TECHNICAL BULLETIN

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[Title] Programmable controller stop due to WDT error caused by incorrect Ethernet network configuration

[Date of Issue] March 2011

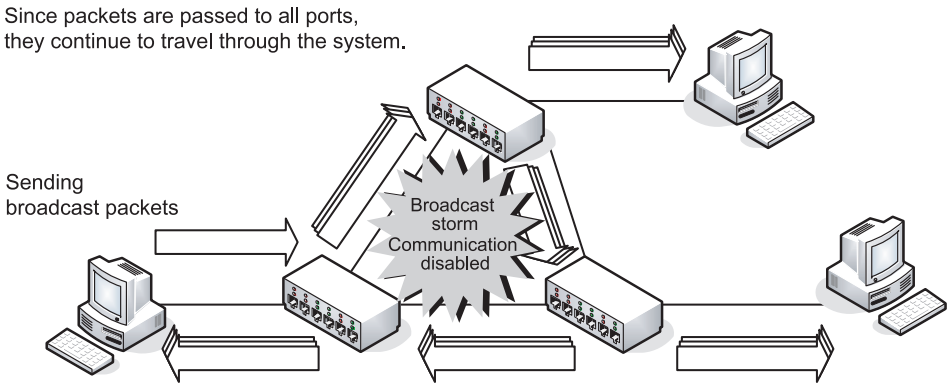
[Relevant Models] Q03UDECPU, Q04UDEHCPU, Q06UDEHCPU, Q10UDEHCPU, Q13UDEHCPU, Q20UDEHCPU, Q26UDEHCPU, Q50UDEHCPU, Q100UDEHCPU

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

Please note if an Ethernet network using a Built-in Ethernet port QCPU (hereinafter referred to as QnUDE(H)CPU) is incorrectly configured, the programmable controller may stop its operation.

1. Cause

If an Ethernet network is configured into a loop as shown below, broadcast packets are accumulated in the band, and the communication is disabled. Therefore, do not configure the Ethernet network into a loop.



The following describes how the Ethernet communication is disabled.

If a loop is formed as shown in the figure, broadcast packets are passed to all ports and continue to travel through the system. As a result, the packets are accumulated in the band, and the communication is disabled (referred to as a broadcast storm). The broadcast packets are frequently sent from personal computers as well as sent from the programmable controller. Therefore, configuring an Ethernet network into a loop will cause a broadcast storm, resulting in communication failure.

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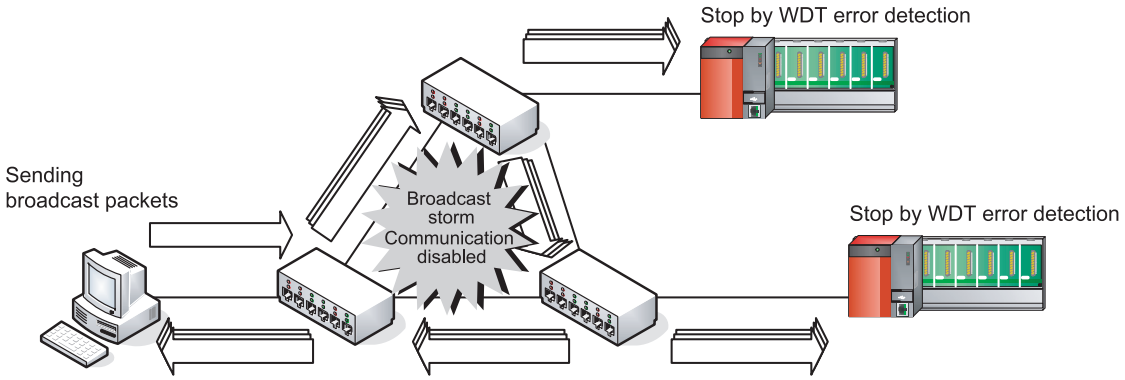
1.1 Programmable controller operation if an Ethernet network is incorrectly configured

To ensure the system safety even if an Ethernet network is incorrectly configured, the QnUDE(H)CPU has the following functions:

- The QnUDE(H)CPU monitors the increase of scan time caused by excessive communication processing, detects a WDT error (error code: 5001), and stops the programmable controller operation.
- When multiple QnUDE(H)CPUs are wired, each QnUDE(H)CPU detects a WDT error and stops the programmable controller operation.



2. Action if the programmable controller stops

If the QnUDE(H)CPU detects a WDT error caused by incorrect network configuration (loop topology) and stops the programmable controller operation, perform the following:

(1) Check that the Ethernet network is correctly configured.
(2) Power off and on or reset all of the QnUDE(H)CPUs.

3. Specification change of the QnUDE(H)CPU

The QnUDE(H)CPU, whose serial number (first five digits) is "12052" or later, has the function that limits the scan time increase caused by excessive communication processing. This function is added for communication using the public line (Internet) to avoid frequent stops of the programming controller due to excessive packet reception. Therefore, the CPU module does not detect WDT errors, and the programmable controller keeps operating even if the network is configured into a loop, and a broadcast storm occurs.

To configure the system that will give a warning or stop the programmable controller if a broadcast storm occurs, use the special register in the table below.

Number	Name	Description
SD1395	Number of incomplete read processes at receive buffer full error	• This register stores the number of incomplete packet read processes when receive buffer full error occurs due to excessive packet reception.*1 • The value is cleared by clicking the "Clear Line Status" button in the "Ethernet diagnosis" dialog box of GX Works2 or GX Developer. Count range: 0 to 65535 ($FFFF_H$)

*1 If excessive communication processing continues due to excessive packet reception, the stored value might differ from the actual number of the packets that are not read.

The serial number of the QnUDE(H)CPU is shown on:

- The serial number display on the front of the module (lower part)
- The rating plate on the side of the module
- The label on the package
- The "System Monitor" dialog box ("Product Information List" dialog box) of GX Works2 or GX Developer