

Actions to be Taken When a Link-up Error Occurs at Connection with a Switching Hub

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■Relevant Models

RJ71EN71, RJ71GF11-T2, R04ENCPU, R08ENCPU, R16ENCPU, R32ENCPU, R120ENCPU

Thank you for your continued support of Mitsubishi Electric programmable controllers, MELSEC iQ-R series. This bulletin describes the actions to be taken when a link-up error occurs at connection with a switching hub.

1 OVERVIEW

Depending on the combination of switching hub and module used, the time from Ethernet cable connection to link-up may vary. Link-up is normally completed after five seconds. Depending on the status of devices in the network, however, the time to link-up may take several more seconds or link-up may not be completed.

To avoid these phenomena, take the actions described in Chapter 3.

2 RELEVANT MODELS

Relevant models are listed below.



Module	Model
Ethernet module	RJ71EN71
CC-Link IE Field Network module	RJ71GF11-T2
CPU module*1	R04ENCPU R08ENCPU R16ENCPU R32ENCPU R120ENCPU

*1 P1 and P2 of the network part are targeted.

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3 ACTIONS TO BE TAKEN

To avoid the phenomena mentioned in OVERVIEW, take one of the following measures.

- Replace the switching hub ( Page 2 Replacing the Switching Hub)
- Change the settings for the auto-negotiation mode setting function ( Page 2 Changing the Settings for the Auto-negotiation Mode Setting Function)

3.1 Replacing the Switching Hub

Replace the switching hub with one of the following switching hubs.

For details, consult the manufacturer of the switching hub used.

Manufacturer	Model
Mitsubishi Electric Corporation	NZ2EHG-T8N*1
	NZ2MHG-T8F2
Mitsubishi Electric System & Service Co., Ltd.	DT135TXA

*1 This hub was developed in collaboration with CONTEC CO., LTD, thus it has different general specifications and warranty details from the other products for programmable controllers. For details, refer to the user's manual of NZ2EHG-T8N.

3.2 Changing the Settings for the Auto-negotiation Mode Setting Function

Set the auto-negotiation mode in the auto-negotiation mode setting function to Auto-negotiation mode 2 using the program.

The auto-negotiation mode setting function enables the operation mode at execution of the auto-negotiation to be set.

There are two operation modes as follows.

- Auto-negotiation mode 1
- Auto-negotiation mode 2

The setting values are saved to the flash ROM in the module, and the module will operate with the settings read from the flash ROM at start-up.

Setting procedure

■ Available firmware versions

The following table lists the firmware versions that support the auto-negotiation mode setting function.

Module	Model	Firmware version
Ethernet module*1	RJ71EN71	55 or later
CC-Link IE Field Network module	RJ71GF11-T2	55 or later
CPU module*1*2	R04ENCPU R08ENCPU R16ENCPU R32ENCPU R120ENCPU	45 or later

*1 P1 and P2 of the network part are targeted.

*2 When the network type specified for P1/P2 is Ethernet, set "Communication Speed" under "Application Settings" to "Automatic Negotiation".

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■ Buffer memory area

The following table lists the start addresses and offset addresses of buffer memory that is used for the auto-negotiation mode setting function.

- Start address

Model	Address (decimal)	Address (hexadecimal)	Area name	Remarks
RJ71GF11-T2	24470	5F96H	Auto-negotiation mode setting area (Port 1)	—
RJ71GF11-T2(LR)	24475	5F9BH	Auto-negotiation mode setting area (Port 2)	—
RJ71GF11-T2(MR)				
RJ71GF11-T2(SR)				
RJ71EN71(CCIEF)				
RJ71EN71(CCIEC)	12070	2F26H	Auto-negotiation mode setting area (Port 1)	—
	12075	2F2BH	Auto-negotiation mode setting area (Port 2)	—
RJ71EN71(E+E)	5595	15DBH	Auto-negotiation mode setting area (Port 1)	—
	2005595	1E9A5BH	Auto-negotiation mode setting area (Port 2)	—
RJ71EN71(E+CCIEF)	5595	15DBH	Auto-negotiation mode setting area (Port 1)	Used in Ethernet.
	2024475	1EE41BH	Auto-negotiation mode setting area (Port 2)	Used in CC-Link IE Field Network.
RJ71EN71(E+CCIEC)	5595	15DBH	Auto-negotiation mode setting area (Port 1)	Used in Ethernet.
	2012075	1EB3ABH	Auto-negotiation mode setting area (Port 2)	Used in CC-Link IE Controller Network.
RJ71EN71(Q)	20731	50FBH	Auto-negotiation mode setting area (Port 1)	P2 is not used.

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• Offset address

Offset address	Name	Description	Initial value	Setting section
+0	Setting status	The present setting status is stored.* ¹ [Stored value] 0000H: Auto-negotiation mode 1 0001H: Auto-negotiation mode 2	0000H	System
+1	Setting type	Set the setting type at execution request.* ² [Setting value] 0000H: Auto-negotiation mode 1 0001H: Auto-negotiation mode 2	0000H	User
+2	Execution request	The auto-negotiation mode setting is executed. <div style="display: flex; justify-content: space-between; align-items: center;"> b15 b1 b0 </div> <div style="border: 1px solid black; padding: 2px; width: fit-content; margin: 0 auto;"> 0 (1) </div> (1): Execution request 0: There is no execution request. 1: There is an execution request.* ²	0000H	User
+3	Fixed code	Set the fixed code for execution of the auto-negotiation mode setting. [Setting value] 7373H: Writing to the flash ROM 7474H: Clearing the flash ROM	0000H	User
+4	Execution result	The execution result of auto-negotiation mode setting is stored. <div style="display: flex; justify-content: space-between; align-items: center;"> b15b14 b1 b0 </div> <div style="border: 1px solid black; padding: 2px; width: fit-content; margin: 0 auto;"> (2) 0 (1) </div> (1): Execution status 0: "There is no execution request." or "In execution" 1: Execution completed* ^{2*3} (2): Execution result 0: Completed successfully 1: Completed with an error* ^{2*4}	0000H	System

*1 The setting values read from the flash ROM are stored when the module is started up.

*2 When the execution request is changed from 1 to 0, the execution result and the execution status of execution result will be 0.

*3 The requested setting values are written to the flash ROM and reflected when the module is started up next time or after the programmable controller is reset.

*4 If the auto-negotiation setting was completed with an error, check the setting values set in "Setting type" and "Fixed code". If the setting values are correct, a hardware failure of the module is a possible cause. Please consult your local Mitsubishi representative.

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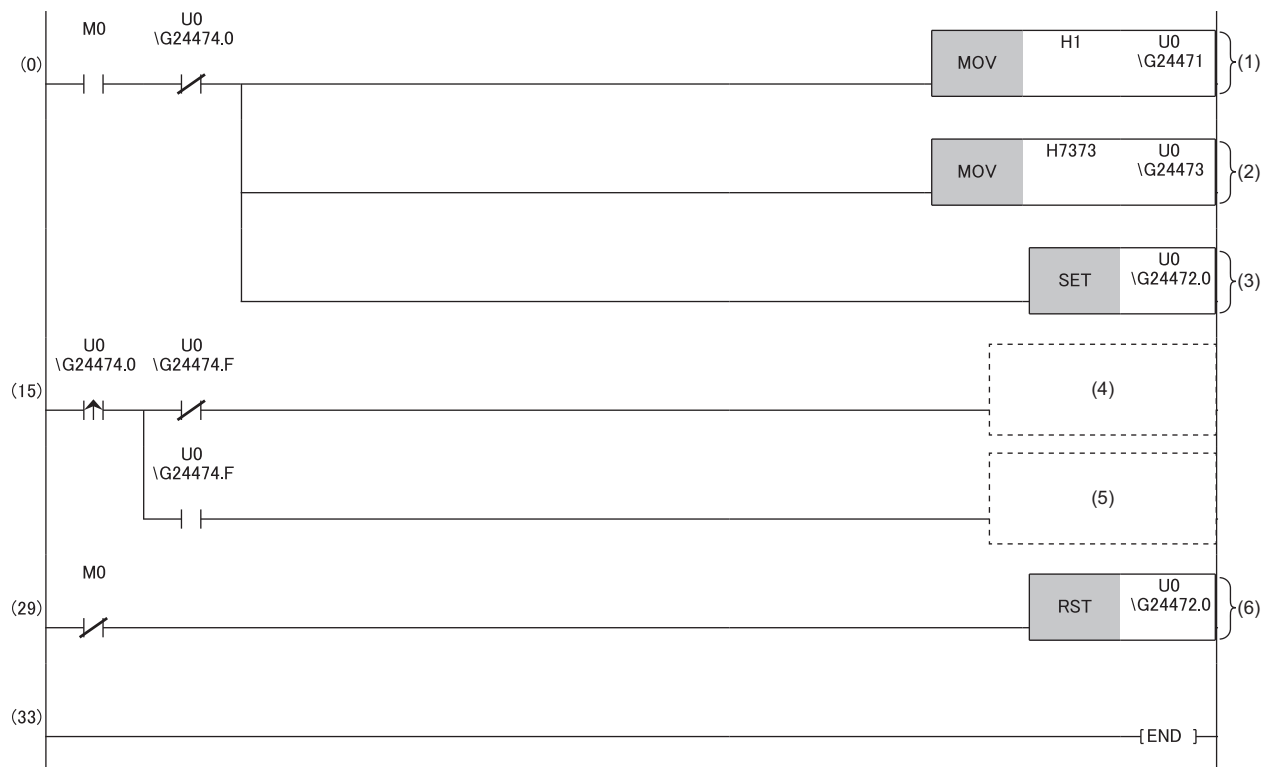
■ Program example

This section describes an example of the program for the auto-negotiation mode setting function. Reset the programmable controller after execution of the program.

Item	Description
Model	RJ71GF11-T2
Port	P1 (Buffer memory start address: 24470)*1
Setting type	Auto-negotiation mode 2

*1 Change the buffer memory address according to the port of the module.

Device	Description
M0	Execution instruction by user
U0\G24471	Setting type
U0\G24472.0	Execution request
U0\G24473	Fixed code
U0\G24474.0	Execution status
U0\G24474.F	Execution result



- (1): Set Auto-negotiation mode 2 for the setting type (P1).
- (2): Set the fixed code (P1).
- (3): Turn on the execution request (P1).
- (4): Execute the processing when completed successfully.
- (5): Execute the processing when completed with an error.
- (6): Turn off the execution request (P1).


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■ Dot matrix LED

The setting status of the auto-negotiation mode setting function is displayed on the dot matrix LED.

Setting status	Contents to be displayed on the dot matrix LED
Auto-negotiation mode 1	The station number set for the module or the module communication test result is displayed.*1
Auto-negotiation mode 2	The following strings (1) to (3) are displayed repeatedly. (1): Station number set for the module or the module communication test result (for five seconds) (2): "P1 AUTO NEGO MODE 2" (The setting status of P1 is displayed and scrolled.) (3): "P2 AUTO NEGO MODE 2" (The setting status of P2 is displayed and scrolled.)

*1 For details, refer to the following.

 MELSEC iQ-R Ethernet/CC-Link IE User's Manual (Startup) [SH-081256ENG]

■ Precautions

The contents set for the auto-negotiation mode setting are saved to the flash ROM in the module and are held until the flash ROM is cleared. When changing a connected device, set the auto-negotiation mode to Auto-negotiation mode 1 (factory default) as needed.

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REVISIONS

Version	Date of Issue	Revision
A	July 2021	First edition

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