TECHNICAL BULLETIN

[Issue No.] FA-A-0186

[Title] Improvements in CC-Link IE Field Network specifications for momentary data link error in all the stations

[Date of Issue] May 2015

[Relevant Models] RJ71GF11-T2, RJ71EN71, QJ71GF11-T2, LJ71GF11-T2, Q81BD-J71GF11-T2, Q80BD-J71GF11-T2

Thank you for your continued support of Mitsubishi programmable controllers, MELSEC iQ-R/Q/L series.

When connecting/disconnecting a cable and powering off/on a device during system operation on CC-Link IE Field Network, a data link error may be momentarily detected in all the stations since all stations on the network will be reconnected.
We will inform you of the improvements in specifications which prevent the error, and the precautions.

1. Relevant models
The following products support the improvements in specifications.

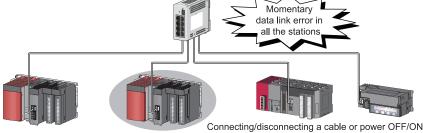| Model	Firmware version/serial number
RJ71GF11-T2, RJ71EN71	Firmware version "05" or later
QJ71GF11-T2	Serial number (first five digits) "17022" or later
LJ71GF11-T2	Serial number (first five digits) "17022" or later
Q81BD-J71GF11-T2, Q80BD-J71GF11-T2	Serial number (first five digits) "17022" or later

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2. Description

The specifications are improved to prevent momentary data link error occurred in all the stations when the operations listed below are performed in CC-Link IE Field Network.

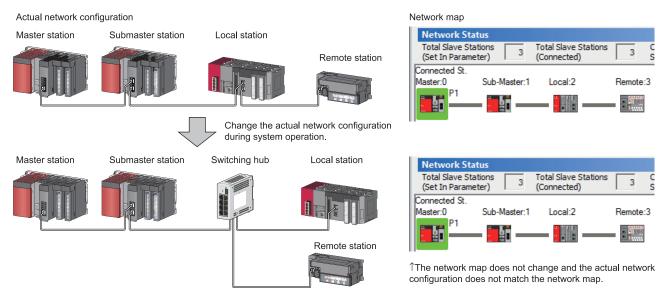| Network configuration	Operation
Star topology	• Powering off and on a slave station or switching hub • Connecting/disconnecting an Ethernet cable connected to the switching hub • Disconnecting an Ethernet cable from a slave station and connecting it to another slave station or a switching hub • Disconnecting more than 9 stations, or half the number of slave stations or more in the system • Changing the network topology when adding a slave station
Line topology, ring topology	• Simultaneously powering off/on multiple stations • Simultaneously connecting/disconnecting Ethernet cables to/from multiple stations (When a data link faulty station returns, a data link error will occur in all the stations.) • Disconnecting more than 9 stations, or half the number of slave stations or more in the system • Changing the network topology when adding a slave station

Momentary data link error in all the stations

Connecting/disconnecting a cable or power OFF/ON

3.   Precautions

With the improvements in specifications, when operation described in "2. Description" is performed, the actual network configuration and the network map of the CC-Link IE Field Network diagnostics may be a mismatch.

Example: When the actual network configuration is changed from line topology to coexistence of star topology and line topology
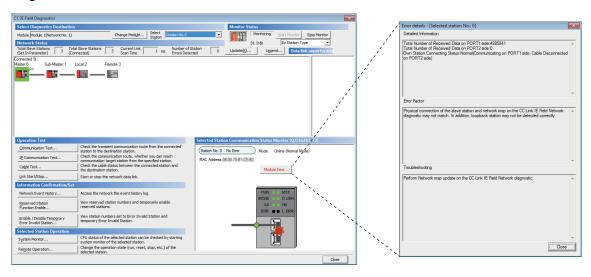
Actual network configuration

Master station   Submaster station   Local station

Remote station

Change the actual network configuration during system operation.

Master station   Submaster station   Switching hub   Local station

Remote station

Network map

↑The network map does not change and the actual network configuration does not match the network map.

When using a ring topology, the following may be occurred.
• The station number of the loopback station cannot be detected correctly.
• Even if a switching hub is used, data link does not stop.

3.1   How to check whether the actual network configuration and the network map are a mismatch or not

Whether mismatch is occurred or not can be checked using Network configuration mismatch occurrence status (SB0098) or "Selected Station Communication Status Monitor" in CC-Link IE Field Network diagnostics of the master station.

3.2 How to match the network map with the actual network configuration in the CC-Link IE Field Network diagnostics

To match the network map with the actual network configuration, click the "Update" button[1] in the CC-Link IE Field Network diagnostics.

A data link error will momentarily occur in all the stations since all stations on the network will be reconnected when executing the network map update.

*1 For GX Works2 Version 1.530C or earlier or GX Works3, click the "Delete Disconnected Station" button.

3.3 Delay of error detection time when all the stations are disconnected

When all the stations are disconnected, the time until the following link special relay (SB) and link special register (SW) of the master station turn on (error detection) will be delayed by about 220ms compared to before.

During error detection, the master station holds the cyclic data received.

Number	Description	
	MELSEC iQ-R series	**MELSEC-Q/L series**
SB0049	Data link error status of own station	Data link status (own station)
SB00B0	Data link error status of each station	Data link status (each station)
SB00B1	Data link error status of master station	Data link status (master station)
SB00BF	Data link error status of station No.0	Data link status (station No.0)
SW00B0 to SW00B7	Data link error status of each station	Data link status (each station)