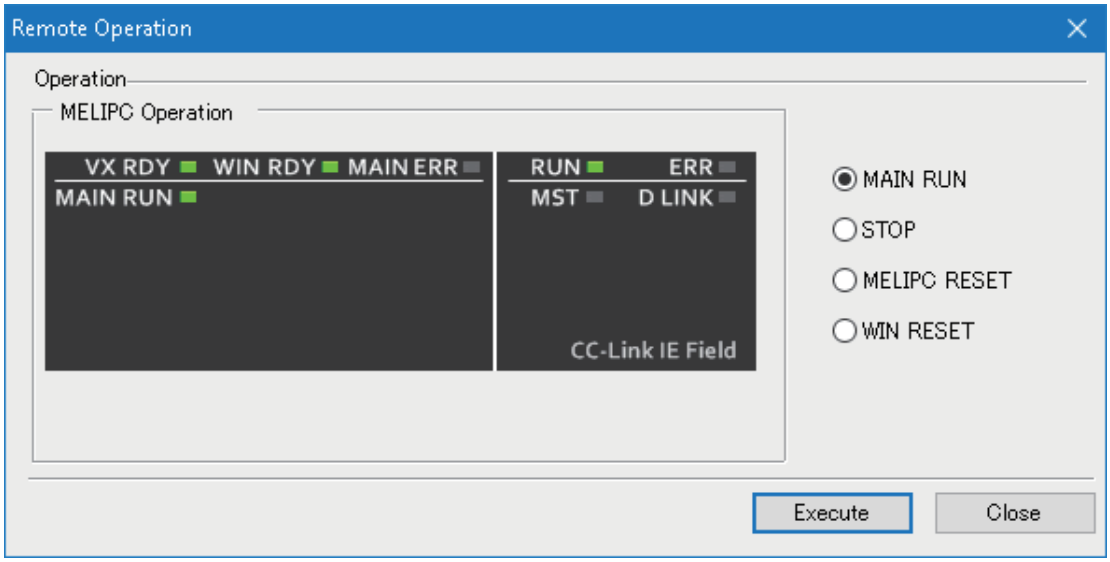
remote RUN/STOP

This section shows the operation methods of remote RUN/STOP.

■ MI Configurator

Use a remote operation of MI Configurator.

[Online] ⇨ [Remote Operation] ⇨ [MAIN RUN]/[STOP]



■ SLMP

For details on SLMP, refer to the following manual.

SLMP Reference Manual

8

Precautions

Be aware of the following points when executing remote RUN/STOP because the STOP operation status of VxWorks part is prioritized.

■ Remote RUN/STOP operation

Remote RUN/STOP cannot be used when the STOP/MAIN RUN switch status is STOP. Set the STOP/MAIN RUN switch status to RUN.

■ STOP timing

This product enters the STOP status when a remote STOP was executed by MI Configurator.

■ To change the remote STOP state to RUN again

Change the operating status by using remote RUN.

■ User actions during a remote STOP

Data processing of a user program continues even when the operating status of this product is remote STOP. To separate the processing of a user program by operating status, use the C Controller module dedicated function (CCPU_GetCpuStatus).

• Function list

Function name	Description
CCPU_GetCpuStatus	To acquire the operating status of a MELIPC.

For details on the C Controller module dedicated functions, refer to the following manual.

MELIPC MI5000 Series Programming Manual (VxWorks)

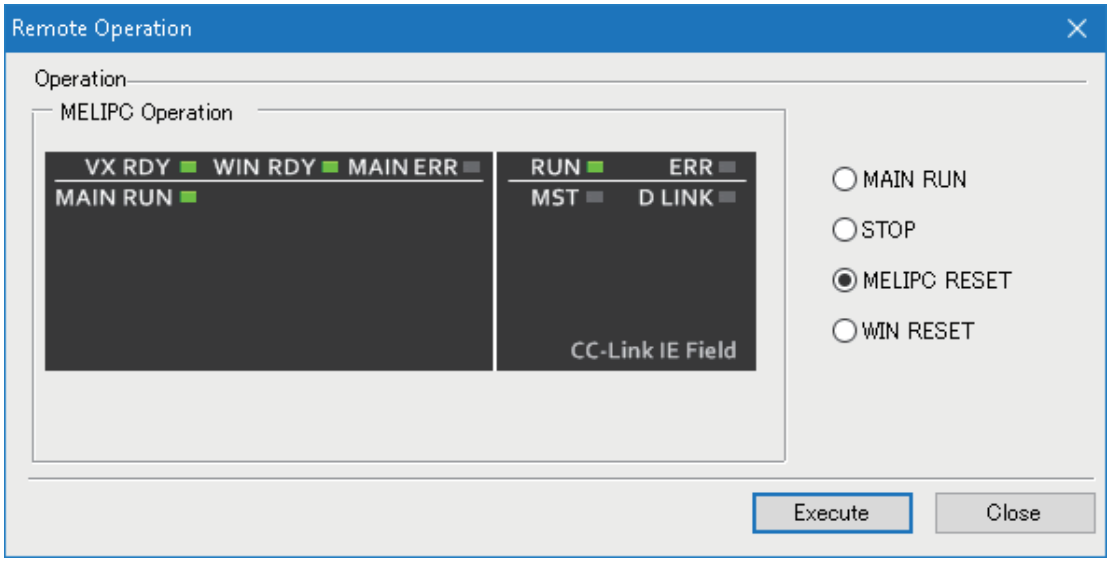
remote RESET

This section shows the operation methods of remote RESET.

■ MI Configurator

Use a remote operation of MI Configurator.

[Online] ⇨ [Remote Operation] ⇨ [MELIPC RESET]



Point

A MELIPC RESET or WIN RESET cannot be run when a remote operation was performed by MI Configurator that is installed on the Windows part of this product.

■ SLMP

For details on SLMP, refer to the following manual.

SLMP Reference Manual

Precautions

■ Enabling remote RESET

Before performing a remote RESET, enable remote RESET in MI Configurator.

[Basic Parameter] ⇨ [Operation Related Setting] ⇨ [Remote Operation Settings] ⇨ [MELIPC RESET]

■ Considerations before executing a remote RESET

Set the operating status of this product to the STOP status.

Before a remote RESET, close or exit user applications of the Windows part and VxWorks part. If a remote RESET is performed during operation of a user program, the user program or files may be corrupted.

■ Considerations after executing a remote RESET

Communication between external devices and this product are cut. Connect them again.

■ Remote RESET at error stop

If this product is stopped due to an error when a remote RESET is performed, this product starts in the operating status configured by the switch.

■ System reset

A system reset can also be performed by the MELIPC RESET/WIN RESET switch. (MELIPC MI5000 Series User's Manual (Startup))

Windows part forced restart

For details on Windows part forced restarts, refer to the following page.

☞ Page 120 Windows part forced restart

Momentary power failure detection function

This function detects momentary power failures when the input voltage supplied to the power supply module is below the prescribed range during operation of this product.

Operation at momentary power failure

The following section shows operation during a momentary power failure.

■ When a momentary power failure shorter than the allowable time is detected

- The buffer memory values are retained when a momentary power failure occurs.
- The error information is recorded in the event history after power is restored. (During the initial detection)
- The number of momentary power failures is retained internally. (☞ Page 107 Check of the number of momentary power failure detections)

■ When a momentary power failure exceeding the allowable momentary power failure time is detected

This product enters the same state as when the following operations are performed.

- Turning the power OFF and ON or resetting the product (📖MELIPC MI5000 Series User's Manual (Startup))
- Resetting the product by the MELIPC RESET/WIN RESET switch (📖MELIPC MI5000 Series User's Manual (Startup))
- Resetting the product by a remote operation of MI Configurator (☞ Page 104 Remote operation function)
- Resetting the product by the C Controller module dedicated function (CCPU_Reset) (📖MELIPC MI5000 Series Programming Manual (VxWorks))

Check of the number of momentary power failure detections

This product retains internally the number of momentary power failure detections.

The number of detected momentary power failures can be checked by the C Controller module dedicated function (CCPU_GetPowerStatus).

■ Function list

Function name	Description
CCPU_GetPowerStatus	Acquires the power supply status of a MELIPC.

For details on the C Controller module dedicated functions, refer to the following manual.

📖MELIPC MI5000 Series Programming Manual (VxWorks)

Fan module cleaning detection function

This function detects the operating status of the fan module.
The time for which the power supply of this product is ON is counted, and the arrival of the fan module cleaning interval is reported after a fixed time has passed.

Notification check

When the fan module cleaning interval is reached, the following operations are executed.

- The event (fan module filter cleaning notification) is saved to the event history. (☞ Page 251 Event List)
- The FAN LED turns ON.*1 (📖MELIPC MI5000 Series User's Manual (Startup))

*1 When this function turns on the FAN LED, the FAN LED does not turn off even when the power supply of this product is turned OFF to ON or the product is reset. Execute "Alert reset" in the menu selection mode. After executing "Alert reset", an event (fan module filter cleaning complete) is saved to the event history.

Precautions

If the fan module is cleaned or replaced, always execute "Alert reset" in the menu selection mode. Otherwise, the next cleaning interval for the fan module will not be counted correctly.

System clock rate operation function

This function changes the system clock rate of the VxWorks part of this product.
For details on the system clock rate, refer to the VxWorks Manual.

System clock rate setting

Use the following C Controller module dedicated functions to configure the system clock rate: (CCPU_SysClkRateSet) and (CCPU_SysClkRateGet).

■ Function list

Function name	Description
CCPU_SysClkRateGet	Reads the system clock rate specified with the CCPU_SysClkRateSet function.
CCPU_SysClkRateSet	Stores the specified system clock rate in the non-volatile memory.

For details on the C Controller module dedicated functions, refer to the following manual.
📖MELIPC MI5000 Series Programming Manual (VxWorks)

Precautions

■ System clock rate changes

Use the C Controller module dedicated function (CCPU_SysClkRateSet) to change the system clock rate. If this command (sysClkRateSet) is used to change the system clock rate of VxWorks, the operation of the VxWorks part will be unstable.

■ Timing of system clock rate changes

Changes of the system clock rate are enabled after a restart of the VxWorks part of this product. To change the system clock rate, always turn the power supply of this product OFF and ON or reset this product.

■ System clock rate during operation

The value obtained by the C Controller module dedicated function (CCPU_SysClkRateGet) is the value configured by the C Controller module dedicated function (CCPU_SysClkRateSet). This may be different than the actual operating system clock rate. Use the command (sysClkRateGet) of VxWorks to check the system clock rate during operation.

8.4 Event History Function

This function collects and saves the following information: errors detected by this product, operations performed for this product, and errors occurred on a network.
Saved information about errors and operation can be checked in chronological order of occurrence using MI Configurator.
This function can be used to investigate problems that have occurred with equipment and devices, check the update status of control data of this product, and detect unauthorized access.

Point

Events output by Windows as standard use the Windows standard event function.

Logging of the event history

This collects and saves events occurring on the product as well as event history for other stations administered by the product.
Detailed information, such as the operation initiator information, is saved for troubleshooting when the event history is saved.
For details on events to save, refer to the following.
☞ Page 251 Event List

Save capacity settings

Configure the save capacity for event history files using "Event History Setting" of "RAS Setting".

Window

[Basic Parameter] ⇨ [RAS Setting] ⇨ [Event History Setting]

Displayed items

Item	Description	Setting range
Storage Capacity Setting	Set the capacity to save per event history file. Setting more capacity enables you to save more events.	2 to 2048 (KB) (1 KB units) (Default: 128 KB)

Saving using the C Controller module dedicated function

Event history can be registered from a user program by executing the C Controller module dedicated function (CCPU_RegistEventLog).
In this case, the event type is "Operation".

■ Function list

Function name	Description
CCPU_RegistEventLog	Registers event logs in the event history of a MELIPC.

For details on the C Controller module dedicated functions, refer to the following manual.
MELIPC MI5000 Series Programming Manual (VxWorks)

Event history file

The event history file is saved to the system memory of this product.

File size

When the configured file size for the event history file is exceeded, the latest history is saved after deleting the oldest history.
The file size is calculated using the following formula.

- File header size + Event history management information size + Number of records×Size per event history record

The following points show the size of each element.

- File header size: 20 bytes
- Event history management information size: 12 bytes
- Size per event history record: 40 to 1,112 bytes[*1]

*1 Because there are events that span multiple records in the event history, the file size per record changes.

Conditions for collecting events

This product collects event history regardless of its operating status (stop error, etc.) However, this product may not be able to collect event history under the following statuses.

- Major error
- Cable failure

Creation timing

Event history files are created at the following times.

- When the power of this product is turned OFF and ON or after a reset of this product (when no event history file exists / after a change of event history settings)
- initialization
- At registration of event history (no event history file exists)

Point

When a new event history file is created, the event that indicates a new file creation is saved.

Parameter reflection timing

Parameter application is enabled at the following times when the event history file settings were changed.

- Turning the power supply of this product OFF to ON or after a reset of this product

Event history loss

If the event are detected frequently, some events may be dropped. In this case, the event code (*HST LOSS*) which indicates that the event is dropped is displayed.

Point

If the power is turned OFF or a reset is performed during event history sampling, an event code (*HST LOSS*) may be displayed under the following statuses.

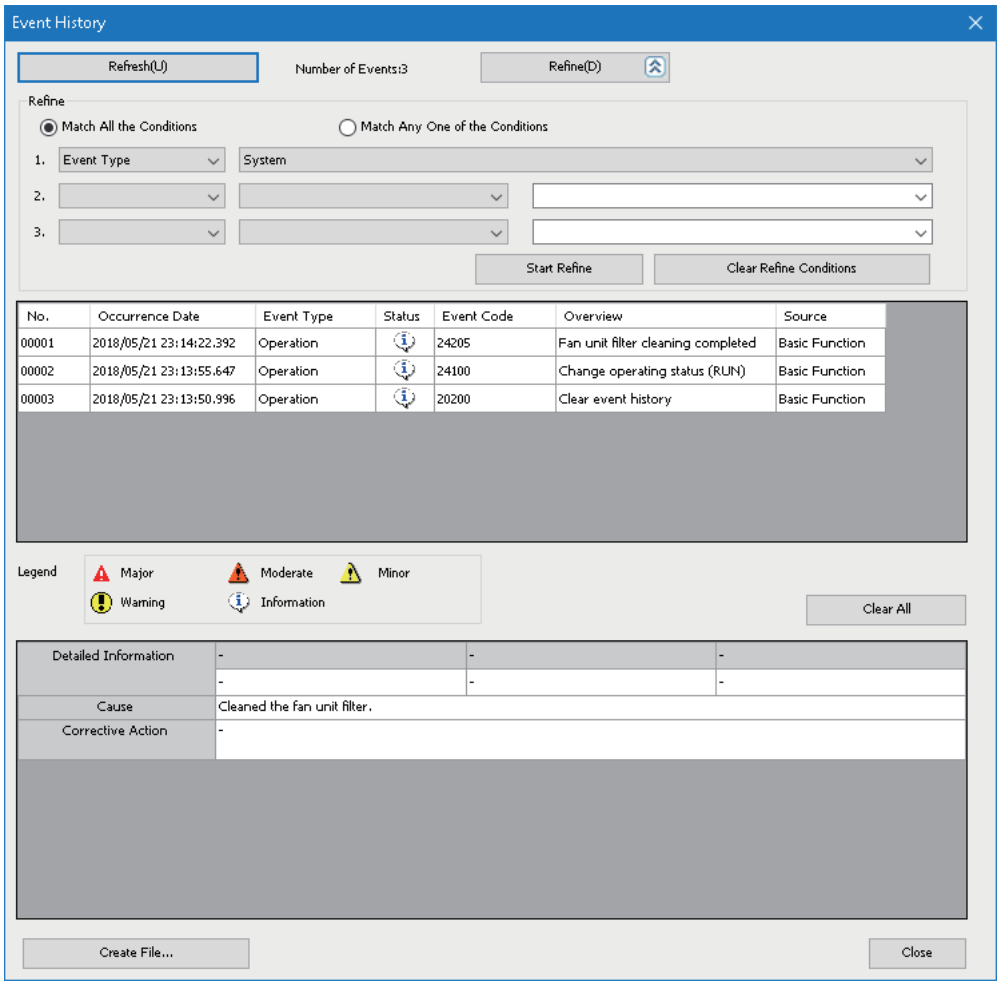
- When the source is not displayed (source information unknown)

Checking event history

Event history can be checked using the MELIPC diagnosis function of MI Configurator.

Window

[Diagnostics] ⇨ [MELIPC Diagnostics] ⇨ [Error Information] ⇨ [Event History]



Clearing the event history

Delete the whole event history stored on the product using the [Clear All] button in the "Event History" screen.
If event history is cleared, then an event indicating that the event history was cleared will be saved.

Precautions

If the event history is being accessed from another instance of MI Configurator or similar, or if the event history file cannot be accessed, then clearing of the event history will not be possible.

8.5 Switch/LED Operation Function

This function operates the LEDs of this product, acquires the LED statuses, acquires switch statuses, and manipulates operating statuses.

Switch operation function

This function executes functions corresponding to the switch operations of this product.
For the operation methods and corresponding functions of each switch, refer to the following manual.
MELIPC MI5000 Series User's Manual (Startup)

Switch status acquisition function

This function acquires the switch status of this product.
Use this function to, for example, change control of a user program by switch status.

Switch status acquisition

Acquire the switch status by the C Controller module dedicated function (CCPU_GetSwitchStatus).

■ Function list

Function name	Description
CCPU_GetSwitchStatus	Acquires the statuses of the switches of the MELIPC.

For details on the C Controller module dedicated functions, refer to the following manual.
MELIPC MI5000 Series Programming Manual (VxWorks)

Switch operation notification function

This function issues an event notification stating that a switch was operated when a switch of this product was operated.
Event notifications of switch operations are received by user programs. Use this function to, for example, change control of a user program by switch operation.

Event notification reception

Receive event notifications by the C Controller module dedicated function (CCPU_WaitSwitchEvent).

■ Function list

Function name	Description
CCPU_WaitSwitchEvent	Waits for a switch interruption event to occur.

For details on the C Controller module dedicated functions, refer to the following manual.
MELIPC MI5000 Series Programming Manual (VxWorks)

LED operation function

This function changes the display of the main LED and dot matrix LED of this product to an arbitrary display.

The following table shows the operable LEDs.

○: Possible, ×: Impossible

LED name		Operation applicability
MAIN LED	VX RDY LED	×
	WIN RDY LED	
	MAIN ERR LED	
	MAIN RUN LED	
	STORAGE LED	
	FAN LED	
	INFO LED	○
	RS SD/RD LED	×
	BATTERY LED	
Dot matrix LED		○

LED operation

Operate the main LED and dot matrix LCD by using the C Controller module dedicated functions (CCPU_SetLEDStatus, CCPU_SetLEDStatus_ISR, CCPU_SetDotMatrixLED, CCPU_SetDotMatrixLED_ISR).

■ Function list

Function name	Description
CCPU_SetLEDStatus	Sets the INFO LED status of a MELIPC.
CCPU_SetLEDStatus_ISR	
CCPU_SetDotMatrixLED	Sets values to be displayed on the dot matrix LED of a MELIPC.
CCPU_SetDotMatrixLED_ISR	

For details on the C Controller module dedicated functions, refer to the following manual.

📖MELIPC MI5000 Series Programming Manual (VxWorks)

LED status acquisition function

This function acquires the statuses of the main LED, dot matrix LED, and the CC-Link IE Field Network LED of this product.
The following table shows the LEDs for which LED statuses can be acquired.
○: Possible, ×: Impossible

LED name		Acquisition applicability
MAIN LED	VX RDY LED	○
	WIN RDY LED	
	MAIN ERR LED	
	MAIN RUN LED	
	STORAGE LED	×
	FAN LED	○
	INFO LED	
	RS SD/RD LED	×
	BATTERY LED	○
CC-Link IE Field Network LED	RUN LED	○
	ERR LED	
	MST LED	
	D LINK LED	
	SD/RD LED	
	L ERR LED	
Dot matrix LED		○

LED status acquisition

Acquire the LED statuses using the C Controller module dedicated functions (CCPU_GetLEDStatus, CCPU_GetDotMatrixLED, CCPU_GetDotMatrixLED_ISR).

■ Function list

Function name	Description
CCPU_GetLEDStatus	Acquires the LED status of a MELIPC.
CCPU_GetDotMatrixLED	Acquires the values displayed on the dot matrix LED of a MELIPC.
CCPU_GetDotMatrixLED_ISR	

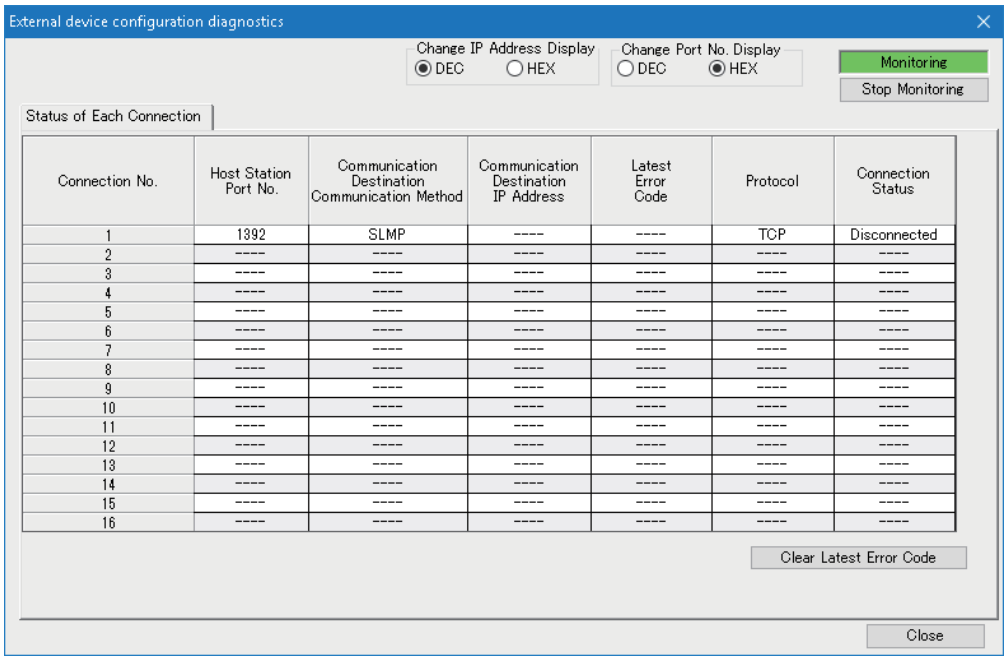
For details on the C Controller module dedicated functions, refer to the following manual.
MELIPC MI5000 Series Programming Manual (VxWorks)

8.6 External Device Configuration Diagnostics Function

This function displays communication statuses between the Ethernet port (CH1) of this product and an external device, and between virtual Ethernet and the communication target.
By executing this function to check the communication status between this product and other devices, connection status and other information can be checked for troubleshooting.

Window

[Diagnosis] ⇨ [External Device Configuration Diagnostics]



Displayed items

Item	Description
Connection No.	The connection number configured by the external device configuration is displayed.
Host Station Port No.	The host station port number configured by the external device configuration is displayed. If the external device communications method is "MELSOFT Connection", settings are not configured, or the connection device is not supported, "----" is displayed.
Communication Destination Communication Method	The external device configured by the external device configuration is displayed. If the connection device is not supported, "----" is displayed.
Communication Destination IP Address	The IP address of the connected device is displayed. If the connection status is "Disconnected", settings are not configured, or the connection device is not supported, "----" is displayed.
Latest Error Code	The latest error code during communication with the target connection number is displayed. If the connection device is not supported, "----" is displayed.
Protocol	The protocol type configured for the target connection number is displayed. • In the case of TCP/IP: TCP • In the case of UDP/IP: UDP If settings are not configured or the connection device is not supported, "----" is displayed.
Connection Status	When the protocol of the target connection number is TCP/IP, the status of the connection with the external device is displayed. • Connection status: Connected • Disconnection status: Disconnected When the protocol of the target connection number is "UDP/IP" or the connection device is not supported, "----" is displayed.

Click the [Clear Latest Error Code] button to clear all errors displayed for "Latest error code" of each connection.

Point

Only the connection statuses of devices configured by the External device communications network configuration are displayed. Connection statuses are not displayed for other connected devices. (The connection status cannot be checked even when an SNTP server is connected to the Ethernet port (CH1).) To check the status of a connection with a device not covered by the external device configuration diagnostics, use a command (netstat, ping, etc.) to check the network status of VxWorks.

Precautions

It is not necessary to configure the external device configuration for the connection of MI Configurator installed in the Windows part. As a result, it is not displayed by the external device configuration diagnostics. Connect a display to this product, and then check whether MI Configurator can operate.

8.7 Function to Forcibly Restart Windows part During an Error

This function forces a restart of the Windows part only without resetting this product if a freeze or system error occurs on the Windows part, and a system watchdog timer error occurs.
Use this function to restart the Windows part immediately if a system watchdog timer error or similar problem occurs.

Forced restart settings

Configure a forced restart of the Windows part using "MELIPC Operation Setting at Error Detected" of "RAS Setting". (☞ Page 96 MELIPC operation setting at error detected)

Precautions

■ Automatic restart at a Windows system error

If Windows automatic restart is enabled, and "Reboot" is selected for when the Windows part stops, this product may restart repeatedly. If "Reboot" is selected, disable Windows automatic restart.

Windows Start ⇨ [Windows System Tools] ⇨ [Control Panel] ⇨ [System and Security] ⇨ [System] ⇨ [Advanced system settings] ⇨ [Advanced] ⇨ [Startup and Recovery] ⇨ [Settings] ⇨ [System failure] ⇨ [Automatically restart]

■ Advance processing registration of Windows part forced restart

Even when registered in advance with the Windows forced restart function, processing registered by the user is not performed when the Windows part forced restart function forces a restart of the Windows part due to an error. (☞ Page 122 Advance processing during a forced restart)
To enable this function and protect files, enable the Unified Write Filter installed on this product to protect the Windows system files.
For the configuration method of the Unified Write Filter, refer to the following manual.
📖MELIPC MI5000 Series User's Manual (Startup)

■ Disabling an automatic restart

If the Windows part repeatedly restarts due to this function, stop an automatic restart of the Windows part by selecting "Disable" for "Auto-reset Windows" in the menu selection mode.
For details on the menu selection mode, refer to the following:
📖MELIPC MI5000 Series User's Manual (Startup)

8.8 MELIPC Shutdown Function

This function sets the Windows part and VxWorks part to statuses in which the power can be turned OFF so that this product can be turned OFF.

For the procedure to turn OFF the power supply of this product, refer to the following manual.

MELIPC MI5000 Series User's Manual (Startup)

Shutdown execution

Use one of the following methods to shut down this product.

■ Switch operations

Use the SHUTDOWN switch.

(MELIPC MI5000 Series User's Manual (Startup))

■ I/O connector

Turn on the shutdown request input for at least 1 second.

(MELIPC MI5000 Series User's Manual (Startup))

■ C Controller module dedicated function

Execute the C Controller module dedicated function (CCPU_MELIPCShutdown).

• Function list

Function name	Description
CCPU_MELIPCShutdown	Performs a shutdown operation so that the power of a MELIPC can turn OFF.

For details on the C Controller module dedicated functions, refer to the following manual.

MELIPC MI5000 Series Programming Manual (VxWorks)

Operations during shutdown

The Windows part and VxWorks part enter the following statuses during a shutdown.

Target	Status
VxWorks part	The user drive write-inhibit function is executed. (☞ Page 104 User drive write-protected function)
Windows part	Windows is shut down. (The status in which a shutdown is executed from Windows Start.)

Advance processing during shutdown

VxWorks part processing that was registered by the user in advance can be executed before this product is shut down.

Advance processing is registered using the C Controller module dedicated function (CCPU_EntryShutdownFunc).

■ Function list

Function name	Description
CCPU_EntryShutdownFunc	Registers a routine to be called before the shutdown function of a MELIPC is executed.

For details on the C Controller module dedicated functions, refer to the following manual.

MELIPC MI5000 Series Programming Manual (VxWorks)

Precautions

■ When the MELIPC shutdown function is not completed

When the MELIPC shutdown function is run, the WIN RDY LED may continue to flash, and the MELIPC shutdown function may not be run. Connect a display to this product to discover if there is a reason that the MELIPC shutdown function is not finished (program is running, file saving, etc.). If there is a cause, eliminate it, and then shut down from the Windows Start menu. If there is no cause, wait until shutdown is completed, and the WIN RDY LED turns off.

■ If the MELIPC shutdown function was run when the Windows part is running

If the MELIPC shutdown function is run when the Windows part is running, the WIN RDY LED may continue to flash, and the MELIPC shutdown function may not be run. If the WIN RDY LED continues to flash for a long time, connect a display to this product, and then check whether the Windows part is running. If necessary, either run the MELIPC shutdown function again or shut down Windows from the Windows Start menu.

■ Functions that cannot be used for advance processing of the MELIPC shutdown function

Do not use the following functions for advance processing registered by the user. The MELIPC shutdown function may not be completed.

- CCPU_MELIPCShutdown
- CCPU_WinReset

If processing that uses the above-mentioned functions was registered, and the MELIPC shutdown function was run, switch the power supply of this product OFF to ON, and then change the registered processing.

8.9 Individual Reset Function

This function resets the Windows part independently during operation of this product.
For example, use to restart the Windows part without stopping control of the VxWorks part.

Precautions

■ Operations when this product is resetting

Requests of the individual reset function are ignored when this product is resetting due to a remote operation, C Controller module dedicated function, switch operation, or other cause. Execute the individual reset function after this product resets.

■ Operation during major errors and system watchdog timer errors

If a major error or system watchdog timer error is occurring on this product, requests of the individual reset function are not executed normally. Execute this function after switching the power supply of this product OFF to ON or resetting the product to clear errors on this product.

Windows part forced restart

Force a restart of the Windows part of this product.
Force a restart of the Windows part in the following situations.

- If a freeze or system error occurs on the Windows part
- If a system watchdog timer error occurs

The Windows part can be forced to restart for recovery without resetting this product.

Execution of forced restart

Use one of the following methods to force a restart of the Windows part.

■ Switch operations

Use the MELIPC RESET/WIN RESET switch.
(MELIPC MI5000 Series User's Manual (Startup))

Operating procedure

1. Close all applications running on Windows.
2. Press the MELIPC RESET/WIN RESET switch to the WIN RESET side until the WIN RDY LED flashes.

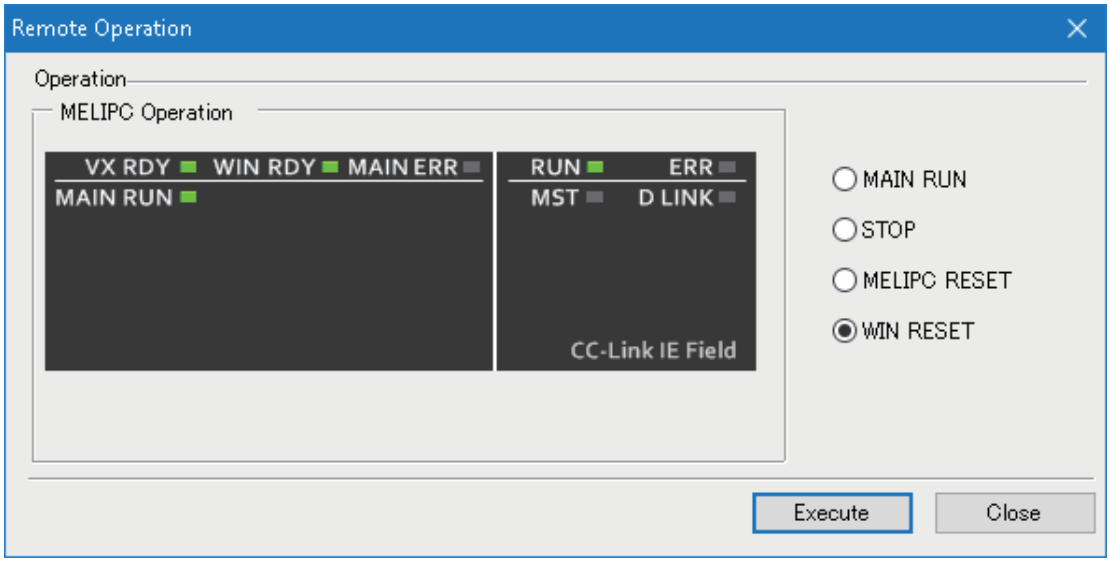
The WIN RDY LED flashes as the Windows part resets.

3. Confirm that the WIN RDY LED is on.

■ remote operation

Use a remote operation of MI Configurator.

[Online] ⇨ [Remote Operation] ⇨ [WIN RESET]



Point

A WIN RESET cannot be run when a remote operation was performed by MI Configurator that is installed in the Windows part of this product.

■ C controller module dedicated function

Execute the C Controller module dedicated function (CCPU_WinReset).

• Function list

Function name	Description
CCPU_WinReset	Forces a restart of the Windows part of the MELIPC.

For details on the C Controller module dedicated functions, refer to the following manual.

MELIPC MI5000 Series Programming Manual (VxWorks)

Advance processing during a forced restart

VxWorks part processing that was registered by the user in advance can be executed before the Windows part is forced to restart.
Advance processing is registered using the C Controller module dedicated function (CCPU_EntryWinResetFunc).

■ Function list

Function name	Description
CCPU_EntryWinResetFunc	Registers a routine to be called before the Windows forced-restart function of the individual reset function is executed.

For details on the C Controller module dedicated functions, refer to the following manual.
MELIPC MI5000 Series Programming Manual (VxWorks)

Precautions

■ Windows part forced restart permission

Excluding forced restarts from a switch operation, it is necessary to allow forced restarts of the Windows part using MI Configurator.

[Basic Parameter] ⇨ [Operation Related Setting] ⇨ [Remote Operation Settings] ⇨ [WIN RESET]

■ Considerations before forcing a restart of the Windows part

If Windows is forced to restart during operation of a user program, the files of the Windows part may be corrupted. Before forcing a reset of the Windows part, always take measures to prevent file corruption, such as stopping user programs. Furthermore, enable the Unified Write Filter of this product to protect the Windows part system files. (MELIPC MI5000 Series User's Manual (Startup))

■ Considerations after forcing a restart of the Windows part

If the Windows part was forced to restart, the shared memory of the OS linking function is not in the same status as when the power supply of this product is turned OFF and ON. To clear the shared memory, turn the power supply of this product OFF and ON or reset this product.

■ When user programs of the VxWorks part and Windows part are linked

When user programs of the Windows part and VxWorks part are linked using virtual Ethernet or shared memory, user applications of the VxWorks part may be affected if the Windows part is forced to restart. Therefore, stop linked processing and take other measures to ensure that the user applications of the VxWorks part are not affected by a forced restart of the Windows part.

■ Considerations after running the shutdown function

The Windows forced-restart function cannot be run when the shutdown function has set this product in a state in which the power supply can be turned OFF. Switch the power supply of this product OFF to ON.

■ Functions that cannot be used for advance processing of Windows part forced-restart

Do not use the following functions for advance processing of the Windows part forced-restart registered by the user. The Windows part forced-restart may not be completed.

- CCPU_MELIPCShutdown
- CCPU_WinReset

If user processing that uses the above-mentioned functions was registered, and a Windows part forced-restart was run, switch the power supply of this product OFF and ON, and then change the registered processing.

8.10 User Drive Initialization Function

This function deletes all folders and files stored on the user drive of this product.

Point

- The event history file is not deleted because it is saved in system memory. To delete event history, clear the event history.
- When the user drive is initialized, the parameters configured to this product are initialized. Default parameters are configured after initialization.
- After the user drive is initialized, all folders and files under the user drive (/ROM) of the VxWorks part are deleted. Backup necessary data in advance.

Operating procedure

Use an MELIPC memory operation of MI Configurator.

[Online] ⇨ [MELIPC Memory Operation]

Precautions

- Set the operating status of this product to STOP before initializing the user drive. If the status is RUN, an error occurs.
- If the power supply of this product is turned OFF to ON or the product is reset during user drive initialization, user drive initialization may not be completed normally. Initialize the user drive again.

Data backup

The following shows the method to backup data of this product.

Target device		Destination	Method
VxWorks part	User drive (/ROM)	Storage on Windows part	Using the FTP server function or file sharing server function of this product, copy the data to the storage on Windows part through virtual Ethernet.
		Storage on an external device (another personal computer)	Using the FTP server function or file sharing server function of this product, copy data to the storage on an external device through Ethernet.

8.11 Windows part Startup Monitoring Function

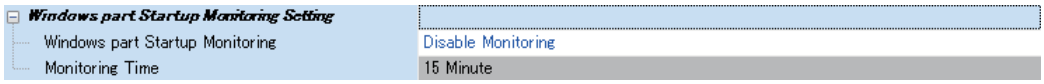
This function restarts the Windows part automatically if the startup of the Windows part is not completed (the WIN RDY LED does not turn ON) within the specified monitoring time.

Monitoring settings

The monitoring for a startup of the Windows part can be set in "Windows part Startup Monitoring Setting" of "RAS Setting".

Window

[Basic Parameter] ⇨ [RAS Setting] ⇨ [Windows part Startup Monitoring Setting]



Displayed items

Item	Description	Setting range
Windows part Startup Monitoring	Set whether to monitor a startup of the Windows part. If "Enable Monitoring" is set, Windows will be restarted when the startup of the Windows part is not completed within the monitoring time.	• Disable Monitoring • Enable Monitoring (Default: Disable Monitoring)
Monitoring Time	Set the time to monitor a startup of the Windows part of MELIPC. If the startup of the Windows part is not completed within the monitoring time, Windows will be restarted.	5 to 60 [minutes] (1 minute units) (Default: 15 minutes)

Precautions

■ Monitoring time

When the monitoring time is shorter than the time required for a startup of the Windows part, the Windows part repeatedly restarts and does not start normally; secure sufficient time for the Windows part to start. If the Windows part is repeatedly restarted by this function, stop an automatic restart of the Windows part by selecting "Disable" for "Auto-reset Windows" in the menu selection mode.

For details on the menu selection mode, refer to the following:

📖MELIPC MI5000 Series User's Manual (Startup)

■ Windows Update

When updating Windows, a startup time of the Windows part may takes longer than usual; therefore, the Windows part may forcibly be restarted by this function. To update Windows, stop an automatic restart of the Windows part by selecting "Disable" for "Auto-reset Windows" in the menu selection mode.

For details on the menu selection mode, refer to the following:

📖MELIPC MI5000 Series User's Manual (Startup)

■ Startup in the safe mode

When the Windows part starts in the safe mode, the startup completion of the Windows part cannot be detected; therefore, the Windows part will forcibly be restarted by this function. To start the Windows part in the safe mode, stop an automatic restart of the Windows part by selecting "Disable" for "Auto-reset Windows" in the menu selection mode.

For details on the menu selection mode, refer to the following:

📖MELIPC MI5000 Series User's Manual (Startup)

9 Telnet FUNCTION

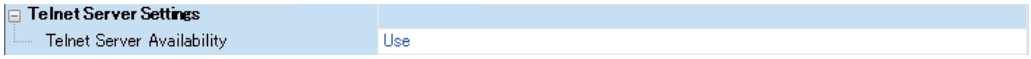
This function executes shell commands by a personal computer or Telnet tool of the Windows part using the TCP/IP network. Basic remote debugging (display of task information, memory dumps, etc.) of the VxWorks part can be performed using the Ethernet port (CH1) of this product or virtual Ethernet.

Configuration of the Telnet server

The telnet server is configured by "Telnet Server Availability" of "Telnet Server Settings".

Window

[Basic Parameter] ⇨ [External Device Connection Applicable Settings] ⇨ [Telnet Server Setting]



Displayed items

Item	Description	Setting range
Telnet Server Availability	Configure whether to use the Telnet server function.	• Use • Not Use (Default: Use)

Accessing the Telnet server

A login name (username) and password are used when using the Telnet function of the VxWorks part.

Point

When the user authentication function is used, enter the username and password registered for the user management information. (☞ Page 134 User Authentication Function)

When the user authentication function is not used, enter the following username and password.

- User name: target
- Password: password

Precautions

■ Number of connections

Multiple Telnet tools cannot connect to a single product. When using a Telnet tool, make a one-to-one connection with this product. When connecting via another Telnet tool, make sure to close (disconnect) any Telnet tool that is connected.

■ Timeout

When the line is disconnected during a Telnet connection, it takes 30 seconds until the Telnet connection (TCP) times out on this product. Telnet cannot be reconnected until the connection times out.

The timeout time can be changed by the following commands provided by VxWorks.

Commands

```
ipcom_sysvar_set("iptcp.KeepIdle", "XX", 1);
ipcom_sysvar_set("iptcp.KeepIntvl", "YY", 1);
ipcom_sysvar_set("iptcp.KeepCnt", "ZZ", 1);
ipcom_ipd_kill ("iptelnets");
ipcom_ipd_start ("iptelnets");
XX, YY: Specify the time (in seconds). (When '0' is specified, no timeout will occur.) )
ZZ: Specify the number of retries.
```

Timeout time = iptcp.KeepIdle value + (iptcp.KeepIntvl value×iptcp.KeepCnt value)

- iptcp.KeepIdle: Interval from line disconnection to the first retry
- iptcp.KeepIntvl: Interval between retries
- iptcp.KeepCnt: Number of retries

The following section shows the procedure to change the timeout time of a Telnet connection (TCP) while this product is in operation.

1. Make a Telnet connection with this product using a Telnet tool.
2. Use the shell command of the Telnet tool to execute a change command for the timeout time to start the Telnet server.
3. Close the Telnet connection.
4. Make a Telnet connection with this product using a Telnet tool again.

The following section shows the procedure to change the timeout time of a Telnet connection (TCP) while this product is starting.

1. Describe the change command for the timeout time in the script file (STARTUP.CMD).
2. Register the script file with this product.
3. Power ON the product.

■ Actions of shell commands

A shell command entered from the Telnet tool operates on a priority 1 task on the VxWorks part.
Be aware of the following points when executing commands. System errors/stops (such as a system watchdog timer error) may occur on this product.

- Check the command specifications before executing a command that occupies CPU processing.
- Reboot the VxWorks part by turning the power supply OFF to ON or resetting this product. Do not reboot VxWorks by executing a function (reboot) of VxWorks or pressing Ctrl + X.
- Check the command specifications and argument specifications before executing commands that have arguments. (When a command without an argument specification is executed, '0' is specified for the argument.) For example, if a command (close) is executed without an argument, the resource reserved by the system of the VxWorks part is closed, so do not execute the command (close) without an argument specification. Furthermore, when, for example, a command to show the status (show) is executed, an interrupt-disabled state occurs for a long time. Processing to be called from the interrupt routine is not executed, and interrupts that occur at a fixed interval may be delayed.

■ Usable shell commands

Shell commands of VxWorks can be used. For details on the shell commands that can be used, refer to the VxWorks manual.

■ Message display on shell

A message issued by VxWorks may appear in the shell during a Telnet connection.
For messages of VxWorks, refer to the VxWorks Manual and the Help section of CW Workbench 4.

■ If the password has been forgotten

If the password has been forgotten, initialize this product.
For the initialization method of this product, refer to the following manual.
📖MELIPC MI5000 Series User's Manual (Startup)

10 NETWORK FILE ACCESS FUNCTIONS

This chapter explains network file access functions that uses Ethernet and virtual Ethernet.
Access files stored on the VxWorks part of this product via the network from the Windows part or external devices.

10.1 FTP Function

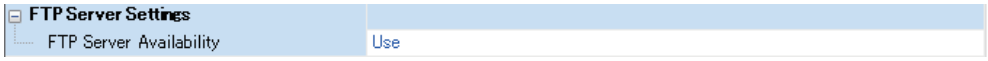
This function runs the VxWorks part of this product as an FTP server.

FTP server settings

Configure the FTP server by using the "FTP Server Availability" of "FTP Server Settings".

Window

[Basic Parameter] ⇨ [External Device Connection Applicable Settings] ⇨ [FTP Server Setting]



Displayed items

Item	Description	Setting range
FTP Server Availability	Configure whether to use the FTP server function.	• Use • Not Use (Default: Use)

Precautions

■ Operation while accessing file

During file access, do not perform the following operations. Otherwise, files may be corrupted.

- When the power supply of this product is turned OFF or this product is reset

■ Reconnection after timeout

If a timeout error occurs during file transmission, the TCP connection will be closed (disconnected). Log into this product again before restarting file transmission.

■ File transmission time

The file transfer processing time differs depending on the following causes.

- Load rate of Ethernet line (line congestion)
- Number of simultaneous connections (transmission processing of other connections)
- System configuration

■ Number of simultaneous connections

The maximum number of simultaneous connections by the FTP function of this product is 10.
Furthermore, if a new connection is attempted with the maximum number of connections, an error occurs.

Point

The number of simultaneous connections may be less than 10 depending on the FTP client software to be used.

If UDP communication is performed during file transfer via FTP, an error such as timeout may occur. Either communicate after the file transfer or communicate using TCP.

■ Writing files

It is not possible to write to read-only files or files that are locked from other devices and functions. Doing so may cause a write error.

■ File deletion

Determine the timing for deleting the files based on the entire system, including this product and peripheral devices.

■ If the password has been forgotten

If the password has been forgotten, initialize this product.
For the initialization method of this product, refer to the following manual.
MELIPC MI5000 Series User's Manual (Startup)

■ File (folder) name

Do not copy files (folders) that include characters that cannot be used by the VxWorks part to a shared folder of the VxWorks part. After copying, the following phenomena may occur.

- Error
- Garbled file (folder) name*1
- Loss of file (folder)

*1 Even when a file (folder) name is garbled, the file (folder) name before garbling may be displayed by an FTP client.

For details on characters that can be used by the VxWorks part, refer to the following.
MELIPC MI5000 Series User's Manual (Startup)

■ Addition of new file (folder)

Do not add a new file (folder) to a shared VxWorks part folder. To add a new file (folder), create a new file (folder) in a location other than a shared folder of the VxWorks part, rename it using characters that can be used by the VxWorks part, and then copy or move it to the VxWorks part.

Point

If a "New Folder" or "New" operation is used in Windows Explorer, a file (folder) including characters cannot be used by the VxWorks part is generated. Therefore, the same phenomena occur as when a file (folder) that contains characters that cannot be used by the VxWorks part was copied. (☞ Page 129 File (folder) name)

10.2 File Sharing Function

This function runs the VxWorks part of this product as a file sharing server.

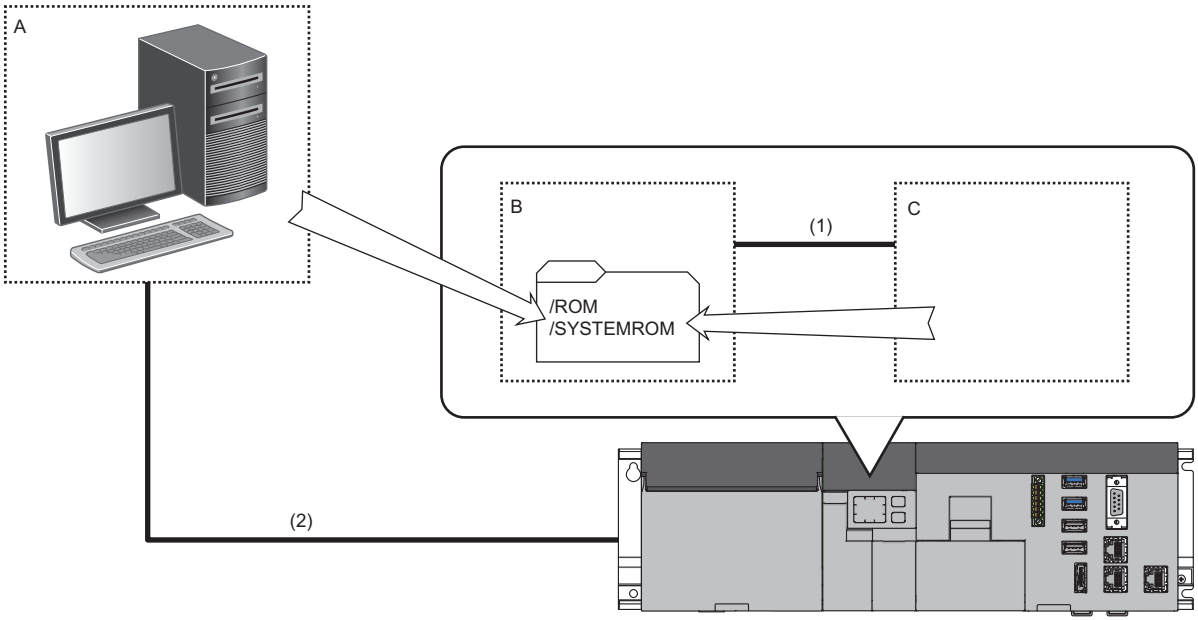
Point

This function complies with the file sharing function specifications of Windows.

File sharing server function

Make the internal folders of the VxWorks part available publicly as shared folders to enable access from external devices and the Windows part.

The shared folder of the VxWorks part can be accessed easily using Explorer of the Windows part.



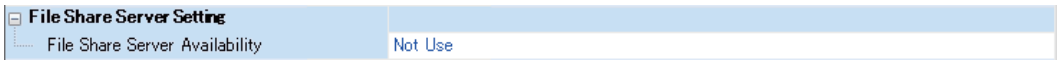
A: External device (personal computer, etc.)
B: VxWorks part
C: Windows part
(1) Connection via virtual Ethernet
(2) Connection via Ethernet

File sharing server settings

Configure the file sharing server using "File Sharing Server" of "File Sharing Server Setting".

Window

[Basic Parameter] ⇨ [External Device Connection Applicable Settings] ⇨ [File Sharing Server Setting]



Displayed items

Item	Description	Setting range
File sharing server*1	Configure whether to use the file sharing server function of this product.	• Not Use • Use (Default: Not Use)

*1 If "Use" is set, the user drive (/ROM) and system drive (/SYSTEMROM) are available publicly.

Access to the file sharing server

Use the standard shared folder function of Windows to access the file sharing server from external devices or the Windows part.

This section shows the procedure when external devices and the Windows part of this product use Windows Explorer to access the file sharing server.

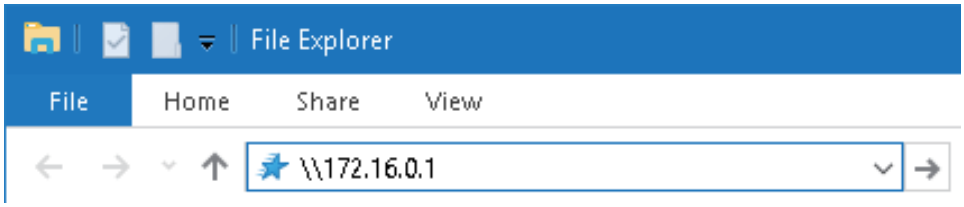
Operating procedure

1. Connect this product and the development environment via a network.

- In the case of a standalone development configuration: use virtual Ethernet. (☞ Page 150 Virtual Ethernet Function)
- In the case of a cross development configuration: connect the Ethernet port (CH1) of this product and the development environment via an Ethernet cable.

2. In the Explorer address bar, enter the IP address of the virtual Ethernet of the VxWorks part or the Ethernet port (CH1).

- Access from Windows part: 172.16.0.1
- Access from external device: 192.168.3.3



Point

If the IP address of the Ethernet port (CH1) has been changed, enter the IP address after the change. (☞ Page 160 BASIC PARAMETERS)

3. Enter the username and password.

Shared folders of the VxWorks part appear, and files can be accessed.

Point

When the user authentication function is used, enter the username and password registered for the user management information. (☞ Page 134 User Authentication Function)

When the user authentication function is not used, enter the following username and password.

- User name: target
- Password: password

Precautions

■ Operation while accessing file

Do not turn OFF the power or reset this product during file access. Otherwise, files may be corrupted.

■ Reconnection after timeout

If a timeout error occurs during file transmission, the TCP connection will be closed (disconnected). Log into this product again before restarting file transmission.

■ File transmission time

The file transfer processing time differs depending on the following causes.

- Load rate of Ethernet line (line congestion)
- Number of simultaneous connections (transmission processing of other connections)
- System configuration

■ Number of simultaneous connections

The maximum number of Windows user accounts that can be connected simultaneously to the Windows sharing server of this product is 10. Note that when the same user account connects from a different device, it is recognized as a separate user account. If a new connection is attempted with the maximum number of connections, an error occurs.

■ File write

It is not possible to write to read-only files or files that are locked from other devices and functions. Doing so may cause a write error.

■ File deletion

Determine the timing for deleting the files based on the entire system, including this product and peripheral devices.

■ If the password has been forgotten

If the password has been forgotten, initialize this product.

For the initialization method of this product, refer to the following manual.

MELIPC MI5000 Series User's Manual (Startup)

■ File (folder) name

Do not copy files (folders) that include characters that cannot be used by the VxWorks part to a shared folder of the VxWorks part. After copying, the following phenomena may occur.

- Error
- Garbled file (folder) name
- Loss of file (folder)

For details on characters that can be used by the VxWorks part, refer to the following.

MELIPC MI5000 Series User's Manual (Startup)

■ Addition of new file (folder)

Do not add a new file (folder) to a shared VxWorks part folder. To add a new file (folder), create a new file (folder) in a location other than a shared folder of the VxWorks part, rename it using characters that can be used by the VxWorks part, and then copy or move it to the VxWorks part.

Point

If a "New Folder" or "New" operation is used in Windows Explorer, a file (folder) including characters cannot be used by the VxWorks part is generated. Therefore, the same phenomena occur as when a file (folder) that contains characters that cannot be used by the VxWorks part was copied. (☞ Page 129 File (folder) name)

11 SECURITY FUNCTION

This function prevents the leakage or falsification of information as a result of third-party unauthorized access to information resources of the VxWorks part of this product.
For the security of Windows part, use the standard functions of Windows and security software.

Point

The security function is one step in stopping unauthorized access (damage to programs or data, etc.) from external devices, and does not fully prevent unauthorized access. When necessary to protect the system from unauthorized access from external devices, ensure other measures in addition to this function are utilized. We are unable to accept any responsibility for any problems with the system that may occur as a result of unauthorized access.
The following are example measures to counter unauthorized access.

- Using a firewall.
- Using a PC as a relay, with application-based controls on inbound and outbound communications.
- Using an external device as a relay to control access rights. (Please consult with Internet service providers or device sales staff as regards external devices that can be used to control access rights)

11.1 User Authentication Function

This function controls users that can access this product.

By using user authentication, users determined in advance can be permitted access to this product.

Point

If logon fails, the event is saved to the event history. (☞ Page 251 Event List)

Function	Description
Authentication of users accessing this product	The username and password from the user is compared with user management information registered to this product, and then the user is authenticated.
Operation restrictions of users accessing this product (Access level)	Configure the access level of users registered in the user management information. Access level is information that defines the operation restrictions of users to access this product. Users can perform actions for this product within their specified access level range.

Precautions

■ Units and number of possible simultaneous connections of user authentication

User authentication distinguishes users and authenticates by communication. The number of possible simultaneous connections is the same as the maximum number of connectable devices of each connection route. When multiple connection requests are made from the same computer, each connection is counted as one connection.

■ If the user password has been forgotten

A new password can be applied if a user with an Administrators access level changes and writes the parameters.

If a user with an Administrators access level forgets their password, initialize this product. (MELIPC MI5000 Series User's Manual (Startup))

User management information

User management information is the setting information of users permitted access when the user authentication function is enabled.

Configure the following information for the user management information.

- Username and password
- Access level

Username and password

The following table shows the usernames and passwords that can be configured for the user management information.

Item	Setting range	Characters that can be entered
user name	1 to 20 characters	Numbers, alphabetic characters, and special characters (`, ~, !, @, # , $, %, ^, &, *, (,), _, +, -, =, {, }, |, \, :, ", ;, ', <, >, ?, ., /, [,])
Password	6 to 32 characters	

Point

A password of eight characters or longer is recommended.

Access level

Choose an access level from the following table.

Access level	Definition
Administrators	■Manager level Can perform all operations.
Users	■User level Can read device and module information and perform module diagnoses, etc.

■ Execution applicability by access level

This section provides a list of execution applicability for each access level.

Point

- When the user authentication function is enabled, a user that is not registered to the user management information cannot perform all operations.
- The operations which are not described in the table can be performed without logging on to this product.

- Online menu and network parameter settings of MI Configurator

○: Possible, ×: Impossible

menu	screen	Operation	Access level	
			Administrators	Users
Reading data from a MELIPC Writing data to a MELIPC Verifying data with a MELIPC Deleting data in a MELIPC	Online data operations	Write data	○	×
		Read data		
		Verification		
		delete		
		Size calculation		
remote operation	remote operation	MAIN RUN	○	×
		STOP		
		RESET		
		WIN RESET		
MELIPC memory operations	Management of memory	initialization	○	×
		Update to latest information		
	Clearing of values	Device		
		File register		
Clock setting	Clock setting	Time acquisition of personal computer	○	○
		Time acquisition of the VxWorks part		
		Execution of clock settings		×
monitor	• Device/buffer memory batch monitoring • Shared memory monitoring	Monitoring start	○	○
		Monitoring end		
		Bit operation		×
Watch	Watch window	Start of watch	○	○
		End of watch		
		Change of values		×
CC-Link IE Field settings	Automatic detection of connected devices	Automatic detection	○	○
	Slave station parameter processing	Parameter reading		
		Parameter writing		×
	Slave station command execution	Error history data reading		○
		Error clearing request		×
		Error history clearing request		
CC-Link IEF Basic Setting	CC-Link IEF Basic configuration	Automatic detection of connected devices	○	○
		Application of slave station communication settings		
	Slave station parameter processing	Parameter reading		
		Parameter writing		×
Ethernet configuration	Ethernet configuration	Automatic detection of connected devices	○	○
		Application of slave station communication settings		
	Slave station parameter processing	Parameter reading		
		Parameter writing		×

• Diagnosis menu of MI Configurator

○: Possible, ×: Impossible

menu	screen	Operation	Access level	
			Administrators	Users
MELIPC Diagnosis	MELIPC Diagnosis	Error clear	○	○
		File creation		
	Event history	All clear		×
		File creation		○
	Dot matrix LED diagnosis	Monitoring start		
		Monitoring end		
CC-Link IE Field diagnoses	CC-Link IE Field diagnoses	Monitoring start	○	○
		Monitoring end		
	Configuration diagram update	Configuration diagram update		
	Communications test	Test execution		
	Cable test	Test execution		
	Link start/stop	Link start		×
		Link stop		
		Forced link start		
	Reserved station temporary clear/ remove	Target station click		
	Temporary error disabled station settings/remove	Target station click		
CC-Link IEF Basic diagnostics	CC-Link IEF Basic diagnostics	Monitoring start	○	○
		Monitoring end		
		Error details on master station		
		Error clearing		
		Error details on slave station		
External device configuration setting diagnosis	External device configuration setting diagnosis	Monitoring start	○	○
		Monitoring end		

• FTP, Telnet, and file sharing functions (file sharing server)

○: Possible, ×: Impossible

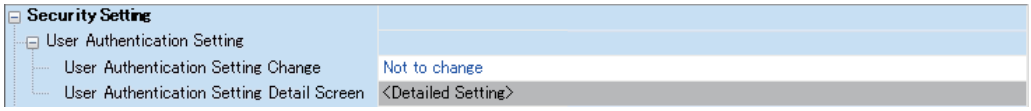
Function	Access level	
	Administrators	Users
Telnet	○	×
FTP	○	×
File sharing server	○	×

User management information settings

Configure the user management information by "User Authentication Setting" of "Security Setting".
The configured user management information will be applied after the power supply of this product is turned OFF to ON or this product is reset.

Window

[Basic Parameter] ⇨ [External Device Cooperate Applicable Settings] ⇨ [Security Settings] ⇨ [User Authentication Setting]



Displayed items

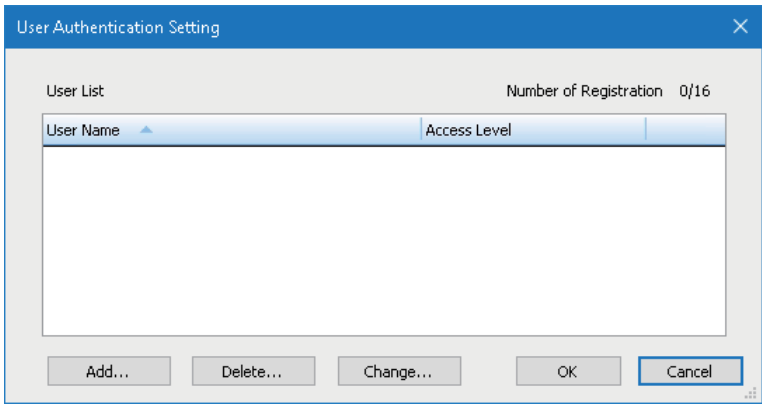
Item	Description	Setting range
User Authentication Setting Change	Specify whether to change accounts to be used for user authentication from default to user registered accounts. If the setting is "Not Change", authentication runs with the default user and password.	• Not Change • Change (Default: Not Change)
User Authentication Setting Detail Screen	Configure the details of the user authentication settings.	Page 138 User authentication settings

Point

- If Change of user authentication setting is "Not Change", the user authentication function runs with the default settings.
  This section shows the default settings for username, password, and access level.
  User name: target
  Password: password
  Access level: Administrators
- If Change of User authentication setting is "Change", always add one or more item of user management information with Administrators rights.

■ User authentication settings

Window



Displayed items

Item	Description
User list	The configured user management information is displayed. (Maximum 16 items)
Add	The screen to add user management information appears.
delete	Deletes the selected user management information.
Change	Changes the selected user management information.

11.2 Service Setting Function

This function enables and disables services running on the VxWorks part.

Unauthorized access from other users can be prevented by restricting services in operation.

Service settings

Configure the settings by using "Service Settings".

Window

[Basic Parameter] ⇨ [Service Settings] ⇨ [Service Settings]

Displayed items

Item	Description	Setting range
WDB	Required to connect CW Workbench 4 and WindRiver Workbench 4.	• Enable • Disable (Default: Enable)
Shell	Required to execute commands. *1	
MELSEC Data Link Function	Required to use MELSEC communication.	
MI Configurator Operation	Required for operations related to MI Configurator parameters. If this service is disabled, the following operations cannot be performed. • Writing to this product • Reading from this product • Verifying with this product • Data deletion on this product • Memory operations (initialization)	

*1 If this service is disabled, the Telnet service cannot be used either.

Precautions

If MI Configurator operations are disabled, parameters cannot be configured. To enable service, initialize this product. (MELIPC MI5000 Series User's Manual (Startup))

11.3 IP Filter Function

This function identifies the source IP address of accessing devices, thus preventing unauthorized access.
Specifying the IP address of the other device restricts access by the other device using Ethernet port (CH1). Restricting access to communications routes using Ethernet can provide optimal security for the network environment.

Point

For security for Ethernet port (CH2), use the Windows standard functions or security software.

Precautions

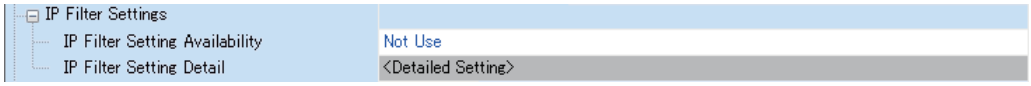
- If a proxy server exists on the LAN circuit, block the IP address of the proxy server. If this is not block, access from computers that can access the proxy server will not be prevented.
- Do not use the firewall function via standard operation of VxWorks when using the IP filter function. If the firewall function is used, the IP filter function may not run normally.

IP Filter Settings

Configure the IP filter by using "IP Filter Settings" of "Security Setting".

Window

[Basic Parameter] ⇨ [External Device Cooperate Applicable Settings] ⇨ [Security Setting] ⇨ [IP Filter Settings]

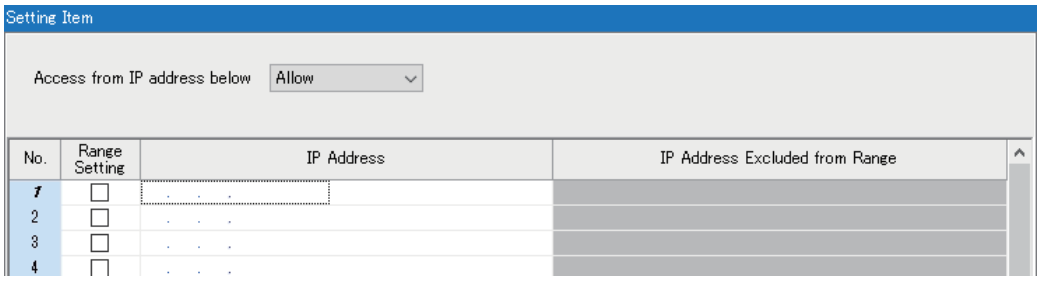


Displayed items

Item		Description	Setting range
IP Filter Settings	IP Filter Setting Availability	Set whether to use the IP filter function.	• Not Use • Use (Default: Not Use)
	IP Filter Setting Detail	Configure the settings to restrict access by the IP filter function.	☞ Page 141 IP filter setting details

■ IP filter setting details

Window



Displayed items

Item	Description	Setting range
Access from the following IP addresses	Select whether to block or allow an access from specified IP addresses.	• Allow • Block (Default: Allow)
Specify range	Select this to specify the range of IP addresses that are to be blocked or allowed.	—
Target IP address	Set an IP address to be blocked or allowed. When "Range Setting" is selected, specify both the start IP address and the end IP address within the range.	0.0.0.1 to 223.255.255.254
Delete IP address from range	• Excluding the range-specified IP address, and set an IP address that is to be disconnected or blocked. • Set one IP address for the IP address to exclude. (A range cannot be set.)	☞ Page 142 Set IP address to clear

Point

Access from external devices is blocked or allowed in accordance with the IP filter settings, even for connections specified by the external device configuration or a user program. Therefore, when an IP address configured by the external device configuration is configured to "Block" in the IP filter settings, the IP filter settings are enabled, and communication with external devices is blocked.

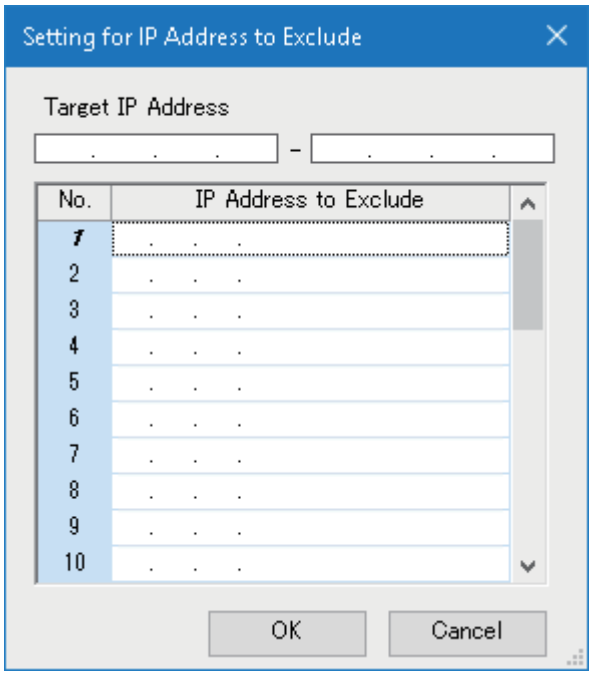
Precautions

The following IP address ranges cannot be set for target IP addresses.

• 172.16.0.1 to 172.31.255.255

■ Set IP address to clear

Window



Displayed items

Item	Description	Setting range
Target IP address	Displays the range-specified IP address.	—
IP address to clear	Specify the IP address to clear.	0.0.0.1 to 223.255.255.254

Precautions

The following range of IP addresses cannot be configured for IP addresses to be excluded.

- 172.16.0.1 to 172.31.255.255

12 MELSOFT PRODUCT AND GOT CONNECTION FUNCTION

This function monitors and tests the VxWorks part from a MELSOFT product or GOT using the Ethernet port (CH1) of this product or virtual Ethernet.
Use this function with a hub connection (specify an IP address for connection) for remote operations using Ethernet for long-distance connections and high-speed communications or to connect MI Configurator on multiple devices or other MELSOFT products.

12.1 Connection Method

This section shows the method for connecting MELSOFT products with GOT.

Settings of this product

1. Configure the IP address of the Ethernet port (CH1). (☞ Page 160 BASIC PARAMETERS)
2. Set a connection configuration in "External Device Configuration" of "Basic Settings". (☞ Page 181 External Device Configuration)

■ Ports used by the system

Do not use ports used by the system.
The Ethernet port (CH1) and virtual Ethernet use the following ports on the system.

port number		Application
Decimal	Hexadecimal	
1534	05FEH	For system
5000	1388H	
5001	1389H	
5002	138AH	
5003	138BH	
5004	138CH	
5005	138DH	Automatic open UDP port
5006	138EH	MELSOFT application communication port (UDP/IP)
5007	138FH	MELSOFT application communication port (TCP/IP)
5008	1390H	For system
5009	1391H	
61440	F000H	
61470	F01EH	

Point

Even in the case of port numbers not mentioned above, ports 1 to 1023 are generally reserved (WELL KNOWN PORT NUMBERS), and Ports 61441 to 65534 are used by other communications functions. Therefore, use Ports 1024 to 1533, 1535 to 4999, and 5010 to 61439.

MEMO

13 SYSTEM COUNT FUNCTION

This function counts the elapsed time from when the power supply of this product was turned ON.
The counter value of this function can be utilized, for example, to measure the processing performance of a user program.

Counter

The following table shows the counters of this function.

Item	Description	Range*1
1 μs counter	Increased by 1 every 1 μs after the power is turned ON.	0 to 4294967295
1 ms counter	Increased by 1 every 1 ms after the power is turned ON.	0 to 4294967295

*1 When the maximum value is exceeded, the counter value returns to the minimum value. (0→1→??? →4294967295→0→1→???)

Acquisition of count value

The count value can be acquired by a C Controller module dedicated function.

■ Function list

Function name	Description
CCPU_GetCounterMillis	Acquires a 1 ms counter value of a MELIPC.
CCPU_GetCounterMillis_ISR	
CCPU_GetCounterMicros	Acquires a 1 μs counter value of a MELIPC.
CCPU_GetCounterMicros_ISR	

For details on the C Controller module dedicated functions, refer to the following manual.
MELIPC MI5000 Series Programming Manual (VxWorks)

MEMO

14 TIMER EVENT FUNCTION

This function reports events to user programs at a specified cycle.
This function can be used to create timer tasks to be run periodically.

Timer

Specify the following items, and then the timer is run.
Up to 16 timers can be run, and each value can be specified individually.

Item	Description	range
cycle	Specify the cycle for the timer to report an event.	0, 1 to 60000 ms
Synchronization type	Specify the type of event to be reported by the timer.	• Batch synchronization • Individual synchronization

A time of this function operates after registering a timer in a user program.
The event is reported when the timer reaches the specified cycle, and the waiting status of the user program waiting for the notification of the event is cleared.
The events of all timers enter a non-occurrence status when the power supply of this product is turned from OFF to ON or the product is reset.

■ Timer cycle

The timer cycle unit that can be specified differs by the value.

- 1 to 10: specify in 1 ms units.
- 10 to 1,000: specify in 5 ms units. (Specify in multiples of 5)
- 1,000 to 60,000: specify in 1,000 ms units. (Specify in multiples of 1,000)

The timer does not run when other values are specified.
Timers to be run once can be stopped by specifying "0" for the cycle. Stop the timer once to change the cycle.

■ Timer synchronization type

The operation of the user program (task) to receive notification of an event of a timer changes by the synchronization type.

Item	Description
Batch synchronization	Clears the waiting status of all user programs waiting for events when a timer event was reported. All tasks running user programs waiting for events are run. If there is no task waiting for an event or a task enters a wait status by a user program later when timer event is reported, the waiting status is not cleared until the timer event is reported again, even when a user program is in a timer event waiting status.
Individual synchronization	Clears the waiting status of one user program waiting for an event when a timer event was reported. When multiple user programs are waiting for the same event report, waiting status is cleared in priority order of the tasks run by the user program. (If the priority order is the same, clearing is done in the execution order of waiting processing.) If there is no task waiting for an event when timer event is reported, the waiting status is immediately cleared if the user program is placed in a waiting status after the notification.

Timer event settings

Configure timer events by a C Controller module dedicated function.

■ Function list

Function name	Description
CCPU_EntryTimerEvent	Registers a timer event.
CCPU_WaitTimerEvent	Waits for a timer event to occur.

For details on the C Controller module dedicated functions, refer to the following manual.
MELIPC MI5000 Series Programming Manual (VxWorks)

MEMO

PART 3 COMMON FUNCTIONS

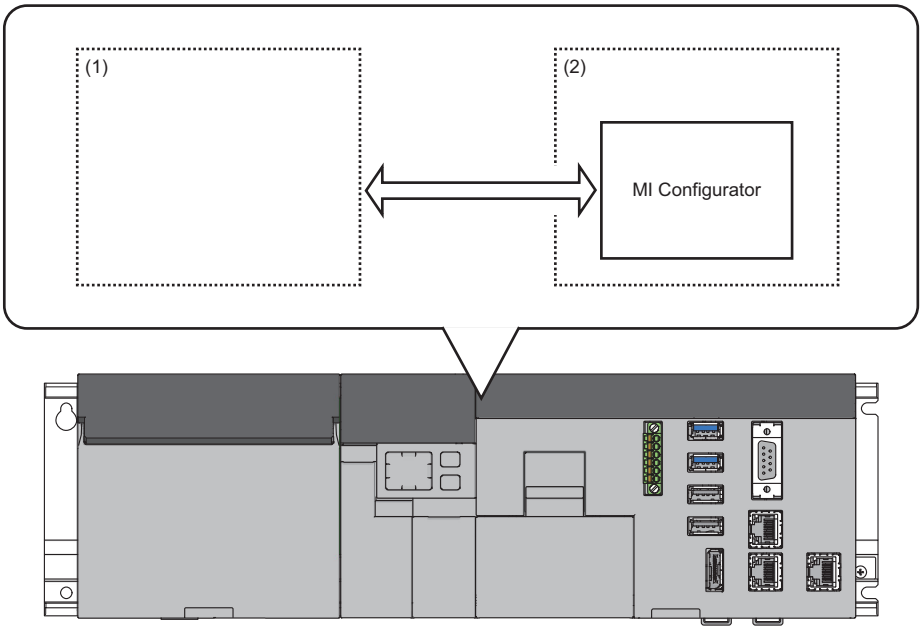
This part explains the common functions between the Windows part and VxWorks part.

15 OS LINKING FUNCTIONS

This chapter explains the OS linking function of this product.

15.1 Virtual Ethernet Function

This function connects the Windows part and VxWorks part of this product using a virtual network.
By using this function, the VxWorks part can be monitored and tested from MI Configurator installed on the Windows part.
Furthermore, this function is used as a communication route of the Windows part and VxWorks part, such as a connection with MELSOFT products and GT SoftGOT.



(1) VxWorks part
(2) Windows part

Point

For the connection method of MELSOFT products and GOT, refer to the following page.
☞ Page 143 MELSOFT PRODUCT AND GOT CONNECTION FUNCTION

Connection of Windows part and VxWorks part

The sections are connected by the following IP addresses configured to virtual Ethernet.

- Windows part: 172.16.0.2
- VxWorks part: 172.16.0.1

Precautions

- By using this function, the connection is handled as a connection of MELSOFT products when MI Configurator installed on the Windows part is connected to the VxWorks part. If another MELSOFT product is connected to this product, add the number of connections of the virtual Ethernet and Ethernet port (CH 1) in the "External Device Configuration" of "Basic Setting".
- Do not change the virtual Ethernet (Wind River Virtual Network Adapter) settings. If the settings are changed, communication between the Windows part and VxWorks part using virtual Ethernet is no longer possible.

15.2 Shared Memory Access Function

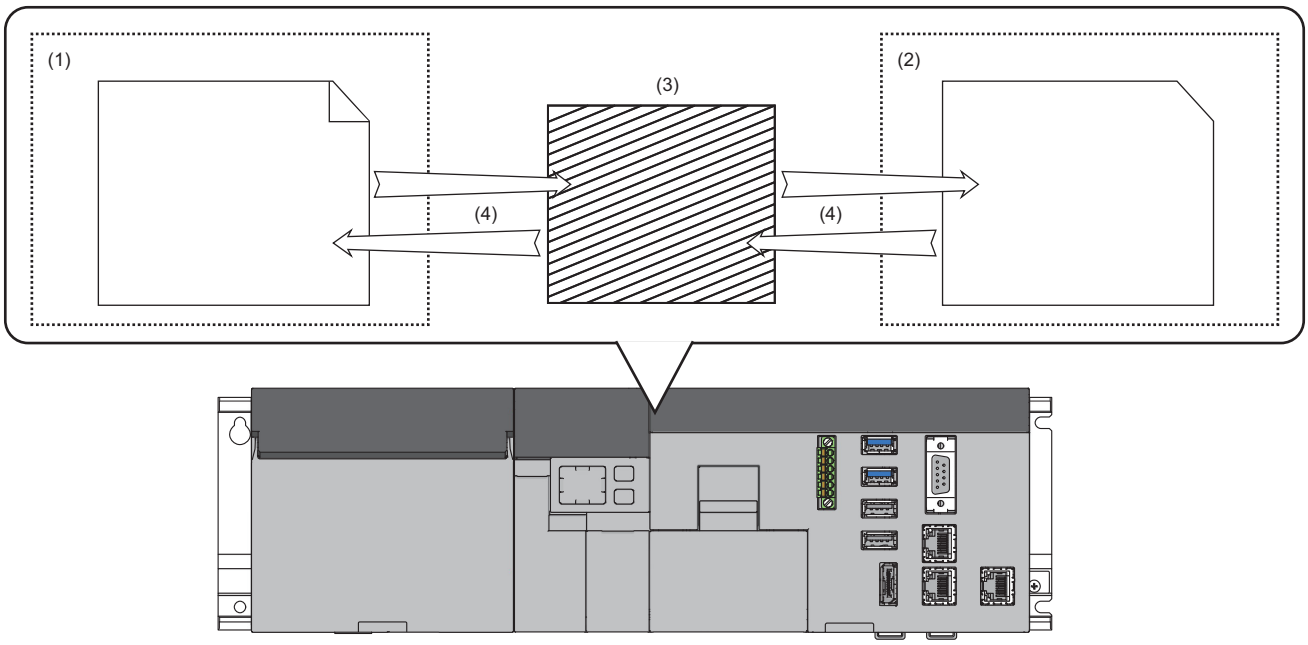
This function performs inter OS communications by using shared memory, which is accessible bidirectionally from the VxWorks part and Windows part.

Inter OS communication using shared memory

Use C Controller module dedicated functions to read data of memory accessible bidirectionally by the Windows part and VxWorks part.

Point

Shared memory is an area to share data between operating systems of the Windows part and VxWorks part. Access from external devices other than the shared memory monitor of MI Configurator is not possible. To browse data of the shared memory from GOT or other external devices, copy data to the buffer memory or a device that can be accessed from external devices.



(1) VxWorks part
(2) Windows part
(3) Shared memory
(4) File access

■ Function list

Function name	Description
CCPU_ReadSharedMemory	Reads data from the shared memory of a MELIPC.
CCPU_WriteSharedMemory	Writes data to the shared memory of the MELIPC.

For details on the C Controller module dedicated functions, refer to the following manual.

MELIPC MI5000 Series Programming Manual (Windows)

MELIPC MI5000 Series Programming Manual (VxWorks)

■ Shared memory size

A size of 256 MB can be used as shared memory.

■ Shared memory monitoring

Shared memory values can be monitored, changed, and output as a .csv file by shared memory monitoring.

For details on shared memory monitoring, refer to the following.

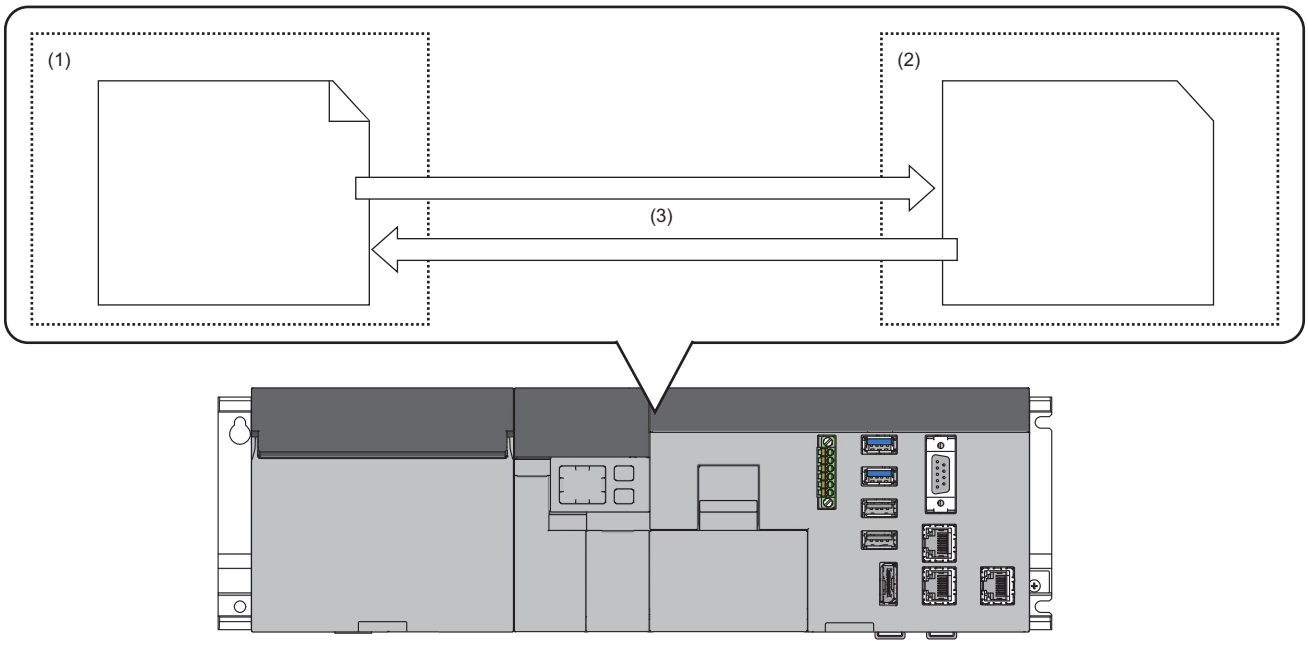
MI Configurator Operating Manual

15.3 Inter OS Event Notification Function

This function performs synchronization processing by the user programs of the Windows part and VxWorks part.

Inter OS event notifications

Using C Controller module dedicated functions, specify the inter OS event number, and send and receive inter OS event notifications.



(1) VxWorks part
(2) Windows part
(3) Notifications of inter OS events

■ Function list

Function name	Description
CCPU_ReceiveInterOSEvent	Waits for notification of inter OS events.
CCPU_SendInterOSEvent	Notifies inter OS events.

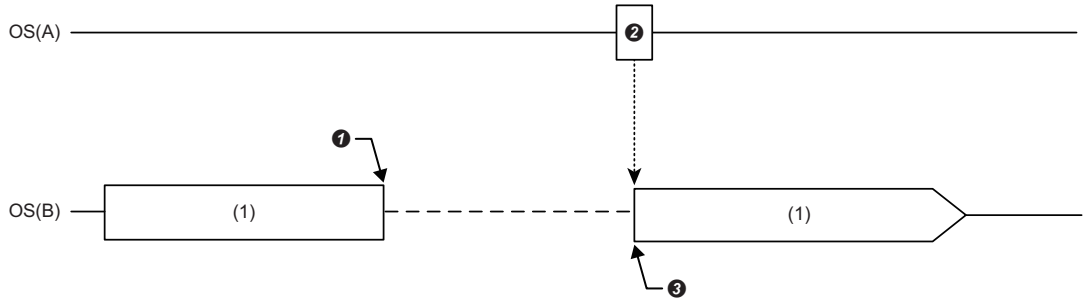
For details on the C Controller module dedicated functions, refer to the following manual.

MELIPC MI5000 Series Programming Manual (Windows)
MELIPC MI5000 Series Programming Manual (VxWorks)

Inter OS event notification operation

This section shows the operations of inter OS event notification.

■ When a user application of the VxWorks part is waiting for an inter OS event notification from the Windows part



(1) User application

❶The C Controller module dedicated function (CCPU_ReceiveInterOSEvent) is executed by a user program of OS (B).
A user program of OS (A) waits for an inter OS event notification.
❷The C Controller module dedicated function (CCPU_SendInterOSEvent) is executed by the user program of OS (A).
An inter OS event is reported to the user program of OS (B).
❸The user program of OS (B) receives the inter OS event notification, and the waiting status is cleared.
After the waiting status is cleared, the user program is restarted.

15

Precautions

The following section shows the considerations when executing the C Controller module dedicated function (CCPU_ReceiveInterOSEvent).

■ When an inter OS event has been reported at function execution

If a inter OS event has already been reported when the C Controller module dedicated function (CCPU_ReceiveInterOSEvent) is executed, the user program executes and completes the C Controller module dedicated function (CCPU_ReceiveInterOSEvent) at the same time, and then carries out processing from the C Controller module dedicated function (CCPU_ReceiveInterOSEvent) and later. Furthermore, when multiple inter OS events have been reported to the same inter OS event number when the C Controller module dedicated function (CCPU_ReceiveInterOSEvent) is executed, they are processed as a single inter OS event report by the user program.

■ When multiple user applications are waiting for an inter OS notification

If multiple user programs specify the same enter OS event number when the C Controller module dedicated function (CCPU_ReceiveInterOSEvent) is executed, the user program that executed the C Controller module dedicated function (CCPU_ReceiveInterOSEvent) earlier waits for the enter OS event notification, and then restarts.

■ If an inter OS event has been reported when the Windows part is starting

A notification is discarded when an inter OS event was reported before the Windows part is running (the WIN RDY LED is on) after the following events: this product was started, the power supply of this product was turned OFF to ON, the product was reset, or a Windows part forced restart was run. Run after the operation status of the Windows part is running.

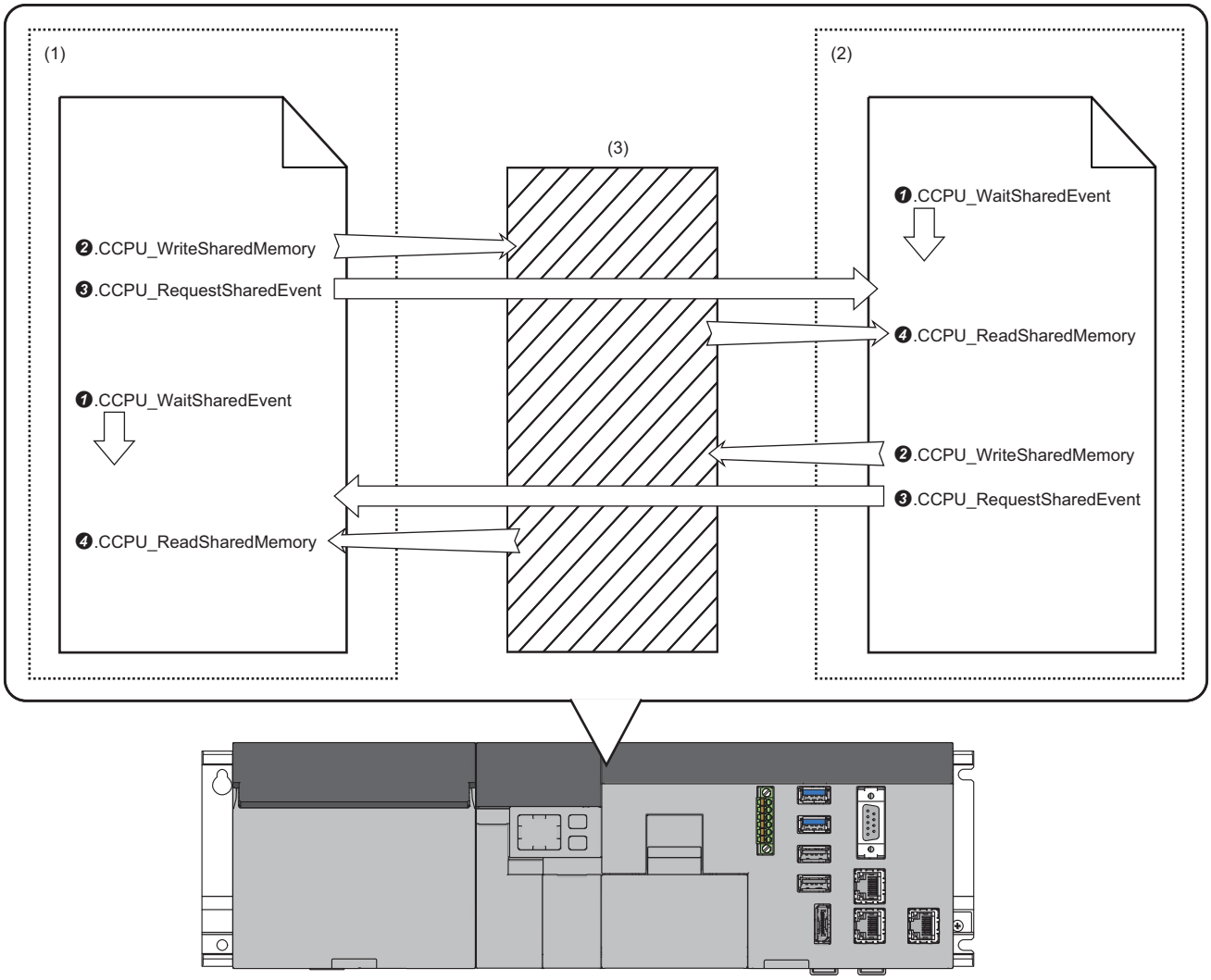
■ When a forced restart of the Windows part was run

When a Windows part forced-restart is run, all inter OS events reported to the Windows part are discarded. If necessary, report the inter OS events to the Windows part again.

Inter OS communication that uses inter OS event notification

The fact that shared memory was updated can be reported without polling processing by using the inter OS event notification function after an update of shared memory.

The following diagram shows an example of the operations of a user program receiving and sending data between operating systems using the inter OS event notification function.



(1) VxWorks part
(2) Windows part
(3) Shared memory

■ When a user program of the Windows part reads data of the VxWorks part.

❶The C Controller module dedicated function (CCPU_ReceiveInterOSEvent) is executed by a user program of the Windows part.

The user program of the Windows part waits for an inter OS event notification. The C Controller module dedicated function (CCPU_SendInterOSEvent) is executed by a user program of the VxWorks part, which then waits until the inter OS event notification is issued.

❷The C Controller module dedicated function (CCPU_WriteSharedMemory) is executed by the user program of the VxWorks part.

The data read by the user program of the Windows part is written to shared memory.

❸The C Controller module dedicated function (CCPU_SendInterOSEvent) is executed by the user program of the VxWorks part.

An inter OS event notification is issued to the user program of the Windows part.

❹The user program of the Windows part receives the inter OS event notification, and the waiting status is cleared. After the waiting status is cleared, the C Controller module dedicated function (CCPU_ReadSharedMemory) is executed.

Data written to the shared memory by the user program of the VxWorks part is read by the user program of the Windows part.

■ When a user program of the VxWorks part reads data of the Windows part

❶The C Controller module dedicated function (CCPU_ReceiveInterOSEvent) is executed by a user program of the VxWorks part.

The user program of the VxWorks part waits for an inter OS event notification. The C Controller module dedicated function (CCPU_SendInterOSEvent) is executed by a user program of the Windows part, which then waits until the inter OS event notification is issued.

❷The C Controller module dedicated function (CCPU_WriteSharedMemory) is executed by the user program of the Windows part.

The data read by the user program of the VxWorks part is written to shared memory.

❸The C Controller module dedicated function (CCPU_SendInterOSEvent) is executed by the user program of the Windows part.

An inter OS event notification is issued to the user program of the VxWorks part.

❹The user program of the VxWorks part receives the inter OS event notification, and the waiting status is cleared. After the waiting status is cleared, the C Controller module dedicated function (CCPU_ReadSharedMemory) is executed.

Data written to the shared memory by the user program of the Windows part is read by the user program of the VxWorks part.

MEMO

16 SERIAL INTERFACE SWITCHING FUNCTION

This function switches the connection destination of serial communication between the Windows part and VxWorks part.

Point

Basic remote debugging (display of task information, memory dumps, etc.) of the VxWorks part can be performed by configuring the standard I/O destination of the VxWorks part to the serial communication side.

Connection destination settings

Configure serial interface switching by using "Serial I/F setting" of "Operation Related Setting".
The configured connection destination will be applied after the power supply of this product is turned OFF to ON or this product is reset.

Window

[Basic Parameter] ⇨ [Operation Related Setting] ⇨ [Serial I/F Setting]

Displayed items

Item	Description	Range
Serial I/F Settings	Specify whether to assign the serial communication port to the Windows part or VxWorks part.	• Windows part • VxWorks part (Default: Windows part)

Remote debugging of the VxWorks part by serial communication

Remote debugging using serial communication can be performed in the same way as with a Telnet connection.
After the serial communications setting is set to the VxWorks part, the standard I/O destination can be switched to the serial communication side by executing the following commands from Telnet shell or a script file (STARTUP.CMD). For commands that can be executed via the shell, refer to the VxWorks manual.

```
fd = open("/tyCo/0", 2, 0)
ioctl(fd, 4, 115200)
ioctl(fd, 3, 0x7F)
ioGlobalStdSet(0, fd)
ioGlobalStdSet(1, fd)
ioGlobalStdSet(2, fd)
```

MEMO

PART 4 PARAMETERs

This part explains the parameters of this product.

17 BASIC PARAMETERS

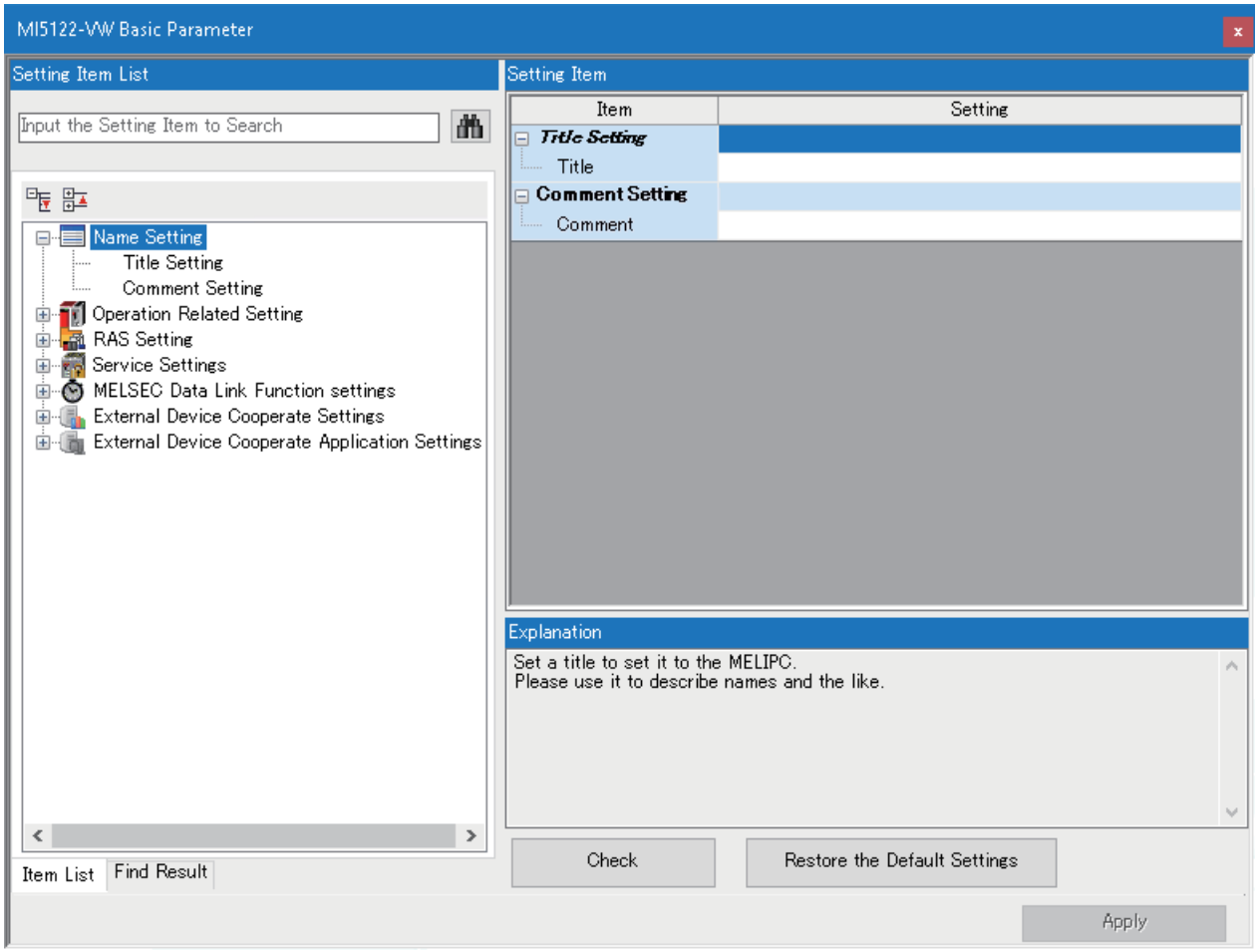
This chapter shows the basic parameters of this product.

17.1 Basic Parameter List

The following shows the basic parameters.

Name Setting

Window



Displayed items

■ **Title Setting**

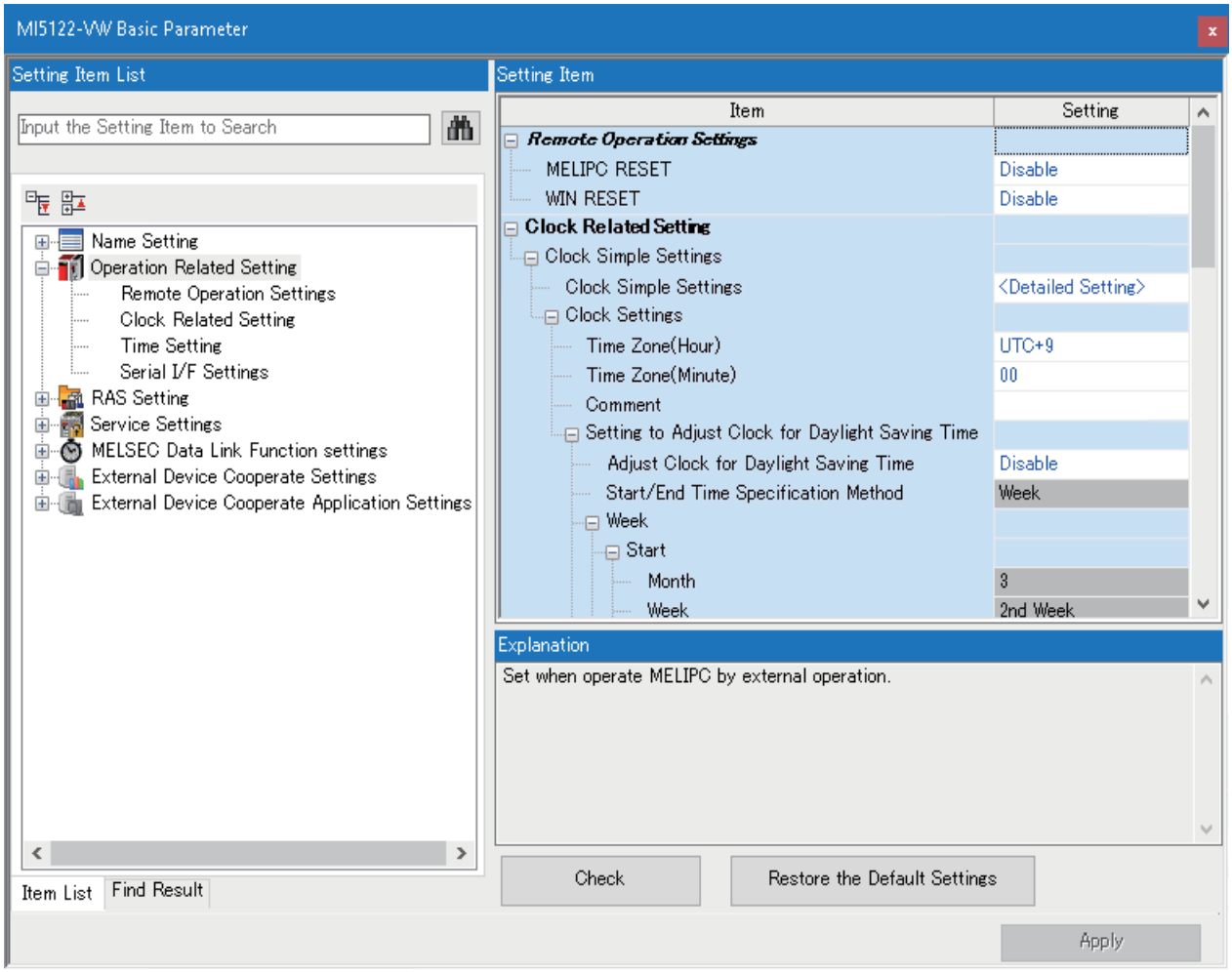
Item	Description	Setting range	parameter No.
Title	Set when setting the title.	32 characters or less (Unicode) (Default: Blank)	3100H

■ **Comment Setting**

Item	Description	Setting range	parameter No.
Comment	Set when setting comments.	256 characters or less (Unicode) (Default: Blank)	3101H

Operation Related Setting

Window



Displayed items

■ Remote Operation Settings

Item	Description	Setting range	parameter No.
MELIPC RESET	Configure "Enable" or "Disable" for MELIPC RESET by a remote operation. If "Enable" is configured, MELIPC RESET is possible. When an MELIPC RESET is performed, the MELIPC operation status must be STOP.	• Disable • Enable (Default: Disable)	3202H
WIN RESET	Configure "Enable" or "Disable" for WIN RESET by a remote operation. If "Enable" is configured, WIN RESET is possible.	• Disable • Enable (Default: Disable)	6E21H

■ Clock Related Setting

Item			Description	Setting range	parameter No.
Clock Simple Settings	—		Configure the daylight saving time setting through basic operations.	—	
	Clock Simple Settings		By specifying Time zone and Adjust clock for daylight saving time, the week or date specification is configured automatically.	☞ Clock Simple Settings	—
Clock Simple Settings	Clock Settings	—	Configure the time zone and daylight saving time setting.	—	
		Time Zone (Hour)	Set when using time zones on the VxWorks part. Setting the time zone (hour and minute) enables operation in accordance with the time zone of the region in which the VxWorks clock is used.	UTC+13 to UTC-12 (Default: UTC+9)	3209H
		Time Zone (Minute)	Configures the minute of the time zone in units of 15 minutes.	00 to 45 (Default: 00)	
		Comment	Set when entering a comment such as a city name for a time zone.	32 characters or less (Unicode) (Default: Blank)	

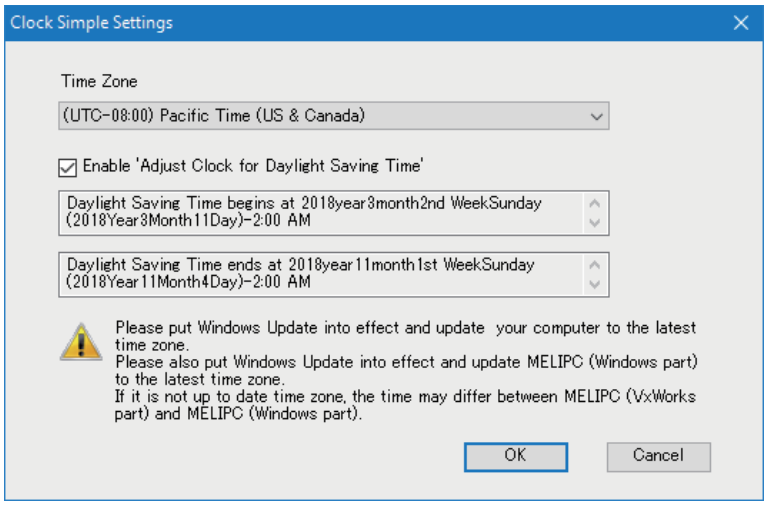
Item						Description	Setting range	parameter No.
Clock Simple Settings	Clock Settings	Setting to Adjust Clock for Daylight Saving Time	—			Set when correcting the time of the VxWorks part to daylight saving time.	—	3209H
			Adjust Clock for Daylight Saving Time			Set to "Enable" or "Disable" daylight saving time adjustment. If set to "Enable", the VxWorks part clock moves forward and backward one hour at the start and end of daylight saving time, respectively.	• Disable • Enable (Default: Disable)	
			Start/End Time Specification Method*1			Set whether to use "Week" or "Date" for the adjustment start/end time specification method.	• Week • Date (Default: Week)	
			Week	—		Set the month, week, day of the week, and time to specify the start/end time to adjust the clock.	—	
				Start	—	Set the adjustment start time.	—	
					Month	Set the start time (month) to adjust the clock.	1 to 12 (Default: 3)	
					Week	Set the start time (week) to adjust the clock.	The Last Week, 1st Week to 4th Week (Default: 2nd Week)	
					Day of Week	Set the start time (day of the week) to adjust the clock.	Sunday to Saturday (Default: Sunday)	
					Time	Set the start time (time) to adjust the clock.	0:00 to 23:00 (Default: 2:00)	
				End	—	Set the end time to adjust the clock.	—	
					Month	Set the end time (month) to adjust the clock.	1 to 12 (Default: 11)	
					Week	Set the end time (week) to adjust the clock.	The Last Week, 1st Week to 4th Week (Default: 1st Week)	
					Day of Week	Set the end time (day of the week) to adjust the clock.	Sunday to Saturday (Default: Sunday)	
					Time	Set the end time (time) to adjust the clock.	0:00 to 23:00 (Default: 2:00)	
			Date	—		Set the month, date, and time to specify the start/end time to adjust the clock.	—	
				Start	—	Set the start time to adjust the clock.	—	
					Month	Set the start time (month) to adjust the clock.	1 to 12 (Default: 3)	
					Day	Set the start time (date) to adjust the clock. *To specify February 29, set the last day of February.	The Last Date, 1 to 31 (Default: 1)	
					Time	Set the start time (time) to adjust the clock.	0:00 to 23:00 (Default: 2:00)	
				End	—	Set the end time to adjust the clock.	—	
					Month	Set the end time (month) to adjust the clock.	1 to 12 (Default: 11)	
					Day	Set the end time (date) to adjust the clock. *To specify February 29, set the last day of February.	The Last Date, 1 to 31 (Default: 1)	
					Time	Set the end time (time) to adjust the clock.	0:00 to 23:00 (Default: 2:00)	

*1 When daylight saving time is set in the clock simple settings, the settings in "Start/End Time Specification Method" under "Setting to Adjust Clock for Daylight Saving Time" are not changed. Set "Week" or "Date" for "Start/End Time Specification Method" depending on the region set in the time zone setting.

• Clock Simple Settings

Acquire the time zone configured by the Windows part and apply the time zone and daylight saving time to the VxWorks settings.

Window



■ Time Setting

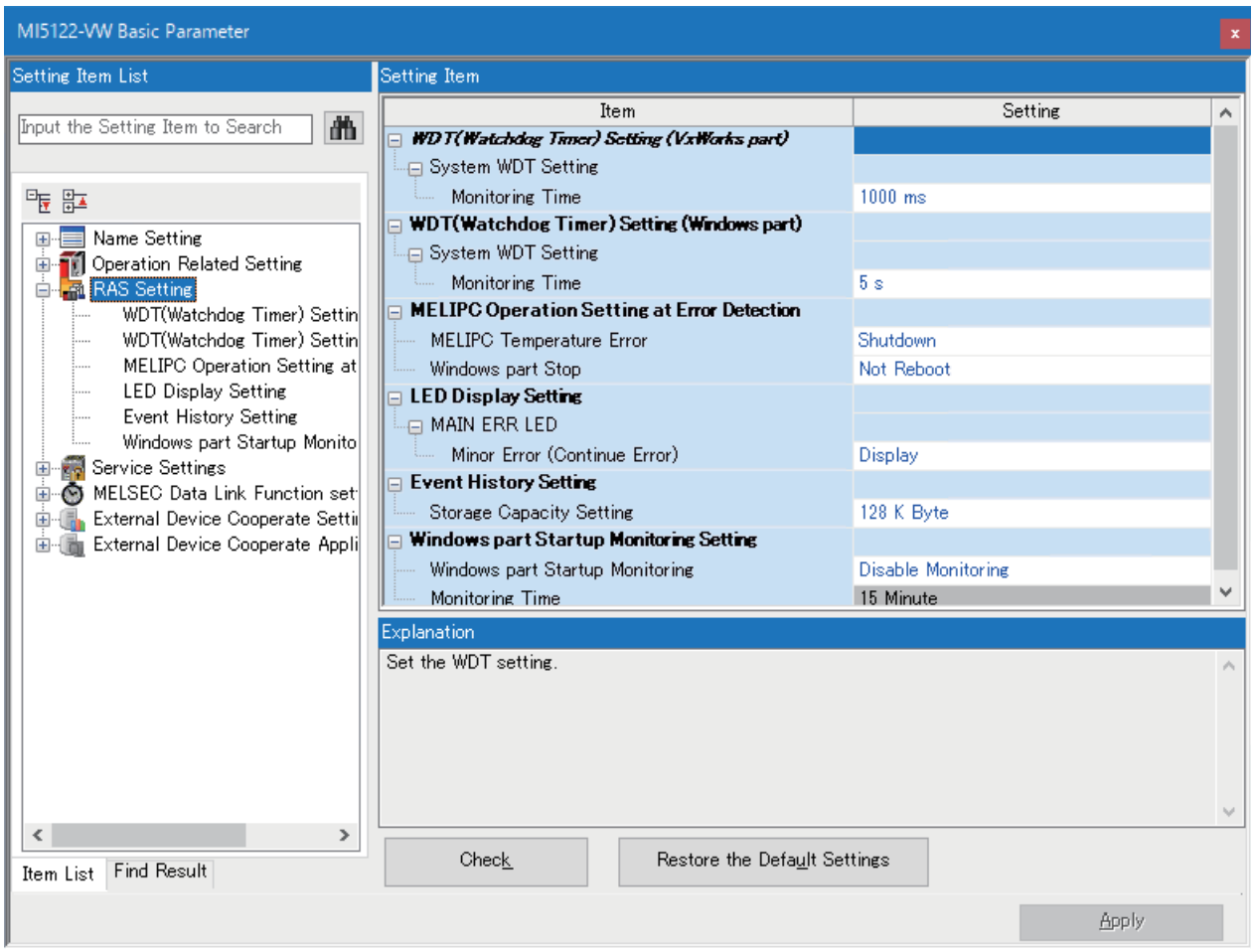
Item				Description	Setting range	parameter No.
Time Setting (SNTP Client)				Select whether or not to use time setting function (SNTP Client) in order to automatically run time setting of VxWorks part.	• Not Use • Use (Default: Not Use)	A039H
SNTP Server IP Address				Set the IP address of the SNTP server.	0.0.0.1 to 223.255.255.254 (When entering using decimal numbers) (Default: 0.0.0.1)	A039H
Timer Setting After Power-on and Reset				Select whether or not to execute the time setting function upon power-on and reset.	• Not Execute • Execute (Default: Not Execute)	A039H
Execution Timing	—			Choose the timing of the time setting function.	• Specified Time • Regular Intervals (Default: Specified Time)	A039H
	Regular Intervals			Configure the time interval (minutes) to configure the time during regular cycle specification.	1 to 1440 minutes (Default: 1 minute)	
	Specified Time (Hour, Minute, Day of Week)	—		Configure to specify the hour, minute, and day of week to configure the time during fixed cycle specification.	—	
		Clock Time (Hour, Minute)	—	Set the time (hour/minute).	—	
			Hour	Configure the time (hour) when the timing of the time setting is a specified time.	0 to 23 (Default: 12)	
			Minute	Configure the time (minute) when the timing of the time setting is a specified time.	0 to 59 (Default: 0)	
		Day of Week	—	Configure to specify the day to configure the time during fixed cycle specification.	—	
			Sunday	Configure whether to specify Sunday for the day specification.	Set Not Set (Default: Set)	
			Monday	Configure whether to specify Monday for the day specification.		
			Tuesday	Configure whether to specify Tuesday for the day specification.		
			Wednesday	Configure whether to specify Wednesday for the day specification.		
			Thursday	Configure whether to specify Thursday for the day specification.		
			Friday	Configure whether to specify Friday for the day specification.		
			Saturday	Configure whether to specify Saturday for the day specification.		
Clock Data Synchronization Settings	—			Clock data of the VxWorks part and Windows part can be synchronized on a fixed cycle.	—	6E12H
	To Use or Not to Clock Data Synchronization Settings			Set whether or not to use the clock data synchronization function. If "Use" is set, the clock data can be synchronized.	• Use • Not Use (Default: Use)	
	Synchronous Source			Configure the synchronization origin to "VxWorks part" when using the clock data synchronization function between the VxWorks part and Windows part.	VxWorks part	
	Synchronous Cycle			Set synchronization cycle for running clock data synchronization function.	1 to 1440 minutes (Default: 60 minutes)	

■ Serial I/F Settings

Item	Description	Setting range	parameter No.
Serial I/F Settings	Specify whether the serial communication port is assigned to the Windows or VxWorks part.	• Windows part • VxWorks part (Default: Windows part)	6E13H

RAS Setting

Window



Displayed items

■ WDT(Watchdog Timer) Setting (VxWorks part)

Item		Description	Setting range	parameter No.
System WDT Setting	—	Set system WDT setting (VxWorks part).	—	3500H
	Monitoring Time	Set the system WDT monitoring time.	20 to 2000 [ms](10 ms units) (Default: 1000 ms)	

■ WDT(Watchdog Timer) Setting (Windows part)

Item		Description	Setting range	parameter No.
System WDT Setting	—	Set the system WDT setting (Windows part).	—	6E11H
	Monitoring Time	Set the system WDT monitoring time.	1 to 600 (s) (1 s units) (Default: 5 s)	

■ MELIPC Operation Setting at Error Detected

Item	Description	Setting range	parameter No.
MELIPC Temperature Error	Set the device operation upon detection of a Main module temperature error. If "Shutdown" is set, the VxWorks part and Windows part shut down when an error is detected.	• Shutdown • Not Shutdown (Default: Shutdown)	3501H
Windows part Stop	Set operation of the Windows part when a stop state is detected due to a Windows bluescreen, timeout detection from the Windows part system watchdog timer.	• Not Reboot • Reboot (Default: Not Reboot)	

■ LED Display Setting

Item		Description	Setting range	parameter No.
MAIN ERR LED	—	Set the MAIN ERR LED display.	—	3502H
	Minor Error (Continue Error)	Set whether to display MAIN ERR LED when Minor Error (Continue Error) was detected.	• Display • Not Display (Default: Display)	

■ Event History Setting

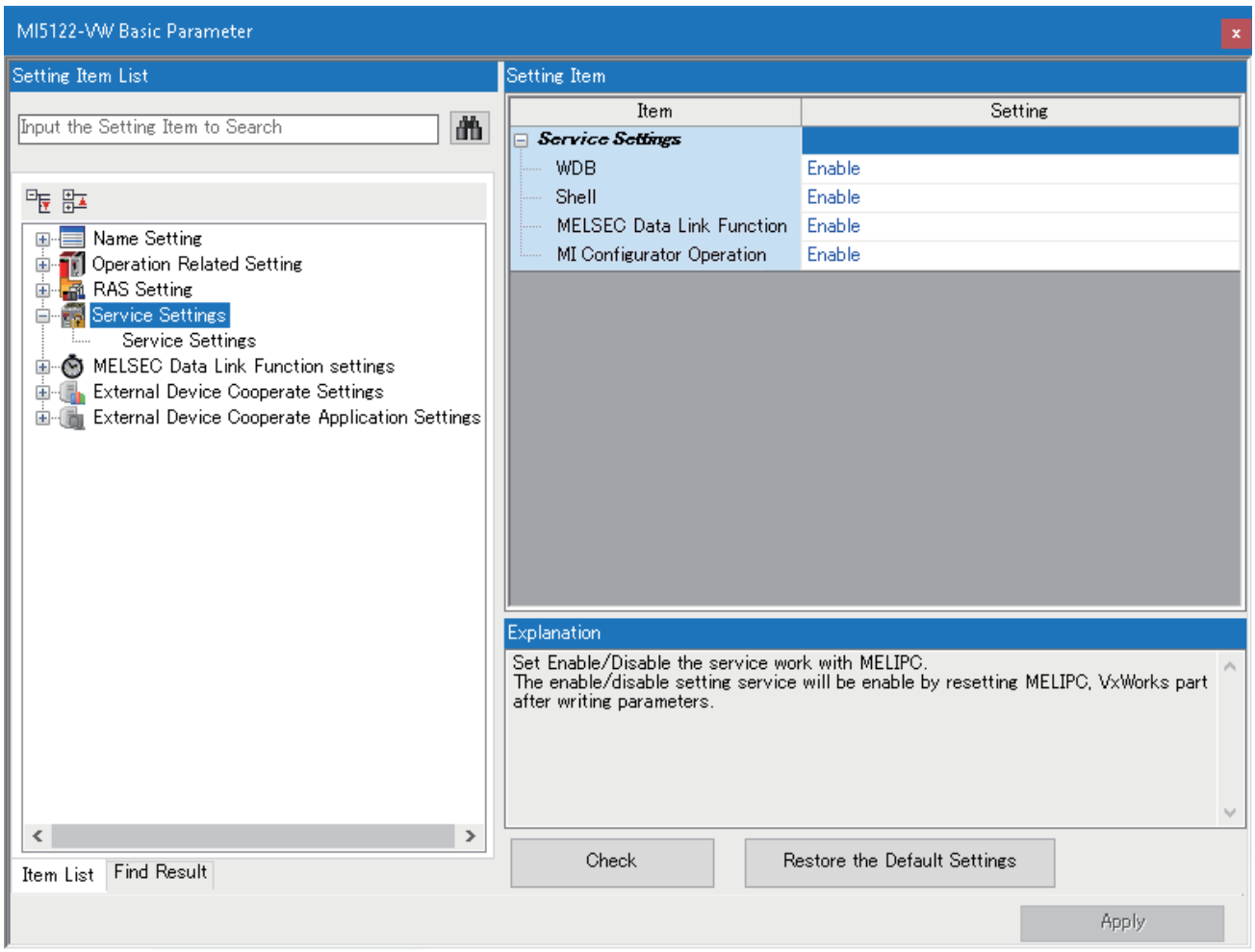
Item	Description	Setting range	parameter No.
Storage Capacity Setting	Set the capacity to save per event history file. Setting more capacity enables you to save more events.	2 to 2048 (KB) (1 KB units) (Default: 128 KB)	3504H

■ Windows part Startup Monitoring Setting

Item	Description	Setting range	parameter No.
Windows part Startup Monitoring	Set whether to monitor a startup of the Windows part. If "Enable Monitoring" is set, Windows will be restarted when the startup of the Windows part of MELIPC is not completed within the monitoring time.	• Disable Monitoring • Enable Monitoring (Default: Disable Monitoring)	6E22H
Monitoring Time	Set the time to monitor a startup of the Windows part of MELIPC. If the startup of the Windows part is not completed within the monitoring time, Windows will be restarted.	5 to 60 [minutes] (1 minute units) (Default: 15 minutes)	

Service Settings

Window



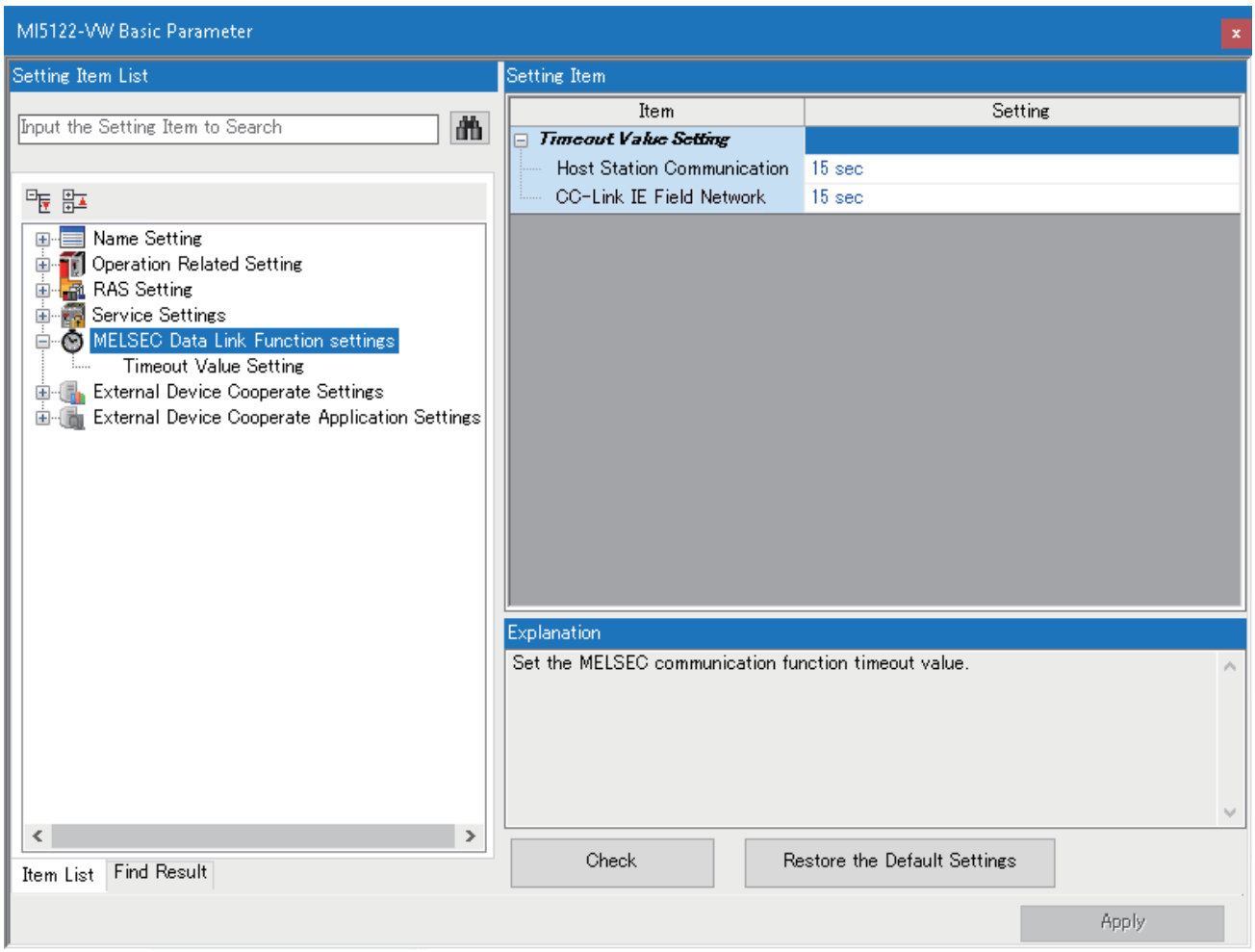
Displayed items

■ Service Settings

Item	Description	Setting range	parameter No.
WDB	Configure to enable or disable the WDB service.	• Enable • Disable (Default: Enable)	6E00H
Shell	Configure to enable or disable the Shell service. If "Enable" is configured, "Use" can be selected for the Telnet server settings.		
MELSEC Data Link Function	Configure to enable or disable the MELSEC data link function service.		
MI Configurator Operation	Configure to enable or disable the MI Configurator operation service.		

MELSEC Data Link Function settings

Window



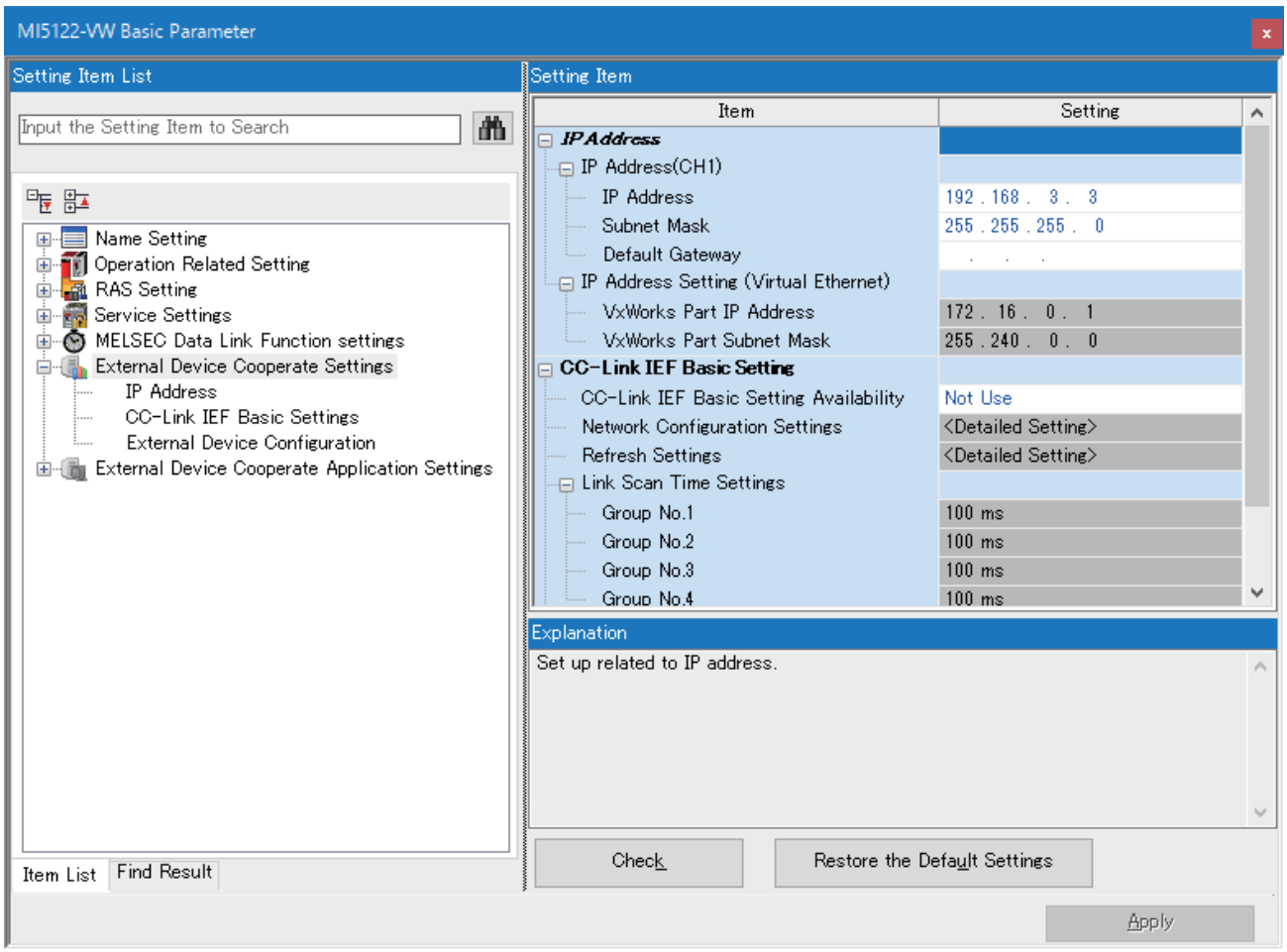
Displayed items

■ Timeout Value Setting

Item	Description	Setting range	parameter No.
Host Station Communication	Set communication time out value of host station.	Setting range: 1 to 360 (sec) (1 second units) (Default: 15 sec)	6E03H
CC-Link IE Field Network	Set the timeout value of the CC-Link IE Field Network.	Setting range: 1 to 360 (sec) (1 second units) (Default: 15 sec)	6E07H

External Device Cooperate Settings

Window



Displayed items

■ IP Address

Item		Description	Setting range	parameter No.
IP Address(CH1)	—	Configure the IP address, subnet mask, and default gateway of own node CH1.	—	
	IP Address*1	Set the own node CH1 IP address. Configure the own node and the external device with which to communicate to the same class and subnet address. Configure an IP address within the range of Class A, Class B, and Class C.	0.0.0.1 to 223.255.255.254 (Default: 192.168.3.3)	A012H
	Subnet Mask*1,*2	Set the subnet mask of the own node CH1. This is a setting to define the top bit of the IP addresses to use for network address that identifies the network. For example, when assigning the top 24 bits to the subnet mask, set 255.255.255.0.	128.0.0.0 to 255.255.255.252 (Default: 255.255.255.0)	
	Default Gateway	This sets the IP address of the device that pass through when accessing the network devices outside the network where the own node CH1 belongs to. Set the default gateway subnet address to the same as the own station subnet address.	• Blank • 0.0.0.1 to 223.255.255.254 (Default: Blank)	A013H
IP Address Setting (Virtual Ethernet)	—	Set IP address, subnet mask of virtual Ethernet.	—	—
	VxWorks part IP Address	Set IP address of VxWorks part. Configure the VxWorks part and the external device with which to communicate to the same class and subnet address. Configure an IP address within the range of Class A, Class B, and Class C.	172.16.0.1	
	VxWorks part Subnet Mask	Set subnet mask of virtual Ethernet in VxWorks part. This is a setting to define the top bit of the IP addresses to use for network address that identifies the network.	255.240.0.0	

*1 The IP address set value will differ depending on the subnet mask set value. Set with attention paid to the following points.
· The IP address host address (subnet mask, parts that are 0) bits are not all set to 0 or 1.
· The IP address network mask (subnet mask, parts that are 1) bits are not all set to 0 or 1.

*2 Set the subnet mask with attention paid to the following points.
When representing the subnet mask with a bit array (binary), 1 should not be shown again after 0.

Precautions

■ IP addresses not covered in settings

The following IP address ranges cannot be set for Ethernet port (CH1).

- IP address: 172.16.0.1 to 172.31.255.255
- Subnet mask: 255.240.0.0

■ Virtual Ethernet

Set the IP address of the device connected using an Ethernet port (CH1) so that it does not overlap with the virtual Ethernet IP address segments as shown below.

- VxWorks part: 172.16.0.1
- Windows part: 172.16.0.2
- Subnet mask: 255.240.0.0

■ IP address network section

Set the other device to connect and the Ethernet port IP address network to the same value.

■ CC-Link IEF Basic Settings

Item		Description	Setting range	parameter No.
CC-Link IEF Basic Setting Availability		Set whether or not to use the CC-Link IE Field Network Basic.	• Not Use • Use (Default: Not Use)	7920H
Network Configuration Settings		Set the setting for cyclic transmission. Set the Station No., Number of Occupied Stations, IP Address, Subnet Mask, and the like. To set the CC-Link IE Field Network Basic, it is required to set the Network Configuration Settings.	☞ Page 175 Network Configuration Settings	7A00H 7A02H
Refresh Settings		Set transfer range between CC-Link IE Field Network Basic link device and MELIPC device.	☞ Page 180 Refresh Settings	7420H
Link Scan Time Settings	—	Set the link scan time. The link scan time is retained in the interval configured for each group number. However, when the actual link scan time is longer than the setting, operation follows link scan time. Furthermore, this is not an item to keep the transmission delay time constant.	—	7A02H
	Group No.1	Set link scan time of group No.1.	0 to 10,000 [ms](1 ms units)*1 (Default: 100 ms)	
	Group No.2	Set link scan time of group No.2.		
	Group No.3	Set link scan time of group No.3.		
	Group No.4	Set link scan time of group No.4.		
Output Setting when MELIPC Stopped		Select whether to 'Hold' or 'Clear' cyclic data output when the MELIPC is in the STOP status.	• Hold • Clear (Default: Hold)	7921H

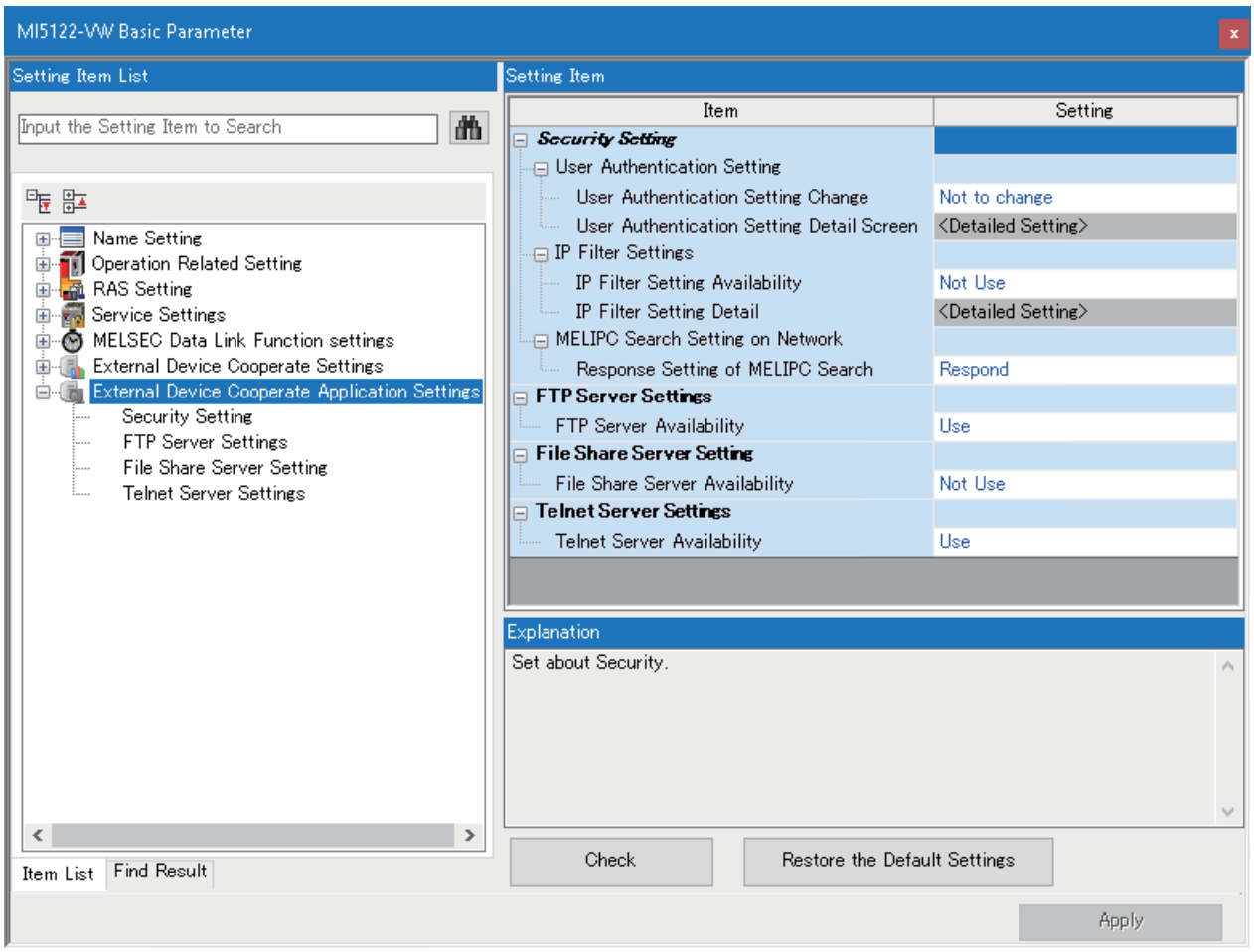
*1 When '0' is specified, the next link scan starts immediately right after the previous one is completed. (☞ Page 83 Link scan operation)

■ External Device Configuration

Item	Description	Setting range	parameter No.
External Device Configuration	Configure for external device with which to communicate.	☞ Page 181 External Device Configuration	A031H

External Device Cooperate Application Settings

Window



Displayed items

■ Security Setting

Item		Description	Setting range	parameter No.
User Authentication	—	Configure user authentication.	—	6E20H
	User Authentication Setting Change	Set whether or not to change the account used for user authentication from default to user's registration account. If the setting is "Not Change", authentication runs with the default user and password.	• Not Change • Change (Default: Not Change)	
	User Authentication Setting Detail Screen	Configure the details of the user authentication settings.	☞ Page 138 User authentication settings	
IP Filter Settings	—	Configure the IP filter settings to recognize the IP address of the access origin and restrict access to products that have Ethernet functions.	—	A03AH
	IP Filter Setting Availability	Set whether or not to use the IP filter function.	• Not Use • Use (Default: Not Use)	
	IP Filter Setting Detail	Configure the settings to use the IP filter function and restrict access.	☞ Page 141 IP filter setting details	
MELIPC Search Setting on Network	—	Configure the settings related to MELIPC searches on a network.	—	6E20H
	Response Setting of MELIPC Search	Select whether or not to respond to search by using 'Search for MELIPC on network' in the setting/monitor tool.	• Respond • Not Respond (Default: Respond)	

■ FTP Server Settings

Item	Description	Setting range	parameter No.
FTP Server Availability	Select whether to use the FTP server function.	• Use • Not Use (Default: Use)	A037H

■ File Share Server Setting

Item	Description	Setting range	parameter No.
File Share Server Availability	Select whether to use the file sharing function of the file sharing service (VxWorks part).	• Not Use • Use (Default: Not use)	7910H

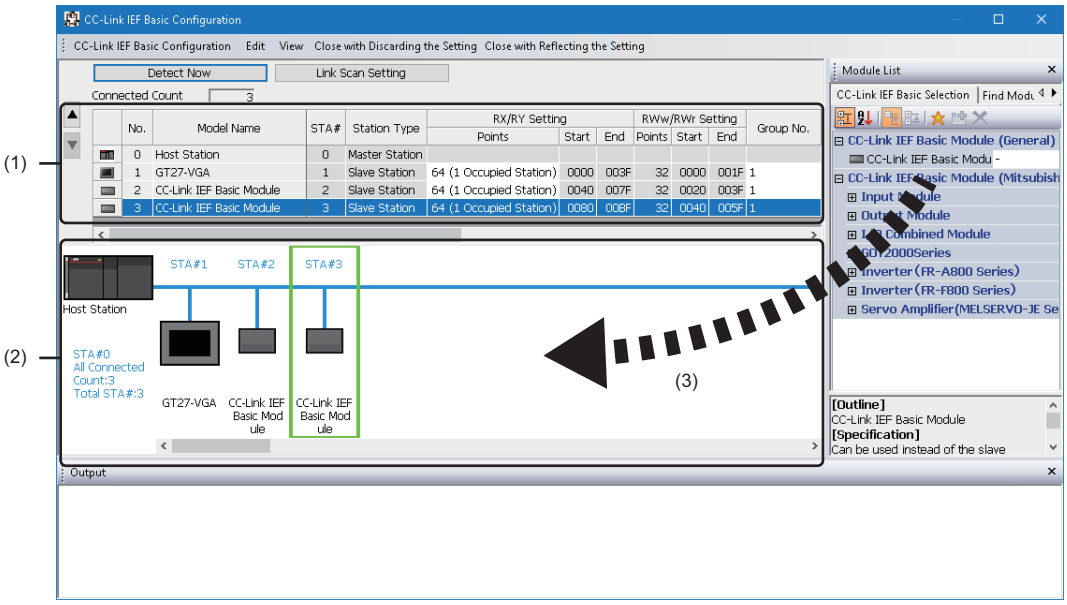
■ FTP Server Settings

Item	Description	Setting range	parameter No.
Telnet Server Availability	Select whether or not to use the telnet server function.	• Use • Not Use (Default: Use)	A03BH

17.2 Network Configuration Settings

Set a network configuration.

Window



(1) Station list
(2) Network configuration diagram
(3) Drag and drop

Displayed items

Item		Description	Setting range
[Detect Now] button		Connected devices are automatically detected. (☞ Page 177 Automatic detection of connected devices)	—
[Link Scan Setting] button		Configure the link scan settings. (☞ Page 179 Link Scan Setting)	—
Connected Count		Displays the total number of connected slave stations.	—
No.		The number of the slave station is displayed.	—
Model Name		Displays the model name of the connected external device.	—
STA#		Displays the start station number of the slave station.	—
Station Type		Displays the station type (master station/slave station).	—
RX/RY Setting	Points*1	Set assignation of numbers of points RX/RY in increments of 64.	• 64 (1 Occupied Station) • 128 (2 Occupied Stations) • 192 (3 Occupied Stations) • 256 (4 Occupied Stations) (Default: 64 (1 Occupied Station))
	Start	Displays the RX/RY start number.	—
	End	Displays the RX/RY end number.	—
RWw/RWr Setting	Points*1	Displays numbers of points in increments of 32.	—
	Start	Displays the RWw/RWr start number.	—
	End	Displays the RWw/RWr end number.	—
Group No.		Displays the slave station group No.	1
Reserved Station		Set whether to set the slave station as a reserved station.	• No Setting • Reserved Station (Default: No Setting)
IP Address*2		Set the IP address of the slave station.	0.0.0.1 to 223.255.255.254*3
Subnet Mask		Set the slave station subnet mask.	0.0.0.1 to 255.255.255.255 (Default: Master station subnet mask)
MAC Address		The MAC address of the slave station is displayed.	—
Comment		This displays the content input into "Comment 1" in the "Property" screen selected by right-clicking the unit either in the station list or the network configuration diagram.	32 single-byte/16 double-byte characters or less (Default: Blank)

*1 For details on link point numbers, refer to the following.
MELIPC MI5000 Series User's Manual (Startup)

*2 For details of the access range, refer to the following.
MELIPC MI5000 Series User's Manual (Startup)

*3 1st to 3rd octet: 1st to 3rd octet of master station IP address
4th octet: Automatically numbered between the empty number of 1 and 254 in ascending order

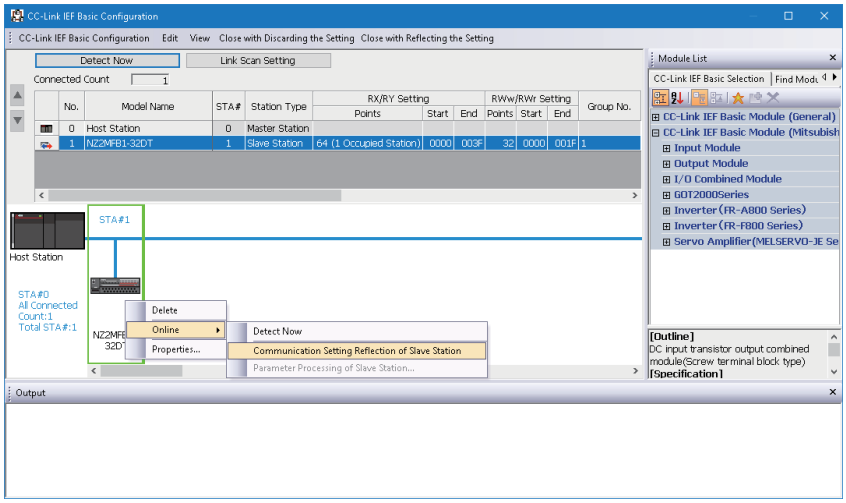
Automatic detection of connected devices

Search for connected slave stations and add them to the network configuration settings.

IP addresses, subnet masks, and other communication settings in the network configuration settings can be configured for added slave stations.

Furthermore, parameters unique to slave stations can be read from or written to the network configuration settings. (There are unsupported slave stations as well.)

Configuration work can be reduced because it is not necessary to configure slave station settings individually for each slave station, and slave stations can be configured all at once from the parameters of the master station.



Operating procedure

1. Launch a new project, and then run an automatic search of connected devices.
2. Because detected slave stations will be added to the network configuration settings, change their connection order, the number of occupied stations, and other information, and then configure station numbers.
3. Configure the slave station IP addresses, subnet masks, etc. in the network configuration settings. After configuration, the information is applied to the slave stations.

From the station list or network configuration diagram, select a module, and then select [Online] ⇨ [Apply slave station communication settings].

4. Parameters unique to slave devices can be read or written from the network configuration settings. *1For the parameters unique to slave devices, refer to the manual of the slave station to be used.

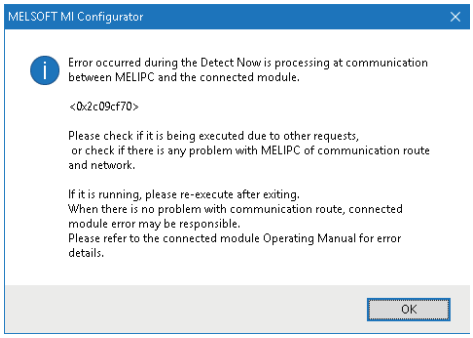
*1 To read parameters, choose "Read parameters" under "Processing to be run", and then click the "Run" button. The read value is displayed. To write parameters, choose "Write parameters" under "Processing to be run", enter the write value, and then click the "Run" button.

From the station list or network configuration diagram, select a module, and then select [Online] ⇨ [Parameter Processing of Slave Station].

Point

Configure the slave stations in the network configuration settings after running an automatic search of connected devices. Content already configured in the network configuration settings is overwritten by the content after the automatic search for connected devices. Detected slave stations are applied to the network configuration settings starting from the lowest MAC address, and the number of occupied stations and other values are also set to the initial values.

If an error occurs during automatic detection of connected devices, the following screen appears.



The error codes of the following list indicate the last four digits of "0x2c09****".

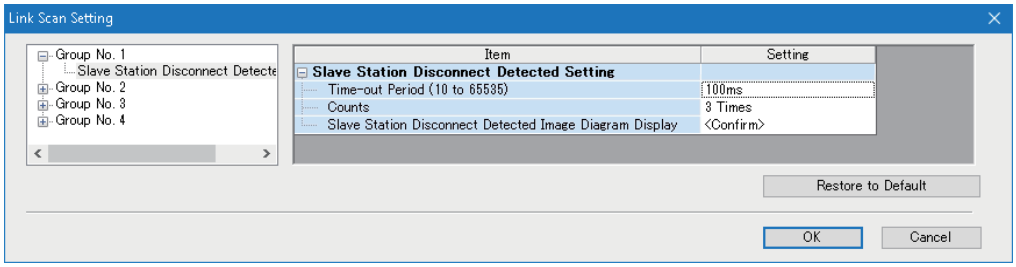
Error code	Error details and cause	Corrective action
480CH	The specified command cannot be run because an automatic search of connected devices is running.	After the automatic search of connected devices is complete, run the command again.
480DH	• The specified command cannot be run because slave station communication settings are being applied. • A communication timeout occurred.	• After the slave station communication settings have been applied, run the command again. • Review the communication time set for the Check Communication Time of MI Configurator.
480EH	• The specified command cannot be run because slave station parameter processing is occurring. • A communication timeout occurred.	• Wait and then run the command again. • Review the communication time set for the Check Communication Time of MI Configurator.
C055H to C056H	System error	• Check the considerations of the function that was run. • Check the operation status and connection of target devices. • Check the Ethernet cable and hub connections. • Check the Ethernet line status. • Reset the CPU modules and target devices, and then run the command again. If the problem still cannot be resolved, contact the manufacturer of the target device.
C059H	The target device ran an unsupported function.	Check if the target device supports the function that was run.
C05CH	• A communication setting value is out of range. • A communication setting value that cannot be configured was configured for the target device. • A necessary setting item has not been configured on the target device.	Review the setting content, and then run the command again.
C061H	System error	• Check the considerations of the function that was run. • Check the operation status and connection of target devices. • Check the Ethernet cable and hub connections. • Check the Ethernet line status. • Reset the CPU modules and target devices, and then run the command again. If the problem still cannot be resolved, contact the manufacturer of the target device.
CEE0H	There was a search from another peripheral device, or another online function was run during automatic detection of connected devices.	After the automatic search of connected devices is complete, run the other function again.
CEE1H to CEE2H	System error	• Check the considerations of the function that was run. • Check the operation status and connection of target devices. • Check the Ethernet cable and hub connections. • Check the Ethernet line status. • Reset the CPU modules and target devices, and then run the command again. If the problem still cannot be resolved, contact the manufacturer of the target device.
CF10H	System error	
CF20H	• A communication setting value is out of range. • A communication setting value that cannot be configured was configured for the target device. • A necessary setting item has not been configured on the target device.	Review the setting content, and then run the command again.

Error code	Error details and cause	Corrective action
CF30H	A parameter not supported by the target device was specified.	Check the version of the target device.
CF31H	System error	• Check the considerations of the function that was run. • Check the operation status and connection of target devices. • Check the Ethernet cable and hub connections. • Check the Ethernet line status. • Reset the CPU modules and target devices, and then run the command again. If the problem still cannot be resolved, contact the manufacturer of the target device.
CF50H	System error	
CF51H	The command could not be run because another peripheral device is processing.	Wait and then run the command again.
CF53H~CF56H	System error	• Check the considerations of the function that was run. • Check the operation status and connection of target devices. • Check the Ethernet cable and hub connections. • Check the Ethernet line status. • Reset the CPU modules and target devices, and then run the command again. If the problem still cannot be resolved, contact the manufacturer of the target device.
CF70H	There was an error on the Ethernet communication route.	• Check the operation of the target device. • Check if the connection cable is disconnected.
CF71H	Timeout error	• Check the considerations of the function that was run. • Check the operation of the target device. • Since there may be congestion of packets on the line, send data after a certain period of time.

Link Scan Setting

Set the slave station disconnection detection timeout period and number of retries.

Window



Displayed items

Item		Description	Setting range
Slave Station Disconnect Detection Setting	Time-out Period (10 to 65535)	Set the timeout period (ms) for slave station disconnection detection.*1	10 to 65535 (Default: 100 ms)
	Counts	Set the slave station disconnection detection number of retries. *1,*2	3 times, 5 times, 10 times (Default: 3 times)
	Slave Station Disconnect Detected Image Diagram Display	Displays an operating image during slave station disconnection detection time. Please refer to this when setting the "Time-out Period".	—

*1 Timeout periods and disconnect dissection counts are counted by slave station.

*2 Within the timeout period, disconnect if after the set count connection, there is no response from the slave station.

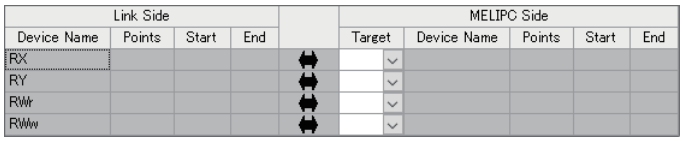
Point

Set an adequate value for the timeout time in accordance with the actual system used. (☞ Page 78 If no response from the slave station)

17.3 Refresh Settings

Set refresh parameters.

Window



Displayed items

Item		Description	Setting range
Link Side		The number of points for the link devices (RX/RY, RWr/RWw) for the number of occupied stations and start/end device number set in the network configuration settings are displayed.	—
MELIPC Side	Target	The target for link refresh is displayed.	Device
	Device Name	Set the device of the link refresh target.	M, B, D, W, ZR
	Points	The number of device points subject to link refresh is displayed. (A value the same as the number of points of the link side is displayed.)	—
	Start	Set the start device number within the link refresh range.	• M: 0 to 61439 • B: 0 to 9FFFFH • D: 0 to 4184063 • W: 0 to FFFFFH • ZR: 0 to 524287
	End	The end device number within the link refresh range is displayed.	—

17.4 External Device Configuration

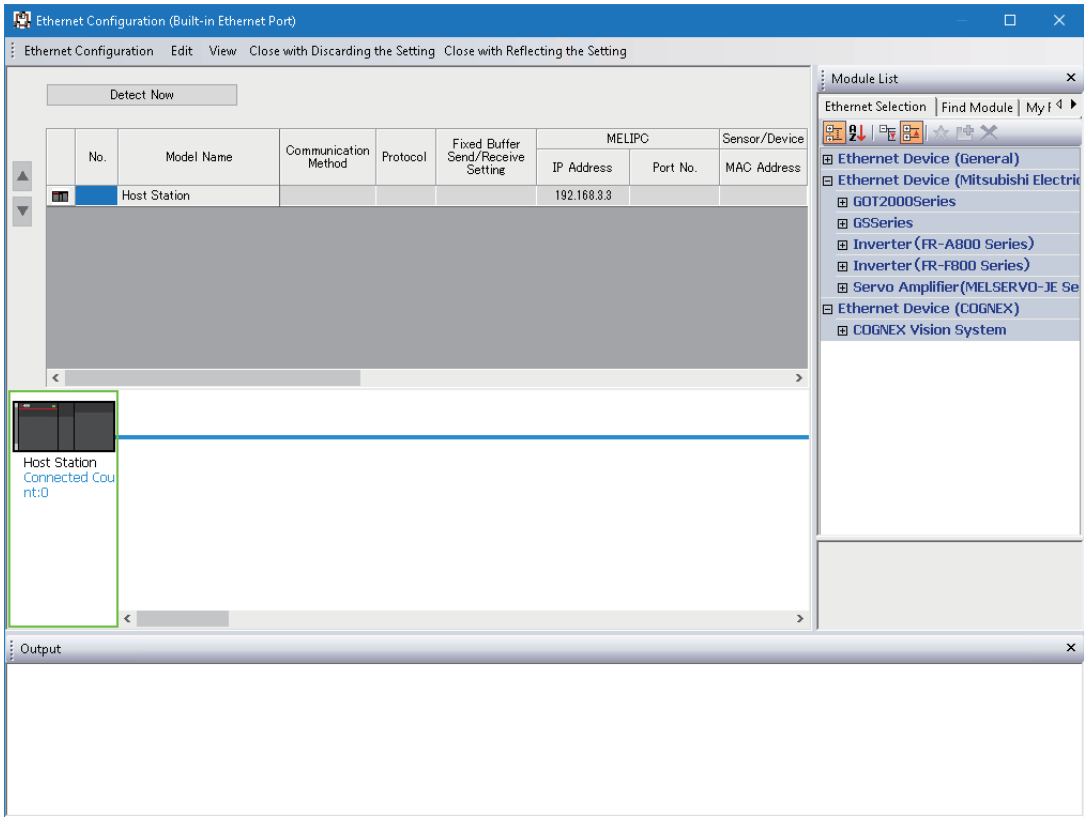
Set the communications method and protocols used with external devices.

Point

UDP connection devices, OPS connection devices, active connection devices, unpassive connection devices, fullpassive connection devices, and MODBUS/TCP connection devices cannot be used.

Window

[Basic Parameter] ⇨ [External Device Cooperate Settings] ⇨ [External Device Configuration] ⇨ [<Detail Setting>]



Displayed items

Item		Description	Setting range
[Detect Now] button		Carry out connection device automatic detection. (MELIQ Sensor Solution Reference Manual)	—
No.		The connection No. used to classify the user connection settings.	Connect in order from 1, in the following range. • 1 to 16
Model Name		Displays the model name of the connected external device.	—
Communication Method		Set the communications method with external devices.	• MELSOFT Connection • SLMP
Protocol		Sets the communications protocols used with external devices.	• TCP*1 • UDP*2,*3
Fixed Buffer Send/Receive Setting		This item is not required to be set.	—
MELIPC	IP Address	The own node IP address set in "External Device Connection Settings", "Own Node Settings (CH1)" "IP address settings (CH1)" is displayed.	—
	Port Number*4	Set port numbers for each connection on modules incorporating Ethernet.	1 to 4999, 5010 to 65534 (Default: Blank)
Sensor/Device	MAC address	This item is not required to be set.	—
	Host Name	This item is not required to be set.	—
	IP Address	Set the IP address of the external device.	0.0.0.1 to 223.255.255.254 (Default: Blank)
	Port Number	Set the port number of the external device. If using data transmission for all port numbers, then set 65535.	1 to 65534, 65535 (Default: Blank)
	Subnet Mask	This item is not required to be set.	—
	Default Gateway	This item is not required to be set.	—
Existence Confirmation		Check the methods to confirm the presence of the other device when communications with the other device were not possible for a fixed period. If communication with the other device is not possible, close the connection.	• KeepAlive • UDP • Do not confirm existence

*1 ((Maximum number of connectable devices in the external device configuration) - (set connections) + 1) are connectable.

*2 Communications using SLMP communications only support TCP.

*3 Communications may not be possible in high-load network conditions such as those with simultaneous communications from multiple connection destinations.

*4 Own station port numbers from 1 to 1023 are normally reserved (WELL KNOWN PORT NUMBERS), and those from 61440 to 65534 are used for other communications functions. Use of ports in are ranges 1024 to 4999 and 5010 to 61439 is recommended.

Point

Right-click the module set in "Device List" or "Device configuration", and select "Properties" to configure comments in the displayed "Properties" window.

The following can be configured depending on the selected device.

- Change to image diagram
- Linkage of file or application

Existence Confirmation

This communications are not possible for a fixed period of time for other devices for which the connection is open, then the product sends a presence confirmation message to the other device, and checks its presence determined by whether a response message is received.

Item	Protocols that can be set	Description
KeepAlive	TCP/IP	Use connections opened using the TCP/IP protocol. A presence confirmation ACK message is sent to other devices for which communications are not possible for a fixed period of time, and its presence checked by whether a response is received. If open status does not continue, then the connection is automatically closed.*1
UDP	UDP/IP	Use connections opened using the UDP/IP protocol. A PING command (ICMP echo request/response function) is sent to the other devices for which communications are not possible for a fixed period of time, and its presence checked by whether a response is received.*2
Do not confirm existence	TCP/IP,UDP/IP	Does not check the presence of other devices.

*1 If the other device does not support the TCP KeepAlive function (response to KeepAlive ACK message), then the connection will be disconnected.

*2 If a module incorporating Ethernet receives a PING command echo request command, then an echo response packet will be sent in response automatically. (Even if the connection used for data communications with the other device is closed, this will send a response to the received PING command.)

■ Check presence using KeepAlive

This sends a presence confirmation message 22 seconds after the last message is received from the other device, and checks that there is a response from the other device. If there is no response, then presence confirmation messages are sent in 1-second intervals. If responses cannot be confirmed after 8 seconds (30 seconds after the final message was received), then the other device will be considered not present, and the connection will be disconnected.

■ TCP retransmission processing

In TCP connections, if there is no ACK response to the transmission using the TCP protocol from the other device, then this carries out retransmission processing using the following retransmission frequency and intervals. If there is no ACK response to the TCP protocol 60 seconds after the last retransmission, then the other device will be considered faulty, and the connection disconnected.

- Retransmission count*1: 12 times
- Retransmission interval*2: (retransmission count × retransmission count × RTO*3) ÷ 1024 (sec.)

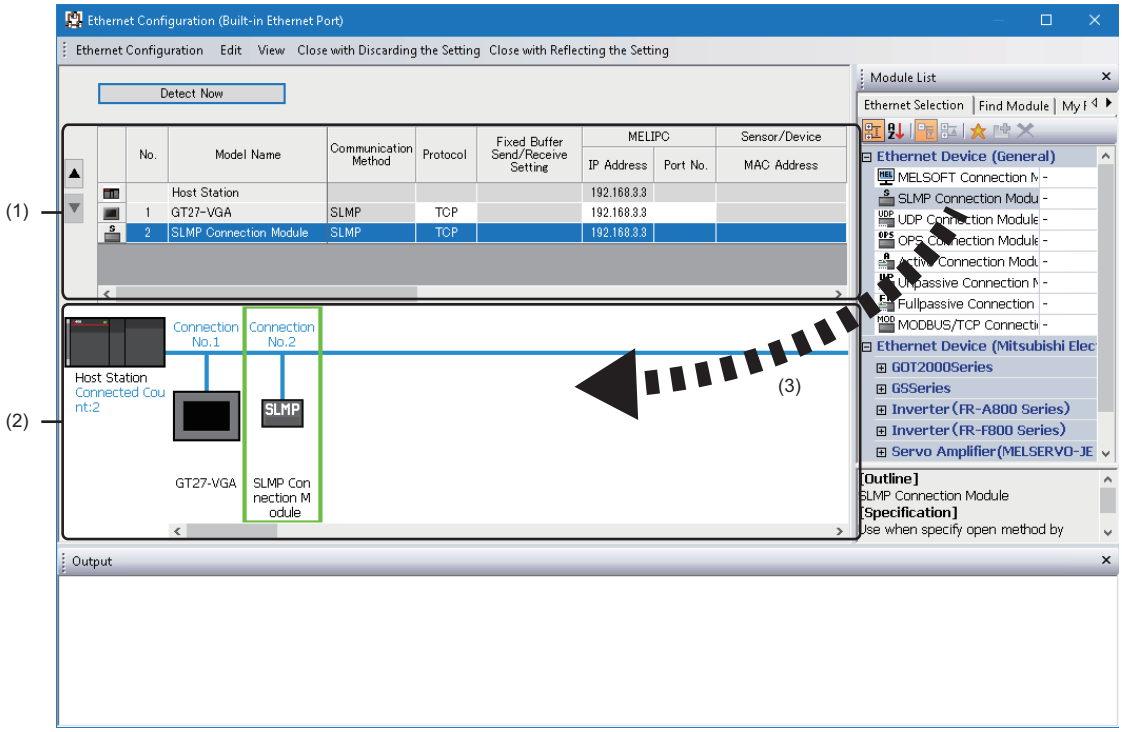
*1 At establishment of the connection, if 30 seconds has passed, then the connection to the other device will be considered faulty and disconnected even if the retransmission count is 12 or less.

*2 The maximum value for retransmission period is 60 seconds.

*3 RTO (retransmission timeout) is a value that increases exponentially based upon the RTT (round-trip time).

Setting method

1. From "Module List", select the external device to be connected, and then drag and drop (3) it to "Device List" (1) or "Device Configuration" (2).



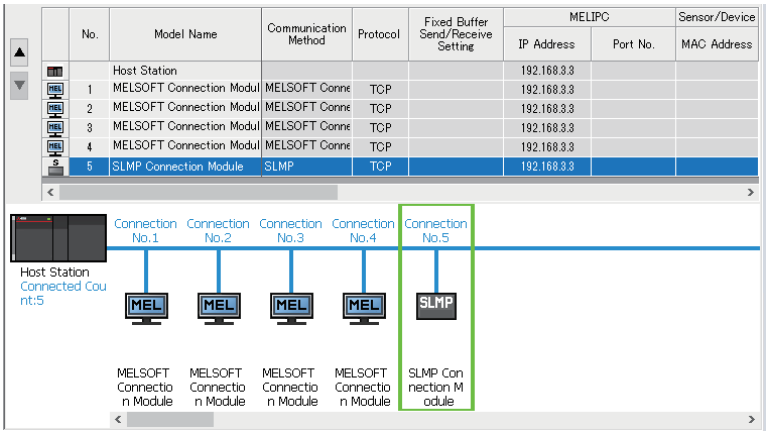
2. Set each item.

3. Click the [Close with Reflecting the Setting] button.

Restriction

Setting a target device from connection No.1 in the external device configuration is required.
If using a specific connection number, set the "MELSOFT connected device" to the external device with the unused connection number.

- If using connection No.5 only



18 APPRICATION PARAMETERS

This chapter shows the application parameters of this product.

18.1 CC-Link IE Field Network Parameters List

This section shows CC-Link IE Field Network parameters.

Required settings

The following shows the required settings for CC-Link IE Field Network parameters.

Point

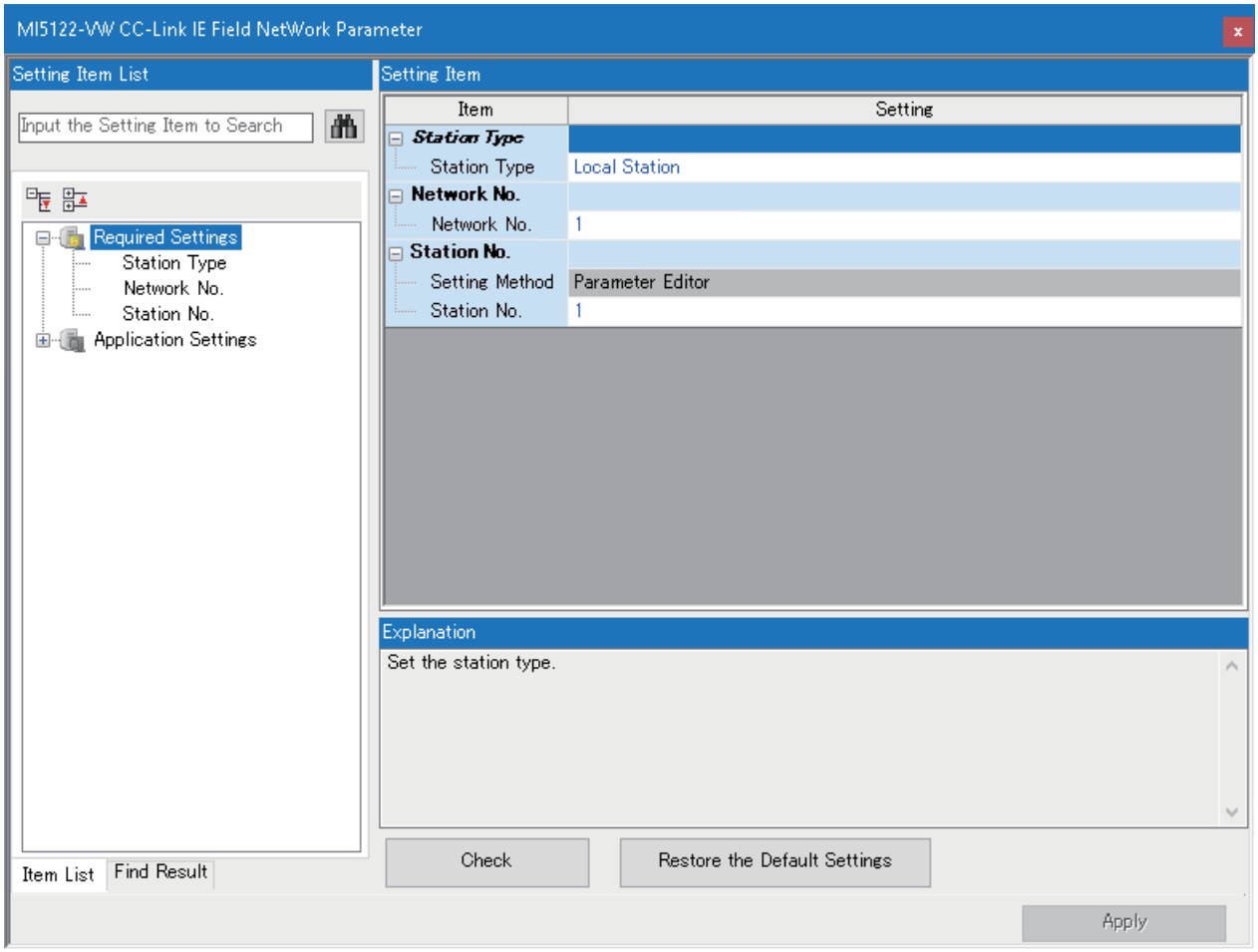
If a master station is selected by station type, the following parameters are displayed in applicable settings.

- Synchronization communication settings

For details on each parameter, refer to the following section.

☞ Page 191 Required settings (if master station is selected by station type)

Window



Displayed items

■ Station type settings

Item	Description	Setting range	Parameter No.
Station type	Select the CC-Link IE Field Network function station type (network type).	• Master station • Local station	7100H 7700H

■ Network number settings

Item	Description	Setting range	Parameter No.
Network No.	Set the network No. for the network to connect to the CC-Link IE Field Network.	1 to 239 (Default: 1)	7100H

■ Station number settings

Item	Description	Setting range	Parameter No.
Station number settings method	Select the station number configuration method of local stations. (Local station only setting)	Set in parameters	7100H
Station number	Set the CC-Link IE Field Network station number.	1 to 120 (Default: 1) (Master station fixed at "0")	

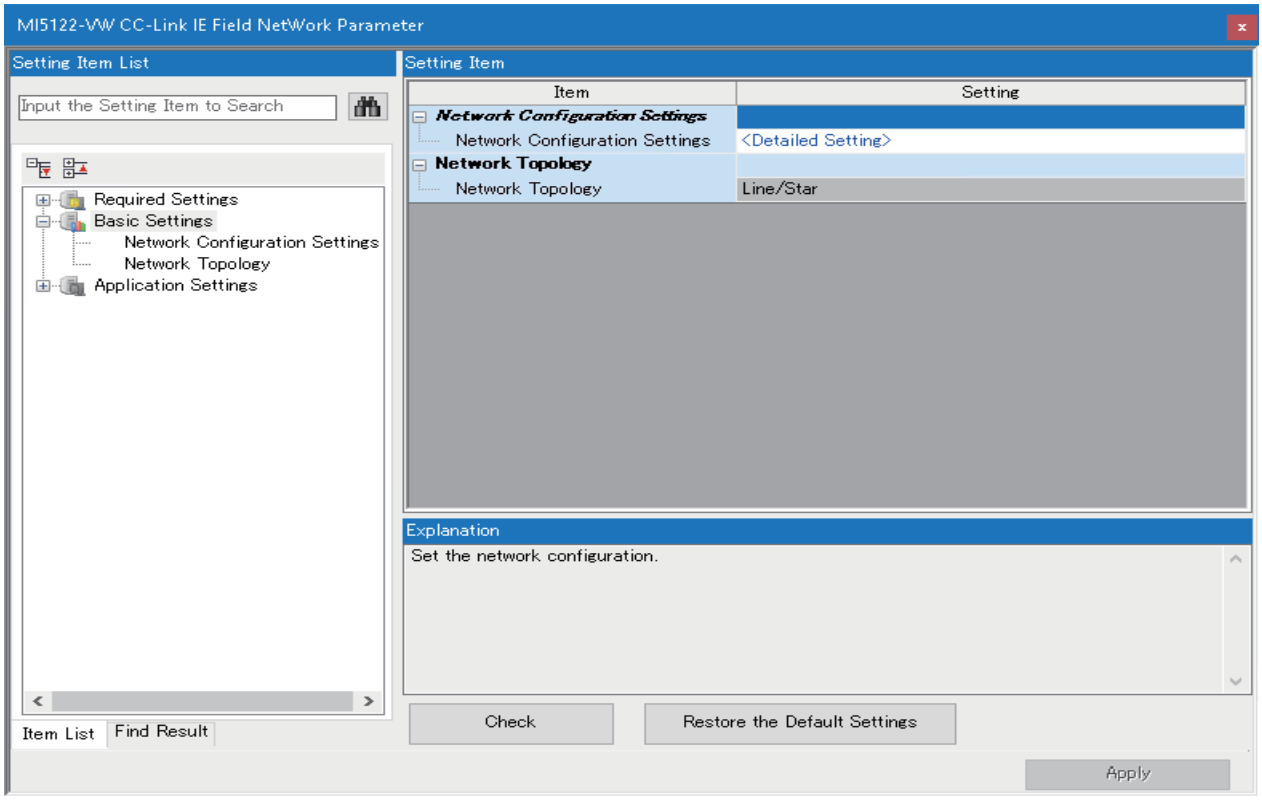
Basic settings

This shows basic settings for CC-Link IE Field Network parameters.

Point

If master station is selected in essential settings station type, then basic settings will be displayed in CC-Link IE Field Network parameters.

Window



Displayed items

■ Network configuration settings

Item	Description	Setting range	Parameter No.
Network configuration settings	Set the slave station link device points number and assignment in the master station.	☞ Page 193 Network Configuration Settings	

■ Network topology setting

Item	Description	Setting range	Parameter No.
Network topology setting	Select to match the connection method in use with other stations.	Line connection, star connection, and star connection/line connection mixed	A040H

Applicable settings

Displays CC-Link IE Field Network applied settings.

Point

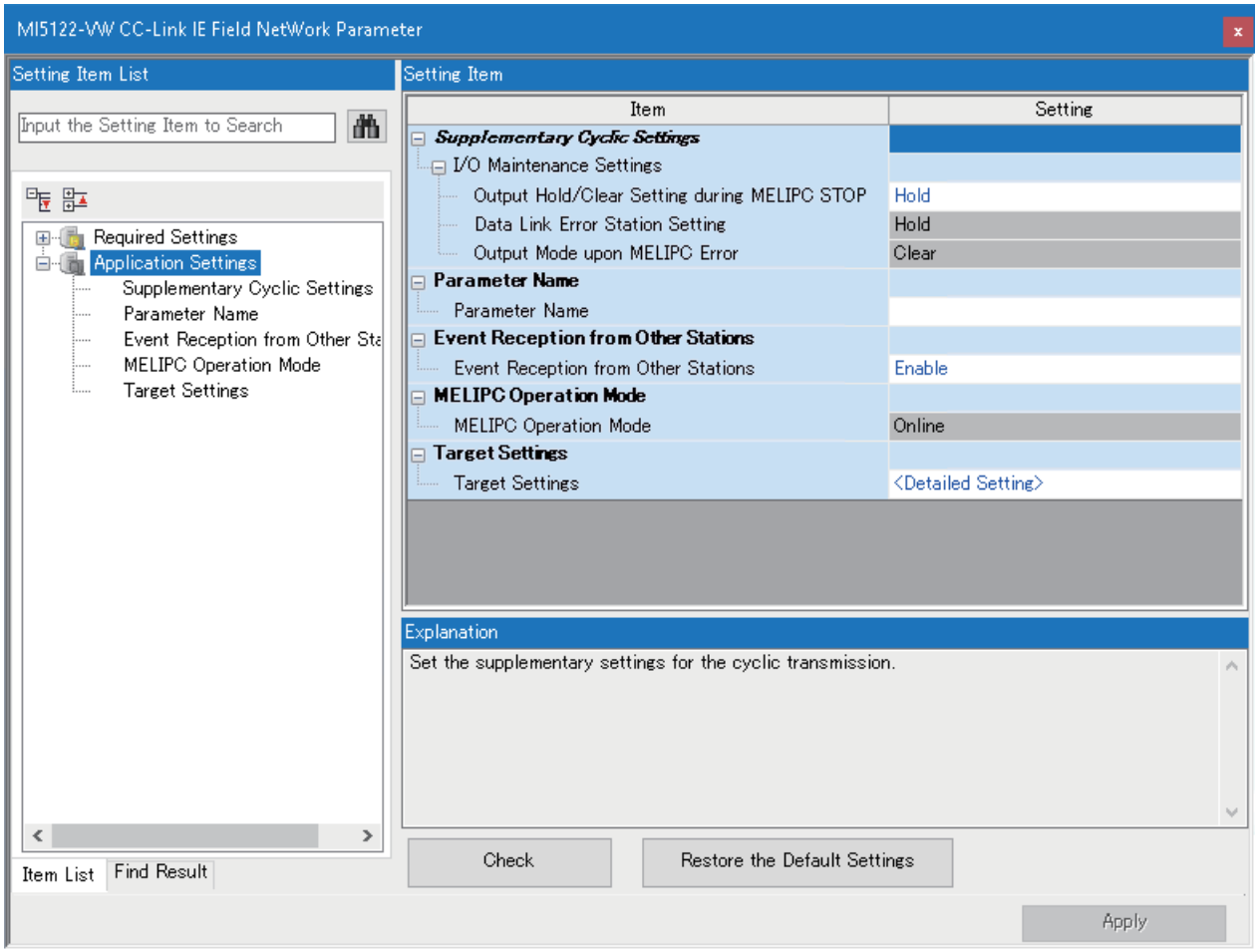
If master station is selected in essential settings station type, then the following parameters will be displayed in applicable settings.

- Station unit block guarantee
- Communications mode

For details on each parameter, refer to the following section.

☞ Page 192 Applicable settings (If master station is selected in essential settings station type)

Window



Displayed items

■ Cyclic supplementary settings

Item		Description	Setting range	Parameter No.
Input/output retention clear settings	—	Configure the input and output retention and clear settings.	—	
	Output Hold/Clear Setting during MELIPC STOP	Set whether to hold or clear the output of cyclic data when the MELIPC enters a STOP condition.	• Hold • Clear (Default: Hold)	A050H
	Data link abnormal station settings	Retain input data from slave stations that have shown abnormal data link.	Retention	
	Output mode settings at MELIPC error	Clear the MELIPC output settings when a stop error has occurred in the MELIPC.	Clear	7101H

■ Parameter name

Item	Description	Setting range	Parameter No.
Parameter name	Set the parameter name as necessary.	8 characters (Default: Blank)	7310H

■ Other station event acquisition settings

Item	Description	Setting range	Parameter No.
Other station event acquisition settings	Set whether to acquire events generated by other stations on the same network. If "Acquire" is selected, events generated by other stations are registered in the event history.	• Acquire • Do not acquire (Default: Acquire)	A016H

■ MELIPC dynamic mode settings

Item	Description	Setting range	Parameter No.
MELIPC dynamic mode settings	Set the MELIPC operation mode. • Online mode (mode normally used by MELIPC)	Online mode	7100H

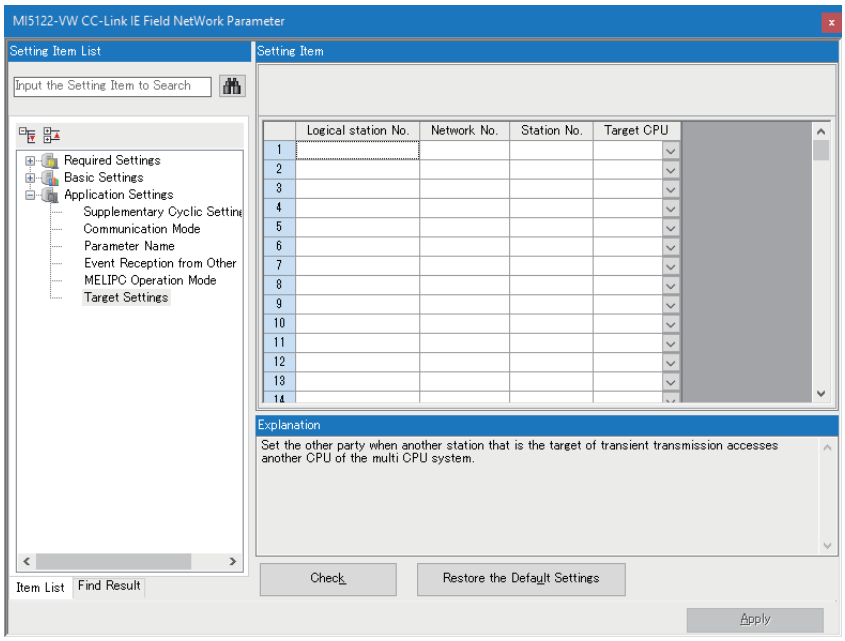
■ Access target settings

Item	Description	Setting range	Parameter No.
Access target settings	Set an access target when accessing from another station for transient transmission to another CPU module in a multiple system configuration.	☞ Access Target Settings	7903H

• Access Target Settings

Set a logical station number when another station for transient transmission is another CPU module in a multiple system configuration.

Window

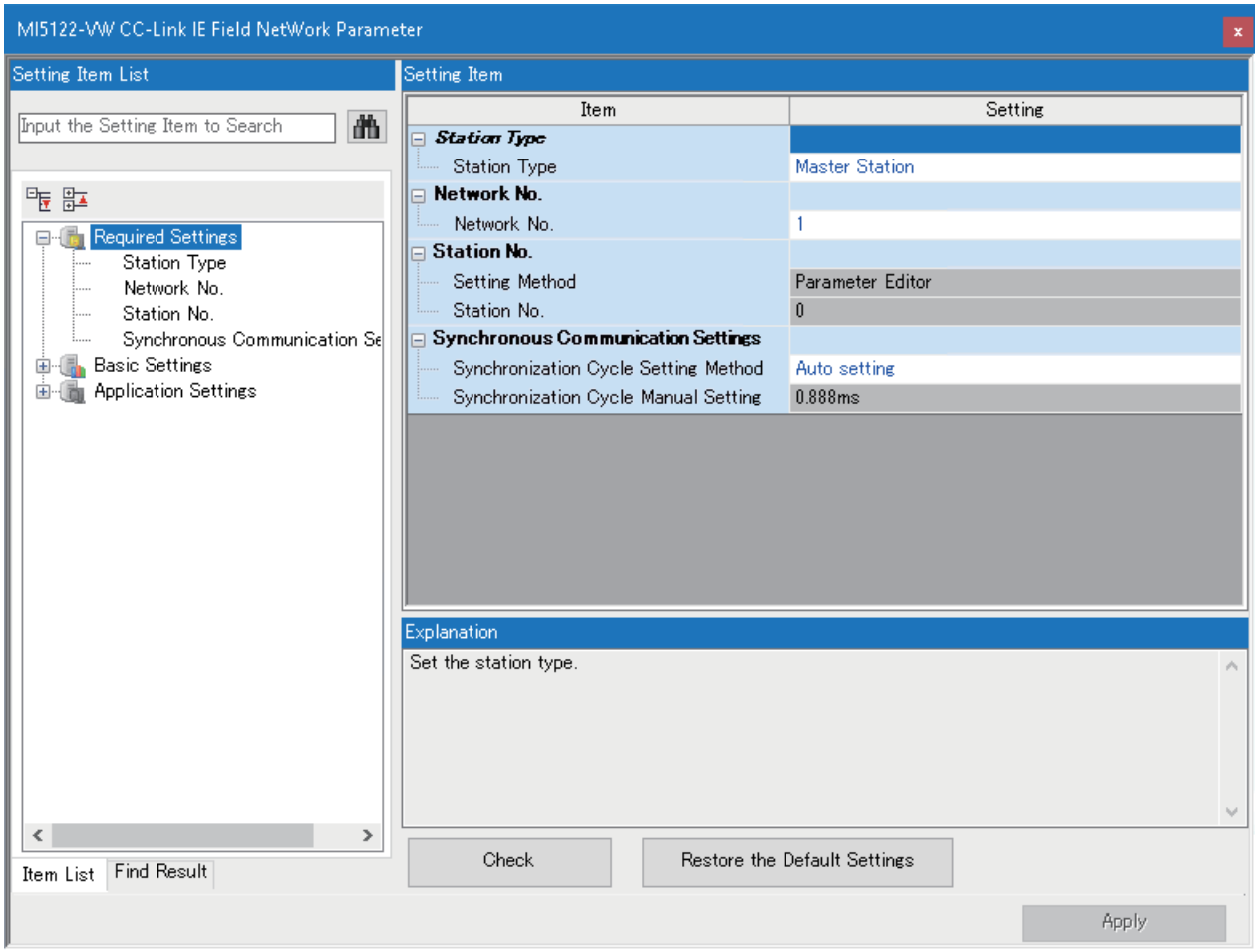


Item	Description	Setting range
Logical station number	Configure the logical station number.	65 to 239 (Default: Blank)
Network No.	Configure the network number.	1 to 239 (Default: Blank)
Station number	Configure the station number.	0 to 120 (Default: Blank)
Target CPU	Select the target CPU.	CPU No.1 to 4 (Default: Blank)

Required settings (if master station is selected by station type)

This shows parameters displayed inapplicable settings when master station is selected in essential settings station type.

Window



Displayed items

Parameters other than those below are the same as when local station is selected. (☞ Page 187 Basic settings)

■ Synchronization communication settings

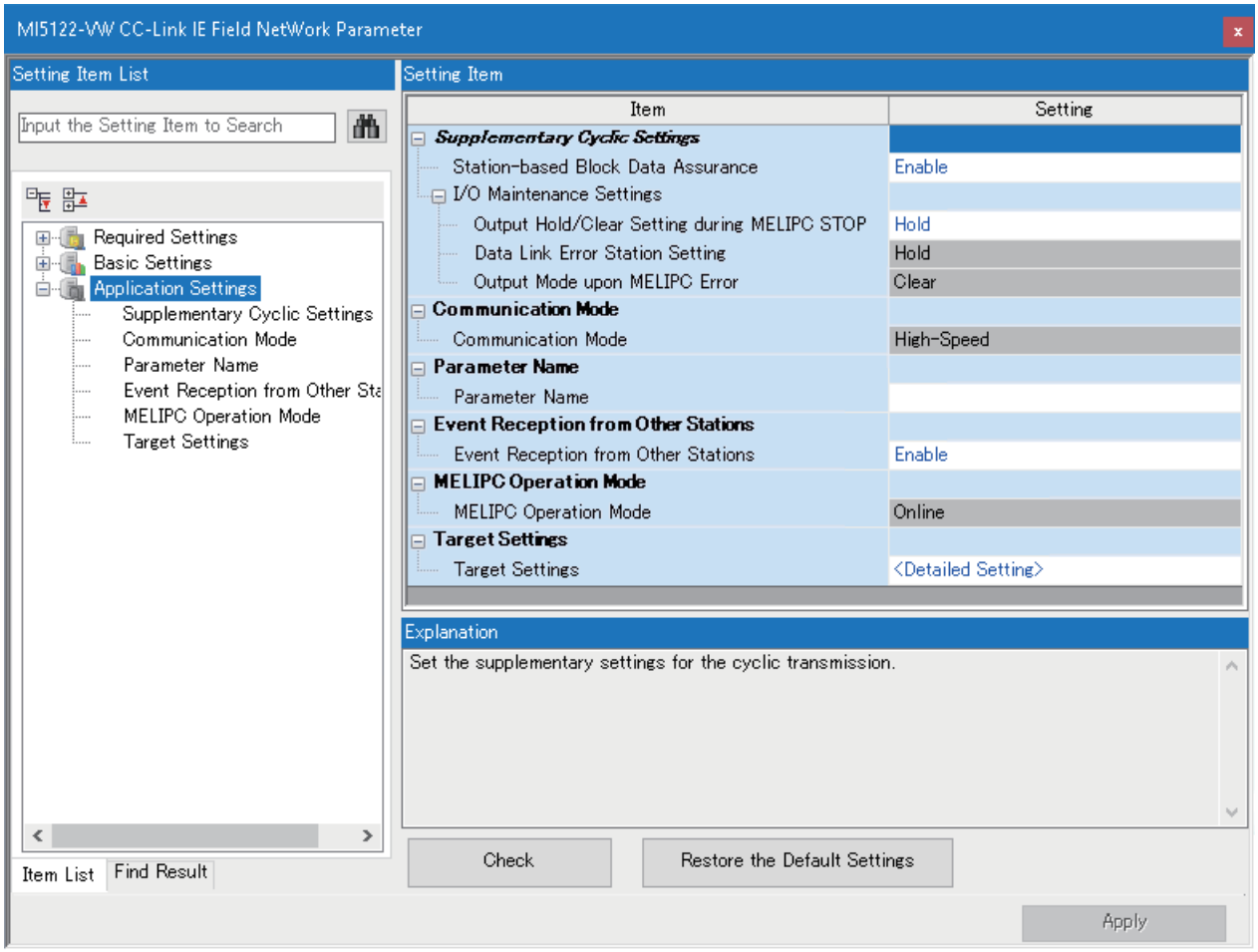
Item	Description	Setting range	Parameter No.
Synchronization Cycle Setting Method	Select the configuration method of the synchronization cycle. The synchronization cycle is automatically set to the optimal synchronization cycle as required by the number of slave devices connected and cyclic assignment points.	• Auto setting • Manual setting (Default: Auto setting)	0101H
Synchronization Cycle Manual Setting*1	Configure the cycle interval to synchronize communication with the master station and slave stations.	• 0.888 ms • 1.000 ms • 1.777 ms • 2.000 ms • 3.555 ms • 4.000 ms (Default: 0.888 ms)	

*1 When "Manual setting" is set for "Synchronization Cycle Setting Method", link scans for CC-Link IE Field Network will operate with the cycle set for this item.

Applicable settings (If master station is selected in essential settings station type)

This shows parameters displayed inapplicable settings when master station is selected in essential settings station type.

Window



Displayed items

Parameters other than those below are the same as when local station is selected. (☞ Page 188 Applicable settings)

■ Cyclic supplementary settings

Item	Description	Setting range	Parameter No.
Station unit block guarantee	In link device, select whether to use station unit data guarantee.	• Enable • Disable (Default: Assure)	A040H

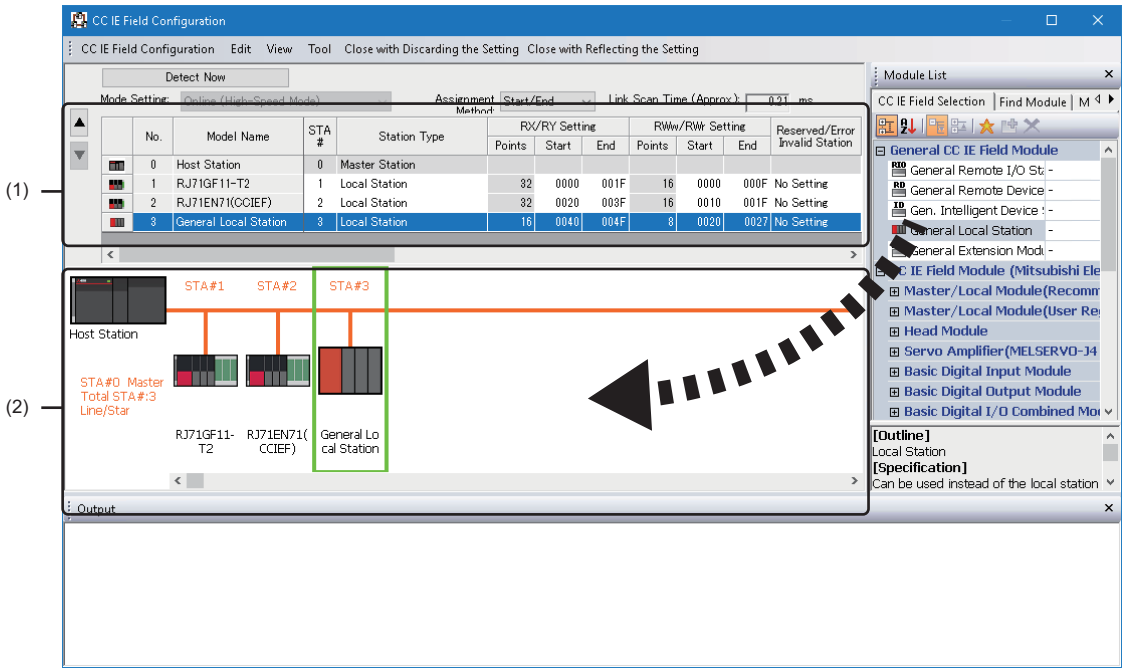
■ Communications mode

Item	Description	Setting range	Parameter No.
Mode	Set the communications mode in accordance with usage applications. • High-speed This carries out priority cyclic transmission, and is the optimal communications mode for the system in order to achieve high-speed input/output control, analog control, and digital input/output. However, up to a maximum of 256 points can be assigned for RWw/RWr per station in local stations.	High-speed	A050H

18.2 Network Configuration Settings

The following shows the procedure for setting a network configuration.

1. From "Module List", select the external device to be connected, and then drag and drop (3) it to "Device List" (1) or "Device Configuration" (2).



Restriction

This product does not support sub master stations. Accordingly, from "Unit List" "Master/local module", modules that are master module only cannot be used as the station type.

2. Set each item.
3. Click the [Close with Reflecting the Setting] button.

Displayed items

Item	Description	Setting range	Parameter No.
Header I/O	Displays the header I/O No. (For this product, the header I/O No. is 3E00.)	—	
[Detect Now] button	Automatically read slave station information. (MELSEC iQ Sensor Solution Reference Manual)	—	
Mode Setting	Displays the master station mode.	—	
Assignment Method	Select the link device assignment method. • Point/Start: Enter the points and start numbers of link devices. • Start/End: Enter the start and end numbers of link devices.	• Point/Start • Start/End (Default: Start/End)	
Link Scan Time (Approx.)	Displays the approximate value for the link scan time.	—	
No.	Displays the number of slave stations set in "Network topology settings".	—	
Model Name	Displays the module model name. For modules not registered in the profile, select from generic CC IE Field Modules, or register with the profile and then set. For details on profile registration methods, refer to the following. MELSEC iQ-F FX5 CC IE Field Configuration Manual	—	
STA#	Set the station numbers for slave stations to connect to the network. Set station numbers do not need to be consecutive. (Duplication not allowed)	1 to 120 (Default: Lowest number amongst blank numbers) (Master station fixed at "0")	A044H

Item	Description	Setting range	Parameter No.
Station Type	Set the station type for other than the master station. Ensure that the station type matches the module station type actually connected to the network.	• Local Station • Intelligent Device Station • Remote Device Station • Remote I/O Station (Depends on configured module.)	A044H
RX/RY Setting	Set RX and RY assignment. Set RX and RY as 16 point unit (start: □□□0H, end:□□□ FH). To set the average of point numbers, and to set these equally, do so from [CC IE Field configuration] ⇨ [Equal assignment] or [Same point assignment].	■Points • Local station, intelligent device station: 16 to 2048 • Remote device station: 16 to 128 • Remote I/O station: 16 to 64 (Depends on configured module.) ■Device number • 0H to 3FFFH (Depends on configured module.)	A041H
RWw/RWr setting	Set RWw and RWr assignments as 4 point units. To set the average of point numbers, and to set these equally, do so from [CC IE Field configuration] ⇨ [Equal assignment] or [Same point assignment].	■Points • Local station: 4 to 256 • Intelligent device station: 4 to 1024 • Remote device station: 4 to 64 • Remote I/O station: Setting disabled (Depends on configured module.) ■Device number • 0H to 1FFFH (Depends on configured module.)	A041H
Reserved/Error Invalid Station	Set when setting slave stations as reserved stations or error disabled stations. • Not Setting: connect slave station to the network. • Reserved: reserve slave stations in parameters for future extensibility. Use of a reserved station means that even if a slave station is added (reserve station deleted), link device assignment will not change, meaning program change is not necessary. In actual networks, slave stations do not need to be connected. • Error Invalid Station: ensure that slave stations in data link are not detected as faulty stations in the master station.	• No Setting • Reserved • Error Invalid Station (Default: No Setting)	A001H A002H
Pairing	If "RJ71GF11-T2(SR)" or "RJ72GF15-T2(SR)" have been set in network configuration, then stations set for pairing will be displayed.	—	
Network Synchronous Communication	Set whether to synchronize slave stations using the CC-Link IE Field Network synchronous communication function.	• Asynchronous • Synchronous (Default: Asynchronous)	A045H
Device name	Enter an arbitrary device name. The input device name is displayed in the CC-Link IE Field Network diagnostics "Network status". However, in additional remote device station modules, CC-Link IE Field Network diagnostics does not display the device name even if this is input.	8 characters or less (Default: Blank)	A011H
Comment	This displays the content input into "Comment 1" in the "Property" screen selected by right-clicking the unit either in the station list or the network configuration diagram.	32 characters or less (Default: Blank)	A011H
Station type fixed mode settings	Set the slave station type fixed mode. This can only be set if the slave station supports station fixed mode.	— (Depends on configured module.)	
Module list	Displays the slave station list. From the "Unit List", drag and drop modules to the "Station list" or "Network configuration diagram" to set slave station information in the master station.	—	

■ Slave station parameter processing

From the station list, select the module ⇨ [CC IE Field configuration] ⇨ [Online] ⇨ [Slave station parameter processing]

Set or read the slave station parameters. This can only be executed if the slave station supports parameter processing. Settings ranges differ depending on the covered module. For details, refer to the manual for the used slave station.

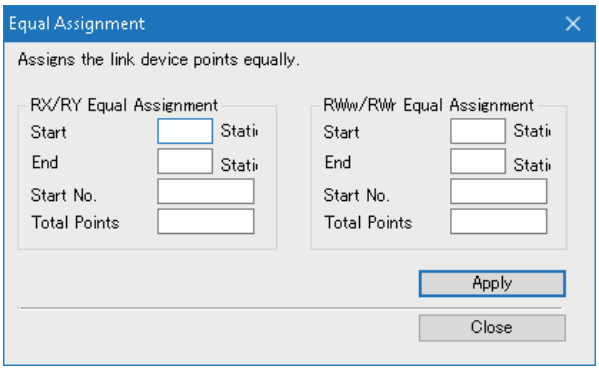
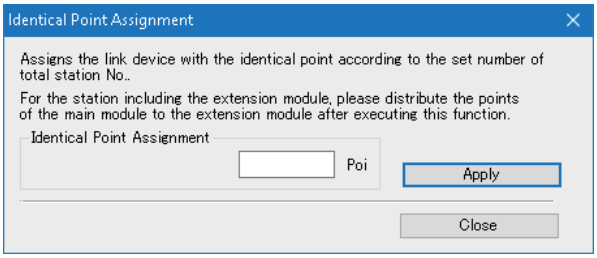
■ Slave station command execution

From the station list, select the module ⇨ [CC IE Field configuration] ⇨ [Online] ⇨ [Slave station command execution]

Execute slave station commands. This can only be executed if the slave station supports command execution. Settings ranges differ depending on the covered module. For details, refer to the manual for the used slave station.

■ Link equal assignment and same point assignment for link numbers

Equal assignment and same point assignment are set as follows.

Item	Description	Setting range
Equal assignment	Specify the header station and end station, and assign the link path total point numbers equally. • Header station: Set the station number of the header station for equal assignment. • End station: Set the station number of the end station for equal assignment. • Header number: Set the number of the link devices for equal assignment. • Assignment total point numbers: Set the total point number of the link devices for equal assignment. 	• Header station: 0 to end station number • End station: Header station to end station number • Header number: Same as "RX/RY settings" and "RWw/RWr settings" • Assignment total point numbers: Same as "RX/RY settings" and "RWw/RWr settings"
Same point assignment	The same point number is assigned for numbers of link devices. 	—

APPENDIX

Appendix 1 Troubleshooting by Symptom

If a function of this product does not perform properly, check the applicable items in the following and troubleshoot the error.

Classification	Description
external appearance	Page 198 POWER LED of the power supply module turns off
	Page 198 The MAIN LED is on, flashing, or off
	Page 200 The LEDs of CC-Link IE Field Network are on, flashing, or off
	Page 201 The LEDs of CC-Link IE Field Network Connector are on or off.
communication	Page 202 Ethernet communications to the VxWorks part are not possible
	Page 204 The serial communication cannot be established
	Page 204 Ethernet communications to the Windows part are not possible
	Page 205 Communication with a device connected to the Ethernet port (CH1) is not possible
	Page 205 Virtual Ethernet communications are not possible
User program	Page 205 An error occurs during user program execution
File/folder access	Page 206 File/folder access not possible
Offline mode	Page 206 Has hardware diagnoses completed?
	Page 206 Windows recovery does not complete
	Page 207 Initialization does not complete
CC-Link IE Field Network	Page 207 Cyclic transmission not possible
	Page 207 Transient transmission not possible
	Page 208 Disconnect stations
	Page 208 Stations repeatedly disconnect and reconnect
	Page 208 Communication is unstable
CC-Link IE Field Network Basic	Page 209 The transmission status is disconnected or unconfirmed
	Page 210 Cyclic data cannot be read correctly
	Page 211 Transmission status repeats disconnection and reconnection
	Page 212 Timeout occurs
	Page 212 Slow link scan time
	Page 212 Slow access to the product
	Page 212 Master station cyclic transmission is stopped
Date and time information	Page 212 The date and time of the Windows part and VxWorks part are different
	Page 213 The Time setting (SNTP client) function is not running normally
Individual reset function	Page 213 A Windows-part forced-restart cannot be run
	Page 213 Windows-part forced-restart is not complete
MELIPC shutdown function	Page 213 Shutdown of this product is not complete
Network file access functions	Page 214 An error occurs because there was an attempt to copy (or move) a file or folder to the VxWorks part
	Page 214 The name of a file or folder that was copied (moved) to the VxWorks part is garbled
	Page 214 An error occurs because there was an attempt to create a new file or folder on the VxWorks part
	Page 214 If a new file or folder is created on the VxWorks part, a file or folder with a garbled name is created
	Page 214 It takes time to write files
Inter OS event notification function	Page 215 Inter OS event was not reported

Classification	Description
Windows	Page 215 The display is not showing windows
	Page 215 The mouse or keyboard do not operate
	Page 215 Unable to access the CFast card
	Page 216 Access to recordable media such as external hard disks is not possible
	Page 216 A USB device does not operate
	Page 216 The Windows part takes time to start
	Page 216 In a Japanese language OS, the keyboard has an English layout.
	Page 216 Even when changed, the date and time values are changed to other values
	Page 216 Ethernet CH2 is not displayed in the network adapter.
	Page 217 Fonts are corrupted
	Page 217 Visual Studio cannot be installed
	Page 217 A drive for CFast card does not appear
	Page 217 An application error appears while running a user program
	Page 217 The drive of a media, such as an external HDD, is not displayed in the explorer
	Page 217 An application cannot be installed on the Windows part

POWER LED of the power supply module turns off

Check the following items.

Check item	Corrective action
Is power supply module wiring correct?	Wire the power supply module correctly.
Is the input voltage within specifications?	Change the input voltage to within specifications.

If there are no errors in power supply module wiring and input voltage, the power supply unit may have reached the end of its operating life or there is a hardware fault. Replace it with a new power supply module.

The MAIN LED is on, flashing, or off

Check the following items.

If the VX RDY LED is not lit

Check item	Corrective action
Is the off-line mode status displayed on the dot matrix LED?	After offline mode operation is complete, turn the product power supply OFF.
Is the VX RDY LED off and the MAIN ERR LED on?	• System watchdog timer error occurred. • Handle in accordance with the system watchdog timer error code (3E41H). If the same phenomenon remains after these measures, this may indicate a hardware fault with the module. Consult your local Mitsubishi representative.
Is the VX RDY LED off, and the MAIN ERR LED flashing?	A severe error has occurred, therefore take measures in accordance with the error code. If the same phenomenon remains after these measures, this may indicate a hardware fault with the module. Consult your local Mitsubishi representative.
Is the VX RDY LED flashing?	Wait a moment because the VxWorks part is preparing. If the VX RDY LED does not turn ON after waiting, and the WIN RDY LED turns ON, product initialization or hardware self-diagnosis may have failed. Use the Start menu in Windows perform a shutdown, and then turn the power supply of this product OFF. After turning the power OFF, start the product in offline mode, and then initialize the product.
	Wait a moment because the VxWorks part is preparing. If, after waiting, the VX RDY LED does not come on, then this may indicate a hardware fault, therefore consult your local Mitsubishi representative.
Are all other LEDs off?	This may indicate a hardware fault with the product. Consult your local Mitsubishi representative.
"bootapp.sys not found" is displayed on the display.	

If the WIN RDY LED is not lit

Check item	Corrective action
Is the WIN RDY LED off?	If Windows was shut down from the Start menu of Windows, use the MELIPC RESET/WIN RESET switch to force a reset of the Windows part.
	The Windows part cannot start, so recover Windows. If Windows recovery fails, this may indicate a hardware fault of this product. Consult your local Mitsubishi representative.
Is the WIN RDY LED flashing?	• The Windows part is preparing or shutting down. • If shutdown processing has been carried out, then wait, and if the status does not change, connect a display to the DisplayPort in order to confirm that there is nothing preventing a shutdown, such as a program still operating, or a file requiring a save. • If there is no reason for shutdown not to complete, either run the MELIPC shutdown function again or shut down Windows from the Windows Start menu. • If the power was turned ON or the Windows part was restarted, wait until the Windows part starts. If the Windows part repeatedly restarts, select "Disable" for "Auto-reset Windows" in the menu selection mode. For details on the menu selection mode, refer to the following: (📖MELIPC MI5000 Series User's Manual (Startup)) If it does not start for a long time, connect a display to the DisplayPort. If an error (repeated restarts, for example) has occurred, restart the Windows part in the safe mode. • If the Windows part does not start for a long period of time after restarting the Windows part, reset this product by a switch operation or turn the power of the product OFF and ON. • If this symptom occurs repeatedly, data on the CFast card may be corrupted. In that case, recover Windows on this product.

If the MAIN ERR LED is not off

Check item	Corrective action
Is the MAIN ERR LED not flashing?	Check the error code in MI Configurator and handle in accordance with the error code. (☞ Page 218 List of Error Codes)
Is the MAIN ERR LED not on?	

If the MAIN RUN LED is blinking slowly

Check item	Corrective action
Is the execution of the script file (STARTUP.CMD) completed?	Perform the script initialization function so that the script file (STARTUP.CMD) does not run. After performing the function, check the contents of the renamed script file (STARTUP.BAK), and remove the factor that prevents completion of the script file. (📖MELIPC MI5000 Series User's Manual (Startup))

If the FAN LED is not OFF

Check item	Corrective action
Is the FAN LED on?	Clean the fan module, and then execute an Alert reset from the online menu.
Is the FAN LED not flashing?	Exchange the fan module, and then execute an Alert reset from the online menu.

If the BATTERY LED is not off

Check item	Corrective action
Is the BATTERY LED on?	Replace the battery.

The LEDs of CC-Link IE Field Network are on, flashing, or off

Check the following items.

If the RUN LED is off

Check item	Corrective action
Is the RUN LED turned off?	• Check the error code in MI Configurator and handle in accordance with the error code. (☞ Page 218 List of Error Codes) • Reset this product, and check whether the RUN LED of the CC-Link IE Field Network turns on. If the LED does not turn on, this may indicate a hardware fault. Consult your local Mitsubishi representative.

If the ERR LED is off or flashing

Check item	Corrective action
Is the ERR LED flashing?	• Check the error code in MI Configurator and handle in accordance with the error code. (☞ Page 218 List of Error Codes) • Reset this product, and check whether the RUN LED of the CC-Link IE Field Network turns on. If the LED does not turn on, this may indicate a hardware fault. Consult your local Mitsubishi representative.
Is the ERR LED on?	Check the error code in MI Configurator and handle in accordance with the error code. (☞ Page 218 List of Error Codes)

If the D LINK LED is off or flashing

Check item	Corrective action
Is the master station operating correctly?	Check that the master station is data linked by the 'baton pass status of own station' (SB0047) and 'own station data link status' (SB0049).
Does the used Ethernet cable meet specifications?	Use Ethernet cables that meet the following standards.
Is the distance between stations within specifications?	Ensure the distance between stations is within specifications.
Is the installation situation (bend radius) within specifications?	Set the bend radius within specifications.
Is the Ethernet cable broken?	Replace the Ethernet cable.
Are 121 or more slave stations connected?	Ensure no more than 120 slave stations are connected.
Is the switching hub being used operating correctly?	• Check that a switching hub that meets specifications is being used. • Turn the switching hub power supply OFF/ON, and restart the switching hub.
Is the station No. duplicating that of another station?	Change the station No. of the duplicated station.
In CC-Link IE Field diagnoses, are there any slave stations that are not data linked?	• Check the operating status of slave stations that are not data linked. • Correct the CC-Link IE Field Network Parameters of the product, and of slave stations that are not data linked.

When the L ERR LED turns on

Check item	Corrective action
Does the used Ethernet cable meet specifications?	Use Ethernet cables that meet the following standards.
Is the switching hub being used operating correctly?	• Check that a switching hub that meets specifications is being used. • Turn the switching hub power supply OFF/ON, and restart the switching hub.
Is the station No. duplicating that of another station?	Change the station No. of the duplicated station.
In CC-Link IE Field diagnoses, are there any slave stations that are not data linked?	• Check the operating status of slave stations that are not data linked. • Correct the CC-Link IE Field Network Parameters of the product, and of slave stations that are not data linked.
Are there any sources of noise around the product, the stations, and wiring?	Change the locations and wiring of modules.

The LEDs of CC-Link IE Field Network Connector are on or off.

If the L ER LED is on

Check item	Corrective action
Does the used Ethernet cable meet specifications?	Use Ethernet cables that meet the following standards.
Is the distance between stations within specifications?	Ensure the distance between stations is within specifications.
Is the Ethernet cable broken?	Replace the Ethernet cable.
Is the switching hub being used operating correctly?	• Check that a switching hub that meets specifications is being used. • Turn the switching hub power supply OFF/ON, and restart the switching hub.
Are there any sources of noise around the product, the stations, and wiring?	Change the locations and wiring of modules.

If the LINK LED is off

Check item	Corrective action
Does the used Ethernet cable meet specifications?	Use Ethernet cables that meet the following standards.
Is the distance between stations within specifications?	Ensure the distance between stations is within specifications.
Is the installation situation (bend radius) within specifications?	Set the bend radius within specifications.
Is the Ethernet cable broken?	Replace the Ethernet cable.
Is the switching hub being used operating correctly?	• Check that a switching hub that meets specifications is being used. • Turn the switching hub power supply OFF/ON, and restart the switching hub.
Is the other station connected to the product operating correctly?	• Through a CC-Link IE Field diagnosis, check that other stations are data linked. • Confirm other station module operating status.

Ethernet communications to the VxWorks part are not possible

Issue a ping from the PC to the product, and confirm the response.

If abnormal ping response

Check item	Corrective action
Is the Ethernet cable wired correctly?	Correctly wire the Ethernet cable.
Is the Ethernet cable broken?	Replace the Ethernet cable.
Are the PC and product IP address segments different?	• Change the PC and product IP addresses to the same segments. • If through a LAN on a different segment via a gateway, consult with the connected LAN network administrator.
On the connected LAN, are there any duplicate IP addresses with the product and PCs?	Consult with the administrator of the connected LAN, and ensure that there are no duplicated IP addresses.
Has the product been replaced?	Reset all terminals connected to the network.
Is the network under high load?	• Consult with the administrator of the connected LAN and disconnect devices connected by Ethernet that may cause a high load. • Change the connection of the personal computer and this product to a different network.
Is the specified IP address correct?	Specify the correct IP address.
In the following settings, is access from the PC being blocked? • [Basic Parameter] ⇨ [External Device Cooperate Applicable Settings] ⇨ [Security Setting] ⇨ [IP Filter Settings]	In the IP filter settings, unblock access from the PC.

If normal ping response

An error may have occurred with communications of applications in use. This section shows troubleshooting of applications compatible with this product.

■ If MI Configurator cannot connect

Check item	Corrective action
Is the connection destination of MI Configurator is set to a different route?	Change the connection destination setting of MI Configurator to the correct route.
Is an Ethernet cable connected to the Ethernet port (CH1)?	Change the connection destination of the Ethernet cable to the Ethernet port (CH1), and set so that Ping provides a normal response.
In the following settings, is access from the PC being blocked? • [Basic Parameter] ⇨ [External Device Cooperate Applicable Settings] ⇨ [Security Setting] ⇨ [IP Filter Settings]	In the IP filter settings, unblock access from the PC.

■ If CW Workbench 4 cannot connect

Check item	Corrective action
Is an Ethernet cable connected to the Ethernet port (CH1)?	Change the connection destination of the Ethernet cable to the Ethernet port (CH1), and set so that Ping provides a normal response.
"Target Server Options" of CW Workbench 4 is not set properly.	Set "Target Server Options" of CW Workbench 4 properly.
In the following settings, is access from the PC being blocked? • [Basic Parameter] ⇨ [External Device Cooperate Applicable Settings] ⇨ [Security Setting] ⇨ [IP Filter Settings]	In the IP filter settings, unblock access from the PC.

■ Telnet connection fails

Check item	Corrective action
Is an Ethernet cable connected to the Ethernet port (CH1)?	Change the connection destination of the Ethernet cable to the Ethernet port (CH1), and set so that Ping provides a normal response.
Are user name and password correct?	Enter the correct username and password. If the username/password has been forgotten, initialize this product.
Does the following message appear? • 'Sorry, session limit reached.'	Terminate the Telnet connection from another personal computer and take any of the following actions: • Reconnect after the Telnet connection timeout time has elapsed. • Reset this product.
In the following settings, is access from the PC being blocked? • [Basic Parameter] ⇨ [External Device Cooperate Applicable Settings] ⇨ [Security Setting] ⇨ [IP Filter Settings]	In the IP filter settings, unblock access from the PC.

■ If FTP cannot connect

Check item	Corrective action
Is an Ethernet cable connected to the Ethernet port (CH1)?	Change the connection destination of the Ethernet cable to the Ethernet port (CH1), and set so that Ping provides a normal response.
Are user name and password correct?	Enter the correct username and password. If the username/password has been forgotten, initialize this product.
Are there 11 or more external devices making FTP connections to this product?	Adjust so that the number of external devices making FTP connections is 10 or less.
Can an FTP connection to this product be made from the Command prompt of Windows?	Change to an FTP client tool that can connect normally.
In the following settings, is access from the PC being blocked? • [Basic Parameter] ⇨ [External Device Cooperate Applicable Settings] ⇨ [Security Setting] ⇨ [IP Filter Settings]	In the IP filter settings, unblock access from the PC.

■ If Ethernet devices are unable to connect

Check item	Corrective action
Is an Ethernet cable connected to the Ethernet port (CH1)?	Change the connection destination of the Ethernet cable to the Ethernet port (CH1), and set so that Ping provides a normal response.
Do Ethernet devices have numbers 1 to 1023 or 61440 to 65534 set in the VxWorks part port numbers?	Ports 1 to 1023 are generally reserved (WELL KNOWN PORT NUMBERS), and Ports 61440 to 65534 are used by other communications functions. Therefore, use Ports 1024 to 4999, and 5010 to 61439.
Does the IP addresses of devices connected to the Ethernet port (CH1) overlap with a segment of the IP addresses of the virtual Ethernet of this product?	Change the IP addresses of devices connected to Ethernet port (CH1) so that these do not overlap with virtual Ethernet IP address segments.
In the following settings, is access from the PC being blocked? • [Basic Parameter] ⇨ [External Device Cooperate Applicable Settings] ⇨ [Security Setting] ⇨ [IP Filter Settings]	In the IP filter settings, unblock access from the PC.

The serial communication cannot be established

Check the following items.

Check item	Corrective action
Is the assignment of the serial interface different?	Assign the serial interface in the direction of serial communication.
Have the configured options been changed?	Acquire the currently configured options, and then add options to be added.

Ethernet communications to the Windows part are not possible

Issue a ping from the PC to the product, and confirm the response.

If abnormal ping response

Check item	Corrective action
Is the Ethernet cable wired correctly?	Correctly wire the Ethernet cable.
Is the Ethernet cable broken?	Replace the Ethernet cable.
Are the PC and product IP address segments different?	• Change the PC and product IP addresses to the same segments. • If through a LAN on a different segment via a gateway, consult with the connected LAN network administrator.
On the connected LAN, are there any duplicate IP addresses with the product and PCs?	Consult with the administrator of the connected LAN, and ensure that there are no duplicated IP addresses.
Has the product been replaced?	Reset all terminals connected to the network.
Is the network under high load?	• Consult with the administrator of the connected LAN and disconnect devices connected by Ethernet that may cause a high load. • Change the connection of the personal computer and this product to a different network.
Is the specified IP address correct?	Specify the correct IP address.
Is connection being prevented by the Windows firewall?	Change Windows firewall settings.
Is the connection prohibited by the anti-virus software installed?	Change the antivirus software settings.

If normal ping response

Check item	Corrective action
Are servers for the used functions operating?	Start the servers for the used functions.
Is connection being prevented by the Windows firewall?	Change Windows firewall settings.
Is connection being prevented by installed antivirus software?	Change the antivirus software settings.

Communication with a device connected to the Ethernet port (CH1) is not possible

Check the following items.

Check item	Corrective action
Does the IP addresses of devices connected to the Ethernet port (CH1) overlap with a segment of the IP addresses of the virtual Ethernet of this product?	Change the IP addresses of devices connected to Ethernet port (CH1) so that these do not overlap with virtual Ethernet IP address segments.

Virtual Ethernet communications are not possible

Check the following items.

Check of Windows part

Check item	Corrective action
Is the IP address segment set for the Ethernet port (CH2) overlapped?	Change the IP addresses of devices connected to Ethernet port (CH2) so that these do not overlap with virtual Ethernet IP address segments.
Have the IP address settings of the virtual Ethernet port been changed?	Change the IP address settings of Windows to the following settings. • IP address: 172.16.0.2, subnet mask: 255.240.0.0, Default gateway: (blank)
Is connection being prevented by the Windows firewall?	Change Windows firewall settings.
Is connection being prevented by installed antivirus software?	Change the antivirus software settings.

Check of the VxWorks part

Check item	Corrective action
Does the IP address set for the Ethernet port (CH1) overlap with the virtual Ethernet IP address segments of this product?	Initialize this product, and then change the IP address of the Ethernet port (CH1) to the default settings.
In the following settings, are the virtual Ethernet IP address settings set to being blocked? • [Basic Parameter] ⇨ [External Device Cooperate Applicable Settings] ⇨ [Security Setting] ⇨ [IP Filter Settings]	Unblock the IP address of the virtual Ethernet in the IP settings.

An error occurs during user program execution

Check the following items.

Check item	Corrective action
An error occurs in executable file (*.out) loading.	• Check "Build Spec" during compiling, and then change to the correct "Build Spec". • Load first the files with the symbols required for the execution files to be loaded.
Is an error registered to the error information field of the MELIPC diagnosis screen?	Take appropriate actions in accordance with the content of the registered error.
Does an error occur in a C Controller module dedicated function or MELSEC data link function?	Take appropriate actions in accordance with the error code at the time of function execution.
An error occurs in VxWorks standard API functions.	Refer to the manual of VxWorks. If the problem is not resolved, consult Wind River Systems, Inc.
Stack size of the task that runs the user program is insufficient.	Increase the task stack size.
The pointer used in the user program refers to an invalid address.	Make correction to make the pointer refer to a valid address.
memory area specified to the size is not reserved.	Secure the memory area.
The VX_FP_TASK option is not specified for the task that performs floating-point operations.	Specify the VX_FP_TASK option for the task that performs floating-point operations.
A VxWorks message is displayed when an error occurs.	Consult the Wind River Systems, Inc.

File/folder access not possible

Check the following items.

Check item	Corrective action
There is no free space in the write target drive.	• Delete files on the write drive to create free space. • Change the write target to another drive.
Are there any applications (including user programs) using the corresponding files?	• Close the applications using the corresponding files. • Add exclusive control of file access to a user program that accesses the corresponding files.
Is the network under high load?	• Consult with the administrator of the connected LAN and disconnect devices connected by Ethernet that may cause a high load. • Change the connection of the personal computer and this product to a different network.
Are high priority programs running?	• Wait until the operation of the high priority program is completed. • Ensure that high priority programs are not run.
Is the VxWorks part system drive being written to?	Change the write-target drive.
Is the Windows part system drive being written to?	Disable the Unified Write Filter before writing.
When accessing the files (writing, reading, etc.), is the STORAGE LED flashing?	• If the access target is not the standard drive*1 of this product, check the wiring. If there are no problems with the wiring, check the manual of the device being used. • If the access target is the standard drive*1 of this product, this may indicate a hardware fault of this product. Consult your local Mitsubishi representative.
Was the CFast card removed while the power supply of this product was ON?	Turn the product OFF, insert the CFast card, and then turn the product ON again.

*1 The standard drives of this product are listed below.
Windows part: system drive (C:\)
VxWorks part: system drive (/SYSTEMROM), user drive (/ROM)

Has hardware diagnoses completed?

Check the following items.

Check item	Corrective action
Are all LEDs off?	Run hardware diagnoses again. If the problem is not resolved, initialize this product. If initialization is not completed or the issue remains after initialization, this may indicate a hardware fault. Consult your local Mitsubishi representative.
Does the MAIN RUN LED turn on, and is the dot matrix LED display updated?	
Is the MAIN ERR LED flashing with no text displayed on the dot matrix LED?	
Is the LED status different than that detailed in the hardware diagnostic function?	

Windows recovery does not complete

Check the following items.

Check item	Corrective action
Is 'Ready' or 'Running' displayed on the dot matrix LED?	If the STORAGE LED does not flash for a long time, perform Windows recovery again. If the same issue remains after recovery, this may indicate a hardware fault. Consult your local Mitsubishi representative.
Is the LED status different than that detailed in Windows recovery?	

Initialization does not complete

Check the following items.

Check item	Corrective action
Are all LEDs off?	Initialize again. If the same issue remains after initialization, this may indicate a hardware fault. Consult your local Mitsubishi representative.
Does the MAIN RUN LED turn on, and is the dot matrix LED display updated?	
Is the LED status different than that detailed in initialization?	

Cyclic transmission not possible

Check the following items.

Check item	Corrective action
Is the product or other station D LINK LED off or flashing?	• If the product D LINK LED is off or flashing, perform troubleshooting. • If the other station D LINK LED is off or flashing, perform troubleshooting for the corresponding module.
In the following settings, is a slave station set as a reserved station? • [Application Parameter] ⇨ [CC-Link IE Field Network Parameter] ⇨ [Basic Settings] ⇨ [Network Configuration Settings]	Cancel reservation specifications of slave stations.
In the following settings, are slave station RX/RY settings, or RWw/RWr settings set? • [Application Parameter] ⇨ [CC-Link IE Field Network Parameter] ⇨ [Basic Settings] ⇨ [Network Configuration Settings]	Set slave station RX/RY or RWw/RWr ranges.
Do the station numbers set below, and the station set in the slave station match? • [Application Parameter] ⇨ [CC-Link IE Field Network Parameter] ⇨ [Basic Settings] ⇨ [Network Configuration Settings]	Review slave station No.
Do the station type set below, and the connected slave station type match? • [Application Parameter] ⇨ [CC-Link IE Field Network Parameter] ⇨ [Basic Settings] ⇨ [Network Configuration Settings]	• Confirm that the connected slave station is correct. • Review the station type set in network configuration settings.

Transient transmission not possible

Check the following items.

Check item	Corrective action
Is the product or other station D LINK LED off or flashing?	• If the product D LINK LED is off or flashing, perform troubleshooting. • If the other station D LINK LED is off or flashing, perform troubleshooting for the corresponding module.
Is the baton pass status for target station correct?	In CC-Link IE Field diagnoses, specify the cause of the fault, and handle.
Are network numbers duplicated on the network?	Review duplicated network numbers.

Disconnect stations

Check the following items.

Check item	Corrective action
Is the product or other station D LINK LED off or flashing?	• If the product D LINK LED is off or flashing, perform troubleshooting. • If the other station D LINK LED is off or flashing, perform troubleshooting for the corresponding module.
Are module peripheral temperatures outside of usage ranges?	Remove heat sources, and ensure peripheral temperatures are within usage ranges.

Stations repeatedly disconnect and reconnect

Check the following items.

Check item	Corrective action
Does the used Ethernet cable meet 1000BASE-T specifications?	• If the product D LINK LED is off or flashing, perform troubleshooting. • If the other station D LINK LED is off or flashing, perform troubleshooting for the corresponding module.
Is the distance between stations within specifications?	Ensure the distance between stations is within specifications.
Is the installation situation (bend radius) within specifications?	Set the bend radius within specifications.
Is the Ethernet cable broken?	Replace the Ethernet cable.
Is the switching hub being used operating correctly?	• Check that a switching hub that meets specifications is being used. • Turn the switching hub power supply OFF/ON, and restart the switching hub.

Communication is unstable

Check the following items.

Check item	Corrective action
Is the product or other station L ERR LED on?	If the L ERR LED is off or flashing, perform troubleshooting. If the L ERR LED of the other station is off or flashing, check and perform troubleshooting for the corresponding module.
Are module peripheral temperatures outside of usage ranges?	Remove heat sources, and ensure peripheral temperatures are within usage ranges.
Is this being affected by noise?	Check the wiring status.

The transmission status is disconnected or unconfirmed

If the CC-Link IE Field Network Basic diagnosis transmission status is disconnected or unconfirmed, then check the following items.

Check Ethernet

Check the following items.

Check item	Corrective action
Are master station/slave station IP addresses and subnet masks correctly set?	Correct the master station/slave station IP addresses and subnet masks.
Is there any duplication of IP addresses?	Check whether a device with the same IP address as the IP address of this product is connected, and then change to an IP address that does not overlap.
Are there any devices with IP addresses that are the same as master station/slave stations within the same network address?	Change master station/slave station IP addresses to addresses that do not overlap.
Do master station and slave station network addresses match?	• Correct IP address and subnet masks so the master station and slave station IP addresses match. • Correct so the master station/slave station subnet masks have the correct values and match.
Is access blocked?	Review firewall and other security settings.
In the following settings, is access from the slave station blocked? • [Basic Parameter] ⇨ [External Device Cooperate Applicable Settings] ⇨ [Security Setting] ⇨ [IP Filter Settings]	Review settings so access from the slave station IP address and UDP communications pass.
Before the error occurred, has the device on the circuit (slave station, hub, etc.) been exchanged with a device with the same IP address from before the exchange?	If a device on the circuit (slave station, hub, etc.) was exchanged with a device with the same IP address from before the exchange, take one of the following measures. • Wait until the ARP cache update has run. (Wait periods depend on the device.))*1 • Restart all devices on the line.

*1 Devices on Ethernet retain ARP cache correspondence tables for IP addresses and MAC addresses. Accordingly, replacing devices on the circuit with those that have the same IP address means that the MAC address retained in the ARP cache and that of the replaced device will not match, which may prevent normal communications. ARP cache is updated after a device reset or after a set time. Note that this time depends on the device.

Confirm CC-Link IE Field Network Basic

Check the following items.

Check item	Corrective action
In the CC-Link IE Field Network Basic link scan time, is the "Current" value set to "0 ms"? (☞ Page 90 CC-Link IE Field Network Basic diagnostics)	Correctly wire the Ethernet cable.

Cyclic data cannot be read correctly

Regardless of if the CC-Link IE Field Network Basic diagnosis transmission status is in transmission, if cyclic data cannot be correctly read, then check the following items.

Confirm CC-Link IE Field Network Basic

Check the following items.

Check item	Corrective action
In the following settings, is a slave station set as a reserved station? • [Basic Parameter] ⇨ [External Device Cooperate Settings] ⇨ [CC-Link IEF Basic Settings] ⇨ [Network Configuration Settings]	Cancel reserved station specifications of slave stations.
Has the accumulated timeout count for the slave station thought to be faulty been reached? *1	☞ Page 211 Transmission status repeats disconnection and reconnection
Has the accumulated disconnection detection count for the slave station thought to be faulty been reached? *1	
Is there a user program that accesses a link device?	Check the user program that accesses a link device area in the basic function area, and review the address to access.

*1 The slave station accumulated timeout count and the accumulated disconnection detection count can be checked with 'Diagnosis information 1 - Accumulated timeout count' (U3E0\G4647) and 'Diagnosis information 1 - Accumulated disconnection detection count' (U3E0\G4648). (☞ Page 280 List of Buffer Memory)

Transmission status repeats disconnection and reconnection

In the event that transmission state repeats disconnection and reconnection, then check the following items.

Check Ethernet

Check the following items.

Check item	Corrective action
Is the Ethernet cable fully inserted into the connector?	• Properly lock the Ethernet cable. • Check that the Ethernet cable is also correctly connected to the other devices and hubs.
Does the used cable meet Ethernet specifications?	Check the cable specifications.
Is the Ethernet cable broken or nearly broken?	Replace the Ethernet cable.
Is there a powerful source of noise near the Ethernet cable?	• Increase the distance of the Ethernet cable from the source of the noise. • Replace with a cable with better noise shielding.
Is there any packet loss or errors on other devices or hubs? *1	Check the manual of the device that is producing errors or packet loss, and then take measures. *2
Is a hub that can handle communication speeds used by the connected master station/slave station being used?	Replace with a hub that can handle the communication speeds used by the connected master station/slave station.
Are there any delays in response, error responses, or no responses with functions using the Ethernet port (CH1) such as FTP, socket communications, or SLMP?	Stop the function. Alternatively, review settings, such as by increasing the interval between executions of these functions or decreasing their frequency.

*1 Depending on the hub, communications may be stopped as a result of a high communication load. In these cases, consult with the manufacturer of the hub being used.

*2 In the event that the PC or this product has been re-connected to the switching hub or the switching hub was replaced, re-reading of the MAC address may take some time. In these cases, wait a while and try again or turn the power of the hub OFF and ON.

Confirm CC-Link IE Field Network Basic

Check the following items.

Check item	Corrective action
Are the master station timeout settings too short?	Set the master station timeout settings to a longer value.
Are any faults being generated by the slave station?	Perform troubleshooting for the slave station.
On the same circuit, is CC-Link IE Field Network Basic running at the same time on a different network address?	Separate into a separate circuit network and create a CC-Link IE Field Network Basic.
Are communications with other Ethernet devices being carried out on the same line?	Separate the CC-Link IE Field Network Basic network and other Ethernet device network to create CC-Link IE Field Network Basic.
Are any of the following functions being run? • Access from MI Configurator • Access using a virtual Ethernet	Stop the function. Alternatively, review settings, such as by increasing the interval between executions of these functions, decreasing their frequency, or reducing the range.
Are groups excessively separated?	If the number of stations is 16 or less, review the minimum number of groups, and, for example, form one group.
Are slave stations with a slow response time configured to groups with a fast link scan time? Alternatively, are slave stations with a fast response time configured to groups with a slow link scan time?	• Refer to the manual of the slave stations to be used and check the standard response time. • Check and correct the group number of slave stations in the network configuration settings.

Timeout occurs

Check the following items.

Check item	Corrective action
Is the link scan time setting of the master station too short, or is the link scan time setting disabled (0 ms)?	• Lengthen the link scan time of the master station. • If the link scan time setting is disabled, make it enable (1ms or more).

Check the troubleshooting in the following section as well.

☞ Page 211 Transmission status repeats disconnection and reconnection

Slow link scan time

Refer to the following troubleshooting items.

☞ Page 208 Stations repeatedly disconnect and reconnect

Slow access to the product

Check the following items.

Check item	Corrective action
Are any of the following functions being run? • Access from MI Configurator • Access using the local network	Stop the function. Alternatively, review settings, such as by increasing the interval between executions of these functions, decreasing their frequency, or reducing the range.
Are there any delays in response, error responses, or no responses with functions using the Ethernet port (CH1) such as FTP, socket communications, or SLMP?	Stop the function. Alternatively, review settings, such as by increasing the interval between executions of these functions or decreasing their frequency.
On the same circuit, is CC-Link IE Field Network Basic running at the same time on a different network address?	Separate the network to a separate circuit and create a CC-Link IE Field Network Basic.
Are communications with other Ethernet devices being carried out on the same line?	Separate the network into a CC-Link IE Field Network Basic network and a different Ethernet device network, then run.

Master station cyclic transmission is stopped

Check the following items.

Check item	Corrective action
Is the slave station transmission status normal?	• If there are disconnected slave stations, handle as per the error details. • If there are no disconnected slave stations, this may indicate a problem with a device other than the device set as the master station, so check the network connections.
Start data assurance of link devices.	• Always end data assurance of link devices by the task that started data assurance of link devices. • Either turn the power supply of this product OFF to ON or reset this product.

The date and time of the Windows part and VxWorks part are different

Check the following items.

Check item	Corrective action
Is "Do not use" configured for "Clock data synchronization"? • [Basic Parameter] ⇨ [Operation Related Setting] ⇨ [Time Related Setting] ⇨ [Clock Data Synchronization]	Set "Use" for "Clock data synchronization"?
Are the time zone settings of the Windows part and VxWorks part different?	Use the same time zone setting for the Windows part and VxWorks part.
Are the daylight saving time settings of the Windows part and VxWorks part different?	Use the same daylight saving time settings for the Windows part and VxWorks part.
Is "Set time automatically" of Windows set to "ON". • [Settings] ⇨ [Time & language] ⇨ [Date and time] ⇨ [Set time automatically]	Set "Set time automatically" to "OFF".

The Time setting (SNTP client) function is not running normally

Check the following items.

Check item	Corrective action
Are the settings configured to use the time setting (SNTP server)?	Change the settings to use the time setting (SNTP server)?
Is the specified SNTP server IP address correct?	Check the IP address of the SNTP server settings, and then review the settings if necessary.
Is the connection to the specified SNTP server?	• Check whether communication with the SNTP server is possible. • Check whether the Ethernet cable is connected to the Ethernet port (CH1).
Is the specified SNTP server time within the time data range of the clock function?	Check whether the SNTP server time is within the clock data range of this product.

A Windows-part forced-restart cannot be run

Check the following items.

Check item	Corrective action
In the following settings, is WIN RESET set to "Disable"? • [Basic Parameter] ⇨ [Operation Related Setting] ⇨ [Remote Operation Settings] ⇨ [WIN RESET]	Set WIN RESET to "Enable".
Was the MELIPC shutdown function run?	Turn the power supply of this product OFF to ON.

Windows-part forced-restart is not complete

Check the following items.

Check item	Corrective action
Were the following functions used for advance processing of Windows part forced-restart? • CCPU_MELIPCShutdown • CCPU_WinReset	Switch the power supply of this product OFF to ON, review the advance processing registered by the user for the Windows part forced-restart function, and then register again.
Advance processing registered by the user for the Windows part forced-restart function did not end normally.	Switch the power supply of this product OFF to ON, review the advance processing registered by the user for the Windows part forced-restart function, and then register again.

Shutdown of this product is not complete

Check the following items.

Check item	Corrective action
Is the WIN RDY LED flashing?	☞ Page 199 If the WIN RDY LED is not lit
Were the following functions used for advance processing of the MELIPC shutdown function? • CCPU_MELIPCShutdown • CCPU_WinReset	Switch the power supply of this product OFF to ON, and then review the advance processing registered by the user for the MELIPC shutdown function.
Advance processing registered by the user for the MELIPC shutdown function did not end normally.	Switch the power supply of this product OFF to ON, review the advance processing registered by the user for the MELIPC shutdown function, and then register again.

An error occurs because there was an attempt to copy (or move) a file or folder to the VxWorks part

Check the following items.

Check item	Corrective action
Are characters (Japanese alphabet, Chinese characters, etc.) that cannot be used by the VxWorks part in the name of the file or folder that was to be copied (or moved)?	Rename the file or folder to be copied (or moved) using only characters that can be used by the VxWorks part before copying (or moving) it.

The name of a file or folder that was copied (moved) to the VxWorks part is garbled

Check the following items.

Check item	Corrective action
Are characters (Japanese alphabet, Chinese characters, etc.) that cannot be used by the VxWorks part in the name of the file or folder that was to be copied (or moved)?	Rename the file or folder with the garbled name using only characters that can be used by the VxWorks part. Alternatively, rename the file or folder to be copied, and then copy it again.

An error occurs because there was an attempt to create a new file or folder on the VxWorks part

Check the following items.

Check item	Corrective action
Was there an attempt to create a new file (or folder) directly in a folder of the VxWorks part using a "New Folder" or "New" operation of Windows Explorer?	Create a new file (folder) in a location other than a folder of the VxWorks part, rename it using characters that can be used by the VxWorks part, and then copy it to the VxWorks part.

If a new file or folder is created on the VxWorks part, a file or folder with a garbled name is created

Check the following items.

Check item	Corrective action
Was there an attempt to create a new file (or folder) directly in a folder of the VxWorks part using a "New Folder" or "New" operation of Windows Explorer?	Delete the file (or folder) with the garbled name, create a new file (folder) in a location other than a folder of the VxWorks part, rename it using characters that can be used by the VxWorks part, and then copy it to the VxWorks part.

It takes time to write files

Check the following items.

Check item	Corrective action
Are a large amount of files written to a folder in the user drive (\ROM) from an external device or the Windows part of this product?	Data writing speed may be improved by disabling synchronous control for writing files to the user drive (\ROM) in the VxWorks part. For the method to disable synchronous control, refer to the following manual. 📖MELIPC MI5000 Series User's Manual (Startup)

Inter OS event was not reported

Check the following items.

Check item	Corrective action
Are multiple user programs waiting for an inter-OS event?	Stop unnecessary user programs. Perform inter OS event notifications for the number of user programs waiting for an inter OS event.
Was a shutdown performed using MELIPC shutdown or the Start menu using a Windows screen operation in the Windows part?	• Turn the power supply of this product OFF to ON or reset this product, and then perform a forced restart of the Windows part. • Report the inter OS event again after this product starts, and the VxWorks part and Windows part are running.
Was an inter OS event reported when the Windows part was starting?	• Revise the user programs so that an inter OS event is not reported until the Windows part is running. • Report the inter OS event to the Windows part again.
Was a forced-restart of the Windows part performed?	Report the inter OS event to the Windows part again.

The display is not showing windows

Check item	Corrective action
Is the DisplayPort cable connected correctly?	Correctly connect the DisplayPort cable.
Is the DisplayPort cable broken?	Replace the DisplayPort cable.
Is the display broken?	Replace the display to a new one.

The mouse or keyboard do not operate

Check item	Corrective action
Does the mouse cursor move?	• Wait, then try the operation again. • Check that a mouse is connected to a USB port. • Connect a mouse that has once been connected to the USB port. If it does not work, then replace the mouse.
Does the keyboard react?	• Wait, then try the operation again. • Check that the keyboard is connected to a USB port. • Connect a keyboard that has once been connected to the USB port. If it does not work, then replace the keyboard.
Is input from the keyboard possible?	Connect a keyboard that has once been connected to the USB port. If it does not work, then replace the keyboard.
Are any USB3.0 devices being used?	Connect to a USB port supporting USB3.0.

Unable to access the CFast card

Check item	Corrective action
Is a CFast card inserted?	Turn the product power OFF, and insert the CFast card into the CFast card slot.
Has the CFast card been removed from the CFast card slot while the product power is ON?	
Has the CFast card been inserted into the CFast card slot while the product power is ON?	Power OFF, then power ON the product.
Has the CFast card been formatted?	Format the CFast card using the Windows part.

Access to recordable media such as external hard disks is not possible

Check item	Corrective action
Is the recordable media connected to a USB port?	Connects the recordable media to a USB port.
Are any USB3.0 devices being used?	Connect to a USB port supporting USB3.0.
Has the recordable media been formatted?	Format the recordable media.

A USB device does not operate

Check item	Corrective action
Is the USB device plugged into a USB port?	Connect a USB device that has once been connected to the USB port. If it does not work, then replace the USB device.
Are any USB3.0 devices being used?	Connect to a USB port supporting USB3.0.

The Windows part takes time to start

Check item	Corrective action
Is there sufficient free space on the C drive?	Remove unnecessary files to create free space.
Have unnecessary applications been installed?	Uninstall unnecessary applications.
Is the screen of Windows stuck for a long time?	Reset the product with the switch or turn the power OFF and ON.

In a Japanese language OS, the keyboard has an English layout.

Check item	Corrective action
After starting this product or after Windows recovery, when restarting, was Japanese selected at setup?	Change the keyboard layout to Japanese. MELIPC MI5000 Series User's Manual (Startup)
Is the keyboard set to an English layout?	

Even when changed, the date and time values are changed to other values

Check item	Corrective action
Is "Use" configured for Clock data synchronization?	• Configure "Do Not Use" for Clock data synchronization. • Change the date and time using the clock setting of MI Configurator.

Ethernet CH2 is not displayed in the network adapter.

Check item	Corrective action
Is the Ethernet cable is connected correctly to Ethernet port (CH2)?	Connect the Ethernet cable to Ethernet port (CH2).

Ethernet port (CH2) uses Ethernet CH2(Intel(R)) I210 Gigabit Network Connection #□[*1].

*1 □: Input numerals.

Fonts are corrupted

Check item	Corrective action
—	• Restart Windows. • If the problem is not resolved even after restarting the Windows part, then Windows font information may be corrupted. In that case, perform Windows recovery. (MELIPC MI5000 Series User's Manual (Startup))

Visual Studio cannot be installed

Check item	Corrective action
Did the message 'A setup package is either missing or damaged' appear during the installation of Visual Studio?	• Connect to the Internet, and then install Visual Studio. • Contact Microsoft if installation fails after connecting to the Internet and trying to install Visual Studio.

A drive for CFast card does not appear

Check item	Corrective action
Is a partition set for the CFast card?	Select MBR for a partition format in the disk management of Windows to initialize the disk.
Is the partition format of the CFast card GPT?	Delete the configuration information from a CFast card in GPT format, and initialize the card in MBR format. For the initialization method of a CFast card, refer to the following manual. MELIPC MI5000 Series User's Manual (Startup)
Is a drive letter assigned to the partition of the CFast card?	Assign a drive letter in the disk management of Windows.

An application error appears while running a user program

Check item	Corrective action
Is 'MELIPC Internal Communication' service running?	• Start 'MELIPC Internal Communication' service in the "Service" screen of Windows. • Restart Windows. If the above corrective actions cannot be performed, or the corrective actions do not work, the file may be corrupted. In that case, perform Windows recovery.

The drive of a media, such as an external HDD, is not displayed in the explorer

Check item	Corrective action
Is a partition set for the media?	Initialize the disk in the disk management of Windows.
Is a drive letter assigned to the partition of the media?	Assign a drive letter in the disk management of Windows.

An application cannot be installed on the Windows part

Check item	Corrective action
Is the Unified Write Filter enabled?	Disable the Unified Write Filter and install an application. For the setting method of the Unified Write Filter, refer to the following: MELIPC MI5000 Series User's Manual (Startup)

Appendix 2 List of Error Codes

When an error is detected by the self-diagnosis function, the error code is stored to a special register (SD). Additionally, if an error occurs during a communication request from either MI Configurator or the network system to this product, the error code is returned to the request source.
This section shows the details of errors that occur in this product and their corrective actions.

Check of error codes

An error code can be checked with the following methods

Point

If multiple errors have occurred at the same time, then these will be handled from the oldest first according to their history date.

Checking error codes with MI Configurator

Codes of errors that are occurring on the MELIPC can be checked using the MELIPC diagnosis of MI Configurator.

[Diagnostics] ⇨ [MELIPC Diagnostics]

Checking by the dot matrix LED

Codes of errors that occurred can be checked by selecting "Error code" in the menu selection mode.
(MELIPC MI5000 Series User's Manual (Startup))

Checking by a user program

Error codes can be acquired by C Controller module dedicated functions. In addition, the acquired error codes can be checked by the user program outputting them to the dot matrix LED or monitor. (MELIPC MI5000 Series Programming Manual (VxWorks))

Error code system

Error codes are represented in four-digit hexadecimal number (unsigned 16-bit integer).
Errors that can be detected by the self-diagnosis function and common errors that can be detected during data communications between modules are included in the following table.

Error detection type	range	Description
Detection by self-diagnosis	1000H to 3FFFH	Error code specific to each module, such as self-diagnostic errors
Detected during communication between CPU modules	4000H to 4FFFH	Errors related to AnU/QnA/Qn Series programmable controller CPU general data
	5000H to 5FFFH	Errors related to general data of slice I/O modules
	7000H to 7FFFH	Errors related to general data of AnU/QnA/Qn Series intelligent function modules
Detection by self-diagnosis	8000H to 8FFFH	Errors related to CC-Link IE Field Network function
	9000H to 9FFFH	
	A000H to AFFFH	
Detected during communication between CPU modules	B000H to BFFFH	Error in CC-Link module
	C000H to CFBFH	Error in Ethernet module
	CFC0H to CFFFH	CC-Link IE Field Network Basic errors
	D000H to DFFFH	Error in CC-Link IE Field Network module
	E000H to EFFFH	Error in CC-Link IE Controller Network module
	F000H to FFFFH	Error in MELSECNET/H network modules or MELSECNET/10 network module

Error code types

An error status can be determined by the lighting status of the main LED and CC-Link IE Field Network LEDs.

BASIC FUNCTIONS

Errors that occur with basic functions are either continuation errors or stop errors, as shown below.

- Continuation error: minor error
- Stop error: moderate or major error

When a stop error occurs, the operating status of this product is a stop status.*1

*1 MAIN RUN LED is OFF.

MAIN LED			error classification	Error code	Error details
VX RDY	MAIN RUN	MAIN ERR			
On	In accordance with the switch and operating status.	On	Minor error	1000H to 1FFFH	Error such as communications failure or temperature abnormality, in which product operation continues.
On	Off	Flashing	Moderate error	2000H to 3BFFH	Error in which product operation stops, because of a program or parameter error, or noise, etc.
Off	Off	Flashing	Major error	3C00H to 3FFFH	Error in which product operation stops, because of a program or hardware error, etc.
Off	Off	ON	Major error*2		

*2 Watchdog timer error

CC-Link IE Field Network FUNCTION

If a moderate error or major error is detected by the CC-Link IE Field Network function, it will be registered as follows by the self-diagnosis function of the basic function.

- A moderate error occurred: it is registered as a minor error.
- A major error occurred: it is registered as a moderate error.

This product has the following operating statuses.

- Moderate error: continuation
- Major error: stop

CC-Link IE Field Network LED		error classification	Error code	Error details
RUN	ERR			
On	On	Minor error	8000H to 8FFFH	Product operation at error occurrences in accordance with error codes.
On	Flashing	Moderate error	9000H to ABFFH	
Off	Flashing	Major error	AC00H to AFFFH	
Off	ON	Major error*1		

*1 Watchdog timer error

Watchdog timer error occurrence in the Windows part

If a watchdog timer error has occurred due to the watchdog timer function of the Windows part, a notice is sent to the VxWorks part only when a system watchdog timer error occurred.

For details on the watchdog timer function, refer to the following manual.

☞ Page 18 Watchdog Timer (WDT) Function

List of error codes

This section shows the codes for errors that occur in this product.

Codes of errors detected by the self-diagnosis function (1000H to 3FFFH)

The following table shows the codes of errors detected by the self-diagnosis function of this product.

Error code	Error name	Description	Corrective action
1000H	Power interruption	• A momentary power failure has occurred. • The power supply has been shut OFF. • While turning power on, the CFast card was inserted or removed.	• Take measures to reduce noise. • While turning power on, do not insert or remove the CFast card. • Reset the system. If the same error is displayed again, this may indicate a hardware fault. Consult your local Mitsubishi representative.
1080H	Internal storage write count exceeded	The number of writes to the internal storage (user drive and system drive) exceeded 10,000. (Number of writes > 10,000)	Exchange the MELIPC main module.
1090H	Battery error	• Battery voltage has dropped below specified values. • The battery lead connector is not inserted. • The battery lead connector is not properly inserted.	• Replace the battery. • Check the insertion of the battery lead connector. If it is loose, securely connect the connector.
1120H	SNTP clock setting error	Time setting failed when the power supply of this product was turned ON or this product was reset.	• Check if the setting of time setting function is correct. • Check if the specified SNTP server is operating normally and there is no failure on the network accessing the SNTP server computer.
112EH	Connection establishment failed	A connection could not be established in the open processing.	• Check the operation of the target device. • Check if the open processing has been performed in the target device. • Review the port number of the module, IP address/port number of the target device, opening method, and the number of connections. • When the firewall is set in the target device, check if the access is permitted. • Check if the Ethernet cable is disconnected. • Check and correct the external device configuration.
1165H	UDP/IP send failed	Data was not sent correctly with UDP/IP.	• Check the settings for connection with the target device. • Check the operation of the target device or switching hub. • Since there may be congestion of packets on the line, send data after a certain period of time. • Check if the connection cable is disconnected. • Check that there is no connection failure with the switching hub.
1166H	TCP/IP send failed	Data was not sent correctly with TCP/IP.	• Check the settings for connection with the target device. • Check the operation of the target device or switching hub. • Since there may be congestion of packets on the line, send data after a certain period of time. • Check if the connection cable is disconnected. • Check that there is no connection failure with the switching hub.
1200H	CC-Link IE Field Network function moderate error	A moderate error has been detected in the CC-Link IE Field Network function.	Check with the generated error in the CC-Link IE Field Network function, and remove errors generating faults.

Error code	Error name	Description	Corrective action
1848H	Power supply temperature error	Internal temperature abnormality has been detected in the power supply module.	Reset the system. If the same error is displayed again, this may indicate a hardware fault. Consult your local Mitsubishi representative.
1849H	MELIPC temperature error	A MELIPC temperature error was detected.	If this problem is not resolved, a hardware error may result from a temperature error. Take the following measures. • Check the ambient temperature. • Check that the vent of the MELIPC is not blocked. • Inspect and clean the fan module. • Replace the fan module. If the same error is displayed again, this may indicate a hardware fault. Consult your local Mitsubishi representative. • Replace the fan module. • Take measures to reduce the temperature. • If the same error is displayed again, this may indicate a hardware fault. Consult your local Mitsubishi representative.
184AH	Number of CFast card writes exceeded	The number of writes to the CFast card exceeded 10,000. (Number of writes > 10,000)	Replace the CFast card.
184BH	Power supply temperature sensor fault	A temperature sensor fault in the power supply module has been detected.	Reset the system. If the same error is displayed again, this may indicate a hardware fault. Consult your local Mitsubishi representative.
184CH	USB port fault	An overcurrent to the USB port has been detected.	• Replace the USB. • Reset the system. If the same error is displayed again, this may indicate a hardware fault. Consult your local Mitsubishi representative.
184DH	CFast card error	An overcurrent to the CFast card has been detected.	• Replace the CFast card • Reset the system. If the same error is displayed again, this may indicate a hardware fault. Consult your local Mitsubishi representative.
184EH	CFast card error	Insertion/removal of the CFast card has been detected.	Reset the system. If the same error is displayed again, this may indicate a hardware fault. Consult your local Mitsubishi representative.
184FH	DisplayPort error	An overcurrent to the DisplayPort has been detected.	• Review the DisplayPort connection. • Reset the system. If the same error is displayed again, this may indicate a hardware fault. Consult your local Mitsubishi representative.
1850H	Windows part stop	A stop (no response) condition such as a Windows blue screen is detected.	• Review the software applications on the Windows part. • Review the devices of the Windows part. • Review the user programs of the Windows part. • Restart the Windows part. • If the issue is still not resolved, replace the MELIPC.
1851H	CFast card error	An error has been detected in the CFast card.	• Replace the CFast card. • Take measures to reduce noise. • Reset the system. If the same error is displayed again, this may indicate a hardware fault. Consult your local Mitsubishi representative.
1852H	CFast card error	An error has been detected in the CFast card.	Replace the CFast card.
20E0H	Invalid power supply module	A power supply module that cannot be recognized was detected.	Mount only applicable power supply modules.
2160H	IP address overlap error	An IP address overlap was detected.	Check the IP address of the Ethernet port (CH1).

Error code	Error name	Description	Corrective action
2180H	Invalid file	An invalid file has been detected.	Check detailed information (drive and file information) using the MELIPC diagnosis of an engineering tool, check the file name, and then write the specified file. If the same error is displayed again, this may indicate a hardware fault. Consult your local Mitsubishi representative.
21A1H	Memory error	A memory error was detected.	• Take measures to reduce noise. • Reset the system. If the same error is displayed again, this may indicate a hardware fault. Consult your local Mitsubishi representative.
2200H	Parameter error	Parameter does not exist.	Write parameters.
2220H	Parameter error	The parameter setting is corrupted.	Check detailed information (parameter information) using the MELIPC diagnosis of an engineering tool, and then write the displayed parameter. If the same error is displayed again, this may indicate a hardware fault. Consult your local Mitsubishi representative.
2221H	Parameter error	• The set value is out of range. • Invalid values are specified as setting values. • There is an overlap in the set value.	Check detailed information (parameter information) using the MELIPC diagnosis of an engineering tool, and then review the parameter setting corresponding to the displayed number (parameter number). If the same error is displayed again, this may indicate a hardware fault. Consult your local Mitsubishi representative.
2222H	Parameter error	Use of the function that is not supported by the module is enabled.	Check detailed information (parameter information) using the MELIPC diagnosis of an engineering tool, and then review the parameter setting corresponding to the displayed number (parameter number). If the same error is displayed again, this may indicate a hardware fault. Consult your local Mitsubishi representative.
2225H	Parameter error	The type (MELIPC name) set to the project differs from MELIPC name actually mounted.	Re-write parameters.
2440H	CC-Link IE Field Network function major error	A CC-Link IE Field Network function error was detected at initial processing.	• Take measures to reduce noise. • Reset the system. If the same error is displayed again, this may indicate a hardware fault. Consult your local Mitsubishi representative.
2442H	CC-Link IE Field Network function major error	A major error notification was detected from the CC-Link IE Field Network function.	• Take measures to reduce noise. • Reset the system. If the same error is displayed again, this may indicate a hardware fault. Consult your local Mitsubishi representative.
2450H	CC-Link IE Field Network function major error	A major error notification was detected from the CC-Link IE Field Network function.	• Take measures to reduce noise. • Reset the system. If the same error is displayed again, this may indicate a hardware fault. Consult your local Mitsubishi representative.

Error code	Error name	Description	Corrective action
3042H	User WDT error	The user WDT managed by the system detected an error because CCPU_ResetWDT was not executed within the user WDT setting time of the VxWorks part. Alternatively, an error occurred with a user program. • The user WDT setting time is short. • Tasks with the higher CPU usage rate is in operation. • A program causing an error in the memory or stack was executed. • Debugging was performed with CW Workbench 4 connected online. • Command was executed from Shell for debugging. • The following functions that increase the CPU usage rate of the system task are used. (1) Ethernet communication (2) File sharing service	• Lower the CPU utilization of tasks with high CPU utilization on the VxWorks part. Alternatively, do not run them. • Review the user programs of the VxWorks part. • Restart with CW Workbench 4 on the VxWorks part not connected online. • Review the command executed from Shell on the VxWorks part. • Reset the MELIPC. • Set a sufficiently long user WDT setting time after consideration of the CPU utilization of the system tasks of the VxWorks part. • If the issue is still not resolved, replace the MELIPC.
3044H	Program fault	A command in the script file of the VxWorks part cannot be executed. (The syntax is incorrect or no command exists.)	Check whether the syntax of the script file that had the error on the VxWorks part is correct and that a command exists.
3047H	Fan module error	Fan rotational speed has dropped below specified values.	• Check that the fan module is installed correctly. • Replace the fan module. • If the same error is displayed again, this may indicate a hardware fault. Consult your local Mitsubishi representative.
3C00H	Hardware failure	A hardware failure was detected.	• Take measures to reduce noise. • Reset the system. If the same error is displayed again, this may indicate a hardware fault. Consult your local Mitsubishi representative.
3C01H	Hardware failure	A hardware failure was detected.	Take measures to reduce noise. Reset the system. If the same error is displayed again, this may indicate a hardware fault. Consult your local Mitsubishi representative.
3C02H	Hardware failure	• A hardware failure was detected. • An invalid argument has been specified with the C Controller module dedicated functions for ISR.	• Take measures to reduce noise. • Reset the system. If the same error is displayed again, this may indicate a hardware fault. Consult your local Mitsubishi representative. • Review the argument of the C Controller module dedicated functions for ISR.
3C03H	Hardware failure	A hardware failure was detected.	• Take measures to reduce noise. • Reset the system. If the same error is displayed again, this may indicate a hardware fault. Consult your local Mitsubishi representative.
3C22H	Memory error	A memory error was detected.	• Take measures to reduce noise. • Reset the system. If the same error is displayed again, this may indicate a hardware fault. Consult your local Mitsubishi representative.
3C2FH	Memory error	An error was detected in the memory.	• Take measures to reduce noise. • Reset the system. If the same error is displayed again, this may indicate a hardware fault. Consult your local Mitsubishi representative.
3E40H	Memory error	An error was detected in the memory.	• Take measures to reduce noise. • Reset the system. If the same error is displayed again, this may indicate a hardware fault. Consult your local Mitsubishi representative.

Error code	Error name	Description	Corrective action
3E41H	System WDT error	• The system watchdog timer managed by the system detected an error. Alternatively, an error occurred in system software. • The system WDT monitoring time is short. • Tasks with the higher CPU usage rate is in operation. • A program causing an error in the memory or stack was executed. • The operation that increase the CPU usage rate of the system task (writing parameter) was performed. • The station on which the station-based block data assurance setting is enabled on the network has been accessed when the stop error occurred. • MELIPC is uncontrollable or damaged (malfunction from noise, or hardware fault). • BIOS settings screen started.	• Reset the system. Lower the CPU utilization of tasks with high CPU utilization. Alternatively, do not run them. • Review the user program. • Set a sufficiently long system WDT monitoring time after consideration of the CPU utilization of the system tasks. • Review the user program to prevent the station on which the station-based block data assurance setting is enabled from being accessed when the stop error occurred. • Take measures to reduce noise. • Confirm that the ambient environment is within general specifications. • When starting this product, ensure that the BIOS settings screen does not start. If the same error is displayed again, this may indicate a hardware fault. Consult your local Mitsubishi representative.
3E42H	System WDT error	The system watchdog timer managed by the system detected an error. Alternatively, an error occurred in system software. • The system WDT monitoring time is short. • Tasks with the higher CPU usage rate is in operation. • A program causing an error in the memory or stack was executed. • The operation that increase the CPU usage rate of the system task (writing parameter) was performed. • The station on which the station-based block data assurance setting is enabled on the network has been accessed when the stop error occurred. • An error was detected in the memory. • MELIPC is uncontrollable or damaged (malfunction from noise, or hardware fault).	• Reset the system. • Lower the CPU usage rate of tasks with the higher rate, or make them inactivated. • Review the user program. • Set a sufficiently long system WDT monitoring time after consideration of the CPU utilization of the system tasks. • Review the user program to prevent the station on which the station-based block data assurance setting is enabled from being accessed when the stop error occurred. • Take measures to reduce noise. • Confirm that the ambient environment is within general specifications. If the same error is displayed again, this may indicate a hardware fault. Consult your local Mitsubishi representative.
3E46H	Hardware failure	A hardware failure was detected.	• Take measures to reduce noise. • Reset the system. If the same error is displayed again, this may indicate a hardware fault. Consult your local Mitsubishi representative.
3E47H	Hardware failure	A hardware failure was detected.	• Take measures to reduce noise. • Reset the system. If the same error is displayed again, this may indicate a hardware fault. Consult your local Mitsubishi representative.
3E4BH	Hardware failure	A hardware failure was detected.	• Take measures to reduce noise. • Reset the system. If the same error is displayed again, this may indicate a hardware fault. Consult your local Mitsubishi representative.
3E4CH	Hardware failure	A hardware failure was detected.	• Take measures to reduce noise. • Reset the system. If the same error is displayed again, this may indicate a hardware fault. Consult your local Mitsubishi representative.
3E4EH	Hardware failure	A hardware failure was detected.	• Take measures to reduce noise. • Reset the system. If the same error is displayed again, this may indicate a hardware fault. Consult your local Mitsubishi representative.

Error code	Error name	Description	Corrective action
3E52H	Memory error	An error was detected in the memory.	• Take measures to reduce noise. • Reset the system. If the same error is displayed again, this may indicate a hardware fault. Consult your local Mitsubishi representative.
3E54H	Memory error	An error was detected in the memory.	• Take measures to reduce noise. • Reset the system. If the same error is displayed again, this may indicate a hardware fault. Consult your local Mitsubishi representative.
3E55H	Hardware failure	A hardware failure was detected.	• Take measures to reduce noise. • Reset the system. If the same error is displayed again, this may indicate a hardware fault. Consult your local Mitsubishi representative.
3E58H	Hardware failure	A hardware failure was detected.	• Take measures to reduce noise. • Reset the system. If the same error is displayed again, this may indicate a hardware fault. Consult your local Mitsubishi representative.
3E59H	Hardware failure	A hardware failure was detected.	• Take measures to reduce noise. • Reset the system. If the same error is displayed again, this may indicate a hardware fault. Consult your local Mitsubishi representative.
3E5AH	Hardware failure	A hardware failure was detected.	• Take measures to reduce noise. • Reset the system. If the same error is displayed again, this may indicate a hardware fault. Consult your local Mitsubishi representative.
3E5BH	Hardware failure	A hardware failure was detected.	• Take measures to reduce noise. • Reset the system. If the same error is displayed again, this may indicate a hardware fault. Consult your local Mitsubishi representative.
3E5CH	Hardware failure	A hardware failure was detected.	• Take measures to reduce noise. • Reset the system. If the same error is displayed again, this may indicate a hardware fault. Consult your local Mitsubishi representative.
3E5DH	Hardware failure	A hardware failure was detected.	• Take measures to reduce noise. • Reset the system. If the same error is displayed again, this may indicate a hardware fault. Consult your local Mitsubishi representative.
3E5EH	Memory error	An error was detected in the memory.	• Take measures to reduce noise. • Reset the system. If the same error is displayed again, this may indicate a hardware fault. Consult your local Mitsubishi representative.
3E5FH	Hardware failure	A hardware failure was detected.	• Take measures to reduce noise. • Reset the system. If the same error is displayed again, this may indicate a hardware fault. Consult your local Mitsubishi representative.
3EA0H	Hardware failure	A hardware failure was detected.	• Take measures to reduce noise. • Reset the system. If the same error is displayed again, this may indicate a hardware fault. Consult your local Mitsubishi representative.
3EA1H	Hardware failure	A hardware failure was detected.	• Take measures to reduce noise. • Reset the system. If the same error is displayed again, this may indicate a hardware fault. Consult your local Mitsubishi representative.

Error code	Error name	Description	Corrective action
3EA2H	Hardware failure	A hardware failure was detected.	• Take measures to reduce noise. • Reset the system. If the same error is displayed again, this may indicate a hardware fault. Consult your local Mitsubishi representative.
3EA4H	Hardware failure	A hardware failure was detected.	Exchange the MELIPC.
3EA6H	Hardware failure	A hardware failure resulting from a MELIPC temperature error was detected.	Immediately turn the power OFF, and take the following measures. • Check the ambient temperature. • Check that the vent of the MELIPC is not blocked. • Inspect and clean the fan module. • Replace the fan module. • If the same error is displayed again, this may indicate a hardware fault. Consult your local Mitsubishi representative.
3EA7H	Hardware failure	A hardware failure was detected.	• Take measures to reduce noise. • Reset the system. If the same error is displayed again, this may indicate a hardware fault. Consult your local Mitsubishi representative.
3EA8H	Hardware failure	A hardware failure has been detected.	• Take measures to reduce noise. • Reset the system. If the same error is displayed again, this may indicate a hardware fault. Consult your local Mitsubishi representative.
3EA9H	Memory error	An error was detected in the memory.	• Take measures to reduce noise. • Reset the system. If the same error is displayed again, this may indicate a hardware fault. Consult your local Mitsubishi representative.

Codes of errors detected other than by the self-diagnosis function (4000H to 4FFFH)

The following table shows the codes of errors not detected by a means other than the self-diagnosis function of this product.

Error code	Error name	Description	Corrective action
4001H	Common error	An unsupported request was executed.	• Check command data such as SLMP. • Check the model selected by the engineering tool.
4002H	Common error	An unsupported request was executed.	• Check command data such as SLMP. • Check the model selected by the engineering tool. • Run again. If the same error is displayed again, this may indicate a hardware fault. Consult your local Mitsubishi representative.
4003H	Common error	Command for which a global request cannot be performed was executed.	Check command data such as SLMP.
4004H	Common error	A request was issued to the system file.	Check command data such as SLMP.
4005H	Common error	The volume of data to be handled by the specified request is too large.	Check command data such as SLMP.
4006H	Common error	Initial communication has failed.	When using Ethernet communication, shift the communication start timing.
4008H	Common error	The MELIPC is busy. (The buffer is not empty.)	Execute it again after a while.
4021H	File related error	The specified drive (memory) does not exist or there is an error.	• Check the specified drive (memory) status. • Back up the data of the /ROM folder, and then initialize the memory.
4022H	File related error	The file with the specified file name or file number does not exist.	Check the specified file name and file number.
4023H	File related error	The file name and file number of the specified file do not match.	Delete the file, and then create a file again.
4024H	File related error	The specified file cannot be handled.	The specified file cannot be handled.
4025H	File related error	The specified file is currently processing a request from another engineering tool.	Forcibly execute the request. Or, execute it again once the processing from another engineering tool has been completed.
4027H	File related error	The specified range is larger than the file size.	Check the specified range, and access within the range.
4028H	File related error	The same file already exists.	Forcibly execute the request. Or, change the file name and execute the request again.
4029H	File related error	The specified file capacity cannot be reserved.	• Review the specified file capacity, and execute the request again. • Delete unnecessary files of the /ROM folder, and then execute again.
402AH	File related error	The specified file has an error.	Back up the data of the /ROM folder, and then initialize the memory. Next, try writing the file again.
402BH	File related error	The request cannot be executed in the specified drive (memory).	• STOP MELIPC, and execute again. • Delete unnecessary files of the /ROM folder, and then execute again.
402CH	File related error	At present, request details cannot be run.	Execute it again after a while.
4030H	Device specification error	The specified device name cannot be handled.	Check the specified device name.
4031H	Device specification error	• The specified device number is out of range. • MELIPC does not support the specified device name.	• Check the specified device number. • Check the specified device name.
4032H	Device specification error	A device name that has an error in the device qualification, or that can be used in SLMP random readout/random write (word unit)/monitor registration/monitor command (TS, TC, SS, SC, CS, CC) is specified.	• Check the specified device modification method. • Check the specified device name.

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Error code	Error name	Description	Corrective action
4033H	Device specification error	The specified device is full system use, and therefore cannot be written.	Do not write data to the specified device. Or, do not turn it ON/OFF.
4041H	CC-Link IE Field function specification error	The access range exceeds the buffer memory range.	Check the header address and access point numbers, and access buffer memory that is within the CC-Link IE Field Network function range.
4042H	CC-Link IE Field function specification error	Buffer memory cannot be accessed.	After resetting the MELIPC, execute a request again. If the same error is displayed again, this may indicate a hardware fault. Consult your local Mitsubishi representative.
4043H	CC-Link IE Field function specification error	The specified I/O number or network No. is different.	Review the specified I/O number or network No., and execute again.
4044H	CC-Link IE Field function specification error	Buffer memory cannot be accessed.	After resetting the MELIPC, execute a request again. If the same error is displayed again, this may indicate a hardware fault. Consult your local Mitsubishi representative.
4051H	Protect error	The specified drive (memory) cannot be accessed.	Check the following points, and then take action. • Is the drive (memory) the one that can be used? • Is the specified drive memory correctly inserted?
4052H	Protect error	A request was issued to the system file.	Check command data such as SLMP.
4053H	Protect error	An error occurred when writing data to the specified drive (memory).	Check command data such as SLMP.
4054H	Protect error	An error occurred when deleting data from the specified drive (memory).	Check command data such as SLMP.
4080H	Any other error	Request data error.	Check the specified request data.
4081H	Any other error	File header information does not exist.	Reread the parameter, and reset the MELIPC. If the same error is displayed again, this may indicate a hardware fault. Consult your local Mitsubishi representative.
4082H	Any other error	The specified command cannot be executed since it is being executed.	Execute the command again once the request from another engineering tool has been completed.
408BH	Any other error	The remote request cannot be executed.	• Execute the request again after placing the MELIPC in the state in which a remote request can be executed. • For a remote reset operation, enable remote resets in the parameters.
4100H	Any other error	MELIPC hardware fault.	Replace the MELIPC.
4105H	Any other error	MELIPC hardware fault.	Replace the MELIPC.
410CH	Any other error	Writing to the specified data is not supported.	• Check that the version of the engineering tool used is correct. • Check the settings and make a correction.
4110H	MELIPC related error	The MELIPC is in a stop error status and cannot execute the request content.	After resetting the MELIPC, execute a request again.
4121H	File related error	The specified drive (memory) or file does not exist.	Execute again after checking the specified drive (memory) or file.
4122H	File related error	The specified drive (memory) or file does not exist.	Execute again after checking the specified drive (memory) or file.
4125H	File related error	The specified drive (memory) or file is performing processing.	Execute it again after a while.
4126H	File related error	The specified drive (memory) or file is performing processing.	Execute it again after a while.
4127H	File related error	File password mismatch.	File password mismatch.
4128H	File related error	File password mismatch with copy destination.	Execute again after checking the file password.

Error code	Error name	Description	Corrective action
412BH	File related error	The specified drive (memory) is write protected.	Change the write prohibited conditions or drive (memory), and execute again.
412CH	File related error	The specified drive (memory) is write protected.	Change the write prohibited conditions or drive (memory), and execute again.
412DH	File related error	The specified drive (memory) does not have enough free space.	Increase the free space of the drive (memory), and execute the function again.
412EH	File related error	The specified drive (memory) does not have enough free space.	Increase the free space of the drive (memory), and execute the function again.
412FH	File related error	The drive (memory) capacity differs between copy destination and copy source of the drive (memory).	Check the copy destination and copy source drive (memory), and execute the request again.
4130H	File related error	The drive (memory) type differs between copy destination and copy source of the drive (memory).	Check the copy destination and copy source drive (memory), and execute the request again.
4131H	File related error	The file name of the copy destination is the same as the one of the copy source.	Check the file name, and execute the request again.
4132H	File related error	The specified number of files does not exist.	Check the specified data, and execute the request again.
4133H	File related error	The specified device (memory) has no free space.	Increase the free space of the drive (memory), and execute the function again.
4134H	File related error	The attribute specification data for a file is incorrect.	Check the specified data, and execute the request again.
4135H	File related error	The date/time data of the engineering tool (personal computer) is out of range.	Check the clock setting of the engineering tool (personal computer), and execute the request again.
4136H	File related error	The specified file already exists.	Check the specified file name, and execute the request again.
4137H	File related error	The specified file is a read-only file.	Change the conditions for the specified file, and execute the request again.
4138H	File related error	Simultaneously accessible files exceeded the maximum.	Reduce file operations, and execute again.
4139H	File related error	The size range of the specified file has exceeded the existing one.	Check the size of the specified file, and execute the request again.
413AH	File related error	The size of the specified file has exceeded the existing one.	Check the size of the specified file, and execute the request again.
413BH	File related error	The same file was access from a different engineering tool.	Execute it again after a while.
413CH	File related error	The specified file is write protected.	Change the conditions for the file, and execute again.
413DH	File related error	The specified file capacity cannot be secured.	Increase the capacity of the specified drive (memory), and execute again.
413EH	File related error	Operation is disabled for the specified drive (memory).	Change the target drive (memory), and execute the request again.
414CH	MELIPC related error	Inaccessible buffer memory address was specified.	Check the buffer memory address, and execute the request again.
4150H	File related error	Formatting of a system protected drive was attempted.	Formatting of the target drive (memory) is not possible, therefore this is not formatted.
4151H	File related error	Deletion of a system protected file was attempted.	Deletion of the target file is not possible; therefore this is not deleted.
4170H	Ethernet port error	There is an error in the remote password.	Review the specified remote password, and then execute unlock processing/lock processing of the remote password again.
4171H	Ethernet port error	The port used for communication has a remote password lock.	Execute unlock processing of the remote password before communication.
4174H	Ethernet port error	The device that requested unlock processing of the remote password is different.	• Request lock processing of the remote password from the external device that requested unlock processing of the remote password. To configure the remote password, the MELSOFT connection uses TCP.

Error code	Error name	Description	Corrective action
4176H	Ethernet port error	A communication error occurred with direct connection.	• If it is not a direct connection, do not specify a direct connection. • In the case of a direct connection, do not switch OFF or reset the MELIPC or remove a cable during communication.
41A1H	Ethernet port error	There is an error in the setting value for the port number of the MELIPC.	Correct the port number.
41A2H	Ethernet port error	The port number setting of the external device is incorrect.	Correct the port number.
41A3H	Ethernet port error	• In TCP/IP, an own station port number that is the same as SLMP is specified. • In TCP/IP, for the same communications device, the same connection for own station port number and communication other device port number is already used.	• Specify a port number that does not duplicate a port number used with SLMP. • Review MELIPC and other device port numbers, and correct in order that there is no duplication.
41A4H	Ethernet port error	• In UDP/IP, an own station port number that is the same as SLMP is specified. • In UDP/IP, the specified own station port number is being duplicated in use.	• Specify a port number that does not duplicate a port number used with SLMP. • Review MELIPC and other device port numbers, and correct in order that there is no duplication.
41A5H	Ethernet port error	Error in the other device IP address settings values at open processing.	Correct the IP address. Class is A/B/C.
41A6H	Ethernet port error	A connection could not be established in TCP connection open processing.	• Check the operation of the target device. • Check other device open processing. • Review the MELIPC port number, other device IP address/port number, and opening method. • Check that connection cables have not been removed.
41A8H	Ethernet port error	The data length exceeds the permissible range.	• Correct the data length. • If the sent data quantity exceeds the specified quantity, this will be split and then sent.
41ABH	Ethernet port error	Failed to communicate due to a retransmission timeout.	• Review the IP address and Ethernet address of the external device, and then correct if necessary. • Check whether the external device has an ARP function, and then communicate with an external device with an ARP function. • Check the operation of the target device. • Because there may be congestion of packets on the line, send data after an arbitrary time. • Check the status of the line, including the cables, hubs, routers, and other external devices. • Check whether the initial processing and open processing of the external device is completing normally. • Check whether the communication data code settings of the external device is binary code.
41ACH	Ethernet port error	• The presence of the external device cannot be checked. • The TCP connection from the external device was cut. • Communication was rejected by a check of the full passive side, and the TCP connection was cut.	• Check the operation of the target device. • Check whether connection cables have been removed. • Check whether the external device IP address settings of the full passive side match the IP address of the active side.
41ADH	Ethernet port error	Sending processing cannot be performed because the cable is not connected or cut.	• Check whether connection cables have been removed. • Perform a ping test from the external device and check for problems on the line. • Perform a self-diagnosis test and check for problems with the MELIPC.

Error code	Error name	Description	Corrective action
41B4H	Ethernet port error	There is an error in the specification of the connection number.	• Specify a connection number from 1 through 16. • Check whether the open method of the parameter is "socket communication".
41B6H	Ethernet port error	The specified connection has already completed open processing.	Perform close processing, and then perform open processing.
41B7H	Ethernet port error	The specified connection has not completed open processing.	Execute again after open processing is completed.
41C1H	File related error	The format information data of the specified drive (memory) is abnormal.	• The file information data may be corrupted. • Back up the data of the /ROM folder, and then initialize the memory.
41C2H	File related error	File open specification data for file access is wrong.	Execute again after checking the specification data.
41C3H	File related error	Simultaneously accessible files exceeded the maximum.	Reduce file operations, and execute again.
41C4H	File related error	Simultaneously accessible files exceeded the maximum.	Reduce file operations, and execute again.
41C5H	File related error	The specified file does not exist.	Check the file, and execute the request again.
41C7H	File related error	The specified file or drive (memory) doesn't exist.	Execute again after checking the file or drive (memory).
41C8H	File related error	The size range of the specified file has exceeded the existing one.	• Check the size of the specified file, and execute the request again. • If the error occurs after re-execution, the file information data may be corrupted. • Back up the data of the /ROM folder, and then initialize the memory.
41C9H	File related error	• Failed to access the file sector. • The format information data of the target drive (memory) is abnormal.	Back up the data of the /ROM folder, and then initialize the memory.
41CAH	File related error	• Failed to access the file sector. The format information data of the target drive (memory) is abnormal.	Back up the data of the /ROM folder, and then initialize the memory.
41CBH	File related error	There is an error in the specification method of the file name.	Check the file, and execute the request again.
41CCH	File related error	The specified file does not exist. Alternatively, the specified subdirectory does not exist.	Execute again after checking the name of the file and subdirectory.
41CDH	File related error	• Access that is prohibited by file attributes was performed. Alternatively, a change of prohibited file attributes was attempted. • File access is prohibited by the system.	• Check the attributes and open mode of the file. • Do not access the specified file and subdirectory. • Execute again after checking the file and subdirectory.
41CEH	File related error	File writing is not possible because the specified file is read-only.	The specified file is write protected. Execute again after checking the attributes.
41CFH	File related error	The capacity of the specified drive (memory) has been exceeded.	Delete files of the /ROM folder, and then execute again.
41D0H	File related error	There is no free space on the specified drive (memory) or the number of files in the directory of the specified drive (memory) exceeds the maximum.	Delete files of the /ROM folder, and then execute again.
41D5H	File related error	A file of the same name already exists.	Forcibly execute the request. Or, change the file name and execute the request again.
41D6H	File related error	The format information data of the specified drive (memory) is abnormal.	Back up the data of the /ROM folder, and then initialize the memory.
41D7H	File related error	The format information data of the specified drive (memory) is abnormal.	Back up the data of the /ROM folder, and then initialize the memory.
41D8H	File related error	The specified file is being accessed.	Execute it again after a while.
41DFH	File related error	A request was issued to the system file.	Check command data such as SLMP.

Error code	Error name	Description	Corrective action
41E0H	File related error	There is an error with the specified drive (memory), or this does not exist.	Back up the data of the /ROM folder, and then initialize the memory.
41E7H	File related error	The format information data of the specified drive (memory) is abnormal.	Back up the data of the /ROM folder, and then initialize the memory.
41E8H	File related error	The format information data of the specified drive (memory) is abnormal.	Back up the data of the /ROM folder, and then initialize the memory.
41E9H	File related error	The specified file is being accessed.	Execute it again after a while.
41EBH	File related error	There is an error in the specification method of the file name.	Check the file name, and execute the request again.
41ECH	File related error	The file system of the specified drive (memory) is logically corrupted.	Back up the data of the /ROM folder, and then initialize the memory.
41EDH	File related error	The specified drive (memory) does not have enough continuous free space. (There is free space for the file, but the continuous free space is insufficient.)	Delete unnecessary files, and then execute again.
41F3H	File related error	The size of the specified file exceeds 4 GB minus 2 bytes.	Reduce the size of the specified file through creation or a size change. Alternatively, separate the file into multiple files to reduce the file size.
4A02H	Link-related error	The specified station cannot be accessed.	Check that the operating mode is not set to offline. Check that there are no mistakes in the network No. or station No. settings.
4A03H	Link-related error	A request for network test was issued.	Check request data such as SLMP.
4B00H	Target related	An error occurred on the access destination or the relay station. Alternatively, the specified connection destination (request destination module I/O number) is not supported.	• Check the error occurred on the specified access destination or relay station to the station to be accessed, and take the corrective actions. • Check the request data connection destination settings (request destination module I/O number). • Check the stop error, and take the corrective actions.
4B02H	Target related	There is no request addressed to the MELIPC.	Perform the operation to the module that can perform the specified function.
4B03H	Target related	• The specified route is not supported by the version of the specified MELIPC. • The CPU of the communication target is not mounted. • A device that does not support communications is on the specified route.	• Check the specified route. • Check the mounting status of the CPU module. • Check the stop error, and take the corrective actions.
4B04H	Target related	The specified connection destination (request destination module I/O number) is not supported.	In other device settings, an illegal value is set for the target module header I/O number. Change to a header I/O number for an existing unit, and carry out communications again.

Errors detected by the CC-Link IE Field Network (Basic) (8000H to DFFFH)

This section shows the codes for errors that occurs on CC-Link IE Field Network and CC-Link IE Field Network Basic of this product.

■ Common error codes (8000H to AFFFH)

The following table shows common error codes that occur with the CC-Link IE Field Network function and CC-Link IE Field Network Basic.

Error code	Error name	Description	Corrective action
8080H	Parameter write count error	In excess of 25 consecutive parameter writes.	Do not write parameters consecutively. If an error is generated, clear the error, turn the power OFF to ON, or carry out a remote RESET.
8810H	Connection fault	A network connection fault detected.	Review the wiring status.
8811H	Basic functions error detected	A basic function stop error detected.	Check the error generated by this function, remove errors generating faults, and then turn the power supply OFF and ON. If the same error is displayed again, this may indicate a hardware fault. Consult your local Mitsubishi representative.
8815H to 881AH	Buffer memory access error	Illegal write to buffer memory reserved area.	Turn the power supply OFF and ON. If the same error is displayed again, this may indicate a hardware fault. Consult your local Mitsubishi representative.
8830H	Buffer memory access error	Illegal write to buffer memory reserved area.	Turn the power supply OFF and ON. If the same error is displayed again, this may indicate a hardware fault. Consult your local Mitsubishi representative.
8845H	Buffer memory access error	Illegal write to buffer memory reserved area.	Turn the power supply OFF and ON. If the same error is displayed again, this may indicate a hardware fault. Consult your local Mitsubishi representative.
8860H	Buffer memory access error	Illegal write to buffer memory reserved area.	Turn the power supply OFF and ON. If the same error is displayed again, this may indicate a hardware fault. Consult your local Mitsubishi representative.
8867H	Buffer memory access error	Illegal write to buffer memory reserved area.	Turn the power supply OFF and ON. If the same error is displayed again, this may indicate a hardware fault. Consult your local Mitsubishi representative.
88B0H to 88B1H	Buffer memory access error	Illegal write to buffer memory reserved area.	Turn the power supply OFF and ON. If the same error is displayed again, this may indicate a hardware fault. Consult your local Mitsubishi representative.
88D0H	Slave station synchronous communication target mismatch	Slave station with a mismatch between network synchronous communication settings in the master station network configuration settings and network synchronized communications settings in the managed slave station (synchronization Y/N) detected.	• In "Network configuration settings", in "Network Synchronous Communication Setting", set the corresponding local station to "synchronized". • In local station synchronization settings between modules, set the corresponding module to the same settings as the master station.
88D2H	Synchronization watchdog counter error	Normal communications using a CC-Link IE Field Network synchronous slave are not possible.	• Change the synchronization period setting to a longer setting than the current setting. • Check that there are no faults with the cable or a switching hub connections.
8900H to 890BH	Buffer memory access error	Illegal write to buffer memory reserved area.	Turn the power supply OFF and ON. If the same error is displayed again, this may indicate a hardware fault. Consult your local Mitsubishi representative.
8920H to 8929H	Buffer memory access error	Illegal write to buffer memory reserved area.	Turn the power supply OFF and ON. If the same error is displayed again, this may indicate a hardware fault. Consult your local Mitsubishi representative.

Error code	Error name	Description	Corrective action
8931H	Parameter write error	Unable to write to flash ROM.	Turn the power supply OFF and ON. If the same error is displayed again, this may indicate a hardware fault. Consult your local Mitsubishi representative.
8932H	Flash ROM sum check error	During parameter write, the power was turned OFF, or remote RESET was carried out.	Review parameter settings, and rewrite parameter settings.
8933H	Buffer memory access error	Illegal write to buffer memory reserved area.	Turn the power supply OFF and ON. If the same error is displayed again, this may indicate a hardware fault. Consult your local Mitsubishi representative.
8934H	Buffer memory access error	Illegal write to buffer memory reserved area.	Turn the power supply OFF and ON. If the same error is displayed again, this may indicate a hardware fault. Consult your local Mitsubishi representative.
8938H	Parameter acquisition error	Acquisition of parameters was not possible. (Data error)	After writing parameters, turn the power off and then on again, or carry out a remote RESET.
893EH	Buffer memory access error	Illegal write to buffer memory reserved area.	Turn the power supply OFF and ON. If the same error is displayed again, this may indicate a hardware fault. Consult your local Mitsubishi representative.
893FH	Synchronization cycle exceeded error	Cyclic processing cannot be completed by the start of the next synchronization cycle.	• Reduce cyclic points assigned and slave connected numbers, and reduce link scan time. • If assigning link devices to a local station, then assign continuously starting from the link device header address (0). • Change the synchronization period setting to a longer setting than the current setting.
8940H to 8946H	Buffer memory access error	Illegal write to buffer memory reserved area.	Turn the power supply OFF and ON. If the same error is displayed again, this may indicate a hardware fault. Consult your local Mitsubishi representative.
8949H	Buffer memory access error	Illegal write to buffer memory reserved area.	Turn the power supply OFF and ON. If the same error is displayed again, this may indicate a hardware fault. Consult your local Mitsubishi representative.
894AH to 894EH	Buffer memory access error	Illegal write to buffer memory reserved area.	Turn the power supply OFF and ON. If the same error is displayed again, this may indicate a hardware fault. Consult your local Mitsubishi representative.
8974H to 897AH	Buffer memory access error	Illegal write to buffer memory reserved area.	Turn the power supply OFF and ON. If the same error is displayed again, this may indicate a hardware fault. Consult your local Mitsubishi representative.
8980H to 8983H	Buffer memory access error	Illegal write to buffer memory reserved area.	Turn the power supply OFF and ON. If the same error is displayed again, this may indicate a hardware fault. Consult your local Mitsubishi representative.
8990H to 8991H	Buffer memory access error	Illegal write to buffer memory reserved area.	Turn the power supply OFF and ON. If the same error is displayed again, this may indicate a hardware fault. Consult your local Mitsubishi representative.
8993H to 899FH	Buffer memory access error	Illegal write to buffer memory reserved area.	Turn the power supply OFF and ON. If the same error is displayed again, this may indicate a hardware fault. Consult your local Mitsubishi representative.
89A0H to 89A6H	Buffer memory access error	Illegal write to buffer memory reserved area.	Turn the power supply OFF and ON. If the same error is displayed again, this may indicate a hardware fault. Consult your local Mitsubishi representative.

Error code	Error name	Description	Corrective action
89E4H	Buffer memory access error	Illegal write to buffer memory reserved area.	Turn the power supply OFF and ON. If the same error is displayed again, this may indicate a hardware fault. Consult your local Mitsubishi representative.
89E7H	Buffer memory access error	Illegal write to buffer memory reserved area.	Turn the power supply OFF and ON. If the same error is displayed again, this may indicate a hardware fault. Consult your local Mitsubishi representative.
89F0H to 89F2H	Buffer memory access error	Illegal write to buffer memory reserved area.	Turn the power supply OFF and ON. If the same error is displayed again, this may indicate a hardware fault. Consult your local Mitsubishi representative.
8A00H to 8A05H	Buffer memory access error	Illegal write to buffer memory reserved area.	Turn the power supply OFF and ON. If the same error is displayed again, this may indicate a hardware fault. Consult your local Mitsubishi representative.
8A0CH to 8A0FH	Buffer memory access error	Illegal write to buffer memory reserved area.	Turn the power supply OFF and ON. If the same error is displayed again, this may indicate a hardware fault. Consult your local Mitsubishi representative.
8A10H to 8A1FH	Buffer memory access error	Illegal write to buffer memory reserved area.	Turn the power supply OFF and ON. If the same error is displayed again, this may indicate a hardware fault. Consult your local Mitsubishi representative.
8A20H to 8A2FH	Buffer memory access error	Illegal write to buffer memory reserved area.	Turn the power supply OFF and ON. If the same error is displayed again, this may indicate a hardware fault. Consult your local Mitsubishi representative.
8A30H to 8A37H	Buffer memory access error	Illegal write to buffer memory reserved area.	Turn the power supply OFF and ON. If the same error is displayed again, this may indicate a hardware fault. Consult your local Mitsubishi representative.
8A60H to 8A6CH	Buffer memory access error	Illegal write to buffer memory reserved area.	Turn the power supply OFF and ON. If the same error is displayed again, this may indicate a hardware fault. Consult your local Mitsubishi representative.
8AA0H to 8AAFH	Buffer memory access error	Illegal write to buffer memory reserved area.	Turn the power supply OFF and ON. If the same error is displayed again, this may indicate a hardware fault. Consult your local Mitsubishi representative.
8AB1H to 8ABFH	Buffer memory access error	Illegal write to buffer memory reserved area.	Turn the power supply OFF and ON. If the same error is displayed again, this may indicate a hardware fault. Consult your local Mitsubishi representative.
8AC0H to 8AC7H	Buffer memory access error	Illegal write to buffer memory reserved area.	Turn the power supply OFF and ON. If the same error is displayed again, this may indicate a hardware fault. Consult your local Mitsubishi representative.
8ACAH to 8ACFH	Buffer memory access error	Illegal write to buffer memory reserved area.	Turn the power supply OFF and ON. If the same error is displayed again, this may indicate a hardware fault. Consult your local Mitsubishi representative.
8AD0H to 8AD4H	Buffer memory access error	Illegal write to buffer memory reserved area.	Turn the power supply OFF and ON. If the same error is displayed again, this may indicate a hardware fault. Consult your local Mitsubishi representative.
8B00H to 8B0FH	Buffer memory access error	Illegal write to buffer memory reserved area.	Turn the power supply OFF and ON. If the same error is displayed again, this may indicate a hardware fault. Consult your local Mitsubishi representative.
8B10H to 8B11H	Buffer memory access error	Illegal write to buffer memory reserved area.	Turn the power supply OFF and ON. If the same error is displayed again, this may indicate a hardware fault. Consult your local Mitsubishi representative.

Error code	Error name	Description	Corrective action
8B13H to 8B14H	Buffer memory access error	Illegal write to buffer memory reserved area.	Turn the power supply OFF and ON. If the same error is displayed again, this may indicate a hardware fault. Consult your local Mitsubishi representative.
8B44H to 8B45H	Buffer memory access error	Illegal write to buffer memory reserved area.	Turn the power supply OFF and ON. If the same error is displayed again, this may indicate a hardware fault. Consult your local Mitsubishi representative.
8B70H to 8B73H	Buffer memory access error	Illegal write to buffer memory reserved area.	Turn the power supply OFF and ON. If the same error is displayed again, this may indicate a hardware fault. Consult your local Mitsubishi representative.
8B75H	Buffer memory access error	Illegal write to buffer memory reserved area.	Turn the power supply OFF and ON. If the same error is displayed again, this may indicate a hardware fault. Consult your local Mitsubishi representative.
8B78H to 8B7AH	Buffer memory access error	Illegal write to buffer memory reserved area.	Turn the power supply OFF and ON. If the same error is displayed again, this may indicate a hardware fault. Consult your local Mitsubishi representative.
8B9FH	Buffer memory access error	Illegal write to buffer memory reserved area.	Turn the power supply OFF and ON. If the same error is displayed again, this may indicate a hardware fault. Consult your local Mitsubishi representative.
8BA0H to 8BAAH	Buffer memory access error	Illegal write to buffer memory reserved area.	Turn the power supply OFF and ON. If the same error is displayed again, this may indicate a hardware fault. Consult your local Mitsubishi representative.
8BAEH	Buffer memory access error	Illegal write to buffer memory reserved area.	Turn the power supply OFF and ON. If the same error is displayed again, this may indicate a hardware fault. Consult your local Mitsubishi representative.
8BE0H to 8BE8H	Buffer memory access error	Illegal write to buffer memory reserved area.	Turn the power supply OFF and ON. If the same error is displayed again, this may indicate a hardware fault. Consult your local Mitsubishi representative.
8BF0H	Buffer memory access error	Illegal write to buffer memory reserved area.	Turn the power supply OFF and ON. If the same error is displayed again, this may indicate a hardware fault. Consult your local Mitsubishi representative.
8BF2H to 8BF8H	Buffer memory access error	Illegal write to buffer memory reserved area.	Turn the power supply OFF and ON. If the same error is displayed again, this may indicate a hardware fault. Consult your local Mitsubishi representative.
8C00H to 8C03H	Buffer memory access error	Illegal write to buffer memory reserved area.	Turn the power supply OFF and ON. If the same error is displayed again, this may indicate a hardware fault. Consult your local Mitsubishi representative.
8C10H to 8C13H	Buffer memory access error	Illegal write to buffer memory reserved area.	Turn the power supply OFF and ON. If the same error is displayed again, this may indicate a hardware fault. Consult your local Mitsubishi representative.
8C20H to 8C29H	Buffer memory access error	Illegal write to buffer memory reserved area.	Turn the power supply OFF and ON. If the same error is displayed again, this may indicate a hardware fault. Consult your local Mitsubishi representative.
8C80H to 8C83H	Buffer memory access error	Illegal write to buffer memory reserved area.	Turn the power supply OFF and ON. If the same error is displayed again, this may indicate a hardware fault. Consult your local Mitsubishi representative.
8C90H to 8C93H	Buffer memory access error	Illegal write to buffer memory reserved area.	Turn the power supply OFF and ON. If the same error is displayed again, this may indicate a hardware fault. Consult your local Mitsubishi representative.

Error code	Error name	Description	Corrective action
8CB2H to 8CB3H	Buffer memory access error	Illegal write to buffer memory reserved area.	Turn the power supply OFF and ON. If the same error is displayed again, this may indicate a hardware fault. Consult your local Mitsubishi representative.
8CBDH	Buffer memory access error	Illegal write to buffer memory reserved area.	Turn the power supply OFF and ON. If the same error is displayed again, this may indicate a hardware fault. Consult your local Mitsubishi representative.
8E00H to 8E08H	Buffer memory access error	Illegal write to buffer memory reserved area.	Turn the power supply OFF and ON. If the same error is displayed again, this may indicate a hardware fault. Consult your local Mitsubishi representative.
9221H	Network parameter error	Parameter settings values exceed the usable range. Alternatively, there are items that require a slave station reset in the master station parameters.	• Review parameter settings. • Refer to the manual for the slave station specified in the detailed information station number, and modify. • If the following setting was changed, either turn the slave station OFF and ON or reset the slave station: [Applicable parameters]⇨[CC-Link IE Field Network parameters]⇨[Basic Settings]⇨[Network topology settings]⇨[Synchronization settings].
9600H	Synchronous communication error	Cyclic processing cannot be completed by the start of the next synchronization cycle.	• Reduce cyclic points assigned and slave connected numbers, and reduce link scan time. • Change the synchronization period setting to a longer setting than the current setting.
A000H	Buffer memory access error	Illegal write to buffer memory reserved area.	Turn the power supply OFF and ON. If the same error is displayed again, this may indicate a hardware fault. Consult your local Mitsubishi representative.
A001H	Default	Hardware failure	• Take measures to reduce noise. • Turn the power supply OFF and ON. If the same error is displayed again, this may indicate a hardware fault. Consult your local Mitsubishi representative.
A002H	Internal circuit error	Hardware failure	• Take measures to reduce noise. • Turn the power supply OFF and ON. If the same error is displayed again, this may indicate a hardware fault. Consult your local Mitsubishi representative.
A010H	Firmware error	Hardware failure	Turn the power supply OFF and ON. If the same error is displayed again, this may indicate a hardware fault. Consult your local Mitsubishi representative.
A011H to A013H	Buffer memory access error	Illegal write to buffer memory reserved area.	Turn the power supply OFF and ON. If the same error is displayed again, this may indicate a hardware fault. Consult your local Mitsubishi representative.
A031H	Station number duplication	• Detected that a station with the same station number already exists on the same network. • Detected that multiple master stations or sub-master stations exist on the same network.	Change the station number or station type of the station for which the error was detected.
A040H	Buffer memory access error	Illegal write to buffer memory reserved area.	Turn the power supply OFF and ON. If the same error is displayed again, this may indicate a hardware fault. Consult your local Mitsubishi representative.
A060H	Synchronization cycle mismatch	The synchronization cycle setting does not match the master station setting.	Please check the parameter so that all modules performing synchronization cycle have the same cycle setting.

Error code	Error name	Description	Corrective action
A061H	Synchronization cycle mismatch	The network synchronization communication setting of the network configuration setting of the master station is set to "synchronize wipe".	Please confirm the network configuration setting and confirm whether synchronization is set.
A062H	Synchronization signal failure via network	Synchronization cycle failure occurred between networks.	• Check that there are no faults with the cable or a switching hub connections. • If the request source is on a different network, then check that routing settings are set correctly, and take measures. • If the error code is displayed again even after taking an action, consult your local Mitsubishi representative.
A074H	Software error	Software error	Turn the power supply OFF and ON. If the same error is displayed again, this may indicate a software fault. Consult your local Mitsubishi representative.
A0FCH	Hardware failure	A hardware failure was detected.	Turn the power supply OFF and ON. If the same error is displayed again, this may indicate a hardware fault. Consult your local Mitsubishi representative.
AC00H to AC03H	Hardware failure	A hardware failure was detected.	• Take measures to reduce noise. • Turn the power supply OFF and ON. If the same error is displayed again, this may indicate a hardware fault. Consult your local Mitsubishi representative.
AC0FH	Hardware failure	A hardware failure was detected.	• Take measures to reduce noise. • Turn the power supply OFF and ON. If the same error is displayed again, this may indicate a hardware fault. Consult your local Mitsubishi representative.
AC10H to AC11H	Hardware failure	A hardware failure was detected.	• Take measures to reduce noise. • Turn the power supply OFF and ON. If the same error is displayed again, this may indicate a hardware fault. Consult your local Mitsubishi representative.
AC14H	Hardware failure	A hardware failure was detected.	Turn the power supply OFF and ON. If the same error is displayed again, this may indicate a hardware fault. Consult your local Mitsubishi representative.
AC2FH	Memory error	An error was detected in the memory.	Turn the power supply OFF and ON. If the same error is displayed again, this may indicate a hardware fault. Consult your local Mitsubishi representative.
AE00H to AE01H	Hardware failure	A hardware failure was detected.	Turn the power supply OFF and ON. If the same error is displayed again, this may indicate a hardware fault. Consult your local Mitsubishi representative.
AF80H to AF84H	Buffer memory access error	Illegal write to buffer memory reserved area.	Turn the power supply OFF and ON. If the same error is displayed again, this may indicate a hardware fault. Consult your local Mitsubishi representative.
AF88H to AF89H	Buffer memory access error	Illegal write to buffer memory reserved area.	Turn the power supply OFF and ON. If the same error is displayed again, this may indicate a hardware fault. Consult your local Mitsubishi representative.
AF8AH to AF8CH	Buffer memory access error	Illegal write to buffer memory reserved area.	Turn the power supply OFF and ON. If the same error is displayed again, this may indicate a hardware fault. Consult your local Mitsubishi representative.
AF91H to AF94H	Buffer memory access error	Illegal write to buffer memory reserved area.	Turn the power supply OFF and ON. If the same error is displayed again, this may indicate a hardware fault. Consult your local Mitsubishi representative.

■ CC-Link IE Field Network Basic error codes (C000H to CFFFH)

The following shows the codes for errors that occur on CC-Link IE Field Network Basic.

Error code	Error name	Description	Corrective action
CFC0H	Cyclic transmission error (master station)	Unable to execute cyclic transmission because multiple master stations exist in the same network address.	Check the existence status of master station in network.
CFC1H	Cyclic transmission error (master station)	Unable to execute cyclic transmission because the error occurred in cyclic transmission.	• Take measures to reduce noise. • If, after running this, the same error is displayed again, consult your local Mitsubishi representative.
CFC8H	Cyclic transmission error (master station)	Unable to execute cyclic transmission because the slave station controlled by other master station exists.	• Check the existence status of master station in network. • Check the slave station where the error occurred.
CFC9H	Cyclic transmission error (master station)	Unable to execute cyclic transmission because the slave station of the same IP address exists in the same network address.	• Check the existence status of slave station in network. • Check the slave station where the error occurred.
CFD0H	Master station error	The port No. (61450) used in CC-Link IE Field Network Basic has already been used.	Check the port No. used in the external device configuration.
CFD1H	Master station error	Invalid value has been set in subnet mask.	Check the parameter setting.
CFE0H	Cyclic transmission error (slave station)	The cyclic transmission was executed for the slave station controlled by other master station.	• Check the existence status of master station in network. • Check the slave station where the error occurred.
CFE1H	Cyclic transmission error (slave station)	The unusable number of occupied stations has been specified from master station.	Check the number of occupied stations setting in master station parameter (Network Configuration Settings).
CFE8H	Cyclic transmission error (slave station)	There is no response from slave station.	• Check the slave station disconnection detection setting in master station parameter (Network Configuration Settings). • Check the existence status of slave station in network. • Check the slave station which is disconnected. • Take measures to reduce noise.
CFE9H	Cyclic transmission error (slave station)	The slave station of the same IP address has existed in the same network address.	Check the slave station where the error occurred.
CFF0H	Slave station error	The error occurred in slave station.	Check the slave station where the error occurred.

■ CC-Link IE Field Network error codes (D000H to DFFFH)

The following shows the codes for errors that occur on CC-Link IE Field Network.

Error code	Error name	Description	Corrective action
D000H	CC-Link IE Field Network function related errors	MELIPC error detected.	Consult your local Mitsubishi representative.
D041H	CC-Link IE Field Network function related errors	Communications station number error.	• In engineering tools CC-Link IE Field diagnoses, check the network status, and take measures. • If there are in excess of 120 slave stations on 1 network, then reduce this to 120 or less.
D080H to D083H	CC-Link IE Field Network function related errors	MELIPC error detected.	Consult your local Mitsubishi representative.
D0A0H	CC-Link IE Field Network function related errors	In transient transmission, there was a response wait time out.	• In engineering tools CC-Link IE Field diagnoses, check the network status, and take measures. • If an error is detected in own station, target station, or relay, then confirm the source of the error, and take measures. • Lower the transient transmission usage frequency, and then perform again. • Check that there are no faults with the request source cable or a switching hub connections.
D0A1H	CC-Link IE Field Network function related errors	In transient transmission, there was a transmit end wait time out.	• In engineering tools CC-Link IE Field diagnoses, check the network status, and take measures. • If an error is detected in own station, target station, or relay, then confirm the source of the error, and take measures. • Lower the transient transmission usage frequency, and then perform again. • Check that there are no faults with the request source cable or a switching hub connections.
D0A2H	CC-Link IE Field Network function related errors	In transient transmission, there was a transmit processing wait time out.	• Lower the transient transmission usage frequency, and then perform again. • Check that there are no faults with the request source cable or a switching hub connections.
D0A3H	CC-Link IE Field Network function related errors	Transient transmission processing was not carried out correctly.	• In engineering tools CC-Link IE Field diagnoses, check the network status, and take measures. • If an error is detected in own station, target station, or relay, then confirm the source of the error, and take measures. • Correct the transient data target station No., and run again.
D0A4H to D0A6H	CC-Link IE Field Network function related errors	Transient transmission failed.	• Check that there are no faults with the request source cable or a switching hub connections. • Lower the transient transmission usage frequency, and then perform again.
D0C0H	CC-Link IE Field Network function related errors	During reserved station specification processing, reserved station specification was performed again.	Wait some time before again carrying out reserve station specification.
D0C1H	CC-Link IE Field Network function related errors	During reserved station temporary clear specification processing, reserved station temporary clear specification was performed again.	Wait some time before again carrying out reserve station temporary clear specification.
D0C4H	CC-Link IE Field Network function related errors	During temporary error disabled station settings processing, temporary error disabled station settings were performed again.	Wait some time before again carrying out temporary error disabled station settings.

Error code	Error name	Description	Corrective action
D0C5H	CC-Link IE Field Network function related errors	During temporary error disabled station settings clear specification processing, temporary error disabled station settings clear specification was performed again.	Wait some time before again carrying out temporary error disabled station settings clear specification.
D0D0H	CC-Link IE Field Network function related errors	Other station's station No. settings were not correctly carried out.	Wait some time before again specifying other station's station No.
D200H	CC-Link IE Field Network function related errors	Duplicate received in transient transmission.	• In engineering tools CC-Link IE Field diagnoses, check the network status, and take measures. • Check that there are no faults with the request source cable or a switching hub connections.
D202H	CC-Link IE Field Network function related errors	Transmission buffer full.	• Lower the transient transmission usage frequency, and then perform again. • Check that there are no faults with the request source cable or a switching hub connections.
D203H	CC-Link IE Field Network function related errors	Error in the transient transmission data read/write address.	Read data at the transient request source, correct the write address, and run again.
D204H	CC-Link IE Field Network function related errors	Error in the transient transmission network No.	Correct the network number at the transient request source, and run again.
D205H	CC-Link IE Field Network function related errors	Error in the transient transmission target station No.	Correct the target station No. at the transient request source, and run again.
D206H	CC-Link IE Field Network function related errors	Error in the transient transmission network No.	Correct the network number at the transient request source, and run again.
D208H	CC-Link IE Field Network function related errors	Error in the transient transmission network No.	Correct the network number at the transient request source, and run again.
D209H to D20AH	CC-Link IE Field Network function related errors	Error in the transient transmission target station No.	Correct the target station No. at the transient request source, and run again.
D20BH to D20CH	CC-Link IE Field Network function related errors	No master station when setting specified master station in transient transmission.	Correct the target station No. at the transient request source, and run again.
D20DH	CC-Link IE Field Network function related errors	In transient data transmission, there was a transmit end wait time out.	• In engineering tools CC-Link IE Field diagnoses, check the network status, and take measures. • If an error is detected in own station, target station, or relay, then confirm the source of the error, and take measures. • Lower the transient transmission usage frequency, and then perform again. • Check that there are no faults with the request source cable or a switching hub connections.
D20EH	CC-Link IE Field Network function related errors	Error in the transient transmission header information.	Correct the header information at the transient request source, and run again.
D20FH	CC-Link IE Field Network function related errors	Commands that cannot be requested through transient transmission all station specification or group specification were run as all station specification or group specification.	Check commands that can be requested at the transient request source to all stations or to groups, and run again.
D210H	CC-Link IE Field Network function related errors	Error in the transient transmission target station No.	Correct the header information at the transient request source, and run again.
D211H	CC-Link IE Field Network function related errors	Transient transmission carried out when own station's station number is unconfirmed.	Set own station's station number, and run transient transmission again.
D212H	CC-Link IE Field Network function related errors	Transient transmission failed.	• Check that there are no faults with the request source cable or a switching hub connections. • Lower the transient transmission usage frequency, and then perform again.
D213H	CC-Link IE Field Network function related errors	Error in the transient transmission command.	Correct the request command at the transient request source, and run again.
D214H	CC-Link IE Field Network function related errors	Error in the transient transmission data length.	Correct the data length at the transient request source, and run again.

Error code	Error name	Description	Corrective action
D216H to D217H	CC-Link IE Field Network function related errors	Error in the transient transmission command.	Correct the request command at the transient request source, and run again.
D218H	CC-Link IE Field Network function related errors	Error in the transient transmission read/write data quantity.	Correct the device read and write data quantity at the transient request source, and run again.
D219H	CC-Link IE Field Network function related errors	Error in the transient transmission attribute code.	Correct the attribute code at the data request source, and run again.
D21AH	CC-Link IE Field Network function related errors	Error in the transient transmission access code.	Correct the access code at the transient request source, and run again.
D21BH to D21CH	CC-Link IE Field Network function related errors	Transient transmission error detected.	After resetting the MELIPC, execute the request. If the error code is displayed again even after taking an action, consult your local Mitsubishi representative.
D21DH	CC-Link IE Field Network function related errors	Error in the transient transmission network No.	• A cable test cannot be for a different network destination. Correct "Test station settings", and then carry out the cable test again. • Transient data that cannot be run for a different network has been received. Correct the network number or target station number at the transient request source, and then run again.
D21EH	CC-Link IE Field Network function related errors	Error in the transient transmission target station No.	• Specifying the relay transmission station and running a communications test is not possible. Correct the "Communications destination settings", and then carry out the communications test again. • Transient data of an application type that cannot be run on own station was received. Correct the application type or target station number at the transient request source, and then run again.
D222H	CC-Link IE Field Network function related errors	Error in the transient transmission command.	Correct the request command at the transient request source, and run again.
D223H to D224H	CC-Link IE Field Network function related errors	Transient transmission error detected.	• In engineering tools CC-Link IE Field diagnoses, check the network status, and take measures. • Check that there are no faults with the cable or a switching hub connections. • If the error code is displayed again even after taking an action, consult your local Mitsubishi representative.
D22EH	CC-Link IE Field Network function related errors	No station settings function in the target station for which to change station number.	• When changing the station number of the target station through a master station online operation, there is no station number settings function through an online operation in the target station. • Check if station number settings function is possible using the target station manual. • If a supported model, consult your local Mitsubishi representative.
D22FH	CC-Link IE Field Network function related errors	The target station for which to change station number has not carried out baton pass.	Check the communications status of the station for which to carry out station number change.
D230H	CC-Link IE Field Network function related errors	Invalid specification for target station for which to change station number.	• Station number change being carried out for own station (master station). • Check if the station number is not set in the station for which to carry out station number change.
D231H	CC-Link IE Field Network function related errors	Station number set for target station for which to change station number.	• The station for which to carry out station number change already has a station number set. • Check if the station number is not set in the station for which to carry out station number change.

Error code	Error name	Description	Corrective action
D232H	CC-Link IE Field Network function related errors	No target station for which to change station number.	• No station for which to carry out station number change. • Check if the station number is not set in the station for which to carry out station number change.
D234H	CC-Link IE Field Network function related errors	Baton pass not carried out.	Check the communications status.
D235H	CC-Link IE Field Network function related errors	Transient transmission error detected.	• In engineering tools CC-Link IE Field diagnoses, check the network status, and take measures. • Check that there are no faults with the cable or a switching hub connections. • If the error code is displayed again even after taking an action, consult your local Mitsubishi representative.
D238H	CC-Link IE Field Network function related errors	Transmission queue full.	• Temporarily interrupt transient transmission, and try again. • Lower the transient transmission usage frequency, and then perform again. • If the error code is displayed again even after taking an action, consult your local Mitsubishi representative.
D239H	CC-Link IE Field Network function related errors	Failure in SLMP transmission.	• Wait some time before executing again. • If the error code is displayed again even after taking an action, consult your local Mitsubishi representative.
D23AH	CC-Link IE Field Network function related errors	There is an error in the SLMP sub-header.	Correct the sub-header information at the request source, and then run again.
D23BH	CC-Link IE Field Network function related errors	There is an error in the SLMP network number.	Correct the network number at the request source, and run again.
D23CH	CC-Link IE Field Network function related errors	There is an error in the SLMP target station number.	Correct the station number at the request source, and then run again.
D23DH to D23EH	CC-Link IE Field Network function related errors	There is an error in the SLMP request data.	There is an error in the device information acquisition request of "CC IE Field Configuration Setting" displayed in the "Network Configuration Settings" of the "Basic Setting" of the engineering tool. Close the "CC IE Field Configuration Setting", and then request again.
D244H	CC-Link IE Field Network function related errors	Invalid transient transmission data.	• Correct the transient data at the transient request source, and run again. • If the error code is displayed again even after taking an action, consult your local Mitsubishi representative.
D246H	CC-Link IE Field Network function related errors	Invalid transient transmission data.	• Correct the transient data at the transient request source, and run again. • If the error code is displayed again even after taking an action, consult your local Mitsubishi representative.
D25DH	CC-Link IE Field Network function related errors	Invalid transient transmission data.	• Correct the transient data at the transient request source, and run again. • If the error code is displayed again even after taking an action, consult your local Mitsubishi representative.
D273H	CC-Link IE Field Network function related errors	Error in the transient transmission data size.	• Correct the request command at the transient request source, and run again. • If the error code is displayed again even after taking an action, consult your local Mitsubishi representative.
D280H	CC-Link IE Field Network function related errors	Error in the transient transmission request command.	Correct the request command at the transient request source, and run again.

Error code	Error name	Description	Corrective action
D281H	CC-Link IE Field Network function related errors	Transient reception failed.	• In engineering tools CC-Link IE Field diagnoses, check the network status, and take measures. • If target station or relay station transient data reception is overloaded, then have the transmission source transmit after a certain time has elapsed.
D282H	CC-Link IE Field Network function related errors	Reception queue full.	• Temporarily interrupt transient transmission, and try again. • Lower the transient transmission usage frequency, and then perform again. • If the error code is displayed again even after taking an action, consult your local Mitsubishi representative.
D283H	CC-Link IE Field Network function related errors	Transient transmission failed.	• In engineering tools CC-Link IE Field diagnoses, check the network status, and take measures. • Lower the transient transmission usage frequency, and then perform again.
D284H	CC-Link IE Field Network function related errors	Error in the SLMP target execution module.	Correct the target execution module in the SLMP header, and run again.
D2A0H	CC-Link IE Field Network function related errors	Reception buffer full.	• In engineering tools CC-Link IE Field diagnoses, check the network status, and take measures. • If target station or relay station transient data reception is overloaded, then have the transmission source transmit after a certain time has elapsed.
D2A1H	CC-Link IE Field Network function related errors	Transmission buffer full.	• Lower the transient transmission usage frequency, and then perform again. • Check that there are no faults with the request source cable or a switching hub connections.
D2A2H	CC-Link IE Field Network function related errors	In transient transmission, there was a transmit end wait time out.	• Lower the transient transmission usage frequency, and then perform again. • Check that there are no faults with the request source cable or a switching hub connections.
D2A3H	CC-Link IE Field Network function related errors	Error in the transient transmission frame data length.	Correct the data quantity (frame length) at the transient request source, and run again.
D2A4H	CC-Link IE Field Network function related errors	Error in the transient transmission frame header information.	Correct the header information at the transient request source, and run again.
D2A5H	CC-Link IE Field Network function related errors	Error in the transient transmission frame target station number.	Correct the target station No. at the transient request source, and run again.
D2A6H	CC-Link IE Field Network function related errors	Error in the transient transmission frame request source number.	Correct the request source number at the transient request source, and run again.
D2A7H	CC-Link IE Field Network function related errors	Error in the transient transmission frame header information.	Correct the header information at the transient request source, and run again.
D2A8H	CC-Link IE Field Network function related errors	Error in the transient transmission frame header information.	Correct the header information at the transient request source, and run again.
D2A9H	CC-Link IE Field Network function related errors	Error in the transient transmission frame target network number.	Correct the target network number at the transient request source, and run again.
D2AAH	CC-Link IE Field Network function related errors	Error in the transient transmission frame target station number.	Correct the target station No. at the transient request source, and run again.
D2ABH	CC-Link IE Field Network function related errors	Error in the transient transmission frame request source network number.	Correct the request source network number at the transient request source, and run again.
D2ACH	CC-Link IE Field Network function related errors	Error in the transient transmission frame request source station number.	Correct the request source station number at the transient request source, and run again.
D2ADH	CC-Link IE Field Network function related errors	Error in the transient transmission frame data length.	Correct the data quantity (frame length) at the transient request source, and run again.

Error code	Error name	Description	Corrective action
D2AEH	CC-Link IE Field Network function related errors	Error in the transient transmission frame target station number.	Transient data for routing has been received at own stations, therefore confirm network numbers and target station numbers, and run again.
D2AFH	CC-Link IE Field Network function related errors	Owns station's station number is specified in transient transmission target station number.	Transient data transmission is requested at own stations, therefore confirm network numbers and target station numbers, and run again.
D2B0H	CC-Link IE Field Network function related errors	Transient transmission failed.	• Check that there are no faults with the request source cable or a switching hub connections. • Lower the transient transmission usage frequency, and then perform again.
D2B1H	CC-Link IE Field Network function related errors	Reception queue full.	• Temporarily interrupt transient transmission, and try again. • Lower the transient transmission usage frequency, and then perform again. • If the error code is displayed again even after taking an action, consult your local Mitsubishi representative.
D300H	CC-Link IE Field Network function related errors	Target stations or relay stations are communicating with online modules, therefore request details cannot be run.	After completion of target station or relay station online module communication, carry out request again.
D602H	CC-Link IE Field Network function related errors	Parameter error	• In "Applicable parameters" "CC-Link IE Field Network Parameters", rewrite to MELIPC. • If the error code is displayed again even after taking an action, consult your local Mitsubishi representative.
D605H	CC-Link IE Field Network function related errors	Parameter error	• In "Applicable parameters" "CC-Link IE Field Network Parameters", rewrite to MELIPC. • If the error code is displayed again even after taking an action, consult your local Mitsubishi representative.
D611H	CC-Link IE Field Network function related errors	Parameter error (each station device range allocation error (RWw))	• In "Applicable parameters" "CC-Link IE Field Network Parameters", rewrite to MELIPC. • Correct the slave station link device size for set data, and run again. • If the error code is displayed again even after taking an action, consult your local Mitsubishi representative.
D612H	CC-Link IE Field Network function related errors	Parameter error (each station device range allocation error (RWw))	• In "Applicable parameters" "CC-Link IE Field Network Parameters", rewrite to MELIPC. • Correct the slave station link device offset for set data, and run again. • If the error code is displayed again even after taking an action, consult your local Mitsubishi representative.
D613H	CC-Link IE Field Network function related errors	Parameter error (each station device range allocation error (RWr))	• In "Applicable parameters" "CC-Link IE Field Network Parameters", rewrite to MELIPC. • Correct the slave station link device size for set data, and run again. • If the error code is displayed again even after taking an action, consult your local Mitsubishi representative.
D614H	CC-Link IE Field Network function related errors	Parameter error (each station device range allocation error (RWr))	• In "Applicable parameters" "CC-Link IE Field Network Parameters", rewrite to MELIPC. • Correct the slave station link device offset for set data, and run again. • If the error code is displayed again even after taking an action, consult your local Mitsubishi representative.

Error code	Error name	Description	Corrective action
D615H	CC-Link IE Field Network function related errors	Parameter error (each station device range allocation error (RY))	In "Applicable parameters" "CC-Link IE Field Network Parameters", rewrite to MELIPC. Correct the slave station link device size for set data, and run again. If the error code is displayed again even after taking an action, consult your local Mitsubishi representative.
D616H	CC-Link IE Field Network function related errors	Parameter error (each station device range allocation error (RY))	• In "Applicable parameters" "CC-Link IE Field Network Parameters", rewrite to MELIPC. • Correct the slave station link device offset for set data, and run again. • If the error code is displayed again even after taking an action, consult your local Mitsubishi representative.
D617H	CC-Link IE Field Network function related errors	Parameter error (each station device range allocation error (RX))	• In "Applicable parameters" "CC-Link IE Field Network Parameters", rewrite to MELIPC. • Correct the slave station link device size for set data, and run again. • If the error code is displayed again even after taking an action, consult your local Mitsubishi representative.
D618H	CC-Link IE Field Network function related errors	Parameter error (each station device range allocation error (RX))	• In "Applicable parameters" "CC-Link IE Field Network Parameters", rewrite to MELIPC. • Correct the slave station link device offset for set data, and run again. • If the error code is displayed again even after taking an action, consult your local Mitsubishi representative.
D619H to D61AH	CC-Link IE Field Network function related errors	Parameter error	• In "Applicable parameters" "CC-Link IE Field Network Parameters", rewrite to MELIPC. • If the error code is displayed again even after taking an action, consult your local Mitsubishi representative.
D61BH	CC-Link IE Field Network function related errors	Parameter error (device duplication error (RWw))	• In "Applicable parameters" "CC-Link IE Field Network Parameters", rewrite to MELIPC. • Correct the slave station link device offset or size for set data, and run again. • If the error code is displayed again even after taking an action, consult your local Mitsubishi representative.
D61CH	CC-Link IE Field Network function related errors	Parameter error (device duplication error (RWr))	• In "Applicable parameters" "CC-Link IE Field Network Parameters", rewrite to MELIPC. • Correct the slave station link device offset or size for set data, and run again. • If the error code is displayed again even after taking an action, consult your local Mitsubishi representative.
D61DH	CC-Link IE Field Network function related errors	Parameter error (device duplication error (RY))	• In "Applicable parameters" "CC-Link IE Field Network Parameters", rewrite to MELIPC. • Correct the slave station link device offset or size for set data, and run again. • If the error code is displayed again even after taking an action, consult your local Mitsubishi representative.

Error code	Error name	Description	Corrective action
D61EH	CC-Link IE Field Network function related errors	Parameter error (device duplication error (RX))	• In "Applicable parameters" "CC-Link IE Field Network Parameters", rewrite to MELIPC. • Correct the slave station link device offset or size for set data, and run again. • If the error code is displayed again even after taking an action, consult your local Mitsubishi representative.
D620H	CC-Link IE Field Network function related errors	Invalid transient transmission data.	• Correct the transient data at the transient request source, and run again. • If the error code is displayed again even after taking an action, consult your local Mitsubishi representative.
D621H	CC-Link IE Field Network function related errors	Parameter error	• In "Applicable parameters" "CC-Link IE Field Network Parameters", rewrite to MELIPC. • If the error code is displayed again even after taking an action, consult your local Mitsubishi representative.
D622H	CC-Link IE Field Network function related errors	Parameter error (slave station number error)	• In "Applicable parameters" "CC-Link IE Field Network Parameters", rewrite to MELIPC. • Correct the total slave station numbers, and run again. • If the error code is displayed again even after taking an action, consult your local Mitsubishi representative.
D623H	CC-Link IE Field Network function related errors	Parameter error	• In "Applicable parameters" "CC-Link IE Field Network Parameters", rewrite to MELIPC. • If the error code is displayed again even after taking an action, consult your local Mitsubishi representative.
D624H	CC-Link IE Field Network function related errors	Parameter error	• In "Applicable parameters" "CC-Link IE Field Network Parameters", rewrite to MELIPC. • If the error code is displayed again even after taking an action, consult your local Mitsubishi representative.
D625H	CC-Link IE Field Network function related errors	Parameter error (station unit block guarantee settings error)	• In "Applicable parameters" "CC-Link IE Field Network Parameters", rewrite to MELIPC. • Correct the station unit block guarantee settings, and run again. • If the error code is displayed again even after taking an action, consult your local Mitsubishi representative.
D626H	CC-Link IE Field Network function related errors	Parameter error	• In "Applicable parameters" "CC-Link IE Field Network Parameters", rewrite to MELIPC. • If the error code is displayed again even after taking an action, consult your local Mitsubishi representative.
D628H	CC-Link IE Field Network function related errors	Parameter error	• In "Applicable parameters" "CC-Link IE Field Network Parameters", rewrite to MELIPC. • Correct the station type for set data, and run again. • If the error code is displayed again even after taking an action, consult your local Mitsubishi representative.
D629H	CC-Link IE Field Network function related errors	Parameter error	• In "Applicable parameters" "CC-Link IE Field Network Parameters", rewrite to MELIPC. • If the error code is displayed again even after taking an action, consult your local Mitsubishi representative.

Error code	Error name	Description	Corrective action
D62AH	CC-Link IE Field Network function related errors	Parameter error	• In "Applicable parameters" "CC-Link IE Field Network Parameters", rewrite to MELIPC. • If the error code is displayed again even after taking an action, consult your local Mitsubishi representative.
D62BH	CC-Link IE Field Network function related errors	Parameter error	• In "Applicable parameters" "CC-Link IE Field Network Parameters", rewrite to MELIPC. • If the error code is displayed again even after taking an action, consult your local Mitsubishi representative.
D63DH	CC-Link IE Field Network function related errors	Parameter error	• In "Applicable parameters" "CC-Link IE Field Network Parameters", rewrite to MELIPC. • If the error code is displayed again even after taking an action, consult your local Mitsubishi representative.
D63EH	CC-Link IE Field Network function related errors	Parameter error	• In "Applicable parameters" "CC-Link IE Field Network Parameters", rewrite to MELIPC. • If the error code is displayed again even after taking an action, consult your local Mitsubishi representative.
D641H	CC-Link IE Field Network function related errors	Parameter error	• In "Applicable parameters" "CC-Link IE Field Network Parameters", rewrite to MELIPC. • If the error code is displayed again even after taking an action, consult your local Mitsubishi representative.
D701H	CC-Link IE Field Network function related errors	Without specifying target station, reserved station temporary clear/remove and temporary error disabled station settings/ remove requested.	After specifying the station for reserved station temporary clear/temporary error disabled station settings (SW0010 to SW0017), run again.
D70BH	CC-Link IE Field Network function related errors	Reserved station temporary clear/remove and temporary error disabled station settings/remove requested simultaneously.	Temporary error disabled station settings/ remove with SB0010 to SB0011, and reserved station temporary clear/remove with SB0012 to SB0013 cannot be run simultaneously. After turning all of SB0010 to SB0013 OFF, turn one bit from SB0010 to SB0013 ON, to run the operation again.
D720H	CC-Link IE Field Network function related errors	Error in link start/stop instruction details.	Check the settings details, and stop/start data link.
D721H	CC-Link IE Field Network function related errors	During link start/stop processing, link start/ stop requested by another station.	After data link stop or start processing has completed, run again.
D722H	CC-Link IE Field Network function related errors	During link start/stop processing, link start/ stop requested by own station.	After data link stop or start processing has completed, run again.
D723H	CC-Link IE Field Network function related errors	During link start/stop processing, system link start/stop requested.	After data link stop or start processing has completed, run again.
D724H	CC-Link IE Field Network function related errors	Error in link start/stop station specification details.	Check the settings details, and stop/start data link.
D726H	CC-Link IE Field Network function related errors	Error in the transient transmission request command.	Correct the request command at the transient request station, and run again.

Error code	Error name	Description	Corrective action
D727H	CC-Link IE Field Network function related errors	Link start requested from other than the station that requested a link stop.	• At data link start, the data link start was specified by a different station to that which specified data link stop. Ensure that the station that specified data link start is the same one that specified data link stop. • The procedure of data link start is different from the procedure that specified data link stop. Specify link start with the same procedure that specified data link stop. (Example: data link was stopped by CC-Link IE Field diagnosis, and data link was started from a program.) • Data link start failed in the past. Restart using a data link forced start.
D728H	CC-Link IE Field Network function related errors	Data link start specified for a station during data link.	Specify data link start for stations for which data link is stopped.
D783H to D784H	CC-Link IE Field Network function related errors	Transient transmission error detected.	• Close the engineering tools CC-Link IE Field Diagnostics window, and again run CC-Link IE Field diagnostics. • Check read request data on the transient request station, and run again.
D806H	CC-Link IE Field Network function related errors	Reception queue full.	• Lower the transient transmission usage frequency, and then perform again. • Check that there are no faults with the cable or a switching hub connections.
D840H	CC-Link IE Field Network function related errors	The number of transient requests exceeded the upper limit of simultaneously processable delivery processes.	• Temporarily interrupt transient transmission, and try again. • Lower the transient transmission usage frequency, and then perform again.
D841H	CC-Link IE Field Network function related errors	Memory read command request data size is outside of range.	Correct the read and write size specifications at the transient request source, and run again.
D842H	CC-Link IE Field Network function related errors	• Routing information to destination network number not recorded. • In transient transmission, relay counts to other networks exceeded 7 times.	• Correct the target network number at the transient request source, and run again. • Correct the communications route from transient request source to destination, and run again.
D844H	CC-Link IE Field Network function related errors	Error frame received. • Unsupported, pre-conversion protocol • Unsupported frame type • Application header variable part • Application header HDS • Application header RTP • Response not required read system command	Check and correct the request data (send data) on the request source side, and perform transmissions again.
D902H	CC-Link IE Field Network function related errors	Error in online test data.	• Check data in online test start source station, and run again. • If the error code is displayed again even after taking an action, consult your local Mitsubishi representative.
D903H	CC-Link IE Field Network function related errors	During the running of a communications test, this was re-run.	During the running of a communications test, this was re-run.
D905H	CC-Link IE Field Network function related errors	Communications test had a communications monitoring timeout.	Check network status in engineering tools CC-Link IE Field diagnoses, take measures, and run again.
D906H	CC-Link IE Field Network function related errors	Communications test had a transmit end wait timeout.	• Check network status in engineering tools CC-Link IE Field diagnoses, take measures, and run again. • Lower the transient transmission usage frequency, and then perform again.
D909H	CC-Link IE Field Network function related errors	Error in the transient transmission header information.	Correct the header information at the transient request source, and run again.
D90AH	CC-Link IE Field Network function related errors	During the running of a communications test, this was re-run.	Check network status in engineering tools CC-Link IE Field diagnoses, take measures, and run again.

Error code	Error name	Description	Corrective action
D90BH	CC-Link IE Field Network function related errors	The number of stations communicating on the network is outside the specified range.	• In CC-Link IE Field diagnosis of an engineering tool, check the network status, and then take measures. • If there are in excess of 120 slave stations on 1 network, then reduce this to 120 or less.
D90CH	CC-Link IE Field Network function related errors	Error in communications test target station specifications.	• Correct "Communications destination settings" of the communications test, and run again. • "Communications destination settings" cannot be run for the own station and relay transmission stations.
D90DH	CC-Link IE Field Network function related errors	During cable test run, this was re-run.	After cable test has completed, run again.
D912H	CC-Link IE Field Network function related errors	Transient transmission failed.	• Lower the transient transmission usage frequency, and then perform again. • Check that there are no faults with the cable or a switching hub connections.
D913H to D917H	CC-Link IE Field Network function related errors	MELIPC error detected.	Consult your local Mitsubishi representative.
DA00H to DA01H	CC-Link IE Field Network function related errors	MELIPC error detected.	Consult your local Mitsubishi representative.
DA10H to DA16H	CC-Link IE Field Network function related errors	MELIPC error detected.	Consult your local Mitsubishi representative.
DA17H	CC-Link IE Field Network function related errors	MELIPC error detected.	Consult your local Mitsubishi representative.
DA19H	CC-Link IE Field Network function related errors	MELIPC error detected.	Consult your local Mitsubishi representative.

Appendix 3 Event List

This section shows the codes for events that occurs in this product.

VxWorks part

The following table shows the codes for events that occur in the VxWorks part of this product.

Event code	Event type	Event category	Event	Description
140H	System	Information	SNTP server time synchronization failure	There was no response from the SNTP server, and the time synchronization function failed to set the time.
400H	System	Information	Power ON and RESET	Power ON/RESET has been canceled.
420H	System	Information	Event history file generation	A event history file has been generated.
450H	System	Information	Start/end of daylight saving time	Daylight saving time started or ended.
470H	System	Information	Windows part restart	The Windows part was restarted.
480H	System	Information	Fan module filter clean notification	The fan module filter must be cleaned.
10300H	Security	Information	In IP filtering settings, access set as prohibited received	Access received from IP address set as access prohibited in IP filtering settings.
10602H	Security	Information	Failed logon	Logon by the user authentication function failed.
20100H	Operation	Information	Error clear	An error was cleared.
20200H	Operation	Information	Event history clear	An event history was cleared.
24000H	Operation	Information	Clock setting	The clock setting was performed.
24001H	Operation	Information	Remote operation request acceptance	A remote operation request (RUN/STOP) was accepted.
24100H	Operation	Information	Operating status change (RUN)	The operating status was changed to RUN.
24101H	Operation	Information	Operating status change (STOP)	The operating status was changed to STOP.
24200H	Operation	Information	Creation of new folders, writes to files/folders	• A new folder was created. • A new file was created or data was written to a file.
24203H	Operation	Information	Windows part forced restart request	A Windows part forced restart request was received.
24204H	Operation	Information	MELIPC shutdown request	A MELIPC shutdown request was received.
24205H	Operation	Information	Fan module filter clean completed	Fan module filter cleaning was carried out.
24300H	Operation	Information	Windows part forced restart start	A Windows part forced restart was started.
24301H	Operation	Information	MELIPC shutdown start	A MELIPC shutdown was started.
25000H	Operation	Information	Registration from a user program	An event history was registered with the C Controller module dedicated function.
2A200H	Operation	Warning	Memory initialization	The memory was initialized.
2A201H	Operation	Warning	Zero clearing of device	Data of the device was cleared to zero.
2A202H	Operation	Warning	Folder/file deletion	Folder/file deleted.

CC-Link IE Field Network

The following table shows the codes for events that occurs in the CC-Link IE field network function of this product.

Event code	Event type	Event category	Event	Description
100H	System	Information	Link-up	The CPU module has entered into the link-up state as a result of an operation such as connecting a network cable between the CPU module and an external device.
130H	System	Information	Receive frame error	A receive frame error was detected.
500H	System	Information	<<Own station>> Baton pass restoration	Own station baton pass restored from relay status to normal status.
501H	System	Information	<<Other station>> Baton pass restoration	Other station baton pass restored from relay status to normal status.
502H	System	Information	All station baton pass normalized	All station baton pass restored to normal status.
510H	System	Information	<<Own station>> Data link restart	Own station data link restarted.
511H	System	Information	<<Other station>> Data link restart	Other station data link restarted.
512H	System	Information	All station data link normalized	All station data link restored to normal status.
513H	System	Information	<<Own station>> Data link start instruction received	Own station received data link start instruction.
514H	System	Information	<<Own station>> Data link stop instruction received	Own station received data link stop instruction.
520H	System	Information	<<Own station>> Temporary error disabled station settings instruction received	Temporary error disabled station settings instruction received.
521H	System	Information	<<Own station>> Temporary error disabled station clear instruction received	Temporary error disabled station clear instruction received.
524H	System	Information	<<Other station>> Temporary error disabled station settings execute	Other station temporary error disabled station settings execute.
525H	System	Information	<<Other station>> Temporary error disabled station clear execute	Other station temporary error disabled station clear execute.
530H	System	Information	<<Own station>> Reserved station temporary clear settings instruction received	Reserved station temporary clear settings instruction received.
531H	System	Information	<<Own station>> Reserved station enabled settings instruction received	Reserved station enabled settings instruction received.
514H	System	Information	<<Own station>> Data link stop instruction received	Own station received data link stop instruction.
520H	System	Information	<<Own station>> Temporary error disabled station settings instruction received	Temporary error disabled station settings instruction received.
521H	System	Information	<<Own station>> Temporary error disabled station clear instruction received	Temporary error disabled station clear instruction received.
524H	System	Information	<<Other station>> Temporary error disabled station settings execute	Other station temporary error disabled station settings execute.
525H	System	Information	<<Other station>> Temporary error disabled station clear execute	Other station temporary error disabled station clear execute.
530H	System	Information	<<Own station>> Reserved station temporary clear settings instruction received	Reserved station temporary clear settings instruction received.
531H	System	Information	<<Own station>> Reserved station enabled settings instruction received	Reserved station enabled settings instruction received.

Event code	Event type	Event category	Event	Description
534H	System	Information	<<Other station>> Reserved station temporary clear settings execute	Other station reserved station temporary clear settings carried out.
535H	System	Information	<<Own station>> Reserved station enabled settings instruction execute	Other station reserved station enabled settings carried out.
541H	System	Information	Reception parameter error clear	Error of parameter received from master station / control station was cleared. (Normal parameter was received)
542H	System	Information	<<Own station>> Reception frame error, circuit status caution level	Reception frame error (Circuit status: Caution level) occurred.
800H	System	Warning	Link-down	The CPU module has entered into the link-down state as a result of an operation such as removing a network cable connected to an external device.
C00H	System	Warning	<<Own station>> Baton pass interruption	Own station baton pass interrupted.
C01H	System	Warning	<<Other station>> Baton pass interruption	Other station baton pass interrupted.
C02H	System	Warning	Other station access faulty response	• At other station access, a faulty response was returned from the other station. • At access from the other station, a faulty response was returned to the other station.
C10H	System	Warning	<<Own station>> Data link stop	Own station data link stopped.
C11H	System	Warning	<<Other station>> Data link stop	Other station data link stopped.
C20H	System	Warning	<<Other station>> parameter error occurred	Parameter error occurred in other station.
C21H	System	Warning	<<Other station>> Error occurrence	An error occurred on another station.
C22H	System	Warning	Station duplication occurred	Master station or slave station duplication occurred on the network.
C24H	System	Warning	<<Other station>> Receive frame error occurred	Reception frame error occurred on another station.
C25H	System	Warning	Reception parameter error occurred	Error detected in parameter received from master station/administered station.
C27H	System	Warning	Transient reception failure	Own station transient frequency is too high, therefore transient reception failed.
20011H	Operation	Information	CC-Link IE Field Network Parameter changed	CC-Link IE Field Network Parameters have been changed.
24000H	Operation	Information	Data link start instruction	Data link start instruction to station or other station.
24001H	Operation	Information	Data link stop instruction	Data link stop instruction to station or other station.
24010H	Operation	Information	Temporary error disabled station settings instruction	Temporary error disabled station settings instruction to slave station
24011H	Operation	Information	Temporary error disabled station clear instruction	Temporary error disabled station clear instruction to slave station.
24020H	Operation	Information	Reserved station temporary clear settings instruction	Reserved station temporary clear settings instruction to slave station.
24021H	Operation	Information	Reserved station temporary enabled settings instruction	Reserved station temporary settings instruction to slave station.
24030H	Operation	Information	Network number, station number settings change instruction execution	Network number, station number settings change instruction for slave station given.
24100H	Operation	Information	<<Own station>> Parameter change/new parameter received	A parameter was changed. Alternatively, a new parameter was received when the power supply was turned ON.
24F00H	Operation	Information	<<Own station>> CPU operating status change detection	Other station programmable controller CPU operation status changed.

Appendix 4 Device List

A device of this product indicates a memory range stored in the VxWorks part.

Classification	Type	Device name (device)	Number of points	Available ranges	
User device	Bit	Internal relay (M)	61440 points	M0 to 61439	DEC
		Link relay (B)	655360 points	B0 to 9FFFF	HEX
	Word	Data register (D)	4184064 points	D0 to 4184063	DEC
		Link register (W)	1048576 points	W0 to FFFFF	HEX
System device	Bit	Special relay (SM)	4096 points	SM0 to 4095	DEC
	Word	Special register (SD)	4096 points	SD0 to 4095	DEC
Link direct device*1	Bit	Remote input (Jn\X)	16384 points	Jn\X0 to 3FFF	HEX
	Bit	Remote output (Jn\Y)	16384 points	Jn\Y0 to 3FFF	HEX
	Word	Remote register (Jn\W)*2	16384 points	Jn\W0 to 3FFF	HEX
	Bit	Link special relay (Jn\SB)	512 points	Jn\SB0 to 1FF	HEX
	Word	Link special register (Jn\SW)	512 points	Jn\SW0 to 1FF	HEX
Buffer memory access device	Word	Buffer memory access device (U3E0\G)	200000 points	U3E0\G0 to 199999	DEC
File register	Word	File register (ZR)	524288 points	ZR0 to 524287	DEC

*1 Accesses link direct devices of the CC-Link IE Field Network function.
n: Indicates the network number specified by the CC-Link IE Field Network parameters.

*2 The remote register of the CC-Link IE Field Network function can be accessed by specifying one of the following device numbers.
·RWw: Jn\W0 to W1FFF
·RWr: Jn\W2000 to W3FFF

User device

Used to store processing, calculation, and other results and send and receive data with GOT, MELSOFT products, and other external devices.

System device

A device for the system.
Stores statuses (diagnostic, system, and other information) of this product.

link direct device

Device to access remote I/O and remote registers of the CC-Link IE Field Network function.

Buffer memory access device

Stores statuses (operation and IP address overlap statuses of CC-Link IE field network Basic) of this product.

file register

Used to store processing, calculation, and other results and send and receive data with GOT, MELSOFT products, and other external devices.
Data is retained even if the power supply of this product is turned OFF.

Appendix 5 List of Special Relays

The list of special relays contains the following information.

Item	Description
No.	Indicates the number of the special relay.
Name	Indicates the name of the special relay.
Content	Indicates the content of the special relay.
Details	Indicates the details of the special relay.
Set by	Indicates the timing to set each device by system and/or user. ■Set by • S: Set by system. ■When to set • Status change: Set only when the status is changed (by a special relay). • Error occurrence: Set when an error occurs.

Point

Do not change the special relay set by system with the operations such as program execution or device test. Doing so may result in system down or disconnection of communication.

No.	Name	Description	Details	Set by (when to set)
SM0	Latest diagnostics error	• OFF: No error • ON: Error	• This relay turns ON when the self-diagnoses returns an error. • The ON state is maintained even after the error has been later cleared.	S (at error occurrence)
SM1	Latest self-diagnostic error	• OFF: No error • ON: Error	• This relay turns ON when the self-diagnoses returns an error. • The ON state is maintained even after the error has been later cleared.	S (at error occurrence)
SM52	battery low	• OFF: Normal • On: Battery low	• This relay switches to ON when the battery voltage of the MELIPC drops below the specified value. • Becomes OFF if the battery voltage becomes normal later. • This relay synchronizes with BATTERY LED.	S (at error occurrence)
SM53	AC/DC DOWN	• Off: No AC/DC DOWN detection • On: AC/DC DOWN is detected	This relay switches to ON when a momentary power failure of 20 ms or less is detected while the AC power supply module is in use. This relay is reset when power is turned OFF to ON.	S (at error occurrence)
SM80	Detailed information 1: Flag in use	• OFF: Not used • ON: In use	This relay switches to on if the detailed information 1 exists when SM0 switched to ON.	S (status change)
SM112	Detailed information 2: Flag in use	• OFF: Not used • ON: In use	This relay switches to on if the detailed information 2 exists when SM0 switched to ON.	S (status change)
SM1536	Cyclic transmission status	• OFF: Cyclic transmission not executed • ON: cyclic transmission carried out	• This relay turns ON when the cyclic transmission starts. • This relay is turned OFF when the cyclic transmission stops.	S (status change)
SM1540	Data link status	• OFF: All stations normal • ON: Error station found	• This relay turns ON when an error exists even in one slave station. • The status of each slave station can be checked in SD1540 to SD1543 (Data link status of each station).	S (status change)

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Appendix 6 List of Special Registers

The list of special registers contains the following information.

Item	Description
No.	Indicates the number of the special register.
Name	Indicates the name of the special register.
Content	Indicates the content of the special register.
Details	Indicates the details of the special register.
Set by	Indicates the timing to set each device by system and/or user. ■Set by • S: Set by system. ■When to set • Initial: Data is set only when initial processing is performed (e.g. powering ON the system, changing the operating status from STOP to RUN). • Status change: Set only when the status is changed (by a special relay). • Error occurrence: Set when an error occurs. • Switch status change: Set when the status of a switch is changed.

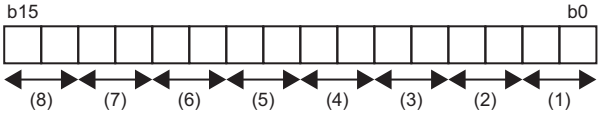
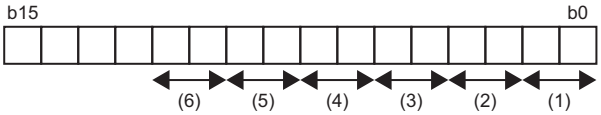
Point

Do not change the special registers which are to be set by the system using operations such as program execution and device test. Doing so may result in system failure or disconnection of communication.

No.	Name	Content	Details	Set by (when to set)
SD0	Latest self-diagnostic error code	Latest self-diagnostic error code	Error codes are stored in hexadecimal when an error is detected with the diagnostics.	S (at error occurrence)
SD1	Self-diagnostic error occurrence time	Latest self-diagnoses error time (local time)	The year (four digits) when SD0 data was updated is stored as a BIN code.	S (at error occurrence)
SD2			The month when SD0 data was updated is stored as a BIN code . (Year: 1980 to 2079)	S (at error occurrence)
SD3			The date when SD0 data was updated is stored as a BIN code. (Month: 1 to 12)	S (at error occurrence)
SD4			The hour when SD0 data was updated is stored as a BIN code. (Day: 1 to 31)	S (at error occurrence)
SD5			The minute when SD0 data was updated is stored as a BIN code. (Hour: 0 to 23)	S (at error occurrence)
SD6			The second when SD0 data was updated is stored as a BIN code. (Minute: 0 to 59)	S (at error occurrence)
SD7			The day of the week value of the date/time when SD0 data was updated is stored as a BIN code. (0: Sun, 1: Mon, 2: Tue, 3: Wed, 4: Thu, 5: Fri, 6: Sat)	S (at error occurrence)
SD10 to SD25	Self-diagnostic error code 1 to 16	Self-diagnostic error code 1 to 16	A maximum of 16 types of error codes are stored from SD10 onwards when a diagnosis detects an error. (The same error code as one already stored from SD10 onwards is not stored). The 17th error code and later error codes are not stored. Also error codes are not stored when 16 types of error codes have already been stored into SD10 to SD25.	S (at error occurrence)
SD53	AC/DC DOWN	Number of times for AC/DC DOWN detection	This value increases by one each time input voltage drops to 85% (AC power) or less of the nominal value while the MELIPC is carrying out an operation. The value is stored by BIN code. The counter changes from 0 through 65,535, and then back to 0.	S (at error occurrence)
SD80	Detailed information 1 information category	Detailed information 1 information category code	Detailed information 1 information category code is stored. The following codes are stored into the information category code. • 0: N/A • 1: N/A • 2: Drive number and file name • 4: Parameter information • 5: System configuration information • 6: Frequency information • 24: Failure information • 4100: Parameter information	S (at error occurrence)

No.	Name	Content	Details	Set by (when to set)
SD81 to SD111	Detailed information 1	Detailed information 1	Stores detailed information 1 for error code (SD0). There are six types of information to be stored as shown in the following figures: • The type of detailed information 1 can be determined from SD80 "Detailed information 1 information category code". (The value of the "Detailed information 1 information category code" stored in SD80 corresponds to (2), (4) to (6), (24) and (4100) shown below.) ■(2): Drive number and file name SD81: With or without specification • b0: Drive No. • b1: File name SD82: Drive No. SD83 to SD90: File name (8 characters from Unicode text string header) ■(4) Parameter information SD81: With or without specification • b0: Parameter type • b1: Parameter storage destination • b3: Parameter No. • b4: Network No. • b5: Station No. • b6: System information SD82(b0 to b7): Parameter type • 1: Basic parameters • 2: CC-Link IE Field Network Parameters SD82(b8 to b15): Parameter storage location • 4: User drive SD83: Empty SD84: Parameter No. SD85: Network No. SD86: Station No. • 0 to 120 (0 for a master station)	S (at error occurrence)
SD81 to SD111	Detailed information 1	Detailed information 1	■(5) System configuration information SD81: With or without specification • b4: CPU No. • b5: Network No. • b6: Station No. SD82: Empty SD83: Blank (If not specified, this is '0'.) SD84(b0 to b7): Blank (If not specified, this is '0'.) SD84(b8 to b15): CPU No. (If not specified, this is "0xFF".) SD85: Network No. (If not specified, this is '0'.) SD86: Station No. (If not specified, this is '0'.) • 0 to 120 (0 for a master station) ■(6) Frequency information SD81: With or without specification • b0: Number of times (set value) SD82 to SD83: Number of times (If number of times (set value) is not specified, this is '0'.) • SD82: Lower word of the number of times (set value) • SD83: Upper word of the number of times (set value) ■(24) Failure information The failure information is a part of system information. ■(4100): Parameter information SD81: With or without specification • b0: Parameter type • b1: Parameter storage destination • b3: Parameter No. • b4: Network No. • b5: Station No. • b6: System information SD82(b0 to b7): Parameter type • 2: CC-Link IE Field Network Parameters SD82(b8 to b15): Parameter storage location • 4: User drive SD83: Empty SD84: Parameter No. SD85: Network No. SD86: Station No. • 0 to 120 (0 for a master station)	S (at error occurrence)

No.	Name	Content	Details	Set by (when to set)
SD112	Detailed information 2 information category	Detailed information 2 information category code	Stores detailed information 2 information category code. The following codes are stored into the information category code. • 0: N/A • 2: Drive number and file name • 3: N/A • 4: Parameter information • 5: System configuration information • 4139: Duplicate type information	S (at error occurrence)
SD113 to SD143	Detailed information 2	Detailed information 2	Stores detailed information 2 for error code (SD0). There are four types of information to be stored as shown in the following figures: • The type of detailed information 2 can be determined from SD112 "Detailed information 2 information category code". (The value of the "Detailed information 2 information category code" stored in SD112 corresponds to (2), (4), (5) and (4139).) ■(2): Drive number and file name SD113: With or without specification • b0: Drive No. • b1: File name SD114: Drive No. SD115 to SD122: File name (8 characters from Unicode text string header) ■(4) Parameter information SD113: With or without specification • b0: Parameter type • b1: Parameter storage destination • b3: Parameter No. • b4: Network No. • b5: Station No. • b6: System information SD114(b0 to b7): Parameter type • 1: Basic parameters • 2: CC-Link IE Field Network Parameters SD114(b8 to b15): Parameter storage location • 4: User drive SD115: Empty SD116: Parameter No. SD117: Network No. SD118: Station No. • 0 to 120 (0 for a master station) ■(5) System configuration information SD113: With or without specification • b4: CPU No. • b5: Network No. • b6: Station No. SD114: Empty SD115: Blank (If not specified, this is '0'.) SD116(b0 to b7): Blank (If not specified, this is '0'.) SD116(b8 to b15): CPU No. (If not specified, this is "0xFF".) SD117: Network No. (If not specified, this is '0'.) SD118: Station No. (If not specified, this is '0'.) • 0 to 120 (0 for a master station) ■(4139) Duplicate type information SD113: With or without specification • b0: Duplicate type information SD114: Duplicate type information • 0: Duplication in station No. • 5: Master/slave station duplication	S (at error occurrence)
SD200	Switch status	Switch status (STOP/ MAIN RUN switch)	The product switch (STOP/MAIN RUN switch) status is stored as follows. • 0: MAIN RUN • 1: STOP	S (at switch change)

No.	Name	Content	Details	Set by (when to set)
SD201	LED status	MAIN LED status	Stores which of the following product main LED status using the following bit patterns. • 0: OFF • 1: ON • 2: Flickering (fast/slow)  (1)VX RDY LED (2)WIN RDY LED (3)MAIN ERR LED (4)MAIN RUN LED (5)FAN LED (6)INFO LED (7) Reserved (8)BATTERY LED	S (status change)
SD202	LED status	CC-Link IE Field Network LED status	• This register uses the following bit patterns to store the status of the CC-Link IE Field Network LED of this product. • 0: OFF • 1: ON • 2: Flickering (fast/slow)  (1)RUN LED (2)ERR LED (3)MST LED (4)D LINK LED (5)SD/RD LED (6)L ERR LED	S (status change)
SD203	VxWorks part operating status	STOP/RUN status of the VxWorks part	The operation status (STOP/RUN) of the VxWorks part of this product is stored as follows. • 0: RUN • 1: Reserved • 2: STOP • 3: Reserved	S (system)
SD260	Number of points assigned for bit devices	Number of points assigned for X (L)	The number of points of the X device currently set is stored as 32-bit data.	S (initial)
SD261		Number of points assigned for X (H)		S (initial)
SD262		Number of points assigned for Y (L)	The number of points of the Y device currently set is stored as 32-bit data.	S (initial)
SD263		Number of points assigned for Y (H)		S (initial)
SD264		Number of points assigned for M (L)	• The number of points of the M device currently set is stored as 32-bit data. • The number of points assigned is stored even if the number of points assigned for M is 32K or less.	S (initial)
SD265		Number of points assigned for M (H)		S (initial)
SD266		Number of points assigned for B (L)	• The number of points of the B device currently set is stored as 32-bit data. • The number of points assigned is stored even if the number of points assigned for B is 32K or less.	S (initial)
SD267		Number of points assigned for B (H)		S (initial)
SD280	Number of points assigned for word devices	Number of points assigned for D (L)	• The number of points of the D device currently set is stored as 32-bit data. • The number of points assigned is stored even if the number of points assigned for D is 32K or less.	S (initial)
SD281		Number of points assigned for D (H)		S (initial)
SD282		Number of points assigned for W (L)	• The number of points of the W device currently set is stored as 32-bit data. • The number of points assigned is stored even if the number of points assigned for W is 32K or less.	S (initial)
SD283		Number of points assigned for W (H)		S (initial)

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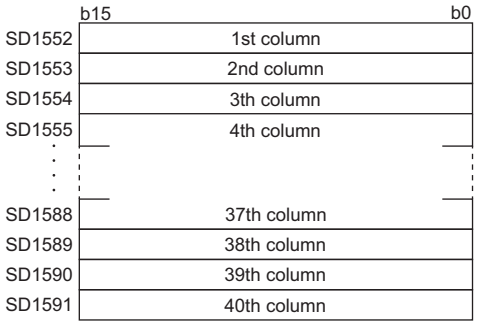
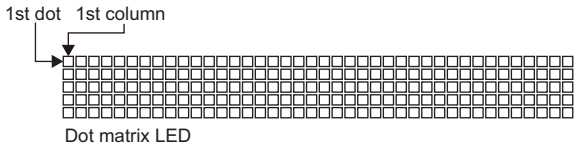
<table>
<tr><th>No.</th><th>Name</th><th>Content</th><th>Details</th><th>Set by (when to set)</th></tr>
<tr><td>SD306</td><td rowspan="2">Number of points assigned for file registers</td><td>Number of points assigned for ZR (L)</td><td rowspan="2">• The number of points of the ZR device currently set is stored as 32-bit data.
• The number of points assigned is stored even if the number of points assigned for ZR is 32K or less.</td><td>S (initial)</td></tr>
<tr><td>SD307</td><td>Number of points assigned for ZR (H)</td><td>S (initial)</td></tr>
<tr><td>SD1536 to SD1539</td><td>Cyclic transmission status of each station</td><td>Cyclic transmission status of each station</td><td>The cyclic transmission status of each station is stored using the following bit pattern.
• OFF: Cyclic transmission not executed
• ON: Cyclic transmission underway
The numbers within the following illustration indicate the station numbers.
<table><tr><td></td><td>b15</td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td>b0</td></tr><tr><td>SD1536</td><td>16</td><td>15</td><td>14</td><td>13</td><td>~</td><td>4</td><td>3</td><td>2</td><td>1</td></tr><tr><td>SD1537</td><td>32</td><td>31</td><td>30</td><td>29</td><td>~</td><td>20</td><td>19</td><td>18</td><td>17</td></tr><tr><td>SD1538</td><td>48</td><td>47</td><td>46</td><td>45</td><td>~</td><td>36</td><td>35</td><td>34</td><td>33</td></tr><tr><td>SD1539</td><td>64</td><td>63</td><td>62</td><td>61</td><td>~</td><td>52</td><td>51</td><td>50</td><td>49</td></tr></table>(Conditions)
• Only the header station No. bit is ON.
• The status is not stored for the reserved stations and the station numbers after the maximum station No.
This SD can be used for cyclic transmission interlock.</td><td>S (status change)</td></tr>
<tr><td>SD1540 to SD1543</td><td>Data link status of each station</td><td>Data link status of each station</td><td>The data link status of each station is stored using the following bit pattern.
• OFF: Normal station (including a slave station not responding to an initial request from the master station because of the slave station power is OFF. (The slave station is not judged as a faulty station because the data link status is undetermined.))
• ON: Error station
The numbers within the following illustration indicate the station numbers.
<table><tr><td></td><td>b15</td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td>b0</td></tr><tr><td>SD1540</td><td>16</td><td>15</td><td>14</td><td>13</td><td>~</td><td>4</td><td>3</td><td>2</td><td>1</td></tr><tr><td>SD1541</td><td>32</td><td>31</td><td>30</td><td>29</td><td>~</td><td>20</td><td>19</td><td>18</td><td>17</td></tr><tr><td>SD1542</td><td>48</td><td>47</td><td>46</td><td>45</td><td>~</td><td>36</td><td>35</td><td>34</td><td>33</td></tr><tr><td>SD1543</td><td>64</td><td>63</td><td>62</td><td>61</td><td>~</td><td>52</td><td>51</td><td>50</td><td>49</td></tr></table>(Conditions)
• Only the header station No. bit is ON.
• The status is not stored for the reserved stations and the station numbers after the maximum station No.
This SD can be used to monitor errors in slave stations, connected cables, and a connected hub.</td><td>S (status change)</td></tr>
</table>

No.	Name	Content	Details	Set by (when to set)
SD1552 to SD1591	Dot matrix LED	Dot matrix LED	The dot matrix LED lighting status on this product is stored.   The following information is stored in SD1552. • b0 to 9: 1st row 1st to 9th dot (b0 stores from 9th dot onwards.)) • b10 to b15: Reserved From SD1553 to SD1591, the corresponding information is stored like SD1552.	S (status change)

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Appendix 7 List of Link Special Relays

This section shows the link special relays of this product.

Range for user ON/OFF and system ON/OFF.

- Range for user ON/OFF: SB0000 to SB001F
- Range for system ON/OFF: SB0020 to SB01FF

Precautions

Do not write data to special relays not listed in the link special relay list. Otherwise, there is a risk of a product malfunction.

No.	Name	Description
SB0000	Own station link start	Instructs the own station data link (cyclic transmission) to start. • OFF: No start instruction • ON: Start instruction (start-up time enabled) <Conditions> • Enabled when baton pass status of own station (SB0047) is OFF • Enabled when only one point from SB0000 to SB0003 is ON
SB0001	Own station link stop	Instructs the own station data link (cyclic transmission) to stop. • OFF: No stop instruction • ON: Stop instruction (start-up time enabled) <Conditions> • Enabled when baton pass status of own station (SB0047) is OFF • Enabled when only one point from SB0000 through SB0003 is ON
SB0002	System link start	Specifies a start of data link (cyclic transmission) of the entire system. The station that gives the start instruction specifies using 'link start/stop instruction details' (SW0000) and 'link start/stop station instruction' (SW0001 to SW0008). • OFF: No start instruction • ON: Start instruction (start-up time enabled) <Conditions> • Enabled when baton pass status of own station (SB0047) is OFF • Enabled when only one point from SB0000 to SB0003 is ON
SB0003	System link stop	Specifies a stop of data link (cyclic transmission) of the entire system. The station that gives the stop instruction specifies using 'link start/stop instruction details' (SW0000) and 'link start/stop station instruction' (SW0001 to SW0008). • 0: No stop instruction • 1: Stop instruction (start-up time enabled) <Conditions> • Enabled when baton pass status of own station (SB0047) is OFF • Enabled when only one point from SB0000 to SB0003 is ON
SB0006	Clear communications error count	Instruct a 0 clear for communications errors in the link special registers (SW0068 to SW006B, SW0074 to SW0077, SW007C to SW007F, SW0120 to SW015F). • OFF: No clear instruction • ON: Clear instruction (while on, clear instruction continues)
SB0010	Temporary error disabled station setting request	Requests configuration as a temporary error disabled station for the station specified by 'reserved station temporary clear / temporary error disabled station settings' (SW0010 to SW0017). • OFF: No request • ON: Request (If switched from ON to OFF, error content stored in 'Temporary error disabled station settings results' (SW0054) is cleared.)
SB0011	Temporary error disabled station setting clear request	Requests a clearing as a temporary error disabled station for the station specified by 'reserved station temporary clear / temporary error disabled station settings' (SW0010 to SW0017). • OFF: No request • ON: Request (If switched from ON to OFF, error content stored in 'Temporary error disabled station clearing results' (SW0055) is cleared.))
SB0012	Reserved station specified temporary clear request	Requests temporary clearing of the reserved station specification for the station specified by 'reserved station temporary clear / temporary error disabled station settings' (SW0010 to SW0017). • OFF: No request • ON: Request (If switched from ON to OFF, error content stored in 'Reserved station specified temporary clear request results' (SW0056) is cleared.))

No.	Name	Description
SB0013	Reserved station specified enabled request	Requests enabling of the reserved station specification for the station specified by 'reserved station temporary clear / temporary error disabled station settings' (SW0010 to SW0017). (Request possible only for stations currently under reserved station temporary clearing) • OFF: No request • ON: Request (If switched from ON to OFF, error content stored in 'Reserved station specified enabled request results' (SW0057) is cleared.))
SB0040	Own station network type	Stores own station network type. • ON: CC-Link IE Field Network
SB0043	Own station unit operation mode	Stores own station unit operation mode. • OFF: Online • ON: Other than online
SB0044	Own station settings 1	Stores own station type. • OFF: Slave station (other than master station) • ON: Master station
SB0046	Own station number settings status	Stores station number settings status. • OFF: Station number confirmed • ON: Station number unconfirmed When the parameter was set in MI Configurator, always OFF.
SB0047	Baton pass status of own station	Stores baton pass status of own station (transit transmission enabled). • OFF: Normal • ON: Error In the event of an error, the cause of the error can be confirmed by using the 'baton pass status of own station' (SW0047) and 'cause for baton pass interruption' (SW0048).
SB0049	Own station data link error status	Stores own station data link error status. • OFF: Normal • ON: Error In the event of an error, the cause of the error can be confirmed with 'data link stop factors' (SW0049). <Conditions> Enabled when 'baton pass status' of own station (SB0047) is OFF. When 'baton pass status of own station' (SB0047) is ON (error), the data immediately before is retained.
SB004A	Own station minor error status	The minor error occurrence status of own station is stored. • Off: No minor error • ON: Minor error
SB004B	Own station moderate/major error status	The moderate/major error occurrence status of own station is stored. • OFF: No moderate or major error • ON: Moderate or major error
SB004C	Own station operating status	The operating status of own station is stored. • OFF: RUN • ON: STOP, moderate or major error
SB004D	Received parameter error	The received parameter status is stored. (In the case of a master station, its parameter status) • OFF: Normal • ON: Error
SB0050	Own station link start reception status	Stores 'own station link start' (SB0000) reception status. • OFF: Not received (SB0000 OFF) • ON: Received (SB0000 is ON) <Conditions> Enabled when 'baton pass status' of own station (SB0047) is OFF. When 'baton pass status of own station' (SB0047) is ON (error), the data immediately before is retained.
SB0051	Own station link start end status	Stores link start processing status from 'own station link start' (SB0000). • OFF: Link start not ended (SB0000, SB0050 OFF) • ON: Link start ended (SB0000, SB0050 ON) <Conditions> Enabled when 'baton pass status' of own station (SB0047) is OFF. When 'baton pass status of own station' (SB0047) is ON (error), the data immediately before is retained.
SB0052	Own station link stop reception status	The reception status of own station link stop (SB0001) is stored. • OFF: Not received (SB0001 OFF) • ON: Received (SB0001 ON) <Conditions> Enabled when 'baton pass status' of own station (SB0047) is OFF. When 'baton pass status of own station' (SB0047) is ON (error), the data immediately before is retained.

No.	Name	Description
SB0053	Own station link stop end status	The link stop processing status from own station link stop (SB0001) is stored. • OFF: Not ended (SB0001, SB0052 OFF) • ON: Ended (SB0001, SB0052 ON) <Conditions> Enabled when 'baton pass status' of own station (SB0047) is OFF. When 'baton pass status of own station' (SB0047) is ON (error), the data immediately before is retained.
SB0054	System link start reception status	Stores 'system link start' (SB0002) reception status. • OFF: Not received (SB0002 OFF) • ON: Received (SB0002 ON) <Conditions> Enabled when 'baton pass status' of own station (SB0047) is OFF. When 'baton pass status of own station' (SB0047) is ON (error), the data immediately before is retained.
SB0055	System link start end status	Stores link start processing status from 'system link start' (SB0002). • OFF: Not ended (SB0002, SB0054 OFF) • ON: Ended (SB0002, SB0054 ON) <Conditions> Enabled when 'baton pass status' of own station (SB0047) is OFF. When 'baton pass status of own station' (SB0047) is ON (error), the data immediately before is retained.
SB0056	System link stop reception status	Stores 'system link stop' (SB0003) reception status. • OFF: Not received (SB0003 OFF) • ON: Received (SB0003 ON) <Conditions> Enabled when 'baton pass status' of own station (SB0047) is OFF. When 'baton pass status of own station' (SB0047) is ON (error), the data immediately before is retained.
SB0057	System link stop end status	Stores link stop processing status from 'system link stop' (SB0003). OFF: Not ended (SB0003, SB0056 OFF) ON: Ended (SB0003, SB0056 ON) <Conditions> Enabled when 'baton pass status' of own station (SB0047) is OFF. When 'baton pass status of own station' (SB0047) is ON (error), the data immediately before is retained.
SB0058	Temporary error disabled station settings request reception status	Stores 'temporary error invalid station settings request' (SB0010) reception status. • OFF: Not received (SB0010 OFF) • ON: Received (SB0010 ON)
SB0059	Temporary error disabled station settings request end status	Stores temporary error invalid station settings processing status from 'temporary error invalid station settings processing request' (SB0010). • OFF: Not ended (SB0010, SB0058 OFF) • ON: Normal end or abnormal end (SB0010, SB0058 ON)
SB005A	Temporary error disabled station settings clear request reception status	Stores 'temporary error invalid station settings clear request' (SB0011) reception status. • OFF: Not received (SB0011 OFF) • ON: Received (SB0011 ON)
SB005B	Temporary error disabled station settings clear end status	Stores temporary error invalid station settings clear processing status from 'temporary error invalid station settings clear request' (SB0011). • OFF: Not ended (SB0011, SB005A OFF) • ON: Normal end or abnormal end (SB0011, SB005A ON)
SB005C	Reserved station settings temporary clear reception status	Stores 'reserved station specified temporary clear request' (SB0012) reception status. • OFF: Not received (SB0012 OFF) • ON: Received (SB0012 ON)
SB005D	Reserved station settings temporary clear end status	Stores reserved station specified temporary clear processing status for 'reserved station specified temporary clear request' (SB0012). • OFF: Not ended (SB0012, SB005C OFF) • ON: Normal end or abnormal end (SB0012, SB005C ON)
SB005E	Reserved station settings enabled reception status	Stores 'reserved station specified enabled request' (SB0013) reception status. • OFF: Not received (SB0013 OFF) • ON: Received (SB0013 ON)
SB005F	Reserved station settings enabled end status	Stores reserved station specified temporary clear processing status for 'reserved station specified enabled request' (SB0013). • OFF: Not ended (SB0013, SB005E OFF) • ON: Normal end or abnormal end (SB0013, SB005E ON)
SB006B	Own station port 2 side link-down status	Stores own station port 2 side link-down status. • OFF: In link-up • ON: In link-down The time until link-up after the power supply is switched ON or an Ethernet cable is connected varies. Normally, link-up will start in a few seconds. However, depending on the status of devices on the circuit, link-up processing may repeat, which requires more time.

No.	Name	Description
SB006D	Own station port 2 error frame reception current status (1)	Shows if a reception frame error of the circuit status caution level is currently occurring at own station port 2. • 0: A reception frame error. The circuit status caution level is not occurring. • 1: A reception frame error. The circuit status caution level is occurring.
SB006F	Own station port 2 error frame reception detection status (latch) (1)	Shows if a reception frame error of the circuit status caution level occurred at own station port 2 when the power supply was turned ON. • 0: A reception frame error. The circuit status caution level is not occurring. • 1: A reception frame error of the circuit status caution level occurred.
SB0074	Reserved station specification status	The reserved station specification status by parameters is stored. The station number of the station configured as a reserved station can be checked by 'Reserved station settings status' (SW00C0 to SW00C7). • OFF: No specification • ON: Specified
SB0075	Error disabled station settings status	The error invalid station setting status by parameters is stored. The station number of the station configured as an error invalid station can be checked by 'Error disabled station settings status' (SW00D0 to SW00D7). • OFF: No specification • ON: Specified
SB0078	Network topology setting	Stores own station (master operating station) "Network Topology" status. • OFF: Line/Star • ON: Link connection
SB007B	Data link abnormal station input data status	Stores own station "Data Link Error Station Setting" status. • OFF: Clear • On: Retain
SB007D	Retain/clear specification status at STOP	The setting status of "Output retention & clear settings at STOP" of own station is stored. • OFF: Hold • ON: Clear
SB008D	Own station port 2 error frame reception current status (2)	Shows if a reception frame error of the circuit status warning level is currently occurring at own station port 2. • 0: A reception frame error. The circuit status warning level is not occurring. • 1: A reception frame error. The circuit status warning level is occurring.
SB008F	Own station port 2 error frame reception detection status (latch) (2)	Shows if a reception frame error of the circuit status warning level occurred at own station port 2 when the power supply was turned ON. • 0: A reception frame error. The circuit status warning level is not occurring. • 1: A reception frame error of the circuit status warning level occurred.
SB0098	Network configuration mismatch occurrence status	Shows if the actual network configuration and the CC-Link IE Field network configuration settings match. • 0: Match • 1: Mismatch May turn ON regardless of the above-mentioned matching/mismatching after a slave station is reconnected or added.
SB0099	Connected device number excess occurrence status	Shows if the number of slave stations connected to the master station is 120 or less, or 121 or more. • 0: Number of connected devices 120 or less • 1: Number of connected devices 121 or more The number of connected stations is the total of currently connected slave stations (including sub-master stations) and previously connected slave stations (disconnected stations).
SB00A0	Each station baton pass error status	Stores each station baton pass status. • OFF: All stations normal • ON: Error station found In the event of faulty stations, the status of each station can be confirmed using 'each station baton pass status' (SW00A0 to SW00A7). <Conditions> • Enabled when baton pass status of own station (SB0047) is OFF. When 'baton pass status of own station' (SB0047) is ON (error), the data immediately before is retained. • The status is not stored for the reserved stations and the station numbers after the maximum station number.
SB00A1	Master station baton pass error status	Stores the master station (master operating station) baton pass error status. • OFF: Normal • ON: Error <Conditions> Enabled when 'baton pass status' of own station (SB0047) is OFF. When 'baton pass status of own station' (SB0047) is ON (error), the data immediately before is retained.

No.	Name	Description
SB00B0	Each station data link error status	Stores each station data link error status. • OFF: All stations normal • ON: Error station found In the event of faulty stations, the status of each station can be confirmed using 'each station data link status' (SW00B0 to SW00B7). If power supplies are switched ON in order of master stations and slave stations, data link may be reconstructed. Within the maximum of three seconds to perform reconstruction, 'Each station data link error status' (SB00B0) turns ON (error). Reconstruction of data link and 'Each station data link error status' (SB00B0) turning ON (error) can be avoided by starting master stations last. <Conditions> • Enabled when 'baton pass status' of own station (SB0047) is OFF. When 'baton pass status of own station' (SB0047) is ON (error), the data immediately before is retained. • The status is not stored for the reserved stations and the station numbers after the maximum station number.
SB00B1	Master station data link error status	Stores the master station (master operating station) data link status. • OFF: Normal • ON: Error <Conditions> Enabled when 'baton pass status' of own station (SB0047) is OFF. When 'baton pass status of own station' (SB0047) is ON (error), the data immediately before is retained.
SB00B8	Each station network connection status	Shows if network connection stations present. • 0: N/A • 1: Yes When a network connected station is present, the status of each station can be confirmed using 'Network connection status' (SW00B8 to SW00BF).
SB00C0	Reserved station settings status	Stores presence of reserved station settings. • OFF: No settings • ON: Set If setting, the status of each station can be confirmed using 'reserved station settings status' (SW00C0 to SW00C7). <Conditions> Enabled when 'baton pass status' of own station (SB0047) is OFF. When 'baton pass status of own station' (SB0047) is ON (error), the data immediately before is retained.
SB00D0	Current error disabled station settings status	Stores presence of error disabled station settings. OFF: No settings ON: Set If setting, the status of each station can be confirmed using 'error invalid station settings status' (SW00D0 to SW00D7). <Conditions> Enabled when 'baton pass status' of own station (SB0047) is OFF. When 'baton pass status of own station' (SB0047) is ON (error), the data immediately before is retained.
SB00E0	Temporary error disabled station settings status	Stores presence of temporary error disabled station settings. • OFF: No settings • ON: Set If setting, the status of each station can be confirmed using 'temporary error invalid station settings status' (SW00E0 to SW00E7). <Conditions> Enabled when 'baton pass status' of own station (SB0047) is OFF. When 'baton pass status of own station' (SB0047) is ON (error), the data immediately before is retained.
SB00E8	Each station type matching status	Shows each station type matching status. • 0: All station types match • 1: One or more non-matching stations When a station with a mismatched station type is present, the status of each station can be confirmed using 'Station type matching status' (SW00E8 to SW00EF).
SB00F0	Operating status of each station CPU	Stores the operating status of each CPU module. • OFF: All stations RUN or STEP-RUN status • ON: Station in STOP, PAUSE status, or with moderate/major error In the event of a Station in STOP, PAUSE status, or with moderate/major error, the status of each station can be confirmed in 'each station CPU operating status' (SW00F0 to SW00F7). <Conditions> Enabled when 'baton pass status' of own station (SB0047) is OFF. When 'baton pass status of own station' (SB0047) is ON (error), the data immediately before is retained.
SB00F1	Operating status of master station CPU	The operating status of the master station CPU module or MELIPC is stored. • OFF: RUN state • ON: STOP state, or with moderate/major error <Conditions> Enabled when 'baton pass status' of own station (SB0047) is OFF. When 'baton pass status of own station' (SB0047) is ON (error), the data immediately before is retained.

No.	Name	Description
SB00F8	Network No. matching status	Shows each station network No. matching status. • 0: All station network No. match • 1: One or more station with network No. mismatch. When a station with a mismatched network number is present, the status of each station can be confirmed using 'Network No. matching status' (SW00F8 to SW00FF).
SB0100	Each station CPU moderate/major error occurrence status	The local station stores the moderate and major error occurrence status of the CPU module of each station. Remote I/O stations, remote device stations, and intelligent device stations store the moderate/major error occurrence status of each station. • OFF: No stations with moderate or major errors • ON: One or more stations with a moderate or major error If there are stations generating moderate or major errors, the status of each station can be confirmed using 'each station CPU moderate or major error occurrence status' (SW0100 to SW0107). <Conditions> Enabled when 'baton pass status' of own station (SB0047) is OFF. When 'baton pass status of own station' (SB0047) is ON (error), the data immediately before is retained.
SB0101	Master station MELIPC moderate/major error occurrence status	The moderate and major error occurrence status of the MELIPC of the master station (master operating station) is stored. • OFF: No moderate or major error • ON: Moderate or major error <Conditions> Enabled when 'baton pass status' of own station (SB0047) is OFF. When 'baton pass status of own station' (SB0047) is ON (error), the data immediately before is retained.
SB0108	Station number duplication occurrence status	Shows each station number duplication occurrence status. • 0: No duplication in any station numbers • 1: Stations with duplicate station numbers When a station with an overlapping station number is present, the status of each station can be confirmed using 'Station number duplication occurrence status' (SW0108 to W010F).
SB010F	Station number 0 CPU moderate/major error occurrence status	The moderate and major error occurrence status of the CPU module of station number 0 is stored. • OFF: No moderate or major error • ON: Moderate or major error <Conditions> Enabled when sub-master function is used
SB0110	Each station CPU minor error occurrence status	The local station stores each station CPU module minor error occurrence status. Remote I/O station, remote device station, and intelligent device station stores the minor error occurrence status of each station. • OFF: All stations normal, or one or more moderate or major error stations • ON: One or more minor error stations If there are stations generating a minor error, the status of each station can be confirmed in 'each station CPU minor error occurrence status' (SW0110 to SW0117). <Conditions> Enabled when 'baton pass status' of own station (SB0047) is OFF. When 'baton pass status of own station' (SB0047) is ON (error), the data immediately before is retained.
SB0111	Master station MELIPC minor error occurrence status	The minor error occurrence status of the MELIPC of the master station (master operating station) is stored. • OFF: No minor error, or moderate or major errors occurring • ON: Minor error <Conditions> Enabled when 'baton pass status' of own station (SB0047) is OFF. When 'baton pass status of own station' (SB0047) is ON (error), the data immediately before is retained.
SB0130	Port 2 error frame reception current status (1)	Shows if a reception frame error of the circuit status caution level is currently occurring at port 2 of each station. • 0: A reception frame error of the circuit status caution level is not occurring at port 2 of any station. • 1: A reception frame error of the circuit status caution level is occurring at port 2 of at least one station. If a reception frame error, circuit status caution level is occurring, the status of each station can be confirmed with 'each station port 2 error frame reception current status (1)' (SW0130 to SW0137). <Conditions> Enabled when 'baton pass status of own station' (SB0047) is OFF. When 'baton pass status of own station' (SB0047) is ON (error), the data immediately before is retained.
SB0131	Master station port 2 error frame reception current status	Stores the master station (master operating station) port 2 current error frame reception status. • OFF: No reception • ON: Receiving <Conditions> Enabled when 'baton pass status of own station' (SB0047) is OFF. When 'baton pass status of own station' (SB0047) is ON (error), the data immediately before is retained.

No.	Name	Description
SB0138	Port 2 error frame reception current status (2)	Shows if a reception frame error of the circuit status warning level is currently occurring at port 2 of each station. • 0: A reception frame error of the circuit status warning level is not occurring at port 2 of any station. • 1: A reception frame error of the circuit status warning level is occurring at port 2 of at least one station. If a reception frame error of the circuit status warning level is occurring, the status of each station can be confirmed with 'each station port 2 error frame reception current status (2)' (SW0138 to SW013F). <Conditions> • Enabled when 'baton pass status' of own station (SB0047) is OFF. • When 'baton pass status of own station' (SB0047) is ON (error), the data immediately before is retained.
SB0150	Port 2 error frame reception detection status (1)	Shows if a reception frame error of the circuit status caution level is occurring at port 2 of each station from when the power supply is turned ON. • 0: A reception frame error of the circuit status caution level is not occurring at port 2 of any station. • 1: A reception frame error of the circuit status caution level is occurring at port 2 of at least one station. If a reception frame error of the circuit status caution level occurred, the status of each station can be confirmed with 'Port 2 error frame reception detection status (1)' (SW0150 to SW0157). <Conditions> Enabled when 'baton pass status of own station' (SB0047) is OFF. When 'baton pass status of own station' (SB0047) is ON (error), the data immediately before is retained.
SB0151	Master station port 2 error frame reception	Stores the master station (master operating station) port 2 error frame reception status from power ON to present. • OFF: Not receiving • ON: One or more receptions <Conditions> Enabled when 'baton pass status of own station' (SB0047) is OFF. When 'baton pass status of own station' (SB0047) is ON (error), the data immediately before is retained.
SB0158	Port 2 error frame reception detection status (2)	Shows if a reception frame error of the circuit status warning level is occurring at port 2 of each station from when the power supply is turned ON. • 0: A reception frame error of the circuit status warning level is not occurring at port 2 of any station. • 1: A reception frame error of the circuit status warning level is occurring at port 2 of at least one station. If a reception frame error of the circuit status warning level occurred, the status of each station can be confirmed with 'Port 2 error frame reception detection status (2)' (SW0158 to SW015F). <Conditions> • Enabled when 'baton pass status' of own station (SB0047) is OFF. • When 'baton pass status of own station' (SB0047) is ON (error), the data immediately before is retained.
SB0170	Each station parameter error status	Stores each station parameter error status. • OFF: No error in any station • ON: Error station found In the event of faulty stations, the status of each station can be confirmed with 'each station parameter error status' (SW0170 to SW0177). <Conditions> • Enabled when 'baton pass status of own station' (SB0047) is OFF. When 'baton pass status of own station' (SB0047) is ON (error), the data immediately before is retained. • The status is not stored for the reserved stations and the station numbers after the maximum station number.
SB0180	Reserved station temporary clear settings	Stores presence of reserved stations that have had a temporary clear. • OFF: Not present • ON: Present In the event of these stations, the status of each station can be confirmed with 'reserved station temporary clear status settings status' (SW0180 to SW0187). <Conditions> Enabled when 'baton pass status of own station' (SB0047) is OFF. When 'baton pass status of own station' (SB0047) is ON (error), the data immediately before is retained.
SB01E1	CC-Link IE Field Network synchronous communication function settings status	Stores CC-Link IE Field Network synchronous communication function settings status. • OFF: No settings • ON: Set
SB01E9	Synchronous communication period exceeded flag	Stores cycle exceeded status of the synchronous communication cycle. If output preparation processing (in the case of network modules, link scan) does not complete within the synchronous communication cycle, this is ON. An ON state is maintained even after the program is later completed within the specified fixed scan communication cycle. Clear by turning the power OFF to ON or clearing the reset state. • OFF: Processing time not exceeded • ON: Processing time was exceeded

Appendix 8 List of Link Special Registers

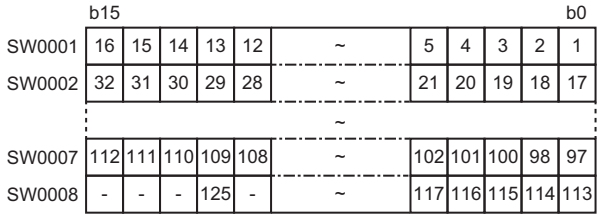
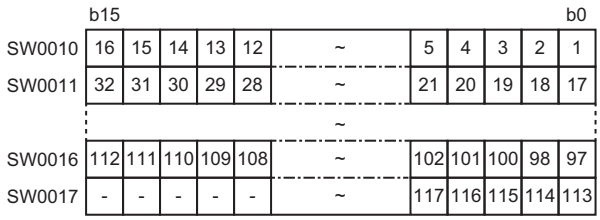
This section shows the link special registers of this product.

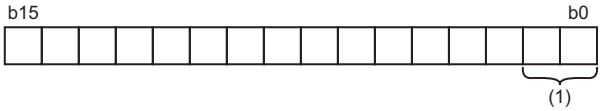
Range for user ON/OFF and system ON/OFF.

- Range for user ON/OFF: SW0000 to SW001F
- Range for system ON/OFF: SW0020 to SW01FF

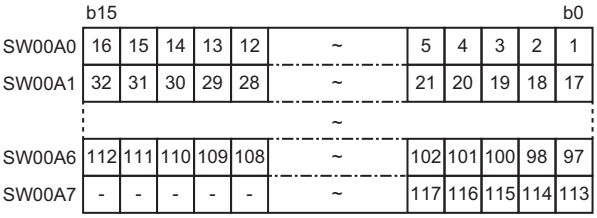
Precautions

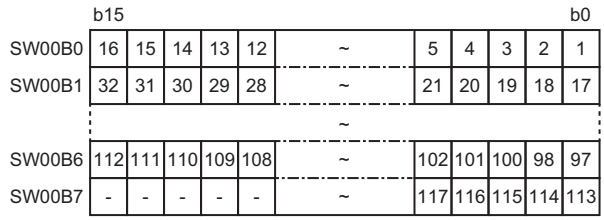
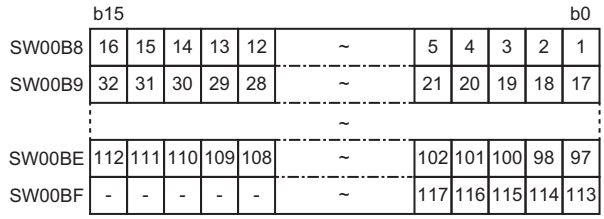
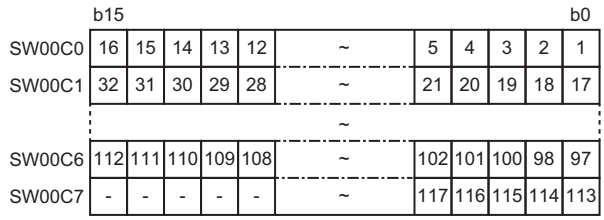
Do not write data to special registers not listed in the link special register list. Otherwise, there is a risk of a product malfunction.

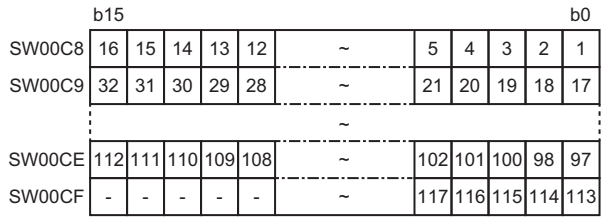
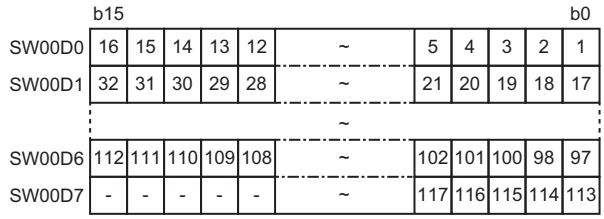
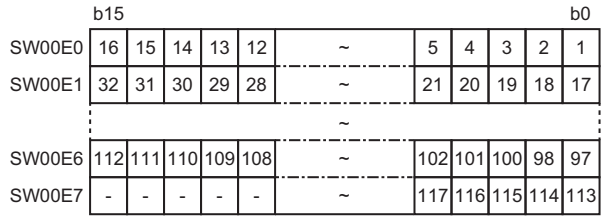
No.	Name	Description
SW0000	Link start/stop direction details	Sets data link start/stop direction details ■00H: Own station ■01H: All stations ■02H: Specified station ■80H: Own station forced (enabled only at start of data link) ■81H: All station forced (enabled only at start of data link) ■82H: Specified station forced (enabled only at start of data link) • Start/stop data link with 'system link start' (SB0002) or 'system link stop' (SB0003). • 02H: Specified station and 82H: Specified station forced do not include own station.
SW0001 to SW0008	Link start/stop station specification	When setting 02H: Specified station and 82H: Specified station forced in 'link start/stop specification details' (SW0000), set the station for data link start/stop. • 0: No start/stop instruction • 1: Start/stop instruction The numbers within the following illustration indicate the station numbers. 
SW0010 to SW0017	Reserved station temporary clear / temporary error disabled station setting	Specify a slave station to carry out reserved station temporary clear/remove and temporary error disabled station settings/remove. • 0: No specification • 1: Specification The numbers within the following illustration indicate the station numbers.  <Conditions> • There is a station for which reserved station temporary clear/remove and temporary error disabled station settings/remove cannot be specified. • The status is not stored for the station numbers after the maximum station number.
SW0040	Network No.	Stores the network number of own station. (Range: 1 to 239)
SW0042	Station No.	Stores the own station's station number. (Range: 1 to 120, 125 (master station), 255 (station number not set))
SW0043	Own station mode status	Stores own station operational mode settings/communications mode settings. • 1: Online mode/high-speed mode • 2: Offline mode

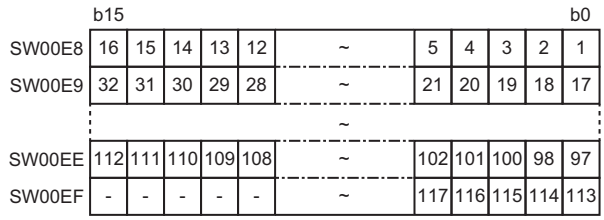
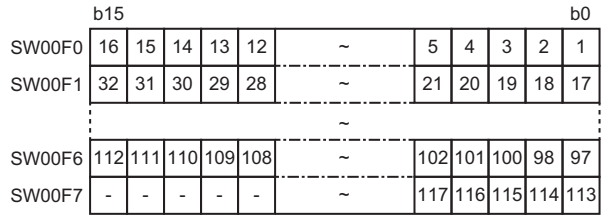
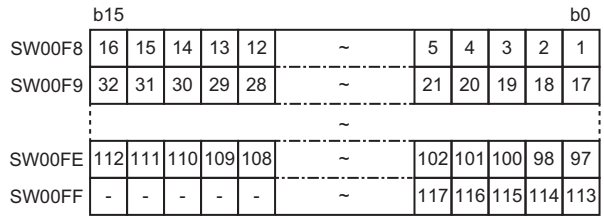
No.	Name	Description
SW0046	Module identification	Stores own station hardware status.  (1): Model type (00: module, 01: board, 10: display device) (This product is a registered as Model type "board".)
SW0047	Baton pass status of own station	Stores baton pass status of own station (transit transmission enabled). • 0: In data link • 2: In baton pass • 3: Baton pass stopped • 4: In testing • 5: Offline
SW0048	Cause for baton pass interruption	Stores the cause for own station communications (baton pass) interruption. ■00H: At normal communications or power ON ■30H: Cable disconnection ■33H: During parallel processing or concurrent processing ■40H: Offline mode ■60H: Network topology setting error
SW0049	Cause of data link stop	Stores the cause of own station data link stop. ■00H: At normal communications or power ON ■01H: Stop instruction ■02H: Monitoring period time up ■05H: No slave station (master station only) ■11H: Out of own station number range ■12H: Own station reserved station settings ■13H: Own station number duplicated ■14H: Master station duplicated ■16H: Station number not set ■18H: Parameter error ■19H: Parameter in communication ■1AH: Station type mismatch ■1BH: Parameter mismatch ■1DH: In CC-Link IE Field Network synchronous communication initial processing ■20H: Moderate or major error ■60H: Invalid ring connection (master station only)
SW004A	Station requiring data link stop	Stores the station number of the station requesting a stop for own station. (Range: 1 to 120, 125 (master station)) Carry out data link stop request with 'system link stop' (SB0003). <Conditions> Enabled when 'baton pass status' of own station (SB0047) is OFF. When 'baton pass status of own station' (SB0047) is ON (error), the data immediately before is retained.
SW004B	Own station status	The status of own station is stored. ■00H: Not mounted ■01H: STOP (normal) ■02H: STOP (moderate/major error) ■03H: STOP (minor error) ■04H: RUN (normal) ■05H: RUN (minor error) ■0EH: Resetting ■0FH: Initial processing
SW004C	Parameter settings status	Stores parameter settings status • 0: Normal • From 1: Error details (error code) <Conditions> Enabled when 'reception parameter error' (SB004D) is ON.
SW0050	Own station link start results	Stores results from data link start at 'own station link start' (SB0000). • 0: Normal • From 1: Error details (error code) (Turning OFF 'own station link start' (SB0000) clears stored error details.) <Conditions> Enabled when 'baton pass status' of own station (SB0047) is OFF. When 'baton pass status of own station' (SB0047) is ON (error), the data immediately before is retained.

No.	Name	Description
SW0051	Own station link stop results	Stores results from data link stop at 'own station link stop' (SB0001). • 0: Normal • From 1: Error details (error code) (Turning OFF 'own station link stop' (SB0001) clears stored error details.) <Conditions> Enabled when 'baton pass status' of own station (SB0047) is OFF. When 'baton pass status of own station' (SB0047) is ON (error), the data immediately before is retained.
SW0052	System link start results	Stores results from data link start at 'system link start' (SB0002). • 0: Normal • From 1: Own station error details (error code) (Turning OFF 'system link start' (SB0002) clears stored error details.) <Conditions> Enabled when 'baton pass status' of own station (SB0047) is OFF. When 'baton pass status of own station' (SB0047) is ON (error), the data immediately before is retained.
SW0053	System link stop results	Stores results from data link stop at 'system link stop' (SB0003). • 0: Normal • From 1: Own station error details (error code) (Turning OFF 'system link stop' (SB0003) clears stored error details.) <Conditions> Enabled when 'baton pass status' of own station (SB0047) is OFF. When 'baton pass status of own station' (SB0047) is ON (error), the data immediately before is retained.
SW0054	Temporary error disabled station settings results	Stores results from requesting temporary error invalid station settings at a 'temporary error invalid station settings request'(SB0010). • 0: Normal • From 1: Error details (error code) (Turning OFF 'temporary error invalid request' (SB0010) clears stored error details.)
SW0055	Temporary error disabled station settings clear results	Stores results from clearing temporary error invalid station settings at a temporary error invalid clear request (SB0011). • 0: Normal • From 1: Error details (error code) (Turning OFF 'temporary error invalid cancel request' (SB0011) clears stored error details.)
SW0056	Reserved station specified temporary clear request results	Stores results from temporarily clearing of reserved stations at a 'reserved station specifications temporary clear request' (SB0012). • 0: Normal • From 1: Error details (error code) (Turning OFF 'reserved station specified temporary cancel request' (SB0012) clears stored error details.)
SW0057	Reserved station specified enabled request results	Stores results from canceling temporary clearing of reserved stations at a 'reserved station specified enabled request' (SB0013). • 0: Normal • From 1: Error details (error code) (Turning OFF 'reserved station specified enabled request' (SB0013) clears stored error details.)
SW0058	Total slave station number set value	Stores the total number of slave stations set in a parameter (No. of slave stations). (Range: 1 to 120)
SW0059	Total slave station number current value	Stores the total number of slave stations actually in data link (No. of slave stations). (Range: 1 to 120, 0 (when own station disconnected))
SW005A	Maximum station numbers implementing baton pass	Stores the highest station number of stations with the correct baton pass. (Range: 1 to 120, 0 (when own station disconnected)) <Conditions> Enabled when 'baton pass status of own station' (SB0047) is OFF. When 'baton pass status of own station' (SB0047) is ON (error), the data immediately before is retained.
SW005B	Highest station number implementing data link	Stores the highest station number of stations with the correct data link. (Range: 1 to 120, 0 (when own station disconnected)) <Conditions> Enabled when 'data link stop status of own station' (SB0049) is OFF.
SW0060	Maximum link scan time	The maximum link scan time value during cyclic transmission is stored. (Unit: ms) <Conditions> Enabled when 'baton pass status' of own station (SB0047) is OFF. When 'baton pass status of own station' (SB0047) is ON (error), the data immediately before is retained.
SW0061	Minimum link scan time	The minimum link scan time value during cyclic transmission is stored. (Unit: ms) <Conditions> Enabled when 'baton pass status' of own station (SB0047) is OFF. When 'baton pass status of own station' (SB0047) is ON (error), the data immediately before is retained.

No.	Name	Description
SW0062	Current link scan time	The current link scan time value during cyclic transmission is stored. (Unit: ms) A maximum margin of error of 1 ms is included in the stored value. <Conditions> Enabled when 'baton pass status' of own station (SB0047) is OFF. When 'baton pass status of own station' (SB0047) is ON (error), the data immediately before is retained.
SW0064	Own station connection status	Stores own station connection status. ■10H: Normal (Port 1 cable disconnection, Port 2 communicating) ■11H: Disconnected (Port 1 cable disconnection, Port 2 cable disconnection) ■12H: Disconnected (Port 1 cable disconnection, Port 2 line establishing)
SW0066	Actual link scan time (lowest 1 word)	Stores the link scan time value during cyclic transmission. (Unit: μs)
SW0067	Actual link scan time (highest 1 word)	
SW006A	Own station port 2 reception error occurrence rate (maximum)	Stores the maximum value of the occurrence rate of the error frame reception of own station Port 2. (Units: %) If 'clear communications error count' (SB0006) is ON, then the stored occurrence rate is cleared.
SW006B	Own station port 2 reception error occurrence rate (current)	Stores the current value of the occurrence rate of the error frame reception of own station Port 2. (Units: %) If 'clear communications error count' (SB0006) is ON, then the stored occurrence rate is cleared.
SW006D	Master operating station number	Stores the master station's station number. • 0: No sub master function settings <Conditions> Enabled when 'baton pass status' of own station (SB0047) is OFF. When 'baton pass status of own station' (SB0047) is ON (error), the data immediately before is retained.
SW006E	Sub master operating station number	Stores the sub master station's station number. • 0: No sub master function settings <Conditions> Enabled when 'baton pass status' of own station (SB0047) is OFF. When 'baton pass status of own station' (SB0047) is ON (error), the data immediately before is retained.
SW007C	Port 2 cable disconnection detection count	Stores the Port 2 cable disconnection detection accumulated count. If 'clear communications error count' (SB0006) is ON, the stored count is cleared. If the count reaches the maximum value of 65535 (FFFFH), the count returns to 0 then continues.
SW007D	Port 2 received error detection count	Stores the Port 2 error data received accumulated count. The stored count is only error data not transmitted to all stations. If 'clear communications error count' (SB0006) is ON, the stored count is cleared. If the count reaches the maximum value of 65535 (FFFFH), the count stops.
SW007E	Port 2 received data total count (lowest 1 word)	The Port 2 data received accumulated count is stored. If 'clear communications error count' (SB0006) is ON, the stored count is cleared. If the count reaches the maximum value of 4294967295 (FFFFFFFFH), the count stops.
SW007F	Port 2 received data total count (highest 1 word)	
SW00A0 to SW00A7	Baton pass status of each station	Stores each station baton pass status. • 0: Baton pass normal station • 1: Baton pass faulty station The numbers within the following illustration indicate the station numbers. (—: fixed at 0)  • In the case of multiple stations that have gone from fault to normal, concurrent processing is carried per device out for each link scan, therefore there may be several seconds variation in the time required until "0: Baton pass normal station". • When making a line connect or ring connection, token loss or reorganization may occur by removing and inserting, or resetting the cable, and baton pass status may detect an error within 1 link scan. <Conditions> • Enabled when baton pass status of own station (SB0047) is OFF. When 'baton pass status of own station' (SB0047) is ON (error), the data immediately before is retained. • The status is not stored for the reserved stations and the station numbers after the maximum station number.

No.	Name	Description
SW00B0 to SW00B7	Data link status of each station	Stores each station data link error status. • 0: Data link normal station • 1: Data link abnormal station The numbers within the following illustration indicate the station numbers. (—: fixed at 0)  • In the case of multiple stations that have gone from fault to normal, concurrent processing is carried per device out for each link scan, therefore there may be several seconds variation in the time required until "0: Data link normal station". • If there is no response between several link scans, this is determined to be a data link error station. <Conditions> • Enabled when 'baton pass status' of own station (SB0047) is OFF. When 'baton pass status of own station' (SB0047) is ON (error), the data immediately before is retained. • The status is not stored for the reserved stations and the station numbers after the maximum station No.
SW00B8 to SW00BF	Network connection status	Stores the status of connection to the network. • 0: Station not connected to the network • 1: Station connected to the network The numbers within the following illustration indicate the station numbers. (—: fixed at 0)  <Conditions> • 'Each station baton pass status' (SW00A0 to SW00A7), 'each station data link abnormal status' (SB00B0), and 'each station data link status' (SW00B0 to SW00B7) are not related. • Only enabled for stations with network numbers the same as the master operating station.
SW00C0 to SW00C7	Reserved station settings status	Stores each station reserved station settings status. • 0: Other than the reserved station (including reserved station temporarily cleared stations) • 1: Reserved station The numbers within the following illustration indicate the station numbers. (—: fixed at 0)  <Conditions> • Enabled when 'baton pass status' of own station (SB0047) is OFF. When 'baton pass status of own station' (SB0047) is ON (error), the data immediately before is retained. • Only enabled for stations with normal 'each station baton pass status' (SW00A0 to SW00A7). • The status is not stored for the station numbers after the maximum station number.

No.	Name	Description
SW00C8 to SW00CF	Parameter settings status	Stores parameter settings status. • 0: Stations without parameters set • 1: Stations with parameters set The numbers within the following illustration indicate the station numbers. (—: fixed at 0)  <Conditions> • Enabled when 'baton pass status' of own station (SB0047) is OFF. • When 'baton pass status of own station' (SB0047) is ON (error), the data immediately before is retained. • The status is not stored for the station numbers after the maximum station number.
SW00D0 to SW00D7	Error disabled station settings status	Stores each station error disabled station settings status. • 0: Other than error disabled stations • 1: Error disabled stations The numbers within the following illustration indicate the station numbers. (—: fixed at 0)  <Conditions> • Enabled when 'baton pass status of own station' (SB0047) is OFF. When 'baton pass status of own station' (SB0047) is ON (error), the data immediately before is retained. • The status is not stored for the station numbers after the maximum station number.
SW00E0 to SW00E7	Temporary error disabled station settings status	Stores each station temporary error disabled station settings status. • 0: Other than temporary error disabled stations • 1: Temporary error disabled stations The numbers within the following illustration indicate the station numbers. (—: fixed at 0)  <Conditions> • Enabled when 'baton pass status' of own station (SB0047) is OFF. When 'baton pass status of own station' (SB0047) is ON (error), the data immediately before is retained. • Only enabled for stations with normal 'each station baton pass status' (SW00A0 to SW00A7). • The status is not stored for the reserved stations and the station numbers after the maximum station number.

No.	Name	Description
SW00E8 to SW00EF	Station type matching status	Stores the status of matching between the station type set in the master station and that of the slave station. • 0: Station types match • 1: Station type mismatch The numbers within the following illustration indicate the station numbers. (—: fixed at 0)  <Conditions> Only enabled for stations connected to networks for which the 'network connection status' (SW00B8 to SW00BF) is ON.
SW00F0 to SW00F7	Operating status of each station CPU	Stores the operating status of each CPU module. • 0: RUN, STEP-RUN • 1: STOP, PAUSE, or moderate or major errors occurring The numbers within the following illustration indicate the station numbers. (—: fixed at 0)  <Conditions> • Enabled when 'baton pass status' of own station (SB0047) is OFF. When 'baton pass status of own station' (SB0047) is ON (error), the data immediately before is retained. • Only enabled for stations with normal 'each station baton pass status' (SW00A0 to SW00A7). • The status is not stored for the reserved stations and the station numbers after the maximum station number.
SW00F8 to SW00FF	Network No. matching status	Stores the status of matching between the network No. set in the master station and that of the slave station. • 0: Network numbers match • 1: Network numbers do not match The numbers within the following illustration indicate the station numbers. (—: fixed at 0) 

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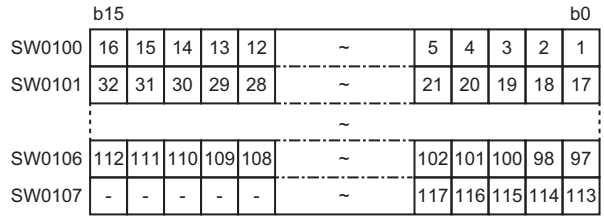
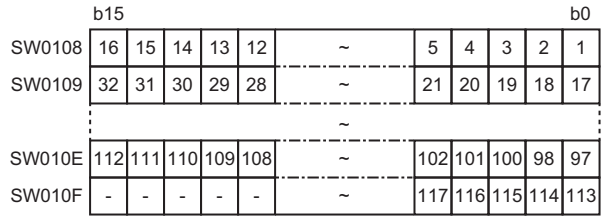
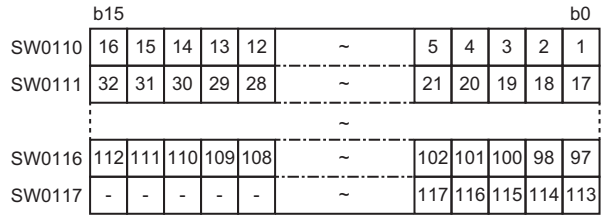
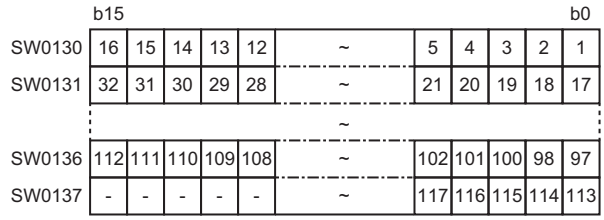
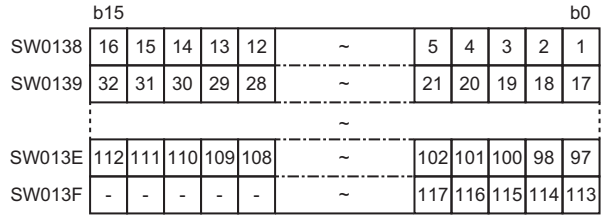
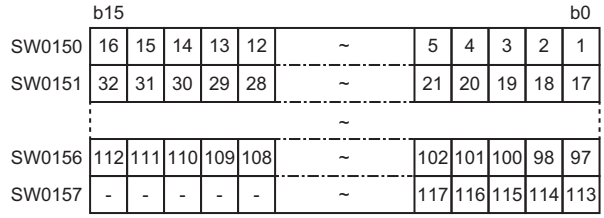
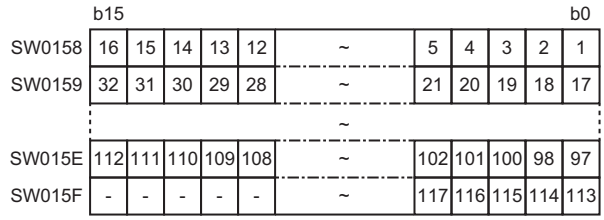
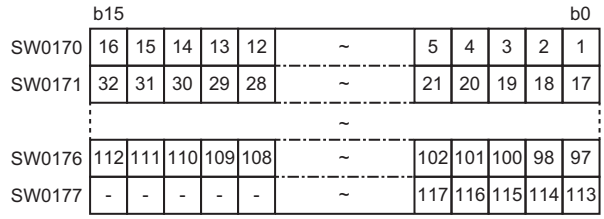
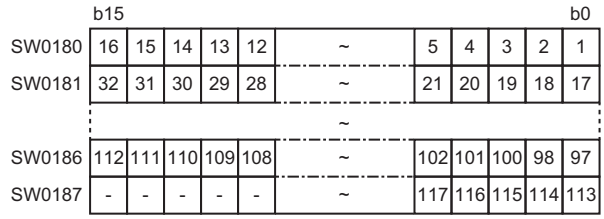
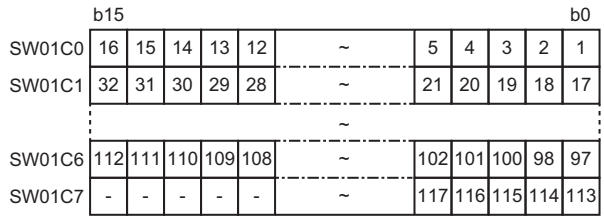
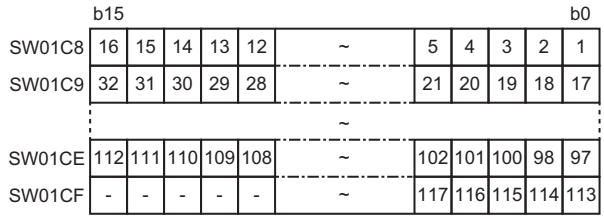
No.	Name	Description
SW0100 to SW0107	Each station CPU moderate/major error occurrence status	The local station stores each station CPU module moderate and major error occurrence status. Remote I/O station, remote device station, and intelligent device station stores the moderate/major error occurrence status of each station. • 0: No moderate or major error • 1: Moderate or major errors occurring The numbers within the following illustration indicate the station numbers. (—: fixed at 0)  <Conditions> • Enabled when 'baton pass status' of own station (SB0047) is OFF. • When 'baton pass status of own station' (SB0047) is ON (error), the data immediately before is retained. • Only enabled for stations with normal 'each station baton pass status' (SW00A0 to SW00A7). • The status is not stored for the reserved stations and the station numbers after the maximum station number.
SW108 to SW10F	Station number duplication occurrence status	Shows duplication of station numbers. • 0: No duplication in station number • 1: Duplicate in one or more station numbers The numbers within the following illustration indicate the station numbers. (—: fixed at 0) 
SW0110 to SW0117	Each station CPU minor error occurrence status	The local station stores each station CPU module minor error occurrence status. Remote I/O station, remote device station, and intelligent device station stores the minor error occurrence status of each station. • 0: Normal, or moderate or major errors occurring • 1: Minor error The numbers within the following illustration indicate the station numbers. (—: fixed at 0)  <Conditions> • Enabled when 'baton pass status' of own station (SB0047) is OFF. When 'baton pass status of own station' (SB0047) is ON (error), the data immediately before is retained. • Only enabled for stations with normal 'each station baton pass status' (SW00A0 to SW00A7). • The status is not stored for the reserved stations and the station numbers after the maximum station number.

No.	Name	Description
SW0130 to SW0137	Each station port 2 error frame reception current status (1)	Shows if a reception frame error of the circuit status caution level is currently occurring at Port 2 of each station. • 0: A reception frame error. The circuit status caution level is not occurring. • 1: A reception frame error. The circuit status caution level is occurring. If 'clear communications error count' (SB0006) is ON, then the stored status is cleared. The numbers within the following illustration indicate the station numbers. (—: fixed at 0)  <Conditions> • Enabled when 'baton pass status' of own station (SB0047) is OFF. When 'baton pass status of own station' (SB0047) is ON (error), the data immediately before is retained. • Only enabled for stations with normal 'each station baton pass status' (SW00A0 to SW00A7).
SW0138 to SW013F	Each station Port 2 error frame reception current status (2)	Shows if a reception frame error of the circuit status warning level is currently occurring at Port 2 of each station. • 0: A reception frame error. The circuit status warning level is not occurring. • 1: A reception frame error. The circuit status warning level is occurring. If 'clear communications error count' (SB0006) is ON, then the stored status is cleared. The numbers within the following illustration indicate the station numbers. (—: fixed at 0)  <Conditions> • Enabled when 'baton pass status' of own station (SB0047) is OFF. • When 'baton pass status of own station' (SB0047) is ON (error), the data immediately before is retained. • Only enabled for stations with normal 'each station baton pass status' (SW00A0 to SW00A7).
SW0150 to SW0157	Port 2 error frame reception detection status (1)	Shows if a reception frame error of the circuit status caution level has occurred in the past at Port 2 of each station from when the power supply was turned ON to now. • 0: A reception frame error. The circuit status caution level is not occurring. • 1: A reception frame error. The circuit status caution level is occurring. If 'clear communications error count' (SB0006) is ON, then the stored status is cleared. The numbers within the following illustration indicate the station numbers. (—: fixed at 0)  <Conditions> • Enabled when 'baton pass status' of own station (SB0047) is OFF. When 'baton pass status of own station' (SB0047) is ON (error), the data immediately before is retained. • Only enabled for stations with normal 'each station baton pass status' (SW00A0 to SW00A7).

No.	Name	Description
SW0158 to SW015F	Port 2 error frame reception detection status (2)	Shows if a reception frame error of the circuit status warning level has occurred in the past at Port 2 of each station from when the power supply was turned ON up to now. • 0: A reception frame error. The circuit status warning level is not occurring. • 1: A reception frame error. The circuit status warning level is occurring. If 'clear communications error count' (SB0006) is ON, then the stored status is cleared. The numbers within the following illustration indicate the station numbers. (—: fixed at 0)  <Conditions> • Enabled when 'baton pass status' of own station (SB0047) is OFF. • When 'baton pass status of own station' (SB0047) is ON (error), the data immediately before is retained. • Only enabled for stations with normal 'each station baton pass status' (SW00A0 to SW00A7).
SW0170 to SW0177	Each station parameter error status	Stores each station parameter error status. • 0: No error • 1: Error The numbers within the following illustration indicate the station numbers. (—: fixed at 0)  <Conditions> • Enabled when 'baton pass status' of own station (SB0047) is OFF. When 'baton pass status of own station' (SB0047) is ON (error), the data immediately before is retained. • Only enabled for stations with normal 'each station baton pass status' (SW00A0 to SW00A7). • The status is not stored for the reserved stations and the station numbers after the maximum station number.
SW0180 to SW0187	Reserved station temporary clear settings status	Stores each station reserved station temporary clear settings status. • 0: No reserved station temporary clear settings • 1: Clearing reserved station temporary settings The numbers within the following illustration indicate the station numbers. (—: fixed at 0)  <Conditions> • Enabled when 'baton pass status' of own station (SB0047) is OFF. When 'baton pass status of own station' (SB0047) is ON (error), the data immediately before is retained. • Only enabled for stations with normal 'each station baton pass status' (SW00A0 to SW00A7). • The status is not stored for the station numbers after the maximum station number.

No.	Name	Description
SW01C0 to SW01C7	Each station CC-Link IE Field Network synchronous communication function information	Stores supported/not supported for each station CC-Link IE Field Network synchronous communication function settings status. • 0: Not supported • 1: Supported The numbers within the following illustration indicate the station numbers. (—: fixed at 0)  <Conditions> • Enabled when 'baton pass status' of own station (SB0047) is OFF. When 'baton pass status of own station' (SB0047) is ON (error), the data immediately before is retained. • Only enabled for stations with normal 'each station baton pass status' (SW00A0 to SW00A7). • The status is not stored for the station numbers after the maximum station number.
SW01C8 to SW01CF	Each station synchronized/not synchronized operation status information	Stores each station CC-Link IE Field Network synchronous communication function operational status. • 0: Not synchronized • 1: Synchronized The numbers within the following illustration indicate the station numbers. (—: fixed at 0)  <Conditions> • Enabled when 'baton pass status' of own station (SB0047) is OFF. When 'baton pass status of own station' (SB0047) is ON (error), the data immediately before is retained. • Stations that have not run an inter-module synchronous interrupt program because the CPU operating status is STOP or similar are also not synchronized (0). • Only enabled for stations with normal 'each station baton pass status' (SW00A0 to SW00A7). • The status is not stored for the station numbers after the maximum station number.
SW01E9	Synchronous communication cycle overrun count	Shows the count for when link scan does not complete within the synchronous communication cycle. Clear by turning the power supply OFF to ON, or clearing the reset state. • 0: No cycle overrun event • 1 to 65535: Accumulated number of cycle overrun events
SW01EA SW01EB	Synchronous communication cycle settings value	Stores the synchronous communication cycle settings value. (Units: μs)

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Appendix 9 List of Buffer Memory

This section shows the buffer memory of this product.

Precautions

Do not write any data in the "system area" of the buffer memory. Writing "system area" data may result in product malfunction.

Address assignment

The following lists the buffer memory overall layout.

Address	Area
0 to 19999	CC-Link IE Field Network Basic function area
20000 to 29999	Operating information area
30000 to 99999	System area
100000 to 199999	CC-Link IE Field Network function area

List of buffer memory

CC-Link IE Field Network Basic function area

The following lists the buffer memory of the CC-Link IE Field Network Basic function area (U3E0\G0 to U3E0\G19999) is as follows.

Address decimal (hexadecimal)	Area	Name	Initial value	Read, Write
0 to 4591 (0H to 11EFH)	System area			
4592 (11F0H)	Control data area	Group No.1 configured link scan time	0	Read
4593 (11F1H)		Group No.1 configured slave station timeout time	0	Read
4594H (11F2H)		Group No.1 configured slave station disconnection detection timeout count	0	Read
4595H (11F3H)	System area			
4596 (11F4H)	Control data area	Group No.2 configured link scan time	0	Read
4597 (11F5H)		Group No.2 configured slave station timeout time	0	Read
4598 (11F6H)		Group No.2 configured slave station disconnection detection timeout count	0	Read
4599 (11F7H)	System area			
4600 (11F8H)	Control data area	Group No.3 configured link scan time	0	Read
4601 (11F9H)		Group No.3 configured slave station timeout time	0	Read
4602 (11FAH)		Group No.3 configured slave station disconnection detection timeout count	0	Read
4603 (11FBH)	System area			

Address decimal (hexadecimal)	Area	Name	Initial value	Read, Write
4604 (11FCH)	Control data area	Group No.4 configured link scan time	0	Read
4605 (11FDH)		Group No.4 configured slave station timeout time	0	Read
4606 (11FEH)		Group No.4 configured slave station disconnection detection timeout count	0	Read
4607 (11FFH)	System area			
4608 (1200H)	Control data area	Total number of connected devices	0	Read
4609 (1201H)	Control data area	Reserved station specification status	0	Read
4610 to 4613H (1202H to 1205H)	Control data area	Reserved station specification status of each station (station No.1 to 64)	0	Read
4614 (1206H)	Control data area	Group No.1 maximum link scan time	0	Read
4615 (1207H)		Group No.1 minimum link scan time	0	Read
4616 (1208H)		Group No.1 current link scan time	0	Read
4617 (1209H)	System area			
4618 (120AH)	Control data area	Group No.2 maximum link scan time	0	Read
4619 (120BH)		Group No.2 minimum link scan time	0	Read
4620 (120CH)		Group No.2 current link scan time	0	Read
4621 (120DH)	System area			
4622 (120EH)	Control data area	Group No.3 maximum link scan time	0	Read
4623 (120FH)		Group No.3 minimum link scan time	0	Read
4624 (1210H)		Group No.3 current link scan time	0	Read
4625 (1211H)	System area			
4626 (1212H)	Control data area	Group No.4 maximum link scan time	0	Read
4627 (1213H)		Group No.4 minimum link scan time	0	Read
4628 (1214H)		Group No.4 current link scan time	0	Read
4629 to 4633 (1215H to 1219H)	System area			

Address decimal (hexadecimal)	Area	Name	Initial value	Read, Write
4634 (121AH)	Control data area	Diagnostic information display request	0	Read, Write
4635 (121BH)		Diagnostic request information	0	Read, Write
4636 (121CH)		Diagnostic information status flag	0	Read
4637 (121DH)		Diagnosis information 1 - Number of occupied stations	0	Read
4638 (121EH)		Diagnosis information 1- Group number	0	Read
4639 (121FH)		Diagnosis information 1 - IP address (lower)	0	Read
4640 (1220H)		Diagnosis information 1 - IP address (upper)	0	Read
4641 to 4646 (1221H to 1226H)	System area			
4647 (1227H)	Control data area	Diagnosis information 1 - Accumulated timeout count	0	Read
4648 (1228H)		Diagnosis information 1 - Accumulated disconnection detection count	0	Read
4649 to 4651 (1229H to 122BH)	System area			
4652 (122CH)	Control data area	Diagnosis information 2 - Manufacturer code	0	Read
4653 (122DH)	System area			
4654 (122EH)	Control data area	Diagnosis information 2 - Type name code (lower)	0	Read
4655 (122FH)		Diagnosis information 2 - Type name code (upper)	0	Read
4656 (1230H)		Diagnosis information 2 - Device version	0	Read
4657 (1231H)	System area			
4658 (1232H)	Control data area	Diagnosis information 2 - Unit information	0	Read
4659 (1233H)		Diagnosis information 2 - Error code	0	Read
4660 (1234H)		Diagnosis information 2 - Unit details information (lower)	0	Read
4661 (1235H)		Diagnosis information 2 - Unit details information (upper)	0	Read
4662 to 19999 (1236H to 4E1FH)	System area			

Operating information area

The following lists the buffer memory of the operating information area (U3E0\G20000 to U3E0\G29999).

Address decimal (hexadecimal)	Area	Name	Initial value	Read, Write
20000 to 20001 (4E20H to 4E21H)	WDT function area	VxWorks part system WDT reset maximum time	0	Read
20002 to 20003 (4E22H to 4E23H)		Windows part system WDT reset maximum time	0	Read
20004 to 20005 (4E24H to 4E25H)	Own node setting status storage area (Ethernet port (CH1))	Own node IP address	0	Read
20006 to 20013 (4E26H to 4E2DH)	System area			
20014 to 20015 (4E2EH to 4E2FH)	Own node setting status storage area (Ethernet port (CH1))	Subnet mask	0	Read
20016 to 20017 (4E30H to 4E31H)	System area			
20018 to 20019 (4E32H to 4E33H)	Own node setting status storage area (Ethernet port (CH1))	Default gateway IP address	0	Read
20020 to 29999 (4E34H to 752FH)	System area			

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CC-Link IE Field Network function area

The following lists the buffer memory of the CC-Link IE Field Network function area (U3E0\G100000 to U3E0\G199999).

Address decimal (hexadecimal)	Area	Name	Initial value	Read, Write
100000 to 101023 (186A0H to 18A9FH)	Device area	RX area	0	Read
101024 to 102047 (18AA0H to 18E9FH)		RY area	0	Read, Write
102048 to 110239 (18EA0H to 1AE9F)		RWw area	0	Read, Write
110240 to 118431 (1AEA0H to 1CE9FH)		RWr area	0	Read
118432 to 118463 (1CEA0H to 1CEBFH)		SB area	0	Read, Write
118464 to 118975 (1CEC0H to 1D0BFH)		SW area	0	Read, Write
118976 to 119455 (1D0C0H to 1D29FH)	System area			
119456 (1D2A0H)	RX offset size information	Station No.1 RX offset	0	Read
119457 (1D2A1H)		Station No.1 RX size	0	Read
119458 to 119693 (1D2A2H to 1D38DH)		⋮		
119694 (1D38EH)		Station No.120 RX offset	0	Read
119695 (1D38FH)		Station No.120 RX size	0	Read
119696 (1D390H)		Station No.0 RX offset	0	Read
119697 (1D391)		Station No.0 RX size	0	Read
119698 to 119711 (1D392H to 1D39FH)	System area			
119712 (1D3A0H)	RY offset size information	Station No.1 RY offset	0	Read
119713 (1D3A1H)		Station No.1 RY size	0	Read data
119714 to 119949 (1D3A2H to 1D48DH)		⋮		
119950 (1D48EH)		Station No.120 RY offset	0	Read
119951 (1D48FH)		Station No.120 RY size	0	Read
119952 (1D490H)		Station No.0 RY offset	0	Read
119953 (1D491H)		Station No.0 RY size	0	Read
119954 to 119967 (1D492H to 1D49FH)	System area			

Address decimal (hexadecimal)	Area	Name	Initial value	Read, Write
119968 (1D4A0H)	RWw offset size information	Station No.1 RWw offset	0	Read
119969 (1D4A1H)		Station No.1 RWw size	0	Read
119970 to 120205 (1D4A2H to 1D58DH)		⋮		
120206 (1D58EH)		Station No.120 RWw offset	0	Read
120207 (1D58FH)		Station No.120 RWw size	0	Read
120208 (1D590H)		Station No.0 RWw offset	0	Read
120209 (1D591H)		Station No.0 RWw size	0	Read
120210 to 120223 (1D592H to 1D59FH)	System area			
120224 (1D5A0H)	RWr offset size information	Station No.1 RWr offset	0	Read
120225 (1D5A1H)		Station No.1 RWr size	0	Read
120226 to 120461 (1D5A2H to 1D68DH)		⋮		
120462 (1D68EH)		Station No.120 RWr offset	0	Read
120463 (1D68FH)		Station No.120 RWr size	0	Read
120464 (1D690H)		Station No.0 RWr offset	0	Read
120465 (1D691H)		Station No.0 RWr size	0	Read
120466 to 120511 (1D692H to 1D6BFH)	System area			
120512 (1D6C0H)	Own station information (network card information)	Manufacturer code	0	Read
120513 (1D6C1H)		Device type	0	Read
120514 (1D6C2H)		Model code	1	Read
120515 (1D6C3H)		Version	1	Read
120516 to 120551 (1D6C4H to 1D6E7H)	System area			
120552 (1D6E8H)	Other station information (Station No.1) (Controller information)	Controller flag enable/disable flag	0	Read
120553 (1D6E9H)		Manufacturer code	0	Read
120554 (1D6EAH)		Device type	0	Read
120555 (1D6EBH)		Model code	0	Read
120556 (1D6ECH)		Version	0	Read
120557 to 120566 (1D6EDH to 1D6F6H)		Type name string	0	Read
120567 to 120568 (1D6F7H to 1D6F8H)		Vendor-specific device information	0	Read
120569 to 120575 (1D6F9H to 1D6FFH)	System area			

Address decimal (hexadecimal)	Area	Name	Initial value	Read, Write
120576 to 124383 (1D700H to 1E5DFH)	Other station information (Station No.2 to 120) (Controller information)	Same as Station 1	0	Read
124384 to 124415 (1E5E0H to 1E5FFH)	Other station information (Station No.0) (Controller information)	Same as Station 1	0	Read
124416 to 124479 (1E600H to 1E63FH)	System area			
124480 (1E640H)	Communication route establishment status (network No.1 to 16)	Communication route establishment status (network No.1 to 16)	0	Read
124481 to 124495 (1E641H to 1E64FH)	Communication route establishment status (network No.17 to 239)	Communication route establishment status (network No.17 to 239)	0	Read
124496 to 130223 (1E650H to 1FCAFH)	System area			
130224 (1FCB0H)	PORT2 side line error occurrence rate (maximum)	Station No.1	0	Read
130225 to 130343 (1FCB1H to 1FD27H)		Station No.2 to station No.120	0	Read
130344 (1FD28H)		Station No.0	0	Read
130345 to 130351 (1FD29H to 1FD2FH)	System area			
130352 (1FD30H)	PORT2 side line error occurrence rate (current)	Station No.1	0	Read
130353 to 130471 (1FD31H to 1FDA7H)		Station No.2 to station No.120	0	Read
130472 (1FDA8H)		Station No.0	0	Read
130473 to 199999 (1FDA9H to 30D3FH)	System area			

Buffer memory details

CC-Link IE Field Network Basic function area

The following shows the buffer memory details of the CC-Link IE Field Network Basic function area (U3E0\G0 to U3E0\G19999).

■ Control data area

Address	Name	Description
U3E0\G4592	Group No.1 configured link scan time	The link scan time during cyclic transmission configured by a C Controller module dedicated function (CCPU_ChangeCCIEFBCycPrm function) or MI Configurator is stored. (Unit: ms)
U3E0\G4593	Group No.1 configured slave station timeout time	The slave station timeout time configured by a C Controller module dedicated function (CCPU_ChangeCCIEFBCycPrm function) or MI Configurator is stored. (Unit: ms)
U3E0\G4594	Group No.1 configured slave station disconnection detection timeout count	The slave station disconnection detection timeout count configured by a C Controller module dedicated function (CCPU_ChangeCCIEFBCycPrm function) or MI Configurator is stored.
U3E0\G4595	System area	
U3E0\G4596	Group No.2 configured link scan time	The link scan time during cyclic transmission configured by a C Controller module dedicated function (CCPU_ChangeCCIEFBCycPrm function) or MI Configurator is stored. (Unit: ms)
U3E0\G4597	Group No.2 configured slave station timeout time	The slave station timeout time configured by a C Controller module dedicated function (CCPU_ChangeCCIEFBCycPrm function) or MI Configurator is stored. (Unit: ms)
U3E0\G4598	Group No.2 configured slave station disconnection detection timeout count	The slave station disconnection detection timeout count configured by a C Controller module dedicated function (CCPU_ChangeCCIEFBCycPrm function) or MI Configurator is stored.
U3E0\G4599	System area	
U3E0\G4600	Group No.3 configured link scan time	The link scan time during cyclic transmission configured by a C Controller module dedicated function (CCPU_ChangeCCIEFBCycPrm function) or MI Configurator is stored. (Unit: ms)
U3E0\G4601	Group No.3 configured slave station timeout time	The slave station timeout time configured by a C Controller module dedicated function (CCPU_ChangeCCIEFBCycPrm function) or MI Configurator is stored. (Unit: ms)
U3E0\G4602	Group No.3 configured slave station disconnection detection timeout count	The slave station disconnection detection timeout count configured by a C Controller module dedicated function (CCPU_ChangeCCIEFBCycPrm function) or MI Configurator is stored.
U3E0\G4603	System area	
U3E0\G4604	Group No.4 configured link scan time	The link scan time during cyclic transmission configured by a C Controller module dedicated function (CCPU_ChangeCCIEFBCycPrm function) or MI Configurator is stored. (Unit: ms)
U3E0\G4605	Group No.4 configured slave station timeout time	The slave station timeout time configured by a C Controller module dedicated function (CCPU_ChangeCCIEFBCycPrm function) or MI Configurator is stored. (Unit: ms)
U3E0\G4606	Group No.4 configured slave station disconnection detection timeout count	The slave station disconnection detection timeout count configured by a C Controller module dedicated function (CCPU_ChangeCCIEFBCycPrm function) or MI Configurator is stored.
U3E0\G4607	System area	
U3E0\G4608	Total number of connected devices	The total number of connected devices configured by parameters is stored.
U3E0\G4609	Reserved station specification status	The reserved station specification status of the slave station configured in parameters is stored. (0: Not specified, 1: Specified) The station numbers configured for reserved stations can be checked by 'Reserved station specification status of each station' (U3E0\G4610 to U3E0\G4613). ■b0: Reserved station specification status ■b1 to b15: Empty (fixed to 0)

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Address	Name	Description
U3E0\G4610	Reserved station specification status of each station (station No.1 to 16)	The reserved station specification status of the slave station configured in parameters is stored. (0: Not reserved station, 1: Reserved station) b15 ... b0 G4610: 16 15 14 13 ~ 4 3 2 1 G4611: 32 31 30 29 ~ 20 19 18 17 G4612: 48 47 46 45 ~ 36 35 34 33 G4613: 64 63 62 61 ~ 52 51 50 49
U3E0\G4611	Reserved station specification status of each station (station No.17 to 32)	
U3E0\G4612	Reserved station specification status of each station (station No.33 to 48)	
U3E0\G4613	Reserved station specification status of each station (station No.49 to 64)	
U3E0\G4614	Group No.1 maximum link scan time	The maximum link scan time value during cyclic transmission is stored. (Unit: ms)
U3E0\G4615	Group No.1 minimum link scan time	The minimum link scan time value during cyclic transmission is stored. (Unit: ms)
U3E0\G4616	Group No.1 current link scan time	The current link scan time value during cyclic transmission is stored. (Unit: ms)
U3E0\G4617	System area	
U3E0\G4618	Group No.2 maximum link scan time	The maximum link scan time value during cyclic transmission is stored. (Unit: ms)
U3E0\G4619	Group No.2 minimum link scan time	The minimum link scan time value during cyclic transmission is stored. (Unit: ms)
U3E0\G4620	Group No.2 current link scan time	The current link scan time value during cyclic transmission is stored. (Unit: ms)
U3E0\G4621	System area	
U3E0\G4622	Group No.3 maximum link scan time	The maximum link scan time value during cyclic transmission is stored. (Unit: ms)
U3E0\G4623	Group No.3 minimum link scan time	The minimum link scan time value during cyclic transmission is stored. (Unit: ms)
U3E0\G4624	Group No.3 current link scan time	The current link scan time value during cyclic transmission is stored. (Unit: ms)
U3E0\G4625	System area	
U3E0\G4626	Group No.4 maximum link scan time	The maximum link scan time value during cyclic transmission is stored. (Unit: ms)
U3E0\G4627	Group No.4 minimum link scan time	The minimum link scan time value during cyclic transmission is stored. (Unit: ms)
U3E0\G4629	Group No.4 current link scan time	The current link scan time value during cyclic transmission is stored. (Unit: ms)
U3E0\G4630 to U3E0\G4633	System area	
U3E0\G4634	Diagnostic information display request	If 'b0' of 'diagnostic information display request' (U3E0\G4634) changes from OFF to ON at link scan completion, then diagnosis information for the slave station specified in 'diagnosis request information' (U3E0\G4635) is read to 'diagnosis information enable/disable flag' (U3E0\G4636) to 'diagnosis information 2 - unit details information (upper)' (U3E0\G4661). If diagnosis information setting is complete at link scan completion, 'b0' of 'diagnostic information display request' (U3E0\G4634) is set to OFF by the system. ■b0: Diagnostic information display request ■b1 to b15: Empty (fixed to 0)
U3E0\G4635	Diagnostic request information	Specify the slave station to display in diagnoses information. (1 to 64 stations)

Address	Name	Description
U3E0\G4636	Diagnostic information status flag	If the 'b0' of 'diagnosis information display request' (U3E0\G4634) changes from OFF to ON at link scan completion, the enabling/disabling of slave station diagnosis information (diagnosis information 1, diagnosis information 2) specified in 'diagnosis request information' (U3E0\G4635) is stored. (0: Enabled, 1: Disabled) ■b0 to b7: Diagnostic information 1 ■b8 to b15: Diagnostic information 2 • If the slave station specified in 'diagnosis request information' (U3E0\G4635) is the occupied station start station number and cyclic transmission is underway, '1' is stored for 'b0 to b7' and 'b8 to b15'. (In the case of a reserved station, 'b8 to b15' is '0'.) • If the slave station specified in 'diagnosis request information' (U3E0\G4635) is not the occupied station start station number or cyclic transmission is not underway, '0' is stored for 'b0 to b7' and 'b8 to b15'.
U3E0\G4637	Diagnosis information 1 - Number of occupied stations	If 'b0 to b7' of 'diagnosis information enable/disable flag' (U3E0\G4636) is '1' (enable), the occupied station count, group number, IP address, accumulated timeout count, and accumulated disconnection detection count of the slave station specified in 'diagnosis request information' (U3E0\G4635) is stored. If 'b0 to b7' of the 'diagnosis information enable/disable flag' (U3E0\G4636) is '0' (disable), '0' is stored.) ■G4637: Number of occupied stations ■G4638: Group No. ■G4639: IP address If an IP address is not set in the parameter, the values will be all '0'. • b0 to b7: Fourth octet • b8 to b15: Third octet ■G4640: IP address If an IP address is not set in the parameter, the values will be all '0'. • b0 to b7: Second octet • b8 to b15: First octet ■G4647: Accumulated number of timeouts • 0: No timeouts • 1 to 65,535: Timeout count (accumulated) (if the value exceeded '65,535', it returns to '1'.) ■G4648: Accumulated number of disconnection detection • 0: No disconnections • 1 to 65,535: Disconnected detection count (accumulated) (if the value exceeded '65,535', it returns to '1'.)
U3E0\G4638	Diagnosis information 1- Group number	
U3E0\G4639	Diagnosis information 1 - IP address (lower)	
U3E0\G4640	Diagnosis information 1 - IP address (upper)	
U3E0\G4641 to U3E0\G4646	System area	
U3E0\G4647	Diagnosis information 1 - Accumulated timeout count	
U3E0\G4648	Diagnosis information 1 - Accumulated disconnection detection count	
U3E0\G4649 to U3E0\G4651	System area	
U3E0\G4652	Diagnosis information 2 - Manufacturer code	If 'b8 to b15' of the 'diagnosis information enable/disable flag' (U3E0\G4636) is '1' (enable), the manufacturer code, type name code, device version, module information, error codes, and detailed unit information specified in 'diagnosis request information' (U3E0\G4635) are stored. If 'b8 to b15' of the 'diagnosis information enable/disable flag' (U3E0\G4636) is '0' (disable), '0' is stored.
U3E0\G4653	System area	
U3E0\G4654	Diagnosis information 2 - Type name code (lower)	
U3E0\G4655	Diagnosis information 2 - Type name code (upper)	
U3E0\G4656	Diagnosis information 2 - Device version	
U3E0\G4657	System area	
U3E0\G4658	Diagnosis information 2 - Unit information	
U3E0\G4659	Diagnosis information 2 - Error code	
U3E0\G4660	Diagnosis information 2 - Unit details information (lower)	
U3E0\G4661	Diagnosis information 2 - Unit details information (upper)	
U3E0\G4662 to U3E0\G19999	System area	

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Operating information area

The following shows the buffer memory details of the operating information area (U3E0\G20000 to U3E0\G29999).

■ Control data area

Address	Name	Description
U3E0\G20000 to U3E0\G20001	VxWorks part system WDT reset maximum time	The maximum time to reset the system WDT is stored. (Unit: ms)
U3E0\G20002 to U3E0\G20003	Windows part system WDT reset maximum time	
U3E0\G20004 to U3E0\G20005	Own node IP address	The IP address configured to the Ethernet port (CH1) is stored. ■G20004 • b0 to b7: Fourth octet • b8 to b15: Third octet ■G20005 • b0 to b7: Second octet • b8 to b15: First octet
U3E0\G20006 to U3E0\G20013	System area	
U3E0\G20014 to U3E0\G20015	Subnet mask	The subnet mask configured to the Ethernet port (CH1) is stored. ■G20014 • b0 to b7: Fourth octet • b8 to b15: Third octet ■G20015 • b0 to b7: Second octet • b8 to b15: First octet
U3E0\G20016 to U3E0\G20017	System area	
U3E0\G20018 to U3E0\G20019	Default gateway IP address	The default gateway configured to the Ethernet port (CH1) is stored. ■G20018 • b0 to b7: Fourth octet • b8 to b15: Third octet ■G20019 • b0 to b7: Second octet • b8 to b15: First octet
U3E0\G20016 to U3E0\G20017	System area	

CC-Link IE Field Network function area

The following shows the buffer memory details of the CC-Link IE Field Network function area (U3E0\G100000 to U3E0\G199999).

■ Link device area (U3E0\G100000 to U3E0\G118975)

RX, RY, RWw, RWr, SB, and SW values are stored.

●Link input (RX) (U3E0\G100000 to U3E0\G101023)

RX start numbers and point numbers for each station can be confirmed using the RX offset size information (U3E0\G119456 to U3E0\G119697). (☞ Page 293 RX offset size information (U3E0\G119456 to U3E0\G119697))

Each bit corresponds to RX 1 bit.

Address	b15	b14	b13	b12	b11	b10	b9	b8	b7	b6	b5	b4	b3	b2	b1	b0
U3E0\G100000	RXF	RXE	RXD	RXC	RXB	RXA	RX9	RX8	RX7	RX6	RX5	RX4	RX3	RX2	RX1	RX0
⋮																
U3E0\G101023	RX3FFF	RX3FFE	RX3FFD	RX3FFC	RX3FFB	RX3FFA	RX3FF9	RX3FF8	RX3FF7	RX3FF6	RX3FF5	RX3FF4	RX3FF3	RX3FF2	RX3FF1	RX3FF0

● Link output (RY) (U3E0\G101024 to U3E0\G102047)

RY start numbers and point numbers for each station can be confirmed using the RY offset size information (U3E0\G119712 to U3E0\G119953). (☞ Page 293 RY offset size information (U3E0\G119712 to U3E0\G119953))

Each bit corresponds to RY 1 bit.

Address	b15	b14	b13	b12	b11	b10	b9	b8	b7	b6	b5	b4	b3	b2	b1	b0
U3E0\G101024	RYF	RYE	RYD	RYC	RYB	RYA	RY9	RY8	RY7	RY6	RY5	RY4	RY3	RY2	RY1	RY0
⋮																
U3E0\G102047	RY3FFF	RY3FFE	RY3FFD	RY3FFC	RY3FFB	RY3FFA	RY3FF9	RY3FF8	RY3FF7	RY3FF6	RY3FF5	RY3FF4	RY3FF3	RY3FF2	RY3FF1	RY3FF0

● Remote register (RWw) (U3E0\G102048 to U3E0\G110239)

RWw start numbers and point numbers for each station can be confirmed using the RWw offset size information (U3E0\G119968 to U3E0\G120209). (☞ Page 294 RWw offset size information (U3E0\G119968 to U3E0\G120209))

Address	b15	b14	b13	b12	b11	b10	b9	b8	b7	b6	b5	b4	b3	b2	b1	b0
U3E0\G102048	RWw0															
U3E0\G102049	RWw1															
⋮																
U3E0\G110239	RWw1FFF															

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● Remote register (RWr) (U3E0\G110240 to U3E0\G118431)

RWr start numbers and point numbers for each station can be confirmed using the RWr offset size information (U3E0\G120224 to U3E0\G120465). (☞ Page 294 RWr offset size information (U3E0\G120224 to U3E0\G120465))

Address	b15	b14	b13	b12	b11	b10	b9	b8	b7	b6	b5	b4	b3	b2	b1	b0
U3E0\G110240	RWr0															
U3E0\G110241	RWr1															
⋮																
U3E0\G118431	RWr1FFF															

● Link special relay (SB) (U3E0\G118432 to U3E0\G118463)

Address	b15	b14	b13	b12	b11	b10	b9	b8	b7	b6	b5	b4	b3	b2	b1	b0
U3E0\G118432	SBF	SBE	SBD	SBC	SBB	SBA	SB9	SB8	SB7	SB6	SB5	SB4	SB3	SB2	SB1	SB0
⋮																
U3E0\G118463	SB1FF	SB1FE	SB1FD	SB1FC	SB1FB	SB1FA	SB1F9	SB1F8	SB1F7	SB1F6	SB1F5	SB1F4	SB1F3	SB1F2	SB1F1	SB1F0

● Link special register (SW) (U3E0\G118464 to U3E0\G118975)

Address	b15	b14	b13	b12	b11	b10	b9	b8	b7	b6	b5	b4	b3	b2	b1	b0
U3E0\G118464	SW0															
U3E0\G118465	SW1															
⋮																
U3E0\G118975	SW1FFF															

■ RX offset size information (U3E0\G119456 to U3E0\G119697)

RX start numbers and point numbers for each station are stored.

Address	Description
U3E0\G119456	Station No.1 RX offset
U3E0\G119457	Station No.1 RX size (word units)
U3E0\G119458	Station No.2 RX offset
U3E0\G119459	Station No.2 RX (word units)
⋮	⋮
U3E0\G119694	Station No.120 RX offset
U3E0\G119695	Station No.120 RX size (word units)
U3E0\G119696	Station No.0 RX offset
U3E0\G119697	Station No.0 RX size (word units)

Offset and size buffer memory addresses for each station No. can be calculated using the following formula. (With the exception of station No.0)

- Offset buffer memory address=119456+(Station No.-1)×2
- Size buffer memory address=119457+(Station No.-1)×2

■ RY offset size information (U3E0\G119712 to U3E0\G119953)

RY start numbers and point numbers for each station are stored.

Address	Description
U3E0\G119712	Station No.1 RY offset
U3E0\G119713	Station No.1 RY size (word units)
U3E0\G119714	Station No.2 RY offset
U3E0\G119715	Station No.2 RY size (word units)
⋮	⋮
U3E0\G119950	Station No.120 RY offset
U3E0\G119951	Station No.120 RY size (word units)
U3E0\G119952	Station No.0 RY offset
U3E0\G119953	Station No.0 RY size (word units)

Offset and size buffer memory addresses for each station No. can be calculated using the following formula. (With the exception of station No.0)

- Offset buffer memory address=119712+(Station No.-1)×2
- Size buffer memory address=119713+(Station No.-1)×2

■ RWw offset size information (U3E0\G119968 to U3E0\G120209)

RWw start numbers and point numbers for each station are stored.

Address	Description
U3E0\G119968	Station No.1 RWw offset
U3E0\G119969	Station No.1 RWw size (word units)
U3E0\G119970	Station No.2 RWw offset
U3E0\G119971	Station No.2 RWw size (word units)
⋮	⋮
U3E0\G120206	Station No.120 RWw offset
U3E0\G120207	Station No.120 RWw size (word units)
U3E0\G120208	Station No.0 RWw offset
U3E0\G120209	Station No.0 RWw size (word units)

Offset and size buffer memory addresses for each station No. can be calculated using the following formula. (With the exception of station No.0)

- Offset buffer memory address=119968+(Station No.-1)×2
- Size buffer memory address=219969+(Station No.-1)×2

■ RWr offset size information (U3E0\G120224 to U3E0\G120465)

RWr start numbers and point numbers for each station are stored.

Address	Description
U3E0\G120224	Station No.1 RWr offset
U3E0\G120225	Station No.1 RWr size (word units)
U3E0\G120226	Station No.2 RWr offset
U3E0\G120227	Station No.2 RWr size (word units)
⋮	⋮
U3E0\G120462	Station No.120 RWr offset
U3E0\G120463	Station No.120 RWr size (word units)
U3E0\G120464	Station No.0 RWr offset
U3E0\G120465	Station No.0 RWr size (word units)

Offset and size buffer memory addresses for each station No. can be calculated using the following formula. (With the exception of station No.0)

- Offset buffer memory address=120224+(Station No.-1)×2
- Size buffer memory address=120225+(Station No.-1)×2

■ Own station information (network card information) (U3E0\G120512 to U3E0\G120515)

Network-related own station information (network card information) is stored.

Address	Description	
U3E0\G120512	Manufacturer code	Own station master/local module information is stored.
U3E0\G120513	Device type	
U3E0\G120514	Model code	
U3E0\G120515	Version	

■ Other station information (Station No.1) (controller information) (U3E0\G120552 to U3E0\G120568)

Network-related other station information (controller information) is stored.

Address	Description	
U3E0\G120552	Controller flag enable/disable flag	Enabled or disabled is stored for the values stored in other station information (station No.1) (controller information). • 0: Invalid • 1: Enabled
U3E0\G120553	Manufacturer code	Other station (station No.1) information is stored.
U3E0\G120554	Device type	
U3E0\G120555	Model code	
U3E0\G120556	Version	
U3E0\G120557 to U3E0\G120566	Type name string	
U3E0\G120567 to U3E0\G120568	Vendor-specific device information	

■ Other station information (Station No.2 to 120) (U3E0\G120576 to U3E0\G124383)

Stores the station No.2 to 120 in the same order as the other station information (station No.1) (network card information) and the other station information (station No.1) (controller information).

■ Other station information (Station No.0) (U3E0\G124384 to U3E0\G124415)

Stores the station No.0 in the same order as the other station information (station No.1) (network card information) and the other station information (station No.1) (controller information).

■ Communication route establishment status (network No.1 to 16) (U3E0\G124480)

Communication route establishment information for each target station network No.1 to 16 is stored.

Address	b15	b14	b13	b12	b11	b10	b9	b8	b7	b6	b5	b4	b3	b2	b1	b0
U3E0\G124480	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1

■ Communication route establishment status (network No.17 to 239) (U3E0\G124481 to U3E0\124495)

Communication route establishment information for each target station network No.17 to 239 is stored.

Address	b15	b14	b13	b12	b11	b10	b9	b8	b7	b6	b5	b4	b3	b2	b1	b0
U3E0\G124481	32	31	30	29	28	27	26	25	24	23	22	21	20	19	18	17
⋮																
U3E0\G124494	empty / vacant / reserved	239	238	237	236	235	234	233	232	231	230	229	228	227	226	225
U3E0\G124495	empty/vacant/reserved															

■ PORT2 side line error occurrence rate (maximum) (U3E0\G130224 to U3E0\G130344)

Stores the maximum value for PORT2 error frame reception occurrence rate.

However, the value is not stored in the own station No. area.

●PORT2 side line error occurrence rate (maximum) (station No.1 to 120) (U3E0\G130224 to U3E0\G130343)

Stores the maximum value for station No.1 to 120 error frame reception occurrence rate.

●PORT2 side line error occurrence rate (maximum) (station No.0) (U3E0\G130344)

Stores the maximum value for station No.0 to error frame reception occurrence rate.

■ PORT2 side line error occurrence rate (current) (U3E0\G130352 to U3E0\G130472)

Stores the current value for PORT2 error frame reception occurrence rate.

However, the value is not stored in the own station No. area.

●PORT2 side line error occurrence rate (current) (station No.1 to 120) (U3E0\G130352 to U3E0\G130471)

Stores the current value for station No.1 to 120 error frame reception occurrence rate.

●PORT2 side line error occurrence rate (current) (station No.0) (U3E0\G130472)

Stores the current value for station No.0 error frame reception occurrence rate.

Appendix 10 List of VxWorks Components

This section shows the VxWorks components of this product.

For details on each components, refer to VxWorks manual or help.

NAME (component list)
#define DNSC_CFGFILE_EXAMPLE
#define DRV_BUS_ACPI_ROOT
#define DRV_BUS_FDT_ROOT
#define DRV_IA_PCI_BUS
#define DRV_IA_PCI_BUS_INSTANCE_0
#define DRV_INTCTLR_IA_DYNAMIC
#define DRV_INTCTLR_IA_FDT
#define DRV_INTCTLR_IOAPIC
#define DRV_INTCTLR_LOAPIC
#define DRV_INTCTLR_LOAPIC_INSTANCE
#define DRV_INTEL_NEXUS
#define DRV_MELCO_FPGA_HELIOS
#define DRV_MELCO_GEMINI
#define DRV_NEXUS_GENERIC
#define DRV_PCI_BRIDGE_GENERIC
#define DRV_SIO_IA_NS16550
#define DRV_SIO_IA_NS16550_INSTANCE_0
#define DRV_TIMER_I8253
#define DRV_TIMER_I8253_INSTANCE_0
#define DRV_TIMER_IA_HPET
#define DRV_TIMER_IA_HPET_BUS
#define DRV_TIMER_IA_HPET_BUS_INSTANCE_0
#define DRV_TIMER_IA_HPET_INSTANCE_0
#define DRV_TIMER_IA_HPET_INSTANCE_1
#define DRV_TIMER_IA_HPET_INSTANCE_2
#define DRV_TIMER_IA_HPET_INSTANCE_COMPARATORS
#define DRV_TIMER_IA_HPET_INSTANCE_MAIN
#define DRV_TIMER_IA_TIMESTAMP
#define DRV_TIMER_IA_TIMESTAMP_INSTANCE_0
#define DRV_TIMER_LOAPIC
#define DRV_TIMER_LOAPIC_INSTANCE_0
#define FTPS_CFGFILE_EXAMPLE
#define GRUB_MULTIBOOT
#define IA_PCI_UTILS
#define INCLUDE_ACPI
#define INCLUDE_ACPI_BOOT_OP
#define INCLUDE_ACPI_MPAPIC
#define INCLUDE_ACPI_TABLE_MAP
#define INCLUDE_ADR_SPACE_LIB
#define INCLUDE_ADR_SPACE_SHELL_CMD
#define INCLUDE_ADR_SPACE_SHOW
#define INCLUDE_ANSI_ABORT
#define INCLUDE_ANSI_ABS
#define INCLUDE_ANSI_ASSERT
#define INCLUDE_ANSI_ATOF
#define INCLUDE_ANSI_BSEARCH
#define INCLUDE_ANSI_CTYPE
#define INCLUDE_ANSI_LONGJMP

NAME (component list)
#define INCLUDE_ANSI_MATH
#define INCLUDE_ANSI_MEMCHR
#define INCLUDE_ANSI_MEMCMP
#define INCLUDE_ANSI_MEMCPY
#define INCLUDE_ANSI_MEMMOVE
#define INCLUDE_ANSI_MEMSET
#define INCLUDE_ANSI_STDIO
#define INCLUDE_ANSI_STDIO_EXTRA
#define INCLUDE_ANSI_STDLIB
#define INCLUDE_ANSI_STDLIB_NUMBERS
#define INCLUDE_ANSI_STRCASECMP
#define INCLUDE_ANSI_STRCAT
#define INCLUDE_ANSI_STRCMP
#define INCLUDE_ANSI_STRCPY
#define INCLUDE_ANSI_STRDUP
#define INCLUDE_ANSI_STRERROR
#define INCLUDE_ANSI_STRING
#define INCLUDE_ANSI_STRLCAT
#define INCLUDE_ANSI_STRLCPY
#define INCLUDE_ANSI_STRLEN
#define INCLUDE_ANSI_STRNCASECMP
#define INCLUDE_ANSI_STRNCAT
#define INCLUDE_ANSI_STRNCMP
#define INCLUDE_ANSI_STRNCPY
#define INCLUDE_ANSI_STRTOD
#define INCLUDE_ANSI_TIME
#define INCLUDE_APPL_LOG_UTIL
#define INCLUDE_ARPAINETLIB
#define INCLUDE_ARP_API
#define INCLUDE_ATOMIC_OPERATORS
#define INCLUDE_AUX_CLK
#define INCLUDE_AVL_TREES
#define INCLUDE_AVL_UINT_TREES
#define INCLUDE_BANNER
#define INCLUDE_BASE_KERNEL
#define INCLUDE_BIOS_E820_MEM_AUTOSIZE
#define INCLUDE_BLIB
#define INCLUDE_BOARD_CONFIG
#define INCLUDE_BOARD_INFO_SHOW
#define INCLUDE_BOARD_INIT
#define INCLUDE_BOARD_LIB_INIT
#define INCLUDE_BOOT_LINE_INIT
#define INCLUDE_BSP_MACROS
#define INCLUDE_BSP_PARAMS
#define INCLUDE_CACHE_ENABLE
#define INCLUDE_CACHE_SUPPORT
#define INCLUDE_CHECKSUM
#define INCLUDE_CLASS_LIB
#define INCLUDE_CLASS_LIST
#define INCLUDE_CLASS_SHOW
#define INCLUDE_CONDVAR
#define INCLUDE_CONDVAR_OPEN
#define INCLUDE_CONDVAR_SHOW

NAME (component list)
#define INCLUDE_COPROCESSOR
#define INCLUDE_COPROCESSOR_SHOW
#define INCLUDE_CORE_NFS_CLIENT
#define INCLUDE_CORE_NFS_SERVER
#define INCLUDE_CPC
#define INCLUDE_CPLUS
#define INCLUDE_CPLUS_DEMANGLER
#define INCLUDE_CPLUS_IOSTREAMS
#define INCLUDE_CPLUS_LANG
#define INCLUDE_CPU_INIT
#define INCLUDE_CPU_LIGHT_PWR_MGR
#define INCLUDE_CTORS_DTORS
#define INCLUDE_DATACOLLECTOR
#define INCLUDE_DEBUG
#define INCLUDE_DEBUG_AGENT
#define INCLUDE_DEBUG_AGENT_BANNER
#define INCLUDE_DEBUG_AGENT_HOSTFS
#define INCLUDE_DEBUG_AGENT_START
#define INCLUDE_DEBUG_SHELL_CMD
#define INCLUDE_DEFERRED_INTERRUPT_ENABLE
#define INCLUDE_DEVICE_MANAGER
#define INCLUDE_DEVMEM
#define INCLUDE_DISK_UTIL
#define INCLUDE_DISK_UTIL_SHELL_CMD
#define INCLUDE_DLL
#define INCLUDE_DMA_SYS
#define INCLUDE_DOSFS
#define INCLUDE_DOSFS_CACHE
#define INCLUDE_DOSFS_CHKDSK
#define INCLUDE_DOSFS_DIR_FIXED
#define INCLUDE_DOSFS_DIR_VFAT
#define INCLUDE_DOSFS_FAT
#define INCLUDE_DOSFS_FMT
#define INCLUDE_DOSFS_MAIN
#define INCLUDE_DOSFS_SHOW
#define INCLUDE_DOSFS_VOL_BIO_BUFFER_SIZE
#define INCLUDE_EARLY_D_CACHE_ENABLE
#define INCLUDE_EARLY_I_CACHE_ENABLE
#define INCLUDE_EDR_DEFAULT_POLICY
#define INCLUDE_EDR_ERRLOG
#define INCLUDE_EDR_PM
#define INCLUDE_EDR_SHELL_CMD
#define INCLUDE_EDR_SHOW
#define INCLUDE_EDR_STUB
#define INCLUDE_EDR_SYSDBG_FLAG
#define INCLUDE_END
#define INCLUDE_END_COMMON
#define INCLUDE_END_ETHER_HDR
#define INCLUDE_END_POLLED_STATS
#define INCLUDE_ENV_VARS
#define INCLUDE_ERF
#define INCLUDE_ETHERNET
#define INCLUDE_EVENTPOINT

NAME (component list)
#define INCLUDE_EVENTPOINT_STUB
#define INCLUDE_EXC_HANDLING
#define INCLUDE_EXC_SHOW
#define INCLUDE_EXC_SIGNALS
#define INCLUDE_EXC_TASK
#define INCLUDE_FAST_REBOOT
#define INCLUDE_FDT_LIB
#define INCLUDE_FLOATING_POINT
#define INCLUDE_FORMATTED_IO
#define INCLUDE_FORMATTED_OUT_BASIC
#define INCLUDE_FP_TYPE
#define INCLUDE_FS_EVENT_UTIL
#define INCLUDE_FS_MONITOR
#define INCLUDE_FTP
#define INCLUDE_GEI825XX_VXB_END
#define INCLUDE_GENERICPHY
#define INCLUDE_GETNAMEINFO
#define INCLUDE_GETOPT
#define INCLUDE_GETSERVBYNAME
#define INCLUDE_GETSERVBYPORT
#define INCLUDE_GNU_INTRINSICS
#define INCLUDE_HANDLE_SHOW
#define INCLUDE_HASH
#define INCLUDE_HISTORY_FILE_SHELL_CMD
#define INCLUDE_HOOKS
#define INCLUDE_HOOK_SHOW
#define INCLUDE_HOST_TBL
#define INCLUDE_HPET_AUX_CLK
#define INCLUDE_HPET_TIMESTAMP
#define INCLUDE_HRFS
#define INCLUDE_HRFS_CHKDSK
#define INCLUDE_HRFS_DEFAULT_WRITE_MODE
#define INCLUDE_HRFS_FORMAT
#define INCLUDE_HW_FP
#define INCLUDE_HW_FP_MREGS
#define INCLUDE_HW_FP_SHOW
#define INCLUDE_HYPERVISOR_HVIF
#define INCLUDE_HYPERVISOR_VNIC
#define INCLUDE_HYPERVISOR_VNIC_END
#define INCLUDE_HYPERVISOR_VNIC_MSM
#define INCLUDE_HYPERVISOR_VXB_SHMEM
#define INCLUDE_IDLE_TASKS
#define INCLUDE_IFCONFIG
#define INCLUDE_INETLIB
#define INCLUDE_INIT_DTB
#define INCLUDE_INTCTLR_DYNAMIC_LIB
#define INCLUDE_INT_LIB_INIT
#define INCLUDE_IO_BASIC
#define INCLUDE_IO_FILE_SYSTEM
#define INCLUDE_IO_MISC
#define INCLUDE_IO_POSIX
#define INCLUDE_IO_REMOVABLE
#define INCLUDE_IO_RTP

NAME (component list)
#define INCLUDE_IO_SYSTEM
#define INCLUDE_IPAIP
#define INCLUDE_IPAIP_GLOBAL_CONFIGS
#define INCLUDE_IPARP_CMD
#define INCLUDE_IPATTACH
#define INCLUDE_IPCOM
#define INCLUDE_IPCOM_FS_NATIVE
#define INCLUDE_IPCOM_SHELL_CMD
#define INCLUDE_IPCOM_SYSVAR_CMD
#define INCLUDE_IPCOM_USE_ETHERNET
#define INCLUDE_IPCOM_USE_INET
#define INCLUDE_IPCOM_USE_INET6
#define INCLUDE_IPCOM_USE_RAM_DISK
#define INCLUDE_IPCOM_USR
#define INCLUDE_IPCRYPTO
#define INCLUDE_IPDHCPC
#define INCLUDE_IPDNSC
#define INCLUDE_IPD_CMD
#define INCLUDE_IPFIREWALL
#define INCLUDE_IPFIREWALL_CMD
#define INCLUDE_IPFTPC
#define INCLUDE_IPFTPS
#define INCLUDE_IPFTP_CMD
#define INCLUDE_IPIFCONFIG_CMD
#define INCLUDE_IPNET
#define INCLUDE_IPNET6_USE_MCAST_ROUTING
#define INCLUDE_IPNETSTAT_CMD
#define INCLUDE_IPNET_LOOPBACK_CONFIG
#define INCLUDE_IPNET_SOCKET
#define INCLUDE_IPNET_SYSCTL
#define INCLUDE_IPNET_USE_LOOPBACK
#define INCLUDE_IPNET_USE_MCAST_ROUTING
#define INCLUDE_IPNET_USE_NAT
#define INCLUDE_IPNET_USE_NETLINKSOCK
#define INCLUDE_IPNET_USE_ROUTESOCK
#define INCLUDE_IPNET_USE_SOCK_COMPAT
#define INCLUDE_IPNET_USE_VLAN
#define INCLUDE_IPPING_CMD
#define INCLUDE_IPPROXYARP
#define INCLUDE_IPRADIUS
#define INCLUDE_IPRADIUS_CMD
#define INCLUDE_IPRADVD
#define INCLUDE_IPROUTE_CMD
#define INCLUDE_IPSNTPC
#define INCLUDE_IPSNTPC_API
#define INCLUDE_IPSNTP_CMD
#define INCLUDE_IPSNTP_COMMON
#define INCLUDE_IPTCP
#define INCLUDE_IPTCP_TEST_CMD
#define INCLUDE_IPTELNETS
#define INCLUDE_IPTFTPC
#define INCLUDE_IPTFTP_COMMON
#define INCLUDE_IPV4

NAME (component list)
#define INCLUDE_IPV6
#define INCLUDE_IPWRAP_ARP
#define INCLUDE_IPWRAP_GETADDRINFO
#define INCLUDE_IPWRAP_GETHOSTBYADDR
#define INCLUDE_IPWRAP_GETIFADDRS
#define INCLUDE_IPWRAP_GETNAMEINFO
#define INCLUDE_IPWRAP_GETSERVBYNAME
#define INCLUDE_IPWRAP_GETSERVBYPORT
#define INCLUDE_IPWRAP_IFCONFIG
#define INCLUDE_IPWRAP_IFLIB
#define INCLUDE_IPWRAP_IFSHOW
#define INCLUDE_IPWRAP_INETLIB
#define INCLUDE_IPWRAP_IPPROTO
#define INCLUDE_IPWRAP_NETSTAT
#define INCLUDE_IPWRAP_OLDROUTELIB
#define INCLUDE_IPWRAP_PING
#define INCLUDE_IPWRAP_ROUTECMD
#define INCLUDE_IPWRAP_SNTPCTIMEGET
#define INCLUDE_ISR_DEFER
#define INCLUDE_ISR_HANDLER_INIT
#define INCLUDE_JOB_DEFER
#define INCLUDE_JOB_QUEUE
#define INCLUDE_JOB_TASK
#define INCLUDE_KERNEL
#define INCLUDE_KERNEL_ARCH
#define INCLUDE_KERNEL_COMMON_HEAP
#define INCLUDE_KERNEL_PROXIMITY_HEAP
#define INCLUDE_LINKBUFPOOL
#define INCLUDE_LOADER
#define INCLUDE_LOADER_CODE
#define INCLUDE_LOADER_HOOKS
#define INCLUDE_LOAPIC_SYS_CLK
#define INCLUDE_LOCAL_AUTH
#define INCLUDE_LOGGING
#define INCLUDE_LOOPFS
#define INCLUDE_LSTLIB
#define INCLUDE_MAPPED_FILES_SHOW
#define INCLUDE_MAPPED_FILES_SHOW_SHELL_CMD
#define INCLUDE_MBUF_UTIL1
#define INCLUDE_MEMORY_CONFIG
#define INCLUDE_MEM_MGR_BASIC
#define INCLUDE_MEM_MGR_FULL
#define INCLUDE_MEM_MGR_INFO
#define INCLUDE_MEM_SHOW
#define INCLUDE_MIB2_ICMP
#define INCLUDE_MIB2_IF
#define INCLUDE_MIB2_TCP
#define INCLUDE_MIB2_UDP
#define INCLUDE_MII_FDT_SYS
#define INCLUDE_MII_MONITOR_TASK
#define INCLUDE_MII_SYS
#define INCLUDE_MMAP
#define INCLUDE_MMU_BASIC

NAME (component list)
#define INCLUDE_MMU_GLOBAL_MAP
#define INCLUDE_MMU_P6_32BIT
#define INCLUDE_MODULE_MANAGER
#define INCLUDE_MODULE_SHELL_CMD
#define INCLUDE_MSG_Q
#define INCLUDE_MSG_Q_CREATE_DELETE
#define INCLUDE_MSG_Q_EVENTS
#define INCLUDE_MSG_Q_INFO
#define INCLUDE_MSG_Q_OPEN
#define INCLUDE_MSG_Q_SHOW
#define INCLUDE_MTD
#define INCLUDE_MTD_CFIAMD
#define INCLUDE_MTD_VXBFLASH
#define INCLUDE_MULTIBOOT_MEM_AUTOSIZE
#define INCLUDE_MULTI_STAGE_BOOT
#define INCLUDE_MUX
#define INCLUDE_MUX2
#define INCLUDE_MUX2_OVER_END
#define INCLUDE_MUXTK
#define INCLUDE_MUXTK_OVER_END
#define INCLUDE_MUX_COMMON
#define INCLUDE_NETBUFLIB
#define INCLUDE_NETBUFPOOL
#define INCLUDE_NETMASK_GET
#define INCLUDE_NETPOOLSHOW
#define INCLUDE_NETSTAT
#define INCLUDE_NETWORK
#define INCLUDE_NET_BOOT
#define INCLUDE_NET_BOOT_CONFIG
#define INCLUDE_NET_DAEMON
#define INCLUDE_NET_DRV
#define INCLUDE_NET_HOST_SETUP
#define INCLUDE_NET_HOST_SHOW
#define INCLUDE_NET_INIT
#define INCLUDE_NET_POOL
#define INCLUDE_NET_REM_IO
#define INCLUDE_NET_SYSCTL
#define INCLUDE_NFS2_CLIENT
#define INCLUDE_NFS2_SERVER
#define INCLUDE_NFS3_CLIENT
#define INCLUDE_NFS3_SERVER
#define INCLUDE_NFS_CLIENT_ALL
#define INCLUDE_NFS_DEBUG
#define INCLUDE_NFS_SERVER_ALL
#define INCLUDE_NFS_SERVER_INSTALL
#define INCLUDE_NVRAM_NULL
#define INCLUDE_OBJECT_SHOW
#define INCLUDE_OBJ_INFO
#define INCLUDE_OBJ_LIB
#define INCLUDE_OBJ_OPEN
#define INCLUDE_OFFSET_SYMBOLS
#define INCLUDE_PATCH_STANDALONE_DTB
#define INCLUDE_PCI_BUS

NAME (component list)
#define INCLUDE_PCI_MSI
#define INCLUDE_PG_MGR_BASIC
#define INCLUDE_PG_POOL_LIB
#define INCLUDE_PG_POOL_PHYS_LIB
#define INCLUDE_PG_POOL_SHOW
#define INCLUDE_PG_POOL_VIRT_LIB
#define INCLUDE_PING
#define INCLUDE_PIPES
#define INCLUDE_PMAP_LIB
#define INCLUDE_POOL
#define INCLUDE_POSIX_ADVISORY_FILE_LOCKING
#define INCLUDE_POSIX_AIO
#define INCLUDE_POSIX_AIO_SHOW
#define INCLUDE_POSIX_AIO_SYSDRV
#define INCLUDE_POSIX_CLOCKS
#define INCLUDE_POSIX_DIRLIB
#define INCLUDE_POSIX_FS
#define INCLUDE_POSIX_FTRUNC
#define INCLUDE_POSIX_MAPPED_FILES
#define INCLUDE_POSIX_MEM
#define INCLUDE_POSIX_MQ
#define INCLUDE_POSIX_MQ_SHOW
#define INCLUDE_POSIX_PTHREADS
#define INCLUDE_POSIX_SCHED
#define INCLUDE_POSIX_SEM
#define INCLUDE_POSIX_SEM_SHOW
#define INCLUDE_POSIX_SHM
#define INCLUDE_POSIX_SHM_API
#define INCLUDE_POSIX_SIGNALS
#define INCLUDE_POSIX_TIMERS
#define INCLUDE_POSIX_TIMER_SHOW
#define INCLUDE_POSIX_UMASK
#define INCLUDE_POSIX_USER_GROUP
#define INCLUDE_PSL_ITL_COMMON
#define INCLUDE_PTYDRV
#define INCLUDE_Q_FIFO
#define INCLUDE_Q_PRI_BMAP
#define INCLUDE_Q_PRI_DELTA
#define INCLUDE_Q_PRI_LIST
#define INCLUDE_RAMDRV
#define INCLUDE_RAM_DISK
#define INCLUDE_RAM_DISK_FORMAT_NONE
#define INCLUDE_RANDOM_NUM_GEN
#define INCLUDE_RAWFS
#define INCLUDE_RBUFF
#define INCLUDE_RBUFF_SHOW
#define INCLUDE_REBOOT_HOOKS
#define INCLUDE_REMLIB
#define INCLUDE_RNG_BUF
#define INCLUDE_ROUTECMD
#define INCLUDE_RPC
#define INCLUDE_SECURITY
#define INCLUDE_SEC_CIPHER_AES_128_CBC

NAME (component list)
#define INCLUDE_SEC_CIPHER_AES_128_CBC_OPENSSL
#define INCLUDE_SEC_CIPHER_AES_192_CBC
#define INCLUDE_SEC_CIPHER_AES_192_CBC_OPENSSL
#define INCLUDE_SEC_CIPHER_AES_256_CBC
#define INCLUDE_SEC_CIPHER_AES_256_CBC_OPENSSL
#define INCLUDE_SEC_HASH_MD5
#define INCLUDE_SEC_HASH_MD5_OPENSSL
#define INCLUDE_SEC_HASH_SHA1
#define INCLUDE_SEC_HASH_SHA1_OPENSSL
#define INCLUDE_SEC_HASH_SHA256
#define INCLUDE_SEC_HASH_SHA256_OPENSSL
#define INCLUDE_SEC_KEY_STORE
#define INCLUDE_SEC_SECRET
#define INCLUDE_SEC_VAULT
#define INCLUDE_SEC_VAULT_KEP_OBFUSCATOR
#define INCLUDE_SELECT
#define INCLUDE_SELECT_SUPPORT
#define INCLUDE_SEM_BINARY
#define INCLUDE_SEM_BINARY_CREATE
#define INCLUDE_SEM_COUNTING
#define INCLUDE_SEM_COUNTING_CREATE
#define INCLUDE_SEM_DELETE
#define INCLUDE_SEM_EVENTS
#define INCLUDE_SEM_EXCHANGE
#define INCLUDE_SEM_INFO
#define INCLUDE_SEM_LIB
#define INCLUDE_SEM_MUTEX
#define INCLUDE_SEM_MUTEX_CREATE
#define INCLUDE_SEM_OPEN
#define INCLUDE_SEM_READ_WRITE
#define INCLUDE_SEM_READ_WRITE_CREATE
#define INCLUDE_SEM_SHOW
#define INCLUDE_SHADOW_IDT
#define INCLUDE_SHELL
#define INCLUDE_SHELL_BANNER
#define INCLUDE_SHELL_CORE
#define INCLUDE_SHELL_HISTORY_FILE
#define INCLUDE_SHELL_INTERP_C
#define INCLUDE_SHELL_INTERP_CMD
#define INCLUDE_SHELL_SECURITY
#define INCLUDE_SHELL_VI_MODE
#define INCLUDE_SHOW_ROUTINES
#define INCLUDE_SIGEVENT
#define INCLUDE_SIGNALS
#define INCLUDE_SIGNAL_ARCH
#define INCLUDE_SIO
#define INCLUDE_SLL
#define INCLUDE_SMP_INIT
#define INCLUDE_SMP_SCHED_DEFAULT_POLICY
#define INCLUDE_SOCKLIB
#define INCLUDE_SPINLOCK
#define INCLUDE_SPINLOCK_ISR_ND
#define INCLUDE_SPY

NAME (component list)
#define INCLUDE_SPY_SHELL_CMD
#define INCLUDE_STACKTRACE
#define INCLUDE_STACKTRACE_MODULE
#define INCLUDE_STANDALONE_DTB
#define INCLUDE_STANDALONE_SYM_TBL
#define INCLUDE_STARTUP_SCRIPT
#define INCLUDE_STAT_SYM_TBL
#define INCLUDE_STDIO
#define INCLUDE_STDIO_SHOW
#define INCLUDE_SV_DATACOLLECTOR
#define INCLUDE_SW_RANDOM_NUM_GEN
#define INCLUDE_SYMMETRIC_IO_MODE
#define INCLUDE_SYM_SHELL_CMD
#define INCLUDE_SYM_TBL
#define INCLUDE_SYM_TBL_INIT
#define INCLUDE_SYM_TBL_SHOW
#define INCLUDE_SYSCLK_INIT
#define INCLUDE_SYSCTL
#define INCLUDE_SYSCTL_CLI
#define INCLUDE_SYSDBG_FLAG
#define INCLUDE_SYSHW_INIT_1
#define INCLUDE_SYSLOG
#define INCLUDE_SYSTEMVIEWER_AGENT
#define INCLUDE_SYS_CLK
#define INCLUDE_SYS_HW_INIT_0
#define INCLUDE_SYS_START
#define INCLUDE_SYS_TIMESTAMP
#define INCLUDE_SYS_WARM_BIOS
#define INCLUDE_TASK_CREATE_DELETE
#define INCLUDE_TASK_CREATE_HOOKS
#define INCLUDE_TASK_HOOKS
#define INCLUDE_TASK_HOOKS_SHOW
#define INCLUDE_TASK_INFO
#define INCLUDE_TASK_LIST
#define INCLUDE_TASK_OPEN
#define INCLUDE_TASK_RESTART
#define INCLUDE_TASK_SHELL_CMD
#define INCLUDE_TASK_SHOW
#define INCLUDE_TASK_STACK_ALLOC
#define INCLUDE_TASK_STACK_NO_EXEC
#define INCLUDE_TASK_SWAP_HOOKS
#define INCLUDE_TASK_SWITCH_HOOKS
#define INCLUDE_TASK_TOOLS_UTIL
#define INCLUDE_TASK_UTIL
#define INCLUDE_TFFS
#define INCLUDE_TFFS_SHOW
#define INCLUDE_TFTP_CLIENT
#define INCLUDE_TIMER_OPEN
#define INCLUDE_TIMER_SYS
#define INCLUDE_TIMESTAMP
#define INCLUDE_TIMEX
#define INCLUDE_TIP
#define INCLUDE_TIP_CMD

NAME (component list)
#define INCLUDE_TLS
#define INCLUDE_TLS_LOADER_SUPPORT
#define INCLUDE_TL_FTL
#define INCLUDE_TSC_TIMESTAMP
#define INCLUDE_TTY_DEV
#define INCLUDE_TYLIB
#define INCLUDE_UNLOADER
#define INCLUDE_UNLOADER_SHELL_CMD
#define INCLUDE_USER_APPL
#define INCLUDE_USER_DATABASE
#define INCLUDE_USER_IDENTIFICATION
#define INCLUDE_USER_MGT_SHELL_CMD
#define INCLUDE_USER_POST_KERNEL_APPL_INIT
#define INCLUDE_USER_PRE_KERNEL_APPL_INIT
#define INCLUDE_USER_PRE_NETWORK_APPL_INIT
#define INCLUDE_USE_NATIVE_SHELL
#define INCLUDE_USR_MPAPIC
#define INCLUDE_VDFS
#define INCLUDE_VIRTIO_MAP
#define INCLUDE_VIRTIO_VXB_BLK
#define INCLUDE_VM_SHOW
#define INCLUDE_VM_SHOW_SHELL_CMD
#define INCLUDE_VRFS
#define INCLUDE_VXBUS
#define INCLUDE_VXBUS_IOCTL
#define INCLUDE_VXBUS_PARAMS
#define INCLUDE_VXBUS_SHOW
#define INCLUDE_VXB_AUX_CLK
#define INCLUDE_VXB_SYS_CLK
#define INCLUDE_VXB_TIMESTAMP
#define INCLUDE_VXCPULIB
#define INCLUDE_VXDBG
#define INCLUDE_VXDBG_CPU_CONTROL
#define INCLUDE_VXDBG_HOOK
#define INCLUDE_VXDBG_MODULE
#define INCLUDE_VXDBG_RUNCTRL
#define INCLUDE_VXEVENTS
#define INCLUDE_VXIPI
#define INCLUDE_VXMEMPROBE_INIT
#define INCLUDE_VXMUX_MBLK
#define INCLUDE_VXMUX_NULLBUFPOOL
#define INCLUDE_VX_CPU_ID
#define INCLUDE_VX_TRADITIONAL_SCHEDULER
#define INCLUDE_WATCHDOGS
#define INCLUDE_WATCHDOGS_CREATE_DELETE
#define INCLUDE_WATCHDOGS_SHOW
#define INCLUDE_WINDVIEW
#define INCLUDE_WINDVIEW_CLASS
#define INCLUDE_WINDVIEW_MODULE_CLASS
#define INCLUDE_WVUPLOAD_FILE
#define INCLUDE_XBD
#define INCLUDE_XBD_BLK_CACHE
#define INCLUDE_XBD_BLK_DEV

NAME (component list)
#define INCLUDE_XBD_PART_LIB
#define INCLUDE_XBD_RAMDRV
#define INCLUDE_XDR

Appendix 11 Added and Changed Functions

This section shows the functions added and changed to this product and MI Configurator, the applicable firmware versions for this product, and the applicable software versions for MI Configurator.

Added/changed contents	Firmware version	Software version	Reference
The Windows part startup monitoring function is supported.	'04' or later	'1.004E' or later	• 📖MELIPC MI5000 Series User's Manual (Startup) • ☞ Page 124 Windows part Startup Monitoring Function
Smart Device Communication Gateway is added as a preinstalled application.	'05' or later	—	• 📖MELIPC MI5000 Series User's Manual (Startup)

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INDEX

MEMO

REVISIONS

*The manual number is given on the bottom left of the back cover.

Revision date	*Manual number	Description
May 2018	SH(NA)-081932ENG-A	First edition
May 2018	SH(NA)-081932ENG-B	Partial correction
October 2018	SH(NA)-081932ENG-C	Partial correction
October 2018	SH(NA)-081932ENG-D	Partial correction
March 2019	SH(NA)-081932ENG-E	Partial correction
August 2019	SH(NA)-081932ENG-F	■Added or modified parts Section 8.7, Section 8.11, Section 17.1, Appendix 1, Appendix 11
March 2020	SH(NA)-081932ENG-G	■Added or modified parts Appendix 11
July 2020	SH(NA)-081932ENG-H	■Added or modified parts SAFETY PRECAUTIONS, CONDITIONS OF USE FOR THE PRODUCT

Japanese manual number: SH-081931-I

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)-081932ENG-H(2007)KWIX
MODEL: MELIPC-MI5000-U-OU-E
MODEL CODE: 13JX88

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