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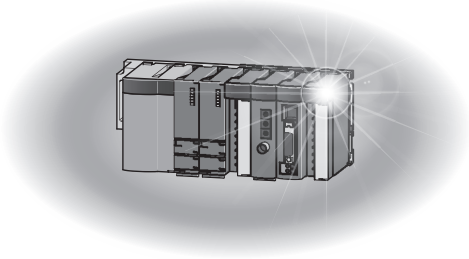
MITSUBISHI ELECTRIC

Mitsubishi Programmable Controller

MELSEC Q series

# MELSEC-Q CC-Link IE Field Network Master/ Local Module User's Manual

-QJ71GF11-T2



# ●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. For the safety precautions of the programmable controller system, refer to the user's manual for the CPU module used.

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**

- When connecting GX Works2 with the CPU module or connecting a personal computer with an intelligent function module to modify data of a running programmable controller, configure an interlock circuit in the program to ensure that the entire system will always operate safely.
  For other forms of control (such as program modification or operating status change) of a running programmable controller, read the relevant manuals carefully and ensure that the operation is safe before proceeding. Especially, when a remote programmable controller is controlled by an external device, immediate action cannot be taken if a problem occurs in the programmable controller due to a communication failure. To prevent this, configure an interlock circuit in the program, and determine corrective actions to be taken between the external device and CPU module in case of a communication failure.
- For the operating status of each station after a communication failure, refer to Page 140, Section 8.1.7 in this manual. Incorrect output or malfunction due to a communication failure may result in an accident.
- Do not write any data to the "system area" of the buffer memory in the intelligent function module. Also, do not use any "use prohibited" signals as an output signal from the CPU module to the intelligent function module.
  Doing so may cause malfunction of the programmable controller system.
- To set a refresh device in the network parameter, select the device Y for the remote output (RY) refresh device. If a device other than Y, such as M and L, is selected, the CPU module holds the device status even after its status is changed to STOP.
- If a communication cable is disconnected, the network may be unstable, resulting in a communication failure of multiple stations. Configure an interlock circuit in the program to ensure that the entire system will always operate safely even if communications fail.
  Failure to do so may result in an accident due to an incorrect output or malfunction.

## [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 100mm or more between them. Failure to do so may result in malfunction due to noise.

## [Installation Precautions]

**⚠WARNING**

- Shut off the external power supply (all phases) used in the system before mounting or removing a module. Failure to do so may result in electric shock or cause the module to fail or malfunction.

## [Installation Precautions]

**⚠CAUTION**

- Use the programmable controller in an environment that meets the general specifications in the user's manual for the CPU module used. Failure to do so may result in electric shock, fire, malfunction, or damage to or deterioration of the product.
- To mount the module, while pressing the module mounting lever in the lower part of the module, fully insert the module fixing projection(s) into the hole(s) in the base unit and press the module until it snaps into place. Incorrect mounting may cause malfunction, failure, or drop of the module.
  When using the programmable controller in an environment of frequent vibrations, fix the 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.
- Do not directly touch any conductive parts and electronic components of the module. Doing so can cause malfunction or failure of the module.

## [Wiring Precautions]

**⚠WARNING**

- Shut off the external power supply (all phases) used in the system before wiring.
  Failure to do so may result in electric shock or cause the module to fail or malfunction.

## [Wiring Precautions]

**⚠CAUTION**

- Prevent foreign matter such as dust or wire chips from entering the module. 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 module during wiring. Do not remove the film during wiring. Remove it for heat dissipation before system operation.
- Place the cables in a duct or clamp them. If not, dangling cable may swing or inadvertently be pulled, resulting in damage to the module or cables or malfunction due to poor contact.
- When disconnecting the cable from the module, do not pull the cable by the cable part. For the cable with connector, hold the connector part of the cable. Pulling the cable connected to the module may result in malfunction or damage to the module or cable.
- Use 1000BASE-T-compliant Ethernet cables for Ethernet connection. For the maximum station-to-station distance and the overall cable distance, follow the specifications in this manual. If not, normal data transmission is not guaranteed.

## [Startup and Maintenance Precautions]

**⚠WARNING**

- Do not touch any terminal while power is on. Doing so will cause electric shock or malfunction.
- Shut off the external power supply (all phases) used in the system before cleaning the module or retightening the module fixing screw. Failure to do so may result in electric shock.

## [Startup and Maintenance Precautions]

| ⚠CAUTION |
|---|
| ● Before performing online operations (especially, program modification, forced output, and operating status change) for the running CPU module on another station from GX Works2 over CC-Link IE Field Network, read relevant manuals carefully and ensure the safety. Improper operation may damage machines or cause accidents.<br>● Do not disassemble or modify the modules. Doing so may cause failure, malfunction, injury, or a fire.<br>● 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 programmable controller. Failure to do so may cause malfunction.<br>● Shut off the external power supply (all phases) used in the system before mounting or removing a module. Failure to do so may cause the module to fail or malfunction.<br>● Tighten the screw 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.<br>● After the first use of the product, do not mount/remove the module to/from the base unit more than 50 times (IEC 61131-2 compliant).<br>Exceeding the limit may cause malfunction.<br>● Before handling the module, 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 module to fail or malfunction. |

## [Disposal Precautions]

| ⚠CAUTION |
|---|
| ● When disposing of this product, treat it as industrial waste. |

# ●CONDITIONS OF USE FOR THE PRODUCT●

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

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

# INTRODUCTION

Thank you for purchasing the Mitsubishi MELSEC-Q series programmable controllers.
This manual describes the overview of the CC-Link IE Field Network, and operating procedure, system configuration, parameter setting, functions, programming, and troubleshooting of the QJ71GF11-T2, CC-Link IE Field Network master/local module (hereafter abbreviated as master/local module).

Before using this product, please read this manual and the relevant manuals carefully and develop familiarity with the functions and performance of the MELSEC-Q series programmable controller to handle the product correctly.
When applying the program examples introduced in this manual to the actual system, ensure the applicability and confirm that it will not cause system control problems.

Please make sure that the end users read this manual.

**Remark**

Unless otherwise specified, this manual describes the program examples in which the I/O numbers of X/Y00 to X/Y1F are assigned for the master/local module.
For I/O number assignment, refer to the following.

QnUCPU User's Manual (Function Explanation, Program Fundamentals)

# COMPLIANCE WITH EMC AND LOW VOLTAGE DIRECTIVES

## (1) Method of ensuring compliance

To ensure that Mitsubishi programmable controllers maintain EMC and Low Voltage Directives when incorporated into other machinery or equipment, certain measures may be necessary. Please refer to one of the following manuals.

- QCPU User's Manual (Hardware Design, Maintenance and Inspection)
- Safety Guidelines
  (This manual is included with the CPU module or base unit.)

The CE mark on the side of the programmable controller indicates compliance with EMC and Low Voltage Directives.

## (2) Additional measures

To ensure that this product maintains EMC and Low Voltage Directives, please refer to one of the manuals listed under (1).

# RELEVANT MANUALS

## (1) CC-Link IE Field Network (relevant) manuals

| Manual name <manual number (model code)> | Description |
|---|---|
| MELSEC iQ-R Ethernet/CC-Link IE User's Manual (Startup) <SH-081256ENG, 13JX09> | Specifications, procedures before operation, system configuration, wiring, and communication examples of Ethernet, CC-Link IE Controller Network, and CC-Link IE Field Network |
| MELSEC iQ-R CC-Link IE Field Network User's Manual (Application) <SH-081259ENG, 13JX18> | Functions, parameter settings, programming, troubleshooting, I/O signals, and buffer memory of CC-Link IE Field Network |
| MELSEC iQ-R CC-Link IE Field Network Remote Head Module User's Manual (Startup) <SH-081614ENG, 13JX52> | Specifications, procedures before operation, system configuration, wiring, and communication example of the CC-Link IE Field Network remote head module |
| MELSEC iQ-R CC-Link IE Field Network Remote Head Module User's Manual (Application) <SH-081616ENG, 13JX53> | Functions, parameter settings, and troubleshooting of the CC-Link IE Field Network remote head module |
| MELSEC-L CC-Link IE Field Network Master/Local Module User's Manual <SH-080972ENG, 13JZ54> | Overview of CC-Link IE Field Network, and specifications, procedures before operation, system configuration, installation, wiring, settings, functions, programming, and troubleshooting of the MELSEC-L series master/local module |
| MELSEC-QS CC-Link IE Field Network Master/Local Module User's Manual <SH-080969ENG, 13JZ53> | Overview of CC-Link IE Field Network, and specifications, procedures before operation, system configuration, installation, wiring, settings, functions, programming, and troubleshooting of the MELSEC-QS series master/local module |
| MELSEC-L CC-Link IE Field Network Head Module User's Manual <SH-080919ENG, 13JZ48> | Specifications, procedures before operation, system configuration, installation, wiring, settings, and troubleshooting of the head module |
| CC-Link IE Field Network Ethernet Adapter Module User's Manual <SH-080939ENG, 13JZ50> | Specifications, procedures before operation, system configuration, installation, wiring, settings, and troubleshooting of the Ethernet adapter module |
| CC-Link IE Field Network Interface Board User's Manual (For SW1DNC-CCIEF-B) <SH-080980ENG, 13JZ58> | Specifications, procedures before operation, system configuration, settings, functions, programming, and troubleshooting of the CC-Link IE Field Network interface board |

## (2) CPU module user's manuals

| Manual name <manual number (model code)> | Description |
|---|---|
| QCPU User's Manual (Hardware Design, Maintenance and Inspection) <SH-080483ENG, 13JR73> | Specifications of the hardware (CPU modules, power supply modules, base units, batteries, and memory cards), system maintenance and inspection, and troubleshooting |
| QnUCPU Users Manual (Function Explanation, Program Fundamentals) <SH-080807ENG, 13JZ27> | Functions and devices of the CPU module, and programming |

### (3) Operating manual

| Manual name<br><manual number (model code)> | Description |
|---|---|
| GX Works2 Version1 Operating Manual (Common)<br><SH-080779ENG, 13JU63> | System configuration, parameter settings, and online operations (common to Simple project and Structured project) of GX Works2 |

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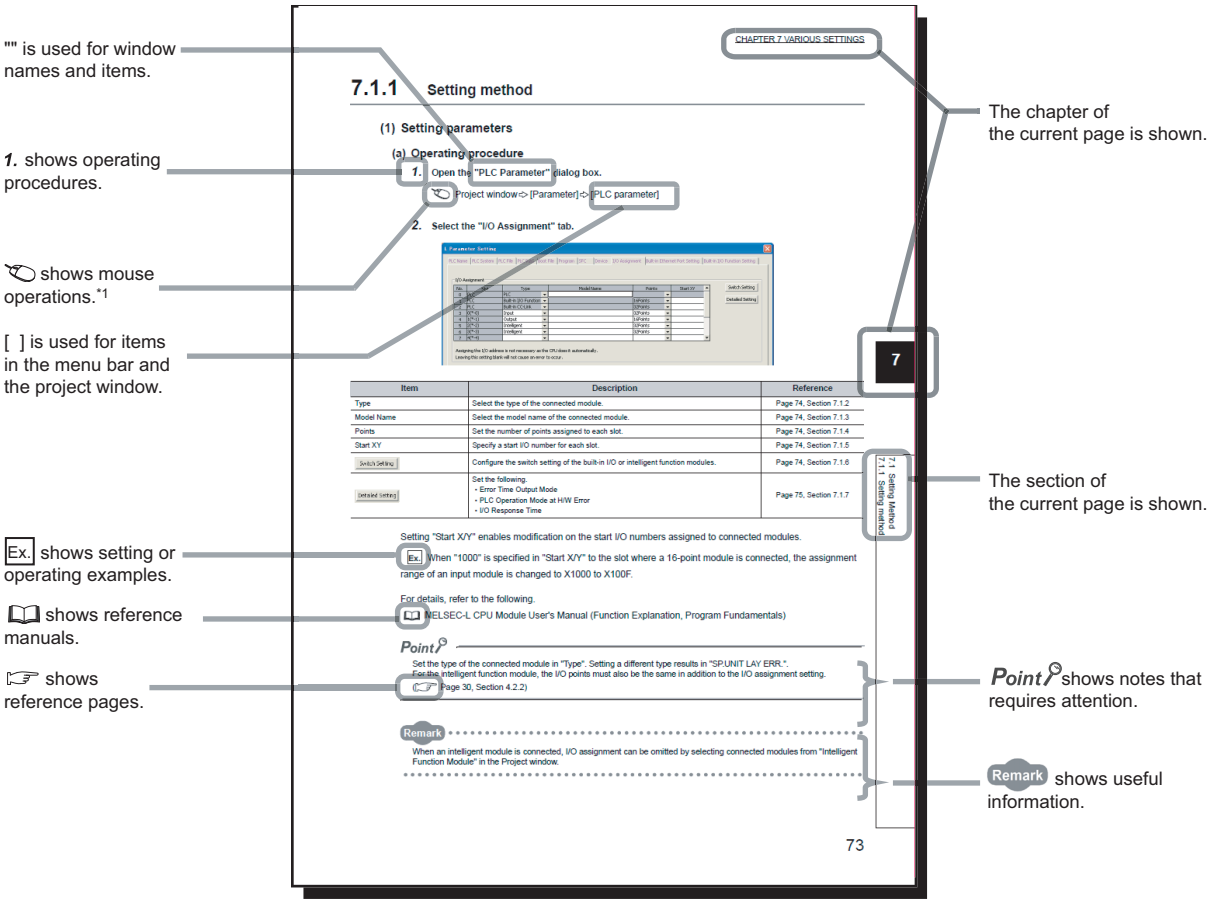
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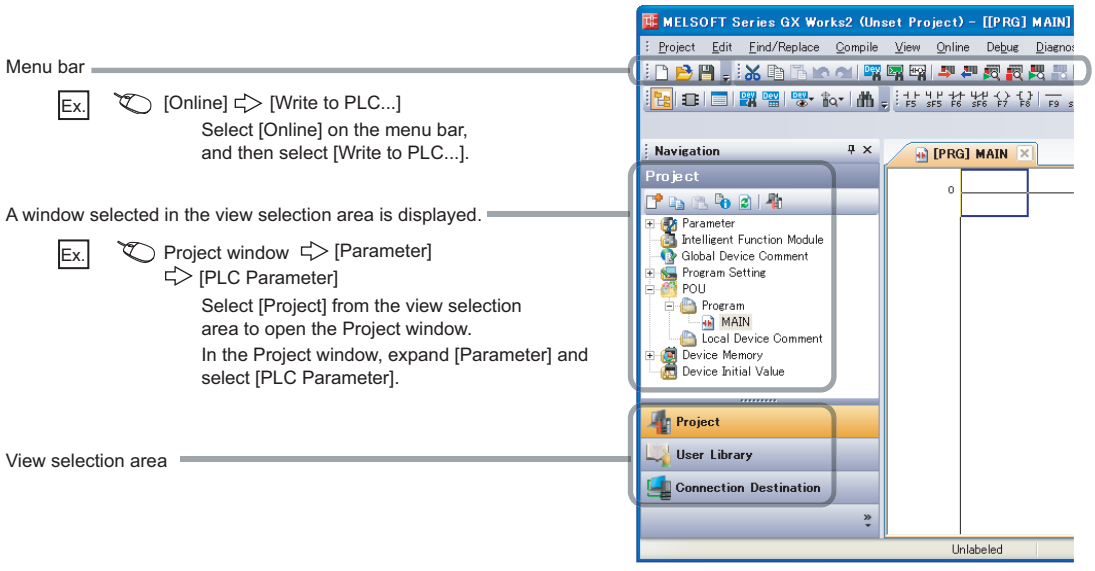
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# MANUAL PAGE ORGANIZATION

In this manual, pages are organized and the symbols are used as shown below.
The following illustration is for explanation purpose only, and should not be referred to as an actual documentation.




*1 The mouse operation example is provided below.



# TERM

Unless otherwise specified, this manual uses the following terms.

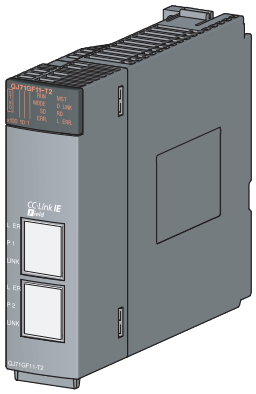
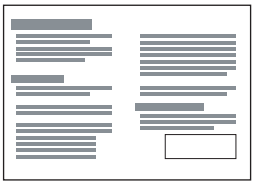
| Term | Description |
|---|---|
| ACPU | Another term for the MELSEC-A series CPU module |
| Baton pass | A token to send data over a network |
| Buffer memory | A memory in an intelligent function module, where data (such as setting values and monitoring values) exchanged with a CPU module are stored |
| Buffer memory address | An address that indicates the storage location of data assigned to the buffer memory in an intelligent function module |
| CC-Link | A field network system where data processing for control and information can be simultaneously performed at high speed. |
| CC-Link dedicated instruction | A dedicated instruction used for transient transmission with a CC-Link IE Field Network device. This instruction allows a master/local module to communicate with the device on the same network. |
| CC-Link IE Field Network | A high-speed and large-capacity open field network that is based on Ethernet (1000BASE-T) |
| CC-Link IE Field Network interface board | The abbreviation for the Q81BD-J71GF11-T2 CC-Link IE Field Network interface board |
| CCPASET | The abbreviation for GP.CCPASET |
| Control CPU | A CPU module that controls connected I/O modules and intelligent function modules. In a multiple CPU system, there are multiple CPU modules and each connected module can be controlled by a different CPU module. |
| Control system CPU | A CPU module that controls operations in a redundant system |
| Cyclic transmission | A function by which data are periodically exchanged among stations on the same network using link devices (RX, RY, RWw, and RWr) |
| Data link | Generic term for cyclic transmission and transient transmission |
| Dedicated instruction | An instruction that simplifies programming for using functions of intelligent function modules |
| Device | A device (X, Y, M, D, or others) in a CPU module |
| Disconnection | A process of stopping data link if a data link error occurs |
| Ethernet adapter module | The abbreviation for the NZ2GF-ETB CC-Link IE Field Network Ethernet adapter module |
| Ethernet device | A generic term for devices, such as personal computers, that support IP (Internet Protocol) communications |
| GX Works2 | The product name of the software package for the MELSEC programmable controllers |
| Head module | The abbreviation for the LJ72GF15-T2 CC-Link IE Field Network head module |
| Intelligent device station | A station that exchanges I/O signals (bit data) and I/O data (word data) with another station by cyclic transmission. This station responds to a transient transmission request from another station and also issues a transient transmission request to another station. |
| Intelligent function module | A MELSEC-Q, -L, or iQ-R series module that has functions other than input and output, such as an A/D converter module and D/A converter module |
| LCPU | Another term for the MELSEC-L series CPU module |
| Link dedicated instruction | A dedicated instruction used for transient transmission with a programmable controller on another station. This instruction allows a master/local module to communicate with programmable controllers on the same network (CC-Link IE Field Network) and on other networks (Ethernet, CC-Link IE Controller Network, and MELSECNET/H). |
| Link device | A device (RX, RY, RWr, or RWw) in a module on CC-Link IE Field Network |
| Link refresh | Data transfer between a link device in a module on CC-Link IE Field Network and a device in a CPU module. Link refresh is performed in the END processing of the CPU module's sequence scan. |
| Link scan (Link scan time) | Time required for all the stations on the network to transmit data. The link scan time depends on data volume and the number of transient transmission requests. |
| Link special register (SW) | Word data that indicates the operating status and data link status of a module on CC-Link IE Field Network |
| Link special relay (SB) | Bit data that indicates the operating status and data link status of a module on CC-Link IE Field Network |
| Local station | A station that performs cyclic transmission and transient transmission with the master station and other local stations. |
| Loopback | A function that disconnects the station in which an error has occurred, and continues data link with the stations that are operating normally. Stations connected after the faulty station can also continue data link. |
| Master operating station | A station that controls the entire system in the network where a master station and submaster station are connected. The connected master station or submaster station works as a master operating station. |

| Term | Description |
|---|---|
| Master station | A station that controls the entire network. This station can perform cyclic transmission and transient transmission with all stations. Only one master station can be used in a network. |
| Master/local module | The abbreviation for the QJ71GF11-T2 CC-Link IE Field Network master/local module |
| Network module | A generic term for the following modules:<br>• CC-Link IE Field Network module<br>• CC-Link IE Controller Network module<br>• Ethernet interface module<br>• MELSECNET/H module<br>• MELSECNET/10 module |
| QCPU | Another term for the MELSEC-Q series CPU module |
| QnACPU | Another term for the MELSEC-QnA series CPU module |
| QSCPU | Another term for the MELSEC-QS series CPU module |
| RAS | The abbreviation for Reliability, Availability, and Serviceability. This term refers to usability of automated equipment. |
| RCPU | Another term for the MELSEC iQ-R series CPU module |
| READ | The abbreviation for JP.READ and GP.READ |
| RECV | The abbreviation for JP.RECV and GP.RECV |
| RECVS | The abbreviation for Z.RECVS |
| Relay station | A station that includes two or more network modules. Data are passed through this station to stations on other networks. |
| REMFR | The abbreviation for ZP.REMFR |
| Remote device station | A station that exchanges I/O signals (bit data) and I/O data (word data) with another station by cyclic transmission. This station responds to a transient transmission request from another station. |
| Remote head module | The abbreviation for the RJ72GF15-T2 CC-Link IE Field Network remote head module |
| Remote I/O station | A station that exchanges I/O signals (bit data) with the master station by cyclic transmission |
| Remote input (RX) | Bit data input from a slave station to the master station (For some areas in a local station, data are input in the opposite direction.)<br>☞ Page 124, Section 8.1.1 |
| Remote output (RY) | Bit data output from the master station to a slave station (For some areas in a local station, data are output in the opposite direction.)<br>☞ Page 124, Section 8.1.1 |
| Remote register (RWr) | Word data input from a slave station to the master station (For some areas in a local station, data are input in the opposite direction.)<br>☞ Page 124, Section 8.1.1 |
| Remote register (RWw) | Word data output from the master station to a slave station (For some areas in a local station, data are output in the opposite direction.)<br>☞ Page 124, Section 8.1.1 |
| REMTO | The abbreviation for ZP.REMTO |
| REQ | The abbreviation for JP.REQ and GP.REQ |
| Reserved station | A station reserved for future use. This station is not actually connected, but counted as a connected station. |
| Return | Process of restarting data link when a station recovers from an error |
| RIRD | The abbreviation for JP.RIRD and GP.RIRD |
| RIWT | The abbreviation for JP.RIWT and GP.RIWT |
| Routing | A process of selecting paths for communication with other networks.<br>CC-Link IE Field Network requires communication paths to be preset using routing parameters to communicate with stations on different networks. |
| Seamless communications | Communication that allows users to access a different kind of networks without having to consider the differences as if data were exchanged within one single network |
| SEND | The abbreviation for JP.SEND and GP.SEND |
| Slave station | A generic term for a local station, remote I/O station, remote device station, and intelligent device station |
| SREAD | The abbreviation for JP.SREAD and GP.SREAD |
| Standby system CPU | A CPU module that stands by in case the control system fails in a redundant system |
| Submaster operating station | A station that monitors the status of a master operating station in the network where a master station and submaster station are connected. The connected master station or submaster station works as a submaster operating station. |

| Term | Description |
|---|---|
| Submaster station | A station that serves as a master station to control the entire network if the master station is disconnected. Only one submaster station can be used in a network. |
| SWRITE | The abbreviation for JP.SWRITE and GP.SWRITE |
| System A CPU | A CPU module where the system A connector of a tracking cable is connected in a redundant system |
| System B CPU | A CPU module where the system B connector of a tracking cable is connected in a redundant system |
| Transient transmission | A function of communication with another station, which is used when requested by a dedicated instruction or GX Works2 |
| UINI | The abbreviation for Z.UINI and ZP.UINI |
| WRITE | The abbreviation for JP.WRITE and GP.WRITE |

# PACKING LIST

The following items are included in the package of this product. Before use, check that all the items are included.

| QJ71GF11-T2 | |
|---|---|
|  |  |
| QJ71GF11-T2 | Before Using the Product |

# CHAPTER 1 CC-LINK IE FIELD NETWORK

## 1.1 CC-Link IE Field Network

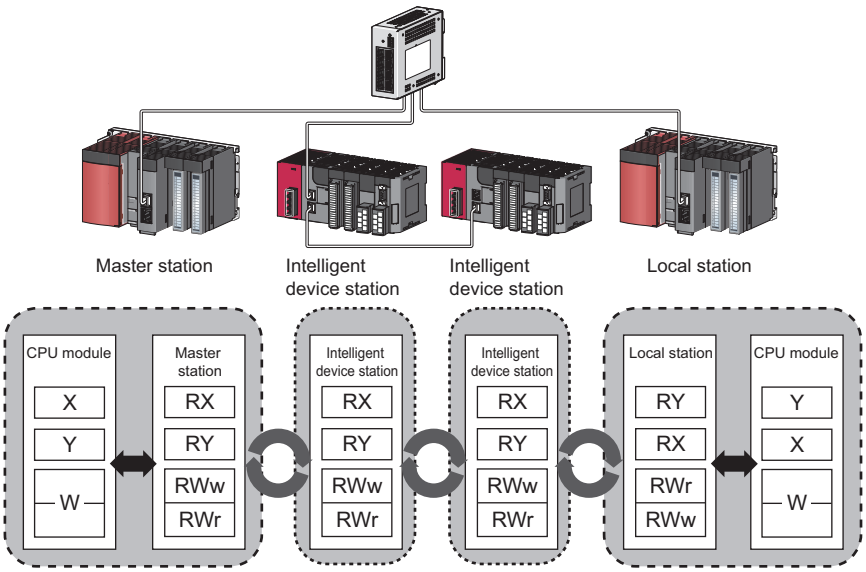
CC-Link IE Field Network is a high-speed and large-capacity open field network that is based on Ethernet technology (1000BASE-T).

### (1) Data communication

High-speed and large-capacity data communication is available between a master station and slave stations on CC-Link IE Field Network.

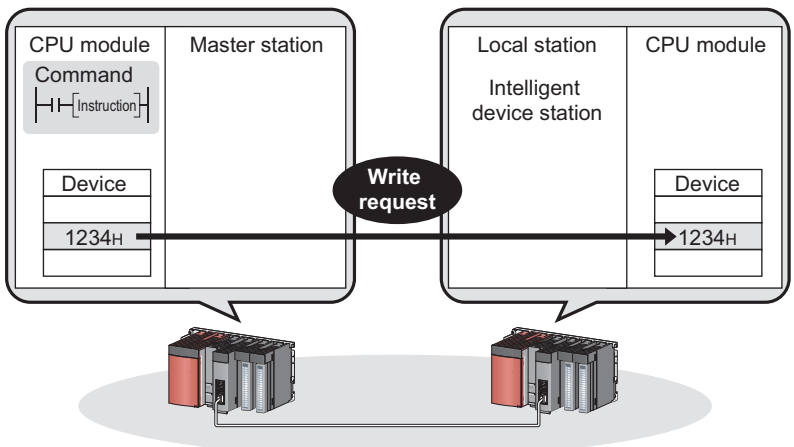
#### (a) Periodic communication (cyclic transmission)

Data is periodically communicated among stations within the same network. (☞Page 123, Section 8.1)




#### (b) Irregular communications (transient transmission)

Data is communicated upon request. (☞Page 144, Section 8.2)



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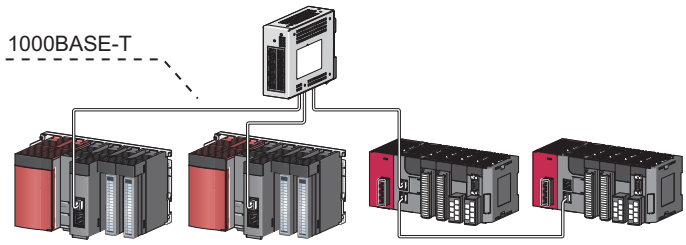


### (2) 1Gbps communication speed

1Gbps communication speed allows high-speed communication. Also, the takt time can be reduced due to the improved performance of communication response.

### (3) Use of Ethernet cable

A 1000BASE-T-compliant Ethernet is used for the connection interface. The wiring cost can be reduced because 1000BASE-T-compliant Ethernet cables are commercially available. (☞ Page 59, Section 5.3)

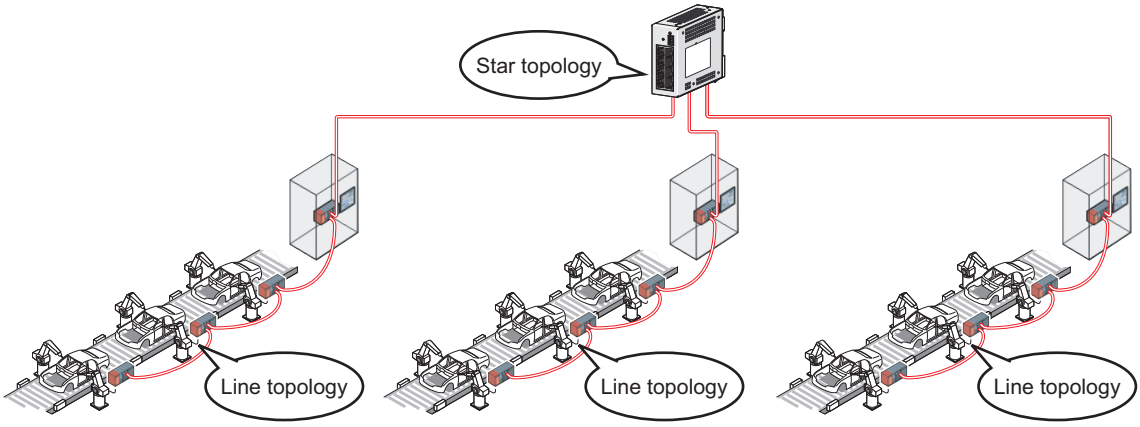



### (4) Flexible wiring for system arrangements

The network can be wired into star topology, line topology, and ring topology. (☞ Page 49, Section 5.2.1)

For star topology, a 1000BASE-T compliant switching hub can be used. (☞ Page 60, Section 5.3.2)

Wiring is highly flexible because a network can consist of a combination of star and line topologies. For example, the control panels can be connected through a star topology and the production lines through a line topology.

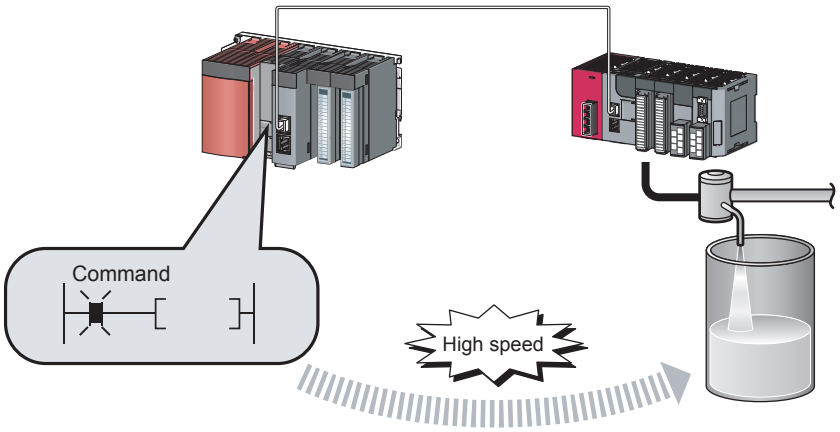


# 1.2 Master/Local Modules

A master/local module is used to connect a MELSEC-Q series programmable controller to CC-Link IE Field Network. The module works as a master station or a local station on CC-Link IE Field Network.

### (1) High-speed periodic communication (cyclic transmission)

Since transmission delay time is short, delay caused during communication does not need to be considered (if the link scan time of each master/local module is shorter than the scan time of the CPU module).




**Point**

Master/local modules can perform cyclic transmissions in combination with the following functions:
(Page 36, Section 3.3)

- Auto transfer of data between the link devices in the master/local module and the devices in the CPU module
- Direct access to the link devices in the master/local module by a program
- Cyclic data assurance in units of 32 bits or per station
- Status setting (hold or clear) of input data from a slave station where a cyclic error has occurred
- Station reservation for future connection, and others

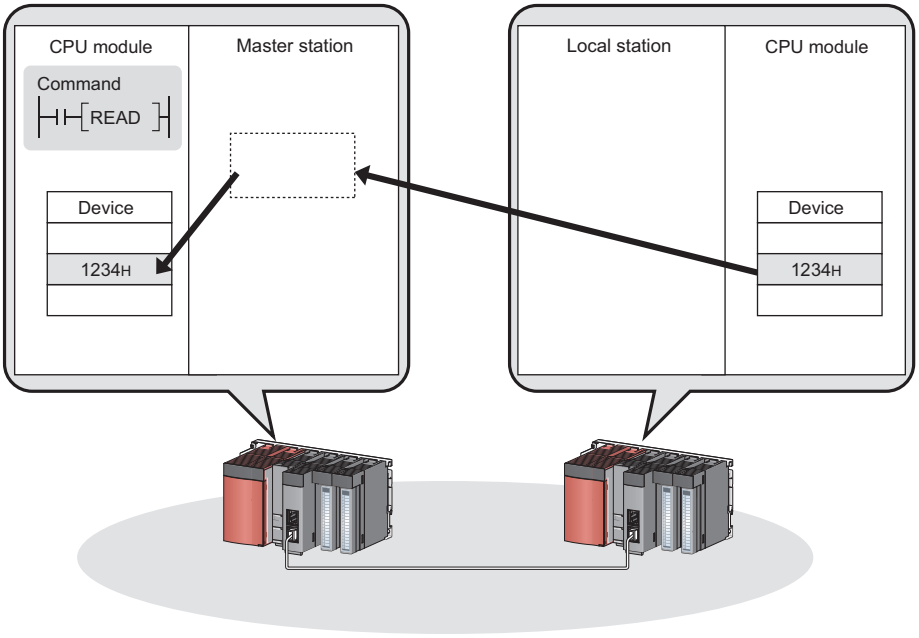
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## (2) Irregular communications with the programmable controller on another station (transient transmission)

### (a) Reading or writing data

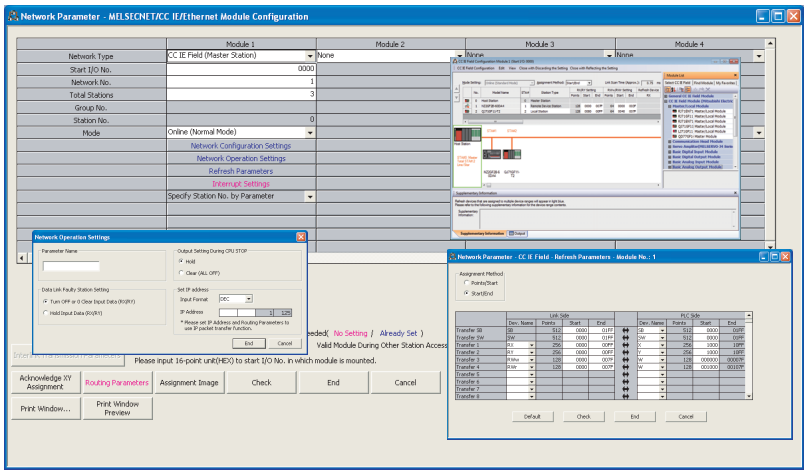
A master/local module can access programmable controllers on other stations by dedicated instructions.
(☞ Page 236, Section 10.1)
Seamless access of programmable controllers on other networks such as Ethernet, CC-Link IE Controller Network, MELSECNET/H, and MELSECNET/10 is also possible.



## (3) Settings and diagnostics by GX Works2

### (a) Setting parameters

Parameters for master/local modules can be set using GX Works2. Creating parameter setting programs is not necessary. (☞Page 81, CHAPTER 7)

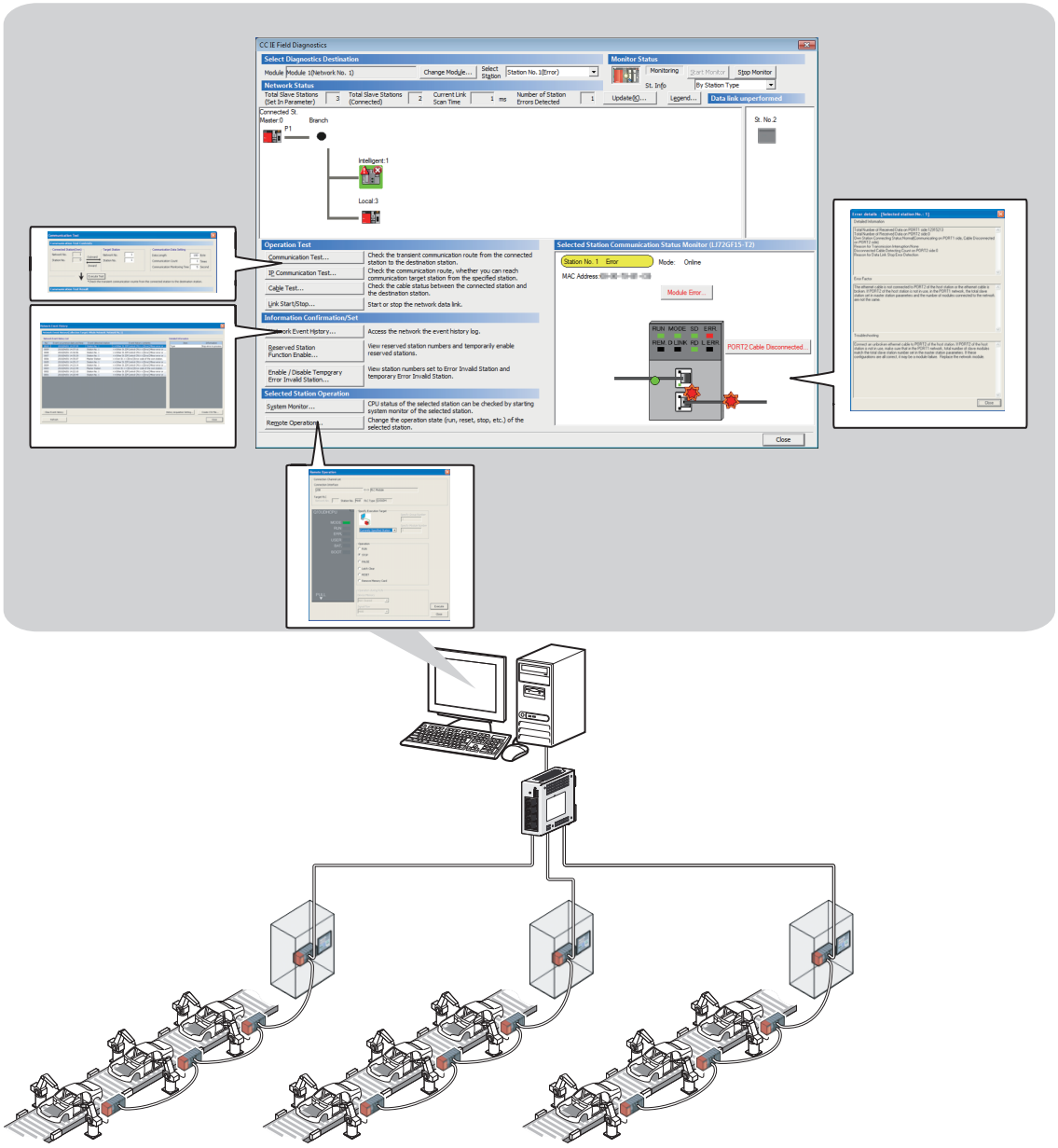



Parameters for master/local modules can be also set by a program. (☞Page 359, Section 10.17) When set by a program, the parameters of the master station can be changed while the CPU module is running.

### (b) Checking CC-Link IE Field Network status graphically

The CC-Link IE Field Network status can be checked using GX Works2. Error locations, error causes, and event history are displayed on the window. This allows the system to quickly recover from errors.

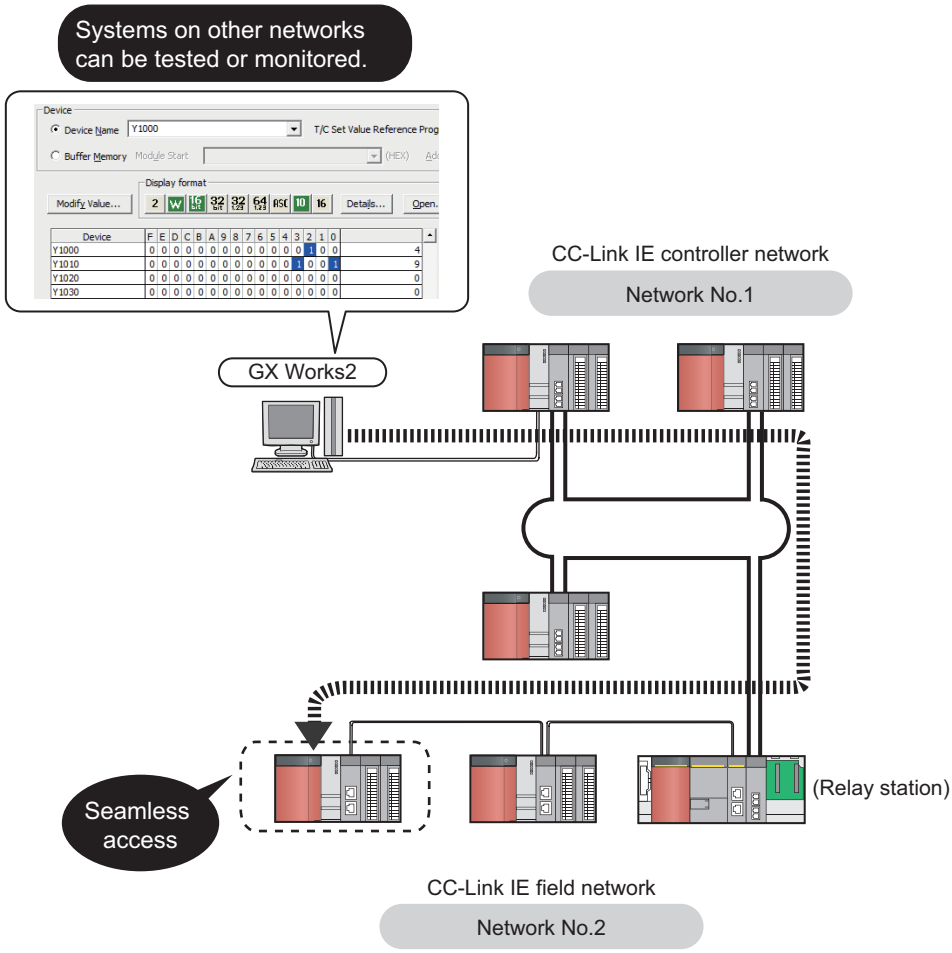
(☞Page 206, CHAPTER 9)



### (c) Seamless access to other networks

GX Works2 can seamlessly access (test or monitor) systems composed of other networks through CC-Link IE Field Network. The accessible networks are Ethernet, CC-Link IE Controller Network, MELSECNET/H, MELSECNET/10, and CC-Link.

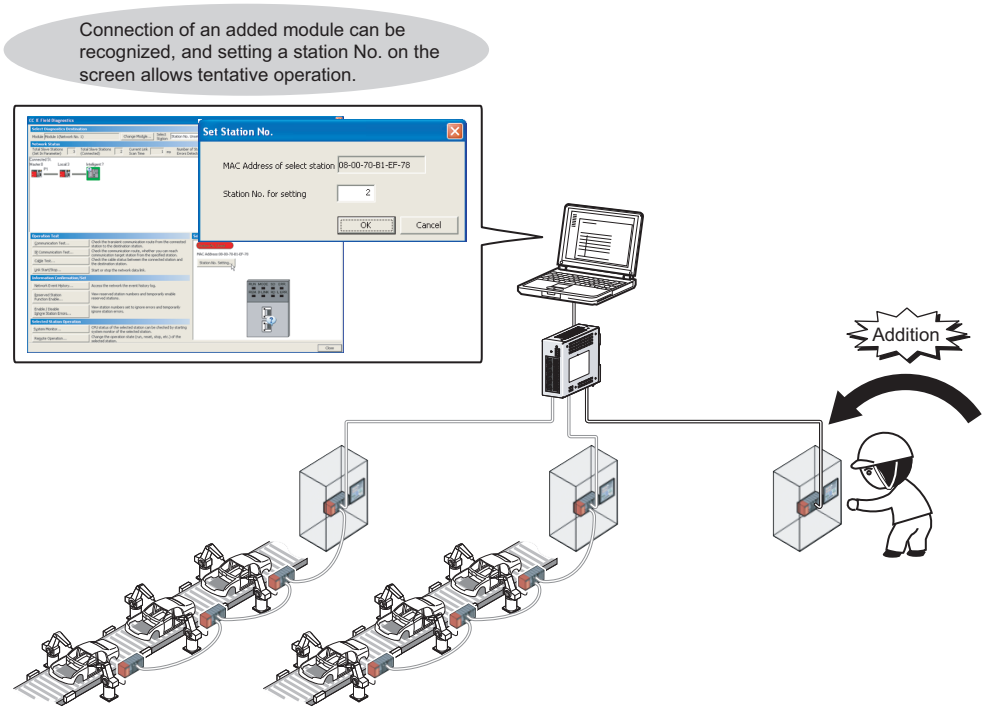
Seamless access enables the user to change the access target without modifying the connection between the personal computer and programmable controller.



## (4) Adding and replacing CC-Link IE Field Network devices without stopping the system

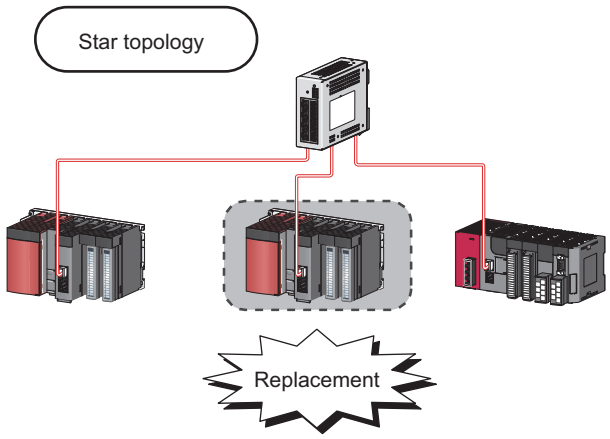
### (a) Adding CC-Link IE Field Network devices

CC-Link IE Field Network devices whose parameters have not been set can be added without powering off the system. ( MELSEC-L CC-Link IE Field Network Head Module User's Manual, MELSEC iQ-R CC-Link IE Field Network Remote Head Module User's Manual (Application))



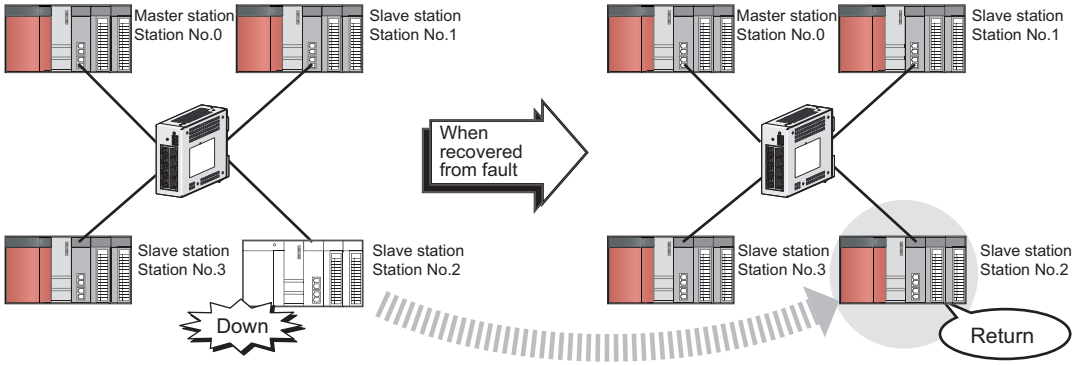

### (b) Replacing CC-Link IE Field Network devices

For star topology, slave stations can be replaced without powering off the whole system.



### (c) Automatic return when disconnected stations recover

When the station disconnected from the network due to a data link error recovers, it automatically returns to the network and restarts data link.



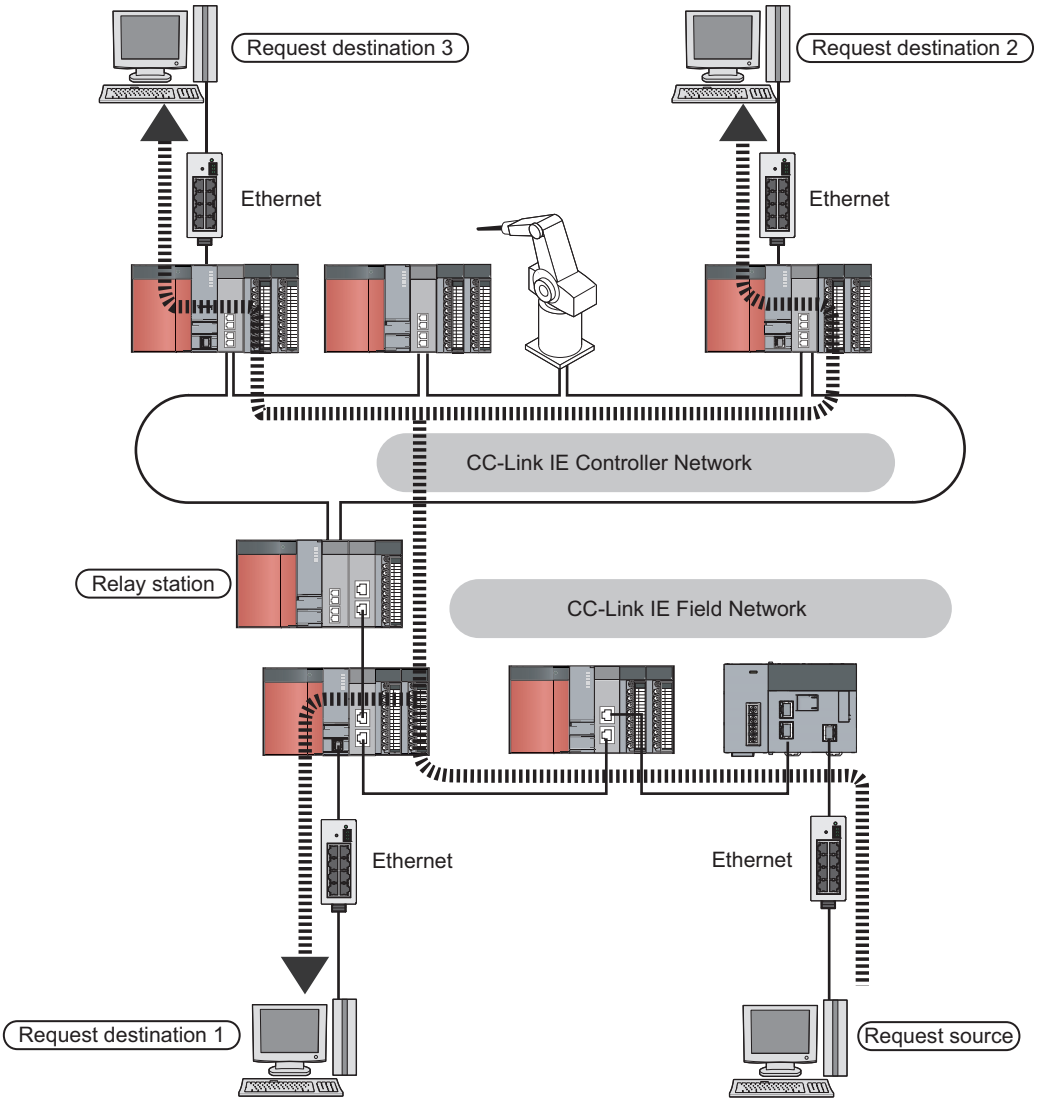
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## (5) Seamless communications with Ethernet devices

Communications using the specified IP address can be performed over CC-Link IE Field Network.
For example, a personal computer can communicate with the FTP server.
With this function, two networks of CC-Link IE Field Network and Ethernet are not required, resulting in reduced wiring cost. (☞Page 146, Section 8.3)
In addition, communications using the specified IP address can be relayed from CC-Link IE Field Network to a different network supporting the IP packet transfer function.

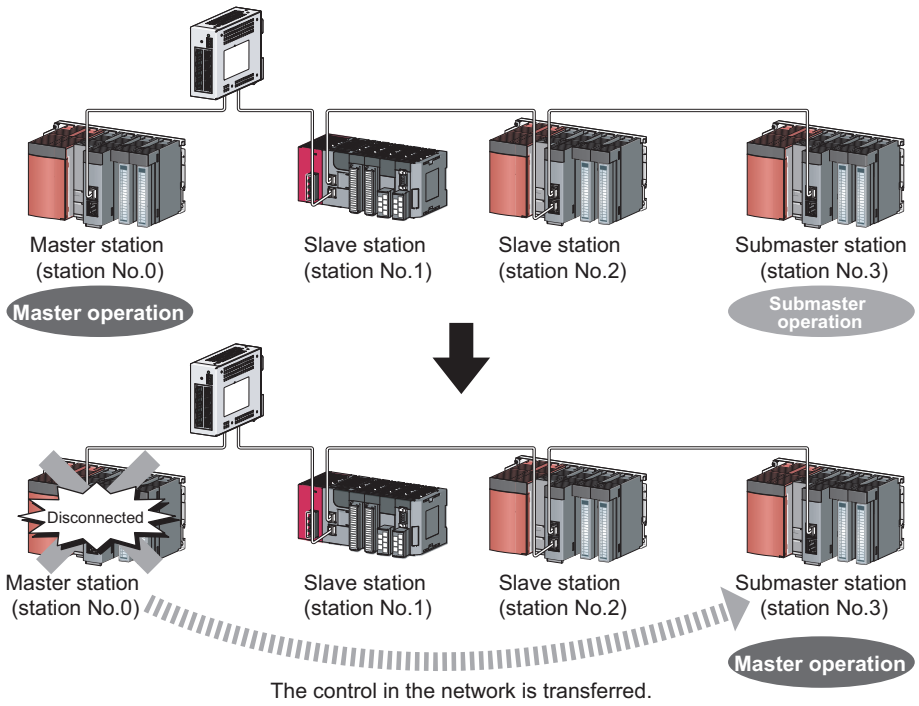
Ex. When relaying communications to CC-Link IE Controller Network



## (6) Continuing data link even if the master station is disconnected

Connecting the master station and submaster station on the same network allows the submaster station to continue controlling slave stations instead of the master station even if the master station is disconnected. Using this function prevents the entire network from going down due to disconnection of the master station.

(☞Page 180, Section 8.8)




## (7) Common project data for local stations

The station number of a local station (own station) can be set using a program.

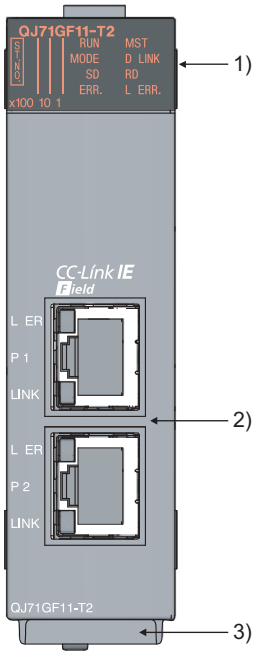
When there are local stations with the same program and network parameters (excluding the station numbers), setting the station numbers using a program allows project data items other than the station number to be the same, leading to reduced development work hours. (☞Page 380, Section 10.18)

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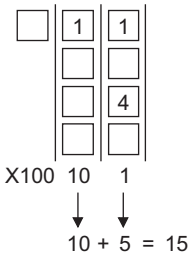
# CHAPTER 2 PART NAMES



This chapter describes the names of each part of the master/local modules.




| No. | Name | | Application |
|---|---|---|---|
| 1) | RUN LED | | Indicates the operating status. |
| | | ON | Operating normally. |
| | | OFF | A hardware failure or a watchdog timer error has occurred. |
| | MST LED | | Indicates the station type. |
| | | ON | Operates as a master station. |
| | | Flashing | Operates as a submaster station. |
| | | OFF | Operating as a local station. |
| | MODE LED | | Indicates the mode. |
| | | ON | In online mode. |
| | | Flashing | In test mode |
| | | OFF | In offline mode. (Data link not performed) |
| | D LINK LED | | Indicates the status of the data link. |
| | | ON | Data link in operation (cyclic transmission in progress) |
| | | Flashing | Data link in operation (cyclic transmission stopped) |
| | | OFF | Data link not performed (disconnected) |
| | SD LED | | Displays the sending status of data. |
| | | ON | Sending data. |
| | | OFF | Data not sent. |
| | RD LED | | Displays the reception status of data. |
| | | ON | Receiving data. |
| | | OFF | Data not received. |

| No. | Name | | Application |
|---|---|---|---|
| 1) | ERR. LED | | Indicates the error status of the master/local module. The description of the errors can be confirmed in CC-Link IE Field Network diagnostics. (☞ Page 206, CHAPTER 9) |
| | | ON | One of the following errors has occurred:<br>• A stop error occurs in the CPU module.<br>• An error was detected in all stations.<br>• Modules with same station number exist on the network.<br>• A network parameters is corrupted.<br>• The network parameter does not match the installation status. (Reserved station specification, number of connected stations, network number etc.) |
| | | Flashing | A data link faulty station was detected. |
| | | OFF | Working normally. |
| | L ERR. LED | | Indicates the error status of the received data and the circuit. When the L ERR. LED is on, you can check the L ER LED for "P1" or "P2" to see on which port the error was detected.<br>The description of the errors can be confirmed in CC-Link IE Field Network diagnostics. (☞ Page 206, CHAPTER 9)<br>This LED automatically turns off when the module has received normal data and loopback is completed in ring topology. |
| | | ON | • The module has received abnormal data.<br>• The module is performing loopback (only the master/local module whose serial number (first five digits) is "12072" or later). |
| | | OFF | • The module has received normal data.<br>• The module is not performing loopback (only the master/local module whose serial number (first five digits) is "12072" or later). |
| | ST.NO. | | Displays the station number of the master/local module. |
| | | ON | Displays the station number.<br>**Ex.** Station No. 15<br>  |
| | | OFF | The station number is 0 (master station) or the station number is not set. |

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| No. | Name | | Application |
|---|---|---|---|
| 2) | P1 | | PORT1 connector for CC-Link IE Field Network (RJ45 connector)<br>Connect an Ethernet cable. (☞ Page 68, Section 6.3)<br>There are no restrictions on the connection order of the cables for the "P1" connector and "P2" connector. |
| | L ER LED | ON | • The module has received abnormal data.<br>• The module is not performing loopback (only the master/local module whose serial number (first five digits) is "12072" or later). |
| | | OFF | • The module has received normal data.<br>• The module does not perform loopback (only the master/local module whose serial number (first five digits) is “12072” or later). |
| | LINK LED | ON | Linkup in progress. |
| | | OFF | Linkdown in progress. |
| | P2 | | PORT2 connector for CC-Link IE Field Network (RJ45 connector)<br>Connect an Ethernet cable. (☞ Page 68, Section 6.3)<br>There are no restrictions on the connection order of the cables for the "P1" connector and "P2" connector. |
| | L ER LED | | (Same as the "P1" connector) |
| | LINK LED | | |
| 3) | Serial number display | | Displays the serial number printed on the rating plate. |

**Remark**

For LED indication when the master/local module is in test mode, refer to the following.
(☞ Page 64, Section 6.2, Page 71, Section 6.4.1)

# CHAPTER 3 SPECIFICATIONS

This chapter describes the specifications, function list, I/O signal, and buffer memory of the master/local module.

## 3.1 General Specifications

For the general specifications of the master/local module, refer to the following.

QCPU User's Manual (Hardware Design and Maintenance and Inspection)

## 3.2 Performance Specifications

| Item | | | | Specifications |
|---|---|---|---|---|
| Maximum number of link points per network | | | RX | 16384 points, 2KB |
| | | | RY | 16384 points, 2KB |
| | | | RWr | 8192 points, 16KB |
| | | | RWw | 8192 points, 16KB |
| Maximum number of link points per station | When not using the submaster function | Master station | RX | 16384 points, 2KB |
| | | | RY | 16384 points, 2KB |
| | | | RWr | 8192 points, 16KB |
| | | | RWw | 8192 points, 16KB |
| | When using the submaster function | Master operating station | RX | 16384 points, 2KB |
| | | | RY | 16384 points, 2KB<br>• 2048 points and 256 bytes for the send range of an own station |
| | | | RWr | 8192 points, 16KB |
| | | | RWw | 8192 points, 16KB<br>• 1024 points and 2048 bytes for the send range of an own station.*2 |
| | | Submaster operating station*1 | RX | 2048 points, 256 bytes (assigned for the station number 0 or submaster station) |
| | | | RY | 2048 points, 256 bytes (assigned for the station number 0 or submaster station) |
| | | | RWr | 1024 points, 2048 bytes (assigned for the station number 0 or submaster station)*2 |
| | | | RWw | 1024 points, 2048 bytes (assigned for the station number 0 or submaster station)*2 |
| | Local station*1 | | RX | 2048 points, 256 bytes |
| | | | RY | 2048 points, 256 bytes |
| | | | RWr | 1024 points, 2048 bytes*2 |
| | | | RWw | 1024 points, 2048 bytes*2 |

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| Item | | Specifications |
|---|---|---|
| Ethernet part | Communication speed | 1Gbps |
| | Network topology | Line topology, star topology (Coexistence of line topology and star topology is possible.), and ring topology |
| | Connection cable | An Ethernet cable that meets the 1000BASE-T standard: Category 5e or higher (double shielded, STP), straight cable (☞Page 59, Section 5.3.1) |
| | Maximum station-to-station distance | 100m max. (Compliant with ANSI/TIA/EIA-568-B (Category 5e)) (☞Page 70, Section 6.3 (2)) |
| | Overall cable distance | Line topology: 12000m (when cables are connected to one master station and 120 slave stations (inclusive or exclusive of a submaster station))<br>Star topology: Depends on the system configuration.<br>Ring topology: 12100m (when cables are connected to one master station and 120 slave stations (inclusive or exclusive of a submaster station)) |
| | Number of cascade connections | Up to 20 |
| Number of connectable stations per network | Master station | 1 station (Up to 120 slave stations (including a submaster station) can be connected to the master station.) |
| | Submaster station | 1 station |
| | Local station | 120 stations (including a submaster station) |
| Maximum number of networks | | 239 |
| Communication method | | Token passing method |
| Number of occupied I/O points | | 32 points (I/O assignment: Intelligent 32 points) |
| Internal current consumption (5VDC) | | 0.85A |
| External dimensions | | 98(H) × 27.4(W) × 115(D) [mm] |
| Weight | | 0.18kg |

*1 The maximum number of points for one master station is listed. A submaster station and a local station can receive data from other stations in addition to this number of points. (☞Page 124, Section 8.1.1, Page 181, Section 8.8.1)

*2 256 points and 512 bytes when "Online (High Speed Mode)" is set

# 3.3 Function List

## (1) Cyclic transmission

○:Available, ×: Not available

| Function | | Description | Availability | | Reference |
|---|---|---|---|---|---|
| | | | Master station, submaster station | Local station | |
| Communications with other stations | Communications using RX and RY | The master station communicates I/O data in units of bits with other stations. | ○ | ○ | Page 88, Section 7.3<br>Page 124, Section 8.1.1 |
| | Communications using RWr and RWw | The master station communicates I/O data in units of words with other stations. | ○ | ○ | |
| Access to devices and link devices | Link refresh | Transfer between the link device of the master/local module and the device of the CPU module is performed automatically. | ○ | ○ | Page 103, Section 7.5<br>Page 127, Section 8.1.2 |
| | Direct access to link devices | The program accesses the link devices of the master/local module directly. | ○ | ○ | Page 129, Section 8.1.3 |
| Interlink transmission | | A relay station transfers the link devices of the master station and submaster station to another network module. | ○ | × | Page 113, Section 7.7<br>Page 133, Section 8.1.4 |
| Mode selection for cyclic transmission | | This mode is selected for optimizing the performance of cyclic transmission based on the cyclic transmission and transient transmission frequency.<br>The mode can be selected from "Online (Normal Mode)" and "Online (High Speed Mode)". | ○ | × | Page 84, Section 7.2 (1)<br>Page 529, Appendix 6 |
| Assurance of cyclic data integrity | | The cyclic data integrity is assured in units of 32 bits or station-based units. | ○ | ○ | Page 134, Section 8.1.5 |
| Scan synchronization specification | | Link scan is set to asynchronous or synchronous with the sequence scan of the CPU module. | ○ | × | Page 139, Section 8.1.6 |
| Input status setting for data link faulty station | | Whether input data from another station where a data link error occurs is cleared or held is selected. | ○ | ○ | Page 140, Section 8.1.7 |
| Output status setting for CPU STOP | | When the CPU module mounted with a master/local module is set to STOP, whether cyclic data output is held or cleared can be selected. | ○ | ○ | Page 142, Section 8.1.8 |
| Output status setting for CPU stop error | | When a stop error occurs in the CPU module where a master/local module is mounted, whether cyclic transmission output is held or cleared can be selected. | ○ | ○ | Page 140, Section 8.1.7 |
| Cyclic transmission stop and restart | | During debugging and other operations, cyclic transmission is stopped. (Data reception from a slave station and data sending from the own station are stopped.) Also, the stopped cyclic transmission is restarted.<br>Transient transmission does not stop. | ○ | ○ | Page 143, Section 8.1.9<br>Page 221, Section 9.4 |

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### (2) Transient transmission

○:Available, ×: Not available

| Function | Description | Availability | | Reference |
|---|---|---|---|---|
| | | Master station, submaster station | Local station | |
| Communications within the same network | Transient transmission is performed to other stations using dedicated instructions and GX Works2. | ○ | ○ | Page 236, CHAPTER 10 |
| Communications with different networks | By presetting the routing parameters (communication route) using GX Works2, transient transmission can be performed to stations on different networks through GX Works2.<br>Seamless communications are available with the following networks.<br>• Ethernet<br>• CC-Link IE Controller Network<br>• MELSECNET/H<br>• MELSECNET/10<br>• CC-Link (when using GX Works2) | ○ | ○ | Page 119, Section 7.8<br>Page 145, Section 8.2.2 |

### (3) RAS functions

○:Available, ×: Not available

| Function | Description | Availability | | Reference |
|---|---|---|---|---|
| | | Master station, submaster station | Local station | |
| Slave station disconnection | Only the slave station where an error occurs is disconnected, and data link continues with the stations that are operating normally.<br>In a line topology, all stations connected after the faulty station are disconnected. | ○ | × | — |
| Automatic return | When the station disconnected from the network due to a data link failure recovers, it automatically returns to the network and restarts data link. | ○ | ○ | — |
| Module error collection function | An error that has occurred in a master/local module can be stored in the CPU module as error history.<br>The history data can be stored on a memory with backup power feature, enabling retention of the data at reset of the CPU module or power-off of the system. | ○ | ○ | Page 426, Section 12.2 |

| Function | Description | Availability | | Reference |
|---|---|---|---|---|
| | | Master station, submaster station | Local station | |
| Loopback function | Only the station where an error occurs is disconnected, and data link continues with the stations that are operating normally.<br>All stations after the faulty station are disconnected in line topology.<br>By using the loopback function with ring topology, data link continues with the stations that are operating normally. | ○ | ○ | Page 178, Section 8.7 |
| Submaster function | Connecting the master station and submaster station on the same network allows the submaster station to continue controlling slave stations instead of the master station even if the master station is disconnected. Using this function prevents the entire network from going down due to disconnection of the master station. | ○ | × | Page 180, Section 8.8 |

### (4) Diagnostic function

○:Available, ×: Not available

| Function | | Description | Availability | | Reference |
|---|---|---|---|---|---|
| | | | Master station, submaster station | Local station | |
| CC-Link IE Field Network diagnostics | | The status of CC-Link IE Field Network can be checked using GX Works2. The error locations, error causes, corrective actions, and event history can be checked in GX Works2. | ○ | ○ | Page 206, CHAPTER 9 |
| Diagnostics of module alone | Hardware test | The internal hardware of the master/local module can be checked. | ○ | ○ | Page 64, Section 6.2.1 |
| | Self-loopback test | The communication circuit in the transmission system of the master/local module can be checked. | ○ | ○ | Page 66, Section 6.2.2 |
| Own network diagnostics | Loop test | The network line status and parameter setting status of each station are checked. | ○ (Master station only) | ○ | Page 71, Section 6.4.1 |
| | Cable test | Connection status of the Ethernet cables is checked. | ○ | ○ | Page 78, Section 6.4.2 |
| Other network diagnostics | Communication test | Whether the communication route for transient transmission from the own station to the destination station is correct or not is checked. | ○ | ○ | Page 79, Section 6.4.3 |
| | IP communication test | When the IP packet transfer function is used, whether no error occurs in the communication route is checked. | ○ | ○ | Page 156, Section 8.3.3 |

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### (5) Other functions

○:Available, ×: Not available

| Function | Description | Availability | | Reference |
|---|---|---|---|---|
| | | Master station, submaster station | Local station | |
| Reserved station specification | The reserved stations are included in the number of stations that will be connected to the network in the future without actually connecting them. Reserved stations are not detected as faulty stations even though they are not actually connected. | ○ | × | Page 175, Section 8.4<br>Page 225, Section 9.6 |
| Temporary cancel of the reserved station setting | Reserved station specification can be temporarily cancelled without changing the parameters. | ○ | × | |
| Error invalid station and temporary error invalid station setting | Prevent the master station from detecting a slave station as a faulty station even if the slave station is disconnected during data link. This can be used when replacing a slave station during data link, for instance. | ○ | × | Page 176, Section 8.5<br>Page 229, Section 9.7 |
| Interrupt request to a CPU module | Interrupt conditions are checked every link scan, and if the interrupt conditions are met, an interrupt request is made to the CPU module to start the interrupt program. | ○ | ○ | Page 107, Section 7.6<br>Page 177, Section 8.6 |
| IP packet transfer function | Communications in a protocol, such as FTP and HTTP, using the specified IP address of an Ethernet device can be performed over CC-Link IE Field Network.<br>With this function, two networks of CC-Link IE Field Network and Ethernet are not required, resulting in reduced wiring cost. | ○ | ○ | Page 146, Section 8.3 |
| Station number setting using a program | The station numbers of a local station (own station) can be set using a program.<br>When there are local stations with the same program and network parameters (excluding the station numbers), setting the station numbers using a program allows project data items other than the station number to be the same, leading to reduced development work hours. | × | ○ | Page 380, Section 10.18 |
| Data backup/restoration | The setting data of the slave station is backed up into the SD memory card of the CPU module on the master station.<br>The setting data backed up on the SD memory card of the CPU module on the master station is restored into the slave module. | ○ (Master station only) | ○ | 📖 iQ Sensor Solution Reference Manual |

# 3.4 List of I/O Signals

This section lists I/O signals for the CPU module.
The I/O signal assignment of when the start I/O number of the master/local module is "0000" (the module is mounted to the 0 slot of the main base unit) is listed below.
The device X is an input signal from the master/local module to the CPU module. The device Y is an output signal from the CPU module to the master/local module.

| Signal direction: Master/local module → CPU module | | Signal direction: CPU module → Master/local module | |
|---|---|---|---|
| **Device number** | **Signal name** | **Device number** | **Signal name** |
| X0 | Module failure | Y0 | Use prohibited |
| X1 | Own station data link status | Y1 | |
| X2 | Use prohibited | Y2 | |
| X3 | Other stations data link status | Y3 | |
| X4 | Use prohibited | Y4 | |
| X5 | | Y5 | |
| X6 | | Y6 | |
| X7 | | Y7 | |
| X8 | | Y8 | |
| X9 | | Y9 | |
| XA | | YA | |
| XB | | YB | |
| XC | | YC | |
| XD | | YD | |
| XE | | YE | |
| XF | Module ready | YF | |
| X10 | Use prohibited | Y10 | |
| X11 | | Y11 | |
| X12 | | Y12 | |
| X13 | | Y13 | |
| X14 | | Y14 | |
| X15 | | Y15 | |
| X16 | | Y16 | |
| X17 | | Y17 | |
| X18 | | Y18 | |
| X19 | | Y19 | |
| X1A | | Y1A | |
| X1B | | Y1B | |
| X1C | | Y1C | |
| X1D | | Y1D | |
| X1E | | Y1E | |
| X1F | | Y1F | |

**Point**

- Do not use (turn on) any "use prohibited" signals as an input or output signal to the QCPU. Doing so may cause malfunction of the programmable controller system.
- For details on the I/O signals, refer to "I/O Signals". (☞ Page 464, Appendix 1)

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# 3.5 List of Buffer Memory Addresses

The buffer memory is used to exchange data between the master/local module and the CPU module.
Buffer memory values are defaulted when the CPU module is reset or the system is powered off.

| Address (Decimal (Hexadecimal)) | Name | | Initial value | Read, write | Refer to |
|---|---|---|---|---|---|
| 0 to 1023 ($0$ to $3FF_H$) | Link device area | Remote input (RX) | 0 | Read | Page 466, Appendix 2.1 |
| 1024 to 2047 ($400_H$ to $7FF_H$) | | Remote output (RY) | | Read, write | |
| 2048 to 10239 ($800_H$ to $27FF_H$) | | Remote register (RWw) | | | |
| 10240 to 18431 ($2800_H$ to $47FF_H$) | | Remote register (RWr) | | Read | |
| 18432 to 18463 ($4800_H$ to $481F_H$) | | Link special relay (SB) | | • 18432 to 18433 for read and write<br>• 18434 to 18463 for read only | |
| 18464 to 18975 ($4820_H$ to $4A1F_H$) | | Link special register (SW) | | • 18464 to 18495 for read and write<br>• 18496 to 18975 for read only | |
| 18976 to 19455 ($4A20_H$ to $4BFF_H$) | System area | | | | — |
| 19456 ($4C00_H$) | RX offset/size information | Station No.1 RX offset | 0 | Read | Page 468, Appendix 2.2 |
| 19457 ($4C01_H$) | | Station No.1 RX size | | | |
| to | | to | | | |
| 19694 ($4CEE_H$) | | Station No.120 RX offset | | | |
| 19695 ($4CEF_H$) | | Station No.120 RX size | | | |
| 19696 ($4CF0_H$) | | Station No.0 RX offset | | | |
| 19697 ($4CF1_H$) | | Station No.0 RX size | | | |
| 19698 to 19711 ($4CF2_H$ to $4CFF_H$) | System area | | | | — |

| Address (Decimal (Hexadecimal)) | Name | | Initial value | Read, write | Refer to |
|---|---|---|---|---|---|
| 19712 ($4D00_H$) | RY offset/size information | Station No.1 RY offset | 0 | Read | Page 468, Appendix 2.3 |
| 19713 ($4D01_H$) | | Station No.1 RY size | | | |
| to | | to | | | |
| 19950 ($4DEE_H$) | | Station No.120 RY offset | | | |
| 19951 ($4DEF_H$) | | Station No.120 RY size | | | |
| 19952 ($4DF0_H$) | | Station No.0 RY offset | | | |
| 19953 ($4DF1_H$) | | Station No.0 RY size | | | |
| 19954 to 19967 ($4DF2_H$ to $4DFF_H$) | System area | | | | — |
| 19968 ($4E00_H$) | RWw offset/size information | Station No.1 RWw offset | 0 | Read | Page 469, Appendix 2.4 |
| 19969 ($4E01_H$) | | Station No.1 RWw size | | | |
| to | | to | | | |
| 20206 ($4EEE_H$) | | Station No.120 RWw offset | | | |
| 20207 ($4EEF_H$) | | Station No.120 RWw size | | | |
| 20208 ($4EF0_H$) | | Station No.0 RWw offset | | | |
| 20209 ($4EF1_H$) | | Station No.0 RWw size | | | |
| 20210 to 20223 ($4EF2_H$ to $4EFF_H$) | System area | | | | — |
| 20224 ($4F00_H$) | RWr offset/size information | Station No.1 RWr offset | 0 | Read | Page 469, Appendix 2.5 |
| 20225 ($4F01_H$) | | Station No.1 RWr size | | | |
| to | | to | | | |
| 20462 ($4FEE_H$) | | Station No.120 RWr offset | | | |
| 20463 ($4FEF_H$) | | Station No.120 RWr size | | | |
| 20464 ($4FF0_H$) | | Station No.0 RWr offset | | | |
| 20465 ($4FF1_H$) | | Station No.0 RWr size | | | |
| 20466 to 20511 ($4FF2_H$ to $501F_H$) | System area | | | | — |

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| Address (Decimal (Hexadecimal)) | Name | | Initial value | Read, write | Refer to |
|---|---|---|---|---|---|
| 20512 ($5020_H$) | Own station (network card) information | Manufacturer code | 0 | Read | Page 470, Appendix 2.6 |
| 20513 ($5021_H$) | | Model type | | | |
| 20514 ($5022_H$) | | Model code | 1 | | |
| 20515 ($5023_H$) | | Version | *1 | | |
| 20516 to 20519 ($5024_H$ to $5027_H$) | System area | | | | — |
| 20520 ($5028_H$) | Own station (controller) information | Controller information valid/ invalid flag | 0 | Read | Page 470, Appendix 2.6 |
| 20521 ($5029_H$) | | Manufacturer code | | | |
| 20522 ($502A_H$) | | Model type | | | |
| 20523 ($502B_H$) | | Model code | | | |
| 20524 ($502C_H$) | | Version | | | |
| 20525 to 20534 ($502D_H$ to $5036_H$) | | Model name string | | | |
| 20535 to 20536 ($5037_H$ to $5038_H$) | | Vendor-specific device information | | | |
| 20537 to 20538 ($5039_H$ to $503A_H$) | System area | | | | — |
| 20544 ($5040_H$) | Other station (network card) information (station No.1) | Manufacturer code | 0 | Read | Page 471, Appendix 2.7 |
| 20545 ($5041_H$) | | Model type | | | |
| 20546 ($5042_H$) | | Model code | | | |
| 20547 ($5043_H$) | | Version | | | |
| 20548 to 20551 ($5044_H$ to $5047_H$) | | System area | | | — |

| Address (Decimal (Hexadecimal)) | Name | | Initial value | Read, write | Refer to |
|---|---|---|---|---|---|
| 20552 ($5048_H$) | Other station (controller) information (station No.1) | Controller information valid/ invalid flag | 0 | Read | Page 471, Appendix 2.7 |
| 20553 ($5049_H$) | | Manufacturer code | | | |
| 20554 ($504A_H$) | | Model type | | | |
| 20555 ($504B_H$) | | Model code | | | |
| 20556 ($504C_H$) | | Version | | | |
| 20557 to 20566 ($504D_H$ to $5056_H$) | | Model name string | | | |
| 20567 to 20568 ($5057_H$ to $5058_H$) | | Vendor-specific device information | | | |
| 20569 to 20575 ($5059_H$ to $505F_H$) | | System area | | | — |
| 20576 to 24383 ($5060_H$ to $5F3F_H$) | Other station information (station No.2 to No.120) | Same as other station information (station No.1) | | | — |
| 24384 to 24415 ($5F40_H$ to $5F5F_H$) | Other station information (station No.0) | Same as other station information (station No.1) | | | |
| 24416 to 29967 ($5F60_H$ to $750F_H$) | System area | | | | — |
| 29968 ($7510_H$) | PORT1 line error occurrence rate (max.) | Station No.1 | 0 | Read | Page 472, Appendix 2.8 |
| to | | to | | | |
| 30087 ($7587_H$) | | Station No.120 | | | |
| 30088 ($7588_H$) | | Station No.0 | | | |
| 30089 to 30095 ($7589_H$ to $758F_H$) | System area | | | | |
| 30096 ($7590_H$) | PORT1 line error occurrence rate (present) | Station No.1 | 0 | Read | Page 472, Appendix 2.8 |
| to | | to | | | |
| 30215 ($7607_H$) | | Station No.120 | | | |
| 30216 ($7608_H$) | | Station No.0 | | | |
| 30217 to 30223 ($7609_H$ to $760F_H$) | System area | | | | |

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| Address (Decimal (Hexadecimal)) | Name | | Initial value | Read, write | Refer to |
|---|---|---|---|---|---|
| 30224 ($7610_H$) | PORT2 line error occurrence rate (max.) | Station No.1 | 0 | Read | Page 472, Appendix 2.8 |
| to | | to | | | |
| 30343 ($7687_H$) | | Station No.120 | | | |
| 30344 ($7688_H$) | | Station No.0 | | | |
| 30345 to 30351 ($7689_H$ to $768F_H$) | System area | | | | |
| 30352 ($7690_H$) | PORT2 line error occurrence rate (present) | Station No.1 | 0 | Read | Page 472, Appendix 2.8 |
| to | | to | | | |
| 30471 ($7707_H$) | | Station No.120 | | | |
| 30472 ($7708_H$) | | Station No.0 | | | |
| 30473 to 30479 ($7709_H$ to $770F_H$) | System area | | | | |
| 30480 to 31739 ($7710_H$ to $7BFB_H$) | System area | | | | — |
| 31740 to 32380 ($7BFC_H$ to $7E7C_H$) | C Controller module parameter area | | | | Page 537, Appendix 7 (5) |
| 32381 to 32767 ($7E7D_H$ to $7FFF_H$) | System area | | | | — |

*1 Since the version of a master/local module is stored, the initial value depends on the master/local module used.

**Point**

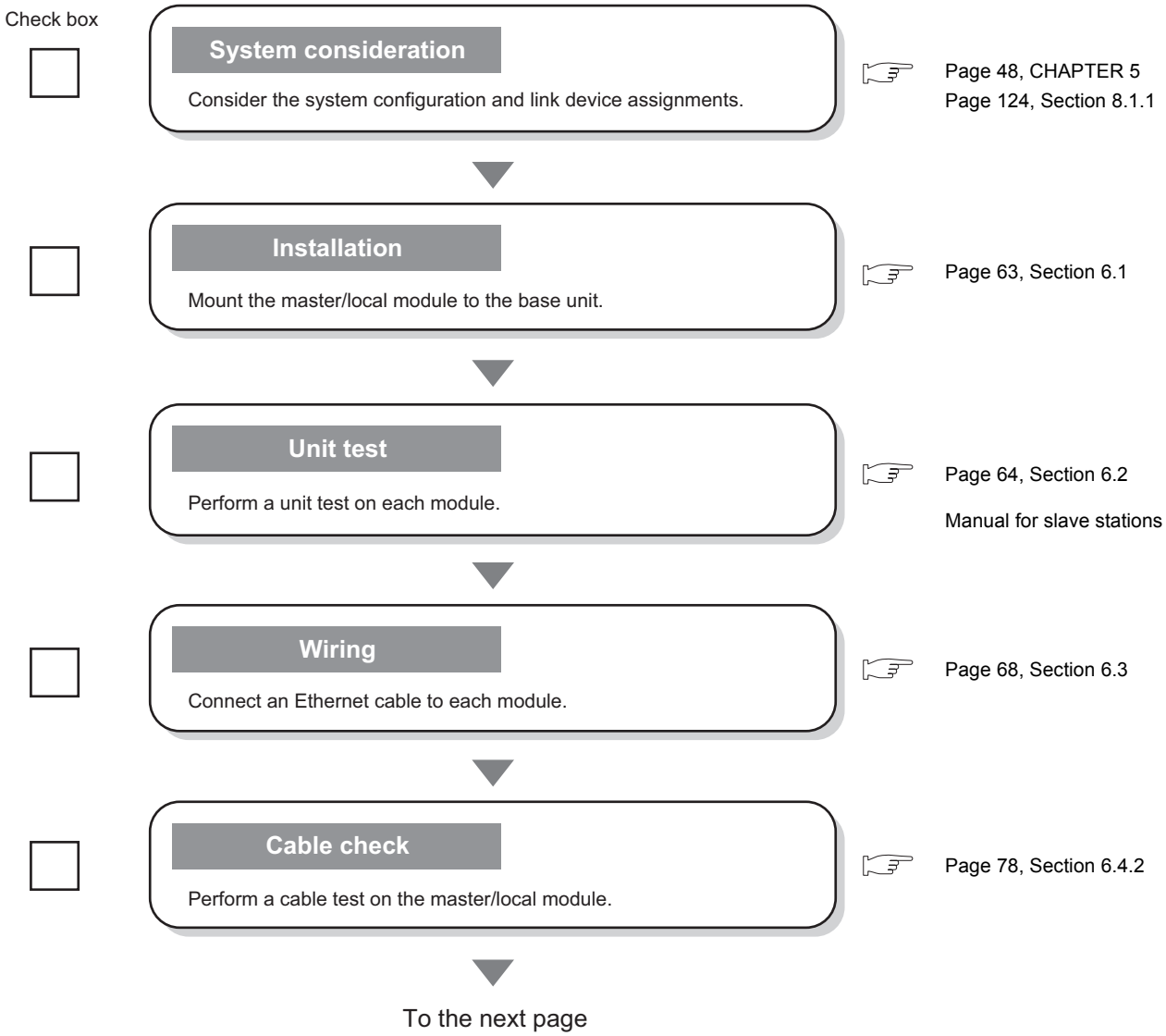
Do not write data to "System area".
Doing so may cause malfunction of the programmable controller system.

# CHAPTER 4 PROCEDURES BEFORE OPERATION

This chapter lists the procedures to be performed before operation of CC-Link IE Field Network.

**Remark**

- The programming chapter in this manual provides examples for each procedure (from "System consideration" to "Debugging") described below. (☞ Page 387, CHAPTER 11)
- When using the master/local module with a C Controller module, refer to Page 531, Appendix 7.




To the next page

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Check box

☐ **Configuration**

Set the parameters for each module.

Page 81, CHAPTER 7

▼

☐ **Network diagnostics**

Perform a loop test on the master station, and check if it can properly communicate by the configured parameters.

Page 71, Section 6.4.1

▼

☐ **Programming**

Create a program.

Page 387, CHAPTER 11

▼

☐ **Debug**

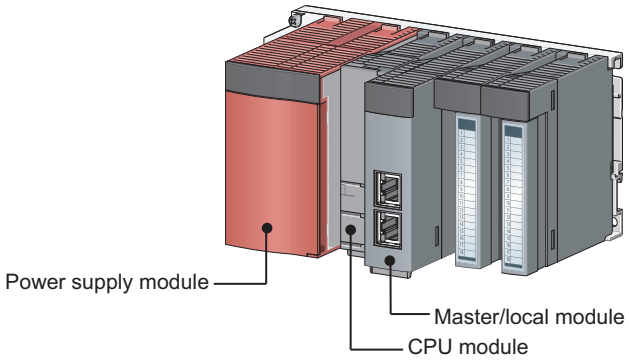
Debug the program using the CC-Link IE Field Network diagnostics.

Page 206, CHAPTER 9

# CHAPTER 5 SYSTEM CONFIGURATION

## 5.1 Overall System Configuration

This section describes a system configuration example of when using a master/local module.



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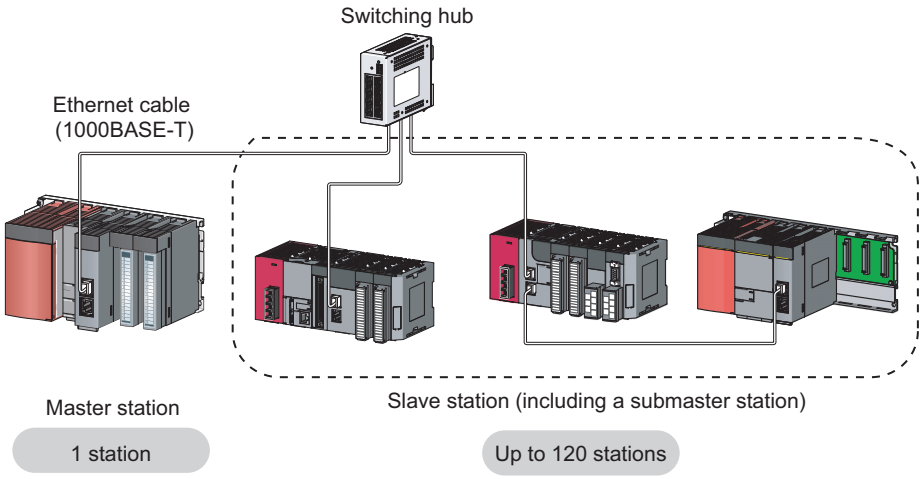
# 5.2 CC-Link IE Field Network Configuration

This section describes CC-Link IE Field Network configurations.

## 5.2.1 Single network system

### (1) Overall system configuration

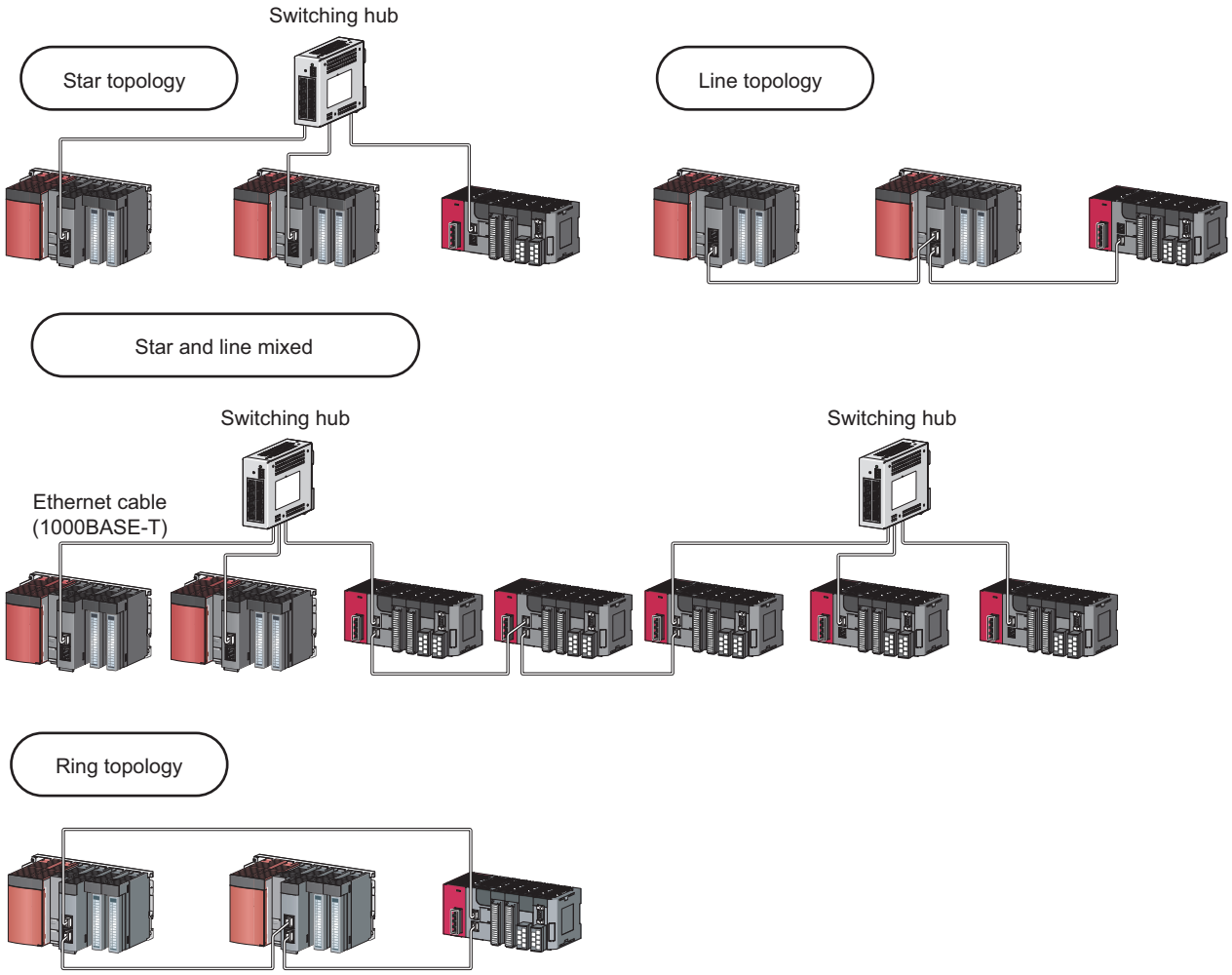
A single network system is a system in which a master station and slave stations are connected using Ethernet cables as shown below. Up to 120 slave stations (including a submaster station) and one master station can be connected.



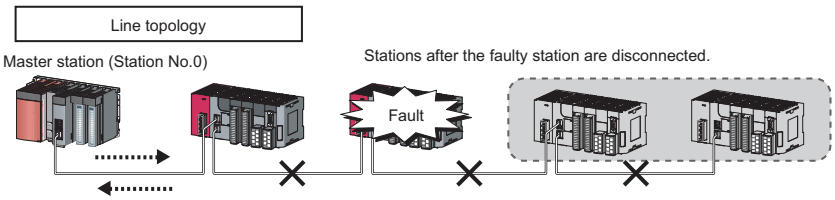
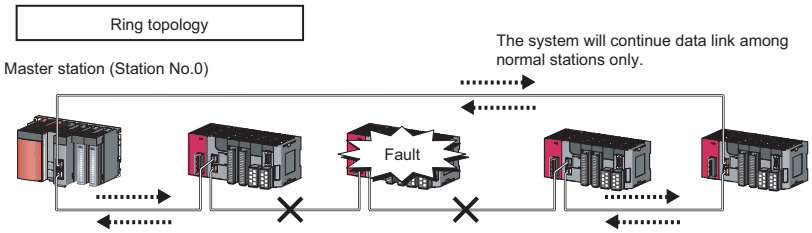
## (2) Network configuration

### (a) Network topology

The network can be wired into star topology, line topology, and ring topology.
A network can consist of a combination of star and line topologies, but the ring topology cannot be combined with star or line topology.



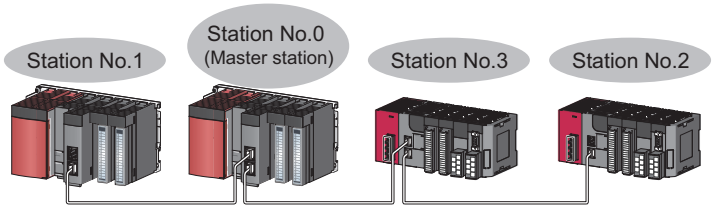
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| Item | Description |
|---|---|
| Star topology | The network is configured into a star using a switching hub and Ethernet cables. Slave stations can be easily added to the network using this topology.<br>Data link continues with the stations that are operating normally.*1 |
| Line topology | The network is configured into a line by connecting the modules with Ethernet cables, but without a switching hub. If an error occurs, stations after the faulty station will be disconnected.*1<br>  |
| Ring topology | The network is configured into a ring using Ethernet cables, but without a switching hub.<br>Data link continues with the stations that are operating normally.*1<br>  |

*1 Add/remove slave stations one by one. If multiple slave stations are added/removed at a time, all stations on the network will be reconnected, and an error may momentarily occur in all the stations.

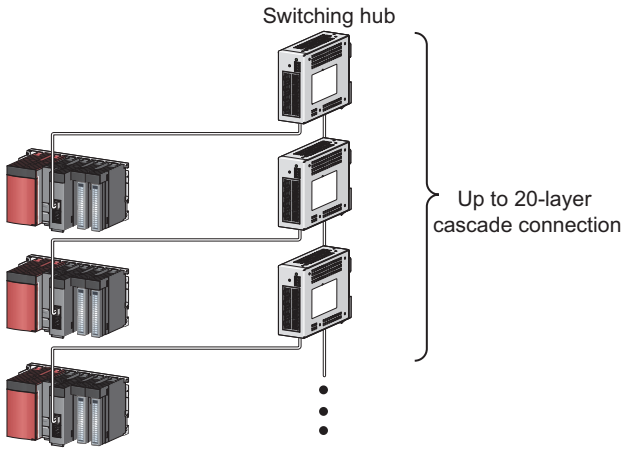
### (b) Station number and connection position

Modules can be connected in any order regardless of the station number.



### (c) Cascade connection

Up to 20-layer connection is available for the cascade connection.



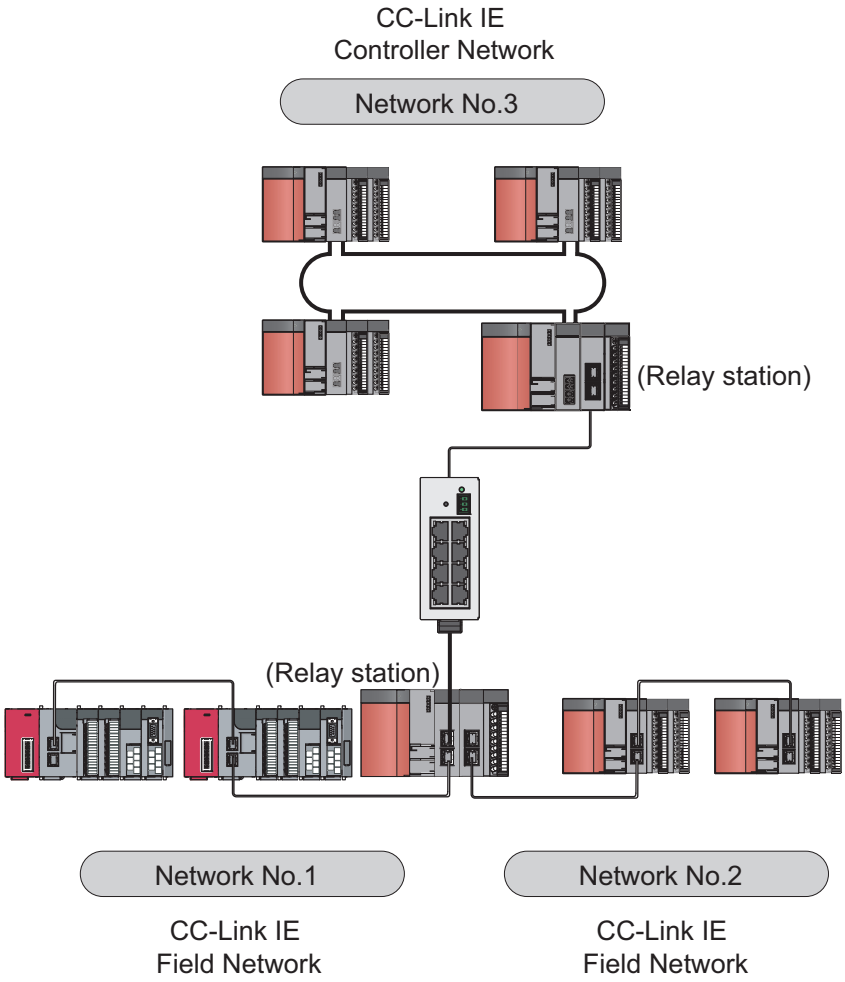

**Remark**

For wiring method, refer to Page 68, Section 6.3.

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## 5.2.2 Multi-network system

The multi-network system is a system in which multiple networks are connected by some relay stations. Up to 239 networks can be connected.




**Point**

Cyclic transmission communication is available only in the same network.
Transient transmission communication is available with other networks as well as the same network. Communications can be made with stations up to eight networks apart (number of relay stations: 7). (Page 238, Section 10.1 (1) (b))

## 5.2.3 Precautions

This section describes the precautions regarding the CC-Link IE Field Network configurations.

### (1) Adding slave stations (including the submaster stations)

If a slave station (including a submaster station) is added to a system having 120 slave stations (including a submaster station), the system operates as follows.

#### (a) When a serial number (first five digits) of the master station is "17022" or later

Baton pass and data link are not performed in the slave stations (including the submaster stations) added after the 121st station, and other stations continues baton pass and data link.

Even if the disconnected stations are returned to a system having 121 or more slave stations (including a submaster station), the stations may not start data link.

**Remark**

- Whether 121 or more slave stations (including a submaster station) are connected can be checked using the following.
  - "Selected Station Communication Status Monitor" of CC-Link IE Field diagnostics (Page 214, Section 9.3)
  - Number of connected modules over occurrence status (SB0099)

  Number of connected modules detected by Number of connected modules over occurrence status (SB0099) is the total of the slave stations (including a submaster station) which are currently connected and the disconnected stations (slave stations which were previously connected).
- The number of stations which were previously connected can be cleared by executing the network map update of the CC-Link IE Field Network diagnostics. (Page 214, Section 9.3) A data link error may momentarily occur in all the stations and outputs of the connected slave stations may turn off since all stations on the network will be reconnected when executing the network map update. Set output data if needed. (Page 58, Section 5.2.3 (8))

#### (b) When a serial number (first five digits) of the master station is "17021" or earlier

All stations will fail and data link cannot be performed.

### (2) Connecting devices to the same network

Do not connect an Ethernet device (e.g. personal computer) other than CC-Link IE Field Network device to the switching hub used on CC-Link IE Field Network. Doing so will cause timeout in the master station, resulting in disconnection of all the stations.

### (3) Configuration in which data link cannot be performed (incorrectly configured ring topology)

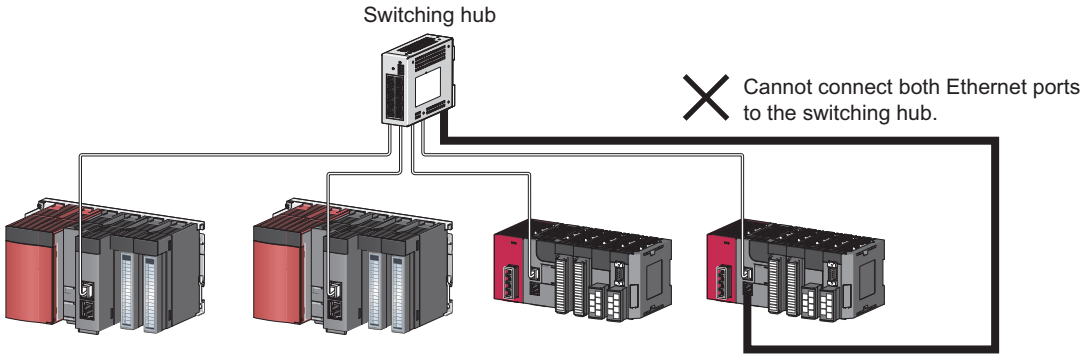
**Point**

Do not wire devices as shown below. Doing so will cause an error in all stations and data link cannot be performed.

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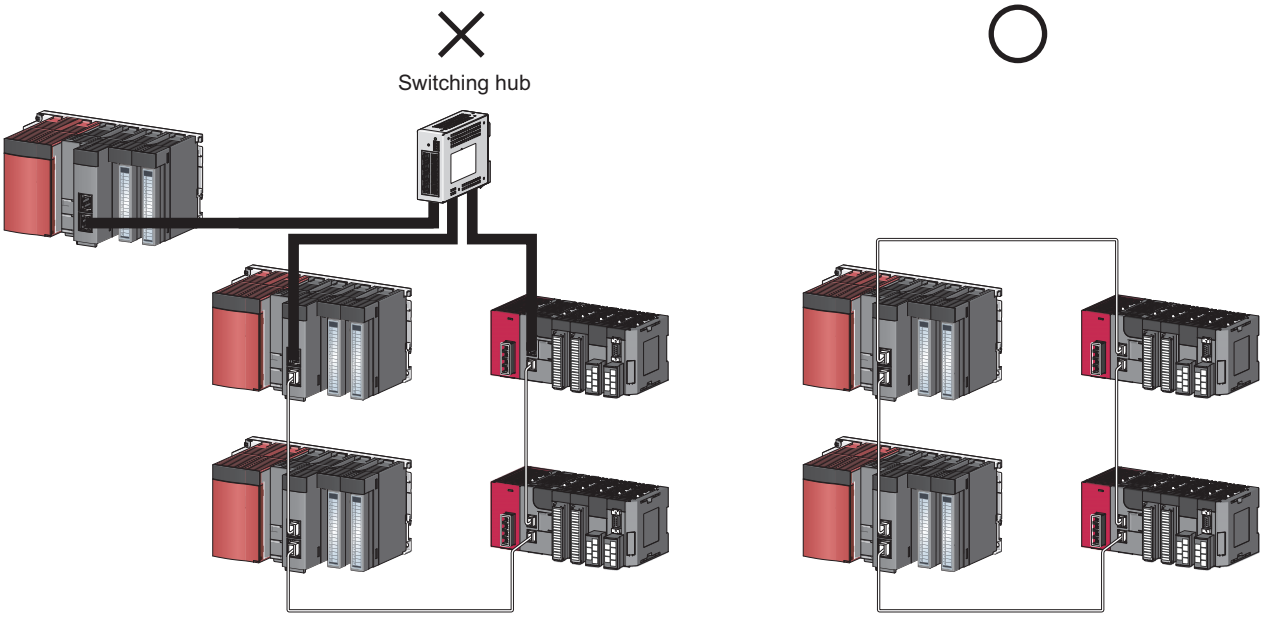
- Connecting both PORT1 and PORT2 to the switching hub

Ex.




- Ring topology through a switching hub

Ex.



## (4) Ring topology

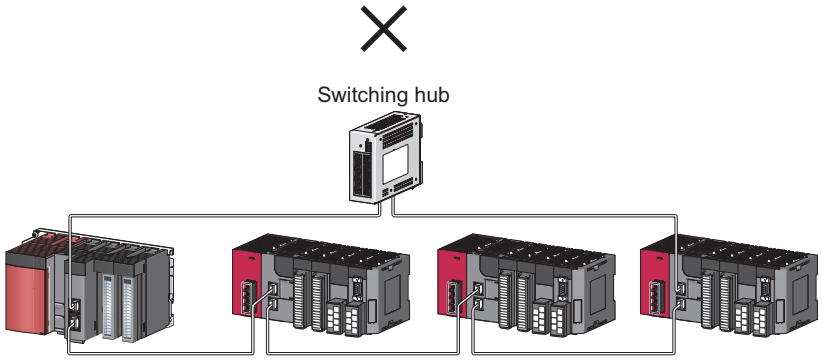
To configure a ring topology, perform the following:

- Check the serial number of the master/local module on the master station and the GX Works2 version.
  (☞Page 546, Appendix 8)
- Select "Use" under "Loopback Function Setting" in the network parameter window for the master station.
  (☞Page 88, Section 7.3)

## (5) Using a switching hub to configure a ring topology

If ring topology is configured by connecting two stations through two of the switching hub's ports, the following problems may arise; therefore, do not use a switching hub to configure the ring topology.

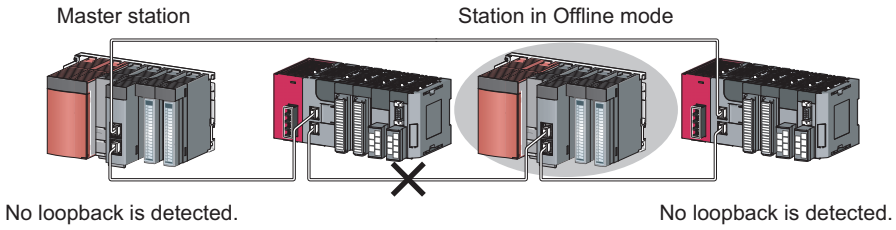
- If an Ethernet cable is disconnected, loopback cannot be detected.
- If a station is disconnected due to failure or power-off, data link will stop.



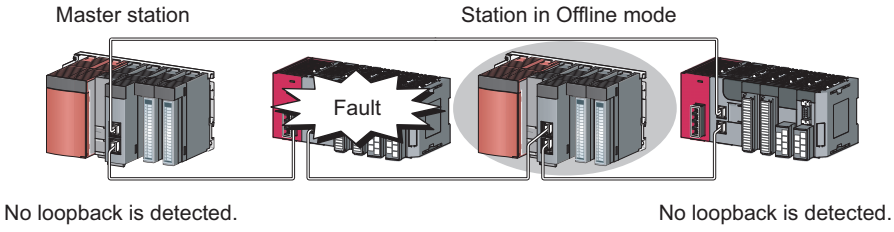

## (6) Offline mode station in ring topology

In the following cases, the master station or the station connected to the offline mode station cannot detect loopback.

- One of the Ethernet cables connected to the offline mode station is disconnected.




- A station connected to the offline mode station is disconnected.




To detect loopback, set the offline mode station as a reserved station.
When the offline mode station is disconnected, loopback can be detected.

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**Point**

A station during the RESET status and a station with no station number setting operate as an offline mode station does.

### (7) Connecting/disconnecting a cable and powering off/on a device

When the operations listed below are performed, the system operates as described in (a) or (b).

| Network configuration | Operation |
|---|---|
| Star topology | • Powering a slave station or switching hub off and on<br>• Connecting/disconnecting an Ethernet cable connected to the switching hub<br>• Disconnecting an Ethernet cable from a slave station and connecting it to another slave station or the switching hub<br>• Disconnecting more than nine stations, or half the number of slave stations or more in the system<br>• Changing the network topology when adding a slave station |
| Line topology, ring topology | • Simultaneously powering off/on systems on multiple stations<br>• Simultaneously connecting/disconnecting Ethernet cables to/from multiple stations (When a data link faulty station returns, a data link error will occur in all the stations.)<br>• Disconnecting more than nine stations, or half the number of slave stations or more in the system<br>• Changing the network topology when adding a slave station |

#### (a) When a serial number (first five digits) of the master station is "17022" or later

The actual network configuration and the network map of the CC-Link IE Field Network diagnostics may be a mismatch. Whether mismatch is occurred or not can be checked using 'Network configuration mismatch occurrence status' (SB0098).

When using a ring topology, the following may be occurred.

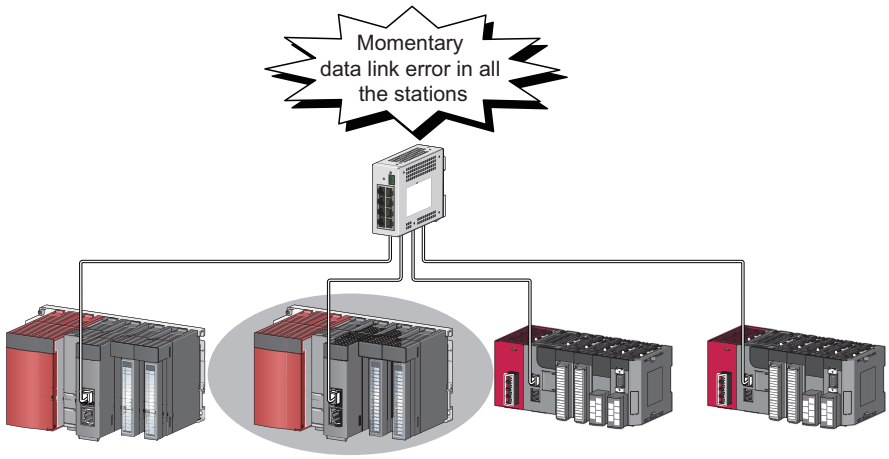
- The station number of the loopback station cannot be detected correctly.
- Even if a switching hub is used, data link does not stop.

**Remark**

The actual network configuration and network map can be matched by executing the network map update of the CC-Link IE Field Network diagnostics. (☞Page 214, Section 9.3)
A data link error may momentarily occur in all the stations and outputs of the connected slave stations may turn off since all stations on the network will be reconnected when executing the network map update. Set output data if needed.
(☞Page 58, Section 5.2.3 (8))

#### (b) When a serial number (first five digits) of the master station is "17021" or earlier

A data link error may momentarily occur in all the stations and outputs of the connected slave stations may turn off since all stations on the network will be reconnected. Set output data if needed. (☞Page 58, Section 5.2.3 (8))




## (8) Output hold when a data link error occurs

To hold the outputs when a data link error occurs, configure the following settings:

- Master/local module

  Set input data to be used from the faulty station.

  Project window ⇨ [Parameter] ⇨ [Network Parameter] ⇨ [Ethernet/CC IE/MELSECNET] ⇨ Network Operation Settings button

  For a head module whose serial number (first five digits) is "12071" or earlier

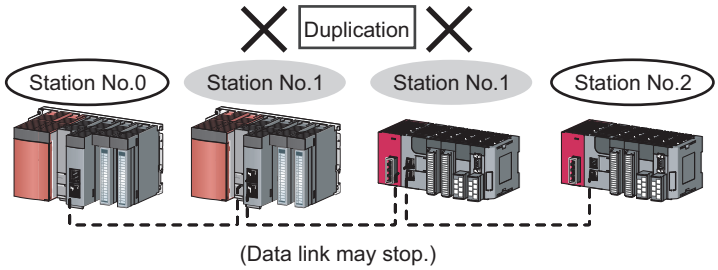
  Set output data to be used from the faulty station.

  Project window ⇨ [Parameter] ⇨ [PLC Parameter] ⇨ "I/O Assignment" ⇨ Detailed Setting button ⇨ "Error Time Output Mode"

  (This setting is not required for a head module whose serial number (first five digits) is "12072" or later.)

## (9) Connected station numbers

Do not duplicate station numbers. Data link may be stopped when the station number is duplicated.




## (10)Power-on order

To avoid incorrect input from slave stations, power on slave stations before the master station.

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# 5.3 Network Components

CC-Link IE Field Network consists of components such as cables and hubs.

## 5.3.1 Cables

For wiring, use the 1000BASE-T compliant Ethernet cables.

| Ethernet cable | Connector | Type |
|---|---|---|
| Category 5e or higher<br>(Double shielded/STP) Straight cable | RJ45 connector | The following conditioning cables:<br>• IEEE802.3 (10000BASE-T)<br>• ANSI/TIA/EIA-568-B (Category 5e) |

**Point**

- For CC-Link IE Field Network wiring, use the recommended wiring components by CC-Link Partner Association.
- Cables for CC-Link IE Controller Network cannot be used for CC-Link IE Field Network.

### (1) Product

Cables for CC-Link IE Field Network are available from Mitsubishi Electric System & Service Co., Ltd. (Catalogs for cable are also available.)
Also, the connector processing of cable length is available for your preference. Please consult your local Mitsubishi Electric System & Service Co., Ltd.

| Type | Model (manufacturer) |
|---|---|
| CC-Link IE Field Network cable | SC-E5EW series (Mitsubishi Electric System & Service Co., Ltd.) |

**Remark**

- Cable types
  The following cable types are available depending on the operating environment:
  - Standard type: Cables for inside the control panel and indoor connection
  - L type: Cables for outdoor connection

  Cables and relay adapters of flame retardant or waterproof type are also available. Please contact your Mitsubishi Electric System & Service Co., Ltd.

## 5.3.2 Hubs

Use hubs that meet all the conditions listed below:

- Compliance with the IEEE802.3 (1000BASE-T)
- Support of the auto MDI/MDI-X function
- Support of the auto-negotiation function
- Switching hub (layer 2 switch) *1

Operation is not guaranteed if the hubs do not meet these conditions.

*1 A repeater hub is not available.

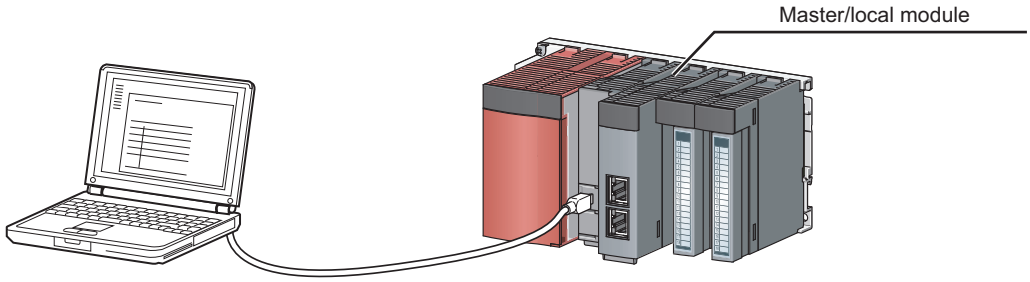
### (1) Mitsubishi product

| Type | Model name |
|---|---|
| Industrial managed switch | NZ2MHG-T8F2 |
| Industrial switching hub | • NZ2EHG-T8N<br>• NZ2EHG-T8 (Discontinued model) |

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# 5.4 Applicable Systems

This section describes MELSEC-Q series systems that include the master/local module.




Software package available for master/local modules

Page 62, Section 5.4 (3)

Applicable CPU modules, number of mountable modules

Page 61, Section 5.4 (1), Page 62, Section 5.4 (2)

## (1) Applicable CPU modules and the number of mountable modules

### (a) CPU module

The following CPU modules are applicable to the master/local module.

| CPU module | |
|---|---|
| Universal model QCPU | |
| C Controller module | Q06CCPU-V |
| | Q06CCPU-V-B |
| | Q12DCCPU-V |
| | Q24DHCCPU-V |
| | Q24DHCCPU-LS |

**Remark**

The CPU module version varies depending on the function of the master/local module used. Use the CPU module that supports each function.

User's manual for the CPU module used

### (b) Number of mountable modules

The number of master/local modules that can be mounted depends on the CPU modules. For the number of mountable modules, refer to the manual for the relevant CPU module.

### (c) Mounting to a MELSECNET/H remote I/O station

The master/local module cannot be mounted to any MELSECNET/H remote I/O stations. Mount the module on a base unit on which a CPU module is mounted.

## (2) Support for the multiple CPU system

For using the master/local module in the multiple CPU system, refer to the following manual first.

QCPU User's Manual (Multiple CPU System)

### (a) Applicable master/local modules

The function version of the master/local has been "B" from the first release and supports the multiple CPU system.

### (b) Network parameters

Network parameters are set to the control CPU of the master/local module.

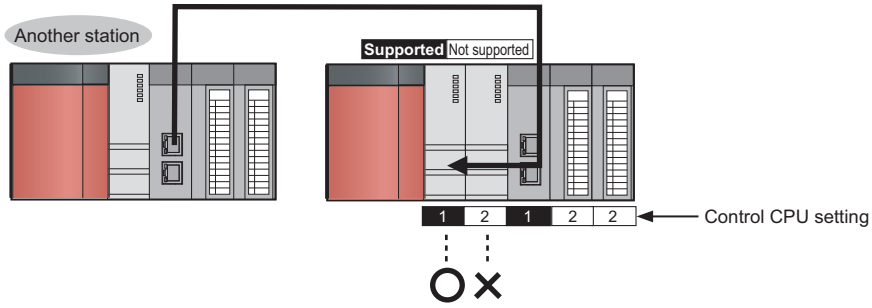
### (c) When another CPU to be accessed does not support the master/local module

Another CPU that does not support the master/local module cannot be accessed from another station.

The following access, for example, cannot be made.

- Diagnosing (e.g. PLC diagnostics, system monitor) another CPU that does not support the master/local module using GX Works2

  To diagnose the CPU, connect GX Works2 to the control CPU.
- Accessing another CPU that does not support the master/local module using dedicated instructions




○: Accessible ×: Inaccessible

## (3) Applicable software

GX Works2 is required for setting and diagnosing master/local modules.

GX Developer cannot be used.

| Software | Version |
|---|---|
| GX Works2 | Version 1.31H or later |

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# CHAPTER 6 INSTALLATION AND WIRING

This chapter describes the installation and wiring of a master/local module.

## 6.1 Installation

This section describes the installation of a master/local module.

### (1) Setting method

For details on the implementation of the master/local module, refer to the following.

QCPU User's Manual (Hardware Design, Maintenance and Inspection)

### (2) Handling precautions

The following is a list of precautions for handling the master/local module:

- Do not drop or apply strong shock to the module case since it is made from resin.
- Do not remove the printed-circuit board of the module from the case. Doing so may cause failure.
- Prevent foreign matter such as dust or wire chips from entering the module. 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 module during wiring. Do not remove the film during wiring. Remove it for heat dissipation before system operation.
- Before handling the module, touch a grounded metal object to discharge the static electricity from the human body. Failure to do so may cause the module to fail or malfunction.
- Tighten the screws such as module fixing screws within the following range.

| Screw | Tightening torque range |
|---|---|
| Module fixing screw (M3 screw)*1 | 0.36 to 0.48N•m |

*1 The module can be easily fixed onto the base unit using the hook at the top of the module. However, fixing with a module fixing screw is recommended under the locations that vibrations often occur.

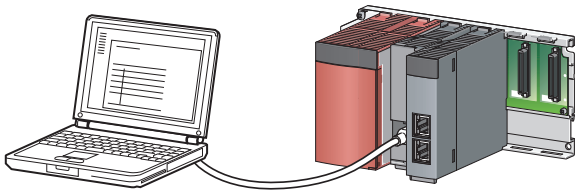
# 6.2 Tests Before Wiring

This section describes module tests that should be performed before network wiring.

## 6.2.1 Hardware test

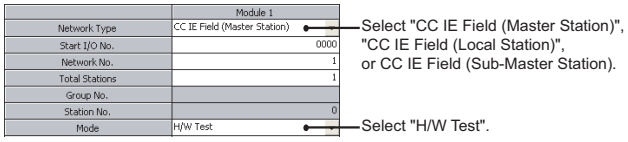
Hardware test checks the hardware inside the master/local modules.

### (1) Procedure



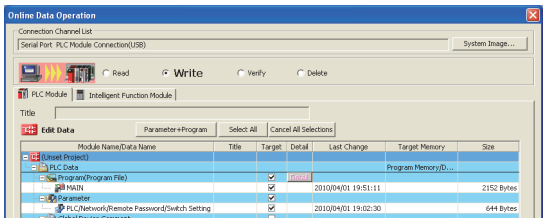
**1. Mount the master/local module on the base unit and connect GX Works2 to the CPU module.**

An Ethernet cable is not connected to the master/local modules.



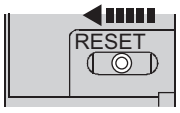

**2. Set network parameters as shown in the figure to left.**

Project window ⇨ [Parameter] ⇨ [Network Parameter] ⇨ [Ethernet/CC IE/MELSECNET]



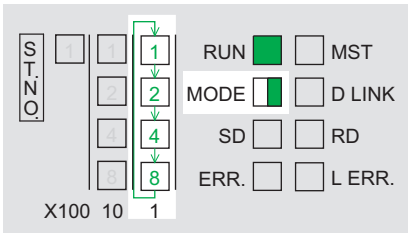

**3. Write the network parameters set to the CPU module.**

[Online] ⇨ [Write to PLC]




or power OFF→ON

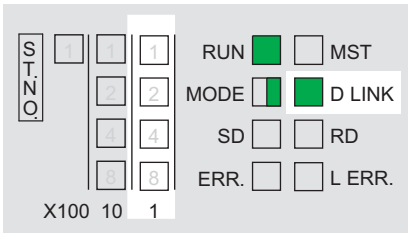
**4. Reset the CPU module or power off and then on the system.**



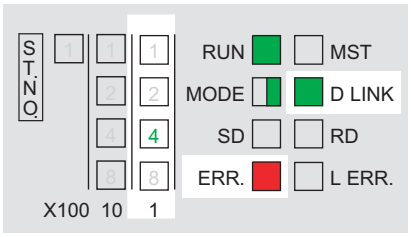

**5. Hardware test begins.**

The MODE LED of master/local modules flashes, and each of the ×1 LED repeatedly turns on and off (1 → 2 → 4 → 8 → 1 • • •).

When completed




When failed




***6.*** **D LINK LED turns on when the test is completed.**

- When completed
  The ×1 LED turns off.
- When failed
  Any one of the ×1 LEDs turns on, and the ERR. LED turns on.
  When the test fails, the possible cause is hardware failure of the master/local modules. Please consult your local Mitsubishi representative with the detailed problem description.

**Remark**

The test status and result can be checked through monitoring the link special relays on GX Works2.

| Item | Description |
|---|---|
| When completed | • Hardware test completion status (SB0090): ON<br>• Hardware test normal/abnormal end (SB0091): OFF |
| When failed | • Hardware test completion status (SB0090): ON<br>• Hardware test normal/abnormal end (SB0091): ON |

## (2) Precautions

### (a) Settings

Leave the network configuration setting and the refresh parameter fields blank, and do not set interlink transmission parameters.
If link refresh is performed during a hardware test, the test may fail.

### (b) Operations

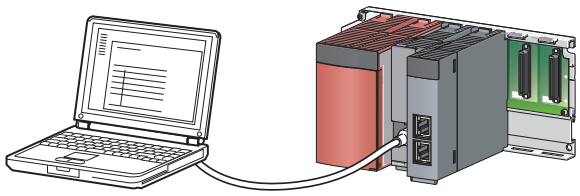
Do not access the buffer memory during the hardware test (including access to the buffer memory and direct access to the link device through the program). Doing so may cause the test to fail.

# 6.2.2 Self-loopback test

Self-loopback test checks the communication circuit of the master/local module.

**Point**

When conducting the self-loopback test, use a normal Ethernet cable. (Page 59, Section 5.3)

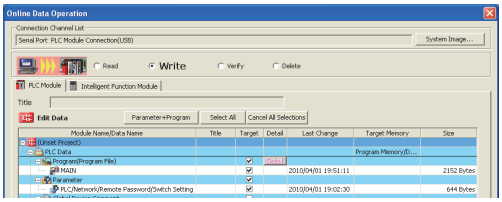


**1. Mount the master/local module on the base unit, and connect GX Works2 to the CPU module.**

| | Module 1 | |
|---|---|---|
| Network Type | CC IE Field (Master Station) | Select "CC IE Field (Master Station)", "CC IE Field (Local Station)", or CC IE Field (Sub-Master Station). |
| Start I/O No. | 0000 | |
| Network No. | 1 | |
| Total Stations | 1 | |
| Group No. | | |
| Station No. | 0 | |
| Mode | Self-Loopback Test | Select "Self-Loopback Test." |

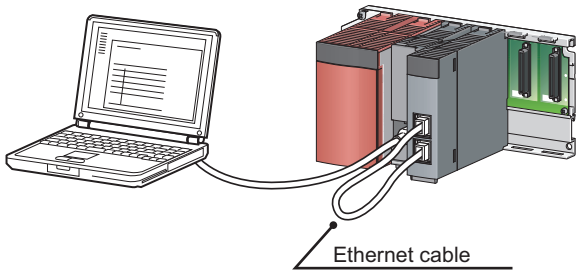
**2. Set network parameters as shown in the figure to left.**

Project window ⇨ [Parameter] ⇨ [Network Parameter] ⇨ [Ethernet/CC IE/MELSECNET]

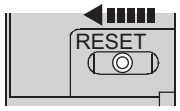



**3. Write the network parameters set to the CPU module.**

[Online] ⇨ [Write to PLC]



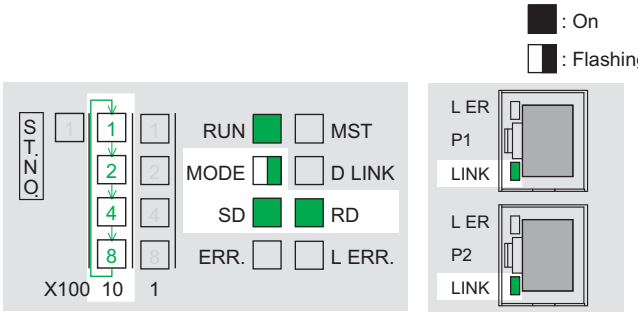

**4. Connect PORT1 and PORT2 of the mater/local modules with an Ethernet cable.**
**(Page 68, Section 6.3)**




or power OFF→ON

**5. Reset the CPU module or power off and on the system.**

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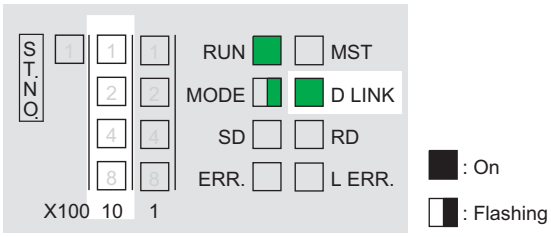



### 6. Self-loopback test begins.

The MODE LED of master/local modules flashes, and each of the ×10 LED repeatedly turns on and off (1 → 2 → 4 → 8 → 1 • • •).

Also, the SD LED, RD LED, and LINK LED turn on.

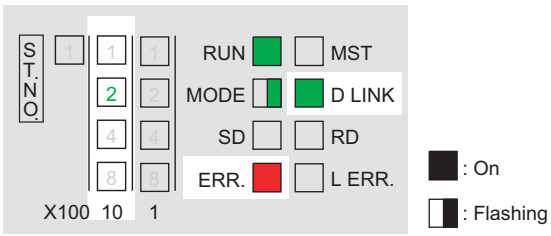
When completed




### 7. D LINK LED turns on, and SD LED and RD LED turn off when the test is completed.

- When completed
  The ×10 LED turns off.
- When failed
  Any one of the ×10 LEDs turns on, and the ERR. LED turns on. If the test fails, replace the Ethernet cable and execute the test again.
  If the test fails, replace the Ethernet cable and execute the test again. If the test fails again, the possible cause is hardware failure of the master/local modules. Please consult your local Mitsubishi representative with the detailed problem description.

When failed




**Remark**

The test status and result can be checked through monitoring the link special relays on GX Works2.

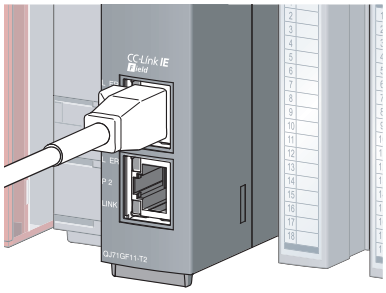
| Item | Description |
|---|---|
| When completed | • Self-loopback test completion status (SB0092): ON<br>• Self-loopback test normal/abnormal end (SB0093): OFF |
| When failed | • Self-loopback test completion status (SB0092): ON<br>• Self-loopback test normal/abnormal end (SB0093): ON |

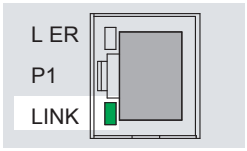
# 6.3 Wiring

This section describes the cable wiring and precautions. For network configuration, cables, and hubs used for the wiring, refer to the system configuration. (☞Page 48, CHAPTER 5)

## (1) Ethernet cable connection

### (a) Connecting the cable





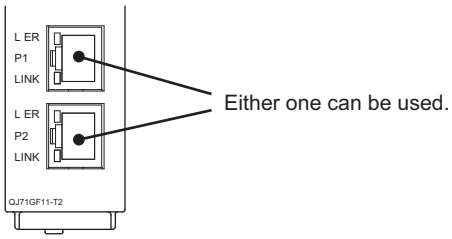

1. **Power off the master/local module and the connected device.**
2. **Push the Ethernet cable connector into the master/local module until it clicks. Pay attention to the connector's direction.**
3. **Power on the master/local module and the connected device.**
4. **Check whether the LINK LED of the port connected with an Ethernet cable is on.**
   The time between the power-on and the LINK LED turning on may vary. The LINK LED usually turns on in a few seconds. Note, however, that the time may be extended further if the linkup process is repeated depending on the status of the device on the line.
   If the LINK LED does not turn on, refer to the troubleshooting section and take corrective actions. (☞Page 430, Section 12.3)

AbN automation

**Point**

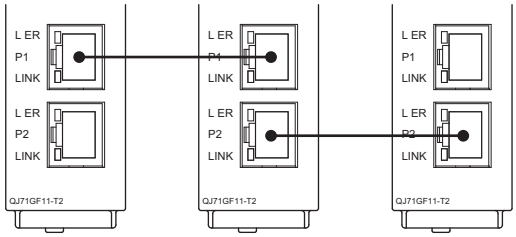
PORT1 and PORT2 need not to be distinguished.

- When only one connector is used in star topology, either PORT1 or PORT2 is applicable.

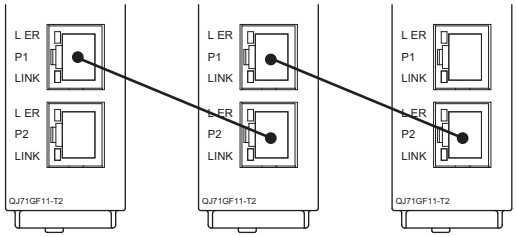



- When using two connectors for line topology and ring topology, an Ethernet cable can be connected to the connectors in any combination. For example, the cable can be connected between PORT1s or between PORT1 and PORT2.

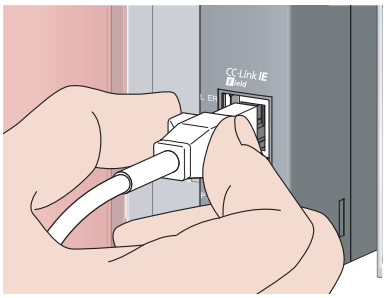
**Connection between PORT1s or PORT2s**




**Connection between PORT1 and PORT2**




### (b) Disconnecting the cable



1. **Power off the system.**
2. **Press the latch down and unplug the Ethernet cable.**

## (2) Precautions

This section describes wiring precautions.

### (a) Handling

- Place the Ethernet cable in a duct or clamp them. If not, dangling cable may swing or inadvertently be pulled, resulting in damage to the module or cables or malfunction due to poor contact.
- Do not touch the core of the cable-side or module-side connector, and protect it from dirt or dust. If oil from your hand, dirt or dust is attached to the core, it can increase transmission loss, arising a problem in data link.
- Check the following:
  - Is any Ethernet cable disconnected?
  - Is any of the Ethernet cables shorted?
  - Are the connectors securely connected?

### (b) Broken cable latch

Do not use Ethernet cables with broken latches. Doing so may cause the cable to unplug or malfunction.

### (c) Connecting and disconnecting the Ethernet cable

Hold the connector part when connecting and disconnecting the Ethernet cable. Pulling a cable connected to the module may damage the module or cable, or result in malfunction due to poor contact.

### (d) Connectors without Ethernet cable

Attached connector cover should be placed to prevent foreign matter such as dirt or dust.

### (e) Maximum station-to-station distance (maximum cable length)

The maximum station-to-station distance is 100m. However, the distance may be shorter depending on the operating environment of the cable. For details, contact your cable manufacturer.

### (f) Bend radius

The bend radius of the Ethernet cable is limited. For details, see the specifications of the Ethernet cable to be used.

### (g) Network configuration

For wiring, check Page 49, Section 5.2.1 (1), Page 54, Section 5.2.3 (2) to prevent incorrect wiring.

AbN automation

# 6.4 Tests After Wiring

This section describes loop and cable tests that should be performed after network wiring.
Perform these tests to the actual operating network configuration.

## 6.4.1 Loop test

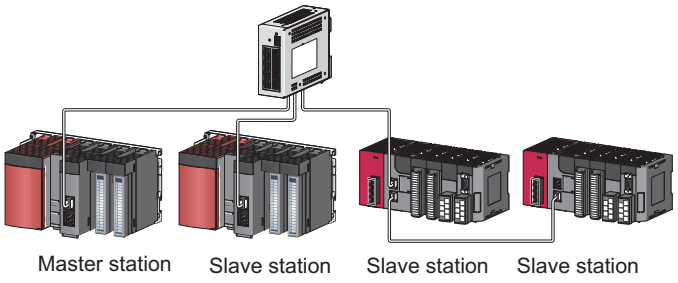
The loop test checks each station's network line and parameter setting status to verify whether the network is operating correctly. This test is executed from the master station.
The test completes approximately in 10 seconds.

The test allows checking of the following items:

| Item | Description |
|---|---|
| Master station duplication check | Checks if more than one master station exists on a network. |
| Submaster station duplication check | Checks if more than one submaster station exists on a network. |
| Station number duplication check | Checks if stations on the network are duplicated. |
| Out-of-range station No. check | Checks if the number of connected slave stations exceeds the number of slave stations set to the master station. |
| Reserved station specification check | Checks if the specified reserved stations are actually connected. |
| Consistency check of the number of connected stations | Consistency check for the total number of slave stations set by parameters and actual connected slave stations. |
| Station type check | Consistency check for the station type of slave stations set in master stations and actual connected station type. |
| Loopback check | Detects whether loopback is being performed when "Use" is selected under "Loopback Function Setting" in the network parameter window for the master station. |

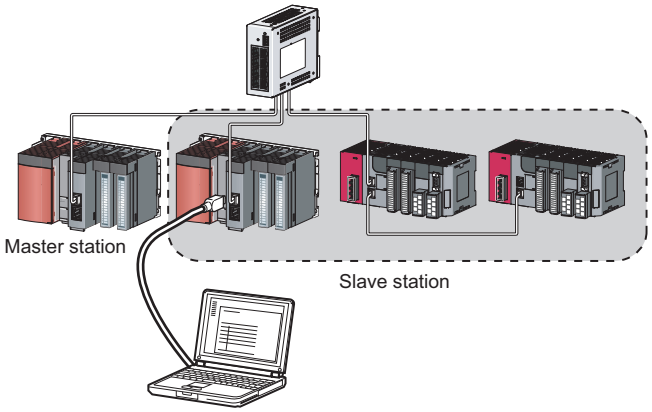
### (1) Performing a loop test

This section describes the procedure using the following system configuration example.



### (a) Preparing for a loop test

After wiring, set slave stations and a submaster station to the online mode before executing the loop test.




**1. Connect GX Works2 to the CPU module.**

**2. Set slave stations and the submaster station to the online mode.**

Ex. In the case of a local station

| | Module 1 | |
|---|---|---|
| Network Type | CC IE Field (Local Station) | Select "CC IE Field (Local Station)". |
| Start I/O No. | 0000 | |
| Network No. | 1 | |
| Total Stations | | |
| Group No. | | |
| Station No. | 1 | |
| Mode | Online | Select "Online". |

**3. Reset the slave stations or power off and on to set the mode to online.**

When setting the master station to the loop test mode, set the submaster station to the online mode.

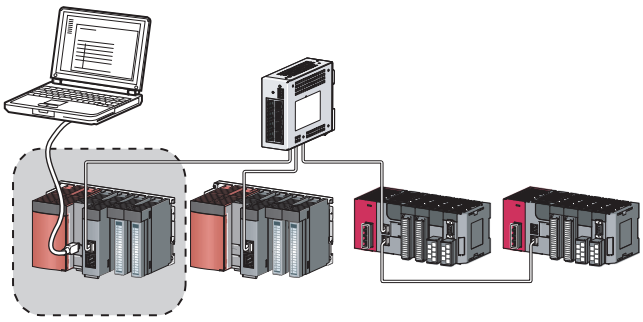
**Remark**

To set the station number in a local station using a program, execute the UINI instruction after the step 3. (Page 380, Section 10.18)
If a loop test is executed with the station number not set, the loop test abnormally ends.

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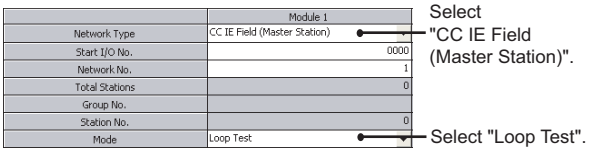
### (b) Procedure

Perform a loop test from the master station.



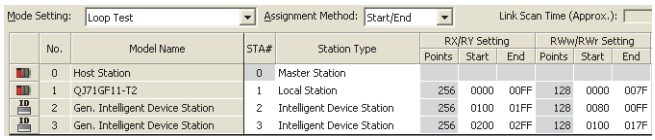
Master station

**1. Connect GX Works2 to the CPU module.**



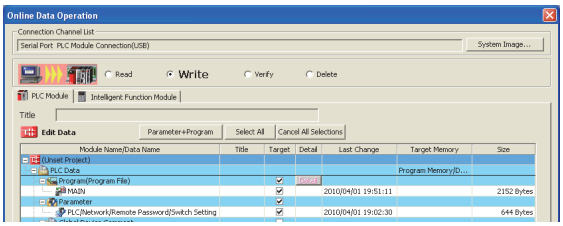

**2. Set network parameters as shown in the figure to left.**

Project window ⇨ [Parameter] ⇨ [Network Parameter] ⇨ [Ethernet/CC IE/MELSECNET]



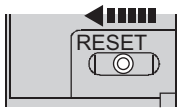

**3. Configure the network configuration settings in the network parameter. (☞ Page 88, Section 7.3)**

Project window ⇨ [Parameter] ⇨ [Network Parameter] ⇨ [Ethernet/CC IE/MELSECNET] ⇨ CC IE Field Configuration Setting button




**4. Write the network parameters set to the CPU module.**

[Online] ⇨ [Write to PLC]

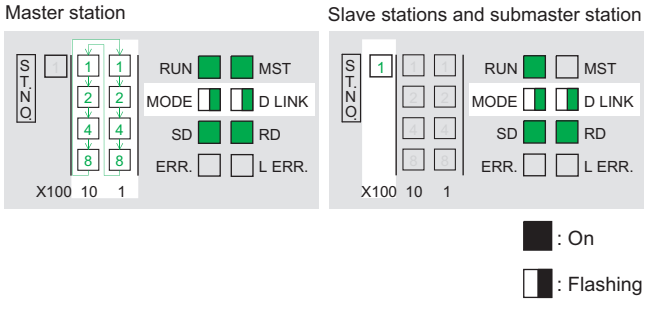



or power OFF→ON

**5. Reset the CPU module or power off and on the system.**

When the submaster station has been connected, reset the submaster station then master station or power off and on the system within two seconds.

**6. Loop test begins.**




- Master station

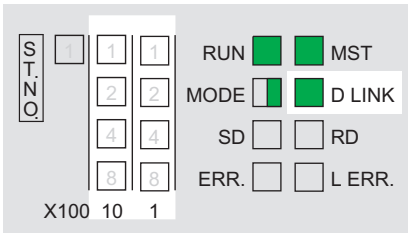
  The MODE and D LINK LEDs flash. Also, each of the ×10 LED and ×1 LED repeatedly turns on and off (1 → 2 → 4 → 8 → 1 • • •).

  However, if errors are detected, the test is immediately terminated (failure).

- Slave station

  Data link stops on all stations. Also, the MODE, D LINK, and x100 LEDs flash.

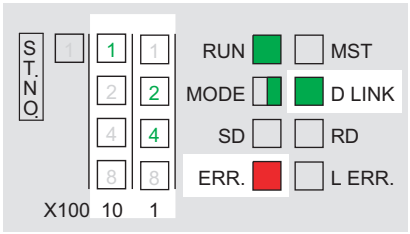
When completed




: On

: Flashing

When failed




: On

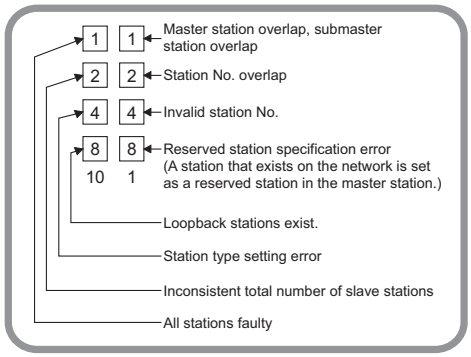
: Flashing

**7. Check the test result with LEDs of the master station. D LINK LED turns on when the test is completed.**

- When completed

  The ×10 and ×1 LEDs turn off.
- When failed

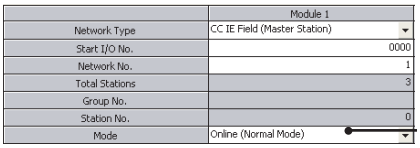
  Any one of the ×10 and ×1 LEDs turns on, and the ERR. LED turns on. Error details can be specified depending on the lighting status of ×10 and ×1 LEDs.



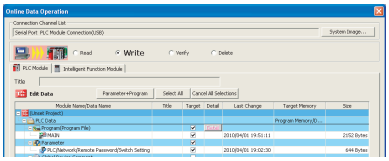

Identify the error location through GX Works2 or link special register (SW), and take actions. (Page 76, Section 6.4.1 (2))

**8. When the loop test is completed, slave stations will be in online mode.**

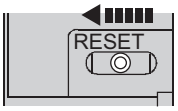
**Set the master station to online mode through the network parameter.**




Select "Online (Normal Mode)" or "Online (High Speed Mode)."



Write the network parameters to the CPU module.




or Power OFF→ON

**Point**

During the loop test, data link stops on all stations.

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**Remark**

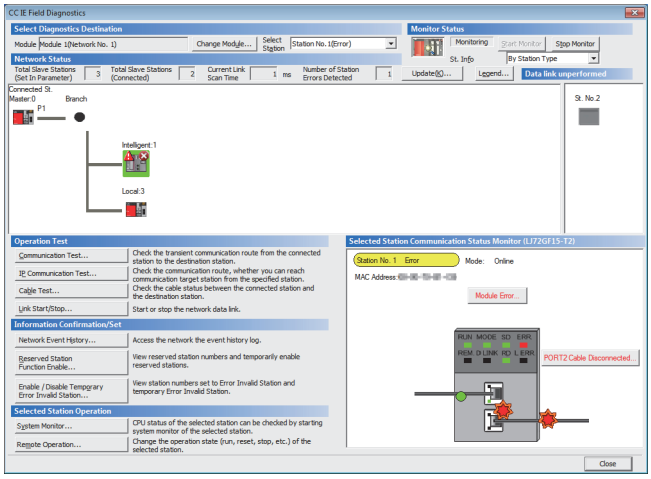
The test status and result can be viewed through monitoring the link special relays (SBs) on GX Works2.

| Item | Description |
|---|---|
| When completed | • Loop test completion status (SB0094): ON<br>• Loop test normal/abnormal end (SB0095): OFF |
| When failed | • Loop test completion status (SB0094): ON<br>• Loop test normal/abnormal end (SB0095): ON |

## (2) Actions if the loop test fails

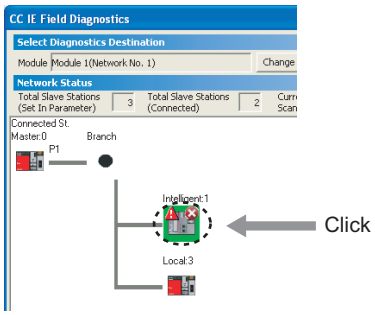
### (a) Checking by GX Works2

In the CC-Link IE Field Network diagnostics, identify the error location and take action. Then, execute the loop test again.



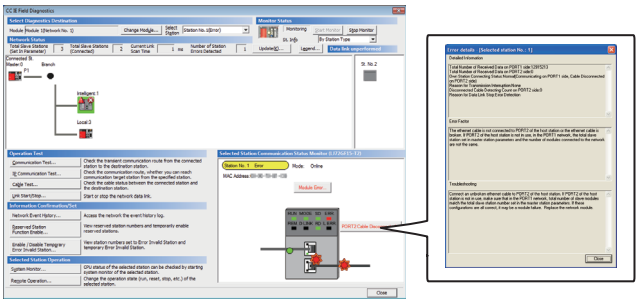
**1.** **Open the "CC IE Field Diagnostics" window.**

[Diagnostics] ⇨ [CC IE Field Diagnostics]

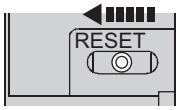



**2.** **The error location is displayed in "Network Status".**

**3.** **Click the error location.**



**4.** **Click the button displayed in "Selected Station Communication Status Monitor" to display the error descriptions. Take corrective actions according to the error description.**




or power OFF→ON

**5.** **Reset the CPU module on the master station or power off and on the system to retry the loop test.**

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**Point**

In the following cases, the status of the corresponding station cannot be checked using the CC-Link IE Field Network diagnostics.

- The network number of the station differs from those of other stations.
- More than one master station exists in the network.
- The same station number is used for multiple stations.
- More than one submaster station with the same station number exists.

Check the error details by directly connecting GX Works2 to the faulty station and displaying the system monitor window. (☞ Page 461, Section 12.6)

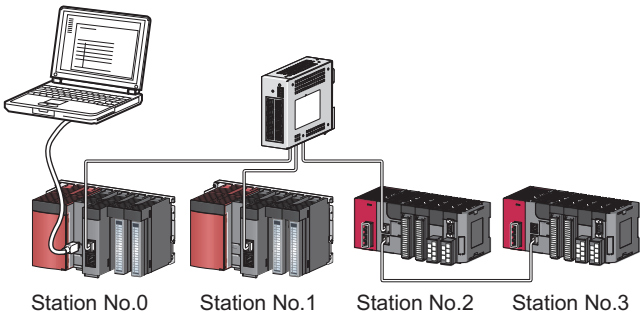
### (b) Checking by link special register (SW)

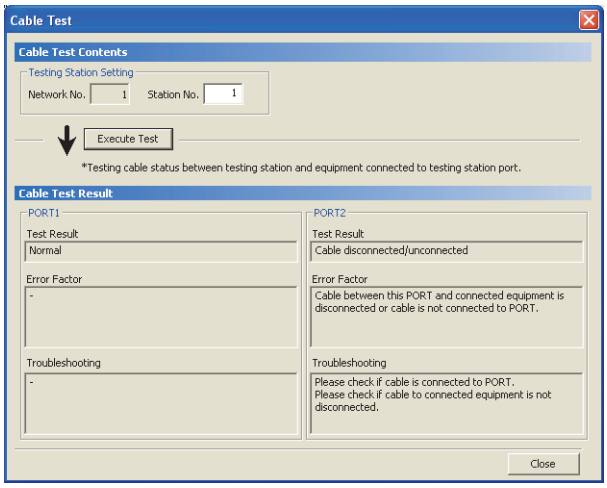
Identify the error location by link special register (SW) and take actions. After the actions, execute the loop test again.

1. **Check Loop test result (SW0194) for error details. Check the station number where a loop test error occurs using Loop test error station (SW01A0 to SW01A7). (☞ Page 493, Appendix 4)**
   If the error cause is "Loopback stations exist.", take corrective actions according to Page 213, Section 9.2 (2).
2. **Reset the CPU module on the master station or power off and on the system to retry the loop test.**

# 6.4.2 Cable test

Cable test checks if the Ethernet cables are properly connected.
Only the Ethernet cable connected to the PORT1 or PORT2 of the target station is tested. For the whole network status, perform the loop test. (☞Page 71, Section 6.4.1)




***1.*** **Connect GX Works2 to the CPU module.**

***2.*** **Open the "Cable Test" window.**

[Diagnostics] ⇨ [CC IE Field Diagnostics] ⇨ Cable Test... button

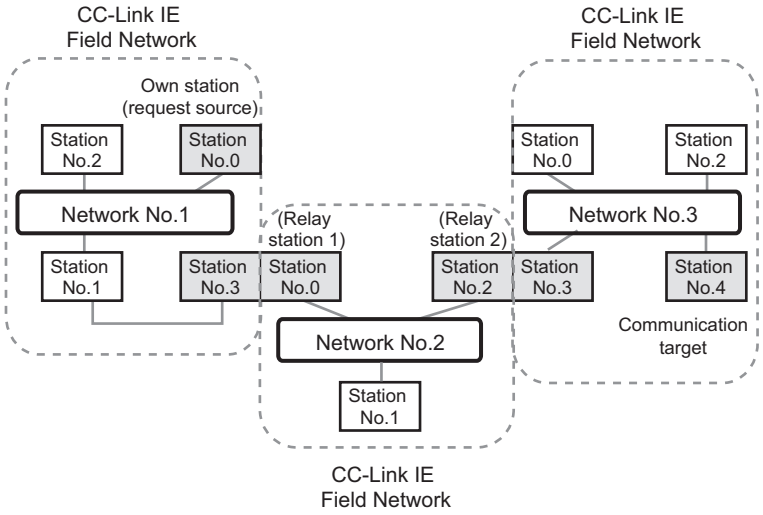
***3.*** **Enter a station number and click the Execute Test button to operate the test. If an error occurs, take corrective actions according to the error message.**

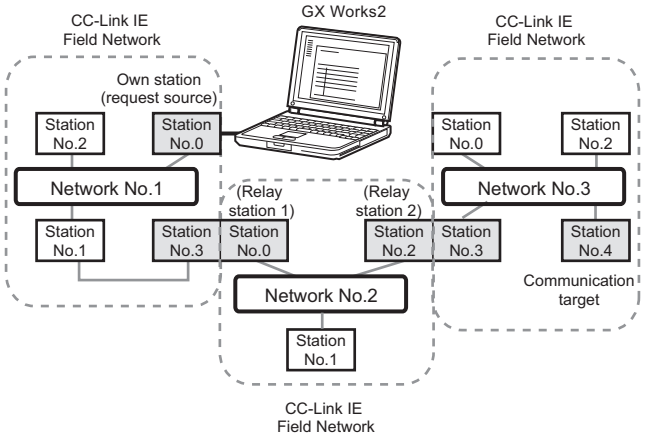
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# 6.4.3 Communication test

Communication test checks if transient transmission data can be properly routed from the own station to the communication target.

Take the following system configuration as an example of communication test procedure.




***1.*** **Connect GX Works2 to the CPU module.**

***2.*** **Set routing parameters as shown in the figure to left. (☞ Page 119, Section 7.8)**

Project window ⇨ [Parameter] ⇨ [Network Parameter] ⇨ [Ethernet/CC IE/MELSECNET] ⇨ Routing Parameters button

Routing parameters for stations of network No.1

| | Target Network No. | Relay Network No. | Relay Station No. |
|---|---|---|---|
| 1 | 2 | 1 | 3 |
| 2 | 3 | 1 | 3 |

No setting is required for station No.3 because data are transmitted via the station itself.

Routing parameters for stations of network No.2

| | Target Network No. | Relay Network No. | Relay Station No. |
|---|---|---|---|
| 1 | 1 | 2 | 0 |
| 2 | 3 | 2 | 2 |

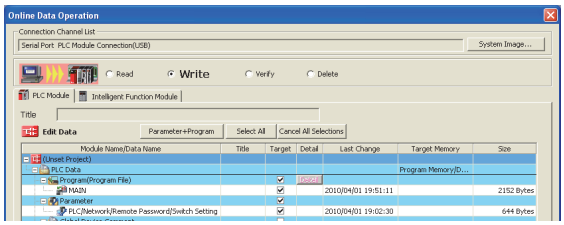
No setting is required for station No.0 because data are transmitted via the station itself.

No setting is required for station No.2 because data are transmitted via the station itself.

Routing parameters for stations of network No.3

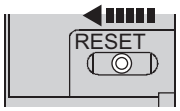
| | Target Network No. | Relay Network No. | Relay Station No. |
|---|---|---|---|
| 1 | 1 | 3 | 3 |
| 2 | 2 | 3 | 3 |

No setting is required for station No.3 because data are transmitted via the station itself.



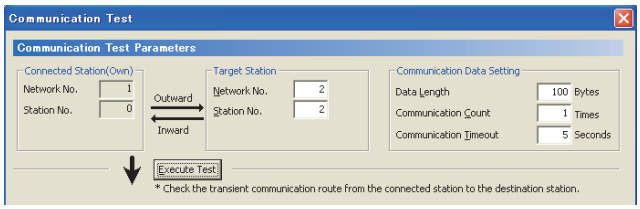

**3.** **Write the network parameters set to the CPU module.**

[Online] ⇨ [Write to PLC]



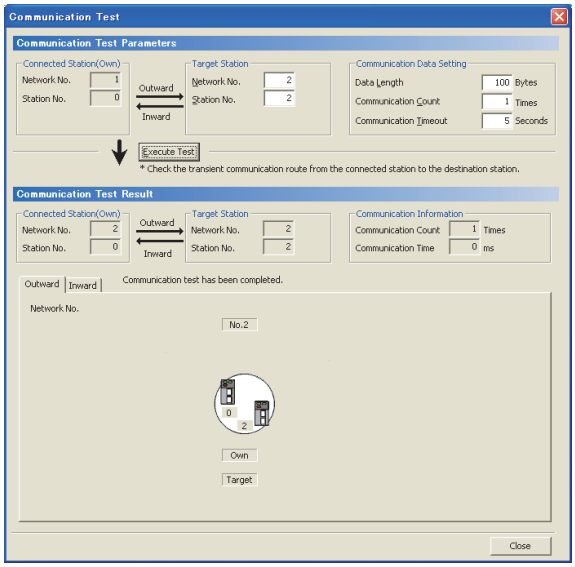

or power OFF→ON

**4.** **Reset the CPU module or power off and on the system.**




**5.** **Open the "Communication Test" window and enter values for "Target Station" and "Communication Data Setting".**

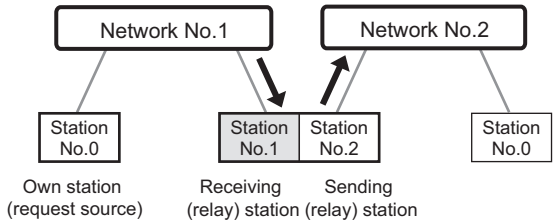
[Diagnostics] ⇨ [CC IE Field Diagnostics] ⇨ Communication Test... button




**6.** **Click the Execute Test button to perform the communication test. If an error occurs, take actions according to the error message.**

## Point

- Executing a communication test to a relay station
  When the relay sending station is set to "Target Station", an error message is not displayed but an error code is displayed. Set the receiving (relay) station to "Target Station".




- Executing a communication test to a station including the same base unit
  When the station mounted on the same base unit (main base unit and extension base unit) is set to "Target Station", an error message is not displayed but an error code is displayed. Under "Target Station", set a station mounted on a different base unit from the station set in "Connected Station (Own)".

AbN automation

# CHAPTER 7 PARAMETER SETTING

This chapter describes CC-Link IE Field Network parameters.
The CC-Link IE Field Network parameters are set for either the master station or slave stations.
This manual describes network parameters for master/local modules. For slave station settings, refer to the manuals for the slave stations used.

## (1) Parameter setting methods

The parameters of the master/local module can be set using GX Works2 or dedicated instruction. Select the method according to application.

| Item | Application | Reference |
|---|---|---|
| Parameter setting using GX Works2 | • To easily configure the setting on the window without creating a program for the setting<br>• To automatically transfer data in RX/RY/RWr/RWw/SB/SW of the master/local module to the device of a CPU module | Page 84, Section 7.2 |
| Parameter setting using a dedicated instruction (CCPASET instruction) | • To change the parameter settings without resetting the CPU module<br>• To mount more master/local modules than the number of modules that can be set using GX Works2 | Page 359, Section 10.17 |

### (a) Station number setting of a local station

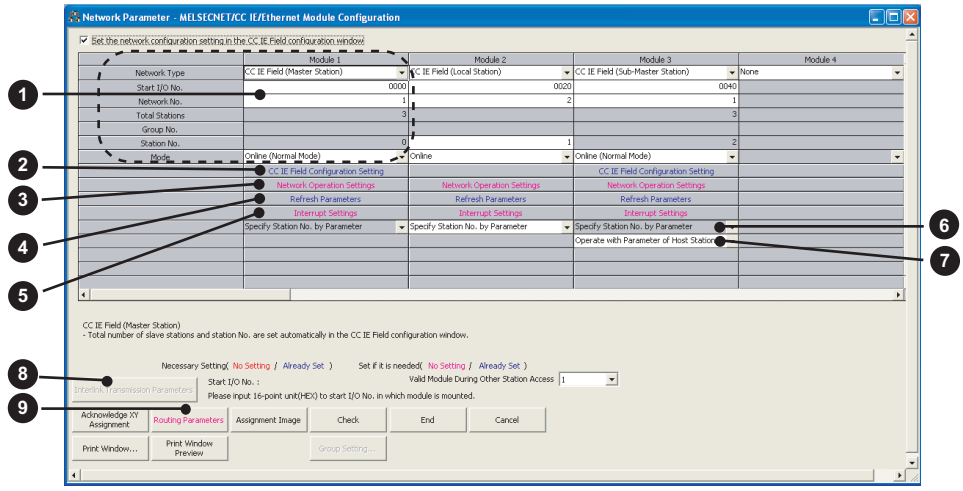
The station number of a local station can be also set using the UINI instruction. This allows project data items other than the station number to be the same. (☞Page 380, Section 10.18)

- When using GX Works2 for the parameter setting, select "Specify Station No. by Program" in the station number setting method. Then set the station number using the UINI instruction.
- When using the CCPASET instruction for the parameter setting, set Switch 2 in the intelligent function module switch setting to $31FF_H$. After setting the network parameters using the CCPASET instruction, set the station number using the UINI instruction.

# 7.1 Parameter List

The following table lists CC-Link IE Field Network parameters.

## (1) Parameters set for a master/local module




○: Always, △: When required, —: Cannot be set

| Item | | | Necessity of setting | | | Reference |
|---|---|---|---|---|---|---|
| | | | Master station | Local station | Submaster station | |
| ❶ Network setting | Network Type | | ○ | ○ | ○ | Page 84, Section 7.2 |
| | Start I/O No. | | | | | |
| | Network No. | | | | ○*1 | |
| | Total Stations | | | — | △*1 | |
| | Station No. | | — | ○ | ○ | |
| | Mode | | ○ | | ○ | |
| ❷ Network Configuration Settings | Station No. | | ○ | — | △*1 | Page 88, Section 7.3 |
| | Station Type | | | | | |
| | RX/RY Setting | | | | | |
| | RWw/RWr Setting | | | | | |
| | Reserved/Error Invalid Station | | | | | |
| | Alias | | | | | |
| | Comment | | | | | |
| | Supplementary setting | Link Scan Mode Setting | | | | |
| | | Loopback Function Setting | | | | |
| | | Block Data Assurance per Station | | | | |
| | | Operation Setting for Returning | | | — | |

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| Item | | Necessity of setting | | | Reference |
|---|---|---|---|---|---|
| | | Master station | Local station | Submaster station | |
| ❸ Network Operation Settings | Parameter Name | △ | △ | △ | Page 101, Section 7.4 |
| | Data Link Faulty Station Setting | | | | |
| | Output Setting During CPU STOP | | | | |
| | Set IP address | | — | △*1 | |
| ❹ Refresh Parameters | | ○ | ○ | ○ | Page 103, Section 7.5 |
| ❺ Interrupt Settings | | △ | △ | △ | Page 107, Section 7.6 |
| ❻ Station number setting method | | — | ○ | — | Page 84, Section 7.2 |
| ❼ Select the parameter to be used. | | — | — | ○*2 | Page 84, Section 7.2 |
| ❽ Interlink Transmission Parameters | | △ | — | △ | Page 113, Section 7.7 |
| ❾ Routing Parameters | | | △ | | Page 119, Section 7.8 |

*1 The parameter settings must be the same as those for the master station.
*2 This can be set when the checkbox next to "Set the network configuration setting in the CC IE Field configuration window" is selected.

**Point**

- When parameters are not set
  The master/local module operates as the master station in network number 1. In this case, only transient transmission is performed. (Cyclic transmission is not performed.)

## (2) Parameters set for slave stations

For the parameters of a slave station, refer to the manual for the slave station used.

# 7.2 Network Settings

Set the network number, station number, and other parameters for the master/local module.

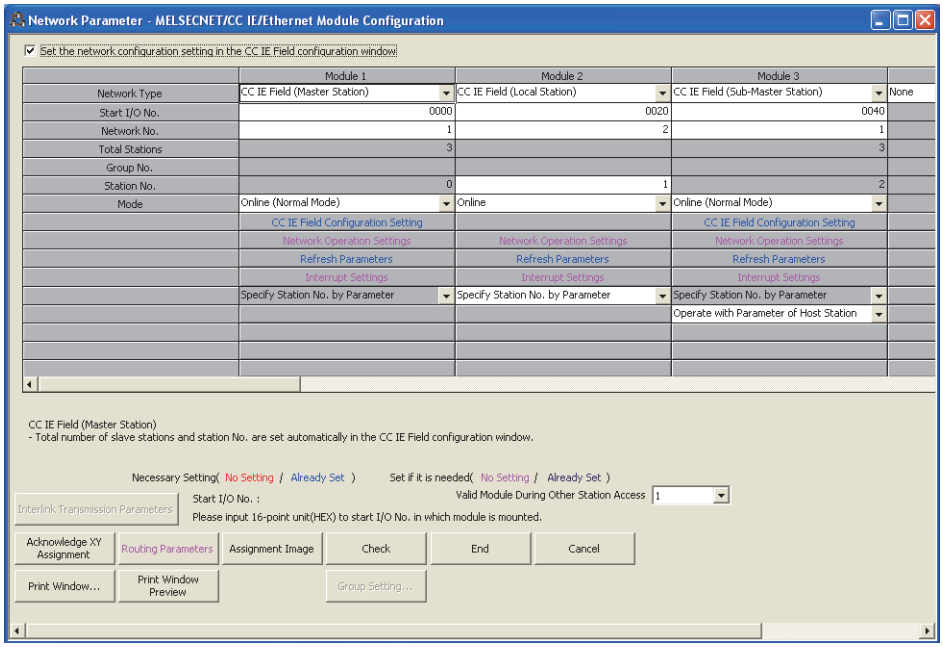
## (1) Setting procedure

**1. Open the setting window.**

Project window ⇨ [Parameter] ⇨ [Network Parameter] ⇨ [Ethernet/CC IE/MELSECNET]

**2. Set parameters in the window.**

**3. Click the** End **button.**




| Item | Description | Setting range |
|---|---|---|
| Set the network configuration setting in the CC IE Field configuration window | Select the checkbox to set the network configuration setting graphically. The setting can be easily configured by selecting the module from the module list. (☞ Page 89, Section 7.3 (1)) | • Do not use the CC IE Field configuration window to set the network configuration setting. (The checkbox is not checked.)<br>• Use the CC IE Field configuration window to set the network configuration setting. (The checkbox is checked.)<br>(Default: Do not use the CC IE Field configuration window to set the network configuration setting. (The checkbox is not checked.)) |
| Network Type | Select whether to use the master/local module as a master station, local station, or submaster station. One master station and one submaster station can be set in a network. | • CC IE Field (Master Station)<br>• CC IE Field (Local Station)<br>• CC IE Field (Sub-Master Station)<br>(Default: Blank) |
| Start I/O No. | Enter the start I/O number of the master/local module in increments of 16 points. | Within the number of I/O points of the CPU module (Default: Blank) |

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| Item | Description | Setting range |
|---|---|---|
| Network No. | Enter the network number of the master/local module.<br>When mounting modules with the same network number on the same base unit, observe the following.<br>• One master station and one submaster station can be set.<br>• Multiple local stations can be set. | 1 to 239 (Default: Blank) |
| Total Stations | Set the total number of stations in a network (excluding the master station).<br>• If any reserved station is required, include the number of reserved stations.<br>• If the submaster station is connected, include the number of submaster stations.<br><br>The number can be set when "CC IE Field (Master Station)" or "CC IE Field (Sub-Master Station)" is selected in "Network Type".<br><br>When the checkbox next to "Set the network configuration setting in the CC IE Field configuration window" is selected, the setting value in the CC IE Field configuration setting window is displayed. | • Master station:<br>1 to 120 (Default: Blank)<br>• Submaster station:<br>"0" or same as the master station setting (Default: 0) |
| Station No. | Enter the station number of the master/local module. Set a station number different from those used in the same network.<br>The station number of the master station is fixed to "0".<br>To set the station number of a local station in this setting, select "Specify Station No. by Parameter". (If "Specify Station No. by Program" is selected, the station number cannot be set in this setting.)<br><br>When "CC IE Field (Sub-Master Station)" is selected for "Network Type" and the following setting is configured, the setting value in the CC IE Field configuration window is displayed.<br>• Check the checkbox next to "Set the network configuration setting in the CC IE Field configuration window" and select "Operate with Parameter of Host Station". | • Master station: Fixed to "0"<br>• Local station, submaster station:<br>1 to 120 (Default: Blank) |

<table>
<tr><th>Item</th><th>Description</th><th>Setting range</th></tr>
<tr><td>Mode</td><td>
• For the master station and submaster station<br>
Set a master station mode or a submaster station mode. Two online modes are available. Select an online mode according to the system.
<table>
<tr><th>Mode</th><th>Description</th></tr>
<tr><td>Online (Normal Mode)</td><td>This mode performs cyclic transmission and transient transmission without losing their inherent speed performance. This mode is suitable for a system that performs I/O control and analog control, and transmits large amount of data for management, monitoring, and diagnostics by transient transmission. (☞ Page 529, Appendix 6)<br>Use this mode for general applications.</td></tr>
<tr><td>Online (High Speed Mode)</td><td>This mode preferentially performs cyclic transmission for high-speed communications. This mode is suitable for a system to achieve I/O control, analog control, and digital I/O at high-speed. (☞ Page 529, Appendix 6)<br>Note that the maximum number of points assigned to RWw/RWr is 256 points per local station.<br>In this mode, the processing speed of transient transmission is slower than in "Online (Normal Mode)".</td></tr>
<tr><td>Offline</td><td>Select this mode to disconnect the master/local module from the network for stopping data link with other stations.</td></tr>
<tr><td>H/W Test</td><td>Select this mode to perform a hardware test.<br>(☞ Page 64, Section 6.2.1)</td></tr>
<tr><td>Self-Loopback Test</td><td>Select this mode to perform a self-loopback test.<br>(☞ Page 66, Section 6.2.2)</td></tr>
<tr><td>Loop Test*1</td><td>Select this mode to perform a loop test.<br>(☞ Page 71, Section 6.4.1)</td></tr>
</table>
*1 This mode cannot be selected for the submaster station.
</td><td>
• Online (Normal Mode)<br>
• Online (High Speed Mode)<br>
• Offline<br>
• H/W Test<br>
• Self-Loopback Test<br>
• Loop Test<br>
(Default: Online (Normal Mode))
</td></tr>
<tr><td></td><td>
• For local stations<br>
Select a local station mode.
<table>
<tr><th>Mode</th><th>Description</th></tr>
<tr><td>Online</td><td>Select this mode to connect the master/local module to the network for performing data link with other stations.</td></tr>
<tr><td>Offline</td><td>Select this mode to disconnect the master/local module from the network for stopping data link with other stations.</td></tr>
<tr><td>H/W Test</td><td>Select this mode to perform a hardware test.<br>(☞ Page 64, Section 6.2.1)</td></tr>
<tr><td>Self-Loopback Test</td><td>Select this mode to perform a self-loopback test.<br>(☞ Page 66, Section 6.2.2)</td></tr>
</table>
</td><td>
• Online<br>
• Offline<br>
• H/W Test<br>
• Self-Loopback Test<br>
(Default: Online)
</td></tr>
<tr><td>Network Configuration Settings</td><td>
Set parameters of slave stations (the number of points and assignment of link devices) in the master station and submaster station.<br>
When the checkbox next to "Set the network configuration setting in the CC IE Field configuration window" is checked, the button will be changed to CC IE Field Configuration Setting.<br><br>
In this manual, the operation with the checkbox checked is described for explanation purpose.
</td><td>Page 88, Section 7.3</td></tr>
</table>

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| Item | Description | Setting range |
|---|---|---|
| Network Operation Settings | Set the operating status of a network if a data link error occurs or the CPU module is set to STOP.<br>In addition, the IP address of a master/local module is set to communicate data with Ethernet devices over CC-Link IE Field Network. | Page 101, Section 7.4 |
| Refresh Parameters | Set link refresh ranges between the link devices of the master/local module and the devices of the CPU module. | Page 103, Section 7.5 |
| Interrupt Settings | Set conditions for sending an interrupt request to the CPU module. | Page 107, Section 7.6 |
| Specify Station No. by Parameter | Specify whether to set a station number in the network parameter window of GX Works 2 or in a program (the UINI instruction). This setting can be configured only for a local station.<br>When selecting "Specify Station No. by Program", set the station number using the UINI instruction. (☞ Page 380, Section 10.18) | • Specify Station No. by Parameter<br>• Specify Station No. by Program<br>(Default: Specify Station No. by Parameter) |
| Operate with Parameter of Master Station | Configure the setting for the submaster station.<br>Whether to operate the number of link device points and assignment in the slave station according to the parameters set in the own station or master station can be selected.<br>In case the submaster station starts up before the master station, select "Operate with Parameter of Host Station" when the submaster station is controlled first.<br>Selecting the checkbox next to "Set the network configuration setting in the CC IE Field configuration window" allows the setting to be configured.<br>(☞ Page 192, Section 8.8.3 (3) (c)) | • Operate with Parameter of Master Station<br>• Operate with Parameter of Host Station<br>(Default: Operate with Parameter of Master Station) |

### (2) Setting example

For setting examples, refer to ☞ Page 387, CHAPTER 11.

# 7.3 Network Configuration Settings

Set parameters of slave stations (the number of points and assignment of link devices) in the master station and submaster station. Set a link scan mode and block data assurance per station as well.

Two methods are available to configure the network configuration settings as listed in the following table.

| Item | Description |
|---|---|
| Setting on the graphical window (CC IE Field configuration window) | The network configuration can be set while checking the CC-Link IE Field Network configuration graphically.<br>Slave stations are added by selecting the model name displayed on the window; therefore, a setting error in the station type can be prevented.<br><br>Unlike the setting on the window in the table format, the following can be performed.<br>• Change transmission path method (☞ Page 91, Section 7.3 (1) (b))<br>• Parameter processing of a slave station (☞ Page 95, Section 7.3 (1) (e))<br>• Command execution of a slave station (☞ Page 96, Section 7.3 (1) (f)) |
| Setting on the window in the table format | The CC-Link IE Field Network configuration is configured manually. (The station type is also set manually.)<br>Unlike the setting on the graphical window (CC IE Field configuration window), the network configuration is not displayed graphically.<br>(☞ Page 97, Section 7.3 (2)) |

These parameters can be set only for the master station and submaster station. (To set these parameters for the submaster station, set a value other than "0" in "Total Stations".)

## (1) How to configure the settings on the graphical window (CC IE Field configuration window)

1. **Select the checkbox next to "Set the network configuration setting in the CC IE Field configuration window". (Page 84, Section 7.2)**
2. **Configure the network setting. (Page 84, Section 7.2)**
3. **Open the setting window.**

   Project window ⇨ [Parameter] ⇨ [Network Parameter] ⇨ [Ethernet/CC IE/MELSECNET] ⇨ CC IE Field Configuration Setting button
4. **Select the module under "Module List" and drag and drop it to the station list area or the device map area.**

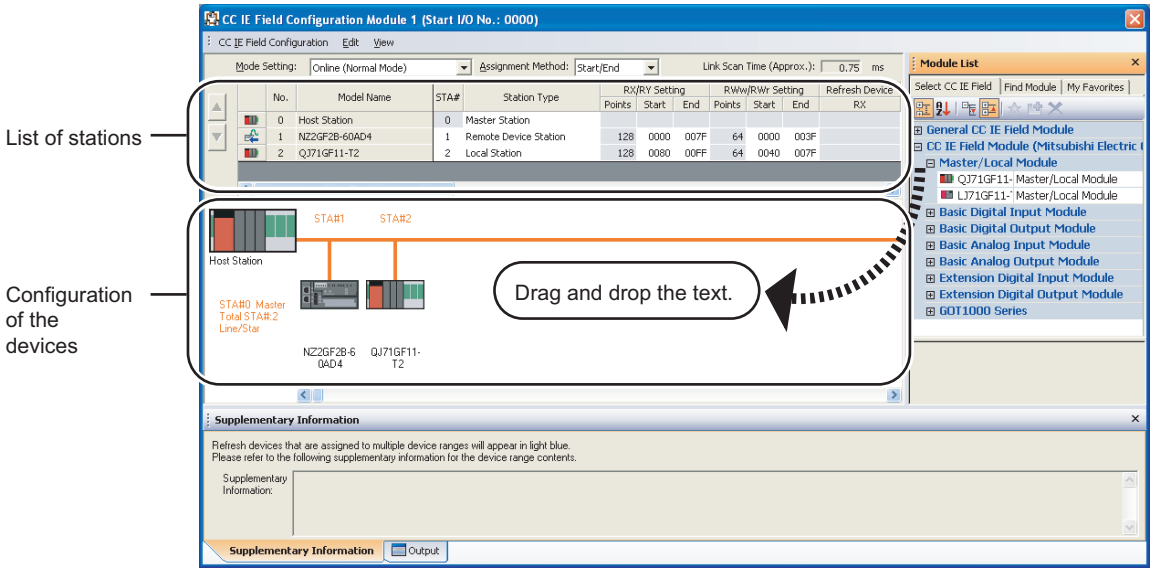
   The slave station is added to the station list area. The added module is displayed in the device map area.
5. **Configure the setting of each item described after (a).**
6. **After the setting is completed, close the window.**

   [CC IE Field Configuration] ⇨ [Close with Reflecting the Setting]

**Remark**

For how to operate the setting window, refer to the following.

GX Works2 Version1 Operating Manual (Common)



### (a) Setting the configuration of the slave station in the master station

<table>
<tr><th>Item</th><th>Description</th><th>Setting range</th></tr>
<tr><td>Mode Setting</td><td>Set the mode of the master station. (☞ Page 84, Section 7.2 (1))</td><td>• Online (Normal Mode)<br>• Online (High Speed Mode)<br>• Offline<br>• H/W Test<br>• Self-Loopback Test<br>• Loop Test<br>(Default: Online (Normal Mode))</td></tr>
<tr><td>Assignment Method</td><td>Select a link device assignment method.<br>• Point/Start: Enter the points and start numbers of link devices.<br>• Start/End: Enter the start and end numbers of link devices.</td><td>• Point/Start<br>• Start/End<br>(Default: Start/End)</td></tr>
<tr><td>Link Scan Time (Approx.)</td><td>Displays the approximate link scan time.</td><td>—</td></tr>
<tr><td>No.</td><td>The total number of slave stations and submaster stations set in the CC IE Field configuration window is displayed.</td><td>—</td></tr>
<tr><td>Model Name</td><td>The module model name is displayed.<br>If a module where the profile is not registered is set, the message "Module without profile" is displayed. Register the profile before setting the model name.<br>For how to register a profile, refer to the following.<br>GX Works2 Version1 Operating Manual (Common)</td><td>—</td></tr>
<tr><td>STA#</td><td>Enter the station number of each slave station or the submaster station connected to the network.<br>Station numbers do not need to be set consecutively, but must be unique.<br>The station number of the master station is fixed at "0".</td><td>1 to 120<br>(Default: Blank)</td></tr>
<tr><td>Station Type</td><td>Select the station type (excluding the master station). Select the station type same as that of the modules connected to the network.</td><td>• Remote I/O Station<br>• Remote Device Station<br>• Intelligent Device Station<br>• Local Station<br>• Sub-Master Station<br>(Default: varies depending on the set module)</td></tr>
<tr><td>RX/RY Setting</td><td>Assign RX/RY points. (☞ Page 124, Section 8.1.1)<br>Points can be assigned in increments of 16 (Start: □□□$0_H$, End: □□□$F_H$).<br>When "Sub-Master Station" is selected in "Station Type", points can also be assigned for the master station. (☞ Page 180, Section 8.8)<br><br>To equally assign points or the same points, go to [Equal Assignment] or [Identical Point Assignment] under [CC IE Field Configuration].<br>(☞ Page 95, Section 7.3 (1) (d))</td><td>• Points:<br><table><tr><th>Station Type</th><th>Setting range</th></tr><tr><td>Master Station, Local Station, Intelligent Device Station, Sub-Master Station</td><td>16 to 2048</td></tr><tr><td>Remote Device Station</td><td>16 to 128</td></tr><tr><td>Remote I/O Station</td><td>16 to 64</td></tr></table>• Device number: 0 to $3FFF_H$<br>(Default: varies depending on the set module)</td></tr>
</table>

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<table>
<tr><th>Item</th><th>Description</th><th>Setting range</th></tr>
<tr><td>RWw/RWr Setting</td><td>Assign RWw/RWr points in increments of 4. (Page 124, Section 8.1.1)<br>When "Sub-Master Station" is selected in "Station Type", points can also be assigned for the master station. (Page 180, Section 8.8)<br><br>To equally assign points or the same points, go to [Equal Assignment] or [Identical Point Assignment] under [CC IE Field Configuration].<br>(Page 95, Section 7.3 (1) (d))</td><td>• Points:<table><tr><th>Station Type</th><th>Setting range</th></tr><tr><td>Master Station, Local Station, Intelligent Device Station, Sub-Master Station</td><td>4 to 1024</td></tr><tr><td>Remote Device Station</td><td>4 to 64</td></tr><tr><td>Remote I/O Station</td><td>Cannot be set.</td></tr></table>• Device number: 0 to $1FFF_H$<br>(Default: varies depending on the set module)</td></tr>
<tr><td>Refresh Device</td><td>Link refresh target devices in the CPU module are displayed for each link device of the master/local module.<br>Target devices are displayed when refresh parameters have been set.<br>(Page 103, Section 7.5)</td><td>—</td></tr>
<tr><td>Reserved/Error Invalid Station</td><td>Set this item to reserve the slave station or to set the slave station as an error invalid station. (Page 176, Section 8.5)<br>This item cannot be set for the submaster station.<br><br>• No Setting<br>The slave station is connected to the network.<br>• Reserved Station<br>The slave station is reserved for future expansion. By reserving a slave station, link device assignment will not change even if the slave station is added or the reservation is cancelled. Therefore, the program needs not to be modified. Physical connection of the slave station is not required.<br>• Error Invalid Station<br>Even if a slave station is disconnected during data link, the master station will not detect the slave station as a faulty station.</td><td>• No Setting<br>• Reserved Station<br>• Error Invalid Station<br>(Default: No Setting)</td></tr>
<tr><td>Alias</td><td>Enter the name of a device if required.<br>The name entered is displayed in "Network Status" of the CC-Link IE Field diagnostics.<br>However, even if the name of the extension module connected to the remote device station is entered, the name is not displayed in the CC-Link IE Field diagnostics.</td><td>Up to 8 characters<br>(Default: Blank)</td></tr>
<tr><td>Comment</td><td>Information entered in "Comment1" on the "Property" window displayed by right-clicking on the module in "List of stations" or "Configuration of the devices" is displayed.</td><td>Up to 32 characters<br>(Default: Blank)</td></tr>
<tr><td>Station-specific mode setting</td><td>Set the station-specific mode of the slave station. This setting is available only when the slave station supports the station-specific mode.</td><td>The setting varies depending on the set module.</td></tr>
<tr><td>Module List</td><td>The slave stations are listed. Drag and drop the modules from "Module List" to the station list area or the device map area to set the information of the slave stations into the master station.</td><td>—</td></tr>
</table>

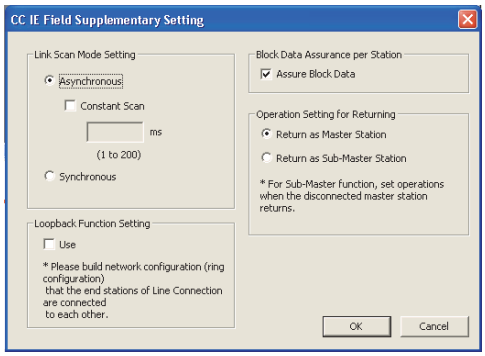
### (b) Change Transmission Path Method

[CC IE Field Configuration] ⇨ [Change Transmission Path Method]

| Item | Description | Setting range |
|---|---|---|
| Change Transmission Path Method | Change the transmission path method. The loopback function can be used by selecting "Ring". (☞ Page 178, Section 8.7) | • Line/Star<br>• Ring<br>(Default: Line/Star) |

### (c) Supplementary Setting

[CC IE Field Configuration] ⇨ [Supplementary Setting]

| Item | Description | Setting range |
|---|---|---|
| Supplementary Setting | Set "Link Scan Mode Setting", "Loopback Function Setting", "Block Data Assurance per Station", and "Operation Setting for Returning".<br>  <br><br>(1) Link Scan Mode Setting | • Link Scan Mode Setting: Asynchronous, Synchronous (Default: Asynchronous) |

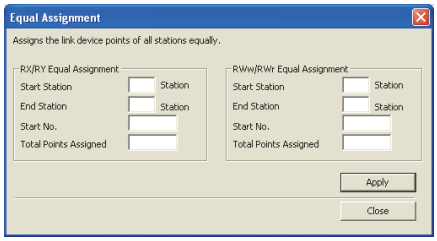
| Item | Description |
|---|---|
| Asynchronous | Link scan is performed asynchronously with the sequence scan of the CPU module. Select this item to shorten input transmission delay time when sequence scan takes much time than link scan. Note that output transmission delay time will become longer. |
| Constant Scan | Cyclic transmission is performed punctually. Link scan time will be the constant link scan time set in this setting.<br>However, when the actual link scan time is longer than the specified link scan time, cyclic transmission is performed by actual link scan time.<br><br>While constant link scan is used to keep link scan time constant, the transmission delay time is not kept constant by this function. To keep transmission delay time constant, select "Synchronous". |
| Synchronous | Link scan is performed synchronously with the sequence scan of the CPU module. Select this item in the following cases:<br>To shorten output transmission delay time (Note that when sequence scan takes much time than link scan, input transmission delay time will become longer.)<br>To keep transmission delay time constant*1<br>When a link scan is synchronized with a sequence scan, modify the program so that the sequence scan time of the CPU module will be within 200ms. If 200ms is exceeded, slave stations may be disconnected. |

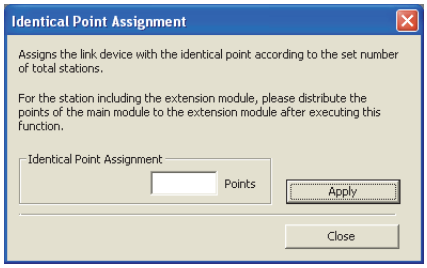
*1 The sequence scan must be constant as well. Set a time value under "Constant Scanning" in the "PLC RAS" tab of the PLC parameter window.

| Item | Description | Setting range |
|---|---|---|
| Supplementary Setting | (2) Loopback Function Setting<br>Select whether to use the loopback function. (☞ Page 178, Section 8.7) To configure a network in ring topology, select the checkbox.<br>When "Ring" is selected in [Change Transmission Path Method] under [CC IE Field Configuration], the checkbox will be checked. When "Line/Star" is selected, the checkbox will be unchecked. (☞ Page 91, Section 7.3 (1) (b))<br>(3) Block Data Assurance per Station<br>Select whether to assure data integrity on a station basis in link refresh between the CPU module and the master/local module. (☞ Page 134, Section 8.1.5)<br>(4) Operation Setting for Returning<br>When using the submaster function, select the operation of the master station after it returns from the disconnected status. This parameter can be set only when "Sub-Master Station" has been selected in "Station Type". | • Loopback Function Setting: Selected (Use)/not selected (Default: Not selected)<br>• Block Data Assurance per Station: Selected (Assure Block Data)/ not selected (Default: Selected (Assure Block Data))<br>• Operation Setting for Returning: Return as Master Station, Return as Sub-Master Station (Default: Return as Master Station) |

### (d) Equal assignment and identical point assignment of link points

[CC IE Field Configuration] ⇨ [Equal Assignment] or [Identical Point Assignment]

<table>
<tr><th>Item</th><th>Description</th><th>Setting range</th></tr>
<tr><td>Equal Assignment</td><td>Equally assign link devices to stations with preset conditions.<br> 

<table>
<tr><th>Item</th><th>Description</th></tr>
<tr><td>Start Station</td><td>Enter the start station number of stations for which link devices are equally assigned.</td></tr>
<tr><td>End Station</td><td>Enter the end station number of stations for which link devices are equally assigned.</td></tr>
<tr><td>Start No.</td><td>Enter the start number of link devices to be equally assigned.</td></tr>
<tr><td>Total Points Assigned</td><td>Enter the total points of link devices to be equally assigned.</td></tr>
</table></td><td>• Start Station: 0 to the end station number<br>• End Station: Number set to "Start Station" to the end station number<br>• Start No.: Same values set in "RX/RY Setting" and "RWw/RWr Setting"<br>• Total Points Assigned: Same values set in "RX/RY Setting" and "RWw/RWr Setting"<br>(Default: Blank)</td></tr>
<tr><td>Identical Point Assignment</td><td>Assign the same link device points to all stations.<br> 

Points entered in this field will be reflected to the "Points" of "RX/RY Setting".<br>Half of the points entered in this field will be reflected to the "Points" of "RWw/RWr Setting".</td><td>—</td></tr>
</table>

### (e) Parameter processing of a slave station

Select the module in the station list area. ⇨ [CC IE Field Configuration] ⇨ [Parameter Processing of Slave Station]

The parameters of a slave station can be set or read. This can be performed when the slave station supports the parameter process.

The setting range varies depending on the target module. For details, refer to the manual for the slave station used.

### (f) Command execution of a slave station

Select the module in the station list area. ⇨ [CC IE Field Configuration] ⇨ [Command Execution of Slave Station]

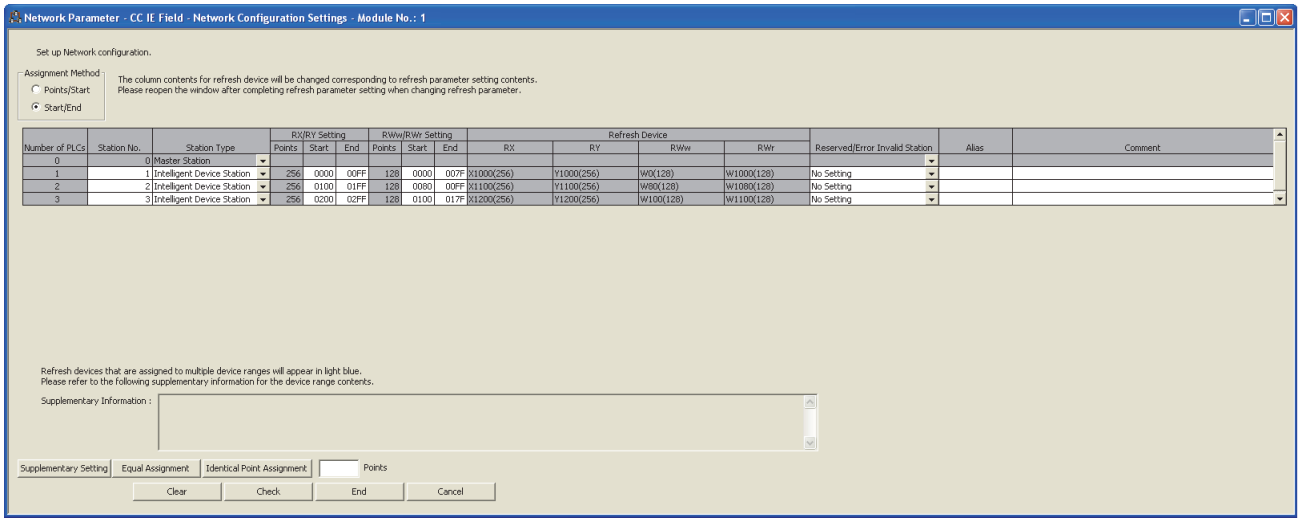
The command of a slave station is executed. This can be performed when the slave station supports the command execution.

The setting range varies depending on the target module. For details, refer to the manual for the slave station used.

## (2) How to configure the settings on the window in the table format

1. **Set network setting parameters. (☞ Page 84, Section 7.2)**
2. **Open the setting window.**

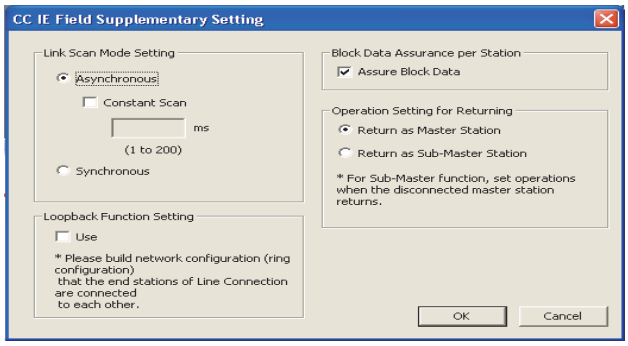
   Project window ⇨ [Parameter] ⇨ [Network Parameter] ⇨ [Ethernet/CC IE/MELSECNET] ⇨ Network Configuration Settings button
3. **Set parameters in the window.**
4. **Click the End button.**

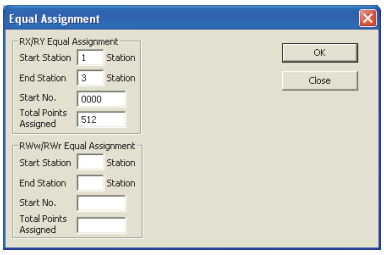



| Item | Description | Setting range |
|---|---|---|
| Assignment Method | Select a link device assignment method.<br>• Points/Start: Enter the points and start numbers of link devices.<br>• Start/End: Enter the start and end numbers of link devices. | • Points/Start<br>• Start/End<br>(Default: Start/End) |
| Module No. | The number of stations set in "Total Stations" of the network settings is displayed. | — |
| Station No. | Select the station type (excluding the master station). Select the station type same as that of the modules connected to the network. | 1 to 120<br>(Default: Stations are numbered in consecutive order by the number of stations set in "Total Stations" in the network setting.) |
| Station Type | Select the type of stations (excluding the master station). Select the station type of modules actually connected to the network. | • Remote I/O Station<br>• Remote Device Station<br>• Intelligent Device Station<br>• Local Station<br>• Sub-Master Station<br>(Default: Intelligent Device Station) |

<table>
<tr><th>Item</th><th>Description</th><th>Setting range</th></tr>
<tr><td>RX/RY Setting</td><td>Assign RX/RY points. (☞ Page 124, Section 8.1.1)<br>Points can be assigned in increments of 16 (Start: □□□$0_H$, End: □□□$F_H$).<br><br>When "Sub-Master Station" is selected in "Station Type", points can also be assigned for the master station. (☞ Page 180, Section 8.8)</td><td>• Points:<br><table><tr><th>Station Type</th><th>Setting range</th></tr><tr><td>Master Station, Local Station, Intelligent Device Station, Sub-Master Station</td><td>16 to 2048</td></tr><tr><td>Remote Device Station</td><td>16 to 128</td></tr><tr><td>Remote I/O Station</td><td>16 to 64</td></tr></table>• Device number: 0 to $3FFF_H$<br>(Default: Blank)</td></tr>
<tr><td>RWw/RWr Setting</td><td>Assign RWw/RWr points in increments of 4. (☞ Page 124, Section 8.1.1)<br>When "Sub-Master Station" is selected in "Station Type", points can also be assigned for the master station. (☞ Page 180, Section 8.8)</td><td>• Points:<br><table><tr><th>Station Type</th><th>Setting range</th></tr><tr><td>Master Station, Local Station, Intelligent Device Station, Sub-Master Station</td><td>4 to 1024</td></tr><tr><td>Remote Device Station</td><td>4 to 64</td></tr><tr><td>Remote I/O Station</td><td>Cannot be set.</td></tr></table>• Device number: 0 to $1FFF_H$<br>(Default: Blank)</td></tr>
<tr><td>Refresh Device</td><td>Link refresh target devices in the CPU module are displayed for each link device of the master/local module.<br>Target devices are displayed when refresh parameters have been set. (☞ Page 103, Section 7.5)</td><td>—</td></tr>
<tr><td>Reserved/Error Invalid Station</td><td>Set this item to reserve the slave station or to set the slave station as an error invalid station. (☞ Page 176, Section 8.5)<br>This item cannot be set for the submaster station.<br><br>• No Setting<br>The slave station is connected to the network.<br>• Reserved Station<br>The slave station is reserved for future expansion. By reserving a slave station, link device assignment will not change even if the slave station is added or the reservation is cancelled. Therefore, the program needs not to be modified. Physical connection of the slave station is not required.<br>• Invalid Station<br>Even if a slave station is disconnected during data link, the master station will not detect the slave station as a faulty station.</td><td>• No Setting<br>• Reserved Station<br>• Invalid Station<br>(Default: No Setting)</td></tr>
<tr><td>Alias</td><td>Enter the name of a device if required.<br>The name entered is displayed in "Network Status" of the CC-Link IE Field diagnostics.</td><td>Up to 8 characters<br>(Default: Blank)</td></tr>
<tr><td>Comment</td><td>Enter a comment if required.</td><td>Up to 32 characters<br>(Default: Blank)</td></tr>
</table>

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| Item | Description | Setting range |
|---|---|---|
| Supplementary Setting button | Set "Link Scan Mode Setting", "Loopback Function Setting", "Block Data Assurance per Station", and "Operation Setting for Returning".<br>  <br><br>(1) Link Scan Mode Setting<br>**Item** / **Description**<br>Asynchronous: Link scan is performed asynchronously with the sequence scan of the CPU module. Select this item to shorten input transmission delay time when sequence scan takes much time than link scan. Note that output transmission delay time will become longer.<br>Constant Scan: Cyclic transmission is performed punctually. Link scan time will be the constant link scan time set in this setting. However, when the actual link scan time is longer than the specified link scan time, cyclic transmission is performed by actual link scan time.<br>While constant link scan is used to keep link scan time constant, the transmission delay time is not kept constant by this function. To keep transmission delay time constant, select "Synchronous".<br>Synchronous: Link scan is performed synchronously with the sequence scan of the CPU module. Select this item in the following cases:<br>To shorten output transmission delay time (Note that when sequence scan takes much time than link scan, input transmission delay time will become longer.)<br>To keep transmission delay time constant*1<br>When a link scan is synchronized with a sequence scan, modify the program so that the sequence scan time of the CPU module will be within 200ms. If 200ms is exceeded, slave stations may be disconnected.<br>*1 The sequence scan must be constant as well. Set a time value under "Constant Scanning" in the "PLC RAS" tab of the PLC parameter window.<br>(2) Loopback Function Setting<br>Select whether to use the loopback function. (☞ Page 178, Section 8.7) To configure a network in ring topology, select the checkbox.<br>(3) Block Data Assurance per Station<br>Select whether to assure data integrity on a station basis in link refresh between the CPU module and the master/local module. (☞ Page 134, Section 8.1.5)<br>(4) Operation Setting for Returning<br>When using the submaster function, select the operation of the master station after it returns from the disconnected status. This parameter can be set only when "Sub-Master Station" has been selected in "Station Type". | • Link Scan Mode Setting: Asynchronous, Synchronous (Default: Asynchronous)<br>• Loopback Function Setting: Selected (Use)/not selected (Default: Not selected)<br>• Block Data Assurance per Station: Selected (Assure Block Data)/not selected (Default: Selected (Assure Block Data))<br>• Operation Setting for Returning: Return as Master Station, Return as Sub-Master Station (Default: Return as Master Station) |

<table>
<tr><th>Item</th><th>Description</th><th>Setting range</th></tr>
<tr><td>Equal Assignment button</td><td>Equally assign link devices to stations with preset conditions.<br> 

<table>
<tr><th>Item</th><th>Description</th></tr>
<tr><td>Start Station</td><td>Enter the start station number of stations for which link devices are equally assigned.</td></tr>
<tr><td>End Station</td><td>Enter the end station number of stations for which link devices are equally assigned.</td></tr>
<tr><td>Start No.</td><td>Enter the start number of link devices to be equally assigned.</td></tr>
<tr><td>Total Points Assigned</td><td>Enter the total points of link devices to be equally assigned.</td></tr>
</table></td><td>• Start Station: 0 to the end station number<br>• End Station: Number set to "Start Station" to the end station number<br>• Start No.: Same values set in "RX/RY Setting" and "RWw/RWr Setting"<br>• Total Points Assigned: Same values set in "RX/RY Setting" and "RWw/RWr Setting"<br>(Default: Blank)</td></tr>
<tr><td>Identical Point Assignment button</td><td>Assign the same link device points to all stations. Enter the points in the field right next to the Identical Point Assignment button.<br> 

Points entered in this field will be reflected to the "Points" of "RX/RY Setting".<br>Half of the points entered in this field will be reflected to the "Points" of "RWw/RWr Setting".</td><td>—</td></tr>
</table>

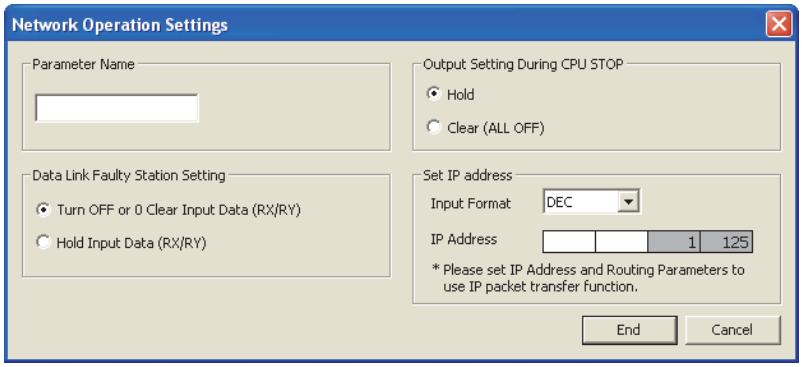
AbN automation

# 7.4 Network Operation Settings

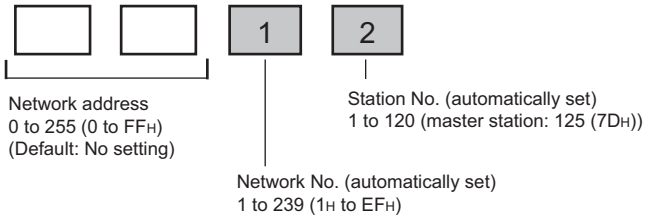
Set operating status of a network if a data link error occurs or the CPU module is set to STOP.
In addition, the IP address of a master/local module is set to communicate data with Ethernet devices over CC-Link IE Field Network.

1. **Set network setting parameters. (☞ Page 84, Section 7.2)**
2. **Open the setting window.**

   Project window ⇨ [Parameter] ⇨ [Network Parameter] ⇨ [Ethernet/CC IE/MELSECNET] ⇨ Network Operation Settings button
3. **Set parameters in the window.**




| Item | Description | Setting range |
|---|---|---|
| Parameter Name | Enter the name of network operation setting parameters if desired. | Up to 8 characters |
| Data Link Faulty Station Setting | Select whether to hold or clear data input from the slave station where a data link error has occurred. (☞ Page 140, Section 8.1.7) | • Turn OFF or 0 Clear Input Data (RX/RY)<br>• Hold Input Data<br>(Default: Turn OFF or 0 Clear Input Data (RX/RY)) |
| Output Setting During CPU STOP | Select whether to hold or clear cyclic data output when the CPU module mounted with the master/local module is set to STOP. (☞ Page 142, Section 8.1.8) | • Hold<br>• Clear (ALL OFF)<br>(Default: Hold) |

| Item | Description | Setting range |
|---|---|---|
| Set IP address | Set the IP address of the master station and submaster station to communicate with Ethernet devices over CC-Link IE Field Network.<br>(☞ Page 148, Section 8.3.2)<br><br>Only the network address part (first and second octets) of the IP address needs to be set. The network number part (third octet) and the station number part (fourth octet) are automatically set.<br><br>  <br><br><br>• Set an IP address for the master station and submaster station only.<br>• Use the same network address for the request source device, request destination device, and modules among them.<br>• Whether the network address of the master station matches with that of the submaster station can be checked using IP address setting status (SB0080).<br>• Since automatically assigned, an IP address needs not to be set for local stations. (The network address same as that of the master station is automatically set.) | Refer to the descriptions to left. |

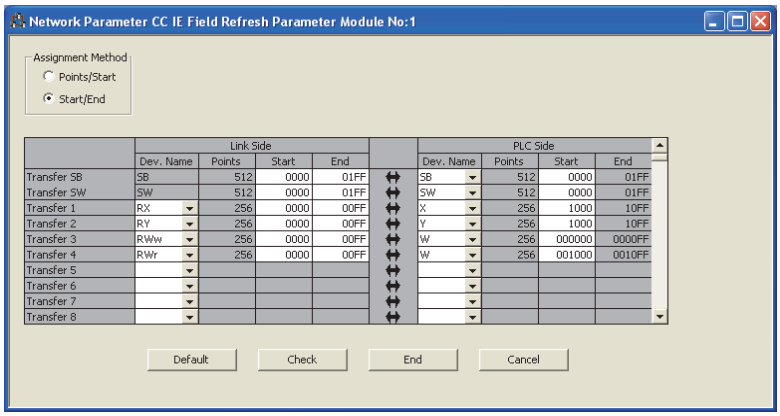
# 7.5 Refresh Parameters

Set link refresh ranges between the link devices of the master/local module and the devices of the CPU module.

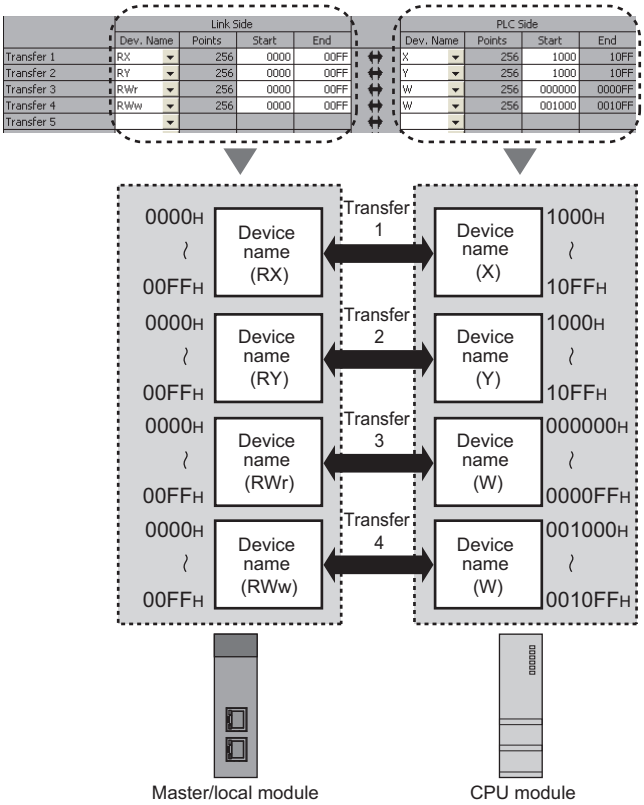
## (1) Setting procedure

1. **Set network setting parameters. (Page 84, Section 7.2)**
2. **Open the setting window.**

   Project window ⇨ [Parameter] ⇨ [Network Parameter] ⇨ [Ethernet/CC IE/MELSECNET] ⇨ Refresh Parameters button
3. **Set parameters in the window.**
4. **Click the End button.**



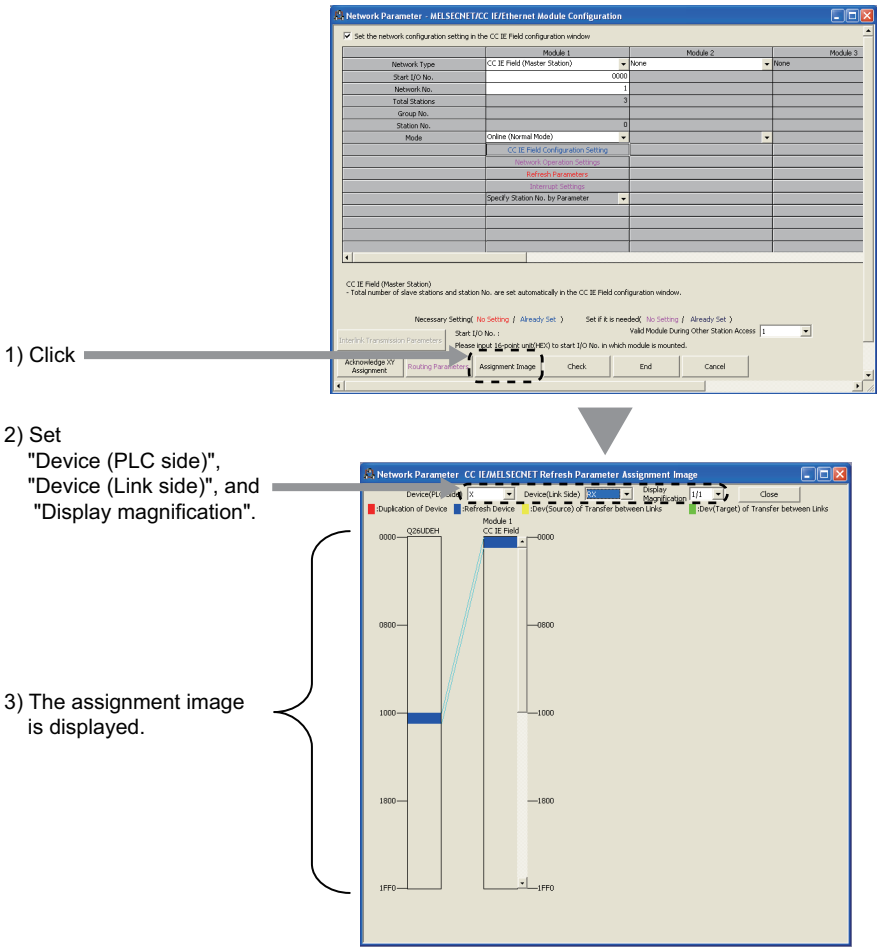

| Item | | Description | Setting range |
|---|---|---|---|
| Assignment Method | | Select a link device assignment method.<br>• Points/Start: Enter the points and start numbers of link devices.<br>• Start/End: Enter the start and end numbers of link devices. | • Points/Start<br>• Start/End<br>(Default: Start/End) |
| Transfer SB<br>Transfer SW | Dev. Name | Set the link refresh ranges of SB and SW. One range can be set for each SB and SW. (Page 127, Section 8.1.2)<br>Ex.<br>Link Side / PLC Side<br>Transfer SB: SB 512 0000 01FF ⇔ SB 512 0000 01FF<br>Transfer SW: SW 512 0000 01FF ⇔ SW 512 0000 01FF<br>0000H ⌇ 01FFH Device name (SB) ⇔ Transfer SB ⇔ Device name (SB) 0000H ⌇ 01FFH<br>0000H ⌇ 01FFH Device name (SW) ⇔ Transfer SW ⇔ Device name (SW) 0000H ⌇ 01FFH<br>Master/local module<br>CPU module | (1) Transfer SB<br>• Link Side: Fixed at "SB".<br>• PLC Side: M, L, B, D, W, R, SB, ZR<br>(2) Transfer SW<br>• Link Side: Fixed at "SW".<br>• PLC Side: M, L, B, D, W, R, SW, ZR<br>(Default: Blank) |
| | Points, Start, End | | • Link Side: 0 to $1FF_H$<br>• PLC Side: Within device range of CPU module<br>(Default: Blank)<br>Set bit devices in increments of 16 points and word devices in increments of 4 points. |

| Item | | Description | Setting range |
|---|---|---|---|
| Transfer 1 to 256 | Dev. Name | Set the link refresh ranges of RX, RY, RWr, and RWw. Up to 256 ranges can be set. (Page 127, Section 8.1.2)<br>Ex.<br>  | • Link Side: RX, RY, RWr, RWw<br>• PLC Side:<br>When RX is set to "Link Side":<br>X, M, L, B, D, W, R, ZR<br>When RY is set to "Link Side":<br>Y, M, L, B, T, C, ST, D, W, R, ZR<br>When RWr is set to "Link Side":<br>M, L, B, D, W, R, ZR<br>When RWw is set to "Link Side":<br>M, L, B, T, C, ST, D, W, R, ZR<br>(Default: Blank) |
| | Points, Start, End | | • Link Side:<br>0 to $3FFF_H$ for RX/RY<br>0 to $1FFF_H$ for RWr/RWw<br>• PLC Side: Within device range of CPU module<br>(Default: Blank)<br>Set bit devices in increments of 16 points and word devices in increments of 4 points. |
| Default button | | Reset refresh parameters to default. | — |

## (2) Checking method

**1.** **Click the** Assignment Image **button in the "Network Parameter - MELSECNET/CC IE/Ethernet Module Configuration" window to open the "Assignment Image" window. (Page 84, Section 7.2)**

**2.** **Select the devices to be checked and the magnification ratio in the window.**




**3.** **A red part in the device of the CPU module indicates that the device range overlaps with the device range set for other refresh parameters. Correct the refresh parameters.**

**Point**

The link devices of the master/local module can be accessed from a program. (Page 129, Section 8.1.3)

## (3) Precautions

### (a) Device set to "Device (PLC Side)"

Set a device range that differs from the one used for the following:

- Refresh parameters for other network modules
- Auto refresh parameters for CC-Link master/local module
- I/O numbers used for I/O modules and intelligent function modules
- Auto refresh setting for intelligent function modules
- Auto refresh using the CPU shared memory in a multiple CPU system

### (b) Link refresh range

Set only link devices used in the CPU module for link refresh range. Doing so will reduce link refresh points, resulting in a shorter link refresh time.

### (c) Changing link device assignment in the "Network Configuration Settings" window

Correct the link refresh ranges of refresh parameters.

### (d) Setting an extended data register (D) or extended link register (W) as a link refresh device

Set the link refresh range properly so that it does not cross over the boundary between the internal user device and the extended data register (D) or extended link register (W). ( User's Manual (Function Explanation, Program Fundamentals) for the CPU module used)

## (4) Setting example

For setting examples, refer to Page 387, CHAPTER 11.

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# 7.6 Interrupt Settings

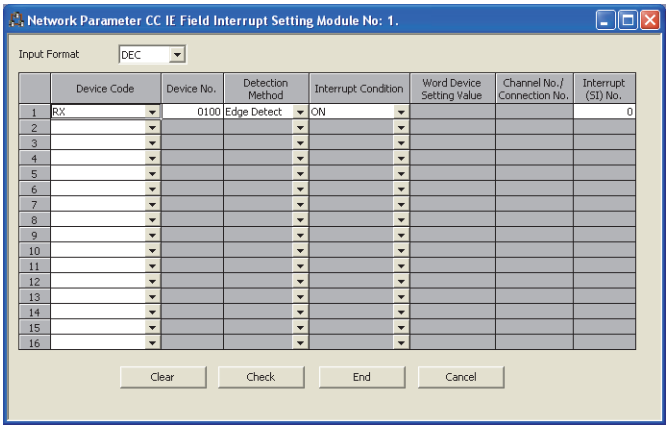
Set conditions for sending an interrupt request to the CPU module.

## (1) Setting procedure

1. **Set network setting parameters. (☞ Page 84, Section 7.2)**
2. **Open the setting window.**

   Project window ⇨ [Parameter] ⇨ [Network Parameter] ⇨ [Ethernet/CC IE/MELSECNET] ⇨ Interrupt Settings button
3. **Set parameters in the window.**

   Up to 16 interrupt conditions can be set.
4. **Click the End button.**




| Item | Description | Setting range |
|---|---|---|
| Input Format | Select the input format of the "Word Device Setting Value" field. | DEC, HEX (Default: DEC) |
| Device Code | Set an interrupt condition device. | Refer to the next table. |
| Device No. | | |
| Detection Method | Select the detection timing of an interrupt generated by the device set in "Device Code" and "Device No.". | |
| Interrupt Condition | | |
| Word Device Setting Value | When "RWw", "RWr", or "SW" is selected in "Device Code", enter a word device value that triggers an interrupt. | |
| Channel No./ Connection No. | When "RECVS Instruction" is selected in "Device Code", enter the channel number of the RECVS instruction used for trigger condition.<br><br>A channel is an area in a network module. Data used by link dedicated instructions are stored in this area. Use of multiple channels allows simultaneous access from multiple stations to the own station.<br><br>A connection number is not used for the master/local module. | |
| Interrupt (SI) No. | Enter an interrupt (SI) number used in "Interrupt Pointer Setting" of the PLC parameter window. (☞ Page 111, Section 7.6 (3))<br><br>An interrupt (SI) number is a management number assigned to each master/local module. This number is required when the master/local module sends an interrupt request to the CPU module. | |

(Setting range)

| Device Code | Device No. | Detection Method | Interrupt Condition | Word Device Setting Value | Channel No./ Connection No. | Interrupt (SI) No. |
|---|---|---|---|---|---|---|
| RX | $0_H$ to $3FFF_H$ | Level Detect and ON: Interrupt occurs by turning on the device.<br>Level Detect and OFF: Interrupt occurs by turning off the device.<br>Edge Detect and ON: Interrupt occurs at the rising edge of the device.<br>Edge Detect and OFF: Interrupt occurs at the falling edge of the device. | | — | — | 0 to 15 |
| RY | $0_H$ to $3FFF_H$ | | | | | |
| SB | $0_H$ to $1FF_H$ | | | | | |
| RWr | $0_H$ to $1FFF_H$ | Level Detect and Equal: Interrupt occurs when values match.<br>Level Detect and Unequal: Interrupt occurs when values do not match.<br>Edge Detect and Equal: Interrupt occurs when values match (first time only).<br>Edge Detect and Unequal: Interrupt occurs when values do not match (first time only). | | 0 to 65535 ($0_H$ to $FFFF_H$) | | |
| RWw | $0_H$ to $1FFF_H$ | | | | | |
| SW | $0_H$ to $1FF_H$ | | | | | |
| RECVS Instruction | — | Edge Detect (fixed) | Scan Completed (fixed)*1 | — | 1 or 2 | |

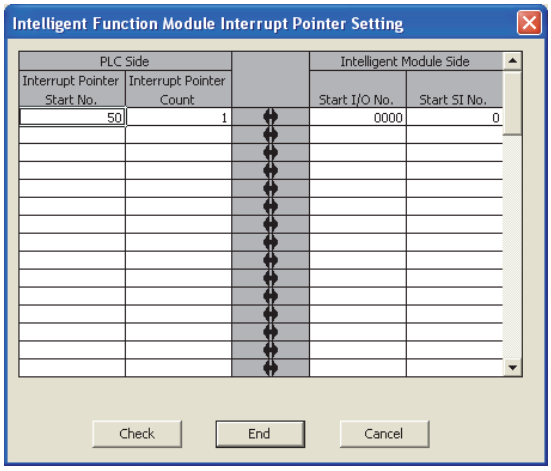
*1 An interrupt occurs when the channel specified in "Channel No./Connection No." receives data.

**5. After the parameters are set, open the "Intelligent Function Module Interrupt Pointer Setting" window.**

Link the interrupt (SI) number assigned for the master/local module to the interrupt pointer of the CPU module.

Project window ⇨ [Parameter] ⇨ [PLC Parameter] ⇨ [PLC System] ⇨ Interrupt Pointer Setting button

**6. Click the End button.**




| Item | | Description | Setting range |
|---|---|---|---|
| PLC Side | Interrupt Pointer Start No. | Enter the start number of an interrupt program (I□□). | 50 to 255 (Default: Blank) |
| | Interrupt Pointer Count | Enter the number of interrupt conditions. | 1 to 16 (Default: Blank) |
| Intelligent Module Side | Start I/O No. | Enter the start I/O number of the master/local module. | $0000_H$ to $0FE0_H$ (Default: Blank) |
| | Start SI No. | Enter the start interrupt (SI) number of the master/local module. | 0 to 15 (Default: Blank) |

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**Point**

Using an interrupt program will eliminate the need for describing a start condition in a program. This leads to reduction in the number of steps and sequence scan time.

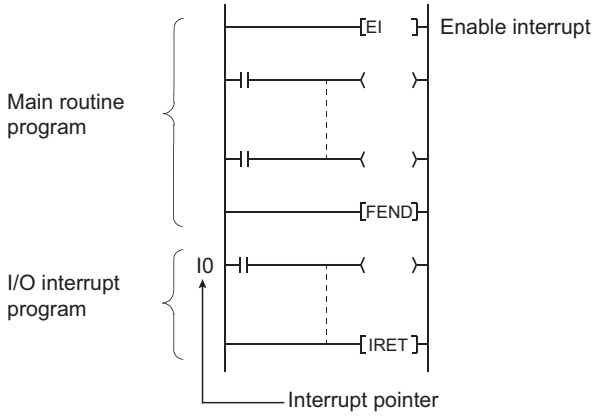
## (2) Precautions

### (a) When "Level Detect" is set for "Detection Method" and the interrupt condition is always met

If the sequence scan takes much longer than the link scan, since interrupt processing is activated in each link scan, sequence scan time may greatly increase, resulting in a watchdog timer error of the CPU module.
When "Level Detect" is set for "Detection Method" and the interrupt condition is always met, do not use interrupt settings and correct the interrupt condition in the program.

### (b) Before executing an interrupt program

Execute the EI instruction in a main routine program and enable an interrupt. ( User's Manual (Function Explanation, Program Fundamentals) for the CPU module used)




### (c) When multiple interrupts simultaneously occur

The operation may delay.

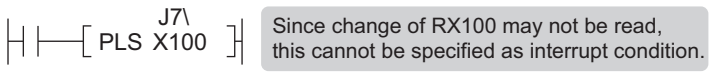
### (d) When the master/local module is in test mode or offline mode

The master/local module can send an interrupt request to the CPU module in online mode (cannot send the request in test mode and offline mode).

### (e) Starting an interrupt program by the rising/falling edge of the specified device

Do not start an interrupt program using instructions, such as PLS and PLF, that depend on the rising/falling edge of the specified devices because changes in devices might not be read.

Ex. Sending an interrupt request by turning on RX100 in a station in network number 7




### (f) An interrupt cannot be generated

Changes in the interrupt condition device cannot be detected if the change is shorter than the transmission delay time.

### (g) Using cyclic data in an interrupt program

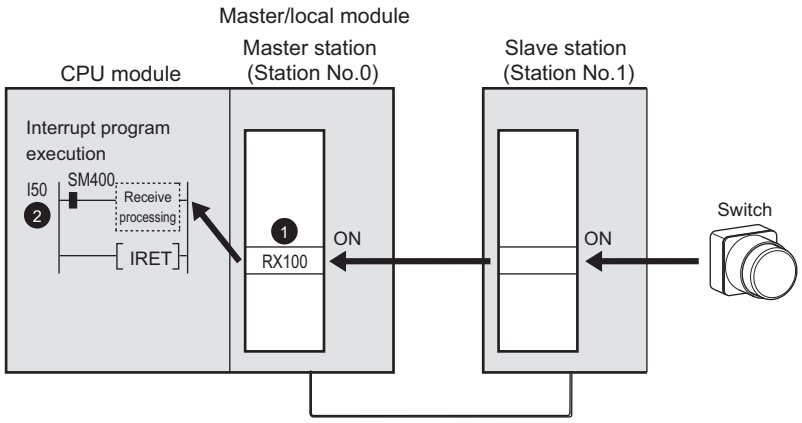
When an interrupt program is executed, link refresh is not performed to CPU module devices. Directly access the link devices of the master/local module by direct access.

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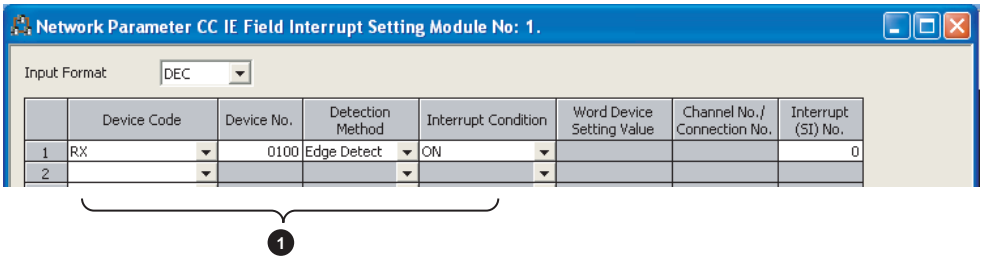
## (3) Setting example

### (a) Starting the interrupt program of the master station (station number 0) when RX100 turns on

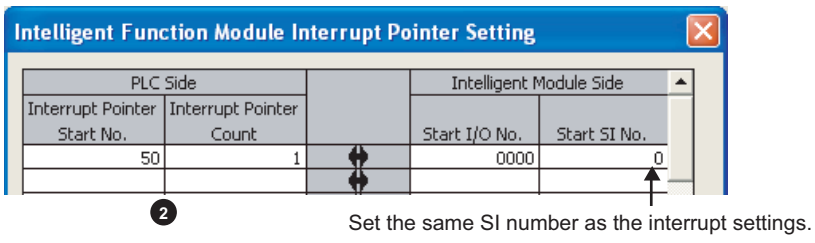
The following is a setting example to execute the interrupt program corresponding to the interrupt pointer I50 when RX100 turns on by turning on the corresponding switch on the slave station side.




**1. Set the interrupt setting parameters for the master/local module (station number 0) in the "Interrupt Settings" window as shown below.**




**2. Set the parameters in the "Intelligent Function Module Interrupt Pointer Setting" window as shown below.**

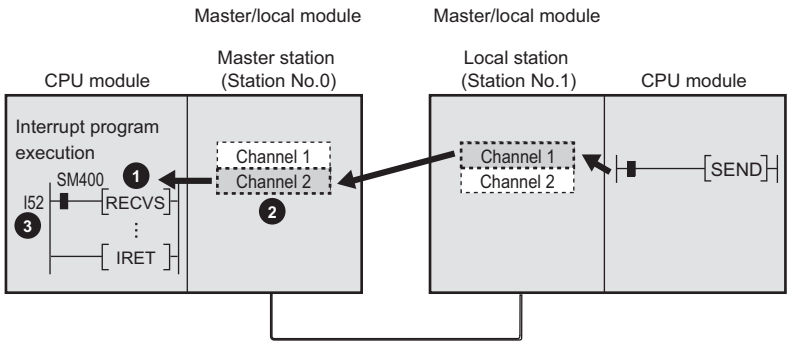



**Point**

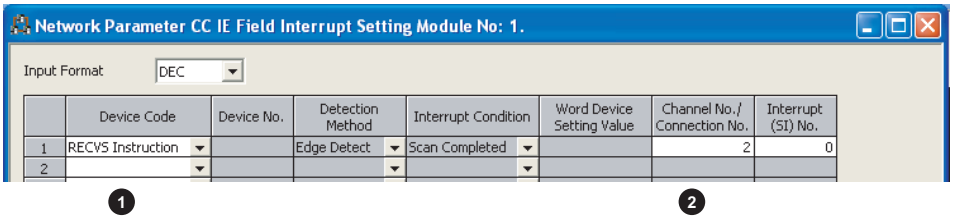
By using link special relay (SB) and link special register (SW) as an interrupt condition device, an interrupt program can be started in case of data link error. (Page 473, Appendix 3, Page 493, Appendix 4)

### (b) Starting the interrupt program of the master station (station number 0) when the master station receives data sent from another station using the SEND instruction

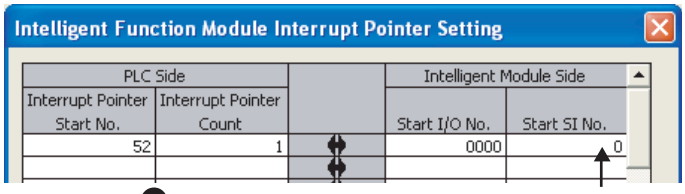
The following is a setting example to execute the interrupt program corresponding to the interrupt pointer I52 when the master station (station number 0) receives data sent from the local station (station number 1) using the SEND instruction in channel 2.




***1.*** **Set the interrupt setting parameters for the master/local module (station number 0) in the "Interrupt Settings" window as shown below.**




***2.*** **Set the parameters in the "Intelligent Function Module Interrupt Pointer Setting" window as shown below.**




Set the same SI number as the interrupt settings.

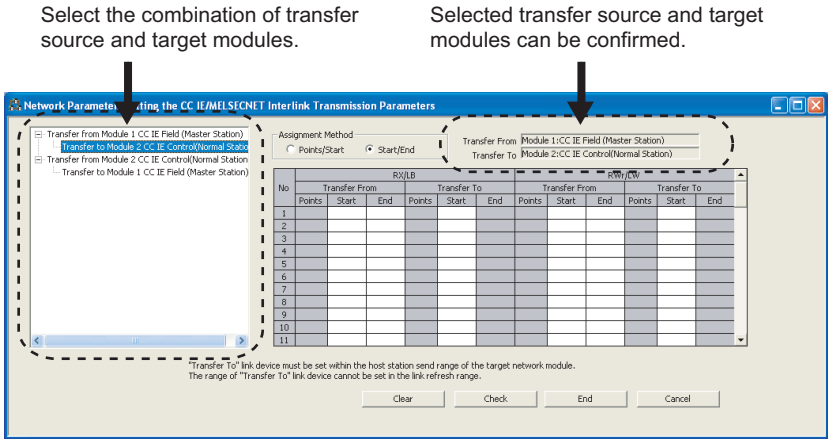
# 7.7 Interlink Transmission Parameters

Set link device ranges when cyclic data are transferred from a station in the own network to a station in another network.

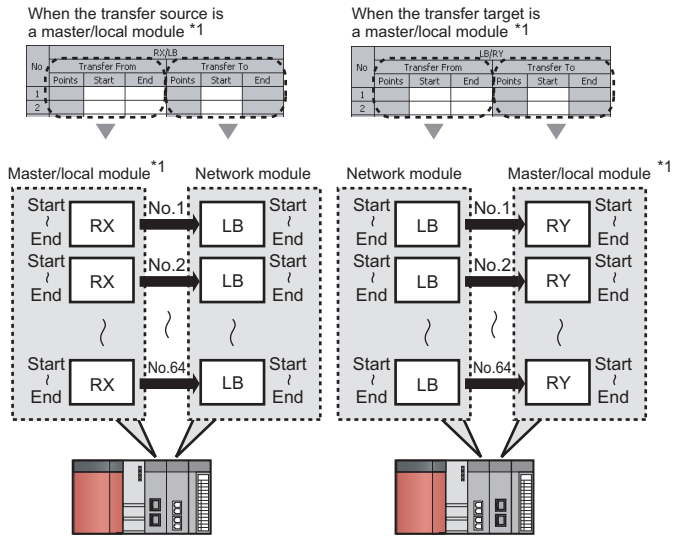
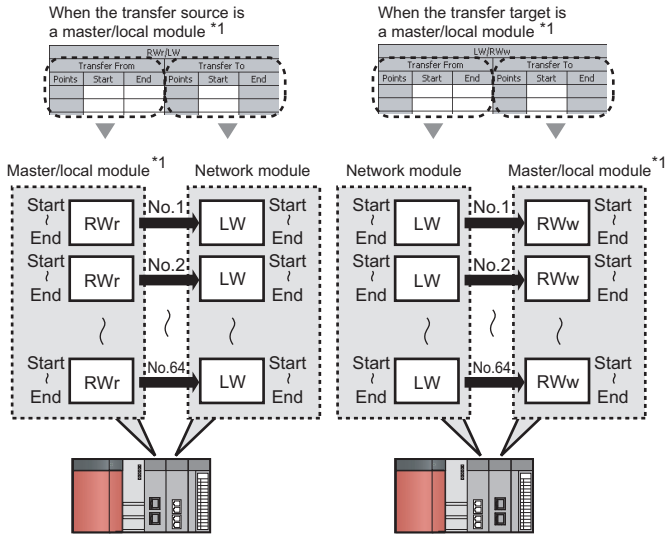
## (1) Setting procedure

1. **Set network setting parameters. (☞ Page 84, Section 7.2)**
2. **Open the setting window.**

   Project window ⇨ [Parameter] ⇨ [Network Parameter] ⇨ [Ethernet/CC IE/MELSECNET] ⇨ Interlink Transmission Parameters button
3. **Select combination of transfer source module and transfer target module in the left-side area and enter setting values in the right-side area of the window.**
4. **Click the End button.**




| Item | Description | Setting range |
|---|---|---|
| Assignment Method | Select a link device assignment method.<br>• Points/Start: Enter the points and start numbers of link devices.<br>• Start/End: Enter the start and end numbers of link devices. | • Points/Start<br>• Start/End<br>(Default: Start/End) |
| Transfer From<br>Transfer To | Displays the transfer source module and the transfer target module selected in the left-side area. | — |

| Item | | Description | Setting range |
|---|---|---|---|
| RX/LB<br>LB/RY | Transfer From<br>Transfer To | Enter the link device range of the transfer source and destination modules. Up to 64 ranges can be set. RX and RY points can be assigned in increments of 16 (Start: □□□$0_H$, End: □□□$F_H$).<br>  | RX: $0_H$ to $3FFF_H$<br>RY: $0_H$ to $3FFF_H$<br>(Default: Blank) |
| RWr/LW<br>LW/RWw | Transfer From<br>Transfer To | Enter the link device range of the transfer source and destination modules. Up to 64 ranges can be set. RWr and RWw points can be assigned in increments of 4.<br>  | RWr: $0_H$ to $1FFF_H$<br>RWw: $0_H$ to $1FFF_H$<br>(Default: Blank) |

*1 The ranges can be set for the master station and submaster station.

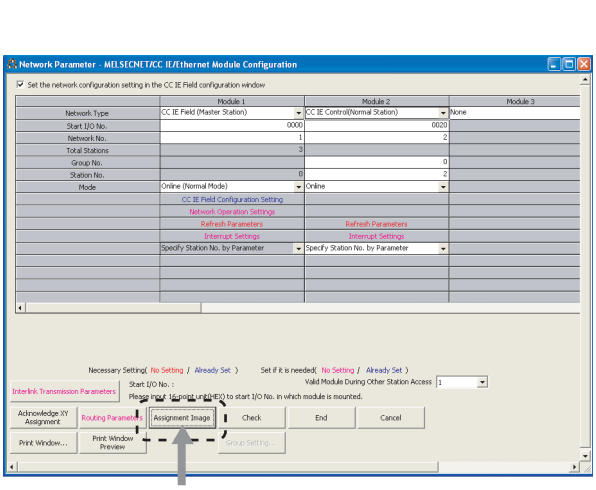
**Point**

Link devices set for "Transfer From" can be overlapped. Doing so will allow transfer of the same link devices to multiple network modules.

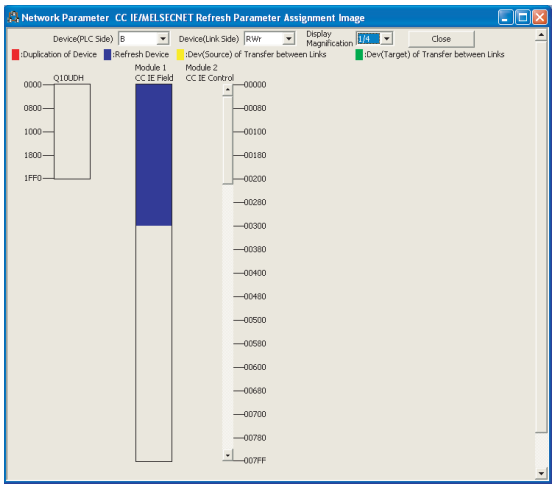
**5.** **Click the [Assignment Image] button in the "Network Parameter - MELSECNET/CC IE/Ethernet Module Configuration" window to open the "Assignment Image" window.**

**6.** **Select the devices to be checked and magnification ratio in the window.**

Select the devices and magnification ratio in "Device (PLC Side)", "Device (Link Side)", and "Display Magnification".




Click




**7.** **A red part in the transfer target link device indicates that the device range overlaps with the link refresh range set for refresh parameters. Correct the interlink transmission parameters or refresh parameters.**

## (2) Precautions

### (a) Stations supporting interlink transmission

Interlink transmission parameters can be set for the master station and submaster station.

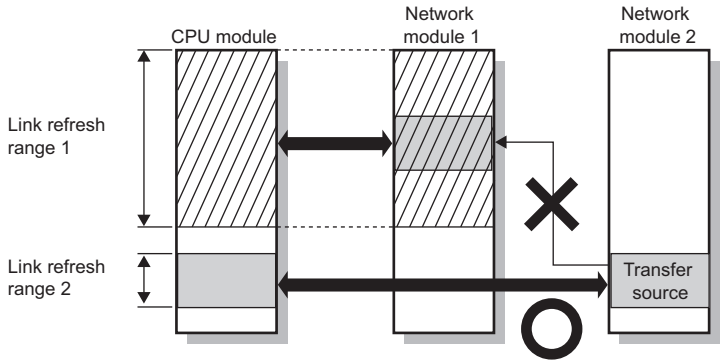
### (b) Modules supporting interlink transmission

The master station and submaster station can perform interlink transmission with the following modules.

- CC-Link IE Controller Network module (control station, normal station)
- MELSECNET/H module (control station, normal station)

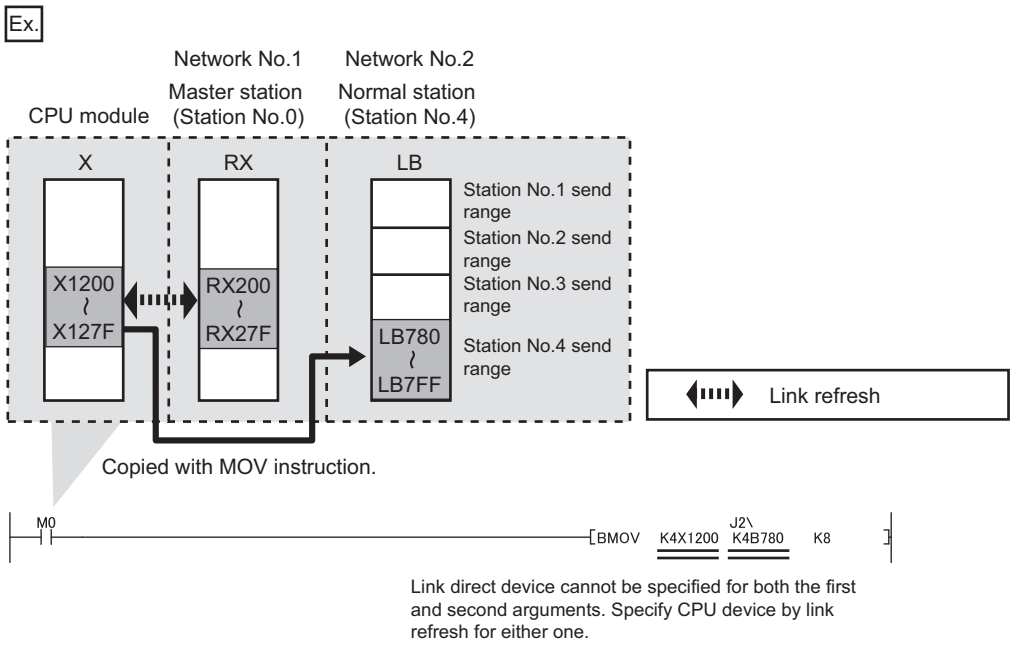
### (c) Transfer destination link device setting

Do not use link devices set for link refresh range as a transfer target. If doing so, transfer target link devices will be overwritten by link refresh. To use transfer target link device data in the CPU module, set the transfer source link device as the link refresh range.




### (d) Setting 65 or more interlink transmission ranges

Use link direct devices in a program to perform interlink transmission.



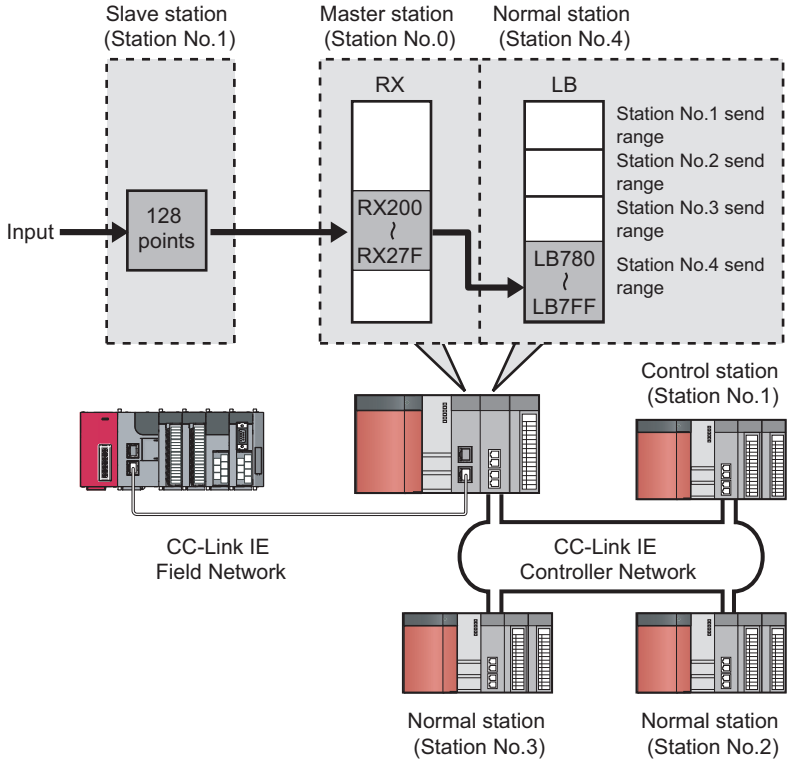

Link direct device cannot be specified for both the first and second arguments. Specify CPU device by link refresh for either one.

### (e) Performing interlink transmission in a multiple CPU system

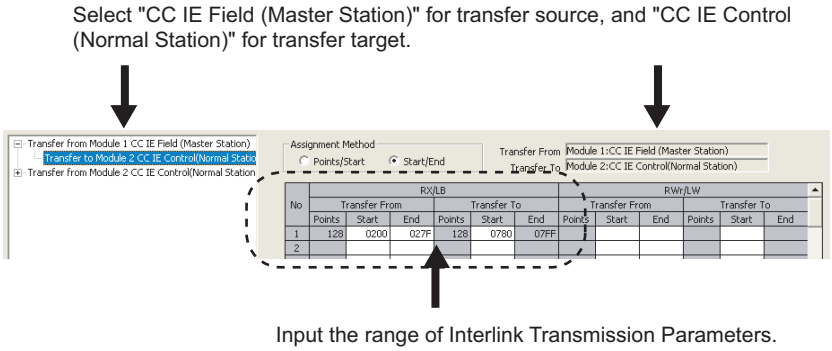
When different control CPUs are set for the network modules, interlink transmission cannot be performed using interlink transmission parameters or a program. Use the CPU shared memory of the multiple CPU system.

## (3) Setting example

The following is a setting example to perform interlink transmission from the master station on CC-Link IE Field Network to stations on CC-Link IE Controller Network. In this example, 128-point data input from the slave station (station number 1) is transferred.



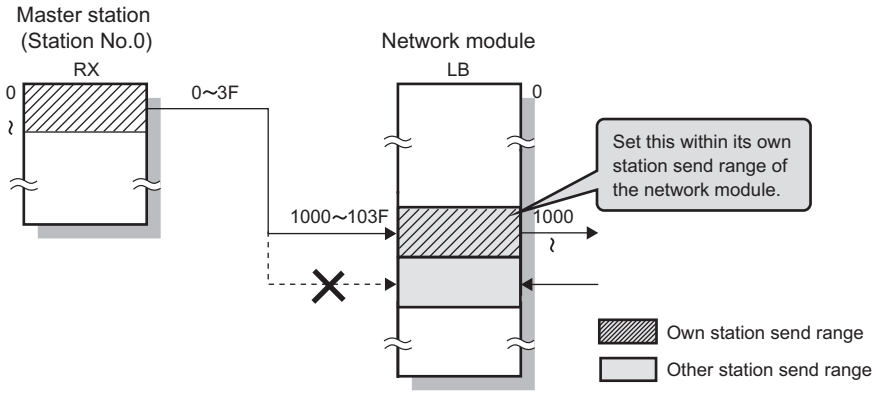

***1.*** **Select "CC IE Field (Master Station)" for "Transfer From" and "CC IE Control (Normal Station)" for "Transfer To" and enter the transfer ranges of link devices.**




***2.*** **Click the** End **button.**

**Point**

If the transfer target network module is on a network other than CC-Link IE Field Network, set the transfer target link devices within the own station's send range of the network module. If the link devices are set within another station's send range, the transferred data are overwritten with another station's send data.



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# 7.8 Routing Parameters

Set communication paths for transient transmission between a station in the own network and stations in other networks.

The parameters need to be set in the following cases.

- To perform transient transmission with stations on different networks using dedicated instructions (Page 236, CHAPTER 10)
- To use the IP packet transfer function (Page 146, Section 8.3)

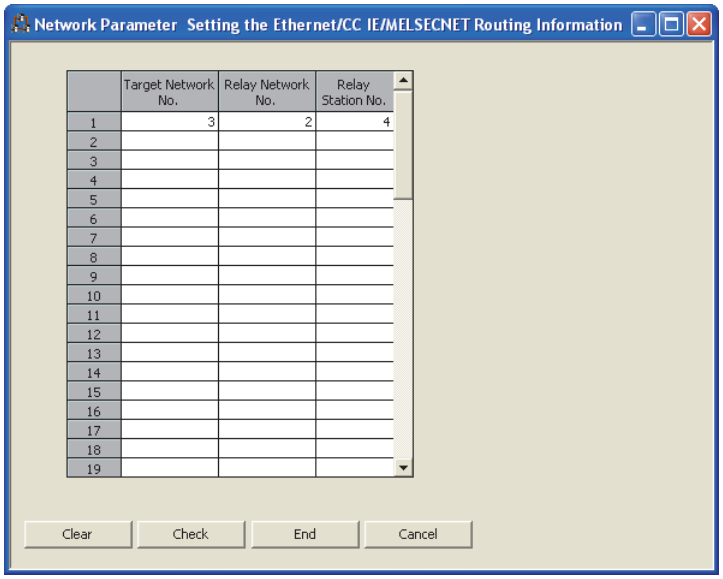
## (1) Setting procedure

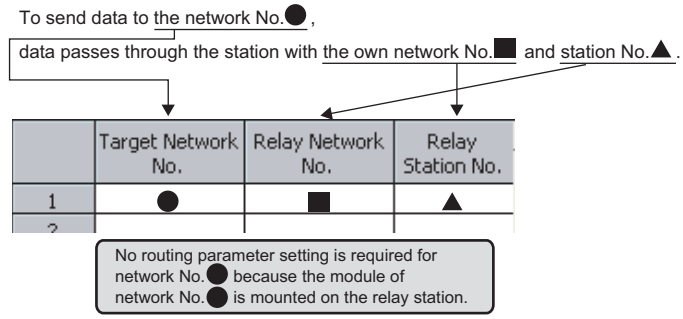
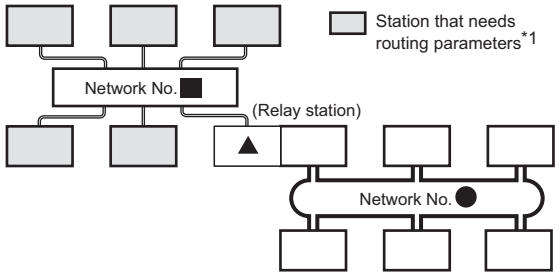
***1.*** **Open the setting window.**

Project window ⇨ [Parameter] ⇨ [Network Parameter] ⇨ [Ethernet/CC IE/MELSECNET] ⇨ Routing Parameters button

***2.*** **Set parameters in the window.**

***3.*** **Click the End button.**

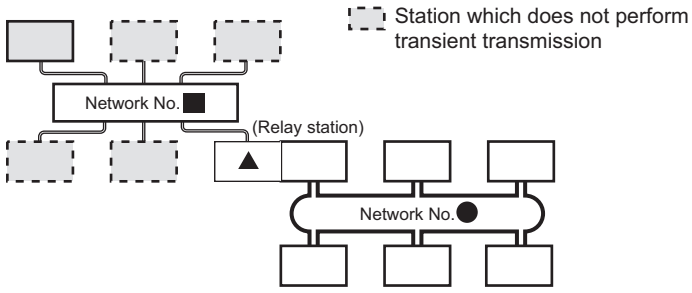


| Item | Description | Setting range |
|---|---|---|
| Target Network No. | Set a relay station of the own network to send data to a station on another network by transient transmission. Up to 64 communication paths can be set.<br>Set routing parameters as shown below.<br>Ex. Setting to transmit data to network number ● by transient transmission<br>  <br>  | 1 to 239 (Default: Blank)<br>1 to 239 (Default: Blank)<br>0 to 120 (Default: Blank) |

*1 Routing parameters are not required for stations (such as head modules) that do not support these parameters. Communications with other networks are performed according to the routing parameters set for the master station.

## Point

- Transient transmission range
  Communications can be made with stations up to eight networks apart (number of relay stations: 7).
- Setting for stations that do not perform transient transmission to other networks
  Routing parameters are not required for stations that do not perform transient transmission to other networks; however, setting the same routing parameters to all stations is recommended.




It is recommended to set the same routing parameters as ▭ for ┆┆.

┆┆ and ▭ can communicate by the same routing parameters, since they pass through the same relay station.

Note that routing parameters are not required for stations (such as head modules) that do not support these parameters. Communications with other networks are performed according to the routing parameters set for the master station.

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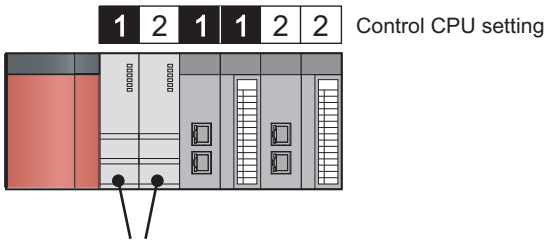
## (2) Checking method

To check whether routing parameters have been correctly set and transient transmission can be performed, perform a communication test from CC-Link IE Field Network diagnostics. (☞Page 79, Section 6.4.3)

## (3) Precautions

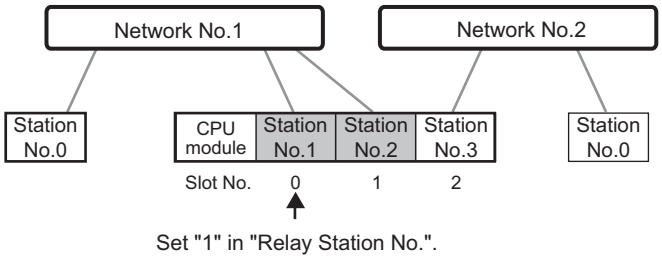
### (a) Different control CPUs are set to the network modules on a relay station in a multiple CPU system

Set the same routing parameters to all the control CPUs.



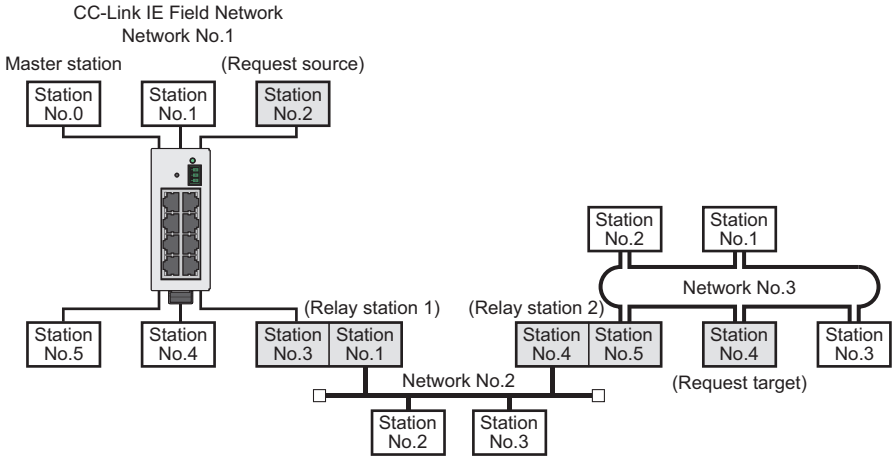

### (b) When multiple master/local modules with the same network number are connected to one system

Set the station number of a module with the smallest slot number in "Relay Station No.".
In a multiple CPU system, set the station number of a module with the smallest slot number, regardless of the CPU number of the control CPU.



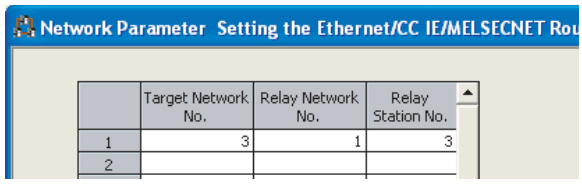
## (4) Setting example

The following is a setting example to perform transient transmission from the station number 2 of the network number 1 to the station number 4 of the network number 3.

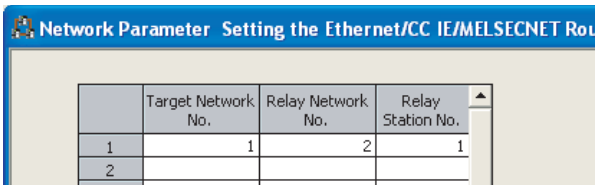



| Station | Transient transmission (request) | Transient transmission (response) |
|---|---|---|
| Request source | Station No.2<br>Target Network No. 3 / Relay Network No. 1 / Relay Station No. 3<br>Goes through station No.3 of network No.1 to reach network No.3. | Station No.2 |
| Relay station 1 | Station No.3<br>Station No.1<br>Target Network No. 3 / Relay Network No. 2 / Relay Station No. 4<br>Goes through station No.4 of network No.2 to reach network No.3. | Station No.3<br>Station No.1<br>Passes data to the request source on network No.1. |
| Relay station 2 | Station No.4<br>Station No.5<br>Passes data to the request target on network No.3. | Station No.4<br>Station No.5<br>Target Network No. 1 / Relay Network No. 2 / Relay Station No. 1<br>Goes through station No.1 of network No.2 to reach network No.1. |
| Request target | Station No.4 | Automatically passes data to the relay station. |

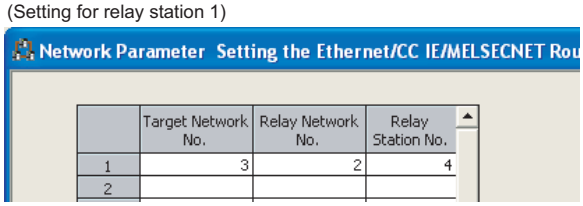
(Setting for request source)




(Setting for relay station 2)




(Setting for relay station 1)



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# CHAPTER 8 FUNCTIONS

This chapter describes the functions of the master/local module.

## 8.1 Cyclic Transmission

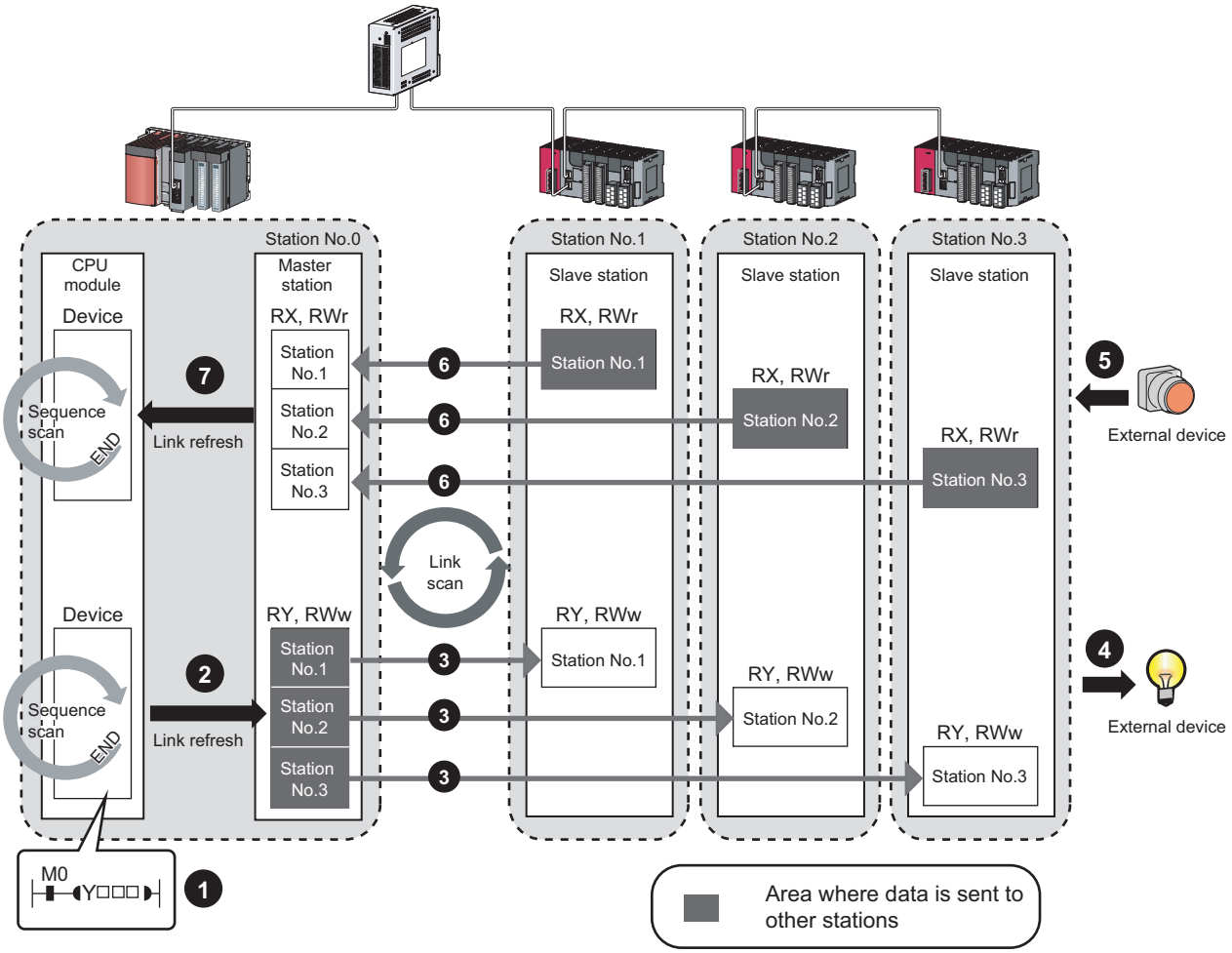
Data communication is available periodically among stations on the same network. Link devices (RX, RY, RWr, and RWw) are used.

# 8.1.1 Data flow and link device assignment

## (1) Master and slave stations (except for local stations)

One-to-one communication is possible between the master and slave stations.

The status information of the link devices (RY and RWw) of the master station is output to the external device of the slave station, and the input status information from the external device of the slave station is stored in the link devices (RX and RWr) of the master station.




- Output from the master station

1. The device of the CPU module turns on.
2. The device status data of the CPU module are stored in the link devices (RY and RWw) of the master station by link refresh.
3. The status data of the link devices (RY and RWw) of the master station are stored in the link devices (RY and RWw) of each slave station by link scan.
4. The status data of the link devices (RY and RWw) of the slave station are output to the external device.

- Input from the slave station

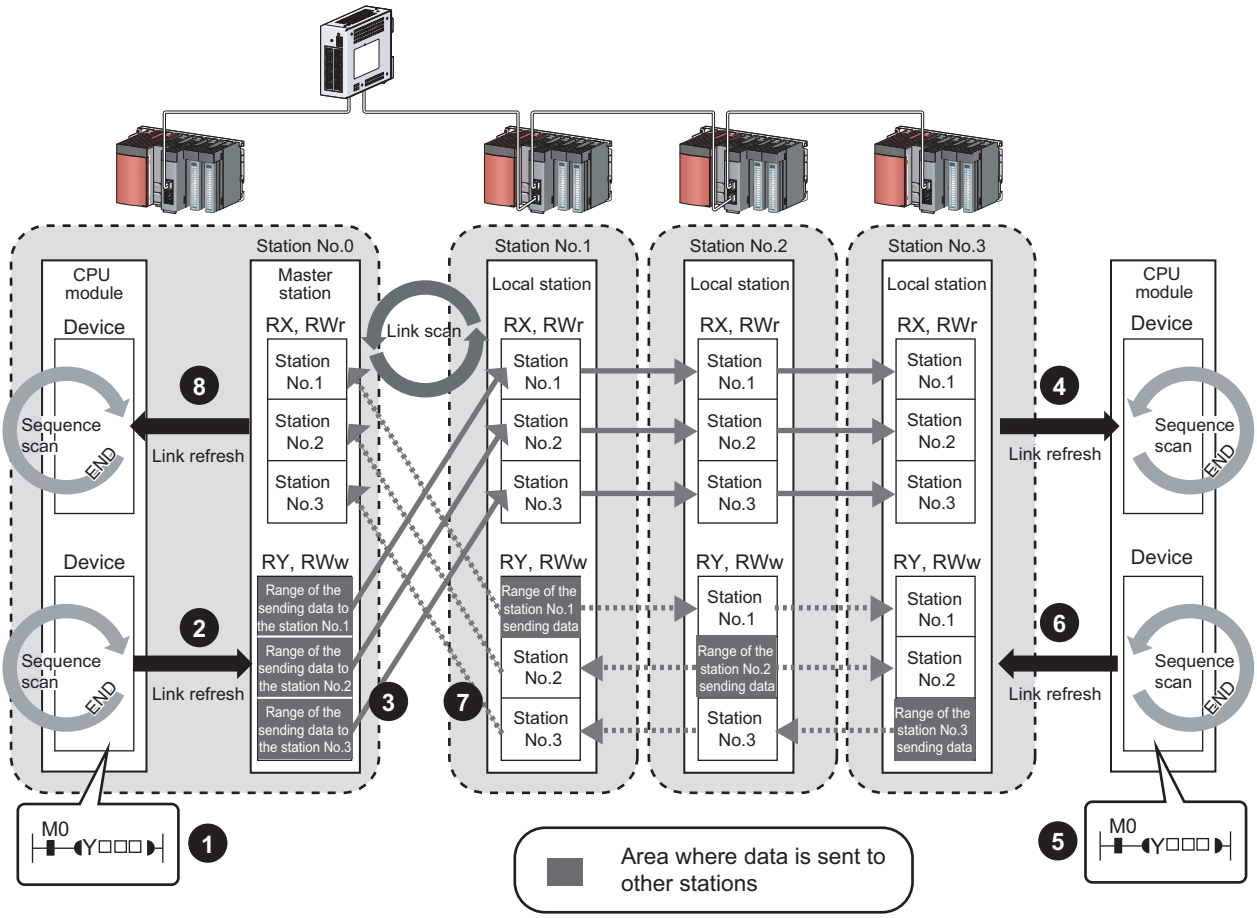
5. The status data of the external device are stored in the link devices (RX and RWr) of the slave station.
6. The status data of the link devices (RX and RWr) of the slave station are stored in the link devices (RX and RWr) of the master station by link scan.
7. The status data of the link devices (RX and RWr) of the master station are stored in the devices of the CPU module by link refresh.

## (2) Master and local stations

Data can be written into the send range of each station's link device (RY, RWw) and can be sent to any station on the same network.

The status data of the link devices (RY, RWw) of the master station are stored in the link devices (RX, RWr) of each local station.

The status data of the link devices (RY, RWw) of local stations are stored in the link devices (RX, RWr) of the master station and the link devices (RY, RWw) of other local stations.




- Output from the master station

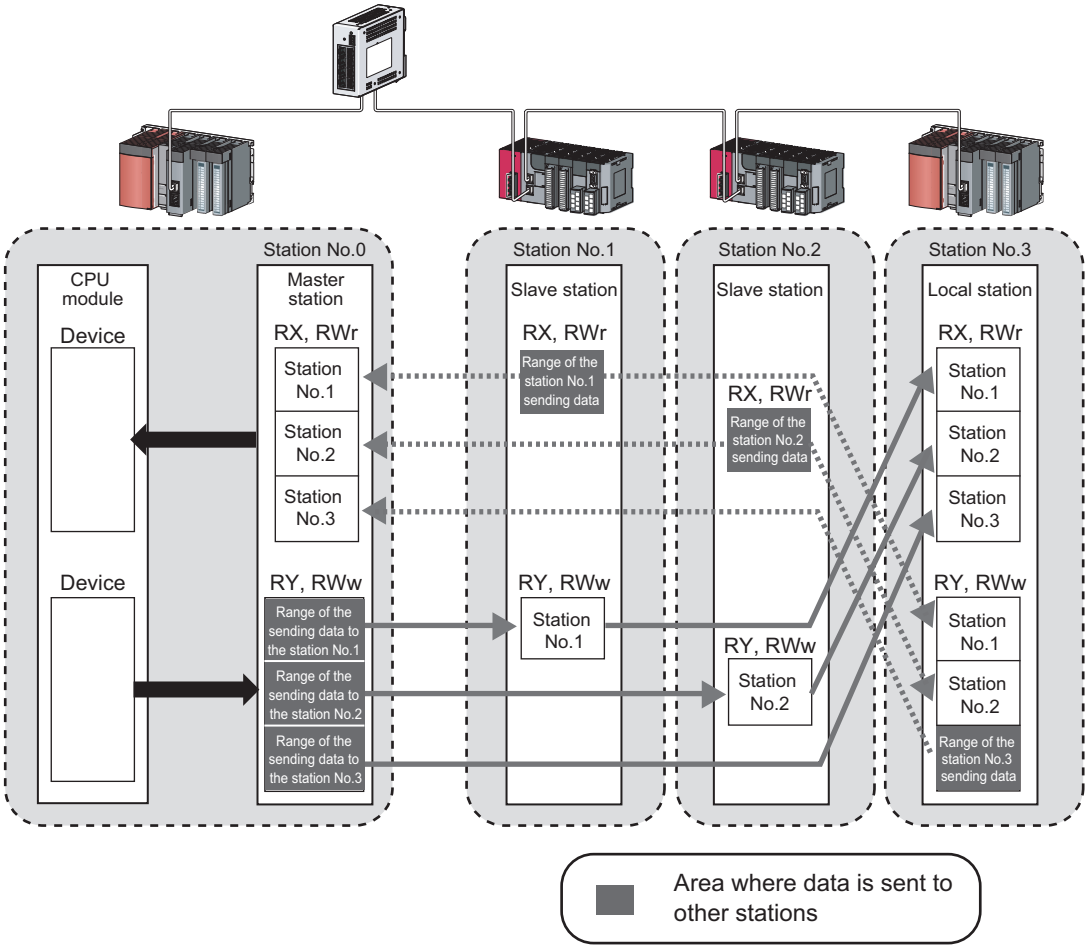
1. The device of the CPU module turns on.
2. The device status data of the CPU module is stored in the link device (RY, RWw) of the master station by link refresh.
3. The status data of the link device (RY, RWw) of the master station is stored in the link device (RX, RWr) of the local station by link scan.
4. The status data of the link device (RX, RWr) of the local station is stored in the device of the CPU module.

- Input from the local station

5. The device of the CPU module turns on.
6. The status data of the device of the CPU module is stored in the own station send range of the link device (RY, RWw).
7. The status data of the link device (RY, RWw) of the local station is stored in the link device (RX, RWr) of the master station by link scan.
8. The status data of the link device (RX, RWr) of the master station is stored in the device of the CPU module by link refresh.

## (3) Coexistence of local stations and the other slave stations (other than local stations)

The data of all slave stations are also stored in the local stations in the same way as the master station.




## (4) Setting method

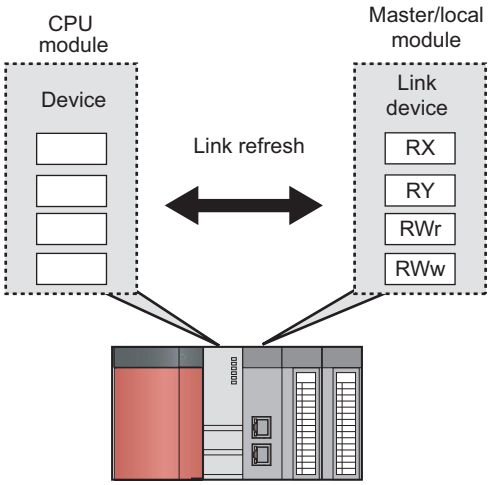
The link devices can be assigned in the network configuration settings. (☞Page 88, Section 7.3)

The link refresh is assigned by the Refresh Parameters. (☞Page 103, Section 7.5)

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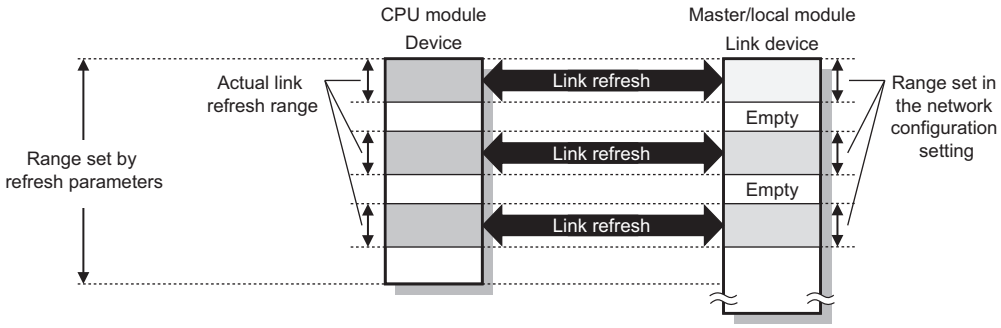
# 8.1.2 Link refresh

Data can be automatically transferred between the link devices of the master/local module and the devices of the CPU module.




## (1) Concept of the link refresh range

The area range set with the refresh parameters and also specified in the network configuration settings is executed by link refresh.




## (2) Shortening the link refresh time and transmission delay time

Use the following methods to shorten time mentioned above by reducing the number of link refresh points of the CPU module.

- In the refresh parameters setting, set only the link devices used in the CPU module as the link refresh range. (☞Page 103, Section 7.5)
- Directly access infrequently used link devices from the program, and remove the corresponding settings from the link refresh range. (☞Page 129, Section 8.1.3)

### (3) Setting method

The link refresh is assigned by the Refresh Parameters. (☞Page 103, Section 7.5)

### (4) Precautions

For cyclic data assurance of more than 32 bits, use one of the following methods.

- Enable the Block Data Assurance per Station setting. (☞Page 88, Section 7.3, Page 134, Section 8.1.5)
- Create an interlock program. (☞Page 134, Section 8.1.5)

**Point**

When the CPU module is turned off and on or reset, data in latched devices (the devices listed in the "CPU module device" column in the table below) may be output depending on the timing of the link scan and link refresh even if the data are cleared to zero on a sequence program.
Execute the actions listed in the "How to disable the setting" column in the table below not to output the data in the latched devices.

| CPU module device | How to disable the setting |
|---|---|
| Latch relay (L), file register (R, ZR) | Use the initial device value to clear the device to 0[*1]. |
| Extended data register (D), extended link register (W), device within the latch range | Delete all the latch range settings. |

*1 For the initial device value setting, refer to the user's manual (Function Explanation, Program Fundamentals) for the CPU module used.

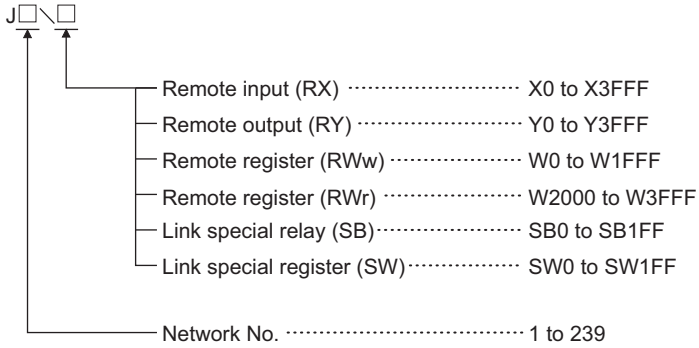
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# 8.1.3 Direct access to link devices

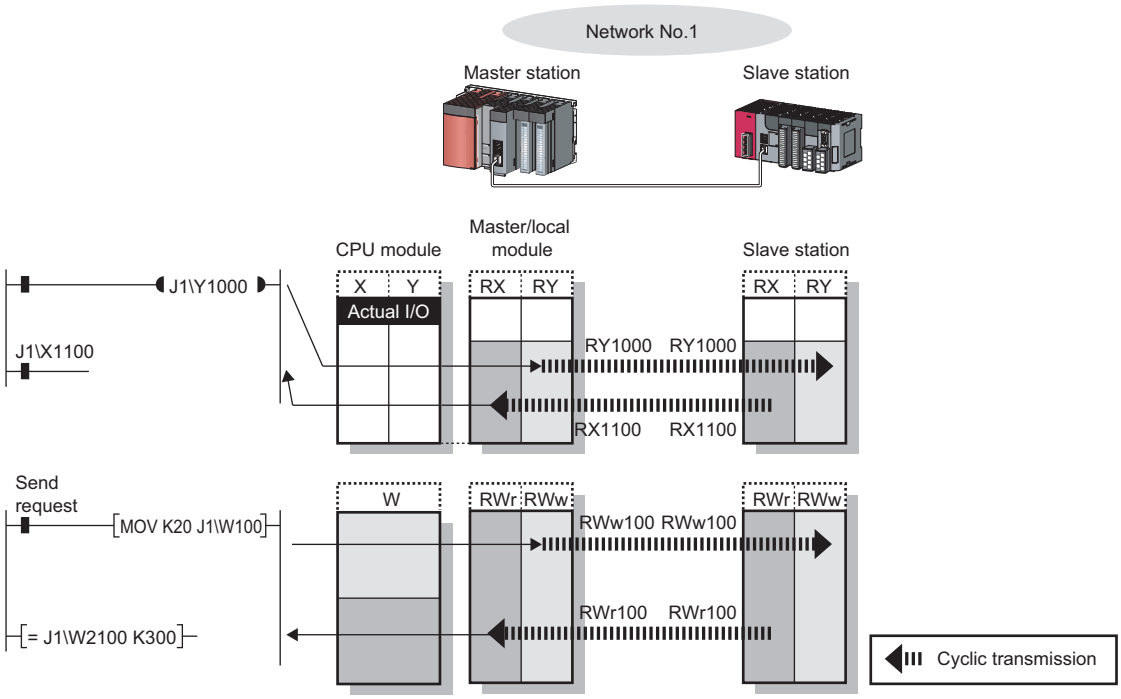
Direct access to each link device (RX, RY, RWr, RWw, SB, or SW) of the master/local module is possible from the program. Specify a link device as the link direct device (J□\□) for direct access.

## (1) Specification method

Specify the network No. and the link device of the master/local module for reading or writing.




Ex.



## (2) Readable and writable range

Data can be read or written between the master/local module and CPU module mounted on the same base unit.

### (a) Read

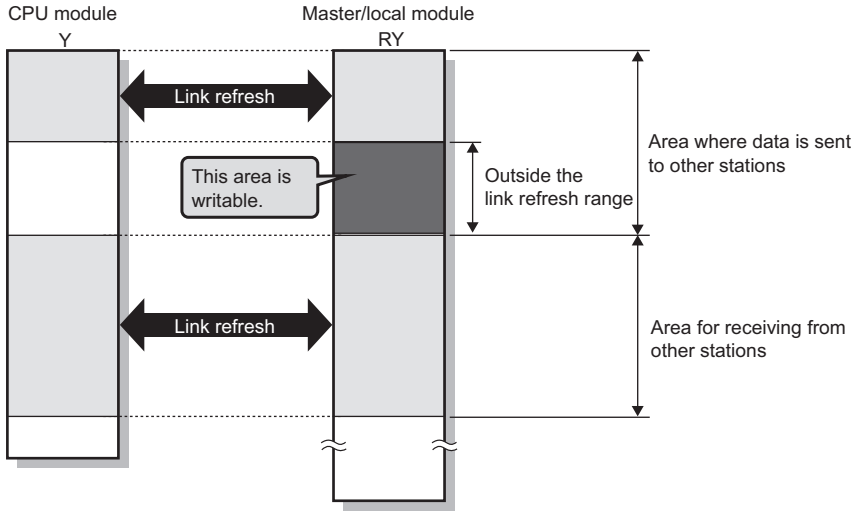
All link devices of the master/local module can be specified. (☞Page 129, Section 8.1.3 (1))

### (b) Write

The range that satisfies all of the following conditions can be specified.

- Area where data is sent to other stations and outside the link refresh range (☞Page 124, Section 8.1.1)
- Within the link device range of the master/local module (☞Page 129, Section 8.1.3 (1))

Ex.

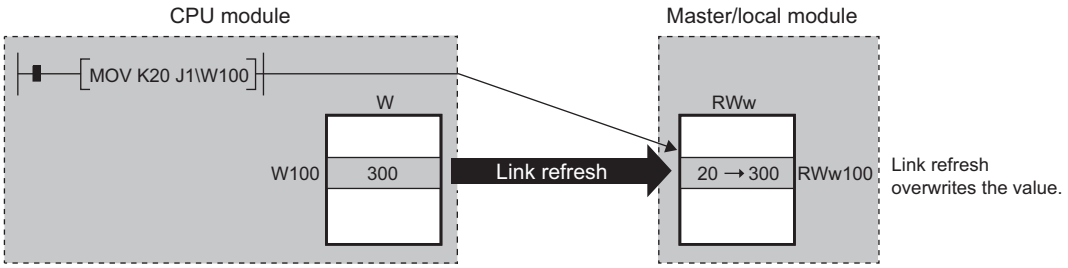


AbN automation

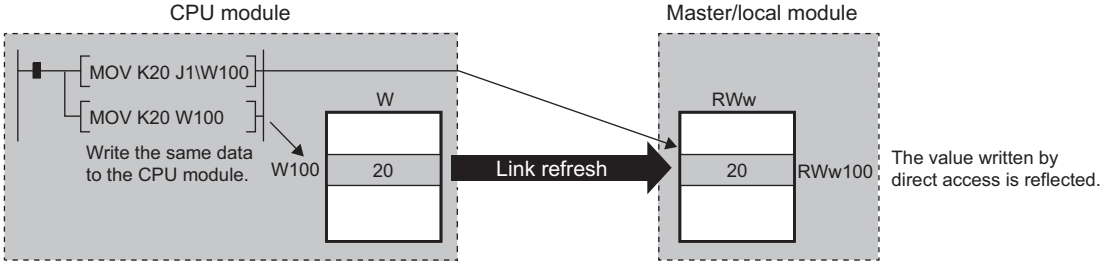
**Point**

When writing data to the area in the link refresh range, directly access the link device and write the same data in the device of the CPU module.

Bad example (Only direct access to the link refresh target)




Good example (In addition to direct access, writing the same data to the CPU module device)



### (3) Differences from link refresh

| Item | Access method | |
|---|---|---|
| | Link refresh | Direct access |
| Number of steps | 1 step | 2 steps |
| Processing speed (LD B0 ⊣⊢ )*1 | High speed (0.0095μs) | Low speed (10 to 100μs) |
| Data reliability | Station-based or 32-bit units*2*3 | — |

*1 The given value is for the Q06UDEHCPU.

*2 When "Block Data Assurance per Station" is enabled (☞Page 134, Section 8.1.5)

*3 When the conditions for the secured 32-bit data are satisfied (☞Page 134, Section 8.1.5)

### (4) Shortening the link refresh time and transmission delay time

#### (a) Shortening the link refresh time

Remove infrequently used link devices from the link refresh range, and directly read or write the corresponding data using link direct devices. This reduces the number of the link refresh points to the CPU module, resulting in a shorter link refresh time. (☞Page 127, Section 8.1.2)

#### (b) Shortening the transmission delay time

Because the link direct device allows direct reading or writing of data to the link devices of the master /local module at the time of the instruction execution, the transmission delay time can be shortened.

**Remark**

Link refresh is executed in END processing of the sequence scan of the CPU module.

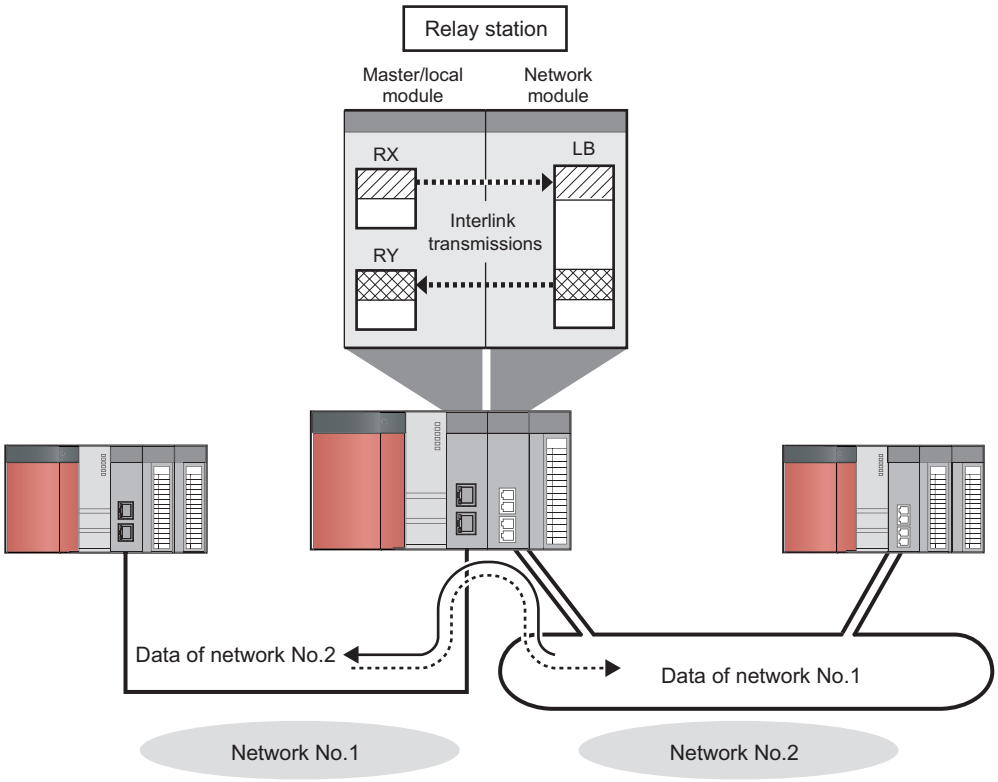
### (5) Precautions

For cyclic data assurance of more than 32 bits, refer to ☞Page 134, Section 8.1.5.

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# 8.1.4 Interlink transmission (for the master station and submaster station only)

A relay station transfers the link devices of the master station and submaster station to another network module.




## (1) Setting method

Interlink transmission is set by the interlink transmission parameters. (☞Page 113, Section 7.7)

## (2) Precautions

For the precautions, refer to ☞Page 113, Section 7.7.

# 8.1.5 Assurance of cyclic data integrity

The cyclic data integrity can be assured in 32-bit units or for each station.

○: Assured ×: Not assured

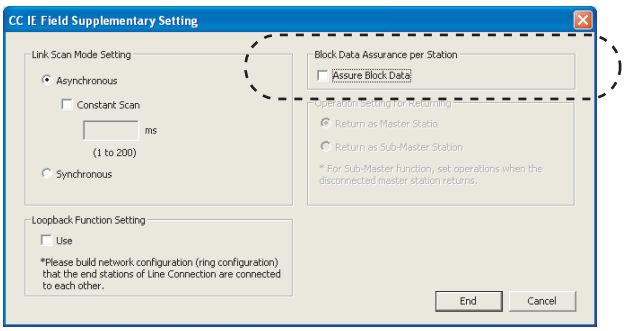
| Method | Description | Assurance | | |
|---|---|---|---|---|
| | | Link refresh | Direct access to link devices | Access to buffer memories |
| 32-bit data assurance | Assures data in 32-bit units. Data is automatically assured by satisfying assignment conditions of link devices. | ○ | ○ | ○ |
| Block Data Assurance per Station | Assures data in station-based units. Data is assured by enabling the station-based block data assurance in the parameter setting. | ○ | × | × |
| Interlock program | Assures data of more than 32 bits. Data is assured by performing interlocks on programs. | ○ | ○ | ○ |

## (1) 32-bit data assurance

The RWr and RWw data can be assured in 32-bit units.

To enable 32-bit data assurance, disable block data assurance per station.

Project window ⇨ [Parameter] ⇨ [Network Parameter] ⇨ [Ethernet/CC IE/MELSECNET] ⇨ CC IE Field Configuration Setting button ⇨ [CC IE Field Configuration] ⇨ [Supplementary Setting]




Clear the checkbox.

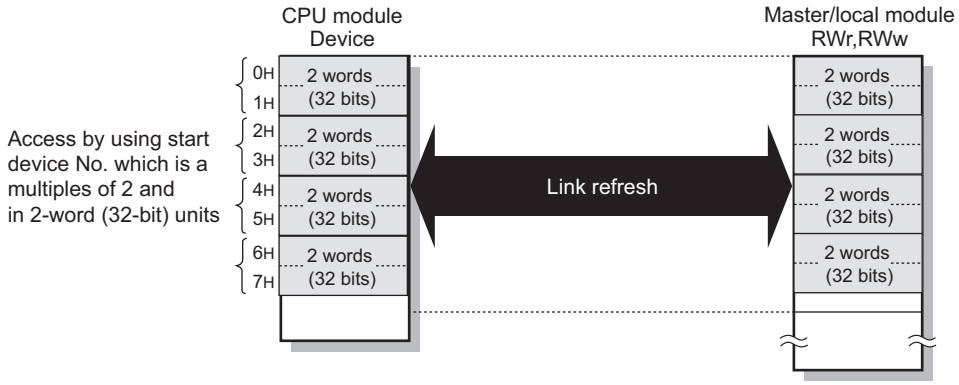
**Point**

When there is a remote device station in the network, enable block data assurance per station.

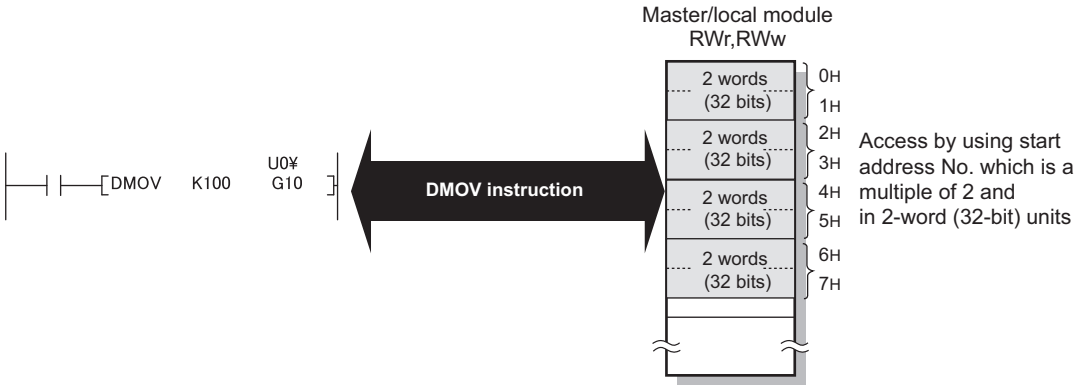
### (a) Access to cyclic data

When link devices are accessed, the integrity of 32-bit data can be assured by satisfying the following conditions.

- When directly accessing link devices:
  The start device number of RWr/RWw is multiples of 2.
  The number of points assigned to RWr/RWw is multiples of 2.




- When accessing buffer memories:
  Access using the DMOV instruction
  The start address of the buffer memory is multiples of 2.




**Point**

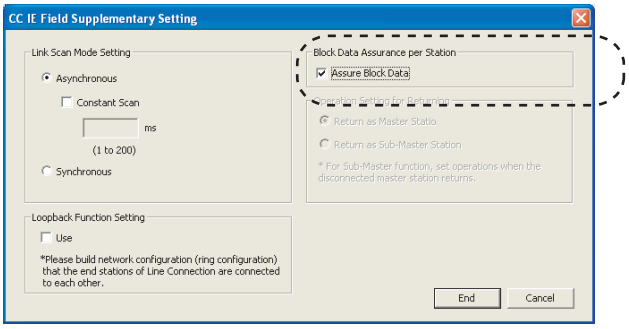
For data assurance of more than 32 bits, use the block data assurance per station or interlock programs.

## (2) Block data assurance per station

Integrity of the cyclic data is assured for each station by handshake between the CPU module and master/local module for a link refresh.

### (a) Setting

Enable "Block Data Assurance per Station" in "Network Configuration Settings" of the master station.
(☞Page 88, Section 7.3)
Once this setting is enabled on the master station, integrity of the data for all stations is assured for each station.



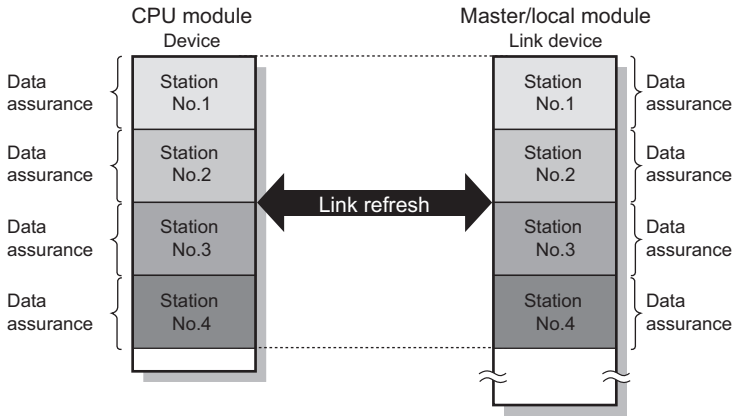

Select the checkbox.

**Point**

When there is a remote device station in the network, enable block data assurance per station.

### (b) Access to link devices

During a link refresh, data are assured for each station as shown below.



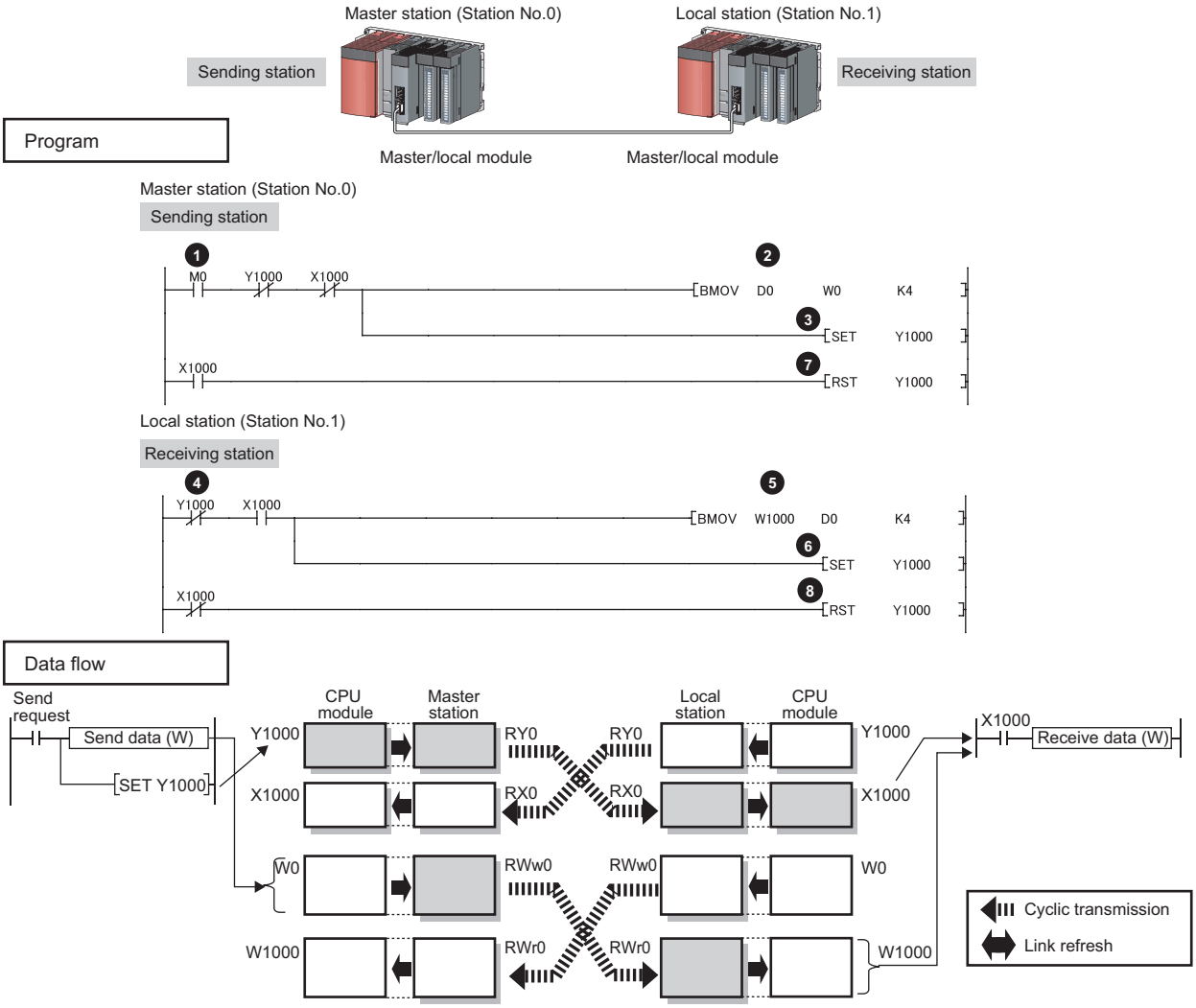
## (3) Interlock program

Data of more than 32 bits can be assured with the Block Data Assurance per Station setting disabled. Use either of the following methods.

- Interlock using X and Y
- Interlock using devices other than X and Y (when X, Y cannot be used as an interlock device)

### (a) Example of interlock using X and Y

An example of sending data in W0 to W3 of the master station (station No.0) to W1000 to W1003 of the local station (station No.1) is shown below. (X1000 and Y1000 are used for a handshake to the CPU module.)

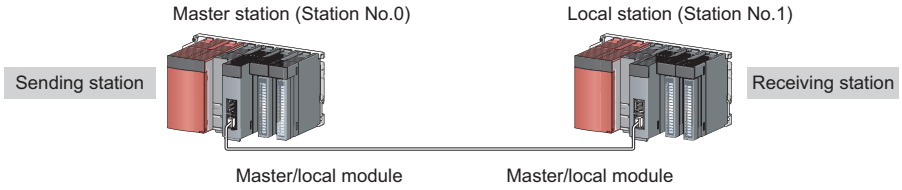



1. The send request turns on.
2. The contents of D0 to D3 are transferred to W0 to W3.
3. Upon completion of storage in W0 to W3, turn on Y1000 of the sending station for a handshake.
4. Cyclic transmission sends RWw followed by RY, and X1000 of the receiving station turns on.
5. The contents of W1000 to W1003 are stored in D0 to D3.
6. Upon completion of storage in D0 to D3, turn on Y1000 of the receiving station for a handshake.
7. When X1000 of the sending station turns on, turn off Y1000 of the sending station.
8. When X1000 of the receiving station turns off, turn off Y1000 of the receiving station.

### (b) Example of interlock using devices other than X and Y

The following shows an example of sending data in W0 to W3 of the master station (station No.0) to W1000 to W1003 of the local station (station No.1). This is a method used when X and Y cannot be used as interlock devices.

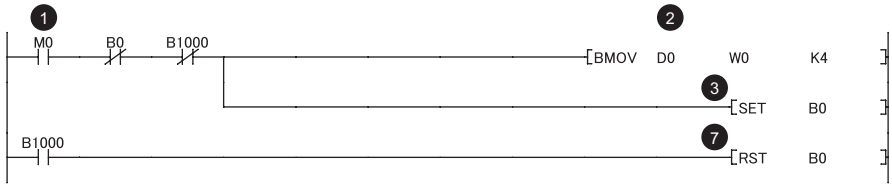
(B0 and B1000 are used for a handshake to the CPU module.)




Program

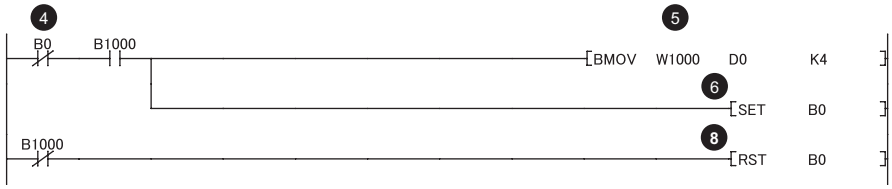
Master station (Station No.0)

Sending station

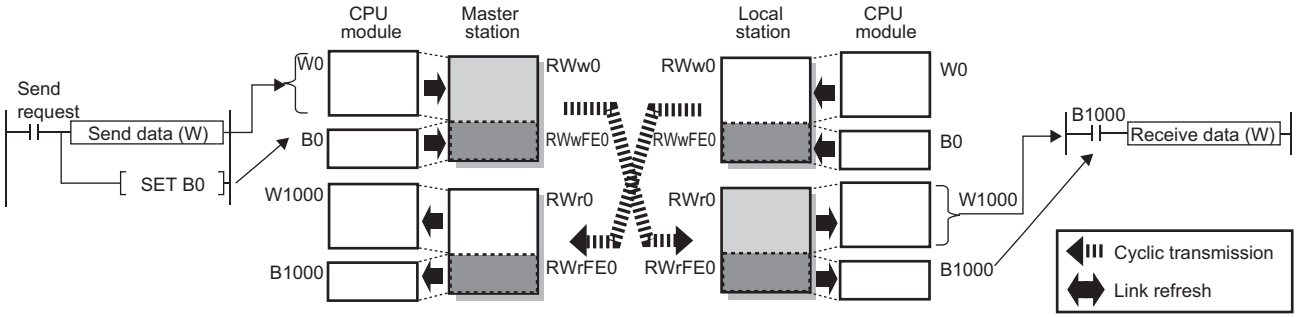



Local station (Station No.1)

Receiving station




Data flow




1. The send request turns on.
2. The contents of D0 to D3 are transferred to W0 to W3.
3. Upon completion of storage in W0 to W3, turn on B0 of the sending station for a handshake.
4. Cyclic transmission sends signals starting from RWw0 following by signals starting from RWwFE0, and B1000 of the receiving station is turned on.
5. The contents of W1000 to W1003 are stored in D0 to D3.
6. Upon completion of storage in D0 to D3, turn on B0 of the receiving station for a handshake.
7. When B1000 of the sending station turns on, turn off B0 of the sending station.
8. When B1000 of the receiving station turns off, turn off B0 of the receiving station.

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# 8.1.6 Scan synchronization specification

Whether to synchronize the link scan with the CPU module's sequence scan or not can be selected.

## (1) Difference between asynchronous and synchronous settings

### (a) Asynchronous setting

Link scan is performed asynchronously with the sequence scan of the CPU module.
Select this item to shorten input transmission delay time when sequence scan takes much time than link scan.
Note that output transmission delay time will become longer.

### (b) Synchronous setting

Link scan is performed synchronously with the sequence scan of the CPU module. Select this item in the following cases:

- To shorten output transmission delay time (Note that when sequence scan takes much time than link scan, input transmission delay time will become longer.)
- To keep transmission delay time constant (In the PLC Parameter setting of the CPU module, "Constant Scanning" must be set, and the sequence scan must be set to be performed at the specified intervals.)

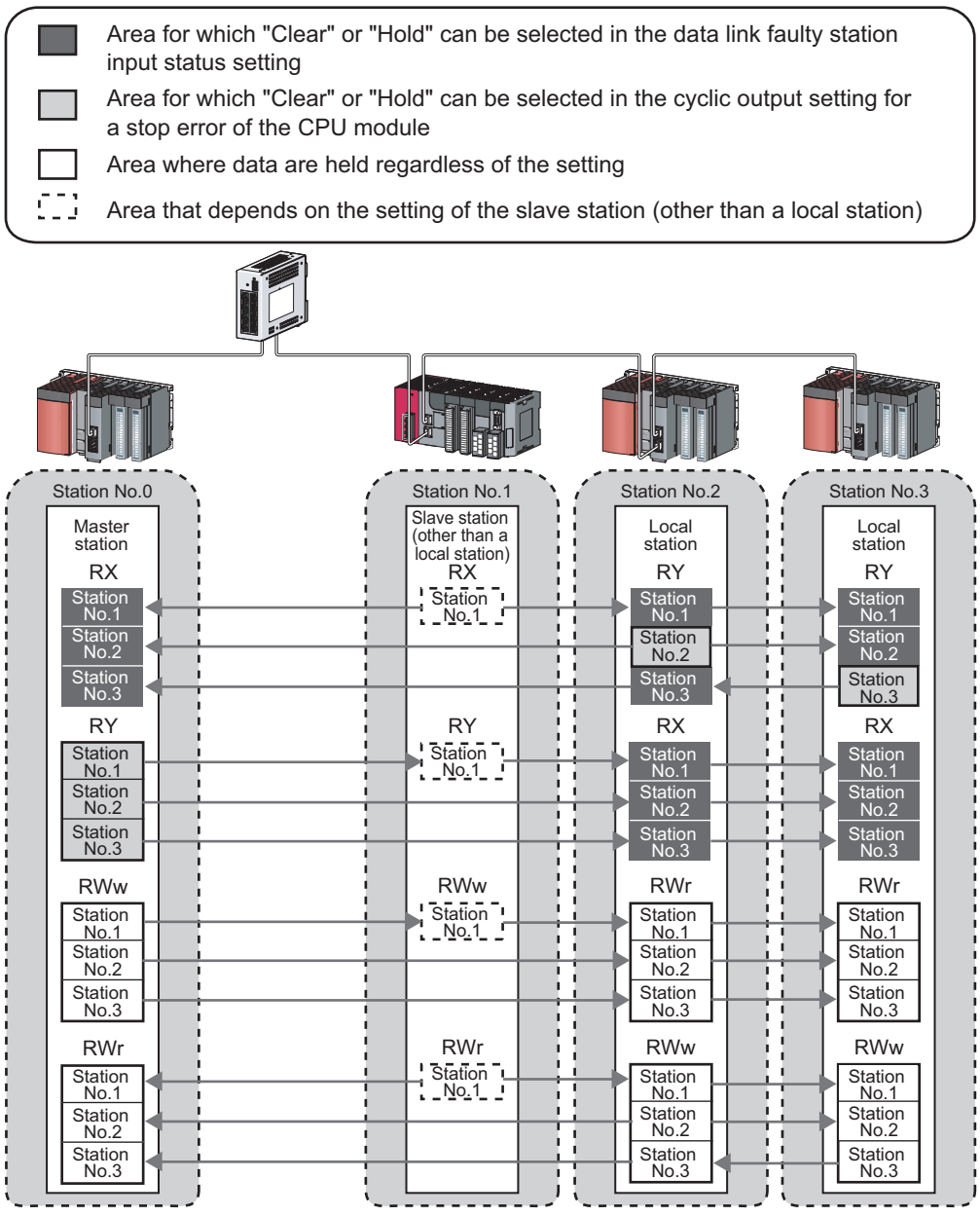
## (2) Setting method

Scan synchronization is specified in the network configuration settings. (☞Page 88, Section 7.3)

# 8.1.7 Input and output status settings in case of failure

For the master/local module, status of input from a data link faulty station and output status of cyclic data if a stop error occurs in the CPU module can be set.

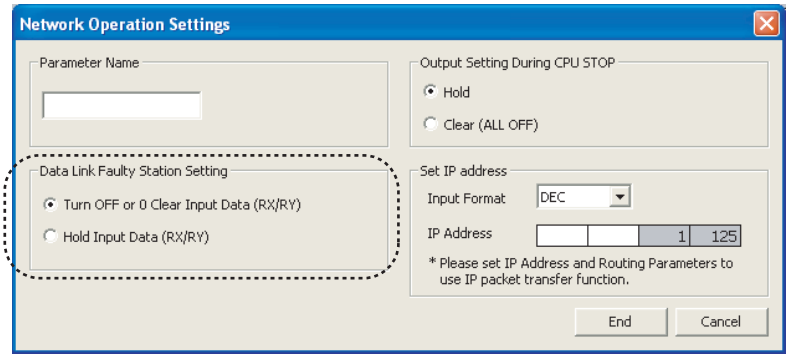
| Status | Range where the settings are enabled |
|---|---|
| Input status of data link faulty station | Clearing or holding the following RX and RY input data can be selected.<br>• Master station RX<br>• Local station RX and RY (only the input data from other stations)<br>Even if "Clear" is set, input data will be held for two seconds after disconnection.<br><br>The RWr and RWw input data are held regardless of any setting.<br>• Master station RWr<br>• Local station RWr and RWw (only the input data from other stations) |
| Cyclic data output when a stop error occurs in the CPU module | Clearing or holding the RY data (only the output data from the own station) of the master station and local station can be selected. |



## (1) Setting method

### (a) Input status of data link faulty station

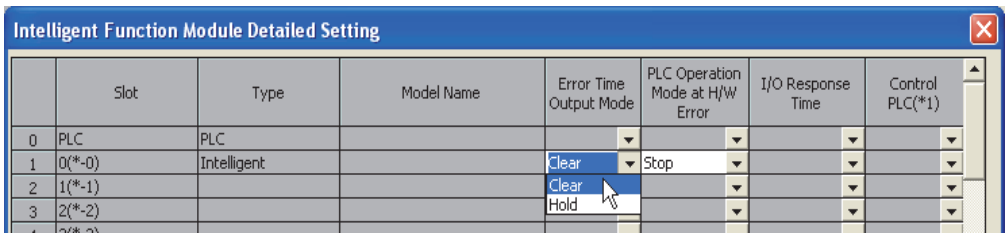
Set this item in the "Network Operation Settings" window. (Page 101, Section 7.4)




### (b) Cyclic data output when a stop error occurs in the CPU module

Select "PLC Parameter" and set it in "Intelligent Function Module Detailed Setting".

[Project Window] ⇨ [Parameter] ⇨ [PLC Parameter] ⇨ "I/O Assignment" tab ⇨ Detailed Setting button ⇨ "Error Time Output Mode"




## (2) Precautions

### (a) When data link is stopped by users

When cyclic transmission is stopped using one of the following methods, the input status of the faulty station is held.

- CC-Link IE Field Network diagnostics (Page 221, Section 9.4)
- Link special relay (SB), link special register (SW) (Page 408, Section 11.4 (1))

### (b) Setting on a station with a data link error

When the following settings are set to "Hold" on the station where a data link error has occurred, the input status of the own station upon error is held, regardless of setting.

- "Network Operating Settings" ⇨ "Output Setting During CPU STOP" (Page 141, Section 8.1.7 (2))
- "PLC Parameter" ⇨ "Intelligent Function Module Detailed Setting" ⇨ "Error Time Output Mode" (Page 139, Section 8.1.6 (1) (b))

# 8.1.8 Output status setting for CPU module STOP

When the CPU module mounted with a master/local module is set to STOP, whether cyclic data output is held or cleared can be selected.

## (1) Range where the setting becomes enabled

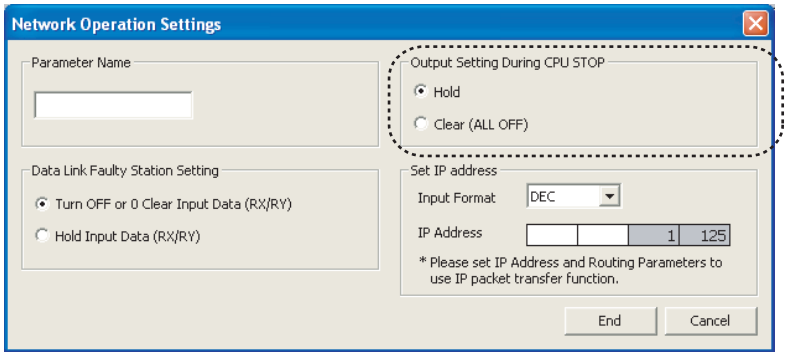
The setting is fixed to hold or clear depending on devices set to link refresh, regardless of the output setting during CPU STOP.

The following table shows the relationship between the output status of the device set to link refresh and output setting during CPU STOP.

| Link refresh device | | Output setting during CPU STOP | |
|---|---|---|---|
| | | Hold | Clear (ALL OFF) |
| RY | Y | Clear | Clear |
| | Other devices | Hold | Clear |
| RWw | All devices where the output setting during CPU STOP can be set | Hold | Hold |

## (2) Setting method

Set the output status for the case where the CPU module switch is set to STOP. Select hold or clear in the "Network Operation Settings" window. (☞Page 101, Section 7.4)




## (3) Precautions

### (a) When the output setting during CPU STOP is set to clear

When the CPU module is in the STOP status, the forced output to slave stations cannot be executed using GX Works2.

### (b) When refreshing data by a link direct device

The output status of when the CPU module is set to STOP is the status set for the network operation settings.

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# 8.1.9 Cyclic transmission stop and restart

During debugging and other operations, cyclic transmission is stopped. (Data reception from a slave station and data sending from the own station are stopped.) Also, the stopped cyclic transmission is restarted.

Transient transmission does not stop. (☞Page 221, Section 9.4)

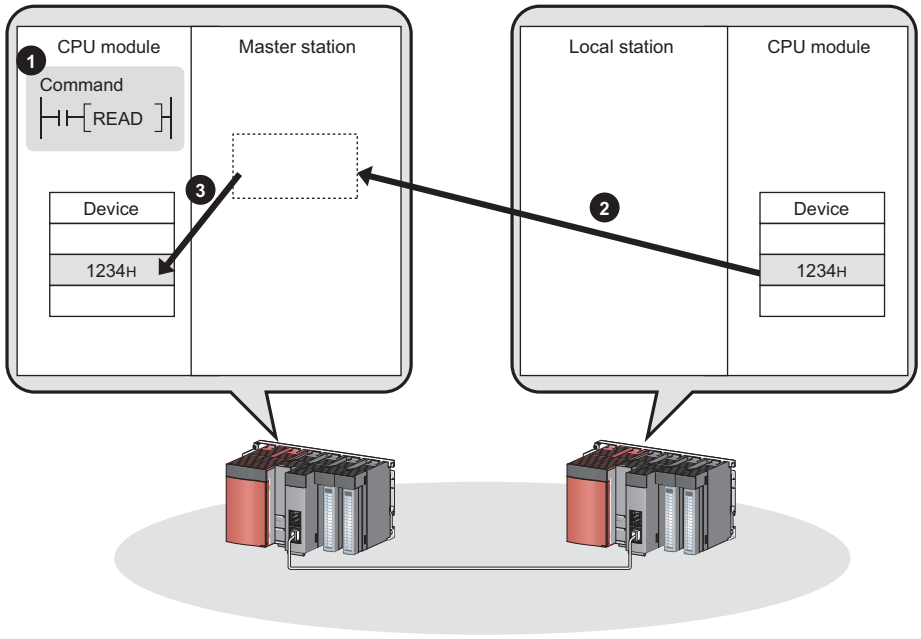
# 8.2 Transient Transmission

This function allows communication with other stations when a request is made by a method such as a dedicated instruction. Communication is also possible with different networks.

## 8.2.1 Communications within the same network

Transient transmission can be performed to other stations through dedicated instructions or GX Works2. (☞Page 236, CHAPTER 10)

Ex. With a dedicated instruction (READ), accessing a programmable controller of another station




**Point**

With GX Works2, the remote operation and clock settings cannot be set in units of groups on CC-Link IE Field Network.

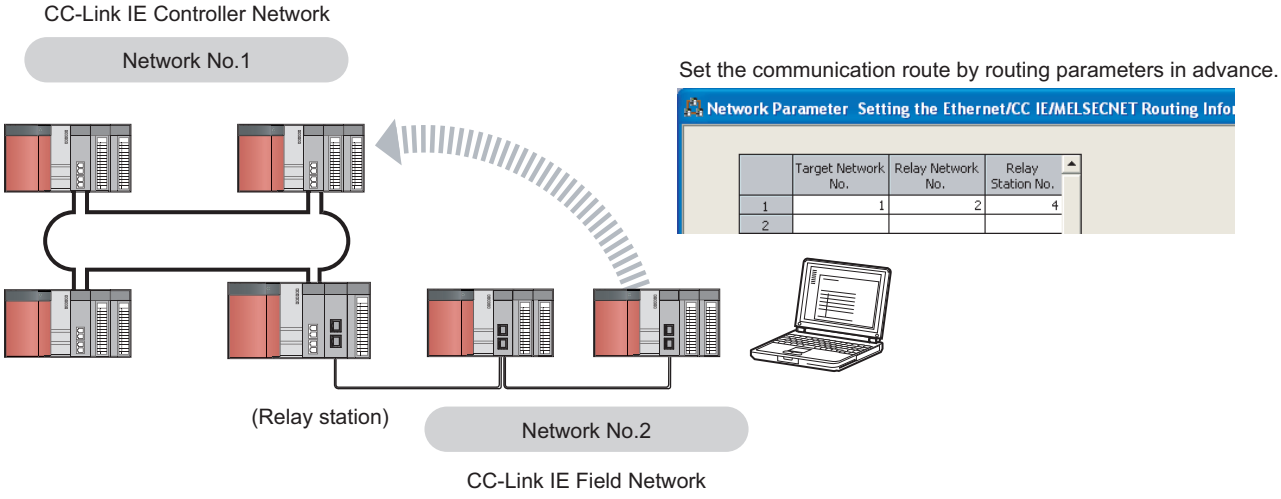
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# 8.2.2 Communications with different networks

By presetting the routing parameters (communication route) using GX Works2, transient transmission can be performed to stations on different networks through GX Works2.

Seamless communications are available with the following networks. (Page 119, Section 7.8)

- Ethernet
- CC-Link IE Controller Network
- MELSECNET/H
- MELSECNET/10
- CC-Link (when using GX Works2)

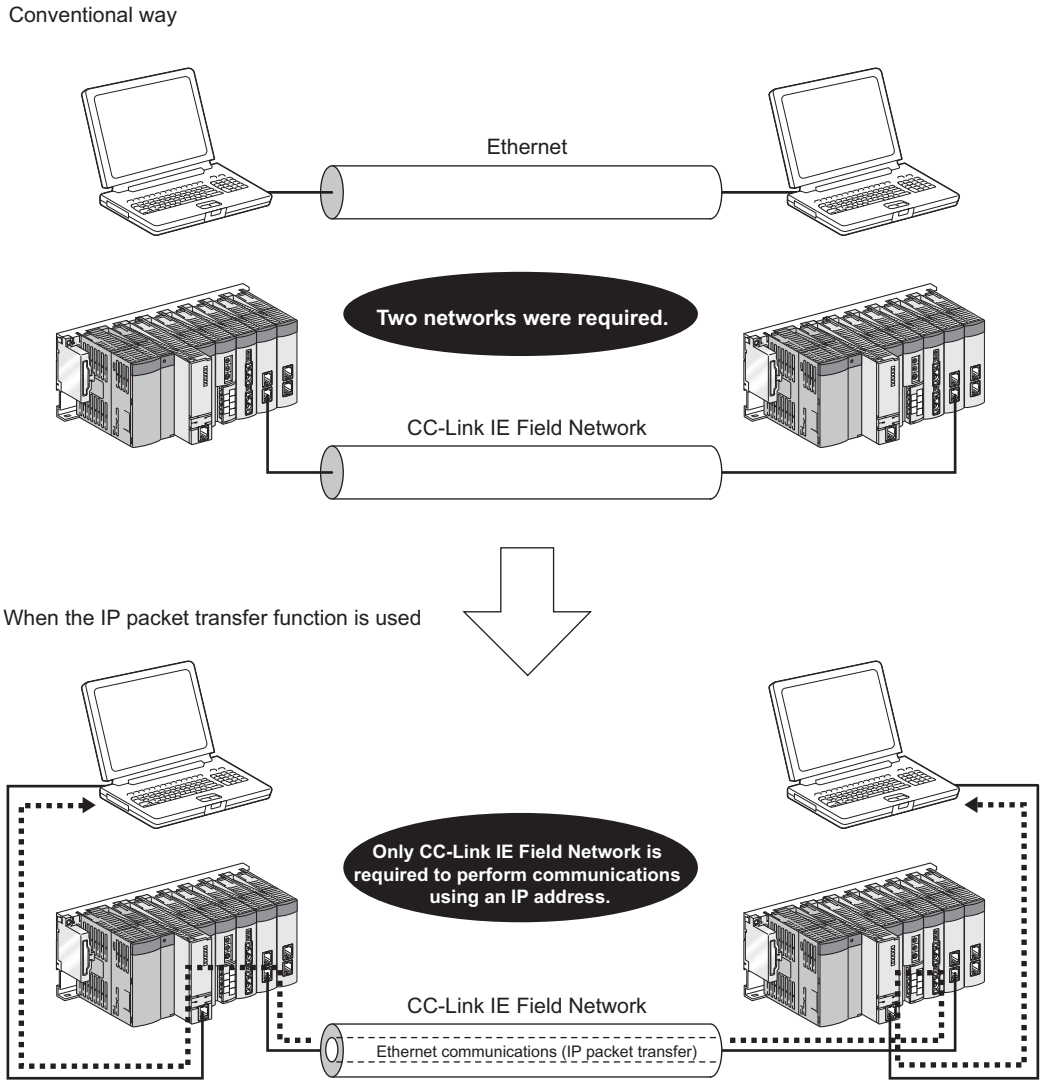



## Point

- Communications can be made with stations up to eight networks apart (number of relay stations: 7). (Page 238, Section 10.1 (1) (b))
- With GX Works2, the remote operation and clock settings cannot be set in units of groups on CC-Link IE Field Network.

# 8.3 IP Packet Transfer Function

Communications using the specified IP address can be performed over CC-Link IE Field Network.
For example, a personal computer can communicate with the FTP server.
With this function, two networks of CC-Link IE Field Network and Ethernet are not required, resulting in reduced wiring cost.




**Point**

The data that are communicated using the IP packet transfer function are communicated separately by the following process.

- Service process by a sequence scan of a CPU module
- Link scan on CC-Link IE Field Network

Because of this, the speed of communications using the IP packet transfer function is slower than the speed of communications with the Ethernet line. The reference speed of communications using the IP packet transfer function is described in Page 172, Section 8.3.8

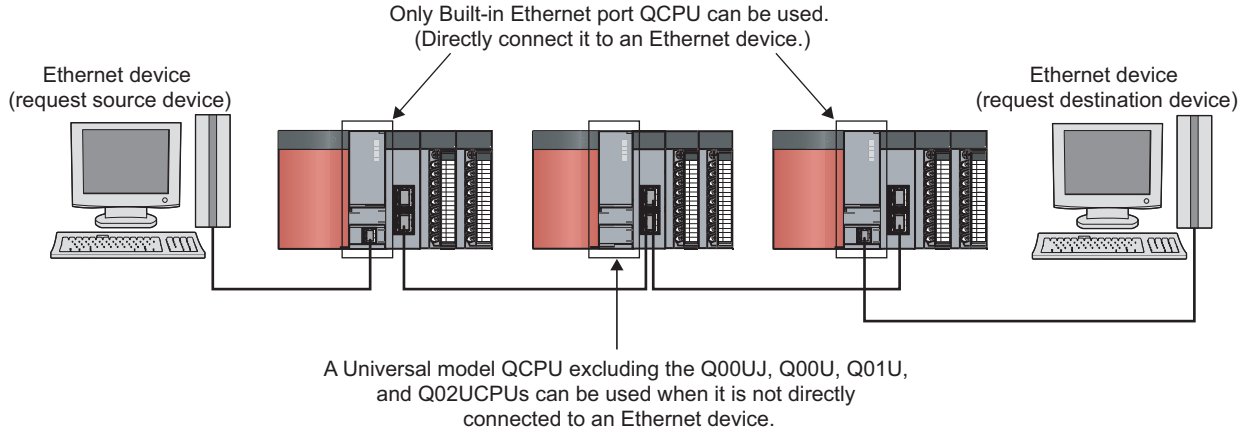
AbN automation

# 8.3.1 System configuration of the IP packet transfer function

The IP packet transfer function allows communications to be performed by connecting an Ethernet device to one of the following devices.

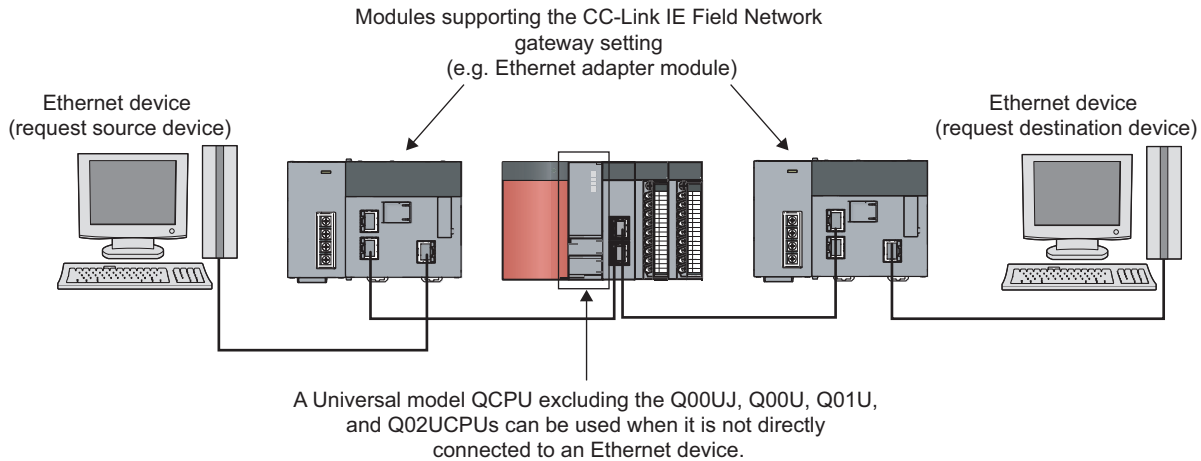
## (1) Connecting an Ethernet device to a CPU module

Connect an Ethernet device to an Ethernet port on a Built-in Ethernet port QCPU.
Note, however, that a Universal model QCPU (excluding the Q00UJ, Q00U, Q01U, and Q02UCPUs) other than a Built-in Ethernet port QCPU can be also connected to a CPU module that is not directly connected to an Ethernet device.



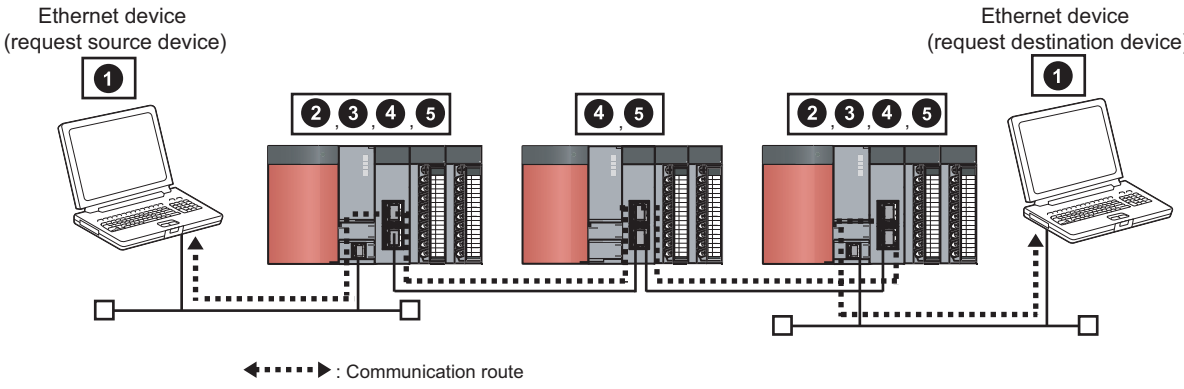

## (2) Connecting an Ethernet device to a module supporting the CC-Link IE Field Network gateway setting

Connect an Ethernet device to a module, such as an Ethernet adapter module, supporting the CC-Link IE Field Network gateway setting.
Doing so allows communications to be performed with an Ethernet device having a different network address.



# 8.3.2 How to set the IP packet transfer function

To use the IP packet transfer function, the following items need to be set.




1. Ethernet device gateway address setting
2. IP address of the CPU module (Page 152, Section 8.3.2 (2) (a))
3. IP packet transfer setting (Page 152, Section 8.3.2 (2) (a))
   This setting is required for the IP packet to be passed between a CPU module and a master/local module.
4. IP address of a master/local module (Page 155, Section 8.3.2 (2) (b))
5. Routing parameters (Page 119, Section 7.8)
   A communication route is set for communications with a different network.

2 and 3 need to be set only for the CPU module connected to an Ethernet device.

**Point**

- Ethernet device gateway address setting
  Set the IP address of the CPU module connected to an Ethernet device in the gateway address of the Ethernet device used.
  - When the Ethernet device is a personal computer
    It is recommended to configure the gateway address setting using the route command. (This only applies to an Ethernet device having the route command such as Microsoft® Windows®.)
    If the gateway address is set in the default gateway, packets not related to the IP packet transfer are also transmitted through the CPU module. Consequently, the service process of the CPU module drops under heavy load, causing other service processes to be slow or other problems.

    For the gateway address setting of when an Ethernet device is connected to a module other than a CPU module, refer to the manual for the module connected to the Ethernet device.
- Checking after the setting is completed
  Execute the IP communication test to check for an error in the communication route. (Page 156, Section 8.3.3)

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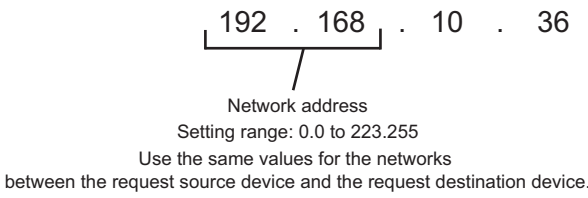
## (1) Rules for the IP address setting

The IP address of when using the IP packet transfer function need to satisfy the following rules.

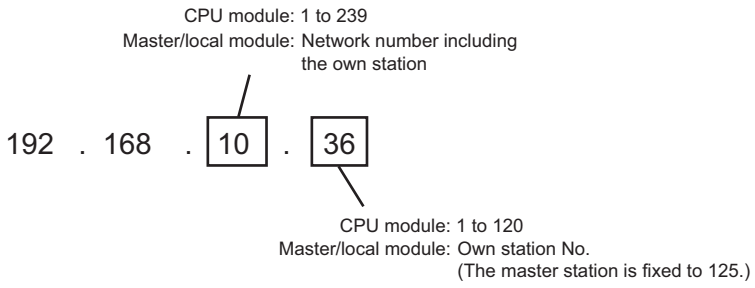
| Device to be set | Setting range of the IP address | | |
|---|---|---|---|
| | First and second octets | Third octet | Fourth octet |
| Ethernet device | ❶ 0.0 to 223.255*1 (Same numbers for the request source device, request destination device, and modules between them) | ❷, ❸, and ❹ 1 to 239*1 (Same number for the Ethernet device and the CPU module) | ❷ 1 to 120*1 |
| CPU module connected to the Ethernet device | | | |
| Master/local module | | ❷ and ❹ Automatically set (network number of the own station) 1 to 239 | ❷ Automatically set (station number of the own station) • 1 to 120 • 125 (125 is always set in the master station.) |
| Universal model QCPU on the communication route (not connected to an Ethernet device) | IP address setting not required | | |

*1 Set the numbers according to the range applicable to the Ethernet device used.
The range may not apply depending on the Ethernet device. Check the specifications of the Ethernet device used.

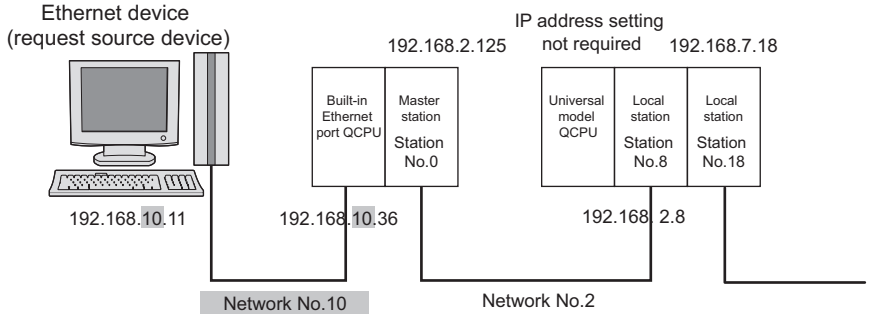
❶ Use the same numbers for the first and second octets of the IP addresses of the request source device, request destination device, and modules between them (network address).



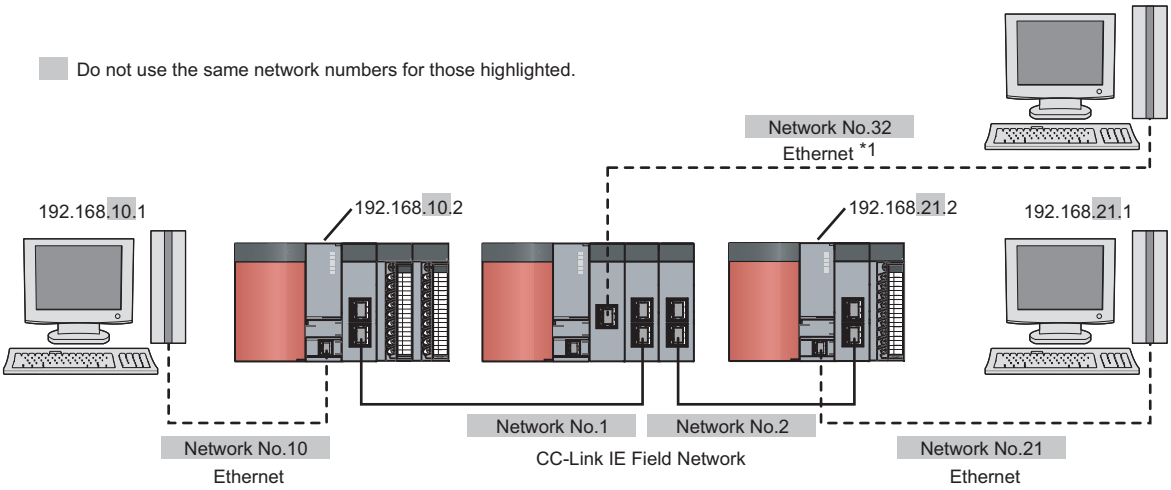

❷ Set the third and fourth octets of the IP address within the ranges described below. The network number of the own station is automatically assigned to the third octet of the IP address of the master/local module. The station number of the own station is automatically assigned to the fourth octet of the IP address of the master/local module. (The fourth octet of the IP address of the master station is always 125.)



❸ Use the same number for the third octet (network number) of the IP addresses of an Ethernet device and a CPU module connected to the Ethernet device.




❹ Do not use the third octet (network number) of the IP address same as that of other network modules and other CPU modules using the IP packet transfer function.




*1 Do not use the same network numbers for those of network modules other than the master/local module.

Ex. QJ71E71-100 (Ethernet interface module)

AbN automation

**Point**

- CC-Link IE Field Network gateway setting
  Through a module, such as an Ethernet adapter module, where the CC-Link IE Field Network gateway setting can be configured, any IP address can be used for the Ethernet device side. (Page 158, Section 8.3.4, Page 166, Section 8.3.7 (2))
  Note, however, that the network addresses on the CC-Link IE Field Network side must be the same.
  For the IP address setting range, refer to the following table.

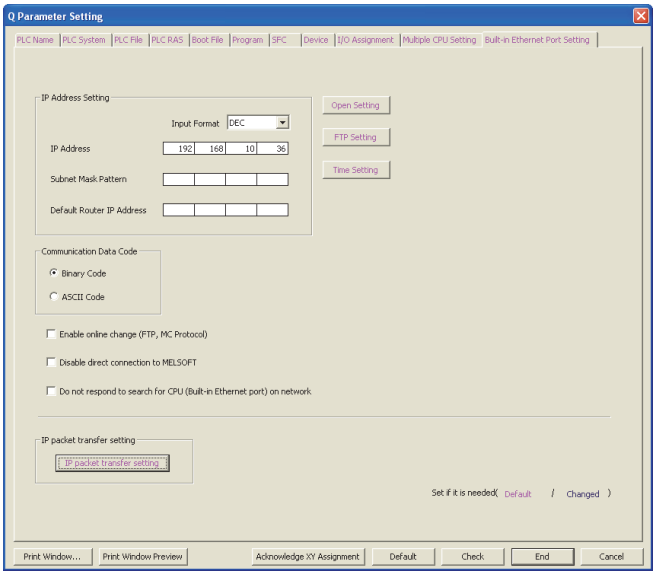
| Device to be set | Setting range of the IP address | | |
|---|---|---|---|
| | First and second octets | Third octet | Fourth octet |
| Ethernet device | Within the range applicable to the Ethernet device | | |
| Module supporting the CC-Link IE Field Network gateway setting | Within the range applicable to the module supporting the CC-Link IE Field Network gateway setting ( Manual for the module supporting the CC-Link IE Field Network gateway setting used) | | |
| Master/local module | 0.0 to 255.255 | Automatically set (network number of the own station)<br>1 to 239 | Automatically set (station number of the own station)<br>1 to 120<br>125 (125 is always set in the master station.) |
| Universal model QCPU on the communication route (not connected to an Ethernet device) | IP address setting not required | | |

- When setting the IP address in each device, do not use the IP addresses already used for other devices.

## (2) Setting procedure

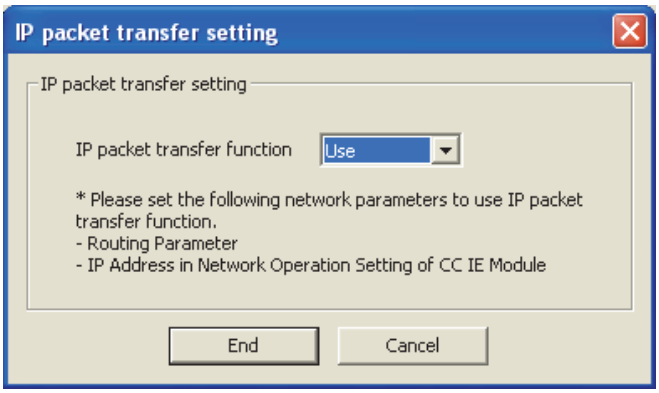
For a communication example, refer to Page 162, Section 8.3.7

### (a) Setting in the CPU module

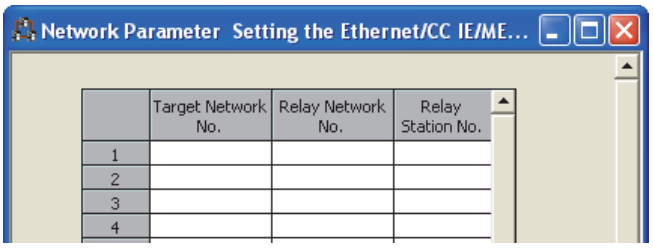



**1. Open the "Q Parameter Setting" window to set the IP address.**

Project window ⇨ [Parameter] ⇨ [PLC Parameter] ⇨ "Built-in Ethernet Port Setting" Follow the rules to set the address. (☞ Page 149, Section 8.3.2 (1))



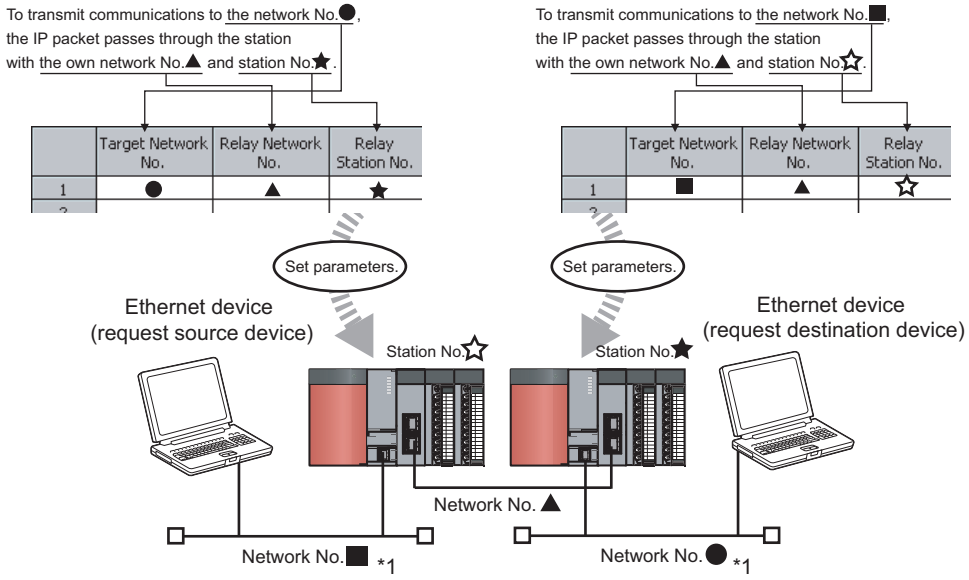

**2. Click the** IP packet transfer setting **button. Then select "Use".**




**3. Set the routing parameters.**

Project window ⇨ [Parameter] ⇨ [Network Parameter] ⇨ [Ethernet/CC IE/MELSECNET] ⇨ Routing Parameters button

For details on the routing parameters, refer to the following.

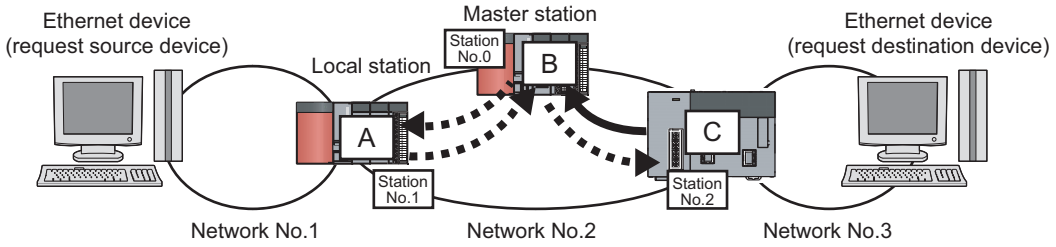
| Item | Description |
|---|---|
| Target Network No.<br>Relay Network No.<br>Relay Station No. | Set the own network station where communications are transmitted through to reach the Ethernet device.<br>Set the routing parameters for all the CPU modules on the communication route.<br>Set the routing parameters as follows.<br>Ex. When the network address of the Ethernet device and CPU module is the same as that of the master station<br>  |

*1 When the network address of the Ethernet device and CPU module is the same as that of the master station, the third octet of the IP address of the Ethernet device side is used as a network number.
When the network address of the Ethernet device and CPU module is different from that of the master station, refer to the example of communications to access a different network address. (Page 166, Section 8.3.7 (2))

## Point

- When an Ethernet device is connected to a module, such as an Ethernet adapter module, that does not support the routing parameters
  Set the routing parameters so that communications are transmitted through the master station.
  Communications from a module that does not have the routing parameters are automatically transmitted through the master station. The communication routes must be the same for data sending and receiving; therefore, configure the setting so that communications are transmitted through the master station.

**Ex.** Proper setting




Setting for A

| Target Network No. | Relay Network No. | Relay Station No. |
|---|---|---|
| 3 | 2 | **0** |

Setting for B

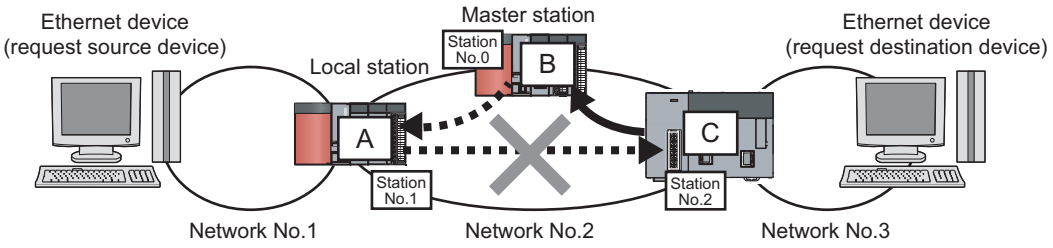
| Target Network No. | Relay Network No. | Relay Station No. |
|---|---|---|
| 1 | 2 | 1 |
| 3 | 2 | 2 |

Setting for C

The setting is not required because the module does not have the routing parameters.

Set this column to pass communications through the master station.

**Ex.** Improper setting




Setting for A

| Target Network No. | Relay Network No. | Relay Station No. |
|---|---|---|
| 3 | 2 | **2** |

Setting for B

| Target Network No. | Relay Network No. | Relay Station No. |
|---|---|---|
| 1 | 2 | 1 |

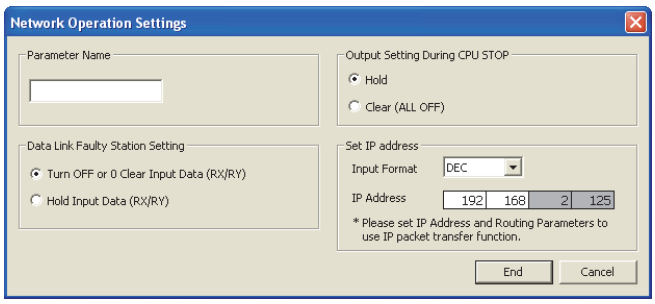
Setting for C

The setting is not required because the module does not have the routing parameters.

Because the communication route for data sending is different from that for data receiving, an error occurs.*1

*1 An IP communication test related error (error code: $4A28_H$) occurs in the IP communication test.

### (b) Setting in the master station




**1. Open the "Network Operation Settings" window.**

Project window ⇨ [Parameter] ⇨ [Network Parameter] ⇨ [Ethernet/CC IE/MELSECNET] ⇨ Network Operation Settings button

**2. In the "Set IP address" field, set the network address.**

Follow the rules to set the address. (☞ Page 149, Section 8.3.2 (1))

**Remark**

When configuring the setting in the submaster station, set the same network address as that of the master station.

### (c) Setting in the local stations

The IP address setting is not required for the local stations.

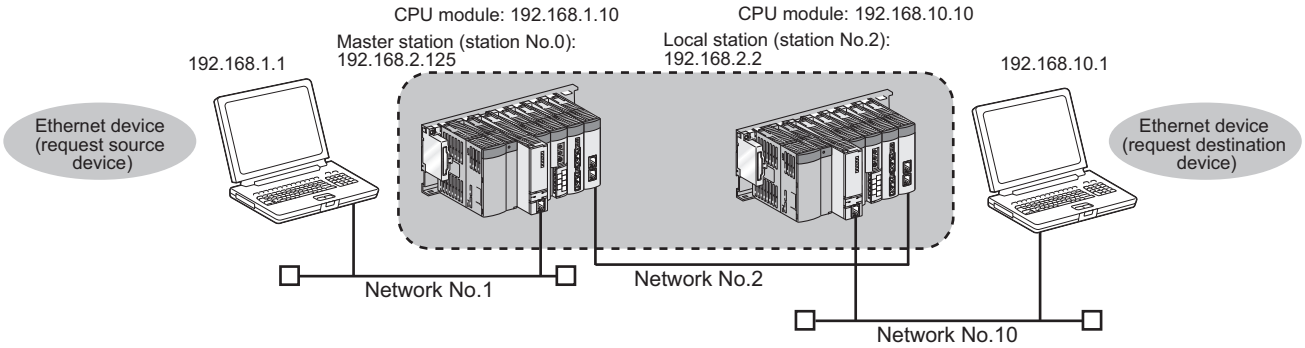
The same network address as the master station is automatically assigned to the first and second octets. The network number of the own station is assigned to the third octet, and the station number of the own station is assigned to the fourth octet.

# 8.3.3 IP communication test

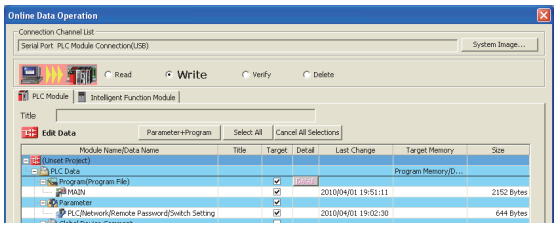
When the IP packet transfer function is used, whether no error occurs in the communication route within CC-Link IE Field Network is checked. The following can be checked using the IP communication test:

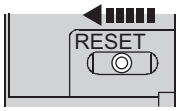
- Cables are properly connected on the communication route.
- Parameters related to the IP packet transfer function, such as an IP address and routing parameters, are correctly set on the communication route.
- All the CPU modules and master/local modules on the communication route support the IP packet transfer function.

The following system configuration is used to explain the procedure of the IP communication test.




The IP communication test allows the communication paths in the dotted line above to be checked.



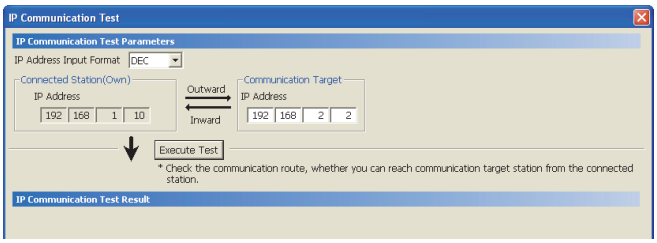




or power OFF→ON

1. **Set parameters for the CPU module and master/local module. (Page 148, Section 8.3.2)**
2. **Write the set parameters to the CPU module using GX Works2.**

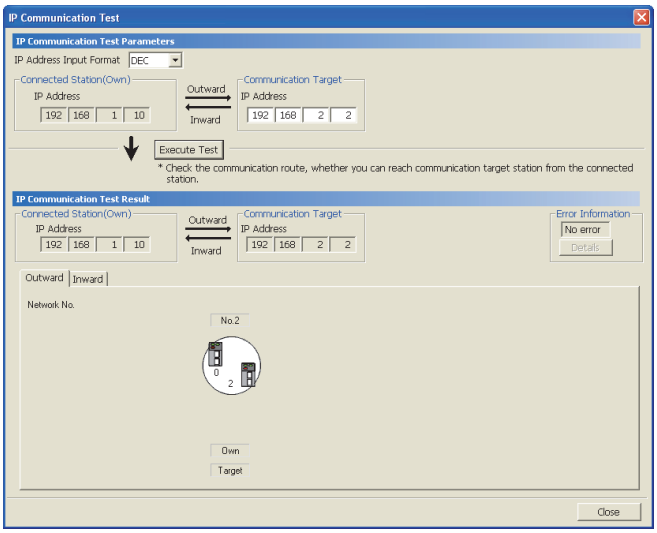
   [Online] ⇨ [Write to PLC]

3. **Reset the CPU module or power off and on the system.**




**4.** **Open the "IP Communication Test" window. Enter the IP address of the CPU module or the master/local module connected to the request destination device in "Communication Target".**
**When the module that is connected to the request destination device is an Ethernet adapter module, enter the IP address of the request destination device in "Communication Target".**

[Diagnostics] ⇨ [CC IE Field Diagnostics] ⇨ IP Communication Test... button




**5.** **Click the Execute Test button to execute the test.**

When the test is completed, the route to the device set in "Communication Target" is displayed on the underside of the window.
When the window is displayed as shown in the figure to left, the test is successful.

If the test fails, click the Details button in the "Error Information" area to check the error information.

- In the "Outward" tab, the communication route from the device set in "Selected Station" to the device set in "Communication Target" is displayed.
- In the "Inward" tab, the communication route from the device set in "Communication Target" to the device set in "Selected Station" is displayed.

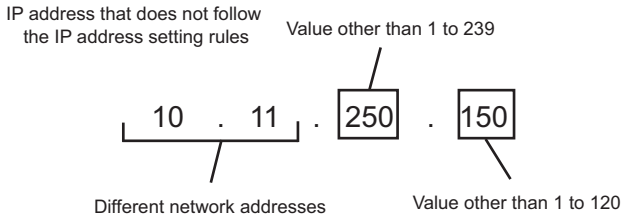
## Point

- If the cause cannot be identified from the error information after the IP communication test is executed, or communications cannot be performed even though the IP communication test is normally completed, follow the troubleshooting instructions and take corrective actions. (Page 437, Section 12.4.6)
- Up to 127 levels of modules can be connected when the IP communication test is executed.
- When an Ethernet device (request destination device) is connected to a CPU module, the communication route to the CPU module connected to the Ethernet device (request destination device) or master/local module can be checked using the IP communication test.
  Setting the IP address of the Ethernet device in "Communication Target" on the "IP Communication Test" window causes an error (error code of the CPU module: $4A2A_H$).
- When an Ethernet device (request destination device) is connected to an Ethernet adapter module, the communication route to the Ethernet device (request destination device) can be checked using the IP communication test.
  For the IP communication test performed from an Ethernet adapter module, refer to the manual for the Ethernet adapter module.

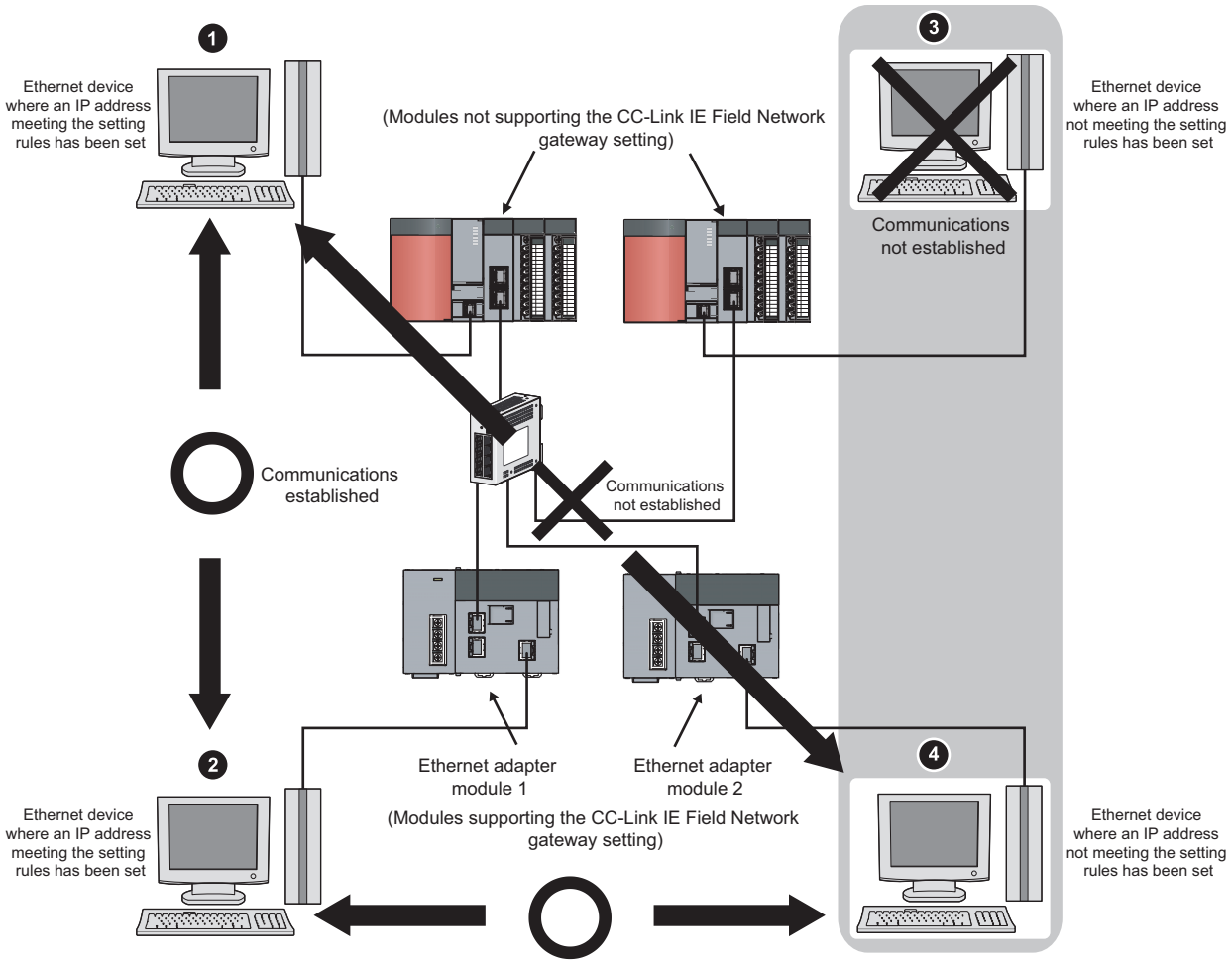
# 8.3.4 Accessible range

The accessible range differs depending on whether the conditions listed in Page 149, Section 8.3.2 (1) are met or not.

- When one of the Ethernet devices does not have an IP address that does not meet the IP address setting rules, both of the request source device and request destination device need to be connected to a module, such as an Ethernet adapter module, supporting the CC-Link IE Field Network gateway setting. Configuring the CC-Link IE Field Network gateway setting allows communications to be performed. ( Manual for the module supporting the CC-Link IE Field Network gateway setting used)
- To perform communications between Ethernet devices with an IP address following the setting rules, a module supporting the CC-Link IE Field Network gateway setting is not required to be connected.



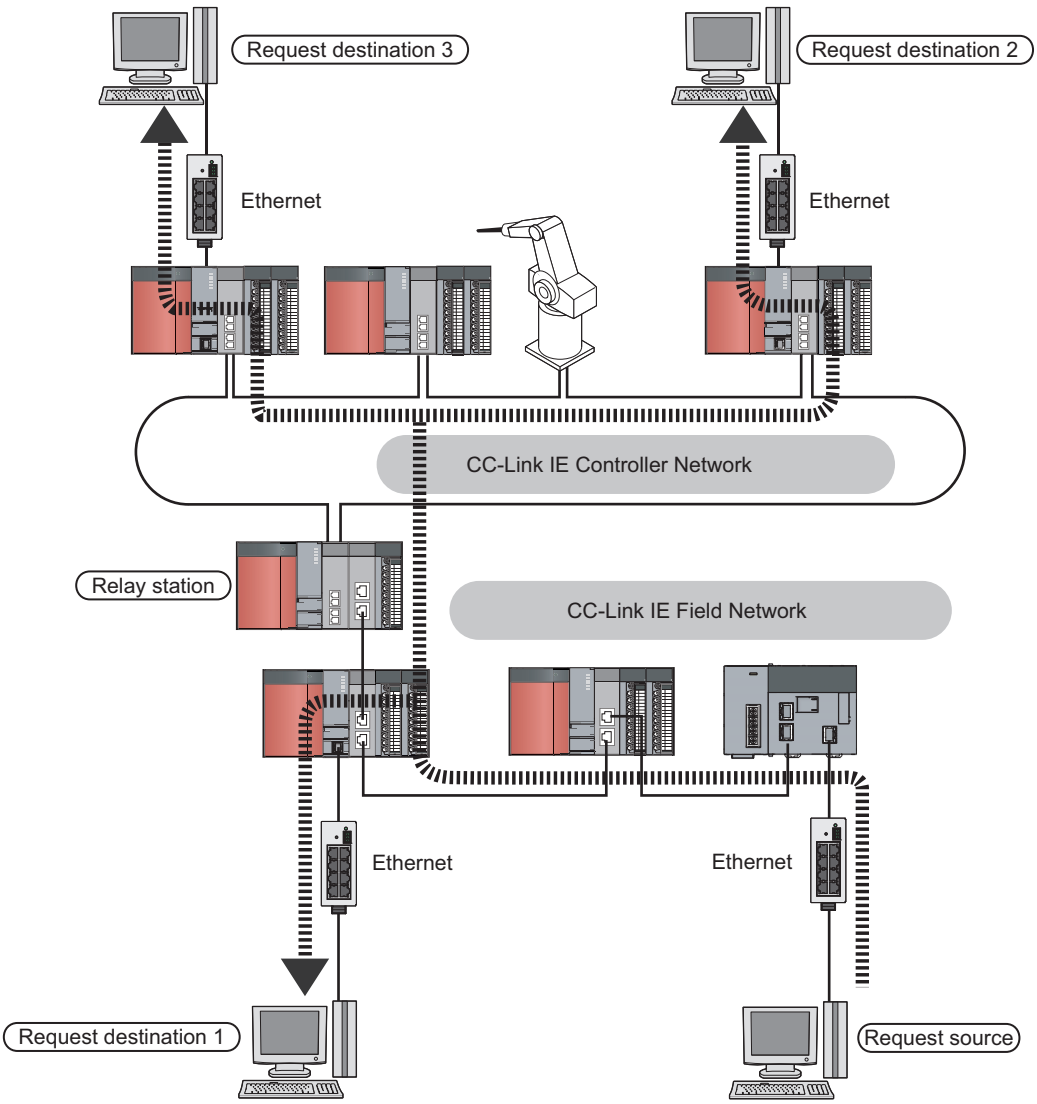

Ex. Range of communications of when ❸ and ❹ are Ethernet devices with an IP address that does not meet the IP address setting rules



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# 8.3.5 Relay using CC-Link IE Controller Network

The IP packet transfer function can be used through a relay from CC-Link IE Field Network to CC-Link IE Controller Network.




**Point**

When using the IP packet transfer function on CC-Link IE Controller Network, refer to the following.

Manual for the CC-Link IE Controller Network module used

# 8.3.6 Precautions

## (1) Modules supporting the IP packet transfer function

### (a) Master/local module and GX Works2

Before using the IP packet transfer function, check the versions of the master/local module and GX Works2.

(☞ Page 546, Appendix 8)

### (b) CPU module

To use the IP packet transfer function, all the CPU modules on the communication route must support the function. For supporting CPU module versions, refer to the following.

📖 QnUCPU User's Manual (Function Explanation, Program Fundamentals)

### (c) Modules other than those listed above

To use the IP packet transfer function with a module other than those listed above, check the version to see if the module supports the IP packet transfer function. For how to check the version, refer to the sections listing functions and added functions on the manual for the module used.

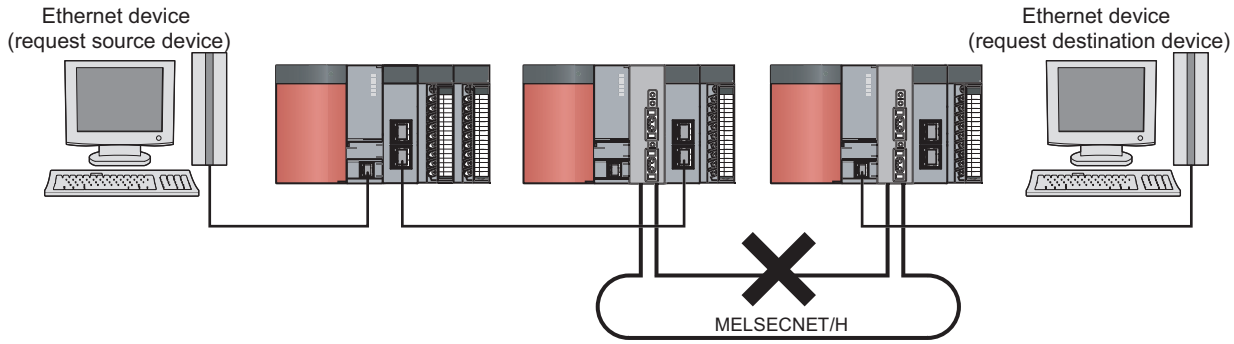
## (2) Communications before a baton pass is established (the D LINK LED turns off)

The IP packet transfer function can be used before a baton pass is established. If communications are performed before that, a timeout error occurs in an Ethernet device (request source device). Whether the baton pass is established in the own station can be checked on the D LINK LED.

## (3) Using other networks

Communications cannot be performed via modules that do not support the IP packet transfer function such as MELSECNET/H.

Ex. Communications over MELSECNET/H




## (4) Precautions when using the UDP communication

Using UDP may reduce the reliability of data communications compared to TCP, causing a problem, such as data missing and changed order of data receiving. If any problem occurs, change the protocol to TCP.

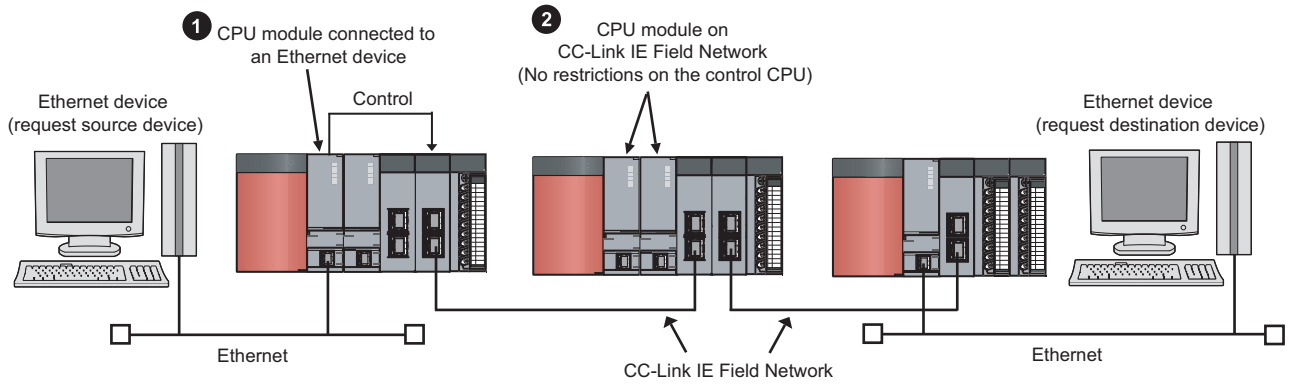
## (5) Communications of Broadcast and Multicast

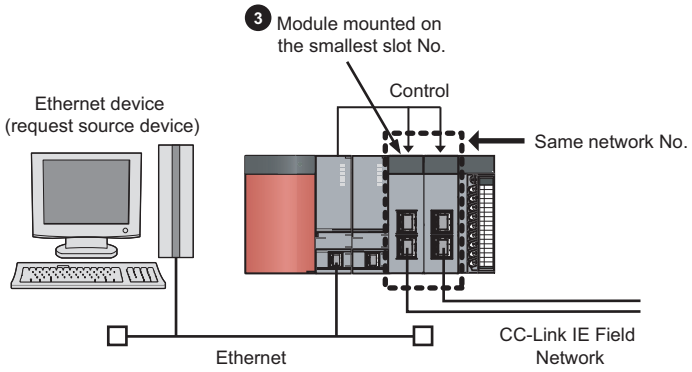
Communications of Broadcast and Multicast cannot be transferred using the IP packet transfer function. Use Unicast (identifying a single request destination) instead.

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## (6) Precautions when configuring a multiple CPU system

1. Set a CPU module connected to an Ethernet device as a control CPU of the master/local module performing the IP packet transfer.
2. Any QnUCPU in a relay station on CC-Link IE Field Network can be served as a control CPU of the master/local module transferring the IP packet.
3. When multiple master/local modules with the same network number are connected to one system, the master/local module with the smallest slot number transfers the IP packet.
   To transfer the IP packet, connect the Ethernet device to a control CPU of the master/local module with the same network number and smallest slot number.

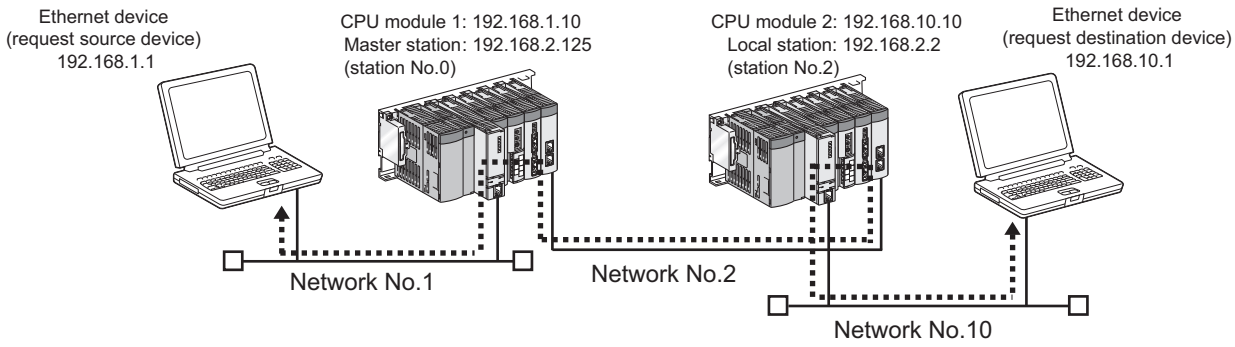


# 8.3.7 Example of communications using the IP packet transfer function

## (1) When the request source device and request destination device have the same network address

The following system configuration is used to explain an example of communications.

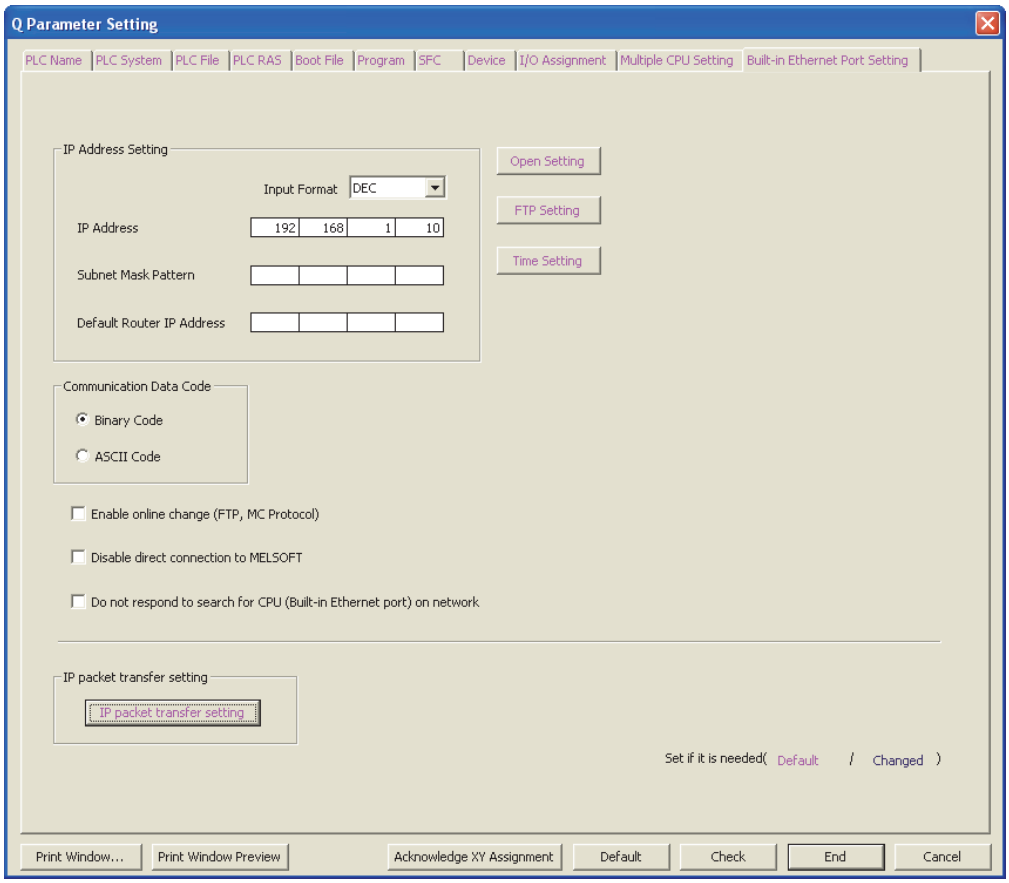



◀------▶: Route through which IP packets are passed (Routing parameters must be set.)

### (a) Setting in the CPU module 1 and master station (station number 0)

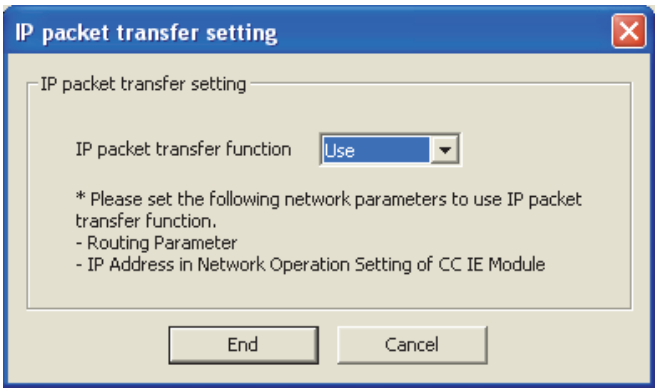
***1.*** **Set the IP address in the CPU module 1.**

Project window ⇨ [Parameter] ⇨ [PLC Parameter] ⇨ "Built-in Ethernet Port Setting"



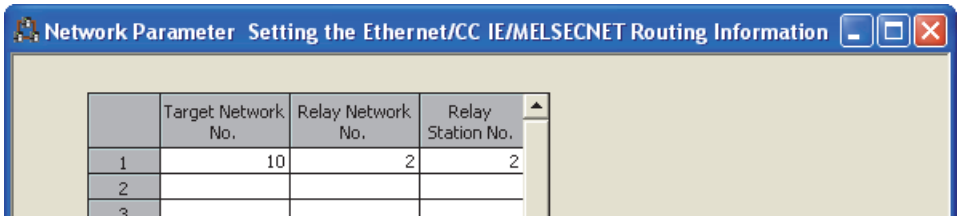
**2. Configure the IP packet transfer setting in the CPU module 1.**

Project window ⇨ [Parameter] ⇨ [PLC Parameter] ⇨ "Built-in Ethernet Port Setting" ⇨ IP packet transfer setting button



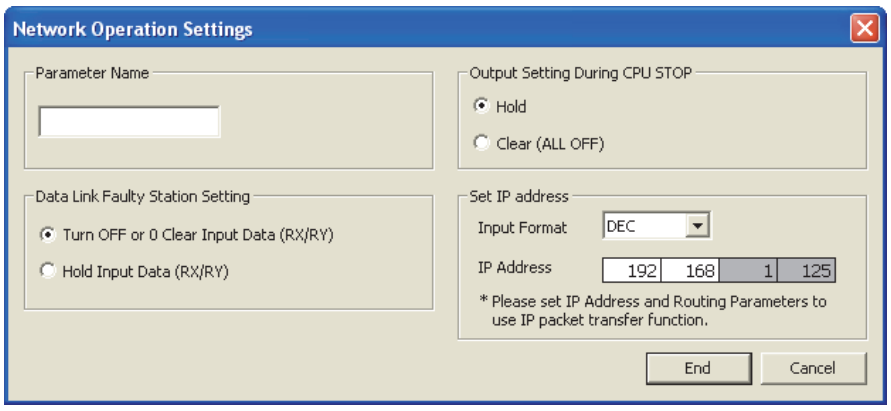

**3. Set the routing parameters in the CPU module 1.**

Project window ⇨ [Parameter] ⇨ [Network Parameter] ⇨ [Ethernet/CC IE/MELSECNET] ⇨ Routing Parameters button



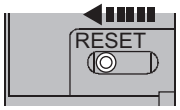

**4. Set the IP address in the master station (station number 0).**

Project window ⇨ [Parameter] ⇨ [Network Parameter] ⇨ [Ethernet/CC IE/MELSECNET] ⇨ Network Operation Settings button




**5. Write the set parameters to the CPU module 1. Then reset the CPU module 1 or power off and on the system.**

[Online] ⇨ [Write to PLC]

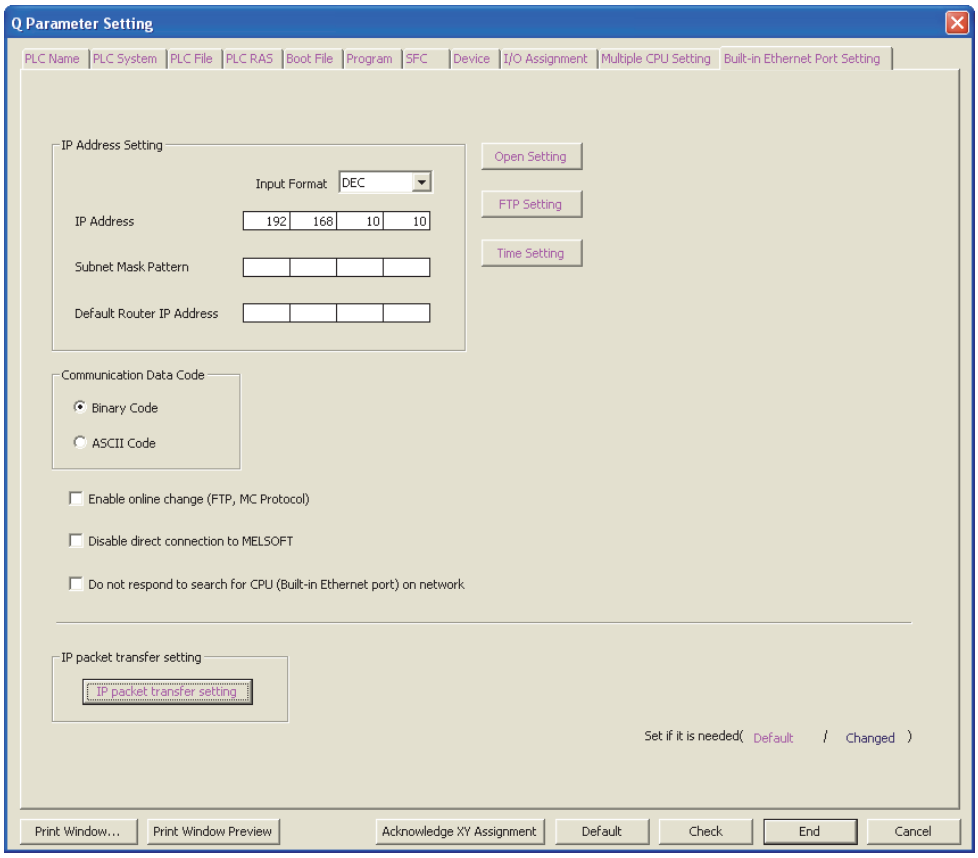



or Power OFF→ON

### (b) Setting in the CPU module 2 and local station (station number 2)

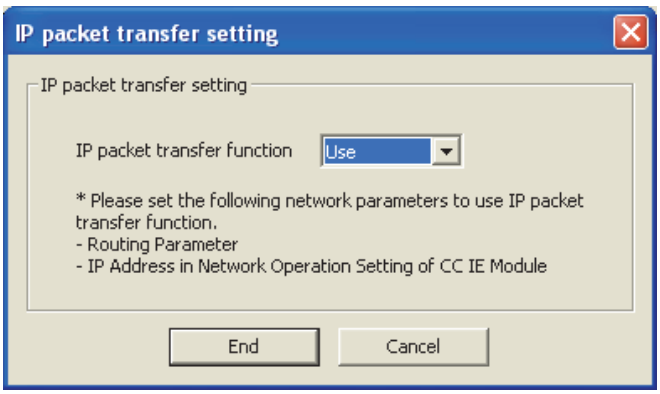
#### 1. Set the IP address in the CPU module 2.

Project window ⇨ [Parameter] ⇨ [PLC Parameter] ⇨ "Built-in Ethernet Port Setting"



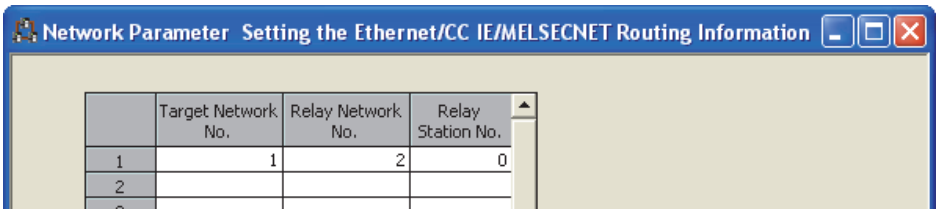

#### 2. Configure the IP packet transfer setting in the CPU module 2.

Project window ⇨ [Parameter] ⇨ [PLC Parameter] ⇨ "Built-in Ethernet Port Setting" ⇨ IP packet transfer setting button



**3.** **Set the routing parameters in the CPU module 2.**

Project window ⇨ [Parameter] ⇨ [Network Parameter] ⇨ [Ethernet/CC IE/MELSECNET] ⇨ Routing Parameters button

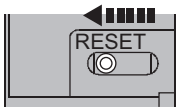



**4.** **The local station (station number 2) does not require an IP address.**

The network address set in the master station (station number 0) is automatically assigned.

**5.** **Write the set parameters to the CPU module 2. Then reset the CPU module 2 or power off and on the system.**

[Online] ⇨ [Write to PLC]



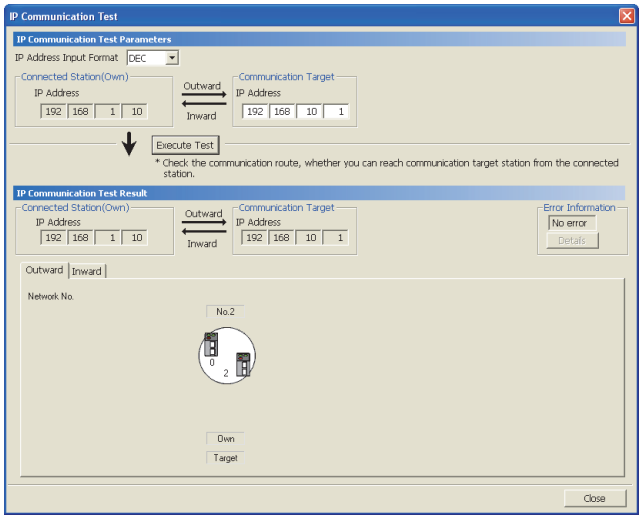

or Power OFF→ON

## (c) Checking the status of communications

After the setting is completed in each module, execute the IP communication test to check for an error in the communication route on CC-Link IE Field Network. (☞ Page 156, Section 8.3.3)

- When the IP communication test is normally completed

  The following window appears.

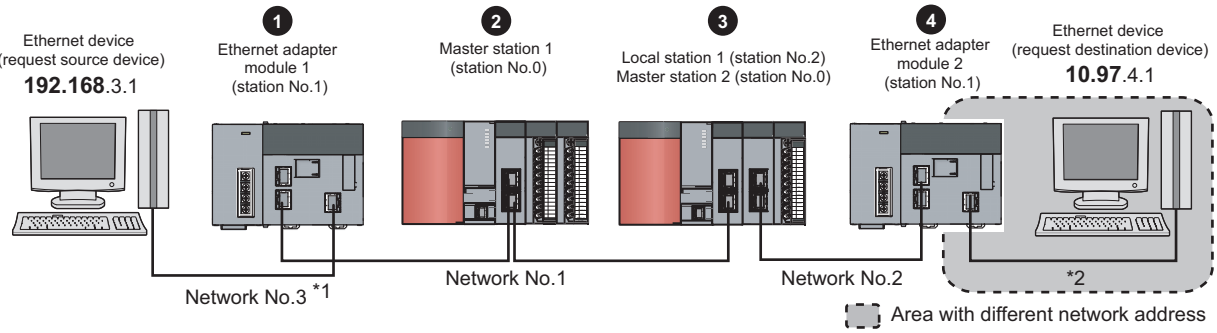



- When the IP communication test ends abnormally

  If the test ends abnormally, click the Details button in "Error Information" to check the error information. If IP communications cannot be performed due to a timeout error or other reasons, refer to "IP communications cannot be performed using the IP packet transfer function" in this manual and take corrective actions. (☞ Page 437, Section 12.4.6)

## (2) When accessing an Ethernet device with a different network address

The following system configuration is used to explain an example of communications.




| No. | Module transferring the IP packet | | IP address |
|---|---|---|---|
| 1 | Ethernet adapter module 1 (station No.1) | Ethernet part | 192.168.3.30 |
| | | CC-Link IE Field Network part | 192.168.1.1 |
| 2 | Master station 1 (station No.0) | | 192.168.1.125 |
| 3 | Local station 1 (station No.2) | | 192.168.1.2 |
| | Master station 2 (station No.0) | | 192.168.2.125 |
| 4 | Ethernet adapter module 2 (station No.1) | Ethernet part | 10.97.4.2 |
| | | CC-Link IE Field Network part | 192.168.2.1 |

*1 When the network address of the Ethernet device and Ethernet adapter module (Ethernet part) is the same as that of the master station, the third octet of the IP address of the Ethernet device side is used as a network number. In the routing parameters of the CPU module, set the communication route to the network number 3.

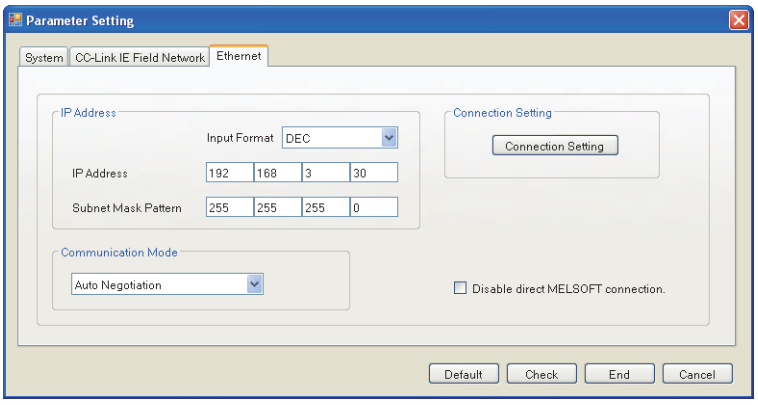
*2 Because the network address of the Ethernet device (request destination device) is different from that of the master station, the Ethernet part does not have a network number. In the routing parameters, set the communication route to the network number 2.

### (a) Setting in the Ethernet adapter module 1 (station number 1)

**1. Set the IP address in the Ethernet adapter module 1 (Ethernet part).**

Use the configuration tool to set the IP address in the Ethernet adapter module 1 (Ethernet part).

Setting item tree ⇨ NZ2GF-ETB ⇨ [Parameter] ⇨ "Ethernet"

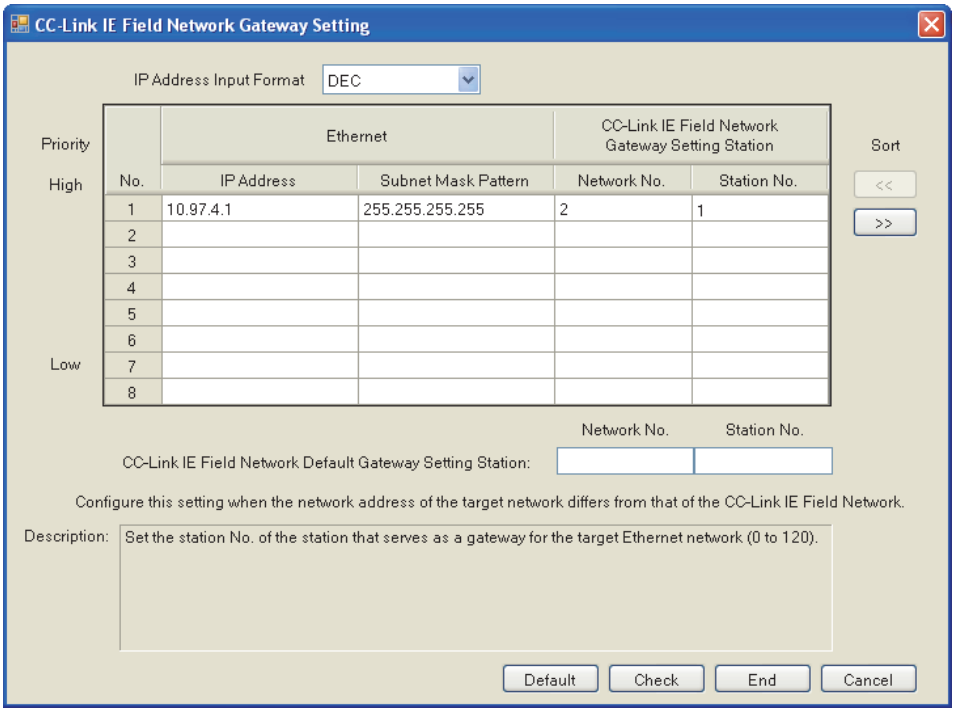



**2. The IP address setting is not required for the Ethernet adapter module 1 (CC-Link IE Field Network part).**

The network address set in the master station 1 (station number 0) is automatically assigned.

**3.** **Configure the CC-Link IE Field Network gateway setting in the Ethernet adapter module 1.**

Setting item tree ⇨ NZ2GF-ETB ⇨ [Parameter] ⇨ "CC-Link IE Field Network" ⇨ CC-Link IE Field Network Gateway Setting



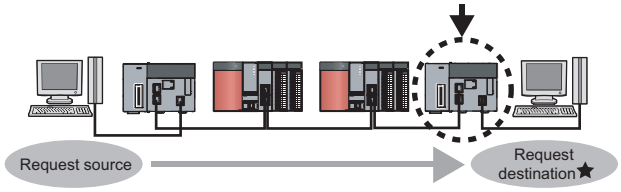

## Point

Configure the setting as follows.

To transmit communications to the request destination★, the IP packet passes through the station with the network address No.▲ and station No.■.




Station where the IP packet passes through last (Network No.▲, station No.■)




**4.** **Write the set parameters to the Ethernet adapter module 1.**

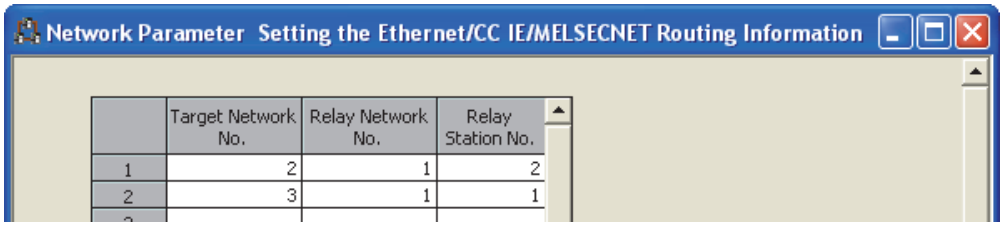
[Online] ⇨ [Write]

### (b) Setting in the CPU module 1 and master station 1 (station number 0)

**1. Set the routing parameters to the CPU module 1.**

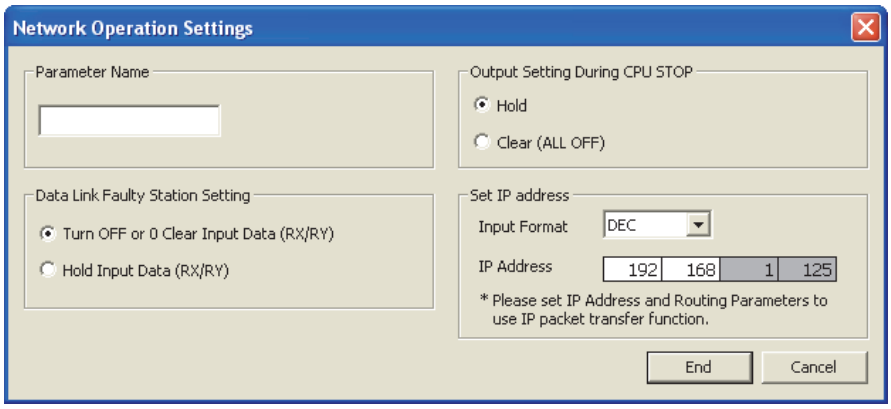
Because the network address is different from that of the request destination device, the Ethernet adapter module 2 (Ethernet part) does not have a network number. Set the communication route to the network number 2.

Project window ⇨ [Parameter] ⇨ [Network Parameter] ⇨ [Ethernet/CC IE/MELSECNET] ⇨ Routing Parameters button



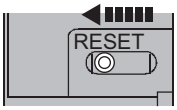

**2. Set the IP address in the master station 1 (station number 0).**

Project window ⇨ [Parameter] ⇨ [Network Parameter] ⇨ [Ethernet/CC IE/MELSECNET] ⇨ Network Operation Settings button




**3. Write the set parameters to the CPU module 1. Then reset the CPU module or power off and on the system.**

[Online] ⇨ [Write to PLC]

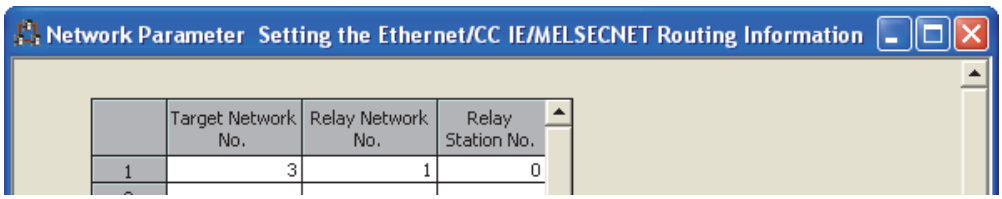



or Power OFF→ON

### (c) Setting in the CPU module 2, local station 1 (station number 2), and master station 2 (station number 0)

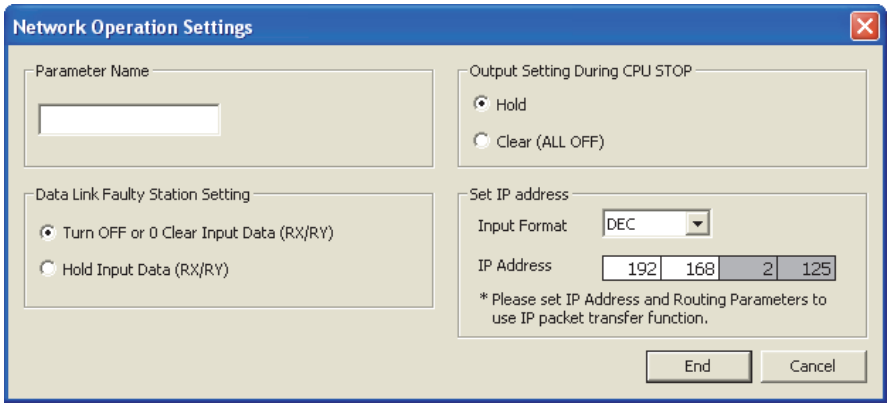
**1. Set the routing parameters to the CPU module 2.**

Project window ⇨ [Parameter] ⇨ [Network Parameter] ⇨ [Ethernet/CC IE/MELSECNET] ⇨ Routing Parameters button




**2. Set the IP address in the master station 2 (station number 0).**

Project window ⇨ [Parameter] ⇨ [Network Parameter] ⇨ [Ethernet/CC IE/MELSECNET] ⇨ Network Operation Settings button

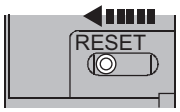



**3. The IP address setting is not required for the local station 1 (station number 2).**

The network address set in the master station 1 (station number 0) is automatically assigned.

**4. Write the set parameters to the CPU module 2. Then reset the CPU module 2 or power off and on the system.**

[Online] ⇨ [Write to PLC]



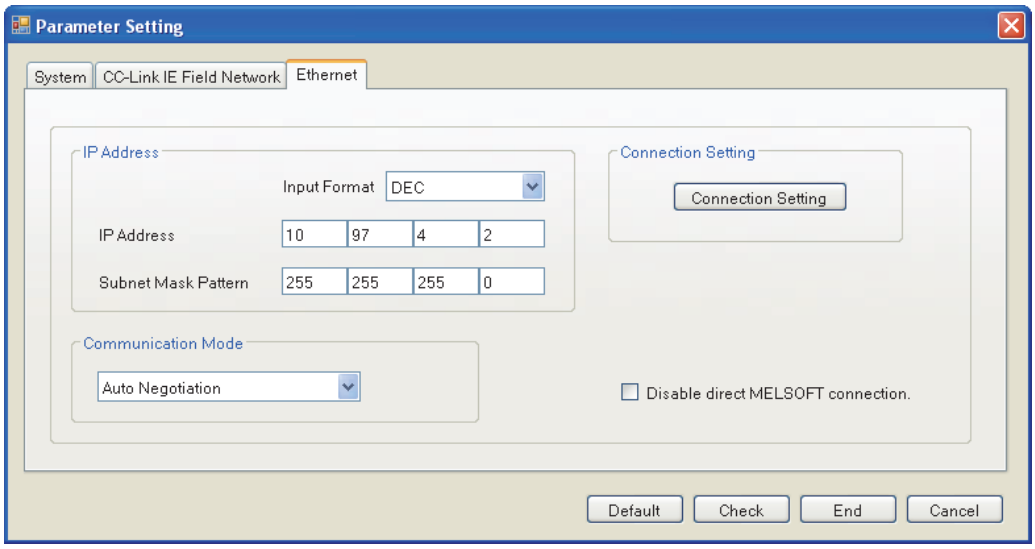

or Power OFF→ON

### (d) Setting in the Ethernet adapter module 2 (station number 1)

**1. Set the IP address to the Ethernet adapter module 2 (Ethernet part).**

Use the configuration tool to set the IP address in the Ethernet adapter module 2 (Ethernet part).

Setting item tree ⇨ NZ2GF-ETB ⇨ [Parameter] ⇨ "Ethernet"




**2. The IP address setting is not required for the Ethernet adapter module 2 (CC-Link IE Field Network part).**

The network address set in the master station 2 (station number 0) is automatically assigned.

**3. The CC-Link IE Field Network gateway setting is not required for the Ethernet adapter module 2.**

Because the network address of the request destination (Ethernet adapter module 1) is the same as that of the master station, setting only the communication route in the routing parameters allows communications to be performed with the request destination.

**4. Write the set parameters to the Ethernet adapter module 2.**

[Online] ⇨ [Write]

## (e) Checking the status of communications

After the setting is completed in each module, execute the IP communication test using the configuration tool of the Ethernet adapter module. Then check for an error in the communication route between the Ethernet device (request source device) and Ethernet device (request destination device).

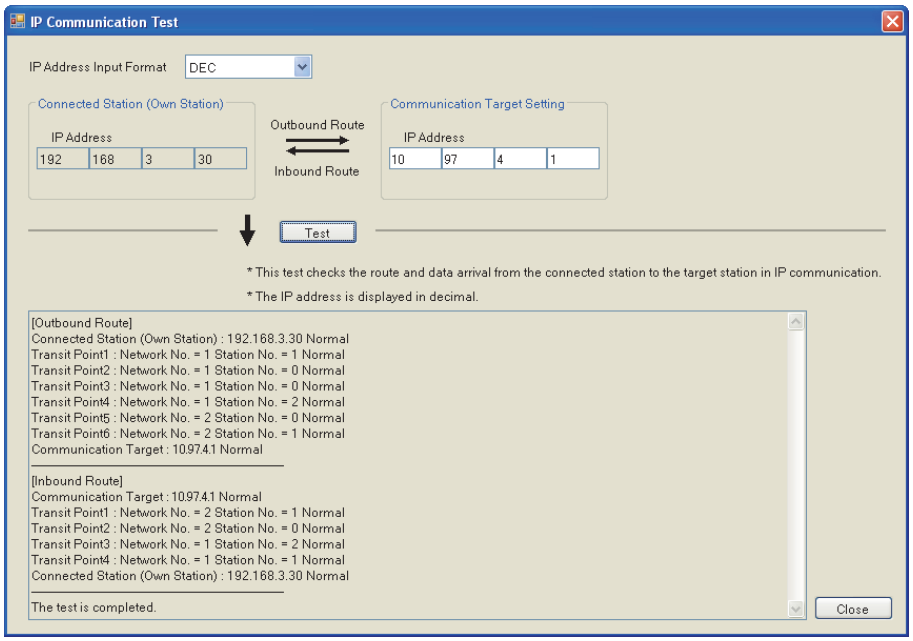
[Online] ⇨ [Diagnostics] ⇨ IP Communication Test... button

For the IP communication test using the configuration tool, refer to the following.

CC-Link IE Field Network Ethernet Adapter Module User's Manual

- When the IP communication test is normally completed

  The following window appears.




- When the IP communication test ends abnormally

  If IP communications cannot be performed due to a timeout error or other reasons, refer to "Communications cannot be performed using the IP packet transfer function" in the manual for the Ethernet adapter module and take corrective actions.

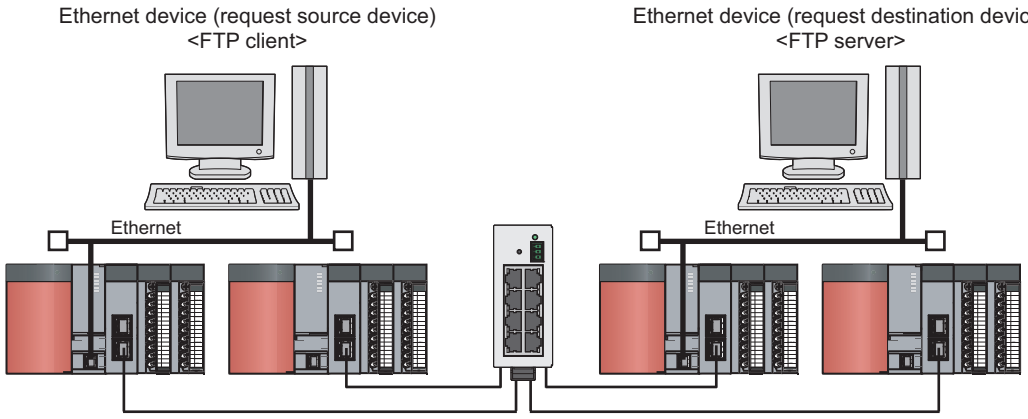
# 8.3.8 Communication speed

This section provides the results of communication speed measured using the IP packet transfer function. Use the results as a reference.

## (1) When a request source device and a request destination device are connected to a CPU module

The results are based on measurement when FTP communications are performed with four modules connected in star topology.

### (a) System configuration




| Device | Description | |
|---|---|---|
| Ethernet device (request source device)<br><FTP client> | CPU | Intel®Core™ 2 Duo processor 2.80GHz |
| | OS | Microsoft® Windows® 7 Professional Operating System |
| | Ethernet board | 1000BASE-T |
| | FTP client application | FFFTP |
| Ethernet device (request destination device)<br><FTP server> | CPU | Intel®Core™ i5 processor 2.67GHz |
| | OS | Microsoft® Windows® 7 Professional Operating System |
| | Ethernet board | 1000BASE-T |
| | FTP server application | FileZilla Server |
| Programmable controller | CPU module | Q06UDEHCPU<br>• Sequence scan time: 1ms<br>• Service processing setting: performed according to the proportion of scan time (10%) |
| | CC-Link IE Field Network | • Cyclic transmission<br>RX/RY setting : 128 points assigned to each station<br>RWw/RWr setting : 256 points assigned to each station<br>• Transient transmission<br>N/A |

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### (b) Measurement result of the communication speed

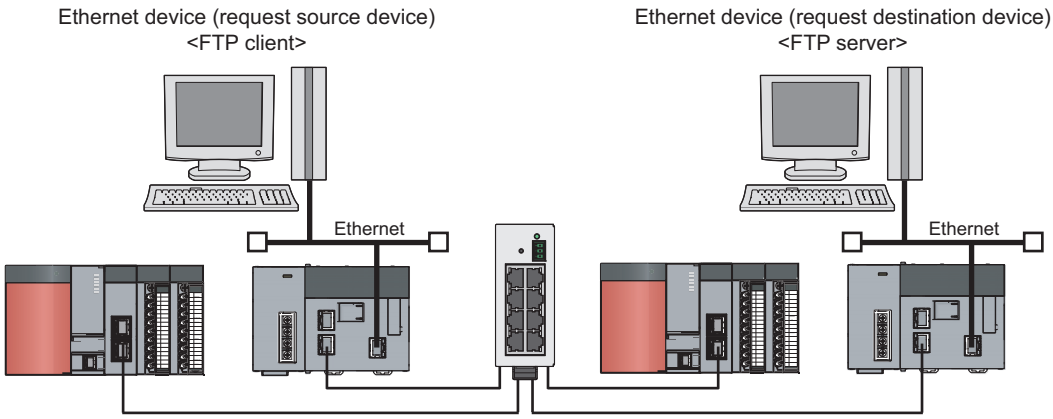
The following table lists the time that takes until a file is read from a request source device to a request destination device.

| Size of a file to be communicated | Time |
|---|---|
| 1K byte | 10ms |
| 50K bytes | 200ms |
| 100K bytes | 400ms |
| 1M byte | 4000ms |

## (2) When a request source device and a request destination device are connected to an Ethernet adapter module

The results are based on measurement when FTP communications are performed with four modules connected in star topology.

### (a) System configuration




| Device | Description |
|---|---|
| Ethernet device (request source device)<br><FTP client> | Same as those when a request source device and a request destination device are connected to a CPU module (Page 172, Section 8.3.8 (1) (a)) |
| Ethernet device (request destination device)<br><FTP server> | |
| Programmable controller | |

### (b) Measurement result of the communication speed

The following table lists the time that takes until a file is read from a request source device to a request destination device.

| Size of a file to be communicated | Time |
|---|---|
| 1K byte | 10ms |
| 50K bytes | 300ms |
| 100K bytes | 500ms |
| 1M byte | 5000ms |

## (3) To increase communication speed

Communication speed can be increased by checking the following items again.

<table>
<tr><th>Item</th><th>Description</th></tr>
<tr><td>Sequence scan of a CPU module*1</td><td>Shortening sequence scan time can increase communication speed.<br>For causes extending sequence scan time, refer to the following.<br>QnUCPU User's Manual (Function Explanation, Program Fundamentals)</td></tr>
<tr><td>Transient transmission process</td><td>Communications using the IP packet transfer function are performed with transient transmission. Taking one of the following actions can increase communication speed.<br><br>(1) Increase the frequency of transient transmission<br>The following actions can increase the frequency of transient transmission (the amount of processes per transient transmission). Consequently, the frequency of communications using the IP packet transfer function increases, resulting in increased communication speed.
<table>
<tr><th>Item</th><th>Description</th></tr>
<tr><td>"Service Processing Setting" in the PLC parameter*1</td><td>Increasing the frequency of a service process in "Service Processing Setting" of the PLC parameter increases the frequency of transient transmission. Note, however, that increasing the frequency of a service process affects sequence scan time. ( QnUCPU User's Manual (Function Explanation, Program Fundamentals))</td></tr>
<tr><td>Executing the COM instruction*1</td><td>Executing the COM instruction on a program and executing a service process at any timing other than an END process increase the frequency of transient transmission.<br>( MELSEC-Q/L Programming Manual (Common Instructions))</td></tr>
</table>
(2) Decrease the number of other transient transmission<br>Decreasing the number of other transient transmission ensures the processing time of the IP packet transfer function; therefore, communication speed can be increased.</td></tr>
<tr><td>Link scan time</td><td>Minimizing the points of the RX/RY setting and RWw/RWr setting shortens link scan time, resulting in increased communication speed.</td></tr>
<tr><td>Data transfer to modules in different networks</td><td>Correct the routing parameters and minimize the number of networks where data is transferred.</td></tr>
</table>

*1 For Page 173, Section 8.3.8 (2), correct the settings in the CPU module of a master station and program.

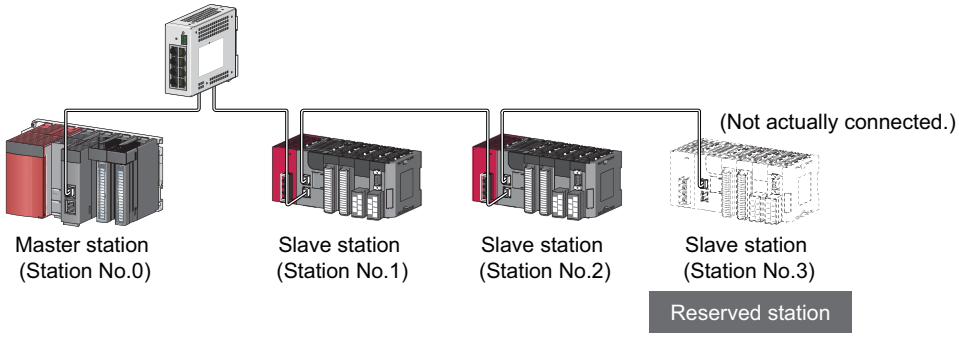
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# 8.4 Reserved Station Specification and Temporary Cancel of Reserved Station Setting

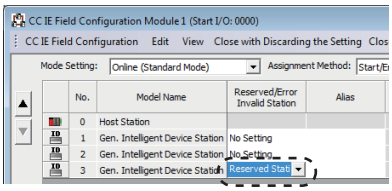
Reserved station specification allows setting of a station that is not actually connected at present but will be connected to the network in the future (must be included in the total number of stations on the network). Reserved stations are not detected as faulty stations even though they are not actually connected.
When the reserved station function is disabled, a slave station specified as a reserved station can be canceled temporarily without changing the GX Works2 setting.

## (1) Reserved station specification

A slave station can be set as a reserved station in "Network Configuration Settings". (☞ Page 88, Section 7.3)




Network Configuration Setting




Select "Reserved Station".

## (2) Canceling/restoring the reserved station setting

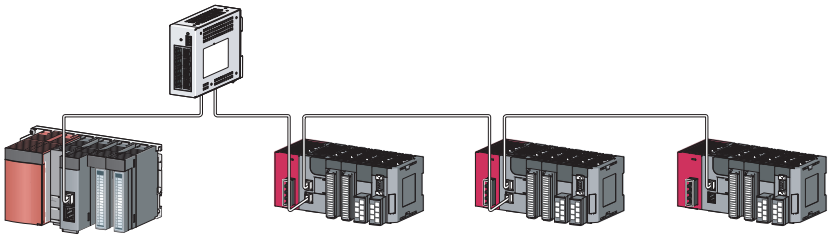
Use this setting when connecting a reserved slave station to the network. For details on how to temporarily cancel the reserved station setting, refer to ☞ Page 225, Section 9.6.

# 8.5 Error Invalid Station and Temporary Error Invalid Station Setting Function

When a slave station is set as an error invalid station, even if it is disconnected from the network during data link, the master station will not detect it as faulty station.
Furthermore, by the temporary error invalid station setting function, a slave station can be temporarily set as an error invalid station without changing the GX Works2 setting each time.

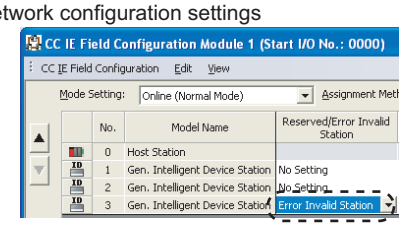
## (1) Error invalid station setting

A slave station can be set as an error invalid station in Network Configuration Setting. (☞Page 88, Section 7.3)




No data link error will be detected on this station even in the case of an error or power OFF.

Network configuration settings




Select "Error Invalid Station".

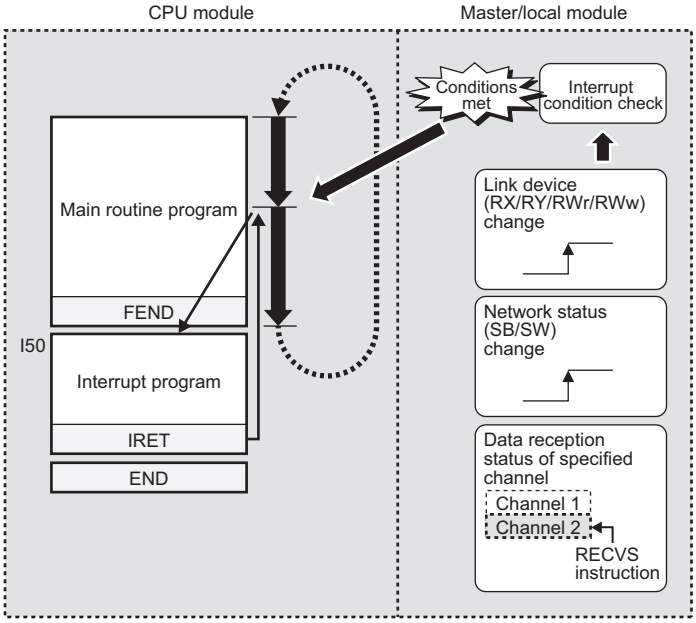
## (2) Temporary error invalid station

This function is useful for various operations such as replacing a slave station during data link by temporarily setting it as an error invalid station. For details, refer to ☞Page 229, Section 9.7.

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# 8.6 Interrupt Request to the CPU Module

Interrupt conditions are checked every link scan, and if the interrupt conditions are met, an interrupt request is made to the CPU module to start the interrupt program.

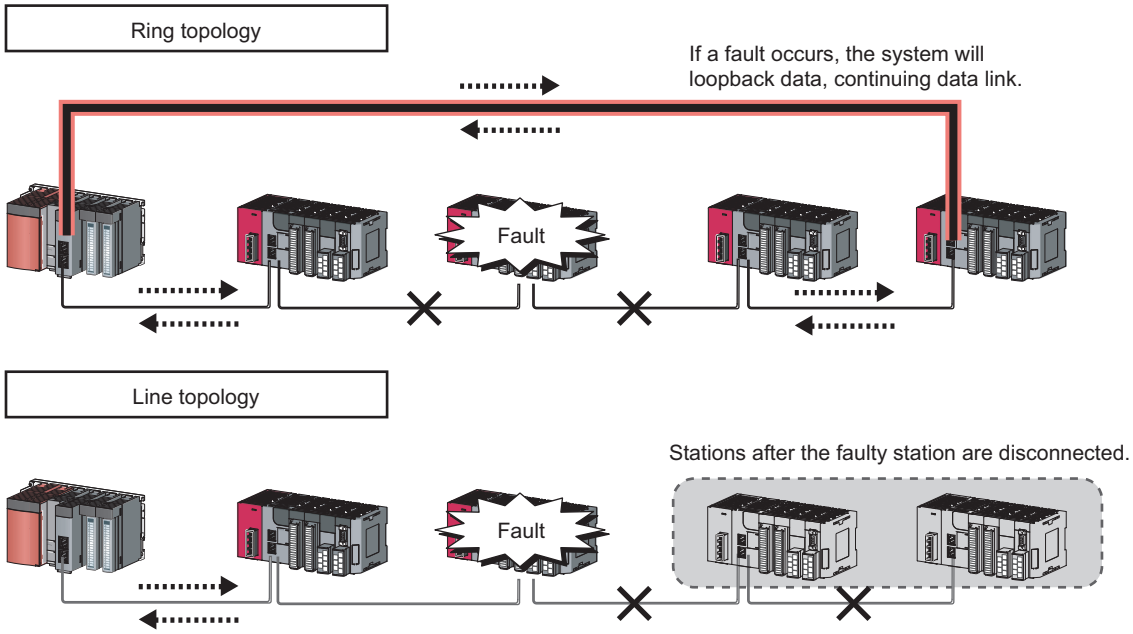



## (1) Setting method

Set the interrupt request in the interrupt settings. (Page 107, Section 7.6)

# 8.7 Loopback Function

This function disconnects the station in which an error has occurred from the network and continues data link with the stations that are operating normally. Stations connected after the faulty station can also continue data link.
To use this function, configure the network in ring topology and select "Use" under "Loopback Function Setting" in the Network Parameter window for the master station.

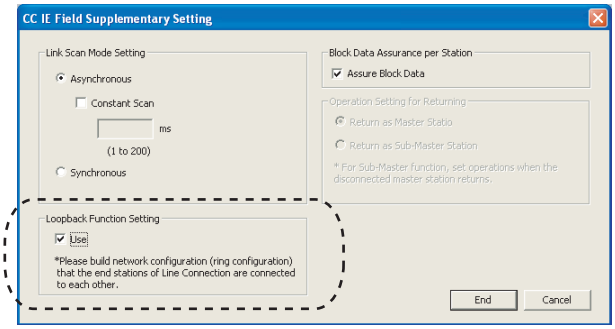


## (1) Setting procedure

1. **Configure the network in ring topology.**
2. **Select "Use" under "Loopback Function Setting" in the network configuration settings for the master station.**

Project window ⇨ [Parameter] ⇨ [Network Parameter] ⇨ [Ethernet/CC IE/MELSECNET] ⇨ CC IE Field Configuration Setting button ⇨ [CC IE Field Configuration] ⇨ [Supplementary Setting]

Select the checkbox.

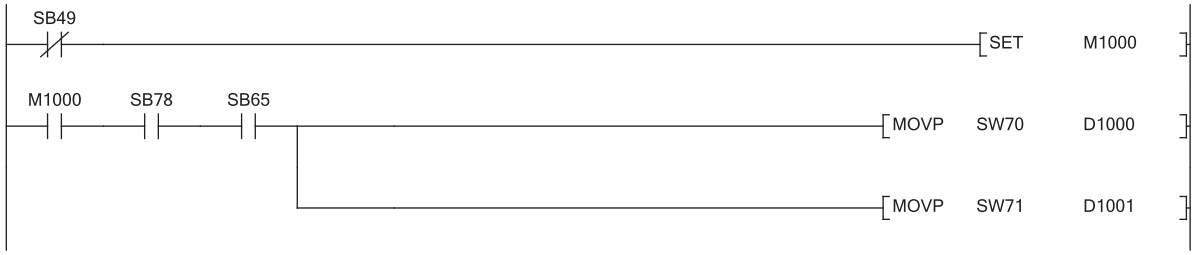



## (2) Program that detects loopback station numbers (master operating station only)

By detecting loopback station numbers, a faulty station can be found.

Whether loopback is being performed or not can be checked using Loopback function setting status (SB0078) and Loopback status (SB0065) of the master operating station.

Ex. Program that stores loopback station numbers to D1000 and D1001




For details on link special relay (SB) and link special register (SW), refer to the following.

Page 473, Appendix 3, Page 493, Appendix 4

## (3) Precautions

### (a) Master/local module and GX Works2 that support the function

Before using the loopback function, check the serial number of the master/local module on the master station and the GX Works2 version. (Page 554, Appendix 11)

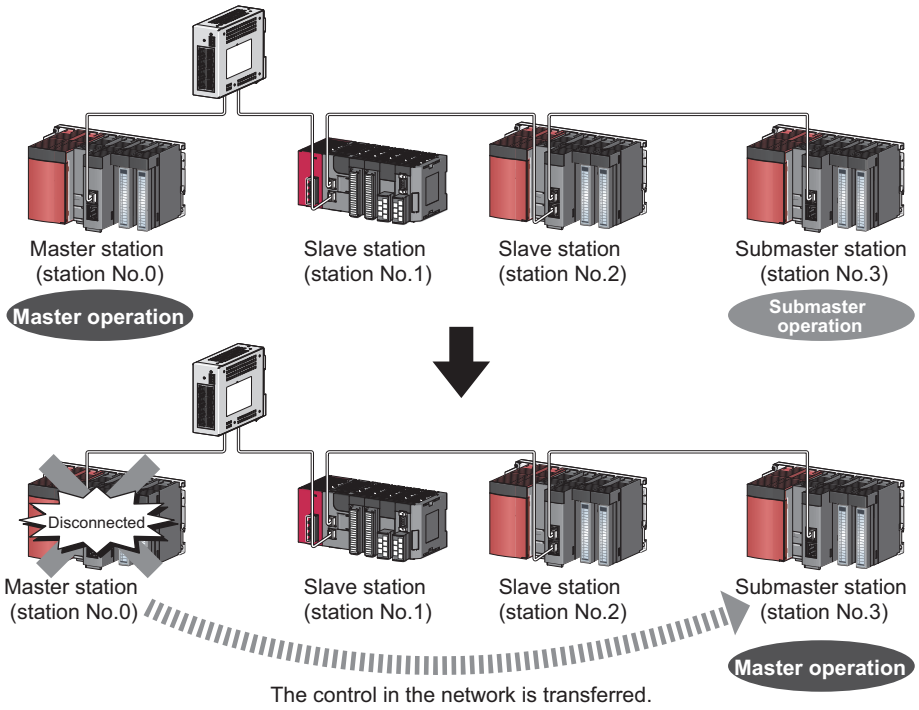
### (b) Loopback function setting and network configuration

For ring topology, select "Use" in "Loopback Function Setting". For network topology other than ring topology, clear the checkbox.

If the loopback function setting and the network configuration are inconsistent, an error may occur in all stations and data link cannot be performed.

# 8.8 Submaster Function

Connecting the master station and submaster station on the same network allows the submaster station to continue controlling slave stations instead of the master station even if the master station is disconnected. Using this function prevents the entire network from going down due to disconnection of the master station.



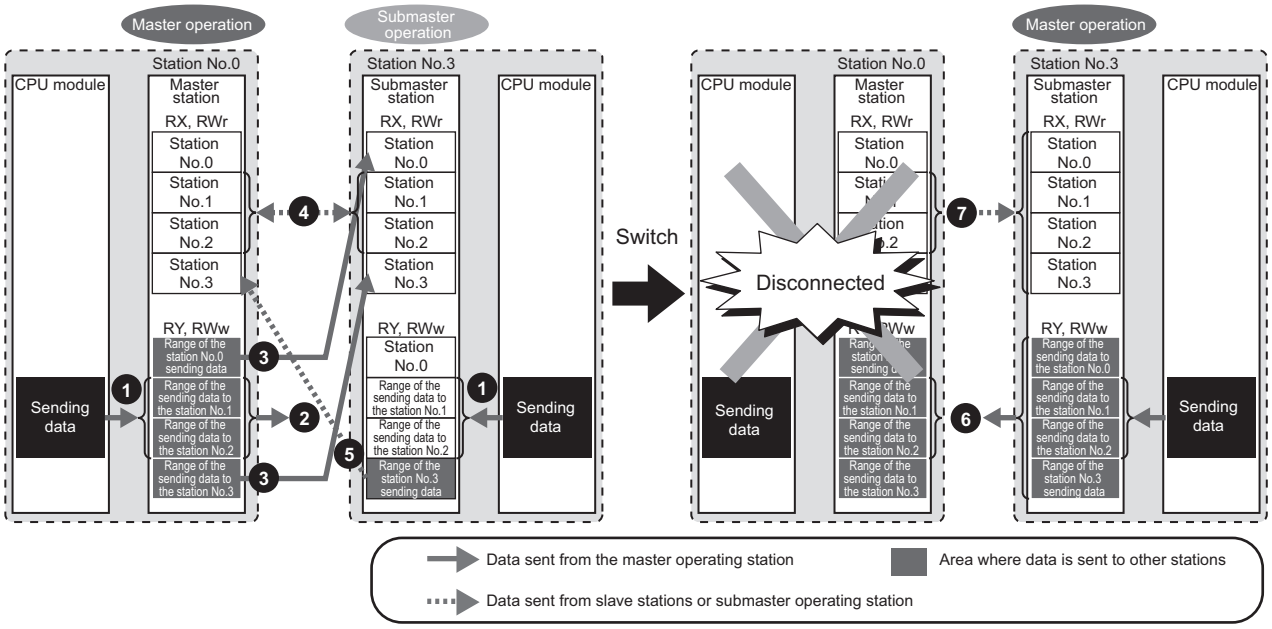
# 8.8.1 Cyclic transmission of when the submaster function is used

In cyclic transmission, data are periodically communicated among stations on the same network. Link devices (RX, RY, RWr, RWw) are used for data communications. In the submaster function, the submaster station is performing data link in case of disconnection of the master station; therefore, the submaster station can smoothly starts to take in control if the master station is disconnected.

## (1) Link device assignment of the master station and submaster station

Even if the control is shifted to the submaster station due to disconnection of the master station, the assignment of areas for communications with the slave stations is the same as that of the master station; therefore, the same program can be used for the master station and submaster station.
A send area for the master station allows information to be exchanged between the master station and the submaster station.

Link device assignment is explained using the following example of when the station numbers 1 and 2 are slave stations and the station number 3 is a submaster station.




### (a) Before the control is switched

- RY/RWw assignment

❶ Create a program where sending data to the slave stations are the same in the master station and submaster station.

❷ Data is sent from the master station (master operating station) to the slave stations, not from the submaster station (submaster operating station).

❸ Data that is sent to the master station and data that is sent to the submaster station are stored in RX/RWr of the submaster station.

- RX/RWr assignment

❹ Data that is sent from the slave stations is stored in the same area of the master station and submaster station.

❺ Data that is sent from the submaster station is stored in RX/RWr of the master station.

### (b) After the control is switched

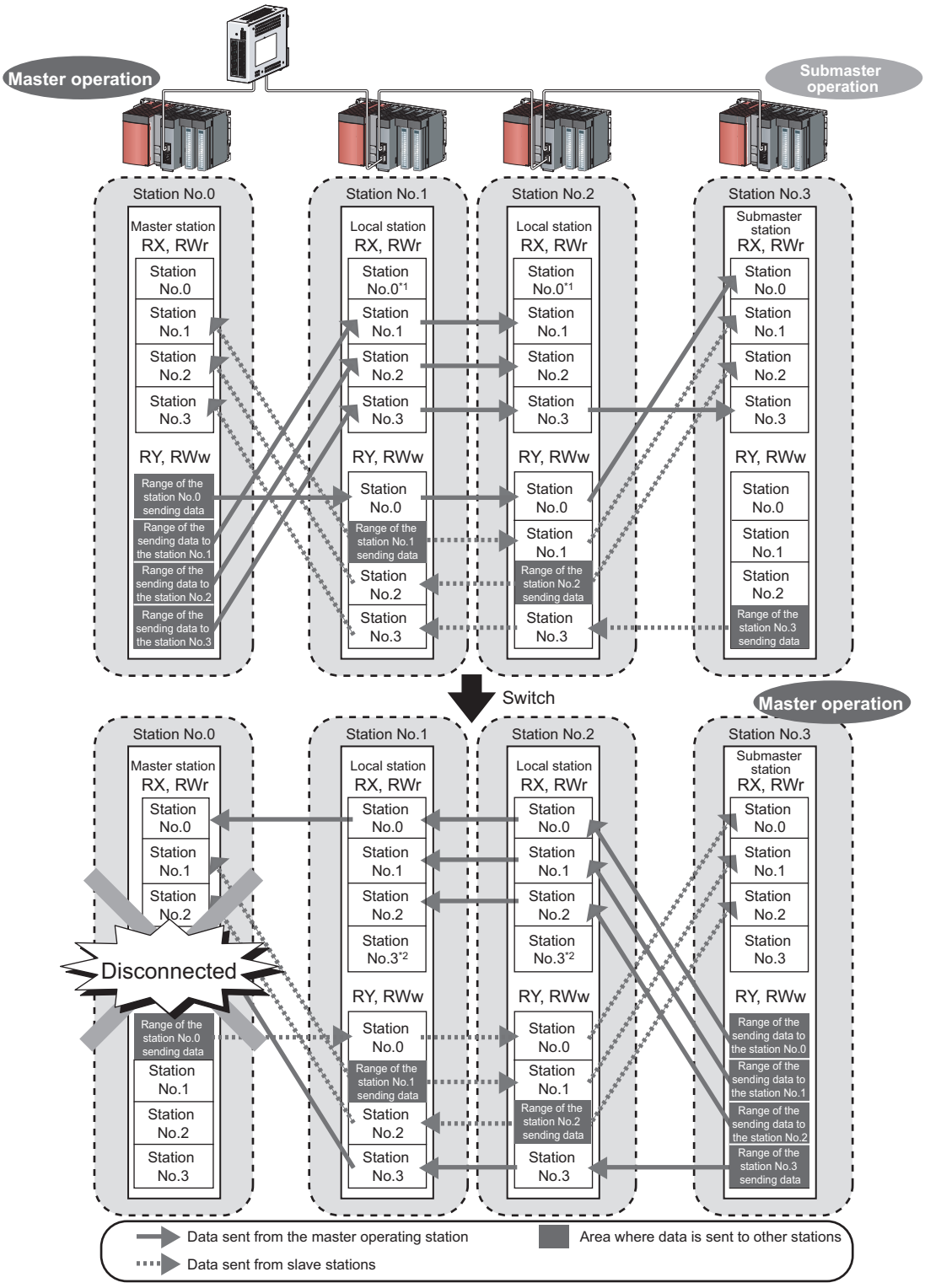
❻ Because areas of sending data to the slave stations in the submaster station are assigned in the same way as the master station, the submaster station sends data to the slave stations as the master station does before the control is switched.

❼ Because areas of receiving data from the slave stations in the submaster station are assigned in the same way as the master station, the submaster station receives data from the slave stations as the master station does before the control is switched.

## (2) Link device assignment of the master station, submaster station, and slave stations

The following are assignment examples of when salve stations are connected to the master station and submaster station.

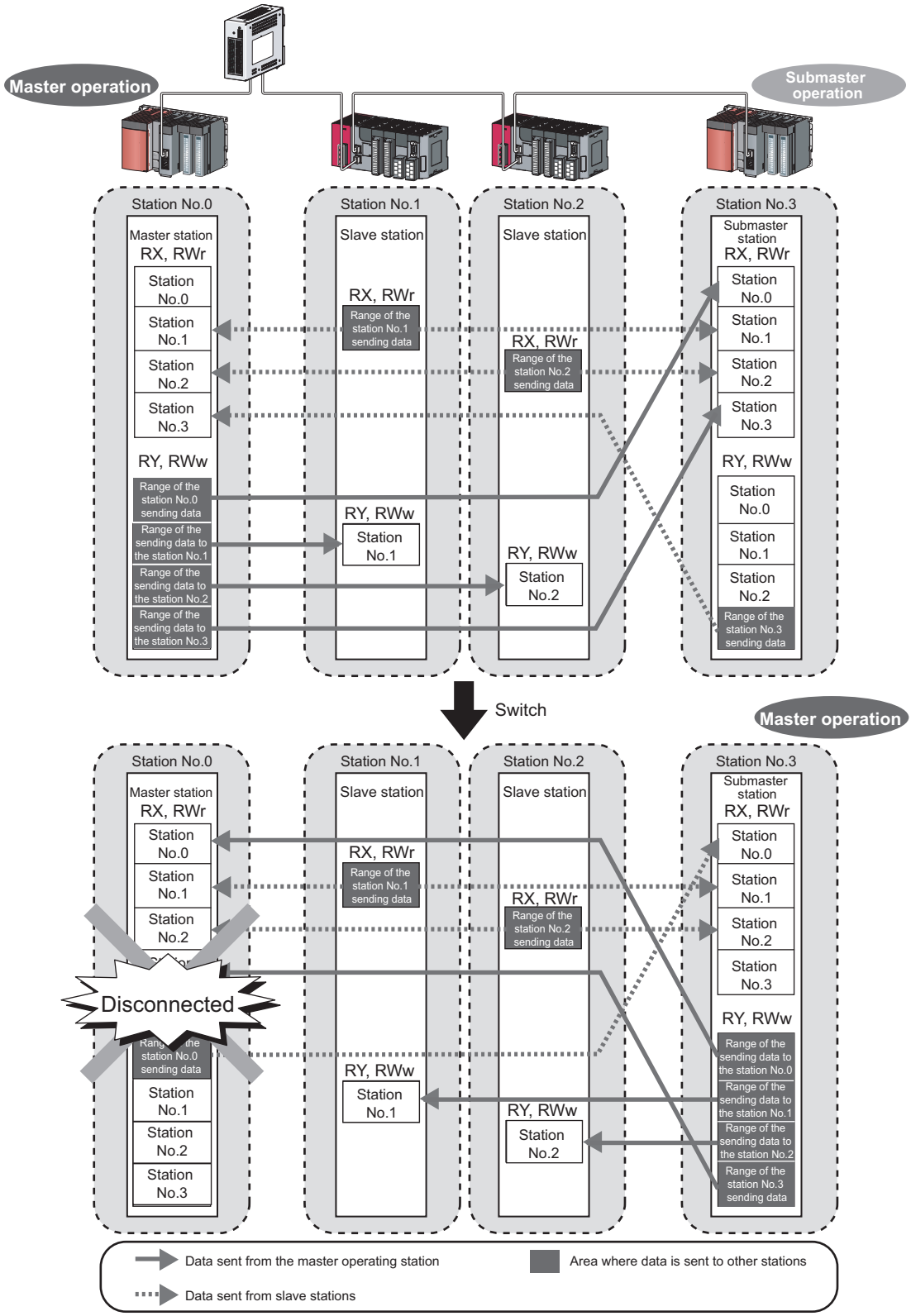
### (a) When the master station and a local station are connected



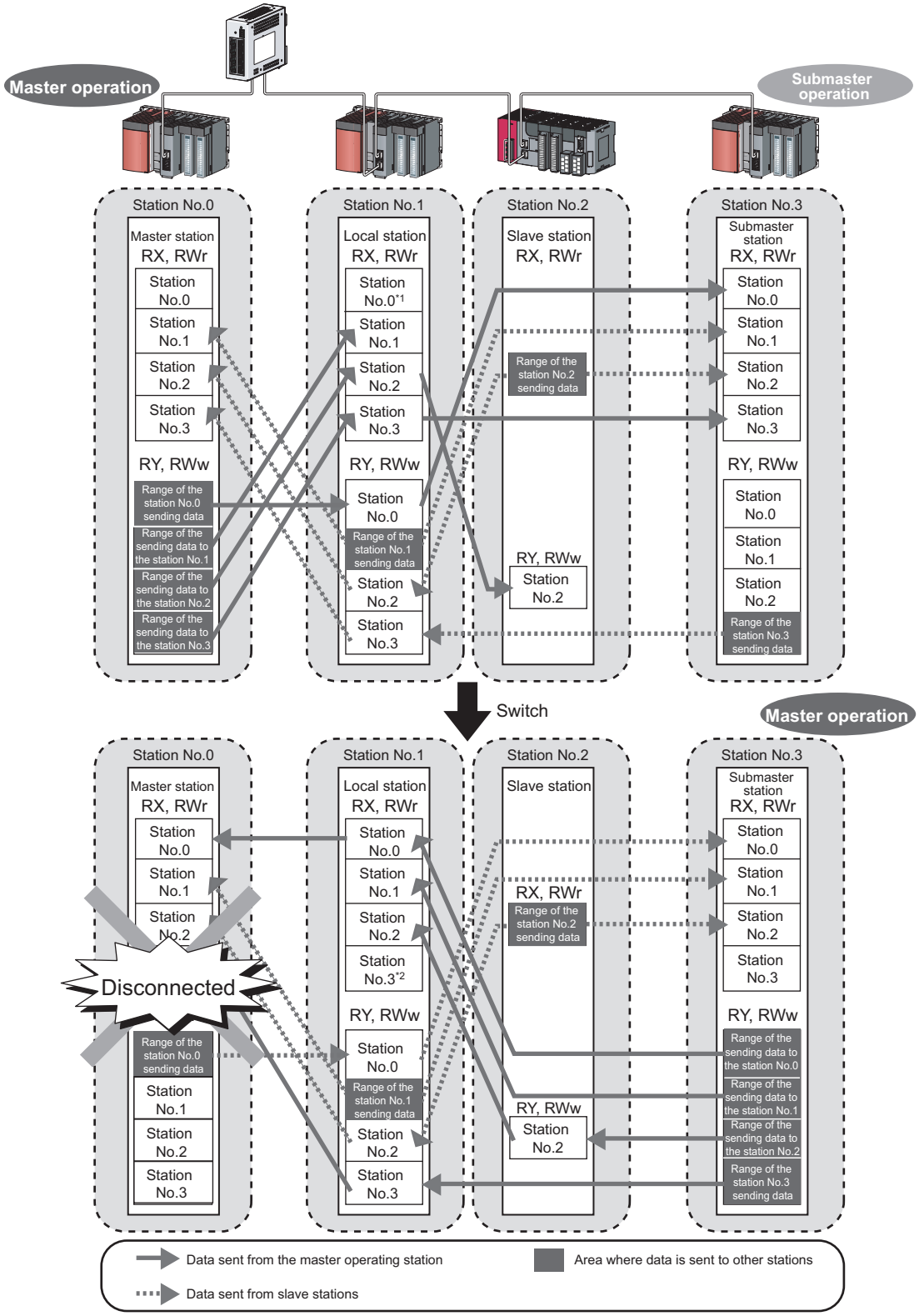

*1 Data that is sent from "Range of the station No.0 sending data" and stored in RY/RWw is stored.

*2 Data that is sent from "Range of the station No.3 sending data" and stored in RY/RWw is stored.

### (b) When the master station and slave stations (excluding a local station) are connected



### (c) When a slave station (excluding a local station) and a local station are connected



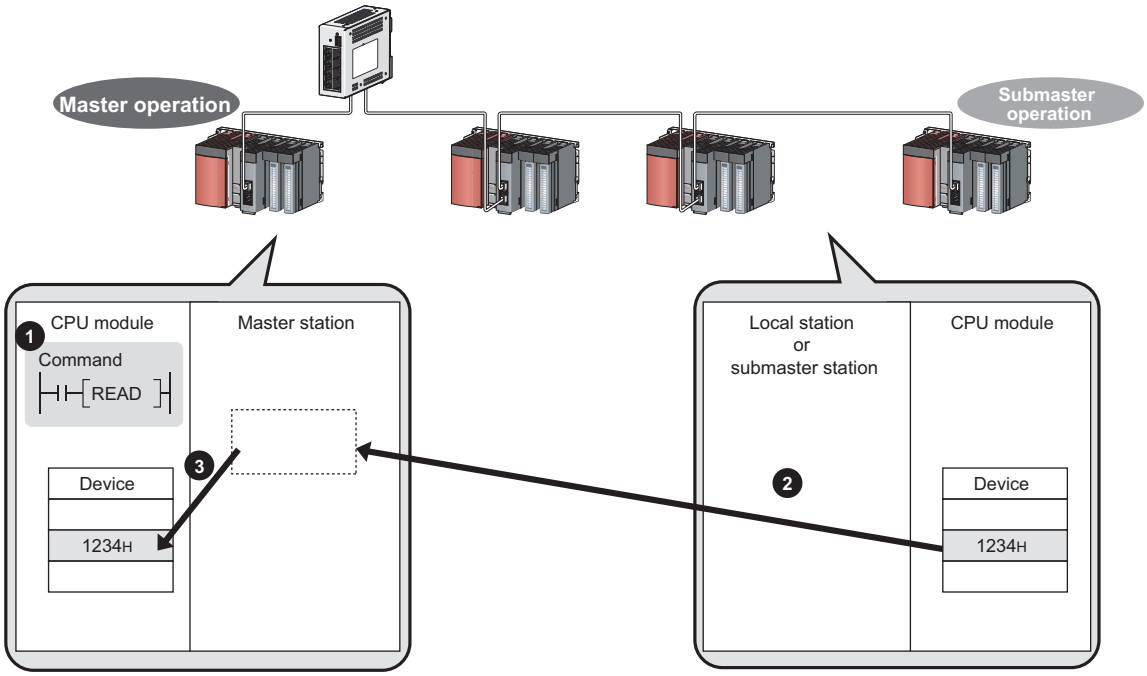

*1 Data that is sent from "Range of the station No.0 sending data" and stored in RY/RWw is stored.

*2 Data that is sent from "Range of the station No.3 sending data" and stored in RY/RWw is stored.

## 8.8.2 Transient transmission of when the submaster function is used

In transient transmission, communications can be performed with other stations when requests are issued using dedicated instructions. Communications can be also performed with other networks. Transient transmission can be performed from either the master station or submaster station. (Note, however, that the REMFR and REMTO instructions can be executed only from the master operating station.)

Ex. Access from a local station or submaster station to a programmable controller on another station using a dedicated instruction (READ)



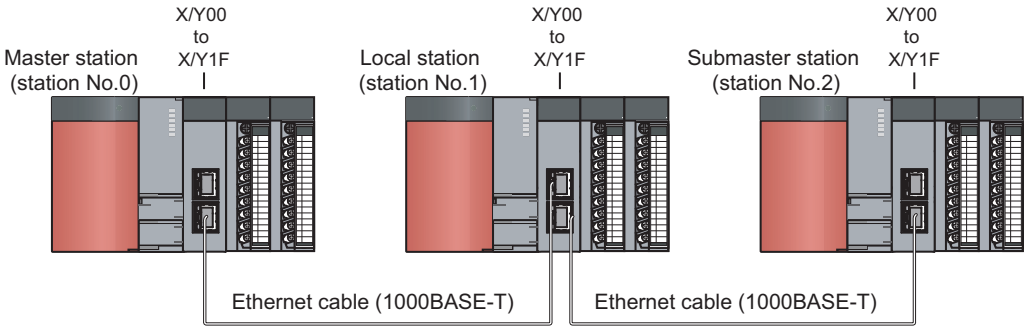
# 8.8.3 Example of communications using the submaster function

This section describes a procedure up to the system operation using the submaster function.

## (1) System configuration

The following system configuration is used for explanation purpose.

Power supply module (Q62P)
CPU module (Q10UDHCPU)
Master/local module (QJ71GF11-T2)
Input module (QX10)
Output module (QY10)

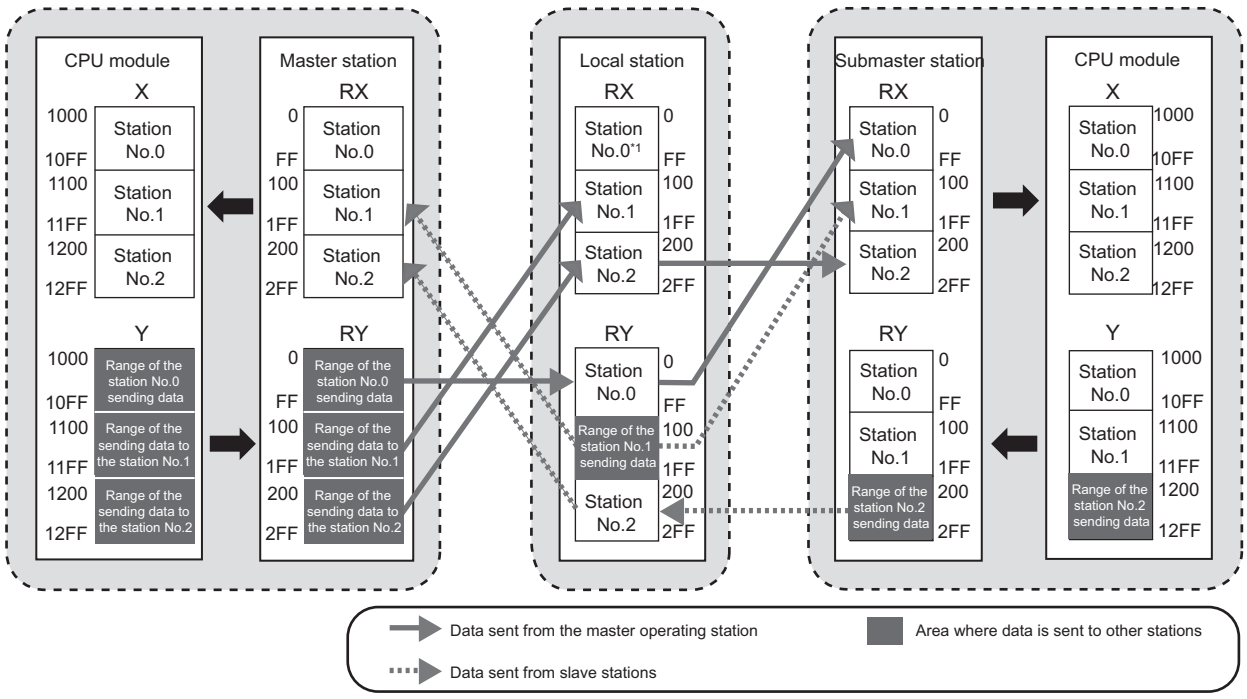



## (2) Link device assignment

Determine the link device assignment. 256 points are assigned to each station.

### (a) RX/RY assignment

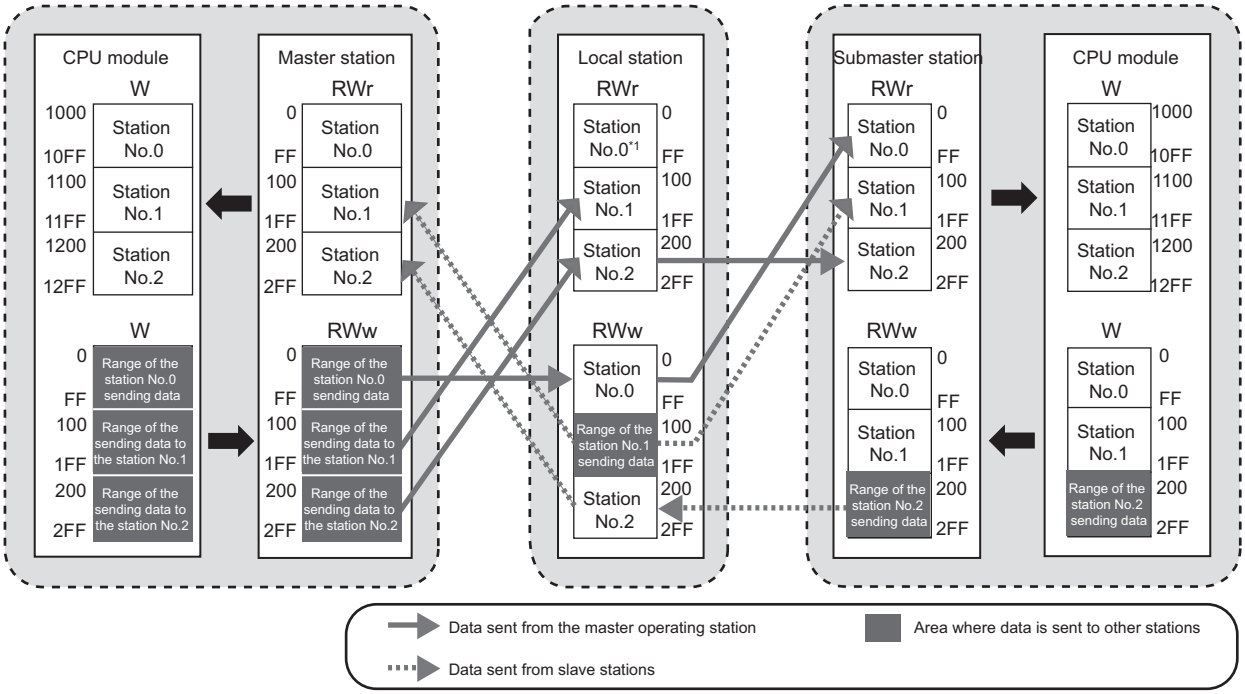
The setting for the link refresh target device of the local station is the same as that of the master station.




*1 Data that is sent from "Range of the station No.0 sending data" and stored in RY is stored.

### (b) RWr/RWw assignment

The setting for the link refresh target device of the local station is the same as that of the master station.

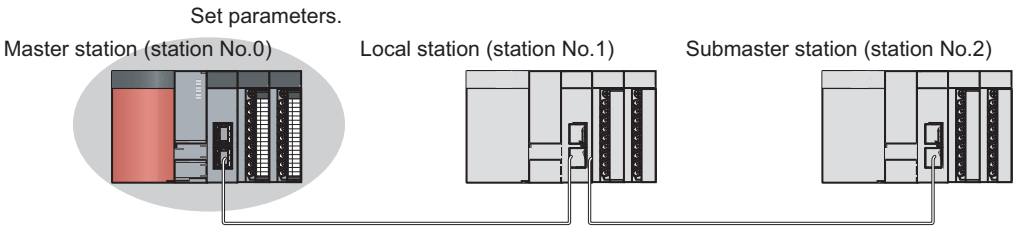



*1 Data that is sent from "Range of the station No.0 sending data" and stored in RWw is stored.

## (3) Setting

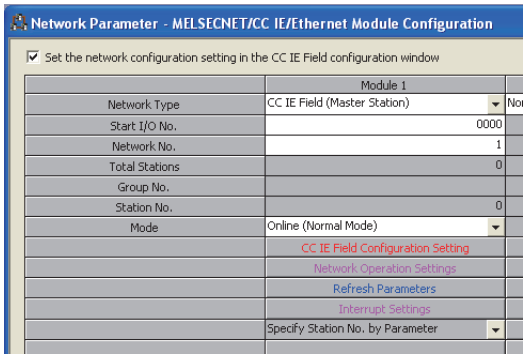
### (a) Setting in the master station

Connect GX Works2 to the master station and set parameters.



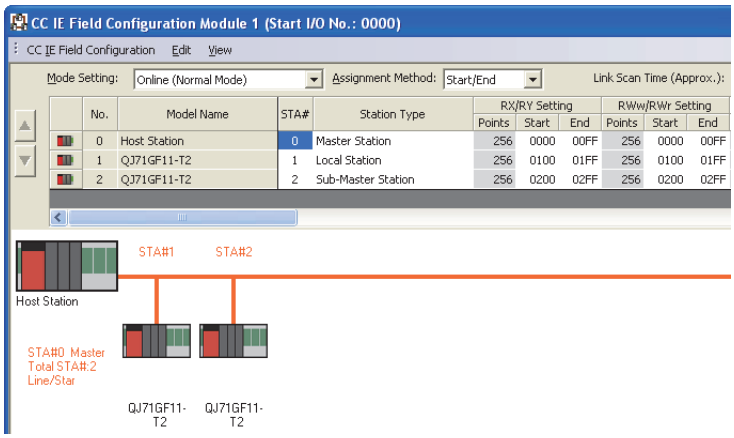

**1. Open the network parameter window and set parameters as follows.**

Project window ⇨ [Parameter] ⇨ [Network Parameter] ⇨ [Ethernet/CC IE/MELSECNET]



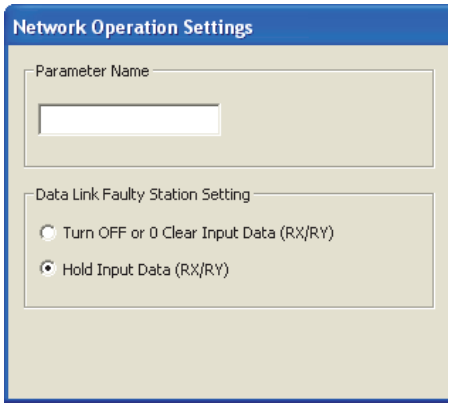

**2. Open the network configuration setting window and set parameters as follows.**

Project window ⇨ [Parameter] ⇨ [Network Parameter] ⇨ [Ethernet/CC IE/MELSECNET] ⇨ CC IE Field Configuration Setting button



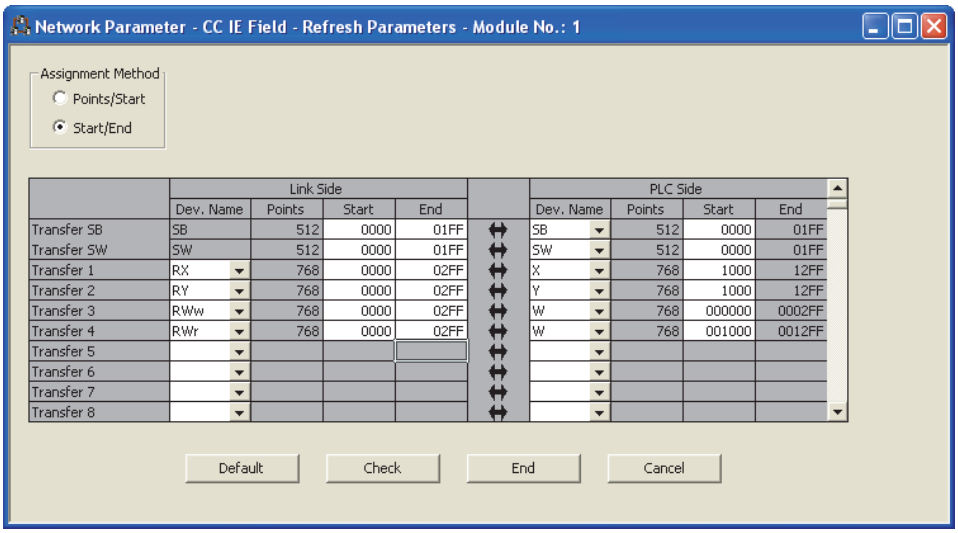
**3.** **Select "Hold Input Data (RX/RY)" under "Data Link Faulty Station Setting".**

Project window ⇨ [Parameter] ⇨ [Network Parameter] ⇨ [Ethernet/CC IE/MELSECNET] ⇨ Network Configuration Settings button




**4.** **Open the refresh parameter window and set parameters as follows.**

Project window ⇨ [Parameter] ⇨ [Network Parameter] ⇨ [Ethernet/CC IE/MELSECNET] ⇨ Refresh Parameters button




| | Link Side | | | | | PLC Side | | | |
|---|---|---|---|---|---|---|---|---|---|
| | Dev. Name | Points | Start | End | | Dev. Name | Points | Start | End |
| Transfer SB | SB | 512 | 0000 | 01FF | ↔ | SB | 512 | 0000 | 01FF |
| Transfer SW | SW | 512 | 0000 | 01FF | ↔ | SW | 512 | 0000 | 01FF |
| Transfer 1 | RX | 768 | 0000 | 02FF | ↔ | X | 768 | 1000 | 12FF |
| Transfer 2 | RY | 768 | 0000 | 02FF | ↔ | Y | 768 | 1000 | 12FF |
| Transfer 3 | RWw | 768 | 0000 | 02FF | ↔ | W | 768 | 000000 | 0002FF |
| Transfer 4 | RWr | 768 | 0000 | 02FF | ↔ | W | 768 | 001000 | 0012FF |
| Transfer 5 | | | | | ↔ | | | | |
| Transfer 6 | | | | | ↔ | | | | |
| Transfer 7 | | | | | ↔ | | | | |
| Transfer 8 | | | | | ↔ | | | | |

**5.** **Write the set parameters to the CPU module on the master station.**

[Online] ⇨ [Write to PLC]

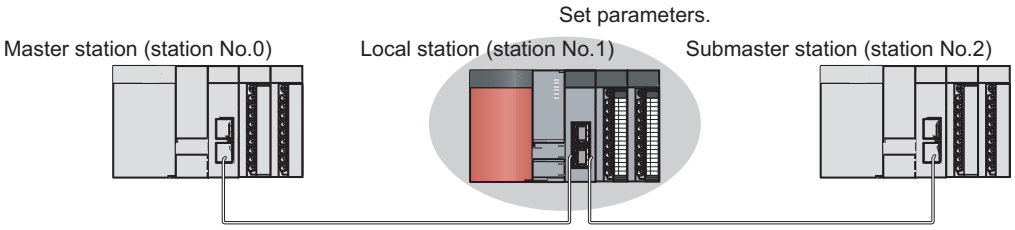
## Point

In this setting example, default settings are used for the parameters other than those described. For the parameter setting, refer to the chapter explaining the parameters. (Page 81, CHAPTER 7)

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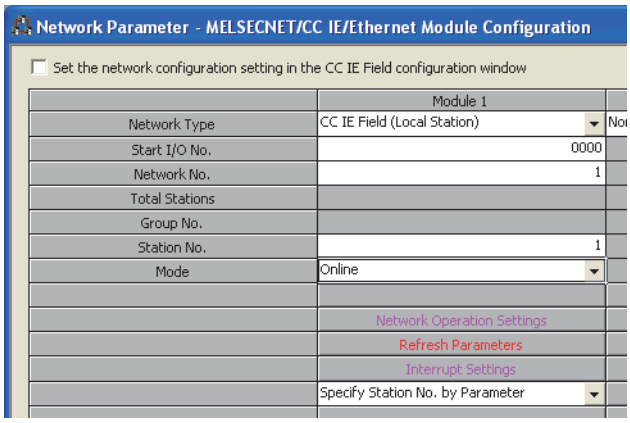
### (b) Setting in the local station

Connect GX Works2 to the local station and set parameters.




**1. Open the network parameter window and set parameters as follows.**

Project window ⇨ [Parameter] ⇨ [Network Parameter] ⇨ [Ethernet/CC IE/MELSECNET]




**2. Open the refresh parameter window and set parameters.**

Set the same refresh parameters as those set for the master station. (☞ Page 189, Section 8.8.3 (3))

**3. Select "Hold Input Data (RX/RY)" under "Data Link Faulty Station Setting".**

Configure the same setting as that of the master station in "Data Link Faulty Station Setting". (☞ Page 189, Section 8.8.3 (3))

**4. Write the set parameters to the CPU module on the local station.**

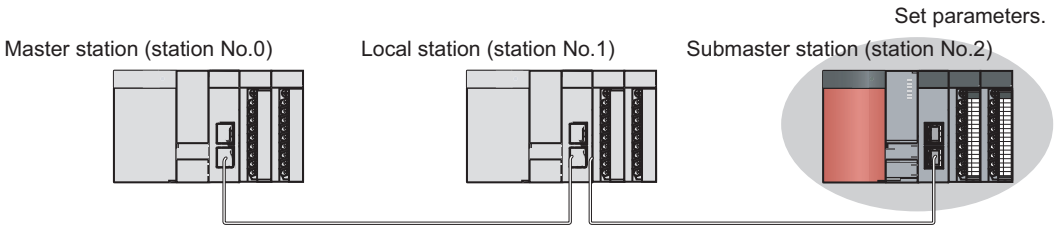
[Online] ⇨ [Write to PLC]

**Point**

In this setting example, default settings are used for the parameters other than those described. For the parameter setting, refer to the chapter explaining the parameters. (☞ Page 81, CHAPTER 7)

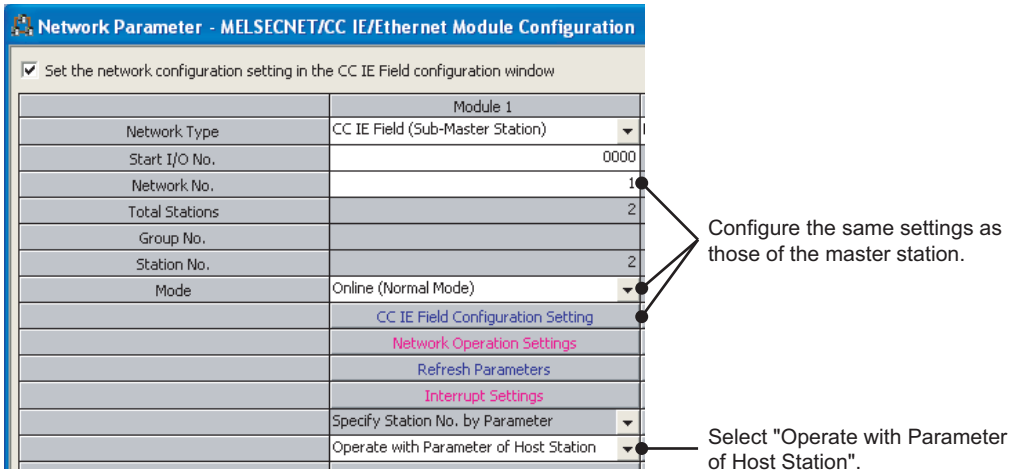
### (c) Setting in the submaster station

Connect GX Works2 to the submaster station and set parameters.




**1. Open the network parameter setting window and set parameters as follows.**

Project window ⇨ [Parameter] ⇨ [Network Parameter] ⇨ [Ethernet/CC IE/MELSECNET]




**Point**

- The submaster station operates according to the parameters set for the master station under the following situation.
  - The checkbox next to "Set the network configuration setting in the CC IE Field configuration window" is selected and "Operate with Parameter of Master Station" is selected.

  Note, however, that data link cannot be started if the submaster station starts up independently (such as when the submaster station is powered off and on during data link by the submaster station with the master station disconnected); therefore, it is recommended to set the same parameters as those of the master station in the submaster station.
  To reflect the settings of the master station into the submaster station, data link needs to be performed with the master station once.
- Do not set the same station number as that of the master station and other slave stations.

**2. Open the refresh parameter window and set parameters.**

Set the same refresh parameters as those set for the master station. (Page 189, Section 8.8.3 (3))

**3. Select "Hold Input Data (RX/RY)" under "Data Link Faulty Station Setting".**

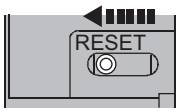
Configure the same setting as that of the master station in "Data Link Faulty Station Setting". (Page 189, Section 8.8.3 (3))

**4. Write the set parameters to the CPU module on the submaster station.**

[Online] ⇨ [Write to PLC]

## (4) Starting up the system

Reset the CPU module or power off and on the system in order of the local station, master station, and submaster station.



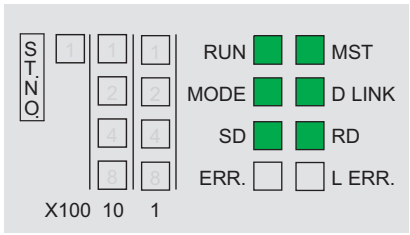

or Power OFF→ON

**Point**

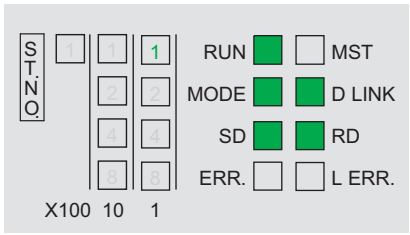
Start up the master station before the submaster station. If the submaster station is started up first, it may operate as a master operating station. Even if the submaster station operates as a master operating station, the master station starts to take in control after it starts up. Then Data link status (own station) (SB0049) temporarily turns on, causing an error to be detected. (This applies when “Return as Master Station” is selected in the “Operation Setting for Returning” field in the supplementary setting.)

The LEDs on the master/local module are as follows.

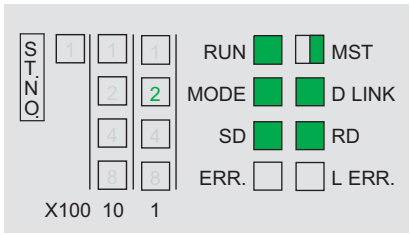
Master station (master operation)




Local station




Submaster station (submaster operation)




: ON

: Flashing

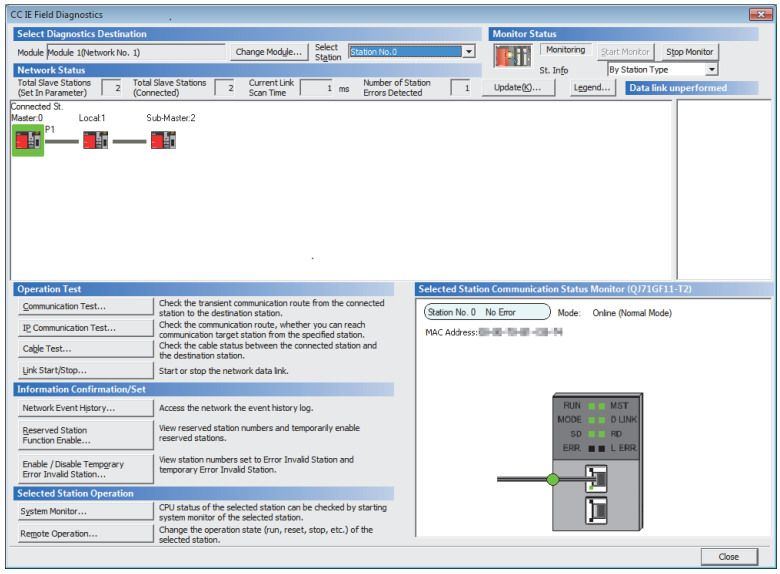
## (5) Checking the network status

After starting up the system, check whether data link can be normally performed using the CC-Link IE Field Network diagnostics in GX Works2.

1. **Connect GX Works2 to the master station.**
2. **In the menu, start up the CC-Link IE Field Network diagnostics.**

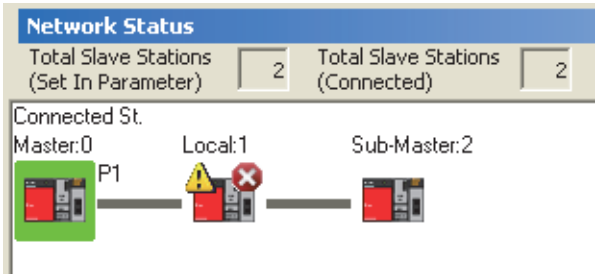
[Diagnostics] ⇨ [CC IE Field Diagnostics]

If the following display appears, data link is normal.




If a mark, such as , , and , is displayed in "Network Status", an error has occurred. Use the CC-Link IE Field Network diagnostics to identify the cause of the error and take actions. (☞Page 208, Section 9.2)

**Ex.** If an error has occurred in the local station (station number 1), the window appears as follows.

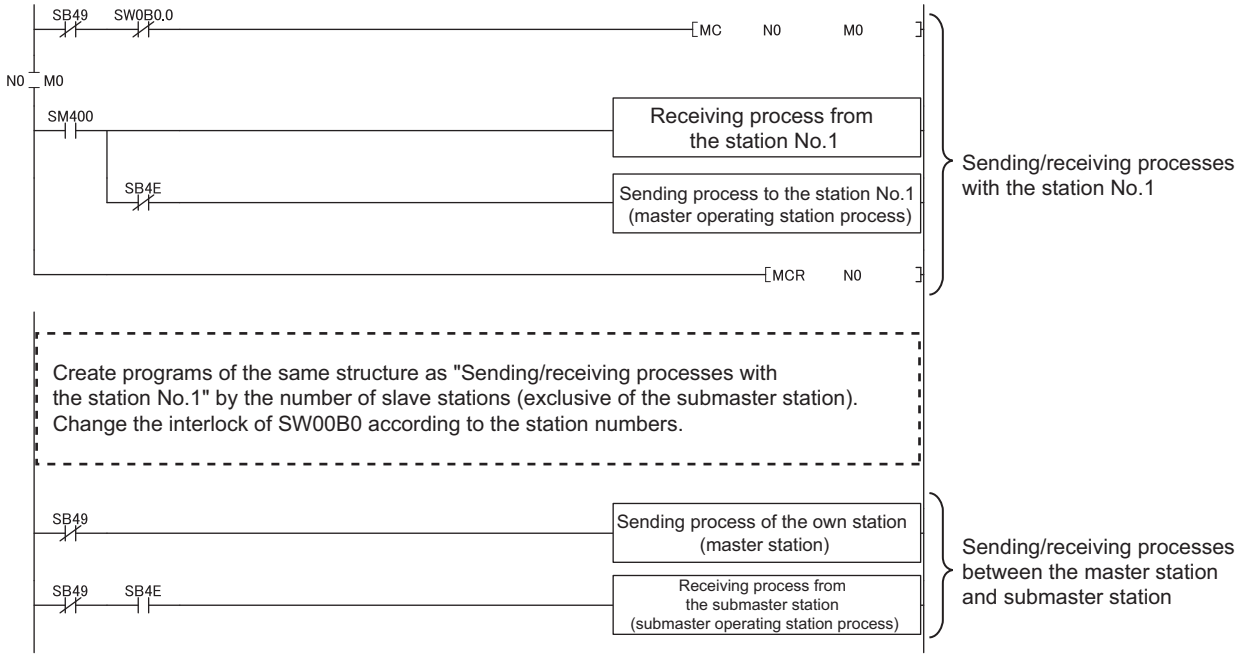


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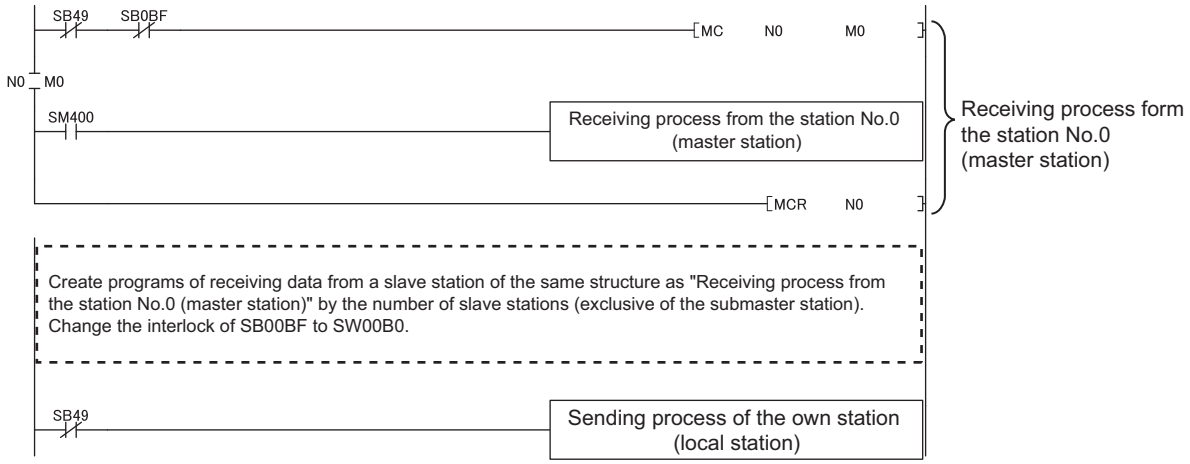
## (6) Program example

***1.*** **Create the following programs in the project for the master station, local station, and submaster station using GX Works2.**

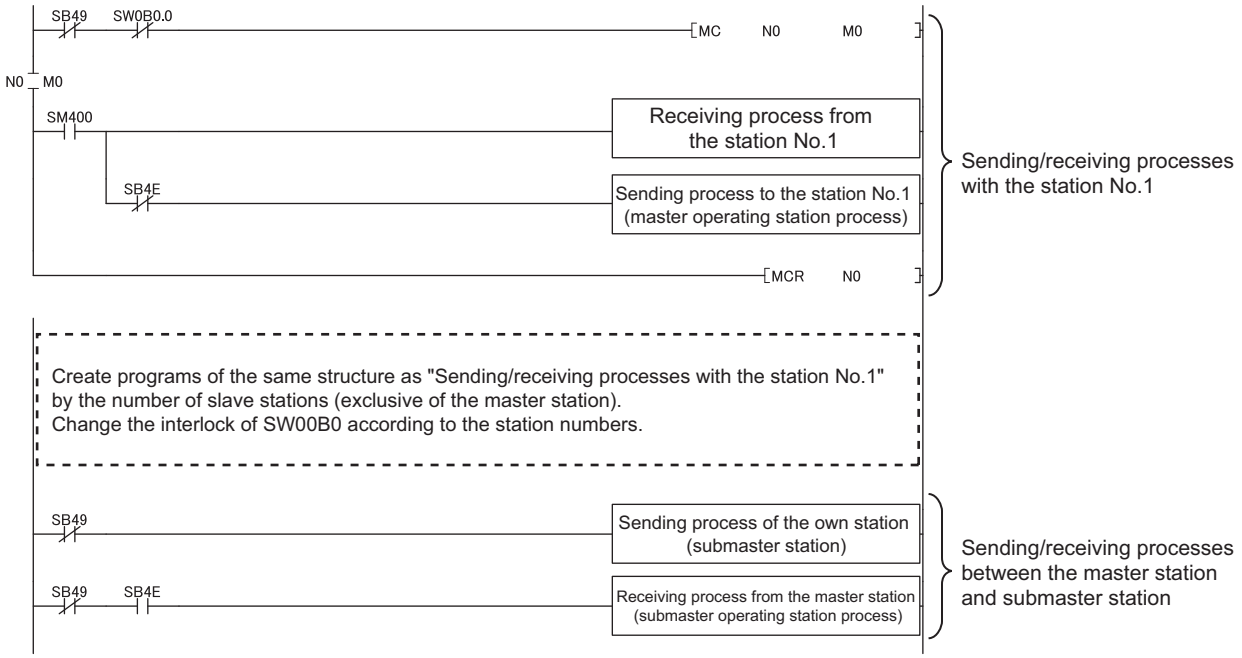
• Master station (station number 0)




• Local station (station number 1)



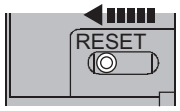
• Submaster station (station number 2)




***2.*** **Write the program to the CPU module on the master station, local station, and submaster station. Then reset the CPU module or power off and on the system.**

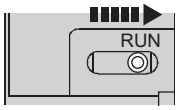
Perform the operations above in order of the master station, local station, and submaster station.

[Online] ⇨ [Write to PLC]




or Power OFF→ON

***3.*** **Set the switch on the CPU module to RUN.**



# 8.8.4 Programming for when the submaster function is used

This section describes the programming of when the submaster function is used. For other programming, refer to the following.

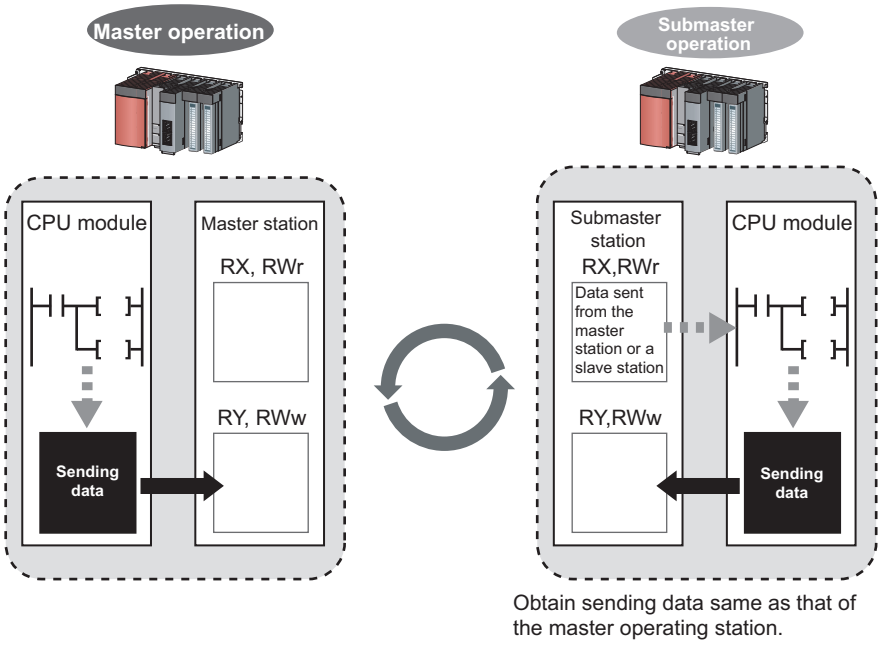
- Cyclic transmission: Page 387, CHAPTER 11
- Transient transmission: Page 236, CHAPTER 10

## (1) Programming for cyclic transmission

After checking that data link is normally performed, create a program to control slave stations.

### (a) Use of data stored in RY/RWw of the master operating station

Even after the control is shifted to the submaster operating station, sending data in the master operating station is not transferred to the submaster operating station. Therefore, the submaster operating station needs to produce the same sending data as the master operating station. Create a program where sending data (RY/RWw) is produced based on receiving data (RX/RWr).



### (b) When the operation is switched between the master operation and submaster operation

When the operation is switched between the master operation and submaster operation, a temporary data link error is detected (SB0049 and SB00B0 turn on).

While the operation is being switched, do not use cyclic data and the following signals.

| Device | Description | Device | Description |
|---|---|---|---|
| SB0049 | Data link status (own station) | SW005A | Maximum baton pass station |
| SB0070 | Master station information | SW005B | Maximum cyclic transmission station |
| SB0071 | Submaster station information | SW0064 | Connection status (own station) |
| SB00A0 | Baton pass status (each station) | SW006D | Master operating station number |
| SB00A1 | Baton pass status (master station) | SW006E | Submaster operating station number |
| SB00AF | Baton pass status (station No.0) | SW00A0 to SW00A7 | Baton pass status (each station) |
| SB00B0 | Data link status (each station) | SW00B0 to SW00B7 | Data link status (each station) |
| SB00B1 | Data link status (master station) | X1 | Own station data link status |
| SB00BF | Data link status (station No.0) | X3 | Other stations data link status |

Remark

The time until the operation is switched varies depending on how the operation is switched as described below:

- When the operation is switched because the master operating station is down: up to three seconds
- When the operation is forced to be switched using Forced master switch command (SB0019): up to three seconds
- When the master station where "Return as Master Station" has been selected in the "Operation Setting for Returning" field on the "Supplementary Setting" window returns: up to 20 seconds

## (2) Programming for transient transmission

### (a) Use of the REMFR and REMTO instructions

The REMFR and REMTO instructions can be executed only in a master operating station. Create a program where these instructions can be executed only in the master operating station using Own station master/submaster function operation status (SB004E) (a master operating station when SB004E is off).
Check that Data link status (own station) is normal (SB0049 is off).

### (b) Use of the WRITE, SWRITE, RIWT, and REQ instructions

Data can be written from both of a master operating station and submaster operating station; therefore, create a program where data are not written in the same area at the same time. Especially, pay attention when the program of a master station is used for a submaster station. Use Own station master/submaster function operation status (SB004E) to check whether the own station is the master operating station or submaster operating station and do not execute the WRITE, SWRITE, RIWT, and REQ instructions at the same time.
Check that Data link status (own station) is normal (SB0049 is off).

### (c) Dedicated instructions when the control is switched between the master operating station and the submaster operating station or when the master station returns

Dedicated instructions may end abnormally (timeout error). Create a program where transient transmission is performed again even if dedicated instructions end abnormally (timeout error).

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# 8.8.5 Switch from the master station to the submaster station

This section describes conditions where the master operating station is switched to the submaster operating station.

## (1) Automatic switch

The control is switched under one of the following conditions.

| Condition | Description |
|---|---|
| Disconnection of the master station (master operation) | If an error occurs in the master station while the master station is operating as a master operating station and the submaster station as a submaster operating station, the submaster station starts to take in control. |
| Return of the disconnected master station (This applies when "Return as Master Station" is selected in the "Operation Setting for Returning" field on the "Supplementary Setting" window.)*1 | The control is switched when the disconnected master station returns while the submaster station is operating as a master operating station. |

*1 When "Return as Sub-Master Station" is selected, the submaster station continues to be in control, and the master station returns as a submaster operating station. When the submaster station (master operating station) is disconnected after return, the master station operates as a master operating station.

**Point**

- A disconnected submaster station is always returned as a submaster operating station.
- When the operation is switched, a temporary data link error is detected. To continue the control with the output of the slave station being held, configure the settings of each station as follows:
  - Master/local module
    Select "Hold Input Data (RX/RY)" under "Data Link Faulty Station Setting".

    Project window ⇨ [Parameter] ⇨ [Network Parameter] ⇨ [Ethernet/CC IE/MELSECNET] ⇨ Network Configuration Settings button
  - Modules other than a master/local module
    Configure the settings where the output of the slave station is held upon a data link error.
    ( Manual for the slave station used)

## (2) Manual switch

While a submaster station is operating as a master operating station, the operation of the master station can be switched from the submaster operation to the master operation with the procedure described below. Note, however, that this does not apply when the master station is operating as a master operating station.
Cyclic transmission is continued during switch. (The output of the slave station is maintained during switch.)

***1.*** **In the submaster station operating as a master operating station, check that Forced master switch enable status (SB0066) is on. Then turn on Forced master switch command (SB0019).**
Whether the submaster station is operating as a master operating station can be checked using the following signals.

- Own station master/submaster function operation status (SB004E) is off.
- Master station information (SB0070) is on.

***2.*** **When the master/local module receives a switch direction, Forced master switch acceptance status (SB0067) is turned on, and the switch is started.**
Cyclic transmission is continued during switch.

***3.*** **When the switch is completed, Forced master switch operation status (SB0068) is turned on.**

***4.*** **The result can be checked in Forced master switch command result (SW005C).**

***5.*** **Turn off Forced master switch command (SB0019).**
Forced master switch acceptance status (SB0067), Forced master switch operation status (SB0068), and Forced master switch command result (SW005C) turn off.

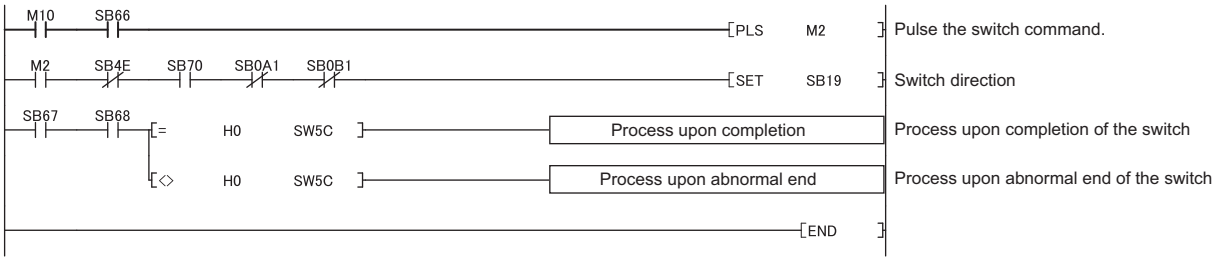
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### (a) Sample program of a manual switch

• Devices used in the program

| Device | Description | Device | Description |
|---|---|---|---|
| SB0019 | Forced master switch command | SB00A1 | Baton pass status (master station 1) |
| SB004E | Own station master/submaster function operation status | SB00B1 | Data link status (master station 1) |
| SB0066 | Forced master switch enable status | SW005C | Forced master switch command result |
| SB0067 | Forced master switch acceptance status | M2 | Pulse the switch command |
| SB0068 | Forced master switch operation status | M10 | Switch command |
| SB0070 | Master station information | - | |

• Program example




## (3) Precautions when the control is switched

### (a) During a parameter error

While a parameter error is occurring in the master station or submaster station, the submaster station does not change to the master operating station even if the master station is disconnected. (Data link cannot be performed because all the stations become faulty.)

### (b) During a CPU module stop error in the master station

While a CPU module stop error is occurring in the master station, the submaster station does not operate as a master operating station even if the submaster station is connected. (Data link is not started.)

### (c) If a submaster station starts to operate as a master operating station while cyclic transmission is stopped

If a submaster station starts to operate as a master operating station after cyclic transmission is stopped in the master station (during master operation), data link with the master station cannot be restarted in the submaster station. Restart data link in the master station.

## 8.8.6 Changes in the parameters when the submaster station is used

This section describes how to change the parameters when the submaster function is used.

### (1) When the setting is configured in the network parameter window of GX Works2

When the setting is configured in the network parameter window of GX Works2, the CPU module needs to be reset.

In addition, when the total stations and network configuration settings have been set in the submaster station, it is recommended to change the parameters in the order of the submaster operating station and the master operating station.

Ex. The following are the procedure of changing parameters when a submaster station is operating as a submaster operating station.

1. **Write the updated parameters to the submaster station.**
2. **Reset the CPU module on the submaster station or power off and on the system.**
   Because the parameters in the submaster station are different from those in the master station, a parameter error occurs in the submaster station. However, go to the step 3.
3. **Stop data link in all the stations.**
4. **Write the updated parameters to the master station.**
5. **Reset the CPU module on the master station or power off and on the system.**
6. **Because data link is stopped, an error occurs in the master station. However, go to the step 7.**
   The error in the submaster station is cleared.
7. **Restart data link in all the stations.**

When no setting is configured in the total stations and network configuration settings in the submaster station, follow the steps 3 to 7 above.

### (2) When the parameters have been set using the CCPASET instruction

When the parameters have been set using the CCPASET instruction, the CPU module does not need to be reset.

In addition, when the settings have been configured in the total stations and network configuration settings, it is recommended to change the parameters of the submaster station before the master station. The time length of a data link stop can be shortened.

1. **Execute the CCPASET instruction in the submaster station to change the parameter settings.**
   Because the parameters in the submaster station are different from those in the master station, a parameter error occurs in the submaster station. However, go to the step 2.
2. **Stop data link in all the stations.**
3. **Execute the CCPASET instruction in the master station to change the parameter settings.**
   The error in the submaster station is cleared.
4. **Restart data link in all the stations.**

When no setting is configured in the total stations and network configuration settings in the submaster station, follow the steps 2 to 4 above.

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# 8.8.7 Precautions

This section describes the precautions regarding the submaster function.

## (1) Versions of the master/local module and GX Works2

Before using the submaster function, check the versions of the master/local module and GX Works2. (☞Page 546, Appendix 8)

All the master/local modules on a network where the submaster function is used must support the submaster function.

### (a) Connection of a local station that does not support the submaster function

A local station that does not support the submaster function can be connected with the following restrictions:

- Data in the master station (station number 0) area is not stored in the local station.
- While the master station is being disconnected with the submaster station operating as a master operating station, transient transmission cannot be performed through the submaster station. Transient transmission ends abnormally.

### (b) Connection of a master station that does not support the submaster function with a submaster station connected

Data link is started without detecting overlaps, such as the submaster station in use and different parameters, in the submaster function.

### (c) Executing the parameter process of a slave station from a submaster station using GX Works2

Select "Operate with Parameter of Host Station" in the network settings. Configure the network configuration settings in the CC IE Field configuration window.

When "Operate with Parameter of Master Station" is selected in the network settings, the parameter process of a slave station cannot be executed from a submaster station.

## (2) Number of submaster stations

Set only one submaster station on one network. If multiple submaster stations are set, an error occurs in the submaster station. If a submaster station is added to a network with a submaster station connected, an error occurs only in the added submaster station.

## (3) Functions that can be used

Functions that can be used only in the master station cannot be used in a submaster operating station. (☞Page 36, Section 3.3)

The following are examples of the functions that can be used only in the master station:

- Stopping and restarting cyclic transmission performed for other stations
- Temporarily enabling/disabling a reserved station
- Enabling/canceling a temporary error invalid station
- Setting a station number for a station that does not have a station number

## (4) Output of a slave station

When the switch is performed between the master station and the submaster station, the output of a slave station is held.

### (5) Use of a safety station

When using the submaster function, do not use a safety station, such as the QS0J71GF11-T2, for a slave station. When the control is switched between a master station and a submaster station, an error may occur in safety communications.

### (6) CC-Link IE Field Network diagnostics

Connecting the master operating station to GX Works2 allows that the status of the entire network can be checked. If the status of the slave station or submaster station cannot be checked due to a cable disconnection and other reasons, directly connect the slave station or submaster station to a programming tool that supports these stations.

### (7) Temporary error invalid station setting in the submaster station

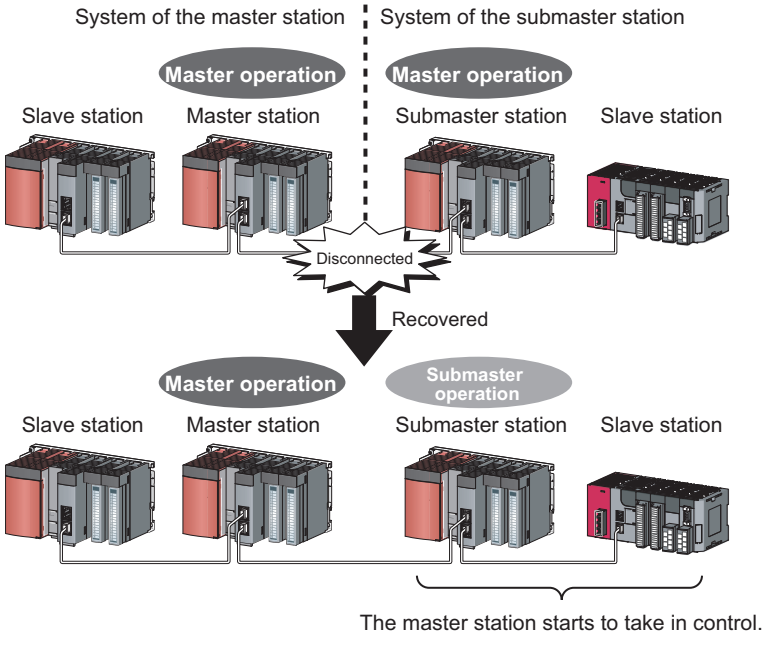
Do not set the temporary error invalid station setting in the submaster station operating as a master operating station. The setting is ignored.

### (8) Return of the master station with the submaster station being disconnected

Even if "Return as Sub-Master Station" is selected in the "Operation Setting for Returning" field on the "Supplementary Setting" window, the master station returns as a master operating station.

### (9) If a system is divided into two systems due to a cable disconnection and other reasons

If disconnection occurs as follows, the submaster station operates as a master operating station.
When disconnection is solved (the systems are joined into one system), the system of the submaster station is absorbed into that of the master station. Continuity of output data is not guaranteed in the slave station on the submaster station side.



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## (10)Access to the specified master station and submaster station in transient transmission

Access to the specified master station and submaster station cannot be performed using GX Works2 or dedicated instructions in the following modules:

- A master/local module with a serial number (first five digits) of "14022" or earlier
- A slave station that does not support access specifying the master station and submaster station

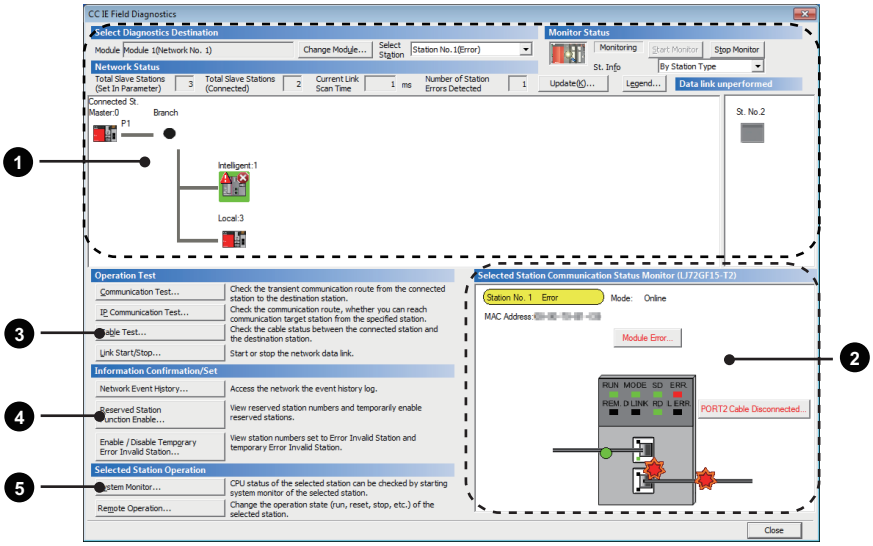
| Access destination specified in an unsupported module | Access destination |
|---|---|
| Master station (station number 0) | The master operating station is always accessed.<br>When the submaster station is operating as a master operating station, the submaster station is accessed. |
| Submaster station (station numbers 1 to 120) | The submaster operating station is always accessed.<br>When the master station is operating as a submaster operating station, the master station is accessed. |

# CHAPTER 9 CC-LINK IE FIELD NETWORK DIAGNOSTICS

This chapter describes how to check error locations, error causes, and event history using the CC-Link IE Field Network diagnostic function of GX Works2. With this function, the status of other stations can also be monitored.

## 9.1 Diagnostic Items

The following table lists items that can be diagnosed by the CC-Link IE Field Network diagnostics when GX Works2 is connected to the master/local module.
The diagnostic items differ depending on the station to which GX Works2 is connected.



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○: Diagnosed △: Diagnosed with restrictions ×: Not diagnosed

| | Item | GX Works2 is connected to: Master station or submaster station | GX Works2 is connected to: Local station | Restrictions | Reference |
|---|---|---|---|---|---|
| ❶ | Display of network map and error status | ○ | ○ | — | Page 214, Section 9.3 |
| ❶ | Display of disconnected cable and disconnected station | ○ | ○ | — | Page 214, Section 9.3 |
| ❷ | Display of selected station status and error details | ○ | ○ | This item is not displayed when the selected module does not support "Selected Station Communication Status Monitor" of GX Works2. | Page 214, Section 9.3 |
| | Slave station number setting | ○*1 | × | — | — |
| ❸ | Communication Test | ○ | ○ | — | Page 79, Section 6.4.3 |
| ❸ | IP Communication Test | ○ | ○ | — | Page 156, Section 8.3.3 |
| ❸ | Cable Test | ○ | ○ | — | Page 78, Section 6.4.2 |
| ❸ | Link Start/Stop | ○*1 | △ | To start/stop data link of another station, GX Works2 must be connected to the master station (or the master operating station when the submaster function is used). | Page 221, Section 9.4 |
| ❹ | Network Event History | ○ | ○ | Events that can be collected depend on the station type. | Page 223, Section 9.5 |
| ❹ | Reserved Station Function Enable | ○*1 | △ | When GX Works2 is connected to a local station, reserved stations are only displayed (cannot be set). | Page 225, Section 9.6 |
| ❹ | Enable/Disable Ignore Station Errors | ○*1 | △ | When GX Works2 is connected to a local station, temporary error invalid stations are only displayed (cannot be set). | Page 229, Section 9.7 |
| ❺ | System Monitor | ○ | ○ | A remote device station cannot be monitored. | Page 426, Section 12.2 |
| ❺ | Remote Operation | ○ | ○ | — | Page 234, Section 9.8 |

*1 When the own station operates as a submaster operating station, the function cannot be executed.

# 9.2 Starting Diagnostics

This section describes how to use the CC-Link IE Field Network diagnostics.

## (1) Procedure

**1. Connect GX Works2 to the CPU module.**

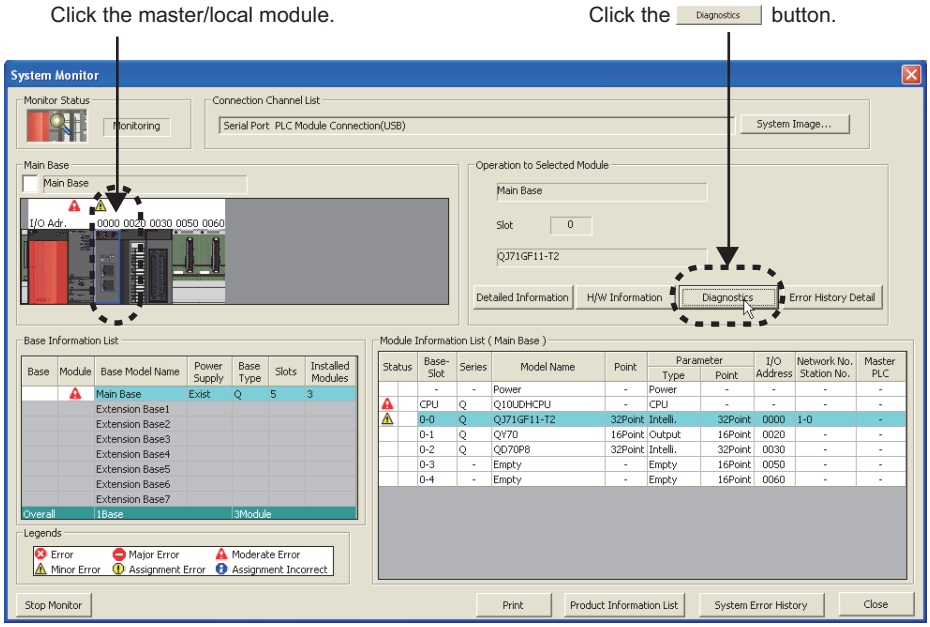
If a slave station cannot be monitored due to an error such as cable disconnection, directly connect the supported programming tool to the slave station.

**2. Start the CC-Link IE Field Network diagnostics from the menu.**

[Diagnostics] ⇨ [CC IE Field Diagnostics]

### Point

- When another station has been specified as a connected station
  The CC-Link IE Field Network diagnostics cannot be started when another station has been specified in "Other Station Setting" of the "Transfer Setup" window. Directly connect the supported programming tool to the slave station to be diagnosed, and start the CC-Link IE Field Network diagnostics.
- Starting diagnostics from the "System Monitor" window
  The CC-Link IE Field Network diagnostics can also be started from the "System Monitor" window.

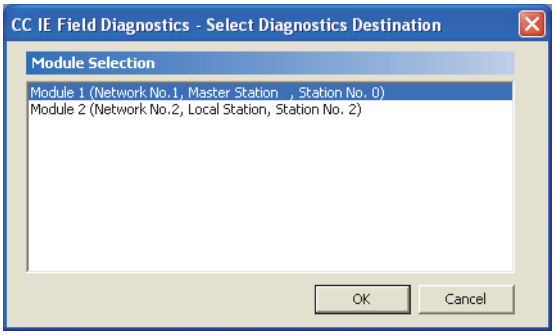


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**3. When the following window opens, select the master/local module to be diagnosed and click the OK button to start the CC-Link IE Field Network diagnostics.**

Modules are listed in the order configured in network settings. (☞ Page 84, Section 7.2)

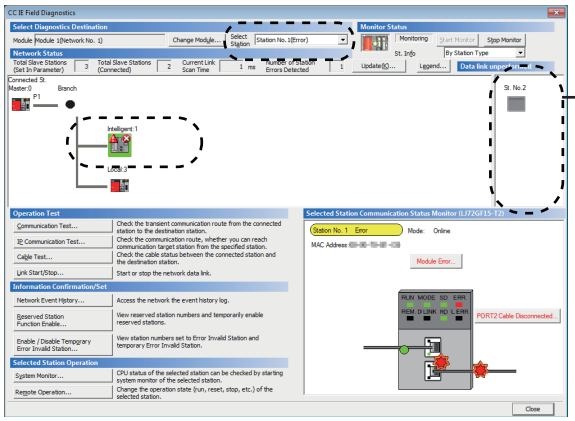



**Point**

When multiple master/local modules of the same network number are mounted on the same base unit, the module with the smallest start I/O number is always diagnosed, regardless of setting.

**4. Select the station to be diagnosed from "Select Station" or "Network Status".**

- , , or is displayed on the module icon of the station where an error occurs.
- A disconnected station that has performed data link is indicated with the icon in the network map.
  A disconnected station that has been set in the network configuration settings but has not yet performed data link is displayed on the right end of the area.
  However, even if a disconnected station had performed data link, it is displayed on the right end of the area in the following cases.
  - A station that was reconnected to a network after cable disconnection/insertion or power-off and power-on of the system and remains disconnected
  - A disconnected station with the station icon deleted in the network map by clicking the Update(K)... button
- is displayed on the icon of a cable where a communication error occurs. To check the details of the communication error, click the neighboring stations of .
- is displayed if loopback is performed due to error such as cable disconnection. (When the master/local module with a serial number (first five digits) of "17052" or later is the master station)
- is displayed if the network is configured in ring topology although the loopback function is disabled. Take a corrective action according to Page 213, Section 9.2 (2).
- is displayed if the network is configured in star topology although the loopback function is enabled. Take a corrective action according to Page 213, Section 9.2 (2).
- is displayed if the network is incorrectly configured in ring topology. Take a corrective action according to Page 213, Section 9.2 (2).



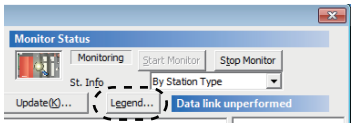
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**Point**

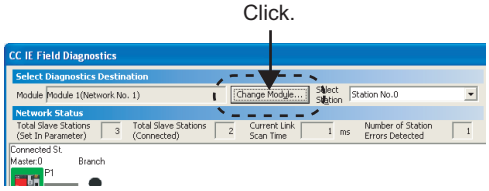
- Descriptions of icons

  Click the Legend... button. A brief description of the icon is displayed.




- When multiple master/local modules are mounted on the same base unit

  Clicking the Change Module... button will change the target module.




- Stations that cannot be selected as a diagnostic target

  In the following cases, the status of the corresponding station cannot be checked using the CC-Link IE Field Network diagnostics.

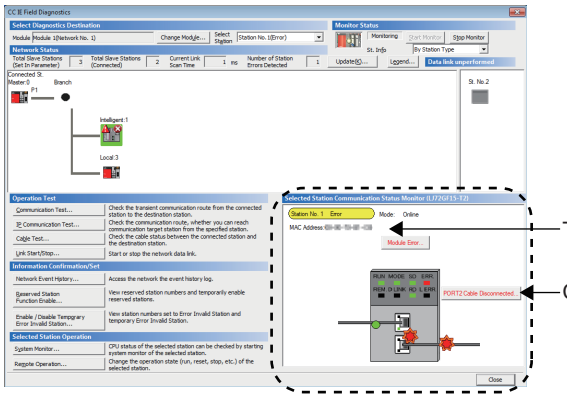
  - The network number of the station differs from those of other stations.
  - More than one master station exists in the network.
  - The same station number is used for multiple stations.
  - More than one submaster station with the same station number exists.

  Check the error details by directly connecting the supported programming tool to the slave station in error and opening the "System Monitor" window. (Page 461, Section 12.6)

**5.** **Status of a station selected in "Network Status" is displayed in "Selected Station Communication Status Monitor". (☞ Page 214, Section 9.3)**

The station status is displayed on the top of "Selected Station Communication Status Monitor".

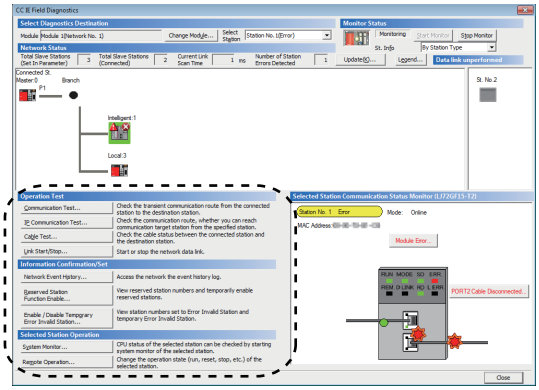
If an error occurs, a button indicating the error (e.g. PORT2 Communication Error... button) is displayed. Clicking the button allows checking of error details and corrective actions.




**6.** **If an error occurs in the CPU module, click the System Monitor... button to check the error details and corrective actions.**

**7.** **Various tests and operations can be executed using the buttons under "Operation Test", "Information Confirmation/Set", and "Selected Station Operation" on the bottom left of the window. (☞ Page 221, Section 9.4 to Page 234, Section 9.8)**

Various tests and operations can be performed.



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## (2) Measures if is displayed in "Network Status" even though loopback is not performed

### (a) If the system does not contain a switching hub

Ring topology is configured even though the loopback function is disabled.

Take the following measures:

- When not using the loopback function
  Disconnect an Ethernet cable connected to any station on the network (either PORT1 or PORT2).
  The network topology will become a line topology and data link will start.
- When using the loopback function
  1) Enable the loopback function and rewrite the network parameters to the CPU module.
  (☞ Page 178, Section 8.7)
  2) Check if the master/local module on the master station supports the loopback function.
  (☞ Page 546, Appendix 8)
  If the module does not support the loopback function, replace it with one that does.

### (b) If the system contains a switching hub

- is displayed due to any of the following causes:
- Ring topology is configured even though the loopback function is disabled.
- Star topology is configured even though the loopback function is enabled.
- The network is incorrectly configured in ring topology.

Take the following measures:

***1.*** **Check if the loopback function setting is correctly configured. (☞ Page 178, Section 8.7)**
**If incorrect, correct the network parameter and rewrite it to the CPU module.**
**When data link starts across the entire network, this procedure is successful.**
**If data link does not start, take the measures described 2 or 3.**

***2.*** **When the loopback function is disabled, take the following measures.**

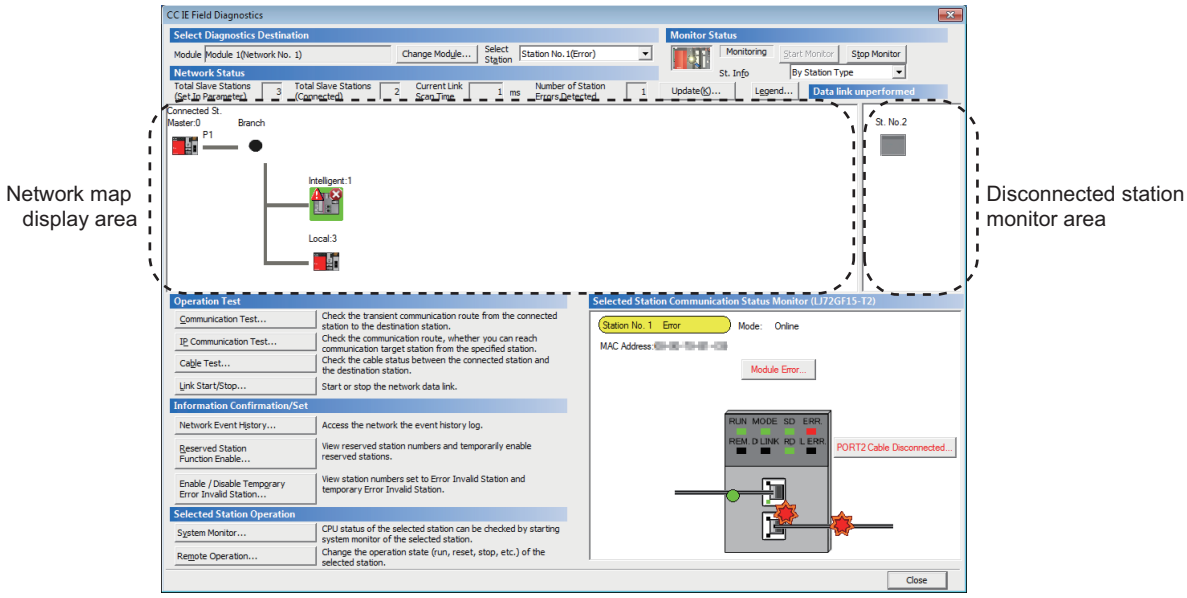
1) Disconnect one Ethernet cable connected to the switching hub and power off and then on the hub.
(Repeat this operation until data link starts over the network.)
2) When data link starts across the entire network, check the network map using the CC-Link IE Field Network diagnostics. (☞ Page 206, CHAPTER 9)

***3.*** **When the loopback function is enabled, take the following measures.**

1) Configure the network in ring topology without a switching hub.
Connecting a switching hub will cause a problem such as data link failure.
(☞ Page 54, Section 5.2.3 (2))
2) Check if the master/local module on the master station supports the loopback function.
(☞ Page 546, Appendix 8)
If the module does not support the loopback function, replace it with another that does.

# 9.3 Diagnostic Window

This section describes items displayed in the "CC IE Field Diagnostics" window.

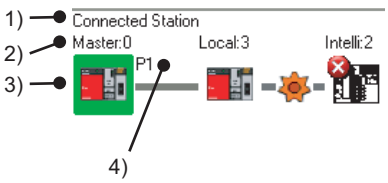
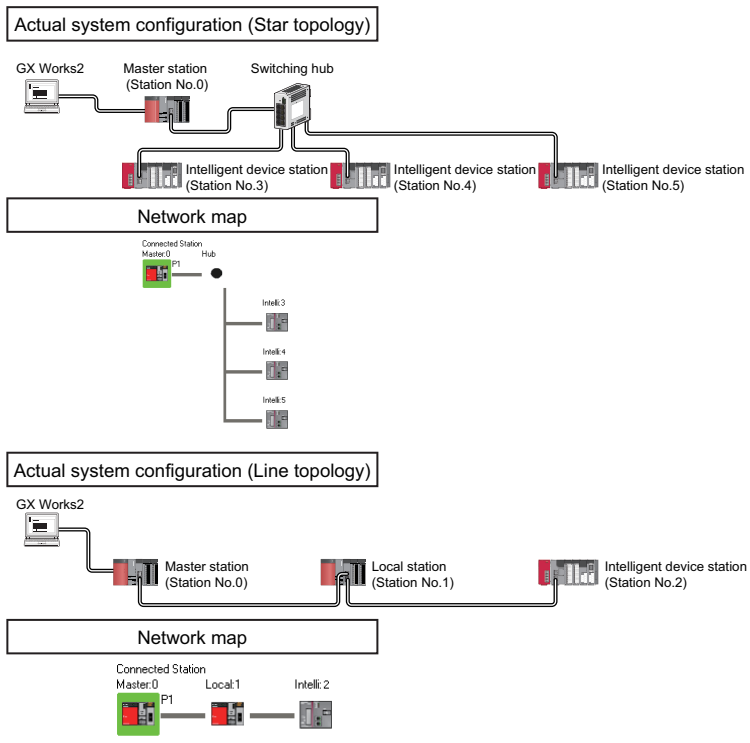



| Item | | Description |
|---|---|---|
| Select Diagnostics Destination | Module | Displays the master/local module being diagnosed. |
| | Change Module... button | When multiple master/local modules are mounted, the target module can be changed.<br><br>When multiple master/local modules of the same network number are mounted on the same base unit, the module with the smallest start I/O number is always diagnosed, regardless of setting. |
| | Select Station | Select a station to be diagnosed. If an error occurs in the selected station, "(Error)" is displayed after the station number.<br>A station to be diagnosed can be selected by clicking the module icon displayed in the network map. |
| Monitor Status | Start Monitor button | Starts monitoring of the CC-Link IE Field Network diagnostics. |
| | Stop Monitor button | Stops monitoring of the CC-Link IE Field Network diagnostics. |
| Update(K)... button | | • When a serial number (first five digits) of the master station is "17022" or later<br>Executes the network map update to match them if the actual network configuration and network map of the diagnostic window are inconsistent. (Page 57, Section 5.2.3 (7) (a))<br>• When a serial number (first five digits) of the master station is "17021" or earlier<br>Deletes a disconnected station displayed in the network map. The deleted station is displayed in the disconnected station monitor area. |

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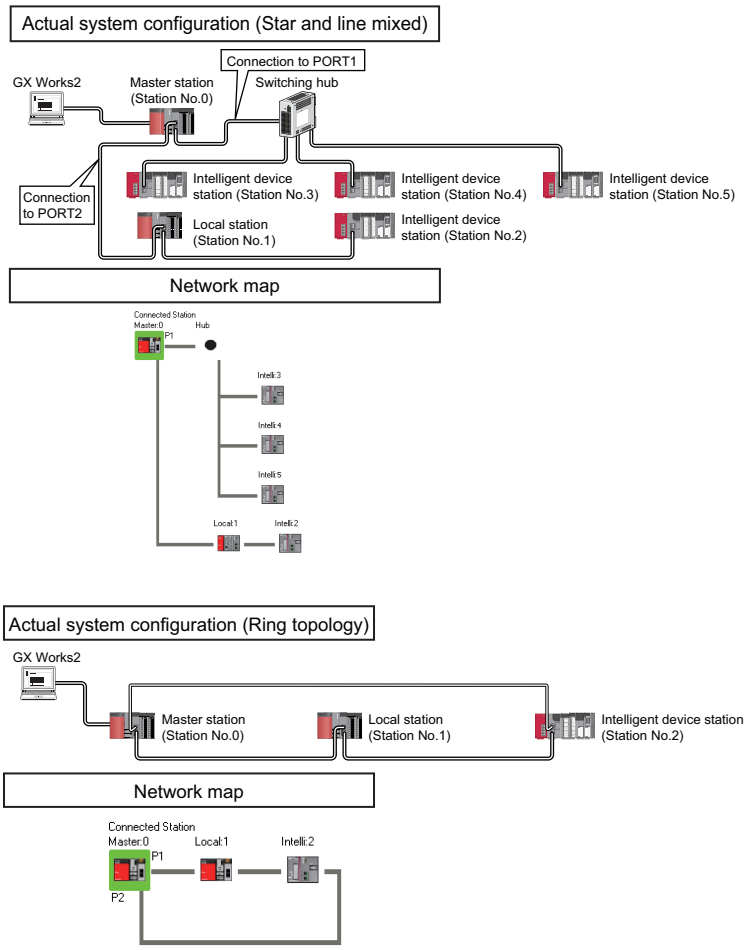


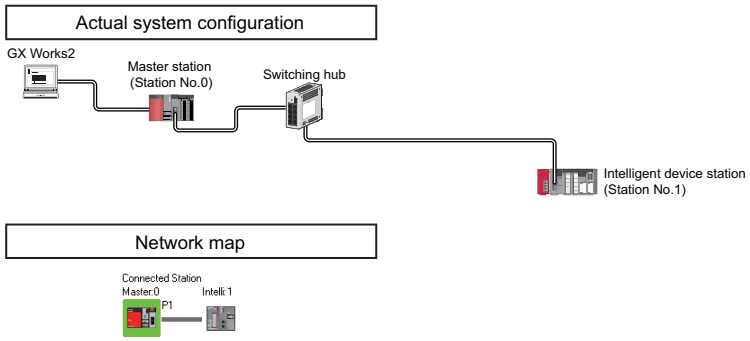
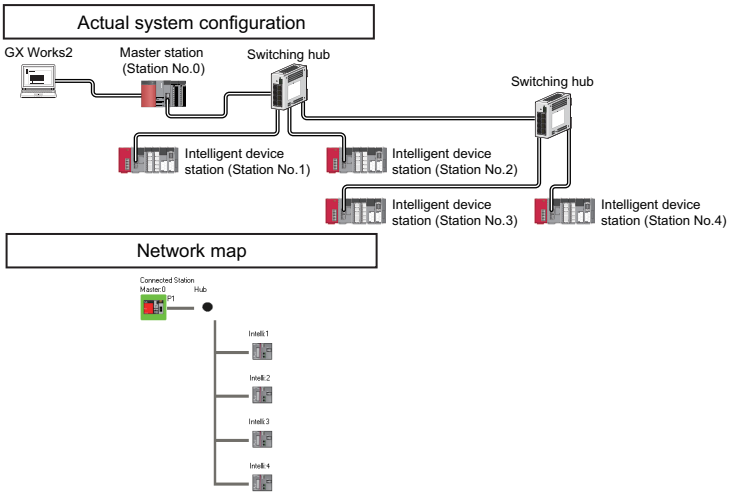
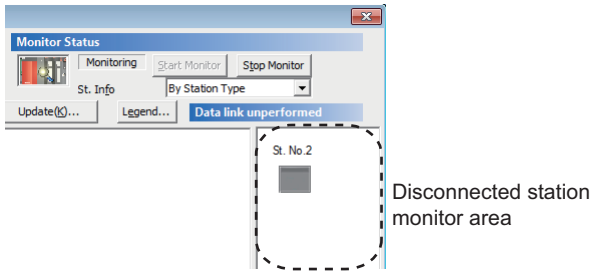
| Item | | Description |
|---|---|---|
| Legend... button | | Displays the meaning of icons displayed in the "CC IE Field Diagnostics" window.<br>  |
| St. Info | | The display name of the slave station can be selected from "By Device Name" and "By Station Type". When "By Device Name" is selected, the information entered in the device name of the network configuration settings is displayed.<br>Note the following points for the display in "By Device Name".<br>• When the name of a device is not entered in the network configuration setting, the station type is displayed.<br>• When "Operate with Parameter of Host Station" is set in the network settings of the project for the submaster station and the submaster station starts to operate as a master operating station, the name entered in the network configuration setting of the submaster station is displayed. (When the name of a device is not entered, the station type is displayed.)<br>• When "Operate with Parameter of Master Station" is set in the network settings of the project for the submaster station and the submaster station starts to operate as a master operating station, the station type is displayed. |
| Network Status | Total Slave Stations (Set In Parameter) | Displays the total number of slave stations set by parameter. |
| | Total Slave Stations (Connected) | Displays the total number of slave stations during data link on CC-Link IE Field Network. |
| | Current Link Scan Time | Displays the link scan time of the displayed network. |
| | Number of Station Errors Detected | Displays the number of error stations in the displayed network. |

| Item | | Description |
|---|---|---|
| Network Status | Network map | Displays the network map of CC-Link IE Field Network and the status of each station.<br>If the status is not displayed, check that there is only one master station in the system and no station number is overlapped.<br>(1) Icon<br>The module type and station number are displayed with an icon.<br>  <br><br>• Click : Selection<br>• Double-click : Displays the "System Monitor" window.<br>• Right-click : Executes a test or debugging.<br>• ← → ↑ ↓ keys on the keyboard :<br>Move the focus to the module to be diagnosed, and determine it with the Space key.<br><br>1) Indicates the station (own station) where GX Works2 is connected.<br><br>2) Displays the network type and station number. "?" is displayed when a station number has not been set. When the text's background is colored, the relevant station may have been configured as a reserved station or an error invalid station. Click the Legend... button to check the meaning of the background colors.<br><br>3) Shows module status. Click the Legend... button to check the meaning of the icon.<br><br>4) Displays a port to which an Ethernet cable is connected.<br><br>(2) Scaling<br>If all stations are not displayed in the network map, enlarge or reduce the area by pressing the Ctrl key and scrolling the wheel of a mouse. The current zoom size is displayed by placing the mouse pointer on the network map.<br>(3) Network map<br>A network map is displayed according to the connection status.<br>  <br> |

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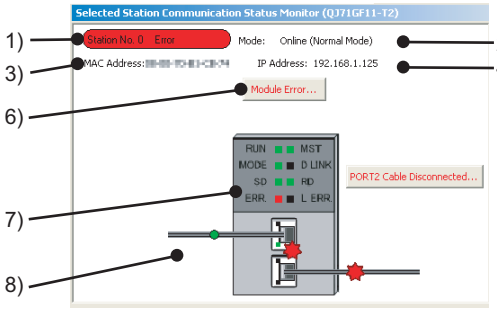
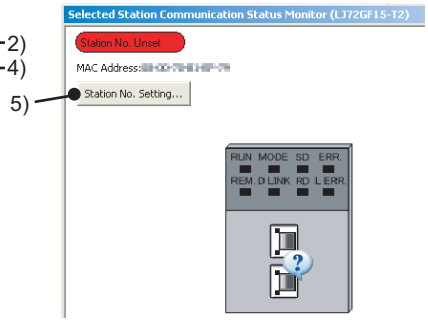
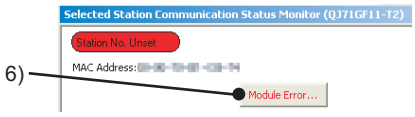
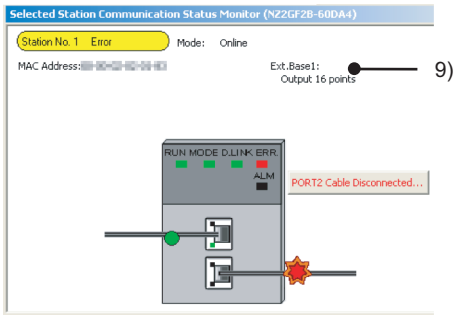


| Item | | Description |
|---|---|---|
| Network Status | Network map |  |

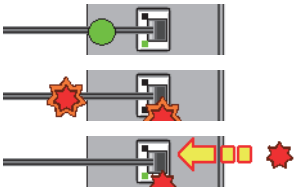
| Item | | Description |
|---|---|---|
| Network Status | Network map | Note that, in the following cases, the network map that is different from the actual system configuration is displayed.<br>• Two stations are connected through a switching hub.<br>Branches are not displayed in the network map.<br>  <br>• Switching hubs are in cascade connection.<br>Only one branch is displayed.<br>  |
| | Disconnected station monitor area | Displays a disconnected station that has been set in the network configuration settings but has not yet performed data link. However, even if a disconnected station had performed data link, it is displayed in this area in the following cases.<br>• A station that was reconnected to a network after cable disconnection/insertion or power-off and power-on of the system and remains disconnected<br>• A disconnected station with the station icon deleted in the network map by clicking the Update(K)... button<br>  <br>The icon indicates a station that has not yet performed data link.<br>Icons other than indicate stations that had performed data link before disconnection. |

AbN automation



| Item | Description |
|---|---|
| Selected Station Communication Status Monitor | Displays status of the station selected in "Network Status".<br><br>When a station where an error has occurred is selected<br><br>  <br><br><br>When a station with no station No. setting is selected<br><br>  <br><br><br>  <br><br><br>When a remote device station is selected<br><br>  <br> |

| | |
|---|---|
| 1) | Displays operating status.<br>Station No. 1 No Error : Normal operation<br>Station No. 1 Error : Error (Data link is continued.) (yellow)<br>Station No. 1 Error : Error (Data link is stopped.) (red) |
| 2) | Displays a mode. |
| 3) | Displays a MAC address. |
| 4) | Displays an IP address (only when it is set). |
| 5) | Sets a station number for a slave station to which a station number has not been set. This button is displayed only when a slave station meeting all the following conditions has been selected in "Network Status".<br>• The slave station supports station number setting from the master station.<br>• A station number has not been set to the slave station.[*1]<br><br>When a station set in "Network Configuration Settings" is added, the external device connected to the slave station outputs data input from the master station, simultaneously with configuration of the station number setting. Therefore, set the CPU module to STOP or check that outputs from the external device will not cause a problem beforehand. |
| 6) | Click this button to check error details. Take corrective actions, following description displayed in "Error Factor" and "Troubleshooting". |

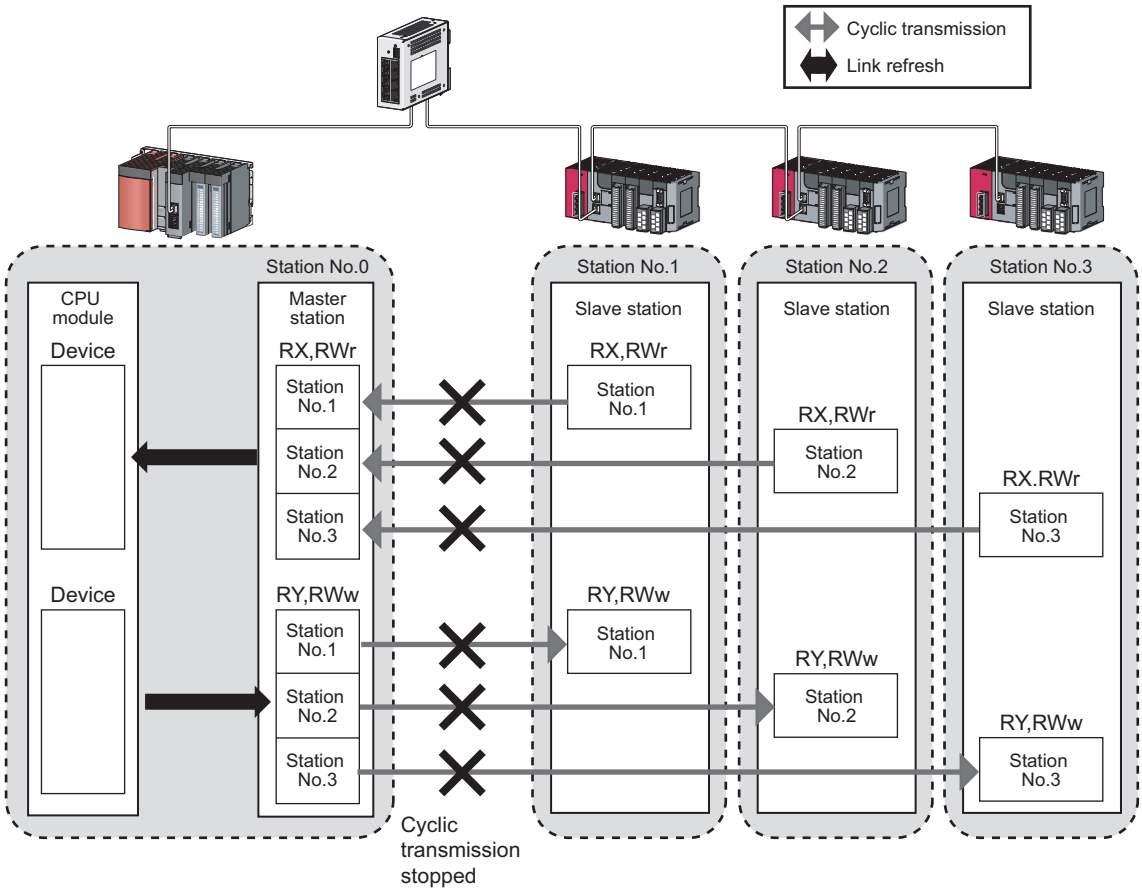
<table>
<tr><th colspan="2">Item</th><th>Description</th></tr>
<tr><td colspan="2" rowspan="4">Selected Station Communication Status Monitor</td><td>
<table>
<tr><td>7)</td><td>Displays the LED status of a module and communication status of PORT1 and PORT2. (Page 31, CHAPTER 2)</td></tr>
<tr><td>8)</td><td>Displays status of the cables connected to PORT1 and PORT2.<br>  <br>: Properly connected<br>: Error (cable disconnection)<br>: Error (other than cable disconnection)</td></tr>
<tr><td>9)</td><td>Displays the information of the extension module connected to the remote device station.*2</td></tr>
</table>
</td></tr>
<tr><td colspan="2">*1 For how to clear the station number set for a slave station in the CC-Link IE Field Network diagnostics, refer to the manuals for modules used on slave stations.<br>*2 To display the information of an extension module, a master/local module with a serial number (first five digits) of 14102 or later is required.</td></tr>
<tr><td rowspan="4">Operation Test</td><td>Communication Test... button</td><td>Performs a communication test. (Page 79, Section 6.4.3)</td></tr>
<tr><td>IP Communication Test... button</td><td>Performs an IP communication test. (Page 156, Section 8.3.3)</td></tr>
<tr><td>Cable Test... button</td><td>Performs a cable test. (Page 78, Section 6.4.2)</td></tr>
<tr><td>Link Start/Stop... button</td><td>Starts or stops cyclic transmission. (Page 221, Section 9.4)</td></tr>
<tr><td rowspan="3">Information Confirmation/ Set</td><td>Network Event History... button</td><td>Displays event history of a network. (Page 223, Section 9.5)</td></tr>
<tr><td>Reserved Station Function Enable... button</td><td>Temporarily cancels a reservation for a slave station or reserves the slave station again. (Page 225, Section 9.6)</td></tr>
<tr><td>Enable / Disable Ignore Station Errors... button</td><td>Sets a slave station as a temporary error invalid station. (Page 229, Section 9.7)</td></tr>
<tr><td rowspan="2">Selected Station Operation</td><td>System Monitor... button</td><td>Displays the System Monitor window. (Page 426, Section 12.2)</td></tr>
<tr><td>Remote Operation... button</td><td>Performs remote operations (RUN, STOP, and RESET operations) to the CPU module. (Page 234, Section 9.8)</td></tr>
</table>

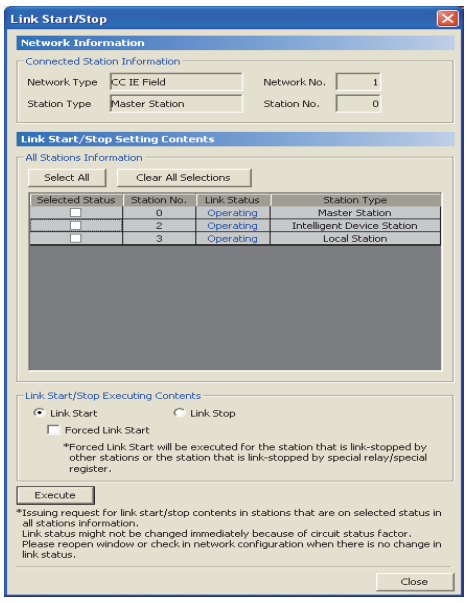
AbN automation



# 9.4 Link Start/Stop

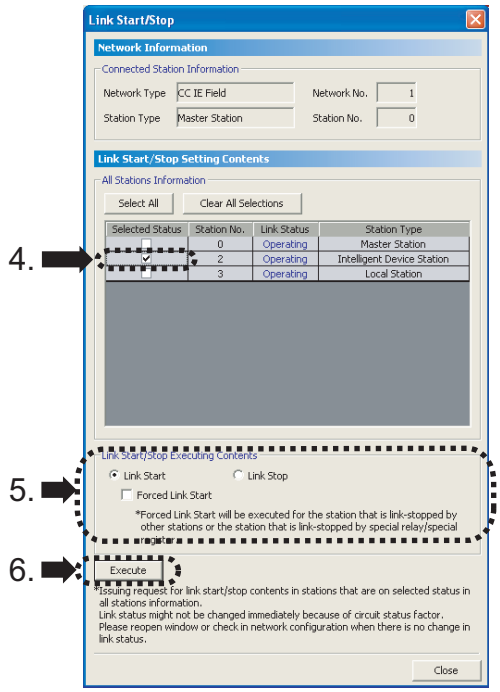
This function stops or restarts cyclic transmission of the master/local module. Data reception from slave stations and data transmission of the own station are disabled during debugging. The stopped cyclic transmission can be restarted. This function does not stop or restart transient transmission.




1. **Connect GX Works2 to the CPU module.**
2. **Start the CC-Link IE Field Network diagnostics from the menu.**

   [Diagnostics] ⇨ [CC IE Field Diagnostics]
3. **Click the** Link Start/Stop... **button in the "CC IE Field Diagnostics" window.**
   **Or right-click a module icon in "Network Status", and click [Link Start/Stop].**
   The "Link Start/Stop" window opens.




**4. Select a station for starting or stopping cyclic transmission in "Selected Status".**

When GX Works2 is connected to a local station, only the own station can be selected. The station to which GX Works2 is connected can be checked in "Network Status".

**5. Select whether to start or stop cyclic transmission in "Link Start/Stop Executing Contents".**

Selecting "Forced Link Start" will forcibly start cyclic transmission of the station where cyclic transmission was stopped by a command from another station or by link special relay (SB) or link special register (SW).

**6. Click the Execute button.**

The execution status of cyclic transmission can be checked in "Link Status".

## Point

- Mode
  The link start/stop is not available in loop test mode.
- When the CPU module is reset or the system is powered off and on
  Even if cyclic transmission has been stopped by this function, it will restart.
- If the link stop is executed to an error invalid station or temporary error invalid station
  Note that the station is displayed as a station during data link in the CC-Link IE Field Network diagnostics window even after data link has been stopped. Check the data link status in Data link status (own station) (SB0049). (If SB0049 is on, data link is stopped.)
- Stations to which the link start cannot be executed
  The link start cannot be executed to the following stations.
  - Station where cyclic transmission was stopped due to an error
  - Station where link was stopped by a command from another station*1
  - Station where link was stopped by link special relay (SB) or link special register (SW)*1

*1 Selecting "Forced Link Start" will start the link.

## Remark

Cyclic transmission can be started and stopped using link special relays (SBs) and link special registers (SWs). (Page 408, Section 11.4)

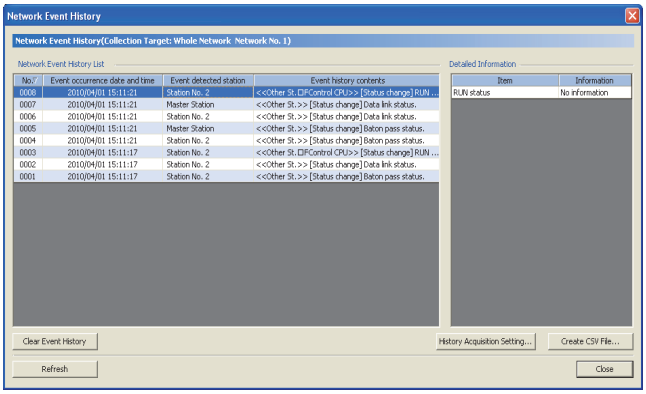
AbN automation

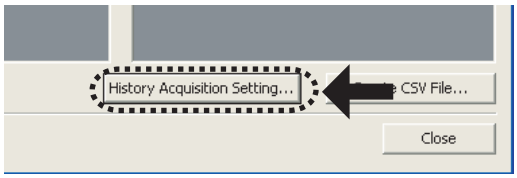
# 9.5 Network Event History

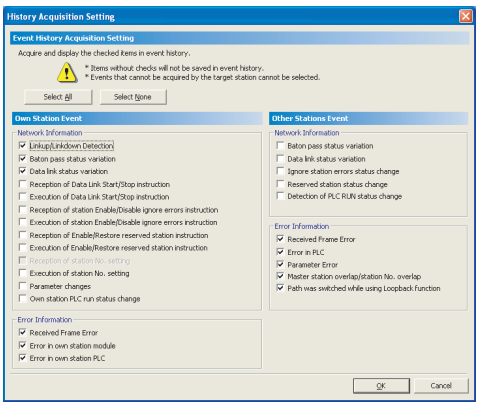


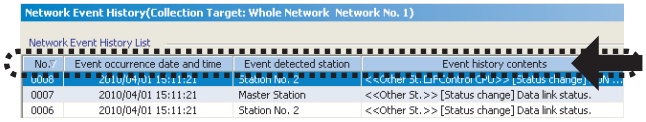
The history of events occurred in the own station and in the network can be displayed. When the master station is the target module, event history of the entire network can be displayed. The history data are useful for troubleshooting at the start of the network system.

## (1) Displaying event history



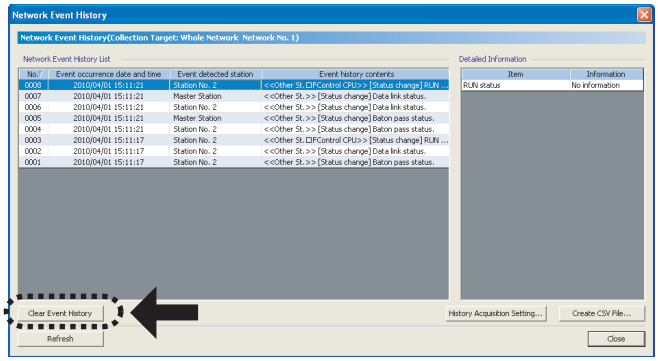

1. **Connect GX Works2 to the CPU module.**
2. **Start the CC-Link IE Field Network diagnostics from the menu.**

   [Diagnostics] ⇨ [CC IE Field Diagnostics]
3. **Click the Network Event History... button in the "CC IE Field Diagnostics" window.**
   **Or right-click a module icon in "Network Status", and click [Network Event History].**
   The "Network Event History" window opens.
4. **Click the History Acquisition Setting... button to select the events to be collected.**
5. **Select events to be collected and click the OK button.**
   Events that can be collected depend on the station type (master station or local station).
6. **Click each title to sort the events.**

**Point**

- The number of displayed events
  Up to 1000 events can be displayed. When the maximum is reached, the events will be erased in sequence starting from the oldest one and the latest events will be displayed.
- Incorrect display of error occurrence time and date
  For the master/local module with a serial number (first five digits) of "17051" or earlier, if an error occurs during initial processing of the CPU module, "0000/00/00 00:00:00" will be displayed.

## (2) Clearing event history




**1.** **Click the Clear Event History button in the "Network Event History" window.**

## (3) Storing event history data

### (a) Auto-save feature

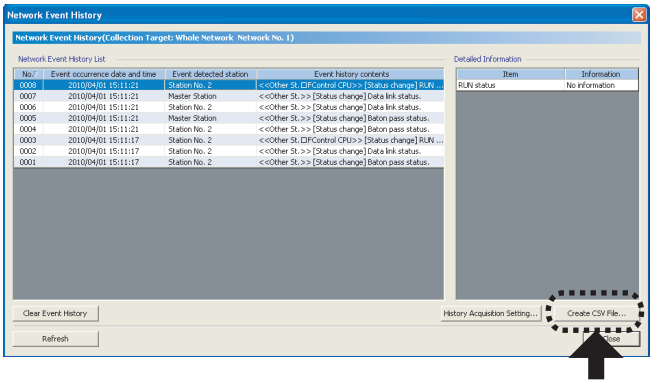
When the serial number (first five digits) of the master/local module is "12072" or later, event history data is automatically saved on the flash ROM. For this reason, the saved event history data will not be erased by resetting the CPU module or powering off and on the system.

**Remark**

- Auto-save may fail if performed between the time that the CPU module is reset or the system is powered off and on and initial processing is completed. If failed, the event, “Invalid event history data." is displayed in “Event history contents”.
- Events that have occurred during one second before the CPU module is reset or the system is powered off are not saved to event history.

### (b) Storing event history data in a CSV file

Event history data can be stored in a CSV file.




**1.** **Click the Create CSV File... button in the "Network Event History" window and save the event history data in a CSV file.**

AbN automation

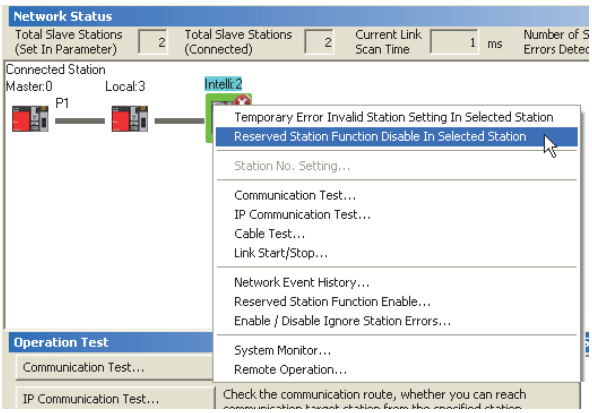
# 9.6 Disabling/Enabling Reserved Station Setting



A reservation for a slave station can be temporarily cancelled. Use this function to cancel the reservation of a slave station when it is connected to the network, or to reset it as a reserved station.

## (1) Selecting the target module in "Network Status"

### (a) Temporarily canceling a reservation

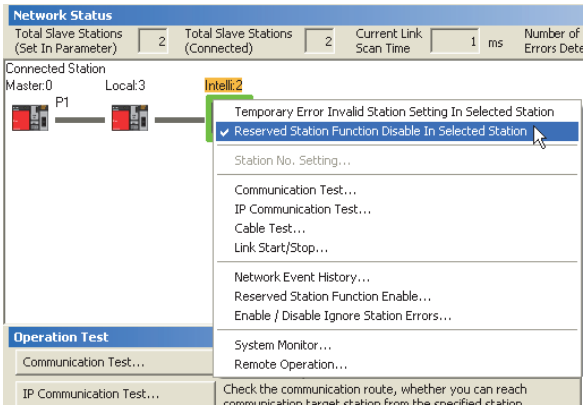



1. **Connect a slave station specified as a reserved station to the network.**
2. **Connect GX Works2 to the CPU module.**
3. **Start the CC-Link IE Field Network diagnostics from the menu.**

   [Diagnostics] ⇨ [CC IE Field Diagnostics]
4. **In "Network Status", right-click the icon of the station for which reservation is to be cancelled. Click [Reserved Station Function Disable In Selected Station].**

   The text background turns orange. The reservation for the slave station is temporarily cancelled.
5. **Debug the slave station that has been added.**

### (b) Reserving the slave station again




1. **In "Network Status", right-click the icon of the station to be reserved again. Click [Reserved Station Function Disable In Selected Station].**

   The text background turns light blue. The slave station is reserved again.

**Point**

- Parameter setting
  The network parameter does not reflect the temporary cancellation of reserved station specification.
- When the master station is reset or the system is powered off
  The disabled reserved station setting is ignored, and the slave station returns to the status set by the network parameter of the master station.
- When a station for which the reserved station setting has been temporarily disabled is disconnected from the network
  The following status differs between the master station and local stations after the CPU module on the master station is reset or the system is powered off.
  - ERR. LED status
  - Reserved station setting status (SW00C0 to SW00C7) and Reserved station cancel setting status (SW0180 to SW0187)

  The difference can be corrected by the following procedure.
  1. Reconnect the disconnected station.
  2. Disable the reserved station setting, and then enable the reserved station setting again.
- Checking the station number of a reserved station
  The station number of a reserved station can be checked in the "Reserved Station Function Enable" window. (Page 227, Section 9.6 (2))

**Remark**

The reserved station setting can also be temporarily disabled/enabled using link special relays (SBs) and link special registers (SWs) of the master station. (Page 408, Section 11.4)

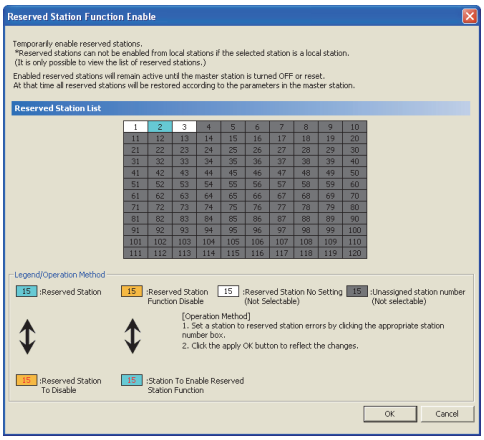
AbN automation

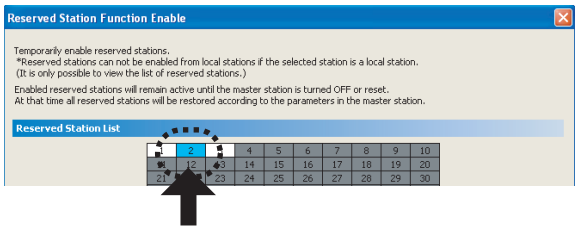


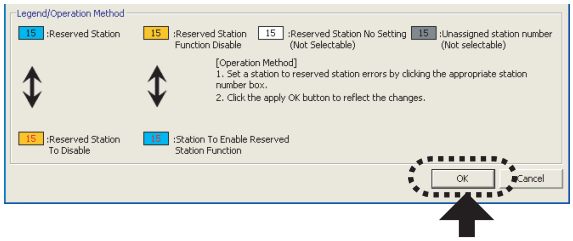
## (2) Selecting the target module in the "Reserved Station Function Enable" window

Reservation of multiple slave stations can be temporarily cancelled through the "Reserved Station Function Enable" window all at once.

### (a) Temporarily canceling a reservation




**1.** **Connect a slave station specified as a reserved station to the network.**

**2.** **Connect GX Works2 to the CPU module.**

**3.** **Start the CC-Link IE Field Network diagnostics from the menu.**

[Diagnostics] ⇨ [CC IE Field Diagnostics]

**4.** **Click the** Reserved Station Function Enable... **button in the "CC IE Field Diagnostics" window.**

The "Reserved Station Function Enable" window opens.

**5.** **In "Reserved Station List", click the number of the target station. The text turns red and the background turns orange.**

Ex. : 2 → 2

Only reserved stations can be selected. The background of a reserved station number is displayed in light blue.

**6.** **Clicking the** OK **button will temporarily cancel the reservation.**

**7.** **Debug the slave station that has been added.**

**Point**

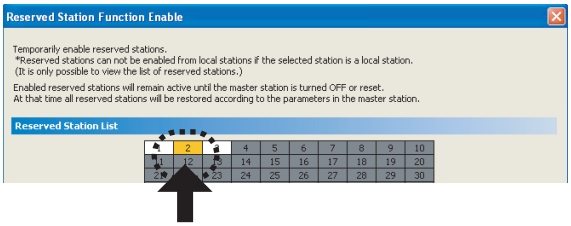
- Parameter setting
  The network parameter does not reflect the temporary cancellation of reserved station specification.
- When the master station is reset or the system is powered off
  The disabled reserved station setting is ignored, and the slave station returns to the status set by the network parameter of the master station.
- When a station for which the reserved station setting has been temporarily disabled is disconnected from the network
  The following status differs between the master station and local stations after the CPU module on the master station is reset or the system is powered off.
  - ERR. LED status
  - Reserved station setting status (SW00C0 to SW00C7) and Reserved station cancel setting status (SW0180 to SW0187)

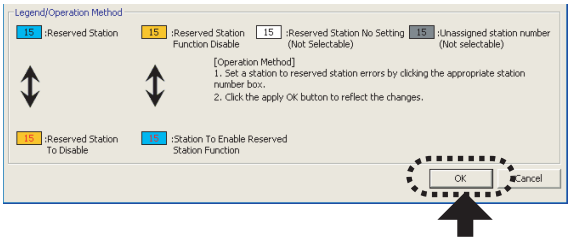
  The difference can be corrected by the following procedure.
  1. Reconnect the disconnected station.
  2. Disable the reserved station setting, and then enable the reserved station setting again.

**Remark**

The reserved station setting can also be temporarily disabled/enabled using link special relays (SBs) and link special registers (SWs) of the master station. (Page 408, Section 11.4)

### (b) Setting a station as a reserved station again




**1. Open the "Reserved Station Function Enable" window in the same way as described in (2) (a).**

**2. In "Reserved Station List", click the number of the target station. The text turns red and the background turns light blue.**

Ex. : 2 → 2

Only stations not specified as a reserved station can be selected. The background of available modules is orange.

**3. Click the OK button.**

AbN automation

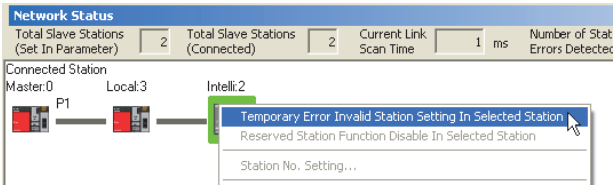
# 9.7 Setting/Canceling Temporary Error Invalid Station



A slave station not set as an error invalid station can be temporarily set as an error invalid station. This function is used to temporarily prevent detection of an error in a slave station.
This function also cancels temporary error invalid station setting configured to a slave station.

## (1) Selecting the target module in "Network Status"

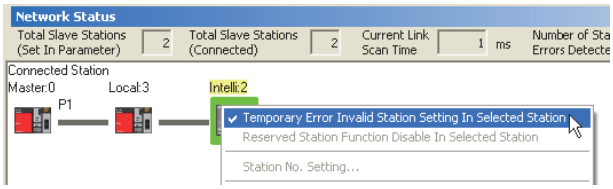
### (a) Temporary error invalid station setting




1. **Connect GX Works2 to the CPU module.**
2. **Start the CC-Link IE Field Network diagnostics from the menu.**

   [Diagnostics] ⇨ [CC IE Field Diagnostics]
3. **In "Network Status", right-click the icon of the station for which temporary error invalid station setting is to be configured. Click [Temporary Error Invalid Station Setting In Selected Station].**
   The text background turns yellow. The target station is temporarily set as an error invalid station.

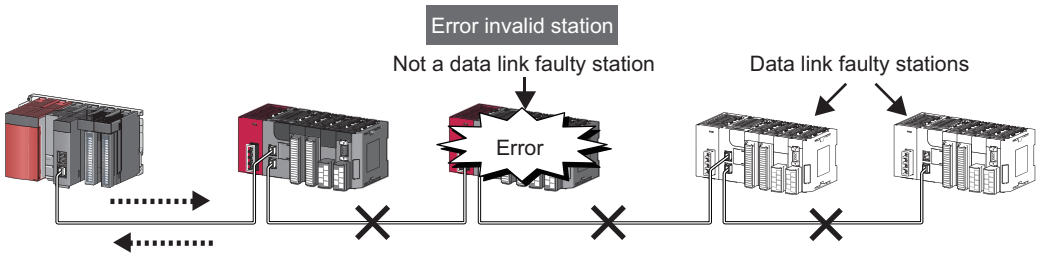
### (b) Canceling temporary error invalid station setting




1. **In "Network Status", right-click the icon of the station for which temporary error invalid station setting is to be cancelled. Click [Temporary Error Invalid Station Setting In Selected Station].**
   The text background turns white.
   The temporary error invalid station setting is cancelled.

## Point

- Stations for which the temporary error invalid station setting cannot be configured
  The temporary error invalid station setting cannot be configured for the following stations.
  - A slave station for which the reserved station setting is temporarily canceled
  - A submaster station
- Setting a temporary error invalid station in line topology
  In the following case, even if a data link error occurs in the station set as an error invalid station, the station is not detected as a data link faulty station. However, subsequently connected stations are detected as data link faulty stations.




- Parameter setting
  The network parameter does not reflect temporary error invalid station setting.
- When the master station is reset or the system is powered off
  The temporary error invalid station setting is canceled, and the slave station returns to the status set by the network parameter of the master station.
- When a temporary error invalid station is disconnected from the network
  The following status differs between the master station and local stations after the CPU module on the master station is reset or the system is powered off.
  - ERR. LED status
  - Temporary error invalid station setting status (SW00E0 to SW00E7)

The difference can be corrected by the following procedure.
1. Reconnect the disconnected station.
2. Configure the temporary error invalid station setting, and cancel the setting.

- Checking the station number of an error invalid station
  The station number of an error invalid station can be checked in the "Enable/Disable Ignore Station Errors" window.
  (Page 231, Section 9.7 (2))

## Remark

The temporary error invalid station setting can also be configured/canceled using link special relays (SBs) and link special registers (SWs) of the master station. (Page 408, Section 11.4)

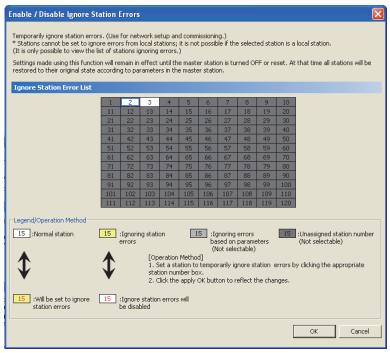
AbN automation

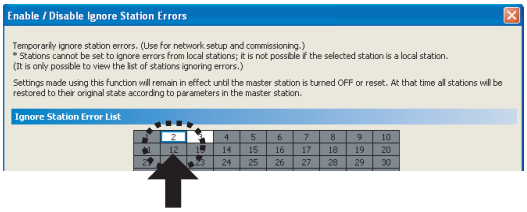


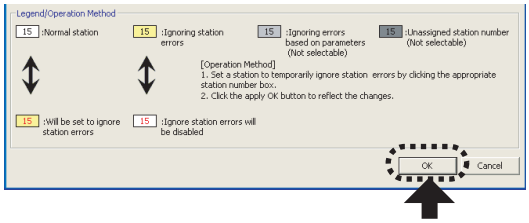
## (2) Configuring/canceling the setting in the "Enable/Disable Ignore Station Errors" window

Temporary error invalid station setting can be configured to multiple slave stations through the "Enable/Disable Ignore Station Errors" window all at once.

### (a) Temporary error invalid station setting




1. **Connect GX Works2 to the CPU module.**
2. **Start the CC-Link IE Field Network diagnostics from the menu.**

   [Diagnostics] ⇨ [CC IE Field Diagnostics]
3. **Click the** Enable / Disable Ignore Station Errors... **button in the "CC IE Field Diagnostics" window.**

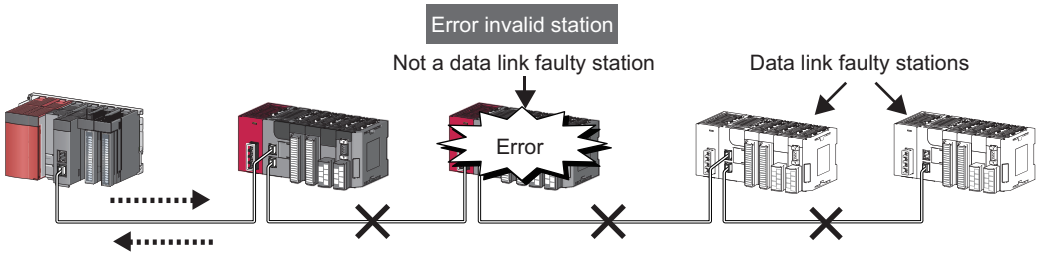
   The "Enable/Disable Ignore Station Errors" window opens.
4. **In "Ignore Station Error List", click the number of the target station. The text turns red and the background turns yellow.**

   Ex. : 2 → 2

   Only stations for which temporary error invalid station setting has not been configured can be selected (displayed in white).
5. **Clicking the** OK **button will temporarily set the station as an error invalid station.**

## Point

- Stations for which the temporary error invalid station setting cannot be configured
  The temporary error invalid station setting cannot be configured for the following stations.
  - A slave station for which the reserved station setting is temporarily canceled
  - A submaster station
- Setting a temporary error invalid station in line topology
  In the following case, even if a data link error occurs in the station set as an error invalid station, the station is not detected as a data link faulty station. However, subsequently connected stations are detected as data link faulty stations.




- Parameter setting
  The network parameter does not reflect temporary error invalid station setting.
- When the master station is reset or the system is powered off
  The temporary error invalid station setting is canceled, and the slave station returns to the status set by the network parameter of the master station.
- When a temporary error invalid station is disconnected from the network
  The following status differs between the master station and local stations after the CPU module on the master station is reset or the system is powered off.
  - ERR. LED status
  - Temporary error invalid station setting status (SW00E0 to SW00E7)

The difference can be corrected by the following procedure.
1. Reconnect the disconnected station.
2. Configure the temporary error invalid station setting, and cancel the setting.

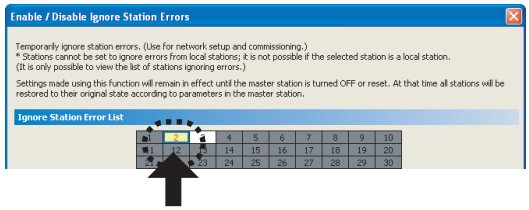
## Remark

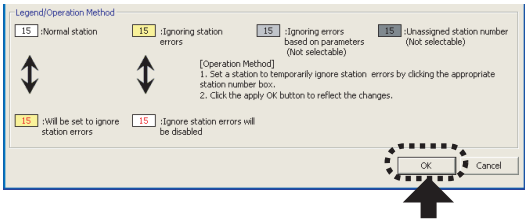
The temporary error invalid station setting can also be configured/canceled using link special relays (SBs) and link special registers (SWs) of the master station. (Page 408, Section 11.4)

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### (b) Canceling temporary error invalid station setting




***1.*** **Open the "Enable/Disable Ignore Station Errors" window in the same way as described in (2) (a).**

***2.*** **In "Ignore Station Error List", click the number of the target station. The text turns red and the background turns white.**

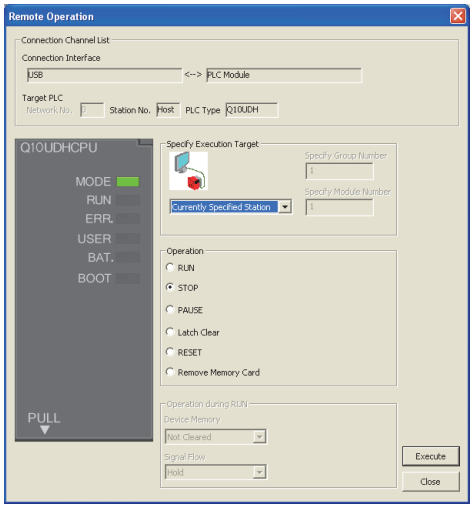
Ex. : 2 → 2

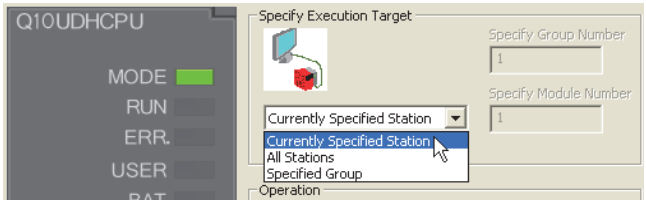
Only temporary error invalid stations can be selected. The background of a temporary error invalid station number is displayed in yellow.

***3.*** **Click the OK button.**

# 9.8 Remote Operation

Remote operations (RUN, STOP, and RESET operations) can be executed from GX Works2 to the station selected on the "CC IE Field Diagnostics" window.
The displayed window varies depending on the station selected. For the operations with a module other than a master/local module selected, refer to the manual for the module used.



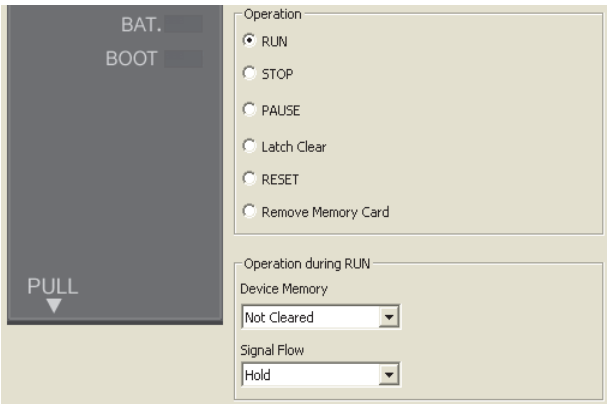

1. **Connect GX Works2 to the CPU module.**
2. **Start the CC-Link IE Field Network diagnostics from the menu.**

   [Diagnostics] ⇨ [CC IE Field Diagnostics]
3. **Select the module where the remote operations are performed in the "CC IE Field Diagnostics" window.**
4. **Click the** Remote Operation... **button in the "CC IE Field Diagnostics" window.**
   **Or right-click a module icon in "Network Status", and click [Remote Operation].**
   The "Remote Operation" window will open.
5. **Specify the target station in "Specify Execution Target".**

| Item | Description |
|---|---|
| Currently Specified Station | A remote operation is executed only to the CPU module on the station selected in "Network Status" in the "CC IE Field Diagnostics" window. |
| All Stations | A remote operation is performed on all stations on the network selected under "Specify Execution Target". |
| Specified Group | When the target station is on CC-Link IE Field Network, remote operation cannot be performed by selecting this item. If performed, an error will occur. |

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***6.*** **Select a remote operation to be performed under "Operation" and "Operation during RUN".**

| Item | Description |
|---|---|
| RUN | Select a remote operation to be performed to the CPU module. |
| STOP | |
| PAUSE | |
| Latch Clear | |
| RESET*1 | |
| Remove Memory Card*2 | |
| Device Memory | Select whether to clear device memory data in the CPU module when remote RUN is performed. |
| Signal Flow | Select whether to hold signal flow when remote RUN is performed. |

***7.*** **Click the Execute button to perform the remote operation.**

*1 To perform remote RESET, preset "Allow" in "Remote Reset" in the "PLC System" of the PLC parameter window.

*2 Remove the memory card by the procedure described in the manual for the CPU module.
( User's Manual (Hardware Design, Maintenance and Inspection) for the CPU module used)

# CHAPTER 10 DEDICATED INSTRUCTIONS

Dedicated instructions facilitate programming for using intelligent function modules.
This chapter describes dedicated instructions that can be used in the master/local modules.

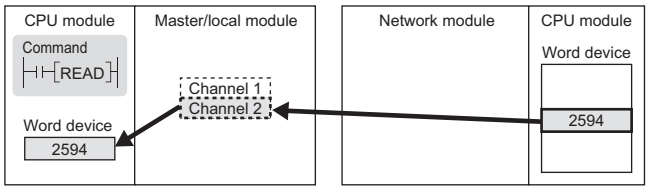
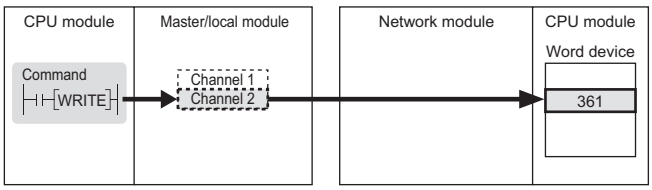
## 10.1 List of Dedicated Instructions

The following describes dedicated instructions that can be used in the master/local modules and their transmission range.

### (1) Link dedicated instructions

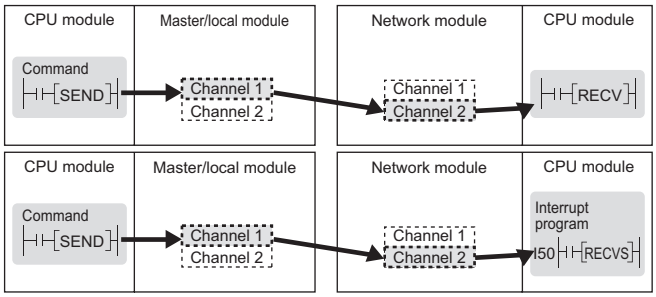
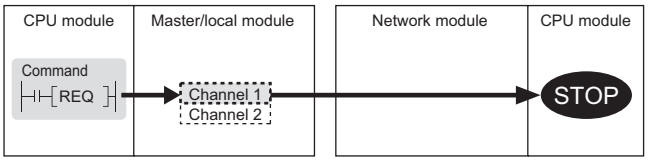
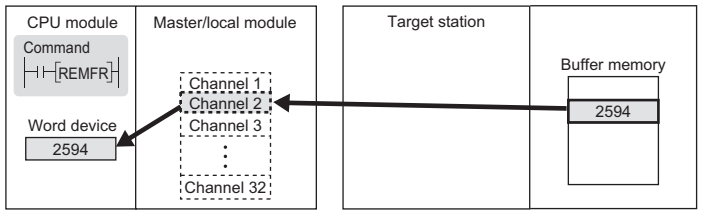
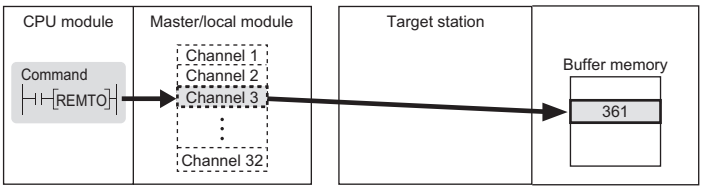
These instructions are used for transient transmission to or from programmable controllers on other stations. Each link dedicated instruction allows access to a station on a network other than CC-Link IE Field Network (excluding the REMFR and REMTO instructions).

#### (a) List of dedicated instructions

| Instruction | Description | Target station (other station) | |
|---|---|---|---|
| | | Target network | Target station type |
| READ<br>SREAD | Reads data from the device of another station's programmable controller. (In units of words)<br>For the SREAD instruction, when data read is completed, the device on the other station is turned on. Data reading from the other station by the SREAD instruction can be checked.<br>  | • CC-Link IE Field Network<br>• CC-Link IE Controller Network<br>• MELSECNET/H<br>• MELSECNET/10<br>• Ethernet | • QCPU<br>• RCPU<br>• LCPU<br>• QSCPU<br>• QnACPU<br>• Intelligent device station |
| WRITE<br>SWRITE | Writes data in the device of another station's programmable controller. (In units of words)<br>For the SWRITE instruction, when data write is completed, the other station's device is turned on. It can be confirmed that data was written to the other station by the SWRITE instruction.<br>  | • CC-Link IE Field Network<br>• CC-Link IE Controller Network<br>• MELSECNET/H<br>• MELSECNET/10<br>• Ethernet | • QCPU<br>• RCPU<br>• LCPU<br>• QSCPU<br>• QnACPU<br>• Intelligent device station |

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| Instruction | Description | Target station (other station) | |
|---|---|---|---|
| | | Target network | Target station type |
| SEND<br>RECV<br>RECVS | SEND: Sends data to another station's programmable controller.<br>RECV: Reads data, which was received from another station's programmable controller.<br>(for main routine program)<br>RECVS: Reads data, which was received from another station's programmable controller.<br>(for interrupt program)<br>  | • CC-Link IE Field Network<br>• CC-Link IE Controller Network<br>• MELSECNET/H<br>• MELSECNET/10<br>• Ethernet | • QCPU<br>• RCPU<br>• LCPU<br>• QnACPU<br>• Interface board for a personal computer*5 |
| REQ | Sends the following transient requests to a programmable controller on another station.<br>• Remote RUN/STOP*2<br>• Clock data read/write*1<br>  | • CC-Link IE Field Network<br>• CC-Link IE Controller Network<br>• MELSECNET/H<br>• MELSECNET/10<br>• Ethernet | • QCPU<br>• RCPU<br>• LCPU<br>• QSCPU<br>• QnACPU<br>• Ethernet adapter module |
| REMFR*3*4 | Reads data from the buffer memory in the target station. (In units of words)<br>  | • CC-Link IE Field Network | • Remote head module<br>• Head module<br>• Ethernet adapter module<br>• Remote device station |
| REMTO*3*4 | Writes data to the buffer memory in the target station. (In units of words)<br>  | • CC-Link IE Field Network | |

*1 Data cannot be written when the target station is the QSCPU.

*2 The operation cannot be performed when the target station is the QSCPU.

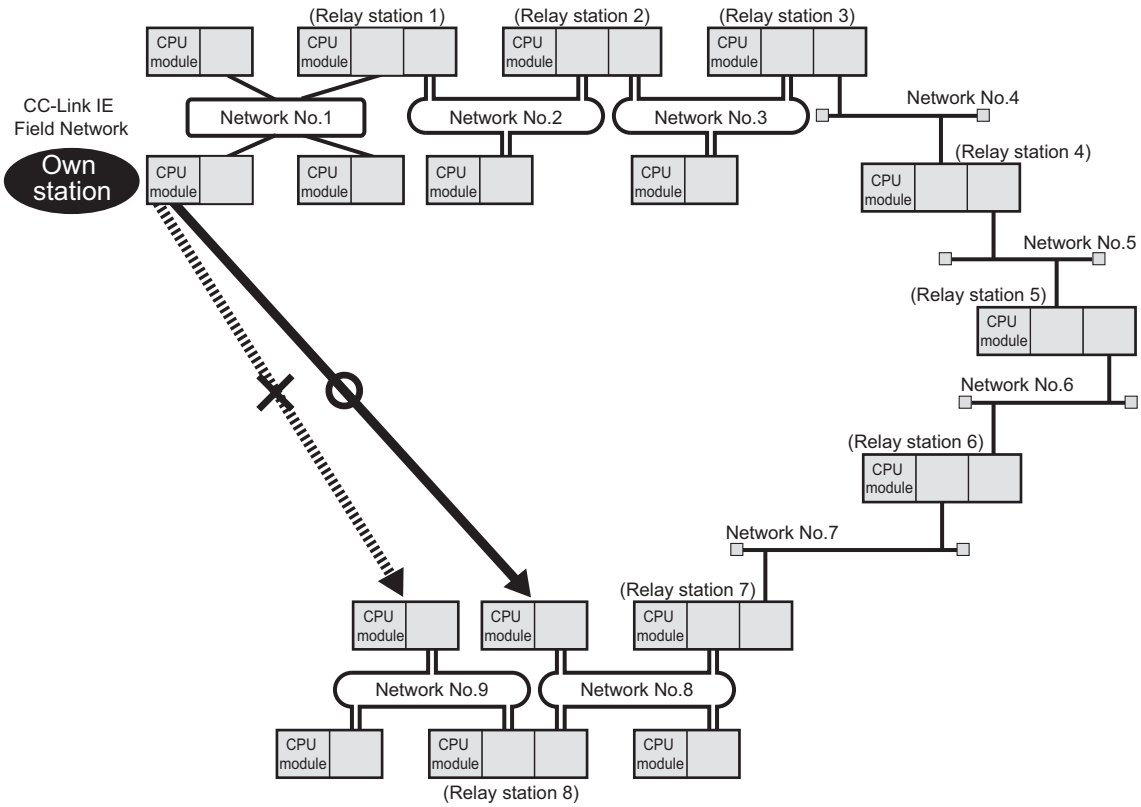
*3 The instruction cannot be executed on a local station. Execute it on the master station.
When the submaster function is used, the instruction can be executed only on a master operating station. Configure an interlock using Own station master/submaster function operation status (SB004E) so that the instruction can be executed only on a master operating station. (Set SB004E to off.)

*4 To execute the REMFR or REMTO instruction to an Ethernet adapter module, use the master/local module whose serial number (first five digits) is "12072" or later.

*5 The following interface boards with the SEND/RECV function can be accessed:
- CC-Link IE Field Network interface board
- CC-Link IE Controller Network interface board
- MELSECNET/H interface board
- MELSECNET/10 interface board

### (b) Transient transmission range of the link dedicated instruction

- Single network system
  It is possible to communicate with all stations on the network.
- Multiple network system
  Communications can be made with stations up to eight networks apart by setting routing parameters.
  (☞Page 119, Section 7.8)




**Point**

Use the communication test in CC-Link IE Field Network diagnostics to check whether the routing of transient transmission from the own station to the destination is correctly performed or not.

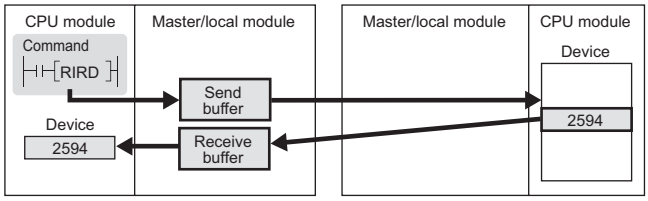
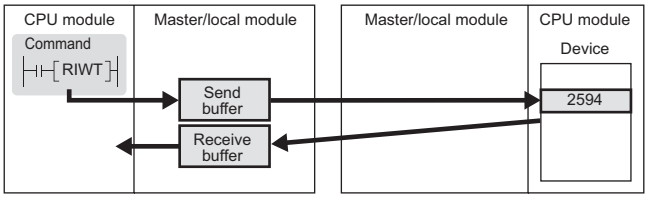
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## (2) CC-Link dedicated instructions

These instructions are used for transient transmission with CC-Link IE Field Network-compliant devices.

### (a) List of dedicated instructions

| Instruction | Description | Target network | Target station (other station) |
|---|---|---|---|
| RIRD *1 | Reads the specified points of data from the target station device.<br>  | CC-Link IE Field Network | CC-Link IE Field Network compliant devices (including intelligent device stations) |
| RIWT *1*2 | Writes the specified points of data to the target station device.<br>  | CC-Link IE Field Network | CC-Link IE Field Network compliant devices (including intelligent device stations) |

*1 The instruction cannot be executed to an intelligent device station from a local station. Execute it from a master station.

*2 Data cannot be written when the target station is the QSCPU.

### (b) Transient transmission range of CC-Link dedicated instructions

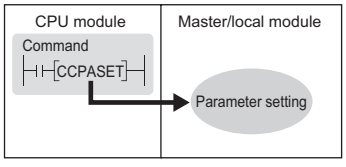
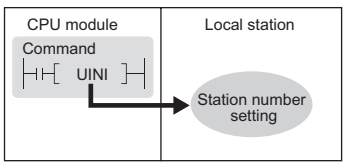
It is possible to communicate with all stations in the same network.

Communication is not available with stations in other networks.

## (3) Another dedicated instruction

The following instruction is used to set parameters for the master/local module of the own station.

### (a) List of dedicated instructions

| Instruction | Description | Target network | Target station (other station) |
|---|---|---|---|
| CCPASET | Sets parameters for the master/local module.<br>  | CC-Link IE Field Network | Access to other stations is not available. (Own station only) |
| UINI*1 | Sets a station number for a local station.<br>  | CC-Link IE Field Network | Access to other stations is not available. (Own station only) |

*1 Before executing the UINI instruction, check the versions of the CPU module, master/local module, and GX Works2. (Page 546, Appendix 8)

### (b) Transient transmission range of the dedicated instruction

Only the master/local module of the own station can be accessed.

# 10.2 Precautions for Dedicated Instructions

## 10.2.1 Precautions for dedicated instructions (common)

The following describes precautions when using dedicated instructions.

### (1) When changing data specified by dedicated instructions

Do not change any data (e.g. control data) until execution of the dedicated instruction is completed.

### (2) When the dedicated instruction is not completed

Check whether the mode of the master/local module is online.

A dedicated instruction cannot be executed when the mode is offline.

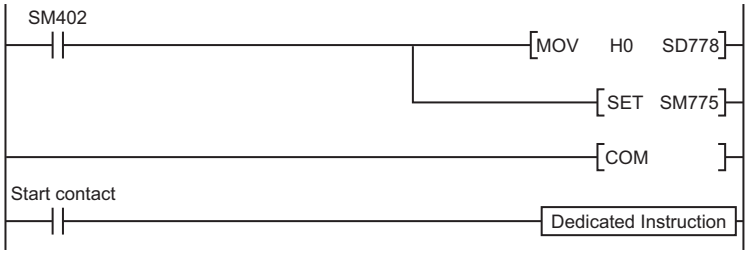
### (3) When accessing another station by a dedicated instruction during CC-Link IE Field Network diagnostics

Execution of a dedicated instruction may take some time. To reduce the waiting time, perform the CC-Link IE Field Network diagnostics using the following methods and then execute the dedicated instruction.

#### (a) Using the COM instruction

After communication with GX Works2 using the COM instruction, execute the dedicated instruction.

1. **Store 0 in the Selection of refresh processing during COM instruction execution (SD778).**
2. **Turn on the Selection of link refresh processing during COM instruction execution (SM775).**
3. **When the COM instruction is executed, communication with GX Works2 is executed.**
4. **Use a dedicated instruction to access another station.**




#### (b) Using the service processing setting

In the service processing setting of PLC Parameter (PLC System) of GX Works2, secure 2 or 3 ms for the service processing time.

**Remark**

For details on the COM instruction, refer to the following.

MELSEC-Q/L Programming Manual (Common Instruction)

### (4) When using the submaster function

Refer to Page 198, Section 8.8.4 (2) and Page 204, Section 8.8.7 (9).

# 10.2.2 Precautions for link dedicated instructions



The following describes precautions when using link dedicated instructions.

## (1) Executing multiple link dedicated instructions simultaneously

When executing multiple link dedicated instructions simultaneously, make sure that the channels for the instructions are not duplicated. Link dedicated instructions with the same channel cannot be executed simultaneously. To use the same channel for multiple link dedicated instructions, execute one after completion of another. The completion status of the dedicated instruction can be checked by the completion device of the dedicated instruction.

### (a) Channel

A channel is an area of a network module where data handled by a link dedicated instruction is stored. By using multiple channels, it is possible to simultaneously access from the own station to other stations or concurrently read from and write to the same network module.

### (b) Number of channels

The master/local module has 2 channels that can be used for link dedicated instructions. By using 2 channels simultaneously, two instructions can be executed at the same time.*1

*1 For the REMFR/REMTO instruction, up to 32 channels can be used.

### (c) Number of link dedicated instructions that can be simultaneously executed

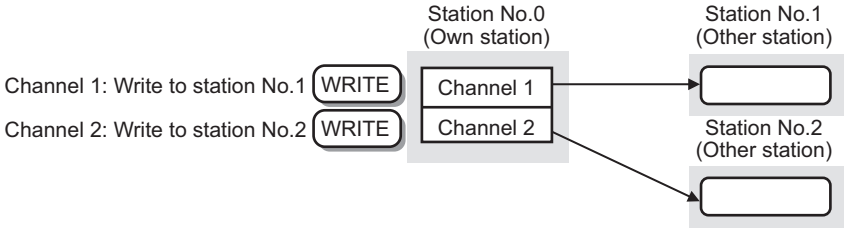
Even when channels are not duplicated, do not simultaneously execute link dedicated instructions exceeding the numbers listed below.

If the number of instructions exceeds the following, execute the instructions one by one.

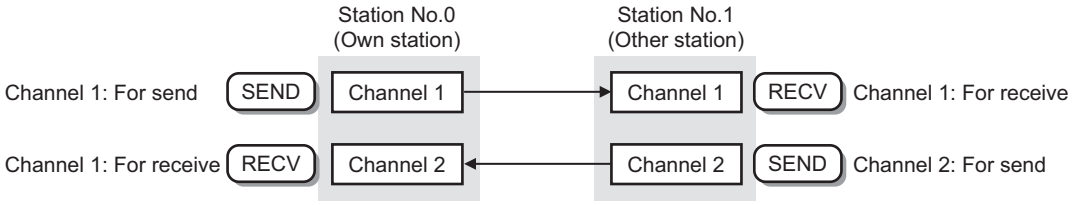
| Link scan time | Number of link dedicated instructions that can be simultaneously executed | |
|---|---|---|
| | Master station is in "Online (Normal Mode)" | Master station is in "Online (High Speed Mode)" |
| 1ms to 7ms | 34 | 34 |
| 8ms to 50ms | 34 | 1 |
| 51ms to 200ms | 5 | 1 |

### (d) Application example of channels

- Simultaneous access to other stations from the own station
  Use a different own station channel for each request destination.




- Mutual access between the own station and another station
  Use a different own station channel for each link dedicated instruction.




**Point**

The channel used for the RECVS instruction cannot be used for other instructions. Use a different channel for other instructions.

## (2) Executing link dedicated instructions to AnUCPU stations

### (a) Executing an instruction to AnUCPU stations

Never execute a master/local module dedicated instruction to AnUCPU stations.
Doing so will cause "MAIN CPU DOWN" or "WDT ERROR", and may result in an operation stop in the AnUCPU.

### (b) Executing an instruction to all stations on a network that contains an AnUCPU station

Use the group specification to exclude the AnUCPU.

## (3) Executing link dedicated instructions to group-specified or all-specified stations in a multiple CPU system

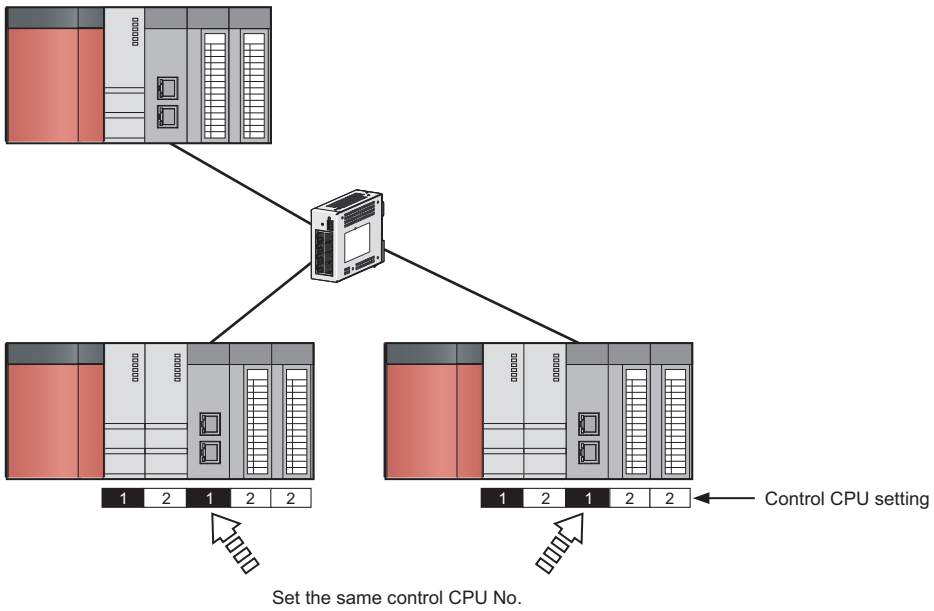
The instruction can be executed to only the control CPUs of the stations. Specify $0000_H$ or $03FF_H$ for the target station's CPU type ((S1)+3) of the instruction.

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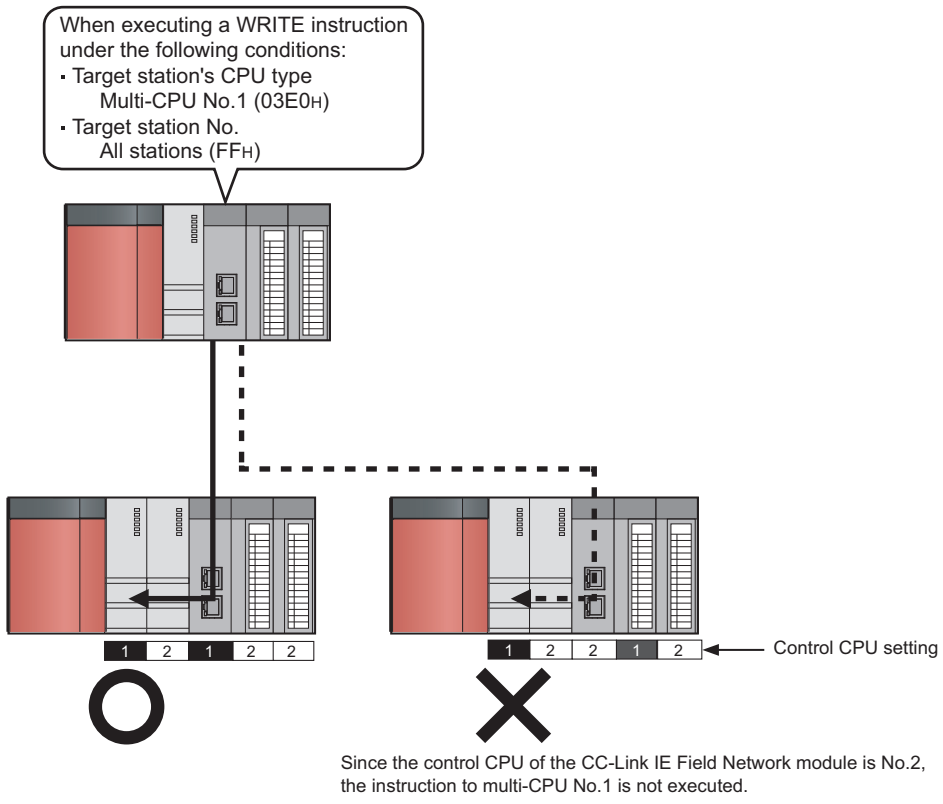
### (a) Executing an instruction to all the specified stations

Configure the system so that the target stations have the same control CPU No.




### (b) Specifying a CPU by the target station's CPU type

If the CPU No. set for the target station's CPU type is different than that of the control CPU, the instruction is not executed (However, an error does not occur in the request source).



## 10.2.3 Precautions for CC-Link dedicated instructions

The following describes precautions when using CC-Link dedicated instructions.

### (1) Executing multiple CC-Link dedicated instructions simultaneously

CC-Link dedicated instructions cannot be executed simultaneously. Execute one after completion of another. The completion status of the CC-Link dedicated instruction can be checked by the completion device.

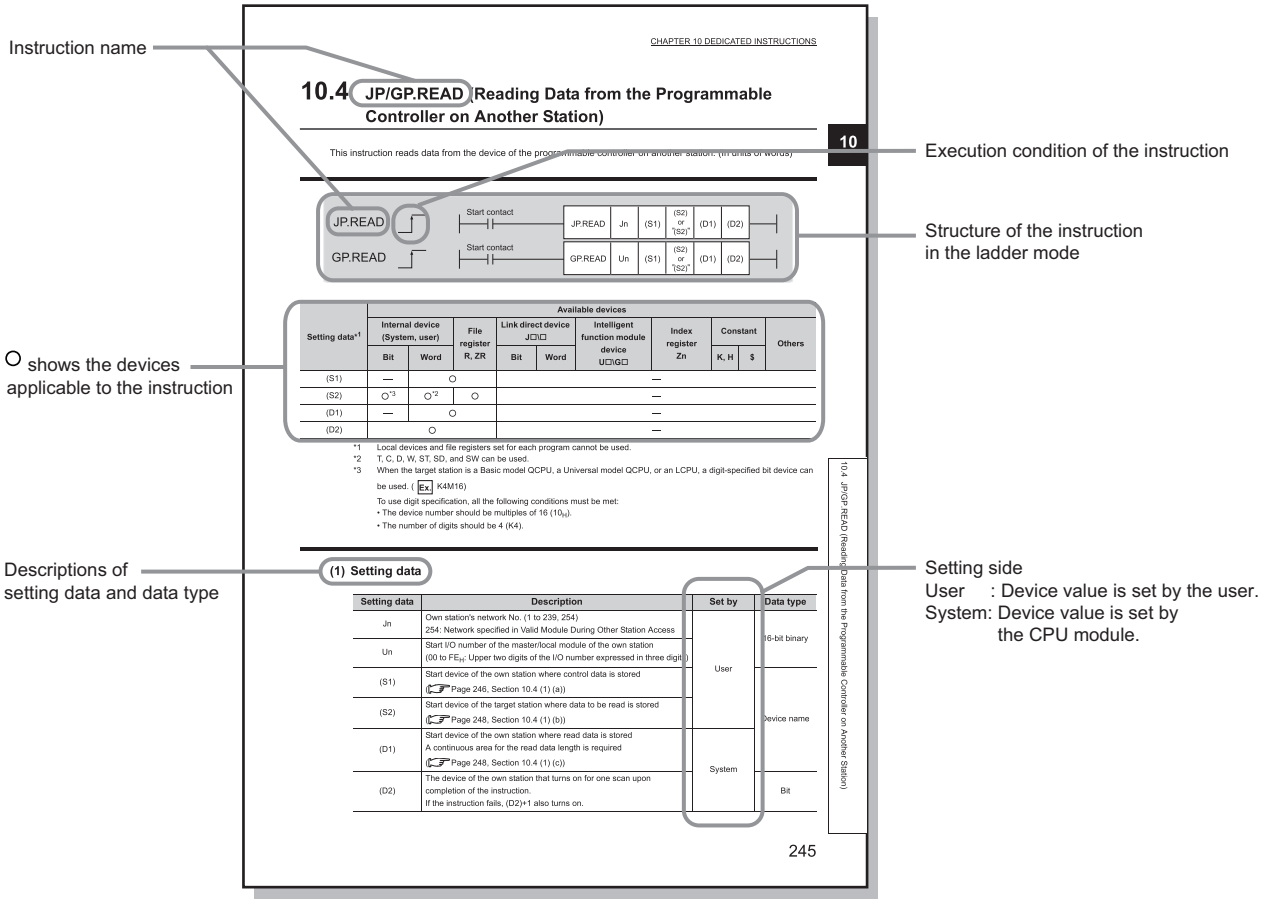
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# 10.3 How to Read Detailed Page on Dedicated Instructions



This section describes the page organization and specifications for details on the dedicated instructions described in next section or later.

The following page illustration is for explanation purpose only, and should not be referred to as an actual documentation.



## (1) Execution condition

Instruction execution conditions include the following types:

| Any time | During on | On the rising edge | During off | On the falling edge |
|---|---|---|---|---|
| No symbol |  |  |  |  |

## (2) Applicable devices

The following types of devices are used for the dedicated instructions on CC-Link IE Field Network:

| Internal device | | File register | Constant |
|---|---|---|---|
| Bit*1 | Word | | K, H |
| X, Y, M, L, F, V, B | T, ST, C, D, W | R, ZR | K□, H□ |

*1 For bit data, a bit-specified word device can be used. For example, Word device.Bit No. is used for the bit specification of a word device. (The bit number is specified in hexadecimal.)

For example, bit 10 of D0 is specified by D0.A.

However, bit specification cannot be used for timer (T), retentive timer (ST), and counter (C).

For details on each device, refer to the following.

User's Manual for the CPU module used (Function Explanation, Program Fundamentals)

## (3) Data types

The following data types are available:

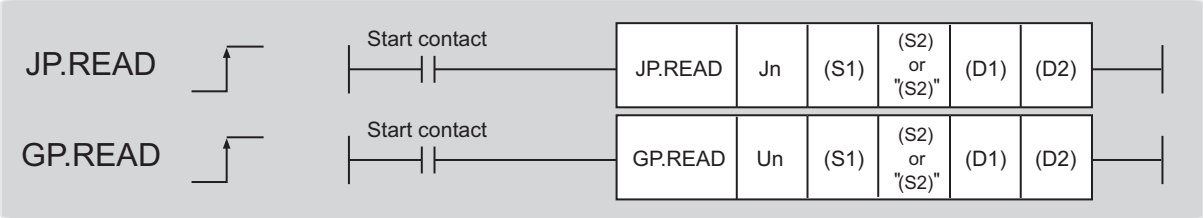
| Data type | Description |
|---|---|
| Bit | Bit data or the start number of bit data |
| BIN 16-bit | 16-bit binary data or the start number of word device |
| BIN 32-bit | 32-bit binary data or the start number of double-word device |
| BCD 4-digit | Four-digit binary-coded decimal data |
| BCD 8-digit | Eight-digit binary-coded decimal data |
| Real number | Floating-point data |
| Character string | Character string data |
| Device name | Device name data |

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# 10.4 JP/GP.READ (Reading Data from the Programmable Controller on Another Station)



This instruction reads data from the device of the programmable controller on another station. (In units of words)




| Setting data*1 | Available devices | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | Internal device (System, user) | | File register R, ZR | Link direct device J□\□ | | Intelligent function module device U□\G□ | Index register Zn | Constant | | Others |
| | Bit | Word | | Bit | Word | | | K, H | $ | |
| (S1) | — | ○ | | | | — | | | | |
| (S2) | ○*3 | ○*2 | ○ | | | — | | | | |
| (D1) | — | ○ | | | | — | | | | |
| (D2) | ○ | | | | | — | | | | |

*1 Local devices and file registers set for each program cannot be used.

*2 T, C, D, W, ST, SD, and SW can be used.

*3 When the target station is a Basic model QCPU, a Universal model QCPU, an RCPU or an LCPU, a digit-specified bit device can be used. ( Ex. K4M16)

To use digit specification, all the following conditions must be met:

- The device number should be multiples of 16 ($10_H$).
- The number of digits should be 4 (K4).

## (1) Setting data

| Setting data | Description | Set by | Data type |
|---|---|---|---|
| Jn | Own station's network No. (1 to 239, 254)<br>254: Network specified in Valid Module During Other Station Access | User | 16-bit binary |
| Un | Start I/O number of the master/local module of the own station (00 to $FE_H$: Upper two digits of the I/O number expressed in three digits) | | |
| (S1) | Start device of the own station where control data is stored<br>(☞ Page 249, Section 10.4 (1) (a)) | | Device name |
| (S2) | Start device of the target station where data to be read is stored<br>(☞ Page 251, Section 10.4 (1) (b)) | | |
| (D1) | Start device of the own station where read data is stored<br>A continuous area for the read data length is required<br>(☞ Page 251, Section 10.4 (1) (c)) | System | |
| (D2) | The device of the own station that turns on for one scan upon completion of the instruction.<br>If the instruction fails, (D2)+1 also turns on. | | Bit |

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### (a) Control data

| Device | Item | Setting data | Setting range | Set by |
|---|---|---|---|---|
| (S1)+0 | Abnormal end type | b15 to b7 to b0<br>0 ① 0 1<br>1) Abnormal end type (bit 7)<br>Specify the set status of data in case of abnormal end.<br>0: After (S1)+11, no data is set for abnormal end.<br>1: Data at the time of abnormal end is set in the area starting from (S1)+11. | $0001_H$<br>$0081_H$ | User |
| (S1)+1 | Completion status | The status of when the instruction is ended is stored.<br>0: Normal<br>Values other than 0: Error (☞ Page 439, Section 12.5) | — | System |
| (S1)+2 | Channels used by own station | Specify the channels to be used by the own station.<br>(☞ Page 241, Section 10.2.2) | 1 and 2 | User |
| (S1)+3 | Target station's CPU type | Specify the CPU module on the station to be accessed.<br>Set value / Description:<br>$0000_H$: Control CPU (The access destination is the same as that of when $03FF_H$ is selected.)<br>$03D0_H$: Control system CPU (redundant CPU only)<br>$03D1_H$: Standby system CPU (redundant CPU only)<br>$03D2_H$: System A CPU (redundant CPU only)<br>$03D3_H$: System B CPU (redundant CPU only)<br>$03E0_H$: • Control CPU (single CPU system) • CPU No.1 (multiple CPU system)<br>$03E1_H$: CPU No.2 (multiple CPU system)<br>$03E2_H$: CPU No.3 (multiple CPU system)<br>$03E3_H$: CPU No.4 (multiple CPU system)<br>$03FF_H$: Control CPU<br>When the instruction is executed by specifying a control system CPU ($03D0_H$) or standby system CPU ($03D1_H$), if system switching occurs in the target station, the instruction may fail (CPU module error code: $4244_H$, $4248_H$).<br>If the above error occurs and the instruction fails, execute the instruction again. | $0000_H$<br>$03D0_H$ to $03D3_H$<br>$03E0_H$ to $03E3_H$<br>$03FF_H$ | User |
| (S1)+4 | Target station's network No. | Specify the network No. of the target station.<br>1 to 239: Network No.<br>254: Specify this when 254 is set for Jn. | 1 to 239<br>254 | User |
| (S1)+5 | Target station number | Specify the target station number.<br>Master station: 125 ($7D_H$)<br>Master operating station: 126 ($7E_H$) (only for modules supporting the submaster function (☞ Page 546, Appendix 8))<br>Local station, intelligent device station, submaster station: 1 to 120<br>When 125 ($7D_H$) is set, the module always accesses the master station (station number 0). When 126 ($7E_H$) is set and the submaster function is used, the module accesses the station operating as a master operating station. | 125 ($7D_H$)<br>126 ($7E_H$)<br>1 to 120 | User |
| (S1)+6 | — | Unused | 0 | User |

<table>
<tr><th>Device</th><th>Item</th><th>Setting data</th><th>Setting range</th><th>Set by</th></tr>
<tr><td rowspan="2">(S1)+7</td><td rowspan="2">Number of resends</td><td>During instruction execution<br>For the case where the instruction is not completed within the monitoring time specified by (S1)+8, specify the number of times the instruction is resent.</td><td>0 to 15</td><td>User</td></tr>
<tr><td>When the instruction is completed<br>The number of resends (result) is stored.</td><td>—</td><td>System</td></tr>
<tr><td>(S1)+8</td><td>Arrival monitoring time</td><td>Specify the monitoring time until instruction completion.<br>If the instruction is not completed within the specified time, the instruction is resent for the number of resends specified by (S1)+7.<br>0: 10 seconds<br>1 to 32767: 1 to 32767 seconds</td><td>0 to 32767</td><td>User</td></tr>
<tr><td>(S1)+9</td><td>Read data length</td><td>Specify the number of words to be read.</td><td>1 to 960<br>From QnACPU:<br>1 to 480 words</td><td>User</td></tr>
<tr><td>(S1)+10</td><td>—</td><td>Unused</td><td>0</td><td>User</td></tr>
<tr><td>(S1)+11</td><td>Clock set flag</td><td>The valid or invalid status of data after (S1)+12 is stored.<br>(Data is stored when "1: Data at the time of abnormal end is set in the area starting from (S1)+11." is set in the abnormal end type in (S1)+0.) The stored data is not cleared even if the dedicated instruction is normally completed.<br>0: Invalid<br>1: Valid</td><td>—</td><td>System</td></tr>
<tr><td>(S1)+12 to (S1)+15</td><td>Clock data of abnormal end</td><td>Clock data of abnormal end are stored in BCD format.<br>(Data is stored when "1: Data at the time of abnormal end is set in the area starting from (S1)+11." is set in the abnormal end type in (S1)+0.) The stored data is not cleared even if the dedicated instruction is normally completed.<br><table><tr><th></th><th>b15 ～ b8</th><th>b7 ～ b0</th></tr><tr><td>(S1)+12</td><td>Month (01H to 12H)</td><td>Year (00H to 99H), last 2 digits</td></tr><tr><td>(S1)+13</td><td>Hour (00H to 23H)</td><td>Day (01H to 31H)</td></tr><tr><td>(S1)+14</td><td>Second (00H to 59H)</td><td>Minute (00H to 59H)</td></tr><tr><td>(S1)+15</td><td>Year (00H to 99H), first 2 digits</td><td>Day of week (00H to 06H)</td></tr></table>00H (Sun.) to 06H (Sat.)<br>When the target station is QnACPU, $00_H$ is stored in the year (the first two digits of the year).</td><td>—</td><td>System</td></tr>
<tr><td>(S1)+16</td><td>Error-detected station's network No.*1</td><td>The network No. of the station in which an error was detected is stored.<br>(Data is stored when "1: Data at the time of abnormal end is set in the area starting from (S1)+11." is set in the abnormal end type in (S1)+0.) The stored data is not cleared even if the dedicated instruction is normally completed.<br>1 to 239: Network No.</td><td>—</td><td>System</td></tr>
<tr><td>(S1)+17</td><td>Error-detected station number*1</td><td>The station number of the station in which an error was detected is stored.<br>(Data is stored when "1: Data at the time of abnormal end is set in the area starting from (S1)+11." is set in the abnormal end type in (S1)+0.) The stored data is not cleared even if the dedicated instruction is normally completed.<br>Master station: 125 ($7D_H$)<br>Local station, intelligent device station, submaster station: 1 to 120</td><td>—</td><td>System</td></tr>
</table>

*1 If Completion status ((S1)+1) is "Channel in use (dedicated instruction) (error codes: $D25A_H$ and $D25B_H$)", data is not stored.

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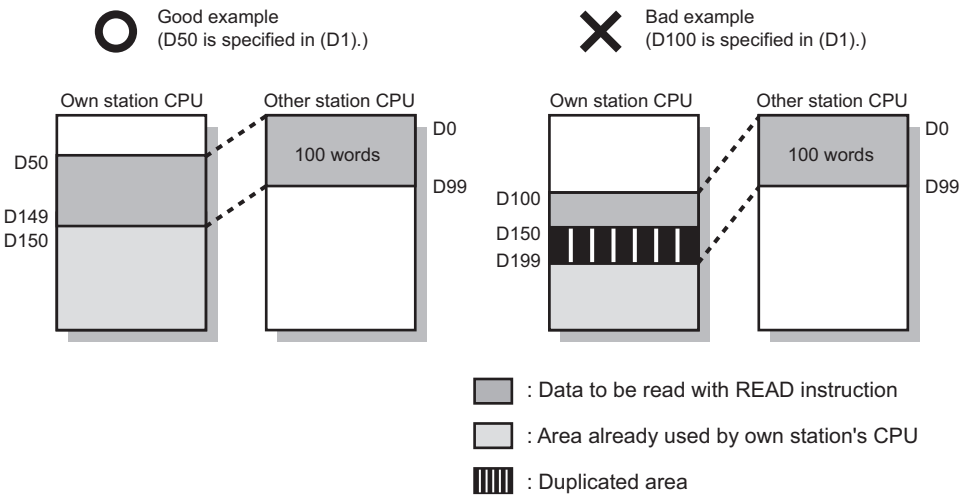
### (b) Start device of the target station where data to be read is stored

If the device setting in PLC Parameter is different between the own and target stations, use "(S2)" (with double-quotation marks) to specify.

### (c) Start device of the own station where read data is stored

Specify the own station's start device (D1), within the available range so that the read data can be stored.

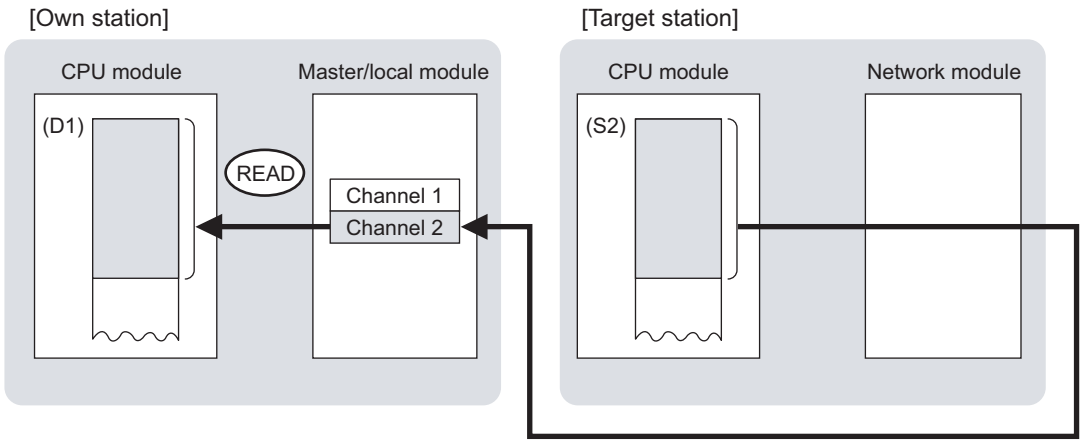
Ex. When the area addressed D150 or higher of the own station CPU is already used



## (2) Function

### (a) READ instruction overview

The instruction reads data by the specified number of words (control data ((S1)+9)) from the target station start device (S2) into the own station word devices (after (D1)).
Specify the target stations in control data ((S1)+4 and (S1)+5).
When the reading from devices of the target station is completed, the completion device (D2) turns on.




### (b) Target stations that can be specified

For details on target stations which can be specified, refer to the following.

☞Page 236, Section 10.1 (1)

### (c) Checking the execution status of the READ instruction

The execution status (completion or error) of the READ instruction can be checked using the following devices specified in the setting data.

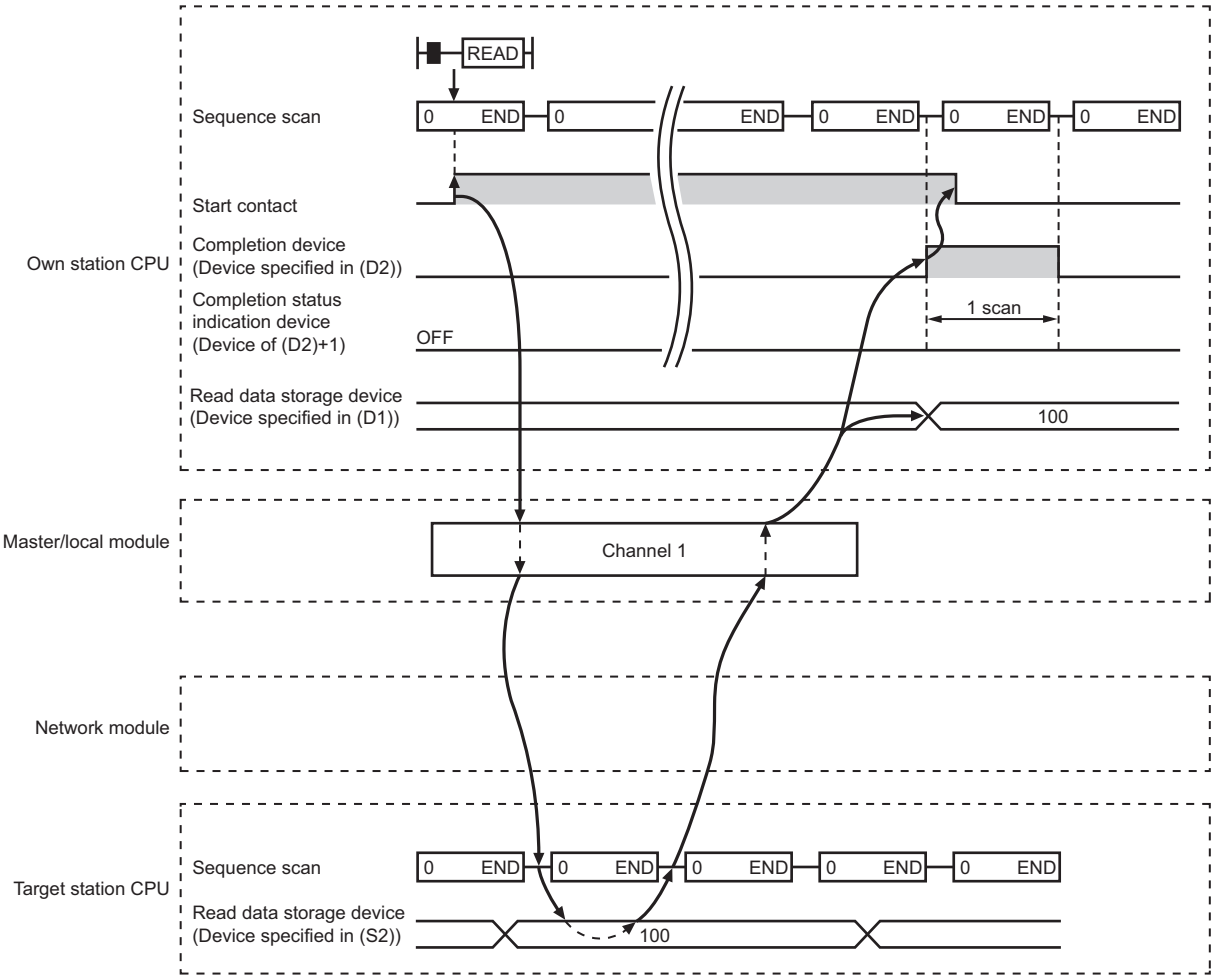
- Completion device (D2)
  This device turns on in the END process of the scan where the READ instruction is completed and turns off in the next END process.
- Completion status indication device ((D2)+1)
  If the READ instruction fails, this device turns on in the END process of the scan where the READ instruction is completed and turns off in the next END process.

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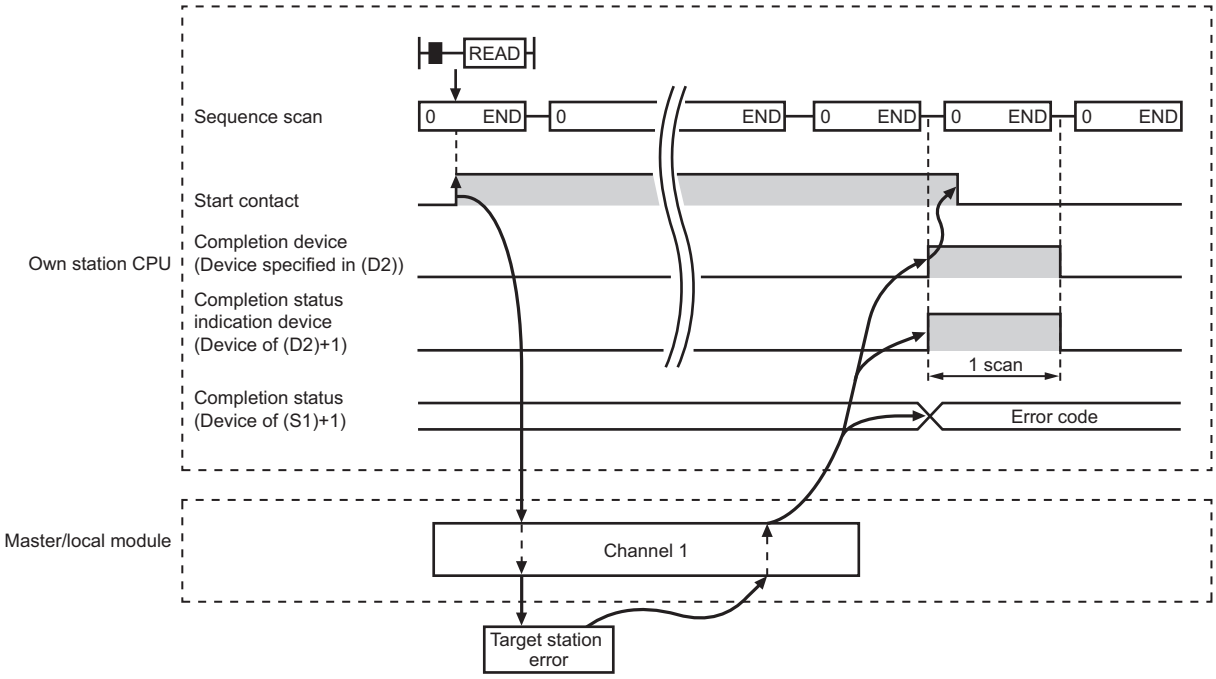


### (d) READ instruction execution timing

• When completed



• When failed




## (3) Checking error details

If the dedicated instruction fails, error details can be checked by either of the following methods:

### (a) In GX Works2

Error details can be checked using the CC-Link IE Field Network diagnostics. (☞Page 206, CHAPTER 9)

### (b) Using devices

Completion status indication device ((D2)+1) turns on, and an error code is stored in Completion status ((S1)+1) of the control data.

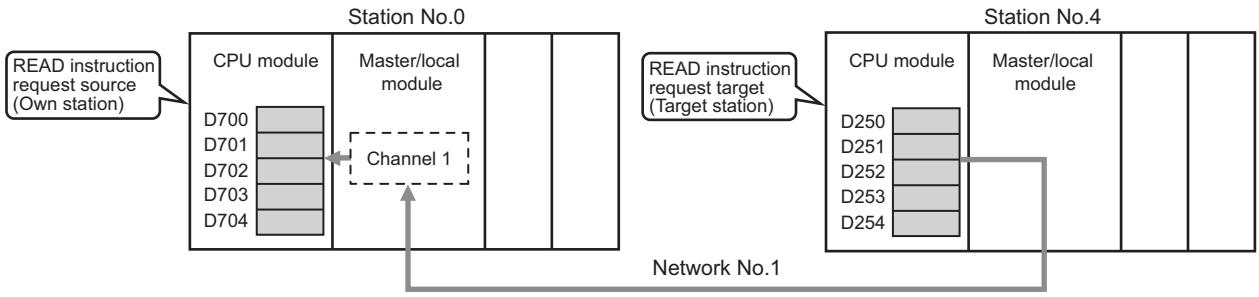
According to the error code, check the error details and take a corrective action. (☞Page 439, Section 12.5)

## (4) Program example

The following program is for reading data of D250 to D254 of station No.4 (target station) into D700 to D704 of station No. 0 (own station) when M101 is turned on.



### (a) System configuration




### (b) Devices used in the program

- Link special relay (SB), link special register (SW)

| Device | Description | Device | Description |
|---|---|---|---|
| SB0047 | Baton pass status (own station) | SW00A0.3 | Baton pass status (each station) of station No.4 |

- Devices used by the user

| Device | Description | Device | Description |
|---|---|---|---|
| M100 | Control data setting command | D200 to D217 | Control data |
| M101 | Start contact | D700 to D704 | Read data storage device (station No.0) |
| M105 | Completion device | — | |
| M106 | Completion status indication device | | |

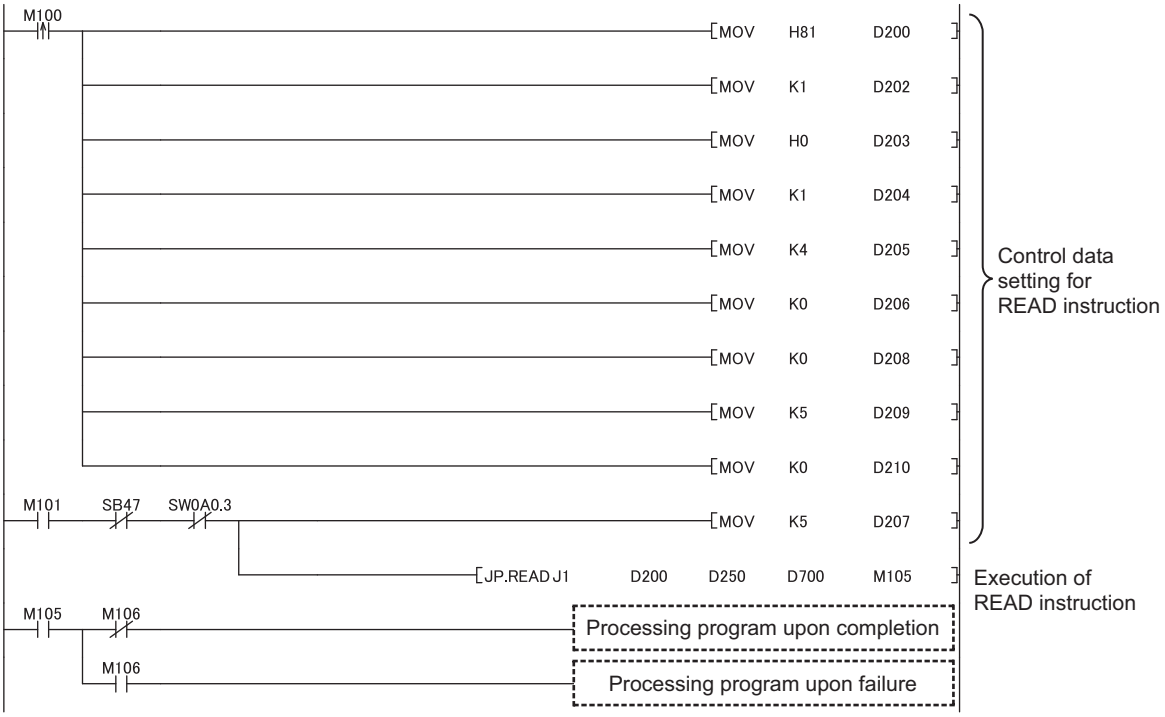
### (c) READ instruction setting

The following table lists values set in READ instruction control data.

| Device | | Item | Set value |
|---|---|---|---|
| (S1)+0 | D200 | Abnormal end type | $0081_H$ (Sets data for abnormal end) |
| (S1)+1 | D201 | Completion status | (The system sets this item.) |
| (S1)+2 | D202 | Channels used by own station | 1 |
| (S1)+3 | D203 | Target station's CPU type | $0000_H$ (control CPU) |
| (S1)+4 | D204 | Target station's network No. | 1 |
| (S1)+5 | D205 | Target station number | 4 |
| (S1)+6 | D206 | (Unused) | 0 |
| (S1)+7 | D207 | Number of resends | 5 times |
| (S1)+8 | D208 | Arrival monitoring time | 0 (10 seconds) |
| (S1)+9 | D209 | Read data length | 5 words |
| (S1)+10 | D210 | (Unused) | 0 |
| (S1)+11 | D211 | Clock set flag | (The system sets these items.) |
| (S1)+12 to (S1)+15 | D212 to D215 | Clock data of abnormal end | |
| (S1)+16 | D216 | Error-detected station's network No. | |
| (S1)+17 | D217 | Error-detected station number | |

### (d) Program example

The following program is written to the CPU module of station No.0.

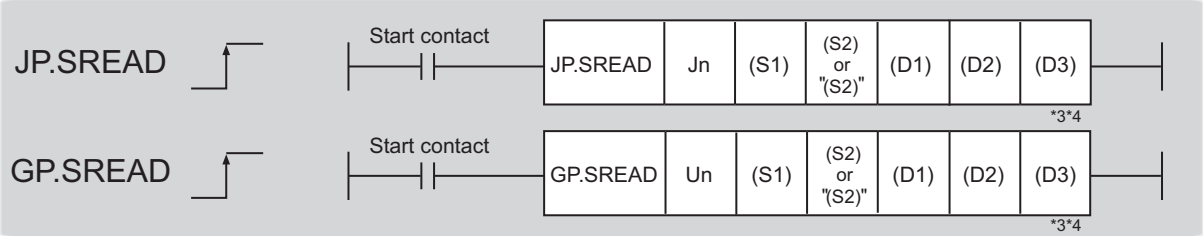


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# 10.5 JP/GP.SREAD (Reading Data from the Programmable Controller on Another Station)



This instruction reads data from the device of the programmable controller on another station. (In units of words)
With the SREAD instruction, when data read is completed, the device of the other station is turned on. Data reading with the SREAD instruction can be confirmed by this.




| Setting data*1 | Available devices | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | Internal device (System, user) | | File register R, ZR | Link direct device J□\□ | | Intelligent function module device U□\G□ | Index register Zn | Constant | | Others |
| | Bit | Word | | Bit | Word | | | K, H | $ | |
| (S1) | — | ○ | | | | — | | | | |
| (S2) | ○*5 | ○*2 | ○ | | | — | | | | |
| (D1) | — | ○ | | | | — | | | | |
| (D2) | ○ | | | | | — | | | | |
| (D3) | ○ | | | | | — | | | | |

*1 Local devices and file registers set for each program cannot be used.
*2 T, C, D, W, ST, SD, and SW can be used.
*3 For the SREAD instruction, the read notification device (D3) can be omitted in the programming.
However, the operation is the same as the READ instruction.
The SREAD instruction can operate differently depending on whether read notification device (D3) is omitted or not.
*4 When the target station is a Basic model QCPU or a QSCPU, the data set in the read notification device (D3) is ignored. (Operation is the same as the READ instruction.)
*5 When the target station is a Basic model QCPU, a Universal model QCPU, an RCPU or an LCPU, a digit-specified bit device can be used. ( Ex. K4M16)
To use digit specification, all the following conditions must be met:
• The device number should be multiples of 16 ($10_H$).
• The number of digits should be 4 (K4).

## (1) Setting data

| Setting data | Description | Set by | Data type |
|---|---|---|---|
| Jn | Own station's network No. (1 to 239, 254)<br>254: Network specified in Valid Module During Other Station Access | User | 16-bit binary |
| Un | Start I/O number of the master/local module of the own station<br>(00 to $FE_H$: Upper two digits of the I/O number expressed in three digits) | | |
| (S1) | Start device of the own station where control data is stored | | Device name |
| (S2) | Start device of the target station where data to be read is stored | | |
| (D1) | Start device of the own station where read data is stored<br>A continuous area for the read data length is required. | System | Bit |
| (D2) | The device of the own station that turns on for one scan upon completion of the instruction.<br>If the instruction fails, (D2)+1 also turns on. | | |
| (D3) | Device of the target station, which is turned on for 1 scan upon completion of the instruction.<br>Data reading from another station can be confirmed. | | |

### (a) Control data

The SREAD instruction control data is the same as that of the READ instruction (☞ Page 247, Section 10.4)

### (b) Start device of the target station where data to be read is stored

The target station's start device where data to be read by the SREAD instruction is stored is the same as that of the READ instruction. (☞ Page 247, Section 10.4)

### (c) Start device of the own station where read data is stored

The start device of the own station where data read by the SREAD instruction is stored is the same as that of the READ instruction. (☞ Page 247, Section 10.4)

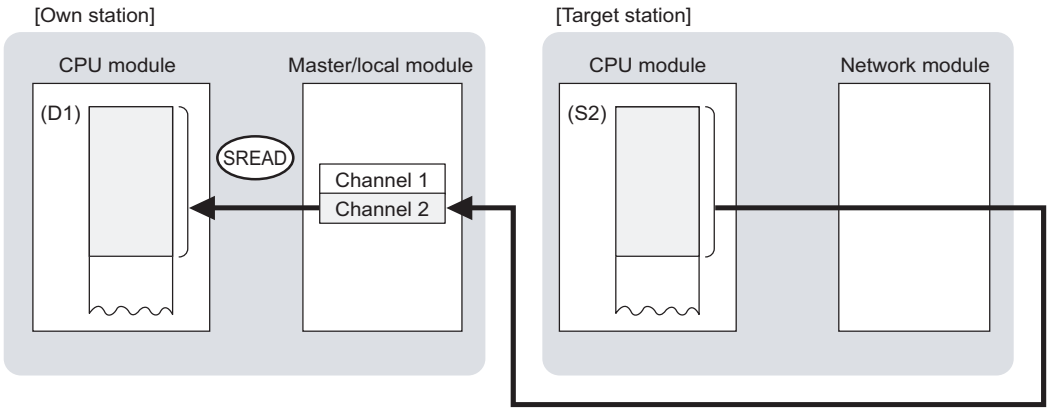
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## (2) Function

### (a) SREAD instruction overview

The instruction reads data by the specified number of words (control data ((S1)+9)) from the target station start device (S2) into the own station word devices (after (D1)).
Specify the target stations in control data ((S1)+4 and (S1)+5).
When the reading of the data specified in (S2) is completed, the following devices are turned on.

- Own station: Completion device (D2)
- Target station: Read notification device (D3)




### (b) Target stations that can be specified

For details on target stations which can be specified, refer to the following.

☞Page 236, Section 10.1 (1)

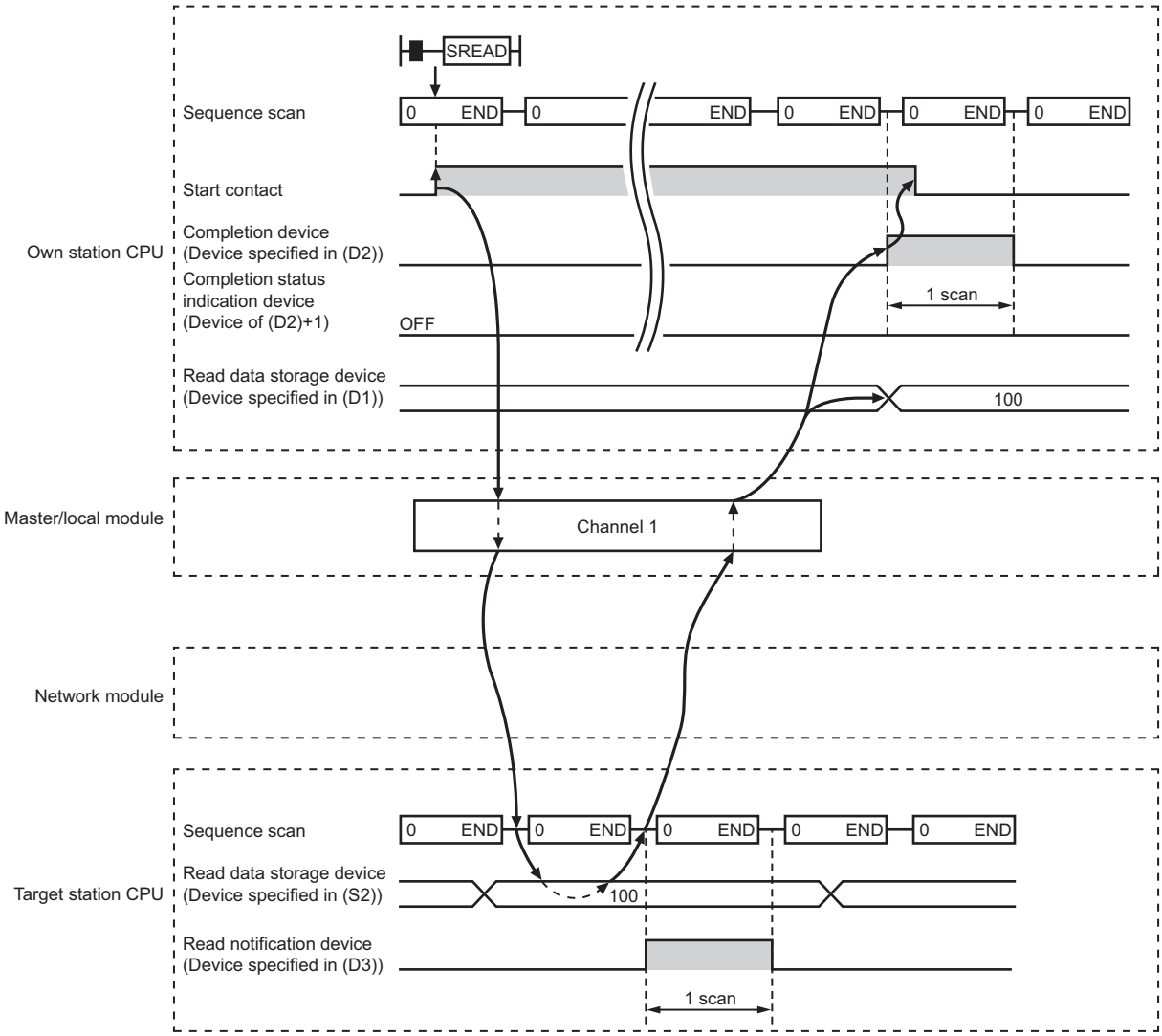
### (c) Checking the execution status of the SREAD instruction

The execution status (completion or error) of the SREAD instruction can be checked using the following devices specified in the setting data.

- Completion device (D2)
  This device turns on in the END process of the scan where the SREAD instruction is completed and turns off in the next END process.
- Completion status indication device ((D2)+1)
  If the SREAD instruction fails, this device turns on in the END process of the scan where the SREAD instruction is completed and turns off in the next END process.

### (d) SREAD instruction execution timing

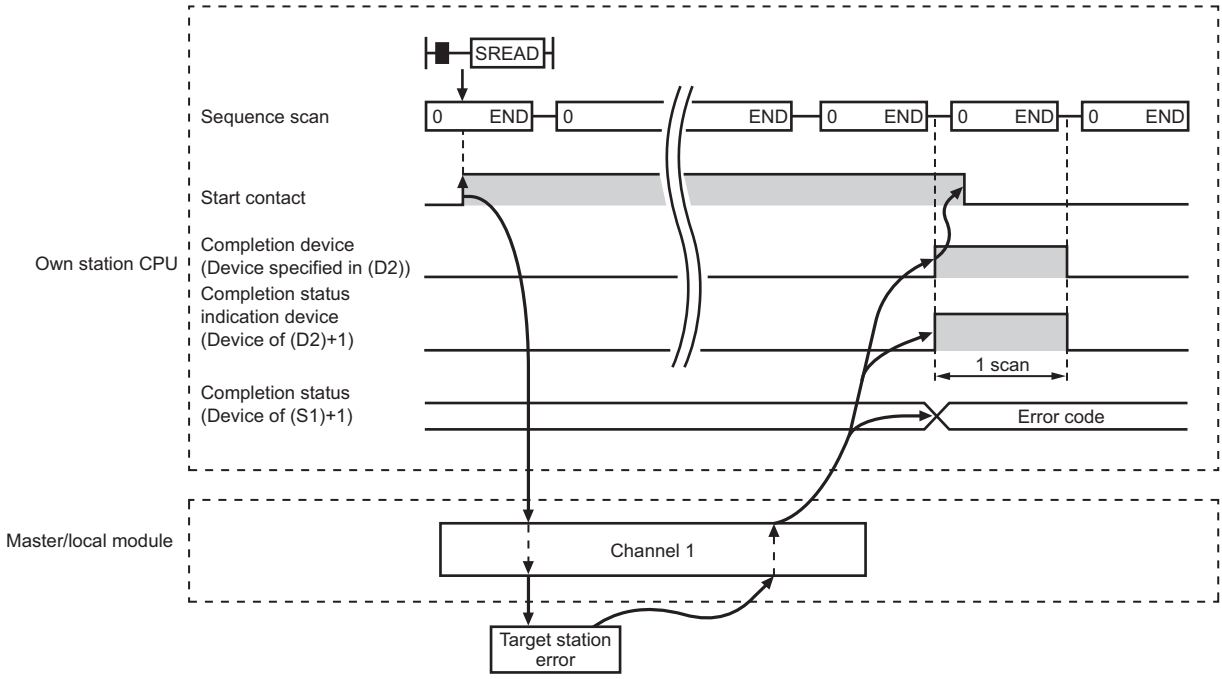
• When completed



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• When failed




## (3) Checking error details

If the dedicated instruction fails, error details can be checked by either of the following methods:

### (a) In GX Works2

Error details can be checked using the CC-Link IE Field Network diagnostics. (☞ Page 206, CHAPTER 9)

### (b) Using devices

Completion status indication device ((D2)+1) turns on, and an error code is stored in Completion status ((S1)+1) of the control data.

According to the error code, check the error details and take a corrective action. (☞ Page 439, Section 12.5)

## (4) Program example

Just like the READ instruction program example, this program example is for reading data of D250 to D254 of station No.4 (target station) into D700 to D704 of station No.0 (own station) when M101 is turned on. Furthermore, when the read notification device (D3) of the target station is turned on, Y60 of the target station is turned on.

**Remark**

Compared to the READ instruction program example, the SREAD instruction program example has a different section where the read notification device (D3) is specified at the end of the arguments. (Page 255, Section 10.4 (4))

### (a) System configuration

Same as the READ instruction program example.

### (b) Devices used in the program

- Link special relay (SB), link special register (SW)
  Same as the READ instruction program example.
- Devices used by users
  The devices used in the SREAD instruction request source (station No.0) are the same as those in the READ instruction program example.

Devices used in the SREAD instruction request destination (station No.4)

| Device | Description | Device | Description |
|---|---|---|---|
| M107 | Read notification device | Y60 | Read completion device |

### (c) SREAD instruction setting

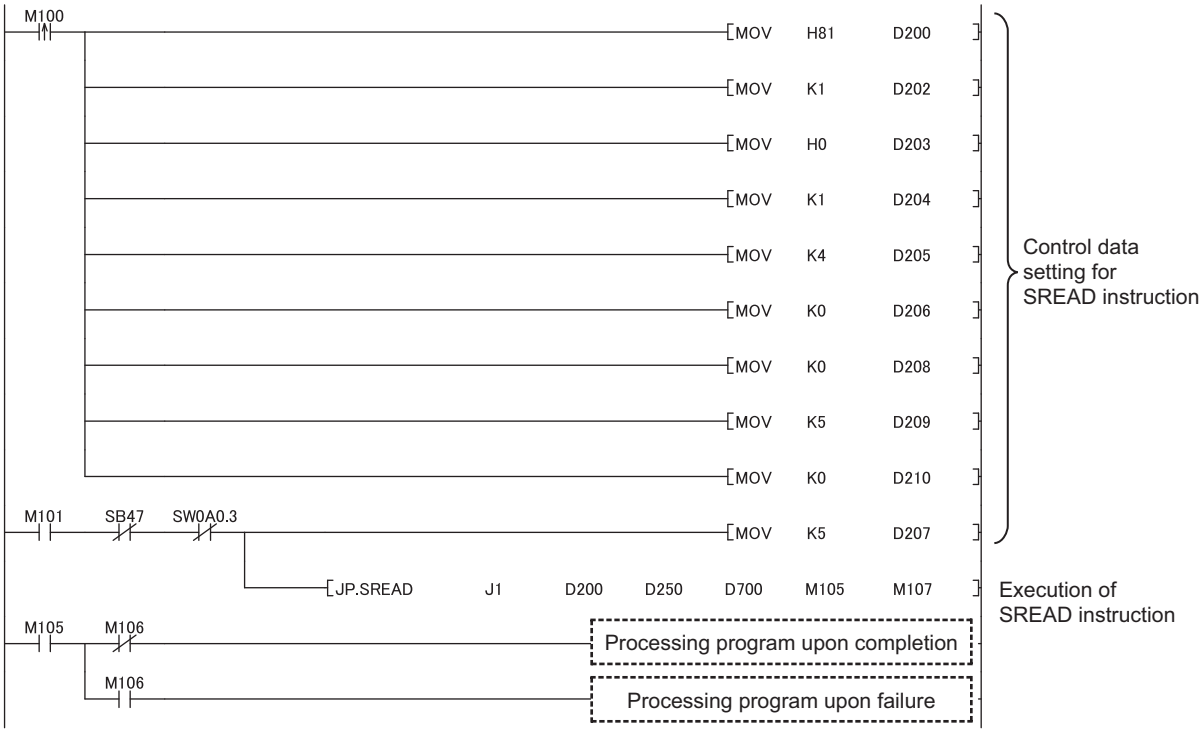
Same as the READ instruction program example.

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### (d) Program example

• Program example in SREAD instruction request source (station No.0)

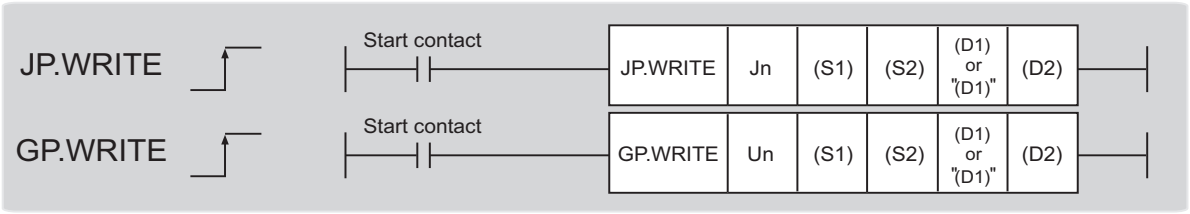



• Program example in SREAD instruction request destination (station No.4)



# 10.6 JP/GP.WRITE (Writing Data in Target Stations)

This instruction writes data to the device of the programmable controller on another station. (In units of words)




| Setting data*1 | Available devices | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | Internal device (System, user) | | File register R, ZR | Link direct device J□\□ | | Intelligent function module device U□\G□ | Index register Zn | Constant | | Others |
| | Bit | Word | | Bit | Word | | | K, H | $ | |
| (S1) | — | ○ | | — | | | | | | |
| (S2) | — | ○ | | — | | | | | | |
| (D1) | ○*3 | ○*2 | ○ | — | | | | | | |
| (D2) | ○ | | | — | | | | | | |

*1 Local devices and file registers set for each program cannot be used.

*2 T, C, D, W, ST, SD, and SW can be used.
When specifying SD/SW, data can be written in the range that the user can set.
For details on SD/SW, refer to the following.
Manuals for the CPU module and network module of the target station

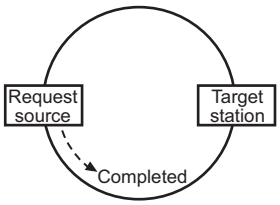
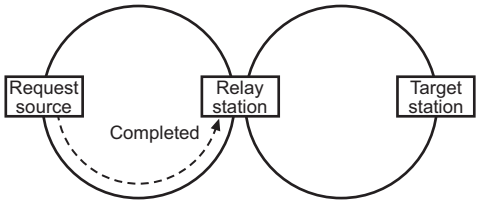
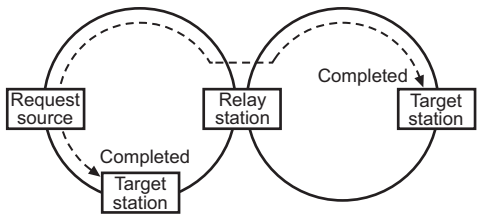
*3 When the target station is a Basic model QCPU, a Universal model QCPU, an RCPU or an LCPU, a digit-specified bit device can be used. ( Ex. K4M16)
To use digit specification, all the following conditions must be met:
• The device number should be multiples of 16 ($10_H$).
• The number of digits should be 4 (K4).

## (1) Setting data

| Setting data | Description | Set by | Data type |
|---|---|---|---|
| Jn | Own station's network No. (1 to 239, 254)<br>254: Network specified in Valid Module During Other Station Access | User | 16-bit binary |
| Un | Start I/O number of the master/local module of the own station<br>(00 to $FE_H$: Upper two digits of the I/O number expressed in three digits) | | |
| (S1) | Start device of the own station where control data is stored | | Device name |
| (S2) | Start device of the own station where data to be written is stored | | |
| (D1) | Start device of the target station where data is to be written<br>(A continuous area for with the write data length is required.) | System | |
| (D2) | The device of the own station that turns on for one scan upon completion of the instruction.<br>If the instruction fails, (D2)+1 also turns on. | | Bit |

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### (a) Control data

| Device | Item | Setting data | Setting range | Set by |
|---|---|---|---|---|
| (S1)+0 | Execution/ abnormal end type | b15 to b7 to b0<br>0 ② 0 ①<br><br>1) Execution type (bit 0)<br>0: Without arrival confirmation<br>• When the target station is on the same network<br>The process is completed when data is sent from the own station.<br>  <br><br>• When the target station is on another network<br>The process is completed when data arrives at the relay station on the same network.<br>  <br><br>1: With arrival confirmation<br>The process is completed when data is written in the target station.<br>  <br><br>When "0: Without arrival confirmation" is specified, the result is regarded as normal on the own station even if the writing to the target station fails, as follows.<br>• When communication ends normally even though sent data are abnormal<br>• When data cannot be written to the target station, because instructions are executed to the same station from multiple stations (The target station generates an error code ($D202_H$ or $D282_H$)) | $0000_H$<br>$0001_H$<br>$0080_H$<br>$0081_H$ | User |
| | | 2) Abnormal end type (bit 7)<br>Specify the data set status in case of abnormal end.<br>0: After (S1)+11, no data is set for abnormal end.<br>1: Data at the time of abnormal end is set in the area starting from (S1)+11. | | |

<table>
<tr><th>Device</th><th>Item</th><th>Setting data</th><th>Setting range</th><th>Set by</th></tr>
<tr><td>(S1)+1</td><td>Completion status</td><td>The status of when the instruction is ended is stored.<br>0: Normal<br>Values other than 0: Error ( Page 439, Section 12.5)</td><td>—</td><td>System</td></tr>
<tr><td>(S1)+2</td><td>Channels used by own station</td><td>Specify the channels to be used by the own station.<br>( Page 241, Section 10.2.2 (1))</td><td>1 and 2</td><td>User</td></tr>
<tr><td>(S1)+3</td><td>Target station's CPU type</td><td>Specify the CPU module on the station to be accessed.<br><table><tr><th>Set value</th><th>Description</th></tr><tr><td>$0000_H$</td><td>Control CPU (The access destination is the same as that of when $03FF_H$ is selected.)</td></tr><tr><td>$03D0_H$</td><td>Control system CPU (redundant CPU only)</td></tr><tr><td>$03D1_H$</td><td>Standby system CPU (redundant CPU only)</td></tr><tr><td>$03D2_H$</td><td>System A CPU (redundant CPU only)</td></tr><tr><td>$03D3_H$</td><td>System B CPU (redundant CPU only)</td></tr><tr><td>$03E0_H$</td><td>• Control CPU (single CPU system)<br>• CPU No.1 (multiple CPU system)</td></tr><tr><td>$03E1_H$</td><td>CPU No.2 (multiple CPU system)</td></tr><tr><td>$03E2_H$</td><td>CPU No.3 (multiple CPU system)</td></tr><tr><td>$03E3_H$</td><td>CPU No.4 (multiple CPU system)</td></tr><tr><td>$03FF_H$</td><td>Control CPU</td></tr></table>When the instruction is executed by specifying a control system CPU ($03D0_H$) or standby system CPU ($03D1_H$), if system switching occurs in the target station, the instruction may fail (CPU module error code: $4244_H$, $4248_H$).<br>If the above error occurs and the instruction fails, execute the instruction again.</td><td>$0000_H$<br>$03D0_H$ to $03D3_H$<br>$03E0_H$ to $03E3_H$<br>$03FF_H$</td><td>User</td></tr>
<tr><td>(S1)+4</td><td>Target station's network No.</td><td>Specify the network No. of the target station.<br>1 to 239: Network No.<br>254: Specify this when 254 is set for Jn.</td><td>1 to 239<br>254</td><td>User</td></tr>
</table>

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| Device | Item | Setting data | Setting range | Set by |
|---|---|---|---|---|
| (S1)+5 | Target station number | Specify the target station number.<br>(1) Station number specification<br>Master station: 125 ($7D_H$)<br>Master operating station: 126 ($7E_H$) (only for modules supporting the submaster function ( Page 546, Appendix 8))<br>Local station, intelligent device station, submaster station: 1 to 120<br><br>When 125 ($7D_H$) is set, the module always accesses the master station (station number 0). When 126 ($7E_H$) is set and the submaster function is used, the module accesses the station operating as a master operating station.<br><br>To increase the reliability of data, it is recommended to execute the instruction with the execution type in (S1)+0 set to "1: With arrival confirmation".<br>(2) Group specification (The target station is on a network other than CC-Link IE Field Network.)<br>$81_H$ to $A0_H$: All stations in Group No.1 to No.32<br>(It can be set when the execution type set for (S1)+0 is "0: Without arrival confirmation".)<br><br>Group No.1: 81H<br>Group No.2: 82H<br>⟨<br>Group No.32: A0H<br><br>(3) All stations specification<br>$FF_H$: All stations on the target station's network No. (excluding the own station)<br>(It can be set when the execution type set for (S1)+0 is "0: Without arrival confirmation".)<br><br>When using the group specification or all stations specification<br>• Specify $0000_H$ or $03FF_H$ for the target station's CPU type ((S1)+3) ( Page 242, Section 10.2.2 (3))<br>• The group specification cannot be used for CC-Link IE Field Network stations.<br>• Writing of the data cannot be confirmed on the target station. For whether data was written normally, check the device of the write target station.<br>• Data cannot be written to the station with the station number already in use or the station with no station number setting. Correct the error then execute the instruction. | 125 ($7D_H$)<br>126 ($7E_H$)<br>1 to 120<br>$81_H$ to $A0_H$<br>$FF_H$ | User |
| (S1)+6 | — | Unused | 0 | User |
| (S1)+7 | Number of resends | During instruction execution<br>For the case where the instruction is not completed within the monitoring time specified by (S1)+8, specify the number of times the instruction is resent. (It can be set when the execution type set by (S1)+0 is "1: With arrival confirmation".) | 0 to 15 | User |
| | | When the instruction is completed<br>The number of resends (result) is stored. (Valid when the execution type set by (S1)+0 is "1: With arrival confirmation".) | — | System |

| Device | Item | Setting data | Setting range | Set by |
|---|---|---|---|---|
| (S1)+8 | Arrival monitoring time | Specify the monitoring time until instruction completion. (It can be set when the execution type set by (S1)+0 is "1: With arrival confirmation".)<br>If the instruction is not completed within the specified time, the instruction is resent for the number of resends specified by (S1)+7.<br>0: 10 seconds<br>1 to 32767: 1 to 32767 seconds | 0 to 32767 | User |
| (S1)+9 | Write data length | Specify the number of words to be written. | 1 to 960<br>To QnACPU:<br>1 to 480 words | User |
| (S1)+10 | — | Unused | 0 | User |
| (S1)+11 | Clock set flag | The valid or invalid status of data after (S1)+12 is stored.<br>(Data is stored when "1: Data at the time of abnormal end is set in the area starting from (S1)+11." is set in the abnormal end type in (S1)+0.) The stored data is not cleared even if the dedicated instruction is normally completed.<br>0: Invalid<br>1: Valid | — | System |
| (S1)+12 to (S1)+15 | Clock data of abnormal end | Clock data of abnormal end is stored in BCD format.<br>(Data is stored when "1: Data at the time of abnormal end is set in the area starting from (S1)+11." is set in the abnormal end type in (S1)+0.) The stored data is not cleared even if the dedicated instruction is normally completed.<br>b15 ~ b8 b7 ~ b0<br>(S1)+12: Month (01H to 12H) / Year (00H to 99H), last 2 digits<br>(S1)+13: Hour (00H to 23H) / Day (01H to 31H)<br>(S1)+14: Second (00H to 59H) / Minute (00H to 59H)<br>(S1)+15: Year (00H to 99H), first 2 digits / Day of week (00H to 06H)<br>00H (Sun.) to 06H (Sat.)<br>When the target station is QnACPU, $00_H$ is stored in the year (the first two digits of the year). | — | System |
| (S1)+16 | Error-detected station's network No.*1 | The network No. of the station in which an error was detected is stored.<br>(Data is stored when "1: Data at the time of abnormal end is set in the area starting from (S1)+11." is set in the abnormal end type in (S1)+0.) The stored data is not cleared even if the dedicated instruction is normally completed.<br>1 to 239: Network No. | — | System |
| (S1)+17 | Error-detected station number*1 | The station number of the station in which an error was detected is stored.<br>(Data is stored when "1: Data at the time of abnormal end is set in the area starting from (S1)+11." is set in the abnormal end type in (S1)+0.) The stored data is not cleared even if the dedicated instruction is normally completed.<br>Master station: 125 ($7D_H$)<br>Local station, intelligent device station, submaster station: 1 to 120 | — | System |

*1 If Completion status ((S1)+1) is "Channel in use (dedicated instruction) (error codes: $D25A_H$ and $D25B_H$)", data is not stored.

### (b) Start device of the own station where data to be written is stored

Specify the start device of the own station that stores data to be written.

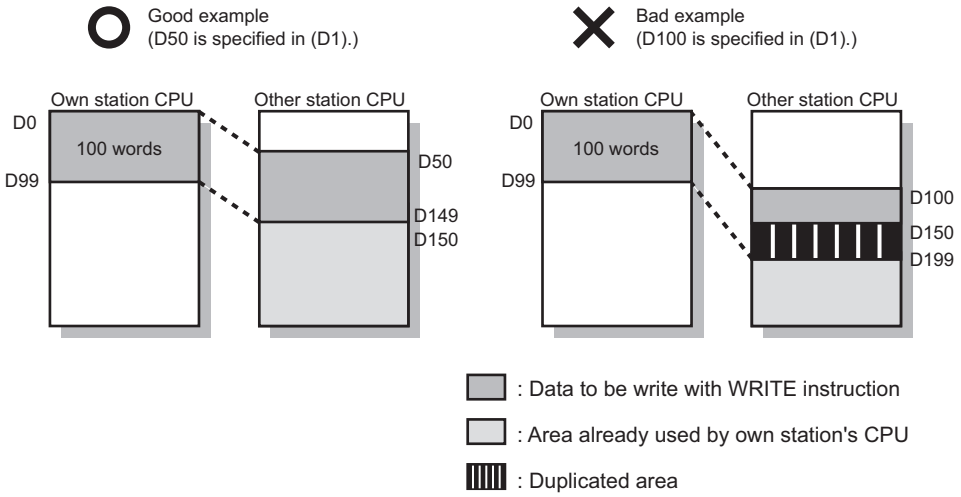
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### (c) Start device of the target station where data is to be written

If the device setting in PLC Parameter is different between the own and target stations, use "(D1)" (with double-quotation marks) to specify.

Specify the start device (D1) of the target station, within the available range so that the write data can be stored.

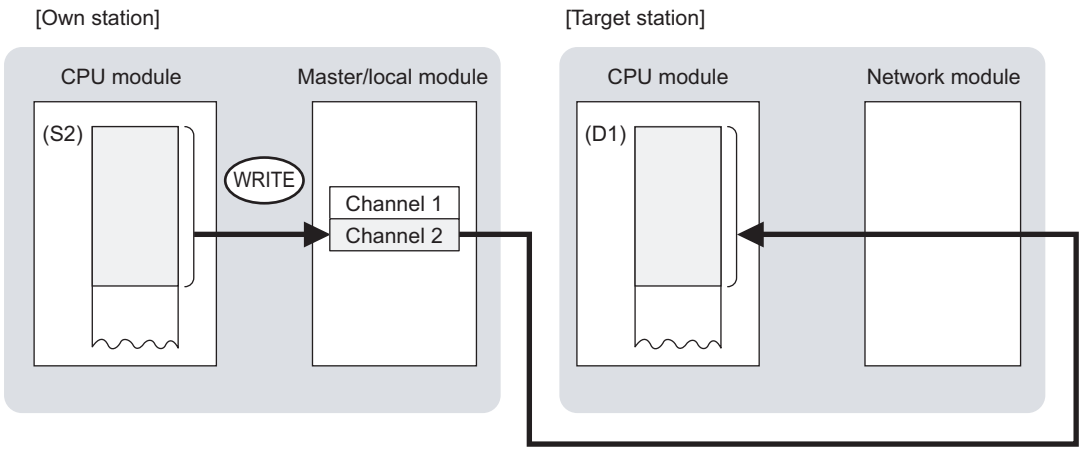
Ex. When the area addressed D150 or higher of the target station CPU is already used



## (2) Function

### (a) WRITE instruction overview

The instruction writes data of the specified number of words (control data ((S1)+9)) in the own station start device (S2) to the target station word devices (after (D1)).
Specify the target stations in control data ((S1)+4 and (S1)+5).
When the writing to devices of the target station is completed, the completion device (D2) turns on.




### (b) Target stations that can be specified

For details on target stations which can be specified, refer to the following.

☞Page 236, Section 10.1 (1)

### (c) Checking the execution status of the WRITE instruction

The execution status (completion or error) of the WRITE instruction can be checked using the following devices specified in the setting data.

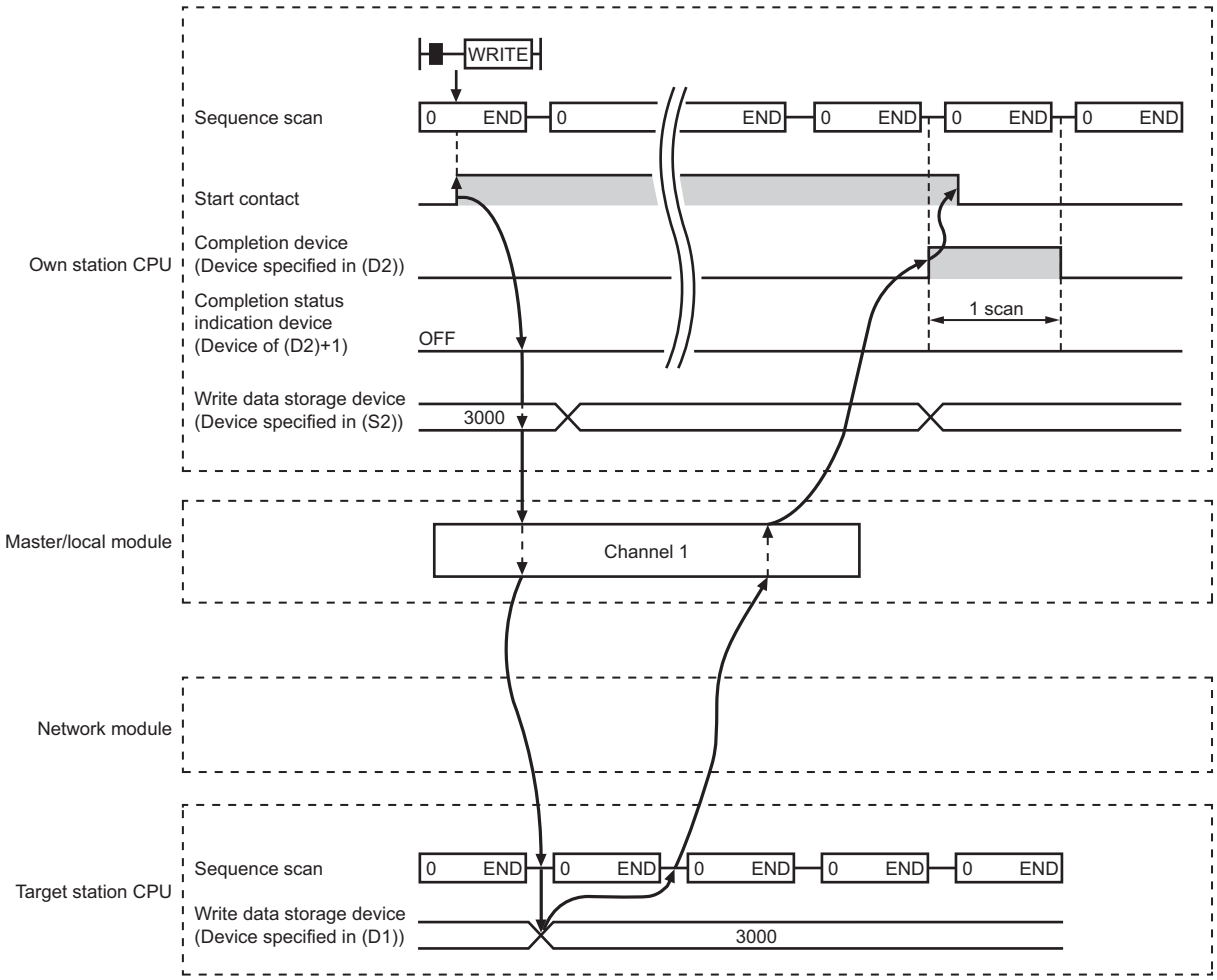
- Completion device (D2)
  This device turns on in the END process of the scan where the WRITE instruction is completed and turns off in the next END process.
- Completion status indication device ((D2)+1)
  If the WRITE instruction fails, this device turns on in the END process of the scan where the WRITE instruction is completed and turns off in the next END process.

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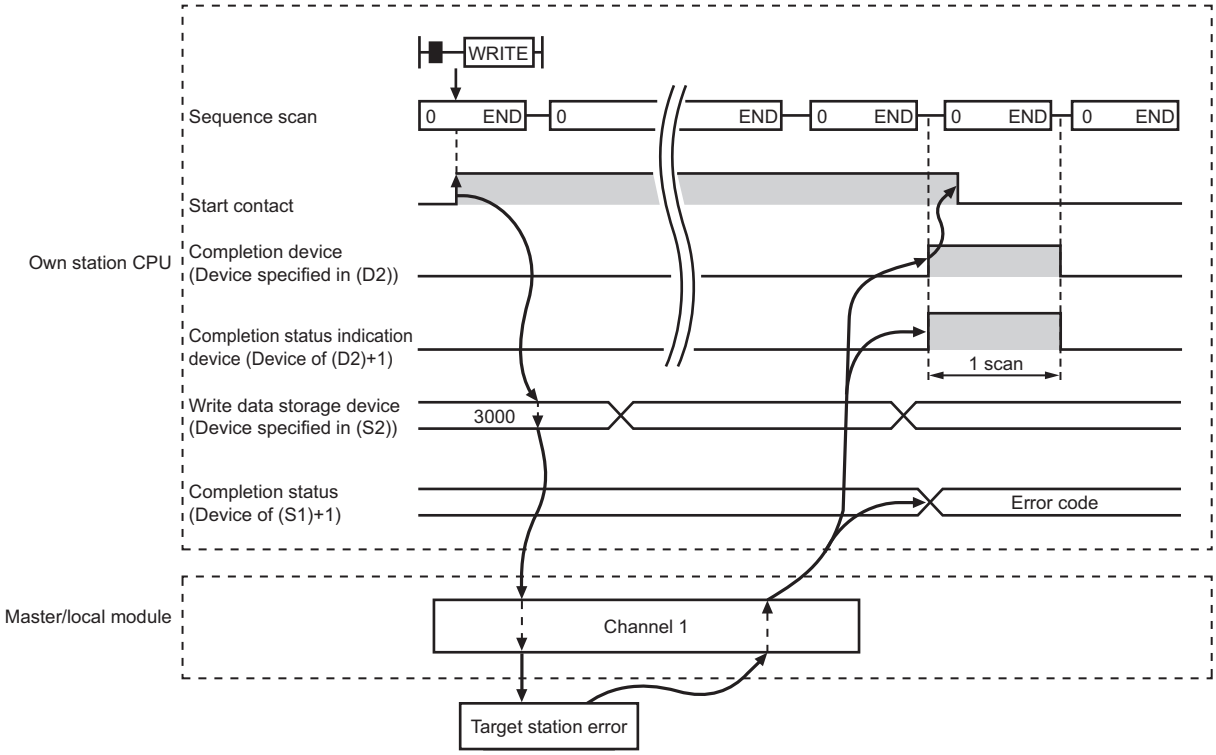


### (d) WRITE instruction execution timing

• When completed



• When failed




## (3) Checking error details

If the dedicated instruction fails, error details can be checked by either of the following methods:

### (a) In GX Works2

Error details can be checked using the CC-Link IE Field Network diagnostics. (☞ Page 206, CHAPTER 9)

### (b) Using devices

Completion status indication device ((D2)+1) turns on, and an error code is stored in Completion status ((S1)+1) of the control data.

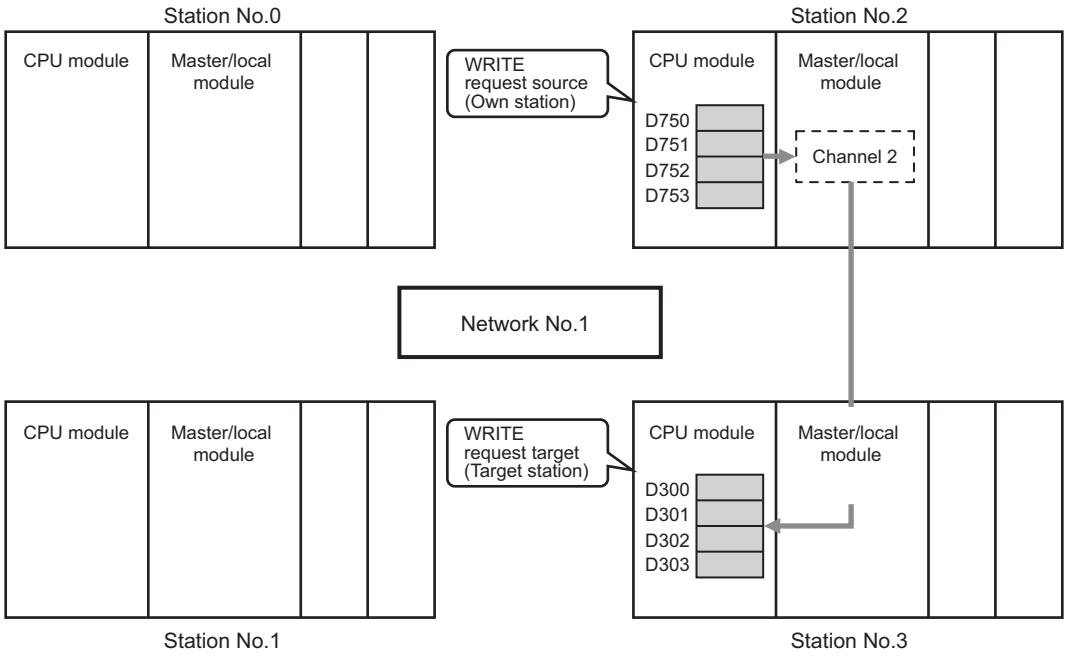
According to the error code, check the error details and take a corrective action. (☞ Page 439, Section 12.5)

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## (4) Program example

The following program is for writing data of D750 to D753 of station No.2 (own station) into D300 to D303 of station No.3 (target station) when M112 is turned on.

### (a) System configuration



### (b) Devices used in the program

• Link special relay (SB), link special register (SW)

| Device | Description | Device | Description |
|---|---|---|---|
| SB0047 | Baton pass status (own station) | SW00A0.2 | Baton pass status (each station) of station No.3 |

**Remark**

For details on link special relay (SB) and link special register (SW), refer to the following:

Page 473, Appendix 3, Page 493, Appendix 4

• Devices used by the user

| Device | Description | Device | Description |
|---|---|---|---|
| M110 | Control data setting command | M116 | Completion status indication device |
| M111 | Write data setting command | D220 to D237 | Control data |
| M112 | Start contact | D750 to D753 | Write data storage device (station No.2) |
| M115 | Completion device | — | |

### (c) WRITE instruction setting

The following table lists values set in WRITE instruction control data.

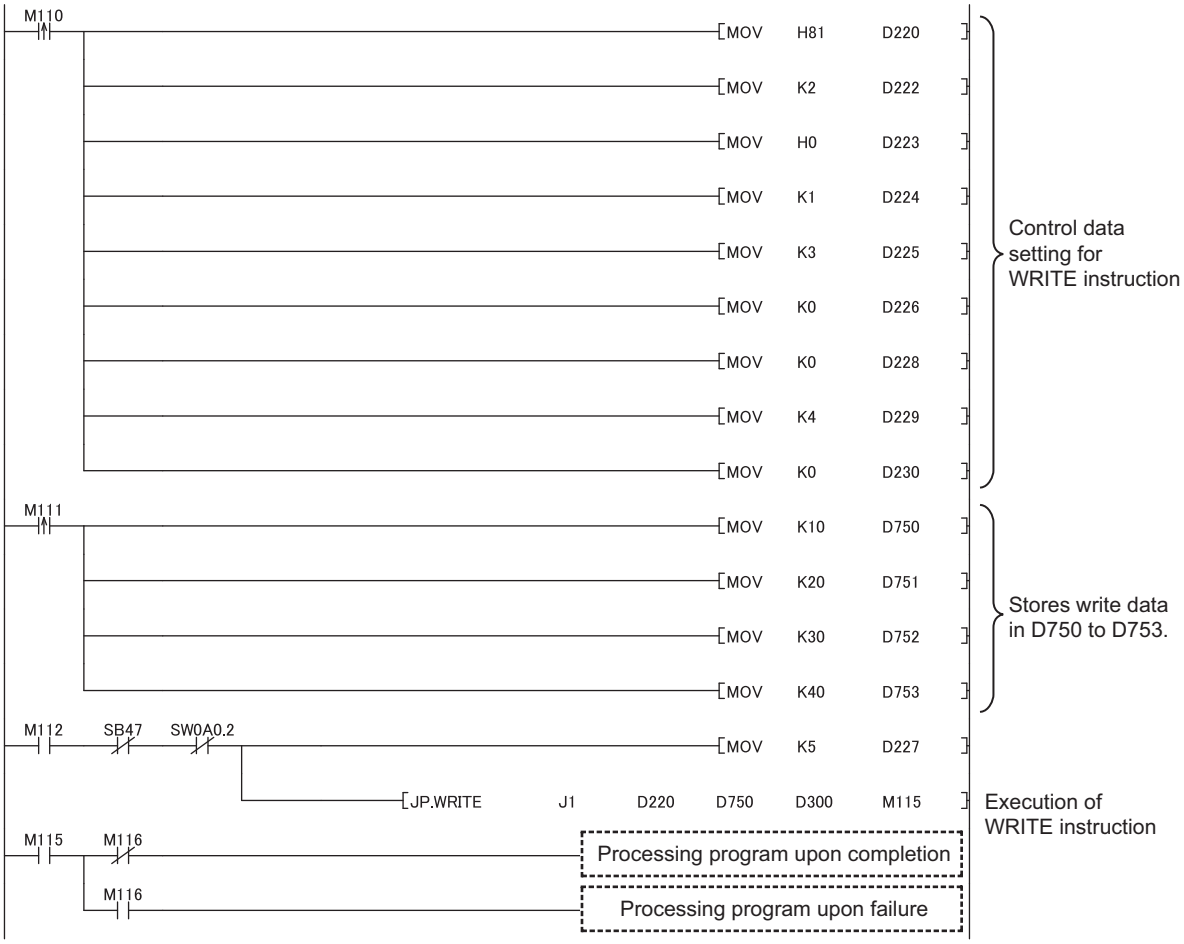
| Device | | Item | Set value |
|---|---|---|---|
| (S1)+0 | D220 | Execution/abnormal end type | $0081_{H}$ (With arrival confirmation, sets data for abnormal end) |
| (S1)+1 | D221 | Completion status | —<br>(The system sets this item.) |
| (S1)+2 | D222 | Channels used by own station | 2 |
| (S1)+3 | D223 | Target station's CPU type | $0000_{H}$ (control CPU) |
| (S1)+4 | D224 | Target station's network No. | 1 |
| (S1)+5 | D225 | Target station number | 3 |
| (S1)+6 | D226 | (Unused) | 0 |
| (S1)+7 | D227 | Number of resends | 5 times |
| (S1)+8 | D228 | Arrival monitoring time | 0 (10 seconds) |
| (S1)+9 | D229 | Write data length | 4 words |
| (S1)+10 | D230 | (Unused) | 0 |
| (S1)+11 | D231 | Clock set flag | —<br>(The system sets these items.) |
| (S1)+12 to (S1)+15 | D232 to D235 | Clock data of abnormal end | |
| (S1)+16 | D236 | Error-detected station's network No. | |
| (S1)+17 | D237 | Error-detected station number | |

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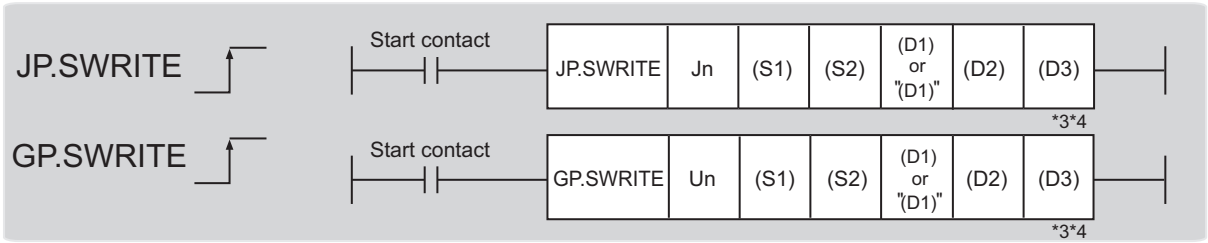
### (d) Program example

The following program is written to the CPU module of station No.2.



# 10.7 JP/GP.SWRITE (Writing Data to the Programmable Controller on Another Station)

This instruction writes data to the device of the programmable controller on another station. (In units of words)
With the SWRITE instruction, the device of the other station is turned on when data writing is completed. Data writing with the SREAD instruction can be confirmed by this.




| Setting data*1 | Available devices | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| | Internal device (System, user) | | File register R, ZR | Link direct device J□\□ | | Intelligent function module device U□\G□ | Index register Zn | Constant | Others |
| | Bit | Word | | Bit | Word | | | K, H / $ | |
| (S1) | — | ○ | | — | | | | | |
| (S2) | — | ○ | | — | | | | | |
| (D1) | ○*5 | ○*2 | ○ | — | | | | | |
| (D2) | ○ | | | — | | | | | |
| (D3) | ○ | | | — | | | | | |

*1 Local devices and file registers set for each program cannot be used.

*2 T, C, D, W, ST, SD, and SW can be used.
When specifying SD/SW, it can be written in the range that the user can set.
For details on SD/SW, refer to the following.
Manuals for the CPU module and network module of the target station

*3 For the SWRITE instruction, the write notification device (D3) can be omitted in the programming.
However, the operation is the same as the WRITE instruction.
The SWRITE instruction can operate differently depending on whether the write notification device (D3) is omitted or not.

*4 When the target station is a Basic model QCPU, the data set in the write notification device (D3) is ignored. (Operation is the same as the WRITE instruction.)

*5 When the target station is a Basic model QCPU, a Universal model QCPU, an RCPU or an LCPU, a digit-specified bit device can be used. ( Ex. K4M16)
To use digit specification, all the following conditions must be met:
• The device number should be multiples of 16 ($10_H$).
• The number of digits should be 4 (K4).

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## (1) Setting data

| Setting data | Description | Set by | Data type |
|---|---|---|---|
| Jn | Own station's network No. (1 to 239, 254)<br>254: Network specified in Valid Module During Other Station Access | User | 16-bit binary |
| Un | Start I/O number of the master/local module of the own station<br>(00 to $FE_H$: Upper two digits of the I/O number expressed in three digits) | | |
| (S1) | Start device of the own station where control data is stored | | Device name |
| (S2) | Start device of the own station where data to be written is stored | | |
| (D1) | Start device of the target station where data is to be written<br>(A continuous area with the write data length is required.) | System | Bit |
| (D2) | The device of the own station that turns on for one scan upon completion of the instruction.<br>If the instruction fails, (D2)+1 also turns on. | | |
| (D3) | Device of the target station, which is turned on for 1 scan upon completion of the instruction.<br>(Data writing from another station can be confirmed.) | | |

### (a) Control data

The control data of the SWRITE instruction control data is the same as that of the WRITE instruction (☞ Page 264, Section 10.6)

### (b) Start device of the own station where data to be written is stored

The start device of the own station where data to be written by the SWRITE instruction is stored is the same as that of the WRITE instruction. (☞ Page 264, Section 10.6)

### (c) Start device of the target station where data is to be written

The start device of the target station is the same as that of the WRITE instruction. (☞ Page 264, Section 10.6)

## (2) Function

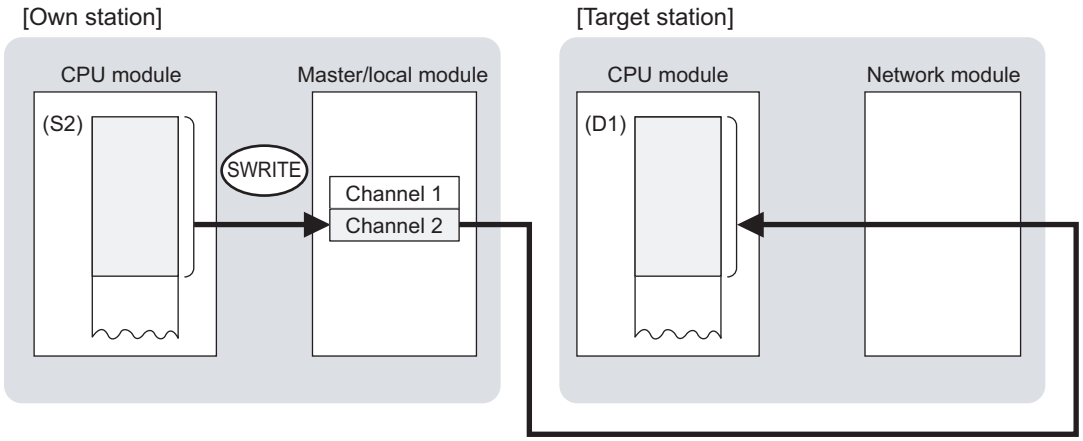
### (a) SWRITE instruction overview

The instruction writes data of the specified number of words (control data ((S1)+9)) in the own station start device (S2) to the target station word devices (after (D1)).

Specify the target stations in control data ((S1)+4 and (S1)+5).

When the writing of the data specified by (S2) is completed, the following devices are turned on.

- Own station: Completion device (D2)
- Target station: Write notification device (D3)




### (b) Target stations that can be specified

For details on target stations which can be specified, refer to the following.

☞Page 236, Section 10.1 (1)

### (c) Checking the execution status of the SWRITE instruction

The execution status (completion or error) of the SWRITE instruction can be checked using the following devices specified in the setting data.

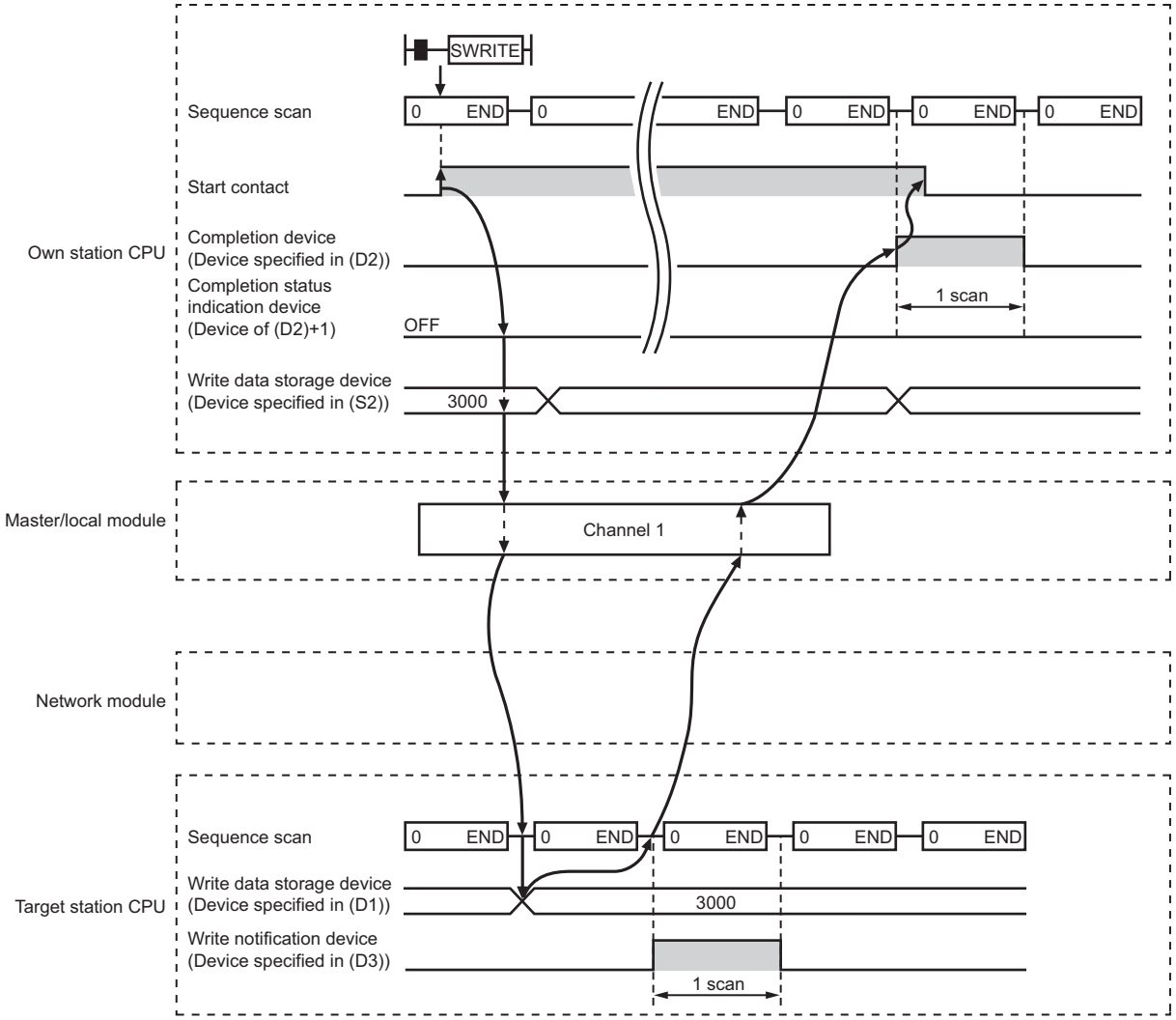
- Completion device (D2)
  This device turns on in the END process of the scan where the SWRITE instruction is completed and turns off in the next END process.
- Completion status indication device ((D2)+1)
  If the SWRITE instruction fails, this device turns on in the END process of the scan where the SWRITE instruction is completed and turns off in the next END process.

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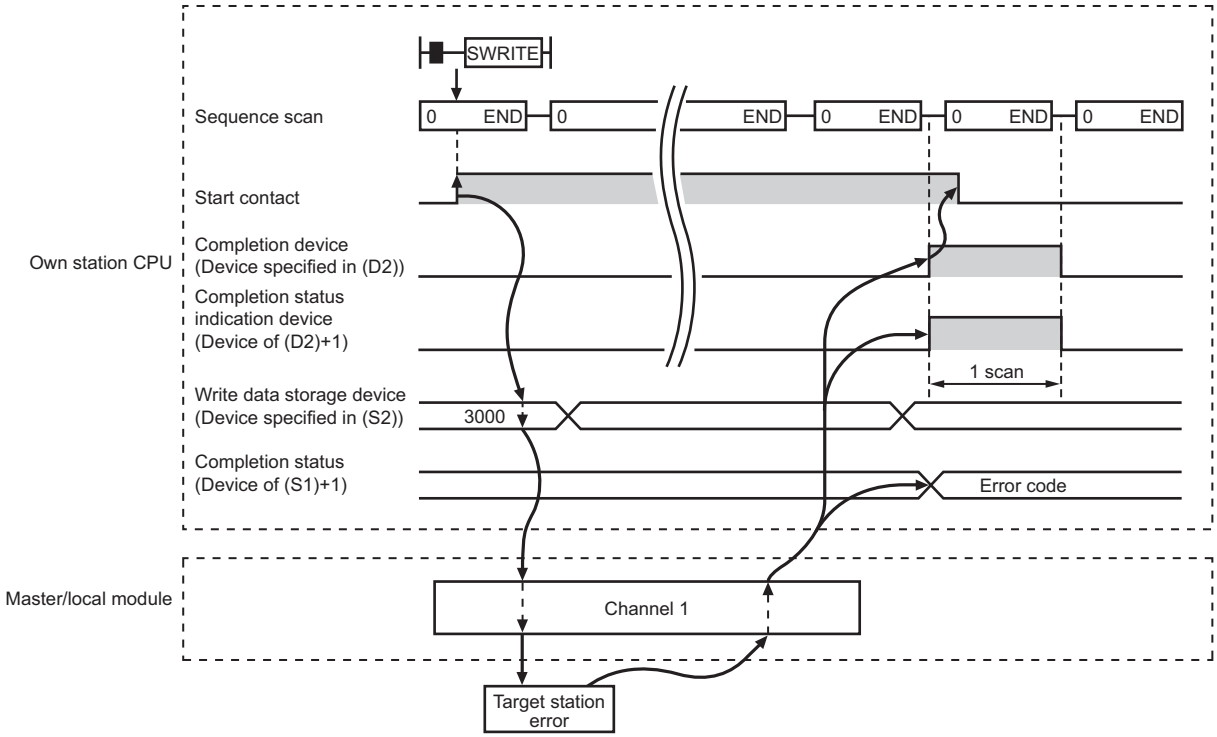


### (d) SWRITE instruction execution timing

• When completed



• When failed




## (3) Checking error details

If the dedicated instruction fails, error details can be checked by either of the following methods:

### (a) In GX Works2

Error details can be checked using the CC-Link IE Field Network diagnostics. (☞Page 206, CHAPTER 9)

### (b) Using devices

Completion status indication device ((D2)+1) turns on, and an error code is stored in Completion status ((S1)+1) of the control data.

According to the error code, check the error details and take a corrective action. (☞Page 439, Section 12.5)

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## (4) Program example

Compared to the WRITE instruction program example, the SWRITE instruction program example has a different section where the write notification device (D3) is specified at the end of the arguments.



**Remark**

For details on the WRITE instruction sample program, refer to the following.

Page 273, Section 10.6 (4)

Just like the WRITE instruction program example, this program example is for writing data of D750 to D753 of station No.2 (own station) into D300 to D303 of station No.3 (target station) when M112 is turned on. Furthermore, when the write notification device (D3) of the target station is turned on, the data of D300 to D303 are stored in D500 to D503.

### (a) System configuration

Same as the WRITE instruction program example.

### (b) Devices used in the program

- Link special relay (SB), link special register (SW)
  Same as the WRITE instruction program example.
- Devices used by users
  The devices used in the SWRITE instruction request source (station No.2) are the same as those in WRITE instruction program example.

Device used in the SWRITE instruction request destination (station No.3)

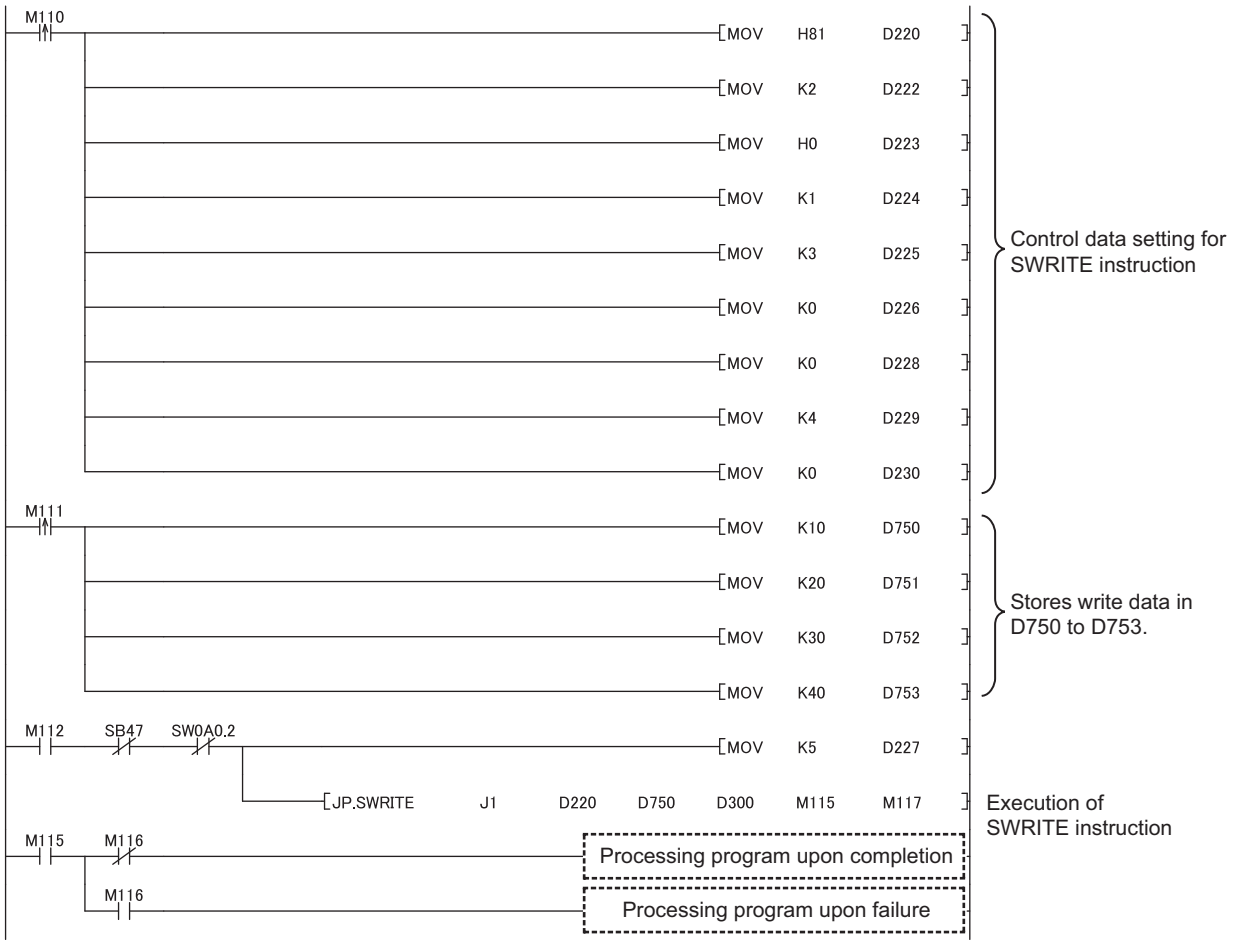
| Device | Description | Device | Description |
|---|---|---|---|
| M117 | Write notification device | D500 to D503 | Devices that store the data of D300 to D303 |

### (c) SWRITE instruction setting

Same as the WRITE instruction program example.

### (d) Program example

- Program example in the SWRITE instruction request source (station No.2)




- Program example in the SWRITE instruction request destination (station No.3)

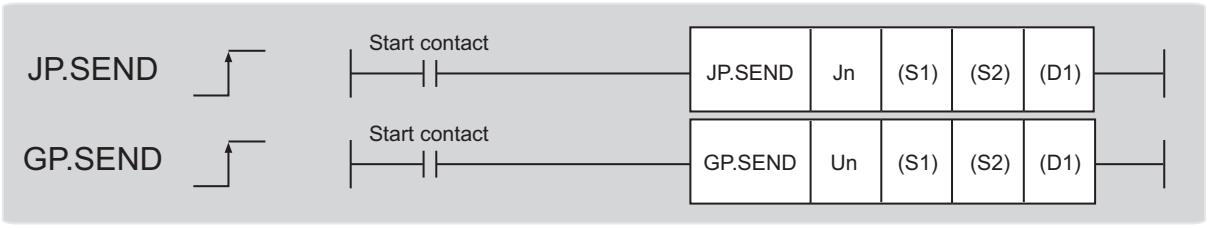


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# 10.8 JP/GP.SEND (Sending Data to the Programmable Controller on Another Station)



This instruction sends data to the programmable controller on another station.



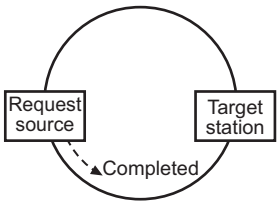
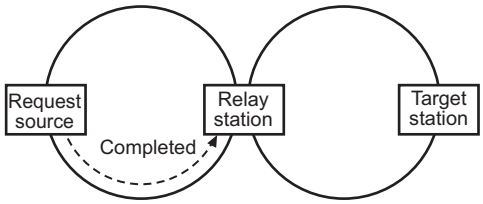
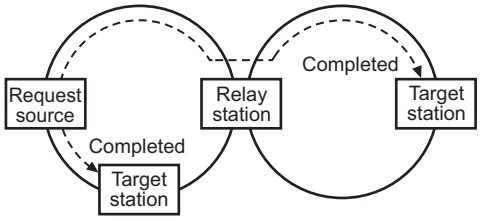

| Setting data*1 | Available device | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | Internal device (System, user) | | File register R, ZR | Link direct device J□\□ | | Intelligent function module device U□\G□ | Index register Zn | Constant | | Others |
| | Bit | Word | | Bit | Word | | | K, H | $ | |
| (S1) | — | ○ | | — | | | | | | |
| (S2) | — | ○ | | — | | | | | | |
| (D1) | ○ | | | — | | | | | | |

*1 Local devices and file registers set for each program cannot be used.

## (1) Setting data

| Setting data | Description | Set by | Data type |
|---|---|---|---|
| Jn | Own station's network No. (1 to 239, 254)<br>254: Network specified in Valid Module During Other Station Access | User | 16-bit binary |
| Un | Start I/O number of the master/local module of the own station<br>(00 to $FE_H$: Upper two digits of the I/O number expressed in three digits) | | |
| (S1) | Start device of the own station where control data is stored | | Device name |
| (S2) | Start device of the own station where send data is stored | | |
| (D1) | The device of the own station that turns on for one scan upon completion of the instruction.<br>If the instruction fails, (D1)+1 also turns on. | System | Bit |

### (a) Control data

| Device | Item | Setting data | Setting range | Set by |
|---|---|---|---|---|
| (S1)+0 | Execution/ abnormal end type | b15 to b7 to b0<br>0 ② 0 ①<br><br>1) Execution type (bit 0)<br>0: Without arrival confirmation<br>• When the target station is on the same network<br>The process is completed when data is sent from the own station.<br>  <br><br>• When the target station is on another network<br>The process is completed when data arrives at the relay station on the same network.<br>  <br><br>1: With arrival confirmation<br>The process is completed when data is stored in the specified channel of the target station.<br>  <br><br>When "0: Without arrival confirmation" is specified, the result is regarded as normal on the own station even if the transmission to the target station fails as follows.<br>• When communication ends normally even though sent data are abnormal<br>• When data cannot be stored in the target station, because instructions are executed to the same station from multiple stations (The target station generates an error code ($D202_H$ or $D282_H$))<br><br>2) Abnormal end type (bit 7)<br>Specify the data set status in case of abnormal end.<br>0: After (S1)+11, no data is set for abnormal end.<br>1: Data at the time of abnormal end is set in the area starting from (S1)+11. | $0000_H$<br>$0001_H$<br>$0080_H$<br>$0081_H$ | User |
| (S1)+1 | Completion status | The status of when the instruction is ended is stored.<br>0: Normal<br>Values other than 0: Error (☞ Page 439, Section 12.5) | — | System |

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| Device | Item | Setting data | Setting range | Set by |
|---|---|---|---|---|
| (S1)+2 | Channels used by own station | Specify the channels to be used by the own station.<br>(☞ Page 241, Section 10.2.2 (1)) | 1 and 2 | User |
| (S1)+3 | Target station's channel | Specify the channel of the target station where data is stored. | 1 to 8 (channel range available for target station) | User |
| (S1)+4 | Target station's network No. | Specify the network No. of the target station.<br>1 to 239: Network No.<br>254: Specify this when 254 is set for Jn. | 1 to 239<br>254 | User |
| (S1)+5 | Target station number | Specify the target station number.<br>(1) Station number specification<br>Master station: 125 ($7D_H$)<br>Master operating station: 126 ($7E_H$) (only for modules supporting the submaster function (☞ Page 546, Appendix 8))<br>Local station, intelligent device station, submaster station: 1 to 120<br><br>When 125 ($7D_H$) is set, the module always accesses the master station (station number 0). When 126 ($7E_H$) is set and the submaster function is used, the module accesses the station operating as a master operating station.<br><br>To increase the reliability of data, it is recommended to execute the instruction with the execution type in (S1)+0 set to "1: With arrival confirmation".<br>(2) Group specification (The target station is on a network other than CC-Link IE Field Network.)<br>$81_H$ to $A0_H$: All stations in Group No.1 to No.32<br>(It can be set when the execution type set for (S1)+0 is "0: Without arrival confirmation".)<br><br>Group No.1: $81_H$<br>Group No.2: $82_H$<br>⟆<br>Group No.32: $A0_H$<br><br>(3) All stations specification<br>$FF_H$: All stations on the target station's network No. (excluding the own station)<br>(It can be set when the execution type set for (S1)+0 is "0: Without arrival confirmation".)<br><br>When using the group specification or all stations specification<br>• The group specification cannot be used for CC-Link IE Field Network stations.<br>• Writing of the data cannot be confirmed on the target station. For whether data was written normally, check the device of the write target station.<br>• Data cannot be written to the station with the station number already in use or the station with no station number setting. Correct the error then execute the instruction. | 125 ($7D_H$)<br>126 ($7E_H$)<br>1 to 120<br>$81_H$ to $A0_H$<br>$FF_H$ | User |
| (S1)+6 | — | Unused | 0 | User |

| Device | Item | Setting data | Setting range | Set by |
|---|---|---|---|---|
| (S1)+7 | Number of resends | During instruction execution<br>For the case where the instruction is not completed within the monitoring time specified by (S1)+8, specify the number of times the instruction is resent. (Valid when the execution type set by (S1)+0 is "1: With arrival confirmation".) | 0 to 15 | User |
| | | When the instruction is completed<br>The number of resends (result) is stored. (Valid when the execution type set by (S1)+0 is "1: With arrival confirmation".) | — | System |
| (S1)+8 | Arrival monitoring time | Specify the monitoring time until instruction completion. (It can be set when the execution type set by (S1)+0 is "1: With arrival confirmation".)<br>If the instruction is not completed within the specified time, the instruction is resent for the number of resends specified by (S1)+7.<br>0: 10 seconds<br>1 to 32767: 1 to 32767 seconds | 0 to 32767 | User |
| (S1)+9 | Send data length | Specify the send data size of (S2) to (S2)+n. | 1 to 960<br>To QnACPU:<br>1 to 480 words | User |
| (S1)+10 | — | Unused | 0 | User |
| (S1)+11 | Clock set flag | The valid or invalid status of data after (S1)+12 is stored.<br>(Data is stored when "1: Data at the time of abnormal end is set in the area starting from (S1)+11." is set in the abnormal end type in (S1)+0.) The stored data is not cleared even if the dedicated instruction is normally completed.<br>0: Invalid<br>1: Valid | — | System |
| (S1)+12 to (S1)+15 | Clock data of abnormal end | Clock data of abnormal end are stored in BCD format.<br>(Data is stored when "1: Data at the time of abnormal end is set in the area starting from (S1)+11." is set in the abnormal end type in (S1)+0.) The stored data is not cleared even if the dedicated instruction is normally completed.<br>b15 ~ b8 b7 ~ b0<br>(S1)+12: Month (01H to 12H) / Year (00H to 99H), last 2 digits<br>(S1)+13: Hour (00H to 23H) / Day (01H to 31H)<br>(S1)+14: Second (00H to 59H) / Minute (00H to 59H)<br>(S1)+15: Year (00H to 99H), first 2 digits / Day of week (00H to 06H)<br>00H (Sun.) to 06H (Sat.)<br>When the target station is QnACPU, $00_H$ is stored in the year (the first two digits of the year). | — | System |
| (S1)+16 | Error-detected station's network No.*1 | The network No. of the station in which an error was detected is stored.<br>(Data is stored when "1: Data at the time of abnormal end is set in the area starting from (S1)+11." is set in the abnormal end type in (S1)+0.) The stored data is not cleared even if the dedicated instruction is normally completed.<br>1 to 239: Network No. | — | System |

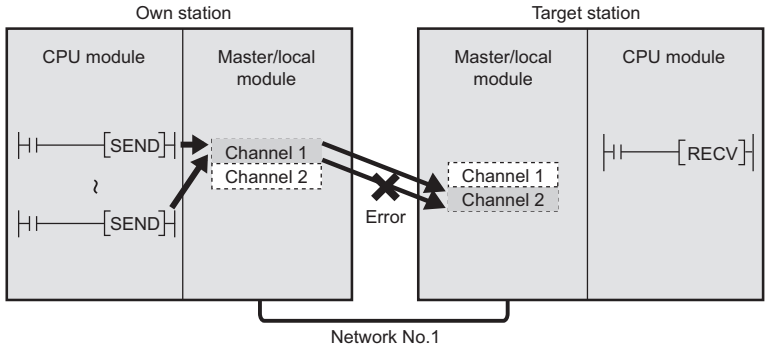
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| Device | Item | Setting data | Setting range | Set by |
|---|---|---|---|---|
| (S1)+17 | Error-detected station number*1 | The station number of the station in which an error was detected is stored.<br>(Data is stored when "1: Data at the time of abnormal end is set in the area starting from (S1)+11." is set in the abnormal end type in (S1)+0.) The stored data is not cleared even if the dedicated instruction is normally completed.<br>Master station: 125 ($7D_H$)<br>Local station, intelligent device station, submaster station: 1 to 120 | — | System |

*1 If Completion status ((S1)+1) is "Channel in use (dedicated instruction) (error codes: $D25A_H$ and $D25B_H$)", data is not stored.

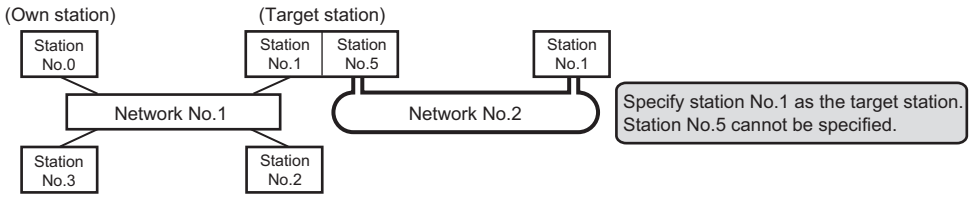
## Point

- When the SEND instruction is executed to the same channel on a target station
  Execute the SEND instruction after the target station reads data of the specified channel.
  If the SEND instruction is executed to the same channel on the target station before the data is read from the specified channel of the target station, an error occurs.




- When multiple network modules are connected on the target station
  Specify the network No. and station No. of the network module that accepts requests from the own station.

  Ex. Specifying the station No. 1 in network No. 1 (station No. 5 in network No. 2 cannot be specified.)



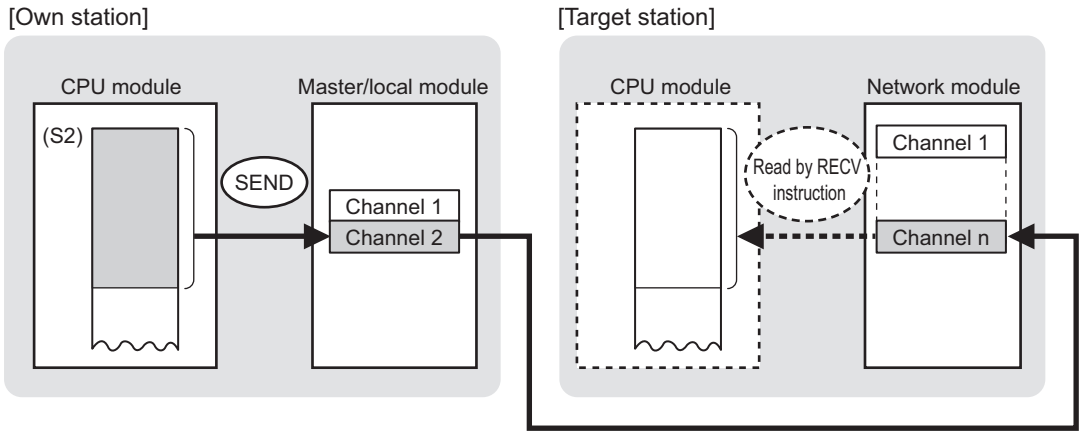
## (2) Function

### (a) SEND instruction overview

The instruction sends data by the specified number of words (control data ((S1)+9)) from the own station start device (S2) to the specified channel of a target station.

Specify the target stations in control data ((S1)+4 and (S1)+5).

When the transmission to the specified channel of the target station is completed, the completion device (D1) turns on.




### (b) Target stations that can be specified

For details on target stations which can be specified, refer to the following.

☞Page 236, Section 10.1 (1)

### (c) Checking the execution status of the SEND instruction

The execution status (completion or error) of the SEND instruction can be checked using the following devices specified in the setting data.

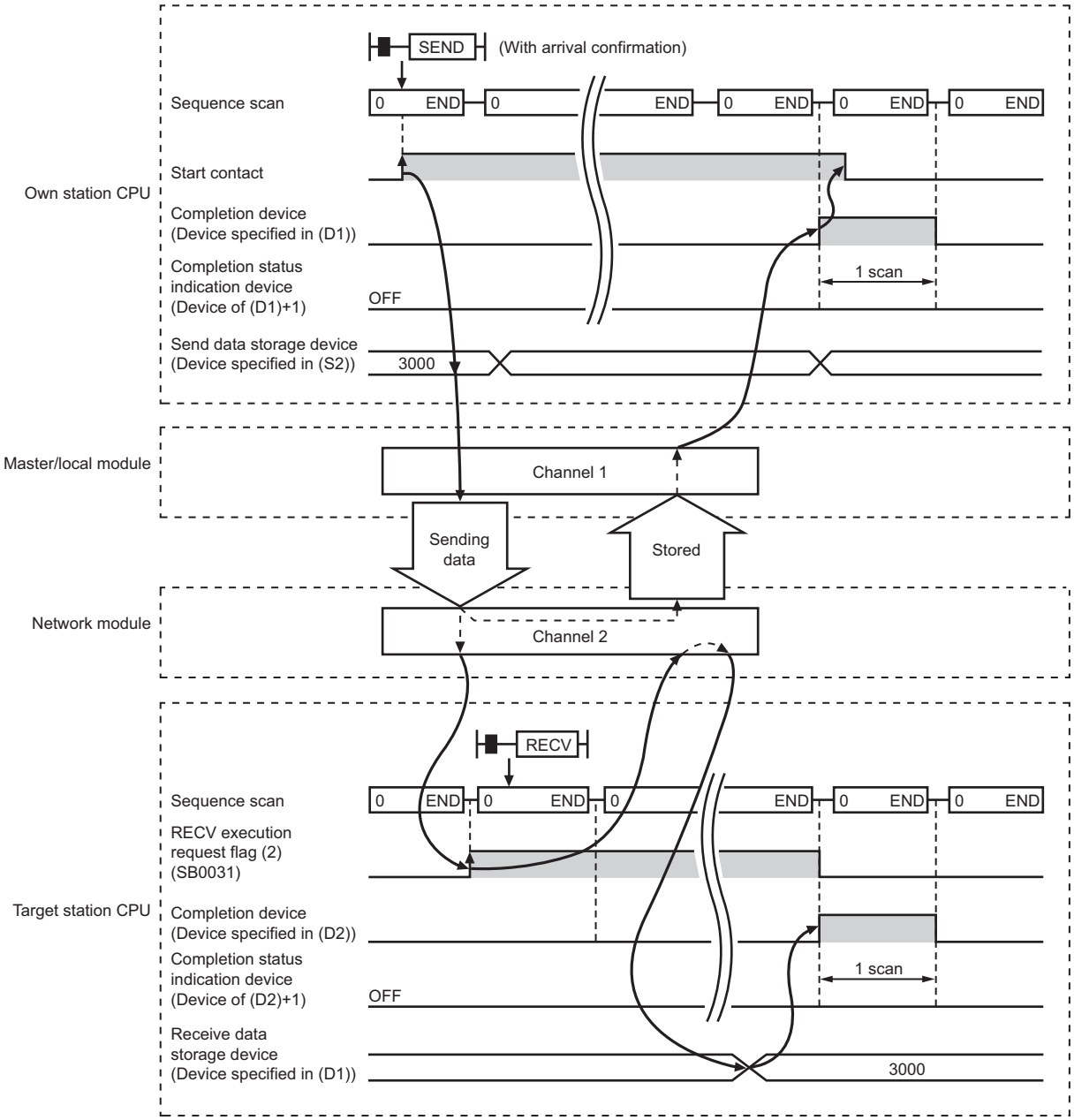
- Completion device (D1)
  This device turns on in the END process of the scan where the SEND instruction is completed and turns off in the next END process.
- Completion status indication device ((D1)+1)
  If the SEND instruction fails, this device turns on in the END process of the scan where the SEND instruction is completed and turns off in the next END process.

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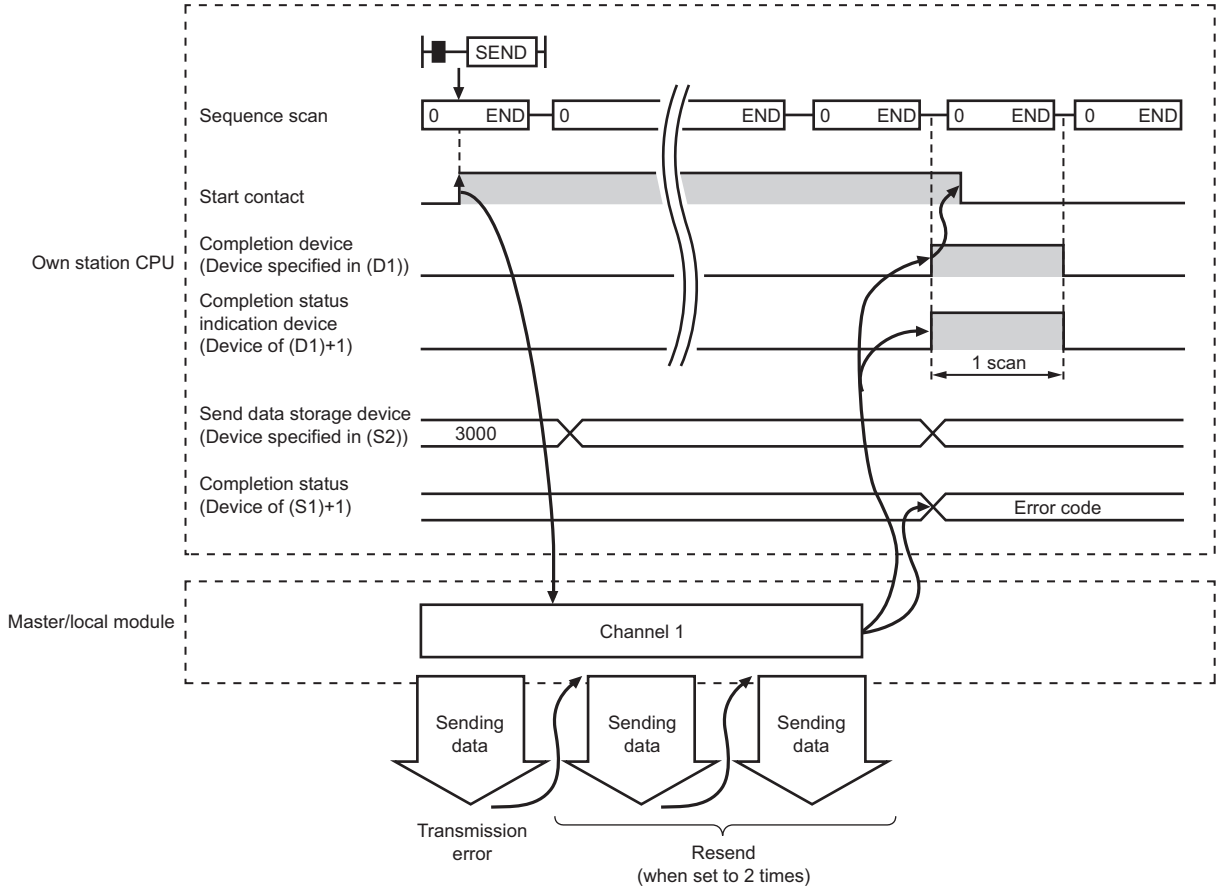


### (d) SEND instruction execution timing

• When completed



• When failed




## (3) Checking error details

If the dedicated instruction fails, error details can be checked by either of the following methods:

### (a) In GX Works2

Error details can be checked using the CC-Link IE Field Network diagnostics. (☞Page 206, CHAPTER 9)

### (b) Using devices

Completion status indication device ((D1)+1) turns on, and an error code is stored in Completion status ((S1)+1) of the control data.

According to the error code, check the error details and take a corrective action. (☞Page 439, Section 12.5)

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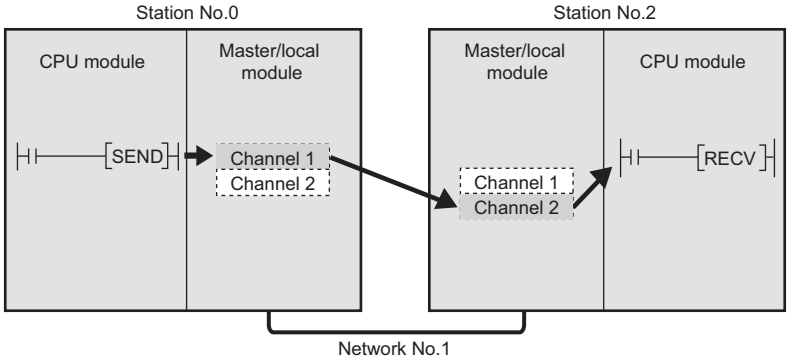
## (4) Program example

The following program is for sending data of D750 to D753 of station No. 0 (own station) to channel 2 of station No. 2 (target station) when M152 is turned on.

For details on how to read the data, which was sent by the SEND instruction, from channel 2 of station No. 2 (target station), refer to the following.

- To read the data in the main routine program: Page 294, Section 10.9
- To read the data in an interrupt program: Page 301, Section 10.10

### (a) System configuration




### (b) Devices used in the program

- Link special relay (SB), link special register (SW)

| Device | Description | Device | Description |
|---|---|---|---|
| SB0047 | Baton pass status (own station) | SW00A0.1 | Baton pass status (each station) of station No. 2 |

**Remark**

For details on the link special relay (SB) and link special register (SW), refer to the following:
Page 473, Appendix 3, Page 493, Appendix 4

- Devices used by users

| Device | Description | Device | Description |
|---|---|---|---|
| M150 | Control data setting command | M156 | Completion status indication device |
| M151 | Send data setting command | D350 to D367 | Control data |
| M152 | Start contact | D750 to D753 | Send data storage device (station No.0) |
| M155 | Completion device | — | |

### (c) SEND instruction setting

The following table lists values set in SEND instruction control data.

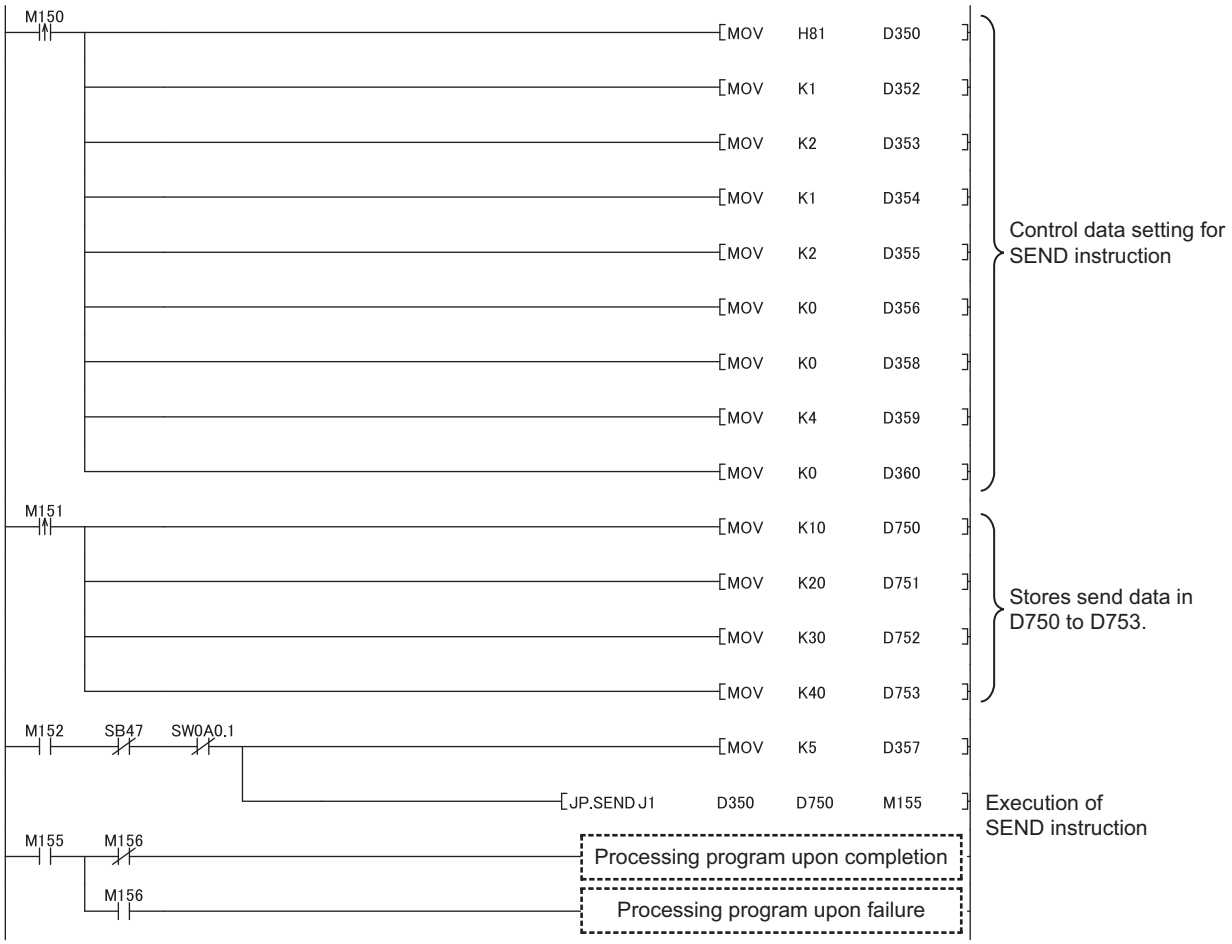
| Device | | Item | Set value |
|---|---|---|---|
| (S1)+0 | D350 | Execution/abnormal end type | $0081_H$ (With arrival confirmation, sets data for abnormal end) |
| (S1)+1 | D351 | Completion status | —<br>(The system sets this item.) |
| (S1)+2 | D352 | Channels used by own station | 1 |
| (S1)+3 | D353 | Target station's channel | 2 |
| (S1)+4 | D354 | Target station's network No. | 1 |
| (S1)+5 | D355 | Target station number | 2 |
| (S1)+6 | D356 | (Unused) | 0 |
| (S1)+7 | D357 | Number of resends | 5 times |
| (S1)+8 | D358 | Arrival monitoring time | 0 (10 seconds) |
| (S1)+9 | D359 | Send data length | 4 words |
| (S1)+10 | D360 | (Unused) | 0 |
| (S1)+11 | D361 | Clock set flag | —<br>(The system sets these items.) |
| (S1)+12 to (S1)+15 | D362 to D365 | Clock data of abnormal end | |
| (S1)+16 | D366 | Error-detected station's network No. | |
| (S1)+17 | D367 | Error-detected station number | |

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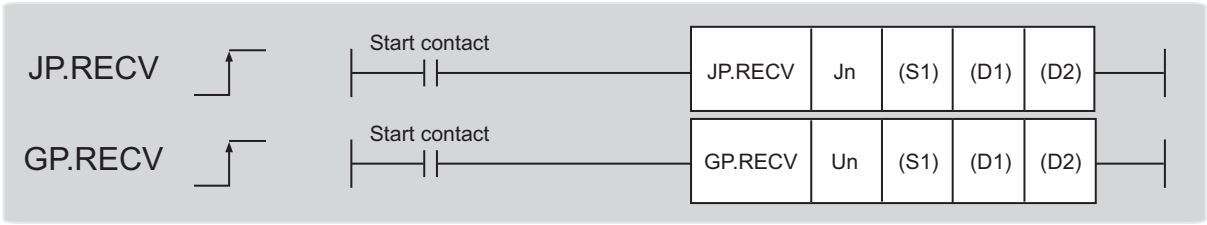
### (d) Program example

The following program is written to the CPU module of station No.0.



# 10.9 JP/GP.RECV (Receiving Data from the Programmable Controller on Another Station)

This instruction reads the data received from the programmable controller on another station. (For the main routine program)




| Setting data*1 | Available devices | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| | Internal device (System, user) | | File register R, ZR | Link direct device J□\□ | | Intelligent function module device U□\G□ | Index register Zn | Constant | | Others |
| | Bit | Word | | Bit | Word | | | K, H | $ | |
| (S1) | — | ○ | | — | | | | | | |
| (D1) | — | ○ | | — | | | | | | |
| (D2) | ○ | | | — | | | | | | |

*1 Local devices and file registers set for each program cannot be used.

## (1) Setting data

| Setting data | Description | Set by | Data type |
|---|---|---|---|
| Jn | Own station's network No. (1 to 239, 254)<br>254: Network specified in Valid Module During Other Station Access | User | 16-bit binary |
| Un | Start I/O number of the master/local module of the own station<br>(00 to $FE_H$: Upper two digits of the I/O number expressed in three digits) | | |
| (S1) | Start device of the own station where control data is stored | | Device name |
| (D1) | Start device of the own station where received data is stored<br>(A continuous area for the received data length is required.) | System | |
| (D2) | The device of the own station that turns on for one scan upon completion of the instruction.<br>If the instruction fails, (D2)+1 also turns on. | | Bit |

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### (a) Control data

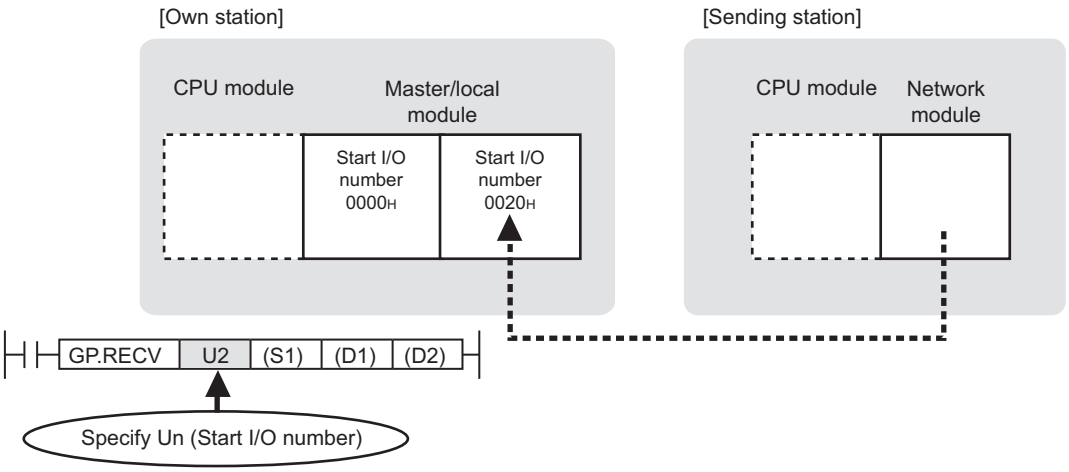
| Device | Item | Setting data | Setting range | Set by |
|---|---|---|---|---|
| (S1)+0 | Abnormal end type | b15 to b7 to b0<br>0 ① 0<br>1) Abnormal end type (bit 7)<br>Specify the data set status in case of abnormal end.<br>0: After (S1)+11, no data is set for abnormal end.<br>1: Data at the time of abnormal end is set in the area starting from (S1)+11. | $0000_H$<br>$0080_H$ | User |
| (S1)+1 | Completion status | The status of when the instruction is ended is stored.<br>0: Normal<br>Values other than 0: Error ( Page 439, Section 12.5) | — | System |
| (S1)+2 | Own station's channel | Specify the channel of the own station where the received data is stored ( Page 241, Section 10.2.2 (1)) | 1 and 2 | User |
| (S1)+3 | Send station's channel | The channel used by the send station is stored. | — | System |
| (S1)+4 | Send station's network No. | The network No. of the send station is stored.<br>1 to 239: Network No. | — | System |
| (S1)+5 | Send station number | The station No. of the send station is stored.<br>Master station: 125 ($7D_H$)<br>Local station, intelligent device station, submaster station: 1 to 120 | — | System |
| (S1)+6 | — | Unused | 0 | User |
| (S1)+7 | — | Unused | 0 | User |
| (S1)+8 | Arrival monitoring time | Specify the monitoring time until instruction completion.<br>If processing is not completed within the time, the instruction is abnormally terminated.<br>0: 10 seconds<br>1 to 32767: 1 to 32767 seconds | 0 to 32767 | User |
| (S1)+9 | Received data length | The received data size in (D1) to (D1)+n is stored.<br>1 to 960: Received data size (words) | — | System |
| (S1)+10 | — | Unused | 0 | User |
| (S1)+11 | Clock set flag | The valid or invalid status of data after (S1)+12 is stored.<br>(Data is stored when "1: Data at the time of abnormal end is set in the area starting from (S1)+11." is set in the abnormal end type in (S1)+0.)<br>The stored data is not cleared even if the dedicated instruction is normally completed.<br>0: Invalid<br>1: Valid | — | System |
| (S1)+12 to (S1)+15 | Clock data of abnormal end | Clock data of abnormal end are stored in BCD format.<br>(Data is stored when "1: Data at the time of abnormal end is set in the area starting from (S1)+11." is set in the abnormal end type in (S1)+0.)<br>The stored data is not cleared even if the dedicated instruction is normally completed.<br>b15 ~ b8 b7 ~ b0<br>(S1)+12: Month (01H to 12H) / Year (00H to 99H), last 2 digits<br>(S1)+13: Hour (00H to 23H) / Day (01H to 31H)<br>(S1)+14: Second (00H to 59H) / Minute (00H to 59H)<br>(S1)+15: Year (00H to 99H), first 2 digits / Day of week (00H to 06H)<br>00H (Sun.) to 06H (Sat.) | — | System |

| Device | Item | Setting data | Setting range | Set by |
|---|---|---|---|---|
| (S1)+16 | Error-detected station's network No.*1 | The network No. of the station in which an error was detected is stored. (Data is stored when "1: Data at the time of abnormal end is set in the area starting from (S1)+11." is set in the abnormal end type in (S1)+0.) The stored data is not cleared even if the dedicated instruction is normally completed.<br>1 to 239: Network No. | — | System |
| (S1)+17 | Error-detected station number*1 | The station number of the station in which an error was detected is stored. (Data is stored when "1: Data at the time of abnormal end is set in the area starting from (S1)+11." is set in the abnormal end type in (S1)+0.) The stored data is not cleared even if the dedicated instruction is normally completed.<br>Master station: 125 ($7D_H$)<br>Local station, intelligent device station, submaster station: 1 to 120 | — | System |

*1 If Completion status ((S1)+1) is "Channel in use (dedicated instruction) (error codes: $D25A_H$ and $D25B_H$)", data is not stored.

**Point**

When multiple master/local modules with the same network No. are mounted on the own station, execute the RECV instruction by specifying Un (start I/O number).
The RECV instruction cannot be executed by specifying Jn (network No.).



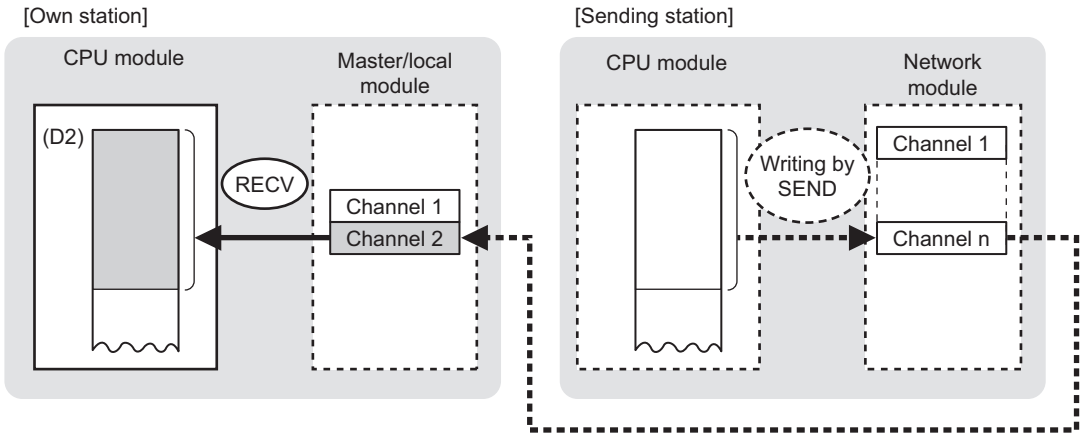
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## (2) Function

### (a) RECV instruction overview

The instruction reads the data, which were sent from another station by the SEND instruction, from the specified channel to the own station word device (from (D1)).
When the data reading from the specified channel of the own station is completed, the completion device (D2) turns on.




### (b) Checking the execution status of the RECV instruction

The execution status (completion or error) of the RECV instruction can be checked using the following devices specified in the setting data.

- Completion device (D2)
  This device turns on in the END process of the scan where the RECV instruction is completed and turns off in the next END process.
- Completion status indication device ((D2)+1)
  If the RECV instruction fails, this device turns on in the END process of the scan where the RECV instruction is completed and turns off in the next END process.

### (c) RECV instruction execution timing

When data are stored in a channel of the own station, the corresponding RECV execution request flag (SB0030 and SB0031) turns on.

Use the flag as a start contact and execute the RECV instruction.

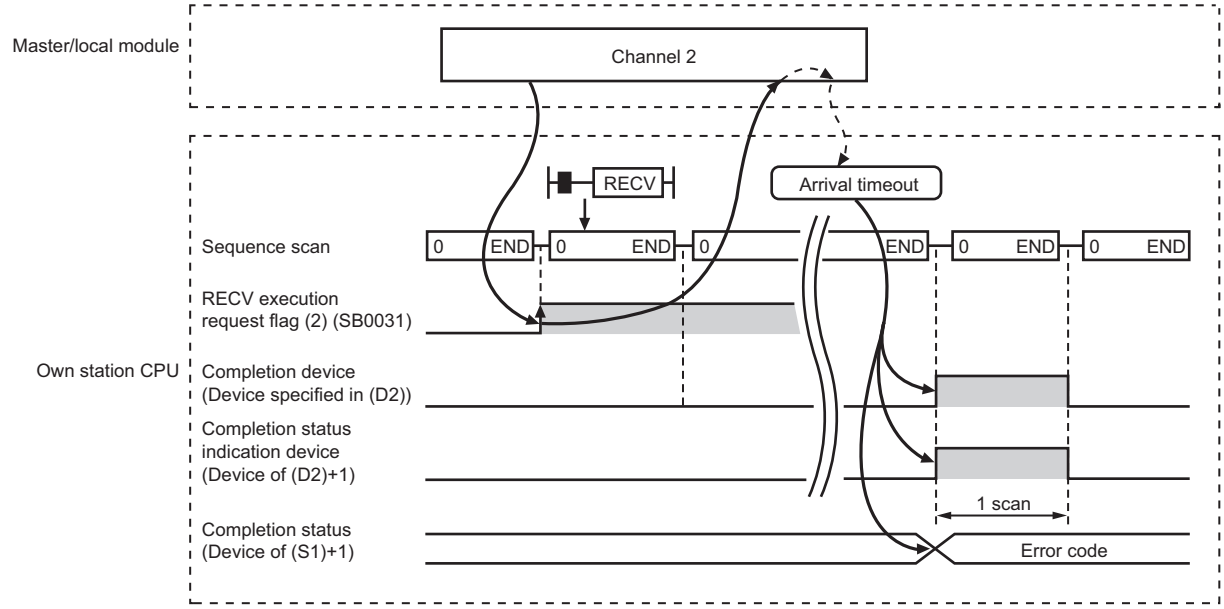
Upon completion of the RECV instruction, the flag turns off.

| Number | Name |
|---|---|
| SB0030 | RECV execution request flag (1) |
| SB0031 | RECV execution request flag (2) |

- When completed

  For details on the RECV instruction execution time, refer to the following.

  ☞ Page 289, Section 10.8 (2) (d)
- When failed




## (3) Checking error details

If the dedicated instruction fails, error details can be checked by either of the following methods:

### (a) In GX Works2

Error details can be checked using the CC-Link IE Field Network diagnostics. (☞ Page 206, CHAPTER 9)

### (b) Using devices

Completion status indication device ((D2)+1) turns on, and an error code is stored in Completion status ((S1)+1) of the control data.

According to the error code, check the error details and take a corrective action. (☞ Page 439, Section 12.5)

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## (4) Program example

The following program is for reading the data sent from station No.0 by the SEND instruction, from channel 2 of station No.2 (own station) to D770 to D773, when SB0031 is turned on.

For details on the SEND instruction, refer to the following.

☞ Page 283, Section 10.8

### (a) System configuration

Same as the SEND instruction program example.

### (b) Devices used in the program

• Link special relay (SB)

| Device | Description | Device | Description |
|---|---|---|---|
| SB0031 | RECV execution request flag (2) | — | |

**Remark**

For details on the link special relay (SB), refer to the following.

☞ Page 473, Appendix 3

• Devices used by users

| Device | Description | Device | Description |
|---|---|---|---|
| M165 | Completion device | D370 to D387 | Control data |
| M166 | Completion status indication device | D770 to D773 | Receive data storage device |

### (c) RECV instruction setting

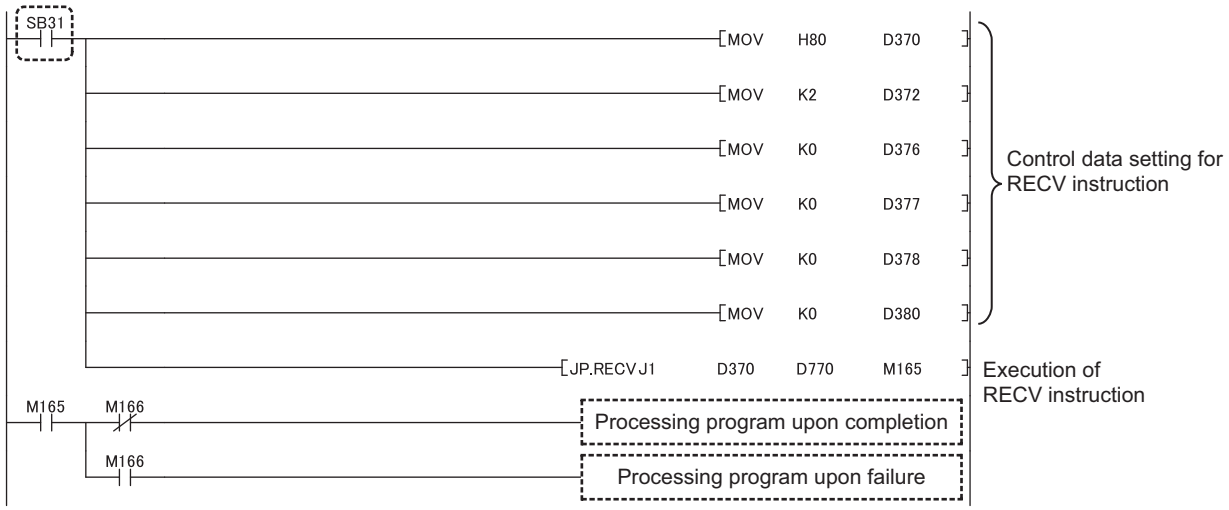
The following table lists values set in RECV instruction control data.

| Device | | Item | Set value |
|---|---|---|---|
| (S1)+0 | D370 | Abnormal end type | $0080_H$<br>(Sets data for abnormal end.) |
| (S1)+1 | D371 | Completion status | —<br>(The system sets this item.) |
| (S1)+2 | D372 | Own station's channel | 2 |
| (S1)+3 | D373 | Send station's channel | —<br>(The system sets these items.) |
| (S1)+4 | D374 | Send station's network No. | |
| (S1)+5 | D375 | Send station number | |
| (S1)+6 | D376 | (Unused) | 0 |
| (S1)+7 | D377 | (Unused) | 0 |
| (S1)+8 | D378 | Arrival monitoring time | 0 (10 seconds) |
| (S1)+9 | D379 | Received data length | —<br>(The system sets this item.) |
| (S1)+10 | D380 | (Unused) | 0 |
| (S1)+11 | D381 | Clock set flag | —<br>(The system sets these items.) |
| (S1)+12 to (S1)+15 | D382 to D385 | Clock data of abnormal end | |
| (S1)+16 | D386 | Error-detected station's network No. | |
| (S1)+17 | D387 | Error-detected station number | |

### (d) Program example

The following program is written into the CPU module of station No.2.

When data are stored in a channel of the own station, the corresponding RECV execution request flag (SB0030 to SB0031) turns ON. Using the flag as a start contact, execute the RECV instruction. Upon completion of the RECV instruction, the flag turns OFF.

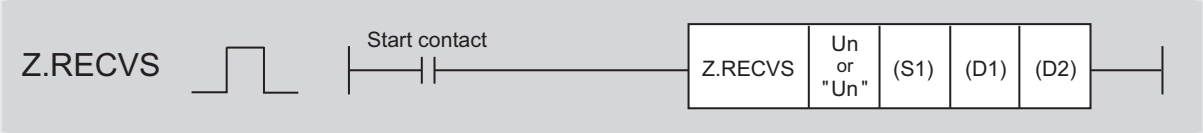


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# 10.10 Z.RECVS (Receiving Data from the Programmable Controller on Another Station)



This instruction reads the data received from the programmable controller on another station. (For interrupt programs)




| Setting data*1 | Available devices | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| | Internal device (System, user) | | File register R, ZR | Link direct device J□\□ | | Intelligent function module device U□\G□ | Index register Zn | Constant | | Others |
| | Bit | Word | | Bit | Word | | | K, H | $ | |
| (S1) | — | ○ | | — | | | | | | |
| (D1) | — | ○ | | — | | | | | | |
| (D2) | ○ | | | — | | | | | | |

*1 Local devices and file registers set for each program cannot be used.

## (1) Setting data

| Setting data | Description | Set by | Data type |
|---|---|---|---|
| "Un"/Un | Start I/O number of the master/local module of the own station (00 to $FE_H$: Upper two digits of the I/O number expressed in three digits) | User | String/ 16-bit binary |
| (S1) | Start device of the own station where control data is stored | | Device name |
| (D1) | Start device of own station where received data is stored (A continuous area for the received data length is required.) | System | |
| (D2) | Dummy | | Bit |

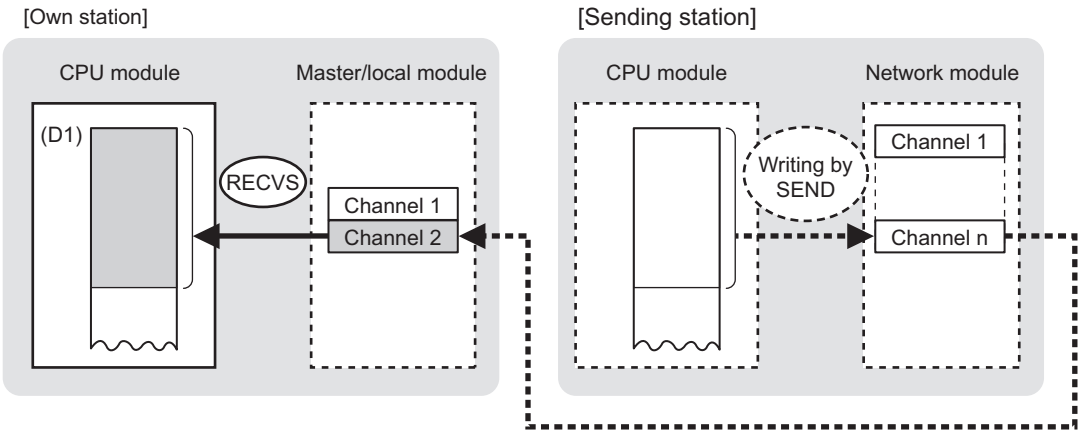
### (a) Control data

| Device | Item | Setting data | Setting range | Set by |
|---|---|---|---|---|
| (S1)+0 | — | Unused | 0 | User |
| (S1)+1 | Completion status | The status of when the instruction is ended is stored.<br>0: Normal<br>Values other than 0: Error (Page 439, Section 12.5) | — | System |
| (S1)+2 | Own station's channel | Specify the channel of the own station where the received data is stored<br>(Page 241, Section 10.2.2 (1)) | 1 and 2 | User |
| (S1)+3 | Send station's channel | The channel used by the send station is stored. | — | System |
| (S1)+4 | Send station's network No. | The network No. of the send station is stored.<br>1 to 239: Network No. | — | System |
| (S1)+5 | Send station number | The station No. of the send station is stored.<br>Master station: 125 ($7D_H$)<br>Master operating station: 126 ($7E_H$)<br>Slave station, submaster station: 1 to 120 | — | System |
| (S1)+6 | — | Unused | 0 | User |
| (S1)+7 | — | Unused | 0 | User |
| (S1)+8 | — | Unused | 0 | User |
| (S1)+9 | Received data length | The received data size in (D1) to (D1)+n is stored.<br>1 to 960: Received data size (words) | — | System |

## (2) Function

### (a) RECVS instruction overview

This instruction reads the data, which were sent from another station by the SEND instruction, from the specified channel of the own station to the own station word device (from (D1)).



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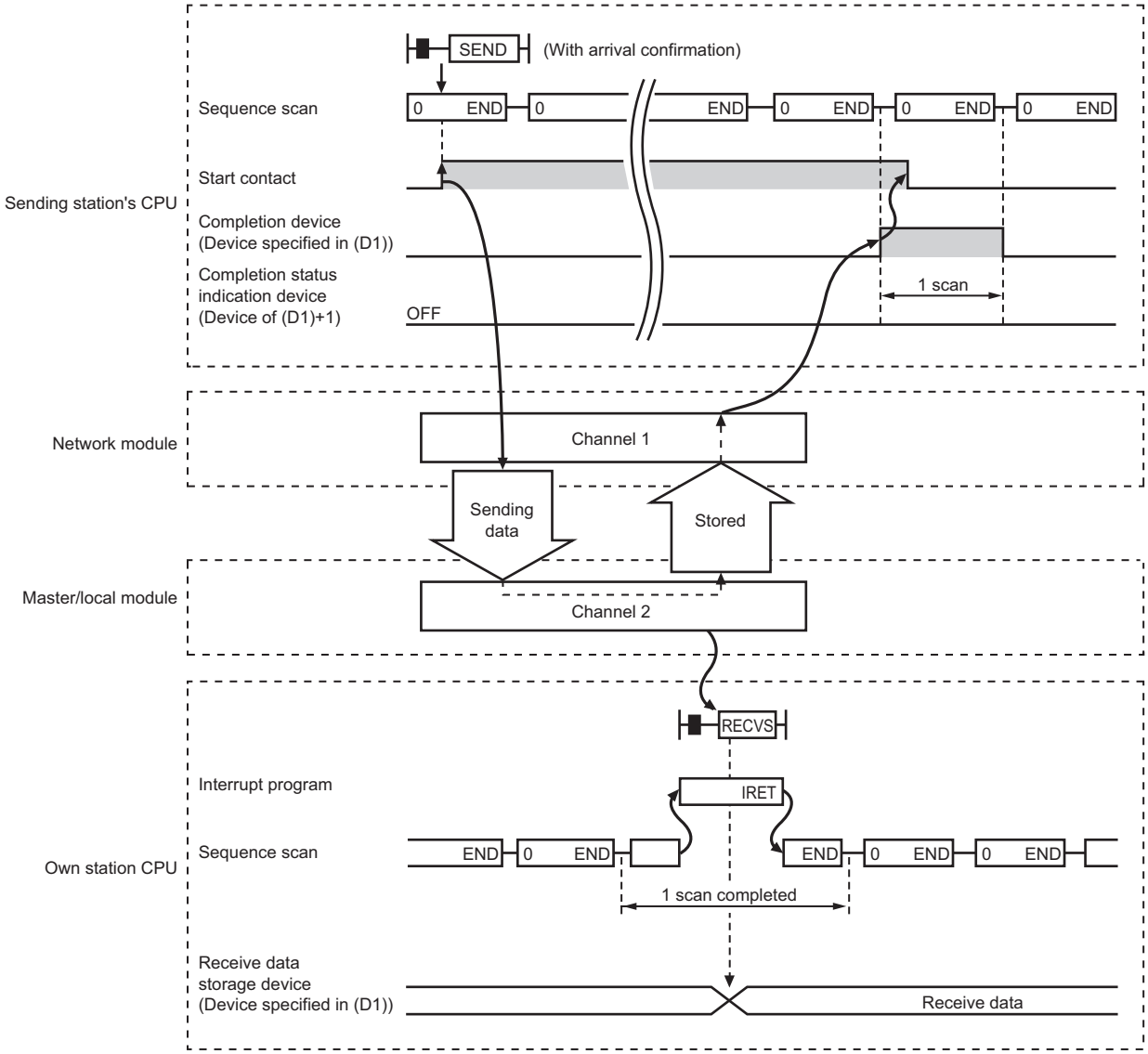
### (b) RECVS instruction execution timing

Set the RECVS instruction as an interrupt condition. (☞ Page 111, Section 7.6 (3))

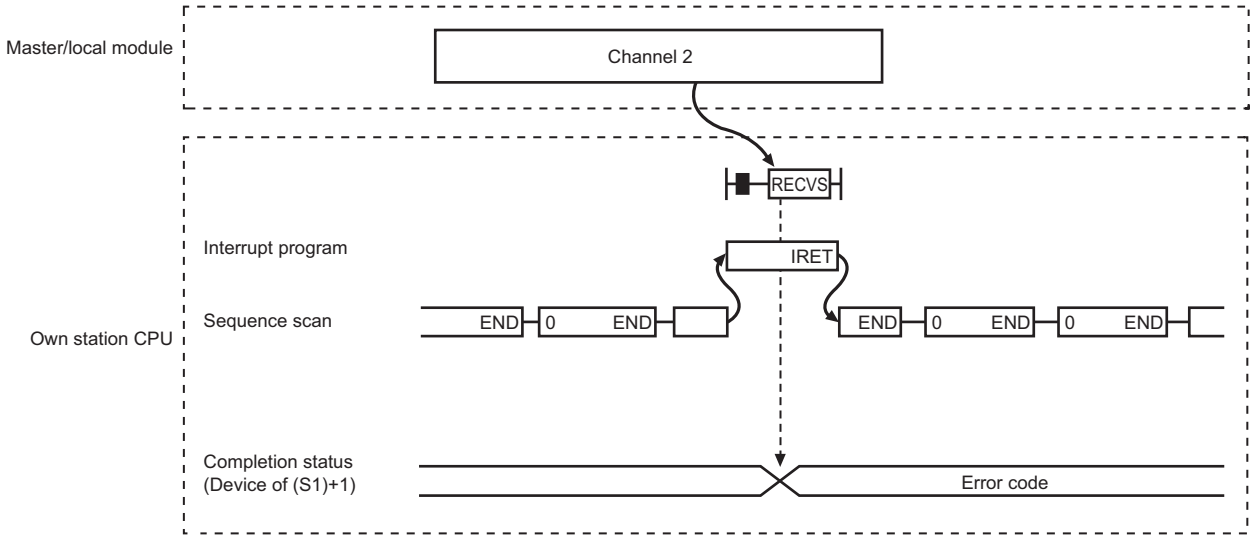
When data are stored in the own station's channel, the interrupt program starts and executes the RECVS instruction.

The RECVS instruction is completed within 1 scan.

- When completed



• When failed




## (3) Checking error details

If the dedicated instruction fails, error details can be checked by either of the following methods:

### (a) In GX Works2

Error details can be checked using the CC-Link IE Field Network diagnostics. (☞ Page 206, CHAPTER 9)

### (b) Using devices

An error code is stored in the completion status ((S1)+1) of the control data.

According to the error code, check the error details and take a corrective action. (☞ Page 439, Section 12.5)

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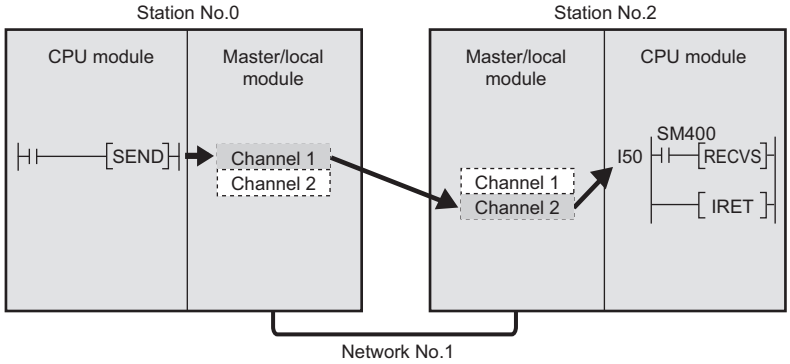
## (4) Program example

The following program is for reading the data sent from station No. 0 by the SEND instruction, from channel 2 of station No. 2 (own station) to D770 to D773, when an interrupt program starts.

For details on the SEND instruction, refer to the following.

☞ Page 283, Section 10.8

### (a) System configuration

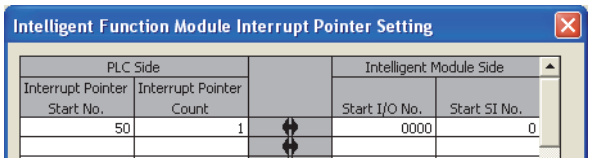



### (b) Parameter setting (☞ Page 111, Section 7.6 (3))

- Interrupt settings

| | Device Code | Device No. | Detection Method | Interrupt Condition | Word Device Setting Value | Channel No./ Connection No. | Interrupt (SI) No. |
|---|---|---|---|---|---|---|---|
| 1 | RECVS Instruction | | Edge Detect | Scan Completed | | 2 | 0 |
| 2 | | | | | | | |

- Intelligent function module interrupt pointer setting




### (c) Devices used in the program

- Special relay (SM)

| Device | Description | Device | Description |
|---|---|---|---|
| SM400 | Always ON | — | |

- Devices used by users

| Device | Description | Device | Description |
|---|---|---|---|
| M165 | Dummy | D770 to D773 | Receive data storage device |
| D370 to D379 | Control data | — | |

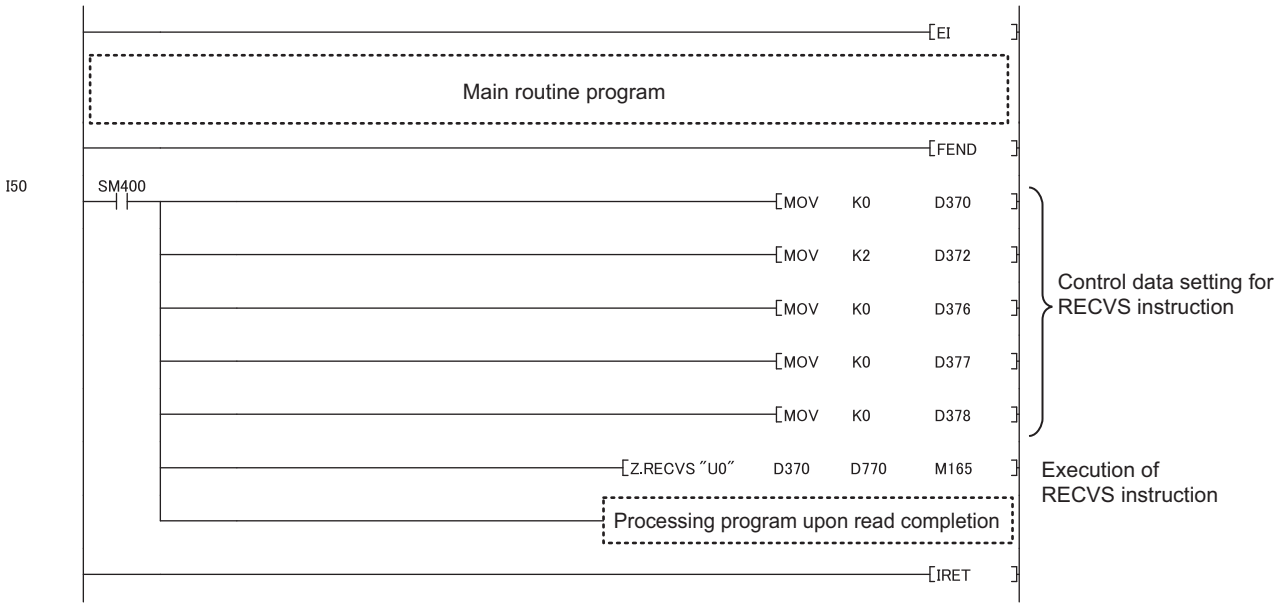
### (d) RECVS instruction setting

The following table lists values set in RECVS instruction control data.

| Device | | Item | Set value |
|---|---|---|---|
| (S1)+0 | D370 | Execution/abnormal end type | 0 |
| (S1)+1 | D371 | Completion status | —<br>(The system sets this item.) |
| (S1)+2 | D372 | Own station's channel | 2 |
| (S1)+3 | D373 | Send station's channel | —<br>(The system sets these items.) |
| (S1)+4 | D374 | Send station's network No. | |
| (S1)+5 | D375 | Send station number | |
| (S1)+6 | D376 | (Unused) | 0 |
| (S1)+7 | D377 | (Unused) | 0 |
| (S1)+8 | D378 | (Unused) | 0 |
| (S1)+9 | D379 | Received data length | —<br>(The system sets this item.) |

### (e) Program example

The following program is written to the CPU module of station No.2.




**Point**

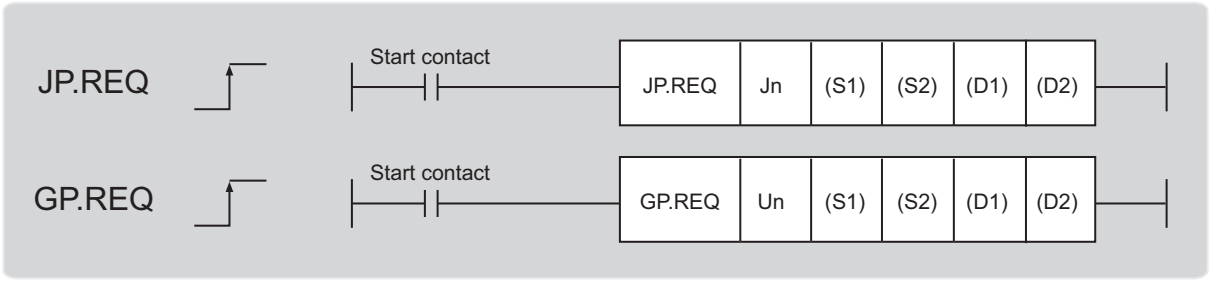
When executing an interrupt program, it is necessary to execute "EI" (enable interrupt) in the main routine program.

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# 10.11 JP/GP.REQ (Remote RUN/STOP)



This instruction executes the remote RUN/STOP on the programmable controller on another station.



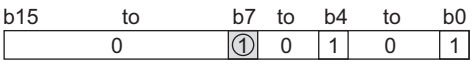

| Setting data*1 | Available devices | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | Internal device (system, user) | | File register R, ZR | Link direct device J□\□ | | Intelligent function module device U□\G□ | Index register Zn | Constant | | Others |
| | Bit | Word | | Bit | Word | | | K, H | $ | |
| (S1) | — | ○ | | — | | | | | | |
| (S2) | — | ○ | | — | | | | | | |
| (D1) | — | ○ | | — | | | | | | |
| (D2) | ○ | | | — | | | | | | |

*1 Local devices and file registers set for each program cannot be used.

## (1) Setting data

| Setting data | Description | Set by | Data type |
|---|---|---|---|
| Jn | Own station network No. (1 to 239, 254)<br>254: Network specified in Valid Module During Other Station Access | User | 16-bit binary |
| Un | Start I/O number of the master/local module of own station<br>(00 to $FE_H$: Upper two digits of the I/O number expressed in three digits) | | |
| (S1) | Start device of the own station where control data is stored | | Device name |
| (S2) | Start device of the own station where receive data is stored | | |
| (D1) | Start device of the own station where response data is stored | System | |
| (D2) | The device of the own station that turns on for one scan upon completion of the instruction.<br>If the instruction fails, (D2)+1 also turns on. | | Bit |

### (a) Control data

<table>
<tr><th>Device</th><th>Item</th><th>Setting data</th><th>Setting range</th><th>Set by</th></tr>
<tr><td>(S1)+0</td><td>Abnormal end type</td><td> 

1) Abnormal end type (bit 7)<br>Specify the set status of data in case of at abnormal end.<br>0: After (S1)+11, no data is set for abnormal end<br>1: Data at the time of abnormal end is set in the area starting from (S1)+11.</td><td>$0011_H$<br>$0091_H$</td><td>User</td></tr>
<tr><td>(S1)+1</td><td>Completion status</td><td>The status of when the instruction is ended is stored.<br>0 : Normal<br>Values other than 0: Error ( Page 439, Section 12.5)</td><td>—</td><td>System</td></tr>
<tr><td>(S1)+2</td><td>Channels used by own station</td><td>Specify the channels to be used by the own station.<br>( Page 241, Section 10.2.2 (1))</td><td>1 and 2</td><td>User</td></tr>
<tr><td>(S1)+3</td><td>Target station's CPU type</td><td>Specify the CPU module on the station to be accessed.
<table>
<tr><th>Set value</th><th>Description</th></tr>
<tr><td>$0000_H$</td><td>Control CPU (The access destination is the same as that of when $03FF_H$ is selected.)</td></tr>
<tr><td>$03D0_H$</td><td>Control system CPU (redundant CPU only)</td></tr>
<tr><td>$03D1_H$</td><td>Standby system CPU (redundant CPU only)</td></tr>
<tr><td>$03D2_H$</td><td>System A CPU (redundant CPU only)</td></tr>
<tr><td>$03D3_H$</td><td>System B CPU (redundant CPU only)</td></tr>
<tr><td>$03E0_H$</td><td>• Control CPU (single CPU system)<br>• CPU No.1 (multiple CPU system)</td></tr>
<tr><td>$03E1_H$</td><td>CPU No.2 (multiple CPU system)</td></tr>
<tr><td>$03E2_H$</td><td>CPU No.3 (multiple CPU system)</td></tr>
<tr><td>$03E3_H$</td><td>CPU No.4 (multiple CPU system)</td></tr>
<tr><td>$03FF_H$</td><td>Control CPU</td></tr>
</table>
When the instruction is executed by specifying a control system CPU ($03D0_H$) or standby system CPU ($03D1_H$), if system switching occurs in the target station, the instruction may fail (CPU module error code: $4244_H$, $4248_H$).<br>If the above error occurs and the instruction fails, execute the instruction again.</td><td>$0000_H$<br>$03D0_H$ to $03D3_H$<br>$03E0_H$ to $03E3_H$<br>$03FF_H$</td><td>User</td></tr>
<tr><td>(S1)+4</td><td>Target station's network No.</td><td>Specify the network No. of the target station.<br>1 to 239: Network No.<br>254: Specify this when 254 is set for Jn.</td><td>1 to 239<br>254</td><td>User</td></tr>
</table>

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| Device | Item | Setting data | Setting range | Set by |
|---|---|---|---|---|
| (S1)+5 | Target station number | Specify the target station number.<br>(1) Station number specification<br>Master station: 125 ($7D_H$)<br>Master operating station: 126 ($7E_H$) (only for modules supporting the submaster function ( Page 546, Appendix 8))<br>Local station, intelligent device station, submaster station: 1 to 120<br><br>When 125 ($7D_H$) is set, the module always accesses the master station (station number 0). When 126 ($7E_H$) is set and the submaster function is used, the module accesses the station operating as a master operating station.<br>(2) Group specification (The target station is on a network other than CC-Link IE Field Network.)<br>$81_H$ to $A0_H$: All stations in Group No.1 to 32<br><br>Group No.1: $81_H$<br>Group No.2: $82_H$<br>⟨<br>Group No.32: $A0_H$<br><br>(3) All stations specification<br>$FF_H$: All stations on the target station network No. (excluding own station)<br><br>When executing instructions using the group specification or all stations specification<br>• Specify "$0000_H$" or "$03FF_H$" for the target station CPU type ((S1)+3) ( Page 242, Section 10.2.2 (3))<br>• The group specification cannot be used for CC-Link IE Field Network stations.<br>• Remote RUN or STOP of the target station cannot be confirmed. Check if the target station was properly set to RUN or STOP.<br>• Remote RUN/STOP cannot be performed for the station with the station number already in use or the station with no station number setting. Correct the error then execute the instruction. | 125 ($7D_H$)<br>126 ($7E_H$)<br>1 to 120<br>$81_H$ to $A0_H$<br>$FF_H$ | User |
| (S1)+6 | — | Unused | 0 | User |
| (S1)+7 | Number of resends | During instruction execution<br>For the case where the instruction is not completed within the monitoring time specified by (S1)+8, specify the number of times the instruction is resent. | 0 to 15 | User |
| | | When the instruction is completed<br>The number of resends (result) is stored. | — | System |
| (S1)+8 | Arrival monitoring time | Specify the monitoring time until instruction completion.<br>If the instruction is not completed within the specified time, the instruction is resent for the number of resends specified by (S1)+7.<br>0: 10 seconds<br>1 to 32767: 1 to 32767 seconds | 0 to 32767 | User |
| (S1)+9 | Request data length | Specify the request data count (word).<br>(Word count of data to be stored in own station start device (S2) where request data is stored)<br>4: Remote RUN<br>3: Remote STOP | 3, 4 | User |

| Device | Item | Setting data | Setting range | Set by |
|---|---|---|---|---|
| (S1)+10 | Response data length | Stores the response data count (word).<br>(Word count of data to be stored in own station start device (D1) where response data is stored)<br>2: Remote RUN/STOP | — | System |
| (S1)+11 | Clock set flag | The valid or invalid status of data after (S1)+12 is stored.<br>(Data is stored when "1: Data at the time of abnormal end is set in the area starting from (S1)+11." is set in the abnormal end type in (S1)+0.) The stored data is not cleared even if the dedicated instruction is normally completed.<br>0: Invalid<br>1: Valid | — | System |
| (S1)+12 to (S1)+15 | Clock data of abnormal end | Clock data of abnormal end are stored in BCD format.<br>(Data is stored when "1: Data at the time of abnormal end is set in the area starting from (S1)+11." is set in the abnormal end type in (S1)+0.) The stored data is not cleared even if the dedicated instruction is normally completed.<br>b15 ~ b8 b7 ~ b0<br>(S1)+12: Month (01H to 12H) / Year (00H to 99H), last 2 digits<br>(S1)+13: Hour (00H to 23H) / Day (01H to 31H)<br>(S1)+14: Second (00H to 59H) / Minute (00H to 59H)<br>(S1)+15: Year (00H to 99H), first 2 digits / Day of week (00H to 06H)<br>00H (Sun.) to 06H (Sat.)<br>When the target station is QnACPU, "$00_H$" is stored in the year (the first two digits of the year). | — | System |
| (S1)+16 | Error-detected station's network No.*1 | The network No. of the station in which an error was detected is stored.<br>(Data is stored when "1: Data at the time of abnormal end is set in the area starting from (S1)+11." is set in the abnormal end type in (S1)+0.) The stored data is not cleared even if the dedicated instruction is normally completed.<br>1 to 239: Network No. | — | System |
| (S1)+17 | Error-detected station number *1 | The station number of the station in which an error was detected is stored.<br>(Data is stored when "1: Data at the time of abnormal end is set in the area starting from (S1)+11." is set in the abnormal end type in (S1)+0.) The stored data is not cleared even if the dedicated instruction is normally completed.<br>Master station: 125 ($7D_H$)<br>Local station, intelligent device station, submaster station: 1 to 120 | — | System |

*1 If Completion status ((S1)+1) is "Channel in use (dedicated instruction) (error codes: $D25A_H$ and $D25B_H$)", data is not stored.

### (b) Request data (a user sets all)

| Device | Item | Setting data | Remote RUN | Remote STOP |
|---|---|---|---|---|
| (S2)+0 | Request type | $0010_H$: When station No. is specified by (S1)+5<br>$0030_H$: When all stations or groups are specified by (S1)+5 | ○ | ○ |
| (S2)+1 | Sub-request type | $0001_H$: Remote RUN<br>$0002_H$: Remote STOP | ○ | ○ |

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| Device | Item | Setting data | Remote RUN | Remote STOP |
|---|---|---|---|---|
| (S2)+2 | Operation mode | Specify whether to forcibly execute remote RUN/STOP.<br>• The forced execution function allows another station to execute remote RUN forcibly on a station, in case of remote RUN cannot be performed any longer after remote STOP was executed on the station.<br>• When remote RUN is executed<br>$0001_H$: Not forcefully executed<br>$0003_H$: Executes forcefully<br>• When remote STOP is executed<br>$0003_H$ (fixed) | ○ | ○ |
| (S2)+3 | Clear mode | Specify the device status of the CPU module when remote RUN is executed.<br>$0000_H$: Does not clear<br>(Note that the local device is cleared.)<br>$0001_H$: Clears (excluding latch range)<br>$0002_H$: Clears (including latch range)<br><br>The clear mode setting ((S2)+3) is used to specify clear (initialization) processing of the CPU module device when the CPU module starts operation by remote RUN.<br>After the CPU module executes specified clear, it runs according to the device initial value set by GX Works2. | ○ | — |

○: Sets —: Does not set

### (c) Response data (the system sets all)

When the target station No. ((S1)+5) is all stations or group specification ($81_H$ to $A0_H$, $FF_H$), response data are not stored.

| Device | Item | Setting data | Remote RUN | Remote STOP |
|---|---|---|---|---|
| (D1)+0 | Request type | $0090_H$: When station No. is specified by (S1)+5 | ○ | ○ |
| (D1)+1 | Sub-request type | $0001_H$: Remote RUN<br>$0002_H$: Remote STOP | ○ | ○ |

○: Stores —: Does not store

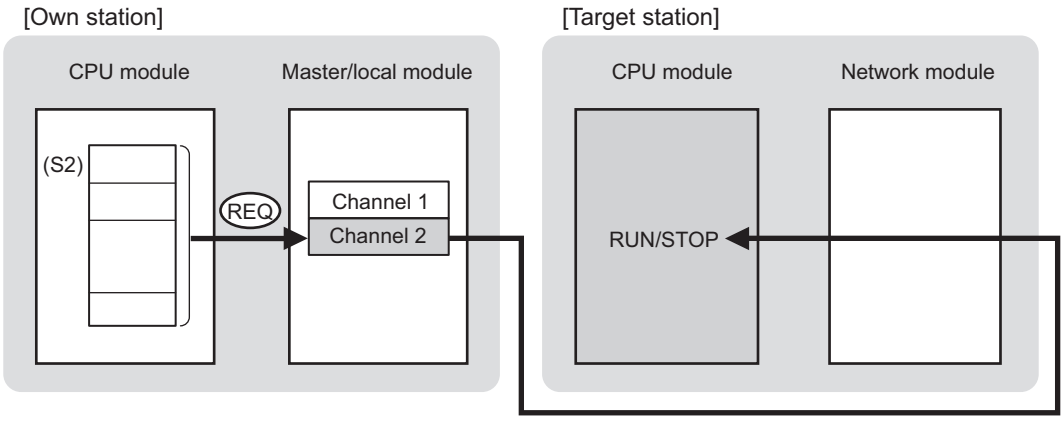
**Point**

- For details on the remote operation, refer to the user's manual for the CPU module used.
- Switch of the CPU module at remote RUN/STOP
  Valid when the switch of the target station CPU is set to "RUN".
- When system protection is applied on the target station CPU
  Remote RUN/STOP cannot be executed.
- When another stations is already executing STOP/PAUSE of the target station CPU.
  Target station CPU cannot run when the mode ((S2)+2) is "Not forcefully executed ($0001_H$)".
- When the target station CPU which executed remote STOP is reset.
  The remote STOP information is deleted.

## (2) Function

### (a) REQ instruction overview

The instruction sends request data (S2) to the target station for requesting service.
Specify the target stations in control data ((S1)+4 and (S1)+5).
When the request to the target station is completed, the completion device (D2) turns on.




### (b) Target stations that can be specified

For details on target stations which can be specified, refer to the following.

☞Page 236, Section 10.1 (1)

### (c) Checking the execution status of the REQ instruction

The execution status (completion or error) of the REQ instruction can be checked using the following devices specified in the setting data.

- Completion device (D2)
  This device turns on in the END process of the scan where the REQ instruction is completed and turns off in the next END process.
- Completion status indication device ((D2)+1)
  If the REQ instruction fails, this device turns on in the END process of the scan where the REQ instruction is completed and turns off in the next END process.

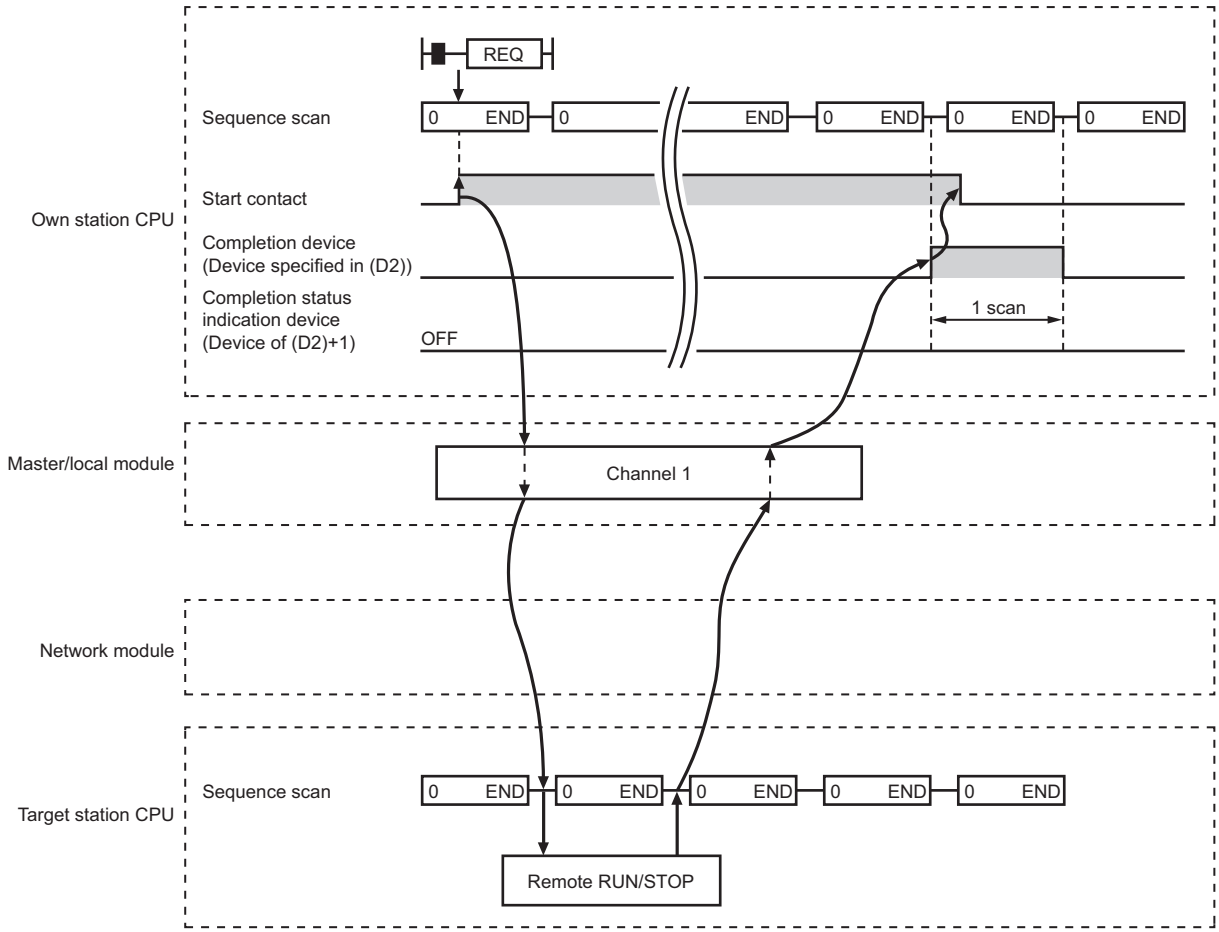
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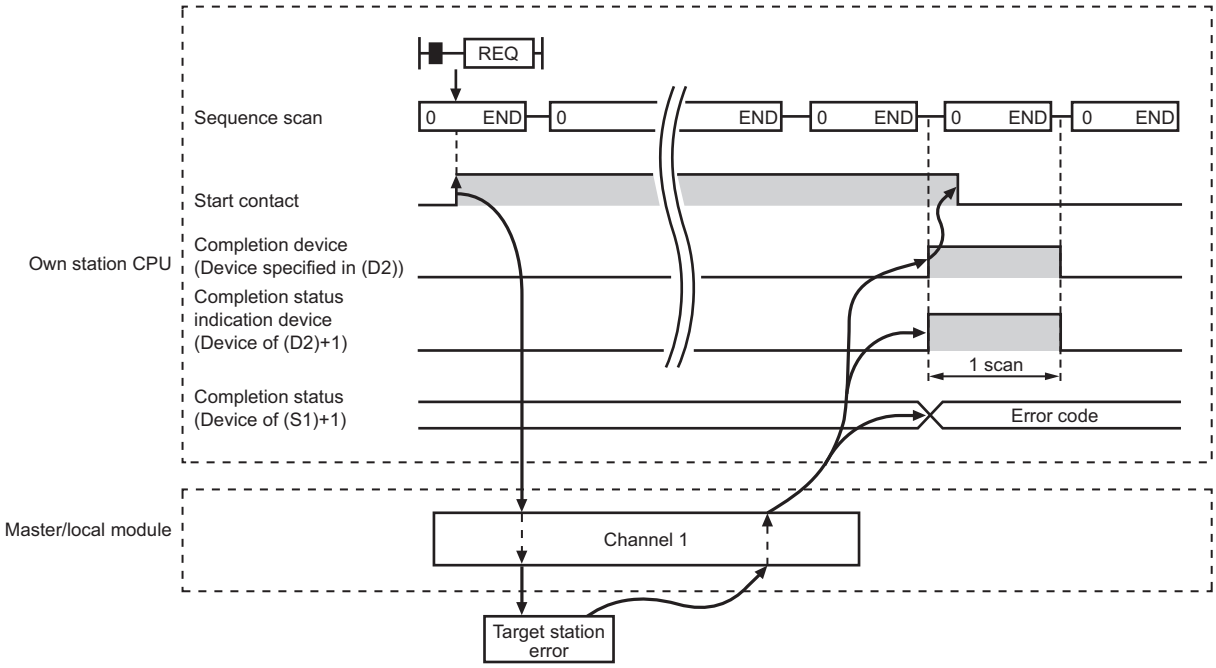
### (d) REQ instruction execution timing

When the start contact starts up from OFF to ON, the processing is performed one time.

• When completed



• When failed




## (3) Checking error details

If the dedicated instruction fails, error details can be checked by either of the following methods:

### (a) In GX Works2

Error details can be checked using the CC-Link IE Field Network diagnostics. (☞ Page 206, CHAPTER 9)

### (b) Using devices

Completion status indication device ((D2)+1) turns on, and an error code is stored in Completion status ((S1)+1) of the control data.

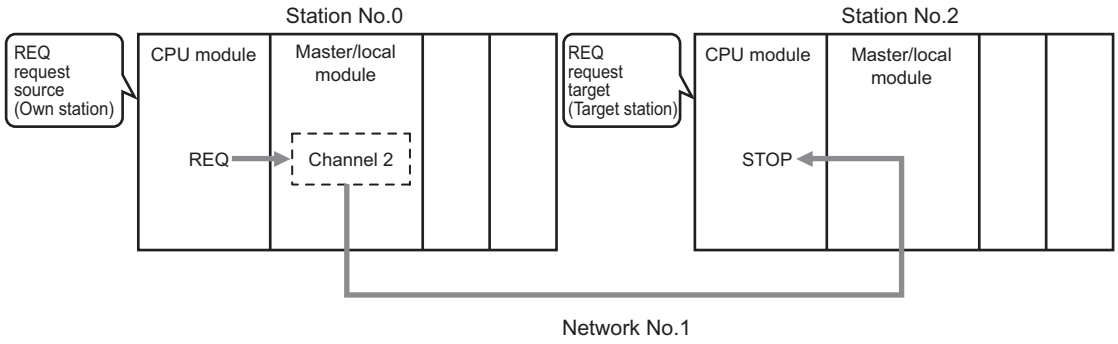
According to the error code, check the error details and take a corrective action. (☞ Page 439, Section 12.5)

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## (4) Program example

The following program is for the example of performing remote STOP on the CPU module of station No. 2 (target station) when M121 is turned on.

### (a) System configuration




### (b) Devices used in the program

• Link special relay (SB), link special register (SW)

| Device | Description | Device | Description |
|---|---|---|---|
| SB0047 | Baton pass status (own station) | SW00A0.1 | Baton pass status (each station) of station No. 2 |

**Remark**

For details on link special relay (SB) and link special register (SW), refer to the following:

Page 473, Appendix 3, Page 493, Appendix 4

• Devices used by a user

| Device | Description | Device | Description |
|---|---|---|---|
| M120 | Control data, request data setting command | D240 to D257 | Control data |
| M121 | Start contact | D260 to D263 | Request data |
| M125 | Completion device | D265 to D266 | Response data |
| M126 | Completion status indication device | — | |

### (c) REQ instruction (Remote RUN/STOP) setting

The following table lists values set in REQ instruction (remote RUN/STOP) devices.

• Control data

| Device | | Item | Set value |
|---|---|---|---|
| (S1)+0 | D240 | Abnormal end type | $0091_H$<br>(Sets data at abnormal end) |
| (S1)+1 | D241 | Completion status | —<br>(The system sets this item.) |
| (S1)+2 | D242 | Channels used by own station | 2 |
| (S1)+3 | D243 | Target station's CPU type | $0000_H$ (control CPU) |
| (S1)+4 | D244 | Target station's network No. | 1 |
| (S1)+5 | D245 | Target station number | 2 |
| (S1)+6 | D246 | (Unused) | 0 |
| (S1)+7 | D247 | Number of resends | 5 times |
| (S1)+8 | D248 | Arrival monitoring time | 0 (10 seconds) |
| (S1)+9 | D249 | Request data length | 3 (Remote STOP) |
| (S1)+10 | D250 | Response data length | —<br>(The system sets these items.) |
| (S1)+11 | D251 | Clock set flag | |
| (S1)+12 to (S1)+15 | D252 to D255 | Clock data of abnormal end | |
| (S1)+16 | D256 | Error-detected station's network No. | |
| (S1)+17 | D257 | Error-detected station number | |

• Request data

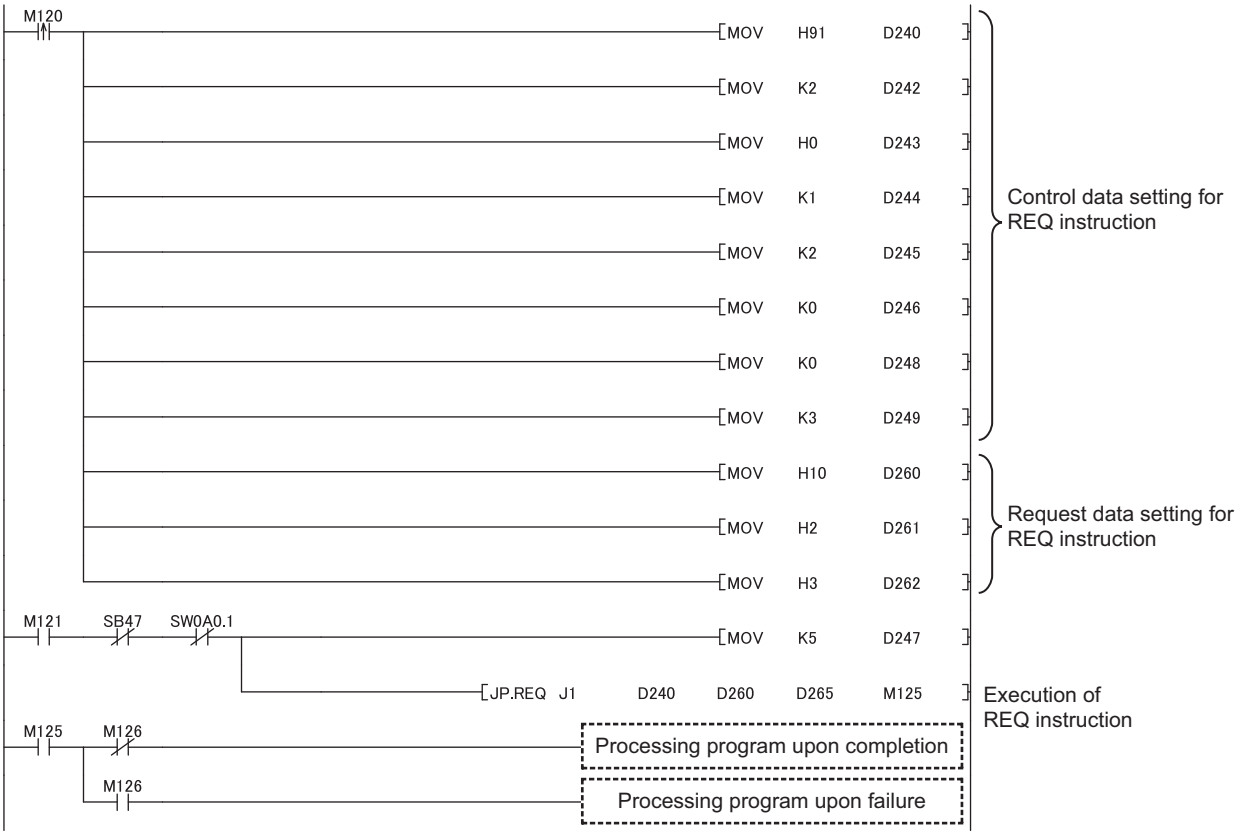
| Device | | Item | Set value |
|---|---|---|---|
| (S2)+0 | D260 | Request type | $0010_H$ (When station No. is specified by (S1)+5) |
| (S2)+1 | D261 | Sub-request type | $0002_H$ (Remote STOP) |
| (S2)+2 | D262 | Operation mode | $0003_H$ (fixed) |
| (S2)+3 | D263 | Clear mode | (Cannot be set during remote STOP) |

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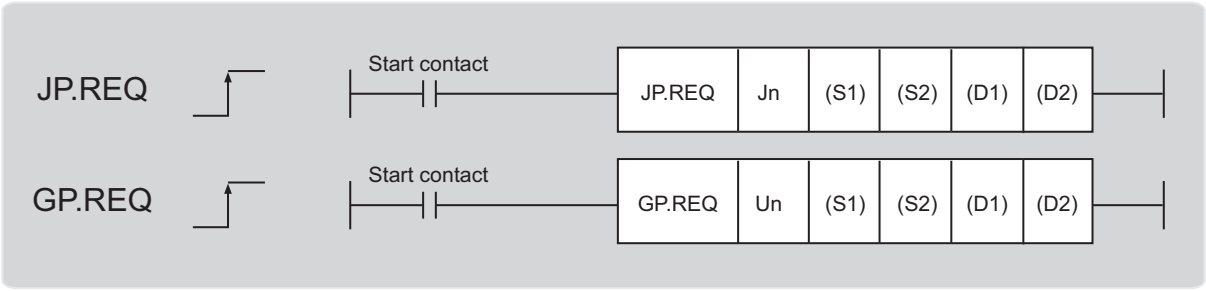
### (d) Program example

The following program is written to the CPU module of station No.0.



# 10.12 JP/GP.REQ (Reading/Writing Clock Data)

This instruction reads and writes the clock data of the programmable controller on another station.




| Setting data*1 | Available devices | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| | Internal device (System, user) | | File register R, ZR | Link direct device J□\□ | | Intelligent function module device U□\G□ | Index register Zn | Constant | | Others |
| | Bit | Word | | Bit | Word | | | K, H | $ | |
| (S1) | — | ○ | | — | | | | | | |
| (S2) | — | ○ | | — | | | | | | |
| (D1) | — | ○ | | — | | | | | | |
| (D2) | ○ | | | — | | | | | | |

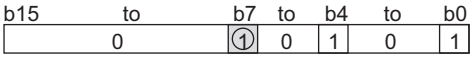
*1 Local devices and file registers set for each program cannot be used.

## (1) Setting data

| Setting data | Description | Set by | Data type |
|---|---|---|---|
| Jn | Own station's network No. (1 to 239, 254)<br>254: Network specified in Valid Module During Other Station Access | User | 16-bit binary |
| Un | Start I/O number of the master/local module of own station<br>(00 to $FE_H$: Upper two digits of the I/O number expressed in three digits) | | |
| (S1) | Start device of the own station where control data is stored | | Device name |
| (S2) | Start device of the own station where receive data is stored | | |
| (D1) | Start device of the own station where response data is stored | System | |
| (D2) | The device of the own station that turns on for one scan upon completion of the instruction.<br>If the instruction fails, (D2)+1 also turns on. | | Bit |

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### (a) Control data

<table>
<tr><th>Device</th><th>Item</th><th>Setting data</th><th>Setting range</th><th>Set by</th></tr>
<tr><td>(S1)+0</td><td>Abnormal end type</td><td> 

1) Abnormal end type (bit 7)<br>Specify the set status of data in case of abnormal end.<br>0: After (S1)+11, no data is set for abnormal end<br>1: Data at the time of abnormal end is set in the area starting from (S1)+11.</td><td>$0011_H$<br>$0091_H$</td><td>User</td></tr>
<tr><td>(S1)+1</td><td>Completion status</td><td>The status of when the instruction is ended is stored.<br>0: Normal<br>Values other than 0: Error ( Page 439, Section 12.5)</td><td>—</td><td>System</td></tr>
<tr><td>(S1)+2</td><td>Channels used by own station</td><td>Specify the channels to be used by the own station.<br>( Page 241, Section 10.2.2 (1))</td><td>1 and 2</td><td>User</td></tr>
<tr><td>(S1)+3</td><td>Target station's CPU type</td><td>Specify the CPU module on the station to be accessed.
<table>
<tr><th>Set value</th><th>Description</th></tr>
<tr><td>$0000_H$</td><td>Control CPU (The access destination is the same as that of when $03FF_H$ is selected.)</td></tr>
<tr><td>$03D0_H$</td><td>Control system CPU (redundant CPU only)</td></tr>
<tr><td>$03D1_H$</td><td>Standby system CPU (redundant CPU only)</td></tr>
<tr><td>$03D2_H$</td><td>System A CPU (redundant CPU only)</td></tr>
<tr><td>$03D3_H$</td><td>System B CPU (redundant CPU only)</td></tr>
<tr><td>$03E0_H$</td><td>• Control CPU (single CPU system)<br>• CPU No.1 (multiple CPU system)</td></tr>
<tr><td>$03E1_H$</td><td>CPU No.2 (multiple CPU system)</td></tr>
<tr><td>$03E2_H$</td><td>CPU No.3 (multiple CPU system)</td></tr>
<tr><td>$03E3_H$</td><td>CPU No.4 (multiple CPU system)</td></tr>
<tr><td>$03FF_H$</td><td>Control CPU</td></tr>
</table>
When the instruction is executed by specifying a control system CPU ($03D0_H$) or standby system CPU ($03D1_H$), if system switching occurs in the target station, the instruction may fail (CPU module error code: $4244_H$, $4248_H$).<br>If the above error occurs and the instruction fails, execute the instruction again.</td><td>$0000_H$<br>$03D0_H$ to $03D3_H$<br>$03E0_H$ to $03E3_H$<br>$03FF_H$</td><td>User</td></tr>
<tr><td>(S1)+4</td><td>Target station's network No.</td><td>Specify the network No. of the target station.<br>1 to 239: Network No.<br>254: Specify this when 254 is set for Jn.</td><td>1 to 239<br>254</td><td>User</td></tr>
</table>

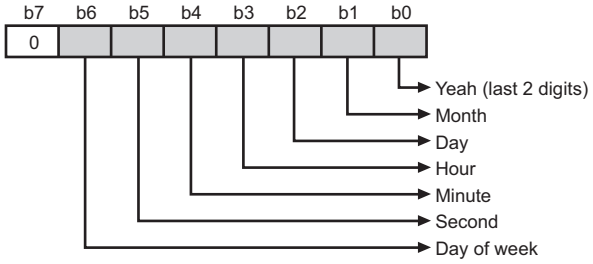
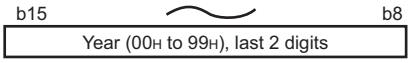
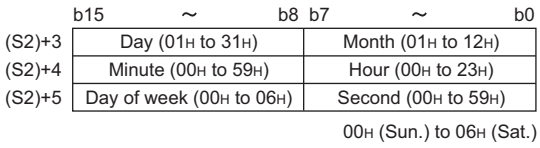
| Device | Item | Setting data | Setting range | Set by |
|---|---|---|---|---|
| (S1)+5 | Target station's number | Specify the target station number.<br>(1) Station number specification<br>Master station: 125 ($7D_H$)<br>Master operating station: 126 ($7E_H$) (only for modules supporting the submaster function ( Page 546, Appendix 8))<br>Local station, intelligent device station, submaster station: 1 to 120<br>When 125 ($7D_H$) is set, the module always accesses the master station (station number 0). When 126 ($7E_H$) is set and the submaster function is used, the module accesses the station operating as a master operating station.<br><br>(2) Group specification (The target station is on a network other than CC-Link IE Field Network.)<br>$81_H$ to $A0_H$: All stations in Group No.1 to 32<br>Can only be specified for clock data write.<br>Group No.1: $81_H$<br>Group No.2: $82_H$<br>⟆<br>Group No.32: $A0_H$<br>(3) All stations specification<br>$FF_H$: All stations on the target station network No. (excluding own station)<br>Can only be specified for clock data write.<br><br>When executing instructions using the group specification or all stations specification<br>• Specify "$0000_H$" or "$03FF_H$" for the target station CPU type ((S1)+3) ( Page 242, Section 10.2.2 (3))<br>• The group specification cannot be used for CC-Link IE Field Network stations.<br>• Arrival confirmation as to whether data was written in the target station cannot be used. To check whether data was written normally, check the clock data of the write target station.<br>• Clock data cannot be written to the station with the station number already in use or the station with no station number setting. Correct the error then execute the instruction. | 125 ($7D_H$)<br>126 ($7E_H$)<br>1 to 120<br>$81_H$ to $A0_H$<br>$FF_H$ | User |
| (S1)+6 | — | Unused | 0 | User |
| (S1)+7 | Number of resends | During instruction execution<br>For the case where the instruction is not completed within the monitoring time specified by (S1)+8, specify the number of times the instruction is resent. | 0 to 15 | User |
| | | When the instruction is completed<br>The number of resends (result) is stored. | — | System |
| (S1)+8 | Arrival monitoring time | Specify the monitoring time until instruction completion.<br>If the instruction is not completed within the specified time, the instruction is resent for the number of resends specified by (S1)+7.<br>0: 10 seconds<br>1 to 32767: 1 to 32767 seconds | 0 to 32767 | User |

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| Device | Item | Setting data | Setting range | Set by |
|---|---|---|---|---|
| (S1)+9 | Request data length | Specify the request data count (word).<br>(Word count of data to be stored in own station start device (S2) where request data is stored)<br>2: Clock data read<br>6: Clock data write | 2, 6 | User |
| (S1)+10 | Response data length | Store the response data count (word).<br>(Word count of data to be stored in own station start device (D1) where response data is stored)<br>6: Clock data read<br>2: Clock data write | — | System |
| (S1)+11 | Clock set flag | The valid or invalid status of data after (S1)+12 is stored.<br>Data is stored when "1: Data at the time of abnormal end is set in the area starting from (S1)+11." is set in the abnormal end type in (S1)+0.) The stored data is not cleared even if the dedicated instruction is normally completed.<br>0: Invalid<br>1: Valid | — | System |
| (S1)+12 to (S1)+15 | Clock data of abnormal end | Clock data of abnormal end are stored in the BCD format.<br>(Data is stored when "1: Data at the time of abnormal end is set in the area starting from (S1)+11." is set in the abnormal end type in (S1)+0.) The stored data is not cleared even if the dedicated instruction is normally completed.<br>b15 ~ b8 b7 ~ b0<br>(S1)+12: Month (01H to 12H) / Year (00H to 99H), last 2 digits<br>(S1)+13: Hour (00H to 23H) / Day (01H to 31H)<br>(S1)+14: Second (00H to 59H) / Minute (00H to 59H)<br>(S1)+15: Year (00H to 99H), first 2 digits / Day of week (00H to 06H)<br>00H (Sun.) to 06H (Sat.)<br>When the target station is QnACPU, "$00_H$" is stored in the year (the first two digits of the year). | — | System |
| (S1)+16 | Error-detected station's network No.*1 | The network No. of the station in which an error was detected is stored.<br>(Data is stored when "1: Data at the time of abnormal end is set in the area starting from (S1)+11." is set in the abnormal end type in (S1)+0.) The stored data is not cleared even if the dedicated instruction is normally completed.<br>1 to 239: Network No. | — | System |
| (S1)+17 | Error-detected station number *1 | The station number of the station in which an error was detected is stored.<br>(Data is stored when "1: Data at the time of abnormal end is set in the area starting from (S1)+11." is set in the abnormal end type in (S1)+0.) The stored data is not cleared even if the dedicated instruction is normally completed.<br>Master station: 125 ($7D_H$)<br>Local station, intelligent device station, submaster station: 1 to 120 | — | System |

*1 If Completion status ((S1)+1) is "Channel in use (dedicated instruction) (error codes: $D25A_H$ and $D25B_H$)", data is not stored.

### (b) Request data (a user sets all)

<table>
<tr><th>Device</th><th>Item</th><th>Setting data</th><th>Clock data read</th><th>Clock data write</th></tr>
<tr><td>(S2)+0</td><td>Request type</td><td>$0001_H$: Clock data read<br>$0011_H$: Clock data write (when station number is specified by (S1)+5)<br>$0031_H$: Clock data write (when all stations or groups are specified by (S1)+5)</td><td>○</td><td>○</td></tr>
<tr><td>(S2)+1</td><td>Sub-request type</td><td>$0002_H$: Clock data read<br>$0001_H$: Clock data write</td><td>○</td><td>○</td></tr>
<tr><td rowspan="2">(S2)+2</td><td rowspan="2">Change pattern, clock data to be changed</td><td>1) Change pattern (bit 0 to 7)<br>From ((S2)+2 upper byte) to ((S2)+5), specify the item to be changed.<br>0 : Do not change<br>1 : Change<br>  </td><td rowspan="2">—</td><td rowspan="2">○</td></tr>
<tr><td>2) Change year (bit 8 to 15)<br>Use BCD format to specify the year (lower 2 digits of the year).<br>  </td></tr>
<tr><td>(S2)+3</td><td rowspan="3">Clock data to be changed (continued)</td><td rowspan="3">Use BCD format to specify the clock data to be changed.<br>  </td><td>—</td><td>○</td></tr>
<tr><td>(S2)+4</td><td>—</td><td>○</td></tr>
<tr><td>(S2)+5</td><td>—</td><td>○</td></tr>
</table>

○: Sets —: Does not set

**Point**

- When system protection is applied to the target station CPU, clock data cannot be written in.
- In the clock data write by the REQ instruction, the first two digits of the year cannot be changed. To change the first two digits of the year, use GX Works2 to change the clock data.

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### (c) Response data (the system sets all)

When the target station No. ((S1)+5) is all stations or group specification ($81_H$ to $A0_H$, $FF_H$), response data are not stored.

| Device | Item | Setting data | Clock data read | Clock data write |
|---|---|---|---|---|
| (D1)+0 | Request type | $0081_H$: Clock data read<br>$0091_H$: Clock data write (when station number is specified by (S1)+5) | ○ | ○ |
| (D1)+1 | Sub-request type | $0002_H$: Clock data read<br>$0001_H$: Clock data write | ○ | ○ |
| (D1)+2 | Read clock data | Read clock data is stored in the BCD format.<br>b15 ~ b8 b7 ~ b0<br>(D1)+2: Month (01H to 12H) / Year (00H to 99H), last 2 digits<br>(D1)+3: Hour (00H to 23H) / Day (01H to 31H)<br>(D1)+4: Second (00H to 59H) / Minute (00H to 59H)<br>(D1)+5: 00H / Day of week (00H to 06H)<br>00H (Sun.) to 06H (Sat.) | ○ | — |
| (D1)+3 | | | ○ | — |
| (D1)+4 | | | ○ | — |
| (D1)+5 | | | ○ | — |

○: Stores —: Does not store

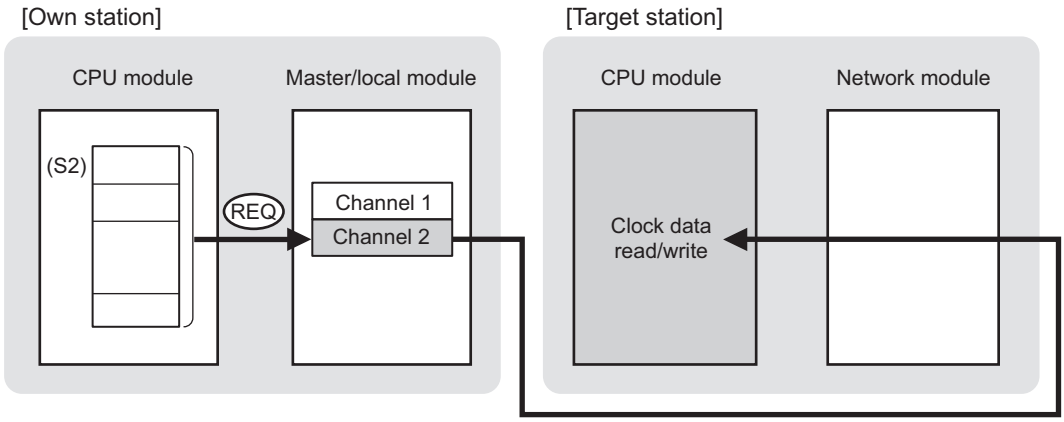
**Point**

For details on the clock function, refer to the user's manual for the CPU module used.

## (2) Function

### (a) REQ instruction overview

The instruction sends request data (S2) to the target station to request service.
Specify the target stations in control data ((S1)+4 and (S1)+5).
When the request to the target station is completed, the completion device (D2) turns on.




### (b) Target stations that can be specified

For details on target stations which can be specified, refer to the following.

☞Page 236, Section 10.1 (1)

### (c) Checking the execution status of an REQ instruction

The execution status (completion or error) of the REQ instruction can be checked using the following devices specified in the setting data.

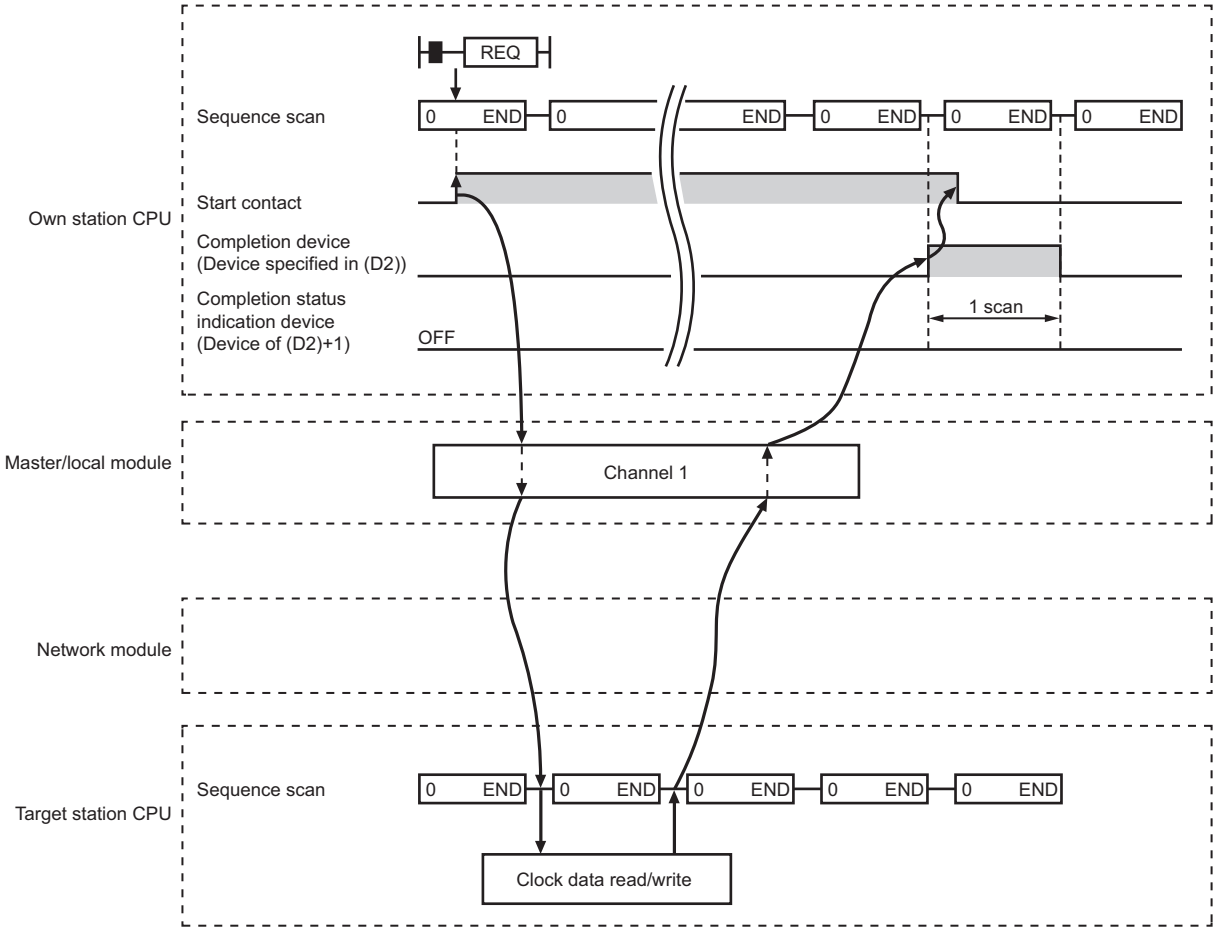
- Completion device (D2)
  This device turns on in the END process of the scan where the REQ instruction is completed and turns off in the next END process.
- Completion status indication device ((D2)+1)
  If the REQ instruction fails, this device turns on in the END process of the scan where the REQ instruction is completed and turns off in the next END process.

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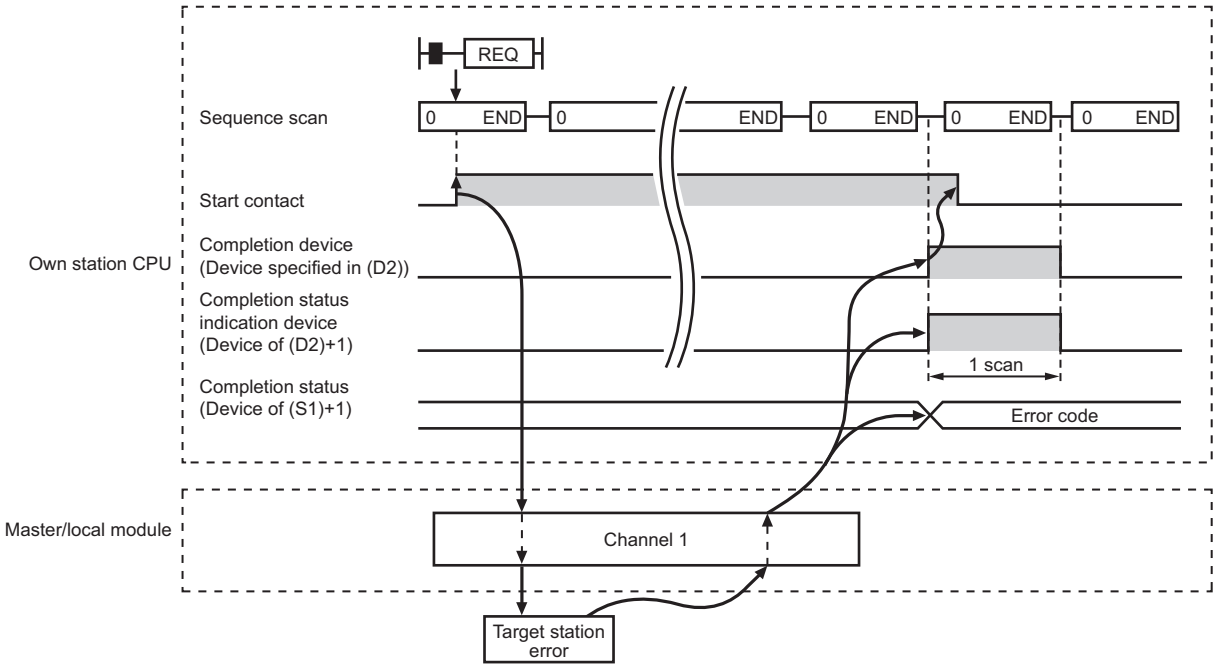
### (d) REQ instruction execution timing

When the start contact starts up from OFF to ON, the processing is performed one time.

- When completed



• When failed




## (3) Checking error details

If the dedicated instruction fails, error details can be checked by either of the following methods:

### (a) In GX Works2

Error details can be checked using the CC-Link IE Field Network diagnostics. (☞ Page 206, CHAPTER 9)

### (b) Using devices

Completion status indication device ((D2)+1) turns on, and an error code is stored in Completion status ((S1)+1) of the control data.

According to the error code, check the error details and take a corrective action. (☞ Page 439, Section 12.5)

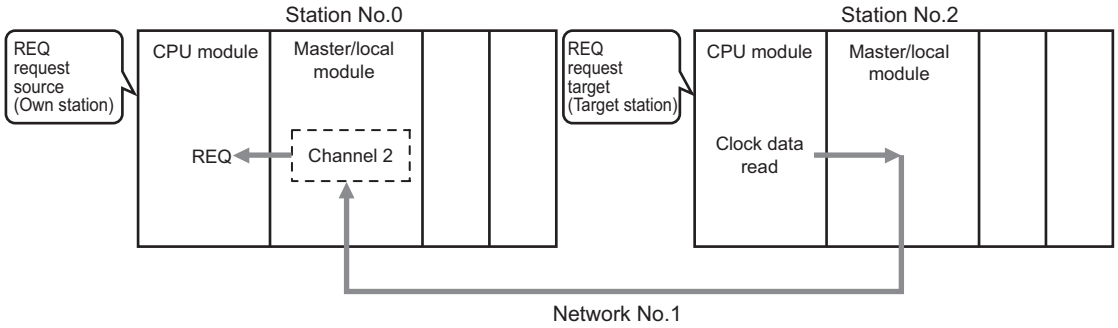
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## (4) Program example (Reading clock data)

The following program is for reading clock data of the CPU module of the station No.2 (target station) to the station No.0 (own station) when M131 is turned on.

### (a) System configuration




### (b) Devices used in the program

• Link special relay (SB), Link special register (SW)

| Device | Description | Device | Description |
|---|---|---|---|
| SB0047 | Baton pass status (own station) | SW00A0.1 | Baton pass status (each station) of station No. 2 |

**Remark**

For details on link special relay (SB) and link special register (SW), refer to the following:

Page 473, Appendix 3, Page 493, Appendix 4

• Devices used by a user

| Device | Description | Device | Description |
|---|---|---|---|
| M130 | Control data, request data setting command | D270 to D287 | Control data |
| M131 | Start contact | D290 to D291 | Request data |
| M135 | Completion device | D300 to D305 | Response data |
| M136 | Completion status indication device | — | |

### (c) REQ instruction (clock data reading) setting

The following table lists values set in REQ instruction (clock data reading) devices.

• Control data

| Device | | Item | Set value |
|---|---|---|---|
| (S1)+0 | D270 | Abnormal end type | $0091_H$<br>(Sets data for abnormal end) |
| (S1)+1 | D271 | Completion status | —<br>(The system sets this item.) |
| (S1)+2 | D272 | Channels used by own station | 2 |
| (S1)+3 | D273 | Target station's CPU type | $0000_H$ (control CPU) |
| (S1)+4 | D274 | Target station's network No. | 1 |
| (S1)+5 | D275 | Target station number | 2 |
| (S1)+6 | D276 | (Unused) | 0 |
| (S1)+7 | D277 | Number of resends | 5 times |
| (S1)+8 | D278 | Arrival monitoring time | 0 (10 seconds) |
| (S1)+9 | D279 | Request data length | 2 (clock data read) |
| (S1)+10 | D280 | Response data length | —<br>(The system sets these items.) |
| (S1)+11 | D281 | Clock set flag | |
| (S1)+12 to (S1)+15 | D282 to D285 | Clock data of abnormal end | |
| (S1)+16 | D286 | Error-detected station's network No. | |
| (S1)+17 | D287 | Error-detected station number | |

• Request data

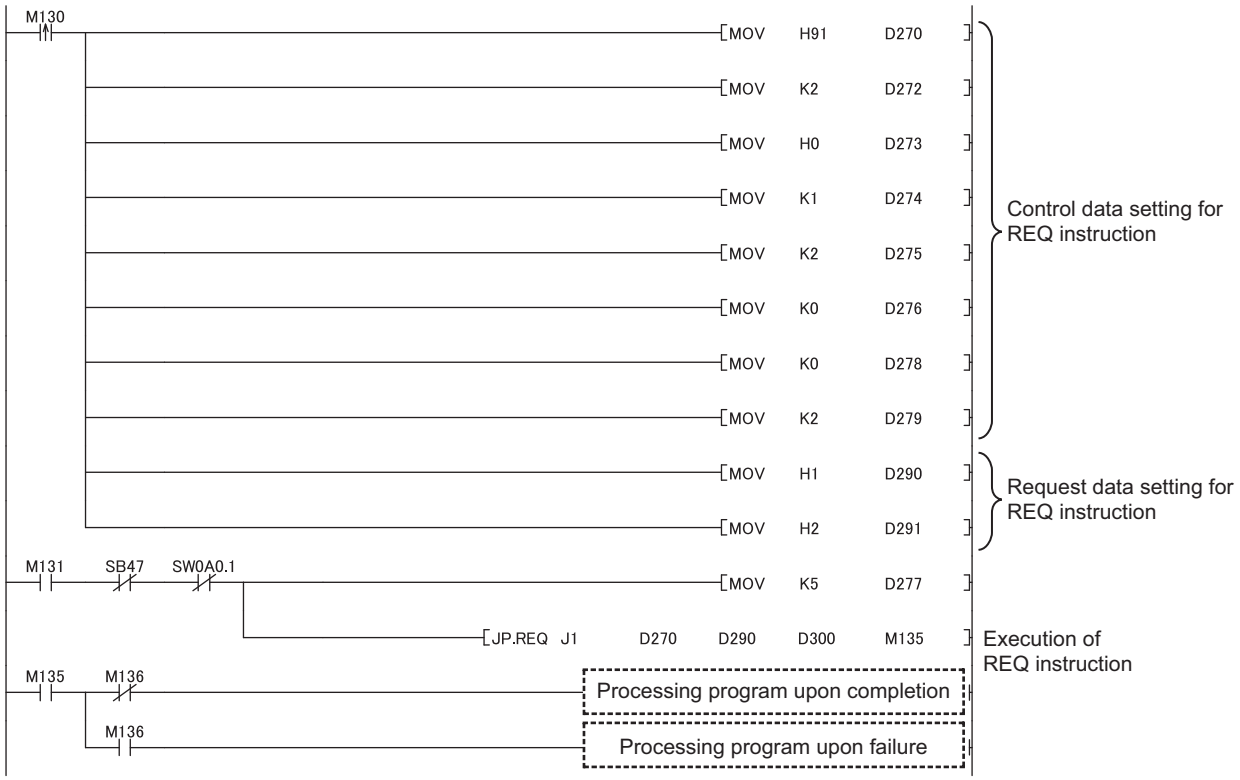
| Device | | Item | Set value |
|---|---|---|---|
| (S2)+0 | D290 | Request type | $0001_H$ (clock data read) |
| (S2)+1 | D291 | Sub-request type | $0002_H$ (clock data read) |

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### (d) Program example

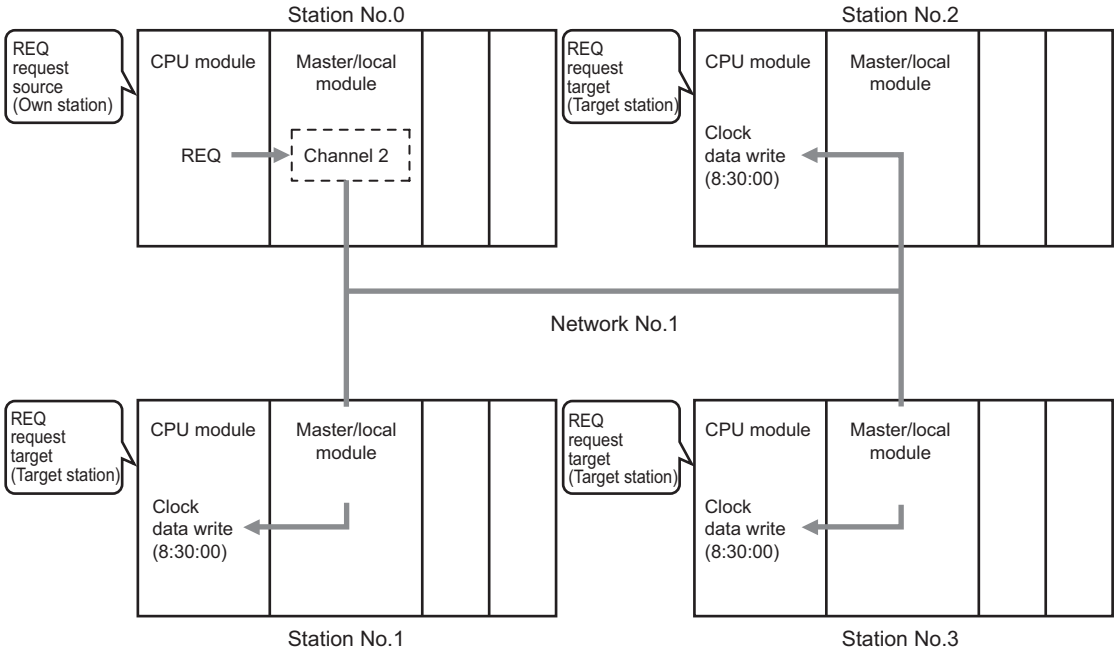
The following program is written to the CPU module of station No.0.



## (5) Program example (Writing clock data)

The following program is for writing clock data (8:30:00) in all stations of network No.1 when M141 is turned on.

• System configuration




### (a) Devices used in the program

• Link special relays (SBs)

| Device | Description | Device | Description |
|---|---|---|---|
| SB0047 | Baton pass status (own station) | SB00A0 | Baton pass status (each station) |

**Remark**

For details on the link special relay (SB), refer to the following.

Page 473, Appendix 3

• Devices used by users

| Device | Description | Device | Description |
|---|---|---|---|
| M140 | Control data, request data setting command | D310 to D327 | Control data |
| M141 | Start contact | D330 to D335 | Request data |
| M145 | Completion device | D340 to D341 | Response data |
| M146 | Completion status indication device | — | |

### (b) REQ instruction (clock data writing) setting

The following table lists values set in REQ instruction (clock data writing) devices.

• Control data

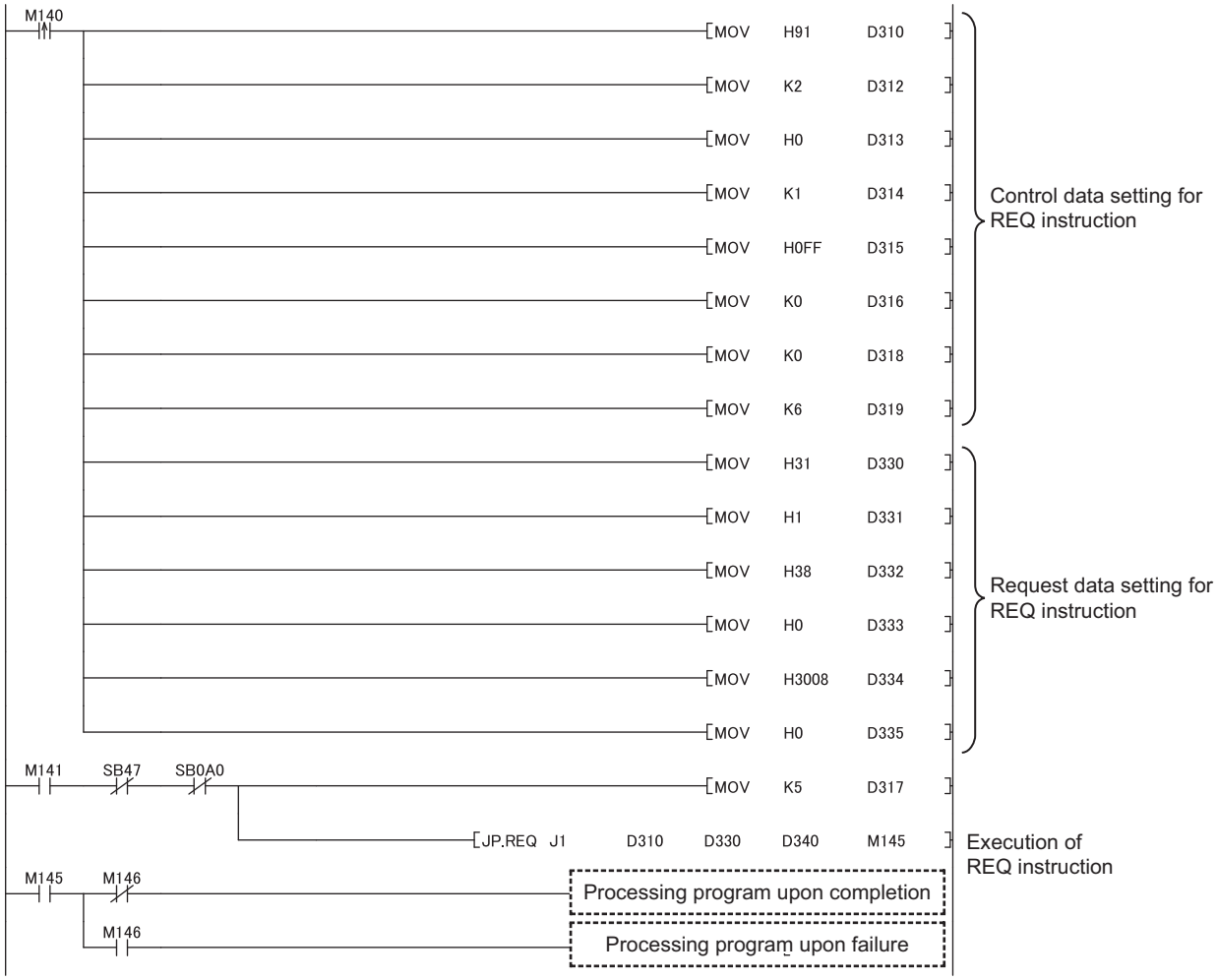
| Device | | Item | Set value |
|---|---|---|---|
| (S1)+0 | D310 | Abnormal end type | $0091_H$ (Sets data for abnormal end) |
| (S1)+1 | D311 | Completion status | — (The system sets this item.) |
| (S1)+2 | D312 | Channels used by own station | 2 |
| (S1)+3 | D313 | Target station's CPU type | $0000_H$ (control CPU) |
| (S1)+4 | D314 | Target station's network No. | 1 |
| (S1)+5 | D315 | Target station number | $FF_H$ (all stations) |
| (S1)+6 | D316 | (Unused) | 0 |
| (S1)+7 | D317 | Number of resends | 5 times |
| (S1)+8 | D318 | Arrival monitoring time | 0 (10 seconds) |
| (S1)+9 | D319 | Request data length | 6 (clock data write) |
| (S1)+10 | D320 | Response data length | — (The system sets these items.) |
| (S1)+11 | D321 | Clock set flag | |
| (S1)+12 to (S1)+15 | D322 to D325 | Clock data of abnormal end | |
| (S1)+16 | D326 | Error-detected station's network No. | |
| (S1)+17 | D327 | Error-detected station number | |

• Request data

| Device | | Item | Set value |
|---|---|---|---|
| (S2)+0 | D330 | Request type | $0031_H$ (Clock data write (when all stations or groups are specified by (S1)+5) |
| (S2)+1 | D331 | Sub-request type | $0001_H$ (clock data write) |
| (S2)+2 | D332 | Change pattern, clock data to be changed | $0038_H$ (change hours, minutes, and seconds) |
| (S2)+3 | D333 | Clock data to be changed | $0000_H$ (date, month (no setting)) |
| (S2)+4 | D334 | | $3008_H$ (minutes, hours (8:30)) |
| (S2)+5 | D335 | | $0000_H$ (The day of the week (no setting), second (00 seconds)) |

### (c) Program example

The following program is written to the CPU module of station No.0.



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# 10.13 ZP.REMFR (Reading Data from the Intelligent Device Station/Remote Device Station)



This instruction reads data from the buffer memory of the intelligent device station/remote device station. (In units of words)




| Setting data*1 | Available devices | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | Internal device (System, user) | | File register R, ZR | Link direct device J□\□ | | Intelligent function module device U□\G□ | Index register Zn | Constant | | Others |
| | Bit | Word | | Bit | Word | | | K, H | $ | |
| n1 | — | ○ | | — | | | | ○ | — | — |
| n2 | — | ○ | | — | | | | ○ | — | — |
| n3 | — | ○ | | — | | | | ○ | — | — |
| n4 | — | ○ | | — | | | | ○ | — | — |
| (D1) | — | ○ | | — | | | | — | — | — |
| n5 | — | ○ | | — | | | | ○ | — | — |
| (D2) | ○ | | | — | | | | — | — | — |

*1 Local devices and file registers set for each program cannot be used.

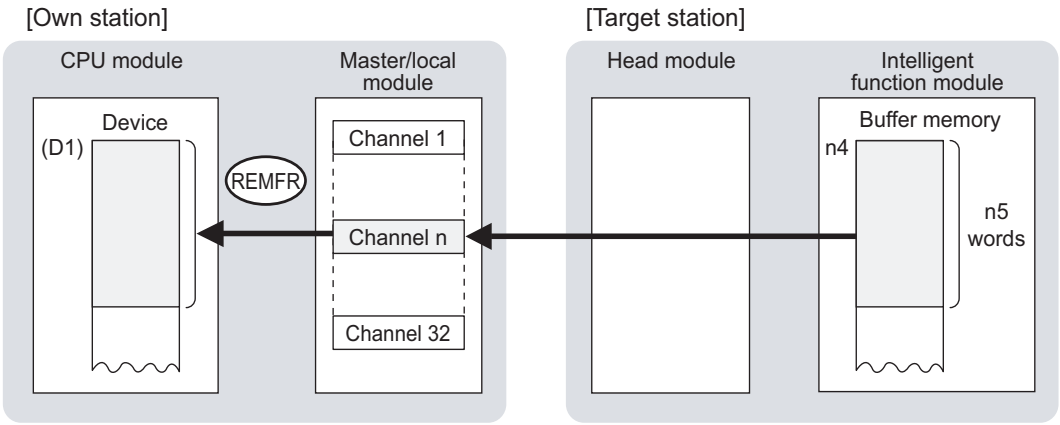
## (1) Setting data

| Setting data | Description | Set by | Data type |
|---|---|---|---|
| "Jn"/Jn | Target network No. (1 to 239) | User | String/16-bit binary |
| n1 | Channels used by the own station (1 to 32) | | 16-bit binary |
| n2 | Target station No. (1 to 120) | | |
| n3 | • Remote head module or head module<br>The start I/O number of the intelligent function module<br>(00 to $FE_H$: Upper two digits of the I/O number expressed in three digits)<br>• Modules other than remote head modules or head modules<br>Fixed to 00 | | |
| n4 | The start address of the buffer memory of the intelligent device station/ remote device station where data to be read is stored | | |
| (D1) | Start device of the own station where read data is stored<br>A continuous area for the read data length is required. | System | Device name |
| n5 | Number of read points (1 to 240 words) | User | 16-bit binary |
| (D2) | The device of the own station that turns on for one scan upon completion of the instruction.<br>If the instruction fails, (D2)+1 also turns on. | System | Bit |

## (2) Function

### (a) REMFR instruction overview

The instruction reads data by the specified number of words (n5) from the start address (n4) of the buffer memory of the intelligent device station/remote device station into the own station word devices (after (D1)).
Specify the target stations in setting data ("Jn"/Jn), (n2), and (n3).
When the reading of data is completed, the completion device (D2) turns on.




### (b) Target stations that can be specified

For details on target stations which can be specified, refer to the following.

☞Page 236, Section 10.1 (1)

### (c) Checking the execution status of an REMFR instruction

The execution status (completion or error) of the REMFR instruction can be checked using the following devices specified in the setting data.

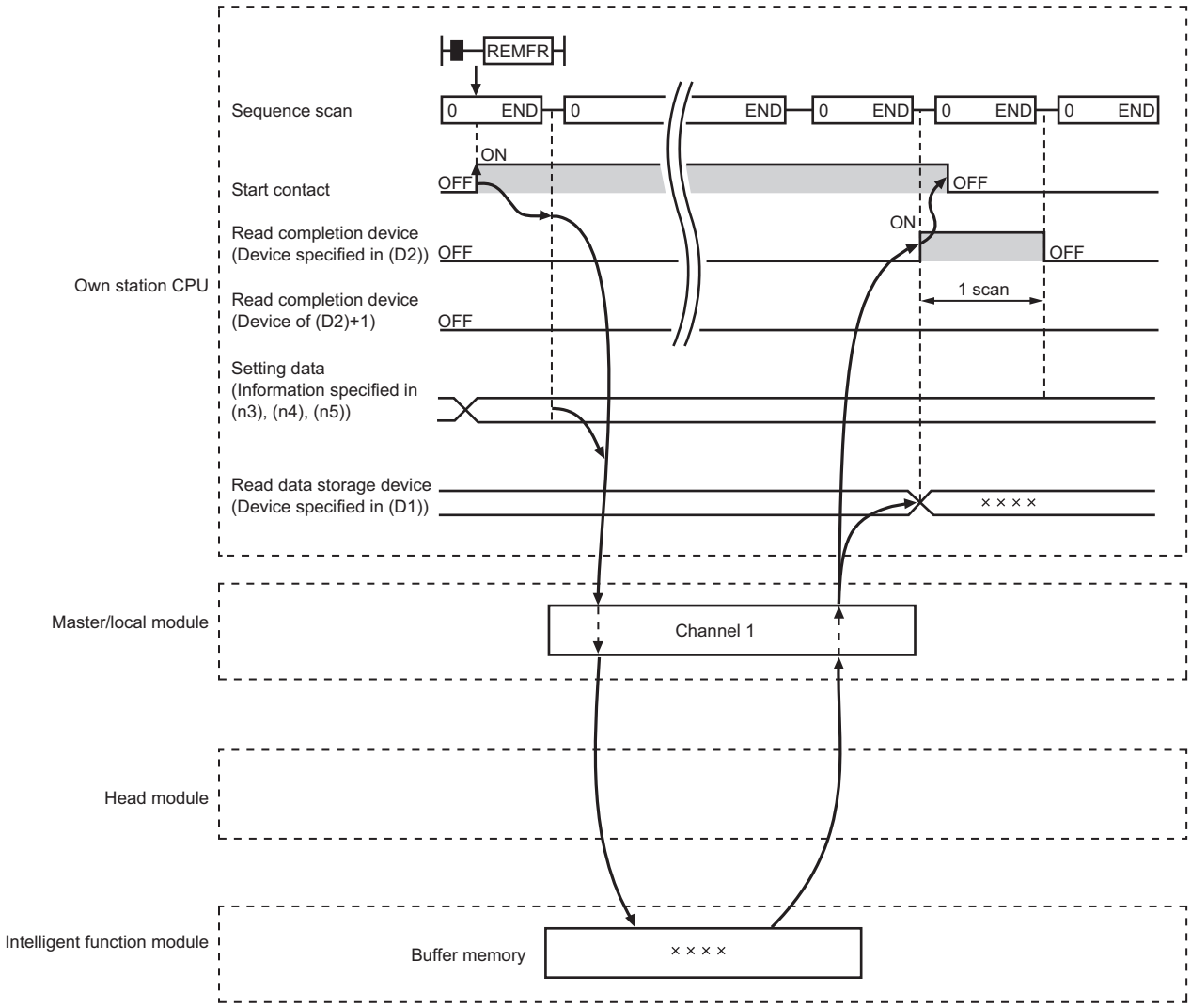
- Completion device (D2)
  This device turns on in the END process of the scan where the REMFR instruction is completed and turns off in the next END process.
- Completion status indication device ((D2)+1)
  If the REMFR instruction fails, this device turns on in the END process of the scan where the REMFR instruction is completed and turns off in the next END process.

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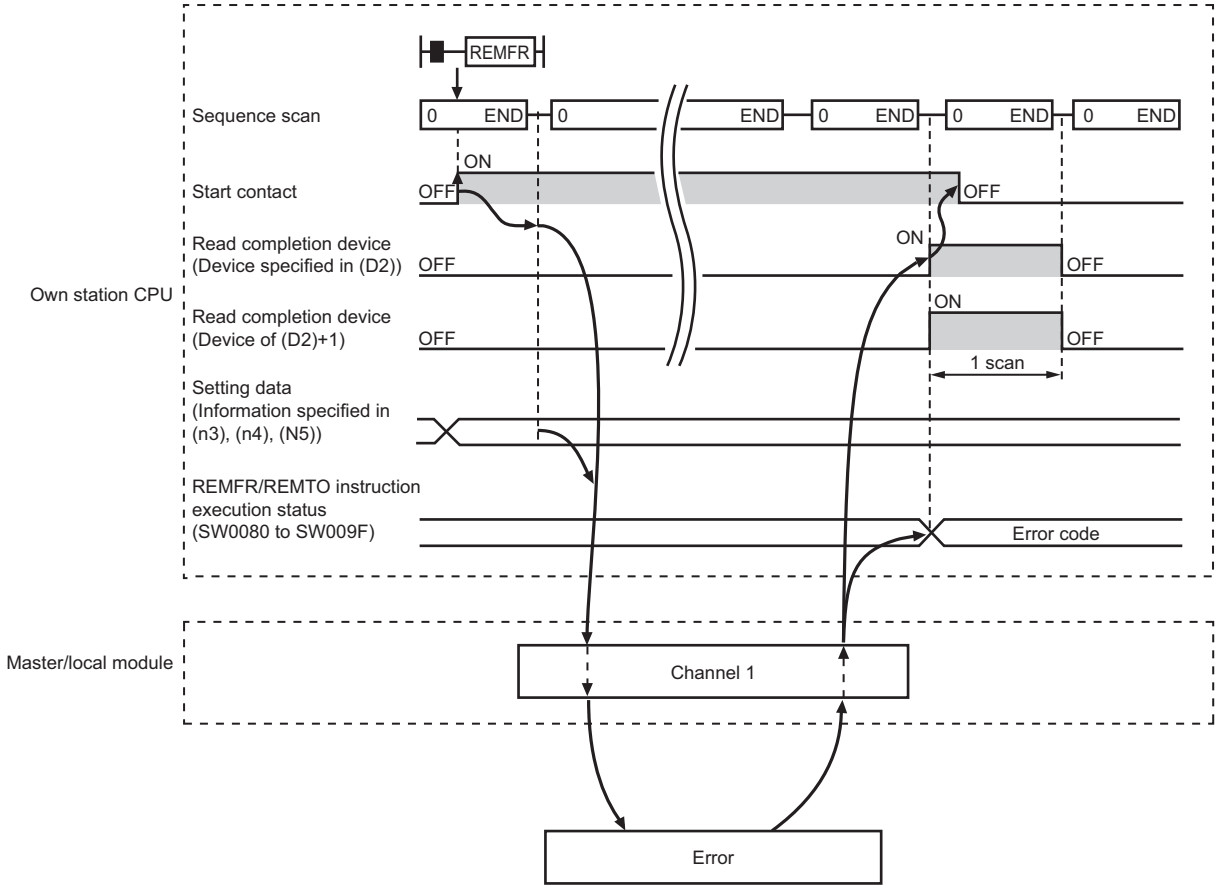


### (d) REMFR instruction execution timing

• When completed



• When failed




## (3) Checking error details

If the dedicated instruction fails, error details can be checked by either of the following methods:

### (a) In GX Works2

Error details can be checked using the CC-Link IE Field Network diagnostics. (☞ Page 206, CHAPTER 9)

### (b) Using devices

Completion status indication device ((D2)+1) is turned on, and an error code is stored in Execution status (REMFR/REMTO) (SW0080 to SW009F).

According to the error code, check the error details and take a corrective action.

(☞ Page 439, Section 12.5)

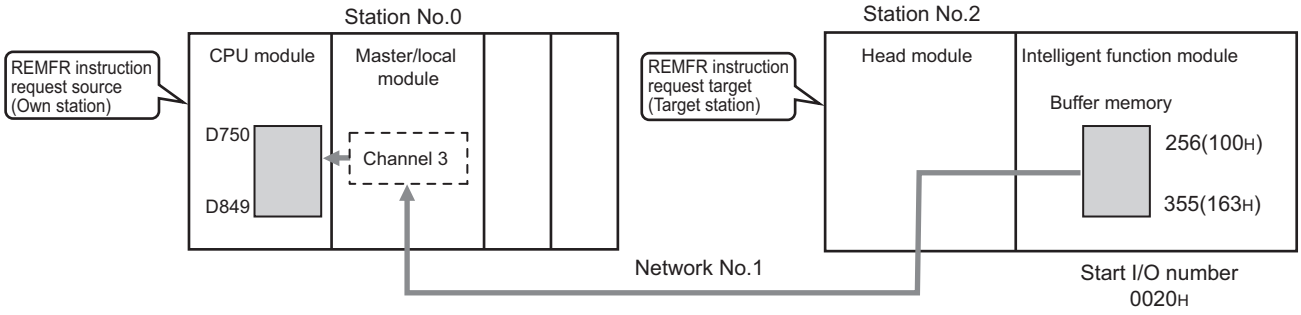
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## (4) Program example

The following program is for reading the data in the buffer memory (address: 256 to 355) of the intelligent function module of the station No.2 (target station) to D750 to D849 of the station No.0 (own station) when M111 is turned on.

### (a) System configuration




### (b) Devices used in the program

• Link special relay (SB), link special register (SW)

| Device | Description | Device | Description |
|---|---|---|---|
| SB0047 | Baton pass status (own station) | SW00A0.1 | Baton pass status (each station) of station No. 2 |

**Remark**

For details on link special relay (SB) and link special register (SW), refer to the following:

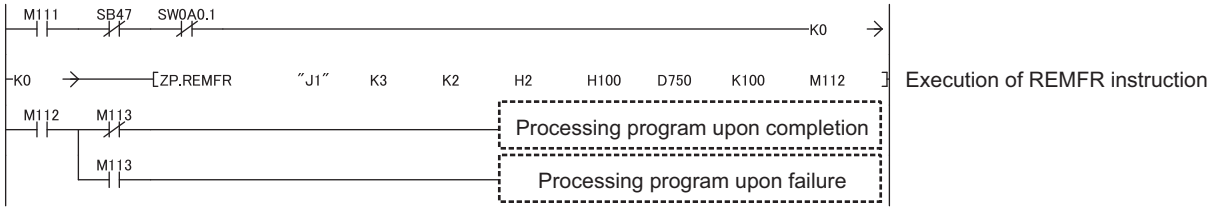
Page 473, Appendix 3, Page 493, Appendix 4

• Devices used by users

| Device | Description | Device | Description |
|---|---|---|---|
| M111 | Start contact | M113 | Completion status indication device |
| M112 | Completion device | D750 to D849 | Read data storage device |

### (c) Program example

The following program is written to the CPU module of station No.0.



# 10.14 ZP.REMTO (Writing Data to the Intelligent Device Station/ Remote Device Station)

This instruction writes data to the buffer memory of the intelligent device station/remote device station. (In units of words)




| Setting data*1 | Available devices | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | Internal device (System, user) | | File register R, ZR | Link direct device J□\□ | | Intelligent function module device U□\G□ | Index register Zn | Constant | | Others |
| | Bit | Word | | Bit | Word | | | K, H | $ | |
| n1 | — | ○ | | — | | | | ○ | — | — |
| n2 | — | ○ | | — | | | | ○ | — | — |
| n3 | — | ○ | | — | | | | ○ | — | — |
| n4 | — | ○ | | — | | | | ○ | — | — |
| (S) | — | ○ | | — | | | | — | — | — |
| n5 | — | ○ | | — | | | | ○ | — | — |
| D | ○ | | | — | | | | — | — | — |

*1 Local devices and file registers set for each program cannot be used.

## (1) Setting data

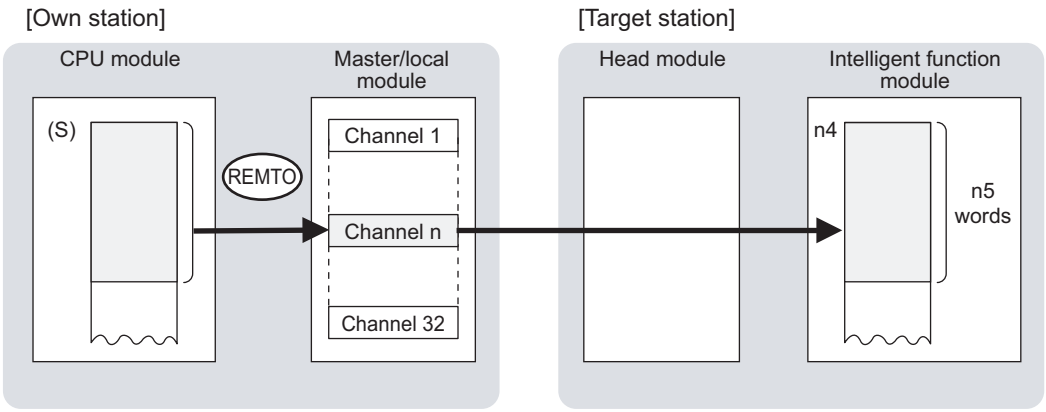
| Setting data | Description | Set by | Data type |
|---|---|---|---|
| "Jn"/Jn | Target network No. (1 to 239) | User | String/16-bit binary |
| n1 | Channels used by own station (1 to 32) | | 16-bit binary |
| n2 | Target station No. (1 to 120) | | |
| n3 | • Remote head module or head module<br>The start I/O number of the intelligent function module<br>(00 to $FE_H$: Upper two digits of the I/O number expressed in three digits)<br>• Modules other than remote head modules or head modules<br>Fixed to 00 | | |
| n4 | The start address of the buffer memory of the intelligent device station/ remote device station where data is written | | |
| S | Start device of the own station where data to be written is stored | | Device name |
| n5 | Number of write points (1 to 240 words) | | 16-bit binary |
| D | The device of the own station that turns on for one scan upon completion of the instruction.<br>If the instruction fails, (D)+1 also turns on. | System | Bit |

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## (2) Function

### (a) REMTO instruction overview

The instruction writes data by the specified number of words (n5) from the own station start device (S) into the buffer memory (after (n4)) of the intelligent device station/remote device station.
Specify the target stations in setting data ("Jn"/Jn), (n2), and (n3).
When the writing of data is completed, the completion device (D) turns on.




### (b) Target stations that can be specified

For details on target stations which can be specified, refer to the following.

☞Page 236, Section 10.1 (1)

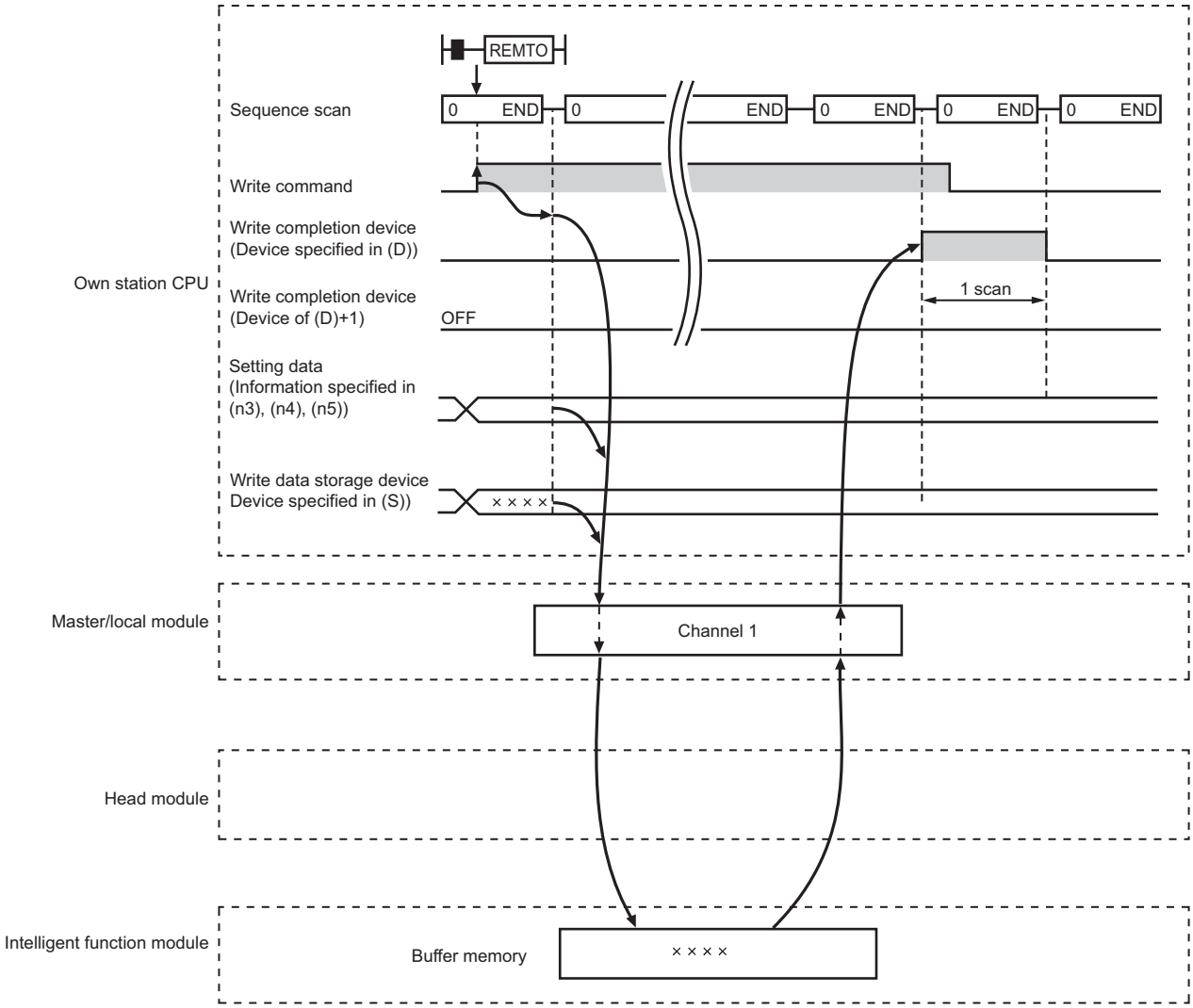
### (c) Checking the execution status of the REMTO instruction

The execution status (completion or error) of the REMTO instruction can be checked using the following devices specified in the setting data.

- Completion device (D)
  This device turns on in the END process of the scan where the REMTO instruction is completed and turns off in the next END process.
- Completion status indication device ((D)+1)
  If the REMTO instruction fails, this device turns on in the END process of the scan where the REMTO instruction is completed and turns off in the next END process.

### (d) REMTO instruction execution timing

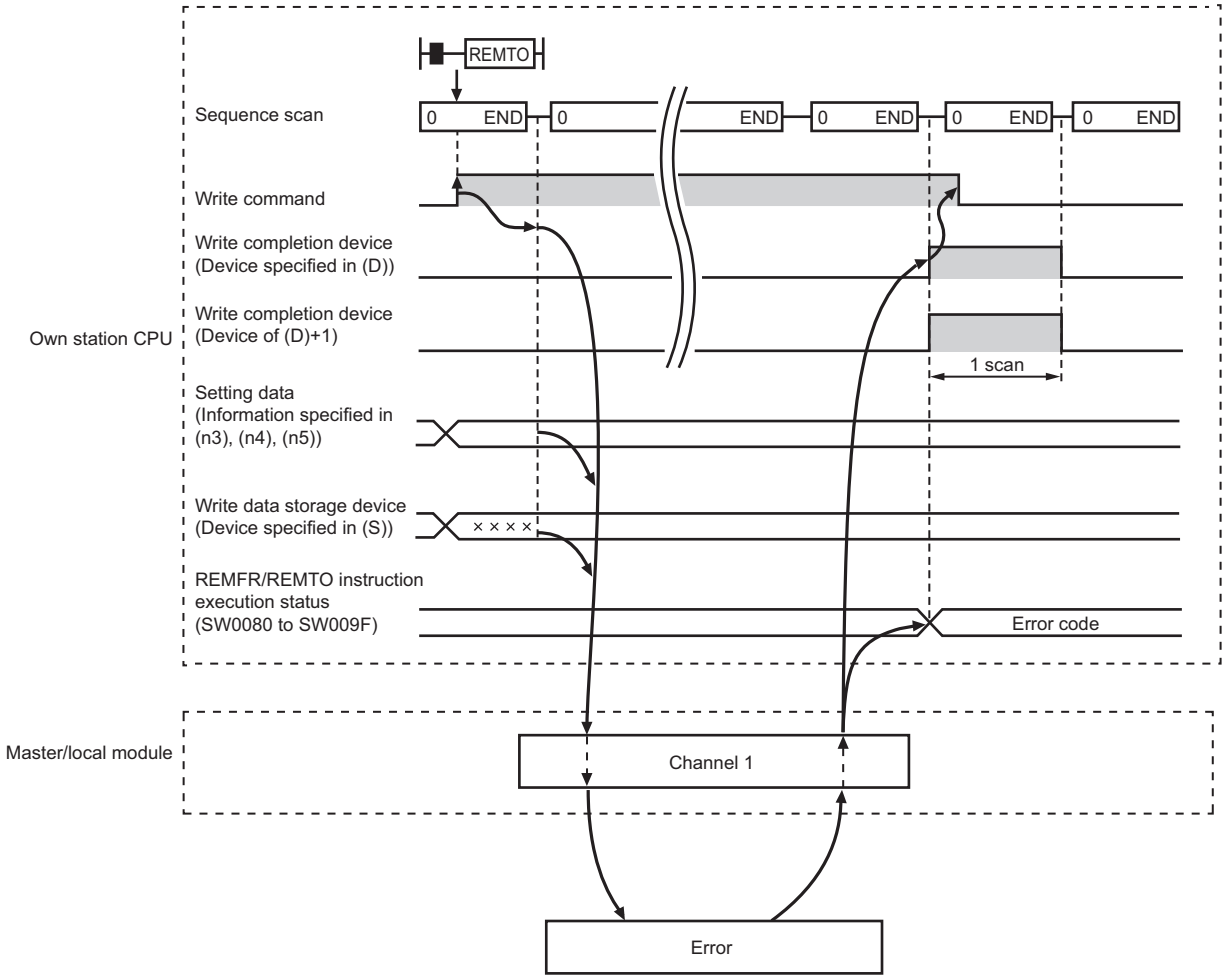
• When completed



AbN automation



• When failed




## (3) Checking error details

If the dedicated instruction fails, error details can be checked by either of the following methods:

### (a) In GX Works2

Error details can be checked using the CC-Link IE Field Network diagnostics. (☞ Page 206, CHAPTER 9)

### (b) Using devices

Completion status indication device ((D)+1) is turned on, and an error code is stored in execution status (REMFR/REMTO) (SW0080 to SW009F).

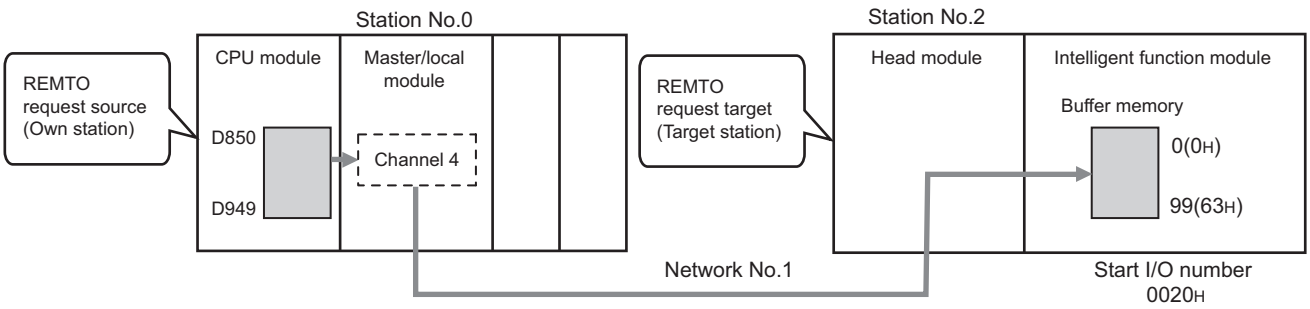
According to the error code, check the error details and take a corrective action.

(☞ Page 439, Section 12.5)

## (4) Program example

The following program is for writing data of D850 to D949 of station No.0 (own station) into buffer memory (address: 0 to 99) of station No.2 (target station) when M115 is turned on.

### (a) System configuration




### (b) Devices used in the program

- Link special relay (SB), link special register (SW)

| Device | Description | Device | Description |
|---|---|---|---|
| SB0047 | Baton pass status (own station) | SW00A0.1 | Baton pass status (each station) of station No. 2 |

**Remark**

For details on link special relay (SB) and link special register (SW), refer to the following:

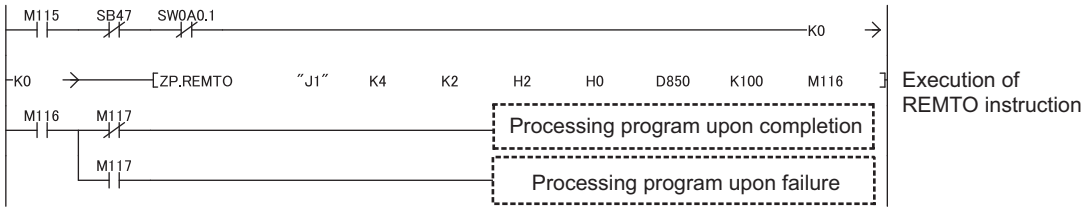
Page 473, Appendix 3, Page 493, Appendix 4

- Devices used by users

| Device | Description | Device | Description |
|---|---|---|---|
| M115 | Start contact | M117 | Completion status indication device |
| M116 | Completion device | D850 to D949 | Write data storage device |

### (c) Program example

The following program is written in the CPU module of station No.0.

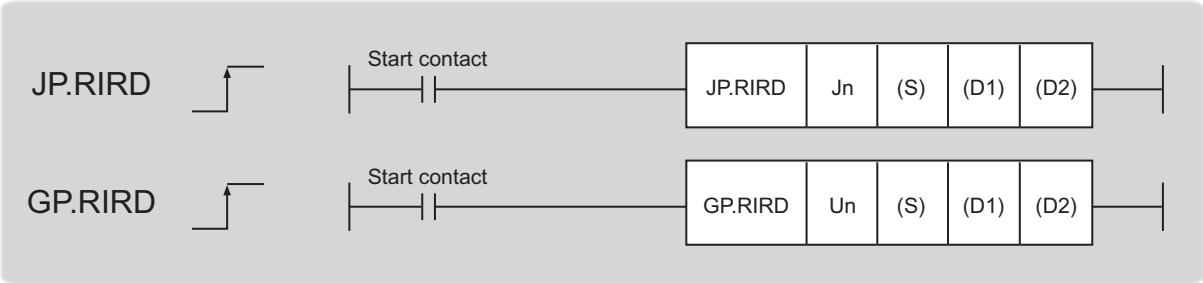


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# 10.15 JP/GP.RIRD (Reading Data from the Target Station)



This instruction reads data for the specified number of points from the device of the target station.



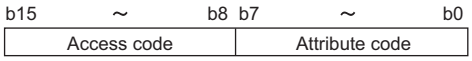

| Setting data*1 | Available devices | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| | Internal device (System, user) | | File register R, ZR | Link direct device J□\□ | | Intelligent function module device U□\G□ | Index register Zn | Constant | | Others |
| | Bit | Word | | Bit | Word | | | K, H | $ | |
| (S) | — | ○ | | — | | | | | | |
| (D1) | — | ○ | | — | | | | | | |
| (D2) | ○ | | | — | | | | | | |

*1 Local devices and file registers set for each program cannot be used.

## (1) Setting data

| Setting data | Description | Set by | Data type |
|---|---|---|---|
| Jn | Own station network No. (1 to 239, 254)<br>254: Network specified in Valid Module During Other Station Access | User | 16-bit binary |
| Un | Start I/O number of the master/local module of the own station<br>(00 to $FE_H$: Upper two digits of the I/O number expressed in three digits) | | |
| (S) | Start device of the own station where control data is stored | | Device name |
| (D1) | Start device of the own station where read data is stored | System | |
| (D2) | The device of the own station that turns on for one scan upon completion of the instruction.<br>If the instruction fails, (D2)+1 also turns on. | | Bit |

### (a) Control data

| Device | Item | Setting data | Setting range | Set by |
|---|---|---|---|---|
| (S)+0 | Completion status | The status of when the instruction is ended is stored.<br>0: Normal<br>Values other than 0: Error (Page 439, Section 12.5)<br>When the target is a module other than the master/local module, refer to the manual for the target station for details on error codes. | — | System |
| (S)+1 | Target station number | Specify the target station number.<br>Master station: 0<br>Local station, intelligent device station, submaster station: 1 to 120 | 0 to 120 | User |
| (S)+2 | Access code/ attribute code | Specify the access code and attribute code for the read device.<br>  | Reference (b) | User |
| (S)+3 | Device number | Specify the start number of the read device. | Within device range | User |
| (S)+4 | Number of read points | Specify the number of data of the read device, in units of words. | 1 to 480 | User |

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### (b) Access code/attribute code

| Device*1 | Name | Device type | | Unit | Access code*2 | Attribute code*2 |
|---|---|---|---|---|---|---|
| | | Bit | Word | | | |
| Input relay | X | ○ | | Hexadecimal | $01_H$ | $05_H$ |
| Output relay | Y | ○ | | Hexadecimal | $02_H$ | |
| Internal relay | M | ○ | | Decimal | $03_H$ | |
| Latch relay | L | ○ | | Decimal | $83_H$ | |
| Link relay | B | ○ | | Hexadecimal | $23_H$ | |
| Timer (contact) | T | ○ | | Decimal | $09_H$ | |
| Timer (coil) | T | ○ | | Decimal | $0A_H$ | |
| Timer (current value) | T | | ○ | Decimal | $0C_H$ | |
| Retentive timer (contact) | ST | ○ | | Decimal | $89_H$ | |
| Retentive timer (coil) | ST | ○ | | Decimal | $8A_H$ | |
| Retentive timer (current value) | ST | | ○ | Decimal | $8C_H$ | |
| Counter (contact) | C | ○ | | Decimal | $11_H$ | |
| Counter (coil) | C | ○ | | Decimal | $12_H$ | |
| Counter (current value) | C | | ○ | Decimal | $14_H$ | |
| Data register*3 | D | | ○ | Decimal | $04_H$ | |
| Link register*3 | W | | ○ | Hexadecimal | $24_H$ | |
| File register | R | | ○ | Decimal | $84_H$ | |
| Link special relay | SB | ○ | | Hexadecimal | $63_H$ | |
| Link special register | SW | | ○ | Hexadecimal | $64_H$ | |
| Special relay | SM | ○ | | Decimal | $43_H$ | |
| Special register | SD | | ○ | Decimal | $44_H$ | |

*1 Devices other than the above cannot be accessed.
To access a bit device, specify 0 or multiples of 16.

*2 When the target is a module other than the master/local module, refer to the manual for the target station for details on access codes/attribute codes.

*3 Extension data registers after D65536 and extension link registers after W10000 cannot be specified.

**Point**

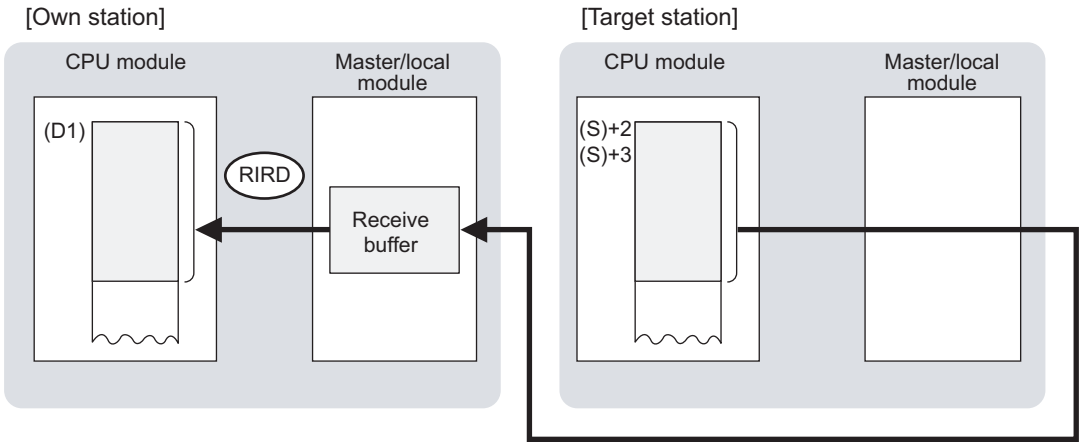
Use the following link special registers (SW) to set the arrival monitoring time and number of resends. (Page 493, Appendix 4)

- Arrival monitoring time (RIRD/RIWT) (SW0009)
- Number of resends (RIRD/RIWT) (SW000B)

## (2) Function

### (a) RIRD instruction overview

The instruction reads data by the specified number of words (control data ((S)+4)) from the target station start device (control data ((S)+2 and (S)+3)) into the own station word devices (after (D1)).
Specify the target stations in control data ((S)+1).
When the reading of target station data is completed, the completion device (D2) turns on.




### (b) Target stations that can be specified

For details on target stations which can be specified, refer to the following.

☞Page 239, Section 10.1 (2)

### (c) Checking the execution status of the RIRD instruction

The execution status (completion or error) of the RIRD instruction can be checked using the following devices specified in the setting data.

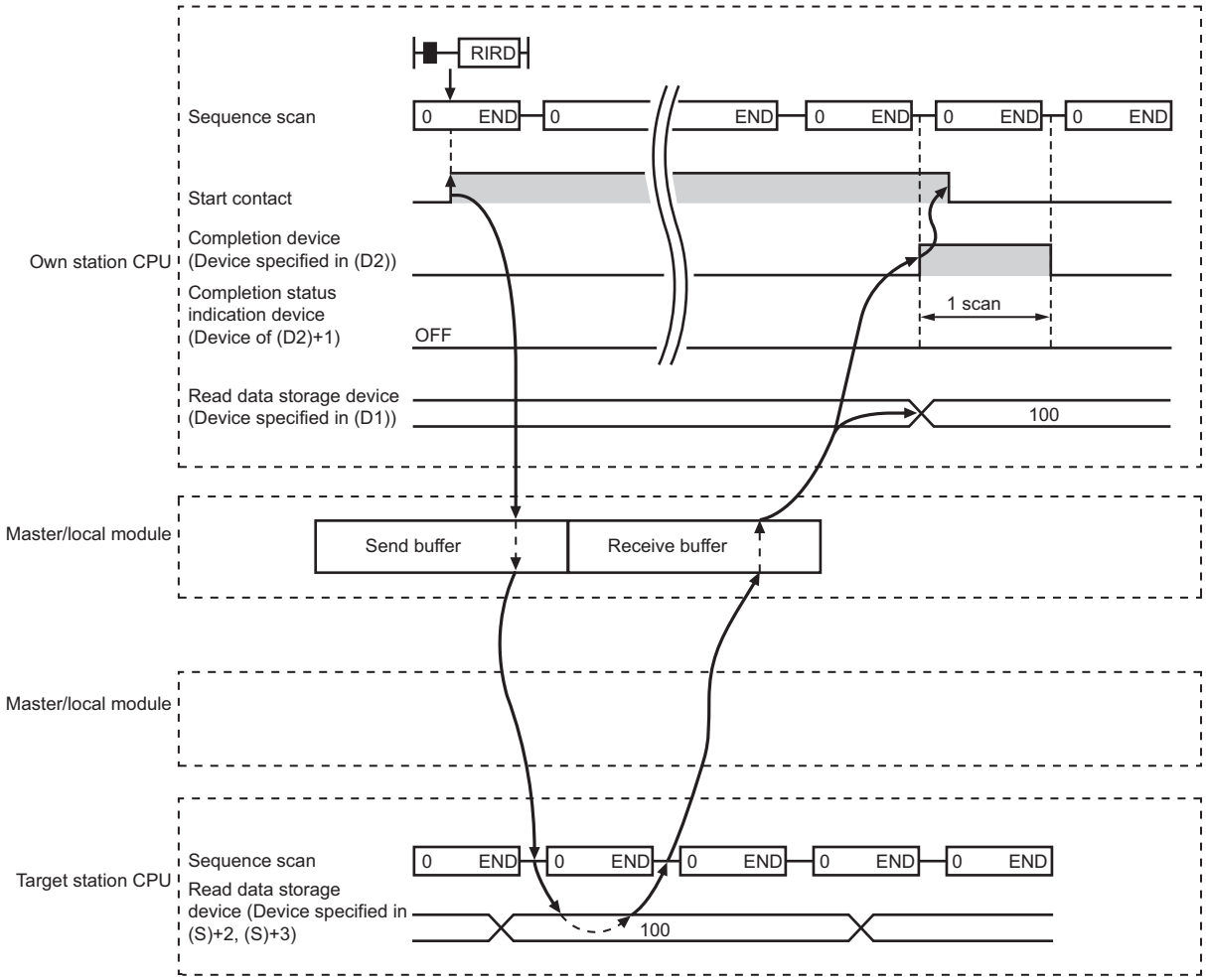
- Completion device (D2)
  This device turns on in the END process of the scan where the RIRD instruction is completed and turns off in the next END process.
- Completion status indication device ((D2)+1)
  If the RIRD instruction fails, this device turns on in the END process of the scan where the RIRD instruction is completed and turns off in the next END process.

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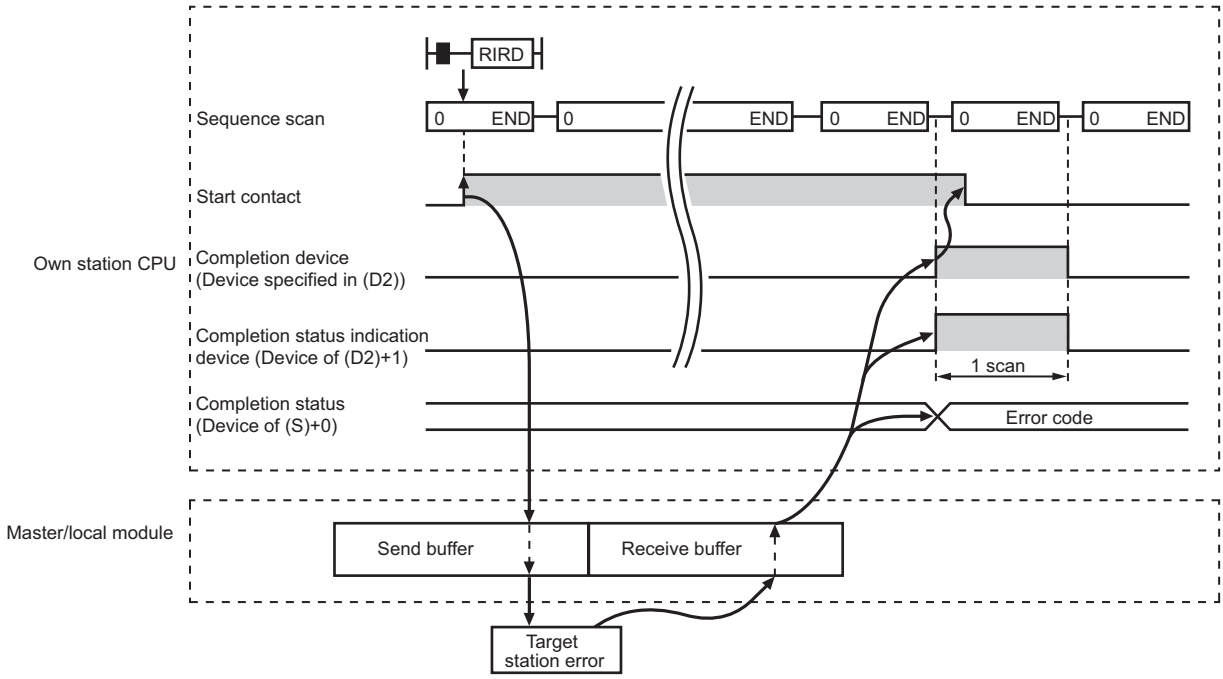


### (d) RIRD instruction execution timing

• When completed



• When failed




## (3) Checking error details

If the dedicated instruction fails, error details can be checked by either of the following methods:

### (a) In GX Works2

Error details can be checked using the CC-Link IE Field Network diagnostics. (☞ Page 206, CHAPTER 9)

### (b) Using devices

Completion status indication device ((D2)+1) turns on, and an error code is stored in Completion status ((S)+0) of the control data.

According to the error code, check the error details and take a corrective action. (☞ Page 439, Section 12.5)

## (4) When accessing CC-Link IE Field Network compliant devices

For details on access codes/attribute codes, error codes, and the processing time of the target station, refer to the manual for the target station.

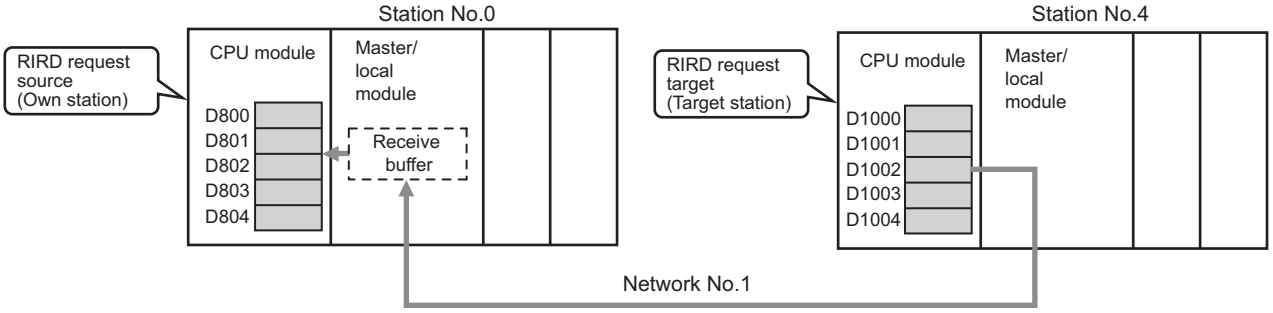
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## (5) Program example

The following program is for sending data of D1000 to D1004 of station No.4 (target station) to D800 to D804 of station No.0 (own station) when M200 is turned on.

### (a) System configuration




### (b) Devices used in the program

- Link special relay (SB), link special register (SW)

| Device | Description | Device | Description |
|---|---|---|---|
| SB0047 | Baton pass status (own station) | SW00A0.3 | Baton pass status (each station) of station No.4 |

**Remark**

For details on the link special relay (SB) and link special register (SW), refer to the following.

Page 473, Appendix 3, Page 493, Appendix 4

- Devices used by users

| Device | Description | Device | Description |
|---|---|---|---|
| M200 | Start contact | D400 to D404 | Control data |
| M201 | RIRD instruction execution flag | D800 to D804 | Read data storage device (station No.0) |
| M205 | Completion device | — | |
| M206 | Completion status indication device | | |

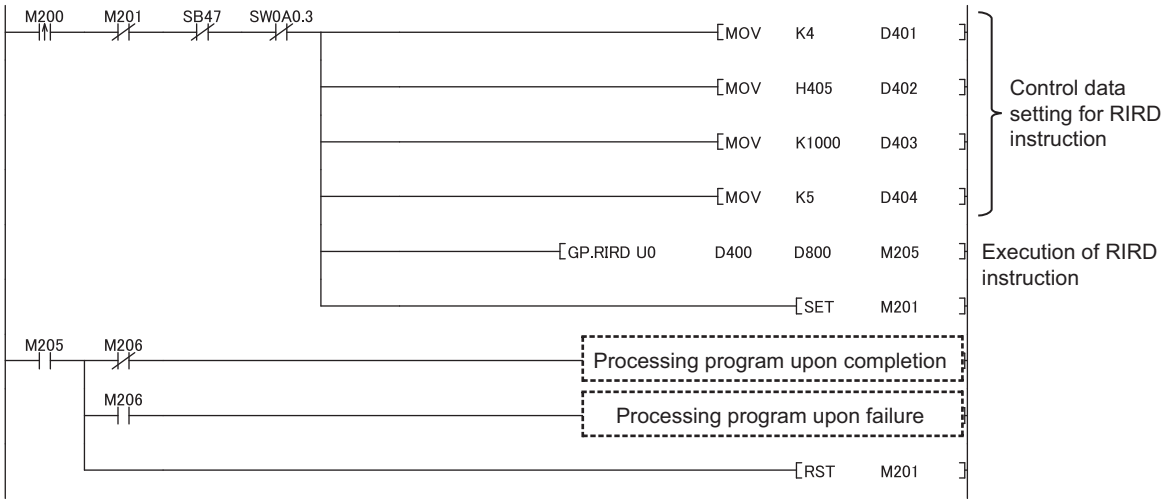
### (c) RIRD instruction setting

The following table lists values set in RIRD instruction control data.

| Device | | Item | Set value |
|---|---|---|---|
| (S)+0 | D400 | Completion status | —<br>(The system sets this item.) |
| (S)+1 | D401 | Target station number | 4 |
| (S)+2 | D402 | Access code/attribute code | $0405_H$ (data register (D)) |
| (S)+3 | D403 | Device number | 1000 |
| (S)+4 | D404 | Number of read points | 5 |

### (d) Program example

The following program example is written to the CPU module of station No.0.

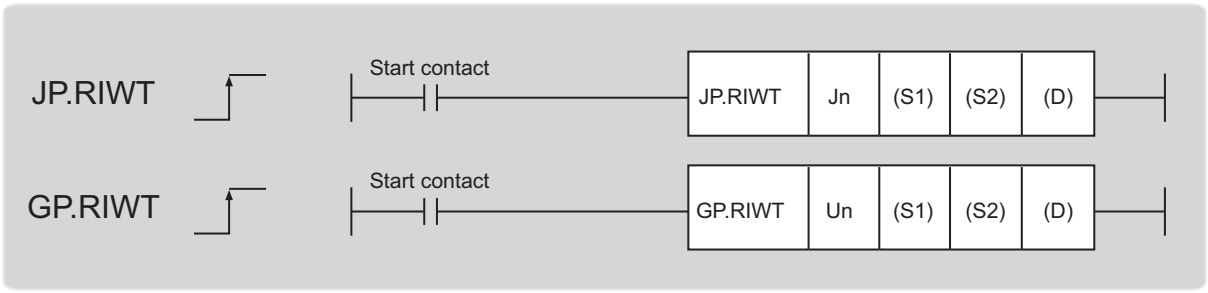


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# 10.16 JP/GP.RIWT (Writing Data in Target Stations)



This instruction writes data for the specified number of points to the device of the target station.



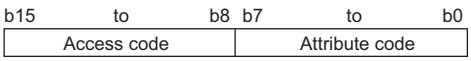

| Setting data*1 | Available devices | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| | Internal device (System, user) | | File register R, ZR | Link direct device J□\□ | | Intelligent function module device U□\G□ | Index register Zn | Constant | | Others |
| | Bit | Word | | Bit | Word | | | K, H | $ | |
| (S1) | — | ○ | | — | | | | | | |
| (S2) | — | ○ | | — | | | | | | |
| (D) | ○ | | | — | | | | | | |

*1 Local devices and file registers set for each program cannot be used.

## (1) Setting data

| Setting data | Description | Set by | Data type |
|---|---|---|---|
| Jn | Own station network No. (1 to 239, 254)<br>254: Network specified in Valid Module During Other Station Access | User | 16-bit binary |
| Un | Start I/O number of the master/local module of own station<br>(00 to $FE_H$: Upper two digits of the I/O number expressed in three digits) | | |
| (S1) | Start device of the own station where control data is stored | | Device name |
| (S2) | Start device of the own station where data to be written is stored | | |
| (D) | The device of the own station that turns on for one scan upon completion of the instruction.<br>If the instruction fails, (D)+1 also turns on. | System | Bit |

### (a) Control data

| Device | Item | Setting data | Setting range | Set by |
|---|---|---|---|---|
| (S1)+0 | Completion status | The status of when the instruction is ended is stored.<br>0: Normal<br>Values other than 0: Error (Page 439, Section 12.5)<br>When the target is a module other than the master/local module, refer to the manual for the target station for details on error codes. | — | System |
| (S1)+1 | Target station number | Specify the target station number.<br>Master station: 0<br>Local station, intelligent device station, submaster station: 1 to 120 | 0 to 120 | User |
| (S1)+2 | Access code/ attribute code | Specify the access code and attribute code for the write device.<br>  | Reference (b) | User |
| (S1)+3 | Device number | Specify the start number of the write device. | Within device range | User |
| (S1)+4 | Number of write points | Specify the number of data of the write device, in units of words. | 1 to 480 | User |

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### (b) Access code/attribute code

| Device*1 | Name | Device type | | Unit | Access code*2 | Attribute code *2 |
|---|---|---|---|---|---|---|
| | | Bit | Word | | | |
| Input relay | X | ○ | | Hexadecimal | $01_H$ | |
| Output relay | Y | ○ | | Hexadecimal | $02_H$ | |
| Internal relay | M | ○ | | Decimal | $03_H$ | |
| Latch relay | L | ○ | | Decimal | $83_H$ | |
| Link relay | B | ○ | | Hexadecimal | $23_H$ | |
| Timer (contact) | T | ○ | | Decimal | $09_H$ | |
| Timer (coil) | T | ○ | | Decimal | $0A_H$ | |
| Timer (current value) | T | | ○ | Decimal | $0C_H$ | |
| Retentive timer (contact) | ST | ○ | | Decimal | $89_H$ | |
| Retentive timer (coil) | ST | ○ | | Decimal | $8A_H$ | |
| Retentive timer (current value) | ST | | ○ | Decimal | $8C_H$ | $05_H$ |
| Counter (contact) | C | ○ | | Decimal | $11_H$ | |
| Counter (coil) | C | ○ | | Decimal | $12_H$ | |
| Counter (current value) | C | | ○ | Decimal | $14_H$ | |
| Data register*3 | D | | ○ | Decimal | $04_H$ | |
| Link register*3 | W | | ○ | Hexadecimal | $24_H$ | |
| File register | R | | ○ | Decimal | $84_H$ | |
| Link special relay | SB | ○ | | Hexadecimal | $63_H$ | |
| Link special register | SW | | ○ | Hexadecimal | $64_H$ | |
| Special relay | SM | ○ | | Decimal | $43_H$ | |
| Special register | SD | | ○ | Decimal | $44_H$ | |

*1 Devices other than the above cannot be accessed.
To access a bit device, specify 0 or multiples of 16.

*2 When the target is a module other than the master/local module, refer to the manual for the target station for details on access codes/attribute codes.

*3 Extension data registers after D65536 and extension link registers after W10000 cannot be specified.

**Point**

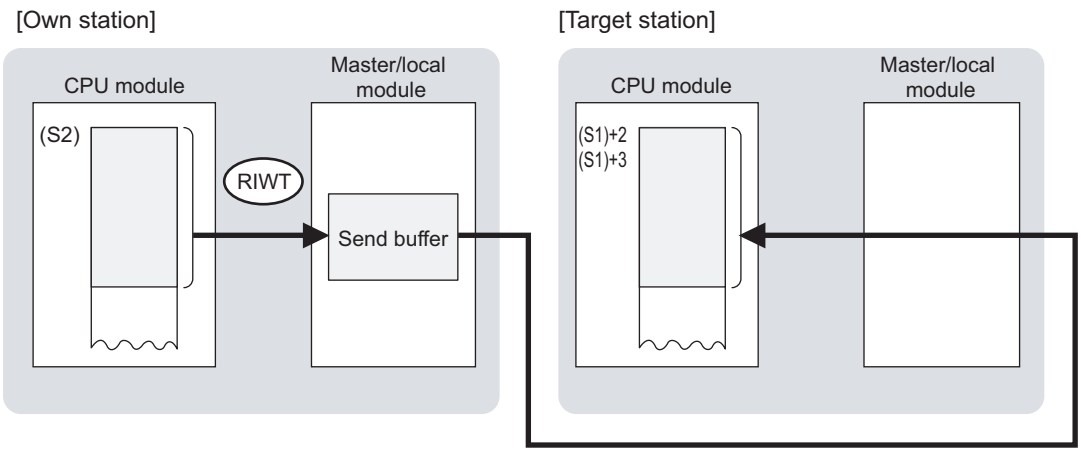
Use the following link special registers (SW) to set the arrival monitoring time and number of resends. (Page 493, Appendix 4)

- Arrival monitoring time (RIRD/RIWT) (SW0009)
- Number of resends (RIRD/RIWT) (SW000B)

## (2) Function

### (a) RIWT instruction overview

The instruction writes data by the specified number of words (control data ((S1)+4)) from the own station start device (S2) into the target station devices (specified in (S1)+2 and (S1)+3).
Specify the target stations in control data ((S1)+1).
When reading of target station's data is completed, the completion device (D) turns on.




### (b) Target stations that can be specified

For details on target stations which can be specified, refer to the following.

☞ Page 239, Section 10.1 (2)

### (c) Checking the execution status of the RIWT instruction

The execution status (completion or error) of the RIWT instruction can be checked using the following devices specified in the setting data.

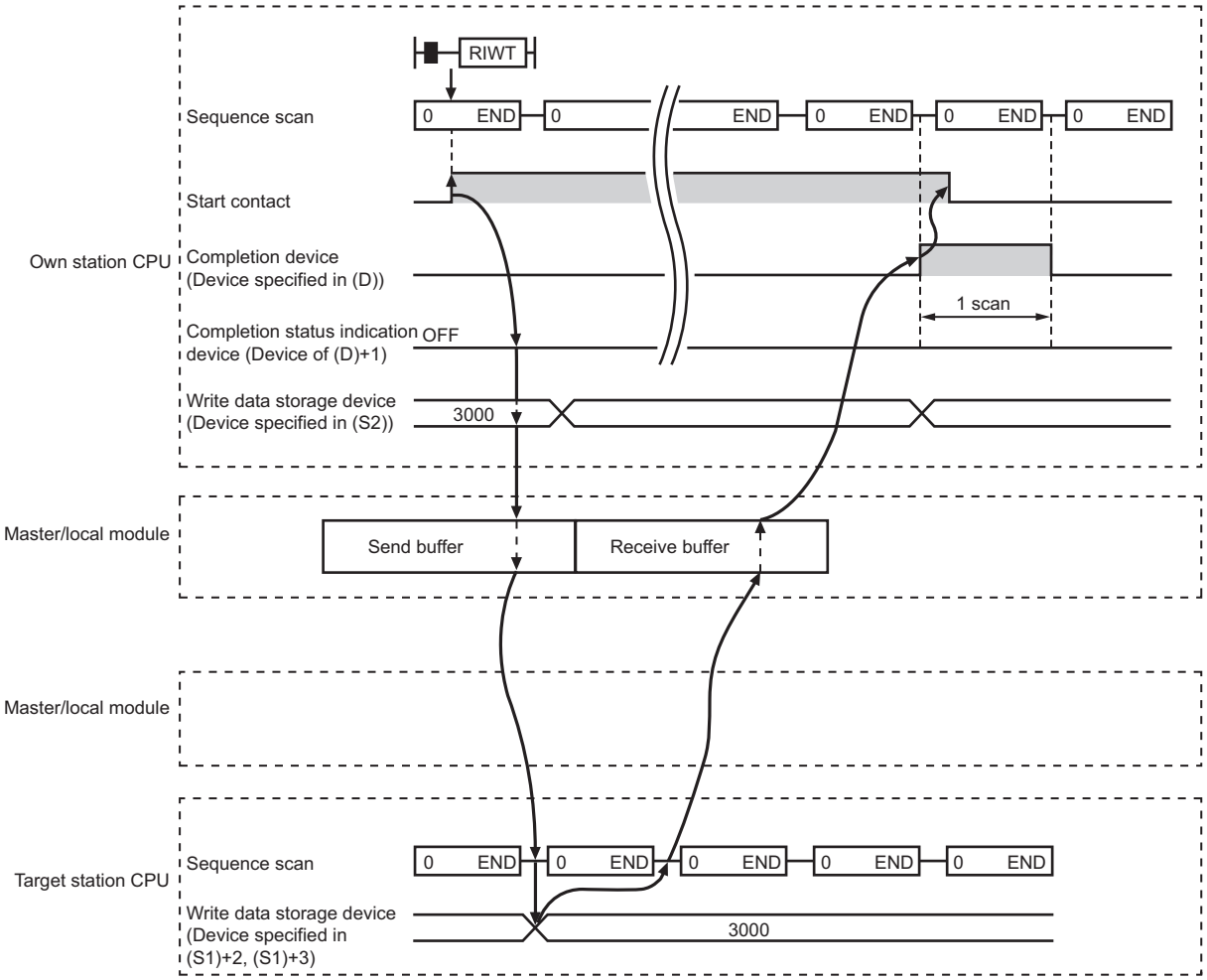
- Completion device (D)
  This device turns on in the END process of the scan where the RIWT instruction is completed and turns off in the next END process.
- Completion status indication device ((D)+1)
  If the RIWT instruction fails, this device turns on in the END process of the scan where the RIWT instruction is completed and turns off in the next END process.

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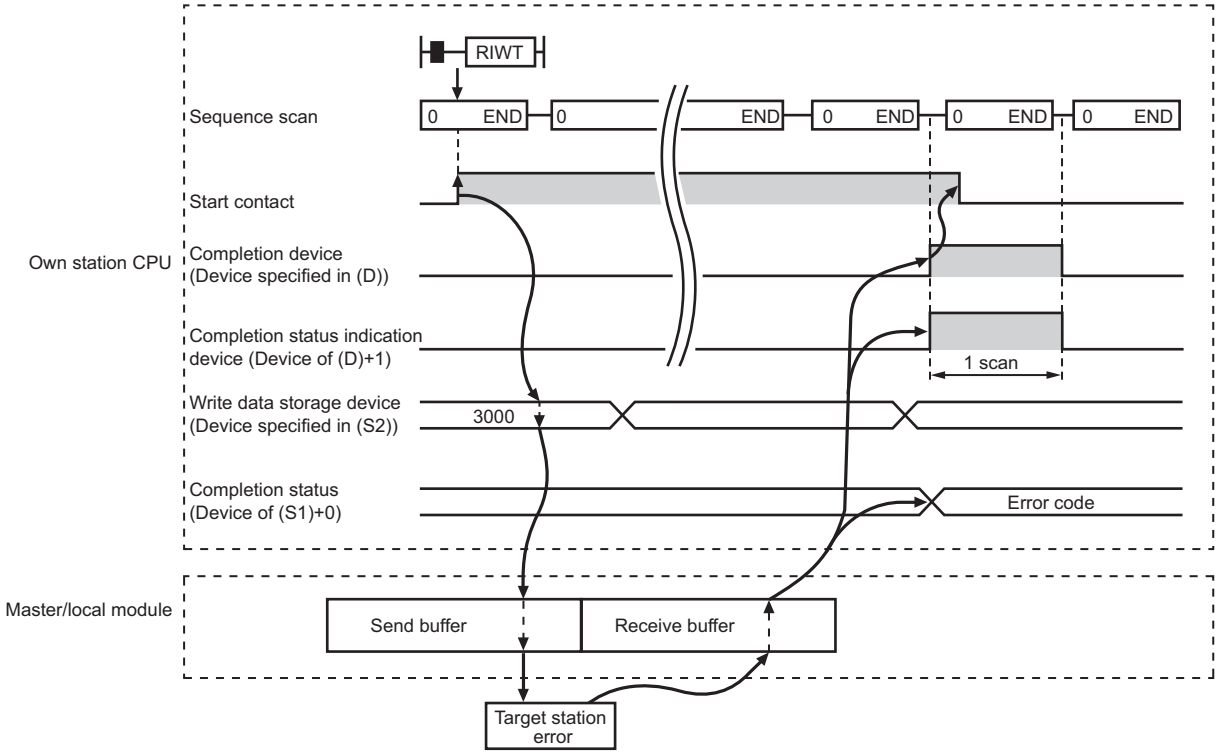


### (d) RIWT instruction execution timing

• When completed



• When failed




## (3) Checking error details

If the dedicated instruction fails, error details can be checked by either of the following methods:

### (a) In GX Works2

Error details can be checked using the CC-Link IE Field Network diagnostics. (☞ Page 206, CHAPTER 9)

### (b) Using devices

Completion status indication device ((D)+1) turns on, and an error code is stored in Completion status ((S1)+0) of the control data.

According to the error code, check the error details and take a corrective action. (☞ Page 439, Section 12.5)

## (4) When accessing CC-Link IE Field Network compliant devices

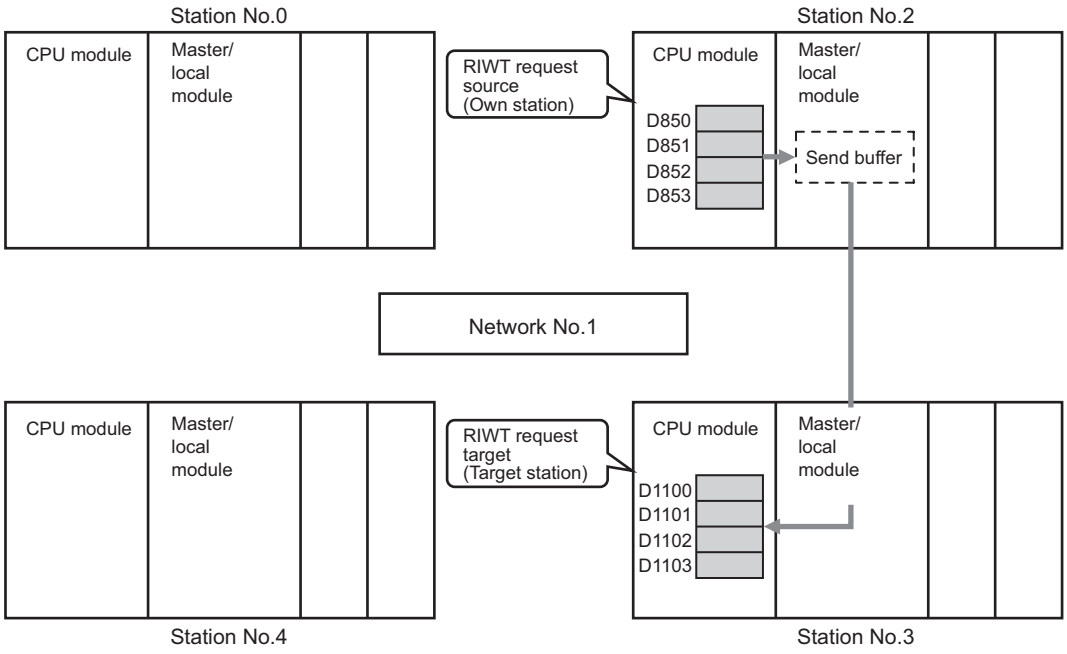
For details on access codes/attribute codes, error codes, and the processing time of the target station, refer to the manual for the target station.

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## (5) Program example

The following program is for writing the data of D850 to D853 of station No.2 (own station) into D1100 to D1103 of station No.3 (target station) when M210 is turned on.

### (a) System configuration




### (b) Devices used in the program

- Link special relay (SB), link special register (SW)

| Device | Description | Device | Description |
|---|---|---|---|
| SB0047 | Baton pass status (own station) | SW00A0.2 | Baton pass status (each station) of station No. 3 |

**Remark**

For details on the link special relay (SB) and link special register (SW), refer to the following.

Page 473, Appendix 3, Page 493, Appendix 4

- Devices used by users

| Device | Description | Device | Description |
|---|---|---|---|
| M210 | Start contact | D420 to D424 | Control data |
| M211 | RIWT instruction execution flag | D850 to D853 | Write data storage device (station No.2) |
| M215 | Completion device | — | |
| M216 | Completion status indication device | | |

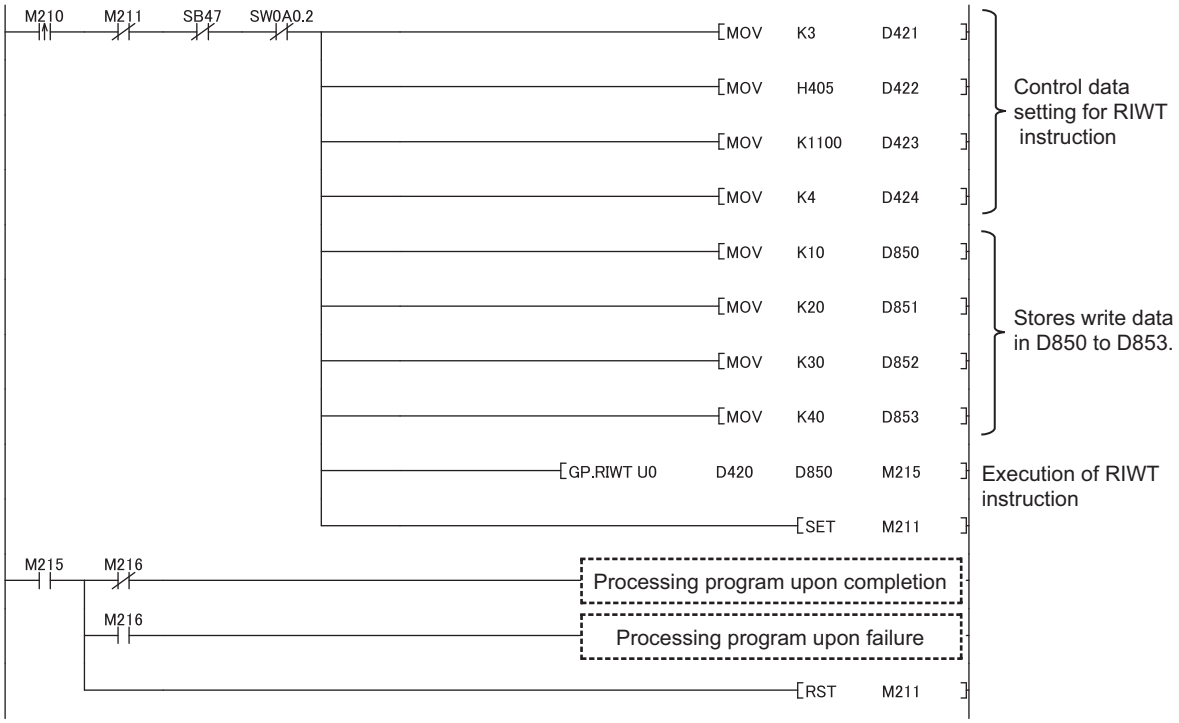
### (c) RIWT instruction setting

The following table lists values set in RIWT instruction control data.

| Device | | Item | Set value |
|---|---|---|---|
| (S1)+0 | D420 | Completion status | —<br>(The system sets this item.) |
| (S1)+1 | D421 | Target station number | 3 |
| (S1)+2 | D422 | Access code/attribute code | $0405_H$ (data register (D)) |
| (S1)+3 | D423 | Device number | 1100 |
| (S1)+4 | D424 | Number of write points | 4 |

### (d) Program example

The following program is written to the CPU module of station No.2.



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# 10.17 GP.CCPASET (Setting Parameters)



This instruction sets parameters to the master/local module.

Usually, the parameters of the master/local module are set using the network parameters in GX Works2. In the following applications, they are set using the CCPASET instruction.

- To change the parameter settings without resetting the CPU module
- To mount more master/local modules than the number of modules that can be set using GX Works2

## 10.17.1 Procedure for setting parameters using the CCPASET instruction

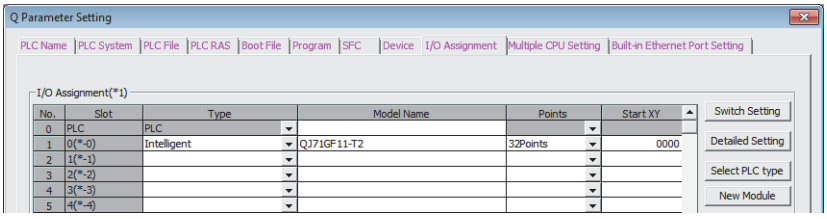
### (1) Procedure

Before setting parameters using the CCPASET instruction, set the network No. of the master/local module using the intelligent function module switch setting.

**1. Open the "I/O Assignment" tab of GX Works2.**

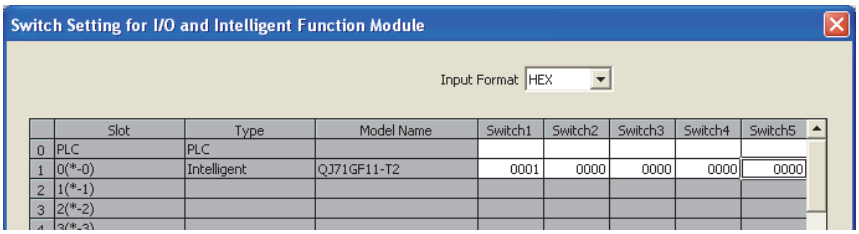
Project window ⇨ [Parameter] ⇨ [PLC Parameter] ⇨ "I/O Assignment" tab

**2. Add the master/local module under "I/O Assignment".**




**3. Click the Switch Setting button.**

**4. Enter values for "Switch 1" to "Switch 5".**



Enter values within the ranges listed in the tables below.
If any of the values set for switches 1 to 3 is outside the range, the master/local module will start as a master station (offline mode) of network number 1, resulting in an error. Check the "System Monitor" window of GX Works2 for error. (☞ Page 426, Section 12.2 (1))
If the switch 4 is outside the range, the CCPASET instruction fails, and the error code is stored in Completion status ((S1) + 0).

• Setting parameters for the master station

| Item | Description | Setting range |
|---|---|---|
| Switch 1 | Enter the network number.<br>00□□H<br>Network No.: 01H to EFH (1 to 239) | $0001_H$ to $00EF_H$ |
| Switch 2 | Enter "$0000_H$". | $0000_H$ (Fixed) |
| Switch 3 | | |
| Switch 4 | (1) When not using the submaster function<br>Enter $0000_H$.<br>(2) When using the submaster function<br>Set the operating status of the master station when it returns.<br>$0000_H$: Returns as a master station<br>$0002_H$: Returns as a submaster station | $0000_H$, $0002_H$ |
| Switch 5 | Enter "$0000_H$". | $0000_H$ (Fixed) |

• Setting parameters for the submaster station

| Item | Description | Setting range |
|---|---|---|
| Switch 1 | Enter the network number.<br>00□□H<br>Network No.: 01H to EFH (1 to 239) | $0001_H$ to $00EF_H$ |
| Switch 2 | Enter the station number.<br>41□□H<br>Station No.: 01H to 78H (1 to 120) | $4101_H$ to $4178_H$<br>(Station number: 1 to 120) |
| Switch 3 | Enter "$0000_H$". | $0000_H$ (Fixed) |
| Switch 4 | Select whether to set parameters for the submaster station using the CCPASET instruction.<br>When "Parameters not set" is selected, the submaster station operates with the parameters set for the master station.*1<br>When "Parameters set" is selected, the submaster station operates with the parameters set using the CCPASET instruction.<br>$0000_H$: Parameters not set<br>$0004_H$: Parameters set | $0000_H$, $0004_H$ |
| Switch 5 | Enter "$0000_H$". | $0000_H$ (Fixed) |

*1 The submaster station once needs to perform data link with the master station. Otherwise, the submaster station does not start its operation.

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• Setting parameters for local stations

| Item | Description | Setting range |
|---|---|---|
| Switch 1 | Enter the network number.<br>00□□H<br>Network No.: 01H to EFH (1 to 239) | $0001_H$ to $00EF_H$ |
| Switch 2 | Enter the station number.<br>31□□H<br>Station number: 01H to 78H (1 to 120)<br>Use the UINI instruction to set the station number.: FFH | $3101_H$ to $3178_H$ (Station number: 1 to 120)<br>$31FF_H$ (Set a station number using the UINI instruction.) |
| Switch 3<br>Switch 4<br>Switch 5 | Enter "$0000_H$". | $0000_H$ (Fixed) |

***5.*** **Create a CCPASET instruction program. (☞ Page 371, Section 10.17.2 (4))**

***6.*** **Use GX Works2 to write PLC Parameters and programs into the CPU module.**

[Online] ⇨ [Write to PLC]

***7.*** **Data link is stopped during in execution. (☞ Page 221, Section 9.4)**

If some instruction is executed while data link processing, malfunction may be caused due to a change in the link device assignment.

***8.*** **Execute the CCPASET instruction.**

## (2) Parameters that cannot be set using the CCPASET instruction

The following table shows the parameters that cannot be set using the CCPASET instruction. The master/local module operates with the setting status listed below.

### (a) Parameters that cannot be set to the master station and submaster station

| Item | | Setting status |
|---|---|---|
| Network setting | Mode | Online (Normal Mode) |
| Network Configuration Settings | Alias | Not set |
| | Comment | |
| | Block Data Assurance per Station | Not set |
| Network Operation Settings | Parameter Name | Not set |
| Refresh Parameters | | Not set<br>Since link refresh cannot be performed, use direct access to directly access the link device. |
| Interrupt Settings | | Not set (Interrupts cannot be performed.) |
| Interlink Transmission Parameters | | Not set (Interlink transmission cannot be performed.) |
| Routing Parameters | | Not set<br>Transient transmission that requires routing parameters cannot be performed.<br>For whether routing parameters are needed, refer to the following.<br>☞ Page 119, Section 7.8 |

Set the parameters listed above using the network parameters in GX Works2.

### (b) Parameters that cannot be set to the local station

| Item | | Setting status |
|---|---|---|
| Network setting | Total Stations | Depends on the setting in the master station. |
| | Mode | Online (Normal Mode) |
| Network Configuration Settings | Station No. | Depends on the setting in the master station. |
| | Station Type | |
| | RX/RY Setting | |
| | RWw/RWr Setting | |
| | Reserved/Error Invalid Station | |
| | Alias | Not set |
| | Comment | |
| | Link Scan Mode Setting | Depends on the setting in the master station. |
| | Loopback Function Setting | |
| | Block Data Assurance per Station | Not set |
| Network Operation Settings | Parameter Name | Not set |
| Refresh Parameters | | Not set<br>Since link refresh cannot be performed, use direct access to directly access the link device. |
| Interrupt Settings | | Not set (Interrupts cannot be performed.) |
| Interlink Transmission Parameters | | Not set (Interlink transmission cannot be performed.) |
| Routing Parameters | | Not set<br>Transient transmission that requires routing parameters cannot be performed.<br>For whether routing parameters are needed, refer to the following:<br>☞ Page 119, Section 7.8 |

Set the above-listed parameters that operate according to the settings of the master station in the master station. Set parameters other than those using the network parameters in GX Works2.

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## (3) Precautions

### (a) Using both the CCPASET instruction and GX Works2

Network parameters cannot be set using both the CCPASET instruction and GX Works2. If both are used, the CCPASET instruction will fail.

### (b) When the network configuration setting data exceeds the total number of slave stations

If the number of set network configuration setting data exceeds the total number of slave stations, the data will be ignored. Only the data set within the total number of slave stations are valid.

### (c) Applicable station numbers for reserved stations and error invalid stations

If the station number of a reserved station or error invalid station is outside the range set by total number of slave stations and network configuration setting data, it is ignored. Only station numbers within the specified ranges are valid.

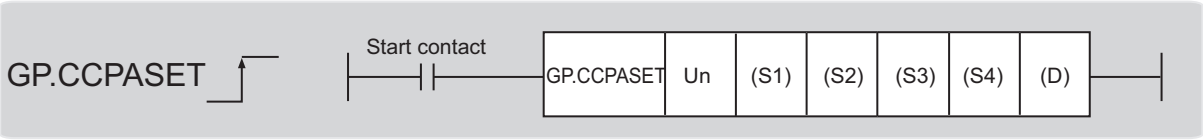
### (d) Parameter error

If a parameter error occurs, check the error code stored in link special register (SW) and take corrective actions.

1. **If a parameter is incorrect, execution of the CCPASET instruction will fail.**
2. **Check the error code stored in Parameter setting status (SW004C) and take corrective action.**
   **(☞ Page 439, Section 12.5)**

# 10.17.2 Instruction details

The GP.CCPASET instruction sets parameters for a master/local module.




| Setting data*1 | Available devices | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | Internal device (System, user) | | File register R, ZR | Link direct device J□\□ | | Intelligent function module device U□\G□ | Index register Zn | Constant | | Others |
| | Bit | Word | | Bit | Word | | | K, H | $ | |
| (S1) | — | ○ | | — | | | | | | |
| (S2) | — | ○ | | — | | | | | | |
| (S3) | — | ○ | | — | | | | | | |
| (S4) | — | ○ | | — | | | | | | |
| (D) | ○ | | | — | | | | | | |

*1 Local devices and file registers set for each program cannot be used.

## (1) Setting data

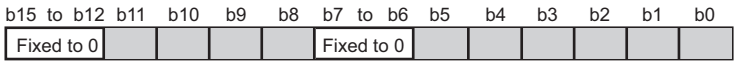
| Setting data | Description | Set by | Data type |
|---|---|---|---|
| Un | Start I/O number of the master/local module of the own station (00 to $FE_H$: Upper two digits of the I/O number expressed in three digits) | User | 16-bit binary |
| (S1) | Start device of the own station where control data is stored | | Device name |
| (S2)*2 | Start device of the own station where network configuration settings are stored | | |
| (S3)*2 | Start device of the own station where reserved station specification is stored | | |
| (S4)*2 | Start device of the own station where temporary error invalid station setting is stored | | |
| (D) | The device of the own station that turns on for one scan upon completion of the instruction.<br>If the instruction fails, (D)+1 also turns on. | System | Bit |

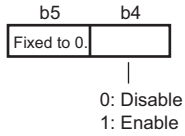
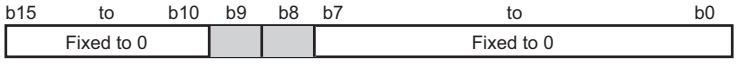
*2 When data from (S2) to (S4) are not set, specify dummy devices. To validate/invalidate (S2) to (S4) data, use b0 to b2 of (S1)+1.

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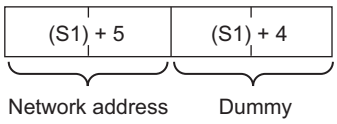


### (a) Control data

<table>
<tr><th>Device</th><th>Item</th><th>Setting data</th><th>Setting range</th><th>Set by</th></tr>
<tr><td>(S1)+0</td><td>Completion status</td><td>The status of when the instruction is ended is stored.<br>0: Normal<br>Values other than 0: Error ( Page 439, Section 12.5)</td><td>—</td><td>System</td></tr>
<tr><td>(S1)+1</td><td>Setting flag</td><td>• For the master station and the submaster station<br> 

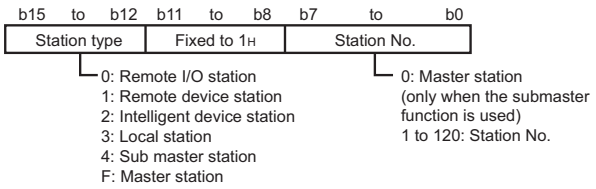
<table>
<tr><th>Bit</th><th>Item</th><th>Setting</th></tr>
<tr><td>b0</td><td>Network configuration setting data</td><td rowspan="4">0: Invalid<br>1: Valid</td></tr>
<tr><td>b1</td><td>Reserved station specification data</td></tr>
<tr><td>b2</td><td>Error invalid station setting data</td></tr>
<tr><td>b3</td><td>Submaster function</td></tr>
<tr><td>b4 and b5</td><td>IP packet transfer function</td><td> 
</td></tr>
<tr><td>b8</td><td>Data link faulty station setting</td><td>0: Clear<br>1: Hold</td></tr>
<tr><td>b9</td><td>Output setting during CPU STOP</td><td>0: Hold<br>1: Clear</td></tr>
<tr><td>b10</td><td>Link scan mode setting</td><td>0: Asynchronous<br>1: Synchronous</td></tr>
<tr><td>b11</td><td>Loopback function setting</td><td>0: Not used<br>1: Used</td></tr>
</table>
Use b0 to b2 to set whether to enable the setting data in (S2) to (S4).<br>Storing "0: Invalid" will operate the station with the default of the parameter.<br>( Page 81, CHAPTER 7)<br>Use b3 to set whether to enable the submaster function.<br>Use b4 and b5 to set whether to enable the setting data in (S1)+4 and (S1)+5.<br>Use b8 to b11 to configure the supplementary setting and network operation settings.<br><br>• For local stations<br> 

<table>
<tr><th>Bit</th><th>Item</th><th>Setting</th></tr>
<tr><td>b8</td><td>Data link faulty station setting</td><td>0: Clear<br>1: Hold</td></tr>
<tr><td>b9</td><td>Output setting during CPU STOP</td><td>0: Hold<br>1: Clear</td></tr>
</table>
For local stations, only b8 and b9 can be specified. Set "0" for bits other than b8 and b9.</td><td>Refer to the left.</td><td>User</td></tr>
</table>

| Device | Item | Setting data | Setting range | Set by |
|---|---|---|---|---|
| (S1)+2 | Total number of slave stations | • For a master station and submaster station<br>Set the number of connected slave stations (needs to be set for a master station).<br>To use areas for a master station when using the submaster function, set "the number of connected slave stations + 1".<br><br>• For local stations<br>This item needs not to be set. | 1 to 120 (1 to 121 when the submaster function is used) | User |
| (S1)+3 | Constant link scan time | • For a master station and submaster station<br>Specify constant link scan time (needs to be set for a master station).<br>0: No setting<br>1 to 200: Constant link scan time (unit: ms)<br><br>• For local stations<br>This item needs not to be set. | 0 to 200 | User |
| (S1)+4<br>(S1)+5 | IP address (network address) | • For a master station and submaster station<br>When using the IP packet transfer function, set the first and second octets of the IP address of the master/local module (master station and submaster station only). (☞ Page 148, Section 8.3.2)<br>  <br><br><br>• For local stations<br>This item needs not to be set. | 0 to 255 | User |

### (b) Network configuration setting data (master station (needs to be set) and submaster station only)

When the existence (b0) of the network configuration setting data is enabled by the setting flag ((S1)+1), configure the network configuration settings.

| Device | Item | | Setting data | Setting range | Set by |
|---|---|---|---|---|---|
| (S2)+0 | For the 1st station | Slave station setting information | Store the station type and station number.<br>  | Refer to the left figure. | User |
| (S2)+1 | | RX/RY offset | Store the RX/RY start number. (In increments of 16 points) | 0 to $3FF0_H$ | |
| (S2)+2 | | RX/RY size | Store the number of RX/RY points. (In increments of 16 points) | 0 to 2048 | |
| (S2)+3 | | RWw/RWr offset | Store the RWw/RWr start number. (In increments of 4 points) | 0 to $1FFC_H$ | |
| (S2)+4 | | RWw/RWr size | Store the number of RWw/RWr points. (In increments of 4 points) | 0 to 1024 | |
| (S2)+5 to (S2)+599 | • • • • • | | | | |
| (S2)+600 | For the 121st station | Slave station setting information | Same as (S2)+0 to (S2)+4 | | |
| (S2)+601 | | RX/RY offset | | | |
| (S2)+602 | | RX/RY size | | | |
| (S2)+603 | | RWr/RWw offset | | | |
| (S2)+604 | | RWr/RWw size | | | |

**Point**

Use (S1)+2 to specify the number of stations set by the total number of slave stations.

### (c) Reserved station specification data (master station (needs to be set) and submaster station only)

When Reserved station specification data (b1) in Setting flag ((S1)+1) is set to valid, store the slave station number to be reserved.

| Device | Item | Setting data | Set by |
|---|---|---|---|
| (S3)+0 to (S3)+7 | Reserved station specification*1 | Specify the reserved stations.<br>0: Not specified (default)<br>1: Specified<br><br>b15 b14 b13 b12 b11 b10 b9 b8 b7 b6 b5 b4 b3 b2 b1 b0<br>(S3)+0: 16 15 14 13 12 11 10 9 8 7 6 5 4 3 2 1<br>(S3)+1: 32 31 30 29 28 27 26 25 24 23 22 21 20 19 18 17<br>(S3)+2: 48 47 46 45 44 43 42 41 40 39 38 37 36 35 34 33<br>(S3)+3: 64 63 62 61 60 59 58 57 56 55 54 53 52 51 50 49<br>(S3)+4: 80 79 78 77 76 75 74 73 72 71 70 69 68 67 66 65<br>(S3)+5: 96 95 94 93 92 91 90 89 88 87 86 85 84 83 82 81<br>(S3)+6: 112 111 110 109 108 107 106 105 104 103 102 101 100 99 98 97<br>(S3)+7: — — — — — — — — 120 119 118 117 116 115 114 113<br>Each number in the table represents station No.<br><br>Do not set a submaster station number as a reserved station number. Doing so will cause an error. | User |

*1 When a station is set as both error invalid station and reserved station, the reserved station setting takes priority.

### (d) Error invalid station setting data (master station (needs to be set) and submaster station only)

When Error invalid station setting data (b2) in Setting flag ((S1)+1) is set to valid, store the slave station number for which error invalid station setting is to be configured.

| Device | Item | Setting data | Set by |
|---|---|---|---|
| (S4)+0 to (S4)+7 | Error invalid station setting*1 | Specify error invalid stations.<br>0: Not specified (default)<br>1: Specified<br><br>b15 b14 b13 b12 b11 b10 b9 b8 b7 b6 b5 b4 b3 b2 b1 b0<br>(S4)+0: 16 15 14 13 12 11 10 9 8 7 6 5 4 3 2 1<br>(S4)+1: 32 31 30 29 28 27 26 25 24 23 22 21 20 19 18 17<br>(S4)+2: 48 47 46 45 44 43 42 41 40 39 38 37 36 35 34 33<br>(S4)+3: 64 63 62 61 60 59 58 57 56 55 54 53 52 51 50 49<br>(S4)+4: 80 79 78 77 76 75 74 73 72 71 70 69 68 67 66 65<br>(S4)+5: 96 95 94 93 92 91 90 89 88 87 86 85 84 83 82 81<br>(S4)+6: 112 111 110 109 108 107 106 105 104 103 102 101 100 99 98 97<br>(S4)+7: — — — — — — — — 120 119 118 117 116 115 114 113<br>Each number in the table represents station No.<br><br>Do not set a submaster station number as an error invalid station number. Doing so will cause an error. | User |

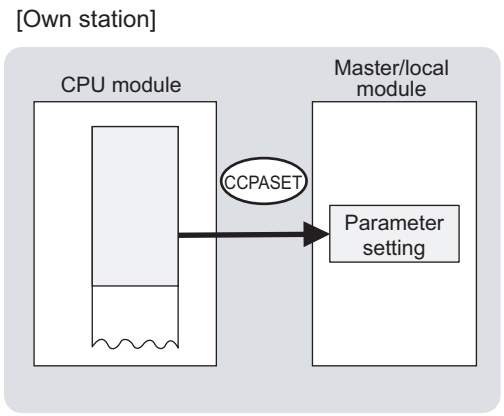
*1 When a station is set as both error invalid station and reserved station, the reserved station setting takes priority.

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## (2) Function

### (a) CCPASET instruction overview

Set parameters for the master/local module.




### (b) Target stations that can be specified

Only the master and local modules of the own station can be accessed.

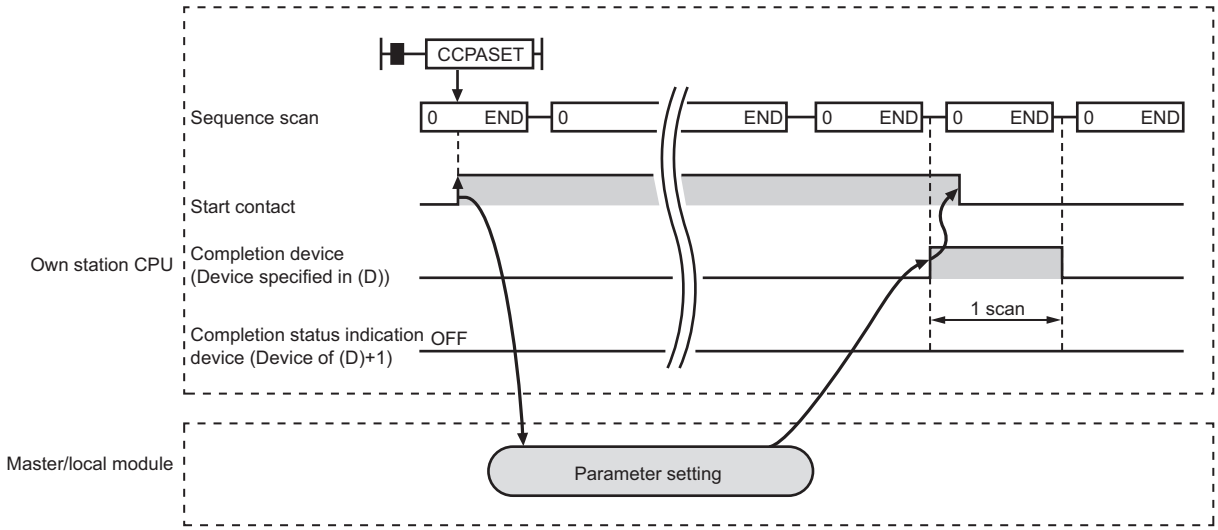
### (c) Checking the execution status of the CCPASET instruction

The execution status (completion or error) of the CCPASET instruction can be checked using the following devices specified in the setting data.

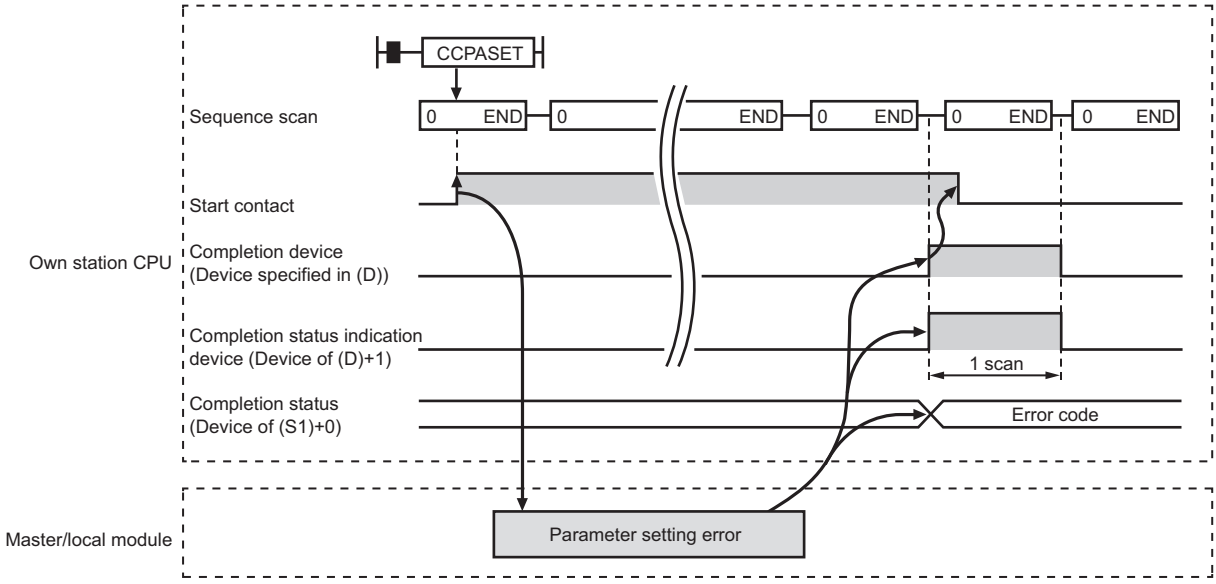
- Completion device (D)
  This device turns on in the END process of the scan where the CCPASET instruction is completed and turns off in the next END process.
- Completion status indication device ((D)+1)
  If the CCPASET instruction fails, this device turns on in the END process of the scan where the CCPASET instruction is completed and turns off in the next END process.

### (d) CCPASET instruction execution timing

• When completed




• When failed




## (3) Checking error details

If the dedicated instruction fails, error details can be checked by either of the following methods:

### (a) In GX Works2

Error details can be checked using the CC-Link IE Field Network diagnostics. (☞ Page 206, CHAPTER 9)

### (b) Using devices

Completion status indication device ((D)+1) turns on, and an error code is stored in Completion status ((S1)+0) of the control data.

According to the error code, check the error details and take a corrective action.

(☞ Page 439, Section 12.5)

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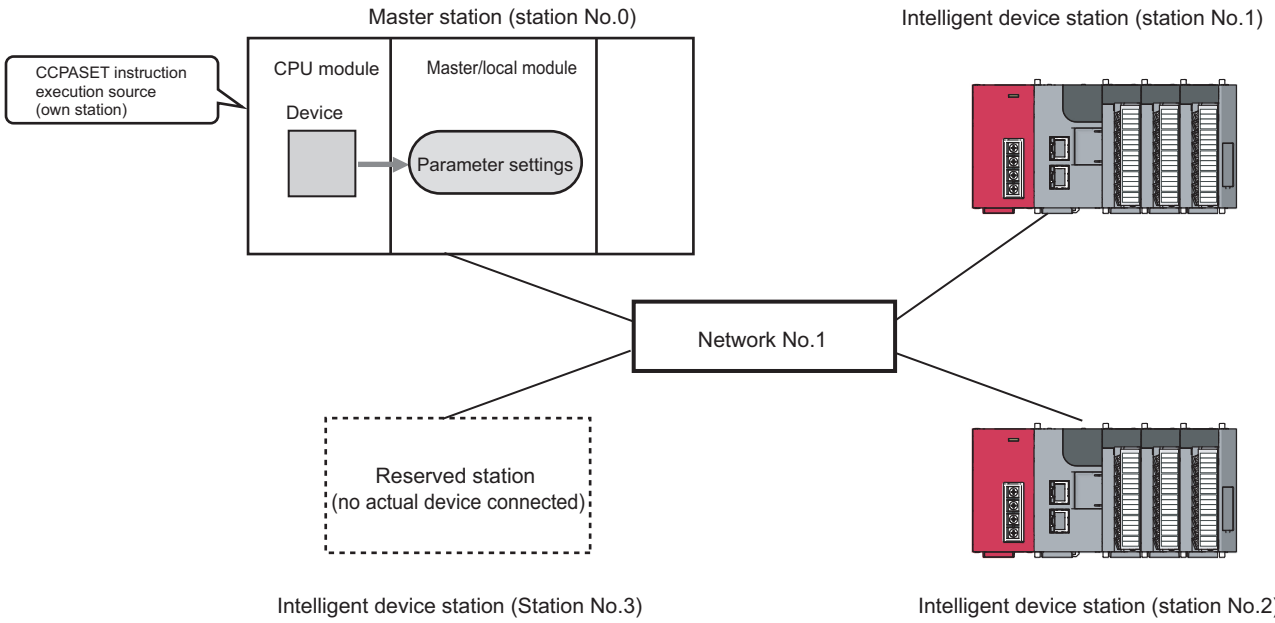


## (4) Program example (parameter setting in the master station)

A program example is described below. The program sets parameters to the master station of network number 1 when M171 turns on.

### (a) System configuration

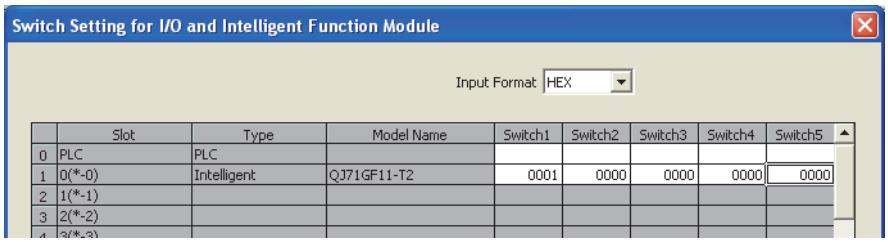
The following figure shows a system configuration to set CC-Link IE Field Network parameters for the master station.




### (b) Intelligent function module switch setting

Before executing the CCPASET instruction, set the intelligent function module switches as follows.

Project window ⇨ [Parameter] ⇨ [PLC Parameter] ⇨ "I/O Assignment" tab ⇨ Press the Switch Setting button.




### (c) Devices used in the program

| Device | Description | Device | Description |
|---|---|---|---|
| M171 | Start contact | D2010 to D2024 | Network configuration setting data |
| M172 | Completion device | D2610 to D2617 | Reserved station specification data |
| M173 | Completion status indication device | D2620 to D2627 | Error invalid station setting data |
| D2000 to D2003 | Control data | — | |

### (d) CCPASET instruction setting

• Control data

| Device | | Item | Setting value |
|---|---|---|---|
| (S1)+0 | D2000 | Completion status | (The system sets this item.) |
| (S1)+1 | D2001 | Setting flag | $0107_H$<br>Network configuration settings: Valid<br>• Reserved station specification: Valid<br>• Error invalid station setting: Valid<br>• Submaster function: Invalid<br>• IP packet transfer function: Disable<br>• Data link faulty station setting: Hold<br>• Output setting during CPU STOP: Hold<br>• Link scan mode setting: Asynchronous<br>• Loopback function setting: Not used |
| (S1)+2 | D2002 | Total number of slave stations | 3 |
| (S1)+3 | D2003 | Constant link scan time | 0: (No setting) |
| (S1)+4 and (S1)+5 | D2004 and D2005 | IP address (network address) | 0 (No setting) |

• Network configuration setting data

| Device | | Item | | Setting value |
|---|---|---|---|---|
| (S2)+0 | D2010 | 1st station | Slave station setting information | $2101_H$<br>• Station type: Intelligent device station<br>• Station No.: 1 |
| (S2)+1 | D2011 | | RX/RY offset | $0_H$ |
| (S2)+2 | D2012 | | RX/RY size | 32 points |
| (S2)+3 | D2013 | | RWr/RWw offset | $0_H$ |
| (S2)+4 | D2014 | | RWr/RWw size | 16 points |
| (S2)+5 | D2015 | 2nd station | Slave station setting information | $2102_H$<br>• Station type: Intelligent device station<br>• Station No.: 2 |
| (S2)+6 | D2016 | | RX/RY offset | $20_H$ |
| (S2)+7 | D2017 | | RX/RY size | 32 points |
| (S2)+8 | D2018 | | RWr/RWw offset | $10_H$ |
| (S2)+9 | D2019 | | RWr/RWw size | 16 points |
| (S2)+10 | D2020 | 3rd station | Slave station setting information | $2103_H$<br>• Station type: Intelligent device station<br>• Station No.: 3 |
| (S2)+11 | D2021 | | RX/RY offset | $40_H$ |
| (S2)+12 | D2022 | | RX/RY size | 32 points |
| (S2)+13 | D2023 | | RWr/RWw offset | $20_H$ |
| (S2)+14 | D2024 | | RWr/RWw size | 16 points |

• Reserved station specification data

| Device | | Item | Setting value |
|---|---|---|---|
| (S3)+0 | D2610 | Reserved station specification | $4_H$ (The station number 3 is set as a reserved station.) |
| (S3)+1 to (S3)+7 | D2611 to D2617 | | No setting |

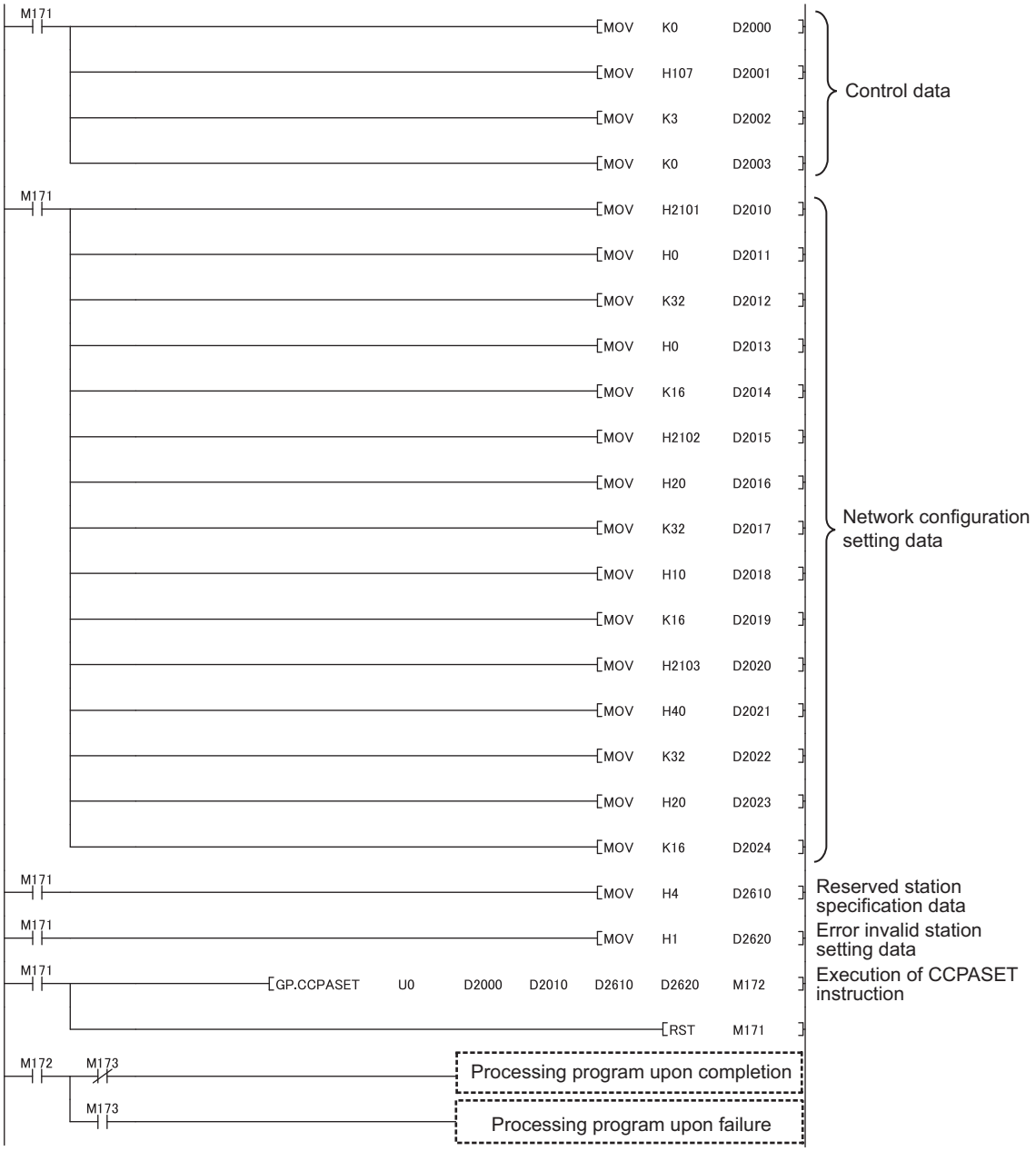
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• Temporary error invalid station setting data

| Device | | Item | Setting value |
|---|---|---|---|
| (S4)+0 | D2620 | Temporary error invalid station setting | $1_H$ (The station number 1 is set as an error invalid station.) |
| (S4)+1 to (S4)+7 | D2621 to D2627 | | No setting |

### (e) Program example

The following program is written to the CPU module of station No.0.



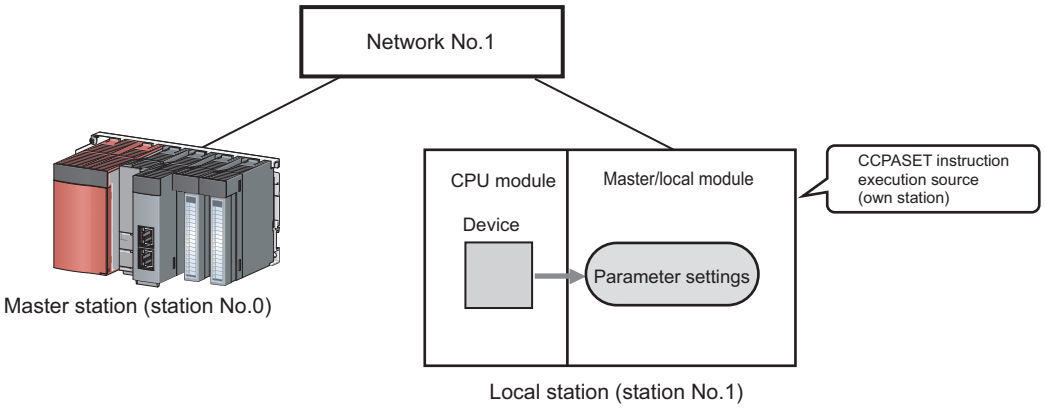
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## (5) Program example (parameter setting in the local station)

A program example is described below. The program sets parameters to the local station of network number 1 when M181 turns on.

### (a) System configuration

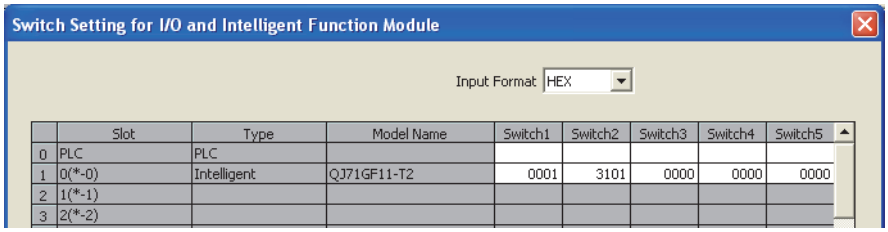
The following figure shows a system configuration to set CC-Link IE Field Network parameters for the local station.




### (b) Intelligent function module switch setting

Before executing the CCPASET instruction, set the intelligent function module switches as follows.

Project window ⇨ [Parameter] ⇨ [PLC Parameter] ⇨ "I/O Assignment" tab ⇨ Switch Setting button.




### (c) Devices used in the program

| Device | Description | Device | Description |
|---|---|---|---|
| M181 | Start contact | D2710 | Dummy device |
| M182 | Completion device | D2720 | |
| M183 | Completion status indication device | D2730 | |
| D2700 and D2701 | Control data | - | |

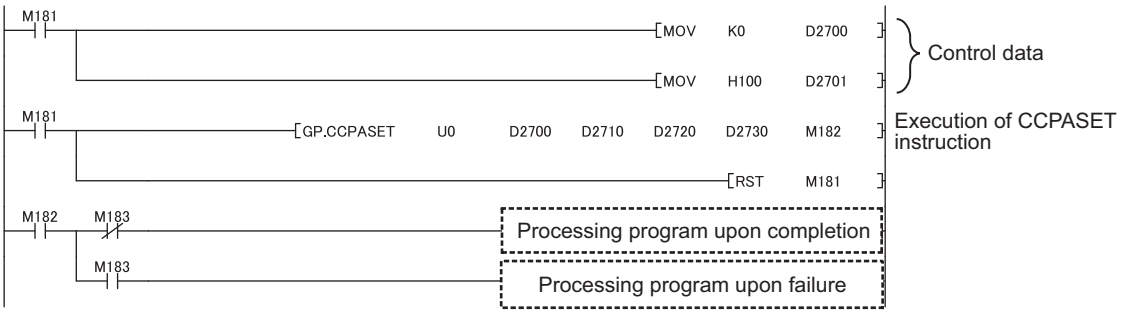
### (d) CCPASET instruction setting

- Control data

| Device | | Item | Setting value |
|---|---|---|---|
| (S1)+0 | D2700 | Completion status | (The system sets this item.) |
| (S1)+1 | D2701 | Setting flag | $0100_H$<br>• Data link faulty station setting: Hold<br>• Output setting during CPU STOP: Hold |

### (e) Program example

Write the following program to the CPU module of station No.1.



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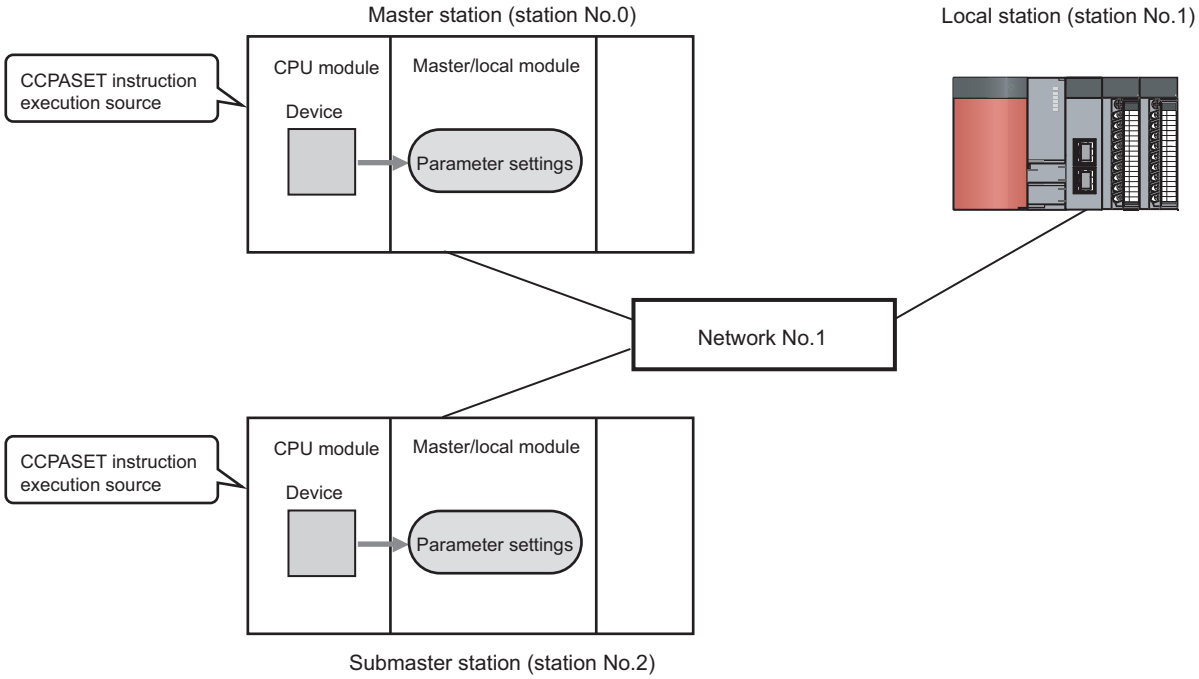


## (6) Program example (parameter setting in the master station and submaster station)

A program example is described below. The program sets parameters to the master station and submaster station of network number 1 when M191 turns on and the submaster function is used.

### (a) System configuration

The following figure shows a system configuration to set CC-Link IE Field Network parameters for the master station and submaster station.

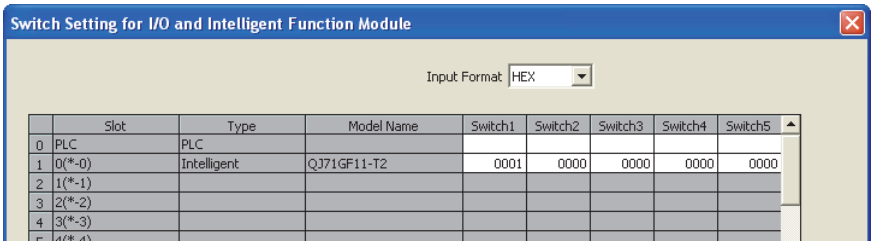



### (b) Intelligent function module switch setting

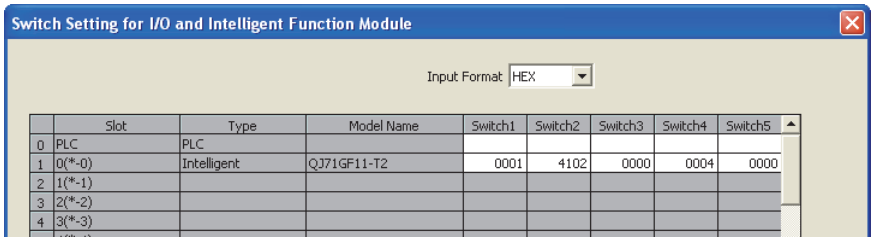
Before executing the CCPASET instruction, set the intelligent function module switches as follows.

Project window ⇨ [Parameter] ⇨ [PLC Parameter] ⇨ "I/O Assignment" tab ⇨ Switch Setting button

- For the master station




- For the submaster station



### (c) Devices used in the program

| Device | Description | Device | Description |
|---|---|---|---|
| M191 | Start contact | D2010 to D2024 | Network configuration setting data |
| M192 | Completion device | D2610 to D2617 | Reserved station specification data |
| M193 | Completion status indication device | D2620 to D2627 | Error invalid station setting data |
| D2000 to D2003 | Control data | - | |

### (d) CCPASET instruction setting

• Control data

| Device | | Item | Setting value |
|---|---|---|---|
| (S1)+0 | D2000 | Completion status | (The system sets this item.) |
| (S1)+1 | D2001 | Setting flag | $0109_H$<br>• Network configuration settings: Valid<br>• Reserved station specification: Invalid<br>• Error invalid station setting: Invalid<br>• Submaster function: Valid<br>• IP packet transfer function: Disable<br>• Data link faulty station setting: Hold<br>• Output setting during CPU STOP: Hold<br>• Link scan mode setting: Asynchronous<br>• Loopback function setting: Not used |
| (S1)+2 | D2002 | Total number of slave stations | 3 |
| (S1)+3 | D2003 | Constant link scan time | 0 (No setting) |

• Network configuration setting data

| Device | | Item | | Setting value |
|---|---|---|---|---|
| (S2)+0 | D2010 | 1st station | Slave station setting information | $F100_H$<br>• Station type: Master station<br>• Station number: 0 |
| (S2)+1 | D2011 | | RX/RY offset | $0_H$ |
| (S2)+2 | D2012 | | RX/RY size | 32 points |
| (S2)+3 | D2013 | | RWr/RWw offset | $0_H$ |
| (S2)+4 | D2014 | | RWr/RWw size | 16 points |
| (S2)+5 | D2015 | 2nd station | Slave station setting information | $3101_H$<br>• Station type: Local station<br>• Station number: 1 |
| (S2)+6 | D2016 | | RX/RY offset | $20_H$ |
| (S2)+7 | D2017 | | RX/RY size | 32 points |
| (S2)+8 | D2018 | | RWr/RWw offset | $10_H$ |
| (S2)+9 | D2019 | | RWr/RWw size | 16 points |
| (S2)+10 | D2020 | 3rd station | Slave station setting information | $4102_H$<br>• Station type: Submaster station<br>• Station number: 2 |
| (S2)+11 | D2021 | | RX/RY offset | $40_H$ |
| (S2)+12 | D2022 | | RX/RY size | 32 points |
| (S2)+13 | D2023 | | RWr/RWw offset | $20_H$ |
| (S2)+14 | D2024 | | RWr/RWw size | 16 points |

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• Reserved station specification data

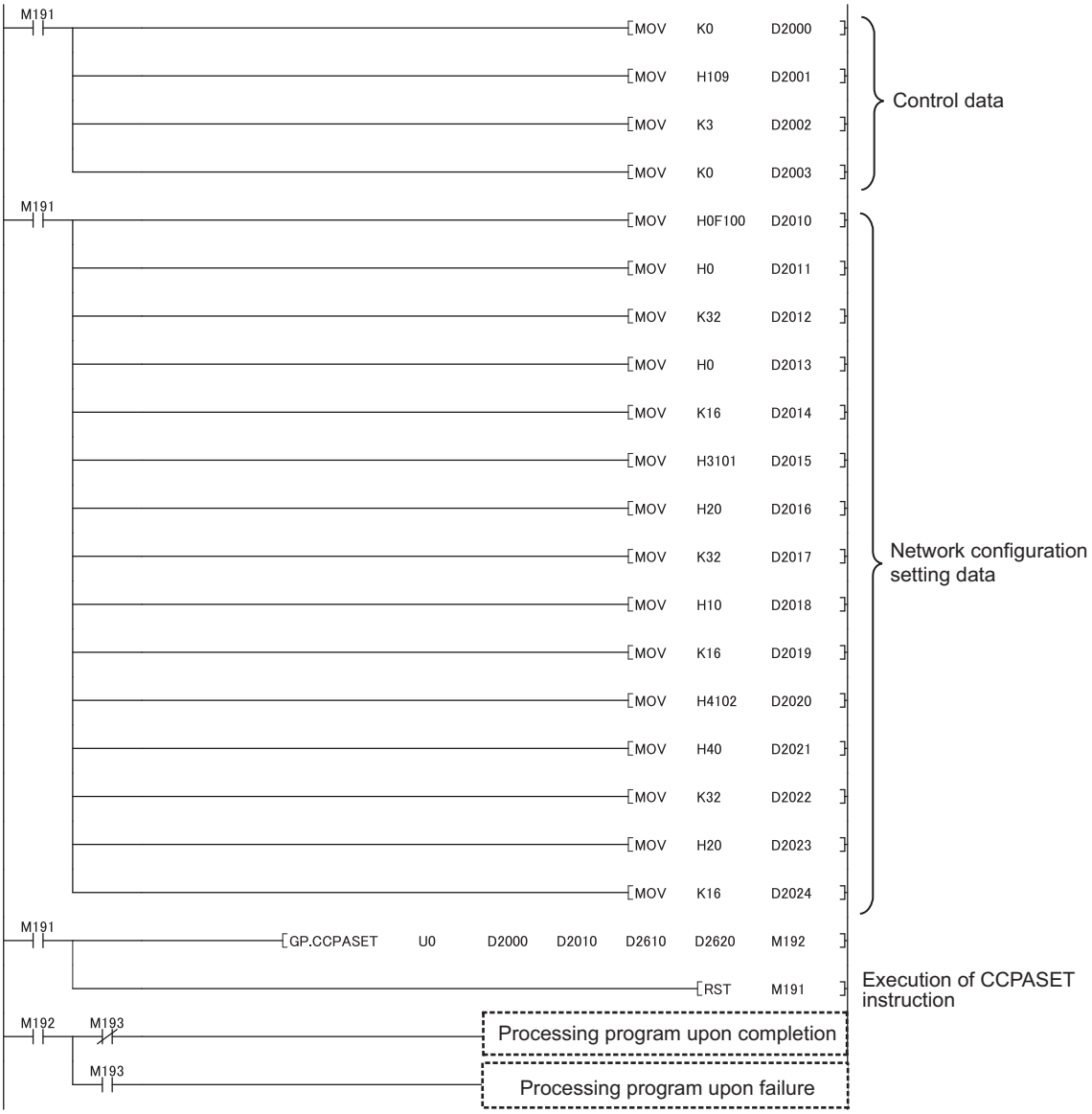
| Device | | Item | Setting value |
|---|---|---|---|
| (S3)+0 to (S3)+7 | D2610 to D2617 | Reserved station specification | No setting |

• Temporary error invalid station setting data

| Device | | Item | Setting value |
|---|---|---|---|
| (S4)+0 to (S4)+7 | D2620 to D2627 | Temporary error invalid station setting | No setting |

### (e) Program example

The following program example is written to both the master station and submaster station.



# 10.18 Z/ZP.UINI (Own Station (Local Station) Number Setting)

This instruction sets a station number for a local station (own station).
When there are local stations with the same program and network parameters (excluding the station numbers), setting the station numbers using a program allows project data items other than the station number to be the same, leading to reduced development work hours.
Set network parameters other than a station number parameter using GX Works2 or the CCPASET instruction.

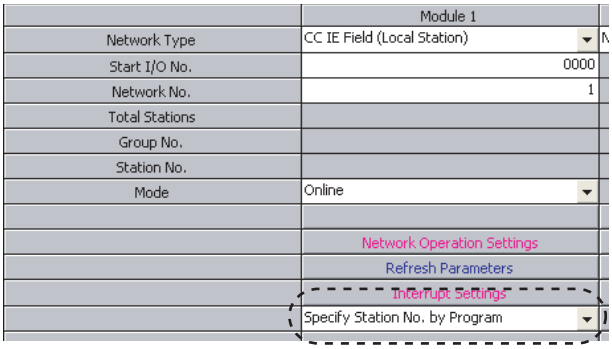
## 10.18.1 Procedure for setting a station number using the UINI instruction

### (1) Procedure

#### (a) Setting a station number using the UINI instruction and other items using GX Works2

1. **Set parameters other than a station number parameter using network parameters. (Page 84, Section 7.2)**
2. **Set "Specify Station No. by Program" in the network parameter window.**

   Project window ⇨ [Parameter] ⇨ [Network Parameter] ⇨ [Ethernet/CC IE/MELSECNET]




3. **Create a UINI instruction program. (Page 382, Section 10.18.2)**
4. **Write the UINI instruction program to the CPU module through GX Works2.**

   [Online] ⇨ [Write to PLC]
5. **Execute the UINI instruction in the CPU module on the local station (own station).**

#### (b) Setting a station number using the UINI instruction and other items using the CCPASET instruction

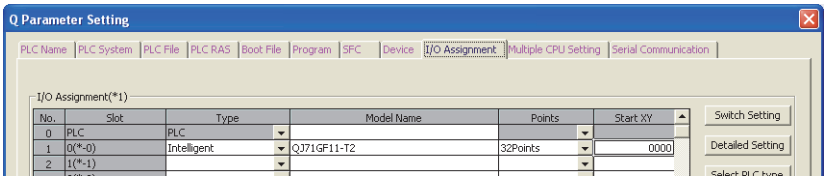
1. **Open the "I/O Assignment" tab of GX Works2.**

   Project window ⇨ [Parameter] ⇨ [PLC Parameter] ⇨ "I/O Assignment" tab

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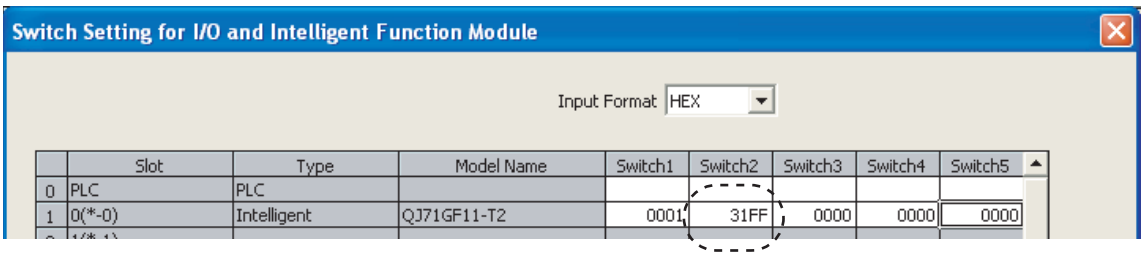


2. **Add the master/local module under "I/O Assignment".**




3. **Click the** Switch Setting **button.**

4. **Enter the network number for "Switch 1", $31FF_H$ for "Switch 2", and $0000_H$ for "Switch 3" to "Switch 5".**




5. **Create a CCPASET instruction program. (** **Page 364, Section 10.17.2)**

6. **Create a UINI instruction program. (** **Page 382, Section 10.18.2)**

7. **Write the CCPASET instruction program and UINI instruction program to the CPU module through GX Works2.**

   [Online] ⇨ [Write to PLC]

8. **Execute the CCPASET instruction.**

9. **Execute the UINI instruction in the CPU module on the local station (own station).**

**Point**

The UINI instruction can be executed both before and after execution of the CCPASET instruction.

## (2) Clearing the station number

The station number set using the UINI instruction can be cleared by resetting the CPU module or powering off and on the system.

## (3) Precautions

### (a) CPU module, master/local module, GX Works2

Before setting a station number using the UINI instruction, check the versions of the CPU module, master/local module, and GX Works2. ( Page 546, Appendix 8)

### (b) Station where the UINI instruction can be executed

The UINI instruction can be executed on local stations (cannot be executed on other stations) with no station number setting.

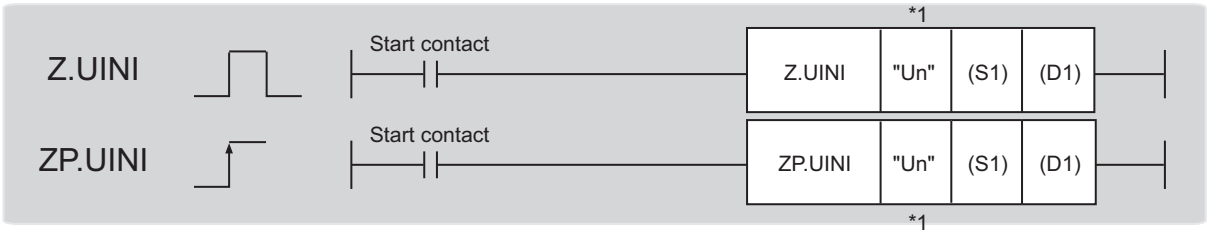
### (c) When the station number set using the UINI instruction has already been assigned

If the station number set for a local station using the UINI instruction has already been assigned for another station during data link, the instruction execution fails. Set a unique station number.

Note that such error cannot be detected before data link start (e.g. absence of the master station).

# 10.18.2 Instruction details

The Z/ZP.UINI instructions set a station number for a local station.




*1 The double quotation marks around the first argument can be omitted.

| Setting data*2 | Available devices | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | Internal device (System, user) | | File register R, ZR | Link direct device J□\□ | | Intelligent function module device U□\G□ | Index register Zn | Constant | | Others |
| | Bit | Word | | Bit | Word | | | K, H | $ | |
| (S1) | — | ○ | | — | | | | | | |
| (D1) | ○ | | | — | | | | | | |

*2 Local devices and file registers set for each program cannot be used.

## (1) Setting data

| Setting data | Description | Set by | Data type |
|---|---|---|---|
| "Un"/Un | Start I/O number of the local station (own station)<br>(00 to $FE_H$: Upper two digits of the I/O number expressed in three digits) | User | 16-bit binary |
| (S1) | Start device of the own station where control data is stored | | Device name |
| (D1) | The device of the own station that turns on for one scan upon completion of the instruction.<br>If the instruction fails, (D1)+1 also turns on. | System | Bit |

### (a) Control data

| Device | Item | Setting data | Setting range | Set by |
|---|---|---|---|---|
| (S1)+0 | — | Unused | — | System |
| (S1)+1 | Completion status | The status of when the instruction is ended is stored.<br>0: Normal<br>Values other than 0: Error (☞ Page 439, Section 12.5) | — | System |
| (S1)+2 | Target station setting | Specify whether to set a station number for the own station.<br>0: Do not set a station number<br>1: Station number set | 0 and 1 | User |
| (S1)+3 | Own station number | Set a station number. | 1 to 120 | User |
| (S1)+4 to (S1)+9 | — | Unused | — | System |

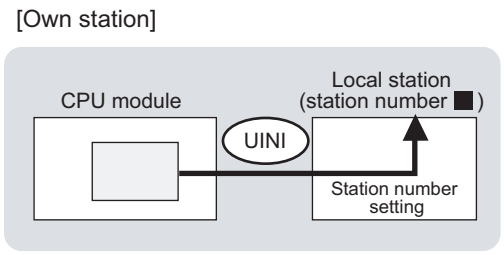
AbN automation



## (2) Function

### (a) UINI instruction overview

Set a station number for a local station.




### (b) Target stations that can be specified

Only the local station (own station) can be accessed.

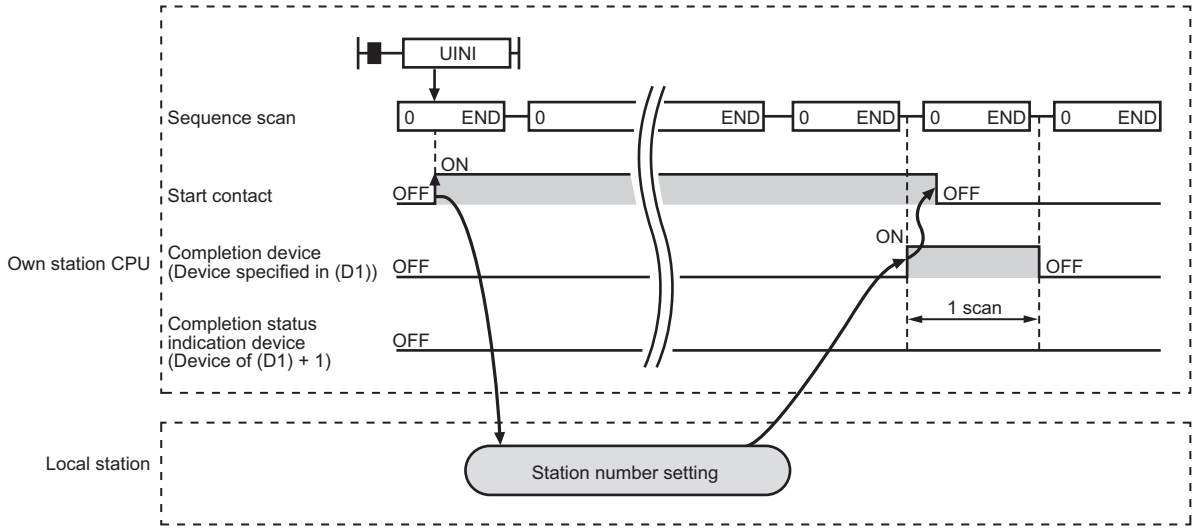
### (c) Checking the execution status of the UINI instruction

The execution status (completion or error) of the UINI instruction can be checked using the following devices specified in the setting data.

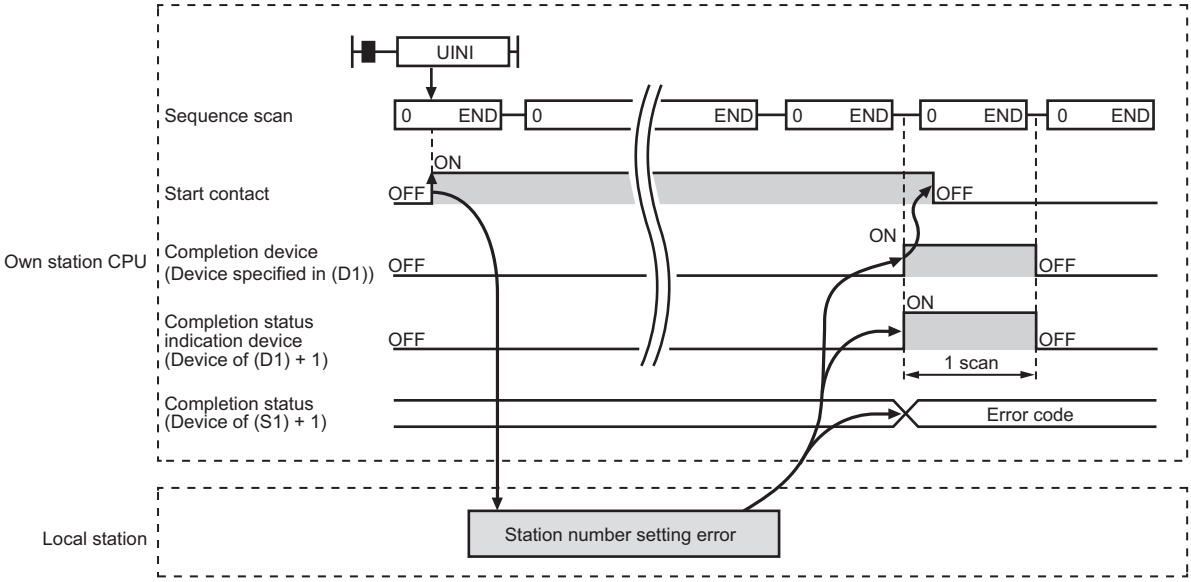
- Completion device (D1)
  This device turns on in the END process of the scan where the UINI instruction is completed and turns off in the next END process.
- Completion status indication device ((D1)+1)
  If the UINI instruction fails, this device turns on in the END process of the scan where the UINI instruction is completed and turns off in the next END process.

### (d) UINI instruction execution timing

- When completed



• When failed




## (3) Checking error details

If the dedicated instruction fails, error details can be checked by either of the following methods:

### (a) In GX Works2

Error details can be checked using the CC-Link IE Field Network diagnostics. (☞ Page 206, CHAPTER 9)

### (b) Using devices

Completion status indication device ((D1)+1) turns on, and an error code is stored in Completion status ((S1)+1) of the control data.

According to the error code, check the error details and take a corrective action.

(☞ Page 439, Section 12.5)

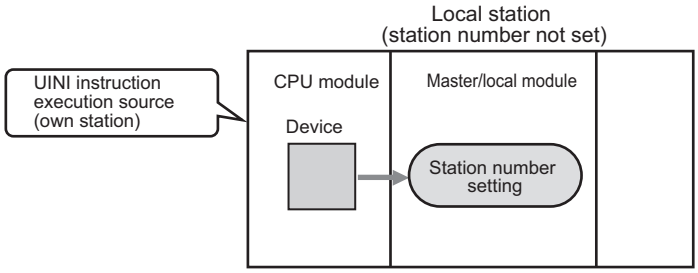
AbN automation

## (4) Program example (setting a station number for a local station)

A program example is described below. The program is to set the station number stored in ZR0 of the CPU module for a local station when the switch on the CPU module is set to RUN.



### (a) System configuration




### (b) Settings required before executing the UINI instruction

In the procedure described in Page 380, Section 10.18.1 (1), configure settings through GX Works2 or the intelligent function module switch setting.

### (c) Devices used in the program

- Link special relay (SB)

| Device | Description | Device | Description |
|---|---|---|---|
| SB0046 | Station number setting status of the own station | — | |

- Devices used by the user

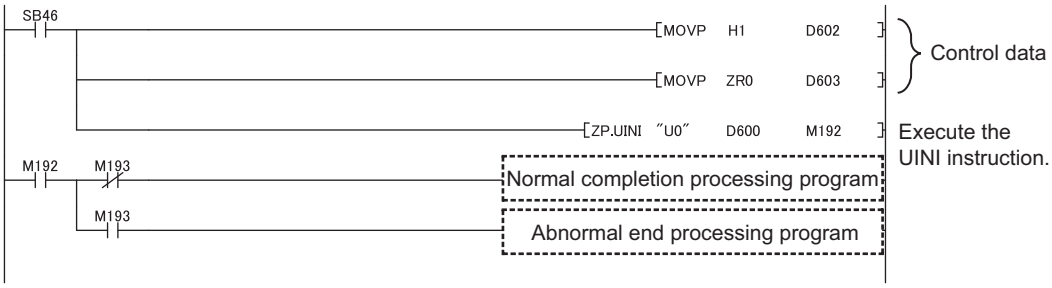
| Device | Description | Device | Description |
|---|---|---|---|
| M192 | Completion device | D600 to D609 | Control data |
| M193 | Completion status indication device | ZR0 | Station number storage device |

### (d) UINI instruction setting

The following table lists values set in UINI instruction devices.

| Device | | Item | Set value |
|---|---|---|---|
| (S1)+0 | D600 | Unused | — |
| (S1)+1 | D601 | Completion status | —<br>(The system sets this item.) |
| (S1)+2 | D602 | Target station setting | $1_H$ |
| (S1)+3 | D603 | Own station number | ZR0 value |
| (S1)+4 to (S1)+9 | D604 to D609 | Unused | — |

## (5) Program example



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# CHAPTER 11 PROGRAMMING

This chapter describes programming and startup examples of CC-Link IE Field Network.

**Remark**

This chapter describes communications between the master station and a head module or between the master station and a local station.
For communications other than those above, refer to the manual for the slave station used.



## 11.1 Precautions for Programming

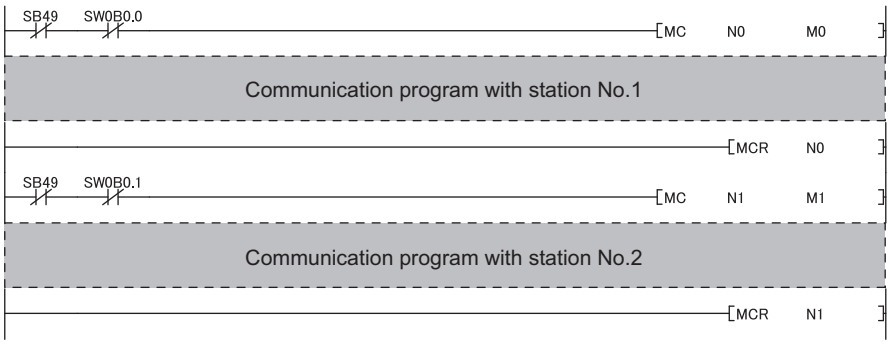
This section describes precautions to create CC-Link IE Field Network programs.

### (1) Cyclic transmission program

For a cyclic transmission program, interlock with the following link special relay (SB) and link special register (SW). (☞ Page 473, Appendix 3, Page 493, Appendix 4)

- Data link status (own station) (SB0049)
- Data link status (each station) (SW00B0 to SW00B7)

**Ex.** Interlock example

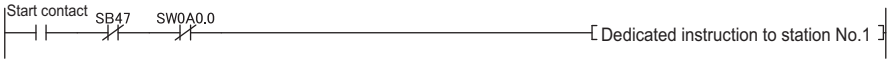



### (2) Transient transmission program

For a transient transmission program, interlock with the following link special relay (SB) and link special register (SW). (☞ Page 473, Appendix 3, Page 493, Appendix 4)

- Baton pass status (own station) (SB0047)
- Baton pass status (each station) (SW00A0 to SW00A7)

**Ex.** Interlock example



# 11.2 Example of Communications Between the Master Station and a Head Module

This section describes an example of communications where D/A conversion in CH1 and CH2 of a D/A converter module (L60DA4) is enabled and analog values are output from the channels.
If an error occurs while a digital value is written, the output module (QY10) mounted to the master station will display an error code in BCD format.
Set a scaling value only for CH1 and configure the warning output setting only for CH2.

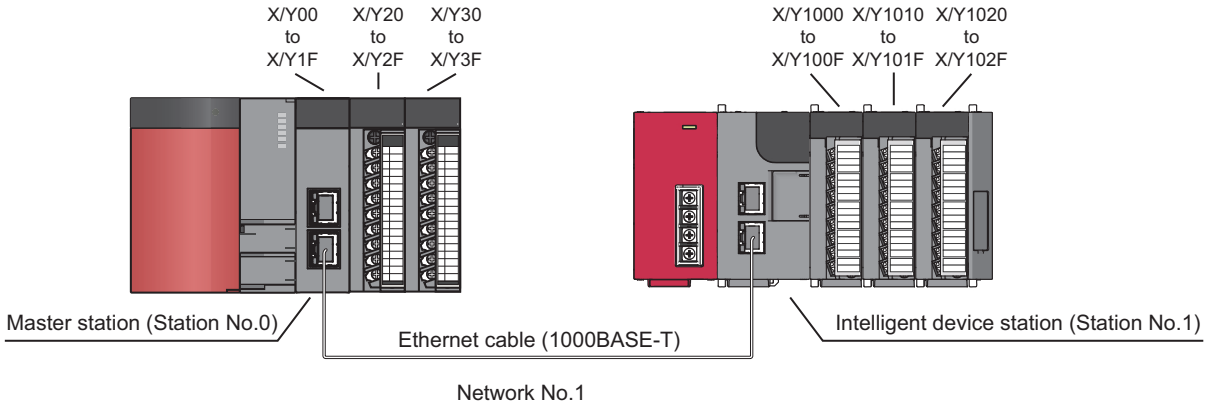
## 11.2.1 System configuration example

The following system configuration is used to explain communications between the master station and a head module.

### (1) System configuration

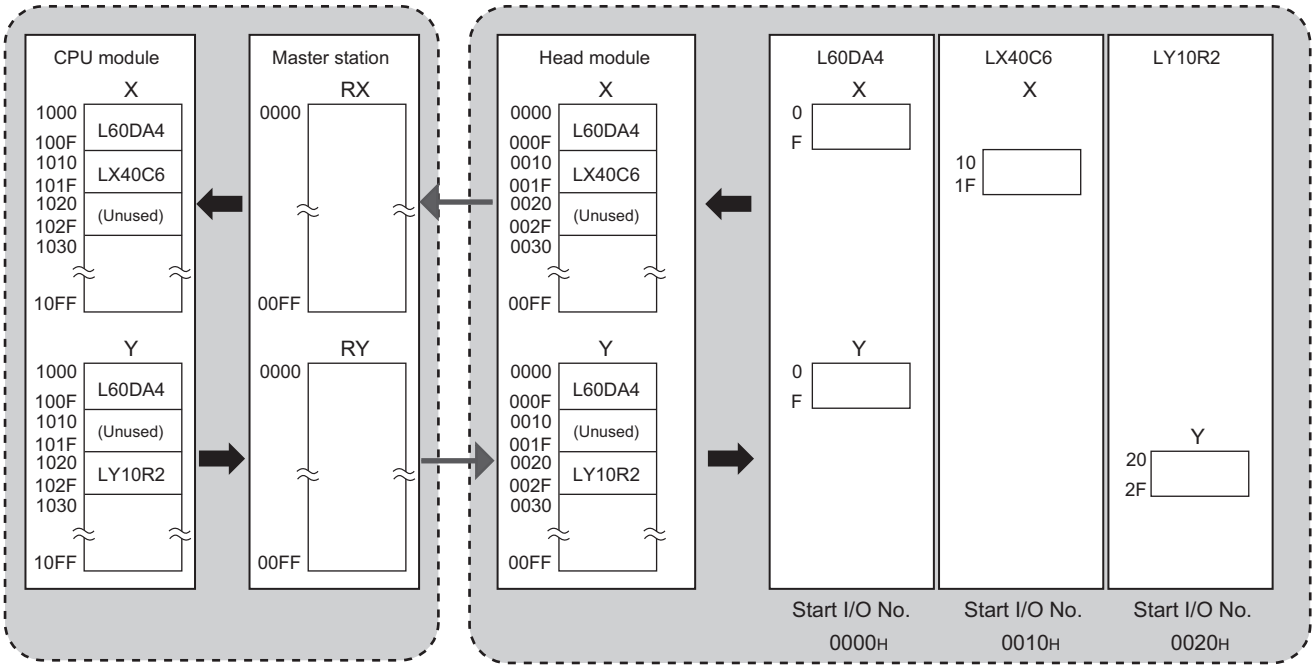
Power supply module (Q62P)
CPU module (Q10UDHCPU)
Master/local module (QJ71GF11-T2)
Input module (QX10)
Output module (QY10)

Power supply module (L61P)
Head module (LJ72GF15-T2)
D/A converter module (L60DA4)
Input module (LX40C6)
Output module (LY10R2)
END cover (L6EC)

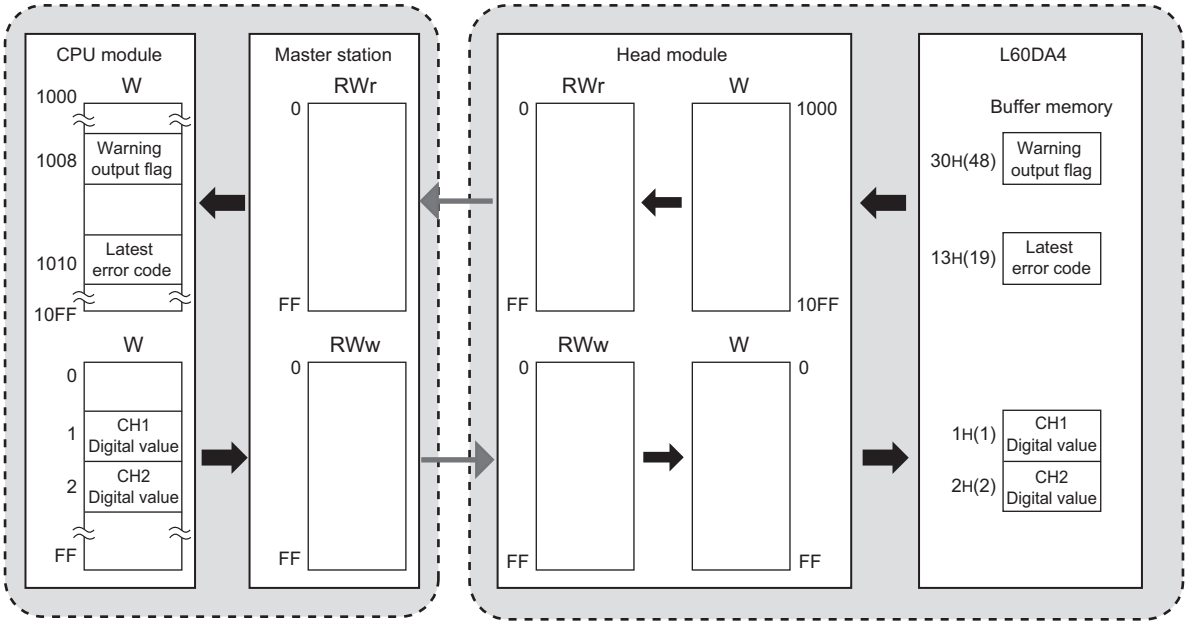


## (2) Link device assignment

### (a) RX and RY assignment

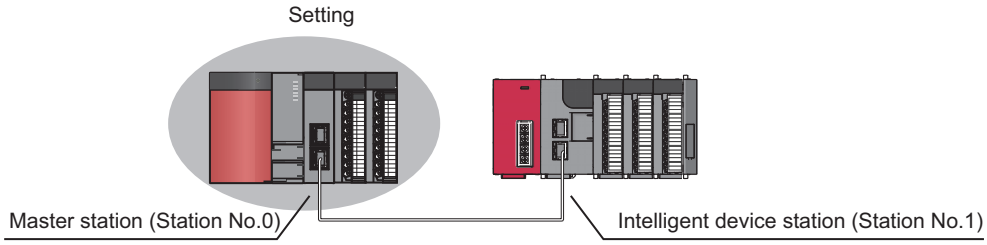



### (b) RWr and RWw assignment



# 11.2.2 Setting in the master station

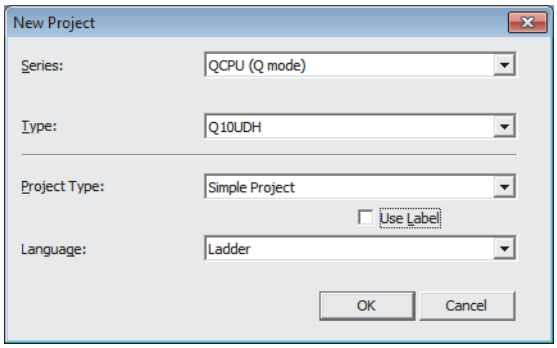
Connect GX Works2 to the master station and set parameters.




**1. Create a project.**

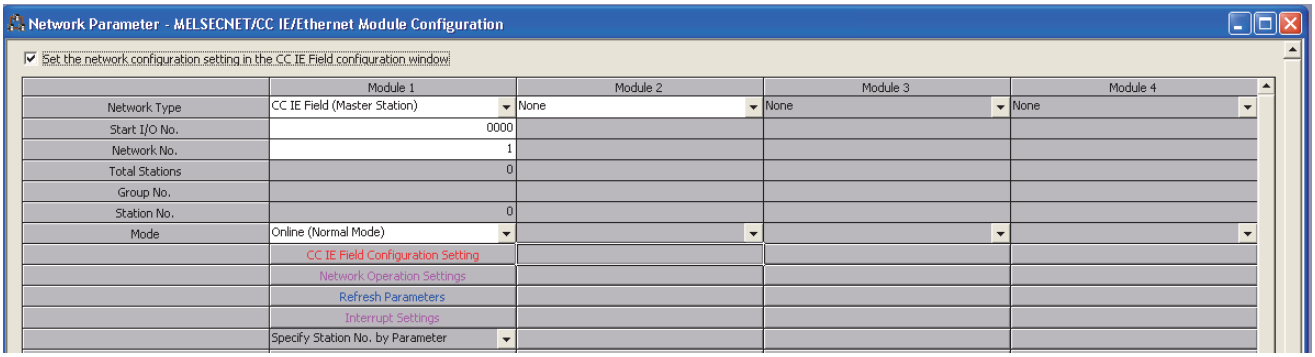
Select "QCPU (Q mode)" in "Series" and "Q10UDH" in "Type".

[Project] ⇨ [New]




**2. Open the network parameter window and set parameters as follows.**

Project window ⇨ [Parameter] ⇨ [Network Parameter] ⇨ [Ethernet/CC IE/MELSECNET]



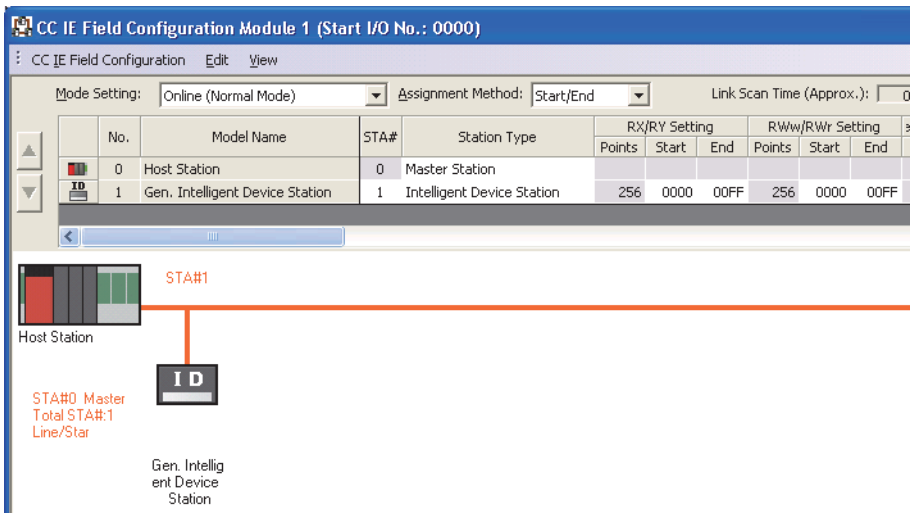
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**3.** **Open the network configuration setting window and set parameters as follows.**

Project window ⇨ [Parameter] ⇨ [Network Parameter] ⇨ [Ethernet/CC IE/MELSECNET]

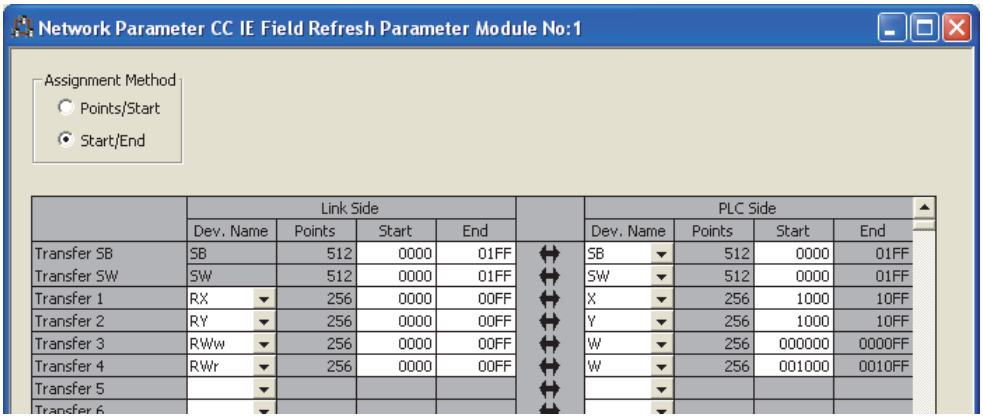
⇨ CC IE Field Configuration Setting button




**4.** **Open the refresh parameter window and set parameters as follows.**

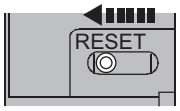
Project window ⇨ [Parameter] ⇨ [Network Parameter] ⇨ [Ethernet/CC IE/MELSECNET]

⇨ Refresh Parameters button




**5.** **Write the parameters to the CPU module on the master station. Then reset the CPU module or turn off and on the power.**

[Online] ⇨ [Write to PLC]



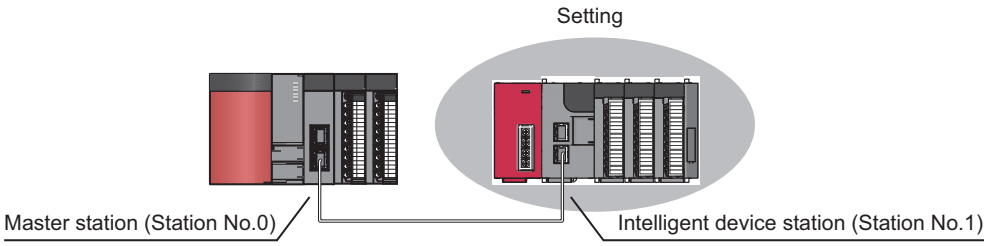

or Power OFF→ON

**Point**

In this example, default values were used for parameters that are not shown above. For parameter setting, refer to the following. (Page 81, CHAPTER 7)

# 11.2.3 Setting in the head module

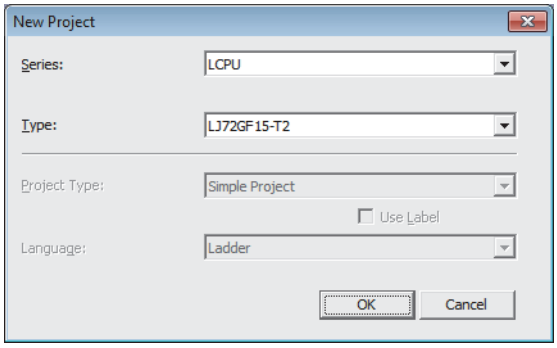
Connect GX Works2 to the head module and set parameters.




**1. Create a project.**

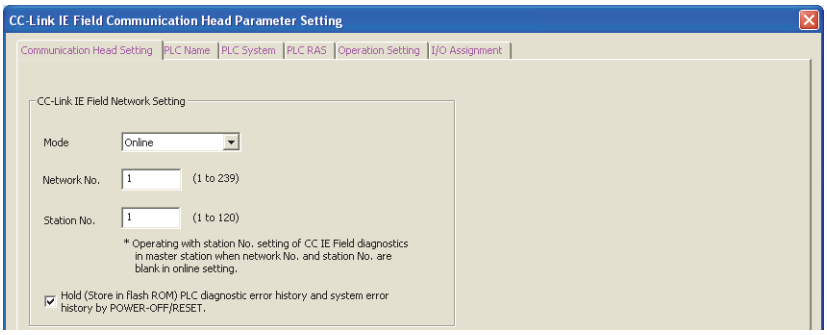
Select "LCPU" in "Series" and "LJ72GF15-T2" in "Type".

[Project] ⇨ [New]



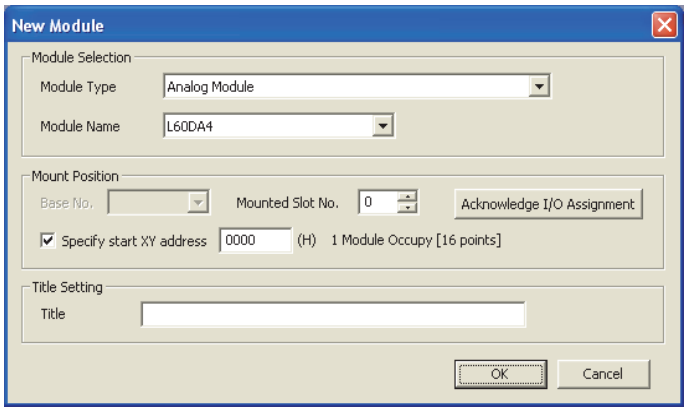

**2. Open the PLC parameter window and set parameters as follows.**

Project window ⇨ [Parameter] ⇨ [PLC Parameter] ⇨ "Communication Head Setting"



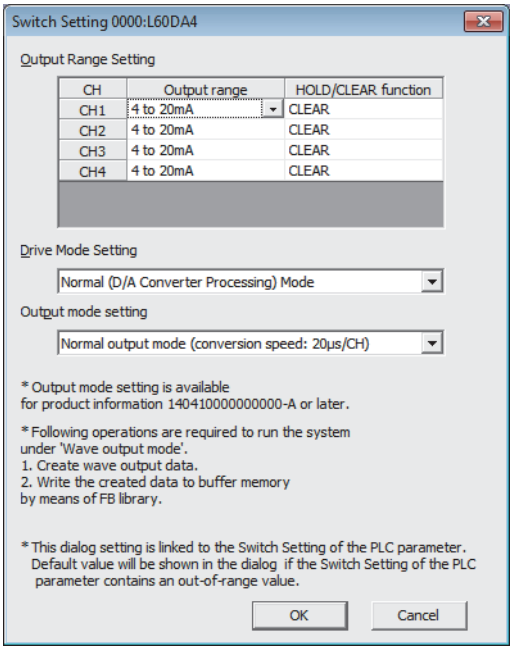
**3.** **Add the D/A converter module (L60DA4) to the project.**

Project window ⇨ [Intelligent Function Module] ⇨ right-click ⇨ [New Module]



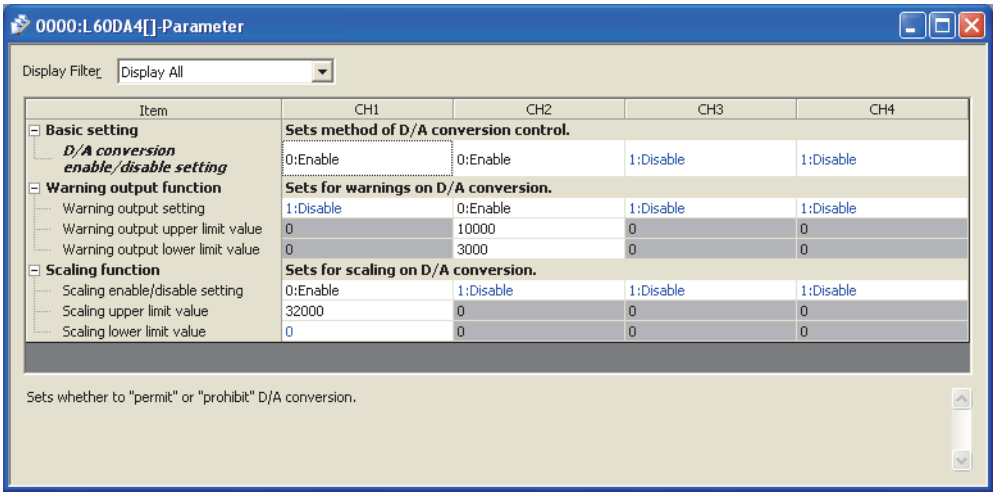

**4.** **Open the switch setting window for the D/A converter module and set parameters as follows.**

Project window ⇨ [Intelligent Function Module] ⇨ [L60DA4] ⇨ [Switch Setting]



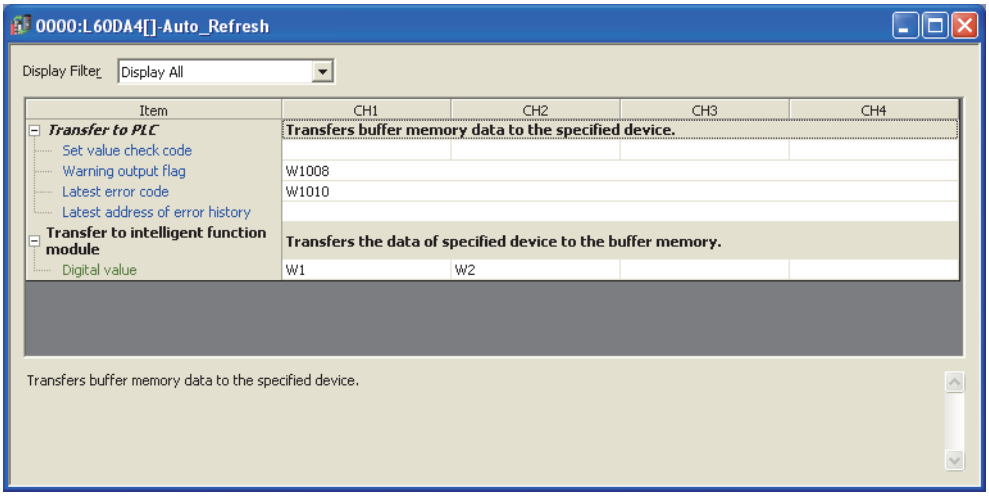
**5.** **Open the initial setting window for the D/A converter module and set parameters as follows.**

Project window ⇨ [Intelligent Function Module] ⇨ [L60DA4] ⇨ [Parameter]



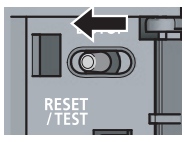

**6.** **Open the auto refresh window for the D/A converter module and set parameters as follows.**

Project window ⇨ [Intelligent Function Module] ⇨ [L60DA4] ⇨ [Auto Refresh]




**7.** **Write the parameters to the head module. Then reset the head module or turn off and on the power.**

[Online] ⇨ [Write to PLC]




or Power OFF→ON

## Point

In this setting example, default settings are used for the parameters other than those described. For the parameter setting, refer to the following.

MELSEC-L CC-Link IE Field Network Head Module User's Manual

User's manual for the intelligent function module

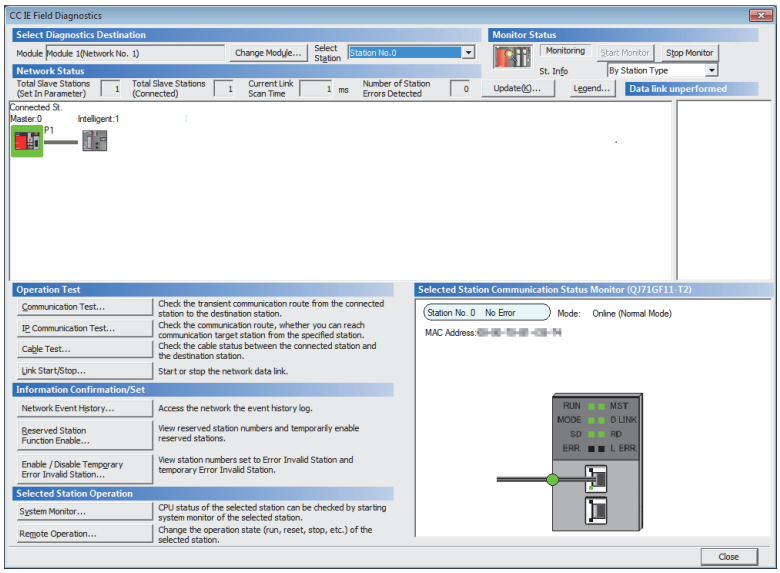
# 11.2.4 Checking the network status

Once parameters are set for the master station and head module, the CC-Link IE Field Network diagnostics of GX Works2 can be used to check whether data link is normally operating.

1. **Connect GX Works2 to the master station.**
2. **Start the CC-Link IE Field Network diagnostics from the menu.**

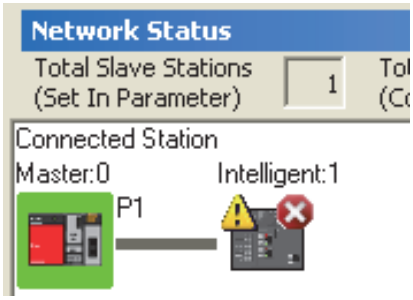
   [Diagnostics] ⇨ [CC-Link IE Field Diagnostics]

   If the following display appears, data link is normal.




If a mark, such as ⊗ , ⚠ , and ✸, is displayed in "Network Status", an error has occurred. Use the CC-Link IE Field Network diagnostics to identify the cause of the error and take actions. (☞ Page 208, Section 9.2)

Ex. If an error has occurred in a head module, the window appears as follows.



# 11.2.5 Program example

The following is an example of the program to be written to a CPU module on the master station.

## (1) Program example of L60DA4

### (a) I/O signals of D/A converter module (L60DA4)

| Device | Description | Device | Description |
|---|---|---|---|
| X1000 | Module READY | Y1001 | CH1 Output enable/disable flag |
| X1007 | External power supply READY flag | Y1002 | CH2 Output enable/disable flag |
| X100E | Warning output signal | Y100E | Warning output clear request |
| X100F | Error occurrence flag | Y100F | Error clear request |

### (b) Link special relay (SB), link special register (SW)

| Device | Description | Device | Description |
|---|---|---|---|
| SB0049 | Data link status (own station) | SW00B0.0 | Data link status (each station) (station No.1) |

### (c) Devices used by the user

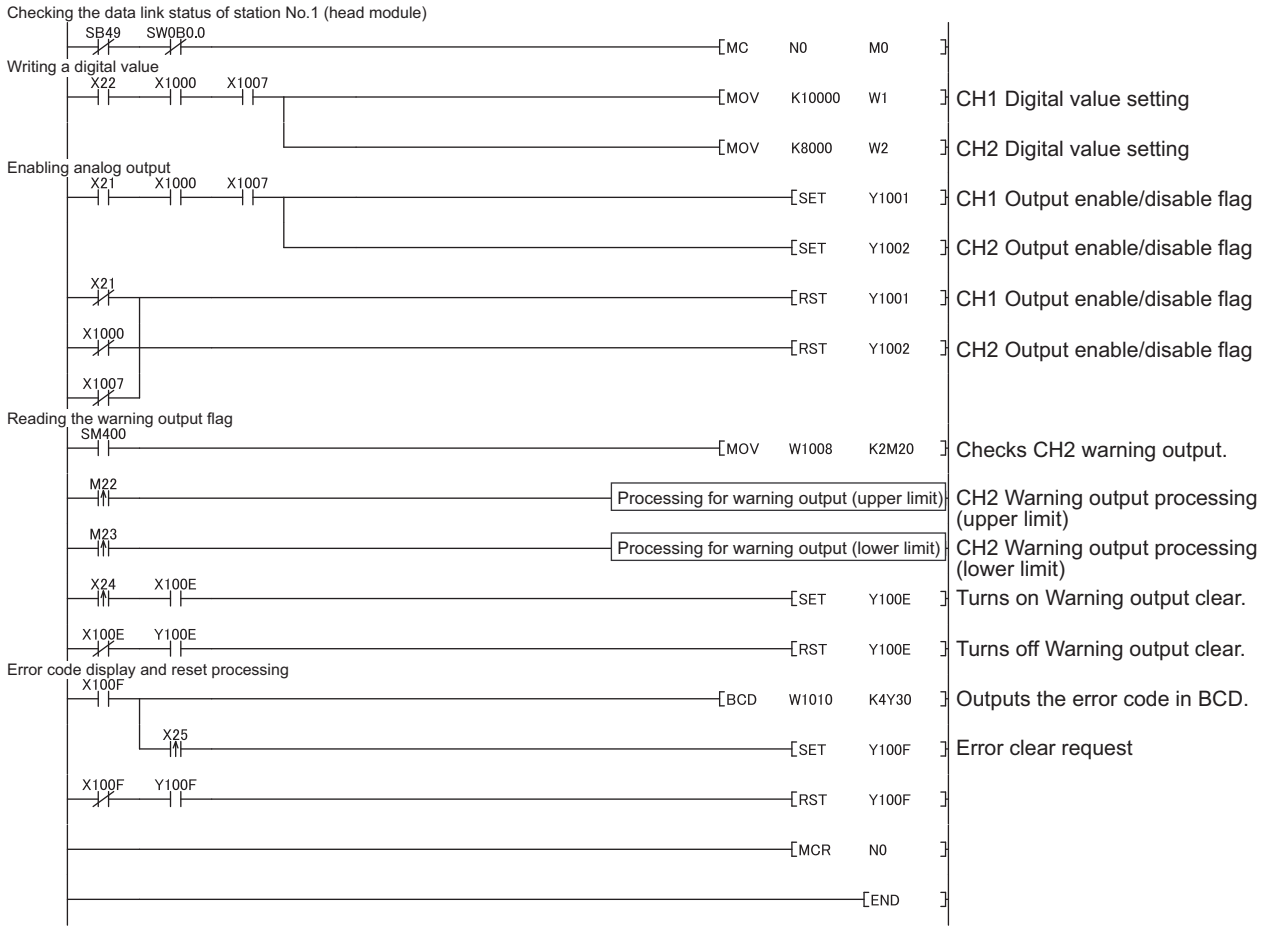
| Device | Description | Remarks |
|---|---|---|
| W1 | CH1 Digital value | — |
| W2 | CH2 Digital value | |
| W1008 | Warning output flag | |
| W1010 | Latest error code | |
| N0 | Nesting (station No.1) | |
| M0 | Communication condition establishment flag (station No.1) | |
| M20 to M27 | Warning output flag | |
| X21 | Batch output enable signal | QX10 (X20 to X2F) |
| X22 | Digital value command to write input signal | |
| X24 | Warning output reset signal | |
| X25 | Error reset signal | |
| Y30 to Y3F | Error code display (BCD 4 digits) | QY10 (Y30 to Y3F) |

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### (d) Program example

***1.*** **Create the following program in the project for the master station using GX Works2.**

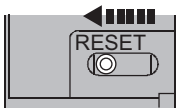



**Point**

If a response is not received for several link scans, the station is determined as a cyclic transmission faulty station, and the status is stored in Data link status (each station) (SW00B0 to SW00B7).

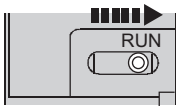
***2.*** **Write the program to the CPU module on the master station. Then reset the CPU module or turn off and on the power.**

[Online] ⇨ [Write to PLC]



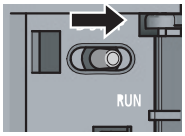

or Power OFF→ON

***3.*** **Set the CPU module on the master station to RUN.**



***4.*** **Set the switch on the head module to RUN.**

When the head module switch is set to RUN, the head module starts data link.




***5.*** **When the following are operated on the master station, an analog value is output from the D/A converter module (L60DA4).**

When X22 is turned on, a digital value is set in CH1 and CH2 of the D/A converter module (L60DA4).
When X21 is turned on, an analog value is output from the D/A converter module (L60DA4).
When X24 is turned on, the warning output is cleared.
When an error occurs in the D/A converter module (L60DA4), an error code is output in BCD notation from the output module (QY10) of the master station.
When X25 turns on, an error clear request is sent to the D/A converter module (L60DA4).

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## (2) Program example of station error detection

A stop error in the head module does not cause a stop error in the master station's CPU module.
If a stop error occurs in the head module, the master station is notified when the bit that corresponds to the head module's station number turns on in Operation status (each station) (1) (SW0100 to SW0107) of the master station.



### (a) Link special relay (SB), link special register (SW)

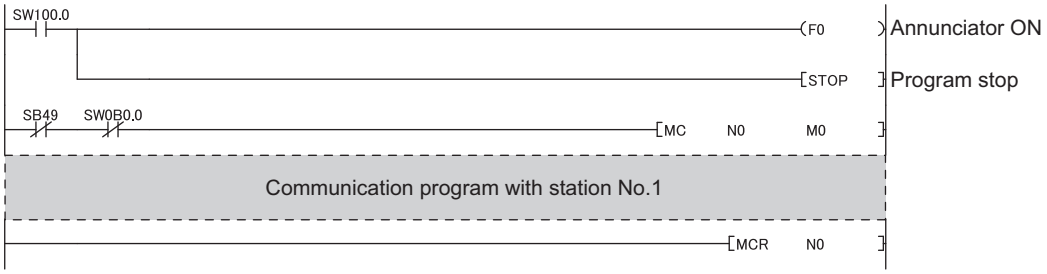
| Device | Description | Device | Description |
|---|---|---|---|
| SB0049 | Data link status (own station) | SW00B0.0 | Data link status (each station) (station No.1) |
| — | | SW0100.0 | Operation status (each station) (1) (station No.1) |

### (b) Devices used by the user

| Device | Description |
|---|---|
| N0 | Nesting (station No.1) |
| M0 | Communication condition establishment flag (station No.1) |
| F0 | Annunciator when an error occurs in the head module (station No.1) |

### (c) Program example

This program detects a stop error in station No.1 and sets the master station's CPU module STOP.



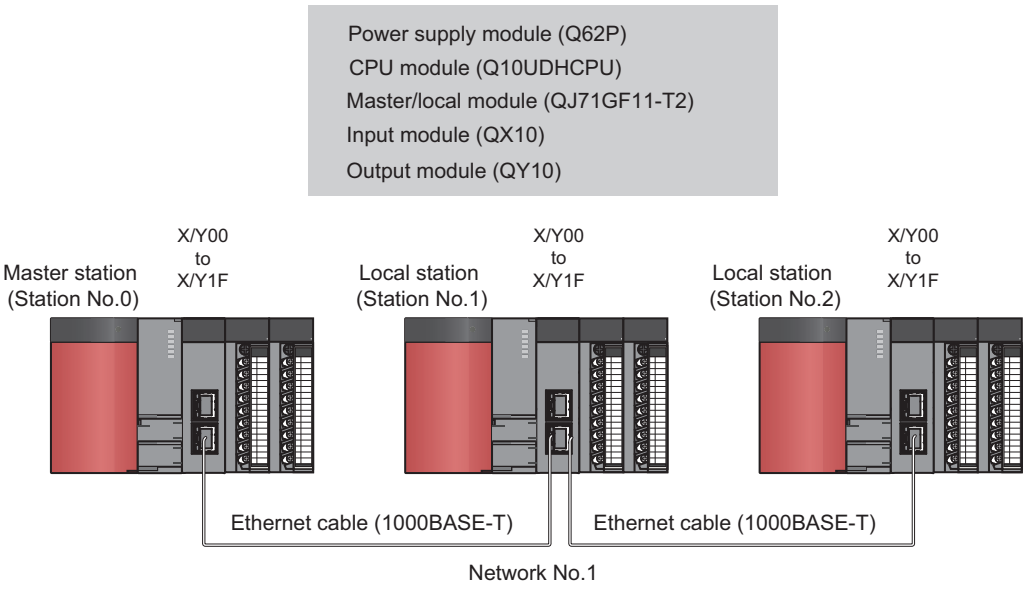
# 11.3 Example of Communications Between the Master Station and Local Stations

This section describes communications between the master station and local stations.

## 11.3.1 System configuration example

The following system configuration is used to explain communication between the master station and local stations.

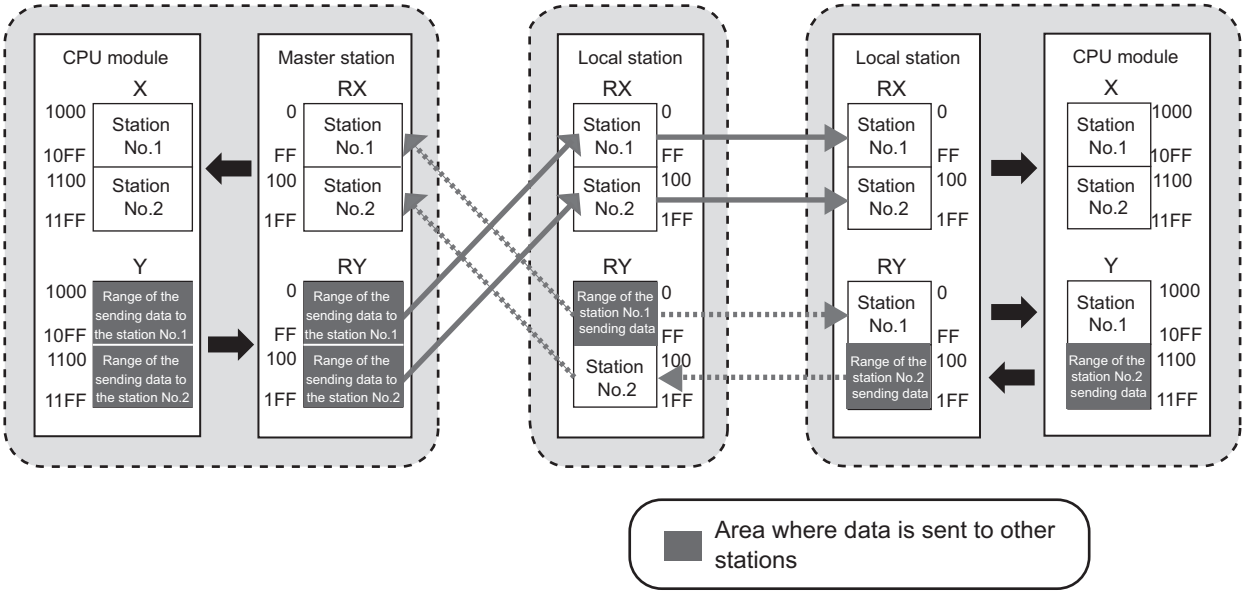
### (1) System configuration



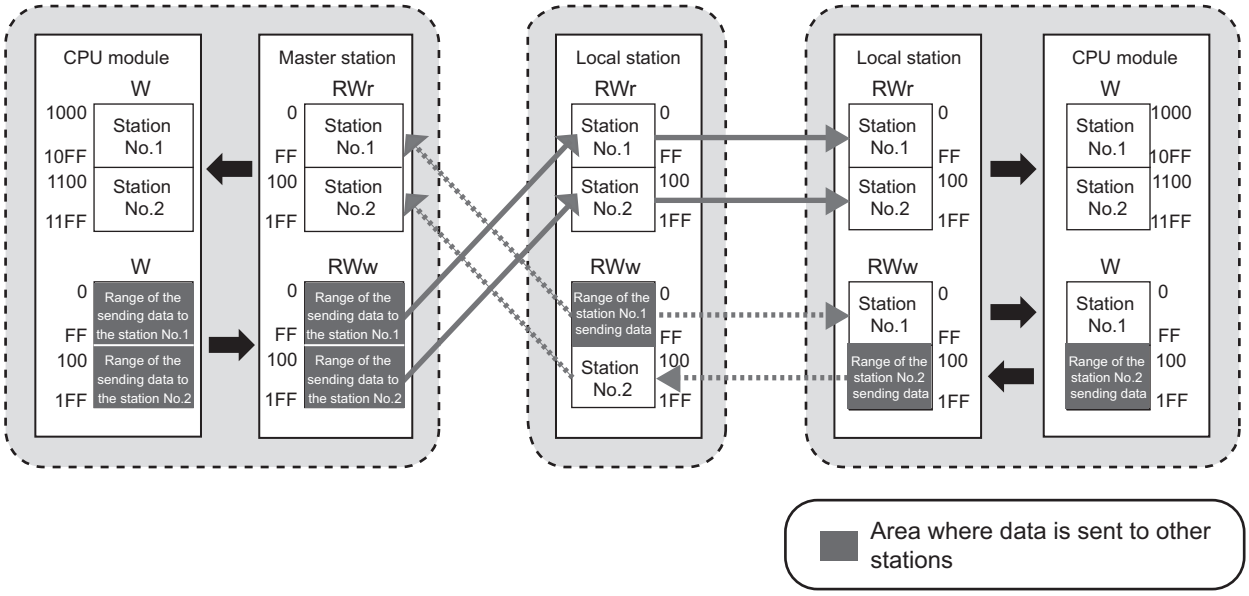
## (2) Link device assignment

256 points are assigned to each station.

### (a) RX and RY assignment

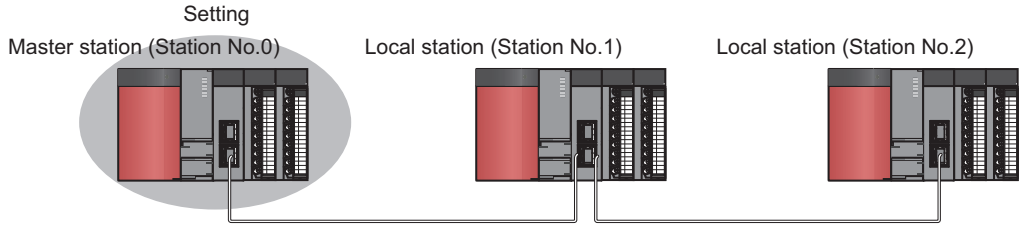



### (b) RWr and RWw assignment



# 11.3.2 Setting in the master station

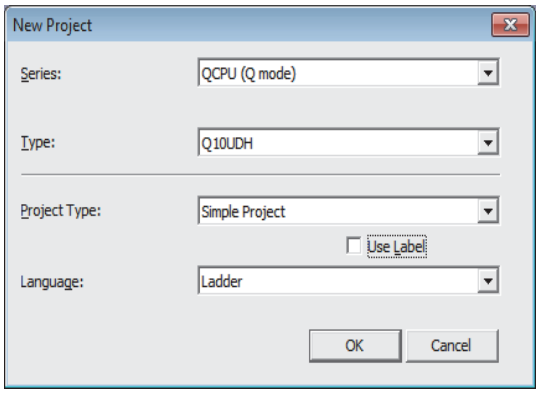
Connect GX Works2 to the master station and set parameters.




**1. Create a project.**

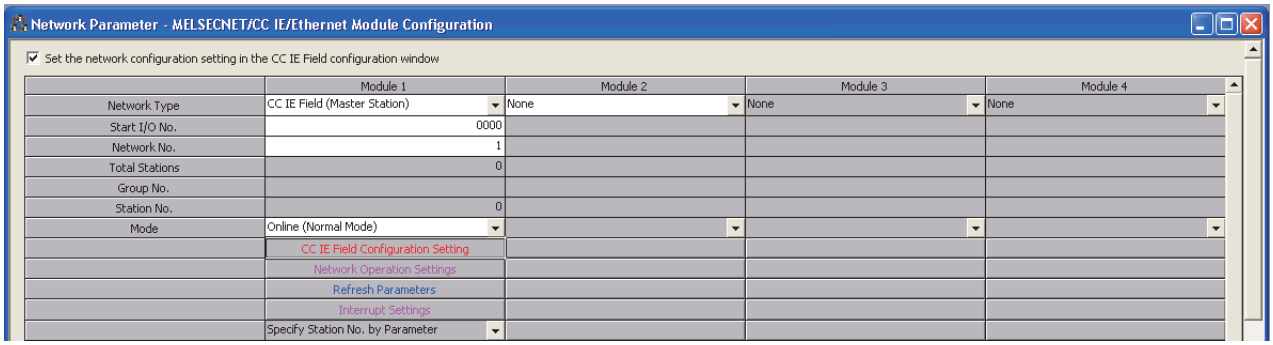
Select "QCPU (Q mode)" in "Series" and "Q10UDH" in "Type".

[Project] ⇨ [New]




**2. Open the network parameter window and set parameters as follows.**

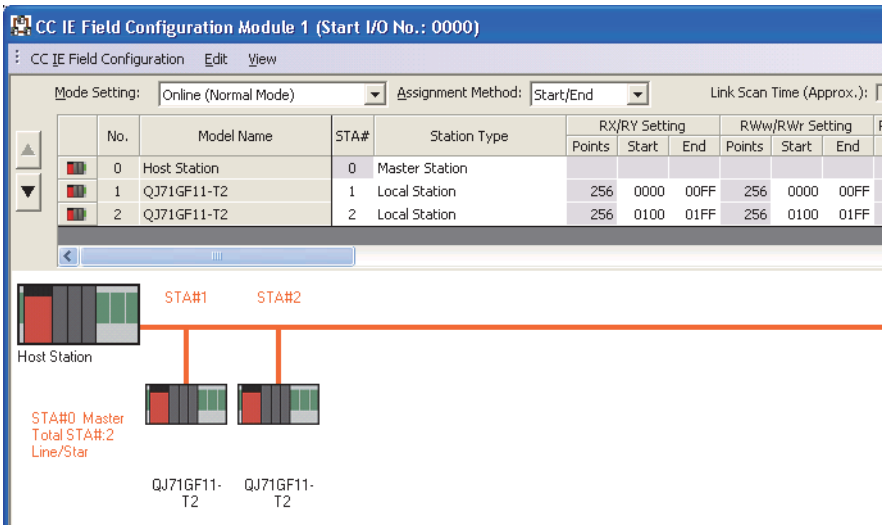
Project window ⇨ [Parameter] ⇨ [Network Parameter] ⇨ [Ethernet/CC IE/MELSECNET]



**3.** **Open the network configuration setting window and set parameters as follows.**

Project window ⇨ [Parameter] ⇨ [Network Parameter] ⇨ [Ethernet/CC IE/MELSECNET]

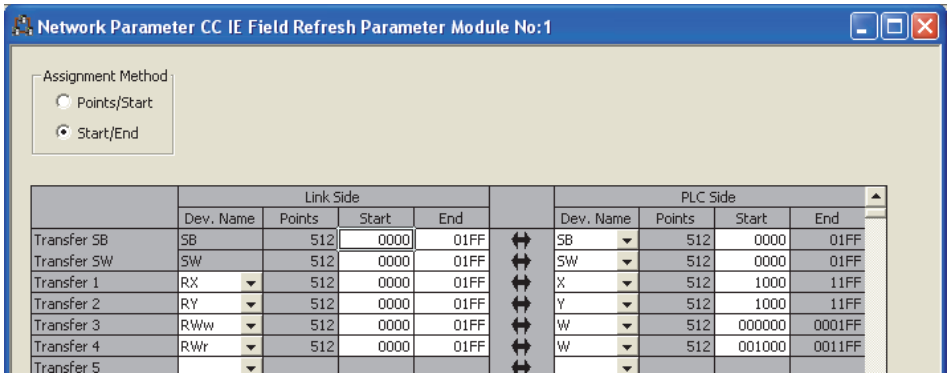
⇨ CC IE Field Configuration Setting button




**4.** **Open the refresh parameter window and set parameters as follows.**

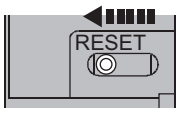
Project window ⇨ [Parameter] ⇨ [Network Parameter] ⇨ [Ethernet/CC IE/MELSECNET]

⇨ Refresh Parameters button




**5.** **Write the parameters to the CPU module on the master station. Then reset the CPU module or turn off and on the power.**

[Online] ⇨ [Write to PLC]




or Power OFF→ON

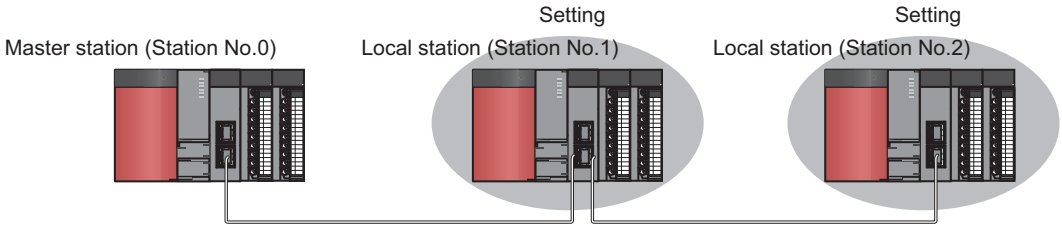
**Point**

In this setting example, default settings are used for the parameters other than those described. For the parameter setting, refer to the following.

(Page 81, CHAPTER 7)

# 11.3.3 Setting in local stations

Connect GX Works2 to a local station and set parameters.

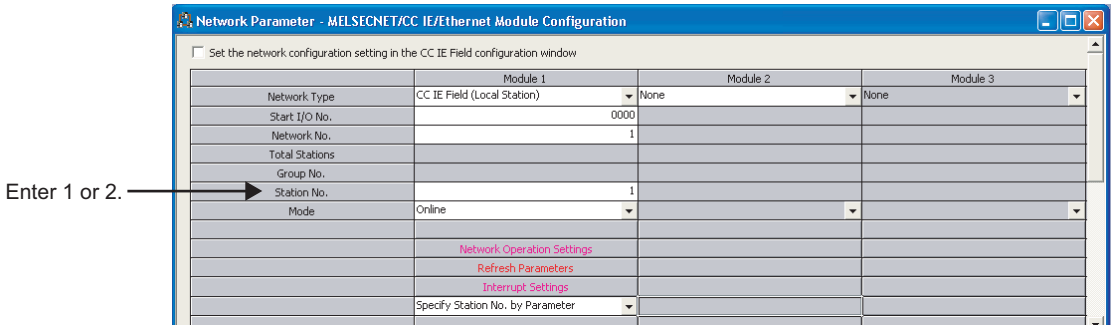



**1. Create a project.**

Create a project using the same method as when creating the master station's project. (Page 402, Section 11.3.2)

**2. Open the network parameter window and set parameters as follows.**

Project window ⇨ [Parameter] ⇨ [Network Parameter] ⇨ [Ethernet/CC IE/MELSECNET]

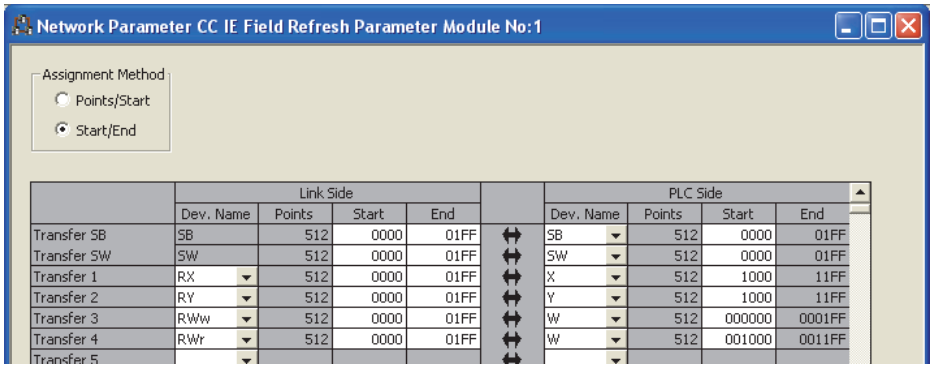



**3. Open the refresh parameter window and set parameters as follows.**

Set the same refresh parameters for local stations (station number 1 and station number 2).

Project window ⇨ [Parameter] ⇨ [Network Parameter] ⇨ [Ethernet/CC IE/MELSECNET]

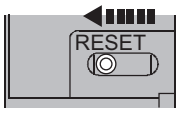
⇨ Refresh Parameters button



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**4. Write the parameters to the CPU modules on the local stations. Then reset the CPU module or turn off and on the power.**

[Online] ⇨ [Write to PLC]




or Power OFF→ON



**Point**

In this setting example, default settings are used for the parameters other than those described. For the parameter setting, refer to the following.

(☞ Page 81, CHAPTER 7)

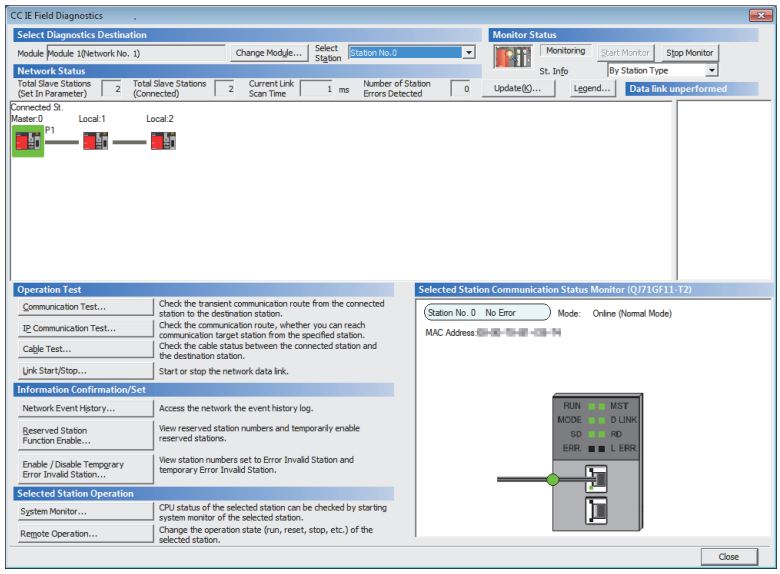
# 11.3.4 Checking the network status

Once parameters are set for the master station and local stations, the CC-Link IE Field Network diagnostics of GX Works2 can be used to check whether data link is normally operating.

1. **Connect GX Works2 to the master station.**
2. **Start the CC-Link IE Field Network diagnostics from the menu.**

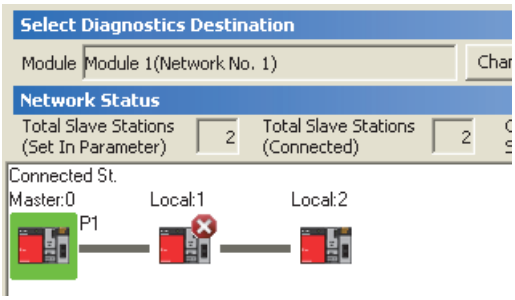
   [Diagnostics] ⇨ [CC-Link IE Field Diagnostics]

   If the following display appears, data link is normal.




If a mark, such as , , and , is displayed in "Network Status", an error has occurred. Use the CC-Link IE Field Network diagnostics to identify the cause of the error and take actions. (Page 208, Section 9.2)

Ex. If an error occurs in a local station (station number 1), the window appears as follows.



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# 11.3.5 Program example

The following is an example program to be written to a CPU module on the master station.

## (1) Devices used in the program

### (a) Link special relay (SB), link special register (SW)

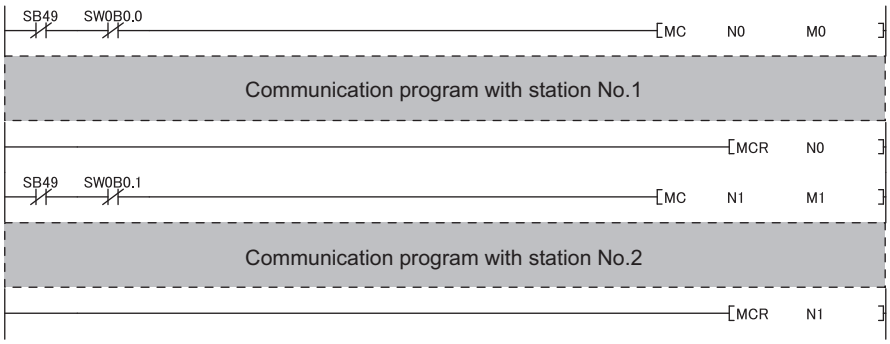
| Device | Description | Device | Description |
|---|---|---|---|
| SB0049 | Data link status (own station) | SW00B0.0 | Data link status (each station) (station No.1) |
| — | | SW00B0.1 | Data link status (each station) (station No.2) |

### (b) Devices used by the user

| Device | Description |
|---|---|
| M0 | Communication condition establishment flag (station No.1) |
| M1 | Communication condition establishment flag (station No.2) |
| N0 | Nesting (station No.1) |
| N1 | Nesting (station No.2) |

## (2) Program example

***1.*** **Create the following program in the project for the master station using GX Works2.**

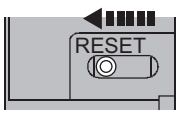



**Point**

If a response is not received for several link scans, the station is determined as a cyclic transmission faulty station, and the status is stored in Data link status (each station) (SW00B0 to SW00B7).

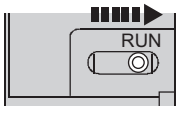
***2.*** **Write the program to the CPU module on the master station. Then reset the CPU module or turn off and on the power.**

[Online] ⇨ [Write to PLC]




or Power OFF→ON

***3.*** **Set the CPU module on the master station to RUN.**



# 11.4 Using Link Special Relay (SB) and Link Special Register (SW)

This section describes how to use link special relays (SBs) and link special registers (SWs).

**Remark**

For details on link special relays (SBs) and link special registers (SWs), refer to the following:

☞ • Page 473, Appendix 3
• Page 493, Appendix 4

## (1) Stop and restart of cyclic transmission

Stop and restart of cyclic transmission are executed using the CC-Link IE Field Network diagnostics as well as link special relays (SBs) and link special registers (SWs). (☞ Page 221, Section 9.4)

### (a) Stop and restart of cyclic transmission (other stations)

(Cyclic transmission stop)

1. **Specify the station to stop cyclic transmission in the following link special registers (SWs).**
   - Specifying a target station
     Link stop/start direction (SW0000)
   - Specifying a station number
     Link stop/start direction (SW0001 to SW0008)
2. **Turn on System link stop (SB0003).**
3. **When the master/local module accepts the request, System link stop request accept status (SB0056) turns on.**
4. **When cyclic transmission stop is completed, System link stop completion status (SB0057) turns on.**
5. **Station number of the station that sent the cyclic transmission stop request is stored in Data link stop request station (SW004A). (It is stored in the station that received the stop request.)**
6. **If cyclic transmission is stopped with error, an error code will be stored in Data link stop status (entire system) (SW0053).**
7. **Turn off System link stop (SB0003).**

(Cyclic transmission restart)

***8.*** **Specify the station to restart cyclic transmission in the following link special registers (SWs).**

- Specifying a target station
  Link stop/start direction (SW0000)
- Specifying a station number
  Link stop/start direction (SW0001 to SW0008)

***9.*** **Turn on System link start (SB0002).**

***10.*** **When the master/local module accepts the request, System link start request accept status (SB0054) turns on.**

***11.*** **When cyclic transmission restart is completed, System link start completion status (SB0055) turns on.**

***12.*** **If cyclic transmission is restarted with error, an error code will be stored in Data link start status (entire system) (SW0052).**

***13.*** **Turn off System link start (SB0002).**

| Number | Description | Number | Description |
|---|---|---|---|
| SB0002 | System link start | SW0000 | Link stop/start direction |
| SB0003 | System link stop | SW0001 to SW0008 | Link stop/start direction |
| SB0054 | System link start request accept status | SW004A | Data link stop request station |
| SB0055 | System link start completion status | SW0052 | Data link start status (entire system) |
| SB0056 | System link stop request accept status | SW0053 | Data link stop status (entire system) |
| SB0057 | System link stop completion status | — | |

### (b) Cyclic transmission stop/restart (own station)

(Cyclic transmission stop)

1. **Turn on Link stop (own station) (SB0001).**
2. **When the master/local module accepts the request, Link stop request accept status (own station) (SB0052) turns on.**
3. **When cyclic transmission stop is completed, Link stop completion status (own station) (SB0053) turns on.**
4. **If cyclic transmission is stopped with error, an error code will be stored in Data link stop status (own station) (SW0051).**
5. **Turn off Link stop (own station) (SB0001).**

(Cyclic transmission restart)

6. **Turn on Link start (own station) (SB0000).**
7. **When the master/local module accepts the request, Link start request accept status (own station) (SB0050) turns on.**
8. **When cyclic transmission restart is completed, Link start completion status (own station) (SB0051) turns on.**
9. **If the cyclic transmission is restarted with error, an error code will be stored in Data link start status (own station) (SW0050).**
10. **Turn off Link start (own station) (SB0000).**

| Number | Description | Number | Description |
|---|---|---|---|
| SB0000 | Link start (own station) | SW0050 | Data link start status (own station) |
| SB0001 | Link stop (own station) | SW0051 | Data link stop status (own station) |
| SB0050 | Link start request accept status (own station) | — | |
| SB0051 | Link start completion status (own station) | | |
| SB0052 | Link stop request accept status (own station) | | |
| SB0053 | Link stop completion status (own station) | | |

## (2) Checking data link status

Data link status is checked using the CC-Link IE Field Network diagnostics as well as link special relays (SBs) and link special registers (SWs). (☞ Page 206, CHAPTER 9)

### (a) Checking the data link status (other stations)

***1.*** **Link scan time can be checked using SW005A and SW005B and SW0060 to SW0062.**

***2.*** **If an error occurs in data link, one of the following link special relays (SBs) turns on.**

- Baton pass status (each station) (SB00A0)
- Baton pass status (master station) (SB00A1)
- Baton pass status (station No.0) (SB00AF)
- Data link status (each station) (SB00B0)
- Data link status (master station) (SB00B1)
- Data link status (station No.0) (SB00BF)

***3.*** **When Baton pass status (each station) (SB00A0) turns on, the station number where an error has occurred is stored in Baton pass status (each station) (SW00A0 to SW00A7).**
**When Data link status (each station) (SB00B0) turns on, the station number where an error has occurred is stored in Data link status (each station) (SW00B0 to SW00B7).**

Details on the causes of error can be checked using link special relays (SBs) and link special registers (SWs) corresponding to the station number where the error has occurred. (☞ Page 412, Section 11.4 (2) (b))

| Number | Description | Number | Description |
|---|---|---|---|
| — | | SW005A | Maximum baton pass station |
| | | SW005B | Maximum cyclic transmission station |
| | | SW0060 | Maximum link scan time |
| | | SW0061 | Minimum link scan time |
| | | SW0062 | Current link scan time |
| SB00A0 | Baton pass status (each station) | SW00A0 to SW00A7 | Baton pass status (each station) |
| SB00A1 | Baton pass status (master station) | — | |
| SB00AF | Baton pass status (station No.0) | | |
| SB00B0 | Data link status (each station) | SW00B0 to SW00B7 | Data link status (each station) |
| SB00B1 | Data link status (master station) | — | |
| SB00BF | Data link status (station No.0) | | |

**Remark**

If the master station is powered on before slave stations, data link may be reconfigured. During the reconfiguration (maximum three seconds), an error is detected using SB00B0. (Note that an error is detected for a maximum of 13 seconds in a master/local module with the serial number (first five digits) of "14041" or earlier.)
Starting up the master station last can prevent data link from being reconfigured.

### (b) Checking data link status (own station)

***1.*** **Link scan time can be checked using SW0060 to SW0062.**

***2.*** **If an error occurs in data link, one of the following link special relays (SBs) will turn on.**

- Baton pass status (own station) (SB0047)
- Data link status (own station) (SB0049)

***3.*** **The cause of error will be stored in the following links**

- Baton pass status (own station) (SW0047)
- Cause of baton pass interruption (SW0048)
- Cause of data link stop (SW0049)

| Number | Description | Number | Description |
|---|---|---|---|
| SB0047 | Baton pass status (own station) | SW0047 | Baton pass status (own station) |
| — | | SW0048 | Cause of baton pass interruption |
| SB0049 | Data link status (own station) | SW0049 | Cause of data link stop |
| — | | SW0060 | Maximum link scan time |
| | | SW0061 | Minimum link scan time |
| | | SW0062 | Current link scan time |

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## (3) Detecting line errors

Line errors are detected using the CC-Link IE Field Network diagnostics as well as link special relays (SBs) and link special registers (SWs). (☞ Page 206, CHAPTER 9)

### (a) Checking line errors on other stations

***1.*** **If other stations receive an error frame due to a line error, one of the following link special relays (SBs) will turn on.**

- PORT1 current error frame reception status (1) (SB0120)
- PORT1 error frame reception status (master station) (SB0121)
- PORT1 current error frame reception status (2) (SB0128)
- PORT1 current error frame reception status (station No.0) (2) (SB0129)
- PORT1 current error frame reception status (station No.0) (1) (SB012F)
- PORT2 current error frame reception status (1) (SB0130)
- PORT2 error frame reception status (master station) (SB0131)
- PORT2 current error frame reception status (2) (SB0138)
- PORT2 current error frame reception status (station No.0) (2) (SB0139)
- PORT2 current error frame reception status (station No.0) (1) (SB013F)
- PORT1 error frame reception detection status (1) (SB0140)
- PORT1 error frame detection (master station) (SB0141)
- PORT1 error frame reception detection status (2) (SB0148)
- PORT1 error frame reception detection status (station No.0) (2) (SB0149)
- PORT1 error frame reception detection status (station No.0) (1) (SB014F)
- PORT2 error frame reception detection status (1) (SB0150)
- PORT2 error frame detection (master station) (SB0151)
- PORT2 error frame reception detection status (2) (SB0158)
- PORT2 error frame reception detection status (station No.0) (2) (SB0159)
- PORT2 error frame reception detection status (station No.0) (1) (SB015F)

***2.*** **When one of the link special relays (SBs) listed above turns on, the station number that received an error frame can be checked using link special registers (SWs) of the same number (other than SB0121, SB0129, SB0131, SB0139, SB0141, SB0149, SB0151, and SB0159).**

Details on the causes of error can be checked using link special relays (SBs) and link special registers (SWs) corresponding to the station number where the error has occurred. (☞ Page 414, Section 11.4 (3) (b))

| Number | Description | Number | Description |
|---|---|---|---|
| SB0120 | PORT1 current error frame reception status (1) | SW0120 to SW0127 | PORT1 current error frame reception status (each station) (1) |
| SB0121 | PORT1 error frame reception status (master station) | — | |
| SB0128 | PORT1 current error frame reception status (2) | SW0128 to SW012F | PORT1 current error frame reception status (each station) (2) |
| SB0129 | PORT1 current error frame reception status (station No.0) (2) | — | |
| SB012F | PORT1 current error frame reception status (station No.0) (1) | | |
| SB0130 | PORT2 current error frame reception status (1) | SW0130 to SW0137 | PORT2 current error frame reception status (each station) (1) |
| SB0131 | PORT2 error frame reception status (master station) | — | |
| SB0138 | PORT2 current error frame reception status (2) | SW0138 to SW013F | PORT2 current error frame reception status (each station) (2) |

| Number | Description | Number | Description |
|---|---|---|---|
| SB0139 | PORT2 current error frame reception status (station No.0) (2) | — | |
| SB013F | PORT2 current error frame reception status (station No.0) (1) | | |
| SB0140 | PORT1 error frame reception detection status (1) | SW0140 to SW0147 | PORT1 error frame reception detection status (1) |
| SB0141 | PORT1 error frame detection (master station) | — | |
| SB0148 | PORT1 error frame reception detection status (2) | SW0148 to SW014F | PORT1 error frame reception detection status (2) |
| SB0149 | PORT1 error frame reception detection status (station No.0) (2) | — | |
| SB014F | PORT1 error frame reception detection status (station No.0) (1) | | |
| SB0150 | PORT2 error frame reception detection status (1) | SW0150 to SW0157 | PORT2 error frame reception detection status (1) |
| SB0151 | PORT2 error frame detection (master station) | — | |
| SB0158 | PORT2 error frame reception detection status (2) | SW0158 to SW015F | PORT2 error frame reception detection status (2) |
| SB0159 | PORT2 error frame reception detection status (station No.0) (2) | — | |
| SB015F | PORT2 error frame reception detection status (station No.0) (1) | | |

### (b) Checking the line status (own station)

***1.*** **If there is a line error in the own station, one of SB006A to SB006F will turn on.**

***2.*** **The line status can be checked using SW0064, and SW0066 to SW006B.**

| Number | Description | Number | Description |
|---|---|---|---|
| SB006A | PORT1 linkup status (own station) | SW0064 | Connection status (own station) |
| SB006B | PORT2 linkup status (own station) | SW0066 | Actual link scan time (lower 1 word) |
| SB006C | PORT1 error frame reception status (own station) (1) | SW0067 | Actual link scan time (upper 1 word) |
| SB006D | PORT2 error frame reception status (own station) (1) | SW0068 | PORT1 receive error occurrence rate (own station) (max.) |
| SB006E | PORT1 error frame reception detection status (own station) (latch) (1) | SW0069 | PORT1 receive error occurrence rate (own station) (present) |
| SB006F | PORT2 error frame reception detection status (own station) (latch) (1) | SW006A | PORT2 receive error occurrence rate (own station) (max.) |
| SB008C | PORT1 error frame reception status (own station) (2) | SW006B | PORT2 receive error occurrence rate (own station) (present) |
| SB008D | PORT2 error frame reception status (own station) (2) | — | |
| SB008E | PORT1 error frame reception detection status (own station) (latch) (2) | | |
| SB008F | PORT2 error frame reception detection status (own station) (latch) (2) | | |

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## (4) Detecting cable disconnections

Cable disconnection is detected using the CC-Link IE Field Network diagnostics as well as link special relays (SBs) and link special registers (SWs). (Page 206, CHAPTER 9)

1. **If a cable is disconnected, a baton pass error causes Baton pass status (own station) (SB0047) to turn on.**
2. **$30_H$ is stored in Cause of baton pass interruption (SW0048).**

Details on the causes of error can be checked using link special relays (SBs) and link special registers (SWs) corresponding to the station number where the error has occurred.

| Number | Description | Number | Description |
|---|---|---|---|
| SB0047 | Baton pass status (own station) | SW0048 | Cause of baton pass interruption |

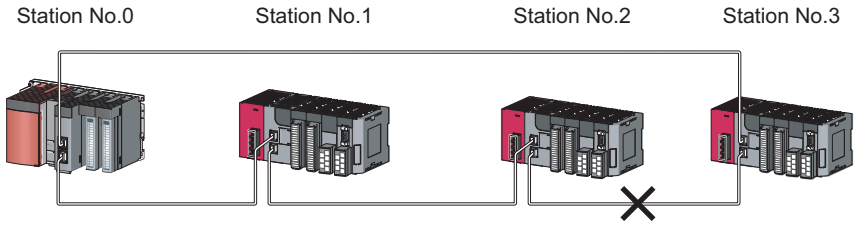
## (5) Checking loopback execution status

Whether loopback is being performed or not can be checked using link special relays (SBs) and link special registers (SWs). (Page 206, CHAPTER 9)

1. **While loopback is performed, Loopback status (SB0065) is on.**
2. **Loopback station numbers are stored to Loopback station number (SW0070 and SW0071).**

| No. | Description | No. | Description |
|---|---|---|---|
| SB0065 | Loopback status | SW0070 | Loopback station number 1 |
| — | | SW0071 | Loopback station number 2 |

Ex. Loopback when a cable is disconnected between station No. 2 and stations No. 3




SW0070 and SW0071 store "2" and "3", respectively.

**Remark**

If the master station is powered on before slave stations, data link may be reconfigured. During the reconfiguration (maximum three seconds), an error is detected using SB00B0. (Note that an error is detected for a maximum of 13 seconds in a master/local module with the serial number (first five digits) of "14041" or earlier.)
Starting up the master station last can prevent data link from being reconfigured.

### (6) Checking communication error and network event history

Communication errors and network events are detected using the CC-Link IE Field Network diagnostics as well as link special relays (SBs) and link special registers (SWs). (☞ Page 206, CHAPTER 9)

1. **The number of communication errors is stored in SW0074 to SW0077, and SW007C to SW007F. The number can be cleared by Clear communication error count (SB0006).**
2. **When network event history occurs, Event history status (SB007A) is turned on. Number of network event history items is stored in Event history cumulative count (SW007A). The number can be cleared by Event history count clear (SB0009).**
   When Event count clear (SB0009) is accepted, Event history clear acceptance status (SB0061) turns on. When the event count is cleared, Event history clear completion status (SB0062) turns on.

| Number | Description | Number | Description |
|---|---|---|---|
| SB0006 | Clear communication error count | — | |
| SB0009 | Event count clear | | |
| SB0061 | Event history clear acceptance status | SW0074 | PORT1 cable disconnection detection count |
| SB0062 | Event history clear completion status | SW0075 | PORT1 receive error detection count |
| — | | SW0076 | PORT1 total no. of received data (lower 1 word) |
| | | SW0077 | PORT1 total no. of received data (upper 1 word) |
| SB007A | Event history status | SW007A | Event count |
| — | | SW007C | PORT2 cable disconnection detection count |
| | | SW007D | PORT2 receive error detection count |
| | | SW007E | PORT2 total no. of received data (lower 1 word) |
| | | SW007F | PORT2 total no. of received data (upper 1 word) |

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## (7) Checking test results before wiring

Test results are checked on the LEDs on the master/local module as well as using link special relays (SBs).
(☞ Page 64, Section 6.2)

### (a) Checking hardware test results

1. **When the hardware test is completed, Hardware test completion status (SB0090) is turned on.**
2. **When failed, Hardware test normal/abnormal end (SB0091) is turned on.**

| Number | Description | Number | Description |
|---|---|---|---|
| SB0090 | Hardware test completion status | — | |
| SB0091 | Hardware test normal/abnormal end | | |

### (b) Checking self-loopback test results

1. **When the self-loopback test is completed, Self-loopback test completion status (SB0092) is turned on.**
2. **When failed, Self-loopback test normal/abnormal end (SB0093) is turned on.**

| Number | Description | Number | Description |
|---|---|---|---|
| SB0092 | Self-loopback test completion status | — | |
| SB0093 | Self-loopback test normal/abnormal end | | |

## (8) Checking test results after wiring

Test results are checked using the CC-Link IE Field Network diagnostics as well as link special relays (SBs).
(☞ Page 71, Section 6.4)

### (a) Checking loop test results

1. **When a loop test is started, Loop test request accept status (SB009A) is turned on.**
2. **When the loop test is completed, Loop test completion status (SB0094) is turned on.**
3. **When failed, Loop test normal/abnormal end (SB0095) is turned on.**
   Error details can be checked using Loop test result (SW0194). The station number where an error has occurred in the loop test can be checked using Loop test error station (SW01A0 to SW01A7).

| Number | Description | Number | Description |
|---|---|---|---|
| SB0094 | Loop test completion status | SW0194 | Loop test result |
| SB0095 | Loop test normal/abnormal end | SW01A0 to SW01A7 | Loop test error station |
| SB009A | Loop test request accept status | — | |

## (9) Checking parameter status

The reflection status and setting contents of parameters can be checked using link special relays (SBs) and link special registers (SWs).

### (a) Checking the parameter status (other stations)

***1.*** **When a station on the network has a parameter error, Parameter error status (each station) (SB0170) is turned on.**

When the submaster function is used, the parameter status of the station number 0 can be checked using Parameter error status (station No.0) (SB017F).

***2.*** **The station number where the parameter error occurs is stored in Parameter error status (each station) (SW0170 to SW0177).**

***3.*** **Details on the parameters on each station can be checked using link special relays (SBs) and link special registers (SWs) on each station.**

| Number | Description | Number | Description |
|---|---|---|---|
| SB0170 | Parameter error status (each station) | SW0170 to SW0177 | Parameter error status (each station) |
| SB017F | Parameter error status (station No.0) | — | |

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### (b) Checking the parameter status (own station)

***1.*** **When reception of parameters is completed, Parameter reception status (SB0077) turns off.**

***2.*** **When a parameter has an error, Received parameter error (SB004D) turns on and the error code is stored in Parameter setting status (SW004C).**

| Number | Description | Number | Description |
|---|---|---|---|
| SB004D | Received parameter error | SW004C | Parameter setting status |
| SB0077 | Parameter reception status | — | |

***3.*** **When the parameter is set in the master/local module, contents of the parameter are stored in the following link special relays (SBs) and link special registers (SWs).**

| Number | Description | Number | Description |
|---|---|---|---|
| SB0040 | Network type (own station) | SW0040 | Network No. |
| | | SW0042 | Station No. |
| SB0043 | Mode (own station) | SW0043 | Mode status |
| SB0044 | Station setting (own station) (1) | SW0044 | Submaster station No. |
| SB0045 | Station setting (own station) (2) | SW0046 | Module type |
| SB0048 | Control station status (own station) | SW0058 | Number of total slave stations (setting) |
| SB0060 | Constant scan status | SW0059 | Number of total slave stations (current value) |
| SB0072 | Scan mode setting information | SW0063 | Constant link scan set value |
| SB0073 | Operation status specified for CPU stop error | — | |
| SB0074 | Reserved station specification status | | |
| SB0075 | Error invalid station setting status | | |
| SB0076 | Submaster station setting information | | |
| SB0078 | Loopback function setting status | | |
| SB0079 | Master station return specification information | | |
| SB007B | Input data status of data link faulty station | | |
| SB007D | Hold/clear status setting for CPU STOP | | |
| SB0080 | IP address setting status | | |
| SB00C0 | Reserved station setting status | SW00C0 to SW00C7 | Reserved station setting status |
| SB00D0 | Error invalid station setting status | SW00D0 to SW00D7 | Error invalid station setting status |

## (10)Checking CPU module status

The CPU module status is checked using the CC-Link IE Field Network diagnostics as well as link special relays (SBs) and link special registers (SWs). (☞ Page 206, CHAPTER 9)

### (a) Checking the CPU module status (other stations)

***1.*** **Whether the CPU module is in RUN or STOP can be checked using the following link special relays (SBs) and link special registers (SWs).**

- CPU RUN status (master station) (SB00F1)
- CPU RUN status (station No.0) (SB00FF)
- When CPU RUN status (each station) (SB00F0) is turned on, check the station number using CPU RUN status (each station) (SW00F0).

***2.*** **A continuation error in the CPU module can be checked using the following link special relays (SBs) and link special registers (SWs).**

- CPU operation status (master station) (2) (SB0111)
- CPU operation status (2) (station No.0) (SB011F)
- When CPU operation status (each station) (2) (SB0110) is turned on, check the station number using Operation status (each station) (2) (SW0110).

***3.*** **A stop error in the CPU module can be checked using the following link special relays (SBs) and link special registers (SWs).**

- CPU operation status (master station) (1) (SB0101)
- CPU operation status (1) (station No.0) (SB010F)
- When CPU operation status (each station) (1) (SB0100) is turned on, check the station number using Operation status (each station) (1) (SW0100).

| Number | Description | Number | Description |
|---|---|---|---|
| SB00F0 | CPU RUN status (each station) | SW00F0 | CPU RUN status (each station) |
| SB00F1 | CPU RUN status (master station) | — | |
| SB00FF | CPU RUN status (station No.0) | | |
| SB0100 | CPU operation status (each station) (1) | SW0100 | Operation status (each station) (1) |
| SB0101 | CPU operation status (master station) (1) | — | |
| SB010F | CPU operation status (1) (station No.0) | | |
| SB0110 | CPU operation status (each station) (2) | SW0110 | Operation status (each station) (2) |
| SB0111 | CPU operation status (master station) (2) | — | |
| SB011F | CPU operation status (2) (station No.0) | | |

### (b) Checking CPU module status (own station)

***1.*** **Whether the CPU module is in RUN or STOP can be checked using CPU RUN status (own station) (SB004C).**

***2.*** **If a continuation error occurs in the CPU module, Own station's CPU status (1) (SB004A) turns on. If a stop error occurs in the CPU module, Own station's CPU status (2) (SB004B) turns on.**

***3.*** **The CPU module status can be checked using Own station's CPU status (SW004B).**

| Number | Description | Number | Description |
|---|---|---|---|
| SB004A | Own station's CPU status (1) | — | |
| SB004B | Own station's CPU status (2) | SW004B | Own station's CPU status |
| SB004C | CPU RUN status (own station) | — | |

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## (11)Checking the station number setting status of the own station

The station number setting status of the own station can be checked in the CC-Link IE Field Network diagnostics. It can be also checked using link special relays (SBs) and a link special register (SW).

### (a) Setting the station number in the network parameter window of GX Works2

1. **Setting the station number turns off Station number setting status of the own station (SB0046) and Station number status of the operating station (SB004F).**
2. **The station number of the own station is stored in Station number (SW0042).**

### (b) Setting the station number using the UINI instruction

1. **When the module is powered on, the station number is not set. Therefore, Station number setting status of the own station (SB0046) turns on. Station number status of the operating station (SB004F) also turns on.**
2. **$FF_H$ is stored in Station number (SW0042).**
3. **Executing the UINI instruction to set the station number turns off Station number setting status of the own station (SB0046).**
4. **The station number of the own station is stored in Station number (SW0042).**

| Number | Description | Number | Description |
|---|---|---|---|
| SB0046 | Station number setting status of the own station | SW0042 | Station number |
| SB004F | Station number status of the operating station | — | |

## (12)Dedicated instructions

The following link special relays (SBs) and link special registers (SWs) are used for dedicated instructions.
(☞ Page 236, CHAPTER 10)

### (a) RECV instruction (☞ Page 294, Section 10.9)

1. **When data are stored in the own station channel area, the corresponding RECV execution request flag (SB0030 and SB0031) turns on.**
   Use the flag as a start contact and execute the RECV instruction.
   After the completion of the RECV instruction, the flag is turned off.

| Number | Description | Number | Description |
|---|---|---|---|
| SB0030 | RECV execution request flag (1) | — | |
| SB0031 | RECV execution request flag (2) | | |
| SB0047 | Baton pass status (own station) | | |

### (b) REMFR/REMTO instruction (☞ Page 333, Section 10.13, Page 338, Section 10.14)

***1.*** **Set the following registers before executing the REMFR/REMTO instructions:**

- Number of resends (REMFR/REMTO) (SW001A)
- Response wait timer (REMFR/REMTO) (SW001B)

***2.*** **When the REMFR/REMTO instruction is executed, the execution status is stored in Execution status (REMFR/REMTO) (SW0080 to SW009F)**

| Number | Description | Number | Description |
|---|---|---|---|
| — | | SW001A | Number of resends (REMFR/REMTO) |
| | | SW001B | Response wait timer (REMFR/REMTO) |
| | | SW0080 to SW009F | Execution status (REMFR/REMTO) |

### (c) RIRD instruction and RIWT instruction (☞ Page 343, Section 10.15, Page 351, Section 10.16)

The arrival monitoring time of the instruction is set using Arrival monitoring time (RIRD/RIWT) (SW0009).
The number of resends for the instruction is set using Number of resends (RIRD/RIWT) (SW000B).

| Number | Description | Number | Description |
|---|---|---|---|
| — | | SW0009 | Arrival monitoring time (RIRD/RIWT) |
| | | SW000B | Number of resends (RIRD/RIWT) |

### (d) Common link dedicated instructions (except for the REMFR and REMTO instructions)

Processing results of link dedicated instructions can be checked using Send/receive instruction (1) processing result (SW0030) for channel 1 and Send/receive instruction (2) processing result (SW0031) for channel 2.

| Number | Description | Number | Description |
|---|---|---|---|
| — | | SW0030 | Send/receive instruction (1) processing result |
| | | SW0031 | Send/receive instruction (2) processing result |

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## (13)Canceling/restoring reserved station setting

Canceling/restoring reserved station setting is executed using the CC-Link IE Field Network diagnostics as well as link special relays (SBs) and link special registers (SWs). (☞ Page 225, Section 9.6)

### (a) Canceling reserved station setting

1. **Specify the station number to cancel reserved station setting in Reserved station function disable/ temporary error invalid station setting (SW0010 to SW0017).**
2. **Turn on Reserved station function disable request (SB0012).**
3. **Reserved station function disable request accept status (SB005C) is turned on.**
4. **When reserved station setting is cancelled, Reserved station function disable completion status (SB005D) turns on.**
5. **Reserved station function disable status (SB0180) is turned on and the station number of the station in reserved station function disable status is stored in Reserved station cancel setting status (SW0180 to SW0187).**
6. **When the reserved station setting is cancelled with error, an error code will be stored in Result of reserved station function disable (SW0056).**
7. **Turn off Reserved station function disable request (SB0012).**

| Number | Description | Number | Description |
|---|---|---|---|
| SB0012 | Reserved station function disable request | SW0010 to SW0017 | Reserved station function disable/temporary error invalid station setting |
| SB005C | Reserved station function disable request accept status | SW0056 | Result of reserved station function disable |
| SB005D | Reserved station function disable completion status | — | |
| SB0180 | Reserved station function disable status | SW0180 to SW0187 | Reserved station cancel setting status |

### (b) Restoring reserved station setting

1. **Specify the station number to restore reserved station setting in Reserved station function disable/temporary error invalid station setting (SW0010 to SW0017),**
2. **Turn on Reserved station specification enable request (SB0013).**
3. **Reserved station specification enable request accept status (SB005E) is turned on.**
4. **When cancellation of the reserved station specification is completed, Reserved station specification enabled status (SB005F) is turned on.**
5. **Use Reserved station function disable status (SW0180 to SW0187) to check whether the station returned to the reserved station. Reserved station function disable status (SB0180) is turned off.**
6. **When the reserved station setting is restored with error, an error code will be stored in Result of reserved station function enable (SW0057).**
7. **Turn off Reserved station specification enable request (SB0013).**

| Number | Description | Number | Description |
|---|---|---|---|
| SB0013 | Reserved station specification enable request | SW0010 to SW0017 | Reserved station function disable/temporary error invalid station setting |
| SB005E | Reserved station specification enable request accept status | SW0057 | Result of reserved station function enable |
| SB005F | Reserved station specification enabled status | — | |
| SB0180 | Reserved station function disable status | SW0180 to SW0187 | Reserved station function disable status |

## (14)Setting/Canceling a temporary error invalid station

Setting/Canceling a temporary error invalid station is executed using the CC-Link IE Field Network diagnostics as well as link special relays (SBs) and link special registers (SWs). (☞ Page 229, Section 9.7)

### (a) Setting a temporary error invalid station

1. **Specify the station number to set a temporary error invalid station in Reserved station function disable/temporary error invalid station setting (SW0010 to SW0017),**
2. **Turn on Temporary error invalid request (SB0010).**
3. **Temporary error invalid request accept status (SB0058) is turned on.**
4. **When a temporary error invalid station is set, Temporary error invalid setting completion status (SB0059) turns on.**
5. **Temporary error invalid station setting status (SB00E0) turns on, and the station number of the temporary error invalid station is stored in Temporary error invalid station setting status (SW00E0 to SW00E7).**
6. **When the temporary error invalid station is set with error, an error code will be stored in Temporary error invalid station setting result (SW0054).**
7. **Turn off Temporary error invalid request (SB0010).**

| Number | Description | Number | Description |
|---|---|---|---|
| SB0010 | Temporary error invalid request | SW0010 to SW0017 | Reserved station function disable/temporary error invalid station setting |
| SB0058 | Temporary error invalid request accept status | SW0054 | Temporary error invalid station setting result |
| SB0059 | Temporary error invalid setting completion status | — | |
| SB00E0 | Temporary error invalid station setting status | SW00E0 to SW00E7 | Temporary error invalid station setting status |

### (b) Canceling a temporary error invalid station

1. **Specify the station number to cancel a temporary error invalid station in Reserved station function disable/temporary error invalid station setting (SW0010 to SW0017).**
2. **Turn on Temporary error invalid setting cancel request (SB0011).**
3. **Temporary error invalid setting cancel request accept status (SB005A) is turned on.**
4. **When the cancellation is completed, Temporary error invalid setting cancel completion status (SB005B) turns on.**
5. **Use Temporary error invalid station setting status (SW00E0 to SW00E7) to check if the temporary error invalid station setting is cancelled. When the network no longer has a temporary error invalid station, Temporary error invalid station setting status (SB00E0) turns off.**
6. **When the temporary error invalid station is cancelled with error, an error code will be stored in Temporary error invalid station setting cancel result (SW0055).**
7. **Turn off Temporary error invalid setting cancel request (SB0011).**

| Number | Description | Number | Description |
|---|---|---|---|
| SB0011 | Temporary error invalid setting cancel request | SW0010 to SW0017 | Reserved station function disable/temporary error invalid station setting |
| SB005A | Temporary error invalid setting cancel request accept status | SW0055 | Temporary error invalid station setting cancel result |
| SB005B | Temporary error invalid setting cancel completion status | — | |
| SB00E0 | Temporary error invalid station setting status | SW00E0 to SW00E7 | Temporary error invalid station setting status |

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## (15)Checking the operating status of when the submaster function is used and switching a master operating station from a submaster station to a master station

Use link special relays (SBs) and link special registers (SWs) to check the setting details of the parameters and whether the parameters have been written. The operating status can be also checked using the CC-Link IE Field Network diagnostics. (☞ Page 214, Section 9.3)

### (a) Checking the operating status

The status of data link with the submaster function used can be checked using Master station information (SB0070). The station number of a master operating station can be checked using Master operating station number (SW006D) and that of a submaster operating station using Submaster operating station number (SW006E).

| Number | Description | Number | Description |
|---|---|---|---|
| SB0070 | Master station information— | SW006D | Master operating station number |
| — | | SW006E | Submaster operating station number |

### (b) Switching a master operating station from a submaster station to a master station

While a submaster station is operating as a master operating station, the operation of a master station can be switched from the submaster operation to the master operation. For link special relays (SBs) and link special registers (SWs) related to the switching of a master operating station, refer to the explanation about the submaster function. (☞ Page 200, Section 8.8.5 (2))

# CHAPTER 12 TROUBLESHOOTING

This chapter describes errors that may occur on CC-Link IE Field Network, causes of the errors, and corrective actions.

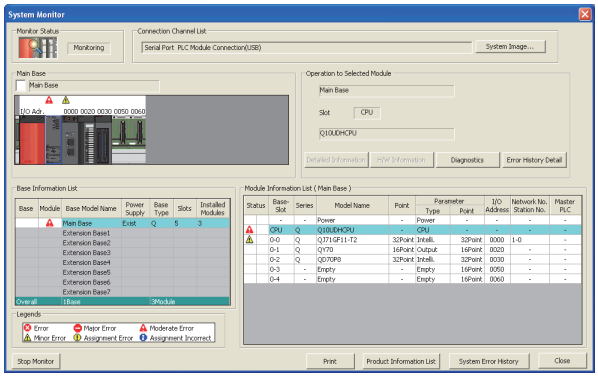
## 12.1 Before Troubleshooting

Check that the POWER LED of the power supply module and the MODE LED of the CPU module are on. If either or both are off, troubleshoot the CPU module. ( User's Manual (Hardware Design, Maintenance and Inspection) of the relevant CPU module)

## 12.2 Troubleshooting Procedure

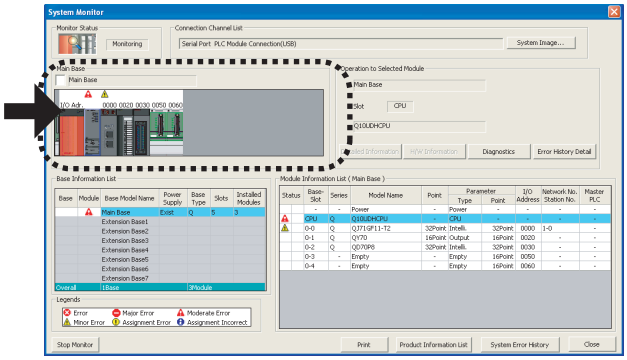
The procedure for identifying the cause of the problem and taking action is explained below.
If a slave station cannot be monitored due to an error such as cable disconnection, directly connect the supported programming tool to the slave station.

### (1) Procedure




**1. Connect GX Works2 to the CPU module, and open the "System Monitor" window.**

[Diagnostics] ⇨ [System Monitor]




**2. Select the module in which an error has occurred.**

- When a module other than a master/local module is selected

  Page 427, Section 12.2 (1) (a)

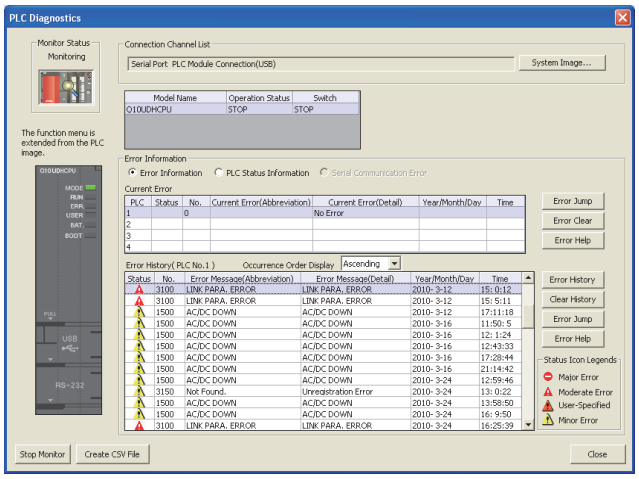
- When the selected module is the master/local module

  Page 428, Section 12.2 (1) (b)

**Point**

If data link cannot be performed even though no error is indicated in the "System Monitor" window, select the master/local module, and click the Diagnostics button. (Page 428, Section 12.2 (1) (b))

## (a) Checking for error in modules other than the master/local module

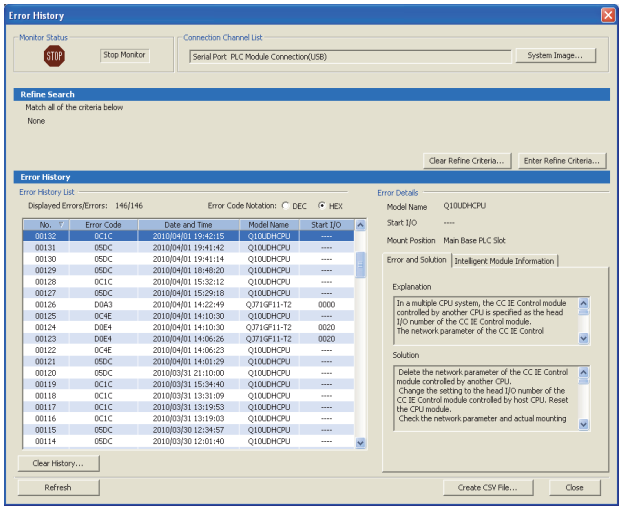



**1. Select a module other than the master/local module in the "System Monitor" window, and click the** Diagnostics **button.**

**The window corresponding to the module will open. (In the illustration on the left, the CPU module is selected.)**

If the Diagnostics button is not supported by the module, click the Detailed Information button.

When data link cannot be performed even though no failure is shown in "System Monitor", select the master/local module and click the Diagnostics button.




**2. CPU resets and errors occurred before power-off are recorded in the "Error History" window.**

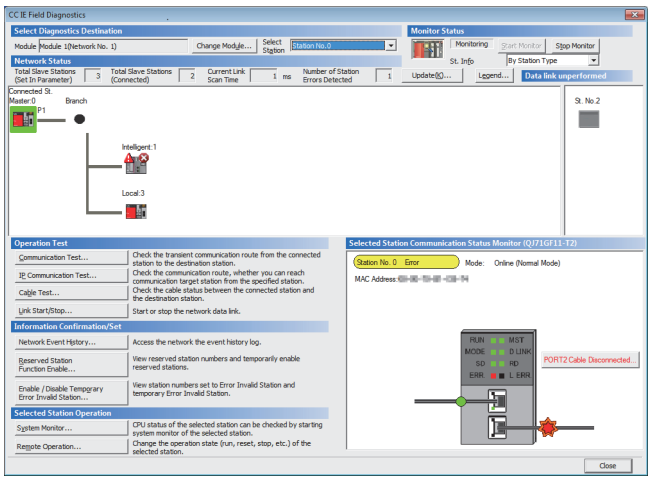
[Diagnostics] ⇨ [System Monitor] ⇨ System Error History button

In the single "Error History" window, the error history of CPU modules and intelligent function modules (including master/local modules) can be viewed.

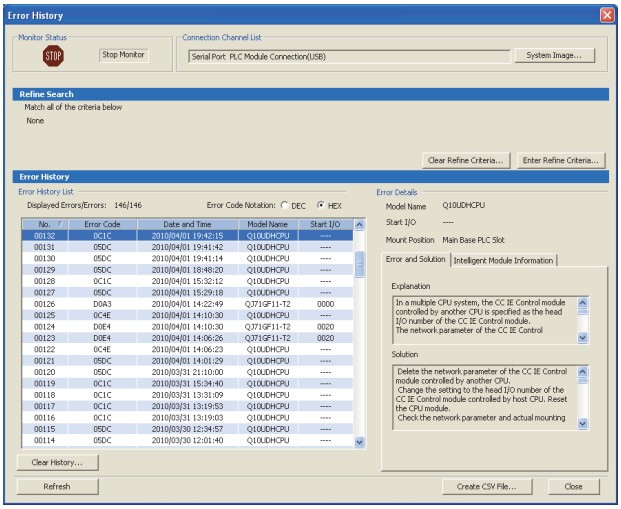
**3. If data link cannot be performed even after the above operation is performed, perform the following:**

- Checking for error using CC-Link IE Field Network diagnostics (☞Page 206, CHAPTER 9)
- Checking the LEDs (☞Page 430, Section 12.3)
- Troubleshooting by symptom (Page 434, Section 12.4)

## (b) Checking for error in the master/local module




**1.** **Select the master/local module in the "System Monitor" window, and click the** Diagnostics **button. The "CC IE Field Diagnostics" window will open. Identify the cause of the error with the CC-Link IE Field Network diagnostic function and take action. (☞Page 206, CHAPTER 9)**




**2.** **CPU resets and errors occurred before power-off are recorded in the "Error History" window.**

[Diagnostics] ➪ [System Monitor] ➪ System Error History button

In the single "Error History" window, the error history of CPU modules and intelligent function modules (including master/local modules) can be viewed.

**3.** **If data link cannot be performed even after the above operation is performed, perform the following:**

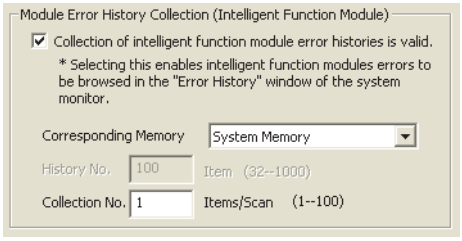
- Checking the LEDs (☞Page 430, Section 12.3)
- Troubleshooting by symptom (☞Page 434, Section 12.4)

## (2) Precautions on the "Error History" window

The following explains the master/local module errors that may be shown in the "Error History" window.
For errors of the modules other than master/local modules and functionality of the error history, refer to the manual for the relevant CPU module. ( User's Manual (Function Explanation, Program Fundamentals) of the relevant CPU module)

### (a) No error history is displayed.

In "PLC RAS" of PLC Parameter, check if the "Module Error History Collection (Intelligent Function Module)" is selected.




### (b) The time and date of the error is not correctly displayed.

For a master/local module with the serial number (first five digits) of "17051" or earlier, if an error occurred during initial processing of the CPU module, "0000/00/00 00:00:00" is displayed.

### (c) The error code is not correctly displayed.

Instead of an error code, "*HST.LOSS*" may be displayed in the "Error Code" column if errors occurred at frequent intervals in the master/local module.

| No. | Error Code | Date and Time | Model Name | Start I/O |
|---|---|---|---|---|
| 00126 | *HST.LOSS* | 2010/04/01 14:22:49 | QJ71GF11-T2 | 0000 |
| 00125 | 0C4E | 2010/04/01 14:10:30 | Q10UDHCPU | ---- |

If "*HST.LOSS*" frequently appears, increase the number of collected errors per scan in "PLC RAS" of the PLC parameter window. ( User's Manual (Function Explanation, Program Fundamentals) of the relevant CPU module)

### (d) The same error code is not displayed again.

If the same error continuously occurred, only the first error is displayed in the "Error History" window.

# 12.3 Checking the LEDs

The following explains how to troubleshoot the system by the LEDs.

## (1) When the RUN LED turns off

| Check item | Action |
|---|---|
| Is the master/local module mounted correctly? | Securely mount the master/local module on the base unit. |

If the above action does not solve the problem, perform the following tests on the master/local module to check for hardware error.

- Hardware test (☞Page 64, Section 6.2.1)
- Self-loopback test (☞Page 66, Section 6.2.2)

## (2) When the MODE LED turns off or is flashing

| Check item | Action |
|---|---|
| Is the master/local module set to online mode? | Change the mode of the master/local module to Online. (☞ Page 84, Section 7.2) |

If the above action does not solve the problem, perform the following tests on the master/local module to check for hardware error.

- Hardware test (☞Page 64, Section 6.2.1)
- Self-loopback test (☞Page 66, Section 6.2.2)

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### (3) When the D LINK LED turns off or is flashing

| Check item | Action |
|---|---|
| Is the master station connected to the network and operating normally? | • If an error has occurred in the CPU module of the master station, remove the cause of the CPU module error. (☞ Page 426, Section 12.2)<br>• Connect GX Works2 to the master station. Check if the master station is performing data link using CC-Link IE Field Network diagnostics, and take action. (☞ Page 206, CHAPTER 9) |
| | When the master station and submaster station are the module of the MELSEC-Q series, and there is a local station of the MELSEC iQ-R series module, refer to the following.<br>(☞ Page 552, Appendix 10) |
| Are 1000BASE-T-compliant Ethernet cables used? | Replace the cables with 1000BASE-T-compliant Ethernet cables.<br>(☞ Page 59, Section 5.3.1) |
| Is the station-to-station distance 100m or less? | Change the station-to-station distance to 100m or less. |
| Does the cabling condition (bend radius) meet the specification? | Refer to the manual for the Ethernet cable, and correct the bend radius. |
| Is any Ethernet cable disconnected? | Replace the Ethernet cable. |
| Are 121 or more slave stations connected? | Change the connection of the slave stations to 120 stations or less. |
| Is the loopback function enabled for the master station? | Configure the network in ring topology without a switching hub. |
| Are other stations connected to the master/local modules operating normally? | Power on the other stations. |
| Is the switching hub operating normally? | • Check if a 1000BASE-T-compliant switching hub is used.<br>(☞ Page 60, Section 5.3.2)<br>• Power off and then on the switching hub. |
| Check that the cables are not connected as described below.<br>• Both PORT1 and PORT2 are connected to a switching hub.<br>• Although the loopback function is disabled, the network is configured in ring topology.<br>• Although the loopback function is enabled, the network is configured in star topology.<br>• The network is incorrectly configured in ring topology. | • Correct the wiring. (☞ Page 49, Section 5.2.1)<br>• If the system does not contain a switching hub.<br>• When not using the loopback function<br>Disconnect an Ethernet cable connected to any station on the network (either PORT1 or PORT2).<br>The network topology will become a line topology and data link will start.<br>• When using the loopback function<br>Enable the loopback function and rewrite the network parameter to the CPU module.<br>(☞ Page 178, Section 8.7)<br>• If the system contains a switching hub.<br>1. Check if the loopback function setting is correctly configured.<br>(☞ Page 178, Section 8.7)<br>If incorrect, correct the network parameter and rewrite it to the CPU module. When data link starts across the entire network, this procedure is successful.<br>2. Disconnect one Ethernet cable connected to the switching hub and power off and then on the hub. (Repeat this operation until data link starts over the network.)<br>3. When data link starts over the network, check the network configuration by CC-Link IE Field Network diagnostics.<br>(☞ Page 206, CHAPTER 9) |
| Is the station number of the master/local module duplicated with any of the other stations? | Change the duplicated station number. |

If the above actions do not solve the problem, perform the following tests on the master/local module to check for an error.

- Hardware test (☞ Page 64, Section 6.2.1)
- Self-loopback test (☞ Page 66, Section 6.2.2)
- Loop test (☞ Page 71, Section 6.4.1)
- Cable test (☞ Page 78, Section 6.4.2)

### (4) When the ERR. LED turns on

Connect GX Works2 to the CPU module mounted with the master/local station whose ERR. LED is on, identify the cause of the error, and take action. (☞ Page 426, Section 12.2)
If the cause of the error cannot be identified using GX Works2, perform the following tests to the master/local module to check for hardware error.

- Hardware test (☞ Page 64, Section 6.2.1)
- Self-loopback test (☞ Page 66, Section 6.2.2)

### (5) When the ERR. LED is flashing

| Check item | Action |
|---|---|
| Is the disconnected station displayed in the network map of the CC-Link IE Field diagnostics? | Perform the troubleshooting shown in "When the D LINK LED turned off or is flashing". (☞ Page 431, Section 12.3 (3)) |

If the above action does not solve the problem, "Total Stations" set in the Network Parameter window for the master station differs from the number of slave stations on the network. Correct the parameter.

### (6) When the L ERR. LED turns on

| Check item | Action |
|---|---|
| Are the Ethernet cables operating normally? | • Check if 1000BASE-T-compliant Ethernet cables are used. (☞ Page 34, Section 3.2)<br>• Check if the station-to-station distance is 100m or less. (☞ Page 70, Section 6.3 (2))<br>• Check if the Ethernet cables are not disconnected. |
| Is the switching hub operating normally? | • Check if a 1000BASE-T-compliant switching hub is used. (☞ Page 60, Section 5.3.2)<br>• Check if the switching hub is on. |
| Are other stations connected to the master/local modules operating normally? | Check if the systems on other stations are on. |
| Is the master station set to online mode? | Change the mode of the module to Online. (☞ Page 84, Section 7.2) |
| Is there any noise affecting the system? | Check the wiring condition. |
| Is the loopback function enabled for the master station? | When the loopback function is enabled, check if the ring topology is correctly configured for the port where the L ERR. LED is on. (☞ Page 49, Section 5.2.1) |

If the above actions do not solve the problem, follow the directions shown in "Communication is unstable". (☞ Page 436, Section 12.4.5)

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### (7) When the LINK LED turns off

| Check item | Action |
|---|---|
| Are 1000BASE-T-compliant Ethernet cables used? | Replace the cables with 1000BASE-T-compliant Ethernet cables. (☞ Page 59, Section 5.3.1) |
| Is the station-to-station distance 100m or less? | Change the station-to-station distance to 100m or less. |
| Does the cabling condition (bend radius) meet the specification? | Refer to the manual for the Ethernet cable, and correct the bend radius. |
| Is any Ethernet cable disconnected? | Replace the Ethernet cable. |
| Are the switching hub and other stations connected to the master/local module normal? | Power on the switching hub and the other stations. |

If the above actions do not solve the problem, perform the following tests on the master/local module to check for an error.

- Hardware test (☞ Page 64, Section 6.2.1)
- Self-loopback test (☞ Page 66, Section 6.2.2)
- Cable test (☞ Page 78, Section 6.4.2)

# 12.4 Troubleshooting by Symptom

Troubleshooting methods are described by symptom. Perform these troubleshooting if data link cannot be performed even though no error is detected in the master/local module.
If an error has occurred in the master/local module, identify the error cause using GX Works2.
(☞ Page 426, Section 12.2)

## 12.4.1 Cyclic transmission cannot be performed

The following lists the actions to be taken if cyclic data are not delivered to the master or a slave station.

| Check item | Action |
|---|---|
| Is the D LINK LED of the master or slave station on? | If the D LINK LED is flashing or off, perform troubleshooting. (☞ Page 431, Section 12.3 (3)) |
| In the network configuration settings of the master station, is a slave station specified as a reserved station? | Cancel the reserved station setting. (☞ Page 88, Section 7.3) |
| In the network configuration settings of the master station, is "RX/RY Setting" or "RWw/RWr Setting" for slave stations configured? | Set RX/RY or RWw/RWr data for each slave station within the allowable range. (☞ Page 88, Section 7.3) |
| Do the station numbers set in the network configuration settings of the master station match those set for corresponding slave stations? | Correct station number (s). |
| Do the station types set in the network configuration settings of the master station match those set for the connected slave stations? | Check the station types set in the network configuration settings of the master station. |
| Are the refresh parameters set within correct ranges? | Correct the refresh parameters. Link devices and link refresh assignment can be confirmed in either of the following.<br>• Network Configuration Settings (☞ Page 88, Section 7.3)<br>• "Assignment Image" window (☞ Page 103, Section 7.5 (1)) |
| Is any refresh target device in the refresh parameter window overlapped with that of another network module? | Correct the refresh parameters. Overlap of a refresh target device can be checked in the "Assignment Image" window through GX Works2. (☞ Page 103, Section 7.5 (1)) |
| Are the transfer ranges for interlink transmission parameters correct? | Check the interlink transmission parameters. Overlapping of a transfer range can be checked in the assignment image in GX Works2. (☞ Page 103, Section 7.5 (1)) |
| Are the source and destination modules correctly set for interlink transmission parameters? | Check the interlink transmission parameters. (☞ Page 113, Section 7.7) |
| Is the station number of the master/local module duplicated with any of the other stations? | Change the duplicated station number. |

If the above actions do not solve the problem, perform the following tests on the master/local module to check for hardware error.

- Hardware test (☞ Page 64, Section 6.2.1)
- Self-loopback test (☞ Page 66, Section 6.2.2)

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## 12.4.2 Transient transmission cannot be performed

The following lists the actions to be taken if transient transmission cannot be performed with the target station, and GX Works2 cannot perform monitoring.

| Check item | Action |
|---|---|
| Is the D LINK LED of the master or slave station on or flashing? | If the D LINK LED is off, perform troubleshooting. (☞ Page 431, Section 12.3 (3)) |
| Is the baton pass status of the destination normal? | In the CC-Link IE Field Network diagnostics, identify the cause of the error and take action. (☞ Page 206, CHAPTER 9) |
| Are the following control data of the dedicated instruction correct?<br>• Target station's CPU type<br>• Target station's network number<br>• Target station number | Correct the control data of the dedicated instruction. |
| Is the station number of the master/local module duplicated with any of the other stations? | Change the duplicated station number. |

If the above actions do not solve the problem, perform the following tests on the master/local module to check for an error.

- Hardware test (☞ Page 64, Section 6.2.1)
- Self-loopback test (☞ Page 66, Section 6.2.2)
- Communication test (☞ Page 79, Section 6.4.3)

## 12.4.3 Station is disconnected from the network

The following is the troubleshooting action to be taken when a station in data link is disconnected.

| Check item | Action |
|---|---|
| Is the ambient temperature for the module within the specified range? | Keep the ambient temperature within the specified range by taking action such as removing heat source. |

If the above action does not solve the problem, perform the following tests on the master/local module to check for an error.

- Hardware test (☞ Page 64, Section 6.2.1)
- Self-loopback test (☞ Page 66, Section 6.2.2)
- Cable test (☞ Page 78, Section 6.4.2)

## 12.4.4 Station is repeatedly disconnected and reconnected

The following lists the troubleshooting actions to be taken when a station in data link is repeatedly disconnected and reconnected.

| Check item | Action |
|---|---|
| Are 1000BASE-T-compliant Ethernet cables used? | Replace the cables with 1000BASE-T-compliant Ethernet cables. (☞ Page 59, Section 5.3.1) |
| Is the station-to-station distance 100m or less? | Change the station-to-station distance to 100m or less. |
| Does the cabling condition (bend radius) meet the specification? | Refer to the manual for the Ethernet cable, and correct the bend radius. |
| Is any Ethernet cable disconnected? | Replace the Ethernet cable. |
| Is the switching hub normal? | Power on the switching hub. |

If the above actions do not solve the problem, perform the following tests on the master/local module to check for an error.

- Hardware test (☞Page 64, Section 6.2.1)
- Self-loopback test (☞Page 66, Section 6.2.2)
- Cable test (☞Page 78, Section 6.4.2)

## 12.4.5 Communication is unstable

The following lists the troubleshooting actions to be taken when link scan time or transmission delay time is long or when a transient transmission timeout occurred.

| Check item | Action |
|---|---|
| Is the L ERR. LED of the master or slave station off? | If the L ERR. LED is on or flashing, perform troubleshooting. (☞Page 432, Section 12.3 (6)) |
| Is the ambient temperature for the module within the specified range? | Keep the ambient temperature within the specified range by taking action such as removing heat source. |
| Is any error shown in "Selected Station Communication Status Monitor" of CC-Link IE Field Network diagnostics? | If an error is identified at PORT1 or PORT2, perform a cable test and a self-loopback test. |
| Is there any noise affecting the system? | Check the wiring condition. |

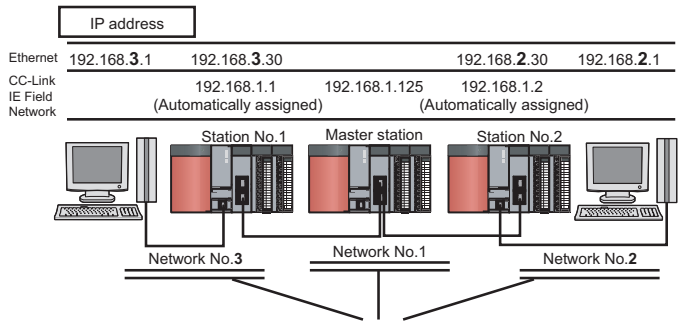
If the above actions do not solve the problem, perform the following tests on the master/local module to check for an error.

- Hardware test (☞Page 64, Section 6.2.1)
- Self-loopback test (☞Page 66, Section 6.2.2)
- Cable test (☞Page 78, Section 6.4.2)

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# 12.4.6 IP communications cannot be performed using the IP packet transfer function

Before troubleshooting the problem as listed below, execute the IP communication test and take corrective actions according to the error code. (☞ Page 156, Section 8.3.3)
If the problem cannot be solved using the IP communication test, execute the actions listed below.

| Check item | Action |
|---|---|
| Is the IP address of the connected Ethernet device correct? | Set an IP address meeting the IP address setting rules. (☞ Page 149, Section 8.3.2 (1)) |
| Is the IP address already in use? | • For the Ethernet device, set the IP address different from that of other devices on the network, such as a CPU module, master/local module, and Ethernet adapter module.<br>• Disconnect the Ethernet device from the line and execute the Ping command to the IP address of the disconnected Ethernet device. If a response is received even though the device is disconnected, the IP address is already in use. Change the IP address. |
| Has a communication time over error occurred in the IP communication test? | Check "Relay Network No." in the routing parameters. |
| Have the routing parameters correctly been set? | • Check and correct the routing parameters. (☞ Page 152, Section 8.3.2 (2))<br>• When the first and second octets of the IP address are the same for the request source device, request destination device, and modules between them, set the routing parameters so that the third octet of the IP address of the Ethernet device is used as "Target Network No.". |
| Is the network number of the Ethernet device side (the third octet of the IP address) the same as that of modules and another Ethernet device? (This applies only when the request source external device, request destination external device, and modules between them have the same first and second octets of the IP address.) | Change the network number of the Ethernet device side (the third octet of the IP address) to the one different from that of modules and another Ethernet device.<br>  <br>Change the network numbers to those not used for other stations. |
| Is the CC-Link IE Field Network gateway setting correct? (This applies only when the request source device, request destination device, and modules between them do not have the same first and second octets of the IP address.) | • Check and correct the setting in the module supporting the CC-Link IE Field Network gateway setting. ( Manual for the module supporting the CC-Link IE Field Network gateway setting used)<br>• Use the routing parameters to set the communication route to the CC-Link IE Field Network gateway setting station. |
| Are settings configured in modules connected to the Ethernet device correct?<br>• First and second octets of the IP address<br>• Subnet mask pattern<br>• Default router IP address | Check and correct the settings. |
| Is the firewall enabled on the Ethernet device? | Check and correct the firewall settings on the Ethernet device.<br>Ex.<br>Is a response to the Ping command (ICMP echo request) enabled? |

| Check item | Action |
|---|---|
| Is the antivirus software on the Ethernet device blocking the communications? | Check and correct the antivirus software settings on the Ethernet device.<br><br>Ex.<br>• Is the security setting level of the antivirus software low?<br>• Is a response to the Ping command (ICMP echo request) enabled in the firewall settings? |
| When the Ethernet device has two or more Ethernet ports, have different default gateway settings been configured for each Ethernet port? | • Set the same IP address in the default gateway of each Ethernet port.<br>• Set the communication route on the Ethernet device side using the route command so that communications using the IP packet transfer function can be transmitted to the Ethernet device through the module connected to the Ethernet device.<br>(This applies only to Ethernet devices that have the route command, such as Microsoft® Windows®.)<br><br>When the gateway setting is completed, execute the Ping command from the Ethernet device to check whether communications can be performed. |
| Is the switching hub normal? | • If an error has occurred in the switching hub, remove the error.<br>• If communications cannot be performed although no error has occurred in the switching hub, replace the switching hub.*1 |
| Has any device on the line, such as an Ethernet device, CPU module, Ethernet adapter module, and switching hub, been replaced? (This applies only when the device has been replaced by the one having the same IP address.) | Reset the device on the line.*2 |

*1 When the device has been reconnected to the switching hub, or the switching hub has been replaced, it may take some time to read the MAC address. If so, retry communications from the Ethernet device again after a while or power on the switching hub again.

*2 A device on Ethernet has a table of IP addresses and their corresponding MAC address, called "ARP cache". When a device on the line is replaced by the one having the same IP address, the MAC address in the ARP cache is different from that of the replaced device; therefore, communications may not be normally performed. The ARP cache is updated by resetting the device or after a while. The time varies depending on the device.

If the above actions do not solve the problem, perform the following tests on the master/local module to check for an error.

- Hardware test (☞Page 64, Section 6.2.1)
- Self-loopback test (☞Page 66, Section 6.2.2)
- Cable test (☞Page 78, Section 6.4.2)

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# 12.5 Error Code List

Error codes of the master/local module are listed below.

| Error code | Error | Action |
|---|---|---|
| $4000_H$ to $4FFF_H$ | Error detected in a CPU module ( User's manual for the CPU module used)) | |
| $7000_H$ to $7FFF_H$ | Error detected in a module such as a serial communication module ( User's manual for the serial communication module used) | |
| $B000_H$ to $BFFF_H$ | Error detected in a CC-Link system ( User's manual for the CC-Link system master/local module used) | |
| $C000_H$ to $CFFF_H$ | Error detected in an Ethernet interface module ( User's manual for the Ethernet interface module used, QnUCPU User's Manual (Communication via Built-in Ethernet Port), MELSEC-L CPU Module User's Manual (Built-In Ethernet Function)) | |
| $D000_H$ to $D007_H$ | Network module failure | • A malfunction may have occurred due to noise. Check the wire and cable distances and grounding condition of each device, and take measures against noise.<br>• Execute hardware and self-loopback tests. If a failure occurs again, the hardware of the master/local module may be faulty. Please consult your local Mitsubishi representative. |
| $D00F_H$ | Network module failure | • A malfunction may have occurred due to noise. Check the wire and cable distances and grounding condition of each device, and take measures against noise.<br>• Execute hardware and self-loopback tests. If a failure occurs again, the hardware of the master/local module may be faulty. Please consult your local Mitsubishi representative. |
| $D010_H$ | Parameter error (RX size over) | Correct the points assigned to the RX devices. |
| $D011_H$ | Parameter error (RY size over) | Correct the points assigned to the RY devices. |
| $D012_H$ | Parameter error (RWw size over) | Correct the points assigned to the RWw devices. |
| $D013_H$ | Parameter error (RWr size over) | Correct the points assigned to the RWr devices. |
| $D014_H$ to $D016_H$ | Network module failure | • A malfunction may have occurred due to noise. Check the wire and cable distances and grounding condition of each device, and take measures against noise.<br>• Execute hardware and self-loopback tests. If a failure occurs again, the hardware of the master/local module may be faulty. Please consult your local Mitsubishi representative. |
| $D018_H$ | Parameter error (constant link scan time error) | Correct the constant link scan time. |
| $D019_H$ to $D01C_H$ | Network module failure | • A malfunction may have occurred due to noise. Check the wire and cable distances and grounding condition of each device, and take measures against noise.<br>• Execute hardware and self-loopback tests. If a failure occurs again, the hardware of the master/local module may be faulty. Please consult your local Mitsubishi representative. |

| Error code | Error | Action |
|---|---|---|
| $D020_H$ | Network module failure | • A malfunction may have occurred due to noise. Check the wire and cable distances and grounding condition of each device, and take measures against noise.<br>• Execute hardware and self-loopback tests. If a failure occurs again, the hardware of the master/local module may be faulty. Please consult your local Mitsubishi representative. |
| $D030_H$ to $D033_H$ | Connection failure | Correct the wiring. |
| $D035_H$ | Connection failure | Correct the wiring. |
| $D036_H$ | Network module failure | • A malfunction may have occurred due to noise. Check the wire and cable distances and grounding condition of each device, and take measures against noise.<br>• Execute hardware and self-loopback tests. If a failure occurs again, the hardware of the master/local module may be faulty. Please consult your local Mitsubishi representative. |
| $D037_H$ | Incorrect number of stations | • Check the network status using the CC-Link IE Field Network diagnostics of the programming tool.<br>• If the number of slave stations (including a submaster station) per network is more than 120, reduce it to 120 or less. |
| $D038_H$ | No corresponding station (IP communication test) | If the own station, target station, or relay station is disconnected from the network, identify the cause of the disconnection and take action. |
| $D039_H$ | IP packet transfer function not supported (IP communication test) | Check the first five digits of the serial number of the module on the station on the route next to the faulty station.<br>If the module does not support the used function, replace it with the module with the latest version. |
| $D040_H$ | Network module failure | • A malfunction may have occurred due to noise. Check the wire and cable distances and grounding condition of each device, and take measures against noise.<br>• Execute hardware and self-loopback tests. If a failure occurs again, the hardware of the master/local module may be faulty. Please consult your local Mitsubishi representative. |
| $D041_H$ | Incorrect number of stations | • Check the network status using the CC-Link IE Field Network diagnostics of the programming tool.<br>• If the number of slave stations (including a submaster station) per network is more than 120, reduce it to 120 or less. |
| $D043_H$ | Flash ROM failure | The maximum number of writes to the flash ROM is exceeded. Replace the master/local module. |
| $D044_H$ | Flash ROM failure | The flash ROM may be faulty. Execute hardware and self-loopback tests. If a failure occurs again, the hardware of the master/local module may be faulty. Please consult your local Mitsubishi representative. |
| $D080_H$ to $D084_H$ | Network module failure | • A malfunction may have occurred due to noise. Check the wire and cable distances and grounding condition of each device, and take measures against noise.<br>• Execute hardware and self-loopback tests. If a failure occurs again, the hardware of the master/local module may be faulty. Please consult your local Mitsubishi representative. |
| $D0A0_H$ | Transient data transmission response wait timeout | • If the own station, target station, or relay station is disconnected from the network, identify the cause of the disconnection and take action.<br>• When the mode of the master station (submaster station) is "Online (High Speed Mode)", change it to "Online (Normal Mode)" and retry the operation.<br>• When the target station or the relay station is overloaded and cannot receive transient data, reduce the frequency of transient transmission and retry the operation. |

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| Error code | Error | Action |
|---|---|---|
| $D0A1_H$ | Transient data transmission completion wait timeout | • Check if the cables and the switching hub are connected properly.<br>• Connect the cable to the other port on the module, and retry the operation.<br>• Reduce the frequency of transient transmission, and retry the operation.<br>• Execute hardware and self-loopback tests. If a failure occurs again, the hardware of the master/local module may be faulty. Please consult your local Mitsubishi representative. |
| $D0A2_H$ | Transient data transmission processing wait timeout | • Reduce the frequency of transient transmission, and retry the operation.<br>• Check if the switching hub and the cables at the request source are connected properly. |
| $D0A3_H$ | Transient data transmission error | • If the own station, target station, or relay station is disconnected from the network, identify the cause of the disconnection and take action.<br>• Correct the number of the station for which transient data is to be sent, and retry the operation.<br>• If the station for which transient data is to be sent is on another network, check if the routing parameters for each station are correctly set. |
| $D0A4_H$ to $D0A6_H$ | Transient transmission failed | • Check if the cables and the switching hub are connected properly.<br>• Connect the cable to the other port on the module, and retry the operation.<br>• Reduce the frequency of transient transmission, and retry the operation.<br>• Execute hardware and self-loopback tests. If a failure occurs again, the hardware of the master/local module may be faulty. Please consult your local Mitsubishi representative. |
| $D0A7_H$ | Transient reception failed | • Check if the cables and the switching hub are connected properly.<br>• Connect the cable to the other port on the module, and retry the operation.<br>• Reduce the frequency of transient transmission, and retry the operation.<br>• Execute hardware and self-loopback tests. If a failure occurs again, the hardware of the master/local module may be faulty. Please consult your local Mitsubishi representative. |
| $D0C0_H$ | Reserved station specification failed (another process in progress) | Wait for a while, and reserve the station again. |
| $D0C1_H$ | Reserved station cancellation failed (another process in progress) | Wait for a while, and cancel the reserved station setting again. |
| $D0C2_H$ | Data link stop failed (another process in progress) | Wait for a while, and instruct the data link stop again. |
| $D0C3_H$ | Data link start failed (another process in progress) | Wait for a while, and instruct the data link start again. |
| $D0C4_H$ | Temporary error invalid station setting failed (another process in progress) | Wait for a while, and set the temporary error invalid station again. |
| $D0C5_H$ | Temporary error invalid station cancellation failed (another process in progress) | Wait for a while, and cancel the temporary error invalid station setting again. |
| $D0C6_H$ | Another station number setting change failed (another process in progress) | Wait for a while, and set the station number of another station. |
| $D0D0_H$ | Another station number setting failed (another process in progress) | Wait for a while, and set the station number of another station. |
| $D0E0_H$ | Station type mismatch | In the network configuration settings of the master station (submaster station), change the station type to that of the own station. |
| $D0E1_H$ | Own station reserved | • In the network configuration settings of the master station (submaster station), cancel the reserved station setting.<br>• Change the station number of the own station to a station number that is not reserved. |
| $D0E2_H$ | Station No. already in use (own station) | • Set a unique station number.<br>• After taking the above action, power off and on all the stations where this error has been detected or reset them. |

| Error code | Error | Action |
|---|---|---|
| $D0E3_H$ | Own station No. out of range | Add the station information of the own station in the network configuration settings of the master station (submaster station). |
| $D0E4_H$ | Multiple master stations (including own station) | • Check the network status using the CC-Link IE Field Network diagnostics of the programming tool.<br>• Check if the cables and the switching hub are connected properly.<br>• After taking the above actions, power off and on all the stations where this error has been detected or reset them. |
| $D0E5_H$ | Multiple submaster stations (including own station) | • Check the network status using the CC-Link IE Field Network diagnostics of the programming tool.<br>• Check if the cables and the switching hub are connected properly.<br>• After taking the above actions, power off and on all the stations where this error has been detected or reset them. |
| $D0F0_H$ | Network module failure | • A malfunction may have occurred due to noise. Check the wire and cable distances and grounding condition of each device, and take measures against noise.<br>• Execute hardware and self-loopback tests. If a failure occurs again, the hardware of the master/local module may be faulty. Please consult your local Mitsubishi representative. |
| $D100_H$ and $D101_H$ | Network module failure | • A malfunction may have occurred due to noise. Check the wire and cable distances and grounding condition of each device, and take measures against noise.<br>• Execute hardware and self-loopback tests. If a failure occurs again, the hardware of the master/local module may be faulty. Please consult your local Mitsubishi representative. |
| $D110_H$ to $D113_H$ | Network module failure | • A malfunction may have occurred due to noise. Check the wire and cable distances and grounding condition of each device, and take measures against noise.<br>• Execute hardware and self-loopback tests. If a failure occurs again, the hardware of the master/local module may be faulty. Please consult your local Mitsubishi representative. |
| $D200_H$ | Transient data received twice | • Check the network status using the CC-Link IE Field Network diagnostics of the programming tool.<br>• Check if the cables and the switching hub are connected properly.<br>• If the request source resides in another network, check if the routing parameters are correctly set, and take corrective action. |
| $D201_H$ | Header information error in transient transmission | Correct the header information at the request source, and retry the operation. |
| $D202_H$ | Send buffer full | • Reduce the frequency of transient transmission, and retry the operation.<br>• When the mode of the master station (submaster station) is "Online (High Speed Mode)", change it to "Online (Normal Mode)" and retry the operation.<br>• Check if the cables and the switching hub are connected properly. |
| $D203_H$ | Read/write address error in transient transmission | Correct the read/write address at the request source, and retry the operation. |
| $D204_H$ | Network No. error in transient transmission | • Correct the network number at the request source, and retry the operation.<br>• If the request source is on another network, check if the routing parameters are correctly set. |
| $D205_H$ | Target station No. error in transient transmission | Correct the target station number at the request source, and retry the operation. |
| $D206_H$ | Network No. error in transient transmission | • Correct the network number at the request source, and retry the operation.<br>• If the request source is on another network, check if the routing parameters are correctly set. |

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| Error code | Error | Action |
|---|---|---|
| $D207_H$ | Invalid number of relays in transient transmission | • Change the system configuration so that the number of relay stations may be seven or less.<br>• Check if the routing parameters are correctly set.<br>• When the IP communication test is executed, change the IP address in the "Communication Target" so that the number of relay stations may be 127 or less. |
| $D208_H$ | Network No. error in transient transmission | • Correct the network number at the request source, and retry the operation.<br>• If the request source is on another network, check if the routing parameters are correctly set. |
| $D209_H$ | Target station No. error in transient transmission | Correct the target station number at the request source, and retry the operation. |
| $D20A_H$ | Target station No. error in transient transmission | |
| $D20B_H$ | Specified master station No. error in transient transmission | |
| $D20C_H$ | Current master station No. error in transient transmission | |
| $D20D_H$ | Transient data transmission completion wait timeout | • Check the network status using the CC-Link IE Field Network diagnostics of the programming tool.<br>• When the own station, target station, or relay station detected an error, identify the cause of the error and take action.<br>• Reduce the frequency of transient transmission, and retry the operation.<br>• When the mode of the master station (submaster station) is "Online (High Speed Mode)", change it to "Online (Normal Mode)" and retry the operation.<br>• Check if the switching hub and the cables at the request source are connected properly. |
| $D20E_H$ | Header information error in transient transmission | Correct the header information at the request source, and retry the operation. |
| $D20F_H$ | Target station No. error in transient transmission | Check that the command can be requested to all or a group of stations at the request source, and retry the operation. |
| $D210_H$ | Target station No. error in transient transmission | Correct the header information at the request source, and retry the operation. |
| $D211_H$ | Own station No. not set (dedicated instruction) | Set the station number in the parameter setting, and retry the operation. |
| $D212_H$ | Transient transmission failed | • Check if the switching hub and the cables at the request source are connected properly.<br>• Connect the cable to the other port on the request source, and retry the operation.<br>• Reduce the frequency of transient transmission, and retry the operation. |
| $D213_H$ | Transient data command error | • Correct the request command at the request source, and retry the operation.<br>• Check the first five digits of the serial number of the master/local module. If the module does not support the used function, replace it with the module with the latest version. |
| $D214_H$ | Transient data length error | Correct the data length at the request source, and retry the operation. |
| $D215_H$ | Transient data request error | Change the mode to Online, and retry the operation. |
| $D216_H$ and $D217_H$ | Transient data command error | Correct the request command at the request source, and retry the operation. |
| $D218_H$ | Incorrect number of read/write transient data | Correct the number of read/write device data at the request source, and retry the operation. |
| $D219_H$ | Transient data attribute code error | Correct the attribute code at the request source, and retry the operation. |
| $D21A_H$ | Transient data access code error | Correct the access code at the request source, and retry the operation. |

| Error code | Error | Action |
|---|---|---|
| $D21B_H$ and $D21C_H$ | Transient data request error | • Abnormal transient data were issued from the CPU module.<br>• Replace the CPU module and retry the operation.<br>• If this error persists, please consult your local Mitsubishi representative. |
| $D21D_H$ | Network No. error in transient transmission | • A cable test cannot be executed for a different network. Correct "Testing Station Setting", and execute the cable test again.<br>• Transient data that cannot be sent to a different network were received. Correct the network number or the target station number at the request source, and retry the operation. |
| $D21E_H$ | Target station No. error in transient transmission | • A communication test cannot be executed on a sending (relay) station. Correct the "Target Station" setting, and execute the communication test again.<br>• Transient data of the application type that cannot be executed on the own station were received. Correct the application type or the target station number at the request source, and retry the operation. |
| $D21F_H$ | Target station type error (dedicated instruction) | • The SEND instruction cannot be executed on the target station.<br>• Modify the program so that the SEND instruction may not be executed on the target station. |
| $D220_H$ | No master station | • Add a master station to the network. |
| $D222_H$ | Transient data command error | Correct the request command at the request source, and retry the operation. |
| $D223_H$ | Transient error | • Check the network status using the CC-Link IE Field Network diagnostics of the programming tool.<br>• Check if the cables and the switching hub are connected properly.<br>• If the request source is on another network, check if the routing parameters are correctly set.<br>• If this error persists, please consult your local Mitsubishi representative. |
| $D22E_H$ | Station No. setting not available for the target station | • Although change of the target station number was attempted online from the master station (submaster station), the target station does not have the online station number setting function.<br>• Check the manual for the target station if the station number setting function is available.<br>• If the module supports the function, please consult your local Mitsubishi representative. |
| $D22F_H$ | No baton pass executed in the target station | Check the communication status of the station whose station number is to be changed. |
| $D230_H$ | Invalid station No. setting | • The station number change was attempted for the own station (master station or submaster station).<br>• Check that no station number is set for the target station. |
| $D231_H$ | Station No. already set for the target station | • The station number has been already set for the target station.<br>• Check that no station number is set for the target station. |
| $D232_H$ | Station No. setting target not exist | • The station where the station number change was attempted does not exist.<br>• Check that no station number is set for the target station. |
| $D233_H$ | Station No. setting out of range | Set the station number within 1 to 120, and retry the operation. |
| $D234_H$ | No baton pass executed | Check the communication status. |
| $D235_H$ | Transient error | • Check the network status using the CC-Link IE Field Network diagnostics of the programming tool.<br>• Check if the cables and the switching hub are connected properly.<br>• If the request source is on another network, check if the routing parameters are correctly set.<br>• If this error persists, please consult your local Mitsubishi representative. |
| $D236_H$ | IP data TTL error | Correct the TTL at the IP request source and retry the operation. |
| $D237_H$ | IP address setting error | Correct the IP address of the master station (submaster station) and retry the operation. |

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| Error code | Error | Action |
|---|---|---|
| $D23D_H$ | Slave information acquisition failure | • Correctly set the network configuration setting and write the setting data to the CPU module again.<br>• If this error persists, please consult your local Mitsubishi representative. |
| $D23E_H$ | Slave information acquisition failure | • Correctly set the network configuration setting and write the setting data to the CPU module again.<br>• If this error persists, please consult your local Mitsubishi representative. |
| $D240_H$ | Target network No. error (dedicated instruction) | • Correct the network number at the request source of the dedicated instruction, and retry the operation.<br>• If the request source is on another network, check if the routing parameters are correctly set. |
| $D241_H$ | Target station No. error (dedicated instruction) | • Correct the target station number at the request source of the dedicated instruction, and retry the operation.<br>• If the request source is on another network, check if the routing parameters are correctly set. |
| $D242_H$ | Command code error (dedicated instruction) | • Correct the command code at the request source of the dedicated instruction, and retry the operation.<br>• If the request source is on another network, check if the routing parameters are correctly set. |
| $D243_H$ | Used channel error (dedicated instruction) | • Set the used channel within the allowable range at the request source of the dedicated instruction, and retry the operation.<br>• If the request source is on another network, check if the routing parameters are correctly set. |
| $D244_H$ | Incorrect transient data | • Correct the transient data at the request source, and retry the operation.<br>• If this error persists, please consult your local Mitsubishi representative. |
| $D245_H$ | Target station No. error (dedicated instruction) | • Correct the target station number at the request source of the dedicated instruction, and retry the operation.<br>• If the request source is on another network, check if the routing parameters are correctly set. |
| $D246_H$ | Incorrect transient data | • Correct the transient data at the request source, and retry the operation.<br>• If this error persists, please consult your local Mitsubishi representative. |
| $D247_H$ | Dedicated instruction received twice | • Check the network status using the CC-Link IE Field Network diagnostics of the programming tool.<br>• Check if the switching hub and the cables at the request source are connected properly.<br>• If the request source is on another network, check if the routing parameters are correctly set. |
| $D248_H$ | Incorrect transient data | • Correct the transient data at the request source, and retry the operation.<br>• If this error persists, please consult your local Mitsubishi representative. |
| $D249_H$ | Target station's CPU type error (dedicated instruction) | • Correct the target station's CPU type at the request source of the dedicated instruction, and retry the operation.<br>• If the request source is on another network, check if the routing parameters are correctly set. |
| $D24A_H$ | Arrival monitoring time error (dedicated instruction) | • Correct the arrival monitoring time at the request source of the dedicated instruction, and retry the operation.<br>• When the own station, target station, or relay station detected an error, identify the cause of the error and take action.<br>• Reduce the frequency of transient transmission, and retry the operation.<br>• When the mode of the master station (submaster station) is "Online (High Speed Mode)", change it to "Online (Normal Mode)" and retry the operation.<br>• Check if the switching hub and the cables at the request source are connected properly. |

| Error code | Error | Action |
|---|---|---|
| $D24B_H$ | Number of resends error (dedicated instruction) | • Correct the number of resends at the request source of the dedicated instruction, and retry the operation.<br>• When the own station, target station, or relay station detected an error, identify the cause of the error and take action.<br>• Reduce the frequency of transient transmission, and retry the operation.<br>• When the mode of the master station (submaster station) is "Online (High Speed Mode)", change it to "Online (Normal Mode)" and retry the operation.<br>• Check if the switching hub and the cables at the request source are connected properly. |
| $D24C_H$ | Target network No. error (dedicated instruction) | • Correct the network number at the request source of the dedicated instruction, and retry the operation.<br>• If the request source is on another network, check if the routing parameters are correctly set. |
| $D24D_H$ | Used channel error (dedicated instruction) | • When executing the SEND instruction, set 1 or 2 for the target channel No. (control data).<br>• When executing the REMFR or REMTO instruction, set a value from 1 to 32 for the channel number. |
| $D24E_H$ | Target station setting error (dedicated instruction) | • The value set for the control block of the dedicated instruction is out of range. Correct the value, and retry the operation.<br>• If this error persists, please consult your local Mitsubishi representative. |
| $D24F_H$ | Own station No. not set (dedicated instruction) | • Set the station number in the network parameter window, and retry the operation.<br>• If this error persists, please consult your local Mitsubishi representative. |
| $D250_H$ | Flash ROM failure | • The flash ROM may be faulty. Check the wire and cable distances and grounding condition of each device, and take measures against noise.<br>• Execute hardware and self-loopback tests. If a failure occurs again, the hardware of the master/local module may be faulty. Please consult your local Mitsubishi representative. |
| $D251_H$ | Arrival check error (dedicated instruction) | • Increase the number of resends at the request source of the dedicated instruction, and retry the operation.<br>• When the own station, target station, or relay station detected an error, identify the cause of the error and take action.<br>• Reduce the frequency of transient transmission, and retry the operation.<br>• When the mode of the master station (submaster station) is "Online (High Speed Mode)", change it to "Online (Normal Mode)" and retry the operation.<br>• Check if the switching hub and the cables at the request source are connected properly. |
| $D252_H$ | Transmission completion wait timeout (dedicated instruction) | • Check the network status using the CC-Link IE Field Network diagnostics of the programming tool.<br>• Increase the number of resends at the request source of the dedicated instruction, and retry the operation.<br>• Reduce the frequency of transient transmission, and retry the operation.<br>• When the mode of the master station (submaster station) is "Online (High Speed Mode)", change it to "Online (Normal Mode)" and retry the operation.<br>• Correct the number of link dedicated instructions that have been simultaneously executed within the range. (☞ Page 241, Section 10.2.2 (1) (c))<br>• If this error persists, please consult your local Mitsubishi representative. |

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| Error code | Error | Action |
|---|---|---|
| $D253_H$ | Response timer timeout (dedicated instruction) | • Check the network status using the CC-Link IE Field Network diagnostics of the programming tool.<br>• Increase the number of resends at the request source of the dedicated instruction, and retry the operation.<br>• Reduce the frequency of transient transmission, and retry the operation.<br>• When the mode of the master station is "Online (High Speed Mode)", change it to "Online (Normal Mode)" and retry the operation.<br>• Correct the number of link dedicated instructions that have been simultaneously executed within the range. (☞ Page 241, Section 10.2.2 (1) (c))<br>• If this error persists, please consult your local Mitsubishi representative. |
| $D254_H$ | Unsupported request received (dedicated instruction) | • Change the target station at the station that executed the SEND instruction.<br>• If this error persists, please consult your local Mitsubishi representative. |
| $D255_H$ | Target station No. error (dedicated instruction) | • Correct the value in Target station number (control data), and retry the operation.<br>• If this error persists, please consult your local Mitsubishi representative. |
| $D256_H$ | Execution/abnormal end type error (dedicated instruction) | • Correct the value in Execution/abnormal end type (control data), and retry the operation.<br>• If this error persists, please consult your local Mitsubishi representative. |
| $D257_H$ | Request type error (REQ) | • Correct the value in Request type (request data), and retry the operation.<br>• If this error persists, please consult your local Mitsubishi representative. |
| $D258_H$ | Specified/current control station not exist (dedicated instruction) | • Correct the value in Target station number (control data), and retry the operation.<br>• If this error persists, please consult your local Mitsubishi representative. |
| $D259_H$ | Mode error during dedicated instruction execution | • Change the mode of the master station from "Loop test" to "Online", and retry the operation.<br>• If this error persists, please consult your local Mitsubishi representative. |
| $D25A_H$ | Channel in use (dedicated instruction) | • Retry the operation after a while.<br>• Change the value in Channels used by own station or Target station's channel (control data). |
| $D25B_H$ | Channel in use (dedicated instruction) | Change the value in Channels used by own station or Target station's channel (control data). |
| $D25C_H$ | Invalid function version (dedicated instruction) | • The value set for the control block of the dedicated instruction is out of range. Correct the value, and retry the operation.<br>• If this error persists, please consult your local Mitsubishi representative. |
| $D25D_H$ | Incorrect transient data | • Correct the transient data at the request source, and retry the operation.<br>• If this error persists, please consult your local Mitsubishi representative. |
| $D25E_H$ | Dedicated instruction in use | • Another CC-Link dedicated instruction is in execution. Retry the operation after a while.<br>• If this error persists, please consult your local Mitsubishi representative. |
| $D25F_H$ | Station type error (REMFR/REMTO execution station) | The REMFR/REMTO instructions cannot be used for stations other than the master station, local station, and submaster station. Modify the program to the one without the instructions. |
| $D260_H$ | Station type error (REMTO execution station) | The REMTO instruction cannot be used for a station other than a master operating station. |
| $D261_H$ | Station type error (CCPASET execution station) | • Parameter setting using the CCPASET instruction cannot be configured on local stations. Configure the parameter setting on the master station.<br>• Check the first five digits of the serial number of the master/local module. If the module does not support the used function, replace it with the module with the latest version. |
| $D262_H$ | Number of total slave stations setting error (CCPASET) | • Correct the value in Total number of slave stations (control data), and retry the operation.<br>• If this error persists, please consult your local Mitsubishi representative. |

| Error code | Error | Action |
|---|---|---|
| $D263_H$ | Constant link scan time setting error (CCPASET) | • Correct the value in Constant link scan time (control data), and retry the operation.<br>• If this error persists, please consult your local Mitsubishi representative. |
| $D264_H$ | Station No. range error (CCPASET) | • Correct the value in the station No. (setting data) within 1 to 120, and retry the operation.<br>• If this error persists, please consult your local Mitsubishi representative. |
| $D265_H$ | Station No. already in use (CCPASET) | • Set a unique value in the station No. (setting data), and retry the operation.<br>• If this error persists, please consult your local Mitsubishi representative. |
| $D266_H$ | Slave station setting information error (CCPASET) | • Correct the value in the slave station setting information (setting data), and retry the operation.<br>• If this error persists, please consult your local Mitsubishi representative. |
| $D267_H$ | Station type error (CCPASET) | • Correct the value in the station type (setting data), and retry the operation.<br>• If this error persists, please consult your local Mitsubishi representative. |
| $D268_H$ | Device range assignment error (CCPASET) | • Correct the value in the offset or the size of the link device in the slave station(s) (setting data), and retry the operation.<br>• If this error persists, please consult your local Mitsubishi representative. |
| $D269_H$ | Target station type error (REMFR/ REMTO) | Set the target station number specified using the REMFR or REMTO instruction to the station number of the intelligent device station or remote device station. |
| $D26A_H$ | Target station No. error (REMFR/ REMTO) | Return the target station of the REMFR or REMTO instruction. |
| $D26B_H$ | Network No. error (CCPASET execution station) | Set any of 1 to 239 to Switch 1 (network No.) in the intelligent function module switch setting of the master/local module. |
| $D26C_H$ | Station No. error (CCPASET execution station) | • To start the master/local module as a master station, set 0 to Switch 2 in the intelligent function module switch setting.<br>• To start the master/local module as a local station, set Switch 2 in the intelligent function module switch setting within $3101_H$ to $3178_H$, and $31FF_H$.<br>• To start the master/local module as a submaster station, set Switch 2 in the intelligent function module switch setting of the module within $4101_H$ to $4178_H$.<br>• Check the serial number (first five digits) of the master/local module to check if the module supports the function. If not, replace the module with the one with the latest version. |
| $D26D_H$ | Mode error (CCPASET execution station) | Set 0 to Switch 3 in the intelligent function module switch setting of the master/local module. |
| $D26E_H$ | Operation setting error (CCPASET execution station) | • To start the master/local module as a master station, set 0 or 2 for Switch 4 in the intelligent function module switch setting of the module.<br>• To start the master/local module as a local station, set 0 for Switch 4 in the intelligent function module switch setting of the module.<br>• To start the master/local module as a submaster station, set 0 or 4 for Switch 4 in the intelligent function module switch setting of the module.<br>• If this error persists, please consult your local Mitsubishi representative. |
| $D26F_H$ | Submaster station No. error (CCPASET execution station) | When executing the CCPASET instruction, set a submaster station number in Slave station setting information (control data) within 1 to 120. |
| $D270_H$ | Submaster station setting error (CCPASET execution station) | When executing the CCPASET instruction, set one submaster station in the station type in Slave station setting information (control data). |
| $D271_H$ | Submaster station setting error (CCPASET execution station) | When executing the CCPASET instruction, do not set a submaster station number in Reserved station specification (control data). |
| $D272_H$ | Submaster station setting error (CCPASET execution station) | When executing the CCPASET instruction, do not set a submaster station number in Error invalid station setting (control data). |

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| Error code | Error | Action |
|---|---|---|
| $D27A_H$ | Own station number error (UINI instruction) | • Set the station number (control data) within 1 to 120, and retry the operation.<br>• If this error persists, please consult your local Mitsubishi representative. |
| $D280_H$ | Transient data request error | Correct the request command at the request source, and retry the operation. |
| $D281_H$ | Transient reception failed | • Check the network status using the CC-Link IE Field Network diagnostics of the programming tool.<br>• When the target station or the relay station is overloaded and cannot receive transient data, send the data to the target/relay station after the load on the station is reduced. |
| $D282_H$ | Receive queue full | • Pause the transient transmission temporarily, and retry the operation.<br>• Reduce the frequency of transient transmission, and retry the operation.<br>• Use the COM instruction to increase the frequency of transient transmission.<br>• If this error persists, please consult your local Mitsubishi representative. |
| $D283_H$ | Transient transmission failed | • Check the network status using the CC-Link IE Field Network diagnostics of the programming tool.<br>• Connect the cable to the other port on the request source, and retry the operation.<br>• Reduce the frequency of transient transmission, and retry the operation. |
| $D2A0_H$ | Receive buffer full | • Check the network status using the CC-Link IE Field Network diagnostics of the programming tool.<br>• When the target station or the relay station is overloaded and cannot receive transient data, send the data to the target/relay station after the load on the station is reduced. |
| $D2A1_H$ | Send buffer full | • Reduce the frequency of transient transmission, and retry the operation.<br>• Check if the switching hub and the cables at the request source are connected properly. |
| $D2A2_H$ | Transmission completion wait timer timeout | • Reduce the frequency of transient transmission, and retry the operation.<br>• When the mode of the master station (submaster station) is "Online (High Speed Mode)", change it to "Online (Normal Mode)" and retry the operation.<br>• Check if the switching hub and the cables at the request source are connected properly.<br>• Correct the number of link dedicated instructions that have been simultaneously executed within the range. (☞ Page 241, Section 10.2.2 (1) (c)) |
| $D2A3_H$ | Transient data length error | Correct the number of data (frame length) at the request source, and retry the operation. |
| $D2A4_H$ | Header information error in transient transmission | Correct the header information at the request source, and retry the operation. |
| $D2A5_H$ | Target station No. error in transient transmission | Correct the target station number at the request source, and retry the operation. |
| $D2A6_H$ | Transient data request source No. error | Correct the request source number at the request source, and retry the operation. |
| $D2A7_H$ and $D2A8_H$ | Header information error in transient transmission | Correct the header information at the request source, and retry the operation. |
| $D2A9_H$ | Target network No. error in transient transmission | Correct the target network number at the request source, and retry the operation. |
| $D2AA_H$ | Target station No. error in transient transmission | Correct the target station number at the request source, and retry the operation. |
| $D2AB_H$ | Request source network No. error in transient transmission | Correct the network number of the request source at the request source, and retry the operation. |

| Error code | Error | Action |
|---|---|---|
| $D2AC_H$ | Transient data request source No. error | Correct the station number of the request source at the request source, and retry the operation. |
| $D2AD_H$ | Transient data length error | Correct the number of data (frame length) at the request source, and retry the operation. |
| $D2AE_H$ | Target station No. error in transient transmission | • The own station received transient data addressed to another station. Correct the network and target station numbers, and retry the operation.<br>• Check if the routing parameters are correctly set. |
| $D2AF_H$ | Target station No. error in transient transmission | • Transient data transmission addressed to the own station was requested. Check the network number and target station number, and retry the operation.<br>• Check if the routing parameters are correctly set. |
| $D2B0_H$ | Transient transmission failed | • Check if the switching hub and the cables at the request source are connected properly.<br>• Connect the cable to the other port on the request source, and retry the operation.<br>• Reduce the frequency of transient transmission, and retry the operation. |
| $D2E0_H$ | IP communication test in progress | Retry the IP communication test after a while. (Up to four IP communication tests can be concurrently executed.) |
| $D2E1_H$ | IP communication test execution error (no response to Ping) | • Check "Communication Target" in the "IP Communication Test" window.<br>• Check and correct the status of the cable connection and line between the CC-Link IE Field Network gateway setting station and the communication destination.<br>• Enable a response to the Ping command (ICMP echo request) in the firewall settings on the Ethernet device or antivirus software. |
| $D2E2_H$ | No IP address distribution | An IP address is not distributed to the destination Ethernet adapter module (CC-Link IE Field Network part). Take the following actions to distribute an IP address.<br>• Set an IP address to the master station.<br>• Use a master station that supports the IP packet transfer function.<br><br>After taking the actions above, check that baton pass becomes enabled. Then execute the IP communication test again. The baton pass status can be checked using Baton pass status (own station) (SB0047, SW0047). |
| $D2E3_H$ | No CC-Link IE Field Network gateway setting | • Check that the CC-Link IE Field Network gateway setting has been configured and is correct in the destination Ethernet adapter module.<br>• Check the IP address of the master station.<br><br>Take the actions above then execute the IP communication test again. |
| $D2E4_H$ | IP address out of range (Ethernet part of the destination Ethernet adapter module) | • When the IP address of the destination Ethernet adapter module (Ethernet part) is the same as the network address of the master station, set the IP address within the following range.<br>· Third octet: 1 to 239<br>· Fourth octet: 1 to 120<br>• Change the IP address of the CC-Link IE Field Network in the master station so that the IP address of the Ethernet adapter module (Ethernet part) may differ from the network address of the master station. |
| $D400_H$ | ASCII conversion error | Check if ASCII code data which cannot be converted into binary code data has been sent from the external device. |
| $D401_H$ | Word device read/write size error | Correct the number of read/write points and send the SLMP message to the master/local module again. |
| $D402_H$ | Bit device read/write size error | Correct the number of read/write points and send the SLMP message to the master/local module again. |
| $D403_H$ | Random read/write bit device size error | Correct the number of read/write points and send the SLMP message to the master/local module again. |

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| Error code | Error | Action |
|---|---|---|
| $D404_H$ | Random read/write word device size error | Correct the number of read/write points and send the SLMP message to the master/local module again. |
| $D405_H$ | File size error | Correct the read/write size and send the SLMP message to the master/local module again. |
| $D406_H$ | Address range error | Correct the start address or the number of read/write points so that the request does not exceed the largest address, and send the SLMP message to the master/local module again. |
| $D407_H$ | Data length error | Correct the text or request data length, and send the SLMP message to the master/local module again. |
| $D408_H$ | Device name specification error | Correct the specification of the device to be read/write and send the SLMP message to the master/local module again. |
| $D409_H$ | Unsupported device specification error | Correct the specification of the device to be read/write and send the SLMP message to the master/local module again. |
| $D40A_H$ | Device access type error | Correct the request data and send the SLMP message to the master/local module again. |
| $D40B_H$ | Monitor unregistration | Register the monitoring data using "Monitor Registration/Clear" command and perform monitoring. |
| $D40C_H$ | Request details error | Correct the request details and send the SLMP message to the master/local module again. |
| $D40D_H$ | Data length error | Correct the text or request data length, and send the SLMP message to the master/local module again. |
| $D40E_H$ | Block size error | Correct the number of blocks. |
| $D40F_H$ | Bit device specification error | Correct the subcommand. |
| $D410_H$ | Network number error | Correct the specified network number. |
| $D411_H$ | Device number error | Correct the specified device number. |
| $D412_H$ | File name size error | Name the file with 255 characters or less. |
| $D602_H$ to $D607_H$ | Parameter error | • Write the network parameters to the CPU module again.<br>• If this error persists, please consult your local Mitsubishi representative. |
| $D608_H$ and $D609_H$ | Parameter error | • Write the network parameters to the CPU module again.<br>• Check the first five digits of the serial number of the module. If the module does not support the used function, replace it with the module with the latest version.<br>• If this error persists, please consult your local Mitsubishi representative. |
| $D60A_H$ | Parameter error (link scan mode/ constant link scan time setting error) | • Write the network parameters to the CPU module again.<br>• Set "Asynchronous" to the link scan mode, or do not set the constant link scan time.<br>• If this error persists, please consult your local Mitsubishi representative. |
| $D60D_H$ to $D610_H$ | Network module failure | • A malfunction may have occurred due to noise. Check the wire and cable distances and grounding condition of each device, and take measures against noise.<br>• Execute hardware and self-loopback tests. If a failure occurs again, the hardware of the master/local module may be faulty. Please consult your local Mitsubishi representative. |
| $D611_H$ | Parameter error (device range assignment error (RWw)) | • Write the network parameters to the CPU module again.<br>• Correct the value in the size of the link device in the slave station(s) (setting data), and retry the operation.<br>• If this error persists, please consult your local Mitsubishi representative. |
| $D612_H$ | Parameter error (device range assignment error (RWw)) | • Write the network parameters to the CPU module again.<br>• Correct the value in the size of the link device in the slave station(s) (setting data), and retry the operation.<br>• If this error persists, please consult your local Mitsubishi representative. |

| Error code | Error | Action |
|---|---|---|
| $D613_H$ | Parameter error (device range assignment error (RWr)) | • Write the network parameters to the CPU module again.<br>• Correct the value in the size of the link device in the slave station(s) (setting data), and retry the operation.<br>• If this error persists, please consult your local Mitsubishi representative. |
| $D614_H$ | Parameter error (device range assignment error (RWr)) | • Write the network parameters to the CPU module again.<br>• Correct the value in the size of the link device in the slave station(s) (setting data), and retry the operation.<br>• If this error persists, please consult your local Mitsubishi representative. |
| $D615_H$ | Parameter error (device range assignment error (RY)) | • Write the network parameters to the CPU module again.<br>• Correct the value in the size of the link device in the slave station(s) (setting data), and retry the operation.<br>• If this error persists, please consult your local Mitsubishi representative. |
| $D616_H$ | Parameter error (device range assignment error (RY)) | • Write the network parameters to the CPU module again.<br>• Correct the value in the size of the link device in the slave station(s) (setting data), and retry the operation.<br>• If this error persists, please consult your local Mitsubishi representative. |
| $D617_H$ | Parameter error (device range assignment error (RX)) | • Write the network parameters to the CPU module again.<br>• Correct the value in the size of the link device in the slave station(s) (setting data), and retry the operation.<br>• If this error persists, please consult your local Mitsubishi representative. |
| $D618_H$ | Parameter error (device range assignment error (RX)) | • Write the network parameters to the CPU module again.<br>• Correct the value in the size of the link device in the slave station(s) (setting data), and retry the operation.<br>• If this error persists, please consult your local Mitsubishi representative. |
| $D619_H$ to $D61A_H$ | Parameter error | • Write the network parameters to the CPU module again.<br>• If this error persists, please consult your local Mitsubishi representative. |
| $D61B_H$ | Parameter error (device already in use (RWw)) | • Write the network parameters to the CPU module again.<br>• Correct the value in the offset or the size of the link device in the slave station(s) (setting data), and retry the operation.<br>• If this error persists, please consult your local Mitsubishi representative. |
| $D61C_H$ | Parameter error (device already in use (RWr)) | |
| $D61D_H$ | Parameter error (device already in use (RY)) | |
| $D61E_H$ | Parameter error (device already in use (RX)) | |
| $D61F_H$ | CCPASET execution error | Delete the network parameter settings in the programming tool, execute "Write to PLC", and execute the CCPASET instruction again. |
| $D620_H$ | Incorrect transient data | • Check the transient data at the request source, and retry the operation.<br>• If this error persists, please consult your local Mitsubishi representative. |
| $D621_H$ | Parameter error | • Write the network parameters to the CPU module again.<br>• If this error persists, please consult your local Mitsubishi representative. |
| $D622_H$ | Parameter error (total number of slave stations error) | • Write the network parameters to the CPU module again.<br>• Correct the total number of slave stations, and retry the operation.<br>• If this error persists, please consult your local Mitsubishi representative. |
| $D623_H$ | Parameter error (link scan mode error) | • Write the network parameters to the CPU module again.<br>• Correct the link scan mode, and retry the operation.<br>• If this error persists, please consult your local Mitsubishi representative. |
| $D624_H$ | Parameter error (constant link scan time setting error) | • Write the network parameters to the CPU module again.<br>• Correct the value in the total number of slave stations (setting data), and retry the operation.<br>• If this error persists, please consult your local Mitsubishi representative. |
| $D625_H$ | Parameter error (block data assurance per station setting error) | • Write the network parameters to the CPU module again.<br>• Correct the value in the total number of slave stations (setting data), and retry the operation.<br>• If this error persists, please consult your local Mitsubishi representative. |

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| Error code | Error | Action |
|---|---|---|
| $D626_H$ | Parameter error (loopback setting error) | • Write the network parameters to the CPU module again.<br>• Correct the value in the total number of slave stations (setting data), and retry the operation.<br>• If this error persists, please consult your local Mitsubishi representative. |
| $D627_H$ | Parameter error (slave station setting information error) | • Write the network parameters to the CPU module again.<br>• Correct the value in the total number of slave stations (setting data), and retry the operation.<br>• If this error persists, please consult your local Mitsubishi representative. |
| $D628_H$ | Parameter error (station type error) | • Write the network parameters to the CPU module again.<br>• Correct the value in the total number of slave stations (setting data), and retry the operation.<br>• If this error persists, please consult your local Mitsubishi representative. |
| $D629_H$ | Parameter error (Station No. range error) | • Write the network parameters to the CPU module again.<br>• Change the station number in the setting data to any of 1 to 120, and retry the operation.<br>• If this error persists, please consult your local Mitsubishi representative. |
| $D62A_H$ | Parameter error (data link faulty station setting error) | • Write the network parameters to the CPU module again.<br>• Correct the output status setting for CPU STOP, and retry the operation.<br>• If this error persists, please consult your local Mitsubishi representative. |
| $D62B_H$ | Parameter error (output status setting for a CPU STOP error) | • Write the network parameters to the CPU module again.<br>• Correct the output status setting for CPU STOP, and retry the operation.<br>• If this error persists, please consult your local Mitsubishi representative. |
| $D62C_H$ | Parameter error (interrupt setting error) | • Write the network parameters to the CPU module again.<br>• Correct the interrupt settings and retry the operation.<br>• If this error persists, please consult your local Mitsubishi representative. |
| $D62D_H$ | Data link start failed | Data link start failed due to any of the following causes. Remove the error cause, and retry the operation.<br>• Station No. not set<br>• CPU module error on the own station<br>• More than one master station or submaster station exists.<br>• Station type mismatch<br>• Master station lost<br>• Own station No. out of range<br>• Station No. already in use (own station)<br>• Own station reserved<br>• Parameter error<br>• Parameter communication in progress<br>• Parameters not received (master station only and no slave station exists)<br>• Link stop command |
| $D630_H$ | Execution error at the local station (CCPASET) | Configure the network number, station type, and station number in the switch setting.<br>Then execute the instruction again with the network parameter not set. |
| $D634_H$ | Parameter error (incorrect number of submaster stations) | • Write the network parameters to the CPU module again.<br>• Set one submaster station in the station type set for each station and retry the operation.<br>• If this error persists, please consult your local Mitsubishi representative. |
| $D635_H$ | Parameter error (incorrect submaster station number) | • Write the network parameters to the CPU module again.<br>• Set the station number within 1 to 120 and retry the operation.<br>• If this error persists, please consult your local Mitsubishi representative. |

| Error code | Error | Action |
|---|---|---|
| $D636_H$ | UINI instruction execution disabled (instruction executed to a station other than a local station) | Use one of the following methods and execute the UINI instruction to the local station again.<br>• Select the local station for the station type in the network parameter window of GX Works2.<br>• Set $31FF_H$ for Switch 2 in the intelligent function module switch setting.<br>• Check if the master/local module specified in the argument of the UINI instruction is the local station. |
| $D637_H$ | UINI instruction execution disabled (the station number already set using the parameter) | Use one of the following methods to execute the UINI instruction again with the station number not set.<br>• Select "Specify Station No. by Program" in the network parameter window of GX Works2.<br>• Set $31FF_H$ for Switch 2 in the intelligent function module switch setting. |
| $D638_H$ | UINI instruction execution disabled (the station number already in use) | Correct the station number to be set using the UINI instruction to the station number not used for other stations. Then execute the UINI instruction again. |
| $D639_H$ | UINI instruction execution disabled (the station number already set using the UINI instruction) | Reset the CPU module or power on the system again to clear the station number. Then execute the UINI instruction again. |
| $D63A_H$ | UINI instruction execution disabled (the CPU module not supporting the function) | Check the serial number (first five digits) of the CPU module to check if the module supports the function. If not, replace the module with the one with the latest version. |
| $D63C_H$ | Parameter error (submaster station setting address error) | • Write the network parameters to the CPU module again.<br>• If this error persists, please consult your local Mitsubishi representative. |
| $D63D_H$ | Parameter error (reserved station setting error) | • Write the network parameters to the CPU module again.<br>• Cancel the reserved station setting configured for the submaster station in the network configuration settings.<br>• If this error persists, please consult your local Mitsubishi representative. |
| $D63E_H$ | Parameter error (error invalid station setting error) | • Write the network parameters to the CPU module again.<br>• Cancel the error invalid station setting configured for the submaster station in the network configuration settings.<br>• If this error persists, please consult your local Mitsubishi representative. |
| $D640_H$ | Parameter error (IP packet transfer address setting error) | • Write the network parameters to the CPU module again.<br>• If this error persists, please consult your local Mitsubishi representative. |
| $D641_H$ | Parameter error (IP address error) | • Write the network parameters to the CPU module again.<br>• Correct the value in the IP address (setting data) and retry the operation.<br>• If this error persists, please consult your local Mitsubishi representative. |
| $D642_H$ | Parameter error (network parameter mismatch) | • Write the network parameters to the CPU module again.<br>• Correct the parameters set for the submaster station so that they will be the same as those set for the master station and retry the operation.<br>• If this error persists, please consult your local Mitsubishi representative. |
| $D643_H$ | Parameter error (network configuration settings mismatch) | • Write the network parameters to the CPU module again.<br>• Correct the parameters set for the submaster station so that they will be the same as those set for the master station and retry the operation.<br>• If this error persists, please consult your local Mitsubishi representative. |
| $D644_H$ | Parameter error (supplementary setting mismatch) | • Write the network parameters to the CPU module again.<br>• Correct the parameters set for the submaster station so that they will be the same as those set for the master station and retry the operation.<br>• If this error persists, please consult your local Mitsubishi representative. |
| $D645_H$ | Parameter error (mode setting mismatch) | • Write the network parameters to the CPU module again.<br>• Correct the mode set for the submaster station so that it will be the same as that set for the master station and retry the operation.<br>• If this error persists, please consult your local Mitsubishi representative. |

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| Error code | Error | Action |
|---|---|---|
| $D646_H$ | Parameter error (operation setting) | • Write the network parameters to the CPU module again.<br>• To start the master/local module as a master station, set 0 or 2 for Switch 4 in the intelligent function module switch setting of the module.<br>• To start the master/local module as a local station, set 0 for Switch 4 in the intelligent function module switch setting of the module.<br>• To start the master/local module as a submaster station, set 0 or 4 for Switch 4 in the intelligent function module switch setting of the module.<br>• If this error persists, please consult your local Mitsubishi representative. |
| $D701_H$ | Temporary reserved station cancel/ temporary error invalid station setting not set | Set the target station(s) in Reserved station function disable/temporary error invalid station setting (SW0010 to SW0017), and retry the operation. |
| $D706_H$ | Request error of temporary error invalid station setting/cancel or reserved station cancel/restoration (when the own station is a local station) | Temporary error invalid station setting/cancel or reserved station setting cancel/restoration cannot be executed from a local station or submaster operating station. Retry the operation from the master operating station. |
| $D70B_H$ | Request error of temporary error invalid station setting/cancel or reserved station cancel/restoration (when different settings are simultaneously performed) | • Temporary error invalid station setting/cancel using SB0010 and SB0011 or reserved station cancel/restoration using SB0012 and SB0013 cannot be simultaneously executed.<br>• Retry the operation so that only one bit in SB0010 to SB0013 may turn on after all bits in them are turned off. |
| $D720_H$ | Data link start/stop instruction out of range | Check the setting, and stop or start data link. |
| $D721_H$ | Data link start/stop retry error (another station) | Retry the operation after the stop or restart of data link is completed. |
| $D722_H$ | Data link start/stop retry error (own station) | Retry the operation after the stop or restart of data link is completed. |
| $D723_H$ | Data link start/stop retry error (entire system) | Retry the operation after the stop or restart of data link is completed. |
| $D724_H$ | Data link start/stop station error | Check the setting, and stop or start data link. |
| $D725_H$ | Station type error (station that starts/ stops data link throughout the entire system) | A local station and a submaster operating station cannot start or stop data link of all or multiple stations. Perform these operations from the master operating station. |
| $D726_H$ | Transient data request command error | Correct the request command at the request station, and retry the operation. |
| $D727_H$ | Data link start/stop command-instructing stations different | • Data link start was instructed from a station different from the one that had instructed the data link stop. Instruct data link start and data link stop from the same station.<br>• The method of the data link start differs from that of the data link stop. Instruct the data link start using the same method as the data link stop (ex. Data link is stopped using the CC-Link IE Field Network diagnostics, and the data link is started using a program).<br>• Data link start failed. Forcibly restart the data link. |
| $D728_H$ | Data link start/stop command-instructing stations different | Data link start was instructed during execution of data link. Instruct data link stop then data link start. |
| $D729_H$ | UINI instruction not executed | Set the station number using the UINI instruction. |
| $D731_H$ | Forced master switch error | Perform the forced master switch to the submaster station operating as a master operating station. |
| $D740_H$ | Transient transmission failed | • If a slave station is disconnected from the network, identify the cause of the disconnection and take action.<br>• When data link is stopped in the slave station, identify the cause of the data link stop and take action.<br>• Retry the operation after a slave station is replaced and new one is added. |

| Error code | Error | Action |
|---|---|---|
| $D741_H$ | Station type error (execution station) | • Execute the operation after data link of the master operating station is started.<br>• The instruction cannot be executed on a local station and submaster station. Execute it on the master operating station. |
| $D742_H$ | Transient transmission failed | Retry the operation after transient transmission is completed. |
| $D743_H$ | Station type error (execution station) | The instruction cannot be executed on a local station. Execute it on the master station and submaster station. |
| $D744_H$ | Failed to clear to flash ROM | • The flash ROM may be faulty. Check the wire and cable distances and grounding condition of each device, and take measures against noise.<br>• Execute hardware and self-loopback tests. If a failure occurs again, the hardware of the master/local module may be faulty. Please consult your local Mitsubishi representative. |
| $D780_H$ | History acquisition setting data full | The area for writing history acquisition setting data for network event history is insufficient. Reset or power off and on the CPU module. |
| $D781_H$ | Network module failure | • A malfunction may have occurred due to noise. Check the wire and cable distances and grounding condition of each device, and take measures against noise.<br>• Execute hardware and self-loopback tests. If a failure occurs again, the hardware of the master/local module may be faulty. Please consult your local Mitsubishi representative. |
| $D782_H$ | History acquisition setting data error | The previous history acquisition setting data for network event history were not written successfully. Reset or power off and on the CPU module. |
| $D783_H$ and $D784_H$ | Transient data request error | • The read request by the CC-Link IE Field Network diagnostics of the programming tool is incorrect. Close the "CC IE Field Diagnostics" window, and request it again.<br>• Check the read request data at the request station, and retry the operation. |
| $D785_H$ | Flash ROM failure | • The maximum number of writes to the flash ROM is exceeded. Replace the master/local module. |
| $D786_H$ | Flash ROM failure | The flash ROM may be faulty. Execute hardware and self-loopback tests. If a failure occurs again, the hardware of the master/local module may be faulty. Please consult your local Mitsubishi representative. |
| $D800_H$ | Network module failure | • A malfunction may have occurred due to noise. Check the wire and cable distances and grounding condition of each device, and take measures against noise.<br>• Execute hardware and self-loopback tests. If a failure occurs again, the hardware of the master/local module may be faulty. Please consult your local Mitsubishi representative. |
| $D803_H$ to $D805_H$ | Network module failure | • A malfunction may have occurred due to noise. Check the wire and cable distances and grounding condition of each device, and take measures against noise.<br>• Execute hardware and self-loopback tests. If a failure occurs again, the hardware of the master/local module may be faulty. Please consult your local Mitsubishi representative. |
| $D806_H$ | Receive queue full | • Reduce the frequency of transient transmission, and retry the operation.<br>• Check if the cables and the switching hub are connected properly.<br>• Use the COM instruction to increase the frequency of transient transmission. |
| $D807_H$ | Network module failure | • A malfunction may have occurred due to noise. Check the wire and cable distances and grounding condition of each device, and take measures against noise.<br>• Execute hardware and self-loopback tests. If a failure occurs again, the hardware of the master/local module may be faulty. Please consult your local Mitsubishi representative. |

| Error code | Error | Action |
|---|---|---|
| $D80A_H$ to $D80F_H$ | Parameter error | • Write the network parameters to the CPU module again.<br>• If this error persists, please consult your local Mitsubishi representative. |
| $D812_H$ and $D813_H$ | Parameter error | • Write the network parameters to the CPU module again.<br>• If this error persists, please consult your local Mitsubishi representative. |
| $D814_H$ | Network module failure | • A malfunction may have occurred due to noise. Check the wire and cable distances and grounding condition of each device, and take measures against noise.<br>• Execute hardware and self-loopback tests. If a failure occurs again, the hardware of the master/local module may be faulty. Please consult your local Mitsubishi representative. |
| $D816_H$ | Network module failure | • A malfunction may have occurred due to noise. Check the wire and cable distances and grounding condition of each device, and take measures against noise.<br>• Execute hardware and self-loopback tests. If a failure occurs again, the hardware of the master/local module may be faulty. Please consult your local Mitsubishi representative. |
| $D819_H$ | CPU module failure | • Replace the CPU module.<br>• If this error persists, please consult your local Mitsubishi representative. |
| $D81A_H$ | CPU module stop error | Check the error in the "PLC Diagnostics" window of the programming tool. |
| $D81B_H$ | Programmable controller power failure | The power is off. Turn it on. |
| $D81D_H$ | Total number of slave stations range error (buffer memory start parameter area) | Correct the total number of slave stations in the buffer memory start parameter area. |
| $D81F_H$ | Station No. range error (buffer memory start parameter area) | Correct the station number range in the buffer memory start parameter area. |
| $D820_H$ | Station No. already in use (buffer memory start parameter area) | Correct the total number of slave stations in the buffer memory start parameter area. |
| $D821_H$ | Slave station setting information error (buffer memory start parameter area) | Correct the slave station setting information in the buffer memory start parameter area. |
| $D822_H$ | Station type error (buffer memory start parameter area) | Correct the station type in the buffer memory start parameter area. |
| $D823_H$ | Device range assignment error (buffer memory start parameter area) | Correct the offset values or points assigned to the devices of each station in the buffer memory start parameter area. |
| $D824_H$ | Setting flag error (buffer memory start parameter area) | Correct the setting flag in the buffer memory start parameter area. |
| $D825_H$ | Buffer memory start parameter area inconsistent | Correct the setting flag, application parameter, and information setting data for each station in the buffer memory start parameter area. |
| $D826_H$ | Flash ROM failure | • The maximum number of writes to the flash ROM is exceeded.<br>• Reset the CPU module. If a failure occurs again, the hardware of the master/local module may be faulty. Please consult your local Mitsubishi representative. |
| $D827_H$ | Communication RAM failure | • A malfunction may have occurred due to noise. Check the wire and cable distances and grounding condition of each device, and take measures against noise.<br>• Execute hardware and self-loopback tests. If a failure occurs again, the hardware of the master/local module may be faulty. Please consult your local Mitsubishi representative. |
| $D829_H$ | IP packet transfer setting error (buffer memory start parameter area) | Correct the setting flag in the buffer memory start parameter area. |
| $D82A_H$ | Submaster station number error (buffer memory start parameter area) | Correct the submaster station number within 1 to 120 in the slave station setting information in the buffer memory start parameter area. |
| $D82B_H$ | Submaster setting error (buffer memory start parameter area) | Set one submaster station in the station type in the slave station setting information in the buffer memory start parameter area. |

| Error code | Error | Action |
|---|---|---|
| $D82C_H$ | Submaster setting error (buffer memory start parameter area) | Do not set a submaster station number in the reserved station specification in the buffer memory start parameter area. |
| $D82D_H$ | Submaster setting error (buffer memory start parameter area) | Do not set a submaster station number in the error invalid station setting in the buffer memory start parameter area. |
| $D82E_H$ | IP packet transfer function not supported (IP communication test) | Check the first five digits of the serial number of the CPU module.<br>If the module does not support the used function, replace it with the CPU module with the latest version. |
| $D902_H$ | Incorrect online test data | • Correct the data at the station that started the online test, and retry the operation.<br>• If this error persists, please consult your local Mitsubishi representative. |
| $D903_H$ | Communication test retry error | After completion of the communication test, retry the operation. |
| $D905_H$ | Communication monitoring timeout in communication test | • Check the network status using the CC-Link IE Field Network diagnostics of the programming tool, take action, and retry the operation.<br>• Check if the routing parameters are correctly set. |
| $D906_H$ | Communication test transmission completion wait timeout | • Check the network status using the CC-Link IE Field Network diagnostics of the programming tool, take action, and retry the operation.<br>• Reduce the frequency of transient transmission, and retry the operation.<br>• When the mode of the master station (submaster station) is "Online (High Speed Mode)", change it to "Online (Normal Mode)" and retry the operation.<br>• Check if the routing parameters are correctly set. |
| $D909_H$ | Header information error in transient transmission | Check the network status using the CC-Link IE Field Network diagnostics of the programming tool, take action, and retry the operation. |
| $D90A_H$ | Communication test data received twice | Check the network status using the CC-Link IE Field Network diagnostics of the programming tool, take action, and retry the operation. |
| $D90B_H$ | Incorrect number of stations | • Check the network status using the CC-Link IE Field Network diagnostics of the programming tool.<br>• If the number of slave stations (including a submaster station) per network is more than 120, reduce it to 120 or less. |
| $D90C_H$ | Invalid communication test target station | • Correct the "Target Station" setting in the "Communication Test" window, and retry the operation.<br>• A communication test cannot be executed on the own station, relay sending station, and stations mounted on the same base unit (main base unit and extension base unit). |
| $D90D_H$ | Cable test retry error | After completion of the cable test, retry the operation. |
| $D90E_H$ | IP packet transfer function not supported | The transfer destination of the IP data does not support the IP packet transfer function. |
| $D90F_H$ | IP communication test in progress | Retry the operation after a while. |
| $D910_H$ | IP address not set (own station) | Check "Communication Target" in the "IP Communication Test" window. |
| $D911_H$ | Destination IP address error | Check "Communication Target" in the "IP Communication Test" window. |
| $DA00_H$ and $DA01_H$ | Network module failure | • A malfunction may have occurred due to noise. Check the wire and cable distances and grounding condition of each device, and take measures against noise.<br>• Execute hardware and self-loopback tests. If a failure occurs again, the hardware of the master/local module may be faulty. Please consult your local Mitsubishi representative. |
| $DA10_H$ to $DA18_H$ | Network module failure | • A malfunction may have occurred due to noise. Check the wire and cable distances and grounding condition of each device, and take measures against noise.<br>• Execute hardware and self-loopback tests. If a failure occurs again, the hardware of the master/local module may be faulty. Please consult your local Mitsubishi representative. |

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| Error code | Error | Action |
|---|---|---|
| $DAD0_H$ to $DAD4_H$ | Network module failure | • A malfunction may have occurred due to noise. Check the wire and cable distances and grounding condition of each device, and take measures against noise.<br>• Execute hardware and self-loopback tests. If a failure occurs again, the hardware of the master/local module may be faulty. Please consult your local Mitsubishi representative. |
| $DAE0_H$ to $DAE3_H$ | Network module failure | • A malfunction may have occurred due to noise. Check the wire and cable distances and grounding condition of each device, and take measures against noise.<br>• Execute hardware and self-loopback tests. If a failure occurs again, the hardware of the master/local module may be faulty. Please consult your local Mitsubishi representative. |
| $DAE4_H$ | CPU module failure | • Execute hardware and self-loopback tests.<br>• If this error persists, please consult your local Mitsubishi representative. |
| $DAE5_H$ | Network module failure | • A malfunction may have occurred due to noise. Check the wire and cable distances and grounding condition of each device, and take measures against noise.<br>• Execute hardware and self-loopback tests. If a failure occurs again, the hardware of the master/local module may be faulty. Please consult your local Mitsubishi representative. |
| $DAE6_H$ | CC-Link IE Field not supported by the CPU | • Use a CPU module compatible with the master/local module.<br>• If this error persists, please consult your local Mitsubishi representative. |
| $DAE7_H$ | Network module failure | • A malfunction may have occurred due to noise. Check the wire and cable distances and grounding condition of each device, and take measures against noise.<br>• Execute hardware and self-loopback tests. If a failure occurs again, the hardware of the master/local module may be faulty. Please consult your local Mitsubishi representative. |
| $DAE8_H$ | Switch setting information error | • When using the CCPASET instruction or the C Controller module, check the intelligent function module switch setting, and write the setting data to the CPU module again.<br>• When not using the CCPASET instruction or the C Controller module, clear the intelligent function module switch setting, and write the setting data to the CPU module again.<br>• Check the serial number (first five digits) of the master/local module to check if the module supports the function. Then correct the settings in the network parameter window.<br>• If this error persists, please consult your local Mitsubishi representative. |
| $DAE9_H$ | UINI instruction execution disabled (the CPU module not supporting the function) | Check the serial number (first five digits) of the CPU module to check if the module supports the function. If not, replace the module with the one with the latest version. |
| $DAF1_H$ | Network module failure | • A malfunction may have occurred due to noise. Check the wire and cable distances and grounding condition of each device, and take measures against noise.<br>• Execute hardware and self-loopback tests. If a failure occurs again, the hardware of the master/local module may be faulty. Please consult your local Mitsubishi representative. |
| $DAF2_H$ | Flash ROM failure | • The flash ROM may be faulty. Check the wire and cable distances and grounding condition of each device, and take measures against noise.<br>• Execute hardware and self-loopback tests. If a failure occurs again, the hardware of the master/local module may be faulty. Please consult your local Mitsubishi representative. |

| Error code | Error | Action |
|---|---|---|
| $DAF3_H$ | Flash ROM failure | • The flash ROM may be faulty. Check the wire and cable distances and grounding condition of each device, and take measures against noise.<br>• Execute hardware and self-loopback tests. If a failure occurs again, the hardware of the master/local module may be faulty. Please consult your local Mitsubishi representative. |
| $DAF5_H$ | Network module failure | • A malfunction may have occurred due to noise. Check the wire and cable distances and grounding condition of each device, and take measures against noise.<br>• Execute hardware and self-loopback tests. If a failure occurs again, the hardware of the master/local module may be faulty. Please consult your local Mitsubishi representative. |
| $DAF6_H$ and $DAF7_H$ | Network module failure | • A malfunction may have occurred due to noise. Check the wire and cable distances and grounding condition of each device, and take measures against noise.<br>• Execute hardware and self-loopback tests. If a failure occurs again, the hardware of the master/local module may be faulty. Please consult your local Mitsubishi representative. |
| $DAF8_H$ and $DAF9_H$ | Flash ROM failure | The flash ROM may be faulty. Execute hardware and self-loopback tests. If a failure occurs again, the hardware of the master/local module may be faulty. Please consult your local Mitsubishi representative. |
| $E000_H$ to $EFFF_H$ | Error detected in CC-Link IE Controller Network<br>(📖 Manual for the CC-Link IE Controller Network module used) | |
| $F000_H$ to $FEFF_H$ | Error detected in a MELSECNET/H or MELSECNET/10 network system<br>(📖 MELSECNET/H or MELSECNET/10 Network System Reference Manual) | |

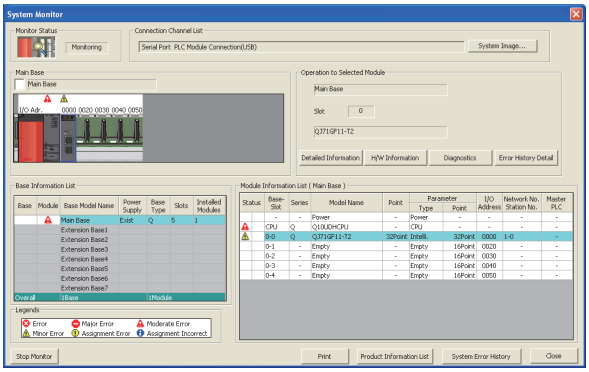
# 12.6 Checking the Master/Local Module Status by System Monitor

In the "System Monitor" window of GX Works2, the LED status of the master/local module and the intelligent function module switch settings can be checked.

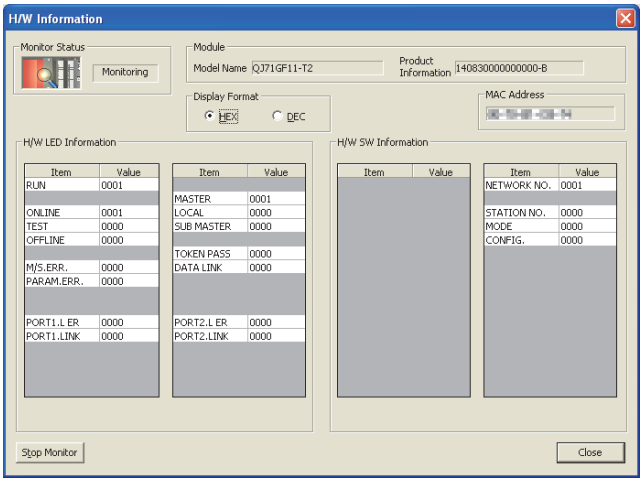
**1. Open the "System Monitor" window.**

[Diagnostics] ⇨ [System Monitor]

**2. In the upper left "Main Base" area, select a module to be diagnosed, and click the H/W Information button.**




**3. The "H/W Information" window opens.**




| Item | Description |
|---|---|
| Display Format | Switches the display format of "H/W LED Information" and "H/W Switch Information". |
| Mac Address | Displays the MAC address of the master/local module. |

| Item | | Description |
|---|---|---|
| H/W LED Information | RUN | Shows the condition of the RUN LED.<br>0000: OFF<br>0001: ON |
| | ONLINE | Shows whether the master/local module is in online mode.<br>0000: Other than online<br>0001: Online |
| | TEST | Shows whether the master/local module is in test mode.<br>0000: Other than test mode<br>0001: Test mode |
| | OFFLINE | Shows whether the master/local module is in offline mode.<br>0000: Other than offline mode<br>0001: Offline mode |
| H/W LED Information | M/S. ERR. | Indicates whether the master station/submaster station is already in use or station number is already in use.<br>0000: Not in use<br>0001: Already in use |
| | PARAM.ERR. | Shows the parameter error status.<br>0000: No error<br>0001: Error |
| | PORT1.L ER | Shows the L ER LED status of PORT1.<br>0000: OFF<br>0001: ON |
| | PORT1.LINK | Shows the LINK LED status of PORT1.<br>0000: OFF<br>0001: ON |
| | MASTER | Shows the station type (master station) of the master/local module.<br>0000: Local station or submaster station<br>0001: Master station |
| | LOCAL | Shows the station type (local station) of the master/local module.<br>0000: Master station or submaster station<br>0001: Local station |
| | SUB MASTER | Indicates the station type of the master/local module (submaster station).<br>0000: Master station or local station<br>0001: Submaster station |
| | TOKEN PASS | Shows the baton pass status of the master/local module.<br>0000: No baton (token) passing<br>0001: Baton (token) passing |
| | DATA LINK | Shows the data link status of the master/local module.<br>0000: No data link<br>0001: Data link in execution |
| | PORT2.L ER | Shows the L ER LED status of PORT2.<br>0000: OFF<br>0001: ON |
| | PORT2.LINK | Shows the LINK LED status of PORT2.<br>0000: OFF<br>0001: ON |

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| Item | | Description |
|---|---|---|
| H/W SW Information | NETWORK NO. | Displays the network number. |
| | STATION NO. | Displays the station number.<br>When the station number is not set, 00FF is displayed. |
| | MODE | Shows the mode of the master/local module.<br>0000: Online (Normal Mode)<br>0001: Offline (High Speed Mode)<br>0002: Offline<br>0006: Loop test<br>0007: Self-loopback test<br>0009: Hardware test |
| | CONFIG. | Shows the station type of the master/local module.<br>0000: Master station<br>0003: Local station<br>0004: Submaster station |

# APPENDICES

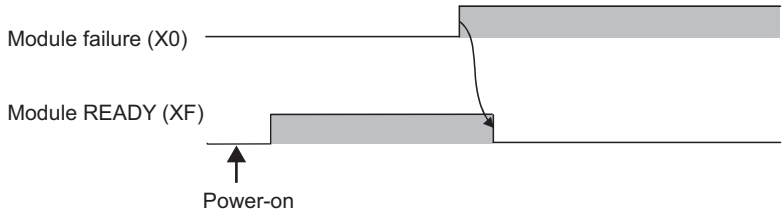
## Appendix 1 Details of I/O Signals

The following describes I/O signals for the CPU module of the master/local module in detail. The I/O numbers in Appendix 1 are shown based on a start I/O number setting of 0 for the master/local module.

## Appendix 1.1 Module failure (X0)

This is a signal that confirms the status of the master/local module.

- OFF: Module normal
- ON: Module failure




## Appendix 1.2 Own station data link status (X1)

This is a signal that confirms the own station's data link status.

- OFF: Data link stop
- ON: Data link in progress

Data link status (own station) (SB0049) has the same signal, but when using it in a program, use either X1 or SB0049 only. Also note that the on/off conditions for X1 and SB0049 are reversed.

When an error occurs, the cause of the fault can be checked by CC-Link IE Field Network diagnostics or Cause of data link stop (SW0049).

# Appendix 1.3 Other stations data link status (X3)

This is a signal that confirms the other station's data link status.

- OFF: All stations normal
- ON: Faulty station found

Data link status (each station) (SB00B0) has the same signal, but when using it in a program, use either X3 or SB00B0 only.

When an error occurs, the faulty station can be checked by CC-Link IE Field Network diagnostics or Data link status (each station) (SW00B0 to SW00B7).

# Appendix 1.4 Module ready (XF)

This is a signal that confirms the status of module operation preparation.

- OFF: N/A for module operation
- ON: Available for module operation

For the module ready timing chart, refer to Module failure (X0). (☞Page 464, Appendix 1.1)

# Appendix 2 Details of Buffer Memory Addresses

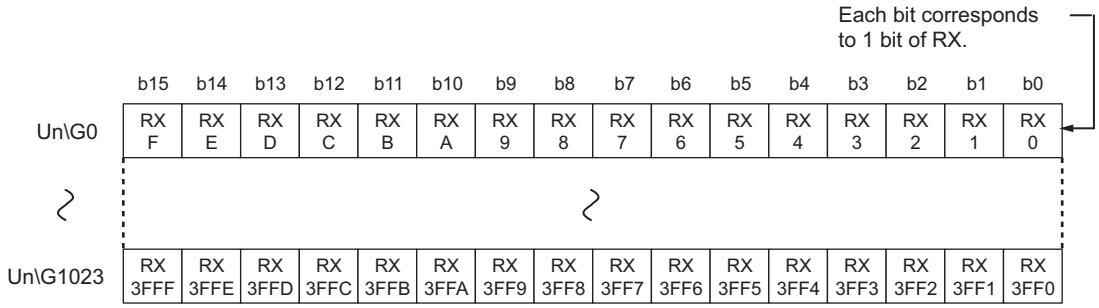
This section describes the buffer memory of the master/local module.

# Appendix 2.1 Link device area (Un\G0 to Un\G18975)

This buffer memory stores the RX, RY, RWw, and RWr values.

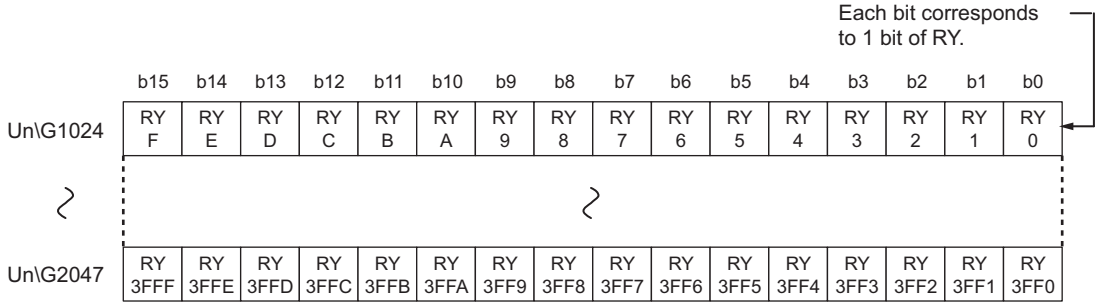
## (1) Remote input (RX) (Un\G0 to Un\G1023)

This buffer memory stores the RX value. The RX start number and number of points for each station No. can be checked by the RX offset/size information (Un\G19456 to Un\G19695). (☞Page 468, Appendix 2.2)




## (2) Remote output (RY) (Un\G1024 to Un\G2047)

This buffer memory stores the RY value. The RY start number and number of points for each station No. can be checked by the RY offset/size information (Un\G19712 to Un\G19951). (☞Page 468, Appendix 2.3)




## (3) Remote register (RWw) (Un\G2048 to Un\G10239)

This buffer memory stores the RWw value. The RWw start number and number of points for each station No. can be checked by the RWw/offset size information (Un\G19968 to Un\G20207). (☞Page 469, Appendix 2.4)



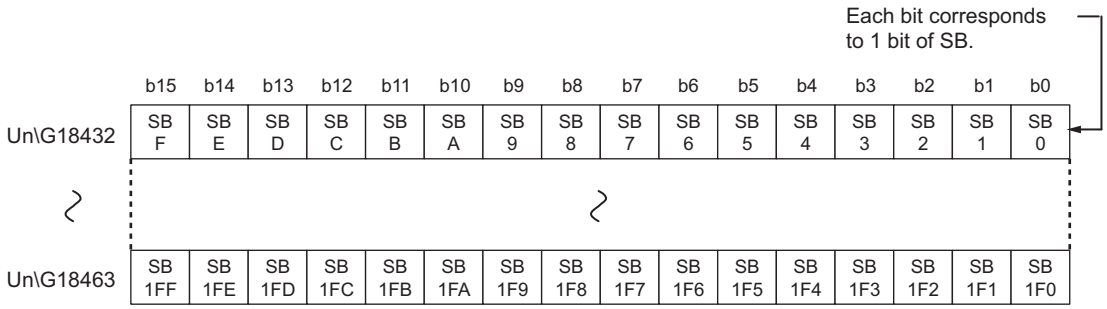
## (4) Remote register (RWr) (Un\G10240 to Un\G18431)

This buffer memory stores the RWr value. The RWr start number and number of points for each station No. can be checked by the RWr offset/size information (Un\G20224 to Un\G20463). (☞Page 469, Appendix 2.5)




## (5) Link special relay (SB) (Un\G18432 to Un\G18463)

This buffer memory stores the SB value.




## (6) Link special register (SW) (Un\G18464 to Un\G18975)

This buffer memory stores the SW value.



# Appendix 2.2 RX offset/size information (Un\G19456 to Un\G19697)

This buffer memory stores the start number and the number of points of RX for each station.

| | | |
|---|---|---|
| Un\G19456 | Station No.1 | Offset |
| Un\G19457 | Station No.1 | Size (in units of words) |
| Un\G19458 | Station No.2 | Offset |
| Un\G19459 | Station No.2 | Size (in units of words) |
| ≀ | ≀ | |
| Un\G19694 | Station No.120 | Offset |
| Un\G19695 | Station No.120 | Size (in units of words) |
| Un\G19696 | Station No.0 | Offset |
| Un\G19697 | Station No.0 | Size (in units of words) |

The offset and size of buffer memory areas for each station number (other than a station number 0) can be calculated using the following formulas:

- Offset buffer memory address = 19456 + (station No.-1) × 2
- Size buffer memory address = 19457 + (station No.-1) × 2

# Appendix 2.3 RY offset/size information (Un\G19712 to Un\G19953)

This buffer memory stores the start number and the number of points of RY for each station.

| | | |
|---|---|---|
| Un\G19712 | Station No.1 | Offset |
| Un\G19713 | Station No.1 | Size (in units of words) |
| Un\G19714 | Station No.2 | Offset |
| Un\G19715 | Station No.2 | Size (in units of words) |
| ≀ | ≀ | |
| Un\G19950 | Station No.120 | Offset |
| Un\G19951 | Station No.120 | Size (in units of words) |
| Un\G19952 | Station No.0 | Offset |
| Un\G19953 | Station No.0 | Size (in units of words) |

The offset and size of buffer memory areas for each station number (other than a station number 0) can be calculated using the following formulas:

- Offset buffer memory address = 19712 + (station No.-1) × 2
- Size buffer memory address = 19713 + (station No.-1) × 2

# Appendix 2.4 RWw offset/size information (Un\G19968 to Un\G20209)

This buffer memory stores the start number and the number of points of RWw for each station.

| | | |
|---|---|---|
| Un\G19968 | Station No.1 | Offset |
| Un\G19969 | Station No.1 | Size (in units of words) |
| Un\G19970 | Station No.2 | Offset |
| Un\G19971 | Station No.2 | Size (in units of words) |
| ≀ | ≀ | |
| Un\G20206 | Station No.120 | Offset |
| Un\G20207 | Station No.120 | Size (in units of words) |
| Un\G20208 | Station No.0 | Offset |
| Un\G20209 | Station No.0 | Size (in units of words) |

The offset and size of buffer memory areas for each station number (other than a station number 0) can be calculated using the following formulas:

- Offset buffer memory address = 19968 + (station No.-1) × 2
- Size buffer memory address = 19969 + (station No.-1) × 2

# Appendix 2.5 RWr offset/size information (Un\G20224 to Un\G20465)

This buffer memory stores the start number and the number of points of RWr for each station.

| | | |
|---|---|---|
| Un\G20224 | Station No.1 | Offset |
| Un\G20225 | Station No.1 | Size (in units of words) |
| Un\G20226 | Station No.2 | Offset |
| Un\G20227 | Station No.2 | Size (in units of words) |
| ≀ | ≀ | |
| Un\G20462 | Station No.120 | Offset |
| Un\G20463 | Station No.120 | Size (in units of words) |
| Un\G20464 | Station No.0 | Offset |
| Un\G20465 | Station No.0 | Size (in units of words) |

The offset and size of buffer memory areas for each station number (other than a station number 0) can be calculated using the following formulas:

- Offset buffer memory address = 20224 + (station No.-1) × 2
- Size buffer memory address = 20225 + (station No.-1) × 2

# Appendix 2.6 Own station information (Un\G20512 to Un\G20536)

This buffer memory stores the own station's information on the network.

## (1) Own station (network card) information (Un\G20512 to Un\G20515)

| Address | Name | Description |
|---|---|---|
| Un\G20512 | Manufacturer code | This buffer memory stores the own station's master/local module information. |
| Un\G20513 | Model type | |
| Un\G20514 | Model code | |
| Un\G20515 | Version | |

## (2) Own station (controller) information (Un\G20520 to Un\G20536)

| Address | Name | Description |
|---|---|---|
| Un\G20520 | Controller information valid/invalid flag | This buffer memory stores whether the value stored in the own station (controller) information is valid or invalid.<br>0: Invalid<br>1: Valid |
| Un\G20521 | Manufacturer code | This buffer memory stores the own station's master/local module information. |
| Un\G20522 | Model type | |
| Un\G20523 | Model code | |
| Un\G20524 | Version | |
| Un\G20525 to Un\G20534 | Model name string | |
| Un\G20535 to Un\G20536 | Vendor-specific device information | |

# Appendix 2.7 Other station information (Un\G20544 to Un\G24415)

This buffer memory stores other stations' information on the network. These areas can be used in a master station only.

## (1) Other station (network card) information (station No.1) (Un\G20544 to Un\G20547)

| Address | Name | Description |
|---|---|---|
| Un\G20544 | Manufacturer code | This buffer memory stores another station's (station No.1) information. |
| Un\G20545 | Model type | |
| Un\G20546 | Model code | |
| Un\G20547 | Version | |

## (2) Other station (controller) information (station No.1) (Un\G20552 to Un\G20568)

| Address | Name | Description |
|---|---|---|
| Un\G20552 | Controller information valid/invalid flag | This buffer memory stores whether the value stored in another station (controller) information (station No.1) is valid or invalid.<br>0: Invalid<br>1: Valid |
| Un\G20553 | Manufacturer code | This buffer memory stores another station's master/local module information. |
| Un\G20554 | Model type | |
| Un\G20555 | Model code | |
| Un\G20556 | Version | |
| Un\G20557 to Un\G20566 | Model name string | |
| Un\G20567 to Un\G20568 | Vendor-specific device information | |

## (3) Other station information (station No.2 to No.120) (Un\G20576 to Un\G24383)

The information on station number 2 to station number 120 is stored in the same order as Other station (network card) information (station No.1) and Other station (controller) information (station No.1).

## (4) Other station information (station No.0) (Un\G24384 to Un\G24415)

The information on station number 0 is stored in the same order as Other station (network card) information (station No.1) and Other station (controller) information (station No.1).

# Appendix 2.8 Receive Error Detection Function (Un\G29968 to Un\G30472)

The information for receive error detection is stored.

### (1) PORT1 line error occurrence rate (max.) (Un\G29968 to Un\G30088)

| Address | Name | Description |
|---|---|---|
| Un\G29968 | Station No.1 | Maximum value of receive frame error occurrence rate |
| Un\G29969 to Un\G30087 | Station No.2 to 120 | |
| Un\G30088 | Station No.0 | |

### (2) PORT1 line error occurrence rate (present) (Un\G30096 to Un\G30216)

| Address | Name | Description |
|---|---|---|
| Un\G30096 | Station No.1 | Current value of receive frame error occurrence rate |
| Un\G30097 to Un\G30215 | Station No.2 to 120 | |
| Un\G30216 | Station No.0 | |

### (3) PORT2 line error occurrence rate (max.) (Un\G30224 to Un\G30344)

| Address | Name | Description |
|---|---|---|
| Un\G30224 | Station No.1 | Maximum value of receive frame error occurrence rate |
| Un\G30225 to Un\G30343 | Station No.2 to 120 | |
| Un\G30344 | Station No.0 | |

### (4) PORT2 line error occurrence rate (present) (Un\G30352 to Un\G30472)

| Address | Name | Description |
|---|---|---|
| Un\G30352 | Station No.1 | Current value of receive frame error occurrence rate |
| Un\G30353 to Un\G30471 | Station No.2 to 120 | |
| Un\G30472 | Station No.0 | |

# Appendix 3 Link Special Relay (SB) List

The link special relay (SB) is turned on/off depending on various factors during data link. Any error status of the data link can be confirmed by using and monitoring it in the program.

## (1) Application of the link special relay (SB)

By using link special relays (SB), the status of CC-Link IE Field Network can be checked from HMI (Human Machine Interfaces) as well as GX Works2.

## (2) Refresh of the link special relay (SB)

The link special relay (SB) uses "Transfer SB" of the refresh parameters to refresh the device of the CPU module.
(☞ Page 103, Section 7.5)

## (3) Ranges turned on/off by users and by the system

The following ranges correspond to when the link special relays (SBs) are assigned from SB0000 to SB01FF.

- Turned on/off by users: SB0000 to SB001F
- Turned on/off by the system: SB0020 to SB01FF

## (4) Link special relay (SB) list

The table in the following pages lists the link special relays (SBs) when they are assigned from SB0000 to SB01FF.

**Point**

- Do not turn on or off areas whose numbers are not on the link special relay (SB) list.
  Doing so may cause malfunction of the programmable controller system.
- For the usage of the link special relay (SB), refer to the following.
  ☞ Page 400, Section 11.3

| Number | Name | Description | Availability | |
|---|---|---|---|---|
| | | | Master station (submaster station) | Local station |
| SB0000 | Link start (own station) | The own station's cyclic transmission is restarted.<br>OFF: No start direction<br>ON: Start direction (enabled during start-up)<br><br>(Conditions)<br>• This is enabled when Baton pass status (own station) (SB0047) is off.<br>• For SB0000 to SB0003, this is enabled when only one of them is turned on. | ○ | ○ |
| SB0001 | Link stop (own station) | The own station's cyclic transmission is stopped.<br>OFF: No stop direction<br>ON: Stop direction (enabled during start-up)<br><br>(Conditions)<br>• This is enabled when Baton pass status (own station) (SB0047) is off.<br>• For SB0000 to SB0003, this is enabled when only one of them is turned on. | ○ | ○ |
| SB0002 | System link start | Cyclic transmission of the entire system is restarted.<br>The station where cyclic transmission is restarted is specified by the Link stop/start direction (SW0000 to SW0008).<br>OFF: No start direction<br>ON: Start direction (enabled during start-up)<br><br>(Conditions)<br>• This is enabled when Baton pass status (own station) (SB0047) is off.<br>• For SB0000 to SB0003, this is enabled when only one of them is turned on. | ○<br>(Master operating station only) | × |
| SB0003 | System link stop | Cyclic transmission of the entire system is stopped.<br>The station where cyclic transmission is stopped is specified by the Link stop/start direction (SW0000 to SW0008).<br>OFF: No stop direction<br>ON: Stop direction (enabled during start-up)<br><br>(Conditions)<br>• This is enabled when Baton pass status (own station) (SB0047) is off.<br>• For SB0000 to SB0003, this is enabled when only one of them is turned on. | ○<br>(Master operating station only) | × |
| SB0006 | Clear communication error count | This clears the link special registers for the communication error (SW0068 to SW006B, SW0074 to SW0077, SW007C to SW007F, and SW0120 to SW015F).<br>OFF: No clear direction<br>ON: Clear direction (valid while this relay is on) | ○ | ○ |
| SB0009 | Event count clear | This clears the Event history status (SB007A) and Event count (SW007A).<br>OFF: No clear direction<br>ON: Clear direction (Errors are not counted while this is ON.) | ○ | ○ |
| SB0010 | Temporary error invalid request | Stations specified in Reserved station function disable/temporary error invalid station setting (SW0010 to SW0017) are set as temporary error invalid stations.<br>OFF: No request<br>ON: Request issued | ○<br>(Master operating station only) | × |

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| Number | Name | Description | Availability | |
|---|---|---|---|---|
| | | | Master station (submaster station) | Local station |
| SB0011 | Temporary error invalid setting cancel request | Stations specified in Reserved station function disable/temporary error invalid station setting (SW0010 to SW0017) are canceled from temporary error invalid stations.<br>OFF: No request<br>ON: Request issued | ○ (Master operating station only) | × |
| SB0012 | Reserved station function disable request | Stations specified in Reserved station function disable/temporary error invalid station setting (SW0010 to SW0017) are temporarily canceled from reserved stations.<br>OFF: No request<br>ON: Request issued | ○ (Master operating station only) | × |
| SB0013 | Reserved station specification enable request | Stations specified in Reserved station function disable/temporary error invalid station setting (SW0010 to SW0017) are returned to reserved stations.<br>Only stations that were temporarily canceled can be returned to reserved stations.<br>OFF: No request<br>ON: Request issued | ○ (Master operating station only) | × |
| SB0019 | Forced master switch command | While the submaster station is operating as a master operating station, the master station assumes the master operation.<br>OFF: No switch direction<br>ON: Switch direction (enabled during start-up)<br><br>(Condition)<br>• This is enabled while the submaster station is operating as a master operating station. | ○ (Submaster station operating as a master operating station only) | × |
| SB0030 | RECV execution request flag (1) | This stores the data reception status of the own station's channel 1.<br>OFF: No received data<br>ON: Received data found<br><br>(Conditions)<br>• This is enabled when Baton pass status (own station) (SB0047) is OFF. | ○ | ○ |
| SB0031 | RECV execution request flag (2) | This stores the data reception status of the own station's channel 2.<br>OFF: No received data<br>ON: Received data found<br><br>(Conditions)<br>• This is enabled when Baton pass status (own station) (SB0047) is OFF. | ○ | ○ |
| SB0040 | Network type (own station) | Stores the network type of own station.<br>ON: Field network | ○ | ○ |
| SB0043 | Mode (own station) | Stores the mode of own station.<br>OFF: Online<br>ON: Not online | ○ | ○ |
| SB0044 | Station setting (own station) (1) | This stores if the own station is a master station or not.<br>OFF: Not master station<br>ON: Master station | ○ | ○ |

| Number | Name | Description | Availability | |
|---|---|---|---|---|
| | | | Master station (submaster station) | Local station |
| SB0045 | Station setting (own station) (2) | This stores if the own station is a local station or not.<br>OFF: Not local station<br>ON: Local station<br><br>(Condition)<br>• This is enabled when Station setting (own station) (1) (SB0044) is off. | ○ | ○ |
| SB0046 | Station number setting status of the own station | The setting status of the station number is stored.<br>OFF: Station number set<br>ON: Station number not set<br><br>When the station number is set using the parameter of GX Works2, this link special relay is always off. | × | ○ |
| SB0047 | Baton pass status (own station) | Stores the baton pass status for the own station (transient transmission possible).<br>OFF: Normal<br>ON: Error<br>If an error occurs, the cause of the error can be checked by the Baton pass status (own station) (SW0047) and Cause of baton pass interruption (SW0048).<br>Depending on the timing of the link refresh, the update of Baton pass status (own station) (SW0047) and Cause of baton pass interruption (SW0048) may be offset by one sequence scan. | ○ | ○ |
| SB0049 | Data link status (own station) | Stores the own station's data link status.<br>OFF: Normal<br>ON: Error<br>If an error occurs, the cause of the error can be checked by Cause of data link stop (SW0049).<br>Depending on the timing of the link refresh, the update of Cause of data link stop (SW0049) may be offset by one sequence scan.<br><br>(Conditions)<br>• This is enabled when Baton pass status (own station) (SB0047) is OFF. | ○ | ○ |
| SB004A | Own station's CPU status (1) | Stores the continuation error status of the own station's CPU module.<br>OFF: Normal<br>ON: Continuation error | ○ | ○ |
| SB004B | Own station's CPU status (2) | Stores the stop error status of the own station's CPU module.<br>OFF: Normal<br>ON: Stop error | ○ | ○ |
| SB004C | CPU RUN status (own station) | Stores the RUN status of the own station's CPU module.<br>OFF: RUN, STEP-RUN<br>ON: STOP, PAUSE, or CPU module stopped due to error | ○ | ○ |
| SB004D | Received parameter error | Stores the status of the received parameter. (own parameter status during master station)<br>OFF: Parameter normal<br>ON: Parameter error | ○ | ○ |

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| Number | Name | Description | Availability | |
|---|---|---|---|---|
| | | | Master station (submaster station) | Local station |
| SB004E | Own station master/ submaster function operation status | Stores if the own station is operating as a submaster station.<br>OFF: Operates as a master station (master operating station)<br>ON: Operates as a submaster station (submaster operating station)<br><br>(Conditions)<br>This is enabled when either of the following conditions is met.<br>• Station setting (own station) (1) (SB0044) is on.<br>• Both Station setting (own station) (1) (SB0044) and Station setting (own station) (2) (SB0045) are off. | ○ | × |
| SB004F | Station number status of the operating station | Whether the set station number has been set using GX Works2 or the UINI instruction is stored.<br>OFF: Operating with the station number set using GX Works2<br>ON: Operating with the station number set using the UINI instruction | × | ○ |
| SB0050 | Link start request accept status (own station) | Turns on when a cyclic transmission start request by Link start (own station) (SB0000) is accepted.<br>OFF: Not accepted (SB0000 is off.)<br>ON: Start accepted (SB0000 is on.)<br><br>(Condition)<br>• This is enabled when Baton pass status (own station) (SB0047) is off. | ○ | ○ |
| SB0051 | Link start completion status (own station) | Turns on when Link start request accept status (own station) (SB0050) turns on, and cyclic transmission start is completed.<br>OFF: Start not completed (SB0000 is off.)<br>ON: Start completed (SB0000 is on.)<br><br>(Condition)<br>• This is enabled when Baton pass status (own station) (SB0047) is off. | ○ | ○ |
| SB0052 | Link stop request accept status (own station) | Turns on when a cyclic transmission stop request by Link stop (own station) (SB0001) is accepted.<br>OFF: Not accepted (SB0001 is off.)<br>ON: Stop accepted (SB0001 is on.)<br><br>(Condition)<br>• This is enabled when Baton pass status (own station) (SB0047) is off. | ○ | ○ |
| SB0053 | Link stop completion status (own station) | Turns on when Link stop request accept status (own station) (SB0052) turns on, and cyclic transmission stop is completed.<br>OFF: Stop not completed (SB0001 is off.)<br>ON: Stop completed (SB0001 is on.)<br><br>(Condition)<br>• This is enabled when Baton pass status (own station) (SB0047) is off. | ○ | ○ |
| SB0054 | System link start request accept status | Turns on when a cyclic transmission start request by System link start (SB0002) is accepted.<br>OFF: Not accepted (SB0002 is off.)<br>ON: Start accepted (SB0002 is on.)<br><br>(Condition)<br>• This is enabled when Baton pass status (own station) (SB0047) is off. | ○ (Master operating station only) | × |

| Number | Name | Description | Availability | |
|---|---|---|---|---|
| | | | Master station (submaster station) | Local station |
| SB0055 | System link start completion status | Turns on when System link start request accept status (SB0054) turns on, and cyclic transmission start is completed.<br>OFF: Start not completed (SB0002 is off.)<br>ON: Start completed (SB0002 is on.)<br><br>(Condition)<br>• This is enabled when Baton pass status (own station) (SB0047) is off. | ○ (Master operating station only) | × |
| SB0056 | System link stop request accept status | Turns on when a cyclic transmission stop request by System link stop (SB0003) is accepted.<br>OFF: Not accepted (SB0003 is off.)<br>ON: Stop accepted (SB0003 is on.)<br><br>(Condition)<br>• This is enabled when Baton pass status (own station) (SB0047) is off. | ○ (Master operating station only) | × |
| SB0057 | System link stop completion status | Turns on when System link stop accept status (SB0056) turns on, and cyclic transmission stop is completed.<br>OFF: Stop not completed (SB0003 is off.)<br>ON: Stop completed (SB0003 is on.)<br><br>(Condition)<br>• This is enabled when Baton pass status (own station) (SB0047) is off. | ○ (Master operating station only) | × |
| SB0058 | Temporary error invalid request accept status | Turns on when Temporary error invalid request (SB0010) is accepted.<br>OFF: Not accepted (SB0010 is off.)<br>ON: Invalid accepted (SB0010 is on.) | ○ (Master operating station only) | × |
| SB0059 | Temporary error invalid setting completion status | Turns on when Temporary error invalid request accept status (SB0058) is turned on and the temporary error invalid processing is completed.<br>OFF: Not completed<br>ON: Completed or error completion | ○ (Master operating station only) | × |
| SB005A | Temporary error invalid setting cancel request accept status | Turns on when Temporary error invalid setting cancel request (SB0011) is accepted.<br>OFF: Not accepted<br>ON: Cancel accepted | ○ (Master operating station only) | × |
| SB005B | Temporary error invalid setting cancel completion status | Turns on when Temporary error invalid setting cancel request accept status (SB005A) is turned on and the temporary error invalid setting cancel process is completed.<br>OFF: Not completed<br>ON: Completed or error completion | ○ (Master operating station only) | × |
| SB005C | Reserved station function disable request accept status | Turns on when Reserved station function disable request (SB0012) is accepted.<br>OFF: Not accepted<br>ON: Cancel accepted | ○ (Master operating station only) | × |
| SB005D | Reserved station function disable completion status | Turns on when Reserved station function disable request accept status (SB005C) is turned on and disabling the reserved station function is completed.<br>OFF: Not completed<br>ON: Completed or error completion | ○ (Master operating station only) | × |

| Number | Name | Description | Availability | |
|---|---|---|---|---|
| | | | Master station (submaster station) | Local station |
| SB005E | Reserved station specification enable request accept status | Turns on when Reserved station specification enable request (SB0013) is accepted.<br>OFF: Not accepted<br>ON: Enable accepted | ○ (Master operating station only) | × |
| SB005F | Reserved station specification enabled status | Turns on when Reserved station specification enable request accept status (SB005E) is turned on and the reserved station specification enable processing is completed.<br>OFF: Not completed<br>ON: Completed or error completion | ○ (Master operating station only) | × |
| SB0060 | Constant link scan status | Stores the constant link scan status.<br>OFF: Constant link scan is disabled<br>ON: Constant link scan is enabled<br><br>(Condition)<br>• This is enabled when Data link status (own station) (SB0049) is off. | ○ | ○ |
| SB0061 | Event history clear acceptance status | Turns on when Event count clear (SB0009) is accepted.<br>OFF: Not performed (SB0009 is off.)<br>ON: Direction accepted (SB0009 is on.) | ○ | ○ |
| SB0062 | Event history clear completion status | Turns on when Event history clear acceptance status (SB0061) turns on and the number of events is cleared.<br>OFF: Not performed (SB0009 is off.)<br>ON: Completed (SB0009 is on.) | ○ | ○ |
| SB0065 | Loopback status | Stores loopback execution status. The loopback station numbers can be checked by Loopback station number 1 (SW0070) and Loopback station number 2 (SW0071).<br>OFF: Normal (no loopback stations)<br>ON: Error (loopback being performed)<br>(Loopback stations exist.)<br><br>(Condition)<br>• This is enabled when Baton pass status (own station) (SB0047) is off and Loopback function setting status (SB0078) is on. | ○ (Master operating station only) | × |
| SB0066 | Forced master switch enable status | Stores if Forced master switch command (SB0019) can be executed.<br>OFF: Execution disabled<br>ON: Execution enabled | ○ (Submaster station only) | × |
| SB0067 | Forced master switch acceptance status | Turns on when Forced master switch command (SB0019) is accepted.<br>OFF: Not accepted (SB0019 is off.)<br>ON: Accepted (SB0019 is on.) | ○ (Submaster station only) | × |
| SB0068 | Forced master switch operation status | Turns on when Forced master switch acceptance status (SB0067) turns on and the forced master switch is completed.<br>OFF: Not completed (SB0019 is off.)<br>ON: Completion or abnormal end (SB0019 is on.) | ○ (Submaster station only) | × |
| SB006A | PORT1 linkup status (own station) | Stores the linkup status of PORT1 (own station).<br>OFF: Linkup in progress<br>ON: Linkdown in progress<br>The time that the linkup starts after power-on or Ethernet cable connection may vary. Normally, it takes a few seconds.<br>Depending on device status on the line, a linkup process is repeated, resulting in the increase in the time. | ○ | ○ |

| Number | Name | Description | Availability | |
|---|---|---|---|---|
| | | | Master station (submaster station) | Local station |
| SB006B | PORT2 linkup status (own station) | Stores the linkup status of PORT2 (own station).<br>OFF: Linkup in progress<br>ON: Linkdown in progress<br>The time that the linkup starts after power-on or Ethernet cable connection may vary. Normally, it takes a few seconds.<br>Depending on device status on the line, a linkup process is repeated, resulting in the increase in the time. | ○ | ○ |
| SB006C | PORT1 error frame reception status (own station) (1) | Stores if a receive frame error line status caution level has occurred in the own station's PORT1.<br>OFF: A receive frame error line status caution level has not yet been occurred.<br>ON: A receive frame error line status caution level has been occurred. | ○ | ○ |
| SB006D | PORT2 error frame reception status (own station) (1) | Stores if a receive frame error line status caution level has occurred in the own station's PORT2.<br>OFF: A receive frame error line status caution level has not yet been occurred.<br>ON: A receive frame error line status caution level has been occurred. | ○ | ○ |
| SB006E | PORT1 error frame reception detection status (own station) (latch) (1) | Stores if a receive frame error line status caution level has occurred in the own station's PORT1 from power-on until the present.<br>OFF: A receive frame error line status caution level has not yet been occurred.<br>ON: A receive frame error line status caution level has been occurred. | ○ | ○ |
| SB006F | PORT2 error frame reception detection status (own station) (latch) (1) | Stores if a receive frame error line status caution level has occurred in the own station's PORT2 from power-on until the present.<br>OFF: A receive frame error line status caution level has not yet been occurred.<br>ON: A receive frame error line status caution level has been occurred. | ○ | ○ |
| SB0070 | Master station information | Stores data link status when the submaster function is used.<br>OFF: Data link by the master station<br>ON: Data link by the submaster station | ○ | ○ |
| SB0071 | Submaster station information | Stores if a submaster station exists.<br>OFF: No submaster station<br>ON: Submaster station exists | ○ | ○ |
| SB0072 | Scan mode setting information | Stores the scan mode setting status.<br>OFF: Asynchronous mode<br>ON: Synchronous mode | ○ | ○ |
| SB0074 | Reserved station specification status | Stores the reserved station specification status due to parameters.<br>The reserved station number can be checked using Reserved station setting status (SW00C0 to SW00C7).<br>OFF: Not specified<br>ON: Specified | ○ | ○ |
| SB0075 | Error invalid station setting status | Stores the Error invalid station setting status due to parameters.<br>The error invalid station number can be checked using Error invalid station setting status (SW00D0 to SW00D7).<br>OFF: Not specified<br>ON: Specified | ○ | ○ |
| SB0076 | Submaster station setting information | Stores the status of the submaster station setting.<br>OFF: No setting<br>ON: Set | ○ | × |

| Number | Name | Description | Availability | |
|---|---|---|---|---|
| | | | Master station (submaster station) | Local station |
| SB0077 | Parameter reception status | Stores the parameter reception status from the master station.<br>OFF: Reception completed<br>ON: Reception not completed | ○ (Submaster station only) | ○ |
| SB0078 | Loopback function setting status | Stores the setting status of the loopback function configured by the parameter.<br>OFF: Not used<br>ON: Used | ○ (Master operating station only) | × |
| SB0079 | Master station return specification information | Stores the setting of "Operation Setting for Returning" in the supplementary setting.<br>OFF: Returns as a master station<br>ON: Returns as a submaster station | ○ (Master station only) | × |
| SB007A | Event history status | Stores the network event history occurrence.<br>OFF: No event history<br>ON: Event history found<br><br>If the event history is found, the cumulative number of network event history can be checked by the Event count (SW007A).<br>Depending on the timing of the link refresh, the update of Event count (SW007A) may be offset by one sequence scan.<br><br>This area is cleared when Event count clear (SB0009) is turned on. | ○ | ○ |
| SB007B | Input data status of data link faulty station | Stores the own station's setting status for "Data Link Disorder Station Setting".<br>OFF: OFF or cleared to 0<br>ON: Hold | ○ | ○ |
| SB007D | Hold/clear status setting for CPU STOP | Stores the own station's setting status for "Output Setting during CPU STOP".<br>OFF: Hold<br>ON: Clear (ALL OFF) | ○ | ○ |
| SB007F | IP address setting status | Stores the IP address setting using the parameter.<br>OFF: No setting<br>ON: Set<br>When the station is a local station, the reception status of an IP address from the master station is stored. | ○ | ○ |
| SB0080 | IP address setting status | Stores if the network address of the submaster operating station matches with that of the master operating station.<br>OFF: Match with the master operating station<br>ON: Different from the master operating station | ○ | × |
| SB008C | PORT1 error frame reception status (own station) (2) | Stores if a receive frame error line status warning level has occurred in the own station's PORT1.<br>OFF: A receive frame error line status warning level has not yet been occurred.<br>ON: A receive frame error line status warning level has been occurred. | ○ | ○ |
| SB008D | PORT2 error frame reception status (own station) (2) | Stores if a receive frame error line status warning level has occurred in the own station's PORT2.<br>OFF: A receive frame error line status warning level has not yet been occurred.<br>ON: A receive frame error line status warning level has been occurred. | ○ | ○ |

| Number | Name | Description | Availability | |
|---|---|---|---|---|
| | | | Master station (submaster station) | Local station |
| SB008E | PORT1 error frame reception detection status (own station) (latch) (2) | Stores if a receive frame error line status warning level has occurred in the own station's PORT1 from power-on until the present.<br>OFF: A receive frame error line status warning level has not yet been occurred.<br>ON: A receive frame error line status warning level has been occurred. | ○ | ○ |
| SB008F | PORT2 error frame reception detection status (own station) (latch) (2) | Stores if a receive frame error line status warning level has occurred in the own station's PORT2 from power-on until the present.<br>OFF: A receive frame error line status warning level has not yet been occurred.<br>ON: A receive frame error line status warning level has been occurred. | ○ | ○ |
| SB0090 | Hardware test completion status | Stores the hardware test completion status.<br>OFF: Not executed or execution in progress<br>ON: Completed<br>If completed, the completion status can be checked by Hardware test normal/abnormal end (SB0091). | ○ | ○ |
| SB0091 | Hardware test normal/ abnormal end | Stores the hardware test normal completion or abnormal completion status.<br>OFF: Normal completion<br>ON: Abnormal completion<br><br>(Condition)<br>• This is enabled when Hardware test completion status (SB0090) is on. | ○ | ○ |
| SB0092 | Self-loopback test completion status | Stores the self-loopback test completion status.<br>OFF: Not executed or execution in progress<br>ON: Completed<br>If completed, the completion status can be checked by Self-loopback test normal/abnormal end (SB0093). | ○ | ○ |
| SB0093 | Self-loopback test normal/abnormal end | Stores the self-loopback test normal completion or abnormal completion status.<br>OFF: Normal completion<br>ON: Abnormal completion<br><br>(Condition)<br>• This is enabled when Self-loopback test completion status (SB0092) is on. | ○ | ○ |
| SB0094 | Loop test completion status | Stores the loop test completion status.<br>OFF: Not executed or execution in progress<br>ON: Completed<br>If completed, the completion status can be checked by Loop test normal/ abnormal end (SB0095). | ○ (Master station only) | × |
| SB0095 | Loop test normal/ abnormal end | Stores the loop test normal completion or abnormal completion status.<br>OFF: Normal completion<br>ON: Abnormal completion<br><br>(Condition)<br>• This is enabled when Loop test completion status (SB0094) is on. | ○ (Master station only) | × |

AbN automation

| Number | Name | Description | Availability | |
|---|---|---|---|---|
| | | | Master station (submaster station) | Local station |
| SB0098 | Network configuration mismatch occurrence status | Stores the match or mismatch status of the actual network configuration and the network map of the CC-Link IE Field Network diagnostics.<br>OFF: Match<br>ON: Mismatch<br>After return or addition of the slave station, SB0098 may be turned on regardless of the actual match/mismatch status. | ○ (Master operating station only) | × |
| SB0099 | Number of connected modules over occurrence status | Stores whether the number of slave stations (including a submaster station) connected is 120 or less, or 121 or more.<br>OFF: 120 or less<br>ON: 121 or more<br>Number of connected modules is the total of the slave stations (including a submaster station) which are currently connected and the disconnected stations (slave stations which were previously connected). | ○ (Master operating station only) | × |
| SB009A | Loop test request accept status | Stores the loop test request accept status.<br>OFF: Loop test not accepted<br>ON: Loop test accepted<br><br>The master station is turned on during loop test mode. For slave stations and a submaster station, this relay turns on during a loop test and turns off upon completion of the test. | ○ | ○ |
| SB00A0 | Baton pass status (each station) | Stores the baton pass status for each station.<br>OFF: All stations normal<br>ON: Faulty station found<br>If a faulty station is found, the status of each station can be checked by Baton pass status (each station) (SW00A0 to SW00A7).<br>Depending on the timing of the link refresh, the update of Baton pass status (each station) (SW00A0 to SW00A7) may be offset by one sequence scan.<br><br>(Conditions)<br>• This is enabled when Baton pass status (own station) (SB0047) is off.<br>• Reserved stations and stations higher than the maximum station No. are ignored. | ○ | ○ |
| SB00A1 | Baton pass status (master station) | Stores the baton pass status of the master station (master operating station).<br>OFF: Normal<br>ON: Error<br><br>(Condition)<br>• This is enabled when Baton pass status (own station) (SB0047) is off. | ○ | ○ |
| SB00AF | Baton pass status (station No.0) | Stores the baton pass status of the station number 0.<br>OFF: Normal<br>ON: Error<br><br>(Condition)<br>• This is enabled when the submaster function is used. | ○ | ○ |

| Number | Name | Description | Availability | |
|---|---|---|---|---|
| | | | Master station (submaster station) | Local station |
| SB00B0 | Data link status (each station) | Stores the cyclic transmission status for each station.<br>OFF: Cyclic transmission for all stations in progress<br>ON: Cyclic transmission not executed for some stations<br>If cyclic transmission are not executed for some stations, the status of each station can be checked by Data link status (each station) (SW00B0 to SW00B7).<br>Depending on the timing of the link refresh, the update of Data link status (each station) (SW00B0 to SW00B7) may be offset by one sequence scan.<br><br>(Conditions)<br>• This is enabled when Baton pass status (own station) (SB0047) is off.<br>• Reserved stations and stations higher than the maximum station No. are ignored. | ○ | ○ |
| SB00B1 | Data link status (master station) | Stores the data link status of the master station (master operating station).<br>OFF: Normal<br>ON: Error<br><br>(Condition)<br>• This is enabled when Baton pass status (own station) (SB0047) is off. | ○ | ○ |
| SB00B8 | Network connection status (each station) | Stores if any network connection station is found.<br>OFF: No network connection station<br>ON: Network connection station found<br>If a network connection station is found, the status of each station can be checked using Network connection status (SW00B8 to SW00BF).<br>Depending on the timing of the link refresh, the update of Network connection status (SW00B8 to SW00BF) may be offset by one sequence scan. | ○ | ○ |
| SB00BF | Data link status (station No.0) | Stores the data link status of the station number 0.<br>OFF: Normal<br>ON: Error<br><br>(Condition)<br>• This is enabled when the submaster function is used. | ○ | ○ |
| SB00C0 | Reserved station setting status | Stores if a reserved station has been set.<br>OFF: No setting<br>ON: Set<br>When a reserved station has been set, each station status can be checked using Reserved station setting status (SW00C0 to SW00C7).<br>Depending on the timing of the link refresh, the update of Reserved station setting status (SW00C0 to SW00C7) may be offset by one sequence scan.<br><br>(Condition)<br>• This is enabled when Baton pass status (own station) (SB0047) is off. | ○ | ○ |

| Number | Name | Description | Availability | |
|---|---|---|---|---|
| | | | Master station (submaster station) | Local station |
| SB00D0 | Error invalid station setting status | Stores if an error invalid station has been set.<br>OFF: No setting<br>ON: Set<br>When an error invalid station has been set, each station status can be checked using Error invalid station setting status (SW00D0 to SW00D7).<br>Depending on the timing of the link refresh, the update of Error invalid station setting status (SW00D0 to SW00D7) may be offset by one sequence scan.<br><br>(Condition)<br>• This is enabled when Baton pass status (own station) (SB0047) is off. | ○ | ○ |
| SB00E0 | Temporary error invalid station setting status | Stores if a temporary error invalid station has been set.<br>OFF: No setting<br>ON: Set<br>When a temporary error invalid station has been set, each station status can be checked using Temporary error invalid station setting status (SW00E0 to SW00E7).<br>Depending on the timing of the link refresh, the update of Temporary error invalid station setting status (SW00E0 to SW00E7) may be offset by one sequence scan.<br><br>(Condition)<br>• This is enabled when Baton pass status (own station) (SB0047) is off. | ○ | ○ |
| SB00E8 | Station type match status (each station) | Stores the station type match status of each station.<br>OFF: Station type match in all stations<br>ON: Station type mismatch station found<br>If a station type mismatch station is found, the status of each station can be checked using Station type match status (SW00E8 to SW00EF).<br>Depending on the timing of the link refresh, the update of Station type match status (SW00E8 to SW00EF) may be offset by one sequence scan. | ○ | ○ |
| SB00F0 | CPU RUN status (each station) | Stores the RUN status of each station's CPU module.<br>OFF: All stations are in RUN or STEP-RUN status<br>ON: Station in STOP or PAUSE status found<br>If a station in STOP or PAUSE status is found, the status of each station can be checked by the CPU RUN status (each station) (SW00F0 to SW00F7).<br>Depending on the timing of the link refresh, the update of CPU RUN status (each station) (SW00F0 to SW00F7) may be offset by one sequence scan.<br><br>(Condition)<br>• This is enabled when Baton pass status (own station) (SB0047) is off. | ○ | ○ |
| SB00F1 | CPU RUN status (master station) | Stores the RUN status of the master station's CPU module.<br>OFF: RUN or STEP-RUN status<br>ON: STOP or PAUSE status<br><br>(Condition)<br>• This is enabled when Baton pass status (own station) (SB0047) is off. | ○ | ○ |

| Number | Name | Description | Availability | |
|---|---|---|---|---|
| | | | Master station (submaster station) | Local station |
| SB00F8 | Network number match status | Stores the network number match status of each station.<br>OFF: Network number match in all stations<br>ON: Network number mismatch station found<br>If a network number mismatch station is found, the status of each station can be checked using Network number match status (SW00F8 to SW00FF).<br>Depending on the timing of the link refresh, the update of Network number match status (SW00F8 to SW00FF) may be offset by one sequence scan. | ○ | ○ |
| SB00FF | CPU RUN status (station No.0) | Stores the execution status of the CPU module on station number 0.<br>OFF: RUN or STEP-RUN status<br>ON: STOP or PAUSE status<br><br>(Condition)<br>• This is enabled when the submaster function is used. | ○ | ○ |
| SB0100 | CPU operation status (each station) (1) | Stores the moderate/major error or stop error status of each station.<br>When the target station is the master/local module, the status of the control CPU is stored.<br>OFF: No station with a moderate/major error (stop error) found<br>ON: Station with a moderate/major error (stop error) found<br>If a station with a moderate/major error (stop error) is found, the status of each station can be checked by Operation status (each station) (1) (SW0100 to SW0107).<br>Depending on the timing of the link refresh, the update of Operation status (each station) (1) (SW0100 to SW0107) may be offset by one sequence scan.<br><br>(Condition)<br>• This is enabled when Baton pass status (own station) (SB0047) is off. | ○ | ○ |
| SB0101 | CPU operation status (master station) (1) | Stores the stop error status of the master station's CPU module.<br>OFF: Normal<br>ON: Stop error occurred<br><br>(Condition)<br>• This is enabled when Baton pass status (own station) (SB0047) is off. | ○ | ○ |
| SB0108 | Station number duplication occurrence status | Stores the station number duplication occurrence status of each station.<br>OFF: No duplication of station number<br>ON: Station number duplicated<br>If a station number is duplicated, the status of each station can be checked using Station number duplication occurrence status (SW0108 to SW010F).<br>Depending on the timing of the link refresh, the update of Station number duplication occurrence status (SW0108 to SW010F) may be offset by one sequence scan. | ○ | ○ |
| SB010F | CPU operation status (1) (station No.0) | Stores the stop error status of the CPU module on station number 0.<br>OFF: Normal<br>ON: Stop error occurred<br><br>(Condition)<br>• This is enabled when the submaster function is used. | ○ | ○ |

| Number | Name | Description | Availability | |
|---|---|---|---|---|
| | | | Master station (submaster station) | Local station |
| SB0110 | CPU operation status (each station) (2) | Stores the minor error or continuation error status of each station.<br>When the target station is the master/local module, the status of the control CPU is stored.<br>OFF: All stations normal or a station with a moderate/major error (stop error) found<br>ON: Station with a minor error (continuation error) found<br>If a station with a minor error (continuation error) is found, the status of each station can be checked by Operation status (each station) (2) (SW0110 to SW0117).<br>Depending on the timing of the link refresh, the update of Operation status (each station) (2) (SW0110 to SW0117) may be offset by one sequence scan.<br><br>(Condition)<br>• This is enabled when Baton pass status (own station) (SB0047) is off. | ○ | ○ |
| SB0111 | CPU operation status (master station) (2) | Stores the continuation error status of the master station's CPU module.<br>OFF: Normal<br>ON: Continuation error occurred<br><br>(Condition)<br>• This is enabled when Baton pass status (own station) (SB0047) is off. | ○ | ○ |
| SB011F | CPU operation status (2) (station No.0) | Stores the continuation error status of the CPU module on station number 0.<br>OFF: Normal<br>ON: Continuation error occurred<br><br>(Condition)<br>• This is enabled when the submaster function is used. | ○ | ○ |
| SB0120 | PORT1 current error frame reception status (1) | Stores if a receive frame error line status caution level has occurred in each station's PORT1.<br>OFF: A receive frame error line status caution level has not yet been occurred in any stations.<br>ON: A receive frame error line status caution level has been occurred in one or more stations.<br>If a receive frame error line status caution level has been occurred, the status of each station can be checked by PORT1 current error frame reception status (each station) (1) (SW0120 to SW0127).<br>Depending on the timing of the link refresh, the update of PORT1 current error frame reception status (each station) (1) (SW0120 to SW0127) may be offset by one sequence scan.<br><br>(Condition)<br>• This is enabled when Baton pass status (own station) (SB0047) is off. | ○ | ○ |
| SB0121 | PORT1 error frame reception status (master station) | Stores if an error frame is received at the master station's PORT1.<br>OFF: An error frame has not yet been received<br>ON: An error frame has been received<br><br>(Condition)<br>• This is enabled when Baton pass status (own station) (SB0047) is off. | ○ | ○ |

| Number | Name | Description | Availability | |
|---|---|---|---|---|
| | | | Master station (submaster station) | Local station |
| SB0128 | PORT1 current error frame reception status (2) | Stores if a receive frame error line status warning level has occurred in each station's PORT1.<br>OFF: A receive frame error line status warning level has not yet been occurred in any stations.<br>ON: A receive frame error line status warning level has been occurred in one or more stations.<br>If a receive frame error line status warning level has been occurred, the status of each station can be checked by PORT1 current error frame reception status (each station) (2) (SW0128 to SW012F).<br>Depending on the timing of the link refresh, the update of PORT1 current error frame reception status (each station) (2) (SW0128 to SW012F) may be offset by one sequence scan.<br><br>(Condition)<br>• This is enabled when Baton pass status (own station) (SB0047) is off. | ○ | ○ |
| SB0129 | PORT1 current error frame reception status (station No.0) (2) | Stores if a receive frame error line status warning level has occurred in the PORT1 of station number 0.<br>OFF: A receive frame error line status warning level has not yet been occurred.<br>ON: A receive frame error line status warning level has been occurred.<br><br>(Condition)<br>• This is enabled when the submaster function is used. | ○ | ○ |
| SB012F | PORT1 current error frame reception status (station No.0) (1) | Stores if a receive frame error line status caution level has occurred in the PORT1 of station number 0.<br>OFF: A receive frame error line status caution level has not yet been occurred.<br>ON: A receive frame error line status caution level has been occurred.<br><br>(Condition)<br>• This is enabled when the submaster function is used. | ○ | ○ |
| SB0130 | PORT2 current error frame reception status (1) | Stores if a receive frame error line status caution level has occurred in each station's PORT2.<br>OFF: A receive frame error line status caution level has not yet been occurred in any stations.<br>ON: A receive frame error line status caution level has been occurred in one or more stations.<br>If a receive frame error line status caution level has been occurred, the status of each station can be checked by PORT2 current error frame reception status (each station) (1) (SW0130 to SW0137).<br>Depending on the timing of the link refresh, the update of PORT2 current error frame reception status (each station) (1) (SW0130 to SW0137) may be offset by one sequence scan.<br><br>(Condition)<br>• This is enabled when Baton pass status (own station) (SB0047) is off. | ○ | ○ |
| SB0131 | PORT2 error frame reception status (master station) | Stores if an error frame is received at the master station's PORT2.<br>OFF: An error frame has not yet been received<br>ON: An error frame has been received<br><br>(Condition)<br>• This is enabled when Baton pass status (own station) (SB0047) is off. | ○ | ○ |

| Number | Name | Description | Availability | |
|---|---|---|---|---|
| | | | Master station (submaster station) | Local station |
| SB0138 | PORT2 current error frame reception status (2) | Stores if a receive frame error line status warning level has occurred in each station's PORT2.<br>OFF: A receive frame error line status warning level has not yet been occurred in any stations.<br>ON: A receive frame error line status warning level has been occurred in one or more stations.<br>If a receive frame error line status warning level has been occurred, the status of each station can be checked by PORT2 current error frame reception status (each station) (2) (SW0138 to SW013F).<br>Depending on the timing of the link refresh, the update of PORT2 current error frame reception status (each station) (2) (SW0138 to SW013F) may be offset by one sequence scan.<br><br>(Condition)<br>• This is enabled when Baton pass status (own station) (SB0047) is off. | ○ | ○ |
| SB0139 | PORT2 current error frame reception status (station No.0) (2) | Stores if a receive frame error line status warning level has occurred in the PORT2 of station number 0.<br>OFF: A receive frame error line status warning level has not yet been occurred.<br>ON: A receive frame error line status warning level has been occurred.<br><br>(Condition)<br>• This is enabled when the submaster function is used. | ○ | ○ |
| SB013F | PORT2 current error frame reception status (station No.0) (1) | Stores if a receive frame error line status caution level has occurred in the PORT2 of station number 0.<br>OFF: A receive frame error line status caution level has not yet been occurred.<br>ON: A receive frame error line status caution level has been occurred.<br><br>(Condition)<br>• This is enabled when the submaster function is used. | ○ | ○ |
| SB0140 | PORT1 error frame reception detection status (1) | Stores if a receive frame error line status caution level has occurred in each station's PORT1 from power-on until the present.<br>OFF: A receive frame error line status caution level has not yet been occurred in any stations.<br>ON: A receive frame error line status caution level has been occurred in one or more stations.<br>If a receive frame error line status caution level has been occurred, the status of each station can be checked by PORT1 error frame reception detection status (1) (SW0140 to SW0147).<br>Depending on the timing of the link refresh, the update of PORT1 error frame reception detection status (1) (SW0140 to SW0147) may be offset by one sequence scan.<br><br>(Condition)<br>• This is enabled when Baton pass status (own station) (SB0047) is off. | ○ | ○ |

| Number | Name | Description | Availability | |
|---|---|---|---|---|
| | | | Master station (submaster station) | Local station |
| SB0141 | PORT1 error frame detection (master station) | Stores if an error frame was received from power-on until the present at the master station's PORT1.<br>OFF: An error frame has not yet been received<br>ON: An error frame has been received at least once<br><br>(Condition)<br>• This is enabled when Baton pass status (own station) (SB0047) is off. | ○ | ○ |
| SB0148 | PORT1 error frame reception detection status (2) | Stores if a receive frame error line status warning level has occurred in each station's PORT1 from power-on until the present.<br>OFF: A receive frame error line status warning level has not yet been occurred in any stations.<br>ON: A receive frame error line status warning level has been occurred in one or more stations.<br>If a receive frame error line status warning level has been occurred, the status of each station can be checked by PORT1 error frame reception detection status (2) (SW0148 to SW014F).<br>Depending on the timing of the link refresh, the update of PORT1 error frame reception detection status (2) (SW0148 to SW014F) may be offset by one sequence scan.<br><br>(Condition)<br>• This is enabled when Baton pass status (own station) (SB0047) is off. | ○ | ○ |
| SB0149 | PORT1 error frame reception detection status (station No.0) (2) | Stores if a receive frame error line status warning level has occurred in the PORT1 of station number 0 from power-on until the present.<br>OFF: A receive frame error line status warning level has not yet been occurred.<br>ON: A receive frame error line status warning level has been occurred at least once.<br><br>(Condition)<br>• This is enabled when the submaster function is used. | ○ | ○ |
| SB014F | PORT1 error frame reception detection status (station No.0) (1) | Stores if a receive frame error line status caution level has occurred in the PORT1 of station number 0 from power-on until the present.<br>OFF: A receive frame error line status caution level has not yet been occurred.<br>ON: A receive frame error line status caution level has been occurred at least once.<br><br>(Condition)<br>• This is enabled when the submaster function is used. | ○ | ○ |

| Number | Name | Description | Availability | |
|---|---|---|---|---|
| | | | Master station (submaster station) | Local station |
| SB0150 | PORT2 error frame reception detection status (1) | Stores if a receive frame error line status caution level has occurred in each station's PORT2 from power-on until the present.<br>OFF: A receive frame error line status caution level has not yet been occurred in any stations.<br>ON: A receive frame error line status caution level has been occurred in one or more stations.<br>If a receive frame error line status caution level has been occurred, the status of each station can be checked by PORT2 error frame reception detection status (1) (SW0150 to SW0157).<br>Depending on the timing of the link refresh, the update of PORT2 error frame reception detection status (1) (SW0150 to SW0157) may be offset by one sequence scan.<br><br>(Condition)<br>• This is enabled when Baton pass status (own station) (SB0047) is off. | ○ | ○ |
| SB0151 | PORT2 error frame detection (master station) | Stores if an error frame was received from power-on until the present at the master station's PORT2.<br>OFF: An error frame has not yet been received<br>ON: An error frame has been received at least once<br><br>(Condition)<br>• This is enabled when Baton pass status (own station) (SB0047) is off. | ○ | ○ |
| SB0158 | PORT2 error frame reception detection status (2) | Stores if a receive frame error line status warning level has occurred in each station's PORT2 from power-on until the present.<br>OFF: A receive frame error line status warning level has not yet been occurred in any stations.<br>ON: A receive frame error line status warning level has been occurred in one or more stations.<br>If a receive frame error line status warning level has been occurred, the status of each station can be checked by PORT2 error frame reception detection status (2) (SW0158 to SW015F).<br>Depending on the timing of the link refresh, the update of PORT2 error frame reception detection status (2) (SW0158 to SW015F) may be offset by one sequence scan.<br><br>(Condition)<br>• This is enabled when Baton pass status (own station) (SB0047) is off. | ○ | ○ |
| SB0159 | PORT2 error frame reception detection status (station No.0) (2) | Stores if a receive frame error line status warning level has occurred in the PORT2 of station number 0 from power-on until the present.<br>OFF: A receive frame error line status warning level has not yet been occurred.<br>ON: A receive frame error line status warning level has been occurred at least once.<br><br>(Condition)<br>• This is enabled when the submaster function is used. | ○ | ○ |

| Number | Name | Description | Availability | |
|---|---|---|---|---|
| | | | Master station (submaster station) | Local station |
| SB015F | PORT2 error frame reception detection status (station No.0) (1) | Stores if a receive frame error line status caution level has occurred in the PORT2 of station number 0 from power-on until the present.<br>OFF: A receive frame error line status caution level has not yet been occurred.<br>ON: A receive frame error line status caution level has been occurred at least once.<br><br>(Condition)<br>• This is enabled when the submaster function is used. | ○ | ○ |
| SB0170 | Parameter error status (each station) | Stores the parameter status for each station.<br>OFF: No parameter errors for any stations<br>ON: Parameter error detected at one or more stations<br><br>If a parameter error occurs, the status of each station can be checked by Parameter error status (each station) (SW0170 to SW0177).<br>Depending on the timing of the link refresh, the update of Parameter error status (each station) (SW0170 to SW0177) may be offset by one sequence scan.<br><br>(Conditions)<br>• This is enabled when Baton pass status (own station) (SB0047) is off.<br>• Reserved stations and stations higher than the maximum station No. are ignored. | ○ | ○ |
| SB017F | Parameter error status (station No.0) | Stores the parameter status of the station number 0.<br>OFF: No parameter errors for any stations<br>ON: Parameter error detected at one or more stations<br><br>(Conditions)<br>• This is enabled when Baton pass status (own station) (SB0047) is off.<br>• This is enabled when the submaster function is used. | ○ | ○ |
| SB0180 | Reserved station function disable status | This stores if a reserved station function is disabled.<br>OFF: No disabled reserved station function<br>ON: Disabled reserved station function found<br><br>If a reserved station function is disabled, the status of each station can be checked by Reserved station cancel setting status (SW0180 to SW0187).<br>Depending on the timing of the link refresh, the update of Reserved station cancel setting status (SW0180 to SW0187) may be offset by one sequence scan.<br><br>(Condition)<br>• This is enabled when Baton pass status (own station) (SB0047) is off. | ○ | ○ |

# Appendix 4 Link Special Register (SW) List

The link special register (SW) stores the information during data link as a numerical value. Error locations and causes can be checked by the using and monitoring the link special register (SW) in programs.

## (1) Application of link special registers (SW)

By using link special registers (SW), the status of CC-Link IE Field Network can be checked from HMI (Human Machine Interfaces) as well as GX Works2.

## (2) Link special register (SW) refresh

The link special register (SW) uses "Transfer SW" of the refresh parameters to refresh the device of the CPU module. (☞ Page 103, Section 7.5)

## (3) Ranges to which data are stored by users and by the system

The following ranges correspond to when the link special registers (SWs) are assigned from SW0000 to SW01FF.

- Stored by users: SW0000 to SW001F
- Stored by the system: SW0020 to SW01FF

## (4) Link special register (SW) list

The table in the following pages lists the link special registers (SWs) when they are assigned from SW0000 to SW01FF.

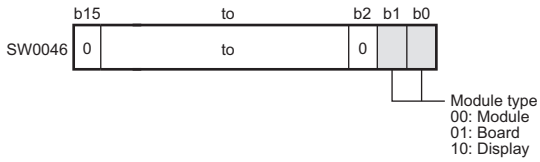
**Point**

- Do not write any data to an area whose number is not on the link special register (SW) list. Doing so may cause malfunction of the programmable controller system.
- For the usage of the link special register (SW), refer to ☞ Page 400, Section 11.3.

<table>
<tr><th rowspan="2">Number</th><th rowspan="2">Name</th><th rowspan="2">Description</th><th colspan="2">Availability</th></tr>
<tr><th>Master station (submaster station)</th><th>Local station</th></tr>
<tr><td>SW0000</td><td rowspan="2">Link stop/start direction</td><td>Sets the station where cyclic transmission is stopped or started.<br>$00_H$: Own station<br>$01_H$: All stations<br>$02_H$: Specified station<br>$80_H$: Own station (Forced link start)<br>$81_H$: All stations (Forced link start)<br>$82_H$: Specified station (Forced link start)<br>• Stopping/starting of cyclic transmission is performed by System link start (SB0002) or System link stop (SB0003).<br>• When Specified station ( $02_H$ or $82_H$) is selected, the own station is not included.</td><td>○<br>(Master operating station only)</td><td>×</td></tr>
<tr><td>SW0001<br>to<br>SW0008</td><td>When setting $02_H$ or $82_H$ by the Link stop/start direction (SW0000), this sets the station No. that stops or starts cyclic transmission.<br>0: No direction issued for stop or start<br>1: Direction issued for stop or start<br><table><tr><th></th><th>b15</th><th>b14</th><th>b13</th><th>b12</th><th>b11</th><th>b10</th><th>b9</th><th>b8</th><th>b7</th><th>b6</th><th>b5</th><th>b4</th><th>b3</th><th>b2</th><th>b1</th><th>b0</th></tr><tr><td>SW0001</td><td>16</td><td>15</td><td>14</td><td>13</td><td>12</td><td>11</td><td>10</td><td>9</td><td>8</td><td>7</td><td>6</td><td>5</td><td>4</td><td>3</td><td>2</td><td>1</td></tr><tr><td>SW0002</td><td>32</td><td>31</td><td>30</td><td>29</td><td>28</td><td>27</td><td>26</td><td>25</td><td>24</td><td>23</td><td>22</td><td>21</td><td>20</td><td>19</td><td>18</td><td>17</td></tr><tr><td>SW0003</td><td>48</td><td>47</td><td>46</td><td>45</td><td>44</td><td>43</td><td>42</td><td>41</td><td>40</td><td>39</td><td>38</td><td>37</td><td>36</td><td>35</td><td>34</td><td>33</td></tr><tr><td>SW0004</td><td>64</td><td>63</td><td>62</td><td>61</td><td>60</td><td>59</td><td>58</td><td>57</td><td>56</td><td>55</td><td>54</td><td>53</td><td>52</td><td>51</td><td>50</td><td>49</td></tr><tr><td>SW0005</td><td>80</td><td>79</td><td>78</td><td>77</td><td>76</td><td>75</td><td>74</td><td>73</td><td>72</td><td>71</td><td>70</td><td>69</td><td>68</td><td>67</td><td>66</td><td>65</td></tr><tr><td>SW0006</td><td>96</td><td>95</td><td>94</td><td>93</td><td>92</td><td>91</td><td>90</td><td>89</td><td>88</td><td>87</td><td>86</td><td>85</td><td>84</td><td>83</td><td>82</td><td>81</td></tr><tr><td>SW0007</td><td>112</td><td>111</td><td>110</td><td>109</td><td>108</td><td>107</td><td>106</td><td>105</td><td>104</td><td>103</td><td>102</td><td>101</td><td>100</td><td>99</td><td>98</td><td>97</td></tr><tr><td>SW0008</td><td>—</td><td>—</td><td>—</td><td>125</td><td>—</td><td>—</td><td>—</td><td>—</td><td>120</td><td>119</td><td>118</td><td>117</td><td>116</td><td>115</td><td>114</td><td>113</td></tr></table>Each number in the table represents station No.<br>• To specify the master station operating as a submaster station (station number 0), turn on the bit of the station number 125.<br>• While the submaster station is operating as a master operating station, setting of the submaster station number is ignored.</td><td>○<br>(Master operating station only)</td><td>×</td></tr>
<tr><td>SW0009</td><td>Arrival monitoring time (RIRD/RIWT)</td><td>Specify the monitoring time until instruction completion.<br>If the direction is not completed within the time, it is resent for the number of resends specified by the Number of resends (RIRD/RIWT) (SW000B).<br>0: 10 seconds (default value)<br>1 to 360: 1 to 360 seconds<br>If a value outside the above settings is made, operation is performed for 360 seconds.<br><br>If the Number of resends (RIRD/RIWT) (SW000B) is set, the time until the dedicated instruction fails is shown below.<br>(Number of resends (RIRD/RIWT) + 1) × Arrival monitoring time (RIRD/RIWT)</td><td>○</td><td>○</td></tr>
<tr><td>SW000B</td><td>Number of resends (RIRD/RIWT)</td><td>If the instruction is not completed within the monitoring time specified by the Arrival monitoring time (RIRD/RIWT) (SW0009), this specifies the number of times that the instruction is resent.<br>0: Not resent (default value)<br>1 to 7: 1 to 7 times<br>If a value outside the above settings is made, the instruction is resent 7 times.</td><td>○</td><td>○</td></tr>
</table>

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| Number | Name | Description | Availability | |
|---|---|---|---|---|
| | | | Master station (submaster station) | Local station |
| SW0010 to SW0017 | Reserved station function disable/ temporary error invalid station setting | Specify the slave station for which the reserved station setting is to be temporary canceled/restored, or the temporary error invalid station setting is to be set/canceled.<br>0: Not specified<br>1: Specified<br><br>b15 b14 b13 b12 b11 b10 b9 b8 b7 b6 b5 b4 b3 b2 b1 b0<br>SW0010: 16 15 14 13 12 11 10 9 8 7 6 5 4 3 2 1<br>SW0011: 32 31 30 29 28 27 26 25 24 23 22 21 20 19 18 17<br>SW0012: 48 47 46 45 44 43 42 41 40 39 38 37 36 35 34 33<br>SW0013: 64 63 62 61 60 59 58 57 56 55 54 53 52 51 50 49<br>SW0014: 80 79 78 77 76 75 74 73 72 71 70 69 68 67 66 65<br>SW0015: 96 95 94 93 92 91 90 89 88 87 86 85 84 83 82 81<br>SW0016: 112 111 110 109 108 107 106 105 104 103 102 101 100 99 98 97<br>SW0017: — — — — — — — — 120 119 118 117 116 115 114 113<br>Each number in the table represents station No.<br><br>(Conditions)<br>• For some stations, reserved station setting cannot be temporarily canceled/restored and temporary error invalid station setting cannot be configured/canceled. (☞ Page 225, Section 9.6, Page 229, Section 9.7)<br>• When the submaster station number is specified, the setting is ignored.<br>• Stations higher than the maximum station No. are ignored. | ○ (Master operating station only) | × |
| SW001A | Number of resends (REMFR/REMTO) | Specifies the number of resends for the REMFR/REMTO instruction.<br>0: 0 times (default)<br>Outside the above: Number of times that is set<br><br>(Condition)<br>• This is enabled when Baton pass status (own station) (SB0047) is off. | ○ (Master operating station only) | × |
| SW001B | Response wait timer (REMFR/REMTO) | Specifies the response wait time for the REMFR/REMTO instruction.<br>0: 10 seconds (default)<br>Outside the above: Number of seconds that is set<br><br>(Condition)<br>• This is enabled when Baton pass status (own station) (SB0047) is off. | ○ (Master operating station only) | × |
| SW0030 | Send/receive instruction (1) processing result | Stores the processing results of the link dedicated instruction that used the own station's channel 1.<br>0: Normal completion<br>1 or higher: Abnormal completion (☞ Page 439, Section 12.5) | ○ | ○ |
| SW0031 | Send/receive instruction (2) processing result | Stores the processing results of the link dedicated instruction that used the own station's channel 2.<br>0: Normal completion<br>1 or higher: Abnormal completion (☞ Page 439, Section 12.5) | ○ | ○ |
| SW0040 | Network No. | Stores the network number of own station.<br>Range: 1 to 239 | ○ | ○ |
| SW0042 | Station No. | Stores the station number of own station.<br>Range: 1 to 120 (master station: 125), $FF_H$ (the station number not set) | ○ | ○ |

| Number | Name | Description | Availability | |
|---|---|---|---|---|
| | | | Master station (submaster station) | Local station |
| SW0043 | Mode status | Stores the mode of own station.<br>0: Online (Normal Mode)<br>(Local station: Online)<br>1: Online (High Speed Mode)<br>2: Offline<br>6: Loop test<br>7: Self-loopback test<br>9: Hardware test | ○ | ○ |
| SW0044 | Submaster station No. | Stores the submaster station number that has been set using a parameter.<br>Range: 1 to 120 | ○ | ○ |
| SW0046 | Module type | Stores the own station's hardware status.<br>  | ○ | ○ |
| SW0047 | Baton pass status (own station) | Stores the baton pass status for the own station (transient transmission possible).<br>0: Data link in progress<br>2: Baton pass in progress<br>3: Baton pass stopped<br>4: Test in progress<br>5: Offline | ○ | ○ |
| SW0048 | Cause of baton pass interruption | Stores the cause of interruption in the communication (baton pass) of own station.<br>$00_H$: At normal communication or power-on<br>$30_H$: Cable disconnection<br>$33_H$: Disconnection or reconnection in progress<br>$40_H$: Offline mode<br>$41_H$: Hardware test<br>$42_H$: Self-loopback test | ○ | ○ |

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| Number | Name | Description | Availability | |
|---|---|---|---|---|
| | | | Master station (submaster station) | Local station |
| SW0049 | Cause of data link stop | Stores the cause which stopped the data link of own station.<br>$00_H$: At normal communication or power-on<br>$01_H$: Stop command issued<br>$02_H$: Monitoring timeout<br>$05_H$: No slave stations (master station only)<br>$10_H$: Parameter not received (local stations only)<br>$11_H$: Own station No. out of range<br>$12_H$: Own station specified as reserved<br>$13_H$: Station No. duplication (own station)<br>$14_H$: Master station duplication/submaster station duplication<br>$16_H$: Station No. not set<br>$18_H$: Parameter error<br>$19_H$: Parameter communication in progress<br>$1A_H$: Station type mismatch<br>$1B_H$: Parameter mismatch<br>$20_H$: CPU module stop error<br>$60_H$: Incorrect ring topology configuration (master station only) | ○ | ○ |
| SW004A | Data link stop request station | Stores the station No. of the station that performed the cyclic transmission stop request for the own station.<br>Range: 1 to 120, 125 (master station)<br>The cyclic transmission stop request is performed by System link stop (SB0003).<br><br>(Condition)<br>• This is enabled when Baton pass status (own station) (SB0047) is off. | ○ | ○ |
| SW004B | Own station's CPU status | Stores the own station's status.<br>$00_H$: No module mounted<br>$01_H$: STOP (Normal)<br>$02_H$: STOP (Stop error occurring)<br>$03_H$: STOP (Continuation error occurring)<br>$04_H$: RUN (Normal)<br>$05_H$: RUN (Continuation error occurring)<br>$06_H$: STEP-RUN<br>$07_H$: PAUSE<br>$0E_H$: Reset in progress<br>$0F_H$: Initial processing | ○ | ○ |
| SW004C | Parameter setting status | Stores the parameter status.<br>0: Normal<br>1 or higher: Abnormal (☞ Page 439, Section 12.5)<br><br>(Condition)<br>• This is enabled when the Received parameter error (SB004D) is on. | ○ | ○ |

| Number | Name | Description | Availability | |
|---|---|---|---|---|
| | | | Master station (submaster station) | Local station |
| SW0050 | Data link start status (own station) | Stores the results when cyclic transmission is started by Link start (own station) (SB0000).<br>0: Normal<br>1 or higher: Abnormal (☞ Page 439, Section 12.5)<br><br>When Link stop (own station) (SB0001) is turned off, the stored error definition is cleared.<br><br>(Condition)<br>• This is enabled when Baton pass status (own station) (SB0047) is off. | ○ | ○ |
| SW0051 | Data link stop status (own station) | Stores the results when cyclic transmission is stopped by Link stop (own station) (SB0001).<br>0: Normal<br>1 or higher: Abnormal (☞ Page 439, Section 12.5)<br><br>When Link start (own station) (SB0000) is turned off, the stored error definition is cleared.<br><br>(Condition)<br>• This is enabled when Baton pass status (own station) (SB0047) is off. | ○ | ○ |
| SW0052 | Data link start status (entire system) | Stores the results when cyclic transmission is started by System link start (SB0002).<br>0: Normal<br>1 or higher: Error definition in own station (☞ Page 439, Section 12.5)<br><br>When System link start (SB0002) is turned off, the stored error definition is cleared.<br><br>(Condition)<br>• This is enabled when Baton pass status (own station) (SB0047) is off. | ○<br>(Master operating station only) | × |
| SW0053 | Data link stop status (entire system) | Stores the results when cyclic transmission is stopped by System link stop (SB0003).<br>0: Normal<br>1 or higher: Error definition in own station (☞ Page 439, Section 12.5)<br><br>When System link stop (SB0003) is turned off, the stored error definition is cleared.<br><br>(Condition)<br>• This is enabled when Baton pass status (own station) (SB0047) is off. | ○<br>(Master operating station only) | × |
| SW0054 | Temporary error invalid station setting result | Stores the results when executing the temporary error invalid station setting.<br>0: Normal<br>1 or higher: Abnormal (☞ Page 439, Section 12.5)<br><br>When Temporary error invalid request (SB0010) is turned off, the stored error definition is cleared. | ○<br>(Master operating station only) | × |

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| Number | Name | Description | Availability | |
|---|---|---|---|---|
| | | | Master station (submaster station) | Local station |
| SW0055 | Temporary error invalid station setting cancel result | Stores the results when canceling the temporary error invalid station setting.<br>0: Normal<br>1 or higher: Abnormal (☞ Page 439, Section 12.5)<br><br>When Temporary error invalid setting cancel request (SB0011) is turned off, the stored error definition is cleared. | ○ (Master operating station only) | × |
| SW0056 | Result of reserved station function disable | Stores the result when disabling reserved station function.<br>0: Normal<br>1 or higher: Abnormal (☞ Page 439, Section 12.5)<br><br>When Reserved station function disable request (SB0012) is turned off, the stored error definition is cleared. | ○ (Master operating station only) | × |
| SW0057 | Result of reserved station function enable | Stores the result when reserved station function disable is undone<br>0: Normal<br>1 or higher: Abnormal (☞ Page 439, Section 12.5)<br><br>When Reserved station specification enable request (SB0013) is turned off, the stored error definition is cleared. | ○ (Master operating station only) | × |
| SW0058 | Number of total slave stations (setting) | Stores the number of total slave stations that are set by the parameters.<br>Range: 1 to 120 | ○ | ○ |
| SW0059 | Number of total slave stations (current value) | Stores the number of total slave stations that are actually connected by data link in CC-Link IE Field Network.<br>Range: 1 to 120 (0 when own station is disconnected) | ○ | ○ |
| SW005A | Maximum baton pass station | Stores the maximum station No. of the stations where the baton pass is performed.<br>Range: 1 to 120 (0 when own station is disconnected)<br><br>(Condition)<br>• This is enabled when Baton pass status (own station) (SB0047) is off. | ○ | ○ |
| SW005B | Maximum cyclic transmission station | Stores the maximum station No. of the station where the cyclic transmission is performed.<br>Range: 1 to 120 (0 when own station is disconnected)<br><br>(Condition)<br>• This is enabled when Data link status (own station) (SB0049) is off. | ○ | ○ |
| SW005C | Forced master switch command result | Stores the execution result of Forced master switch command (SB0019).<br>0: Normal<br>1 or higher: Error (☞ Page 439, Section 12.5) | ○ (Submaster station only) | × |
| SW0060 | Maximum link scan time | Stores the maximum value of the link scan time during cyclic transmission. (Unit: ms)<br><br>(Condition)<br>• This is enabled when Baton pass status (own station) (SB0047) is off. | ○ | ○ |
| SW0061 | Minimum link scan time | Stores the minimum value of the link scan time during cyclic transmission. (Unit: ms)<br><br>(Condition)<br>• This is enabled when Baton pass status (own station) (SB0047) is off. | ○ | ○ |

| Number | Name | Description | Availability | |
|---|---|---|---|---|
| | | | Master station (submaster station) | Local station |
| SW0062 | Current link scan time | Stores the current value of the link scan time during cyclic transmission. The stored value contains a maximum error of 1 ms. (Unit: ms)<br><br>(Condition)<br>• This is enabled when Baton pass status (own station) (SB0047) is off. | ○ | ○ |
| SW0063 | Constant link scan set value | Stores the setting value of the contact link scan that is set in the supplementary setting.<br>0: No setting<br>1 to 200: Setting value of contact link scan time (Unit: ms)<br><br>(Condition)<br>• This is enabled when Data link status (own station) (SB0049) is off. | ○ | ○ |
| SW0064 | Connection status (own station) | Stores the connection status of own station.<br>$00_H$: Normal (communication in progress on PORT1 and PORT2)<br>$01_H$: Normal (communication in progress on PORT1, cable disconnected on PORT2)<br>$04_H$: Normal (loopback communication in progress on PORT1, cable disconnected on PORT2)<br><br>$10_H$: Normal (cable disconnected on PORT1, communication in progress on PORT2)<br>$11_H$: Disconnecting (cable disconnected on PORT1 and PORT2)<br>$12_H$: Disconnecting (cable disconnected on PORT1, establishing line on PORT2)<br><br>$21_H$: Disconnecting (establishing line on PORT1, cable disconnected on PORT2)<br>$22_H$: Disconnecting (establishing line on PORT1 and PORT2)<br>$40_H$: Normal (cable disconnected on PORT1, loopback communication in progress on PORT2) | ○ | ○ |
| SW0066 | Actual link scan time (lower 1 word) | Stores the link scan time during cyclic transmission. (Unit: μs) | ○ | ○ |
| SW0067 | Actual link scan time (upper 1 word) | | | |
| SW0068 | PORT1 receive error occurrence rate (own station) (max.) | Stores the occurrence rate (maximum value) of received error frames at the own station's PORT1. (Unit: %)<br>When Clear communication error count (SB0006) is turned on, the stored occurrence rate is cleared. | ○ | ○ |
| SW0069 | PORT1 receive error occurrence rate (own station) (present) | Stores the occurrence rate (current value) of received error frames at the own station's PORT1. (Unit: %)<br>When Clear communication error count (SB0006) is turned on, the stored occurrence rate is cleared. | ○ | ○ |
| SW006A | PORT2 receive error occurrence rate (own station) (max.) | Stores the occurrence rate (maximum value) of received error frames at the own station's PORT2. (Unit: %)<br>When Clear communication error count (SB0006) is turned on, the stored occurrence rate is cleared. | ○ | ○ |

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| Number | Name | Description | Availability | |
|---|---|---|---|---|
| | | | Master station (submaster station) | Local station |
| SW006B | PORT2 receive error occurrence rate (own station) (present) | Stores the occurrence rate (current value) of received error frames at the own station's PORT2. (Unit: %)<br>When Clear communication error count (SB0006) is turned on, the stored occurrence rate is cleared. | ○ | ○ |
| SW006D | Master operating station number | Stores the station number of a master operating station.<br>0: No submaster function setting<br>1 to 120: The submaster station is operating as a master operating station.<br>125: The master station is operating as a master operating station.<br>(Condition)<br>This is enabled when Baton pass status (own station) (SB0047) is off. | ○ | ○ |
| SW006E | Submaster operating station number | Stores the station number of a submaster operating station.<br>0: No submaster function setting<br>1 to 120: The submaster station is operating as a submaster operating station.<br>125: The master station is operating as a submaster operating station.<br>(Condition)<br>This is enabled when Baton pass status (own station) (SB0047) is off. | ○ | ○ |
| SW0070 | Loopback station number 1 | Stores the number of the station where loopback is being performed. The other loopback station number can be checked by Loopback station number 2 (SW0071).<br>0: No loopback stations<br>1 to 120: Slave station, submaster station<br>125: Master station<br>255: Station number not set<br>If loopback occurs at a station whose station number is duplicated, the station number is stored in this register.<br>(Condition)<br>• This is enabled when Baton pass status (own station) (SB0047) is off and Network configuration mismatch occurrence status (SB0098) is off. | ○ (Master operating station only) | × |
| SW0071 | Loopback station number 2 | Stores the number of the station where loopback is being performed. The other loopback station number can be checked by Loopback station number 1 (SW0070).<br>0: No loopback stations<br>1 to 120: Slave station, submaster station<br>125: Master station<br>255: Station number not set<br>If loopback occurs at a station whose station number is duplicated, the station number is stored in this register.<br>(Condition)<br>• This is enabled when Baton pass status (own station) (SB0047) is off and Network configuration mismatch occurrence status (SB0098) is off. | ○ (Master operating station only) | × |
| SW0074 | PORT1 cable disconnection detection count | Stores the (cumulative) count that was detected for cable disconnections at the PORT1.<br>When Clear communication error count (SB0006) is turned on, the stored count is cleared.<br>When $FFFF_H$ is counted, the value returns to 0 and the module continues to count. | ○ | ○ |

| Number | Name | Description | Availability | |
|---|---|---|---|---|
| | | | Master station (submaster station) | Local station |
| SW0075 | PORT1 receive error detection count | Stores the (cumulative) count that error data was received at the PORT1. The count stores only error data that is not transmitted to all stations. When Clear communication error count (SB0006) is turned on, the stored occurrence rate is cleared. When $FFFF_H$ is counted, counting stops. | ○ | ○ |
| SW0076 | PORT1 total no. of received data (lower 1 word) | Stores the (cumulative) count that data was received at the PORT1. When Clear communication error count (SB0006) is turned on, the stored occurrence rate is cleared. When $FFFFFFFF_H$ is counted, counting stops. | ○ | ○ |
| SW0077 | PORT1 total no. of received data (upper 1 word) | | | |
| SW007A | Event count | Stores the count of the network event history. This stored count is cleared when Event count clear (SB0009) is turned on. When $FFFF_H$ is counted, counting stops. | ○ | ○ |
| SW007C | PORT2 cable disconnection detection count | Stores the (cumulative) count that was detected for cable disconnections at the PORT2. When Clear communication error count (SB0006) is turned on, the stored occurrence rate is cleared. When $FFFF_H$ is counted, the value returns to 0 and the module continues to count. | ○ | ○ |
| SW007D | PORT2 receive error detection count | Stores the (cumulative) count that error data was received at the PORT2. The count stores only error data that is not transmitted to all stations. When Clear communication error count (SB0006) is turned on, the stored occurrence rate is cleared. When $FFFF_H$ is counted, counting stops. | ○ | ○ |
| SW007E | PORT2 total no. of received data (lower 1 word) | Stores the (cumulative) count that data was received at the PORT2. When Clear communication error count (SB0006) is turned on, the stored occurrence rate is cleared. When $FFFFFFFF_H$ is counted, counting stops. | ○ | ○ |
| SW007F | PORT2 total no. of received data (upper 1 word) | | | |
| SW0080 to SW009F | Execution status (REMFR/REMTO) | Stores the REMFR/REMTO execution status for each channel.<br>SW0080 Channel 1, SW0081 Channel 2, SW0082 Channel 3, SW0083 Channel 4, SW0084 Channel 5, SW0085 Channel 6, SW0086 Channel 7, SW0087 Channel 8, SW0088 Channel 9, SW0089 Channel 10, SW008A Channel 11, SW008B Channel 12, SW008C Channel 13, SW008D Channel 14, SW008E Channel 15, SW008F Channel 16, SW0090 Channel 17, SW0091 Channel 18, SW0092 Channel 19, SW0093 Channel 20, SW0094 Channel 21, SW0095 Channel 22, SW0096 Channel 23, SW0097 Channel 24, SW0098 Channel 25, SW0099 Channel 26, SW009A Channel 27, SW009B Channel 28, SW009C Channel 29, SW009D Channel 30, SW009E Channel 31, SW009F Channel 32<br>0: Normal completion<br>1 or higher: Abnormal completion (☞ Page 439, Section 12.5) | ○ | ○ |

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<table>
<tr><th rowspan="2">Number</th><th rowspan="2">Name</th><th rowspan="2">Description</th><th colspan="2">Availability</th></tr>
<tr><th>Master station (submaster station)</th><th>Local station</th></tr>
<tr><td>SW00A0 to SW00A7</td><td>Baton pass status (each station)</td><td>Stores the baton pass status for each station.<br>0: Baton pass normal station<br>1: Baton pass faulty station<br><br>• If multiple stations change from faulty to normal, because they are reconnected to the network one by one per link scan, the time until the status changes to "0: Baton pass normal station" may vary by several seconds.<br>• If cables are connected/disconnected or the module is reset in line and ring topologies, the token may be lost or a reconstruction may occur, causing the baton pass status to detect an error in the first link scan.<br><br>
<table>
<tr><th></th><th>b15</th><th>b14</th><th>b13</th><th>b12</th><th>b11</th><th>b10</th><th>b9</th><th>b8</th><th>b7</th><th>b6</th><th>b5</th><th>b4</th><th>b3</th><th>b2</th><th>b1</th><th>b0</th></tr>
<tr><td>SW00A0</td><td>16</td><td>15</td><td>14</td><td>13</td><td>12</td><td>11</td><td>10</td><td>9</td><td>8</td><td>7</td><td>6</td><td>5</td><td>4</td><td>3</td><td>2</td><td>1</td></tr>
<tr><td>SW00A1</td><td>32</td><td>31</td><td>30</td><td>29</td><td>28</td><td>27</td><td>26</td><td>25</td><td>24</td><td>23</td><td>22</td><td>21</td><td>20</td><td>19</td><td>18</td><td>17</td></tr>
<tr><td>SW00A2</td><td>48</td><td>47</td><td>46</td><td>45</td><td>44</td><td>43</td><td>42</td><td>41</td><td>40</td><td>39</td><td>38</td><td>37</td><td>36</td><td>35</td><td>34</td><td>33</td></tr>
<tr><td>SW00A3</td><td>64</td><td>63</td><td>62</td><td>61</td><td>60</td><td>59</td><td>58</td><td>57</td><td>56</td><td>55</td><td>54</td><td>53</td><td>52</td><td>51</td><td>50</td><td>49</td></tr>
<tr><td>SW00A4</td><td>80</td><td>79</td><td>78</td><td>77</td><td>76</td><td>75</td><td>74</td><td>73</td><td>72</td><td>71</td><td>70</td><td>69</td><td>68</td><td>67</td><td>66</td><td>65</td></tr>
<tr><td>SW00A5</td><td>96</td><td>95</td><td>94</td><td>93</td><td>92</td><td>91</td><td>90</td><td>89</td><td>88</td><td>87</td><td>86</td><td>85</td><td>84</td><td>83</td><td>82</td><td>81</td></tr>
<tr><td>SW00A6</td><td>112</td><td>111</td><td>110</td><td>109</td><td>108</td><td>107</td><td>106</td><td>105</td><td>104</td><td>103</td><td>102</td><td>101</td><td>100</td><td>99</td><td>98</td><td>97</td></tr>
<tr><td>SW00A7</td><td>—</td><td>—</td><td>—</td><td>—</td><td>—</td><td>—</td><td>—</td><td>—</td><td>120</td><td>119</td><td>118</td><td>117</td><td>116</td><td>115</td><td>114</td><td>113</td></tr>
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</table>

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<tr><th rowspan="2">Number</th><th rowspan="2">Name</th><th rowspan="2">Description</th><th colspan="2">Availability</th></tr>
<tr><th>Master station (submaster station)</th><th>Local station</th></tr>
<tr><td>SW00B0 to SW00B7</td><td>Data link status (each station)</td><td>Stores the cyclic transmission status for each station.<br>0: Cyclic transmission normal station<br>1: Cyclic transmission faulty station<br><br>• If multiple stations change from faulty to normal, because they are reconnected to the network one by one per link scan, the time until the status changes to "0: Cyclic transmission normal station" may vary by several seconds.<br>• If no response is received for several link scans, the station is determined to be a cyclic transmission faulty station.<br><br>
<table>
<tr><th></th><th>b15</th><th>b14</th><th>b13</th><th>b12</th><th>b11</th><th>b10</th><th>b9</th><th>b8</th><th>b7</th><th>b6</th><th>b5</th><th>b4</th><th>b3</th><th>b2</th><th>b1</th><th>b0</th></tr>
<tr><td>SW00B0</td><td>16</td><td>15</td><td>14</td><td>13</td><td>12</td><td>11</td><td>10</td><td>9</td><td>8</td><td>7</td><td>6</td><td>5</td><td>4</td><td>3</td><td>2</td><td>1</td></tr>
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<tr><td>SW00B7</td><td>—</td><td>—</td><td>—</td><td>—</td><td>—</td><td>—</td><td>—</td><td>—</td><td>120</td><td>119</td><td>118</td><td>117</td><td>116</td><td>115</td><td>114</td><td>113</td></tr>
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Each number in the table represents a station No.<br>— is fixed to 0.<br><br>(Conditions)<br>• This is enabled when Baton pass status (own station) (SB0047) is off.<br>• Reserved stations and stations higher than the maximum station No. are ignored.</td><td>○</td><td>○</td></tr>
<tr><td>SW00B8 to SW00BF</td><td>Network connection status</td><td>Stores the connection status to the network.<br>0: Station not connected to the network<br>1: Station connected to the network<br><br>
<table>
<tr><th></th><th>b15</th><th>b14</th><th>b13</th><th>b12</th><th>b11</th><th>b10</th><th>b9</th><th>b8</th><th>b7</th><th>b6</th><th>b5</th><th>b4</th><th>b3</th><th>b2</th><th>b1</th><th>b0</th></tr>
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<tr><td>SW00B9</td><td>32</td><td>31</td><td>30</td><td>29</td><td>28</td><td>27</td><td>26</td><td>25</td><td>24</td><td>23</td><td>22</td><td>21</td><td>20</td><td>19</td><td>18</td><td>17</td></tr>
<tr><td>SW00BA</td><td>48</td><td>47</td><td>46</td><td>45</td><td>44</td><td>43</td><td>42</td><td>41</td><td>40</td><td>39</td><td>38</td><td>37</td><td>36</td><td>35</td><td>34</td><td>33</td></tr>
<tr><td>SW00BB</td><td>64</td><td>63</td><td>62</td><td>61</td><td>60</td><td>59</td><td>58</td><td>57</td><td>56</td><td>55</td><td>54</td><td>53</td><td>52</td><td>51</td><td>50</td><td>49</td></tr>
<tr><td>SW00BC</td><td>80</td><td>79</td><td>78</td><td>77</td><td>76</td><td>75</td><td>74</td><td>73</td><td>72</td><td>71</td><td>70</td><td>69</td><td>68</td><td>67</td><td>66</td><td>65</td></tr>
<tr><td>SW00BD</td><td>96</td><td>95</td><td>94</td><td>93</td><td>92</td><td>91</td><td>90</td><td>89</td><td>88</td><td>87</td><td>86</td><td>85</td><td>84</td><td>83</td><td>82</td><td>81</td></tr>
<tr><td>SW00BE</td><td>112</td><td>111</td><td>110</td><td>109</td><td>108</td><td>107</td><td>106</td><td>105</td><td>104</td><td>103</td><td>102</td><td>101</td><td>100</td><td>99</td><td>98</td><td>97</td></tr>
<tr><td>SW00BF</td><td>—</td><td>—</td><td>—</td><td>—</td><td>—</td><td>—</td><td>—</td><td>—</td><td>120</td><td>119</td><td>118</td><td>117</td><td>116</td><td>115</td><td>114</td><td>113</td></tr>
</table>
Each number in the table represents a station No.<br>— is fixed to 0.<br><br>(Conditions)<br>• This is not affected by Baton pass status (each station) (SW00A0 to SW00A7) and Data link status (each station) (SB00B0, SW00B0 to SW00B7).<br>• This is enabled only for the station which has same network number as that of the master operating station.</td><td>○</td><td>○</td></tr>
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AbN automation

<table>
<tr><th rowspan="2">Number</th><th rowspan="2">Name</th><th rowspan="2">Description</th><th colspan="2">Availability</th></tr>
<tr><th>Master station (submaster station)</th><th>Local station</th></tr>
<tr><td>SW00C0 to SW00C7</td><td>Reserved station setting status</td><td>Stores the setting status of the reserved station.<br>0: Other than reserved station (also includes stations specified as reserved station disable status)<br>1: Reserved station<br><br>
<table>
<tr><th></th><th>b15</th><th>b14</th><th>b13</th><th>b12</th><th>b11</th><th>b10</th><th>b9</th><th>b8</th><th>b7</th><th>b6</th><th>b5</th><th>b4</th><th>b3</th><th>b2</th><th>b1</th><th>b0</th></tr>
<tr><td>SW00C0</td><td>16</td><td>15</td><td>14</td><td>13</td><td>12</td><td>11</td><td>10</td><td>9</td><td>8</td><td>7</td><td>6</td><td>5</td><td>4</td><td>3</td><td>2</td><td>1</td></tr>
<tr><td>SW00C1</td><td>32</td><td>31</td><td>30</td><td>29</td><td>28</td><td>27</td><td>26</td><td>25</td><td>24</td><td>23</td><td>22</td><td>21</td><td>20</td><td>19</td><td>18</td><td>17</td></tr>
<tr><td>SW00C2</td><td>48</td><td>47</td><td>46</td><td>45</td><td>44</td><td>43</td><td>42</td><td>41</td><td>40</td><td>39</td><td>38</td><td>37</td><td>36</td><td>35</td><td>34</td><td>33</td></tr>
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<tr><td>SW00C8 to SW00CF</td><td>Parameter setting status</td><td>Stores the parameter setting status.<br>0: Station not set in the parameter<br>1: Station set in the parameter<br><br>
<table>
<tr><th></th><th>b15</th><th>b14</th><th>b13</th><th>b12</th><th>b11</th><th>b10</th><th>b9</th><th>b8</th><th>b7</th><th>b6</th><th>b5</th><th>b4</th><th>b3</th><th>b2</th><th>b1</th><th>b0</th></tr>
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<tr><td>SW00CA</td><td>48</td><td>47</td><td>46</td><td>45</td><td>44</td><td>43</td><td>42</td><td>41</td><td>40</td><td>39</td><td>38</td><td>37</td><td>36</td><td>35</td><td>34</td><td>33</td></tr>
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<tr><td>SW00CC</td><td>80</td><td>79</td><td>78</td><td>77</td><td>76</td><td>75</td><td>74</td><td>73</td><td>72</td><td>71</td><td>70</td><td>69</td><td>68</td><td>67</td><td>66</td><td>65</td></tr>
<tr><td>SW00CD</td><td>96</td><td>95</td><td>94</td><td>93</td><td>92</td><td>91</td><td>90</td><td>89</td><td>88</td><td>87</td><td>86</td><td>85</td><td>84</td><td>83</td><td>82</td><td>81</td></tr>
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<tr><td>SW00D0<br>to<br>SW00D7</td><td>Error invalid station setting status</td><td>Stores the setting status of error invalid stations.<br>0: Other than error invalid station<br>1: Error invalid station<br><br><table><tr><th></th><th>b15</th><th>b14</th><th>b13</th><th>b12</th><th>b11</th><th>b10</th><th>b9</th><th>b8</th><th>b7</th><th>b6</th><th>b5</th><th>b4</th><th>b3</th><th>b2</th><th>b1</th><th>b0</th></tr><tr><td>SW00D0</td><td>16</td><td>15</td><td>14</td><td>13</td><td>12</td><td>11</td><td>10</td><td>9</td><td>8</td><td>7</td><td>6</td><td>5</td><td>4</td><td>3</td><td>2</td><td>1</td></tr><tr><td>SW00D1</td><td>32</td><td>31</td><td>30</td><td>29</td><td>28</td><td>27</td><td>26</td><td>25</td><td>24</td><td>23</td><td>22</td><td>21</td><td>20</td><td>19</td><td>18</td><td>17</td></tr><tr><td>SW00D2</td><td>48</td><td>47</td><td>46</td><td>45</td><td>44</td><td>43</td><td>42</td><td>41</td><td>40</td><td>39</td><td>38</td><td>37</td><td>36</td><td>35</td><td>34</td><td>33</td></tr><tr><td>SW00D3</td><td>64</td><td>63</td><td>62</td><td>61</td><td>60</td><td>59</td><td>58</td><td>57</td><td>56</td><td>55</td><td>54</td><td>53</td><td>52</td><td>51</td><td>50</td><td>49</td></tr><tr><td>SW00D4</td><td>80</td><td>79</td><td>78</td><td>77</td><td>76</td><td>75</td><td>74</td><td>73</td><td>72</td><td>71</td><td>70</td><td>69</td><td>68</td><td>67</td><td>66</td><td>65</td></tr><tr><td>SW00D5</td><td>96</td><td>95</td><td>94</td><td>93</td><td>92</td><td>91</td><td>90</td><td>89</td><td>88</td><td>87</td><td>86</td><td>85</td><td>84</td><td>83</td><td>82</td><td>81</td></tr><tr><td>SW00D6</td><td>112</td><td>111</td><td>110</td><td>109</td><td>108</td><td>107</td><td>106</td><td>105</td><td>104</td><td>103</td><td>102</td><td>101</td><td>100</td><td>99</td><td>98</td><td>97</td></tr><tr><td>SW00D7</td><td>—</td><td>—</td><td>—</td><td>—</td><td>—</td><td>—</td><td>—</td><td>—</td><td>120</td><td>119</td><td>118</td><td>117</td><td>116</td><td>115</td><td>114</td><td>113</td></tr></table>Each number in the table represents a station No.<br>— is fixed to 0.<br><br>(Conditions)<br>• This is enabled when Baton pass status (own station) (SB0047) is off.<br>• Stations higher than the maximum station No. are ignored.</td><td>○</td><td>○</td></tr>
<tr><td>SW00E0<br>to<br>SW00E7</td><td>Temporary error invalid station setting status</td><td>Stores the setting status of the temporary error invalid station.<br>0: Other than temporary error invalid station<br>1: Temporary error invalid station<br><br><table><tr><th></th><th>b15</th><th>b14</th><th>b13</th><th>b12</th><th>b11</th><th>b10</th><th>b9</th><th>b8</th><th>b7</th><th>b6</th><th>b5</th><th>b4</th><th>b3</th><th>b2</th><th>b1</th><th>b0</th></tr><tr><td>SW00E0</td><td>16</td><td>15</td><td>14</td><td>13</td><td>12</td><td>11</td><td>10</td><td>9</td><td>8</td><td>7</td><td>6</td><td>5</td><td>4</td><td>3</td><td>2</td><td>1</td></tr><tr><td>SW00E1</td><td>32</td><td>31</td><td>30</td><td>29</td><td>28</td><td>27</td><td>26</td><td>25</td><td>24</td><td>23</td><td>22</td><td>21</td><td>20</td><td>19</td><td>18</td><td>17</td></tr><tr><td>SW00E2</td><td>48</td><td>47</td><td>46</td><td>45</td><td>44</td><td>43</td><td>42</td><td>41</td><td>40</td><td>39</td><td>38</td><td>37</td><td>36</td><td>35</td><td>34</td><td>33</td></tr><tr><td>SW00E3</td><td>64</td><td>63</td><td>62</td><td>61</td><td>60</td><td>59</td><td>58</td><td>57</td><td>56</td><td>55</td><td>54</td><td>53</td><td>52</td><td>51</td><td>50</td><td>49</td></tr><tr><td>SW00E4</td><td>80</td><td>79</td><td>78</td><td>77</td><td>76</td><td>75</td><td>74</td><td>73</td><td>72</td><td>71</td><td>70</td><td>69</td><td>68</td><td>67</td><td>66</td><td>65</td></tr><tr><td>SW00E5</td><td>96</td><td>95</td><td>94</td><td>93</td><td>92</td><td>91</td><td>90</td><td>89</td><td>88</td><td>87</td><td>86</td><td>85</td><td>84</td><td>83</td><td>82</td><td>81</td></tr><tr><td>SW00E6</td><td>112</td><td>111</td><td>110</td><td>109</td><td>108</td><td>107</td><td>106</td><td>105</td><td>104</td><td>103</td><td>102</td><td>101</td><td>100</td><td>99</td><td>98</td><td>97</td></tr><tr><td>SW00E7</td><td>—</td><td>—</td><td>—</td><td>—</td><td>—</td><td>—</td><td>—</td><td>—</td><td>120</td><td>119</td><td>118</td><td>117</td><td>116</td><td>115</td><td>114</td><td>113</td></tr></table>Each number in the table represents a station No.<br>— is fixed to 0.<br><br>(Conditions)<br>• This is enabled when Baton pass status (own station) (SB0047) is off.<br>• Holds the data immediately before the error.<br>• This is enabled only for normal stations in Baton pass status (each station) (SW00A0 to SW00A7).<br>• Reserved stations and stations higher than the maximum station No. are ignored.</td><td>○</td><td>○</td></tr>
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<tr><td>SW00E8 to SW00EF</td><td>Station type match status</td><td>Stores the match status between the station type set in the master station and that of the slave station.<br>0: Station type match<br>1: Station type mismatch<br><br>
<table>
<tr><th></th><th>b15</th><th>b14</th><th>b13</th><th>b12</th><th>b11</th><th>b10</th><th>b9</th><th>b8</th><th>b7</th><th>b6</th><th>b5</th><th>b4</th><th>b3</th><th>b2</th><th>b1</th><th>b0</th></tr>
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<tr><td>SW00F0 to SW00F7</td><td>CPU RUN status (each station)</td><td>Stores the RUN status of each station.<br>0: RUN, STEP-RUN<br>1: STOP, PAUSE, stop error<br><br>
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Each number in the table represents a station No.<br>— is fixed to 0.</td><td>○</td><td>○</td></tr>
<tr><td>SW0100 to SW0107</td><td>Operation status (each station) (1)</td><td>Stores the moderate/major error or stop error status of each station. When the target station is the master/local module, the status of the control CPU is stored.<br>0: No moderate/major error (stop error)<br>1: Moderate/major error (stop error)<br><br>
<table>
<tr><th></th><th>b15</th><th>b14</th><th>b13</th><th>b12</th><th>b11</th><th>b10</th><th>b9</th><th>b8</th><th>b7</th><th>b6</th><th>b5</th><th>b4</th><th>b3</th><th>b2</th><th>b1</th><th>b0</th></tr>
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<tr><td>SW0101</td><td>32</td><td>31</td><td>30</td><td>29</td><td>28</td><td>27</td><td>26</td><td>25</td><td>24</td><td>23</td><td>22</td><td>21</td><td>20</td><td>19</td><td>18</td><td>17</td></tr>
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<tr><th>Master station (submaster station)</th><th>Local station</th></tr>
<tr><td>SW0108 to SW010F</td><td>Station number duplication occurrence status</td><td>Stores the occurrence status of station number duplication.<br>0: No duplication of station number<br>1: Station number duplicated<br><br>
<table>
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Each number in the table represents a station No.<br>— is fixed to 0.</td><td>○</td><td>○</td></tr>
<tr><td>SW0110 to SW0117</td><td>Operation status (each station) (2)</td><td>Stores the minor error or continuation error status of each station.<br>When the target station is the master/local module, the status of the control CPU is stored.<br>0: Normal or moderate/major error (stop error) occurring<br>1: Minor error (continuation error) occurring<br><br>
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<table>
<tr><th></th><th>b15</th><th>b14</th><th>b13</th><th>b12</th><th>b11</th><th>b10</th><th>b9</th><th>b8</th><th>b7</th><th>b6</th><th>b5</th><th>b4</th><th>b3</th><th>b2</th><th>b1</th><th>b0</th></tr>
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<tr><td>SW0128 to SW012F</td><td>PORT1 current error frame reception status (each station) (2)</td><td>Stores the station number where a receive frame error line status warning level has occurred in each station's PORT1.<br>0: A receive frame error line status warning level has not yet been occurred in each station's PORT1.<br>1: A receive frame error line status warning level has been occurred in each station's PORT1.<br><br>When Clear communication error count (SB0006) is turned on, the stored status is cleared.<br><br>
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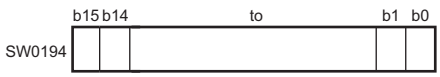
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<table>
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<tr><td>SW0138 to SW013F</td><td>PORT2 current error frame reception status (each station) (2)</td><td>Stores the station number where a receive frame error line status warning level has occurred in each station's PORT2.<br>0: A receive frame error line status warning level has not yet been occurred in each station's PORT2.<br>1: A receive frame error line status warning level has been occurred in each station's PORT2.<br><br>When Clear communication error count (SB0006) is turned on, the stored status is cleared.<br><br>
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<tr><td>SW0174</td><td>80</td><td>79</td><td>78</td><td>77</td><td>76</td><td>75</td><td>74</td><td>73</td><td>72</td><td>71</td><td>70</td><td>69</td><td>68</td><td>67</td><td>66</td><td>65</td></tr>
<tr><td>SW0175</td><td>96</td><td>95</td><td>94</td><td>93</td><td>92</td><td>91</td><td>90</td><td>89</td><td>88</td><td>87</td><td>86</td><td>85</td><td>84</td><td>83</td><td>82</td><td>81</td></tr>
<tr><td>SW0176</td><td>112</td><td>111</td><td>110</td><td>109</td><td>108</td><td>107</td><td>106</td><td>105</td><td>104</td><td>103</td><td>102</td><td>101</td><td>100</td><td>99</td><td>98</td><td>97</td></tr>
<tr><td>SW0177</td><td>—</td><td>—</td><td>—</td><td>—</td><td>—</td><td>—</td><td>—</td><td>—</td><td>120</td><td>119</td><td>118</td><td>117</td><td>116</td><td>115</td><td>114</td><td>113</td></tr>
</table>
Each number in the table represents a station No.<br>— is fixed to 0.<br><br>(Conditions)<br>• This is enabled when Baton pass status (own station) (SB0047) is off.<br>• Holds the data immediately before the error.<br>• This is enabled only for normal stations in Baton pass status (each station) (SW00A0 to SW00A7).<br>• Reserved stations and stations higher than the maximum station No. are ignored.</td><td>○</td><td>○</td></tr>
</table>

<table>
<tr><th rowspan="2">Number</th><th rowspan="2">Name</th><th rowspan="2">Description</th><th colspan="2">Availability</th></tr>
<tr><th>Master station (submaster station)</th><th>Local station</th></tr>
<tr><td>SW0180 to SW0187</td><td>Reserved station cancel setting status</td><td>Stores if a reserved station setting is temporarily canceled.<br>0: No reserved station setting cancel<br>1: Reserved station function disable in progress<br><br>
<table>
<tr><th></th><th>b15</th><th>b14</th><th>b13</th><th>b12</th><th>b11</th><th>b10</th><th>b9</th><th>b8</th><th>b7</th><th>b6</th><th>b5</th><th>b4</th><th>b3</th><th>b2</th><th>b1</th><th>b0</th></tr>
<tr><td>SW0180</td><td>16</td><td>15</td><td>14</td><td>13</td><td>12</td><td>11</td><td>10</td><td>9</td><td>8</td><td>7</td><td>6</td><td>5</td><td>4</td><td>3</td><td>2</td><td>1</td></tr>
<tr><td>SW0181</td><td>32</td><td>31</td><td>30</td><td>29</td><td>28</td><td>27</td><td>26</td><td>25</td><td>24</td><td>23</td><td>22</td><td>21</td><td>20</td><td>19</td><td>18</td><td>17</td></tr>
<tr><td>SW0182</td><td>48</td><td>47</td><td>46</td><td>45</td><td>44</td><td>43</td><td>42</td><td>41</td><td>40</td><td>39</td><td>38</td><td>37</td><td>36</td><td>35</td><td>34</td><td>33</td></tr>
<tr><td>SW0183</td><td>64</td><td>63</td><td>62</td><td>61</td><td>60</td><td>59</td><td>58</td><td>57</td><td>56</td><td>55</td><td>54</td><td>53</td><td>52</td><td>51</td><td>50</td><td>49</td></tr>
<tr><td>SW0184</td><td>80</td><td>79</td><td>78</td><td>77</td><td>76</td><td>75</td><td>74</td><td>73</td><td>72</td><td>71</td><td>70</td><td>69</td><td>68</td><td>67</td><td>66</td><td>65</td></tr>
<tr><td>SW0185</td><td>96</td><td>95</td><td>94</td><td>93</td><td>92</td><td>91</td><td>90</td><td>89</td><td>88</td><td>87</td><td>86</td><td>85</td><td>84</td><td>83</td><td>82</td><td>81</td></tr>
<tr><td>SW0186</td><td>112</td><td>111</td><td>110</td><td>109</td><td>108</td><td>107</td><td>106</td><td>105</td><td>104</td><td>103</td><td>102</td><td>101</td><td>100</td><td>99</td><td>98</td><td>97</td></tr>
<tr><td>SW0187</td><td>—</td><td>—</td><td>—</td><td>—</td><td>—</td><td>—</td><td>—</td><td>—</td><td>120</td><td>119</td><td>118</td><td>117</td><td>116</td><td>115</td><td>114</td><td>113</td></tr>
</table>
Each number in the table represents a station No.<br>— is fixed to 0.<br><br>(Conditions)<br>• This is enabled when Baton pass status (own station) (SB0047) is off.<br>• Holds the data immediately before the error.<br>• This is enabled only for normal stations in Baton pass status (each station) (SW00A0 to SW00A7).<br>• Stations higher than the maximum station No. are ignored.</td><td>○</td><td>○</td></tr>
<tr><td>SW0194</td><td>Loop test result</td><td>Stores a loop test result.<br>0: Completion<br>Other than 0: Abnormal end (Refer to the figure below.)<br><br> 

<br><br>b0: More than one master station or submaster station exists.<br>b1: Station No. already in use<br>b2: Invalid station No.<br>b3: Reserved station specification error<br>(A station that exists on the network is set as a reserved station in the master station.)<br>b4: All stations faulty<br>b5: Inconsistent total number of slave stations<br>b6: Station type setting error<br>b7: Loopback stations exist.<br>b8 to b15: Fixed to 0</td><td>○<br>(Master station only)</td><td>×</td></tr>
</table>

AbN automation

| Number | Name | Description | Availability | |
|---|---|---|---|---|
| | | | Master station (submaster station) | Local station |
| SW01A0 to SW01A7 | Loop test error station | Stores the execution result of a loop test.<br>0: Normal<br>1: Error | ○ (Master station only) | × |

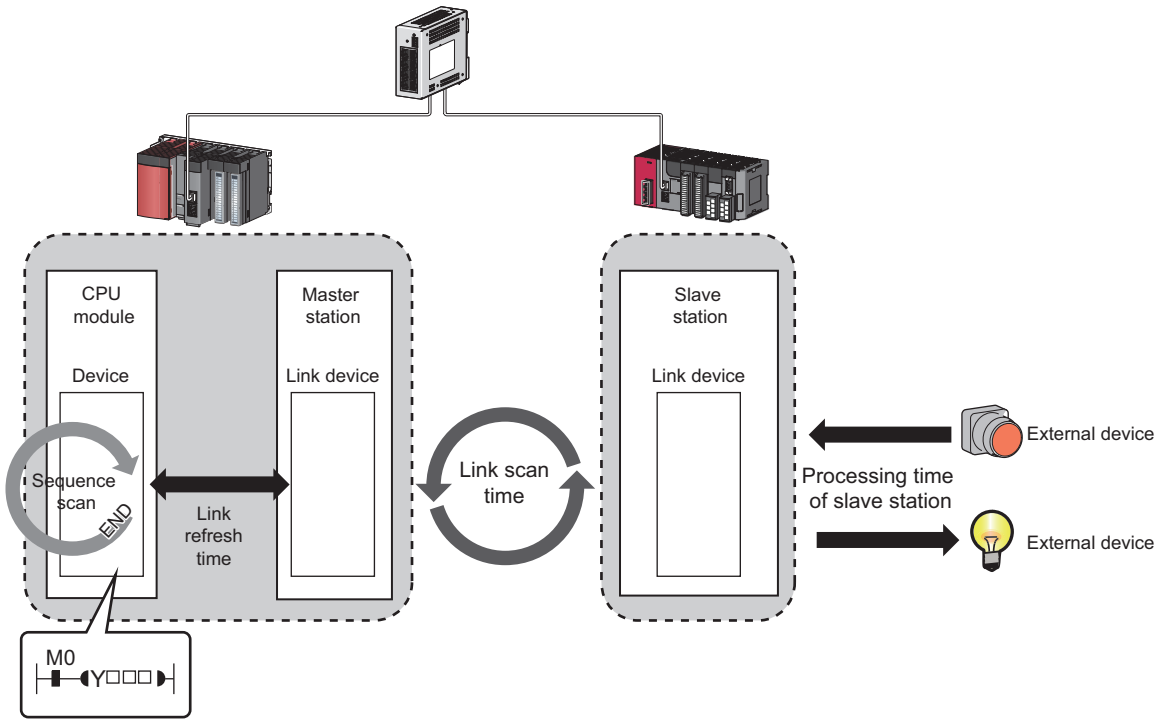
| | b15 | b14 | b13 | b12 | b11 | b10 | b9 | b8 | b7 | b6 | b5 | b4 | b3 | b2 | b1 | b0 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| SW01A0 | 16 | 15 | 14 | 13 | 12 | 11 | 10 | 9 | 8 | 7 | 6 | 5 | 4 | 3 | 2 | 1 |
| SW01A1 | 32 | 31 | 30 | 29 | 28 | 27 | 26 | 25 | 24 | 23 | 22 | 21 | 20 | 19 | 18 | 17 |
| SW01A2 | 48 | 47 | 46 | 45 | 44 | 43 | 42 | 41 | 40 | 39 | 38 | 37 | 36 | 35 | 34 | 33 |
| SW01A3 | 64 | 63 | 62 | 61 | 60 | 59 | 58 | 57 | 56 | 55 | 54 | 53 | 52 | 51 | 50 | 49 |
| SW01A4 | 80 | 79 | 78 | 77 | 76 | 75 | 74 | 73 | 72 | 71 | 70 | 69 | 68 | 67 | 66 | 65 |
| SW01A5 | 96 | 95 | 94 | 93 | 92 | 91 | 90 | 89 | 88 | 87 | 86 | 85 | 84 | 83 | 82 | 81 |
| SW01A6 | 112 | 111 | 110 | 109 | 108 | 107 | 106 | 105 | 104 | 103 | 102 | 101 | 100 | 99 | 98 | 97 |
| SW01A7 | — | — | — | — | — | — | — | — | 120 | 119 | 118 | 117 | 116 | 115 | 114 | 113 |

Each number in the table represents a station No.
— is fixed to 0.

# Appendix 5 Processing Time

The processing time of CC-Link IE Field Network consists of the time components below.

Sequence scan + Link refresh time + Link scan time + Master station switching time + Slave station processing time = Transmission delay time




- Sequence scan: User's manual for the CPU module used
- Link refresh time: Page 519, Appendix 5.1
- Link scan time: Page 523, Appendix 5.2
- Slave station processing time: Manual for the slave station used
- Transmission delay time: Page 524, Appendix 5.3

# Appendix 5.1 Link refresh time

The following are formulas to calculate the link refresh time.

## (1) Calculation formula

$$\alpha_T, \alpha_R = KM1 + KM2 \times \left( \frac{RX+RY+SB}{16} + RWr+RWw+SW \right) + \alpha_E + \alpha_L \text{ [ms]}$$

$$\alpha_E = KM3 \times \left( \frac{RX+RY}{16} + RWr+RWw \right) \text{ [ms]}$$

$\alpha_L$ : ☞ Page 521, Appendix 5.1 (2)

| | |
|---|---|
| αT: | Sending-side link refresh time |
| αR: | Receiving-side link refresh time |
| RX: | Total number of RX points that are actually being link-refreshed *1 |
| RY: | Total number of RY points that are actually being link-refreshed *1 |
| RWr: | Total number of RWr points that are actually being link-refreshed *1 |
| RWw: | Total number of RWw points that are actually being link-refreshed *1 |
| SB: | Number of SB points |
| SW: | Number of SW points |
| αE: | Memory card file register (R, ZR), extended data register (D), and extended link register (W) transfer time |
| αL: | Interlink transmission time (☞ Page 521, Appendix 5.1 (2)) |

KM1, KM2, KM3: Constant

*1 Total number of link device points for the range set by the refresh parameters and set in the network configuration settings. Note that the points assigned to reserved stations are excluded.

**Remark**

- Add αE only when refreshing the data to the memory card file register. Addition is not required when refreshing the data to the standard RAM and extended SRAM cassette file registers.
- Add αL only when using the interlink transmission.

• When master/local module is mounted in the main base unit

| CPU type | | KM1 ($\times 10^{-3}$) | KM2 ($\times 10^{-3}$) | KM3 ($\times 10^{-3}$) |
|---|---|---|---|---|
| Universal model QCPU | Q00UJ/Q00U/Q01U/Q02UCPU | 160 | 0.41 | 0.39*1 |
| | Q03UD/Q03UDECPU | 90 | 0.41 | 0.39 |
| | Q04UDH/Q04UDEH/Q06UDH/ Q06UDEH/Q10UDH/Q10UDEH/ Q13UDH/Q13UDEH/Q20UDH/ Q20UDEH/Q26UDH/Q26UDEH/ Q50UDEH/Q100UDEHCPU | 90 | 0.41 | 0.33 |
| | Q03UDV/Q04UDV/Q06UDV/Q13UDV/ Q26UDVCPU | 45 | 0.41 | - |

*1 Only the Q02UCPU is acceptable.

• When master/local module is mounted in the extension base unit

| CPU type | | KM1 ($\times 10^{-3}$) | KM2 ($\times 10^{-3}$) | KM3 ($\times 10^{-3}$) |
|---|---|---|---|---|
| Universal model QCPU | Q00UJ/Q00U/Q01U/Q02UCPU | 160 | 1.06 | 0.39*1 |
| | Q03UD/Q03UDECPU | 90 | 0.97 | 0.39 |
| | Q04UDH/Q04UDEH/Q06UDH/ Q06UDEH/Q10UDH/Q10UDEH/ Q13UDH/Q13UDEH/Q20UDH/ Q20UDEH/Q26UDH/Q26UDEH/ Q50UDEH/Q100UDEHCPU | 90 | 0.97 | 0.33 |
| | Q03UDV/Q04UDV/Q06UDV/Q13UDV/ Q26UDVCPU | 45 | 0.97 | - |

*1 Only the Q02UCPU is acceptable.

## (2) Interlink transmission time

The Universal model QCPU divides the transfer target data into several blocks to perform interlink transmission. The following are formulas to calculate the interlink transmission time.

• Interlink transmission time per END processing

$$\alpha_L = KM4 + (KM5 \times n1) + \left( \frac{RX+RY}{16} + RWr + RWw \right)^{*1} \times KM6 \ [ms]$$

*1 The number of words (N) that can be transferred in one END processing is restricted as follows:
N = Sequence scan time when interlink transmission parameter is not set ($\mu$s)×0.05

• Interlink transmission time to completely transmit all set points

$$\alpha_{L1} = KM7 \times \left[ \frac{RX+RY}{16} + RWr + RWw \right] [ms]$$

αL: Interlink transmission time per END processing
αL1: Interlink transmission time
RX: Total number of source "RX/LB" points set in interlink transmission parameters.
RY: Total number of source "LB/RY" points set in interlink transmission parameters.
RWr: Total number of source "RWr/LW" points set in interlink transmission parameters.
RWw: Total number of source "LW/RWw" points set in interlink transmission parameters.
n1: Number of lines set by the interlink transmission parameter
KM4, KM5, KM6, KM7: Constant

• Constant (KM4, KM5)

| CPU module type | | KM4 ($\times 10^{-3}$) | KM5 ($\times 10^{-3}$) |
|---|---|---|---|
| Universal model QCPU | Q00UJ/Q00U/ Q01U/Q02UCPU | 120 | 11 |
| | Q03UD/Q03UDECPU | 34 | 16.3 |
| | Q04UDH/Q04UDEH/ Q06UDH/Q06UDEH/ Q10UDH/Q10UDEH/ Q13UDH/Q13UDEH/ Q20UDH/Q20UDEH/ Q26UDH/Q26UDEH/ Q50UDEH/Q100UDEHCPU | 25 | 16.3 |
| | Q03UDV/Q04UDV/Q06UDV/ Q13UDV/Q26UDVCPU | 12 | 4 |

• Constant (KM6)

| CPU module type | | KM6 ($\times 10^{-3}$) | | | |
|---|---|---|---|---|---|
| | | Network module position | | | |
| | | Main base*1 → Main base*2 | Main base*1 → Extension base*2 | Extension base*1 → Main base*2 | Extension base*1 → Extension base*2 |
| Universal model QCPU | Q00UJ/Q00U/ Q01U/Q02UCPU | 0.76 | 1.27 | 1.37 | 1.79 |
| | Q03UD/Q03UDECPU | 0.73 | 1.27 | 1.37 | 1.78 |
| | Q04UDH/Q04UDEH/ Q06UDH/Q06UDEH/ Q10UDH/Q10UDEH/ Q13UDH/Q13UDEH/ Q20UDH/Q20UDEH/ Q26UDH/Q26UDEH/ Q50UDEH/Q100UDEHCPU | 0.73 | 1.25 | 1.35 | 1.78 |
| | Q03UDV/Q04UDV/Q06UDV/ Q13UDV/Q26UDVCPU | 0.73 | 1.27 | 1.37 | 1.78 |

*1 Base unit that transfer source module is mounted
*2 Base unit that transfer target module is mounted

• Constant (KM7)

| CPU module type | | KM7 ($\times 10^{-3}$) | | | |
|---|---|---|---|---|---|
| | | Network module position | | | |
| | | Main base*1 → Main base*2 | Main base*1 → Extension base*2 | Extension base*1 → Main base*2 | Extension base*1 → Extension base*2 |
| Universal model QCPU | Q00UJ/Q00U/ Q01U/Q02UCPU | 25.00 | 25.20 | 25.20 | 25.50 |
| | Other than above | 22.10 | 22.50 | 22.70 | 23.00 |

*1 Base unit that transfer source module is mounted
*2 Base unit that transfer target module is mounted

# Appendix 5.2 Link scan time

The following is the formula to calculate the link scan time (when the link scan mode is asynchronous).

LS = {Np + (Ns × Ka) + Kb + Kc + Kd} ÷ 1000 + Ni × 0.02 + St [ms]

<table>
<tr><th rowspan="2">Item</th><th colspan="2">Cyclic transmission mode</th></tr>
<tr><th>Normal mode</th><th>High speed mode</th></tr>
<tr><td>Np</td><td colspan="2">$\left( \frac{\alpha}{4} + \beta \times 4 \right) \times 0.08$<br>α: Total number of points of "RX/RY Setting" in "Network Configuration Settings"<br>β: Total number of points of "RWw/RWr Setting" in "Network Configuration Settings"</td></tr>
<tr><td>Ns</td><td colspan="2">Number of connected slave stations</td></tr>
<tr><td>Ka</td><td>25.8</td><td><table><tr><th>Conditions</th><th>Value</th></tr><tr><td>When "Turn OFF or 0 Clear Input Data (RX/RY)" is set in the network operation settings</td><td>18.5</td></tr><tr><td>When "Hold Input Data (RX/RY)" is set in the network operation settings</td><td>9.75</td></tr></table></td></tr>
<tr><td>Kb</td><td>655</td><td>168</td></tr>
<tr><td>Kc<br>(Maximum transient processing time)</td><td>160 + 60 × Total number of slave stations set in the parameters<br>(0 when transient transmission is not performed)</td><td>80 (0 when transient transmission is not performed)</td></tr>
<tr><td>Kd<br>(Maximum data link processing time when the station is disconnected from or returned to the network)</td><td colspan="2">• When the serial number (first five digits) of the master station is "17022" or later: Number of disconnected stations × 3500<br>• When the serial number (first five digits) of the master station is "17021" or earlier: 9000 + Total number of ports used in the switching hub × 3000 (9000 when the switching hub is not used)</td></tr>
<tr><td>Ni</td><td colspan="2">Number of interrupt settings</td></tr>
<tr><td>St<br>(Processing time between a master station and a submaster station when the submaster function is used)</td><td colspan="2">This value is added only when the submaster function is used. 0 when the submaster function is not used.<br>$\left\{ \left( \frac{\alpha}{4} + \beta \times 4 \right) \times 0.08 + 50 \right\} \div 1000$<br>α: Total number of points of "RX/RY Setting" set for the master station (station number 0) in "Network Configuration Settings"<br>β: Total number of points of "RWw/RWr Setting" set for the master station (station number 0) in "Network Configuration Settings"</td></tr>
</table>

# Appendix 5.3 Cyclic transmission delay time

The following is the formula to calculate cyclic transmission delay time.

## (1) Between the master station and an intelligent device station/remote device station

### (a) Master station (RX/RWr) ← Intelligent device station/remote device station (input)

The following time is shown:

- The time between a signal input to the intelligent device station/remote device station and the CPU module device of the master station turning on or off
- The time between data input to the intelligent device station/remote device station and the data being stored in the CPU module device of the master station

| Calculation value | Block Data Assurance per Station | | No Block Data Assurance per Station | |
|---|---|---|---|---|
| | Asynchronous mode | Synchronous mode | Asynchronous mode | Synchronous mode |
| Normal value | (SM × 1) + (LS × n1) + Rio | (SM × 1) + (LS × 1) + Rio | (SM × 1) + (LS × 1) + Rio | (SM × 1) + (LS × 1) + Rio |
| Maximum value | (SM × 1) + {LS × (n1 + 1)} + Rio | (SM × 1) + (LS × 2) + Rio | (SM × 1) + (LS × 2) + Rio | (SM × 1) + (LS × 2) + Rio |

SM : Master station sequence scan time

LS : Link scan time

n1 : SM ÷ LS (Round up the calculated value to the nearest integer.)

Rio : Intelligent device station/remote device station processing time

( Manual for the intelligent device station/remote device station used)

### (b) Master station (RY/RWw) → Intelligent device station/remote device station (output)

The following time is shown:

- The time between the CPU module device of the master station turning on or off and the output of the intelligent device station/remote device station being turning on or off
- The time between data set to the CPU module device of the master station and the data output to the intelligent device station/remote device station

| Calculation value | Block data assurance per station | | No block data assurance per station | |
|---|---|---|---|---|
| | Asynchronous mode | Synchronous mode | Asynchronous mode | Synchronous mode |
| Normal value | (SM × n2) + (LS × 1) + Rio | (SM × 1) + (LS × 1) + Rio | (SM × 1) + (LS × 1) + Rio | (SM × 1) + (LS × 1) + Rio |
| Maximum value | (SM × n2) + (LS × 2) + Rio | (SM × n2) + (LS × 1) + Rio | (SM × 2) + (LS × 2) + Rio | (SM × n2) + (LS × 1) + Rio |

SM : Master station sequence scan time

LS : Link scan time

n2 : LS ÷ SM (Round up the calculated value to the nearest integer.)

Rio : Intelligent device station/remote device station processing time

( Manual for the intelligent device station/remote device station used)

## (2) Master station and local stations

### (a) Master station (RX) ← Local station (RY)

Shows the time after the local station CPU module device is turned on or off until the master station CPU module device is turned on or off.

[m = 1]

| Calculation value | Block Data Assurance per Station | | No Block Data Assurance per Station | |
|---|---|---|---|---|
| | Asynchronous mode | Synchronous mode | Asynchronous mode | Synchronous mode |
| Normal value | (SM × 1) + (LS × k) + (SL × 1) | (SM × 1) + (LS × 1) + (SL × 1) | (SM × 1) + (LS × 1) + (SL × 1) | (SM × 1) + (LS × 1) + (SL × 1) |
| Maximum value | (SM × 1) + {LS × (k + n1)} + (SL × 1) | (SM × 1) + (LS × k) + (SL × 1) | (SM × 1) + (LS × 2) + (SL × 1) | (SM × 1) + (LS × k) + (SL × 1) |

[m = 2 to 4]

| Calculation value | Block Data Assurance per Station | | No Block Data Assurance per Station | |
|---|---|---|---|---|
| | Asynchronous mode | Synchronous mode | Asynchronous mode | Synchronous mode |
| Normal value | (SM × 1) + (LS × m × k) + (SL × n) | (SM × 1) + (LS × m) + (SL × n) | (SM × 1) + (LS × m) + (SL × n) | (SM × 1) + (LS × m) + (SL × n) |
| Maximum value | (SM × 1) + {LS × m × (k + n1)} + {SL × (n + 1)} | (SM × 1) + (LS × m × 2) + {SL × (n + 1)} | (SM × 1) + {LS × (n1 + 1)} + (SL × 2) | (SM × 1) + (LS × m × 2) + (SL × 2) |

SM : Master station sequence scan time

LS : Link scan time

SL : Local station sequence scan time

n : (LS × m) ÷ LS (Round up the calculated value to the nearest integer.)

n1 : SM ÷ LS (Round up the calculated value to the nearest integer.)

k : SL ÷ (LS × m) (Round up the calculated value to the nearest integer.)

m : Number of points of "RWw/RWr Setting" set for the local station in "Network Configuration Settings"

| Item | Number of points in "RWw/RWr Setting" | | | |
|---|---|---|---|---|
| | 0 to 256 words | 257 to 512 words | 513 to 768 words | 769 to 1024 words |
| m | 1 | 2 | 3 | 4 |

### (b) Master station (RY) → Local station (RX)

Shows the time after the master station CPU module device is turned on or off until the local station CPU module device is turned on or off.

| Calculation value | Block data assurance per station | | No block data assurance per station | |
|---|---|---|---|---|
| | Asynchronous mode | Synchronous mode | Asynchronous mode | Synchronous mode |
| Normal value | (SM × 1) + (LS × n3) + (SL × 1) | (SM × 1) + (LS × 1) + (SL × 2) | (SM × 1) + (LS × 1) + (SL × 1) | (SM × 1) + (LS × 1) + (SL × 1) |
| Maximum value | (SM × 1) + {LS × (n3 + 1)} + (SL × 2) | (SM × 1) + (LS × 2) + (SL × 2) | (SM × 1) + (LS × 2) + (SL × 2) | (SM × 1) + (LS × 2) + (SL × 2) |

SM : Master station sequence scan time

LS : Link scan time

SL : Local station sequence scan time

n3 : SL ÷ LS (Round up the calculated value to the nearest integer.)

### (c) Master station (RWr) ← Local station (RWw)

Shows the time after data is set in the local station CPU module device until the data is stored in the master station CPU module device.

[m = 1]

| Calculation value | Block Data Assurance per Station | | No Block Data Assurance per Station | |
|---|---|---|---|---|
| | Asynchronous mode | Synchronous mode | Asynchronous mode | Synchronous mode |
| Normal value | (SM × 1) + (LS × k) + (SL × 1) | (SM × 1) + (LS × 1) + (SL × 1) | (SM × 1) + (LS × 1) + (SL × 1) | (SM × 1) + (LS × 1) + (SL × 1) |
| Maximum value | (SM × 2) + {LS × (k + n1)} + (SL × 1) | (SM × 2) + (LS × k) + (SL × 1) | (SM × 2) + (LS × 2) + (SL × 1) | (SM × 2) + (LS × k) + (SL × 1) |

[m = 2 to 4]

| Calculation value | Block Data Assurance per Station | | No Block Data Assurance per Station | |
|---|---|---|---|---|
| | Asynchronous mode | Synchronous mode | Asynchronous mode | Synchronous mode |
| Normal value | (SM × 1) + (LS × m × k) + (SL × n) | (SM × 1) + (LS × m) + (SL × n) | (SM × 1) + (LS × m) + (SL × n) | (SM × 1) + (LS × m) + (SL × n) |
| Maximum value | (SM × 2) + {LS × m × (k + n1)} + {SL × (n + 1)} | (SM × 2) + (LS × m × 2) + {SL × (n + 1)} | (SM × 2) + {LS × (n1 + 1)} + (SL × 2) | (SM × 2) + (LS × m × 2) + (SL × 2) |

SM : Master station sequence scan time

LS : Link scan time

SL : Local station sequence scan time

n : (LS × m) ÷ SM (Round up the calculated value to the nearest integer.)

n1 : (SM ÷ LS) (Round up the calculated value to the nearest integer.)

k : SL ÷ (LS × m) (Round up the calculated value to the nearest integer.)

m : Number of points of "RWw/RWr Setting" set for the local station in "Network Configuration Settings"

| Item | Number of points in "RWw/RWr Setting" | | | |
|---|---|---|---|---|
| | 0 to 256 words | 257 to 512 words | 513 to 768 words | 769 to 1024 words |
| m | 1 | 2 | 3 | 4 |

### (d) Master station (RWw) → Local station (RWr)

Shows the time after data is set in the master station CPU module device until the data is stored in the local station CPU module device.

| Calculation value | Block Data Assurance per Station | | No Block Data Assurance per Station | |
|---|---|---|---|---|
| | Asynchronous mode | Synchronous mode | Asynchronous mode | Synchronous mode |
| Normal value | (SM × 1) + (LS × n3) + (SL × 1) | (SM × 1) + (LS × 1) + (SL × 1) | (SM × 1) + (LS × 1) + (SL × 1) | (SM × 1) + (LS × 1) + (SL × 1) |
| Maximum value | (SM × 1) + {LS × (n3+1)} + (SL × 2) | (SM × 1) + (LS × 2) + (SL × 2) | (SM × 1) + (LS × 2) + (SL × 2) | (SM × 1) + (LS × 2) + (SL × 2) |

SM : Master station sequence scan time

LS : Link scan time

SL : Local station sequence scan time

n3 : (SL ÷ LS) (Round up the calculated value to the nearest integer.)

# Appendix 5.4 Master station switching time

The following is the formula to calculate the switching time after the master station is disconnected until the submaster station starts operating as a master operating station (cyclic data transmission start) when the submaster function is used.

Master station switching time = 520 + Number of connected slave stations × (1.2 + LS) [ms]

LS: Link scan time (value calculated by the formula in Page 523, Appendix 5.2 with Np and St set to 0)

# Appendix 5.5 Transmission delay time of dedicated instructions

The following is the formula to calculate the transmission delay time of dedicated instructions (time after a dedicated instruction is issued until the execution of the instruction is completed).

## (1) Between the master station and an intelligent device station/remote device station

### (a) Master station → Intelligent device station/remote device station

TD1: 0.5 + LS × 12 × m + Rio + SM [ms]

LS: Link scan time
Rio: Intelligent device station/remote device station processing time
SM: Master station sequence scan time
m: Number of divided sending = Value that "Data length ÷ 480" is rounded up to the nearest integer

## (2) Between the master station and a local station

### (a) Master station → Local station

TD1: 0.5 + LS × 12 × m + SL + SM [ms]

LS: Link scan time
SL: Local station sequence scan time
SM: Master station sequence scan time
m: Number of divided sending = Value that "Data length ÷ 480" is rounded up to the nearest integer

### (b) Master station ← Local station

TD1: 0.5 + LS × 12 × m + SM + SL [ms]

LS: Link scan time
SM: Master station sequence scan time
SL: Local station sequence scan time
m: Number of divided sending = Value that "Data length ÷ 480" is rounded up to the nearest integer

## (3) Between local stations

### (a) Local station → Local station

TD1: 0.5 + LS × 12 × m + SLr + SLs [ms]

LS: Link scan time
SLr: Sequence scan time of the receiving side local station
SLs: Sequence scan time of the sending side local station
m: Number of divided sending = Value that "Data length ÷ 480" is rounded up to the nearest integer

# Appendix 6 Differences in Cyclic Transmission Modes

This section describes the differences between "Online (Normal Mode)" and "Online (High Speed Mode)" for the master/local module. Refer to the information in this section to select "Online (Normal Mode)" and "Online (High Speed Mode)".

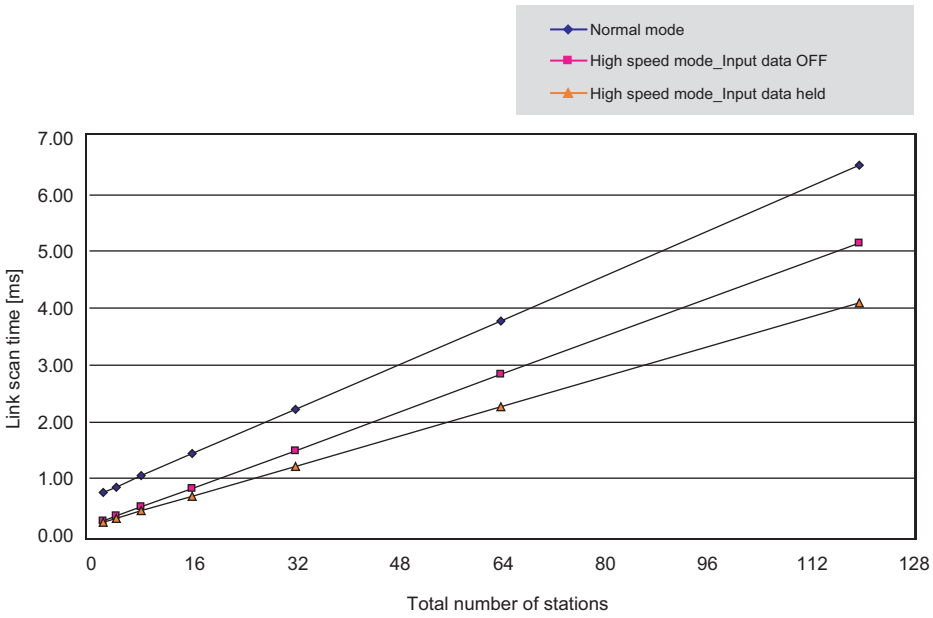
## (1) Differences in performance specifications

| Item | Normal mode | High speed mode |
|---|---|---|
| Maximum number of RWw link points per master operating station (when using the submaster function) | 1024 points, 2048 bytes | 256 points, 512 bytes |
| Maximum number of RWr/RWw link points per submaster operating station (when using the submaster function) | | |
| Maximum number of RWr/RWw link points per local station | | |
| Maximum number of transients per link scan | 4 + slave stations × 1.5 | 4 |

## (2) Differences in link scan time

The following table lists the link scan times for normal and high-speed modes when each station is assigned 128 points in "RX/RY Setting" and 64 points in "RWw/RWr Setting" in "Network Configuration Settings", and when the number of connected stations increases.

| Total number of stations | Link scan time | | | Remarks (Total number of points for link devices) |
|---|---|---|---|---|
| | Normal mode | High speed mode (When "Turn OFF or 0 Clear Input Data (RX/RY)" is set in the network operation settings) | High speed mode (When "Hold Input Data (RX/RY)" is set in the network operation settings) | |
| 2 | 0.75ms | 0.24ms | 0.23ms | 576 bytes |
| 4 | 0.85ms | 0.33ms | 0.29ms | 1152 bytes |
| 8 | 1.05ms | 0.49ms | 0.42ms | 2304 bytes |
| 16 | 1.44ms | 0.82ms | 0.68ms | 4608 bytes |
| 32 | 2.22ms | 1.49ms | 1.21ms | 9216 bytes |
| 64 | 3.78ms | 2.82ms | 2.26ms | 17280 bytes |
| 120 | 6.52ms | 5.14ms | 4.09ms | 34560 bytes |



# Appendix 7 Mounting the Master/Local Module with a C Controller Module

When mounting the master/local module with a C Controller module, set the parameters using one of the methods listed in the following table.

| Parameter setting method | Compatible C Controller module | Reference |
|---|---|---|
| Set the parameters in the setting/monitoring tools for the C Controller module. | Q12DCCPU-V (Extended mode) | Manual for the C Controller module used |
| | Q24DHCCPU-V | |
| | Q24DHCCPU-LS | |
| Write the parameters to the buffer memory in the master/local module | Q06CCPU-V | Page 531, Appendix 7.1 |
| | Q06CCPU-V-B | |
| | Q12DCCPU-V | |
| | Q24DHCCPU-V | |
| | Q24DHCCPU-LS | |

**Remark**

For details on a C Controller module, refer to the manual for the C Controller module.

# Appendix 7.1 Setting the parameters using the buffer memory in the master/local module

Write the parameters to the buffer memory in the master/local module to set them. Data are communicated using the buffer memory in the master/local module.

## (1) Compatible models

### (a) C Controller module

The following table lists the C Controller module compatible with the master/local module.

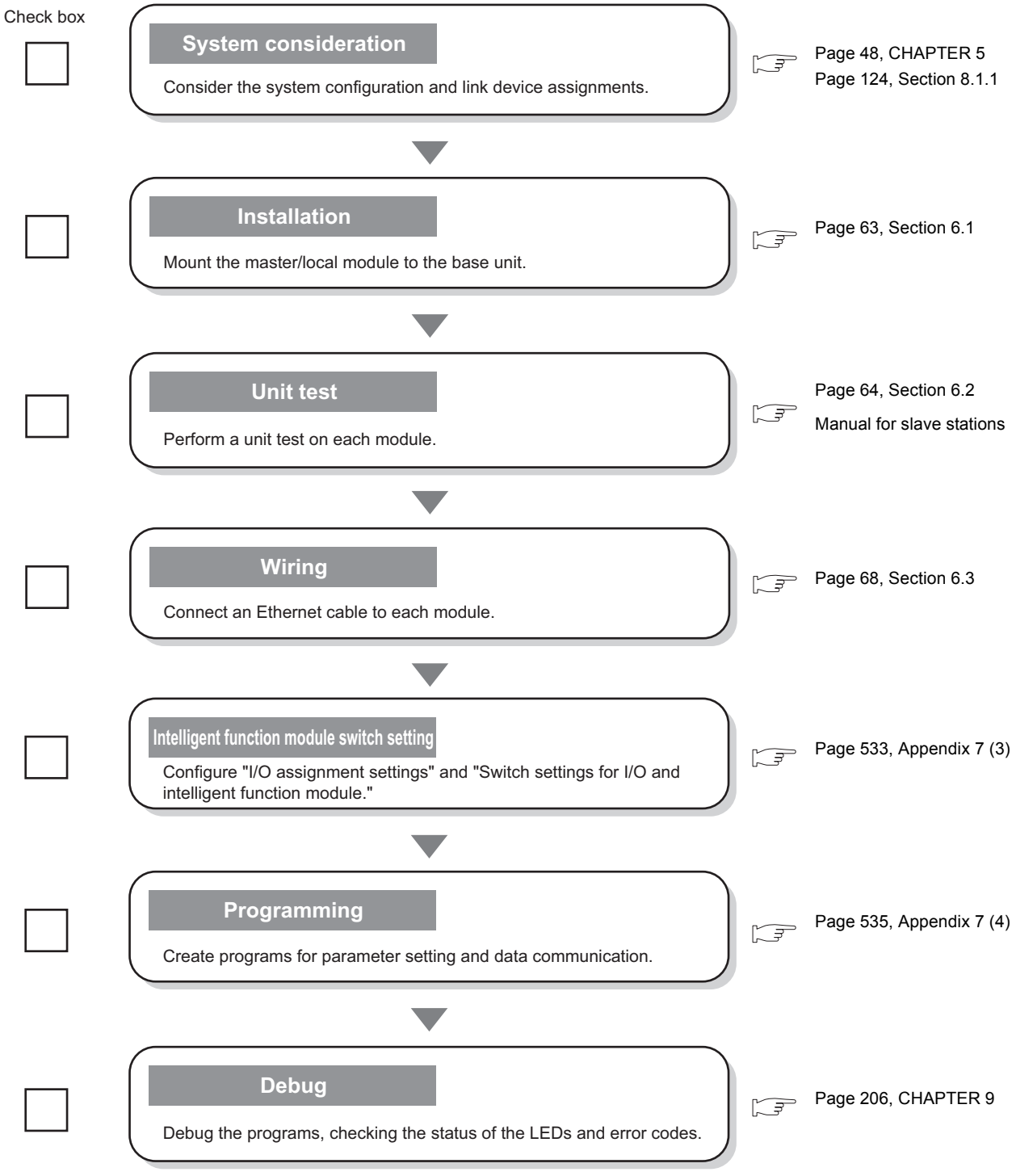
| Model | First five digits of the serial number |
|---|---|
| Q06CCPU-V | "12082" or later |
| Q06CCPU-V-B | |
| Q12DCCPU-V | "12042" or later |
| Q24DHCCPU-V | Compatible from the first product |
| Q24DHCCPU-LS | |

### (b) Master/local module

For the master/local module compatible with the C Controller module, refer to the following.

☞Page 546, Appendix 8

## (2) Procedure before operation



## (3) Intelligent function module switch setting

Configure the I/O assignment setting and intelligent function module switch setting in "C Controller setting utility" or "Setting/monitoring tools for the C Controller module" and write the parameters to the C Controller module.

**Remark**

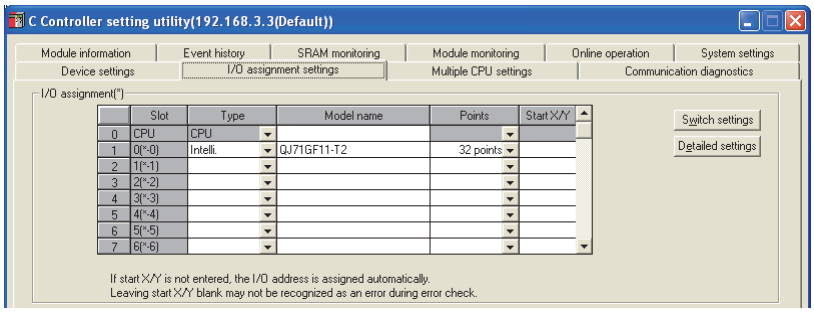
To configure the settings of a C Controller module, "C Controller setting utility" and "Setting/monitoring tools for the C Controller module" are available. The software that can be used varies depending on the C Controller module used.

( Manual for the C Controller module used)

### 1. Set the master/local module in the "I/O assignment settings" tab.

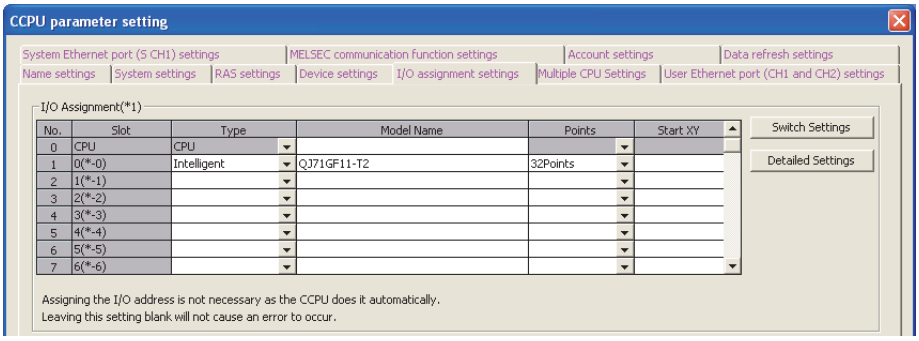
- With the C Controller setting utility

C Controller setting utility ⇨ "I/O assignment settings" tab

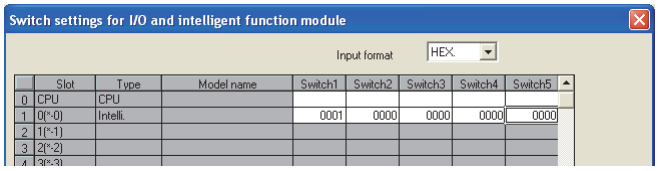



- With the setting/monitoring tools for the C Controller module

Setting/monitoring tools for the C Controller module ⇨ [Parameter] ⇨ [CCPU Parameter] ⇨ "I/O assignment settings" tab



**2. Click the Switch Setting button and enter the values in "Switch 1" to "Switch 5".**




Enter values within the ranges listed in the tables below.

If any of the values set for switches 1 to 3 is outside the range, the master/local module will start as a master station (offline mode) of network number 1, resulting in an error. The error details are stored in Switch setting parameter check result (address: $7BFD_H$).

If the switch 4 is outside the range, the error code is stored in Parameter communication result (address: $7BFE_H$) when the program is executed.

- Setting parameters for the master station

| Item | Description | Setting range |
|---|---|---|
| Switch 1 | Enter the network number.<br>00□□H<br>Network No.: 01H to EFH (1 to 239) | $0001_H$ to $00EF_H$ |
| Switch 2<br>Switch 3 | Enter "$0000_H$". | $0000_H$ (Fixed) |
| Switch 4 | (1) When not using the submaster function<br>Enter $0000_H$.<br>(2) When using the submaster function<br>Set the operating status of the master station when it returns.<br>$0000_H$: Returns as a master station<br>$0002_H$: Returns as a submaster station | $0000_H$, $0002_H$ |
| Switch 5 | Enter "$0000_H$". | $0000_H$ (Fixed) |

- Setting parameters for the submaster station

| Item | Description | Setting range |
|---|---|---|
| Switch 1 | Enter the network number.<br>00□□H<br>Network No.: 01H to EFH (1 to 239) | $0001_H$ to $00EF_H$ |
| Switch 2 | Enter the station number.<br>41□□H<br>Station No.: 01H to 78H (1 to 120) | $4101_H$ to $4178_H$<br>(Station number: 1 to 120) |
| Switch 3 | Enter "$0000_H$". | $0000_H$ (Fixed) |
| Switch 4 | Select whether to set parameters for the submaster station using a program.<br>When "Parameters not set" is selected, the submaster station operates with the parameters set for the master station.*1<br>When "Parameters set" is selected, the submaster station operates with the parameters set using a program.<br>$0000_H$: Parameters not set<br>$0004_H$: Parameters set | $0000_H$, $00004_H$ |
| Switch 5 | Enter "$0000_H$". | $0000_H$ (Fixed) |

*1 The submaster station once needs to perform data link with the master station. Otherwise, the submaster station does not start its operation.

• Setting parameters for local stations

| Item | Description | Setting range |
|---|---|---|
| Switch 1 | Enter the network number.<br>00□□H<br>Network No.: 01H to EFH (1 to 239) | $0001_H$ to $00EF_H$ |
| Switch 2 | Enter the station number.<br>31□□H<br>Station No.: 01H to 78H (1 to 120) | $3101_H$ to $3178_H$<br>(Station number: 1 to 120) |
| Switch 3 | Enter "$0000_H$". | $0000_H$ (Fixed) |
| Switch 4 | | |
| Switch 5 | | |

## (4) Programming

To write parameters of the master/local module to the buffer memory, use a user program for the C Controller module.

**Point**

Sample programs with parameter settings for communications are stored to the folder where "C Controller setting utility" or "Setting/monitoring tools for the C Controller module" was installed. For the folder structure, refer to the following.

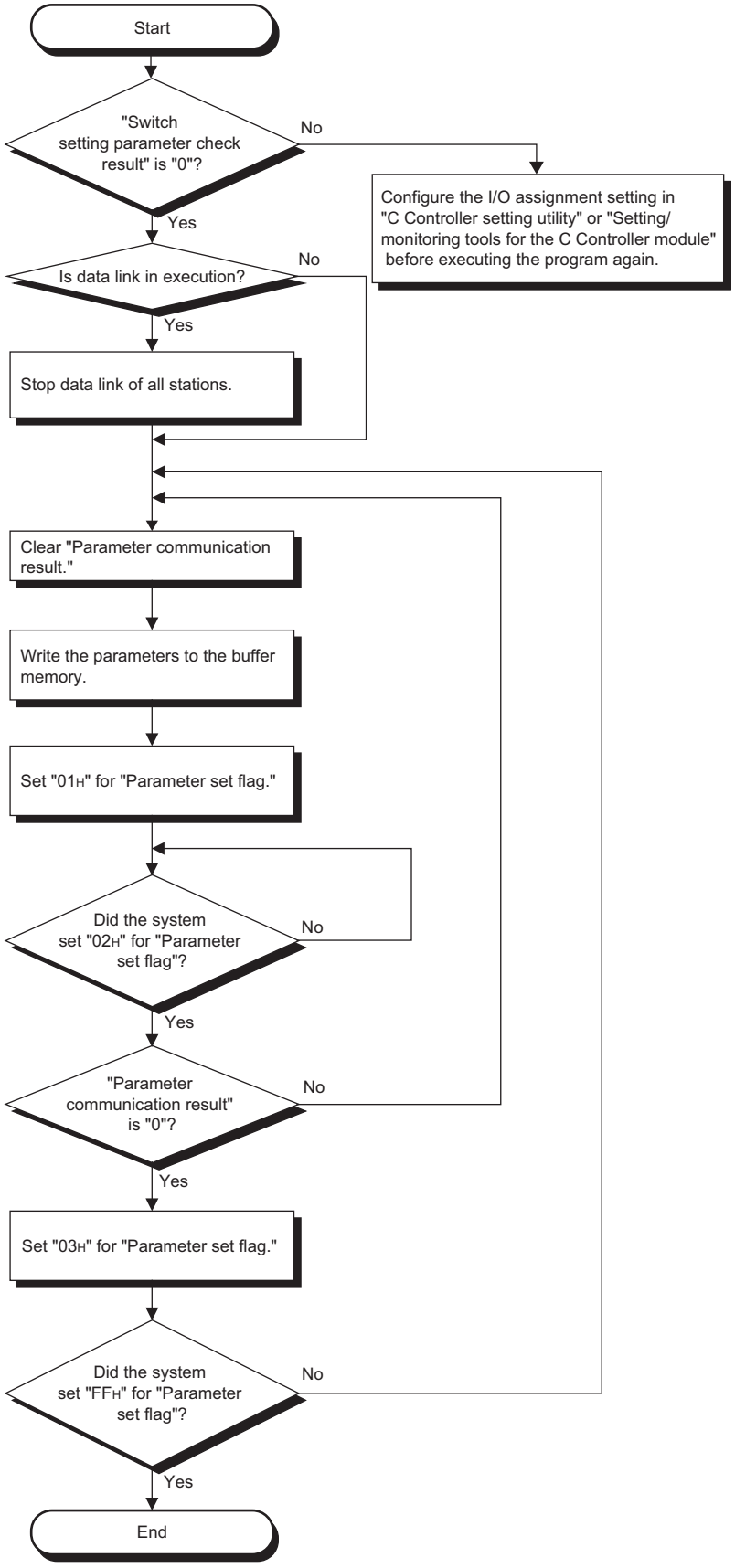
- C Controller setting utility
  - C Controller Module User's Manual (Utility Operation, Programming)
- Setting/monitoring tools for the C Controller module
  - Setting/Monitoring Tools for the C Controller Module Operating Manual

### (a) Precautions

- Before running a user program for parameter settings, configure the I/O assignment setting and intelligent function module switch setting with "C Controller setting utility" or "Setting/monitoring tools for the C Controller module".
- Auto refresh is not performed between the C Controller module and the master/local module. Exchange data through the buffer memory in the master/local module.
- When the master/local module is mounted with a C Controller module, it cannot communicate with other stations using transient transmission. For communications with other stations, perform cyclic transmission using the buffer memory in the master/local module.
- A C Controller module cannot directly access the buffer memory in the intelligent function module mounted with a remote head module or a head module. When auto refresh is set to the remote head module or the head module, the buffer memory to be automatically refreshed can be read or written by cyclic transmission.

### (b) Flowchart for a user program to set parameters

Create a program that operates as shown in this flowchart.



## (5) Buffer memory

The following table lists the buffer memory areas set by parameters when the master/local module is mounted with a C Controller module.

**Point**

When the master/local module is mounted with a programmable controller CPU, the buffer memory areas listed in this section cannot be used.
For parameter setting when a programmable controller CPU is used, refer to the following.
Page 81, CHAPTER 7, Page 359, Section 10.17

○: Can be set,×: Cannot be set

| Address (decimal (hexadecimal)) | Name | | Availability | | Initial value | Reading /writing | Reference |
|---|---|---|---|---|---|---|---|
| | | | Master station | Local station | | | |
| 31740 ($7BFC_H$) | Parameter set flag | | ○ | ○ | 0 | Reading/ writing | Page 540, Appendix 7 (5) (c) |
| 31741 ($7BFD_H$) | Switch setting parameter check result | | ○ | ○ | 0 | Reading/ writing | Page 540, Appendix 7 (5) (d) |
| 31742 ($7BFE_H$) | Parameter communication result | | ○ | ○ | 0 | Reading/ writing | Page 540, Appendix 7 (5) (e) |
| 31743 ($7BFF_H$) | Setting flag | | ○ | ○ | 0 | Reading/ writing | Page 540, Appendix 7 (5) (f) |
| 31744 ($7C00_H$) | Application parameter | Total number of slave stations | ○ | × | 0 | Reading/ writing | Page 541, Appendix 7 (5) (g) |
| 31745 to 71757 ($7C01_H$ to $7C0D_H$) | | System area | | | | | — |
| 31758 to 31765 ($7C0E_H$ to $7C15_H$) | | Reserved station specification | ○ | × | 0 | Reading/ writing | Page 542, Appendix 7 (5) (h) |
| 31766 to 31773 ($7C16_H$ to $7C1D_H$) | | Error invalid station setting | ○ | × | 0 | Reading/ writing | Page 542, Appendix 7 (5) (i) |
| 31774 ($7C1E_H$) | Network configuration setting data (1st station) | Slave station setting information | ○ | × | 0 | Reading/ writing | Page 543, Appendix 7 (5) (j) |
| 31775 ($7C1F_H$) | | RX/RY offset | ○ | × | | | |
| 31776 ($7C20_H$) | | RX/RY size | ○ | × | | | |
| 31777 ($7C21_H$) | | RWw/RWr offset | ○ | × | | | |
| 31778 ($7C22_H$) | | RWw/RWr size | ○ | × | | | |
| 31779 to 32378 ($7C23_H$ to $7E7A_H$) | Network configuration setting data (2nd to 121st stations) | Same as in Network configuration setting data (1st station) | ○ | × | 0 | Reading/ writing | Page 543, Appendix 7 (5) (k) |
| 32379 to 32380 ($7E7B_H$ to $7E7C_H$) | IP address | | ○ | × | 0 | Reading/ writing | Page 543, Appendix 7 (5) (l) |

### (a) Parameters that cannot be set when the master/local module is mounted with a C Controller module

The following table lists the parameters that cannot be set when the master/local module is mounted with a C Controller module. The master/local module operates with the setting status listed below.

- Parameters that cannot be set to the master station and submaster station

| Item | | Setting status |
|---|---|---|
| Network setting | Mode | Online (Normal Mode) |
| Network Configuration Settings | Alias | Not set |
| | Comment | |
| | Link Scan Mode Setting | Asynchronous |
| | Block Data Assurance per Station | Not set |
| Network Operation Settings | Parameter Name | Not set |
| Refresh Parameters | | Not set<br>Since link refresh cannot be performed, directly access the buffer memory in the master/local module. |
| Interrupt Settings | | Not set (Interrupts cannot be performed.) |
| Interlink Transmission Parameters | | Not set (Interlink transmission cannot be performed.) |
| Routing Parameters | | Not set<br>Transient transmission that requires routing parameters cannot be performed.<br>For whether routing parameters are needed, refer to the following.<br>☞ Page 119, Section 7.8 |

To set the parameters listed above, connect the Universal model QCPU with the master/local module and configure the settings in the network parameter window of GX Works2.

• Parameters that cannot be set to local stations

| Item | | Setting status |
|---|---|---|
| Network setting | Total Stations | Depends on the setting in the master station. |
| | Mode | Online (Normal Mode) |
| Network Configuration Settings | Station No. | Depends on the setting in the master station. |
| | Station Type | |
| | RX/RY Setting | |
| | RWw/RWr Setting | |
| | Reserved/Error Invalid Station | |
| | Alias | Not set |
| | Comment | |
| | Link Scan Mode Setting | Asynchronous |
| | Loopback Function Setting | Depends on the setting in the master station. |
| | Block Data Assurance per Station | Not set |
| Network Operation Settings | Parameter Name | Not set |
| Refresh Parameters | | Not set<br>Since link refresh cannot be performed, directly access the buffer memory in the master/local module. |
| Interrupt Settings | | Not set (Interrupts cannot be performed.) |
| Interlink Transmission Parameters | | Not set (Interlink transmission cannot be performed.) |
| Routing Parameters | | Not set<br>Transient transmission that requires routing parameters cannot be performed.<br>For whether routing parameters are needed, refer to the following.<br>Page 119, Section 7.8 |

Set the above-listed parameters that operate according to the settings of the master station in the master station. To set other parameters, connect the Universal model QCPU with the master/local module and configure the settings in the network parameter window of GX Works2.

### (b) Precautions

• When the network configuration setting data exceeds the total number of slave stations
If the number of set network configuration setting data exceeds the total number of slave stations, the data will be ignored. Only the data set within the total number of slave stations are valid.

• Applicable station numbers for reserved stations and error invalid stations
If the station number of a reserved station or error invalid station is outside the range set by total number of slave stations and network configuration setting data, it is ignored. Only station numbers within the specified ranges are valid.

• Parameter error
If a parameter error occurs, check the error code stored in buffer memory and link special register (SW) and take corrective actions.

***1.*** **If a parameter is incorrect, an error code ($D824_H$ or $D825_H$) is stored in Parameter communication result (buffer memory address: 31742 ($7BFE_H$)).**

**(☞ Page 439, Section 12.5)**

***2.*** **Check the error code stored in Parameter setting status (SW004C) and take corrective action.**

**(☞ Page 439, Section 12.5)**

• Using a C Controller module on a local station
Disable "Block Data Assurance per Station" in the Network Parameter window for the master station.

### (c) Parameter set flag (buffer memory address: 31740 ($7BFC_H$))

Data stored to this buffer memory indicates completion of parameter setting, sends a cyclic start request, and stores the results of these two operations.

Also, the buffer memory stores the results of the commands above.

- $00_H$: Initial/idle status (stored by the system)
- $01_H$: Parameter setting ended (stored by the user)
- $02_H$: Parameter communication completed (stored by the system)
- $03_H$: Cyclic start being requested (stored by the user)
- $FE_H$: Parameter communication failed (stored by the system)
- $FF_H$: Cyclic start completed (stored by the system)

### (d) Switch setting parameter check result (buffer memory address: 31741 ($7BFD_H$))

This buffer memory stores the results of the switch setting parameter check.

- 0: Normal
- 1 or greater: Error (error code)

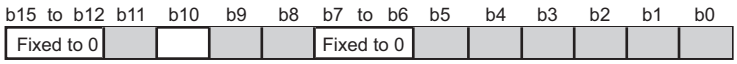
### (e) Parameter communication result (buffer memory address: 31742 ($7BFE_H$))

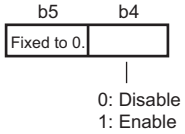
This buffer memory stores the result of parameter communications between the C Controller module and the master/local module.

- 0: Normal
- 1 or greater: Error (error code)

### (f) Setting flag (buffer memory address: 31743 ($7BFF_H$))

- For the master station and the submaster station




| Bit | Item | Setting |
|---|---|---|
| b0 | Network configuration setting data | 0: Invalid<br>1: Valid |
| b1 | Reserved station specification data | |
| b2 | Error invalid station setting data | |
| b3 | Submaster function | |
| b4 and b5 | IP packet transfer function |  |
| b8 | Data link faulty station setting | 0: Clear<br>1: Hold |
| b9 | Output setting during CPU STOP | 0: Hold<br>1: Clear |
| b11 | Loopback function setting | 0: Not used<br>1: Used |

Use b0 to b2 to set whether to enable each setting data.

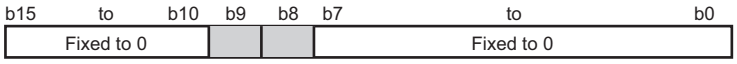
Storing "0: Invalid" will operate the station with the default of the parameter. (☞Page 81, CHAPTER 7)

Use b3 to set whether to enable the submaster function.

Use b4 and b5 to set whether to enable the IP packet transfer function.

Use b8, b9, and b11 to configure the network operation settings.

• For local stations




| Bit | Item | Setting |
|---|---|---|
| b8 | Data link faulty station setting | 0: Clear<br>1: Hold |
| b9 | Output setting during CPU STOP | 0: Hold<br>1: Clear |

### (g) Total number of slave stations (buffer memory address: 31744 ($7C00_H$)) (needs to be set for a master station)

• When not using the submaster function
The number of connected slave stations is set (setting range: 1 to 120).

• When using the submaster function
The number of connected slave stations is set. To use areas for a master station, set "the number of connected slave stations + 1" (setting range: 1 to 121).

### (h) Reserved station specification (buffer memory address: 31758 to 31765 ($7C0E_H$ to $7C15_H$)) (master station and submaster station only)

When Reserved station specification data existence (b1) in Setting flag ((S1)+1) is set to valid, store the slave station number to be reserved.

- 0: Not specified
- 1: Specified

| | b15 | b14 | b13 | b12 | b11 | b10 | b9 | b8 | b7 | b6 | b5 | b4 | b3 | b2 | b1 | b0 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 31758(7C0E$_H$) | 16 | 15 | 14 | 13 | 12 | 11 | 10 | 9 | 8 | 7 | 6 | 5 | 4 | 3 | 2 | 1 |
| 31759(7C0F$_H$) | 32 | 31 | 30 | 29 | 28 | 27 | 26 | 25 | 24 | 23 | 22 | 21 | 20 | 19 | 18 | 17 |
| 31760(7C10$_H$) | 48 | 47 | 46 | 45 | 44 | 43 | 42 | 41 | 40 | 39 | 38 | 37 | 36 | 35 | 34 | 33 |
| 31761(7C11$_H$) | 64 | 63 | 62 | 61 | 60 | 59 | 58 | 57 | 56 | 55 | 54 | 53 | 52 | 51 | 50 | 49 |
| 31762(7C12$_H$) | 80 | 79 | 78 | 77 | 76 | 75 | 74 | 73 | 72 | 71 | 70 | 69 | 68 | 67 | 66 | 65 |
| 31763(7C13$_H$) | 96 | 95 | 94 | 93 | 92 | 91 | 90 | 89 | 88 | 87 | 86 | 85 | 84 | 83 | 82 | 81 |
| 31764(7C14$_H$) | 112 | 111 | 110 | 109 | 108 | 107 | 106 | 105 | 104 | 103 | 102 | 101 | 100 | 99 | 98 | 97 |
| 31765(7C15$_H$) | — | — | — | — | — | — | — | — | 120 | 119 | 118 | 117 | 116 | 115 | 114 | 113 |

Each number in the table represents station No.

### (i) Error invalid station setting (buffer memory address: 31766 to 31773 ($7C16_H$ to $7C1D_H$)) (master station and submaster station only)

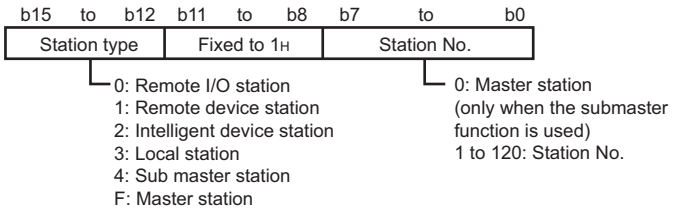
When Error invalid station setting data (b2) in Setting flag ((S1)+1) is set to valid, store the slave station number for which error invalid station setting is to be configured.

- 0: Not specified
- 1: Specified

| | b15 | b14 | b13 | b12 | b11 | b10 | b9 | b8 | b7 | b6 | b5 | b4 | b3 | b2 | b1 | b0 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 31766(7C16$_H$) | 16 | 15 | 14 | 13 | 12 | 11 | 10 | 9 | 8 | 7 | 6 | 5 | 4 | 3 | 2 | 1 |
| 31767(7C17$_H$) | 32 | 31 | 30 | 29 | 28 | 27 | 26 | 25 | 24 | 23 | 22 | 21 | 20 | 19 | 18 | 17 |
| 31768(7C18$_H$) | 48 | 47 | 46 | 45 | 44 | 43 | 42 | 41 | 40 | 39 | 38 | 37 | 36 | 35 | 34 | 33 |
| 31769(7C19$_H$) | 64 | 63 | 62 | 61 | 60 | 59 | 58 | 57 | 56 | 55 | 54 | 53 | 52 | 51 | 50 | 49 |
| 31770(7C1A$_H$) | 80 | 79 | 78 | 77 | 76 | 75 | 74 | 73 | 72 | 71 | 70 | 69 | 68 | 67 | 66 | 65 |
| 31771(7C1B$_H$) | 96 | 95 | 94 | 93 | 92 | 91 | 90 | 89 | 88 | 87 | 86 | 85 | 84 | 83 | 82 | 81 |
| 31772(7C1C$_H$) | 112 | 111 | 110 | 109 | 108 | 107 | 106 | 105 | 104 | 103 | 102 | 101 | 100 | 99 | 98 | 97 |
| 31773(7C1D$_H$) | — | — | — | — | — | — | — | — | 120 | 119 | 118 | 117 | 116 | 115 | 114 | 113 |

Each number in the table represents station No.

### (j) Network configuration setting data (1st station) (buffer memory address: 31774 to 31778 ($7C1E_H$ to $7C22_H$)) (needs to be set for a master station)

| Address (decimal (hexadecimal)) | Item | Setting data | Setting range |
|---|---|---|---|
| 31774 ($7C1E_H$) | Slave station setting information | Store the station type and station number.<br>  | Refer to the left figure. |
| 31775 ($7C1F_H$) | RX/RY offset | Store the RX/RY start number. (In increments of 16 points) | 0 to $3FF0_H$ |
| 31776 ($7C20_H$) | RX/RY size | Store the number of RX/RY points. (In increments of 16 points) | 0 to 2048 |
| 31777 ($7C21_H$) | RWw/RWr offset | Store the RWw/RWr start number. (In increments of 4 points) | 0 to $1FFC_H$ |
| 31778 ($7C22_H$) | RWw/RWr size | Store the number of RWw/RWr points. (In increments of 4 points) | 0 to 1024 |

### (k) Network configuration setting data (2nd to 121st stations) (buffer memory address: 31779 to 32378 ($7C23_H$ to $7E7A_H$)) (needs to be set for a master station)

The information on the network configuration setting data of the 2nd to 121st stations (2nd to 120th stations when the submaster function is not used) is stored in the same order as Network configuration setting data (1st station).

### (l) IP address (buffer memory address: 32379 to 32380 ($7E7B_H$ to $7E7C_H$))

When the IP packet transfer function is used, the IP address of the master/local module is set.
To set an IP address in this area, enable the IP packet transfer function in b4 and b5 of Setting flag (buffer memory address: 31743 ($7BFF_H$)). (☞Page 540, Appendix 7 (5) (f))



## (6) Debugging

When the master/local module is mounted with a C Controller module, debugging cannot be performed from GX Works2 by connecting it to the C Controller module.

How to perform debugging varies depending on the C Controller module used.

**Point**

When the master/local module is mounted with the Universal model QCPU, debugging can be performed by CC-Link IE Field Network diagnostics from GX Works2 connected to the Universal model QCPU. (Page 206, CHAPTER 9)

### (a) Q06CCPU-V, Q06CCPU-V-B, and Q12DCCPU-V (Basic mode)

Check the LEDs of the C Controller module and master/local module and perform debugging. If an error has occurred, check the error code and perform debugging.

- Checking LEDs

  For the LEDs of a C Controller module, refer to the manual for the C Controller module.

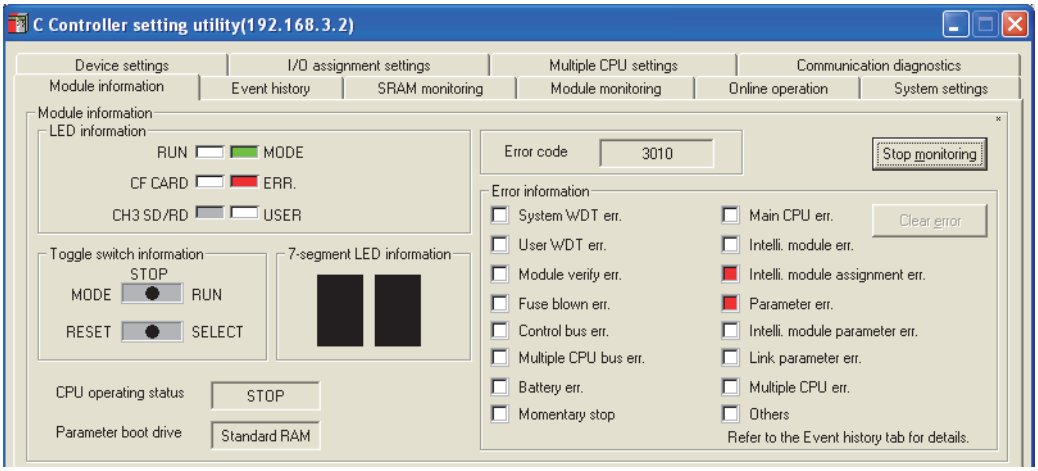
  For the LEDs of a master/local module, refer to Page 430, Section 12.3. Note that debugging cannot be performed using GX Works2.

- Checking error codes

  Check error codes using the C Controller setting utility.

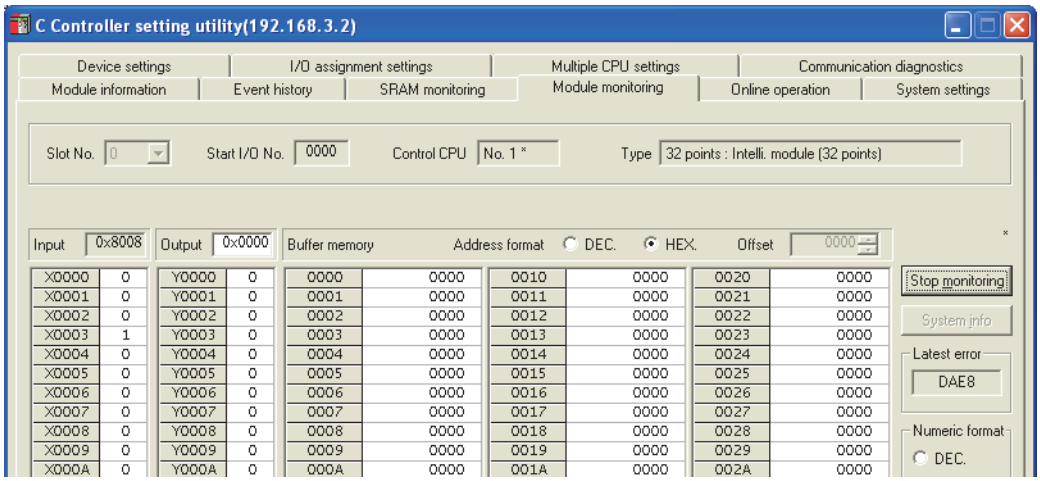
  Error codes can be checked in "Error code" under the "Module information" tab.

  C Controller setting utility ⇨ "Module information" tab ⇨ Start Monitor button



The error codes of the master/local module can be checked in "Latest error" under the "Module monitoring" tab.

C Controller setting utility ⇨ "Module monitoring" tab ⇨ "Slot No." ⇨ Specify the slot No. where the master/local module is mounted ⇨ Start Monitor button




### (b) Q12DCCPU-V (Extended mode), Q24DHCCPU-V, and Q24DHCCPU-LS

Use the CC-Link IE Field Network diagnostics in the setting/monitoring tools for the C Controller module to perform debugging. ( Setting/Monitoring Tools for the C Controller Module Operating Manual)

# Appendix 8 New and Improved Functions

The following table lists the new and improved functions.

—: No restriction on serial number and version

| New or improved function | Applicable module (first five digits of the serial number) | Applicable GX Works2 version |
|---|---|---|
| Ring topology (loopback function) (☞ Page 178, Section 8.7) | Master station: "12072" or later<br>Local station: — | Version 1.40S or later |
| Parameter setting for a local station using the dedicated instruction (CCPASET) (☞ Page 359, Section 10.17) | "12072" or later | — |
| C Controller modules (parameter setting using buffer memory) (☞ Page 531, Appendix 7) | | |
| Auto-save of event history data (☞ Page 224, Section 9.5 (3)) | | |
| Station numbers can be reset on a slave station where the station number has been set on the CC-Link IE Field Network diagnostics. | "13032" or later | Version 1.50C or later |
| The remote operation and clock settings can be batch-set to all stations on GX Works2. | — | Version 1.56J or later |
| IP packet transfer function | "14023" or later | Version 1.77F or later |
| Submaster function | "14023" or later | Version 1.77F or later |
| Display of the disconnected station monitor area in the CC-Link IE Field diagnostics | "14023" or later | Version 1.77F or later |
| Station number setting in a program (the UINI instruction) | "14042" or later | Version 1.87R or later |
| C Controller modules (parameter setting using the setting/monitoring tools for the C Controller module) ( ☞ Page 531, Appendix 7) | "14082" or later | — |
| Setting the network configuration setting in the CC IE Field configuration window | — | Version 1.90U or later |
| The following operations can be performed from a master/local module to the slave stations.<br>• Parameter setting<br>• Command execution<br>• Remote reset | "14102" or later | Version 1.90U or later |
| Connection to MELSEC iQ-R series local stations and remote head modules ( ☞ Page 552, Appendix 10) | "16012" or later | — |
| Display of a receive frame error of the master station using the CC-Link IE Field Network diagnostics | "16042" or later | Version 1.513K or later |
| The following functions can be performed using the CC-Link IE Field Network diagnostics.<br>• Display of a receive frame error of the slave station<br>• Switch of display name of the slave station<br>• When all the stations are disconnected, hold the network configuration before disconnection in "Network Status" of the CC-Link IE Field Network diagnostic. | "16072" or later | Version 1.519R or later |
| Network map update in the CC-Link IE Field Network diagnostics | "17022" or later | Version 1.530C or later |
| Data backup/restoration | Refer to the following.<br>📖 iQ Sensor Solution Reference Manual | |
| Change of the calculation method for maximum data link processing time when the station is disconnected from or returned to the network, which is used for the link scan time formula | "17022" or later | — |
| Display of the loopback station in the CC-Link IE Field Network diagnostics | "17062" or later | Version 1.535H or later |
| Normal display of the date and time of occurrence for error occurred during initial processing of the CPU module in the event history | "17062" or later | — |

**Remark**

Use a CPU module that supports the corresponding function.

User's manual for the CPU module used

# Appendix 9 Comparison of CC-Link and CC-Link IE Field Network

This chapter describes the differences in the specifications for CC-Link and CC-Link IE Field Network.

## (1) Performance specifications comparison

| Item | | | Specifications | |
|---|---|---|---|---|
| | | | CC-Link (QJ61BT11N) | CC-Link IE Field Network (QJ71GF11-T2) |
| Maximum link points per network | | RX | 8192 points*1 | 16384 points |
| | | RY | 8192 points*1 | 16384 points |
| | | RWr | 2048 points*1 | 8192 points |
| | | RWw | 2048 points*1 | 8192 points |
| Maximum number of link points per station | Master station | RX | 8192 points*1 | 16384 points |
| | | RY | 8192 points*1 | 16384 points |
| | | RWr | 2048 points*1 | 8192 points |
| | | RWw | 2048 points*1 | 8192 points |
| | Local station | RX | 896 points*1 | 2048 points |
| | | RY | 896 points*1 | 2048 points |
| | | RWr | 128 points*1 | 1024 points |
| | | RWw | 128 points*1 | 1024 points |
| Transmission specifications | Communication speed | | Selectable from 156kbps/625kbps/ 2.5Mbps/5Mbps/10Mbps | 1Gbps |
| | Connection cable | | • Ver.1.10-compatible CC-Link dedicated cable<br>• CC-Link dedicated cable (Ver.1.00-compatible)<br>• CC-Link dedicated high-performance cable (Ver.1.00-compatible) | An Ethernet cable that meets the 1000BASE-T standard: Category 5e or higher (double shielded, STP), straight cable (☞ Page 59, Section 5.3.1) |
| | Maximum station-to-station distance | | 30cm to 1200m (varies depending on connected stations and transmission speed) | 100m maxi. (Compliant with ANSI/TIA/EIA-568-B (Category 5e))<br>(☞ Page 70, Section 6.3 (2)) |
| | Total distance | | 1200m (at transmission speed of 156kbps) | Line topology: 12000m (when cables are connected to one master station and 120 slave stations (inclusive or exclusive of a submaster station))<br>Star topology: Depends on the system configuration.<br>Ring topology: 12100m (when cables are connected to one master station and 120 slave stations (inclusive or exclusive of a submaster station)) |
| | Network topology | | Bus topology | Line topology, star topology<br>(Coexistence of line topology and star topology is possible.), and ring topology |

| Item | | Specifications | |
|---|---|---|---|
| | | CC-Link (QJ61BT11N) | CC-Link IE Field Network (QJ71GF11-T2) |
| Number of connected stations in one network | Master station | 1 station (up to 64 remote stations can be connected to master station) | 1 station (Up to 120 slave stations (with or without a submaster station) can be connected to the master station.) |
| | Local station | 26 stations | 120 stations |
| Station type | | Master station, local station | |
| Communication method | | Broadcast polling | Token passing method |
| Number of occupied I/O points | | 32 points (I/O assignment: Intelligent 32 points) | |
| Internal current consumption (5VDC) | | 0.46A | 1.0A |
| External dimensions | | 98(H) × 27.4(W) × 90(D) [mm] | 98(H) × 27.4(W) × 115(D) [mm] |
| Weight | | 0.12kg | 0.18kg |

*1 These are values in remote net ver.2 mode or remote net additional mode.

## (2) Functional comparison

### (a) Added functions

The following are the functions added in the master/local module (QJ71GF11-T2).

| Function | | Description | Refer to |
|---|---|---|---|
| Cyclic transmission | Mode selection for cyclic transmission | This mode can be selected for optimizing the performance of cyclic transmission based on the frequencies of cyclic transmission and transient transmission.<br>The mode can be selected from "Online (Normal Mode)" and "Online (High Speed Mode)". | Page 84, Section 7.2 (1)<br>Page 529, Appendix 6 |
| | Direct access to link devices | The link devices (RX, RY, RWr, RWw, SB, SW) of the master/local module (QJ71GF11-T2) are read or written directly. | Page 129, Section 8.1.3 |
| | Temporary cancel of the reserved station setting | Reserved station specification can be temporarily canceled without changing the parameters. | Page 143, Section 8.1.9 |
| | Interlink transmission | A relay station transfers the link devices of the master station and submaster station to another network module. | Page 133, Section 8.1.4 |
| Transient transmission | Seamless communications with different networks by dedicated instructions | By setting the routing parameters (communication path) using GX Works2 in advance, transient transmission can be performed to stations on different networks through dedicated instructions or GX Works2.<br>Communication can be also performed between CC-Link IE Field Network and Ethernet, CC-Link IE Controller Network, MELSECNET/H, and MELSECNET/10. | Page 145, Section 8.2.2 |
| CC-Link IE Field Network diagnostics | Network configuration display | The network configuration can be checked by the CC-Link IE Field Network diagnostics of GX Works2. | Page 206, CHAPTER 9 |
| | Loop test | The network line status and parameter setting status of each station are checked. | Page 71, Section 6.4.1 |
| | Cable test | Connection status of the Ethernet cables is checked. | Page 78, Section 6.4.2 |
| | Communication test | Whether the communication route for transient transmission from the own station to the destination station is correct or not is checked. | Page 79, Section 6.4.3 |
| | IP communication test | When the IP packet transfer function is used, whether no error occurs in the communication route is checked. | Page 156, Section 8.3.3 |
| | Network event history | The history of events that occurred in the own station and on the network is displayed. For the master station, the event history of the entire network can be displayed, and so it can be used for troubleshooting at network start-up. | Page 223, Section 9.5 |
| Slave station additional functions | | Slave stations that are not set in the master station parameters can be added during data link. | — |
| IP packet transfer function | | Communications in a protocol, such as FTP and HTTP, by specifying the IP address of an Ethernet device can be performed over CC-Link IE Field Network.<br>With this function, two networks of CC-Link IE Field Network and Ethernet are not required, resulting in reduced wiring cost. | Page 146, Section 8.3 |
| Station number setting in a program | | The station number of a local station can be set using the dedicated instruction (UINI instruction). When processing contents are the same in multiple local stations, managing the project of GX Works2 by each station number is not required. | Page 380, Section 10.18 |

### (b) Modified functions

The following are the functions modified in the master/local module (QJ71GF11-T2).

| Function | Notes during replacement |
|---|---|
| Slave station cut-off function | When CC-Link IE Field Network is connected in line topology, stations after the disconnected station become data link error stations. To prevent disconnection of normal stations, connect CC-Link IE Field Network in a star topology.<br>(☞ Page 49, Section 5.2.1 (1)) |
| Standby master function | Use the submaster function for a master/local module (QJ71GF11-T2).<br>(☞ Page 178, Section 8.7)<br>The submaster function differs from the standby master function in the following points.<br>• Even if the control is shifted to the submaster station due to disconnection of the master station, the sending ranges (the number of assignment points) for communications with the slave stations are the same as that of the master station; therefore, it is not required to switch programs between the master station and the submaster station. (With the QJ61BT11N, the number of assignment points differs.)<br>• A send area for the master station allows information to be exchanged between the master station and the submaster station.<br>• The forced master switch can be performed while the submaster station is operating as a master operating station. |
| Data link status setting if the CPU module on the master station is faulty | This setting is fixed to "Continue" for CC-Link IE Field Network. |

# Appendix 10 Precautions for When Connecting the MELSEC iQ-R Series Module

Follow the precautions below when connecting a MELSEC-Q series module and a MELSEC iQ-R series module.

## (1) When a MELSEC iQ-R series local station or remote head module is connected

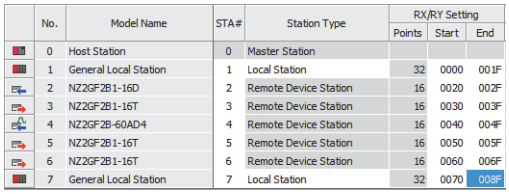
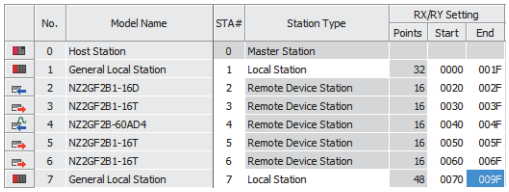
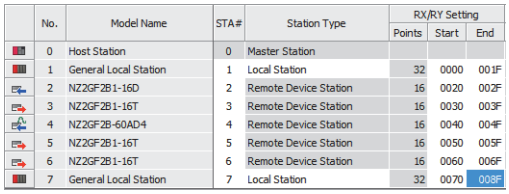
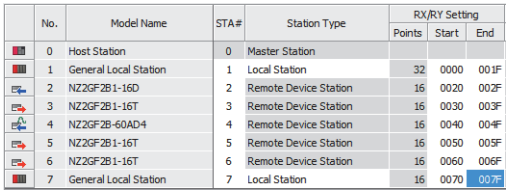
Follow the precautions below when connecting the MELSEC-Q series master station and submaster station and the MELSEC iQ-R series local station or remote head module.

### (a) Serial number of the master station

Use the modules with a serial number (first five digits) of the master station of "16012" or later.

### (b) When the serial number (first five digits) of the master station is "16011" or earlier

If the serial number (first five digits) of the master station is "16011" or earlier, set "RX/RY Setting" in "Network Configuration Settings" of the master station to any of the following.

| Action | Example |
|---|---|
| Set the largest end number in all stations to multiples of 32 - 1 by changing the number of cyclic assignment points or adding the reserved station. | • Before change<br>  <br>• After change<br>  |
| Reduce the largest end number in all stations to $7F_H$ or less. | • Before change<br>  <br>• After change<br>  |

| | No. | Model Name | STA# | Station Type | RX/RY Setting | | |
|---|---|---|---|---|---|---|---|
| | | | | | Points | Start | End |
| | 0 | Host Station | 0 | Master Station | | | |
| | 1 | General Local Station | 1 | Local Station | 32 | 0000 | 001F |
| | 2 | NZ2GF2B1-16D | 2 | Remote Device Station | 16 | 0020 | 002F |
| | 3 | NZ2GF2B1-16T | 3 | Remote Device Station | 16 | 0030 | 003F |
| | 4 | NZ2GF2B-60AD4 | 4 | Remote Device Station | 16 | 0040 | 004F |
| | 5 | NZ2GF2B1-16T | 5 | Remote Device Station | 16 | 0050 | 005F |
| | 6 | NZ2GF2B1-16T | 6 | Remote Device Station | 16 | 0060 | 006F |
| | 7 | General Local Station | 7 | Local Station | 32 | 0070 | 008F |

| | No. | Model Name | STA# | Station Type | RX/RY Setting | | |
|---|---|---|---|---|---|---|---|
| | | | | | Points | Start | End |
| | 0 | Host Station | 0 | Master Station | | | |
| | 1 | General Local Station | 1 | Local Station | 32 | 0000 | 001F |
| | 2 | NZ2GF2B1-16D | 2 | Remote Device Station | 16 | 0020 | 002F |
| | 3 | NZ2GF2B1-16T | 3 | Remote Device Station | 16 | 0030 | 003F |
| | 4 | NZ2GF2B-60AD4 | 4 | Remote Device Station | 16 | 0040 | 004F |
| | 5 | NZ2GF2B1-16T | 5 | Remote Device Station | 16 | 0050 | 005F |
| | 6 | NZ2GF2B1-16T | 6 | Remote Device Station | 16 | 0060 | 006F |
| | 7 | General Local Station | 7 | Local Station | 48 | 0070 | 009F |

| | No. | Model Name | STA# | Station Type | RX/RY Setting | | |
|---|---|---|---|---|---|---|---|
| | | | | | Points | Start | End |
| | 0 | Host Station | 0 | Master Station | | | |
| | 1 | General Local Station | 1 | Local Station | 32 | 0000 | 001F |
| | 2 | NZ2GF2B1-16D | 2 | Remote Device Station | 16 | 0020 | 002F |
| | 3 | NZ2GF2B1-16T | 3 | Remote Device Station | 16 | 0030 | 003F |
| | 4 | NZ2GF2B-60AD4 | 4 | Remote Device Station | 16 | 0040 | 004F |
| | 5 | NZ2GF2B1-16T | 5 | Remote Device Station | 16 | 0050 | 005F |
| | 6 | NZ2GF2B1-16T | 6 | Remote Device Station | 16 | 0060 | 006F |
| | 7 | General Local Station | 7 | Local Station | 32 | 0070 | 008F |

| | No. | Model Name | STA# | Station Type | RX/RY Setting | | |
|---|---|---|---|---|---|---|---|
| | | | | | Points | Start | End |
| | 0 | Host Station | 0 | Master Station | | | |
| | 1 | General Local Station | 1 | Local Station | 32 | 0000 | 001F |
| | 2 | NZ2GF2B1-16D | 2 | Remote Device Station | 16 | 0020 | 002F |
| | 3 | NZ2GF2B1-16T | 3 | Remote Device Station | 16 | 0030 | 003F |
| | 4 | NZ2GF2B-60AD4 | 4 | Remote Device Station | 16 | 0040 | 004F |
| | 5 | NZ2GF2B1-16T | 5 | Remote Device Station | 16 | 0050 | 005F |
| | 6 | NZ2GF2B1-16T | 6 | Remote Device Station | 16 | 0060 | 006F |
| | 7 | General Local Station | 7 | Local Station | 16 | 0070 | 007F |

AbN automation

### (2) When a MELSEC iQ-R series redundant system is connected

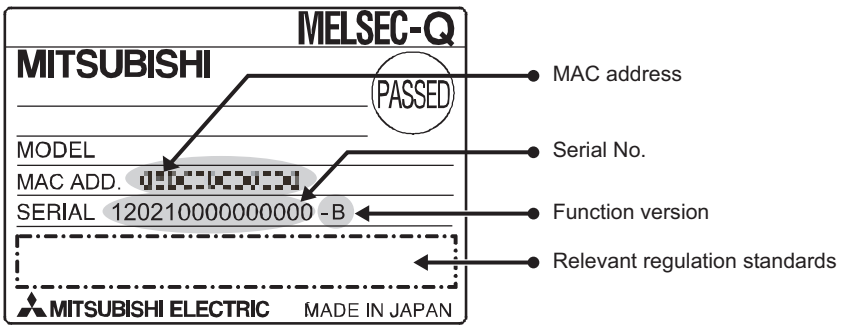
When connecting a MELSEC-Q series local station to the CC-Link IE Field Network including a MELSEC iQ-R series redundant system, use a master/local module with a serial number (first five digits) of "18042" or later.

# Appendix 11 Checking the Serial Number and Function Version

The serial No. and function version of a master/local module can be checked on the rating plate, the front of the module, and the system monitor of GX Works2.

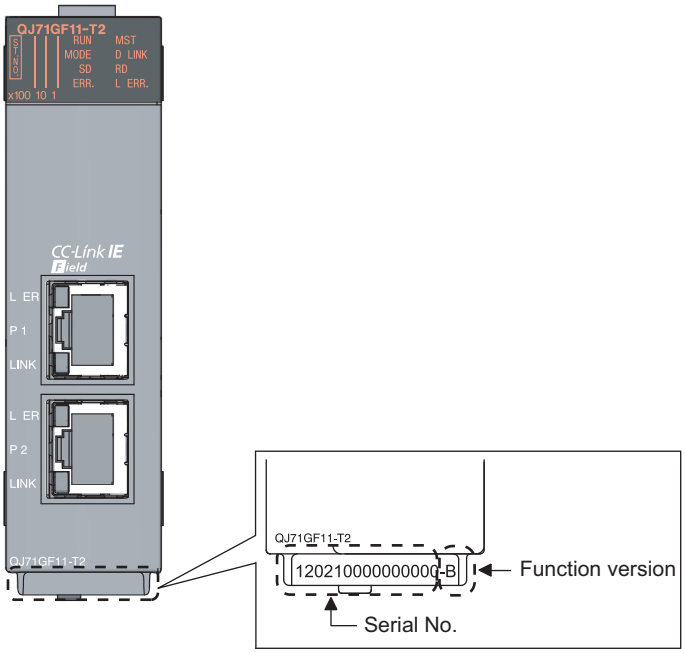
## (1) Checking on the rating plate

The rating plate is located on the side of the master/local module.




## (2) Checking on the front of the module

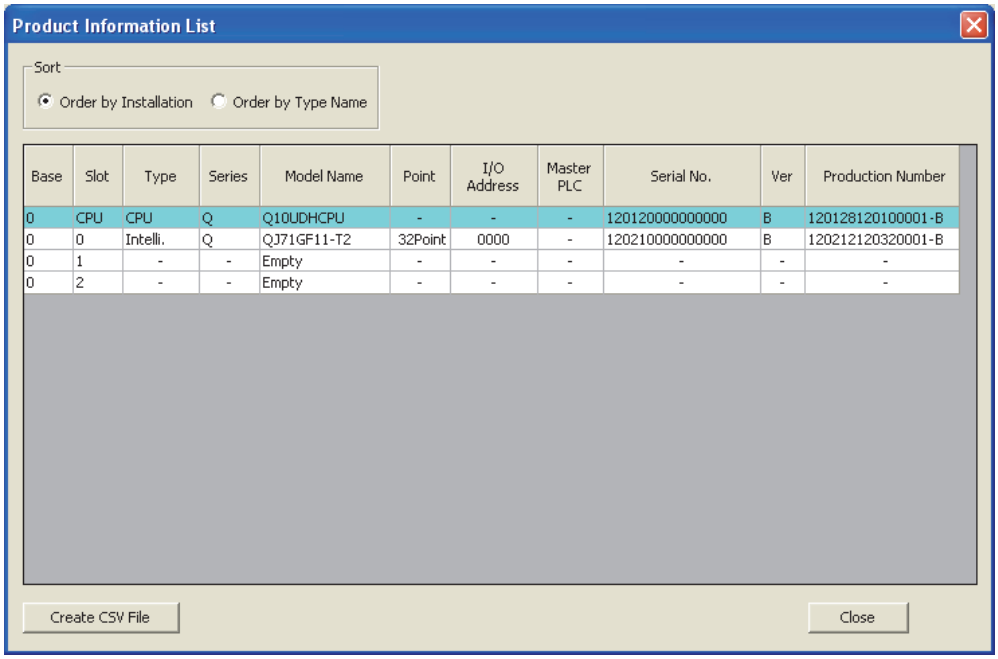
The serial No. and function version on the rating plate are printed on the front (at the bottom) of the module.



## (3) Checking using GX Works2

The serial No. and function version can be checked on "Product Information List" in "System Monitor".

[Diagnostics] ⇨ [System Monitor] ⇨ Product Information List button

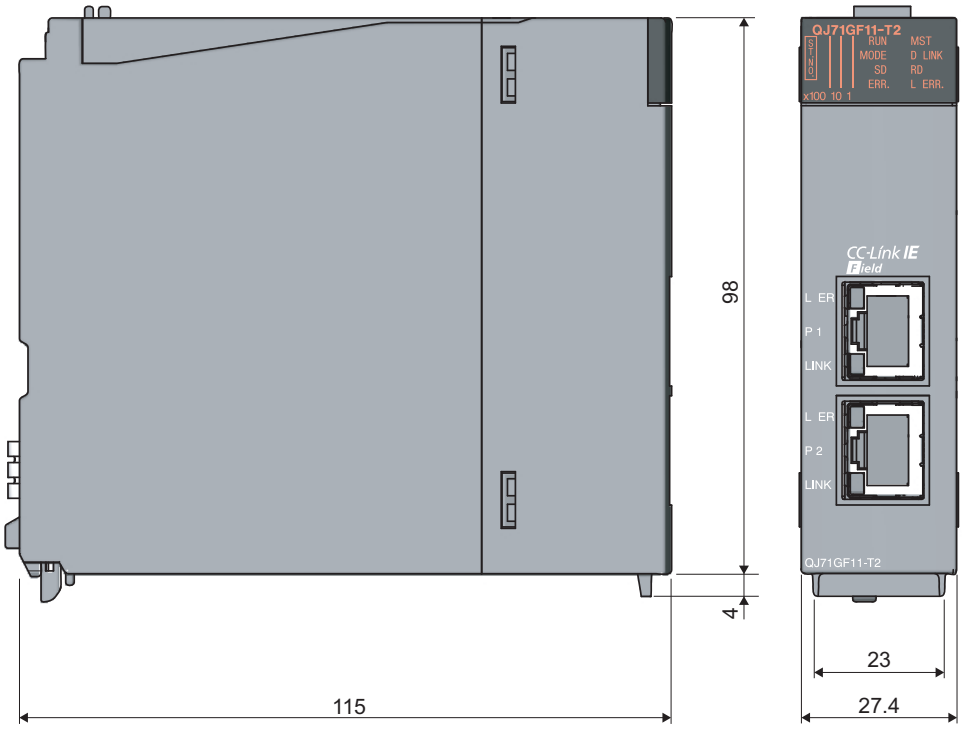



**Point**

The serial No. displayed on the product information list window of GX Works2 may differ from that on the rating plate and the front of the module.

- The serial No. on the rating plate and the front of the module indicates the management information of the product.
- The serial No. displayed on "Product Information List" of GX Works2 indicates the functional information of the product. The functional information of the product is updated when a new function is added.

# Appendix 12 External Dimension Diagram




(Unit: mm)

# Memo

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# WARRANTY

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

## 1. Gratis Warranty Term and Gratis Warranty Range

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

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

[Gratis Warranty Term]

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

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2. Failure caused by unapproved modifications, etc., to the product by the user.
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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.
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MODEL: QJ71GF11-T2-U-E
MODEL CODE: 13JZ47

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