

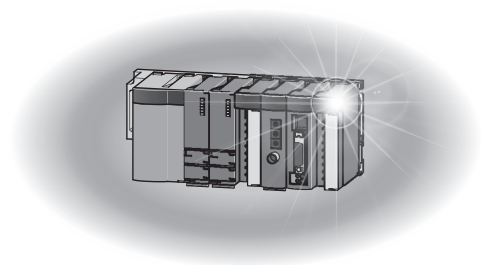


Programmable Controller

MELSEC **Q** series

MELSEC-Q CC-Link IE Controller Network Reference Manual

-QJ71GP21-SX
-QJ71GP21S-SX



● SAFETY PRECAUTIONS ●

(Read these precautions before using this product.)

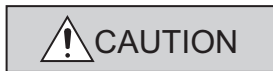
Before using this product, please read this manual and the relevant manuals carefully and pay full attention to safety to handle the product correctly.

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".



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



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

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

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

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

[Design Precautions]

⚠️ WARNING

- For each station's operating status in the case of a communication error in the network, refer to this manual. Malfunction due to a communication failure may result in an accident.
- When changing data of the running programmable controller from a peripheral connected to the CPU module or from a personal computer connected to an intelligent function module, configure an interlock circuit in the sequence 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 sequence program, and determine corrective actions to be taken between the external device and CPU module in case of a communication failure.
- Laser diodes are used in the optical transceivers of CC-Link IE Controller Network (class 1 in accordance with IEC 60825-1). Do not look directly at a laser beam. Doing so may harm your eyes.

[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]

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 located 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.
- Shut off the external power supply (all phases) used in the system before mounting or removing the module.
Failure to do so may result in damage to the product.
- 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 installation and wiring.
Failure to do so may result in electric shock or damage to the product.

[Wiring Precautions]

CAUTION

- Individually ground the FG terminal of the programmable controller with a ground resistance of 100Ω or less.
Failure to do so may cause a malfunction.
- Check the rated voltage and terminal layout before wiring the external power supply terminal block, and connect the cables correctly. Connecting a power supply with a different voltage rating or faulty wiring may cause a fire or failure.
- Tighten the terminal screws within the specified torque range.
Undertightening can cause short circuit, fire, or malfunction.
- Prevent foreign matter such as dust or wire chips from entering the module.
Such foreign matter can cause a fire, failure, or malfunction.
- Be sure to place the communication cables or power 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 a communication cable or a power cable from the module, do not pull the cable part.
For the cable with connector, hold the connector part of the cable.
For a cable connected to a terminal block, loosen the terminal block screws and disconnect the cable from the module.
Pulling the cable connected to the module may result in malfunction or damage to the module or cable.
- 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.

[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 a peripheral over CC-Link IE Controller Network, read relevant manuals carefully and ensure the safety.
Improper operation may damage machines or cause accidents.
- Do not disassemble or modify the module.
Doing so may cause failure, malfunction, injury, or a fire.

[Startup and Maintenance Precautions]

CAUTION

- 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.
- Shut off the external power supply (all phases) used in the system before mounting or removing the module.
Failure to do so may cause the module to fail or malfunction.
- Do not touch any terminal while power is on.
Failure to do so may cause malfunction.
- Shut off the external power supply (all phases) used in the system before cleaning the module or retightening the terminal screws or module fixing screws.
Failure to do so may cause the module to fail or malfunction.
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.
- 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.
- 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).
Exceeding the limit of 50 times may cause 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.

CONTENTS

SAFETY PRECAUTIONS	1
CONDITIONS OF USE FOR THE PRODUCT	5
MANUALS	11
COMPLIANCE WITH EMC AND LOW VOLTAGE DIRECTIVES	11
MANUAL PAGE ORGANIZATION	12
GENERIC TERMS AND ABBREVIATIONS	15
DEFINITIONS OF TERMINOLOGY	17
PACKING LIST	19

CHAPTER 1 OVERVIEW	20
---------------------------------	-----------

1.1 Features	21
--------------------	----

CHAPTER 2 SYSTEM CONFIGURATION	34
---------------------------------------------	-----------

2.1 CC-Link IE Controller Network Configurations	34
2.1.1 Single network system	34
2.1.2 Redundant system	36
2.1.3 Multi-network system	37
2.2 Network Components	38
2.2.1 Order of optical fiber cables (Optional)	38
2.2.2 CC-Link IE Controller Network interface board	39
2.2.3 CC-Link IE Controller Network communication unit	39
2.3 Applicable Systems	40
2.4 Checking the Function Version and Serial No.	42

CHAPTER 3 SPECIFICATIONS	44
---------------------------------------	-----------

3.1 Performance Specifications	44
3.2 Function Lists	46
3.3 Buffer Memory	52
3.3.1 Buffer memory list	52
3.3.2 Transient transmission error log	55
3.3.3 Transmission path switching history	57

CHAPTER 4 FUNCTIONS	59
----------------------------------	-----------

4.1 Cyclic Transmission Function	59
4.1.1 Communication using LB/LW	61
4.1.2 Communication using LX/LY	66
4.1.3 Link refresh	69
4.1.4 Direct access to link devices	70
4.1.5 Assurance of cyclic data integrity	76
4.1.6 Cyclic transmission punctuality assurance	80
4.1.7 Constant link scan	82
4.1.8 Group cyclic transmission	83
4.1.9 Increase of send points by mounting multiple CC-Link IE Controller Network modules of the same network No.	84
4.1.10 Reserved station specification	88
4.1.11 Interlink transmission	89

4.1.12	Stop/restart of cyclic transmission	91
4.2	Transient Transmission Function	94
4.2.1	List of dedicated instructions and transient transmission range.	97
4.2.2	Group function	102
4.2.3	Routing function	103
4.2.4	Clock setting with a programming tool	104
4.2.5	Changing the number of transient transmissions	105
4.3	IP Packet Transfer Function	106
4.3.1	System configuration of the IP packet transfer function	107
4.3.2	How to set the IP packet transfer function	108
4.3.3	IP communication test	113
4.3.4	Relay using CC-Link IE Field Network.	115
4.3.5	Precautions	116
4.3.6	Example of communications using the IP packet transfer function	118
4.3.7	Communication speed	122
4.4	RAS Functions	124
4.4.1	Control station switching function.	124
4.4.2	Loopback function	125
4.4.3	Automatic return function	127
4.4.4	Cable fault detection function.	127
4.4.5	Cable insertion error detection function	128
4.4.6	Detection of duplicated control station or station No.	129
4.4.7	External power supply function	134
4.5	Interrupt Request to CPU Module.	135
4.6	Station No. Setting by Sequence Program	136
4.7	Redundant-CPU-Compatible Function	138
4.7.1	Overview of redundant system operation.	138
4.7.2	System switching request to control system CPU	141

CHAPTER 5 PREPARATION AND SETUP	145
----------------------------------------	------------

5.1	Implementation and Installation	145
5.1.1	Handling precautions	145
5.2	Pre-operational Procedure	146
5.3	Part Names	147
5.4	Testing the CC-Link IE Controller Network Module	150
5.4.1	Hardware test	152
5.4.2	Self-loopback test	157
5.5	Wiring	162
5.6	Tests for CC-Link IE Controller Network Startup	164
5.6.1	Circuit test	165
5.6.2	Station-to-station test	169
5.7	Test Before CC-Link IE Controller Network Operation	174
5.7.1	Communication test	174

CHAPTER 6 PARAMETER SETTING	177
------------------------------------	------------

6.1	Parameter List	177
6.2	Network Settings	180
6.3	Network Range Assignment	183
6.3.1	LB/LW settings	185
6.3.2	LX/LY settings	192
6.3.3	Shared group	196
6.3.4	Pairing	199
6.3.5	Reserved station specification	200
6.3.6	Supplementary settings	201
6.4	Network Operation Settings	203
6.5	Refresh Parameters	204
6.5.1	Refresh parameter setting	204
6.5.2	Change of transfer target CPU-side device	212
6.5.3	Default settings	221
6.6	Interrupt Settings	225
6.7	Redundant Settings	231
6.8	Interlink Transmission Parameters	232
6.9	Routing Parameters	238

CHAPTER 7 PROCESSING TIME	244
----------------------------------	------------

7.1	Link Scan Time	244
7.2	Link Refresh Time	245
7.2.1	Interlink transmission time	247
7.3	Cyclic Transmission Delay Time	250
7.3.1	Cyclic transmission delay time	250
7.3.2	Transmission delay time calculation example	252
7.4	Dedicated Instruction Transmission Delay Time	256
7.4.1	Link dedicated instruction transmission delay time	256
7.4.2	CC-Link dedicated instruction transmission delay time	261
7.5	Cyclic Data Retention Time for System Switching in a Redundant System	262

CHAPTER 8 PROGRAMMING	267
------------------------------	------------

8.1	Program Example of a Single Network System	267
8.1.1	System configuration	267
8.1.2	Setting and communication contents	268
8.1.3	Program example of cyclic transmission	275
8.1.4	Program example of transient transmission	278
8.1.5	Program example of an interrupt request	283
8.1.6	Program example of error detection in other stations	285
8.2	Program Example of a Multi-network System	287
8.2.1	System configuration	287
8.2.2	Setting and communication contents	288
8.2.3	Program example of cyclic transmission	303
8.2.4	Program example of transient transmission	303
8.3	Using Link Special Relay (SB) and Link Special Register (SW)	306

CHAPTER 9 DEDICATED INSTRUCTIONS **324**

9.1	List of Dedicated Instructions and Available Devices	324
9.2	Precautions for Dedicated Instructions	326
9.2.1	Precautions for dedicated instructions (common)	326
9.2.2	Precautions for link dedicated instructions	328
9.2.3	Precautions for CC-Link dedicated instructions	331
9.3	JP/GP.READ (Data Read from Programmable Controllers on Other Stations)	332
9.4	JP/GP.SREAD (Data Read from Programmable Controllers on Other Stations)	344
9.5	JP/GP.WRITE (Data Write to Programmable Controllers on Other Stations)	351
9.6	JP/GP.SWRITE (Data Write to Programmable Controllers on Other Stations)	365
9.7	J(P)/G(P).REQ (Remote RUN/STOP)	374
9.8	J(P)/G(P).REQ (Reading/Writing Clock Data)	385
9.9	JP/GP.SEND (Data Transmission to Programmable Controllers on Other Stations)	400
9.10	JP/GP.RECV (Data Reception from Programmable Controllers on Other Stations)	413
9.11	Z.RECVS (Data Reception from Programmable Controllers on Other Stations)	421
9.12	J(P).ZNRD (Data Read from Programmable Controllers on Other Stations)	427
9.13	J(P).ZNWR (Data Write to Programmable Controllers on Other Stations)	435
9.14	Z(P).RRUN (Remote RUN)	443
9.15	Z(P).RSTOP (Remote STOP)	451
9.16	Z(P).RTMRD (Clock Data Read from Programmable Controllers on Other Stations)	459
9.17	Z(P).RTMWR (Clock Data Write to Programmable Controllers on Other Stations)	467
9.18	Z(P).UINI (Station No. Setting of Own Station)	476
9.19	J(P)/G(P).RIRD (Data Read from Programmable Controllers on Target Station)	481
9.20	J(P)/G(P).RIWT (Data Write to Programmable Controllers on Target Station)	489

CHAPTER 10 TROUBLESHOOTING **497**

10.1	Troubleshooting Flow	497
10.1.1	RUN LED is OFF	498
10.1.2	EXT.PW LED is OFF	498
10.1.3	MODE LED is OFF or flashing	499
10.1.4	D LINK LED is OFF	500
10.1.5	D LINK LED is flashing	501
10.1.6	Cyclic transmission is disabled	502
10.1.7	Transient transmission is disabled	504
10.1.8	IP communications cannot be performed using the IP packet transfer function	505
10.1.9	Data link is disabled in the redundant system	507
10.1.10	Data link is disabled on a station of a Basic model QCPU or safety CPU	510
10.2	Error Codes	511
10.2.1	Checking the error code	511
10.2.2	Error code list	514
10.3	CC IE Control Diagnostics	526
10.3.1	Network information display	528
10.3.2	Select station network device status display	531
10.3.3	Logging	533
10.3.4	System monitor	536

10.3.5 Remote operation	540
10.4 Checking the Error Description with the CC IE Control Diagnostics.	541
10.4.1 Cable disconnection or line being established	543
10.4.2 Cable insertion error.	545
10.4.3 Monitoring timeout	547
10.4.4 Parameter unreceived	548
10.4.5 Own station No. is out of range	549
10.4.6 Own station is set as reserved station	551
10.4.7 Own station No. duplication	553
10.4.8 Control station duplication	556
10.4.9 Control station duplication and own station No. duplication.	559
10.4.10 Illegal network No.	561
10.4.11 CPU module stop error	563
10.4.12 CPU module power stop error	565
10.4.13 External power not supplied.	566

APPENDICES	568
-------------------	------------

Appendix 1 Link Special Relay (SB) List	568
Appendix 2 Link Special Register (SW) List.	584
Appendix 3 Functional Upgrade of CC-Link IE Controller Network	606
Appendix 4 Comparison Between CC-Link IE Controller Network and MELSECNET/H.	612
Appendix 4.1 Comparison of specifications	612
Appendix 4.2 Comparison of function	615
Appendix 4.3 Link special relays (SB) and link special registers (SW)	621
Appendix 4.4 Precautions for system replacement	636
Appendix 4.5 Precautions for program replacement	639
Appendix 5 Parameter Sheet.	645
Appendix 5.1 Link device assignment sheet.	650
Appendix 5.2 Quantity setting parameter sheet.	651
Appendix 5.3 Network range assignment parameter sheet (for control station only)	652
Appendix 5.4 Refresh parameter sheet.	657
Appendix 5.5 Interrupt setting parameter sheet.	659
Appendix 5.6 Interlink transmission parameter assignment sheet.	660
Appendix 5.7 Routing parameter sheet	662
Appendix 6 External Dimensions	663
Appendix 6.1 QJ71GP21-SX	663
Appendix 6.2 QJ71GP21S-SX	664

INDEX	665
--------------	------------

REVISIONS	667
WARRANTY	669

MANUALS

The following manual is also related to this product.

Please purchase it if necessary.

Related Manual

Manual Name	Manual No. (Model Code)
CC-Link IE Controller Network Interface Board User's Manual (For SW1DNC-MNETG-B) Specifications, procedures before operation, system configuration, settings, functions, programming, and troubleshooting of the CC-Link IE Controller Network interface board (Sold separately)	SH080691ENG (13JZ02)
GT16 User's Manual (Hardware) Specifications, part names, installation, power supply wiring, and external dimensions of the GT16 models, and optional products (Sold separately)	SH-080928ENG (1D7MD3)
GT15 User's Manual Specifications, part names, installation, power supply wiring, and external dimensions of the GT15 models, and optional products and utilities (Sold separately)	SH-080528ENG (1D7M23)

COMPLIANCE WITH EMC AND LOW VOLTAGE DIRECTIVES

(1) For programmable controller system

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) For the product

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

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.

Annotations for manual page 73:

- ""** is used for window names and items.
- 1.** shows operating procedures.
- ☞** shows mouse operations.*1
- []** is used for items in the menu bar and the project window.
- Ex.** shows setting or operating examples.
- 📖** shows reference manuals.
- 📄** shows reference pages.
- Point** shows notes that require attention.
- Remark** shows useful information.

Manual page content (73):

CHAPTER 7 VARIOUS SETTINGS

7.1.1 Setting method

(1) Setting parameters

(a) Operating procedure

1. Open the "PLC Parameter" dialog box.
Project window ⇨ [Parameter] ⇨ [PLC parameter]
2. Select the "I/O Assignment" tab.

Item	Description	Reference
Type	Select the type of the connected module.	Page 74, Section 7.1.2
Model Name	Select the model name of the connected module.	Page 74, Section 7.1.3
Points	Set the number of points assigned to each slot.	Page 74, Section 7.1.4
Start XY	Specify a start I/O number for each slot.	Page 74, Section 7.1.5
Switch Setting	Configure the switch setting of the built-in I/O or intelligent function modules.	Page 74, Section 7.1.6
General Setting	Set the following: • Error Time Output Mode • PLC Operation Mode at HW Error • I/O Response Time	Page 75, Section 7.1.7

Setting "Start XY" enables modification on the start I/O numbers assigned to connected modules.
Ex. When "1000" is specified in "Start XY" to the slot where a 16-point module is connected, the assignment range of an input module is changed to X1000 to X100F.
 For details, refer to the following.
 MELSEC-L CPU Module User's Manual (Function Explanation, Program Fundamentals)

Point
 Set the type of the connected module in "Type". Setting a different type results in "SPUNIT LAY ERR".
 For the intelligent function module, the I/O points must also be the same in addition to the I/O assignment setting.
 (Page 30, Section 4.2.2)

Remark
 When an intelligent module is connected, I/O assignment can be omitted by selecting connected modules from "Intelligent Function Module" in the Project window.

*1 The mouse operation example is provided below.

Annotations for MELSOFT Series GX Works2 interface:

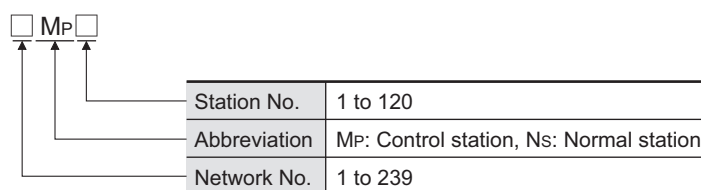
- Menu bar**: **Ex.** **☞** [Online] ⇨ [Write to PLC...]
Select [Online] on the menu bar, and then select [Write to PLC...].
- A window selected in the view selection area is displayed.**: **Ex.** **☞** Project window ⇨ [Parameter] ⇨ [PLC Parameter]
Select [Project] from the view selection area to open the Project window. In the Project window, expand [Parameter] and select [PLC Parameter].
- View selection area**

The following explains generic terms and abbreviations for CPU modules and networking station type codes that are used in the text, tables, and figures.

(1) Generic terms and abbreviations for CPU modules

Generic terms and abbreviations for CPU modules	CPU model									
	Q00J Q00 Q01	Q02 Q02H Q06H Q12H Q25H	Q02PH Q06PH Q12PH Q25PH	Q12PRH Q25PRH	Q00UJ Q00U Q01U	Q02U Q03UD Q04UDH Q06UDH Q10UDH Q13UDH Q20UDH Q26UDH	Q03UDE Q04UDEH Q06UDEH Q10UDEH Q13UDEH Q20UDEH Q26UDEH Q50UDEH Q100UDEH	Q03UDV Q04UDV Q06UDV Q13UDV Q26UDV	QS001	Q06CCPU-V-H01 Q06CCPU-V Q06CCPU-V-B Q12DCCPU-V Q24DHCCPU-V Q24DHCCPU-VG Q24DHCCPU-LS Q26DHCCPU-LS
Basic model QCPU	○									—
High Performance model QCPU	—	○								—
Process CPU	—		○							—
Redundant CPU		—		○						—
Universal model QCPU			—					○		—
Safety CPU					—				○	—
C Controller module										○
A module other than a Universal model QCPU			○						○	—
A module other than a safety CPU					○					—


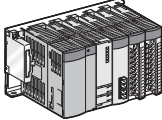
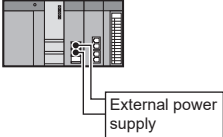


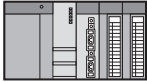
(2) Networking station type codes



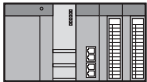
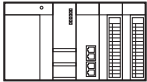
Ex.

- Network No.3, control station, station No.6 ••• 3Mp6
- Network No.5, normal station, station No.3 ••• 5Ns3

(3) Module illustration

Module illustration	Description
	
	CC-Link IE Controller Network module
	CC-Link IE Controller Network module with external power supply function
	CC-Link IE Controller Network interface board
	CC-Link IE Controller Network communication unit
	MELSECNET/H module

(4) Module status

Module status	Description
	Normally operating station
	Faulty station (Cyclic transmission is stopped.)

GENERIC TERMS AND ABBREVIATIONS

This manual describes using the following generic terms and abbreviations, unless otherwise specified.

Generic term and abbreviation	Description
Programming tool	A generic term for GX Developer and GX Works2
GX Developer	The product name of the software package for the MELSEC programmable controllers
GX Works2	
CC-Link IE Controller Network module	The abbreviation for the QJ71GP21-SX and QJ71GP21S-SX CC-Link IE Controller Network module
CC-Link IE Controller Network module with external power supply function	The abbreviation for the QJ71GP21S-SX CC-Link IE Controller Network module
CC-Link IE Controller Network interface board	The abbreviation for the Q80BD-J71GP21-SX, Q80BD-J71GP21S-SX, Q81BD-J71GP21-SX, and Q81BD-J71GP21S-SX CC-Link IE Controller Network interface boards
MELSECNET/H	The abbreviation for the MELSECNET/H network system
MELSECNET/H module	The abbreviation for the QJ71LP21, QJ71LP21-25, QJ71LP21S-25, QJ71LP21G, QJ71LP21GE, QJ71BR11, and QJ71NT11B MELSECNET/H network modules
MELSECNET/10	The abbreviation for the MELSECNET/10 network system
CC-Link IE Field Network	A high-speed and large-capacity open field network that is based on Ethernet (1000BASE-T)
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
Data link	A generic term for cyclic transmission and transient transmission
Network module	A generic term for the CC-Link IE Controller Network module, CC-Link IE Field Network module and MELSECNET/H module
Basic model QCPU	A generic term for the Q00JCPU, Q00CPU, and Q01CPU
High Performance model QCPU	A generic term for the Q02CPU, Q02HCPU, Q06HCPU, Q12HCPU, and Q25HCPU
Process CPU	A generic term for the Q02PHCPU, Q06PHCPU, Q12PHCPU, and Q25PHCPU
Redundant CPU	A generic term for the Q12PRHCPU and Q25PRHCPU
Universal model QCPU	A generic term for the Q00UJCPU, Q00UCPU, Q01UCPU, Q02UCPU, Q03UDCPU, Q03UDVCPU, Q03UDECPU, Q04UDHCPU, Q04UDVCPU, Q04UDEHCPU, Q06UDHCPU, Q06UDVCPU, Q06UDEHCPU, Q10UDHCPU, Q10UDEHCPU, Q13UDHCPU, Q13UDVCPU, Q13UDEHCPU, Q20UDHCPU, Q20UDEHCPU, Q26UDHCPU, Q26UDVCPU, Q26UDEHCPU, Q50UDEHCPU, and Q100UDEHCPU
Safety CPU	The abbreviation for the QS001CPU
C Controller module	A generic term for the Q06CCPU-V, Q06CCPU-V-B, Q12DCCPU-V, Q24DHCCPU-V, Q24DHCCPU-VG, Q24DHCCPU-LS, and Q26DHCCPU-LS
High-speed Universal model QCPU	A generic term for the Q03UDVCPU, Q04UDVCPU, Q06UDVCPU, Q13UDVCPU, and Q26UDVCPU
Built-in Ethernet port QCPU	A generic term for the Q03UDVCPU, Q03UDECPU, Q04UDVCPU, Q04UDEHCPU, Q06UDVCPU, Q06UDEHCPU, Q10UDEHCPU, Q13UDVCPU, Q13UDEHCPU, Q20UDEHCPU, Q26UDVCPU, Q26UDEHCPU, Q50UDEHCPU, and Q100UDEHCPU
READ	The abbreviation for JP.READ and GP.READ
SREAD	The abbreviation for JP.SREAD and GP.SREAD
WRITE	The abbreviation for JP.WRITE and GP.WRITE
SWRITE	The abbreviation for JP.SWRITE and GP.SWRITE
REQ	The abbreviation for J.REQ, JP.REQ, G.REQ, and GP.REQ
SEND	The abbreviation for JP.SEND and GP.SEND
RECV	The abbreviation for JP.RECV and GP.RECV
RECVS	The abbreviation for Z.RECVS

Generic term and abbreviation	Description
ZNRD	The abbreviation for J.ZNRD and JP.ZNRD
ZNWR	The abbreviation for J.ZNWR and JP.ZNWR
RRUN	The abbreviation for Z.RRUN and ZP.RRUN
RSTOP	The abbreviation for Z.RSTOP and ZP.RSTOP
RTMRD	The abbreviation for Z.RTMRD and ZP.RTMRD
RTMWR	The abbreviation for Z.RTMWR and ZP.RTMWR
UINI	The abbreviation for Z.UINI and ZP.UINI
RIRD	The abbreviation for J.RIRD, JP.RIRD, G.RIRD, and GP.RIRD
RIWT	The abbreviation for J.RIWT, JP.RIWT, G.RIWT, and GP.RIWT

DEFINITIONS OF TERMINOLOGY

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

Term	Description
Cyclic transmission	A function by which data are periodically exchanged among stations on the same network using link devices (LB, LW, LX, and LY) of a CC-Link IE Controller Network module. <ul style="list-style-type: none"> • LB/LW is used to send data of one station to all stations. (1:N communication) • LX/LY is used to send data of one station to another station. (1:1 communication)
Transient transmission	A function of communication with another station, which is used when requested by a dedicated instruction or a programming tool
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 dedicated instruction	Dedicated instruction that is used for transient transmission with CC-Link IE Controller Network compatible devices. This allows communication with a station on the same network.
RAS	The abbreviation for Reliability, Availability, and Serviceability. This term refers to usability of automated equipment.
Control station	Only one station that controls the network to which it is connected. Each station's send range for cyclic transmission is assigned to the control station.
Normal station	Station that performs cyclic transmission according to the range assignment of the control station
Reserved station	A station reserved for future use. This station is not actually connected, but counted as a connected station.
Relay station	A station that includes two or more network modules. Data are passed through this station to stations on other networks.
Undefined station	Station to which a station No. is to be set in the sequence program, however, that has presently no station No. because the UINI instruction has not been executed yet.
Return	Processing that restarts data link when a station recovers from an error
Disconnection	Processing that stops data link if a data link error occurs.
Device	A device (X, Y, M, D, or others) in a CPU module
Link device	A device (LB, LW, LX, or LY) in a module on CC-Link IE Controller Network
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 refresh	Data transfer between a link device in a module on CC-Link IE Controller Network and a device in a CPU module. Link refresh is performed in the END processing of the CPU module's sequence scan.
Routing	A process of selecting paths for communication with other networks. CC-Link IE Controller Network requires communication paths to be preset using routing parameters to communicate with stations on different networks.
Buffer memory	Memory area in the CC-Link IE Controller Network module, in which data are temporarily stored
Baton pass	A token to send data over a network
Control station switching time	Time taken from when the control station went down due to a reason such as power-off until data link is started by the sub-control station
Shared group No.	Number that is assigned to a station to allow it to share cyclic data with any given stations. Cyclic data can be shared only with stations of the same group.
Group No.	Number that is assigned for transient transmission to any given stations. By specifying a group of stations as transient transmission target, data can be sent to the stations of the same group No.
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

Term	Description
Standby system CPU	A CPU module that stands by in case the control system fails in a redundant system
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

PACKING LIST

The following is included in the package.

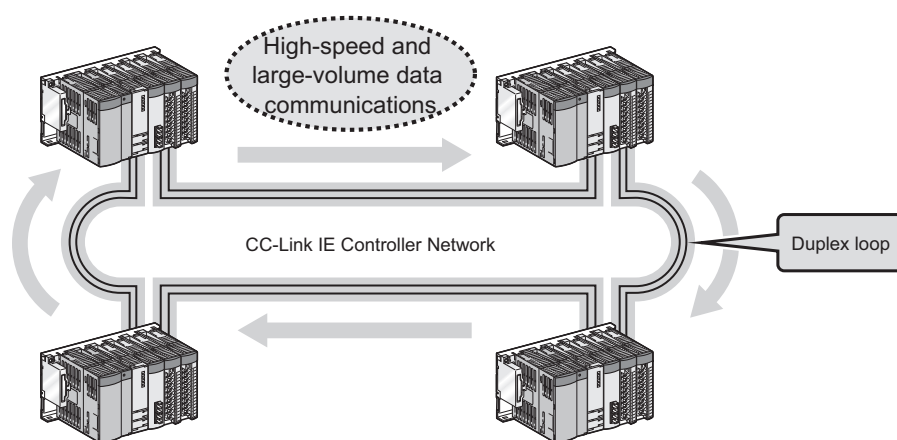
Model	Product name	Quantity
QJ71GP21-SX	The QJ71GP21-SX CC-Link IE Controller Network module	1
QJ71GP21S-SX	The QJ71GP21S-SX CC-Link IE Controller Network module (with external power supply function)	1

CHAPTER 1 OVERVIEW

This manual provides information on the specifications, functions, preoperational procedure, programming and troubleshooting of the QJ71GP21-SX and QJ71GP21S-SX CC-Link IE Controller Network modules (hereinafter referred to as CC-Link IE Controller Network module).

When applying a program example introduced in this manual to the actual system, make sure to examine the applicability and confirm that it will not cause system control problems.

The CC-Link IE Controller Network module allows connection of MELSEC-Q series programmable controllers to the CC-Link IE Controller Network, realizing high-speed and large-volume data communications between the controllers in the network.



Point

- The existing MELSECNET/G network module has been integrated into the CC-Link IE Controller Network module.
 - The CC-Link IE Controller Network is an improved system that has a higher processing speed and a larger data capacity than the MELSECNET/H network system (PLC to PLC network).
The Appendix in this manual describes the comparison between CC-Link IE Controller Network and MELSECNET/H.
(☞ Page 612, Appendix 4)
 - One network (of the same network No.) cannot contain both CC-Link IE Controller Network and MELSECNET/H modules. (Different networks must be used.)
 - CC-Link IE Controller Network module: Used for CC-Link IE Controller Network
 - MELSECNET/H module: Used for MELSECNET/H or MELSECNET/10
-

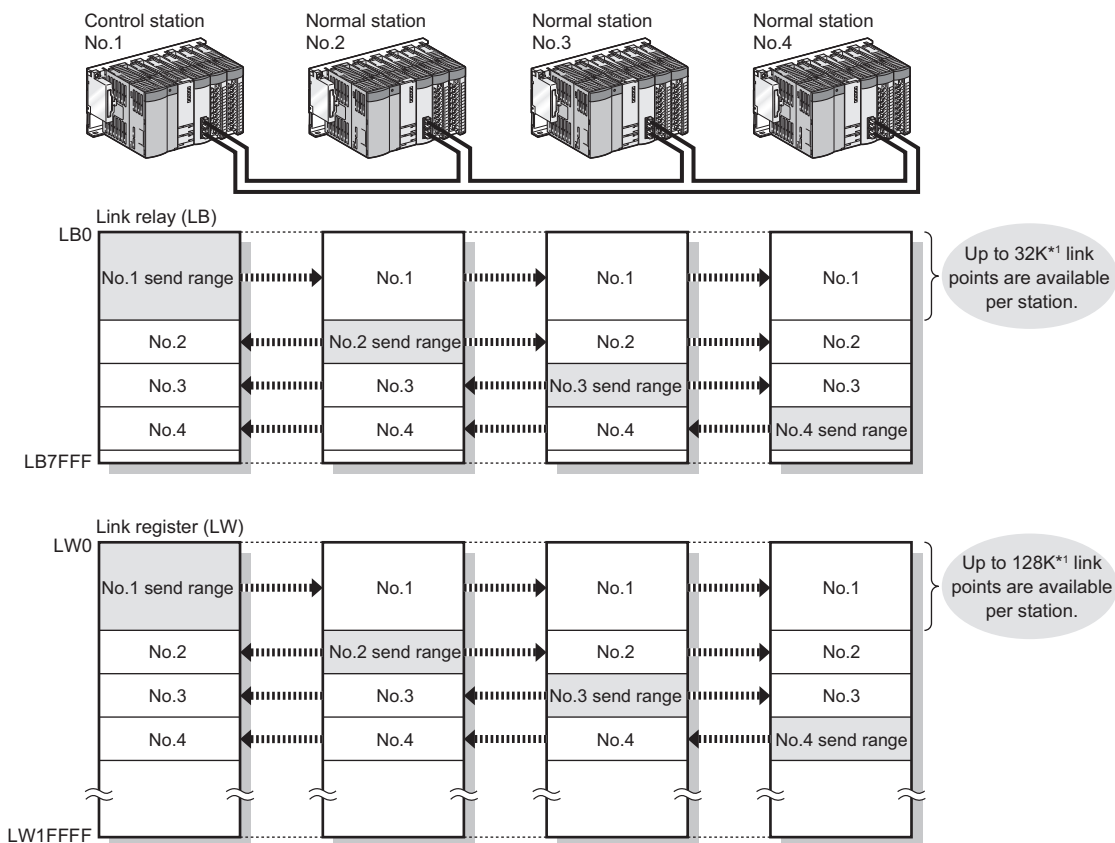
1.1 Features


This section explains the features of the CC-Link IE Controller Network module.

(1) Periodic communication (Cyclic transmission) (Page 59, Section 4.1)

(a) Periodical exchange of large volume of data

Using link devices of the CC-Link IE Controller Network module allows periodical exchange of large volume of data between stations on the same network.



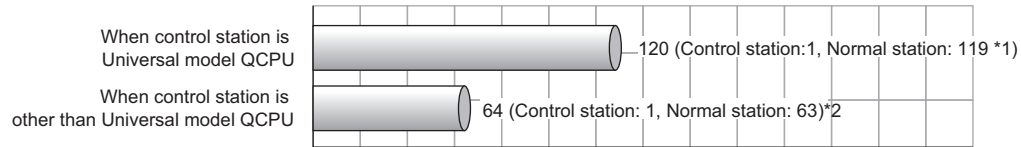
*1 For the extended mode ( Page 181, Section 6.2 (1))

(b) Configuration of a large-scale network system

Since a large number of modules and link points can be used in one network, a large-scale network system can be constructed.

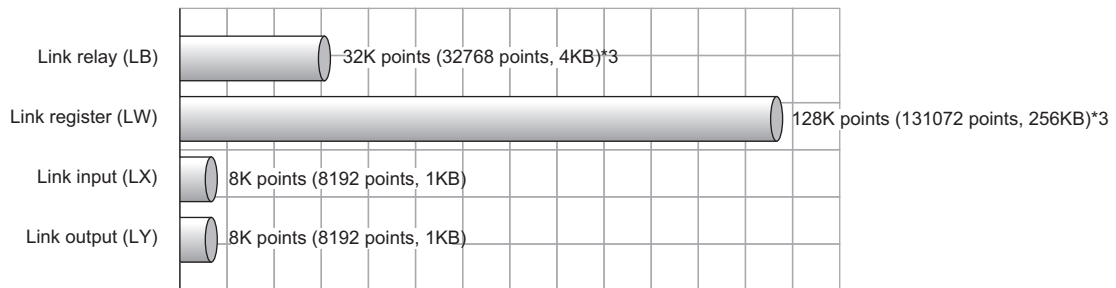
Also, when expanding the network, additional stations and send points can be easily set up.

The number of connectable modules per network is as follows.



- *1 A Universal model QCPU can be set to station No.1 to 120.
Any other than Universal model QCPUs can be set to station No.1 to 64.
- *2 Basic model QCPU or safety CPU operates as a normal station. (It cannot be set to a control station.)

The maximum link points per network is as follows.

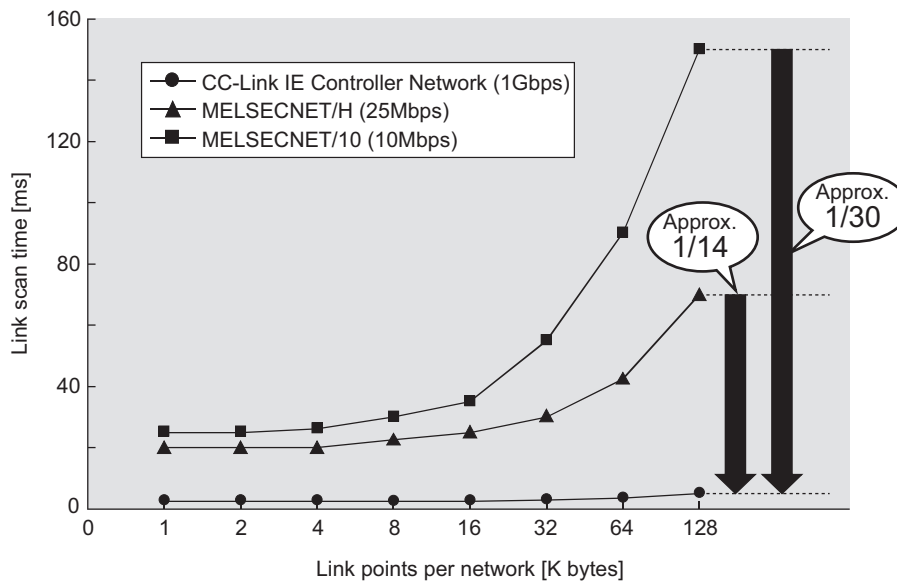


- *3 For a Basic model QCPU or safety CPU, the link relay (LB) is 16K points (16384 points, 2KB) and the link register (LW) is 16K points (16384 points, 32KB).


(c) High-speed data communication at 1Gbps

Because the link scan time and transmission delay time are short, applications for production of a short takt time can be built.

Ex. Link scan time in the case where the number of stations in the network is 32



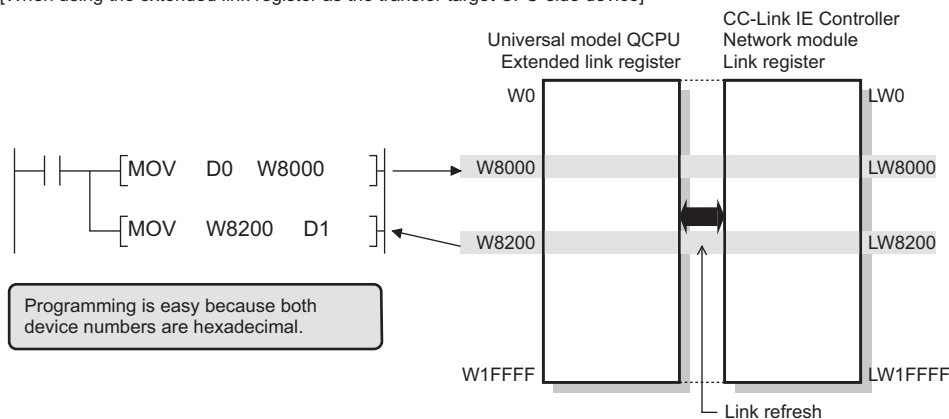
(d) Automatic data transfer between link devices and the devices of a CPU module (Link refresh)

Automatic transfer is available between link devices of the CC-Link IE Controller Network module and devices of a CPU module. ( Page 69, Section 4.1.3)

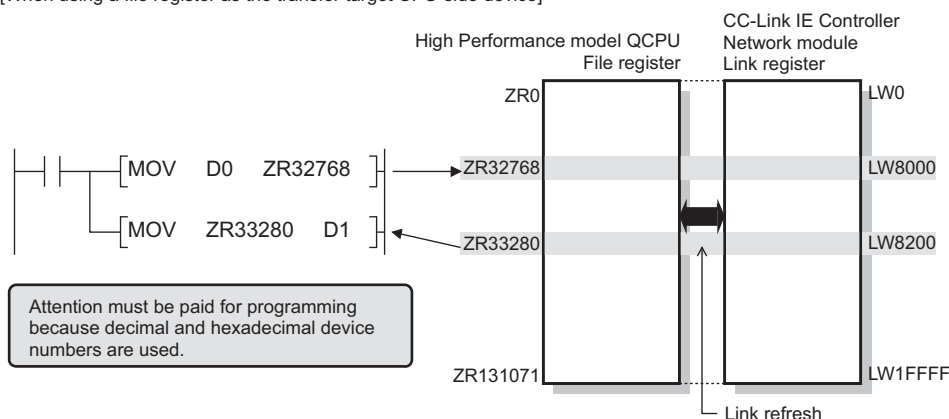
For the Universal model QCPU other than the Q00UJCPU, the extended link register (W) is useful for transferring link register (LW) data that exceeds the link register (W) capacity (8K points).^{*1}

- *1 Models other than the Universal model QCPU do not have the extended link register (W).
Use a file register instead.


[When using the extended link register as the transfer target CPU-side device]



[When using a file register as the transfer target CPU-side device]



(e) Direct access to link devices


With a sequence program, data can be directly read from or written to CC-Link IE Controller Network module's link devices (LB/LW/LX/LY/SB/SW). ( Page 70, Section 4.1.4)

For the Universal model QCPU, all of the link devices can be specified.^{*2}

- *2 For models other than the Universal model QCPU, the area of address LB/LW4000 or higher cannot be specified.


(f) Assurance of cyclic transmission punctuality

Cyclic transmission punctuality is assured even during transient transmission.

Applications can be created without the need to consider link scan time fluctuation. ( Page 80, Section 4.1.6)

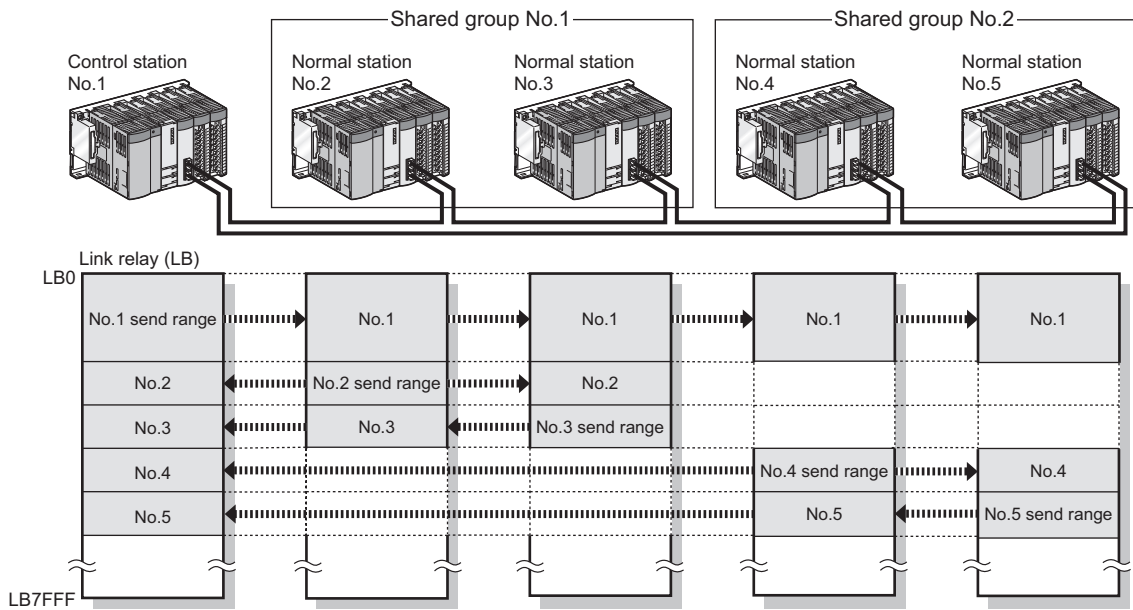
(g) Group cyclic transmission

Cyclic transmission can be performed only with specified stations.

A Universal model QCPU can share cyclic data with stations in the same shared group. ( Page 83, Section 4.1.8)

This function is useful, for example, when sharing data among all stations that integrates and controls production lines and not sharing the data with stations that controls other machines.

Also, receiving cyclic data only from any specific stations can reduce the number of link refresh points, resulting in a shorter link refresh time.

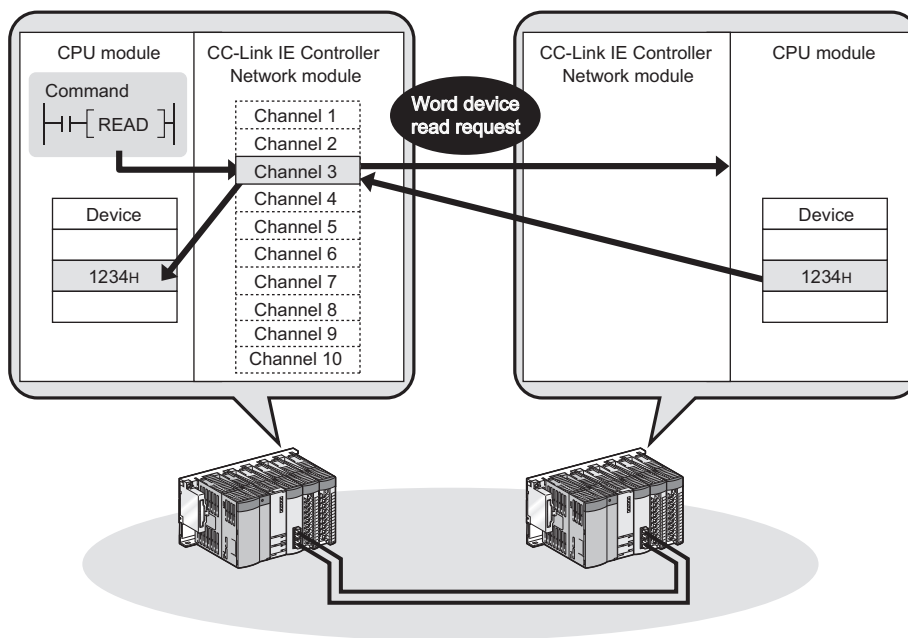


(2) Irregular communication (Transient transmission) (👉 Page 94, Section 4.2)

(a) Communications with a programmable controller on another station

Using a link dedicated instruction, data can be read from or written to a programmable controller on another station.

Communications with programmable controllers on other networks are also available.



(b) Large-volume data communications

By using link dedicated instructions (READ/SREAD/WRITE/SWRITE), large-volume data communications are achieved.

The instructions are useful for irregular and large-volume data communications.

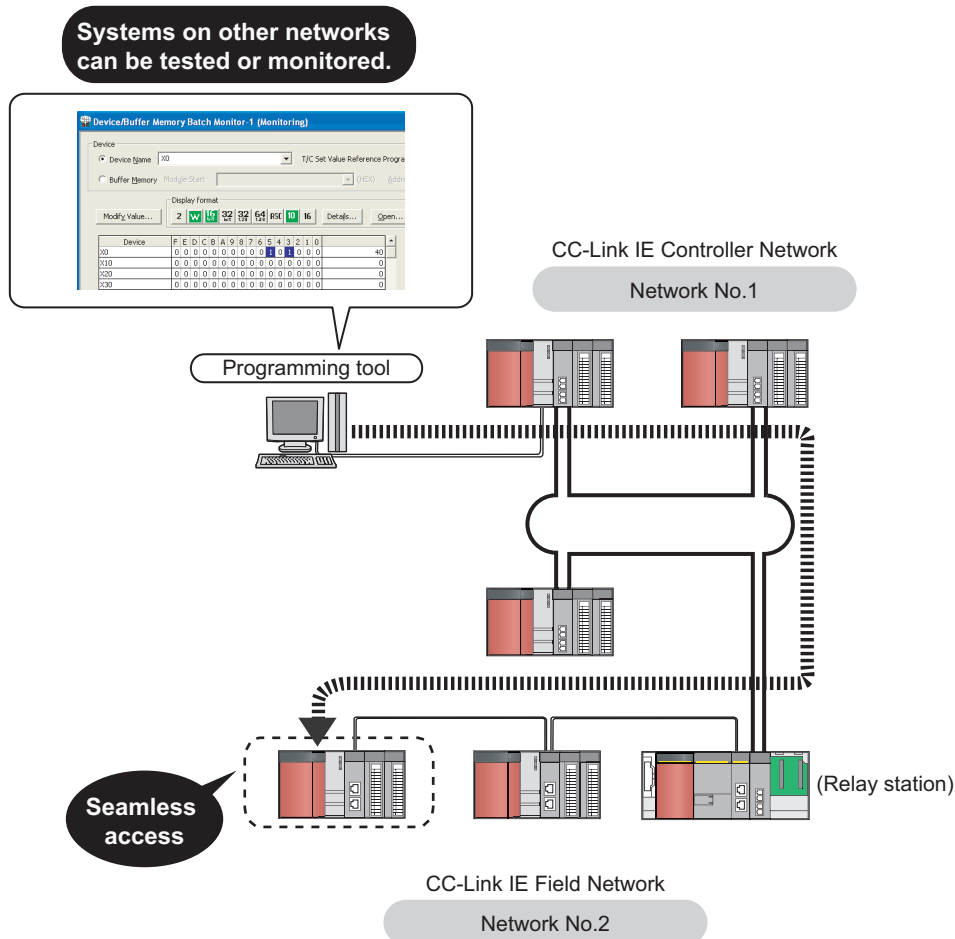
One link dedicated instruction execution can read or write data of up to 8192 words from/to a programmable controller on another station.

To specify 961 words or more, use channel 9 or 10 of the own station.

(c) Seamless access to different networks

The programming tool can execute seamless access through CC-Link IE Controller Network, achieving testing and monitoring to a system in a different network. Accessible network types are: Ethernet, CC-Link IE Field Network, MELSECNET/H, MELSECNET/10, and CC-Link.

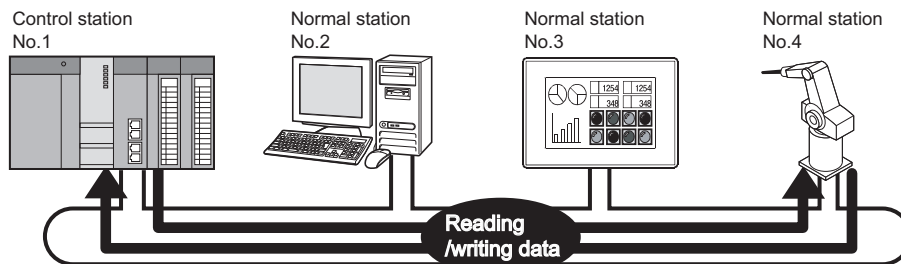
This enables access destinations to be changed without changing the wiring between a personal computer and programmable controllers.



(d) Communications with CC-Link IE Controller Network compatible devices

With a CC-Link dedicated instruction, data can be read from or written to CC-Link IE Controller Network compatible devices.

Transient requests can be also received from CC-Link IE Controller Network compatible devices.



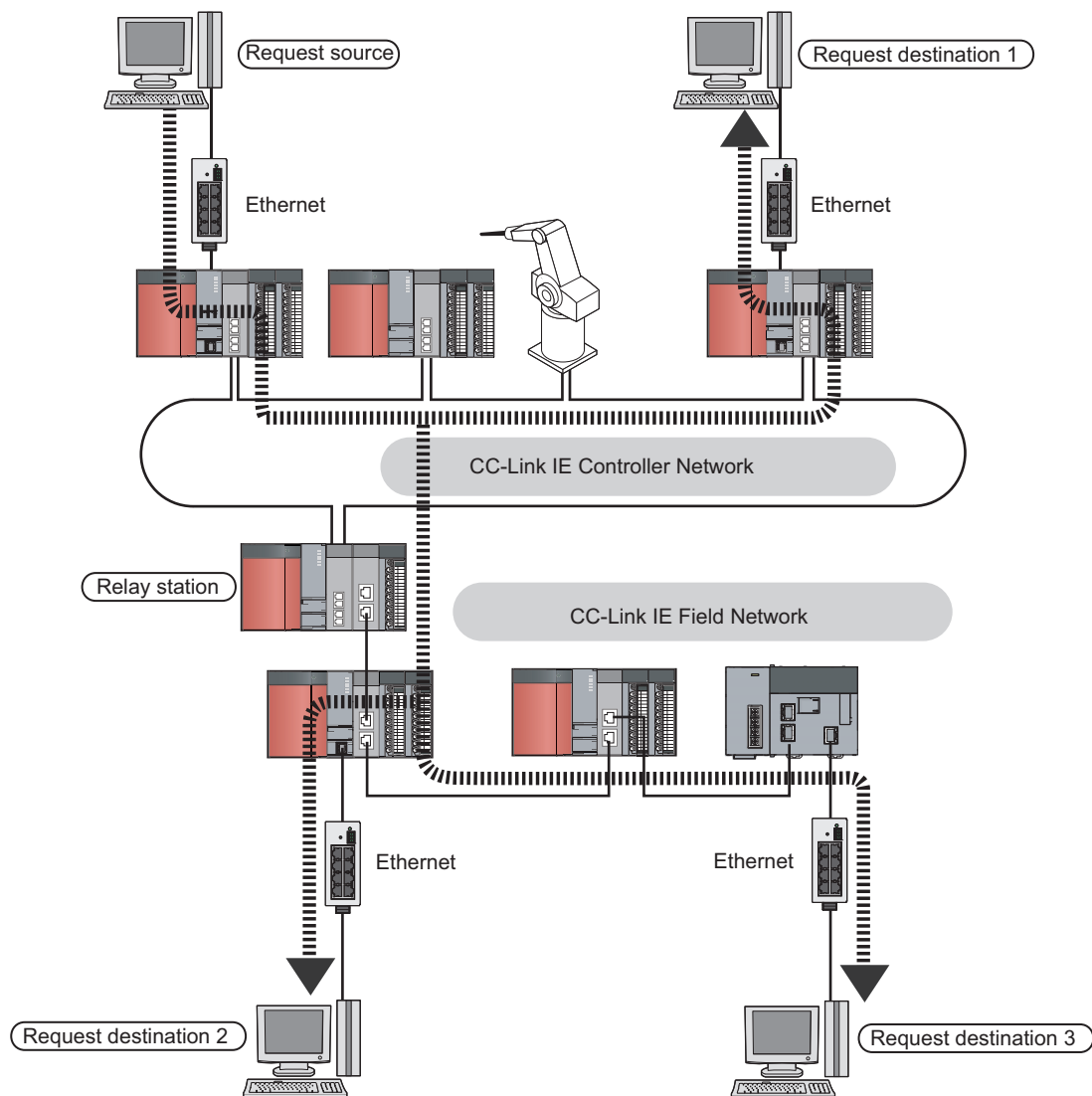
(3) Seamless communication to Ethernet devices

Communication using the specified IP address can be performed over CC-Link IE Controller Network. For example, a personal computer can communicate with the FTP server.

With this function, two networks of CC-Link IE Controller Network and Ethernet are not required, resulting in reducing the wiring cost. (☞ Page 106, Section 4.3)


In addition, communications using the specified IP address can be relayed from CC-Link IE Controller Network to a different network supporting the IP packet transfer function.

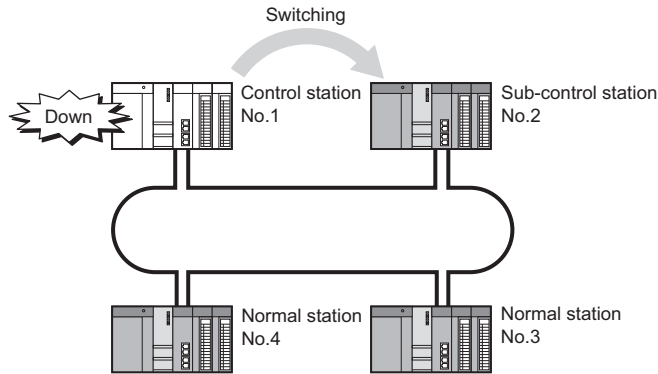
Ex. When relaying communications to CC-Link IE Field Network




(4) Enhanced RAS functions

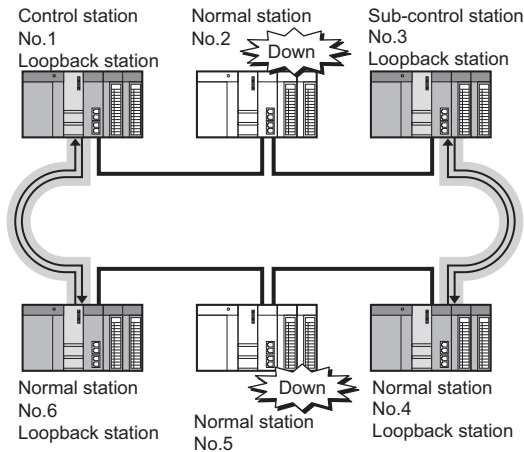
(a) Continuation of communications at system down of the control station

Even if the control station goes down, a normal station (sub-control station) will take over the control to continue data link. ( Page 124, Section 4.4.1)




(b) Disconnection of a faulty cable and station

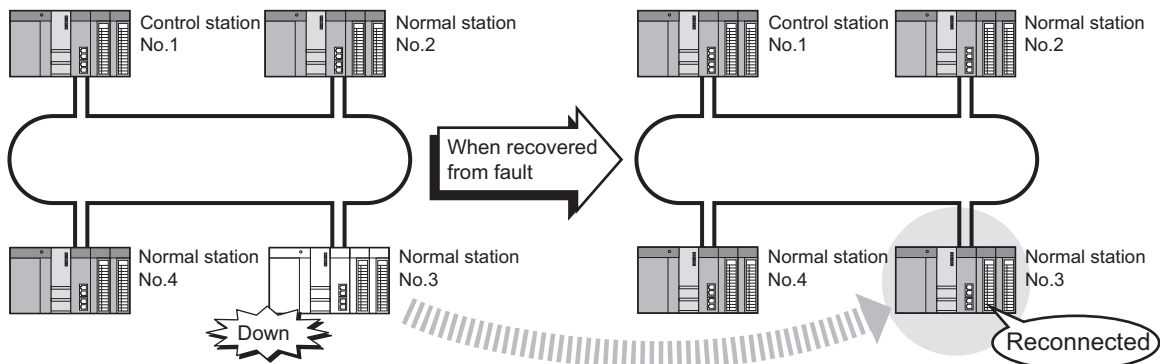
Any disconnected cable or faulty station can be isolated from the network, and data link can be continued among normally operating stations. ( Page 125, Section 4.4.2)



(c) When a disconnected station recovers from an error, the station is automatically reconnected to the network

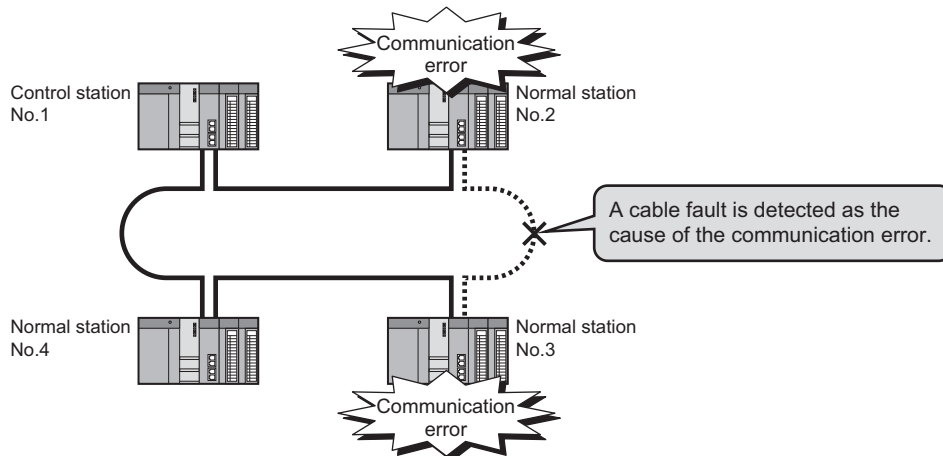
When a station disconnected from a network due to a data link error recovers from the error, the station is automatically reconnected to the network and restarts data link. ( Page 127, Section 4.4.3)

This automatic return does not affect data link.



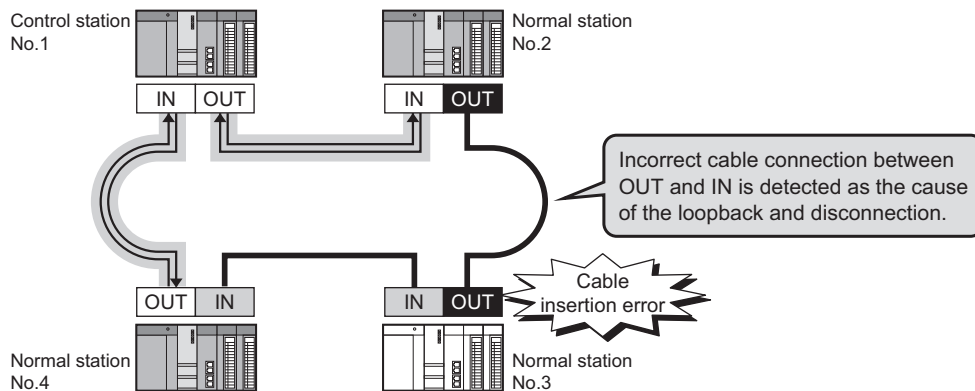
(d) Detection of a faulty cable

A cable fault can be detected as a cause of a communication error. (👉 Page 127, Section 4.4.4)



(e) Detection of a cable insertion error

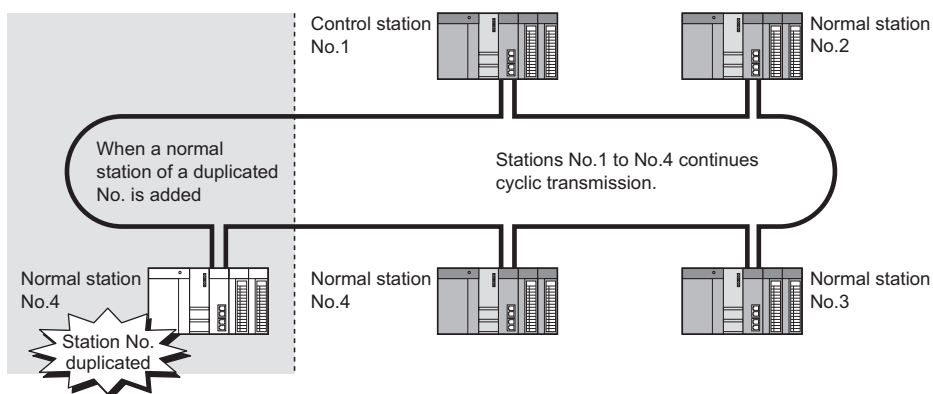
Incorrect cable connection between OUT and IN can be detected as a cause of loopback or disconnection from the network. (👉 Page 128, Section 4.4.5)




(f) Detection of a duplicated control station and duplicated station number

Duplication of the control station or station No. can be detected as a cause of loopback or disconnection from the network. (👉 Page 129, Section 4.4.6)

Ex. When a station is added to a network (Station No. duplication)

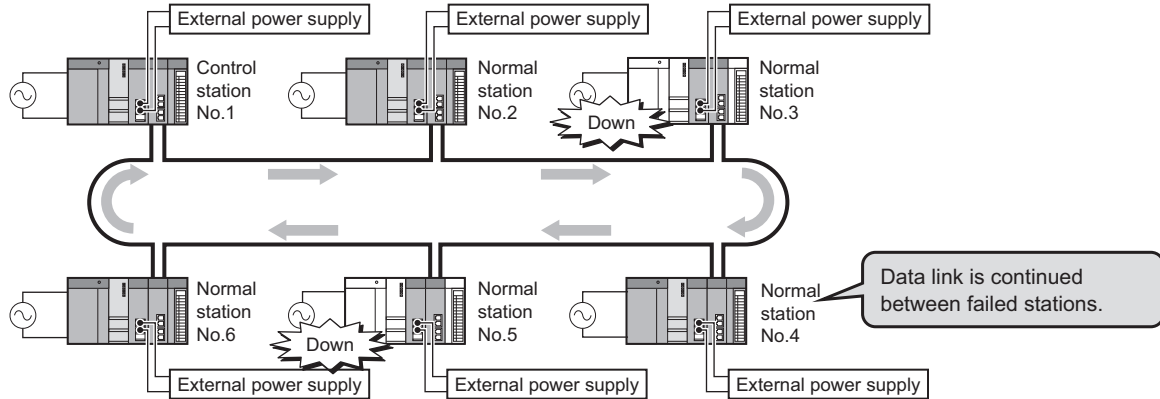


(g) Connection of an external power supply

The external power can be directly supplied to the CC-Link IE Controller Network module with external power supply function. ( Page 134, Section 4.4.7)

Even if a CPU module power goes down in a network, data link will be continued among normally operating stations without being disrupted at the power-down station. (Loopback does not occur.)

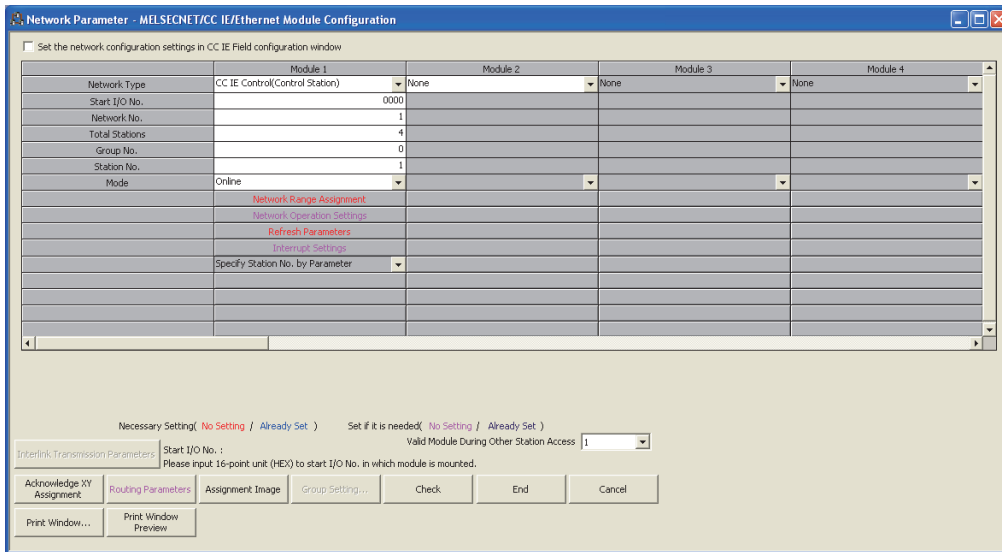
Data link is also continued between failed stations when power failure has occurred on CPU modules on multiple stations.



(5) Simple network parameter setting

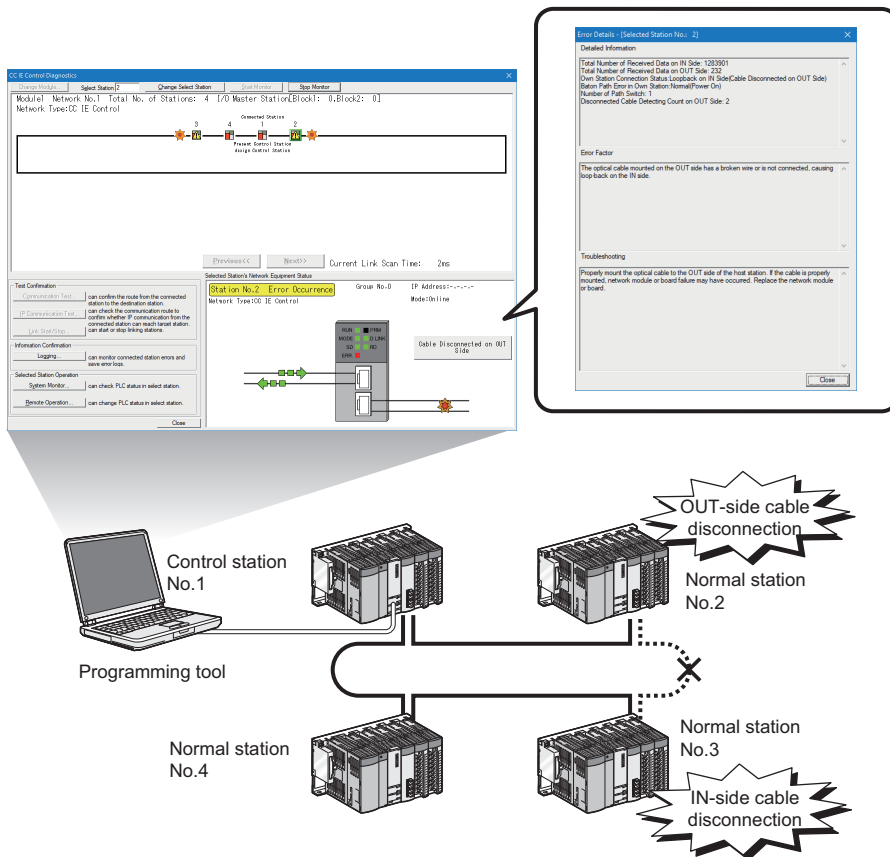
Network parameters required for network construction can be easily set up with the programming tool.

(👉 Page 177, CHAPTER 6)



(6) Network diagnostics

Network status and the operating status of stations can be checked by the CC IE Control diagnostics of the programming tool, enabling quick troubleshooting at system startup and during operation. (👉 Page 526, Section 10.3)



(7) Configuration of a redundant system (Compatibility with redundant CPUs)

(👉 Page 138, Section 4.7)

(a) Redundant system using CC-Link IE Controller Network modules

By mounting a CC-Link IE Controller Network module to each of base units with redundant CPUs, a redundant system can be configured.

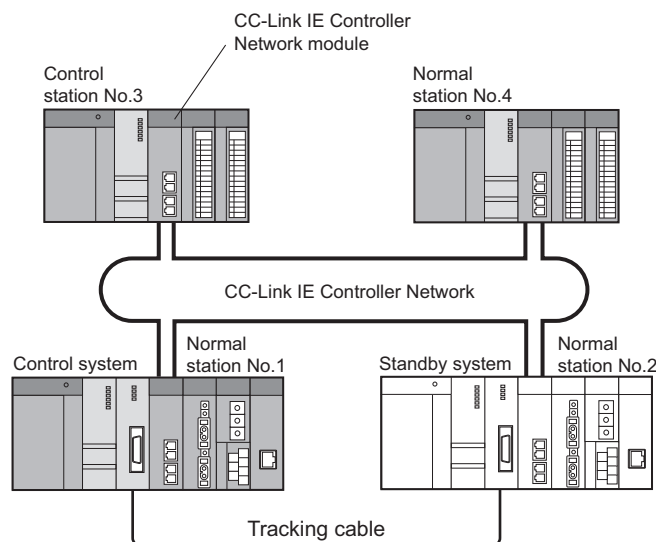
If an error occurs in the control system CPU or CC-Link IE Controller Network module, the control and standby systems will be switched each other, and the standby system will take over the system control and data link.

(b) System switching request to the control system CPU

When the CC-Link IE Controller Network module of the control system CPU detects a data link error, it can issue a system switching request to the control CPU.

(c) Transient transmission to a redundant system

With a link dedicated instruction or programming tool, device data can be read from or written to its own system, control/standby system, system A/B of a redundant system, and remote RUN/STOP can be controlled. By specifying the target station's CPU type to Control or Standby system, the target can be fixed even if a system switching occurs.

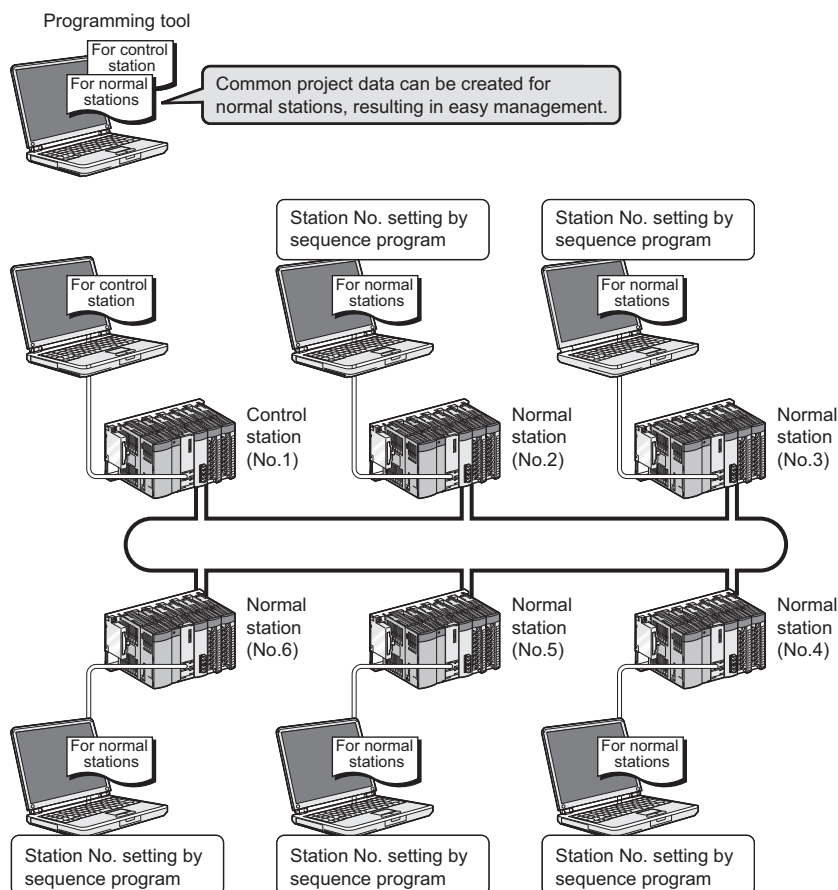


(8) Project data common to normal stations

For Universal model QCPUs, the station No. of a normal station (own station) can be set in the sequence program.*1

If there are any normal stations that can share the same sequence program and network parameters (except for station No.), specifying their station numbers in the sequence program creates common project data for them, allowing easy data management. (👉 Page 136, Section 4.6)

*1 For modules other than Universal model QCPUs, station No. cannot be set in sequence programs. Station Nos. must be set with network parameters.



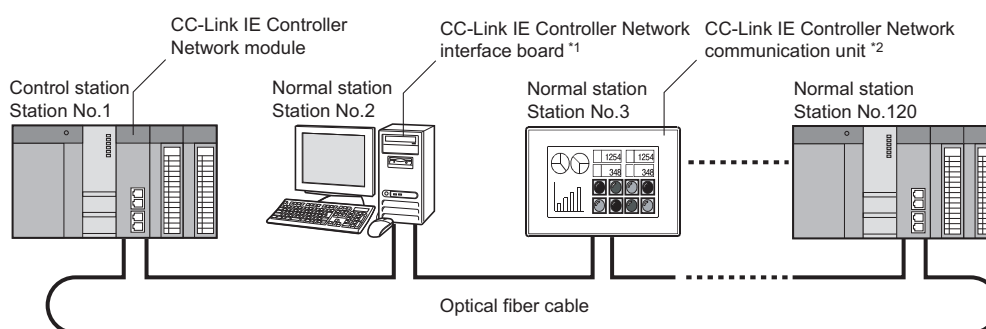
CHAPTER 2 SYSTEM CONFIGURATION

This chapter describes system configurations for the CC-Link IE Controller Network module.

2.1 CC-Link IE Controller Network Configurations

2.1.1 Single network system

The single network system is a system that consists of a control station and normal stations, which are connected with optical fiber cables.



*1 A personal computer equipped with a CC-Link IE Controller Network interface board can be connected as a control or normal station of the CC-Link IE Controller Network.

For details on CC-Link IE Controller Network interface board, refer to the following.

CC-Link IE Controller Network interface board User's Manual

*2 By connecting a CC-Link IE Controller Network module to a GOT, the GOT can be connected to the CC-Link IE Controller Network as a normal station.

For details on the CC-Link IE Controller Network communication unit, refer to the following.

GT16 User's Manual (Hardware)

GT15 User's Manual

Point

One network (of the same network No.) cannot contain both CC-Link IE Controller Network and MELSECNET/H modules. (Different networks must be used.)

- CC-Link IE Controller Network module: Used for CC-Link IE Controller Network
- MELSECNET/H module: Used for MELSECNET/H or MELSECNET/10

(1) When Universal model QCPU is used for control station

Up to 120 stations including one control station and 119 normal stations can be connected. (One control station is needed for a single network.)

Item		Basic model QCPU Safety CPU	High Performance model QCPU Process CPU Redundant CPU	Universal model QCPU
Network type		Normal station		Control station and normal station
Station No.		Station No.1 to 64		Station No.1 to 120
Link device range	Link relay (LB) ^{*1}	LB0 to 3FFF	LB0 to 7FFF	
	Link register (LW) ^{*1}	LW0 to 3FFF	LW0 to 1FFFF	
	Link input (LY) ^{*2}	LX0 to 1FFF		
	Link output (LY)	LY0 to 1FFF		
	Link special relay (SB)	SB0 to 1FF		
	Link special register (SW)	SW0 to 1FF		

*1 The receive range for other station's data varies depending on the CPU module. (☞ Page 65, Section 4.1.1 (5))

*2 The receive range for other station's data varies depending on the CPU module. (☞ Page 68, Section 4.1.2 (5))

(2) When other than Universal model QCPU is used for control station

Up to 64 stations including one control station and 63 normal stations can be connected. (One control station is needed for a single network.)

Item		Basic model QCPU Safety CPU	High Performance model QCPU Process CPU Redundant CPU	Universal model QCPU
Network type		Normal station ^{*3}	Control station and normal station	Normal station
Station No.		Station No.1 to 64		
Link device range	Link relay (LB) ^{*1}	LB0 to 3FFF	LB0 to 7FFF	
	Link register (LW) ^{*1}	LW0 to 3FFF	LW0 to 1FFFF	
	Link input (LY) ^{*2}	LX0 to 1FFF		
	Link output (LY)	LY0 to 1FFF		
	Link special relay (SB)	SB0 to 1FF		
	Link special register (SW)	SW0 to 1FF		


*1 The receive range for other station's data varies depending on the CPU module. (☞ Page 65, Section 4.1.1 (5))

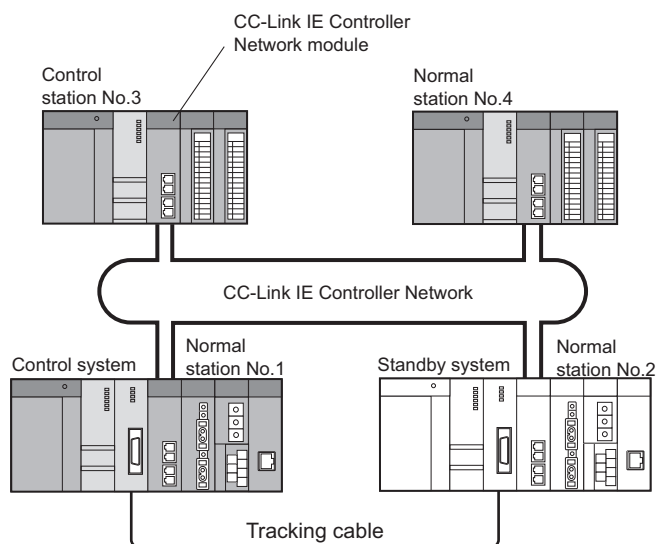
*2 The receive range for other station's data varies depending on the CPU module. (☞ Page 68, Section 4.1.2 (5))

*3 A station with a Basic model QCPU or safety CPU operates as a normal station. (It cannot be set to a control station.)

2.1.2 Redundant system

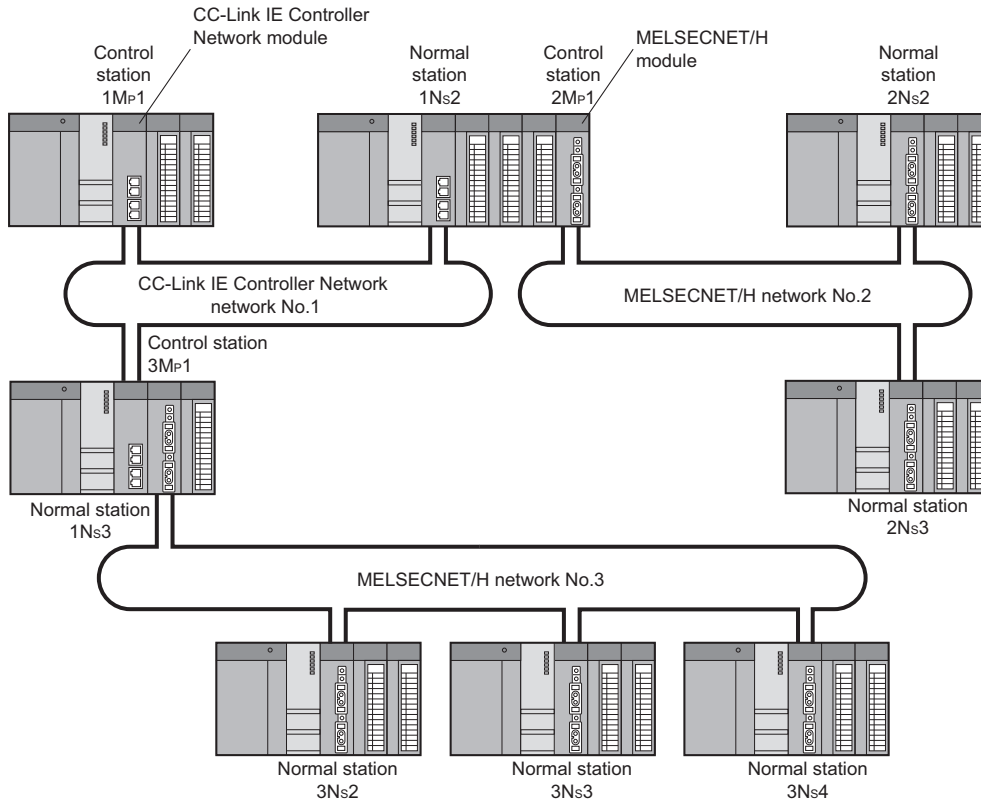
A redundant system is a system in which a basic system including a CPU module, a power supply module, a network module is backed up with the other system.

By mounting a CC-Link IE Controller Network module to each main base unit of a redundant CPU, two CC-Link IE Controller Network modules can be used in a redundant system. ( Page 138, Section 4.7)



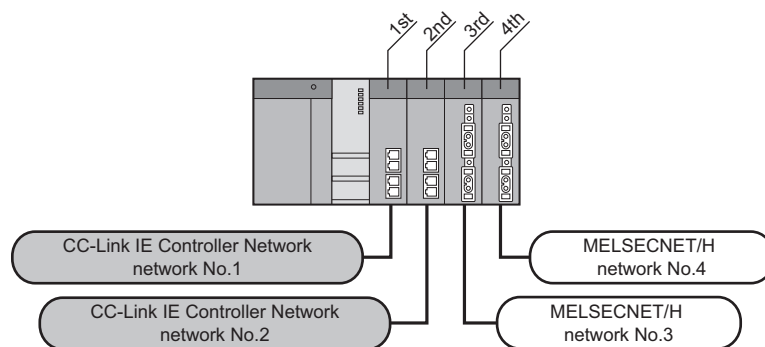
2.1.3 Multi-network system

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



Regardless of single or multiple CPU system, one system can contain up to four CC-Link IE Controller Network modules (up to four including MELSECNET/H module(s)).*1

*1 Depending on the CPU module to be used, there are restrictions on the number of modules that can be installed to one system. (☞ Page 40, Section 2.3)



2.2 Network Components

The CC-Link IE Controller Network consists of the following.

2.2.1 Order of optical fiber cables (Optional)

Optical fiber cables with connectors are available from Mitsubishi Electric System & Service Co., Ltd. (Catalogs of the optical fiber cables are also available.)

In addition, on-site connector polishing, terminal assembly, and fusion splicing is available.

Please consult your local Mitsubishi representative.

Type	Model (Manufacturer)
Multimode fiber (GI)	QG series (Mitsubishi Electric System & Service Co., Ltd.)

Point

- For CC-Link IE Controller Network modules, 2-core cables are used.
 - Optical fiber cables used for MELSECNET/H modules or MELSECNET/10 modules cannot be used for CC-Link IE Controller Network modules.
-

Remark

- The following types of optical fiber cables are available.
A type: Cable for connection inside control panel
B type: Cable for connection between control panels inside a building
C type: Cable for outdoor connection
D type: Reinforced cable for outdoor connection
 - There are special cables available for moveable applications and resistance to heat. Contact your Mitsubishi Electric System & Service for details.
-

2.2.2 CC-Link IE Controller Network interface board


The CC-Link IE Controller Network interface boards designed for use in a personal computer are shown below. For details on the CC-Link IE Controller Network interface boards, refer to the following.

 CC-Link IE Controller Network interface board User's Manual

Model	Product name	Network type
Q80BD-J71GP21-SX	Q80BD-J71GP21-SX CC-Link IE Controller Network interface board	CC IE Control (Control station) CC IE Control (Normal station) CC IE Control Ext. Mode (Control station) CC IE Control Ext. Mode (Normal station)
Q80BD-J71GP21S-SX	Q80BD-J71GP21S-SX CC-Link IE Controller Network interface board (with external power supply function)	
Q81BD-J71GP21-SX	Q81BD-J71GP21-SX CC-Link IE Controller Network interface board	
Q81BD-J71GP21S-SX	Q81BD-J71GP21S-SX CC-Link IE Controller Network interface board (with external power supply function)	

2.2.3 CC-Link IE Controller Network communication unit

The CC-Link IE Controller Network communication unit used for the GOT is shown below. For details on the CC-Link IE Controller Network communication unit, refer to the following.

 GT16 User's Manual (Hardware)

 GT15 User's Manual

Model	Product name	Network type
GT15-J71GP23-SX	CC-Link IE Controller Network communication unit	CC IE Control (Normal station)

2.3 Applicable Systems

This section describes the applicable systems.


The number of mountable modules represents the maximum number of CC-Link IE Controller Network modules that can be used together with MELSECNET/H modules.

(1) Applicable modules and base units, and No. of modules

(a) When mounted with a CPU module

For the CPU modules, the number of modules, and base units applicable to the CC-Link IE Controller Network module, refer to the user's manual for the CPU module used.

Note the following when the CC-Link IE Controller Network module is mounted with a CPU module.

- Available functions differ depending on the serial number of the CPU module. ( Page 606, Appendix 3)
- For use with a High Performance model QCPU or Process CPU when total number of stations in a network is 65 or more: Use a CC-Link IE Controller Network module whose serial No. (first five digits) is 09042 or later.
- Depending on the combination with other modules or the number of mounted modules, power supply capacity may be insufficient. Pay attention to the power supply capacity before mounting modules, and if the power supply capacity is insufficient, change the combination of the modules.
- Mount a module within the number of I/O points for the CPU module. If the number of slots is within the available range, the module can be mounted on any slot.

Remark


When the module is used with a C Controller module, refer to the user's manual for the C Controller module.

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

The CC-Link IE Controller Network module cannot be mounted to any MELSECNET/H remote I/O station. Mount it to a CPU module on a master station.

(2) Support of the multiple CPU system

When using the CC-Link IE Controller Network module in the multiple CPU system, refer to the following first.

 QCPU User's Manual (Multiple CPU System)

(a) Applicable CC-Link IE Controller Network module

The function version of the CC-Link IE Controller Network module has been "B" from the first release and it supports the multiple CPU system.

(b) Network parameters

Network parameters must be set to the control CPU of the CC-Link IE Controller Network module.

(3) Software package

Systems using the CC-Link IE Controller Network module and software package are shown below.
To use the CC-Link IE Controller Network module, the programming tool is required.

System configuration		Programming tool version ^{*1}	
		GX Developer	GX Works2
Q00J/Q00/Q01CPU	Single CPU system	Version 8.68W or later	Refer to the GX Works2 Version 1 Operating Manual (Common).
	Multiple CPU system		
Q02/Q02H/Q06H/Q12H/Q25HCPU	Single CPU system	Version 8.45X or later ^{*2}	
	Multiple CPU system		
Q02PH/Q06PH/Q12PH/Q25PHCPU	Single CPU system	Version 8.68W or later	
	Multiple CPU system		
Q12PRH/Q25PRHCPU	Redundant system	Version 8.68W or later	
Q00UJ/Q00U/Q01UCPU	Single CPU system	Version 8.76E or later	
	Multiple CPU system		
Q02U/Q03UD/Q04UDH/Q06UDHCPU	Single CPU system	Version 8.48A or later ^{*2}	
	Multiple CPU system		
Q10UDH/Q20UDHCPU	Single CPU system	Version 8.76E or later	
	Multiple CPU system		
Q13UDH/Q26UDHCPU	Single CPU system	Version 8.62Q or later	
	Multiple CPU system		
Q03UDE/Q04UDEH/Q06UDEH/Q13UDEH/Q26UDEHCPU	Single CPU system	Version 8.68W or later	
	Multiple CPU system		
Q10UDEH/Q20UDEHCPU	Single CPU system	Version 8.76E or later	
	Multiple CPU system		
QS001CPU	Single CPU system	Version 8.65T or later	
CPU modules other than the above	Single CPU system	Not available	
	Multiple CPU system		

*1 Available functions differ depending on the version of the programming tool. (☞ Page 606, Appendix 3)

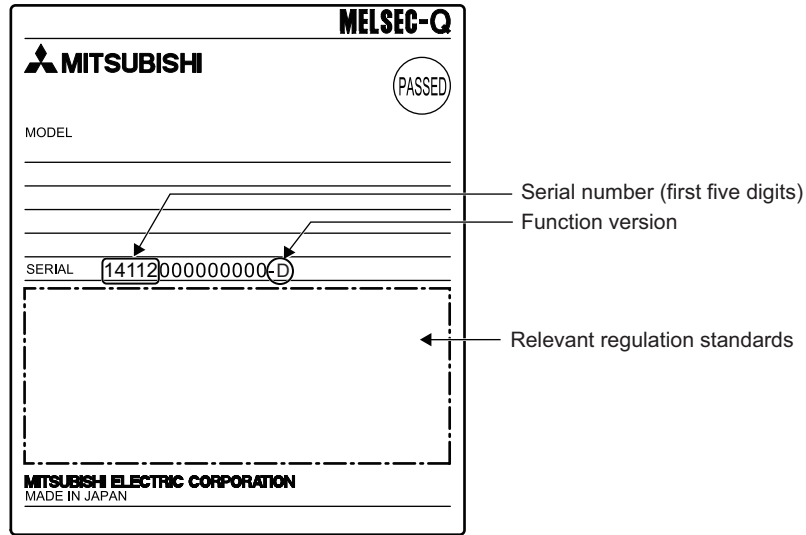
*2 When using a GX Developer Version earlier than 8.68W, please interpret the description of "MELSECNET/G" as "CC-Link IE Controller Network".

2.4 Checking the Function Version and Serial No.

The serial No. and function version of the CC-Link IE Controller Network module can be confirmed on the rating plate and the system monitor of a programming tool.

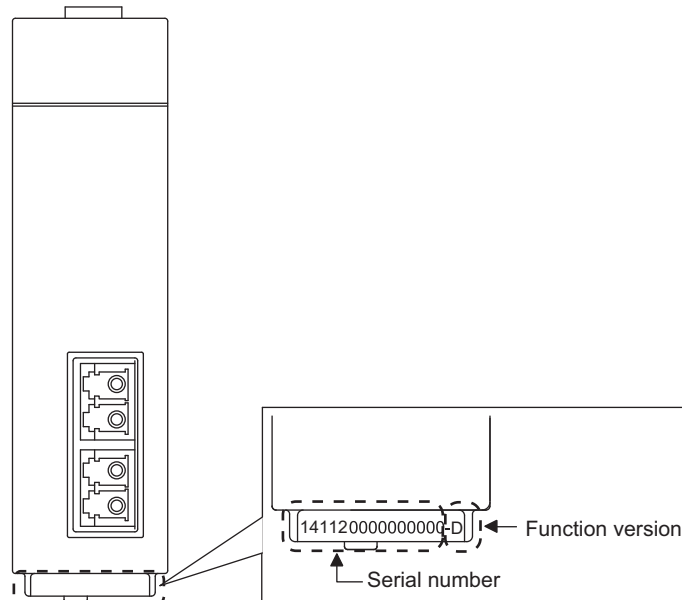
(1) Confirming the serial number on the rating plate

The rating plate is situated on the side face of the module.




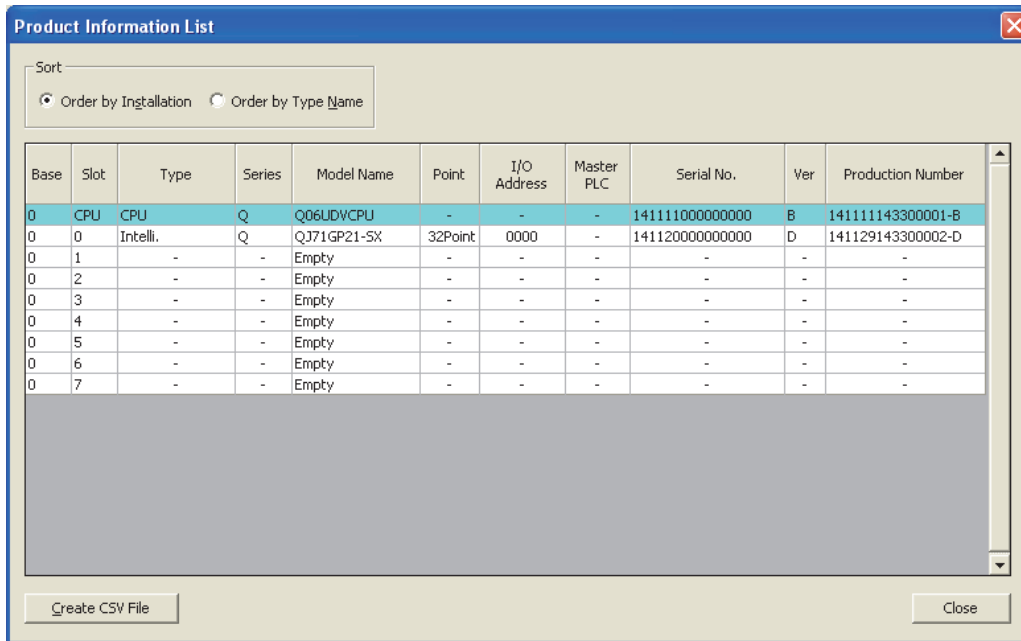
(2) Checking on the front of the module

The serial No. and function version on the rating plate are also indicated on the front of the module (lower part).



(3) Confirming the serial number on the system monitor (Product Information List)


To display the system monitor, select [Diagnostics] ⇨ [System Monitor] and click the  button in the programming tool.



In the "Product No." column, a serial No. (product No.) and function version are displayed.*1*2

However, for a module that does not have the Product No. display function, "-" is displayed.

*1 The "Product No." column appears only when the CPU module is a Universal model QCPU.

*2 Check the corresponding serial No. and software version. ( Page 606, Appendix 3)


Point

The serial No. described on the rated plate and the front of the module may not match with the serial No. displayed on the system monitor (Product Information List).

- The serial No. on the rated plate and the front of the module describes the management information of the product.
 - The serial No. displayed in the Product Information List of the programming tool describes the function information of the product.
- The function information of the product is updated when adding functions.


CHAPTER 3 SPECIFICATIONS

This chapter describes the performance specifications and function lists of the CC-Link IE Controller Network module. For general specifications, refer to the following.

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

3.1 Performance Specifications

The performance specifications of the CC-Link IE Controller Network module are shown below.

Item		Specification	
		QJ71GP21-SX	QJ71GP21S-SX
Max. number of link points per network	LB	32K points (32768 points, 4KB) (Basic model QCPU or safety CPU: 16K points (16384 points, 2KB))	
	LW	128K points (131072 points, 256KB) (Basic model QCPU or safety CPU: 16K points (16384 points, 32KB))	
	LX	8K points (8192 points, 1KB)	
	LY	8K points (8192 points, 1KB)	
Max. number of link points per station	LB	16K points (16384 points, 2KB)	
		For the extended mode: 32K points (32768 points, 4KB)	
	LW	16K points (16384 points, 32KB)	
		For the extended mode: 128K points (131072 points, 256KB)	
LX	8K points (8192 points, 1KB)		
LY	8K points (8192 points, 1KB)		
Transient transmission capacity		Up to 1920 bytes	
Communication speed		1Gbps	
Number of stations per network		When Universal model QCPU is used for control station: 120 (Control station: 1, Normal station: 119)* ¹ When any other than Universal model QCPU is used for control station: 64 (Control station: 1, Normal station: 63)* ²	
Connection cable		Optical fiber cable (Multimode fiber) ( Page 38, Section 2.2.1)	
Overall cable distance		66000m (When 120 stations are connected)	
Station-to-station distance (Max.)		550m (Core/Clad = 50/125 (μm))	
Max. number of networks		239	
Max. number of groups		32	
Transmission path		Duplex loop	
Optical fiber specifications		1000BASE-SX(MMF) optical fiber cable	
	Standard	IEC60793-2-10 Types A1a.1(50/125μm multimode)	
	Transmission loss (max.)	3.5 (dB/km) or less (λ = 850nm)	
	Transmission band (min.)	500 (MHz•km) or more (λ = 850nm)	
Connector specifications		Duplex LC connector	
	Standard	IEC61754-20: Type LC connector	
	Connection loss	0.3 (dB) or less	
	Polished surface	PC (Physical Contact) polishing	

Item	Specification		
	QJ71GP21-SX	QJ71GP21S-SX	
Laser class (IEC 60825-1)	Class 1 laser product		
Number of occupied I/O points	32 (Intelli.: 32 points) ^{*3}	48 (I/O assignment: Empty first half: 16 points, Latter half: 32 points for intelli.) ^{*3*4}	
External power supply	No external power supply function	Voltage	20.4V to 31.2V DC
		Current	0.28A
		Terminal screw size	M3
		Applicable solderless terminal	R1.25-3
		Applicable wire size	0.3 to 1.25mm ²
		Tightening torque	0.42 to 0.58N•m
		Allowable momentary power failure time	1ms (Level PS1)
		Noise immunity	By noise simulator of 500Vp-p noise voltage, 1μs noise width, and 25 to 60Hz noise frequency
Internal current consumption (5V DC)	0.85A	0.90A	
External dimensions	98 (H) × 27.4 (W) × 90 (D) [mm]	98 (H) × 55.2 (W) × 90 (D) [mm]	
Weight	0.18kg	0.28kg	

*1 A Universal model QCPU can be set to a station No. within the range of No.1 to No.120.

For a module other than Universal model QCPUs, station No.1 to No.64 can be set.

*2 A station with a Basic model QCPU or safety CPU operates as a normal station. (It cannot be set to a control station.)

*3 All I/O signals of the CC-Link IE Controller Network module are used by the system. (Use prohibited)

*4 Two I/O slots are occupied.

In the Start I/O No. field of Network parameter, set a value obtained by adding 10_H to the I/O No. of the module-installed slot. Note that 0 point can be set instead of 16 points for the first half in I/O assignment of PLC parameter.

Ex. When the module is installed to slot 0, set 10_H to the start I/O number.

(When setting 0 points for the slot 0 by I/O assignment setting, set 0_H for the start I/O number.)

3.2 Function Lists

Functions of the CC-Link IE Controller Network module are listed below.

(1) List of cyclic transmission functions

- | | |
|--------------------------------|-------------------------|
| 1) Safety CPU | 4) Process CPU |
| 2) Basic model QCPU | 5) Redundant CPU |
| 3) High Performance model QCPU | 6) Universal model QCPU |

Function	Description	CPU module						Reference section
		1)	2)	3)	4)	5)	6)	
Communication using LB/LW	Allows each station to write data to its own send range area of a link device (LB/LW) to send them to all other stations on the network.	*1 *2 △	*1 *2 △	*1 △	*1 △	*1 △	○	Page 61, Section 4.1.1
	Additional LB/LW setting (LB/LW settings (2))	×	×	○	○	○	○	Page 185, Section 6.3.1
	Send points extension	×	×	×	×	×	○	Page 180, Section 6.2
Communication using LX/LY		○	○	○	○	○	○	Page 66, Section 4.1.2
Refresh	Link refresh	○	○	○	○	○	○	Page 69, Section 4.1.3
	Direct access to link devices	×	*3 △	*3 △	*3 △	*3 △	○	Page 70, Section 4.1.4
Assurance of cyclic data integrity		○	○	○	○	○	○	Page 76, Section 4.1.5
Cyclic transmission punctuality assurance	Cyclic transmission punctuality assurance	○	○	○	○	○	○	Page 80, Section 4.1.6
	Constant link scan	○	○	○	○	○	○	Page 82, Section 4.1.7
Group cyclic transmission		×	×	×	×	×	○	Page 83, Section 4.1.8
Increase of send points by mounting multiple network modules of the same network No.		×	×	○	○	○	*4 △	Page 84, Section 4.1.9
Reserved station specification		○	○	○	○	○	○	Page 88, Section 4.1.10
Interlink transmission		×	×	○	○	○	*4 △	Page 89, Section 4.1.11

Function		Description	CPU module						Reference section
			1)	2)	3)	4)	5)	6)	
Online operation	Stop/restart of cyclic transmission	Disables receiving data from other stations and sending data of its own station in a case such as debugging. (Transient transmission is not stopped.)	○	○	○	○	○	○	Page 91, Section 4.1.12

○: Available, △: Partially available, ×: N/A

- *1 Data of station No.65 and higher in other stations cannot be received.
- *2 Cyclic data are sent to or received from the stations whose own send ranges are assigned to LB/LW 0 to 3FFF in "LB/LW Setting(1)".
- *3 Direct access to LB/LW4000 and higher is not allowed.
- *4 The function is not available in the Q00UJCPU, Q00UCPU, or Q01UCPU.

(2) List of transient transmission functions

- 1) Safety CPU
- 2) Basic model QCPU
- 3) High Performance model QCPU
- 4) Process CPU
- 5) Redundant CPU
- 6) Universal model QCPU

Function		Description	CPU module						Reference section
			1)	2)	3)	4)	5)	6)	
Link dedicated instruction	Read from/write to other station devices (for Q/QnA series)	Reads or writes data from or to devices of a programmable controller on another station. (READ/SREAD/WRITE/SWRITE instruction)	*1 *2 *3 △	*1 △	*1 △	*1 △	*1 △	○	Page 97, Section 4.2.1 Page 324, CHAPTER 9
	Transient request to another station (for Q/QnA series)	Remotely runs or stops a programmable controller on another station. (REQ instruction)	×	*1 △	*1 △	*1 △	*1 △	○	
		Reads or writes clock data from or to a programmable controller on another station. (REQ instruction)	*1 *2 △	*1 △	*1 △	*1 △	*1 △	○	
	Data send/receive (for Q/QnA series)	Sends data to a programmable controller on another station. (SEND instruction) Reads data received from a programmable controller on another station. (RECV/RECVS instruction)	×	*1 △	*1 △	*1 △	*1 △	○	
			Read from/write to other station devices (For A series)	×	*7 △	*7 △	*7 △	*7 △		*7 △
		Remote RUN/STOP (For Q series)	Remotely run or stop a programmable controller on another station. (RRUN/RSTOP instruction)	×	*1 △	*1 △	*1 △	*1 △	
	Read/write of another station's clock data (For Q series)	Reads or writes clock data from or to a programmable controller on another station. (RTMRD/RTMWR instruction)	*1 *2 △	*1 △	*1 △	*1 △	*1 △	○	
CC-Link dedicated instruction	Read/write of another station's data	Reads or writes the specified points of data from the target station's device. (RIRD/RIWT instruction)	*5 ×	○	○	○	○	○	
Access to other stations with a programming tool		With a programming tool allows seamless access to the Ethernet, CC-Link IE Controller Network, MELSECNET/H, MELSECNET/10, CC-Link IE Field Network, and CC-Link systems.	*1 *4 △	*1 △	*1 △	*1 △	*1 △	○	Page 97, Section 4.2
Group		By specifying transient transmission target stations as a group, data can be sent to all stations of the same group No.	○	○	○	○	○	○	Page 102, Section 4.2.2
Routing		Allows transient transmissions to stations located on other networks in a multi-network system.	*6 △	*6 △	*6 △	*6 △	*6 △	○	Page 103, Section 4.2.3

Function	Description	CPU module						Reference section
		1)	2)	3)	4)	5)	6)	
Clock setting with a programming tool	With a programming tool, the clock of the CPU module that is connected to the network can be set up.	○	○	○	○	○	○	Page 104, Section 4.2.4
Changing No. of transient transmissions	The number of transient transmissions that one station can execute during one link scan can be changed.	○	○	○	○	○	○	Page 105, Section 4.2.5

○ : Available, △ : Partially available, × : N/A

- *1 Station No.65 or higher cannot be specified as a target station.
- *2 Writing from another station to a safety CPU is not allowed.
- *3 For the read/write data length, 961 words or more cannot be specified.
Channel 9 or 10 cannot be specified as a channel used by the own station.
- *4 If the request source is a safety CPU, other stations are not accessible.
- *5 If the request source is a safety CPU, the RIRD/RIWT instructions cannot be executed; however, other stations where a CPU other than a safety CPU is used can read data using the RIRD instruction.
- *6 Station No.65 or higher cannot be specified as a relay target station.
- *7 When the target station is an A2UCPU(S1), A3UCPU, A4UCPU, A2ASCPU(S1), or A2USCPU(S1), use the CPU module with the following version or later.
 - A2UCPU(S1), A3UCPU, A4UCPU: Version AY (manufactured since July, 1995) or later
 - A2ASCPU(S1), A2USCPU(S1): Version CP (manufactured since July, 1995) or later

(3) List of RAS functions

- 1) Safety CPU
 2) Basic model QCPU
 3) High Performance model QCPU
 4) Process CPU
 5) Redundant CPU
 6) Universal model QCPU

Function	Description	CPU module						Reference section
		1)	2)	3)	4)	5)	6)	
Control station switching	Even if the control station goes down, a normal station (sub-control station) takes over the control to continue data link.	○	○	○	○	○	○	Page 124, Section 4.4.1
Loopback	Any disconnected cable or faulty station is isolated from the network, and data link can be continued among normally operating stations.	○	○	○	○	○	○	Page 125, Section 4.4.2
Automatic return	When a station disconnected from a network due to a data link error recovers from the error, the station is automatically reconnected to the network and restarts data link.	○	○	○	○	○	○	Page 127, Section 4.4.3
Cable fault detection	A cable fault can be detected as a cause of a communication error.	○	○	○	○	○	○	Page 127, Section 4.4.4
Cable insertion error detection	Incorrect cable connection between OUT and IN can be detected as a cause of loopback or disconnection from the network.	○	○	○	○	○	○	Page 128, Section 4.4.5
Detection of duplicated control station or station No.	Duplication of the control station or station No. can be detected as a cause of loopback or disconnection from the network.	○	○	○	○	○	○	Page 129, Section 4.4.6
External power supply	The external power can be directly supplied to the CC-Link IE Controller Network module with external power supply function.	○	○	○	○	○	○	Page 134, Section 4.4.7
Detection of time of transient transmission error completion	The time at which a transient transmission by a link dedicated instruction failed can be detected, and network No. and station No. of the station where the error is detected can be confirmed.	○	○	○	○	○	○	Page 324, CHAPTER 9
Transient transmission in the case of a CPU module error	Transient transmission can be performed to another station even if an error has occurred in the CPU module of the station.	○	○	○	○	○	○	—


○: Available, △: Partially available, ×: N/A

(4) List of diagnostic functions

- 1) Safety CPU
 2) Basic model QCPU
 3) High Performance model QCPU
 4) Process CPU
 5) Redundant CPU
 6) Universal model QCPU

Function		Description	CPU module						Reference section
			1)	2)	3)	4)	5)	6)	
Module itself	Hardware test	Checks the hardware inside the CC-Link IE Controller Network module.	○	○	○	○	○	○	Page 152, Section 5.4.1
	Self-loopback test	Checks the hardware of the communication circuit of the CC-Link IE Controller Network module.	○	○	○	○	○	○	Page 157, Section 5.4.2
At system startup	Circuit test	Checks the network cable connection status, line status, and each station's parameter setting status from the control station.	○	○	○	○	○	○	Page 165, Section 5.6.1
	Station-to-station test	Checks the condition of the cable connected between two stations (from OUT of the executing station to IN of the other station.)	○	○	○	○	○	○	Page 169, Section 5.6.2
Before system operation	Communication test	Checks if transient transmission data can be properly routed from the own station to the communication target.	○	○	○	○	○	○	Page 174, Section 5.7.1
	IP communication test	Checks whether there is an error in the communication route when the IP packet transfer function is used.	×	×	×	×	×	*1 △	Page 113, Section 4.3.3

○: Available, △: Partially available, ×: N/A

*1 CPU modules that can be used differ depending on the connection path. ( Page 107, Section 4.3.1)

(5) Redundant-CPU-compatible function list

- 1) Safety CPU
 2) Basic model QCPU
 3) High Performance model QCPU
 4) Process CPU
 5) Redundant CPU
 6) Universal model QCPU

Function		Description	CPU module						Reference section
			1)	2)	3)	4)	5)	6)	
System switching request to control system CPU		When a CC-Link IE Controller Network module of the control system CPU detects a data link error, it issues a system switching request to the control system CPU.	×	×	×	×	○	×	Page 141, Section 4.7.2

○: Available, △: Partially available, ×: N/A

(6) List of other functions

- 1) Safety CPU
 2) Basic model QCPU
 3) High Performance model QCPU
 4) Process CPU
 5) Redundant CPU
 6) Universal model QCPU

Function	Description	CPU module						Reference section
		1)	2)	3)	4)	5)	6)	
Interrupt request to CPU module	Interrupt conditions are checked every link scan, and if the conditions are met, an interrupt is requested to the CPU module to start the interrupt program.	x	*1 △	○	○	○	○	Page 135, Section 4.5
Station No. setting by sequence program	For Universal model QCPUs, the station No. of a normal station (own station) can be set in the sequence program. (UINI instruction)	x	x	x	x	x	○	Page 136, Section 4.6 Page 324, CHAPTER 9
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 Controller Network. With this function, two networks of CC-Link IE Controller Network and Ethernet are not required, resulting in reduced wiring cost.	x	x	x	x	x	*2 △	Page 106, Section 4.3

○: Available, △: Partially available, ×: N/A

*1 The area of LB/LW4000 or higher cannot be specified for interrupt conditions.

*2 CPU modules that can be used differ depending on the connection path. (☞ Page 107, Section 4.3.1)

3.3 Buffer Memory

3.3.1 Buffer memory list

The buffer memory list is shown below.

Address (Dec. (Hex.))	Application	Name	Initial value	Read/ Write ^{*1}	Reference section	
0 to 2591 (0 _H to A1F _H)	Use prohibited	System area	—	—	—	
2592 (A20 _H)	Transient transmission error log	Transient transmission error count	0	R	Page 55, Section 3.3.2	
2593 (A21 _H)		Error log pointer	0	R		
2594 (A22 _H)		Error log block 1	Error code	0		R
2595 (A23 _H)			System area	—		—
2596 (A24 _H)			Target station network No.	0		R
2597 (A25 _H)			Target station No.	0		R
2598 (A26 _H)			Own station's network No.	0		R
2599 (A27 _H)			Own station's station No.	0		R
2600 to 2603 (A28 _H to A2B _H)			Time of error occurrence	0		R
2604 to 2613 (A2C _H to A35 _H)			Error log block 2	(Same as in Error log block 1)		
2614 to 2623 (A36 _H to A3F _H)		Error log block 3	(Same as in Error log block 1)			
2624 to 2633 (A40 _H to A49 _H)		Error log block 4	(Same as in Error log block 1)			
2634 to 2643 (A4A _H to A53 _H)		Error log block 5	(Same as in Error log block 1)			
2644 to 2653 (A54 _H to A5D _H)		Error log block 6	(Same as in Error log block 1)			
2654 to 2663 (A5E _H to A67 _H)		Error log block 7	(Same as in Error log block 1)			
2664 to 2673 (A68 _H to A71 _H)		Error log block 8	(Same as in Error log block 1)			
2674 to 2683 (A72 _H to A7B _H)		Error log block 9	(Same as in Error log block 1)			
2684 to 2693 (A7C _H to A85 _H)		Error log block 10	(Same as in Error log block 1)			
2694 to 2703 (A86 _H to A8F _H)		Error log block 11	(Same as in Error log block 1)			
2704 to 2713 (A90 _H to A99 _H)		Error log block 12	(Same as in Error log block 1)			
2714 to 2723 (A9A _H to AA3 _H)	Error log block 13	(Same as in Error log block 1)				
2724 to 2733 (AA4 _H to AAD _H)	Error log block 14	(Same as in Error log block 1)				

Address (Dec. (Hex.))	Application	Name		Initial value	Read/ Write*1	Reference section	
2734 to 2743 (AAE _H to AB7 _H)	Transient transmission error log	Error log block 15	(Same as in Error log block 1)			Page 55, Section 3.3.2	
2744 to 2753 (AB8 _H to AC1 _H)		Error log block 16	(Same as in Error log block 1)				
2754 to 2783 (AC2 _H to ADF _H)	Use prohibited	System area		—	—	—	
2784 (AE0 _H)	Transmission path switching history	Transmission path switching count		0	R	Page 57, Section 3.3.3	
2785 (AE1 _H)		Transmission path switching history pointer		0	R		
2786 (AE2 _H)		History 1	Post-switching status		0		R
2787 (AE3 _H)			No. of connected modules		0		R
2788 (AE4 _H)			IN-side loopback station No.		0		R
2789 (AE5 _H)			OUT-side loopback station No.		0		R
2790 to 2791 (AE6 _H to AE7 _H)			System area		—		—
2792 to 2795 (AE8 _H to AEB _H)			Time of occurrence		0		R
2796 to 2805 (AEC _H to AF5 _H)		History 2	(Same as in History 1)				
2806 to 2815 (AF6 _H to AFF _H)		History 3	(Same as in History 1)				
2816 to 2825 (B00 _H to B09 _H)		History 4	(Same as in History 1)				
2826 to 2835 (B0A _H to B13 _H)		History 5	(Same as in History 1)				
2836 to 2845 (B14 _H to B1D _H)		History 6	(Same as in History 1)				
2846 to 2855 (B1E _H to B27 _H)		History 7	(Same as in History 1)				
2856 to 2865 (B28 _H to B31 _H)		History 8	(Same as in History 1)				
2866 to 2875 (B32 _H to B3B _H)		History 9	(Same as in History 1)				
2876 to 2885 (B3C _H to B45 _H)		History 10	(Same as in History 1)				
2886 to 2895 (B46 _H to B4F _H)		History 11	(Same as in History 1)				
2896 to 2905 (B50 _H to B59 _H)		History 12	(Same as in History 1)				
2906 to 2915 (B5A _H to B63 _H)		History 13	(Same as in History 1)				
2916 to 2925 (B64 _H to B6D _H)	History 14	(Same as in History 1)					
2926 to 2935 (B6E _H to B77 _H)	History 15	(Same as in History 1)					
2936 to 2945 (B78 _H to B81 _H)	History 16	(Same as in History 1)					

Address (Dec. (Hex.))	Application	Name	Initial value	Read/ Write ^{*1}	Reference section
2946 to 65535 (B82 _H to FFFF _H)	Use prohibited	System area	—	—	—

*1 Whether the area is readable/writable or not is shown.
R: Read only, W: Write only, R/W: Readable/Writable

Point

- Values stored in the buffer memory are cleared when power is turned OFF and then ON or when the CPU module is reset.
- When a value in a one-word area is changed to 65536 or higher, the count stops at 65535 (FFFF_H).

3.3.2 Transient transmission error log

Details of Transient transmission error log are shown below.

(1) Transient transmission error count (Un\G2592)

The cumulative number of errors saved in the error log blocks is stored.

(2) Error log pointer (Un\G2593)

Error log block No. of the latest error log is stored.

- 0: No error (No error log data)
- 1 or more: Error log block No. of the latest error log

Ex. When the pointer value is "16", the latest error log is registered to Error log block 16.

The 17th and subsequent errors will be registered to the error log from Error log block 1 again.

(3) Error log blocks 1 to 16 (Un\G2594 to 2753)

Transient transmission error logs are stored.

Error log blocks 1 to 16 are composed of data in the same arrangement.

(a) Error code

An error code is stored. (☞ Page 511, Section 10.2)

(b) Target station network No./Target station No.

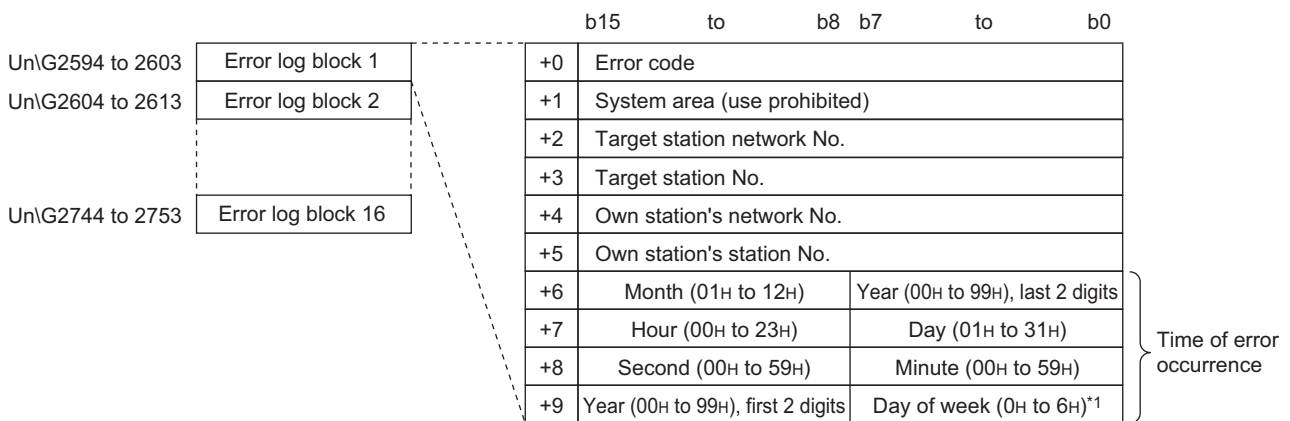
Network No. and station No. of an error-detected station are stored.




(c) Own station's network No./Own station's station No.

Network No. and station No. of the own station are stored.

(d) Time of error occurrence

Time of transient transmission error is stored as a BCD code.



- Transient transmission error logs can be checked in "Logging" of the CC IE Control diagnostics. ( Page 533, Section 10.3.3)
 - Transient transmission error logs can be cleared by the following.
 - Clearing error information in "Logging" of the CC IE Control diagnostics. ( Page 533, Section 10.3.3)
 - Setting Clear transient transmission error counter (SB000A) to ON. ( Page 568, Appendix 1)
 - Powering off and on the system or resetting the CPU module
 - If a transient transmission error is detected at start of the CC-Link IE Controller Network module, the time of error occurrence may be left blank.
-

3.3.3 Transmission path switching history

This section describes details of the transmission path switching history.

The transmission path switching history data are cleared at the time the module is first placed in the loop status after power-up.

(1) Transmission path switching count (Un\G2784)

The cumulative number of transmission path switching saved in the transmission path switching history is stored.

(2) Transmission path switching history pointer (Un\G2785)

History No. of the latest history is stored.

- 0: No history (No history data)
- 1 or more: History No. of the latest history

Ex. When the pointer value is "16", the latest history is registered to History 16.

The 17th and subsequent switching will be registered to the histories from History 1 again.

(3) Histories 1 to 16 (Un\G2786 to 2945)

Transmission path switching history data are stored.

Histories 1 to 16 are composed of data in the same arrangement.

(a) Post-switching status

The loop status after transmission path switching is stored.

- 0: Normal
- 1: Loopback
- 2: All station error

(b) No. of connected modules

The number of modules connected to the network is stored.

(c) IN-side loopback station No.

Station No. of the station where a loopback has occurred on its IN-side is stored.

When the Post-switching status is "Normal", "0" is stored.

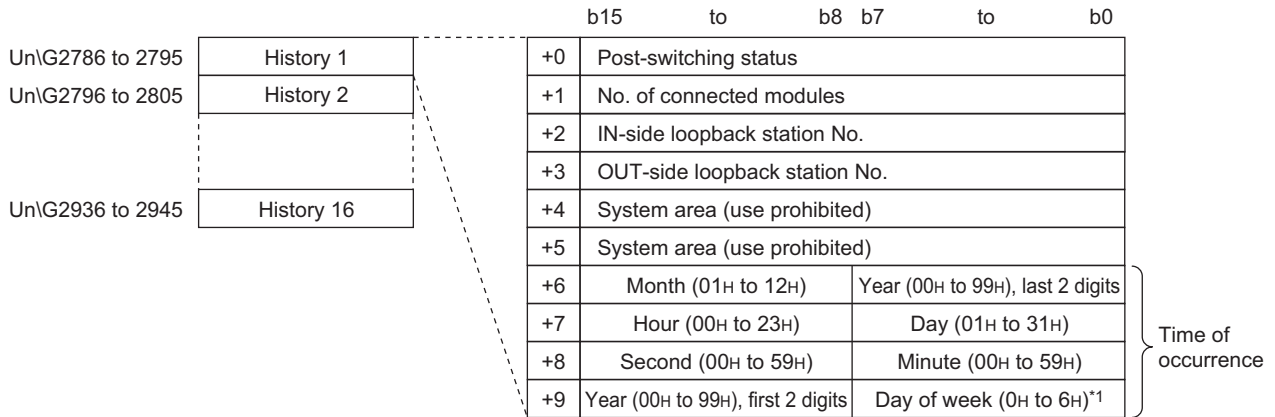
(d) OUT-side loopback station No.

Station No. of the station where a loopback has occurred on its OUT-side is stored.

When the Post-switching status is "Normal", "0" is stored.

(e) Time of occurrence

Time of transmission path switching is stored as a BCD code.



*1 0H: Sunday to 6H: Saturday

Point

- Transmission path switching history can be checked in "Logging" of the CC IE Control diagnostics. (☞ Page 533, Section 10.3.3)
- Transmission path switching history can be cleared by the following.
 - Clearing error information in "Logging" of the CC IE Control diagnostics. (☞ Page 533, Section 10.3.3)
 - Setting Clear loop switching counter (SB0009) to ON. (☞ Page 568, Appendix 1)
 - Powering off and on the system or resetting the CPU module

CHAPTER 4 FUNCTIONS

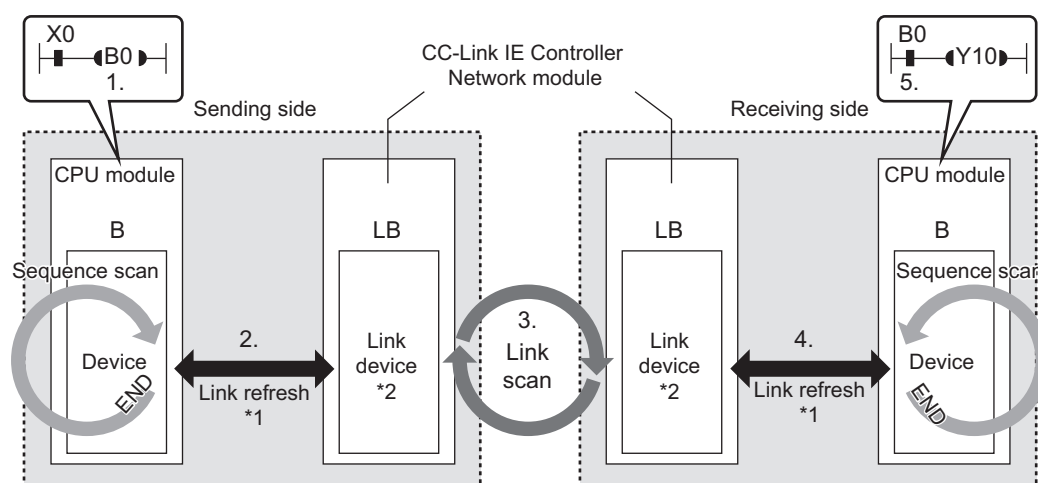
This chapter describes the functions of the CC-Link IE Controller Network module.

4.1 Cyclic Transmission Function

Using the link devices (LB/LW/LX/LY) of the CC-Link IE Controller Network module, data can be transferred periodically between stations on the same network.

(1) Processing of cyclic transmission

The following is an example where link relay data (B) of a CPU module are sent to a link relay (B) of a CPU module on another station.



1. B0 of the sending-side CPU module turns ON.
2. The B0 information is stored in the link device (LB) of the CC-Link IE Controller Network module by link refresh.
3. The B0 information of the link device (B) is stored in the link device (LB) of the receiving-side CC-Link IE Controller Network module by a link scan.
4. The B0 information is stored in the device (B) of the CPU module by link refresh.
5. B0 of the receiving-side CPU module turns ON.

*1 Set it with refresh parameters. (☞ Page 204, Section 6.5)

*2 Set it in the network range assignment of the control station. (☞ Page 183, Section 6.3)

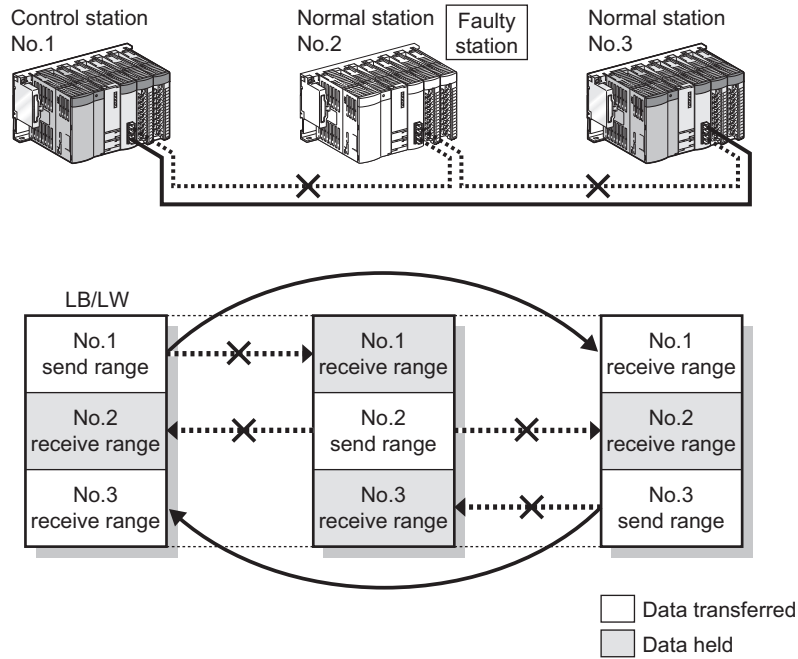
(2) Link device behavior when there is a faulty station

(a) Normally operating station

Holds the data received from the faulty station immediately before the error.

(b) Faulty station

Holds the data received from the other stations immediately before the error.




4.1.1 Communication using LB/LW

This function allows each station to write data to its own send range area of a link device (LB/LW) to send them to all other stations on the network.

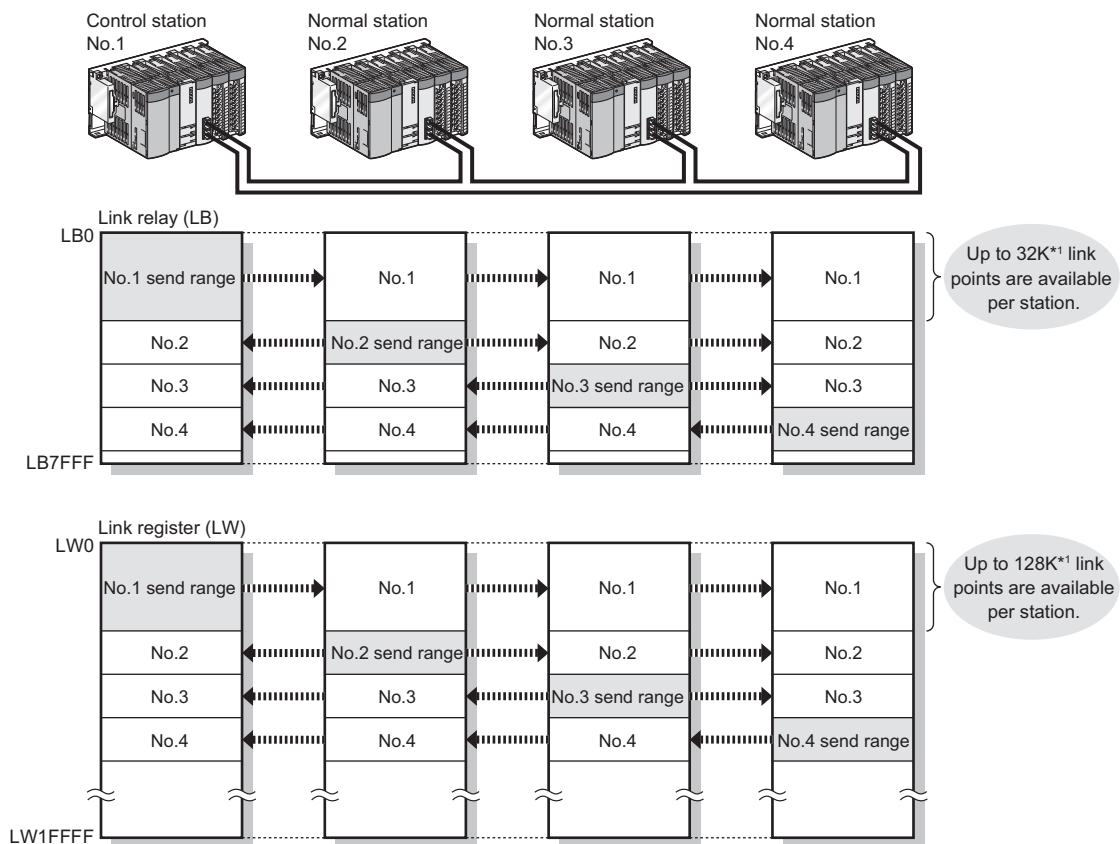
The link relay (LB) and link register (LW) can send/receive the ON/OFF information and 16-bit data respectively.


(1) Setting each station's send range in LB/LW

Set each station's send range in LB/LW in "LB/LW Setting" of "Network Range Assignment" of the control station.


( Page 185, Section 6.3.1)

Note that any other area than the own station's send range in LB/LW is the area for the data received from other stations.



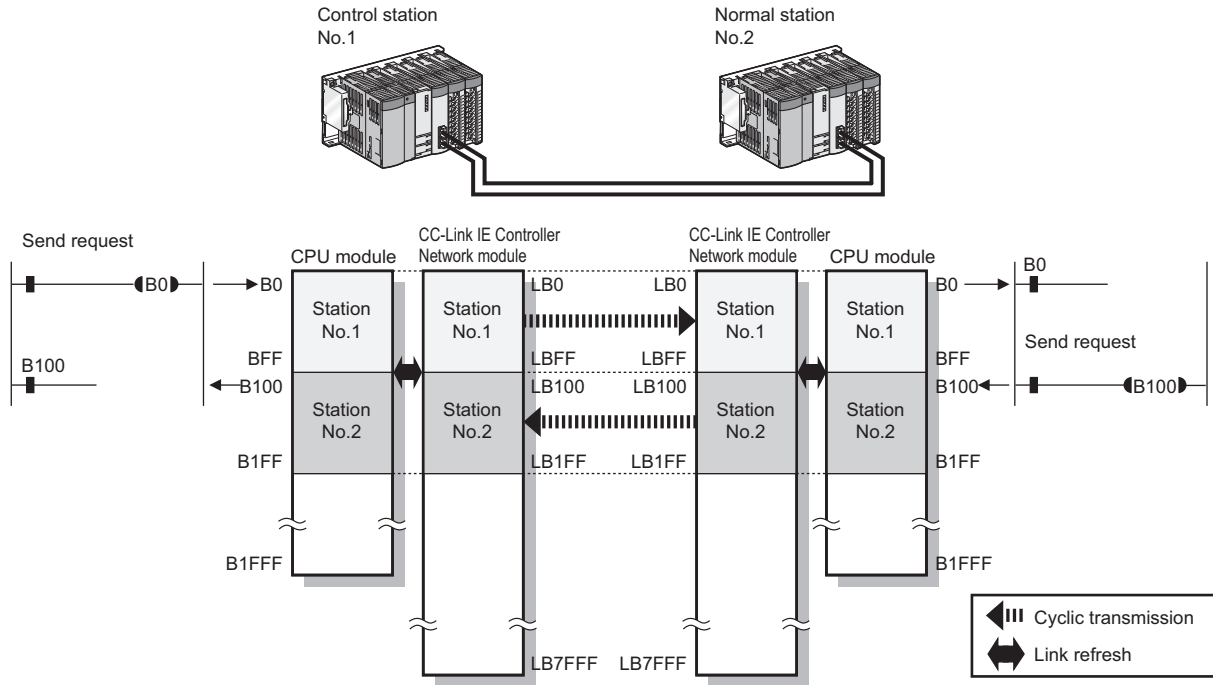
*1 For the extended mode ( Page 181, Section 6.2 (1))

(2) Setting the link refresh range

Set the range of the transfer between the link devices of the CC-Link IE Controller Network module and CPU module devices. ( Page 69, Section 4.1.3)

(3) An example of communication using LB/LW

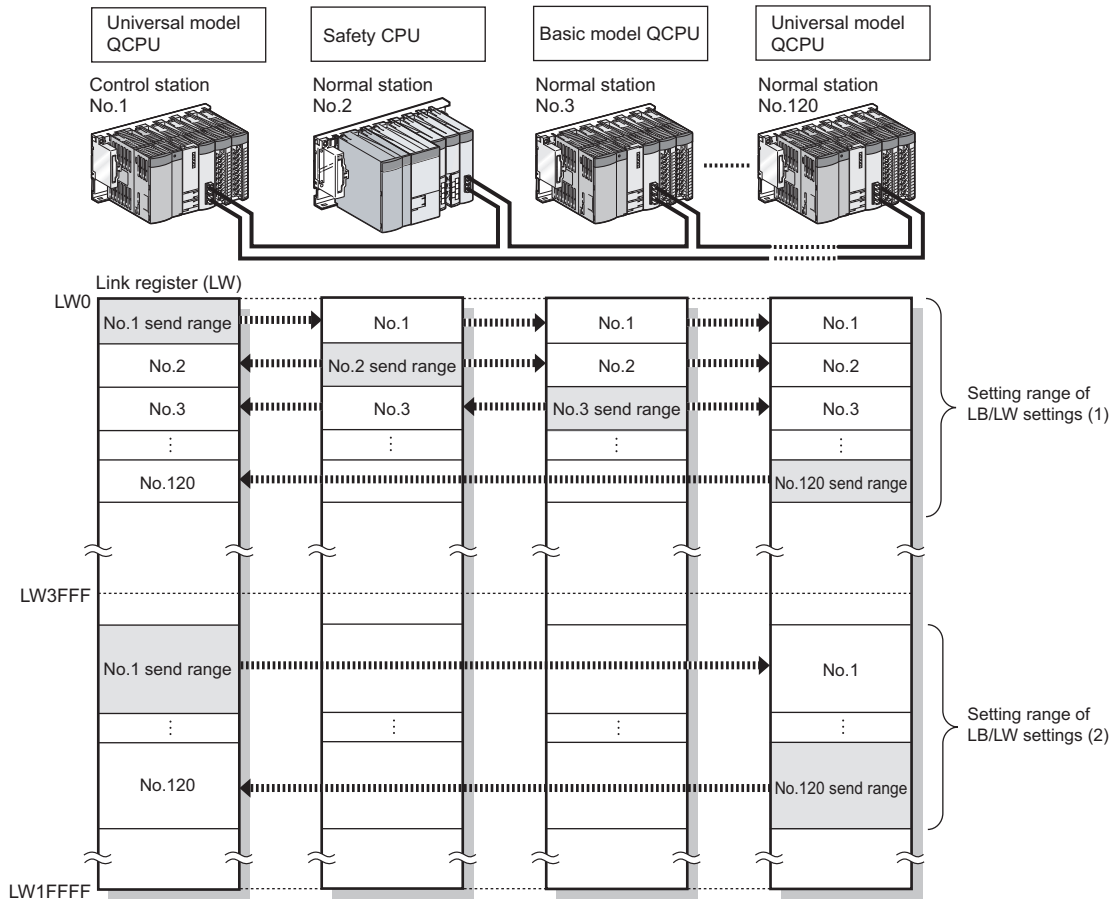
The following is an example where link relay (LB) data are transferred between the control station (station No.1) and the normal station (station No.2).



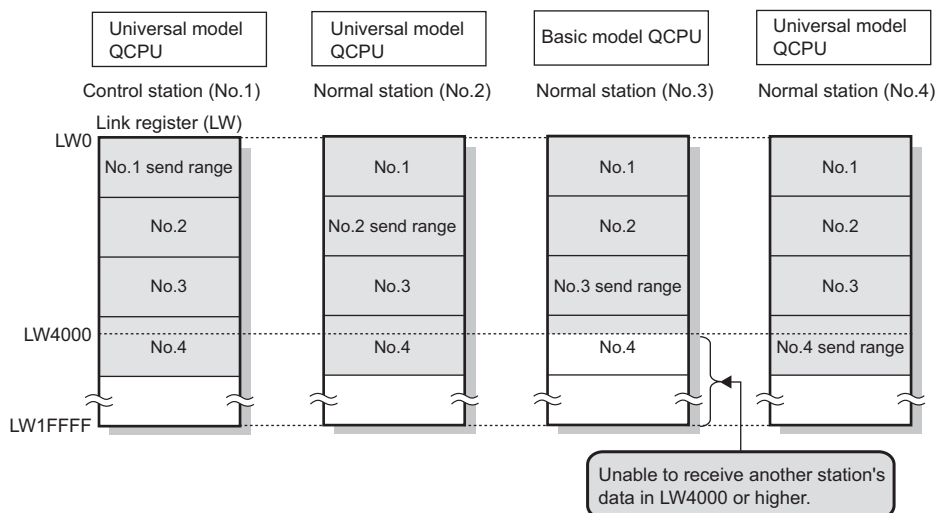
(4) Precautions

(a) When Basic model QCPU and/or safety CPU exist on the network

- Cyclic transmission through stations on which Basic model QCPU or a safety CPU is mounted
Cyclic data are transferred between each station's send range in LB/LW set in "LB/LW Setting(1)" and the corresponding station allocated within the range of LB/LW 0 to 3FFF.




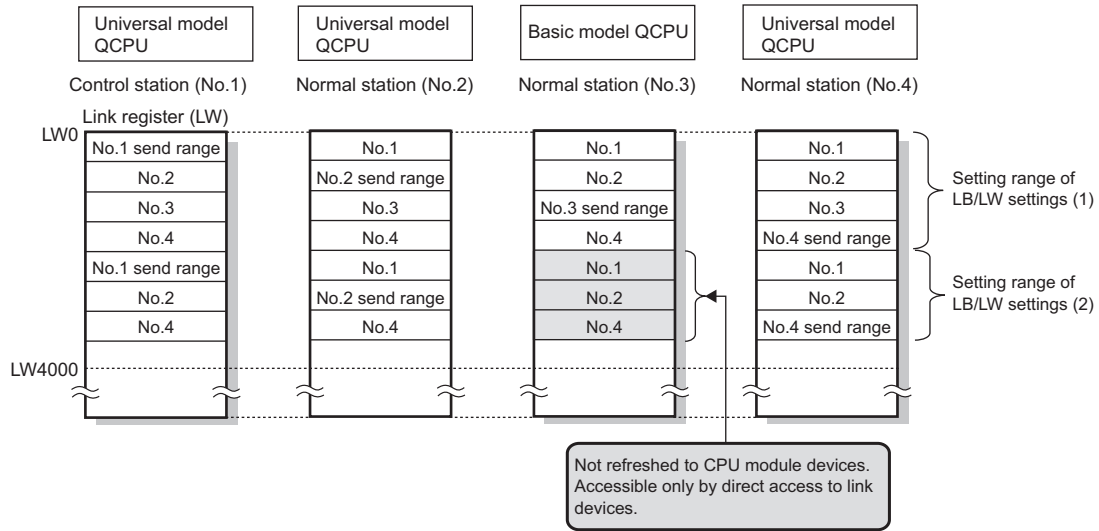
- Station on which Basic model QCPU or a safety CPU is mounted receives data from another station.
If another station's data is set over the limit of LB/LW4000, only the data up to LB/LW3FFF can be received.



Remark

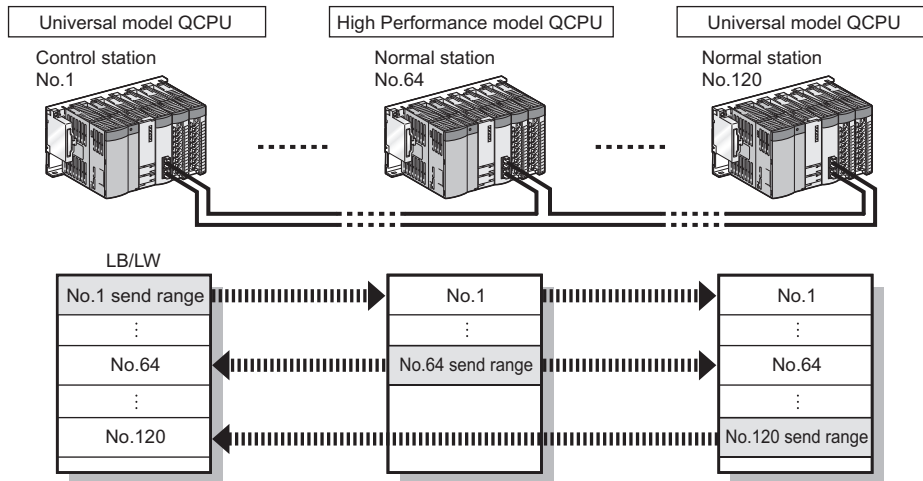
A station with a Basic model QCPU or safety CPU will receive another station's data in LB/LW0 to 3FFF, which is set in "LB/LW Setting(2)", however, they will not be refreshed to the CPU module's devices.

Only the direct access to link devices is available. ( Page 70, Section 4.1.4)



(b) When a station other than Universal model QCPUs exists on the network

The station cannot receive other stations' data of station No.65 and higher.



(c) When a Universal model QCPU exists on the network

If the group cyclic transmission function is used, the station can receive other stations' data of the same shared group and those of the stations to which no shared group is set.

It does not receive data of other stations in different shared groups. ( Page 83, Section 4.1.8)



(5) Receive range for other stations' data

The receive range for other stations' data varies depending on the CPU module.

Allocate each station's send range in LB/LW, considering the receive range for other stations' data of data-sharing stations.


For the conditions, refer to Page 63, Section 4.1.1 (4).

(a) Basic model QCPU, Safety CPU

Condition 1 ( Page 63, Section 4.1.1 (4) (a))	Condition 2 ( Page 64, Section 4.1.1 (4) (b))	Link devices	Receive range for other stations' data
Other stations' data in LB/LW0 to 3FFF	Other stations' data of station No.1 to 64	LB0 to 3FFF	○
		LW0 to 3FFF	
Other stations' data in LB/LW4000 or higher	—	LB0 to 3FFF	×
		LW0 to 3FFF	
Other stations' data in LB/LW4000 or higher	—	LB4000 to 7FFF	×
		LW4000 to 1FFFF	


○: Can be received, ×: Cannot be received

(b) High Performance model QCPU, Process CPU, Redundant CPU

Condition 1 ( Page 64, Section 4.1.1 (4) (b))	Link devices	Receive range for other stations' data
Other stations' data of station No.1 to 64	LB0 to 7FFF	○
	LW0 to 1FFFF	
Other stations' data of station No.65 or higher	LB0 to 7FFF	×
	LW0 to 1FFFF	

○: Can be received, ×: Cannot be received

(c) Universal model QCPU

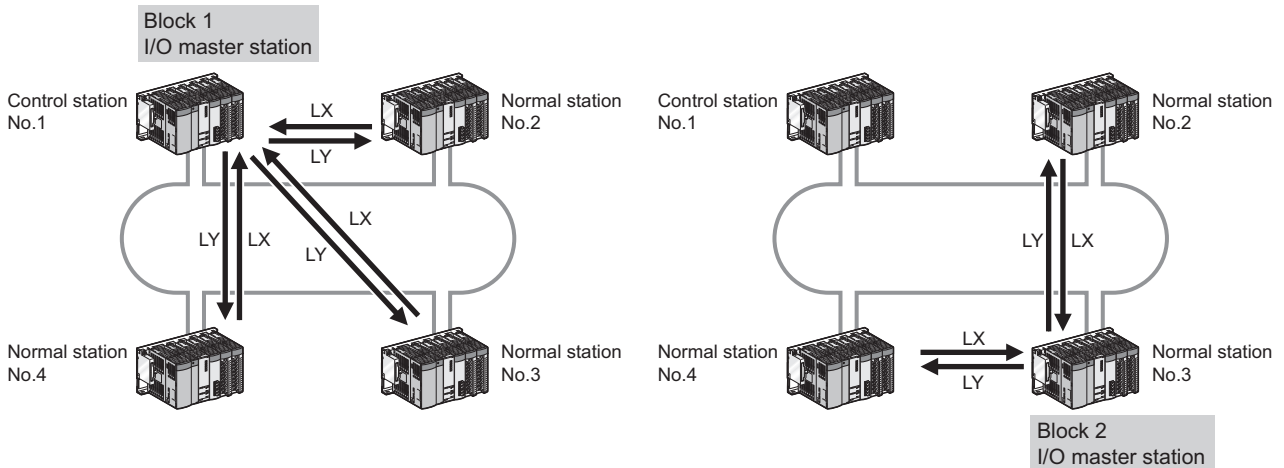
Condition 1 ( Page 64, Section 4.1.1 (4) (c))	Link devices	Receive range for other stations' data
Other stations' data of the same shared group or of the stations with no shared group setting	LB0 to 7FFF	○
	LW0 to 1FFFF	
Other stations' data of different shared groups	LB0 to 7FFF	×
	LW0 to 1FFFF	

○: Can be received, ×: Cannot be received


4.1.2 Communication using LX/LY

This function is used to exchange data between the I/O master station that controls LX/LY and another station on a one-to-one (1:1) basis.

The link input (LX) is used to receive the information input from each station in a block, and the link output (LY) is used to send the output information of the I/O master station.




(1) Specifying the I/O master station and setting the I/O range of LX/LY

Specify the I/O master station and set the I/O range of LX/LY in "LX/LY Setting" of "Network Range Assignment" of the control station. ( Page 192, Section 6.3.2)

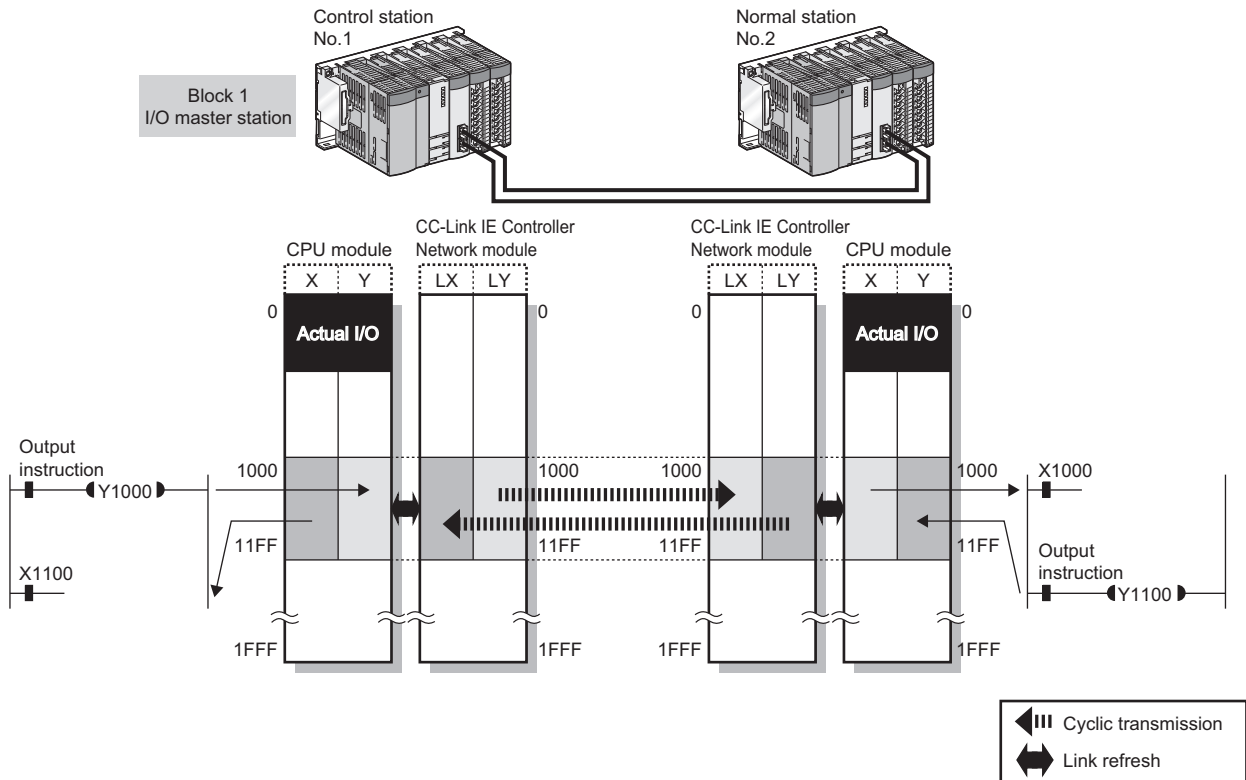
Up to two I/O master stations can be set for one network (block 1 and block 2), regardless of the status of control or normal station.

(2) Setting the link refresh range

Set the range of the transfer between the link devices of the CC-Link IE Controller Network module and CPU module devices. ( Page 69, Section 4.1.3)

(3) An example of communication using LX/LY

The following is an example where data of the link input (LX) and link output (LY) are transferred between the I/O master station (station No.1) and the normal station (station No.2).



(4) Precautions

(a) When a station other than Universal model QCPUs exists on the network

The station cannot receive other stations' data of station No.65 or higher.

(b) When a station with Universal model QCPU exists on the network

If the group cyclic transmission function is used, the station can receive other stations' data of the same shared group and those of the stations to which no shared group is set.

It does not receive data of other stations in different shared groups. (Page 83, Section 4.1.8)


(5) Receive range for other stations' data

The receive range for other stations' data varies depending on the CPU module.

Allocate the LX/LY input/output range, considering the receive range for other stations' data of the I/O master station and corresponding stations.


For the conditions, refer to Page 67, Section 4.1.2 (4).

(a) Other than Universal model QCPUs

Condition 1 ( Page 67, Section 4.1.2 (4) (a))	Link devices	Receive range for other stations' data
Other stations' data of station No.1 to 64	LX0 to 1FFF	○
Other stations' data of station No.65 or higher	LX0 to 1FFF	×

○: Can be received, ×: Cannot be received

(b) Universal model QCPU

Condition 1 ( Page 67, Section 4.1.2 (4) (b))	Link devices	Receive range for other stations' data
Other stations' data of the same shared group or of the stations with no shared group setting	LX0 to 1FFF	○
Other stations' data of different shared groups	LX0 to 1FFF	×

○: Can be received, ×: Cannot be received

4.1.3 Link refresh

This function allows automatic data transfer between the link devices of the CC-Link IE Controller Network module and CPU module devices.

Set the link refresh range in the refresh parameter of each station. (☞ Page 204, Section 6.5)

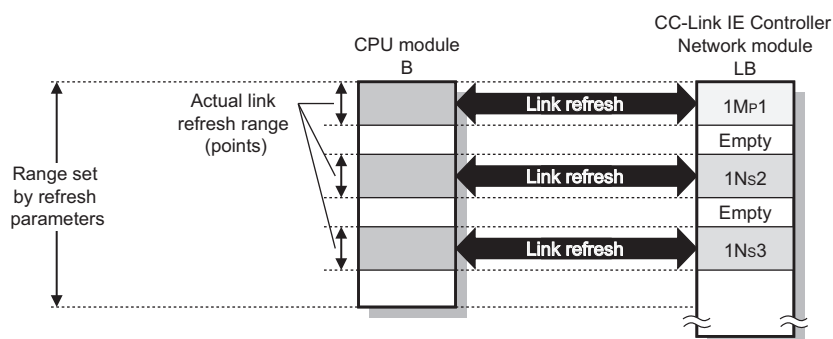
Point

The link devices of the CC-Link IE Controller Network module can be read or written directly by the sequence program. Direct access to the link devices reduces the link refresh time and transmission delay time. (☞ Page 70, Section 4.1.4)

4

(1) Concept of the link refresh range (points)

The range set with refresh parameters and specified in the network range assignment is link-refreshed.



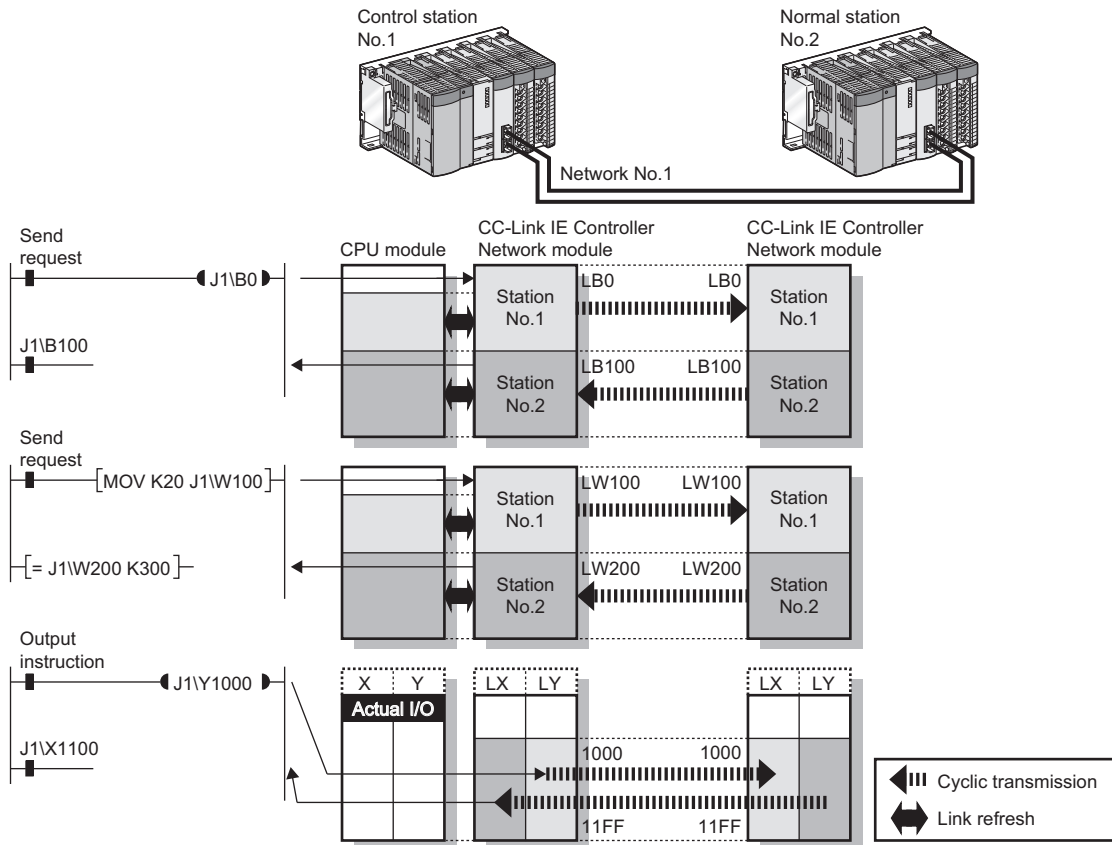
Point

- To assure cyclic data integrity of data exceeding 32 bits, execute station-based block data assurance or configure an interlock program. (☞ Page 76, Section 4.1.5)
- When a shorter link refresh time is desired
The link refresh time can be shortened by reducing the points of the link refresh to the CPU module. The following are the methods for reducing the link refresh points.
 - In the Refresh parameters, specify only the link devices used in the CPU module as the link refresh range. (☞ Page 204, Section 6.5)
 - Remove any infrequently used link devices from the link refresh range, and directly read or write them using link direct devices. (☞ Page 70, Section 4.1.4)

4.1.4 Direct access to link devices

Data can be directly read from or written to link devices (LB/LW/LX/LY/SB/SW) of the CC-Link IE Controller Network module using the sequence program.

Specify a link device in the link direct device (J□\□) for direct access.

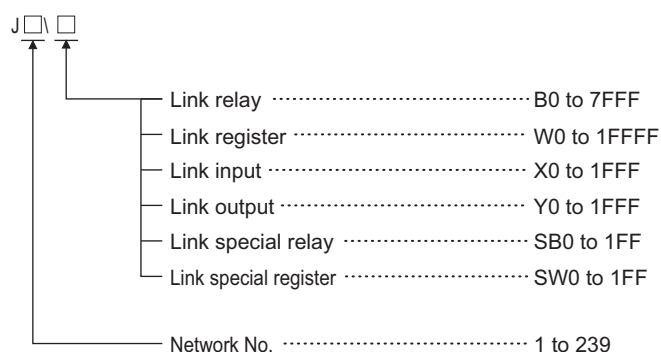


Point

- To assure cyclic data integrity of data exceeding 32 bits, configure an interlock program. (Page 76, Section 4.1.5)
- When a shorter link refresh time is desired
Remove any infrequently used link devices from the link refresh range, and directly read or write them using link direct devices.
This reduces the points of the link refresh to the CPU module, resulting in a shorter link refresh time. (Page 204, Section 6.5)
- When a shorter transmission delay time is desired
Since the link direct device reads or writes data directly to the link devices of the CC-Link IE Controller Network module at the time of the instruction execution, the transmission delay time can be reduced. (Page 74, Section 4.1.4 (4))
Link refresh is performed in "END processing" of the sequence scan of the CPU module.

(1) How to specify the link direct device (J□\□)

Specify a network No. and a link device of the target CC-Link IE Controller Network module.



(2) Link device address specification range

Link device	Link device range	Address specification	
		Universal model QCPU	Other than Universal model QCPU
Link relay (LB)	LB0 to 3FFF	○	○
	LB4000 to 7FFF	○*1	×
Link register (LW)	LW0 to 3FFF	○	○
	LW4000 to 1FFFF	○*1	×
Link input (LX)	LX0 to 1FFF	○	○
Link output (LY)	LY0 to 1FFF	○	○
Link special relay (SB)	SB0 to 1FF	○	○
Link special register (SW)	SW0 to 1FF	○	○

○: Available, ×: N/A

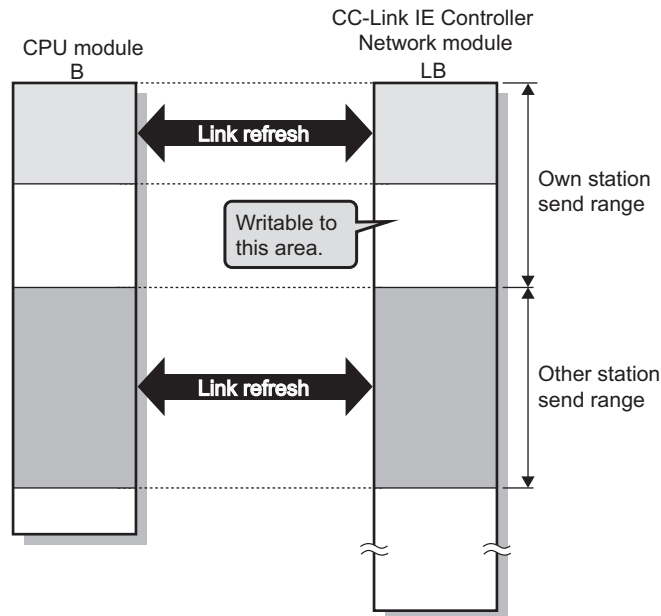
*1 Check the serial No. and software version for applicability. (☞ Page 606, Appendix 3)

(a) Reading form a link device

All of the link device address specification range can be specified.

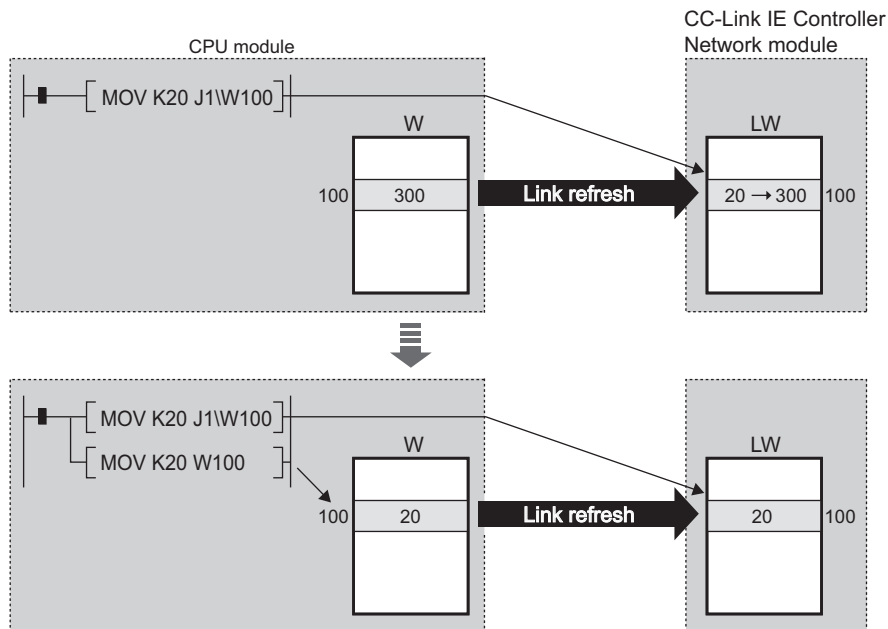
(b) Writing to a link device

An area within the link device address specification range and within the own station send range and outside the link refresh range can be specified.




Remark


- When an address within the link refresh range is specified (for writing)
Although data are written at the time of the instruction execution, after that, the link device of the CC-Link IE Controller Network module is overwritten with the device data of the CPU module by link refresh.
Therefore, write the same data to the CPU module device as well as accessing directly to the link device.




(3) Differences from link refresh

Item	Access method	
	Link refresh	Direct access
No. of steps	1	2
Processing speed (LD B0 ) ^{*1}	High speed (0.034μs)	Low speed (10 to 100μs)
Data reliability	In units of stations or in units of 32 bits ^{*2*3}	—

*1 In the case of the Q02HCPU

*2 When the station-based block data assurance setting is enabled:  Page 76, Section 4.1.5

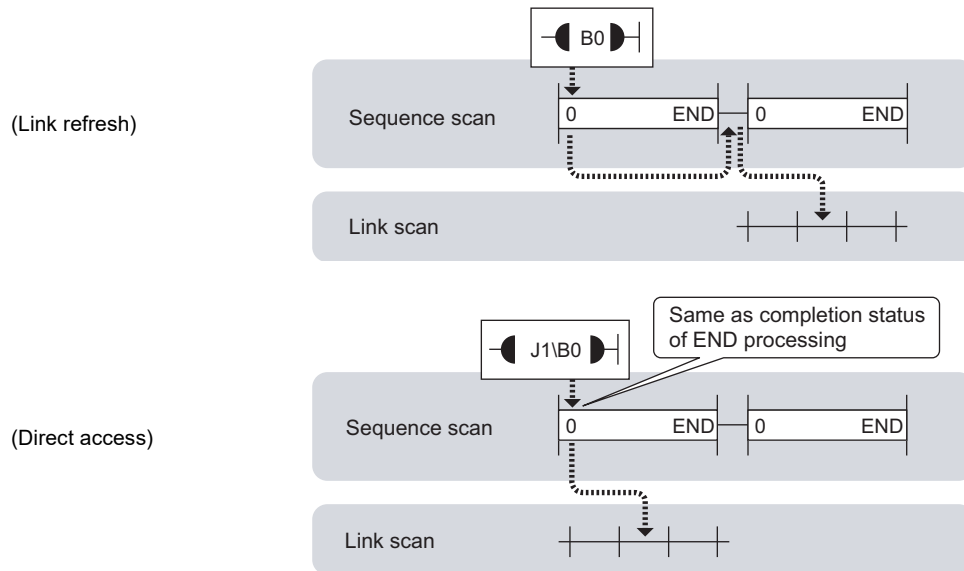
*3 When conditions for 32-bit data integrity assurance are satisfied:  Page 76, Section 4.1.5

(4) Operation in instruction execution

(a) Direct access on the sending side

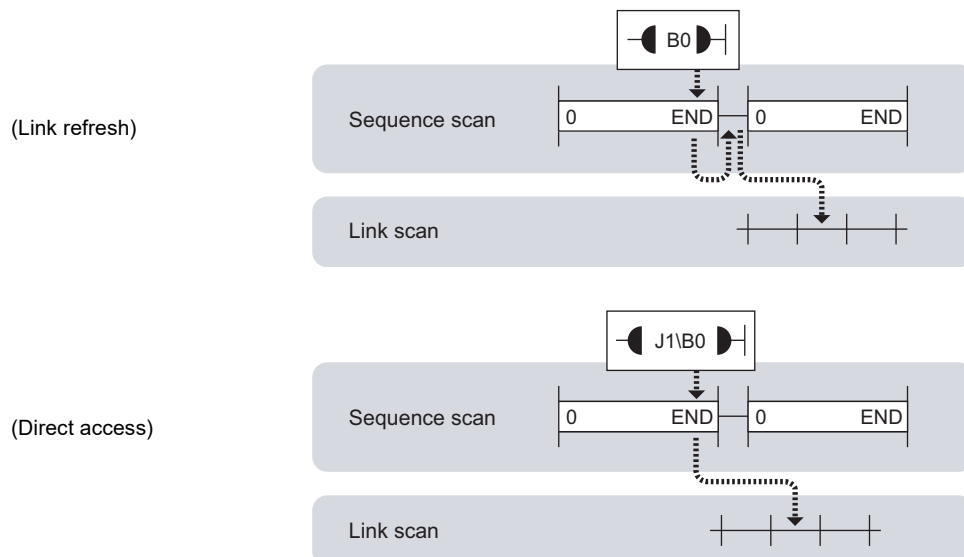
- When near step 0

Refresh time between the CPU module and CC-Link IE Controller Network module using direct access is, when compared to using link refresh, faster by up to one sequence scan time.



- When near END

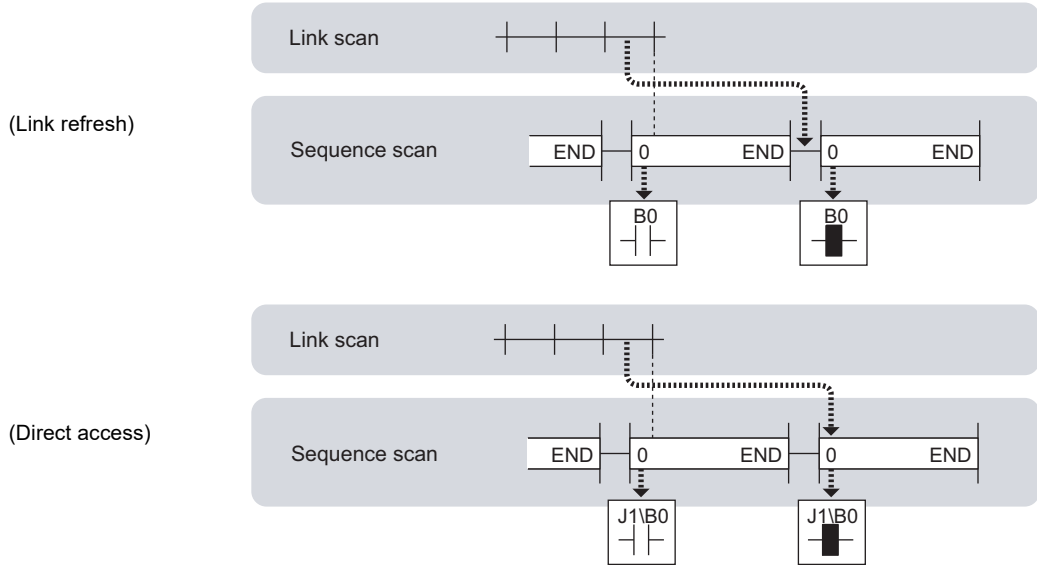
Refresh time between the CPU module and CC-Link IE Controller Network module is almost the same between link refresh and direct access.



(b) Direct access on the receiving side

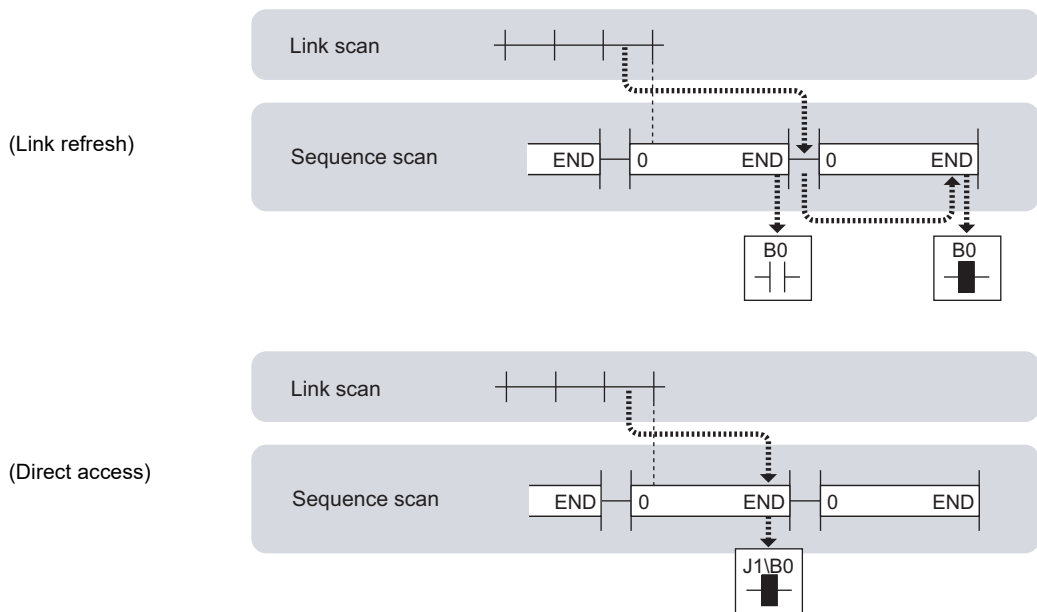
- When near step 0

Refresh time between the CPU module and CC-Link IE Controller Network module is almost the same between link refresh and direct access.



- When near END

Refresh time between the CPU module and CC-Link IE Controller Network module using direct access is, when compared to using link refresh, faster by up to one sequence scan time.



4.1.5 Assurance of cyclic data integrity

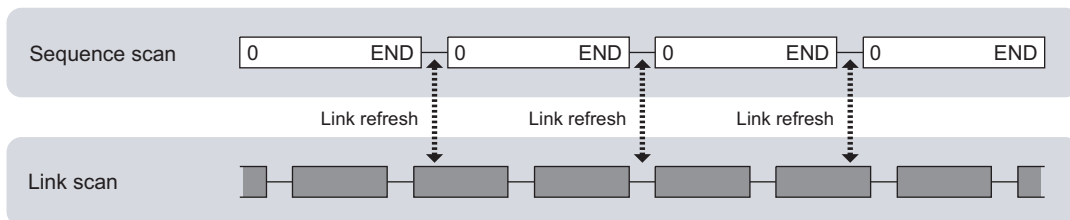
This function allows cyclic data integrity to be assured in units of 32 bits or stations.

Assurance of cyclic data integrity	Link refresh	Direct access to link devices Direct access
32-bit data assurance	○	○
Station-based block data assurance	○	×
Interlock program	○	○

○ : Data assured, × : Data not assured

Point

- Link scans are performed "asynchronously" with link refresh. Therefore, when the following cyclic data of 32 bits or more are handled, new and old data may be mixed in units of 16 bits depending on the link refresh timing.
 - Floating point data
 - Present value or command speed value of a positioning module



- Even if latched device (listed in "CPU side device" in the table below) data are cleared to 0 by a sequence program at power-on or reset of the CPU module, the latched data may be output depending on the timing of link scan and link refresh. For how to prevent output of latched device data, perform "Method for disabling output" listed in the table below.

CPU side device	Method for disabling output
Latch relay (L)	Clear the value of the device to 0 using the initial device value*1.
File register (R, ZR)	
Extended data register (D) (For Universal model QCPU only)	Delete all latch range settings.
Extended link register (W) (For Universal model QCPU only)	
Device in the latch range	

*1 For how to set an initial device value, refer to the following.

User's manual (Function Explanation, Program Fundamentals) for the CPU module used

(1) 32-bit data assurance

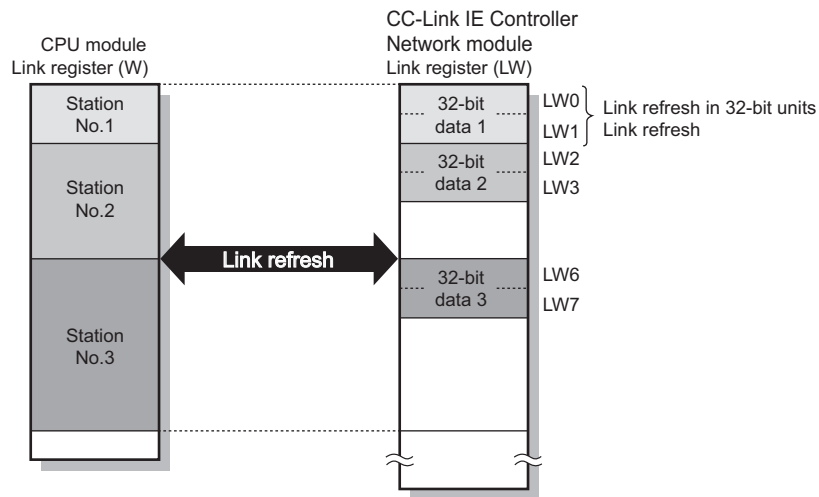
When "Network Range Assignment" of the control station is set with the following four conditions met, 32-bit data integrity is automatically assured.

- The start device No. of LB is a multiple of 20_H.
- The points assigned per station in LB is a multiple of 20_H.
- The start device No. of LW is a multiple of 2.
- The points assigned per station in LW is a multiple of 2.

Station No.	LB/LW Setting(1)												Pairing
	LB			LW									
	Points	Start	End	Points	Start	End	Points	Start	End	Points	Start	End	
1	32	0000	001F	2	00000	00001							Disable
2	64	0020	005F	4	00002	00005							Disable
3	96	0060	00BF	6	00006	0000B							Disable

(a) Link refresh

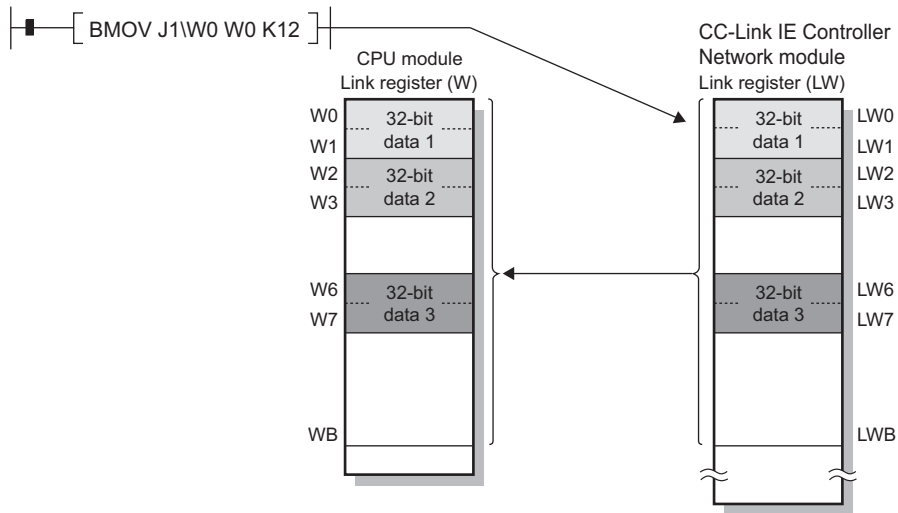
Link-refreshing the link devices that satisfy the conditions for 32-bit data assurance will ensure the integrity of 32-bit data.



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

(b) Direct access to link devices

Directly accessing link devices that satisfy the conditions for 32-bit data assurance will ensure the integrity of 32-bit data.



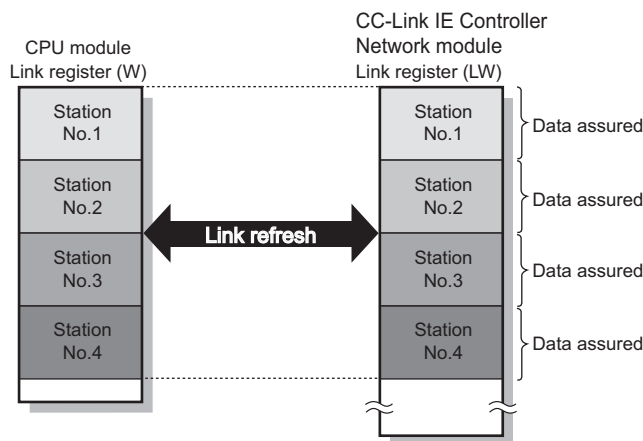
Point

For assuring data of more than 32 bits, use interlock programs.

(2) Station-based block data assurance

Since link refresh is performed by handshaking between the CPU and CC-Link IE Controller Network modules, cyclic data integrity is assured in units of stations.

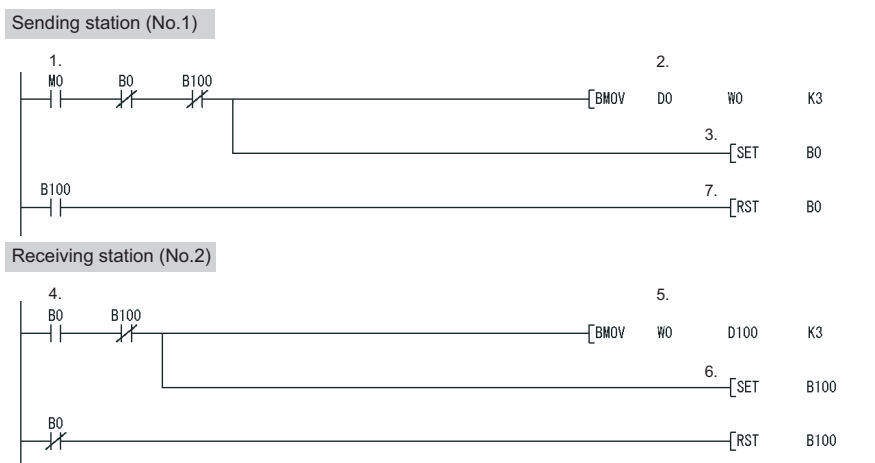
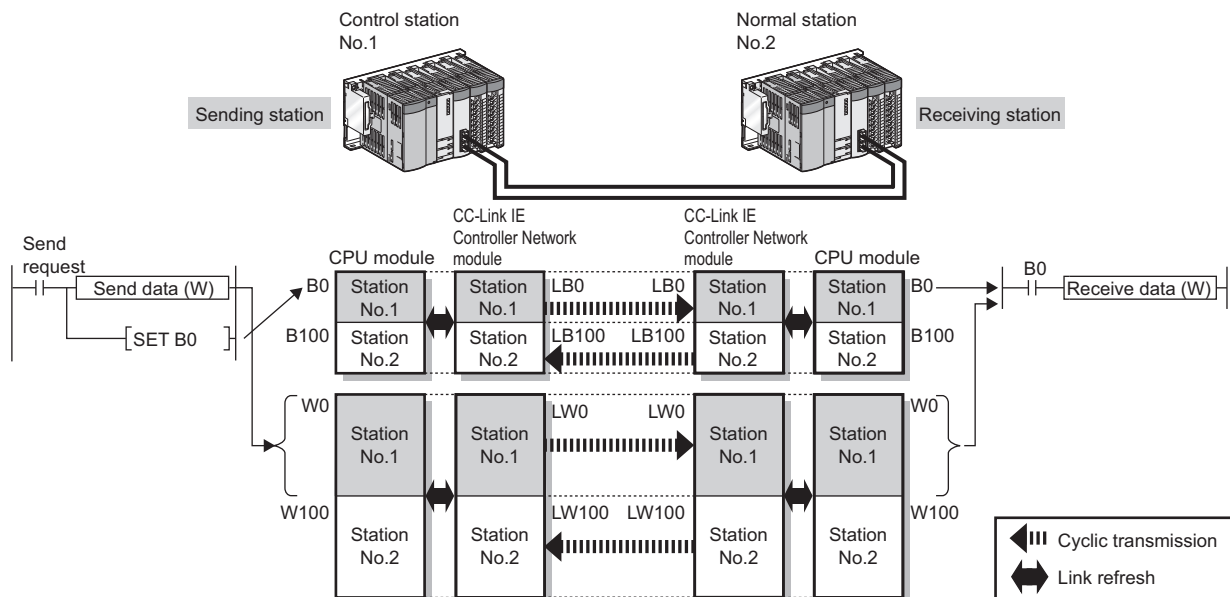
Set the station-based block data assurance in "Supplementary Setting" of "Network Range Assignment" of the control station. (Page 201, Section 6.3.6)



(3) Interlock program

When handling cyclic data of more than 32 bits, interlock the data in the link relay (LB).
Handshake using link relay (LB) data can prevent data separation of the link register (LW).

Ex. Program that sends data in W0 to W2 of station number 1 to W0 to W2 of station number 2
Handshake is performed by setting B0 to ON upon completion of storing send data.



1. The send request turns ON.
2. The contents of D0 to D2 are stored in W0 to W2.
3. Upon completion of storage in W0 to W2, B0 for handshaking turns ON.
4. By cyclic transmission, link relay (LB) data are sent after link register (LW) data transmission, which turns ON B0 of the receiving station.
5. The contents of W0 to W2 are stored in D100 to D102.
6. Upon completion of storage in D100 to D102, B100 for handshaking turns ON.
7. When the data are sent to the receiving station, B0 turns OFF.

4.1.6 Cyclic transmission punctuality assurance

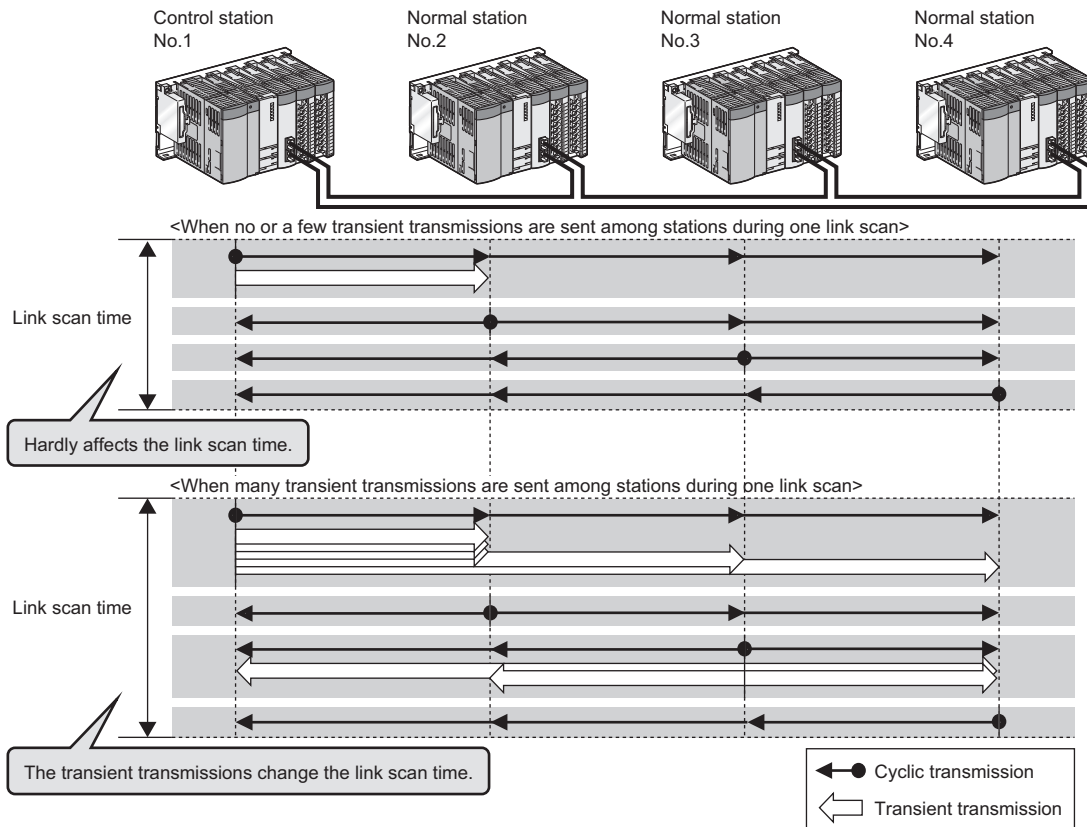
This function keeps the link scan time constant by making each station to send the specified number of transient transmissions within one link scan.

Point

- Use this function to eliminate the fluctuation in link scan time, which is caused by transient transmissions. (Optimum cyclic transmissions are available.)
Note that, if the network line status is unreliable, the cyclic transmission punctuality may not be ensured.
- To keep the link scan time constant even if the network line status is unreliable, use the constant link scan function. (Page 82, Section 4.1.7)
- While this function is used to keep the link scan time constant, the transmission delay time is not kept constant by this function.
The transmission delay time is affected by a factor such as a prolonged sequence scan time.
- If the punctuality assurance setting is enabled, the link scan time is constant but longer than the case of no punctuality.

(1) When the punctuality assurance setting is disabled

If each of stations sends transient data several times in one link scan, the link scan time fluctuates and the punctuality of cyclic transmission cannot be ensured.



(2) When the punctuality assurance setting is enabled

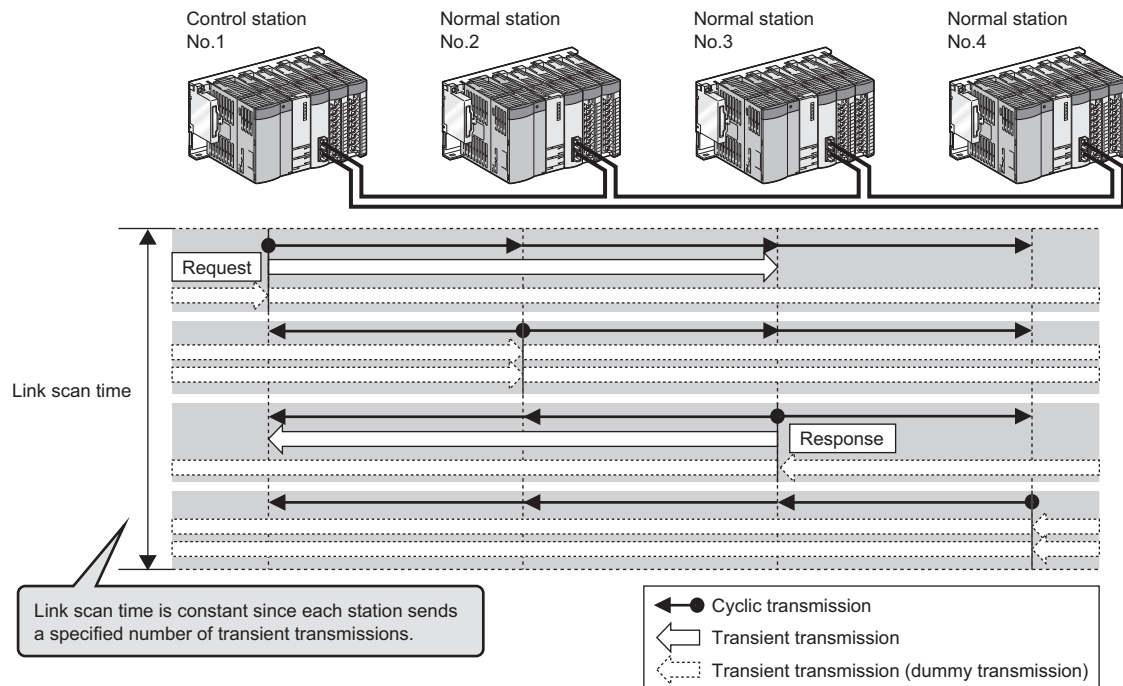
Each of stations performs the specified number of transient transmissions in one link scan to keep the link scan time constant, and the punctuality of cyclic transmission is ensured.

(a) When the actual number of transient transmissions is less than the specified one

Dummy data are sent to cover the shortfall.

(b) When the actual number of transient transmissions exceeds the specified one

They are divided and transmitted in several link scans.



(3) Setting the punctuality assurance and the number of transient transmissions


Set the punctuality assurance and the number of transient transmissions in "Supplementary Setting" of "Network Range Assignment" of the control station. (Page 201, Section 6.3.6)

Enable "Punctuality is guaranteed", and set a value for "Maximum No. of Transients in One Station".

4.1.7 Constant link scan

This function is used to keep the link scan time to a preset time period.

Set the constant link scan in "Supplementary Setting" of "Network Range Assignment" of the control station.

( Page 201, Section 6.3.6)

Point

- This function is used to keep the link scan time constant even if the network line status is unreliable.
Note that, if the actual link scan time is longer than the constant link scan time, the operation is performed based on the former.
 - While this function is used to keep the link scan time constant, the transmission delay time is not kept constant by this function.
The transmission delay time is affected by a factor such as a prolonged sequence scan time.
-

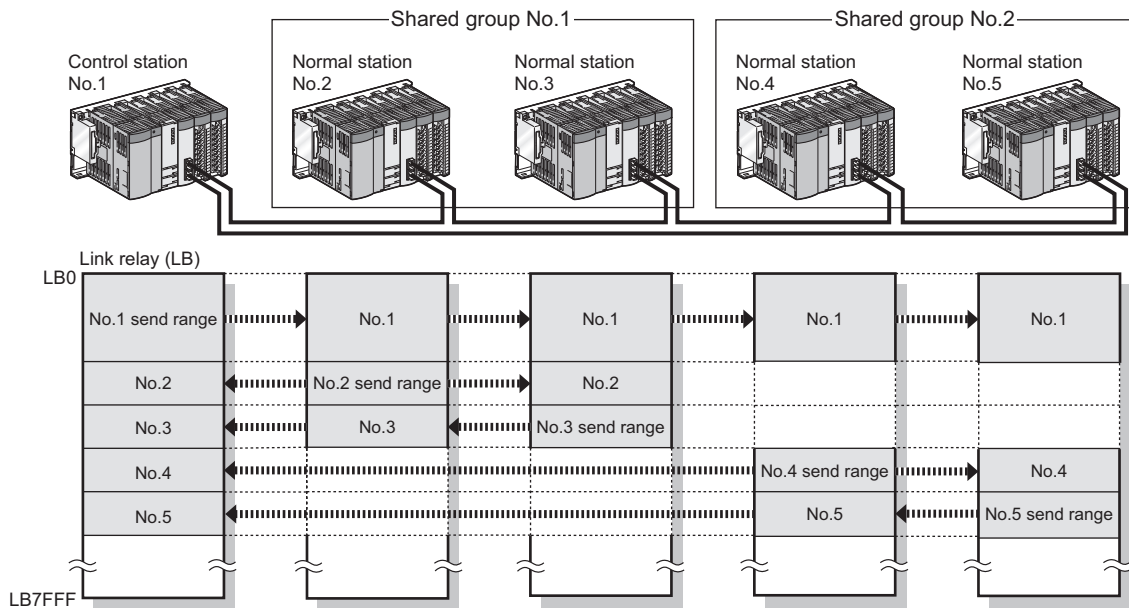
4.1.8 Group cyclic transmission

A Universal model QCPU can share cyclic data only with the stations that belong to the same shared group.^{*1*2} It does not receive cyclic data of the stations in different shared groups.

Stations with no shared group setting share cyclic data with all stations.

*1 Check the serial No. and software version for applicability. (☞ Page 606, Appendix 3)

*2 Modules other than Universal model QCPUs do not support this function, and operate as stations with no shared group setting.



Remark

- Use this function to perform cyclic transmission only with any given stations, for example, as described below.
 - All stations need to share the data of the station controlling production lines.
 - Data sharing is not desired between the stations that control different machines.
- Since each station receives only the cyclic data from any given stations, the number of link refresh points can be reduced, resulting in a shorter link refresh time.

(1) Setting a shared group

Shared groups can be set in "Network Range Assignment" of the control station.


This function can be used when the control station is a Universal model QCPU. (☞ Page 196, Section 6.3.3)


4.1.9 Increase of send points by mounting multiple CC-Link IE Controller Network modules of the same network No.

This function allows to increase send points by mounting multiple CC-Link IE Controller Network modules of the same network No. with one CPU module.*1*2


When one CC-Link IE Controller Network module is mounted, the send points per station are 16K points for both the link relay (LB) and the link register.

To increase send points, mount multiple CC-Link IE Controller Network modules.

*1 Check the software version. ( Page 606, Appendix 3)

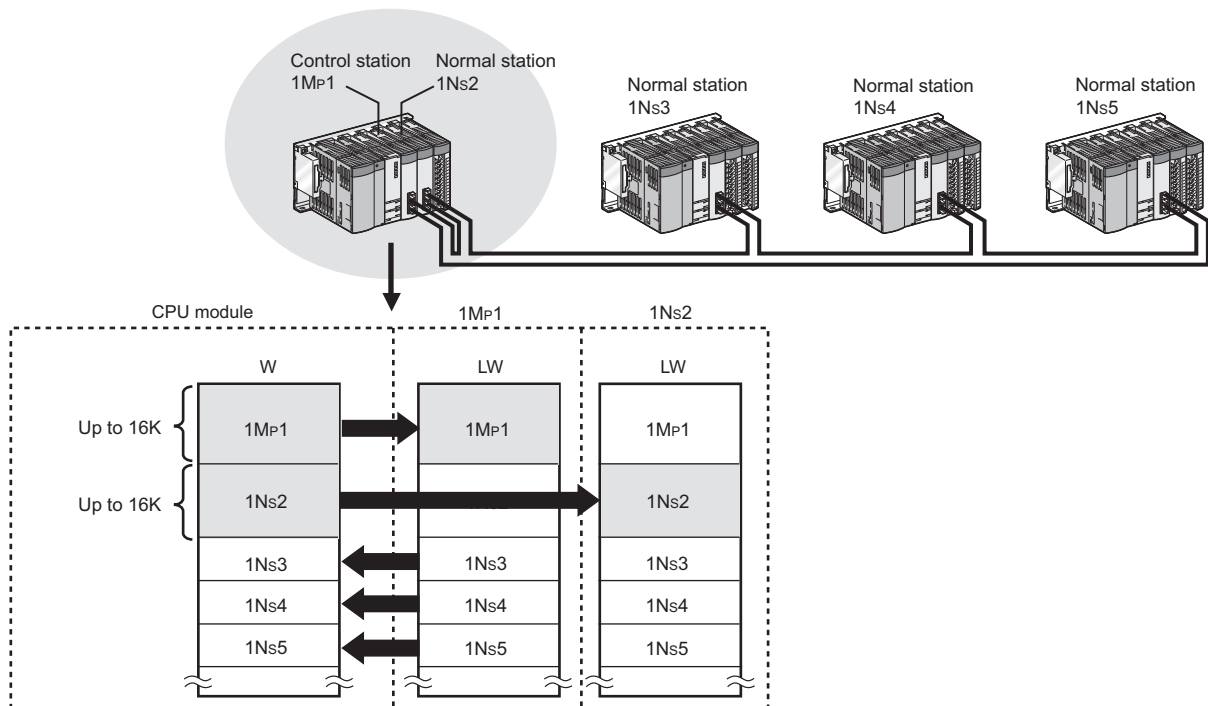
*2 Send points cannot exceed the maximum link points per network. ( Page 44, Section 3.1)

Point

When the extended mode is set in the station type of a CC-Link IE Controller Network module using GX Works2, the send points per station is increased up to 32K points for the link relay (LB) and up to 128K points for the link register (LW) per CC-Link IE Controller Network module. ( Page 181, Section 6.2 (1))

Ex. When increasing the send points by mounting two CC-Link IE Controller Network modules on the same network number (LW)

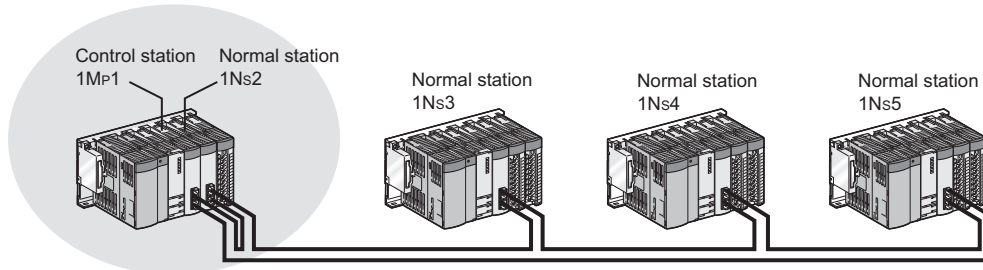
- Link relay (LB): Up to 32K points
- Link register (LW): Up to 32K points



(1) Setting network parameters

Set the same network No. to multiple CC-Link IE Controller Network modules in the network setting. The setting is explained using the following system configuration, where two CC-Link IE Controller Network modules are mounted.

The setting example indicates this part of the configuration.



(a) Network setting

Configure the network setting as shown below.

Network Parameter - MELSECNET/CC IE/Ethernet Module Configuration		
	Module 1	Module 2
Network Type	CC IE Control(Control Station)	CC IE Control(Normal Station)
Start I/O No.	0000	0020
Network No.	1	1
Total Stations	5	
Group No.	0	0
Station No.	1	2
Mode	Online	Online
	Network Range Assignment	
	Network Operation Settings	
	Refresh Parameters	Refresh Parameters
	Interrupt Settings	Interrupt Settings
	Specify Station No. by Parameter	Specify Station No. by Parameter

- Set one station as the control station. Multiple control stations cannot be configured.
- Set the same network No.
- Set a unique station number for each station. The same station No. cannot be set to multiple stations.

(b) Network range assignment

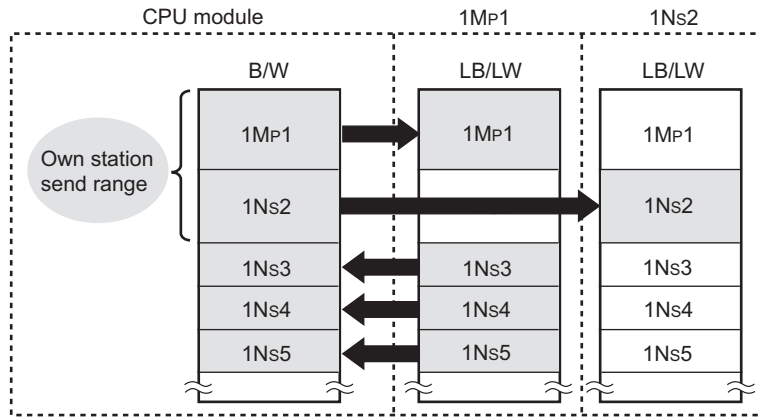
Set each station's send range in LB/LW in "LB/LW Setting" of "Network Range Assignment" of the control station. (Page 185, Section 6.3.1)

4.1 Cyclic Transmission Function
4.1.9 Increase of send points by mounting multiple CC-Link IE Controller Network modules of the same network No.

(c) Refresh parameters

Set refresh parameters as shown below so that the own station send range (1Mp1,1Ns2) can be refreshed.

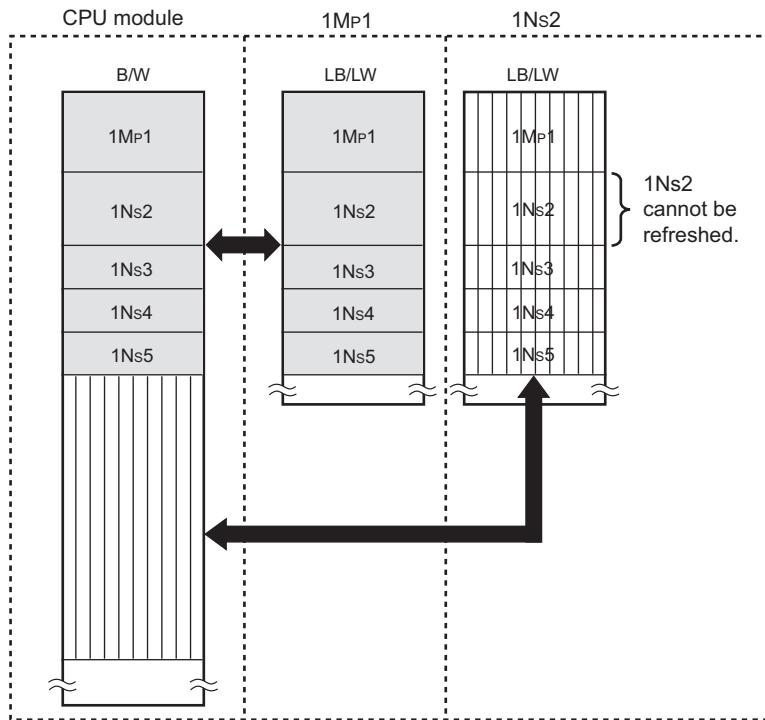
(☞ Page 204, Section 6.5)



Point

Change the refresh parameter setting as shown above.

The own station send range of the module to be processed second and later cannot be refreshed by the following default setting.



(2) Precautions


When mounting multiple CC-Link IE Controller Network modules on the same network number and using a function, such as the link direct device, that specifies a CC-Link IE Controller Network module by the network number, the execution target will be as listed below.

Item	Description
Link direct devices	The module mounted on the slot with the smallest slot No. in the base unit is targeted.
Dedicated instruction	When the host station is the Universal model QCPU: The module which is mounted on the slot with the smallest slot No. in a base unit is targeted. When the host station is other than the Universal model QCPU: The module to which the smallest start I/O number has been assigned in the I/O assignment tab of the PLC parameter is targeted.

4.1.10 Reserved station specification

This function allows reservation of a station that will be connected to the network in the future (although the station is not actually connected at present, it must be included in the total number of stations for the network). Reserved stations are not detected as faulty stations even though they are not actually connected.

Specify a reserved station in "Specify Reserved Station" in the network range assignment window of the control station.

( Page 200, Section 6.3.5)

When a reserved station actually exists on a network, transient transmissions are executable to the station.

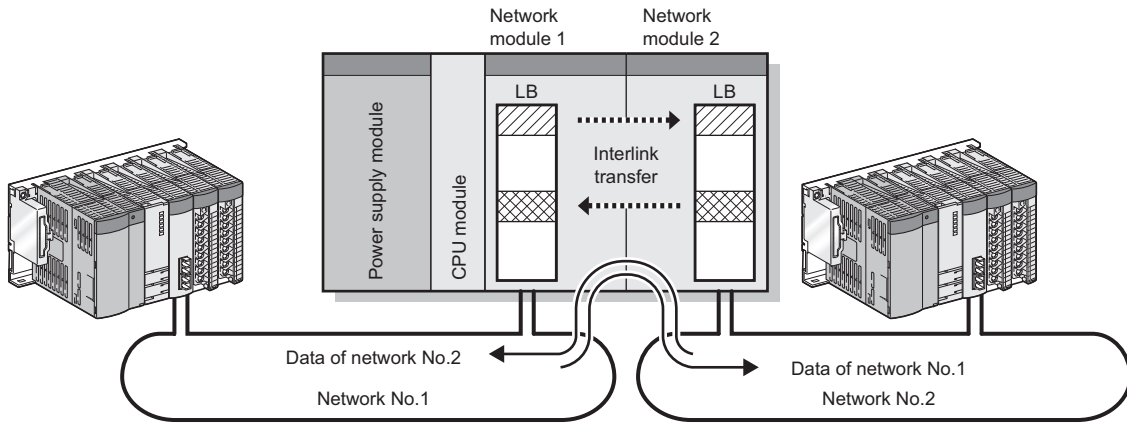
In other words, the following are available for the station.

- Checking error details by the CC IE Control diagnostics
- Writing parameters from another station in the case of erroneous parameter setting
- Monitoring other stations with a programming tool
- Dedicated instructions

When disconnecting a reserved station from a network, set the mode of the station to "Offline".

4.1.11 Interlink transmission

Link device (LB/LW) data of a network module are transferred to another network module through a relay station. Interlink transmission is executable between CC-Link IE Controller Network, MELSECNET/H and CC-Link IE Field Network.

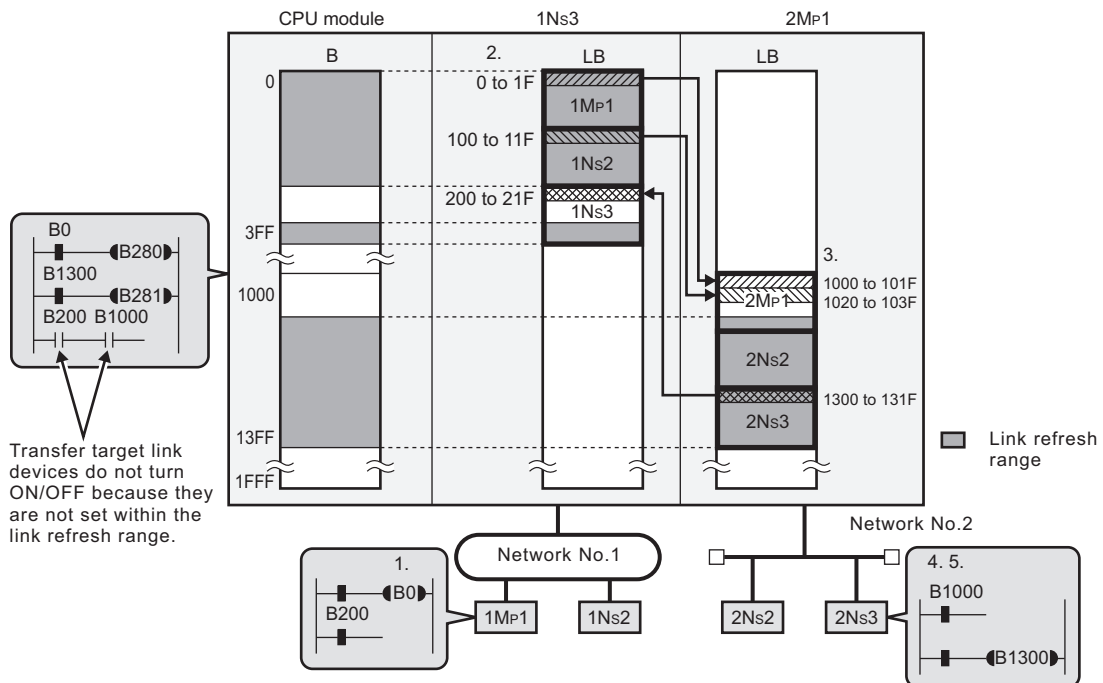


(1) Setting the link device transfer range

Set the link device transfer range in "Interlink Transmission Parameters" in the "MELSECNET/CC IE/Ethernet Module Configuration" window of the relay station. (☞ Page 232, Section 6.8)

(2) An example of interlink transmission

The following is an example of interlink transmission between network No.1 and network No.2.

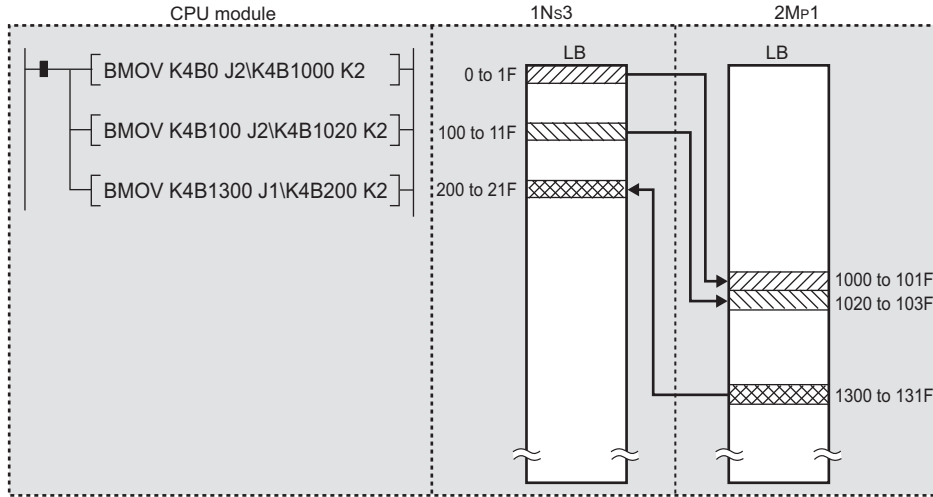


1. B0 turns ON on 1Mp1.
2. By cyclic transmission, 1Ns3 receives LB0 data.
3. The received LB0 data are transferred to LB1000 on 2Mp1 by interlink transmission.
4. By cyclic transmission, 2Ns2 and 2Ns3 receive LB1000 data.

5. The ON/OFF status of B0 of 1Mp1 can be checked by LB1000.

Remark

Interlink transmission is also executable by using link direct devices in the sequence program.
The link refresh range is set as shown in (2) of this section.



Point

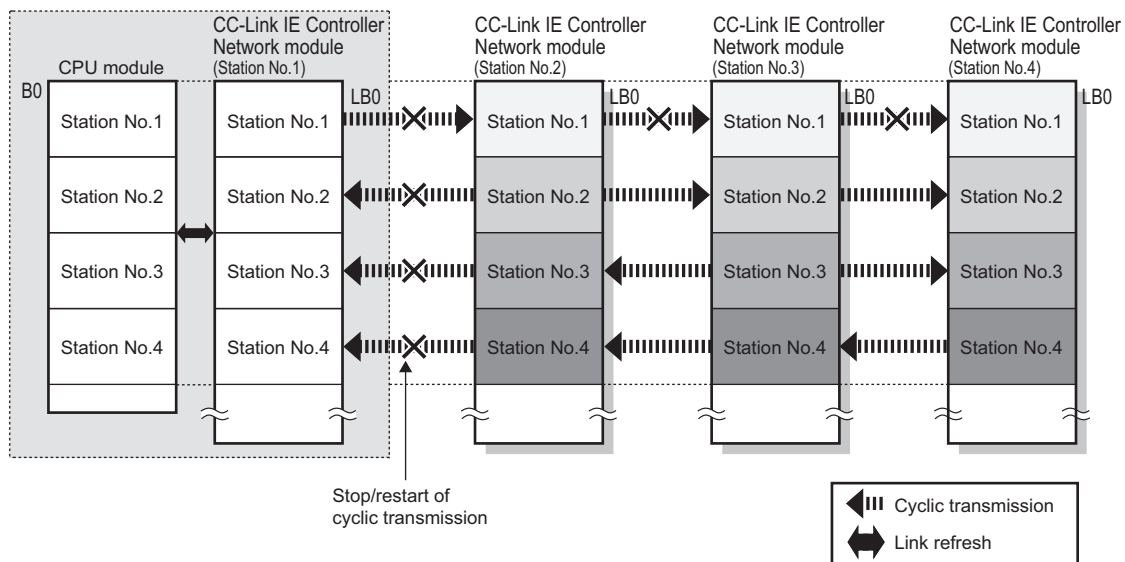
- When using it in a multiple CPU system
If different control CPUs are set for the network modules, interlink transmission is not executable with interlink transmission parameters or a sequence program.
In such a case, use the CPU shared memory of the multiple CPU system.
For details of the CPU shared memory, refer to the following.
📖 QCPU User's Manual (Multiple CPU System)

4.1.12 Stop/restart of cyclic transmission

Receiving data from other stations and sending data of its own station can be disabled in a case such as debugging. (Transient transmission is not stopped.)

Each station's cyclic transmission can be stopped or restarted with a programming tool.

Note that this function is not available in circuit test mode.

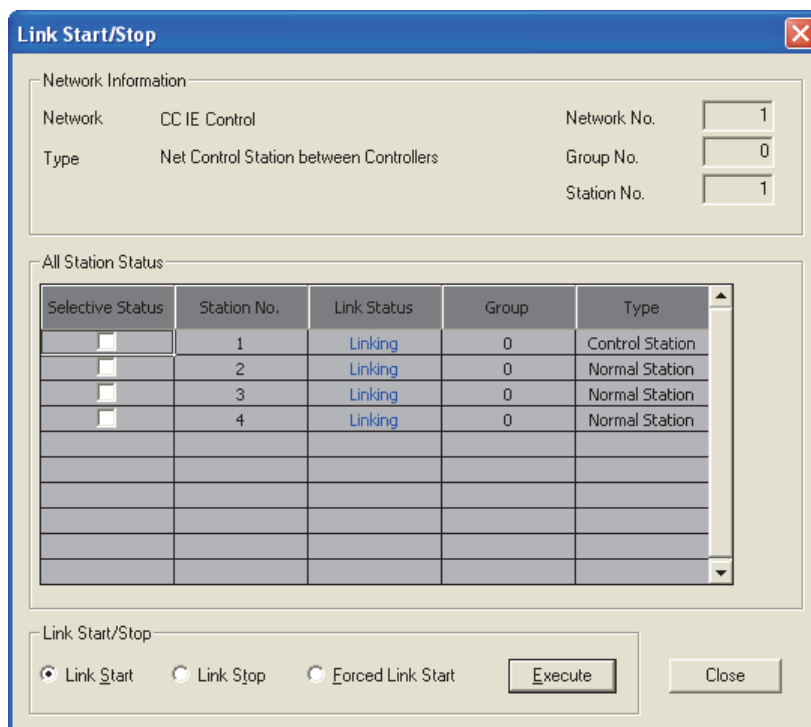


(1) Operation procedure

1. Open the "Link Start/Stop" window in the programming tool.

[Diagnostics] ⇨ [CC IE Control Diagnostics] ⇨ button

2. Operate the programming tool with reference to the following steps.



(2) Stopping cyclic transmission

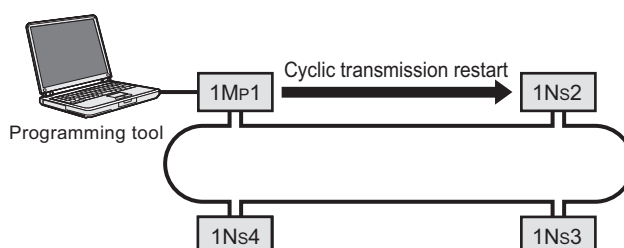
1. Select the target station(s).

Target station	Specification method ^{*1}
Specific station	Check the "Selective Status" checkbox of the target station. Multiple stations can be selected.
Group	Right-click on the line of the target group, and click [Group Selection].
All stations	Right-click on the "All Station Status" window, and click [Select All].

*1 Right-clicking on the "All Station Status" window and clicking [Cancel Select All] cancels all the selection.

2. Select the "Link Stop" radio button and click the button.

- By executing "specific station", the cyclic transmission of 1N_S2 can be stopped.



3. The target station will stop cyclic transmission.

While cyclic transmission is being stopped, the D LINK LED of the target station is flashing.

Remark

If cyclic transmission of the station connected to a programming tool (own station) is stopped with this function, the own station is disconnected from the network and thereby all stations are displayed as faulty stations in the CC IE Control diagnostics.

When cyclic transmission of the own station is resumed according to Page 93, Section 4.1.12 (3), all of them will change to normal stations on the display.

Note that, if there is any other station that stops its cyclic transmission, the station will be displayed as a faulty station. (Cyclic transmission of the station does not restart.)

(3) Restarting cyclic transmission

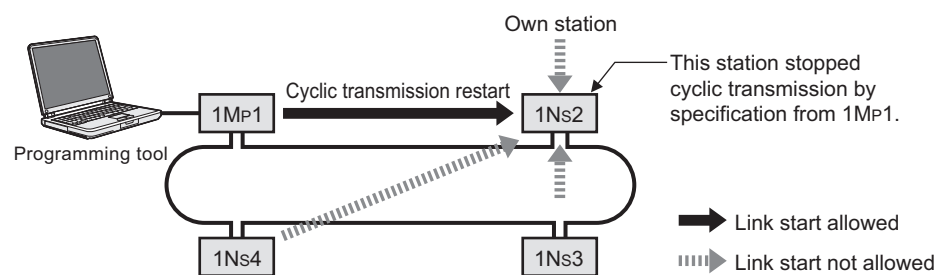
1. Select the target station(s).

Target station	Specification method ^{*1}
Specific station	Check the "Selective Status" checkbox of the target station. Multiple stations can be selected.
Group	Right-click on the line of the target group, and click [Group Selection].
All stations	Right-click on the "All Station Status" window, and click [Select All].

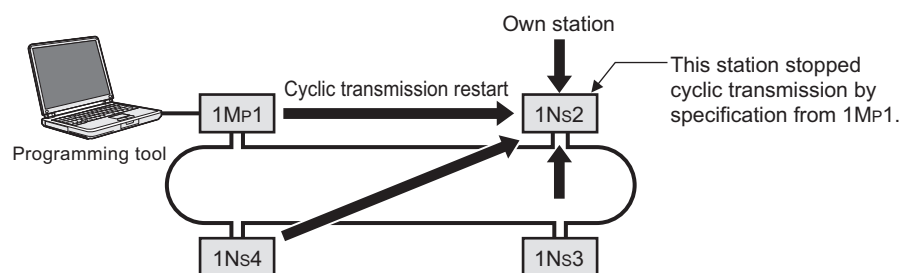
*1 Right-clicking on the "All Station Status" window and clicking [Cancel Select All] cancels all the selection.

2. Select the "Link Start" or "Forced Link Start" radio button and click the Execute button.

- [Link Start]: Allows execution from the station where cyclic transmission was stopped



- [Forced Link Start]: Allows execution from any of all stations.



3. The target station will resume cyclic transmission.

When cyclic transmission is restarted, the D LINK LED of the target station turns on.

Point

- When the target station is powered ON from OFF or when the CPU module is reset, cyclic transmission is also restarted.
- Link start cannot be performed in the following stations.
 - A station where cyclic transmission has been stopped due to an error
 - A station where a link has been stopped by a command from another station^{*1}
 - A station where a link has been stopped by link special relay (SB) or link special register (SW)^{*1}

*1 Selecting "Forced Link Start" starts the link.

4.2 Transient Transmission Function

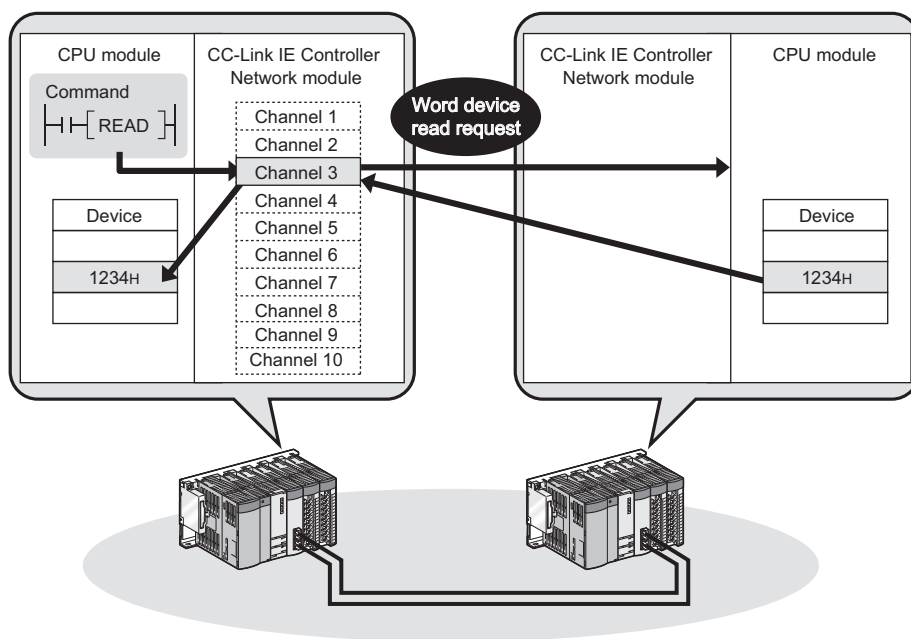
This function allows communication with another station when a request is made with a dedicated instruction or a programming tool.

(1) Communication with a programmable controller on another station by a link dedicated instruction

Using a link dedicated instruction, communication with a programmable controller on another station is available.

(☞ Page 324, CHAPTER 9)

Communications can be made with programmable controllers on the same or other networks.

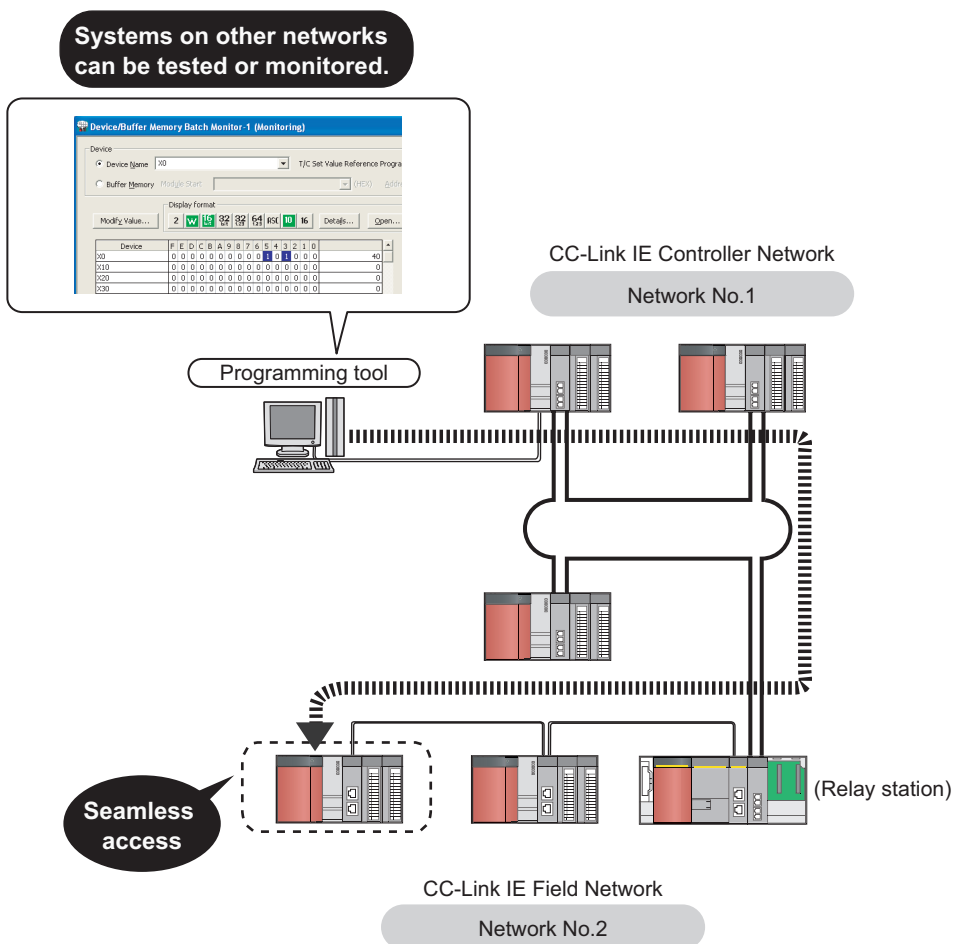


(2) Seamless access with a programming tool

With a programming tool allows seamless access to the Ethernet, CC-Link IE Controller Network, MELSECNET/H, MELSECNET/10, CC-Link IE Field Network, and CC-Link systems.

For a programming tool, refer to the following.

- 📖 GX Developer Version□ Operating Manual
- 📖 GX Works2 Version□ Operating Manual (Common)

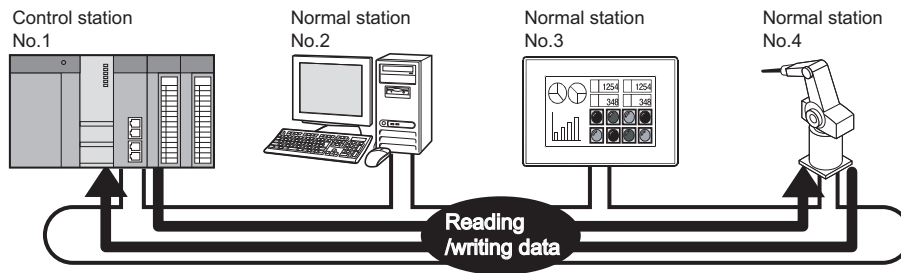


(3) Communication with CC-Link IE Controller Network compatible devices using CC-Link dedicated instructions

CC-Link dedicated instructions allows data communications with CC-Link IE Controller Network and CC-Link IE Field Network compatible devices. Communications are available with stations on the same network.

(☞ Page 324, CHAPTER 9)

Transient request scan be also received from CC-Link IE Controller Network and CC-Link IE Field Network compatible devices.



4.2.1 List of dedicated instructions and transient transmission range

(1) List of link dedicated instructions and transient transmission range

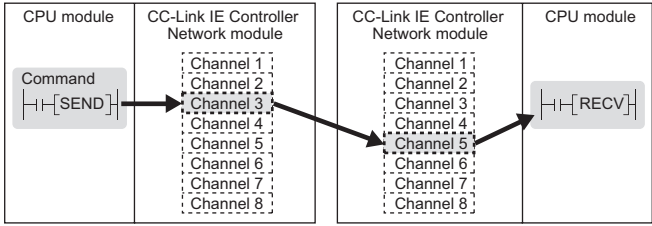
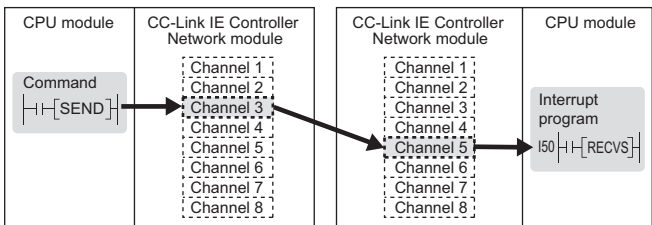
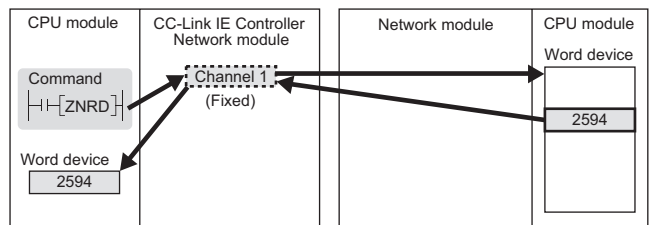
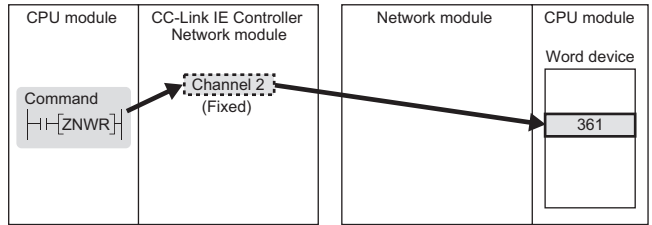
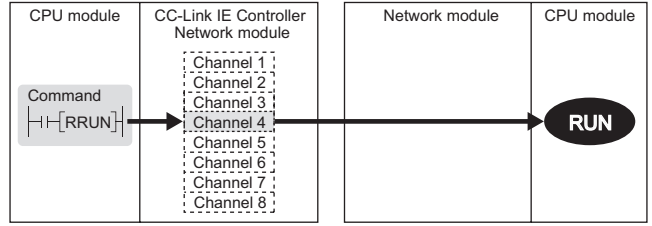
(a) List of link dedicated instructions

The table below shows the link dedicated instructions that can be used for CC-Link IE Controller Network modules.

For how to use link dedicated instructions, refer to the following.

Page 324, CHAPTER 9

Instruction *1	Description	Target (another station)	
		Target network	Target station type
READ SREAD	<p>Reads data from a device of a programmable controller on another station. (In units of words)</p>	<ul style="list-style-type: none"> • CC-Link IE Controller Network • CC-Link IE Field Network • MELSECNET/H • MELSECNET/10 • Ethernet 	<ul style="list-style-type: none"> • QCPU • RCPU • LCPU • QnACPU
WRITE SWRITE	<p>Writes data to a device of a programmable controller on another station. (In units of words)*3</p>	<ul style="list-style-type: none"> • CC-Link IE Controller Network • CC-Link IE Field Network • MELSECNET/H • MELSECNET/10 • Ethernet 	<ul style="list-style-type: none"> • QCPU • RCPU • LCPU • QnACPU
REQ	<p>Makes the following transient request to a programmable controller on another station.</p> <ul style="list-style-type: none"> • Remote RUN/STOP*2 • Clock data reading/writing*3 	<ul style="list-style-type: none"> • CC-Link IE Controller Network • CC-Link IE Field Network • MELSECNET/H • MELSECNET/10 • Ethernet 	<ul style="list-style-type: none"> • QCPU • RCPU • LCPU • QnACPU

Instruction*1	Description	Target (another station)	
		Target network	Target station type
SEND	<p>SEND: Sends data to a programmable controller on another station.*2</p> <p>RECV: Reads data received from a programmable controller on another station. (For main program)*2</p> <p>RECVS: Reads data received from a programmable controller on another station. (For interrupt program)*2</p>	<ul style="list-style-type: none"> • CC-Link IE Controller Network • CC-Link IE Field Network • MELSECNET/H • MELSECNET/10 • Ethernet 	<ul style="list-style-type: none"> • QCPU • RCPU • LCPU • QnACPU • Interface board for a personal computer*4
RECV		<ul style="list-style-type: none"> • CC-Link IE Controller Network 	<ul style="list-style-type: none"> • QCPU
RECVS			
ZNRD	<p>Reads data from devices of a programmable controller on another station. (In units of words)*2</p> 	<ul style="list-style-type: none"> • CC-Link IE Controller Network • CC-Link IE Field Network • MELSECNET/H • MELSECNET/10 • Ethernet 	<ul style="list-style-type: none"> • QCPU • RCPU • LCPU • QnACPU • AnUCPU*5 • AnACPU • AnNCP
ZNWR	<p>Writes data to devices of a programmable controller on another station. (In units of words)*2</p> 	<ul style="list-style-type: none"> • CC-Link IE Controller Network • CC-Link IE Field Network • MELSECNET/H • MELSECNET/10 • Ethernet 	<ul style="list-style-type: none"> • QCPU • RCPU • LCPU • QnACPU • AnUCPU*5 • AnACPU • AnNCP
RRUN	<p>Instructs a programmable controller on another station to run remotely.*2</p> 	<ul style="list-style-type: none"> • CC-Link IE Controller Network • CC-Link IE Field Network • MELSECNET/H • MELSECNET/10 • Ethernet 	<ul style="list-style-type: none"> • QCPU • RCPU • LCPU

Instruction ^{*1}	Description	Target (another station)	
		Target network	Target station type
RSTOP	<p>Instructs a programmable controller on another station to stop remotely.^{*2}</p>	<ul style="list-style-type: none"> • CC-Link IE Controller Network • CC-Link IE Field Network • MELSECNET/H • MELSECNET/10 • Ethernet 	<ul style="list-style-type: none"> • QCPU • RCPU • LCPU
RTMRD	<p>Reads clock data from a programmable controller on another station.</p>	<ul style="list-style-type: none"> • CC-Link IE Controller Network • CC-Link IE Field Network • MELSECNET/H • MELSECNET/10 • Ethernet 	<ul style="list-style-type: none"> • QCPU • RCPU • LCPU
RTMWR	<p>Writes clock data to a programmable controller on another station.^{*3}</p>	<ul style="list-style-type: none"> • CC-Link IE Controller Network • CC-Link IE Field Network • MELSECNET/H • MELSECNET/10 • Ethernet 	<ul style="list-style-type: none"> • QCPU • RCPU • LCPU

○ : Executable, × : Not executable

*1 Check the serial No. and software version for applicability. (☞ Page 606, Appendix 3)

*2 Cannot be used if the own station or target station is a safety CPU.

*3 Writing to a safety CPU is not allowed from other stations.

*4 The following interface boards with the SEND/RECV function can be accessed.

- CC-Link IE Controller Network interface board
- CC-Link IE Field Network interface board
- MELSECNET/H interface board
- MELSECNET/10 interface board

*5 When the target station is an A2UCPU(S1), A3UCPU, A4UCPU, A2ASCPU(S1), or A2USCPU(S1), use the CPU module with the following version or later.

- A2UCPU(S1), A3UCPU, A4UCPU: Version AY (manufactured since July, 1995) or later
- A2ASCPU(S1), A2USCPU(S1): Version CP (manufactured since July, 1995) or later

(b) Transient transmission range of link dedicated instructions

- Single network system

Communication is available with all of the stations in the network.


Note that the specification range of the target station No. varies depending on the CPU module on the own station.

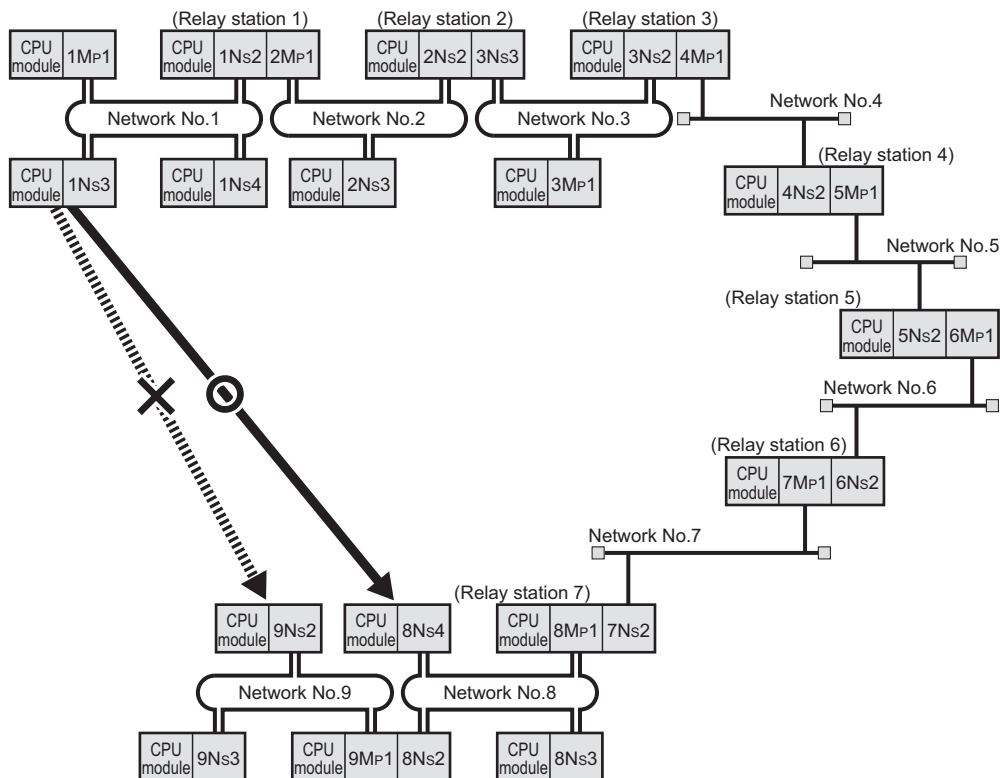
Target station	Own station (request source)	
	Universal model QCPU	Other than Universal model QCPU
Station No.1 to 64	○	○
Station No.65 to 120	○	x*1

○ : Available, x: N/A


- *1 When the own station is in a multiple CPU system, connecting a peripheral to a Universal model QCPU enables access to station No.65 to 120 via a CC-Link IE Controller Network module controlled by a QCPU other than Universal model QCPU.

- Multi-network system

In a multi-network system, using the routing function allows communication with a station located in the eighth farthest network. ( Page 103, Section 4.2.3)



Point


By "Communication Test" in a programming tool, whether routing of transient transmission can be correctly performed between the own station and a communication destination can be checked. ( Page 174, Section 5.7.1)

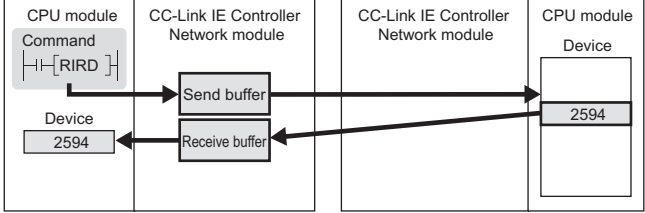
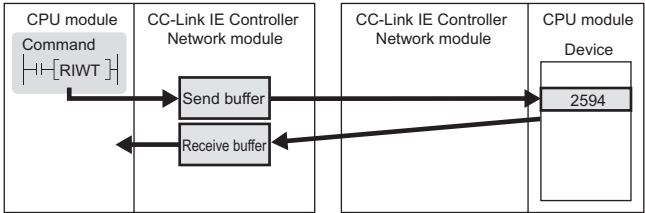
(2) CC-Link dedicated instruction list and transient transmission range


(a) CC-Link dedicated instruction list

The CC-Link dedicated instructions that can be used for the CC-Link IE Controller Network module are listed below.

For how to use CC-Link dedicated instructions, refer to the following.

 Page 324, CHAPTER 9

Instruction*1	Description	Target network	Target (another station)
RIRD	Reads the specified points of data from the target station's device.*2 	CC-Link IE Controller Network	CC-Link IE Controller Network compatible device
RIWT	Writes the specified points of data to the target station's device.*3 	CC-Link IE Controller Network	CC-Link IE Controller Network compatible device

*1 Check the serial No. and software version for applicability. ( Page 606, Appendix 3)

*2 Cannot be used if the own station is a safety CPU.

*3 Cannot be used if the own station or target station is a safety CPU.

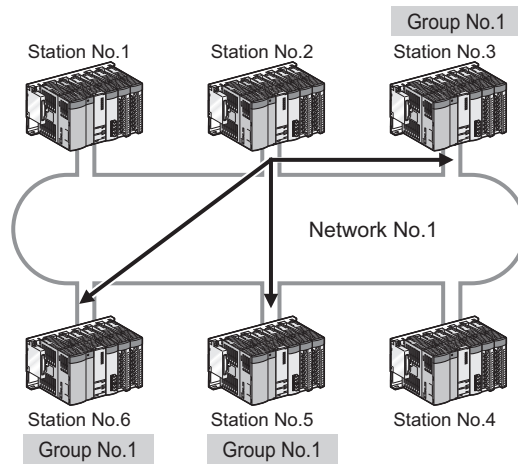
(b) Transient transmission range of a CC-Link dedicated instruction

Communications are available with all stations on the same network, but not available with stations on other networks.

4.2.2 Group function

By specifying transient transmission target stations as a group, data can be sent to all stations of the same group No. Set the group No. of the CC-Link IE Controller Network module in the network parameters of a programming tool.

(☞ Page 180, Section 6.2)



Point

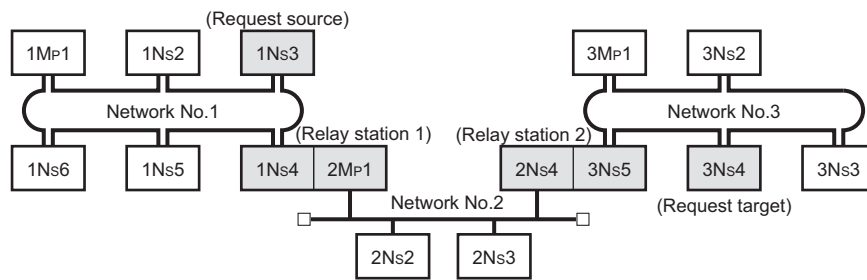
- One network can be divided into up to 32 groups.
 - In the case of transient transmission using group specification, whether the instruction has reached the target or not cannot be confirmed.
-

4.2.3 Routing function

This function allows transient transmissions to stations located on other networks in a multi-network system. By setting a routing parameter for a relay station on the own network, transient data can be sent to another network through the relay station. (☞ Page 238, Section 6.9)

(1) Operation of the routing function

Ex. When transient data are sent from the request source (1Ns3) to the request target (3Ns4)



Station	Transient transmission (request)			Transient transmission (response)								
Request source	1Ns3	<table border="1"> <tr> <th>Target network No.</th> <th>Relay network No.</th> <th>Relay station No.</th> </tr> <tr> <td>3</td> <td>1</td> <td>4</td> </tr> </table> <p>Passes data to relay station 1Ns4 on its own network to reach network No.3.</p>	Target network No.	Relay network No.	Relay station No.	3	1	4		1Ns3		
Target network No.	Relay network No.	Relay station No.										
3	1	4										
Relay station 1	1Ns4 2Mp1	<table border="1"> <tr> <th>Target network No.</th> <th>Relay network No.</th> <th>Relay station No.</th> </tr> <tr> <td>3</td> <td>2</td> <td>4</td> </tr> </table> <p>Passes the data to relay station 2Ns4 to reach network No.3.</p>	Target network No.	Relay network No.	Relay station No.	3	2	4		1Ns4 2Mp1		Passes the data to 1Ns3 on network No.1.
Target network No.	Relay network No.	Relay station No.										
3	2	4										
Relay station 2	2Ns4 3Ns5	Passes the data to 3Ns4 on network No.3.		2Ns4 3Ns5	<table border="1"> <tr> <th>Target network No.</th> <th>Relay network No.</th> <th>Relay station No.</th> </tr> <tr> <td>1</td> <td>2</td> <td>1</td> </tr> </table> <p>Passes the data to relay station 2Mp1 to reach network No.1</p>	Target network No.	Relay network No.	Relay station No.	1	2	1	
Target network No.	Relay network No.	Relay station No.										
1	2	1										
Request target	3Ns4					Automatically gives data to the relay station.						


4

4.2 Transient Transmission Function
4.2.3 Routing function

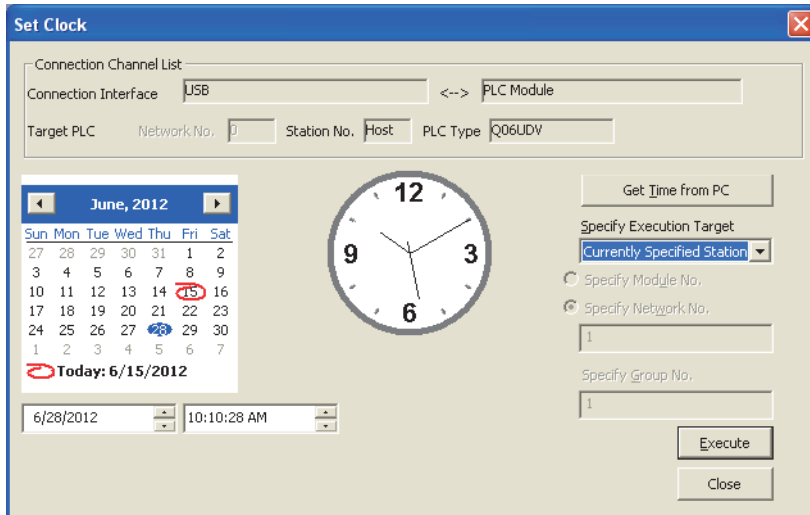
4.2.4 Clock setting with a programming tool

With a programming tool, the clock of the CPU module that is connected to the network can be set up. Setting the clock time for multiple stations is also available.

1. Open the "Set Clock" window in the programming tool.

 [Online] ⇄ [Set Clock]

2. Enter the date, time, and day. Then refer to the following to configure the setting.
3. Click the **Execute** button.




Item	Description
Connection Channel List	Displays the connection target information.
Get Time from PC	Click the button so that the date and time set in the personal computer are entered.
Specify Execution Target	Set a station for which time is set. <ul style="list-style-type: none"> • Currently Specified Station: Executed to the station connected to the programming tool. • All Stations: Executed to all stations in the network specified in "Specify Module No." or "Specify Network No." • Specified Group: Executed to the specified group No. in the network specified in "Specify Module No." or "Specify Network No."


Point

- The clock time is set up regardless of the ON/OFF status of SM210 (Clock data set request) of the CPU module. (The ON/OFF status of SM210 does not change after execution of the time setup.)
- The set time data are stored in SD210 to SD213 (Clock data) when SM213 (Clock data read request) of the CPU module turns ON.
- Set time will generate a time error equivalent to the transfer time.

4.2.5 Changing the number of transient transmissions

The number of transient transmissions that one station can execute during one link scan can be changed. ( Page 201, Section 6.3.6)

Point

- When a large number is set, if multiple transient requests are made in one link scan, the link scan time will be increased temporarily. Therefore, do not set a number larger than necessary.
 - When the fixed link scan time is desired, use the feature of the cyclic transmission punctuality assurance. ( Page 80, Section 4.1.6)
-

4.3 IP Packet Transfer Function

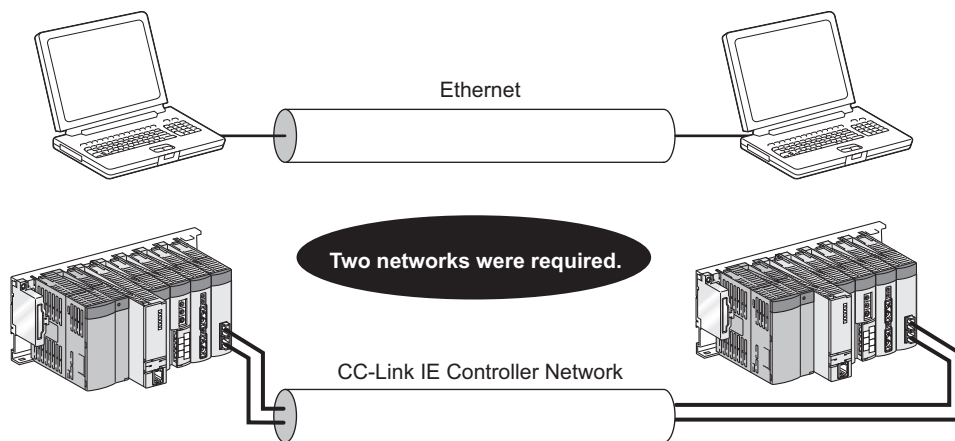
Communication using the specified IP address can be performed over CC-Link IE Controller Network.

For example, a personal computer can communicate with the FTP server.

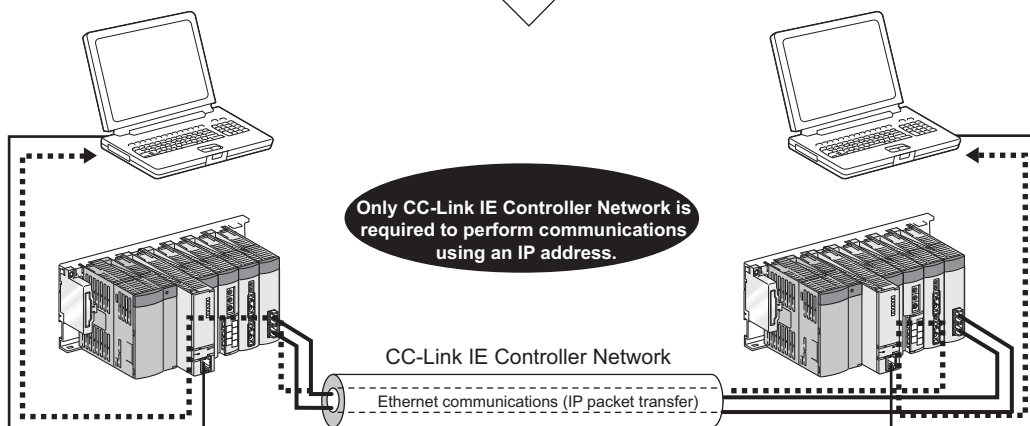
With the IP packet transfer function, two networks of CC-Link IE Controller Network and Ethernet are not required, resulting in reducing the wiring cost.

To use the IP packet transfer function, the setting with GX Works2 is required. GX Developer cannot be used for setting.

Conventional way



When the IP packet transfer function is used



Point

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

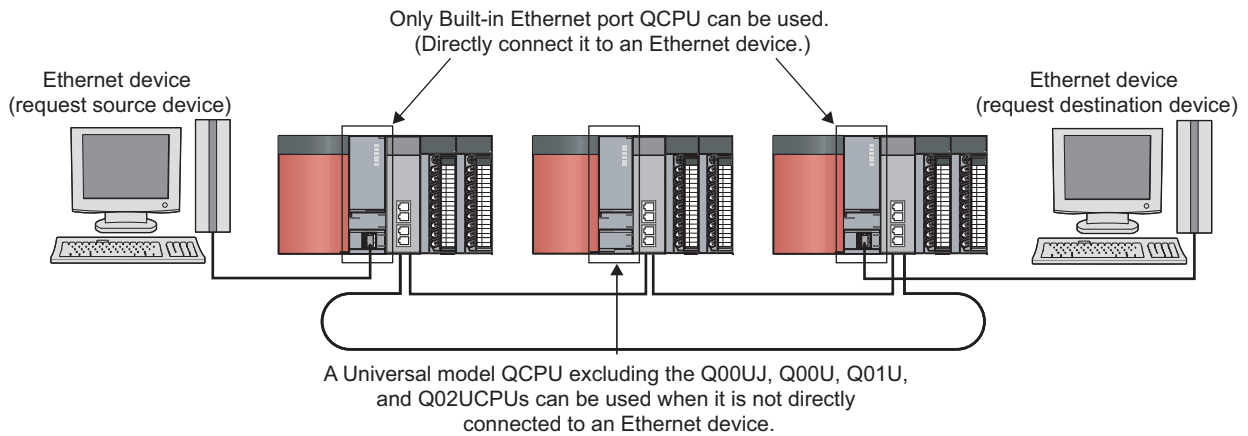
- Service processing by a sequence scan of a CPU module
- Link scan on CC-Link IE Controller Network

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 122, Section 4.3.7.

4.3.1 System configuration of the IP packet transfer function

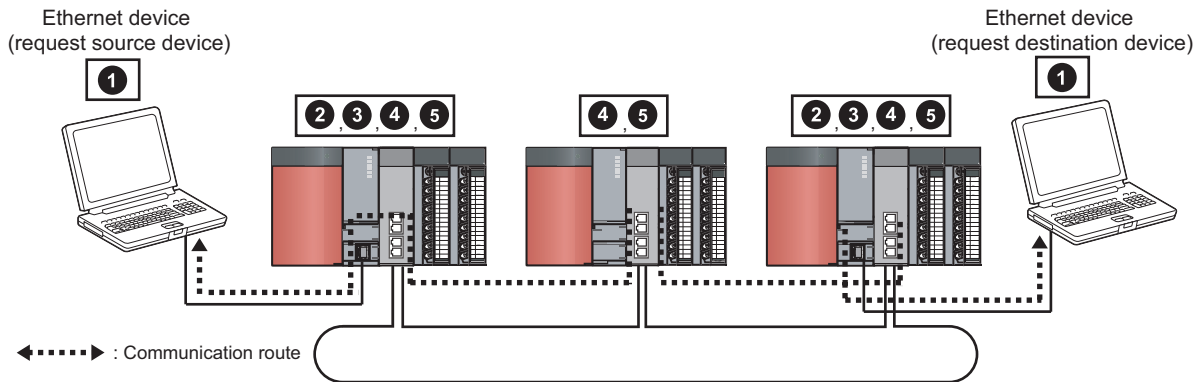
Connect an Ethernet device to an Ethernet port on a Built-in Ethernet port QCPU.

Note, however, that a Universal model QCPU (excluding the Q00UJ, Q00U, Q01U, and Q02UCPU) 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.



4.3.2 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 setting (☞ Page 111, Section 4.3.2 (2) (a))
- ③ IP packet transfer setting (☞ Page 111, Section 4.3.2 (2) (a))
This setting is required for the IP packet to be passed between a CPU module and a CC-Link IE Controller Network module.
- ④ IP address setting of a CC-Link IE Controller Network module (☞ Page 112, Section 4.3.2 (2) (b))
- ⑤ Routing parameters setting (☞ Page 238, Section 6.9)
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.
- Checking after the setting is completed
Execute the IP communication test to check for an error in the communication route. (☞ Page 113, Section 4.3.3)

(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		②, ③, and ④	
CPU module connected to the Ethernet device	① 0.0 to 223.255* ¹ (Same numbers for the request source device, request destination device, and modules between them)	1 to 239* ¹ (Same number for the Ethernet device and the CPU module)	② 1 to 120* ¹
CC-Link IE Controller Network module		② and ④ Automatically set (network number of the own station) 1 to 239	② Automatically set (station number of the own station) 1 to 120
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.

- ① Use the same numbers for the first and second octets of the IP addresses (network addresses) of the request source device, the request destination device, and modules between them.

192 . 168 . 10 . 36

Network address

Setting range: 0.0 to 223.255

Set the same network address to the networks of all the devices from the request source device to the request destination device.

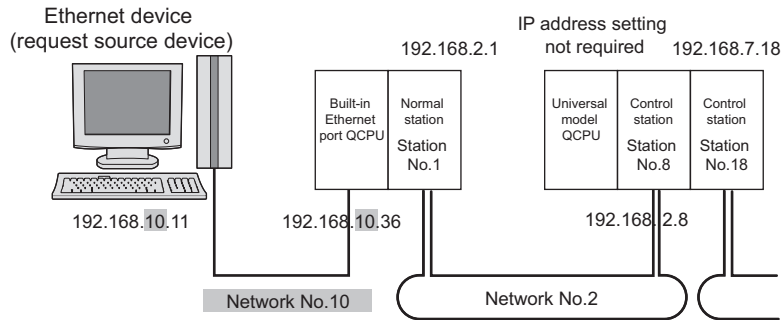
- ② Set the third and fourth octets of the IP address within the ranges described below.
The network number of the own station is automatically assigned to the third octet of the IP address of the CC-Link IE Controller Network module. The station number of the own station is automatically assigned to the fourth octet of the IP address of the CC-Link IE Controller Network module.

CPU module: 1 to 239
CC-Link IE Controller Network module: Network number including the own station

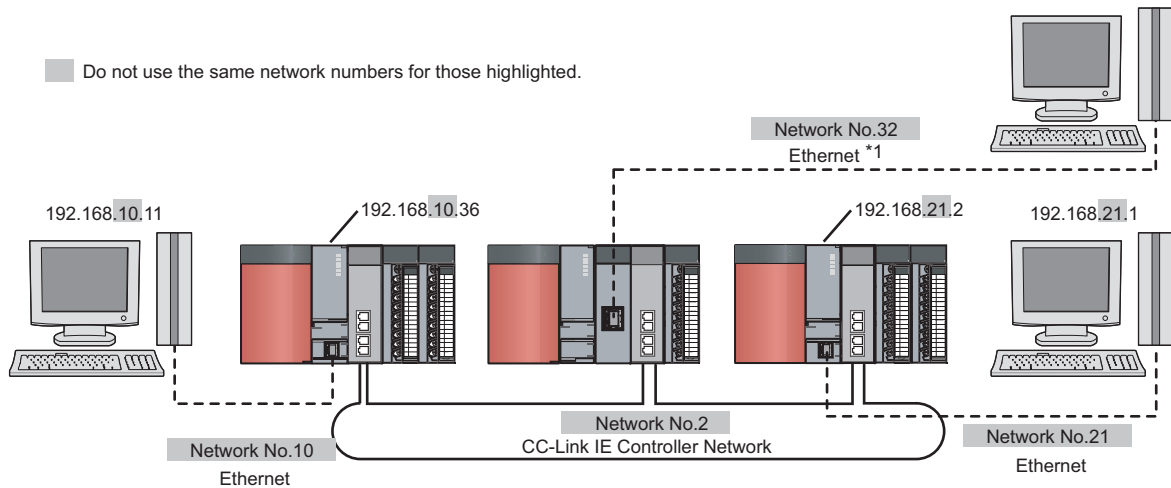
192 . 168 . 10 . 36

CPU module: 1 to 120
CC-Link IE Controller Network module: Own station No.

- 3 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.



- 4 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 CC-Link IE Controller Network module.

Ex. QJ71E71-100 (Ethernet interface module)

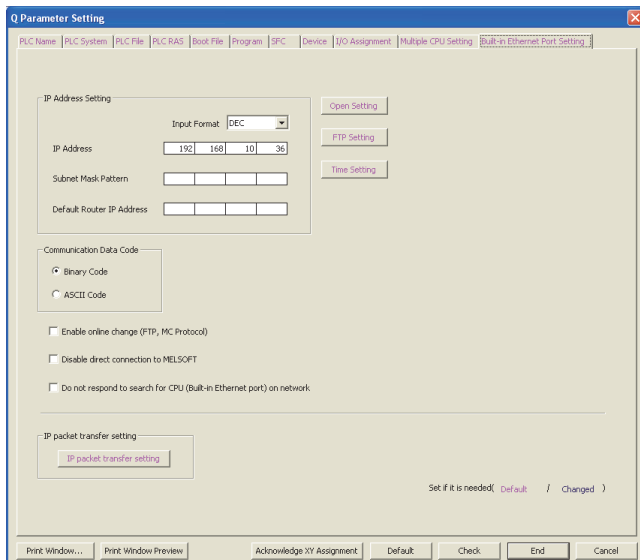
Point

- 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 118, Section 4.3.6

(a) Setting in the CPU module



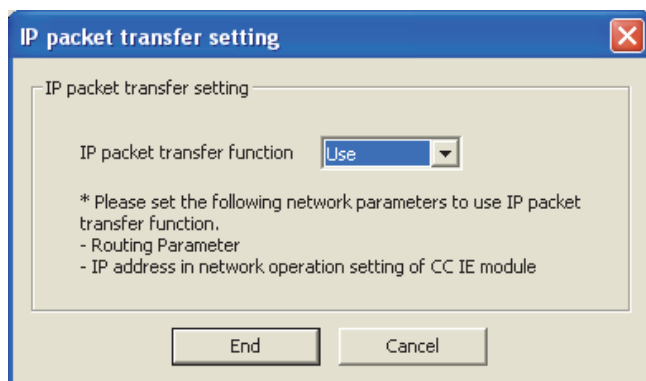
1. Open the "Q Parameter Setting" window to set the IP address.

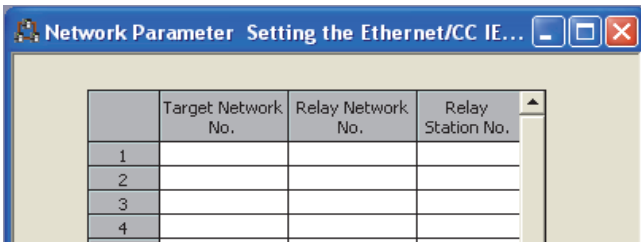
Project window ⇒ [Parameter] ⇒ [PLC Parameter] ⇒ "Built-in Ethernet Port Setting"

Follow the rules to set the IP address. (Page 109, Section 4.3.2 (1))

4

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





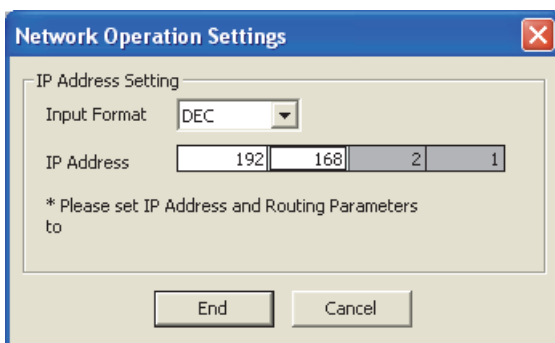
3. Set the routing parameters.

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

For details on the routing parameters, refer to the following. (⇨ Page 240, Section 6.9 (2))

Item	Description
Target Network No.	Set the own network station where communications are transmitted through to reach the Ethernet device. Set the routing parameters for all the CPU modules on the communication route. Set the routing parameters as follows. Ex. When the network address of the Ethernet device and CPU module is the same as that of the control station
Relay Network No.	To transmit communications to the network No. ●, the IP packet passes through the station with the own network No. ▲ and station No. ☆.
Relay Station No.	To transmit communications to the network No. ■, the IP packet passes through the station with the own network No. ▲ and station No. ☆.

(b) Setting in the control station



1. Open the "Network Operation Settings" window.

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

2. In the "IP Address Setting" field, set the network address.

Follow the rules to set the address. (⇨ Page 109, Section 4.3.2 (1))

(c) Setting in the normal stations

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

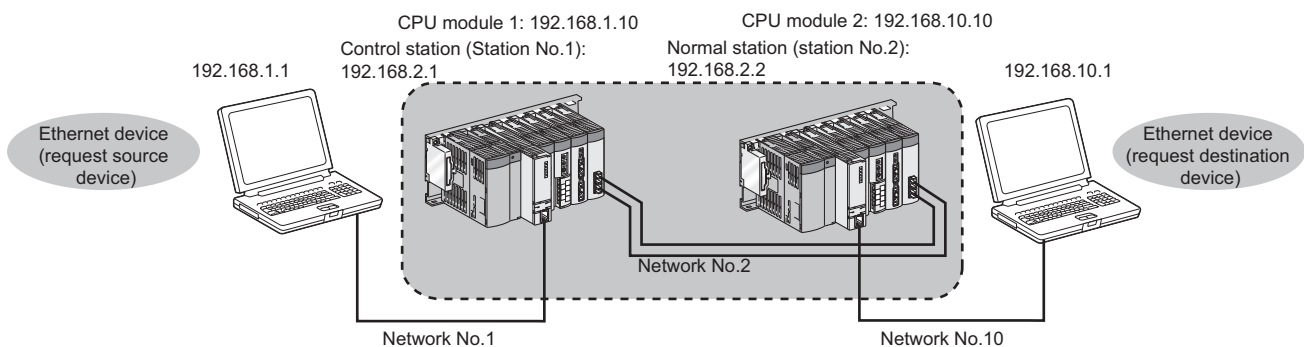
The same network address as the control station is automatically assigned to the first and second octets. The network number of the own station is assigned to the third octet, and the station number of the own station is assigned to the fourth octet.

4.3.3 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.
- If a CPU module or a CC-Link IE Controller Network module that does not support the IP packet transfer function is connected in the communication route.

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



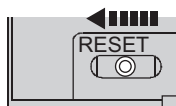
The IP communication test allows the communication paths in the dotted line above to be checked.

1. Set parameters for the CPU module and CC-Link IE Controller Network module. (☞ Page 111, Section 4.3.2 (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.

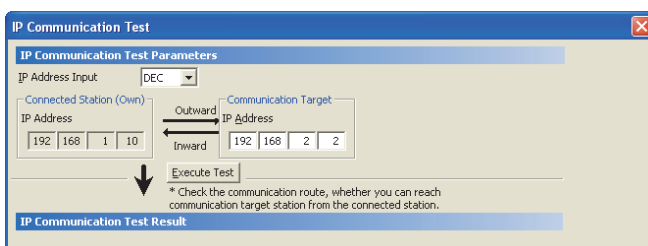
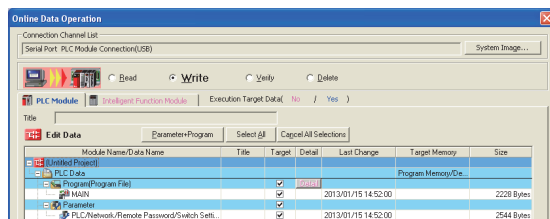


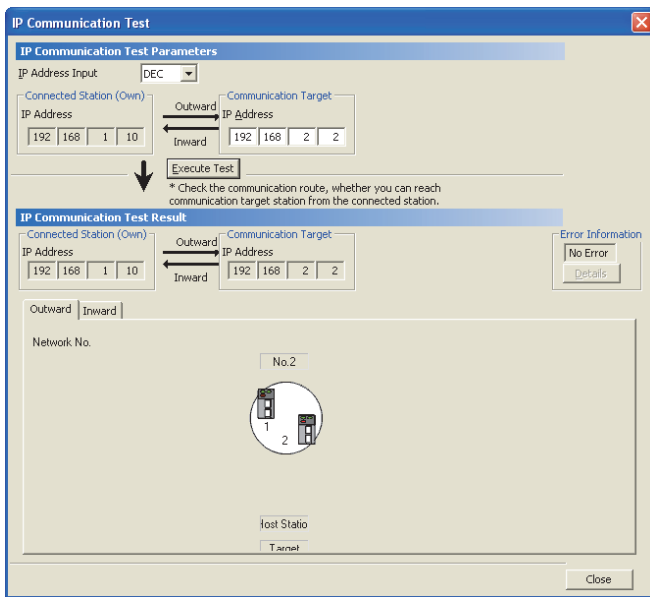
or power OFF → ON

4. Open the "IP Communication Test" window. Enter the IP address of the CPU module 2 or the normal station (station No.2) connected to the request destination device in "Communication Target".

☞ [Diagnostics] ⇒ [CC IE Field Diagnostics] ⇒

IP Communication Test... button





5. Click the 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 button in the "Error Information" area to check the error information.

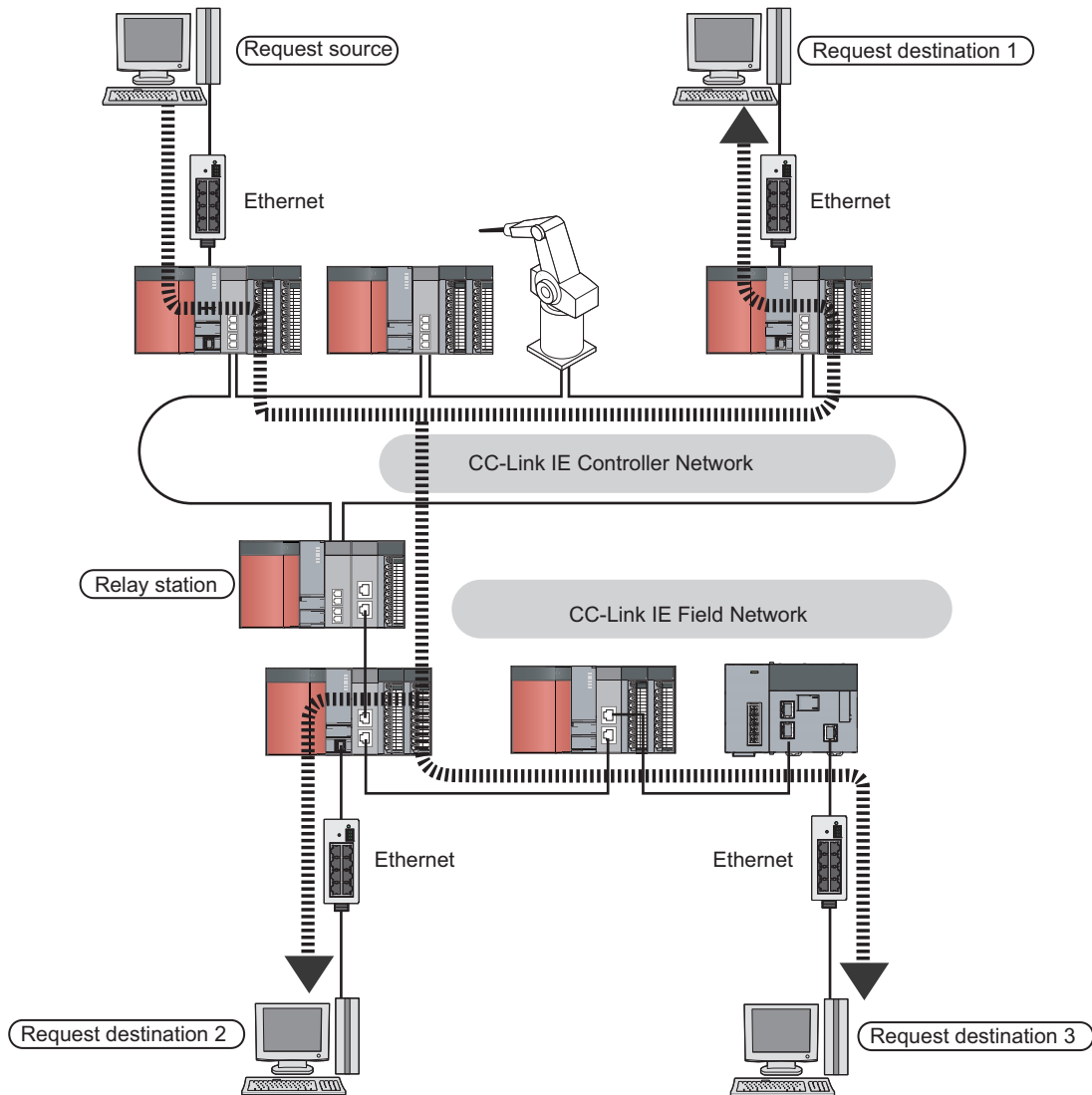
- In the "Outward" tab, the communication route from the device set in "Connected Station" to the device set in "Communication Target" is displayed.
- In the "Inward" tab, the communication route from the device set in "Communication Target" to the device set in "Connected Station" is displayed.

Point

- If the cause cannot be identified from the error information after the IP communication test is executed, or communications cannot be performed even through the IP communication test is normally completed, follow the troubleshooting instructions and take corrective actions. (☞ Page 505, Section 10.1.8)
- 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 CC-Link IE Controller Network module can be checked using an 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).

4.3.4 Relay using CC-Link IE Field Network

The IP packet transfer function can be used through CC-Link IE Controller Network then CC-Link IE Field Network.



Point

For products supporting the IP packet transfer function in CC-Link IE Field Network, refer to the following.

Manual of products related to the CC-Link IE Field Network used

4.3.5 Precautions

(1) Modules supporting the IP packet transfer function

(a) CC-Link IE Controller Network module and GX Works2

Before using the IP packet transfer function, check the versions of the CC-Link IE Controller Network module and GX Works2. (☞ Page 610, Appendix 3 (5))

(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.

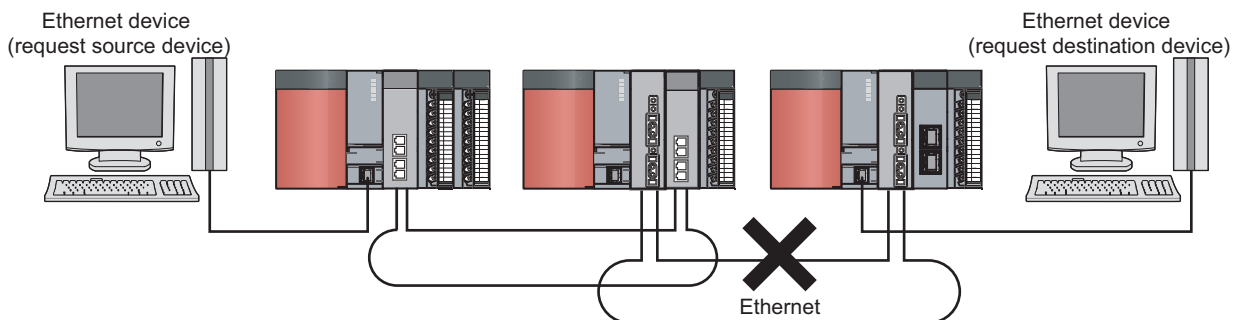
(2) Communications before a baton pass is established (the D LINK LED turns off)

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

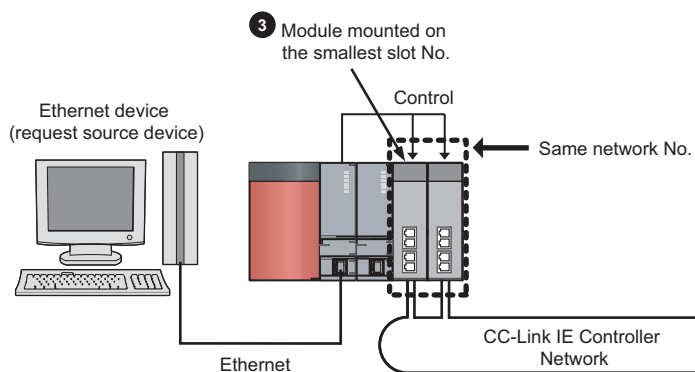
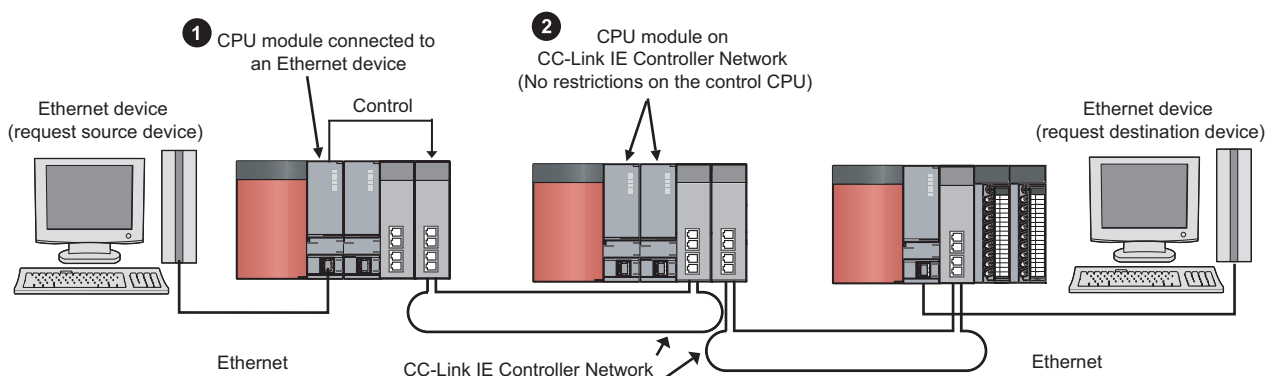
Using UDP may reduce the reliability of data communications compared to TCP, causing a problem, such as data missing and changed order of data receiving. If any problem occurs, change the protocol to TCP.

(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.

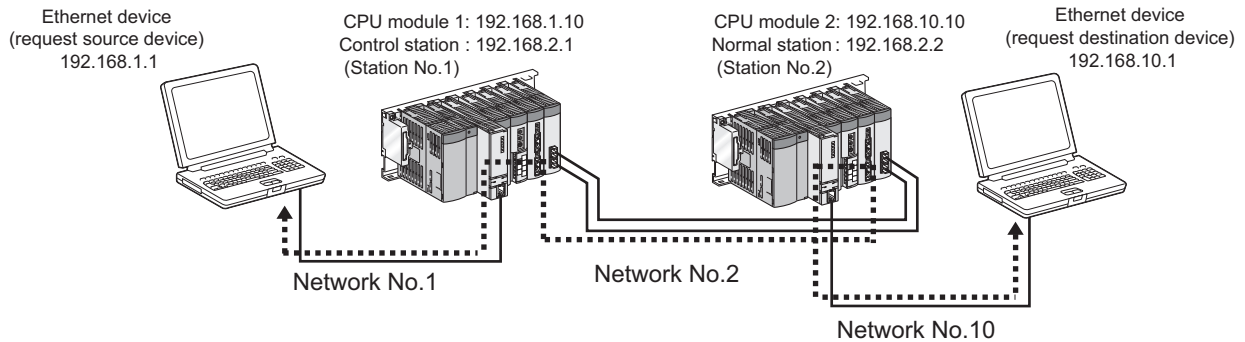
(6) Precautions when configuring a multiple CPU system

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



4.3.6 Example of communications using the IP packet transfer function

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



◄.....►: Route through which IP packets are passed (Routing parameters must be set.)

(1) Setting in the CPU module 1 and control station (station number 1)

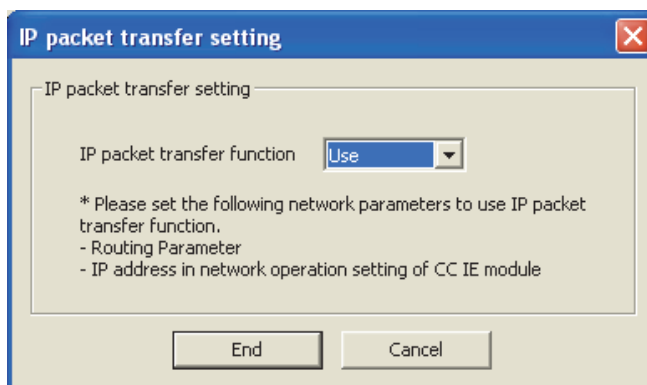
1. Set the IP address in the CPU module 1.

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" ⇨

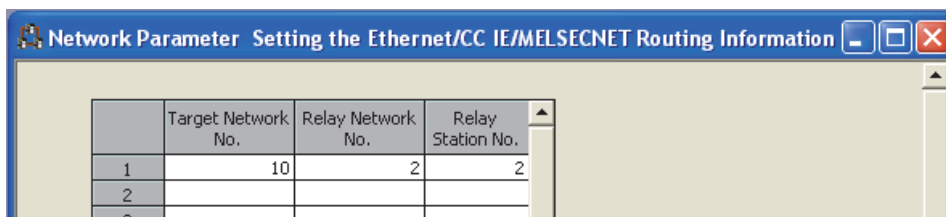
IP packet transfer setting button



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

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

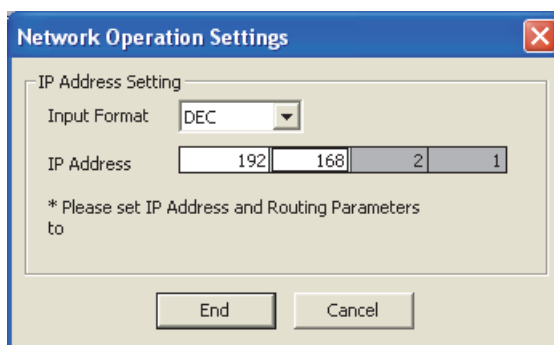
Routing Parameters button



4. Set the IP address in the control station (station number 1).

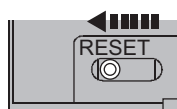
Project window ⇨ [Parameter] ⇨ [Network Parameter] ⇨ [Ethernet/CC IE/MELSECNET] ⇨

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

(2) Setting in the CPU module 2 and normal station (station number 2)

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

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

The screenshot shows the 'Q Parameter Setting' dialog box with the 'Built-in Ethernet Port Setting' tab selected. The 'IP Address Setting' section includes an 'Input Format' dropdown set to 'DEC', an 'IP Address' field with the value '192.168.10.10', and empty fields for 'Subnet Mask Pattern' and 'Default Router IP Address'. To the right are buttons for 'Open Setting', 'FTP Setting', and 'Time Setting'. The 'Communication Data Code' section has radio buttons for 'Binary Code' (selected) and 'ASCII Code', and three checkboxes: 'Enable online change (FTP, MC Protocol)', 'Disable direct connection to MELSOFT', and 'Do not respond to search for CPU (Built-in Ethernet port) on network'. At the bottom, there is an 'IP packet transfer setting' button and a status indicator 'Set if it is needed(Default / Changed)'. The footer contains buttons for 'Print Window...', 'Print Window Preview', 'Acknowledge XY Assignment', 'Default', 'Check', 'End', and 'Cancel'.

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

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

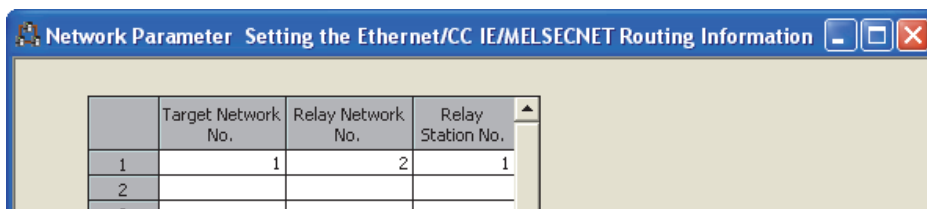
IP packet transfer setting button

The screenshot shows the 'IP packet transfer setting' dialog box. It features a dropdown menu for 'IP packet transfer function' set to 'Use'. Below the dropdown is a note: '* Please set the following network parameters to use IP packet transfer function. - Routing Parameter - IP address in network operation setting of CC IE module'. At the bottom are 'End' and 'Cancel' buttons.

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

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

Routing Parameters button

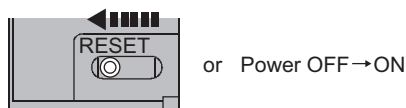


4. The normal station (station number 2) does not require an IP address.

The network address set in the control station (station number 1) 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.

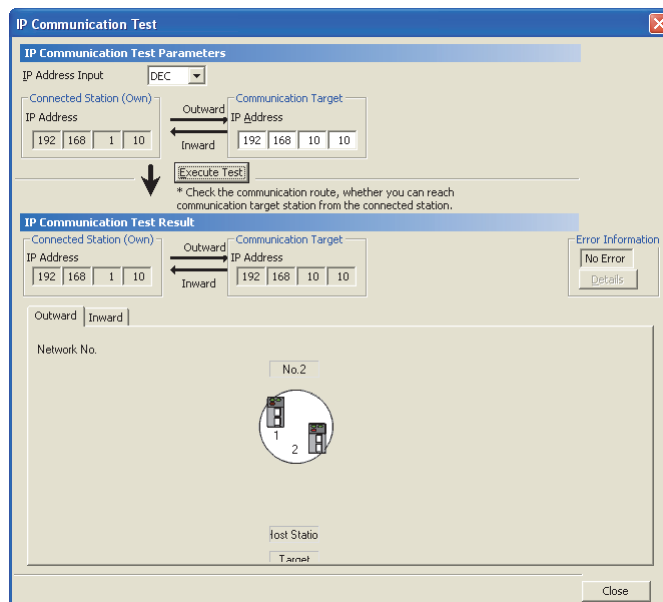
[Online] ⇒ [Write to PLC]



(3) 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. (Page 113, Section 4.3.3)

- When the IP communication test is normally completed
The following window appears.



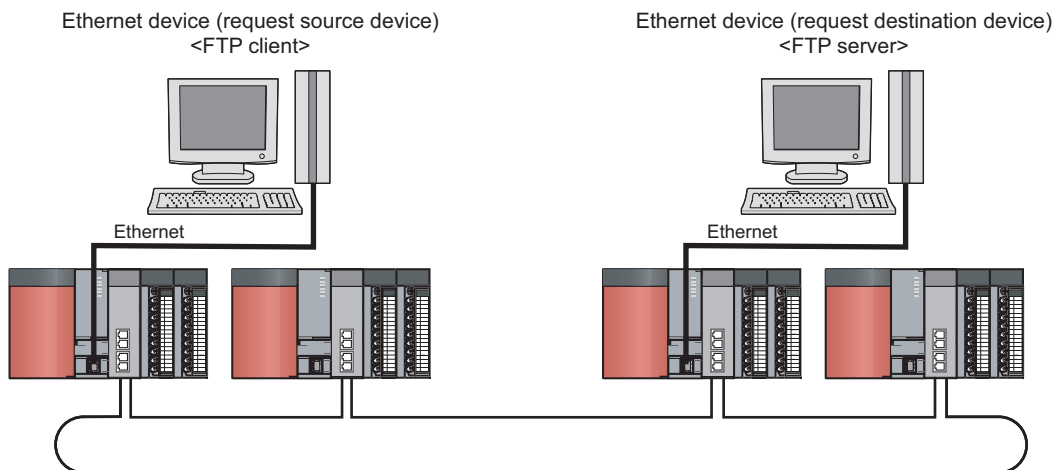
- When the IP communication test ends abnormally
If the test ends abnormally, click the **Details** button in "Error Information" to check the error information.
If IP communications cannot be performed due to a timeout error or other reasons, refer to "IP communications cannot be performed using the IP packet transfer function." in this manual and take corrective actions. (Page 505, Section 10.1.8)

4.3.7 Communication speed

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

(1) System configuration

The results are based on measurement when FTP communications are performed with four CC-Link IE Controller Network modules in the network and with the request source device and request destination device connected to the CPU module.



Device	Description	
Ethernet device (request source device) <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) <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 • Sequence scan time: 1ms • Service processing setting: performed according to the proportion of scan time (10%)
	CC-Link IE Controller Network	• Cyclic transmission LB/LW setting: 128 points assigned to each station LX/LY setting: 256 points assigned to each station • Transient transmission N/A








(2) 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.

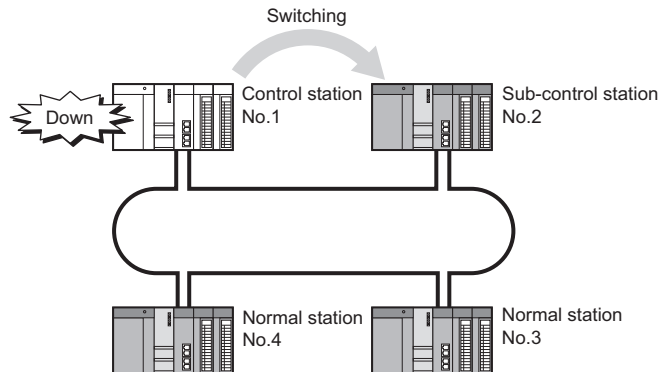
Item	Description						
Sequence scan of a CPU module* ¹	Shortening sequence scan time can increase communication speed. For causes extending sequence scan time, refer to the following.  QnUCPU User's Manual (Function Explanation, Program Fundamentals)						
Transient transmission process	Communications using the IP packet transfer function are performed with transient transmission. Taking one of the following actions can increase communication speed. (1) Increase the frequency of transient transmission 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 border="1"> <thead> <tr> <th>Item</th> <th>Description</th> </tr> </thead> <tbody> <tr> <td>"Service Processing Setting" in the PLC parameter</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</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. ( MELSEC-Q/L Programming Manual (Common Instructions))</td> </tr> </tbody> </table>	Item	Description	"Service Processing Setting" in the PLC parameter	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))	Executing the COM instruction	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. ( MELSEC-Q/L Programming Manual (Common Instructions))
	Item	Description					
"Service Processing Setting" in the PLC parameter	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))						
Executing the COM instruction	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. ( MELSEC-Q/L Programming Manual (Common Instructions))						
(2) Decrease the number of other transient transmission Decreasing the number of other transient transmission ensures the processing time of the IP packet transfer function; therefore, communication speed can be increased.							
Link scan time	Minimizing the points of the LB/LW setting and LX/LY setting shortens link scan time, resulting in increased communication speed.						
Data transfer to modules in different networks	Correct the routing parameters and minimize the number of networks where data is transferred.						

4.4 RAS Functions

This section explains the RAS functions.

4.4.1 Control station switching function

Even if the control station goes down, a normal station (sub-control station) takes over the control to continue data link.



Point

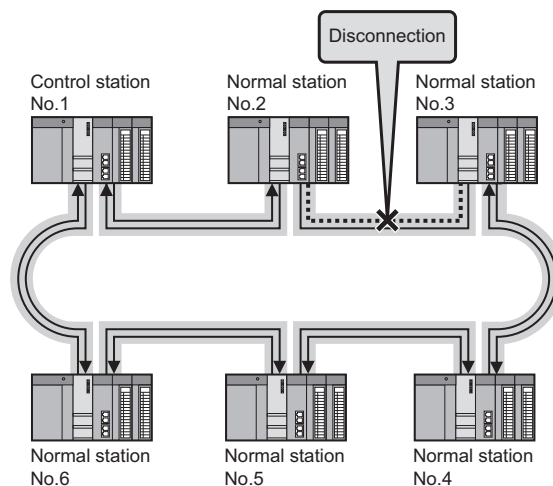
- While the control station status is switched, data link stops for a period of a data link monitoring time (up to two seconds). (☞ Page 183, Section 6.3)
Data immediately before the stop are held during data link stop.
 - While data link is stopped, the own station identifies all other stations as faulty.
 - Even if cyclic transmission of the control station is stopped with a programming tool, the control station status is not switched. (☞ Page 91, Section 4.1.12)
 - The control station status can be switched to a normal station where cyclic transmission has stopped with a programming tool. (☞ Page 91, Section 4.1.12)
-

4.4.2 Loopback function

This function isolates a disconnected cable or faulty station from the network, so that data link can be continued among normally operating stations.

(1) Cable disconnection

Data link is continued even if a cable is disconnected.



Point

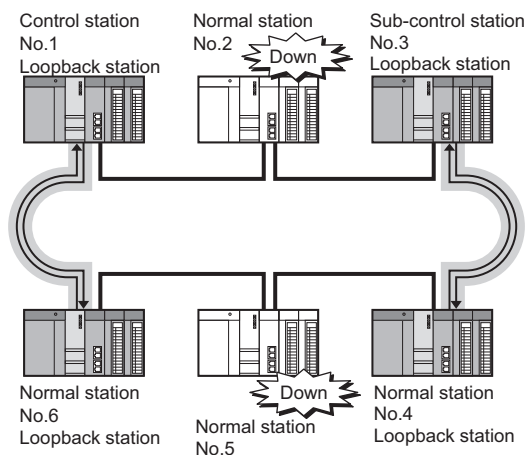
Although the CC-Link IE Controller Network uses 2 core cables, loopback occurs even if a disconnection or an error is detected on one side. (Transmissions using one side only are not performed.)

(2) Station failure

Data link is continued except for a faulty station.

If two or more stations go down, a station located between the faulty stations cannot perform data link.

However, when more than one station exist between the faulty stations, a normal station is changed to a sub-control station and continues data link.



(3) Precautions

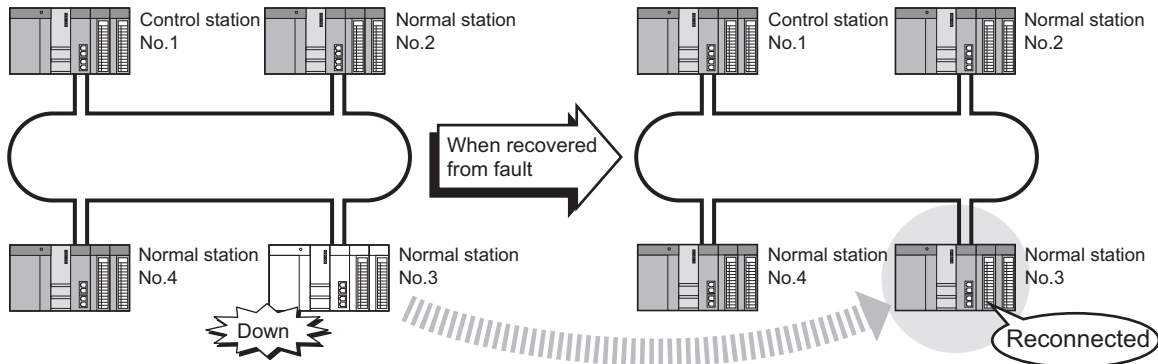
When the QJ71GP21(S)-SX fails, loopback may not be performed depending on what kind of failure occurs. In such a case, data link may be stopped. To identify the QJ71GP21(S)-SX with a failure, perform either of the following.

- Identify a faulty station by checking the LED indications (off of RUN LED, on or flashing of ERR LED) of all QJ71GP21(S)-SXs.
- Power off all stations, then power on stations in order, starting from the control station. While doing this, check that which station on the network loopback is performed normally. Check whether the control station and a reconnected normal station are displayed on a loopback station in the network information display of the CC-Link IE Control diagnostics.

Replace the QJ71GP21(S)-SX where a failure was detected with a new one and check that data link has returned to normal status.

4.4.3 Automatic return function

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



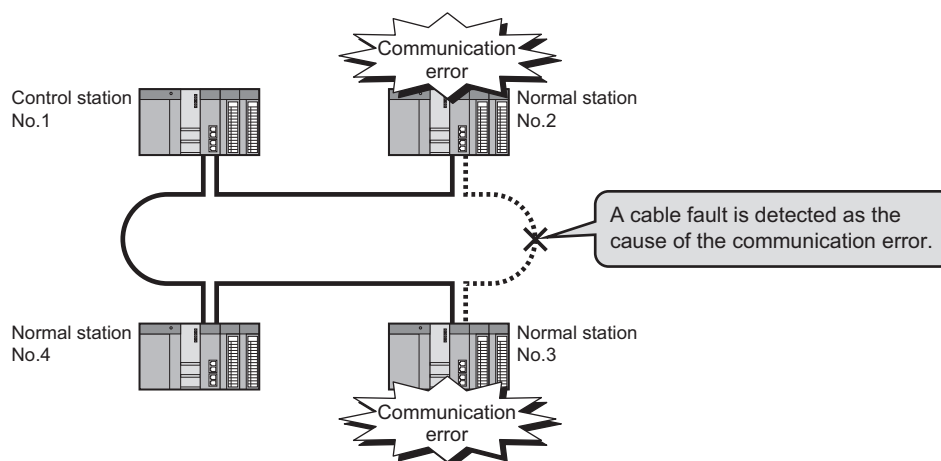
Point

- When a disconnection or a reconnection of stations is detected, the CC-Link IE Controller Network executes the line control in all stations to reconstruct the loop.
- During the line control processing, the baton pass status (SW00A0 to SW00A7) and the cyclic transmission status (SW00B0 to SW00B7) are turned ON for up to 100ms. (Normally for up to 50ms.) However, if the constant link scan time is set, it may take 100ms or longer from the line status change to the reconstruction of the loop.

4.4.4 Cable fault detection function

A cable fault can be detected as a cause of a communication error.

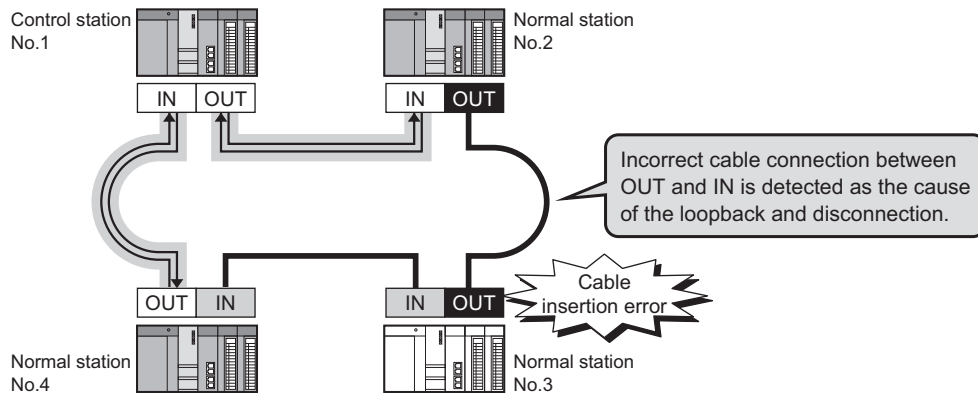
The CC IE Control diagnostics makes troubleshooting easy. (👉 Page 541, Section 10.4)



4.4.5 Cable insertion error detection function

Incorrect cable connection between OUT and IN can be detected as a cause of loopback or disconnection from the network.

The CC IE Control diagnostics makes troubleshooting easy. (☞ Page 541, Section 10.4)



4.4.6 Detection of duplicated control station or station No.

Duplication of the control station or station No. can be detected as a cause of loopback or disconnection from the network.

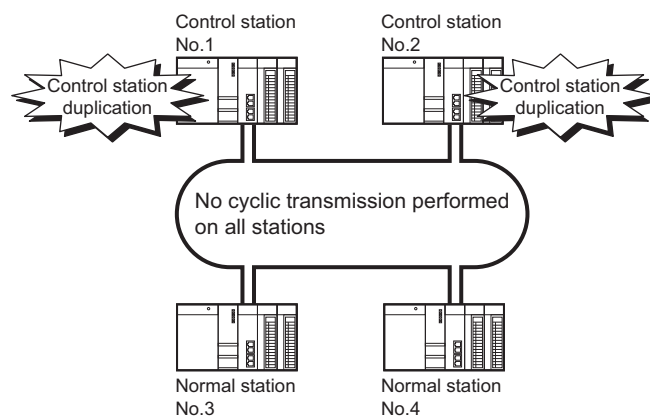
The CC IE Control diagnostics makes troubleshooting easy. ( Page 541, Section 10.4)

When power is applied or when a disconnected station returns to the network, this function checks whether the control station of the network and station No. are duplicated or not.

The following describes how each station behaves when duplication of the control station or station No. is detected.

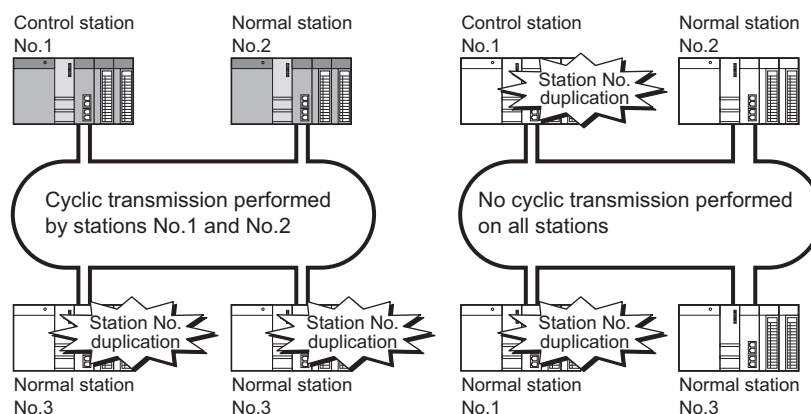
(1) When turning ON all stations simultaneously

(a) When duplication of the control station is detected



Function	Operation
Cyclic transmission	Not performed on all stations.
Transient transmission	Available for all stations.

(b) When duplication of station No. is detected



Function	Operation
Cyclic transmission	Stations of duplicated station No. do not perform cyclic transmission. Other stations, each of which has unique station No, perform cyclic transmission. (When the control station has a duplicated station No, all stations do not perform cyclic transmission.)
Transient transmission	Not allowed for stations of duplicated station No.

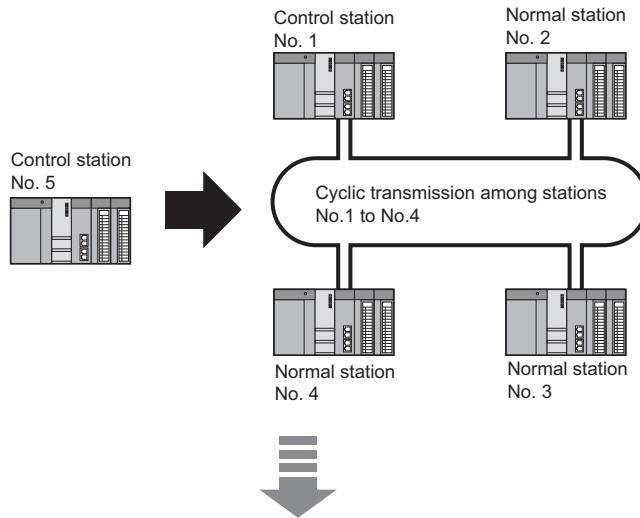
(2) When adding a station to the network

A station will be added to a network in the following cases:

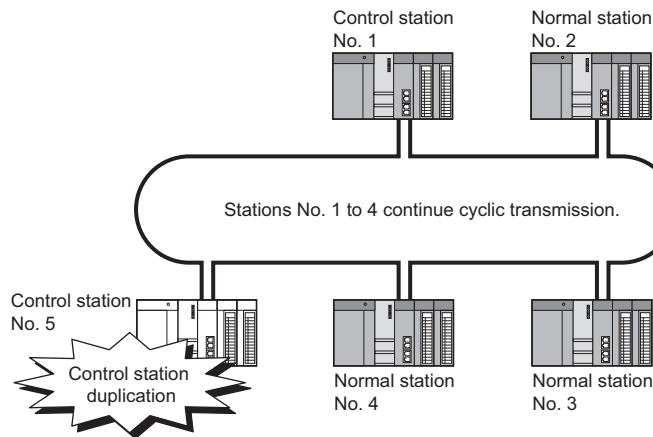
- A station in the network is disconnected due to an error, and after correction of the error, power is reapplied.
- Power is applied to stations in order to start up the system and a station is added to the network.

(a) When duplication of the control station is detected

- ① Another control station was added by mistake.



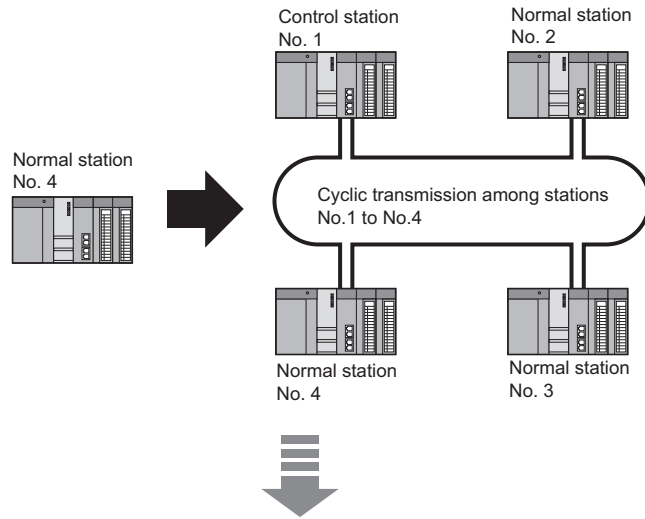
- ② Control station duplication occurs at station No.5.



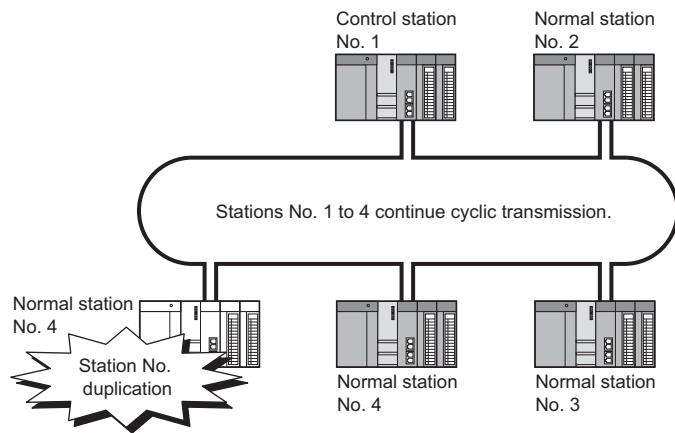
Function	Operation
Cyclic transmission	The control station added to the network does not perform cyclic transmission.
Transient transmission	Available for all stations.

(b) When duplication of station No. is detected

① A normal station of an existing No. was added by mistake.



② Station No. duplication occurs at added station No.4.



Function	Operation
Cyclic transmission	The normal station added to the network does not perform cyclic transmission.
Transient transmission	Not allowed for the normal station added to the network.

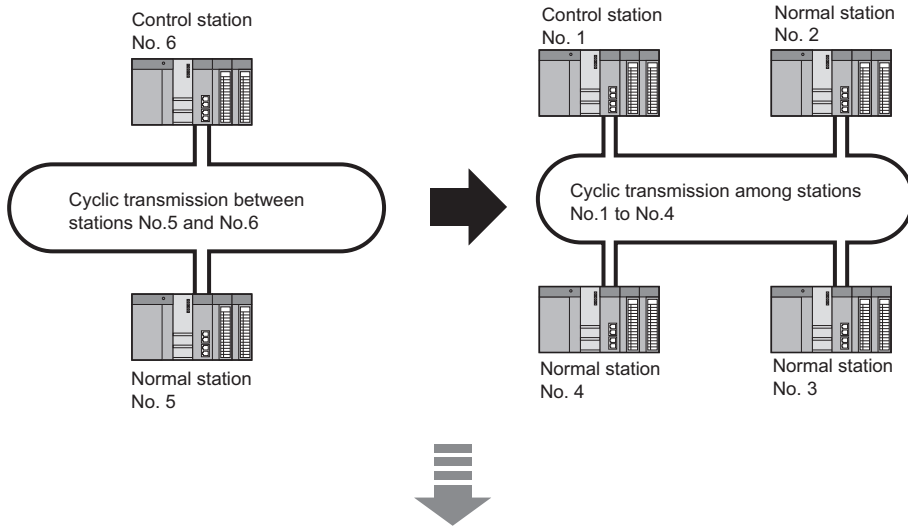
(3) When adding a network to another network

A network will be added to another network in the following cases:

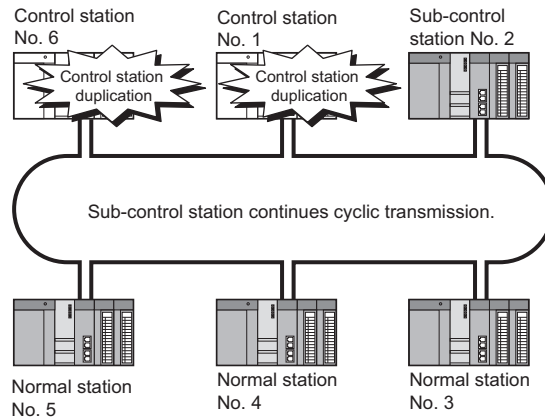
- After a network is divided into two due to cable disconnection, the cable is reconnected.
- After dividing or localizing a network to debug the system, the divided networks is to be reconnected into one.

(a) When duplication of the control station is detected

① Another network was added by mistake.



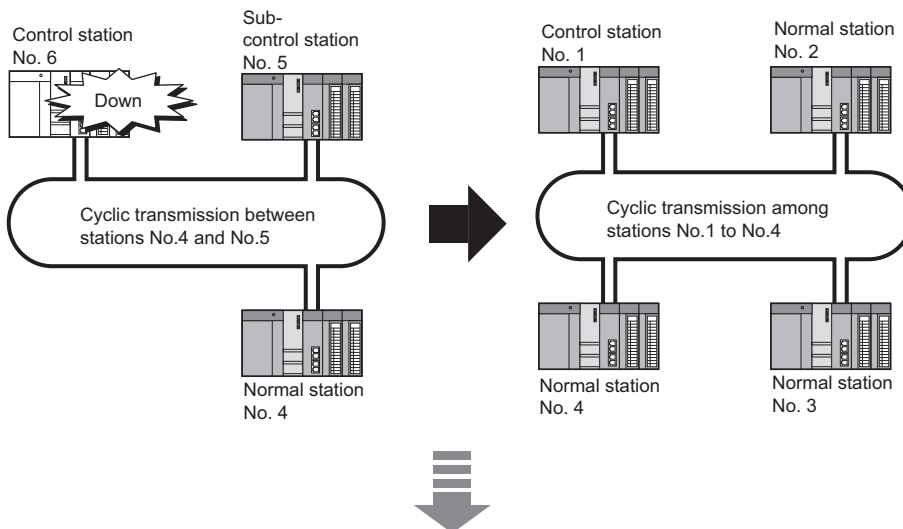
② Control station duplication occurs at two control stations.



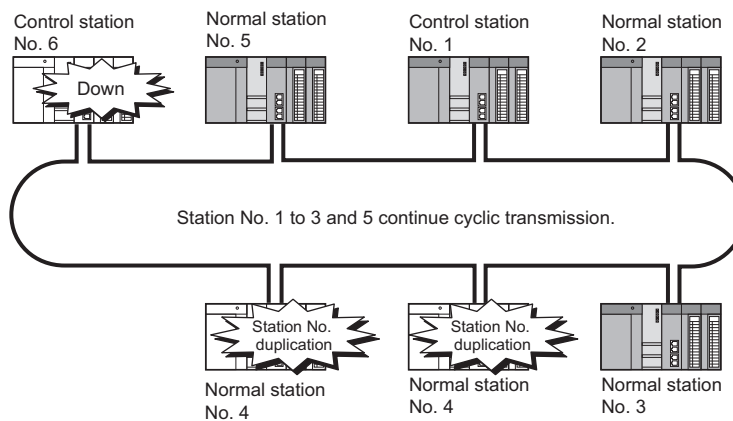
Function	Operation
Cyclic transmission	The two control stations do not perform cyclic transmission. The sub-control station performs cyclic transmission.
Transient transmission	Available for all stations.

(b) When duplication of station No. is detected

① Another network that includes an existing station No. was added by mistake.



② Station No. duplication occurs at station No. 4.



Upon reconnection to the network, control station duplication is detected at station No. 6.

☞ Page 130, Section 4.4.6 (2)

Function	Operation
Cyclic transmission	Stations of duplicated station No. do not perform cyclic transmission. Other stations, each of which has unique station No, perform cyclic transmission.
Transient transmission	Not allowed for stations of duplicated station No.

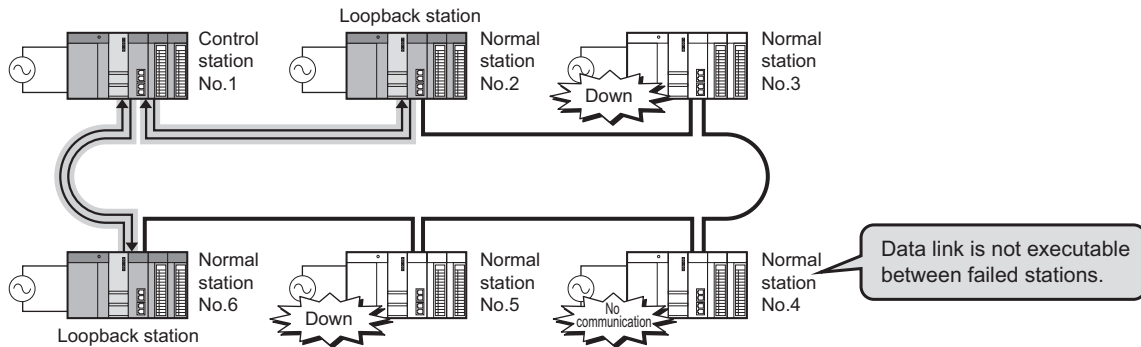
4.4.7 External power supply function

Power can be directly supplied from the outside to the CC-Link IE Controller Network module with external power supply function.

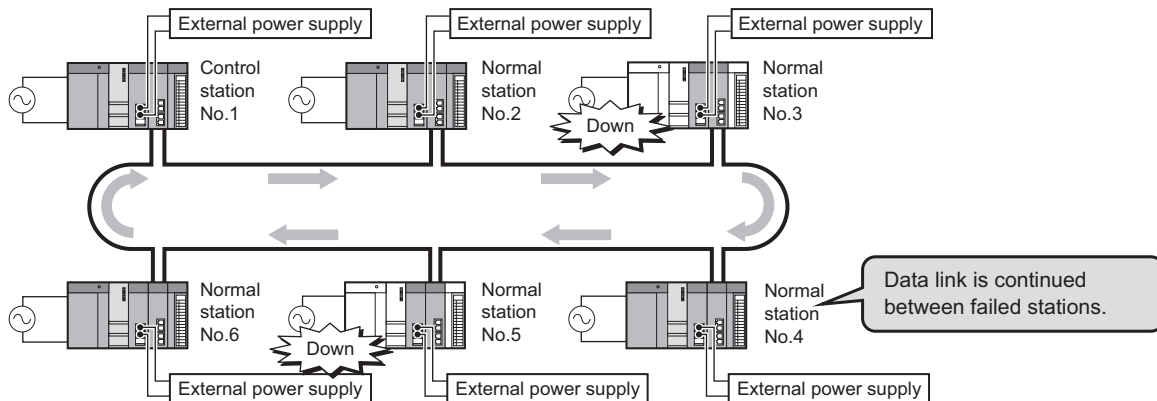
Even if a CPU module power goes down in a network, data link will continue among normally operating stations without being disrupted at the power-down station. (Loopback does not occur.)

Data link is also continued between more than one station where CPU module power has gone down.

(1) Without external power supply function



(2) With external power supply function



(a) Precautions for operation

If the external power supply of a CC-Link IE Controller Network module with external power supply function is powered on while a CPU module is off, the CC-Link IE Controller Network module with external power supply function will not normally operate.

Start operations with both modules on.

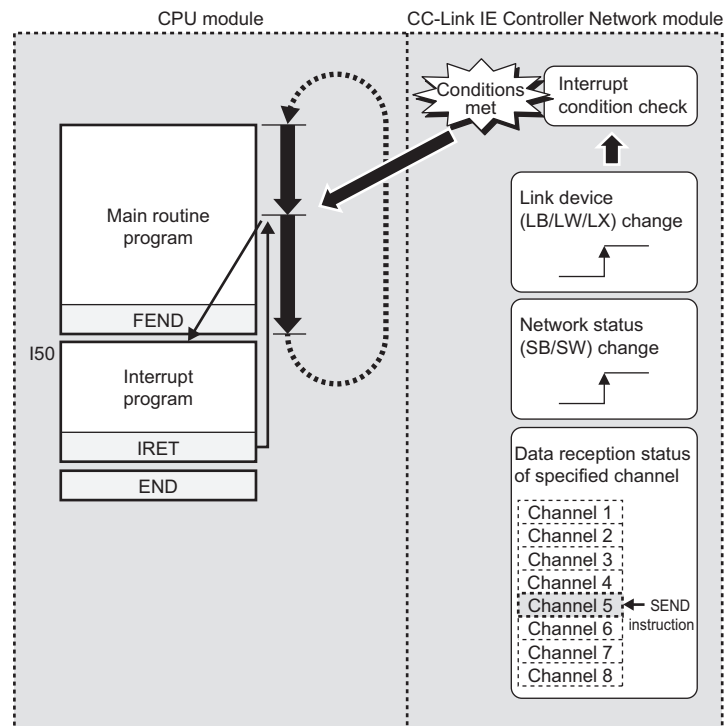
4.5 Interrupt Request to CPU Module

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

Set interrupt conditions in "Interrupt Settings" for each station. (☞ Page 225, Section 6.6)

Point

- Interrupt program start of the own station can be instructed from another station.
- Since a part describing the start conditions in the sequence program is not needed, the number of steps and the sequence scan time can be reduced.



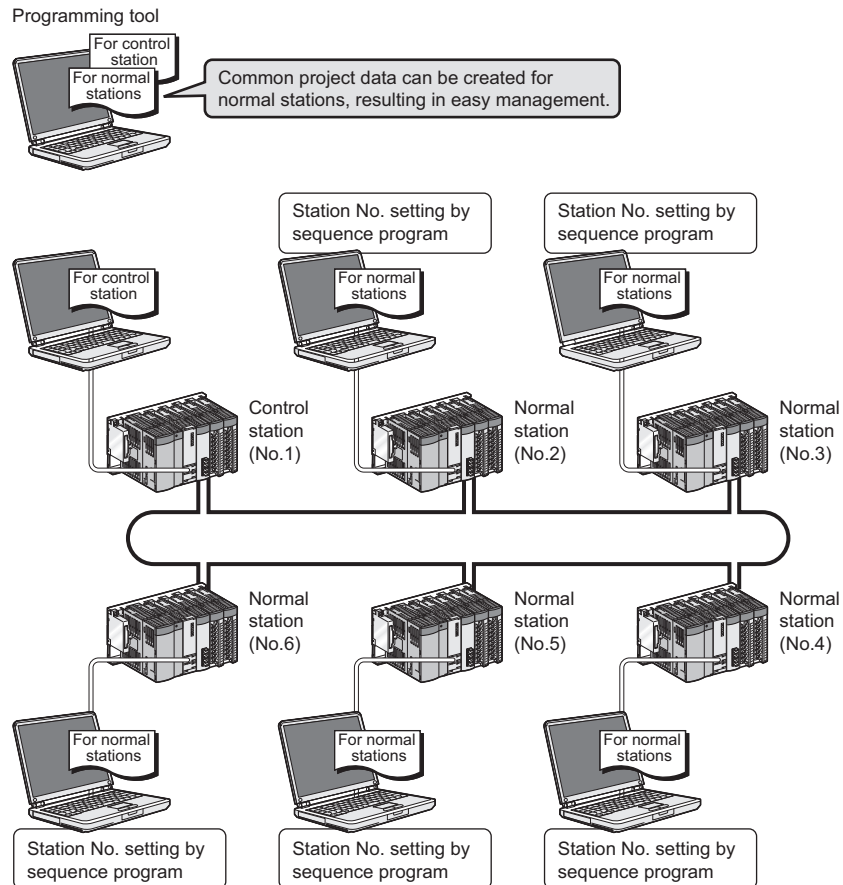
Point

To execute an interrupt program, "EI" (Enable Interrupt) must be executed in the main program.


4.6 Station No. Setting by Sequence Program

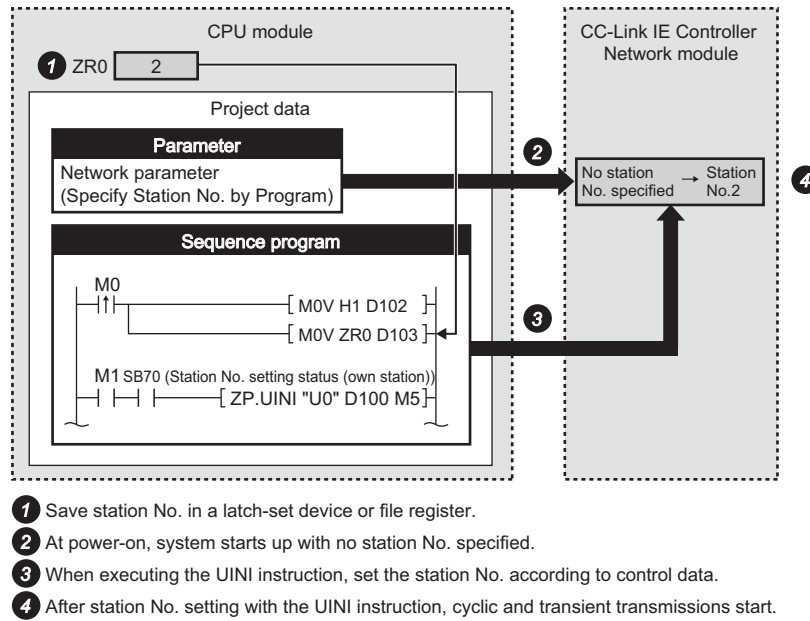
For Universal model QCPUs, the station No. of a normal station (own station) can be set in the sequence program.^{*1*2} If there are any normal stations that can share the same sequence program and network parameters (except for station No.), specifying their station numbers in the sequence program creates common project data for them, allowing easy data management.

- *1 Check the serial No. and software version for applicability. (☞ Page 606, Appendix 3)
- *2 For High Performance model QCPUs, station No. cannot be set in sequence programs. Therefore, set it in Network parameters.




(1) Using the UINI instruction

Set a station No. of a normal station (own station) with the UINI instruction. ( Page 476, Section 9.18)

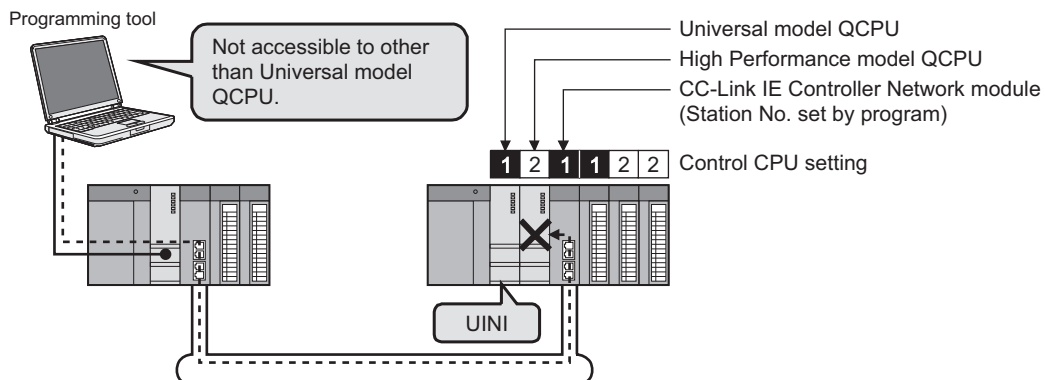


(2) Setting up network parameters

For use of the UINI instruction, select "Specify Station No. by Program" in network parameters. ( Page 180, Section 6.2)

(3) Precautions

For a multiple CPU system consisting of Universal model QCPU(s) and any other model QCPU(s), set station No. of the CC-Link IE Controller Network module by a network parameter. In such a case, if the station No. of the CC-Link IE Controller Network module is set by the UINI instruction, access to other than Universal model QCPU's via the CC-Link IE Controller Network module is not available.



4.6 Station No. Setting by Sequence Program

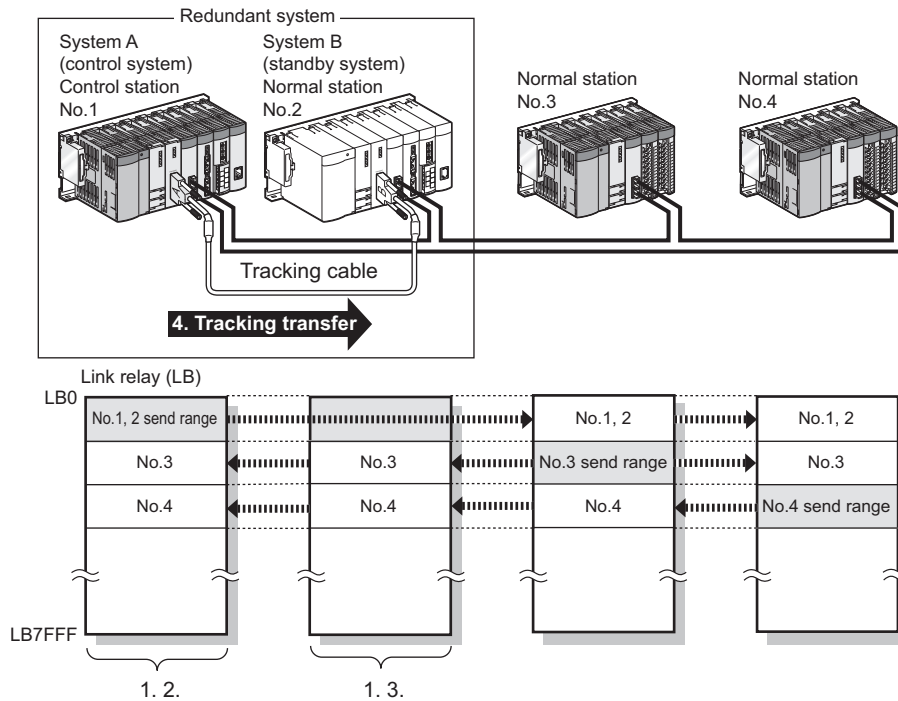
4

4.7 Redundant-CPU-Compatible Function

This section explains the case of using the CC-Link IE Controller Network module with Redundant CPUs.

4.7.1 Overview of redundant system operation

(1) Cyclic transmission processing



1. A redundant system is composed of system A and system B, and the same send ranges for respective stations in link devices (LB/LW) are set for stations of systems A and B.*1
2. The station acting as the control system sends and receives cyclic data.
3. The station acting as the standby system only receives cyclic data.
4. The source CPU-side-device data in the own station's send range in the link devices (LB/LW) must be tracking-transferred.*2*3

For details of tracking transfer, refer to the following.

QnPRHCPU User's Manual (Redundant System)

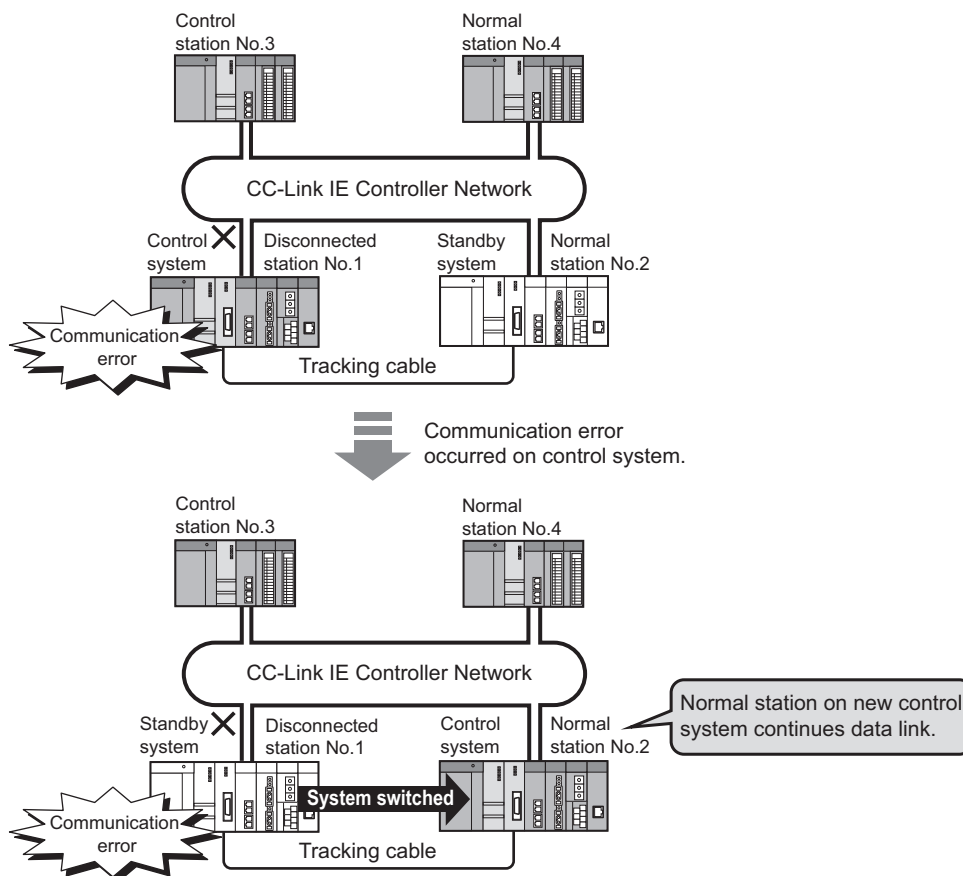
*1 Pairing is not available for communication using LX/LY.

*2 Tracking transfer is not available for link direct devices (J□\□).

*3 Do not use tracking transfer for the link special relay (SB0020 to SB01FF) and link special register (SW0020 to SW01FF) that are turned ON/OFF by the system.

(2) Data link continuation

If an error occurs in the control system CPU or CC-Link IE Controller Network module, the control and standby systems will be switched each other and the former standby system takes over the system control and continues data link.



Remark

There are the following two kinds of system switching.


- Switching by the system
 - When a fault occurs in the control system
 - Switching request from a network module
- Switching by the user
 - System switching operation from a programming tool
 - System switching instruction


For details, refer to the following.

QnPRHCPU User's Manual (Redundant System)

(3) Pairing settings for the redundant system

When a network contains a redundant system, pairing settings are required for network parameters of the control station.*1

Configure the setting in "Pairing" of "Network Range Assignment" of the control station. ( Page 199, Section 6.3.4)

*1 Check the serial No. and software version for applicability. ( Page 606, Appendix 3)

(4) Project file in a programming tool

For a redundant system, create parameters and programs in one project file and write them to programmable controllers of both systems.

(5) Precautions

(a) When the redundant system is in the debug mode

Do not connect the CC-Link IE Controller Network modules on both systems to the network at the same time. In the debug mode, system B CPU also operates with the same parameters as system A. Therefore, duplication of the control station and station number is detected at the time of concurrent connection to the network.

(b) Error detection due to power ON/OFF of another station (including the standby system)

A system switching request may be issued due to detection of a temporary data link error in the following cases:

- Power ON/OFF of another station (including the standby system)
- Boot or shutdown of a personal computer with a CC-Link IE Controller Network interface board

If the above system switching request is issued before startup of the standby system, a continue error, "CAN'T SWITCH" may be detected in the control system CPU.

Since normal control can be continued even if "CAN'T SWITCH" is detected, program the system properly so that this error detection will not stop the control.

For information on how to clear "CAN'T SWITCH", refer to the following.

 QnPRHCPU User's Manual (Redundant System)

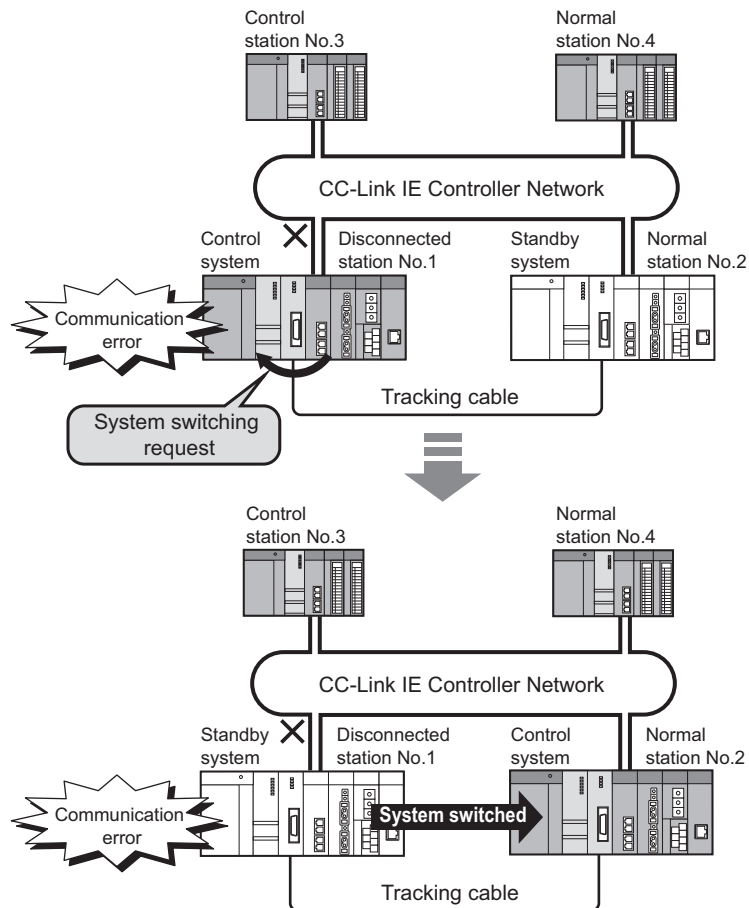
4.7.2 System switching request to control system CPU

Once the CC-Link IE Controller Network module on the same base as the control system CPU detects a data link error, it issues a system switching request to the control system CPU.

Depending on the operation status (power OFF, stop error, etc.) of the standby system, however, system switching may not be executed.

For details, refer to the following.


 QnPRHCPU User's Manual (Redundant System)




(1) System switching factor

If the data link error status (the D LINK LED is off) is continued for the period of system switching monitoring time or longer, a system switching request will be issued to the control system CPU.

(2) Setting System switching monitoring time

Set system switching monitoring time in "Network Range Assignment" of the control station. ( Page 183, Section 6.3)

(3) Disabling system switching that is caused by a data link error

Setting Data-link-error-induced system switching disable flag (SB0017) of both systems to ON in advance prevents a system switching request from being issued to the control system CPU even if a data link error is detected.*1 ( Page 568, Appendix 1)

*1 Tracking-transfer the Data-link-error-induced system switching disable flag (SB0017).

Remark

Use this flag to prevent an undesired system switching during network maintenance (e.g. cable replacement), which may be caused by a data link error due to incorrect operation.

(4) System switching that is caused by a network module error

Upon detection of an error that disables data link, such as hardware failure of a CC-Link IE Controller Network module, a system switching request is issued to the control system CPU.

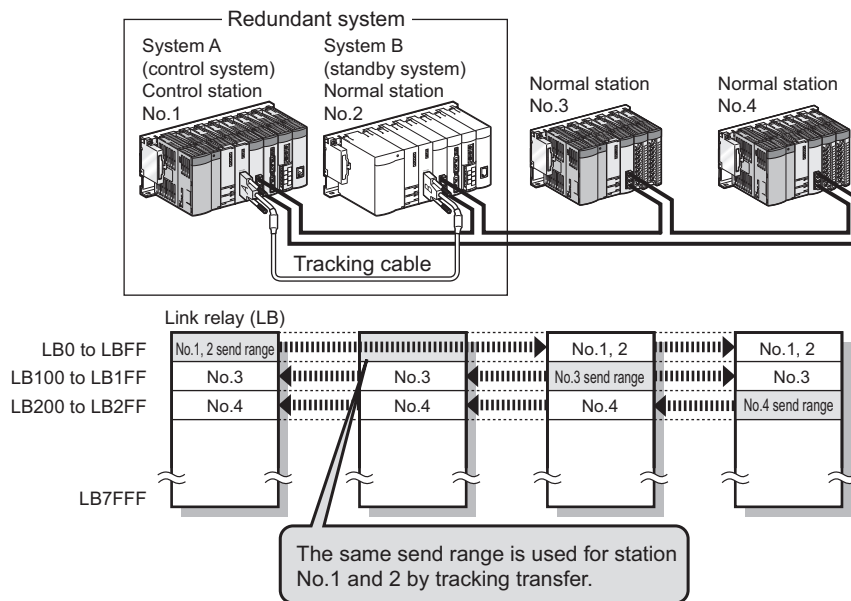
Note that system switching due to a network module error is executed regardless of System switching monitoring time and the status of Data-link-error-induced system switching disable flag (SB0017).

(5) Cyclic transmission processing when system switching is requested to the control system CPU

Ex. The following are examples of link relay (LB) data transmission.

(a) When both systems are powered ON

When a redundant system is normal, the system A acts as the control system and starts data link.

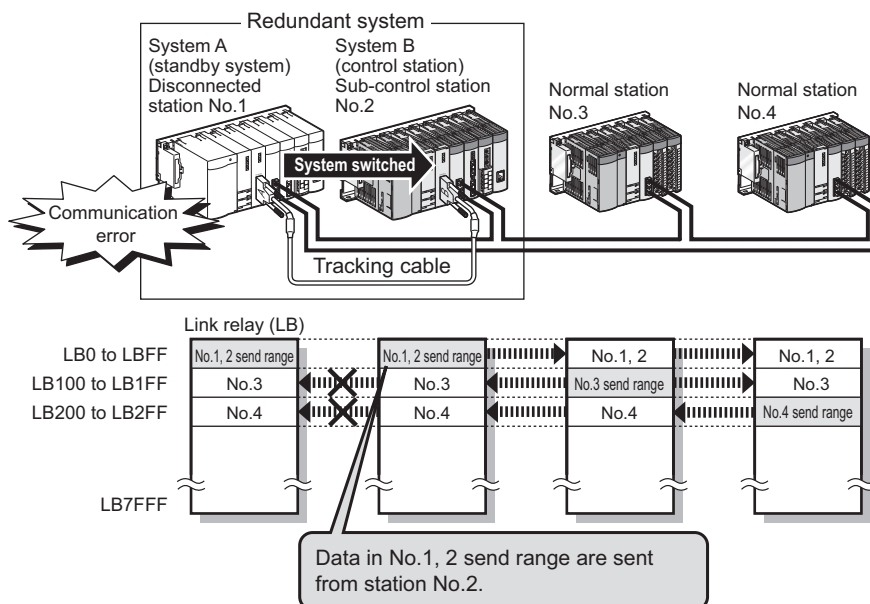


(b) When a system switching occurs due to a communication error on the control system

If station No.1 is disconnected from the network due to a communication error, a system switching request is issued to the control system CPU, resulting in system switching.

The new control system (station No.2) continues data link.

Cyclic transmission after the system switching is illustrated below.

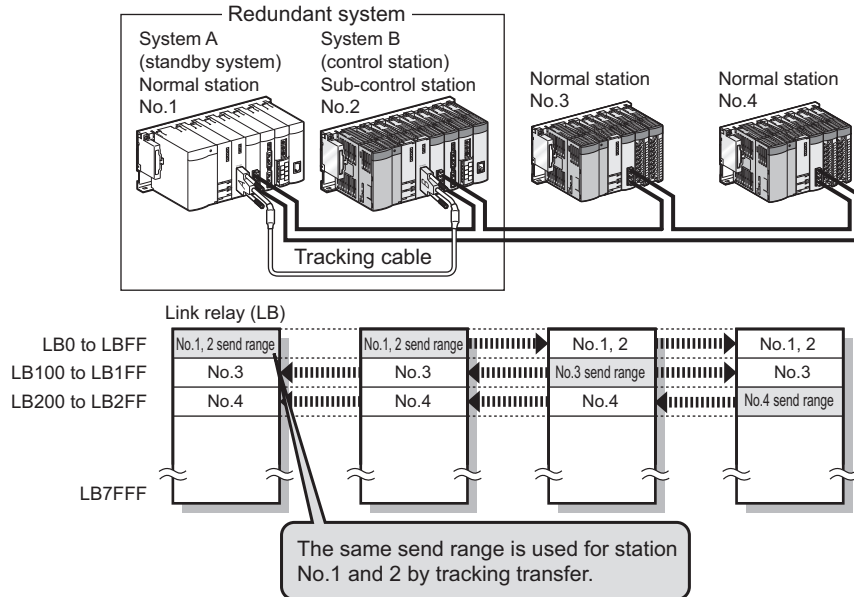


4.7 Redundant-CPU-Compatible Function
4.7.2 System switching request to control system CPU

(c) When station No.1 is reconnected to the network

Station No.1 that was disconnected due to a communication error is reconnected to the network as a normal station when it recovers from the error. At this time, system switching does not occur.

Cyclic transmission after reconnection of station No.1 is illustrated below.




CHAPTER 5 PREPARATION AND SETUP

This chapter explains the procedures for connecting the CC-Link IE Controller Network module to the network, wiring and other information.

5.1 Implementation and Installation

This section provides the handling precautions, from unpacking to installation of the CC-Link IE Controller Network module.

For details of the implementation and installation of the CC-Link IE Controller Network module, refer to the following.

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

5.1.1 Handling precautions

This section describes precautions for handling the CC-Link IE Controller Network module itself.

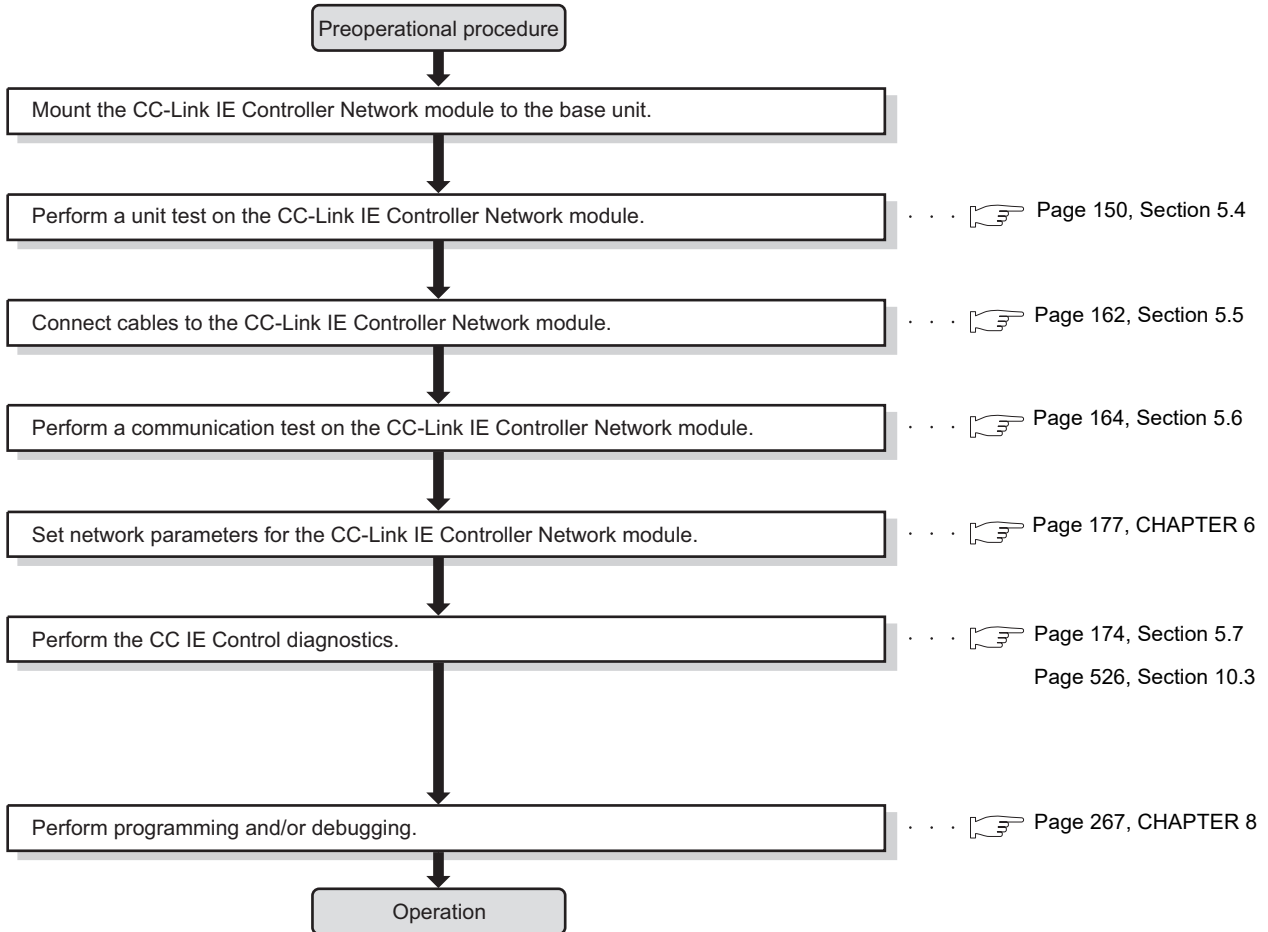
- (1) **Since the module case is made of resin, do not drop the module or apply a strong impact to it.**
- (2) **Do not remove the printed-circuit board of the module from the case. Doing so will cause failure.**
- (3) **Be careful to prevent foreign matter such as dust or wire chips from entering the module. Failure to do so may cause a fire, failure or malfunction.**
- (4) **A protective film is attached to the module top to prevent foreign matter such as wire chips from entering the module during wiring. Do not remove the film during wiring.
Be sure to remove it for heat dissipation before system operation.**
- (5) **Before handling the module, touch a grounded metal object to discharge the static electricity from the human body.
Not doing so may cause a failure or malfunction of the module.**
- (6) **Tighten the screws such as module fixing screws within the following ranges.**

Screw location	Tightening torque range
Module fixing screw (M3 screw) ^{*1}	0.36 to 0.48N·m
Terminal screw on external power supply terminal block (M3 screw)	0.42 to 0.58N·m

*1 The module can be easily fixed onto the base unit using the hook at the top of the module. However, it is recommended to secure the module with the module fixing screw if the module is subject to significant vibration.

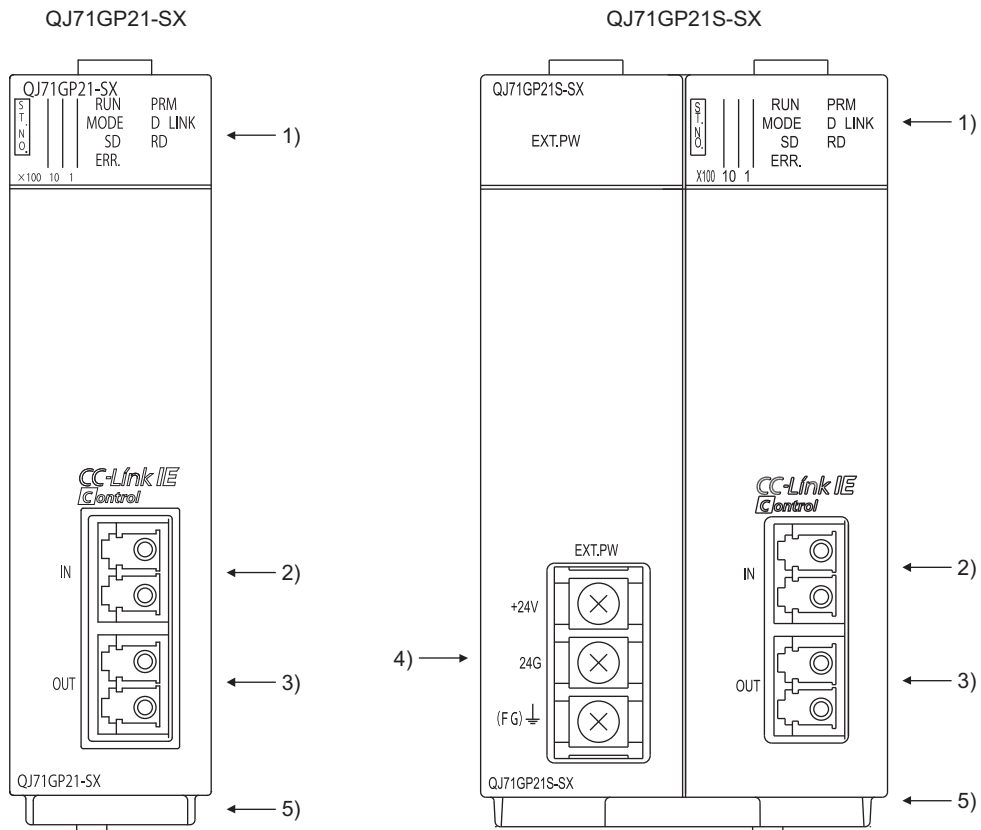
5.2 Pre-operational Procedure

The following shows the procedures to be taken before operation.



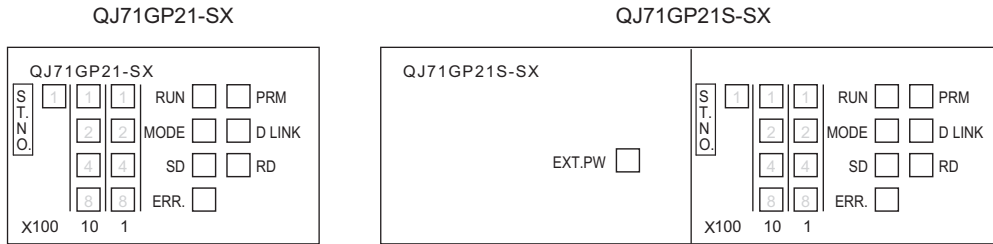
5.3 Part Names

This section describes each part and name of the CC-Link IE Controller Network module.



No.	Name	Description
1)	Indicator LED	Indicates the operating status of the CC-Link IE Controller Network module. (☞ Page 148, Section 5.3 (1))
2)	IN connector	Used to connect an optical fiber cable to the CC-Link IE Controller Network module. The cable is connected to OUT connector of another station. (☞ Page 149, Section 5.3 (3))
3)	OUT connector	Used to connect an optical fiber cable to the CC-Link IE Controller Network module. The cable is connected to IN connector of another station. (☞ Page 149, Section 5.3 (3))
4)	External power supply terminal block	Indicates the operating status of the CC-Link IE Controller Network module. (☞ Page 148, Section 5.3 (1))
5)	Serial number plate	Indicates the serial No. of the rating plate.

(1) Indicator LEDs



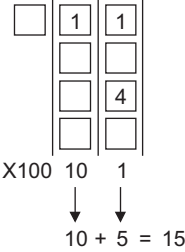
Name	LED status*1	Description
RUN	ON, green	Operating normally
	OFF	Hardware fault or watchdog timer error
MODE	ON, green	Online mode
	Flashing, green	Test mode
	OFF	Offline mode
PRM	ON, green	Operating as a Control station
	OFF	Operating as a Normal station
D LINK	ON, green	Data link in operation (Cyclic transmission operated)
	Flashing, green	Data link in operation (Cyclic transmission stopped)
	OFF	Data link not in operation (Disconnected from network)
ERR.	ON, red	<ul style="list-style-type: none"> Received data are erroneous. (Receive frame error) A frame error above a certain level has occurred between stations. The Control station or a station number is duplicated. Cable disconnection, or incorrect cable connection between OUT and IN Network parameters are corrupted, or some settings (Reserved station specification, Total number of stations, Network No, etc.) are inconsistent between the Control and Normal stations.
	OFF	Normal status
SD	ON, green	Sending data
	OFF	Not sending data
RD	ON, green	Receiving data
	OFF	Not receiving data
1×100 1,2,4,8×10 1,2,4,8×1	ON, green (Numeric display)	The station No. is set. (☞ Page 149, Section 5.3 (2))
	OFF	No station No. is set.
EXT.PW	ON, green	External power supplied (Own station power status (SB0042) is ON.)
	OFF	External power not supplied (Own station power status (SB0042) is OFF.)

*1 When the CPU module is reset, the LEDs other than the EXT.PW LED turn OFF.

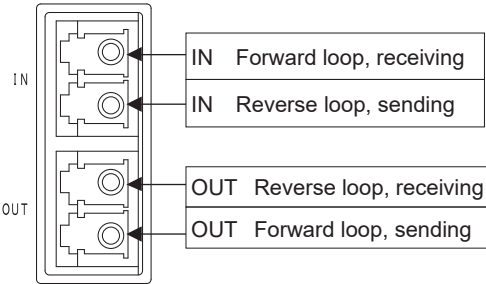
(2) Station No. setting

Station No. of the CC-Link IE Controller Network module is indicated.

Ex. When indicating station No.15



(3) IN and OUT connectors

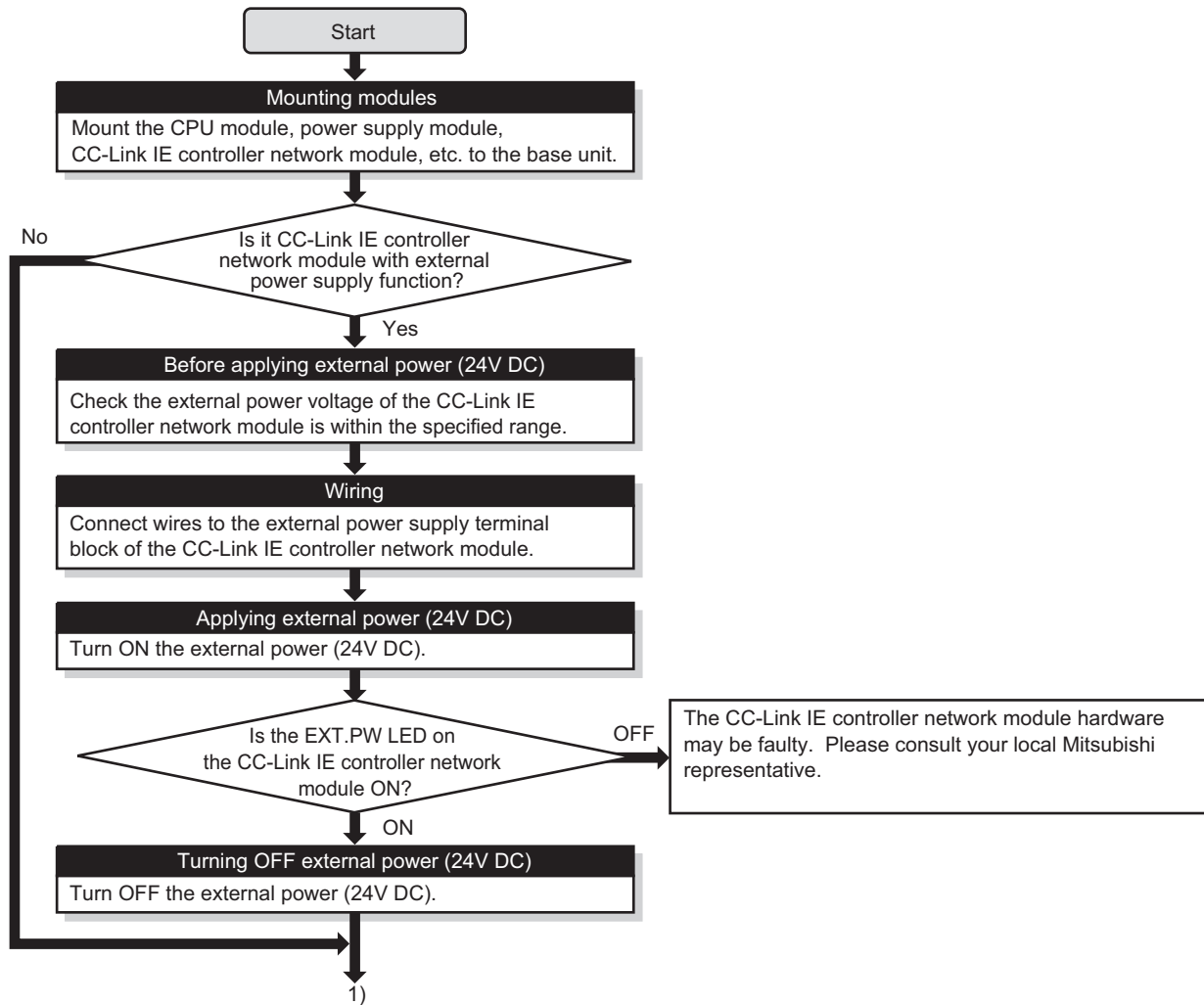


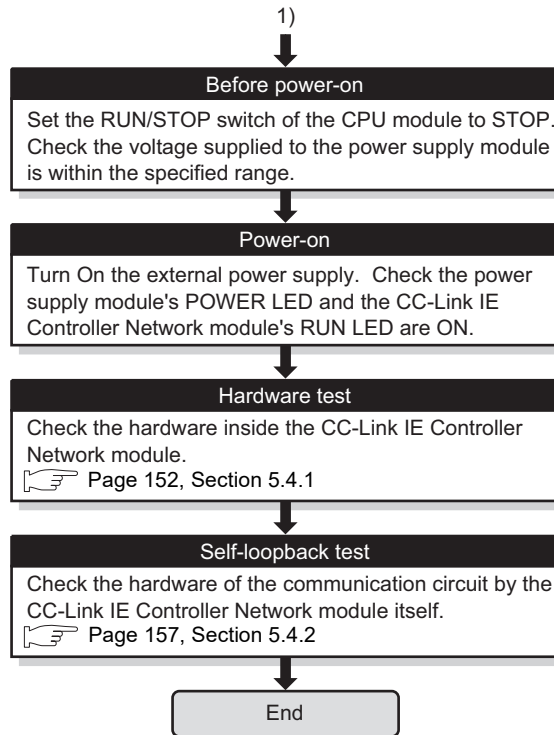
5.4 Testing the CC-Link IE Controller Network Module

This section describes the tests of the CC-Link IE Controller Network module.

Before starting up the system, the test is to be performed to check the CC-Link IE Controller Network module and cables.

Perform each test according to the following.





5.4.1 Hardware test

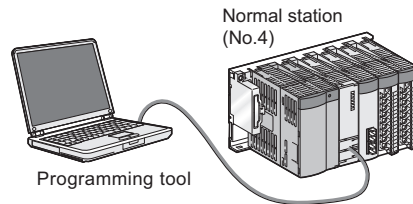
Hardware test checks the hardware inside the CC-Link IE Controller Network module.

(1) System configuration and parameter setting for other than redundant systems

(a) System configuration

Connect the CPU module to a programming tool.

Do not connect optical fiber cables to the CC-Link IE Controller Network module.



(b) Setting network parameters in the programming tool

1. Setting the hardware test mode.

After setting the following network parameters in the programming tool, write them to the programmable controller.

Module 1	
Network Type	CC IE Control(Normal Station) ▼
Start I/O No.	0000
Network No.	1
Total Stations	
Group No.	0
Station No.	4
Mode	H/W Test ▼

(2) System configuration and parameter setting for a redundant system

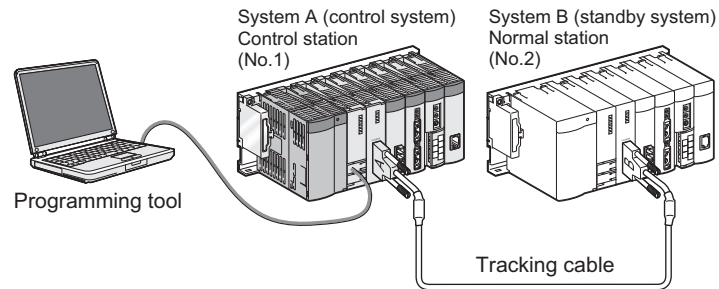
The following is an example of when a hardware test is executed on the CC-Link IE Controller Network module on the system B in the system shown in (a) below.

Set the operation mode of the redundant system to separate mode for the hardware test.

(a) System configuration

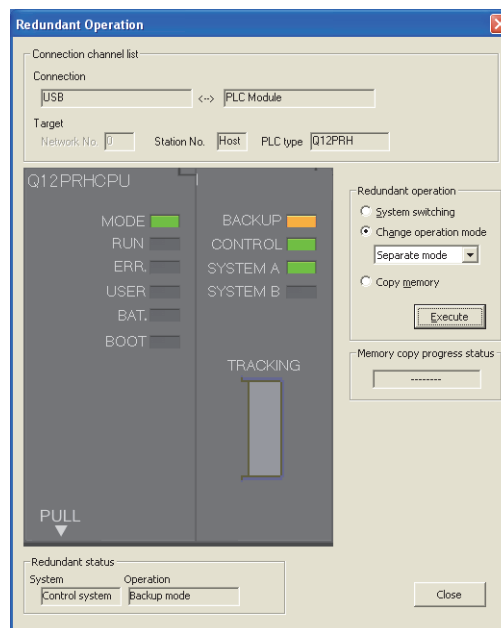
Connect the control system CPU module to a programming tool.

Do not connect any optical fiber cable to the CC-Link IE Controller Network module.



(b) Setting network parameters in the programming tool

Select "Separate mode" under "Change operation mode" in the "Redundant Operation" window of the programming tool.



(c) Setting network parameters in the programming tool

1. Set the mode of the system A to the online mode.

Set the network parameters in the programming tool as shown below.

Module 1	
Network Type	CC IE Control(Control Station) ▼
Start I/O No.	0000
Network No.	1
Total Stations	4
Group No.	0
Station No.	1
Mode	Online ▼

2. Set the mode of the system B to the hardware test mode.

Select "H/W Test" for "Mode (System B)" in the "Redundant Setting" window of the network parameter of the programming tool.

Redundant Setting

Network type: CC IE Control(Control Station)

Start I/O No.: 0000

Station No. (System A): 1

Mode (System A): Online

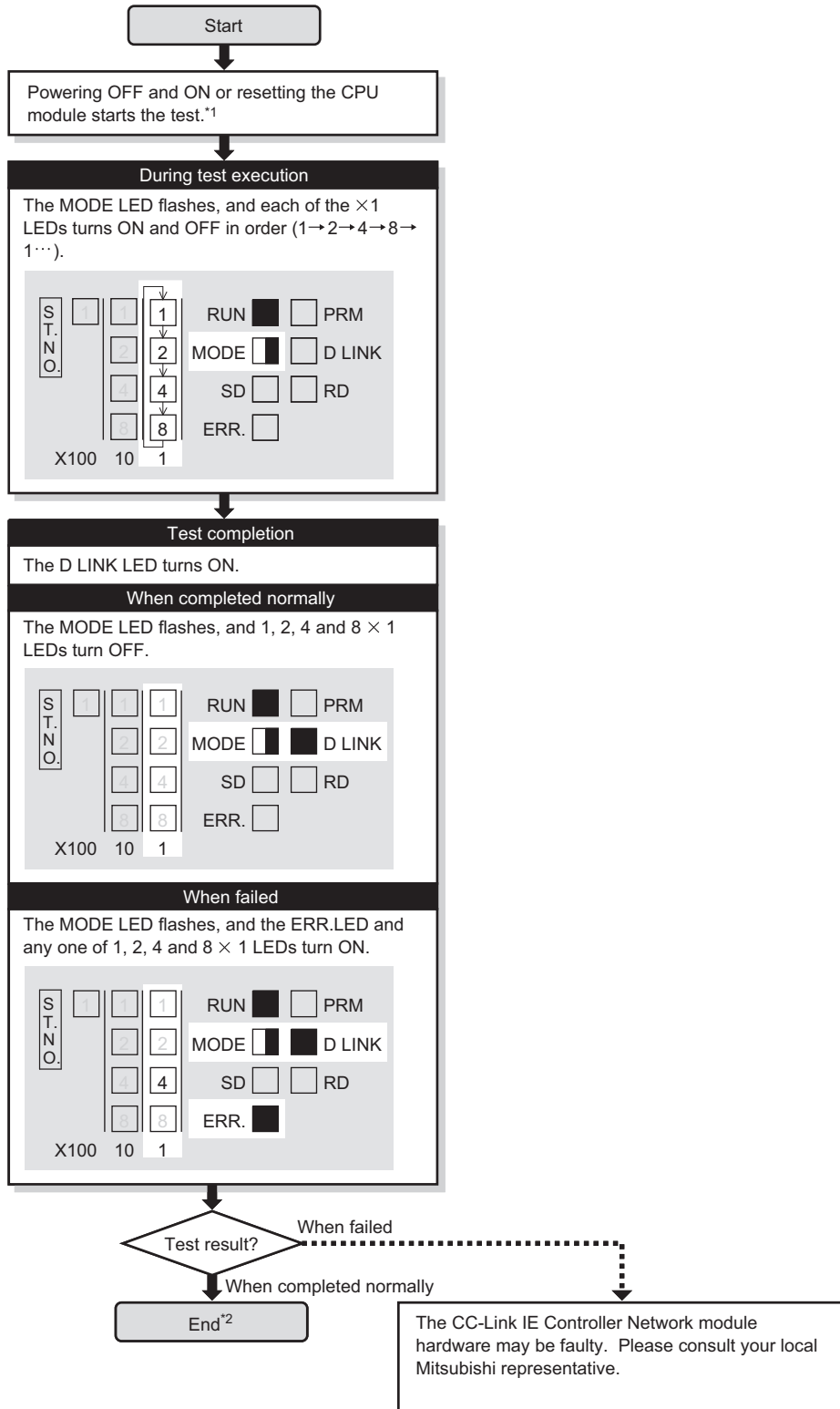
Station No. (System B): 2

Mode (System B): H/W Test

End Cancel


3. Connect the programming tool to the system B CPU module, and write the parameters to the module.

(3) Executing the hardware test



- *1 When the redundant system is in separate mode, power OFF and ON only system B or reset the CPU module of system B.
- *2 When the redundant system is in separate mode,
 - 1) Set online mode for the system B and write data to the system B CPU module.
 - 2) Power OFF and ON only system B or reset the CPU module of system B.
 - 3) Connect the programming tool to the control system CPU module, and change the operation mode of the redundant system to the backup mode.

Point 

The hardware test result can be confirmed with the link special relay (SB0090, SB0091). ( Page 568, Appendix 1)

5.4.2 Self-loopback test

Self-loopback test checks the hardware of the communication circuit of the CC-Link IE Controller Network module.

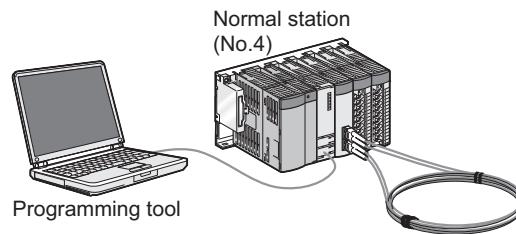
Point

Use a normal optical fiber cable when conducting the self-loopback test.

(1) System configuration and parameter setting for other than redundant systems

(a) System configuration

1. Connect the programming tool to the CPU module.
2. Turn OFF the power and connect an optical fiber cable to OUT and IN of the CC-Link IE Controller Network module.
3. Turn ON the power.



(b) Setting network parameters in the programming tool

1. Setting the self-loopback test mode

After setting the following network parameters in the programming tool, write them to the programmable controller.

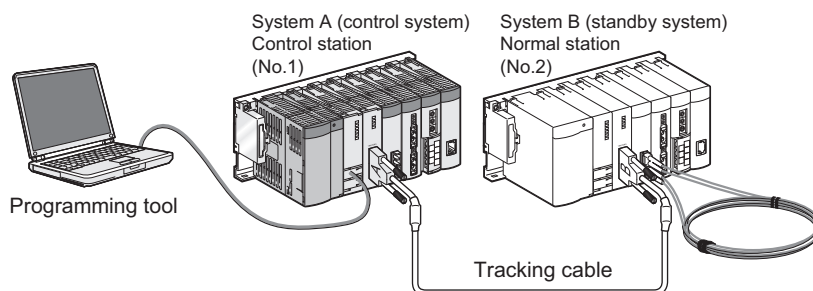
Module 1	
Network Type	CC IE Control(Normal Station) ▼
Start I/O No.	0000
Network No.	1
Total Stations	
Group No.	0
Station No.	4
Mode	Self-Loopback Test ▼

(2) System configuration and parameter setting for a redundant system

The following is an example of when a self-loopback test is executed on the CC-Link IE Controller Network module on the system B in the system shown in (a) below.

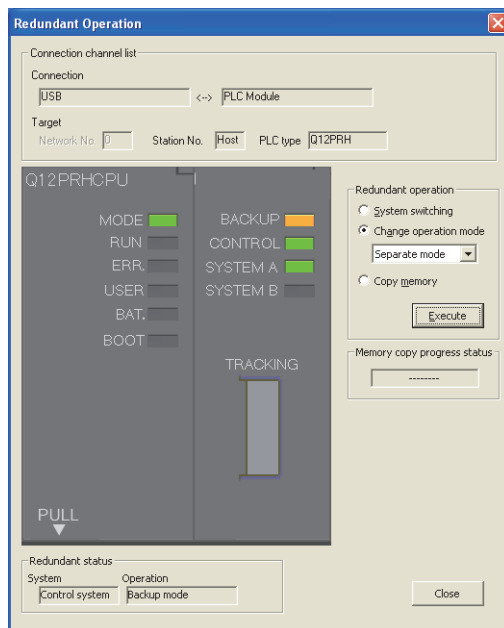
(a) System configuration

1. Connect the programming tool to the control system CPU module.
2. Turn OFF the power and connect an optical fiber cable to OUT and IN of the CC-Link IE Controller Network module of the system B.
3. Turn ON the power.



(b) Changing the operation mode of the redundant system

Select "Separate mode" under "Change operation mode" in the "Redundant Operation" window of the programming tool.



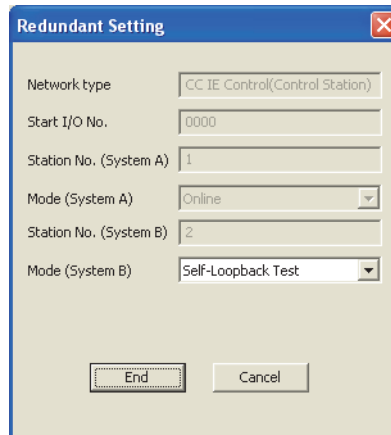
(c) Setting network parameters in the programming tool**1. Set the mode of the system A to the online mode.**

Set the network parameters in the programming tool as shown below.

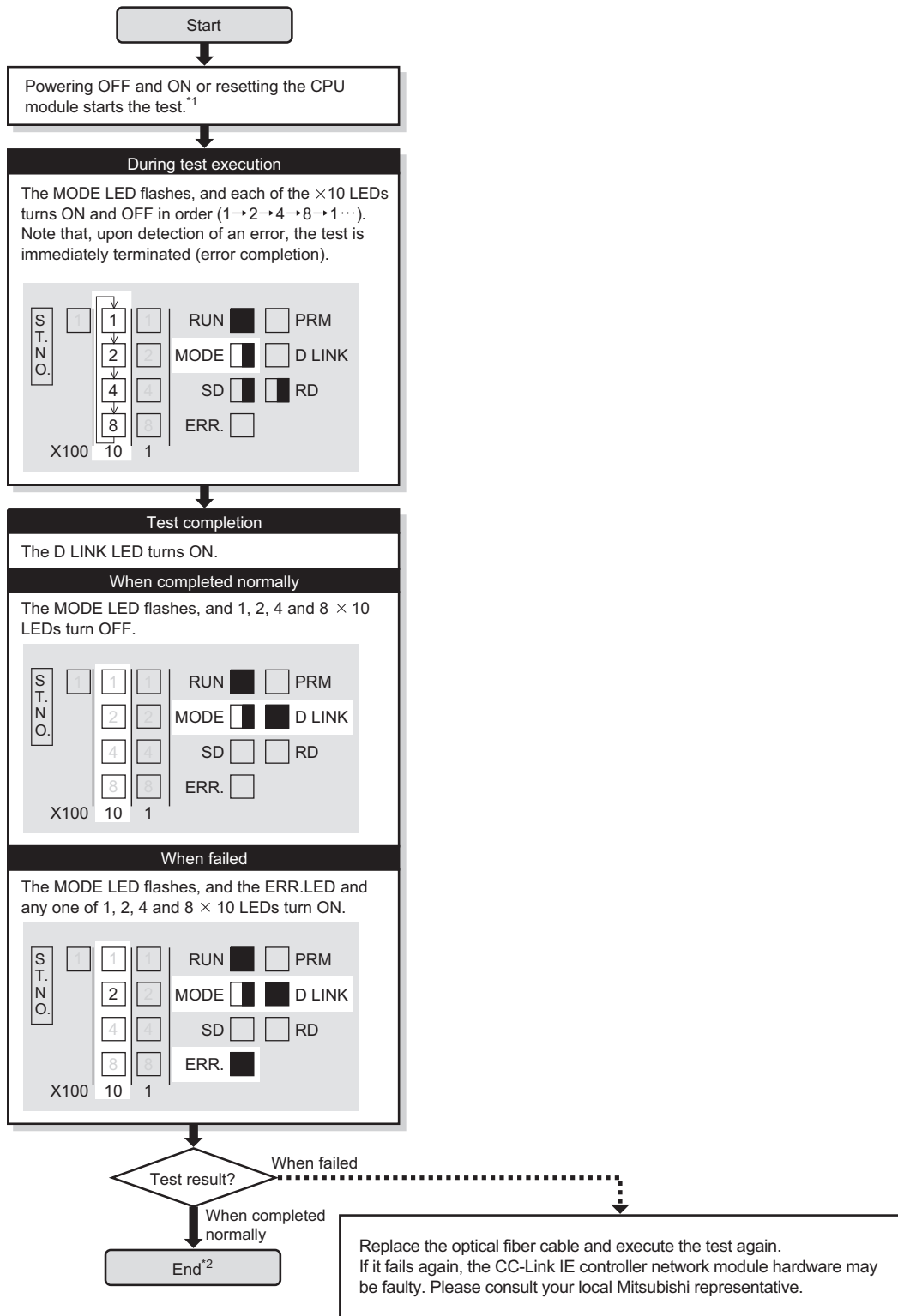
Module 1	
Network Type	CC IE Control(Control Station) ▼
Start I/O No.	0000
Network No.	1
Total Stations	4
Group No.	0
Station No.	1
Mode	Online ▼

2. Set the mode of the system B to the self-loopback test.

Select "Self-Loopback Test" for "Mode (System B)" in the "Redundant Setting" window of the network parameter of the programming tool.


**3. Connect the programming tool to the system B CPU module and write the parameters to the module.**

(3) Executing the self-loopback test



- *1 When the redundant system is in separate mode, power OFF and ON only system B or reset the CPU module of system B.
- *2 When the redundant system is in separate mode,
 - 1) Set the mode of system B to online mode, and write the data to the system B CPU module.
 - 2) Power OFF and ON only system B or reset the CPU module of system B.
 - 3) Connect the programming tool to the control system CPU module, and change the mode of the redundant system to backup mode.

Point 


- When executing the self-loopback test, be sure to connect a cable.
Also, do not insert or remove the cable during test execution. (Doing so will result in error completion.)
- The self-loopback test result can be confirmed with the link special relay (SB0092, SB0093). ( Page 568, Appendix 1)

5.5 Wiring

This section describes optical fiber cable connection and wiring precautions.

(1) Wiring precautions

- (a) Use the optical fiber cable described in the following section.**

 Page 38, Section 2.2.1

- (b) There are restrictions on the bending radius of the optical fiber cable.**

For details, check the specifications of the cable to be used.

- (c) When handling an optical fiber cable, do not touch the optical fiber 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.

- (d) When connecting or disconnecting an optical fiber cable, hold the connector part of the cable.**

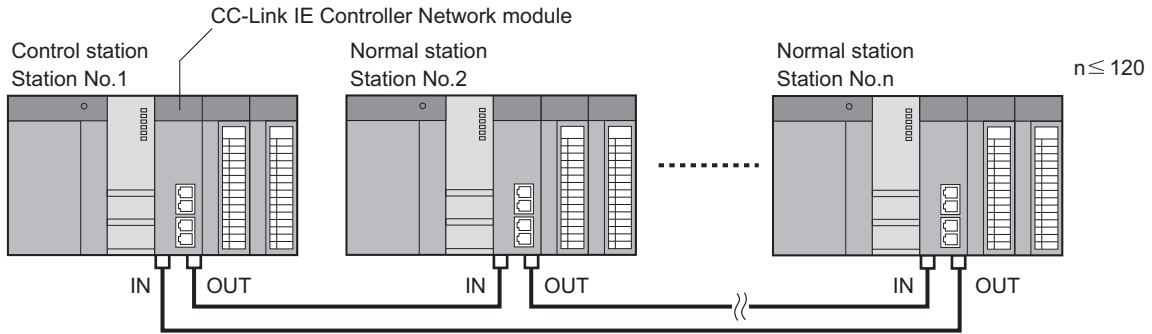
- (e) Make a full connection between the cable-side and module-side connectors until a "click" can be heard.**

(2) Cable connection

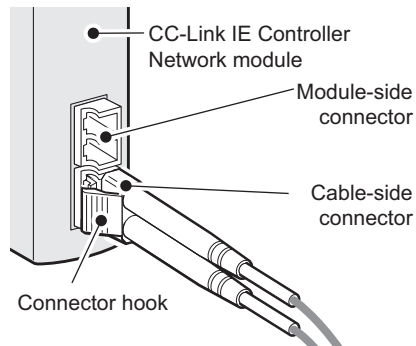
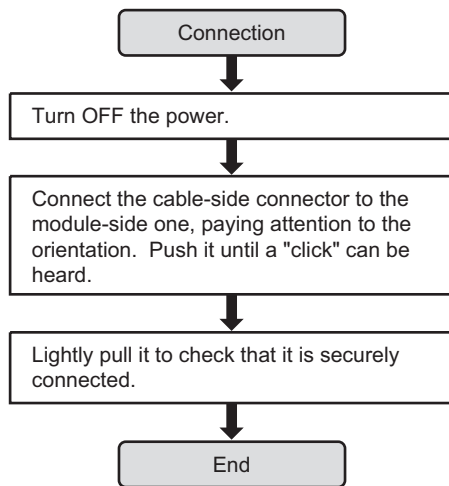
(a) Connection method

Connect an optical fiber cable between OUT and IN as shown below.

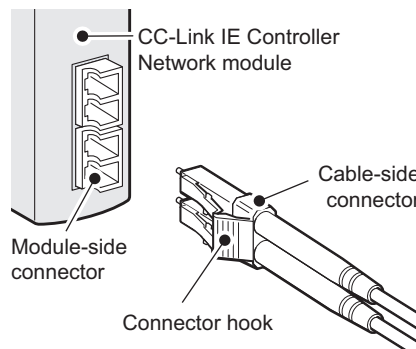
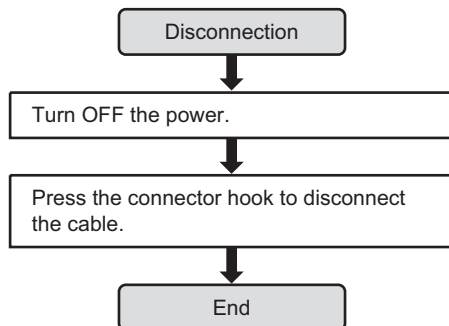
Note that there is no need to connect the cables in the order of station numbers.



(b) Connecting the optical fiber cable

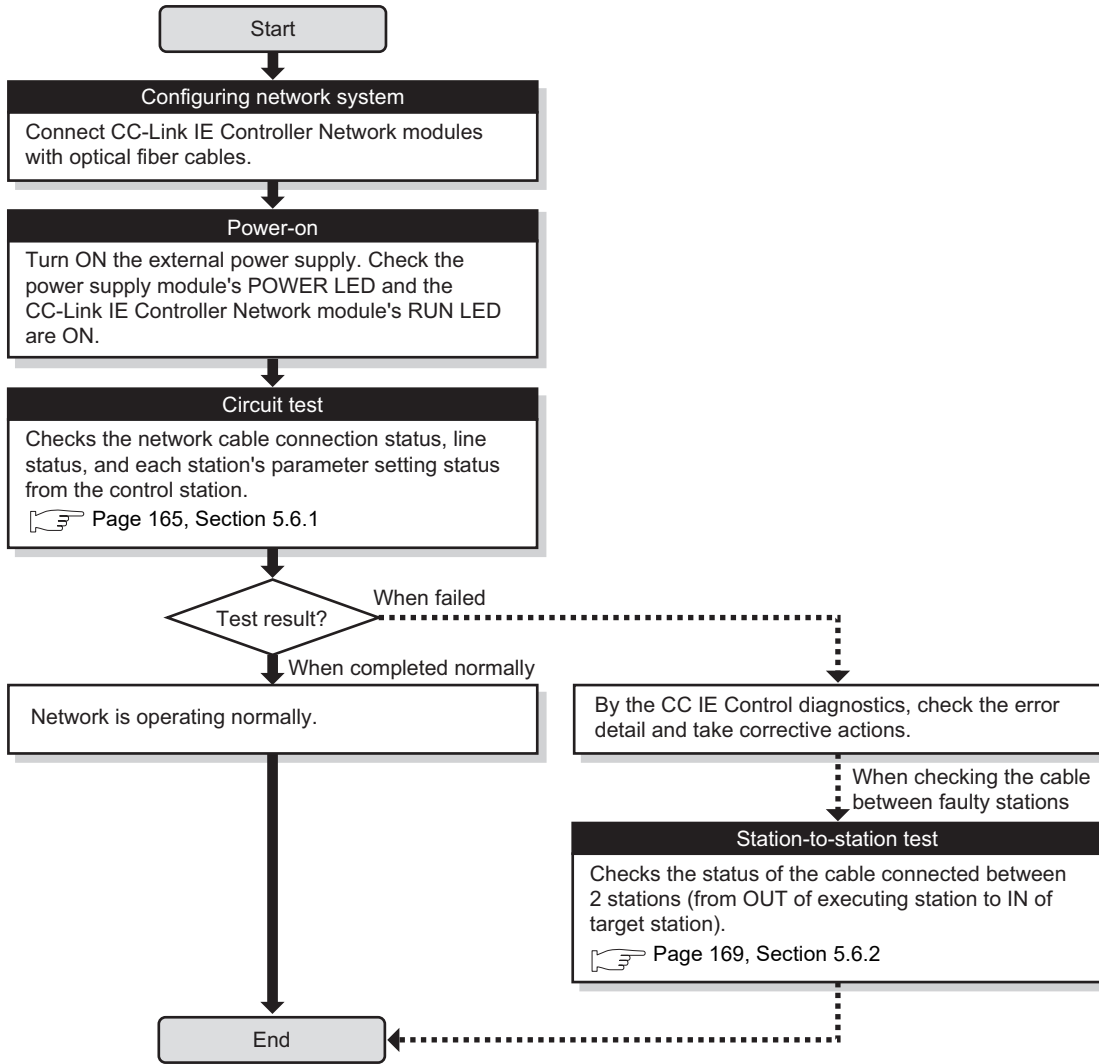


(c) Disconnecting the optical fiber cable



5.6 Tests for CC-Link IE Controller Network Startup

This section describes the tests to be executed at startup of the CC-Link IE Controller Network. The tests check whether the network operates properly or not at system startup. Perform each test according to the following.



5.6.1 Circuit test

Circuit test checks the network cable connection status, line status, and each station's parameter setting status from the control station.

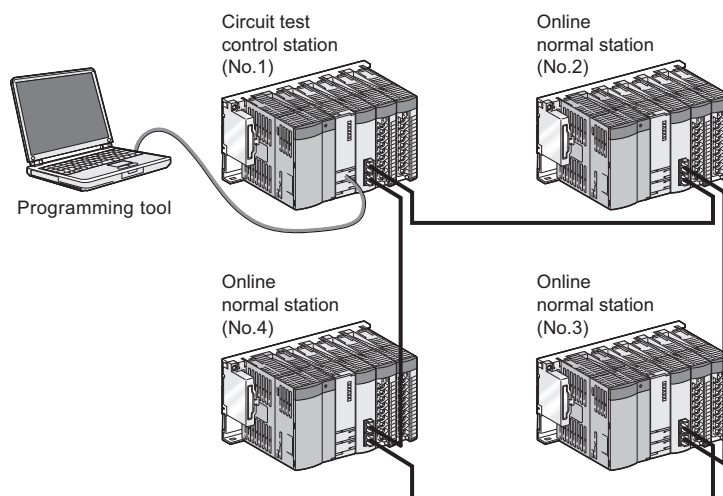
The following lists the test items that are checked in the circuit test.

Item	Description
Detection of duplicated control station or station No.	Detects duplication of the control station or station No.
Detection of out-of-range stations	Detects whether normal stations more than the total number set in the control station are connected or not.
Detection of reserved stations	Detects whether reserved setting stations are actually connected or not.
Cable disconnection detection	Detects cable disconnection.
Cable insertion error detection	Detects incorrect cable connection between OUT and IN.
Cable fault detection	Detects a cable fault.

(1) System configuration and parameter setting

(a) System configuration

1. Connect the programming tool to the CPU module.
2. Turn OFF the power and connect an optical fiber cable to OUT and IN of each CC-Link IE Controller Network module.
3. Turn ON the power.




(b) Setting network parameters in the programming tool

1. Set the control station to the circuit test mode.

After setting the following network parameters in the programming tool, write them to the programmable controller.

Module 1	
Network Type	CC IE Control(Control Station) ▼
Start I/O No.	0000
Network No.	1
Total Stations	4
Group No.	0
Station No.	1
Mode	Loop Test ▼

Point

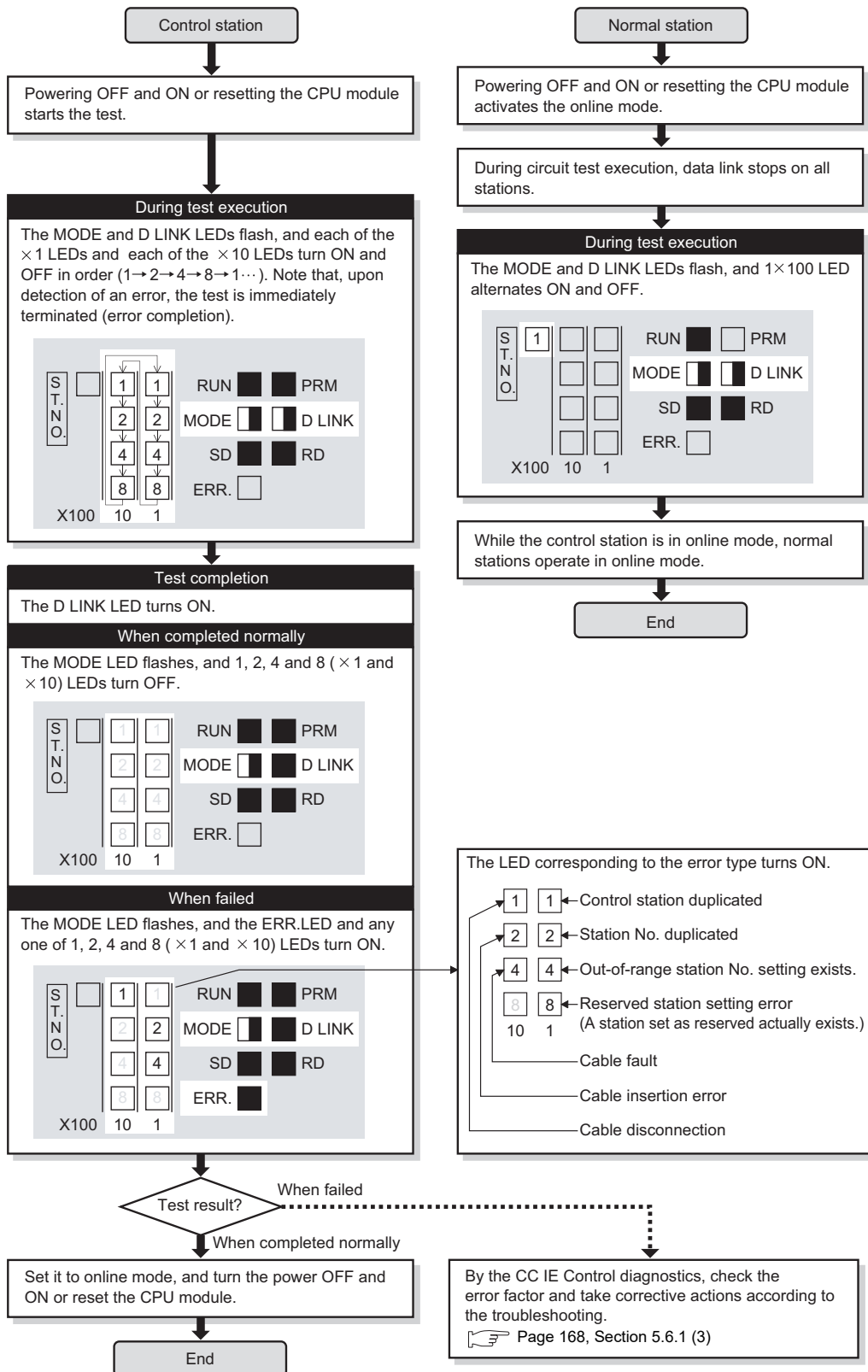
When a network contains a redundant system, pairing settings are required for network parameters of the control station. Select "Pairing" of "Network Range Assignment" of the control station to configure the settings. ( Page 199, Section 6.3.4)


2. Setting the normal station to the online mode

After setting the following network parameters in the programming tool, write them to the programmable controller.


Module 1	
Network Type	CC IE Control(Normal Station) ▼
Start I/O No.	0000
Network No.	1
Total Stations	
Group No.	0
Station No.	2
Mode	Online ▼

(2) Executing the circuit test

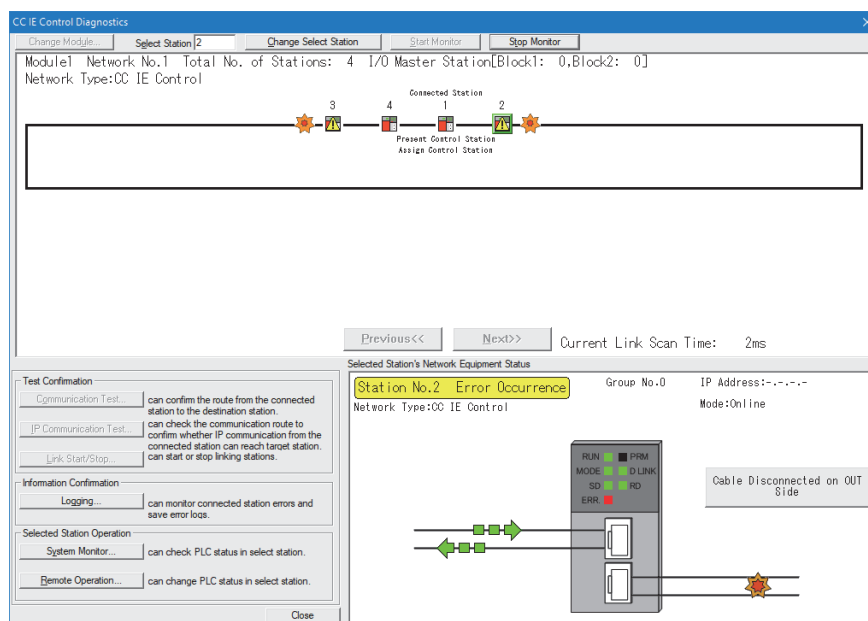



- When executing the circuit test, connect each cable properly between OUT and IN.
Also, do not insert or remove a cable during test execution. (Doing so will result in error completion.)
- The circuit test result can be confirmed with the link special relay (SB0094, SB0095). ( Page 568, Appendix 1)
- For re-execution of the circuit test after circuit test completion, power OFF the control station and then ON, or reset the CPU module.

(3) Checking the circuit test result in the CC IE Control diagnostics

When the circuit test has failed, identify the cause of the error in the CC IE Control diagnostics, and take corrective actions according to the troubleshooting section. ( Page 541, Section 10.4)

Then, execute the circuit test again.



1. Select a faulty station.
2. Clicking an error details button (e.g.  button) opens the "Error Details" window.
Take corrective actions according to the troubleshooting direction.

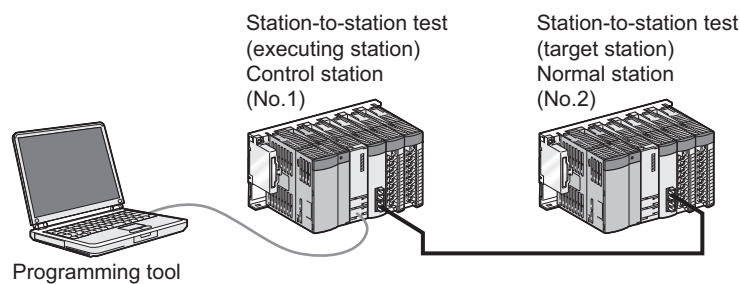
5.6.2 Station-to-station test

Station-to-station test checks the condition of the cable connected between two stations (from OUT of the executing station to IN of the other station.)

(1) System configuration and parameter setting for other than redundant systems

(a) System configuration

1. Connect the programming tool to the CPU module.
2. Turn OFF the power and connect an optical fiber cable between OUT of the executing station and IN of the other station.
3. Turn ON the power.



(b) Setting network parameters in the programming tool

1. Set the test-executing station to the station-to-station test mode.

After setting the following network parameters in the programming tool, write them to the programmable controller.

Module 1	
Network Type	CC IE Control(Control Station)
Start I/O No.	0000
Network No.	1
Total Stations	4
Group No.	0
Station No.	1
Mode	Test between Station

2. Set the other station to the online mode.

After setting the following network parameters in the programming tool, write them to the programmable controller.

Module 1	
Network Type	CC IE Control(Normal Station)
Start I/O No.	0000
Network No.	1
Total Stations	
Group No.	0
Station No.	2
Mode	Online

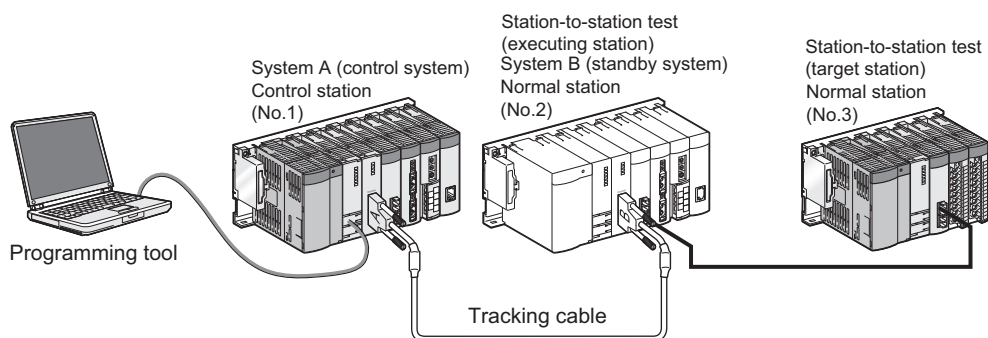
(2) System configuration and parameter setting for a redundant system

The following is an example of setting the CC-Link IE Controller Network module on the system B as an executing station in the system shown in (a) below.

Set the operation mode of the redundant system to separate mode for the station-to-station test.

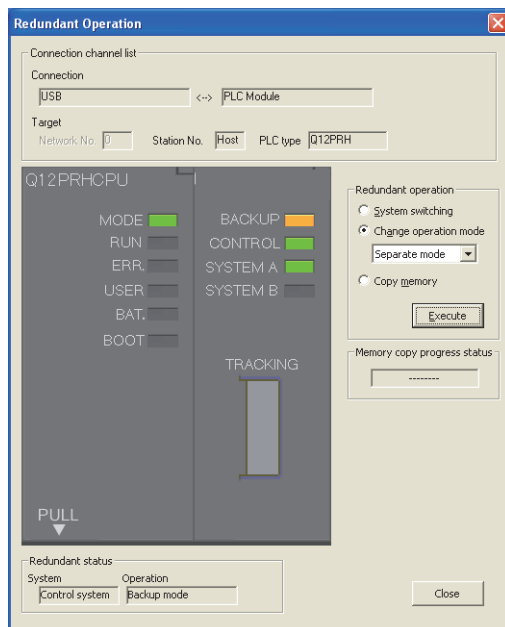
(a) System configuration

1. Connect the programming tool to the control system CPU module.
2. Turn OFF the power and connect an optical fiber cable between OUT of the executing station and IN of the other station.
3. Turn ON the power.



(b) Changing the operation mode of the redundant system

Select "Separate mode" in "Change operation mode" in the "Redundant Operation" window of the programming tool.



(c) Setting network parameters in the programming tool

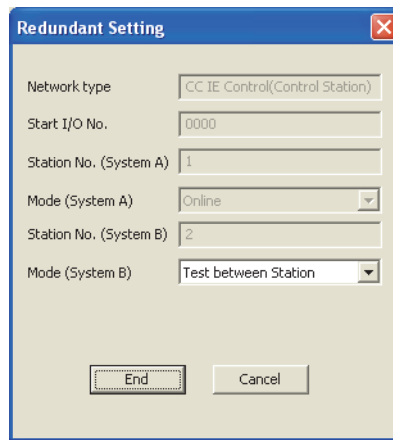
1. Set the mode of the system A to the online mode.

Set the network parameters in the programming tool as shown below.

Module 1	
Network Type	CC IE Control(Control Station) ▼
Start I/O No.	0000
Network No.	1
Total Stations	4
Group No.	0
Station No.	1
Mode	Online ▼

2. Set the mode of the system B (executing station) to the station-to-station test mode.

In the "Redundant Setting" window under the network parameters of the programming tool, select "Test between Station" for the "Mode(System B)". (☞ Page 231, Section 6.7)



3. Connect the programming tool to the system B CPU module and write the parameters to the module.

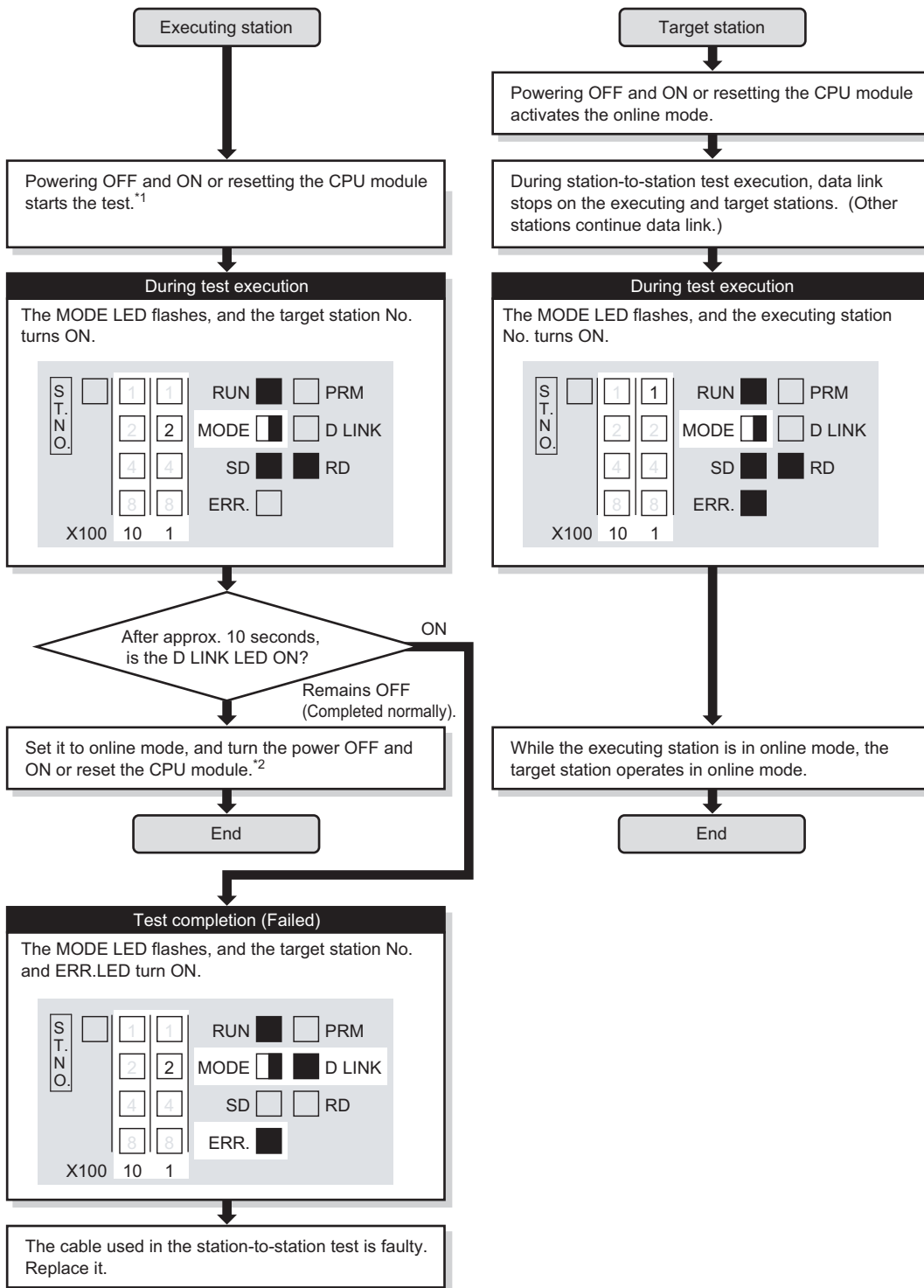
4. Set the other station to the online mode.

Connect the programming tool to the other station.

After setting the following network parameters in the programming tool, write them to the programmable controller.

Module 1	
Network Type	CC IE Control(Normal Station) ▼
Start I/O No.	0000
Network No.	1
Total Stations	
Group No.	0
Station No.	3
Mode	Online ▼


(3) Executing the station-to-station test



*1 When the redundant system is in separate mode, power OFF and ON only system B or reset the CPU module of system B.

*2 When the redundant system is in separate mode,
 1) Set the mode of system B to online mode, and write the data to the system B CPU module.
 2) Power OFF and ON only system B or reset the CPU module of system B.
 3) Connect the programming tool to the control system CPU module, and change the mode of the redundant system to the backup mode.

Point 

- When executing the station-to-station test, connect the cable properly between OUT and IN. Also, do not insert or remove a cable during test execution. (Doing so will result in error completion.)
- The station-to-station test result can be checked with the link special relay (SB0097). ( Page 568, Appendix 1)

5.7 Test Before CC-Link IE Controller Network Operation

This section describes the test performed before operation of the CC-Link IE Controller Network.
 The test checks, before system operation, whether transient transmission can be correctly routed in the network or not.

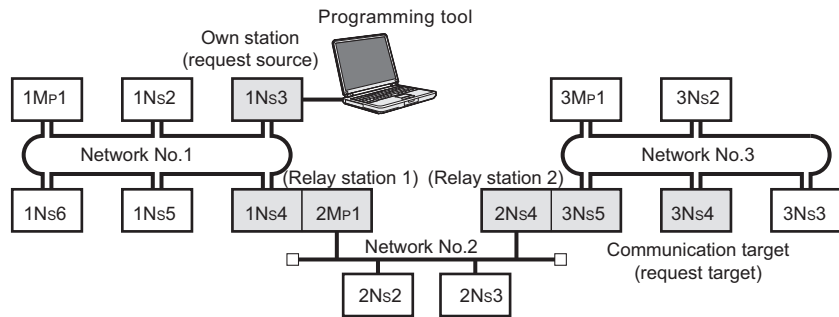
5.7.1 Communication test

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

Note that this test is not available in circuit test mode.

(1) System configuration

Connect the programming tool to the CPU module of the own station.
 For an example, assume the following multi-network system.



(2) Setting routing parameters in the programming tool

Set routing parameters in the programming tool for each station on the network, and write them to the programmable controller. (Page 103, Section 4.2.3)

(a) Routing parameters for stations of the network No.1

	Target Network No.	Relay Network No.	Relay Station No.
1	2	1	4
2	3	1	4

No setting is required for the relay station 1 (1Ns4, 2Mp1) because data are transmitted via the own station.

(b) Routing parameters for stations of the network No.2

	Target Network No.	Relay Network No.	Relay Station No.
1	1	2	1
2	3	2	4

No setting is required for the relay station 1 (1Ns4, 2Mp1) because data are transmitted via the own station.

No setting is required for the relay station 2 (2Ns4, 3Ns5) because data are transmitted via the own station.

(c) Routing parameters for stations of the network No.3

	Target Network No.	Relay Network No.	Relay Station No.
1	1	3	5
2	2	3	5

No setting is required for the relay station 2 (2Ns4, 3Ns5) because data are transmitted via the own station.

(d) Routing parameters of the relay station 1

	Target Network No.	Relay Network No.	Relay Station No.
1	3	2	4

(e) Routing parameters of the relay station 2

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

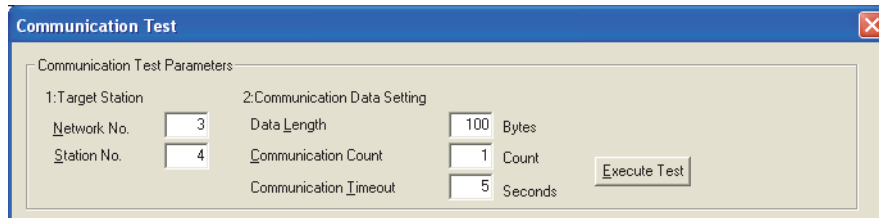
(3) Executing the communication test

1. Open the "Communication Test" window in the programming tool.

 [Diagnostics] ⇔ [CC IE Control Diagnostics] ⇔ button

2. Configure settings with reference to the description below.

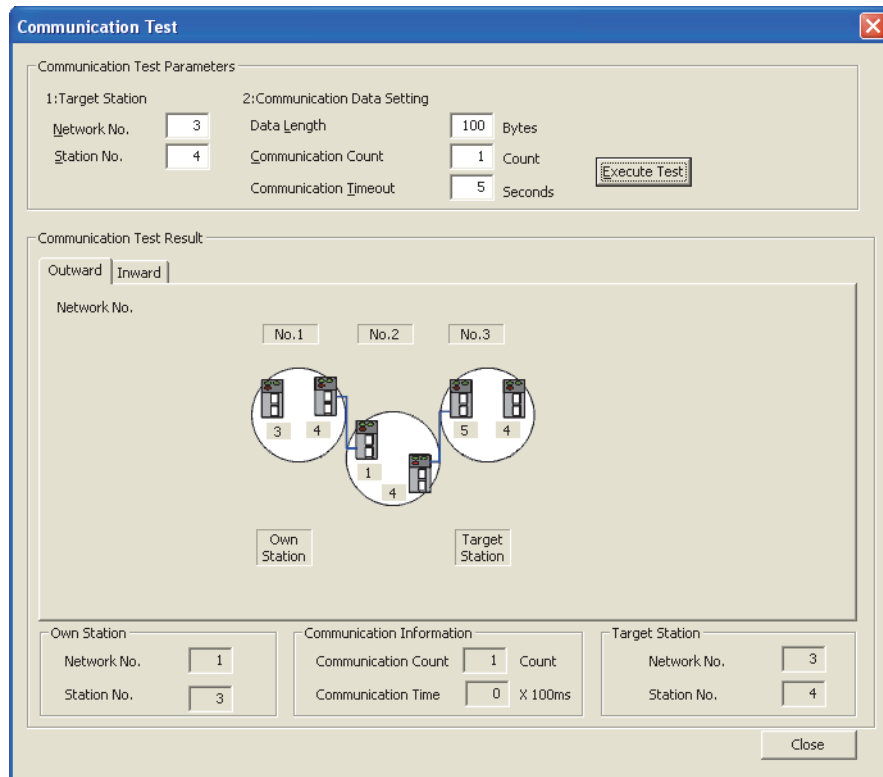
3. Click the button.



Item		Description
Target Station	Network No.	Set the network No. of the communication target. (Setting range: 1 to 239, Default: 1)
	Station No.	Set the station No. of the communication target. (Setting range for Universal model QCPU: 0 to 120, Default: 1) (Setting range for other than Universal model QCPU: 0 to 64, Default: 1)
Communication Data Setting	Data Length	Set the length of the communication data. (Unit: Bytes) (Setting range: 1 to 900, Default: 100)
	Communication Count	Set the number of communications. (Setting range: 1 to 100, Default: 1)
	Communication Timeout	Set a timeout time of the communication test. (Unit: Seconds) (Setting range: 1 to 100, Default: 5)

(4) Checking the communication test result

Upon completion of the communication test, the test result is displayed.
If an error occurs, take corrective actions according to the error message.



CHAPTER 6 PARAMETER SETTING

This chapter describes the parameters of the CC-Link IE Controller Network module.

6.1 Parameter List

This list shows the CC-Link IE Controller Network module parameters.

(1) Parameter list for the control station


- | | |
|--------------------------------|-------------------------|
| 1) Safety CPU | 4) Process CPU |
| 2) Basic model QCPU | 5) Redundant CPU |
| 3) High Performance model QCPU | 6) Universal model QCPU |

Item	Description	CPU module						Reference section	
		1)	2)	3)	4)	5)	6)		
Network Settings	Network Type			○	○	○	○	Page 180, Section 6.2	
	Starting I/O No.			○	○	○	○		
	Network No.			○	○	○	○		
	Total Stations			○	○	○	○		
	Group No.			*1 △	*1 △	*1 △	*1 △		
	Station No.			○	○	○	○		
	Mode			○	○	○	○		
	Station No. setting method	For Universal model QCPUs, select how to set station Nos. of normal stations.	x	x	x	x	x		x
Network Range Assignment	System Switching Monitoring Time			*1 △	*1 △	*1 △	*1 △	Page 183, Section 6.3	
	Data Link Monitoring Time			*1 △	*1 △	*1 △	*1 △		
	LB/LW Settings (1)	Set each station's send range in LB/LW to use it for communication using LB/LW.			○	○	○	Page 185, Section 6.3.1	
	LB/LW Settings (2)				△	△	△		△
	LX/LY Settings (1)	For each block, set an I/O master station and I/O ranges used in communication using LX/LY between the I/O master and relevant stations.			△	△	△	Page 192, Section 6.3.2	
	LX/LY Settings (2)				△	△	△		△
	Specify I/O Master Station				△	△	△		△
Shared Group Setting	For a Universal model QCPU, set stations that will share their cyclic data to the same Shared group No.			x	x	x	△	Page 196, Section 6.3.3	

Item		Description	CPU module						Reference section
			1)	2)	3)	4)	5)	6)	
Network Range Assignment	Pairing	If the network contains a redundant system, set a combination of stations of system A and system B.			△	△	△	△	Page 199, Section 6.3.4
	Specify Reserved Station	Set reserved station(s).			△	△	△	△	Page 200, Section 6.3.5
	Supplementary Setting	Set the constant link scan time, block data assurance per station, punctuality assurance, and the maximum number of transient transmissions for one station.			*1 △	*1 △	*1 △	*1 △	Page 201, Section 6.3.6
Network Operation Settings		The IP address of the CC-Link IE Controller Network module is set to communicate data with Ethernet devices over CC-Link IE Controller Network.			x	x	x	*2 △	Page 203, Section 6.4
Refresh Parameters		Set the range of the transfer between the link devices of the CC-Link IE Controller Network module and the CPU module devices.	x	x	○	○	○	○	Page 204, Section 6.5
Interrupt Settings		Set the conditions for sending an interrupt request to the CPU module.			△	△	△	△	Page 225, Section 6.6
Redundant Settings		For a Redundant CPU, set the operation mode of the CC-Link IE Controller Network module on system B.			x	x	○	x	Page 231, Section 6.7
Interlink Transmission Parameters		Set the link device transfer range between network modules.			△	△	△	△	Page 232, Section 6.8
Routing Parameters		Set a relay station in the own network to transmit data to another network.			△	△	△	△	Page 238, Section 6.9

○: Setting required, △: Set it if required, x: Setting not allowed

*1 A default value has been set. Change it if necessary.

*2 CPU modules that can be used differ depending on the connection path. ( Page 107, Section 4.3.1)

(2) Parameter list for normal stations

- | | |
|--------------------------------|-------------------------|
| 1) Safety CPU | 4) Process CPU |
| 2) Basic model QCPU | 5) Redundant CPU |
| 3) High Performance model QCPU | 6) Universal model QCPU |

Item	Description	CPU module						Reference section
		1)	2)	3)	4)	5)	6)	
Network setting	Network Type	○	○	○	○	○	○	Page 180, Section 6.2
	Starting I/O No.	○	○	○	○	○	○	
	Network No.	○	○	○	○	○	○	
	Total Stations	×	×	×	×	×	×	
	Group No.	*1 △	*1 △	*1 △	*1 △	*1 △	*1 △	
	Station No.	○	○	○	○	○	○	
	Mode	○	○	○	○	○	○	
Station No. setting method	For Universal model QCPUs, select how to set station Nos. of normal stations.	×	×	×	×	×	○	
Refresh Parameters	Set the range of the transfer between the link devices of the CC-Link IE Controller Network module and the CPU module devices.	○	○	○	○	○	○	Page 204, Section 6.5
Interrupt Settings	Set the conditions for sending an interrupt request to the CPU module.	×	△	△	△	△	△	Page 225, Section 6.6
Redundant Settings	For a Redundant CPU, set the operation mode of the CC-Link IE Controller Network module on system B.	×	×	×	×	○	×	Page 231, Section 6.7
Interlink Transmission Parameters	Set the link device transfer range between network modules.	×	×	△	△	△	△	Page 232, Section 6.8
Routing Parameters	Set a relay station in the own network to transmit data to another network.	△	△	△	△	△	△	Page 238, Section 6.9


○: Setting required, △: Set it if required, ×: Setting not allowed

*1 A default value has been set. Change it if necessary.

6.2 Network Settings

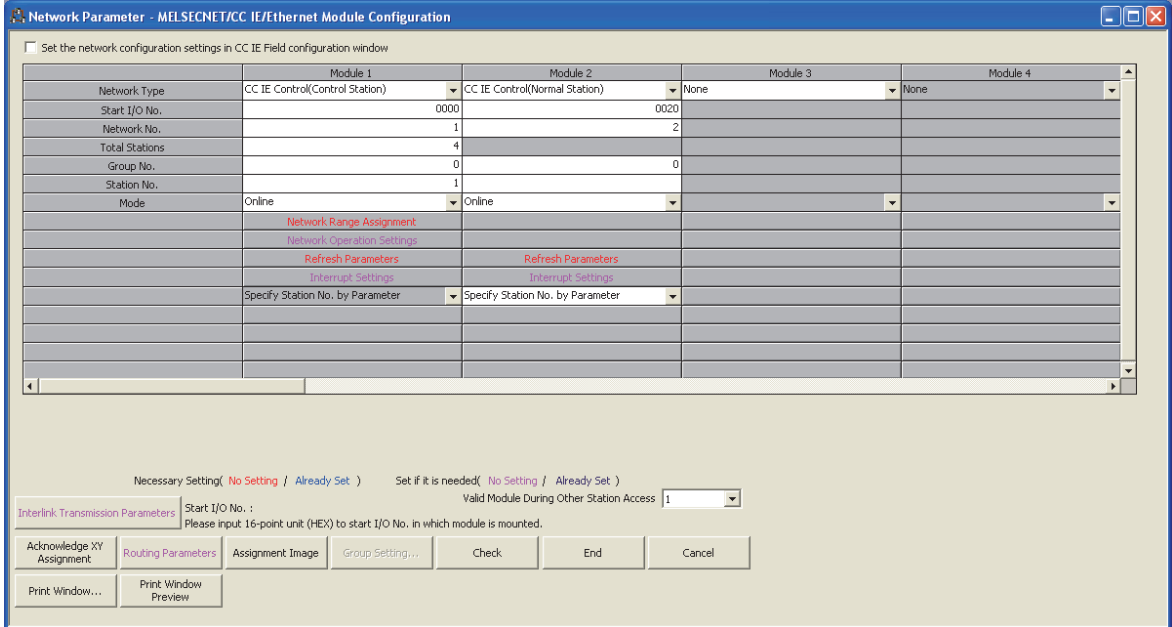
Make settings for configuring the network.

1. Open the "MELSECNET/CC IE/Ethernet Module Configuration" window in the programming tool.

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

2. Configure settings with reference to the description below.

3. Click the  button.



	Module 1	Module 2	Module 3	Module 4
Network Type	CC IE Control(Control Station)	CC IE Control(Normal Station)	None	None
Start I/O No.	0000	0020		
Network No.	1	2		
Total Stations	4			
Group No.	0	0		
Station No.	1			
Mode	Online	Online		
Network Range Assignment				
Network Operation Settings				
Refresh Parameters		Refresh Parameters		
Interrupt Settings		Interrupt Settings		
Specify Station No. by Parameter		Specify Station No. by Parameter		

Necessary Setting(No Setting / Already Set) Set if it is needed(No Setting / Already Set)

Interlink Transmission Parameters Start I/O No. : Valid Module During Other Station Access 1

Please input 16-point unit (HEX) to start I/O No. in which module is mounted.

Acknowledge XY Assignment Routing Parameters Assignment Image Group Setting... Check End Cancel

Print Window... Print Window Preview

Item	Description
Network Type	Select the station type of the CC-Link IE Controller Network module.
Starting I/O No.	Set the start I/O number of the CC-Link IE Controller Network module in 16-point units.
Network No.	Set a network No. of the network to which the CC-Link IE Controller Network module is connected.
Total Stations	When a control station is selected in "Network Type", set the total number of stations in one network.
Group No.	Set a group No. for performing transient transmission by group specification.
Station No.	Set a station No. of the CC-Link IE Controller Network module.
Mode	Select an operation mode of the CC-Link IE Controller Network module.
Station No. setting method	For Universal model QCPUs, select how to set station Nos. of normal stations.

(1) Network Type

Select the station type of the CC-Link IE Controller Network module.

When the extended mode is selected using GX Works2, send points can be extended.

For a Basic model QCPU or safety CPU, it is fixed to "CC IE Control (Normal Station)".

Item	Description
CC IE Control (Control Station)	Set this for the CC-Link IE Controller Network control station. (One control station is needed for a single network.)
CC IE Control (Normal Station)	Set this for the CC-Link IE Controller Network normal station.
CC IE Control Ext. Mode (Control Station)	Set this for a control station where send points can be extended. (GX Works2 only)
CC IE Control Ext. Mode (Normal Station)	Set this for a normal station where send points can be extended. (GX Works2 only)

Point

To use the extended mode, set a control station and a normal station in the same network to the extended mode. The same network cannot contain different network types.

(2) Starting I/O No.

Set the start I/O number of the CC-Link IE Controller Network module in 16-point units.

(Setting range: 0000_H to 0FE0_H, Default: None)

(3) Network No.

Set a network No. of the network to which the CC-Link IE Controller Network module is connected. (Setting range: 1 to 239, Default: None)

Point

When multiple network modules and/or Ethernet modules are mounted for one programmable controller, set different network Nos. for them.

(4) Total Stations

When a control station is selected in "Network Type", set the total number of stations in one network.

(Setting range for Universal model QCPU: 2 to 120, Default: None)

(Setting range for other than Universal model QCPU: 2 to 64, Default: None)

(5) Group No.

Set a group No. for performing transient transmission by group specification. ( Page 102, Section 4.2.2)

(Setting range: 1 to 32, Default: 0 (No group specification))


(6) Station No.

When "Specify Station No. by Parameter" has been selected for the station No. setting method, set a station No. of the CC-Link IE Controller Network module.

(Setting range for Universal model QCPU: 1 to 120, Default: None)





(Setting range for other than Universal model QCPU: 1 to 64, Default: None)

Point

- Station No. can be set within the range set in "Total Stations" for the control station.
When skipping a station No, specify the number to be skipped as a reserved station. ( Page 200, Section 6.3.5)
- Prevent any station No. duplication on the same network.
- The control station can be set to any station No.

(7) Mode



Select an operation mode of the CC-Link IE Controller Network module. (Default: Online)


Item	Description
Online	Normal operation mode <ul style="list-style-type: none">• Connects the own station to the network.• Exchanges data with other stations.
Offline	Operation stop mode <ul style="list-style-type: none">• Disconnects the own station from the network.• Does not exchange data with other stations.
H/W Test	Hardware test mode ( Page 152, Section 5.4.1)
Self-Loopback Test	Self-loopback test mode ( Page 157, Section 5.4.2)
Circuit Test	Circuit test mode ( Page 165, Section 5.6.1)
Test between Station	Station-to-station test mode ( Page 169, Section 5.6.2)

(8) Station No. setting method

For normal stations of Universal model QCPUs, select a station No. setting method.*¹

For a QCPU other than a Universal model QCPU or the control station type, the setting is fixed to "Specify Station No. by Parameter".

Item	Description
Specify Station No. by Parameter	Station No. is set in "Station No." of network parameters. ( Page 182, Section 6.2 (6))
Specify Station No. by Program	Station No. is set with the UINI instruction. ( Page 476, Section 9.18)


*¹ For a multiple CPU system consisting of Universal model QCPU(s) and any other QCPU(s), set the station No. of the CC-Link IE Controller Network module by network parameters. ( Page 137, Section 4.6 (3))



6.3 Network Range Assignment

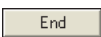
To the control station, assign each station's send range required for cyclic transmission and configure supplementary settings for data communication.

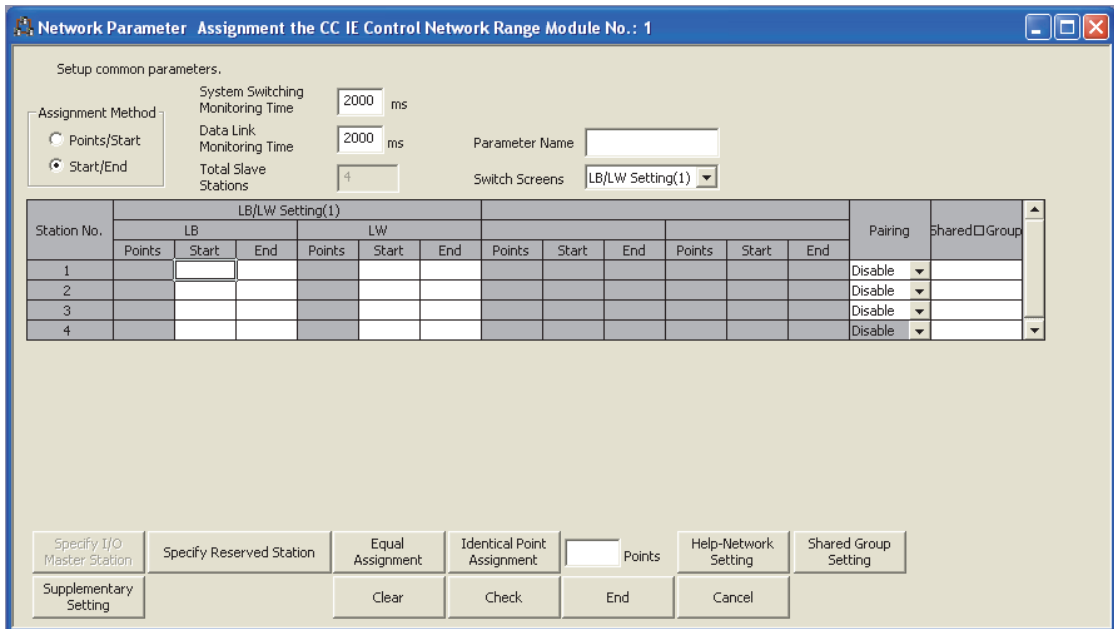
Point


Network range assignments are set to the control station only.
Normal stations perform cyclic transmission according to the range assigned at the control station.





1. Configure the network setting. ( Page 180, Section 6.2)
2. Open the setting window in the programming tool.

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


3. Configure settings with reference to the description below.
4. Click the  button.



Item	Description
System Switching Monitoring Time	Set a length of time that will be taken from a data link stop (Data link status (SB0049) turns ON) until issue of a system switching request in units of 10ms. (Setting range: 10 to 5000ms, Default: 2000ms)
Data Link Monitoring Time	Set the time for monitoring the link scan time in units of 5ms. Normally, it is recommended to use the default value. If the link scan time exceeds the monitoring time, data linking is disabled. (Setting range: 5 to 2000ms, Default: 2000ms)
Total Slave Stations	Displays the total number of stations in the network.
Parameter Name	Set a name for parameters as required. (Up to eight characters)
Switch Screens	Select the LB/LW setting window or LX/LY setting window.
LB/LW Setting(1)	Set each station's send range in LB/LW to use it for communication using LB/LW.
LB/LW Setting(2)	( Page 185, Section 6.3.1)

Item	Description
LX/LY Setting(1)	For each block, set an I/O master station and I/O ranges used in communication using LX/LY between the I/O master and relevant stations.
LX/LY Setting(2)	
Specify I/O Master Station	
Shared Group Setting	For a Universal model QCPU, set stations that will share their cyclic data to the same shared group No. ( Page 196, Section 6.3.3)
Pairing	When the network contains a redundant system, set a combination of stations of system A and system B. ( Page 199, Section 6.3.4)
Specify Reserved Station	Set reserved station(s). ( Page 200, Section 6.3.5)
Supplementary Setting	Set the constant link scan time, block data assurance per station, punctuality assurance, and the maximum number of transient transmissions for one station. ( Page 201, Section 6.3.6)

6.3.1 LB/LW settings

Set each station's send range in LB/LW to use it for communication using LB/LW. ( Page 61, Section 4.1.1)
 LB/LW settings can be divided into "LB/LW Setting(1)" and "LB/LW Setting(2)".

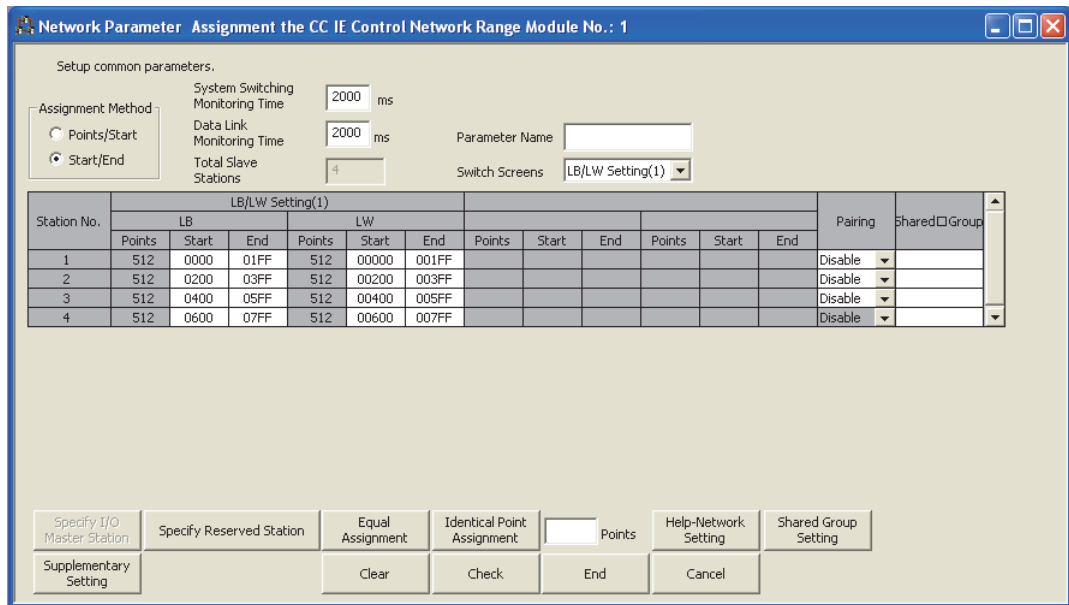
Normally, setting only "LB/LW Setting(1)" is enough for communication using LB/LW.

Set "LB/LW Setting(2)" in the following cases:

- When extending each station's send range without changing existing assignments
- When intentionally dividing each station's send range into two (e.g. within and outside the link refresh range).

Point

If "LB/LW Setting(2)" is used, link scan time will be longer compared to using "LB/LW Setting(1)" only.



Item	Description
Assignment Method	Select an LB/LW assignment method. • Points/Start: Enter link device points and start I/O numbers. • Start/End: Enter the start and end numbers of the link devices.
LB (Points/Start/End)	Set each station's send range in LB in 16-point units. (Start: □□□□ _H to End: □□□□ _H)* ¹ (Setting range: 0000 _H to 7FFF _H , Default: None)
LW (Points/Start/End)	Set each station's send range in LW in 1-point units.* ¹ (Setting range: 0000 _H to 1FFFF _H , Default: None)
Equal Assignment	The link device range can be equally assigned to each send range of the relevant stations.
Identical Point Assignment	The same points can be assigned to each station's send range in LB/LW.

*1 The own station send range for LB/LW of a Basic model QCPU or safety CPU must be set within the range of LB/LW0 to 3FFF in "LB/LW Setting(1)".
 If it is set to LB/LW4000 or higher, or set in "LB/LW Setting(2)", a LINK PARA. ERROR or a NETWORK PARAMETER ERROR will occur when parameters are received.

Point

The LB/LW points for each station can be set to 16384 (3FFF_H) or less. (Total of "LB/LW Setting(1)" and "LB/LW Setting(2)")
 When "CC IE Control Ext. Mode" is selected in the network type, LB can be set up to 32768 points (7FFF_H), and LW can be set up to 131072 points (1FFFF_H).

(1) Assuring 32-bit data integrity

When settings are configured with the following four conditions met, 32-bit data integrity is automatically assured.

(☞ Page 76, Section 4.1.5)

- The start device No. of LB is a multiple of 20_H.
- The points assigned per station in LB is a multiple of 20_H.
- The start device No. of LW is a multiple of 2.
- The points assigned per station in LW is a multiple of 2.

(2) Using equal assignment

The link device range can be equally assigned to each send range of the relevant stations.

1. Open the "Network Range Assignment" window in the programming tool. (☞ Page 183, Section 6.3)
2. Click the **Equal assignment** button.
3. Configure settings with reference to the description below.
4. Click the **OK** button.

Ex. When assigning LB0 to 7FF (2048 points) equally to the send ranges of station Nos. 1 to 4


Item	Description
Assignment target	Select "LB/LW Setting(1)" or "LB/LW Setting(2)".
B/W Equal Assignment	Start Station Set the start station. (Setting range for Universal model QCPU: 1 to 120, Default: None) (Setting range for other than Universal model QCPU: 1 to 64, Default: None)
	End Station Set the end station. (Setting range for Universal model QCPU: 1 to 120, Default: None) (Setting range for other than Universal model QCPU: 1 to 64, Default: None)
	Start No. Set the start number of the LB/LW for equal assignment. • LB (Setting range: 0000 _H to 7FF0 _H , Default: None) • LW (Setting range: 0000 _H to 1FFFF _H , Default: None)
	Total Points Assigned Set the total points of LB/LW, which are to be assigned equally. • LB (Setting range: 16 to 32768, Default: None) • LW (Setting range: 1 to 131072, Default: None)

5. Equal assignment is done in "LB/LW Setting(1)" of "Network Range Assignment".

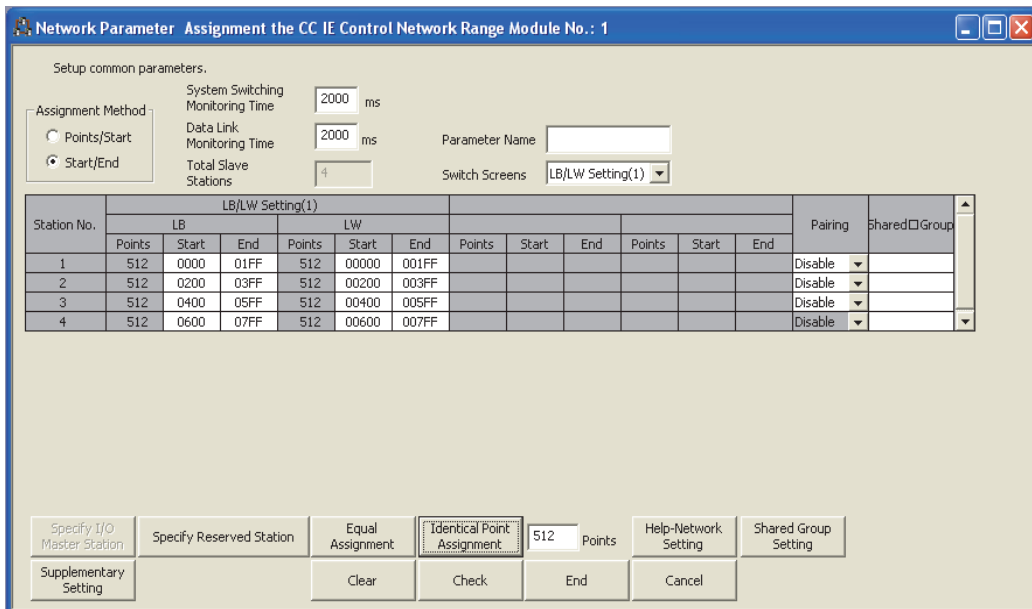
Station No.	LB/LW Setting(1)												Pairing	Shared Group
	LB			LW										
	Points	Start	End	Points	Start	End	Points	Start	End	Points	Start	End		
1	512	0000	01FF										Disable	
2	512	0200	03FF										Disable	
3	512	0400	05FF										Disable	
4	512	0600	07FF										Disable	

(3) Using identical point assignment

The same points can be assigned to each station's send range in LB/LW.

1. Specify the number of assignment points and click the  button in the "Assignment the CC IE Control Network Range" window.
2. Each station's send range in LB/LW are assigned by the same number of points.

Ex. When assigning 512 points to each station's send range in LB/LW

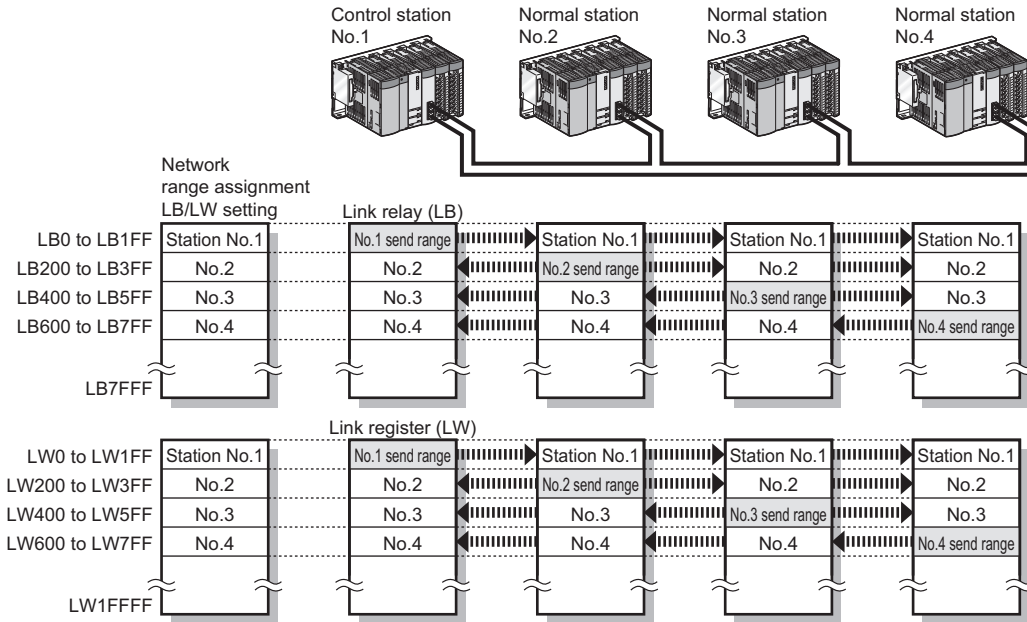


6

6.3 Network Range Assignment
6.3.1 LB/LW settings

(4) LB/LW setting examples

(a) When assigning 512 points to each station's send range in LB/LW ("LB/LW Setting(1)")



Network Parameter Assignment the CC IE Control Network Range Module No.: 1

Setup common parameters.

Assignment Method: Points/Start Start/End

System Switching Monitoring Time: 2000 ms

Data Link Monitoring Time: 2000 ms

Total Slave Stations: 4

Parameter Name:

Switch Screens: LB/LW Setting(1)

Station No.	LB/LW Setting(1)						Pairing	Shared Group
	LB			LW				
	Points	Start	End	Points	Start	End		
1	512	0000	01FF	512	00000	001FF		Disable
2	512	0200	03FF	512	00200	003FF		Disable
3	512	0400	05FF	512	00400	005FF		Disable
4	512	0600	07FF	512	00600	007FF		Disable

Specify I/O Master Station:

Specify Reserved Station:

Equal Assignment:

Identical Point Assignment:

Points:

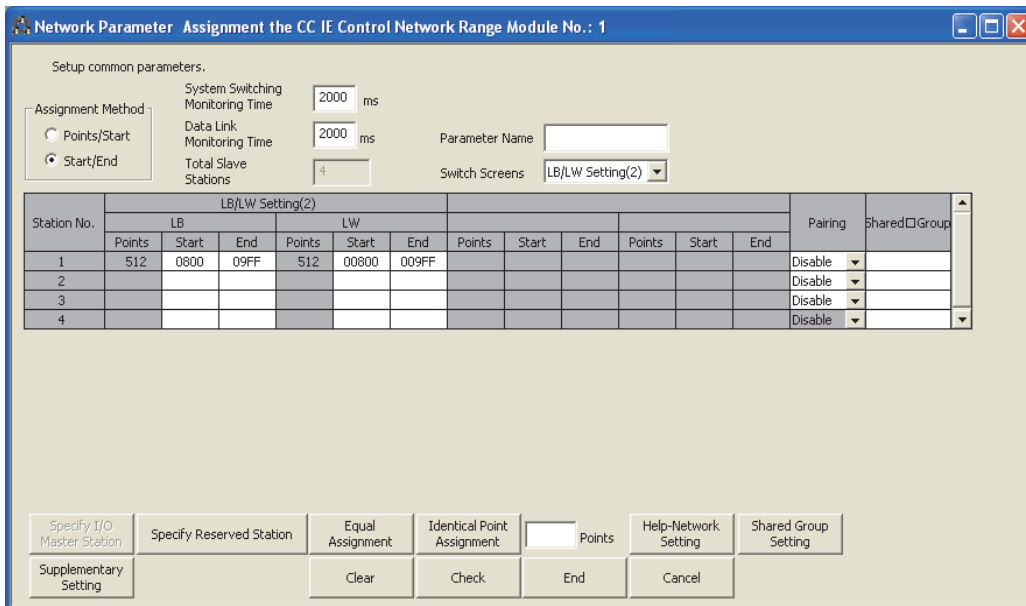
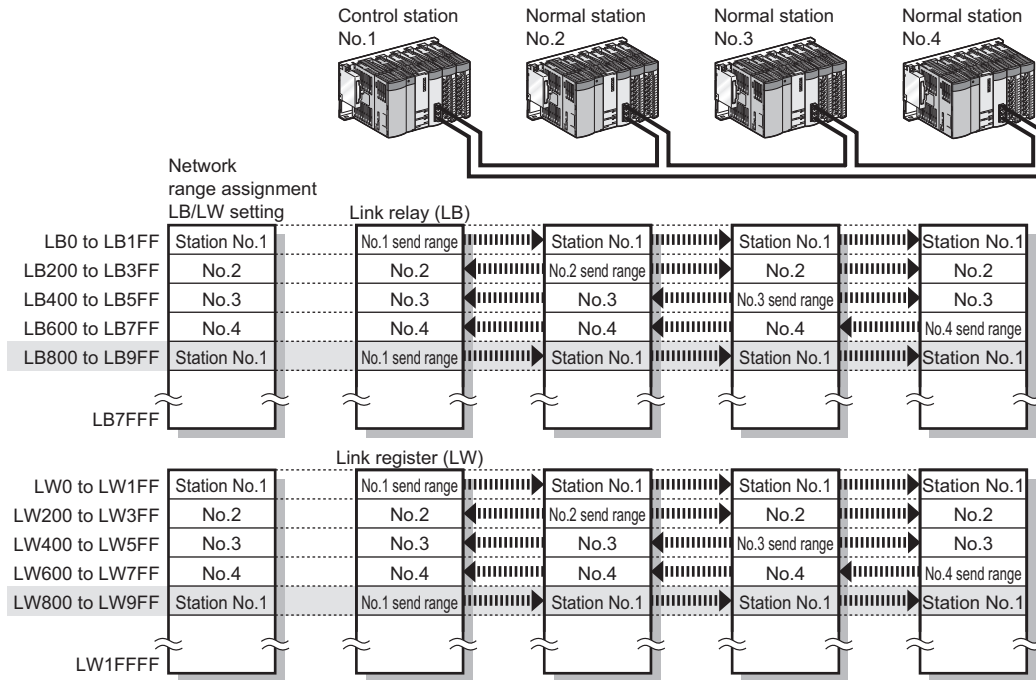
Help-Network Setting:

Shared Group Setting:

Supplementary Setting:

Clear Check End Cancel

(b) When extending the send range of station No.1 to 1024 points without changing the assignment shown in (a) ("LB/LW Setting(2)")



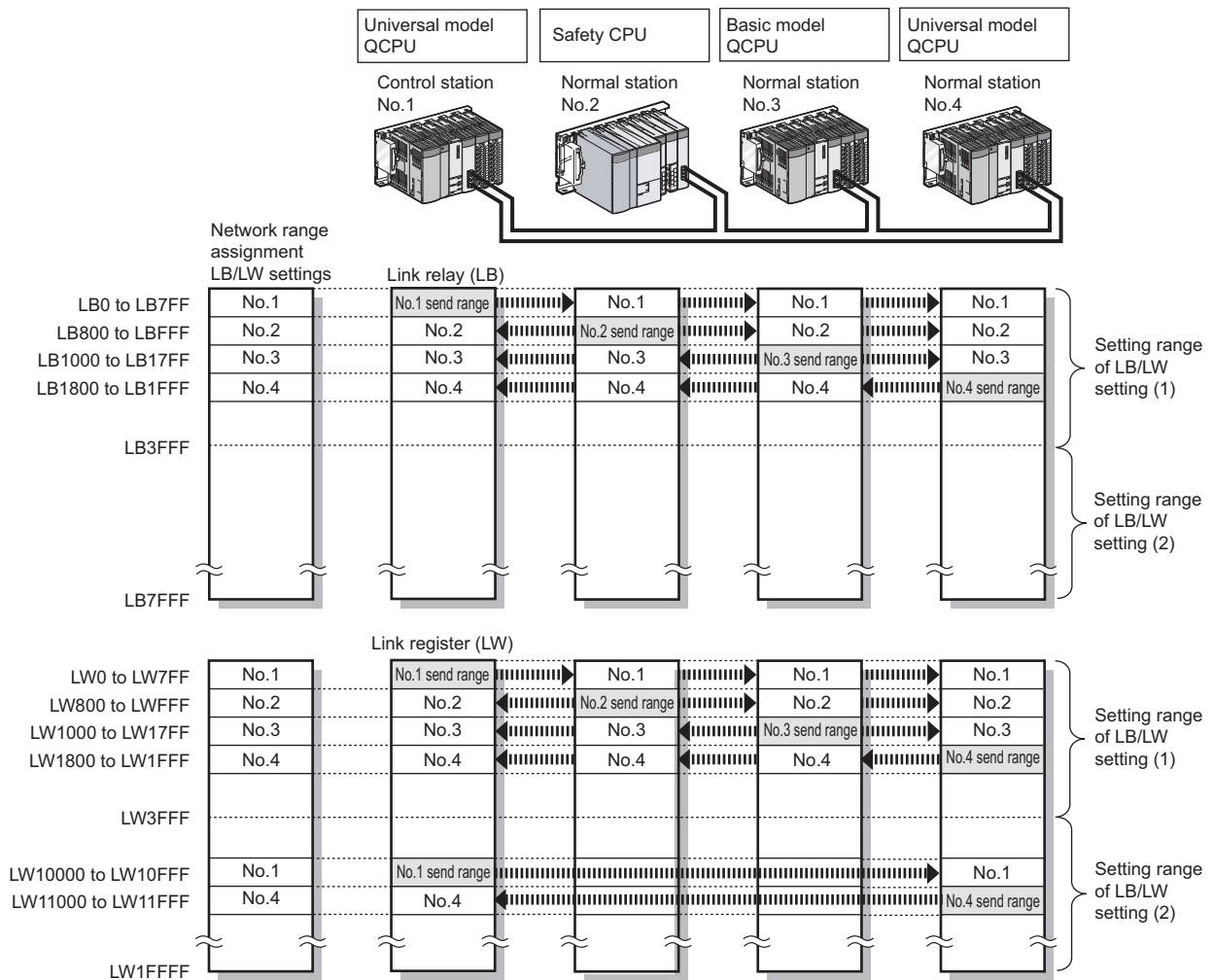
When any of the station send ranges in LB/LW has been changed, check the link refresh range of each station. (Page 204, Section 6.5)

(c) When the network contains a station of a Basic model QCPU or safety CPU

It is recommended to use "LB/LW Setting(2)" when a station on the network has a Basic model CPU or safety CPU.

A setting example for "LB/LW Setting(1)" and "LB/LW Setting(2)" is shown below.

Item	Description	Target range	
		Station No.	Setting range
LB/LW Setting(1)	Set each station's send range of LB/LW, which is shared by all stations.	LB/LW shared by station No.1 to No.64	LB0 to 3FFF LW0 to 3FFF
LB/LW Setting(2)	Set each station's send range of LB/LW, which is shared by stations of Universal model QCPU.	LB/LW shared by station No.1 to No.120	LB4000 to 7FFF LW4000 to 1FFFF



• LB/LW Setting(1)

Network Parameter Assignment the CC IE Control Network Range Module No.: 1

Setup common parameters.

Assignment Method: Points/Start Start/End

System Switching Monitoring Time: 2000 ms
 Data Link Monitoring Time: 2000 ms
 Total Slave Stations: 4
 Parameter Name:
 Switch Screens: LB/LW Setting(1)

Station No.	LB/LW Setting(1)						Pairing	Shared <input type="checkbox"/> Group
	LB			LW				
	Points	Start	End	Points	Start	End		
1	2048	0000	07FF	2048	00000	007FF	Disable	
2	2048	0800	0FFF	2048	00800	00FFF	Disable	
3	2048	1000	17FF	2048	01000	017FF	Disable	
4	2048	1800	1FFF	2048	01800	01FFF	Disable	

Buttons: Specify I/O Master Station, Specify Reserved Station, Equal Assignment, Identical Point Assignment, Points, Help-Network Setting, Shared Group Setting, Supplementary Setting, Clear, Check, End, Cancel

6

• LB/LW Setting(2)

Network Parameter Assignment the CC IE Control Network Range Module No.: 1

Setup common parameters.

Assignment Method: Points/Start Start/End


System Switching Monitoring Time: 2000 ms
 Data Link Monitoring Time: 2000 ms
 Total Slave Stations: 4
 Parameter Name:
 Switch Screens: LB/LW Setting(2)

Station No.	LB/LW Setting(2)						Pairing	Shared <input type="checkbox"/> Group
	LB			LW				
	Points	Start	End	Points	Start	End		
1				4096	10000	10FFF	Disable	
2							Disable	
3							Disable	
4				4096	11000	11FFF	Disable	

Buttons: Specify I/O Master Station, Specify Reserved Station, Equal Assignment, Identical Point Assignment, Points, Help-Network Setting, Shared Group Setting, Supplementary Setting, Clear, Check, End, Cancel

6.3 Network Range Assignment
6.3.1 LB/LW settings

6.3.2 LX/LY settings

For each block, set an I/O master station and I/O ranges used in communication using LX/LY between the I/O master and relevant stations. ( Page 66, Section 4.1.2)

Set "LX/LY Setting(1)" for block 1, and "LX/LY Setting(2)" for block 2.

Setup common parameters.

Assignment Method:
 Points/Start
 Start/End

System Switching Monitoring Time: 2000 ms
 Data Link Monitoring Time: 2000 ms
 Total Slave Stations: 4
 Parameter Name:
 Switch Screens: LX/LY Setting(1)


Station No.	M St. -> L St.						M St. <- L St.						Shared Group
	LY			LX			LX			LY			
	Points	Start	End	Points	Start	End	Points	Start	End	Points	Start	End	
Master 1 1													
2	512	1000	11FF	512	1000	11FF	512	1000	11FF	512	1000	11FF	
3	512	1200	13FF	512	1200	13FF	512	1200	13FF	512	1200	13FF	
4	512	1400	15FF	512	1400	15FF	512	1400	15FF	512	1400	15FF	

Buttons: Specify I/O Master Station, Specify Reserved Station, Equal Assignment, Identical Point Assignment, Points, Help-Network Setting, Shared Group Setting, Supplementary Setting, Clear, Check, End, Cancel

Item	Description
Assignment Method	Select an LX/LY assignment method. <ul style="list-style-type: none"> Points/Start: Enter link device points and start I/O numbers. Start/End: Enter the start and end numbers of the link devices.
M St. → L St.	LY (Points/Start/End) Set the output range (LY) of M station in 16-point units. (Start: □□□0 _H to End: □□□F _H) (Setting range: 0000 _H to 1FFF _H , Default: None) ^{*1}
	LX (Points/Start/End) Set the start No. of the input range (LX) of L station in 16-point units (□□□0 _H). (Setting range: 0000 _H to 1FF0 _H , Default: None) ^{*1}
M St. ← L St.	LX (Points/Start/End) Set the input range (LX) of M station in 16-point units. (Start: □□□0 _H to End: □□□F _H) (Setting range: 0000 _H to 1FFF _H , Default: None) ^{*1}
	LY (Points/Start/End) Set the start No. of the output range (LY) of L station in 16-point units (□□□0 _H). (Setting range: 0000 _H to 1FF0 _H , Default: None) ^{*1}
Specify I/O Master Station	Set an I/O master station for each block to perform communication using LX/LY.
Equal Assignment	The link device I/O range can be equally assigned between the I/O master and other stations. (LX/LY Setting(1) only)

M station: I/O master station, L station: Other station

*1 The LX/LY data of the same I/O numbers with the actual I/O (the range where actual modules are mounted) must be refreshed to the area after the actual I/O area or to any other than LX/LY by refresh parameters.

Transfer target CPU-side devices in refresh parameters cannot overlap with the actual I/O areas. ( Page 204, Section 6.5.1)

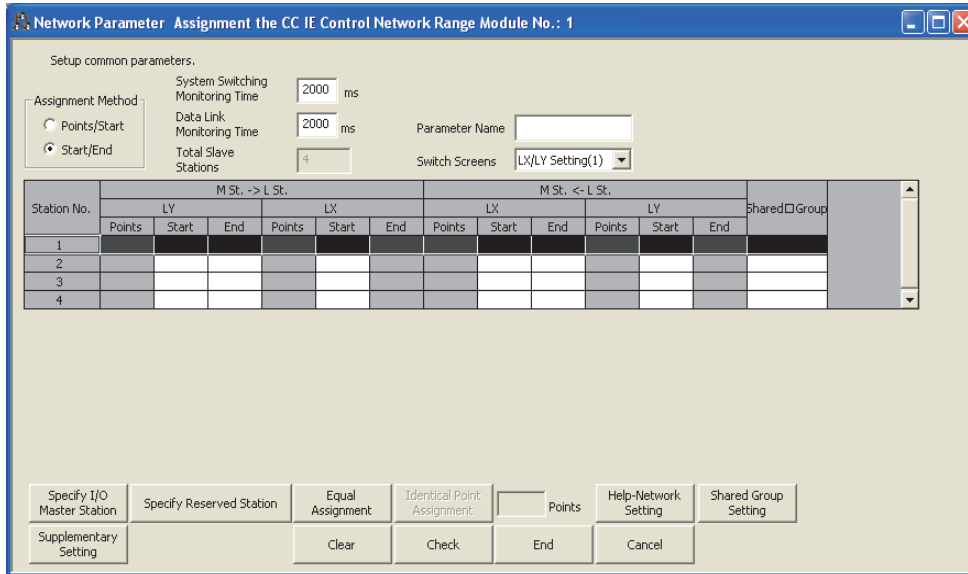
Point

- The LX/LY points for each station can be 8192 (1FFF_H) or less.
- Avoid duplication of the LX/LY settings for each station in "LX/LY Setting(1)" and "LX/LY Setting(2)".

(1) Specify I/O master station

Set an I/O master station for each block to perform communication using LX/LY.

1. Select a desired block in [Switch screens] to specify an I/O master station.
2. Selecting a station No. and clicking the Specify I/O master station button will set the station as I/O master station.


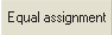
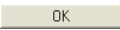


Point

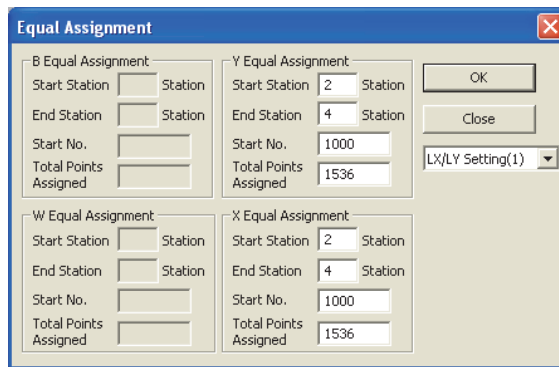
Up to two I/O master stations can be set for one network (block 1 and block 2), regardless of the status of control or normal station.

(2) Using equal assignment

The link device I/O range can be equally assigned between the I/O master and other stations. (LX/LY Setting(1) only)

1. Open the "Assignment the CC IE Control Network Range" window in the programming tool.
( Page 183, Section 6.3)
2. Click the  button.
3. Configure settings with reference to the description below.
4. Click the  button.

Ex. When assigning LX/LY1000 to 15FF (1536 points) equally to the I/O range between the I/O master station and station No.2 to No.4



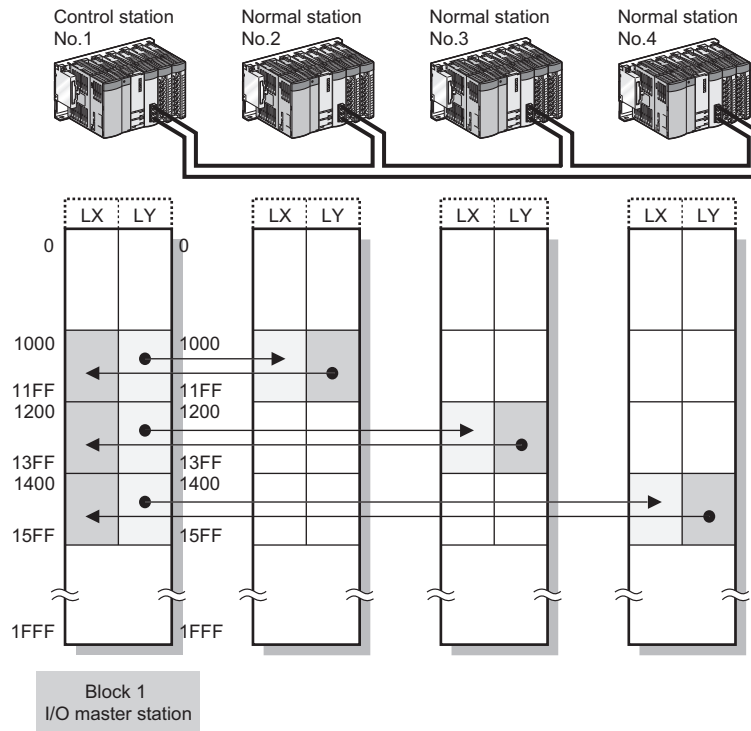
Item		Description
X/Y Equal Assignment	Start Station	Set the start station. (Setting range for Universal model QCPU: 1 to 120, Default: None) (Setting range for other than Universal model QCPU: 1 to 64, Default: None)
	End Station	Set the end station. (Setting range for Universal model QCPU: 1 to 120, Default: None) (Setting range for other than Universal model QCPU: 1 to 64, Default: None)
	Start No.	Set the start number of the LX/LY for equal assignment. (Setting range: 0000 _H to 1FF0 _H , Default: None)
	Total Points Assigned	Set the total points of LX/LY, which are to be assigned equally. (Setting range: 16 to 8192, Default: None)

5. Equal assignment is done in "LX/LY Setting(1)" of "Assignment the CC IE Control Network Range".

Station No.	M St. -> L St.						M St. <- L St.						Shared <input type="checkbox"/> Group
	LY			LX			LX			LY			
	Points	Start	End	Points	Start	End	Points	Start	End	Points	Start	End	
Master 1 1													
2	512	1000	11FF	512	1000	11FF	512	1000	11FF	512	1000	11FF	
3	512	1200	13FF	512	1200	13FF	512	1200	13FF	512	1200	13FF	
4	512	1400	15FF	512	1400	15FF	512	1400	15FF	512	1400	15FF	

(3) Example of "LX/LY Setting(1)"

When specifying station No.1 as I/O master station and assigning 512 points to each I/O range for station No.2 to No.4



Network Parameter Assignment the CC IE Control Network Range Module No.: 1

Setup common parameters.

Assignment Method: Points/Start Start/End

System Switching Monitoring Time: 2000 ms
 Data Link Monitoring Time: 2000 ms
 Total Slave Stations: 4
 Parameter Name:
 Switch Screens: LX/LY Setting(1)

Station No.	M St. -> L St.						M St. <- L St.						Shared Group
	LY			LX			LX			LY			
	Points	Start	End	Points	Start	End	Points	Start	End	Points	Start	End	
Master 1 1													
2	512	1000	11FF	512	1000	11FF	512	1000	11FF	512	1000	11FF	
3	512	1200	13FF	512	1200	13FF	512	1200	13FF	512	1200	13FF	
4	512	1400	15FF	512	1400	15FF	512	1400	15FF	512	1400	15FF	

Buttons: Specify I/O Master Station, Specify Reserved Station, Equal Assignment, Identical Point Assignment, Points, Help-Network Setting, Shared Group Setting, Supplementary Setting, Clear, Check, End, Cancel

6.3.3 Shared group

For a Universal model QCPU, set the stations that share their cyclic data to the same shared group No. (Setting range: None or 1 to 120, Default: None)

This setting is common to "LB/LW Setting(1)", "LB/LW Setting(2)" and "LX/LY Setting(1)", and "LX/LY Setting(2)".

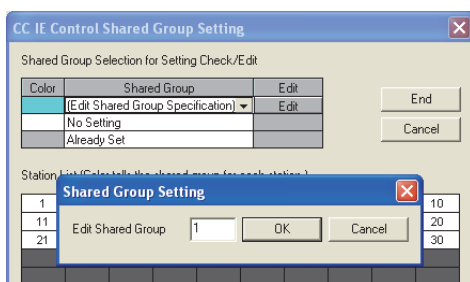
(☞ Page 83, Section 4.1.8)

(1) Directly entering a shared group No.

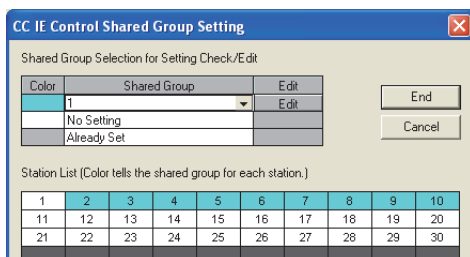
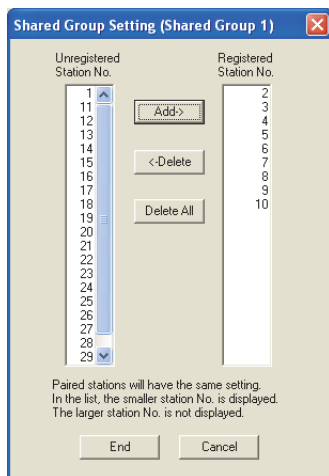
Directly enter a shared group No. in the shared group area of [Assignment the CC IE Control Network Range].

(2) Using the shared group setting

The following is a procedure for setting a shared group number 1 with the shared group setting.



1. Clicking the **Shared Group Setting** button in "Assignment the CC IE Control Network Range" will display the "CC IE Control Shared Group Setting" window.
2. In the "Shared Group" column, select "(Edit Shared Group Specification)".
3. In the "Shared Group Setting" window displayed, enter "1" and click the **OK** button.
4. In the "Shared Group Setting (Shared Group 1)" window, select a station No. to be set for the shared group No.1 to add to "Registered Station No." and click the **End** button.
5. In the "Shared Group" column of "Assignment the CC IE Control Network Range", the shared group No.1 is set. To set a new shared group, repeat the above steps 2. to 4.



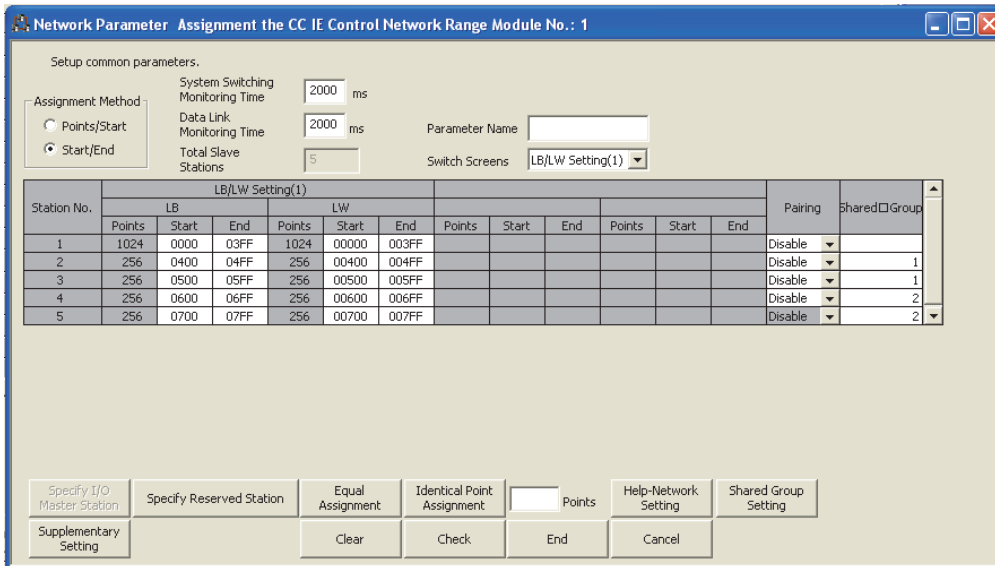
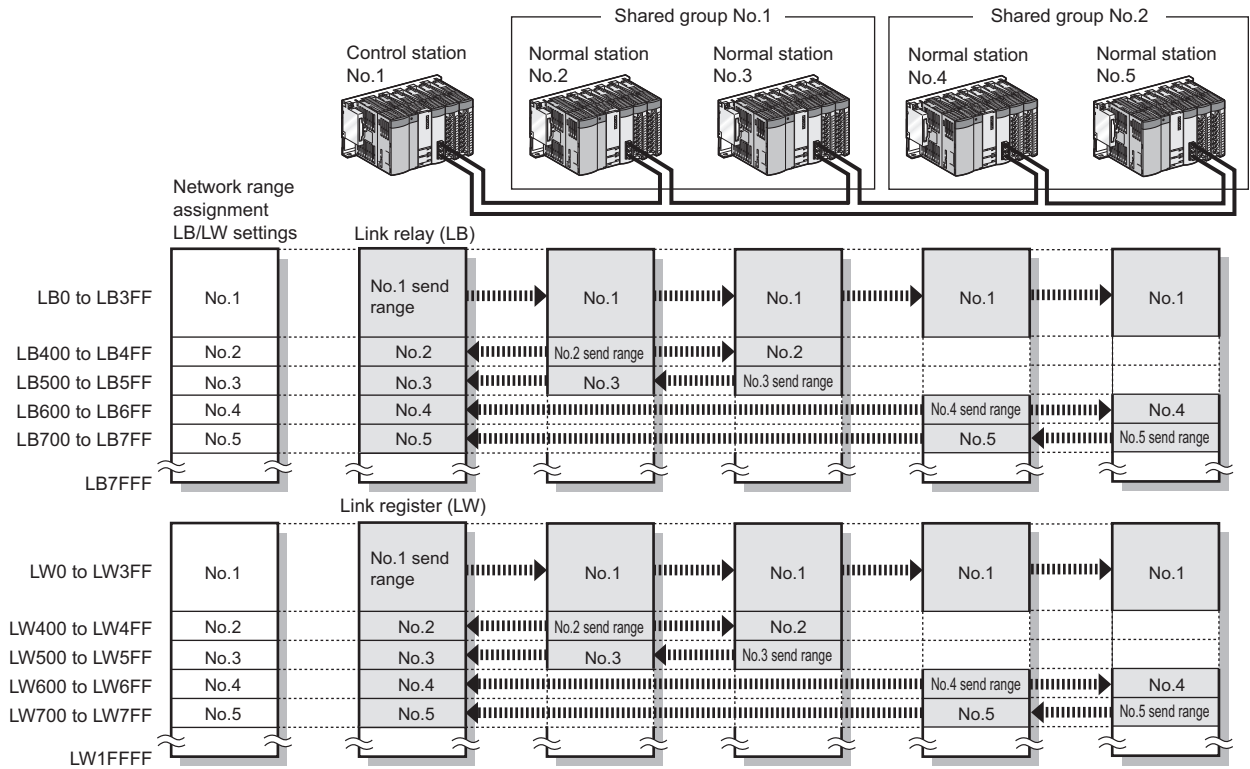
6. To edit an existing shared group, select the shared group No. in "Shared Group" and click on **Edit** button to perform the operation of the step 4

Remark

In "Station List" in the "CC IE Control Shared Group Setting" window, the cells for the stations selected for the shared group are colored.

(3) Shared group setting example

When setting stations No.2 and No.3 and stations No.4 and No.5 as two different shared groups:



(4) Precautions

- (a) Do not perform the shared group setting for any station of a Universal model QCPU that does not support the group cyclic transmission function and stations other than Universal model QCPUs.

If it is set by mistake, cyclic data of the stations in different shared groups will not be refreshed to the devices of the CPU module.

- (b) In "CC IE Control Supplementary Setting", enable "Block Data Assurance per Station". (Default)

(Page 201, Section 6.3.6)

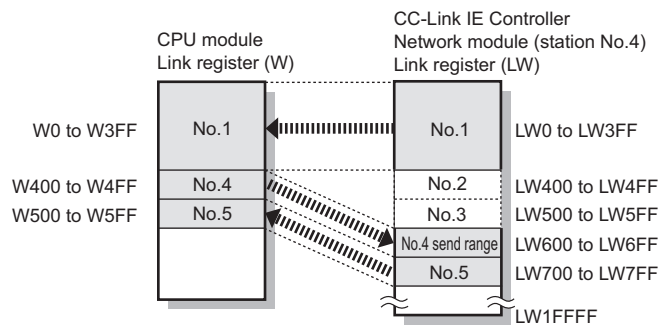
If "Block Data Assurance per Station" is enabled, cyclic data of the stations in different shared groups will not be refreshed to the link devices. (Page 76, Section 4.1.5)

Remark

It is recommended to refresh cyclic data of the stations with no shared group setting and the stations of the same shared group No. as of the own station.

Cyclic data of the stations in different shared groups need not be refreshed. (Page 204, Section 6.5)

Ex. Refresh parameter setting of station number 4 in the system shown in Page 197, Section 6.3.3 (3)



Network Parameter CC IE Control Refresh Parameter Module No.: 1

Assignment Method
 Points/Start
 Start/End

	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	LB	1024	0000	03FF	↔	B	1024	0000	03FF
Transfer 2	LW	1024	000000	003FF	↔	W	1024	000000	0003FF
Transfer 3	LB	512	0600	07FF	↔	B	512	0400	05FF
Transfer 4	LW	512	00600	007FF	↔	W	512	000400	0005FF
Transfer 5					↔				
Transfer 6					↔				
Transfer 7					↔				
Transfer 8					↔				

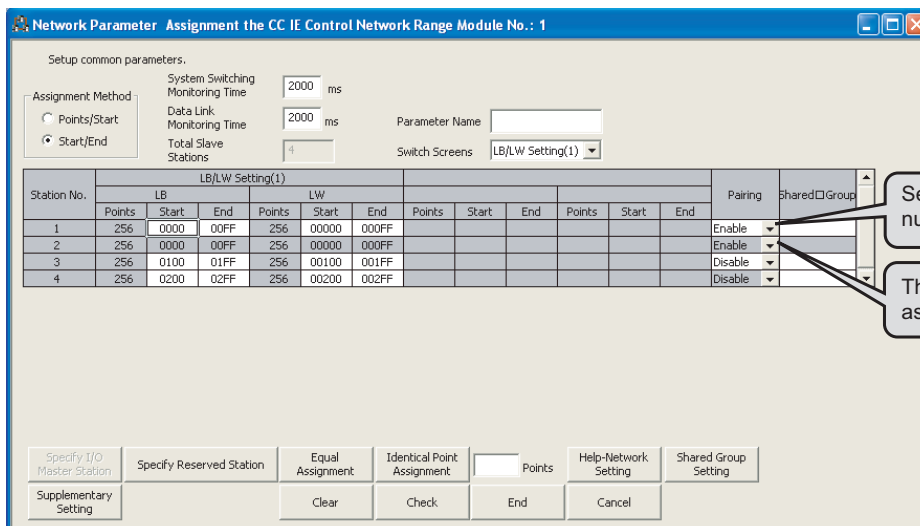
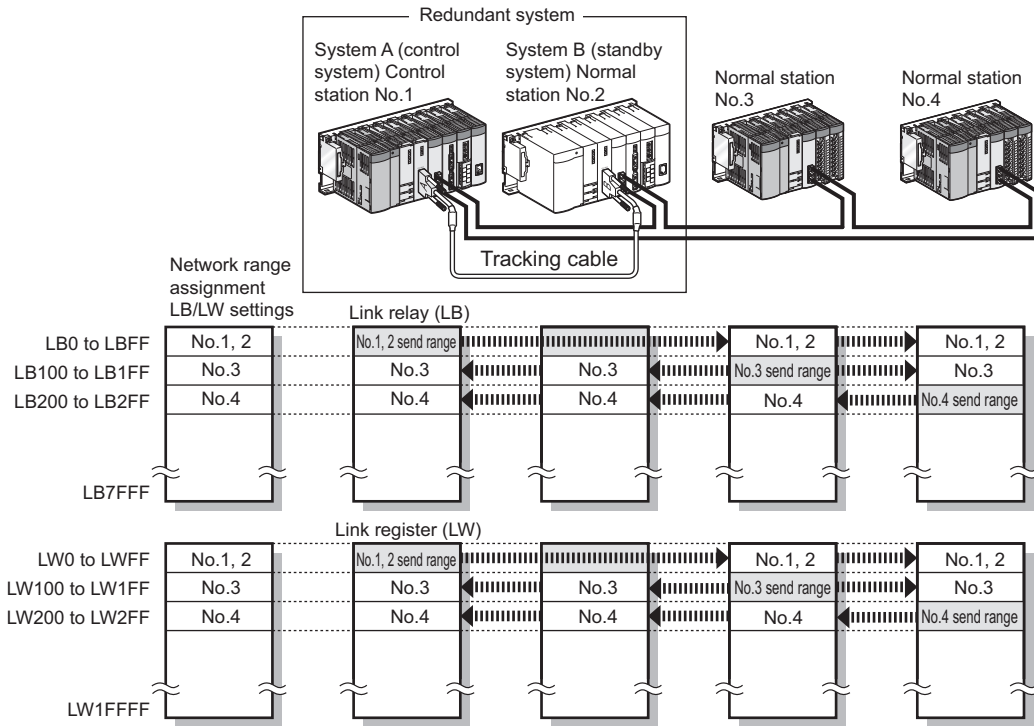
Default Check End Cancel

6.3.4 Pairing

When the network contains a redundant system, set a combination of stations of system A and system B. (Page 138, Section 4.7)

(1) Pairing setting example

When setting station No.1 and No.2 as a pair:



*1 A station can be paired with the adjacent stations. In the above setting, station numbers 1 and 4 or station numbers 2 and 4 cannot be paired.

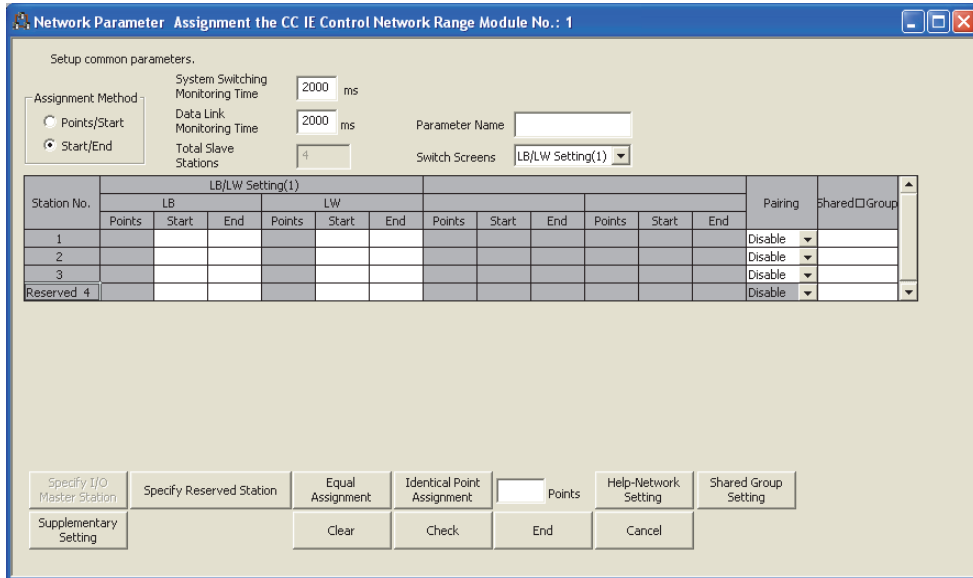
6.3.5 Reserved station specification

Set reserved station(s). ( Page 88, Section 4.1.10)

(1) Setting a reserved station

Selecting a station No. and clicking the  button will set it as a reserved station.

The following window shows an example of when a station number 4 is reserved.



Network Parameter Assignment the CC IE Control Network Range Module No.: 1

Setup common parameters.

Assignment Method:
 Points/Start
 Start/End




System Switching Monitoring Time: 2000 ms
 Data Link Monitoring Time: 2000 ms
 Total Slave Stations: 4
 Parameter Name:
 Switch Screens: LB/LW Setting(1)

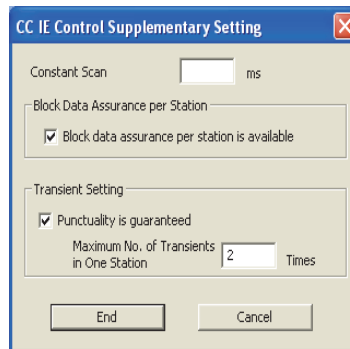
Station No.	LB/LW Setting(1)						Pairing	Shared Group
	LB			LW				
	Points	Start	End	Points	Start	End		
1							Disable	
2							Disable	
3							Disable	
Reserved 4							Disable	

Buttons: Specify I/O Master Station, Specify Reserved Station, Equal Assignment, Identical Point Assignment, Points, Help-Network Setting, Shared Group Setting, Supplementary Setting, Clear, Check, End, Cancel

6.3.6 Supplementary settings

Set the constant link scan time, block data assurance per station, punctuality assurance, and the maximum number of transient transmissions for one station.

1. Open the "Assignment the CC IE Control Network Range" window in the programming tool.
( Page 183, Section 6.3)
2. Click the  button.
3. Configure settings with reference to the description below.
4. Click the  button.




Item		Description
Constant Scan		Set a constant link scan time.
Block Data Assurance per Station	Block data assurance per station is available	Set whether or not to assure data integrity on a station basis.
Transient Setting	Punctuality is guaranteed	Set whether or not to assure the punctuality of cyclic transmissions.
	Maximum No. of Transients in One Station	Set the number of transient transmissions that one station can perform in one link scan.

(1) Constant scan

Set a constant link scan time. (Setting range: 1 to 500ms, Default: None) ( Page 82, Section 4.1.7)


(2) Block data assurance per station is available

Set whether or not to assure data integrity on a station basis. (Default: Block data assurance per station is available)

If the "Block data assurance per station is available" checkbox is checked, link refresh is performed handshaking between the CPU and CC-Link IE Controller Network modules, and thereby cyclic data integrity is assured in units of stations. ( Page 76, Section 4.1.5)

(3) Punctuality is guaranteed

Set whether or not to assure the punctuality. (Default: Punctuality is guaranteed)

If the "Punctuality is guaranteed" checkbox is checked, each station performs transient transmissions for the number of times specified in "Maximum No. of Transients in One Station", which keeps the link scan time constant. ( Page 80, Section 4.1.6)

The following describes the link scan operation varied depending on whether the punctuality is assured or not.

Punctuality assurance	Link scan operation
Punctuality is guaranteed.	<ul style="list-style-type: none">• Link scan time is kept constant.• Link scan time is longer compared to the case where "Punctuality is not guaranteed".• Link scan time increases as the value set in "Maximum No. of Transients in One Station" increases.
Punctuality is not guaranteed.	<ul style="list-style-type: none">• Link scan time will vary when transient transmission is requested.• The variation in link scan time increases as the value set in "Maximum No. of Transients in One Station" increases.

(4) Maximum No. of Transients in One Station


Set the number of transient transmissions that one station can perform in one link scan. (Setting range: 1 to 10 times, Default: 2 times)

6.4 Network Operation Settings

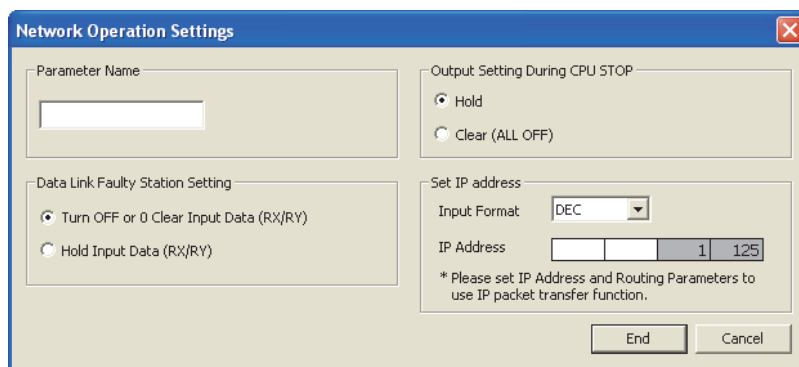
The IP address of the CC-Link IE Controller Network module is set to communicate data with Ethernet devices over CC-Link IE Controller Network.

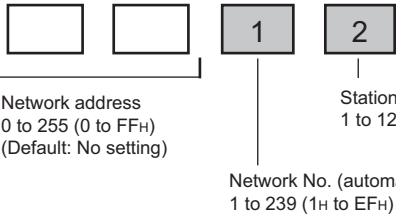
GX Works2 is required for the network operation settings. GX Developer cannot be used for setting.

1. Set network setting parameters. (☞ Page 180, Section 6.2)
2. Open the setting window in GX Works2.

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

3. Set parameters in the window.



Item	Description	Setting range
Set IP address	<p>The IP addresses of the control station and submaster station are set to communicate data with Ethernet devices over CC-Link IE Controller Network. (☞ Page 108, Section 4.3.2)</p> <p>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.</p> <div style="text-align: center;">  </div> <ul style="list-style-type: none"> • Set an IP address for the control station only. • Use the same network address for the request source device, request destination device and modules among them. • Since automatically assigned, an IP address needs not to be set for normal stations. (The network address same as that of the control station is automatically set.) 	Refer to the descriptions to left.

6.5 Refresh Parameters

6.5.1 Refresh parameter setting

Set the range of the transfer between the link devices of the CC-Link IE Controller Network module and CPU module devices.

Point

- The number of refresh parameter settings per module is shown below.

Item	Number of settings		
	Basic model QCPU	High Performance model QCPU, Process CPU, Redundant CPU, Q00UJCPU, Q00UCPU, Q01UCPU, and safety CPU*1	Universal model QCPU (other than Q00UJCPU, Q00UCPU, and Q01UCPU)
Link device transfer	8	64	256
SB/SW transfer	1 for each		

*1 For the safety CPU with a serial number (first five digits) of "14051" or earlier, the number of refresh parameter settings per module (except for SB/SW transfer) is 8.

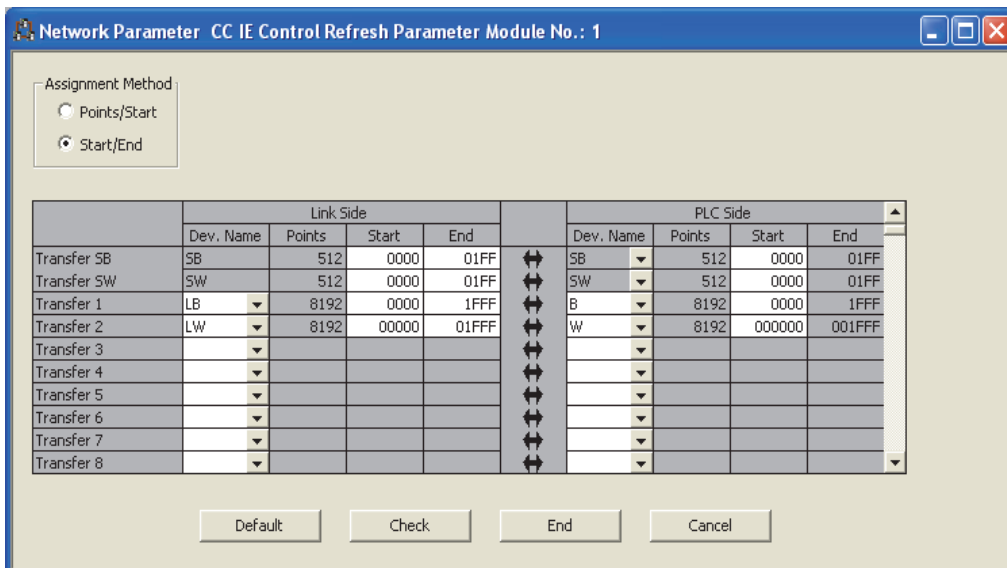
- LB/LW data can be transferred exceeding the B/W capacity of the CPU module (8K points). (Page 212, Section 6.5.2)
- The link device data of a CC-Link IE Controller Network module can be directly read/written by a sequence program. (Page 70, Section 4.1.4)

- Configure the network setting. (Page 180, Section 6.2)
- Open the setting window in the programming tool.

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


⇨ **Network Range Assignment** button

- Configure settings with reference to the description below.
- Click the **End** button.




Item		Description	
Assignment Method		Select a link device assignment method. • Points/Start: Enter link device points and start I/O numbers. • Start/End: Enter the start and end numbers of the link devices.	
Transfer SB/SW	Link Side	Dev. Name	Fixed to SB/SW
		Points, Start, End	Set the SB/SW transfer range.* ¹ (Setting range: 0000 _H to 01FF _H , Default: Available* ²)
	PLC Side	Dev. Name	Fixed to SB/SW
		Points, Start, End	Set the start number of each SB/SW transfer range.* ¹ (Setting range: 0000 _H to 07FF _H , Default: Available* ²)
Transfer 1 to 256	Link Side	Dev. Name	Select a transfer link device from the following. • LB/LW/LX/LY
		Points, Start, End	Set the link device transfer range.* ¹ • LB (Setting range: 0000 _H to 7FFF _H , Default: Available* ²) • LW (Setting range: 0000 _H to 1FFFF _H , Default: Available* ²) • LX/LY (Setting range: 0000 _H to 1FFF _H , Default: None)* ¹
	PLC Side	Dev. Name	Select a transfer device from the following. • X,Y,M,L,B,T,C,ST,D,W,R,ZR (When LX is set on the Link side, C,T, and ST are not selectable.)
		Points, Start, End	Set the start number of each device transfer range.* ¹ (Setting range: Device range of CPU module)

*1 The bit device is set in 16-point units (Start: □□□0_H to End: □□□F_H), and the word device is set in 1-point units.

*2 Default setting according to the number of modules and the mounted position is available. ( Page 221, Section 6.5.3)

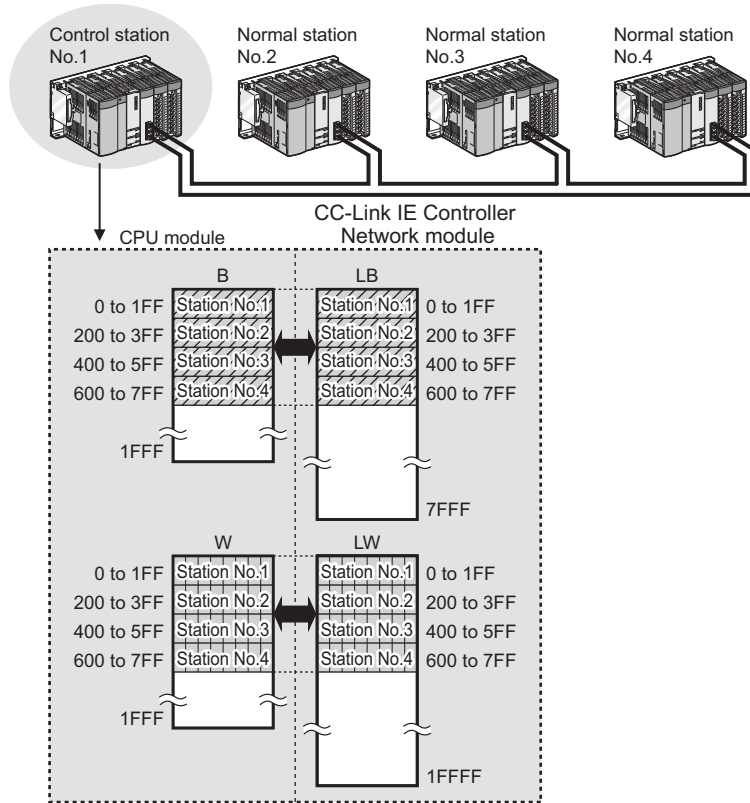
*3 The LX/LY data of the same I/O numbers with the actual I/O (the range where actual modules are mounted) must be refreshed to the area after the actual I/O area or to any other than LX/LY.
Transfer target CPU-side devices cannot overlap with the actual I/O areas.

Point

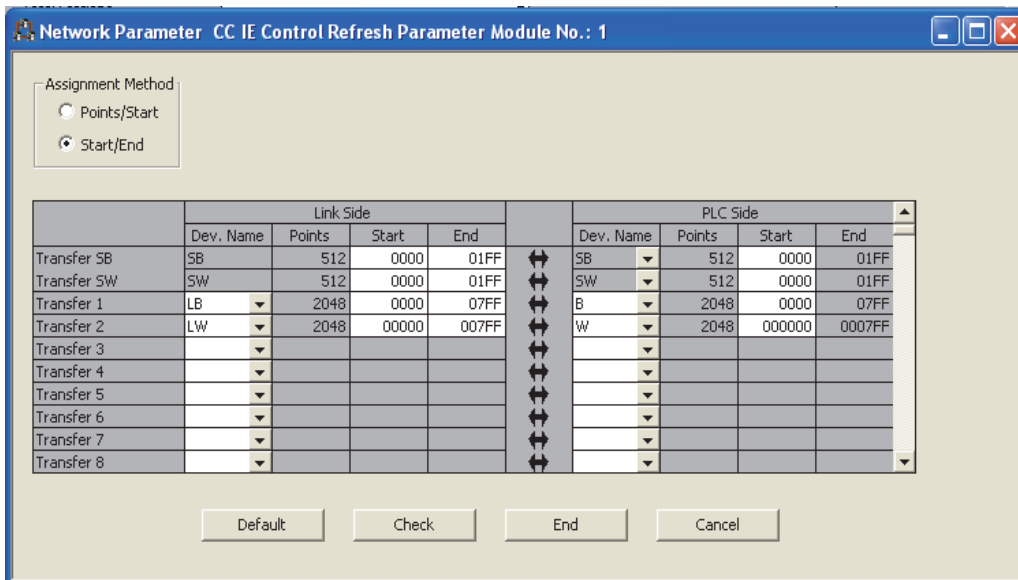
- Avoid any duplicate settings of the programmable-controller-side device that is used for the following.
 - Refresh parameters of network modules
 - Auto refresh parameters of CC-Link modules
 - I/O numbers used for I/O modules and intelligent function modules
 - Auto refresh parameters of intelligent function modules
 - Auto refresh using the CPU shared memory of the multiple CPU system
- 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).
- Set only the link devices used in the CPU module as the link refresh range.
Doing so will reduce the points of the link refresh to the CPU module, resulting in a shorter link refresh time.
- When any of the station send ranges of the link device has been changed in the control station's "Assignment the CC IE Control Network Range", check the link refresh range of each station. ( Page 183, Section 6.3)

(1) Refresh parameter setting example

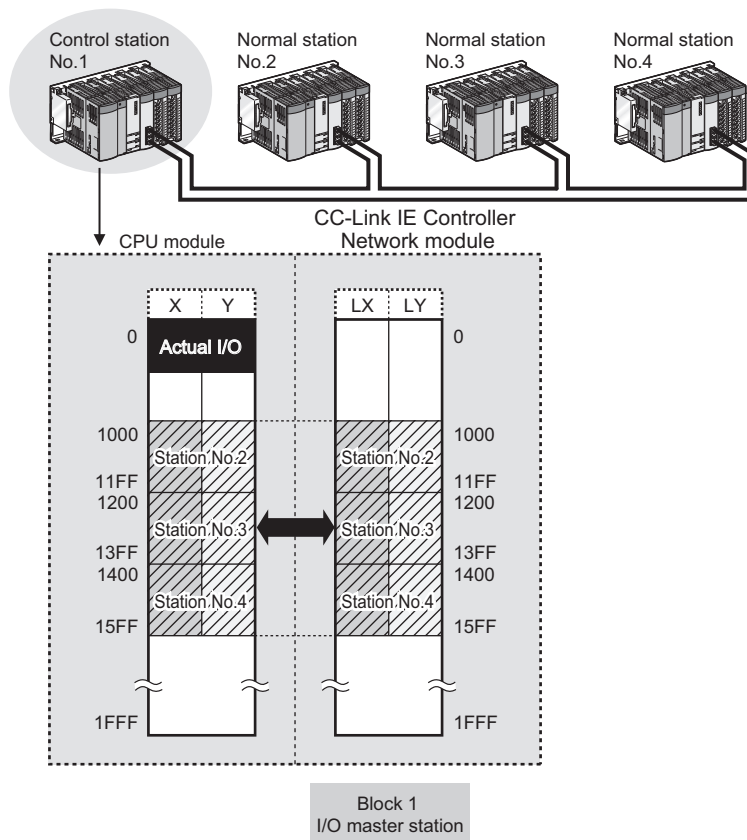
(a) When 512 points are assigned to each station's send range in LB/LW



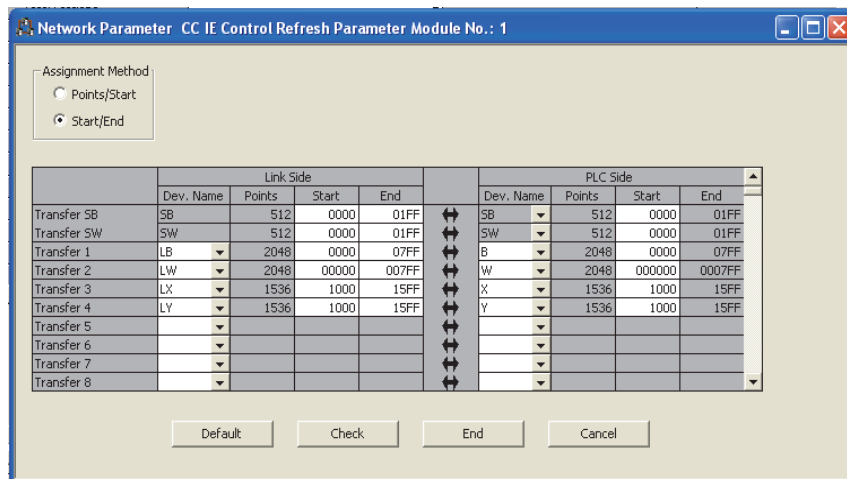
- Refresh parameter setting of the control station



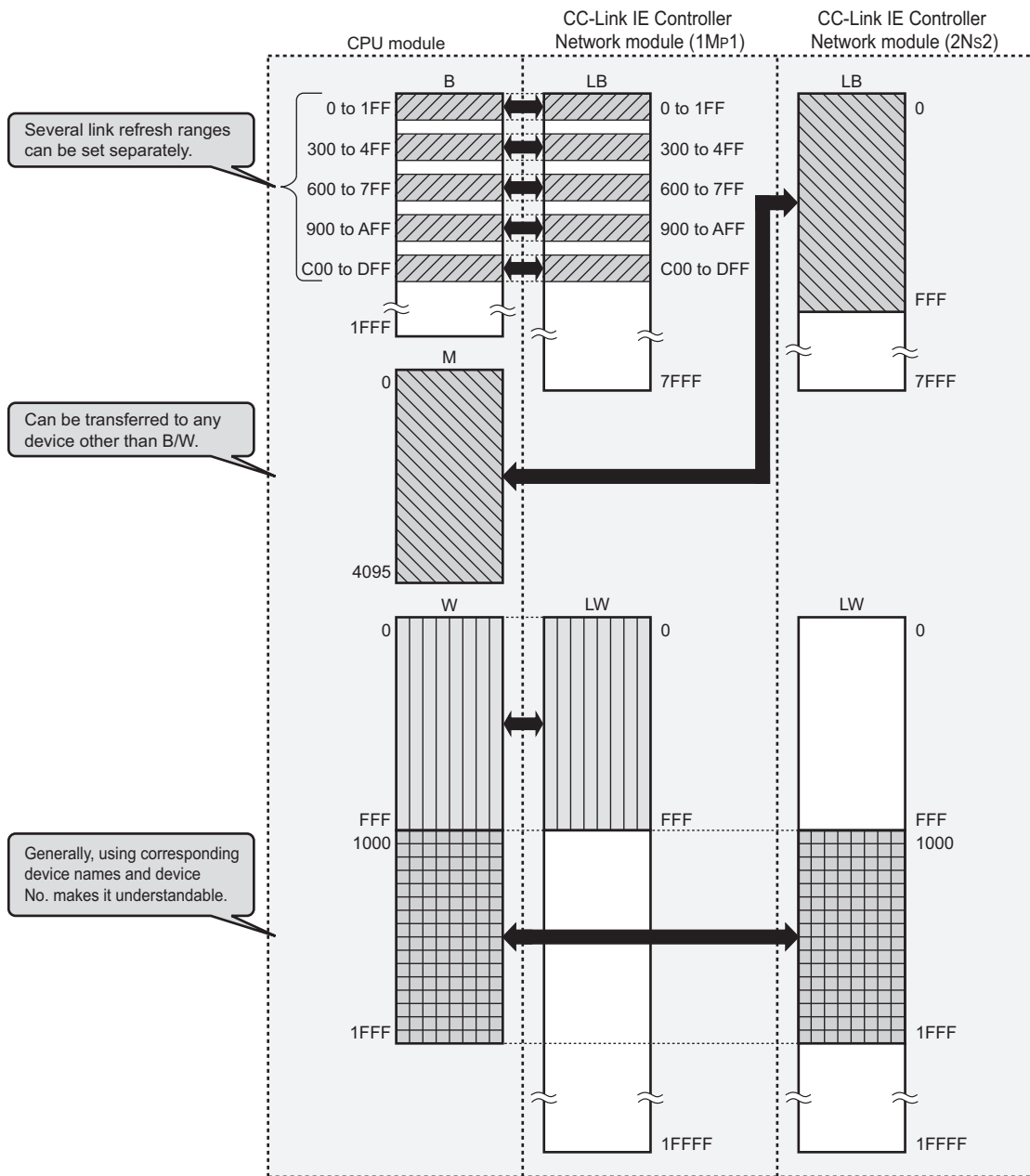
(b) When station No.1 is set as I/O master station of block 1 and 512 points are assigned to each I/O range for station No.2 to No.4



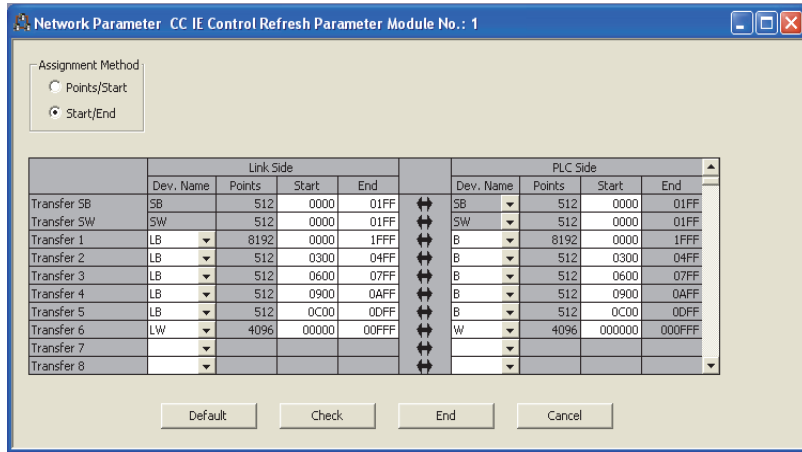
- Refresh parameters of station No.1



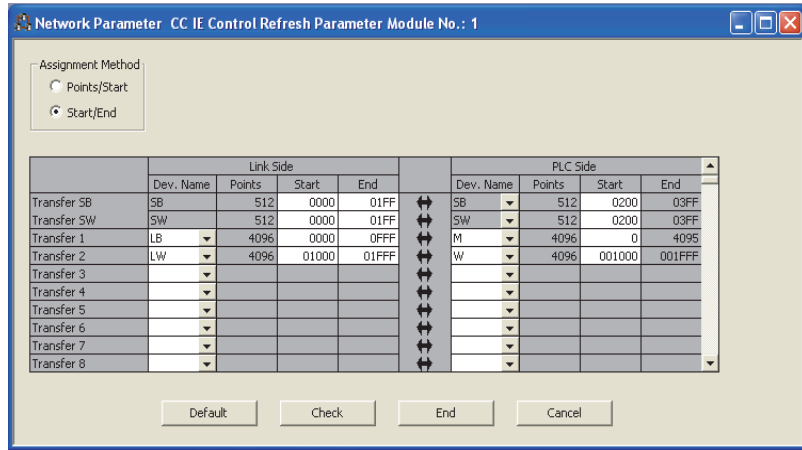
(c) Application example (when two CC-Link IE Controller Network modules are mounted for one programmable controller)



- Refresh parameters of CC-Link IE Controller Network module (1Mp1)



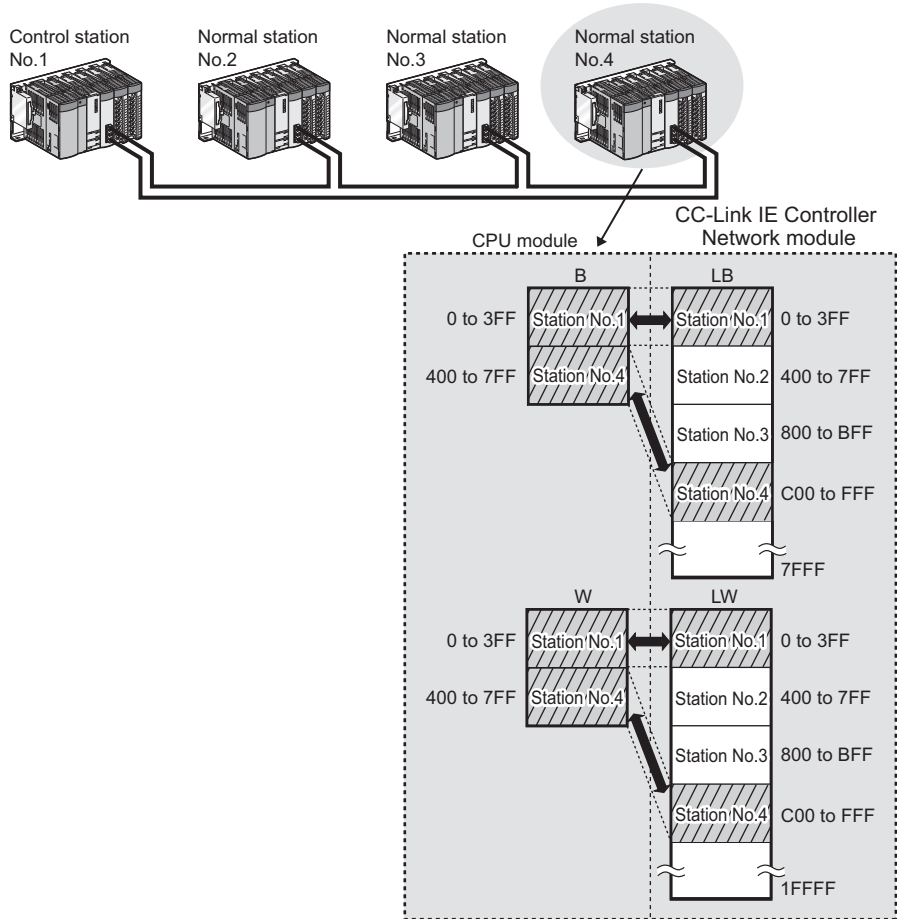
- Refresh parameters of CC-Link IE Controller Network module (2N₃2)



(d) Refresh parameters of a Basic model QCPU or safety CPU station

Refresh only the LB/LW used for the CPU module because the B/W capacity of the CPU module (2K points) is too small.

Ex. When data refresh is performed with station No.1 only, and not with station No.2 and No.3



- Refresh parameters of station No.4

Network Parameter CC IE Control Refresh Parameter Module No.: 1

Assignment Method
 Points/Start
 Start/End

	Link Side				↔	PLC Side			
	Dev. Name	Points	Start	End		Dev. Name	Points	Start	End
Transfer 5B	SB	512	0000	01FF	↔	SB	512	0000	01FF
Transfer 5W	SW	512	0000	01FF	↔	SW	512	0000	01FF
Transfer 1	LB	1024	0000	03FF	↔	B	1024	0000	03FF
Transfer 2	LB	1024	0C00	0FFF	↔	B	1024	0400	07FF
Transfer 3	LW	1024	000000	003FFF	↔	W	1024	000000	0003FF
Transfer 4	LW	1024	00C000	00FFFF	↔	W	1024	000400	0007FF
Transfer 5					↔				



Remark

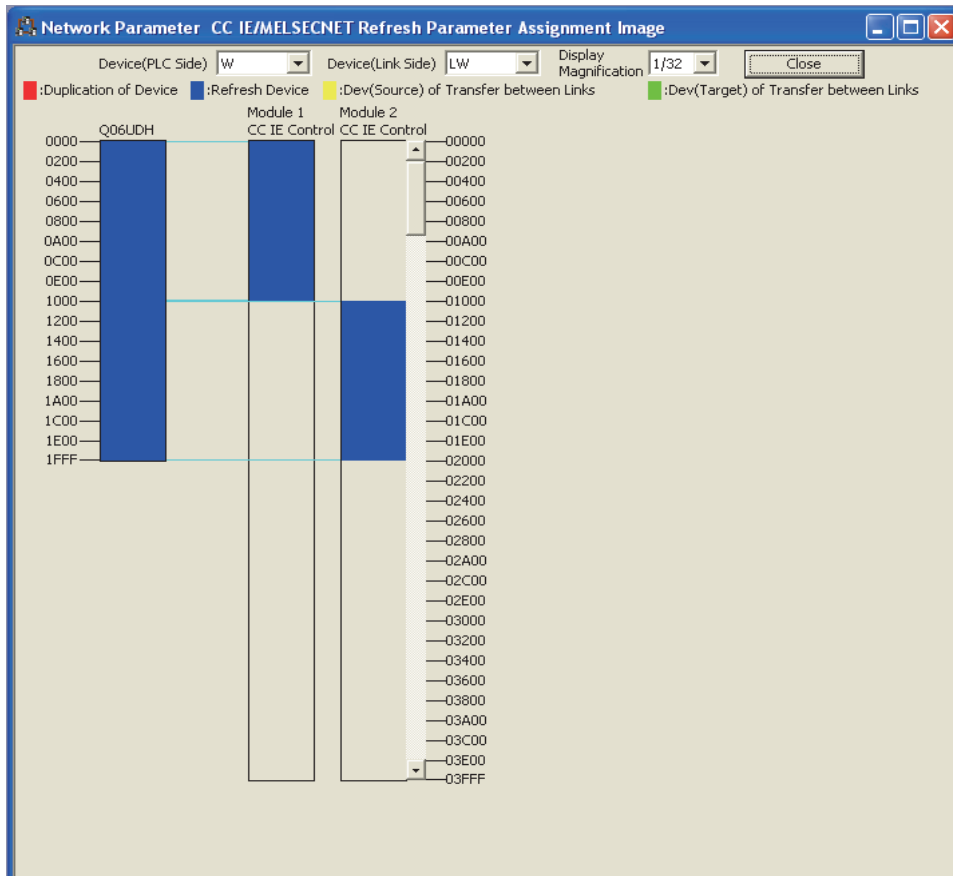
The internal user device of the CPU module can be changed in the PLC parameter of the programming tool.

User's Manual (Function Explanation, Program Fundamentals) for the CPU module used

(2) Checking the refresh parameters assignment image

The refresh parameters assignment image for the network modules can be viewed in the network parameters of the programming tool.

1. Open the "Setting the number of MELSECNET/CC IE/Ethernet Module Configuration" window in the programming tool. ( Page 180, Section 6.2)
2. Click the  button.
3. Set "Device (PLC Side)", "Device (Link Side)", and "Display Magnification" to display the assignment image.



Point


If any CPU-side device area is duplicated (red), check the refresh parameters.

6.5.2 Change of transfer target CPU-side device

When LB/LW transfer data exceeds the B/W capacity (8K points) of the CPU module, changing the B/W capacity or changing the transfer target CPU-side device to any other than B/W is needed.

The following is an example of CPU-side device setting for 32K-point LB and 128K-point LW data transfer.

Point


For the Basic model QCPU or a safety CPU, refresh only the LB/LW that is used for the CPU module because the B/W capacity of the CPU module (2K points) is too small. ( Page 210, Section 6.5.1 (1) (d))

(1) When using the extended link register (W) as a transfer target of LW (only the Universal model QCPU other than the Q00UJCPU)

Link-side device	CPU-side device	CPU-side device setting method
LW0 to 1FFFF	W0 to 1FFFF	<ul style="list-style-type: none"> Register a 128K-point extended link register (W) to the standard RAM or a memory card (RAM).^{*1*2*3*4} Change the link register (W) points from 8K to 0K.
LB0 to 7FFF	B0 to 7FFF	<ul style="list-style-type: none"> Change the link relay (B) points from 8K to 32K.

*1 The extended link register (W) is a device using the file register area.


For details on the extended link register (W), refer to the following.

 User's Manual (Function Explanation, Program Fundamentals) for the CPU module used

*2 The file register capacity differs for each CPU module.

For capacity of each CPU module, refer to the following.

 User's Manual (Function Explanation, Program Fundamentals) for the CPU module used

*3 Check the serial No. and software version for applicability. ( Page 606, Appendix 3)


*4 Processing time differs depending on the storage location.

A large number of processing points will cause a longer sequence scan time.

Point

● It is convenient to use the following devices as target CPU-side devices of transfer from LW.

- When the transfer range value is 8K (1FFF_H) or less: Link register (W)
- When the transfer range value is more than 8K (1FFF_H): Extended link register (W)

● A file register can be used as a transfer target CPU-side device of LW. ( Page 216, Section 6.5.2 (2))

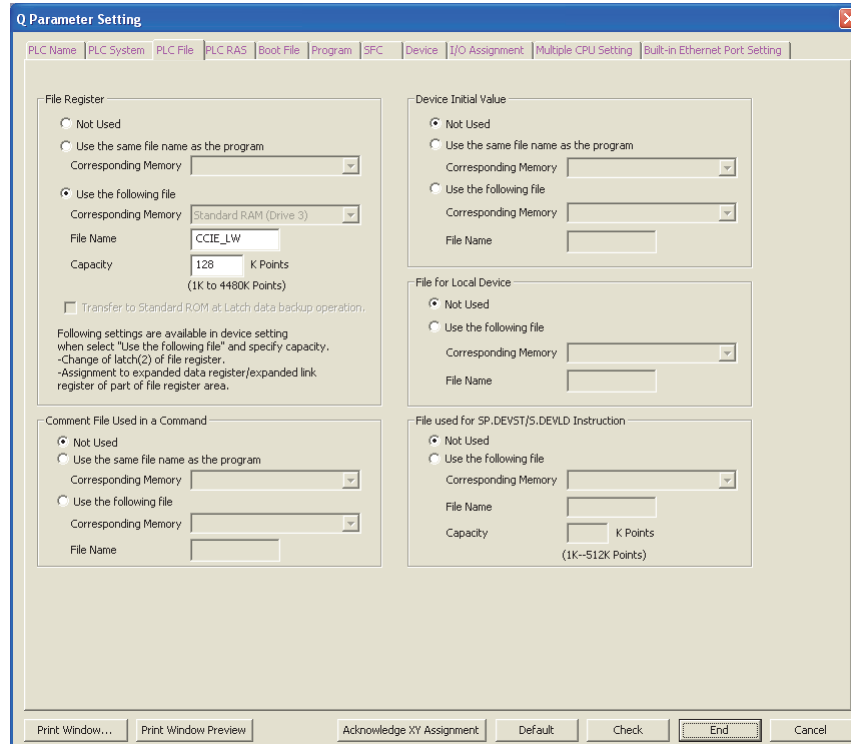
Since the extended file register (W) uses the file register area, configure the settings in both "PLC File" and "Device".

(a) PLC File

1. Open the "PLC File" tab in the programming tool.

Project window ⇨ [Parameter] ⇨ [PLC Parameter]

2. Select the "Use the following file" radio button in "File register".



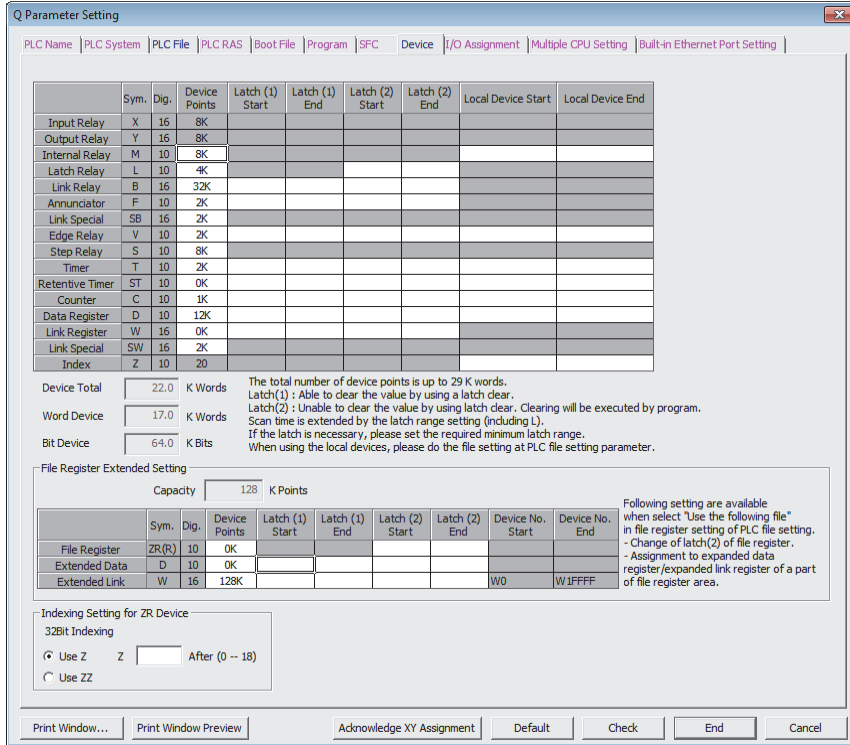
Item		Set value	
File Register	Use the following file	Corresponding Memory	Standard RAM
		File Name	CCIE_LW (Arbitrary)
		Capacity	128K

(b) Device

1. Open the "Device" tab in the programming tool.

Project window ⇨ [Parameter] ⇨ [PLC Parameter]

2. Change the device points as listed below.



Item	Device	Device Points	
		Before change	After change
Device	Latch Relay (L)	8K	4K
	Link Relay (B)	8K	32K
	Link Register (W)	8K	0K
File Register Extended Setting	File Register (ZR (R))	128K	0K
	Extended Link (W)	0K	128K

(c) Refresh parameters

Specify B as a target CPU-side device of transfer from LB.
 Specify W as a target CPU-side device of transfer from LW.

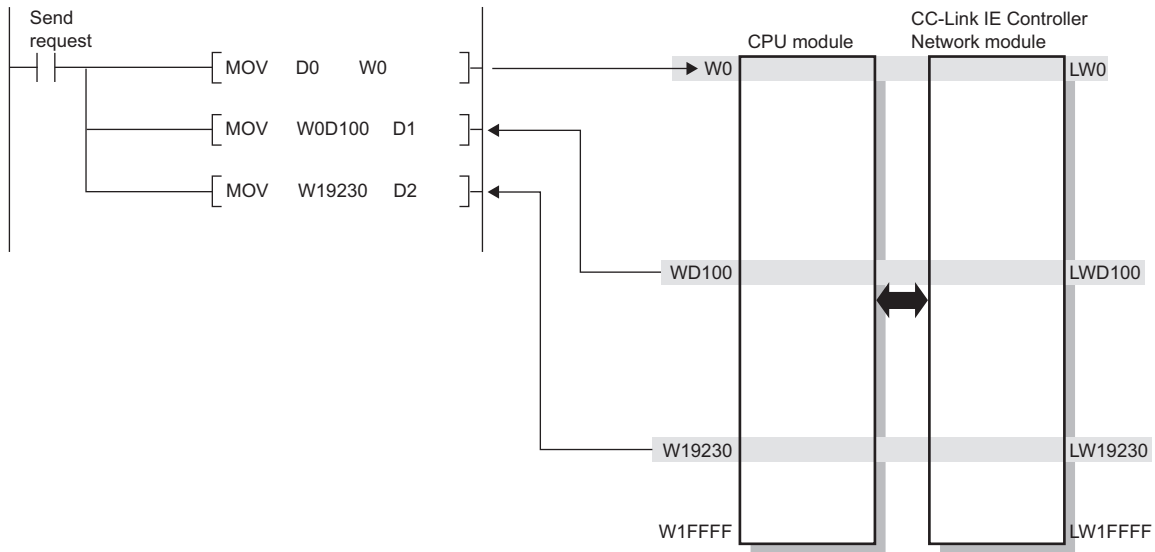
	Link Side					PLC Side			
	Dev. Name	Points	Start	End		Dev. Name	Points	Start	End
Transfer SB	SB	512	0000	01FF	↔	SB	512	0000	01FF
Transfer SW	SW	512	0000	01FF	↔	SW	512	0000	01FF
Transfer 1	LB	32768	0000	7FFF	↔	B	32768	0000	7FFF
Transfer 2	LW	131072	00000	1FFFF	↔	W	131072	000000	01FFFF
Transfer 3					↔				
Transfer 4					↔				
Transfer 5					↔				
Transfer 6					↔				
Transfer 7					↔				
Transfer 8					↔				

(d) Program example

In this program example, the following processing is performed when the send request turns ON.


- 1. Stores D0 data in the extended link register, and transfers them to LW0 of the CC-Link IE Controller Network module through link refresh.**
- 2. Transfers data in LWD100 and LW19230 of the CC-Link IE Controller Network module to the extended link register through link refresh, and stores them in D1 and D2 of the CPU module.**

Refresh parameters are set as in Page 215, Section 6.5.2 (1) (c).



(2) When using a file register as an LW transfer destination (Except for Q00JCPU and QS001CPU)

Link-side device	CPU-side device	CPU-side device setting method
LW0 to 1FFFF	ZR0 to 131071	Register a 128K-point file register to the standard RAM or a memory card (RAM). *1*2*3
LB0 to 7FFF	B0 to 7FFF	Change the link relay (B) points from 8K to 32K.

- *1 The file register capacity differs for each CPU module.
For capacity of each CPU module, refer to the following.
 User's Manual (Function Explanation, Program Fundamentals) for the CPU module used
- *2 The contents of the file register are maintained even if the power goes from OFF to ON or when the CPU module is reset.
When initializing the contents of the file register, the sequence program or programming tool must be used to clear the data.
- *3 Processing time differs depending on the storage location.
A large number of processing points will cause a longer sequence scan time.

Point 


It is convenient to use the following devices as target CPU-side devices of transfer from LW.

- When the transfer range value is 8K (1FFF_H) or less: Link register (W)
- When the transfer range value is 32K (7FFF_H) or less: File register (R)
- When the transfer range value is 128K (1FFFF_H) or less: File register (ZR)

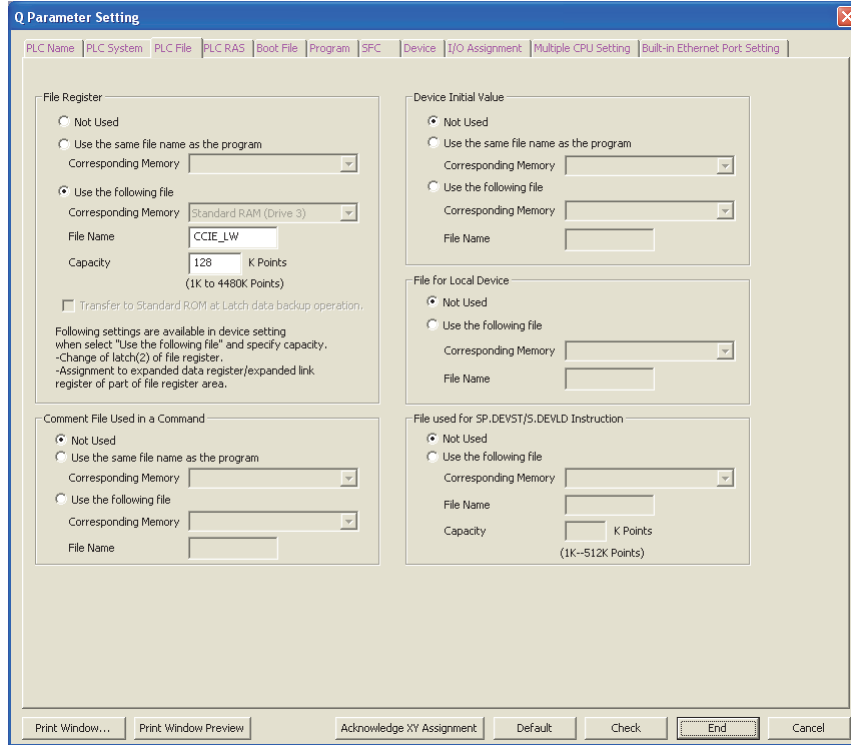
Set the file register in "PLC File".

(a) PLC File

1. Open the "PLC File" tab in the programming tool.

 Project window => [Parameter] => [PLC Parameter]

2. Select the "Use the following file" radio button in "File register".



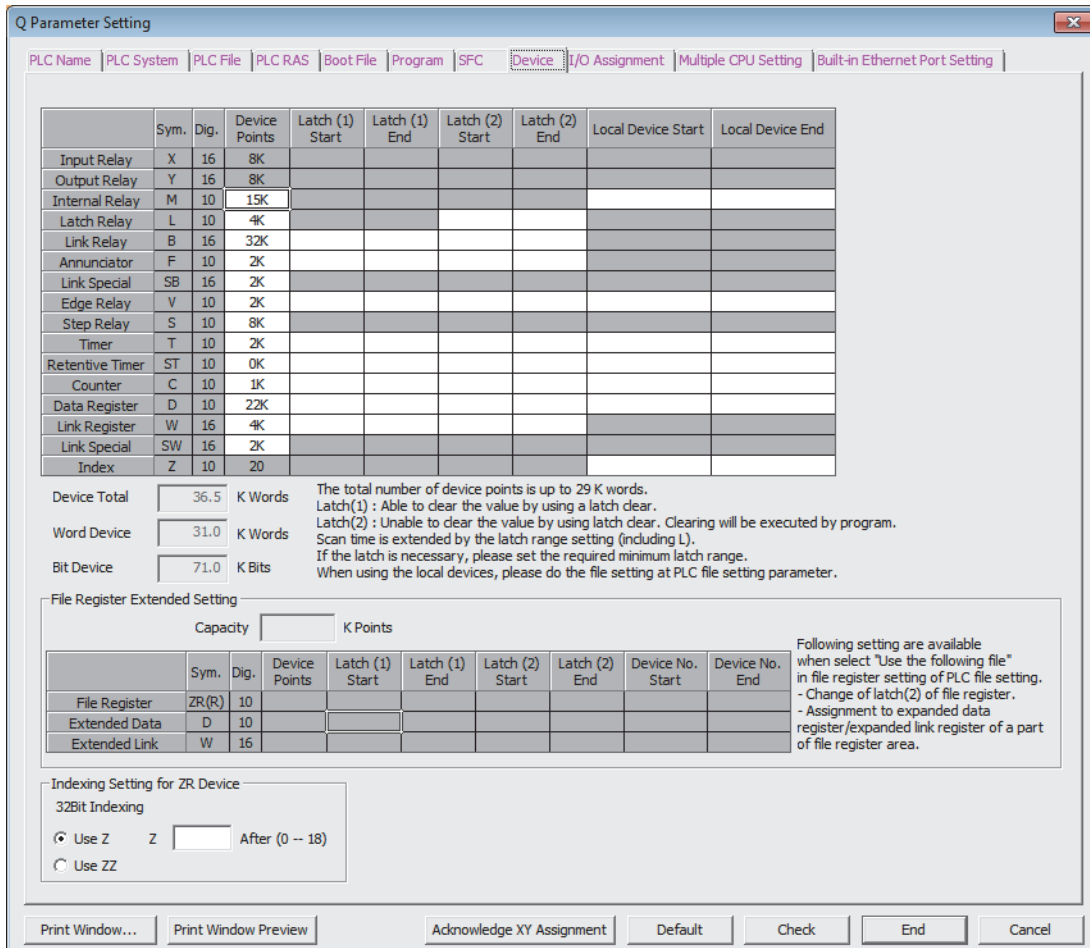
Item		Set value	
File Register	Use the following file	Corresponding Memory	Standard RAM
		File Name	CCIE_LW (Arbitrary)
		Capacity	128K

(b) Device

1. Open the "Device" tab in the programming tool.

Project window ⇨ [Parameter] ⇨ [PLC Parameter]

2. Change the device points as listed below.



Device	Device Points	
	Before change	After change
Latch Relay (L)	8K	4K
Link Relay (B)	8K	32K
Link Register (W)	8K	4K

(c) Refresh parameters

Specify B as a target CPU-side device of transfer from LB.

Specify ZR as a target CPU-side device of transfer from LW.

	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	LB	32768	0000	7FFF	↔	B	32768	0000	7FFF
Transfer 2	LW	131072	00000	1FFFF	↔	W	131072	000000	01FFFF
Transfer 3					↔				
Transfer 4					↔				
Transfer 5					↔				
Transfer 6					↔				
Transfer 7					↔				
Transfer 8					↔				

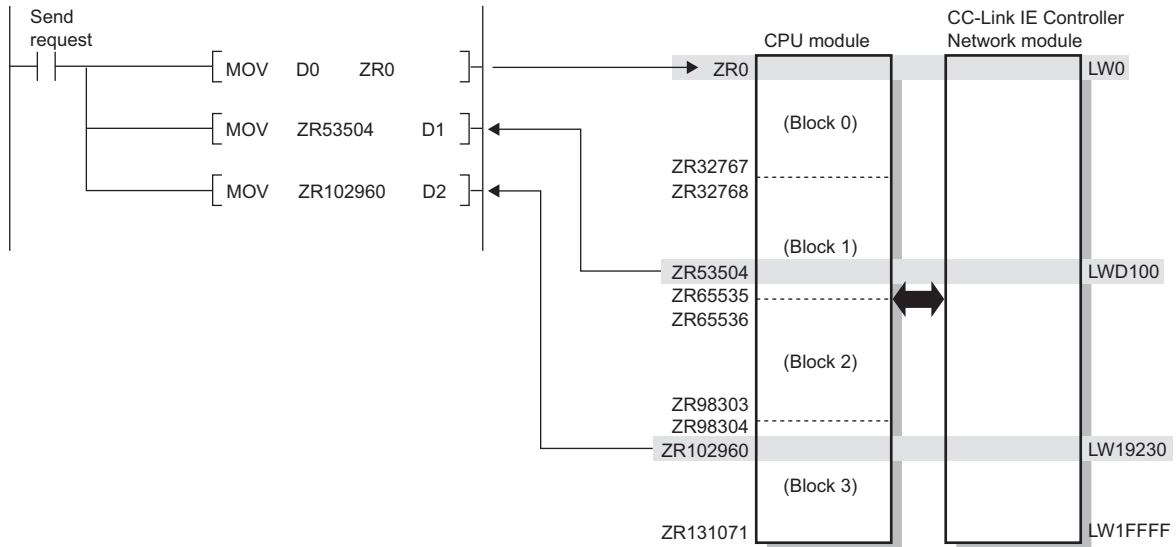
(d) Program example

In this program example, the following processing is performed when the send request turns ON.

- 1. Stores D0 data in the file register, and transfers them to LW0 of the CC-Link IE Controller Network module through link refresh.**
- 2. Transfers data in LWD100 and LW19230 of the CC-Link IE Controller Network module to the file register through link refresh, and stores them in D1 and D2 of the CPU module.**

Refresh parameters are set as in Page 218, Section 6.5.2 (2) (c).

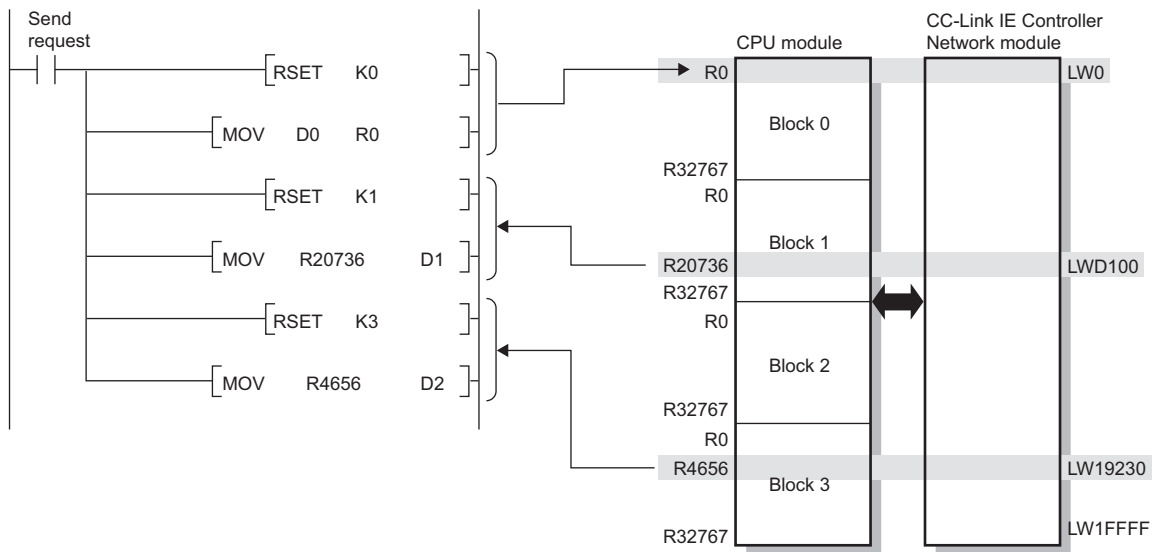
- Program example of when an access instruction to a file register is specified by ZR

**Point**

If an access instruction to the file register is specified with a ZR,

- Block switching in units of 32K points is not required.
- The sequence program execution speed is slow.
- The sequence program capacity is large.

- Program example of when specifying an R in an access instruction to the file register
- Switch the block No. by specifying it in the RSET instruction.



Point

- Access to the file register can be specified with R or ZR.
- If an access instruction to the file register is specified with an R,
 - Block switching in units of 32K points is required.
 - The sequence program execution speed is fast.
 - The sequence program capacity is small.

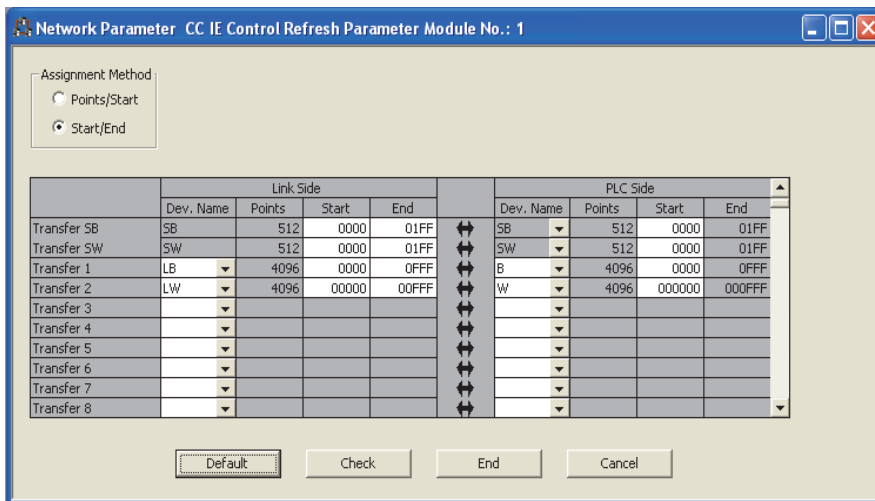
6.5.3 Default settings

Refresh parameters can be set properly according to the number of modules and the mounted positions given in Page 222, Section 6.5.3 (2).

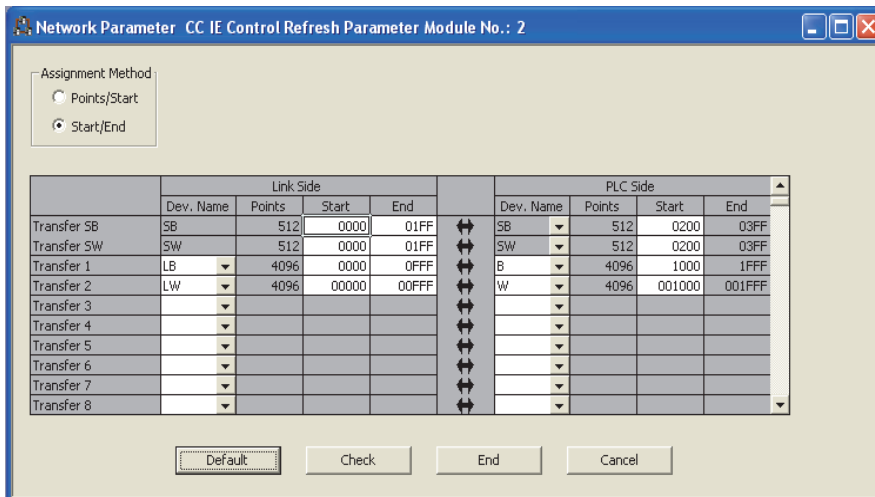
(1) Setting method

By clicking the button on the refresh parameters window for each module, refresh parameters are set based on the number of modules and the position of the module.

- Ex.** When two modules are mounted
- Refresh parameters of module 1



- Refresh parameters of module 2

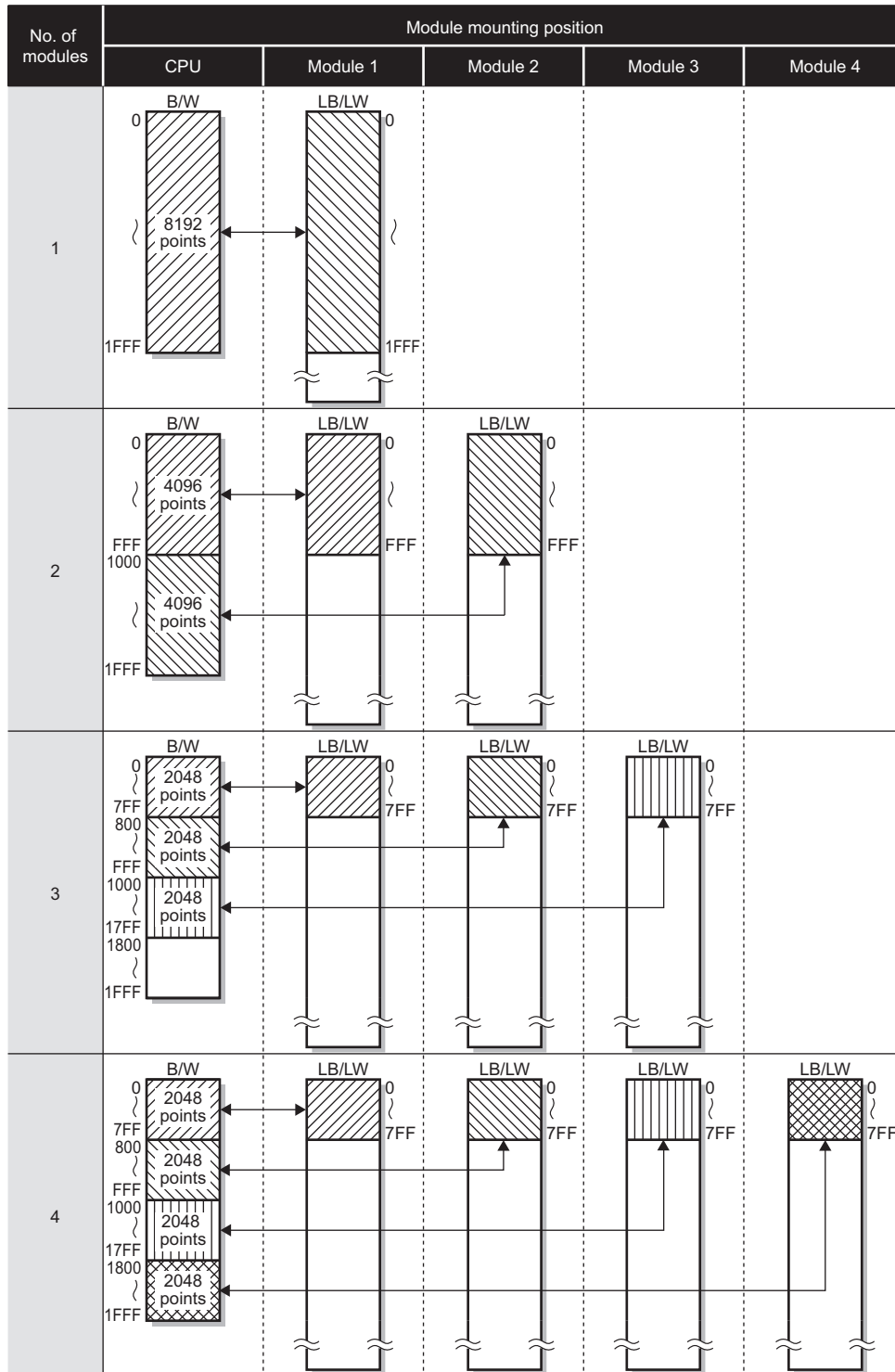


(2) Setting details

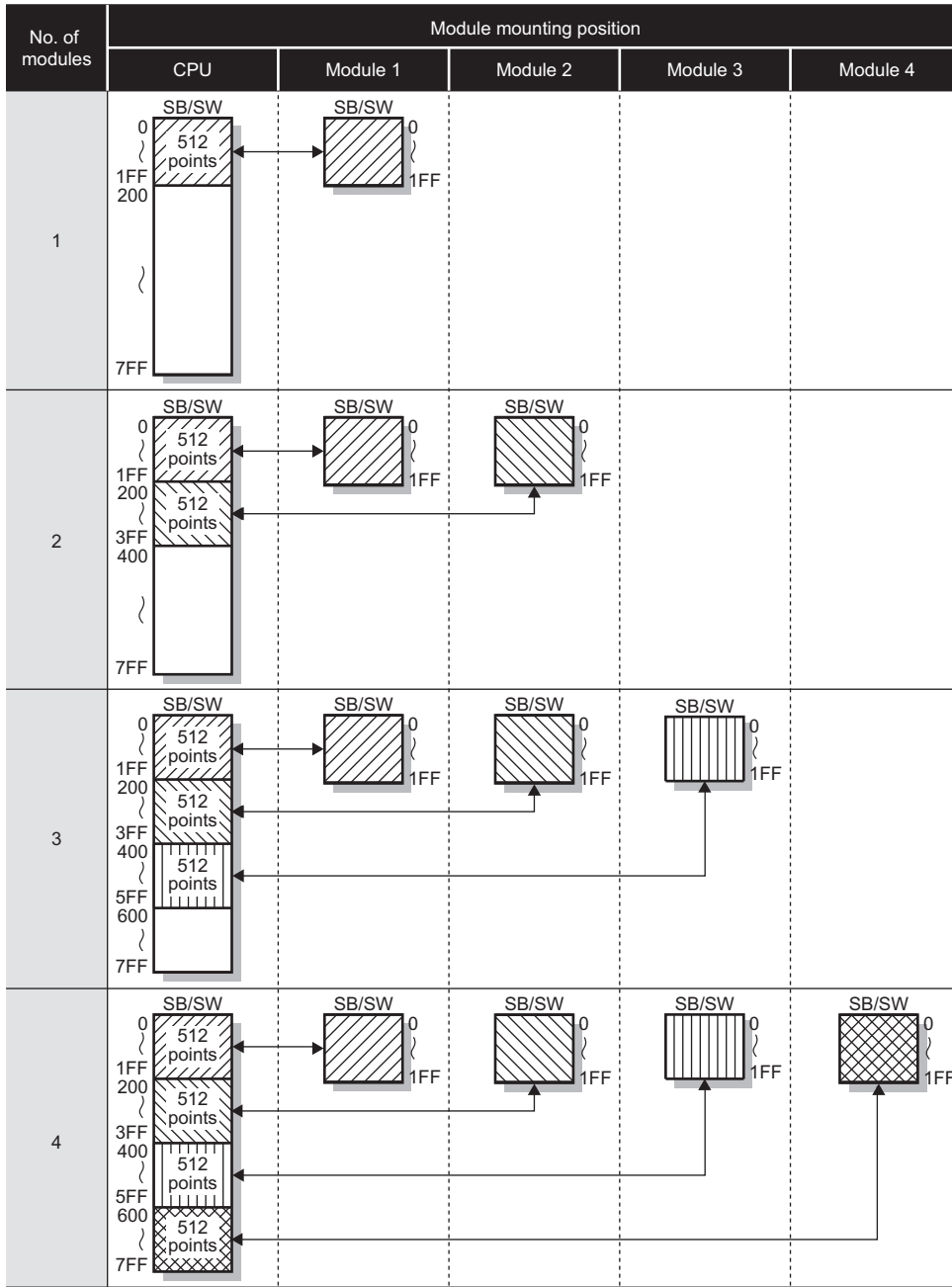
Refresh parameters are set in the following manner depending on the number of modules and the mounted position.

(a) For High Performance model QCPU, Process CPU, Redundant CPU, or Universal model QCPU

- Transfer range of LB/LW



- Transfer range of SB/SW

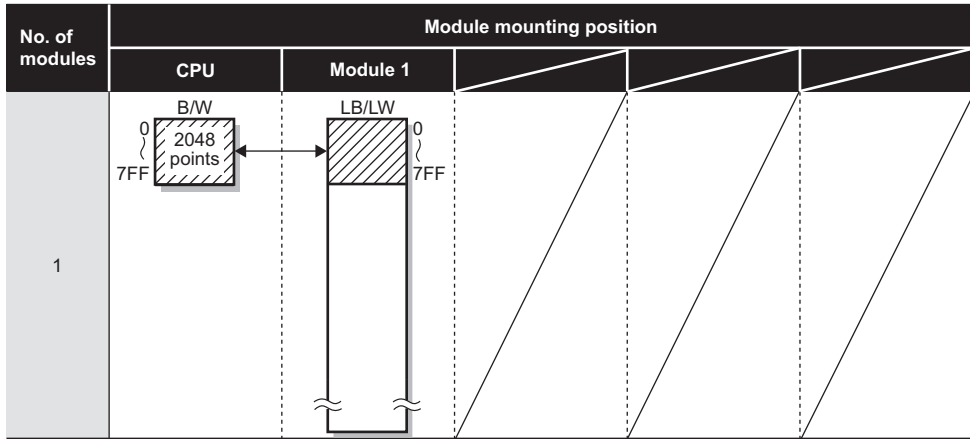


6

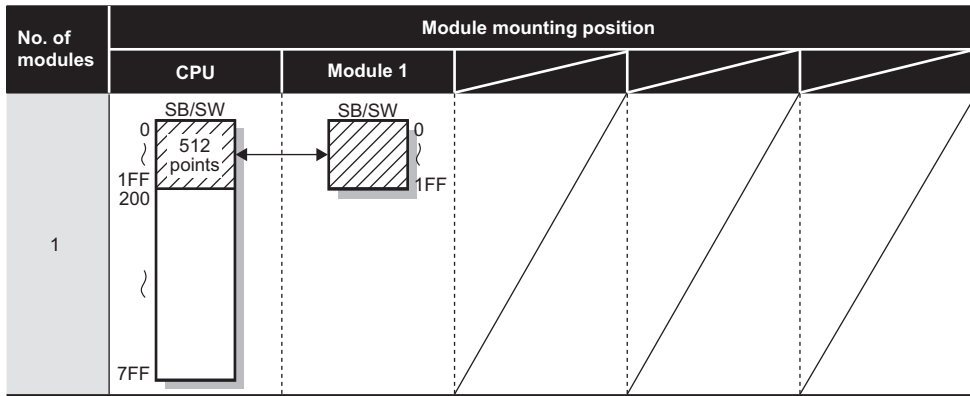
6.5 Refresh Parameters
6.5.3 Default settings

(b) For Basic model QCPU or safety CPU


- Transfer range of LB/LW



- Transfer range of SB/SW





6.6 Interrupt Settings

Set the conditions for sending an interrupt request to the CPU module. ( Page 135, Section 4.5)

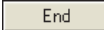
Point

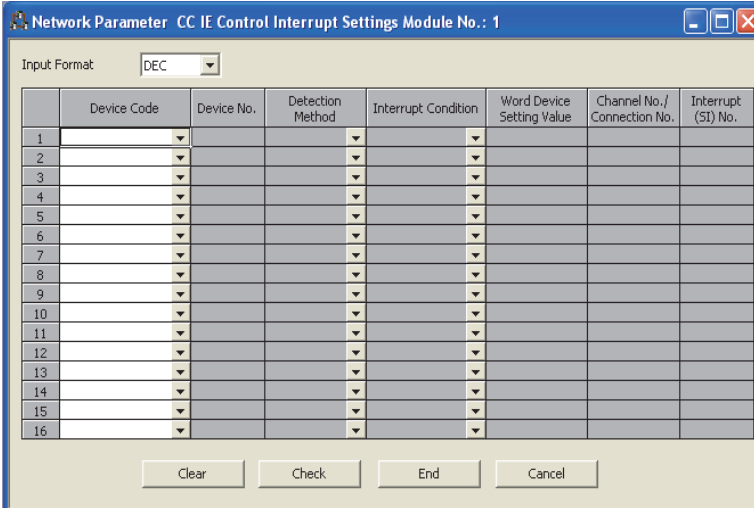
Up to 16 interrupt conditions can be set.

1. Configure the network setting. ( Page 180, Section 6.2)
2. Open the setting window in the programming tool.


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

⇒  button

3. Configure settings with reference to the description below.
4. Click the  button.



	Device Code	Device No.	Detection Method	Interrupt Condition	Word Device Setting Value	Channel No./ Connection No.	Interrupt (SI) No.
1							
2							
3							
4							
5							
6							
7							
8							
9							
10							
11							
12							
13							
14							
15							
16							

Item	Description	Setting range
Input Format	Select a format of the "Word Device Setting Value" column.	DEC., HEX. (default: DEC.)
Device Code	Select an interrupt condition device.	
Device No.		
Detection Method		
Interrupt Condition		
Channel No./Connection No.	When "RECVS Instruction" is selected in "Device Code", enter a channel number of the RECVS instruction to be an interrupt condition. Channel refers to a network module area where data treated by link dedicated instructions are stored. Using multiple channels allows simultaneous access from multiple other stations to the own station. A connection number is not used for the CC-Link IE Controller Network module.	Refer to the next table.
Interrupt (SI) No.	Enter an interrupt (SI) number used in the interrupt pointer setting of the PLC parameter. ( Page 225, Section 6.6) An interrupt (SI) number is a management number of the CC-Link IE Controller Network module used to send an interrupt request from the CC-Link IE Controller Network module to the CPU module.	


Device Code	Setting range					
	Device No.	Detection Method	Interrupt Condition	Word Device: Setting Value *1	Channel No./ Connection No.	Interrupt (SI) No.
LB	0 to 7FFF*3	At on: Level detect + ON At off: Level detect + OFF At rise: Edge detect + ON At fall: Edge detect + OFF		—		0 to 15
LX	0 to 1FFF					
SB	0 to 1FF					
LW	0 to 1FFFF*3	Values match: Level detect + Equal Values mismatch: Level detect + Unequal	0 to 65535	—		
SW	0 to 1FF	Values match (only for the first time): Edge detect + Equal Values mismatch (only for the first time): Edge detect + Unequal				
RECVS Instruction	—	Edge detect (Fixed)	Scan completion*4 (Fixed)	—	1 to 8	

- *1 When the Baton pass status (own station) (SB0047) is normal (OFF), all conditions are valid.
When the Baton pass status (own station) (SB0047) is not normal (ON), only SB/SW edge detection (ON/OFF) is valid.
(Even if any other condition is met, no interrupt is requested to the CPU.)
- *2 The input format can be selected from DEC. (decimal) and HEX. (hexadecimal).
- *3 For Basic model QCPUs, LB/LW4000 and higher cannot be specified for interrupt conditions.
- *4 An interrupt occurs when the specified channel receives data.

(1) Intelligent function module interrupt pointer setting

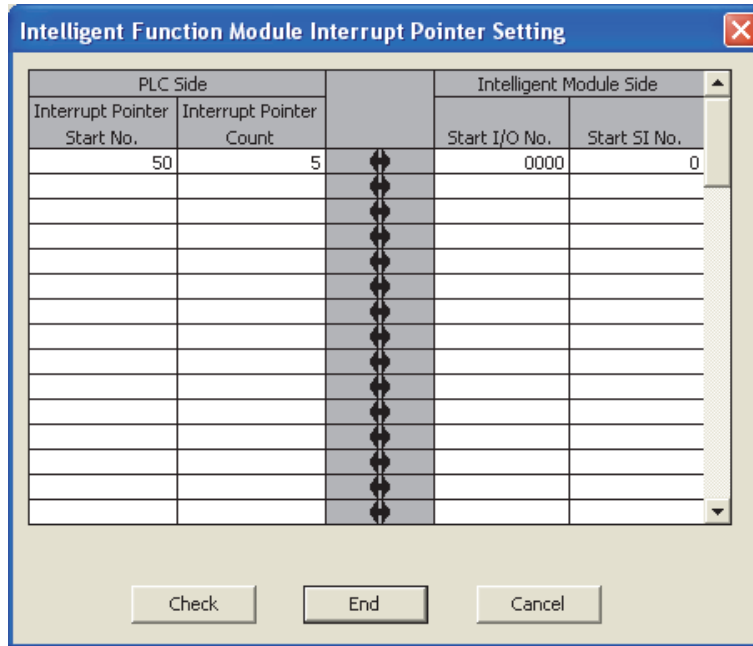
Interrupt (SI) Nos. of the CC-Link IE Controller Network module set in "Interrupt Settings" are linked to interrupt pointers of the CPU module.

1. Open the "Intelligent Function Module Interrupt Pointer Setting" window of the programming tool.

Project window ⇨ [PLC Parameter] ⇨ [PLC System] ⇨  button

2. Configure settings with reference to the description below.

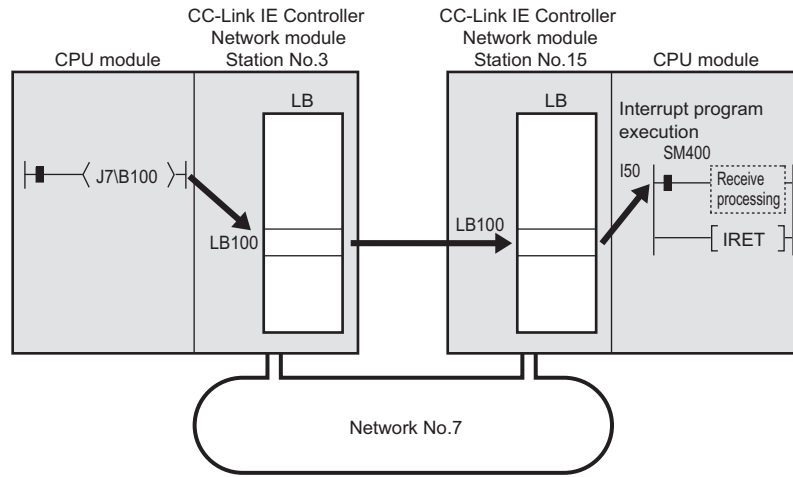
3. Click the  button.



Item		Description
PLC Side	Interrupt Pointer Start No.	Set the Start No. of the interrupt program (I □□). (Setting range: 50 to 255, Default: None)
	Interrupt Pointer Count	Set the number of interrupt conditions. (Setting range: 1 to 16, Default: None)
Intelligent Module Side	Start I/O No.	Set a start I/O No. of the CC-Link IE Controller Network module. (Setting range: 0000 _H to 0FE0 _H , Default: None)
	Start SI No.	Set a start interrupt (SI) No. of the CC-Link IE Controller Network module. (Setting range: 0 to 15, Default: None)

(2) Setting example

(a) Starting the interrupt program of station No.15 when LB100 turns ON



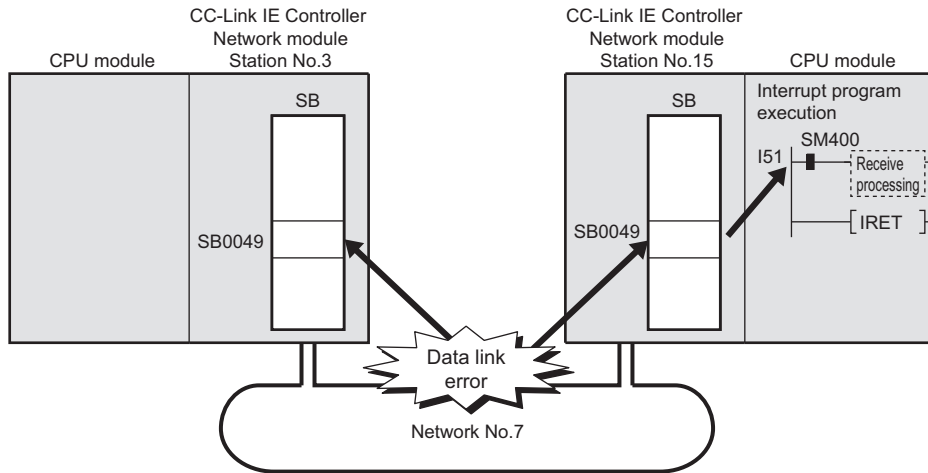
- Interrupt setting

	Device Code	Device No.	Detection Method	Interrupt Condition	Word Device Setting Value	Channel No./ Connection No.	Interrupt (SI) No.
1	LB	0100	Edge Detect	ON			0
2							

- Intelligent function module interrupt pointer setting

PLC Side			Intelligent Module Side	
Interrupt Pointer Start No.	Interrupt Pointer Count		Start I/O No.	Start SI No.
50	1	↕	0000	0

(b) Starting the interrupt program of station No.15 when Data link status of own station (SB0049) turns ON (data link error occurrence)



6

• Interrupt setting

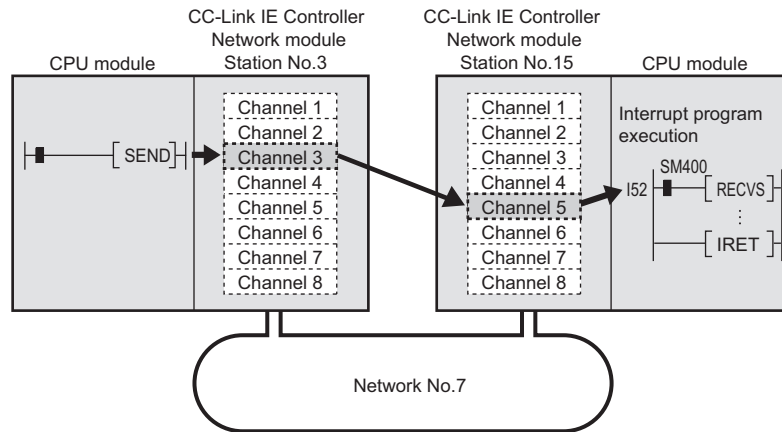
	Device Code	Device No.	Detection Method	Interrupt Condition	Word Device Setting Value	Channel No./ Connection No.	Interrupt (SI) No.
1	SB	0049	Edge Detect	ON			0
2							

• Intelligent function module interrupt pointer setting

PLC Side			Intelligent Module Side	
Interrupt Pointer Start No.	Interrupt Pointer Count		Start I/O No.	Start SI No.
51	1	↕	0000	0

6.6 Interrupt Settings

- (c) Starting the interrupt program of station No.15 when data sent from station No.3 with the SEND instruction are received in the channel specified in the RECVS instruction (channel 5)



- Interrupt setting

	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		5	0
2							

- Intelligent function module interrupt pointer setting

PLC Side			Intelligent Module Side	
Interrupt Pointer Start No.	Interrupt Pointer Count		Start I/O No.	Start SI No.
52	1	↕	0000	0

Point

- When "Level Detect" is set for "Detection Method" and the interrupt condition is always met, do not use interrupt setting and check the interrupt condition in the program. If the sequence scan time is much longer than the link scan time, since interrupt processing is activated in each link scan, sequence scan time may greatly increase, resulting in a watchdog timer error of a CPU module.
- When multiple interrupt requests occur at the same time, the operation may be delayed.
- The interrupt function cannot be used during the offline or online test.
- Do not use the interrupt program start by rise or fall of the specified device (with PLS or PLF instruction, etc. respectively), because the device status change could not be read out.




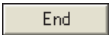
Since change of B100 may not be read, this cannot be specified as interrupt condition.

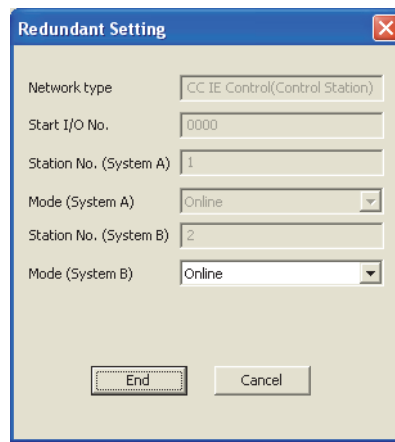
6.7 Redundant Settings

For Redundant CPUs, set the operation mode of the CC-Link IE Controller Network module on system B. (☞ Page 138, Section 4.7)

1. Configure the network setting. (☞ Page 180, Section 6.2)
2. Open the "Redundant settings" window in the programming tool.


☞ Project window ⇒ [Parameter] ⇒ [Network Parameter] ⇒ [Ethernet/CC IE/MELSECNET]
 ⇒  button

3. Configure settings with reference to the description below.
4. Click the  button.




Item	Description
Network type	Displays the station type of the CC-Link IE Controller Network module on system B. (Same as system A)
Start I/O No.	Displays the start I/O No. of the CC-Link IE Controller Network module on system B in units of 16 points. (Same as system A)
Station No. (System A)	Displays the station No. of the CC-Link IE Controller Network module on system A.
Mode (System A)	Displays the operation mode of the CC-Link IE Controller Network module on system A.
Station No. (System B)	Displays the station No. of the CC-Link IE Controller Network module on system B. Station No. of system B is set as system A's station No. +1.
Mode (System B)	Select an operation mode for the CC-Link IE Controller Network module on system B. (☞ Page 182, Section 6.2 (7))


6.8 Interlink Transmission Parameters

Set the link device transfer range between network modules. ( Page 89, Section 4.1.11)

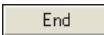
Point

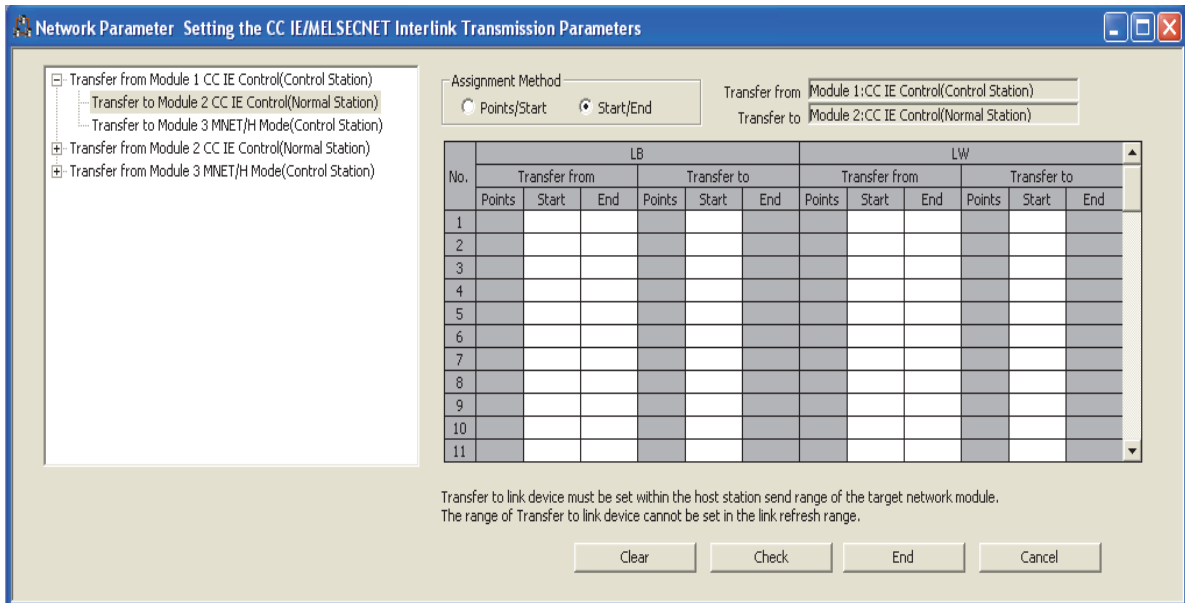
- Up to 64 link device transfer range settings are available for each link of network modules.
- When setting of 65 or more link device transfer ranges is required, use link direct devices in the sequence program to perform the link transfer.

1. Configure the network setting. ( Page 180, Section 6.2)
2. Open the "Setting the CC IE/MELSECNET Interlink Transmission Parameters" window in the programming tool.

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

⇨  button

3. From the selection tree, select the source and target modules to set interlink transmission parameters for them.
4. Configure settings with reference to the description below.
5. Click the  button.



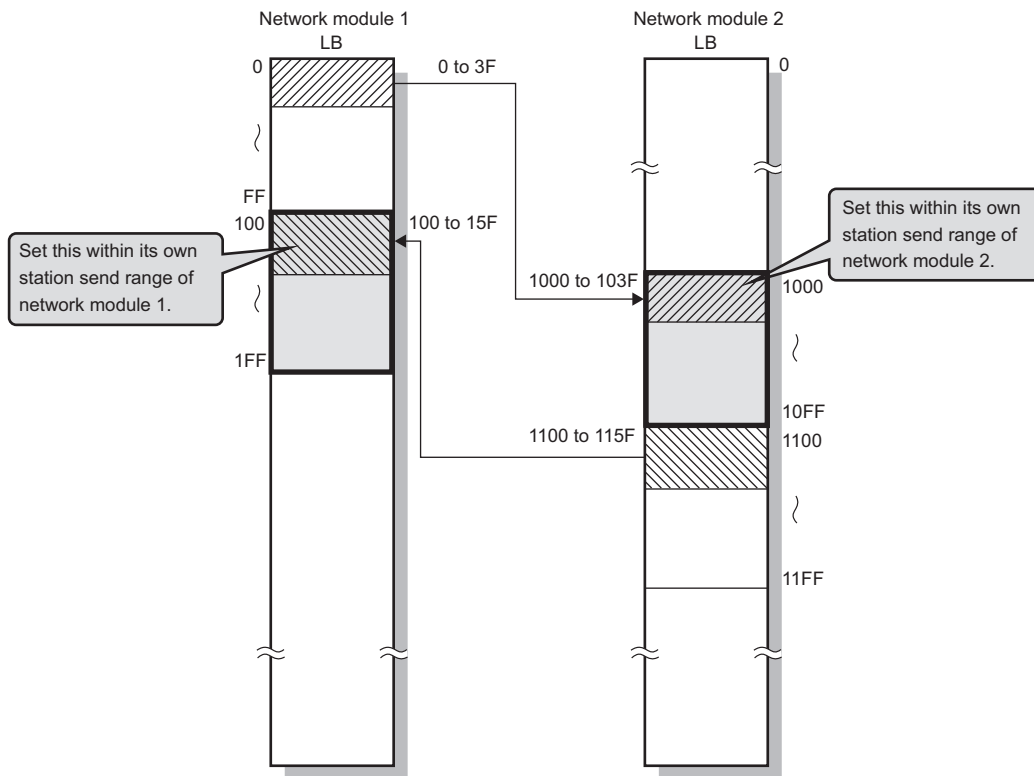
Item		Description	
Assignment Method		Select a link device assignment method. <ul style="list-style-type: none"> • Points/Start: Enter link device points and start I/O numbers. • Start/End: Enter the start and end numbers of the link devices. 	
Transfer from/Transfer to		Displays the module numbers and network types of the transfer source and transfer target.	
LB	Transfer from	Points, Start, End	Set the LB ranges of the transfer source.* ¹ (Setting range: 0000 _H to 7FFF _H , Default: None)
	Transfer to	Points, Start, End	Set the start numbers of the transfer target LB.* ¹ (Setting range: 0000 _H to 7FFF _H , Default: None)
LW	Transfer from	Points, Start, End	Set the LW ranges of the transfer source.* ¹ (Setting range: 0000 _H to 1FFFF _H , Default: None)
	Transfer to	Points, Start, End	Set the start numbers of the transfer target LW.* ¹ (Setting range: 0000 _H to 1FFFF _H , Default: None)

*¹ LB is set in 16-point units (Start: □□□□_H to End: □□□□_H), and LW is set in 1-point units.

(1) Precautions

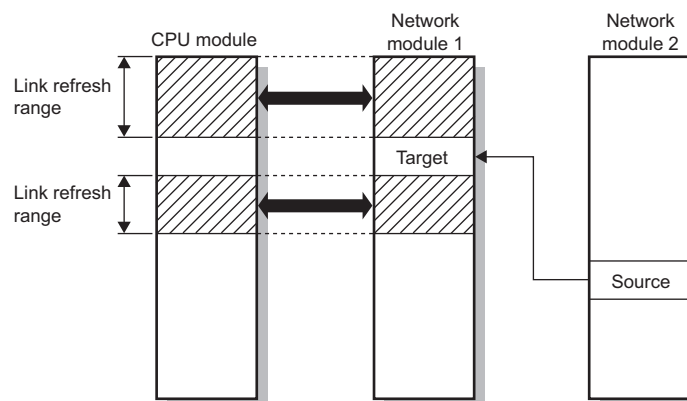
(a) Set the transfer target link device within the own station's send range of the transfer target network module.

(If it is set to an area outside the own station's send range of the transfer target network module, the area is overwritten at the time of link scan.)



(b) Do not set the transfer target link device range within the link refresh range.

(The transfer target link device will be overwritten during link refresh.)



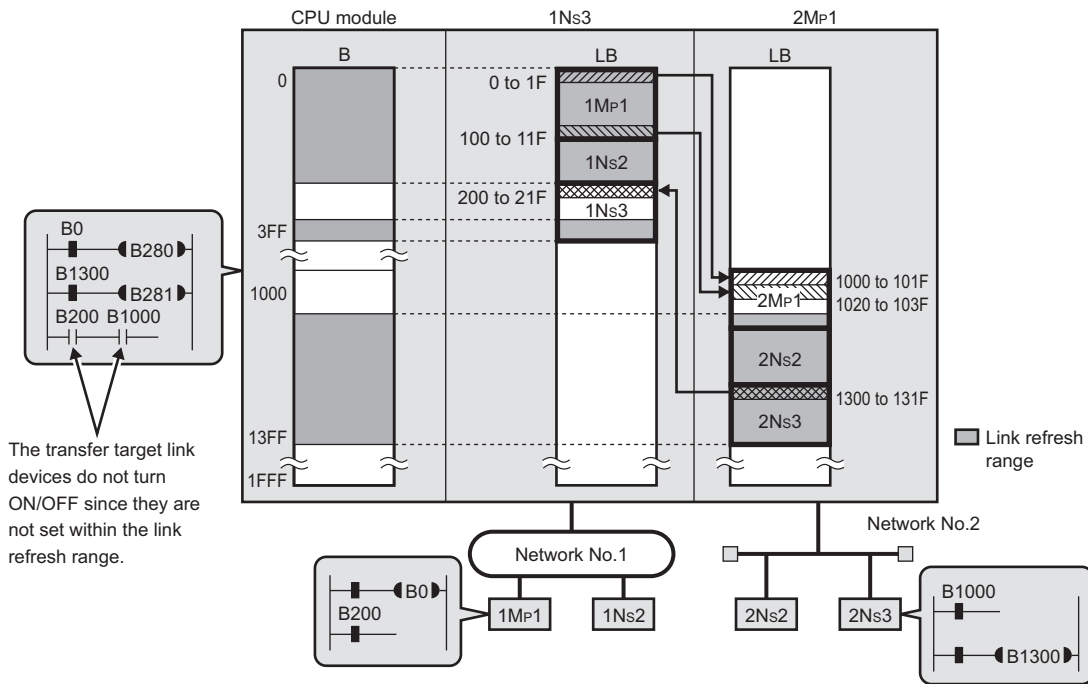
Point

When it is desired to use the transfer target link device data on the CPU module, set the transfer source link device within the link refresh range.

- (c) Interlink transmission is performed between the control station and normal station.
(The MELSECNET/H standby station cannot be the target of the interlink transmission.)
- (d) The transfer source link device data can be transferred to multiple network modules.
(An identical transfer source link device can be specified.)

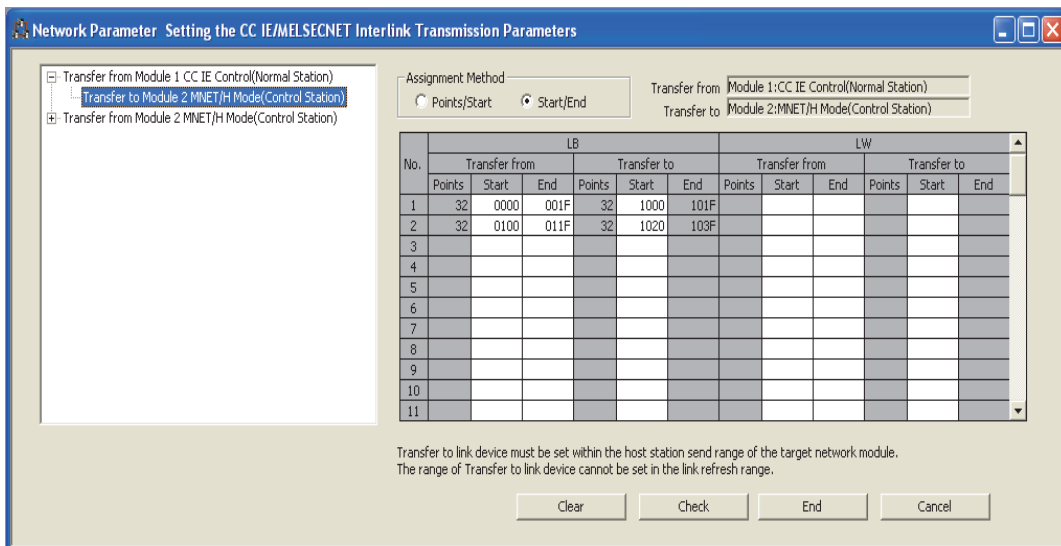
(2) Interlink transmission parameter setting example

The interlink transmission parameters for the following assignment are shown in this section.

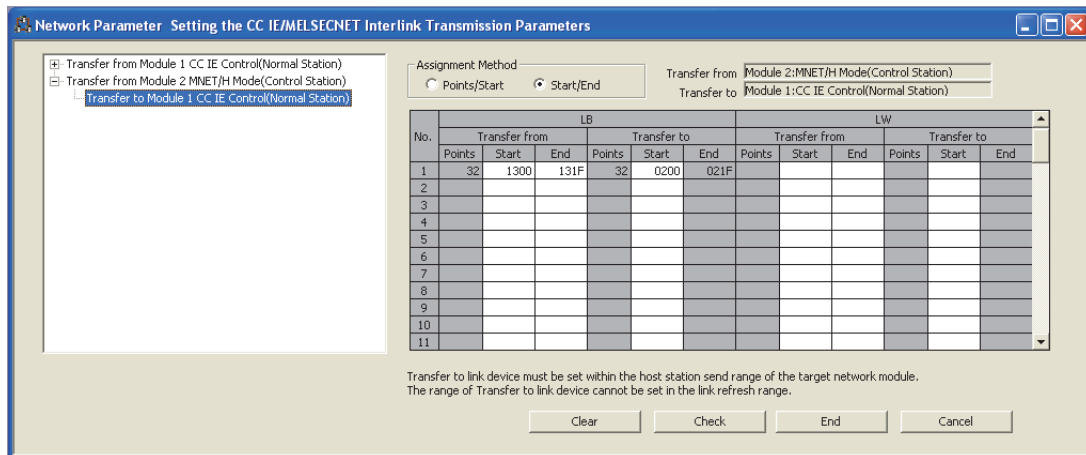


The transfer target link devices do not turn ON/OFF since they are not set within the link refresh range.

- Interlink transmission parameter setting for Module 1 → Module 2



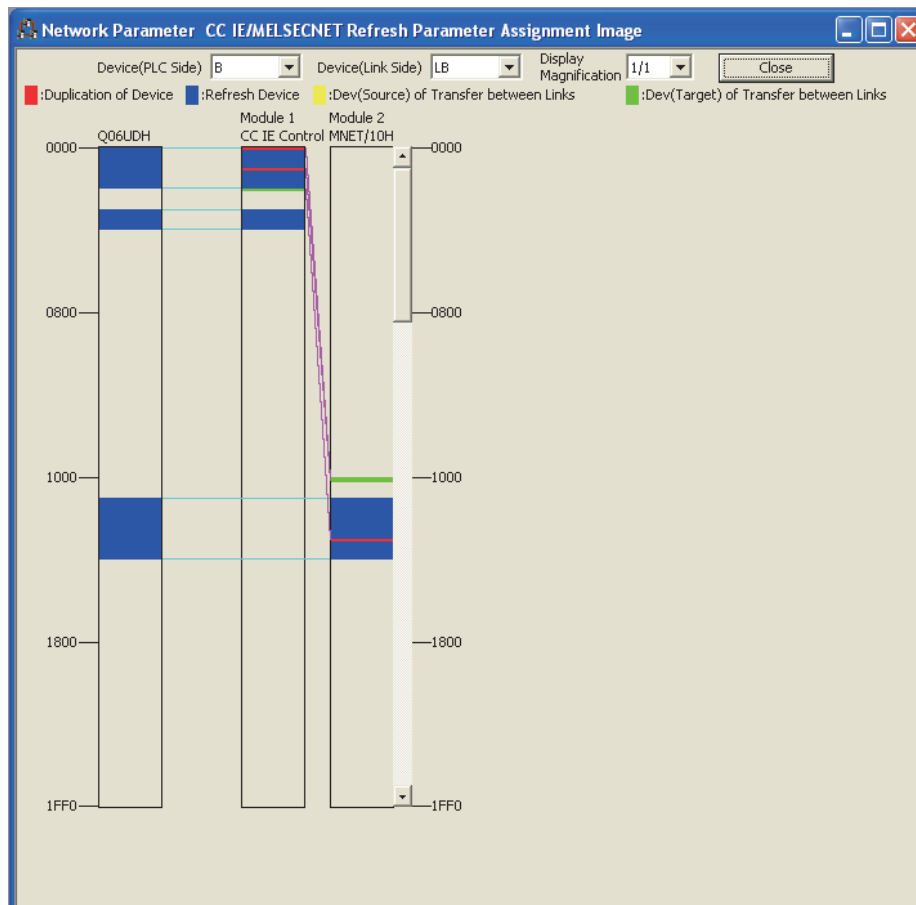
- Interlink transmission parameter setting for Module 2 → Module 1




(3) Checking the interlink transmission parameters assignment image

The interlink transmission parameters assignment image of the network modules can be viewed in the network parameters of the programming tool.

1. Open the "MELSECNET/CC IE/Ethernet Module Configuration" window in the programming tool.
(👉 Page 180, Section 6.2)
2. Click the **Assignment Image** button.
3. Set "Device (PLC Side)", "Device (Link Side)", and "Display Magnification" to display the assignment image.





Point 

If any transfer target device is overlapped with the link refresh range (red), check the interlink transmission parameters or refresh parameters. ( Page 204, Section 6.5)


6.9 Routing Parameters

Set a relay station in the own network to transmit data to another network.

Set the routing parameters under one of the following conditions.

- When using the dedicated instruction to perform transient transmission to a different network ( Page 324, CHAPTER 9)
- When using the IP packet transfer function ( Page 106, Section 4.3)

For the routing function, refer to the following.

 Page 103, Section 4.2.3

Point

- Up to 64 routing information settings are available for one programmable controller.
- Setting the same target network No. is not allowed.

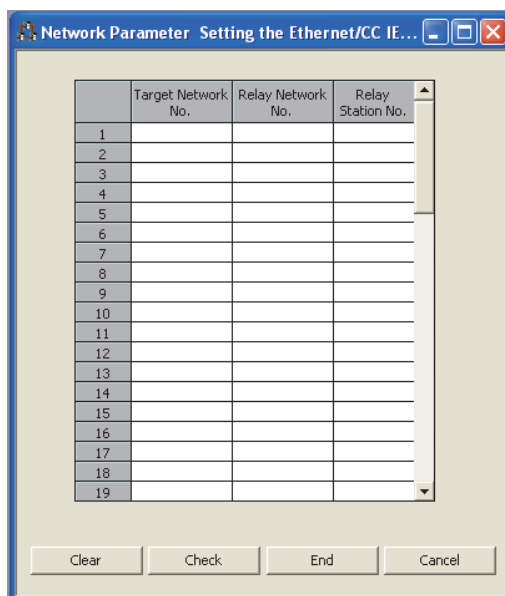
1. Open the "Setting the Ethernet/CC IE/MELSECNET Routing Information" window in the programming tool.

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

⇨  button

2. Configure settings with reference to the description below.

3. Click the  button.



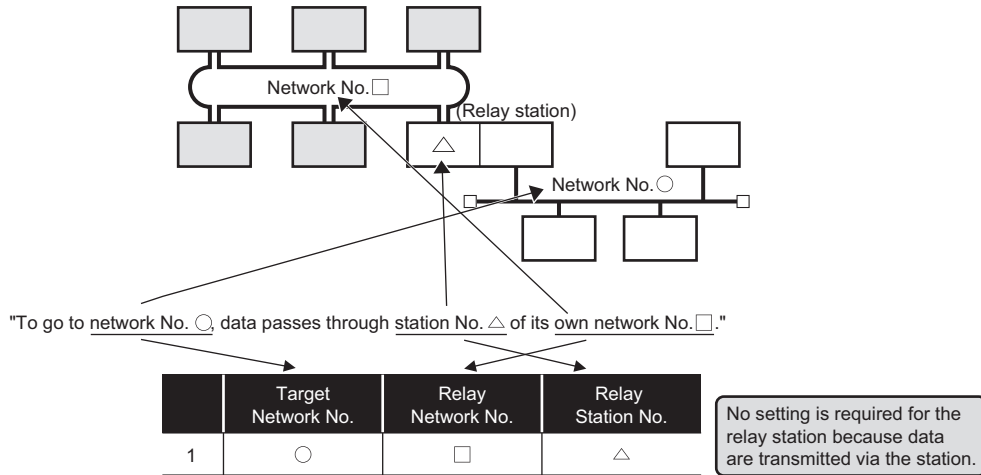
	Target Network No.	Relay Network No.	Relay Station No.
1			
2			
3			
4			
5			
6			
7			
8			
9			
10			
11			
12			
13			
14			
15			
16			
17			
18			
19			

Item	Description
Target Network No.	Set a network No. of another network. (Setting range: 1 to 239, Default: None)
Relay Network No.	Set the own network No. (Setting range: 1 to 239, Default: None)
Relay Station No.	Set the station No. of the relay station in the own network. (Setting range for Universal model QCPU: 0 to 120, Default: None) (Setting range for other than Universal model QCPU: 0 to 64, Default: None)

(1) Concept of routing parameters

To each station on the network, set a relay station in the own network to transmit data to another network.

Ex. Routing parameters set to each station on Network No. □



Point

Routing parameters are not necessary for stations that do not send any transient transmission to other networks, however, it is recommended to set the same routing parameters to each network.

(2) Precautions

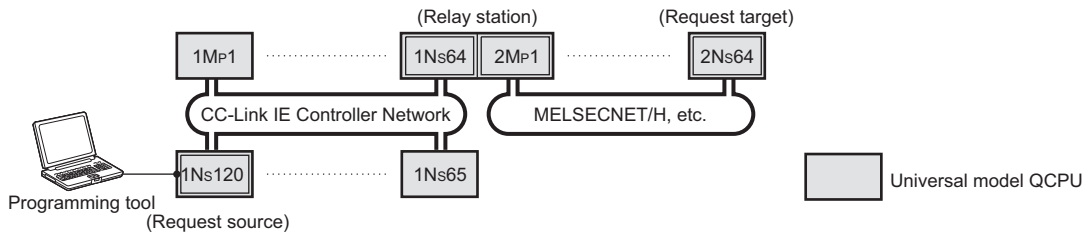
(a) Transient transmission range

Communication can be made with a station on the eighth farthest network system. (No. of relay stations: 7)

(b) Access conditions when the station No. of the request source, request target or CC-Link IE Controller Network relay station is 65 or more.

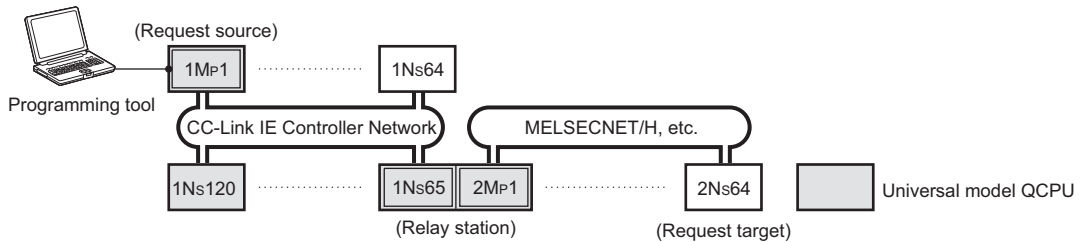
When the station number of the request source or request destination is 65 or more, access can be made under the following conditions.

- The request source and target are Universal model QCPUs.
- The CC-Link IE Controller Network relay station is a Universal model QCPU.



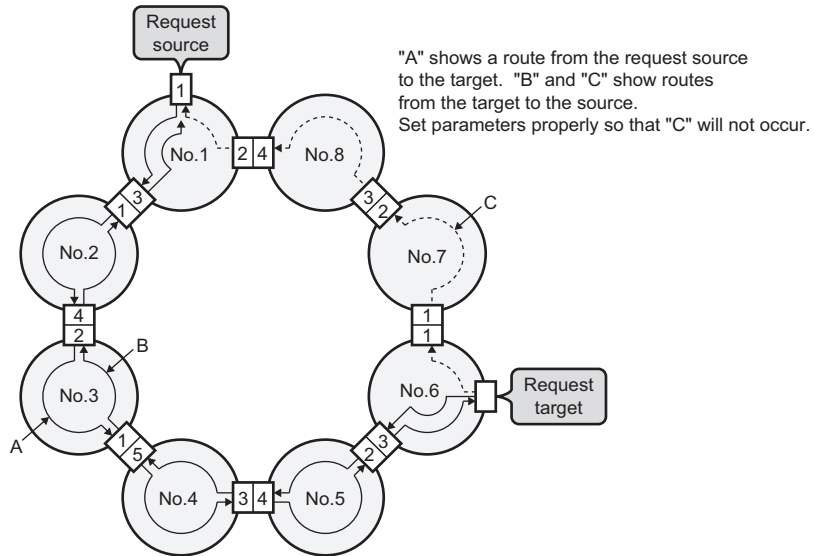
When the CC-Link IE Controller Network relay station No. is 65 or more, access is available under the following conditions.

- The request source is a Universal model QCPU.
- The CC-Link IE Controller Network relay station is a Universal model QCPU.



(c) When networks are connected in a loop configuration

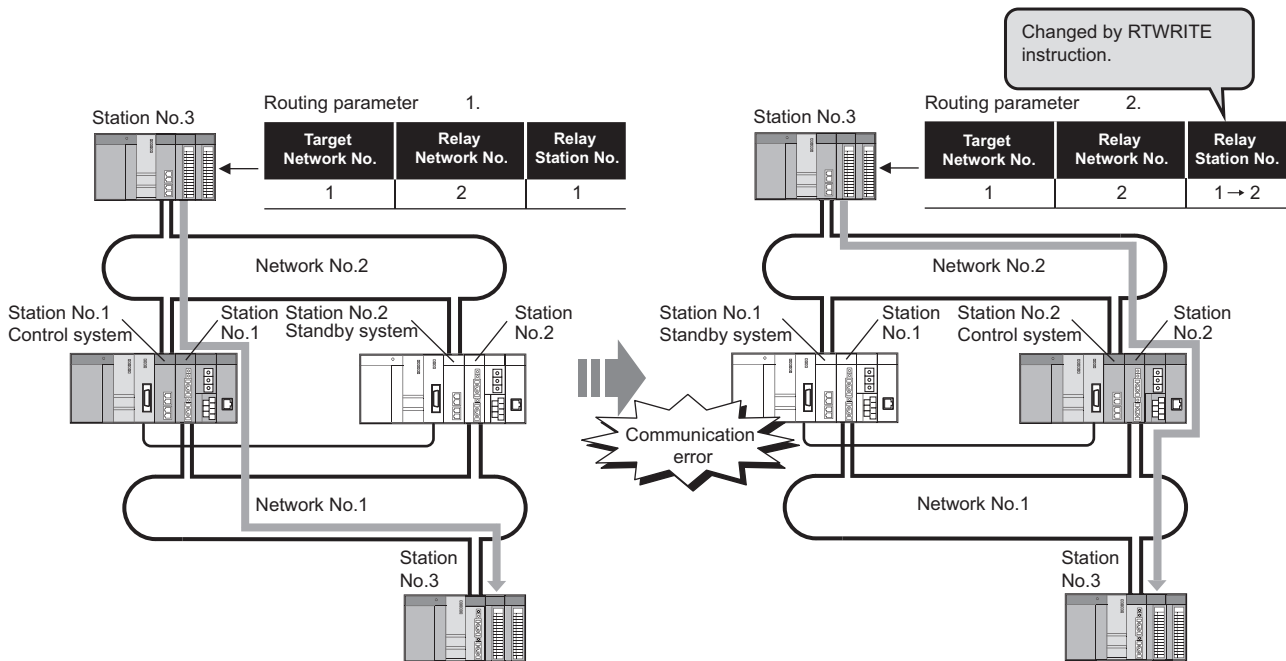
Be sure to configure the settings correctly so that requests and responses will take the same route. A response from the request target is passed back to the station that relayed the request. Therefore, if a different route is set, data cannot be transferred and an error will occur.



(d) On a relay station in the multiple CPU system, when different control CPUs are set for the network modules

Set the same routing parameters to each of the control CPUs.

(e) When a transmission passes through a redundant system



1. Set a control system station as a relay station.
2. If a system switching has occurred, change the relay station setting to a new control system station.

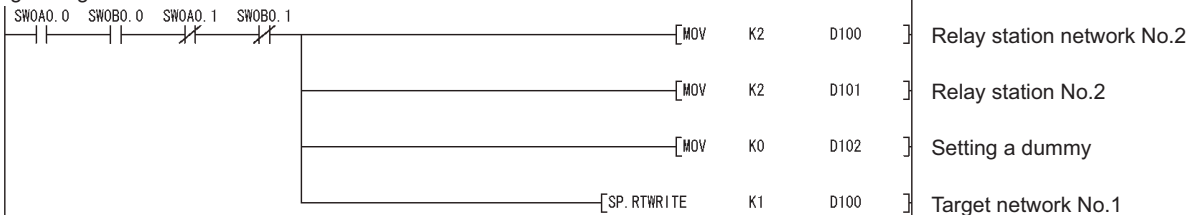
Use the RTWRITE instruction to change routing parameters.

For details on the RTWRITE instruction, refer to the following.

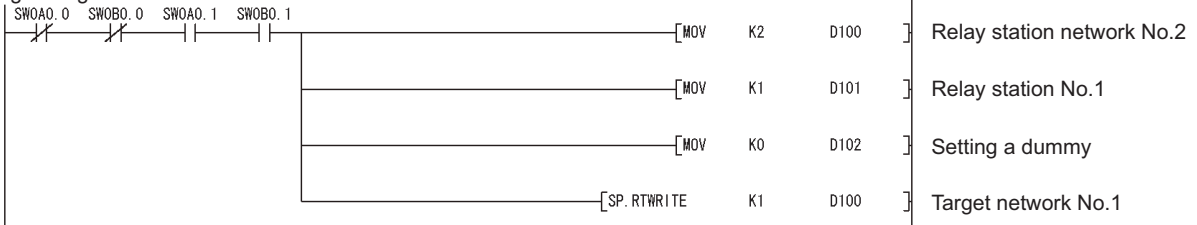
Programming Manual (Common Instructions) for the CPU module used.

Ex. Program example of the RTWRITE instruction

Passing through station No.2 of network No.2

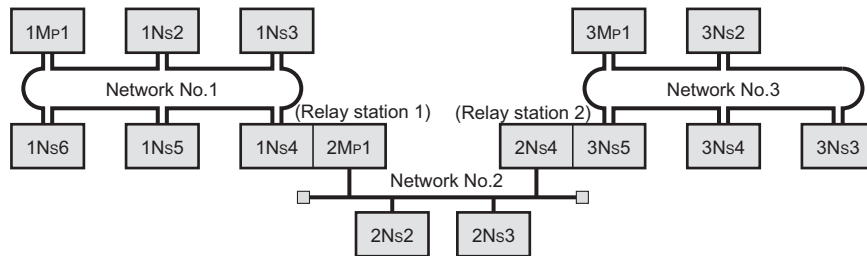


Passing through station No.1 of network No.2



(3) Routing parameter setting example

The routing parameters for each station in the following system configuration are shown in this section. Any station can transmit transient data to any other station.



(a) Routing parameters for each station of the network No.1

	Target Network No.	Relay Network No.	Relay Station No.
1	2	1	4
2	3	1	4

No setting is required for the relay station 1 (1Ns4, 2Mp1) because data are transmitted via the own station.

(b) Routing parameters for each station of the network No.2

	Target Network No.	Relay Network No.	Relay Station No.
1	1	2	1
2	3	2	4

No setting is required for the relay station 1 (1Ns4, 2Mp1) because data are transmitted via the own station.
 No setting is required for the relay station 2 (2Ns4, 3Ns5) because data are transmitted via the own station.

(c) Routing parameters for each station of the network No.3

	Target Network No.	Relay Network No.	Relay Station No.
1	1	3	5
2	2	3	5

No setting is required for the relay station 2 (2Ns4, 3Ns5) because data are transmitted via the own station.

(d) Routing parameters of the relay station 1

	Target Network No.	Relay Network No.	Relay Station No.
1	3	2	4

(e) Routing parameters of the relay station 2

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

(4) Checking the routing parameter setting (communication test)

With a communication test in the programming tool, whether routing of transient transmission can be correctly performed between the own station and a communication destination can be checked. (☞ Page 174, Section 5.7.1)

Verify that the routing parameter settings are correct.

CHAPTER 7 PROCESSING TIME

This chapter explains the processing time of the CC-Link IE Controller Network.

7.1 Link Scan Time

The link scan time (LS) of the CC-Link IE Controller Network is obtained from the following calculation formulas.

(1) For other than the Extended Mode

(a) When assigned in LB/LW settings (1) and LX/LY settings (1)

$$LS = [KB + (n \times 56) + \{LB + LY + (LW \times 16)\} \div 8 \times 0.016 + (N_T \times T \times 30)] \div 1000 + N_c \text{ [ms]}$$

KB (Constant): Total number of stations: 1 to 32 → 1100, Total number of stations: 33 to 64 → 2100,
Total number of stations: 65 to 120 → 3100





(b) When assigned in either LB/LW settings (2) or LX/LY settings (2) in addition to the above (1)

$$LS = [1100 + (n \times 116) + \{LB + LY + (LW \times 16)\} \div 8 \times 0.016 + (N_T \times T \times 30)] \div 1000 + N_c \text{ [ms]}$$

(2) For the Extended Mode

$$LS = [1100 + (n \times 116) + \{LB + LY + (LW \times 16)\} \div 8 \times 0.017 + (N_T \times T \times 30)] \div 1000 + N_c \text{ [ms]}$$

Definition of valuables in the calculation formulas shown in (1) and (2)

- n: Total number of stations (actually connected stations, not including reserved stations)
- LB: Total number of LB points set in LB/LW settings (1) and (2) (except for reserved stations)
( Page 185, Section 6.3.1)
- LW: Total number of LW points set in LB/LW settings (1) and (2) (except for reserved stations)
( Page 185, Section 6.3.1)
- LY: Total number of LY points set in LX/LY settings (1) and (2) (except for reserved stations)
( Page 192, Section 6.3.2)
- N_T: Number of stations that execute transient transmissions (total number of stations when cyclic transmission punctuality is assured)
- T: Maximum number of transient transmissions for one station ( Page 201, Section 6.3.6)
- N_c: Line control time per station ^{*1*2} (Normal: 50ms, Worst: 100ms)

*1 Time required for reconfiguring the data link when CC-Link IE Controller Network is disconnected and reconnected due to recovery from cable disconnection or power OFF → ON (0ms if the module is not disconnected or reconnected). During the line control, the cyclic transmission status and baton status become error in all stations. When a set value of constant link scan is large, it may exceed 100ms to complete the data link reconstruction, since it takes time to start the line control.

*2 If cables are disconnected or power is turned on simultaneously at multiple sites, the line control time may exceed 100ms by accumulation of line control processing loads.

7.2 Link Refresh Time

The following are calculation formulas for the link refresh time (increase in END processing time of the CPU module).

(1) For Basic model QCPUs, High Performance model QCPUs, Process CPUs, Redundant CPUs, and Universal model QCPUs)

$$\alpha_T, \alpha_R = KM1 + KM2 \times \left(\frac{LB + LX + LY + SB}{16} + LW + SW \right) + \alpha_E + \alpha_L \text{ [ms]}$$

$$\alpha_E = KM3 \times \left(\frac{LB + LX + LY}{16} + LW \right) \text{ [ms]}$$

α_T : Link refresh time on sending side

α_R : Link refresh time on receiving side

LB: Total number of actual link refresh points in LB^{*1}

LW: Total number of actual link refresh points in LW^{*1}


LX: Total number of actual link refresh points in LX^{*1}

LY: Total number of actual link refresh points in LY^{*1}

SB: SB points

SW: SW points

α_E : Transfer time of file register (R, ZR), extended data register (D), or extended link register (W) on memory card

α_L : Interlink transmission time ( Page 247, Section 7.2.1)

KM1, KM2, and KM3: Constant

*1 Total number of link device points for the range set by refresh parameters and set in the network range assignment. Note that the points assigned to reserved stations are excluded.

Remark

- Add α_E 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 α_L only when using the interlink transmission.

CPU type		KM1($\times 10^{-3}$)	KM2($\times 10^{-3}$)		KM3($\times 10^{-3}$)	
			Main base ^{*2}	Extension base ^{*2}	Main base ^{*2}	Extension base ^{*2}
Basic model QCPU	Q00JCPU	1300	0.67	1.50	—	—
	Q00CPU	1100	0.66	1.44		
	Q01CPU	900	0.61	1.42		
High Performance model QCPU	Q02CPU	300	0.48	1.20	0.60	1.32
	Q02H/Q06H/Q12H/Q25HCPU	130	0.41	0.97	0.53	1.09
Process CPU	Q02PH/Q06PH/Q12PH/Q25PHCPU	130	0.41	0.97	0.53	1.09
Redundant CPU	Q12PRH/Q25PRHCPU	130	0.41	—	0.53	—
Universal model QCPU	Q00UJ/Q00U/Q01U	160	0.41	1.06	—	—
	Q02UCPU	160	0.41	1.06	0.39	0.39
	Q03UD/Q03UDECPU	90	0.41	0.97	0.39	0.39
	Q04UDH/Q04UDEH/Q06UDH/Q06UDEH/Q10UDH/Q10UDEH/Q13UDH/Q13UDEH/Q20UDH/Q20UDEH/Q26UDH/Q26UDEH/Q50UDEH/Q100UDEHCPU	90	0.41	0.97	0.33	0.33
	Q03UDV/Q04UDV/Q06UDV/Q13UDV/Q26UDVCPU	45	0.41	0.97	—	—

*2 Indicates base units on which the CC-Link IE Controller Network module is mounted.

(2) For safety CPUs

$$\alpha_T, \alpha_R = \left\{ 1.85 \times \left(\frac{LB+LX+LY+SB}{16} + LW+SW \right) + 1000 \right\} \times 10^{-3} [\text{ms}]$$

α_T : Link refresh time on sending side

α_R : Link refresh time on receiving side

LB: Total number of actual link refresh points in LB^{*1}

LW: Total number of actual link refresh points in LW^{*1}

LX: Total number of actual link refresh points in LX^{*1}

LY: Total number of actual link refresh points in LY^{*1}

SB: SB points

SW: SW points

*1 Total number of link device points for the range set by refresh parameters and set in the network range assignment. Note that the points assigned to reserved stations are excluded.

Point

The values in this section are calculated on the basis that data are received from all stations during one sequence scan. When the link scan is long or when the sequence scan is short, data from all stations may not be received within one sequence scan.

If this occurs, the actual link refresh time is less than the calculated value shown in this section.

7.2.1 Interlink transmission time

The following are the calculation formulas for the interlink transmission time.

(1) For High Performance model QCPUs, Process CPUs, and Redundant CPUs

$$\alpha_L = KM4 + KM5 \times \left[\frac{LB}{16} + LW \right] \text{ [ms]}$$

α_L : Interlink transmission time

LB: Total number of actual link refresh points in LB^{*1}

LW: Total number of actual link refresh points in LW^{*1}

KM4 and KM5: Constant

*1 Total number of link device points for the range set by refresh parameters and set in the network range assignment. Note that the points assigned to reserved stations are excluded.

CPU type		KM4($\times 10^{-3}$)		KM5($\times 10^{-3}$)	
		Main base ^{*1}	Extension base ^{*1}	Main base ^{*1}	Extension base ^{*1}
High Performance model QCPU	Q02CPU	600	610	140	280
	Q02H/Q06H/Q12H/Q25HCPU	250	270	130	260
Process CPU	Q02PH/Q06PH/Q12PH/Q25PHCPU	250	270	130	260
Redundant CPU	Q12PRH/Q25PRHCPU	250	—	130	—

*1 Indicates base units on which the CC-Link IE Controller Network module is mounted.

(2) For Universal model QCPUs

Universal model QCPUs transfer interlink data in several batches.

(a) Interlink transmission time taken in one END processing

$$\alpha_L = KM4 + (KM5 \times n1) + \left[\frac{LB_T}{16} + LW_T \right]^{*1} \times KM6 \text{ [ms]}$$

α_L : Interlink transmission time taken in one END processing

$n1$: Number of lines where interlink transmission parameters are set

LB_T : Total number of LB points, which are set with interlink transmission parameters

LW_T : Total number of LW points, which are set with interlink transmission parameters

$KM4$, $KM5$, and $KM6$: Constants

*1 The number of words that can be transferred in one END (N) is restricted as follows:

$N = \text{Sequence scan time (under no interlink transmission parameter setting) } (\mu\text{s}) \times 0.05$

CPU type		$KM4(\times 10^{-3})$	$KM5(\times 10^{-3})$
Universal model QCPU	Q00UJ/Q00U/Q01UCPU	—	—
	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

CPU type		$KM6(\times 10^{-3})$			
		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/Q01UCPU	—	—	—	—
	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 Indicates base units on which the network module of the transfer source is mounted.

*2 Indicates base units on which the network module of the transfer destination is mounted.

(b) Interlink transmission time required for transferring data of all the set points

$$\alpha_{L1} = \text{KM7} \times \left[\frac{\text{LB}_T}{16} + \text{LW}_T \right] \text{ [ms]}$$

α_{L1} : Interlink transmission time required for transferring data of all the set points

LB_T: Total number of LB points, which are set with interlink transmission parameters

LW_T: Total number of LW points, which are set with interlink transmission parameters

KM7: Constants

CPU type		KM7 ($\times 10^{-3}$)			
		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
	Q03UD/Q03UDV/Q03UDE/ Q04UDH/Q04UDV/Q04UDEH/ Q06UDH/Q06UDV/Q06UDEH/ Q10UDH/Q10UDEH/ Q13UDH/Q13UDV/Q13UDEH/ Q20UDH/Q20UDEH/ Q26UDH/Q26UDV/Q26UDEH/ Q50UDEH/Q100UDEHCPU	22.10	22.50	22.70	23.00

*1 Indicates base units on which the network module of the transfer source is mounted.

*2 Indicates base units on which the network module of the transfer destination is mounted.

7.3 Cyclic Transmission Delay Time

7.3.1 Cyclic transmission delay time

The following shows calculation formulas for cyclic transmission delay time (the time until completion of data transmission).

(1) In the case of a single network system

(a) When a non-Redundant CPU receives transmission data

Calculated value		Transmission delay time [ms] for $ST > LS$	
		Station-based block data assured	Station-based block data not assured
Normal value		$TD1 = (ST + \alpha T) \times 1.5 + LS \times 0.5 + (SR + \alpha R) \times 1.5$	$TD2 = (ST + \alpha T + LS \times 0.5 + (SR + \alpha R) \times 1.5$
Maximum value		$TD1_{max} = (ST + \alpha T) \times 2 + LS \times 1 + (SR + \alpha R) \times 2$	$TD2_{max} = ST + \alpha T + LS \times 1 + (SR + \alpha R) \times 2$
Extended mode	Normal value	$TD1 = (ST + \alpha T) \times 1.5 + LS \times 0.5 + (SR + \alpha R) \times 2.5$	$TD2 = (ST + \alpha T + LS \times 0.5 + (SR + \alpha R) \times 1.5$
	Maximum value	$TD1_{max} = (ST + \alpha T) \times 2 + LS \times 1 + (SR + \alpha R) \times 3$	$TD2_{max} = ST + \alpha T + LS \times 1 + (SR + \alpha R) \times 2$

Calculated value		Transmission delay time [ms] for $ST < LS$	
		Station-based block data assured	Station-based block data not assured
Normal value		$TD3 = (ST + \alpha T) + LS \times 1 + (SR + \alpha R) \times 1.5$	$TD4 = ST + \alpha T + LS \times 0.5 + (SR + \alpha R) \times 1.5$
Maximum value		$TD3_{max} = (ST + \alpha T) + LS \times 2 + (SR + \alpha R) \times 2$	$TD4_{max} = ST + \alpha T + LS \times 1 + (SR + \alpha R) \times 2$
Extended mode	Normal value	$TD3 = (ST + \alpha T) + LS \times 2 + (SR + \alpha R) \times 2.5$	$TD4 = (ST + \alpha T + LS \times 1 + (SR + \alpha R) \times 1.5$
	Maximum value	$TD3_{max} = (ST + \alpha T) + LS \times 3 + (SR + \alpha R) \times 3$	$TD4_{max} = ST + \alpha T + LS \times 2 + (SR + \alpha R) \times 2$

(b) When a Redundant CPU receives transmission data

Calculated value		Transmission delay time [ms] for $ST > LS$	
		Station-based block data assured	Station-based block data not assured
Normal value		$TD1 + Ts \times 1.5$	$TD2 + Ts \times 1.5$
Maximum value		$TD1_{max} + Ts \times 2$	$TD2_{max} + Ts \times 2$

Calculated value		Transmission delay time [ms] for $ST < LS$	
		Station-based block data assured	Station-based block data not assured
Normal value		$TD3 + Ts \times 1.5$	$TD4 + Ts \times 1.5$
Maximum value		$TD3_{max} + Ts \times 2$	$TD4_{max} + Ts \times 2$

TD1 to TD4: Transmission delay time (Normal value)

TD1_{max} to TD4_{max}: Transmission delay time (Maximum value)

ST: Sequence scan time on sending side (excluding link refresh time)

SR: Sequence scan time on receiving side (excluding link refresh time)

αT : Link refresh time on sending side (Total of the number of mounted network modules)

αR : Link refresh time on receiving side (Total of the number of mounted network modules)

Ts: Scan time delay due to tracking transfer^{*1}

LS: Link scan time

*1 For the scan time delay due to tracking transfer, refer to the following.

 QnPRHCPU User's Manual (Redundant System)

(2) In the case of a multi-network system

The following shows the cyclic transmission delay time for the case where link device data are transferred to another network with the interlink transmission function.

Transmission delay time (For other than Universal model QCPUs) =
 $(ST + \alpha T) + (LS_T \times 1) + \alpha MR + KM + \alpha MT + (LS_R \times 1) + (SR \times 2) + \alpha R$ [ms]

Transmission delay time (For Universal model QCPU) =
 $(ST + \alpha T) + (LS_T \times 1) + \alpha MR + \alpha MT + (LS_R \times 1) + (SR \times 2) + \alpha R$ [ms]

ST: Sequence scan time on sending side (excluding link refresh time)

SR: Sequence scan time on receiving side (excluding link refresh time)

αT : Link refresh time on sending side (Total of the number of mounted network modules)

αMT : Time for link refresh between relay station and sending side (for transfer) (Total of the number of mounted network modules)

αMR : Time for link refresh between relay station and receiving side (for transfer) (Total of the number of mounted network modules)

αR : Link refresh time on receiving side (Total of the number of mounted network modules)

LS_T : Link scan time on sending side

LS_R : Link scan time on receiving side

KM: Transmission processing time of CPU module on relay station (☞ Refer to the following.)

$$KM = KM6 \times \left(\frac{LB}{16} + LW \right) \div 1000 + KM7 \text{ [ms]}$$

LB: Total of transfer source LB points that are set with interlink transmission parameters.

(☞ Page 232, Section 6.8)

LW: Total of transfer source LW points that are set with interlink transmission parameters.

(☞ Page 232, Section 6.8)

KM6: Constant

KM7: 4.5 (Worst value: 60)

Module location		KM6 ($\times 10^{-3}$)
Transfer source module	Transfer target module	
Main base unit	Main base unit	6.7
Main base unit	Extension base unit	10.00
Extension base unit	Main base unit	10.00
Extension base unit	Extension base unit	12.00

Point

Although KM7 is normally 4.5ms, when monitoring from the programming tool or another station or an dedicated instruction is being executed, it will be 60ms.

Depending on monitoring timing from the programming tool or another station, the time will be further increased.

If this time increase could cause a problem in the system, perform interlink transmission by the sequence program using link direct devices.

7.3.2 Transmission delay time calculation example

This section provides a calculation example of the cyclic transmission delay.

(1) Transmission delay time in a single network system

(a) System configuration and conditions

Item	Description	
CPU module	Q06HCPU	
Total number of stations per network	8 stations	
Total link device points	LB/LW	1024 points for each
	LX/LY	0 point
	SB/SW	512 points for each
Sequence scan time	1ms	
File register	None	
Interlink transmission	None	
Transient transmission	None	
Station-based block data assurance	Assured	
CC-Link IE Controller Network module	Installed to slot 0 of main base unit	
Faulty station	None	

(b) Link scan time (Page 244, Section 7.1)

$$\begin{aligned}
 LS &= [KB + (N \times 56) + \{LB + LY + (LW \times 16) \div 8 \times 0.016 + (NT \times T \times 30)\} \div 1000 + Nc] \text{ [ms]} \\
 &= [1100 + (8 \times 56) + \{1024 + 0 + (1024 \times 16)\} \div 8 \times 0.016 + (0 \times 2 \times 30)] \div 1000 \\
 &= 1.58 \text{ [ms]}
 \end{aligned}$$

(c) Link refresh time (Page 245, Section 7.2)

$$\begin{aligned}
 \alpha_T, \alpha_R &= KM1 + KM2 \times \left(\frac{LB + LX + LY + SB}{16} + LW + SW \right) + \alpha_E + \alpha_L \text{ [ms]} \\
 \alpha_E &= KM3 \times \left(\frac{LB + LX + LY}{16} + LW \right) \text{ [ms]} \\
 \alpha_L &= KM4 + KM5 \times \left(\frac{LB}{16} + LW \right) \text{ [ms]}
 \end{aligned}$$

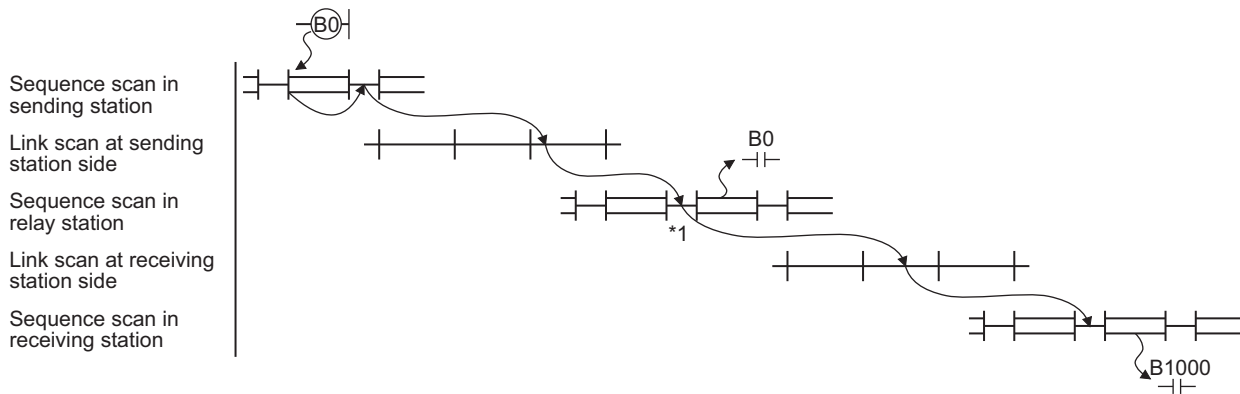
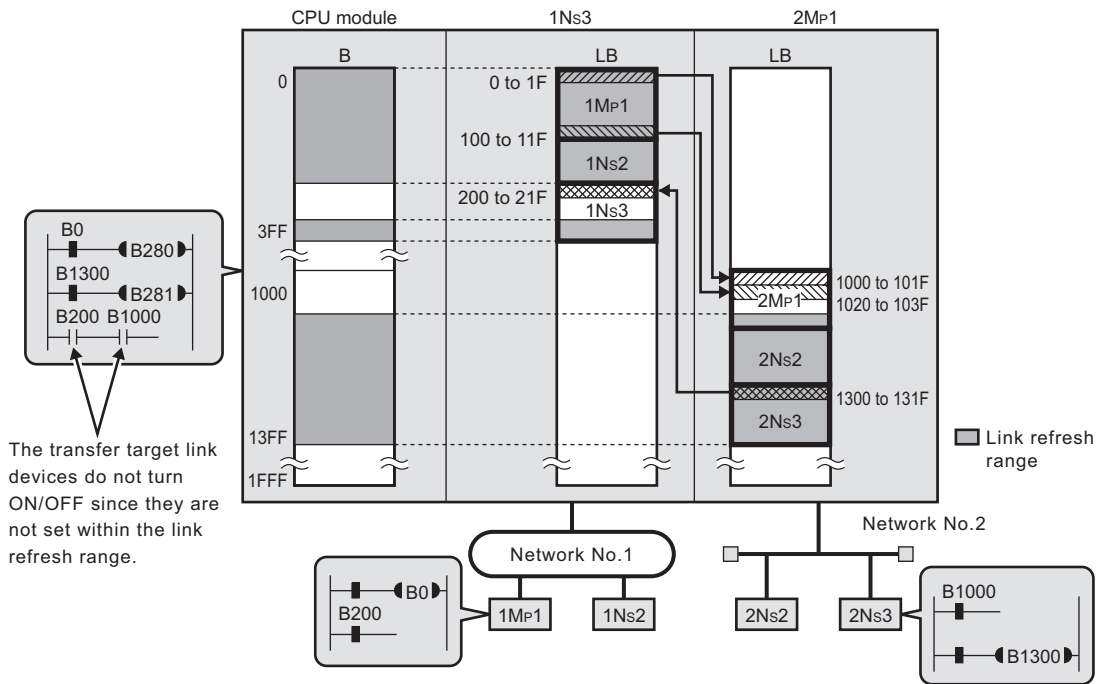
(1) Sending-side link refresh time, receiving-side link refresh time

$$\begin{aligned}
 \alpha_T, \alpha_R &= 130 \times 10^{-3} + 0.41 \times 10^{-3} \times \{(1024 + 0 + 0 + 512) \div 16 + 1024 + 512\} + 0 + 0 \\
 &= 0.80 \text{ [ms]}
 \end{aligned}$$

(d) Cyclic transmission delay time (☞ Page 250, Section 7.3.1)

Calculated value	Transmission delay time for $ST < LS$ [ms]
	Station-based block data assured
Normal value	$(ST + \alpha T) + LS \times 1 + (SR + \alpha R) \times 1.5$ $(1 + 0.80) + 1.58 \times 1 + (1 + 0.80) \times 1.5 = 6.08$ [ms]
Maximum value	$(ST + \alpha T) + LS \times 2 + (SR + \alpha R) \times 2$ $(1 + 0.80) + 1.58 \times 2 + (1 + 0.80) \times 2 = 8.56$ [ms]

(2) Transmission delay time in a multi-network system



*1 Depending on the points of the interlink transmission, more than one sequence scan may be required at the relay station. (☞ Page 248, Section 7.2 (2) (a))

(a) System configuration and conditions

Item		Description
CPU module		Q06UDHCPU
Total number of stations per network		3 stations
Total link device points	LB/LW	1024 points for each
	LX/LY	0 point
	SB/SW	512 points for each
Sequence scan time		1ms
File register		None
Interlink transmission	1N _S 3 → 2M _P 1(LB _T)	64 points
	1N _S 3 ← 2M _P 1(LB _T)	32 points
Transient transmission		None
CC-Link IE Controller Network module		Installed to slot 0 of main base unit
Faulty station		None

(b) Link scan time ( Page 244, Section 7.1)

$LS = [KB + (N \times 56) + \{LB + LY + (LW \times 16)\} \div 8 \times 0.016 + (N_T \times T \times 30)] \div 1000 + N_c \text{ [ms]}$
<p>(1) Sending-side link refresh time, receiving-side link refresh time</p> $LS_T, LS_R = [1100 + (3 \times 56) + \{1024 + 0 + (1024 \times 16)\} \div 8 \times 0.016 + (0 \times 2 \times 30)] \div 1000$ $= 1.30 \text{ [ms]}$

(c) Link refresh time ( Page 245, Section 7.2)

$$\alpha_T, \alpha_R = KM1 + KM2 \times \left(\frac{LB + LX + LY + SB}{16} + LW + SW \right) + \alpha_E + \alpha_L \text{ [ms]}$$

$$\alpha_E = KM3 \times \left(\frac{LB + LX + LY}{16} + LW \right) \text{ [ms]}$$

[Interlink transmission time for the Universal model QCPU]

$$\alpha_L = KM4 + (KM5 \times n1) + \left[\frac{LB_T}{16} + LW_T \right] \times KM6 \text{ [ms]}$$

(1) Sending-side link refresh time, receiving-side link refresh time

$$\begin{aligned} \alpha_T, \alpha_R &= 90 \times 10^{-3} + 0.41 \times 10^{-3} \\ &\quad \times \{(1024 + 0 + 0 + 512) \div 16 + 1024 + 512\} + 0 + 0 \\ &= 0.76 \text{ [ms]} \end{aligned}$$

(2) Link refresh time between relay station and sending side (for transfer)

$$\begin{aligned} \alpha_{MT} &= 90 \times 10^{-3} + 0.41 \times 10^{-3} \\ &\quad \times \{(1024 + 0 + 0 + 512) \div 16 + 1024 + 512\} + 0 + 0.06 \\ &= 0.82 \text{ [ms]} \\ \alpha_L &= 25 \times 10^{-3} + 16.3 \times 10^{-3} \times 2 + \{64 \div 16 + 0\} \times 0.73 \times 10^{-3} \\ &= 0.06 \text{ [ms]} \end{aligned}$$

(3) Link refresh time between relay station and receiving side (for transfer)

$$\begin{aligned} \alpha_{MR} &= 90 \times 10^{-3} + 0.41 \times 10^{-3} \times \{(1024 + 0 + 0 + 512) \div 16 + 1024 + 512\} + 0 + 0.04 \\ &= 0.80 \text{ [ms]} \\ \alpha_L &= 25 \times 10^{-3} + 16.3 \times 10^{-3} \times 1 + \{32 \div 16 + 0\} \times 0.73 \times 10^{-3} \\ &= 0.04 \text{ [ms]} \end{aligned}$$

(d) Cyclic transmission delay time ( Page 250, Section 7.3.1)

$$\begin{aligned} &\text{Transmission delay time (for Universal model QCPU) =} \\ &(ST + \alpha_T) + (LS_T \times 1) + \alpha_{MR} + \alpha_{MT} + (LS_R \times 1) + (SR \times 2) + \alpha_R \text{ [ms]} \\ &= (1 + 0.76) + (1.30 \times 1) + 0.80 + 0.82 + (1.30 \times 1) + (1 \times 2) + 0.76 \\ &= 8.74 \text{ [ms]} \end{aligned}$$

7.4 Dedicated Instruction Transmission Delay Time

7.4.1 Link dedicated instruction transmission delay time

The following shows the calculation formulas for the link dedicated instruction transmission delay time (the time taken from issuing an instruction until receiving a response).

(1) For a single network system

(a) Transmission delay time for the SEND/RECV/RECVS/ZNRD/ANWR instruction

Sending station	Transmission delay time of when the receiving station is a non-redundant system [ms]
Non-redundant system	$TD1 = (ST + \alpha T) \times 2 + LS \times 11 + (SR + \alpha R)$
Redundant system	$TD1 + TsT \times 2$

Sending station	Transmission delay time of when the receiving station is a redundant system (control system CPU) [ms]
Non-redundant system	$TD2 = (ST + \alpha T) \times 2 + LS \times 11 + (SR + \alpha R + TsR)$
Redundant system	$TD2 + TsT \times 2$

TD1, TD2: Transmission delay time for the SEND/RECV/RECVS/ZNRD/ZNWR instruction

ST: Sequence scan time on sending side (except link refresh time and scan time delay due to tracking transfer)

SR: Sequence scan time on receiving side (except link refresh time and scan time delay due to tracking transfer)

αT : Link refresh time on sending side (Total of the number of mounted network modules)

αR : Link refresh time on receiving side (Total of the number of mounted network modules)

TsT: Scan time delay due to tracking transfer on the sending side^{*1}

TsR: Scan time delay due to tracking transfer on the receiving side^{*1}

LS: Link scan time

*1 For the scan time delay due to tracking transfer, refer to the following.

 QnPRHCPU User's Manual (Redundant System)

(b) Transmission delay time for the READ/WRITE instruction

Sending station	Transmission delay time of when the receiving station is a non-redundant system [ms]
Non-redundant system	$TD1 = \{(ST + \alpha T) \times 2 + LS \times 11 + (SR + \alpha R)\} \times m$
Redundant system	$TD1 + TsT \times 2 \times m$

Sending station	Transmission delay time of when the receiving station is a redundant system and transmission does not pass through a tracking cable [ms]	
	Redundant system (control system CPU)	Redundant system (standby system CPU)
Non-redundant system	$TD2 = \{(ST + \alpha T) \times 2 + LS \times 11 + (SR + \alpha R + TsR)\} \times m$	$TD3 = \{(ST + \alpha T) \times 2 + LS \times 11 + TsR\} \times m$
Redundant system	$TD2 + TsT \times 2 \times m$	$TD3 + TsT \times 2 \times m$

Sending station	Transmission delay time of when the receiving station is a redundant system and transmission passes through a tracking cable [ms]	
	Access to control system CPU through standby system	Access to standby system CPU through control system
Non-redundant system	$TD4 = \{(ST + \alpha T) \times 2 + LS \times 11 + (SR + \alpha R + TsR) + 6\} \times m$	$TD5 = \{(ST + \alpha T) \times 2 + LS \times 11 + TsR + 6\} \times m$
Redundant system	$TD4 + TsT \times 2 \times m$	$TD5 + TsT \times 2 \times m$

TD1 to TD5: Transmission delay time for the READ/WRITE instruction

ST: Sequence scan time on sending side (except link refresh time and scan time delay due to tracking transfer)

SR: Sequence scan time on receiving side (except link refresh time and scan time delay due to tracking transfer)

αT : Link refresh time on sending side (Total of the number of mounted network modules)

αR : Link refresh time on receiving side (Total of the number of mounted network modules)


m: Number of fragmented transmissions = (Read or write data length) / 960 (Rounded up to the nearest integer)

TsT: Scan time delay due to tracking transfer on the sending side^{*1}

TsR: Scan time delay due to tracking transfer on the receiving side^{*1}

LS: Link scan time

*1 For the scan time delay due to tracking transfer, refer to the following.

 QnPRHCPU User's Manual (Redundant System)

(c) Transmission delay time for the SREAD/SWRITE instruction

Sending station	Transmission delay time of when the receiving station is a non-redundant system [ms]
Non-redundant system	$TD1 = \{(ST + \alpha T) \times 2 + LS \times 11 + (SR + \alpha R)\} \times (m + 1)$
Redundant system	$TD1 + TsT \times 2 \times (m + 1)$

Sending station	Transmission delay time of when the receiving station is a redundant system and transmission does not pass through a tracking cable [ms]	
	Redundant system (control system CPU)	Redundant system (standby system CPU)
Non-redundant system	$TD2 = \{(ST + \alpha T) \times 2 + LS \times 11 + (SR + \alpha R + TsR)\} \times (m + 1)$	$TD3 = \{(ST + \alpha T) \times 2 + LS \times 11 + TsR\} \times (m + 1)$
Redundant system	$TD2 + TsT \times 2 \times (m + 1)$	$TD3 + TsT \times 2 \times (m + 1)$

Sending station	Transmission delay time of when the receiving station is a redundant system and transmission passes through a tracking cable [ms]	
	Access to control system CPU through standby system	Access to standby system CPU through control system
Non-redundant system	$TD4 = \{(ST + \alpha T) \times 2 + LS \times 11 + (SR + \alpha R + TsR) + 6\} \times (m + 1)$	$TD5 = \{(ST + \alpha T) \times 2 + LS \times 11 + TsR + 6\} \times (m + 1)$
Redundant system	$TD4 + TsT \times 2 \times (m + 1)$	$TD5 + TsT \times 2 \times (m + 1)$

TD1 to TD5: Transmission delay time for the SREAD/SWRITE instruction

ST: Sequence scan time on sending side (except link refresh time and scan time delay due to tracking transfer)

SR: Sequence scan time on receiving side (except link refresh time and scan time delay due to tracking transfer)

αT : Link refresh time on sending side (Total of the number of mounted network modules)

αR : Link refresh time on receiving side (Total of the number of mounted network modules)

m: Number of fragmented transmissions = (Read or write data length) / 960 (Rounded up to the nearest integer)

TsT: Scan time delay due to tracking transfer on the sending side^{*1}

TsR: Scan time delay due to tracking transfer on the receiving side^{*1}

LS: Link scan time

*1 For the scan time delay due to tracking transfer, refer to the following.

 QnPRHCPU User's Manual (Redundant System)

(d) Transmission delay time for the REQ/RRUN/RSTOP/RTMRD/RTMWR instruction

Sending station	Transmission delay time of when the receiving station is a non-redundant system [ms]
Non-redundant system	$TD1 = (ST + \alpha T) \times 2 + LS \times 11 + (SR + \alpha R)$
Redundant system	$TD1 + TsT \times 2$

Sending station	Transmission delay time of when the receiving station is a redundant system and transmission does not pass through a tracking cable [ms]	
	Redundant system (control system CPU)	Redundant system (standby system CPU)
Non-redundant system	$TD2 = (ST + \alpha T) \times 2 + LS \times 11 + (SR + \alpha R + TsR)$	$TD3 = (ST + \alpha T) \times 2 + LS \times 11 + TsR$
Redundant system	$TD2 + TsT \times 2$	$TD3 + TsT \times 2$

Sending station	Transmission delay time of when the receiving station is a redundant system and transmission passes through a tracking cable [ms]	
	Access to control system CPU through standby system	Access to standby system CPU through control system
Non-redundant system	$TD4 = (ST + \alpha T) \times 2 + LS \times 11 + (SR + \alpha R + TsR) + 6$	$TD5 = (ST + \alpha T) \times 2 + LS \times 11 + TsR + 6$
Redundant system	$TD4 + TsT \times 2$	$TD5 + TsT \times 2$

TD1 to TD5: Transmission delay time for the REQ/RRUN/RSTOP/RTMRD/RTMWR instruction

ST: Sequence scan time on sending side (except link refresh time and scan time delay due to tracking transfer)

SR: Sequence scan time on receiving side (except link refresh time and scan time delay due to tracking transfer)

αT : Link refresh time on sending side (Total of the number of mounted network modules)

αR : Link refresh time on receiving side (Total of the number of mounted network modules)

TsT: Scan time delay due to tracking transfer on the sending side^{*1}

TsR: Scan time delay due to tracking transfer on the receiving side^{*1}

LS: Link scan time

*1 For the scan time delay due to tracking transfer, refer to the following.

 QnPRHCPU User's Manual (Redundant System)

(2) For a multi-network system

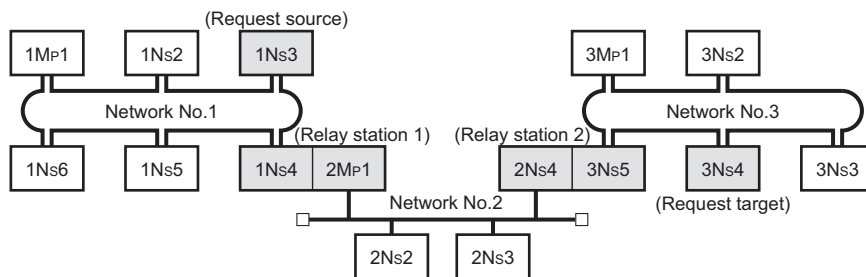
The following shows the calculation formula for the link dedicated instruction transmission delay time that is required to access a station on another network.

Each processing time is calculated from the formulas in Page 256, Section 7.4.1 (1).

When routing through three or more networks, the processing time between the relay stations are added.

Ex. When routing through three networks

(Link dedicated instruction transmission delay time) = (Processing time from request source to relay station 1)
 + (Processing time from relay station 1 to relay station 2) + (Processing time from relay station 2 to request target)



7.4.2 CC-Link dedicated instruction transmission delay time

The following shows the calculation formulas for the CC-link dedicated instruction transmission delay time (the time taken from issuing an instruction until receiving a response).

(1) Transmission delay time for the RIRD/RIWT instruction

Sending station	Transmission delay time of when the receiving station is a non-redundant system [ms]
Non-redundant system	$TD1 = (ST + \alpha T) \times 2 + LS \times 11 + \text{Receiving station processing time}$ <ul style="list-style-type: none"> When the receiving station is the CC-Link IE Controller Network module: Receiving station processing time = $(SR + \alpha R)$ When the receiving station is other than the CC-Link IE Controller Network module: Refer to the manual for the receiving station for the receiving station processing time.
Redundant system	$TD1 + TsT \times 2$

Sending station	Transmission delay time of when the receiving station is a redundant system (control system CPU) [ms]
Non-redundant system	$TD2 = (ST + \alpha T) \times 2 + LS \times 11 + \text{Receiving station processing time}$ <ul style="list-style-type: none"> When the receiving station is the CC-Link IE Controller Network module: Receiving station processing time = $(SR + \alpha R + TsR)$ When the receiving station is other than the CC-Link IE Controller Network module: Refer to the manual for the receiving station for the receiving station processing time.
Redundant system	$TD2 + TsT \times 2$

TD1, TD2: Transmission delay time for the RIRD/RIWT instruction

ST: Sequence scan time on sending side (except link refresh time and scan time delay due to tracking transfer)

SR: Sequence scan time on receiving side (except link refresh time and scan time delay due to tracking transfer)

αT : Link refresh time on sending side (Total of the number of mounted network modules)

αR : Link refresh time on receiving side (Total of the number of mounted network modules)

TsT: Scan time delay due to tracking transfer on the sending side^{*1}

TsR: Scan time delay due to tracking transfer on the receiving side^{*1}

LS: Link scan time

*1 For the scan time delay due to tracking transfer, refer to the following.

 QnPRHCPU User's Manual (Redundant System)

7.5 Cyclic Data Retention Time for System Switching in a Redundant System

This section gives calculation formulas for cyclic data retention time that is taken when a system switching occurs in a redundant system.


(1) When the control system power supply module is faulty or powered off or when the control system CPU is faulty or reset

(a) When a redundant system is the control station and "System switching time of Redundant CPU (Tsw) < Control station switching time (Csw)" is met

$$T_h = C_{sw} + SS \text{ [ms]}$$

T_h : Cyclic data retention time

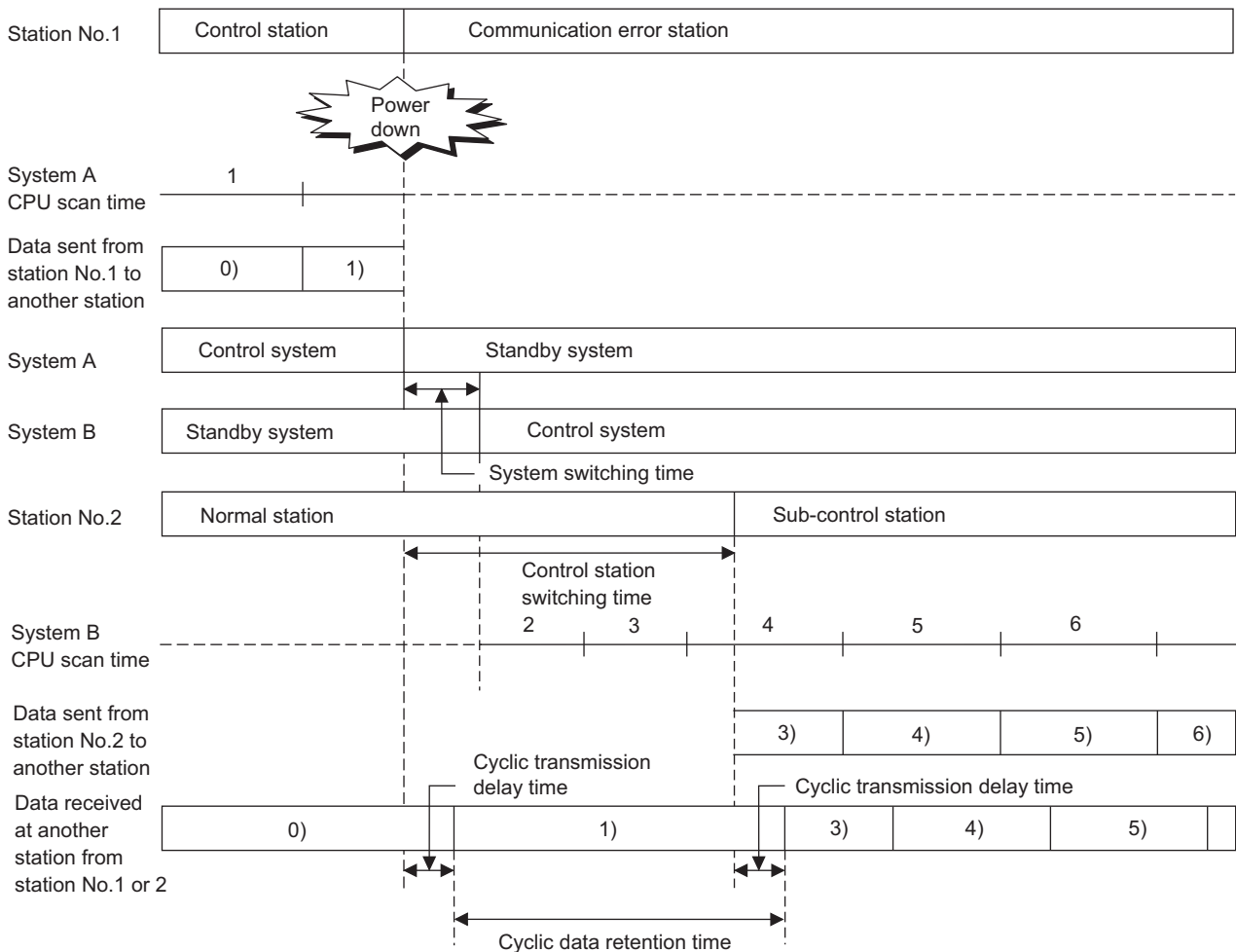
T_{sw} : System switching time of Redundant CPU*1

C_{sw} : Control station switching time = 20 + Constant link scan set value ( Page 201, Section 6.3.6 (1))

SS : Sequence scan time of Redundant CPU*1

*1 For details, refer to the following.

 QnPRHCPU User's Manual (Redundant System)



(b) When a redundant system is the control station and "System switching time of Redundant CPU (Tsw) > Control station switching time (Csw)" is met

$$T_h = T_{sw} + SS \times 2 \text{ [ms]}$$


Th: Cyclic data retention time

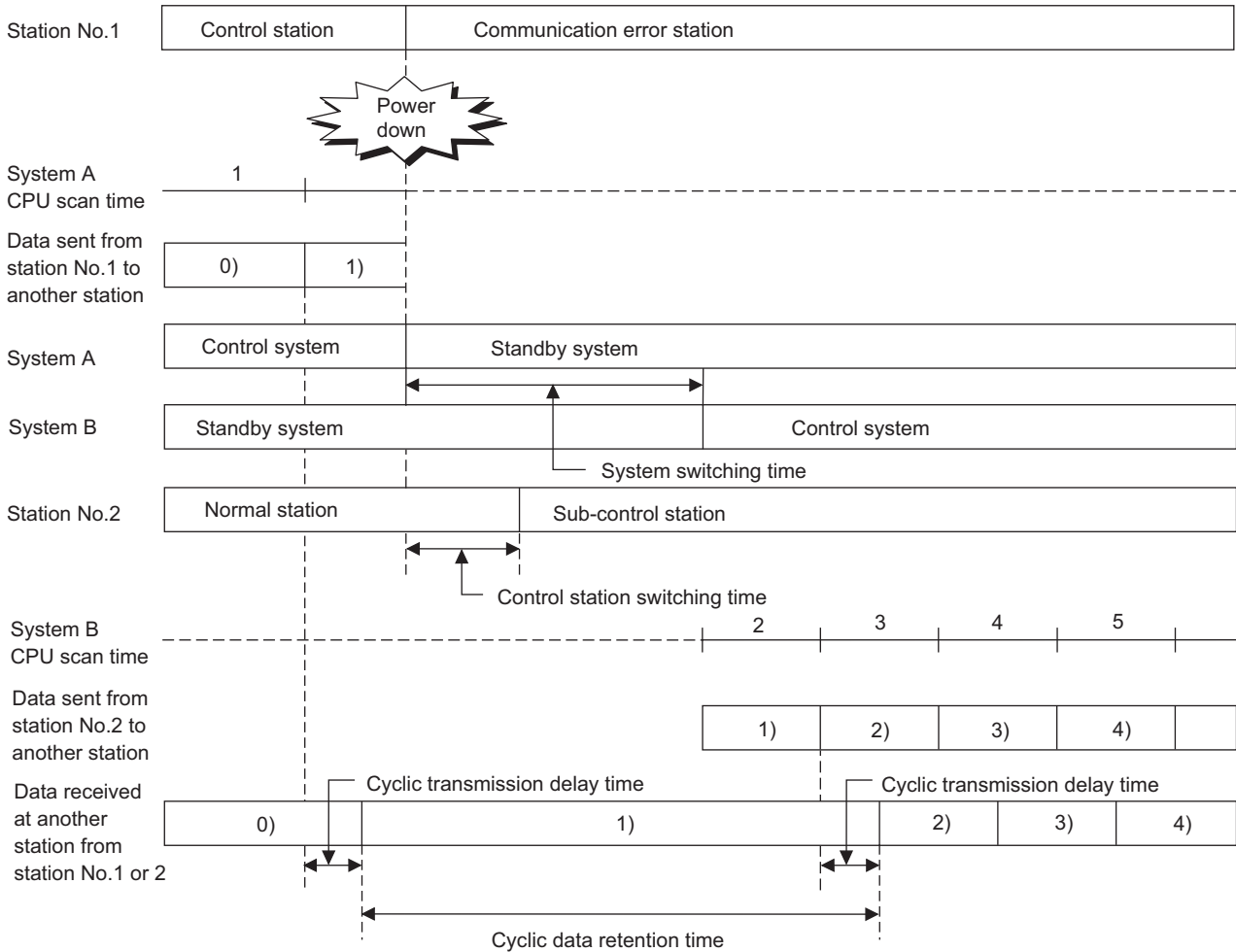
Tsw: System switching time of Redundant CPU*1

Csw: Control station switching time = 20 + Constant link scan set value ( Page 201, Section 6.3.6 (1))

SS: Sequence scan time of Redundant CPU*1

*1 For details, refer to the following.

 QnPRHCPU User's Manual (Redundant System)



(c) When the redundant system is a normal station

$$T_h = T_{sw} + SS \times 2 \text{ [ms]}$$

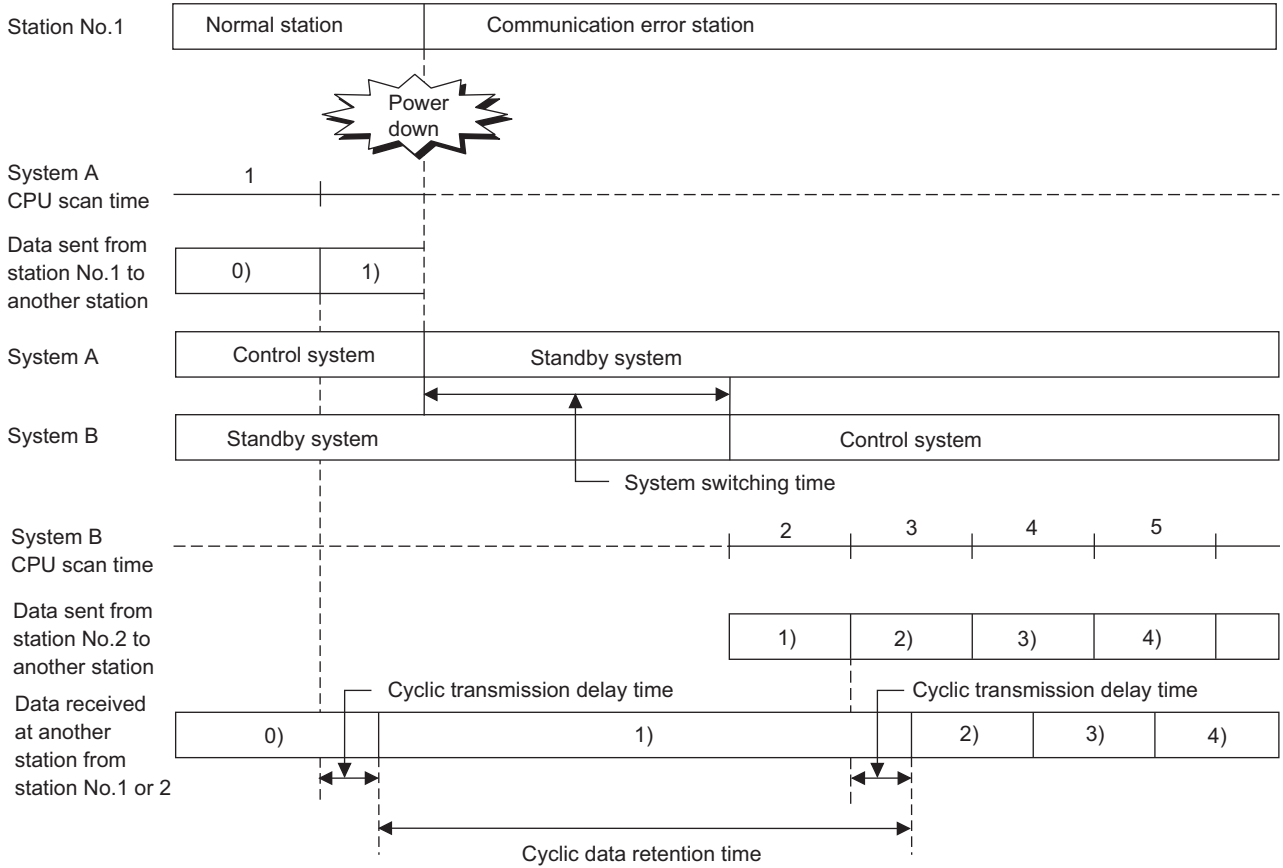
T_h : Cyclic data retention time

T_{sw} : System switching time of Redundant CPU*1

SS : Sequence scan time of Redundant CPU*1

*1 For details, refer to the following.

 QnPRHCPU User's Manual (Redundant System)



(2) When a stop error occurs in the control system CPU, System switching instruction is executed, system switching is executed from the programming tool, or system switching is requested from another network module


$$T_h = T_{sw} + SS \text{ [ms]}$$

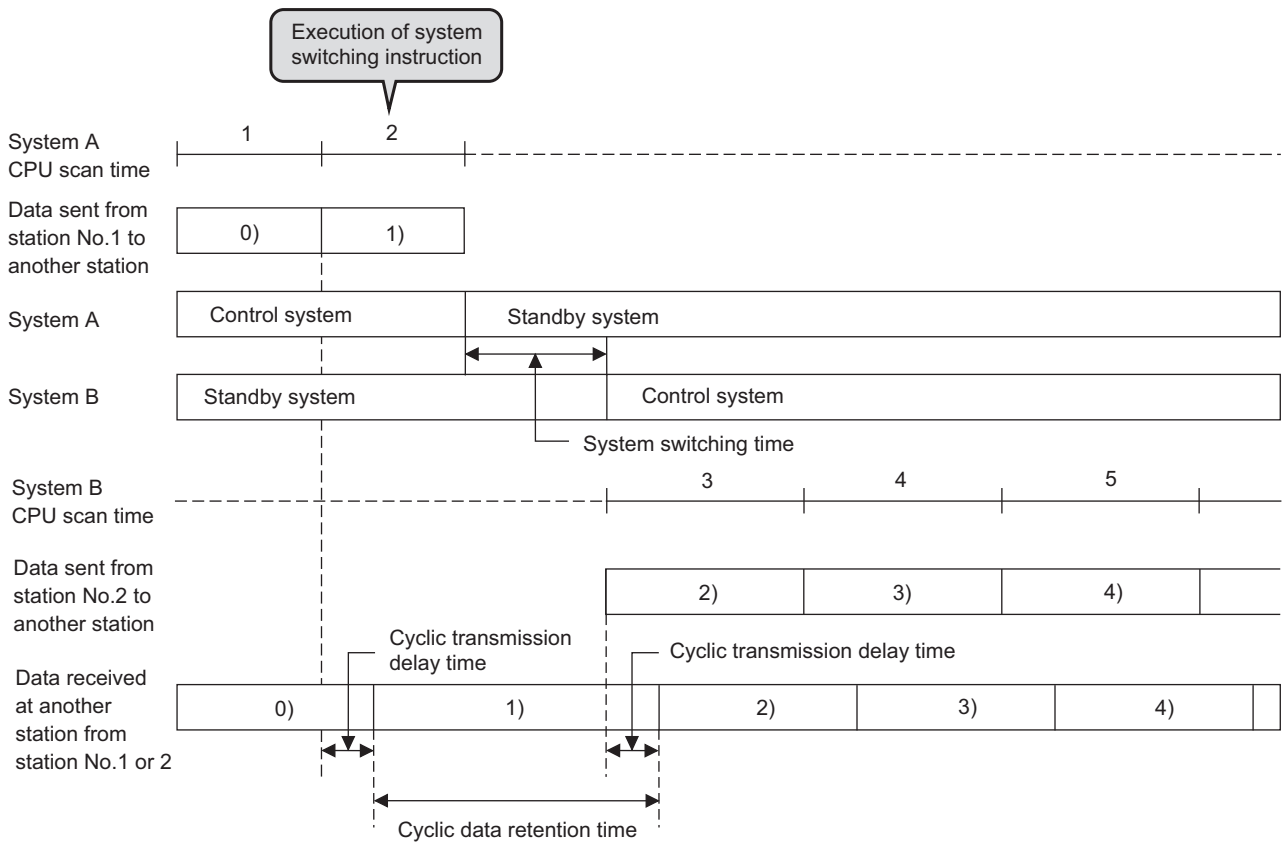
T_h : Cyclic data retention time

T_{sw} : System switching time of Redundant CPU*1

SS : Sequence scan time of Redundant CPU*1

*1 For details, refer to the following.

 QnPRHCPU User's Manual (Redundant System)



(3) When system switching is requested from the CC-Link IE Controller Network module (own station)

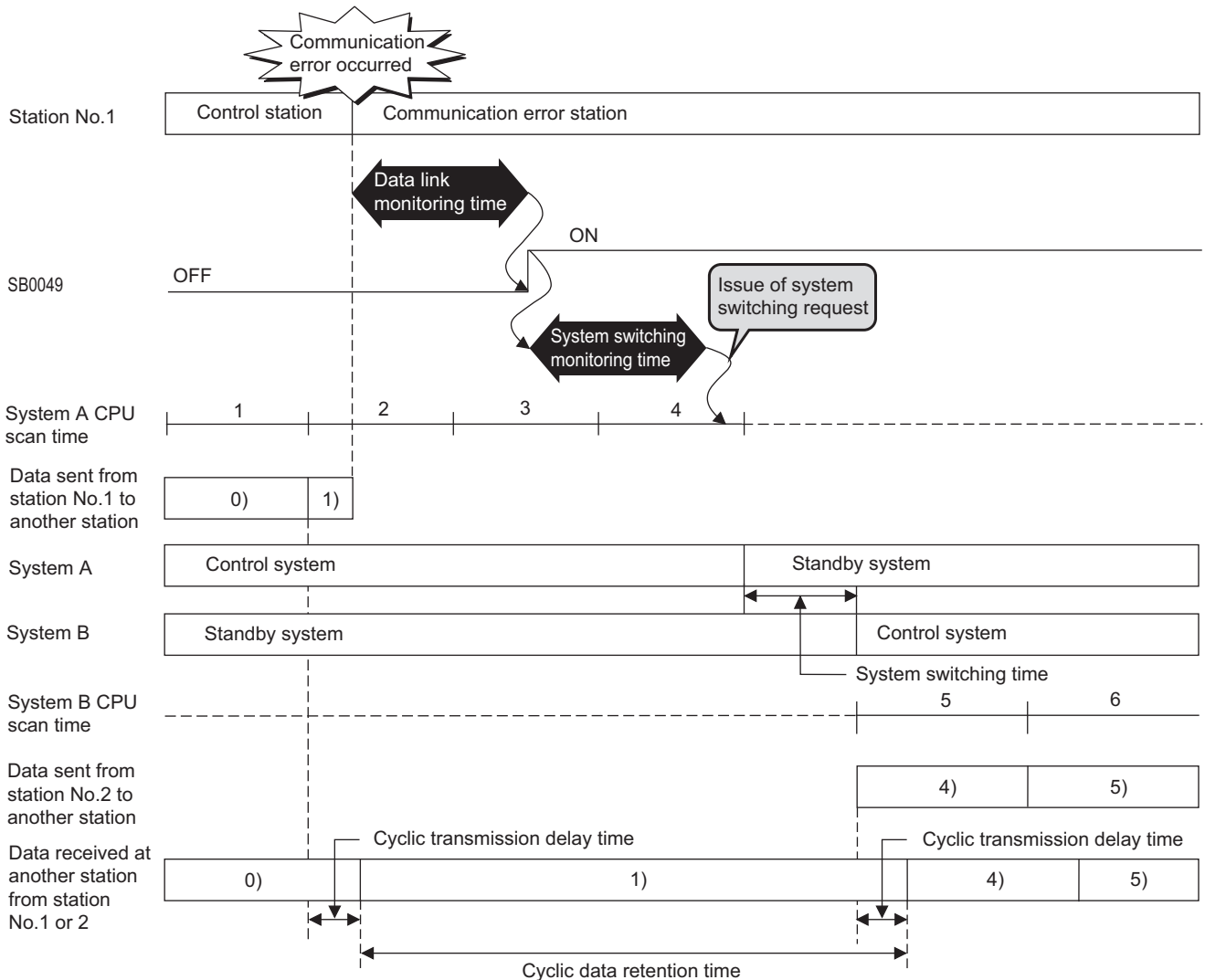
$$T_h = 150 + T_d + T_c + T_{sw} + (SS \times 2) \text{ [ms]}$$

- Th: Cyclic data retention time
- Td: Data link monitoring time^{*1}
- Tc: System switching monitoring time^{*1}
- Tsw: System switching time of Redundant CPU^{*2}
- SS: Sequence scan time of Redundant CPU^{*2}

*1 Set it by "Network Range Assignment" of the control station. (☞ Page 183, Section 6.3)

*2 For details, refer to the following.

📖 QnPRHCPU User's Manual (Redundant System)



CHAPTER 8 PROGRAMMING

This chapter describes the programming of the CC-Link IE Controller Network module.

8.1 Program Example of a Single Network System

The programming procedure of when communications are performed in a single network system is described in Page 267, Section 8.1.1 to Page 285, Section 8.1.6.

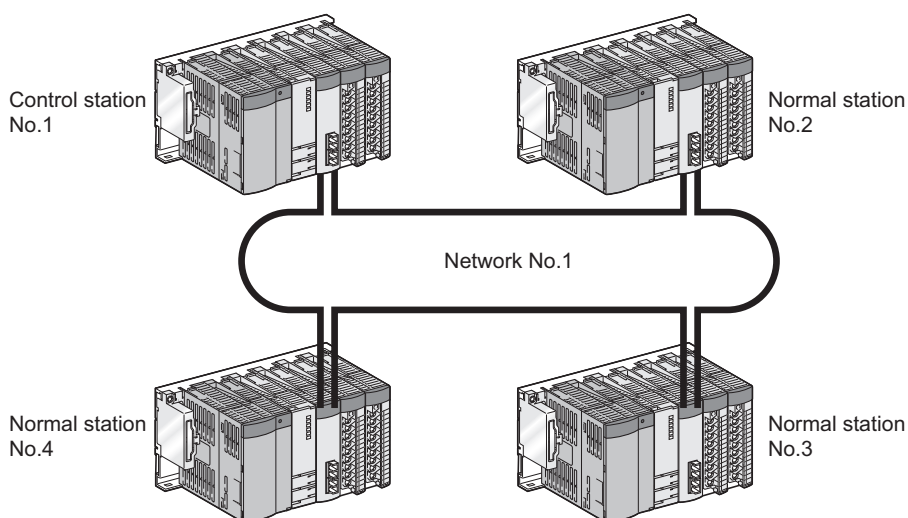
8.1.1 System configuration

Configure the system using the procedures described in this section.

(1) System configuration example

Configure the system shown below.

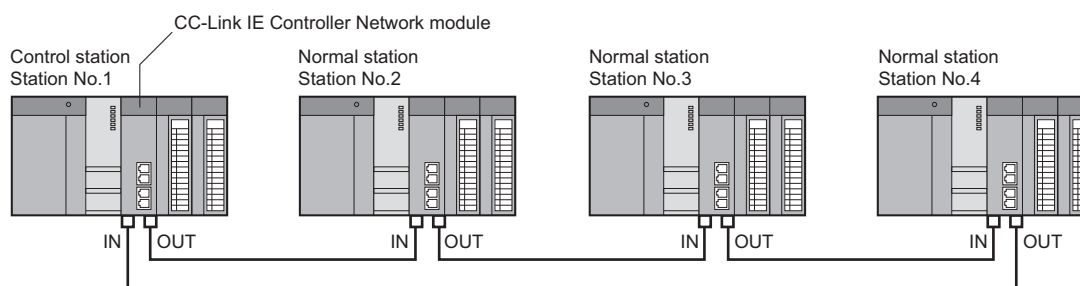
The following is a single network system where a CC-Link IE Controller Network module is mounted on the slot 0 of the base unit.



(2) Wiring example


Connect optical fiber cable from the OUT connector to the IN connector.


The optical fiber cable is not required to be connected in the station No. sequence. (Page 162, Section 5.5)



8.1.2 Setting and communication contents

Consider each station send range of LB/LW and set the parameters.

Using a parameter sheet is helpful to determine each station's send range of LB/LW and parameters. ( Page 645, Appendix 5)

Before considering parameters of each station, consider each station send range of LB/LW with the link device assignment sheet. ( Page 650, Appendix 5.1)

Ex. Filling in the link device assignment sheet

Station No.	Data description		Assignment link device	
	Send source	Send target	Link relay (LB)	Link register (LW)
1	Master PLC	Line 1	LB 0000 to 00BF (192 points)	LW 0000 to 00BF (192 points)
		Line 2	LB 00C0 to 017F (192 points)	LW 00C0 to 017F (192 points)
		Line 3	LB 0180 to 01FF (128 points)	LW 0180 to 01FF (128 points)
2	Line 1	Master PLC	LB 0200 to 02BF (192 points)	LW 0200 to 02BF (192 points)
		Line 2	LB 02C0 to 035F (160 points)	LW 02C0 to 035F (160 points)
		Line 3	LB 0360 to 03FF (160 points)	LW 0360 to 03FF (160 points)
3	Line 2	Master PLC	LB 0400 to 04BF (192 points)	LW 0400 to 04BF (192 points)
		Line 1	LB 04C0 to 055F (160 points)	LW 04C0 to 055F (160 points)
		Line 3	LB 0560 to 05FF (160 points)	LW 0560 to 05FF (160 points)
4	Line 3	Master PLC	LB 0600 to 06BF (192 points)	LW 0600 to 06BF (192 points)
		Line 1	LB 06C0 to 075F (160 points)	LW 06C0 to 075F (160 points)
		Line 2	LB 0760 to 07FF (160 points)	LW 0760 to 07FF (160 points)

Consider parameters of the CC-Link IE Controller Network module based on the contents of the link device assignment sheet.

(1) Setting of control station (No. 1)

(a) Quantity setting

1. Fill in the quantity setting parameter sheet. ( Page 651, Appendix 5.2)

Ex. Control station (No. 1)

Item	CC-Link IE Controller Network module	
	No. 1	No. <input type="text"/>
Network Type	<input checked="" type="checkbox"/> CC IE Control (Control Station) <input type="checkbox"/> CC IE Control (Normal Station) <input type="checkbox"/> CC IE Control Extended Mode (Control Station) <input type="checkbox"/> CC IE Control Extended Mode (Normal Station)	<input type="checkbox"/> CC IE Control (Control Station) <input type="checkbox"/> CC IE Control (Normal Station) <input type="checkbox"/> CC IE Control Extended Mode (Control Station) <input type="checkbox"/> CC IE Control Extended Mode (Normal Station)
Starting I/O No.	0000 (Range: 0000 _H to 0FE0 _H)	(Range: 0000 _H to 0FE0 _H)
Network No.	1 (Range: 1 to 239)	(Range: 1 to 239)
Total Stations	(For the control station only) 4 (Range: 2 to 120)	(For the control station only) (Range: 2 to 120)
Group No.	0 (Range: 0 to 32)	(Range: 0 to 32)
Station No.	1 (Range: 1 to 120)	(Range: 1 to 120)
Mode	<input checked="" type="checkbox"/> Online <input type="checkbox"/> Offline <input type="checkbox"/> H/W Test <input type="checkbox"/> Self-Loopback Test <input type="checkbox"/> Circuit Test (for the control station only) <input type="checkbox"/> Test between Station	<input type="checkbox"/> Online <input type="checkbox"/> Offline <input type="checkbox"/> H/W Test <input type="checkbox"/> Self-Loopback Test <input type="checkbox"/> Circuit Test (for the control station only) <input type="checkbox"/> Test between Station
Station No. setting method	<input checked="" type="checkbox"/> Specify Station No. by Parameter <input type="checkbox"/> Specify Station No. by Program	<input type="checkbox"/> Specify Station No. by Parameter <input type="checkbox"/> Specify Station No. by Program

2. Complete settings in the programming tool based on the contents filled in the parameter sheet.

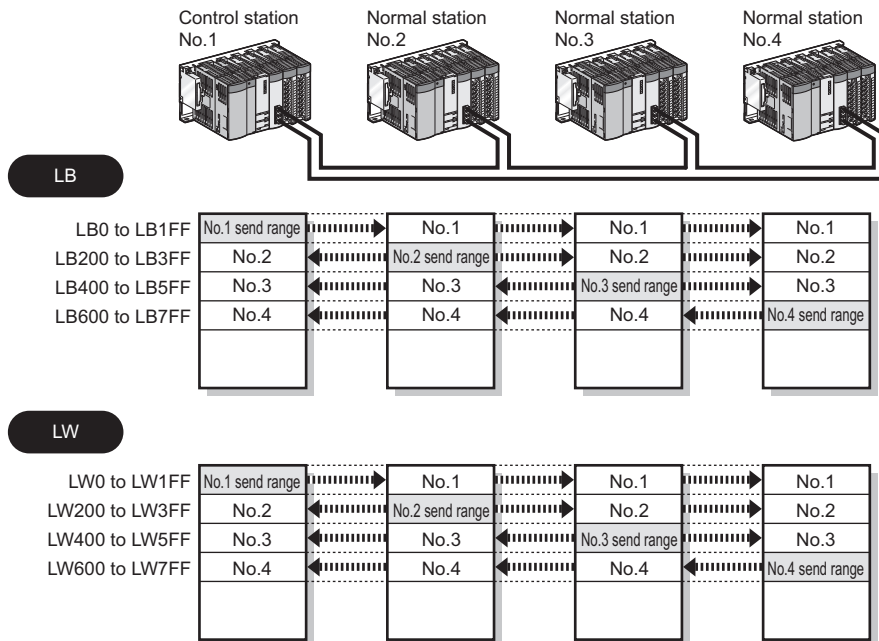
	Module 1
Network Type	CC IE Control(Control Station) ▼
Start I/O No.	0000
Network No.	1
Total Stations	4
Group No.	0
Station No.	1
Mode	Online ▼
	Network Range Assignment
	Network Operation Settings
	Refresh Parameters
	Interrupt Settings
	Specify Station No. by Parameter ▼

8

8.1 Program Example of a Single Network System
8.1.2 Setting and communication contents

(b) Network range assignment

In the program example in this section, each station send range of LB/LW is assigned 512 points. Use the default setting for the supplementary setting.



1. Fill in the network range assignment parameter sheet and the supplementary setting parameter sheet. (👉 Page 652, Appendix 5.3)

Ex. Control station (No. 1)

(1) LB/LW setting (1)(2)]

Network No.	1
Total Stations	4
System Switching Monitoring Time	2000 ms
Data Link Monitoring Time	2000 ms
Parameter Name	Machine 1

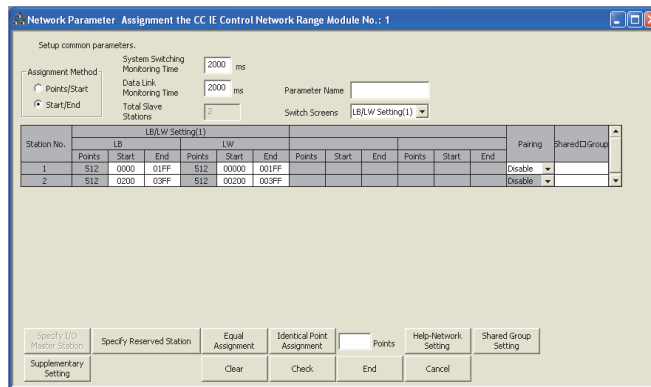
(a) LB setting

Station No.	Link relay (LB)	Number of points	Pairing	Shared group	Data description
0 1	LB 0 to 1FF	512 points	<input type="checkbox"/>	<input type="checkbox"/>	Master PLC
0 2	LB 200 to 3FF	512 points	<input type="checkbox"/>	<input type="checkbox"/>	Line 1
0 3	LB 400 to 5FF	512 points	<input type="checkbox"/>	<input type="checkbox"/>	Line 2
0 4	LB 600 to 7FF	512 points	<input type="checkbox"/>	<input type="checkbox"/>	Line 3

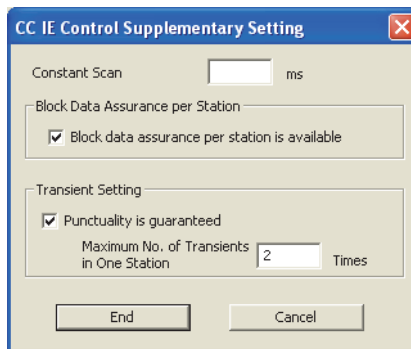
Item		Setting contents
Constant Link Scan		ms (Range: 1 to 500)
Block Data Assurance per Station	Block data assurance per station is available	<input checked="" type="checkbox"/> Checked <input type="checkbox"/> Not checked
	Punctuality is guaranteed	<input checked="" type="checkbox"/> Checked <input type="checkbox"/> Not checked
Transient Setting	Maximum No. of Transients in One Station	2 times (Range: 1 to 10)

2. Complete settings in the programming tool based on the contents filled in the parameter sheet.

- Network range assignment (Control station (No. 1))

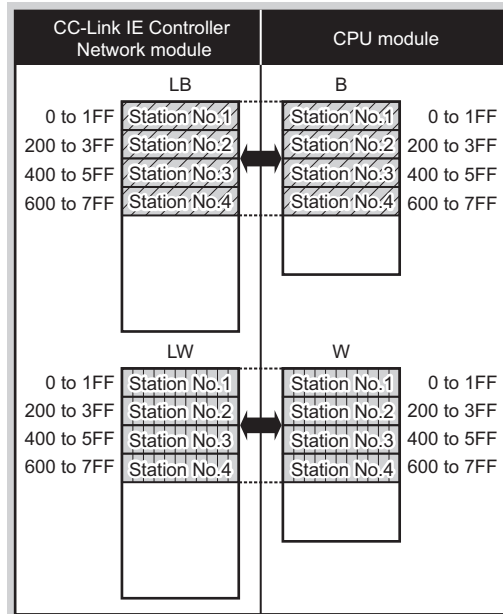


- Supplementary setting (Control station (No. 1))



(c) Refresh parameters

In the program example in this section, the following refresh parameters are assigned (control station (station No. 1) for CC-Link IE Controller Network modules on station numbers 1 to 4.



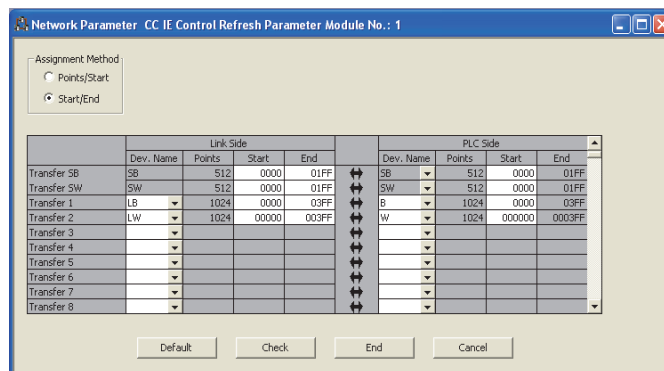
1. Fill in the refresh parameter sheet. (👉 Page 657, Appendix 5.4)

Ex. Control station (No. 1)

Transfer	CC-Link IE Controller Network module	Number of points	CPU module	Data description
0 1	LB0000 to LB07FF	2048 points	B0000 to B07FF	Master PLC, Lines 1 to 3 (LB)
0 2	LW00000 to LW007FF	2048 points	W0000 to W07FF	Master PLC, Lines 1 to 3 (LW)

2. Complete settings in the programming tool based on the contents filled in the parameter sheet.

- Setting of refresh parameter (Control station (No. 1))



(2) Setting of normal station (No. 2 to 4)**(a) Quantity setting**

1. Fill in the quantity setting parameter sheet. ( Page 651, Appendix 5.2)

Ex. Normal station (No. 2)

Item	CC-Link IE Controller Network module	
	No. 1	No.
Network Type	<input type="checkbox"/> CC IE Control (Control Station) <input checked="" type="checkbox"/> CC IE Control (Normal Station) <input type="checkbox"/> CC IE Control Extended Mode (Control Station) <input type="checkbox"/> CC IE Control Extended Mode (Normal Station)	<input type="checkbox"/> CC IE Control (Control Station) <input type="checkbox"/> CC IE Control (Normal Station) <input type="checkbox"/> CC IE Control Extended Mode (Control Station) <input type="checkbox"/> CC IE Control Extended Mode (Normal Station)
Starting I/O No.	0000 (Range: 0000 _H to 0FE0 _H)	(Range: 0000 _H to 0FE0 _H)
Network No.	1 (Range: 1 to 239)	(Range: 1 to 239)
Total Stations	(For the control station only) – (Range: 2 to 120)	(For the control station only) (Range: 2 to 120)
Group No.	0 (Range: 0 to 32)	(Range: 0 to 32)
Station No.	2 (Range: 1 to 120)	(Range: 1 to 120)
Mode	<input checked="" type="checkbox"/> Online <input type="checkbox"/> Offline <input type="checkbox"/> H/W Test <input type="checkbox"/> Self-Loopback Test <input type="checkbox"/> Circuit Test (for the control station only) <input type="checkbox"/> Test between Station	<input type="checkbox"/> Online <input type="checkbox"/> Offline <input type="checkbox"/> H/W Test <input type="checkbox"/> Self-Loopback Test <input type="checkbox"/> Circuit Test (for the control station only) <input type="checkbox"/> Test between Station
Station No. setting method	<input checked="" type="checkbox"/> Specify Station No. by Parameter <input type="checkbox"/> Specify Station No. by Program	<input type="checkbox"/> Specify Station No. by Parameter <input type="checkbox"/> Specify Station No. by Program

- 2. Complete settings in the programming tool based on the contents filled in the parameter sheet.**
Set the same setting for the normal stations (No. 2 to 4).

Module 1	
Network Type	CC IE Control(Normal Station) ▼
Start I/O No.	0000
Network No.	1
Total Stations	
Group No.	0
Station No.	2
Mode	Online ▼
	Refresh Parameters
	Interrupt Settings
	Specify Station No. by Parameter ▼

Set a station No. within the range of 2 to 4.

(b) Refresh parameters

Set the refresh parameters.

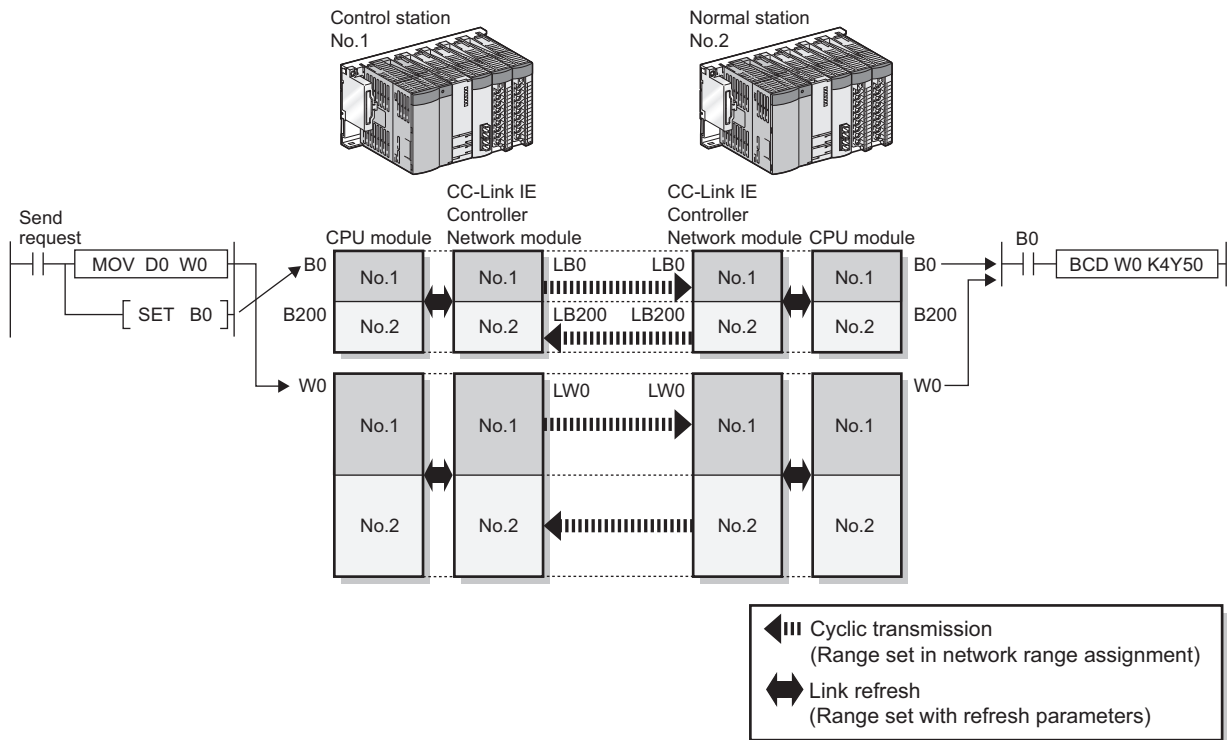
Set the refresh parameters the same as the control station (No. 1). (☞ Page 269, Section 8.1.2 (1))

8.1.3 Program example of cyclic transmission

The following shows a program example of cyclic transmission.

(1) Overview of the program example

D0 of the control station (No. 1) is sent to Y50 to Y5F of the normal station (No. 2) through cyclic transmission. In the program example in this section, an interlock is established with link relay (LB) and cyclic data is sent.



(Processing at control station (No. 1)-side)

1. Turn ON the send request.
2. Store D0 data in W0.
3. When data storage is completed, turn ON B0 for handshake.
4. Link relay (LB) is sent through cyclic transmission after link register (LW).

(Processing at normal station (No. 2)-side)

5. B0 is turned ON.
6. Store W0 contents in Y50 to Y5F.
7. When data storage to Y50 to Y5F is completed, turn ON B200 for handshake.

(Processing at control station (No. 1)-side)

8. When B200 is turned ON, turn B0 OFF.

(2) Devices used in the program example

(a) Devices used by control station (No. 1)

- Link special relay (SB) and link special register (SW)

Device	Description	Device	Description
SB0049	Data link status of own station	SW00B0.1	Cyclic transmission status of station No. 2

- Devices used by the user

Device	Description	Device	Description
M300	Send request	D0	Data storage source for W0
M310	Communication condition flag (for station No. 2)	N0	Nesting (for station No. 2)

(b) Devices used by normal station (No. 2)

- Link special relay (SB) and link special register (SW)

Device	Description	Device	Description
SB0049	Data link status of own station	SW00B0.0	Cyclic transmission status of station No. 1

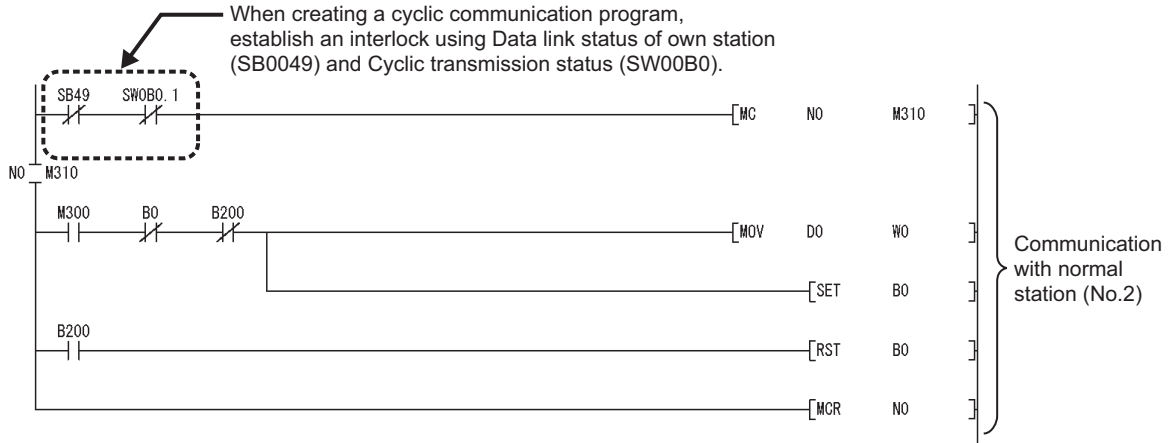
- Devices used by the user

Device	Description	Device	Description
Y50 to Y5F	Value indication area of W0	N0	Nesting (for station No. 1)
M311	Communication condition flag (for station No. 1)		—

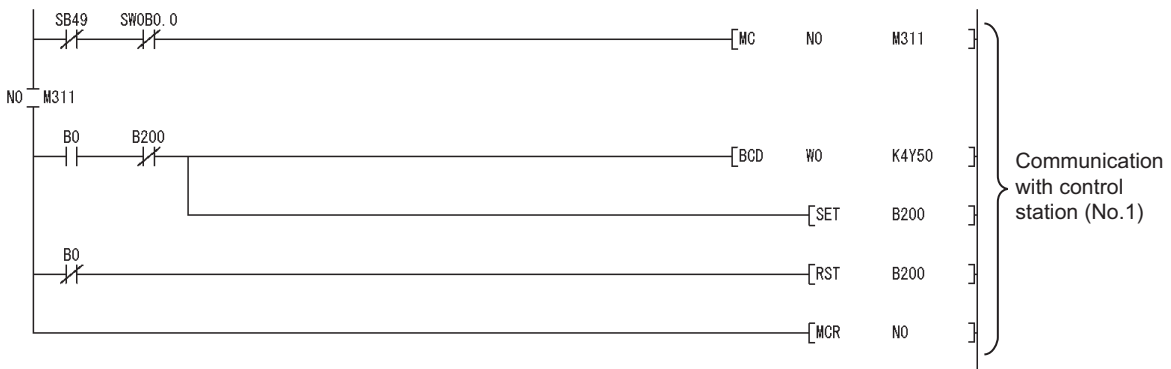
(3) Program example

The following shows a program example.

(a) Program example of control station (No. 1)



(b) Program example of normal station (No. 2)

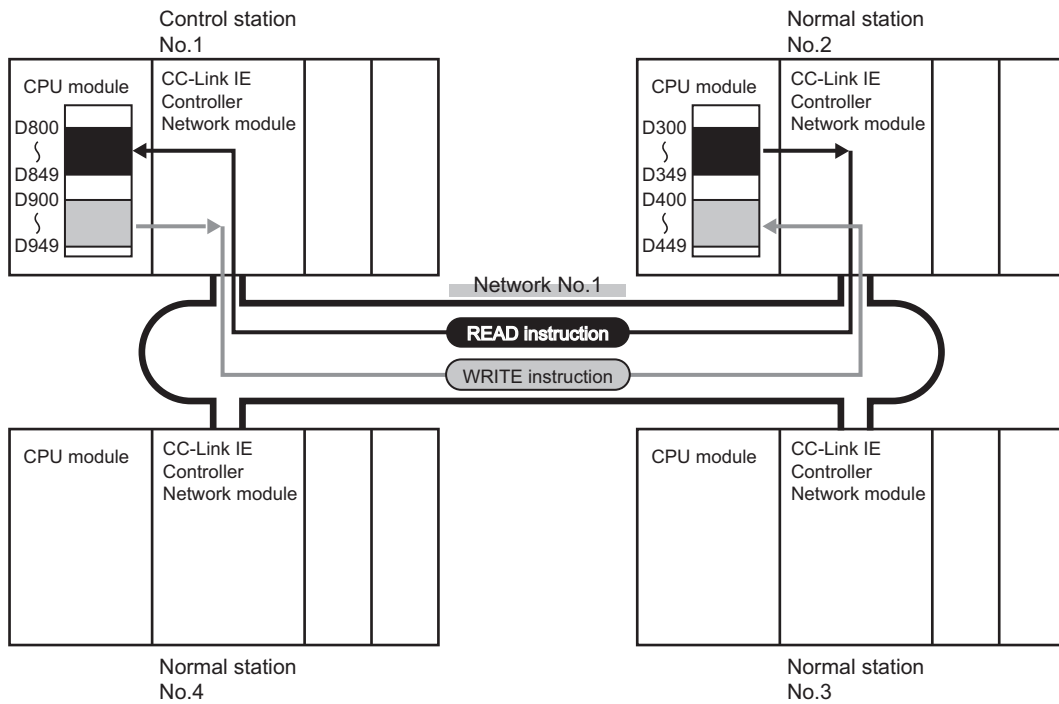


8.1.4 Program example of transient transmission

The following shows a program example of transient transmission.

(1) Overview of the program example

In the program example in this section, the following transient transmission is performed using the READ and WRITE instructions.




(a) Processing at control station (No. 1)-side

1. D300 to D349 of the normal station (No. 2) is read to D800 to D849 of the control station (No. 1) with the READ instruction.
2. D900 to D949 of the control station (No. 1) is written to D400 to D449 of the normal station (No. 2) with the WRITE instruction.

(b) Processing at normal station (No. 2)-side

A sequence program of the normal station (No. 2)-side is not required.

Remark

For the program example of each dedicated instruction, refer to the description of dedicated instructions. ( Page 324, CHAPTER 9)

(2) Devices used in the program example

(a) Special relay (SM), link special relay (SB), and link special register (SW)

Device	Description	Device	Description
SM402	Turned ON for only one scan after RUN	SW00A0.1	Baton pass status of station No.2
SB0047	Baton pass status of own station		—

(b) Devices used by the user

Device	Description	Device	Description
M1000	Completion device (READ instruction)	M1021	Completion status indication device (WRITE instruction)
M1001	Completion status indication device (READ instruction)	M1030	Execution command (WRITE instruction)
M1010	Execution command (READ instruction)	D1000 to D1010	Control data (READ instruction)
M1020	Completion device (WRITE instruction)	D1020 to D1030	Control data (WRITE instruction)

(3) Link dedicated instruction settings

The following shows settings of control data for the READ and WRITE instructions.

(a) READ instruction

Device	Item	Setting value
(S1)+0	D1000	Error completion type 0001 _H (Clock data at the time of error completion is not set)
(S1)+1	D1001	Completion status — (Set by system, no setting required)
(S1)+2	D1002	Channel used by own station 1
(S1)+3	D1003	Target station's CPU type 0000 _H (Control CPU)
(S1)+4	D1004	Target station network No. 1
(S1)+5	D1005	Target station No. 2
(S1)+6	D1006	(Unused) 0
(S1)+7	D1007	Number of resends 5 times
(S1)+8	D1008	Arrival monitoring time 0 (10 seconds)
(S1)+9	D1009	Read data length 50 words
(S1)+10	D1010	(Unused) 0

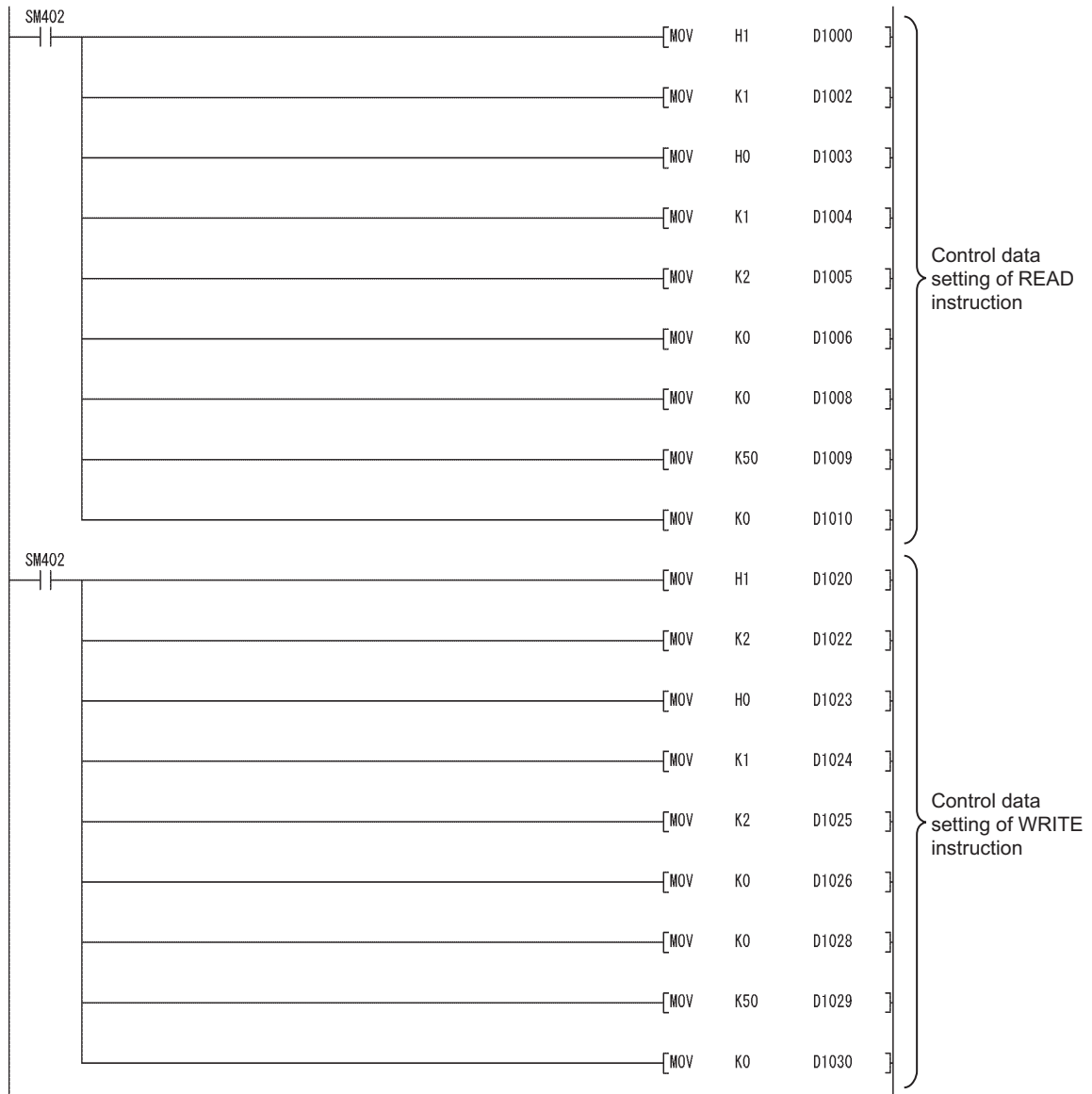
(b) WRITE instruction

Device		Item	Setting value
(S1)+0	D1020	Execution/Error completion type	0001 _H (With arrival confirmation, clock data at the time of error completion is not set)
(S1)+1	D1021	Completion status	— (Set by system, no setting required)
(S1)+2	D1022	Channel used by own station	2
(S1)+3	D1023	Target station's CPU type	0000 _H (Control CPU)
(S1)+4	D1024	Target station network No.	1
(S1)+5	D1025	Target station No.	2
(S1)+6	D1026	(Unused)	0
(S1)+7	D1027	Number of resends	5 times
(S1)+8	D1028	Arrival monitoring time	0 (10 seconds)
(S1)+9	D1029	Write data length	50 words
(S1)+10	D1030	(Unused)	0

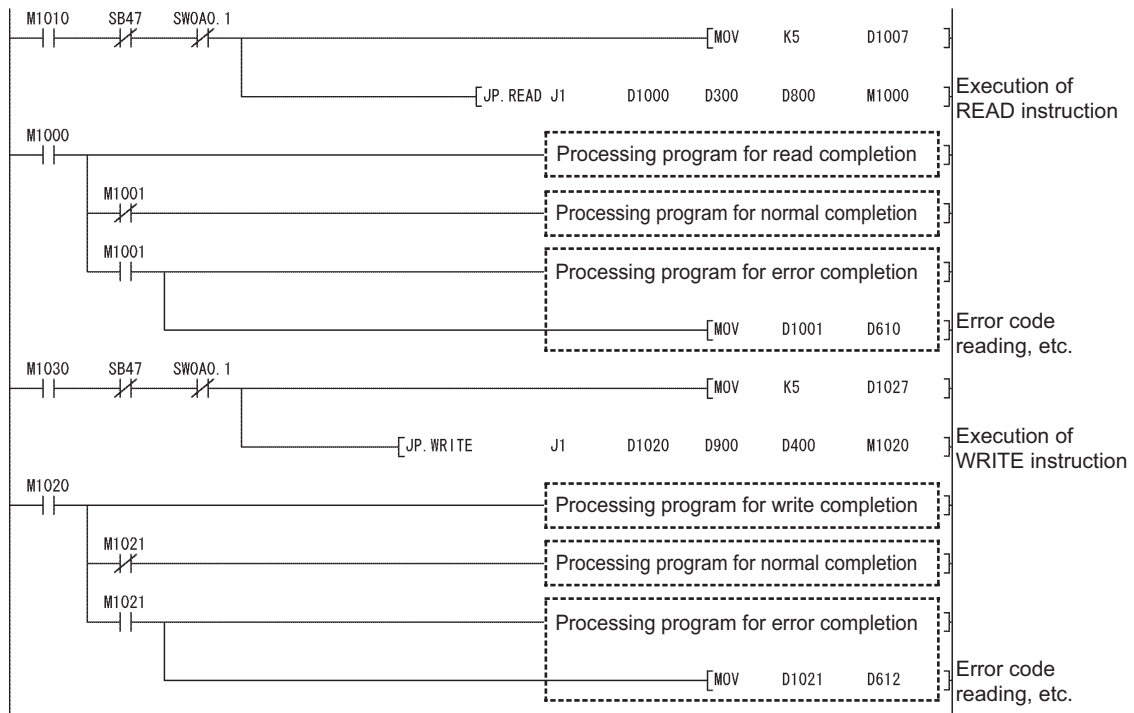
(4) Program example

The following shows a program example of transient transmission.

The following sequence program is written to the CPU module of control station (No. 1).



(To the next page)

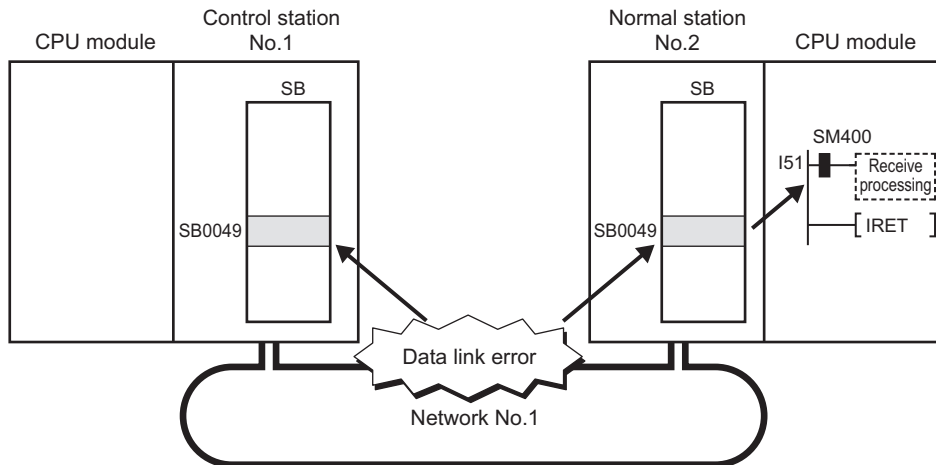


8.1.5 Program example of an interrupt request

The following shows a program example of an interrupt request.

(1) Overview of the program example

In the program example in this section, the interrupt program of station No. 2 is activated when the Data link status of own station (SB0049) is ON (data link error occurrence).



(2) Setting (set in station No. 2)

(a) Interrupt setting

Fill in the interrupt setting parameter sheet. (👉 Page 659, Appendix 5.5)

Network No.	1
Station No.	2

No.	Device code	Device No.	Detection method	Interrupt condition	Word device: Setting value	Board No.	Interrupt (SI) No.
0 1	SB	0049	Edge detect	ON	—	—	0

Complete settings in the programming tool based on the contents filled in the parameter sheet.

	Device Code	Device No.	Detection Method	Interrupt Condition	Word Device Setting Value	Channel No./ Connection No.	Interrupt (SI) No.
1	SB	0049	Edge Detect	ON			0
2							

(b) Interrupt pointer setting of intelligent function module

Set interrupt pointers of an intelligent function module in the "PLC System" tab opened by clicking [PLC Parameter].

PLC Side			Intelligent Module Side	
Interrupt Pointer Start No.	Interrupt Pointer Count		Start I/O No.	Start SI No.
51	1	↕	0000	0
		↕		

(3) Devices used in the program example

(a) Special relay (SM)

Device	Description	Device	Description
SM400	Always ON		—

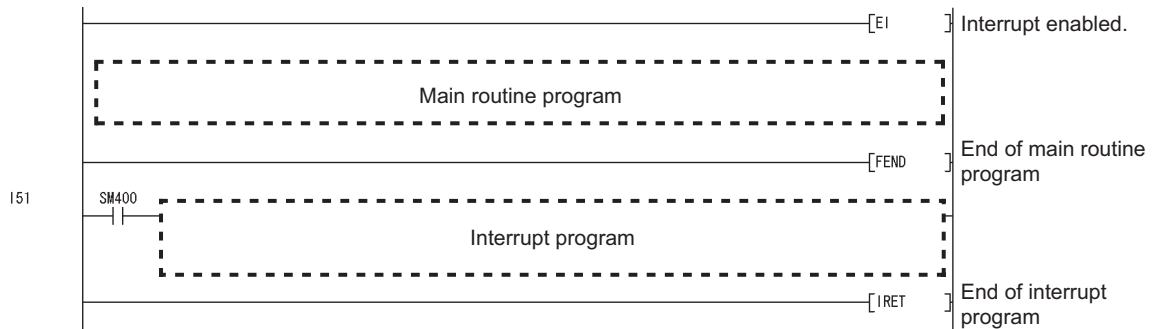
(b) Devices used by the user

Device	Description	Device	Description
I51	Interrupt pointer when Data link status of own station (SB0049) is ON.		—

(4) Program example

The following shows a program example of interrupt request.

The following program is written to station No. 2.



8.1.6 Program example of error detection in other stations

The following shows a program example of error detection in other stations.

(1) Overview of the program example

In the program example in this section, the baton pass status and the cyclic transmission status of each station is monitored and some network errors in other stations are detected in a system configured with three stations.

Point

- When a disconnection or a reconnection of stations is detected, the CC-Link IE Controller Network executes the line control in all stations to reconstruct the loop.
- During the line control processing, the baton pass status (SW00A0 to SW00A7) and the cyclic transmission status (SW00B0 to SW00B7) are turned ON for up to 100ms. (Normally for up to 50ms.) Therefore, set a value of error monitoring timer to more than 100ms and within the allowable range of your system.

(2) Devices used in the program example

(a) Link special relay (SB) and link special register (SW)

Device	Description	Device	Description
SB0047	Baton pass status of own station	SW00B0.0	Cyclic transmission status of station No.1
SB0049	Data link status of own station	SW00B0.1	Cyclic transmission status of station No.2
SW00A0.0	Baton pass status of station No. 1	SW00B0.2	Cyclic transmission status of station No.3
SW00A0.1	Baton pass status of station No. 2		
SW00A0.2	Baton pass status of station No. 3		

(b) Devices used by the user

Device	Description	Device	Description
M10	Own station normal	T1	Station No. 1 error monitoring timer
M20	Faulty station	T2	Station No. 2 error monitoring timer
	—	T3	Station No. 3 error monitoring timer

(3) Program example

The following shows a program example of error detection in other stations.

The setting value of error monitoring timer is 200ms.



8.2 Program Example of a Multi-network System

The programming procedure of when communications are performed in a multi-network system is described in Page 287, Section 8.2.1 to Page 303, Section 8.2.4.

8.2.1 System configuration

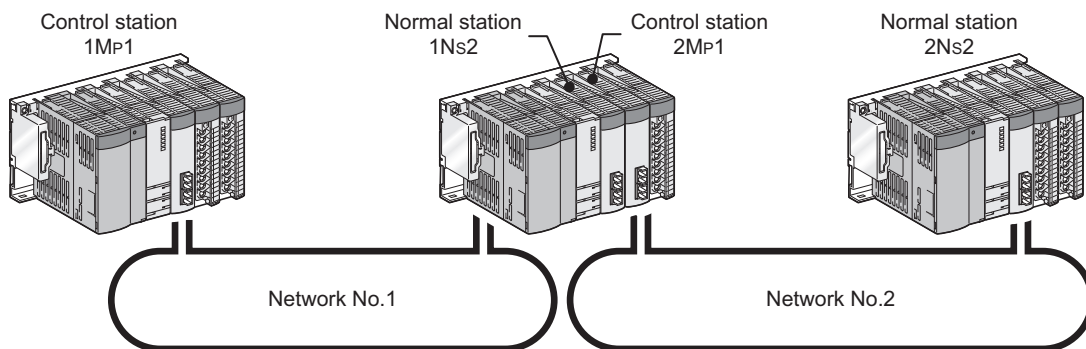
Configure the system using the procedures described in this section.

(1) System configuration example

Configure the system shown below.

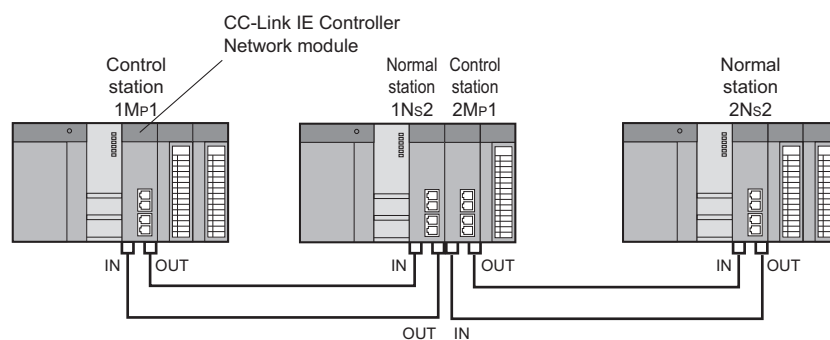
The following is multiple network system where CC-Link IE Controller Network modules on the control station (1M_P1) and normal stations (1N_S2, 2N_S2) are mounted on the slot 0 of the base units.

The CC-Link IE Controller Network module of the control station (2M_P1) is mounted in slot 1 of the base unit.




(2) Wiring example


Connect an optical fiber cable from the OUT connector to the IN connector.



8.2.2 Setting and communication contents

Consider each station send range of LB/LW and set the parameters.

Using the parameter sheet is helpful for considering each station send range of LB/LW and parameters. ( Page 645, Appendix 5)

Before considering parameters of each station, consider each station send range of LB/LW with the link device assignment sheet. ( Page 650, Appendix 5.1)

Ex. Filling in link device assignment sheet

Station No.	Data description		Assignment link device	
	Send source	Send target	Link relay (LB)	Link register (LW)
1	Master PLC	Line 1	LB 0000 to 01FF (512 points)	LW0000 to 01FF (512 points)
			LB to (points)	LW to (points)
			LB to (points)	LW to (points)
2	Line 1	Master PLC	LB 0200 to 03FF (512 points)	LW 0200 to 03FF (512 points)
			LB to (points)	LW to (points)
			LB to (points)	LW to (points)

Consider parameters of the CC-Link IE Controller Network module based on the contents of the link device assignment sheet.

(1) Setting of control station (1M_p1)

(a) Quantity setting

1. Consider the quantity setting with the quantity setting parameter sheet. (👉 Page 651, Appendix 5.2)

Ex. Control station (1M_p1)

Item	CC-Link IE Controller Network module	
	No. 1	No. <input type="text"/>
Network Type	<input checked="" type="checkbox"/> CC IE Control (Control Station) <input type="checkbox"/> CC IE Control (Normal Station) <input type="checkbox"/> CC IE Control Extended Mode (Control Station) <input type="checkbox"/> CC IE Control Extended Mode (Normal Station)	<input type="checkbox"/> CC IE Control (Control Station) <input type="checkbox"/> CC IE Control (Normal Station) <input type="checkbox"/> CC IE Control Extended Mode (Control Station) <input type="checkbox"/> CC IE Control Extended Mode (Normal Station)
Starting I/O No.	0000 (Range: 0000 _H to 0FE0 _H)	(Range: 0000 _H to 0FE0 _H)
Network No.	1 (Range: 1 to 239)	(Range: 1 to 239)
Total Stations	(For the control station only) 2 (Range: 2 to 120)	(For the control station only) (Range: 2 to 120)
Group No.	0 (Range: 0 to 32)	(Range: 0 to 32)
Station No.	1 (Range: 1 to 120)	(Range: 1 to 120)
Mode	<input checked="" type="checkbox"/> Online <input type="checkbox"/> Offline <input type="checkbox"/> H/W Test <input type="checkbox"/> Self-Loopback Test <input type="checkbox"/> Circuit Test (for the control station only) <input type="checkbox"/> Test between Station	<input type="checkbox"/> Online <input type="checkbox"/> Offline <input type="checkbox"/> H/W Test <input type="checkbox"/> Self-Loopback Test <input type="checkbox"/> Circuit Test (for the control station only) <input type="checkbox"/> Test between Station
Station No. setting method	<input checked="" type="checkbox"/> Specify Station No. by Parameter <input type="checkbox"/> Specify Station No. by Program	<input type="checkbox"/> Specify Station No. by Parameter <input type="checkbox"/> Specify Station No. by Program

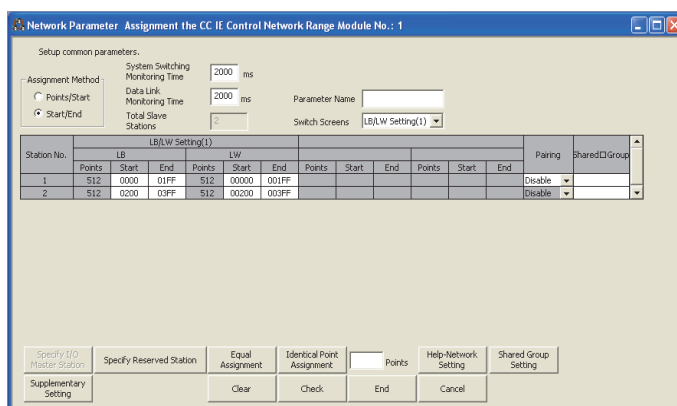
2. Complete settings in the programming tool based on the contents filled in the parameter sheet.

	Module 1
Network Type	CC IE Control(Control Station) ▼
Start I/O No.	0000
Network No.	1
Total Stations	2
Group No.	0
Station No.	1
Mode	Online ▼
	Network Range Assignment
	Network Operation Settings
	Refresh Parameters
	Interrupt Settings
	Specify Station No. by Parameter ▼

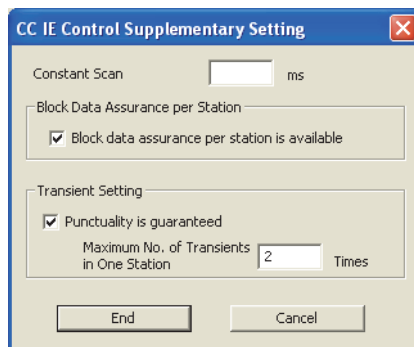
Item		Setting contents
Constant Link Scan		— ms (Range: 1 to 500)
Block Data Assurance per Station	Block data assurance per station is available	<input checked="" type="checkbox"/> Checked <input type="checkbox"/> Not checked
	Punctuality is guaranteed	<input checked="" type="checkbox"/> Checked <input type="checkbox"/> Not checked
Transient Setting	Maximum No. of Transients in One Station	2 times (Range: 1 to 10)

2. Complete settings in the programming tool based on the contents filled in the parameter sheet.

- Network range assignment (Control station (1M_P1))

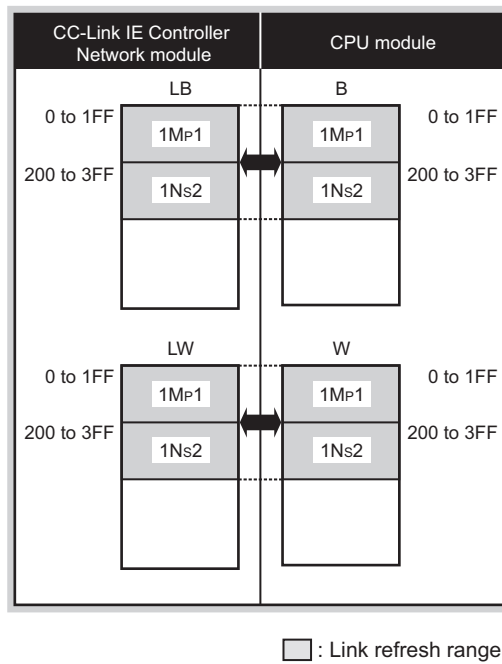


- Supplementary setting (Control station (1M_P1))



(c) Refresh parameters

Set the following refresh parameters for the control station (1Mp1).



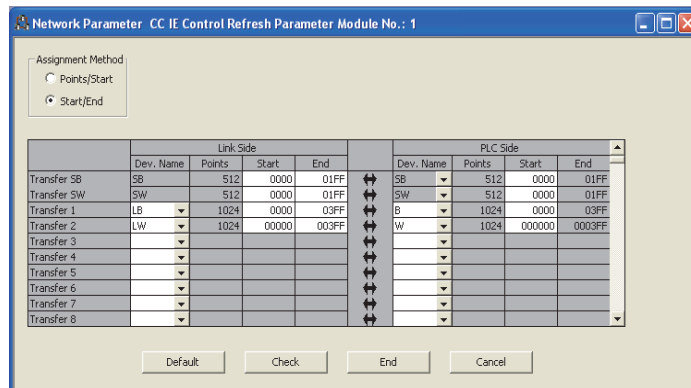
1. Fill in the refresh parameter sheet. (👉 Page 657, Appendix 5.4)

Ex. Control station (1Mp1)

Transfer	CC-Link IE Controller Network module	Number of points	CPU module	Data description
0 1	LB0000 to LB03FF	1024 points	B0000 to B03FF	Master PLC, Lines 1 (LB)
0 2	LW00000 to LW003FF	1024 points	W0000 to W03FF	Master PLC, Lines 1 (LW)

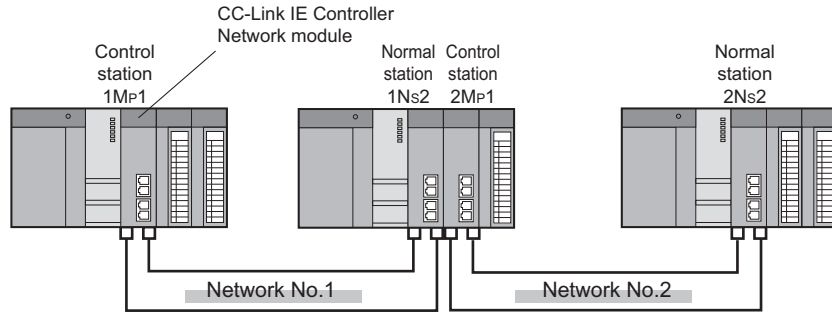
2. Complete settings in the programming tool based on the contents filled in the parameter sheet.

- Refresh parameter setting (Control station (1Mp1))



(d) Routing parameters

Set routing parameters for the control station (1Mp1) with the following system configuration.



1. Fill in the routing parameter sheet. (Page 662, Appendix 5.7)

Ex. Control station (1Mp1)

"To go to network No.2, data passes through station No.2 of its own network No.1."

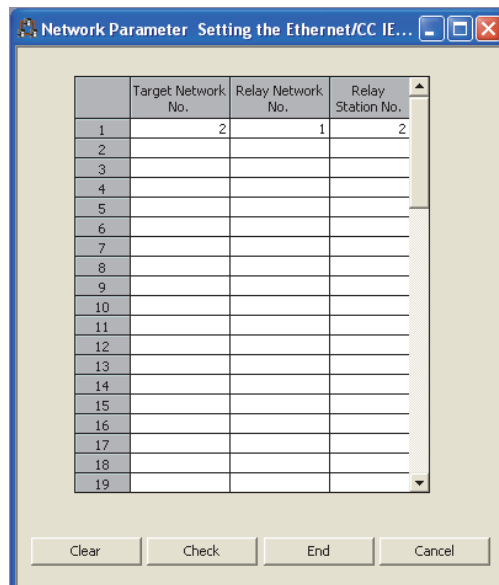
No.	Target Network No.	Relay Network No.	Relay Station No.
1	2	1	2

No setting is required for relay station (1Ns2) because data are transmitted via the station.

No.	Target Network No.	Relay Network No.	Relay Station No.
01	2	1	2

2. Complete settings in the programming tool based on the contents filled in the parameter sheet.

- Routing parameter setting (Control station (1Mp1))



(2) Setting of normal station (1N_S2) and control station (2M_P1)

(a) Quantity setting

1. Fill in the quantity setting parameter sheet. ( Page 651, Appendix 5.2)

Ex. Normal station (1N_S2), control station(2M_P1))

Item	CC-Link IE Controller Network module	
	No. 1	No. 2
Network Type	<input type="checkbox"/> CC IE Control (Control Station) <input checked="" type="checkbox"/> CC IE Control (Normal Station) <input type="checkbox"/> CC IE Control Extended Mode (Control Station) <input type="checkbox"/> CC IE Control Extended Mode (Normal Station)	<input checked="" type="checkbox"/> CC IE Control (Control Station) <input type="checkbox"/> CC IE Control (Normal Station) <input type="checkbox"/> CC IE Control Extended Mode (Control Station) <input type="checkbox"/> CC IE Control Extended Mode (Normal Station)
Starting I/O No.	0000 (Range: 0000 _H to 0FE0 _H)	0020 (Range: 0000 _H to 0FE0 _H)
Network No.	1 (Range: 1 to 239)	2 (Range: 1 to 239)
Total Stations	(For the control station only) - (Range: 2 to 120)	(For the control station only) 2 (Range: 2 to 120)
Group No.	0 (Range: 0 to 32)	0 (Range: 0 to 32)
Station No.	2 (Range: 1 to 120)	1 (Range: 1 to 120)
Mode	<input checked="" type="checkbox"/> Online <input type="checkbox"/> Offline <input type="checkbox"/> H/W Test <input type="checkbox"/> Self-Loopback Test <input type="checkbox"/> Circuit Test (for the control station only) <input type="checkbox"/> Test between Station	<input checked="" type="checkbox"/> Online <input type="checkbox"/> Offline <input type="checkbox"/> H/W Test <input type="checkbox"/> Self-Loopback Test <input type="checkbox"/> Circuit Test (for the control station only) <input type="checkbox"/> Test between Station
Station No. setting method	<input checked="" type="checkbox"/> Specify Station No. by Parameter <input type="checkbox"/> Specify Station No. by Program	<input checked="" type="checkbox"/> Specify Station No. by Parameter <input type="checkbox"/> Specify Station No. by Program

2. Complete settings in the programming tool based on the contents filled in the parameter sheet.

	Module 1	Module 2
Network Type	CC IE Control(Normal Station) ▼	CC IE Control(Control Station) ▼
Start I/O No.	0000	0020
Network No.	1	2
Total Stations		2
Group No.	0	0
Station No.	2	1
Mode	Online ▼	Online ▼
		Network Range Assignment
		Network Operation Settings
	Refresh Parameters	Refresh Parameters
	Interrupt Settings	Interrupt Settings
	Specify Station No. by Parameter ▼	Specify Station No. by Parameter ▼

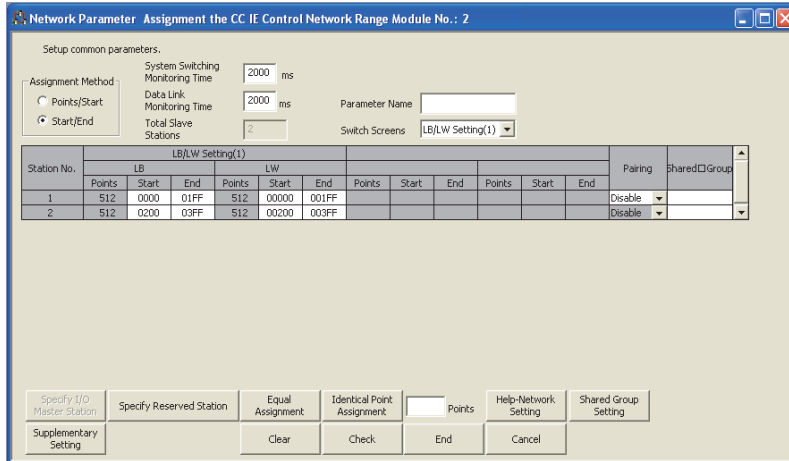
(b) Network range assignment (set in control station (2M_P1))

1. Determine network range assignment.

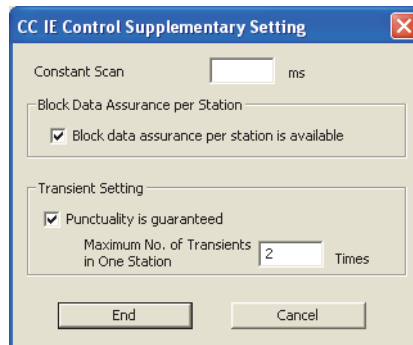
The network range assignment and supplementary setting of the control station (2M_P1) are the same as those of the control station (1M_P1). (☞ Page 289, Section 8.2.2 (1))

2. Complete settings in the programming tool based on the contents filled in the parameter sheet.

- Network range assignment (Control station (2M_P1))

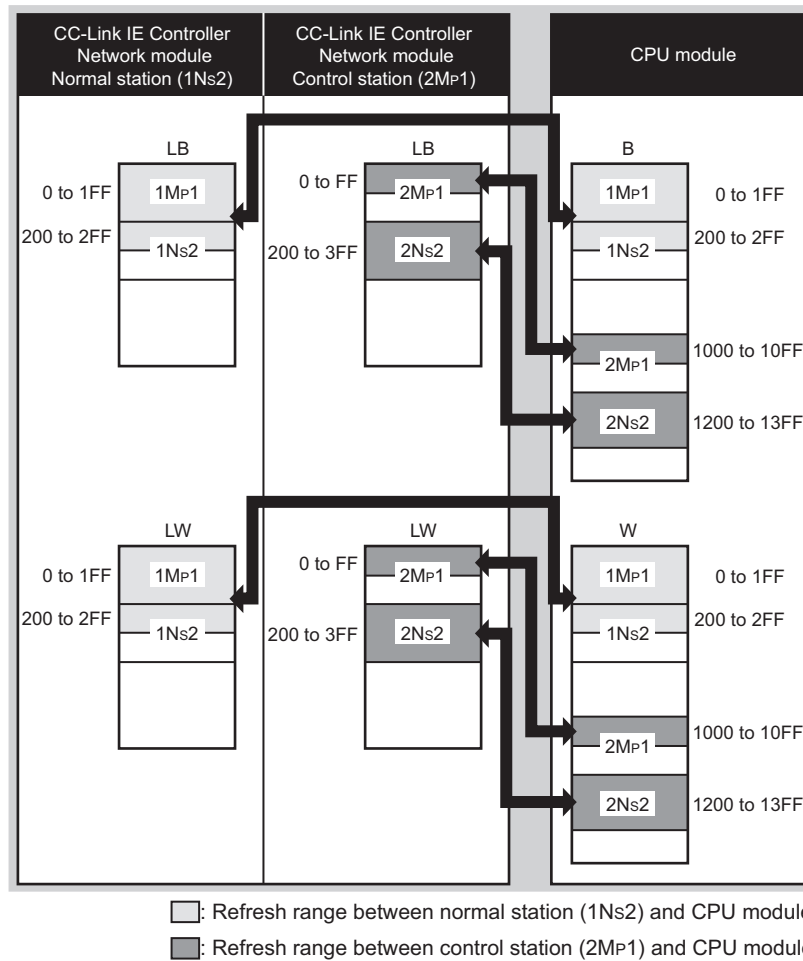


- Supplementary setting (Control station (2M_P1))



(c) Refresh parameters

Set the following refresh parameters to the normal station (1Ns2) and the control station (2Mp1).

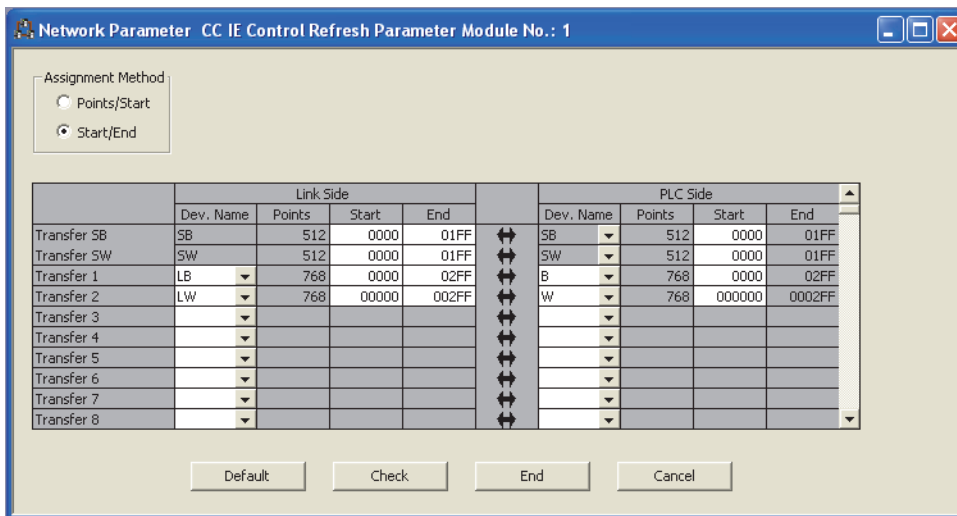


1. Fill in the refresh parameter sheet. (👉 Page 657, Appendix 5.4)

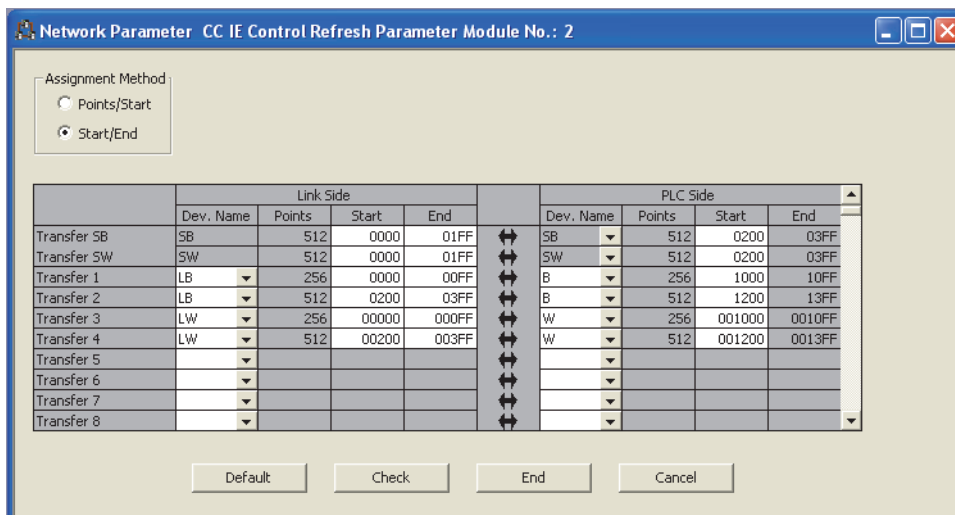
Ex. Normal station (1Ns2)

Transfer	CC-Link IE Controller Network module	Number of points	CPU module	Data description
0 1	LB0000 to LB02FF	768 points	B0000 to B02FF	Master PLC, Lines 1 (LB)
0 2	LW00000 to LW002FF	768 points	W0000 to W02FF	Master PLC, Lines 1 (LW)

2. Complete settings in the programming tool based on the contents filled in the parameter sheet.
- Refresh parameter setting (Normal station (1N_S2))

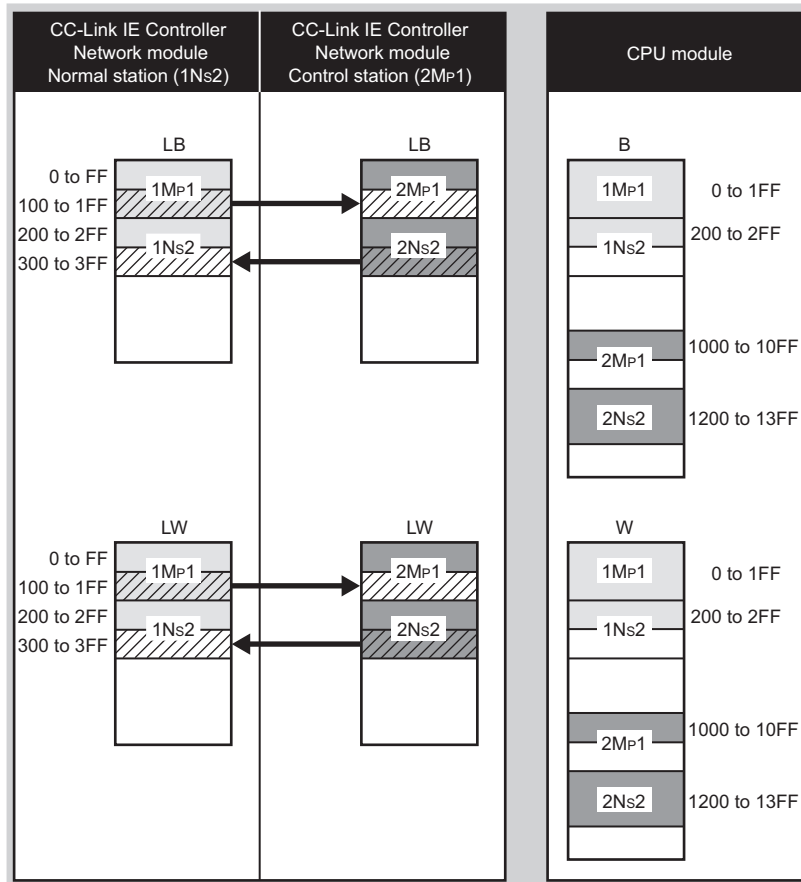


- Refresh parameter setting (Control station (2M_P1))



(d) Interlink transmission parameters

In the program example in this section, the following interlink transmission parameters are set.



- : Range of interlink transmission
- : Refresh range between normal station (1Ns2) and CPU module
- : Refresh range between control station (2Mp1) and CPU module

1. Fill in the interlink transmission parameter assignment sheet. (Page 660, Appendix 5.6)

Ex. Normal station (1Ns2), Control station (2Mp1)

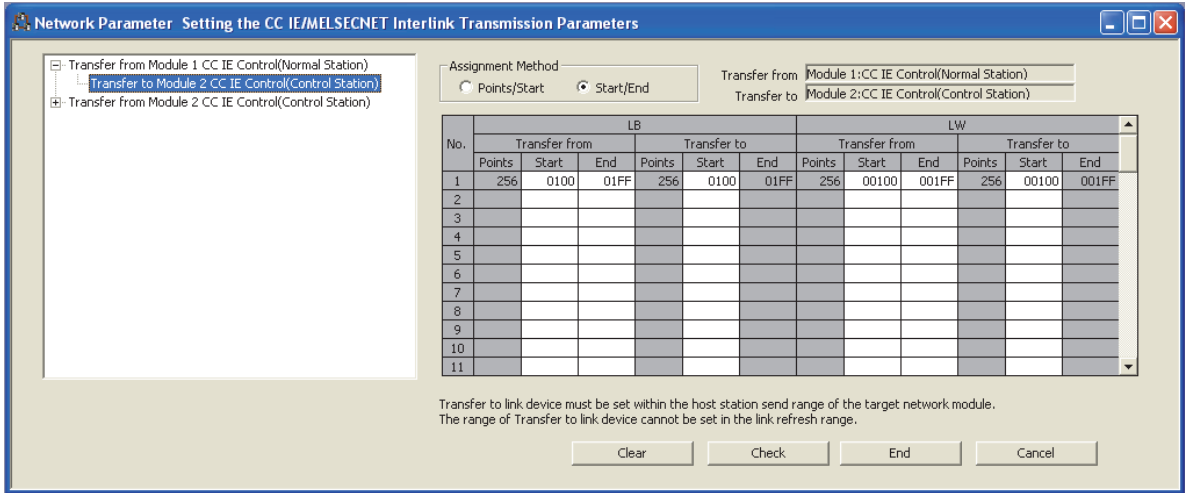
Transfer source	Normal station(1Ns2)
Transfer target	Control station(2Mp1)

(1) Link relay (LB)

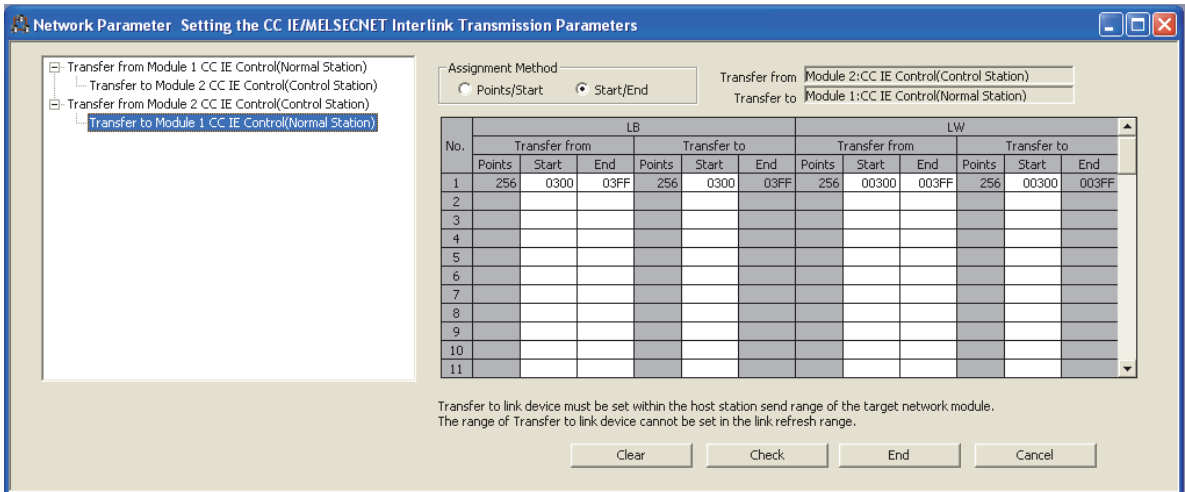
No.	Network module (Transfer source)	Number of points	Network module (Transfer target)	Data description
0 1	LB 0100 to 01FF	256 points	LB 0100 to 01FF	Master PLC

2. Complete settings in the programming tool based on the contents filled in the parameter sheet.

- Setting of interlink transmission parameters (Normal station (1N_S2))



- Setting of interlink transmission parameters (Control station (2M_P1))



(3) Setting of normal station (2Ns2)

(a) Quantity setting

1. Fill in the quantity setting parameter sheet. ( Page 651, Appendix 5.2)

Ex. Normal station (2Ns2)

Item	CC-Link IE Controller Network module	
	No. 1	No.
Network Type	<input type="checkbox"/> CC IE Control (Control Station) <input checked="" type="checkbox"/> CC IE Control (Normal Station) <input type="checkbox"/> CC IE Control Extended Mode (Control Station) <input type="checkbox"/> CC IE Control Extended Mode (Normal Station)	<input type="checkbox"/> CC IE Control (Control Station) <input type="checkbox"/> CC IE Control (Normal Station) <input type="checkbox"/> CC IE Control Extended Mode (Control Station) <input type="checkbox"/> CC IE Control Extended Mode (Normal Station)
Starting I/O No.	0000 (Range: 0000 _H to 0FE0 _H)	(Range: 0000 _H to 0FE0 _H)
Network No.	2 (Range: 1 to 239)	(Range: 1 to 239)
Total Stations	(For the control station only) - (Range: 2 to 120)	(For the control station only) (Range: 2 to 120)
Group No.	0 (Range: 0 to 32)	(Range: 0 to 32)
Station No.	2 (Range: 1 to 120)	(Range: 1 to 120)
Mode	<input checked="" type="checkbox"/> Online <input type="checkbox"/> Offline <input type="checkbox"/> H/W Test <input type="checkbox"/> Self-Loopback Test <input type="checkbox"/> Circuit Test (for the control station only) <input type="checkbox"/> Test between Station	<input type="checkbox"/> Online <input type="checkbox"/> Offline <input type="checkbox"/> H/W Test <input type="checkbox"/> Self-Loopback Test <input type="checkbox"/> Circuit Test (for the control station only) <input type="checkbox"/> Test between Station
Station No. setting method	<input checked="" type="checkbox"/> Specify Station No. by Parameter <input type="checkbox"/> Specify Station No. by Program	<input type="checkbox"/> Specify Station No. by Parameter <input type="checkbox"/> Specify Station No. by Program

2. Complete settings in the programming tool based on the contents filled in the parameter sheet.

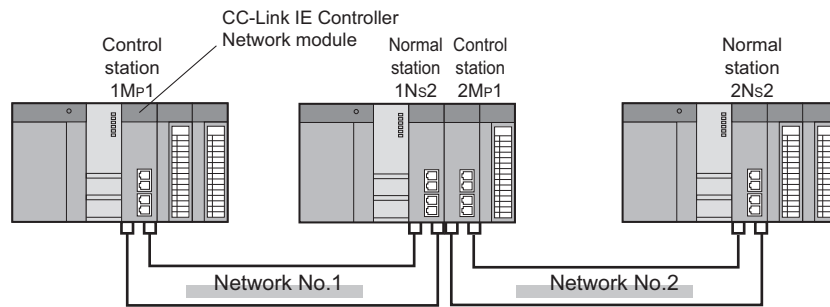
Module 1	
Network Type	CC IE Control(Normal Station) ▼
Start I/O No.	0000
Network No.	2
Total Stations	
Group No.	0
Station No.	2
Mode	Online ▼
	Refresh Parameters
	Interrupt Settings
	Specify Station No. by Parameter ▼

(b) Refresh parameters

For the normal station (2N_S2), set refresh parameters same as those of the control station (1M_P1). (☞ Page 289, Section 8.2.2 (1))

(c) Routing parameters

For the normal station (2N_{S2}), set routing parameters in the following system configuration.



1. Fill in the routing parameter sheet. (👉 Page 662, Appendix 5.7)

Ex. Normal station (2N_{S2})

"To go to network No.1, data passes through station No.1 of its own network No.2."

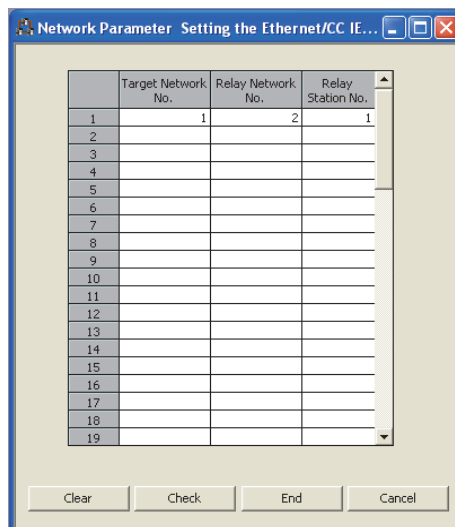
No.	Target Network No.	Relay Network No.	Relay Station No.
1	1	2	1

↑
No setting is required for relay station (2Mp1) because data are transmitted via the station.


No.	Target Network No.	Relay Network No.	Relay Station No.
01	1	2	1

2. Complete settings in the programming tool based on the contents filled in the parameter sheet.


- Setting of routing parameters (Normal station (2N_{S2}))



8.2.3 Program example of cyclic transmission

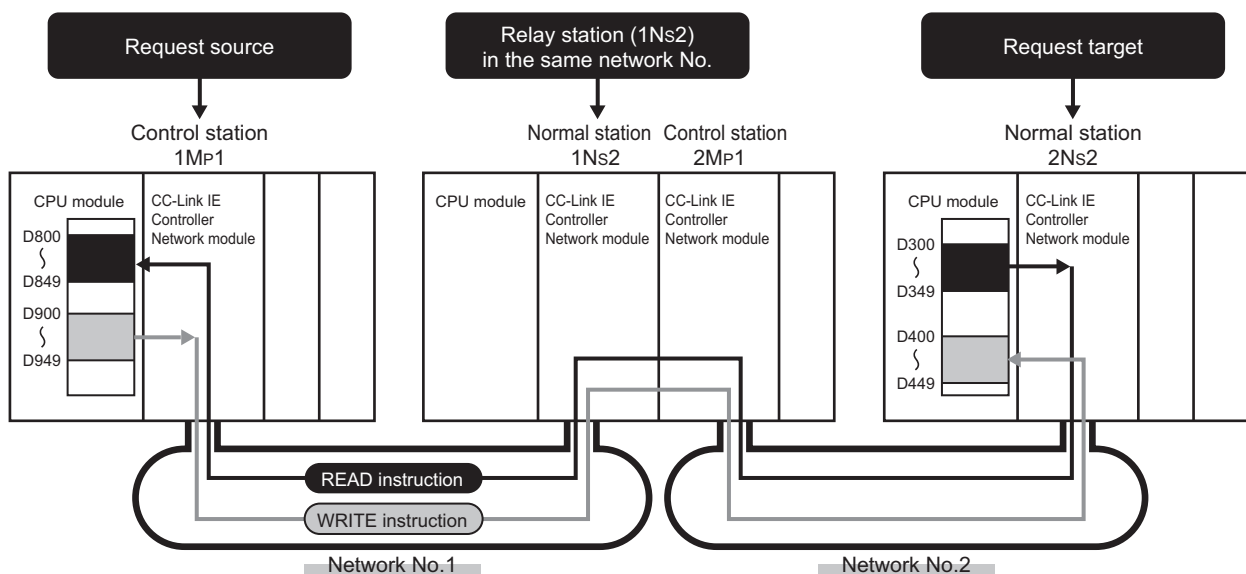
The program example of cyclic transmission of multi-network system is the same as the program example of single network system. ( Page 275, Section 8.1.3)

8.2.4 Program example of transient transmission


The program example of transient transmission of multi-network system is the same as the program example of single network system. ( Page 278, Section 8.1.4)

However, when transient transmission is performed to another network, the program example is different from that of the single network system in the following matter.


Using the following system configuration as an example, the following shows the differences with a program example of a single network system.




(1) Target station network No. and target station No. of link dedicated instruction

Set the network No. and station No. of request target to the target station network No. ((S1)+4) and target station No. ((S1)+5) specified by the control data. ( Page 304, Section 8.2.4 (4))


(2) Interlock


When executing a link dedicated instruction, establish an interlock with the baton pass status (SW00A0.1) of the relay station (1NS2) of the same network No. ( Page 304, Section 8.2.4 (4))

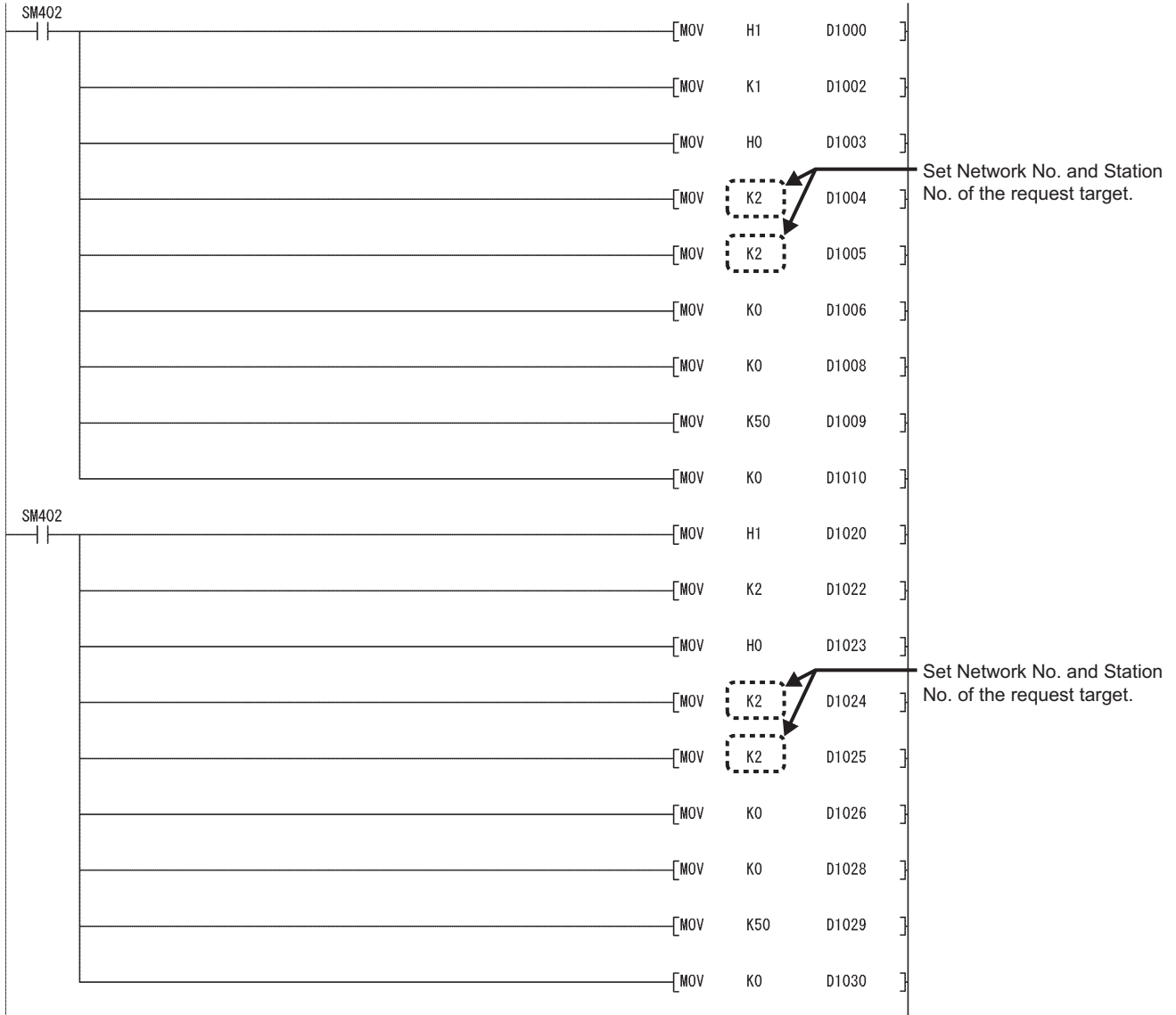
(3) Routing parameters

Set the routing parameters. ( Page 288, Section 8.2.2)

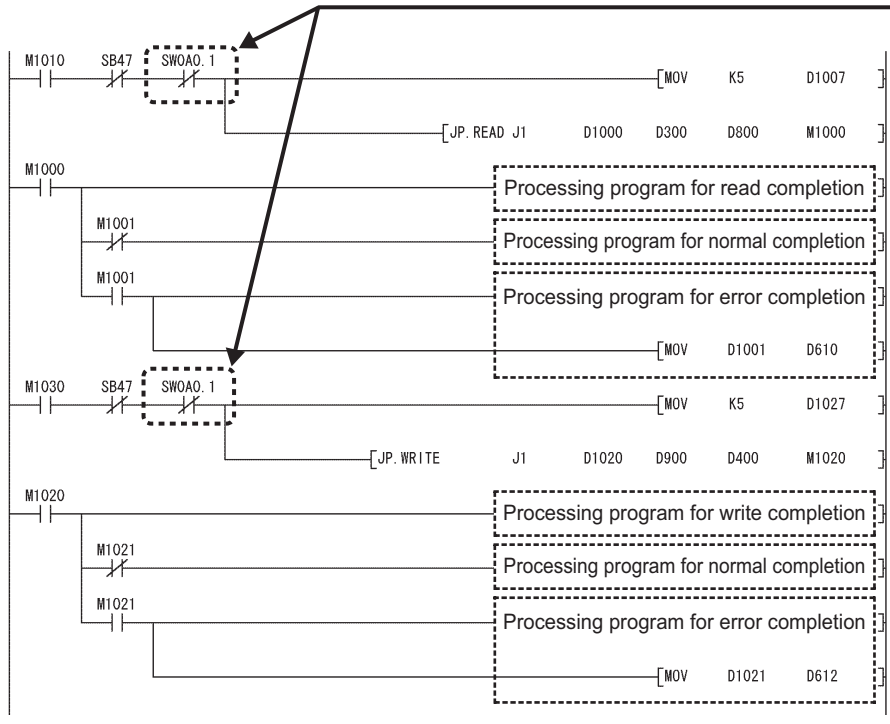
(4) Program example

The following shows the differences between a program example ( Page 281, Section 8.1.4 (4)) of performing transient transmission in a single network system and a program example of performing transient transmission to another network.

The devices used in the program example are the same as those of the program example of the single network system. ( Page 279, Section 8.1.4 (2))



(To the next page)





Establish an interlock using Baton pass status of relay station (SW00A0.1) in the same network.


8.3 Using Link Special Relay (SB) and Link Special Register (SW)

This section explains how to use link special relay (SB) and link special register (SW).

Remark

- Details on link special relay (SB):  Page 568, Appendix 1
- Details on link special register (SW):  Page 584, Appendix 2

(1) Cyclic transmission stop/restart

Cyclic transmission stop/restart is executed through the CC IE Control diagnostics, but it also can be executed with link special relay (SB) and link special register (SW). ( Page 91, Section 4.1.12)

(a) Cyclic transmission stop of another station

- 1. In the following link special register (SW), specify a station for stopping cyclic transmission.**
 - Specification of target station
Link stop/startup direction (SW0000)
 - Specification of station No.
Link stop/startup direction (SW0001 to SW0008)
 - Specification of group
Group specification for link stop/startup (SW0012 to SW0013)
- 2. Turn System link stop (SB0003) ON.**
- 3. When the CC-Link IE Controller Network module accepts a request, Cyclic transmission stop accept status (system) (SB0052) is turned ON.**
- 4. When the cyclic transmission stop is completed, Cyclic transmission stop completion status (system) (SB0053) is turned ON.**
- 5. The station No. of the station that performed the cyclic transmission stop request is stored in Data linking stop request station (SW004A). (Saved in the station which received the stop request.)**
- 6. If the cyclic transmission stop is completed abnormally, an error code will be stored in Data linking stop status (entire system) (SW0053).**
- 7. Turn System link stop (SB0003) OFF.**

(b) Cyclic transmission restart of another station

- 1. In the following link special register (SW), specify a station for restarting cyclic transmission.**
 - Specification of target station
Link stop/startup direction (SW0000)
 - Specification of station No.
Link stop/startup direction (SW0001 to SW0008)
 - Specification of group
Group specification for link stop/startup (SW0012 to SW0013)
- 2. Turn System link startup (SB0002) ON.**
- 3. When the CC-Link IE Controller Network module accepts a request, Cyclic transmission start accept status (SB0050) is turned ON.**
- 4. When the cyclic transmission restart is completed, Cyclic transmission start completion status (SB0051) is turned ON.**
- 5. If the cyclic transmission restart is completed abnormally, an error code will be stored in Data linking start status (entire system) (SW0051).**
- 6. Turn System link startup (SB0002) OFF.**

No.	Description	No.	Description
SB0002	System link startup	SW0000	Link stop/startup direction
SB0003	System link stop	SW0001 to SW0008	
		SW0012 to SW0013	Group specification for link stop/startup
—		SW004A	Data linking stop request station
SB0050	Cyclic transmission start accept status (system)	—	
SB0051	Cyclic transmission start completion status (system)	SW0051	Data linking start status (entire system)
SB0052	Cyclic transmission stop accept status (system)	—	
SB0053	Cyclic transmission stop completion status (system)	SW0053	Data linking stop status (entire system)

(c) Cyclic transmission stop of own station

- 1. Turn Link stop (own station) (SB0001) ON.**
- 2. When the CC-Link IE Controller Network module accepts a request, Cyclic transmission stop accept status (own station) (SB004E) is turned ON.**
- 3. When the cyclic transmission stop is completed, Cyclic transmission stop completion status (own station) (SB004F) is turned ON.**
- 4. If the cyclic transmission stop is completed abnormally, an error code will be stored in Data linking stop status (own station) (SW004F).**
- 5. Turn Link stop (own station) (SB0001) OFF.**

(d) Cyclic transmission restart of own station

- 1. Turn Link startup (own station) (SB0000) ON.**
- 2. When the CC-Link IE Controller Network module accepts the request, Cyclic transmission start accept status (own station) (SB004C) is turned ON.**
- 3. When the cyclic transmission restart is completed, Cyclic transmission start completion status (own station) (SB004D) is turned ON.**
- 4. If the cyclic transmission restart is completed abnormally, an error code will be stored in Data linking start status (own station) (SW004D).**
- 5. Turn Link startup (own station) (SB0000) OFF.**

No.	Description	No.	Description
SB0000	Link startup (own station)	—	—
SB0001	Link stop (own station)		
SB004C	Cyclic transmission start accept status (own station)		
SB004D	Cyclic transmission start completion status (own station)	SW004D	Data linking start status (own station)
SB004E	Cyclic transmission stop accept status (own station)	—	—
SB004F	Cyclic transmission stop completion status (own station)		
		SW004F	Data linking stop status (own station)

(2) Checking data link

The data link status is checked through the CC IE Control diagnostics, but it also can be checked with link special relay (SB) and link special register (SW). (☞ Page 526, Section 10.3)

(a) Check the data link status of other stations

1. Link scan time etc., can be checked in SW005A to SW005B and SW0060 to SW0062.
2. If an error occurs to data link, either of the following link special relays (SB) will be turned ON.
 - Baton pass status of each station (SB00A0)
 - Cyclic transmission status of each station (SB00B0)
3. When Baton pass status of each station (SB00A0) is turned ON, the station No. of a station where an error has occurred is stored in Baton pass status of each station (SW00A0 to SW00A7). When Cyclic transmission status of each station (SB00B0) is turned ON, the station No. of a station where an error has occurred is stored in Cyclic transmission status of each station (SW00B0 to SW00B7).
4. The details of the cause of an error can be checked with the link special relay (SB) and link special register (SW) of the station No. for a station where the error has occurred.


No.	Description	No.	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 of each station	SW00A0 to SW00A7	Baton pass status of each station
SB00B0	Cyclic transmission status of each station	SW00B0 to SW00B7	Cyclic transmission status of each station

(b) Checking the data link status of own station

1. Link scan time etc., can be checked in SW005A to SW005B and SW0060 to SW0062.
2. If an error occurs to data link, either of the following link special relays (SB) will be turned ON.
 - Baton pass status (own station) (SB0047)
 - Data link status of own station (SB0049)
3. The cause of an error is stored in the following link special registers (SW).
 - Baton pass status (own station) (SW0047)
 - Cause of baton pass interruption (SW0048)
 - Cause of data link stop (SW0049)

No.	Description	No.	Description
SB0047	Baton pass status (own station)	SW0047	Baton pass status (own station)
—	—	SW0048	Cause of baton pass interruption
		SW0049	Cause of data link stop
SB0049	Data link status of own station	SW0049	Cause of data link stop
—	—	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

(3) Checking transient transmission errors

Transient transmission errors are checked through the CC IE Control diagnostics, but they also can be checked with link special relay (SB) and link special register (SW). ( Page 526, Section 10.3)

(a) Checking stations where transient transmission errors have occurred

1. When a transient transmission error occurs, Transient error of each station (SB0170) is turned ON.
2. The station where a transient transmission error has occurred can be checked in Transient error detection status of each station (SB0170 to SB0177).
3. When Clear transient transmission error counter (SB000A) is turned ON, Transient error detection status of each station (SW0170 to SW0177) can be cleared.

No.	Description	No.	Description
SB000A	Clear transient transmission error counter		—
SB0170	Transient error of each station	SW0170 to SW0177	Transient error detection status of each station

(b) Checking the number of transient transmission errors

1. When a transient transmission error occurs, Transient error (SB008F) is turned ON.
2. The number of transient transmission errors is stored in Number of transient transmission errors (SW006F).
3. When Clear transient transmission error counter (SB000A) is turned ON, Number of transient transmission errors (SW006F) can be cleared.



No.	Description	No.	Description
SB000A	Clear transient transmission error counter		—
SB008F	Transient errors	SW006F	Number of transient transmission errors

(c) Clearing Transient transmission error log


By setting Clear transient transmission error counter (SB000A) to ON, the transient transmission error log (Un\G2592 to 2753) can be cleared.

Remark

The contents of transient errors can be checked with either of the following.

- CC IE Control diagnostics ( Page 533, Section 10.3.3)
- Completion status in control data of dedicated instruction ( Page 324, CHAPTER 9)

(4) Cable fault detection

Cable fault is checked through the CC IE Control diagnostics, but it also can be checked with link special relay (SB) and link special register (SW). ( Page 526, Section 10.3)

(a) Checking for cable faults of other stations

- 1. If another station receives an error frame through a cable fault, either of the following link special relay (SB) is turned ON.**
 - Current IN-side error frame reception status (SB0120)
 - Current OUT-side error frame reception status (SB0130)
 - IN-side error frame reception detection status (SB0140)
 - OUT-side error frame reception detection status (SB0150)
- 2. When the link special relay (SB) shown in above 1) is turned ON, the station No. of the other station that received an error frame can be checked with the link special register (SW) of the same number.**
- 3. When Clear IN-side transmission error counter (SB0007) is turned ON, the following link special relay (SB) and link special register (SW) can be cleared.**
 - IN-side error frame reception detection status (SB0140)
 - IN-side error frame reception detection status (SW0140 to SW0147)
- 4. When Clear OUT-side transmission error counter (SB0008) is turned ON, the following link special relay (SB) and link special register (SW) can be cleared.**
 - OUT-side error frame reception detection status (SB0150)
 - OUT-side error frame reception detection status (SW0150 to SW0157)
- 5. The details of the cause of an error can be checked with the link special relay (SB) and link special register (SW) of the station No. for a station where the error has occurred.**


No.	Description	No.	Description
SB0007	Clear IN-side transmission error counter		
SB0008	Clear OUT-side transmission error counter		
SB0120	Current IN-side error frame reception status	SW0120 to SW0127	Current IN-side error frame reception status
SB0130	Current OUT-side error frame reception status	SW0130 to SW0137	Current OUT-side error frame reception status
SB0140	IN-side error frame reception detection status	SW0140 to SW0147	IN-side error frame reception detection status
SB0150	OUT-side error frame reception detection status	SW0150 to SW0157	OUT-side error frame reception detection status

(b) Checking for cable faults of own station

- 1. When an own station cable has fault, any of SB0066 to SB0069 and SB006C to SB006F is turned ON.**
- 2. The rate of line error occurrence can be checked in SW0068 to SW0069 and SW006A to SW006B.**
 When Clear IN-side transmission error counter (SB0007) is turned ON, SB006E and SW0068 to SW0069 can be cleared.
 When Clear OUT-side transmission error counter (SB0008) is turned ON, SB006F and SW006A to SW006B can be cleared.

No.	Description	No.	Description
SB0007	Clear IN-side transmission error counter		—
SB0008	Clear OUT-side transmission error counter		
SB0066	Own station's IN-side link-up status		
SB0067	Own station's OUT-side link-up status		
SB0068	Own station's IN-side link establishing status	SW0068	IN-side line error occurrence rate (Max.)
SB0069	Host station OUT-side link establishment status	SW0069	IN-side line error occurrence rate (present.)
	—	SW006A	OUT-side line error occurrence rate (Max.)
		SW006B	OUT-side line error occurrence rate (present.)
SB006C	Own station's IN-side error frame reception status		—
SB006D	Own station's OUT-side error frame reception status		
SB006E	Own station's IN-side error frame detection		
SB006F	Own station's OUT-side error frame detection		

(5) Detection of cable disconnection and cable insertion errors

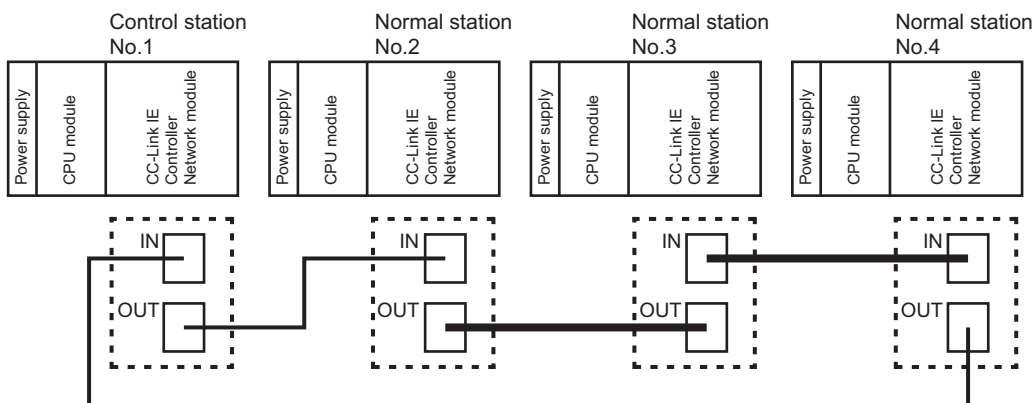
Cable disconnections and cable insertion errors are checked through the CC IE Control diagnostics, but they also can be checked with link special relay (SB) and link special register (SW). ( Page 526, Section 10.3)

(a) Checking for cable disconnection and cable insertion errors

1. When there is a cable disconnection or cable insertion error, loopback occurs.
When loopback occurs, loopback status (SB0065) is turned ON.
Also, loopback information can be checked in Loopback information (SB0065).
2. Stations where loopback has occurred can be checked with the following link special relay (SW).
 - IN-side loopback station No. (SW0070)
 - OUT-side loopback station No. (SW0080)
3. The cause of loopback can be checked with the following link special register (SW).
 - IN-side loopback factor (SW0071)
 - OUT-side loopback factor (SW0081)
4. When the cause of loopback is a cable insertion error, the station No. of the station which has the cable insertion error is stored in the following link special register (SW). (The station No. to be stored is the one for connection target where the cable is connected.)
 - OUT-side mis-cabling station No. (SW0072)
 - IN-side mis-cabling station No. (SW0082)
5. The details of the cause of an error can be checked with the link special relay (SB) and link special register (SW) of the station No. for a station where the error has occurred.

No.	Description	No.	Description
SB0065	Loopback status	SW0065	Loopback information
		SW0070	IN-side loopback station No.
		SW0071	IN-side loopback factor
		SW0072	OUT-side mis-cabling station No.
		SW0080	OUT-side loopback station No.
		SW0081	OUT-side loopback factor
		SW0082	IN-side mis-cabling station No.

Ex. When a cable is incorrectly connected to another station



- When station No. 1, 2, and 4 are monitored
The IN-side cable insertion error status of station No. 3 is stored into the link special register (SW) in values as shown below.

No.	Description	Value to be stored
SW0080	OUT-side loopback station No.	4
SW0081	OUT-side loopback factor	30 _H
SW0082	IN-side mis-cabling station No.	3

The OUT-side cable insertion error status of station No. 3 is stored into the link special register (SW) in values as shown below.

No.	Description	Value to be stored
SW0070	IN-side loopback station No.	2
SW0071	IN-side loopback factor	03 _H
SW0072	OUT-side mis-cabling station No.	3

- When station No. 3 is monitored
Since station No. 3 is disconnected from the network, the values are stored into the link special register (SW) as shown below.

No.	Description	Value to be stored
SW0064	Own station's loop status	33 _H

(b) Checking for cable disconnections and cable insertion errors of own station

1. When there is a cable disconnection or cable insertion error, Own station's loop status (SB0064) is turned ON.
2. The status of cable disconnections and cable insertion errors can be checked in Own station's loop status (SB0064).
The status of cable insertion errors can also be checked with the following link special relay (SB).
 - Own station's IN-side cabling status (SB006A)
 - Own station's OUT-side cabling status (SB006B)
3. The cable disconnection detection count can be checked with the following link special register (SW).
 - IN-side cable disconnection detection count (SW0074)
 - OUT-side cable disconnection detection count (SW0084)
4. When Clear IN-side transmission error counter (SB0007) is turned ON, IN-side cable disconnection detection count (SW0074) can be cleared.
When Clear OUT-side transmission error counter (SB0008) is turned ON, OUT-side cable disconnection detection count (SW0084) can be cleared.

No.	Description	No.	Description
SB0007	Clear IN-side transmission error counter	—	
SB0008	Clear OUT-side transmission error counter		
SB0064	Own station's loop status	SW0064	Own station's loop status
SB006A	Own station's IN-side cabling status	—	
SB006B	Own station's OUT-side cabling status		
—		SW0074	IN-side cable disconnection detection count
		SW0084	OUT-side cable disconnection detection count

(6) Detection of duplicated control station or station No.

The control station duplication and station No. duplication are checked through the CC IE Control diagnostics, but they also can be checked with link special relay (SB) and link special register (SW). (☞ Page 526, Section 10.3)

1. Check the station No. of a station where an error has occurred with Parameter error status of each station (SW00E0 to SW00E7).
2. Monitor the station No. checked in above 1.
3. When the control station or station No. is duplicated, Data link status of own station (SB0049) is turned ON.
4. The cause is stored in Cause of data link stop (SW0049).

No.	Description	No.	Description
SB0049	Data link status of own station	SW0049	Cause of data link stop
	—	SW00E0 to SW00E7	Parameter error status of each station

(7) Checking results of the CC-Link IE Controller Network module test

The test result is checked through LED of the CC-Link IE Controller Network module main frame, but it also can be checked with link special relay (SB) and link special register (SW). (☞ Page 150, Section 5.4)

(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/error completion status (SB0091) is turned ON.

No.	Description	No.	Description
SB0090	Hardware test completion status		—
SB0091	Hardware test normal/error completion status		

(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/error completion status (SB0093) is turned ON.

No.	Description	No.	Description
SB0092	Self-loopback test completion status		—
SB0093	Self-loopback test normal/error completion status		

(8) Checking test results for CC-Link IE Controller Network startup

The test result is checked through the CC IE Control diagnostics, but it also can be checked with link special relay (SB) and link special register (SW). (☞ Page 164, Section 5.6)

(a) Checking circuit test results

1. When the normal station accepts a circuit test request from the control station, Circuit test request from other station (SB0098) of the normal station is turned ON.
2. When the circuit test is completed, Circuit test completion status (SB0094) is turned ON.
3. When failed, Circuit test normal/error completion status (SB0095) is turned ON.

No.	Description	No.	Description
SB0094	Circuit test completion status	—	—
SB0095	Circuit test normal/error completion status		
SB0098	Circuit test request from other station		

(b) Checking station-to-station test results

1. When a station-to-station test request is accepted from another station, Station-to-station test request from other station (SB0099) is turned ON.
2. The station No. of the target station where the station-to-station test is performed can be checked in Station-to-station test station (SW0096).
3. When failed, Station-to-station test normal/error completion status (SB0097) is turned ON.

No.	Description	No.	Description
—	—	SW0096	Station-to-station test station
SB0097	Station-to-station test normal/error completion status	—	—
SB0099	Station-to-station test request from other station		

(9) Checking parameter status

The reflection status and setting contents of parameters can be checked with link special relay (SB) and link special register (SW).

(a) Checking parameter status of other stations

1. Check the following link special relay (SB) and link special register (SW) with the master station.
 - When receiving parameters is completed, Parameter communication status of each station (SB00D0) is turned OFF.
 - Stations that are still communicating parameters can be checked with Parameter communication status of each station (SW00D0 to SW00D7).
2. Check the following link special relay (SB) and link special register (SW) with the master station.
 - When parameters have an error, Parameter status of each station (SB00E0) is turned ON.
 - The station No. of the faulty station is stored in Parameter error status of each station (SW00E0 to SW00E7).
3. Details of the parameters for each station can be checked with the link special relay (SB) and link special register (SW) of each station.

No.	Description	No.	Description
SB00D0	Parameter communication status of each station	SW00D0 to SW00D7	Parameter communication status of each station
SB00E0	Parameter status of each station	SW00E0 to SW00E7	Parameter error status of each station

(b) Checking parameter status of own station

- 1.** When receiving parameters is completed, Parameter receive status (SB0054) is turned OFF.
- 2.** When parameters have an error, Received parameter error (SB0055) is turned ON and an error code is stored in Parameter setting status (SW0055).
- 3.** The presence or absence of parameters can be checked with Parameter information (SW0054).

No.	Description	No.	Description
SB0054	Parameter receive status	SW0054	Parameter information
SB0055	Received parameter error	SW0055	Parameter setting status

- 4.** When the parameters are reflected in the CC-Link IE Controller Network module, contents of parameters are stored in the following link special relay (SB) and link special register (SW).

No.	Description	No.	Description
SB0040	Network type (own station) —	SW0040	Network No.
		SW0041	Group No.
		SW0042	Station No.
SB0043	Online switch (own station)	SW0043	Mode status
SB0044	Station setting (own station) —	SW0044	Station setting
		SW0046	Module type
SB0048	Control station status (own station) —	—	
SB0056	Communication status —	SW004C	Shared group No.
		SW0056	Current control station
		SW0057	Designated control station
SB005C	I/O master station (Block 1)	SW0059	Total number of link stations
		SW005C	I/O master station (Block 1)
SB005D	I/O master station (Block 2)	SW005D	I/O master station (Block 2)
SB005E	Own station's CPU type	—	
SB0060	Communication mode	SW0063	Communication mode
SB0061	Cyclic transmission punctuality assurance	—	
SB007F	IP address setting status		
SB00C0	Reserved station specification	SW00C0 to SW00C7	Reserved station specification

(10) Checking CPU module status

The CPU module status is checked through the CC IE Control diagnostics, but it also can be checked with link special relay (SB) and link special register (SW). (☞ Page 526, Section 10.3)

(a) Checking the CPU module status of other stations

1. Whether the CPU module is in RUN status or STOP status can be checked with the following link special relay (SB) and link special register (SW).
 - CPU RUN status of each station (SB00F0)
 - CPU RUN status of each station (SW00F0)
2. When a continuation error occurs with the CPU module, CPU operation status of each station (2) (SB0110) is turned ON.
The station No. of the station where a continuation error is occurring is stored in CPU operation status of each station (2) (SW0110).
3. When a stop error occurs with the CPU module, CPU operation status of each station (1) (SB0100) is turned ON.
The station No. of the station where a stop error is occurring is stored in CPU operation status of each station (1) (SW0100).

No.	Description	No.	Description
SB00F0	CPU RUN status of each station	SW00F0	CPU RUN status of each station
SB0100	CPU operation status of each station (1)	SW0100	CPU operation status of each station (1)
SB0110	CPU operation status of each station (2)	SW0110	CPU operation status of each station (2)

(b) Checking CPU module status of own station

1. Whether the CPU module is in RUN status or STOP status can be checked with Own station's CPU RUN status (SB005B).
2. When a continuation error occurs with the CPU module, Own station's CPU status (1) (SB004A) is turned ON.
When a stop error occurs with the CPU module, Own station's CPU status (2) (SB004B) is turned ON.
3. The CPU module status can be checked with Own station's CPU status (SW004B).

No.	Description	No.	Description
SB004A	Own station's CPU status (1)		—
SB004B	Own station's CPU status (2)	SW004B	Own station's CPU status
SB005B	Own station's CPU RUN status		—

(11) Checking the status of communications between a CC-Link IE Controller Network module and a CPU module

The status of communications between a CC-Link IE Controller Network module and a CPU module can be checked with link special relay (SB) and link special register (SW). (☞ Page 526, Section 10.3)

1. If an error occurs in communications between a CC-Link IE Controller Network module and a CPU module, **Module status (SB0020)** is turned ON.
2. An error code is stored in **Module status (SW0020)**.

No.	Description	No.	Description
SB0020	Module status	SW0020	Module status

(12) Checking the external power supply status

The external power supply status can be checked not only by CC IE Control diagnostics but also with the link special relay (SB) and link special register (SW). (☞ Page 526, Section 10.3)

(a) Checking external power supply status of other stations

1. When external power is supplied to a station, **External power supply information (SB0180)** turns ON.
The station No. of the station where external power is supplied is stored in **Power supply status of each station (SW0180 to SW0187)**.
2. If external power is not supplied to any CC-Link IE Controller Network module with external power supply function, **Power status consistency check of each station (SB0190)** turns ON.
The station No. of the station where external power is not supplied is stored in **Power status consistency check of each station (SW0190 to SW0197)**.


No.	Description	No.	Description
SB0180	External power supply information	SW0180 to SW0187	Power supply status of each station
SB0190	Power status consistency check of each station	SW0190 to SW0197	Power status consistency check of each station

(b) Checking external power supply status of own station

While external power is supplied, **Own station power status (SB0042)** is ON.

No.	Description	No.	Description
SB0042	Own station power status		—

(13)Checking normal (own) station No. setting status

The normal (own) station No. setting status can be checked not only by CC IE Control diagnostics but also with the link special relay (SB) and link special register (SW). ( Page 526, Section 10.3)

(a) When station No. is set in Network parameters

1. After power-on, when a station No. is entered, Station No. setting status (own station) (SB0070) is turned OFF.
2. The station No. of the own station is stored in Station No. (SW0042).


(b) When station No. is set with a UINI instruction

1. After power-on, because no station No. is set, Station No. setting status (own station) (SB0070) is turned ON.
2. The absence of the station No. setting is stored in Station No. (SW0042).
3. When a station No. is set up by execution of the UINI instruction, Station No. setting status (own station) (SB0070) is turned OFF.
4. The station No. of the own station is stored in Station No. (SW0042).

No.	Description	No.	Description
	—	SW0042	Station No.
SB0070	Station No. setting status (own station)		—

(14)Dedicated instructions

The following link special relays (SB) and link special registers (SW) are used for dedicated instructions.

( Page 324, CHAPTER 9)

(a) READ/SREAD/WRITE/SWRITE/REQ/SEND instruction

Create an interlock with the following link special relay (SB) and link special register (SW) before executing an instruction.

- Baton pass status (own station) (SB0047)
- Baton pass status of each station (SB00A0) (When all stations are specified)
- Baton pass status of each station (SB00A0 to SW00A7)

No.	Description	No.	Description
SB0047	Baton pass status (own station)		—
SB00A0	Baton pass status of each station	SW00A0 to SW00A7	Baton pass status of each station

(b) RECV instruction

- 1. When data are stored in the own station channel area, the corresponding RECV execution request flag (SB0030 to SB0037) turns ON.**
Use a RECV execution request flag as a start contact to execute the RECV instruction.
Upon completion of the RECV instruction, the RECV execution request flag turns OFF.
- 2. Create an interlock with Baton pass status (own station) (SB0047) before executing the instruction.**

No.	Description	No.	Description
SB0030	RECV execution request flag (1)		—
SB0031	RECV execution request flag (2)		
SB0032	RECV execution request flag (3)		
SB0033	RECV execution request flag (4)		
SB0034	RECV execution request flag (5)		
SB0035	RECV execution request flag (6)		
SB0036	RECV execution request flag (7)		
SB0037	RECV execution request flag (8)		
SB0047	Baton pass status (own station)		

(c) ZNRD/ZNWR instruction

- 1. Create an interlock with the following link special relay (SB) and link special register (SW) before executing an instruction.**
 - Baton pass status (own station) (SB0047)
 - Baton pass status of each station (SB00A0) (When all stations are specified)
 - Baton pass status of each station (SB00A0 to SW00A7)
- 2. If the ZNRD instruction failed, an error code is stored in ZNRD processing result (SW0030).**
Check the error and take corrective actions according to the error code. (☞ Page 511, Section 10.2)
- 3. If the ZNWR instruction failed, an error code is stored in ZNWR processing result (SW0031).**
Check the error and take corrective actions according to the error code. (☞ Page 511, Section 10.2)


No.	Description	No.	Description
SB0047	Baton pass status (own station)		—
	—	SW0030	ZNRD instruction processing result
		SW0031	ZNWR instruction processing result
SB00A0	Baton pass status of each station	SW00A0 to SW00A7	Baton pass status of each station

(d) RRUN/RSTOP/RTMRD/RTMWR instruction

1. Create an interlock with the following link special relay (SB) and link special register (SW) before executing an instruction.

- Baton pass status (own station) (SB0047)
- Baton pass status of each station (SB00A0) (When all stations are specified)
- Baton pass status of each station (SB00A0 to SW00A7)

2. If the instruction failed, an error code is stored in Send/receive instruction processing result (SW0030 to SW0037) corresponding to the channel used by the own station.

Check the error and take corrective actions according to the error code. ( Page 511, Section 10.2)

No.	Description	No.	Description
SB0047	Baton pass status (own station)	—	
—		SW0030	Send/receive instruction (1) processing result
		SW0031	Send/receive instruction (2) processing result
		SW0032	Send/receive instruction (3) processing result
		SW0033	Send/receive instruction (4) processing result
		SW0034	Send/receive instruction (5) processing result
		SW0035	Send/receive instruction (6) processing result
		SW0036	Send/receive instruction (7) processing result
		SW0037	Send/receive instruction (8) processing result
SB00A0	Baton pass status of each station	SW00A0 to SW00A7	Baton pass status of each station


(e) RIRD/RIWT instruction

Create an interlock with the following link special relay (SB) and link special register (SW) before executing an instruction.

- Baton pass status (own station) (SB0047)
- Baton pass status of each station (SB00A0 to SW00A7)

No.	Description	No.	Description
SB0047	Baton pass status (own station)	—	
—		SW00A0 to SW00A7	Baton pass status of each station

(15)Checking the redundant system status

The redundant system status can be checked not only from CC IE Control diagnostics but also by link special relay (SB) and link special register (SW). ( Page 526, Section 10.3)

(a) Disabling system switching due to a data link error

( Page 141, Section 4.7.2)

- 1. Set Data-link-error-induced system switching disable flags (SB0017) of both systems to ON.**
- 2. Even if a data link error is detected, no system switching request will be issued to the control system CPU.**

(b) Checking the redundant system status of other stations

- 1. If a redundant system station exists, Redundant system information (SB01C0) is set to ON. Station numbers of redundant system stations can be confirmed by Redundant function information (SW01C0 to SW01C7).**
- 2. If a station in separate mode exists, Redundant system status (1) (SB01D0) is set to ON. The station No. of the separate-mode station can be checked by Redundant system status (1) (SW01D0 to SW01D7).**
- 3. If a station that has a pairing setting exists, Redundant system status (2) (SB01E0) is set to ON. The station No. of the station with pairing setting can be checked by Redundant system status (2) (SW01E0 to SW01E7).**
- 4. If a standby system CPU station exists, Redundant system status (3) (SB01F0) is set to ON. The station No. of the standby system CPU station can be confirmed by Redundant system status (3) (SW01F0 to SW01F7).**

No.	Description	No.	Description
SB0017	Data-link-error-induced system switching disable flag	—	
SB01C0	Redundant system information	SW01C0 to SW01C7	Redundant function information
SB01D0	Redundant system status (1)	SW01D0 to SW01D7	Redundant system status (1)
SB01E0	Redundant system status (2)	SW01E0 to SW01E7	Redundant system status (2)
SB01F0	Redundant system status (3)	SW01F0 to SW01F7	Redundant system status (3)

(c) Checking the redundant system status of own station

When the redundant system is supported, Host station's redundant function support information (SB0041) is set to ON.

No.	Description	No.	Description
SB0041	Host station's redundant function support information	—	

CHAPTER 9 DEDICATED INSTRUCTIONS

A "dedicated instruction" is defined as an instruction designed to make programming easy for use of the intelligent function module.

This chapter describes the dedicated functions available for the CC-Link IE Controller Network module.

9.1 List of Dedicated Instructions and Available Devices

(1) Dedicated instructions

Dedicated instructions can be used for transient transmission with a programmable controller on another station. A station on the CC-Link IE Controller Network can access stations on other networks using link dedicated instructions.

(a) List of link dedicated instructions

Application	Dedicated instruction	Description	Reference section
Write/read data to/from devices on another station (for Q/QnA series)	READ	Reads data from devices of a programmable controller on another station. (In units of words)	Page 332, Section 9.3
	SREAD	Reads data from devices of a programmable controller on another station. (In units of words) With the SREAD instruction, a device on another station turns ON when data reading is completed. (The other station can recognize that data have been read out with the SREAD instruction.)	Page 344, Section 9.4
	WRITE	Writes data to devices of a programmable controller on another station. (In units of words)* ²	Page 351, Section 9.5
	SWRITE	Writes data to devices of a programmable controller on another station. (In units of words)* ² With the SWRITE instruction, a device on another station turns ON when data writing is completed. (The other station can recognize that data have been written with the SWRITE instruction.)	Page 365, Section 9.6
Transient request to another station (for Q/QnA series)	REQ	Requests remote RUN/STOP to a programmable controller on another station.* ¹	Page 374, Section 9.7
		Reads clock data from or writes them to a programmable controller on another station.* ²	Page 385, Section 9.8
Data send/receive (for Q/QnA series)	SEND	Sends data to a programmable controller on another station.* ¹	Page 400, Section 9.9
	RECV	Reads data received from a programmable controller on another station.* ¹ (For main program)	Page 413, Section 9.10
	RECVS	Reads data received from a programmable controller on another station.* ¹ (For interrupt program)	Page 421, Section 9.11
Read from/write to other station devices (For A series)	ZNRD	Reads data from devices of a programmable controller on another station. (In units of words)* ¹ * ³	Page 427, Section 9.12
	ZNWR	Writes data to devices of a programmable controller on another station. (In units of words)* ¹ * ³	Page 435, Section 9.13

Application	Dedicated instruction	Description	Reference section
Remote RUN/STOP (for Q series)	RRUN	Instructs a programmable controller on another station to perform remote RUN.*1	Page 443, Section 9.14
	RSTOP	Instructs a programmable controller on another station to perform remote STOP.*1	Page 451, Section 9.15
Write/read clock data on another station (for Q series)	RTMRD	Reads clock data from a programmable controller on another station.	Page 459, Section 9.16
	RTMWR	Writes clock data to a programmable controller on another station.*2	Page 467, Section 9.17

*1 Not available when the own station or the target station is a safety CPU.

*2 Writing is not allowed from another station to a safety CPU.

*3 When the target station is an A2UCPU(S1), A3UCPU, A4UCPU, A2ASCPU(S1), or A2USCPU(S1), use the CPU module with the following version or later.

- A2UCPU(S1), A3UCPU, A4UCPU: Version AY (manufactured since July, 1995) or later
- A2ASCPU(S1), A2USCPU(S1): Version CP (manufactured since July, 1995) or later

(b) List of dedicated instructions

Application	Dedicated instruction	Description	Reference section
Setting station No.	UINI	For Universal model QCPUs, the station No. of a normal station (own station) can be set.	Page 476, Section 9.18

(c) List of CC-link dedicated instructions

The following dedicated instructions can be used for transient transmission with a CC-Link IE Controller Network compatible device.

Application	Dedicated instruction	Description	Reference section
Read/Write of another station's data	RIRD	Reads the specified points of data from the target station's device.*1	Page 481, Section 9.19
	RIWT	Writes the specified points of data to the target station's device.*2	Page 489, Section 9.20

*1 Not available when the own station is a safety CPU.

*2 Not available when the own station or target station is a safety CPU.

(2) Available devices

The following devices are available for the dedicated instructions:

Internal device		File register	Constant
Bit*1	Word		
X, Y, M, L, F, V, B	T, ST, C, D, W	R, ZR	K, H

*1 Word device bit designation is available for bit data.

A bit of a word device is specified with . .

(Bit No. must be specified in hexadecimal.)

For example, bit 10 of D0 is specified as .

Note that, bit designation is not allowed for timers (T), retentive timers (ST) and counters (C).

9.2 Precautions for Dedicated Instructions

9.2.1 Precautions for dedicated instructions (common)

The following explains precautions for using dedicated instructions.

(1) Change of the data specified with dedicated instructions

Do not change any data (control data, etc.) until execution of the dedicated instruction is completed.

(2) When a dedicated instruction has not been completed

Dedicated instructions must be executed in online.

Execution of the dedicated instructions is not allowed in offline.

(3) Accessing another station with a dedicated instruction during CC IE Control diagnostics

Execution of the dedicated instruction may not start for a while.

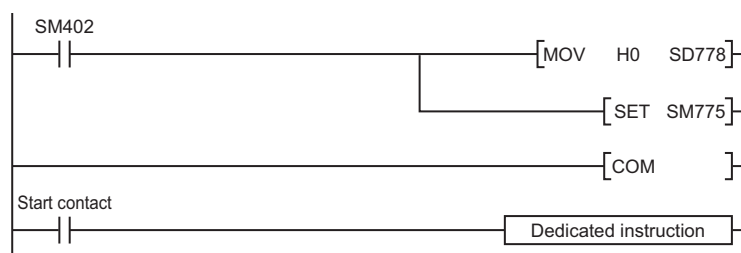
Execute the dedicated instruction by any of the following methods after processing of the CC IE Control diagnostics.

For safety CPUs, however, the following methods are not available.

(a) Using the COM instruction

Execute the dedicated instruction after executing the COM instruction for communication with the peripheral (programming tool).

1. Store 0 in Refresh processing selection when the COM/CCOM instruction is executed (SD778).
2. Turn ON Selection of refresh processing during COM/CCOM instruction execution (SM775).
3. Execution of the COM instruction activates communication with the programming tool.
4. Access another station with a dedicated instruction.



(b) Using the Time reserved for communication processing (SD315) (For Basic model QCPUs, High Performance model QCPUs, Process CPUs, and Redundant CPUs)


Using the Time reserved for communication processing (SD315), secure a time of 2ms to 3ms for communication processing.

(c) Using the service processing setting (For Universal model QCPUs)

In the service processing setting of the PLC parameter (PLC system) in the programming tool, secure time of 2ms to 3ms for service processing.

Remark

For details on the COM instruction, refer to the following.

 Programming Manual (Common Instructions) for the CPU module used

(4) Executing a dedicated instruction from a redundant system

If a system switching occurs during instruction execution, execution of the instruction is stopped and its processing is not completed.

To re-execute such an uncompleted instruction in the new control system after system switching, provide an interlock using One scan ON after system switching (SM1518) and Completion device.

Note that the same instruction may be executed twice.

- Program example:  Page 361, Section 9.5 (5)

9.2.2 Precautions for link dedicated instructions

The following explains precautions for using link dedicated instructions.

(1) When executing multiple link dedicated instructions at the same time

When executing multiple link dedicated instructions at the same time, make sure that the channels for them are not duplicated.

Link dedicated instructions with identical channel settings cannot be used at the same time.

If execution of these instructions is attempted at the same time, they will not be executed.

(a) Channels

Channel is a network module area where data treated by link dedicated instructions are stored.

Using multiple channels allows simultaneous access from the own station to multiple other stations, and simultaneous reading and writing to the same network module.

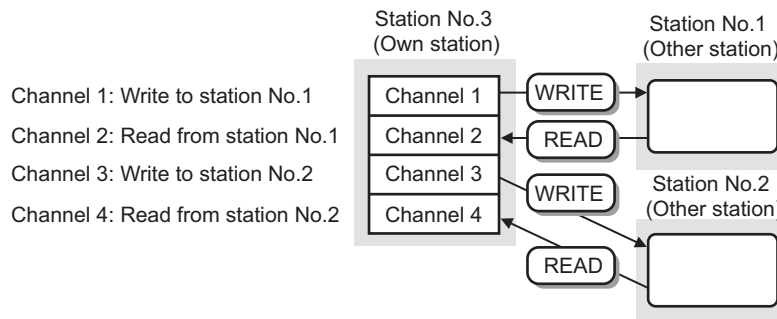
(b) Number of channels and number of simultaneously-executable link dedicated instructions

A CC-Link IE Controller Network module has ten channels that are available for link dedicated instructions*¹. Up to ten instructions can be simultaneously executed if channels are not duplicated.

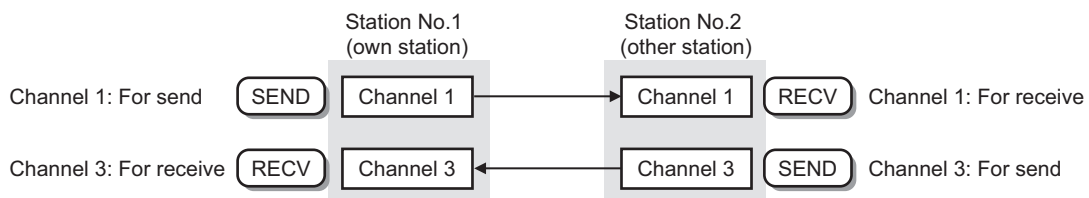
*¹ Channels 9 and 10 are used for READ/SREAD/WRITE/SWRITE instructions.

(c) Example of channel use

- When the own station simultaneously accesses other stations (READ instruction, WRITE instruction), change the channel of the own station for each request target.



- When making access mutually between the own station and another station (SEND instruction, RECV instruction), change the channel of the own station for each link dedicated instruction.



Point

- When the same channel is to be set for different tasks, access to one of other stations first and after completion of the access, access to another.
The completion status of a dedicated instruction can be confirmed with the completion device of the instruction.
- Channels used for RECV instructions cannot be used for any other instructions.
Channels used for other instructions must be changed.

Remark

The following table lists operations when link dedicated instructions are executed at the same time.

Link dedicated instruction	Instruction to be executed concurrently		
	READ/SREAD/WRITE/SWRITE/REQ/SEND/RECV/ RECVS/RRUN/RSTOP/RTMRD/RTMWR	ZNRD	ZNWR
READ/SREAD/WRITE/SWRITE/REQ/SEND/RECV/ RECVS/RRUN/RSTOP/RTMRD/RTMWR	△*1	△*1	△*1
ZNRD	△*1	×	○
ZNWR	△*1	○	×

○: Executable, △: Executable if not using the same channel, ×: Not executable (The latter one is not executed.)

*1 When the same channel is used, the latter instruction is not executed.

(2) When executing a link dedicated instruction to an AnUCPU station

(a) Do not execute any instruction that cannot be executed to AnUCPU stations.

If executed, the AnUCPU may detect "MAIN CPU DOWN" or "WDT ERROR" and stop its operation.

(👉 Page 97, Section 4.2.1 (1))

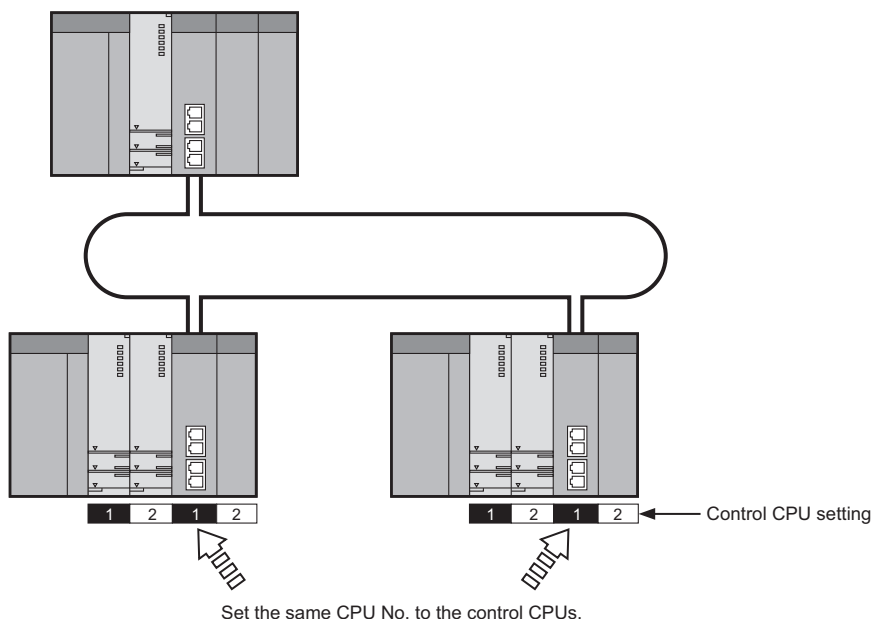
(b) To execute such an instruction to all of the network which contains an AnUCPU station, use group specification to exclude the AnUCPU station.

(3) When executing a link dedicated instruction to a multiple CPU system by specifying a group or all stations

The instruction can only be executed to the control CPU of the target CC-Link IE Controller Network module. Specify 0000_H or 03FF_H for Target station's CPU type ((S1) + 3) of the instruction.

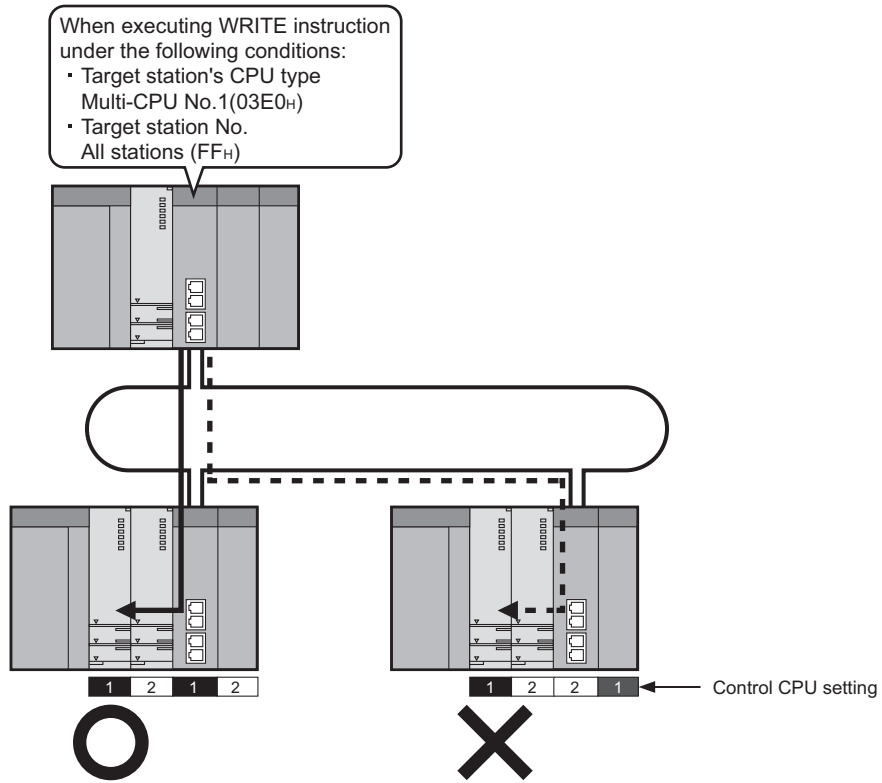
(a) When executing the instruction to all of the specified stations

Configure the system carefully so that the same CPU No. is set for control CPUs of the target stations.



(b) When CPU No. is specified for Target station's CPU type of the instruction

The instruction is not executed on a station where the CPU No. of the control CPU is different from the one specified for Target station's CPU type. (Note that no error will be detected on the request source.)



Since the control CPU of the CC-Link IE Controller Network module is No.2, the instruction to multi-CPU No.1 is not executed.

9.2.3 Precautions for CC-Link dedicated instructions

The following explains precautions for using CC-link dedicated instructions.

(1) Concurrent execution of multiple CC-Link dedicated instructions

Concurrent execution of multiple CC-Link dedicated instructions is not allowed.

Complete one CC-Link dedicated instruction execution, and then execute the next.

The completion status of the CC-Link dedicated instructions can be confirmed with the completion device.

9.3 JP/GP. READ (Data Read from Programmable Controllers on Other Stations)

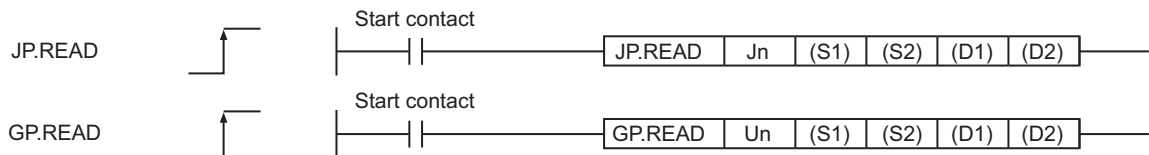
This instruction is used to read data from devices of a programmable controller on another station. (In units of words)

Setting data	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)	—	○*1	○							
(D1)	—		○							
(D2)		○								

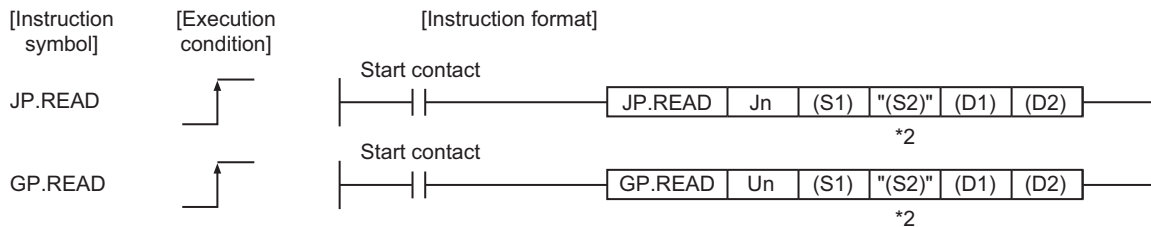
*1 T, C, D, W, ST, SD or SW can be used.

• Instruction format

[Instruction symbol] [Execution condition] [Instruction format]



• Instruction format (Available when the own station has a Universal model QCPU)



*2 If the device setting in the PLC parameter is different between the own and target stations, use "(S2)" (with double quotation marks) to specify.

(1) Setting data

Setting data*1	Description	Data type
Jn	Network number of the own station (1 to 239, 254) 254: The network specified in Valid module during other station access	Binary 16 bits
Un	Start I/O number of the own station's CC-Link IE Controller Network module (00 to FE _H ; The higher two digits of the 3-digit I/O number)	
(S1)	Start device of the own station that stores control data. (☞ Page 335, Section 9.3 (2))	Device name
(S2)	Target station's start device where data to be read are stored	
(D1)	The own station's start device where readout data will be stored (A contiguous area for the read data length is required.)	

Setting data*1	Description	Data type
(D2)	The own station's device that is turned on for one scan upon completion of the instruction. (D2) + 1 also turns on if the instruction execution has failed.	Bit

*1 Local devices and file registers for each program cannot be used as devices used in setting data.

- Specify devices of the target station's CPU within the range allowed for the own station CPU when reading data from the devices with the READ instruction.
(Target station's start device (S2) where data to be read are stored) + (Read points - 1) ≤ (End device No. of own station's CPU*1).

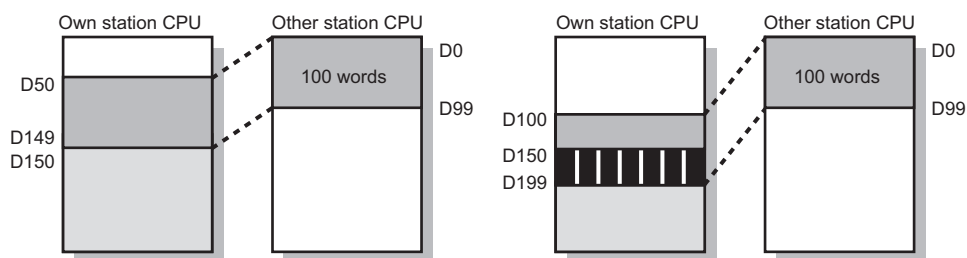
*1 End device No. of the device in the own station, and whose device name is same as in (S2)

- Specify the own station's start device (D1) within the range allowed for storing read data.

Ex. When D150 and after the area in the own station's CPU has been already used

○ Good example (D50 is specified to (D1).)

✗ Bad example (D100 is specified to (D1).)

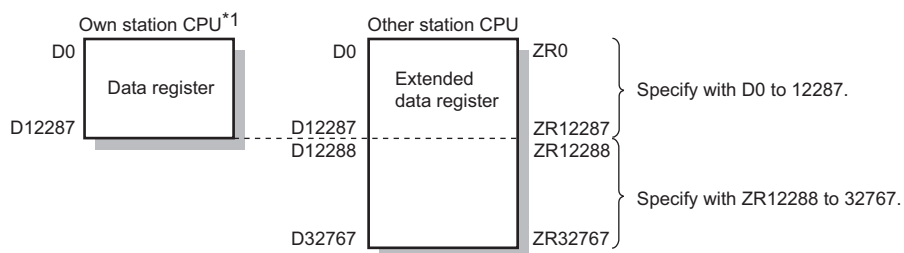


■ : Data to be read with READ instruction
 □ : Area already used by own station's CPU
 ▨ : Duplicated area

- Use the file register (ZR) when specifying the extended data register (D) or extended link register (W) that is outside the area of the own station CPU's data register (D) or link register (W). (Except for the Universal model QCPU)
For the calculation of the file register (ZR), refer to the following.

📖 User's Manual (Function Explanation, Program Fundamentals) for the CPU module used

Ex. When 0K point is assigned to the data register (D) of another station CPU, and when all 32K points of the file register (ZR) are assigned to the extended data register (D)



*1 A file register whose capacity is 32K points or more is required for the own station's CPU.

(2) Control data


Device	Item	Setting data	Setting range	Setting side*1										
(S1)+0	Error completion type	<div style="text-align: center;"> <table border="1" style="margin: auto;"> <tr> <td style="padding: 2px;">b15</td> <td style="padding: 2px;">to</td> <td style="padding: 2px;">b7</td> <td style="padding: 2px;">to</td> <td style="padding: 2px;">b0</td> </tr> <tr> <td style="padding: 2px; text-align: center;">0</td> <td></td> <td style="padding: 2px; text-align: center;">1)</td> <td></td> <td style="padding: 2px; text-align: center;">1</td> </tr> </table> </div> <p>1) Error completion type (bit 7) Specify the clock data setup status for error completion.</p> <p>0: Clock data at the time of error completion is not set in the area starting from (S1)+11.</p> <p>1: Clock data at the time of error completion is set in the area starting from (S1)+11.</p>	b15	to	b7	to	b0	0		1)		1	0001 _H 0081 _H	User
b15	to	b7	to	b0										
0		1)		1										
(S1)+1	Completion status	The instruction completion status is stored. 0: Normal Other than 0: Error (Page 511, Section 10.2)	—	System										
(S1)+2	Channel used by own station*2	Specify the channel used by the own station. (Page 328, Section 9.2.2 (1))	1 to 10 (1 to 8 when the own station is a safety CPU)	User										
(S1)+3	Target station's CPU type	Specify the CPU module on the station to be accessed.	0000 _H 03D0 _H to 03D3 _H 03E0 _H to 03E3 _H 03FF _H	User										
		Setting value			Description									
		0000 _H			Control CPU (The access target is the same as when "03FF _H " is specified.)									
		03D0 _H			Control system CPU (Redundant CPU only)									
		03D1 _H			Standby system CPU (Redundant CPU only)									
		03D2 _H			System A CPU (Redundant CPU only)									
		03D3 _H			System B CPU (Redundant CPU only)									
		03E0 _H			<ul style="list-style-type: none"> • Target station CPU (single CPU system) • Multi-CPU No.1 • Control CPU (single CPU system) • Multiple CPU system No.1 									
		03E1 _H			Multiple CPU system No.2									
		03E2 _H			Multiple CPU system No.3									
		03E3 _H			Multiple CPU system No.4									
		03FF _H			Control CPU									
		When the instruction is executed with control system CPU (03D0 _H) or standby system CPU (03D1 _H) specified, if system switching occurs at the target station, the instruction execution may fail. (Error code: 4244 _H , 4248 _H) If the instruction has failed with the above error, execute it again.												
(S1)+4	Target station network No.	Specify the network No. of the target station. 1 to 239: Network No. 254: Specify this when 254 has been set in Jn.	1 to 239 254	User										
(S1)+5	Target station No.	Specify the station No. of the target station. When own station is Universal model QCPU: 1 to 120 When own station is other than Universal model QCPU: 1 to 64	1 to 120	User										
(S1)+6	—	Unused	0	User										


Device	Item	Setting data	Setting range	Setting side ^{*1}																																			
(S1)+7	Number of resends	1) For instruction execution Specify the number of times the instruction is to be resent when it is not completed within the monitoring time specified in (S1)+8.	0 to 15	User																																			
		2) At instruction completion The number of resends executed (result) is stored.	—	System																																			
(S1)+8	Arrival monitoring time	Specify the monitoring time required for instruction completion. If an instruction is not completed within this time, it will be resent the number of times specified in (S1)+7. 0: 10 seconds 1 to 32767: 1 to 32767 seconds	0 to 32767	User																																			
(S1)+9	Read data length ^{*3}	Specify the size of the read data. When the target station is QCPU/RCPU/LCPU: 1 to 8192 words When the target station is QnACPU: 1 to 480 words When specifying 961 words or more, use channel 9 or 10 for the own station.	1 to 8192 (1 to 960 when the own station is a safety CPU)	User																																			
(S1)+10	—	Unused	0	User																																			
(S1)+11	Clock set flag	The valid or invalid status of the data in the area starting from (S1)+12 is stored. Data is stored only when 1 is set in the bit 7 of Error completion type ((S1)+0). Note that the stored value will not be cleared even after the dedicated instruction is completed. 0: Invalid 1: Valid	—	System																																			
(S1)+12 to (S1)+15	Clock data on error completion	Clock data on error completion are stored in BCD format. Data is stored only when 1 is set in the bit 7 of Error completion type ((S1)+0). Note that the stored value will not be cleared even after the dedicated instruction is completed. <table border="1" style="margin-left: auto; margin-right: auto;"> <thead> <tr> <th></th> <th>b15</th> <th>to</th> <th>b8</th> <th>b7</th> <th>to</th> <th>b0</th> </tr> </thead> <tbody> <tr> <td>(S1)+12</td> <td>Month (01H to 12H)</td> <td></td> <td>Year (00H to 99H)</td> <td></td> <td colspan="2">Last 2 digits</td> </tr> <tr> <td>(S1)+13</td> <td>Hour (00H to 23H)</td> <td></td> <td colspan="4">Day (01H to 31H)</td> </tr> <tr> <td>(S1)+14</td> <td>Second (00H to 59H)</td> <td></td> <td colspan="4">Minute (00H to 59H)</td> </tr> <tr> <td>(S1)+15</td> <td>Year (00H to 99H)</td> <td>First 2 digits</td> <td colspan="4">Day of week (00H to 06H)</td> </tr> </tbody> </table> 00H (Sun.) to 06H (Sat.) When the target station is QnACPU, "00H" is stored in the Year field (first two digits of the year).		b15	to	b8	b7	to	b0	(S1)+12	Month (01H to 12H)		Year (00H to 99H)		Last 2 digits		(S1)+13	Hour (00H to 23H)		Day (01H to 31H)				(S1)+14	Second (00H to 59H)		Minute (00H to 59H)				(S1)+15	Year (00H to 99H)	First 2 digits	Day of week (00H to 06H)				—	System
	b15	to	b8	b7	to	b0																																	
(S1)+12	Month (01H to 12H)		Year (00H to 99H)		Last 2 digits																																		
(S1)+13	Hour (00H to 23H)		Day (01H to 31H)																																				
(S1)+14	Second (00H to 59H)		Minute (00H to 59H)																																				
(S1)+15	Year (00H to 99H)	First 2 digits	Day of week (00H to 06H)																																				
(S1)+16	Error-detected network No. ^{*4}	Network No. of the station, where an error was detected, is stored. Data is stored only when 1 is set in the bit 7 of Error completion type ((S1)+0). Note that the stored value will not be cleared even after the dedicated instruction is completed. 1 to 239: Network No.	—	System																																			
(S1)+17	Error-detected station No. ^{*4}	Station No. of the station, where an error was detected, is stored. Data is stored only when 1 is set in the bit 7 of Error completion type ((S1)+0). Note that the stored value will not be cleared even after the dedicated instruction is completed. 1 to 120: Station No.	—	System																																			

*1 The setting side is as shown below.

User: Before execution of the link dedicated instruction, data must be set by the user.

System: The CPU module stores the execution result of the link dedicated instruction.

*2 When specifying channel 9 or 10, check the serial No. and software version for applicability. ( Page 606, Appendix 3)

*3 When specifying 961 words or more, check the serial No. and software version for applicability. ( Page 606, Appendix 3)

*4 Data is not stored when Completion status ((S1)+1) is "Channel busy (Dedicated instruction) (error code: E26C_H)".

Point

The number of resends ((S1)+7) must be set every time an instruction is executed.

Remark

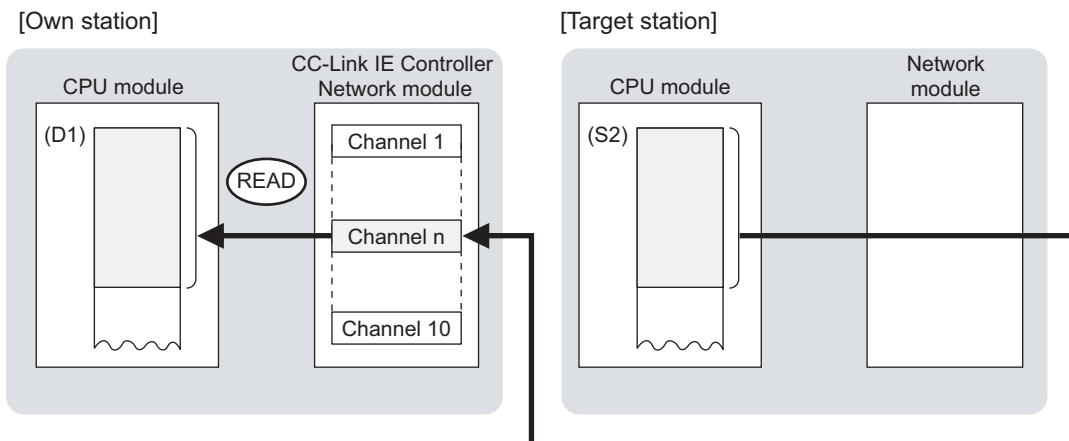
When the READ instruction is executed with specification of 961 words or more, data are fragmented in units of 961 words, and are read from the target station.
To perform the next processing after confirming the read completion on the target station, use the SREAD instruction.

(3) Function**(a) READ instruction overview**

The READ instruction reads out word device data (in and after (S2)) of the target station to word devices of the own station (in and after (D1)).

The target station is specified in Target station network No. ((S1)+4) and Target station No. ((S1)+5) of control data.

Upon completion of reading the target station devices, Completion device (D2) turns ON.

**(b) Target stations available for specification**

- Target network

In addition to CC-Link IE Controller Network, stations in the following networks can be also specified.

- CC-Link IE Field Network
- MELSECNET/H
- MELSECNET/10
- Ethernet

- Target station's CPU type

The READ instruction is executable only when the target station is QCPU, RCP, LCP, or QnACP.

The READ instruction is not executable to the ACP connected to MELSECNET/10 or Ethernet.

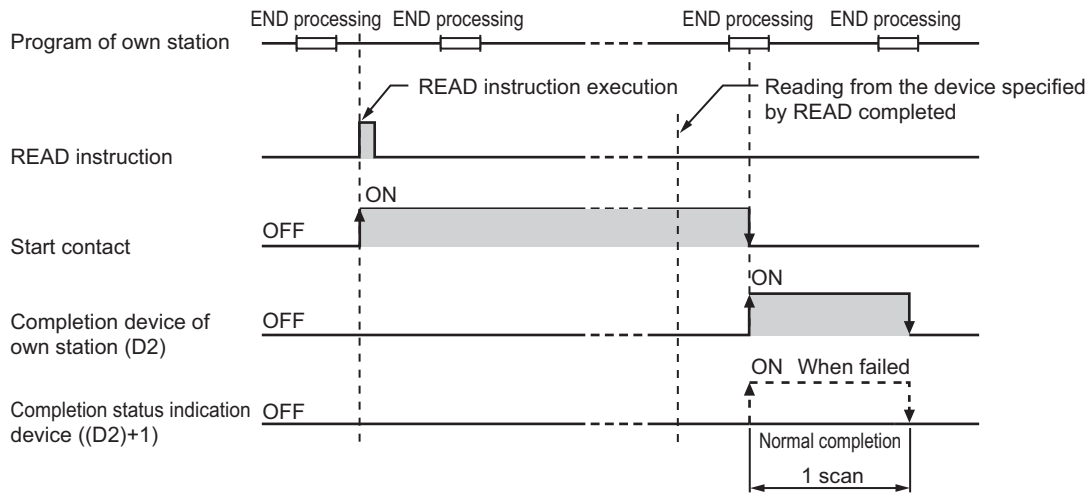
(c) Checking the execution status of the READ instruction

The execution status of the READ instruction (Normal completion, Error completion) can be checked with the following devices specified in the setting data.

- Completion device (D2)
Turns ON in the END processing for the scan after completion of the READ instruction, and turns OFF in the next END processing.
- Completion status indication device ((D2)+1)
Turns ON in the END processing for the scan after completion of the READ instruction, and turns OFF in the next END processing, only when the READ instruction has failed.

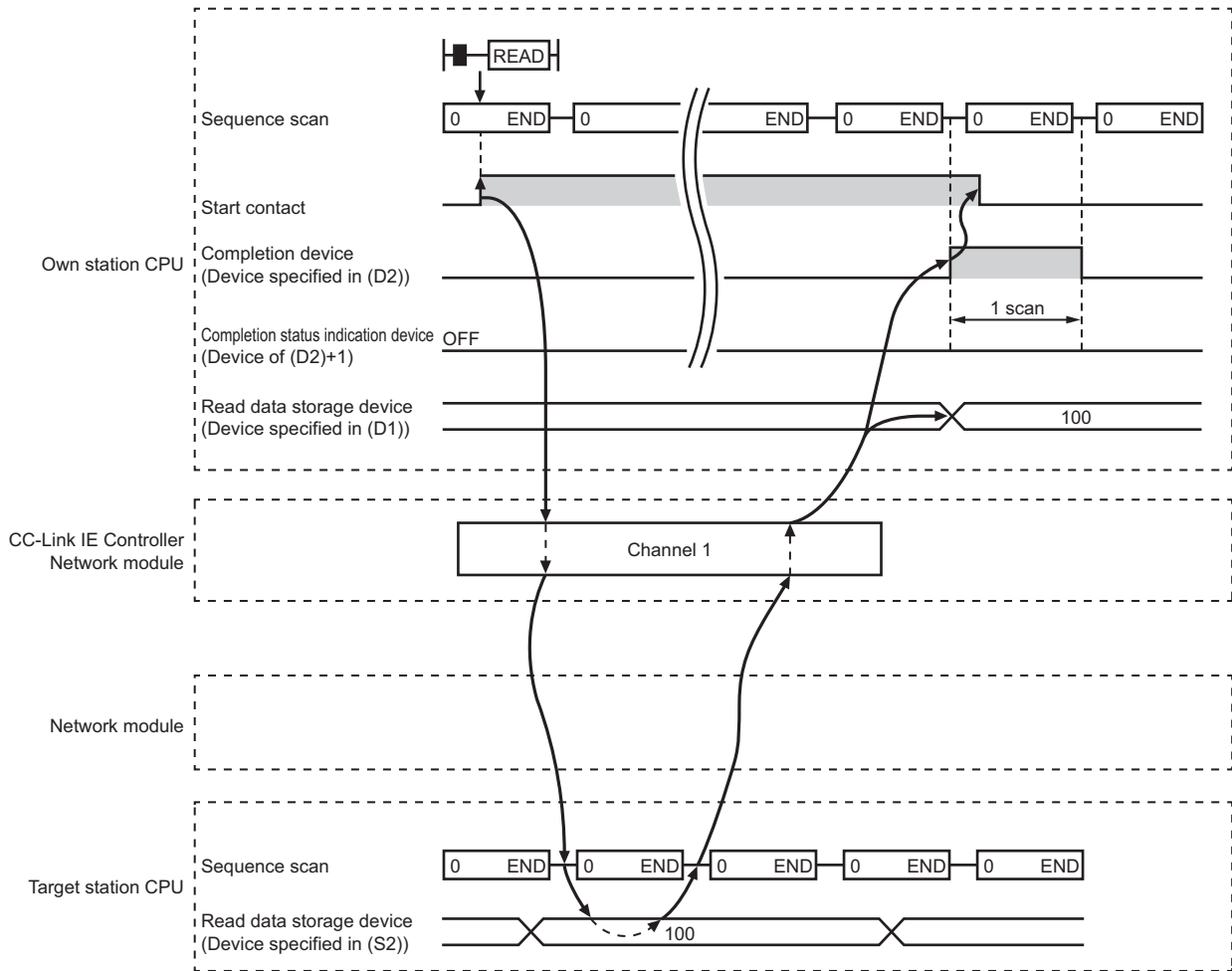
(d) Operation in READ instruction execution

- Operation of the own station



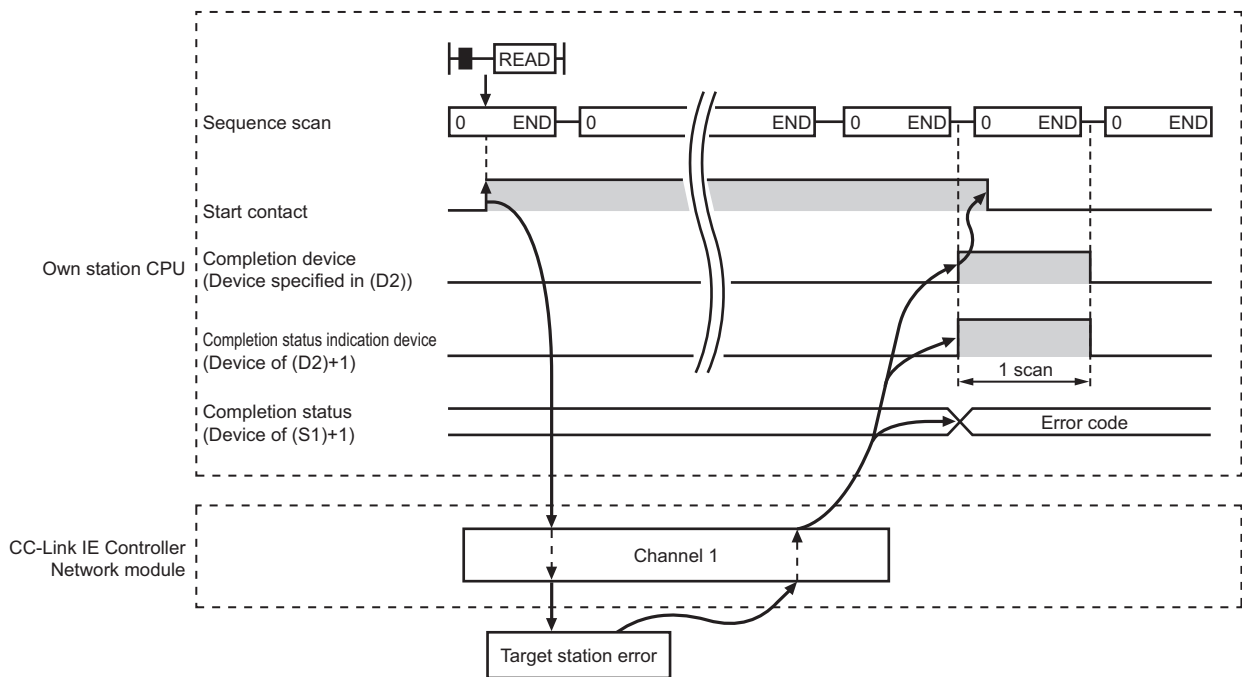
(e) READ instruction execution timing

- When completed normally



9.3 JP/GP READ (Data Read from Programmable Controllers on Other Stations)

- When failed



(4) Error

When a link dedicated instruction failed, the error details can be confirmed by either of the following methods.

(a) With the programming tool

The error details can be checked in the CC IE Control diagnostics. (👉 Page 526, Section 10.3)

(b) Checking devices

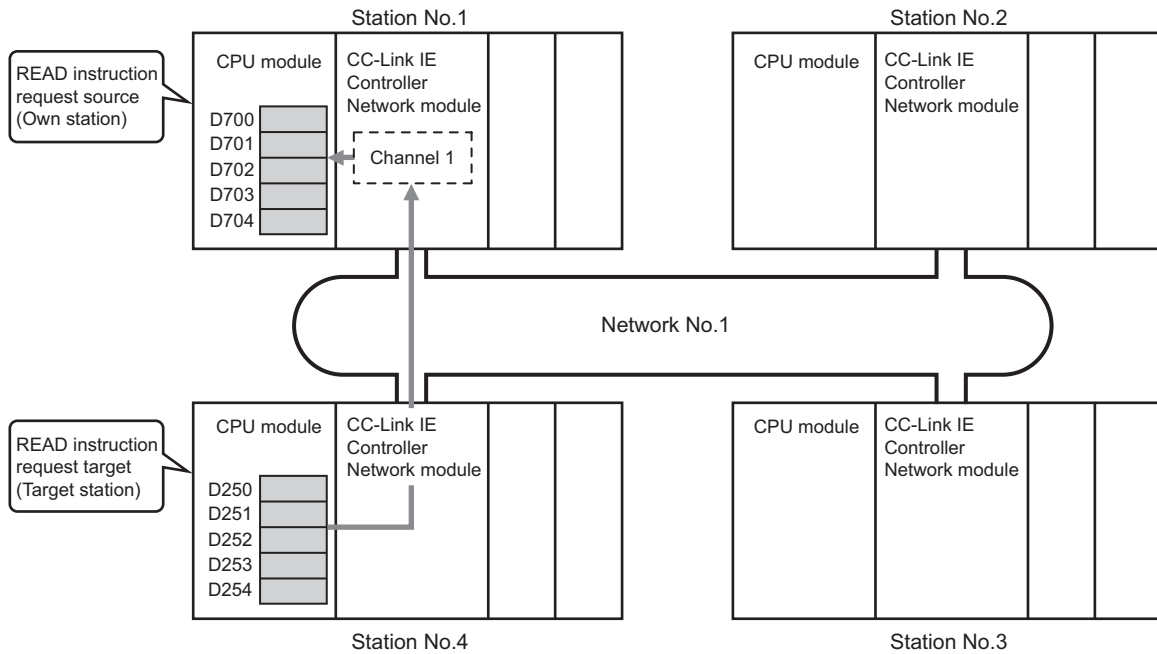
Completion status indication device ((D2)+1) is turned ON, and an error code is stored in Completion status ((S1)+1) of control data.

Check the error and take corrective actions according to the error code. (👉 Page 511, Section 10.2)

(5) Program example

In this program example, when M101 turns ON, data in D250 to D254 of station No.4 (target station) are read out to D700 to D704 of station No.1 (own station).

(a) System configuration example



(b) Devices used in the program example

- Link special relay (SB) and link special register (SW)

Device	Description	Device	Description
SB0047	Baton pass status (own station)	SW00A0.3	Baton pass status of station No.4

Remark

- For details of link special relay (SB): Page 568, Appendix 1
- For details of link special register (SW): Page 584, Appendix 2

- Devices used by the user

Device	Description	Device	Description
M100	Control data setting command	D200 to D217	Control data
M101	Start contact	D600	Error code storage device
M105	Completion device	D700 to D704	Read data storage device (station No.1)
M106	Completion status indication device		—

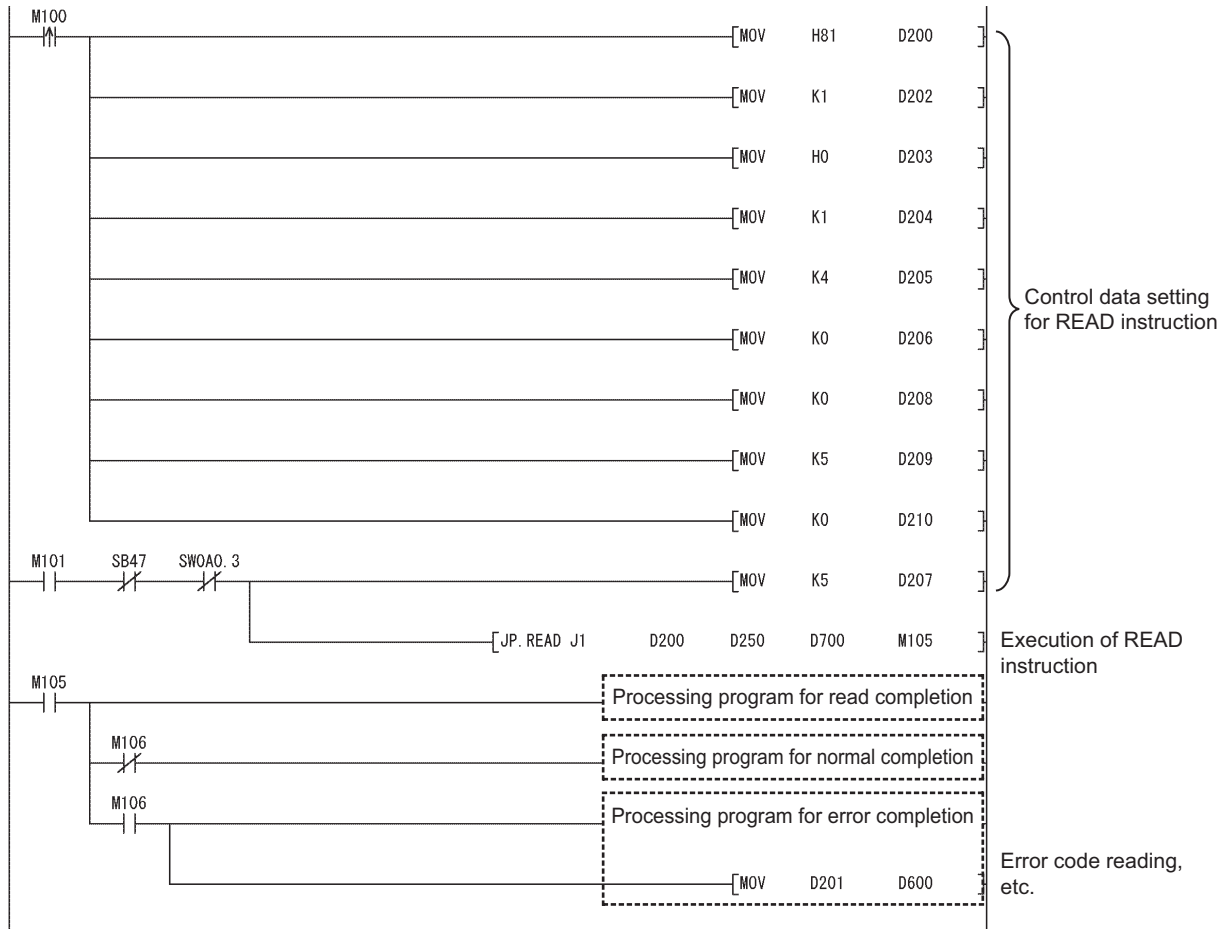
(c) READ instruction settings

Control data settings for the READ instruction are shown below.

Device		Item	Set value
(S1)+0	D200	Error completion type	0081 _H (Clock data at the time of error completion is set.)
(S1)+1	D201	Completion status	— (Set by the system, no setting required)
(S1)+2	D202	Channel used by own station	1
(S1)+3	D203	Target station's CPU type	0000 _H (Control CPU)
(S1)+4	D204	Target station network No.	1
(S1)+5	D205	Target station No.	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	
(S1)+12 to (S1)+15	D212 to D215	Clock data on error completion	— (Set by the system, no setting required)
(S1)+16	D216	Error-detected network No.	
(S1)+17	D217	Error-detected station No.	

(d) Program example

The following example program is written to the CPU module of station No.1.



9.4 JP/GP.SREAD (Data Read from Programmable Controllers on Other Stations)

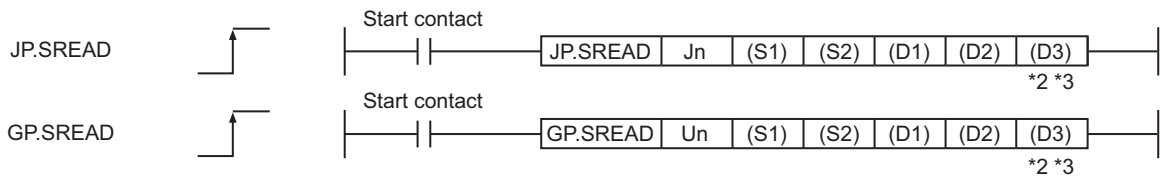
The SREAD instruction reads data from devices of a programmable controller on another station. (In units of words)
 With the SREAD instruction, a device on another station turns ON when data reading is completed. (The other station can recognize that data have been read out with the SREAD instruction.)

Setting data	Available devices									
	Internal device (System, User)		File register R, ZR	Link direct device J□□		Intelligent function module device U□IG□	Index register Zn	Constant		Others
	Bit	Word		Bit	Word			K,H	\$	
(S1)	—	○								
(S2)	—	○ ^{*1}	○							
(D1)	—		○							
(D2)		○								
(D3)		○								

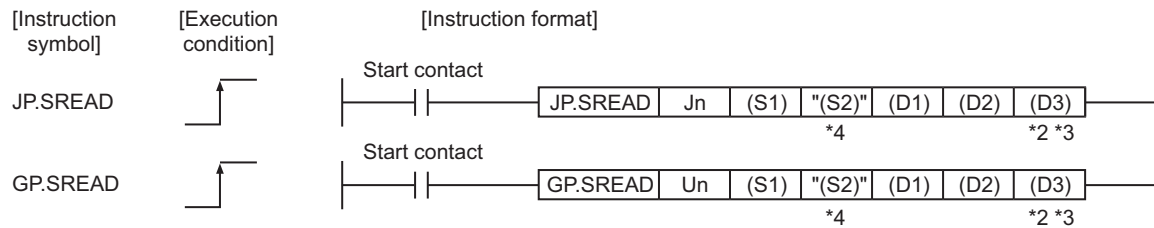
*1 T, C, D, W, ST, SD or SW can be used.

• Instruction format

[Instruction symbol] [Execution condition] [Instruction format]




• Instruction format (Available when the own station has a Universal model QCPU)



- *2 The SREAD instruction can be programmed without argument (D3). However, in such a case, the operation is identical to the READ instruction. With the SREAD instruction, different operations are available depending on whether (D3) is omitted or not.
- *3 When the target station is a Basic model QCPU or safety CPU, the read notification device set as argument (D3) for the target station is ignored. (Same operation as with the READ instruction)
- *4 If the device setting in the PLC parameter is different between the own and target stations, use "(S2)" (with double quotation marks) to specify.

(1) Setting data

Setting data *1	Description	Data type
Jn	Network No. of the own station (1 to 239, 254) 254: The network specified in Valid module during other station access	Binary 16 bits
Un	Start I/O number of the own station's CC-Link IE Controller Network module (00 to FE _H : The higher two digits of the 3-digit I/O number)	
(S1)	Start device of the own station that stores control data ( Page 335, Section 9.3 (2))	Device name
(S2)	Target station's start device where data to be read are stored	
(D1)	The own station's start device where readout data will be stored (A contiguous area for the read data length is required.)	Bit
(D2)	The own station's device that is turned on for one scan upon completion of the instruction (D2)+1 also turns ON if the instruction execution has failed.	
(D3)	The target station's device that is turned on for one scan upon completion of the instruction. (The target station can recognize that data have been read out with the SREAD instruction.)	

*1 Local devices and file registers for each program cannot be used as devices in setting data.

Point

- Specify devices of the target station's CPU within the range allowed for the own station CPU when reading data from the devices with the SREAD instruction
(Target station's start device (S2) where data to be read are stored) + (Read points - 1) ≤ (End device No. of own station's CPU*1)

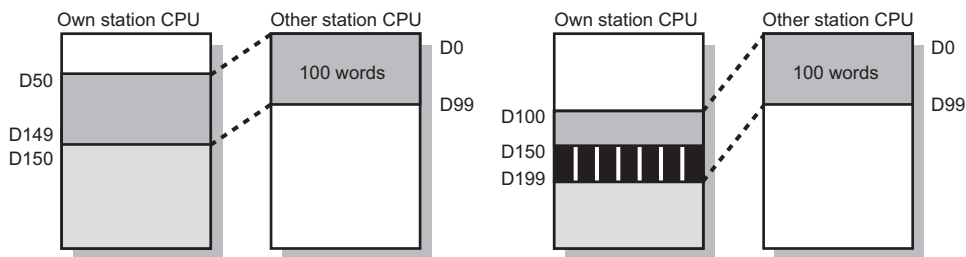
*1 End device No. of the device in the own station, and whose device name is same as in (S2)




- Specify the own station's start device (D1) within the range allowed for storing read data.

Ex. When D150 and after the area in the own station's CPU has been already used

 Good example (D50 is specified to (D1).)

 Bad example (D100 is specified to (D1).)

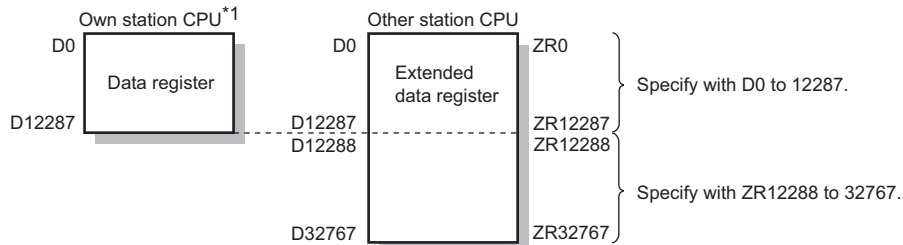


 : Data to be read with SREAD instruction
 : Area already used by own station's CPU
 : Duplicated area

- Use the file register (ZR) when specifying the extended data register (D) or extended link register (W) that is outside the area of the own station CPU's data register (D) or link register (W). (Except for the Universal model QCPU)
For the calculation of the file register (ZR), refer to the following.


 User's Manual (Function Explanation, Program Fundamentals) for the CPU module used

Ex. When 0K point is assigned to the data register (D) of another station CPU, and when all 32K points of the file register (ZR) are assigned to the extended data register (D)



*1 A file register whose capacity is 32K points or more is required for the own station's CPU.

(2) Control data

Control data of the SREAD instruction are the same as those of the READ instruction. ( Page 335, Section 9.3 (2))

(3) Function

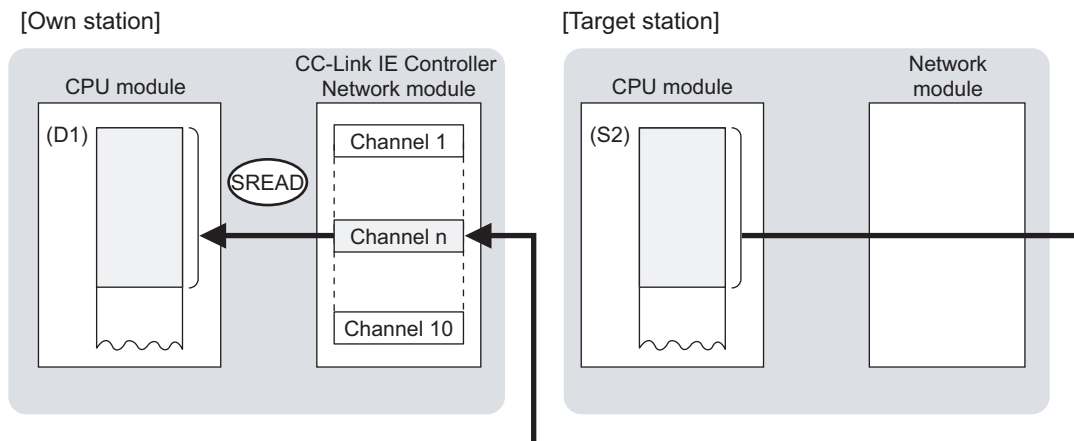
(a) SREAD instruction overview

The SREAD instruction reads out word device data (in and after (S2)) of the target station to word devices of the own station (in and after (D1)).

The target station is specified in Target station network No. ((S1)+4) and Target station No. ((S1)+5) of control data.

Upon completion of reading the data specified in (S2), the following devices turn ON.

- Own station: Completion device (D2)
- Target station: Read notification device (D3)



(b) Target stations available for specification

- Target network
 - In addition to CC-Link IE Controller Network, stations in the following networks can be also specified.
 - CC-Link IE Field Network
 - MELSECNET/H
 - MELSECNET/10
 - Ethernet
- Target station's CPU type

The SREAD instruction is executable only when the target station is QCPU, RCP, LCPU, or QnACPU.
The SREAD instruction is not executable to the ACPU connected to MELSECNET/10 or Ethernet.

(c) Checking the execution status of the SREAD instruction

The execution status of the SREAD instruction (Normal completion, Error completion) can be checked with the following devices specified in the setting data.

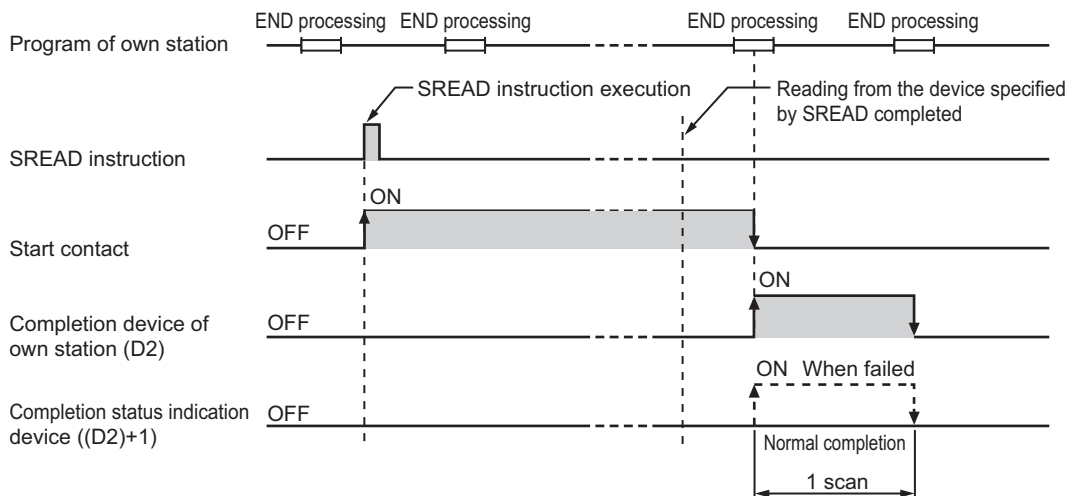
- Completion device (D2)

Turns ON in the END processing for the scan after completion of the SREAD instruction, and turns OFF in the next END processing.
- Completion status indication device ((D2)+1)

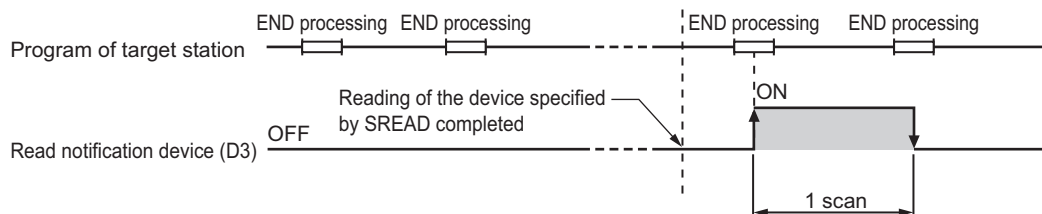
Turns ON in the END processing for the scan after completion of the SREAD instruction, and turns OFF in the next END processing, only when the SREAD instruction has failed.

(d) Operation in SREAD instruction execution

- Operation of the own station



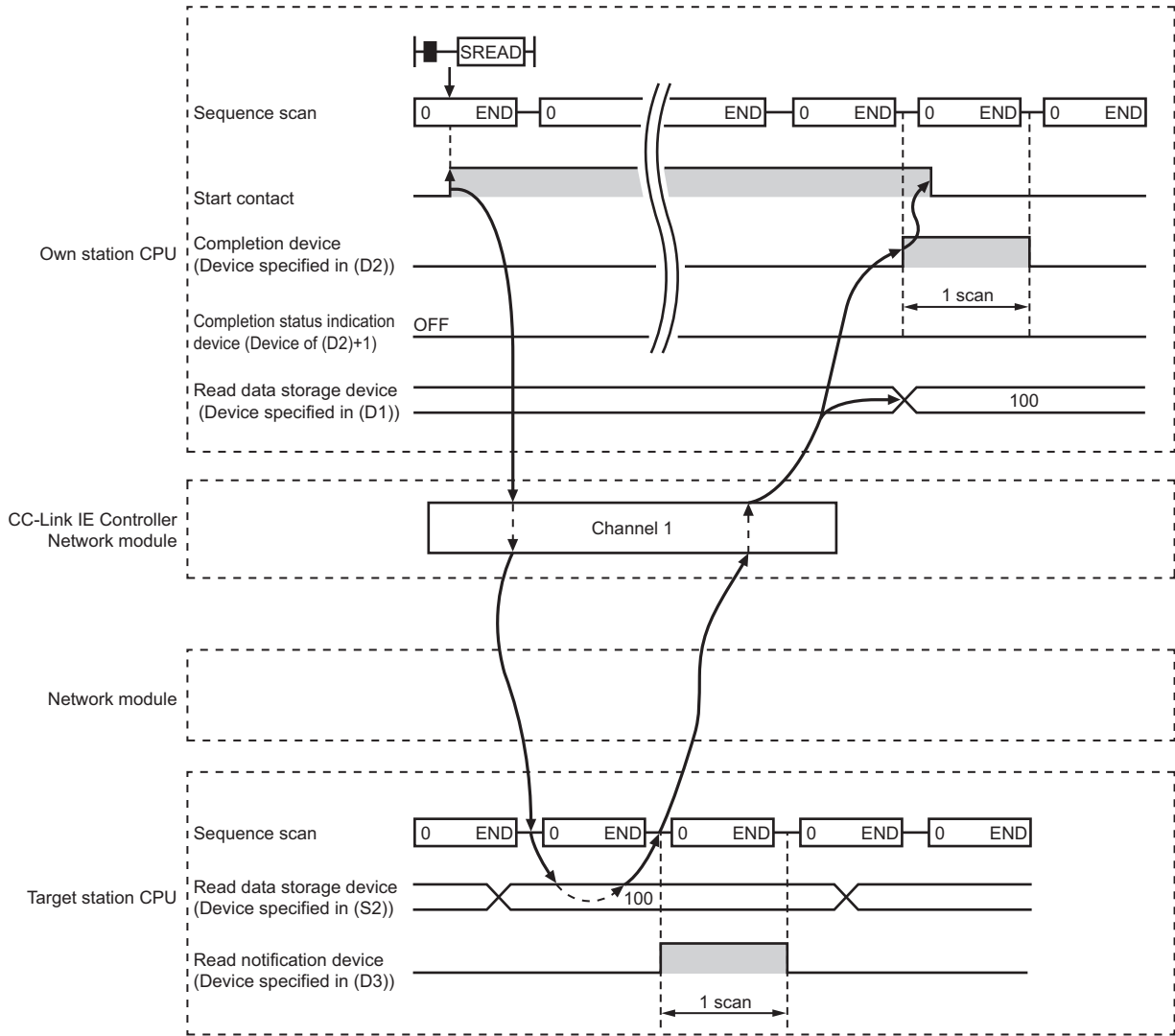
- Operation of the target station



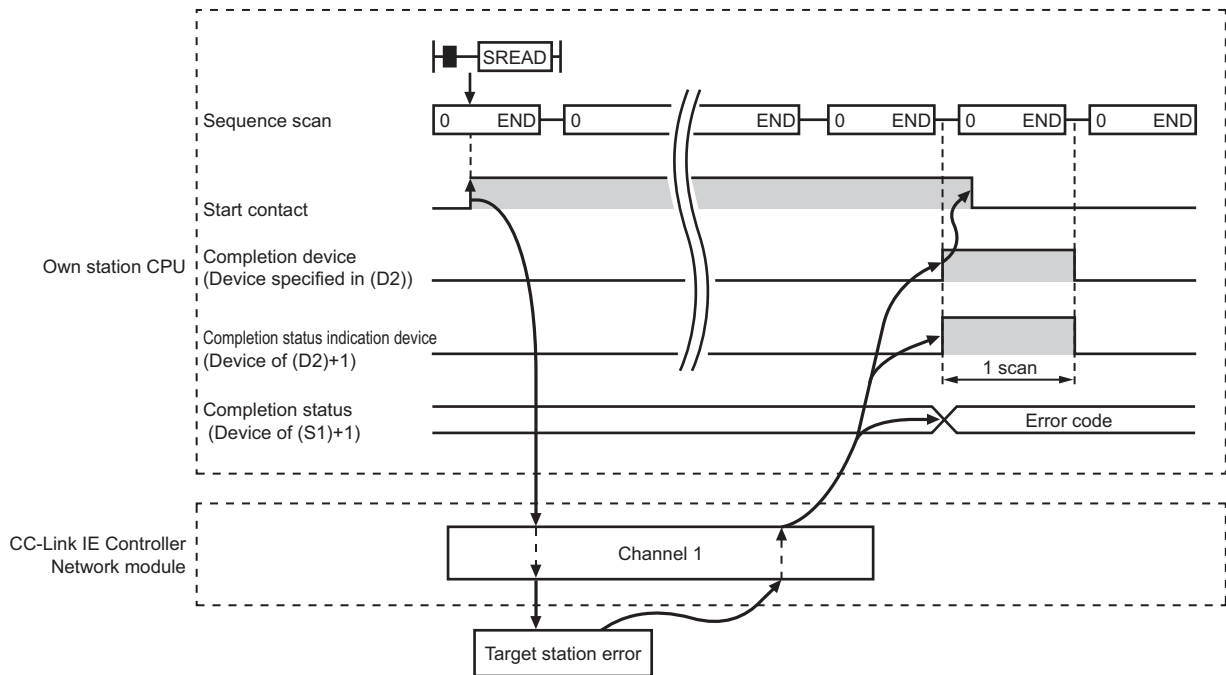
9.4 JP/GP SREAD (Data Read from Programmable Controllers on Other Stations)

(e) SREAD instruction execution timing

- When completed normally



- When failed



(4) Error

When a link dedicated instruction failed, the error details can be confirmed by either of the following methods.

(a) With the programming tool

The error details can be checked in the CC IE Control diagnostics. (☞ Page 526, Section 10.3)

(b) Checking devices

Completion status indication device ((D2)+1) is turned ON, and an error code is stored in Completion status ((S1)+1) of control data.

Check the error and take corrective actions according to the error code. (☞ Page 511, Section 10.2)

(5) Program example

The program example of the SREAD instruction is different from that of the READ instruction in that the read notification device (D3) is specified at the end of arguments.

Refer to the following for details on the READ instruction program example.

☞ Page 341, Section 9.3 (5)

As in the program example of the READ instruction, when M101 turns ON, data in D250 to D254 of station No.4 (target station) are read out to D700 to D704 of station No.1 (own station).

Additionally, if the read notification device (D3) is turned ON on the target station, Y60 of the target station is turned ON.

(a) System configuration example

Same as in the program example of the READ instruction.

(b) Devices used in the program example

- Link special relay (SB) and link special register (SW)

Same as in the program example of the READ instruction.

- Devices used by the user

Devices used by the SREAD instruction request source (station number 1) are same as those used in the program example of the READ instruction.

Devices used by the SREAD request target (station No.4)

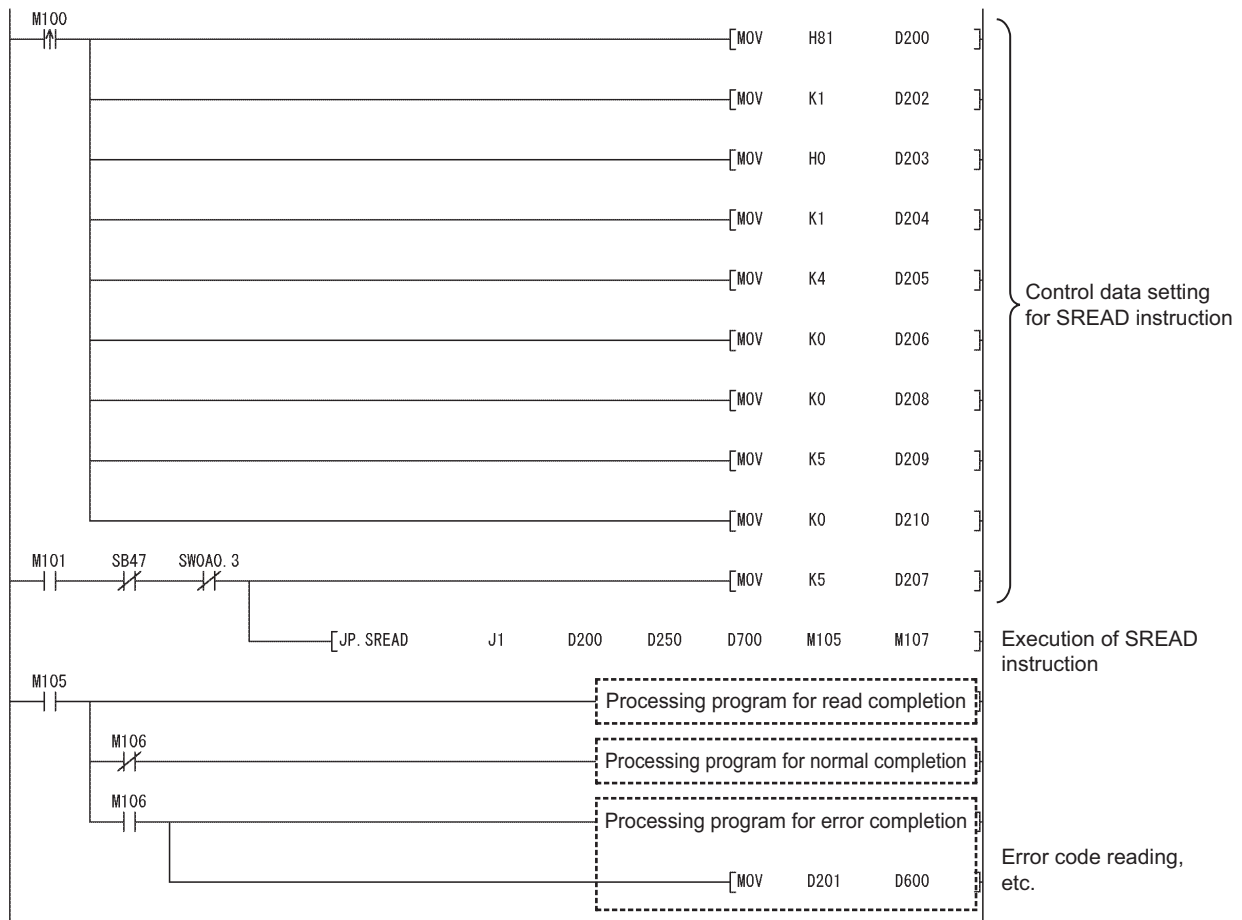
Device	Description	Device	Description
M107	Read notification device	Y60	Read completion device

(c) SREAD instruction settings

Same as in the program example of the READ instruction.

(d) Program example

- Program example for the SREAD request source (station No.1)



- Program example for the SREAD request target (station No.4)



9.5 JP/GP.WRITE (Data Write to Programmable Controllers on Other Stations)

The WRITE instruction writes data to devices of a programmable controller on another station. (In units of words)

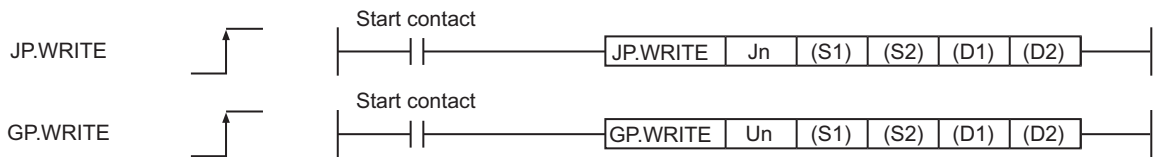
Setting data	Available devices									
	Internal device (System, User)		File register R, ZR	Link direct device J□\□		Intelligent function module device U□\G□	Index register Zn	Constant		Others
	Bit	Word		Bit	Word			K,H	\$	
(S1)	—		○							—
(S2)	—		○							—
(D1)	—	○ ^{*1}	○							—
(D2)		○								—

*1 T, C, D, W, ST, SD or SW can be used.
 For SD/SW, data can be written within the setting range allowed for the user.
 For details on SD/SW, refer to the following.

Manual for the CPU module and network module on the target station

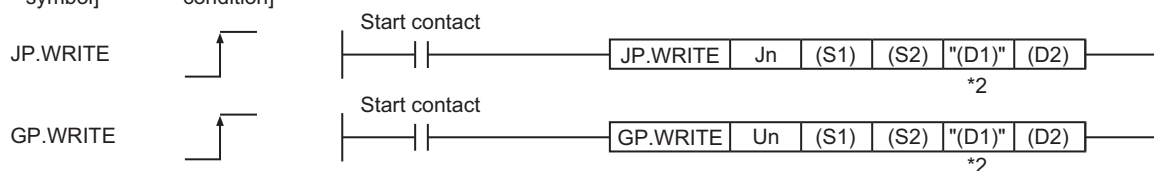
• Instruction format

[Instruction symbol] [Execution condition] [Instruction format]



• Instruction format (Available when the own station has a Universal model QCPU)

[Instruction symbol] [Execution condition] [Instruction format]



*2 If the device setting in the PLC parameter is different between the own and target stations, use "(D1)" (with double quotation marks) to specify.

(1) Setting data

Setting data ^{*1}	Description	Data type
Jn	Network No. of the own station (1 to 239, 254) 254: The network specified in Valid module during other station access	Binary 16 bits
Un	Start I/O number of the own station's CC-Link IE Controller Network module (00 to FE _μ : The higher two digits of the 3-digit I/O number)	
(S1)	Start device of the own station that stores control data (Page 354, Section 9.5 (2))	Device name
(S2)	The own station's start device where write data are stored.	
(D1)	Target station's start device to which data are to be written. (A contiguous area for the write data length is required.)	

Setting data ^{*1}	Description	Data type
(D2)	The own station's device that is turned on for one scan upon completion of the instruction (D2)+1 also turns ON if the instruction execution has failed.	Bit

*1 Local devices and file registers for each program cannot be used as devices in setting data.

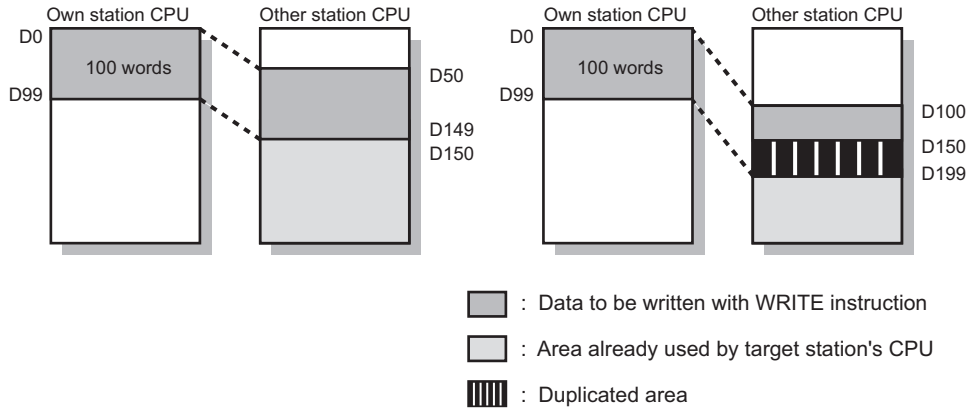
Point

- Specify devices of the target station's CPU within the range allowed for the own station CPU when writing data to the devices with the WRITE instruction.
(Target station's start device (D1) to which data are written) + (Write points - 1) ≤ (End device No. of own station's CPU*¹)
- *1 End device No. of the device in the own station CPU, and whose device name is same as (D1)
- Specify the own station's start device (D1) within the range allowed for storing write data

Ex. When D150 and after the area in the own station's CPU has been already used

○ Good example (D50 is specified to (D1).)

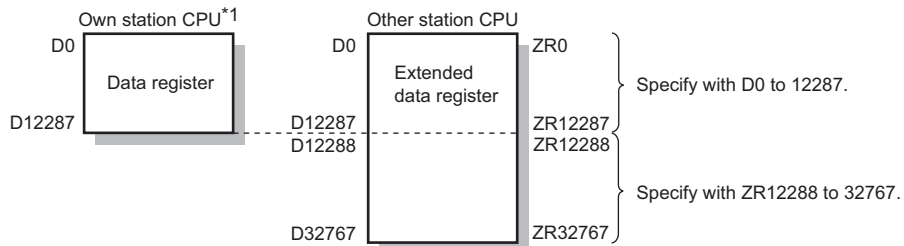
✗ Bad example (D100 is specified to (D1).)



- Use the file register (ZR) when specifying the extended data register (D) or extended link register (W) that is outside the area of the own station CPU's data register (D) or link register (W). (Except for the Universal model QCPU)
For the calculation of the file register (ZR), refer to the following.

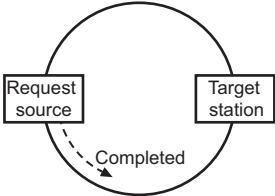
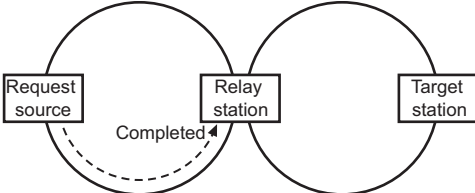
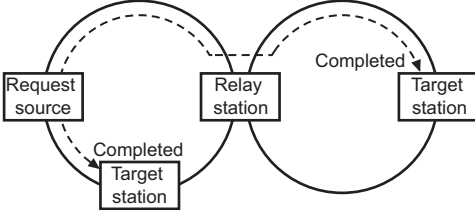
📖 User's Manual (Function Explanation, Program Fundamentals) for the CPU module used



Ex. When OK point is assigned to the data register (D) of another station (Example) When OK point is assigned to the data register (D) of another station CPU, and when all 32K points of the file register (ZR) are assigned to the extended data register (D)




*1 A file register whose capacity is 32K points or more is required for the own station's CPU.

(2) Control data

Device	Item	Setting data	Setting range	Setting side ^{*1}										
(S1)+0	Execution/Error completion type	<div style="text-align: center; margin-bottom: 10px;"> <table border="1" style="margin: auto;"> <tr> <td style="padding: 2px;">b15</td> <td style="padding: 2px;">to</td> <td style="padding: 2px;">b7</td> <td style="padding: 2px;">to</td> <td style="padding: 2px;">b0</td> </tr> <tr> <td style="padding: 2px; text-align: center;">0</td> <td></td> <td style="padding: 2px; text-align: center;">2)</td> <td></td> <td style="padding: 2px; text-align: center;">1)</td> </tr> </table> </div> <p>1) Execution type (bit 0)</p> <p>0: No arrival confirmation</p> <ul style="list-style-type: none"> • When the target station is on the same network Completed when data are sent from the own station. <div style="text-align: center; margin: 10px 0;">  </div> <ul style="list-style-type: none"> • When the target station is on another network Completed when data reach a relay station on the same network. <div style="text-align: center; margin: 10px 0;">  </div> <p>1: With arrival confirmation</p> <p>Completed when data are written to the target station.</p> <div style="text-align: center; margin: 10px 0;">  </div> <p>When "0: No arrival confirmation" is specified, even if writing to the target station is terminated abnormally in the following cases, it is normal completion on the own station.</p> <ul style="list-style-type: none"> • Communication itself was completed normally, although the data sent were erroneous. • Data could not be written to the target station because instructions from multiple stations were sent to the same station. (An error code (E006_H or E205_H) is detected on the target station.) <p>2) Error completion type (bit 7)</p> <p>Specify the clock data setup status for error completion.</p> <p>0: Clock data at the time of error completion is not set in the area starting from (S1)+11.</p> <p>1: Clock data at the time of error completion is set in the area starting from (S1)+11.</p>	b15	to	b7	to	b0	0		2)		1)	0000 _H 0001 _H 0080 _H 0081 _H	User
b15	to	b7	to	b0										
0		2)		1)										

Device	Item	Setting data	Setting range	Setting side*1	
(S1)+1	Completion status	The instruction completion status is stored. 0: Normal Other than 0: Error ( Page 511, Section 10.2)	—	System	
(S1)+2	Channel used by own station*2	Specify the channel used by the own station. ( Page 328, Section 9.2.2 (1))	1 to 10 (1 to 8 when the own station is a safety CPU)	User	
(S1)+3	Target station's CPU type	Specify the CPU module on the station to be accessed.	0000 _H 03D0 _H to 03D3 _H 03E0 _H to 03E3 _H 03FF _H	User	
		Setting value			Description
		0000 _H			Control CPU (The access target is the same as when "03FF _H " is specified.)
		03D0 _H			Control system CPU (Redundant CPU only)
		03D1 _H			Standby system CPU (Redundant CPU only)
		03D2 _H			System A CPU (Redundant CPU only)
		03D3 _H			System B CPU (Redundant CPU only)
		03E0 _H			<ul style="list-style-type: none"> • Target station CPU (single CPU system) • Multi-CPU No.1 • Control CPU (single CPU system) • Multiple CPU system No.1
		03E1 _H			Multiple CPU system No.2
		03E2 _H			Multiple CPU system No.3
		03E3 _H			Multiple CPU system No.4
		03FF _H			Control CPU
	When the instruction is executed with control system CPU (03D0 _H) or standby system CPU (03D1 _H) specified, if system switching occurs at the target station, the instruction execution may fail. (Error code: 4244 _H , 4248 _H) If the instruction has failed with the above error, execute it again.				
(S1)+4	Target station network No.	Specify the network No. of the target station. 1 to 239: Network No. 254: Specify this when 254 has been set in Jn.	1 to 239 254	User	

Device	Item	Setting data	Setting range	Setting side ^{*1}
(S1)+5	Target station No.	<p>Specify the station No. of the target station.</p> <p>(1) Station No. specification When own station is Universal model QCPU: 1 to 120 When own station is other than Universal model QCPUs: 1 to 64 To increase the reliability of data, it is recommended to execute the instruction with the Execution/Error completion type ((S1)+0) set to "1: With arrival confirmation".</p> <p>(2) Group specification 81_H to A0_H: All stations in group No.1 to 32 (Setting is available when the execution type is set to "0: No arrival confirmation" in (S1)+0.)</p> <p style="text-align: center;"> Group No.1 ... 81_H Group No.2 ... 82_H } Group No.32 ... A0_H </p> <p>(3) All stations FF_H: All stations of the target network No. (Except the own station) (Setting is available when the execution type is set to "0: With arrival confirmation" in (S1)+0.)</p> <p>To specify a group or all stations</p> <ul style="list-style-type: none"> Set "0000_H" or "03FF_H" for Target station's CPU type (S1+3). <p>( Page 329, Section 9.2.2 (3))</p> <ul style="list-style-type: none"> When the target station is on CC-Link IE Field Network, group specification cannot be performed. To check if data has been properly written in the target station, check the write destination device on the target station. 	1 to 120 81 _H to A0 _H FF _H	User
(S1)+6	—	Unused	0	User
(S1)+7	Number of resends	1) For instruction execution Specify the number of times the instruction is to be resent when it is not completed within the monitoring time specified in (S1)+8. (Setting is available when the execution type is set to "1: With arrival confirmation" in (S1)+0.)	0 to 15	User
		2) At instruction completion The number of resends executed (result) is stored. (Setting is valid when the execution type is set to "1: With arrival confirmation" in (S1)+0.)	—	System
(S1)+8	Arrival monitoring time	<p>Specify the monitoring time required for instruction completion. (Setting is available when the execution type is set to "1: With arrival confirmation" in (S1)+0.)</p> <p>If an instruction is not completed within this time, it will be resent the number of times specified in (S1)+7.</p> <p>0: 10 seconds 1 to 32767: 1 to 32767 seconds</p>	0 to 32767	User
(S1)+9	Write data length ^{*3}	<p>Specify the write data size of (S2) to (S2)+n.</p> <p>When the target station is QCPU/RCPU/LCPU: 1 to 8192 words When the target station is QnACPU: 1 to 480 words When specifying 961 words or more, use channel 9 or 10 for the own station.</p>	1 to 8192 (1 to 960 when the own station is a safety CPU)	User
(S1)+10	—	Unused	0	User

Device	Item	Setting data	Setting range	Setting side*1																									
(S1)+11	Clock set flag	The valid or invalid status of the data in the area starting from (S1)+12 is stored. Data is stored only when 1 is set in the bit 7 of Execution/Error completion type ((S1)+0). Note that the stored value will not be cleared even after the dedicated instruction is completed. 0: Invalid 1: Valid	—	System																									
(S1)+12 to (S1)+15	Clock data on error completion	Clock data on error completion are stored in BCD format. Data is stored only when 1 is set in the bit 7 of Execution/Error completion type ((S1)+0). Note that the stored value will not be cleared even after the dedicated instruction is completed. <table border="1" style="margin-left: auto; margin-right: auto;"> <tr> <td style="text-align: center;">b15</td> <td style="text-align: center;">to</td> <td style="text-align: center;">b8 b7</td> <td style="text-align: center;">to</td> <td style="text-align: center;">b0</td> </tr> <tr> <td style="text-align: center;">(S1)+12</td> <td></td> <td style="text-align: center;">Month (01H to 12H)</td> <td></td> <td style="text-align: center;">Year (00H to 99H) Last 2 digits</td> </tr> <tr> <td style="text-align: center;">(S1)+13</td> <td></td> <td style="text-align: center;">Hour (00H to 23H)</td> <td></td> <td style="text-align: center;">Day (01H to 31H)</td> </tr> <tr> <td style="text-align: center;">(S1)+14</td> <td></td> <td style="text-align: center;">Second (00H to 59H)</td> <td></td> <td style="text-align: center;">Minute (00H to 59H)</td> </tr> <tr> <td style="text-align: center;">(S1)+15</td> <td></td> <td style="text-align: center;">Year (00H to 99H) First 2 digits</td> <td></td> <td style="text-align: center;">Day of week (00H to 06H)</td> </tr> </table> <p style="text-align: center;">00H (Sun.) to 06H (Sat.)</p> When the target station is QnACPU, "00H" is stored in the Year field (first two digits of the year).	b15	to	b8 b7	to	b0	(S1)+12		Month (01H to 12H)		Year (00H to 99H) Last 2 digits	(S1)+13		Hour (00H to 23H)		Day (01H to 31H)	(S1)+14		Second (00H to 59H)		Minute (00H to 59H)	(S1)+15		Year (00H to 99H) First 2 digits		Day of week (00H to 06H)	—	System
b15	to	b8 b7	to	b0																									
(S1)+12		Month (01H to 12H)		Year (00H to 99H) Last 2 digits																									
(S1)+13		Hour (00H to 23H)		Day (01H to 31H)																									
(S1)+14		Second (00H to 59H)		Minute (00H to 59H)																									
(S1)+15		Year (00H to 99H) First 2 digits		Day of week (00H to 06H)																									
(S1)+16	Error-detected network No.*4	Network No. of the station, where an error was detected, is stored. Data is stored only when 1 is set in the bit 7 of Execution/Error completion type ((S1)+0). Note that the stored value will not be cleared even after the dedicated instruction is completed. 1 to 239: Network No.	—	System																									
(S1)+17	Error-detected station No.*4	Station No. of the station, where an error was detected, is stored. Data is stored only when 1 is set in the bit 7 of Execution/Error completion type ((S1)+0). Note that the stored value will not be cleared even after the dedicated instruction is completed. 1 to 120: Station No.	—	System																									

- *1 The setting side is as shown below.
User: Before execution of the link dedicated instruction, data must be set by the user.
System: The CPU module stores the execution result of the link dedicated instruction.
- *2 When specifying channel 9 or 10, check the serial No. and software version for applicability. (☞ Page 606, Appendix 3)
- *3 When specifying 961 words or more, check the serial No. and software version for applicability. (☞ Page 606, Appendix 3)
- *4 Data is not stored when Completion status ((S1)+1) is "Channel busy (Dedicated instruction) (error code: E26C_H)".

Point

The number of resends ((S1)+7) must be set every time an instruction is executed.

Remark

When the WRITE instruction is executed with specification of 961 words or more, data are fragmented in units of 961 words, and are written to the target station.
To perform the next processing after confirming the write completion on the target station, use the SWRITE instruction.

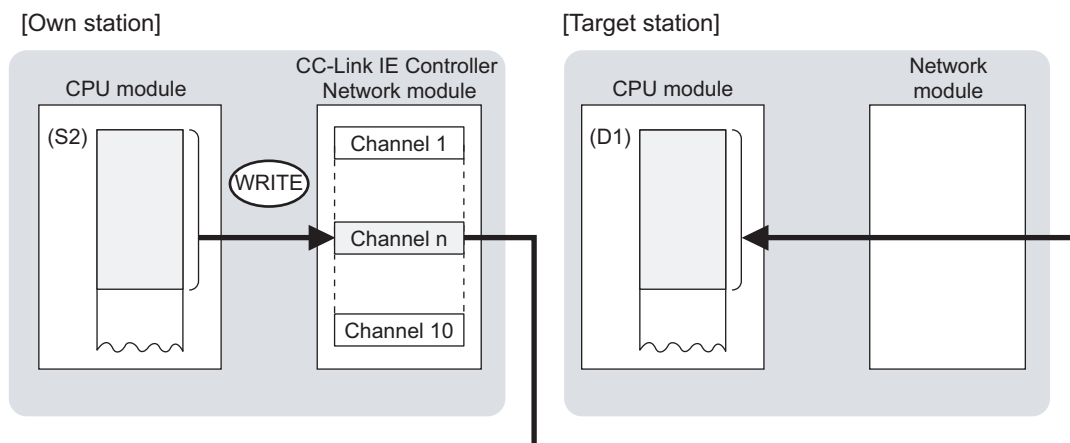
(3) Function

(a) WRITE instruction overview

The WRITE instruction writes word device data (in and after (S2)) of the own station to word devices of the target station (in and after (D1)).

The target station is specified in Target station network No. ((S1)+4) and Target station No. ((S1)+5) of control data.

Upon completion of writing data to the target station devices, Completion device (D2) turns ON.



(b) Target stations available for specification

- Target network

In addition to CC-Link IE Controller Network, stations in the following networks can be also specified.

- CC-Link IE Field Network
- MELSECNET/H
- MELSECNET/10
- Ethernet

- Target station's CPU type

The WRITE instruction is executable only when the target station is QCPU, RCPU, LCPU, or QnACPU.

The WRITE instruction is not executable to the ACPU connected to MELSECNET/10 or Ethernet.

(c) Checking the execution status of the WRITE instruction

The execution status of the WRITE instruction (Normal completion, Error completion) can be checked with the following devices specified in the setting data.

- Completion device (D2)

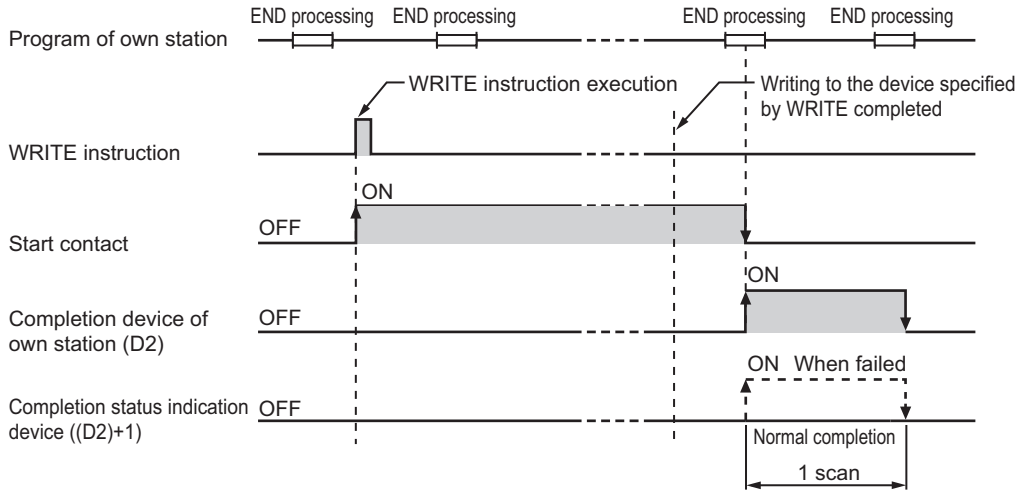
Turns ON in the END processing for the scan after completion of the WRITE instruction, and turns OFF in the next END processing.

- Completion status indication device ((D2)+1)

Turns ON in the END processing for the scan after completion of the WRITE instruction, and turns OFF in the next END processing, only when the WRITE instruction has failed.

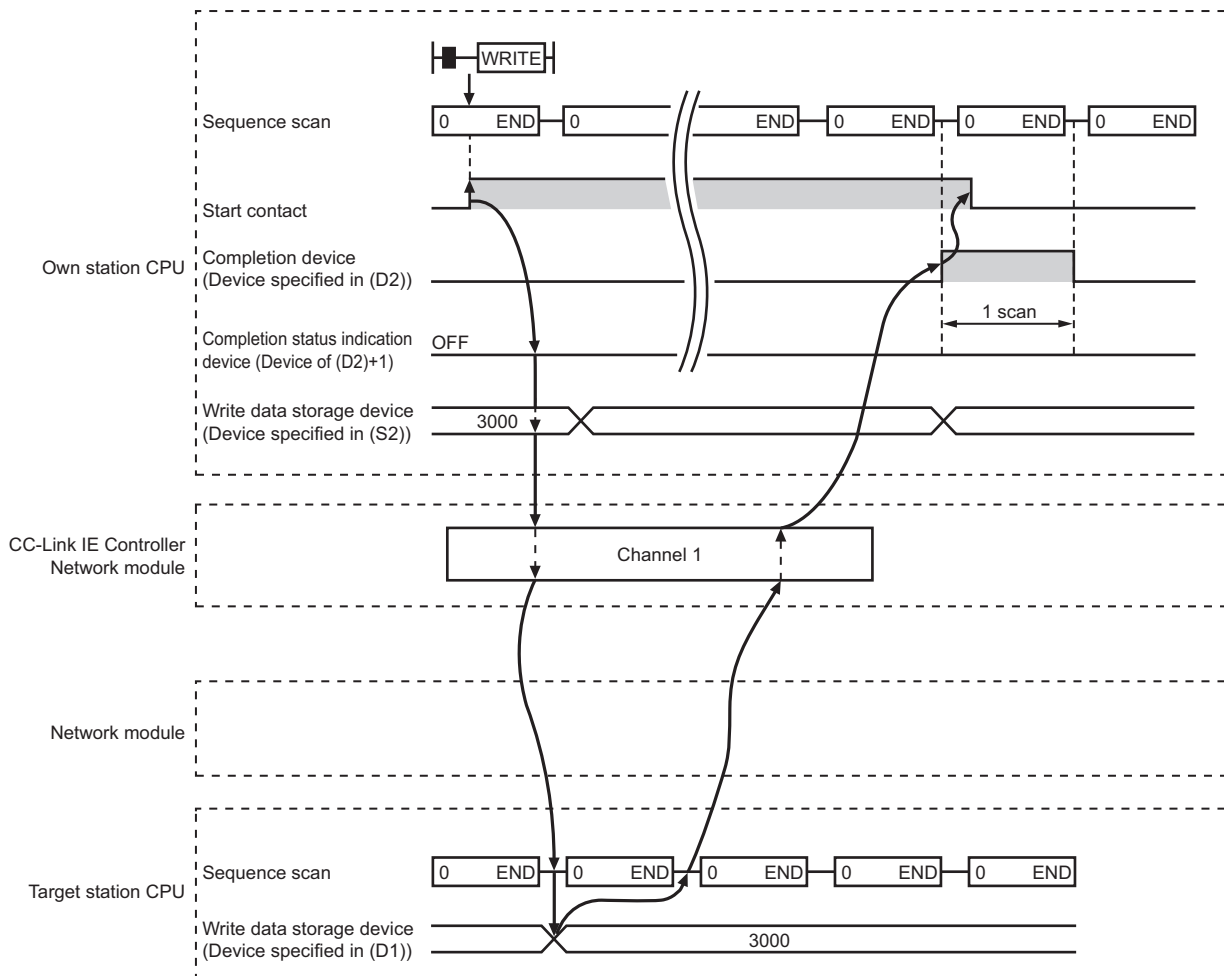
(d) Operation in WRITE instruction execution

- Operation of the own station



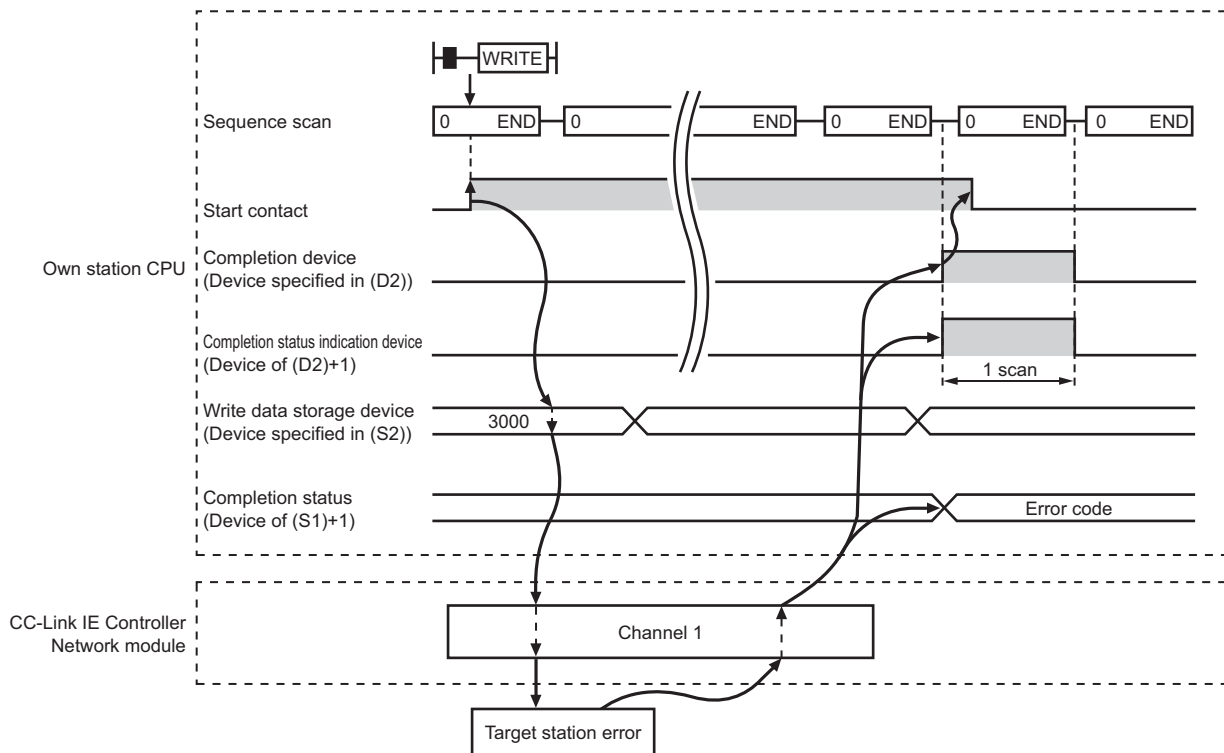
(e) WRITE instruction execution timing

- When completed normally



9.5 JP/GP WRITE (Data Write to Programmable Controllers on Other Stations)

- When failed



(4) Error

When a link dedicated instruction failed, the error details can be confirmed by either of the following methods.

(a) With the programming tool

The error details can be checked in the CC IE Control diagnostics. (Page 526, Section 10.3)

(b) Checking devices

Completion status indication device ((D2)+1) is turned ON, and an error code is stored in Completion status ((S1)+1) of control data.

Check the error and take corrective actions according to the error code. (Page 511, Section 10.2)

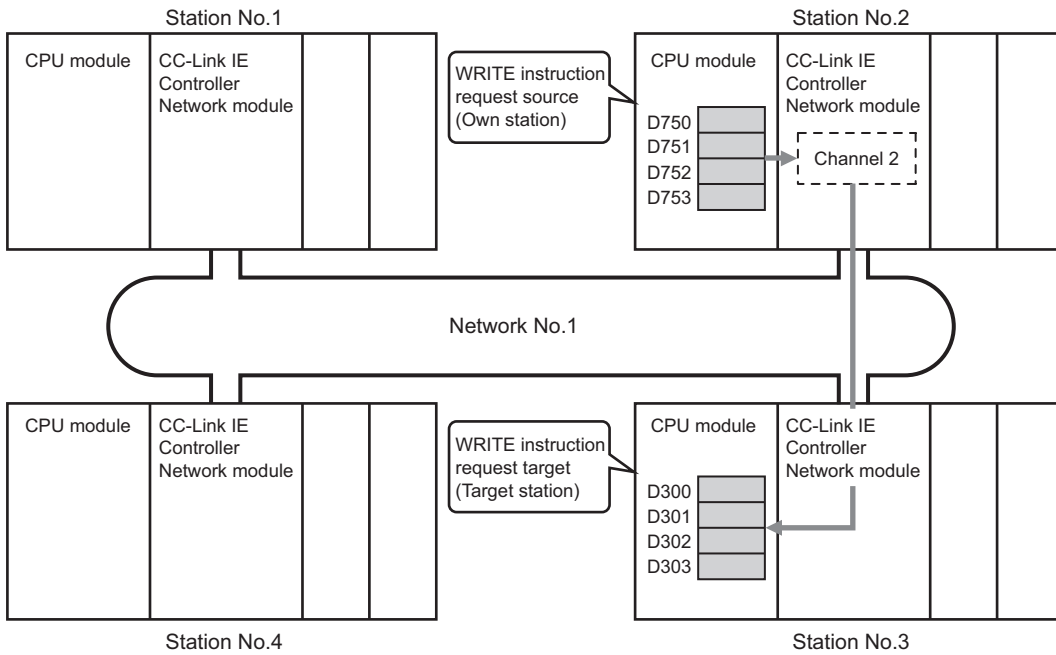
(5) Program example

In this program example, when M112 turns ON, data in D750 to D753 of station No.2 (own station) are written to D300 to D303 of station No.3 (target station).

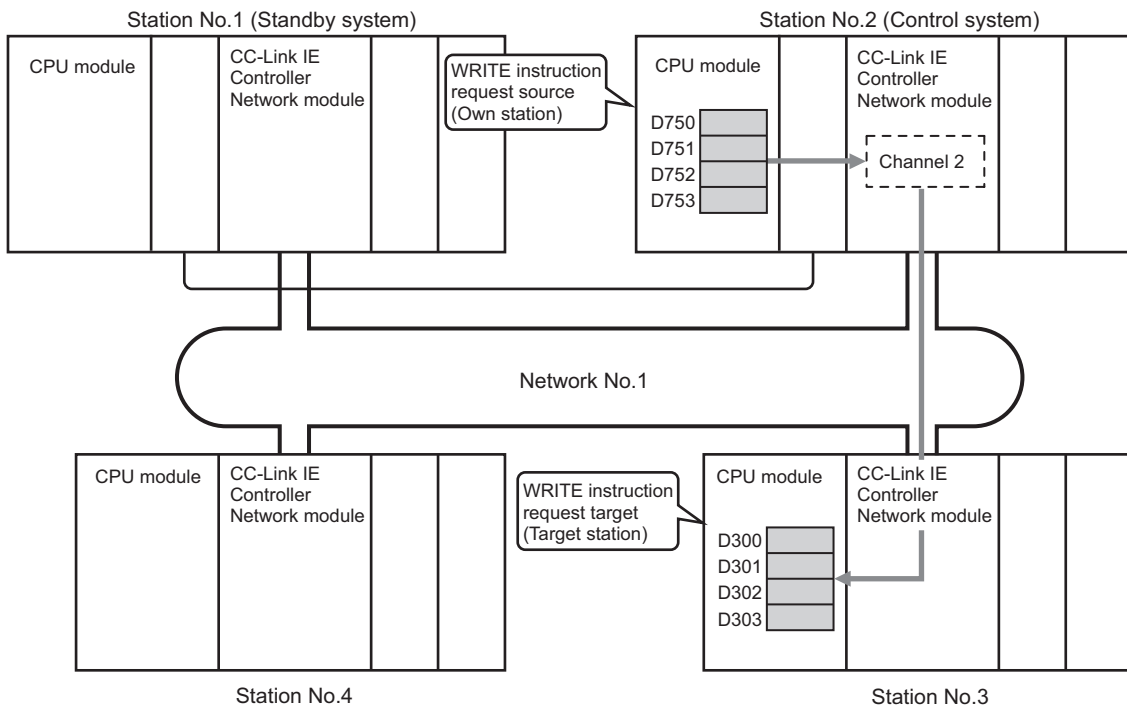
If the own station is on a redundant system, the station numbers used for the redundant system in this case are assumed to be No.1 and No.2.

(a) System configuration example

- When the own station is not on a redundant system



- When the own station is on a redundant system



9.5 JP/GP WRITE (Data Write to Programmable Controllers on Other Stations)



(b) Devices used in the program example

- Special relay (SM), Link special relay (SB), and link special register (SW)

Device	Description	Device	Description
SM1518	One scan ON after system switching ^{*1}	SW00A0.2	Baton pass status of station No.3
SB0047	Baton pass status (own station)		—

*1 Used when the own station is on a redundant system.

Remark

- For details of link special relay (SB):  Page 568, Appendix 1
- For details of link special register (SW):  Page 584, Appendix 2

- Devices used by the user

Device	Description	Device	Description
M110	Control data setting command	M115	Completion device
M111	Write data setting command	M116	Completion status indication device
M112	Start contact	D220 to D237	Control data
M113	WRITE executing flag ^{*2}	D602	Error code storage device
M114	Post-switching WRITE re-request flag ^{*2}	D750 to D753	Write data storage device (station No.2)

*2 Used when the own station is on a redundant system.

(c) WRITE instruction settings

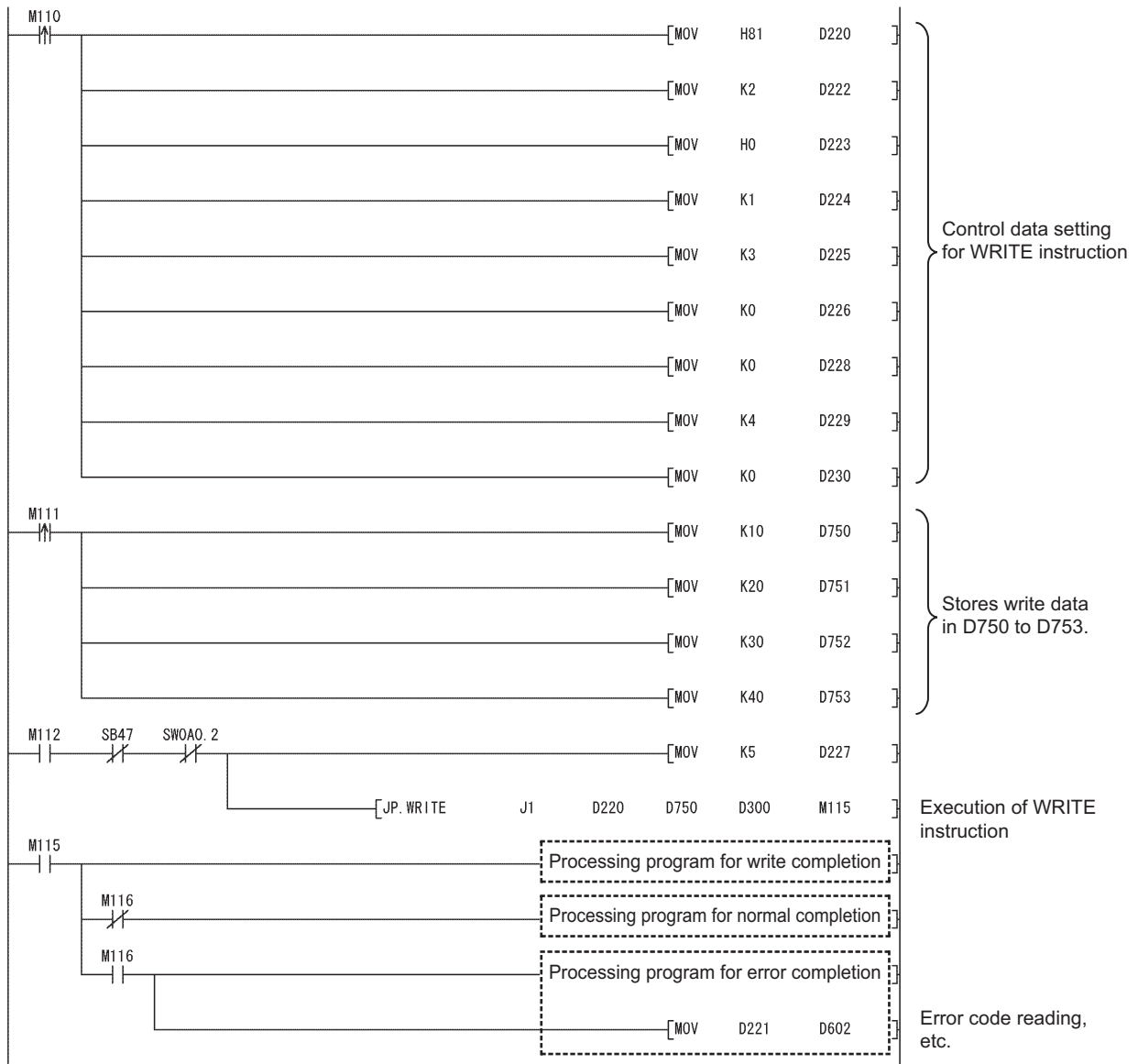
Control data settings for the WRITE instruction are shown below.

Device	Item	Set value
(S1)+0	D220	Execution/Error completion type 0081 _H (With arrival confirmation, clock data at the time of error completion is set.)
(S1)+1	D221	Completion status — (Set by the system, no setting required)
(S1)+2	D222	Channel used by own station 2
(S1)+3	D223	Target station's CPU type 0000 _H (Control CPU)
(S1)+4	D224	Target station network No. 1
(S1)+5	D225	Target station No. 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
(S1)+12 to (S1)+15	D232 to D235	Clock data on error completion — (Set by the system, no setting required)
(S1)+16	D236	Error-detected network No.
(S1)+17	D237	Error-detected station No.

(d) Program example

The following example program is written to the CPU module of station No.2.

- When the own station is not on a redundant system



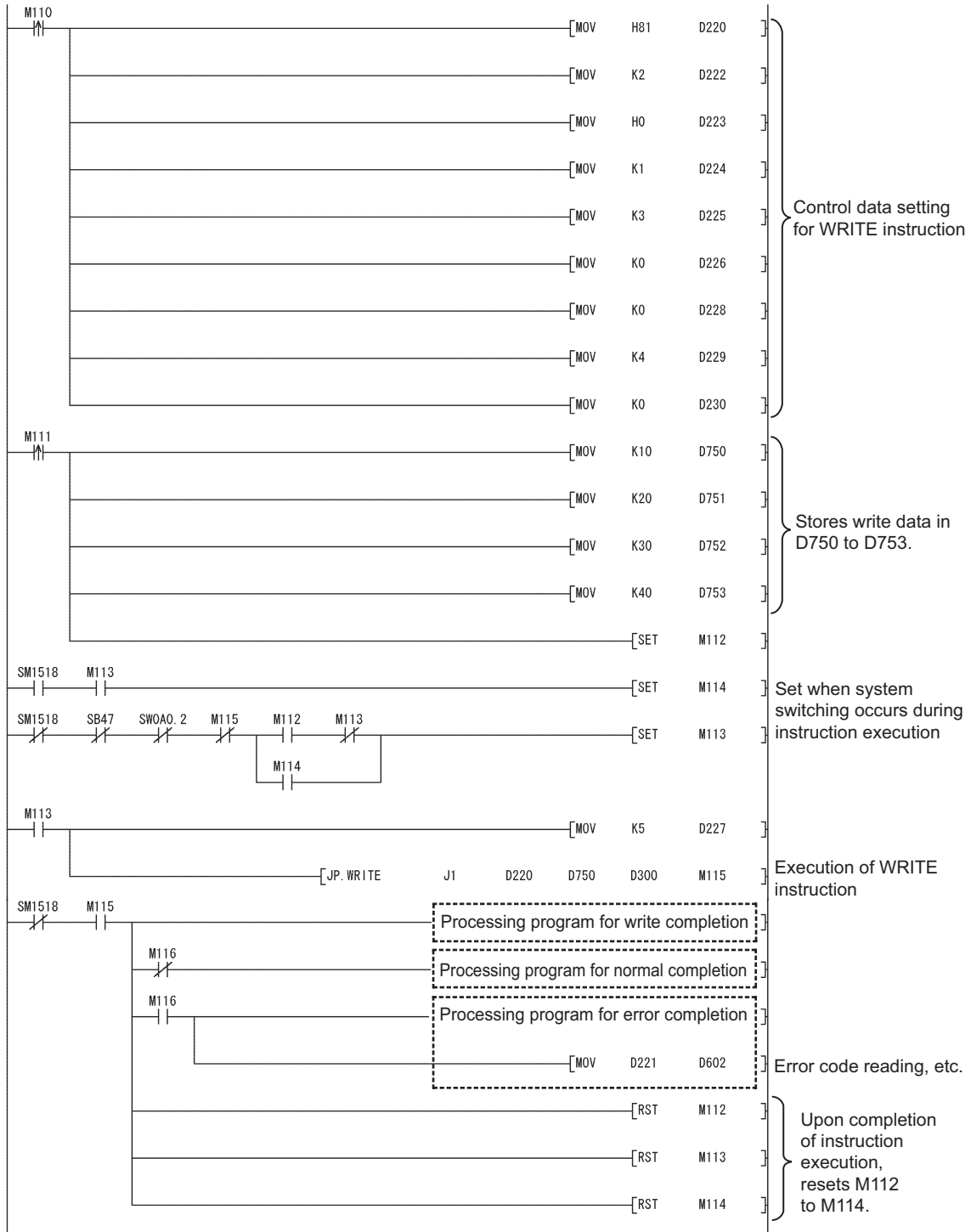
9.5 JP/GP WRITE (Data Write to Programmable Controllers on Other Stations)

- When the own station is on a redundant system

If a system switching occurs during instruction execution, execution of the instruction is stopped and its processing is not completed.

To re-execute such an uncompleted instruction in the new control system after system switching, provide an interlock using One scan ON after system switching (SM1518) and Completion device.

Note that the same instruction may be executed twice.



9.6 JP/GP.SWRITE (Data Write to Programmable Controllers on Other Stations)

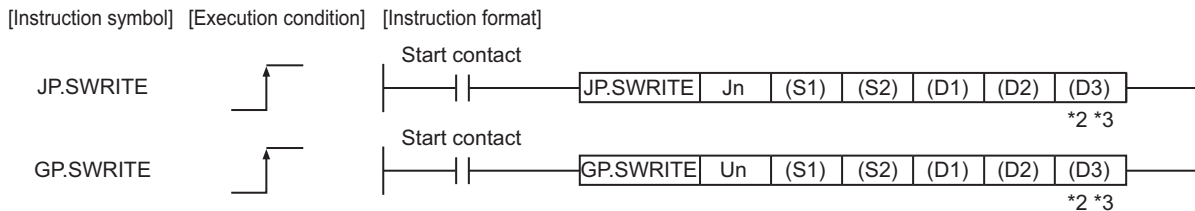
The SWRITE instruction writes data to devices of a programmable controller on another station. (In units of words)
 With the SWRITE instruction, a device on another station turns ON when data writing is completed. (The other station can recognize that data have been written with the SWRITE instruction.)

Setting data	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)	—	○ ^{*1}	○							
(D2)		○								
(D3)		○								

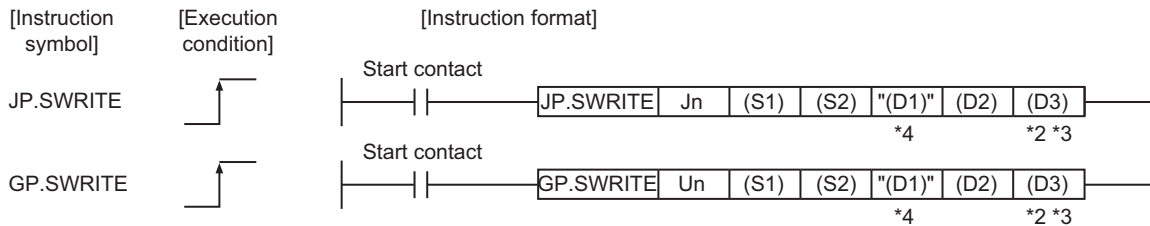
*1 T, C, D, W, ST, SD or SW can be used.
 For SD/SW, data can be written within the setting range allowed for the user.
 For details on SD/SW, refer to the following.

Manual for the CPU module and network module on the target station

• Instruction format




• Instruction format (Available when the own station has a Universal model QCPU)



- *2 The SWRITE instruction can be programmed without argument (D3). However, in such a case, the operation is identical to the WRITE instruction. With the SWRITE instruction, different operations are available depending on whether (D3) is omitted or not.
- *3 When the target station is a Basic model QCPU or safety CPU, the write notification device set as argument (D3) for the target station is ignored. (Same operation as with the WRITE instruction)
- *4 If the device setting in the PLC parameter is different between the own and target stations, use \"(D1)\" (with double quotation marks) to specify.

9.6 JP/GP.SWRITE (Data Write to Programmable Controllers on Other Stations)

(1) Setting data

Setting data ^{*1}	Description	Data type
Jn	Network No. of the own station (1 to 239, 254) 254: The network specified in Valid module during other station access	Binary 16 bits
Un	Start I/O number of the own station's CC-Link IE Controller Network module (00 to FE ₁₆ : The higher two digits of the 3-digit I/O number)	
(S1)	Start device of the own station that stores control data ( Page 354, Section 9.5 (2))	Device name
(S2)	The own station's start device where write data are stored.	
(D1)	Target station's start device to which data are to be written. (A contiguous area for the write data length is required.)	
(D2)	The own station's device that is turned on for one scan upon completion of the instruction (D2)+1 also turns ON if the instruction execution has failed.	Bit
(D3)	The target station's device that is turned on for one scan upon completion of the instruction (The target station can recognize that data have been written from the other station.)	

*1 Local devices and file registers for each program cannot be used as devices in setting data.

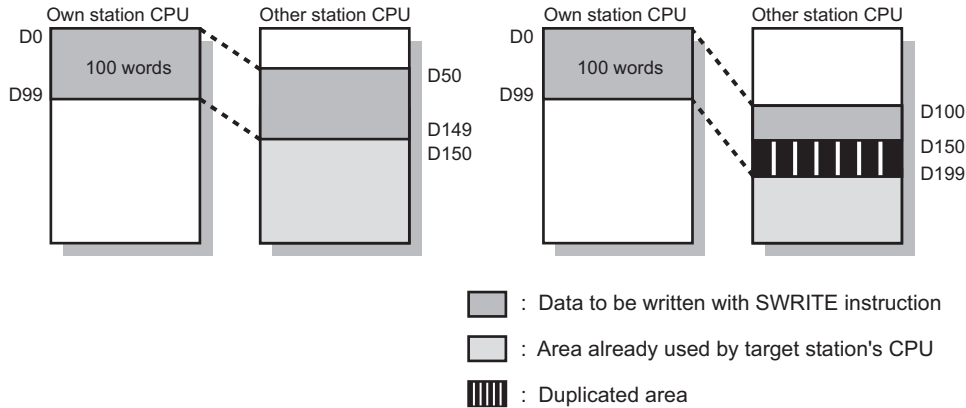
Point

- Specify devices of the target station's CPU within the range allowed for the own station CPU when writing data to the devices with the SWRITE instruction.
(Target station's start device (D1) to which data are written) + (Write points - 1) ≤ (End device No. of own station's CPU*¹)
- *1 End device No. of the device in the own station CPU, and whose device name is same as (D1)
- Specify the own station's start device (D1) within the range allowed for storing write data.

Ex. When D150 and after the area in the target station's CPU has been already used

○ Good example (D50 is specified to (D1).)

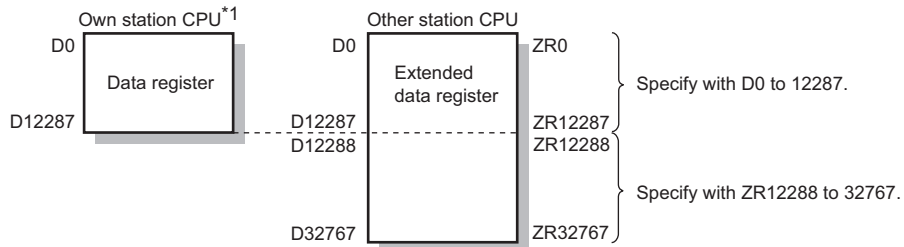
✗ Bad example (D100 is specified to (D1).)



- Use the file register (ZR) when specifying the extended data register (D) or extended link register (W) that is outside the area of the own station CPU's data register (D) or link register (W). (Except for the Universal model QCPU)
For the calculation of the file register (ZR), refer to the following.

User's Manual (Function Explanation, Program Fundamentals) for the CPU module used

Ex. When 0K point is assigned to the data register (D) of another station CPU, and when all 32K points of the file register (ZR) are assigned to the extended data register (D)



*1 A file register whose capacity is 32K points or more is required for the own station's CPU.

(2) Control data

Control data of the SWRITE instruction are the same as those of the WRITE instruction. (☞ Page 354, Section 9.5 (2))

(3) Function

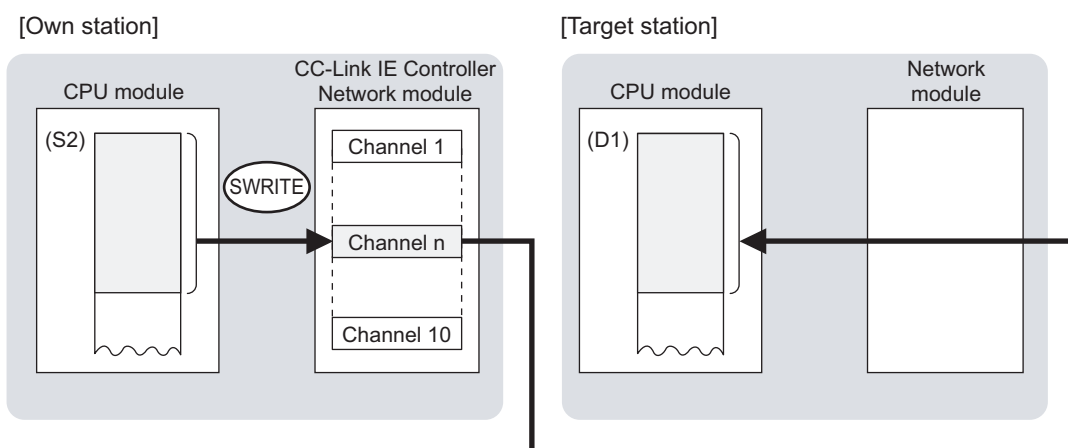
(a) SWRITE instruction overview

The SWRITE instruction writes word device data (in and after (S2)) of the own station to word devices of the target station (in and after (D1)).

The target station is specified in Target station network No. ((S1)+4) and Target station No. ((S1)+5) of control data.

Upon completion of writing the data specified in (S2), the following devices turn ON.

- Own station: Completion device (D2)
- Target station: Write notification device (D3)



(b) Target stations available for specification

- Target network
 - In addition to CC-Link IE Controller Network, stations in the following networks can be also specified.
 - CC-Link IE Field Network
 - MELSECNET/H
 - MELSECNET/10
 - Ethernet
- Target station's CPU type

The SWRITE instruction is executable only when the target station is QCPU, RCPU, LCPU, or QnACPU.
The SWRITE instruction is not executable to the ACPU connected to MELSECNET/10 or Ethernet.

(c) Checking the execution status of the SWRITE instruction

The execution status of the SWRITE instruction (Normal completion, Error completion) can be checked with the following devices specified in the setting data.

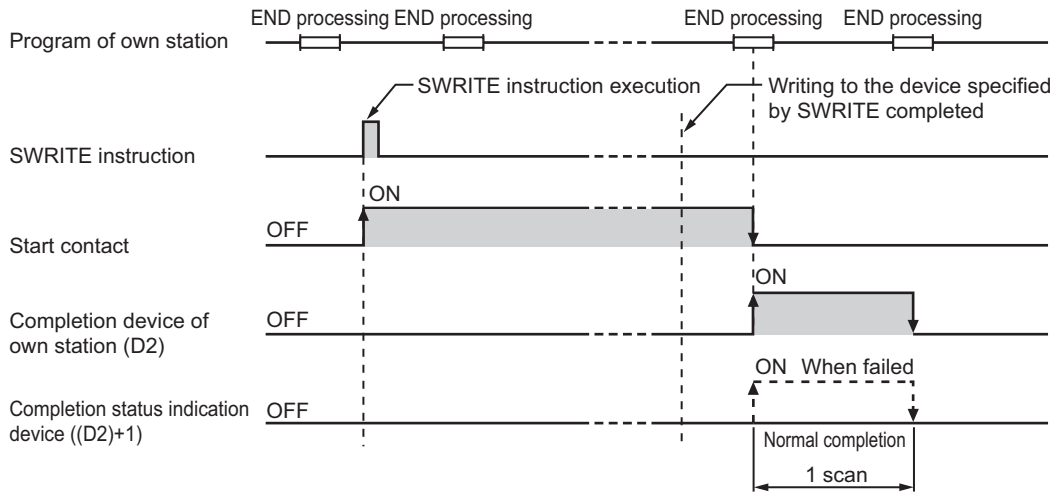
- Completion device (D2)

Turns ON in the END processing for the scan after completion of the SWRITE instruction, and goes OFF in the next END processing.
- Completion status indication device ((D2)+1)

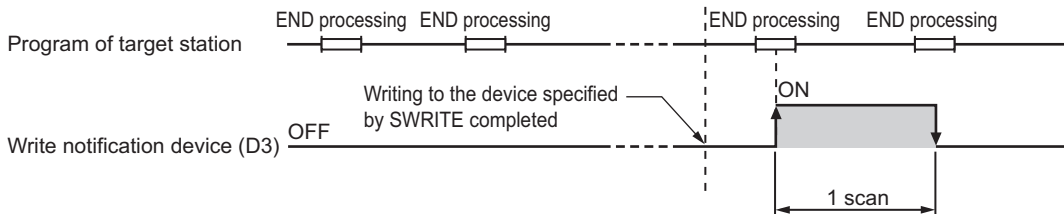
Turns ON in the END processing for the scan after completion of the SWRITE instruction, and turns OFF in the next END processing, only when the SWRITE instruction has failed.

(d) Operation in SWRITE instruction execution

- Operation of the own station

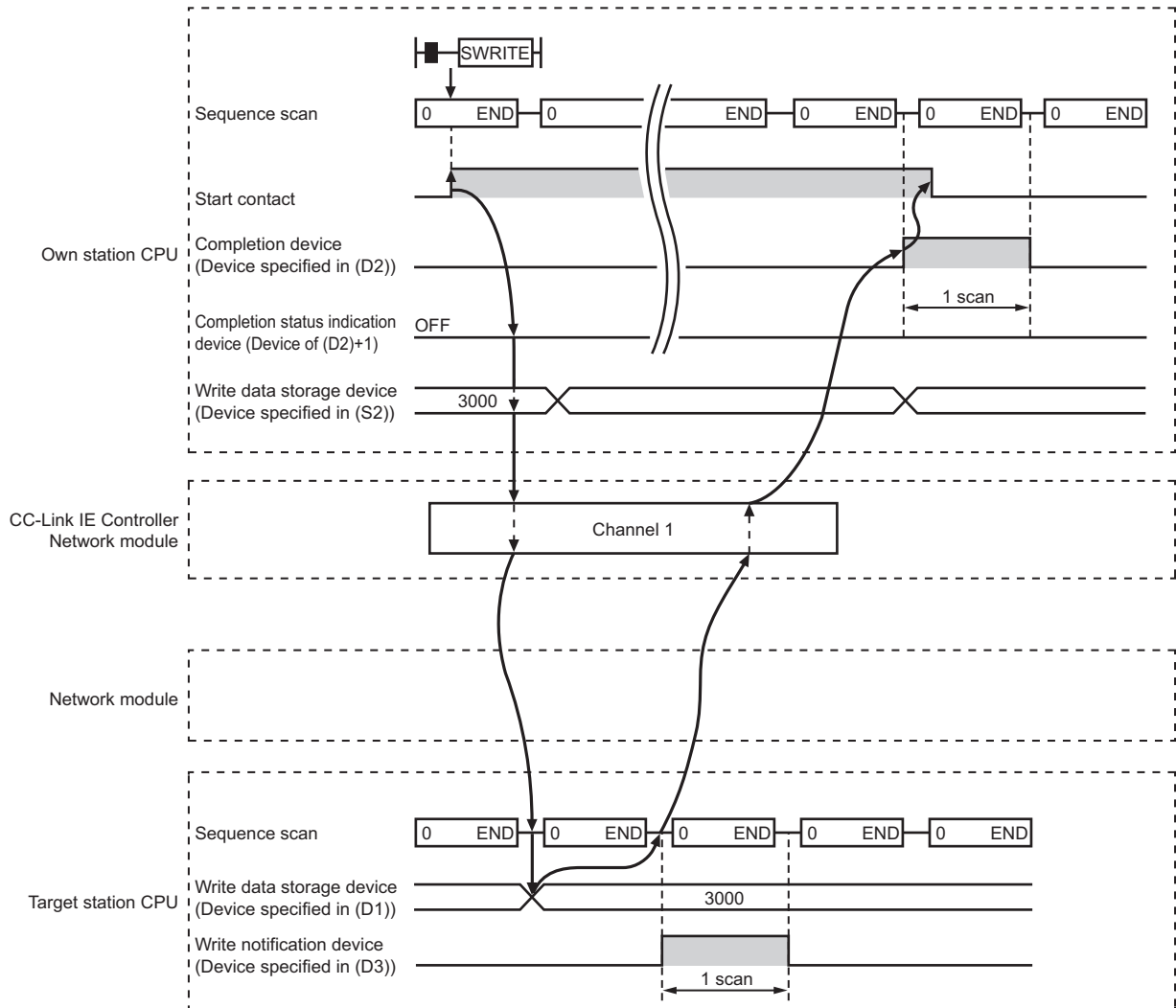


- Operation of the target station

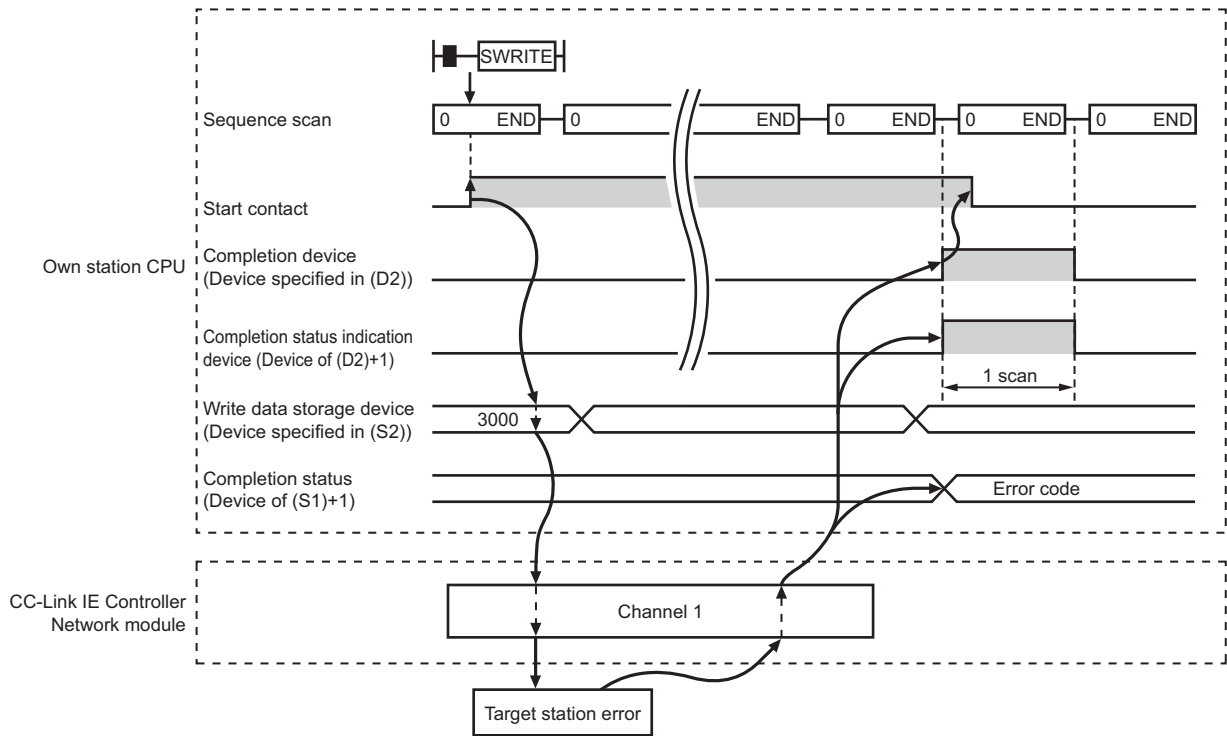


(e) SWRITE instruction execution timing

- When completed normally



- When failed



(4) Error

When a link dedicated instruction failed, the error details can be confirmed by either of the following methods.

(a) With the programming tool

The error details can be checked in the CC IE Control diagnostics. (☞ Page 526, Section 10.3)

(b) Checking devices

Completion status indication device ((D2)+1) is turned ON, and an error code is stored in Completion status ((S1)+1) of control data.

Check the error and take corrective actions according to the error code. (☞ Page 511, Section 10.2)

(5) Program example

The program example of the SWRITE instruction is different from that of the WRITE instruction in that the write notification device (D3) is specified at the end of arguments.

Refer to the following for details on the WRITE instruction program example.

☞ Page 361, Section 9.5 (5)

As in the program example of the WRITE program, when M112 turns ON, data in D750 to D753 of station No.2 (own station) are written to D300 to D303 of station No.3 (target station).

Additionally, if the write notification device (D3) is turned ON on the target station, data in D300 to D303 are stored in D500 to D503.

(a) System configuration example

Same as in the program example of the WRITE instruction.

(b) Devices used in the program example

- Link special relay (SB) and link special register (SW)

Same as in the program example of the WRITE instruction.

- Devices used by the user

The devices used by the SWRITE request source (station No.2) are the same as those used in the program example of the WRITE instruction.

The devices used by the SWRITE request target (station No.3)

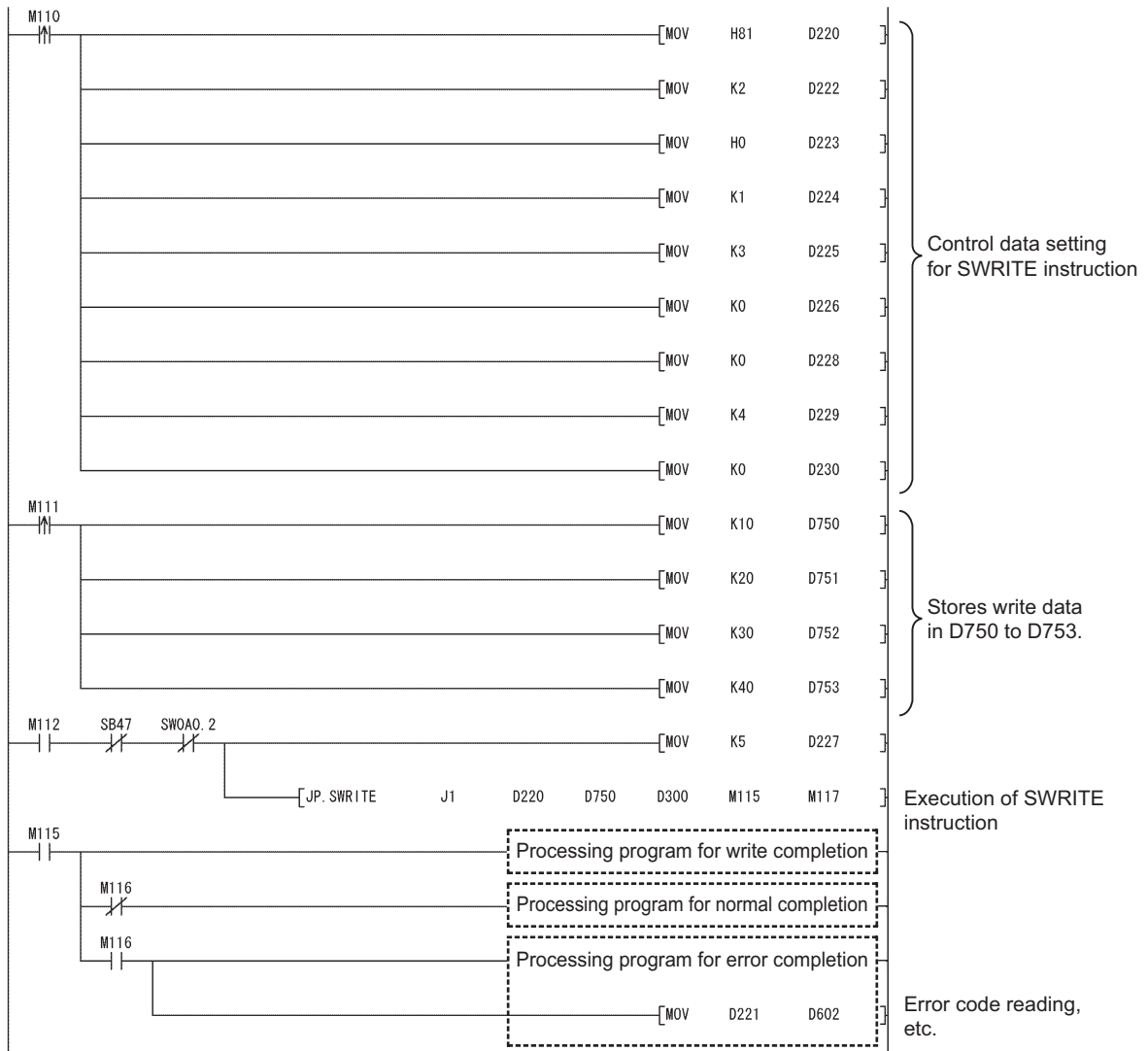
Device	Description	Device	Description
M117	Write notification device	D500 to D503	Devices that will store data of D300 to D303

(c) SWRITE instruction settings

Same as in the program example of the WRITE instruction.

(d) Program example

- Program example for the SWRITE request source (station No.2)



- Program example for the SWRITE request target (station No.3)



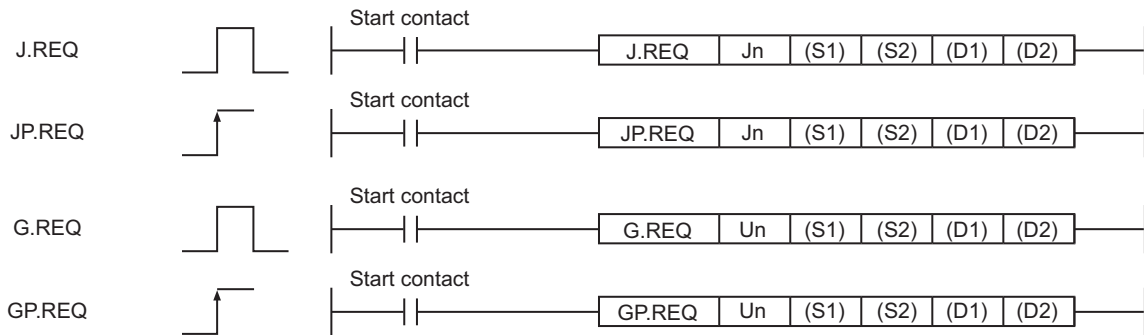
9.6 JP/GP.SWRITE (Data Write to Programmable Controllers on Other Stations)

9.7 J(P)/G(P).REQ (Remote RUN/STOP)

This instruction is used to remotely run or stop a programmable controller on another station.

Setting data	Available devices								Others	
	Internal device (System, User)		File register R, ZR	Link direct device J□\□		Intelligent function module device U□\G□	Index register Zn	Constant		
	Bit	Word		Bit	Word			K,H		\$
(S1)	—	○								
(S2)	—	○								
(D1)	—	○								
(D2)		○								

[Instruction symbol] [Execution condition] [Instruction format]



(1) Setting data


Setting data ^{*1}	Description	Data type
Jn	Network number of the own station (1 to 239, 254) 254: The network specified in Valid module during other station access	Binary 16 bits
Un	Start I/O signal of the own station's CC-Link IE Controller Network module (00 to FE _H ; The higher two digits of the 3-digit I/O number)	
(S1)	Start device of the own station that will store the control data (Page 375, Section 9.7 (2))	Device name
(S2)	Start device of the own station that stores request data (Page 375, Section 9.7 (2))	
(D1)	Start device of the own station that will store response data (Page 375, Section 9.7 (2))	
(D2)	The own station's device that is turned on for one scan upon completion of the instruction (D2)+1 also turns ON if the instruction execution has failed.	Bit

*1 The local devices and file registers for each program cannot be used as devices in setting data.

(2) Control data, request data, and response data

(a) Control data

Device	Item	Setting data	Setting range	Setting side*1																						
(S1)+0	Error completion type	<div style="text-align: center;"> <table border="1" style="margin: auto;"> <tr> <td style="padding: 0 10px;">b15</td> <td style="padding: 0 10px;">to</td> <td style="padding: 0 10px;">b7</td> <td style="padding: 0 10px;">to</td> <td style="padding: 0 10px;">b4</td> <td style="padding: 0 10px;">to</td> <td style="padding: 0 10px;">b0</td> </tr> <tr> <td style="padding: 0 10px;">0</td> <td></td> <td style="padding: 0 10px;">1</td> <td></td> <td style="padding: 0 10px;">0</td> <td></td> <td style="padding: 0 10px;">1</td> </tr> </table> </div> <p>1) Error completion type (bit 7) Specify the clock data setup status for error completion.</p> <p>0: Clock data at the time of error completion is not set in the area starting from (S1)+11. 1: Clock data at the time of error completion is set in the area starting from (S1)+11.</p>	b15	to	b7	to	b4	to	b0	0		1		0		1	0011 _H 0091 _H	User								
b15	to	b7	to	b4	to	b0																				
0		1		0		1																				
(S1)+1	Completion status	The instruction completion status is stored. 0: Normal Other than 0: Error (Page 511, Section 10.2)	—	System																						
(S1)+2	Channel used by own station	Specify the channel used by the own station. (Page 328, Section 9.2.2 (1))	1 to 8	User																						
(S1)+3	Target station's CPU type	Specify the CPU module on the station to be accessed.	0000 _H 03D0 _H to 03D3 _H 03E0 _H to 03E3 _H 03FF _H	User																						
		<table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th style="width: 20%;">Setting value</th> <th>Description</th> </tr> </thead> <tbody> <tr> <td>0000_H</td> <td>Control CPU (The access target is the same as when "03FF_H" is specified.)</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> <ul style="list-style-type: none"> • Target station CPU (single CPU system) • Multi-CPU No.1 • Control CPU (single CPU system) • Multiple CPU system No.1 </td> </tr> <tr> <td>03E1_H</td> <td>Multiple CPU system No.2</td> </tr> <tr> <td>03E2_H</td> <td>Multiple CPU system No.3</td> </tr> <tr> <td>03E3_H</td> <td>Multiple CPU system No.4</td> </tr> <tr> <td>03FF_H</td> <td>Control CPU</td> </tr> </tbody> </table>			Setting value	Description	0000 _H	Control CPU (The access target is the same as when "03FF _H " is specified.)	03D0 _H	Control system CPU (Redundant CPU only)	03D1 _H	Standby system CPU (Redundant CPU only)	03D2 _H	System A CPU (Redundant CPU only)	03D3 _H	System B CPU (Redundant CPU only)	03E0 _H	<ul style="list-style-type: none"> • Target station CPU (single CPU system) • Multi-CPU No.1 • Control CPU (single CPU system) • Multiple CPU system No.1 	03E1 _H	Multiple CPU system No.2	03E2 _H	Multiple CPU system No.3	03E3 _H	Multiple CPU system No.4	03FF _H	Control CPU
		Setting value			Description																					
		0000 _H			Control CPU (The access target is the same as when "03FF _H " is specified.)																					
		03D0 _H			Control system CPU (Redundant CPU only)																					
		03D1 _H			Standby system CPU (Redundant CPU only)																					
		03D2 _H			System A CPU (Redundant CPU only)																					
		03D3 _H			System B CPU (Redundant CPU only)																					
		03E0 _H			<ul style="list-style-type: none"> • Target station CPU (single CPU system) • Multi-CPU No.1 • Control CPU (single CPU system) • Multiple CPU system No.1 																					
		03E1 _H			Multiple CPU system No.2																					
		03E2 _H			Multiple CPU system No.3																					
03E3 _H	Multiple CPU system No.4																									
03FF _H	Control CPU																									
When the instruction is executed with control system CPU (03D0 _H) or standby system CPU (03D1 _H) specified, if system switching occurs at the target station, the instruction execution may fail. (Error code: 4244 _H , 4248 _H) If the instruction has failed with the above error, execute it again.																										

Device	Item	Setting data	Setting range	Setting side ^{*1}
(S1)+5	Target station No.	<p>Specify the station No. of the target station.</p> <p>(1) Station No. specification When own station is Universal model QCPU: 1 to 120 When own station is other than Universal model QCPU: 1 to 64</p> <p>(2) Group 81_H to A0_H: All stations in group No.1 to 32</p> <p style="text-align: center;">Group No.1 ... 81_H Group No.2 ... 82_H ⋮ Group No.32 ... A0_H</p> <p>(3) All stations FF_H: All stations of the target network No. (Except the own station)</p> <p>To specify a group or all stations</p> <ul style="list-style-type: none"> Set "0000_H" or "03FF_H" for Target station's CPU type (S1+3). ( Page 329, Section 9.2.2 (3)) When the target station is on the CC-Link IE Field Network, stations cannot be specified as a group. To check if data has been properly written in the target station, check the operating status of the CPU module on the target station of the write destination. 	<p>1 to 120 81_H to A0_H FF_H</p>	User
(S1)+6	—	Unused	0	User
(S1)+7	Number of resends	1) For instruction execution Specify the number of times the instruction is to be resent when it is not completed within the monitoring time specified in (S1)+8.	0 to 15	User
		2) At instruction completion The number of resends executed (result) is stored.	—	System
(S1)+8	Arrival monitoring time	<p>Specify the monitoring time required for instruction completion. If an instruction is not completed within this time, it will be resent the number of times specified in (S1)+7.</p> <p>0: 10 seconds 1 to 32767: 1 to 32767 seconds</p>	0 to 32767	User
(S1)+9	Request data length	<p>Specify the request data size (words) (Number of words of the request data to be stored in the own station's start device (S2))</p> <p>4: Remote RUN 3: Remote STOP</p>	3, 4	User
(S1)+10	Response data length	<p>The response data size (words) is stored. (Number of words of the response data to be stored in the own station's start device (D1))</p> <p>2: Remote RUN/STOP</p>	—	System
(S1)+11	Clock set flag	<p>The valid or invalid status of the data in the area starting from (S1)+12 is stored. Data is stored only when 1 is set in the bit 7 of Error completion type ((S1)+0). Note that the stored value will not be cleared even after the dedicated instruction is completed.</p> <p>0: Invalid 1: Valid</p>	—	System

Device	Item	Setting data	Setting range	Setting side ^{*1}															
(S1)+12 to (S1)+15	Clock data on error completion	<p>Clock data on error completion are stored in BCD format. Data is stored only when 1 is set in the bit 7 of Error completion type ((S1)+0). Note that the stored value will not be cleared even after the dedicated instruction is completed.</p> <table border="1"> <tr> <td></td> <td>b15 to b8</td> <td>b7 to b0</td> </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> <p style="text-align: center;">00H (Sun.) to 06H (Sat.)</p> <p>When the target station is QnACPU, "00H" is stored in the Year field (first two digits of the year).</p>		b15 to b8	b7 to b0	(S1)+12	Month (01H to 12H)	Year (00H to 99H) Last 2 digits	(S1)+13	Hour (00H to 23H)	Day (01H to 31H)	(S1)+14	Second (00H to 59H)	Minute (00H to 59H)	(S1)+15	Year (00H to 99H) First 2 digits	Day of week (00H to 06H)	—	System
	b15 to b8	b7 to b0																	
(S1)+12	Month (01H to 12H)	Year (00H to 99H) Last 2 digits																	
(S1)+13	Hour (00H to 23H)	Day (01H to 31H)																	
(S1)+14	Second (00H to 59H)	Minute (00H to 59H)																	
(S1)+15	Year (00H to 99H) First 2 digits	Day of week (00H to 06H)																	
(S1)+16	Error-detected network No. ^{*2}	<p>Network No. of the station, where an error was detected, is stored. Data is stored only when 1 is set in the bit 7 of Error completion type ((S1)+0). Note that the stored value will not be cleared even after the dedicated instruction is completed.</p> <p>1 to 239: Network No.</p>	—	System															
(S1)+17	Error-detected station No. ^{*2}	<p>Station No. of the station, where an error was detected, is stored. Data is stored only when 1 is set in the bit 7 of Error completion type ((S1)+0). Note that the stored value will not be cleared even after the dedicated instruction is completed.</p> <p>1 to 120: Station No.</p>	—	System															

*1 The setting side is as shown below.

User: Before execution of the link dedicated instruction, data must be set by the user.

System: The CPU module stores the execution result of the link dedicated instruction.

*2 Data is not stored when Completion status ((S1)+1) is "Channel busy (Dedicated instruction) (error code: E26C_H)".

Point

The number of resends ((S1)+7) must be set every time an instruction is executed.

(b) Request data (All set by the user)

Device	Item	Setting data	Remote RUN	Remote STOP
(S2)+0	Request type	0010 _H : When station No. is specified in (S1)+5 0030 _H : When all stations or a group is specified in (S1)+5	○	○
(S2)+1	Sub-request type	0001 _H : Remote RUN 0002 _H : Remote STOP	○	○
(S2)+2	Operation mode	<p>Specify whether to forcibly execute remote RUN/STOP or not. The forced execution is a function that forces a station which has stopped by remote STOP to RUN remotely from another station.</p> <ul style="list-style-type: none"> • For remote RUN <ul style="list-style-type: none"> 0001_H: No forced execution 0003_H: Forced execution • For remote STOP <ul style="list-style-type: none"> 0003_H (Fixed) 	○	○

Device	Item	Setting data	Remote RUN	Remote STOP
(S2)+3	Clear mode	<p>Specify the CPU module device status for the case of remote RUN. 0000_H: Do not clear (Note that the local devices are cleared.) 0001_H: Clear (excluding the latch range) 0002_H: Clear (including the latch range)</p> <p>Clear mode ((S2)+3) allows specification of the CPU module device clear (initialization) process at the start of CPU module operation activated by remote RUN. After the CPU module clears device data, it enters the RUN status according to the setting of "Device Initial Value" in the "PLC File" tab of the PLC parameter in the programming tool.</p>	○	—

○: Set —: Not set

(c) Response data (all set by the user)

When "all stations or a group (FF_H or 81_H to A0_H)" is specified in Target station No. ((S1)+5), no response data will be stored.

Device	Item	Setting data	Remote RUN	Remote STOP
(D1)+0	Request type	0090 _H : When station No. is specified in (S1)+5	○	○
(D1)+1	Sub-request type	0001 _H : Remote RUN 0002 _H : Remote STOP	○	○

○: Stored —: Not stored

Point

- Remote RUN/STOP is available when the RUN/STOP switch of the target station CPU is set to "RUN".
- Remote RUN/STOP is not executable when system protect is applied to the target station CPU.
- When the target station CPU has been already in remote STOP/PAUSE state by a request from another station, it cannot enter RUN mode if Mode ((S2)+2) is "No forced execution (0001_H)".
- If the target station CPU, for which remote STOP was performed, is reset, the remote STOP information is erased.

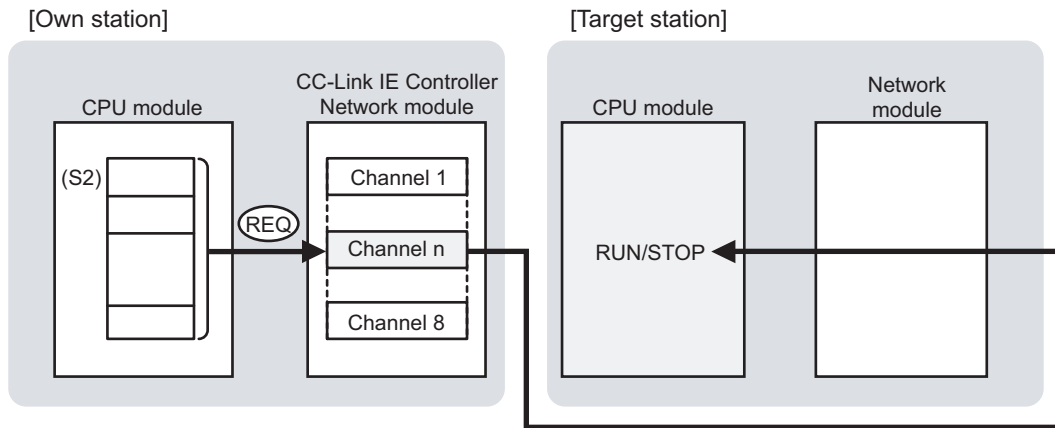
(3) Function

(a) REQ instruction overview

The REQ instruction sends request data (S2) to the target station to request for service.

The target station is specified in Target station network No. ((S1+4) and Target station No. ((S1+5) of control data.

Upon completion of the request to the target station, the completion device (D2) turns ON.



(b) Target stations available for specification

- Target network

In addition to CC-Link IE Controller Network, stations in the following networks can be also specified.

- CC-Link IE Field Network
- MELSECNET/H
- MELSECNET/10
- Ethernet

- Target station's CPU type

The REQ instruction is executable only when the target station is QCPU, RCP, LCP, or QnACP.

The REQ instruction is not executable to the ACP connected to MELSECNET/10 or Ethernet.

(c) Checking the execution status of the REQ instruction

The execution status of the REQ instruction (Normal completion, Error completion) can be checked with the following devices specified in the setting data.

- Completion device (D2)

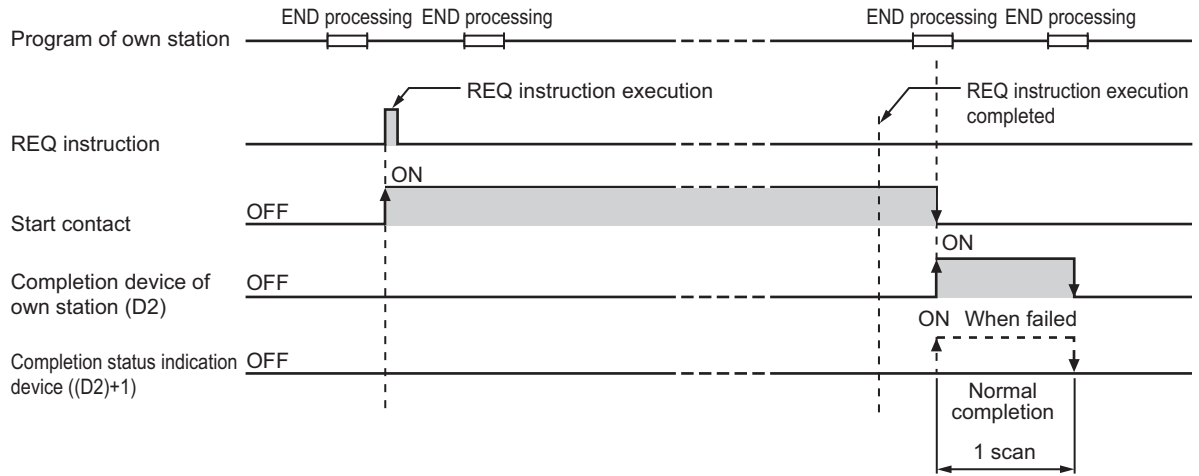
Turns ON in the END processing for the scan after completion of the REQ instruction, and turns OFF in the next END processing.

- Completion status indication device ((D2)+1)

Turns ON in the END processing for the scan after completion of the REQ instruction, and turns OFF in the next END processing, only when the REQ instruction has failed.

(d) Operation in REQ instruction execution

- Operation of the own station

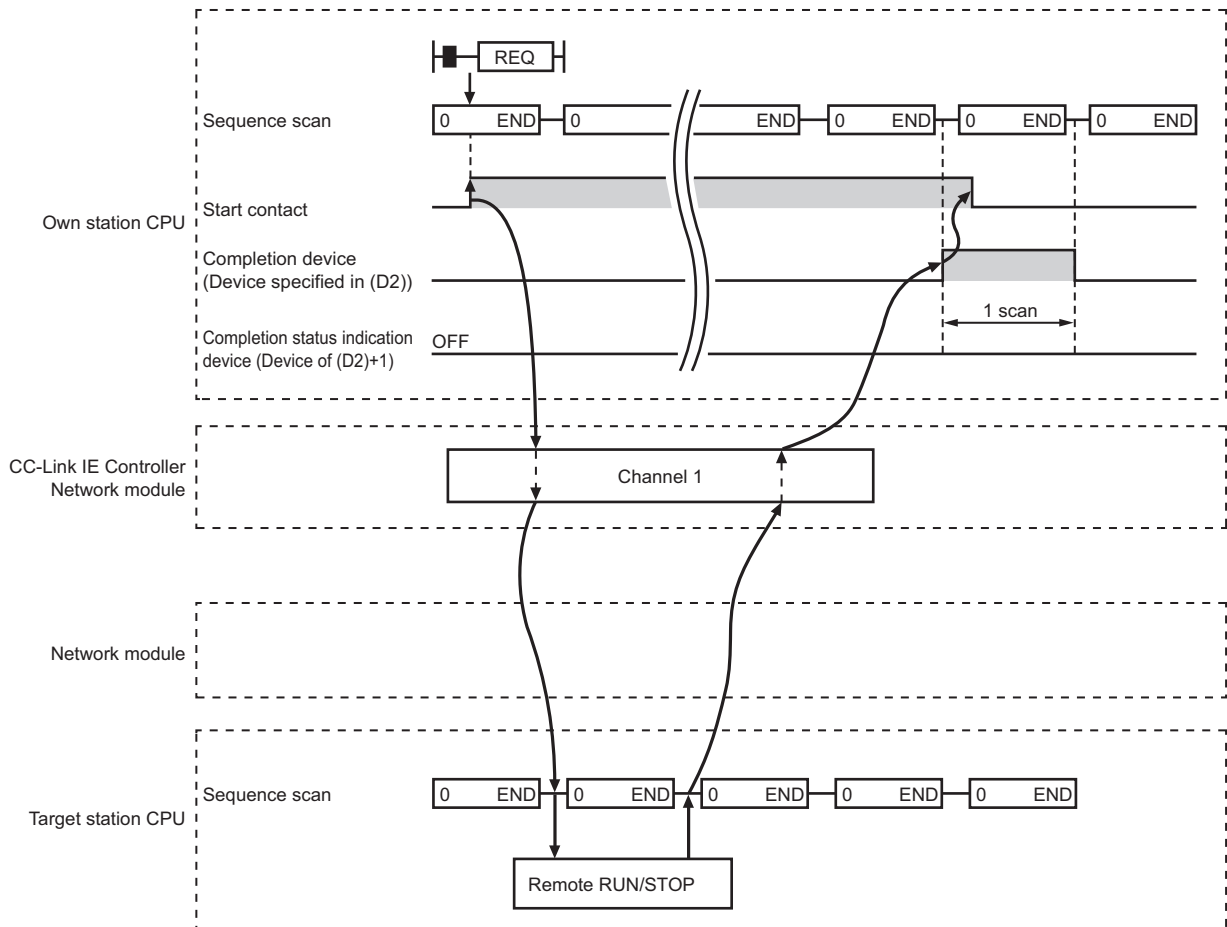


(e) REQ instruction execution timing

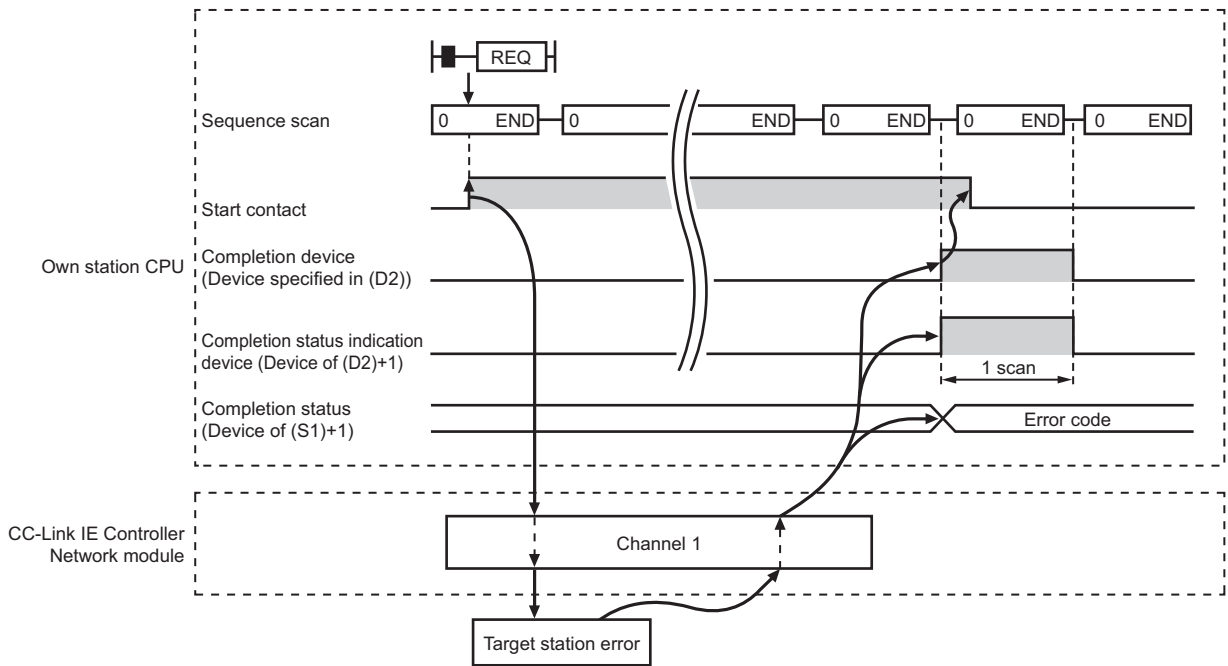
With J.REQ or G.REQ, processing is executed one after another while the start contact is ON.

With JP.REQ or GP.REQ, processing is performed one time only when the start contact turns ON from OFF.

- When completed normally



- When failed



(4) Error

When a link dedicated instruction failed, the error details can be confirmed by either of the following methods.

(a) With the programming tool

The error details can be checked in the CC IE Control diagnostics. (☞ Page 526, Section 10.3)

(b) Checking devices

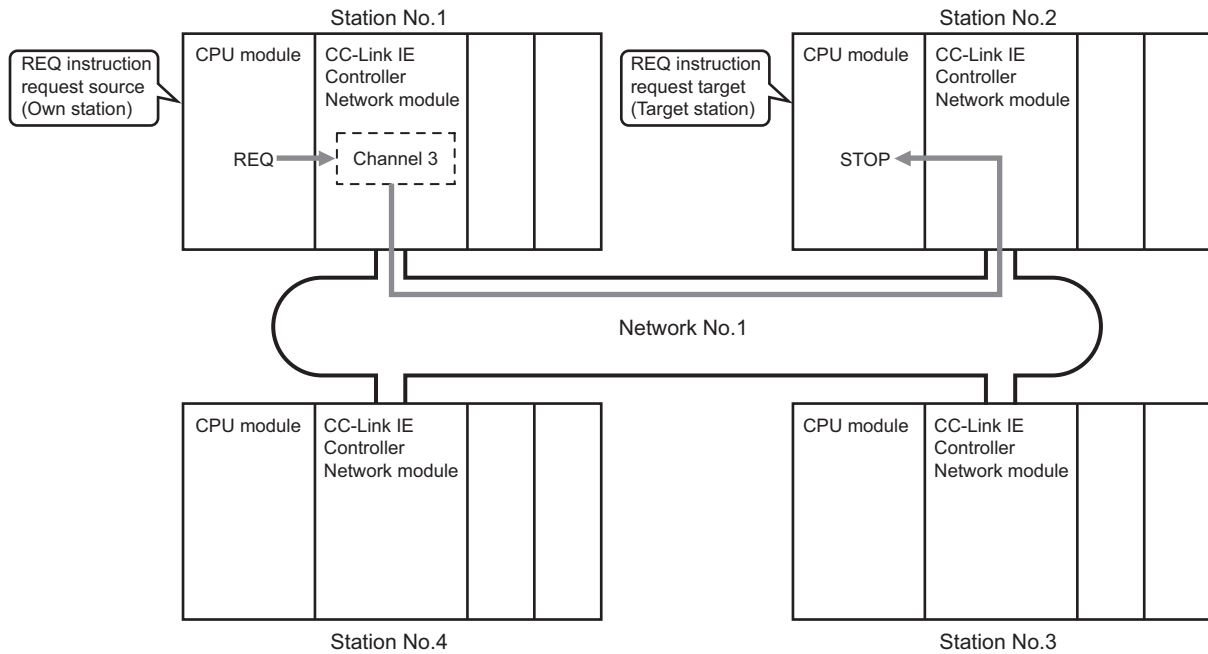
Completion status indication device ((D2)+1) is turned ON, and an error code is stored in Completion status ((S1)+1) of control data.

Check the error and take corrective actions according to the error code. (☞ Page 511, Section 10.2)

(5) Program example

The following shows a program in which a remote STOP request is sent to the QCPU of station No.2 (target station) when M121 turns ON.

(a) System configuration example



(b) Devices used in the program example

- Link special relay (SB) and link special register (SW)

Device	Description	Device	Description
SB0047	Baton pass status (own station)	SW00A0.1	Baton pass status of station No.2

Remark

- For details of link special relay (SB): Page 568, Appendix 1
- For details of link special register (SW): Page 584, Appendix 2

- Devices used by the user

Device	Description	Device	Description
M120	Control and 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	D604	Error code storage device

(c) REQ instruction (Remote RUN/STOP) settings

- Control data

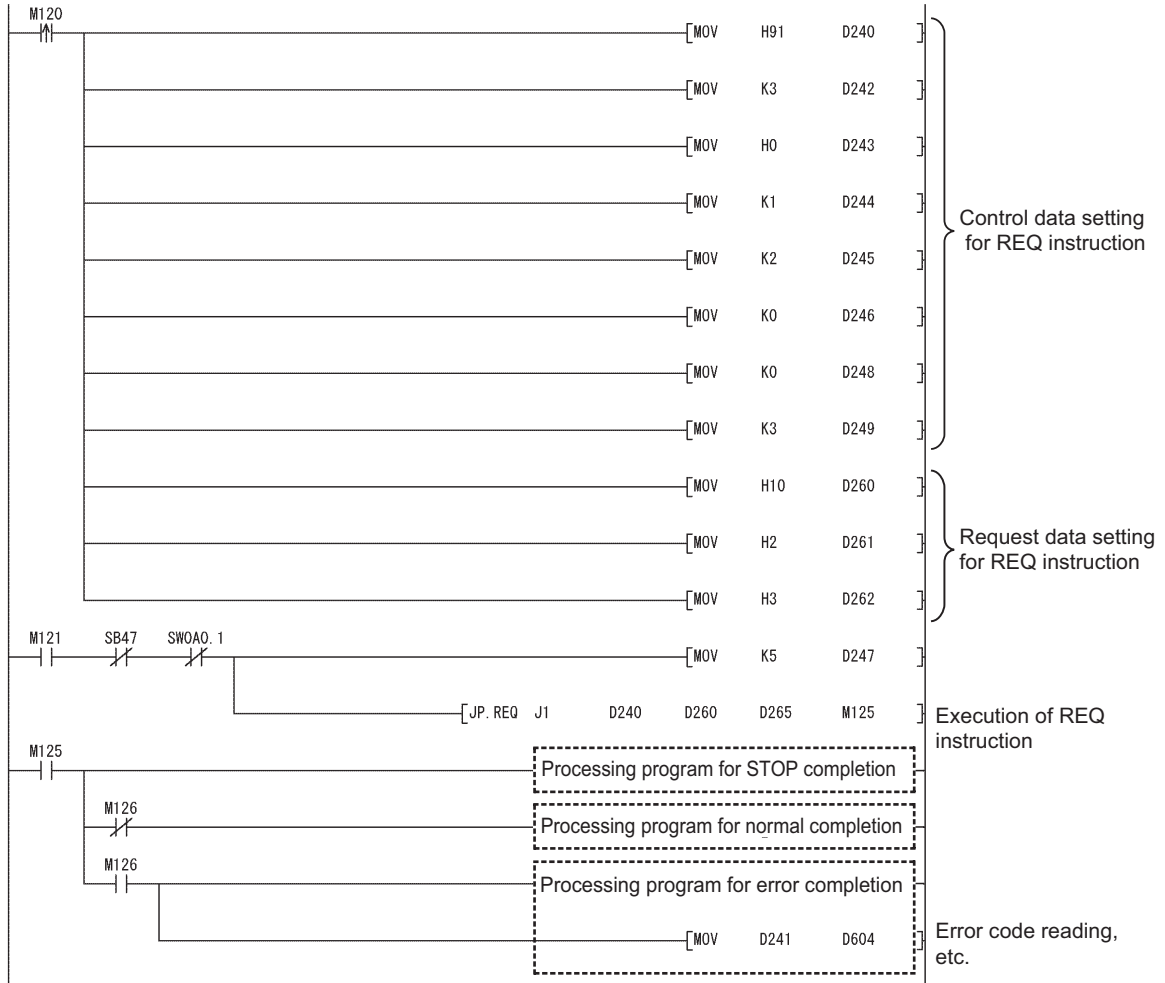
Device	Item	Set value
(S1)+0	D240	Error completion type 0091 _H (Clock data at the time of error completion is set.)
(S1)+1	D241	Completion status — (Set by the system, no setting required)
(S1)+2	D242	Channel used by own station 3
(S1)+3	D243	Target station's CPU type 0000 _H (Control CPU)
(S1)+4	D244	Target station network No. 1
(S1)+5	D245	Target station No. 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
(S1)+11	D251	Clock set flag
(S1)+12 to (S1)+15	D252 to D255	Clock data on error completion — (Set by the system, no setting required)
(S1)+16	D256	Error-detected network No.
(S1)+17	D257	Error-detected station No.

- Request data

Device	Item	Set value
(S2)+0	D260	Request type 0010 _H (When station No. is specified in (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 (Setting is not required for remote STOP.)

(d) Program example

The following example program is written to the CPU module of station No.1.

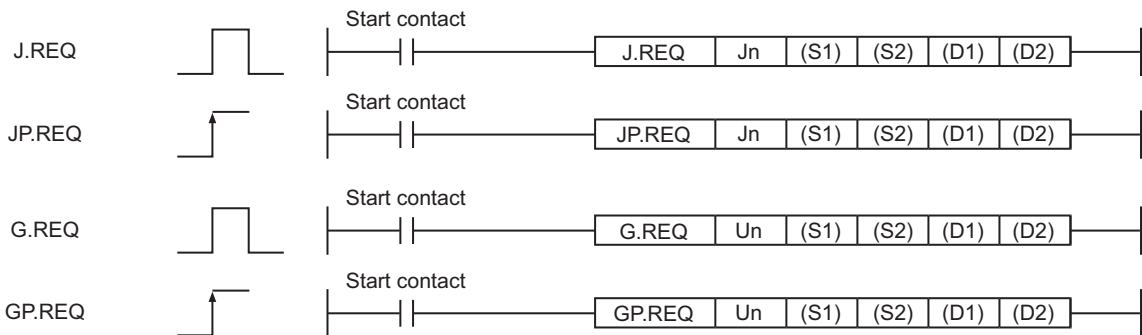


9.8 J(P)/G(P).REQ (Reading/Writing Clock Data)

With the REQ instruction, clock data are read from or written to a programmable controller on another station.

Setting data	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)		○								—

[Instruction symbol] [Execution condition] [Instruction format]



(1) Setting data


Setting data *1	Description	Data type
Jn	Network No. of the own station (1 to 239, 254) 254: The network specified in Valid module during other station access	Binary 16 bits
Un	Start I/O number of the own station's CC-Link IE Controller Network module (00 to FE _H : The higher two digits of the 3-digit I/O number)	
(S1)	Start device of the own station that stores control data (Page 386, Section 9.8 (2))	Device name
(S2)	Start device of the own station that stores request data (Page 386, Section 9.8 (2))	
(D1)	Start device of the own station that will store response data (Page 386, Section 9.8 (2))	
(D2)	The own station's device that is turned on for one scan upon completion of the instruction (D2)+1 also turns ON if the instruction execution has failed.	Bit

*1 Local devices and file registers for each program cannot be used as devices in setting data.

(2) Control data, request data, and response data

(a) Control data

Device	Item	Setting data	Setting range	Setting side*1																						
(S1)+0	Error completion type	<div style="text-align: center;"> <table border="1" style="margin: auto;"> <tr> <td style="padding: 2px;">b15</td> <td style="padding: 2px;">to</td> <td style="padding: 2px;">b7</td> <td style="padding: 2px;">to</td> <td style="padding: 2px;">b4</td> <td style="padding: 2px;">to</td> <td style="padding: 2px;">b0</td> </tr> <tr> <td style="padding: 2px;">0</td> <td></td> <td style="padding: 2px;">1</td> <td></td> <td style="padding: 2px;">0</td> <td></td> <td style="padding: 2px;">1</td> </tr> </table> </div> <p>1) Error completion type (bit 7) Specify the clock data setup status for error completion.</p> <p>0: Clock data at the time of error completion is not set in the area starting from (S1)+11.</p> <p>1: Clock data at the time of error completion is set in the area starting from (S1)+11.</p>	b15	to	b7	to	b4	to	b0	0		1		0		1	0011 _H 0091 _H	User								
b15	to	b7	to	b4	to	b0																				
0		1		0		1																				
(S1)+1	Completion status	The instruction completion status is stored. 0: Normal Other than 0: Error (Page 511, Section 10.2)	—	System																						
(S1)+2	Channel used by own station	Specify the channel used by the own station. (Page 328, Section 9.2.2 (1))	1 to 8	User																						
(S1)+3	Target station's CPU type	Specify the CPU module on the station to be accessed.	0000 _H 03D0 _H to 03D3 _H 03E0 _H to 03E3 _H 03FF _H	User																						
		<table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th style="text-align: left;">Setting value</th> <th style="text-align: left;">Description</th> </tr> </thead> <tbody> <tr> <td>0000_H</td> <td>Control CPU (The access target is the same as when "03FF_H" is specified.)</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> <ul style="list-style-type: none"> • Target station CPU (single CPU system) • Multi-CPU No.1 • Control CPU (single CPU system) • Multiple CPU system No.1 </td> </tr> <tr> <td>03E1_H</td> <td>Multiple CPU system No.2</td> </tr> <tr> <td>03E2_H</td> <td>Multiple CPU system No.3</td> </tr> <tr> <td>03E3_H</td> <td>Multiple CPU system No.4</td> </tr> <tr> <td>03FF_H</td> <td>Control CPU</td> </tr> </tbody> </table>			Setting value	Description	0000 _H	Control CPU (The access target is the same as when "03FF _H " is specified.)	03D0 _H	Control system CPU (Redundant CPU only)	03D1 _H	Standby system CPU (Redundant CPU only)	03D2 _H	System A CPU (Redundant CPU only)	03D3 _H	System B CPU (Redundant CPU only)	03E0 _H	<ul style="list-style-type: none"> • Target station CPU (single CPU system) • Multi-CPU No.1 • Control CPU (single CPU system) • Multiple CPU system No.1 	03E1 _H	Multiple CPU system No.2	03E2 _H	Multiple CPU system No.3	03E3 _H	Multiple CPU system No.4	03FF _H	Control CPU
		Setting value			Description																					
		0000 _H			Control CPU (The access target is the same as when "03FF _H " is specified.)																					
		03D0 _H			Control system CPU (Redundant CPU only)																					
		03D1 _H			Standby system CPU (Redundant CPU only)																					
		03D2 _H			System A CPU (Redundant CPU only)																					
		03D3 _H			System B CPU (Redundant CPU only)																					
		03E0 _H			<ul style="list-style-type: none"> • Target station CPU (single CPU system) • Multi-CPU No.1 • Control CPU (single CPU system) • Multiple CPU system No.1 																					
		03E1 _H			Multiple CPU system No.2																					
		03E2 _H			Multiple CPU system No.3																					
03E3 _H	Multiple CPU system No.4																									
03FF _H	Control CPU																									
When the instruction is executed with control system CPU (03D0 _H) or standby system CPU (03D1 _H) specified, if system switching occurs at the target station, the instruction execution may fail. (Error code: 4244 _H , 4248 _H) If the instruction has failed with the above error, execute it again.																										

Device	Item	Setting data	Setting range	Setting side*1
(S1)+5	Target station No.	<p>Specify the station No. of the target station.</p> <p>(1) Station No. specification When own station is Universal model QCPU: 1 to 120 When own station is other than Universal model QCPU: 1 to 64</p> <p>(2) Group 81_H to A0_H: All stations in group No.1 to 32 Available only for clock data writing.</p> <p style="text-align: center;">Group No.1 ∙∙∙81_H Group No.2 ∙∙∙82_H } Group No.32 ∙∙∙A0_H</p> <p>(3) All stations FF_H: All stations of the target network No. (Except the own station) Available only for clock data writing.</p> <p>To specify a group or all stations</p> <ul style="list-style-type: none"> • Set "0000_H" or "03FF_H" for Target station's CPU type (S1+3). ( Page 329, Section 9.2.2 (3)) • When the target station is on the CC-Link IE Field Network, stations cannot be specified as a group. • To check if data has been properly written in the target station, check the write destination device on the target station. 	<p>1 to 120 81_H to A0_H FF_H</p>	User
(S1)+6	—	Unused	0	User
(S1)+7	Number of resends	1) For instruction execution Specify the number of times the instruction is to be resent when it is not completed within the monitoring time specified in (S1)+8.	0 to 15	User
		2) At instruction completion The number of resends executed (result) is stored.	—	System
(S1)+8	Arrival monitoring time	<p>Specify the monitoring time required for instruction completion. If an instruction is not completed within this time, it will be resent the number of times specified in (S1)+7.</p> <p>0: 10 seconds 1 to 32767: 1 to 32767 seconds</p>	0 to 32767	User
(S1)+9	Request data length	<p>Specify the request data size (words) (Number of words of the request data to be stored in the own station's start device (S2))</p> <p>2: Clock data read 6: Clock data write</p>	2, 6	User
(S1)+10	Response data length	<p>The response data size (words) is stored. (Number of words of the response data to be stored in the own station's start device (D1))</p> <p>6: Clock data read 2: Clock data write</p>	—	System
(S1)+11	Clock set flag	<p>The valid or invalid status of the data in the area starting from (S1)+12 is stored. Data is stored only when 1 is set in the bit 7 of Error completion type ((S1)+0). Note that the stored value will not be cleared even after the dedicated instruction is completed.</p> <p>0: Invalid 1: Valid</p>	—	System

Device	Item	Setting data	Setting range	Setting side ^{*1}																																			
(S1)+12 to (S1)+15	Clock data on error completion	<p>Clock data on error completion are stored in BCD format. Data is stored only when 1 is set in the bit 7 of Error completion type ((S1)+0). Note that the stored value will not be cleared even after the dedicated instruction is completed.</p> <table border="1"> <tr> <td></td> <td>b15</td> <td>to</td> <td>b8</td> <td>b7</td> <td>to</td> <td>b0</td> </tr> <tr> <td>(S1)+12</td> <td>Month (01H to 12H)</td> <td></td> <td>Year (00H to 99H) Last 2 digits</td> <td></td> <td></td> <td></td> </tr> <tr> <td>(S1)+13</td> <td>Hour (00H to 23H)</td> <td></td> <td>Day (01H to 31H)</td> <td></td> <td></td> <td></td> </tr> <tr> <td>(S1)+14</td> <td>Second (00H to 59H)</td> <td></td> <td>Minute (00H to 59H)</td> <td></td> <td></td> <td></td> </tr> <tr> <td>(S1)+15</td> <td>Year (00H to 99H) First 2 digits</td> <td></td> <td>Day of week (00H to 06H)</td> <td></td> <td></td> <td></td> </tr> </table> <p style="text-align: center;">00H (Sun.) to 06H (Sat.)</p> <p>When the target station is QnACPU, "00H" is stored in the Year field (first two digits of the year).</p>		b15	to	b8	b7	to	b0	(S1)+12	Month (01H to 12H)		Year (00H to 99H) Last 2 digits				(S1)+13	Hour (00H to 23H)		Day (01H to 31H)				(S1)+14	Second (00H to 59H)		Minute (00H to 59H)				(S1)+15	Year (00H to 99H) First 2 digits		Day of week (00H to 06H)				—	System
	b15	to	b8	b7	to	b0																																	
(S1)+12	Month (01H to 12H)		Year (00H to 99H) Last 2 digits																																				
(S1)+13	Hour (00H to 23H)		Day (01H to 31H)																																				
(S1)+14	Second (00H to 59H)		Minute (00H to 59H)																																				
(S1)+15	Year (00H to 99H) First 2 digits		Day of week (00H to 06H)																																				
(S1)+16	Error-detected network No. ^{*2}	<p>Network No. of the station, where an error was detected, is stored. Data is stored only when 1 is set in the bit 7 of Error completion type ((S1)+0). Note that the stored value will not be cleared even after the dedicated instruction is completed.</p> <p>1 to 239: Network No.</p>	—	System																																			
(S1)+17	Error-detected station No. ^{*2}	<p>Station No. of the station, where an error was detected, is stored. Data is stored only when 1 is set in the bit 7 of Error completion type ((S1)+0). Note that the stored value will not be cleared even after the dedicated instruction is completed.</p> <p>1 to 120: Station No.</p>	—	System																																			

*1 The setting side is as shown below.

User: Before execution of the link dedicated instruction, data must be set by the user.

System: The CPU module stores the execution result of the link dedicated instruction.

*2 Data is not stored when Completion status ((S1)+1) is "Channel busy (Dedicated instruction) (error code: E26C_H)".

Point

The number of resends ((S1)+7) must be set every time an instruction is executed.

(b) Request data (All set by the user)

Device	Item	Setting data	Clock data read	Clock data write								
(S2)+0	Request type	0001 _H : Clock data read 0011 _H : Clock data write (when station No. is specified in (S1)+5) 0031 _H : Clock data write (when all stations or a group is specified in (S1)+5)	○	○								
(S2)+1	Sub-request type	0002 _H : Clock data read 0001 _H : Clock data write	○	○								
(S2)+2	Change pattern, clock data to be changed	<p>1) Change pattern (bits 0 to 7) Specify which items are to be written to the fields of (high byte of (S2)+2) to ((S2)+5). 0: Do not change 1: Change</p> <p>2) Year data (bits 8 to 15) Specify the year (last two digits) as a BCD code.</p>	—	○								
(S2)+3	Clock data to be changed (continued)	Specify new clock data as BCD codes.	—	○								
(S2)+4		<table border="1"> <tr> <td>b15 to b8</td> <td>b7 to b0</td> </tr> <tr> <td>(S2)+3 Day (01H to 31H)</td> <td>Month (01H to 12H)</td> </tr> <tr> <td>(S2)+4 Minute (00H to 59H)</td> <td>Hour (00H to 23H)</td> </tr> <tr> <td>(S2)+5 Day of week (00H to 06H)</td> <td>Second (00H to 59H)</td> </tr> </table>	b15 to b8	b7 to b0	(S2)+3 Day (01H to 31H)	Month (01H to 12H)	(S2)+4 Minute (00H to 59H)	Hour (00H to 23H)	(S2)+5 Day of week (00H to 06H)	Second (00H to 59H)	—	○
b15 to b8		b7 to b0										
(S2)+3 Day (01H to 31H)	Month (01H to 12H)											
(S2)+4 Minute (00H to 59H)	Hour (00H to 23H)											
(S2)+5 Day of week (00H to 06H)	Second (00H to 59H)											
(S2)+5	00H (Sun.) to 06H (Sat.)	—	○									

○: Set —: Not set

Point

In clock data writing by the REQ instruction, the first two digits of the year cannot be changed. To change the first two digits, refer to the following.

- Clock setting from a programming tool: Page 104, Section 4.2.4
- RTMWR (Clock Data Write to Programmable Controllers on Other Stations): Page 467, Section 9.17

(c) Response data (All set by the user)

When "all stations or a group (FF_H or 81_H to A0_H)" is specified in Target station No. ((S1)+5), no response data will be stored.

Device	Item	Setting data	Clock data read	Clock data write																														
(D1)+0	Request type	0081 _H : Clock data read 0091 _H : Clock data write (when station No. is specified in (S1)+5)	○	○																														
(D1)+1	Sub-request type	0002 _H : Clock data read 0001 _H : Clock data write	○	○																														
(D1)+2	Clock data read	Clock data that have been read are stored as BCD codes.	○	—																														
(D1)+3		<table border="1"> <tr> <td>b15</td> <td>to</td> <td>b8</td> <td>b7</td> <td>to</td> <td>b0</td> </tr> <tr> <td>(D1)+2</td> <td>Month (01_H to 12_H)</td> <td>Year (00_H to 99_H)</td> <td colspan="3">Last 2 digits</td> </tr> <tr> <td>(D1)+3</td> <td>Hour (00_H to 23_H)</td> <td colspan="4">Day (01_H to 31_H)</td> </tr> <tr> <td>(D1)+4</td> <td>Second (00_H to 59_H)</td> <td colspan="4">Minute (00_H to 59_H)</td> </tr> <tr> <td>(D1)+5</td> <td>00_H</td> <td colspan="4">Day of week (00_H to 06_H)</td> </tr> </table>	b15	to	b8	b7	to	b0	(D1)+2	Month (01 _H to 12 _H)	Year (00 _H to 99 _H)	Last 2 digits			(D1)+3	Hour (00 _H to 23 _H)	Day (01 _H to 31 _H)				(D1)+4	Second (00 _H to 59 _H)	Minute (00 _H to 59 _H)				(D1)+5	00 _H	Day of week (00 _H to 06 _H)				○	—
b15		to	b8	b7	to	b0																												
(D1)+2		Month (01 _H to 12 _H)	Year (00 _H to 99 _H)	Last 2 digits																														
(D1)+3		Hour (00 _H to 23 _H)	Day (01 _H to 31 _H)																															
(D1)+4	Second (00 _H to 59 _H)	Minute (00 _H to 59 _H)																																
(D1)+5	00 _H	Day of week (00 _H to 06 _H)																																
(D1)+4	○	—																																
(D1)+5	○	—																																
(D1)+5	○	—																																

○: Stored —: Not stored



Clock data cannot be written when system protect is applied to the target station CPU.

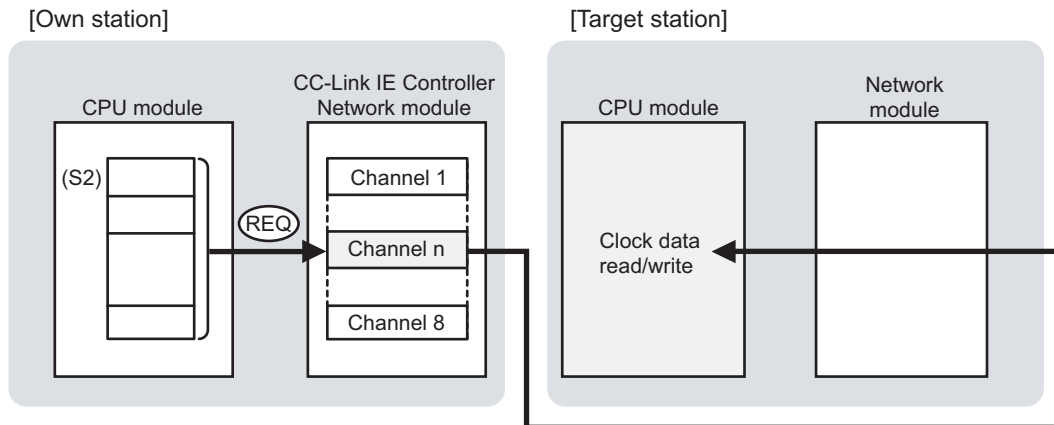
(3) Function

(a) REQ instruction overview

The REQ instruction sends request data (S2) to the target station to request for service.

The target station is specified in Target station network No. ((S1)+4) and Target station No. ((S1)+5) of control data.

Upon completion of the request to the target station, the completion device (D2) turns ON.



(b) Target stations available for specification

- Target network

In addition to CC-Link IE Controller Network, stations in the following networks can be also specified.

- CC-Link IE Field Network
- MELSECNET/H
- MELSECNET/10
- Ethernet

- Target station's CPU type

The REQ instruction is executable only when the target station is QCPU, RCP, LCP, or QnACP.

The REQ instruction is not executable to the ACP connected to MELSECNET/10 or Ethernet.

(c) Checking the execution status of the REQ instruction

The execution status of the REQ instruction (Normal completion, Error completion) can be checked with the following devices specified in the setting data.

- Completion device (D2)

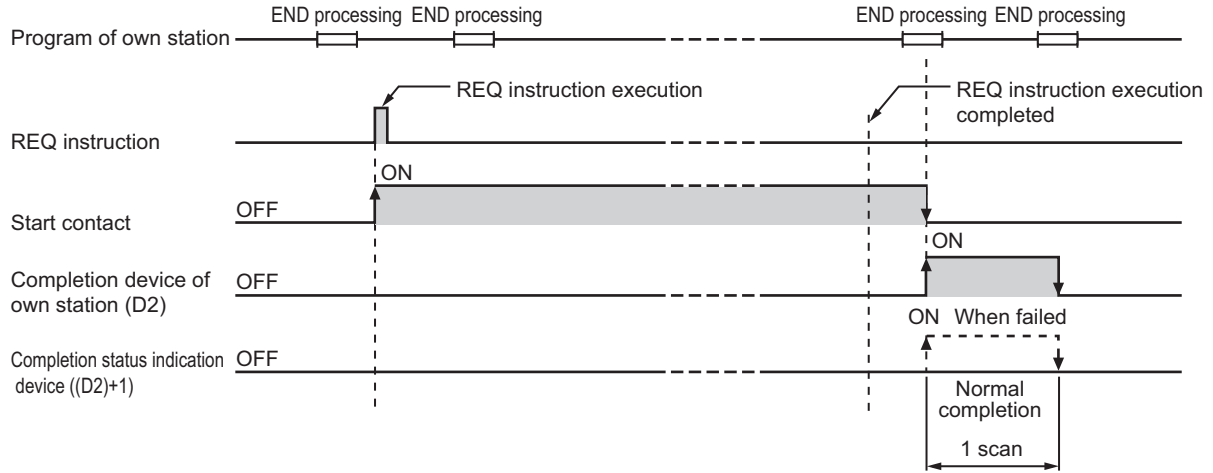
Turns ON in the END processing for the scan after completion of the REQ instruction, and turns OFF in the next END processing.

- Completion status indication device ((D2)+1)

Turns ON in the END processing for the scan after completion of the REQ instruction, and turns OFF in the next END processing, only when the REQ instruction has failed.

(d) Operation in REQ instruction execution

- Operation of the own station

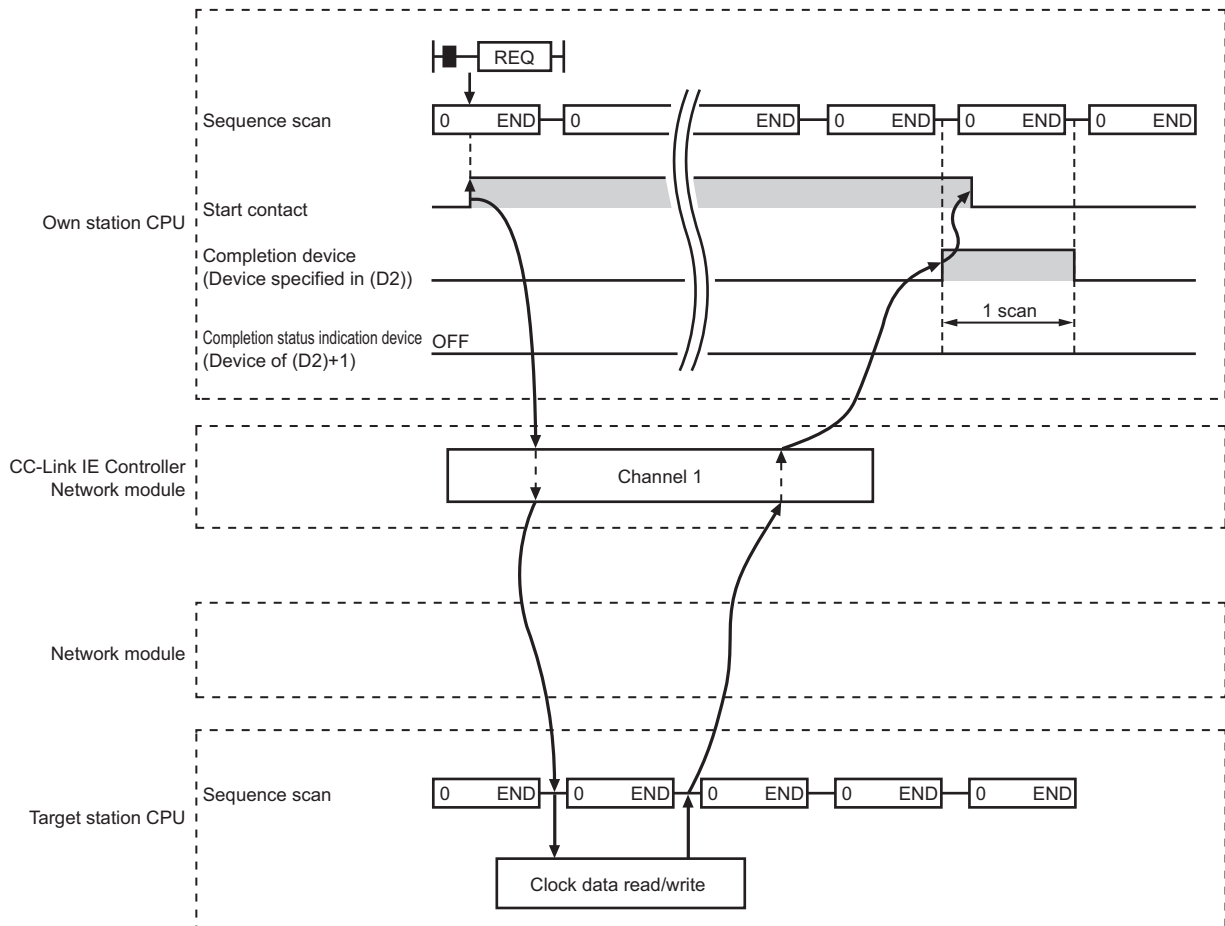


(e) REQ instruction execution timing

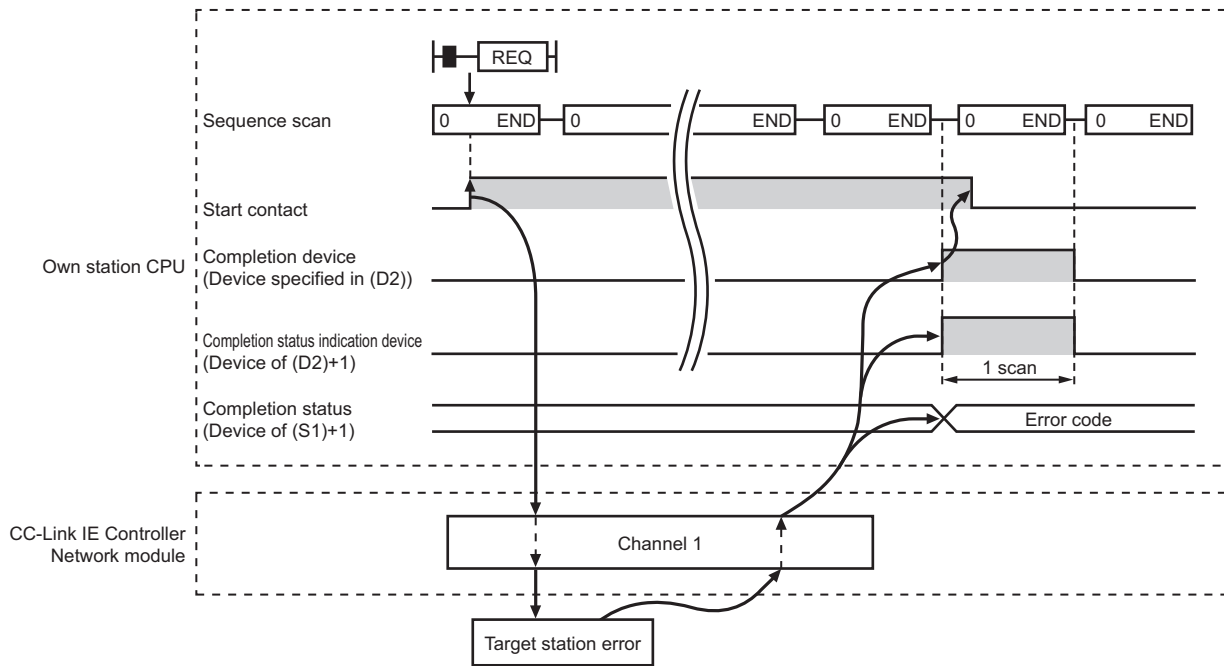
With J.REQ or G.REQ, processing is executed one after another while the start contact is ON.

With JP.REQ or GP.REQ, processing is performed one time only when the start contact turns ON from OFF.

- When completed normally



- When failed



(4) Error

When a link dedicated instruction failed, the error details can be confirmed by either of the following methods.

(a) With the programming tool

The error details can be checked in the CC IE Control diagnostics. (👉 Page 526, Section 10.3)

(b) Checking devices

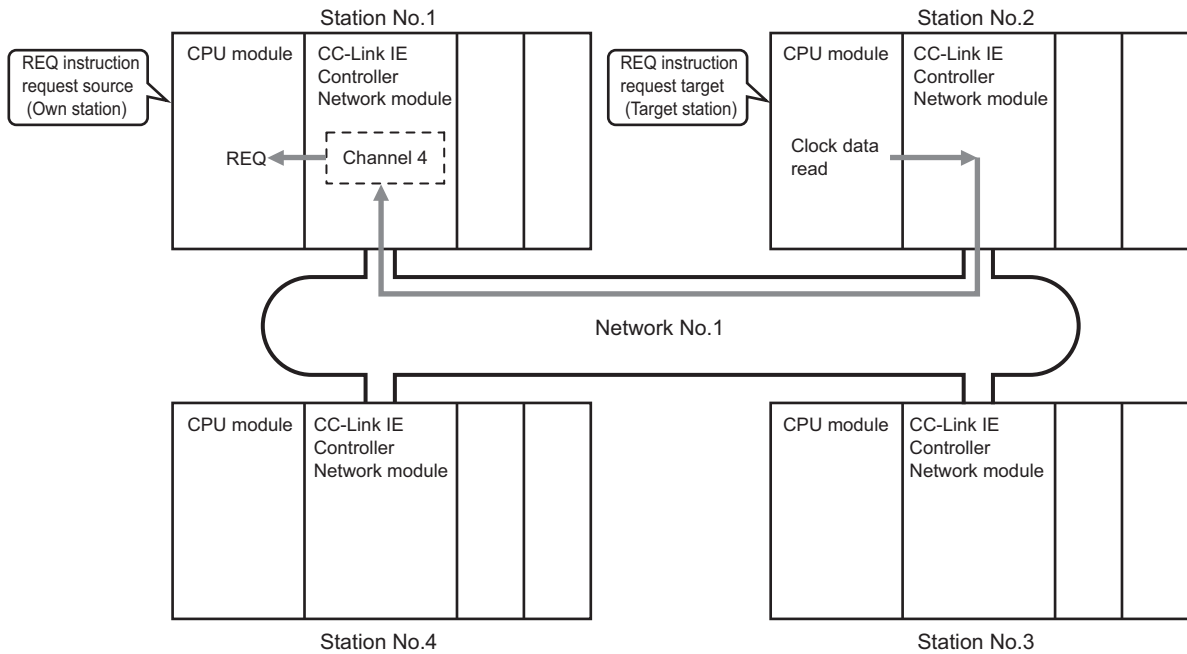
Completion status indication device ((D2)+1) is turned ON, and an error code is stored in Completion status ((S1)+1) of control data.

Check the error and take corrective actions according to the error code. (👉 Page 511, Section 10.2)

(5) Program example 1 (Reading clock data)

In the following program example, when M131 turns ON, clock data in QCPU of station No.2 (target station) are read out to station No.1 (own station).

(a) System configuration example



(b) Devices used in the program example

- Link special relay (SB) and link special register (SW)

Device	Description	Device	Description
SB0047	Baton pass status (own station)	SW00A0.1	Baton pass status of station No.2

Remark

- For details of link special relay (SB): Page 568, Appendix 1
- For details of link special register (SW): Page 584, Appendix 2

- Devices used by the user

Device	Description	Device	Description
M130	Control and 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	D606	Error code storage device

(c) REQ instruction (clock data read) settings

- Control data

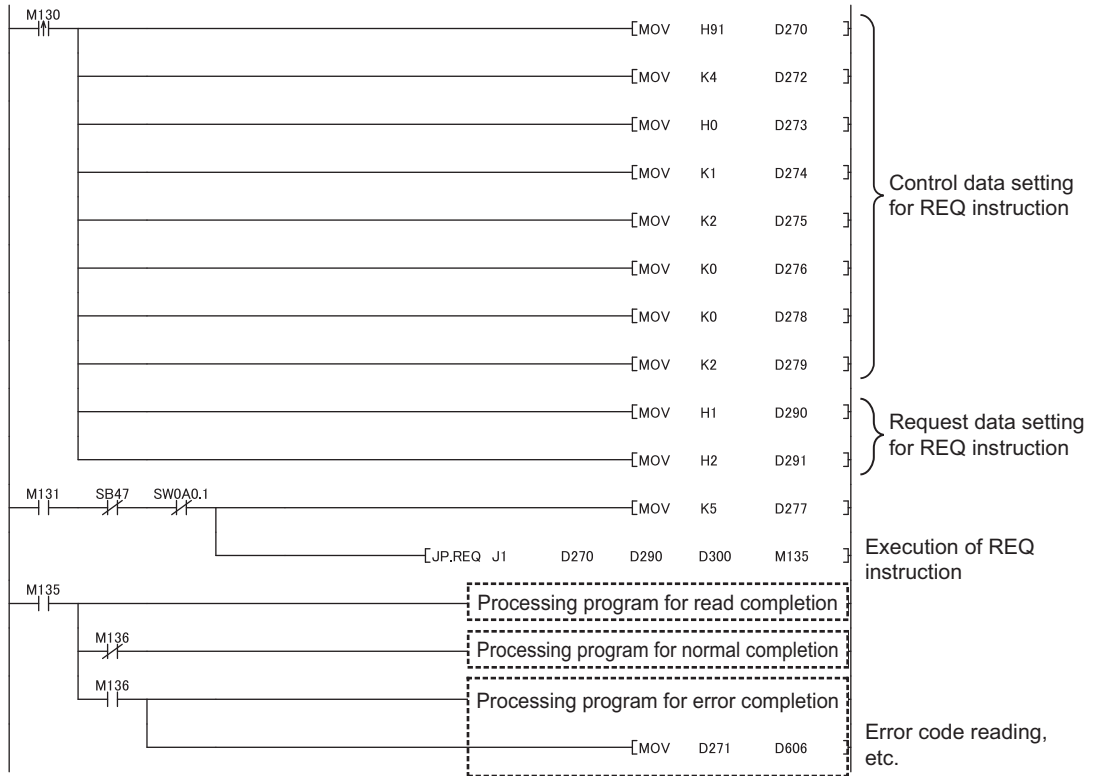
Device	Item	Set value
(S1)+0	D270	Error completion type 0091 _H (Clock data at the time of error completion is set.)
(S1)+1	D271	Completion status — (Set by system, no setting required)
(S1)+2	D272	Channel used by own station 4
(S1)+3	D273	Target station's CPU type 0000 _H (Control CPU)
(S1)+4	D274	Target station network No. 1
(S1)+5	D275	Target station No. 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
(S1)+11	D281	Clock set flag
(S1)+12 to (S1)+15	D282 to D285	Clock data on error completion — (Set by system, no setting required)
(S1)+16	D286	Error-detected network No.
(S1)+17	D287	Error-detected station No.

- 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)

(d) Program example

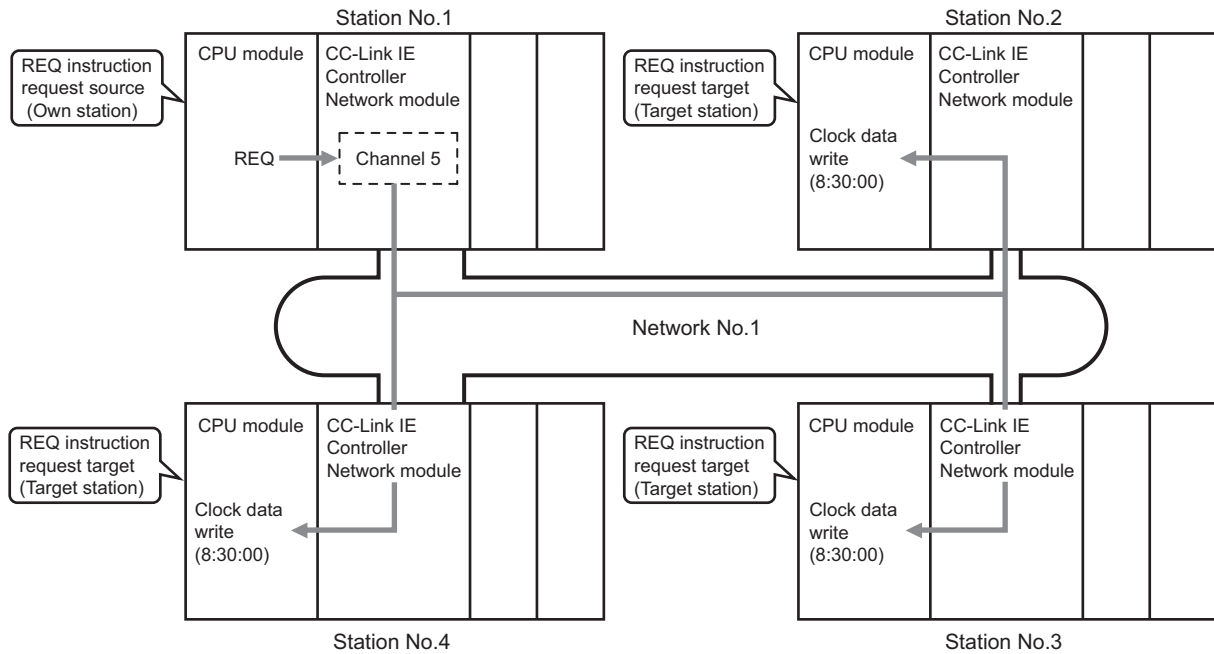
The following example program is written to the CPU module of station No.1.



(6) Program example 2 (Writing clock data)

In the following example program, when M141 turns ON, clock data (8:30:00) is written to all stations of network No.1.

(a) System configuration example



(b) Devices used in the program example

- Link special relay (SB)

Device	Description	Device	Description
SB0047	Baton pass status (own station)	SB00A0	Baton pass status of each station

Remark

- For the details of link special relay (SB): Page 568, Appendix 1

9.8 J(P)/G(P).REQ (Reading/Writing Clock Data)

- Devices used by the user

Device	Description	Device	Description
M140	Control and 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	D608	Error code storage device

(c) REQ instruction settings

- Control data

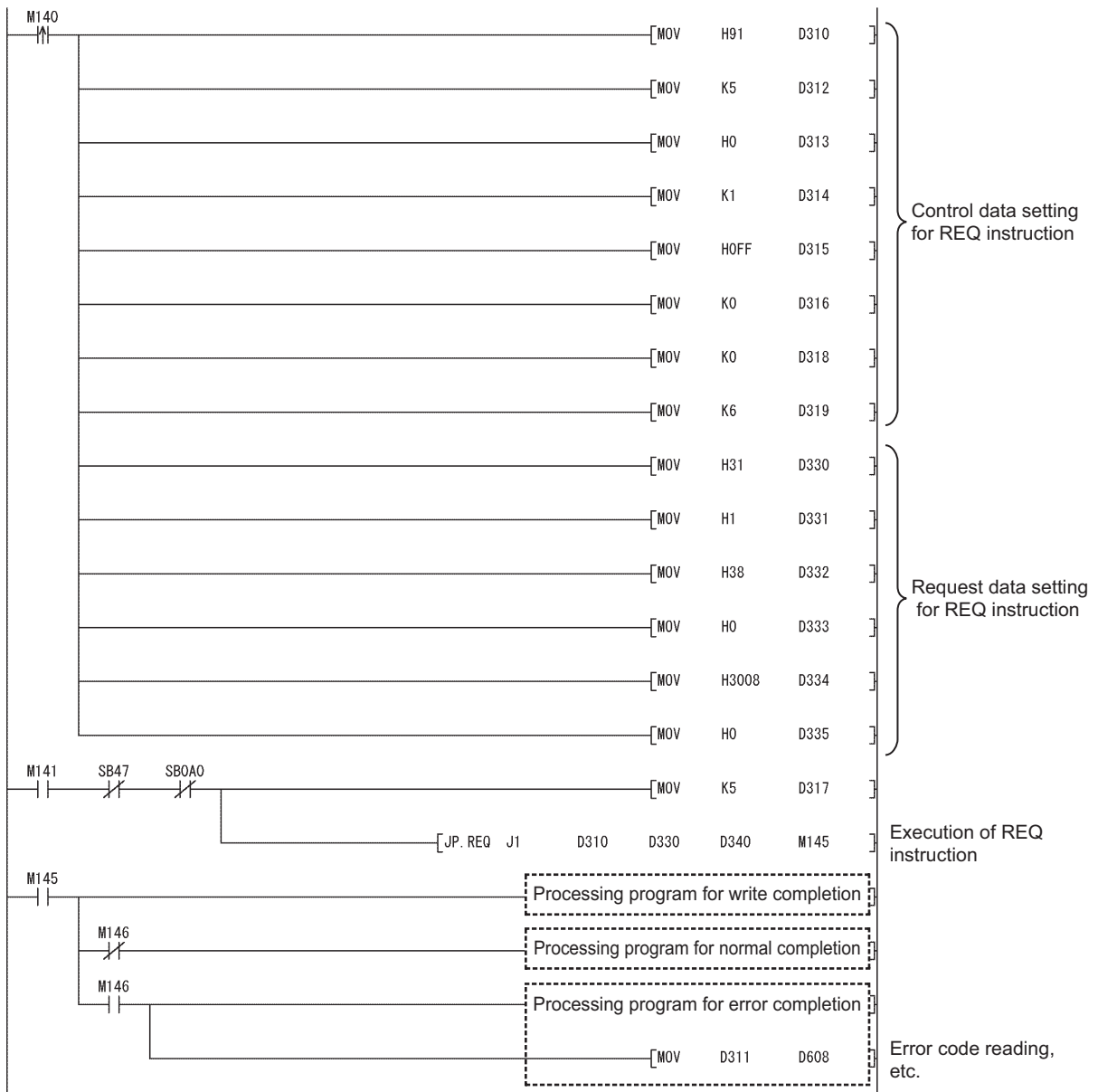
Device	Item	Set value
(S1)+0	D310	Error completion type 0091 _H (Clock data at the time of error completion is set.)
(S1)+1	D311	Completion status — (Set by the system, no setting required)
(S1)+2	D312	Channel used by own station 5
(S1)+3	D313	Target station's CPU type 0000 _H (Control CPU)
(S1)+4	D314	Target station network No. 1
(S1)+5	D315	Target station No. 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
(S1)+11	D321	Clock set flag
(S1)+12 to (S1)+15	D322 to D325	Clock data on error completion — (Set by the system, no setting required)
(S1)+16	D326	Error-detected network No.
(S1)+17	D327	Error-detected station No.

- Request data

Device	Item	Set value	
(S2)+0	D330	Request type 0031 _H (Clock data write (when all stations or a group is specified in (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 hour, minute or second.)	
(S2)+3	D333	Clock data to be changed	
(S2)+4	D334		0000 _H (Day, month (No setting))
(S2)+5	D335		3008 _H (Minute, hour (8:30))
		0000 _H (Day of week (No setting), second (00 seconds))	

(d) Program example

The following example program is written to the CPU module of station No.1.



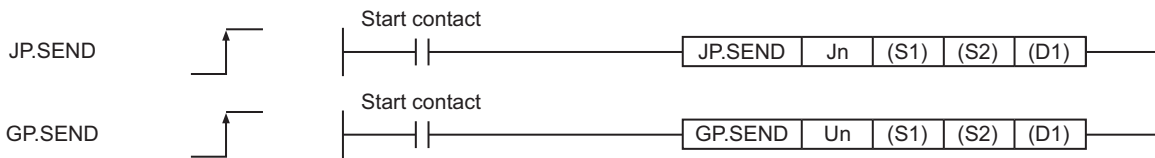
9.8 J(P)/G(P),REQ (Reading/Writing Clock Data)

9.9 JP/GP.SEND (Data Transmission to Programmable Controllers on Other Stations)

This instruction sends data to a programmable controller on another station.

Setting data	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)		○								—

[Instruction symbol] [Execution condition] [Instruction format]

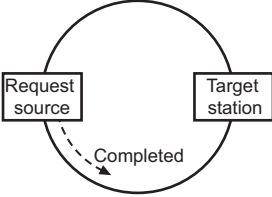
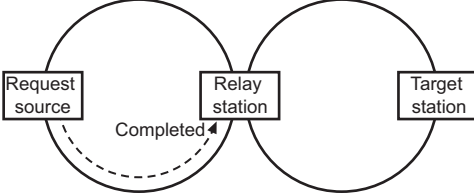
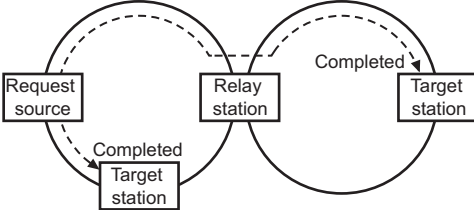


(1) Setting data



Setting data *1	Description	Data type
Jn	Network No. of the own station (1 to 239, 254) 254: The network specified in Valid module during other station access	Binary 16 bits
Un	Start I/O number of the own station's CC-Link IE Controller Network module (00 to FE _H : The higher two digits of the 3-digit I/O number)	
(S1)	Start device of the own station that stores control data (Page 401, Section 9.9 (2))	Device name
(S2)	Start device of the own station that stores send data	
(D1)	The own station's device that is turned on for one scan upon completion of the instruction (D1)+1 also turns ON if the instruction execution has failed.	Bit


*1 Local devices and file registers for each program cannot be used as devices in setting data.

(2) Control data

Device	Item	Setting data	Setting range	Setting side ^{*1}										
(S1)+0	Execution/Error completion type	<div style="text-align: center;"> <table border="1" style="margin: auto;"> <tr> <td style="padding: 2px;">b15</td> <td style="padding: 2px;">to</td> <td style="padding: 2px;">b7</td> <td style="padding: 2px;">to</td> <td style="padding: 2px;">b0</td> </tr> <tr> <td style="padding: 2px;">0</td> <td></td> <td style="padding: 2px;">2)</td> <td></td> <td style="padding: 2px;">1)</td> </tr> </table> </div> <p>1) Execution type (bit 0)</p> <p>0: No arrival confirmation</p> <ul style="list-style-type: none"> When the target station is on the same network Completed when data are sent from the own station. <div style="text-align: center;">  </div> <ul style="list-style-type: none"> When the target station is on another network Completed when data reach a relay station on the same network. <div style="text-align: center;">  </div> <p>1: With arrival confirmation</p> <p>Completed when data are stored in the specified channel area of the target station.</p> <div style="text-align: center;">  </div> <p>When "0: No arrival confirmation" is specified, even if transmission to the target station is terminated abnormally in the following cases, it is normal completion on the own station.</p> <ul style="list-style-type: none"> Communication itself was completed normally, although the data sent were erroneous. Data could not be stored in the target station because instructions from multiple stations were sent to the same station. (An error code (E006_H or E205_H) is detected on the target station.) <p>2) Error completion type (bit 7)</p> <p>Specify the clock data setup status for error completion.</p> <p>0: Clock data at the time of error completion is not set in the area starting from (S1)+11.</p> <p>1: Clock data at the time of error completion is set in the area starting from (S1)+11.</p>	b15	to	b7	to	b0	0		2)		1)	0000 _H 0001 _H 0080 _H 0081 _H	User
b15	to	b7	to	b0										
0		2)		1)										

9.9 JP/GP_SEND (Data Transmission to Programmable Controllers on Other Stations)

Device	Item	Setting data	Setting range	Setting side*1
(S1)+1	Completion status	The instruction completion status is stored. 0: Normal Other than 0: Error ( Page 511, Section 10.2)	—	System
(S1)+2	Channel used by own station	Specify the channel used by the own station. ( Page 329, Section 9.2.2 (2))	1 to 8	User
(S1)+3	Target station channel	Specify a channel of the target station for storing data.*3	1 to 8	User
(S1)+4	Target station network No.	Specify the network No. of the target station. 1 to 239: Network No. 254: Specify this when 254 has been set in Jn.	1 to 239 254	User
(S1)+5	Target station No.	Specify the station No. of the target station. (1) Station No. specification When own station is Universal model QCPU: 1 to 120 When own station is other than Universal model QCPU: 1 to 64 To increase the reliability of data, it is recommended to execute the instruction with the Execution/Error completion type ((S1)+0) set to "1: With arrival confirmation". (2) Group 81 _H to A0 _H : All stations in group No.1 to 32 (Setting is available when the execution type is set to "0: With arrival confirmation" in (S1)+0.) Group No.1 ... 81 _H Group No.2 ... 82 _H } Group No.32 ... A0 _H (3) All stations FF _H : All stations of the target network No. (Except the own station) (Setting is available when the execution type is set to "0: No arrival confirmation" in (S1)+0.) To specify a group or all stations • Stations on the CC-Link IE Field Network cannot be specified as a group.	1 to 120 81 _H to A0 _H FF _H	User
(S1)+6	—	Unused	0	User
(S1)+7	Number of resends	1) For instruction execution Specify the number of times the instruction is to be resent when it is not completed within the monitoring time specified in (S1)+8. (Setting is valid when the execution type is set to "1: With arrival confirmation" in (S1)+0.)	0 to 15	User
		2) At instruction completion The number of resends executed (result) is stored. (Setting is valid when the execution type is set to "1: With arrival confirmation" in (S1)+0.)	—	System
(S1)+8	Arrival monitoring time	Specify the monitoring time required for instruction completion. (Setting is available when the execution type is set to "1: With arrival confirmation" in (S1)+0.) If an instruction is not completed within this time, it will be resent the number of times specified in (S1)+7. 0: 10 seconds 1 to 32767: 1 to 32767 seconds	0 to 32767	User


Device	Item	Setting data	Setting range	Setting side*1																																			
(S1)+9	Send data length	Specify the send data size of (S2) to (S2)+n. When the target station is QCPU/RCPU/LCPU: 1 to 960 words When the target station is QnACPU: 1 to 480 words When the target station has a QCPU, check the version of the network module on the target station. The size of receive data is restricted depending on the version. ( Manual for the network module on the target station)	1 to 960	User																																			
(S1)+10	—	Unused	0	User																																			
(S1)+11	Clock set flag	The valid or invalid status of the data in the area starting from (S1)+12 is stored. Data is stored only when 1 is set in the bit 7 of Execution/Error completion type ((S1)+0). Note that the stored value will not be cleared even after the dedicated instruction is completed. 0: Invalid 1: Valid	—	System																																			
(S1)+12 to (S1)+15	Clock data on error completion	Clock data on error completion are stored in BCD format. Data is stored only when 1 is set in the bit 7 of Execution/Error completion type ((S1)+0). Note that the stored value will not be cleared even after the dedicated instruction is completed. <table border="1" style="margin-left: auto; margin-right: auto;"> <tr> <td></td> <td style="text-align: center;">b15</td> <td style="text-align: center;">to</td> <td style="text-align: center;">b8</td> <td style="text-align: center;">b7</td> <td style="text-align: center;">to</td> <td style="text-align: center;">b0</td> </tr> <tr> <td>(S1)+12</td> <td colspan="2" style="text-align: center;">Month (01H to 12H)</td> <td colspan="4" style="text-align: center;">Year (00H to 99H), Last 2 digits</td> </tr> <tr> <td>(S1)+13</td> <td colspan="2" style="text-align: center;">Hour (00H to 23H)</td> <td colspan="4" style="text-align: center;">Day (01H to 31H)</td> </tr> <tr> <td>(S1)+14</td> <td colspan="2" style="text-align: center;">Second (00H to 59H)</td> <td colspan="4" style="text-align: center;">Minute (00H to 59H)</td> </tr> <tr> <td>(S1)+15</td> <td colspan="2" style="text-align: center;">Year (00H to 99H), First 2 digits</td> <td colspan="4" style="text-align: center;">Day of week (00H to 06H)</td> </tr> </table> 00H (Sun.) to 06H (Sat.) When the target station is QnACPU, "00H" is stored in the Year field (first two digits of the year).		b15	to	b8	b7	to	b0	(S1)+12	Month (01H to 12H)		Year (00H to 99H), Last 2 digits				(S1)+13	Hour (00H to 23H)		Day (01H to 31H)				(S1)+14	Second (00H to 59H)		Minute (00H to 59H)				(S1)+15	Year (00H to 99H), First 2 digits		Day of week (00H to 06H)				—	System
	b15	to	b8	b7	to	b0																																	
(S1)+12	Month (01H to 12H)		Year (00H to 99H), Last 2 digits																																				
(S1)+13	Hour (00H to 23H)		Day (01H to 31H)																																				
(S1)+14	Second (00H to 59H)		Minute (00H to 59H)																																				
(S1)+15	Year (00H to 99H), First 2 digits		Day of week (00H to 06H)																																				
(S1)+16	Error-detected network No.*2	Network No. of the station, where an error was detected, is stored. Data is stored only when 1 is set in the bit 7 of Execution/Error completion type ((S1)+0). Note that the stored value will not be cleared even after the dedicated instruction is completed. 1 to 239: Network No.	—	System																																			
(S1)+17	Error-detected station No.*2	Station No. of the station, where an error was detected, is stored. Data is stored only when 1 is set in the bit 7 of Execution/Error completion type ((S1)+0). Note that the stored value will not be cleared even after the dedicated instruction is completed. 1 to 120: Station No.	—	System																																			

*1 The setting side is as shown below.

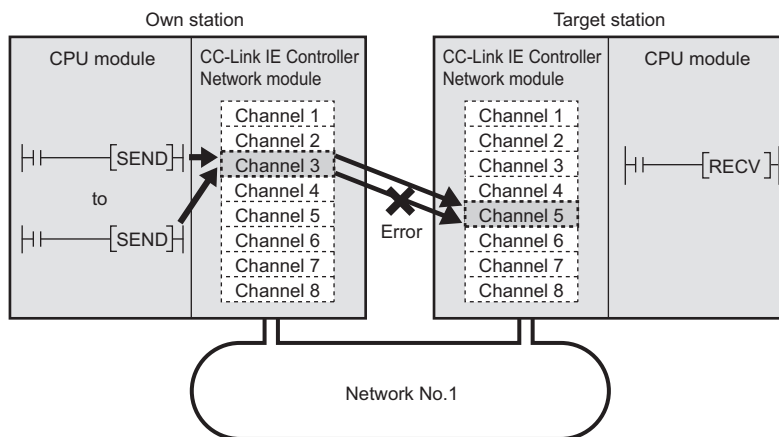
User: Before execution of the link dedicated instruction, data must be set by the user.

System: The CPU module stores the execution result of the link dedicated instruction.

*2 Data is not stored when Completion status ((S1)+1) is "Channel busy (Dedicated instruction) (error code: E26C_H)".

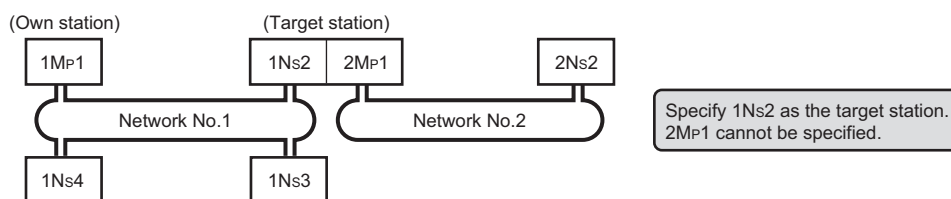
*3 Logical channel setting is not available for the CC-Link IE Controller Network module. ( Page 615, Appendix 4.2 (1))

- When executing SEND instructions to the same channel of the target station
Execute the SEND instruction after the target station has read out the specified channel data.
A SEND instruction execution to the same channel on the target station before that will cause an error.



- When two or more network modules are installed on the target station
Specify the network No. and station No. of the network module that accepts a request from the own station.

Ex. In the following case, specify 1Ns2. (2Mp1 cannot be specified.)



- The number of resends ((S1)+7) must be set every time an instruction is executed.

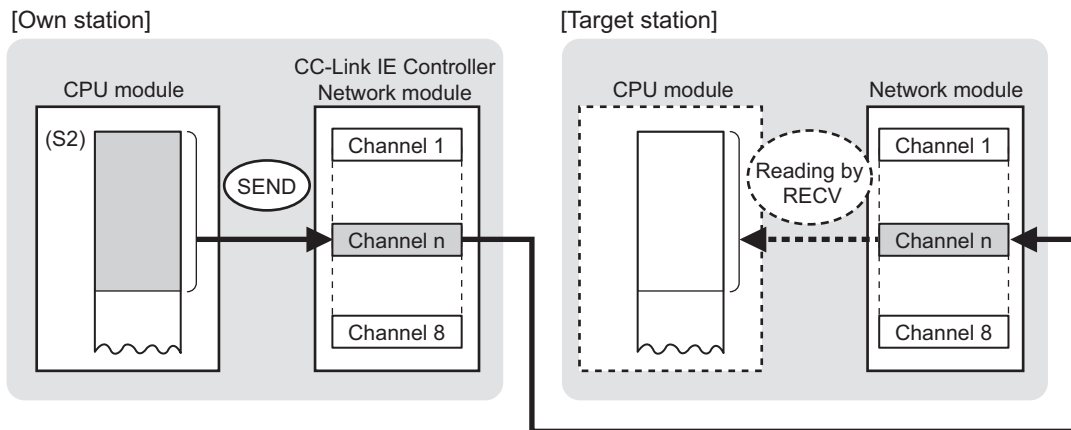
(3) Function

(a) SEND instruction overview

The SEND instruction sends word device data (in and after (S2)) of the own station to the specified channel area of the target station.

The target station is specified in Target station network No. ((S1+4) and Target station No. ((S1+5) of control data.

Upon completion of transmission to the specified channel of the target station, the completion device (D1) turns ON.



(b) Target stations available for specification

- Target network
- In addition to CC-Link IE Controller Network, stations in the following networks can be also specified.
 - CC-Link IE Field Network
 - MELSECNET/H
 - MELSECNET/10
 - Ethernet

- Target station's CPU type

The SEND instruction is executable only when the target station is QCPU, RCPU, LCPU, or QnACPU.

The SEND instruction is not executable to the ACPU connected to MELSECNET/10 or Ethernet.

(c) Checking the execution status of the SEND instruction

The execution status of the SEND instruction (Normal completion, Error completion) can be checked with the following devices specified in the setting data.

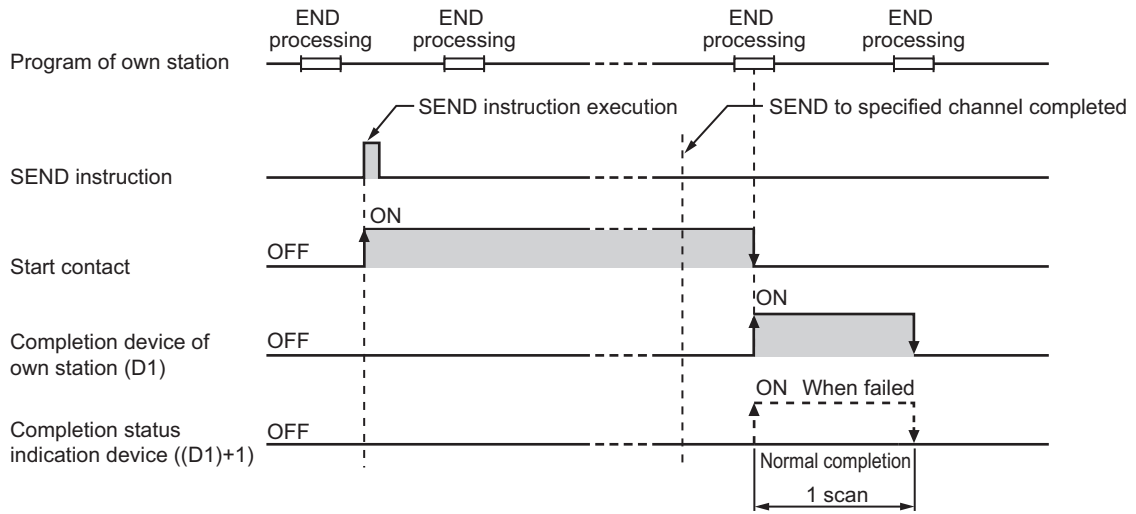
- Completion device (D1)

Turns ON in the END processing for the scan after completion of the SEND instruction, and goes OFF in the next END processing.
- Completion status indication device ((D1)+1)

Turns ON in the END processing for the scan after completion of the SEND instruction, and turns OFF in the next END processing, only when the SEND instruction has failed.

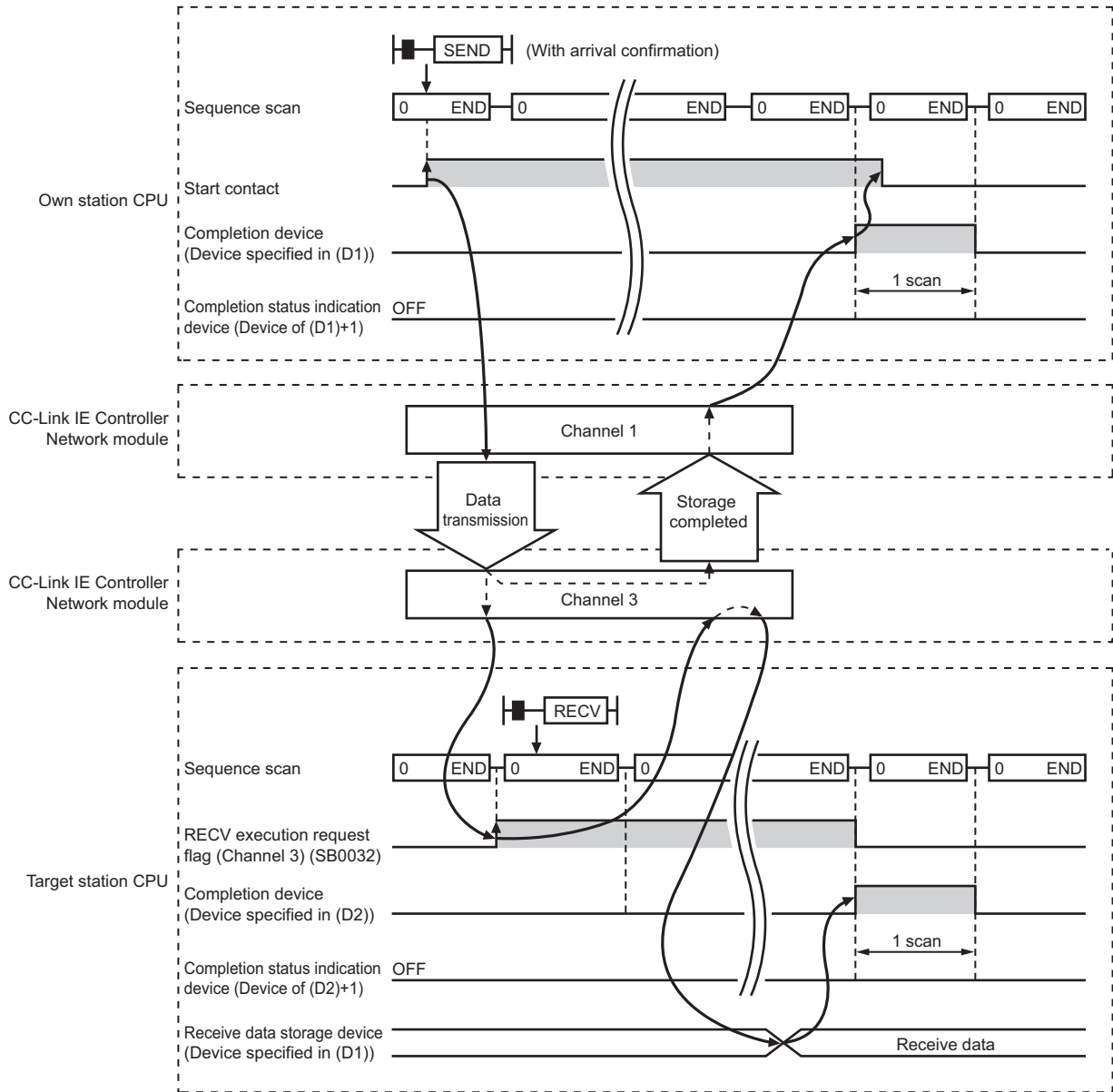
(d) Operation in SEND instruction execution

- Operation of the own station



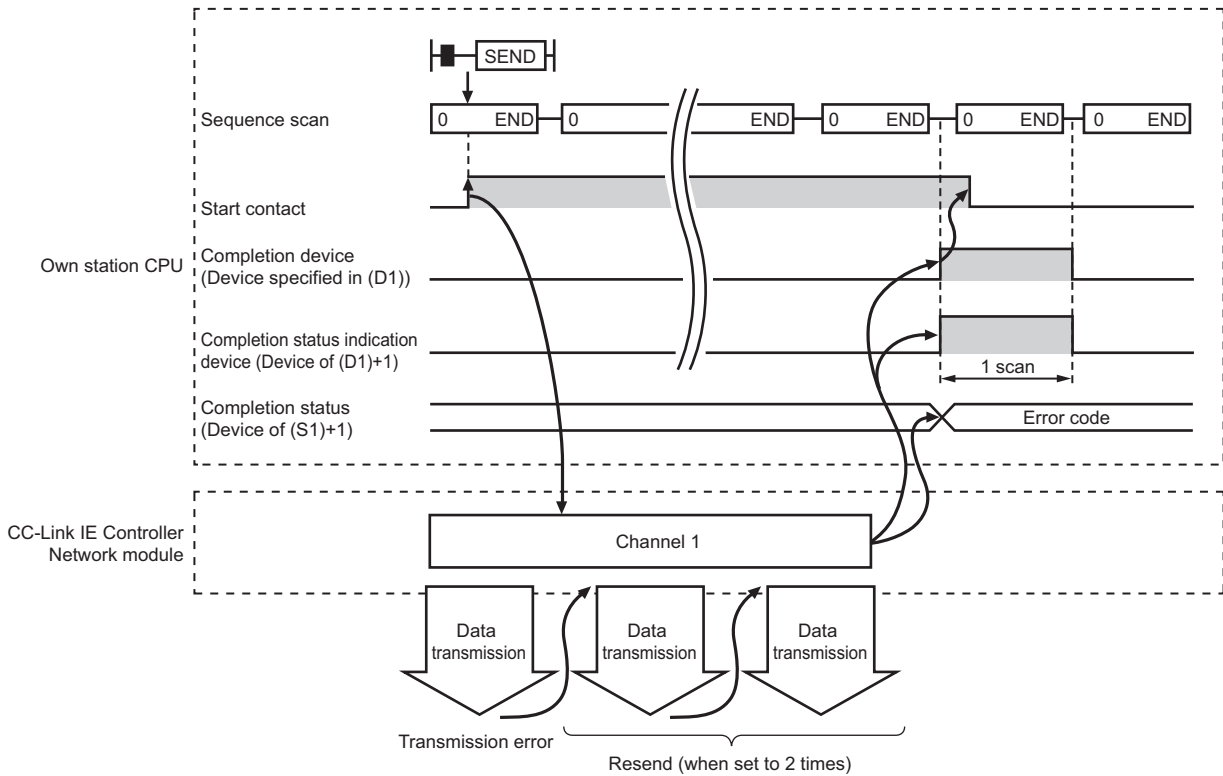
(e) SEND instruction execution timing

- When completed normally



9.9 J/P/GP SEND (Data Transmission to Programmable Controllers on Other Stations)

- When failed



(4) Error

When a link dedicated instruction failed, the error details can be confirmed by either of the following methods.

(a) With the programming tool

The error details can be checked in the CC IE Control diagnostics. (☞ Page 526, Section 10.3)

(b) Checking devices

Completion status indication device ((D1)+1) is turned ON, and an error code is stored in Completion status ((S1)+1) of control data.



Check the error and take corrective actions according to the error code. (☞ Page 511, Section 10.2)

(5) Program example

In this program example, when M152 turns ON, data in D750 to D753 of station No.1 (own station) are sent to channel 5 of station No.2 (target station).

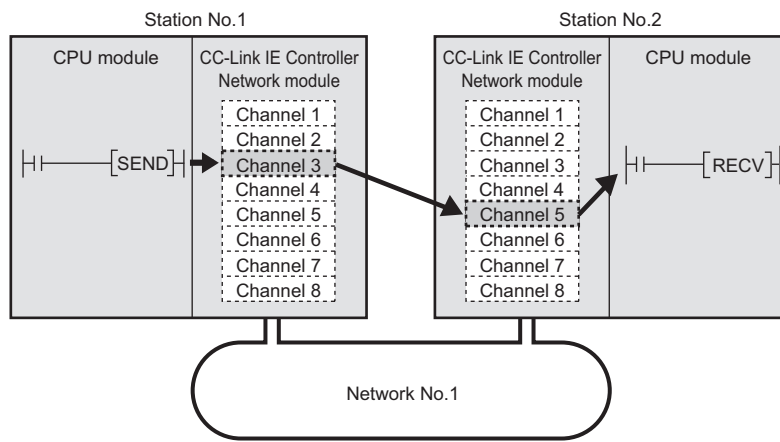
If the target station is on a redundant system, the station numbers used for the redundant system in this case are assumed to be No.2 and No.3.

For how to read the data sent by SEND from channel 5 of station No.2 (target station), refer to the following.

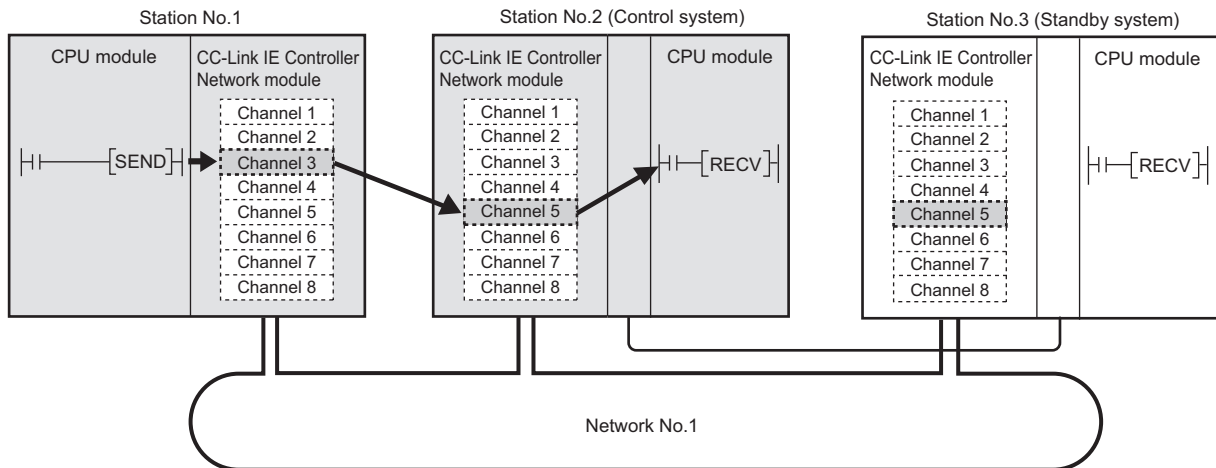
- When reading the data with the main program:  Page 413, Section 9.10
- When reading the data with the main program:  Page 421, Section 9.11

(a) System configuration example

- When the target station is not on a redundant system



- When the target station is on a redundant system



9.9 JP/GP SEND (Data Transmission to Programmable Controllers on Other Stations)



(b) Devices used in the program example

- Link special relay (SB) and link special register (SW)

Device	Description	Device	Description
SB0047	Baton pass status (own station)	SW01F0.1	Redundant system status (3) of station No.2 ^{*1}
SW00A0.1	Baton pass status of station No.2	SW01F0.2	Redundant system status (3) of station No.3 ^{*1}
SW00A0.2	Baton pass status of station No.3 ^{*1}		—

*1 Used when the target station is on a redundant system.

Remark

- For details of link special relay (SB):  Page 568, Appendix 1
- For details of link special register (SW):  Page 584, Appendix 2

- Devices used by the user

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	D612	Error code storage device
M155	Completion device	D750 to D753	Send data storage device (station No.1)

(c) SEND instruction settings

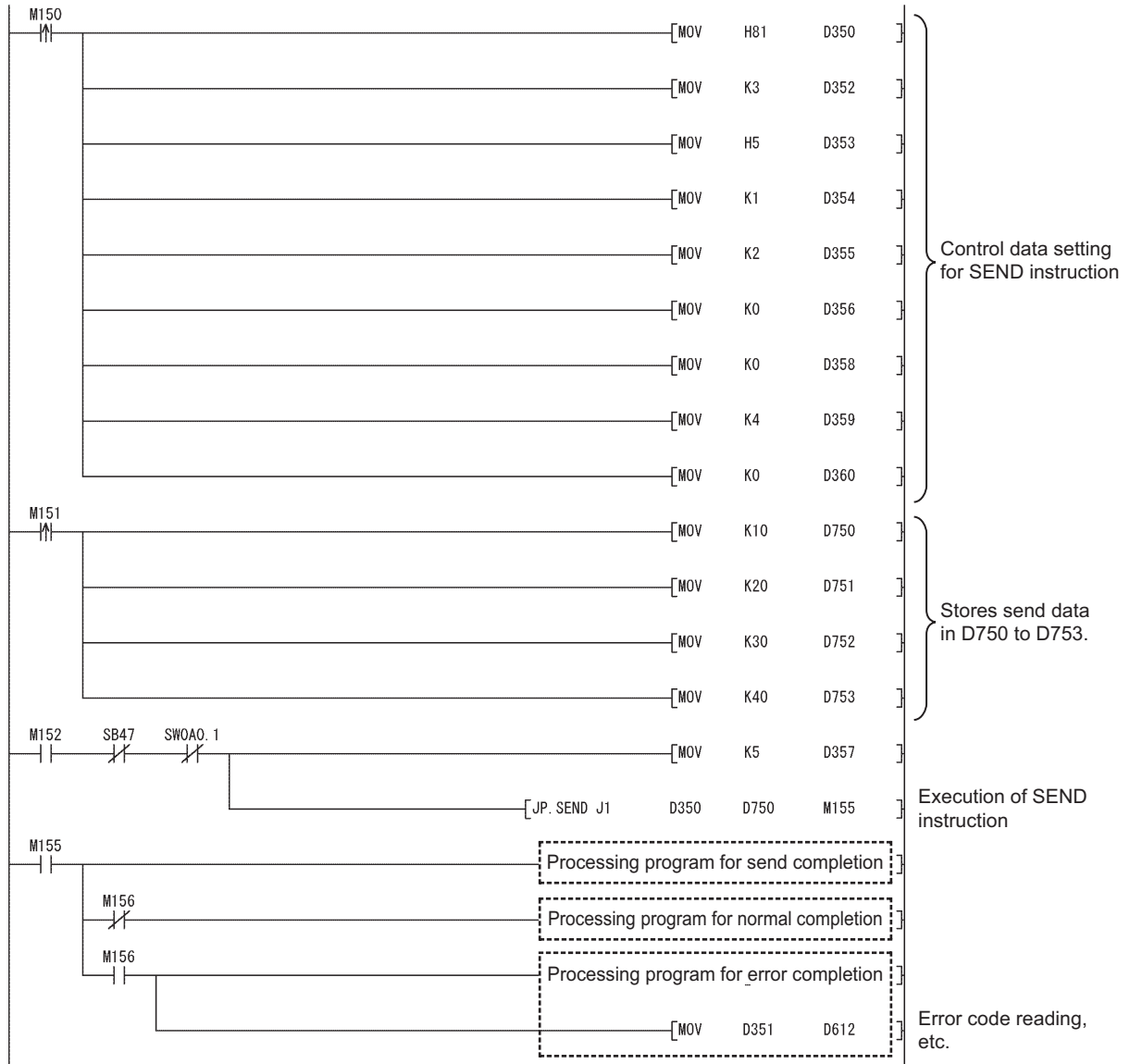
Control data settings for the SEND instruction are shown below.

Device	Item	Set value
(S1)+0	D350	Execution/Error completion type 0081 _H (With arrival confirmation, clock data at the time of error completion is set.)
(S1)+1	D351	Completion status — (Set by the system, no setting required)
(S1)+2	D352	Channel used by own station 3
(S1)+3	D353	Target station channel 5
(S1)+4	D354	Target station network No. 1
(S1)+5	D355	Target station No. 2 (2 or 3 when the target station is on a redundant system)
(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
(S1)+12 to (S1)+15	D362 to D365	Clock data on error completion
(S1)+16	D366	Error-detected network No.
(S1)+17	D367	Error-detected station No.

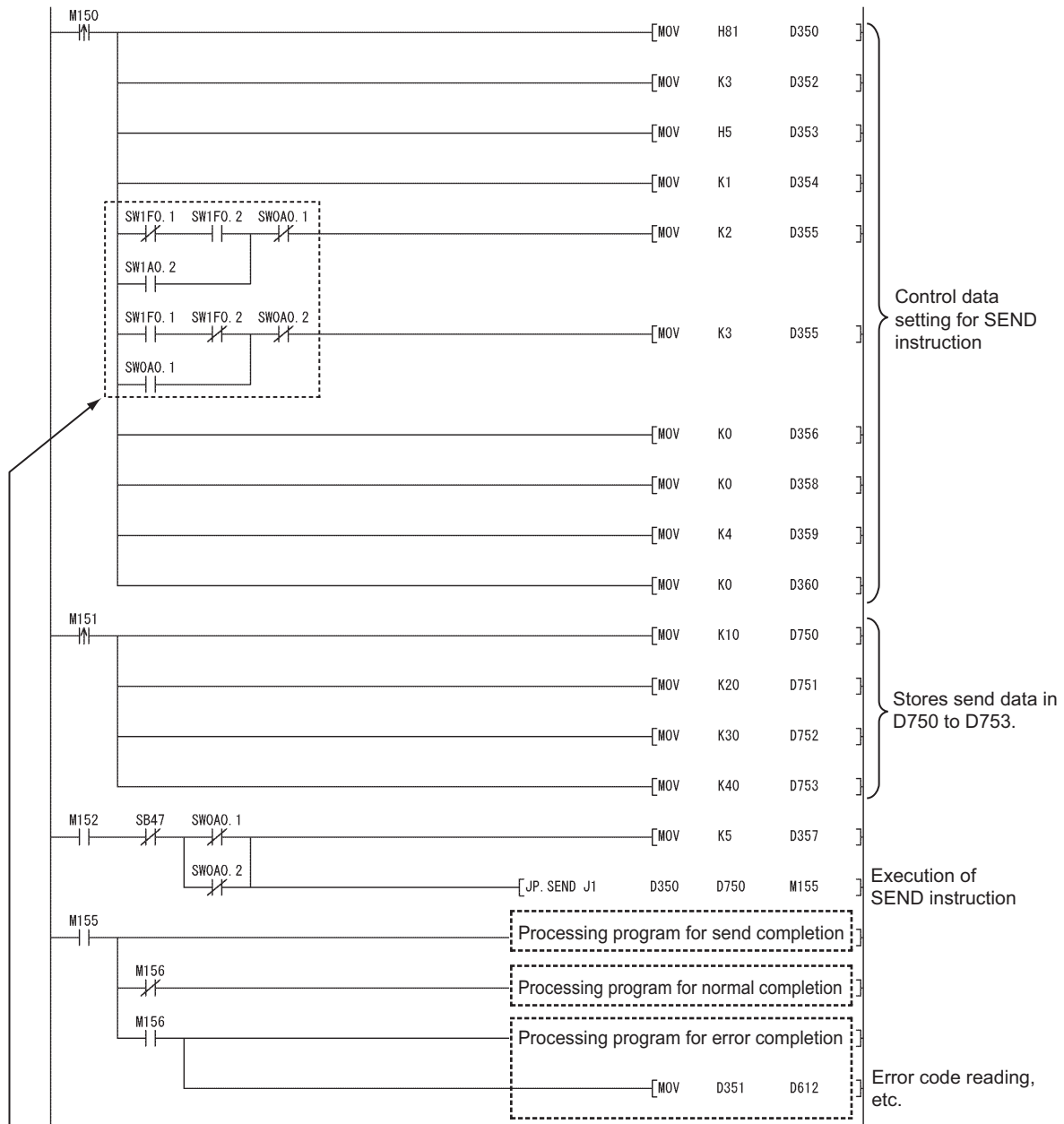
(d) Program example

The following example program is written to the CPU module of station No.1.

- When the target station is not on a redundant system



- When the target station is on a redundant system
 Confirm that the target station is on the control system, and execute the SEND instruction.
 If it is on the standby system, the RECV instruction is not executable, and thereby the target station storage channel cannot be used.



For target station No. specification, provide an interlock using Redundant system status (3) (SW01F0 to SW01F7) to ensure the target station is control system.

Point

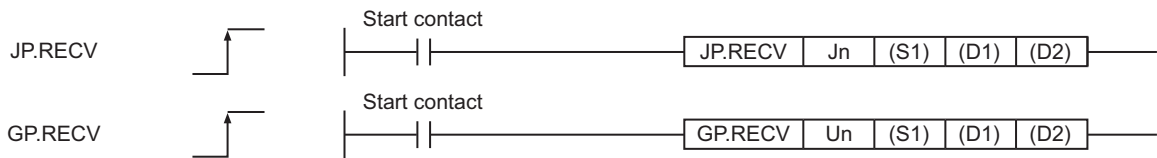
- When the control system was switched to the standby system after execution of the SEND instruction to the control system and before reading the data sent by the SEND instruction
 Execute the SEND instruction again to the new control system.
 The data sent by the SEND instruction must be read out to the standby system after it is switched to control system.
- When the SEND instruction was executed to the standby system
 Execute the SEND instruction again to the control system.
 The data sent by the SEND instruction must be read out to the standby system after it is switched to control system.

9.10 JP/GP.RECV (Data Reception from Programmable Controllers on Other Stations)

This instruction reads data received from a programmable controller on another station. (For main program)

Setting data	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)		○								—

[Instruction symbol] [Execution condition] [Instruction format]



(1) Setting data

Setting data*1	Description	Data type
Jn	Network No. of the own station (1 to 239, 254) 254: The network specified in Valid module during other station access	Binary 16 bits
Un	Start I/O number of the own station's CC-Link IE Controller Network module (00 to FE _H ; The higher two digits of the 3-digit I/O number)	
(S1)	Start device of the own station that stores control data (Page 414, Section 9.10 (2))	Device name
(D1)	Start device of the own station that stores receive data (A contiguous area for the receive data length is required.)	
(D2)	The own station's device that is turned on for one scan upon completion of the instruction (D2)+1 also turns ON if the instruction execution has failed.	Bit

*1 Local devices and file registers for each program cannot be used as devices in setting data.

(2) Control data

Device	Item	Setting data	Setting range	Setting side*1																														
(S1)+0	Error completion type	<div style="text-align: center;"> <table border="1" style="margin: auto;"> <tr> <td style="padding: 2px;">b15</td> <td style="padding: 2px;">to</td> <td style="padding: 2px;">b7</td> <td style="padding: 2px;">to</td> <td style="padding: 2px;">b0</td> </tr> <tr> <td style="padding: 2px;">0</td> <td></td> <td style="padding: 2px;">1</td> <td></td> <td style="padding: 2px;">0</td> </tr> </table> </div> <p>1) Error completion type (bit 7) Specify the clock data setup status for error completion. 0: Clock data at the time of error completion is not set in the area starting from (S1)+11. 1: Clock data at the time of error completion is set in the area starting from (S1)+11.</p>	b15	to	b7	to	b0	0		1		0	0000 _H 0080 _H	User																				
b15	to	b7	to	b0																														
0		1		0																														
(S1)+1	Completion status	The instruction completion status is stored. 0: Normal Other than 0: Error (Page 511, Section 10.2)	—	System																														
(S1)+2	Own station channel	Specify the channel of the own station, where receive data are stored. (Page 328, Section 9.2.2 (1))	1 to 8	User																														
(S1)+3	Channel used by sending station	Stores the channel used by the sending station.	—	System																														
(S1)+4	Network No. of sending station	Stores network No. of the sending station. 1 to 239: Network No.	—	System																														
(S1)+5	Sending station No.	Stores station No. of the sending station. 1 to 120: Station No.	—	System																														
(S1)+6	—	Unused	0	User																														
(S1)+7	—	Unused	0	User																														
(S1)+8	Arrival monitoring time	Specify the monitoring time required for instruction completion. If not completed within the time, the instruction is terminated with an error. 0: 10 seconds 1 to 32767: 1 to 32767 seconds	0 to 32767	User																														
(S1)+9	Receive data length	Stores the receive data size stored in (D1) to (D1)+n. 1 to 960: Receive data size (words)	—	System																														
(S1)+10	—	Unused	0	User																														
(S1)+11	Clock set flag	The valid or invalid status of the data in the area starting from (S1)+12 is stored. Data is stored only when 1 is set in the bit 7 of Error completion type ((S1)+0). Note that the stored value will not be cleared even after the dedicated instruction is completed. 0: Invalid 1: Valid	—	System																														
(S1)+12 to (S1)+15	Clock data on error completion	Clock data on error completion are stored in BCD format. Data is stored only when 1 is set in the bit 7 of Error completion type ((S1)+0). Note that the stored value will not be cleared even after the dedicated instruction is completed. <table border="1" style="margin: auto; border-collapse: collapse;"> <tr> <td style="padding: 2px;">b15</td> <td style="padding: 2px;">to</td> <td style="padding: 2px;">b8</td> <td style="padding: 2px;">b7</td> <td style="padding: 2px;">to</td> <td style="padding: 2px;">b0</td> </tr> <tr> <td style="padding: 2px;">(S1)+12</td> <td></td> <td style="padding: 2px;">Month (01_H to 12_H)</td> <td></td> <td style="padding: 2px;">Year (00_H to 99_H), Last 2 digits</td> <td></td> </tr> <tr> <td style="padding: 2px;">(S1)+13</td> <td></td> <td style="padding: 2px;">Hour (00_H to 23_H)</td> <td></td> <td style="padding: 2px;">Day (01_H to 31_H)</td> <td></td> </tr> <tr> <td style="padding: 2px;">(S1)+14</td> <td></td> <td style="padding: 2px;">Second (00_H to 59_H)</td> <td></td> <td style="padding: 2px;">Minute (00_H to 59_H)</td> <td></td> </tr> <tr> <td style="padding: 2px;">(S1)+15</td> <td></td> <td style="padding: 2px;">Year (00_H to 99_H), First 2 digits</td> <td></td> <td style="padding: 2px;">Day of week (00_H to 06_H)</td> <td></td> </tr> </table> <p style="text-align: center;">00_H (Sun.) to 06_H (Sat.)</p>	b15	to	b8	b7	to	b0	(S1)+12		Month (01 _H to 12 _H)		Year (00 _H to 99 _H), Last 2 digits		(S1)+13		Hour (00 _H to 23 _H)		Day (01 _H to 31 _H)		(S1)+14		Second (00 _H to 59 _H)		Minute (00 _H to 59 _H)		(S1)+15		Year (00 _H to 99 _H), First 2 digits		Day of week (00 _H to 06 _H)		—	System
b15	to	b8	b7	to	b0																													
(S1)+12		Month (01 _H to 12 _H)		Year (00 _H to 99 _H), Last 2 digits																														
(S1)+13		Hour (00 _H to 23 _H)		Day (01 _H to 31 _H)																														
(S1)+14		Second (00 _H to 59 _H)		Minute (00 _H to 59 _H)																														
(S1)+15		Year (00 _H to 99 _H), First 2 digits		Day of week (00 _H to 06 _H)																														

Device	Item	Setting data	Setting range	Setting side*1
(S1)+16	Error-detected network No.*2	Network No. of the station, where an error was detected, is stored. Data is stored only when 1 is set in the bit 7 of Error completion type ((S1)+0). Note that the stored value will not be cleared even after the dedicated instruction is completed. 1 to 239: Network No.	—	System
(S1)+17	Error-detected station No.*2	Station No. of the station, where an error was detected, is stored. Data is stored only when 1 is set in the bit 7 of Error completion type ((S1)+0). Note that the stored value will not be cleared even after the dedicated instruction is completed. 1 to 120: Station No.	—	System


*1 The setting side is as shown below.

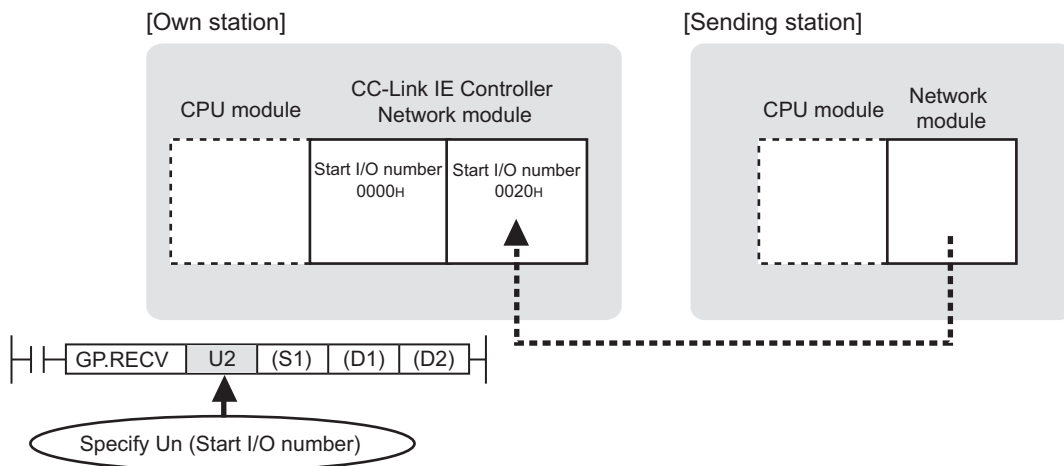
User: Before execution of the link dedicated instruction, data must be set by the user.

System: The CPU module stores the execution result of the link dedicated instruction.

*2 Data is not stored when Completion status ((S1)+1) is "Channel busy (Dedicated instruction) (error code: E26C_H)".

Point

- The CC-Link IE Controller Network module cannot receive data sent with a logical channel specified. (Logical channel setting is not available.)  Page 615, Appendix 4.2 (1)
- When multiple CC-Link IE Controller Network modules of the same network number are mounted in the own station, execute the RECV instruction by specifying Un (start I/O number). The RECV instruction cannot be executed by specifying Jn (network number).



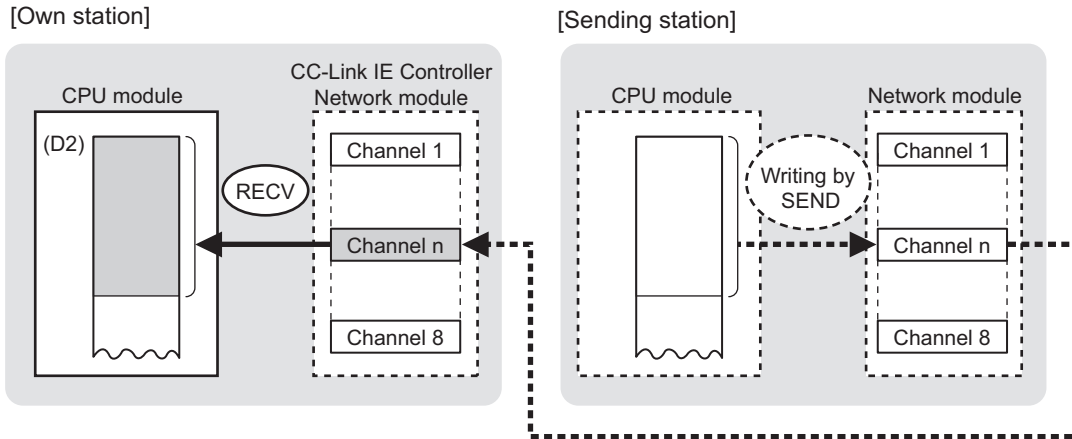
9.10 JF/GP.RECV (Data Reception from Programmable Controllers on Other Stations)

(3) Function

(a) RECV instruction overview

Data sent by the SEND instruction from another station are read out from the specified channel to the word devices (in and after (D1)) on the own station.

Upon completion of reading data from the specified channel of the own station, Completion device (D2) turns ON.



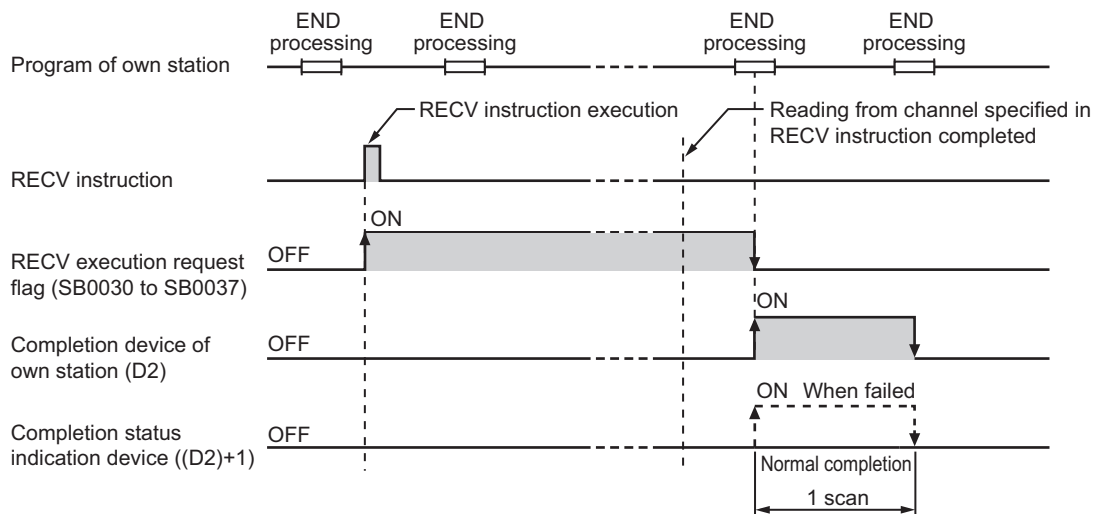
(b) Checking the execution status of the RECV instruction

The execution status of the RECV instruction (Normal completion, Error completion) can be checked with the following devices specified in the setting data.

- Completion device (D2)
Turns ON in the END processing for the scan after completion of the RECV instruction, and goes OFF in the next END processing.
- Completion status indication device ((D2)+1)
Turns ON in the END processing for the scan after completion of the RECV instruction, and turns OFF in the next END processing, only when the RECV instruction has failed.

(c) Operation in RECV instruction execution

- Operation of the own station



(d) RECV instruction execution timing

When data are stored in the own station channel area, the corresponding RECV execution request flag (SB0030 to SB0037) turns ON.

Use a RECV execution request flag as a start contact to execute the RECV instruction.

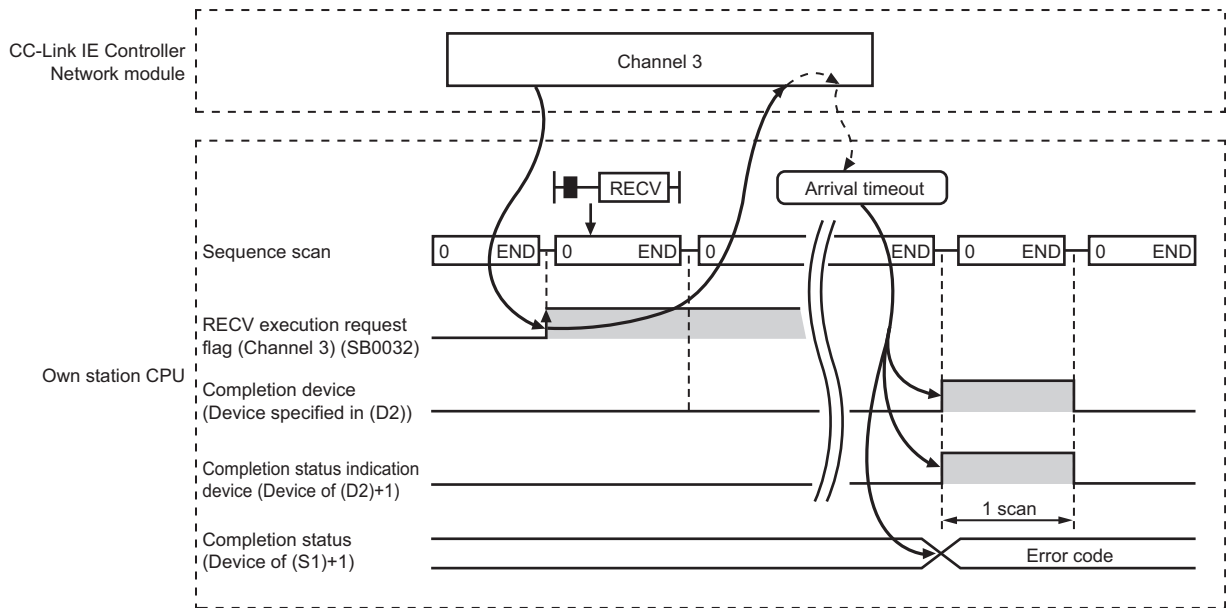
Upon completion of the RECV instruction, the RECV execution request flag turns OFF.

No.	Name
SB0030	RECV execution request flag (channel 1)
SB0031	RECV execution request flag (channel 2)
SB0032	RECV execution request flag (channel 3)
SB0033	RECV execution request flag (channel 4)
SB0034	RECV execution request flag (channel 5)
SB0035	RECV execution request flag (channel 6)
SB0036	RECV execution request flag (channel 7)
SB0037	RECV execution request flag (channel 8)

- When completed normally
For the RECV instruction execution timing, refer to the following.

☞ Page 407, Section 9.9 (3) (e)

- When failed



(4) Error

When a link dedicated instruction failed, the error details can be confirmed by either of the following methods.

(a) With the programming tool

The error details can be checked in the CC IE Control diagnostics. (☞ Page 526, Section 10.3)

(b) Checking devices

Completion status indication device ((D2)+1) is turned ON, and an error code is stored in Completion status ((S1)+1) of control data.

Check the error and take corrective actions according to the error code. (☞ Page 511, Section 10.2)

(5) Program example

The following is a program in which, when SB0034 turns ON, data sent from station No.1 by the SEND instruction are read out from channel 5 into D770 to D773.

- SEND instruction:  Page 400, Section 9.9

(a) System configuration example


Same as in the program example of the SEND instruction.

(b) Devices used in the program example

- Special relays (SM) and link special relays (SB)

Device	Description	Device	Description
SM400	Always ON	SB0047	Baton pass status (own station)
SB0034	RECV execution request flag (channel 5)		—

Remark

- For the details of link special relay (SB):  Page 568, Appendix 1

- Devices used by the user

Device	Description	Device	Description
M165	Completion device	D616	Error code storage device
M166	Completion status indication device	D770 to D773	Receive data storage device
D370 to D387	Control data		—

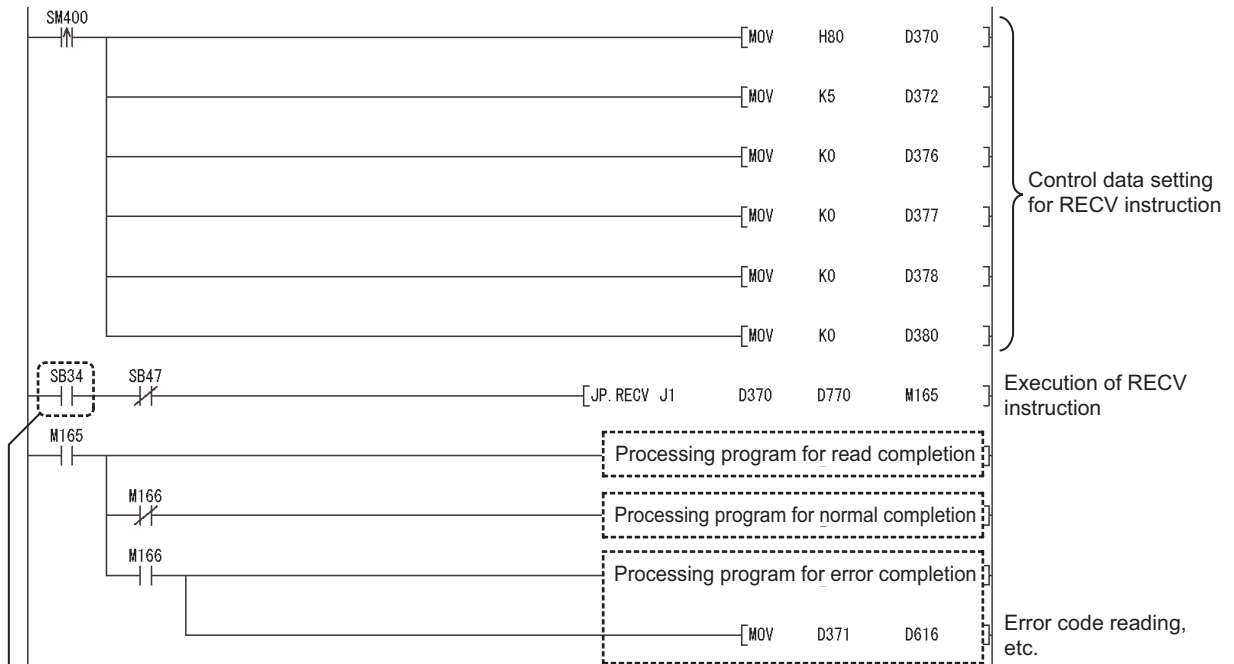
(c) RECV instruction settings

Control data settings for the RECV instruction are shown below.

Device		Item	Set value
(S1)+0	D370	Error completion type	0080 _H (Clock data at the time of error completion is set.)
(S1)+1	D371	Completion status	— (Set by the system, no setting required)
(S1)+2	D372	Own station channel	5
(S1)+3	D373	Channel used by sending station	— (Set by the system, no setting required)
(S1)+4	D374	Network No. of sending station	
(S1)+5	D375	Sending station No.	
(S1)+6	D376	(Unused)	0
(S1)+7	D377	(Unused)	0
(S1)+8	D378	Arrival monitoring time	0 (10 seconds)
(S1)+9	D379	Receive data length	— (Set by the system, no setting required)
(S1)+10	D380	(Unused)	0
(S1)+11	D381	Clock set flag	— (Set by the system, no setting required)
(S1)+12 to (S1)+15	D382 to D385	Clock data on error completion	
(S1)+16	D386	Error-detected network No.	
(S1)+17	D387	Error-detected station No.	

(d) Program example

The following example program is written to 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 SB0037) turns ON.

Using the flag as a start contact, execute the RECV instruction.

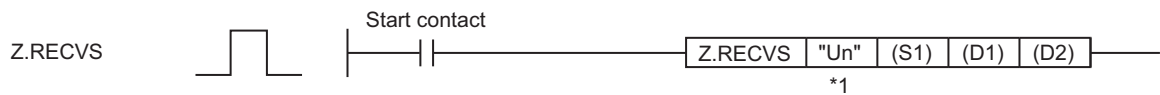
Upon completion of the RECV instruction, the flag turns OFF.

9.11 Z.RECVS (Data Reception from Programmable Controllers on Other Stations)

This instruction reads data received from a programmable controller on another station. (For interrupt program)


Setting data	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)		○								—

[Instruction symbol] [Execution condition] [Instruction format]





*1 If the originating station is a Basic model QCPU (function version B or later) or Universal model QCPU, " " (double quotation) of the first argument can be omitted.

(1) Setting data

Setting data ^{*1}	Description	Data type
"Un"/Un	Start I/O number of the own station's CC-Link IE Controller Network module (00 to FE _H ; The higher two digits of the 3-digit I/O number)	String/ Binary 16 bits
(S1)	Start device of the own station that stores control data ( Page 422, Section 9.11 (2))	Device name
(D1)	Start device of the own station that stores receive data (A contiguous area for the receive data length is required.)	
(D2)	Dummy	Bit

*1 Local devices and file registers for each program cannot be used as devices in setting data.

(2) Control data

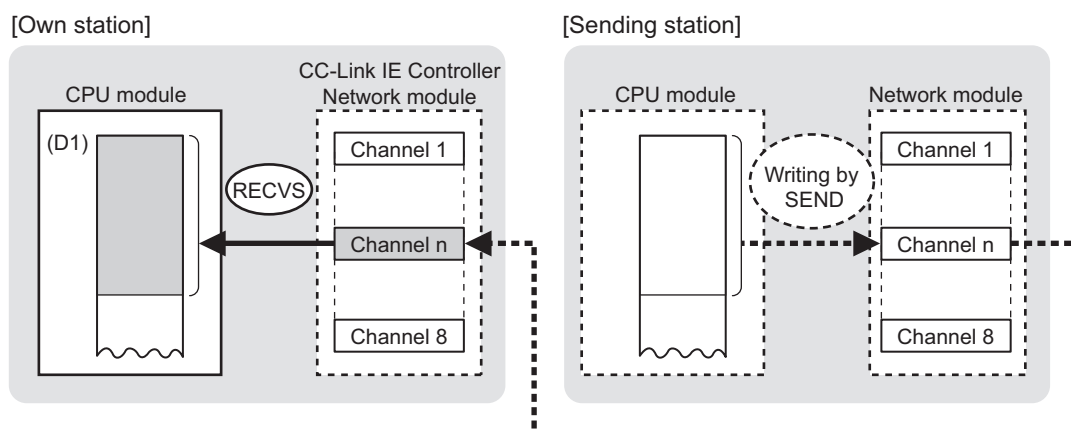
Device	Item	Setting data	Setting range	Setting side ^{*1}
(S1)+0	—	Unused	0	User
(S1)+1	Completion status	The instruction completion status is stored. 0: Normal Other than 0: Error ( Page 511, Section 10.2)	—	System
(S1)+2	Own station channel	Specify the channel of the own station, where receive data are stored. ( Page 328, Section 9.2.2 (1))	1 to 8	User
(S1)+3	Channel used by sending station	Stores the channel used by the sending station. 1 to 8: Channel	—	System
(S1)+4	Network No. of sending station	Stores network No. of the sending station. 1 to 239: Network No.	—	System
(S1)+5	Sending station No.	Stores station No. of the sending station. 1 to 120: Station No.	—	System
(S1)+6	—	Unused	0	User
(S1)+7	—	Unused	0	User
(S1)+8	—	Unused	0	User
(S1)+9	Receive data length	Stores the receive data size stored in (D1) to (D2)+n. 1 to 960: Receive data size (words)	—	System

*1 The setting side is as shown below.
User: Before execution of the link dedicated instruction, data must be set by the user.
System: The CPU module stores the execution result of the link dedicated instruction.


(3) Function

(a) RECVS instruction overview

Data sent by the SEND instruction from another station are read out from the specified channel to the word devices (in and after (D1)) on the own station.



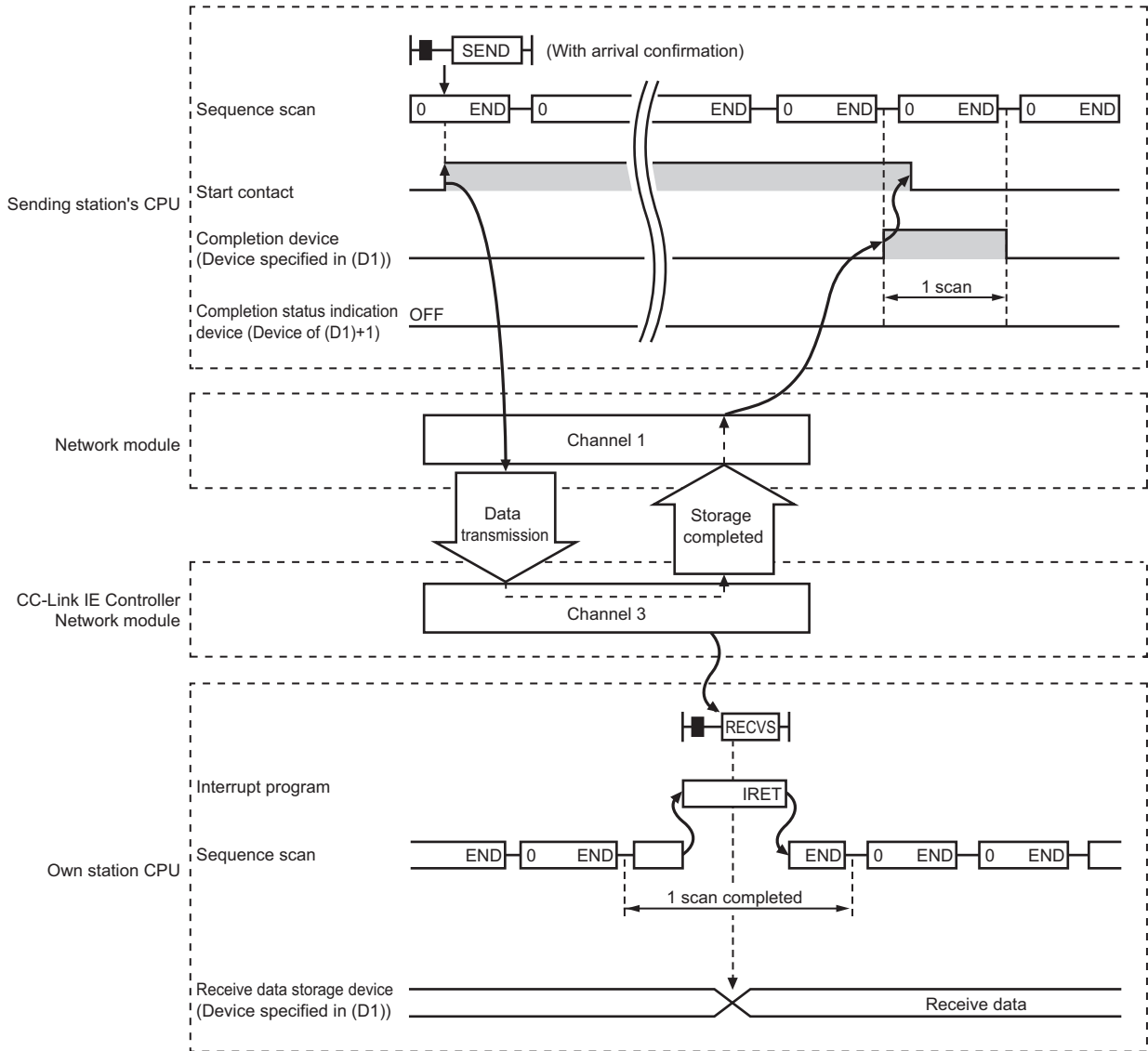
(b) RECVS instruction execution timing

Set the RECVS instruction as an interrupt condition. ( Page 225, Section 6.6)

When data are stored in a channel of the own station, an interrupt program runs to execute the RECVS instruction.

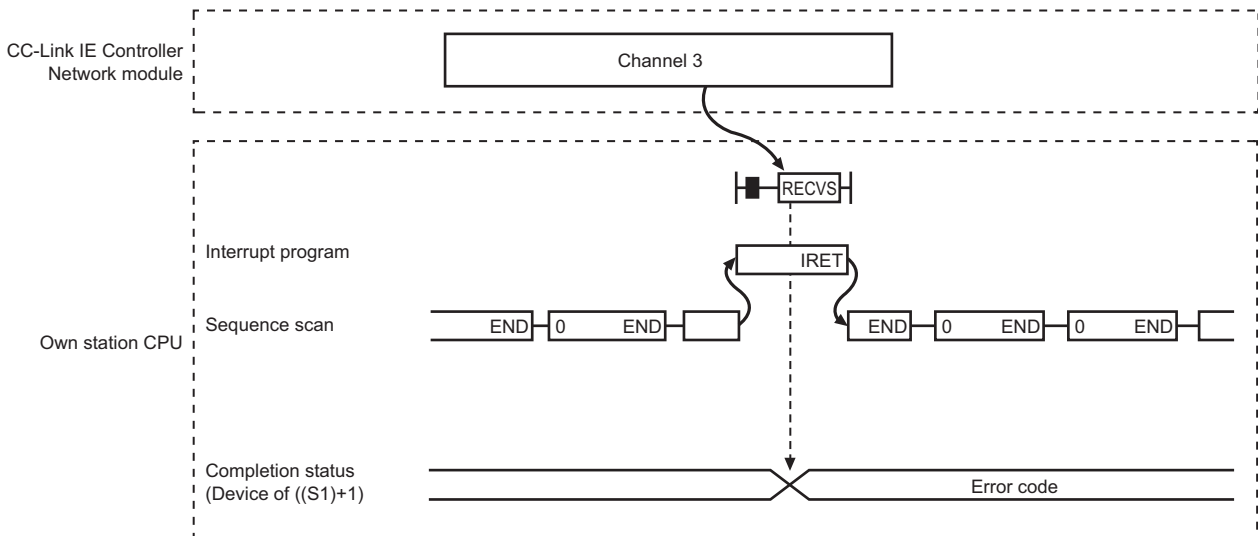
The RECVS instruction is completed within one scan.

- When completed normally



9.11 Z.RECVS (Data Reception from Programmable Controllers on Other Stations)

- When failed



(4) Error


When a link dedicated instruction failed, the error details can be confirmed by either of the following methods.

(a) With the programming tool

The error details can be checked in the CC IE Control diagnostics. ( Page 526, Section 10.3)

(b) Checking devices

An error code is stored in Completion status ((S1)+1) of control data.

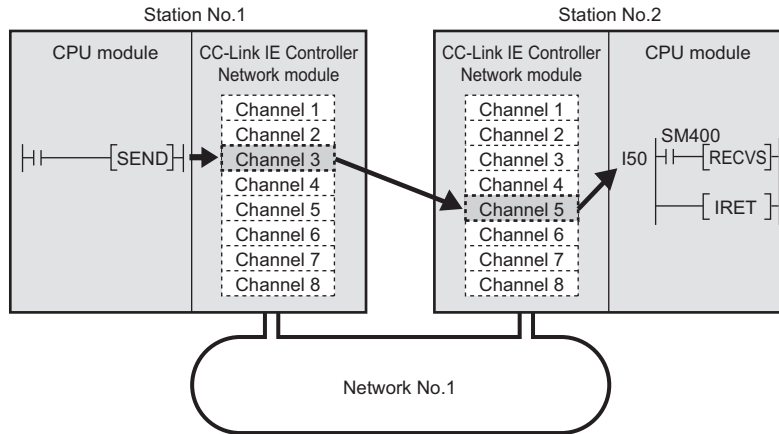
Check the error and take corrective actions according to the error code. ( Page 511, Section 10.2)

(5) Program example

The following is a program in which, when an interrupt program is started, data sent from station No.1 by the SEND instruction are read out from channel 5 into D770 to D773.

- SEND instruction: Page 400, Section 9.9

(a) System configuration example



(b) Parameter setting (Page 225, Section 6.6)

- Interrupt setting

	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		5	0
2							

- Intelligent function module interrupt pointer setting

PLC Side			Intelligent Module Side	
Interrupt Pointer Start No.	Interrupt Pointer Count		Start I/O No.	Start SI No.
50	1		0000	0

(c) Devices used in the program example

- Special relay (SM)

Device	Description	Device	Description
SM400	Always ON		—

- Devices used by the user

Device	Description	Device	Description
M165	Dummy	D770 to D773	Receive data storage device
D370 to D379	Control data		—

9.11 Z.RECVS (Data Reception from Programmable Controllers on Other Stations)

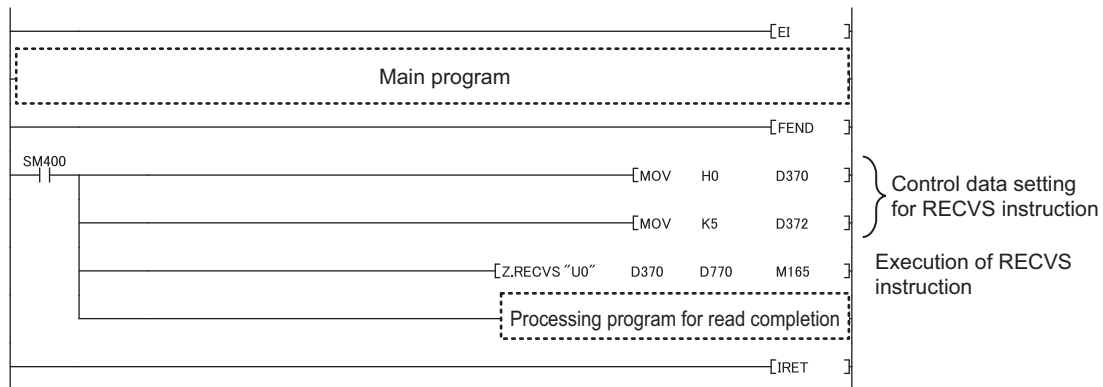
(d) RECVS instruction settings

Control data settings for the RECVS instruction are shown below.

Device		Item	Set value
(S1)+0	D370	Execution/Error completion type	0
(S1)+1	D371	Completion status	— (Set by the system, no setting required)
(S1)+2	D372	Own station channel	5
(S1)+3	D373	Channel used by sending station	— (Set by the system, no setting required)
(S1)+4	D374	Network No. of sending station	
(S1)+5	D375	Sending station No.	
(S1)+6	D376	(Unused)	0
(S1)+7	D377	(Unused)	0
(S1)+8	D377	(Unused)	0
(S1)+9	D379	Receive data length	— (Set by the system, no setting required)

(e) Program example

The following example program is written to the CPU module of station No.2.



Point

To execute an interrupt program, "EI" (Enable Interrupt) must be executed in the main program.

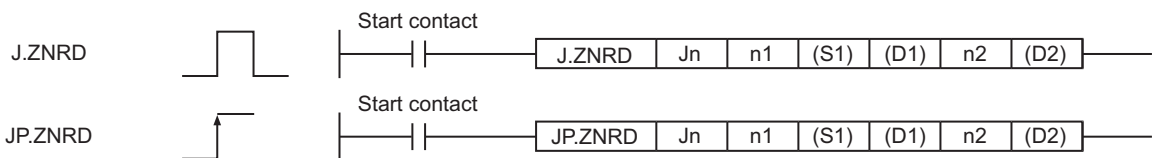
9.12 J(P).ZNRD (Data Read from Programmable Controllers on Other Stations)

This instruction reads data from devices of a programmable controller on another station. (In units of words)

Setting data	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		○				—		○	—	
(S1)	—	○ ^{*1}	—			—		—	—	
(D1)	—	○				—		—	—	
n2		○				—		○	—	
(D2)		○				—		—	—	

*1 T, C, D or W can be used.

[Instruction symbol] [Execution condition] [Instruction format]



(1) Setting data

Setting data ^{*1*2}	Description	Data type
Jn	Network No. of the target station (1 to 239)	Binary 16 bits
n1	Target station No. (1 to 64)	
(S1)	Target station's start device where data to be read are stored	Device name
(D1)	The own station's start device where readout data will be stored (A contiguous area for the read data length is required.)	
n2	Read data length When the target station is QCPU/RCPU/LCPU/QnACPU/AnUCPU: 1 to 230 words When the target station is other than QCPU/RCPU/LCPU/QnACPU/AnUCPU: 1 to 32 words	Binary 16 bits
(D2)	The own station's device that is turned on for one scan upon completion of the instruction (D2)+1 also turns ON if the instruction execution has failed.	Bit

*1 Local devices and file registers for each program cannot be used as devices in setting data.

*2 In addition to the setting data, the ZNRD instruction is executed using the following fixed values.
Channel used by own station: Channel 1
Arrival monitoring time (monitoring time until instruction completion): 10 seconds
Number of resends for arrival monitoring timeout: 5 times

Point

- Specify devices of the target station's CPU within the range allowed for the own station CPU when reading data from the devices with the ZNRD instruction
(Target station's start device (S1) where data to be read are stored) + (Read points - 1) ≤ (End device No. of own station's CPU^{*1})

*1 End device No. of the device in the own station CPU, and whose device name is same as in (S1)

- Specify the own station's start device (D1) within the range allowed for storing read data.

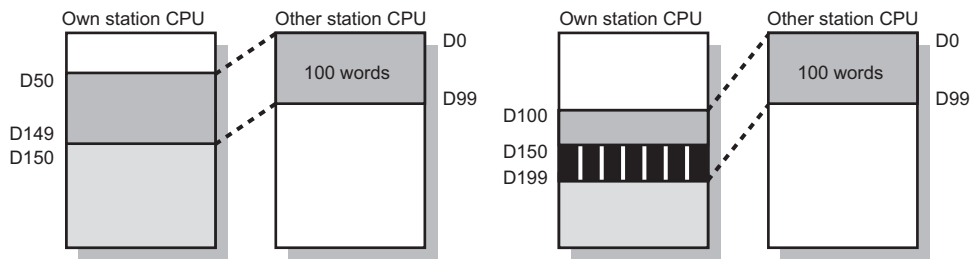
Ex. When D150 and after the area in the own station's CPU has been already used



Good example (D50 is specified in (D1).)



Bad example (D100 is specified in (D1).)



- : Data to be read with ZNRD instruction
- : Area already used by own station's CPU
- : Duplicated area

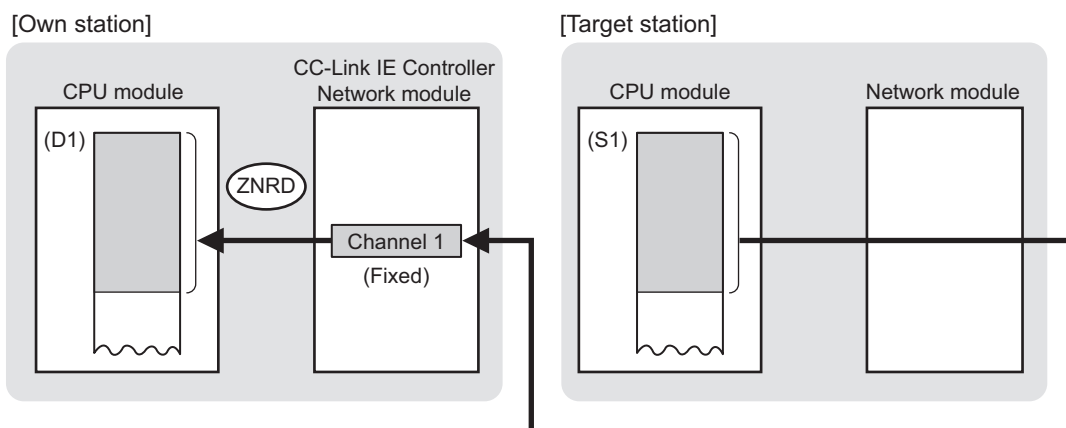
(2) Function

(a) ZNRD instruction overview

The ZNRD instruction reads out word device data (in and after (S1)) of the target station into word devices of the own station (in and after (D1)).

The target station is specified in Target station network No. (Jn) and Target station No. (n1).

Upon completion of reading the target station devices, Completion device (D2) turns ON.



- For concurrent execution of multiple link dedicated instructions:  Page 328, Section 9.2.2 (1)

(b) Target stations available for specification

- Target network
- In addition to CC-Link IE Controller Network, stations in the following networks can be also specified.
 - CC-Link IE Field Network
 - MELSECNET/H
 - MELSECNET/10
 - Ethernet

- Target station's CPU type

The ZNRD instruction is executable when the target station is QCPU, RCP, LCP, QnACP, or AnUCP.

When the target station is an A2UCP(S1), A3UCP, A4UCP, A2ASCP(S1), or A2USCP(S1), use the CPU module with the following version or later.

- A2UCP(S1), A3UCP, A4UCP: Version AY (manufactured since July, 1995) or later
- A2ASCP(S1), A2USCP(S1): Version CP (manufactured since July, 1995) or later

(c) Checking the execution status of the ZNRD instruction

The execution status of the ZNRD instruction (Normal completion, Error completion) can be checked with the following devices specified in the setting data.

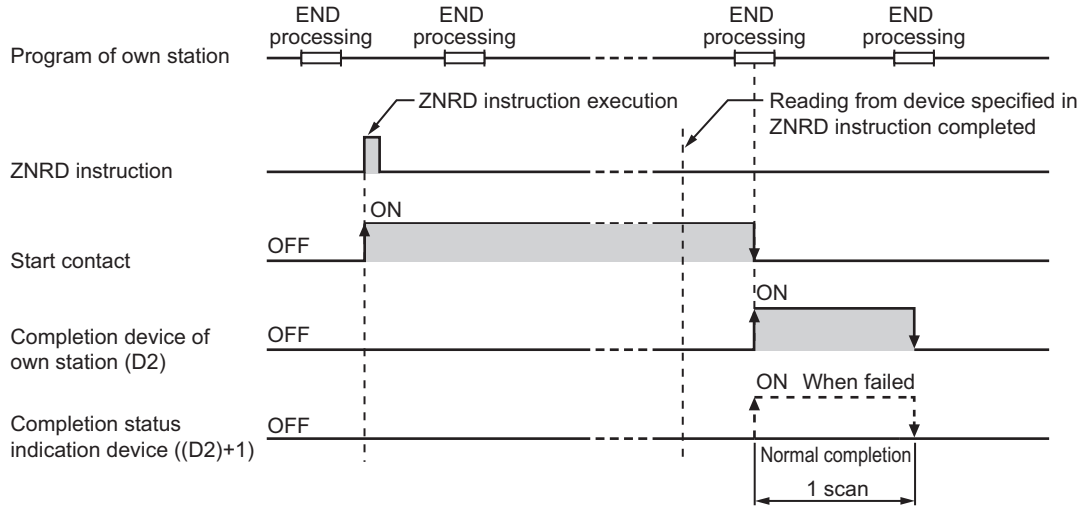
- Completion device (D2)

Turns ON in the END processing for the scan after completion of the ZNRD instruction, and goes OFF in the next END processing.
- Completion status indication device ((D2)+1)

Turns ON in the END processing for the scan after completion of the ZNRD instruction, and turns OFF in the next END processing, only when the ZNRD instruction has failed.

(d) Operation in ZNRD instruction execution

- Operation of the own station

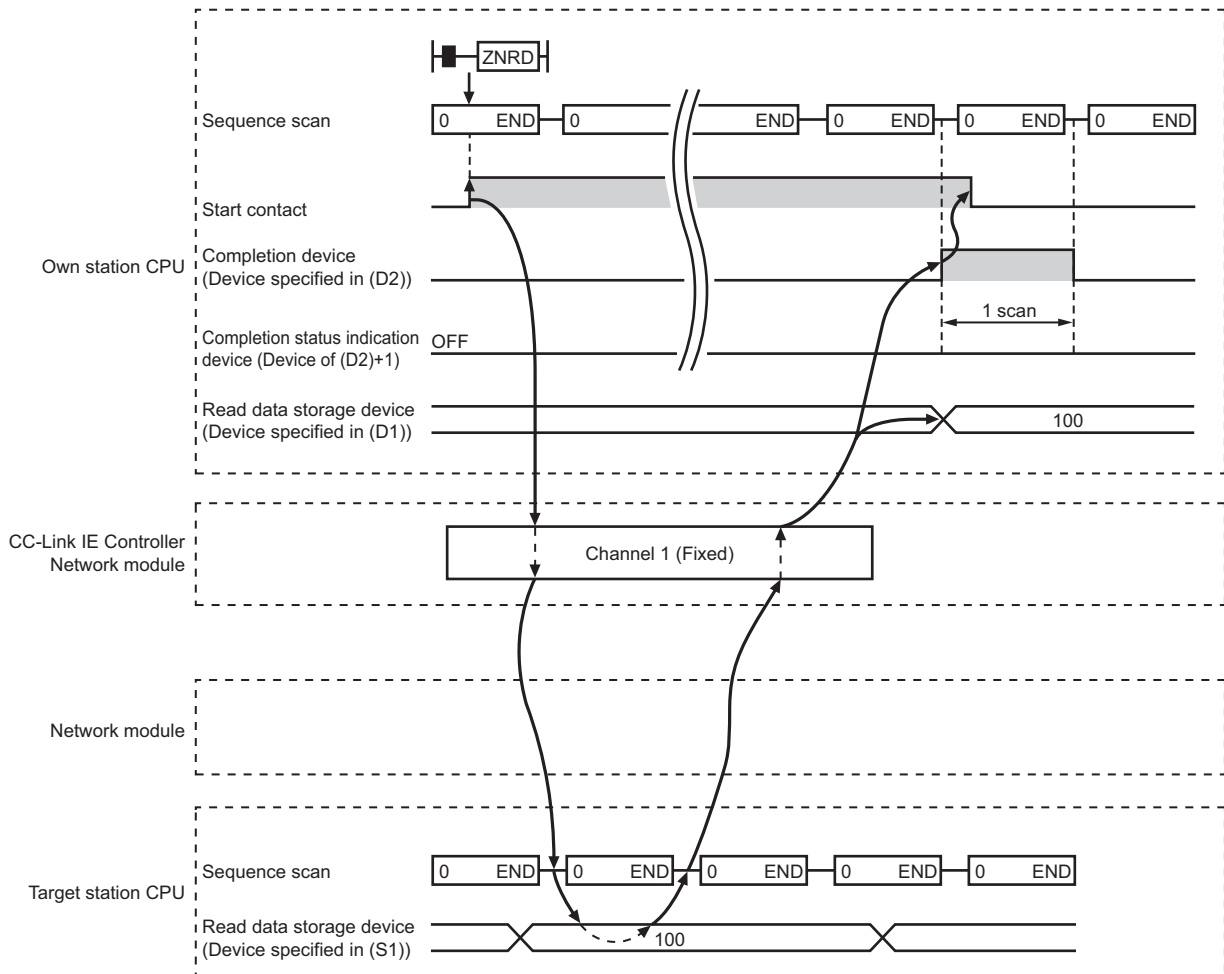


(e) ZNRD instruction execution timing

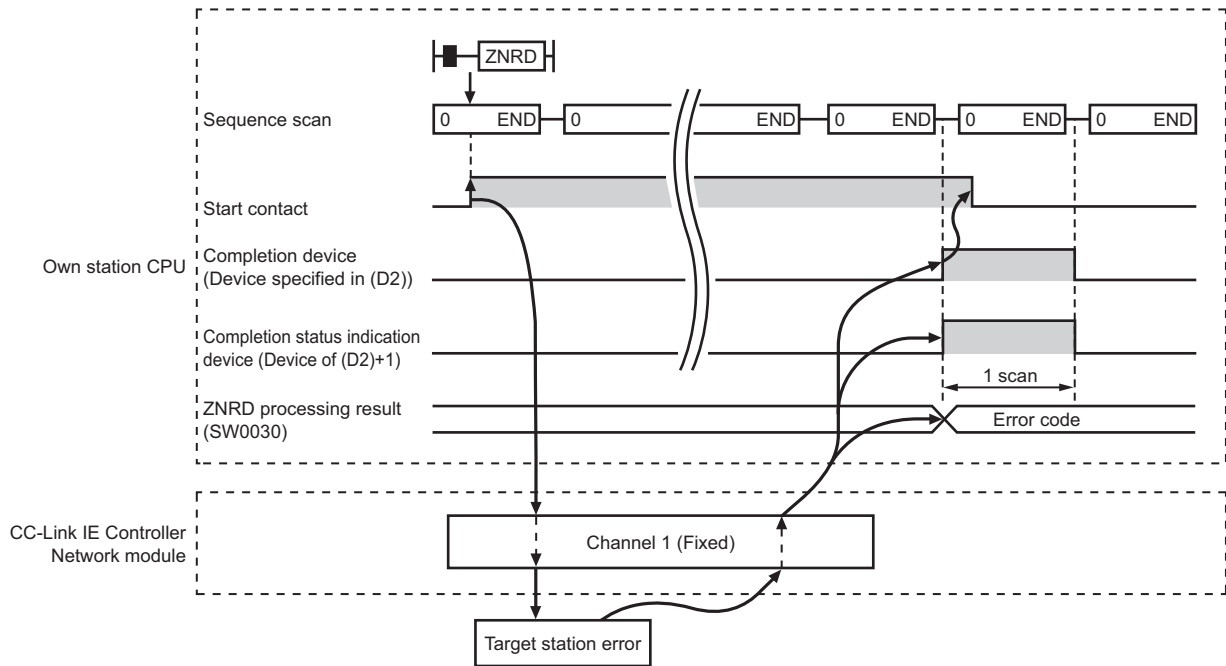
With J.ZNRD, processing is executed one after another while the start contact is ON.

With JP.ZNRD, processing is performed one time only when the start contact turns ON from OFF.

- When completed normally



- When failed



(3) Error

When a link dedicated instruction failed, the error details can be confirmed by either of the following methods.

(a) With the programming tool

The error details can be checked in the CC IE Control diagnostics. (👉 Page 526, Section 10.3)

(b) Checking devices

Completion status indication device ((D2)+1) is turned ON, and an error code is stored in ZNRD processing result (SW0030).

Check the error and take corrective actions according to the error code. (👉 Page 511, Section 10.2)

9.12 J(P) ZNRD (Data Read from Programmable Controllers on Other Stations)

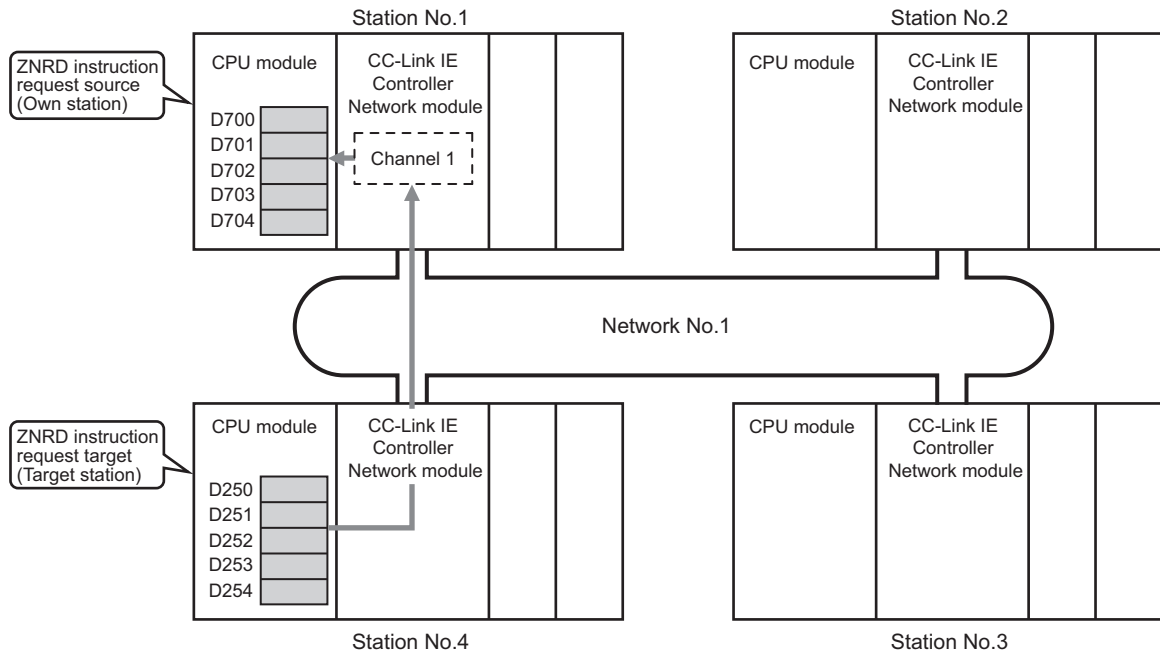
(4) Program example

In this program example, when M101 turns ON, data in D250 to D254 of station No.4 (target station) are read out to D700 to D704 of station No.1 (own station).

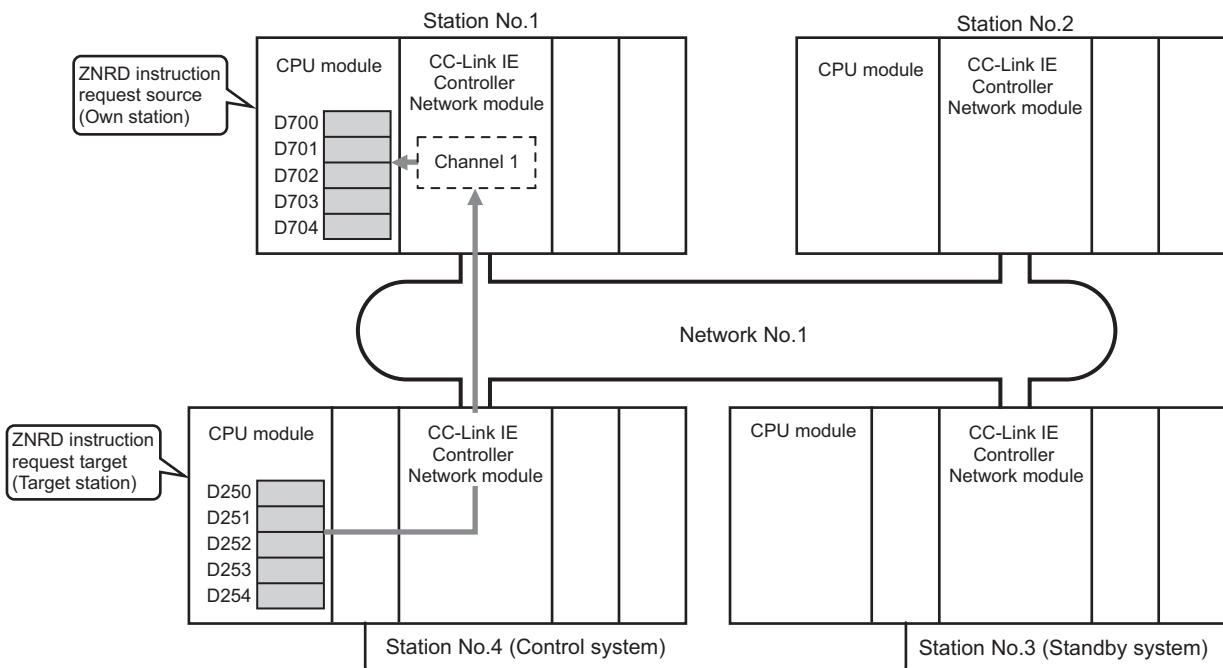
If the target station is on a redundant system, the station numbers used for the redundant system in this case are assumed to be No.3 and No.4.

(a) System configuration example

- When the target station is not on a redundant system



- When the target station is on a redundant system





(b) Devices used in the program example

- Special relay (SM), link special relay (SB), and link special register (SW)

Device	Description	Device	Description
SM400	Always ON	SW00A0.3	Baton pass status of station No.4
SB0047	Baton pass status (own station)	SW01F0.2	Redundant system status (3) of station No.3*1
SW0030	ZNRD processing result	SW01F0.3	Redundant system status (3) of station No.4*1
SW00A0.2	Baton pass status of station No.3*1		—

*1 Used when the target station is on a redundant system.

Remark

- For details of link special relay (SB):  Page 568, Appendix 1
- For details of link special register (SW):  Page 584, Appendix 2

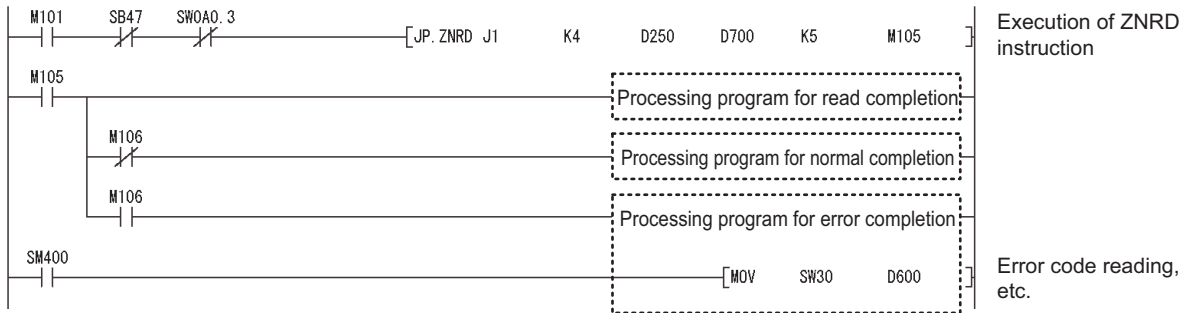
- Devices used by the user

Device	Description	Device	Description
M101	Start contact	D600	Error code storage device
M105	Completion device	D700 to D704	Read data storage device (station No.1)
M106	Completion status indication device		—

(c) Program example

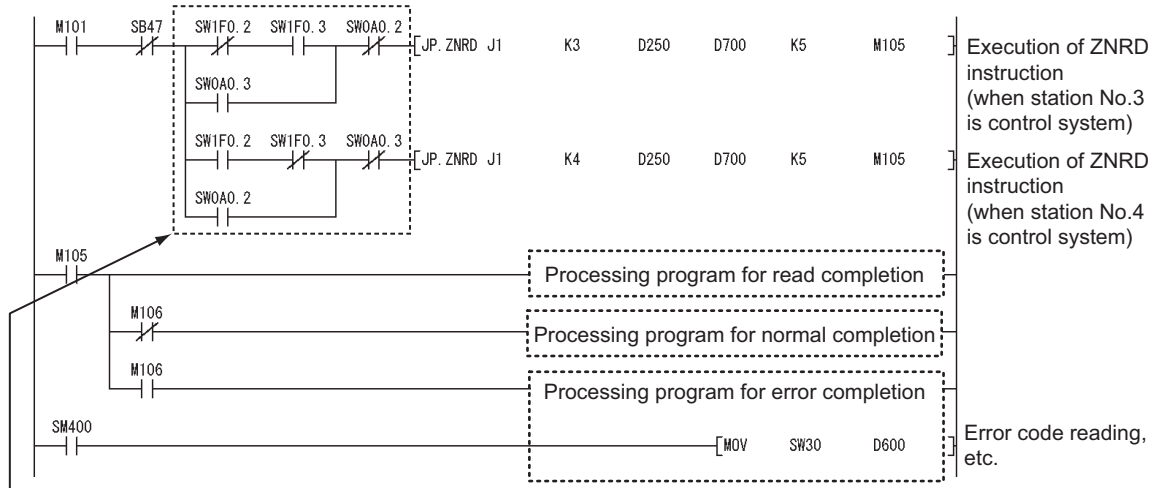
The following example program is written to the CPU module of station No.1.

- When the target station is not on a redundant system



- When the target station is on a redundant system

Confirm that the target station is on the control system, and execute the ZNRD instruction.



For execution of ZNRD instruction, provide an interlock using Redundant system status (3) (SW01F0 to SW01F7) to ensure the target station is control system.

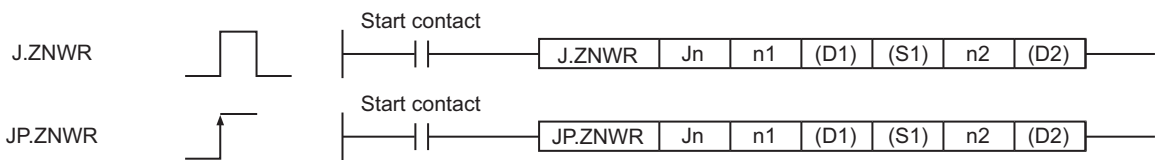
9.13 J(P).ZNWR (Data Write to Programmable Controllers on Other Stations)

This instruction writes data to devices of a programmable controller on another station. (In units of words)

Setting data	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		○				—		○	—	
(D1)	—	○*1	—			—		—	—	
(S1)	—	○				—		—	—	
n2		○				—		○	—	
(D2)		○				—		—	—	

*1 T, C, D or W can be used.

[Instruction symbol] [Execution condition] [Instruction format]



(1) Setting data

Setting data*1*2	Description	Data type
Jn	Network No. of the target station (1 to 239)	Binary 16 bits
n1	Target station No. (1) Station No. specification 1 to 64: Station No. (2) Group specification 81 _H to A0 _H : All stations of a group (No.1 to 32) (3) All stations FF _H : All stations of the target network No. (Except the own station)	
(D1)	Target station's start device to which data are to be written. (A contiguous area for the write data length is required.)		Device name
(S1)	The own station's start device where write data are stored.	
n2	Write data length When the target station is QCPU/RCPU/LCPU/QnACPU/AnUCPU: 1 to 230 words When the target station is other than QCPU/RCPU/LCPU/QnACPU/AnUCPU: 1 to 32 words	Binary 16 bits
(D2)	The own station's device that is turned on for one scan upon completion of the instruction (D2)+1 also turns ON if the instruction execution has failed.	Bit

*1 Local devices and file registers for each program cannot be used as devices in setting data.

*2 In addition to the setting data, the ZNWR instruction is executed using the following fixed values.

Channel used by own station: Channel 2

Arrival monitoring time (monitoring time until instruction completion): 10 seconds

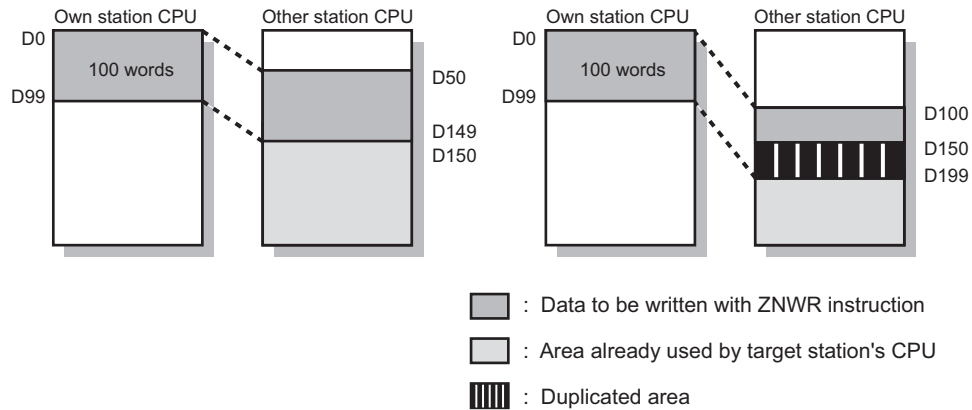
Number of resends for arrival monitoring timeout: 5 times

Point

- Specify devices of the target station's CPU within the range allowed for the own station CPU when writing data to the devices with the ZNWR instruction.
(Target station's start device (D1) to which data are written) + (Write points - 1) ≤ (End device No. of own station's CPU^{*1})
- *1 End device No. of the device in the own station CPU, and whose device name is same as in (D1)
- Specify the own station's start device (D1) within the range allowed for storing write data.

Ex. When D150 and after the area in the target station's CPU has been already used

○ Good example (D50 is specified in (D1).) ✕ Bad example (D100 is specified in (D1).)



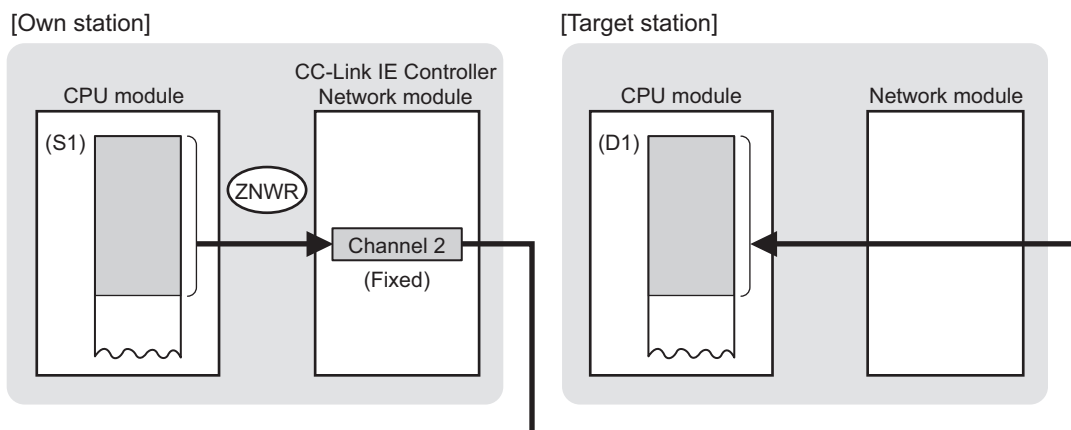
(2) Function

(a) ZNWR instruction overview

The ZNWR instruction writes word device data (in and after (S1)) of the own station to word devices of the target station (in and after (D1)).

The target station is specified in Target station network No. (Jn) and Target station No. (n1).

Upon completion of writing data to the target station devices, Completion device (D2) turns ON.



- For concurrent execution of multiple link dedicated instructions: Page 328, Section 9.2.2 (1)

(b) Target stations available for specification

- Target network

In addition to CC-Link IE Controller Network, stations in the following networks can be also specified.

- CC-Link IE Field Network
- MELSECNET/H
- MELSECNET/10
- Ethernet

- Target station's CPU type

The ZNWR instruction is executable when the target station has QCPU/LCPU/QnACPU/AnUCPU.

When the target station is an A2UCPU(S1), A3UCPU, A4UCPU, A2ASCPU(S1), or A2USCPU(S1), use the CPU module with the following version or later.

- A2UCPU(S1), A3UCPU, A4UCPU: Version AY (manufactured since July, 1995) or later
- A2ASCPU(S1), A2USCPU(S1): Version CP (manufactured since July, 1995) or later

(c) Checking the execution status of the ZNWR instruction

The execution status of the ZNWR instruction (Normal completion, Error completion) can be checked with the following devices specified in the setting data.

- Completion device (D2)

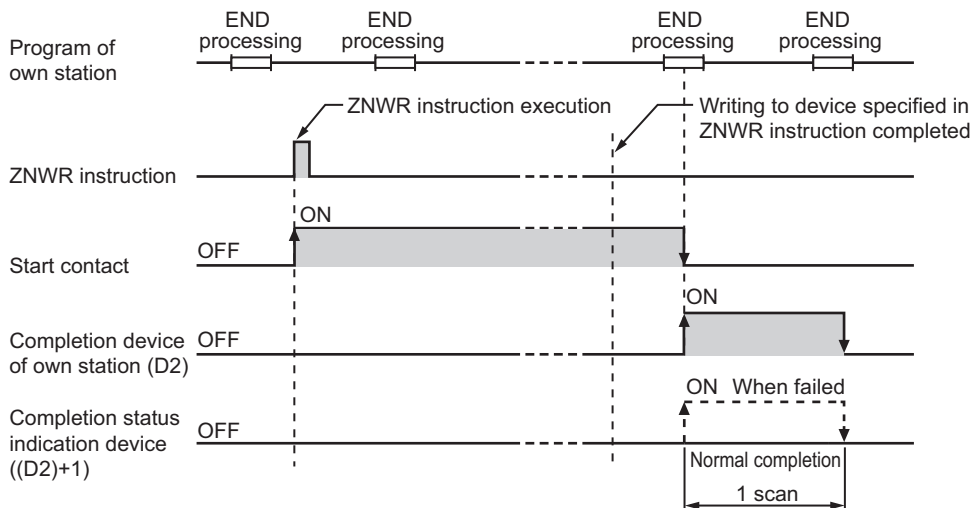
Turns ON in the END processing for the scan after completion of the ZNWR instruction, and goes OFF in the next END processing.

- Completion status indication device ((D2)+1)

Turns ON in the END processing for the scan after completion of the ZNWR instruction, and turns OFF in the next END processing, only when the ZNWR instruction has failed.

(d) Operation in ZNWR instruction execution

- Operation of the own station

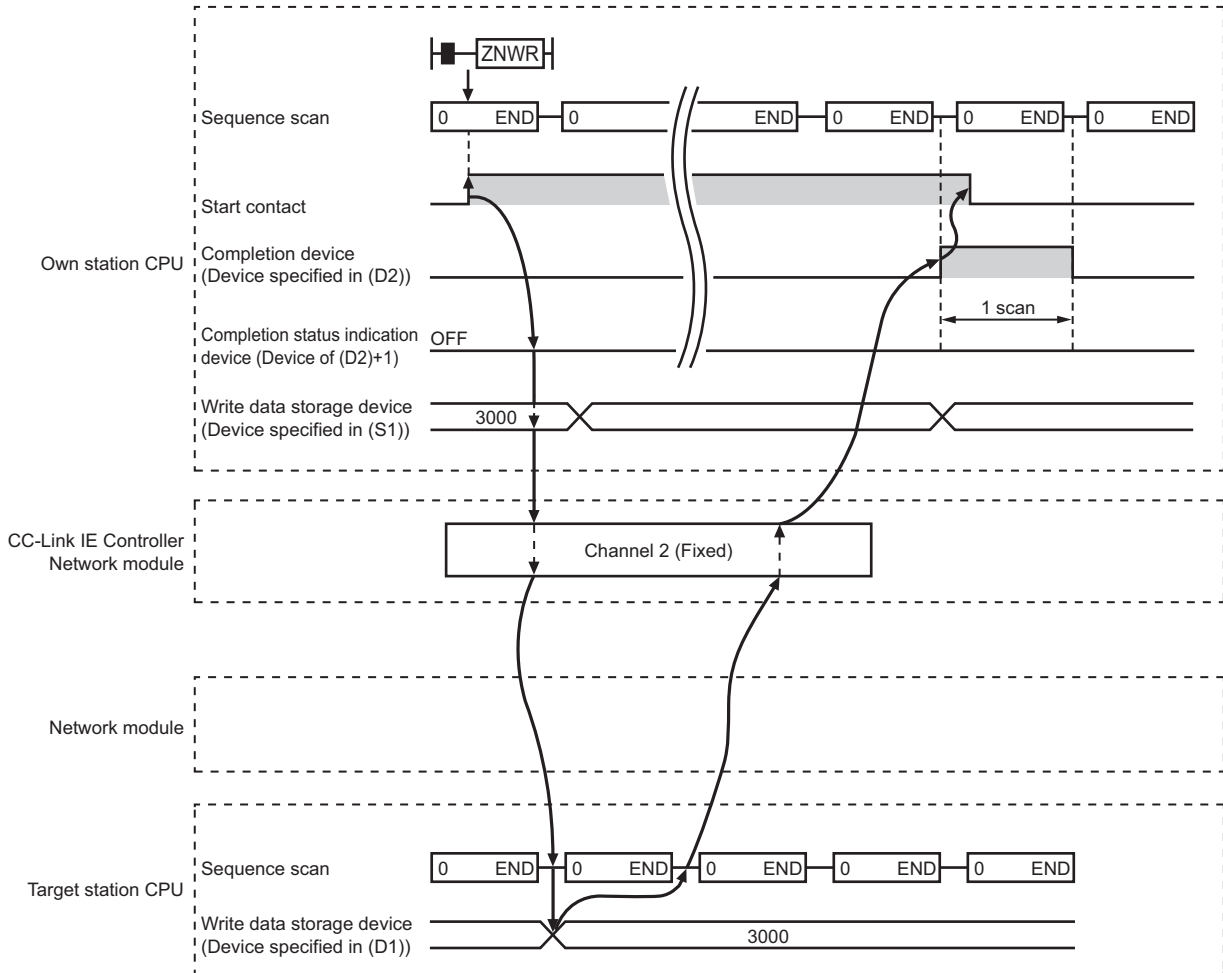


(e) ZNWR instruction execution timing

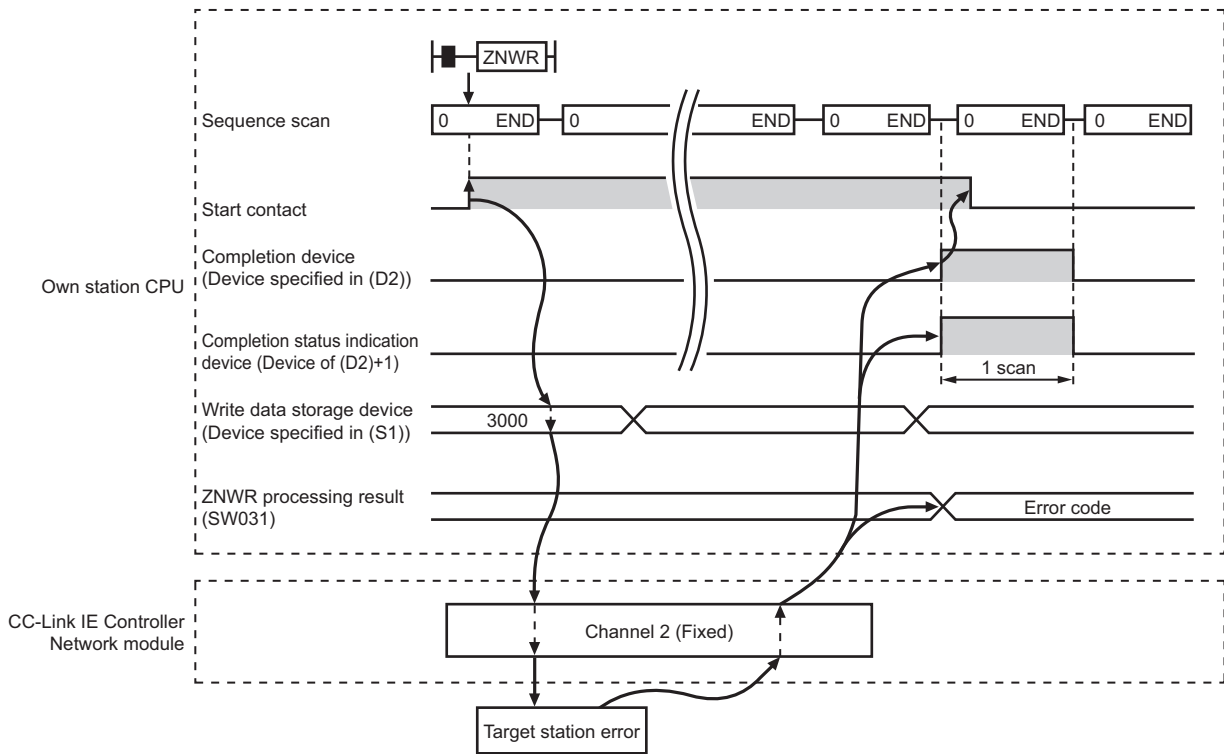
With J.ZNWR, processing is executed one after another while the start contact is ON.

With JP.ZNWR, processing is performed one time only when the start contact turns ON from OFF.

- When completed normally



- When failed



(3) Error

When a link dedicated instruction failed, the error details can be confirmed by either of the following methods.

(a) With the programming tool

The error details can be checked in the CC IE Control diagnostics. (👉 Page 526, Section 10.3)

(b) Checking devices

Completion status indication device ((D2)+1) is turned ON, and an error code is stored in ZNWR processing result (SW031).

Check the error and take corrective actions according to the error code. (👉 Page 511, Section 10.2)

9.13 J(P) ZNWR (Data Write to Programmable Controllers on Other Stations)

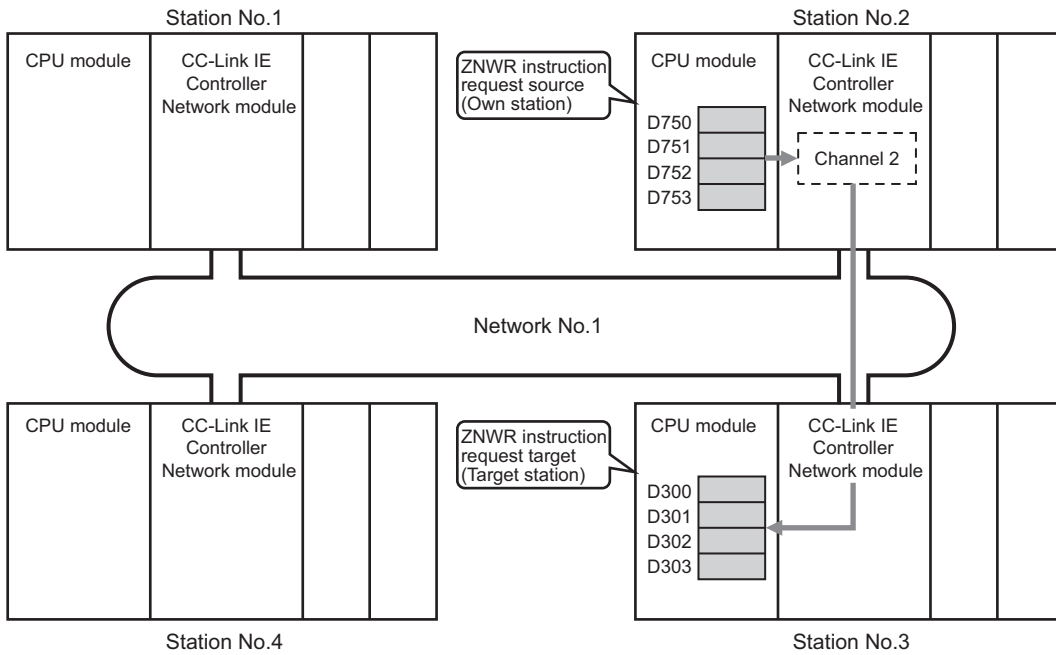
(4) Program example

In this program example, when M112 turns ON, data in D750 to D753 of station No.2 (own station) are written to D300 to D303 of station No.3 (target station).

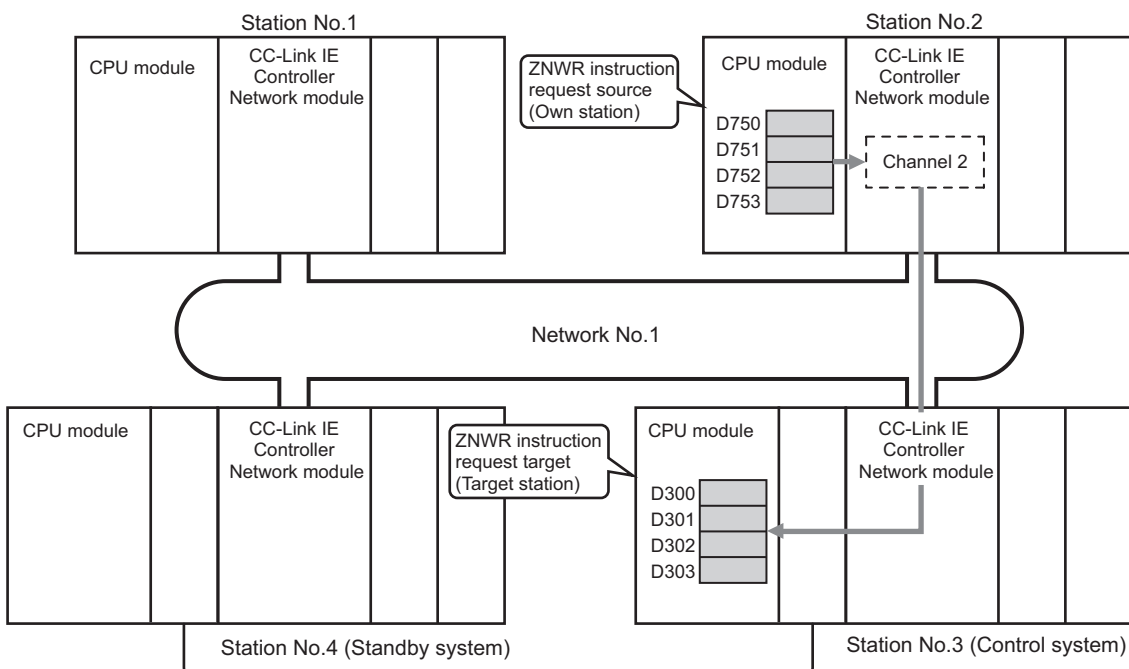
If the target station is on a redundant system, the station numbers used for the redundant system in this case are assumed to be No.3 and No.4.

(a) System configuration example

- When the target station is not on a redundant system



- When the target station is on a redundant system





(b) Devices used in the program example

- Special relay (SM), link special relay (SB), and link special register (SW)

Device	Description	Device	Description
SM400	Always ON	SW00A0.3	Baton pass status of station No.4*1
SB0047	Baton pass status (own station)	SW01F0.2	Redundant system status (3) of station No.3*1
SW0031	ZNWR instruction processing result	SW01F0.3	Redundant system status (3) of station No.4*1
SW00A0.2	Baton pass status of station No.3		—

*1 Used when the target station is on a redundant system.

Remark

- For details of link special relay (SB):  Page 568, Appendix 1
- For details of link special register (SW):  Page 584, Appendix 2

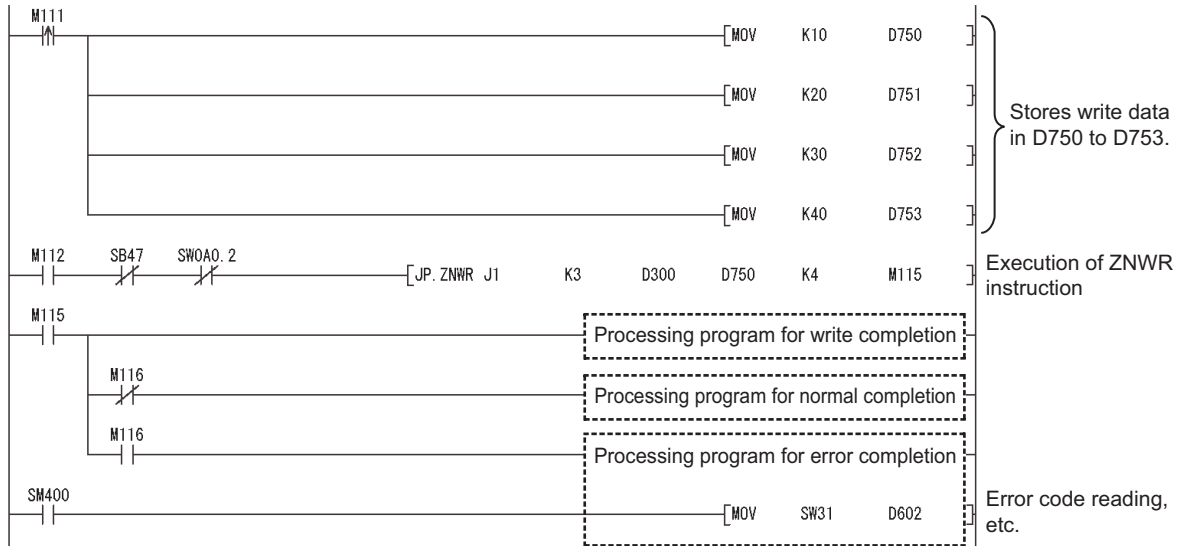
- Devices used by the user

Device	Description	Device	Description
M111	Write data setting command	M116	Completion status indication device
M112	Start contact	D602	Error code storage device
M115	Completion device	D750 to D753	Write data storage device (station No.2)

(c) Program example

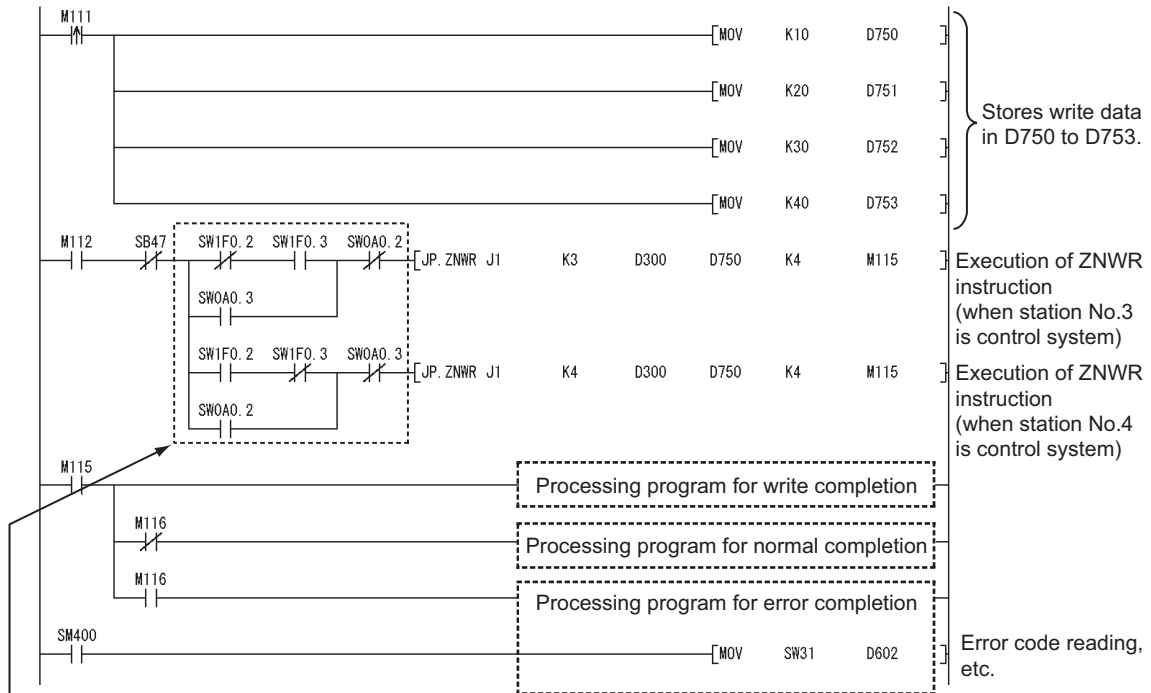
The following example program is written to the CPU module of station No.2.

- When the target station is not on a redundant system



- When the target station is on a redundant system

Confirm that the target station is on the control system, and execute the ZNWR instruction.



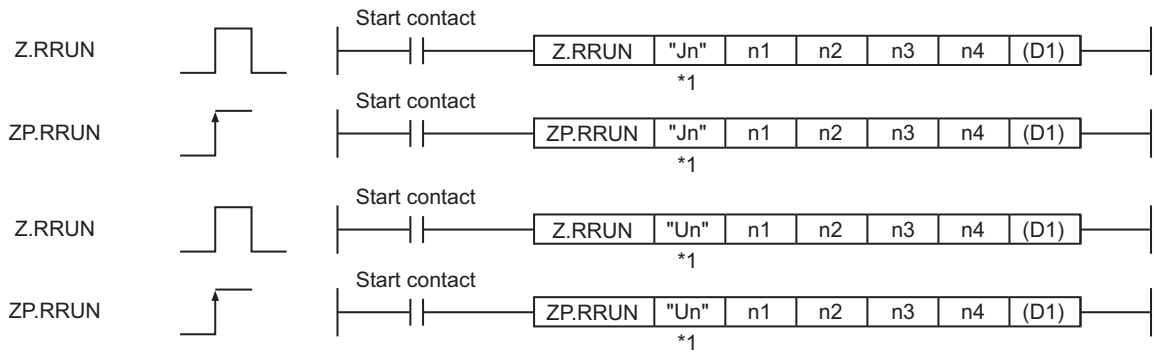
For execution of ZNWR instruction, provide an interlock using Redundant system status (3) (SW01F0 to SW01F7) to ensure the target station is control system.

9.14 Z(P).RRUN (Remote RUN)

This instruction is used to remotely stop a programmable controller on another station.

Setting data	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)		○				—		—	—	



[Instruction symbol] [Execution condition] [Instruction format]



*1 If the originating station is a Basic model QCPU (function version B or later) or Universal model QCPU, " " (double quotation) of the first argument can be omitted.

9.14 Z(P).RRUN (Remote RUN)

(1) Setting data

Setting data *1	Description	Data type																						
"Jn"/Jn	Network No. of the target station (1 to 239, 254) 254: The network specified in Valid module during other station access	String/																						
"Un"/Un	Start I/O number of the own station's CC-Link IE Controller Network module (00 to FE _H : The higher two digits of the 3-digit I/O number)	Binary 16 bits																						
n1	Channel used by own station (1 to 8) Specify the channel used by the own station. ( Page 328, Section 9.2.2 (1)) Specify the channel used by own station that is the same as the one used for the RSTOP instruction.																							
n2	Target station No. Specify the station No. of the target station. (1) Station No. specification When own station is Universal model QCPU: 1 to 120 When own station is other than Universal model QCPU: 1 to 64 (2) Group specification 81 _H to A0 _H : All stations of a group (No.1 to 32) (3) All stations FF _H : All stations of the target network No. (Except the own station) To specify a group or all stations • Set "0000 _H " or "03FF _H " for Target station's CPU type (n3). ( Page 329, Section 9.2.2 (3)) • When the target station is on the CC-Link IE Field Network, stations cannot be specified as a group. • To check if data has been properly written in the target station, check if the CPU module on the target station of the write destination is in the RUN status.																							
	Specify the CPU module on the station to be accessed.	Binary 16 bits																						
	<table border="1"> <thead> <tr> <th>Set value</th> <th>Description</th> </tr> </thead> <tbody> <tr> <td>0000_H</td> <td>Control CPU (The access target is the same as when "03FF_H" is specified.)</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> <ul style="list-style-type: none"> Target station CPU (single CPU system) Multi-CPU No.1 Control CPU (single CPU system) Multiple CPU system No.1 </td> </tr> <tr> <td>03E1_H</td> <td>Multiple CPU system No.2</td> </tr> <tr> <td>03E2_H</td> <td>Multiple CPU system No.3</td> </tr> <tr> <td>03E3_H</td> <td>Multiple CPU system No.4</td> </tr> <tr> <td>03FF_H</td> <td>Control CPU</td> </tr> </tbody> </table>	Set value	Description	0000 _H	Control CPU (The access target is the same as when "03FF _H " is specified.)	03D0 _H	Control system CPU (Redundant CPU only)	03D1 _H	Standby system CPU (Redundant CPU only)	03D2 _H	System A CPU (Redundant CPU only)	03D3 _H	System B CPU (Redundant CPU only)	03E0 _H	<ul style="list-style-type: none"> Target station CPU (single CPU system) Multi-CPU No.1 Control CPU (single CPU system) Multiple CPU system No.1 	03E1 _H	Multiple CPU system No.2	03E2 _H	Multiple CPU system No.3	03E3 _H	Multiple CPU system No.4	03FF _H	Control CPU	
Set value	Description																							
0000 _H	Control CPU (The access target is the same as when "03FF _H " is specified.)																							
03D0 _H	Control system CPU (Redundant CPU only)																							
03D1 _H	Standby system CPU (Redundant CPU only)																							
03D2 _H	System A CPU (Redundant CPU only)																							
03D3 _H	System B CPU (Redundant CPU only)																							
03E0 _H	<ul style="list-style-type: none"> Target station CPU (single CPU system) Multi-CPU No.1 Control CPU (single CPU system) Multiple CPU system No.1 																							
03E1 _H	Multiple CPU system No.2																							
03E2 _H	Multiple CPU system No.3																							
03E3 _H	Multiple CPU system No.4																							
03FF _H	Control CPU																							
n3	<ul style="list-style-type: none"> Target station CPU (single CPU system) Multi-CPU No.1 Control CPU (single CPU system) Multiple CPU system No.1 																							
	<ul style="list-style-type: none"> Multiple CPU system No.2 Multiple CPU system No.3 Multiple CPU system No.4 																							
	Control CPU																							
	When the instruction is executed with control system CPU (03D0 _H) or standby system CPU (03D1 _H) specified, if system switching occurs at the target station, the instruction execution may fail. (Error code: 4244 _H , 4248 _H) If the instruction has failed with the above error, execute it again.																							

Setting data *1	Description	Data type			
n4	<p>Mode Specify options for the operation mode and clear mode.</p> <p style="text-align: center;">b15 to b8 b7 to b4 b3 to b0</p> <table border="1" style="margin-left: auto; margin-right: auto;"> <tr> <td style="width: 33px; text-align: center;">0</td> <td style="width: 33px; text-align: center;">2)</td> <td style="width: 33px; text-align: center;">1)</td> </tr> </table>	0	2)	1)	Binary 16 bits
	0	2)	1)		
<p>1) Operation mode Specify whether to forcibly execute remote RUN or not. 1_H: No forced execution 3_H: Forced execution The forced execution is a function that forces a station, which has stopped by remote STOP, to RUN remotely from another station.</p> <p>2) Clear mode Specify the CPU module device status for the case of remote RUN. 0_H: Do not clear (Note that the local devices are cleared.) 1_H: Clear (excluding the latch range) 2_H: Clear (including the latch range) Clear mode allows specification of the CPU module device clear (initialization) process at the start of CPU module operation activated by remote RUN. The CPU module will perform the specified clear processing, and then it will run according to the setting that can be confirmed by "Device Initial Value" of [PLC Parameter] ⇨ "PLC File" in the programming tool.</p>					
(D1)	<p>The own station's device that is turned on for one scan upon completion of the instruction (D1)+1 also turns ON if the instruction execution has failed.</p>	Bit			

*1 Local devices and file registers for each program cannot be used as devices in setting data.

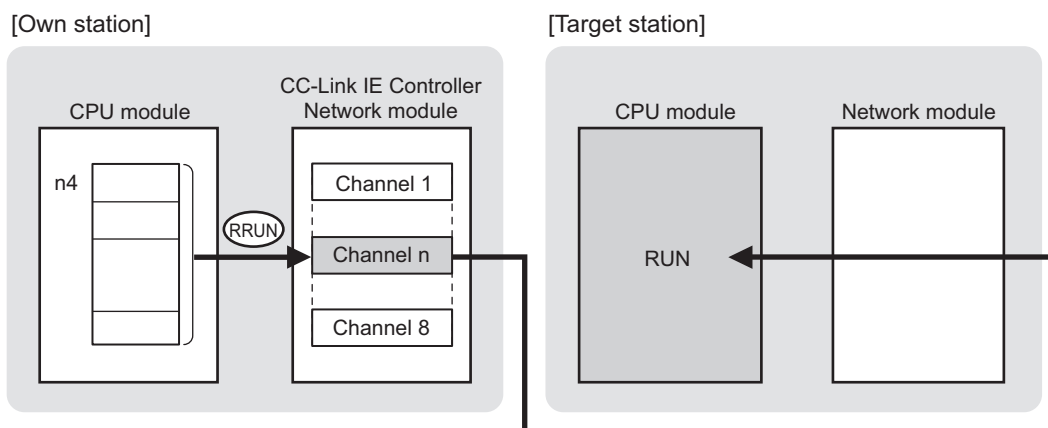
Point

- Remote RUN is available when the RUN/STOP switch of the target station CPU is set to "RUN".
- Remote RUN is not executable when system protect is applied to the target station CPU.
- When the target station CPU has been already in remote STOP/PAUSE state by a request from another station, it cannot enter RUN mode if Mode (n4) is "No forced execution (0001_H)".

(2) Function

(a) RRUN instruction overview

According to the Mode (n4) specification, the RRUN instruction execute remote RUN to the target station CPU. The target station is specified in Target station network No. (Jn) and Target station No. (n2). Upon completion of the request to the target station, the completion device (D1) turns ON.



(b) Target stations available for specification

- Target network

In addition to CC-Link IE Controller Network, stations in the following networks can be also specified.

- CC-Link IE Field Network
- MELSECNET/H
- MELSECNET/10
- Ethernet

- Target station's CPU type

The RRUN instruction is executable only when the target station is QCPU, RCP, or LCP.

(c) Checking the execution status of the RRUN instruction

The execution status of the RRUN instruction (Normal completion, Error completion) can be checked with the following devices specified in the setting data.

- Completion device (D1)

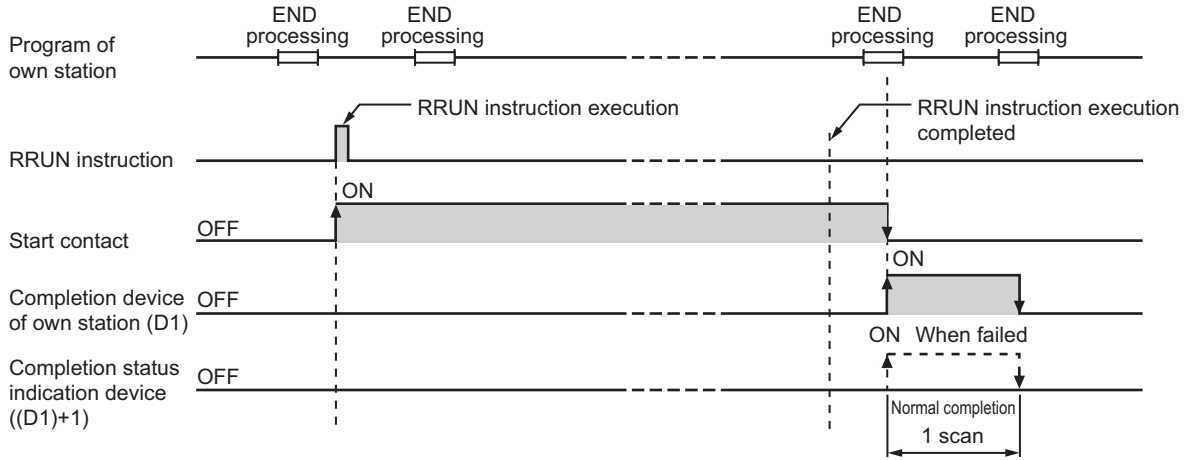
Turns ON in the END processing for the scan after completion of the RRUN instruction, and goes OFF in the next END processing.

- Completion status indication device ((D1)+1)

Turns ON in the END processing for the scan after completion of the RRUN instruction, and turns OFF in the next END processing, only when the RRUN instruction has failed.

(d) Operation in RRUN instruction execution

- Operation of the own station

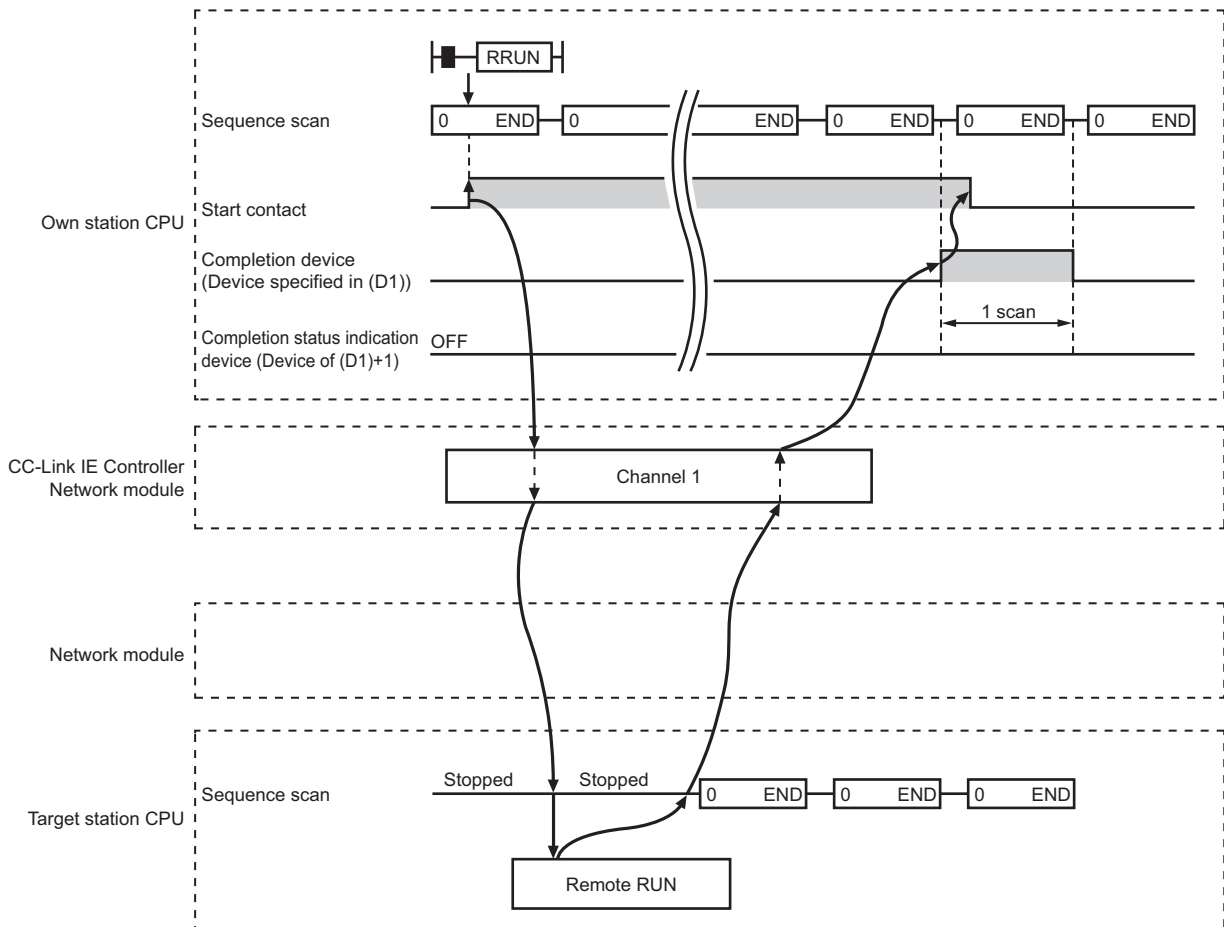


(e) RRUN instruction execution timing

With Z.RRUN, processing is executed one after another while the start contact is ON.

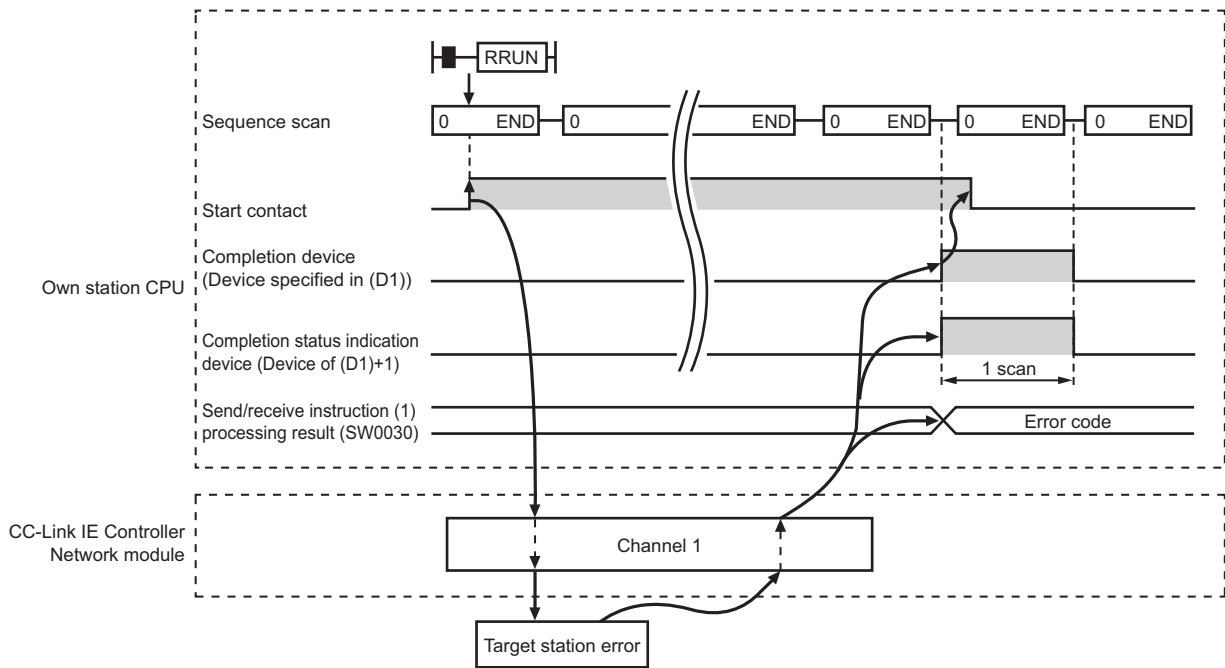
With ZP.RRUN, processing is performed one time only when the start contact turns ON from OFF.

- When completed normally



9.14 Z(P).RRUN (Remote RUN)

- When failed



(3) Error

When a link dedicated instruction failed, the error details can be confirmed by either of the following methods.

(a) With the programming tool

The error details can be checked in the CC IE Control diagnostics. (Page 526, Section 10.3)

(b) Checking devices

Completion status indication device ((D1)+1) is turned ON, and an error code is stored in Send/receive instruction processing result (SW0030 to SW0037).

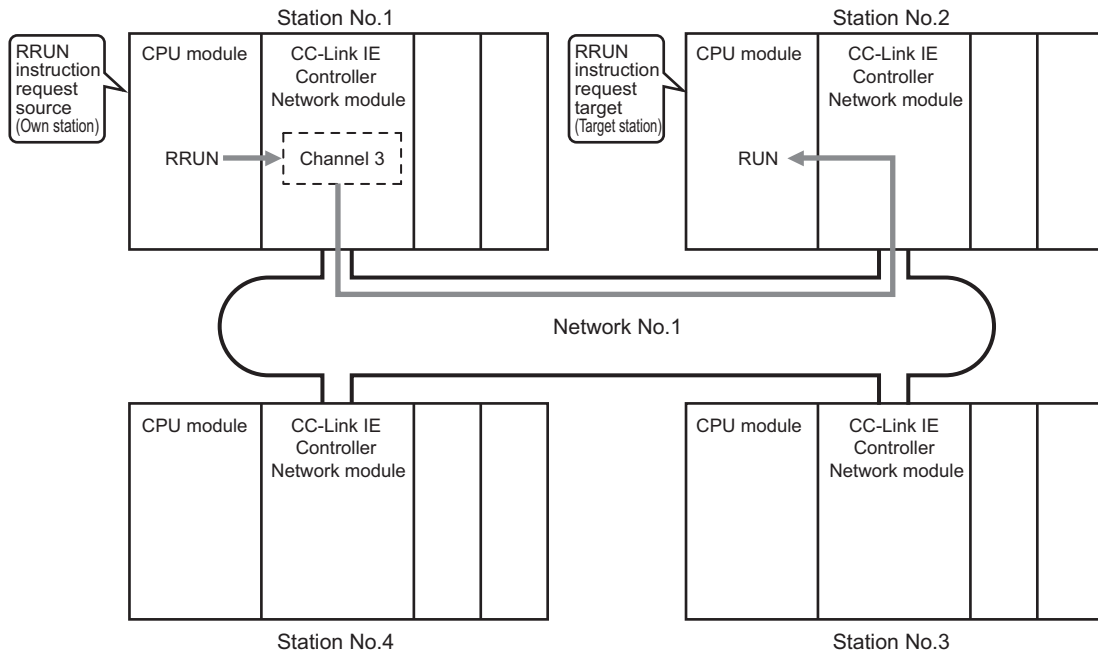
No.	Name
SW0030	Send/receive instruction (1) processing result
SW0031	Send/receive instruction (2) processing result
SW0032	Send/receive instruction (3) processing result
SW0033	Send/receive instruction (4) processing result
SW0034	Send/receive instruction (5) processing result
SW0035	Send/receive instruction (6) processing result
SW0036	Send/receive instruction (7) processing result
SW0037	Send/receive instruction (8) processing result

Check the error and take corrective actions according to the error code. (Page 511, Section 10.2)

(4) Program example

The following shows a program in which a remote RUN request is sent to the QCPU of station No.2 (target station) when M171 turns ON.

(a) System configuration example



(b) Devices used in the program example

- Special relay (SM), link special relay (SB), and link special register (SW)

Device	Description	Device	Description
SM400	Always ON	SW0032	Send/receive instruction (3) processing result
SB0047	Baton pass status (own station)	SW00A0.1	Baton pass status of station No.2

Remark

- For details of link special relay (SB): Page 568, Appendix 1
- For details of link special register (SW): Page 584, Appendix 2

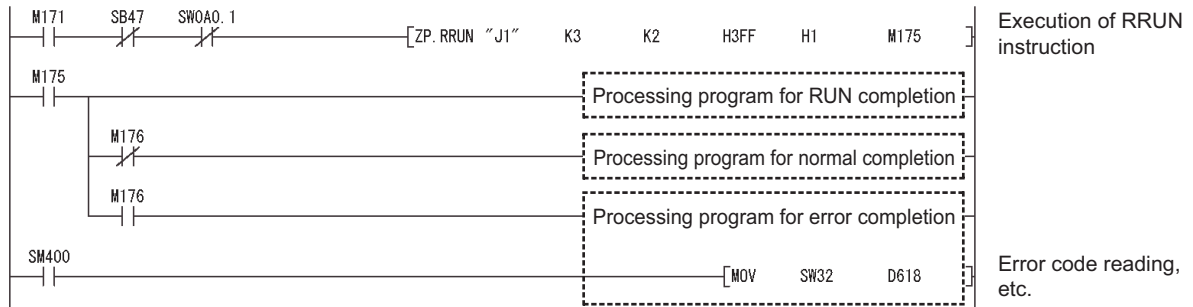
- Devices used by the user

Device	Description	Device	Description
M171	Start contact	M176	Completion status indication device
M175	Completion device	D618	Error code storage device

9.14 Z(P).RRUN (Remote RUN)

(c) Program example

The following example program is written to the CPU module of station No.1.

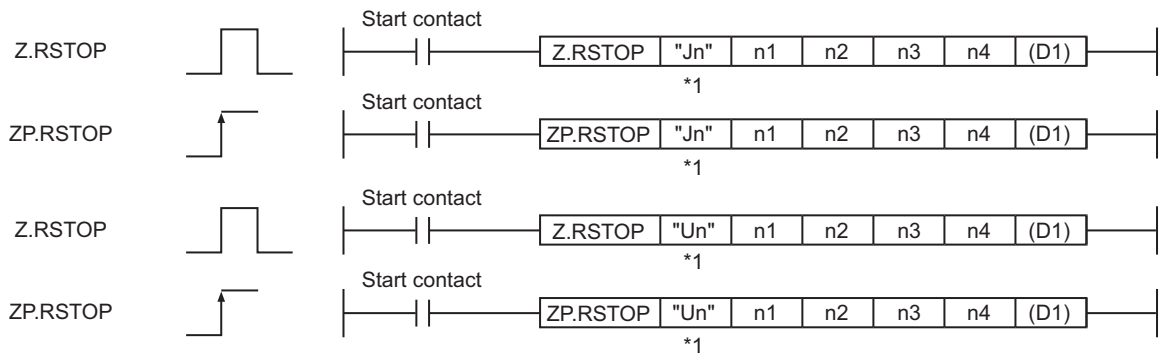


9.15 Z(P).RSTOP (Remote STOP)

This instruction is used to remotely stop a programmable controller on another station.

Setting data	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)			○			—		—	—	



[Instruction symbol] [Execution condition] [Instruction format]



*1 If the originating station is a Basic model QCPU (function version B or later) or Universal model QCPU, " " (double quotation) of the first argument can be omitted.

9.15 Z(P).RSTOP (Remote STOP)

(1) Setting data

Setting data *1	Description	Data type
"Jn"/Jn	Network No. of the target station (1 to 239, 254) 254: The network specified in Valid module during other station access	String/
"Un"/Un	Start I/O number of the own station's CC-Link IE Controller Network module (00 to FE _H : The higher two digits of the 3-digit I/O number)	Binary 16 bits
n1	Channel used by own station (1 to 8) Specify the channel used by the own station. ( Page 328, Section 9.2.2 (1))	
n2	<p>Target station No. Specify the station No. of the target station.</p> <p>(1) Station No. specification When own station is Universal model QCPU: 1 to 120 When own station is other than Universal model QCPUs: 1 to 64</p> <p>(2) Group specification 81_H to A0_H: All stations of a group (No.1 to 32)</p> <p>(3) All stations FF_H: All stations of the target network No. (Except the own station)</p> <p>To specify a group or all stations</p> <ul style="list-style-type: none"> Set "0000_H" or "03FF_H" for Target station's CPU type (n3). ( Page 329, Section 9.2.2 (3)) When the target station is on the CC-Link IE Field Network, stations cannot be specified as a group. To check if data has been properly written in the target station, check if the CPU module on the target station of the write destination is in the STOP status. 	
n3	Specify the CPU module on the station to be accessed.	Binary 16 bits
	Set value	Description
	0000 _H	Control CPU (The access target is the same as when "03FF _H " is specified.)
	03D0 _H	Control system CPU (Redundant CPU only)
	03D1 _H	Standby system CPU (Redundant CPU only)
	03D2 _H	System A CPU (Redundant CPU only)
	03D3 _H	System B CPU (Redundant CPU only)
	03E0 _H	<ul style="list-style-type: none"> Target station CPU (single CPU system) Multi-CPU No.1 Control CPU (single CPU system) Multiple CPU system No.1
	03E1 _H	Multiple CPU system No.2
	03E2 _H	Multiple CPU system No.3
	03E3 _H	Multiple CPU system No.4
	03FF _H	Control CPU
When the instruction is executed with control system CPU (03D0 _H) or standby system CPU (03D1 _H) specified, if system switching occurs at the target station, the instruction execution may fail. (Error code: 4244 _H , 4248 _H) If the instruction has failed with the above error, execute it again.		

Setting data *1	Description	Data type
n4	Operation mode <div style="text-align: center;"> b15 _____ to _____ b0 0001H (Fixed) </div>	Binary 16 bits
(D1)	The own station's device that is turned on for one scan upon completion of the instruction (D1)+1 also turns ON if the instruction execution has failed.	Bit

*1 Local devices and file registers for each program cannot be used as devices in setting data.

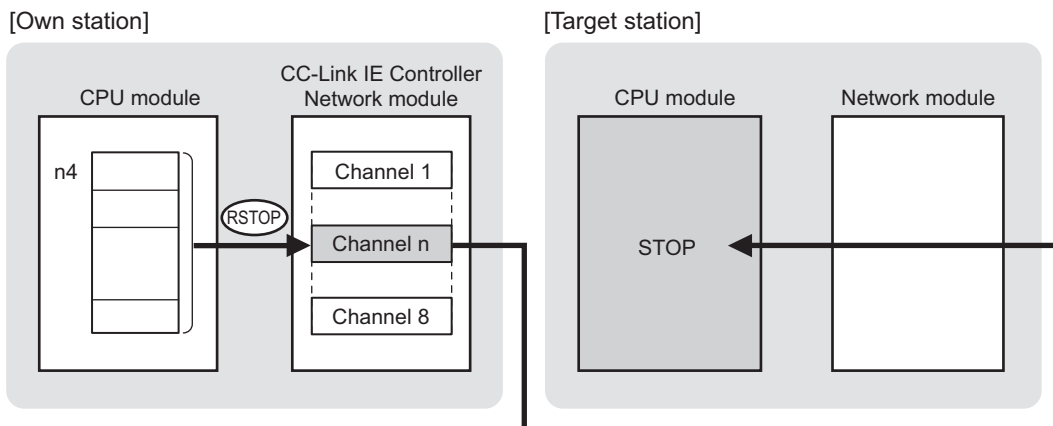
Point!

- Remote STOP is available when the RUN/STOP switch of the target station CPU is set to "RUN".
- Remote STOP is not executable when system protect is applied to the target station CPU.
- If the target station CPU, for which remote STOP was performed, is reset, the remote STOP information is erased.

(2) Function

(a) RSTOP instruction overview

The RSTOP instruction executes remote STOP to the target station CPU.
 The target station is specified in Target station network No. (Jn) and Target station No. (n2).
 Upon completion of the request to the target station, the completion device (D1) turns ON.



(b) Target stations available for specification

- Target network
 In addition to CC-Link IE Controller Network, stations in the following networks can be also specified.
 - CC-Link IE Field Network
 - MELSECNET/H
 - MELSECNET/10
 - Ethernet
- Target station's CPU type
 The RSTOP instruction is executable only when the target station is QCPU, RCPU, or LCPU.

9.15 Z(P).RSTOP (Remote STOP)

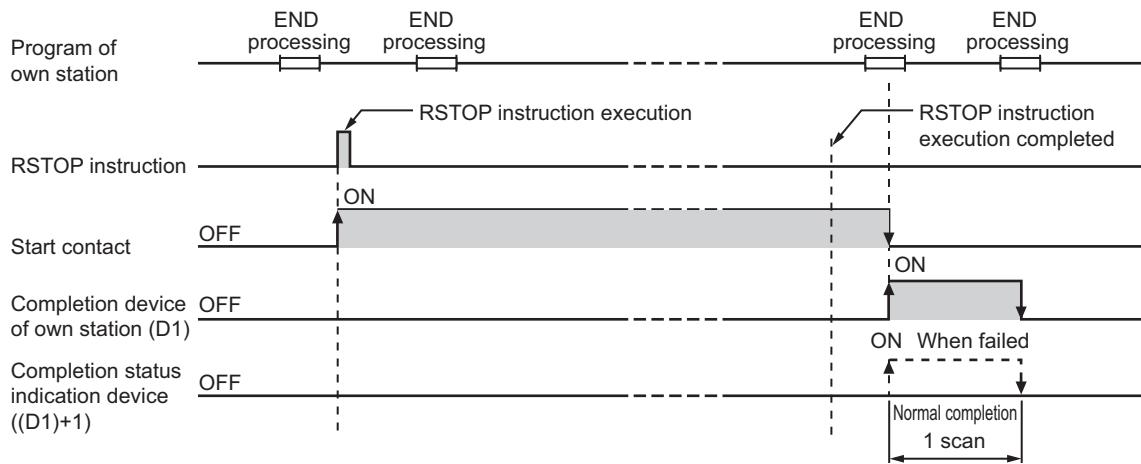
(c) Checking the execution status of the RSTOP instruction

The execution status of the RSTOP instruction (Normal completion, Error completion) can be checked with the following devices specified in the setting data.

- Completion device (D1)
Turns ON in the END processing for the scan after completion of the RSTOP instruction, and goes OFF in the next END processing.
- Completion status indication device ((D1)+1)
Turns ON in the END processing for the scan after completion of the RSTOP instruction, and turns OFF in the next END processing, only when the RSTOP instruction has failed.

(d) Operation in RSTOP instruction execution

- Operation of the own station

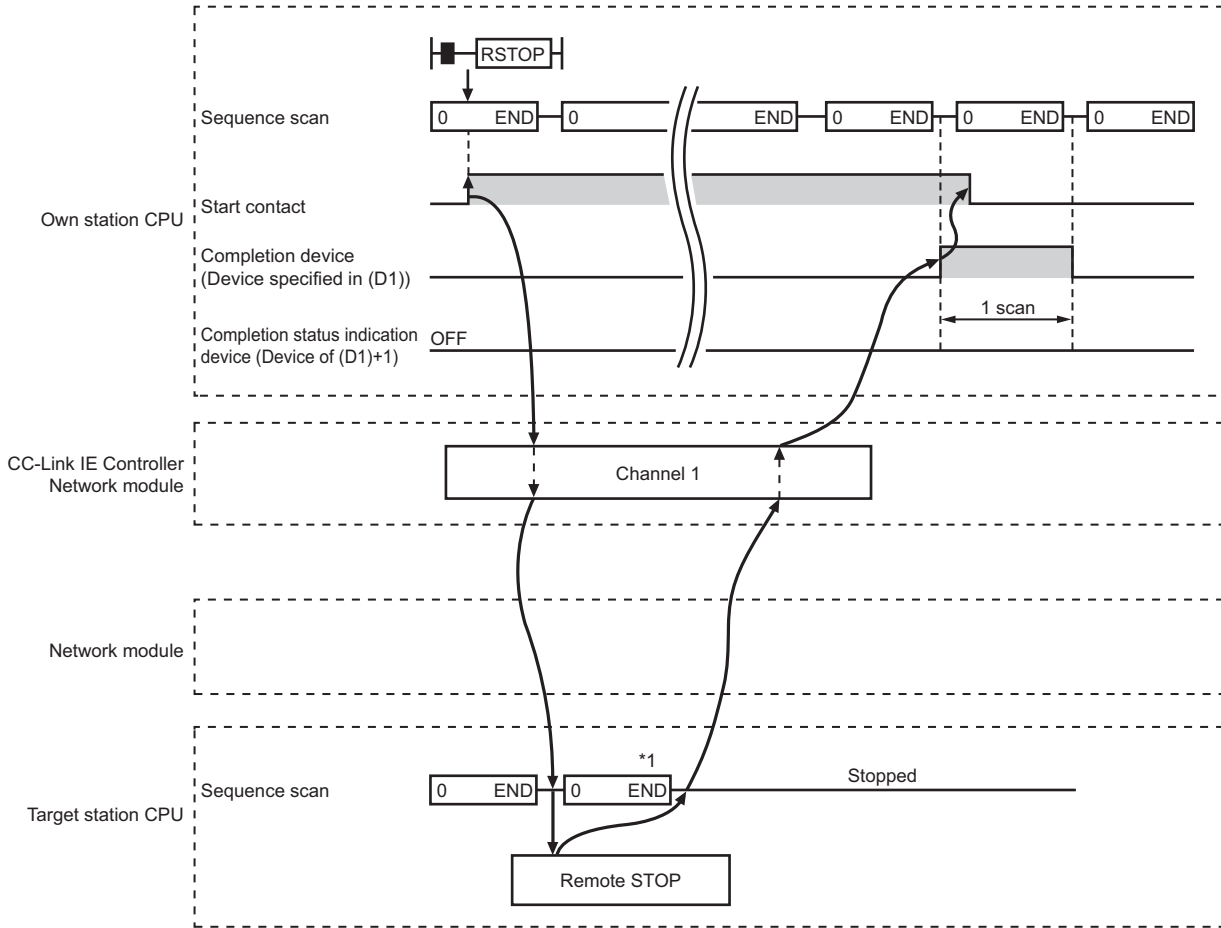


(e) RSTOP instruction execution timing

With Z.RSTOP, processing is executed one after another while the start contact is ON.

With ZP.RSTOP, processing is performed one time only when the start contact turns ON from OFF.

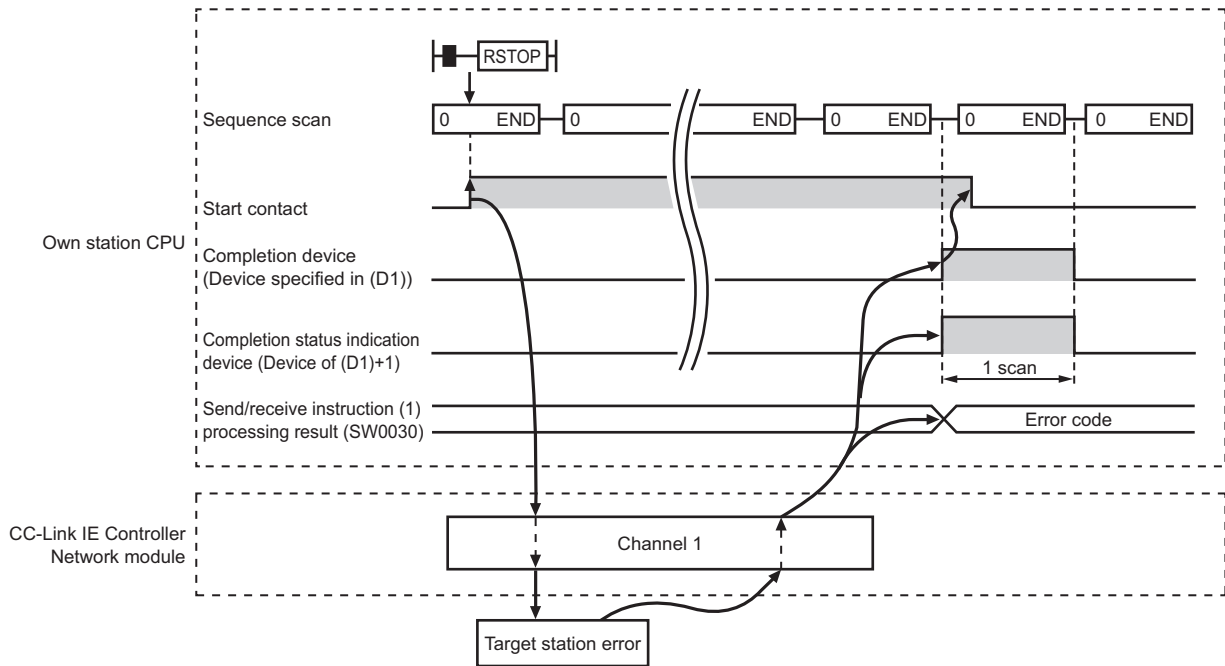
- When completed normally



*1 Several scans are taken until the sequence scan is stopped, depending on the system configuration, sequence scan time, etc.

9.15 Z(P).RSTOP (Remote STOP)

- When failed



(3) Error

When a link dedicated instruction failed, the error details can be confirmed by either of the following methods.

(a) With the programming tool

The error details can be checked in the CC IE Control diagnostics. (☞ Page 526, Section 10.3)

(b) Checking devices

Completion status indication device ((D1)+1) is turned ON, and an error code is stored in Send/receive instruction processing result (SW0030 to SW0037).

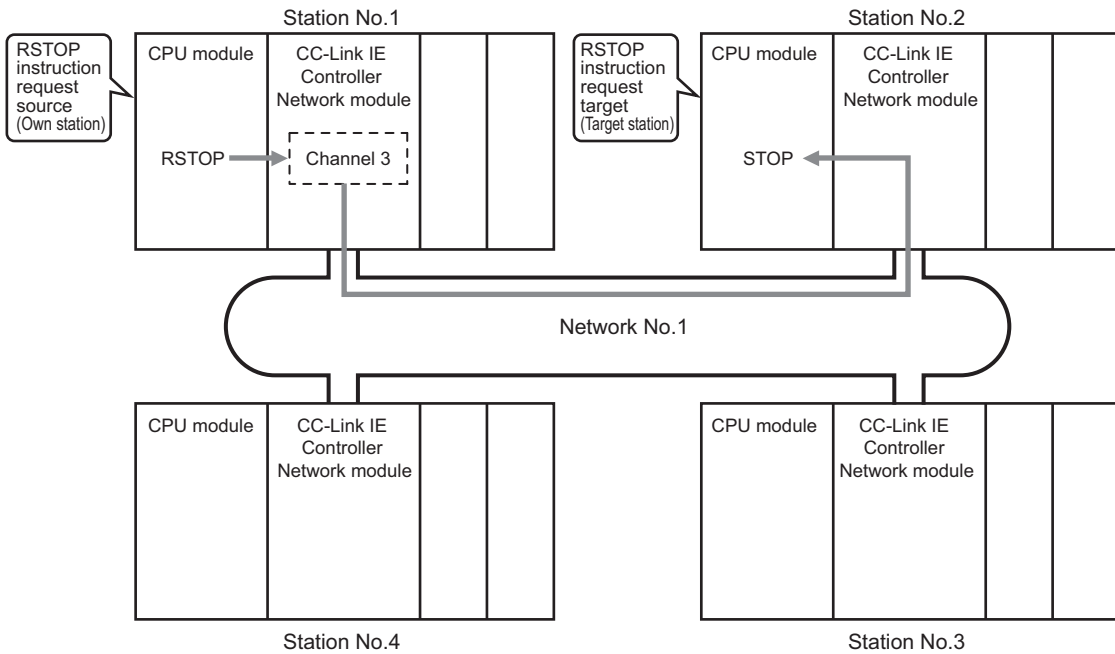
No.	Name
SW0030	Send/receive instruction (1) processing result
SW0031	Send/receive instruction (2) processing result
SW0032	Send/receive instruction (3) processing result
SW0033	Send/receive instruction (4) processing result
SW0034	Send/receive instruction (5) processing result
SW0035	Send/receive instruction (6) processing result
SW0036	Send/receive instruction (7) processing result
SW0037	Send/receive instruction (8) processing result

Check the error and take corrective actions according to the error code. (☞ Page 511, Section 10.2)

(4) Program example

The following shows a program in which a remote STOP request is sent to the QCPU of station No.2 (target station) when M181 turns ON.

(a) System configuration example



(b) Devices used in the program example

- Special relay (SM), link special relay (SB), and link special register (SW)

Device	Description	Device	Description
SM400	Always ON	SW0032	Send/receive instruction (3) processing result
SB0047	Baton pass status (own station)	SW00A0.1	Baton pass status of station No.2

Remark

- For details of link special relay (SB): Page 568, Appendix 1
- For details of link special register (SW): Page 584, Appendix 2

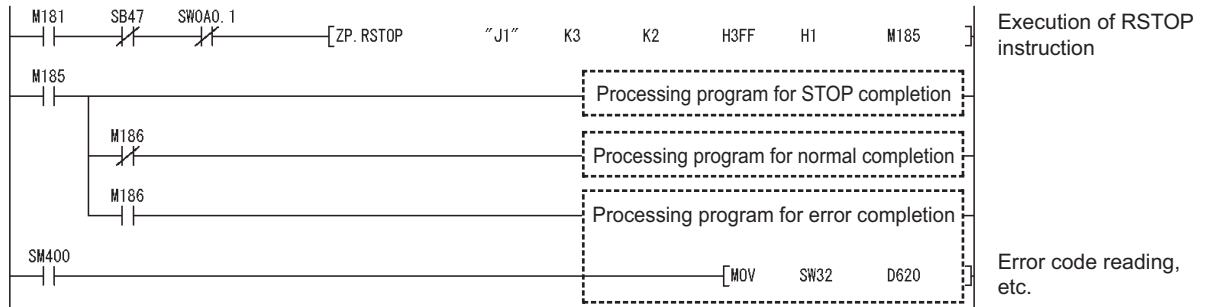
- Devices used by the user

Device	Description	Device	Description
M181	Start contact	M186	Completion status indication device
M185	Completion device	D620	Error code storage device

9.15 Z(P).RSTOP (Remote STOP)

(c) Program example

The following example program is written to the CPU module of station No.1.

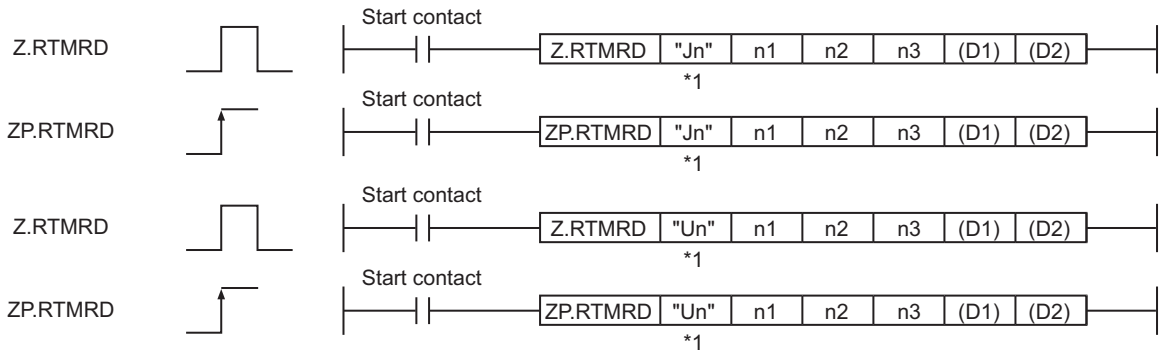


9.16 Z(P).RTMRD (Clock Data Read from Programmable Controllers on Other Stations)

This instruction is used to read clock data from a programmable controller on another station.

Setting data	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	—	○					○		—	
(D1)	—	○					—		—	
(D2)		○					—		—	



[Instruction symbol] [Execution condition] [Instruction format]



*1 If the originating station is a Basic model QCPU (function version B or later), Universal model QCPU, or safety CPU, " " (double quotation) of the first argument can be omitted.

9.16 Z(P).RTMRD (Clock Data Read from Programmable Controllers on Other Stations)

(1) Setting data

Setting data *1	Description	Data type
"Jn"/Jn	Network No. of the target station (1 to 239, 254) 254: The network specified in Valid module during other station access	String/ Binary 16 bits
"Un"/Un	Start I/O number of the own station's CC-Link IE Controller Network module (00 to FE _H : The higher two digits of the 3-digit I/O number)	
n1	Channel used by own station (1 to 8) Specify the channel used by the own station. ( Page 328, Section 9.2.2 (1))	
n2	Target station No. Specify the station No. of the target station. (1) Station No. specification When own station is Universal model QCPU: 1 to 120 When own station is other than Universal model QCPUs: 1 to 64	
n3	Specify the CPU module on the station to be accessed.	
	Set value	Description
	0000 _H	Control CPU (The access target is the same as when "03FF _H " is specified.)
	03D0 _H	Control system CPU (Redundant CPU only)
	03D1 _H	Standby system CPU (Redundant CPU only)
	03D2 _H	System A CPU (Redundant CPU only)
	03D3 _H	System B CPU (Redundant CPU only)
	03E0 _H	<ul style="list-style-type: none"> • Target station CPU (single CPU system) • Multi-CPU No.1 • Control CPU (single CPU system) • Multiple CPU system No.1
	03E1 _H	Multiple CPU system No.2
	03E2 _H	Multiple CPU system No.3
	03E3 _H	Multiple CPU system No.4
03FF _H	Control CPU	
	When the instruction is executed with control system CPU (03D0 _H) or standby system CPU (03D1 _H) specified, if system switching occurs at the target station, the instruction execution may fail. (Error code: 4244 _H , 4248 _H) If the instruction has failed with the above error, execute it again.	
(D1)	Start device of the own station, in which clock data are stored ( Page 461, Section 9.16 (2))	Device name
(D2)	The own station's device that is turned on for one scan upon completion of the instruction (D2)+1 also turns ON if the instruction execution has failed.	Bit

*1 Local devices and file registers for each program cannot be used as devices in setting data.

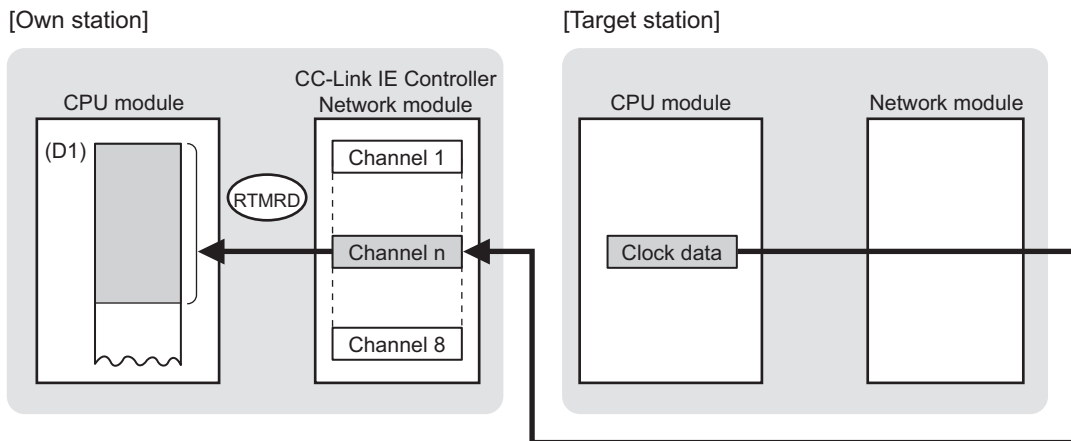
(2) Clock data (All set by the system)

Device	Item	Setting data																																									
(D1)+0	Clock data	Clock data that have been read are stored as BCD codes. The range available for 4-digit year reading is 1980 to 2079.																																									
(D1)+1																																											
(D1)+2																																											
(D1)+3																																											
		<table border="1"> <tr> <td></td> <td>b15</td> <td>to</td> <td>b8</td> <td>b7</td> <td>to</td> <td>b0</td> </tr> <tr> <td>(D1)+0</td> <td colspan="2">Year (00H to 99H), Last 2 digits</td> <td colspan="3">Month (01H to 12H)</td> </tr> <tr> <td>(D1)+1</td> <td colspan="3">Day (01H to 31H)</td> <td colspan="3">Hour (00H to 23H)</td> </tr> <tr> <td>(D1)+2</td> <td colspan="3">Minute (00H to 59H)</td> <td colspan="3">Second (00H to 59H)</td> </tr> <tr> <td>(D1)+3</td> <td colspan="3">Year (19H or 20H), First 2 digits</td> <td colspan="3">Day of week (00H to 06H)</td> </tr> <tr> <td></td> <td colspan="6" style="text-align: center;">00H (Sun.) to 06H (Sat.)</td> </tr> </table>		b15	to	b8	b7	to	b0	(D1)+0	Year (00H to 99H), Last 2 digits		Month (01H to 12H)			(D1)+1	Day (01H to 31H)			Hour (00H to 23H)			(D1)+2	Minute (00H to 59H)			Second (00H to 59H)			(D1)+3	Year (19H or 20H), First 2 digits			Day of week (00H to 06H)				00H (Sun.) to 06H (Sat.)					
	b15	to	b8	b7	to	b0																																					
(D1)+0	Year (00H to 99H), Last 2 digits		Month (01H to 12H)																																								
(D1)+1	Day (01H to 31H)			Hour (00H to 23H)																																							
(D1)+2	Minute (00H to 59H)			Second (00H to 59H)																																							
(D1)+3	Year (19H or 20H), First 2 digits			Day of week (00H to 06H)																																							
	00H (Sun.) to 06H (Sat.)																																										

(3) Function

(a) RTMRD instruction overview

This instruction is used to read clock data from a programmable controller on another station.
 The target station is specified in Target station network No. (Jn) and Target station No. (n2).
 Upon completion of the request to the target station, the completion device (D2) turns ON.



(b) Target stations available for specification

- Target network
 - In addition to CC-Link IE Controller Network, stations in the following networks can be also specified.
 - CC-Link IE Field Network
 - MELSECNET/H
 - MELSECNET/10
 - Ethernet
- Target station's CPU type
 - The RTMRD instruction is executable only when the target station is QCPU, RCP, or LCP.

9.16 Z(P).RTMRD (Clock Data Read from Programmable Controllers on Other Stations)

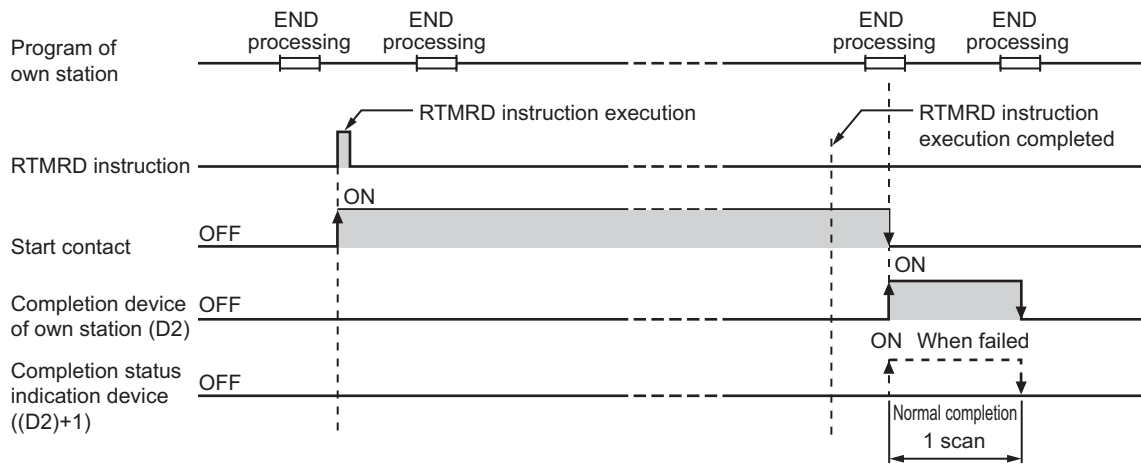
(c) Checking the execution status of the RTMRD instruction

The execution status of the RTMRD instruction (Normal completion, Error completion) can be checked with the following devices specified in the setting data.

- Completion device (D2)
Turns ON in the END processing for the scan after completion of the RTMRD instruction, and goes OFF in the next END processing.
- Completion status indication device ((D2)+1)
Turns ON in the END processing for the scan after completion of the RTMRD instruction, and turns OFF in the next END processing, only when the RTMRD instruction has failed.

(d) Operation in RTMRD instruction execution

- Operation of the own station

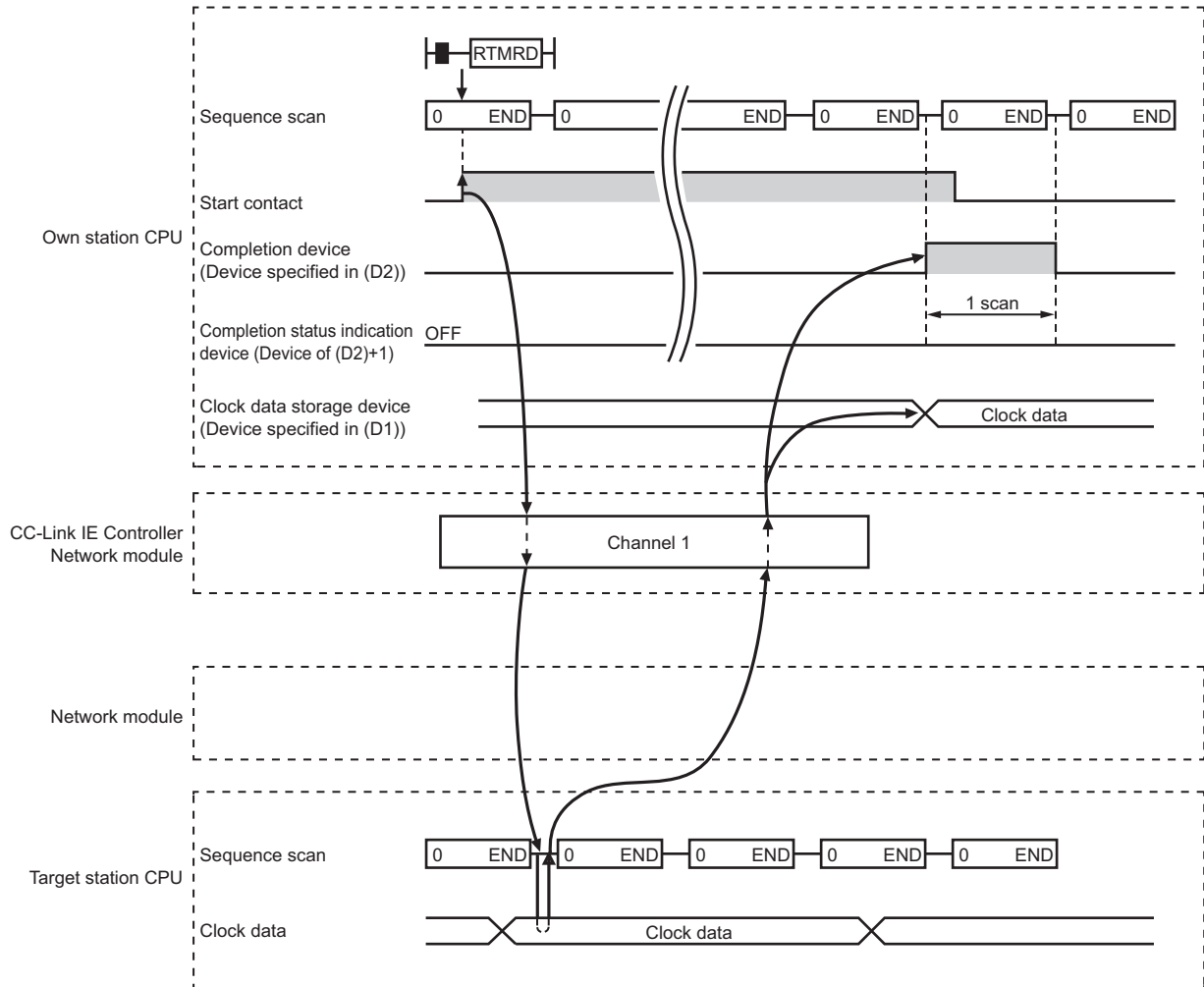


(e) RTMRD instruction execution timing

With Z.RTMRD, processing is executed one after another while the start contact is ON.

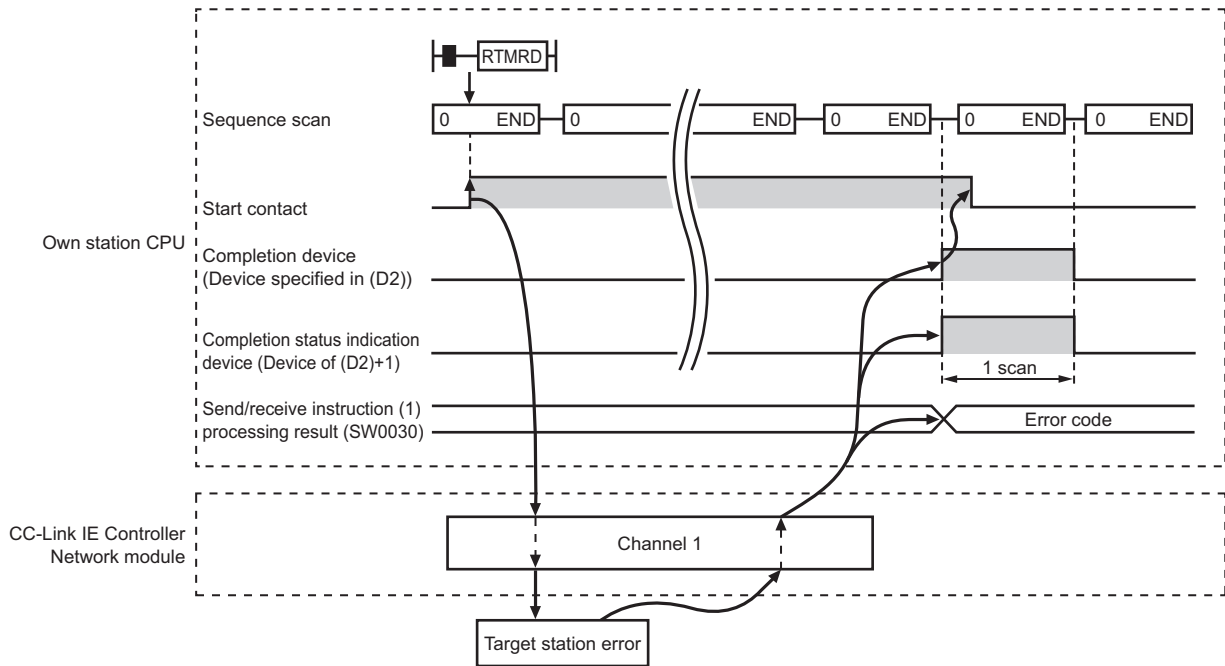
With ZP.RTMRD, processing is performed one time only when the start contact turns ON from OFF.

- When completed normally



9.16 Z(P).RTMRD (Clock Data Read from Programmable Controllers on Other Stations)

- When failed



(4) Error

When a link dedicated instruction failed, the error details can be confirmed by either of the following methods.

(a) With the programming tool

The error details can be checked in the CC IE Control diagnostics. (👉 Page 526, Section 10.3)

(b) Checking devices

Completion status indication device ((D2)+1) is turned ON, and an error code is stored in Send/receive instruction processing result (SW0030 to SW0037).

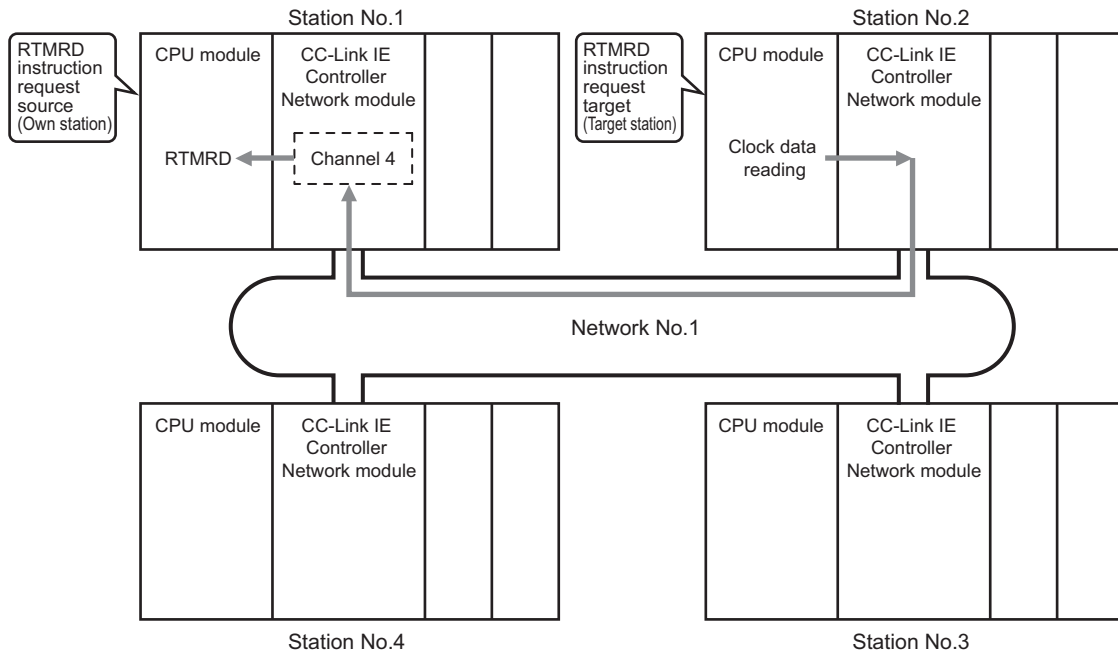
No.	Name
SW0030	Send/receive instruction (1) processing result
SW0031	Send/receive instruction (2) processing result
SW0032	Send/receive instruction (3) processing result
SW0033	Send/receive instruction (4) processing result
SW0034	Send/receive instruction (5) processing result
SW0035	Send/receive instruction (6) processing result
SW0036	Send/receive instruction (7) processing result
SW0037	Send/receive instruction (8) processing result

Check the error and take corrective actions according to the error code. (👉 Page 511, Section 10.2)

(5) Program example

In the following program example, when M131 turns ON, clock data in QCPU of station No.2 (target station) are read out to station No.1 (own station).

(a) System configuration example



(b) Devices used in the program example

- Special relay (SM), link special relay (SB), and link special register (SW)

Device	Description	Device	Description
SM400	Always ON	SW0033	Send/receive instruction (4) processing result
SB0047	Baton pass status (own station)	SW00A0.1	Baton pass status of station No.2

Remark

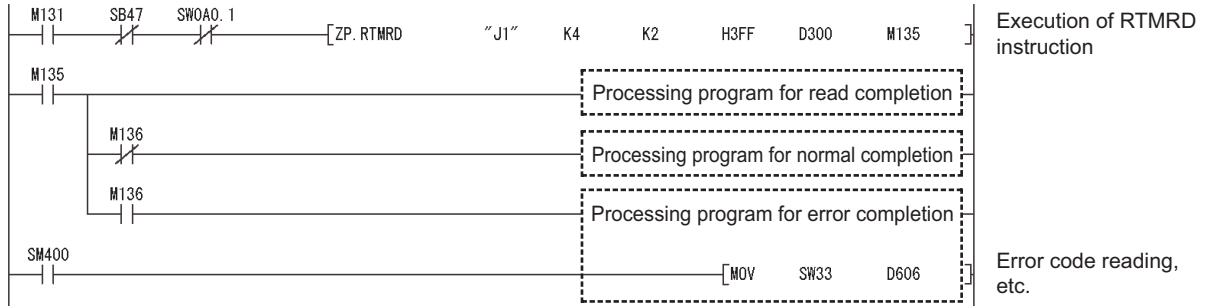
- For details of link special relay (SB): Page 568, Appendix 1
- For details of link special register (SW): Page 584, Appendix 2

- Devices used by the user

Device	Description	Device	Description
M131	Start contact	D300 to D303	Clock data
M135	Completion device	D606	Error code storage device
M136	Completion status indication device		—

(c) Program example

The following example program is written to the CPU module of station No.1.



Execution of RTMRD instruction

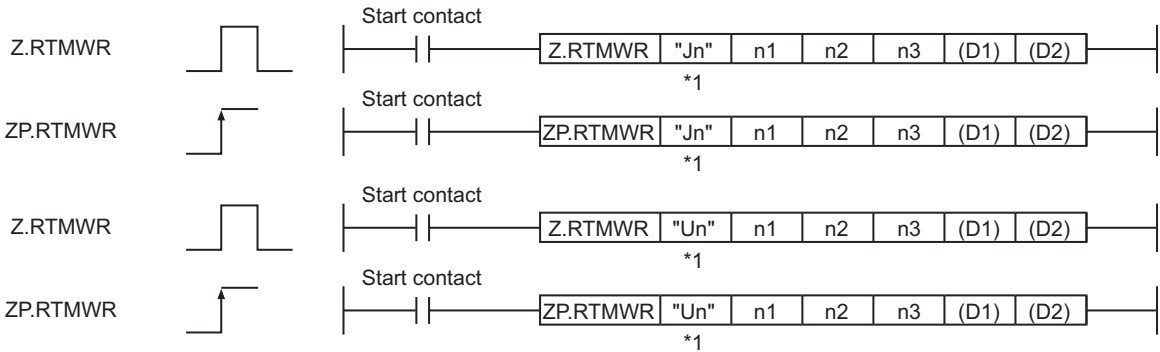
Error code reading, etc.

9.17 Z(P).RTMWR (Clock Data Write to Programmable Controllers on Other Stations)

This instruction is used to write clock data to a programmable controller on another station.

Setting data	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	—		○			—		○	—	
(D1)	—		○			—		—	—	
(D2)			○			—		—	—	




[Instruction symbol] [Execution condition] [Instruction format]



*1 If the originating station is a Basic model QCPU (function version B or later), Universal model QCPU, or safety CPU, " " (double quotation) of the first argument can be omitted.

9.17 Z(P).RTMWR (Clock Data Write to Programmable Controllers on Other Stations)

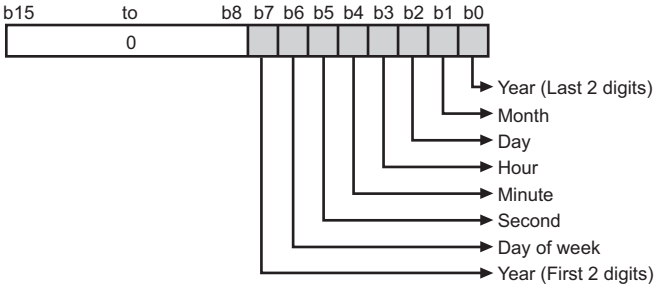
(1) Setting data

Setting data *1	Description	Data type	
"Jn"/Jn	Network No. of the target station (1 to 239, 254) 254: The network specified in Valid module during other station access	String/ Binary 16 bits	
"Un"/Un	Start I/O number of the own station's CC-Link IE Controller Network module (00 to FE _H : The higher two digits of the 3-digit I/O number)		
n1	Channel used by own station (1 to 8) Specify the channel used by the own station. ( Page 328, Section 9.2.2 (1))		
n2	Target station No. Specify the station No. of the target station. (1) Station No. specification When own station is Universal model QCPU: 1 to 120 When own station is other than Universal model QCPU: 1 to 64 (2) Group specification 81 _H to A0 _H : All stations of a group (No.1 to 32) (3) All stations FF _H : All stations of the target network No. (Except the own station) To specify a group or all stations • Set "0000 _H " or "03FF _H " for Target station's CPU type (n3). ( Page 329, Section 9.2.2 (3)) • Stations on the CC-Link IE Field Network cannot be specified as a group. • Whether data has been written in the target station or not cannot be checked. To check if data has been properly written, check the clock on the target station of the write destination.		
n3	Specify the CPU module on the station to be accessed.	Binary 16 bits	
	Set value		Description
	0000 _H		Control CPU (The access target is the same as when "03FF _H " is specified.)
	03D0 _H		Control system CPU (Redundant CPU only)
	03D1 _H		Standby system CPU (Redundant CPU only)
	03D2 _H		System A CPU (Redundant CPU only)
	03D3 _H		System B CPU (Redundant CPU only)
	03E0 _H		<ul style="list-style-type: none"> • Target station CPU (single CPU system) • Multi-CPU No.1 • Control CPU (single CPU system) • Multiple CPU system No.1
	03E1 _H		Multiple CPU system No.2
	03E2 _H		Multiple CPU system No.3
	03E3 _H		Multiple CPU system No.4
03FF _H	Control CPU		
	When the instruction is executed with control system CPU (03D0 _H) or standby system CPU (03D1 _H) specified, if system switching occurs at the target station, the instruction execution may fail. (Error code: 4244 _H , 4248 _H) If the instruction has failed with the above error, execute it again.		
(D1)	Start device of the own station, in which clock data are stored ( Page 469, Section 9.17 (2))	Device name	

Setting data *1	Description	Data type
(D2)	The own station's device that is turned on for one scan upon completion of the instruction (D2)+1 also turns ON if the instruction execution has failed.	Bit

*1 Local devices and file registers for each program cannot be used as devices in setting data.

(2) Clock data (All set by the user)

Device	Item	Setting data															
(D1)+0	Change pattern	<p>In (D1)+1 to (D1)+4, specify data to be changed. 0: Do not change 1: Change</p> 															
(D1)+1	Clock data	<p>Specify new clock data as BCD codes. The range available for 4-digit year writing is 1980 to 2079.</p> <table border="1"> <thead> <tr> <th></th> <th>b15 to b8</th> <th>b7 to b0</th> </tr> </thead> <tbody> <tr> <td>(D1)+1</td> <td>Year (00H to 99H), Last 2 digits</td> <td>Month (01H to 12H)</td> </tr> <tr> <td>(D1)+2</td> <td>Day (01H to 31H)</td> <td>Hour (00H to 23H)</td> </tr> <tr> <td>(D1)+3</td> <td>Minute (00H to 59H)</td> <td>Second (00H to 59H)</td> </tr> <tr> <td>(D1)+4</td> <td>Year (19H or 20H), First 2 digits</td> <td>Day of week (00H to 06H) 00H (Sun.) to 06H (Sat.)</td> </tr> </tbody> </table>		b15 to b8	b7 to b0	(D1)+1	Year (00H to 99H), Last 2 digits	Month (01H to 12H)	(D1)+2	Day (01H to 31H)	Hour (00H to 23H)	(D1)+3	Minute (00H to 59H)	Second (00H to 59H)	(D1)+4	Year (19H or 20H), First 2 digits	Day of week (00H to 06H) 00H (Sun.) to 06H (Sat.)
			b15 to b8	b7 to b0													
(D1)+1			Year (00H to 99H), Last 2 digits	Month (01H to 12H)													
(D1)+2			Day (01H to 31H)	Hour (00H to 23H)													
(D1)+3	Minute (00H to 59H)	Second (00H to 59H)															
(D1)+4	Year (19H or 20H), First 2 digits	Day of week (00H to 06H) 00H (Sun.) to 06H (Sat.)															
(D1)+2																	
(D1)+3																	
(D1)+4																	

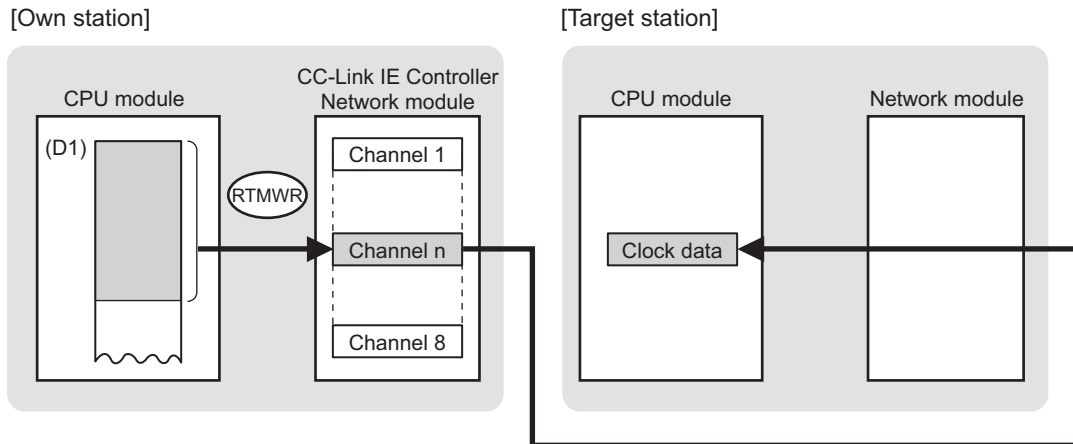


Clock data cannot be written when system protect is applied to the target station CPU.

(3) Function

(a) RTMWR instruction overview

This instruction is used to write clock data to a programmable controller on another station. The target station is specified in Target station network No. (Jn) and Target station No. (n2). Upon completion of the request to the target station, the completion device (D2) turns ON.



(b) Target stations available for specification

- Target network

In addition to CC-Link IE Controller Network, stations in the following networks can be also specified.

- CC-Link IE Field Network
- MELSECNET/H
- MELSECNET/10
- Ethernet

- Target station's CPU type

The RTMWR instruction is executable only when the target station is QCPU, RCP, or LCP.

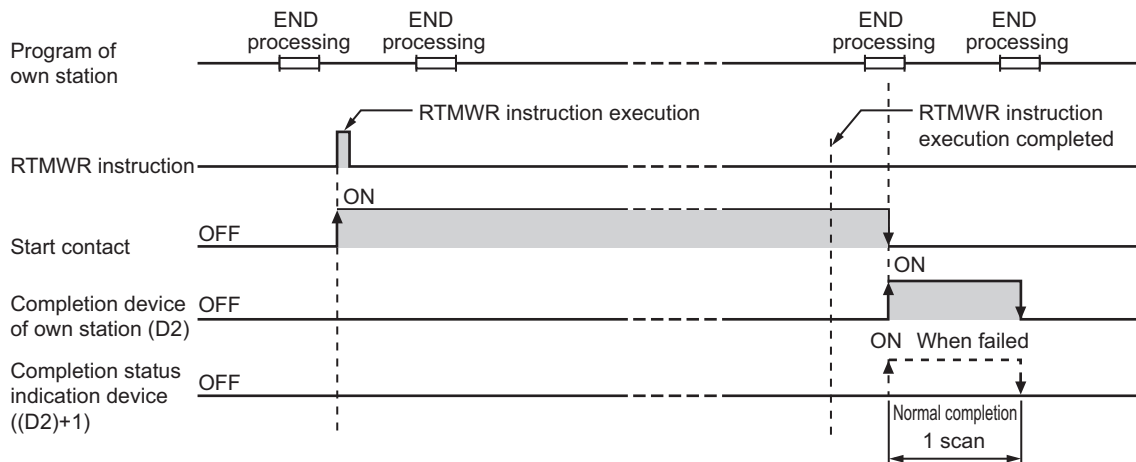
(c) Checking the execution status of the RTMWR instruction

The execution status of the RTMWR instruction (Normal completion, Error completion) can be checked with the following devices specified in the setting data.

- Completion device (D2)
Turns ON in the END processing for the scan after completion of the RTMWR instruction, and goes OFF in the next END processing.
- Completion status indication device ((D2)+1)
Turns ON in the END processing for the scan after completion of the RTMWR instruction, and turns OFF in the next END processing, only when the RTMWR instruction has failed.

(d) Operation in RTMWR instruction execution

- Operation of the own station

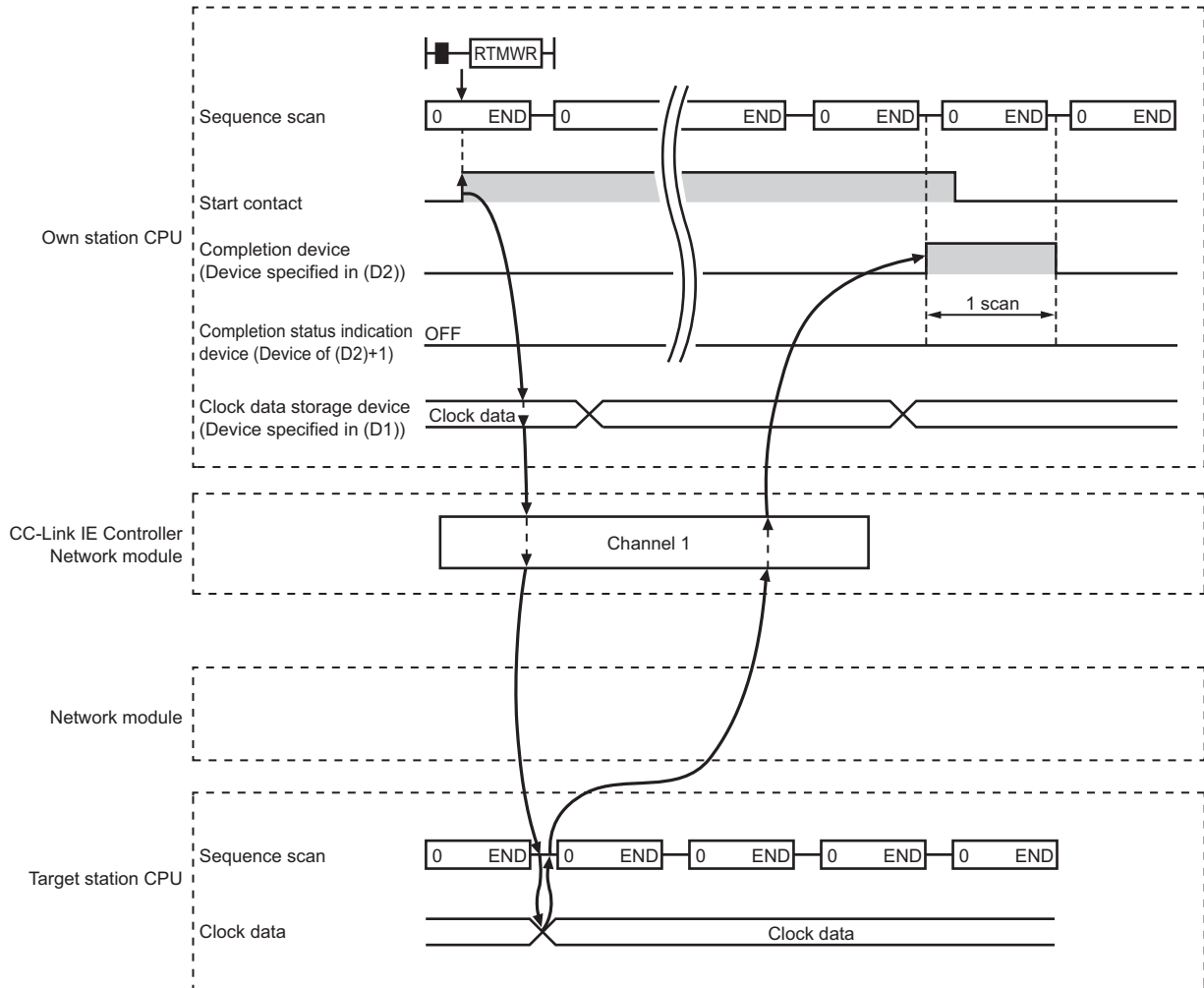


(e) RTMWR instruction execution timing

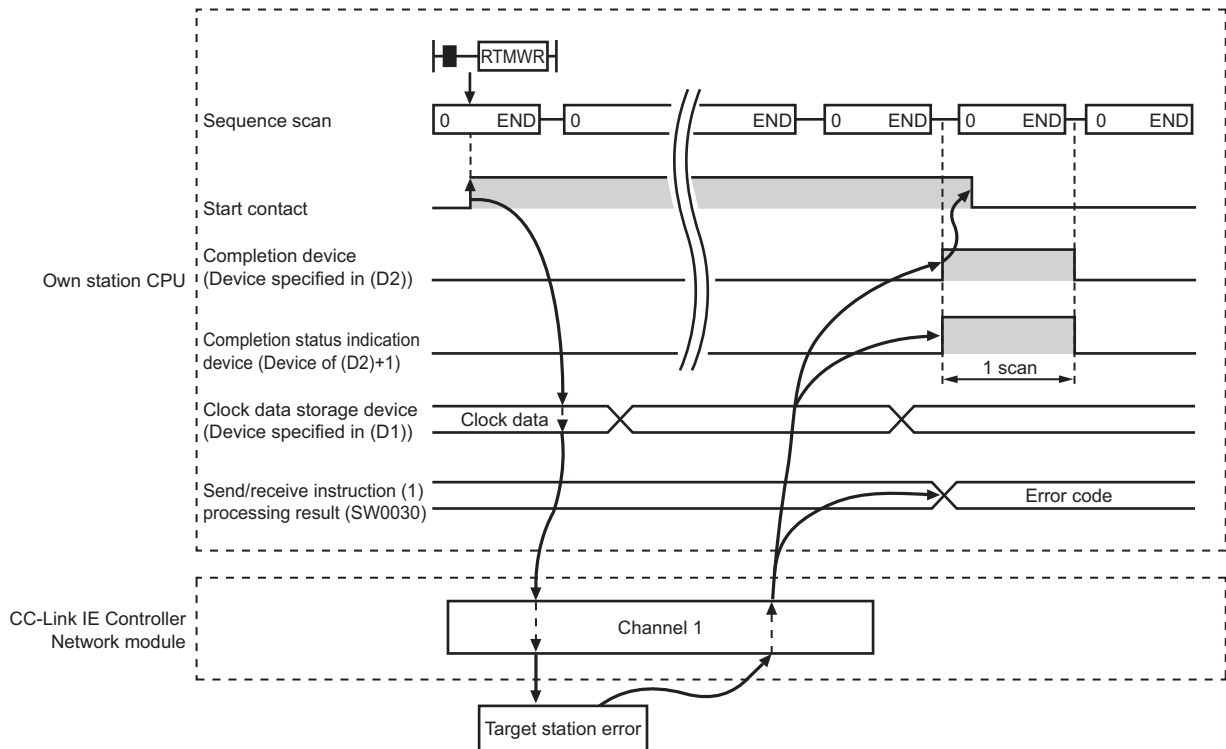
With Z.RTMWR, processing is executed one after another while the start contact is ON.

With ZP.RTMWR, processing is performed one time only when the start contact turns ON from OFF.

- When completed normally



- When failed



(4) Error

When a link dedicated instruction failed, the error details can be confirmed by either of the following methods.

(a) With the programming tool

The error details can be checked in the CC IE Control diagnostics. (👉 Page 526, Section 10.3)

(b) Checking devices

Completion status indication device ((D2)+1) is turned ON, and an error code is stored in Send/receive instruction processing result (SW0030 to SW0037).

No.	Name
SW0030	Send/receive instruction (1) processing result
SW0031	Send/receive instruction (2) processing result
SW0032	Send/receive instruction (3) processing result
SW0033	Send/receive instruction (4) processing result
SW0034	Send/receive instruction (5) processing result
SW0035	Send/receive instruction (6) processing result
SW0036	Send/receive instruction (7) processing result
SW0037	Send/receive instruction (8) processing result

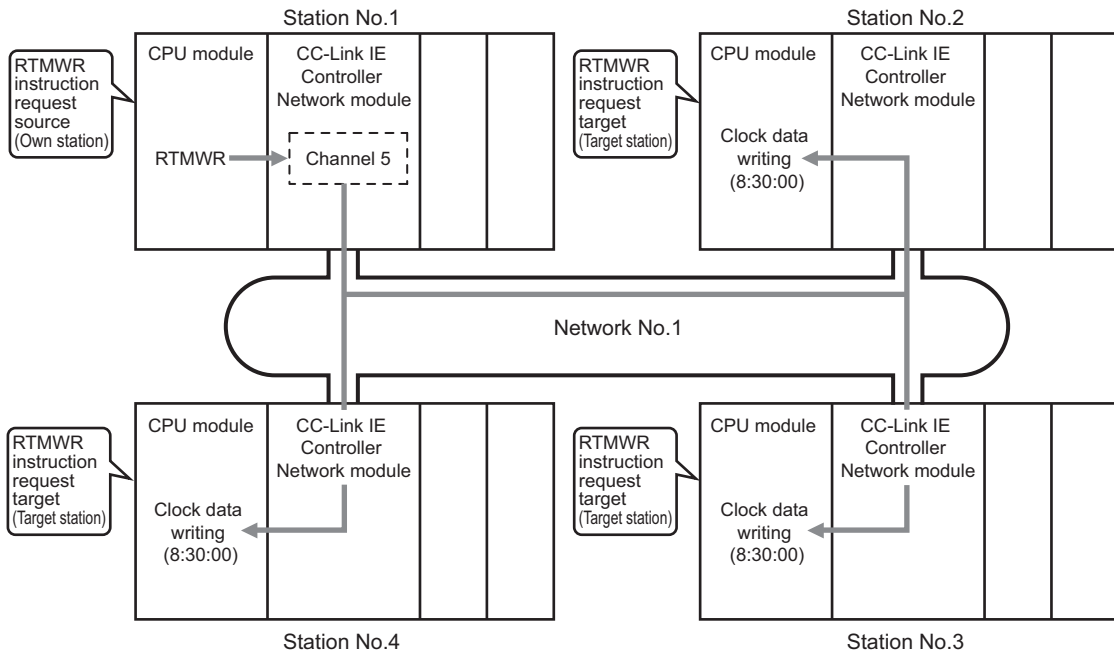
Check the error and take corrective actions according to the error code. (👉 Page 511, Section 10.2)

9.17 Z(P).RTMWR (Clock Data Write to Programmable Controllers on Other Stations)

(5) Program example

In the following example program, when M141 turns ON, clock data (08:30:00) is written to all stations of network No.1.

(a) System configuration example



(b) Devices used in the program example

- Special relay (SM), link special relay (SB), and link special register (SW)

Device	Description	Device	Description
SM400	Always ON	SB00A0	Baton pass status of each station
SB0047	Baton pass status (own station)	SW0034	Send/receive instruction (5) processing result

Remark

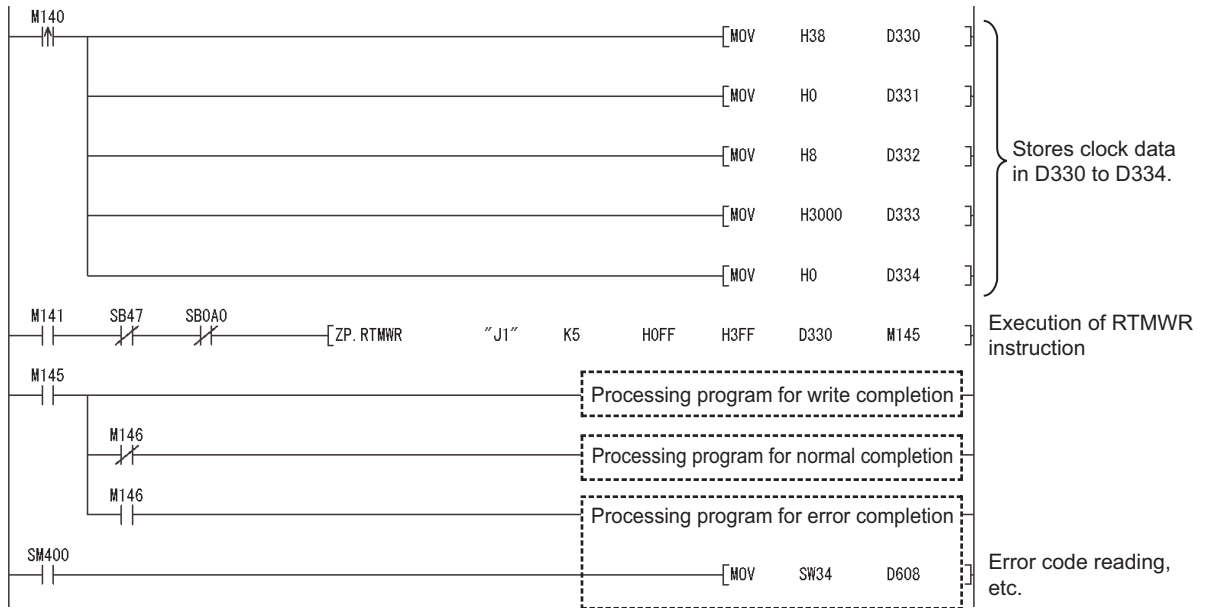
- For details of link special relay (SB): Page 568, Appendix 1
- For details of link special register (SW): Page 584, Appendix 2

- Devices used by the user


Device	Description	Device	Description
M140	Clock data setting command	M146	Completion status indication device
M141	Start contact	D330 to D334	Clock data
M145	Completion device	D608	Error code storage device


(c) Program example

The following example program is written to the CPU module of station No.1.



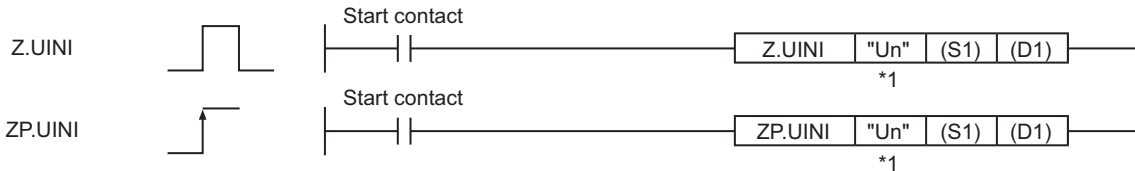
9.18 Z(P).UINI (Station No. Setting of Own Station)

For Universal model QCPUs, the station No. of a normal station (own station) can be set. ( Page 136, Section 4.6)

For use of the UINI instruction, select "Specify Station No. by Program" in the network parameters. ( Page 180, Section 6.2)


Setting data	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)		○								

[Instruction symbol] [Execution condition] [Instruction format]




*1 " " (double quotation) of the first argument can be omitted.

(1) Setting data

Setting data *1	Description	Data type
"Un"/Un	Start I/O number of the own station's CC-Link IE Controller Network module (00 to FE _H : The higher two digits of the 3-digit I/O number)	String/ Binary 16 bits
(S1)	Start device of the own station that stores control data ( Page 477, Section 9.18 (2))	Device name
(D1)	The own station's device that is turned on for one scan upon completion of the instruction (D1)+1 also turns ON if the instruction execution has failed.	Bit

*1 Local devices and file registers for each program cannot be used as devices in setting data.

(2) Control data

Device	Item	Setting data	Setting range	Setting side*1
(S1)+0	—	Unused	0	User
(S1)+1	Completion status	The instruction completion status is stored. 0: Normal Other than 0: Error ( Page 511, Section 10.2)	—	System
(S1)+2	Modification specification	Specify the modification. 0001 _H : Station No. setting	0001 _H	User
(S1)+3	Own station No.	Specify a station No. of the own station.	1 to 120	User
(S1)+4 to (S1)+9	—	Unused	0	User

*1 The setting side is as shown below.
 User: Before execution of the link dedicated instruction, data must be set by the user.
 System: The CPU module stores the execution result of the link dedicated instruction.

Point 

The UINI instruction can be executed only once.
 Once a station No. has been set up, the UINI instruction cannot be executed again. (Doing so will result in error completion.)
 In the case of error completion of the UINI instruction, take corrective actions against the error and execute the UINI instruction again.

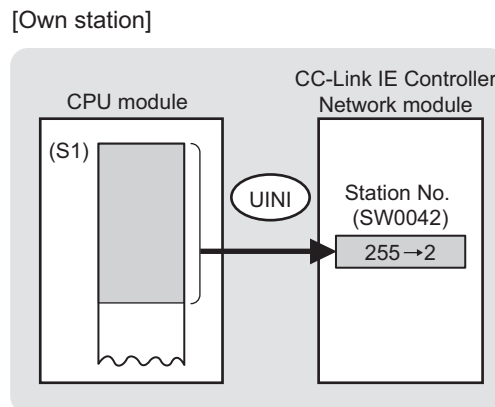
Remark

Modules are initialized by executing the UINI instruction.
 Therefore, cable disconnection is detected in adjacent stations. This may increase IN-side cable disconnection detection counts (SW0074) or OUT-side cable disconnection detection counts (SW0084).

(3) Function

(a) UINI instruction overview

This instruction sets the station No. of the normal station (own station) that is specified in Un.
 Upon completion of the station No. setting, Completion device (D1) turns ON.



9.18 Z(P).UINI (Station No. Setting of Own Station)

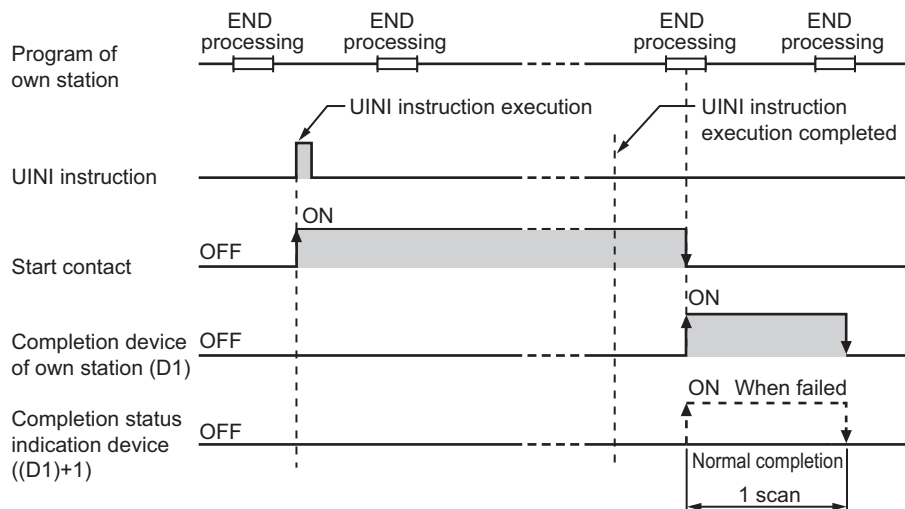
(b) Checking the execution status of the UINI instruction

The execution status of the UINI instruction (Normal completion, Error completion) can be checked with the following devices specified in the setting data.

- Completion device (D1)
Turns ON in the END processing for the scan after completion of the UINI instruction, and goes OFF in the next END processing.
- Completion status indication device ((D1)+1)
Turns ON in the END processing for the scan after completion of the UINI instruction, and turns OFF in the next END processing, only when the UINI instruction has failed.

(c) Operation in UINI instruction execution

- Operation of the own station



(4) Error


When a dedicated instruction failed, the error details can be confirmed by either of the following methods.

(a) With the programming tool

The error details can be checked in the CC IE Control diagnostics. ( Page 526, Section 10.3)

(b) Checking devices

Completion status indication device ((D1)+1) is turned ON, and an error code is stored in Completion status ((S1+1) of control data.

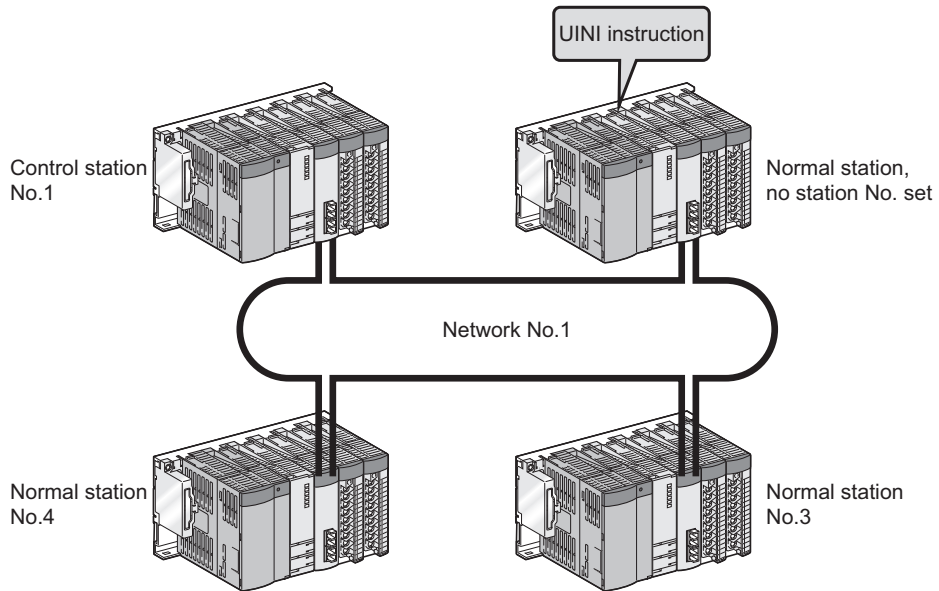
Check the error and take corrective actions according to the error code. ( Page 511, Section 10.2)

(5) Program example

In the following program, when M1 turns ON, station No.2 is set.

(a) System configuration example

The CC-Link IE Controller Network module is mounted in slot 0 of the base unit.



(b) Parameter setting (Page 180, Section 6.2)

Select "Specify Station No. by Program" in the network parameters.

Module 1	
Network Type	CC IE Control(Normal Station) ▼
Start I/O No.	0000
Network No.	1
Total Stations	
Group No.	0
Station No.	
Mode	Online ▼
	Refresh Parameters
	Interrupt Settings
	Specify Station No. by Program ▼


9.18 Z(P) UINI (Station No. Setting of Own Station)

(c) Devices used in the program example

- Link special relay (SB)

Device	Description	Device	Description
SB0070	Station No. setting (own station)		—

Remark

- For details of link special relay (SB):  Page 568, Appendix 1

- Devices used by the user

Device	Description	Device	Description
M0	Control data setting command	D100 to D109	Control data
M1	Start contact	D622	Error code storage device
M5	Completion device	ZR0	Own station No.*1
M6	Completion status indication device		—

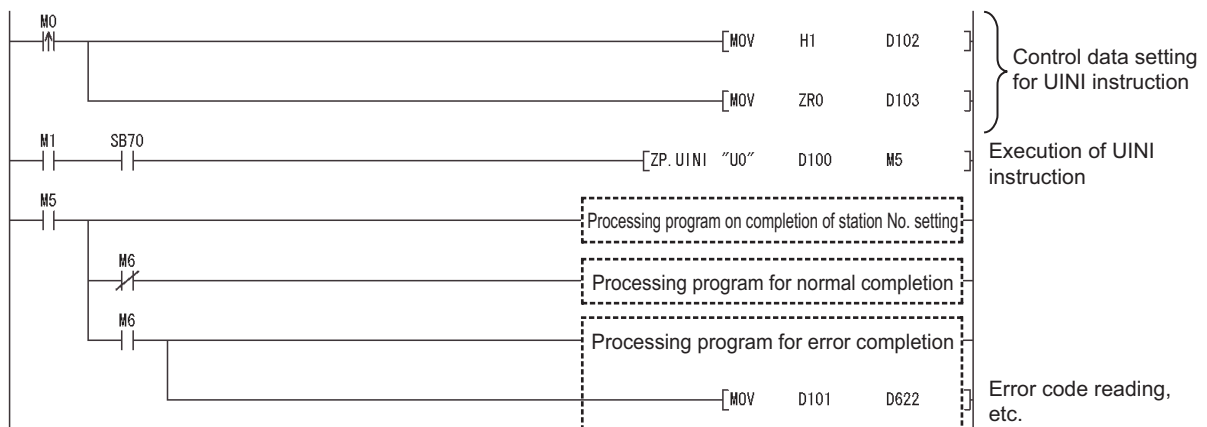
*1 Save the station No. of the own station in the latch-set device or file register.

(d) UINI instruction settings

Control data settings for the UINI instruction are shown below.

Device	Item	Set value
(S1)+0	D100	(Unused)
(S1)+1	D101	Completion status (Set by the system, no setting required)
(S1)+2	D102	Modification specification
(S1)+3	D103	Own station No.
(S1)+4 to (S1)+9	D104 to D109	(Unused)

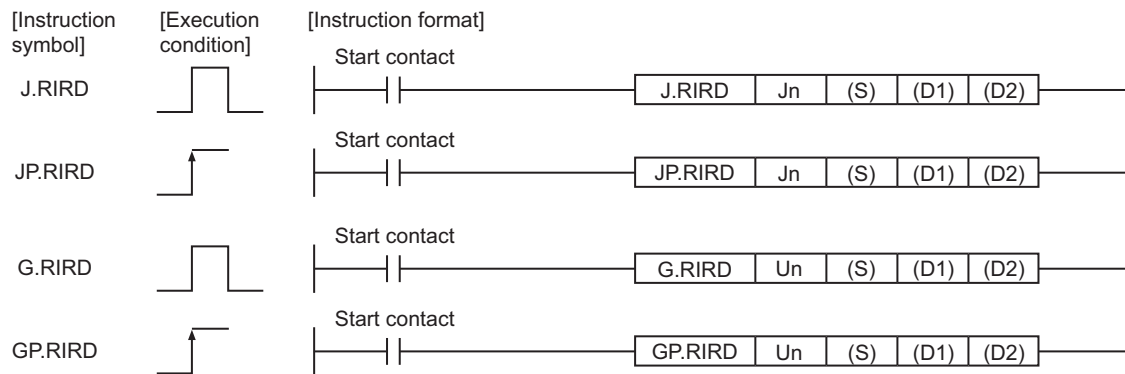
(e) Program example



9.19 J(P)/G(P).RIRD (Data Read from Programmable Controllers on Target Station)

This instruction is used to read the specified points of data from the target station device.

Setting data	Available devices								Others	
	Internal device (System, User)		File register R, ZR	Link direct device J□\□		Intelligent function module device U□\G□	Index register Zn	Constant		
	Bit	Word		Bit	Word			K,H		\$
(S)	—		○							—
(D1)	—		○							—
(D2)		○								—




(1) Setting data

Setting data*1	Description	Data type
Jn	Network number of the own station (1 to 239, 254) 254: The network specified in Valid module during other station access	Binary 16 bits
Un	Start I/O number of the own station's CC-Link IE Controller Network module (00 to FE _H ; The higher two digits of the 3-digit I/O number)	
(S)	Start device of the own station that stores control data. (Page 482, Section 9.19 (2))	Device name
(D1)	The own station's start device where readout data will be stored	
(D2)	The own station's device that is turned on for one scan upon completion of the instruction. (D2) + 1 also turns on if the instruction execution has failed.	Bit

*1 Local devices and file registers for each program cannot be used as devices used in setting data.

(2) Control data

(a) Control data

Device	Item	Setting data	Setting range	Setting side ^{*1}										
(S)+0	Completion status	The instruction completion status is stored. 0: Normal Other than 0: Error ( Page 511, Section 10.2) When the target station is other than the CC-Link IE Controller Network module, refer to the manual for the target station for error codes.	—	System										
(S)+1	Target station No.	Specify the station No. of the target station.	1 to 120	User										
(S)+2	Access code/ Attribute code	Specify an access code and an attribute code of the read target device. <table border="1" style="margin-left: auto; margin-right: auto;"> <tr> <td style="text-align: center;">b15</td> <td style="text-align: center;">to</td> <td style="text-align: center;">b8 b7</td> <td style="text-align: center;">to</td> <td style="text-align: center;">b0</td> </tr> <tr> <td colspan="2" style="text-align: center;">Access code</td> <td colspan="3" style="text-align: center;">Attribute code</td> </tr> </table>	b15	to	b8 b7	to	b0	Access code		Attribute code			Refer to (b)	User
b15	to	b8 b7	to	b0										
Access code		Attribute code												
(S)+3	Device No.	Specify the start No. of the read target device.	Within device range	User										
(S)+4	Number of points to read	Specify the size of the data to be read in units of words.	1 to 480	User										

- *1 The setting side is as shown below.
 User: Before execution of the dedicated instruction, data must be set by the user.
 System: The CPU module stores the execution result of the dedicated instruction.

(b) Access code/Attribute code

Device contents ^{*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 (present value)	T		○	Decimal	0C _H	
Retentive timer (contact)	ST	○		Decimal	89 _H	
Retentive timer (coil)	ST	○		Decimal	8A _H	
Retentive timer (present value)	ST		○	Decimal	8C _H	
Counter (contact)	C	○		Decimal	11 _H	
Counter (coil)	C	○		Decimal	12 _H	
Counter (present 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 are not accessible.

For access to a bit device, specify 0 or multiples of 16.

*2 When the target station is other than the CC-Link IE Controller Network module, refer to the manual for the target station for the access and attribute codes.

*3 The extended data register of address D65536 or higher, and the extended link register of address W10000 or higher cannot be specified.

Point

The Arrival monitoring time and Number of resends are specified in the following link special register (SW). ( Page 584, Appendix 2)

- Arrival monitoring time (RIRD/RIWT instruction) (SW0009)
- Number of resends (RIRD/RIWT instruction) (SW000B)

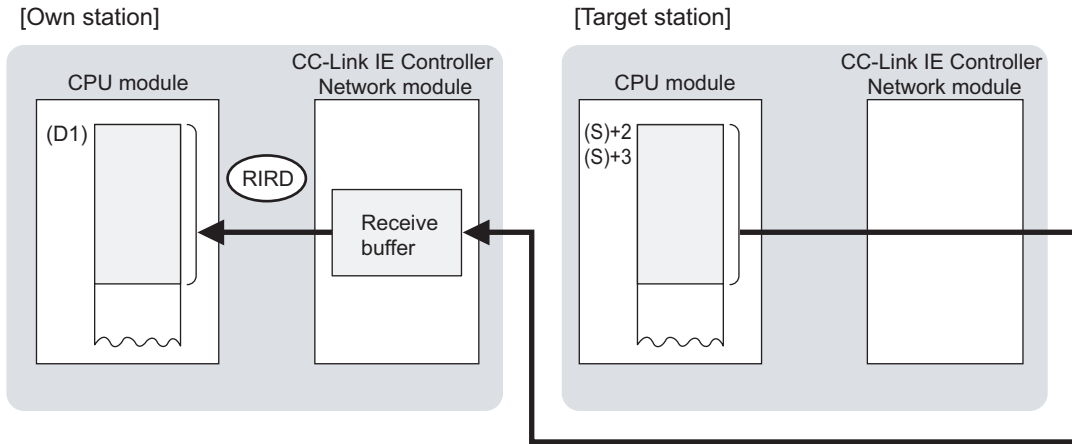
(3) Function

(a) RIRD instruction overview

This instruction allows access to the CPU module device specified in (S)+2 and (S)+3 of the station specified in (S)+1.

The read data are stored in the receive buffer of the CC-Link IE Controller Network module.

The read data are stored in and after the device specified in (D1), and the device specified in (D2) is set to on.



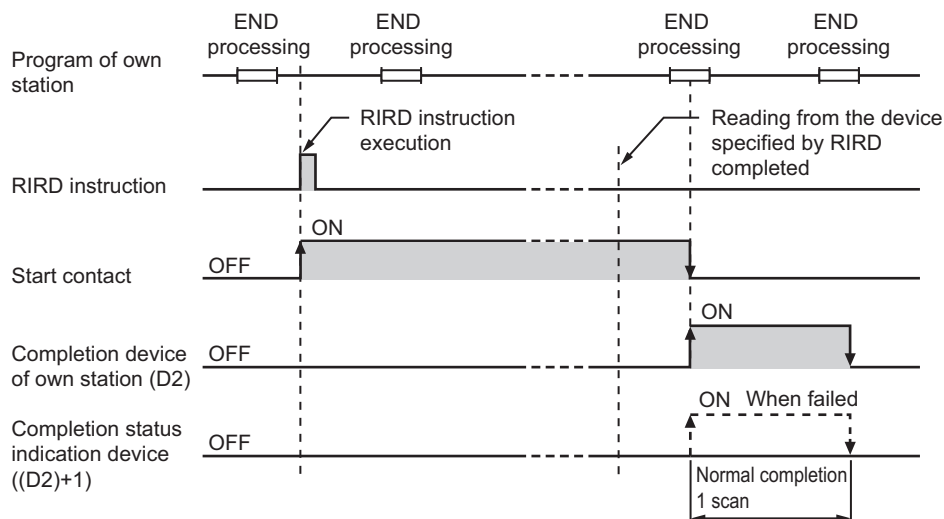
(b) Checking the execution status of the RIRD instruction

The execution status of the RIRD instruction (Normal completion, Error completion) can be checked with the following devices specified in the setting data.

- Completion device (D2)
Turns ON in the END processing for the scan after completion of the RIRD instruction, and turns OFF in the next END processing.
- Completion status indication device ((D2)+1)
Turns ON in the END processing for the scan after completion of the RIRD instruction, and turns OFF in the next END processing, only when the RIRD instruction has failed.

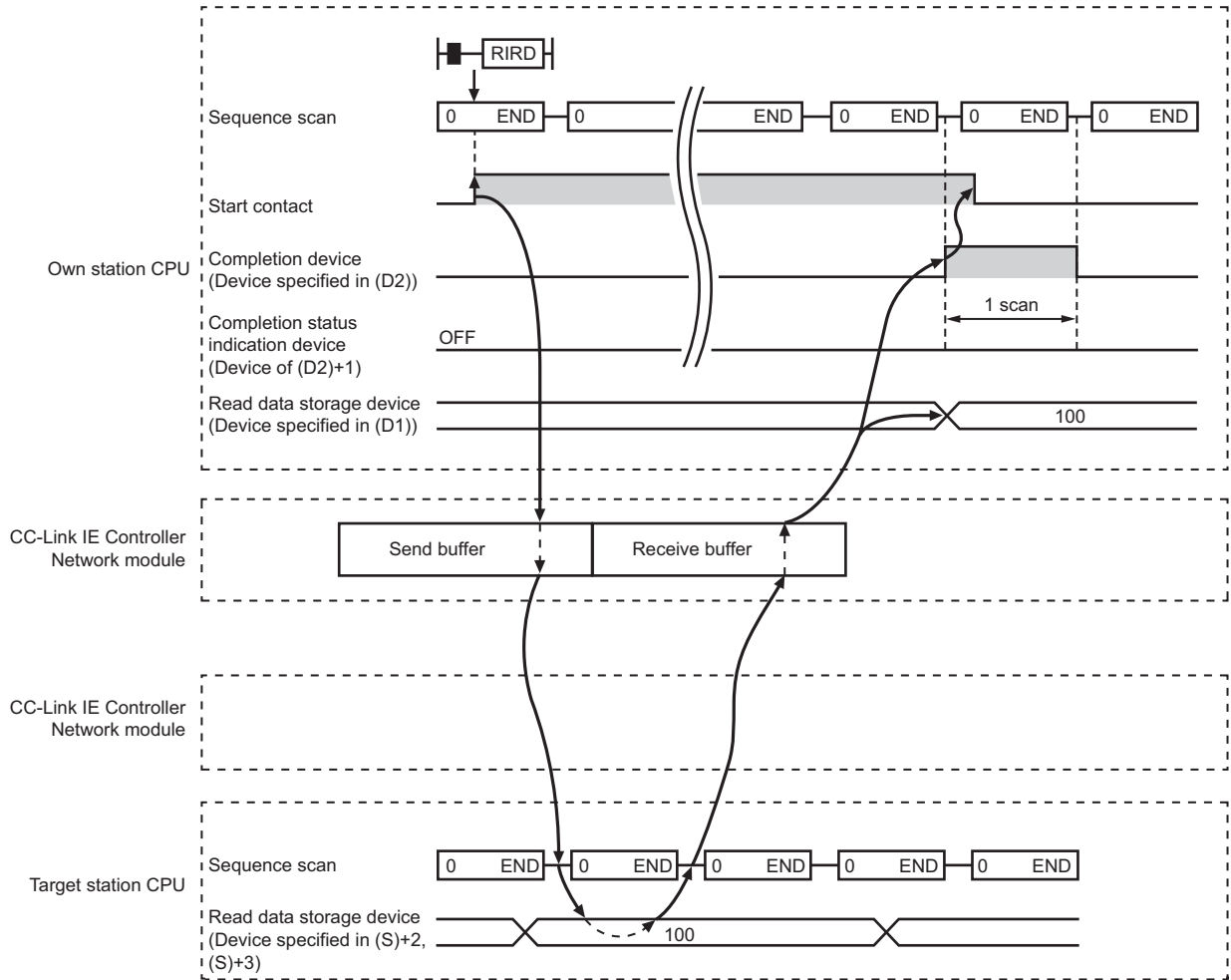
(c) Operation in RIRD instruction execution

- Operation of the own station



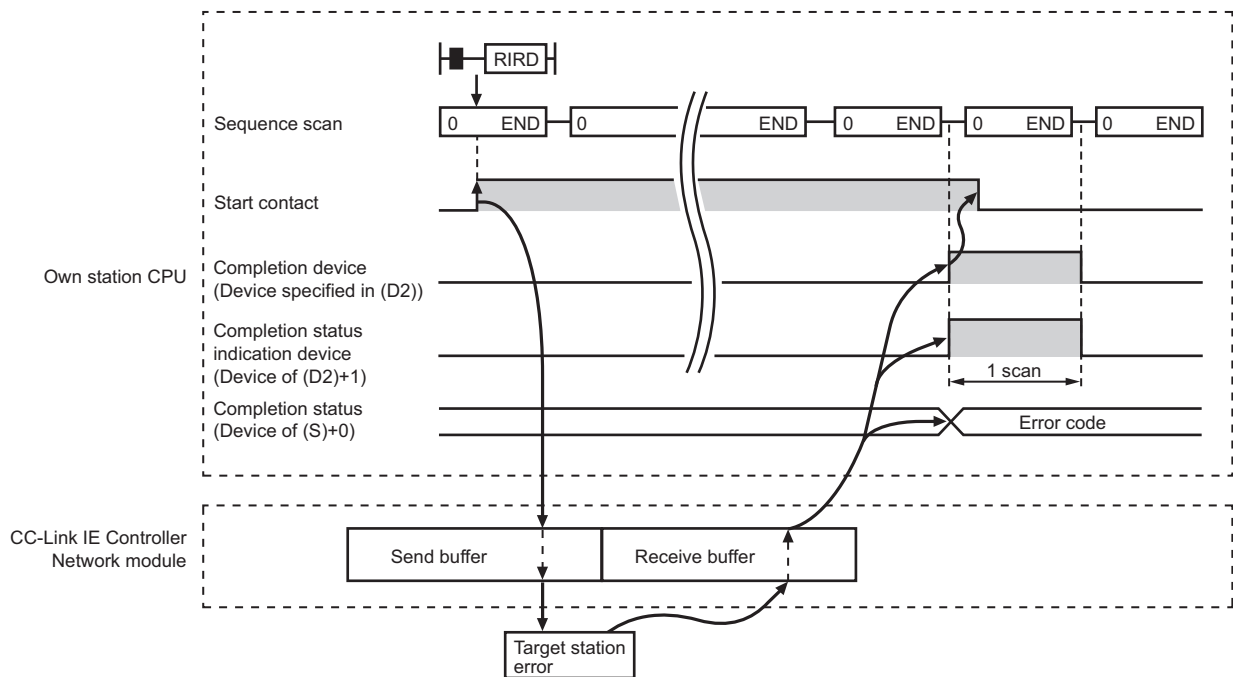
(d) RIRD instruction execution timing

- When completed normally



9.19 J(P)/G(P), RIRD (Data Read from Programmable Controllers on Target Station)

- When failed



(4) Error

When a dedicated instruction failed, the error details can be confirmed by either of the following methods.

(a) With the programming tool

The error details can be checked in the CC IE Control diagnostics. (☞ Page 526, Section 10.3)

(b) Checking devices

Completion status indication device ((D2)+1) is turned ON, and an error code is stored in Completion status ((S)+0) of control data.

Check the error and take corrective actions according to the error code. (☞ Page 511, Section 10.2)

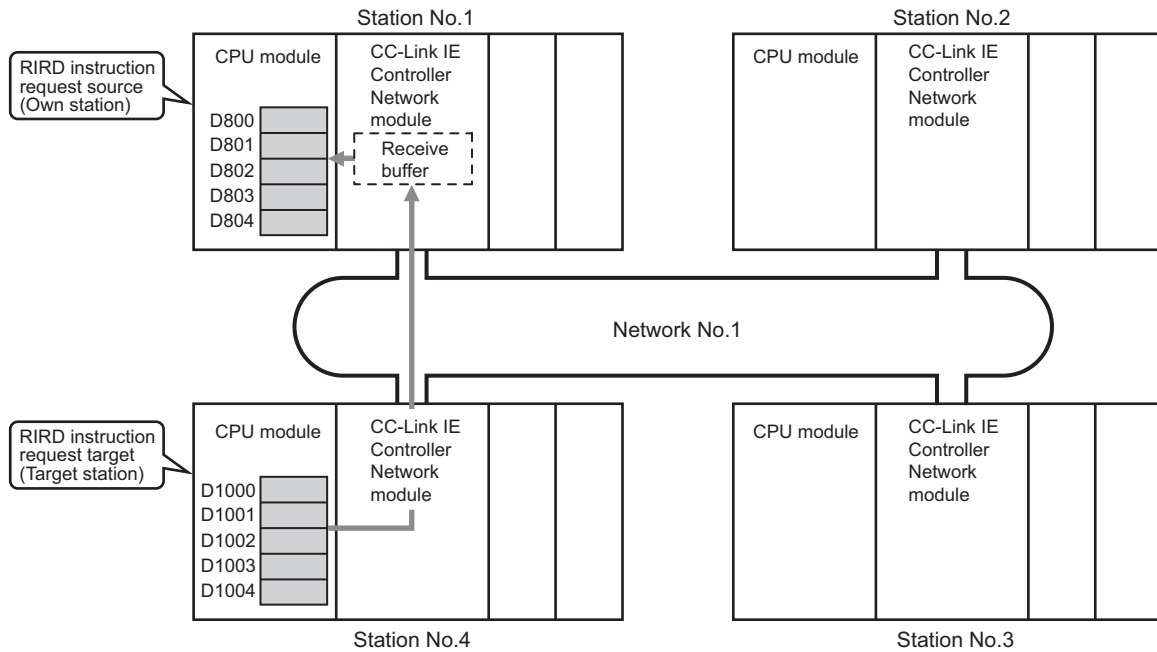
(5) Access to a CC-Link IE Controller Network compatible device

For the access and attribute codes, error codes, and processing time of the target station, refer to the manual for the target station.

(6) Program example

In this program example, when M200 turns ON, data in D1000 to D1004 of station No.4 (target station) are read out to D800 to D804 of station No.1 (own station).

(a) System configuration example



(b) Devices used in the program example

- Link special relay (SB) and link special register (SW)

Device	Description	Device	Description
SB0047	Baton pass status (own station)	SW00A0.3	Baton pass status of station No.4

Remark

- For details of link special relay (SB): Page 568, Appendix 1
- For details of link special register (SW): Page 584, Appendix 2

- Devices used by the user

Device	Description	Device	Description
M200	Start contact	D400 to D404	Control data
M201	RIRD executing flag	D624	Error code storage device
M205	Completion device	D800 to D804	Read data storage device (station No.1)
M206	Completion status indication device		—

9.19 J(P)/G(P), RIRD (Data Read from Programmable Controllers on Target Station)

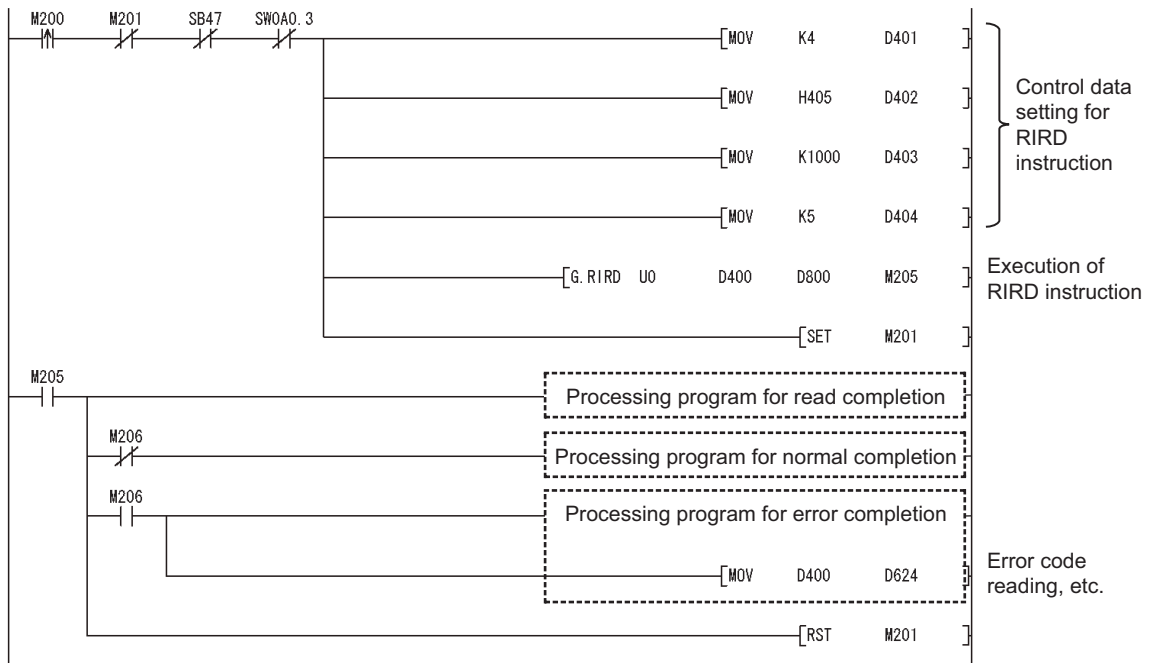
(c) RIRD instruction settings

Control data settings for the RIRD instruction are shown below.

Device		Item	Set value
(S)+0	D400	Completion status	— (Set by the system, no setting required)
(S)+1	D401	Target station No.	4
(S)+2	D402	Access code/Attribute code	0405 _H (Data register (D))
(S)+3	D403	Device No.	1000
(S)+4	D404	Number of points to read	5

(d) Program example

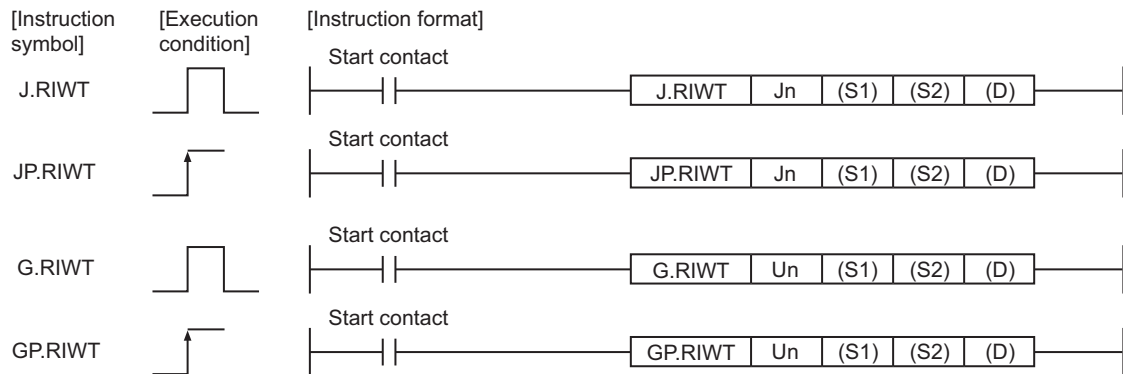
The following example program is written to the CPU module of station No.1.



9.20 J(P)/G(P).RIWT (Data Write to Programmable Controllers on Target Station)

This instruction writes the specified points of data to the target station's device.

Setting data	Available devices								Others	
	Internal device (System, User)		File register R, ZR	Link direct device J□\□		Intelligent function module device U□\G□	Index register Zn	Constant		
	Bit	Word		Bit	Word			K,H		\$
(S1)	—		○						—	
(S2)	—		○						—	
(D)		○							—	




(1) Setting data

Setting data *1	Description	Data type
Jn	Network number of the own station (1 to 239, 254) 254: The network specified in Valid module during other station access	Binary 16 bits
Un	Start I/O number of the own station's CC-Link IE Controller Network module (00 to FE _H ; The higher two digits of the 3-digit I/O number)	
(S1)	Start device of the own station that stores control data. (Page 490, Section 9.20 (2))	Device name
(S2)	The own station's start device where write data are stored.	
(D)	The own station's device that is turned on for one scan upon completion of the instruction. (D) + 1 also turns on if the instruction execution has failed.	Bit

*1 Local devices and file registers for each program cannot be used as devices used in setting data.

(2) Control data

(a) Control data

Device	Item	Setting data	Setting range	Setting side ^{*1}												
(S)+0	Completion status	The instruction completion status is stored. 0: Normal Other than 0: Error ( Page 511, Section 10.2) When the target station is other than the CC-Link IE Controller Network module, refer to the manual for the target station for error codes.	—	System												
(S)+1	Target station No.	Specify the station No. of the target station.	1 to 120	User												
(S)+2	Access code/ Attribute code	Specify the access and attribute codes of the write target device. <table border="1" style="margin-left: auto; margin-right: auto;"> <tr> <td style="text-align: center;">b15</td> <td style="text-align: center;">to</td> <td style="text-align: center;">b8</td> <td style="text-align: center;">b7</td> <td style="text-align: center;">to</td> <td style="text-align: center;">b0</td> </tr> <tr> <td colspan="3" style="text-align: center;">Access code</td> <td colspan="3" style="text-align: center;">Attribute code</td> </tr> </table>	b15	to	b8	b7	to	b0	Access code			Attribute code			Refer to (b)	User
b15	to	b8	b7	to	b0											
Access code			Attribute code													
(S)+3	Device No.	Specify the start No. of the device to which data are written.	Within device range	User												
(S)+4	Number of points to write	Specify the size of the data to be written in units of words.	1 to 480	User												

*1 The setting side is as shown below.

User: Before execution of the dedicated instruction, data must be set by the user.

System: The CPU module stores the execution result of the dedicated instruction.

(b) Access code/Attribute code

Device contents *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 (present value)	T		○	Decimal	0C _H	
Retentive timer (contact)	ST	○		Decimal	89 _H	
Retentive timer (coil)	ST	○		Decimal	8A _H	
Retentive timer (present value)	ST		○	Decimal	8C _H	
Counter (contact)	C	○		Decimal	11 _H	
Counter (coil)	C	○		Decimal	12 _H	
Counter (present 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 are not accessible.

For access to a bit device, specify 0 or multiples of 16.

*2 When the target station is other than the CC-Link IE Controller Network module, refer to the manual for the target station for the access and attribute codes.

*3 The extended data register of address D65536 or higher, and the extended link register of address W10000 or higher cannot be specified.

Point

The Arrival monitoring time and Number of resends are specified in the following link special register (SW). ( Page 584, Appendix 2)

- Arrival monitoring time (RIRD/RIWT instruction) (SW0009)
- Number of resends (RIRD/RIWT instruction) (SW000B)

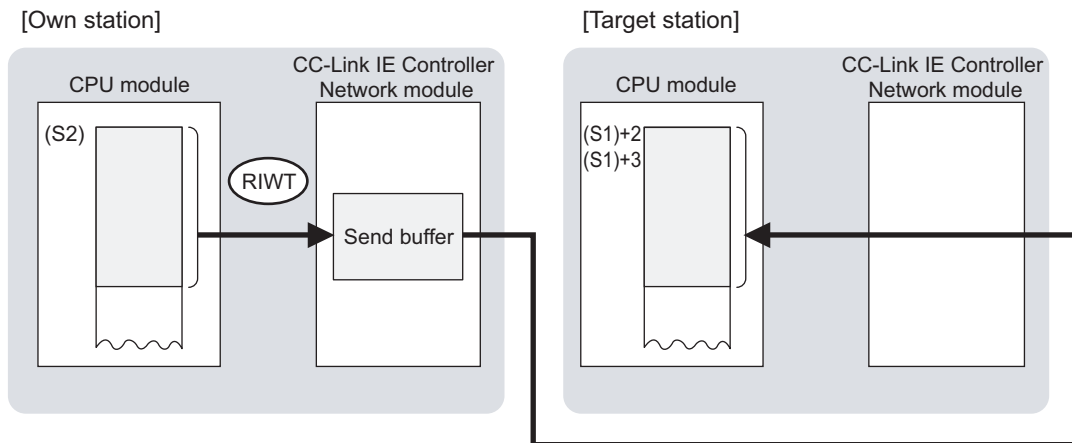
(3) Function

(a) RIWT instruction overview

Data to be written to the target station are stored in the send buffer of the CC-Link IE Controller Network module.

The data specified in (S2) are written to the CPU module device specified in (S1)+2 and (S1)+3 of the station specified in (S1)+1.

When a response informing of write completion is returned from the target station, the device specified in (D) is set to on.



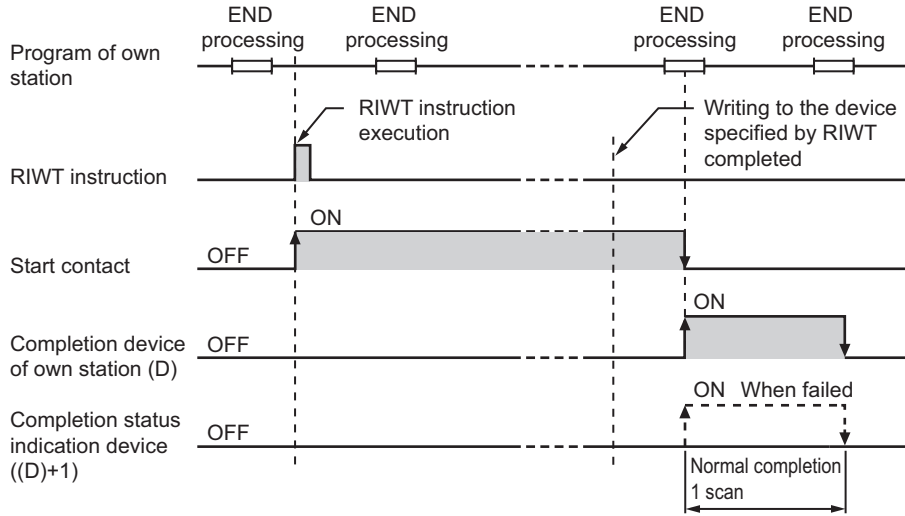
(b) Checking the execution status of the RIWT instruction

The execution status of the RIWT instruction (Normal completion, Error completion) can be checked with the following devices specified in the setting data.

- Completion device (D)
Turns ON in the END processing for the scan after completion of the RIWT instruction, and turns OFF in the next END processing.
- Completion status indication device ((D)+1)
Turns ON in the END processing for the scan after completion of the RIWT instruction, and turns OFF in the next END processing, only when the RIWT instruction has failed.

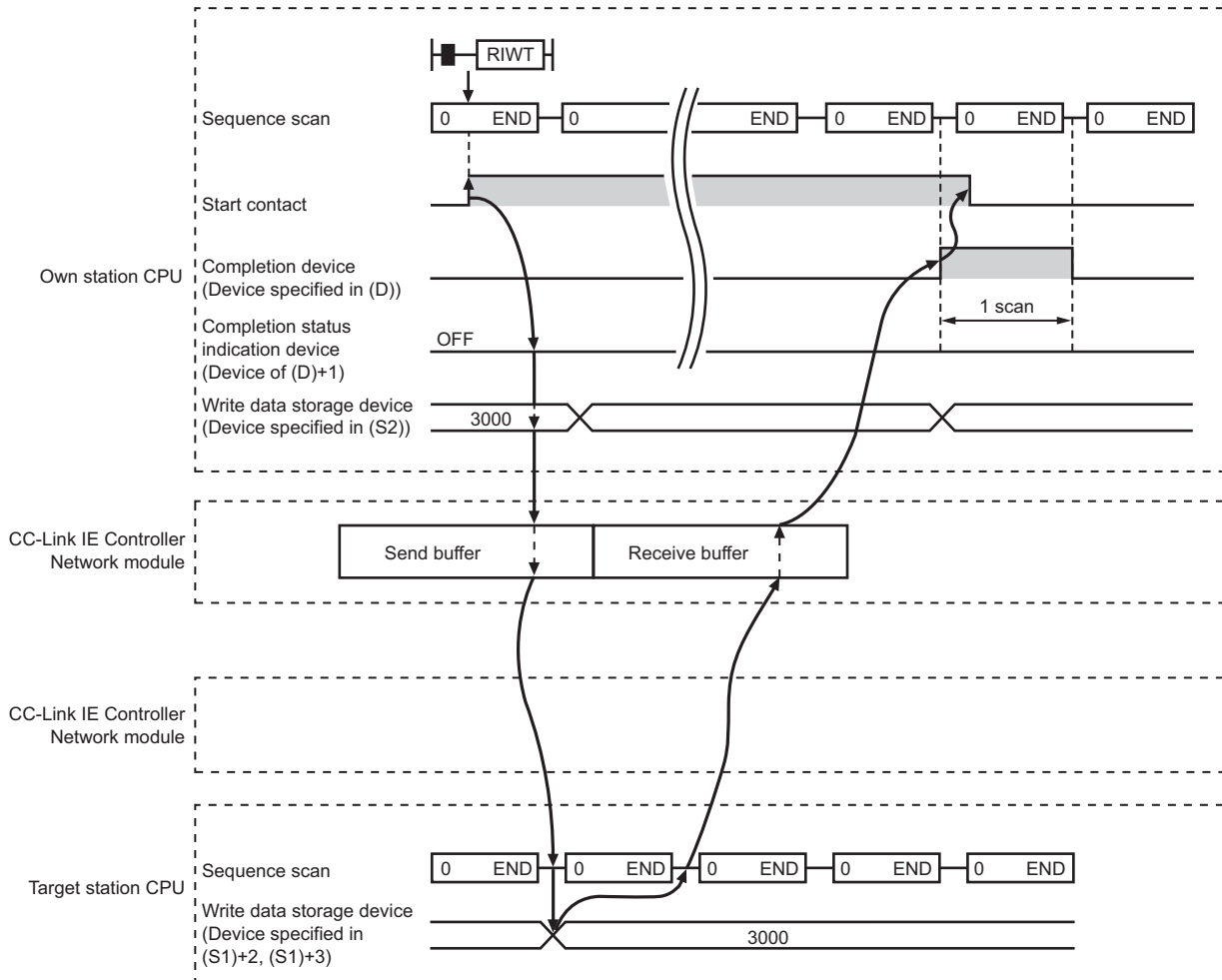
(c) Operation in RIWT instruction execution

- Operation of the own station



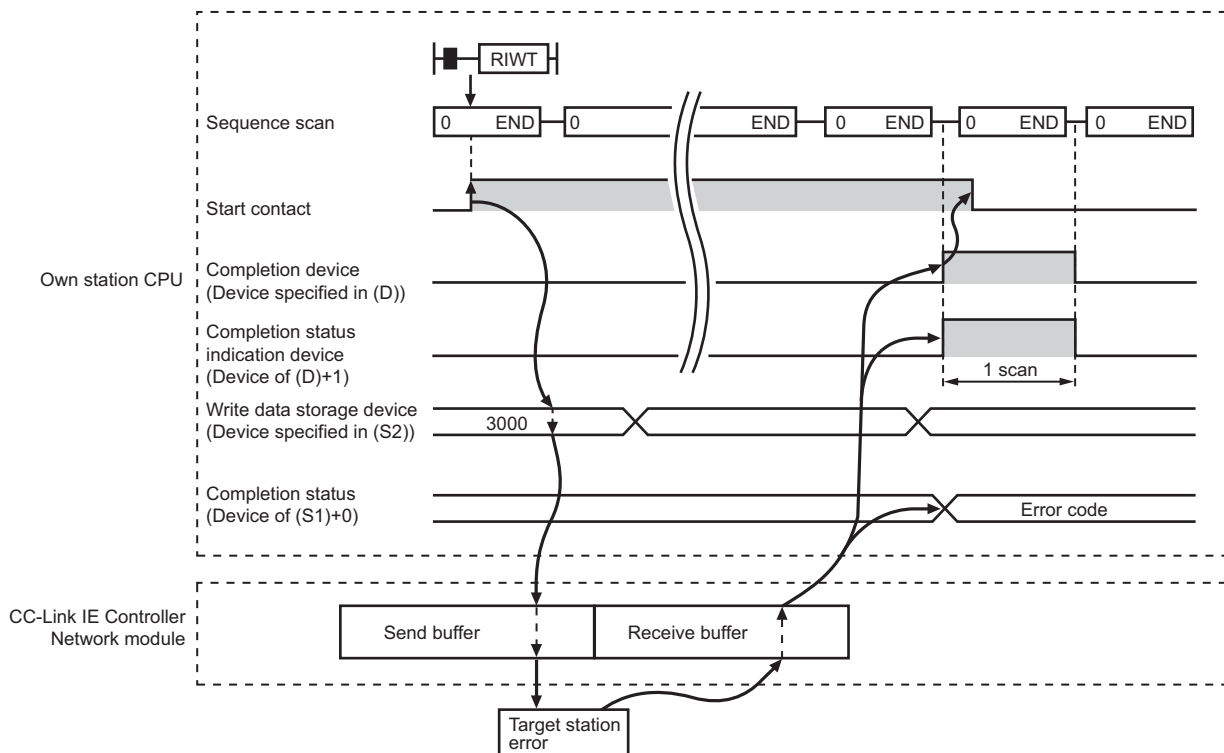
(d) RIWT instruction execution timing

- When completed normally



9.20 J(P)/G(P), RIWT (Data Write to Programmable Controllers on Target Station)

- When failed



(4) Error

When a dedicated instruction failed, the error details can be confirmed by either of the following methods.

(a) With the programming tool

The error details can be checked in the CC IE Control diagnostics. ( Page 526, Section 10.3)

(b) Checking devices

Completion status indication device ((D)+1) is turned ON, and an error code is stored in Completion status ((S1)+0) of control data.

Check the error and take corrective actions according to the error code. ( Page 511, Section 10.2)

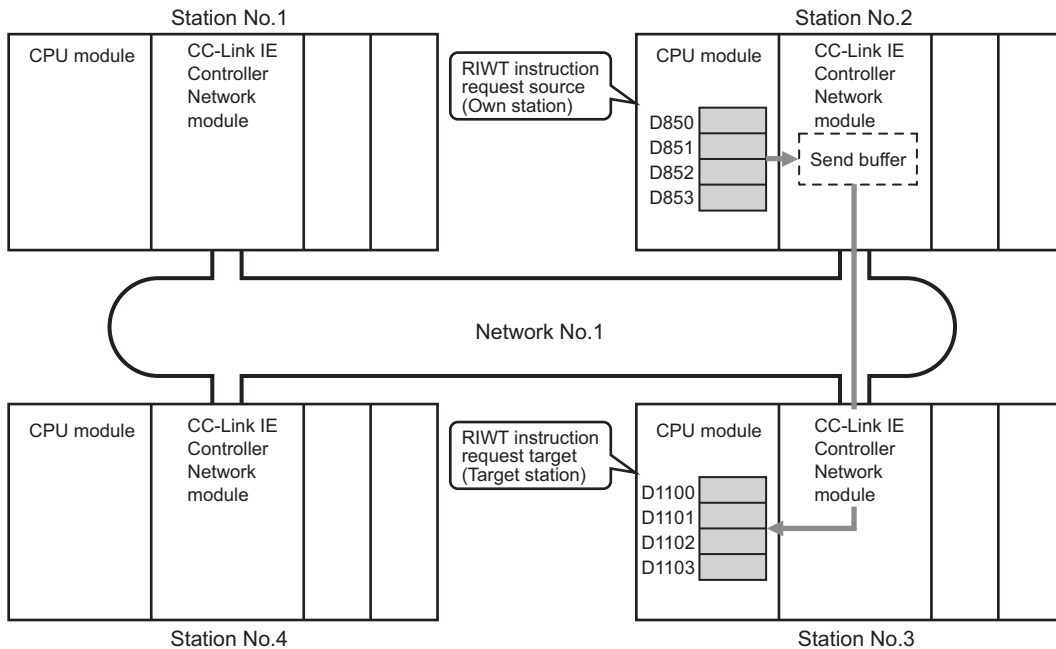
(5) Access to a CC-Link IE Controller Network compatible device

For the access and attribute codes, error codes, and processing time of the target station, refer to the manual of the target station.

(6) Program example

In this program example, when M210 turns ON, data in D850 to D853 of station No.2 (own station) are written to D1100 to D1103 of station No.3 (target station).

(a) System configuration example



(b) Devices used in the program example

- Link special relay (SB) and link special register (SW)

Device	Description	Device	Description
SB0047	Baton pass status (own station)	SW00A0.2	Baton pass status of station No.3

Remark

- For details of link special relay (SB): Page 568, Appendix 1
- For details of link special register (SW): Page 584, Appendix 2

- Devices used by the user

Device	Description	Device	Description
M210	Start contact	D420 to D424	Control data
M211	RIWT executing flag	D626	Error code storage device
M215	Completion device	D850 to D853	Write data storage device (station No.2)
M216	Completion status indication device		—

9.20 J(P)/G(P), RIWT (Data Write to Programmable Controllers on Target Station)

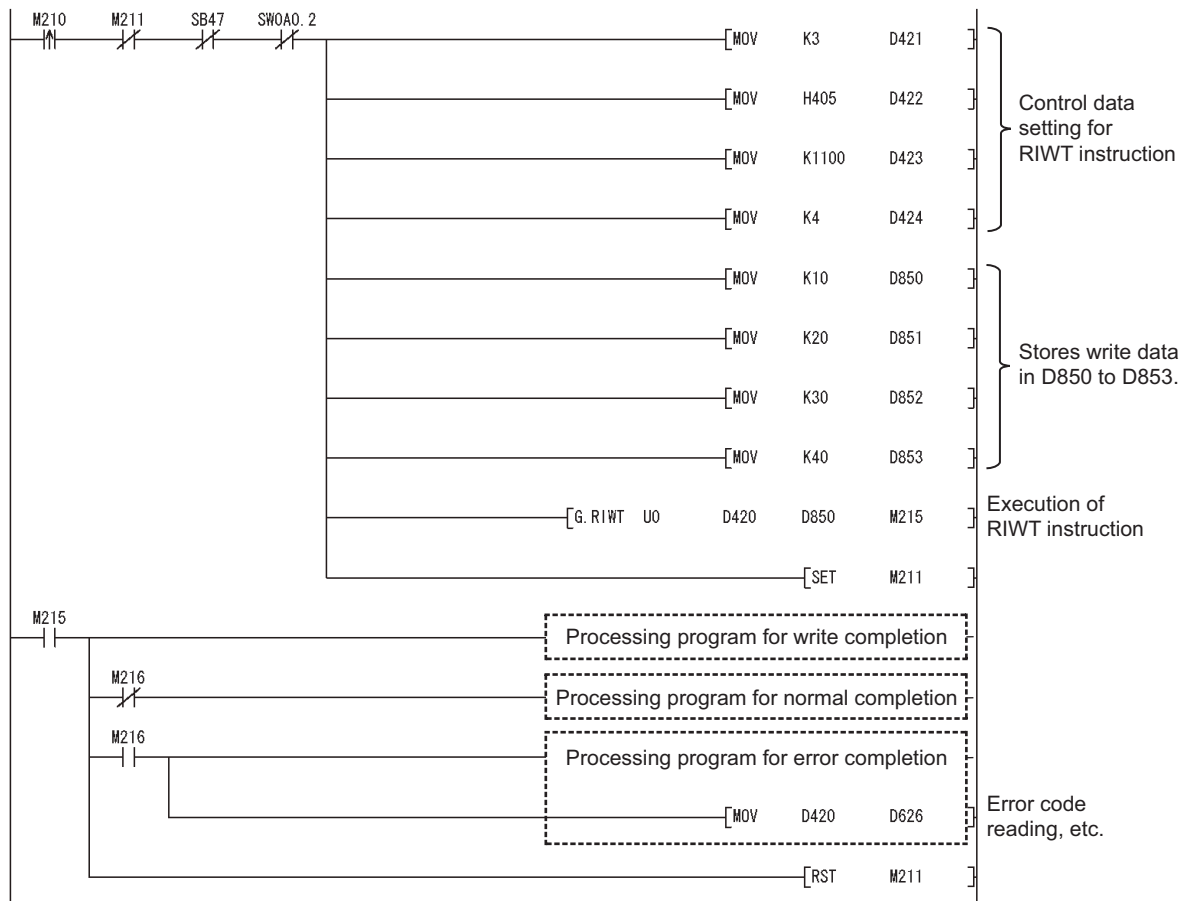
(c) RIWT instruction settings

Control data settings for the RIWT instruction are shown below.

Device	Item	Set value
(S1)+0	D420	Completion status (Set by the system, no setting required)
(S1)+1	D421	Target station No. 3
(S1)+2	D422	Access code/Attribute code 0405 _H (Data register (D))
(S1)+3	D423	Device No. 1100
(S1)+4	D424	Number of points to write 4

(d) Program example

The following example program is written to the CPU module of station No.2.

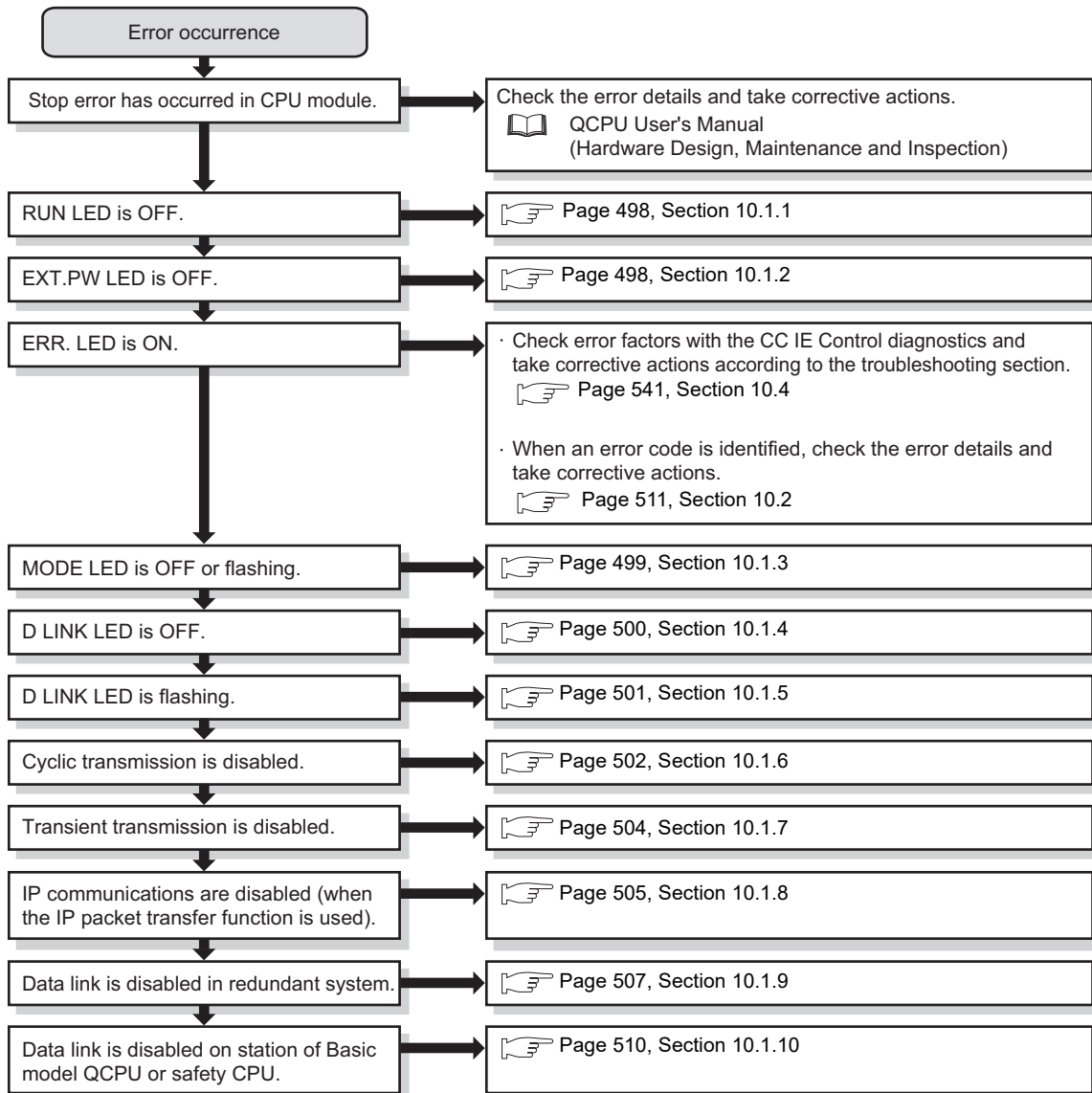


CHAPTER 10 TROUBLESHOOTING

This chapter describes the detection of errors and the error description and corrective action toward error codes.

10.1 Troubleshooting Flow

Error description is explained according to types of errors.



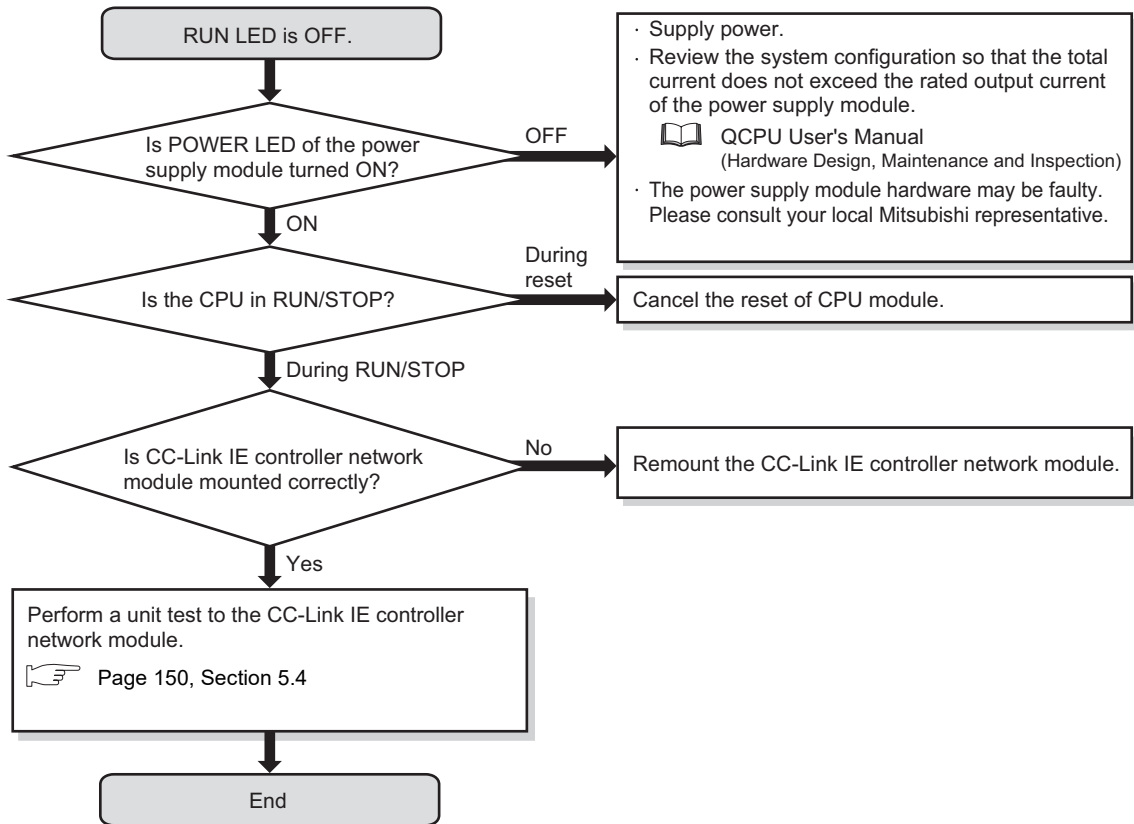
Point

To take corrective action toward errors immediately at the system operation, perform the following tests before system operation and check that the system operates normally.

- Testing the CC-Link IE Controller Network Module: [Page 150, Section 5.4](#)
- Tests for CC-Link IE Controller Network Startup: [Page 164, Section 5.6](#)
- Test Before CC-Link IE Controller Network Operation: [Page 174, Section 5.7](#)

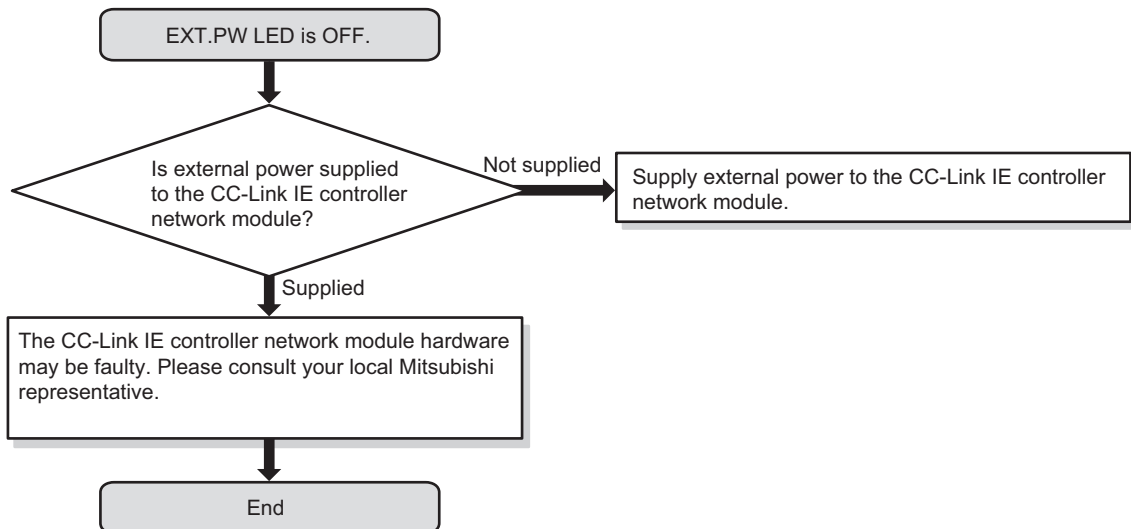
10.1.1 RUN LED is OFF

The following flowchart shows the procedures to be taken when RUN LED is OFF.



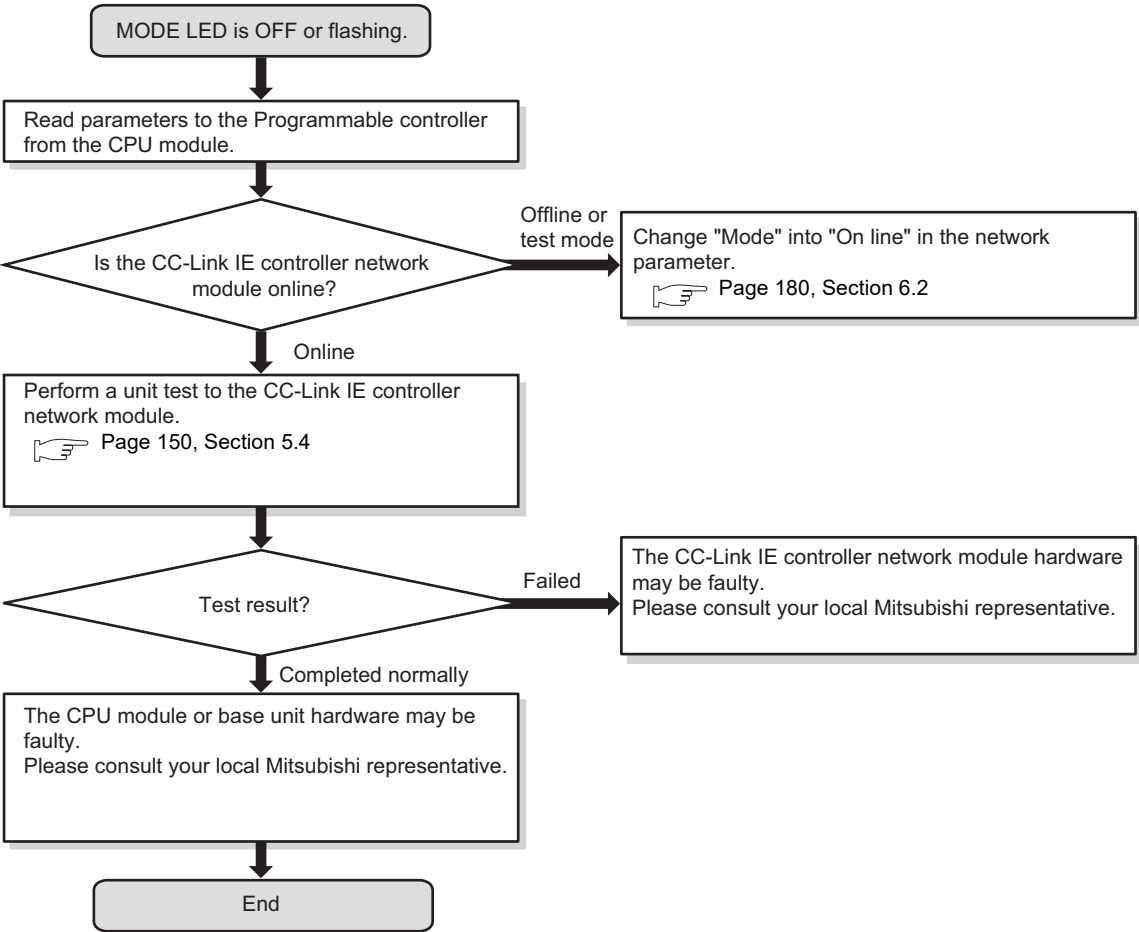
10.1.2 EXT.PW LED is OFF

The following flowchart shows the procedures to be taken when the EXT.PW LED is OFF.



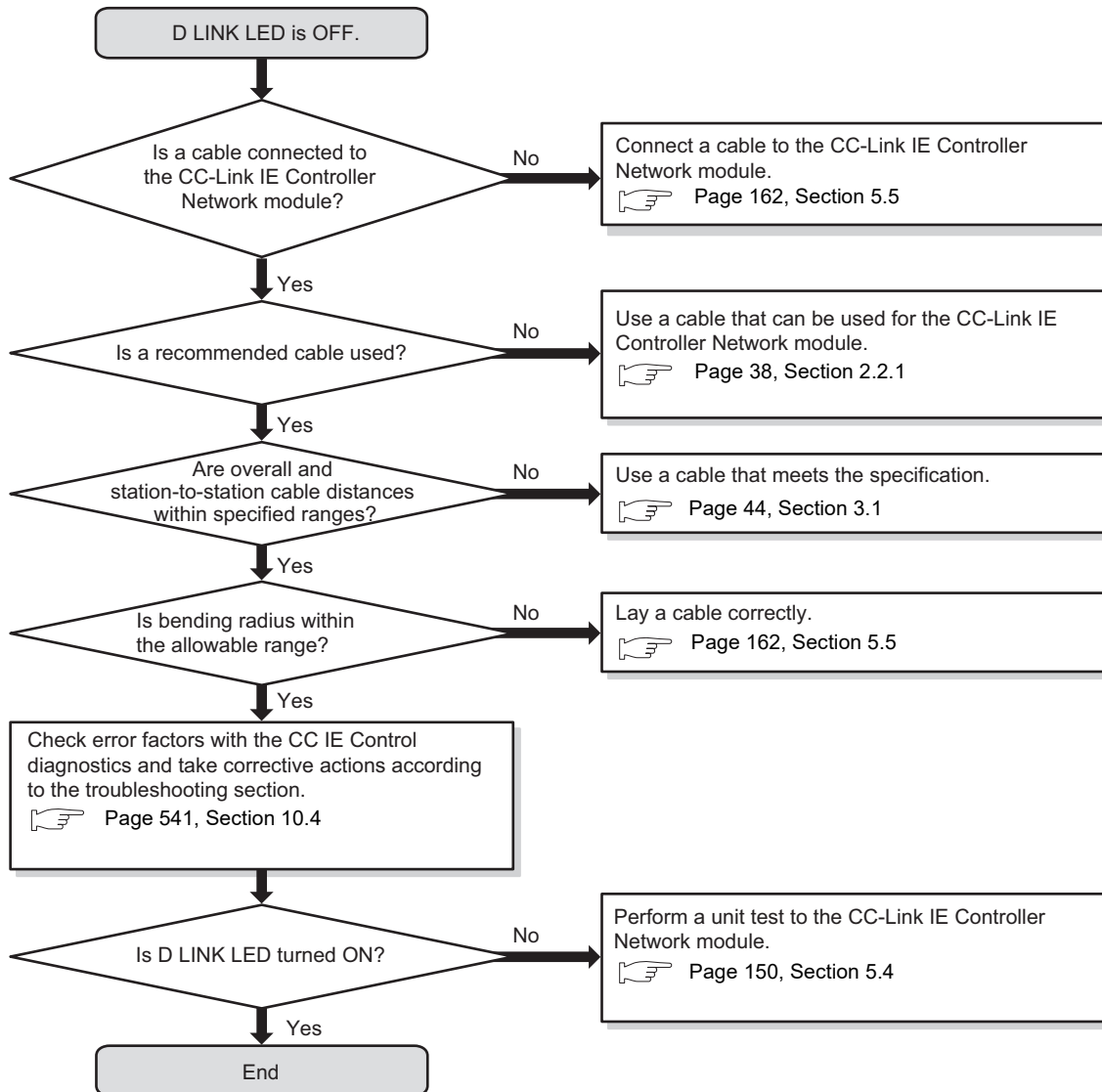
10.1.3 MODE LED is OFF or flashing

The following flowchart shows the procedures to be taken when MODE LED is OFF or flashing.



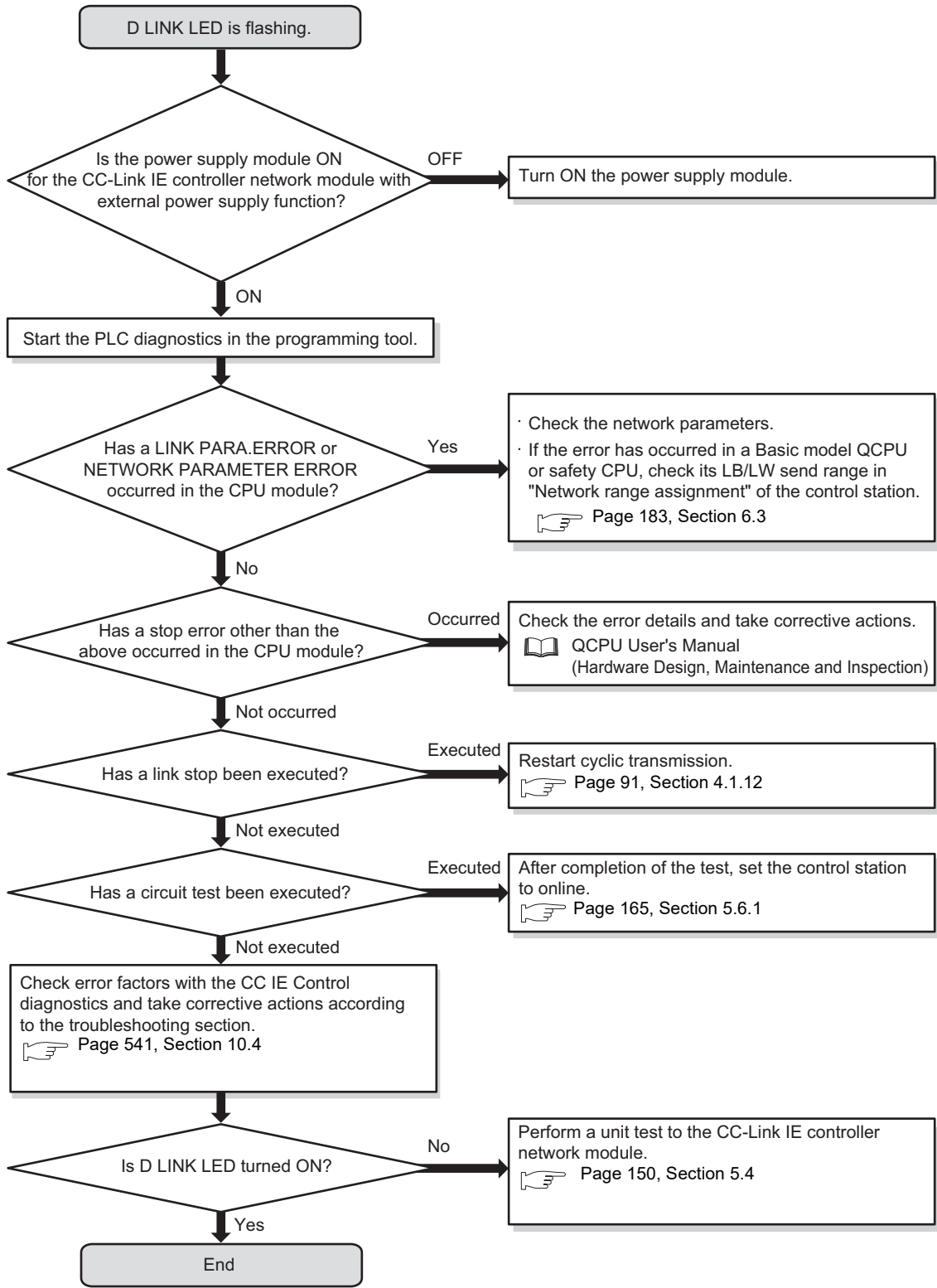
10.1.4 D LINK LED is OFF

The following flowchart shows the procedures to be taken when D LINK LED is OFF.



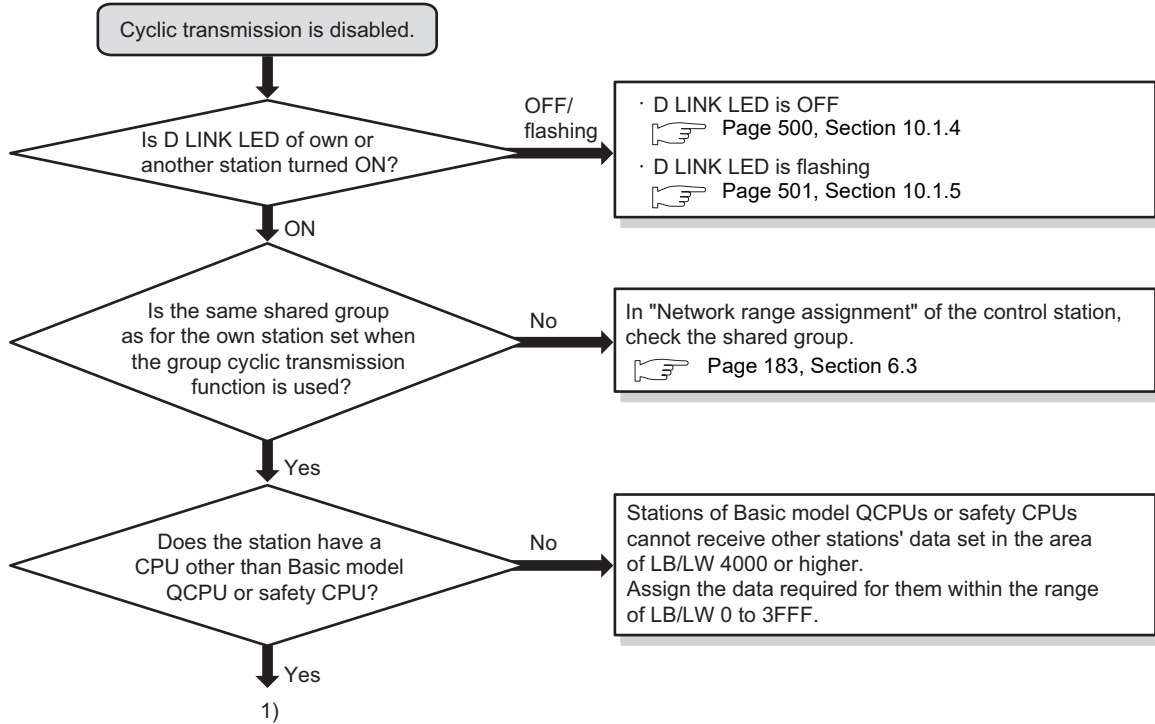
10.1.5 D LINK LED is flashing

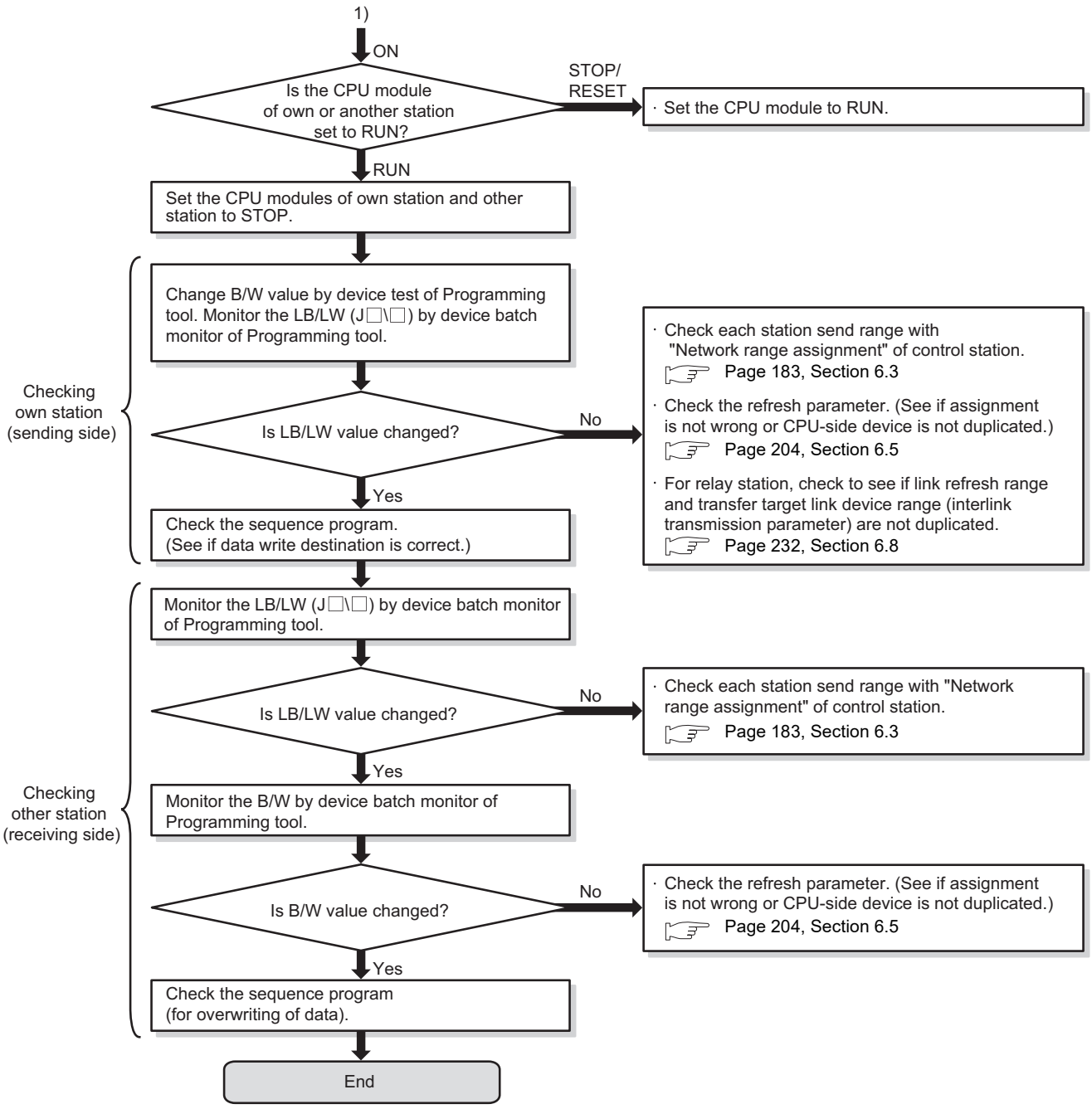
The following flowchart shows the procedures to be taken when D LINK LED is flashing.



10.1.6 Cyclic transmission is disabled

The following flowchart shows the procedures to be taken when cyclic transmission is disabled.

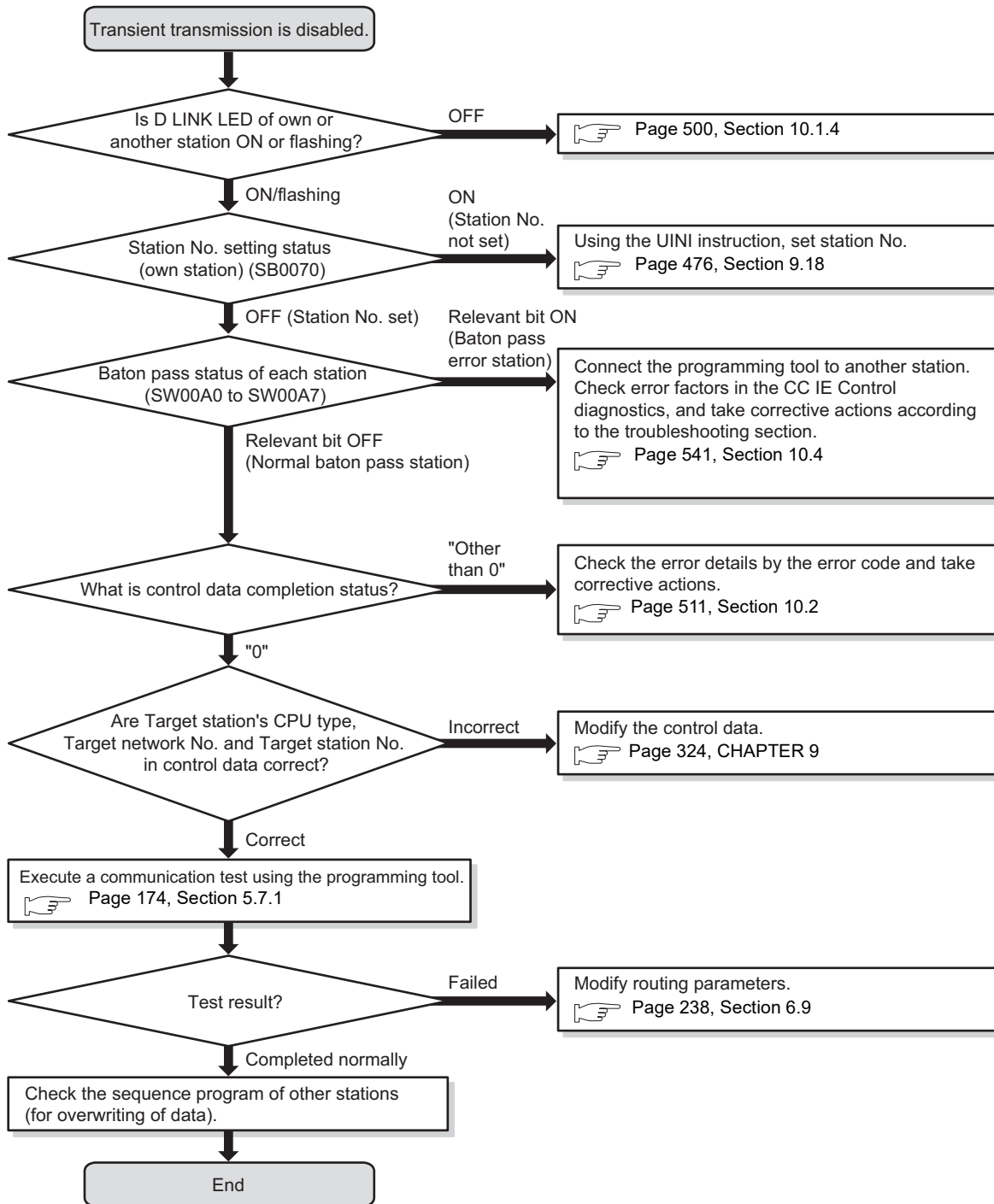




10.1 Troubleshooting Flow
10.1.6 Cyclic transmission is disabled

10.1.7 Transient transmission is disabled

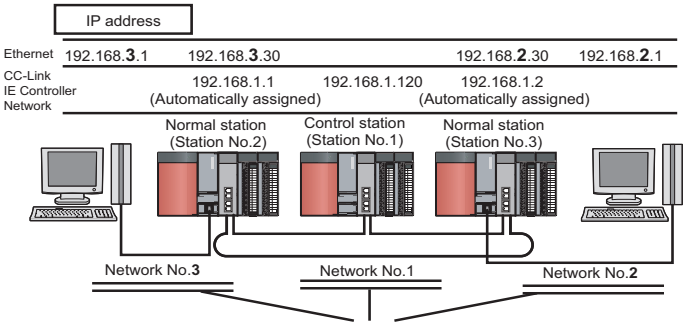
The following flowchart shows the procedures to be taken when transient transmission is disabled.



10.1.8 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 113, Section 4.3.3)

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 109, Section 4.3.2 (1))
Is the IP address already in use?	<ul style="list-style-type: none"> For the Ethernet device, set the IP address different from that of other devices on the network, such as a CPU module and CC-Link IE Controller Network module. 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?	<ul style="list-style-type: none"> Check and correct the routing parameters. (☞ Page 111, Section 4.3.2 (2)) 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.)	<p>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.</p>  <p>The diagram illustrates a network configuration with three stations: Normal station (Station No.2), Control station (Station No.1), and Normal station (Station No.3). These stations are connected to three networks: Network No.3, Network No.1, and Network No.2. Above the stations, IP addresses are listed for Ethernet and CC-Link IE Controller Network. The Ethernet IP addresses are 192.168.3.1, 192.168.3.30, 192.168.2.30, and 192.168.2.1. The CC-Link IE Controller Network IP addresses are 192.168.1.1 and 192.168.1.120, both labeled as 'Automatically assigned'. A box labeled 'IP address' points to the third octet of the IP addresses. Below the diagram, it is noted that the network numbers should be changed to those not used for other stations.</p>
Are settings configured in modules connected to the Ethernet device correct? <ul style="list-style-type: none"> First and second octets of the IP address Subnet mask pattern Default router IP address 	Check and correct the settings,
Are the firewall and proxy server enabled on the Ethernet device?	<p>Check and correct the firewall and proxy server settings on the Ethernet device.</p> <p>Ex.</p> <p>Is a response to the Ping command (ICMP echo request) enabled?</p>

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. Ex. <ul style="list-style-type: none"> • Is the security setting level of the antivirus software low? • 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?	<ul style="list-style-type: none"> • Set the same IP address in the default gateway of each Ethernet port. • 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. (This applies only to Ethernet devices that have the route command, such as Microsoft® Windows®.) 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?	<ul style="list-style-type: none"> • If an error has occurred in the switching hub, remove the error. • 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, 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 CC-Link IE Controller Network module to check for an error.

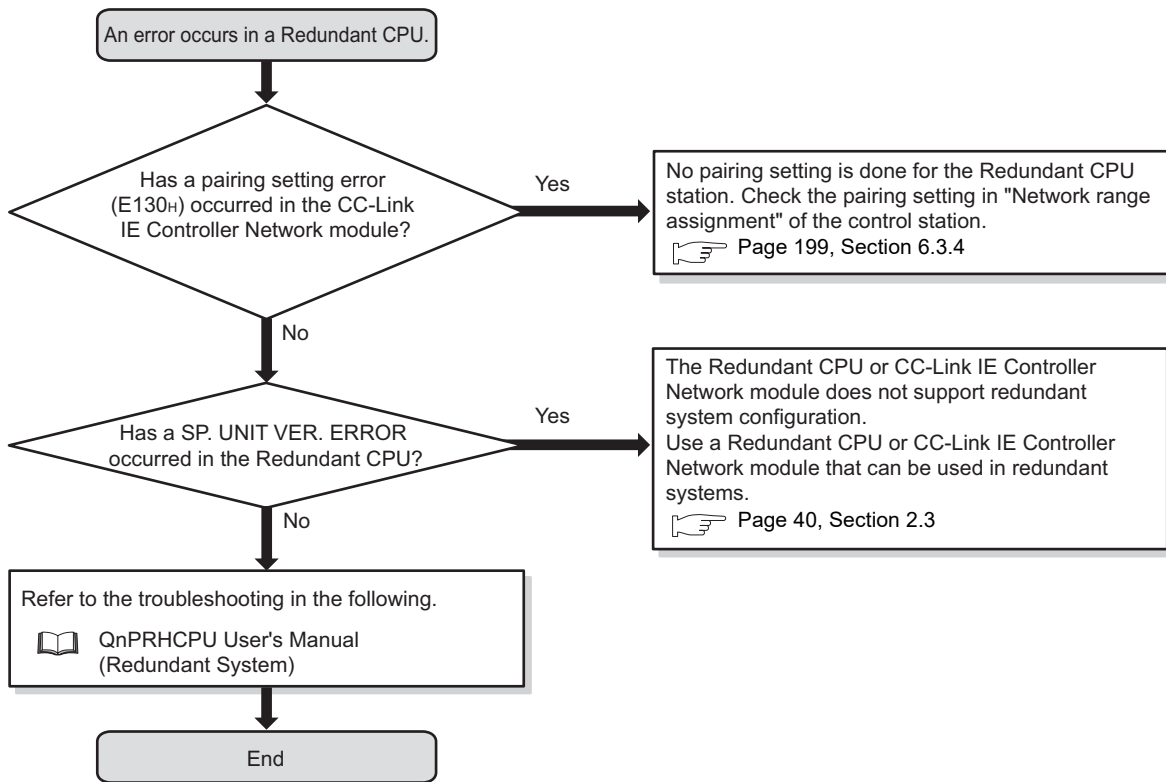
- Hardware test (☞ Page 152, Section 5.4.1)
- Self-loopback test (☞ Page 157, Section 5.4.2)
- Station-to-station test (☞ Page 169, Section 5.6.2)

10.1.9 Data link is disabled in the redundant system

(1) When an error occurs in a Redundant CPU

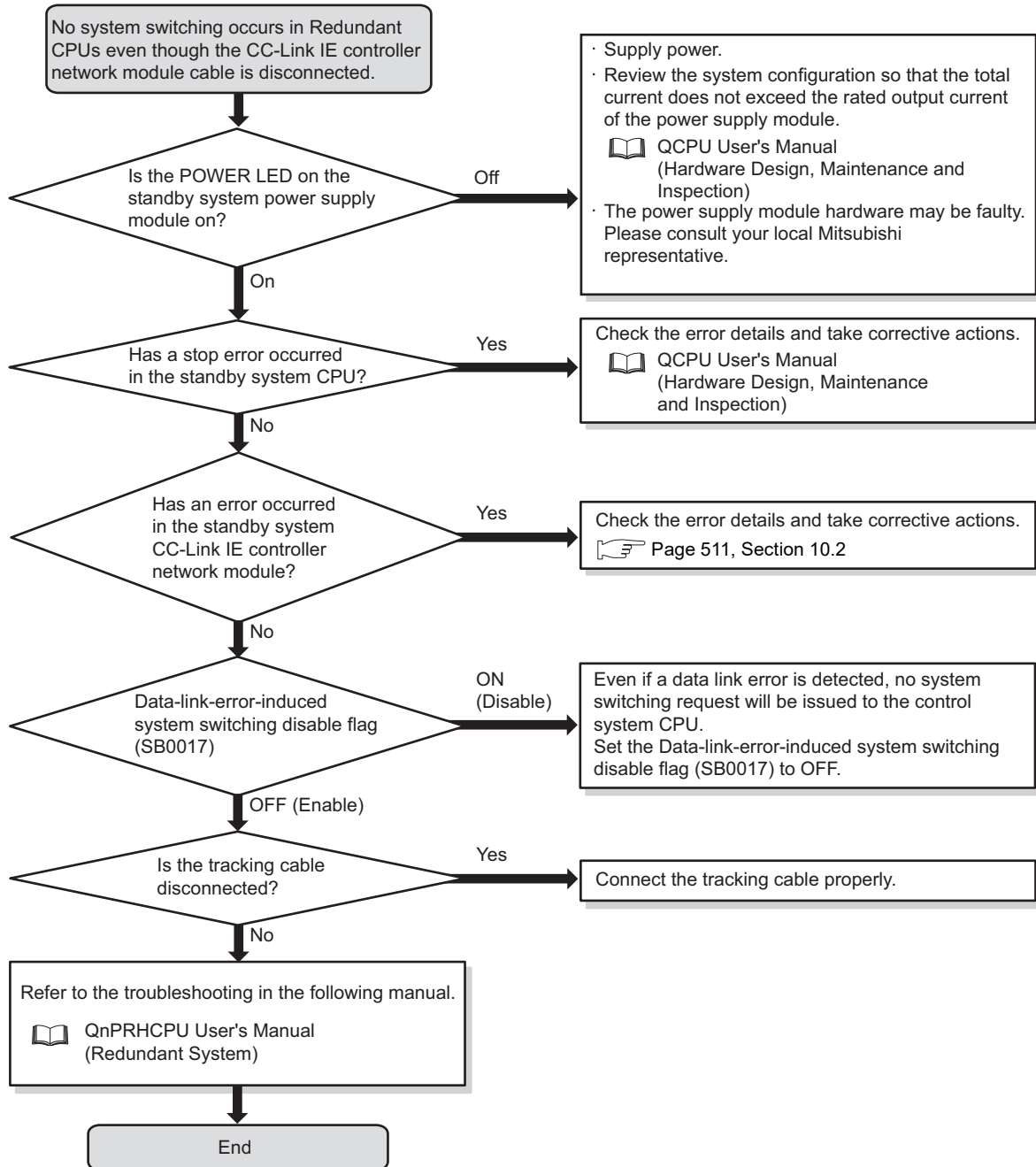
The following flowchart shows the procedures to be taken when an error occurs in Redundant CPU. For the case where data link is disabled in a redundant system while no error has occurred in any Redundant CPU, refer to the following.

Page 502, Section 10.1.6



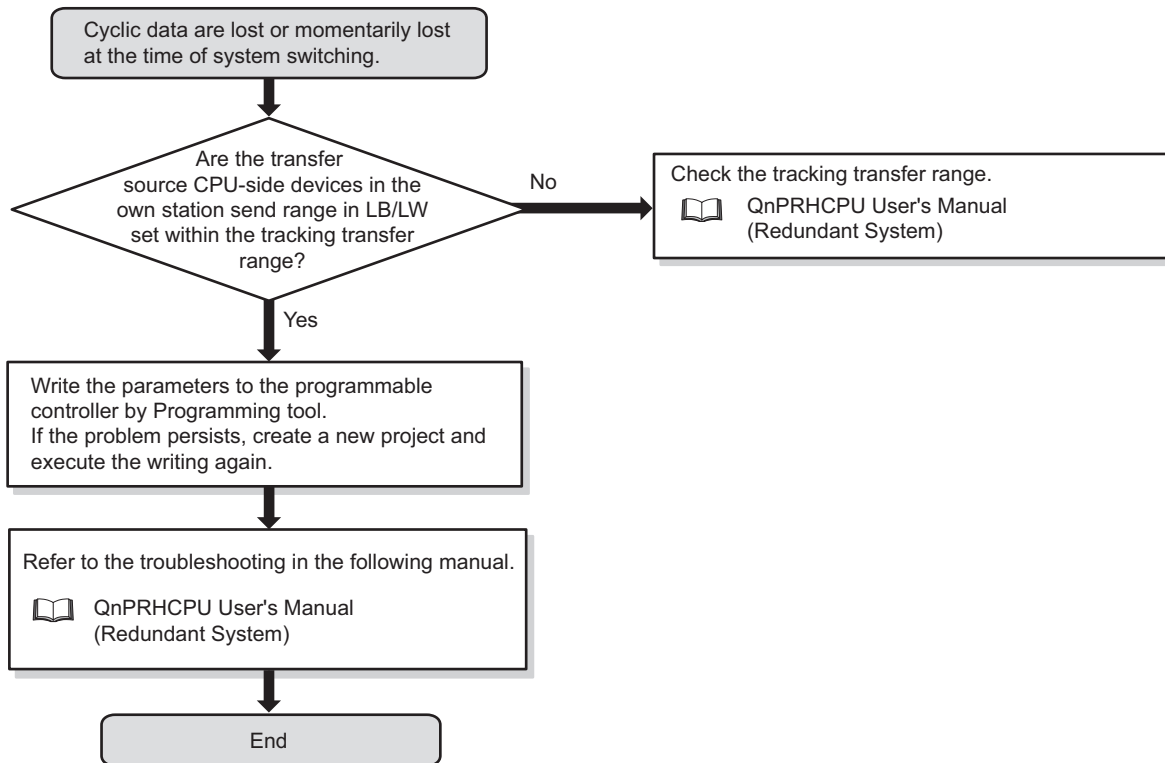
(2) When no system switching occurs in Redundant CPUs even though the cable of the CC-Link IE Controller Network module is disconnected

The following flowchart shows the procedures to be taken when no system switching occurs in Redundant CPUs even if the cable of the CC-Link IE Controller Network module is disconnected.



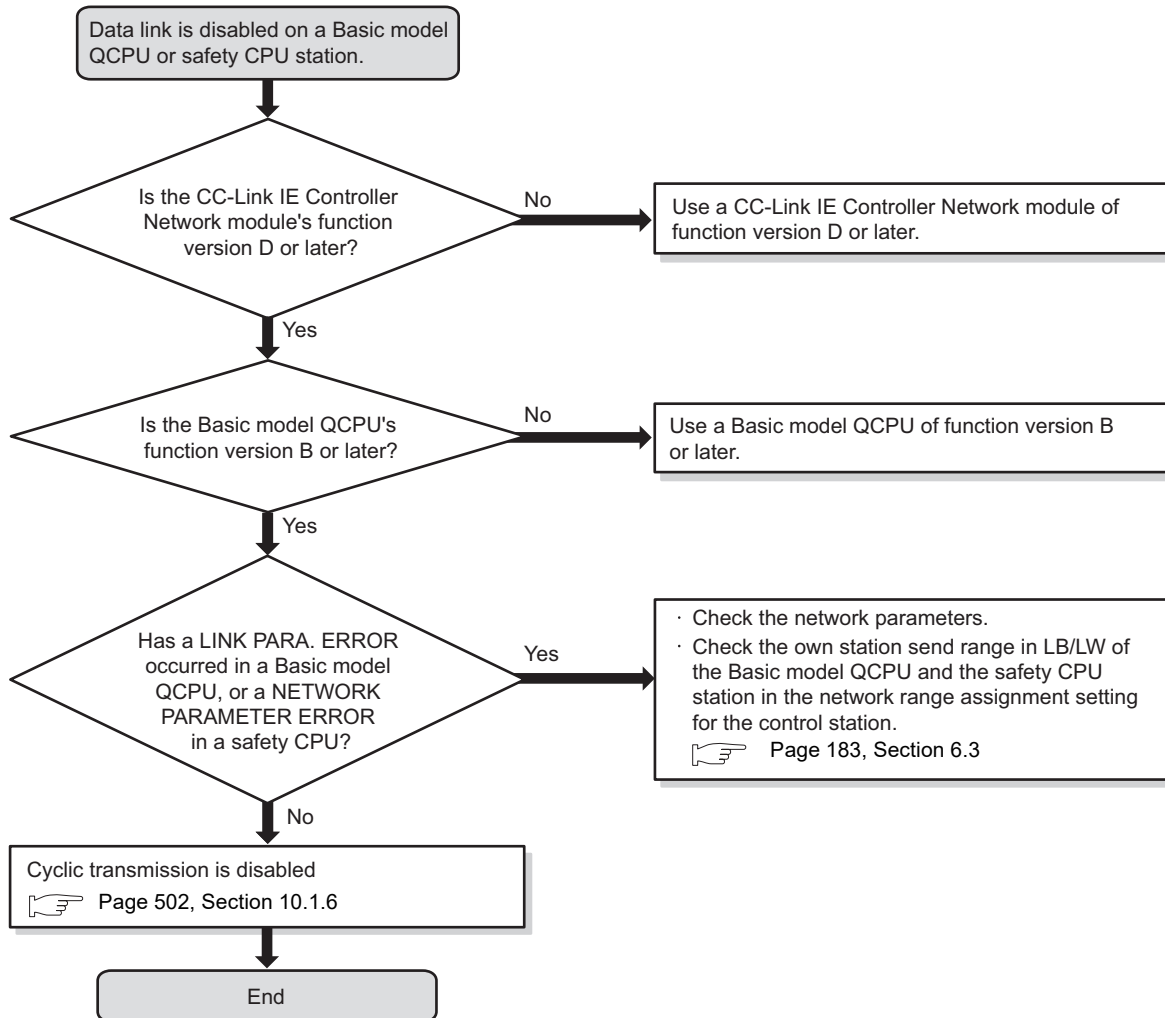
(3) When cyclic data are lost or momentarily lost at the time of system switching

The following flowchart shows the procedures to be taken when cyclic data are lost or momentarily lost at the time of system switching.



10.1.10 Data link is disabled on a station of a Basic model QCPU or safety CPU

The following flowchart shows the procedures to be taken when data link is disabled on a station of a Basic model QCPU or safety CPU.



10.2 Error Codes

This section describes a read operation of error codes and error codes in the CC-Link IE Controller Network module.

10.2.1 Checking the error code

Check the error code in "Module's Detailed Information" or "System Error History".

Remark
 In GX Works2, the error history of the entire system can be checked even after an error has been removed by powering OFF and ON or resetting the CPU module.
 (Page 512, Section 10.2.1 (2))

(1) Checking the error code in the "Module's Detailed Information" window

Open the "Module's Detailed Information" window in the programming tool.

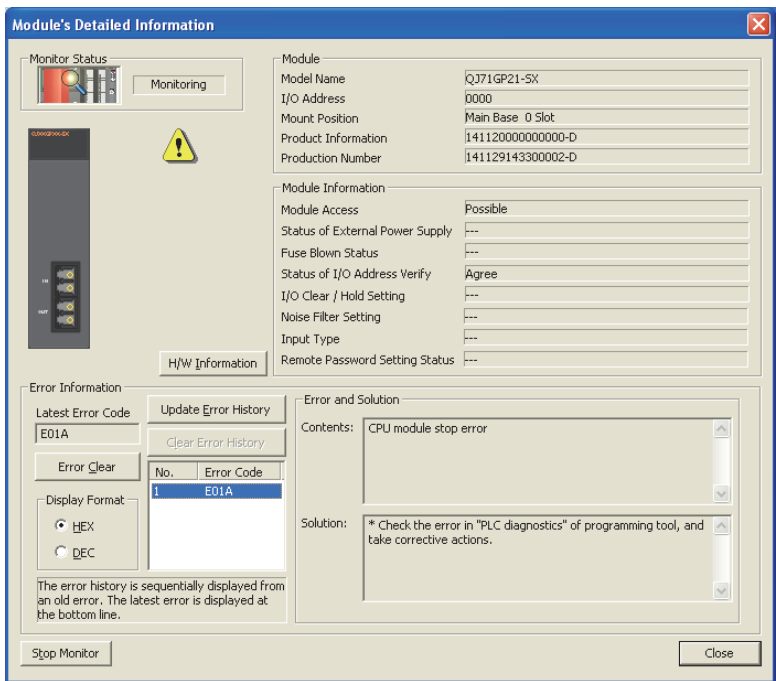
- In GX Works2



- In GX Developer



Error details and the solution can be checked by clicking the button (button in GX Developer) and selecting the error code.




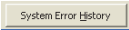
Remark
 When "Select Station" is changed in the "CC IE Control Diagnostics" window, error codes on other programmable controllers on the network can be also checked. (Page 526, Section 10.3)

(2) Checking the system error history of GX Works2*1

In the "Error History" window, error histories of other modules are also displayed in the list, which can be output as a CSV file.

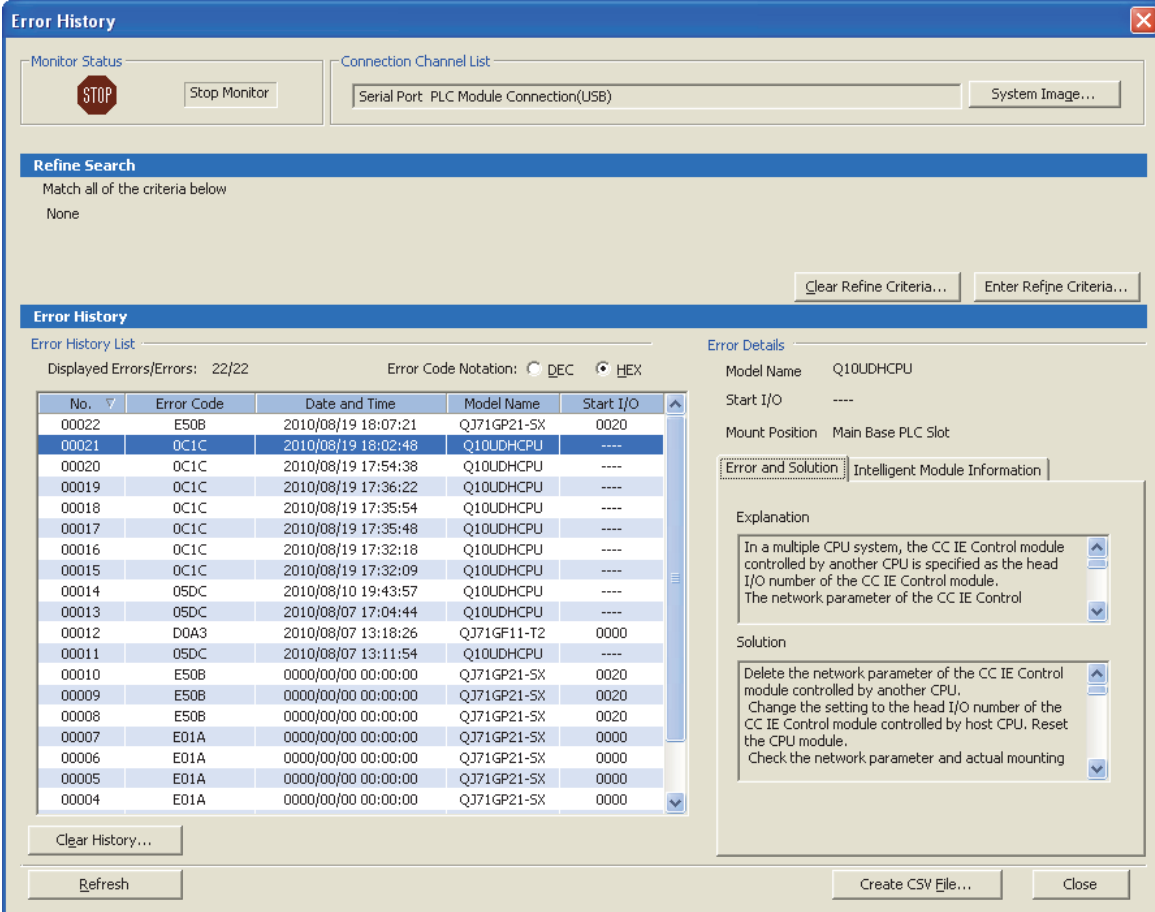
Error codes and a date and time of occurrence can be checked even after powering OFF and ON or resetting the CPU module.

Open the "Error History" window in GX Works2.


 [Diagnostics] ⇨ [System Monitor] ⇨  button.

*1 The system error history of GX Works2 can be checked in the following versions of CPU module, CC-Link IE Controller Network module and GX Works2.

Item	Version
CPU module	Universal Model QCPU with first 5 digits of serial No. is 11043 or later
CC-Link IE Controller Network module	CC-Link IE Controller Network module with first 5 digits of serial No. is 12052 or later
GX Works2	Version 1.12N or later



Error History

Monitor Status:  Stop Monitor

Connection Channel List: Serial Port PLC Module Connection(USB) System Image...

Refine Search

Match all of the criteria below
None

Clear Refine Criteria... Enter Refine Criteria...

Error History

Error History List
Displayed Errors/Errors: 22/22 Error Code Notation: DEC HEX

No.	Error Code	Date and Time	Model Name	Start I/O
00022	E50B	2010/08/19 18:07:21	QJ71GP21-SX	0020
00021	0C1C	2010/08/19 18:02:48	Q10UDHCPU	----
00020	0C1C	2010/08/19 17:54:38	Q10UDHCPU	----
00019	0C1C	2010/08/19 17:36:22	Q10UDHCPU	----
00018	0C1C	2010/08/19 17:35:54	Q10UDHCPU	----
00017	0C1C	2010/08/19 17:35:48	Q10UDHCPU	----
00016	0C1C	2010/08/19 17:32:18	Q10UDHCPU	----
00015	0C1C	2010/08/19 17:32:09	Q10UDHCPU	----
00014	05DC	2010/08/10 19:43:57	Q10UDHCPU	----
00013	05DC	2010/08/07 17:04:44	Q10UDHCPU	----
00012	D0A3	2010/08/07 13:18:26	QJ71GF11-T2	0000
00011	05DC	2010/08/07 13:11:54	Q10UDHCPU	----
00010	E50B	0000/00/00 00:00:00	QJ71GP21-SX	0020
00009	E50B	0000/00/00 00:00:00	QJ71GP21-SX	0020
00008	E50B	0000/00/00 00:00:00	QJ71GP21-SX	0020
00007	E01A	0000/00/00 00:00:00	QJ71GP21-SX	0000
00006	E01A	0000/00/00 00:00:00	QJ71GP21-SX	0000
00005	E01A	0000/00/00 00:00:00	QJ71GP21-SX	0000
00004	E01A	0000/00/00 00:00:00	QJ71GP21-SX	0000

Clear History... Refresh

Error Details

Model Name Q10UDHCPU
Start I/O ----
Mount Position Main Base PLC Slot

Error and Solution Intelligent Module Information

Explanation

In a multiple CPU system, the CC IE Control module controlled by another CPU is specified as the head I/O number of the CC IE Control module. The network parameter of the CC IE Control

Solution

Delete the network parameter of the CC IE Control module controlled by another CPU.
Change the setting to the head I/O number of the CC IE Control module controlled by host CPU. Reset the CPU module.
Check the network parameter and actual mounting

Create CSV File... Close

Item	Description
Error history list	The error history of the module is displayed. If an error occurs during initial processing of a programmable controller CPU, "0000/00/00 12:00:00 AM" is displayed as an error occurrence date and time. This error is not displayed in order of actual error occurrence date and time in the error history list. (Example: Reserved own station error, etc.)
Error and Solution	Displays details and actions of an error selected in "Error History List".
Intelligent Module Information	Displays the status of the CC-Link IE Controller Network module at the time when an error selected in "Error History List" occurs. *1
Baton pass status (own station) (SW0047)	Displays the baton pass status of own station.
Cause of baton pass interruption (SW0048)	Displays the cause of baton pass interruption of own station.
Cause of data link stop (SW0049)	Displays the cause of data link stop of own station.
IN-side loopback station No. (SW0070)	Displays the station No. of the station where a loopback is executed at forward loop side.
OUT-side loopback station No. (SW0080)	Displays the station No. of the station where a loopback is executed at reverse loop side.
Baton pass status of each station (SW00A0 to SW00A7)	Displays the baton pass status of each station. 0: Baton pass normally operating station 1: Baton pass faulty station
Name of dedicated instruction where an error occurs	Displays the name of dedicated instruction where an error occurs.
Dedicated instruction CH where an error occurs	Displays the channel number of dedicated instruction where an error occurs.
Target network No. where an error occurs	Displays the target network No. of dedicated instruction where an error occurs.
Target station where an error occurs	Displays the target network No. of dedicated instruction where an error occurs.
Create CSV File	Outputs a module error history to the CSV file.

*1 If an error that occurs simultaneously with a network error is selected, the status just before the error occurrence may be displayed in intelligent module information.

Point

- If errors have occurred frequently in the CC-Link IE Controller Network module, "**HST.LOSS**" may be displayed in the "Error Code" column, instead of an error code.

Ex.

No. ▾	Error Code	Date and Time	Model Name	Start I/O
00222	*HST.LOSS*	2010/08/19 18:07:21	QJ71GP21-SX	0020
00221	0C1C	2010/08/19 18:02:48	Q10UDHCPU	----







If "**HST.LOSS**" appears frequently, increase the number of module errors collected per scan in "PLC RAS" of "PLC Parameter".

For the setting, refer to the following.

 User's Manual (Function Explanation, Program Fundamentals) for the CPU module used.

- If the same error code has occurred continuously, only the first error record is displayed in the "Error History" window. However, for dedicate instructions, if an instruction name or a channel number is different, an error code is displayed even when the same error code has occurred continuously.


10.2.2 Error code list

Error code	Error	Error detail	Corrective action
4000 _H to 4FFF _H	Errors detected by the CPU module ( Troubleshooting in the QCPU User's Manual (Hardware Design, Maintenance and Inspection))		
7000 _H to 7FFF _H	Errors detected by the serial communication module, etc. ( Troubleshooting in the Serial Communication Module User's Manual)		
B000 _H to BFFF _H	Errors detected by the CC-Link system ( Troubleshooting in the CC-Link System Master/Local Module User's Manual)		
C000 _H to CFFF _H	Errors detected by the Ethernet interface module ( Troubleshooting in the Ethernet Interface Module User's Manual)		
D000 _H to DFFF _H	Errors detected by the CC-Link IE Field Network ( Troubleshooting in the CC-Link IE Field Network User's Manual)		
E000 _H to E005 _H	Network module error	The hardware has failed.	<ul style="list-style-type: none"> • Please consult your local Mitsubishi representative.
E006 _H	Receive queue full	The receive queue is full.	<ul style="list-style-type: none"> • Temporarily stop the transient transmission, and then retry it. • Reduce the operation frequency of transient transmission, and then retry the operation. • Using the COM instruction, increase the processing frequency of transient transmission. ( Page 326, Section 9.2.1) • If the error persists even after taking the above actions, please consult your local Mitsubishi representative.
E007 _H to E011 _H	Network module error	The hardware has failed.	<ul style="list-style-type: none"> • Please consult your local Mitsubishi representative.
E012 _H to E013 _H	Parameter check result error	The network parameter setting is not correct.	<ul style="list-style-type: none"> • Write correct network parameters to the programmable controller. • If the error persists even after taking the above action, please consult your local Mitsubishi representative.
E014 _H to E018 _H	Network module error	The hardware has failed.	<ul style="list-style-type: none"> • Please consult your local Mitsubishi representative.
E019 _H	CPU module error	No response has been received from the CPU for 5 seconds.	
E01A _H	CPU module stop error	A stop error has occurred in the CPU module.	<ul style="list-style-type: none"> • Check the error in "PLC Diagnostics" of the programming tool, and take corrective actions.
E01B _H	CPU module power failure	Power failure occurred in the CPU module.	<ul style="list-style-type: none"> • The CPU module has been powered off. Power it on again.
E01C _H	Network module error	The hardware has failed.	<ul style="list-style-type: none"> • Please consult your local Mitsubishi representative.

Error code	Error	Error detail	Corrective action
E01D _H	IP packet transfer function not supported (IP communication test)	The CPU module which has detected an error does not support the IP packet transfer function.	<ul style="list-style-type: none"> Check the serial number (first five digits) of the CPU module to check whether the module supports the function. If the module does not support the function, replace it with the CPU module of the latest version.
E101 _H	Parameter error	Some of the network parameters is incorrect.	<ul style="list-style-type: none"> Write correct network parameters to the programmable controller. If the error persists even after taking the above action, please consult your local Mitsubishi representative.
E102 _H	Reserved own station error	The own station was set as a reserved station.	<ul style="list-style-type: none"> Cancel the reserved station setting in "Network Range Assignment" of the control station. Change the station No. to the one that is not specified as a reserved station.
E103 _H	Invalid own station No.	The own station No. set is outside the range of total stations.	<ul style="list-style-type: none"> Increase the number of total stations in the network setting of the control station. Change the station number to the one that is within the number of total stations.
E104 _H to E10A _H	Parameter error	Some of the network parameters is incorrect.	<ul style="list-style-type: none"> Write correct network parameters to the programmable controller. If the error persists even after taking the above action, please consult your local Mitsubishi representative.
E10B _H	Parameter error	The CPU module or CC-Link IE Controller Network module does not support the added function.	<ul style="list-style-type: none"> Use a CPU module or CC-Link IE Controller Network module that supports the added function.  Page 606, Appendix 3 If the error persists even after taking the above action, please consult your local Mitsubishi representative.
E10C _H			
E10D _H	Network module error	The hardware has failed.	<ul style="list-style-type: none"> Please consult your local Mitsubishi representative.
E110 _H to E117 _H	Parameter error	Some of the network parameters is incorrect.	<ul style="list-style-type: none"> Write correct network parameters to the programmable controller. If the error persists even after taking the above action, please consult your local Mitsubishi representative.
E11A _H	Start device No. error (LW)	The Basic model QCPU or safety CPU's own send range is set to LB/LW4000 or higher.	<ul style="list-style-type: none"> Check "LB/LW Setting(1)" in "Network Range Assignment" of the control station.
E11B _H	Start device No. error (LB)		
E11C _H	LB/LW setting (2) error (LW)	The Basic model QCPU or safety CPU's own send range is set in "LB/LW Setting(2)".	<ul style="list-style-type: none"> Check "LB/LW Setting(2)" in "Network Range Assignment" of the control station.
E11D _H	LB/LW setting (2) error (LB)		
E11E _H	End device No. error (LW)	The Basic model QCPU or safety CPU's own send range is set to LB/LW4000 or higher.	<ul style="list-style-type: none"> Check "LB/LW Setting(1)" in "Network Range Assignment" of the control station.
E11F _H	End device No. error (LB)		
E120 _H	UINI execution at control station	The UINI instruction was executed at a control station.	<ul style="list-style-type: none"> Setting the station number with the UINI instruction is not allowed for control stations. Set it with a network parameter. Change the station type setting to Normal station, and then retry it.
E121 _H	Own station No. error (UINI instruction)	With "Specify Station No. by Parameter" selected in the network parameters, the UINI instruction was executed.	<ul style="list-style-type: none"> Select "Specify Station No. by Program." in the network parameters, and execute it again.

Error code	Error	Error detail	Corrective action
E122 _H	Duplicated station No. (UINI instruction)	Duplicated station No. was set for the own station using the UINI instruction.	<ul style="list-style-type: none"> • Change the own station No. setting in the control data, and then retry the instruction. • Change the other station's No. which is duplicated.
E123 _H	Station No. already set (UINI instruction)	After setting a station No. with the UINI instruction, the instruction was executed again.	<ul style="list-style-type: none"> • Station No. setting with the UINI instruction is limited to one time only. • Reset the CPU module, and then retry the instruction.
E130 _H	Pairing setting error	Pairing is not set for the station of a Redundant CPU.	<ul style="list-style-type: none"> • Check the pairing setting in "Network Range Assignment" of the control station.
E131 _H	Pairing setting error	Pairing is set for a station other than Redundant CPUs.	
E134 _H	Network type mismatch	The network type set in the control station differs from the type set in the own station.	<ul style="list-style-type: none"> • Change the network type of the own station (normal station) to the network type of the control station.
E135 _H	Network type mismatch	The network type set in the control station differs from the type set in the own station.	<ul style="list-style-type: none"> • Change the network type of the own station (normal station) to the network type of the control station.
E136 _H	CPU that does not have the send points extension function is installed	The CC-Link IE extended mode is set for the network type in the CPU module that does not have the send points extension function.	<ul style="list-style-type: none"> • Replace with the CPU module that has the send points extension function. • Change the network type to the CC-Link IE mode.
E152 _H	Link startup condition error	Link startup was attempted from a station different from the one where cyclic transmission has stopped.	<ul style="list-style-type: none"> • Execute link startup from the station where cyclic transmission has stopped. • Execute the forced link startup.
E160 _H	Invalid link startup/stop direction	The link stop/startup direction content (SW0000) was not set properly.	<ul style="list-style-type: none"> • Check the setting and stop or restart cyclic transmission.
E162 _H	Link startup/stop reexecution error (instructed by other station)	Reexecution was attempted during processing for cyclic transmission stop/restart.	<ul style="list-style-type: none"> • Reexecute it after completing the processing for cyclic transmission stop/restart.
E163 _H	Link startup/stop reexecution error (instructed by own station)		
E164 _H	Link startup/stop reexecution error (instructed by entire system)		
E165 _H	Link startup/stop station specification error	The link stop/startup direction contents (SW0001 to SW0008) were not set properly.	<ul style="list-style-type: none"> • Check the setting and stop or restart cyclic transmission.
E166 _H	Link startup/stop group specification error	The link stop/startup group specification (SW0012 to SW0013) is not correct.	
E170 _H to E172 _H	Network module error	The hardware has failed.	<ul style="list-style-type: none"> • Please consult your local Mitsubishi representative.
E173 _H	Communication test retry error	During execution of the communication test, the test was retried.	<ul style="list-style-type: none"> • Reexecute it after completing the currently executing communication test.

Error code	Error	Error detail	Corrective action
E174 _H	Communication test transmission completion signal retried out	The maximum number of transmission completion signal retries was reached.	<ul style="list-style-type: none"> • Check the network status in the CC IE Control diagnostics, and retry the operation. • Check if the routing parameters are set correctly.
E175 _H	Communication test monitoring time timeout	No response has been returned within the communication monitoring time.	
E176 _H	Communication test transmission completion wait time timed out	Timeout has occurred without transmission completion.	
E177 _H to E179 _H	Network module error	The hardware has failed.	<ul style="list-style-type: none"> • Please consult your local Mitsubishi representative.
E17A _H	Duplicated communication test data reception	The response data have been received two times or more.	<ul style="list-style-type: none"> • Check the network status in the CC IE Control diagnostics, and retry the operation.
E17B _H	Network module error	The hardware has failed.	<ul style="list-style-type: none"> • Please consult your local Mitsubishi representative.
E17C _H	Communication test target station specification error	The communication test target station is specified incorrectly.	<ul style="list-style-type: none"> • Check the "Target Station" setting of communication test parameters, and retry the operation. • The communication test cannot be executed to the own station, a relay station, and a station mounted on the same base unit (main base unit and extension base unit).
E17D _H	IP address not set (own station)	The own station's IP address cannot be obtained when an IP communication test is performed.	<ul style="list-style-type: none"> • Check the destination IP address of the IP communication test.
E17E _H	Destination IP address error	The same numbers are not used for the first and second octets of the IP addresses set in the IP communication test destination setting in the network of the request source device, request destination device, and modules between them.	<ul style="list-style-type: none"> • Check the destination IP address of the IP communication test.
E17F _H	Network module failure	The hardware has failed.	<ul style="list-style-type: none"> • Retry the operation after a while. • If the error persists even after taking the above actions, please consult your local Mitsubishi representative.
E200 _H	Network module error	The hardware has failed.	<ul style="list-style-type: none"> • Please consult your local Mitsubishi representative.
E201 _H	Duplicated transient data reception error	The same transient data have been received two times or more.	<ul style="list-style-type: none"> • Check the network status in the CC IE Control diagnostics, and retry the operation.
E202 _H	Network module error	The hardware has failed.	<ul style="list-style-type: none"> • Please consult your local Mitsubishi representative.
E203 _H	Send buffer full	The send buffer is full.	<ul style="list-style-type: none"> • Temporarily stop the transient transmission, and then retry it. • Reduce the operation frequency of transient transmission, and then retry the operation. • Using the COM instruction, increase the processing frequency of transient transmission. ( Page 326, Section 9.2.1) • If the error persists even after taking the above actions, please consult your local Mitsubishi representative.

Error code	Error	Error detail	Corrective action
E204 _H	Transient data resend count exceeded	The specified number of resends has been reached.	<ul style="list-style-type: none"> • Check the network status in the CC IE Control diagnostics. • Check the program to see if the time of resends has been set when executing the instruction.
E205 _H	Receive buffer full	The receive buffer is full.	<ul style="list-style-type: none"> • Temporarily stop the transient transmission, and then retry it. • Reduce the operation frequency of transient transmission and retry the operation. • Using the COM instruction, increase the processing frequency of transient transmission. ( Page 326, Section 9.2.1) • If the error persists even after taking the above actions, please consult your local Mitsubishi representative.
E206 _H	Network module error	The hardware has failed.	<ul style="list-style-type: none"> • Please consult your local Mitsubishi representative.
E207 _H	Transient data receiving network No. error	Although the data are sent and received within the same network, network numbers of the own and target stations are different.	<ul style="list-style-type: none"> • Check the network numbers of the own and target stations in Network parameters, and execute it again.
E208 _H	Transient data target station No. error	The target station No. setting is not correct.	<ul style="list-style-type: none"> • Confirm the target station No. on the own station, and retry the operation. • If the error persists even after taking the above action, please consult your local Mitsubishi representative.
E209 _H E20A _H	Network module error	The hardware has failed.	<ul style="list-style-type: none"> • Please consult your local Mitsubishi representative.
E20B _H	Transient data relay count error	The number of relay stations exceeded the upper limit.	<ul style="list-style-type: none"> • Modify the system configuration so that the number of relay stations is seven or less. • Check if the routing parameters are set correctly. • To perform the IP communication test, check the IP address of the destination. Then set the number of relay stations within 127.
E20C _H to E20E _H	Network module error	The hardware has failed.	<ul style="list-style-type: none"> • Please consult your local Mitsubishi representative.
E20F _H	Transient data target station No. error	The target station No. is zero (0).	<ul style="list-style-type: none"> • Confirm the target station No. on the own station, and retry the operation. • If the error persists even after taking the above action, please consult your local Mitsubishi representative.
E210 _H	Network module error	The hardware has failed.	<ul style="list-style-type: none"> • Please consult your local Mitsubishi representative.
E211 _H	Invalid assign control station No. in transient data	The specified "assign control station" does not exist.	<ul style="list-style-type: none"> • Confirm the target station No. on the own station, and retry the operation.
E212 _H	Invalid present control station No. in transient data	The specified "present control station" does not exist.	<ul style="list-style-type: none"> • If the error persists even after taking the above action, please consult your local Mitsubishi representative.
E213 _H	Transient data transmission completion wait time timed out	Timeout has occurred without transmission completion.	<ul style="list-style-type: none"> • Check the network status in the CC IE Control diagnostics. • If the error persists even after taking the above action, please consult your local Mitsubishi representative.
E214 _H to E21A _H	Network module error	The hardware has failed.	<ul style="list-style-type: none"> • Please consult your local Mitsubishi representative.

Error code	Error	Error detail	Corrective action
E21B _H	Transient transmission with own station No. unspecified	Transient transmission was attempted without specifying a station No. of the own station.	<ul style="list-style-type: none"> Specify a station No. in the UINI instruction, and then retry it. Replace with the CC-Link IE Controller Network module that has the send points extension function. If the error persists even after taking the above action, please consult your local Mitsubishi representative.
E21C _H to E223 _H	Network module error	The hardware has failed.	<ul style="list-style-type: none"> Please consult your local Mitsubishi representative.
E224 _H	Attribute code error (RIRD/RIWT instruction)	Attribute code is not set correctly for the RIRD/RIWT instruction.	<ul style="list-style-type: none"> Check the Attribute code in the control data, and then retry the instruction. If the error persists even after taking the above action, please consult your local Mitsubishi representative.
E225 _H	Access code error (RIRD/RIWT instruction)	Access code is not set correctly for the RIRD/RIWT instruction.	<ul style="list-style-type: none"> Check the Access code in the control data, and then retry the instruction. If the error persists even after taking the above action, please consult your local Mitsubishi representative.
E226 _H E227 _H	Network module error	The hardware has failed.	<ul style="list-style-type: none"> Please consult your local Mitsubishi representative.
E236 _H	IP data TTL error	TTL detected 0 IP data.	<ul style="list-style-type: none"> Correct the TTL at the IP request source and retry the operation.
E237 _H	IP address setting error	A valid IP address is not set.	<ul style="list-style-type: none"> Correct the IP address of the control station and retry the operation.
E240 _H to E245 _H	Target network module error (Dedicated instruction)	The hardware of the target network module has failed.	<ul style="list-style-type: none"> Please consult your local Mitsubishi representative.
E246 _H to E24E _H	Network module error	The hardware has failed.	
E24F _H	Target station No. error (Dedicated instruction)	The target station No. setting is not correct.	<ul style="list-style-type: none"> Confirm the target station No. in the control data, and retry the operation. If the error persists even after taking the above action, please consult your local Mitsubishi representative.
E250 _H	Network module error	The hardware has failed.	<ul style="list-style-type: none"> Please consult your local Mitsubishi representative.
E251 _H	Duplicated dedicated instruction reception error	Transient data for the same dedicated instruction have been received two times or more.	<ul style="list-style-type: none"> Check the network status in the CC IE Control diagnostics.
E252 _H E253 _H	Network module error	The hardware has failed.	<ul style="list-style-type: none"> Please consult your local Mitsubishi representative.
E254 _H	Target station CPU type error (Dedicated instruction)	The target station CPU type setting is not correct.	<ul style="list-style-type: none"> Confirm the target station CPU type in the control data, and retry the operation. If the error persists even after taking the above action, please consult your local Mitsubishi representative.
E255 _H	Data size error (Dedicated instruction)	The data length setting is not correct.	<ul style="list-style-type: none"> Confirm the data length in the control data, and retry the operation. If the error persists even after taking the above action, please consult your local Mitsubishi representative.
E256 _H	Arrival monitoring time specification error (Dedicated instruction)	The arrival monitoring time was not specified correctly.	<ul style="list-style-type: none"> Confirm the arrival monitoring time in the control data, and retry the operation. If the error persists even after taking the above action, please consult your local Mitsubishi representative.



Error code	Error	Error detail	Corrective action
E257 _H	Resend count specification error (Dedicated instruction)	The number of resends was not set correctly.	<ul style="list-style-type: none"> • Confirm the number of resends in the control data, and retry the operation. • If the error persists even after taking the above action, please consult your local Mitsubishi representative.
E258 _H	Target network No. error (Dedicated instruction)	The target network No. was not set correctly.	<ul style="list-style-type: none"> • Confirm the target network No. in the control station, and retry the operation. • If the error persists even after taking the above action, please consult your local Mitsubishi representative.
E259 _H	Target station channel error (SEND instruction)	Target station channel is not set correctly for the SEND instruction.	<ul style="list-style-type: none"> • Check the Target station channel in the control data, and then retry the instruction. • If the error persists even after taking the above action, please consult your local Mitsubishi representative.
E25A _H	Modification specification error (UINI instruction)	Modification specification is not set correctly for the UINI instruction.	<ul style="list-style-type: none"> • Check the Modification specification in the control data, and then retry the instruction. • If the error persists even after taking the above action, please consult your local Mitsubishi representative.
E25B _H	Own station No. error (UINI instruction)	Incorrect own station No. is set for the UINI instruction.	<ul style="list-style-type: none"> • Check the own station No. set in the control data, and then retry the instruction. • If the error persists even after taking the above action, please consult your local Mitsubishi representative.
E25C _H to E261 _H	Network module error	The hardware has failed.	<ul style="list-style-type: none"> • Please consult your local Mitsubishi representative.
E262 _H	Arrival confirmation error (Dedicated instruction)	In all stations or group designation, the dedicated instruction was executed "with arrival confirmation" set for the execution type. For the REQ instruction, the set request type is not correct.	<ul style="list-style-type: none"> • Change the execution type in the control data to "No arrival confirmation", and retry the operation. • For the REQ instruction, check the request type in the request data, and retry it. • If the error persists even after taking the above action, please consult your local Mitsubishi representative.
E263 _H	Network module error	The hardware has failed.	<ul style="list-style-type: none"> • Please consult your local Mitsubishi representative.
E264 _H	Transmission completion wait time timeout error (Dedicated instruction)	Timeout has occurred without transmission completion.	<ul style="list-style-type: none"> • Check the network status in the CC IE Control diagnostics. • If the error persists even after taking the above action, please consult your local Mitsubishi representative.
E265 _H	Response timer timeout error (Dedicated instruction)	Timeout has occurred without response reception. A CC-Link dedicated instruction was executed to a station that does not support CC-Link dedicated instructions.	<ul style="list-style-type: none"> • Check the network status in the CC IE Control diagnostics. • Check the version of the CC-Link IE Controller Network compatible device on the target station. • If the error persists even after taking the above action, please consult your local Mitsubishi representative.
E266 _H	Unsupported request reception error (Dedicated instruction)	The SEND instruction was received from any other station.	<ul style="list-style-type: none"> • Change the target station at the station where the SEND instruction was executed. • If the error persists even after taking the above action, please consult your local Mitsubishi representative.
E267 _H	Target station No. error (Dedicated instruction)	The own station No. was set as the target station No.	<ul style="list-style-type: none"> • Confirm the target station No. in the control data, and retry the operation. • If the error persists even after taking the above action, please consult your local Mitsubishi representative.

Error code	Error	Error detail	Corrective action
E268 _H	Execution/abnormal completion type error (Dedicated instruction)	The execution/abnormal completion type was not set correctly.	<ul style="list-style-type: none"> • Confirm the execution/abnormal completion type in the control data, and retry the operation. • If the error persists even after taking the above action, please consult your local Mitsubishi representative.
E269 _H	Request or sub-request type error (REQ instruction)	The request or sub-request type of the REQ instruction is not set correctly.	<ul style="list-style-type: none"> • Check the request or sub-request type in the request data, and retry the instruction. • If the error persists even after taking the above action, please consult your local Mitsubishi representative.
E26A _H	No assign/present control station (Dedicated instruction)	When there was no control station on the network, the dedicated instruction was executed with an "assign or present control station" specified.	<ul style="list-style-type: none"> • Confirm the target station No. in the control data, and retry the operation. • If the error persists even after taking the above action, please consult your local Mitsubishi representative.
E26B _H	Dedicated instruction execution mode error	The dedicated instruction was executed in circuit test mode.	<ul style="list-style-type: none"> • Change the circuit test mode of the control station to online mode, and retry the operation. • If the error persists even after taking the above action, please consult your local Mitsubishi representative.
E26C _H	Channel busy (Dedicated instruction)	The channel specified for "Channel used by the own station" or "Target station channel" is being used for another instruction.	<ul style="list-style-type: none"> • Wait for a little while, and retry it. • Change the setting of "Channel used by the own station" or "Target station channel" in the control data.
E26D _H	Interrupt setting channel duplication (Dedicated instruction)	The channel specified for "Channel used by the own station" is duplicated with the channel used for the interrupt setting.	<ul style="list-style-type: none"> • Check and correct the Channel used by the own station in the control data, and retry the instruction. • Check and correct the channel used for the interrupt setting, and retry the instruction. • If the error persists even after taking the above action, please consult your local Mitsubishi representative.
E26E _H	Device specification error (ZNRD/ZNWR instruction)	The device range specified in the setting data for the ZNRD/ZNWR instruction is not correct.	<ul style="list-style-type: none"> • Check the setting data of the ZNRD/ZNWR instruction, and then retry the instruction. • If the error persists even after taking the above action, please consult your local Mitsubishi representative.
E26F _H			
E270 _H	Network module error	The hardware has failed.	<ul style="list-style-type: none"> • Please consult your local Mitsubishi representative.
E271 _H	Operation mode error (RSTOP instruction)	The Operation mode for the RSTOP instruction is not set correctly.	<ul style="list-style-type: none"> • Check and correct the Operation mode setting in the setting data, and then retry the instruction. • If the error persists even after taking the above action, please consult your local Mitsubishi representative.
E272 _H	Clear mode error (RRUN instruction)	The Clear mode for the RRUN instruction is not set correctly.	<ul style="list-style-type: none"> • Check and correct the Clear mode setting in the setting data, and then retry the instruction. • If the error persists even after taking the above action, please consult your local Mitsubishi representative.
E273 _H	Mode error (RRUN instruction)	The Mode for the RRUN instruction is not set correctly.	<ul style="list-style-type: none"> • Check the Mode setting in the setting data, and then retry the instruction. • If the error persists even after taking the above action, please consult your local Mitsubishi representative.
E274 _H to E277 _H E280 _H to E288 _H	Network module error	The hardware has failed.	<ul style="list-style-type: none"> • Please consult your local Mitsubishi representative.

Error code	Error	Error detail	Corrective action
E2A0 _H	Receive buffer full (Transient)	Too many transient requests have been received from CC-Link IE Controller Network compatible devices.	<ul style="list-style-type: none"> Adjust the timing of transient requests from CC-Link IE Controller Network compatible devices so that each request will issued at certain intervals.
E2A1 _H	Send buffer full (Transient)		
E2A2 _H	Transmission completion wait time timed out	Timeout has occurred without transmission completion.	<ul style="list-style-type: none"> Check the network status in the CC IE Control diagnostics. If the error persists even after taking the above action, please consult your local Mitsubishi representative.
E2A3 _H	Frame length (L) error	An invalid transient frame was received from a CC-Link IE Controller Network compatible device.	<ul style="list-style-type: none"> Check the contents of the transient frame on the sending end. For details, please consult the manufacturer of the CC-Link IE Controller Network compatible device.
E2A4 _H	Gate count (GCNT) error		
E2A5 _H	Destination address (DA) error		
E2A6 _H	Source address (SA) error		
E2A7 _H	Destination application type (DAT) error		
E2A8 _H	Source application type (SAT) error		
E2A9 _H	Destination network No. (DNA) error		
E2AA _H	Destination address (DS) error		
E2AB _H	Source network No. (SNA) error		
E2AC _H	Source address (SS) error		
E2AD _H	Data length (L1) error		
E2AE _H	Target specification error		
E2AF _H	Target station No. error (CC-Link dedicated instruction)	The own station No. was set as the target station No.	<ul style="list-style-type: none"> Confirm the target station No. in the control data, and retry the operation. If the error persists even after taking the above action, please consult your local Mitsubishi representative.

Error code	Error	Error detail	Corrective action
E2B0 _H	Network module error	The hardware has failed.	<ul style="list-style-type: none"> • Please consult your local Mitsubishi representative.
E300 _H to E302 _H			
E310 _H			
E311 _H			
E320 _H to E325 _H			
E330 _H to E333 _H			
E340 _H to E343 _H			
E350 _H			
E361 _H to E36D _H			
E380 _H to E383 _H			
E390 _H to E397 _H			
E3A0 _H			
E3A1 _H			
E3B0 _H to E3BA _H			
E3BB _H	Max. number of stations exceeded	The total number of stations exceeded the setting range.	<ul style="list-style-type: none"> • Assign some stations to another network so that the total number of stations will be within the setting range.
E3BC _H	Network line error	Baton (or token) passing stopped due to a communication line error or a CC-Link IE Controller Network module error.	<ul style="list-style-type: none"> • Check the network status in the CC IE Control diagnostics. • If the error persists even after taking the above action, please consult your local Mitsubishi representative.
E3BD _H	Network module error	The hardware has failed.	<ul style="list-style-type: none"> • Please consult your local Mitsubishi representative.
E3C0 _H to E3C2 _H			
E501 _H to E503 _H			


Error code	Error	Error detail	Corrective action
E504 _H	Transient execution error (no baton passing on the own station)	Transient transmission was executed while the own station did not perform baton (or token) passing.	<ul style="list-style-type: none"> Execute the dedicated instruction, interlocking with Baton pass status (own station) (SB0047) and Baton pass status of each station (SW00A0 to SW00A7). Check the Cause of baton pass interruption (SW0048) at the own station and restart baton (or token) passing before executing the transient transmission. If the error persists even after taking the above action, please consult your local Mitsubishi representative.
E505 _H	Transient execution error with own station number duplicated	Transient transmission was executed with the own station number duplicated.	<ul style="list-style-type: none"> Remove the duplication of the own station numbers before executing the transient transmission.
E506 _H E507 _H	Network module error	The hardware has failed.	<ul style="list-style-type: none"> Please consult your local Mitsubishi representative.
E508 _H	Duplication of station No. and control station setting of the own station	Station No. and control station setting of the own station are duplicated.	<ul style="list-style-type: none"> Change the station No. of the own or other station and the control station setting. After taking the above action, reset the error station. After turning on the own station, turn on the other stations to identify the station that has a duplicate station No. and/or control station setting. When the redundant system is in debug mode, connect only one of the two systems to the network. To connect both systems to the network, set the operation mode of the redundant system to backup or separate mode.
E509 _H	Own station No. duplication error	Station No. of the own station is duplicated.	<ul style="list-style-type: none"> Change the station No. of the own or other station. After taking the above action, reset the error station. After turning on the own station, turn on the other stations to identify the station that has a duplicate station No. setting. When the redundant system is in debug mode, connect only one of the two systems to the network. To connect both systems to the network, set the operation mode of the redundant system to backup or separate mode.
E50A _H	Duplication of the own station's control station setting	The control station setting for the own station is duplicated.	<ul style="list-style-type: none"> Change the control station setting of the own or other station. After taking the above action, reset the error station. After turning on the own station, turn on the other stations to identify the station that has a duplicate control station setting.
E50B _H	Network No. error	The network No. of the (sub-) control station is different from the network No. of the own station.	<ul style="list-style-type: none"> Set the same network No. to the own station and the (sub-) control station.
E50C _H	IP packet transfer function not supported (IP communication test)	The module in the station on the route after the route where an error has been detected does not support the IP packet transfer function.	<ul style="list-style-type: none"> Check the first five digits of the serial number of the module in the station on the route after the route where an error has been detected, and check whether the module in the station supports the function. If the function is not supported, replace the module with the one with the latest version.

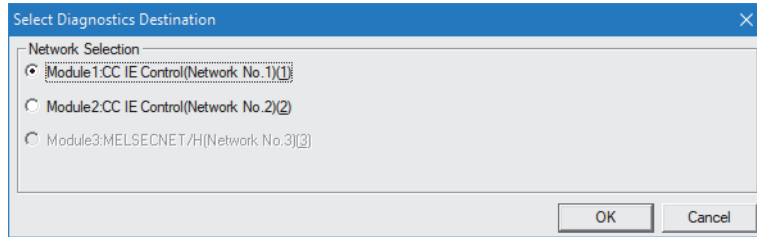
Error code	Error	Error detail	Corrective action
E521 _H to E524 _H	Network module error	The hardware has failed.	<ul style="list-style-type: none"> • Please consult your local Mitsubishi representative.
E5D1 _H to E5D5 _H			
E5E1 _H to E5E9 _H			
E5F0 _H	Transient execution error (no baton passing on the target station)	Transient transmission was executed while the target station did not perform baton (or token) passing.	<ul style="list-style-type: none"> • Reconnect the target station to the network. • Execute the dedicated instruction, interlocking with Baton pass status (own station) (SB0047) and Baton pass status of each station (SW00A0 to SW00A7). • Check the Cause of baton pass interruption (SW0048) at another station and restart baton (or token) passing before executing the transient transmission. • If the error persists even after taking the above action, please consult your local Mitsubishi representative.
E5F1 _H	Specified station No. duplication error	The station No. specified for the transient transmission is duplicated.	<ul style="list-style-type: none"> • Change the station No. of the normal station.
E5F2 _H to E5F7 _H	Network module error	The hardware has failed.	<ul style="list-style-type: none"> • Please consult your local Mitsubishi representative.
EA00 _H to EA04 _H			
EA10 _H to EA18 _H			
EAE0 _H to EAE4 _H			
EAE5 _H	CPU module error	Incorrect data have been set in the CPU.	
EAE6 _H	CC-Link IE Controller Network-incompatible CPU error	The CPU module is not compatible with the CC-Link IE Controller Network module.	<ul style="list-style-type: none"> • Use a CPU module that is compatible with the CC-Link IE Controller Network module. ( Page 40, Section 2.3) • If the error persists even after taking the above action, please consult your local Mitsubishi representative.
EAE7 _H	Network module error	The hardware has failed.	<ul style="list-style-type: none"> • Please consult your local Mitsubishi representative.
EAF0 _H to EAF6 _H			
F000 _H to FEFF _H	Errors detected in the MELSECNET/H or MELSECNET/10 network system. ( Troubleshooting in the MELSECNET/H or MELSECNET/10 Network System Reference Manual)		

10.3 CC IE Control Diagnostics

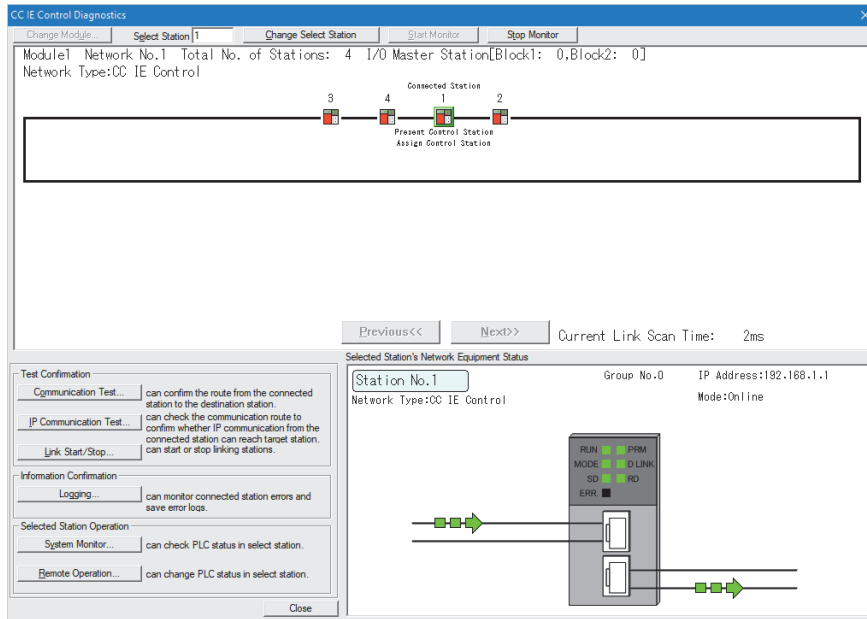
The network status and the operating status of each station can be checked.









1. Select [CC IE Control Diagnostics] under [Diagnostics] in the programming tool.
2. When two or more CC-Link IE Controller Network modules are mounted, the "Select Diagnostics Destination" window appears.

Select a network to be diagnosed and click the  button.



3. The "CC IE Control Diagnostics" window appears. Perform the operation with reference to the description below.



Item	Description
Change Module	When two or more CC-Link IE Controller Network modules are mounted, the "Select Diagnostics Destination" window is displayed by clicking this button. The network to be diagnosed is changed in the "Select Diagnostics Destination" window.
Select Station	Specifies station No. of selected station.
Change Select Station	Enter the station No. in "Select Station", and click this button to change the selected station.
Network information display	 Page 528, Section 10.3.1
Select station network device status display	 Page 531, Section 10.3.2
Communication Test ^{*1*2}	 Page 174, Section 5.7.1
IP Communication Test ^{*3}	 Page 113, Section 4.3.3
Link Start/Stop ^{*1*2}	 Page 91, Section 4.1.12
Logging ^{*1*2}	 Page 533, Section 10.3.3
System Monitor	 Page 536, Section 10.3.4
Remote Operation	 Page 540, Section 10.3.5

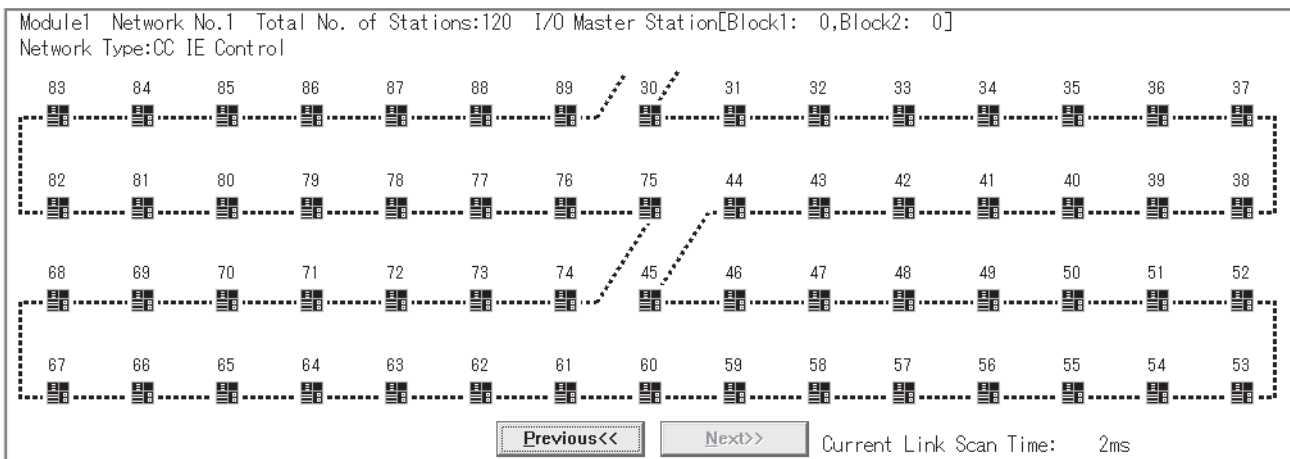
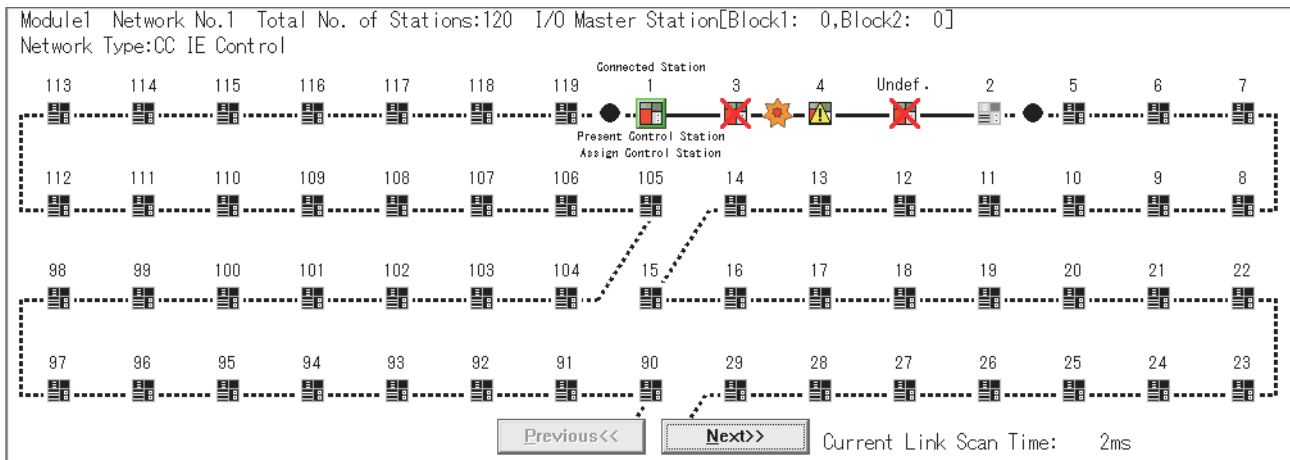
*1 Selectable when the selected station is connected to the programming tool (the own station). Not selectable when it is any other station.

*2 Not selectable in circuit test mode.

*3 Displayed only when GX Works2 is used.

10.3.1 Network information display

The result of checking the line status and parameter setting status is displayed.

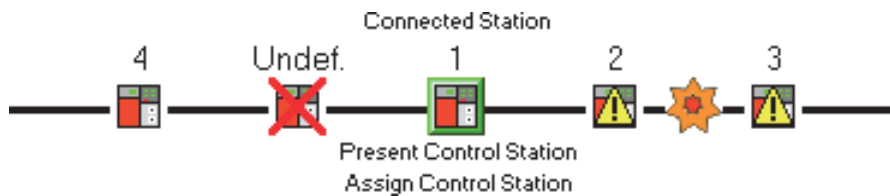


(1) Description of network information display

Item	Description
Module□	Displays the module No. of network which is being diagnosed.
Network No.	Displays the network No. of network which is being diagnosed.
Total No. of Stations	Displays the total number of stations in a network.
I/O Master Station	Displays the station No. of I/O master station.
Network Type	Displays the CC IE Control Extended Mode or CC IE Control.
Icon	Displays the status of each station and status between stations. (☞ Page 529, Section 10.3.1 (2))
Previous<<	When the total number of stations is 61 or more, the window prior to network information display is displayed by clicking this button.
Next>>	When the total number of stations is 61 or more, the window next to network information display is displayed by clicking this button.
Current Link Scan Time	Displays the current link scan time.

(2) Icon

The status of each station and status between stations are displayed.



(a) Station No.

1 to 120: Displays the station No. of the CC-Link IE Controller Network module.

Undef.: Displayed for the station for which parameters have not been set*¹ or station No. is not assigned.

*1 For display of the station for which parameters have not been set, there are restrictions on the CC-Link IE Controller Network module versions.

Check the serial No. and software version for applicability. (☞ Page 606, Appendix 3)

(b) Connected Station

This is displayed for the station connected to the programming tool (own station).

(c) Icon

When double-clicking the station icon, the "System Monitor" window is displayed. (☞ Page 536, Section 10.3.4)

The icons that may be displayed are listed below.

Icon	Description
	Normally operating station
	Faulty station (a fault has occurred on a module, board, display, or cable while cyclic transmission is performed.)
	Faulty station (Cyclic transmission is stopped.)
	Station in a different shared group (no cyclic data are received.)
	Disconnected station (black)
	Reserved station (gray)
	Selected station (station icon edged with green) <ul style="list-style-type: none"> This can be selected by clicking a station icon or moving a focus and holding down a space bar. The detailed information is displayed at "Selected Station's Network Equipment Status". In addition, disconnected station and reserved station cannot be selected.
	Focusing (station icon edged with dotted line) <ul style="list-style-type: none"> Holding down a space bar makes a station to be selected station. In addition, disconnected station and reserved station cannot be selected.
	Communication error <ul style="list-style-type: none"> If the station adjacent to the one where a communication error occurs is selected, detailed information is displayed at "Selected Station's Network Equipment Status".

(d) Present Control and Assign Control

Present Control: Displayed to the station actually operating as control station.

Assign Control: Displayed to the station set by network parameters.

Point

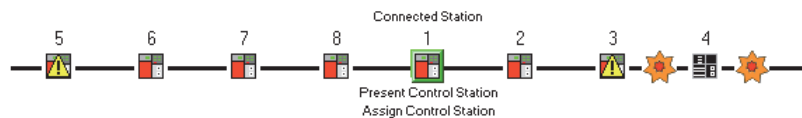
- When multiple stations on the same system have the same network No.
If a station other than those on the system is selected while a station of the lowest start I/O No. has a baton pass error, a transient execution error (no baton passing on the own station) (E504_H) will occur.
Resolve the baton pass error, and then redo the operation.

(3) Display position of a disconnected station

There are two cases for positioning a disconnected station on the window.

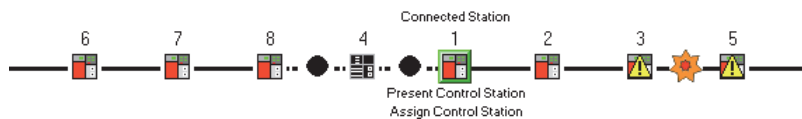
(a) When normal connection information has been obtained*1*2

The disconnected station (station No.4) is displayed in the position where it was connected when normal.



(b) When normal connection information has not been obtained

The disconnected station (station No.4) is displayed on the IN side of the programming tool connected station.



- *1 The normal connection information is network configuration data that the CC-Link IE Controller Network module on the programming tool connected station stores in its memory when all stations are normal. When all of the following conditions are met, the normal connection information can be obtained. Also, after any of the conditions became unsatisfied, if all of them are met again, the normal connection information will be updated.
- All stations are in data link status (Cyclic transmission status of each station (SB00B0) is OFF.)
 - No loopback station (Loopback status (SB0065) is OFF.)
 - No station has a parameter error. (Parameter status of each station (SB00E0) is OFF.)
 - The number of actually connected stations is the same as the total of stations that is set for the control station (except reserved stations).
- *2 For obtaining the normal connection information, there are restrictions on the version of the CC-Link IE Controller Network module on the programming tool connected station. Check the serial No. and software version for applicability.
(☞ Page 606, Appendix 3)

Remark

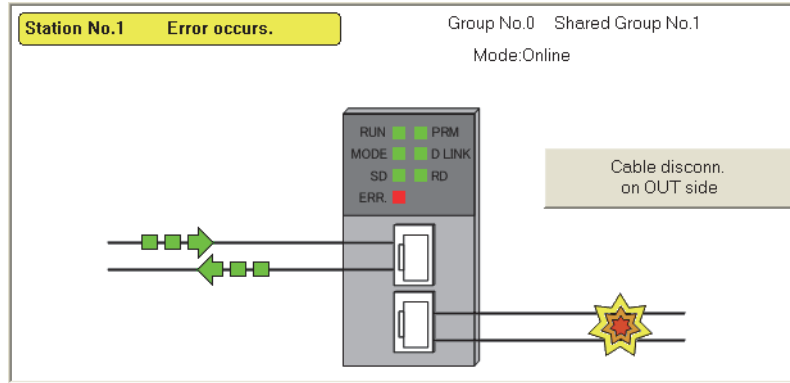
If station No. of a disconnected station (No.4) is set to an invalid value (station No.9) by mistake after acquisition of the normal connection information, the icon of the station will be displayed on the IN side of the programming tool connected station.



10.3.2 Select station network device status display

The detailed information of the selected station is displayed.

A module is selected here. For selection of a board or terminal display, refer to the relevant manual.









(1) Description of select station network device status display


Item	Description	Display content
Group No.	Displays a group number of the selected station.	0 to 32
Shared Group No.	Displays a shared group number of the selected station.	0 to 120
Mode	Displays the mode of the selected station.	Online Offline H/W Test Self-Loopback Test Circuit Test Test between Station
IP address	Displays the IP address. (This applies only when the address is set to the control station.)	<ul style="list-style-type: none"> Control station: Value set with GX Works2 Normal station: Value automatically assigned from the control station When the address is not set: ---
Network Type	Displays a type of the selected station.	CC IE Control Ext. Mode CC IE Control
Operating status	Normal operation	Station No.1
	Operation error (data link continued) (yellow)	Station No.1 Error occurs.
	Operation error (data link discontinued) (red)	Station No.1 Error occurs.
Select station network device status display	Page 148, Section 5.3 (1)	

10


10.3 CC IE Control Diagnostics
10.3.2 Select station network device status display

Item	Description	Display content
Communication status	Data linking	
	Cable disconnection	
	Communication error (other than cable disconnection)	
	Module error (CC-Link IE Controller Network parameter setting error or transient transmission error)	
Error details button	Displayed at faulty parts. ( Page 532, Section 10.3.2 (2))	 etc.

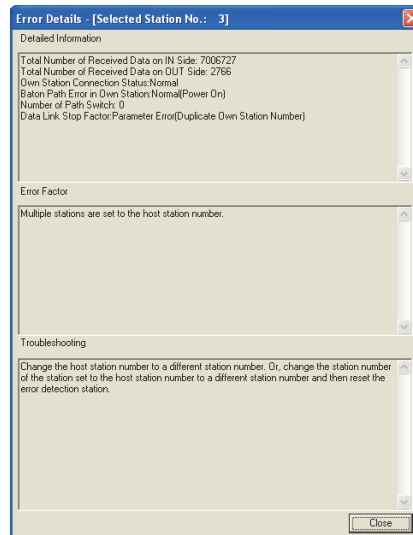
Point

- When a transient transmission error occurs, check the error description in error code and take corrective action. When a transient transmission error log is cleared after taking a corrective action toward the error, the communication error display is cleared.
( Page 533, Section 10.3.3)
- When multiple stations on the same system have the same network No. If a station other than those on the system is selected while a station of the lowest start I/O No. has a baton pass error, a transient execution error (no baton passing on the own station) (E504_H) will occur. Resolve the baton pass error, and then redo the operation.

(2) Error details

When clicking  button etc., the "Error Details" window is displayed.



Take corrective action according to troubleshooting.



10.3.3 Logging

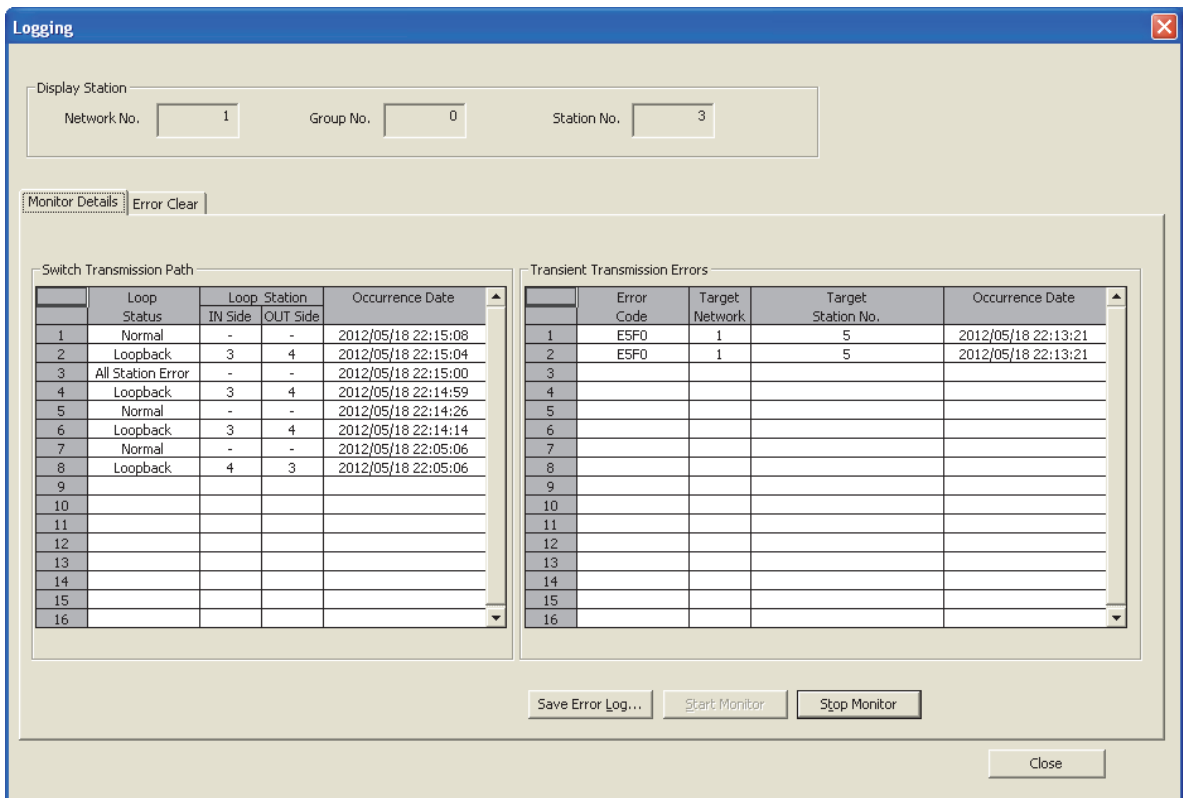
The history for the communication path switching and transient transmission error can be monitored and the error information can be cleared.


Note that these operations are not available in circuit test mode.

1. Open the "CC IE Control Diagnostics" window. ( Page 526, Section 10.3)
2. Click the  button.
3. Perform the operation with reference to the description below.

(1) "Monitor Details" tab

The history for the communication path switching and transient transmission error is displayed.

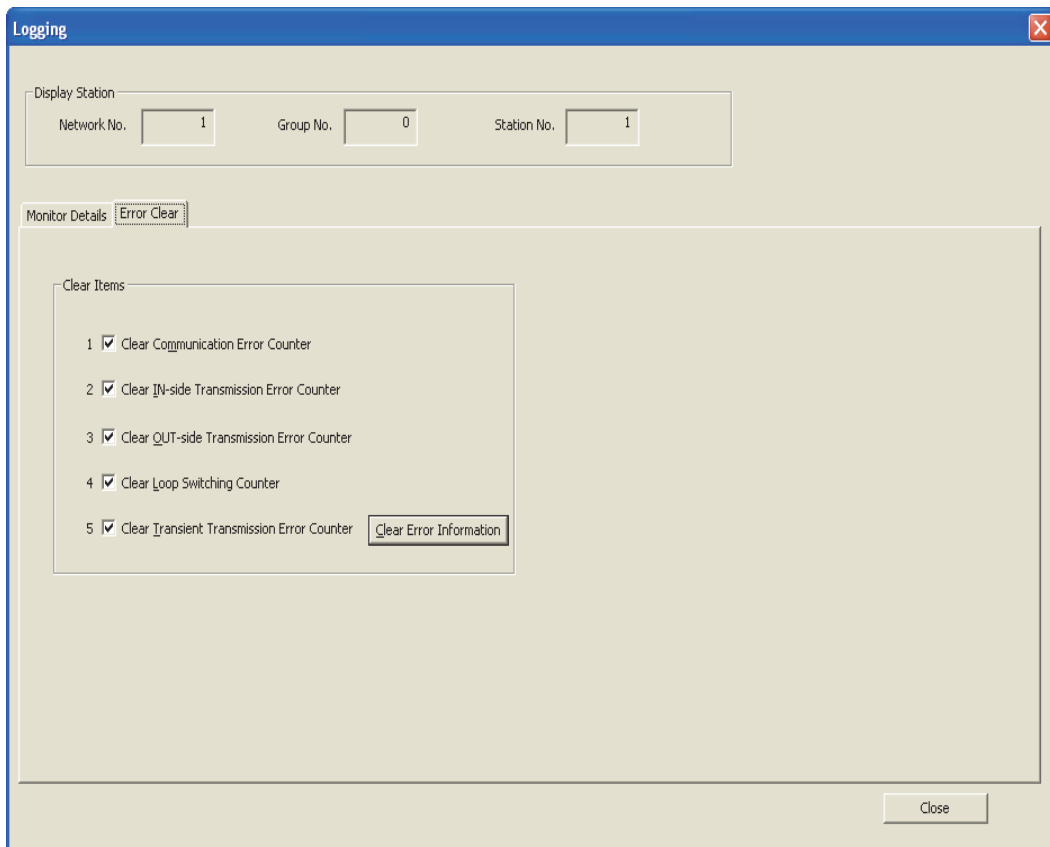


Item		Description
Display Station		Displays the network No., group No., and station No. of the connected station.
Switch Transmission Path ^{*1}	Loop Status	Displays the status of a loop.
	Loop station	Displays a station where loopback occurs at IN-side and OUT-side at loopback.
	Occurrence Date	Displays a time when a communication path is switched.
Transient Transmission Errors ^{*1}	Error Code	Displays error codes. ( Page 511, Section 10.2)
	Target Network	Displays network No. of the station where an error was detected.
	Target Station No.	Displays station No. of the station where an error was detected.
	Occurrence Date ^{*2}	Displays a time when a transient transmission error is detected
Save Error Log		Saves the description of monitor detail in CSV file.

- *1 Up to 100 logs are displayed, and when the maximum is reached, they will be erased in sequence from the oldest one. Note that when the window is closed, logs numbered 17 or higher are deleted. To retain them, click on the Save error log.
- *2 If a transient transmission error is detected during start-up of the CC-Link IE Controller Network module, the time of the error may be displayed as blank.


(2) "Error Clear" tab

The error information is cleared.

**1. Select an item to clear error information at "Clear Items".**

- Clear Communication Error Counter (SB0006)
- Clear IN-side Transmission Error Counter (SB0007)
- Clear OUT-side Transmission Error Counter (SB0008)
- Clear Loop Switching Counter (SB0009)
- Clear Transient Transmission Error Counter (SB000A)

Remark



- Details on link special relay (SB):  Page 568, Appendix 1

2. The error information can be cleared by clicking  button.


10.3.4 System monitor

The module status of the CC-Link IE Controller Network module can be checked.

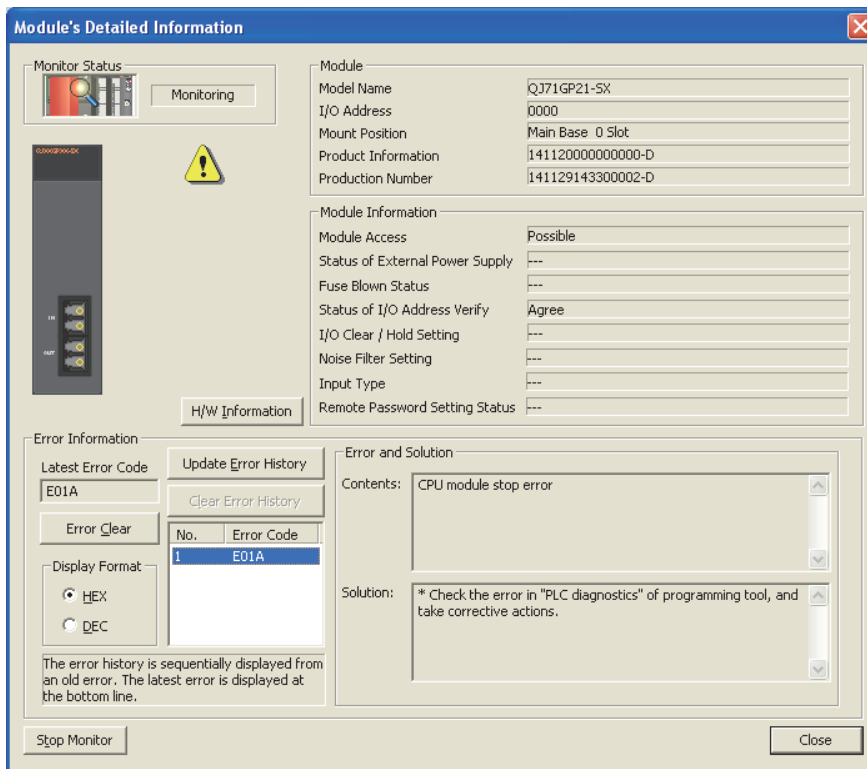
1. Perform any one of the following operations.

- Click  button in the "CC IE Control Diagnostics" window.
- Double-click  in the "CC IE Control Diagnostics" window.
- Select [Diagnostics] ⇨ [System Monitor] menu.

2. The "System Monitor" window is displayed. Perform any one of the following operations.

- Click  button in the "System Monitor" window.
- Double-click the installation status of the CC-Link IE Controller Network module in the "System Monitor" window.

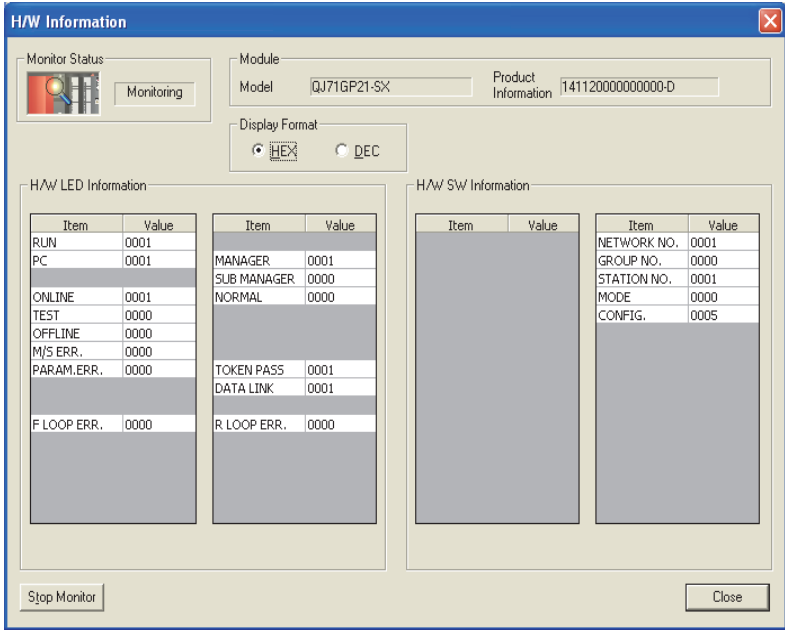
3. The "Module's Detailed Information" window is displayed. For its operation, refer to the following explanation.



Item		Description
Module	Module Name	Displays the name of a module.
	I/O Address	Displays the start I/O number of a module.
	Mount Position	Displays the slot position where a module is mounted.
	Product Information	Displays product information. <ul style="list-style-type: none"> • The end of the product information indicates function version of the module. • When the end is "B", it indicates the module of function version B.
Module Information	Module access	"Possible" is displayed when a watchdog timer error does not occur.
	Status of I/O Address Verify	The parameter setting and the verification result of the mounted module are displayed.
Error Information	Latest Error Code	Displays the latest error code. (Page 511, Section 10.2)
	Update Error History	The history of error codes is displayed by clicking this button. (Page 511, Section 10.2)
	Error and Solution	The description and corrective action of an error code selected in the error information.
H/W Information		The LED information and switch information of the module can be checked.

(1) H/W information

The LED information and switch information of the module can be checked.



(a) H/W LED information

Item	Description
RUN	Displays the operating status of a module. 0001: Operating normally 0000: Hardware fault or watchdog timer error
PLC	Displays the network type. 0001: Controller network
ONLINE	Displays the operation mode of the CC-Link IE Controller Network module. 0001: Online mode 0000: Other than online mode
TEST	Displays the operation mode of the CC-Link IE Controller Network module. 0001: Test mode 0000: Other than test mode
OFFLINE	Displays the operation mode of the CC-Link IE Controller Network module. 0001: Offline mode 0000: Other than offline mode
M/S. ERR.	Displays the detection status of duplicated control station or station No. Check the network status by CC IE Control diagnostics. (☞ Page 541, Section 10.4) 0001: Duplicated control station or station No. detected 0000: Undetected
PARAM.ERR.	Displays the parameter error detection status. Check the network status by CC IE Control diagnostics. (☞ Page 541, Section 10.4) 0001: Parameter error detected 0000: Undetected
F LOOP ERR.	Displays the IN-side error detection of the CC-Link IE Controller Network module. Check the network status by CC IE Control diagnostics. (☞ Page 541, Section 10.4) 0001: IN-side error detected 0000: Undetected
MANAGER	Displays the station type of the CC-Link IE Controller Network module. 0001: Control station is operating 0000: Other than control station is operating
SUB MANAGER	Displays the station type of the CC-Link IE Controller Network module. 0001: Sub-control station is operating 0000: Other than sub-control station is operating
NORMAL	Displays the station type of the CC-Link IE Controller Network module. 0001: Normal station is operating 0000: Other than normal station is operating
TOKEN PASS	Displays the baton pass status of the CC-Link IE Controller Network module. 0001: Baton pass being executed 0000: Baton pass unexecuted
DATA LINK	Displays the data link status of the CC-Link IE Controller Network module. 0001: Data link being executed 0000: Data link not executed
R LOOP ERR.	Displays the OUT-side error detection of the CC-Link IE Controller Network module. Check the network status by CC IE Control diagnostics. (☞ Page 541, Section 10.4) 0001: OUT-side error detected 0000: Undetected
EXT. POWER	Displays the external power supply status, of the CC-Link IE Controller Network module with external power supply function. 0001: External power supplied 0000: No external power supplied

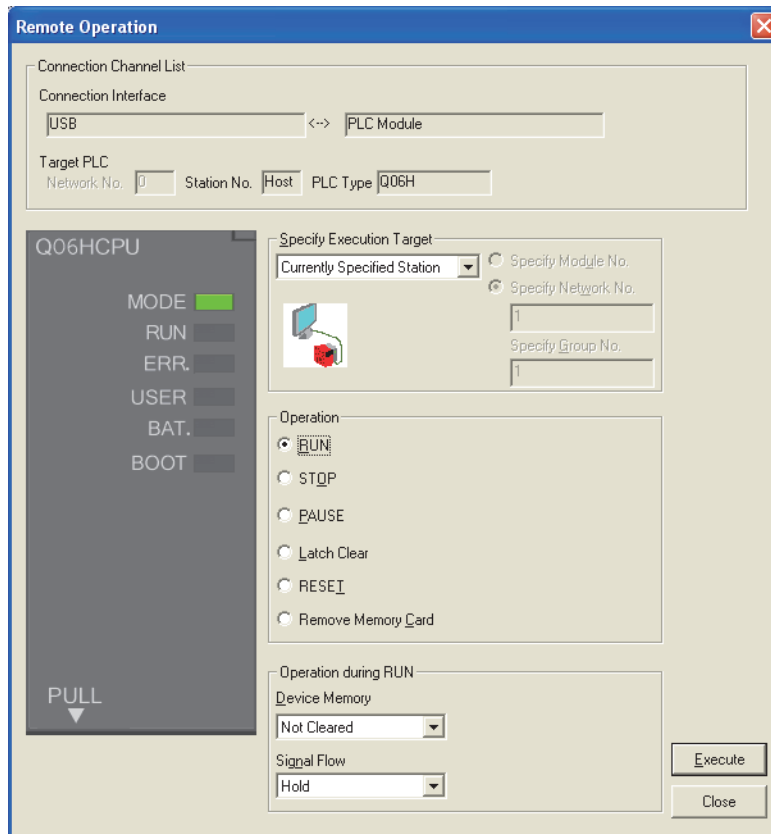
(b) H/W switch information

Item	Description
NET WORK NO.	Displays the network No. of the CC-Link IE Controller Network module. (Range: 1 to 239)
GROUP NO.	Displays the group No. of the CC-Link IE Controller Network module. (Range: 1 to 32)
STATION NO.	Displays the station No. of the CC-Link IE Controller Network module. (Range: 1 to 120)
MODE	Displays the operation mode of the CC-Link IE Controller Network module. 0: Online 2: Offline 5: Station-to-station test 6: Circuit test 7: Self-loopback test 9: Hardware test
CONFIG.	Displays the configuration of the CC-Link IE Controller Network module. <div style="text-align: center; margin-top: 10px;"> <p>The diagram shows a bit field for SW0044 with bits b15 to b0. Bit b15 is labeled '0'. Bits b14 to b6 are grouped as 'to'. Bit b6 is labeled '0'. Bits b5, b4, and b3 are grouped as 'to'. Bit b2 is labeled '0'. Bit b1 is labeled '0'. Bit b0 is labeled '0'. Brackets on the right side of the diagram link bits to their functions: bits b15-b14 to CPU type; bit b6 to Mode; bits b5-b3 to Normal station parameter; bits b2-b1 to Station type; and bit b0 to Network type.</p> </div> <ul style="list-style-type: none"> — CPU type 0: Other than Basic model QCPUs and safety CPUs 1: Basic model QCPU or safety CPU — Mode 0: CC IE Control 1: CC IE Control Extended Mode — Normal station parameter 0: No normal station parameter 1: Normal station parameter — Station type (0: Normal station, 1: Control station) — Network type (0: Normal station, 1: Control station)

10.3.5 Remote operation

The operating status of the CPU module that is connected to a network can be changed.

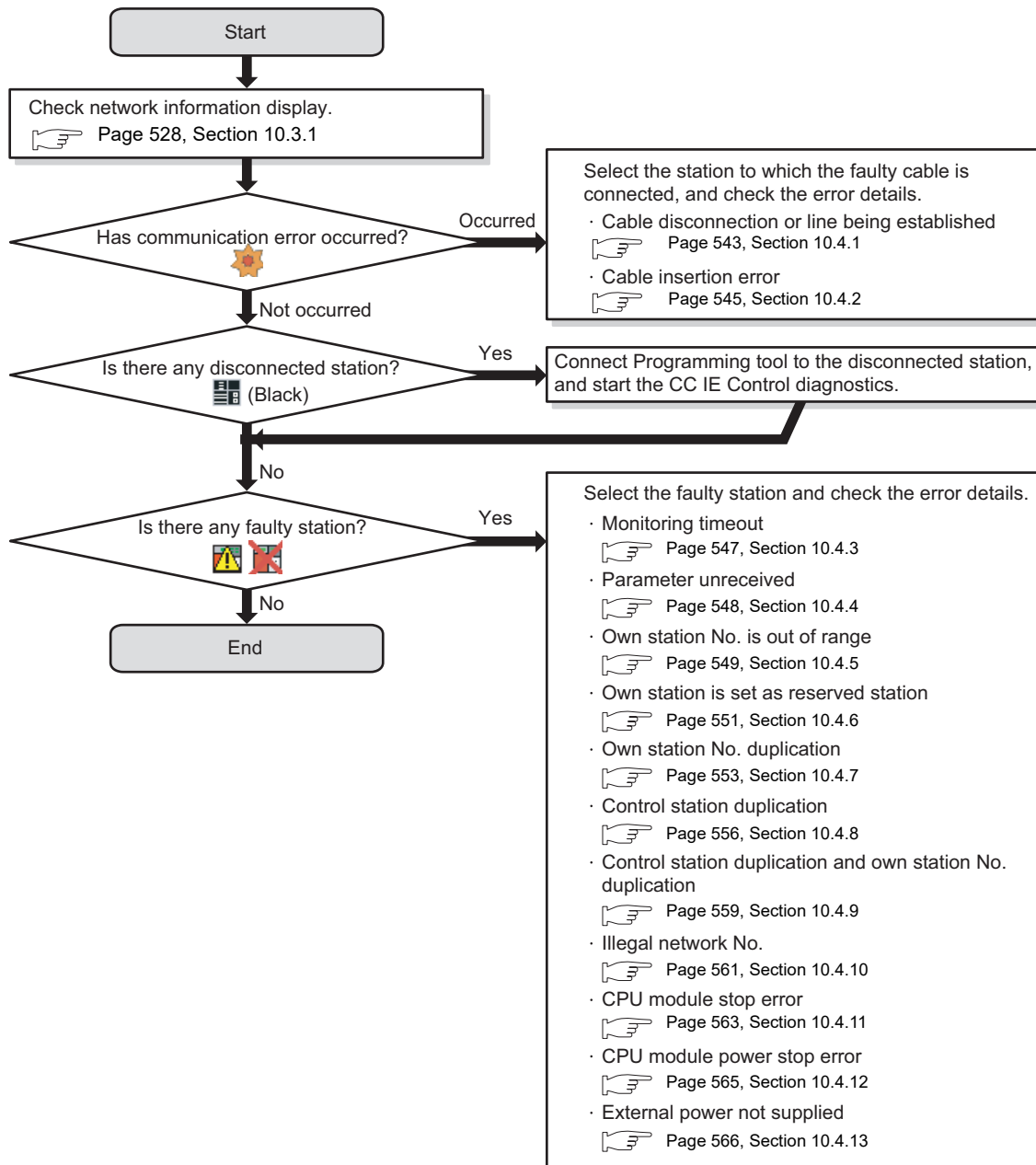
1. To open the "Remote Operation" window in the programming tool, perform any one of the following operations.
 - Click button in the "CC IE Control Diagnostics" window.
 - Select [Online] ⇨ [Remote Operation] menu.
2. The "Remote Operation" window is displayed.
3. Set the following item and click button.




Item	Description
Connection Channel List	The connection target information is displayed.
Specify Execution Target	Set a target station of remote operation. <ul style="list-style-type: none"> • Currently Specified Station: Remote operation is executed to the displayed "Target PLC". • "Target PLC" can be changed by changing "Select Station" in the "CC IE Control Diagnostics" window. • All Stations: Remote operation is executed to all stations in the network specified in "Specify Execution Target". • Specified Group: Remote operation is executed to the specified group No. in the network specified in "Specify Execution Target".
Operation	Select the operating status to be changed.
Operation during RUN	Select the operation of the device memory and signal flow during RUN.

10.4 Checking the Error Description with the CC IE Control Diagnostics



This section describes the method of checking the error description with the CC IE Control diagnostics.



When the following error information clear is performed to the faulty station, the faulty station icon () may remain displayed even after the error is cleared.

- Clear IN-side transmission error counter (SB0007)
- Clear OUT-side transmission error counter (SB0008)

By executing the same error information clear to the connected stations, the faulty station icon () will be hidden.

Note that, if the connected stations are changed, the faulty station icon () will be displayed again. In that case, the faulty station icon () can remain hidden by executing the error information clear to all the stations.

10.4.1 Cable disconnection or line being established

The following explains the procedures to be taken when a cable is disconnected between the OUT-side of station No.3 and the IN-side of station No.4, or when the line connection is being established.

(1) When a programming tool connected station is normally operating

The diagram consists of two parts illustrating the troubleshooting process in the CC IE Control Diagnostics software.

Top Part (Normal Operation): Shows a network diagram with four stations: Control station No.1 (Selected), Normal station No.2, Normal station No.4, and Normal station No.3. The software interface shows Station No.1 selected. The 'Selected Station's Network Equipment Status' window displays 'Station No.1' with 'Mode:Online' and 'Current Link Scan Time: 2ms'. The 'Error Factor' field is empty.

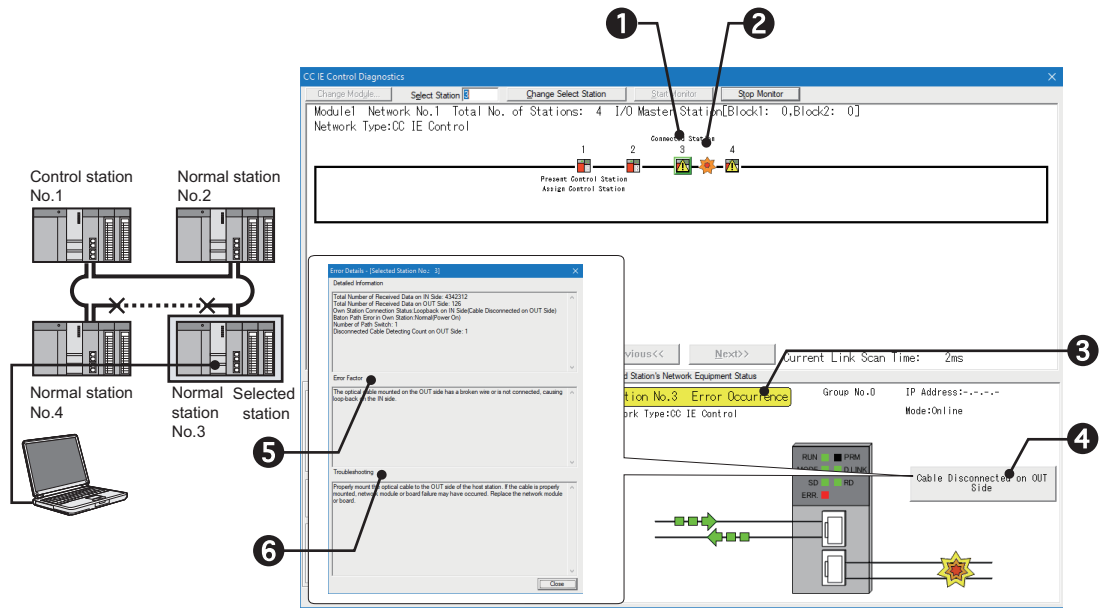
Bottom Part (Error State): Shows the same network diagram, but now Station No.3 is selected. The software interface shows 'Station No.3 Error Occurrence' in the status window. The 'Error Factor' field contains the message: 'The optical cable mounted on the OUT side has a broken wire or is not connected, causing loop-back on the IN side.' The 'Cable Disconnected on OUT Side' label is visible in the equipment status window. Numbered callouts 1 through 7 indicate the steps: 1 (Select own station), 2 (Communication error between No.3 and No.4), 3 (Select faulty station No.3), 4 (Error occurrence in No.3), 5 (Click error details), 6 (Error factor indicates cable disconnection), and 7 (Take corrective actions).

- 1 Select the own station.
- 2 A communication error has occurred between the OUT-side of the station No.3 and the IN-side of the station No.4.
- 3 Select the faulty station (station No.3).
- 4 An error has occurred in the station No.3.
- 5 Click the error details button.
- 6 The Error Factor field indicates that a cable is disconnected or a line is being established.
- 7 Take corrective actions according to the troubleshooting.

10

10.4 Checking the Error Description with the CC IE Control Diagnostics
10.4.1 Cable disconnection or line being established

(2) When a programming tool connected station is faulty



- ① Select the own station.
- ② A communication error has occurred between the OUT-side of the station No.3 and the IN-side of the station No.4.
- ③ An error has occurred in the station No.3.
- ④ Click the error details button.
- ⑤ The Error Factor field indicates that a cable is disconnected or a line is being established.
- ⑥ Take corrective actions according to the troubleshooting.

10.4.2 Cable insertion error

The following explains the procedures to be taken when OUT and IN of a cable are connected incorrectly.

(1) When a programming tool connected station is normally operating

- 1 Select the own station.
- 2 A communication error has occurred between the OUT-side of the station No.2 and the IN-side of the station No.4.
- 3 Select the faulty station (station No.2).
- 4 An error has occurred in the station No.2.
- 5 Click the error details button.
- 6 The Error Factor field indicates that a cable has not been inserted into the correct port.
- 7 Take corrective actions according to the troubleshooting.

10

10.4 Checking the Error Description with the CC IE Control Diagnostics
10.4.2 Cable insertion error

(2) When a programming tool connected station is faulty

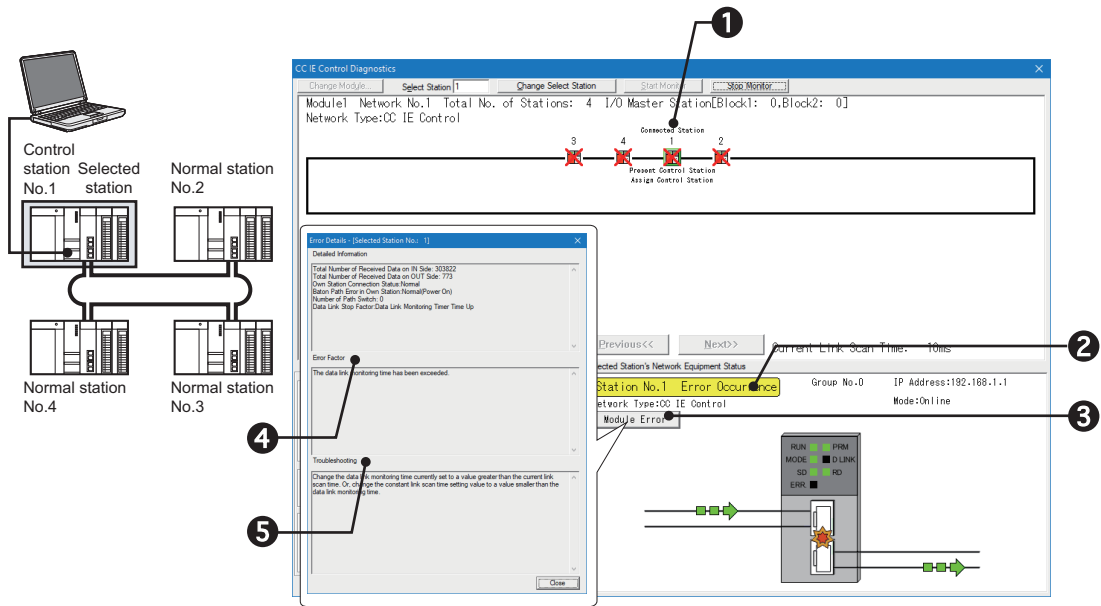
- 1 Select the own station.
- 2 A communication error has occurred between the OUT-side of the station No.2 and the IN-side of the station No.4.
- 3 An error has occurred in the station No.2.
- 4 Click the error details button.
- 5 The Error Factor field indicates that a cable has not been inserted into the correct port.
- 6 Take corrective actions according to the troubleshooting.

(3) When a programming tool connected station is disconnected from the network

- 1 An error has occurred in the station No.3.
- 2 Click the error details button.
- 3 The Error Factor field indicates that a cable has not been inserted into the correct port.
- 4 Take corrective actions according to the troubleshooting.

10.4.3 Monitoring timeout

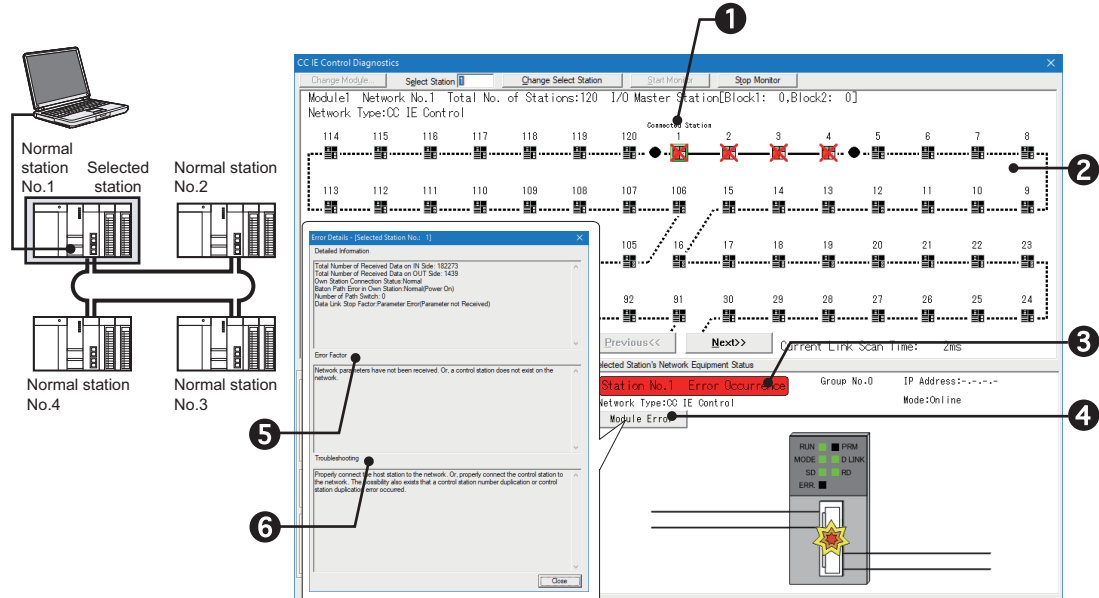
The following explains the procedures to be taken when monitoring time has timed out.



- 1 Select the own station.
- 2 An error has occurred in the station No.1.
- 3 Click the error details button.
- 4 The Error Factor field indicates that a monitoring timeout has occurred.
- 5 Take corrective actions according to the troubleshooting.

10.4.4 Parameter unreceived

The following explains the procedures to be taken when no parameters have been received since no control station exists.



- 1 Select the own station.
- 2 Stations equivalent to the maximum number of stations that can be connected are displayed because no parameters have been received.
- 3 An error has occurred in the station No.1.
- 4 Click the error details button.
- 5 The Error Factor field indicates that parameters have not been received.
- 6 Take corrective actions according to the troubleshooting.

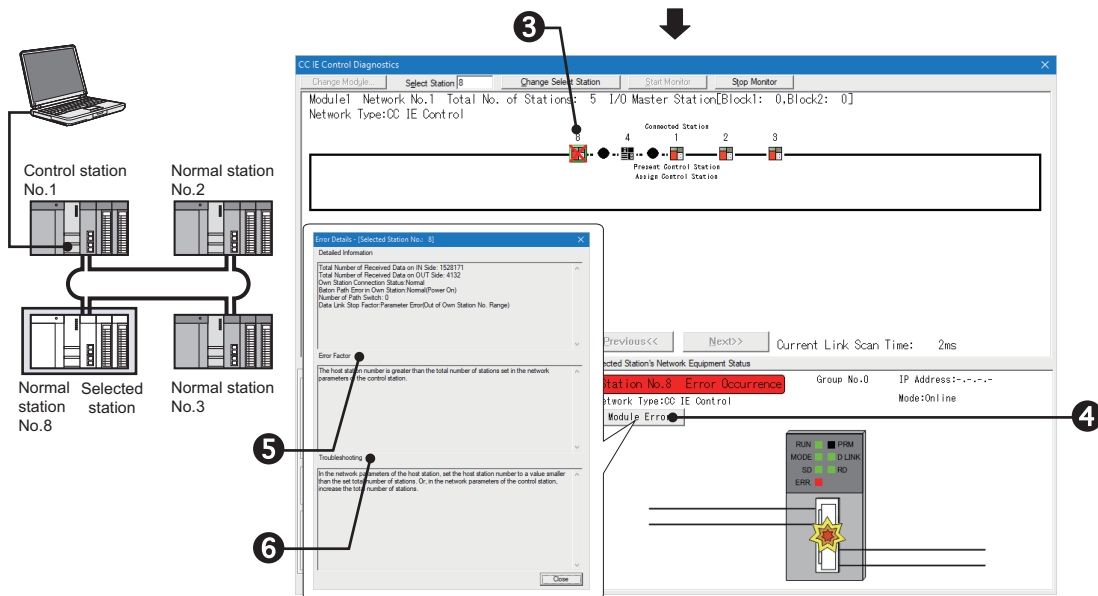
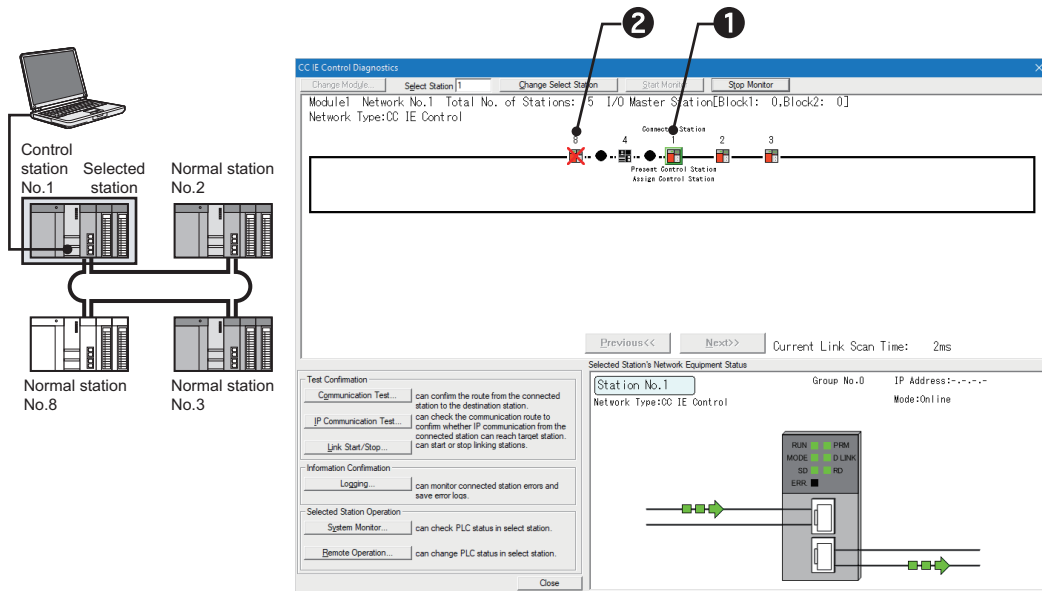
10.4.5 Own station No. is out of range

10

The following explains the procedures to be taken when a station has a station No. that is larger than the total number of stations in a network.

The total number of stations in a network is limited to four.

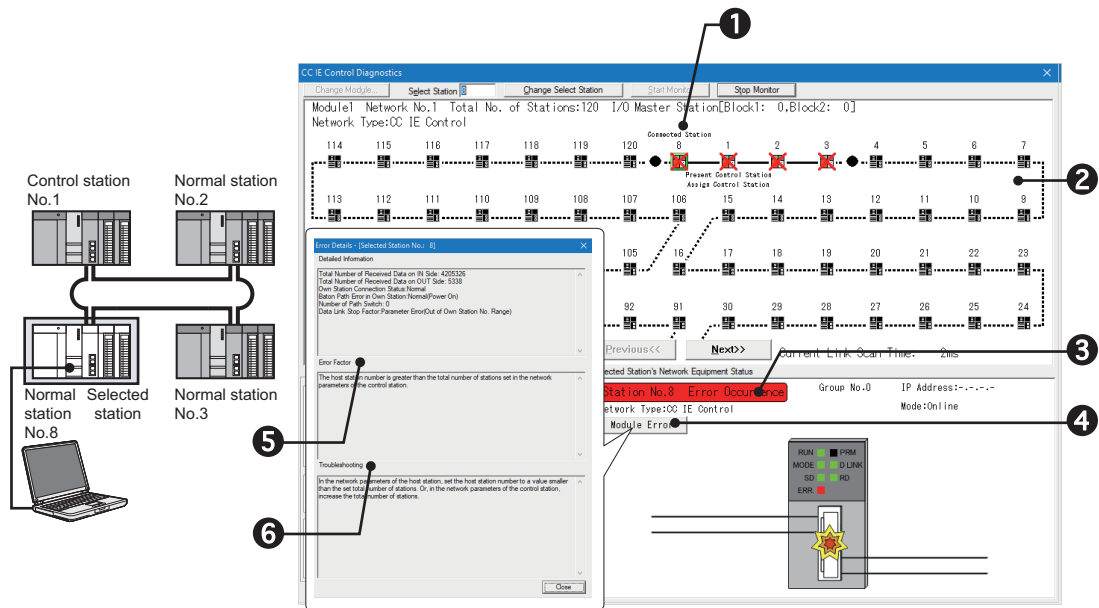
(1) When a programming tool connected station is normally operating



- 1 Select the own station.
- 2 An error has occurred in the station No.8.
- 3 Select the station No.8.
- 4 Click the error details button.
- 5 The Error Factor field indicates that the station No.8 is larger than the total station No. per network.
- 6 Take corrective actions according to the troubleshooting.

10.4 Checking the Error Description with the CC IE Control Diagnostics
10.4.5 Own station No. is out of range

(2) When a programming tool connected station is faulty



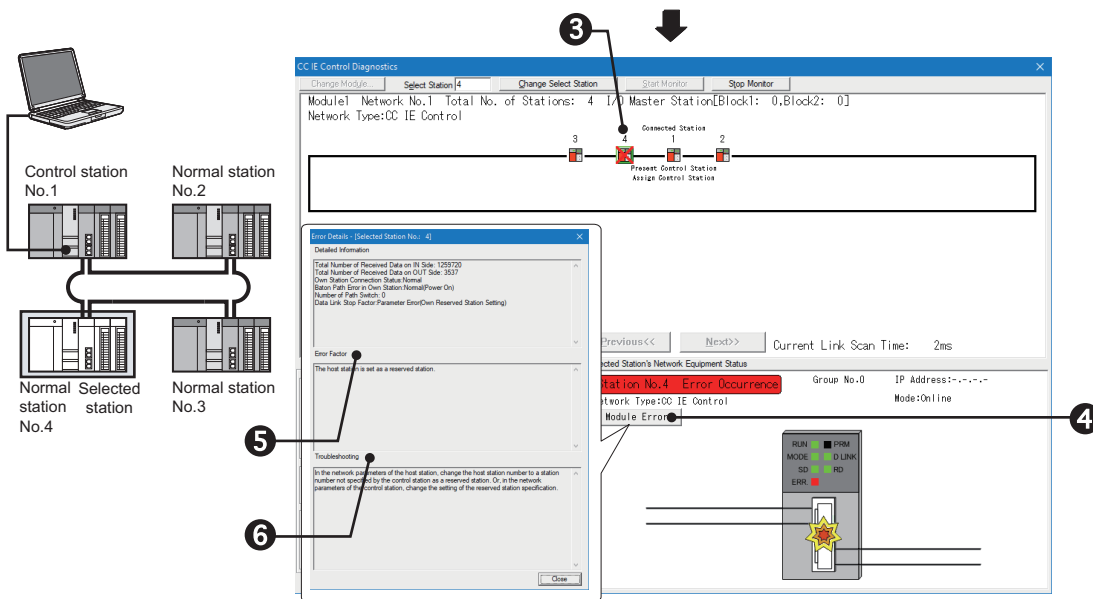
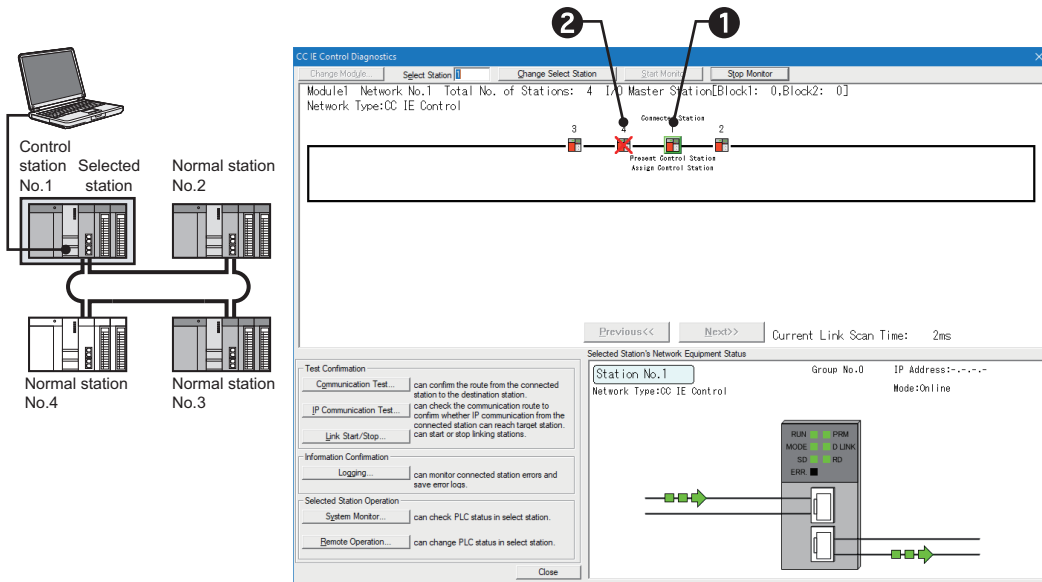
- 1 Select the own station.
- 2 Stations equivalent to the maximum number of stations that can be connected are displayed due to a parameter error.
- 3 An error has occurred in the station No.8.
- 4 Click the error details button.
- 5 The Error Factor field indicates that the station No.8 is larger than the total station No. per network.
- 6 Take corrective actions according to the troubleshooting.

10.4.6 Own station is set as reserved station

The following explains the procedures to be taken when a station set as a reserved station exists in the actual network. Station No.4 is assumed to be set as a reserved station.

10

(1) When a programming tool connected station is normally operating



- 1 Select the own station.
- 2 An error has occurred in the station No.4.
- 3 Select the station No.4.
- 4 Click the error details button.
- 5 The Error Factor field indicates that the station No.4 has been set as a reserved station.
- 6 Take corrective actions according to the troubleshooting.

10.4 Checking the Error Description with the CC IE Control Diagnostics
10.4.6 Own station is set as reserved station

(2) When a programming tool connected station is faulty

The diagram illustrates a diagnostic setup. On the left, four stations are shown: Control station No.1, Normal station No.2, Normal station No.3, and Selected station No.4. A laptop is connected to these stations. The laptop screen displays the 'CC IE Control Diagnostics' software. The software interface includes a station grid (1-120) and a 'Selected Station's Network Equipment Status' section. Station No.4 is highlighted in red, indicating an error. A pop-up window titled 'Error Details - Selected Station No.: 4' shows the following information:

```

Error Factor
-----
The host station is set as a reserved station.

Troubleshooting
-----
In the network parameters of the host station, change the host station number to a station number not specified by the control station as a reserved station. Or, in the network parameters of the control station, change the setting of the reserved station specification.
    
```

On the right, a physical station unit is shown with a red error indicator light. The software interface also shows a 'Station No.4 Error Occurrence' message and a 'Module Error' indicator.

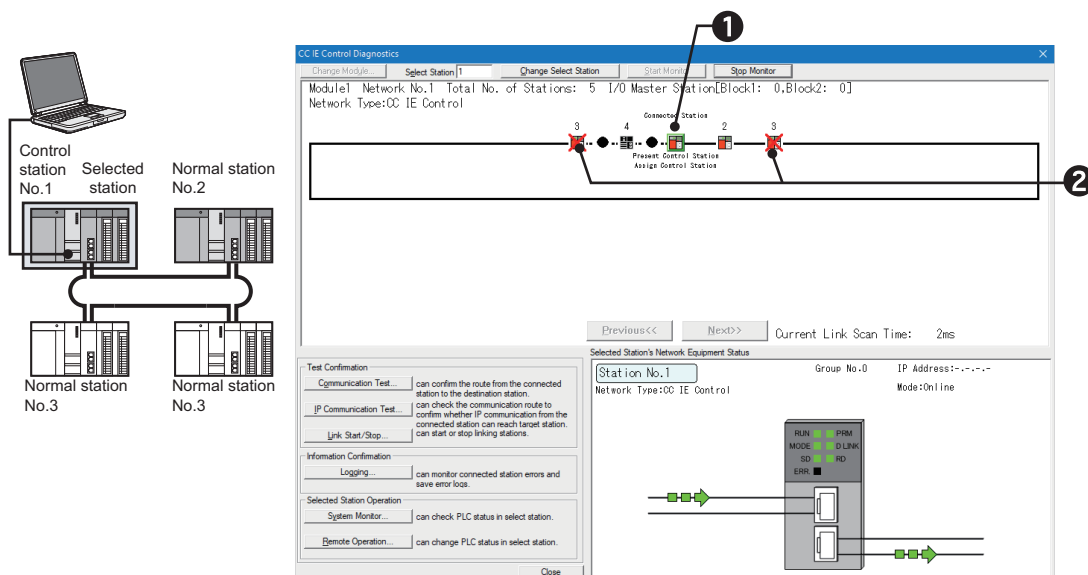
- ① Select the own station.
- ② Stations equivalent to the maximum number of stations that can be connected are displayed due to a parameter error.
- ③ An error has occurred in the station No.4.
- ④ Click the error details button.
- ⑤ The Error Factor field indicates that the station No.4 has been set as a reserved station.
- ⑥ Take corrective actions according to the troubleshooting.

10.4.7 Own station No. duplication

The following explains the procedures to be taken when station No. is duplicated.

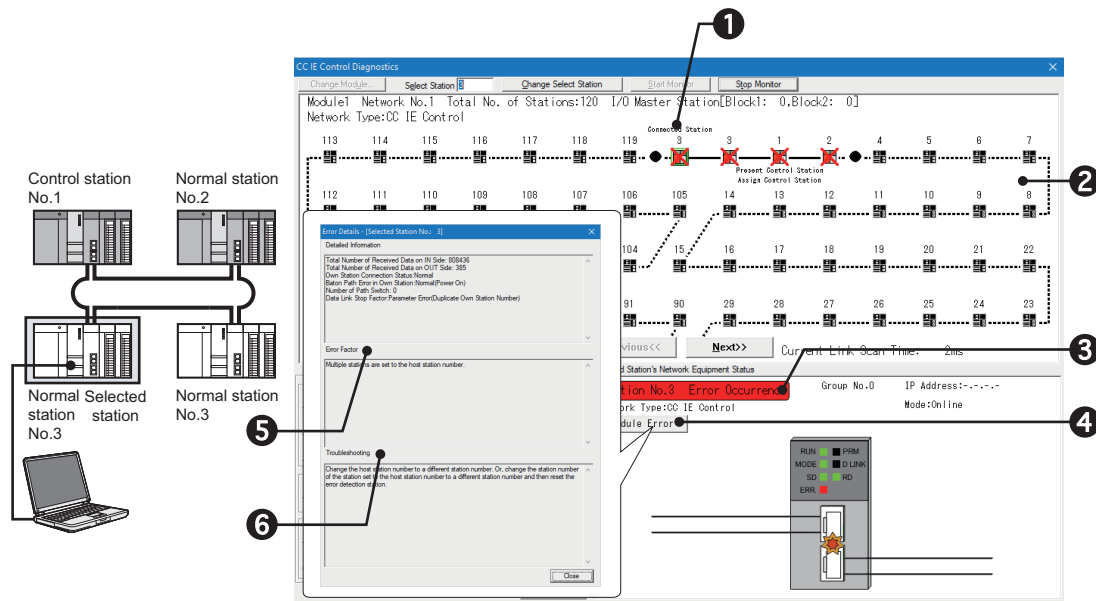
(1) Turning ON all stations simultaneously

(a) When a programming tool connected station is normally operating



- ① Select the own station.
- ② Multiple stations with the station No.3 are displayed, indicating that the same station No. is used for multiple stations. Change the station No.

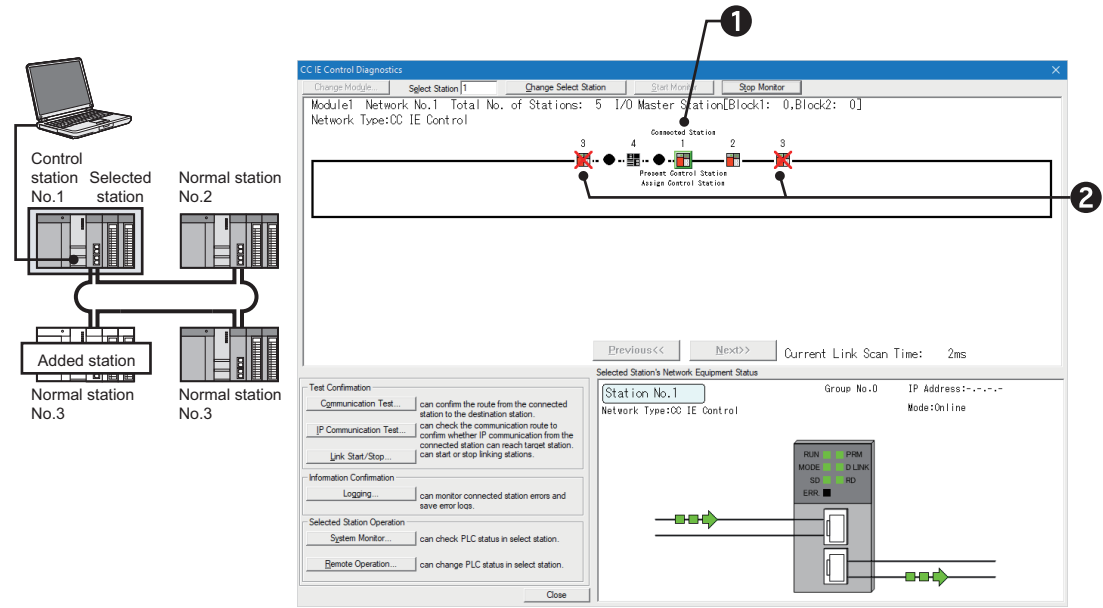
(b) When a programming tool connected station is faulty



- 1 Select the own station.
- 2 Stations equivalent to the maximum number of stations that can be connected are displayed due to a parameter error.
- 3 An error has occurred in the station No.3.
- 4 Click the error details button.
- 5 The Error Factor field indicates that the station No.3 is already used.
- 6 Take corrective actions according to the troubleshooting.

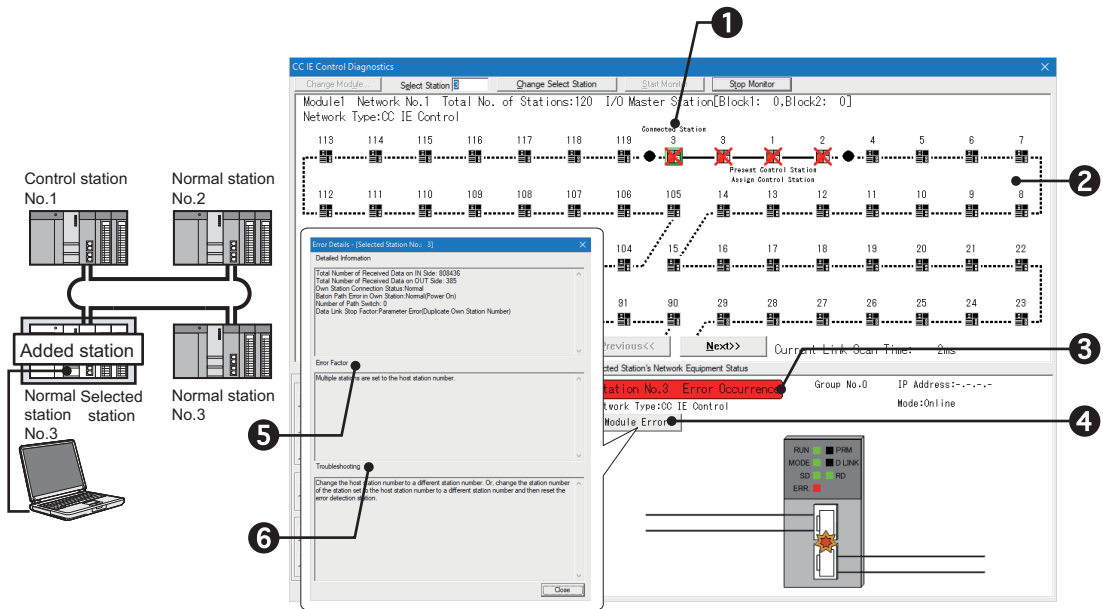
(2) Adding station to a network

(a) When a programming tool connected station is normally operating



- 1 Select the own station.
- 2 Multiple stations with the station No.3 are displayed, indicating that the same station No. is used for multiple stations. Change the station No.

(b) When a programming tool connected station is faulty



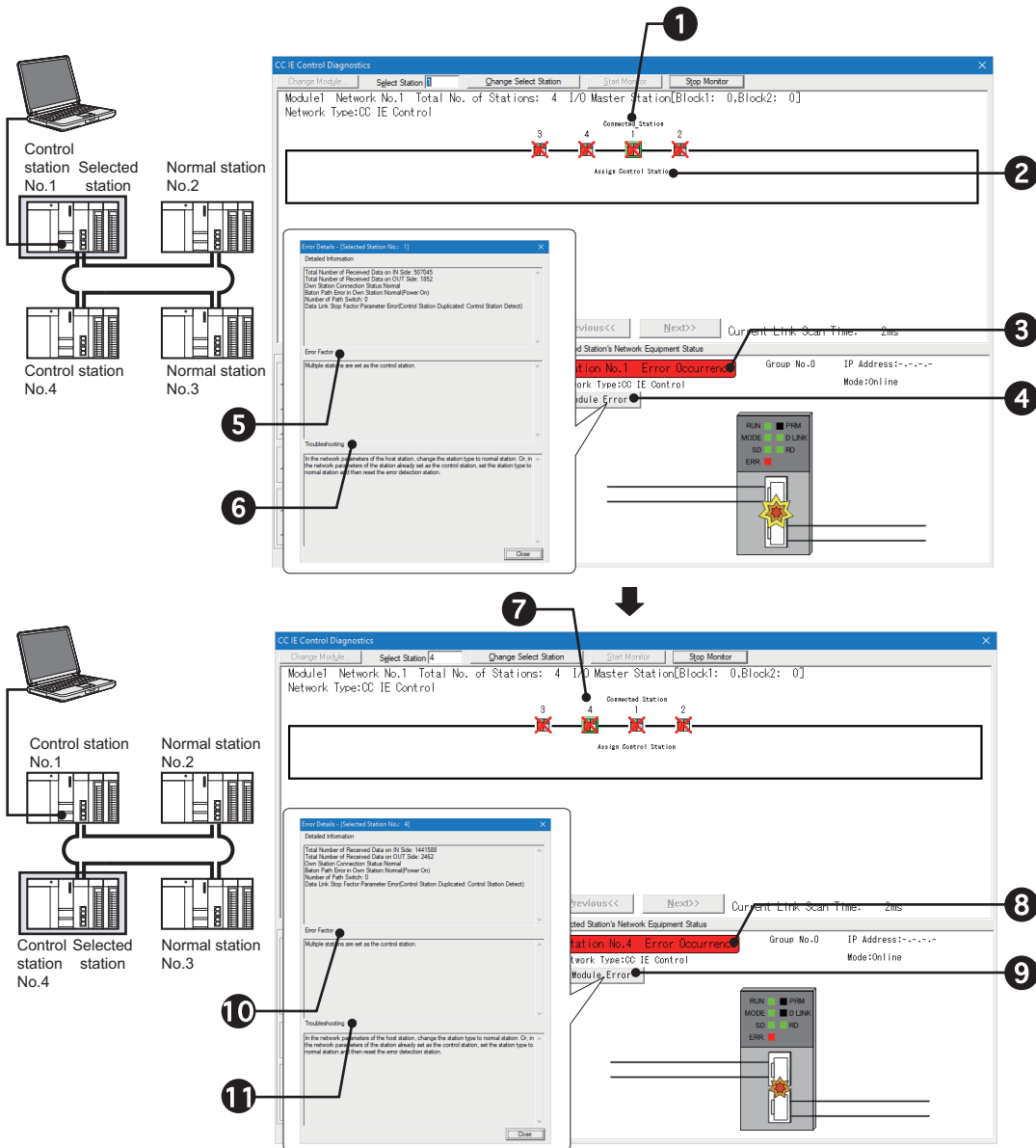
- 1 Select the own station.
- 2 Stations equivalent to the maximum number of stations that can be connected are displayed due to a parameter error.
- 3 An error has occurred in the station No.3.
- 4 Click the error details button.
- 5 The Error Factor field indicates that the station No.3 is already used.
- 6 Take corrective actions according to the troubleshooting.

10.4.8 Control station duplication

The following explains the procedures to be taken when control station is duplicated.

(1) Turning ON all stations simultaneously

Stations other than duplicated control stations do not receive parameters since they recognize that no control station exists in a network. (👉 Page 548, Section 10.4.4)



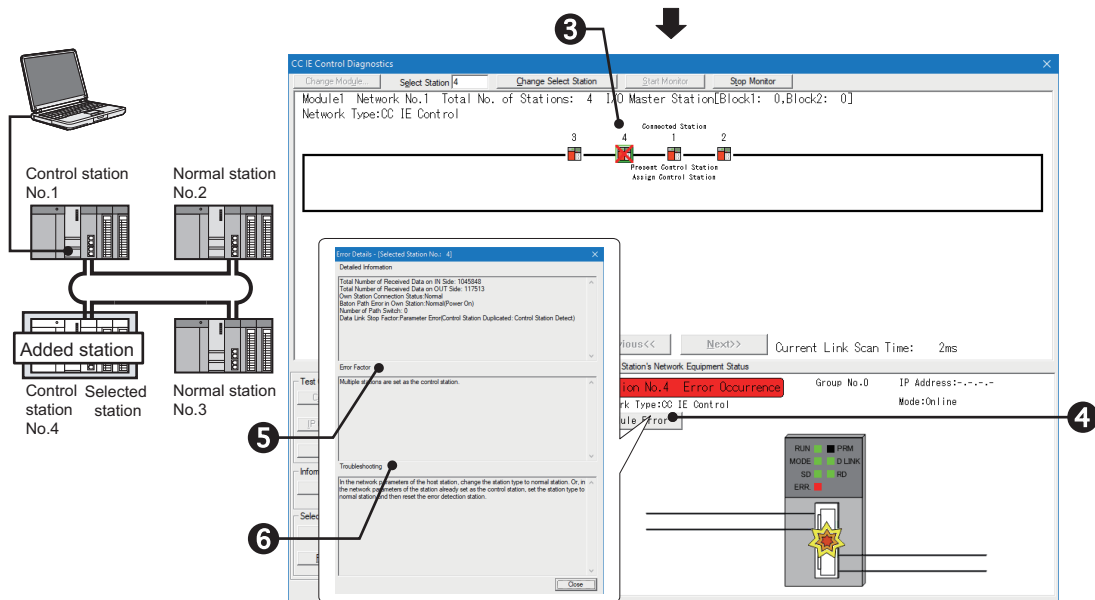
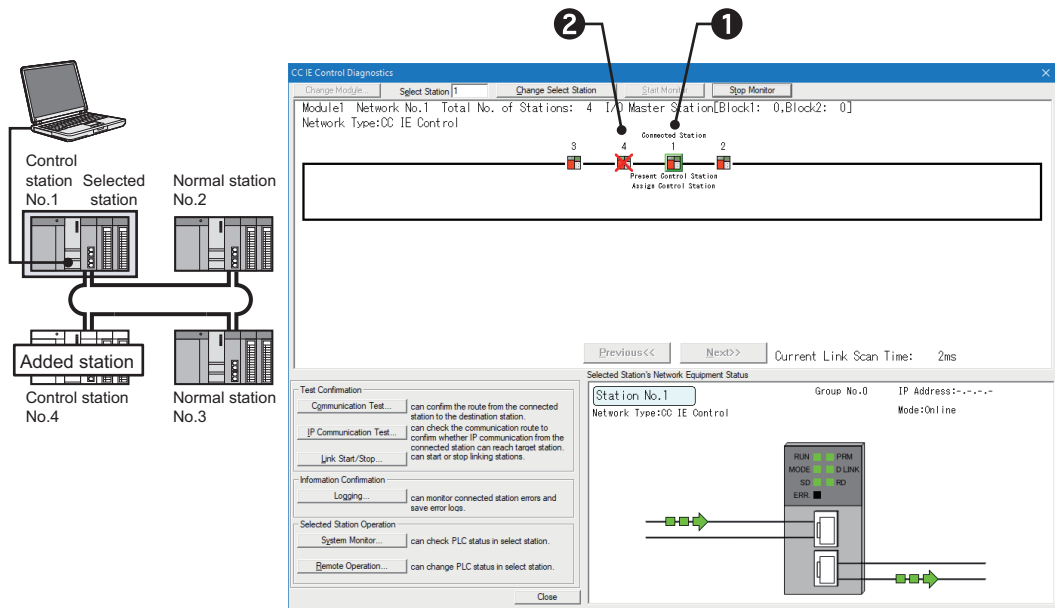
- 1 Select the own station.
- 2 The current control station is not displayed, indicating that no control station exists.
- 3 An error has occurred in the station No.1.
- 4 Click the error details button.
- 5 The Error Factor field indicates that a station other than the station No.1 has been also set as the control station.
- 6 Take corrective actions according to the troubleshooting.
- 7 Select the station No.4.
- 8 An error has occurred in the station No.4.
- 9 Click the error details button.
- 10 The Error Factor field indicates that a station other than the station No.4 has been also set as the control station.
- 11 Take corrective actions according to the troubleshooting.



If it is difficult to identify the error cause, perform the CC IE Control diagnostics after the circuit test. (Page 165, Section 5.6.1)

(2) Adding station to a network

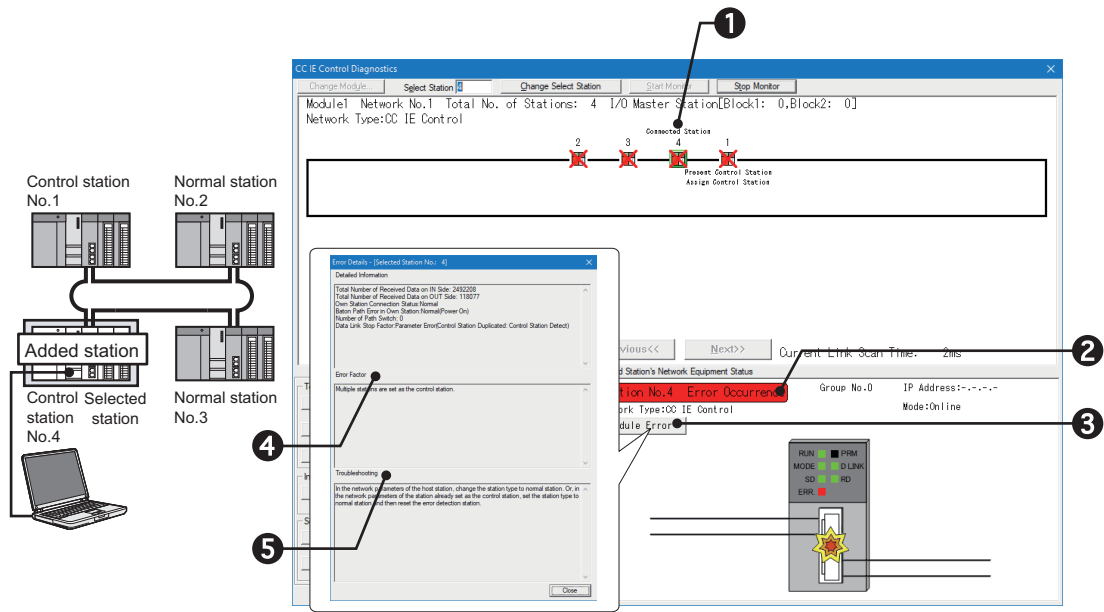
(a) When a programming tool connected station is normally operating



- 1 Select the own station.
- 2 An error has occurred in the station No.4.
- 3 Select the station No.4.
- 4 Click the error details button.
- 5 The Error Factor field indicates that a station other than the station No.4 has been also set as the control station.
- 6 Take corrective actions according to the troubleshooting.

10.4 Checking the Error Description with the CC IE Control Diagnostics
10.4.8 Control station duplication

(b) When a programming tool connected station is faulty




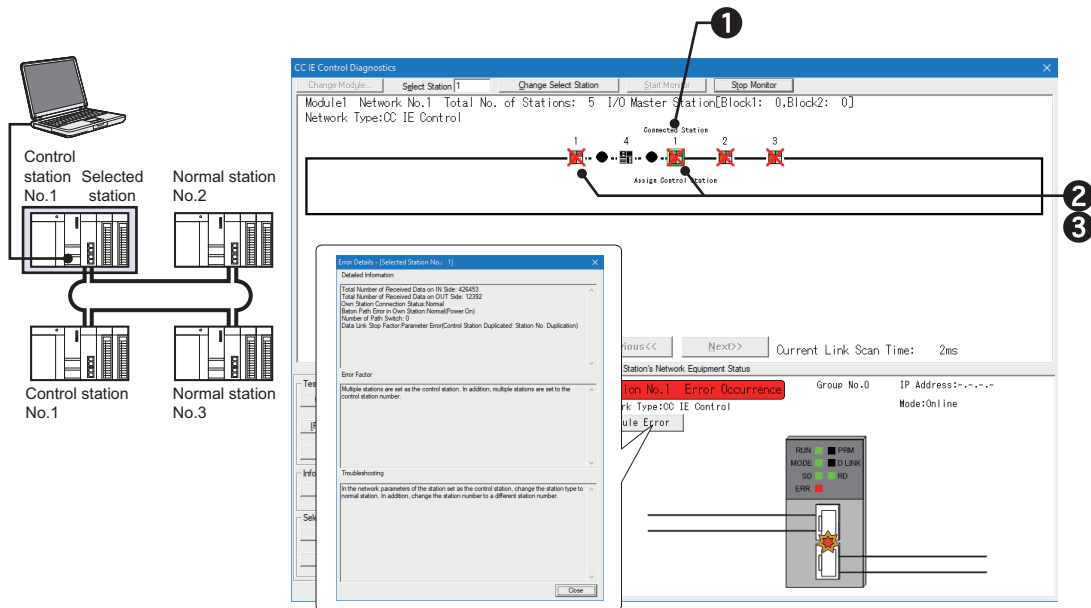
- 1 Select the own station.
- 2 An error has occurred in the station No.4.
- 3 Click the error details button.
- 4 The Error Factor field indicates that a station other than the station No.4 has been also set as the control station.
- 5 Take corrective actions according to the troubleshooting.

10.4.9 Control station duplication and own station No. duplication

The following explains the procedures to be taken when control station or station No. is duplicated.


(1) Turning ON all stations simultaneously

Stations other than duplicated control stations do not receive parameters since they recognize that no control station exists in a network. ( Page 548, Section 10.4.4)



- ① Select the own station.
- ② There are multiple control stations with the same station No. Change the network type and station No.
- ③ The current control station is not displayed, indicating that no control station exists.

Point

If it is difficult to identify the error cause, perform the CC IE Control diagnostics after the circuit test. ( Page 165, Section 5.6.1)

(2) Adding station to a network

(a) When a programming tool connected station is normally operating

The diagram on the left shows a network topology with four stations: Control station No.1 (Selected station), Normal station No.2, Added station, and Normal station No.3. A laptop is connected to the Control station No.1.

The screenshot of the 'CC IE Control Diagnostics' software shows a network diagram with five stations. Station 1 is highlighted with a red square and labeled '1'. A box around the network diagram is labeled '2'. The software interface includes tabs for 'Change Module', 'Select Station', 'Change Select Station', 'Start Monitor', and 'Stop Monitor'. The main display shows 'Module1 Network No.1 Total No. of Stations: 5 I/O Master Station(Block1: 0,Block2: 0) Network Type:CC IE Control'. Below the network diagram, there are buttons for 'Previous<<' and 'Next>>', and a 'Current Link Scan Time: 2ms' indicator. The 'Selected Station's Network Equipment Status' section shows 'Station No.1' with 'Group No.0' and 'IP Address: -.-.-.-' (Mode:Online). A status indicator shows 'RUN' (green), 'PRM' (green), 'MODE' (green), 'D LINK' (green), 'SD' (green), 'RD' (green), and 'ERR' (red). Below this is a diagram of a station rack with a green arrow pointing to the top slot.

- 1 Select the own station.
- 2 There are multiple control stations with the same station No. Change the network type and station No.

(b) When a programming tool connected station is faulty

The diagram on the left shows a network topology with four stations: Control station No.1, Normal station No.2, Added station, and Normal station No.3. A laptop is connected to the Control station No.1.

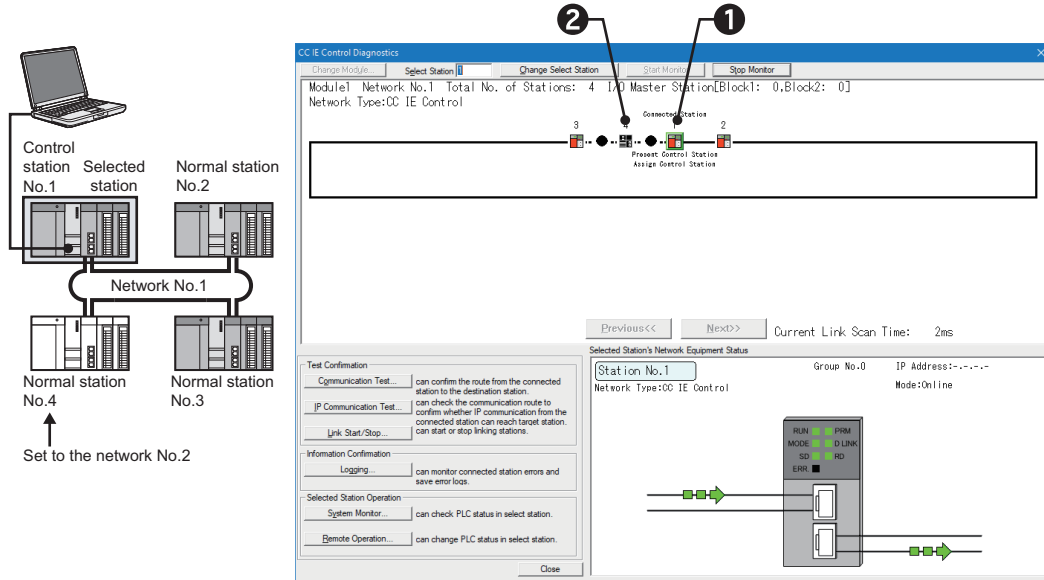
The screenshot of the 'CC IE Control Diagnostics' software shows a network diagram with five stations. Station 1 is highlighted with a red square and labeled '1'. A box around the network diagram is labeled '2'. The software interface includes tabs for 'Change Module', 'Select Station', 'Change Select Station', 'Start Monitor', and 'Stop Monitor'. The main display shows 'Module1 Network No.1 Total No. of Stations: 5 I/O Master Station(Block1: 0,Block2: 0) Network Type:CC IE Control'. Below the network diagram, there are buttons for 'Previous<<' and 'Next>>', and a 'Current Link Scan Time: 2ms' indicator. The 'Selected Station's Network Equipment Status' section shows 'Station No.1 Error Occurrence' with 'Group No.0' and 'IP Address: -.-.-.-' (Mode:Online). A status indicator shows 'RUN' (green), 'PRM' (green), 'MODE' (green), 'D LINK' (green), 'SD' (green), 'RD' (green), and 'ERR' (red). Below this is a diagram of a station rack with a yellow starburst icon on the top slot.

- 1 Select the own station.
- 2 There are multiple control stations with the same station No. Change the network type and station No.

10.4.10 Illegal network No.

The following explains the procedures to be taken when network No. is incorrectly set.

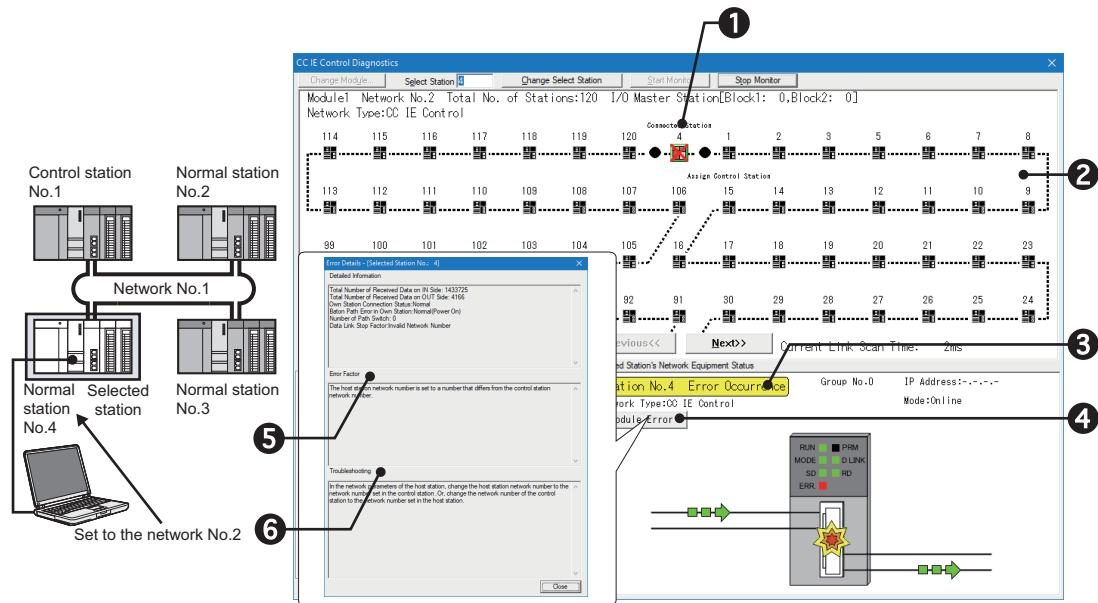
(1) When a programming tool connected station is faulty



- ① Select the own station.
- ② The station No.4 is disconnected.

10.4 Checking the Error Description with the CC IE Control Diagnostics
10.4.10 Illegal network No.

(2) When a programming tool connected station is faulty



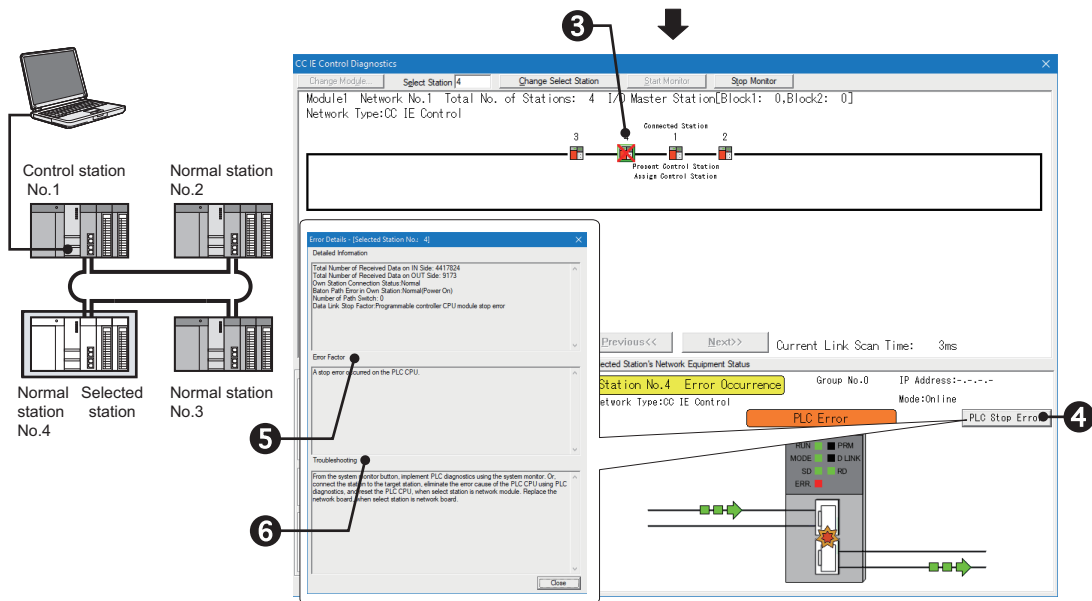
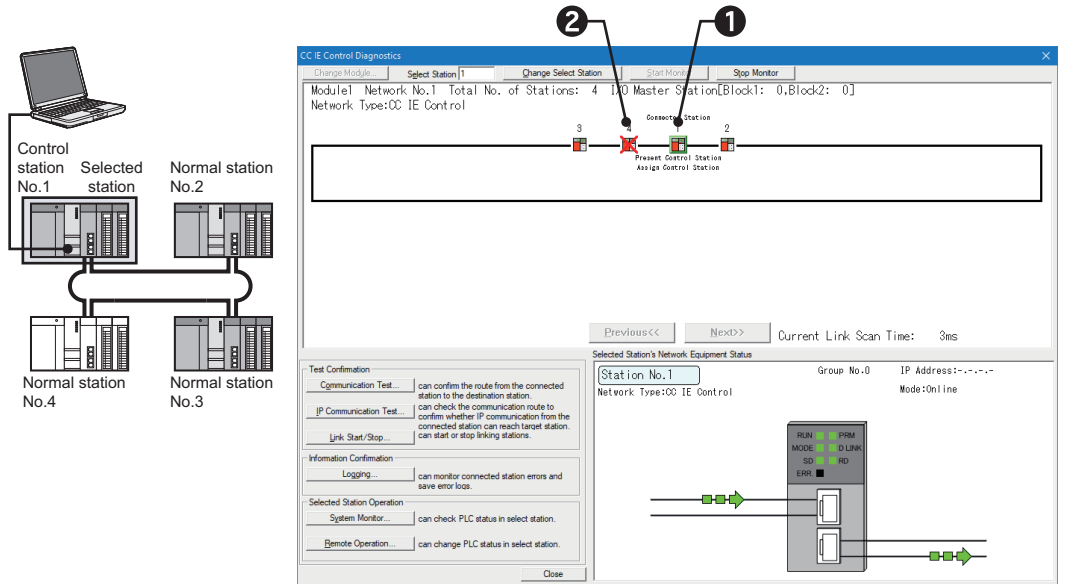
- 1 Select the own station.
- 2 Stations equivalent to the maximum number of stations that can be connected are displayed due to a parameter error.
- 3 An error has occurred in the station No.4.
- 4 Click the error details button.
- 5 The Error Factor field indicates that the network No. of the station No.4 has been set incorrectly.
- 6 Take corrective actions according to the troubleshooting.

10.4.11 CPU module stop error

The following explains the procedures to be taken when the CPU module stop error occurs.

10

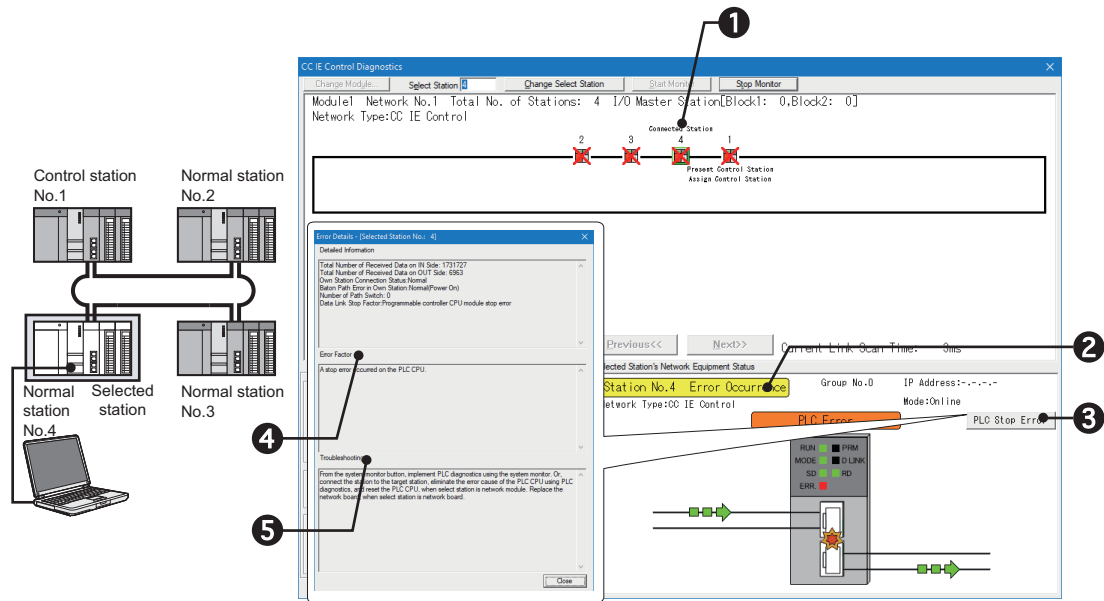
(1) When a programming tool connected station is normally operating



- 1 Select the own station.
- 2 An error has occurred in the station No.4.
- 3 Select the station No.4.
- 4 Click the error details button.
- 5 The Error Factor field indicates that a CPU module stop error has occurred.
- 6 Take corrective actions according to the troubleshooting.

10.4 Checking the Error Description with the CC IE Control Diagnostics
10.4.11 CPU module stop error

(2) When a programming tool connected station is faulty



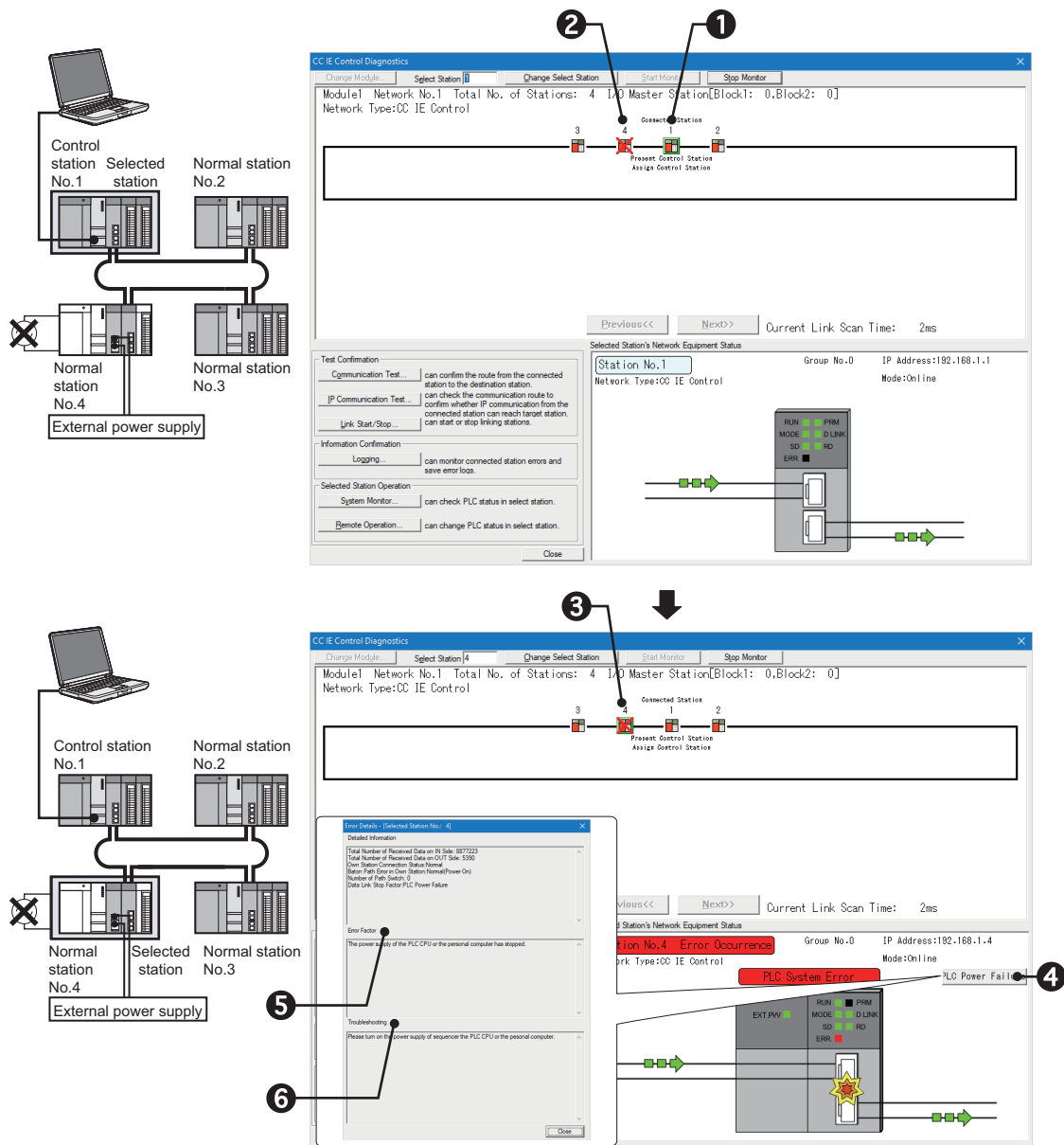
- 1 Select the own station.
- 2 An error has occurred in the station No.4.
- 3 Click the error details button.
- 4 The Error Factor field indicates that a CPU module stop error has occurred.
- 5 Take corrective actions according to the troubleshooting.

10.4.12 CPU module power stop error

The following explains the procedures to be taken when power of the CPU module, to which the CC-Link IE Controller Network module with the external power supply function is installed, has been down.
 The CC IE Control diagnostics is not executable for the faulty station because its CPU module has been powered OFF.

10

(1) When a programming tool connected station is normally operating



- 1 Select the own station.
- 2 An error has occurred in the station No.4.
- 3 Select the station No.4.
- 4 Click the error details button.
- 5 The Error Factor field indicates that the CPU module has been powered OFF.
- 6 Take corrective actions according to the troubleshooting.

10.4 Checking the Error Description with the CC IE Control Diagnostics
 10.4.12 CPU module power stop error

10.4.13 External power not supplied

The following explains the procedures to be taken when no external power is supplied to the CC-Link IE Controller Network module with external power supply function.

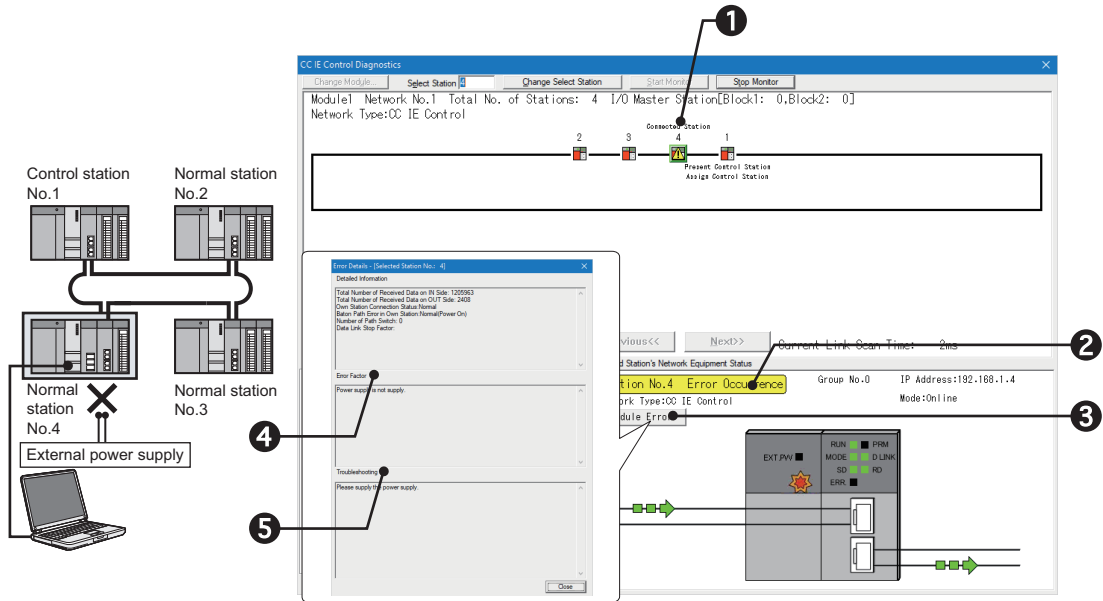
(1) When a programming tool connected station is normally operating

The diagram illustrates a network setup with four stations: Control station No.1 (Selected station), Normal station No.2, Normal station No.3, and Normal station No.4. An external power supply is connected to station No.4, which is marked with a red 'X' indicating a power issue.

The screenshots show the 'CC IE Control Diagnostics' software interface. In the first screenshot, station No.1 is selected. In the second screenshot, station No.4 is selected, and an error message 'Power supply not supply' is displayed. The error details window shows the error factor as 'Power supply not supply' and provides troubleshooting instructions: 'Please supply the power supply'.

- 1 Select the own station.
- 2 An error has occurred in the station No.4.
- 3 Select the station No.4.
- 4 Click the error details button.
- 5 The Error Factor field indicates that no external power is supplied.
- 6 Take corrective actions according to the troubleshooting.

(2) When a programming tool connected station is faulty



- 1 Select the own station.
- 2 An error has occurred in the station No.4.
- 3 Click the error details button.
- 4 The Error Factor field indicates that no external power is supplied.
- 5 Take corrective actions according to the troubleshooting.

10.4 Checking the Error Description with the CC IE Control Diagnostics
10.4.13 External power not supplied

APPENDICES

Appendix 1 Link Special Relay (SB) List

The link special relay (SB) is turned ON/OFF depending on various factors at data link.

The link special relay (SB) can grasp the data link error status by using it in a sequence program or monitoring it.

(1) Application of link special relay (SB)

The status of the CC-Link IE Controller Network module can be checked without a programming tool, using link special relay (SB).

(2) Mounting multiple network modules

The link special relay (SB) of each network module is refreshed by the link special relay (SB) of the CPU module shown below when the refresh parameters of each network module remain default.

Item	Module 1	Module 2	Module 3	Module 4
Device No.	SB0000 to SB01FF	SB0200 to SB03FF	SB0400 to SB05FF	SB0600 to SB07FF

(3) Range turned ON/OFF by user and range turned ON/OFF by system


The following shows the range when the assignment range of link special relay (SB) is SB0000 to SB01FF.

- Range turned ON/OFF by user: SB0000 to SB001F
- Range turned ON/OFF by system: SB0020 to SB01FF

(4) Link special relay (SB) list

Link special relays (SB) for which SB0000 to SB01FF are assigned are listed on the following pages.

Point


- Do not turn ON the area of the No. which does not exist in the link special relay (SB) list.
Turning ON the area of the No. which does not exist in the list may cause malfunction of the programmable controller system.
 - For how to use link special relay (SB), refer to the following.
 Page 306, Section 8.3
-

No.	Name	Description	Availability	
			Control station	Normal station
SB0000	Link startup (own station)	<p>Restarts cyclic transmission of own station.</p> <p>OFF: Startup not directed ON: Startup directed (valid at rising)</p> <p>(Condition)</p> <ul style="list-style-type: none"> Valid when Baton pass status (own station) (SB0047) is OFF. When Baton pass status (own station) (SB0047) is turned ON (error), data prior to error is held. Valid only when one of SB0000 to SB0003 is turned ON. 	○	○
SB0001	Link stop (own station)	<p>Stops cyclic transmission of own station.</p> <p>OFF: Stop not directed ON: Stop directed (valid at rising)</p> <p>(Condition)</p> <ul style="list-style-type: none"> Valid when Baton pass status (own station) (SB0047) is OFF. When Baton pass status (own station) (SB0047) is turned ON (error), data prior to error is held. Valid only when one of SB0000 to SB0003 is turned ON. 	○	○
SB0002	System link startup	<p>Restarts cyclic transmission of the entire system.</p> <p>The station to restart cyclic transmission can be specified by Link stop/startup direction (SW0000 to SW0008) or Group specification for link stop/startup (SW0012 to SW0013).</p> <p>OFF: Startup not directed ON: Startup directed (valid at rising)</p> <p>(Condition)</p> <ul style="list-style-type: none"> Valid when Baton pass status (own station) (SB0047) is OFF. When Baton pass status (own station) (SB0047) is turned ON (error), data prior to error is held. Valid only when one of SB0000 to SB0003 is turned ON. 	○	○
SB0003	System link stop	<p>Stops cyclic transmission of the entire system.</p> <p>The station to stop cyclic transmission can be specified by Link stop/startup direction (SW0000 to SW0008) or Group specification for link stop/startup (SW0012 to SW0013).</p> <p>OFF: Stop not directed ON: Stop directed (valid at rising)</p> <p>(Condition)</p> <ul style="list-style-type: none"> Valid when Baton pass status (own station) (SB0047) is OFF. When Baton pass status (own station) (SB0047) is turned ON (error), data prior to error is held. Valid only when one of SB0000 to SB0003 is turned ON. 	○	○
SB0006	Clear communication error count	<p>Clears the communication error count that is displayed at CC IE Control diagnostics into 0.</p> <p>OFF: Clear not directed ON: Clear directed (Number of errors is not counted during ON)</p>	○	○
SB0007	Clear IN-side transmission error counter	<p>Clears the IN-side line error detection area (SW0068, SW0069, SB006E, SB0140, SW0074, SW0140 to SW0147) into 0.</p> <p>OFF: Clear not directed ON: Clear directed (Number of errors is not counted during ON)</p>	○	○

No.	Name	Description	Availability	
			Control station	Normal station
SB0008	Clear OUT-side transmission error counter	Clears the OUT-side line error detection area (SB006F, SB0150, SW006A, SW006B, SW0084, SW0150 to SW0157) into 0. OFF: Clear not directed ON: Clear directed (Number of errors is not counted during ON)	○	○
SB0009	Clear loop switching counter	Clears the own station's path switching detection area (SB008E, SB0160, SW006E, SW0160 to SW0167) and path switching history (Un\G2784 to 2945) to 0. OFF: Clear not directed ON: Clear directed (The number of switching is not counted during ON)	○	○
SB000A	Clear transient transmission error counter	Clears the own station's area for transient transmission errors (SB008F, SB0170, SW006F, SW170 to SW0177) and transient transmission error log (Un\2592 to 2753) to 0. OFF: Clear not directed ON: Clear directed (Number of errors is not counted during ON)	○	○
SB0017	Data-link-error-induced system switching disable flag	Disables system switching due to a data link error. OFF: Enable (System switching is requested to the control system CPU.) ON: Disable (System switching is not requested to the control system CPU.)	○	○
SB0020	Module status	Stores the status of communications between a CC-Link IE Controller Network module and a CPU module. OFF: Normal ON: Error	○	○
SB0030	RECV execution request flag (1)	Stores the data reception status of channel 1 of the own station. OFF: No data reception ON: Data received (Condition) • Valid when Baton pass status (own station) (SB0047) is OFF. When Baton pass status (own station) (SB0047) is turned ON (error), data prior to error are held.	○	○
SB0031	RECV execution request flag (2)	Stores the data reception status of channel 2 of the own station. OFF: No data reception ON: Data received (Condition) • Valid when Baton pass status (own station) (SB0047) is OFF. When Baton pass status (own station) (SB0047) is turned ON (error), data prior to error are held.	○	○
SB0032	RECV execution request flag (3)	Stores the data reception status of channel 3 of the own station. OFF: No data reception ON: Data received (Condition) • Valid when Baton pass status (own station) (SB0047) is OFF. When Baton pass status (own station) (SB0047) is turned ON (error), data prior to error are held.	○	○

No.	Name	Description	Availability	
			Control station	Normal station
SB0033	RECV execution request flag (4)	Stores the data reception status of channel 4 of the own station. OFF: No data reception ON: Data received (Condition) • Valid when Baton pass status (own station) (SB0047) is OFF. When Baton pass status (own station) (SB0047) is turned ON (error), data prior to error are held.	○	○
SB0034	RECV execution request flag (5)	Stores the data reception status of channel 5 of the own station. OFF: No data reception ON: Data received (Condition) • Valid when Baton pass status (own station) (SB0047) is OFF. When Baton pass status (own station) (SB0047) is turned ON (error), data prior to error are held.	○	○
SB0035	RECV execution request flag (6)	Stores the data reception status of channel 6 of the own station. OFF: No data reception ON: Data received (Condition) • Valid when Baton pass status (own station) (SB0047) is OFF. When Baton pass status (own station) (SB0047) is turned ON (error), data prior to error are held.	○	○
SB0036	RECV execution request flag (7)	Stores the data reception status of channel 7 of the own station. OFF: No data reception ON: Data received (Condition) • Valid when Baton pass status (own station) (SB0047) is OFF. When Baton pass status (own station) (SB0047) is turned ON (error), data prior to error are held.	○	○
SB0037	RECV execution request flag (8)	Stores the data reception status of channel 8 of the own station. OFF: No data reception ON: Data received (Condition) • Valid when Baton pass status (own station) (SB0047) is OFF. When Baton pass status (own station) (SB0047) is turned ON (error), data prior to error are held.	○	○
SB0040	Network type (own station)	Stores the network type of own station. OFF: Controller network	○	○
SB0041	Host station's redundant function support information	Stores the redundant system information of the CC-Link IE Controller Network module on the own station. OFF: Redundant function not supported ON: Redundant function supported	○	○
SB0042	Power supply status of host	Stores the external power supply status of the CC-Link IE Controller Network module of the own station. OFF: External power not supplied (EXT.PW LED is OFF.) ON: External power supplied (EXT.PW LED is ON.) This relay is always OFF when the CC-Link IE Controller Network module does not have the external power supply function.	○	○

A

No.	Name	Description	Availability	
			Control station	Normal station
SB0043	Online switch (own station)	Stores the mode of own station. ( Page 182, Section 6.2 (7)) OFF: Online ON: Other than online	<input type="radio"/>	<input type="radio"/>
SB0044	Station setting (own station)	Stores the network type that is set by parameters of own station. OFF: Normal station ON: Control station	<input type="radio"/>	<input type="radio"/>
SB0047	Baton pass status (own station)	Stores the baton pass status (transient transmission availability) of the own station. OFF: Normal ON: Error When an error is identified, the cause of the error can be checked in Baton pass status (own station) (SW0047) and Cause of baton pass interruption (SW0048). Depending on the link refresh timing, Baton pass status (own station) (SW0047) or Cause of baton pass Interruption (SW0048) and the update may be offset by one sequence scan.	<input type="radio"/>	<input type="radio"/>
SB0048	Control station status (own station)	Stores network type (current status) of own station. OFF: Normal station ON: Control station (when SB0044 is turned ON) Sub-control station (when SB0044 is turned OFF) (Condition) • Valid when Baton pass status (own station) (SB0047) is OFF. When Baton pass status (own station) (SB0047) is turned ON (error), data prior to error is held.	<input type="radio"/>	<input type="radio"/>
SB0049	Data link status of own station	Stores the data link status of own station. OFF: Normal ON: Error When an error is identified, the cause of the error can be checked in Cause of data link stop (SW0049). Depending on the link refresh timing, Cause of data link stop (SW0049) and the update may be offset by one sequence scan.	<input type="radio"/>	<input type="radio"/>
SB004A	Own station's CPU status (1)	Stores the continuation error status of the CPU module of the own station. OFF: Normal ON: Continuation error	<input type="radio"/>	<input type="radio"/>
SB004B	Own station's CPU status (2)	Stores the stop error status of the CPU module of the own station. OFF: Normal ON: Stop error	<input type="radio"/>	<input type="radio"/>
SB004C	Cyclic transmission start accept status (own station)	Turned ON when startup request for cyclic transmission due to Link startup (own station) (SB0000) is received. OFF: Not received (SB0000 is OFF) ON: Startup received (SB0000 is ON) (Condition) • Valid when Baton pass status (own station) (SB0047) is OFF. When Baton pass status (own station) (SB0047) is turned ON (error), data prior to error is held.	<input type="radio"/>	<input type="radio"/>

No.	Name	Description	Availability	
			Control station	Normal station
SB004D	Cyclic transmission start completion status (own station)	Turned ON when Cyclic transmission start accept status (own station) (SB004C) is turned ON and startup of cyclic transmission is completed. OFF: Startup uncompleted (SB0000 is OFF) ON: Startup completed (SB0000 is ON) (Condition) • Valid when Baton pass status (own station) (SB0047) is OFF. When Baton pass status (own station) (SB0047) is turned ON (error), data prior to error is held.	○	○
SB004E	Cyclic transmission stop accept status (own station)	Turned ON when stop request of cyclic transmission due to Link stop (own station) (SB0001) is received. OFF: Not received (SB0001 is OFF) ON: Stop received (SB0001 is ON) (Condition) • Valid when Baton pass status (own station) (SB0047) is OFF. When Baton pass status (own station) (SB0047) is turned ON (error), data prior to error is held.	○	○
SB004F	Cyclic transmission stop completion status (own station)	Turned ON when Cyclic transmission stop accept status (own station) (SB004E) is turned ON and cyclic transmission stop is completed. OFF: Stop uncompleted (SB0001 is OFF) ON: Stop completed (SB0001 is ON) (Condition) • Valid when Baton pass status (own station) (SB0047) is OFF. When Baton pass status (own station) (SB0047) is turned ON (error), data prior to error is held.	○	○
SB0050	Cyclic transmission start accept status (system)	Turned ON when startup request due to System link startup (SB0002) is received. OFF: Not received (SB0002 is OFF) ON: Startup received (SB0002 is ON) (Condition) • Valid when Baton pass status (own station) (SB0047) is OFF. When Baton pass status (own station) (SB0047) is turned ON (error), data prior to error is held.	○	○
SB0051	Cyclic transmission start completion status (system)	Turned ON when Cyclic transmission start accept status (system)(SB0050) is turned ON and cyclic transmission startup is completed. OFF: Startup uncompleted (SB0002 is OFF) ON: Startup completed (SB0002 is ON) (Condition) • Valid when Baton pass status (own station) (SB0047) is OFF. When Baton pass status (own station) (SB0047) is turned ON (error), data prior to error is held.	○	○
SB0052	Cyclic transmission stop accept status (system)	Turned ON when stop request of cyclic transmission due to System link stop (SB0003) is received. OFF: Not received (SB0003 is OFF) ON: Stop received (SB0003 is ON) (Condition) • Valid when Baton pass status (own station) (SB0047) is OFF. When Baton pass status (own station) (SB0047) is turned ON (error), data prior to error is held.	○	○

A

Appendix 1 Link Special Relay (SB) List

No.	Name	Description	Availability	
			Control station	Normal station
SB0053	Cyclic transmission stop completion status (system)	Turned ON when Cyclic transmission stop accept status (system)(SB0052) is turned ON and cyclic transmission stop is completed. OFF: Stop uncompleted (SB0003 is OFF) ON: Stop completed (SB0003 is ON) (Condition) • Valid when Baton pass status (own station) (SB0047) is OFF. When Baton pass status (own station) (SB0047) is turned ON (error), data prior to error is held.	○	○
SB0054	Parameter receive status	Stores the status of receiving parameters. The parameter receive status from the CPU module is stored for the control station. The parameter receive status from the control station is stored for the normal station. OFF: Receive completed ON: Receive uncompleted	○	○
SB0055	Received parameter error	Stores the status of received parameter (Own parameter status is stored for the control station) OFF: Parameter normal ON: Parameter error	○	○
SB0056	Communication status	Stores the transient transmission status. OFF: Transient transmission by control station ON: Transient transmission by sub-control station (Condition) • Valid when Baton pass status (own station) (SB0047) is OFF. When Baton pass status (own station) (SB0047) is turned ON (error), data prior to error is held.	○	○
SB005A	Parameter type	Stores Network Type of the control station. OFF: CC IE Control ON: CC IE Control Extended Mode	○	○
SB005B	Own station's CPU RUN status	Stores the RUN status of the CPU module of the own station. OFF: RUN, STEP-RUN ON: The CPU module stop due to STOP, PAUSE, or error	○	○
SB005C	I/O master station (Block 1)	Stores the I/O master station setting status of block 1. OFF: No setting ON: Setting set When the setting is set, the station No. is stored into I/O master station (Block 1) (SW005C). (Condition) • Valid when Data link status of own station (SB0049) is OFF.	○	○
SB005D	I/O master station (Block 2)	Stores the I/O master station setting status of block 2. OFF: No setting ON: Setting set When the setting is set, the station No. is stored into I/O master station (Block 2) (SW005D). (Condition) • Valid when Data link status of own station (SB0049) is OFF.	○	○
SB005E	Own station's CPU type	Stores the CPU type of the own station. OFF: Other than Basic model QCPU and safety CPU ON: Basic model QCPU or safety CPU	○	○

No.	Name	Description	Availability	
			Control station	Normal station
SB0060	Communication mode	Stores the constant link scan status. OFF: Constant link scan is invalid ON: Constant link scan is valid (Condition) • Valid when Data link status of own station (SB0049) is OFF.	○	○
SB0061	Cyclic transmission punctuality assurance	Stores the status of cyclic transmission punctuality assurance. OFF: Cyclic transmission punctuality assurance is invalid ON: Cyclic transmission punctuality assurance is valid (Condition) • Valid when Data link status of own station (SB0049) is OFF.	○	○
SB0064	Own station's loop status	Stores the transmission path status of the own station. OFF: Normal ON: Error When an error is identified, the error details can be checked by Own station's loop status (SW0064).	○	○
SB0065	Loopback status	Stores the loopback execution status. (Including own station) OFF: All stations normal ON: Station where loopback is performed exists (Condition) • Valid when Baton pass status (own station) (SB0047) is OFF. When Baton pass status (own station) (SB0047) is turned ON (error), data prior to error is held.	○	○
SB0066	Own station's IN-side link-up status	Stores the IN-side link-up status of own station. OFF: Linking up ON: Linking down	○	○
SB0067	Own station's OUT-side link-up status	Stores the OUT-side link-up status of own station. OFF: Linking up ON: Linking down	○	○
SB0068	Own station's IN-side link establishing status	Stores the IN-side link establishing status of own station. OFF: Link establishment completed ON: Link establishing	○	○
SB0069	Own station's OUT-side link establishing status	Stores the OUT-side link establishing status of own station. OFF: Link establishment completed ON: Link establishing	○	○
SB006A	Own station's IN-side cabling status	Stores the IN-side cabling status of own station. OFF: Normal ON: Inserted incorrectly	○	○
SB006B	Own station's OUT-side cabling status	Stores the OUT-side cabling status of own station. OFF: Normal ON: Inserted incorrectly	○	○
SB006C	Own station's IN-side error frame reception status	Stores whether the error frame is received or not in the IN-side of own station. OFF: Error frame is not received at present ON: Error frame is received at present	○	○
SB006D	Own station's OUT-side error frame reception status	Stores whether the error frame is received or not in the OUT-side of own station. OFF: Error frame is not received at present ON: Error frame is received at present	○	○

A

No.	Name	Description	Availability	
			Control station	Normal station
SB006E	Own station's IN-side error frame detection	Stores whether the error frame is received or not in the IN-side of the own station from power-on to the present. OFF: Error frame not received ON: Error frame received	○	○
SB006F	Own station's OUT-side error frame detection	Stores whether the error frame is received or not in the OUT-side of the own station from power-on to the present. OFF: Error frame not received ON: Error frame received	○	○
SB0070	Station No. setting status (own station)	Stores the station No. setting status of the own station when using the UINI instruction for station No. setting. OFF: Station No. determined ON: Station No. not yet determined A determined station No. of the own station can be confirmed in Station No. (SW0042).	×	○
SB007F	IP address setting status	Stores the IP address setting using the parameter. OFF: No setting ON: Set When the station is a normal station, the reception status of an IP address from the control station is stored.	○	○
SB008E	Path switching detection flag	Stores the path switching detection status. OFF: Path switching not detected ON: Path switching detected The stored value is cleared when Clear loop switching counter (SB0009) is turned ON.	○	○
SB008F	Transient error	Stores the transient transmission error detection status. OFF: Error not detected ON: Error detected When an error is detected, the number of errors can be checked in Transient transmission error (SW006F).	○	○
SB0090	Hardware test completion status	Stores the completion status of hardware test. OFF: Not executed or being executed ON: Completed When completed, the completion status can be checked in Hardware test normal/error completion status (SB0091).	○	○
SB0091	Hardware test normal/error completion status	Stores the normal or error completion status of the hardware test. OFF: Completed normally ON: Failed (Condition) • Valid when Hardware test completion status (SB0090) is ON.	○	○
SB0092	Self-loopback test completion status	Stores the completion status of the self-loopback test. OFF: Not executed or being executed ON: Completed When completed, the completion status can be checked in Self-loopback test normal/error completion status (SB0093).	○	○
SB0093	Self-loopback test normal/error completion status	Stores the normal or error completion status of self-loopback test. OFF: Completed normally ON: Failed (Condition) • Valid when Self-loopback test completion status (SB0092) is ON.	○	○

No.	Name	Description	Availability	
			Control station	Normal station
SB0094	Circuit test completion status	Stores the completion status of circuit test. OFF: Not executed or being executed ON: Completed When completed, the completion status can be checked in Circuit test normal/error completion status (SB0095).	○	○
SB0095	Circuit test normal/error completion status	Stores the normal or error completion status of the circuit test. OFF: Completed normally ON: Failed (Condition) • Valid when Circuit test completion status (SB0094) is ON.	○	○
SB0097	Station-to-station test normal/error completion status	Stores the normal or error completion status of the station-to-station test. 0: Completed normally 1: Failed	○	○
SB0098	Circuit test request from other station	Stores request status of circuit test from the control station. OFF: Circuit test not received ON: Circuit test received	×	○
SB0099	Station-to-station test request from other station	Stores request status of station-to-station test from the other station. OFF: Station-to-station test not received ON: Station-to-station test received	○	○
SB00A0	Baton pass status of each station	Stores the baton pass status of each station. OFF: All stations normal ON: Faulty station exists When any faulty station exists, each station status can be checked in Baton pass status of each station (SW00A0 to SW00A7). Depending on the link refresh timing, Baton pass status of each station (SW00A0 to SW00A7) and the update may be offset by one sequence scan. (Condition) • Valid when Baton pass status (own station) (SB0047) is OFF. When Baton pass status (own station) (SB0047) is turned ON (error), data prior to error is held. • The reserved station and the station No. later than the largest one are excepted.	○	○
SB00B0	Cyclic transmission status of each station	Stores the cyclic transmission status of each station. OFF: Cyclic transmission of all stations being executed ON: Station where cyclic transmission is not executed exists When any non-executing station exists, each station status can be checked in Cyclic transmission status of each station (SW00B0 to SW00B7). Depending on the link refresh timing, Cyclic transmission status of each station (SW00B0 to SW00B7) and the update may be offset by one sequence scan. (Condition) • Valid when Baton pass status (own station) (SB0047) is OFF. When Baton pass status (own station) (SB0047) is turned ON (error), data prior to error is held. • The reserved station and the station No. later than the largest one are excepted.	○	○

A

No.	Name	Description	Availability	
			Control station	Normal station
SB00C0	Reserved station specification	<p>Stores the presence of reserved station.</p> <p>OFF: No reserved station ON: Reserved station exists</p> <p>When any reserved station exists, each station status can be checked in Reserved station specification (SW00C0 to SW00C7).</p> <p>Depending on the link refresh timing, Reserved station specification (SW00C0 to SW00C7) and the update may be offset by one sequence scan.</p> <p>(Condition)</p> <ul style="list-style-type: none"> Valid when Data link status of own station (SB0049) is OFF. 	○	○
SB00D0	Parameter communication status of each station	<p>Stores the parameter communication status of each station.</p> <p>OFF: Parameter communication is completed or not executed in all stations ON: Station where parameter communication is in execution exists</p> <p>Stations that are communicating parameters can be checked in Parameter communication status of each station (SW00D0 to SW00D7).</p> <p>Depending on the link refresh timing, Parameter communication status of each station (SW00D0 to SW00D7) and the update may be offset by one sequence scan.</p> <p>(Condition)</p> <ul style="list-style-type: none"> Valid when Baton pass status (own station) (SB0047) is OFF. When Baton pass status (own station) (SB0047) is turned ON (error), data prior to error is held. The reserved station and the station No. later than the largest one are excepted. 	○	×
SB00E0	Parameter status of each station	<p>Stores the parameter status of each station.</p> <p>OFF: No station detected parameter error ON: Some stations detected parameter error</p> <p>Stations that have parameter errors can be checked in Parameter error status of each station (SW00E0 to SW00E7).</p> <p>Depending on the link refresh timing, Parameter error status of each station (SW00E0 to SW00E7) and the update may be offset by one sequence scan.</p> <p>(Condition)</p> <ul style="list-style-type: none"> Valid when Baton pass status (own station) (SB0047) is OFF. When Baton pass status (own station) (SB0047) is turned ON (error), data prior to error is held. The reserved station and the station No. later than the largest one are excepted. 	○	×
SB00F0	CPU RUN status of each station	<p>Stores the RUN status of the CPU module of each station. (Including own station)</p> <p>OFF: All stations are in RUN or STEP-RUN status ON: Some stations are in STOP or PAUSE status</p> <p>When some stations are in the STOP or PAUSE status, each station status can be checked in CPU RUN status of each station (SW00F0 to SW00F7).</p> <p>Depending on the link refresh timing, CPU RUN status of each station (SW00F0 to SW00F7) and the update may be offset by one sequence scan.</p> <p>(Condition)</p> <ul style="list-style-type: none"> Valid when Baton pass status (own station) (SB0047) is OFF. When Baton pass status (own station) (SB0047) is turned ON (error), data prior to error is held. 	○	○

No.	Name	Description	Availability	
			Control station	Normal station
SB0100	CPU operation status of each station (1)	<p>Stores the stop error status of the CPU module of each station. (Including own station)</p> <p>OFF: All stations normal ON: Stop error occurs to some stations</p> <p>When a stop error has occurred on a station, each station status can be checked in CPU operation status of each station (1) (SW0100 to SW0107). Depending on the link refresh timing, CPU operation status of each station (1) (SW0100 to SW0107) and the update may be offset by one sequence scan.</p> <p>(Condition)</p> <ul style="list-style-type: none"> Valid when Baton pass status (own station) (SB0047) is OFF. <p>When Baton pass status (own station) (SB0047) is turned ON (error), data prior to error is held.</p>	○	○
SB0110	CPU operation status of each station (2)	<p>Stores the continuation error status of the CPU module of each station. (Including own station)</p> <p>OFF: All stations normal ON: Continuation error occurs to some stations</p> <p>When a continuation error has occurred on a station, each station status can be checked in CPU operation status of each station (2) (SW0110 to SW0117). Depending on the link refresh timing, CPU operation status of each station (2) (SW0110 to SW0117) and the update may be offset by one sequence scan.</p> <p>(Condition)</p> <ul style="list-style-type: none"> Valid when Baton pass status (own station) (SB0047) is OFF. <p>When Baton pass status (own station) (SB0047) is turned ON (error), data prior to error is held.</p>	○	○
SB0120	Current IN-side error frame reception status	<p>Stores whether the error frame is received or not in the IN-side transmission path of each station.</p> <p>OFF: All stations receive no error frame ON: Some stations receive error frames</p> <p>When error frame reception is identified, each station status can be checked in Current IN-side error frame reception status (SW0120 to SW0127). Depending on the link refresh timing, Current IN-side error frame reception status (SW0120 to SW0127) and the update may be offset by one sequence scan.</p> <p>(Condition)</p> <ul style="list-style-type: none"> Valid when Baton pass status (own station) (SB0047) is OFF. <p>When Baton pass status (own station) (SB0047) is turned ON (error), data prior to error is held.</p>	○	○

A

No.	Name	Description	Availability	
			Control station	Normal station
SB0130	Current OUT-side error frame reception status	<p>Stores whether the error frame is received or not in the OUT-side transmission path of each station.</p> <p>OFF: All stations receive no error frame ON: Some stations receive error frames</p> <p>When error frame reception is identified, each station status can be checked in Current OUT-side error frame reception status (SW0130 to SW0137). Depending on the link refresh timing, Current OUT-side error frame reception status (SW0130 to SW0137) and the update may be offset by one sequence scan.</p> <p>(Condition)</p> <ul style="list-style-type: none"> Valid when Baton pass status (own station) (SB0047) is OFF. <p>When Baton pass status (own station) (SB0047) is turned ON (error), data prior to error is held.</p>	○	○
SB0140	IN-side error frame reception detection status	<p>Stores whether the error frame is received or not in the IN-side transmission path of each station from power-on to the present.</p> <p>OFF: All stations receive no error frame ON: Some stations receive error frames</p> <p>When error frame reception is identified, each station status can be checked in Current IN-side error frame reception detection status (SW0140 to SW0147). Depending on the link refresh timing, IN-side error frame reception detection status (SW0140 to SW0147) and the update may be offset by one sequence scan.</p> <p>The stored value is cleared when Clear IN-side transmission error counter (SB0007) is turned ON.</p> <p>(Condition)</p> <ul style="list-style-type: none"> Valid when Baton pass status (own station) (SB0047) is OFF. <p>When Baton pass status (own station) (SB0047) is turned ON (error), data prior to error is held.</p>	○	○
SB0150	OUT-side error frame reception detection status	<p>Stores whether the error frame is received or not in the OUT-side transmission path of each station from power-on to the present.</p> <p>OFF: All stations receive no error frame ON: Some stations receive error frames</p> <p>When error frame reception is identified, each station status can be checked in Current OUT-side error frame reception detection status (SW0150 to SW0157). Depending on the link refresh timing, OUT-side error frame reception detection status (SW0150 to SW0157) and the update may be offset by one sequence scan.</p> <p>The stored value is cleared when Clear OUT-side transmission error counter (SB0008) is turned ON.</p> <p>(Condition)</p> <ul style="list-style-type: none"> Valid when Baton pass status (own station) (SB0047) is OFF. <p>When Baton pass status (own station) (SB0047) is turned ON (error), data prior to error is held.</p>	○	○

No.	Name	Description	Availability	
			Control station	Normal station
SB0160	Path switching detection flag for each station	<p>Stores the path switching detection status of each station. (Including own station)</p> <p>OFF: Path switching not detected ON: Path switching detected</p> <p>When a path switching has been detected, each station status can be checked in Path switching detection status of each station (SW0160 to SW0167).</p> <p>Depending on the link refresh timing, Path switching detection flag for each station (SW0160 to SW0167) and the update may be offset by one sequence scan.</p> <p>The path switching detection status is cleared when Clear loop switching counter (SB0009) is turned ON.</p> <p>The stored value is cleared when Clear loop switching counter (SB0009) is turned ON in each station and path switching detection status for all stations is cleared.</p> <p>(Condition)</p> <ul style="list-style-type: none"> Valid when Baton pass status (own station) (SB0047) is OFF. <p>When Baton pass status (own station) (SB0047) is turned ON (error), data prior to error is held.</p>	○	○
SB0170	Transient error of each station	<p>Stores the transient transmission error detection status of each station. (Including own station)</p> <p>OFF: Error not detected ON: Error detected</p> <p>When an error has been detected, each station status can be checked in Transient error detection status of each station (SW0170 to SW0177).</p> <p>Depending on the link refresh timing, Transient error of each station (SW0170 to SW0177) and the update may be offset by one sequence scan.</p> <p>The transient error detection status of own station is cleared when Clear transient transmission error counter (SB000A) is turned ON.</p> <p>The stored value is cleared when Clear transient transmission error counter (SB000A) is turned ON in each station and the transient error detection status for all stations is cleared.</p> <p>(Condition)</p> <p>Valid when Baton pass status (own station) (SB0047) is OFF.</p> <p>When Baton pass status (own station) (SB0047) is turned ON (error), data prior to error is held.</p>	○	○
SB0180	External power supply information	<p>Stores the external power supply status of the CC-Link IE Controller Network module on each station. (Including own station)</p> <p>OFF: No external power supplied to any station ON: External power supplied to station(s)</p> <p>When external power is supplied to station(s), each station status can be checked in Power supply status of each station (SW0180 to SW0187).</p> <p>Depending on the link refresh timing, External power supply information (SW0180 to SW0187) and the update may be offset by one sequence scan.</p> <p>(Condition)</p> <p>Valid when Baton pass status (own station) (SB0047) is OFF.</p> <p>When Baton pass status (own station) (SB0047) is turned ON (error), data prior to error are held.</p>	○	○

A

No.	Name	Description	Availability	
			Control station	Normal station
SB0190	Power status consistency check of each station	<p>Stores the external power supply status of the CC-Link IE Controller Network module with external power supply function on each station. (Including own station)</p> <p>OFF: External power supplied to all stations (Normal) ON: No external power supplied to some station(s) (Error)</p> <p>When no external power is supplied to some station(s) (error), each station status can be checked in Power status consistency check of each station (SW0190 to SW0197).</p> <p>Depending on the link refresh timing, Power status consistency check of each station (SW0190 to SW0197) and the update may be offset by one sequence scan.</p> <p>(Condition) Valid when Baton pass status (own station) (SB0047) is OFF. When Baton pass status (own station) (SB0047) is turned ON (error), data prior to error are held.</p>	○	○
SB01A0	Group cyclic transmission station information	<p>Stores shared group setting information on the stations (including the own station).</p> <p>OFF: Station in shared group different from own station not exist. ON: Station in shared group different from own station exists.</p> <p>If a station in a different shared group exists, the station status can be checked by Group cyclic transmission station information (SW01A0 to SW01A7).</p> <p>Depending on the link refresh timing, Group cyclic transmission station information (SW01A0 to SW01A7) and the update may be offset by one sequence scan.</p>	○	○
SB01B0	Each station's CPU type information	<p>Stores CPU type information on the stations (including the own station).</p> <p>OFF: No Basic model QCPU or safety CPU ON: Station of Basic model QCPU or safety CPU exists.</p> <p>If any station has a Basic model QCPU or safety CPU, each station's status can be checked by Each station's CPU type information (SW01B0 to SW01B7).</p> <p>Depending on the link refresh timing, Each station's CPU type information (SW01B0 to SW01B7) and the update may be offset by one sequence scan.</p>	○	○
SB01C0	Redundant system information	<p>Stores redundant system information on the stations (including the own station).</p> <p>OFF: No redundant system station ON: Redundant system station exists.</p> <p>If any station is configured as a redundant system, each station's status can be checked by Redundant function support information (SW01C0 to SW01C7).</p> <p>Depending on the link refresh timing, Redundant function information (SW01C0 to SW01C7) and the update may be offset by one sequence scan.</p>	○	○

No.	Name	Description	Availability	
			Control station	Normal station
SB01D0	Redundant system status (1)	<p>Stores the CPU operation mode status of the stations (including the own station).</p> <p>OFF: No separate-mode station (including single systems) ON: Separate-mode station exists.</p> <p>If any station is in separate mode, each station's status can be checked by Redundant system status (1) (SW01D0 to SW01D7). Depending on the link refresh timing, Redundant system status (1) (SW01D0 to SW01D7) and the update may be offset by one sequence scan.</p> <p>(Condition) Valid when Baton pass status (own station) (SB0047) is OFF. When Baton pass status (own station) (SB0047) is turned ON (error), data prior to error are held.</p>	○	○
SB01E0	Redundant system status (2)	<p>Stores the pairing setting status of the stations (including the own station).</p> <p>OFF: No pairing-set station ON: Pairing-set station exists.</p> <p>If any station has a pairing setting, each station's status can be checked by Redundant system status (2) (SW01E0 to SW01E7). Depending on the link refresh timing, Redundant system status (2) (SW01E0 to SW01E7) and the update may be offset by one sequence scan.</p> <p>(Condition) Valid when Baton pass status (own station) (SB0047) is OFF. When Baton pass status (own station) (SB0047) is turned ON (error), data prior to error are held.</p>	○	○
SB01F0	Redundant system status (3)	<p>Stores the CPU operating status (control/standby system) of the stations (including the own station).</p> <p>OFF: No standby system CPU station (including single systems) ON: Station of standby system CPU exists.</p> <p>If a station has a standby system CPU, each station's status can be checked by Redundant system status (3) (SW01F0 to SW01F7). Depending on the link refresh timing, Redundant system status (3) (SW01F0 to SW01F7) and the update may be offset by one sequence scan.</p> <p>(Condition) Valid when Baton pass status (own station) (SB0047) is OFF. When Baton pass status (own station) (SB0047) is turned ON (error), data prior to error are held.</p>	○	○

A

Appendix 2 Link Special Register (SW) List

The link special register (SW) stores information at data link in a numerical value.

The faulty part or cause can be checked by using the link special register (SW) in a sequence program or monitoring it.

(1) Application of link special register (SW)

The status of the CC-Link IE Controller Network module can be checked without a programming tool, using link special register (SW).

(2) Mounting multiple network modules

The link special register (SW) of each network module is refreshed by the link special register (SW) of the CPU module shown below when the refresh parameters of each network module remain default.

Item	Module 1	Module 2	Module 3	Module 4
Device No.	SW0000 to SW01FF	SW0200 to SW03FF	SW0400 to SW05FF	SW0600 to SW07FF

(3) Range where data are stored by users and range where data are stored by the system

The following shows the range when the assignment range of link special register (SW) is SW0000 to SW01FF.

- Stored by users: SW0000 to SW001F
- Stored by the system: SW0020 to SW01FF

(4) Link special register (SW) list

Link special registers (SW) for which SW0000 to SW01FF are assigned are listed on the following pages.

Point












- Do not write data to the area of the No. which does not exist in the link special register (SW) list.
Writing data to the area of the No. which does not exist in the list may cause malfunction of the programmable controller system.
- For how to use link special register (SW), refer to the following.

 Page 306, Section 8.3

No.	Name	Description	Availability																																																																																																																																																										
			Control station	Normal station																																																																																																																																																									
SW0000		Sets station to stop or start cyclic transmission. 00 _H : Own station 01 _H : All stations 02 _H : Specified station 03 _H : Specified group 80 _H : Own station (forced link startup) 81 _H : All stations (forced link startup) 82 _H : Specified station (forced link startup) 83 _H : Specified group (forced link startup) The cyclic transmission stop/startup can be performed by System link startup (SB0002) or System link stop (SB0003).	○	○																																																																																																																																																									
SW0001 to SW0008	Link stop/startup direction	Sets the station No. to stop or start up cyclic transmission when 02 _H or 82 _H is set in Link stop/startup direction (SW0000). 0: Stop or startup not directed 1: Stop or startup directed <table border="1" style="margin-left: auto; margin-right: auto;"> <thead> <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> </thead> <tbody> <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>-</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> </tbody> </table> Each number in the table represents station No.		b15	b14	b13	b12	b11	b10	b9	b8	b7	b6	b5	b4	b3	b2	b1	b0	SW0001	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1	SW0002	32	31	30	29	28	27	26	25	24	23	22	21	20	19	18	17	SW0003	48	47	46	45	44	43	42	41	40	39	38	37	36	35	34	33	SW0004	64	63	62	61	60	59	58	57	56	55	54	53	52	51	50	49	SW0005	80	79	78	77	76	75	74	73	72	71	70	69	68	67	66	65	SW0006	96	95	94	93	92	91	90	89	88	87	86	85	84	83	82	81	SW0007	112	111	110	109	108	107	106	105	104	103	102	101	100	99	98	97	SW0008	-	-	-	-	-	-	-	-	120	119	118	117	116	115	114	113	○	○
	b15	b14	b13	b12	b11	b10	b9	b8	b7	b6	b5	b4	b3	b2	b1	b0																																																																																																																																													
SW0001	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1																																																																																																																																													
SW0002	32	31	30	29	28	27	26	25	24	23	22	21	20	19	18	17																																																																																																																																													
SW0003	48	47	46	45	44	43	42	41	40	39	38	37	36	35	34	33																																																																																																																																													
SW0004	64	63	62	61	60	59	58	57	56	55	54	53	52	51	50	49																																																																																																																																													
SW0005	80	79	78	77	76	75	74	73	72	71	70	69	68	67	66	65																																																																																																																																													
SW0006	96	95	94	93	92	91	90	89	88	87	86	85	84	83	82	81																																																																																																																																													
SW0007	112	111	110	109	108	107	106	105	104	103	102	101	100	99	98	97																																																																																																																																													
SW0008	-	-	-	-	-	-	-	-	120	119	118	117	116	115	114	113																																																																																																																																													
SW0009	Arrival monitoring time (RIRD/RIWT instruction)	Specify the monitoring time required for instruction completion. If an instruction is not completed within this time, it will be resent the number of times specified in SW000B. 0: 10 seconds (default) 1 to 360: 1 to 360 seconds If a value other than the above is specified, 360 seconds will be applied.	○	○																																																																																																																																																									
SW000B	Number of resends (RIRD/RIWT instruction)	Specify the number of times the instruction is to be resent when it is not completed within the monitoring time specified in SW0009. 0: Not resend (default) 1 to 7: Once to 7 times If a value other than the above is specified, 7 times will be applied.	○	○																																																																																																																																																									
SW0012 to SW0013	Group specification for link stop/startup	Sets the group No. to stop or start up cyclic transmission when 03 _H or 83 _H is set in Link stop/startup direction (SW0000). 0: Stop or startup not directed 1: Stop or startup directed <table border="1" style="margin-left: auto; margin-right: auto;"> <thead> <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> </thead> <tbody> <tr> <td>SW0012</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>SW0013</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> </tbody> </table> Each number in the table represents group No.		b15	b14	b13	b12	b11	b10	b9	b8	b7	b6	b5	b4	b3	b2	b1	b0	SW0012	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1	SW0013	32	31	30	29	28	27	26	25	24	23	22	21	20	19	18	17	○	○																																																																																																						
	b15	b14	b13	b12	b11	b10	b9	b8	b7	b6	b5	b4	b3	b2	b1	b0																																																																																																																																													
SW0012	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1																																																																																																																																													
SW0013	32	31	30	29	28	27	26	25	24	23	22	21	20	19	18	17																																																																																																																																													
SW0020	Module status	Stores the status of communications between a CC-Link IE Controller Network module and a CPU module. 0: Normal A value other than 0: Error code (📖 QCPU User's Manual (Hardware Design, Maintenance and Inspection))	○	○																																																																																																																																																									

A

Appendix 2 Link Special Register (SW) List





No.	Name	Description	Availability	
			Control station	Normal station
SW0030	ZNRD processing result	Stores a processing result of the ZNRD instruction. 0: Completed normally 1 or greater: Failed ( Page 511, Section 10.2)	○	○
	Send/receive instruction (1) processing result	Stores a processing result of the link dedicated instruction that used channel 1 of the own station. 0: Completed normally 1 or greater: Failed ( Page 511, Section 10.2)	○	○
SW0031	ZNWR processing result	Stores a processing result of the ZNWR instruction. 0: Completed normally 1 or greater: Failed ( Page 511, Section 10.2)	○	○
	Send/receive instruction (2) processing result	Stores a processing result of the link dedicated instruction that used channel 2 of the own station. 0: Completed normally 1 or greater: Failed ( Page 511, Section 10.2)	○	○
SW0032	Send/receive instruction (3) processing result	Stores a processing result of the link dedicated instruction that used channel 3 of the own station. 0: Completed normally 1 or greater: Failed ( Page 511, Section 10.2)	○	○
SW0033	Send/receive instruction (4) processing result	Stores a processing result of the link dedicated instruction that used channel 4 of the own station. 0: Completed normally 1 or greater: Failed ( Page 511, Section 10.2)	○	○
SW0034	Send/receive instruction (5) processing result	Stores a processing result of the link dedicated instruction that used channel 5 of the own station. 0: Completed normally 1 or greater: Failed ( Page 511, Section 10.2)	○	○
SW0035	Send/receive instruction (6) processing result	Stores a processing result of the link dedicated instruction that used channel 6 of the own station. 0: Completed normally 1 or greater: Failed ( Page 511, Section 10.2)	○	○
SW0036	Send/receive instruction (7) processing result	Stores a processing result of the link dedicated instruction that used channel 7 of the own station. 0: Completed normally 1 or greater: Failed ( Page 511, Section 10.2)	○	○
SW0037	Send/receive instruction (8) processing result	Stores a processing result of the link dedicated instruction that used channel 8 of the own station. 0: Completed normally 1 or greater: Failed ( Page 511, Section 10.2)	○	○
SW0038	Send/receive instruction (9) processing result	Stores a processing result of the link dedicated instruction that used channel 9 of the own station. 0: Completed normally 1 or greater: Failed ( Page 511, Section 10.2)	○	○
SW0039	Send/receive instruction (10) processing result	Stores a processing result of the link dedicated instruction that used channel 10 of the own station. 0: Completed normally 1 or greater: Failed ( Page 511, Section 10.2)	○	○
SW0040	Network No.	Stores the network number of own station. Range: 1 to 239	○	○

No.	Name	Description	Availability	
			Control station	Normal station
SW0041	Group No.	Stores the group No. of own station. 0: No group specification 1 to 32: Group No.	○	○
SW0042	Station No.	Stores the station No. of own station. 1 to 120: Own station No. (Station No. setting status (own station) (SB0070) is OFF.) 255: Station No. not yet determined (Station No. setting status (own station) (SB0070) is ON.)	○	○
SW0043	Mode status	Stores the operation mode of the own station. 0: Online 2: Offline 5: Station-to-station test 6: Circuit test 7: Self-loopback test 9: Hardware test	○	○
SW0044	Station setting	Stores the setting status of own station. 	○	○
SW0046	Module type	Stores the hardware status of own station. <p>b15: Variable (used in the system)</p>	○	○
SW0047	Baton pass status (own station)	Stores the communication status of own station. 0: Data linking 1: Data link stop in execution 2: Baton pass being executed 3: Baton pass stop in execution 4: Test being executed 5: Offline	○	○

A

Appendix 2 Link Special Register (SW) List

No.	Name	Description	Availability	
			Control station	Normal station
SW0048	Cause of baton pass interruption	<p>Stores the cause of interrupting communication (baton pass) of the own station.</p> <p>00_H: Normal communication 30_H: Cable disconnection or power-on 31_H: Cable insertion error 32_H: Cable IN-OUT checking 33_H: Disconnection or reconnection processing 40_H: Offline mode 41_H: Hardware test 42_H: Self-loopback test 50_H: Self-diagnostics in execution</p>	○	○
SW0049	Cause of data link stop	<p>Stores the cause of stopping data link of the own station.</p> <p>00_H: Normal communication 01_H: Stop directed 02_H: Monitoring timeout ( Page 183, Section 6.3) 03_H: Circuit test being executed 10_H: Parameter unreceived 11_H: Own station No. that is out of range 12_H: Setting where own station is reserved station 13_H: Own station No. duplication 14_H: Control station duplication 15_H: Control station or own station No. duplication 16_H: Station No. unset 17_H: Network No. illegality 18_H: Parameter error 19_H: Parameter communication in execution 20_H: CPU module stop error 21_H: CPU module power stop error</p> <p>The CPU module power stop error (21_H) can be detected in CC-Link IE Controller Network modules with external power supply function. The above data are detected when a CPU module is powered ON and then OFF.</p>	○	○
SW004A	Data linking stop request station	<p>The station No. of the station where a cyclic transmission stop request is executed is stored into own station.</p> <p>Range: 1 to 120</p> <p>The stop request of cyclic transmission is executed by System link stop (SB0003).</p> <p>(Condition)</p> <ul style="list-style-type: none"> Valid when Baton pass status (own station) (SB0047) is OFF. <p>When Baton pass status (own station) (SB0047) is turned ON (error), data prior to error is held.</p>	○	○

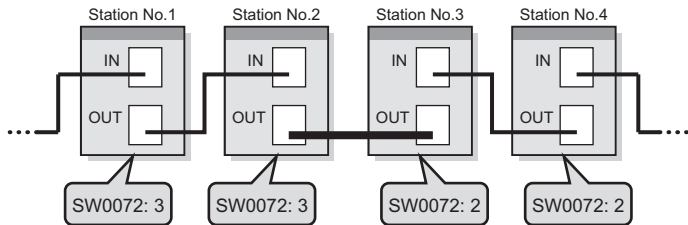
No.	Name	Description	Availability	
			Control station	Normal station
SW004B	Own station's CPU status	Stores the CPU module status of the own station. 01 _H : STOP (Normal) 02 _H : STOP (Stop error is occurring) 03 _H : STOP (Continuation error is occurring) 04 _H : RUN (Normal) 05 _H : RUN (Continuation error is occurring) 06 _H : STEP-RUN 07 _H : PAUSE 0E _H : CPU module being reset 0F _H : CPU module initial processing in execution	○	○
SW004C	Shared group No.	Stores shared group No. of the own station. 0: No shared group setting 1 to 120: Shared group No.	○	○
SW004D	Data linking start status (own station)	Stores the result of starting cyclic transmission with Link startup (own station) (SB0000). 0: Normal 1 or later: Error ( Page 511, Section 10.2) (Condition) • Valid when Baton pass status (own station) (SB0047) is OFF. When Baton pass status (own station) (SB0047) is turned ON (error), data prior to error is held.	○	○
SW004F	Data linking stop status (own station)	Stores the result of stopping cyclic transmission with Link stop (own station) (SB0001). 0: Normal 1 or later: Error ( Page 511, Section 10.2) (Condition) • Valid when Baton pass status (own station) (SB0047) is OFF. When Baton pass status (own station) (SB0047) is turned ON (error), data prior to error is held.	○	○
SW0051	Data linking start status (entire system)	Stores the result of starting cyclic transmission with System link startup (SB0002). 0: Normal 1 or later: Error description of own station ( Page 511, Section 10.2) (Condition) • Valid when Baton pass status (own station) (SB0047) is OFF. When Baton pass status (own station) (SB0047) is turned ON (error), data prior to error is held.	○	○
SW0053	Data linking stop status (entire system)	Stores the result of stopping cyclic transmission with System link stop (SB0003). 0: Normal 1 or later: Error description of own station ( Page 511, Section 10.2) (Condition) • Valid when Baton pass status (own station) (SB0047) is OFF. When Baton pass status (own station) (SB0047) is turned ON (error), data prior to error is held.	○	○

No.	Name	Description	Availability	
			Control station	Normal station
SW0054	Parameter information	<p>Stores information of parameters.</p> <p>(Condition) <ul style="list-style-type: none"> Valid when Received parameter error (SB0055) is OFF. </p>	○	○
SW0055	Parameter setting status	<p>Stores the status of parameters. 0: Normal 1 or later: Error (Page 511, Section 10.2)</p> <p>(Condition) <ul style="list-style-type: none"> Valid when Received parameter error (SB0055) is ON. </p>	○	○
SW0056	Current control station	<p>Stores the station No. of the station which is actually operating as a control station. (Including sub-control station) Range: 1 to 120</p>	○	○
SW0057	Designated control station	<p>Stores the station No. of the control station which is set by network parameters. 0: Control station or sub-control station does not exist in a network. 1 to 120: Station No.</p>	○	○
SW0059	Total number of link stations	<p>Stores the total number of link stations which is set by network parameters. Range: 2 to 120</p>	○	○
SW005A	Maximum baton pass station	<p>Stores the largest No. of the station which performs baton pass. Range: 2 to 120</p> <p>(Condition) <ul style="list-style-type: none"> Valid when Baton pass status (own station) (SB0047) is OFF. When Baton pass status (own station) (SB0047) is turned ON (error), data prior to error is held. </p>	○	○
SW005B	Maximum cyclic transmission station	<p>Stores the largest No. of the station where cyclic transmission is performed. Range: 1 to 120</p> <p>(Condition) <ul style="list-style-type: none"> Valid when Data link status of own station (SB0049) is OFF. </p>	○	○
SW005C	I/O master station (Block 1)	<p>Stores the station No. for I/O master station of block 1. 0: No I/O master station 1 to 120: Station No.</p> <p>(Condition) <ul style="list-style-type: none"> Valid when Data link status of own station (SB0049) is OFF. </p>	○	○
SW005D	I/O master station (Block 2)	<p>Stores the station No. for I/O master station of block 2. 0: No I/O master station 1 to 120: Station No.</p> <p>(Condition) <ul style="list-style-type: none"> Valid when Data link status of own station (SB0049) is OFF. </p>	○	○

No.	Name	Description	Availability	
			Control station	Normal station
SW0060	Maximum link scan time	Stores the maximum value of link scan time at cyclic transmission. (Unit: ms) (Condition) • Valid when Baton pass status (own station) (SB0047) is OFF. When Baton pass status (own station) (SB0047) is turned ON (error), data prior to error is held.	○	○
SW0061	Minimum link scan time	Stores the minimum value of link scan time at cyclic transmission. (Unit: ms) (Condition) • Valid when Baton pass status (own station) (SB0047) is OFF. When Baton pass status (own station) (SB0047) is turned ON (error), data prior to error is held.	○	○
SW0062	Current link scan time	Stores the current value of link scan time at cyclic transmission. The stored value includes an error of up to 1ms. (Unit: ms) (Condition) • Valid when Baton pass status (own station) (SB0047) is OFF. When Baton pass status (own station) (SB0047) is turned ON (error), data prior to error is held.	○	○
SW0063	Communication mode	Stores the setting value of the constant link scan which is set by supplementary setting. 0: No setting 1 to 500: Setting value of constant link scan (Unit: ms) (Condition) • Valid when Data link status of own station (SB0049) is OFF.	○	○
SW0064	Own station's loop status	Stores the transmission path status of the own station. 00 _H : Normal 12 _H : IN-side loopback (OUT-side cable disconnection) 13 _H : IN-side loopback (OUT-side cable insertion error) 14 _H : IN-side loopback (OUT-side line establishing) 21 _H : OUT-side loopback (IN-side cable disconnection) 31 _H : OUT-side loopback (IN-side cable insertion error) 41 _H : OUT-side loopback (IN-side line establishing) 22 _H : Disconnecting (IN-side or OUT-side cable disconnection) 23 _H : Disconnecting (IN-side cable disconnection, OUT-side cable insertion error) 24 _H : Disconnecting (IN-side cable disconnection, OUT-side line establishing) 32 _H : Disconnecting (IN-side cable insertion error, OUT-side cable disconnection) 33 _H : Disconnecting (IN-side or OUT-side cable insertion error) 34 _H : Disconnecting (IN-side cable insertion error, OUT-side line establishing) 42 _H : Disconnecting (IN-side line establishing, OUT-side cable disconnection) 43 _H : Disconnecting (IN-side line establishing, OUT-side cable insertion error) 44 _H : Disconnecting (IN-side or OUT-side line establishing)	○	○
SW0065	Loopback information	Stores the loop status of network. 0: Normal 1: Loopback 2: All stations faulty	○	○

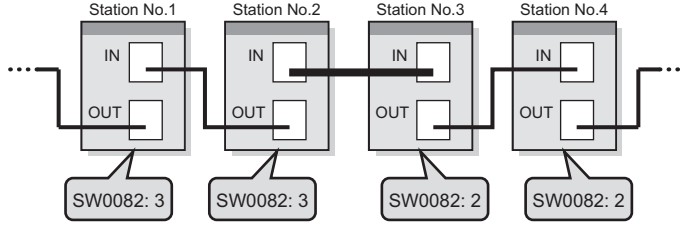
A

No.	Name	Description	Availability	
			Control station	Normal station
SW0068	IN-side line error occurrence rate (Max.)	Stores the rate (maximum value) of receiving error frame at the IN-side of own station. (Unit: %) The accumulation of errors is cleared when Clear IN-side transmission error counter (SB0007) is turned ON.	○	○
SW0069	IN-side line error occurrence rate (present.)	Stores the rate (present value) of receiving error frame at the IN-side of own station. (Unit: %) The accumulation of errors is cleared when Clear IN-side transmission error counter (SB0007) is turned ON.	○	○
SW006A	OUT-side line error occurrence rate (Max.)	Stores the rate (maximum value) of receiving error frame at the OUT-side of own station. (Unit: %) The accumulation of errors is cleared when Clear OUT-side transmission error counter (SB0008) is turned ON.	○	○
SW006B	OUT-side line error occurrence rate (present.)	Stores the rate (present value) of receiving error frame at the OUT-side of own station. (Unit: %) The accumulation of errors is cleared when Clear OUT-side transmission error counter (SB0008) is turned ON.	○	○
SW006E	Number of loop switches	Stores the number (accumulation) of switching communication paths. When Clear loop switching counter (SB0009) turns ON, the number is cleared.	○	○
SW006F	Transient transmission error	Stores the number (accumulation) of transient transmission errors. The number of errors is cleared when Clear transient transmission error counter (SB000A) is turned ON.	○	○
SW0070	IN-side loopback station No.	Stores the station No. of the station where a loopback is executed at IN-side. 0: No station executes loopback 1 to 120: Station No. 255: Station No. not set (Condition) • Valid when Baton pass status (own station) (SB0047) is OFF. When Baton pass status (own station) (SB0047) is turned ON (error), data prior to error is held.	○	○
SW0071	IN-side loopback factor	Stores the factor of IN-side loopback. 00 _H : No station executes loopback 02 _H : OUT-side cable disconnection 03 _H : OUT-side cable insertion error 04 _H : OUT-side line establishing (Condition) • Valid when Baton pass status (own station) (SB0047) is OFF. When Baton pass status (own station) (SB0047) is turned ON (error), data prior to error is held.	○	○

No.	Name	Description	Availability	
			Control station	Normal station
SW0072	OUT-side mis-cabling station No.	<p>Stores the station No. of the station where the OUT-side cable is incorrectly inserted. The station No. to be stored is a station No. of the target station where a cable is connected.</p>  <p>0: No station connects cable incorrectly 1 to 120: Station No.</p> <p>(Condition)</p> <ul style="list-style-type: none"> Valid when Baton pass status (own station) (SB0047) is OFF. When Baton pass status (own station) (SB0047) is turned ON (error), data prior to error is held. Valid when IN-side loopback factor (SW0071) is 03_H (OUT-side cable insertion error). 	○	○
SW0074	IN-side cable disconnection detection count	<p>Stores the number (accumulation) of detecting cable disconnection at IN-side. The number of detection is cleared when Clear IN-side transmission error counter (SB0007) is turned ON.</p>	○	○
SW0080	OUT-side loopback station No.	<p>Stores the station No. of the station where a loopback is executed at OUT-side. 0: No station executes loopback 1 to 120: Station No. 255: Station No. not set</p> <p>(Condition)</p> <ul style="list-style-type: none"> Valid when Baton pass status (own station) (SB0047) is OFF. When Baton pass status (own station) (SB0047) is turned ON (error), data prior to error is held. 	○	○
SW0081	OUT-side loopback factor	<p>Stores the factor of OUT-side loopback. 00_H: No station executes loopback 20_H: IN-side cable disconnection 30_H: IN-side cable insertion error 40_H: IN-side line establishing</p> <p>(Condition)</p> <ul style="list-style-type: none"> Valid when Baton pass status (own station) (SB0047) is OFF. When Baton pass status (own station) (SB0047) is turned ON (error), data prior to error is held. 	○	○

A

Appendix 2 Link Special Register (SW) List

No.	Name	Description	Availability																																																																																																																																																										
			Control station	Normal station																																																																																																																																																									
SW0082	IN-side mis-cabling station No.	<p>Stores the station No. of the station where the IN-side cable is incorrectly inserted.</p> <p>The station No. to be stored is a station No. of the target station where a cable is connected.</p>  <p>0: No station connects cable incorrectly 1 to 120: Station No.</p> <p>(Condition)</p> <ul style="list-style-type: none"> Valid when Baton pass status (own station) (SB0047) is OFF. When Baton pass status (own station) (SB0047) is turned ON (error), data prior to error is held. Valid when OUT-side loopback factor (SW0081) is 30_H (IN-side cable insertion error). 	○	○																																																																																																																																																									
SW0084	OUT-side cable disconnection detection count	<p>Stores the number (accumulation) of detecting cable disconnection at OUT-side.</p> <p>The number of detection is cleared when Clear OUT-side transmission error counter (SB0008) is turned ON.</p>	○	○																																																																																																																																																									
SW0096	Station-to-station test station	<p>Stores the station No. of the target station where a station-to-station test is performed. (Valid only at station-to-station test)</p> <p>Stores the station No. of a target station when monitoring an executing station.</p> <p>Stores the station No. of an executing station when monitoring a target station.</p> <p>0: Station No. not set 1 to 120: Station No. for target station of station-to-station test</p>	○	○																																																																																																																																																									
SW00A0 to SW00A7	Baton pass status of each station	<p>Stores the baton pass status of each station.</p> <p>0: Baton pass normally operating station 1: Baton pass faulty station</p> <table border="1"> <thead> <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> </thead> <tbody> <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> </tbody> </table> <p>Each number in the table represents station No.</p> <p>(Condition)</p> <ul style="list-style-type: none"> Valid when Baton pass status (own station) (SB0047) is OFF. When Baton pass status (own station) (SB0047) is turned ON (error), data prior to error is held. The reserved station and the station No. later than the largest one are excepted. 		b15	b14	b13	b12	b11	b10	b9	b8	b7	b6	b5	b4	b3	b2	b1	b0	SW00A0	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1	SW00A1	32	31	30	29	28	27	26	25	24	23	22	21	20	19	18	17	SW00A2	48	47	46	45	44	43	42	41	40	39	38	37	36	35	34	33	SW00A3	64	63	62	61	60	59	58	57	56	55	54	53	52	51	50	49	SW00A4	80	79	78	77	76	75	74	73	72	71	70	69	68	67	66	65	SW00A5	96	95	94	93	92	91	90	89	88	87	86	85	84	83	82	81	SW00A6	112	111	110	109	108	107	106	105	104	103	102	101	100	99	98	97	SW00A7	-	-	-	-	-	-	-	-	120	119	118	117	116	115	114	113	○	○
	b15	b14	b13	b12	b11	b10	b9	b8	b7	b6	b5	b4	b3	b2	b1	b0																																																																																																																																													
SW00A0	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1																																																																																																																																													
SW00A1	32	31	30	29	28	27	26	25	24	23	22	21	20	19	18	17																																																																																																																																													
SW00A2	48	47	46	45	44	43	42	41	40	39	38	37	36	35	34	33																																																																																																																																													
SW00A3	64	63	62	61	60	59	58	57	56	55	54	53	52	51	50	49																																																																																																																																													
SW00A4	80	79	78	77	76	75	74	73	72	71	70	69	68	67	66	65																																																																																																																																													
SW00A5	96	95	94	93	92	91	90	89	88	87	86	85	84	83	82	81																																																																																																																																													
SW00A6	112	111	110	109	108	107	106	105	104	103	102	101	100	99	98	97																																																																																																																																													
SW00A7	-	-	-	-	-	-	-	-	120	119	118	117	116	115	114	113																																																																																																																																													

No.	Name	Description	Availability																																																																																																																																																										
			Control station	Normal station																																																																																																																																																									
SW00B0 to SW00B7	Cyclic transmission status of each station	<p>Stores the cyclic transmission status of each station.</p> <p>0: Cyclic transmission normally operating station 1: Cyclic transmission faulty station</p> <table border="1"> <thead> <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> </thead> <tbody> <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> <tr> <td>SW00B1</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>SW00B2</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>SW00B3</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>SW00B4</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>SW00B5</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>SW00B6</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>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> </tbody> </table> <p>Each number in the table represents station No.</p> <p>If a CPU module installed together with the CC-Link IE Controller Network module with external power supply function is turned OFF, detection of a data link error may take more time than usual. For immediate detection of a data link error, program an interlock using the link relay (LB) in each station's send range. (☞ Page 275, Section 8.1.3) When group cyclic transmission is used, a station whose shared group is different from the group of the own station is detected as a cyclic transmission error station. (Including reserved stations)</p> <p>(Condition)</p> <ul style="list-style-type: none"> Valid when Baton pass status (own station) (SB0047) is OFF. When Baton pass status (own station) (SB0047) is turned ON (error), data prior to error is held. The station No. later than the largest one are excepted. 		b15	b14	b13	b12	b11	b10	b9	b8	b7	b6	b5	b4	b3	b2	b1	b0	SW00B0	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1	SW00B1	32	31	30	29	28	27	26	25	24	23	22	21	20	19	18	17	SW00B2	48	47	46	45	44	43	42	41	40	39	38	37	36	35	34	33	SW00B3	64	63	62	61	60	59	58	57	56	55	54	53	52	51	50	49	SW00B4	80	79	78	77	76	75	74	73	72	71	70	69	68	67	66	65	SW00B5	96	95	94	93	92	91	90	89	88	87	86	85	84	83	82	81	SW00B6	112	111	110	109	108	107	106	105	104	103	102	101	100	99	98	97	SW00B7	-	-	-	-	-	-	-	-	120	119	118	117	116	115	114	113	○	○
	b15	b14	b13	b12	b11	b10	b9	b8	b7	b6	b5	b4	b3	b2	b1	b0																																																																																																																																													
SW00B0	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1																																																																																																																																													
SW00B1	32	31	30	29	28	27	26	25	24	23	22	21	20	19	18	17																																																																																																																																													
SW00B2	48	47	46	45	44	43	42	41	40	39	38	37	36	35	34	33																																																																																																																																													
SW00B3	64	63	62	61	60	59	58	57	56	55	54	53	52	51	50	49																																																																																																																																													
SW00B4	80	79	78	77	76	75	74	73	72	71	70	69	68	67	66	65																																																																																																																																													
SW00B5	96	95	94	93	92	91	90	89	88	87	86	85	84	83	82	81																																																																																																																																													
SW00B6	112	111	110	109	108	107	106	105	104	103	102	101	100	99	98	97																																																																																																																																													
SW00B7	-	-	-	-	-	-	-	-	120	119	118	117	116	115	114	113																																																																																																																																													
SW00C0 to SW00C7	Reserved station specification	<p>Stores the setting status of reserved station.</p> <p>0: Other than reserved station 1: Reserved station</p> <table border="1"> <thead> <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> </thead> <tbody> <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> <tr> <td>SW00C3</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>SW00C4</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>SW00C5</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>SW00C6</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>SW00C7</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> </tbody> </table> <p>Each number in the table represents station No.</p> <p>(Condition)</p> <ul style="list-style-type: none"> Valid when Data link status of own station (SB0049) is OFF. The station No. later than the largest one are excepted. 		b15	b14	b13	b12	b11	b10	b9	b8	b7	b6	b5	b4	b3	b2	b1	b0	SW00C0	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1	SW00C1	32	31	30	29	28	27	26	25	24	23	22	21	20	19	18	17	SW00C2	48	47	46	45	44	43	42	41	40	39	38	37	36	35	34	33	SW00C3	64	63	62	61	60	59	58	57	56	55	54	53	52	51	50	49	SW00C4	80	79	78	77	76	75	74	73	72	71	70	69	68	67	66	65	SW00C5	96	95	94	93	92	91	90	89	88	87	86	85	84	83	82	81	SW00C6	112	111	110	109	108	107	106	105	104	103	102	101	100	99	98	97	SW00C7	-	-	-	-	-	-	-	-	120	119	118	117	116	115	114	113	○	○
	b15	b14	b13	b12	b11	b10	b9	b8	b7	b6	b5	b4	b3	b2	b1	b0																																																																																																																																													
SW00C0	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1																																																																																																																																													
SW00C1	32	31	30	29	28	27	26	25	24	23	22	21	20	19	18	17																																																																																																																																													
SW00C2	48	47	46	45	44	43	42	41	40	39	38	37	36	35	34	33																																																																																																																																													
SW00C3	64	63	62	61	60	59	58	57	56	55	54	53	52	51	50	49																																																																																																																																													
SW00C4	80	79	78	77	76	75	74	73	72	71	70	69	68	67	66	65																																																																																																																																													
SW00C5	96	95	94	93	92	91	90	89	88	87	86	85	84	83	82	81																																																																																																																																													
SW00C6	112	111	110	109	108	107	106	105	104	103	102	101	100	99	98	97																																																																																																																																													
SW00C7	-	-	-	-	-	-	-	-	120	119	118	117	116	115	114	113																																																																																																																																													

No.	Name	Description	Availability																																																																																																																																																										
			Control station	Normal station																																																																																																																																																									
SW00D0 to SW00D7	Parameter communication status of each station	<p>Stores the parameter communication status of each station.</p> <p>0: Parameter communication completed or not executed 1: Parameter communication in execution</p> <table border="1"> <thead> <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> </thead> <tbody> <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> </tbody> </table> <p>Each number in the table represents station No.</p> <p>(Condition)</p> <ul style="list-style-type: none"> Valid when Baton pass status (own station) (SB0047) is OFF. When Baton pass status (own station) (SB0047) is turned ON (error), data prior to error is held. Valid only for the normally operating station at Baton pass status of each station (SW00A0 to SW00A7) The reserved station and the station No. later than the largest one are excepted. 		b15	b14	b13	b12	b11	b10	b9	b8	b7	b6	b5	b4	b3	b2	b1	b0	SW00D0	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1	SW00D1	32	31	30	29	28	27	26	25	24	23	22	21	20	19	18	17	SW00D2	48	47	46	45	44	43	42	41	40	39	38	37	36	35	34	33	SW00D3	64	63	62	61	60	59	58	57	56	55	54	53	52	51	50	49	SW00D4	80	79	78	77	76	75	74	73	72	71	70	69	68	67	66	65	SW00D5	96	95	94	93	92	91	90	89	88	87	86	85	84	83	82	81	SW00D6	112	111	110	109	108	107	106	105	104	103	102	101	100	99	98	97	SW00D7	-	-	-	-	-	-	-	-	120	119	118	117	116	115	114	113	○	×
	b15	b14	b13	b12	b11	b10	b9	b8	b7	b6	b5	b4	b3	b2	b1	b0																																																																																																																																													
SW00D0	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1																																																																																																																																													
SW00D1	32	31	30	29	28	27	26	25	24	23	22	21	20	19	18	17																																																																																																																																													
SW00D2	48	47	46	45	44	43	42	41	40	39	38	37	36	35	34	33																																																																																																																																													
SW00D3	64	63	62	61	60	59	58	57	56	55	54	53	52	51	50	49																																																																																																																																													
SW00D4	80	79	78	77	76	75	74	73	72	71	70	69	68	67	66	65																																																																																																																																													
SW00D5	96	95	94	93	92	91	90	89	88	87	86	85	84	83	82	81																																																																																																																																													
SW00D6	112	111	110	109	108	107	106	105	104	103	102	101	100	99	98	97																																																																																																																																													
SW00D7	-	-	-	-	-	-	-	-	120	119	118	117	116	115	114	113																																																																																																																																													
SW00E0 to SW00E7	Parameter error status of each station	<p>Stores the parameter status of each station.</p> <p>0: Parameter normal 1: Parameter error</p> <table border="1"> <thead> <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> </thead> <tbody> <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> </tbody> </table> <p>Each number in the table represents station No.</p> <p>(Condition)</p> <ul style="list-style-type: none"> Valid when Baton pass status (own station) (SB0047) is OFF. When Baton pass status (own station) (SB0047) is turned ON (error), data prior to error is held. The reserved station and the station No. later than the largest one are excepted. 		b15	b14	b13	b12	b11	b10	b9	b8	b7	b6	b5	b4	b3	b2	b1	b0	SW00E0	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1	SW00E1	32	31	30	29	28	27	26	25	24	23	22	21	20	19	18	17	SW00E2	48	47	46	45	44	43	42	41	40	39	38	37	36	35	34	33	SW00E3	64	63	62	61	60	59	58	57	56	55	54	53	52	51	50	49	SW00E4	80	79	78	77	76	75	74	73	72	71	70	69	68	67	66	65	SW00E5	96	95	94	93	92	91	90	89	88	87	86	85	84	83	82	81	SW00E6	112	111	110	109	108	107	106	105	104	103	102	101	100	99	98	97	SW00E7	-	-	-	-	-	-	-	-	120	119	118	117	116	115	114	113	○	×
	b15	b14	b13	b12	b11	b10	b9	b8	b7	b6	b5	b4	b3	b2	b1	b0																																																																																																																																													
SW00E0	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1																																																																																																																																													
SW00E1	32	31	30	29	28	27	26	25	24	23	22	21	20	19	18	17																																																																																																																																													
SW00E2	48	47	46	45	44	43	42	41	40	39	38	37	36	35	34	33																																																																																																																																													
SW00E3	64	63	62	61	60	59	58	57	56	55	54	53	52	51	50	49																																																																																																																																													
SW00E4	80	79	78	77	76	75	74	73	72	71	70	69	68	67	66	65																																																																																																																																													
SW00E5	96	95	94	93	92	91	90	89	88	87	86	85	84	83	82	81																																																																																																																																													
SW00E6	112	111	110	109	108	107	106	105	104	103	102	101	100	99	98	97																																																																																																																																													
SW00E7	-	-	-	-	-	-	-	-	120	119	118	117	116	115	114	113																																																																																																																																													



No.	Name	Description	Availability																																																																																																																																																										
			Control station	Normal station																																																																																																																																																									
SW00F0 to SW00F7	CPU RUN status of each station	<p>Stores the RUN status of the CPU module of each station. (Including own station)</p> <p>0: RUN, STEP-RUN 1: STOP, PAUSE, stop error</p> <table border="1"> <thead> <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> </thead> <tbody> <tr> <td>SW00F0</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>SW00F1</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>SW00F2</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>SW00F3</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>SW00F4</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>SW00F5</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>SW00F6</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>SW00F7</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> </tbody> </table> <p>Each number in the table represents station No.</p> <p>(Condition)</p> <ul style="list-style-type: none"> Valid when Baton pass status (own station) (SB0047) is OFF. When Baton pass status (own station) (SB0047) is turned ON (error), data prior to error is held. Valid only for the normally operating station at Baton pass status of each station (SW00A0 to SW00A7) The reserved station and the station No. later than the largest one are excepted. 		b15	b14	b13	b12	b11	b10	b9	b8	b7	b6	b5	b4	b3	b2	b1	b0	SW00F0	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1	SW00F1	32	31	30	29	28	27	26	25	24	23	22	21	20	19	18	17	SW00F2	48	47	46	45	44	43	42	41	40	39	38	37	36	35	34	33	SW00F3	64	63	62	61	60	59	58	57	56	55	54	53	52	51	50	49	SW00F4	80	79	78	77	76	75	74	73	72	71	70	69	68	67	66	65	SW00F5	96	95	94	93	92	91	90	89	88	87	86	85	84	83	82	81	SW00F6	112	111	110	109	108	107	106	105	104	103	102	101	100	99	98	97	SW00F7	-	-	-	-	-	-	-	-	120	119	118	117	116	115	114	113	○	○
	b15	b14	b13	b12	b11	b10	b9	b8	b7	b6	b5	b4	b3	b2	b1	b0																																																																																																																																													
SW00F0	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1																																																																																																																																													
SW00F1	32	31	30	29	28	27	26	25	24	23	22	21	20	19	18	17																																																																																																																																													
SW00F2	48	47	46	45	44	43	42	41	40	39	38	37	36	35	34	33																																																																																																																																													
SW00F3	64	63	62	61	60	59	58	57	56	55	54	53	52	51	50	49																																																																																																																																													
SW00F4	80	79	78	77	76	75	74	73	72	71	70	69	68	67	66	65																																																																																																																																													
SW00F5	96	95	94	93	92	91	90	89	88	87	86	85	84	83	82	81																																																																																																																																													
SW00F6	112	111	110	109	108	107	106	105	104	103	102	101	100	99	98	97																																																																																																																																													
SW00F7	-	-	-	-	-	-	-	-	120	119	118	117	116	115	114	113																																																																																																																																													
SW0100 to SW0107	CPU operation status of each station (1)	<p>Stores the stop error status of the CPU module of each station. (Including own station)</p> <p>0: Normal 1: Stop error</p> <table border="1"> <thead> <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> </thead> <tbody> <tr> <td>SW0100</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>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> <tr> <td>SW0102</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>SW0103</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>SW0104</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>SW0105</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>SW0106</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>SW0107</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> </tbody> </table> <p>Each number in the table represents station No.</p> <p>(Condition)</p> <ul style="list-style-type: none"> Valid when Baton pass status (own station) (SB0047) is OFF. When Baton pass status (own station) (SB0047) is turned ON (error), data prior to error is held. Valid only for the normally operating station at Baton pass status of each station (SW00A0 to SW00A7) The reserved station and the station No. later than the largest one are excepted. 		b15	b14	b13	b12	b11	b10	b9	b8	b7	b6	b5	b4	b3	b2	b1	b0	SW0100	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1	SW0101	32	31	30	29	28	27	26	25	24	23	22	21	20	19	18	17	SW0102	48	47	46	45	44	43	42	41	40	39	38	37	36	35	34	33	SW0103	64	63	62	61	60	59	58	57	56	55	54	53	52	51	50	49	SW0104	80	79	78	77	76	75	74	73	72	71	70	69	68	67	66	65	SW0105	96	95	94	93	92	91	90	89	88	87	86	85	84	83	82	81	SW0106	112	111	110	109	108	107	106	105	104	103	102	101	100	99	98	97	SW0107	-	-	-	-	-	-	-	-	120	119	118	117	116	115	114	113	○	○
	b15	b14	b13	b12	b11	b10	b9	b8	b7	b6	b5	b4	b3	b2	b1	b0																																																																																																																																													
SW0100	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1																																																																																																																																													
SW0101	32	31	30	29	28	27	26	25	24	23	22	21	20	19	18	17																																																																																																																																													
SW0102	48	47	46	45	44	43	42	41	40	39	38	37	36	35	34	33																																																																																																																																													
SW0103	64	63	62	61	60	59	58	57	56	55	54	53	52	51	50	49																																																																																																																																													
SW0104	80	79	78	77	76	75	74	73	72	71	70	69	68	67	66	65																																																																																																																																													
SW0105	96	95	94	93	92	91	90	89	88	87	86	85	84	83	82	81																																																																																																																																													
SW0106	112	111	110	109	108	107	106	105	104	103	102	101	100	99	98	97																																																																																																																																													
SW0107	-	-	-	-	-	-	-	-	120	119	118	117	116	115	114	113																																																																																																																																													

No.	Name	Description	Availability																																																																																																																																																										
			Control station	Normal station																																																																																																																																																									
SW0110 to SW0117	CPU operation status of each station (2)	<p>Stores the continuation error status of the CPU module of each station. (Including own station)</p> <p>0: Normal 1: Continuation error</p> <table border="1"> <thead> <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> </thead> <tbody> <tr> <td>SW0110</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>SW0111</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>SW0112</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>SW0113</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>SW0114</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>SW0115</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>SW0116</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>SW0117</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> </tbody> </table> <p>Each number in the table represents station No.</p> <p>(Condition)</p> <ul style="list-style-type: none"> Valid when Baton pass status (own station) (SB0047) is OFF. When Baton pass status (own station) (SB0047) is turned ON (error), data prior to error is held. Valid only for the normally operating station at Baton pass status of each station (SW00A0 to SW00A7) The reserved station and the station No. later than the largest one are excepted. 		b15	b14	b13	b12	b11	b10	b9	b8	b7	b6	b5	b4	b3	b2	b1	b0	SW0110	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1	SW0111	32	31	30	29	28	27	26	25	24	23	22	21	20	19	18	17	SW0112	48	47	46	45	44	43	42	41	40	39	38	37	36	35	34	33	SW0113	64	63	62	61	60	59	58	57	56	55	54	53	52	51	50	49	SW0114	80	79	78	77	76	75	74	73	72	71	70	69	68	67	66	65	SW0115	96	95	94	93	92	91	90	89	88	87	86	85	84	83	82	81	SW0116	112	111	110	109	108	107	106	105	104	103	102	101	100	99	98	97	SW0117	-	-	-	-	-	-	-	-	120	119	118	117	116	115	114	113	○	○
	b15	b14	b13	b12	b11	b10	b9	b8	b7	b6	b5	b4	b3	b2	b1	b0																																																																																																																																													
SW0110	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1																																																																																																																																													
SW0111	32	31	30	29	28	27	26	25	24	23	22	21	20	19	18	17																																																																																																																																													
SW0112	48	47	46	45	44	43	42	41	40	39	38	37	36	35	34	33																																																																																																																																													
SW0113	64	63	62	61	60	59	58	57	56	55	54	53	52	51	50	49																																																																																																																																													
SW0114	80	79	78	77	76	75	74	73	72	71	70	69	68	67	66	65																																																																																																																																													
SW0115	96	95	94	93	92	91	90	89	88	87	86	85	84	83	82	81																																																																																																																																													
SW0116	112	111	110	109	108	107	106	105	104	103	102	101	100	99	98	97																																																																																																																																													
SW0117	-	-	-	-	-	-	-	-	120	119	118	117	116	115	114	113																																																																																																																																													
SW0120 to SW0127	Current IN-side error frame reception status	<p>Stores whether the error frame is received or not in the IN-side transmission path of each station.</p> <p>0: A line error is not occurring on the transmission path of each station's IN. 1: A line error is occurring on the transmission path of each station's IN.</p> <table border="1"> <thead> <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> </thead> <tbody> <tr> <td>SW0120</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>SW0121</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>SW0122</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>SW0123</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>SW0124</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>SW0125</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>SW0126</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>SW0127</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> </tbody> </table> <p>Each number in the table represents station No.</p> <p>(Condition)</p> <ul style="list-style-type: none"> Valid when Baton pass status (own station) (SB0047) is OFF. When Baton pass status (own station) (SB0047) is turned ON (error), data prior to error is held. Valid only for the normally operating station at Baton pass status of each station (SW00A0 to SW00A7) 		b15	b14	b13	b12	b11	b10	b9	b8	b7	b6	b5	b4	b3	b2	b1	b0	SW0120	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1	SW0121	32	31	30	29	28	27	26	25	24	23	22	21	20	19	18	17	SW0122	48	47	46	45	44	43	42	41	40	39	38	37	36	35	34	33	SW0123	64	63	62	61	60	59	58	57	56	55	54	53	52	51	50	49	SW0124	80	79	78	77	76	75	74	73	72	71	70	69	68	67	66	65	SW0125	96	95	94	93	92	91	90	89	88	87	86	85	84	83	82	81	SW0126	112	111	110	109	108	107	106	105	104	103	102	101	100	99	98	97	SW0127	-	-	-	-	-	-	-	-	120	119	118	117	116	115	114	113	○	○
	b15	b14	b13	b12	b11	b10	b9	b8	b7	b6	b5	b4	b3	b2	b1	b0																																																																																																																																													
SW0120	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1																																																																																																																																													
SW0121	32	31	30	29	28	27	26	25	24	23	22	21	20	19	18	17																																																																																																																																													
SW0122	48	47	46	45	44	43	42	41	40	39	38	37	36	35	34	33																																																																																																																																													
SW0123	64	63	62	61	60	59	58	57	56	55	54	53	52	51	50	49																																																																																																																																													
SW0124	80	79	78	77	76	75	74	73	72	71	70	69	68	67	66	65																																																																																																																																													
SW0125	96	95	94	93	92	91	90	89	88	87	86	85	84	83	82	81																																																																																																																																													
SW0126	112	111	110	109	108	107	106	105	104	103	102	101	100	99	98	97																																																																																																																																													
SW0127	-	-	-	-	-	-	-	-	120	119	118	117	116	115	114	113																																																																																																																																													

No.	Name	Description	Availability																																																																																																																																																										
			Control station	Normal station																																																																																																																																																									
SW0130 to SW0137	Current OUT-side error frame reception status	<p>Stores whether the error frame is received or not in the OUT-side transmission path of each station.</p> <p>0: A line error is not occurring on the transmission path of each station's OUT.</p> <p>1: A line error is occurring on the transmission path of each station's OUT.</p> <table border="1"> <thead> <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> </thead> <tbody> <tr><td>SW0130</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>SW0131</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>SW0132</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>SW0133</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>SW0134</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>SW0135</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>SW0136</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>SW0137</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> </tbody> </table> <p>Each number in the table represents station No.</p> <p>(Condition)</p> <ul style="list-style-type: none"> Valid when Baton pass status (own station) (SB0047) is OFF. When Baton pass status (own station) (SB0047) is turned ON (error), data prior to error is held. Valid only for the normally operating station at Baton pass status of each station (SW00A0 to SW00A7). 		b15	b14	b13	b12	b11	b10	b9	b8	b7	b6	b5	b4	b3	b2	b1	b0	SW0130	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1	SW0131	32	31	30	29	28	27	26	25	24	23	22	21	20	19	18	17	SW0132	48	47	46	45	44	43	42	41	40	39	38	37	36	35	34	33	SW0133	64	63	62	61	60	59	58	57	56	55	54	53	52	51	50	49	SW0134	80	79	78	77	76	75	74	73	72	71	70	69	68	67	66	65	SW0135	96	95	94	93	92	91	90	89	88	87	86	85	84	83	82	81	SW0136	112	111	110	109	108	107	106	105	104	103	102	101	100	99	98	97	SW0137	-	-	-	-	-	-	-	-	120	119	118	117	116	115	114	113	○	○
	b15	b14	b13	b12	b11	b10	b9	b8	b7	b6	b5	b4	b3	b2	b1	b0																																																																																																																																													
SW0130	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1																																																																																																																																													
SW0131	32	31	30	29	28	27	26	25	24	23	22	21	20	19	18	17																																																																																																																																													
SW0132	48	47	46	45	44	43	42	41	40	39	38	37	36	35	34	33																																																																																																																																													
SW0133	64	63	62	61	60	59	58	57	56	55	54	53	52	51	50	49																																																																																																																																													
SW0134	80	79	78	77	76	75	74	73	72	71	70	69	68	67	66	65																																																																																																																																													
SW0135	96	95	94	93	92	91	90	89	88	87	86	85	84	83	82	81																																																																																																																																													
SW0136	112	111	110	109	108	107	106	105	104	103	102	101	100	99	98	97																																																																																																																																													
SW0137	-	-	-	-	-	-	-	-	120	119	118	117	116	115	114	113																																																																																																																																													
SW0140 to SW0147	IN-side error frame reception detection status	<p>Stores whether the error frame is received or not in the IN-side transmission path of each station from power-on to the present.</p> <p>The stored value is cleared when Clear IN-side transmission error counter (SB0007) is turned ON.</p> <p>0: A line error has not yet occurred on the transmission path of each station's IN.</p> <p>1: A line error occurred on the transmission path of each station's IN.</p> <table border="1"> <thead> <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> </thead> <tbody> <tr><td>SW0140</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>SW0141</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>SW0142</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>SW0143</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>SW0144</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>SW0145</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>SW0146</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>SW0147</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> </tbody> </table> <p>Each number in the table represents station No.</p> <p>(Condition)</p> <ul style="list-style-type: none"> Valid when Baton pass status (own station) (SB0047) is OFF. When Baton pass status (own station) (SB0047) is turned ON (error), data prior to error is held. Valid only for the normally operating station at Baton pass status of each station (SW00A0 to SW00A7). 		b15	b14	b13	b12	b11	b10	b9	b8	b7	b6	b5	b4	b3	b2	b1	b0	SW0140	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1	SW0141	32	31	30	29	28	27	26	25	24	23	22	21	20	19	18	17	SW0142	48	47	46	45	44	43	42	41	40	39	38	37	36	35	34	33	SW0143	64	63	62	61	60	59	58	57	56	55	54	53	52	51	50	49	SW0144	80	79	78	77	76	75	74	73	72	71	70	69	68	67	66	65	SW0145	96	95	94	93	92	91	90	89	88	87	86	85	84	83	82	81	SW0146	112	111	110	109	108	107	106	105	104	103	102	101	100	99	98	97	SW0147	-	-	-	-	-	-	-	-	120	119	118	117	116	115	114	113	○	○
	b15	b14	b13	b12	b11	b10	b9	b8	b7	b6	b5	b4	b3	b2	b1	b0																																																																																																																																													
SW0140	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1																																																																																																																																													
SW0141	32	31	30	29	28	27	26	25	24	23	22	21	20	19	18	17																																																																																																																																													
SW0142	48	47	46	45	44	43	42	41	40	39	38	37	36	35	34	33																																																																																																																																													
SW0143	64	63	62	61	60	59	58	57	56	55	54	53	52	51	50	49																																																																																																																																													
SW0144	80	79	78	77	76	75	74	73	72	71	70	69	68	67	66	65																																																																																																																																													
SW0145	96	95	94	93	92	91	90	89	88	87	86	85	84	83	82	81																																																																																																																																													
SW0146	112	111	110	109	108	107	106	105	104	103	102	101	100	99	98	97																																																																																																																																													
SW0147	-	-	-	-	-	-	-	-	120	119	118	117	116	115	114	113																																																																																																																																													



No.	Name	Description	Availability																																																																																																																																																										
			Control station	Normal station																																																																																																																																																									
SW0150 to SW0157	OUT-side error frame reception detection status	<p>Stores whether the error frame is received or not in the OUT-side transmission path of each station from power-on to the present.</p> <p>The stored value is cleared when Clear OUT-side transmission error counter (SB0008) is turned ON.</p> <p>0: A line error has not yet occurred on the transmission path of each station's OUT.</p> <p>1: A line error occurred on the transmission path of each station's OUT.</p> <table border="1"> <thead> <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> </thead> <tbody> <tr> <td>SW0150</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>SW0151</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>SW0152</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>SW0153</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>SW0154</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>SW0155</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>SW0156</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>SW0157</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> </tbody> </table> <p>Each number in the table represents station No.</p> <p>(Condition)</p> <ul style="list-style-type: none"> Valid when Baton pass status (own station) (SB0047) is OFF. When Baton pass status (own station) (SB0047) is turned ON (error), data prior to error is held. Valid only for the normally operating station at Baton pass status of each station (SW00A0 to SW00A7). 		b15	b14	b13	b12	b11	b10	b9	b8	b7	b6	b5	b4	b3	b2	b1	b0	SW0150	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1	SW0151	32	31	30	29	28	27	26	25	24	23	22	21	20	19	18	17	SW0152	48	47	46	45	44	43	42	41	40	39	38	37	36	35	34	33	SW0153	64	63	62	61	60	59	58	57	56	55	54	53	52	51	50	49	SW0154	80	79	78	77	76	75	74	73	72	71	70	69	68	67	66	65	SW0155	96	95	94	93	92	91	90	89	88	87	86	85	84	83	82	81	SW0156	112	111	110	109	108	107	106	105	104	103	102	101	100	99	98	97	SW0157	-	-	-	-	-	-	-	-	120	119	118	117	116	115	114	113	○	○
	b15	b14	b13	b12	b11	b10	b9	b8	b7	b6	b5	b4	b3	b2	b1	b0																																																																																																																																													
SW0150	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1																																																																																																																																													
SW0151	32	31	30	29	28	27	26	25	24	23	22	21	20	19	18	17																																																																																																																																													
SW0152	48	47	46	45	44	43	42	41	40	39	38	37	36	35	34	33																																																																																																																																													
SW0153	64	63	62	61	60	59	58	57	56	55	54	53	52	51	50	49																																																																																																																																													
SW0154	80	79	78	77	76	75	74	73	72	71	70	69	68	67	66	65																																																																																																																																													
SW0155	96	95	94	93	92	91	90	89	88	87	86	85	84	83	82	81																																																																																																																																													
SW0156	112	111	110	109	108	107	106	105	104	103	102	101	100	99	98	97																																																																																																																																													
SW0157	-	-	-	-	-	-	-	-	120	119	118	117	116	115	114	113																																																																																																																																													
SW0160 to SW0167	Path switching detection status of each station	<p>Stores whether the path switching is detected or not in each station from power-on to the present.</p> <p>The path switching detection status is cleared when Clear loop switching counter (SB0009) is turned ON.</p> <p>Turn ON Clear loop switching counter (SB0009) when clearing the path switching detection status of other station.</p> <p>0: Path switching not detected</p> <p>1: Path switching detected</p> <table border="1"> <thead> <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> </thead> <tbody> <tr> <td>SW0160</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>SW0161</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>SW0162</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>SW0163</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>SW0164</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>SW0165</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>SW0166</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>SW0167</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> </tbody> </table> <p>Each number in the table represents station No.</p> <p>(Condition)</p> <ul style="list-style-type: none"> Valid when Baton pass status (own station) (SB0047) is OFF. When Baton pass status (own station) (SB0047) is turned ON (error), data prior to error is held. 		b15	b14	b13	b12	b11	b10	b9	b8	b7	b6	b5	b4	b3	b2	b1	b0	SW0160	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1	SW0161	32	31	30	29	28	27	26	25	24	23	22	21	20	19	18	17	SW0162	48	47	46	45	44	43	42	41	40	39	38	37	36	35	34	33	SW0163	64	63	62	61	60	59	58	57	56	55	54	53	52	51	50	49	SW0164	80	79	78	77	76	75	74	73	72	71	70	69	68	67	66	65	SW0165	96	95	94	93	92	91	90	89	88	87	86	85	84	83	82	81	SW0166	112	111	110	109	108	107	106	105	104	103	102	101	100	99	98	97	SW0167	-	-	-	-	-	-	-	-	120	119	118	117	116	115	114	113	○	○
	b15	b14	b13	b12	b11	b10	b9	b8	b7	b6	b5	b4	b3	b2	b1	b0																																																																																																																																													
SW0160	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1																																																																																																																																													
SW0161	32	31	30	29	28	27	26	25	24	23	22	21	20	19	18	17																																																																																																																																													
SW0162	48	47	46	45	44	43	42	41	40	39	38	37	36	35	34	33																																																																																																																																													
SW0163	64	63	62	61	60	59	58	57	56	55	54	53	52	51	50	49																																																																																																																																													
SW0164	80	79	78	77	76	75	74	73	72	71	70	69	68	67	66	65																																																																																																																																													
SW0165	96	95	94	93	92	91	90	89	88	87	86	85	84	83	82	81																																																																																																																																													
SW0166	112	111	110	109	108	107	106	105	104	103	102	101	100	99	98	97																																																																																																																																													
SW0167	-	-	-	-	-	-	-	-	120	119	118	117	116	115	114	113																																																																																																																																													



No.	Name	Description	Availability																																																																																																																																																										
			Control station	Normal station																																																																																																																																																									
SW0170 to SW0177	Transient error detection status of each station	<p>Stores whether the transient transmission error is detected or not in each station from power-on to the present.</p> <p>The transient error detection status of own station is cleared when Clear transient transmission error counter (SB000A) is turned ON.</p> <p>Turn ON Clear transient transmission error counter (SB000A) at other station side when clearing the transient error detection status of other station.</p> <p>0: Error not detected 1: Error detected</p> <table border="1"> <thead> <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> </thead> <tbody> <tr> <td>SW0170</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>SW0171</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>SW0172</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>SW0173</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>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> </tbody> </table> <p>Each number in the table represents station No.</p> <p>(Condition)</p> <ul style="list-style-type: none"> Valid when Baton pass status (own station) (SB0047) is OFF. <p>When Baton pass status (own station) (SB0047) is turned ON (error), data prior to error is held.</p>		b15	b14	b13	b12	b11	b10	b9	b8	b7	b6	b5	b4	b3	b2	b1	b0	SW0170	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1	SW0171	32	31	30	29	28	27	26	25	24	23	22	21	20	19	18	17	SW0172	48	47	46	45	44	43	42	41	40	39	38	37	36	35	34	33	SW0173	64	63	62	61	60	59	58	57	56	55	54	53	52	51	50	49	SW0174	80	79	78	77	76	75	74	73	72	71	70	69	68	67	66	65	SW0175	96	95	94	93	92	91	90	89	88	87	86	85	84	83	82	81	SW0176	112	111	110	109	108	107	106	105	104	103	102	101	100	99	98	97	SW0177	-	-	-	-	-	-	-	-	120	119	118	117	116	115	114	113	○	○
	b15	b14	b13	b12	b11	b10	b9	b8	b7	b6	b5	b4	b3	b2	b1	b0																																																																																																																																													
SW0170	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1																																																																																																																																													
SW0171	32	31	30	29	28	27	26	25	24	23	22	21	20	19	18	17																																																																																																																																													
SW0172	48	47	46	45	44	43	42	41	40	39	38	37	36	35	34	33																																																																																																																																													
SW0173	64	63	62	61	60	59	58	57	56	55	54	53	52	51	50	49																																																																																																																																													
SW0174	80	79	78	77	76	75	74	73	72	71	70	69	68	67	66	65																																																																																																																																													
SW0175	96	95	94	93	92	91	90	89	88	87	86	85	84	83	82	81																																																																																																																																													
SW0176	112	111	110	109	108	107	106	105	104	103	102	101	100	99	98	97																																																																																																																																													
SW0177	-	-	-	-	-	-	-	-	120	119	118	117	116	115	114	113																																																																																																																																													
SW0180 to SW0187	Power supply status of each station	<p>Stores the external power supply status of the CC-Link IE Controller Network module on each station. (Including own station)</p> <p>0: No external power supplied 1: External power supplied</p> <p>This register is always OFF when the CC-Link IE Controller Network module does not have the external power supply function.</p> <table border="1"> <thead> <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> </thead> <tbody> <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> </tbody> </table> <p>Each number in the table represents station No.</p> <p>(Condition)</p> <ul style="list-style-type: none"> Valid when Baton pass status (own station) (SB0047) is OFF. <p>When Baton pass status (own station) (SB0047) is turned ON (error), data prior to error are held.</p> <ul style="list-style-type: none"> The reserved station and the station No. later than the largest one are excepted. 		b15	b14	b13	b12	b11	b10	b9	b8	b7	b6	b5	b4	b3	b2	b1	b0	SW0180	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1	SW0181	32	31	30	29	28	27	26	25	24	23	22	21	20	19	18	17	SW0182	48	47	46	45	44	43	42	41	40	39	38	37	36	35	34	33	SW0183	64	63	62	61	60	59	58	57	56	55	54	53	52	51	50	49	SW0184	80	79	78	77	76	75	74	73	72	71	70	69	68	67	66	65	SW0185	96	95	94	93	92	91	90	89	88	87	86	85	84	83	82	81	SW0186	112	111	110	109	108	107	106	105	104	103	102	101	100	99	98	97	SW0187	-	-	-	-	-	-	-	-	120	119	118	117	116	115	114	113	○	○
	b15	b14	b13	b12	b11	b10	b9	b8	b7	b6	b5	b4	b3	b2	b1	b0																																																																																																																																													
SW0180	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1																																																																																																																																													
SW0181	32	31	30	29	28	27	26	25	24	23	22	21	20	19	18	17																																																																																																																																													
SW0182	48	47	46	45	44	43	42	41	40	39	38	37	36	35	34	33																																																																																																																																													
SW0183	64	63	62	61	60	59	58	57	56	55	54	53	52	51	50	49																																																																																																																																													
SW0184	80	79	78	77	76	75	74	73	72	71	70	69	68	67	66	65																																																																																																																																													
SW0185	96	95	94	93	92	91	90	89	88	87	86	85	84	83	82	81																																																																																																																																													
SW0186	112	111	110	109	108	107	106	105	104	103	102	101	100	99	98	97																																																																																																																																													
SW0187	-	-	-	-	-	-	-	-	120	119	118	117	116	115	114	113																																																																																																																																													

Appendix 2 Link Special Register (SW) List

No.	Name	Description	Availability																																																																																																																																																											
			Control station	Normal station																																																																																																																																																										
SW0190 to SW0197	Power status consistency check of each station	<p>Stores the external power supply status of the CC-Link IE Controller Network module with external power supply function on each station. (Including own station)</p> <p>0: External power supplied (Normal) 1: No external power supplied (Error)</p> <p>This register is always OFF when the CC-Link IE Controller Network module does not have the external power supply function.</p> <table border="1"> <thead> <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> </thead> <tbody> <tr> <td>SW0190</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>SW0191</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>SW0192</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>SW0193</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>SW0194</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>SW0195</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>SW0196</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>SW0197</td> <td>-</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> </tbody> </table> <p>Each number in the table represents station No.</p> <p>(Condition)</p> <ul style="list-style-type: none"> Valid when Baton pass status (own station) (SB0047) is OFF. When Baton pass status (own station) (SB0047) is turned ON (error), data prior to error are held. The reserved station and the station No. later than the largest one are excepted. 		b15	b14	b13	b12	b11	b10	b9	b8	b7	b6	b5	b4	b3	b2	b1	b0	SW0190	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1	SW0191	32	31	30	29	28	27	26	25	24	23	22	21	20	19	18	17	SW0192	48	47	46	45	44	43	42	41	40	39	38	37	36	35	34	33	SW0193	64	63	62	61	60	59	58	57	56	55	54	53	52	51	50	49	SW0194	80	79	78	77	76	75	74	73	72	71	70	69	68	67	66	65	SW0195	96	95	94	93	92	91	90	89	88	87	86	85	84	83	82	81	SW0196	112	111	110	109	108	107	106	105	104	103	102	101	100	99	98	97	SW0197	-	-	-	-	-	-	-	-	-	120	119	118	117	116	115	114	113	○	○
	b15	b14	b13	b12	b11	b10	b9	b8	b7	b6	b5	b4	b3	b2	b1	b0																																																																																																																																														
SW0190	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1																																																																																																																																														
SW0191	32	31	30	29	28	27	26	25	24	23	22	21	20	19	18	17																																																																																																																																														
SW0192	48	47	46	45	44	43	42	41	40	39	38	37	36	35	34	33																																																																																																																																														
SW0193	64	63	62	61	60	59	58	57	56	55	54	53	52	51	50	49																																																																																																																																														
SW0194	80	79	78	77	76	75	74	73	72	71	70	69	68	67	66	65																																																																																																																																														
SW0195	96	95	94	93	92	91	90	89	88	87	86	85	84	83	82	81																																																																																																																																														
SW0196	112	111	110	109	108	107	106	105	104	103	102	101	100	99	98	97																																																																																																																																														
SW0197	-	-	-	-	-	-	-	-	-	120	119	118	117	116	115	114	113																																																																																																																																													
SW01A0 to SW01A7	Group cyclic transmission station information	<p>Stores shared group setting information of each station (including the own station).</p> <p>0: Station in same shared group as own station or station with no shared group setting 1: Station in shared group different from own station</p> <p>Cyclic data from stations in different shared groups are not received.</p> <table border="1"> <thead> <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> </thead> <tbody> <tr> <td>SW01A0</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>SW01A1</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>SW01A2</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>SW01A3</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>SW01A4</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>SW01A5</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>SW01A6</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>SW01A7</td> <td>-</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> </tbody> </table> <p>Each number in the table represents station No.</p> <p>(Condition)</p> <ul style="list-style-type: none"> The station No. later than the largest one are excepted. 		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	○	○
	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																																																																																																																																													

No.	Name	Description	Availability																																																																																																																																																										
			Control station	Normal station																																																																																																																																																									
SW01B0 to SW01B7	Each station's CPU type information	<p>Stores CPU type information of each station (including the own station). 0: Other than Basic model QCPU and safety CPU 1: Basic model QCPU or safety CPU</p> <table border="1"> <thead> <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> </thead> <tbody> <tr> <td>SW01B0</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>SW01B1</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>SW01B2</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>SW01B3</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>SW01B4</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>SW01B5</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>SW01B6</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>SW01B7</td> <td>-</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> </tr> </tbody> </table> <p>Each number in the table represents station No.</p> <p>(Condition)</p> <ul style="list-style-type: none"> Valid only for the normally operating station at Baton pass status of each station (SW00A0 to SW00A7). The reserved station and the station No. later than the largest one are excepted. 		b15	b14	b13	b12	b11	b10	b9	b8	b7	b6	b5	b4	b3	b2	b1	b0	SW01B0	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1	SW01B1	32	31	30	29	28	27	26	25	24	23	22	21	20	19	18	17	SW01B2	48	47	46	45	44	43	42	41	40	39	38	37	36	35	34	33	SW01B3	64	63	62	61	60	59	58	57	56	55	54	53	52	51	50	49	SW01B4	80	79	78	77	76	75	74	73	72	71	70	69	68	67	66	65	SW01B5	96	95	94	93	92	91	90	89	88	87	86	85	84	83	82	81	SW01B6	112	111	110	109	108	107	106	105	104	103	102	101	100	99	98	97	SW01B7	-	-	-	-	-	-	-	-	-	120	119	118	117	116	115	114	○	○
	b15	b14	b13	b12	b11	b10	b9	b8	b7	b6	b5	b4	b3	b2	b1	b0																																																																																																																																													
SW01B0	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1																																																																																																																																													
SW01B1	32	31	30	29	28	27	26	25	24	23	22	21	20	19	18	17																																																																																																																																													
SW01B2	48	47	46	45	44	43	42	41	40	39	38	37	36	35	34	33																																																																																																																																													
SW01B3	64	63	62	61	60	59	58	57	56	55	54	53	52	51	50	49																																																																																																																																													
SW01B4	80	79	78	77	76	75	74	73	72	71	70	69	68	67	66	65																																																																																																																																													
SW01B5	96	95	94	93	92	91	90	89	88	87	86	85	84	83	82	81																																																																																																																																													
SW01B6	112	111	110	109	108	107	106	105	104	103	102	101	100	99	98	97																																																																																																																																													
SW01B7	-	-	-	-	-	-	-	-	-	120	119	118	117	116	115	114																																																																																																																																													
SW01C0 to SW01C7	Redundant function information	<p>Stores redundant system support information of Redundant CPU or CC-Link IE Controller Network module of each station (including the own station). 0: Redundant system supported 1: Redundant system not supported</p> <table border="1"> <thead> <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> </thead> <tbody> <tr> <td>SW01C0</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>SW01C1</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>SW01C2</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>SW01C3</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>SW01C4</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>SW01C5</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>SW01C6</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>SW01C7</td> <td>-</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> </tr> </tbody> </table> <p>Each number in the table represents station No.</p> <p>(Condition)</p> <ul style="list-style-type: none"> Valid only for the normally operating station at Baton pass status of each station (SW00A0 to SW00A7). The reserved station and the station No. later than the largest one are excepted. 		b15	b14	b13	b12	b11	b10	b9	b8	b7	b6	b5	b4	b3	b2	b1	b0	SW01C0	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1	SW01C1	32	31	30	29	28	27	26	25	24	23	22	21	20	19	18	17	SW01C2	48	47	46	45	44	43	42	41	40	39	38	37	36	35	34	33	SW01C3	64	63	62	61	60	59	58	57	56	55	54	53	52	51	50	49	SW01C4	80	79	78	77	76	75	74	73	72	71	70	69	68	67	66	65	SW01C5	96	95	94	93	92	91	90	89	88	87	86	85	84	83	82	81	SW01C6	112	111	110	109	108	107	106	105	104	103	102	101	100	99	98	97	SW01C7	-	-	-	-	-	-	-	-	-	120	119	118	117	116	115	114	○	○
	b15	b14	b13	b12	b11	b10	b9	b8	b7	b6	b5	b4	b3	b2	b1	b0																																																																																																																																													
SW01C0	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1																																																																																																																																													
SW01C1	32	31	30	29	28	27	26	25	24	23	22	21	20	19	18	17																																																																																																																																													
SW01C2	48	47	46	45	44	43	42	41	40	39	38	37	36	35	34	33																																																																																																																																													
SW01C3	64	63	62	61	60	59	58	57	56	55	54	53	52	51	50	49																																																																																																																																													
SW01C4	80	79	78	77	76	75	74	73	72	71	70	69	68	67	66	65																																																																																																																																													
SW01C5	96	95	94	93	92	91	90	89	88	87	86	85	84	83	82	81																																																																																																																																													
SW01C6	112	111	110	109	108	107	106	105	104	103	102	101	100	99	98	97																																																																																																																																													
SW01C7	-	-	-	-	-	-	-	-	-	120	119	118	117	116	115	114																																																																																																																																													



Appendix 2 Link Special Register (SW) List

No.	Name	Description	Availability																																																																																																																																																										
			Control station	Normal station																																																																																																																																																									
SW01D0 to SW01D7	Redundant system status (1)	<p>Stores the CPU operation mode of each station (including the own station). 0: Backup mode (including single systems) 1: Separate mode</p> <table border="1"> <thead> <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> </thead> <tbody> <tr> <td>SW01D0</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>SW01D1</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>SW01D2</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>SW01D3</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>SW01D4</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>SW01D5</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>SW01D6</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>SW01D7</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> </tbody> </table> <p>Each number in the table represents station No.</p> <p>(Condition)</p> <ul style="list-style-type: none"> Valid when Baton pass status (own station) (SB0047) is OFF. When Baton pass status (own station) (SB0047) is turned ON (error), data prior to error are held. Valid only for the normally operating station at Baton pass status of each station (SW00A0 to SW00A7). The reserved station and the station No. later than the largest one are excepted. 		b15	b14	b13	b12	b11	b10	b9	b8	b7	b6	b5	b4	b3	b2	b1	b0	SW01D0	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1	SW01D1	32	31	30	29	28	27	26	25	24	23	22	21	20	19	18	17	SW01D2	48	47	46	45	44	43	42	41	40	39	38	37	36	35	34	33	SW01D3	64	63	62	61	60	59	58	57	56	55	54	53	52	51	50	49	SW01D4	80	79	78	77	76	75	74	73	72	71	70	69	68	67	66	65	SW01D5	96	95	94	93	92	91	90	89	88	87	86	85	84	83	82	81	SW01D6	112	111	110	109	108	107	106	105	104	103	102	101	100	99	98	97	SW01D7	-	-	-	-	-	-	-	-	120	119	118	117	116	115	114	113	○	○
	b15	b14	b13	b12	b11	b10	b9	b8	b7	b6	b5	b4	b3	b2	b1	b0																																																																																																																																													
SW01D0	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1																																																																																																																																													
SW01D1	32	31	30	29	28	27	26	25	24	23	22	21	20	19	18	17																																																																																																																																													
SW01D2	48	47	46	45	44	43	42	41	40	39	38	37	36	35	34	33																																																																																																																																													
SW01D3	64	63	62	61	60	59	58	57	56	55	54	53	52	51	50	49																																																																																																																																													
SW01D4	80	79	78	77	76	75	74	73	72	71	70	69	68	67	66	65																																																																																																																																													
SW01D5	96	95	94	93	92	91	90	89	88	87	86	85	84	83	82	81																																																																																																																																													
SW01D6	112	111	110	109	108	107	106	105	104	103	102	101	100	99	98	97																																																																																																																																													
SW01D7	-	-	-	-	-	-	-	-	120	119	118	117	116	115	114	113																																																																																																																																													
SW01E0 to SW01E7	Redundant system status (2)	<p>Stores the pairing setting status of each station (including the own station). 0: No pairing setting (including single systems) 1: Pairing setting If pairing is set, the bit corresponding to the system B station is ON.</p> <table border="1"> <thead> <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> </thead> <tbody> <tr> <td>SW01E0</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>SW01E1</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>SW01E2</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>SW01E3</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>SW01E4</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>SW01E5</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>SW01E6</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>SW01E7</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> </tbody> </table> <p>Each number in the table represents station No.</p> <p>(Condition)</p> <ul style="list-style-type: none"> Valid when Baton pass status (own station) (SB0047) is OFF. When Baton pass status (own station) (SB0047) is turned ON (error), data prior to error are held. Valid only for the normally operating station at Baton pass status of each station (SW00A0 to SW00A7). The station No. later than the largest one are excepted. 		b15	b14	b13	b12	b11	b10	b9	b8	b7	b6	b5	b4	b3	b2	b1	b0	SW01E0	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1	SW01E1	32	31	30	29	28	27	26	25	24	23	22	21	20	19	18	17	SW01E2	48	47	46	45	44	43	42	41	40	39	38	37	36	35	34	33	SW01E3	64	63	62	61	60	59	58	57	56	55	54	53	52	51	50	49	SW01E4	80	79	78	77	76	75	74	73	72	71	70	69	68	67	66	65	SW01E5	96	95	94	93	92	91	90	89	88	87	86	85	84	83	82	81	SW01E6	112	111	110	109	108	107	106	105	104	103	102	101	100	99	98	97	SW01E7	-	-	-	-	-	-	-	-	120	119	118	117	116	115	114	113	○	○
	b15	b14	b13	b12	b11	b10	b9	b8	b7	b6	b5	b4	b3	b2	b1	b0																																																																																																																																													
SW01E0	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1																																																																																																																																													
SW01E1	32	31	30	29	28	27	26	25	24	23	22	21	20	19	18	17																																																																																																																																													
SW01E2	48	47	46	45	44	43	42	41	40	39	38	37	36	35	34	33																																																																																																																																													
SW01E3	64	63	62	61	60	59	58	57	56	55	54	53	52	51	50	49																																																																																																																																													
SW01E4	80	79	78	77	76	75	74	73	72	71	70	69	68	67	66	65																																																																																																																																													
SW01E5	96	95	94	93	92	91	90	89	88	87	86	85	84	83	82	81																																																																																																																																													
SW01E6	112	111	110	109	108	107	106	105	104	103	102	101	100	99	98	97																																																																																																																																													
SW01E7	-	-	-	-	-	-	-	-	120	119	118	117	116	115	114	113																																																																																																																																													

No.	Name	Description	Availability																																																																																																																																																										
			Control station	Normal station																																																																																																																																																									
SW01F0 to SW01F7	Redundant system status (3)	<p>Stores the CPU operating status (control/standby system) of each station (including the own station).</p> <p>0: Control system CPU (including single systems) 1: Standby system CPU</p> <table border="1"> <thead> <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> </thead> <tbody> <tr> <td>SW01F0</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>SW01F1</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>SW01F2</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>SW01F3</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>SW01F4</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>SW01F5</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>SW01F6</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>SW01F7</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> </tbody> </table> <p>Each number in the table represents station No.</p> <p>(Condition)</p> <ul style="list-style-type: none"> Valid when Baton pass status (own station) (SB0047) is OFF. When Baton pass status (own station) (SB0047) is turned ON (error), data prior to error are held. Valid only for the normally operating station at Baton pass status of each station (SW00A0 to SW00A7). The reserved station and the station No. later than the largest one are excepted. 		b15	b14	b13	b12	b11	b10	b9	b8	b7	b6	b5	b4	b3	b2	b1	b0	SW01F0	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1	SW01F1	32	31	30	29	28	27	26	25	24	23	22	21	20	19	18	17	SW01F2	48	47	46	45	44	43	42	41	40	39	38	37	36	35	34	33	SW01F3	64	63	62	61	60	59	58	57	56	55	54	53	52	51	50	49	SW01F4	80	79	78	77	76	75	74	73	72	71	70	69	68	67	66	65	SW01F5	96	95	94	93	92	91	90	89	88	87	86	85	84	83	82	81	SW01F6	112	111	110	109	108	107	106	105	104	103	102	101	100	99	98	97	SW01F7	-	-	-	-	-	-	-	-	120	119	118	117	116	115	114	113	○	○
	b15	b14	b13	b12	b11	b10	b9	b8	b7	b6	b5	b4	b3	b2	b1	b0																																																																																																																																													
SW01F0	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1																																																																																																																																													
SW01F1	32	31	30	29	28	27	26	25	24	23	22	21	20	19	18	17																																																																																																																																													
SW01F2	48	47	46	45	44	43	42	41	40	39	38	37	36	35	34	33																																																																																																																																													
SW01F3	64	63	62	61	60	59	58	57	56	55	54	53	52	51	50	49																																																																																																																																													
SW01F4	80	79	78	77	76	75	74	73	72	71	70	69	68	67	66	65																																																																																																																																													
SW01F5	96	95	94	93	92	91	90	89	88	87	86	85	84	83	82	81																																																																																																																																													
SW01F6	112	111	110	109	108	107	106	105	104	103	102	101	100	99	98	97																																																																																																																																													
SW01F7	-	-	-	-	-	-	-	-	120	119	118	117	116	115	114	113																																																																																																																																													



Appendix 3 Functional Upgrade of CC-Link IE Controller Network

This section shows newly added CC-Link IE Controller Network module functions and relevant serial No. and software versions.

Available functions vary depending on the CPU module to which the CC-Link IE Controller Network module is installed.

(1) For Basic model QCPUs

Function	First 5 digits of serial No.		Programming tool version		Reference section
	CC-Link IE Controller Network module	CPU module	GX Developer	GX Works2	
Compatible with Q00J/Q00/Q01CPU	Function version D or later	—	Version 8.68W or later	Version 1.09K or later	Page 40, Section 2.3
Points for link dedicated instruction (READ/SREAD/WRITE/SWRITE) increased to 8192 words <ul style="list-style-type: none"> Channels 9 and 10 specified for use of own station Read/write data length specified to 961 words or more 			—	—	Page 324, CHAPTER 9
Modified CC IE Control diagnostics <ul style="list-style-type: none"> Display of stations with no parameter setting 			Version 8.68W or later	Version 1.09K or later	Page 528, Section 10.3.1
Supporting transient requests from CC-Link IE Controller Network compatible devices, and new CC-Link dedicated instructions added <ul style="list-style-type: none"> RIRD/RIWT 	10092 or later	—	—	Page 324, CHAPTER 9	

—: Irrelevant to serial No. or software version

(2) For High Performance model QCPUs

Function	First 5 digits of serial No.		Programming tool version		Reference section
	CC-Link IE Controller Network module	CPU module	GX Developer	GX Works2	
Compatible with Q02/Q02H/Q06H/Q12H/Q25H CPU	09011 or later	09012 or later	Version 8.45X or later	Version 1.04E or later	Page 40, Section 2.3
Total number of stations per network increased to 120* ¹	09042 or later		Version 8.48A or later		Page 34, Section 2.1.1
External power supply function			—		Page 134, Section 4.4.7
Link dedicated instructions added • SEND/RECV/RECVS/ZNRD/ZNWR/RRUN/RSTOP/RTMRD/RTMWR			—	Page 324, CHAPTER 9	
Modified CC IE Control diagnostics • Acquisition of normal connection information			Version 8.48A or later	Version 1.04E or later	Page 528, Section 10.3.1
Compatible with Redundant CPUs • Pairing setting for redundant systems	Function version D or later	10042 or later	Version 8.68W or later	Not available	Page 138, Section 4.7.1
Points for link dedicated instructions (READ/SREAD/WRITE/SWRITE) increased to 8192 words • Channels 9 and 10 specified for use of the own station • Read/write data length specified to 961 words or more		—	—	—	Page 324, CHAPTER 9
Modified CC IE Control diagnostics • Display of stations with no parameter setting		Version 8.68W or later	Version 1.04E or later	Page 528, Section 10.3.1	
Supporting transient requests from CC-Link IE Controller Network compatible devices, and new CC-Link dedicated instructions added • RIRD/RIWT	10092 or later	—	—	Page 324, CHAPTER 9	
Increase of send points by mounting multiple network modules of the same network No.	—	—	Version 8.76E or later	Version 1.07H or later	Page 84, Section 4.1.9

—: Irrelevant to serial No. or software version

*1 Station No.1 to No.64 can be set. When a High Performance model QCPU is a control station, however, the total number of stations per network is up to 64.

(3) For Process CPUs

Function	First 5 digits of serial No.		Programming tool version		Reference section
	CC-Link IE Controller Network module	CPU module	GX Developer	GX Works2	
Compatible with Q02PH/Q06PHCPU	Function version D or later	—	Version 8.68W or later	Not available	Page 40, Section 2.3
Compatible with Q12PH/Q25PHCPU		10042 or later			
Compatible with Redundant CPUs • Pairing setting for redundant systems		10042 or later* ¹			Page 138, Section 4.7.1
Points for link dedicated instructions (READ/SREAD/WRITE/SWRITE) increased to 8192 words • Channels 9 and 10 specified for use of the own station • Read/write data length specified to 961 words or more		—	—	Page 324, CHAPTER 9	
Modified CC IE Control diagnostics • Display of stations with no parameter setting		—	Version 8.68W or later	Not available	Page 528, Section 10.3.1
Supporting transient requests from CC-Link IE Controller Network compatible devices, and new CC-Link dedicated instructions added • RIRD/RIWT		10092 or later	—	—	Page 324, CHAPTER 9
Increase of send points by mounting multiple network modules of the same network No.	—	Version 8.76E or later	Not available	Page 84, Section 4.1.9	

—: Irrelevant to serial No. or software version

*1 The Q02PH/Q06PHCPU is available from the first released products.

(4) For Redundant CPUs

Function	First 5 digits of serial No.		Programming tool version		Reference section
	CC-Link IE Controller Network module	CPU module	GX Developer	GX Works2	
Compatible with Q12PRH/Q25PRHCPU		10042 or later	Version 8.68W or later	Not available	Page 40, Section 2.3
Compatible with Redundant CPUs • Pairing setting for redundant systems • System switching request to a control system CPU					Page 138, Section 4.7.1
Points for link dedicated instructions (READ/SREAD/WRITE/SWRITE) increased to 8192 words • Channels 9 and 10 specified for use of the own station • Read/write data length specified to 961 words or more	Function version D or later	—	—	—	Page 324, CHAPTER 9
Modified CC IE Control diagnostics • Display of stations with no parameter setting			Version 8.68W or later	Not available	Page 528, Section 10.3.1
Supporting transient requests from CC-Link IE Controller Network compatible devices, and new CC-Link dedicated instructions added • RIRD/RIWT		10092 or later	—	—	Page 324, CHAPTER 9
Increase of send points by mounting multiple network modules of the same network No.	—		Version 8.76E or later	Not available	Page 84, Section 4.1.9

—: Irrelevant to serial No. or software version

(5) For Universal model QCPUs

Function	First 5 digits of serial No.		Programming tool version		Reference section		
	CC-Link IE Controller Network module	CPU module	GX Developer	GX Works2			
Compatible with Q02U/Q03UD/Q04UDH/Q06UDHCPU	09042 or later	09042 or later* ¹	Version 8.48A or later	Version 1.04E or later	Page 40, Section 2.3		
Total number of stations per network increased to 120					Page 34, Section 2.1.1		
Product No. display					Page 42, Section 2.4		
Direct access to the devices LB/LW4000 or higher			Version 8.70Y or later	Version 1.04E or later	Page 70, Section 4.1.4		
External power supply function			Version 8.48A or later		Page 134, Section 4.4.7		
Station No. setting with a sequence program			Version 8.70Y or later		Page 136, Section 4.6		
Supporting extended data register (D) and extended link register (W) of the CPU module			—		Page 212, Section 6.5.2		
Link dedicated instructions added • SEND/RECV/RECVS/ZNRD/ZNWR/RRUN/RSTOP/RTMRD/RTMWR			09042 or later	—	—	Page 324, CHAPTER 9	
Modified CC IE Control diagnostics • Acquisition of normal connection information			—	—	Version 8.48A or later	Version 1.04E or later	Page 528, Section 10.3.1
Compatible with Q13UDH/Q26UDHCPU					Version 8.62Q or later		
Compatible with Q00UJ/Q00U/Q01U/Q10UDH/Q20UDH/Q10UDEH/Q20UDEHCPU	Version 8.76E or later	Version 1.07H or later			Page 40, Section 2.3		
Compatible with Q03UDE/Q04UDEH/Q06UDEH/Q13UDEH/Q26UDEH CPU	Version 8.68W or later	Version 1.04E or later					
Compatible with Q50UDEH/Q100UDEHCPU	Not available	Version 1.31H or later					
Compatible with Q03UDV/Q04UDV/Q06UDV/Q13UDV/Q26UDV CPU		Version 1.98C or later					

Function	First 5 digits of serial No.		Programming tool version		Reference section		
	CC-Link IE Controller Network module	CPU module	GX Developer	GX Works2			
Group cyclic transmission function	Function version D or later	10042 or later*2	Version 8.68W or later	Version 1.04E or later	Page 83, Section 4.1.8		
Compatible with Redundant CPUs • Pairing setting for redundant systems				Not available	Page 138, Section 4.7.1		
Points for link dedicated instructions (READ/SREAD/WRITE/SWRITE) increased to 8192 words • Channels 9 and 10 specified for use of the own station • Read/write data length specified to 961 words or more		—	—	—	Page 324, CHAPTER 9		
Modified CC IE Control diagnostics • Display of stations with no parameter setting		—	Version 8.68W or later	Version 1.04E or later	Page 528, Section 10.3.1		
Supporting transient requests from CC-Link IE Controller Network compatible devices, and new CC-Link dedicated instructions added • RIRD/RIWT	10092 or later	—	—	—	Page 324, CHAPTER 9		
Increase of send points by mounting multiple network modules of the same network No.	—				Version 8.76E or later	Version 1.07H or later	Page 84, Section 4.1.9
Module error history collection function	12052 or later				11043 or later	Version 1.09K or later	Page 511, Section 10.2.1
Send points extension function	12052 or later	12052 or later	Not available	Version 1.34L or later	Page 180, Section 6.2		
Supporting the IP packet transfer function	14112 or later	14022 or later*3		Version 1.98C or later	Page 106, Section 4.3		

—: Irrelevant to serial No. or software version

*1 Other than the Q02U/Q03UD/Q04UDH/Q06UDHCPU can be used from the first released products.

*2 Other than the Q02U/Q03UD/Q04UDH/Q06UDH/Q13UDH/Q26UDHCPU can be used from the first released products.

*3 CPU modules that can be used differ depending on the connection path. (☞ Page 107, Section 4.3.1)

(6) For Safety CPUs

Function	First 5 digits of serial No.		Programming tool version		Reference section
	CC-Link IE Controller Network module	CPU module	GX Developer	GX Works2	
Compatible with QS001CPU	Function version D or later	—	Version 8.65T or later	Not available	Page 40, Section 2.3
Modified CC IE Control diagnostics • Display of stations with no parameter setting					—	—	Page 528, Section 10.3.1
The number of refresh parameter settings per module (except for SB/SW) is increased to 64.		14052 or later	Version 8.107M or later		Page 204, Section 6.5.1

—: Irrelevant to serial No. or software version

Appendix 4 Comparison Between CC-Link IE Controller Network and MELSECNET/H

This section describes the comparison of specifications between the CC-Link IE Controller Network and the MELSECNET/H, precautions for system replacement, and precautions for program replacement.

Replace the system according to the description of this section.

Appendix 4.1 Comparison of specifications


The following describes the comparison of specifications between the CC-Link IE Controller Network and the MELSECNET/H.



(1) Comparison of performance specifications

The transmission of the CC-Link IE Controller Network is made by the optical loop system only.

When the coaxial bus system is used in the MELSECNET/H, consider to replace it with an optical loop system.

The following shows the comparison of optical loop systems in the CC-Link IE Controller Network and the MELSECNET/H.


Item		CC-Link IE Controller Network	MELSECNET/H
Maximum link points per network	LB	32K points (32768 points, 4K bytes) (16K points (16384 points, 2K bytes) for Basic model QCPU or safety CPU)	16K points (16384 points, 2K bytes)
	LW	128K points (131072 points, 256K bytes) (16K points (16384 points, 32K bytes) for Basic model QCPU or safety CPU)	16K points (16384 points, 32K bytes)
	LX	8K points (8192 points, 1K byte)	
	LY	8K points (8192 points, 1K byte)	
Maximum link points per station	LB	16K points (16384 points, 2K bytes) Extended Mode: 32K points (32768 points, 4K bytes)	<ul style="list-style-type: none"> • For MELSECNET/H or MELSECNET/10 mode, $\{(LY + LB) \div 8 + (2 \times LW)\} \leq 2000$ bytes • For MELSECNET/H extension mode, $\{(LY + LB) \div 8 + (2 \times LW)\} \leq 35840$ bytes
	LW	16K points (16384 points, 32K bytes) Extended Mode: 128K points (131072 points, 256K bytes)	
	LX	8K points (8192 points, 1K byte)	
	LY	8K points (8192 points, 1K byte)	
Transient transmission capacity		Max. 1920 bytes	
Communication speed		1Gbps	25Mbps/10Mbps
Number of stations per network		<ul style="list-style-type: none"> • When Universal model QCPU is used for control station: 120 (Control station: 1, Normal station: 119) • When other than Universal model QCPUs is used for control station: 64 (Control station: 1, Normal station: 63) 	64 stations (Control station: 1, normal station: 63)
connection cable		Optical fiber cable (Multimode fiber) ( Page 38, Section 2.2.1) Optical fiber cables used for MELSECNET/H cannot be used.	Optical fiber cable
Overall cable distance		66000m (When connecting 120 stations)	30000m

Item	CC-Link IE Controller Network	MELSECNET/H	
Station-to-station distance (Max.)	550m (Core/Clad = 50/125 (μm))	200m to 2km (Depending on cable to be used and communication speed)	
Max. number of networks	239		
Max. number of groups	32		
Transmission path	Duplex loop		
Number of refresh parameter settings per module (Except SB/SW)	<ul style="list-style-type: none"> • Universal model QCPU (other than Q00UJCPU, Q00UCPU, and Q01UCPU): 256 • High Performance model QCPU, Process CPU, Redundant CPU, Q00UJCPU, Q00UCPU, Q01UCPU, and safety CPU*¹: 64 • Basic model QCPU: 8 	64 (8 when Basic model QCPU or safety CPU is used)	
Link scan time	The link scan time and transmission delay time differs between CC-Link IE Controller Network and MELSECNET/H.		
Transmission delay time	When replacing the system, check the link scan time and transmission delay time of the CC-Link IE Controller Network. ( Page 244, CHAPTER 7)		
Max. number of mountable modules	Up to 4 (Varies depending on the CPU module used. ( Page 40, Section 2.3))	Up to 4 (up to 1 when a Basic model QCPU or safety CPU is used)	
Number of occupied I/O points	<ul style="list-style-type: none"> • 1-slot type: 32 points (Intelli.: 32 points) • 2-slot type: 48 points (I/O assignment: Empty first half: 16 points, Latter half: 32 points for intelli.) 		
External power supply	Voltage	20.4V to 31.2V DC	
	Current	0.28A	0.20A
	Terminal screw size	M3 screw	
	Applicable solderless terminal	R1.25-3	
	Applicable wire size	0.3 to 1.25mm ²	
	Tightening torque	0.42 to 0.58 N•m	
	Allowable momentary power failure time	1ms (Level PS1)	
	Noise immunity	By noise simulator of 500Vp-p noise voltage, 1μs noise width, and 25 to 60Hz noise frequency	
Internal current consumption (5VDC)	<ul style="list-style-type: none"> • QJ71GP21-SX: 0.85A • QJ71GP21S-SX: 0.90A Be sure to consider the power capacity before installing the module.	<ul style="list-style-type: none"> • QJ71LP21-25: 0.55A • QJ71LP21S-25: 0.55A 	
External dimensions	<ul style="list-style-type: none"> • 1-slot type: 98 (H) × 27.4 (W) × 90 (D) [mm] • 2-slot type: 98 (H) × 55.2 (W) × 90 (D) [mm] 		
Weight	<ul style="list-style-type: none"> • QJ71GP21-SX: 0.18kg • QJ71GP21S-SX: 0.28kg 	<ul style="list-style-type: none"> • QJ71LP21-25: 0.11kg • QJ71LP21S-25: 0.20kg 	

*1 For the safety CPU with a serial number (first five digits) of "14051" or earlier, the number of refresh parameter settings per module (except for SB/SW) is 8.

A

(2) Comparison of applicable CPU modules

Item	CC-Link IE Controller Network	MELSECNET/H
CPU module	<ul style="list-style-type: none"> • Basic model QCPU • High Performance model QCPU • Process CPU • Redundant CPU • Universal model QCPU • Safety CPU • C Controller module ( Page 40, Section 2.3) 	<ul style="list-style-type: none"> • Basic model QCPU • High Performance model QCPU • Process CPU • Redundant CPU • Universal model QCPU • Safety CPU • C Controller module

(3) Comparison of operation at power-ON

Item	CC-Link IE Controller Network	MELSECNET/H
After canceling CPU module reset	Performs data link.	Performs data link.
During CPU module reset	<p>While a CPU module is reset, the station having the CPU is disconnected from the network. (Loopback occurs.)</p> <p>After reset cancellation, it is reconnected to the network to perform data link.</p>	<p>While a CPU module is reset, the station having the CPU is disconnected from the network. (Loopback does not occur.)</p> <p>After reset cancellation, it is reconnected to the network to perform data link.</p>

Appendix 4.2 Comparison of function

The following describes the comparison of functions between the CC-Link IE Controller Network and the MELSECNET/H.

(1) Comparison of function with MELSECNET/H

The transmission of the CC-Link IE Controller Network is made by the optical loop system only. When the coaxial bus system is used in the MELSECNET/H, consider to replace it with an optical loop system. The following shows the comparison of functions of an optical loop system in the CC-Link IE Controller Network and the MELSECNET/H.


(a) Comparison of cyclic transmission functions

○ : compatible, △ : partially changed, —: incompatible

Function		Compatibility	Precautions for replacement
Cyclic transmission	Communication using LB/LW	○	None
	Communication using LX/LY	○	None
Refresh	Link refresh	○	None
	Direct access to link devices	○	None
Assurance of cyclic data integrity	32-bit data assurance	○	None
	Station-based block data assurance	○	The send data and the receive data are set as one setting in the CC-Link IE Controller Network module. When marking a check at "Block data assurance per station is available" in the supplementary setting, station-based block data assurance can be made to both send and receive data.
Constant link scan		○	None
Low-speed cyclic transmission		△	The low-speed cyclic transmission function is not available for the CC-Link IE Controller Network module. Assign the low-speed cyclic transmission range to the LB/LW setting (2).
Reserved station specification		△	When a reserved station actually exists on a network, transient transmissions are executable to the station. In other words, the following are available for the station. <ul style="list-style-type: none"> • Checking error details by CC IE Control diagnostics • Writing parameters from another station in the case of erroneous parameter setting • Monitoring other stations with a programming tool • Dedicated instructions When disconnecting a reserved station from a network, set the mode of the station to "Offline".
Interlink transmission		○	None




A

 Appendix 4 Comparison Between CC-Link IE Controller Network and MELSECNET/H
 Appendix 4.2 Comparison of function

Function		Compatibility	Precautions for replacement
Station-specific parameter		△	Replace station-specific parameters of the MELSECNET/H module with refresh parameters of the CC-Link IE Controller Network module. ( Page 637, Appendix 4.4 (4))
Online operation	Stop/restart of cyclic transmission	○	None

(b) Comparison of transient transmission functions*1

○ : compatible, △ : partially changed, — : incompatible

Function		Compatibility	Precautions for replacement
Read/write of other station word device (READ/SREAD/WRITE/SWRITE)		○	None
Transient request to another station (REQ)		○	None
Data send/receive (SEND/RECV)		△	Logical channel setting is not available for the CC-Link IE Controller Network module. Change the logical channel setting to channel 1 to 8. ( Page 641, Appendix 4.5 (2))
Read/write of other station word device (ZNRD/ZNWR)		○	None
Remote RUN, remote STOP (RRUN/RSTOP)		○	None
Read/write of clock data in other CPU module (RTMRD/RTMWR)		○	None
Group		○	None
Routing		○	None
Clock setting with a programming tool		○	None
Changing number of transient transmissions	Number of transient transmissions at one scan	△	The CC-Link IE Controller Network module does not have setting items. The link scan time can be kept constant with Cyclic transmission punctuality assurance in the CC-Link IE Controller Network. ( Page 80, Section 4.1.6)
	Maximum No. of transients in one station.	△	The same as the MELSECNET/H module when removing a check from "Punctuality is guaranteed" in the supplementary setting. For the operation when marking a check, refer to the following. For the operation when marking a check: ( Page 80, Section 4.1.6)

*1 In the CC-Link IE Controller Network system, transient transmissions can be performed to the following cyclic-transmission-stopped stations:

- Station that is set as a reserved station, but exists on the network (Reserved station setting error)
- Station whose station No. is larger than the total number of stations per network (Invalid station No. error)

(c) Comparison of RAS functions

○ : compatible, △ : partially changed, — : incompatible

Function	Compatibility	Precautions for replacement
Detection of duplicated control station or station No.	○	None
Control station switching	○	None
Sub-control station performs data link when control station went down.	△	No setting item is provided for the CC-Link IE Controller Network module. The sub-control station always continues data link when the control station goes down in the CC-Link IE Controller Network.
Control station return control	△	The CC-Link IE Controller Network module does not have setting items. The data link will be continued even when a station returns as a control station in the CC-Link IE Controller Network.
Automatic return	○	None
Max. number of returned stations at one scan	△	The CC-Link IE Controller Network module does not have setting items. The CC-Link IE Controller Network does not have restriction on the maximum number of returned stations.
Loopback	○	None
Detection of time of transient transmission error completion	○	None
Transient transmission in the case of a CPU module error	○	None
Prevention of station failure by external power supply	△	Operation is different when power is applied during reset of CPU module. (☞ Page 614, Appendix 4.1 (3))

(d) Comparison of diagnostic function


○ : compatible, △ : partially changed, — : incompatible

Function	Compatibility	Precautions for replacement	
Module	Hardware test	△	Set to the test mode at network parameters in the CC-Link IE Controller Network module.
	Self-loopback test	△	
	Internal self-loopback test	△	The hardware test includes the internal self-loopback test in the CC-Link IE Controller Network module.
At system startup	Station-to-station test	△	The station-to-station test is set to executing stations only in the CC-Link IE Controller Network module. Set online mode to the target station.
	Forward loop test, reverse loop test	△	The circuit test includes the forward and reverse loop tests in the CC-Link IE Controller Network module.
Before system operation	Communication test	○	None
	Loop test	△	The circuit test includes the loop test, setup confirmation test, and station order check test in the CC-Link IE Controller Network module.
	Setup confirmation test	△	
	Station order check test	△	

A

(e) Comparison of other functions

○ : compatible, △ : partially changed, — : incompatible

Function	Compatibility	Precautions for replacement
Interrupt request to CPU module	△	The CC-Link IE Controller Network module does not have an interrupt of scan completion. Replace with other interrupt condition.
Multiplex transmission function	△	The CC-Link IE Controller Network module does not have this function. The high-speed communication can be realized without multiplex transmission function in the CC-Link IE Controller Network module since link scan time of the CC-Link IE Controller Network is shorter than that of the MELSECNET/H module.
Increase of send points by mounting multiple network modules of the same network No.	○	Check the software version. ( Page 606, Appendix 3)
Debug mode	—	The CC-Link IE Controller Network module does not have this function.
Simplified duplexing of network	—	
Redundant system	△	<ul style="list-style-type: none"> • For the CC-Link IE Controller Network module, the system switching monitoring time is set with a network parameter. Since it has been set with SB0018/SW0018 for the MELSECNET/H, delete the relevant part of the existing sequence program. • When the CC-Link IE Controller Network module is used, link output (LY) data cannot be sent from the standby system station. • The circuit test or station-to-station test must be executed in separate mode for the CC-Link IE Controller Network module.

(2) Function added in CC-Link IE Controller Network

(a) Cyclic transmission function

Function	Description	Reference section
Cyclic transmission punctuality assurance	Keeps the link scan time constant by making each station to send the specified number of transient transmissions within one link scan.	Page 80, Section 4.1.6
Group cyclic transmission	A Universal model QCPU can share cyclic data only with stations in the same shared group. It does not receive cyclic data from stations in different shared groups. Stations with no shared group setting will share cyclic data with all of the stations.	Page 83, Section 4.1.8

(b) Transient transmission function

Function	Description	Reference section
CC-Link dedicated instruction Read/write of another station's data	Reads or writes the specified number of data from or to the target station device. (RIRD/RIWT instruction)	Page 97, Section 4.2.1 Page 324, CHAPTER 9

(c) RAS function

Function	Description	Reference section
Cable fault detection	Communication error due to cable fault can be detected.	Page 127, Section 4.4.4
Cable insertion error detection	Loopback or disconnection from the network due to incorrect cable connection between OUT and IN can be detected.	Page 128, Section 4.4.5

(d) Diagnostic function

Function	Description	Reference section
Circuit test	Checks the network cable connection status, line status, and each station's parameter setting status from the control station.	Page 165, Section 5.6.1
IP communication test	Checks whether no error occurs in the communication route when the IP packet transfer function is used.	Page 113, Section 4.3.3

A

(e) Other functions

Function	Description	Reference section
Station No. setting by sequence program	For Universal model QCPU's, the station No. of a normal station (own station) can be set in the sequence program. (UINI instruction)	Page 136, Section 4.6 Page 324, CHAPTER 9
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 Controller Network. With this function, two networks of CC-Link IE Controller Network and Ethernet are not required, resulting in reduced wiring cost.	Page 106, Section 4.3

Appendix 4.3 Link special relays (SB) and link special registers (SW)

This section compares link special relays (SB) and link special registers (SW) between CC-Link IE Controller Network and MELSECNET/H.

Some link special relays (SB) and link special registers (SW) have been changed for the CC-Link IE Controller Network.

Verify the link special relays (SB) and link special registers (SW). (☞ Page 639, Appendix 4.5)

(1) Comparison of link special relay (SB)

Change the link special relay (SB) in a sequence program referring to the following chart.

In addition, the link special relay (SB) shown below is a list for a case when an assignment range is SB0000 to SB01FF.

(a) Comparison with the MELSECNET/H module

○ : compatible, △ : partially changed, — : incompatible

MELSECNET/H		CC-Link IE Controller Network		Compatibility	Precautions for replacement
No.	Name	No.	Name		
SB0000	Link startup (host)	SB0000	Link startup (own station)	○	None
SB0001	Link stop (host)	SB0001	Link stop (own station)		
SB0002	System link startup	SB0002	System link startup		
SB0003	System link stop	SB0003	System link stop		
SB0005	Clear retry count	—	—	—	Delete the sequence program for the corresponding part.
SB0006	Clear communication error count	SB0006	Clear communication error count	△ (Content changed)	The area for clear target is different in the CC-Link IE Controller Network module.
SB0007	Clear forward loop transmission errors	SB0007	Clear IN-side transmission error counter		
SB0008	Clear reverse loop transmission errors	SB0008	Clear OUT-side transmission error counter		
SB0009	Clear loop switching counter	SB0009	Clear loop switching counter		
SB000A	Clear transient transmission error counter	SB000A	Clear transient transmission error counter		
SB000B	Transient transmission error area setting	—	—	—	Delete the sequence program for the corresponding part.
SB0011	Data link operation designation	—	—		
SB000F	Minor error clear	—	—		
SB0014	Remote sub-master station switching command	—	—		
SB0018	System switching monitoring time setting valid flag	—	—		
SB0020	Module status	SB0020	Module status	○	None
SB0040	Network type (host)	SB0040	Network type (own station)		
SB0041	Host station's redundant function support information	SB0041	Host station's redundant function support information	○	None
SB0042	Power supply status of host	SB0042	Power supply status of host	○	None


MELSECNET/H		CC-Link IE Controller Network		Compatibility	Precautions for replacement
No.	Name	No.	Name		
SB0043	Online switch (host)	SB0043	Online switch (own station)	○	None
SB0044	Station setting (host)	SB0044	Station setting (own station)		
SB0045	Setting information (host)	—	—	—	Delete the sequence program for the corresponding part.
SB0046	Data link operation designation result (host)	—	—		
SB0047	Baton pass status (host)	SB0047	Baton pass status (own station)	○	None
SB0048	Control station status (host)	SB0048	Control station status (own station)		
	Remote master station status (host)				
SB0049	Host data link status	SB0049	Data link status of own station		
SB004A	Host CPU status (1)	SB004A	Own station's CPU status (1)		
SB004B	Host CPU status (2)	SB004B	Own station's CPU status (2)		
SB004C	Cyclic transmission start acknowledgment status	SB004C	Cyclic transmission start accept status (own station)		
SB004D	Cyclic transmission start completion status	SB004D	Cyclic transmission start completion status (own station)		
SB004E	Cyclic transmission stop acknowledgment status	SB004E	Cyclic transmission stop accept status (own station)		
SB004F	Cyclic transmission stop completion status	SB004F	Cyclic transmission stop completion status (own station)		
SB0050	Cyclic transmission start acknowledgment status	SB0050	Cyclic transmission start accept status (system)		
SB0051	Cyclic transmission start completion status	SB0051	Cyclic transmission start completion status (system)		
SB0052	Cyclic transmission stop acknowledgment status	SB0052	Cyclic transmission stop accept status (system)		
SB0053	Cyclic transmission stop completion status	SB0053	Cyclic transmission stop completion status (system)		
SB0054	Parameter receive status	SB0054	Parameter receive status		
SB0055	Received parameter error	SB0055	Received parameter error		
SB0056	Communication status	SB0056	Communication status		
SB0057	Parameter type	—	—	—	Delete the sequence program for the corresponding part.
SB0058	Operation designation at fault of control station	—	—		
	Operation designation at fault of (multiplexed) remote master station	—	—		
SB0059	Low-speed cyclic designation	—	—		
SB005A	Parameter type 2	SB005A	Parameter type		
SB005B	Asynchronous END setting	—	—		
SB005C	I/O master station (Block 1)	SB005C	I/O master station (Block 1)	○	None
SB005D	I/O master station (Block 2)	SB005D	I/O master station (Block 2)		
SB0064	Reserved station designation	SB00C0	Reserved station specification	△ (No. changed)	None
SB0068	Communication mode	SB0060	Communication mode		

MELSECNET/H		CC-Link IE Controller Network		Compatibility	Precautions for replacement
No.	Name	No.	Name		
SB0069	Multiplex transmission designation	—	—	—	Delete the sequence program for the corresponding part.
SB006A	Multiplex transmission status	—	—		
SB006B	Multiplex remote function designation	—	—		
SB0070	Baton pass status of each station	SB00A0	Baton pass status of each station	△ (No. changed)	None
SB0071	Baton pass status of the remote master station	—	—	—	Delete the sequence program for the corresponding part.
SB0072	Remote sub-master station transient transmission status	—	—		
SB0074	Cyclic transmission status of each station	SB00B0	Cyclic transmission status of each station	△ (No. changed)	None
SB0075	Cyclic transmission status of the remote master station	—	—	—	Delete the sequence program for the corresponding part.
SB0076	Remote sub-master station cyclic transmission status	—	—		
SB0077	Remote sub-master station cyclic transmission control status	—	—		
SB0078	Parameter communication status of each station	SB00D0	Parameter communication status of each station	△ (No. changed)	None
SB007A to SB007B	Low-speed cyclic communication status	—	—	—	Delete the sequence program for the corresponding part.
SB007C	Parameter status of each station	SB00E0	Parameter status of each station	△ (No. changed)	None
SB0080	CPU operation status of each station (1)	SB0100	CPU operation status of each station (1)		
SB0084	CPU RUN status of each station	SB00F0	CPU RUN status of each station		
SB0085	CPU RUN status of the remote master station	—	—	—	Delete the sequence program for the corresponding part.
SB0086	Remote sub-master station CPU RUN status	—	—		
SB0088	CPU operation status of each station (2)	SB0110	CPU operation status of each station (2)	△ (No. changed)	None
SB008C	External power supply information	SB0180	External power supply information	△ (No. changed)	None
SB008D	Module type of each station	—	—	—	Delete the sequence program for the corresponding part.
SB0090	Host loop status	SB0064	Own station's loop status	△ (No. changed)	None

A

 Appendix 4 Comparison Between CC-Link IE Controller Network and MELSECNET/H
 Appendix 4.3 Link special relays (SB) and link special registers (SW)

MELSECNET/H		CC-Link IE Controller Network		Compatibility	Precautions for replacement
No.	Name	No.	Name		
SB0091	Forward loop status	SB0065	Loopback status	△ (No. changed)	<ul style="list-style-type: none"> Although the CC-Link IE Controller Network uses two-core cables, loopback is performed even if a disconnection or error is detected on one side. The cause of loopback can be checked by Own station's loop status (SW0064).
SB0092	Forward loop status of the remote master station	—	—	—	Delete the sequence program for the corresponding part.
SB0095	Reverse loop status	SB0065	Loopback status	△ (No. changed)	<ul style="list-style-type: none"> Although the CC-Link IE Controller Network uses two-core cables, loopback is performed even if a disconnection or error is detected on one side. The cause of loopback can be checked by Own station's loop status (SW0064).
SB0096	Reverse loop status of the remote master station	—	—	—	Delete the sequence program for the corresponding part.
SB0099	Forward loop loopback	SB0065	Loopback status	△ (No. changed)	<ul style="list-style-type: none"> Although the CC-Link IE Controller Network uses two-core cables, loopback is performed even if a disconnection or error is detected on one side. The station No. for the station where a loopback is executed can be checked by IN-side loopback station No. (SW0070).
SB009A	Reverse loop loopback	SB0065	Loopback status	△ (No. changed)	<ul style="list-style-type: none"> Although the CC-Link IE Controller Network uses two-core cables, loopback is performed even if a disconnection or error is detected on one side. The station No. for the station where a loopback is executed can be checked by OUT-side loopback station No. (SW0080).

MELSECNET/H		CC-Link IE Controller Network		Compatibility	Precautions for replacement
No.	Name	No.	Name		
SB009C	Send transmission path mismatch status	SB0065	Loopback status	△ (No. changed)	<ul style="list-style-type: none"> The loopback is performed when the send transmission path is inconsistent in the CC-Link IE Controller Network. The cause of loopback can be checked by Own station's loop status (SW0064).
SB00A0	RECV instruction execution request flag (1)	SB0030	RECV execution request flag (1)	△ (No. changed)	None
SB00A1	RECV instruction execution request flag (2)	SB0031	RECV execution request flag (2)		
SB00A2	RECV instruction execution request flag (3)	SB0032	RECV execution request flag (3)		
SB00A3	RECV instruction execution request flag (4)	SB0033	RECV execution request flag (4)		
SB00A4	RECV instruction execution request flag (5)	SB0034	RECV execution request flag (5)		
SB00A5	RECV instruction execution request flag (6)	SB0035	RECV execution request flag (6)		
SB00A6	RECV instruction execution request flag (7)	SB0036	RECV execution request flag (7)		
SB00A7	RECV instruction execution request flag (8)	SB0037	RECV execution request flag (8)		
SB00A8	Online test instruction	—	—	△ (Content changed)	<ul style="list-style-type: none"> Delete the sequence program for the corresponding part. The result of a test can be checked by CC IE Control diagnostics in the CC-Link IE Controller Network module.
SB00A9	Online test completion	—	—		
SB00AA	Online test response instruction	—	—		
SB00AB	Online test response completion	—	—		
SB00AC	Offline test instruction	SB0090 to SB0099	 Page 568, Appendix 1 (4)	△ (Content changed)	The completion status of an offline test can be checked by SB0090 to SB0099 of the CC-Link IE Controller Network module.
SB00AD	Offline test completion				
SB00AE	Offline test response instruction				
SB00AF	Offline test response completion				
SB00EE	Transient error	SB008F	Transient error	△ (No. changed)	None
SB01C4	Remote sub-master station switching acceptance status	—	—	—	Delete the sequence program for the corresponding part.
SB01C5	Remote sub-master station switching status	—	—		
SB01C8	Send/receive device number valid/invalid status	—	—		
SB01E0	Network type consistency check	—	—		

A

 Appendix 4 Comparison Between CC-Link IE Controller Network and MELSECNET/H
 Appendix 4.3 Link special relays (SB) and link special registers (SW)

MELSECNET/H		CC-Link IE Controller Network		Compatibility	Precautions for replacement
No.	Name	No.	Name		
SB01F4	Redundant system status (1)	SB01D0	Redundant system status (1)	△ (No. changed)	None
SB01F8	Redundant system status (2)	SB01E0	Redundant system status (2)		
SB01FC	Redundant system status (3)	SB01F0	Redundant system status (3)		

(b) Link special relay (SB) added in the CC-Link IE Controller Network module

No.	Name
SB0017	Data-link-error-induced system switching disable flag
SB005B	Own station's CPU RUN status
SB005E	Own station's CPU type
SB0061	Cyclic transmission punctuality assurance
SB0066	Own station's IN-side link-up status
SB0067	Own station's OUT-side link-up status
SB0068	Own station's IN-side link establishing status
SB0069	Own station's OUT-side link establishing status
SB006A	Own station's IN-side cabling status
SB006B	Own station's OUT-side cabling status
SB006C	Own station's IN-side error frame reception status
SB006D	Own station's OUT-side error frame reception status
SB006E	Own station's IN-side error frame detection
SB006F	Own station's OUT-side error frame detection
SB0070	Station No. setting status (own station)
SB007F	IP address setting status
SB008E	Path switching detection flag
SB0090	Hardware test completion status
SB0091	Hardware test normal/error completion status
SB0092	Self-loopback test completion status
SB0093	Self-loopback test normal/error completion status
SB0094	Circuit test completion status
SB0095	Circuit test normal/error completion status
SB0097	Station-to-station test normal/error completion status
SB0098	Circuit test request from other station
SB0099	Station-to-station test request from other station
SB0120	Current IN-side error frame reception status
SB0130	Current OUT-side error frame reception status
SB0140	IN-side error frame reception detection status
SB0150	OUT-side error frame reception detection status
SB0160	Path switching detection flag for each station
SB0170	Transient error of each station
SB0190	Power status consistency check of each station
SB01A0	Group cyclic transmission station information
SB01B0	Each station's CPU type information
SB01C0	Redundant system information

A

(2) Comparison of link special register (SW)

Change the link special register (SW) in a sequence program referring to the following chart.

In addition, the link special register (SW) shown below is a list for a case when an assignment range is SW0000 to SW01FF.

(a) Comparison with the MELSECNET/H module

○ : compatible, △ : partially changed, — : incompatible

MELSECNET/H		CC-Link IE Controller Network		Compatibility	Precautions for replacement
No.	Name	No.	Name		
SW0000	Link stop/startup direction content	SW0000	Link stop/startup direction	○	None
SW0001 to SW0004		SW0001 to SW0008			
SW0008	Logical channel setting (channel 1)	—	—	—	Delete the sequence program for the corresponding part.
SW0009	Logical channel setting (channel 2)	—	—		
SW000A	Logical channel setting (channel 3)	—	—		
SW000B	Logical channel setting (channel 4)	—	—		
SW000C	Logical channel setting (channel 5)	—	—		
SW000D	Logical channel setting (channel 6)	—	—		
SW000E	Logical channel setting (channel 7)	—	—		
SW000F	Logical channel setting (channel 8)	—	—		
SW0018	System switching monitoring time setting	—	—		
SW001C	Number of retries	—	—		
SW001D	Retry interval	—	—		
SW001E	Number of gates	—	—		
SW0020	Module status	SW0020	Module status	○	None

MELSECNET/H		CC-Link IE Controller Network		Compatibility	Precautions for replacement
No.	Name	No.	Name		
SW0031	ZNRD instruction processing result	SW0030	ZNRD processing result	△ (No. changed)	None
	Send/receive instruction (1) processing result		Send/receive instruction (1) processing result		
SW0033	ZNWR instruction processing result	SW0031	ZNWR processing result		
	Send/receive instruction (2) processing result		Send/receive instruction (2) processing result		
SW0035	Send/receive instruction (3) processing result	SW0032	Send/receive instruction (3) processing result		
SW0037	Send/receive instruction (4) processing result	SW0033	Send/receive instruction (4) processing result		
SW0039	Send/receive instruction (5) processing result	SW0034	Send/receive instruction (5) processing result		
SW003B	Send/receive instruction (6) processing result	SW0035	Send/receive instruction (6) processing result		
SW003D	Send/receive instruction (7) processing result	SW0036	Send/receive instruction (7) processing result		
SW003F	Send/receive instruction (8) processing result	SW0037	Send/receive instruction (8) processing result		
SW0040	Network No.	SW0040	Network No.	○	None
SW0041	Group No.	SW0041	Group No.		
SW0042	Station No.	SW0042	Station No.		
SW0043	Mode status	SW0043	Mode status	△ (Content changed)	The content to be stored is changed from the MELSECNET/H module.
SW0044	Station setting	SW0044	Station setting		
SW0046	Module type	SW0046	Module type		
SW0047	Baton pass status (host)	SW0047	Baton pass status (own station)		
SW0048	Cause of baton pass interruption	SW0048	Cause of baton pass interruption		
SW0049	Cause of data link stop	SW0049	Cause of data link stop		
SW004A	Data linking stop request station	SW004A	Data linking stop request station		
SW004B	Host CPU status	SW004B	Own station's CPU status		
SW004D	Data linking stop status (host)	SW004D	Data linking start status (own station)	○	None
SW004F	Data linking stop status (host)	SW004F	Data linking stop status (own station)		
SW0051	Data linking start status (entire system)	SW0051	Data linking start status (entire system)		
SW0053	Data linking stop status (entire system)	SW0053	Data linking stop status (entire system)		
SW0054	Parameter information	SW0054	Parameter information			△ (Content changed)	The content to be stored is changed from the MELSECNET/H module.

A

Appendix 4 Comparison Between CC-Link IE Controller Network and MELSECNET/H
Appendix 4.3 Link special relays (SB) and link special registers (SW)

MELSECNET/H		CC-Link IE Controller Network		Compatibility	Precautions for replacement
No.	Name	No.	Name		
SW0055	Parameter setting status	SW0055	Parameter setting status	○	None
SW0056	Current control station	SW0056	Current control station	○	
	Current remote master station			—	
SW0057	Designated control station	SW0057	Designated control station	○	
	Designated remote master station			—	
SW0059	Total number of link stations	SW0059	Total number of link stations	○	
SW005A	Maximum baton pass station	SW005A	Maximum baton pass station		
SW005B	Maximum cyclic transmission station	SW005B	Maximum cyclic transmission station		
SW005C	I/O master station (Block 1)	SW005C	I/O master station (Block 1)		
SW005D	I/O master station (Block 2)	SW005D	I/O master station (Block 2)		
SW0064 to SW0067	Reserved station designation	SW00C0 to SW00C7	Reserved station specification	△ (No. changed)	
SW0068	Communication mode	SW0063	Communication mode	△ (No. changed)	
SW006B	Maximum link scan time	SW0060	Maximum link scan time	△ (No. changed)		The same value is stored in the control station and the normal station in the CC-Link IE Controller Network module.
SW006C	Minimum link scan time	SW0061	Minimum link scan time	△ (No. changed)	
SW006D	Current link scan time	SW0062	Current link scan time	△ (No. changed)	<ul style="list-style-type: none"> The value to be stored is an actual measurement value of the link scan time. When setting a constant link scan, the setting value of the constant link scan is stored. When an actual measurement value of the link scan time is larger than a setting value of the constant link scan, the actual measurement value of the link scan time is stored.
SW006E	Low-speed cyclic scan time	—	—	—	Delete the sequence program for the corresponding part.

MELSECNET/H		CC-Link IE Controller Network		Compatibility	Precautions for replacement
No.	Name	No.	Name		
SW0070 to SW0073	Baton pass status of each station	SW00A0 to SW00A7	Baton pass status of each station	△ (No. changed)	Since the line control is executed in all stations when stations are disconnected or reconnected in the CC-Link IE Controller Network module, the baton pass status and the cyclic transmission status are turned ON for up to 100ms. (Normally for up to 50ms.)
SW0074 to SW0077	Cyclic transmission status of each station	SW00B0 to SW00B7	Cyclic transmission status of each station		
SW0078 to SW007B	Parameter communication status of each station	SW00D0 to SW00D7	Parameter communication status of each station	△ (No. changed)	None
SW007C to SW007F	Parameter error status of each station	SW00E0 to SW00E7	Parameter error status of each station		
SW0080 to SW0083	CPU operation status of each station (1)	SW0100 to SW0107	CPU operation status of each station (1)		
SW0084 to SW0087	CPU RUN status of each station	SW00F0 to SW00F7	CPU RUN status of each station		
SW0088 to SW008B	CPU operation status of each station (2)	SW0110 to SW0117	CPU operation status of each station (2)	△ (No. changed)	None
SW008C to SW008F	Power supply status of each station	SW0180 to SW0187	Power supply status of each station		
SW0090	Loopback information	SW0065	Loopback information	△ (Content changed)	<ul style="list-style-type: none"> The CC-Link IE Controller Network module does not store the forward or reverse loop error. Although the CC-Link IE Controller Network uses two-core cables, loopback is performed even if a disconnection or error is detected on one side.
SW0091 to SW0094	Forward loop status of each station	SW0070	IN-side loopback station No.	△ (Content changed)	Although the CC-Link IE Controller Network uses two-core cables, loopback is performed even if a disconnection or error is detected on one side.
SW0095 to SW0098	Reverse loop status of each station	SW0080	OUT-side loopback station No.		
SW0099	Loopback station (forward loop side)	SW0070	IN-side loopback station No.		
SW009A	Loopback station (reverse loop side)	SW0080	OUT-side loopback station No.		
SW009C to SW009F	Loop usage status of each station	SW0070	IN-side loopback station No.	△ (Content changed)	Although the CC-Link IE Controller Network uses two-core cables, loopback is performed even if a disconnection or error is detected on one side.
		SW0071	IN-side loopback factor		
		SW0080	OUT-side loopback station No.		
		SW0081	OUT-side loopback factor		

MELSECNET/H		CC-Link IE Controller Network		Compatibility	Precautions for replacement
No.	Name	No.	Name		
SW00A8	Online test execution item/faulty station (requesting side)	—	—	△ (Content changed)	<ul style="list-style-type: none"> Delete the sequence program for the corresponding part. The result of a test can be checked by CC IE Control diagnostics in the CC-Link IE Controller Network module.
SW00A9	Online test result (requesting side)	—	—		
SW00AA	Online test execution item (responding side)	—	—		
SW00AB	Online test result (responding side)	—	—		
SW00AC	Offline test execution item/faulty station (requesting side)	—	—	—	Delete the sequence program for the corresponding part.
SW00AD	Offline test result (requesting side)	—	—		
SW00AE	Offline test execution item (responding side)	—	—		
SW00AF	Offline test result (responding side)	—	—		
SW00B0 to SW00B3	Multiplex transmission status (1)	—	—		
SW00B4 to SW00B7	Multiplex transmission status (2)	—	—		
SW00B8	UNDER on the forward loop side/coaxial bus UNDER	SW0068 SW0069	IN-side line error occurrence rate (Max.) IN-side line error occurrence rate (present.)	△ (Content changed)	<ul style="list-style-type: none"> These operations in the MELSECNET/H can be substituted by IN-side line error occurrence rate in the CC-Link IE Controller Network module. The station No. for the station that receives an error frame at IN-side can be checked by SW0120 to SW0127 and SW0140 to SW0147.
SW00B9	CRC on the forward loop side/coaxial bus CRC				
SW00BA	OVER on the forward loop side/coaxial bus OVER				
SW00BB	Short frame on the forward loop side/coaxial bus short frame				
SW00BC	Abort on the forward loop side (AB,IF)/coaxial bus abort (AB,IF)				
SW00BD	Timeout on the forward loop side (TIME)/ coaxial bus timeout (TIME)				
SW00BE	Receiving 2k bytes or more on forward loop side (DATA)/coaxial bus receiving 2k bytes or more (DATA)				
SW00BF	DPLL error on the forward loop side/coaxial bus DPLL error				

MELSECNET/H		CC-Link IE Controller Network		Compatibility	Precautions for replacement
No.	Name	No.	Name		
SW00C0	UNDER on the reverse loop side	SW006A SW006B	OUT-side line error occurrence rate (Max.) OUT-side line error occurrence rate (present.)	△ (Content changed)	<ul style="list-style-type: none"> These operations in the MELSECNET/H can be substituted by OUT-side line error occurrence rate in the CC-Link IE Controller Network module. The station No. for the station that receives an error frame at OUT-side can be checked by SW0130 to SW0137 and SW0150 to SW0157.
SW00C1	CRC on the reverse loop side				
SW00C2	OVER on the reverse loop side				
SW00C3	Short frame on the reverse loop side				
SW00C4	Abort on the reverse loop side (AB, IF)				
SW00C5	Timeout on the reverse loop side (TIME)				
SW00C6	Receiving 2k bytes or more on reverse loop side (DATA)				
SW00C7	DPLL error on reverse loop side				
SW00C8	Number of retries on the forward loop side/ coaxial bus retries error	SW0068 SW0069	IN-side line error occurrence rate (Max.) IN-side line error occurrence rate (present.)	△ (Content changed)	<ul style="list-style-type: none"> This operation in the MELSECNET/H can be substituted by IN-side line error occurrence rate in the CC-Link IE Controller Network module. The station No. for the station that receives an error frame at IN-side can be checked by SW0120 to SW0127 and SW0140 to SW0147.
SW00C9	Number of retries on the reverse loop side	SW006A SW006B	OUT-side line error occurrence rate (Max.) OUT-side line error occurrence rate (present.)	△ (Content changed)	<ul style="list-style-type: none"> This operation in the MELSECNET/H can be substituted by OUT-side line error occurrence rate in the CC-Link IE Controller Network module. The station No. for the station that receives an error frame at OUT-side can be checked by SW0130 to SW0137 and SW0150 to SW0157.
SW00CC	Line error on the forward loop side	SW0068 SW0069	IN-side line error occurrence rate (Max.) IN-side line error occurrence rate (present.)	△ (Content changed)	<ul style="list-style-type: none"> This operation in the MELSECNET/H can be substituted by IN-side line error occurrence rate in the CC-Link IE Controller Network module. The station No. for the station that receives an error frame at IN-side can be checked by SW0120 to SW0127 and SW0140 to SW0147.

A

Appendix 4 Comparison Between CC-Link IE Controller Network and MELSECNET/H
Appendix 4.3 Link special relays (SB) and link special registers (SW)

MELSECNET/H		CC-Link IE Controller Network		Compatibility	Precautions for replacement
No.	Name	No.	Name		
SW00CD	Line error on the reverse loop side	SW006A SW006B	OUT-side line error occurrence rate (Max.) OUT-side line error occurrence rate (present.)	△ (Content changed)	<ul style="list-style-type: none"> This operation in the MELSECNET/H can be substituted by OUT-side line error occurrence rate in the CC-Link IE Controller Network module. The station No. for the station that receives an error frame at OUT-side can be checked by SW0130 to SW0137 and SW0150 to SW0157.
SW00CE	Number of loop switches	SW006E	Number of loop switches	△ (No. changed)	None
SW00CF	Loop switch data pointer	—	—	—	Delete the sequence program for the corresponding part.
SW00D0 to SW00DF	Loop switch data	SW0064 SW0065	Own station's loop status Loopback information	△ (Content changed)	<ul style="list-style-type: none"> The cause of loopback can be checked by Own station's loop status (SW0064). The loop status of a network can be checked by Loopback information (SW0065).
SW00E0 to SW00E7	Switch request station	—	—	—	Delete the sequence program for the corresponding part.
SW00E8 to SW00EB	Module type of each station	—	—		
SW00EC	Low-speed cyclic transmission start execution results	—	—		
SW00EE	Transient transmission error	SW006F	Transient transmission error	△ (No. changed)	None
SW00EF	Transient transmission error pointer	—	—	△ (Content changed)	The error history can be checked by CC IE Control diagnostics.
SW00F0 to SW00FF	Transient transmission error history	—	—		
SW01C4	Remote sub-master station switching result	—	—	—	Delete the sequence program for the corresponding part.
SW01C8	Send LY device number	—	—		
SW01C9	Receive LX device number	—	—		
SW01CC	Send LB device number	—	—		
SW01CD	Receive LB device number	—	—		
SW01CE	Send LW device number	—	—		
SW01CF	Receive LW device number	—	—		
SW01E0 to SW01E3	Network type consistency check	—	—		

MELSECNET/H		CC-Link IE Controller Network		Compatibility	Precautions for replacement
No.	Name	No.	Name		
SW01F4 to SW01F7	Redundant system status (1)	SW01D0 to SW01D7	Redundant system status (1)	△ (No. changed)	None
SW01F8 to SW01FB	Redundant system status (2)	SW01E0 to SW01E7	Redundant system status (2)		
SW01FC to SW01FF	Redundant system status (3)	SW01F0 to SW01F7	Redundant system status (3)		

(b) Link special register (SW) added in the CC-Link IE Controller Network module

No.	Name
SW0009	Arrival monitoring time (RIRD/RIWT instruction)
SW000B	Number of resends (RIRD/RIWT instruction)
SW0012 to SW0013	Group specification for link stop/startup
SW0038	Send/receive instruction (9) processing result
SW0039	Send/receive instruction (10) processing result
SW004C	Shared group No.
SW0068	IN-side line error occurrence rate (Max.)
SW0069	IN-side line error occurrence rate (present.)
SW006A	OUT-side line error occurrence rate (Max.)
SW006B	OUT-side line error occurrence rate (present.)
SW0071	IN-side loopback factor
SW0072	OUT-side mis-cabling station No.
SW0074	IN-side cable disconnection detection count
SW0081	OUT-side loopback factor
SW0082	IN-side mis-cabling station No.
SW0084	OUT-side cable disconnection detection count
SW0096	Station-to-station test station
SW0120 to SW0127	Current IN-side error frame reception status
SW0130 to SW0137	Current OUT-side error frame reception status
SW0140 to SW0147	IN-side error frame reception detection status
SW0150 to SW0157	OUT-side error frame reception detection status
SW0160 to SW0167	Path switching detection status of each station
SW0170 to SW0177	Transient error detection status of each station
SW0190 to SW0197	Power status consistency check of each station
SW01A0 to SW01A7	Group cyclic transmission station information
SW01B0 to SW01B7	Each station's CPU type information
SW01C0 to SW01C7	Redundant function information


Appendix 4.4 Precautions for system replacement

The following describes the precautions for replacing the MELSECNET/H with the CC-Link IE Controller Network.

(1) Optical fiber cable

(a) Applicable optical fiber cable

The cable for the MELSECNET/H module cannot be used in the CC-Link IE Controller Network module.

- Optical fiber cable that can be used in the CC-Link IE Controller Network:  Page 38, Section 2.2.1

(b) Station-to-station distance

The station-to-station distance for the CC-Link IE Controller Network is up to 550m.

When the station-to-station distance is longer than 550m, shorten it to 550m or less.

(2) Content set by switch of the MELSECNET/H module main body

Setting should be made at network parameters in the CC-Link IE Controller Network module.

(3) Diversion of network parameters

When changing "Network Type" with a programming tool, data set is canceled.


When diverting network parameters, copy the setting contents to text editor etc. before changing "Network Type".

Copy can be made from [Copy] under [Edit] in the programming tool.

Remark

The operations of cutting, copying, or pasting network parameters cannot be performed in some range.

 GX Developer Version□ Operating Manual)

 GX Works2 Version□ Operating Manual (Common))

(4) Replacing station-specific parameter data with refresh parameter data

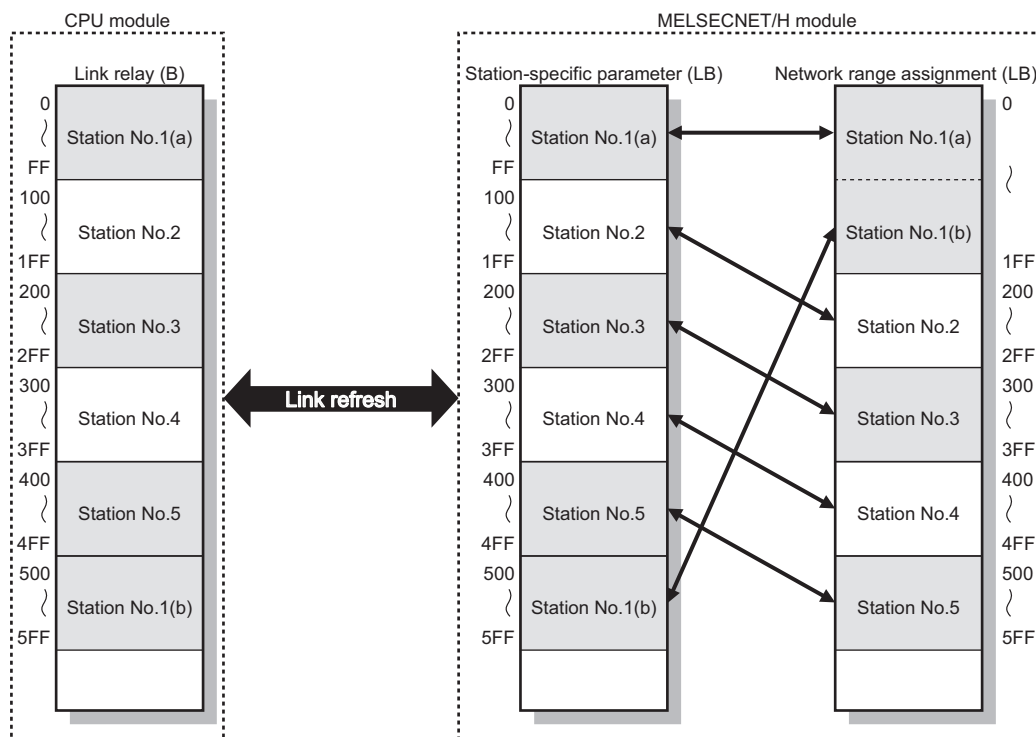
The CC-Link IE Controller Network module does not have station-specific parameters.

Replace the station-specific parameter data of a MELSECNET/H module with the refresh parameter data of a CC-Link IE Controller Network module.

Ex. When network range assignment has been set by station-specific parameters as shown below

Station No.	Setting 1			Setting 2			Network range assignment			Pairing
	LB			LB			LB			
	Points	Start	End	Points	Start	End	Points	Start	End	
1	256	0000	00FF	256	0500	05FF	512	0000	01FF	Disable
2	256	0100	01FF				256	0200	02FF	Disable
3	256	0200	02FF				256	0300	03FF	Disable
4	256	0300	03FF				256	0400	04FF	Disable
5	256	0400	04FF				256	0500	05FF	Disable

- Image of assignment by station-specific parameter
Move device of station No.1 (b). (B100 to B1FF→B500 to B5FF)
Close up devices of station No.2 to No.5.



Parameter settings after the replacement are listed on the following page.

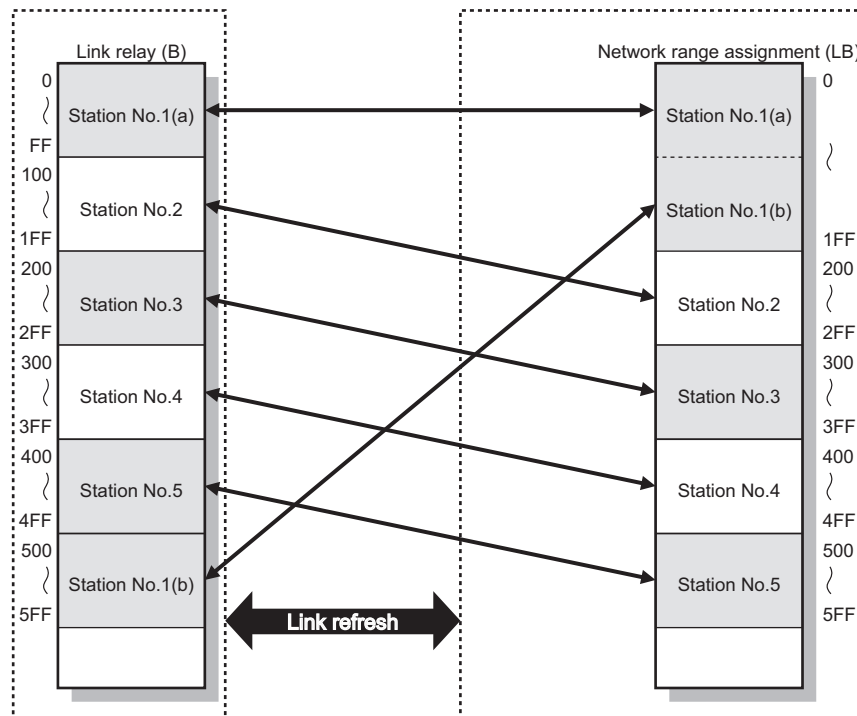
A

Appendix 4 Comparison Between CC-Link IE Controller Network and MELSECNET/H
Appendix 4.4 Precautions for system replacement

Replace the station-specific parameters in the previous page with refresh parameters.

	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	LB	256	0000	00FF	↔	B	256	0000	00FF
Transfer 2	LB	256	0100	01FF	↔	B	256	0500	05FF
Transfer 3	LB	256	0200	02FF	↔	B	256	0100	01FF
Transfer 4	LB	256	0300	03FF	↔	B	256	0200	02FF
Transfer 5	LB	256	0400	04FF	↔	B	256	0300	03FF
Transfer 6	LB	256	0500	05FF	↔	B	256	0400	04FF
Transfer 7					↔				
Transfer 8					↔				

- Image of assignment by link refresh



(5) END processing time of CPU module

If a sequence program used for MELSECNET/H is utilized in CC-Link IE Controller Network, the END processing time of the CPU module is increased due to the influence of the link refresh time. (The network parameter settings (number of stations, network range assignment, etc.) are assumed to be the same.)

Reducing the link refresh points can shorten the END processing time of the CPU module. (Page 69, Section 4.1.3)

Condition for use in MELSECNET/H	END processing time of CPU module
Instruction execution time in sequence scan time > Link scan time	Same as the case where a MELSECNET/H module is mounted.
Instruction execution time in sequence scan time < Link scan time	The END processing time of the CPU module is increased, compared with the case where a MELSECNET/H module is mounted. Since the link scan time in CC-Link IE Controller Network is short, the points of cyclic data that are sent from respective stations are increased. Because of this, the link refresh time is prolonged and the END processing time of the CPU module is increased.

Appendix 4.5 Precautions for program replacement

Existing sequence programs for the MELSECNET/H can be utilized for the CC-Link IE Controller Network. In such a case, however, note the following precautions.

(1) Changing link special relays (SB) and link special registers (SW)

Some link special relays (SB) and link special registers (SW) used for the MELSECNET/H have been changed for the CC-Link IE Controller Network.

Verify the link special relays (SB) and link special registers (SW). (☞ Page 621, Appendix 4.3)

A

(2) For SEND instruction execution by specifying a logical channel

Logical channel setting is not available for the CC-Link IE Controller Network module.


Change the logical channel setting to any of channel 1 to 8.

- SEND instructions:  Page 400, Section 9.9
- RECV instructions:  Page 413, Section 9.10


(a) For SEND instruction execution by specifying a logical channel and a station No.

- Target station (Station that executes the RECV instruction)
 - Delete a sequence program part of Logical channel setting (SW0008 to SW000F).
- Own station (Station that executes the SEND instruction)
 - Change Target station channel ((S1)+3) in control data to any of channel 1 to 8.

(b) For SEND instruction execution by specifying a logical channel and all stations.

- Target station (Station that executes the RECV instruction)
 - Set a group No. ( Page 102, Section 4.2.2)
 - Delete a sequence program part of Logical channel setting (SW0008 to SW000F).
 - Change the own station channel ((S1)+2) in control data to a channel that is set for the group.
- Own station (Station that executes the SEND instruction)
 - Change Target station channel ((S1)+3) in control data to any of channel 1 to 8.
 - Change Target station No. ((S1)+5) in control data to group specification.

Remark

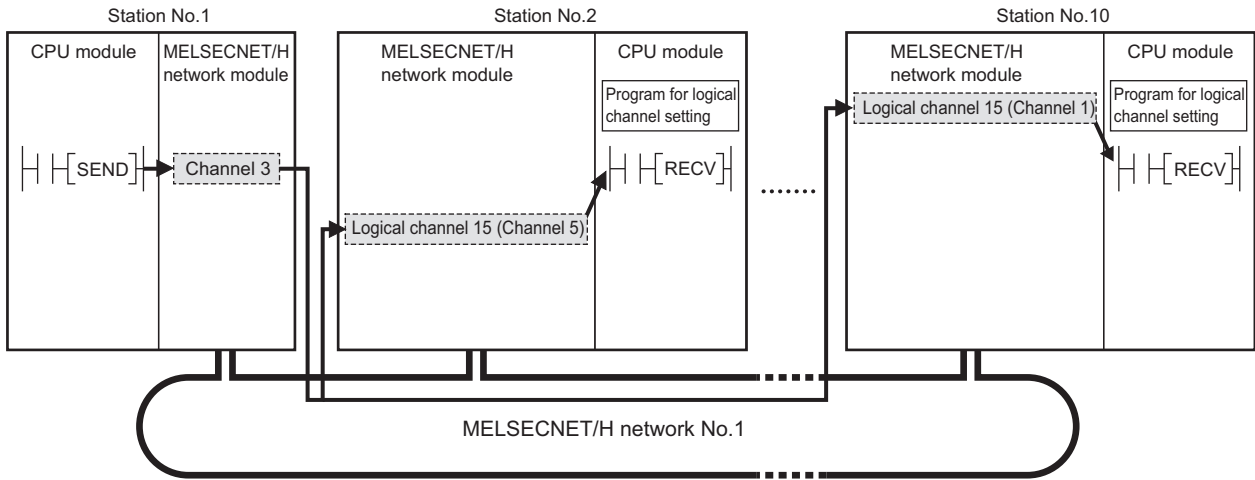
- Logical channel specification of MELSECNET/H
 - Set logical channels 1 to 64 to target station channels 1 to 8 in advance.
 - When the SEND instruction is executed by specifying a logical channel and all stations, only the channels of the logical channel setting can receive the data. ( Q Corresponding MELSECNET/H Network System Reference Manual (PLC to PLC network))

(c) Example of program replacement

A program used for the following MELSECNET/H system is assumed to be reused.

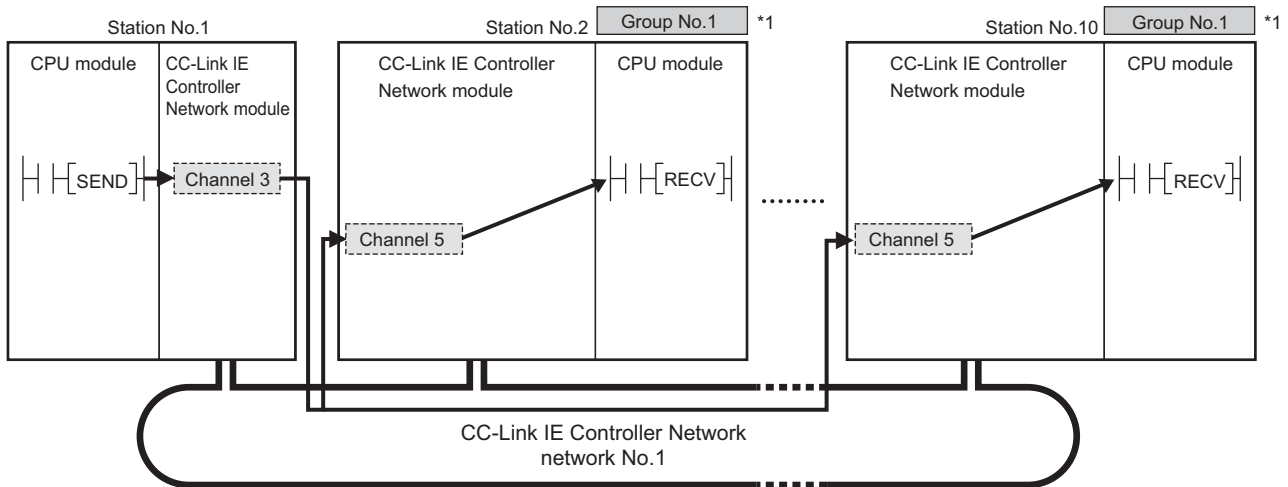
- Application example in MELSECNET/H (before replacement)

When M152 turns ON, data in D750 to D753 of station No.1 (own station) are sent to logical channel 15 of all stations (target station).



- Application example in CC-Link IE Controller Network (after replacement)

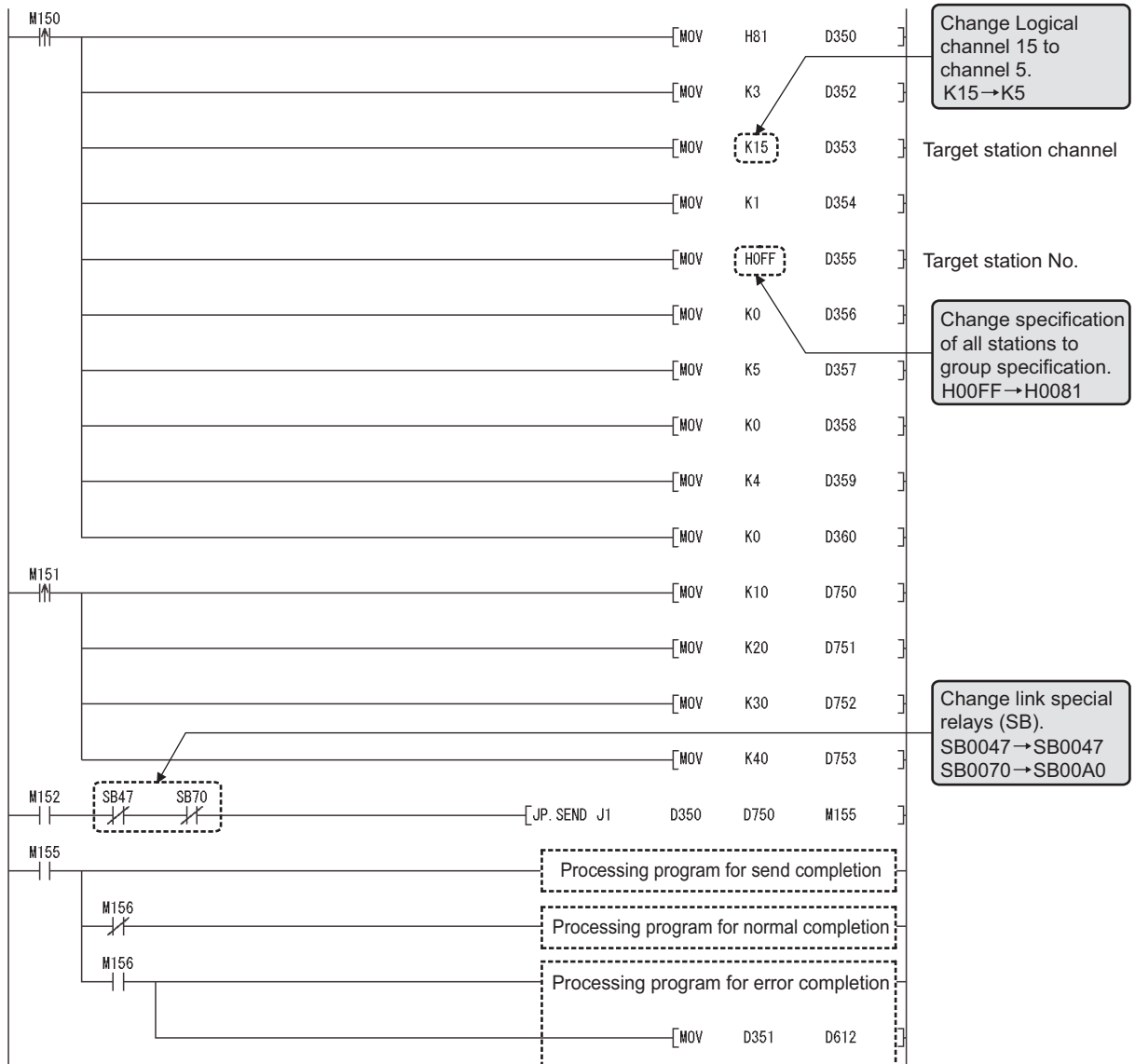
When M152 turns ON, data in D750 to D753 of station No.1 (own station) are sent to channel 5 of all stations in group No.1 (target station).



*1 Group No. setting: Page 180, Section 6.2

Module 1	
Network Type	CC IE Control(Normal Station)
Start I/O No.	0000
Network No.	1
Total Stations	
Group No.	1
Station No.	2
Mode	Online

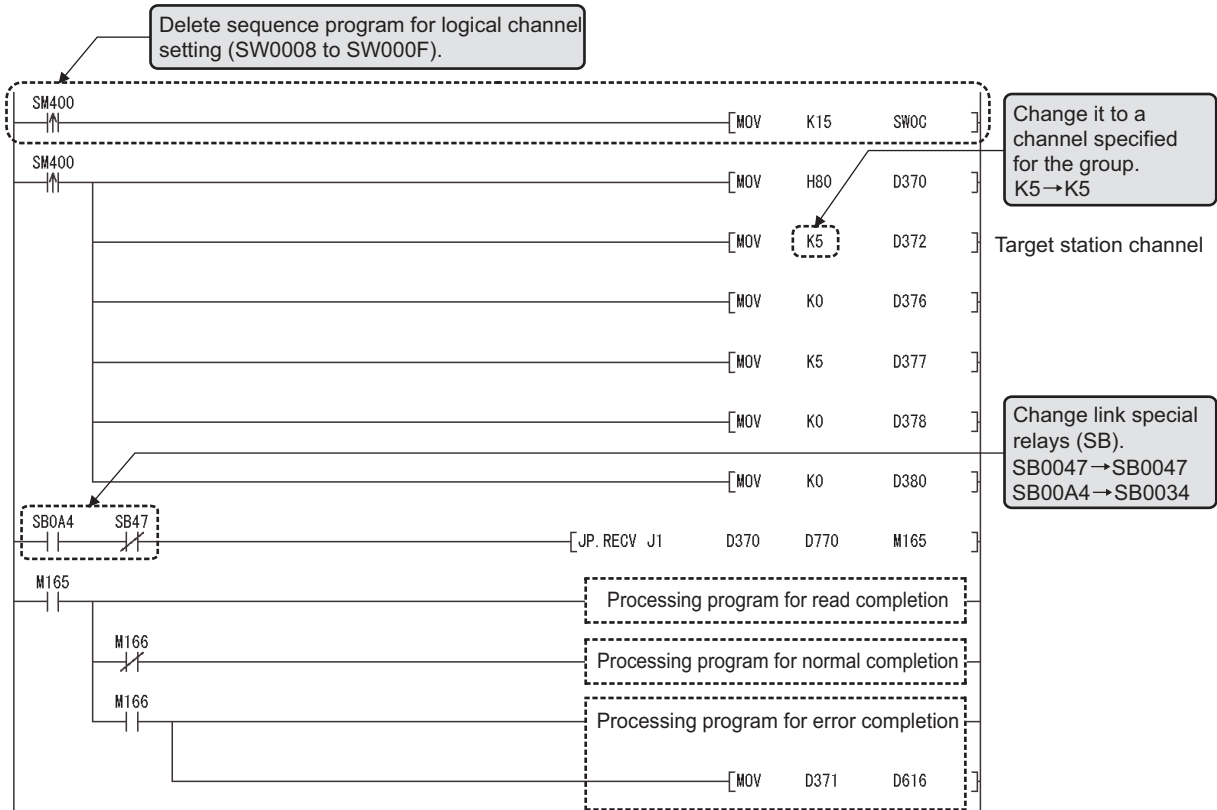
Ex. Program for station No.1 (own station)



A

Appendix 4 Comparison Between CC-Link IE Controller Network and MELSECNET/H
Appendix 4.5 Precautions for program replacement

Ex. Program for station No.2 and No.10 (target stations)



Appendix 5 Parameter Sheet

The parameter sheet is used to examine parameters of the CC-Link IE Controller Network module.

(1) Usage of the parameter sheet

Copy a parameter sheet and examine parameters of the CC-Link IE Controller Network module.


For how to use parameter sheet, refer to the following.


 Page 267, CHAPTER 8

(2) Example of filling in parameter sheet

Ex. Link device assignment sheet ( Page 650, Appendix 5.1)

Station No.	Data description		Assignment link device	
	Send source	Send target	Link relay (LB)	Link register (LW)
1	Master PLC	Line 1	LB 0000 to 00BF (192 points)	LW 0000 to 00BF (192 points)
		Line 2	LB 00C0 to 017F (192 points)	LW 00C0 to 017F (192 points)
		Line 3	LB 0180 to 01FF (128 points)	LW 0180 to 01FF (128 points)
2	Line 1	Master PLC	LB 0200 to 02BF (192 points)	LW 0200 to 02BF (192 points)
		Line 2	LB 02C0 to 035F (160 points)	LW 02C0 to 035F (160 points)
		Line 3	LB 0360 to 03FF (160 points)	LW 0360 to 03FF (160 points)
3	Line 2	Master PLC	LB 0400 to 04BF (192 points)	LW 0400 to 04BF (192 points)
		Line 1	LB 04C0 to 055F (160 points)	LW 04C0 to 055F (160 points)
		Line 3	LB 0560 to 05FF (160 points)	LW 0560 to 05FF (160 points)
4	Line 3	Master PLC	LB 0600 to 06BF (192 points)	LW 0600 to 06BF (192 points)
		Line 1	LB 06C0 to 075F (160 points)	LW 06C0 to 075F (160 points)
		Line 2	LB 0760 to 07FF (160 points)	LW 0760 to 07FF (160 points)

The assignment of the link relay (LB) and link register (LW) filled in the link device assignment sheet can be performed by the network range assignment. ( Page 652, Appendix 5.3)


Ex. Quantity setting parameter sheet ( Page 651, Appendix 5.2)

Item	CC-Link IE Controller Network module	
	No. 1	No. 2
Network Type	<input type="checkbox"/> CC IE Control (Control Station) <input checked="" type="checkbox"/> CC IE Control (Normal Station) <input type="checkbox"/> CC IE Control Extended Mode (Control Station) <input type="checkbox"/> CC IE Control Extended Mode (Normal Station)	<input checked="" type="checkbox"/> CC IE Control (Control Station) <input type="checkbox"/> CC IE Control (Normal Station) <input type="checkbox"/> CC IE Control Extended Mode (Control Station) <input type="checkbox"/> CC IE Control Extended Mode (Normal Station)
Starting I/O No.	0000 (Range: 0000 _H to 0FE0 _H)	0020 (Range: 0000 _H to 0FE0 _H)
Network No.	1 (Range: 1 to 239)	2 (Range: 1 to 239)
Total Stations	(For the control station only) - (Range: 2 to 120)	(For the control station only) 2 (Range: 2 to 120)
Group No.	0 (Range: 0 to 32)	0 (Range: 0 to 32)
Station No.	2 (Range: 1 to 120)	1 (Range: 1 to 120)
Mode	<input checked="" type="checkbox"/> Online <input type="checkbox"/> Offline <input type="checkbox"/> H/W Test <input type="checkbox"/> Self-Loopback Test <input type="checkbox"/> Circuit Test (for the control station only) <input type="checkbox"/> Test between Station	<input checked="" type="checkbox"/> Online <input type="checkbox"/> Offline <input type="checkbox"/> H/W Test <input type="checkbox"/> Self-Loopback Test <input type="checkbox"/> Circuit Test (for the control station only) <input type="checkbox"/> Test between Station
Station No. setting method	<input checked="" type="checkbox"/> Specify Station No. by Parameter <input type="checkbox"/> Specify Station No. by Program	<input checked="" type="checkbox"/> Specify Station No. by Parameter <input type="checkbox"/> Specify Station No. by Program



	Module 1	Module 2
Network Type	CC IE Control(Normal Station) ▼	CC IE Control(Control Station) ▼
Start I/O No.	0000	0020
Network No.	1	2
Total Stations		2
Group No.	0	0
Station No.	2	1
Mode	Online ▼	Online ▼
		Network Range Assignment
		Network Operation Settings
	Refresh Parameters	Refresh Parameters
	Interrupt Settings	Interrupt Settings
	Specify Station No. by Parameter ▼	Specify Station No. by Parameter ▼

Contents filled in are set to network parameter quantity setting.

Ex. Network range assignment parameter sheet ( Page 652, Appendix 5.3)

(1) LB/LW setting (1)(2)

Network No.	1
Total Stations	4
System Switching Monitoring Time	2000 ms
Data Link Monitoring Time	2000 ms
Parameter Name	Machine 1

Station No.	Link relay (LB)	Number of Points	Pairing	Shared Group	Data description
0 ₁	LB 0 to 1FF	512 points	<input type="checkbox"/>	<input type="checkbox"/>	Master PLC
0 ₂	LB 200 to 3FF	512 points	<input type="checkbox"/>	<input type="checkbox"/>	Line 1
Reserved 0 ₃	LB 400 to 5FF	512 points	<input type="checkbox"/>	<input type="checkbox"/>	Line 2
0 ₄	LB 600 to 7FF	512 points	<input type="checkbox"/>	<input type="checkbox"/>	Line 3

When a station is reserved, enter "Reserved" next to the station No.

It is convenient to fill in the same contents as "Data description" filled in the link device assignment sheet.



Assignment Method: Points/Start Start/End

System Switching Monitoring Time: 2000 ms

Data Link Monitoring Time: 2000 ms

Total Slave Stations: 4

Parameter Name: machine1


Switch Screens: LB/LW Setting(1)

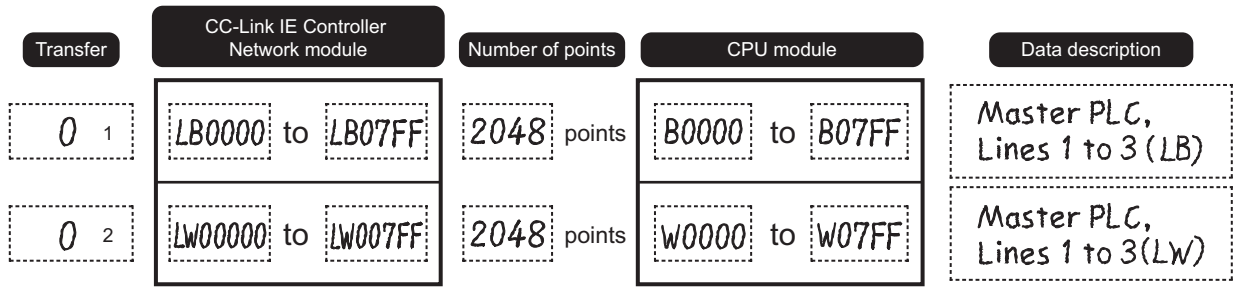
Station No.	LB/LW Setting(1)						Pairing	Shared <input type="checkbox"/> Group
	LB			LW				
	Points	Start	End	Points	Start	End		
1	512	0000	01FF	512	00000	001FF		Disable
2	512	0200	03FF	512	00200	003FF		Disable
Reserved 3	512	0400	05FF	512	00400	005FF		Disable
4	512	0600	07FF	512	00600	007FF		Disable

Contents filled in are set to network range assignment.

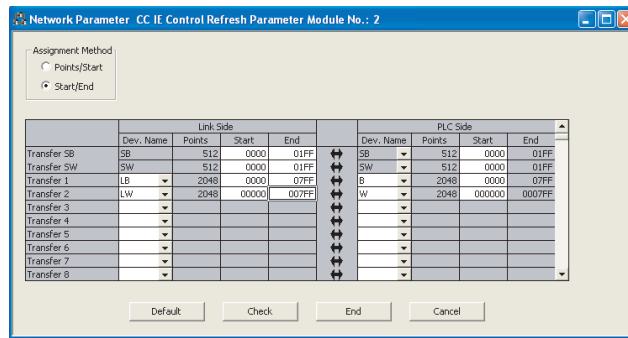
A

Appendix 5 Parameter Sheet


Ex. Refresh parameter sheet ( Page 657, Appendix 5.4)



It is convenient to fill in the same contents as "Data description" filled in the link device assignment sheet.



Contents filled in are set to refresh parameter.


Ex. Interrupt setting parameter sheet ( Page 659, Appendix 5.5)

Network No.	1
Station No.	1

No.	Device Code	Device No.	Detection Method	Interrupt Condition	Word device Setting Value	Channel No./ Connection No.	Interrupt (SI) No.
0 1	SB	0049	Edge Detect	ON	—	—	0

	Device Code	Device No.	Detection Method	Interrupt Condition	Word Device Setting Value	Channel No./ Connection No.	Interrupt (SI) No.
1	SB	0049	Edge Detect	ON			0

Contents filled in are set to interrupt setting.

Ex. Interlink transmission parameter assignment sheet ( Page 660, Appendix 5.6)

Transfer from	Normal station(1Ns2)
Transfer to	Control station(2MP1)

(1) Link relay (LB)

No.	Network module (Transfer source)	Number of points	Network module (Transfer target)	Data description
0 1	LB 0100 to 01FF	256 points	LB 0100 to 01FF	Line2 → Line3


↑
It is convenient to fill in the same contents as "Data description" filled in the link device assignment sheet.

Assignment Method
 Points/Start Start/End

Transfer from: Module 1:CC IE Control(Normal Station)
 Transfer to: Module 2:CC IE Control(Control Station)

No.	LB						LW					
	Transfer from			Transfer to			Transfer from			Transfer to		
	Points	Start	End	Points	Start	End	Points	Start	End	Points	Start	End
1	256	0100	01FF	256	0100	01FF						

Contents filled in are set to interlink transmission parameter.

Ex. Routing parameter sheet ( Page 662, Appendix 5.7)

No.	Target Network No.	Relay Network No.	Relay Station No.
0 1	2	1	2

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

Contents filled in are set to routing parameter.

A

Appendix 5 Parameter Sheet

Appendix 5.1 Link device assignment sheet

Station No.	Data description		Assignment link device							
	Send source	Send target	Link relay (LB)		Link register (LW)					
1			LB	to	(	points)	LW	to	(	points)
			LB	to	(	points)	LW	to	(	points)
			LB	to	(	points)	LW	to	(	points)
2			LB	to	(	points)	LW	to	(	points)
			LB	to	(	points)	LW	to	(	points)
			LB	to	(	points)	LW	to	(	points)
3			LB	to	(	points)	LW	to	(	points)
			LB	to	(	points)	LW	to	(	points)
			LB	to	(	points)	LW	to	(	points)
4			LB	to	(	points)	LW	to	(	points)
			LB	to	(	points)	LW	to	(	points)
			LB	to	(	points)	LW	to	(	points)
5			LB	to	(	points)	LW	to	(	points)
			LB	to	(	points)	LW	to	(	points)
			LB	to	(	points)	LW	to	(	points)
6			LB	to	(	points)	LW	to	(	points)
			LB	to	(	points)	LW	to	(	points)
			LB	to	(	points)	LW	to	(	points)
7			LB	to	(	points)	LW	to	(	points)
			LB	to	(	points)	LW	to	(	points)
			LB	to	(	points)	LW	to	(	points)
8			LB	to	(	points)	LW	to	(	points)
			LB	to	(	points)	LW	to	(	points)
			LB	to	(	points)	LW	to	(	points)
9			LB	to	(	points)	LW	to	(	points)
			LB	to	(	points)	LW	to	(	points)
			LB	to	(	points)	LW	to	(	points)
0			LB	to	(	points)	LW	to	(	points)
			LB	to	(	points)	LW	to	(	points)
			LB	to	(	points)	LW	to	(	points)
Total of device			points • Set in the range of LB0000 to 7FFF • Up to 16K points per station (Extended Mode: 32K point)				points • Set in the range of LW00000 to 1FFFF • Up to 16K points per station (Extended Mode: 128K point)			

Appendix 5.2 Quantity setting parameter sheet

Item	CC-Link IE Controller Network module	
	No. <input type="text"/>	No. <input type="text"/>
Network Type	<input type="checkbox"/> CC IE Control (Control Station) <input type="checkbox"/> CC IE Control (Normal Station) <input type="checkbox"/> CC IE Control Extended Mode (Control Station) <input type="checkbox"/> CC IE Control Extended Mode (Normal Station)	<input type="checkbox"/> CC IE Control (Control Station) <input type="checkbox"/> CC IE Control (Normal Station) <input type="checkbox"/> CC IE Control Extended Mode (Control Station) <input type="checkbox"/> CC IE Control Extended Mode (Normal Station)
Starting I/O No.	(Range: 0000 _H to 0FE0 _H)	(Range: 0000 _H to 0FE0 _H)
Network No.	(Range: 1 to 239)	(Range: 1 to 239)
Total Stations	(For the control station only) (Range: 2 to 120)	(For the control station only) (Range: 2 to 120)
Group No.	(Range: 0 to 32)	(Range: 0 to 32)
Station No.	(Range: 1 to 120)	(Range: 1 to 120)
Mode	<input type="checkbox"/> Online <input type="checkbox"/> Offline <input type="checkbox"/> H/W Test <input type="checkbox"/> Self-Loopback Test <input type="checkbox"/> Circuit Test (for the control station only) <input type="checkbox"/> Test between Station	<input type="checkbox"/> Online <input type="checkbox"/> Offline <input type="checkbox"/> H/W Test <input type="checkbox"/> Self-Loopback Test <input type="checkbox"/> Circuit Test (for the control station only) <input type="checkbox"/> Test between Station
Station No. setting method	<input type="checkbox"/> Specify Station No. by Parameter <input type="checkbox"/> Specify Station No. by Program	<input type="checkbox"/> Specify Station No. by Parameter <input type="checkbox"/> Specify Station No. by Program

A

 Appendix 5 Parameter Sheet
 Appendix 5.2 Quantity setting parameter sheet

Appendix 5.3 Network range assignment parameter sheet (for control station only)

(1) LB/LW setting [(1)/(2)]

Network No.	
Total Stations	
System Switching Monitoring Time	ms
Data Link Monitoring Time	ms
Parameter Name	

(a) LB setting assignment sheet

Station No.	Link relay (LB)	Number of points	Pairing	Shared group	Data description
1	LB <input type="text"/> to <input type="text"/>	<input type="text"/> points <input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="text"/>
2	LB <input type="text"/> to <input type="text"/>	<input type="text"/> points <input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="text"/>
3	LB <input type="text"/> to <input type="text"/>	<input type="text"/> points <input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="text"/>
4	LB <input type="text"/> to <input type="text"/>	<input type="text"/> points <input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="text"/>
5	LB <input type="text"/> to <input type="text"/>	<input type="text"/> points <input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="text"/>
6	LB <input type="text"/> to <input type="text"/>	<input type="text"/> points <input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="text"/>
7	LB <input type="text"/> to <input type="text"/>	<input type="text"/> points <input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="text"/>
8	LB <input type="text"/> to <input type="text"/>	<input type="text"/> points <input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="text"/>
9	LB <input type="text"/> to <input type="text"/>	<input type="text"/> points <input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="text"/>
0	LB <input type="text"/> to <input type="text"/>	<input type="text"/> points <input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="text"/>

Station No.: 1 to 120	LB: 0000 to 7FFF	Up to 16K points per station (Extended Mode: 32K point)
-----------------------	------------------	------------------------------------------------------------

(b) LW setting assignment sheet

Station No.	Link register (LW)	Number of points	Pairing	Shared group	Data description
1	LW <input type="text"/> to <input type="text"/>	<input type="text"/> points	<input type="checkbox"/>	<input type="checkbox"/>	
2	LW <input type="text"/> to <input type="text"/>	<input type="text"/> points	<input type="checkbox"/>	<input type="checkbox"/>	
3	LW <input type="text"/> to <input type="text"/>	<input type="text"/> points	<input type="checkbox"/>	<input type="checkbox"/>	
4	LW <input type="text"/> to <input type="text"/>	<input type="text"/> points	<input type="checkbox"/>	<input type="checkbox"/>	
5	LW <input type="text"/> to <input type="text"/>	<input type="text"/> points	<input type="checkbox"/>	<input type="checkbox"/>	
6	LW <input type="text"/> to <input type="text"/>	<input type="text"/> points	<input type="checkbox"/>	<input type="checkbox"/>	
7	LW <input type="text"/> to <input type="text"/>	<input type="text"/> points	<input type="checkbox"/>	<input type="checkbox"/>	
8	LW <input type="text"/> to <input type="text"/>	<input type="text"/> points	<input type="checkbox"/>	<input type="checkbox"/>	
9	LW <input type="text"/> to <input type="text"/>	<input type="text"/> points	<input type="checkbox"/>	<input type="checkbox"/>	
0	LW <input type="text"/> to <input type="text"/>	<input type="text"/> points	<input type="checkbox"/>	<input type="checkbox"/>	

Station No.: 1 to 120	LW: 00000 to 1FFFF	Up to 16K points per station (Extended Mode: 128K point)

A

Appendix 5 Parameter Sheet
Appendix 5.3 Network range assignment parameter sheet (for control station only)

(2) LX/LY setting

Network No.		Block	
Total Stations			
System Switching Monitoring Time		ms	
Data Link Monitoring Time		ms	
Parameter Name			

(a) LX/LY setting assignment sheet I/O master station → another station (M station → L station)

I/O master station No.

Station No.	Link output (LY)	Number of points	Link input (LX)	Pairing	Data description
<input type="text"/>	LY <input type="text"/> to <input type="text"/>	<input type="text"/> points	LX <input type="text"/> to <input type="text"/>	<input type="checkbox"/>	<input type="text"/>
<input type="text"/>	LY <input type="text"/> to <input type="text"/>	<input type="text"/> points	LX <input type="text"/> to <input type="text"/>	<input type="checkbox"/>	<input type="text"/>
<input type="text"/>	LY <input type="text"/> to <input type="text"/>	<input type="text"/> points	LX <input type="text"/> to <input type="text"/>	<input type="checkbox"/>	<input type="text"/>
<input type="text"/>	LY <input type="text"/> to <input type="text"/>	<input type="text"/> points	LX <input type="text"/> to <input type="text"/>	<input type="checkbox"/>	<input type="text"/>
<input type="text"/>	LY <input type="text"/> to <input type="text"/>	<input type="text"/> points	LX <input type="text"/> to <input type="text"/>	<input type="checkbox"/>	<input type="text"/>
<input type="text"/>	LY <input type="text"/> to <input type="text"/>	<input type="text"/> points	LX <input type="text"/> to <input type="text"/>	<input type="checkbox"/>	<input type="text"/>
<input type="text"/>	LY <input type="text"/> to <input type="text"/>	<input type="text"/> points	LX <input type="text"/> to <input type="text"/>	<input type="checkbox"/>	<input type="text"/>
<input type="text"/>	LY <input type="text"/> to <input type="text"/>	<input type="text"/> points	LX <input type="text"/> to <input type="text"/>	<input type="checkbox"/>	<input type="text"/>
<input type="text"/>	LY <input type="text"/> to <input type="text"/>	<input type="text"/> points	LX <input type="text"/> to <input type="text"/>	<input type="checkbox"/>	<input type="text"/>
<input type="text"/>	LY <input type="text"/> to <input type="text"/>	<input type="text"/> points	LX <input type="text"/> to <input type="text"/>	<input type="checkbox"/>	<input type="text"/>

|| || || ||
 Station No.: 1 to 120 LY: 0000 to 1FFF Up to 8K point per station (8192 points, 1K byte) LX: 0000 to 1FFF

(b) LX/LY setting assignment sheet I/O master station ← another station (M station ← L station)

I/O master station No.					
Station No.	Link input (LX)	Number of points	Link output (LY)	Pairing	Data description
1	LX <input type="text"/> to <input type="text"/>	<input type="text"/> points	LY <input type="text"/> to <input type="text"/>	<input type="checkbox"/>	<input type="text"/>
2	LX <input type="text"/> to <input type="text"/>	<input type="text"/> points	LY <input type="text"/> to <input type="text"/>	<input type="checkbox"/>	<input type="text"/>
3	LX <input type="text"/> to <input type="text"/>	<input type="text"/> points	LY <input type="text"/> to <input type="text"/>	<input type="checkbox"/>	<input type="text"/>
4	LX <input type="text"/> to <input type="text"/>	<input type="text"/> points	LY <input type="text"/> to <input type="text"/>	<input type="checkbox"/>	<input type="text"/>
5	LX <input type="text"/> to <input type="text"/>	<input type="text"/> points	LY <input type="text"/> to <input type="text"/>	<input type="checkbox"/>	<input type="text"/>
6	LX <input type="text"/> to <input type="text"/>	<input type="text"/> points	LY <input type="text"/> to <input type="text"/>	<input type="checkbox"/>	<input type="text"/>
7	LX <input type="text"/> to <input type="text"/>	<input type="text"/> points	LY <input type="text"/> to <input type="text"/>	<input type="checkbox"/>	<input type="text"/>
8	LX <input type="text"/> to <input type="text"/>	<input type="text"/> points	LY <input type="text"/> to <input type="text"/>	<input type="checkbox"/>	<input type="text"/>
9	LX <input type="text"/> to <input type="text"/>	<input type="text"/> points	LY <input type="text"/> to <input type="text"/>	<input type="checkbox"/>	<input type="text"/>
0	LX <input type="text"/> to <input type="text"/>	<input type="text"/> points	LY <input type="text"/> to <input type="text"/>	<input type="checkbox"/>	<input type="text"/>

Station No.: 1 to 120	LX: 0000 to 1FFF	Up to 8K point per station (8192 points, 1K byte)	LY: 0000 to 1FFF
-----------------------	------------------	------------------------------------------------------	------------------

A

Appendix 5 Parameter Sheet
Appendix 5.3 Network range assignment parameter sheet (for control station only)

(3) Supplementary setting parameter sheet

Network No.	
Total Stations	
System Switching Monitoring Time	ms
Data Link Monitoring Time	ms
Parameter Name	

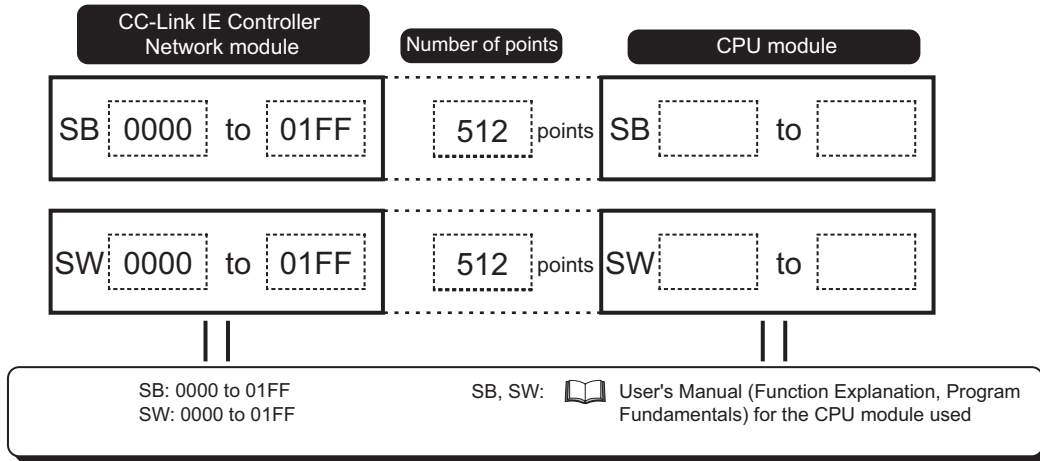
Item		Setting contents
Constant Link Scan		ms (Range: 1 to 500)
Block Data Assurance per Station	Block data assurance per station is available	<input type="checkbox"/> Checked <input type="checkbox"/> Not checked
Transient Setting	Punctuality is guaranteed	<input type="checkbox"/> Checked <input type="checkbox"/> Not checked
	Maximum No. of Transients in One Station	times (Range: 1 to 10)

Appendix 5.4 Refresh parameter sheet

Network No.	
Station No.	

A

(1) SB or SW transfer assignment sheet




Appendix 5 Parameter Sheet
Appendix 5.4 Refresh parameter sheet

(2) Transfer 1 to 256 assignment sheet

Transfer	CC-Link IE Controller Network module	Number of points	CPU module	Data description
1	<input type="text"/> to <input type="text"/>	<input type="text"/> points	<input type="text"/> to <input type="text"/>	<input type="text"/>
2	<input type="text"/> to <input type="text"/>	<input type="text"/> points	<input type="text"/> to <input type="text"/>	<input type="text"/>
3	<input type="text"/> to <input type="text"/>	<input type="text"/> points	<input type="text"/> to <input type="text"/>	<input type="text"/>
4	<input type="text"/> to <input type="text"/>	<input type="text"/> points	<input type="text"/> to <input type="text"/>	<input type="text"/>
5	<input type="text"/> to <input type="text"/>	<input type="text"/> points	<input type="text"/> to <input type="text"/>	<input type="text"/>
6	<input type="text"/> to <input type="text"/>	<input type="text"/> points	<input type="text"/> to <input type="text"/>	<input type="text"/>
7	<input type="text"/> to <input type="text"/>	<input type="text"/> points	<input type="text"/> to <input type="text"/>	<input type="text"/>
8	<input type="text"/> to <input type="text"/>	<input type="text"/> points	<input type="text"/> to <input type="text"/>	<input type="text"/>
9	<input type="text"/> to <input type="text"/>	<input type="text"/> points	<input type="text"/> to <input type="text"/>	<input type="text"/>
0	<input type="text"/> to <input type="text"/>	<input type="text"/> points	<input type="text"/> to <input type="text"/>	<input type="text"/>

LB: 0000 to 7FFF
 LW: 00000 to 1FFFF
 LX: 0000 to 1FFF
 LY: 0000 to 1FFF

X, Y, M, L, B, T, C, ST, D, W, R, ZR:
 User's Manual (Function Explanation, Program Fundamentals) for the CPU module used

Appendix 5.5 Interrupt setting parameter sheet

Network No.	
Station No.	

No.	Device Code	Device No.	Detection Method	Interrupt Condition	Word Device Setting Value	Channel No./ Connection No.	Interrupt (SI) No.
1							
2							
3							
4							
5							
6							
7							
8							
9							
0							

Device Code	Setting range					
	Device No.	Detection Method	Interrupt Condition	Word Device Setting Value	Channel No./ Connection No.	Interrupt (SI) No.
LB	0 to 7FFF	At ON: Level Detect + ON		—	—	0 to 15
LX	0 to 1FFF	At OFF: Level Detect + OFF				
SB	0 to 1FF	At rising: Edge Detect + ON At falling: Edge Detect + OFF				
LW	0 to 1FFFF	At value match: Level Detect + Equal		0 to 65535		
SW	0 to 1FF	At value mismatch: Level Detect + Unequal				
		At value match (the first time only): Edge Detect + Equal At value mismatch (the first time only): Edge Detect + Unequal				
RECVS instruction	—	Edge Detect (Fixed)	Scan Completed (Fixed)	—	1 to 8	

A

 Appendix 5 Parameter Sheet
 Appendix 5.5 Interrupt setting parameter sheet

Appendix 5.6 Interlink transmission parameter assignment sheet

Transfer source	
Transfer target	

(1) Link relay (LB)

No.	Network module (Transfer source)	Number of points	Network module (Transfer target)	Data description
1	LB <input type="text"/> to <input type="text"/>	<input type="text"/> points	LB <input type="text"/> to <input type="text"/>	
2	LB <input type="text"/> to <input type="text"/>	<input type="text"/> points	LB <input type="text"/> to <input type="text"/>	
3	LB <input type="text"/> to <input type="text"/>	<input type="text"/> points	LB <input type="text"/> to <input type="text"/>	
4	LB <input type="text"/> to <input type="text"/>	<input type="text"/> points	LB <input type="text"/> to <input type="text"/>	
5	LB <input type="text"/> to <input type="text"/>	<input type="text"/> points	LB <input type="text"/> to <input type="text"/>	
6	LB <input type="text"/> to <input type="text"/>	<input type="text"/> points	LB <input type="text"/> to <input type="text"/>	
7	LB <input type="text"/> to <input type="text"/>	<input type="text"/> points	LB <input type="text"/> to <input type="text"/>	
8	LB <input type="text"/> to <input type="text"/>	<input type="text"/> points	LB <input type="text"/> to <input type="text"/>	
9	LB <input type="text"/> to <input type="text"/>	<input type="text"/> points	LB <input type="text"/> to <input type="text"/>	
0	LB <input type="text"/> to <input type="text"/>	<input type="text"/> points	LB <input type="text"/> to <input type="text"/>	

(CC-Link IE Controller Network) LB: 0000 to 7FFF	Up to 16K points per station (Extended Mode: 32K point)	(CC-Link IE Controller Network) LB: 0000 to 7FFF

(2) Link register (LW)

No.	Network module (Transfer source)	Number of points	Network module (Transfer target)	Data description
1	LW <input type="text"/> to <input type="text"/>	<input type="text"/> points	LW <input type="text"/> to <input type="text"/>	
2	LW <input type="text"/> to <input type="text"/>	<input type="text"/> points	LW <input type="text"/> to <input type="text"/>	
3	LW <input type="text"/> to <input type="text"/>	<input type="text"/> points	LW <input type="text"/> to <input type="text"/>	
4	LW <input type="text"/> to <input type="text"/>	<input type="text"/> points	LW <input type="text"/> to <input type="text"/>	
5	LW <input type="text"/> to <input type="text"/>	<input type="text"/> points	LW <input type="text"/> to <input type="text"/>	
6	LW <input type="text"/> to <input type="text"/>	<input type="text"/> points	LW <input type="text"/> to <input type="text"/>	
7	LW <input type="text"/> to <input type="text"/>	<input type="text"/> points	LW <input type="text"/> to <input type="text"/>	
8	LW <input type="text"/> to <input type="text"/>	<input type="text"/> points	LW <input type="text"/> to <input type="text"/>	
9	LW <input type="text"/> to <input type="text"/>	<input type="text"/> points	LW <input type="text"/> to <input type="text"/>	
0	LW <input type="text"/> to <input type="text"/>	<input type="text"/> points	LW <input type="text"/> to <input type="text"/>	

(CC-Link IE Controller Network) LW: 00000 to 1FFFF	Up to 16K points per station (Extended Mode: 128K point)	(CC-Link IE Controller Network) LW: 00000 to 1FFFF

A

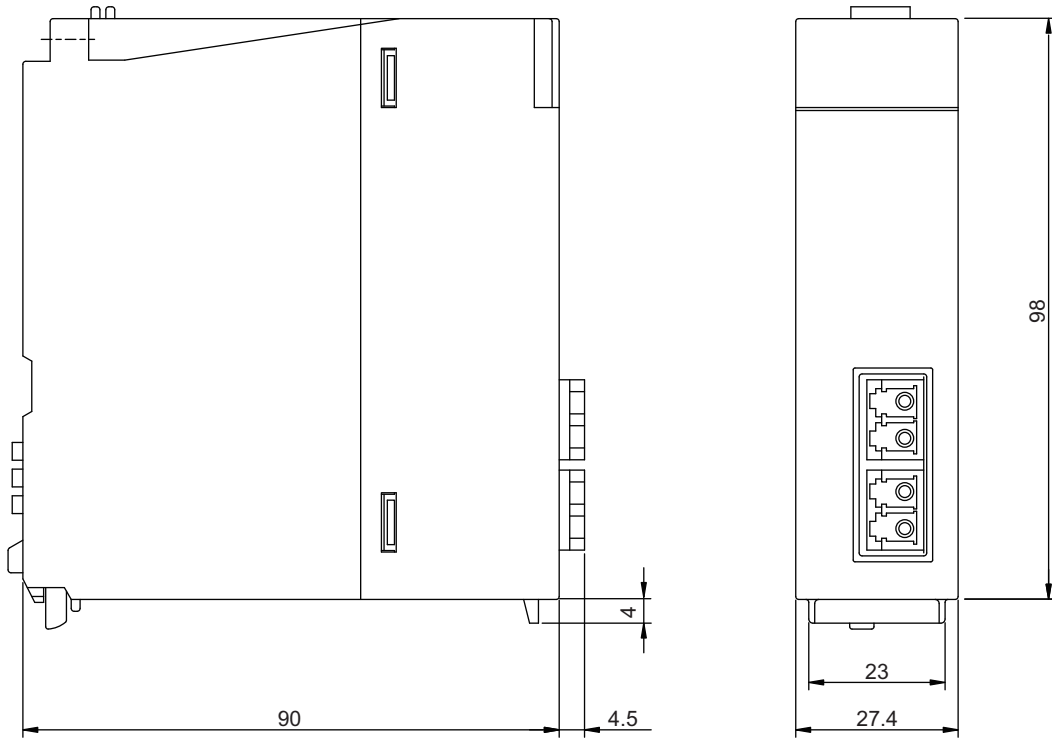
Appendix 5 Parameter Sheet
Appendix 5.6 Interlink transmission parameter assignment sheet

Appendix 5.7 Routing parameter sheet

No.	Target Network No.	Relay Network No.	Relay Station No.
1			
2			
3			
4			
5			
6			
7			
8			
9			
0			

Appendix 6 External Dimensions

Appendix 6.1 QJ71GP21-SX

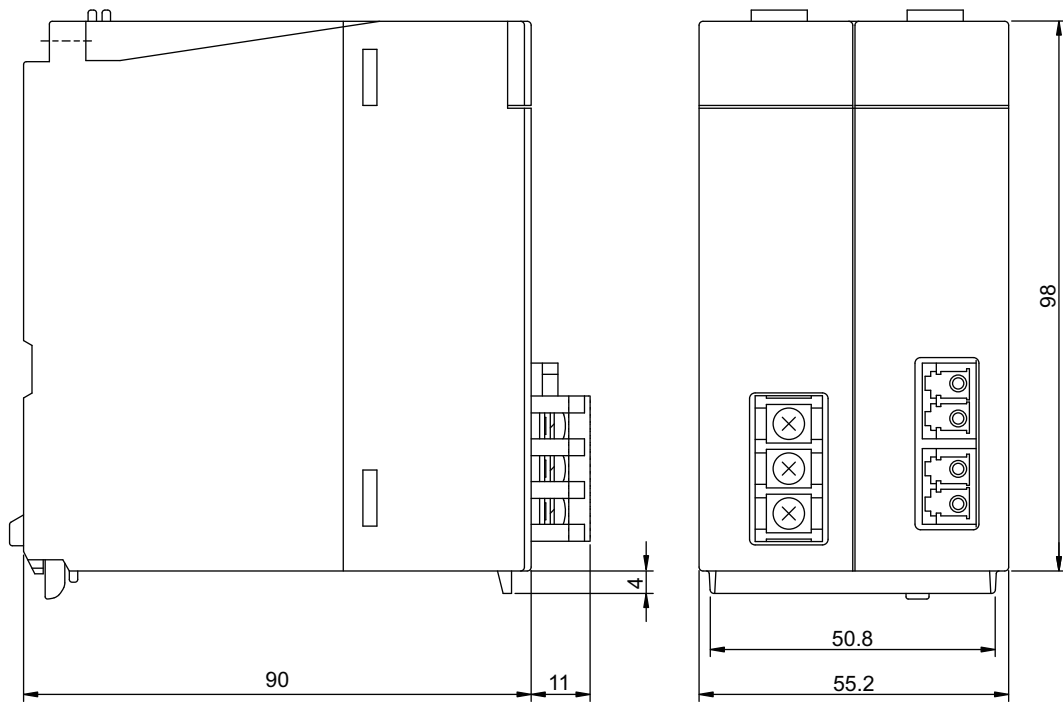


(Unit:mm)

A

Appendix 6 External Dimensions
Appendix 6.1 QJ71GP21-SX

Appendix 6.2 QJ71GP21S-SX



(Unit: mm)

INDEX

0 to 9

32-bit data assurance 77

A

Applicable systems 40
Assurance of cyclic data integrity 76
Automatic return 127

B

Block data assurance per station 201

C

Cable fault detection 127
Cable insertion error detection 128,545
CC IE Control diagnostics 526
CC IE Control Ext. Mode 181
CC-Link dedicated instruction transmission delay time
. 261
CC-link dedicated instructions 325
Change of transfer target CPU-side device 212
Changing the number of transient transmissions 105
Channels 328
Circuit test 165
Clock setting 104
Clock setting from GX Developer 104
Communication test 174
Communication using LB/LW 61
Communication using LX/LY 66
Communication with a programmable controller on
another station 94
Comparison between CC-Link IE Controller Network
and MELSECNET/H 612
Connection cable 44
Connector specifications 44
Constant link scan 82,201
Control station 17,181
Control station duplication 129,556
Control station switching 124
Control station switching time 17
Cyclic data retention time for system switching in
redundant system 262
Cyclic transmission 59
Cyclic transmission delay time 250
Cyclic transmission punctuality assurance 80,202

D

D LINK LED 148,500
Data link 15
Data link monitoring time 183
Dedicated instructions 97,324,513
Direct access to link devices 70
Disconnection 17

E

Equal assignment 186
ERR. LED 148
Error and solution 513
Error codes 511,537
Error history 512
Error history of the module 513
EXT.PW LED 148,498
Extended mode 84
External power supply 45,134

F

Function lists 46
Function version 42
Functional upgrade 606

G

Group 17,102,180
Group cyclic transmission 83

H

H/W information 537
Hardware test 152
HST.LOSS 513

I

I/O master station 66,193
Identical point assignment 187
Implementation and installation 145
IN connector 147,163
Increase of send points by mounting multiple
CC-Link IE Controller Network modules of the same
network No. 84
Intelligent module information 513
Interlink transmission 89,232
Internal current consumption (5VDC) 45
Interrupt request to CPU module 135,225
Interrupt settings 135,225
IP communication test 113
IP packet transfer function 106

L

LB/LW settings 185
LEDs 148,497
Link dedicated instruction transmission delay time
. 256
Link dedicated instructions 324,328
Link devices 59
Link direct device 70
Link input (LX) 66
Link output (LY) 66
Link refresh 69

Link refresh time	245
Link register (LW)	61
Link relay (LB)	61
Link scan time	244
Link special register (SW)	306,584
Link special relay (SB)	306,568
Logging	533
Loopback	125
LX/LY settings	192

M

Max. number of groups	44
Max. number of link points	44
Max. number of networks	44
Mode	182
MODE LED	148,499
Module's detailed information	511

N

Network module	15
Network No.	181
Network operation setting	203
Network parameters	180
Network range assignment	183
Normal station	17,181
Number of occupied I/O points	45

O

Optical fiber cables	38
OUT connector	147,163

P

Pairing	199
Parameter sheet	268,288,645
Parameters	177
Part names	147
Performance specifications	44
Pre-operational procedure	146
PRM LED	148
Processing time	244
Programming	267

R

RAS functions	124
Rating plate	42
RD LED	148
Reconnection	127
Redundant settings	231
Redundant system	36,138,199
Refresh parameters	204
Relay station	17,89
Remote operation	540
Remote RUN/STOP	374
Reserved station specification	88,200
Routing	103,238
RUN LED	148,498

S

SB	306,568
SD LED	148
Self-loopback test	157
Serial number	42
Shared group	17,196
Software package	41
Specifications	44
Station No. duplication	129
Station No. setting (Network parameters)	180
Station No. setting (Sequence program)	136,476
Station-based block data assurance	78
Station-to-station test	169
Stop/restart of cyclic transmission	91
Supplementary settings	201
SW	306,584
System configuration	34
System error history	512
System monitor	536
System switching monitoring time	183

T

Transient transmission	94
Transmission delay time	250,256,261
Troubleshooting	497
Cyclic transmission is disabled	502
D LINK LED is flashing	501
D LINK LED is OFF	500
Data link is disabled in the redundant system	507
Data link is disabled on a station of a Basic model	
QCPU or safety CPU	510
EXT.PW LED is OFF	498
MODE LED is OFF or flashing	499
RUN LED is OFF	498
Transient transmission is disabled	504

U

Undefined station	17
-------------------	----

W

Weight	45
Wiring	162
Write/read clock data on another station	325
Write/read data to/from devices on another station	324

REVISIONS

*The manual number is given on the bottom left of the back cover.

Print date	*Manual number	Revision
Jan., 2007	SH(NA)-080668ENG-A	First edition
Apr., 2007	SH(NA)-080668ENG-B	<p>Model added QJ71GP21S-SX</p> <p>Partially revised SAFETY PRECAUTIONS, Generic Terms and Abbreviations, Definitions of Terminology, Packing List, Section 1.1, Chapter 2 and 3, Section 4.1.1, 4.1.2, 4.1.4, 4.1.10, 4.2.1, 4.4, 5.1.1, 5.3, 5.4, 5.7.1, 6.2, 6.3.1, 6.3.2, 6.4.1, 6.4.2, 6.5, 6.7, Chapter 7, Section 8.3, 9.1 to 9.8, 10.1, 10.1.5, 10.1.7, 10.2, 10.3, Appendix 1, 2, 4, and 5.</p> <p>Added About Manuals, Section 2.2.2, 4.3.7, 4.5, 9.9 to 9.18, 10.1.2, 10.4.12 to 10.4.14, Appendix 3 and 6.2</p> <p>Change of section No. Section 2.2 (1) → Section 2.2.1, Section 10.1.2 to 10.1.6 → Section 10.1.3 to 10.1.7, Appendix 3 to 5 → Appendix 4 to 6</p>
Nov., 2007	SH(NA)-080668ENG-C	<p>Partially revised Section 1.1, 2.3, 5.6.1, 7.2, 7.3, 8.1.5, 8.2.2, 10.3, 10.4, Appendix 4</p>
May, 2008	SH(NA)-080668ENG-D	<p>The entire manual was reviewed since the existing MELSECNET/G network module has been integrated into the CC-Link IE controller network module. Descriptions of function version D were added.</p> <p>Partially revised SAFETY PRECAUTIONS, About Manuals, Compliance with The EMC and Low Voltage Directives, How to Read This Manual, Generic Terms and Abbreviations, Definitions of Terminology, Section 1.1, 2.1, 2.3, 2.4, 3.1, 3.2, 4.1.1, 4.1.2, 4.1.5, 4.1.11, 4.2.1, 4.2.4, 4.3.1, 4.5, 5.1.1, 5.2, 5.4 to 5.6, 5.7.1, 6.1 to 6.5, 6.8, Chapter 7, 8.1.1, 8.1.2, 8.2.1, 8.2.2, 8.3, Chapter 9, 10.1 to 10.4, Appendix 1 to 5</p> <p>Added Section 2.1.2, 2.2.3, 3.3, 4.1.8, 4.6, 6.3.3, 6.3.4, 6.6, 7.5, 10.1.8, 10.1.9</p> <p>Change of section No. Section 2.1.2 → Section 2.1.3, Section 4.1.8 to 4.1.10 → Section 4.1.9 to 4.1.11, Section 6.3.3 to 6.3.4 → Section 6.3.5 to 6.3.6, Section 6.6 to 6.7 → Section 6.7 to 6.8</p>
Oct., 2008	SH(NA)-080668ENG-E	<p>Partially revised Definitions of Terminology, Section 1.1, 2.3, 3.1, 3.2, 4.1.4, 4.2, 4.2.1, 5.1.1, 6.4.1, 6.4.2, 7.2, 8.3, 9.1, 9.3 to 9.6, 9.11, 9.14 to 9.18, 10.2, Appendix 2, 3, 4.2, 4.3</p> <p>Added Section 7.4.2, 9.2.1, 9.2.3, 9.19, 9.20</p> <p>Change of section No. Section 7.4 → Section 7.4.1, Section 9.2 → Section 9.2.2</p>
May, 2009	SH(NA)-080668ENG-F	<p>Partially revised HOW TO READ THIS MANUAL, GENERIC TERMS AND ABBREVIATIONS, Section 2.3, 3.2, 6.3.3, 6.4.1, 6.4.2, 7.2, 9.10, 10.3.1, 10.3.2, Appendix 3, 4.1, 4.2</p> <p>Added Section 4.1.9</p>

Print date	*Manual number	Revision
Sep., 2010	SH(NA)-080668ENG-G	<p>Partially revised</p> <p>SAFETY PRECAUTIONS, Section 4.3.3, 6.1 to 6.3, 7.3.1, 8.1.4, 8.2.4, 9, 10.2, 10.3.4, Appendix 2, 4.3, 5</p> <p>Added</p> <p>Section 8.1.6, 10.2.1</p>
Jan., 2012	SH(NA)-080668ENG-H	<p>Partially revised</p> <p>MANUALS, Section 2.2.1, 2.2.3, 4.1.5, 5.3, 7.1, 10.2.1, Appendix 3</p> <p>The manual layout was wholly changed.</p>
May, 2012	SH(NA)-080668ENG-I	<p>Partially revised</p> <p>SAFETY PRECAUTIONS, COMPLIANCE WITH EMC AND LOW VOLTAGE DIRECTIVES, Section 2.4, 3.2, 4.2.1, 4.3.7, 6.4.1, 8.1.4, 9.1, 9.3, 9.5, 9.7, 9.8, 9.9, 9.10, 9.12, 9.13, 9.14, 9.15, 9.16, 9.17, Appendix 2, Appendix 3, Appendix 4.1</p>
February, 2013	SH(NA)-080668ENG-J	<p>Partially revised</p> <p>MANUAL PAGE ORGANIZATION, GENERIC TERMS AND ABBREVIATIONS, DEFINITIONS OF TERMINOLOGY, Section 1.1, 2.2.2, 2.3, 3.2, 6.1, 6.2, 6.3.3, 6.9, 8.3, 9.2.2, 10.1, 10.2.2, 10.3, 10.3.2, Appendix 1 to 3, Appendix 4.2, Appendix 4.3</p> <p>Added</p> <p>Section 4.3, 6.4, 10.1.8</p> <p>Change of section No.</p> <p>Section 4.3 to 4.6 → Section 4.4 to 4.7, Section 6.4 to 6.8 → Section 6.5 to 6.9, Section 10.1.8 and 10.1.9 → Section 10.1.9 to 10.1.10</p> <p>The window images of GX Developer were changed to those of GX Works2.</p>
June, 2015	SH(NA)-080668ENG-K	<p>Partially revised</p> <p>MANUAL PAGE ORGANIZATION, GENERIC TERMS AND ABBREVIATIONS, Section 2.3, 4.1.9, 4.3.3, 5.3, 6.5.2, 7.1, 7.2, 7.3.2, 8.1.2, 8.2.2, Chapter 9, Section 10.3.1, 10.4, Appendix 2, 6</p> <p>Added</p> <p>Section 7.2.1</p>
September, 2016	SH(NA)-080668ENG-L	<p>Partially revised</p> <p>MANUAL PAGE ORGANIZATION, GENERIC TERMS AND ABBREVIATIONS, Section 2.4, 4.2.1, 5.3, 7.5, 9.3 to 9.9, 9.12 to 9.17, 10.2.2, 10.3.1, Appendix 1, 2, 4.3</p>
January, 2021	SH(NA)-080668ENG-M	<p>Partially revised</p> <p>Section 4.4.2</p>

Japanese Manual Version SH-080649-Q

This manual confers no industrial property rights or any rights of any other kind, nor does it confer any patent licenses. Mitsubishi Electric Corporation cannot be held responsible for any problems involving industrial property rights which may occur as a result of using the contents noted in this manual.

WARRANTY

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

1. Gratis Warranty Term and Gratis Warranty Range

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

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

[Gratis Warranty Term]

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

[Gratis Warranty Range]

- (1) The range shall be limited to normal use within the usage state, usage methods and usage environment, etc., which follow the conditions and precautions, etc., given in the instruction manual, user's manual and caution labels on the product.
- (2) Even within the gratis warranty term, repairs shall be charged for in the following cases.
 1. Failure occurring from inappropriate storage or handling, carelessness or negligence by the user. Failure caused by the user's hardware or software design.
 2. Failure caused by unapproved modifications, etc., to the product by the user.
 3. When the Mitsubishi product is assembled into a user's device, Failure that could have been avoided if functions or structures, judged as necessary in the legal safety measures the user's device is subject to or as necessary by industry standards, had been provided.
 4. Failure that could have been avoided if consumable parts (battery, backlight, fuse, etc.) designated in the instruction manual had been correctly serviced or replaced.
 5. Failure caused by external irresistible forces such as fires or abnormal voltages, and Failure caused by force majeure such as earthquakes, lightning, wind and water damage.
 6. Failure caused by reasons unpredictable by scientific technology standards at time of shipment from Mitsubishi.
 7. Any other failure found not to be the responsibility of Mitsubishi or that admitted not to be so by the user.

2. Onerous repair term after discontinuation of production

- (1) Mitsubishi shall accept onerous product repairs for seven (7) years after production of the product is discontinued. Discontinuation of production shall be notified with Mitsubishi Technical Bulletins, etc.
- (2) Product supply (including repair parts) is not available after production is discontinued.

3. Overseas service

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

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

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

- (1) Damages caused by any cause found not to be the responsibility of Mitsubishi.
- (2) Loss in opportunity, lost profits incurred to the user by Failures of Mitsubishi products.
- (3) Special damages and secondary damages whether foreseeable or not, compensation for accidents, and compensation for damages to products other than Mitsubishi products.
- (4) Replacement by the user, maintenance of on-site equipment, start-up test run and other tasks.

5. Changes in product specifications

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

Microsoft and Windows are either registered trademarks or trademarks of Microsoft Corporation in the United States and/or other countries.

The company names, system names and product names mentioned in this manual are either registered trademarks or trademarks of their respective companies.

In some cases, trademark symbols such as '™' or '®' are not specified in this manual.

SH(NA)-080668ENG-M(2101)MEE

MODEL: CCIECONTROL-R-E

MODEL CODE: 13JV16

MITSUBISHI ELECTRIC CORPORATION

HEAD OFFICE : TOKYO BUILDING, 2-7-3 MARUNOUCHI, CHIYODA-KU, TOKYO 100-8310, JAPAN
NAGOYA WORKS : 1-14, YADA-MINAMI 5-CHOME, HIGASHI-KU, NAGOYA, JAPAN

When exported from Japan, this manual does not require application to the
Ministry of Economy, Trade and Industry for service transaction permission.

Specifications subject to change without notice.