TECHNICAL BULLETIN

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[Title] Guidelines for confirming the FL-net (OPCN-2) line status   **[Date of Issue]** Jul., '04

[Relevant Models] QJ71FL71-T-F01, QJ71FL71-B2-F01, QJ71FL71-B5-F01
                       QJ71FL71-T, QJ71FL71-B2, QJ71FL71-B5

Thank you for your continued support of Mitsubishi programmable logic controllers, MELSEC-Q series.

This technical bulletin provides guidelines (initialization and maintenance precautions) for applying the Mitsubishi FL-net(OPCN-2) interface module to the FL net(OPCN-2).

1. Guidelines

With FL-net, a token, (which is the right to transmit data) is passed among the nodes within the network, to ensure periodic communication. When the integrity of the network line is affected due to noise etc, the network node may not receive the token correctly. If this condition persists, this FL-net interface module may repeatedly join/leave the network with the token not being passed correctly, which can result in communication data not being sent/received correctly. Therefore, make sure to confirm each station has not left the token passing at the time of initialization/maintenance of the FL-network.

2. Confirming the token cyclic status

The token cyclic status can be confirmed by monitoring the following addresses within "Log information area" of the FL-net interface module buffer memory.

(1) Confirming the frequency that the node has left token passing

The frequency that the host node or other node has left the token passing can be confirmed in the following buffer memory addresses.

If the value within the address is incremented during continuous communication (other than when powered off/on), this indicates that the token passing-leave error is occurring.

In this case, take the solutions as explained in item 3.

Buffer memory address	Name	Description
B16$_H$ to B17$_H$	Self-leave count	Indicates the cumulative frequency that the host node left the token passing (when the token hold timeout occurred continuously three times.)
B18$_H$ to B19$_H$	Leave-by-skip count	Indicates the cumulative frequency that the host node left the token passing (when the token addressing to the host node was skipped continuously three times.)
B1A$_H$ to B1B$_H$	Other node leave count	Indicates the cumulative frequency that the other node left the token passing.

(2) Confirming the line status

The line status can be confirmed in the following buffer memory addresses.

If the value within the address is incremented regularly, this indicates that the line status may be unstable. However, as this may lead to a minor token passing-leave error, this does not necessary result in a full token passing-leave error. Therefore, in this situation it is best to take the solutions as explained in item 3 in order to stop the count-up

Buffer memory address	Name	Description
AFC$_H$ to AFD$_H$	Token retransmit count	Indicates the cumulative frequency that token was retransmitted.
B04$_H$ to B05$_H$	Token hold timeout count	Indicates the cumulative frequency that timeout of the token hold timeout time (value that is not greater than the token monitoring timeout time) was detected.
B06$_H$ to B07$_H$	Token monitoring timeout count	Indicates the cumulative frequency that timeout of the token monitoring time was detected.

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3. Solutions

The following provides solutions when the integrity of the network line is affected.

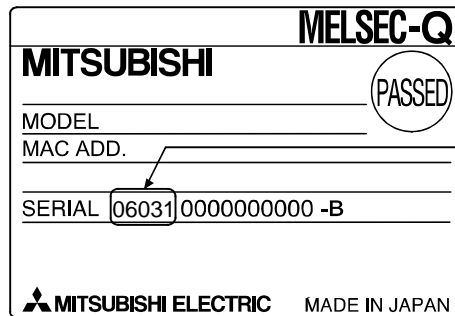| Solutions	Communication cable		
	10BASE5	10BASE2	10BASE-T
Check the wiring of communication cable (poor contact, etc.).	○	○	○
Securely ground the communication cable shield.	○	○	○ When STP cable [*1] is used.
Securely ground the hub power supply, when hub is used.	-	-	○
Install the communication cable apart from the main circuit or power cable.	○	○	○
Replace a UTP cable [*2] with a STP cable, if it the cable is used. Also, use the hub for STP cable.	-	-	○

*1: Shielded twisted pair cable
*2: Unshielded twisted pair

4. Others

The FL-net interface module with the serial No. (first 5 digits) 06031 or later has been improved so that it will not leave the token passing easily.

The serial No. of MELSEC-Q series FL-net interface module is located on the rating plate at the side of the module.

Serial No. (first 5 digits) 06031 or later

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