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.

If the equipment is used in a manner not specified by the manufacturer, the protection provided by the equipment may be impaired.

The precautions given in this manual are concerned with this product only. For the safety precautions of the programmable controller system, refer to the MELSEC iQ-R Module Configuration Manual.

In this manual, the safety precautions are classified into two levels: "⚠️ WARNING" and "⚠️ CAUTION".

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

⚠️ CAUTION
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]

- Configure safety circuits external to the programmable controller to ensure that the entire system operates safely even when a fault occurs in the external power supply or the programmable controller. Failure to do so may result in an accident due to an incorrect output or malfunction.

1. Emergency stop circuits, protection circuits, and protective interlock circuits for conflicting operations (such as forward/reverse rotations or upper/lower limit positioning) must be configured external to the programmable controller.

2. When the programmable controller detects an abnormal condition, it stops the operation and all outputs are:
   - Turned off if the overcurrent or overvoltage protection of the power supply module is activated.
   - Held or turned off according to the parameter setting if the self-diagnostic function of the CPU module detects an error such as a watchdog timer error.

3. All outputs may be turned on if an error occurs in a part, such as an I/O control part, where the CPU module cannot detect any error. To ensure safety operation in such a case, provide a safety mechanism or a fail-safe circuit external to the programmable controller. For a fail-safe circuit example, refer to "General Safety Requirements" in the MELSEC iQ-R Module Configuration Manual.

4. Outputs may remain on or off due to a failure of a component such as a relay and transistor in an output circuit. Configure an external circuit for monitoring output signals that could cause a serious accident.

- In an output circuit, when a load current exceeding the rated current or an overcurrent caused by a load short-circuit flows for a long time, it may cause smoke and fire. To prevent this, configure an external safety circuit, such as a fuse.

- Configure a circuit so that the programmable controller is turned on first and then the external power supply. If the external power supply is turned on first, an accident may occur due to an incorrect output or malfunction.

- For the operating status of each station after a communication failure, refer to the troubleshooting in this manual. Incorrect output or malfunction due to a communication failure may result in an accident.

- When connecting an external device with a CPU module or intelligent function module to modify data of a running programmable controller, configure an interlock circuit in the program to ensure that the entire system will always operate safely. For other forms of control (such as program modification, parameter change, forced output, or operating status change) of a running programmable controller, read the relevant manuals carefully and ensure that the operation is safe before proceeding. Improper operation may damage machines or cause accidents.
[Design Precautions]

⚠️ WARNING ⚠️

- 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 program, and determine corrective actions to be taken between the external device and CPU module in case of a communication failure.

- Do not write any data to the "system area" and "write-protect area" of the buffer memory in the module. Also, do not use any "use prohibited" signals as an output signal from the CPU module to each module. Doing so may cause malfunction of the programmable controller system. For the "system area", "write-protect area", and the "use prohibited" signals, refer to the user's manual for the module used.

- If a communication cable is disconnected, the network may be unstable, resulting in a communication failure of multiple stations. Configure an interlock circuit in the program to ensure that the entire system will always operate safely even if communications fail. Incorrect output or malfunction due to a communication failure may result in an accident.

- To maintain the safety of the programmable controller system against unauthorized access from external devices via the network, take appropriate measures. To maintain the safety against unauthorized access via the Internet, take measures such as installing a firewall.

[Design Precautions]

⚠️ CAUTION ⚠️

- Do not install the control lines or communication cables together with the main circuit lines or power cables. Doing so may result in malfunction due to electromagnetic interference. Keep a distance of 100mm or more between those cables.

- During control of an inductive load such as a lamp, heater, or solenoid valve, a large current (approximately ten times greater than normal) may flow when the output is turned from off to on. Therefore, use a module that has a sufficient current rating.

- After the CPU module is powered on or is reset, the time taken to enter the RUN status varies depending on the system configuration, parameter settings, and/or program size. Design circuits so that the entire system will always operate safely, regardless of the time.

- Do not power off the programmable controller or reset the CPU module while the settings are being written. Doing so will make the data in the flash ROM and SD memory card undefined. The values need to be set in the buffer memory and written to the flash ROM and SD memory card again. Doing so also may cause malfunction or failure of the module.

[Security Precautions]

⚠️ WARNING ⚠️

- To maintain the security (confidentiality, integrity, and availability) of the programmable controller and the system against unauthorized access, denial-of-service (DoS) attacks, computer viruses, and other cyberattacks from external devices via the network, take appropriate measures such as firewalls, virtual private networks (VPNs), and antivirus solutions.
[Installation Precautions]

⚠️ WARNING

● 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 electric shock or cause the module to fail or malfunction.

[Installation Precautions]

⚠️ CAUTION

● Use the programmable controller in an environment that meets the general specifications in the Safety Guidelines included with the base unit. Failure to do so may result in electric shock, fire, malfunction, or damage to or deterioration of the product.

● To mount a module, place the concave part(s) located at the bottom onto the guide(s) of the base unit, and push in the module until the hook(s) located at the top snaps into place. Incorrect interconnection may cause malfunction, failure, or drop of the module.

● To mount a module with no module fixing hook, place the concave part(s) located at the bottom onto the guide(s) of the base unit, push in the module, and fix it with screw(s). Incorrect interconnection 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.

● When using an extension cable, connect it to the extension cable connector of the base unit securely. Check the connection for looseness. Poor contact may cause malfunction.

● When using an SD memory card, fully insert it into the SD memory card slot. Check that it is inserted completely. Poor contact may cause malfunction.

● Securely insert an extended SRAM cassette or a battery-less option cassette into the cassette connector of the CPU module. After insertion, close the cassette cover and check that the cassette is inserted completely. Poor contact may cause malfunction.

● Do not directly touch any conductive parts and electronic components of the module, SD memory card, extended SRAM cassette, battery-less option cassette, or connector. 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 cause the module to fail or malfunction.

● After installation and wiring, attach a blank cover module (RG60) to each empty slot before powering on the system for operation. Also, attach an extension connector protective cover*1 to each unused extension cable connector as necessary. Directly touching any conductive parts of the connectors while power is on may result in electric shock.

*1 For details, please consult your local Mitsubishi Electric representative.
CAUTION

- Individually ground the FG and LG terminals of the programmable controller with a ground resistance of 100 ohms or less. Failure to do so may result in electric shock or malfunction.
- Use applicable solderless terminals and tighten them within the specified torque range. If any spade solderless terminal is used, it may be disconnected when the terminal screw comes loose, resulting in failure.
- Check the rated voltage and signal layout before wiring to the module, and connect the cables correctly. Connecting a power supply with a different voltage rating or incorrect wiring may cause fire or failure.
- Connectors for external devices and connectors for coaxial cables must be crimped or pressed with the tool specified by the manufacturer, or must be correctly soldered. Incomplete connections may cause short circuit, fire, or malfunction.
- Securely connect the connector to the module. Poor contact may cause malfunction.
- 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.
- Place the cables in a duct or clamp them. If not, dangling cables may swing or inadvertently be pulled, resulting in malfunction or damage to modules or cables.
- In addition, the weight of the cables may put stress on modules in an environment of strong vibrations and shocks.
- Do not clamp the extension cables with the jacket stripped. Doing so may change the characteristics of the cables, resulting in malfunction.
- Check the interface type and correctly connect the cable. Incorrect wiring (connecting the cable to an incorrect interface) may cause failure of the module and external device.
- Tighten the terminal screws or connector screws within the specified torque range. Undertightening can cause drop of the screw, short circuit, fire, or malfunction. Overtightening can damage the screw and/or module, resulting in drop, short circuit, fire, or malfunction.
- Properly solder the parts of a soldering-type coaxial cable connector. Incomplete soldering may result in malfunction.
- Crimp the parts of a crimping-type coaxial cable connector with proper force at a proper position. Failure to do so may cause drop of the cable or malfunction.
- When disconnecting the cable from the module, do not pull the cable by the cable part. For the cable with connector, hold the connector part of the cable. For the cable connected to the terminal block, loosen the terminal screw. Pulling the cable connected to the module may result in malfunction or damage to the module or cable.
- Prevent foreign matter such as dust or wire chips from entering the module. Such foreign matter can cause a fire, failure, or malfunction.
- When a protective film is attached to the top of the module, remove it before system operation. If not, inadequate heat dissipation of the module may cause a fire, failure, or malfunction.
[Wiring Precautions]

⚠️ CAUTION

● Programmable controllers must be installed in control panels. Connect the main power supply to the power supply module in the control panel through a relay terminal block. Wiring and replacement of a power supply module must be performed by qualified maintenance personnel with knowledge of protection against electric shock. For wiring, refer to the MELSEC iQ-R Module Configuration Manual.

● For Ethernet cables to be used in the system, select the ones that meet the specifications in the user’s manual for the module used. If not, normal data transmission is not guaranteed.

● For optical fiber cables and coaxial cables to be used in the system, select the ones that meet the specifications in the MELSEC iQ-R MELSECNET/H Network Module User’s Manual (Startup). If not, normal data transmission is not guaranteed.

[Startup and Maintenance Precautions]

⚠️ WARNING

● Do not touch any terminal while power is on. Doing so will cause electric shock or malfunction.

● Shut off the external power supply (all phases) used in the system before cleaning the module or retightening the terminal screws, connector screws, or module fixing screws. Failure to do so may result in electric shock.
[Startup and Maintenance Precautions]

⚠️ CAUTION ⬆️

● When connecting an external device with a CPU module or intelligent function module to modify data of a running programmable controller, configure an interlock circuit in the program to ensure that the entire system will always operate safely. For other forms of control (such as program modification, parameter change, forced output, or operating status change) of a running programmable controller, read the relevant manuals carefully and ensure that the operation is safe before proceeding. Improper operation may damage machines or cause accidents.

● 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 program, and determine corrective actions to be taken between the external device and CPU module in case of a communication failure.

● Do not disassemble or modify the modules. Doing so may cause failure, malfunction, injury, or a fire.

● 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.

● Tighten the screws within the specified torque range. Undertightening can cause drop of the component or wire, short circuit, or malfunction. Overtightening can damage the screw and/or module, resulting in drop, short circuit, or malfunction.

● After the first use of the product, do not perform each of the following operations more than 50 times (IEC 61131-2/JIS B 3502 compliant). Exceeding the limit may cause malfunction.
   - Mounting/removing the module to/from the base unit
   - Inserting/removing the extended SRAM cassette or battery-less option cassette to/from the CPU module
   - Mounting/removing the terminal block to/from the module

● After the first use of the product, do not insert/remove the SD memory card to/from the CPU module more than 500 times. Exceeding the limit may cause malfunction.

● Do not touch the metal terminals on the back side of the SD memory card. Doing so may cause malfunction or failure of the module.

● Do not touch the integrated circuits on the circuit board of an extended SRAM cassette or a battery-less option cassette. Doing so may cause malfunction or failure of the module.

● Startup and maintenance of a control panel must be performed by qualified maintenance personnel with knowledge of protection against electric shock. Lock the control panel so that only qualified maintenance personnel can operate it.

● Before handling the module, touch a conducting object such as a grounded metal to discharge the static electricity from the human body. Wearing a grounded antistatic wrist strap is recommended. Failure to discharge the static electricity may cause the module to fail or malfunction.

● After unpacking, eliminate static electricity from the module to prevent electrostatic discharge from affecting the module. If an electrostatically charged module comes in contact with a grounded metal object, a sudden electrostatic discharge of the module may cause failure. For details on how to eliminate static electricity from the module, refer to the following.

   Antistatic Precautions Before Using MELSEC iQ-R Series Products (FA-A-0368)
[Operating Precautions]

⚠ CAUTION
● When changing data and operating status, and modifying program of the running programmable controller from an external device such as a personal computer connected to an intelligent function module, read relevant manuals carefully and ensure the safety before operation. Incorrect change or modification may cause system malfunction, damage to the machines, or accidents.

[Disposal Precautions]

⚠ CAUTION
● When disposing of this product, treat it as industrial waste.

[Transportation Precautions]

⚠ CAUTION
● The halogens (such as fluorine, chlorine, bromine, and iodine), which are contained in a fumigant used for disinfection and pest control of wood packaging materials, may cause failure of the product. Prevent the entry of fumigant residues into the product or consider other methods (such as heat treatment) instead of fumigation. The disinfection and pest control measures must be applied to unprocessed raw wood.
CONDITIONS OF USE FOR THE PRODUCT

(1) MELSEC 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 ELECTRIC 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 ELECTRIC USER'S, 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 Electric 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 Electric 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 Electric representative in your region.

(3) Mitsubishi Electric shall have no responsibility or liability for any problems involving programmable controller trouble and system trouble caused by DoS attacks, unauthorized access, computer viruses, and other cyberattacks.
INTRODUCTION

Thank you for purchasing the Mitsubishi Electric MELSEC iQ-R series programmable controllers.
This manual describes the functions, programming, and troubleshooting of the relevant product listed below.
Before using this product, please read this manual and the relevant manuals carefully and develop familiarity with the
functions and performance of the MELSEC iQ-R series programmable controller to handle the product correctly.
Note that the menu names and operating procedures may differ depending on an operating system in use and its version.
When reading this manual, replace the names and procedures with the applicable ones as necessary.
When applying the program examples provided in this manual to an actual system, ensure the applicability and confirm that it
will not cause system control problems.
Please make sure that the end users read this manual.

Relevant product

RJ71LP21-25
RJ71BR11
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e-Manual refers to the Mitsubishi Electric FA electronic book manuals that can be browsed using a dedicated tool.

e-Manual has the following features:
- Required information can be cross-searched in multiple manuals.
- Other manuals can be accessed from the links in the manual.
- The hardware specifications of each part can be found from the product figures.
- Pages that users often browse can be bookmarked.
- Sample programs can be copied to an engineering tool.
**TERMS**

Unless otherwise specified, this manual uses the following terms.

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<th>Term</th>
<th>Description</th>
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<tr>
<td>Baton pass</td>
<td>A data transmission method by which transmission right (token) is passed around the network.</td>
</tr>
<tr>
<td>Buffer memory</td>
<td>Memory in an intelligent function module to store data such as setting values and monitor values. For CPU modules, it refers to memory to store data such as setting values and monitor values of the Ethernet function, or data used for data communication of the multiple CPU system function.</td>
</tr>
<tr>
<td>Coaxial bus system</td>
<td>A network system used for the RJ71BR11</td>
</tr>
<tr>
<td>Control CPU</td>
<td>A CPU module that controls connected I/O modules and intelligent function modules. In a multiple CPU system, a control CPU module can be set for each module.</td>
</tr>
<tr>
<td>Control station shift time</td>
<td>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.</td>
</tr>
<tr>
<td>Control system</td>
<td>A system that controls a redundant system and performs network communications in a redundant system</td>
</tr>
<tr>
<td>Cyclic transmission</td>
<td>A function by which data are periodically exchanged among stations on the same network using link devices</td>
</tr>
<tr>
<td>Dedicated instruction</td>
<td>An instruction that simplifies programming for using functions of intelligent function modules</td>
</tr>
<tr>
<td>Device</td>
<td>A memory of a CPU module to store data. Devices such as X, Y, M, D, and others are provided depending on the intended use.</td>
</tr>
<tr>
<td>Engineering tool</td>
<td>A tool used for setting up programmable controllers, programming, debugging, and maintenance</td>
</tr>
<tr>
<td>Global label</td>
<td>A label that is valid for all the program data when multiple program data are created in the project. There are two types of global label: a module specific label (module label), which is generated automatically by GX Works3, and an optional label, which can be created for any specified device.</td>
</tr>
<tr>
<td>Group number</td>
<td>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.</td>
</tr>
<tr>
<td>Intelligent function module</td>
<td>A module that has functions other than an input or output, such as an A/D converter module and D/A converter module</td>
</tr>
<tr>
<td>Link device</td>
<td>A device (LB, LW, LX, LY, SB, or SW) in a MELSECNET/H network module</td>
</tr>
<tr>
<td>Link refresh</td>
<td>Processing of data transfer between link devices of the network module and CPU module devices. Link refresh is performed in &quot;END processing&quot; of the sequence scan of the CPU module.</td>
</tr>
<tr>
<td>Link scan (link scan time)</td>
<td>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.</td>
</tr>
<tr>
<td>Logical channel</td>
<td>Eight input channels that can be changed by using a program. The channel number can be specified from 1 to 64 by changing the values in the link special register. This channel number is used to receive only the messages selected on the receiving station when they have a lot of information types. The sending station is equivalent to a broadcasting station, which sends messages to logical channels. The receiving station is equivalent to a TV receiver in household, which receives the messages in the required logical channels by switching channels.</td>
</tr>
<tr>
<td>MELSECNET/10 mode</td>
<td>Mode that the MELSECNET/H network module operates on the MELSECNET/10 network</td>
</tr>
<tr>
<td>MELSECNET/H extended mode</td>
<td>A mode in which the maximum number of link points per station in MELSECNET/H mode is extended. Values exceeding 2000 bytes to maximum 35840 bytes can be set. Set this mode for a system that uses a large number of link points per station.</td>
</tr>
<tr>
<td>MELSECNET/H mode</td>
<td>Mode that the MELSECNET/H network module operates on the MELSECNET/H network</td>
</tr>
<tr>
<td>Module label</td>
<td>A label that represents one of memory areas (I/O signals and buffer memory areas) specific to each module in a given character string. For the module used, GX Works3 automatically generates this label, which can be used as a global label.</td>
</tr>
<tr>
<td>Multiple CPU system</td>
<td>A system where two to four CPU modules separately control I/O modules and intelligent function modules</td>
</tr>
<tr>
<td>Normal station</td>
<td>A station that performs cyclic transmission and transient transmission with the control station and other normal stations</td>
</tr>
<tr>
<td>Optical loop system</td>
<td>A network system used for the RJ71LP21-25</td>
</tr>
<tr>
<td>Process CPU (redundant mode)</td>
<td>A Process CPU operating in redundant mode. A redundant system is configured with this CPU module. Process control function blocks and the online module change function can be used even in this mode.</td>
</tr>
<tr>
<td>Redundant system</td>
<td>A system consisting of two systems that have same configuration (CPU module, power supply module, network module, and other modules). Even after an error occurs in one of the two system, the other system takes over the control of the entire system.</td>
</tr>
<tr>
<td>Relay station</td>
<td>A station in which multiple network modules are mounted on one programmable controller to relay data link to other stations</td>
</tr>
<tr>
<td>Reserved station</td>
<td>A station reserved for future use. This station is not actually connected, but counted as a connected station.</td>
</tr>
<tr>
<td>Standby system</td>
<td>A backup system in a redundant system</td>
</tr>
<tr>
<td>System A</td>
<td>A system that is set as system A to distinguish two systems in a redundant system. It is used to distinguish connected two systems (system A and system B).</td>
</tr>
<tr>
<td>Term</td>
<td>Description</td>
</tr>
<tr>
<td>-----------------------------</td>
<td>-----------------------------------------------------------------------------</td>
</tr>
<tr>
<td>System B</td>
<td>A system that is set as system B to distinguish two systems in a redundant system. It is used to distinguish connected two systems (system A and system B).</td>
</tr>
<tr>
<td>System switching</td>
<td>A function which switches the systems between the control system and the standby system to continue operation of the redundant system when a failure or an error occurs in the control system.</td>
</tr>
<tr>
<td>Tracking cable</td>
<td>An optical fiber cable used to connect two redundant function modules in a redundant system.</td>
</tr>
<tr>
<td>Transient transmission</td>
<td>A function of communication with another station, which is used when requested by a dedicated instruction or the engineering tool.</td>
</tr>
</tbody>
</table>

**GENERIC TERMS AND ABBREVIATIONS**

Unless otherwise specified, this manual uses the following generic terms and abbreviations.

<table>
<thead>
<tr>
<th>Generic term/abbreviation</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Common parameter</td>
<td>A generic term for module parameters for the following settings</td>
</tr>
<tr>
<td></td>
<td>• Network range assignment setting</td>
</tr>
<tr>
<td></td>
<td>• Supplementary cyclic setting</td>
</tr>
<tr>
<td>MELSECNET/H network module</td>
<td>A generic term for the following modules:</td>
</tr>
<tr>
<td></td>
<td>• RJ71LP21-25</td>
</tr>
<tr>
<td></td>
<td>• RJ71BR11</td>
</tr>
<tr>
<td>Network module</td>
<td>A generic term for the following modules:</td>
</tr>
<tr>
<td></td>
<td>• Ethernet interface module</td>
</tr>
<tr>
<td></td>
<td>• A module on CC-Link IE TSN (the RJ71GN11-T2 and a module on a remote station)</td>
</tr>
<tr>
<td></td>
<td>• CC-Link IE Controller Network module</td>
</tr>
<tr>
<td></td>
<td>• A module on CC-Link IE Field Network (a master/local module, and a module on a remote I/O station, a remote device station, and an intelligent device station)</td>
</tr>
<tr>
<td></td>
<td>• MELSECNET/H network module</td>
</tr>
<tr>
<td></td>
<td>• MELSECNET/10 network module</td>
</tr>
<tr>
<td></td>
<td>• RnENCPU (network part)</td>
</tr>
<tr>
<td>Network parameter</td>
<td>Another name for module parameters</td>
</tr>
<tr>
<td>Unique parameter</td>
<td>A generic term for module parameters other than common parameters</td>
</tr>
</tbody>
</table>
1 FUNCTIONS

1.1 Cyclic Transmission Function

Cyclic transmission

This function allows data to be periodically exchanged among stations on the same network using link devices.

Communications using LB and LW

This function writes data on the link device (LB, LW) of the MELSECNET/H network module and sends the data to all stations connected in the same network.

The status data of the link devices (LB, LW) of the control station are stored in the link devices (LB, LW) of each normal station. The status data of the link devices (LB, LW) of normal stations are stored in the link devices (LB, LW) of the control station and the link devices (LB, LW) of other normal stations.

Setting method

Assign the link devices under "Network Range Assignment" in "Required Settings". (Page 56 Network Range Assignment)

Link refresh can be set under "Link Refresh Settings" in "Basic Settings". (Page 62 Link Refresh Settings)
Communications using LX and LY

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

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. 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.

The status data of the link output (LY) of the I/O master station is output to the link input (LX) of another station, and the status data of the link output (LY) of another station is stored in the link input (LX) of the I/O master station.

1. Control station (station No.1)
2. Normal station (station No.2)
3. Normal station (station No.3)
4. Normal station (station No.4)

Station No.2 → Station No.3 → Station No.4: Send range to stations No.2, No.3, and No.4
← Station No.2, ← Station No.3, ← Station No.4: Send range from stations No.2, No.3, and No.4

• Output from the I/O master station
  1. The device is turned on by the sequence scan of the CPU module.
  2. The status data of the CPU module are stored in the link output (LY) of the I/O master station by link refresh.
  3. The status data of the link output (LY) of the I/O master station are stored in the link input (LX) of another station by link scan.
  4. The status data of the link input (LX) of another station are stored in the device of the CPU module by link refresh.

• Input from another station
  1. The device is turned on by the sequence scan of the CPU module.
  2. The status data of the CPU module are stored in the link output (LY) of another station by link refresh.
  3. The status data of the link output (LY) of another station are stored in the link input (LX) of the I/O master station by link scan.
  4. The status data of the link input (LX) of the I/O master station are stored in the device of the CPU module by link refresh.
Setting method
Assign the link devices under "Network Range Assignment" in "Required Settings". (Page 56 Network Range Assignment)
The link refresh is assigned under "Link Refresh Settings" in "Basic Settings". (Page 62 Link Refresh Settings)

- Any station can be set as the I/O master station regardless of the station type of the control station or normal station.
- The setting range of X and Y for LX and LY communication is the device range after the actual I/O of the own station (1000 or greater is recommended for X/Y). When using multiple network modules (CC-Link IE TSN, CC-Link IE Controller Network, CC-Link IE Field Network, MELSECNET/H, and CC-Link) or when using two I/O master stations, assign the device ranges so that they do not overlap.
Low speed cyclic transmission

The low speed cyclic transmission function collectively sends the data that does not require high-speed performance to another station by link devices (LB, LW) to share the data between modules. It has the same performance as the transient transmission function. (Page 34 Transient Transmission Function) The number of transmissions per station during one link scan is one. When data is simultaneously sent from multiple stations, a link scan time of at least the number of sending stations is required.

Setting the send range

Assign the send range of link devices (low speed LB, low speed LW) at each station to the extended function area (2000H to 3FFFH) in units of 16 points for LB and in units of 1 point for LW. The send range that is not in station number order can be also assigned for each station. There are no device numbers that can be assigned to the device (B, W) of the CPU module corresponding to the extended function area.

- When using 32-bit data, set the number of send points and send range so that the execution condition of 32-bit data assurance is satisfied. (Page 30 32-bit data assurance)
- The number of device points (B, W) for the CPU module can be changed by the CPU parameter. (MELSEC iQ-R CPU Module User’s Manual (Application))
- The link device for the extended function area (2000H to 3FFFH) is also used for normal cyclic transmission. (When using 8193 or more link devices for normal cyclic transmission) For link devices for low speed cyclic transmission, use link devices in the extended function area that is not used for normal cyclic transmission.
- The total send range per station for low speed cyclic transmission should be 2000 bytes or less. (The send range of normal cyclic transmission is not included.)
- The link devices for low speed cyclic transmission are only LB and LW.
Sending timing

Low speed cyclic transmission is performed separately from normal cyclic transmission. This section describes the sending method setting, send processing interval, and link cycle for low speed cyclic transmission. The following indicates the sending method.

<table>
<thead>
<tr>
<th>Sending method</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Transmit Data of One Station in 1 Scan.</td>
<td>Sends low speed cyclic data for one station maximum during one link scan of normal cyclic transmission.</td>
</tr>
<tr>
<td>Fixed Interval Cycle Setting</td>
<td>Sends low speed cyclic data in the link cycle of the specified time period.*1</td>
</tr>
<tr>
<td>System Timer Setting</td>
<td>Sends low speed cyclic data in the link cycle of the specified time.*1</td>
</tr>
</tbody>
</table>

*1 The maximum number of stations that can be sent during one link scan of normal cyclic transmission varies depending on the "Maximum No. of Transient Transmissions" setting.

Send processing interval

The following system configuration examples are used for explanation.

<table>
<thead>
<tr>
<th>(1)</th>
<th>(2)</th>
<th>(3)</th>
<th>(4)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

(1) Control station (station No.1)
(2) Normal station (station No.2)
(3) Normal station (station No.3)
(4) Normal station (station No.4)

Ex

For "Transmit Data of One Station in 1 Scan.", "Fixed Interval Cycle Setting (Maximum No. of Transient Transmissions: 1)" and "System Timer Setting (Maximum No. of Transient Transmissions: 1)"

(1) Normal link scan
(2) Send processing interval
For "Fixed Interval Cycle Setting (Maximum No. of Transient Transmissions: 2)" and "System Timer Setting (Maximum No. of Transient Transmissions: 2)"

**Link cycle**
The following shows the link cycle of low speed cyclic transmission.

- For "Transmit Data of One Station in 1 Scan."

- For "Fixed Interval Cycle Setting"

- For "System Timer Setting"
**Setting method**

- **For "Transmit Data of One Station in 1 Scan."**
  1. Select "Transmit Data of One Station in 1 Scan." in "Low Speed Cycle Setting" under "Supplementary Cyclic Settings" in "Application Settings".
  2. Click the [Apply] button to finish the settings.

  The fastest link scan time of low speed cyclic transmission is calculated as follows:
  \[ LSL = LS \times \text{the number of stations} + LS = LS \times (\text{the number of stations} + 1) \]
  
  - LSL: The fastest link scan time of low speed cyclic transmission
  - LS: Normal link scan time

- **For "Fixed Interval Cycle Setting"**
  1. Select "Fixed Interval Cycle Setting" in "Low Speed Cycle Setting" under "Supplementary Cyclic Settings" in "Application Settings".
  2. Set the setting value for "Fixed Interval Cycle Setting".
  3. Click the [Apply] button to finish the settings.

- **For "System Timer Setting"**
  1. Select "System Timer Setting" in "Low Speed Cycle Setting" under "Supplementary Cyclic Settings" in "Application Settings".
  2. Set the specified time.
  3. Click the [Apply] button to finish the settings.

  - The system timer operates based on the clock of the own station. If the time is not synchronized between the sending station and receiving station, the time may lag between stations.
  - When handling multiple data without station-based block data assurance, new data and old data may be mixed. Therefore, configure an interlock. (Page 80 Precautions for Programming)
Link refresh

Link refresh is a process of transferring data between a link device used for cyclic transmission and a device in a CPU module. Link refresh is automatically performed at program END processing.

Concept of the link refresh range (number of points)
The area range set under "Link Refresh Settings" in "Basic Settings" and also specified under "Network Range Assignment" in "Required Settings" is executed by link refresh.

Shortening the link refresh time
This function reduces the number of the link refresh points to the CPU module, resulting in a shorter link refresh time. The following methods can be used to reduce the number of the link refresh points.

• Set only the link devices used in the CPU module as the link refresh range in "Link Refresh Setting" under "Basic Settings". (Page 62 Link Refresh Settings)
• Directly access infrequently used link devices from the program, and remove the corresponding settings from the link refresh range. (Page 26 Direct access to link devices)

Setting method
The link refresh is assigned under "Link Refresh Settings" in "Basic Settings". (Page 62 Link Refresh Settings)

Precautions

Latched devices of the CPU module
If data in latched devices of the CPU module are cleared to zero on a program when the CPU module is turned off and on or reset, the data may be output without being cleared to zero, depending on the timing of the link scan and link refresh. Execute the actions listed in the table below to disable the data in the latched devices of the CPU module.

<table>
<thead>
<tr>
<th>CPU module device</th>
<th>How to disable the setting</th>
</tr>
</thead>
<tbody>
<tr>
<td>Latch relay (L), file register (R, ZR)</td>
<td>Use the initial device value of the CPU module to clear the device to zero.*1</td>
</tr>
<tr>
<td>CPU module device within the latch range</td>
<td>Delete all the latch range settings specified in &quot;Latch Interval Operation Setting&quot; under &quot;Device Latch Interval Setting&quot; in &quot;Memory/Device Setting&quot; of &quot;CPU Parameter&quot;.</td>
</tr>
</tbody>
</table>

*1 For the initial device value setting of the CPU module, refer to the following. GX Works3 Operating Manual
Link refresh by COM instruction

Link refresh can be executed at the timing of the COM instruction execution instead of at the timing of the END processing. For details, refer to the following.

MELSEC iQ-R Programming Manual (CPU Module Instructions, Standard Functions/Function Blocks)
Direct access to link devices

This function allows direct access to the link devices of the MELSECNET/H network module from the program. Specify a link device (LB, LW, LX, LY, SB, SW) as the link direct device (J☐☐) for direct access.

**Specification method**

Specify the network number and the link device of the MELSECNET/H network module for reading or writing.

J☐☐☐

(1) Network number: 1 to 239
(2) Link device
Link relay (LB): B0 to B3FFF
Link register (LW): W0 to W3FFF
Link input (LX): X0 to X1FFF
Link output (LY): Y0 to Y1FFF
Link special relay (SB): SB0 to SB1FF
Link special register (SW): SW0 to SW1FF

**Ex.**

- **Send request**
  - J1\B100
  - MOV K20 J1\W100
  - J1\W200 K300

- **Output instruction**
  - J1\Y1000

**Diagram**

- Control station (station No.1)
- Normal station (station No.2)

**Network No.1**

---

26 1 FUNCTIONS
1.1 Cyclic Transmission Function
**Readable and writable range**

Data can be read or written between the MELSECNET/H network module and CPU module mounted on the same base unit.

**Read**

All link devices of the MELSECNET/H network module can be specified. (Page 26 Specification method)

**Write**

The range that satisfies all of the following conditions can be specified.

- Area where data is sent to other stations and outside the link refresh range (Page 17 Cyclic Transmission Function)
- Within the link device range of the MELSECNET/H network module (Page 26 Specification method)

![Diagram of readable and writable range](image)

1. Out of the link refresh range
2. Area where data is sent to other stations
3. Area for receiving the data from other stations
When writing data to the area in the link refresh range, directly access the link device and write the same data in the device of the CPU module.

- **Bad example** (Only direct access to the link refresh target)
  Link refresh overwrites the value.

- **Good example** (In addition to direct access, writing the same data to the device of the CPU module)
  The value written by direct access is reflected.
Differences from link refresh

<table>
<thead>
<tr>
<th>Item</th>
<th>Access method</th>
<th>Link refresh</th>
<th>Direct access</th>
</tr>
</thead>
<tbody>
<tr>
<td>Number of steps</td>
<td>1 step</td>
<td>2 steps</td>
<td></td>
</tr>
<tr>
<td>Processing speed (^1)</td>
<td>High speed</td>
<td>Low speed</td>
<td></td>
</tr>
<tr>
<td>Cyclic data assurance</td>
<td>Available</td>
<td>Not available</td>
<td></td>
</tr>
</tbody>
</table>

\(^1\) For actual values, refer to the following.
MELSEC iQ-R Programming Manual (Module Dedicated Instructions)

**Shortening the link refresh time and transmission delay time**

**Shortening the link refresh time**
Remove infrequently used link devices from the link refresh range, and directly read or write the corresponding data using link direct devices. This function reduces the number of the link refresh points to the CPU module, resulting in a shorter link refresh time. ([Page 24 Link refresh])

**Shortening the transmission delay time**
Because the link direct device allows direct reading or writing of data to the link devices of the MELSECNET/H network module at the time of the instruction execution, the transmission delay time can be shortened.

*Point*
Link refresh is executed in END processing of the sequence scan of the CPU module.

**Precautions**

**Cyclic data assurance**
Direct access to link devices does not provide station-based block data assurance. Use 32-bit data assurance, or if cyclic data of more than 32 bits needs to be assured, use interlock programs. ([Page 80 Precautions for Programming])

**Mounting multiple modules of the same network number**
When multiple MELSECNET/H network modules of the same network number are mounted, the target of direct access is the module which has the smallest slot number in the base unit.
Constant link scan

If the network status is unstable, the link scan time can be kept constant by specifying the link scan time at the control station to allow for possible fluctuations in the link scan time.

For the setting method, refer to the following.

Page 66 Supplementary Cyclic Settings

Data assurance

This function assures the cyclic data in units of 32 bits or station-based units.

The following three methods are available for cyclic data assurance.

<table>
<thead>
<tr>
<th>Method</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>32-bit data assurance</td>
<td>Assures data in 32-bit units. Data is automatically assured by satisfying assignment conditions of link devices.</td>
</tr>
<tr>
<td>Assurance of data of more than 32 bits</td>
<td>Assures data in station-based units. Data is assured by enabling the send/receive data station-based block data assurance in the parameter setting.</td>
</tr>
<tr>
<td>Interlock program</td>
<td>Assures data of more than 32 bits. Data is assured by configuring interlocks on programs.</td>
</tr>
</tbody>
</table>

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

32-bit data assurance

The link relay (LB) and link register (LW) data can be assured in units of 32 bits.

When LB and LW are set with the following four conditions met, 32-bit data assurance is automatically assured.

- The start device number of LB is a multiple of 20H.
- The number of points assigned per station in LB is a multiple of 20H.
- The start device number of LW is a multiple of 2.
- The number of points assigned per station in LW is a multiple of 2.

Set LB and LW under "Network Range Assignment" in "Required Settings" of the control station. (Page 56 Network Range Assignment)

If the network is configured with the MELSECNET/10 mode, 32-bit data assurance is disabled for the ACPU/QnACPU installed stations. Configure an interlock by the program for the ACPU/QnACPU installed stations. (Page 80 Precautions for Programming)
Station-based block data assurance

Integrity of the cyclic data is assured for each station by handshake between the CPU module and MELSECNET/H network module for a link refresh.

■ Setting method
To enable station-based block data assurance, set "Enable" under "Supplementary Cyclic Settings" in "Application Settings" of the control station. (Page 66 Supplementary Cyclic Settings)

Once this setting is enabled on the control station, the data for all stations is assured for each station.

■ Access to link devices
During a link refresh, data are assured for each station as shown below.

- Since station-based block data assurance is only applied for link refresh processing, configure an interlock when using the direct access to link devices (JE specification).
- When the send/receive data station-based block data assurance is set to "Enable", refer to the following description for the formula to calculate transmission delay time. (Page 183 Processing Time)
- If the network is configured with the MELSECNET/10 mode, station-based block data assurance is disabled for the ACPU/QnACPU installed stations. Configure an interlock by the program for the ACPU/QnACPU installed stations. (Page 80 Precautions for Programming)
**Interlink transmission**

This function transfers data in the link devices (LB, LW) of the MELSECNET/H network module to another network module on a relay station.

**Setting method**

Set interlink transmission in "Interlink Transmission Settings" in "Application Settings". (Page 75 Interlink Transmission Settings)

**Precautions**

For the precautions, refer to the following.

Page 75 Interlink Transmission Settings
Cyclic transmission stop and restart

This function is used to stop the cyclic transmission during debugging and other operations. (Data reception from other stations and data sending from the own station are stopped.) Also, the stopped cyclic transmission is restarted. Transient transmission does not stop.

Cyclic transmission is stopped and restarted using the link start/stop or the program of the MELSECNET diagnostics. (Page 123 Network Test)

- Whether to stop/restart cyclic transmission by the stop/restart instruction of cyclic transmission is determined for each station that received the instruction.
- When giving an instruction to restart cyclic transmission by specifying a station or target station that is different from the station instructed to stop in such a case where the station instructed to stop cyclic transmission goes down, perform forced link start.
- When link stop (all stations) is enabled, the link stop instruction (all stations) is always performed for all stations. Therefore, cyclic transmission stops at the station connected to the network after the instruction is given. Also, even if the instruction to restart cyclic transmission is given to an individual station (for forced link start or other purposes), the station will remain stopped. When restarting cyclic transmission, perform link startup (all stations) or forced link start (all stations).
1.2 Transient Transmission Function

Transient transmission

This function allows communications with other stations when a request is made by a method such as a dedicated instruction and engineering tool. Communications with different networks is also possible.

Communications within the same network

This function performs the transient transmission to other stations using dedicated instructions and the engineering tool. For details on dedicated instructions, refer to the following.

MELSEC iQ-R Programming Manual (Module Dedicated Instructions)
Communications with different networks

This function performs the transient transmission seamlessly to stations on different networks using dedicated instructions and the engineering tool.

Including the station directly connected to the engineering tool, communications can be made with stations up to eight networks apart (number of relay stations: 7).

When the networks consist of only MELSEC iQ-R series

Communication paths are automatically set for communication with the following networks of MELSEC iQ-R series.

- Ethernet
- CC-Link IE TSN
- CC-Link IE Controller Network
- CC-Link IE Field Network
- MELSECNET/H

Setting method

Check that "Dynamic Routing" in "Application Settings" is set to "Enable".

- Communication paths are automatically set, but they can also be manually set. (Page 36 When the networks consist of MELSEC iQ-R series and other series)
- Communication paths cannot be automatically set to Ethernet-equipped modules connected via a router. Set communication paths manually for such modules. (Page 36 When the networks consist of MELSEC iQ-R series and other series)
When the networks consist of MELSEC iQ-R series and other series

Setting communication paths allows communication with the following networks configured with modules other than MELSEC iQ-R series.

- Ethernet
- CC-Link IE Controller Network
- CC-Link IE Field Network
- MELSECNET/H
- MELSECNET/10

**Setting method**
Set communication paths in "Routing Setting" of "CPU Parameter". ([MELSEC iQ-R CPU Module User’s Manual](#))

When the networks contain a redundant system (RJ71LP21-25 only)

- When the communication paths are automatically set, the paths are updated if system switching occurs in a redundant system on the paths. During update of the communication paths, communications may be interrupted or data may be lost because the paths are temporarily undetermined. If an error occurs in communications, resend data from the request source.
- When the request source is a redundant system and the communication paths are automatically set, perform the transient transmission from the control system. When performing the transient transmission from the standby system, set "Routing Setting" of "CPU Parameter".
- When the request destination is a redundant system and the communication paths are automatically set, specify the control system station as the destination. When specifying the standby system as the request destination, set "Routing Setting" of "CPU Parameter".
- When relaying a redundant system and setting the communication paths manually, set the control system station as a relay station in "Routing Setting" of "CPU Parameter". If system switching occurs, the relay station needs to be changed to a station in the new control system using the RTWRITE instruction.

Execution condition setting

Set the transient transmission execution condition.
Adjust the setting of "Maximum No. of Transient Transmission" and "Maximum No. of Transients in One Station" as necessary.

**Setting method**

1. Set the settings under "Transient Setting". ([Page 66 Supplementary Cyclic Settings](#))
2. Click the [Apply] button to finish the settings.

**Point**

- Increasing the number of transient transmissions allows simultaneous execution of multiple transient transmission instructions (in one link scan).
- When the number of transient transmissions is increased and the transient request in one network occurs simultaneously at each station, the link scan time is extended temporarily. As this affects the cyclic transmission, avoid setting an unnecessarily large number for the setting.
- When transient transmission is simultaneously used with low speed cyclic transmission, this parameter limits the number of transmission times including both transmissions.
Group transient transmission

This function sends data to all stations of the same transient transmission group number by dividing the transient transmission target stations into groups.

One network can be divided into a maximum of 32 groups.

Setting the group specification for the target station number of the control data of the link dedicated instruction allows capturing of transient data at the station where the group number matches.

Executing instructions by setting No.1 for group specification from station No.2 allows capturing of transient data at three stations: station No.3, station No.4, and station No.5.

![Diagram of group transient transmission](image)

(1) Control station (station No.1)
(2) Normal station (station No.2)
(3) Normal station (station No.3)
(4) Normal station (station No.4)
(5) Normal station (station No.5)
(6) Normal station (station No.6)

**Setting method**

For the setting method, refer to the following.

> Page 73 Transient Transmission Group No.

**Dedicated Instruction**

The following describes the dedicated instructions for which group numbers can be specified.

MELSEC iQ-R Programming Manual (Module Dedicated Instructions)

<table>
<thead>
<tr>
<th>Instruction</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>WRITE</td>
<td>Writes data in the word device of another station.</td>
</tr>
<tr>
<td>SWRITE</td>
<td>Writes data in the word device of another station. (With completion device)</td>
</tr>
<tr>
<td>SEND</td>
<td>Sends data to another station.</td>
</tr>
<tr>
<td>REQ</td>
<td>Requests the remote RUN/STOP to the CPU module on another station.</td>
</tr>
<tr>
<td>ZNWR</td>
<td>Writes data in the word device of another station. (For MELSEC-A series)</td>
</tr>
<tr>
<td>RRUN</td>
<td>Sends the request of remote RUN to another station.</td>
</tr>
<tr>
<td>RSTOP</td>
<td>Sends the request of remote STOP to another station.</td>
</tr>
<tr>
<td>RTMWR</td>
<td>Writes the clock data to another station.</td>
</tr>
</tbody>
</table>

**Precautions**

- The execution cannot be checked with the transient transmission by group specification.
- If executed transient transmission continuously, transient transmission cannot be performed because of too much processing of transient transmission (link dedicated instruction). Continuous execution may cause an error (Error code: 1845H). Therefore, perform debugging after ensuring that the execution interval is set in the system and check that continuous execution can be performed.
Sending messages by using logical channel numbers

This function is used to receive only the messages selected on the receiving station when they have a lot of information types. The sending station performs transient transmission by using the destination logical channel without specifying a specific station number (the number can be specified). After the sent message is received at all other stations in one network, only the messages whose logical channel number matches the one specified for the receiving side are left, and other messages are deleted at the receiving station.

Ex.

When messages are sent from system D to logical channel 9, only systems A and C whose logical channel is set to 9 can receive messages.

System B does not receive messages because logical channel 9 is not set.
### Transient transmission instruction where logical channel number can be specified

<table>
<thead>
<tr>
<th>Instruction</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>SEND</td>
<td>Sends data to another station.</td>
</tr>
</tbody>
</table>

For details on dedicated instructions, refer to the following.

MELSEC iQ-R Programming Manual (Module Dedicated Instructions)

### Precautions

- The execution cannot be checked with the transient transmission by channel number specification.
- If executed transient transmission continuously, transient transmission cannot be performed because of too much processing of transient transmission (link dedicated instruction). Continuous execution may cause an error (Error code: 1845H). Therefore, perform debugging after ensuring that the execution interval is set in the system and check that continuous execution can be performed.

### Setting method

For the logical channel number, set numbers from 'Logical channel setting (Channel 1)' (SW0008) to 'Logical channel setting (Channel 8)' (SW000F) by the program.

For link special register, refer to the following.

Page 162 List of Link Special Register (SW) Areas
1.3 RAS

This function improves reliability, availability, and serviceability, allowing for comprehensively easier use of automation facilities.

Automatic return

This function automatically returns the station disconnected from the network due to a data link error to the network when it recovers and restarts data link.

There is a limit on the number of stations that can be returned during one link scan. For the maximum number of stations that can be returned, refer to the following. (Page 66 Supplementary Cyclic Settings)
Control station switching

This function continues data link with another normal station that serve as a sub-control station even if the control station goes down.

**Setting method**

Set control station switching in "Control Station Shift Setting" under "Supplementary Cyclic Settings" in "Application Settings". (Page 66 Supplementary Cyclic Settings)

<table>
<thead>
<tr>
<th>No</th>
<th>When the control station (station No.1) is down</th>
<th>When the sub-control station (station No.2) is down</th>
</tr>
</thead>
<tbody>
<tr>
<td>(1)</td>
<td>The control station (station No.1) is down.</td>
<td>The sub-control station (station No.1) is down.</td>
</tr>
<tr>
<td>(2)</td>
<td>Sub-control station (station No.2)</td>
<td>Sub-control station (station No.2) is down.</td>
</tr>
<tr>
<td>(3)</td>
<td>Normal station (station No.3)</td>
<td>Normal station (station No.3)</td>
</tr>
<tr>
<td>(4)</td>
<td>Normal station (station No.4)</td>
<td>Normal station (station No.4)</td>
</tr>
<tr>
<td>(5)</td>
<td>Normal station (station No.5)</td>
<td>Normal station (station No.5)</td>
</tr>
<tr>
<td>(6)</td>
<td>Normal station (station No.6)</td>
<td>Normal station (station No.6)</td>
</tr>
</tbody>
</table>

**Point**

- Data link temporarily stops when the control station is switched. While data link is stopped, data prior to the stop is held.
- While data link is stopped, all stations become communication faulty stations other than the own station.
- The control station is not switched even if cyclic transmission at the control station is stopped by the engineering tool.
- The control station is also switched to the normal station where cyclic transmission is stopped by the engineering tool.
Control station return control

This function shortens network downtime by resolving the cause of an error in the control station and making that station join the network as a normal station.

Setting method

Set the control station return control under "Operation after Reconnection" in "Required Settings". (Page 60 Operation after Reconnection)

Precautions

- Baton pass stops when "Return as Control Station" is set. The common parameters can be changed only by the CPU reset operation of the control station although the network stop time is prolonged. Transient transmission that is executed when baton pass stops may be completed with an error. In this case, execute the transmission again.
- Baton pass is returned without stopping if "Return as Normal Station" is set. Since the network connection does not stop, perform CPU reset operation for all stations after changing the common parameters of the control station during network connection. When CPU reset operation is performed only for the control station, an error occurs and the control station is disconnected with an error. (Error code: F826H)
Loopback function (RJ71LP21-25 only)

This function continues data link with normal stations even if a cable disconnection or faulty station occurs. The loopback function is only for RJ71LP21-25.

At the time of cable disconnection

Even if a cable disconnection occurs, the system automatically performs loopback to continue the data link.

- When loopback is being performed due to cable disconnection, both the forward loop and reverse loop may be considered normal depending on the cable disconnection condition. Whether the forward loop or reverse loop is normal or abnormal is determined by the reception status of the loopback station.
- If the cable is connected after being disconnected, the line to be used (forward loop/reverse loop) may be switched, but the data link is performed normally.

Occurrence of faulty stations

The system disconnects faulty stations and automatically performs loopback to continue the data link.

If two or more faulty stations occur, a station located between the faulty stations cannot perform data link. However, when more than one station exists between the faulty stations, a normal station with a smaller station number is changed to a sub-control station and continues data link.
**Precautions**

When the RJ71LP21-25 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 RJ71LP21-25 with a failure, perform either of the following.

- Check the LED indication of all network modules for abnormal stations. (Page 91 Checking with LED)
- Turn off the power of all stations, then turn on the power of stations in order, starting from the control station. While doing this, check up to which station on the network loopback is normally performed. Check whether the control station and a returned normal station are displayed on a loopback station in the link information of the MELSECNET diagnostics (own station information).

Replace the RJ71LP21-25 where a failure was detected with a new one and check that data link has returned to normal status.
Station detach function (RJ71BR11 only)

Even if the power to a connected station is turned off, the data link continues between other stations which are still able to perform data communication.
The station detach function is only for the RJ71BR11.

**When completed normally**

![Diagram showing data link continuation between stations](image)

**Occurrence of faulty stations**

The data link continues excluding the station that is down.

![Diagram showing data link exclusion of faulty station](image)

**Point**

When a cable disconnection occurs, the data link cannot be performed because there will be no terminating resistors.

![Diagram showing data link failure due to disconnection](image)

In addition, even if the cable is normal, the data link cannot be performed if a terminating resistor is detached.
1.4 Application Function

Interrupt program activation

Check the interrupt condition when receiving data from another station using the interrupt settings parameters of the own station. When the interrupt condition is established, an interrupt request is sent from the MELSECNET/H network module to the CPU module, and the interrupt program of the CPU module on the own station is activated.

Setting method

Set the interrupt request to the CPU module in "Interrupt Settings" under "Application Settings". (Page 67 Interrupt Settings)

Multiplex transmission function (RJ71LP21-25 only)

This function is used to perform high speed communication using duplex transmission path (forward loop and reverse loop). The multiplex transmission function is only for the RJ71LP21-25.

Restriction

The RJ71LP21-25 cannot operate as a control station with multiplex transmission. However, in the environment where the QJ71LP21-25 with multiplex transmission operates as a control station, the RJ71LP21-25 is allowed to participate in the network as a sub-control station or normal station. For details on multiplex transmission, refer to the following.

Q Corresponding MELSECNET/H Network System Reference Manual (PLC to PLC network)
Number of send points extension

This function is used to increase the number of send points (a maximum of 2000 bytes per station) to a maximum of 8000 bytes by mounting multiple MELSECNET/H network modules with the same network number to one CPU module.

Ex

A maximum of 4000 bytes can be sent by installing the control station (station No.1) and normal station (station No.2) at network No.1 in one CPU module.

Precautions

Pay attention to the following points when installing multiple MELSECNET/H network modules with the same network number on one CPU module.

- Multiple network modules cannot be set on the same station number.
- Multiple stations cannot be set as a control station.
- Changing the setting of "Link Refresh Setting" under "Basic Settings" is required.
- For the function of specifying the target MELSECNET/H network module by a network number, such as the link direct device or the dedicated instruction, the smallest slot number on the base unit will be the target.
1.5 Redundant System Function (RJ71LP21-25 Only)

The redundant system function improves system reliability by mounting RJ71LP21-25 modules on the base units of both systems of a redundant system so that the new control system can continue data link even if an error occurs in the control system.

- The following modules are required to use the redundant system function.
  - Process CPU
  - Redundant function module

When using a redundant system, check the versions of the Process CPU and the engineering tool. (MELSEC iQ-R CPU Module User's Manual (Application))

System configuration

This section describes the RJ71LP21-25 redundant system configuration. The RJ71LP21-25s are mounted on the base units of both systems of a redundant system. A redundant system is configured by connecting the RJ71LP21-25s in both systems together using optical fiber cables.

(1) Control station (station No.1) as the control system (system A)
(2) Normal station (station No.2) as the standby system (system B)
(3) Normal station (station No.3)
(4) Normal station (station No.4)
System switching operation

In a redundant system, if the control system fails, the control system and the standby system are switched. In the RJ71LP21-25, send data is transferred to the new control system after system switching to continue data link. The following shows system switching operation when a communication error occurs in the control system.

1. A communication error occurs in control system (1).
2. The RJ71LP21-25 of control system (1) issues a system switching request to the CPU module.
3. System switching occurs in the redundant system.
4. Standby system (2) starts operating as the new control system to continue network control.

In the RJ71LP21-25, settings can be made from "System Switching Monitoring Time" under "Supplementary Cyclic Settings" in "Application Settings", or by directly rewriting 'System switching monitoring time setting' (SW0018).

Setting method

When using the module in a redundant system, select "RJ71LP21-25(R)" for the module model name in the "Add New Module" window.

In addition, pairing setting is required for the RJ71LP21-25 of both systems.
Pairing is set under "Network Range Assignment" in "Required Settings" of the control station. (Page 56 Network Range Assignment)

Precautions

- If system switching is performed by any reason other than a communication error, control station switching is not performed.
- While the control is switched to a station of the new control system, the cyclic data output is held. For cyclic data holding time (output holding time) when system switching occurs, refer to the following. (Page 189 Cyclic data holding time when system switching occurs)
Cyclic transmission send/receive processing

When pairing is set for the RJ71LP21-25 of both systems, send data is transferred to the new control system at the time of system switching to continue cyclic transmission.

The following is the send range of cyclic transmission when pairing is set.

- The own station send ranges of the link devices (LB, LW) of both systems become the same when pairing is set.
- The station operating as the control system sends and receives cyclic data.
- The station operating as the standby system only receives cyclic data.

Each number in the figure, from No.1 to No.4, represents a station number.

Send range of each station number

(1) From station No.1 as the control system, data in the send ranges of station No.1 and station No.2 are sent to station No.3 and station No.4. If system switching occurs due to an error in station No.1, data in the send ranges of stations No.1 and No.2 are sent from station No.2, which starts operating as the new control system.

(2) Data in the send range of station No.3 is sent to all stations including station No.2 operating as the standby system.

(3) Data in the send range of station No.4 is sent to all stations including station No.2 operating as the standby system.
### Precautions

#### Tracking
- Of all link refresh target devices (B, W) of link devices (LB, LW), tracking needs to be set for the devices in the own station send range.
- Tracking cannot be set for link direct devices.
- Do not set tracking for the link special relay areas (SB0020 to SB01FF), which are turned on/off by the system, or the link special register areas (SW0020 to SW01FF), where data is stored by the system.
- When setting link devices (LX, LY), do not set the refresh target device for the link input (LX) from tracking setting (redundant settings on the CPU parameter side). When the link input (LX) changes after system switching occurs, a data conflict occurs in the tracking transfer and the send data from the I/O master station.

For details on tracking transfer, refer to the following.

[MELSEC iQ-R CPU Module User's Manual (Application)]

#### Programming

In the RJ71LP21-25, the network detects a temporary communication error based on the condition of power-on/off, cables, noise, and others. Create a program using the RJ71LP21-25 in such a way that control operation is not stopped even if such a temporary communication error is detected. (Page 80 Precautions for Programming)

<table>
<thead>
<tr>
<th>Detection of an error when another station is powered on/off</th>
</tr>
</thead>
<tbody>
<tr>
<td>When either of the following operations is performed, a temporary data link error may be detected and a system switching request may be issued.</td>
</tr>
<tr>
<td>- Another station (including the standby system) is powered on/off.</td>
</tr>
<tr>
<td>- A personal computer equipped with a MELSECNET/H interface board boots or shuts down.</td>
</tr>
</tbody>
</table>

If the above system switching request is issued before the standby system starts up, the control system CPU module may detect a continuation error (system switching error). Even in this case, the control system continues to control the system normally. Create a program where control operation is not stopped due to error detection.

Before clearing the continuation error (system switching error) detected by the control system CPU module, check that the standby system and the RJ71LP21-25s operate correctly with the special register. (MELSEC iQ-R CPU Module User's Manual (Application))
System switching request to the control system CPU module

When the RJ71LP21-25 mounted on the control system detects a data link error, it issues a system switching request to the control system CPU module.

However, depending on the operating status of the standby system, system switching is not executed.

For details on the operating status of the standby system and whether system switching is executable, refer to the following.

MELSEC iQ-R CPU Module User's Manual (Application)

System switching cause

This section describes causes that make the RJ71LP21-25 issue a system switching request.

For details on causes other than a system switching request from the RJ71LP21-25, refer to the following.

MELSEC iQ-R CPU Module User's Manual (Application)

■ Moderate/major error and hardware failure

When detecting an error where the RJ71LP21-25 cannot continue the processing, the RJ71LP21-25 notifies the control system CPU module about the error and issues a system switching request.

■ Data link error

If the data link error status (D LINK LED off) continues for the system switching monitoring time set in "Supplementary Cyclic Settings" under "Application Settings" or longer, the RJ71LP21-25 issues a system switching request to the control system CPU module.

When cyclic transmission is stopped using the link start/stop of the MELSECNET diagnostics, a system switching request is not issued to the control system CPU module. (This also applies to cyclic transmission is stopped by the link special relay (SB) or link special register (SW).)

Functions restricted in a redundant system

The following table lists the functions restricted when the RJ71LP21-25 is used in a redundant system.

<table>
<thead>
<tr>
<th>Function</th>
<th>Restrictions</th>
</tr>
</thead>
</table>
| Transient transmission | • To perform the transient transmission specifying the control system or standby system, acquire the current target station address (address of the control system or standby system) by using the module FB RedundantSystem_GetAddress and access the acquired address. (MELSEC iQ-R Ethernet, CC-Link IE, and MELSECNET/H Function Block Reference)  
  • Precautions exist for communications with different networks when the networks contain a redundant system. (Page 36 When the networks contain a redundant system (RJ71LP21-25 only))  
  • Precautions exist for when the dedicated instructions are used to a redundant system. (Page 182 Precautions for dedicated instructions (when used in a redundant system)) |
| Control station return control | • In the redundant system, precautions exist for when the redundant CPU with a network module at returning the control station is the standby system. (Page 60 Operation after Reconnection) |
2 PARAMETER SETTINGS

This chapter describes the parameter settings required for communications between the MELSECNET/H network module and other stations.

2.1 Setting Parameters

1. Add the MELSECNET/H network module to the engineering tool.
   [Navigation window] ⇒ [Parameter] ⇒ [Module Information] ⇒ Right click ⇒ [Add New Module]

2. The required settings, basic settings, and application settings are included in the parameter settings. Select one of the settings from the tree on the window shown below.
   [Navigation window] ⇒ [Parameter] ⇒ [Module Information] ⇒ Target Module

3. After setting parameters, click the [Apply] button.

4. Write the settings to the CPU module using the engineering tool.
   [Online] ⇒ [Write to PLC]

5. The settings are reflected by resetting the CPU module or powering off and on the system.
2.2  Required Settings

Set the station type, network number, and other parameters for the MELSECNET/H network module.

<table>
<thead>
<tr>
<th>Item</th>
<th>Description</th>
<th>Availability</th>
<th>Reference</th>
</tr>
</thead>
<tbody>
<tr>
<td>Station Type</td>
<td>Set the network type and station type for the MELSECNET/H network module.</td>
<td>☑ ☑</td>
<td>Page 55 Station Type</td>
</tr>
<tr>
<td>Network No.</td>
<td>Set the network number for the MELSECNET/H network module.</td>
<td>☑ ☑</td>
<td>Page 55 Network No.</td>
</tr>
<tr>
<td>Station No.</td>
<td>Set the station number for the MELSECNET/H network module.</td>
<td>☑ ☑</td>
<td>Page 55 Station No.</td>
</tr>
<tr>
<td>Network Range</td>
<td>Assign parameters of each station (the number of points and assignment of link devices) in the control station.</td>
<td>☑ ☑ ☐</td>
<td>Page 56 Network Range Assignment</td>
</tr>
<tr>
<td>Operation after</td>
<td>Set the station type of when the control station returns.</td>
<td>☑ ☑ ☐</td>
<td>Page 60 Operation after Reconnection</td>
</tr>
<tr>
<td>Reconnection</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Transmission Speed</td>
<td>Set the transmission speed for the RJ71LP21-25.</td>
<td>☑ ☑</td>
<td>Page 60 Transmission Speed</td>
</tr>
</tbody>
</table>
Station Type

Set the network type and station type for the MELSECNET/H network module.

<table>
<thead>
<tr>
<th>Item</th>
<th>Description</th>
<th>Setting range</th>
</tr>
</thead>
<tbody>
<tr>
<td>Station Type</td>
<td>Set the network type and station type for the MELSECNET/H network module.</td>
<td>• MNET/H Mode (Control Station)</td>
</tr>
<tr>
<td></td>
<td>One control station can be set per network.</td>
<td>• MNET/H Mode (Normal Station)</td>
</tr>
<tr>
<td></td>
<td>■ Network type</td>
<td>• MNET/H Extended Mode (Control Station)</td>
</tr>
<tr>
<td></td>
<td>• MELSECNET/H mode</td>
<td>• MNET/H Extended Mode (Normal Station)</td>
</tr>
<tr>
<td></td>
<td>• MELSECNET/10 mode</td>
<td>• MNET/10 Mode (Control Station)</td>
</tr>
<tr>
<td></td>
<td>■ Station type</td>
<td>• MNET/10 Mode (Normal Station)</td>
</tr>
<tr>
<td></td>
<td>• Control station</td>
<td>(Default: MNET/H Mode (Normal Station))</td>
</tr>
<tr>
<td></td>
<td>• Normal station</td>
<td></td>
</tr>
</tbody>
</table>

Precautions

After setting the parameter, perform the setting check test using the MELSECNET diagnostics. ([Page 120 Setting Check Test])

Even when no error occurs as described below, errors can be detected by the MELSECNET diagnostics.

- Even when control stations and station numbers are duplicated in the network, the station number duplication detection error (Error code: 3001H) does not occur.
- Even when a different network number is set for the normal station and control station, no error occurs. (Although cyclic transmission continues, transient transmission cannot be performed.)

Network No.

Set the network number for the MELSECNET/H network module.

<table>
<thead>
<tr>
<th>Item</th>
<th>Description</th>
<th>Setting range</th>
</tr>
</thead>
<tbody>
<tr>
<td>Network No.</td>
<td>Set the network number for the MELSECNET/H network module.</td>
<td>1 to 239 (Default: 1)</td>
</tr>
</tbody>
</table>

Station No.

Set the station number for the MELSECNET/H network module.

<table>
<thead>
<tr>
<th>Item</th>
<th>Description</th>
<th>Setting range</th>
</tr>
</thead>
<tbody>
<tr>
<td>Station No.</td>
<td>Set the station number for the MELSECNET/H network module.</td>
<td>• RJ71LP21-25: 1 to 64 ¹</td>
</tr>
<tr>
<td></td>
<td>If this item is not set when &quot;Station Type&quot; is selected, a default value is automatically set.</td>
<td>• RJ71BR11: 1 to 32</td>
</tr>
<tr>
<td></td>
<td>• Station number is set within the range set in &quot;Total No. of Stations&quot; in the &quot;Network Range Assignment&quot; window in &quot;Required Settings&quot; of the control station. To set the larger value, change the value in &quot;Total No. of Stations&quot; in the &quot;Network Range Assignment&quot; window in &quot;Required Settings&quot; of the control station beforehand.</td>
<td>(Default: 1 for control station, 2 for normal station)</td>
</tr>
<tr>
<td></td>
<td>• Set a station number different from those used in the same network.</td>
<td></td>
</tr>
</tbody>
</table>

*1 The setting range is 1 to 63 when the "RJ71LP21-25" is used in a redundant system.

Precautions

- Set control stations and station numbers so that they are not duplicated in the network. Incorrect setting may cause failure to detect the station number duplication error (Error code: 3001H) depending on the parameter setting details or the network join timing. After setting the parameter, perform the setting check test using the MELSECNET diagnostics. ([Page 120 Setting Check Test])
- Even when the duplication of control stations and station numbers could not be detected as the station number duplication error (Error code: 3001H), it can be detected by the MELSECNET diagnostics.
Network Range Assignment

Set parameters of each station (the number of points and assignment of link devices) in the control station.

Setting method

The procedure for the network range assignment settings is shown below.

1. Set the required items.

2. Click the [Apply] button to finish the network range assignment.

<table>
<thead>
<tr>
<th>Setting items</th>
<th>Description</th>
<th>Setting range</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total No. of Stations</td>
<td>Set the total number of stations for one network.</td>
<td>• RJ71LP21-25: 2 to 64</td>
</tr>
<tr>
<td></td>
<td>• When any reserved station is required, include the number of reserved stations.</td>
<td>• RJ71BR11: 2 to 32</td>
</tr>
<tr>
<td></td>
<td>• When skipping a station number, specify the number to be skipped as a reserved station.</td>
<td>(Default: 2)</td>
</tr>
<tr>
<td>Switch Windows</td>
<td>Select the &quot;LB/LW Setting&quot; window or &quot;LX/LY Setting&quot; window.</td>
<td>• LB/LW Setting</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• LX/LY Setting (1)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• LX/LY Setting (2)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>(Default: LB/LW Setting)</td>
</tr>
<tr>
<td>Device Assignment Method</td>
<td>Right-click in the setting window and select a link device assignment method from the &quot;Device Assignment Method&quot; menu.</td>
<td>Start/End</td>
</tr>
<tr>
<td></td>
<td>Start/End: Enter the start and end numbers of link devices.</td>
<td>Points/Start</td>
</tr>
<tr>
<td></td>
<td>Points/Start: Enter the points and start numbers of link devices.</td>
<td>(Default: Start/End)</td>
</tr>
<tr>
<td>Item</td>
<td>Description</td>
<td>Setting range</td>
</tr>
<tr>
<td>-----------------------</td>
<td>-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------</td>
<td>-----------------------------</td>
</tr>
<tr>
<td>Batch Setting button</td>
<td>Clicking the [Batch Setting] buttons opens the &quot;Batch Setting&quot; window. The number of points for LB/LW and LX/LY is set in a batch. (The &quot;Batch Setting&quot; window for LB/LW and LX/LY are switched in conjunction with &quot;Switch Windows&quot;).</td>
<td>• Equal Assignment</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• Identical Point Assignment</td>
</tr>
<tr>
<td></td>
<td></td>
<td>(Default: Equal Assignment)</td>
</tr>
<tr>
<td>Equal Assignment</td>
<td>Equally assign the range of the specified link device to the send range of the target station. LB/LX/LY points can be assigned in increments of 16, and LW points can be assigned in increments of 1.</td>
<td>(Default: Blank)</td>
</tr>
<tr>
<td></td>
<td>• Start Station: Enter the start station number of stations for which link devices are equally assigned.</td>
<td></td>
</tr>
<tr>
<td></td>
<td>• End Station: Enter the end station number of stations for which link devices are equally assigned.</td>
<td></td>
</tr>
<tr>
<td></td>
<td>• Start Device No.: Enter the start number of link devices to be equally assigned.</td>
<td></td>
</tr>
<tr>
<td></td>
<td>• Number of Points: Enter the total points of link devices to be equally assigned.</td>
<td></td>
</tr>
<tr>
<td>Identical Point Assignment</td>
<td>Assign the same specified points to LB/LW range to be sent by each station. LB points can be assigned in increments of 16, and LW points can be assigned in increments of 1.</td>
<td>(Default: Blank)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Item</td>
<td>Description</td>
<td>Setting range</td>
</tr>
<tr>
<td>--------------</td>
<td>--------------------------------------------------</td>
<td>-------------------------------------------------------------------------------</td>
</tr>
<tr>
<td>LB/LW Setting</td>
<td><strong>LB</strong> Points</td>
<td>Set the number of points (decimal) of LB sent by each station. Set in increments of 16 point.</td>
</tr>
<tr>
<td></td>
<td><strong>Start</strong></td>
<td>Set the start number of the LB range to be sent by each station. Set in multiples of 16 including 0.</td>
</tr>
<tr>
<td></td>
<td><strong>End</strong></td>
<td>Set the end number of the LB range to be sent by each station. Set in multiples of 16-1.</td>
</tr>
<tr>
<td></td>
<td><strong>LW</strong> Points</td>
<td>Set the number of points (decimal) of LW sent by each station.</td>
</tr>
<tr>
<td></td>
<td><strong>Start</strong></td>
<td>Set the start number of the LW range to be sent by each station.</td>
</tr>
<tr>
<td></td>
<td><strong>End</strong></td>
<td>Set the end number of the LW range to be sent by each station.</td>
</tr>
<tr>
<td></td>
<td><strong>Low Speed LB</strong> Points</td>
<td>Set the number of points (decimal) of low speed LB sent by each station. Set in increments of 16 point.</td>
</tr>
<tr>
<td></td>
<td><strong>Start</strong></td>
<td>Set the start number of the low speed LB range to be sent by each station. Set in multiples of 16 including 0.</td>
</tr>
<tr>
<td></td>
<td><strong>End</strong></td>
<td>Set the end number of the low speed LB range to be sent by each station. Set in multiples of 16-1.</td>
</tr>
<tr>
<td></td>
<td><strong>Low Speed LW</strong> Points</td>
<td>Set the number of points (decimal) of low speed LW sent by each station.</td>
</tr>
<tr>
<td></td>
<td><strong>Start</strong></td>
<td>Set the start number of the low speed LW range to be sent by each station.</td>
</tr>
<tr>
<td></td>
<td><strong>End</strong></td>
<td>Set the end number of the low speed LW range to be sent by each station.</td>
</tr>
</tbody>
</table>
### Pairing

When the network contains a redundant system, set a combination of stations of system A and system B.

#### Setting method

To pair station No.3 with station No.4, set as follows:

1. **LX/LY Setting (1)**
   - M Station → L Station
   - **LY Points**: Set the number of points (decimal) of the output range (LY) sent from the M station (I/O master station) to the other station. Set in increments of 16 point.
     - Setting range: 16 to 8192 (Default: Blank)
   - **Start**: Set the start number of the output range (LY) of the M station (I/O master station). Set in multiples of 16 including 0.
     - Setting range: 0000H to 1FF0H (Default: Blank)
   - **End**: Set the end number of the output range (LY) of the M station (I/O master station). Set in multiples of 16-1.
     - Setting range: 000FH to 1FFFH (Default: Blank)

2. **LX Points**: The number of points (decimal) of the input range (LX) received by the L station (the station other than the I/O master station) from the M station is displayed.
   - **Start**: Set the start number of the input range (LX) of the L station (the station other than the I/O master station). Set in multiples of 16 including 0.
     - Setting range: 0000H to 1FF0H (Default: Blank)
   - **End**: The end number of the input range (LX) of the L station (the station other than the I/O master station) is displayed.

3. **M Station ← L Station**
   - **LY Points**: The number of points (decimal) of the output range (LY) sent from the L station (the station other than the I/O master station) to the I/O master station is displayed.
     - Setting range: 16 to 8192 (Default: Blank)
   - **Start**: Set the start number of the output range (LY) of the L station (the station other than the I/O master station). Set in multiples of 16 including 0.
     - Setting range: 0000H to 1FF0H (Default: Blank)
   - **End**: The end number of the output range (LY) of the L station (the station other than the I/O master station) is displayed.

4. **LX Points**: Set the number of points (decimal) of the input range (LX) received by the M station (I/O master station) from the other station. Set in increments of 16 point.
   - **Start**: Set the start number of the input range (LX) of the M station (I/O master station).
     - Setting range: 0000H to 1FF0H (Default: Blank)
   - **End**: Set the end number of the input range (LX) of the M station (I/O master station). Set in multiples of 16-1.
     - Setting range: 000FH to 1FFFH (Default: Blank)

#### Precautions

- Only stations with adjacent station numbers can be paired in the pairing setting.
- Pairing cannot be set in "LX/LY Setting (1)" or "LX/LY Setting (2)".
### Operation after Reconnection

<table>
<thead>
<tr>
<th>Item</th>
<th>Description</th>
<th>Setting range</th>
</tr>
</thead>
</table>
| Operation after Reconnection | Set the station type of when the control station returns. For details on the functions, refer to the following. Return as Control Station: The control station returns as the control station of the network again. Return as Normal Station: While the operating sub-control station works as the control station of the network, the control station returns as the normal station of the network again. The station works as the control station again only when all stations go down and recover. In the RJ71LP21-25 redundant system, when the redundant CPU with a network module at returning the control station is the standby system, the station is returned as the normal station even if "Operation after Reconnection" is set to "Return as Control Station". | • Return as Control Station  
• Return as Normal Station  
(Default: Return as Control Station) |

### Transmission Speed

<table>
<thead>
<tr>
<th>Item</th>
<th>Description</th>
<th>Setting range</th>
</tr>
</thead>
</table>
| Transmission Speed | Set the transmission speed for the RJ71LP21-25. Set 10Mbps or 25Mbps when the station type is set to the "MNET/H mode" or "MNET/H extended mode", and set 10Mbps when it is set to the "MNET/10 mode". | • RJ71LP21-25: 10Mbps, 25Mbps (Default: 10Mbps)  
• RJ71BR11: 10Mbps |
2.3 Basic Settings

Set the link refresh settings for the MELSECNET/H network module.

- Can be set, ×: Cannot be set

<table>
<thead>
<tr>
<th>Item</th>
<th>Description</th>
<th>Availability</th>
<th>Reference</th>
</tr>
</thead>
<tbody>
<tr>
<td>Link Refresh Settings</td>
<td>Set the link refresh ranges for the following.</td>
<td>☐</td>
<td>Page 62 Link Refresh Settings</td>
</tr>
<tr>
<td></td>
<td>• Between the MELSECNET/H network module link device (LB, LW, LX, LY) and</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>the CPU module device</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>• Between the MELSECNET/H network module link device (SB, SW) and the CPU</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>module device or module label</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Link Refresh Settings

Set the link refresh range between the MELSECNET/H network module link device and the CPU module device or module label.

Setting method

The procedure for the link refresh settings is shown below.

1. Set the required items.

2. Click the [Apply] button to finish the link refresh settings.

Setting items

<table>
<thead>
<tr>
<th>Item</th>
<th>Description</th>
<th>Setting range</th>
</tr>
</thead>
<tbody>
<tr>
<td>Device Assignment Method</td>
<td>Right-click in the setting window and select a link device assignment method from the &quot;Device Assignment Method&quot; menu. • Start/End: Enter the start and end numbers of link devices. • Points/Start: Enter the points and start numbers of link devices.</td>
<td>• Start/End</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• Points/Start: Enter the points and start numbers of link devices. (Default: Start/End)</td>
</tr>
<tr>
<td>Link Side</td>
<td>Device Name</td>
<td>SB (fixed)</td>
</tr>
<tr>
<td>Points</td>
<td></td>
<td>SW (fixed)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>(Default: 512)</td>
</tr>
<tr>
<td>Start</td>
<td></td>
<td>SB: 00000H to 001FH</td>
</tr>
<tr>
<td>End</td>
<td></td>
<td>SB: 000FF to 001FFH</td>
</tr>
<tr>
<td></td>
<td></td>
<td>(Default: 001FFH)</td>
</tr>
<tr>
<td>CPU Side</td>
<td>Target</td>
<td>Specified Device</td>
</tr>
<tr>
<td>Points</td>
<td></td>
<td>Specified Device</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Specified Device (when link side is SW): SW, M, L, B, D, R, ZR, RD</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Follow the device setting of the CPU parameter.</td>
</tr>
<tr>
<td>Start</td>
<td></td>
<td>Follow the device setting of the CPU parameter.</td>
</tr>
<tr>
<td>End</td>
<td></td>
<td>Follow the device setting of the CPU parameter.</td>
</tr>
<tr>
<td>Item</td>
<td>Description</td>
<td>Setting range</td>
</tr>
<tr>
<td>--------------</td>
<td>-------------------------------------------------------------------------------------------------------</td>
<td>----------------------------------------------------------------------------------------------------------------------------------------------</td>
</tr>
</tbody>
</table>
| Link Side    | Device Name Set the link refresh ranges of LB, LW, LX, and LY. Up to 64 ranges can be set.            | • LB  
• LW  
• LX  
• LY  
(Default: Blank)                                                                 |
| Points       | Set the number of link refresh points for LB, LW, LX, and LY. When "Start/End" is set for "Device Assignment Method", the number of link refresh points (decimal) is displayed. | LB: MELSECNET/H mode, MELSECNET/H extended mode: 16 to 16384  
MELSECNET/10 mode: 16 to 8192  
LW: MELSECNET/H mode, MELSECNET/H extended mode: 1 to 16384  
MELSECNET/10 mode: 1 to 8192  
• LX, LY: 16 to 8192  
(Default: Blank)                                                                 |
| Start        | Set the device number of LB, LW, LX, and LY that are to be at the start of the link refresh range.    | LB: MELSECNET/H mode, MELSECNET/H extended mode: 00000H to 03FFFH  
MELSECNET/10 mode: 00000H to 01FFFH  
• LW: MELSECNET/H mode, MELSECNET/H extended mode: 00000H to 03FFFH  
MELSECNET/10 mode: 00000H to 01FFFH  
• LX, LY: 00000H to 01FFFH  
(Default: Blank)                                                                 |
| End          | Set the device number of LB, LW, LX, and LY that are to be at the end of the link refresh range.      | • LB: MELSECNET/H mode, MELSECNET/H extended mode: 00000H to 03FFFH  
MELSECNET/10 mode: 00000H to 01FFFH  
• LW: MELSECNET/H mode, MELSECNET/H extended mode: 00000H to 03FFFH  
MELSECNET/10 mode: 00000H to 01FFFH  
• LX, LY: 00000H to 01FFFH  
(Default: Blank)                                                                 |
| CPU Side     | Target Set the memory of the CPU module that is to perform link refresh.                             | Specify Device (fixed)                                                                                                                       |
|              | Device Name Set the CPU module device for which link refresh is to be performed.                    | • Specify Device: X, Y, M, L, B, D, W, R, ZR, RD  
(Default: Blank)                                                                 |
| Points       | The number of points (decimal) in the link refresh range of the CPU module device is displayed.      | —                                                                                                                                           |
| Start        | Set the device number of the CPU module that is to be at the start of the link refresh range.       | Follow the device setting of the CPU parameter.                                                                                               |
| End          | The device number of the final CPU module in the link refresh range is displayed.                   | —                                                                                                                                           |
Precautions

■ Device set to "CPU Side"
Set a device range that differs from the one used for the following:
• "Link Refresh Settings" in "Basic Settings" of other modules
• "Refresh Setting between Multiple CPUs" of "CPU Parameter" for a multiple CPU system
• I/O numbers used for I/O modules and intelligent function modules

■ Link refresh range
Set only link devices used in the CPU module for link refresh range. Doing so will reduce link refresh points, resulting in a shorter link refresh time.

■ Changing link device assignment in the "Network Range Assignment" window of "Required Settings"
Correct the setting range in "Link Refresh Settings" of "Basic Settings".
## 2.4 Application Settings

Set the supplementary cyclic settings, interrupt settings, or other parameters for the MELSECNET/H network module.

![Module Parameter Setting](image)

- **Item**
- **Description**
- **Availability**
  - Control station
  - Normal station
- **Reference**

<table>
<thead>
<tr>
<th>Item</th>
<th>Description</th>
<th>Availability</th>
<th>Reference</th>
</tr>
</thead>
<tbody>
<tr>
<td>Supplemental Cyclic Settings</td>
<td>Set the data link monitoring time and system switching monitoring time.</td>
<td>☐ ×</td>
<td>Page 66 Supplemental Cyclic Settings</td>
</tr>
<tr>
<td>Interrupt Settings</td>
<td>Set conditions for sending an interrupt request to the CPU module.</td>
<td>☐ ☐</td>
<td>Page 67 Interrupt Settings</td>
</tr>
<tr>
<td>Transient Transmission Group No.</td>
<td>Set a group number for transient transmission with group specification.</td>
<td>☐ ☐</td>
<td>Page 73 Transient Transmission Group No.</td>
</tr>
<tr>
<td>Dynamic Routing</td>
<td>Select whether to enable the dynamic routing function.</td>
<td>☐ ☐</td>
<td>Page 73 Dynamic Routing</td>
</tr>
<tr>
<td>Parameter Name</td>
<td>Set a name for the module parameter arbitrarily.</td>
<td>☐ ×</td>
<td>Page 73 Parameter Name</td>
</tr>
<tr>
<td>Event Reception from Other Stations</td>
<td>Select whether to obtain the events occurring in the other stations.</td>
<td>☐ ☐</td>
<td>Page 73 Event Reception from Other Stations</td>
</tr>
<tr>
<td>Module Operation Mode</td>
<td>Set the operation mode for the MELSECNET/H network module.</td>
<td>☐ ☐</td>
<td>Page 74 Module Operation Mode</td>
</tr>
<tr>
<td>Interlink Transmission Settings</td>
<td>Set link device ranges when cyclic data are transferred from a station in the own network to a station in another network.</td>
<td>☐ ☐</td>
<td>Page 75 Interlink Transmission Settings</td>
</tr>
<tr>
<td>Redundant System Settings</td>
<td>Set the operation mode for the RJ71LP21-25 mounted on system B in a redundant system. This item can be set only when &quot;RJ71LP21-25(R)&quot; is selected for the module model name.</td>
<td>☐ ☐</td>
<td>Page 79 Redundant System Settings (RJ71LP21-25 only)</td>
</tr>
</tbody>
</table>

○: Can be set, ×: Cannot be set
### Supplementary Cyclic Settings

Set the data link monitoring time and system switching monitoring time.

<table>
<thead>
<tr>
<th>Item</th>
<th>Description</th>
<th>Setting range</th>
</tr>
</thead>
<tbody>
<tr>
<td>Data Link Monitoring Time</td>
<td>Set the time for monitoring the link scan time in units of 10ms. Normally, it is recommended to use the default value. If the link scan time exceeds the value set in &quot;Data Link Monitoring Time&quot;, data linking is disabled.</td>
<td>10ms to 2000ms (Default: 2000ms)</td>
</tr>
<tr>
<td>System Switching Monitoring Time<em>1</em>2*3</td>
<td>Set the time (in increments of 10ms) from data link stop ('Data link error status of own station' (SB0049) is turned on) to issuance of a system switching request.</td>
<td>10ms to 5000ms (Default: 2000ms)</td>
</tr>
<tr>
<td>Constant Link Scan Time</td>
<td>Set the constant link scan time. This will keep the link scan time at the set time.</td>
<td>1ms to 500ms (Default: Blank)</td>
</tr>
<tr>
<td>Maximum No. of Returns to System Stations in 1 Scan</td>
<td>Set the number of communication faulty stations that can be returned during one link scan. (Unit: Station)</td>
<td>1 to 64 (Default: 2)</td>
</tr>
<tr>
<td>Control Station Shift Setting</td>
<td>Set this item when another normal station in the network continues cyclic transmission as an alternate station (sub-control station) when the specified control station is disconnected due to an error.</td>
<td>• Set • Not Set (Default: Set)</td>
</tr>
<tr>
<td>Block send data assurance per station</td>
<td>Set this item to prevent data inconsistency of the link data per station during cyclic transmission. This setting enables data operation of multiple words without interlocking. However, data inconsistency prevention function is enabled only during the link refresh processing between the CPU module and MELSECNET/H network module.</td>
<td>• Disable • Enable (Default: As shown on the left)</td>
</tr>
<tr>
<td>Block receive data assurance per station</td>
<td>Set the number of transient transmissions that one station can perform in a link scan.</td>
<td>1 to 10 times*4 (Default: 2 times)</td>
</tr>
<tr>
<td>Transient Setting</td>
<td>Maximum No. of Transient Transmissions</td>
<td>Set the number of transient transmissions that can be performed in one link scan.</td>
</tr>
<tr>
<td></td>
<td>Maximum No. of Transient in One Station</td>
<td>Set the number of transient transmissions that one station can perform in a link scan.</td>
</tr>
<tr>
<td>Low-Speed Cyclic Setting</td>
<td>Low-Speed Cyclic Setting</td>
<td>Set the sending method of low speed cyclic transmission. For details, refer to the following.</td>
</tr>
<tr>
<td></td>
<td>Fixed Interval Cycle Setting</td>
<td>Performs low speed cyclic transmission at the set period.</td>
</tr>
<tr>
<td></td>
<td>System Timer Setting 1 to 8</td>
<td>Performs low speed cyclic transmission at the set date and time. Time/minute/second cannot be omitted in the system timer.</td>
</tr>
</tbody>
</table>

*1 When 'System switching monitoring time setting valid flag' (SB0018) is enabled, the setting value of 'System switching monitoring time setting' (SW0018) is prioritized.

*2 Only a project of the Process CPU (redundant mode) can be set.

*3 When the RJ71BR11 is used, the setting will be disabled.

*4 Always set "Maximum No. of Transient Transmissions" and "Maximum No. of Transient in One Station". Also, set the value of "Maximum No. of Transient Transmissions" to be equal to or greater than the set value of "Maximum No. of Transient in One Station."
Interrupt Settings

Set conditions for sending an interrupt request to the CPU module.

Setting method

1. Set the interrupt conditions.
   
   Up to 16 interrupt conditions can be set.

2. Click the [Apply] button to finish the interrupt settings.

Setting items

<table>
<thead>
<tr>
<th>Item</th>
<th>Description</th>
<th>Setting range</th>
</tr>
</thead>
<tbody>
<tr>
<td>Word Device Setting Value Input Format</td>
<td>Right click in the setting window and select a format from the</td>
<td>• Decimal</td>
</tr>
<tr>
<td></td>
<td>&quot;Word Device Setting Value Input Format&quot; menu.</td>
<td>• Hexadecimal</td>
</tr>
<tr>
<td></td>
<td></td>
<td>(Default: Decimal)</td>
</tr>
<tr>
<td>Device/Reception Channel</td>
<td>Set an interrupt condition device. When &quot;RECVS instruction&quot; is set, an</td>
<td>• LB</td>
</tr>
<tr>
<td></td>
<td>interrupt program is executed when the channel specified in &quot;Device No./</td>
<td>• LX</td>
</tr>
<tr>
<td></td>
<td>Channel No.&quot; receives data.</td>
<td>• SB</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• LW</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• SW</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• RECVS instruction</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• Scan Completed</td>
</tr>
<tr>
<td></td>
<td></td>
<td>(Default: Blank)</td>
</tr>
<tr>
<td>Device No./Channel No.</td>
<td>Set the device number and channel number in the interrupt condition.</td>
<td>• SB, SW: 00000H to 001FFH</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• LB:</td>
</tr>
<tr>
<td></td>
<td></td>
<td>MELSECNET/H mode, MELSECNET/H extended mode: 00000H to 03FFFH</td>
</tr>
<tr>
<td></td>
<td></td>
<td>MELSECNET/10 mode: 00000H to 01FFFH</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• LW:</td>
</tr>
<tr>
<td></td>
<td></td>
<td>MELSECNET/H mode, MELSECNET/H extended mode: 00000H to 03FFFH</td>
</tr>
<tr>
<td></td>
<td></td>
<td>MELSECNET/10 mode: 00000H to 01FFFH</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• LW: 00000H to 03FFFH</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• LX: 00000H to 01FFFH</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• RECVS instruction: 1 to 8</td>
</tr>
<tr>
<td></td>
<td></td>
<td>(Default: Blank)</td>
</tr>
<tr>
<td>Detection Method</td>
<td>Set the method of detecting the conditions set in &quot;Condition Type&quot;.</td>
<td>• Edge</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• Level</td>
</tr>
<tr>
<td></td>
<td></td>
<td>(Default: Blank)</td>
</tr>
<tr>
<td>Condition Type</td>
<td>Set the detection condition of an interrupt generated by the device set in</td>
<td>• ON (When LB, LX, or SB is selected)</td>
</tr>
<tr>
<td></td>
<td>&quot;Device/Reception Channel&quot; and &quot;Device No./Channel No.&quot;.</td>
<td>• OFF (When LB, LX, or SB is selected)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• Values Match (When LW or SW is selected)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• Values Mismatch (When LW or SW is selected)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• Reception Completed (When RECVS instruction is selected)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>(Default: Blank)</td>
</tr>
<tr>
<td>Condition Value</td>
<td>When &quot;LW&quot; or &quot;SW&quot; is selected in &quot;Device/Reception Channel&quot;, enter a word</td>
<td>0000H to FFFFH</td>
</tr>
<tr>
<td></td>
<td>device value that triggers an interrupt.</td>
<td>(Default: Blank)</td>
</tr>
<tr>
<td>Interrupt Pointer</td>
<td>Set an interrupt pointer to be used for a program.</td>
<td>• 10 to 115</td>
</tr>
<tr>
<td></td>
<td>For the priority of the interrupt pointer, refer to the following.</td>
<td>• 150 to 11023</td>
</tr>
<tr>
<td></td>
<td>[MELSEC iQ-R CPU Module User's Manual (Application)]</td>
<td>(Default: Blank)</td>
</tr>
<tr>
<td>Comment</td>
<td>Set a comment for the interrupt pointer used.</td>
<td>(Default: Blank)</td>
</tr>
</tbody>
</table>
The following shows the combination with other setting items for "Device/Reception Channel".

<table>
<thead>
<tr>
<th>Device/Reception Channel</th>
<th>Device No./Channel No.</th>
<th>Detection Method*1</th>
<th>Condition Type</th>
<th>Condition Value</th>
<th>Interrupt Pointer</th>
</tr>
</thead>
</table>
| LB                       | 0000H to 3FFFH          | • Level + ON: Interrupt occurs by turning on the device.  
• Level + OFF: Interrupt occurs by turning off the device.  
• Edge + ON: Interrupt occurs at the rising edge of the device.  
• Edge + OFF: Interrupt occurs at the falling edge of the device. | —              | —              | Device: 10 to 115, 150 to 11023 |
| LX                       | 0000H to 1FFFH          | —                  | —              | —               | —                |
| SB                       | 000H to 1FFFH           | —                  | —              | —               | —                |
| LW                       | 00000H to 3FFFH         | • Level + Values Match: Interrupt occurs when values match.  
• Level + Values Mismatch: Interrupt occurs when values do not match.  
• Edge + Values Match: Interrupt occurs when values match (first time only).  
• Edge + Values Mismatch: Interrupt occurs when values do not match (first time only). | 0 to 65535 (0000H to FFFFH) | —              | —                |
| SW                       | 000H to 1FFFH           | —                  | —              | —               | —                |
| RECVS instruction        | 1 to 8                 | Edge (fixed)       | Reception Completed (fixed) | —               | —                |

*1 When "Level" is selected for "Detection Method", the level condition of the specified device is checked for each link scan of the set MELSECNET/H network module and an interrupt occurs. Therefore, if the sequence scan takes much longer than the link scan, sequence scan time may greatly increase, resulting in the WDT time being exceeded in the CPU module. When "Detection Method" is set to "Level" and the interrupt condition is always met, do not use interrupt settings and check the condition in the program.

*2 When "Scan Completed" is selected, an interrupt occurs for each link scan of the set MELSECNET/H network module.

Using an interrupt program will eliminate the need for describing a start condition in a program. This leads to reduction in the number of steps and sequence scan time.

A changed value in the device cannot be detected if the changed value is shorter than the transmission delay time.

When an interrupt program is executed, link refresh is not performed between the CPU module device and link device. Use the direct access function to access the link device when an interrupt program is being executed.

Precautions

**When "Detection Method" is set to "Level" and the interrupt condition is always met**

If the sequence scan takes much longer than the link scan, since interrupt processing is activated in each link scan, sequence scan time may greatly increase, resulting in a watchdog timer error of the CPU module. When "Detection Method" is set to "Level" and the interrupt condition is always met, do not use interrupt settings and correct the interrupt condition in the program.

**Before executing an interrupt program**

Execute the EI instruction in a main routine program and enable an interrupt. (MELSEC iQ-R CPU Module User's Manual (Application))

**When multiple interrupts have simultaneously occurred**

The operation may delay.

**When the MELSECNET/H network module mode is set to "Offline"**

The module cannot send an interrupt request to the CPU module when the mode is set to "Offline".

**Starting an interrupt program by the rising/falling edge of the specified device**

Do not use the rising/falling edge of a specified device (such as the PLS and PLF instructions) as a trigger of an interrupt program because a change in the device may fail to be read.

**An interrupt cannot be generated**
A changed value in the interrupt condition device cannot be detected if the changed value is shorter than the transmission delay time.

- **Using cyclic data in an interrupt program**
  When an interrupt program is executed, the link device data is not link-refreshed to CPU module devices. Directly access the link devices of the MELSECNET/H network module by direct access.
Setting examples

■ For an interrupt by the RECVS instruction

When a channel whose parameter is specified in the RECVS instruction receives a SEND instruction, the interrupt program can be started. When "RECVS instruction" is selected for "Device/Reception Channel", the "Device No./Channel No." and "Interrupt Pointer" are enabled.

Ex.
The following is a setting example to execute the interrupt program corresponding to the interrupt pointer I50 when the channel specified in the RECVS instruction (channel 5 of the control station (station No.15)) receives data sent from the normal station (station No.3) using the SEND instruction.

1. Set the interrupt setting parameters for the control station (station No.15) of the MELSECNET/H network module as shown below.
For an interrupt by a link device (LB, LW, LX)
The specified interrupt program can be executed from another station in the condition of "ON/OFF" for the link device (LB, LX) or "Values Match/Values Mismatch" for the link register (LW).

An interrupt by the link device (LB, LW, LX) can be used for the normal cyclic transmission and direct access destination.

Ex
The following is a setting example to execute the interrupt program corresponding to the interrupt pointer I50 of the control station (station No.15) when LB100 turns on in the normal station (station No.3).

1. Set the interrupt setting parameters for the control station (station No.15) of the MELSECNET/H network module as shown below.

- If the program is fast, the execution time of the interrupt program may be affected, thereby leading to the effect of the interrupt program not being fully exerted and resulting in the scan time being extended.
- When multiple interrupts occur simultaneously, an operation delay may occur.
- This function cannot be used during offline or online test operation.
- Do not use the rising/falling edge of a specified device (such as the PLS and PLF instructions) as a trigger of an interrupt program because a change in the device may fail to be read.
For an interrupt by a special device (SB, SW)
The specified interrupt program can be executed in the condition of the control information (SB, SW) for data link.

Ex.
The following shows an example of executing an interrupt program with the interrupt pointer I51 when 'Data link error status of own station' (SB0049) of the control station (station No.15) is turned on (error).

1. Set the interrupt setting parameters for the control station (station No.15) of the MELSECNET/H network module as shown below.

<table>
<thead>
<tr>
<th>No.</th>
<th>Device Receptio Channel</th>
<th>Device No/ Channel No.</th>
<th>Detection Method</th>
<th>Condition Type</th>
<th>Condition Value</th>
<th>Interrupt Pointer</th>
<th>Comment</th>
</tr>
</thead>
<tbody>
<tr>
<td>15</td>
<td>58</td>
<td>0004</td>
<td>Edge</td>
<td>ON</td>
<td></td>
<td>I51</td>
<td></td>
</tr>
</tbody>
</table>

Point
- If the program is fast, the execution time of the interrupt program may be affected, thereby leading to the effect of the interrupt program not being fully exerted and resulting in the scan time being extended.
- When multiple interrupts occur simultaneously, an operation delay may occur.
- This function cannot be used during offline or online test operation.
## Transient Transmission Group No.

Set the transient transmission group number.

<table>
<thead>
<tr>
<th>Item</th>
<th>Description</th>
<th>Setting range</th>
</tr>
</thead>
<tbody>
<tr>
<td>Transient Transmission</td>
<td>Set a group number for transient transmission with group specification.</td>
<td>0 to 32 (0: No group specification) (Default: 0)</td>
</tr>
<tr>
<td>Group No.</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

## Dynamic Routing

Select whether to enable the dynamic routing function.

<table>
<thead>
<tr>
<th>Item</th>
<th>Description</th>
<th>Setting range</th>
</tr>
</thead>
<tbody>
<tr>
<td>Dynamic Routing</td>
<td>Set whether to enable the routing function when communicating with a station connected to a different network via a relay station connecting multiple networks. If a static routing has already been set, the set static routing is prioritized.</td>
<td>• Enable • Disable (Default: Enable)</td>
</tr>
</tbody>
</table>

## Parameter Name

Set a name for the module parameter arbitrarily.

<table>
<thead>
<tr>
<th>Item</th>
<th>Description</th>
<th>Setting range</th>
</tr>
</thead>
<tbody>
<tr>
<td>Parameter Name</td>
<td>Set a name for the module parameter arbitrarily.</td>
<td>Up to 8 one-byte or two-byte characters (Default: Blank)</td>
</tr>
</tbody>
</table>

## Event Reception from Other Stations

Select whether to obtain the events occurring in the other stations.

<table>
<thead>
<tr>
<th>Item</th>
<th>Description</th>
<th>Setting range</th>
</tr>
</thead>
<tbody>
<tr>
<td>Event Reception from Other Stations</td>
<td>Set whether to obtain the events occurring in the other stations in the same network. When &quot;Enable&quot; is selected, events that occurred in other stations are registered in the event history.</td>
<td>• Enable • Disable (Default: Enable)</td>
</tr>
</tbody>
</table>
Module Operation Mode

Select the operation mode of the MELSECNET/H network module.
For a redundant system, select the module operation mode of system A.

<table>
<thead>
<tr>
<th>Item</th>
<th>Description</th>
<th>Setting range</th>
</tr>
</thead>
<tbody>
<tr>
<td>Module Operation Mode</td>
<td>Set the operation mode for the MELSECNET/H network module.</td>
<td></td>
</tr>
<tr>
<td>Online</td>
<td>This mode is used to operate the MELSECNET/H network module normally.</td>
<td>RJ71LP21-25</td>
</tr>
<tr>
<td>Debug Mode</td>
<td>This mode is used to place the MELSECNET/H network module in the send stop status. The station is recognized as a normal station by other stations.</td>
<td>Online, Debug Mode, Offline, Forward Loop Test (RJ71LP21-25), Reverse Loop Test (RJ71LP21-25), Test between Master Station, Test between Slave Station, Self-loopback Test, Internal Self-loopback Test, Hardware test (Default: Online)</td>
</tr>
<tr>
<td>Offline</td>
<td>This mode is used to stop operation of the MELSECNET/H network module (station disconnected).</td>
<td>Online, Debug Mode, Offline, Test between Master Station, Test between Slave Station, Self-loopback Test, Internal Self-loopback Test, Hardware test (Default: Online)</td>
</tr>
<tr>
<td>Forward Loop Test (RJ71LP21-25)</td>
<td>This mode is used to check the connection status with the optical fiber cable on the forward loop side.</td>
<td></td>
</tr>
<tr>
<td>Reverse Loop Test (RJ71LP21-25)</td>
<td>This mode is used to check the connection status with the optical fiber cable on the reverse loop side.</td>
<td></td>
</tr>
<tr>
<td>Test between Master Station</td>
<td>This mode is used to set the station that executes the hardware operation for checking the line between two stations.</td>
<td></td>
</tr>
<tr>
<td>Test between Slave Station</td>
<td>This mode is used to set the station for which the hardware operation for checking the line between two stations was executed.</td>
<td></td>
</tr>
<tr>
<td>Self-loopback Test</td>
<td>In this mode, the MELSECNET/H network module alone checks the hardware including the send/receive circuits and cables of the transmission system.</td>
<td></td>
</tr>
<tr>
<td>Internal Self-loopback Test</td>
<td>In this mode, the MELSECNET/H network module alone checks the hardware including the send/receive circuits and cables of the transmission system.</td>
<td></td>
</tr>
<tr>
<td>Hardware test</td>
<td>This mode is used to check the hardware in the MELSECNET/H network module.</td>
<td></td>
</tr>
</tbody>
</table>

Restriction

The following functions are disabled when "Module Operation Mode" is set to "Offline", "Forward Loop Test" (RJ71LP21-25), "Reverse Loop Test" (RJ71LP21-25), "Test between Master Station", "Test between Slave Station", "Self-loopback Test", "Internal Self-loopback Test", or "Hardware test".
- Cyclic transmission
- Transient transmission
- RAS (automatic return, loopback function (RJ71LP21-25), control station switching)
- Interrupt request to CPU module
- Multiplex transmission (RJ71LP21-25)
- Number of send points extension
Interlink Transmission Settings

Set link device ranges when cyclic data are transferred from a station in the own network to a station in another network.

Setting method

The procedure for the interlink transmission settings is shown below.

1. Select combination of modules in the "Transfer Source Module" and "Transfer Destination Module" boxes and enter setting values.

2. Click the [OK] button to finish the interlink transmission settings.

Setting items

<table>
<thead>
<tr>
<th>Item</th>
<th>Description</th>
<th>Setting range</th>
</tr>
</thead>
<tbody>
<tr>
<td>Setting Method</td>
<td>Select a link device assignment method.</td>
<td>• Start/End&lt;br&gt;• Points/Start&lt;br&gt;(Default: Start/End)</td>
</tr>
<tr>
<td>Transfer Source Module</td>
<td>Select the transfer source and destination modules.</td>
<td>The setting varies depending on the set module.</td>
</tr>
<tr>
<td>Transfer Destination Module</td>
<td>Enter the link device range of the transfer source and destination modules. Up to 64 ranges can be set. LB points can be assigned in increments of 16 (Start: 0H, End: 3FFFH).</td>
<td>LB&lt;br&gt;Ponts: 16 to 16384&lt;br&gt;Range: 0H to 3FFFH&lt;br&gt;(Default: Blank)</td>
</tr>
</tbody>
</table>

![Interlink Transmission Parameters](image)

![Diagram showing interlink transmission settings](image)
## 2.4 Application Settings

Link devices set for "Source" can be overlapped. Doing so will allow transfer of the same link devices to multiple network modules.

<table>
<thead>
<tr>
<th>Item</th>
<th>Description</th>
<th>Setting range</th>
</tr>
</thead>
<tbody>
<tr>
<td>LW/RWw</td>
<td>Source</td>
<td>Enter the link device range of the transfer source and destination modules. Up to 64 ranges can be set. LW points can be assigned in increments of 1.</td>
</tr>
<tr>
<td>RWr/LW</td>
<td>Destination</td>
<td></td>
</tr>
</tbody>
</table>

![Diagram showing link device transfer between MELSECNET/H network modules]
Precautions

■ Modules supporting interlink transmission

Relevant modules are as follows.
- RJ71GN11-T2 (master station)
- CC-Link IE Controller Network-equipped module (control station, normal station)
- CC-Link IE Field Network-equipped module (master station, submaster station).
- MELSECNET/H network module (control station, normal station)

■ Transfer destination link device setting

Do not use link devices set for link refresh range as a transfer destination. If doing so, transfer destination link devices will be overwritten by link refresh. To use transfer destination link device data in the CPU module, set the transfer source link device as the link refresh range.

■ Setting 65 or more interlink transmission ranges

Use link direct devices in a program to perform interlink transmission.

Ex.
The following shows an example of performing interlink transmission between the master station on Network No.1 (CC-Link IE Field Network) and the normal station on Network No.2 (MELSECNET/H network).

■ Performing interlink transmission in a multiple CPU system

When different control CPUs are set for the network modules, interlink transmission cannot be performed using interlink transmission parameters or a program. Perform interlink transmission using data communication by the CPU buffer memory. ([MELSEC iQ-R CPU Module User's Manual (Application)])
Setting example

The following is a setting example to perform interlink transmission from the master station on CC-Link IE Field Network to stations on MELSECNET/H network. In this example, 128-point data input from the slave station (station No.1) on CC-Link IE Field Network is transferred.

1. Select "0000: RJ71GF11-T2 (Master Station)" for "Transfer Source Module" and "0020: RJ71LP21-25 (MNET/H Mode (Normal Station))" for "Transfer Destination Module", and enter the transfer ranges of link devices.

2. Click the [OK] button.
If the transfer target network module is on a network other than MELSECNET/H network, set the transfer destination link devices within the own station send range of the network module. If the link devices are set within the send range of another station, the transferred data are overwritten with the send data of another station.

**Redundant System Settings (RJ71LP21-25 only)**

Set the operation mode for the RJ71LP21-25 mounted on system B in a redundant system.

<table>
<thead>
<tr>
<th>Item</th>
<th>Description</th>
<th>Setting range</th>
</tr>
</thead>
<tbody>
<tr>
<td>Station No. (System A)</td>
<td>Displays the station number set in &quot;Station No.&quot; under &quot;Required Settings&quot;.</td>
<td>—</td>
</tr>
<tr>
<td>Module Operation Mode (A)</td>
<td>Displays the module operation mode set for &quot;Module Operation Mode&quot; under  &quot;Application Settings&quot;.</td>
<td>—</td>
</tr>
<tr>
<td>Station No. (System B)</td>
<td>Displays the station number of system B.</td>
<td>—</td>
</tr>
<tr>
<td>Module Operation Mode (B)</td>
<td>Set the module operation mode of system B.</td>
<td>• Online</td>
</tr>
<tr>
<td></td>
<td>For details on the module operation mode, refer to the following.</td>
<td>• Debug Mode</td>
</tr>
<tr>
<td></td>
<td>☐ ☐ Page 74 Module Operation Mode</td>
<td>• Offline</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• Forward Loop Test</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• Reverse Loop Test</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• Test between Master Station</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• Test between Slave Station</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• Self-loopback Test</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• Internal Self-loopback Test</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• Hardware test</td>
</tr>
<tr>
<td></td>
<td></td>
<td>(Default: Online)</td>
</tr>
</tbody>
</table>

For the parameter errors that occur in the redundant CPU, refer to the following.

MELSEC iQ-R CPU Module User's Manual (Application)
3 PROGRAMMING

3.1 Precautions for Programming

This section describes the precautions for creating MELSECNET/H network module programs. For MELSECNET/H network module programs, use the link special relay (SB) and link special register (SW) to configure an interlock according to the link status of the own station and other stations.

The following shows the link special relay (SB) and link special register (SW) for the interlock used in programs.

- Communication status with CPU module (SB0020)
- Baton pass error status of own station (SB0047)
- Data link error status of own station (SB0049)
- Baton pass status (SB0070)
- Baton pass status of each station (SB0074)
- Data link status (SW0070 to SW0073)
- Data link status (SW0074 to SW0077)
- Standby system CPU status in redundant system (SW01FC to SW01FF)

For details, refer to the following.

Page 150 List of Link Special Relay (SB) Areas, Page 162 List of Link Special Register (SW) Areas
Set the following values for the timer constant \( K \) so that the control does not stop even if the network detects a momentary error due to cable or noise conditions. (Six times, two times, and three times are provided just as a guide.)

- Baton pass status (T0, T2): \((\text{Link scan time} \times 6) + (\text{Scan time of the CPU module of the target station} \times 2)\) or more
- Data link status (T1, T3): \((\text{Link scan time} \times 3)\) or more

For the communication examples of using the interlock, refer to the following.

MELSEC iQ-R MELSECNET/H Network Module User's Manual (Startup)
3.2 Program Examples of the Redundant System (RJ71LP21-25 Only)

This section describes program examples of when using the RJ71LP21-25 in a redundant system.

System configuration

This section describes a program example of when accessing the control system of the control station (station No.1) or sub-control station (station No.2) in the redundant system from the normal station (station No.3).

(1) Control station: Station No.1
(2) Sub-control station: Station No.2
(3) Normal station: Station No.3

Common to the control station (station No.1) and sub-control station (station No.2)
- Power supply module: R61P
- CPU module: R08PCPU
- Redundant function module: R6RFM (Start I/O number: 0000H to 001FH)
- MELSECNET/H network module: RJ71LP21-25 (Start I/O number: 0020H to 003FH)

Normal station (station No.3)
- Power supply module: R61P
- CPU module: R04CPU
- MELSECNET/H network module: RJ71LP21-25 (Start I/O number: 0000H to 001FH)
Setting parameters

Setting parameters in the control station
Connect the engineering tool to the CPU module to be set as the control system and set the parameters. In a redundant system, the same program and parameter are written to both systems. A new project does not need to be created.

1. Set the CPU module as follows.

   ![Image of setting parameters]

   [Project] ⇒ [New]

2. Click the [Setting Change] button to set the module label to be used.

   ![Image of setting module label]
3. In the I/O assignment setting, set the redundant function module for slot No.0.

   [Navigation window] ⇒ [Parameter] ⇒ [System Parameter] ⇒ [I/O Assignment] tab ⇒ [I/O Assignment Setting]

4. Set the RJ71LP21-25 (R) for slot No.1.

5. Click the [OK] button to add a module label of the RJ71LP21-25 (R).
6. Set the items in “Required Settings” as follows.
   ![Navigation window] ⇒ [Parameter] ⇒ [Module Information] ⇒ [RJ71LP21-25 (R)] ⇒ [Required Settings]

7. Set the network range assignment as follows and click the [Apply] button.
   ![Navigation window] ⇒ [Parameter] ⇒ [Module Information] ⇒ [RJ71LP21-25 (R)] ⇒ [Required Settings] ⇒ [Network Range Assignment] ⇒ [Detailed Setting]

8. Set the link refresh settings as follows and click the [Apply] button.
   ![Navigation window] ⇒ [Parameter] ⇒ [Module Information] ⇒ [RJ71LP21-25 (R)] ⇒ [Basic Settings] ⇒ [Link Refresh Settings] ⇒ [Detailed Setting]

9. Write the set parameters to the system A CPU module.
   ![Online] ⇒ [Write to PLC]

10. Click the [Yes] button to write the parameters to the CPU modules of both systems.

11. Either reset the CPU modules of both systems or power off and on both systems.
Setting parameters in the normal station

Connect the engineering tool to the CPU module on the normal station and set parameters.

1. Set the CPU module as follows.

   ![Project] ➔ [New]

2. Click the [Setting Change] button to set the module label to be used.

3. Set the RJ71LP21-25 as follows.

   ![Navigation window] ➔ [Parameter] ➔ [Module Information] ➔ Right click ➔ [Add New Module]

4. Add the module label of the RJ71LP21-25. The addition method of the module label is the same as that of the control station. (Page 83 Setting parameters in the control station)
5. Set the items in "Required Settings" as follows.
   [Navigation window] ⇒ [Parameter] ⇒ [Module Information] ⇒ [RJ71LP21-25] ⇒ [Required Settings]

6. Set the link refresh settings as follows and click the [Apply] button.
   [Navigation window] ⇒ [Parameter] ⇒ [Module Information] ⇒ [RJ71LP21-25] ⇒ [Basic Settings] ⇒ [Link Refresh Settings] ⇒ [Detailed Setting]

7. Write the set parameters to the CPU module of the normal station. Then reset the CPU module or power off and on the system.
   [Online] ⇒ [Write to PLC]
Checking the network status

Once parameters are set for the control station and normal station, the MELSECNET diagnostics of the engineering tool can be used to check whether data link is normally operating.

1. Connect the engineering tool to the CPU module on the control station.
2. Start MELSECNET diagnostics.

If the following display appears, data link is normal.

Program examples

Write the following program to the CPU module in the normal station.

<table>
<thead>
<tr>
<th>Classification</th>
<th>Label name</th>
<th>Description</th>
<th>Device</th>
</tr>
</thead>
<tbody>
<tr>
<td>Module Label</td>
<td>LP21_1</td>
<td>Module label</td>
<td>—</td>
</tr>
<tr>
<td>Labels to be used for the module FB</td>
<td>M_RJ71LP21_RedundantSystem_GetAddress_01B_1.pbi_uTargetSystem_Type</td>
<td>Target system type</td>
<td>—</td>
</tr>
<tr>
<td>Label to be defined</td>
<td>Define global labels as shown below:</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

For details on the "MELSECNET Diagnostics(Host Station Information)" window, refer to the following.

Page 109 Checking the Network Status
(9) Specify the target system used in the module FB RedundantSystem_GetAddress.
(15) Acquire the current target station address of the control system or standby system by executing the module FB RedundantSystem_GetAddress.
(255) Read the data for the target station acquired with RedundantSystem_GetAddress by executing the module FB DeviceRead.
4  TROUBLESHOOTING

This chapter describes troubleshooting for the MELSECNET/H network module.

4.1 Checking with LED

This section describes troubleshooting using LED. Error status can be determined by status of the RUN LED and the ERR LED.

<table>
<thead>
<tr>
<th>RUN LED</th>
<th>ERR LED</th>
<th>Error status*1</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Off</td>
<td>On, flashing</td>
<td>Major error</td>
<td>An error such as hardware failure or memory failure. The module stops operating.</td>
</tr>
<tr>
<td>On</td>
<td>Flashing</td>
<td>Moderate error</td>
<td>Although an error, such as a parameter error, which affects module operation has occurred, the module continues operation.</td>
</tr>
<tr>
<td>On</td>
<td>On</td>
<td>Minor error</td>
<td>An error such as communication failure. The module continues operating.</td>
</tr>
</tbody>
</table>

*1 When multiple errors occur, the error status is displayed in the order of major, moderate, and minor.

When the RUN LED turns off

When the RUN LED turns off after powering on the MELSECNET/H network module, check the following.

<table>
<thead>
<tr>
<th>Check item</th>
<th>Action</th>
</tr>
</thead>
<tbody>
<tr>
<td>Has any error occurred in the result of the hardware test?</td>
<td>The possible cause is a hardware failure. Replace the module.</td>
</tr>
<tr>
<td>Check if the MELSECNET/H network module has been properly mounted.</td>
<td>If not, properly mount the module on the base unit.</td>
</tr>
</tbody>
</table>

When the ERR LED turns on or is flashing

When the ERR LED turns on or is flashing, check the following.

<table>
<thead>
<tr>
<th>Check item</th>
<th>Action</th>
</tr>
</thead>
<tbody>
<tr>
<td>Does any error occur in the module diagnostics?</td>
<td>Follow the instruction displayed on the window.</td>
</tr>
<tr>
<td>Does any error occur in the MELSECNET diagnostics?</td>
<td>• Correct &quot;Network Range Assignment&quot; in *Required Settings&quot; in accordance with the station actually connected. • When there is a disconnected station, perform troubleshooting for when the D LINK LED turns off. (Page 92 When the D LINK LED turns off)</td>
</tr>
</tbody>
</table>

If the above action does not solve the problem, perform the self-diagnostics test to check for hardware failure. (Page 96 Self-diagnostics test)

When the T PASS LED turns on and off in an unstable condition

When the T PASS LED turns on and off in an unstable condition, check the following.

<table>
<thead>
<tr>
<th>Check item</th>
<th>Action</th>
</tr>
</thead>
<tbody>
<tr>
<td>Does the communication cable used conform to the standard?</td>
<td>Replace the communication cable with one conforming to the standard.</td>
</tr>
<tr>
<td>Does the station-to-station distance meet the specifications?</td>
<td>Set the station-to-station distance within range.</td>
</tr>
<tr>
<td>Is any communication cable disconnected?</td>
<td>Replace the communication cable.</td>
</tr>
<tr>
<td>Is the connector about to come loose?</td>
<td>Firmly insert the connector.</td>
</tr>
<tr>
<td>For the RJ71LP21-25, is the transmission speed setting of the RJ71LP21-25 of all stations the same?</td>
<td>Match the transmission speed setting of all stations.</td>
</tr>
<tr>
<td>For the RJ71BR11, is the terminating resistor about to come loose?</td>
<td>Firmly insert the terminating resistor.</td>
</tr>
<tr>
<td>Is the reserved station set for the control station?</td>
<td>Remove the reserved station specified in the control station setting.</td>
</tr>
<tr>
<td>Is the set station number greater than the number of connected modules?</td>
<td>Correct the station number so that it is within the number of connected modules.</td>
</tr>
</tbody>
</table>
When the D LINK LED turns off

When the D LINK LED turns off, check the following.

<table>
<thead>
<tr>
<th>Check item</th>
<th>Action</th>
</tr>
</thead>
<tbody>
<tr>
<td>Is the control station operating normally?</td>
<td>Check if the control station (sub-control station) is performing data link using the MELSECNET diagnostics.</td>
</tr>
<tr>
<td>Is the control station connected to the network?</td>
<td>Check if the control station (sub-control station) is performing data link using the MELSECNET diagnostics.</td>
</tr>
<tr>
<td>Does the communication cable used conform to the standard?</td>
<td>Replace the communication cable with one conforming to the standard.</td>
</tr>
<tr>
<td>Does the station-to-station distance meet the specifications?</td>
<td>Set the station-to-station distance within range.</td>
</tr>
<tr>
<td>Does the cabling condition (bending radius) meet the specifications?</td>
<td>Refer to the manual for the communication cable, and correct the bending radius.</td>
</tr>
<tr>
<td>Is any communication cable disconnected?</td>
<td>Replace the communication cable.</td>
</tr>
<tr>
<td>Are the modules of other stations connected normal?</td>
<td>• Check if the modules on the other stations are performing data link using the MELSECNET diagnostics.</td>
</tr>
<tr>
<td>Are station numbers unique?</td>
<td>Change the duplicated station number.</td>
</tr>
<tr>
<td>For an optical loop system, are 65 or more stations connected, including the control station and the normal stations?</td>
<td>Keep the total number of connected control stations and normal stations to 64 stations or less.</td>
</tr>
<tr>
<td>For a coaxial bus system, are 33 or more stations connected, including the control station and the normal stations?</td>
<td>Keep the total number of connected control stations and normal stations to 32 stations or less.</td>
</tr>
<tr>
<td>Is the reserved station set for the control station?</td>
<td>Remove the reserved station specified in the control station setting.</td>
</tr>
<tr>
<td>Is the set station number greater than the number of connected modules?</td>
<td>Correct the station number so that it is within the number of connected modules.</td>
</tr>
<tr>
<td>Does a stop error occur in the CPU module?</td>
<td>Follow the instruction displayed on the window.</td>
</tr>
<tr>
<td>Are the communication cables used normally?</td>
<td>• Check if the communication cable which conforms the standard is used.</td>
</tr>
<tr>
<td>Are other stations connected to the MELSECNET/H network module normal?</td>
<td>Check if the other stations are performing data link using the MELSECNET diagnostics.</td>
</tr>
<tr>
<td>For the RJ71LP21-25, is the transmission speed setting of the RJ71LP21-25 of all stations the same?</td>
<td>Match the transmission speed setting of all stations.</td>
</tr>
</tbody>
</table>

If the above action does not solve the problem, perform the self-diagnostics test to check for hardware failure. (Page 96 Self-diagnostics test)

When the L ERR LED turns on or turns on and off in an unstable condition

When the L ERR LED turns on or turns on and off in an unstable condition, check the following.

<table>
<thead>
<tr>
<th>Check item</th>
<th>Action</th>
</tr>
</thead>
<tbody>
<tr>
<td>Are the communication cables used normally?</td>
<td>• Check if the communication cable which conforms the standard is used.</td>
</tr>
<tr>
<td>Are the communication cables used normally?</td>
<td>• Check if the station-to-station distance is set within range.</td>
</tr>
<tr>
<td>Are the communication cables used normally?</td>
<td>• Check if the communication cables are not disconnected.</td>
</tr>
<tr>
<td>Are the communication cables used normally?</td>
<td>• Check if a connector is about to come loose.</td>
</tr>
<tr>
<td>Are other stations connected to the MELSECNET/H network module normal?</td>
<td>Check if the other stations are performing data link using the MELSECNET diagnostics.</td>
</tr>
<tr>
<td>For the RJ71LP21-25, is the transmission speed setting of the RJ71LP21-25 of all stations the same?</td>
<td>Match the transmission speed setting of all stations.</td>
</tr>
</tbody>
</table>

If the above actions do not solve the problem, perform the following tests to check for an error.

• Troubleshooting for when communication is unstable (Page 127 When communication is unstable)
4.2 Checking the Module Status

The following items can be checked in the "Module Diagnostics" window for the MELSECNET/H network module.

<table>
<thead>
<tr>
<th>Item</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>[Error Information] tab</td>
<td>Displays the details of the errors currently occurring.</td>
</tr>
<tr>
<td>[Module Information List] tab</td>
<td>Displays LED information, logical LED information, and individual information of the MELSECNET/H network module.</td>
</tr>
</tbody>
</table>

### Supplementary Function

- **MELSECNET Diagnostics**
  - Enables checking the cause to resolve the problem when an error occurs in the MELSECNET/H network module. (Page 109 Checking the Network Status)

### Error Information

Displays the details of the errors currently occurring and actions to be taken in the [Error Information] tab.

#### Status

- **Major**: An error such as hardware failure or memory failure. The module stops operating.
- **Moderate**: An error such as system bus failure. The module stops operating.
- **Minor**: The module continues operating.

#### Error code

- [Page 131 List of Error Codes]

#### [Event History] button

Click the [Event History] button to check the history of errors that have occurred on the network, errors detected for each module, and operations that have been executed. (Page 147 Event List)

#### Detailed Information

Displays up to three items, such as the parameter information, operation source information, and system configuration information of each error. (Page 146 List of Parameter Numbers)

#### Cause

Displays the detailed error causes.

#### Corrective Action

Displays the actions to eliminate the error causes.
**Module information list**

LED information, logical LED information, and individual information of the MELSECNET/H network module are displayed in the [Module Information List] tab.

<table>
<thead>
<tr>
<th>Item</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>LED information</td>
<td>Displays the LED status on the MELSECNET/H network module.</td>
</tr>
<tr>
<td>Logical LED information</td>
<td>Displays the on/off status of the LED on the MELSECNET/H network module.</td>
</tr>
<tr>
<td>Individual information</td>
<td></td>
</tr>
<tr>
<td>Station Type</td>
<td>Displays the station type set for the MELSECNET/H network module.</td>
</tr>
<tr>
<td>Network No.</td>
<td>Displays the network number set for the MELSECNET/H network module.</td>
</tr>
<tr>
<td>Station Number</td>
<td>Displays the station number set for the MELSECNET/H network module.</td>
</tr>
<tr>
<td>Transient transmission group No.</td>
<td>Displays the transient transmission group number set for the MELSECNET/H network module.</td>
</tr>
<tr>
<td>Module Operation Mode</td>
<td>Displays the module operation mode set for the MELSECNET/H network module.</td>
</tr>
</tbody>
</table>
The following shows the on/off status of the logical LED information.

<table>
<thead>
<tr>
<th>Item</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>RUN</td>
<td>On: Normal operation</td>
</tr>
<tr>
<td>PC</td>
<td>On: PLC to PLC network&lt;sup&gt;1&lt;/sup&gt;</td>
</tr>
<tr>
<td>REMOTE</td>
<td>On: Remote I/O network&lt;sup&gt;2&lt;/sup&gt;</td>
</tr>
<tr>
<td>DUAL</td>
<td>On: Multiplex transmission in progress&lt;sup&gt;3&lt;/sup&gt;</td>
</tr>
<tr>
<td>SW E</td>
<td>On: Switch setting error&lt;sup&gt;2&lt;/sup&gt;</td>
</tr>
<tr>
<td>MS E</td>
<td>On: Duplicated station number or control station on the same network</td>
</tr>
<tr>
<td>PRM E</td>
<td>On: Parameter error</td>
</tr>
<tr>
<td>MNG</td>
<td>On: Control station is set. Off: Normal station is set.</td>
</tr>
<tr>
<td>S MNG</td>
<td>On: Sub-control station is set.</td>
</tr>
<tr>
<td>TEST</td>
<td>On: Testing</td>
</tr>
<tr>
<td>D LINK</td>
<td>On: Data link in progress (cyclic transmission being performed)</td>
</tr>
<tr>
<td>T PASS</td>
<td>On: Baton pass in progress (joined in the network)</td>
</tr>
<tr>
<td></td>
<td>Flashing: Testing</td>
</tr>
<tr>
<td>F CRC</td>
<td>For the RJ71LP21-25, On: A CRC error has occurred on the forward loop side.</td>
</tr>
<tr>
<td></td>
<td>For the RJ71BR11, On: A CRC error has occurred.</td>
</tr>
<tr>
<td></td>
<td>(An error was detected in checking code for receive data)</td>
</tr>
<tr>
<td>F OVER</td>
<td>For the RJ71LP21-25, On: An overrun error has occurred on the forward loop side.</td>
</tr>
<tr>
<td></td>
<td>For the RJ71BR11, On: An overrun error has occurred.</td>
</tr>
<tr>
<td></td>
<td>(An error has occurred due to a delayed processing of receive data.)</td>
</tr>
<tr>
<td>F AB IF</td>
<td>For the RJ71LP21-25, On: An abort error has occurred on the forward loop side.</td>
</tr>
<tr>
<td></td>
<td>For the RJ71BR11, On: An abort error has occurred.</td>
</tr>
<tr>
<td></td>
<td>(An error has occurred when the value &quot;1&quot; is continuously received over the specified number of times or the receive data length is short.)</td>
</tr>
<tr>
<td>F TIME</td>
<td>For the RJ71LP21-25, On: A timeout error has occurred on the forward loop side.</td>
</tr>
<tr>
<td></td>
<td>For the RJ71BR11, On: A timeout error has occurred.</td>
</tr>
<tr>
<td></td>
<td>(An error has occurred when the data link monitoring timer operated.)</td>
</tr>
<tr>
<td>F DATA</td>
<td>For the RJ71LP21-25, On: An error of reception of 2K bytes or more has occurred on the forward loop side.</td>
</tr>
<tr>
<td></td>
<td>For the RJ71BR11, On: An error of reception of 2K bytes or more has occurred.</td>
</tr>
<tr>
<td></td>
<td>(An error has occurred due to receiving abnormal data whose size is 2K bytes or more.)</td>
</tr>
<tr>
<td>F UNDER</td>
<td>For the RJ71LP21-25, On: An under-error has occurred on the forward loop side.</td>
</tr>
<tr>
<td></td>
<td>For the RJ71BR11, On: An under-error has occurred.</td>
</tr>
<tr>
<td></td>
<td>(An error has occurred due to the internal processing of send data not being performed at the specified intervals.)</td>
</tr>
<tr>
<td>F LOOP</td>
<td>On: A faulty station exists on the forward loop side.&lt;sup&gt;3&lt;/sup&gt;</td>
</tr>
<tr>
<td></td>
<td>(An error has occurred due to the loop being faulty.)</td>
</tr>
<tr>
<td>R CRC</td>
<td>On: A CRC error has occurred on the reverse loop side.&lt;sup&gt;3&lt;/sup&gt;</td>
</tr>
<tr>
<td></td>
<td>(An error was detected in checking code for receive data)</td>
</tr>
<tr>
<td>R OVER</td>
<td>On: An overrun error has occurred on the reverse loop side.</td>
</tr>
<tr>
<td></td>
<td>(An error has occurred due to a delayed processing of receive data.)</td>
</tr>
<tr>
<td>R AB IF</td>
<td>On: An abort error has occurred on the reverse loop side.</td>
</tr>
<tr>
<td></td>
<td>(An error has occurred when the value &quot;1&quot; is continuously received over the specified number of times or the receive data length is short.)</td>
</tr>
<tr>
<td>R TIME</td>
<td>On: A timeout error has occurred on the reverse loop side.</td>
</tr>
<tr>
<td></td>
<td>(An error has occurred when the data link monitoring timer operated.)</td>
</tr>
<tr>
<td>R DATA</td>
<td>On: An error of reception of 2K bytes or more has occurred on the reverse loop side.</td>
</tr>
<tr>
<td></td>
<td>(An error has occurred due to receiving abnormal data whose size is 2K bytes or more.)</td>
</tr>
<tr>
<td>R UNDER</td>
<td>On: An under-error has occurred on the reverse loop side.</td>
</tr>
<tr>
<td></td>
<td>(An error has occurred due to the internal processing of send data not being performed at the specified intervals.)</td>
</tr>
<tr>
<td>R LOOP</td>
<td>On: A faulty station exists on the reverse loop side.&lt;sup&gt;3&lt;/sup&gt;</td>
</tr>
<tr>
<td></td>
<td>(An error has occurred due to the loop being faulty.)</td>
</tr>
</tbody>
</table>

<sup>1</sup> Always on
<sup>2</sup> Always off
<sup>3</sup> Always off for the RJ71BR11
Self-diagnostics test

Self-diagnostics test can check the hardware status of the MELSECNET/H network module. The MELSECNET/H network module alone can perform the following three types of tests.

<table>
<thead>
<tr>
<th>Test item</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Self-loopback Test</td>
<td>For this test, the MELSECNET/H network module alone checks the hardware including the send/receive circuits and cables of the transmission system.</td>
</tr>
<tr>
<td>Internal Self-loopback Test</td>
<td>For this test, the MELSECNET/H network module alone checks the hardware including the send/receive circuits of the transmission system.</td>
</tr>
<tr>
<td>Hardware test</td>
<td>Checks the hardware in the MELSECNET/H network module.</td>
</tr>
</tbody>
</table>

**Self-loopback test**

**For the RJ71LP21-25**

**Operating procedure**

1. Connect the IN connector and OUT connector of the RJ71LP21-25 with optical fiber cables.
2. Set the module operation mode to "Self-loopback Test".
3. Click the [Apply] button.
4. Write the module parameters and reset the CPU module.
   Do not connect/disconnect the optical fiber cable during the test. Connecting/disconnecting the cable causes completion with an error.

**For the RJ71BR11**

**Operating procedure**

1. Connect the terminating resistor to both connectors of the RJ71BR11 F-type connector.
2. Set the module operation mode to "Self-loopback Test".
3. Click the [Apply] button.
4. Write the module parameters and reset the CPU module.
   Do not connect/disconnect the terminating resistor during the test. Connecting/disconnecting the cable causes completion with an error.

**Checking the status and result of self-loopback test.**

The status and result of self-loopback test can be checked with the LED indicator of the module.

<table>
<thead>
<tr>
<th>Test status</th>
<th>LED indication</th>
</tr>
</thead>
<tbody>
<tr>
<td>Test in progress</td>
<td>The RUN LED is turned on, the ERR LED is turned off, and the T PASS LED flashes. The SD/RD LED is turned on. The dot matrix LED indicates &quot;MD7&quot;.</td>
</tr>
<tr>
<td>Completed successfully</td>
<td>Since the test is repeated during normal operation, the test is judged to have been completed successfully when the T PASS LED flashes 20 times (for about 10 seconds) or more.</td>
</tr>
<tr>
<td>Completed with an error</td>
<td>The ERR LED flashes and the dot matrix LED indicates &quot;ER7&quot; and error number alternately at intervals of one second.</td>
</tr>
</tbody>
</table>
**Checking the status when the operation is completed with an error**

When an error is detected, the test is immediately completed (with an error). When the test is completed with an error, the dot matrix at the front side of the MELSECNET/H network module indicates an error number. Take actions according to the error number displayed. "_" in the error number is displayed as a space on the dot matrix display.

- List of errors displayed on the RJ71LP21-25

<table>
<thead>
<tr>
<th>Error No.</th>
<th>Loop direction</th>
<th>Description</th>
<th>Action</th>
</tr>
</thead>
<tbody>
<tr>
<td>0_1</td>
<td>—</td>
<td>Data error in loop test 1</td>
<td>Check that the optical fiber cable is connected correctly. Replace the optical fiber cable and perform the test again. If the test fails again, please consult your local Mitsubishi representative.</td>
</tr>
<tr>
<td>0_2</td>
<td>—</td>
<td>Data error in loop test 2</td>
<td>Check that the optical fiber cable is connected correctly. Replace the optical fiber cable and perform the test again. If the test fails again, please consult your local Mitsubishi representative.</td>
</tr>
<tr>
<td>0_3</td>
<td>—</td>
<td>Data error in repeat test</td>
<td>Check that the optical fiber cable is connected correctly. Replace the optical fiber cable and perform the test again. If the test fails again, please consult your local Mitsubishi representative.</td>
</tr>
<tr>
<td>0_4</td>
<td>—</td>
<td>Data error in loopback test</td>
<td>Check that the optical fiber cable is connected correctly. Replace the optical fiber cable and perform the test again. If the test fails again, please consult your local Mitsubishi representative.</td>
</tr>
<tr>
<td>1_1</td>
<td>Forward loop side</td>
<td>Loop test 1 completed with an error</td>
<td>Check that the optical fiber cable is connected correctly. Replace the optical fiber cable and perform the test again. If the test fails again, please consult your local Mitsubishi representative.</td>
</tr>
<tr>
<td>2_1</td>
<td>Reverse loop side</td>
<td>Loop test 2 completed with an error</td>
<td>Check that the optical fiber cable is connected correctly. Replace the optical fiber cable and perform the test again. If the test fails again, please consult your local Mitsubishi representative.</td>
</tr>
<tr>
<td>3_1</td>
<td>Forward loop side and reverse loop side</td>
<td>Loop test 2 completed with an error</td>
<td>Check that the optical fiber cable is connected correctly. Replace the optical fiber cable and perform the test again. If the test fails again, please consult your local Mitsubishi representative.</td>
</tr>
<tr>
<td>1_2</td>
<td>Forward loop side</td>
<td>Repeat test completed with an error</td>
<td>Check that the optical fiber cable is connected correctly. Replace the optical fiber cable and perform the test again. If the test fails again, please consult your local Mitsubishi representative.</td>
</tr>
<tr>
<td>2_2</td>
<td>Reverse loop side</td>
<td>Repeat test completed with an error</td>
<td>Check that the optical fiber cable is connected correctly. Replace the optical fiber cable and perform the test again. If the test fails again, please consult your local Mitsubishi representative.</td>
</tr>
<tr>
<td>3_2</td>
<td>Forward loop side and reverse loop side</td>
<td>Repeat test completed with an error</td>
<td>Check that the optical fiber cable is connected correctly. Replace the optical fiber cable and perform the test again. If the test fails again, please consult your local Mitsubishi representative.</td>
</tr>
<tr>
<td>1_3</td>
<td>Forward loop side</td>
<td>Loopback test completed with an error</td>
<td>Check that the optical fiber cable is connected correctly. Replace the optical fiber cable and perform the test again. If the test fails again, please consult your local Mitsubishi representative.</td>
</tr>
<tr>
<td>2_3</td>
<td>Reverse loop side</td>
<td>Loopback test completed with an error</td>
<td>Check that the optical fiber cable is connected correctly. Replace the optical fiber cable and perform the test again. If the test fails again, please consult your local Mitsubishi representative.</td>
</tr>
<tr>
<td>3_3</td>
<td>Forward loop side and reverse loop side</td>
<td>Loopback test completed with an error</td>
<td>Check that the optical fiber cable is connected correctly. Replace the optical fiber cable and perform the test again. If the test fails again, please consult your local Mitsubishi representative.</td>
</tr>
</tbody>
</table>

- List of errors displayed on the RJ71BR11

<table>
<thead>
<tr>
<th>Error No.</th>
<th>Description</th>
<th>Action</th>
</tr>
</thead>
<tbody>
<tr>
<td>0_1</td>
<td>Data error</td>
<td>Check that the terminating resistor is connected correctly. Replace the terminating resistor and perform the test again. If the test fails again, please consult your local Mitsubishi representative.</td>
</tr>
<tr>
<td>1_1</td>
<td>Completed with an error</td>
<td>Check that the terminating resistor is connected correctly. Replace the terminating resistor and perform the test again. If the test fails again, please consult your local Mitsubishi representative.</td>
</tr>
</tbody>
</table>
Internal Self-loopback Test

■ For the RJ71LP21-25

**Operating procedure**

1. An optical fiber cable does not need to be connected to the RJ71LP21-25 connector. Do not allow light to enter from the connector.

2. Set the module operation mode to "Internal Self-loopback Test".

   [Navigation window] ⇄ [Parameter] ⇄ [Module Information] ⇄ RJ71LP21-25 ⇄ [Application Settings] ⇄ [Module Operation Mode]

3. Click the [Apply] button.

4. Write the module parameters to the CPU module and reset the CPU module.

■ For the RJ71BR11

**Operating procedure**

1. A cable or terminating resistor does not need to be connected to the RJ71BR11 connector.

2. Set the module operation mode to "Internal Self-loopback Test".

   [Navigation window] ⇄ [Parameter] ⇄ [Module Information] ⇄ RJ71BR11 ⇄ [Application Settings] ⇄ [Module Operation Mode]

3. Click the [Apply] button.

4. Write the module parameters to the CPU module and reset the CPU module.

■ Checking the status and result of internal selfloopback test

Check the status and result of internal selfloopback test with the LED indicator of the module.

<table>
<thead>
<tr>
<th>Test status</th>
<th>LED indication</th>
</tr>
</thead>
<tbody>
<tr>
<td>Test in progress</td>
<td>The RUN LED is turned on, the ERR LED is turned off, and the T PASS LED flashes. The SD/RD LED is turned on.</td>
</tr>
<tr>
<td></td>
<td>The dot matrix LED indicates “MD8”.</td>
</tr>
<tr>
<td>Completed successfully</td>
<td>Since the test is repeated during normal operation, the test is judged to have been completed successfully when the T PASS LED flashes 20 times (for about 10 seconds) or more.</td>
</tr>
<tr>
<td>Completed with an error</td>
<td>The ERR LED flashes and the dot matrix LED indicates “ER8” and error number alternately at intervals of one second.</td>
</tr>
</tbody>
</table>

■ Checking the status when the operation is completed with an error

When an error is detected, the test is immediately completed (with an error).

When the test is completed with an error, the dot matrix at the front side of the MELSECNET/H network module indicates an error number. Take actions according to the error number displayed. "_" in the error number is displayed as a space on the dot matrix display.

- List of errors displayed on the RJ71LP21-25

<table>
<thead>
<tr>
<th>Error No.</th>
<th>Loop direction</th>
<th>Description</th>
<th>Action</th>
</tr>
</thead>
<tbody>
<tr>
<td>0_1</td>
<td>—</td>
<td>Data error in loop test</td>
<td>Please consult your local Mitsubishi representative.</td>
</tr>
<tr>
<td>0_2</td>
<td>—</td>
<td>Data error in CRC test</td>
<td>Please consult your local Mitsubishi representative.</td>
</tr>
<tr>
<td>1_1</td>
<td>Forward loop side</td>
<td>Loop test completed with an error</td>
<td>Please consult your local Mitsubishi representative.</td>
</tr>
<tr>
<td>2_1</td>
<td>Reverse loop side</td>
<td></td>
<td></td>
</tr>
<tr>
<td>3_1</td>
<td>Forward loop side and reverse loop side</td>
<td></td>
<td></td>
</tr>
<tr>
<td>1_2</td>
<td>Forward loop side</td>
<td>CRC test completed with an error</td>
<td>Please consult your local Mitsubishi representative.</td>
</tr>
<tr>
<td>2_2</td>
<td>Reverse loop side</td>
<td></td>
<td></td>
</tr>
<tr>
<td>3_2</td>
<td>Forward loop side and reverse loop side</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
4 TROUBLESHOOTING

4.2 Checking the Module Status

- List of errors displayed on the RJ71BR11

<table>
<thead>
<tr>
<th>Error No.</th>
<th>Description</th>
<th>Action</th>
</tr>
</thead>
<tbody>
<tr>
<td>0_1</td>
<td>Data error</td>
<td>Please consult your local Mitsubishi representative.</td>
</tr>
<tr>
<td>1_1</td>
<td>Encoder/decoder test completed with an error</td>
<td>Please consult your local Mitsubishi representative.</td>
</tr>
</tbody>
</table>

**Hardware test**

- **For the RJ71LP21-25**

  **Operating procedure**

  1. Connect the IN connector and OUT connector of the RJ71LP21-25 with one optical fiber cable.

  ![RJ71LP21-25](image)

  2. Set the module operation mode to "Hardware test".

  ![Navigation window](image) > [Parameter] > [Module Information] > RJ71LP21-25 > [Application Settings] > [Module Operation Mode]

  3. Click the [Apply] button.

  4. Write the module parameters to the CPU module and reset the CPU module.

- **For the RJ71BR11**

  **Operating procedure**

  1. A cable or terminating resistor does not need to be connected to the RJ71BR11 connector.

  2. Set the module operation mode to "Hardware test".

  ![Navigation window](image) > [Parameter] > [Module Information] > RJ71BR11 > [Application Settings] > [Module Operation Mode]

  3. Click the [Apply] button.

  4. Write the module parameters to the CPU module and reset the CPU module.

- **Checking the status and result of hardware test.**

  Check the status and result of hardware test with the LED indicator of the module.

<table>
<thead>
<tr>
<th>Test status</th>
<th>LED indication</th>
</tr>
</thead>
<tbody>
<tr>
<td>Test in progress</td>
<td>The RUN LED is turned on, the ERR LED is turned off, and the T PASS LED flashes. The SD/RD LED is turned on. The dot matrix LED indicates “MD9”.</td>
</tr>
<tr>
<td>Completed successfully</td>
<td>Since the test is repeated during normal operation, the test is judged to have been completed successfully when the T PASS LED flashes 120 times (for about 60 seconds) or more.</td>
</tr>
<tr>
<td>Completed with an error</td>
<td>The ERR LED flashes and the dot matrix LED indicates “ER9” and error number alternately at intervals of one second.</td>
</tr>
</tbody>
</table>
Checking the status when the operation is completed with an error
When an error is detected, the test is immediately completed (with an error).
When the test is completed with an error, the dot matrix at the front side of the MELSECNET/H network module indicates an error number. Take actions according to the error number displayed. "_" in the error number is displayed as a space on the dot matrix display.

• List of errors displayed on the RJ71LP21-25

<table>
<thead>
<tr>
<th>Error No.</th>
<th>Description</th>
<th>Action</th>
</tr>
</thead>
<tbody>
<tr>
<td>0_1</td>
<td>ROM test completed with an error</td>
<td>Please consult your local Mitsubishi representative.</td>
</tr>
<tr>
<td>0_2</td>
<td>RAM test completed with an error</td>
<td>Please consult your local Mitsubishi representative.</td>
</tr>
<tr>
<td>1_3</td>
<td>Light quantity test on the forward side completed with an error</td>
<td>Please consult your local Mitsubishi representative.</td>
</tr>
<tr>
<td>2_4</td>
<td>Light quantity test on the reverse side completed with an error</td>
<td>Please consult your local Mitsubishi representative.</td>
</tr>
</tbody>
</table>

• List of errors displayed on the RJ71BR11

<table>
<thead>
<tr>
<th>Error No.</th>
<th>Description</th>
<th>Action</th>
</tr>
</thead>
<tbody>
<tr>
<td>0_1</td>
<td>ROM test completed with an error</td>
<td>Please consult your local Mitsubishi representative.</td>
</tr>
<tr>
<td>0_2</td>
<td>RAM test completed with an error</td>
<td>Please consult your local Mitsubishi representative.</td>
</tr>
</tbody>
</table>
Station-to-station test

This test checks the MELSECNET/H network module and cable status between the two adjacent stations.

For a system other than a redundant system

Operating procedure

1. For the RJ71LP21-25, connect the OUT connector of the executing station and the IN connector of the executed station with optical fiber cables.

For the RJ71BR11, connect the network modules with a coaxial cable.

- For the RJ71LP21-25

(1) Control station (station No.1): Executing station
(2) Normal station (station No.2): Executed station

- For the RJ71BR11

(1) Control station (station No.1): Executing station
(2) Normal station (station No.2): Executed station
Before conducting the station-to-station test when three or more stations are connected in a coaxial bus system, any stations that are not tested must be switched to offline or powered off.

2. Set the module operation mode of the executing station to “Test between Master Station”.

   [Navigation window] ★ [Parameter] ★ [Module Information] ★ RJ71LP21-25 or RJ71BR11 ★ [Application Settings] ★ [Module Operation Mode]

3. Set the module operation mode of the executed station to “Test between Slave Station”.

   [Navigation window] ★ [Parameter] ★ [Module Information] ★ RJ71LP21-25 or RJ71BR11 ★ [Application Settings] ★ [Module Operation Mode]

4. Click the [Apply] button for the executing station and executed station.

5. Write the module parameters to the CPU module of the executing station and executed station.

6. Reset the CPU module of the executed station.

7. Reset the CPU module of the executing station.

8. If the test is completed with an error, check the following.

### Checking the status and result

Check the status and result of station-to-station test with the LED indicator of the module."1

After resetting the CPU module of the executing station, an error may be temporarily displayed on the executed station until the station-to-station test is started. When the test of the executing station starts, the status of the executed station also returns to "Test in progress".

<table>
<thead>
<tr>
<th>Test status</th>
<th>LED indication</th>
</tr>
</thead>
<tbody>
<tr>
<td>Test in progress</td>
<td>The RUN LED is turned on, the ERR LED is turned off, and the T PASS LED flashes.</td>
</tr>
<tr>
<td></td>
<td>The SD/RD LED is turned on, and the L ERR LED is turned on or off.</td>
</tr>
<tr>
<td></td>
<td>Executing station: The dot matrix LED indicates &quot;MD5&quot;.</td>
</tr>
<tr>
<td></td>
<td>Executed station: The dot matrix LED indicates &quot;MD6&quot;.</td>
</tr>
<tr>
<td>Completed successfully</td>
<td>Since the test is repeated during normal operation, the test is judged to have been completed successfully when the T PASS LED on the executing station flashes 20 times (for about 10 seconds) or more.</td>
</tr>
<tr>
<td>Completed with an error</td>
<td>The ERR LED flashes.</td>
</tr>
<tr>
<td></td>
<td>Executing station: The dot matrix LED indicates &quot;ER5&quot; and error number alternately at intervals of one second.</td>
</tr>
<tr>
<td></td>
<td>Executed station: The dot matrix LED indicates &quot;ER6&quot; and error number alternately at intervals of one second.</td>
</tr>
</tbody>
</table>
■ Checking the status when the operation is completed with an error

When an error is detected, the test is immediately completed (with an error).

The following describes the causes of the failure in the optical loop system.

- The cable on the forward loop or reverse loop is disconnected.
- The sending side and receiving side on the forward loop is not connected with a cable.
- The sending side of the forward loop is connected to the sending side of the reverse loop, and the receiving side of the forward loop is connected to the receiving side of the reverse loop.
- The sending side and receiving side on the reverse loop is not connected with a cable.
- Cable failure has occurred.
- The cable being tested is mismatched or disconnected.
- Hardware failure has occurred.

The following describes the causes of the failure in the coaxial bus system.

- The cable is broken or defective.
- The cable being tested is mismatched or disconnected.
- The terminating resistor was detached.
- Hardware failure has occurred.

When the test is completed with an error, the dot matrix at the front side of the MELSECNET/H network module indicates an error number. Take actions according to the error number displayed. "_" in the error number is displayed as a space on the dot matrix display.

• List of errors displayed on the RJ71LP21-25

<table>
<thead>
<tr>
<th>Error No.</th>
<th>Description</th>
<th>Action</th>
</tr>
</thead>
<tbody>
<tr>
<td>0_1</td>
<td>Data error in station-to-station test</td>
<td>After resetting the CPU module of the station-to-station test (executed station), reset the CPU module of the station-to-station test (executing station). If the test fails again, please consult your local Mitsubishi representative.</td>
</tr>
<tr>
<td>1_1, 3_1</td>
<td>Station-to-station test completed with an error</td>
<td>Check that the optical fiber cable is connected correctly. Replace the optical fiber cable and perform the test again. If the test fails again, please consult your local Mitsubishi representative.</td>
</tr>
<tr>
<td>2_1</td>
<td>Station-to-station test completed with an error</td>
<td>Check that the system configuration and module operation mode are correctly set. If the test fails again, please consult your local Mitsubishi representative.</td>
</tr>
</tbody>
</table>

• List of errors displayed on the RJ71BR11

<table>
<thead>
<tr>
<th>Error No.</th>
<th>Description</th>
<th>Action</th>
</tr>
</thead>
<tbody>
<tr>
<td>0_1</td>
<td>Station-to-station test completed with an error</td>
<td>Check that the terminating resistor is connected correctly. Replace the terminating resistor and perform the test again. If the test fails again, please consult your local Mitsubishi representative.</td>
</tr>
<tr>
<td>1_1</td>
<td>Station-to-station test completed with an error</td>
<td>Check that the coaxial cable is connected correctly. Replace the coaxial cable and perform the test again. If the test fails again, please consult your local Mitsubishi representative.</td>
</tr>
<tr>
<td>2_1</td>
<td>Station-to-station test completed with an error</td>
<td>Check that the system configuration and module operation mode are correctly set. If the test fails again, please consult your local Mitsubishi representative.</td>
</tr>
</tbody>
</table>

Precautions

The RJ71LP21-25 station-to-station test detects errors such as cable disconnection, and cable failure in the configuration where only the OUT connector of the executing station and the IN connector of the executed station are connected with optical fiber cables. Since the IN connector of the executing station and the OUT connector of the executed station are ignored by the station-to-station test, errors, such as cable disconnection, are not detected.
For a redundant system (RJ71LP21-25 only)

Operating procedure

1. Connect the OUT connector of the executing station and the IN connector of the executed station with optical fiber cables.
   - When a redundant system is configured in both the executing station and the executed station

   ![Diagram](image1)

   (1) Control station (station No.1): Executing station (A station where station-to-station test is performed)
   (2) Normal station (station No.2): Executed station (A station where station-to-station test is performed)
   (3) Normal station (station No.3): Offline (A station where station-to-station test is not performed)

   - When a redundant system is not configured in the executing station but is configured in the executed station

   ![Diagram](image2)

   (1) Control station (station No.1): Executing station (A station where station-to-station test is performed)
   (2) Normal station (station No.2): Executed station (A station where station-to-station test is performed)
   (3) Normal station (station No.3): Offline (A station where station-to-station test is not performed)

2. Set the operation mode for the redundant CPU to “Backup Mode”.

   When the power of both systems cannot be turned on or off, set the operation mode for the redundant CPU to “Separate Mode”.

   The following shows the mode setting when station-to-station test is performed for the redundant system.

<table>
<thead>
<tr>
<th>Set station</th>
<th>Operation mode of the redundant CPU</th>
<th>Module operation mode of the RJ21LP-25</th>
</tr>
</thead>
<tbody>
<tr>
<td>A station where station-to-station test is performed</td>
<td>Backup Mode</td>
<td>Set the mode to “Test between Master Station” or “Test between Slave Station”.</td>
</tr>
<tr>
<td>A station where station-to-station test is not performed</td>
<td>Backup Mode</td>
<td>“Offline”</td>
</tr>
<tr>
<td></td>
<td>Separate Mode</td>
<td></td>
</tr>
</tbody>
</table>

3. Click the [Apply] button for the executing station and executed station.

4. Write the module parameters to the CPU module of the executing station and executed station.

5. Reset the CPU module of the executed station.

6. Reset the CPU module of the executing station.

7. If the test is completed with an error, check the following.

   **Checking the status and result**

   Check the status and result of station-to-station test with the LED indicator of the module.

<table>
<thead>
<tr>
<th>Test status</th>
<th>LED indication</th>
</tr>
</thead>
<tbody>
<tr>
<td>Test in progress</td>
<td>The RUN LED is turned on, the ERR LED is turned off, and the T PASS LED flashes. The SD/RD LED is turned on, and the L ERR LED is turned on or off. Executing station: The dot matrix LED indicates “MD5”. Executed station: The dot matrix LED indicates “MD6”.</td>
</tr>
<tr>
<td>Completed successfully</td>
<td>Since the test is repeated during normal operation, the test is judged to have been completed successfully when the T PASS LED flashes 20 times (for about 10 seconds) or more.</td>
</tr>
<tr>
<td>Completed with an error</td>
<td>The ERR LED flashes. Executing station: The dot matrix LED indicates “ERS” and error number alternately at intervals of one second. Executed station: The dot matrix LED indicates “ER6” and error number alternately at intervals of one second.</td>
</tr>
</tbody>
</table>
**Checking the status when the operation is completed with an error**

When an error is detected, the test is immediately completed (with an error). The following describes the causes of the failure in the optical loop system.

- The cable on the forward loop or reverse loop is disconnected.
- The sending side and receiving side on the forward loop is not connected with a cable.
- The sending side of the forward loop is connected to the sending side of the reverse loop, and the receiving side of the forward loop is connected to the receiving side of the reverse loop.
- The sending side and receiving side on the reverse loop is not connected with a cable.
- Cable failure has occurred.
- The cable being tested is mismatched or disconnected.
- Hardware failure has occurred.

When the test is completed with an error, the dot matrix at the front side of the RJ71LP21-25 indicates an error number. Take actions according to the error number displayed. "_" in the error number is displayed as a space on the dot matrix display.

<table>
<thead>
<tr>
<th>Error No.</th>
<th>Description</th>
<th>Action</th>
</tr>
</thead>
<tbody>
<tr>
<td>0_1</td>
<td>Data error in station-to-station test</td>
<td>After resetting the CPU module of the station-to-station test (executed station), reset the CPU module of the station-to-station test (executing station). If the test fails again, please consult your local Mitsubishi representative.</td>
</tr>
<tr>
<td>1_1, 3_1</td>
<td>Station-to-station test completed with an error</td>
<td>Check that the optical fiber cable is connected correctly. Replace the optical fiber cable and perform the test again. If the test fails again, please consult your local Mitsubishi representative.</td>
</tr>
<tr>
<td>2_1</td>
<td>Station-to-station test completed with an error</td>
<td>Check that the system configuration and module operation mode are correctly set. If the test fails again, please consult your local Mitsubishi representative.</td>
</tr>
</tbody>
</table>

**Precautions**

The RJ71LP21-25 station-to-station test detects errors such as cable disconnection, and cable failure in the configuration where only the OUT connector of the executing station and the IN connector of the executed station are connected with optical fiber cables. Since the IN connector of the executing station and the OUT connector of the executed station are ignored by the station-to-station test, errors, such as cable disconnection, are not detected.
Forward loop test/reverse loop test (RJ71LP21-25 only)

Check the following.
- Checking the RJ71LP21-25 and optical fiber cable hardware
- Checking that the optical fiber cables are connected correctly at the OUT and IN connectors

Forward loop test/reverse loop test can be used only with RJ71LP21-25.

For a system other than a redundant system

Operating procedure

1. Connect all stations with optical fiber cables.
2. Connect the OUT connector and IN connector of the RJ71LP21-25 for the executing station and executed station with optical fiber cables.
3. Set the module operation mode as follows.
   - [Navigation window] ⇒ [Parameter] ⇒ [Module Information] ⇒ RJ71LP21-25 ⇒ [Application Settings] ⇒ [Module Operation Mode]

4. Click the [Apply] button for the executing station and executed station.
5. Write the module parameters to the CPU module of the executing station and executed station.
6. Reset the CPU module of the executed station.
7. Reset the CPU module of the executing station.
8. If the test is completed with an error, check the following.

<table>
<thead>
<tr>
<th>Test target</th>
<th>Module operation mode setting</th>
<th>Executing station</th>
<th>Executed station</th>
</tr>
</thead>
<tbody>
<tr>
<td>Forward loop</td>
<td>“Forward Loop Test”</td>
<td>&quot;Online&quot;</td>
<td></td>
</tr>
<tr>
<td>Reverse loop</td>
<td>“Reverse Loop Test”</td>
<td>&quot;Online&quot;</td>
<td></td>
</tr>
</tbody>
</table>

Checking the status and result

Check the status and result of forward/reverse loop test with the LED indicator of the module.

<table>
<thead>
<tr>
<th>Test status</th>
<th>LED indication</th>
</tr>
</thead>
<tbody>
<tr>
<td>Test in progress</td>
<td>The RUN LED is turned on, the ERR LED is turned off, and the T PASS LED flashes. The SD/RD LED is turned on, and the L ERR LED is turned on or off. Forward loop test: The dot matrix LED of the executing station indicates &quot;MD3&quot;. A station number is displayed for the executed station. Reverse loop test: The dot matrix LED of the executing station indicates &quot;MD4&quot;. A station number is displayed for the executed station.</td>
</tr>
<tr>
<td>Completed successfully</td>
<td>Since the test is repeated during normal operation, the test is judged to have been completed successfully when the T PASS LED flashes 20 times (for about 10 seconds) or more.</td>
</tr>
<tr>
<td>Completed with an error</td>
<td>The ERR LED flashes. Forward loop test: The dot matrix LED indicates &quot;ER3&quot; and error number alternately at intervals of one second. Reverse loop test: The dot matrix LED indicates &quot;ER4&quot; and error number alternately at intervals of one second.</td>
</tr>
</tbody>
</table>
Checking the status when the operation is completed with an error
When an error is detected, the test is immediately completed (with an error).
Loopback is performed due to wiring mistake, optical fiber cable failure, or other station failure.

- If wiring is incorrect, check the connections of the IN and OUT connectors.
- If the optical fiber cable or another station is faulty, replace the defective optical fiber cable or module with the new one.

When the test is completed with an error, the dot matrix at the front side of the RJ71LP21-25 indicates an error number. Take actions according to the error number displayed. "_" in the error number is displayed as a space on the dot matrix display.

<table>
<thead>
<tr>
<th>Error No.</th>
<th>Description</th>
<th>Action</th>
</tr>
</thead>
<tbody>
<tr>
<td>1_1</td>
<td>Forward loop test completed with an error</td>
<td>Check that the optical fiber cable is connected correctly. Replace the optical fiber cable and perform the test again. If the test fails again, please consult your local Mitsubishi representative.</td>
</tr>
<tr>
<td>2_1</td>
<td>Reverse loop test completed with an error</td>
<td>Check that the optical fiber cable is connected correctly. Replace the optical fiber cable and perform the test again. If the test fails again, please consult your local Mitsubishi representative.</td>
</tr>
</tbody>
</table>

For a redundant system

Operating procedure

1. Connect all stations with optical fiber cables.
2. Connect the IN connector and OUT connector of the RJ71LP21-25 for the executing station and executed station with optical fiber cables.
3. Set the operation mode and the module operation mode for the redundant system as follows.
   When the power of the both systems cannot be turned on or off, execute the forward/reverse loop test in the separate mode.

<table>
<thead>
<tr>
<th>Set station</th>
<th>Operation mode</th>
<th>Module operation mode setting</th>
</tr>
</thead>
<tbody>
<tr>
<td>Executing station</td>
<td>Redundant system</td>
<td>&quot;Forward Loop Test&quot; or &quot;Reverse Loop Test&quot;</td>
</tr>
<tr>
<td></td>
<td>Backup mode</td>
<td>&quot;Online&quot;</td>
</tr>
<tr>
<td></td>
<td>Separate mode</td>
<td></td>
</tr>
<tr>
<td>Executed station</td>
<td>Backup mode</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Separate mode</td>
<td></td>
</tr>
<tr>
<td>Stations other than the redundant system</td>
<td>---</td>
<td></td>
</tr>
</tbody>
</table>

4. Click the [Apply] button for the executing station and executed station.
5. Reset the CPU module of the executed station.
6. Reset the CPU module of the executing station.
7. If the test is completed with an error, check the following.

Checking the status and result
Check the status and result of forward/reverse loop test with the LED indicator of the module.

<table>
<thead>
<tr>
<th>Test status</th>
<th>LED indication</th>
</tr>
</thead>
<tbody>
<tr>
<td>Test in progress</td>
<td>The RUN LED is turned on, the ERR LED is turned off, and the T PASS LED flashes. The SD/RD LED is turned on, and the L ERR LED is turned on or off. Forward loop test: The dot matrix LED of the executing station indicates &quot;MD3&quot;. Reverse loop test: The dot matrix LED of the executing station indicates &quot;MD4&quot;.</td>
</tr>
<tr>
<td>Completed successfully</td>
<td>Since the test is repeated during normal operation, the test is judged to have been completed successfully when the T PASS LED flashes 20 times (for about 10 seconds) or more.</td>
</tr>
<tr>
<td>Completed with an error</td>
<td>The ERR LED flashes. Forward loop test: The dot matrix LED indicates &quot;ER3&quot; and error number alternately at intervals of one second. Reverse loop test: The dot matrix LED indicates &quot;ER4&quot; and error number alternately at intervals of one second.</td>
</tr>
</tbody>
</table>
Checking the status when the operation is completed with an error

When an error is detected, the test is immediately completed (with an error). Loopback is performed due to wiring mistake, optical fiber cable failure, or other station failure.

- If wiring is incorrect, check the connections of the IN and OUT connectors.
- If the optical fiber cable or another station is faulty, replace the defective optical fiber cable or module with the new one.

When the test is completed with an error, the dot matrix at the front side of the RJ71LP21-25 indicates an error number. Take actions according to the error number displayed. "_" in the error number is displayed as a space on the dot matrix display.

<table>
<thead>
<tr>
<th>Error No.</th>
<th>Description</th>
<th>Action</th>
</tr>
</thead>
<tbody>
<tr>
<td>1_1</td>
<td>Forward loop test completed with an error</td>
<td>Check that the optical fiber cable is connected correctly. Replace the optical fiber cable and perform the test again. If the test fails again, please consult your local Mitsubishi representative.</td>
</tr>
<tr>
<td>2_1</td>
<td>Reverse loop test completed with an error</td>
<td>Check that the optical fiber cable is connected correctly. Replace the optical fiber cable and perform the test again. If the test fails again, please consult your local Mitsubishi representative.</td>
</tr>
</tbody>
</table>
### 4.3 Checking the Network Status

Perform the MELSECNET diagnostics to check the network status and error details or to perform an operation test for troubleshooting.

#### Host Station Information

This diagnostics checks the overall network information of the connection destination and the status of the own station.

<table>
<thead>
<tr>
<th>Item</th>
<th>Description</th>
<th>Displayed information</th>
</tr>
</thead>
<tbody>
<tr>
<td>[Module 1] to [Module 4] tab</td>
<td>Switches the window displaying the MELSECNET diagnostics result for each 1st to 4th RJ71LP21-25 module.</td>
<td>—</td>
</tr>
<tr>
<td>Network Information</td>
<td>Network Type</td>
<td>Indicates the own station network type.</td>
</tr>
<tr>
<td></td>
<td>Network Type</td>
<td>RJ71LP21-25: • NET/H(Loop) Net Control Station, PLC-PLC • NET/H(Loop) Normal Net Station, PLC-PLC • NET/H Extended Mode(Loop) Net Control Station, PLC-PLC • NET/H Extended Mode(Loop) Normal Net Station PLC-PLC • NET/10(Loop) Net Control Station, PLC-PLC • NET/10(Loop) Normal Net Station, PLC-PLC RJ71BR11: • MELSECNET/H(Bus) Net Control Station, PLC-PLC • MELSECNET/H(Bus) Normal Net Station, PLC-PLC • MELSECNET/H Extended Mode(Bus) Net Control Station, PLC-PLC • MELSECNET/H Extended Mode(Bus) Normal Net Station PLC-PLC • MELSECNET/10(Bus) Net Control Station, PLC-PLC • MELSECNET/10(Bus) Normal Net Station, PLC-PLC</td>
</tr>
<tr>
<td></td>
<td>Network No.</td>
<td>Indicates the own station network number. 1 to 239</td>
</tr>
<tr>
<td></td>
<td>Group No.</td>
<td>Indicates the own station group number. • 0: No group specification • 1 to 32: Transient transmission group number</td>
</tr>
<tr>
<td></td>
<td>Station No.</td>
<td>Indicates the station number of the own station. 1 to 64</td>
</tr>
</tbody>
</table>
### Troubleshooting

#### 4.3 Checking the Network Status

- **Link Information**
  - **Mode**
    - Indicates the own station operation mode.
      - Online
      - Offline
      - Forward Loop Test
      - Reverse Loop Test
      - Test between Master Station
      - Test between Slave Station
      - Self-loopback Test
      - Internal Self-loopback Test
      - Hardware test

- **F Loop Status**
  - **Loopback Station** RJ71LP21-25
    - Indicates the loopback status and the station number of the loopback station on the forward loop side.
    - “—” is displayed.
  - **Loopback status**
    - Normal
    - Loopback Transmission
    - Data Link not Possible
  - **Loopback station number** 1 to 64

- **R Loopback Status**
  - **Loopback Station** RJ71LP21-25
    - Indicates the loopback status and the station number of the loopback station on the reverse loop side.
    - “—” is displayed.
  - **Loopback status**
    - Normal
    - Loopback Transmission
    - Data Link not Possible
  - **Loopback station number** 1 to 64

- **Link Scan Time**
  - Indicates the maximum/minimum/current value of the own station link scan time.
    - Max.
    - Min.
    - Current

- **Communication Information**
  - **Communication Status**
    - Indicates the own station communication status.
      - Normal
      - There is a stop instruction (Station Own)
      - There is a stop instruction (Station All)
      - Stop Instruction Present (1) to Stop Instruction Present (64)
      - No Parameter
      - Error Parameter
      - Error Host PLC
      - Suspend Communication

- **Monitor status**
  - Indicates the monitor status.

- **Network Diagnostics**
  - **[Network Test] button**
    - Opens the "Network Test" window.
  - **[Loop Test] button** RJ71LP21-25
    - Opens the "Loop Test" window.
    - "—" is displayed.
  - **[Setting Check Test] button**
    - Opens the "Setting Check Test" window.
  - **[Station Order Check Test] button** RJ71LP21-25
    - Opens the "Station Order Check Test" window.
    - "—" is displayed.
  - **[Communication Test] button**
    - Opens the "Communication Test" window.

---

1. "Online" is displayed when operating in debug mode.
2. The station number of the other station that issued the stop instruction is displayed.
3. If a normal station starts up first, and then the control station starts up, the maximum link scan may be delayed.
Precautions for using network diagnostics

- The network diagnostics (test function such as the network test) of the own station cannot be performed when an item other than "Not Specified" is set in "Specify Redundant CPU" on the "Specify Connection Destination Connection" window of the engineering tool in a redundant system. Perform diagnostics by directly connecting the engineering tool to the target system (control system/standby system/system A/system B) and setting "Specify Redundant CPU" to "Not Specified".
- The network diagnostics (test function such as the network test) of the own station cannot be performed when an item other than "No Specification" is set in "Other Station Setting" on the "Specify Connection Destination Connection" window of the engineering tool. Even if "Other Station Setting" is set to "No Specification", the network diagnostics (test function such as the network test) cannot be performed when "PC side I/F" is set to "Ethernet board".
- The network diagnostics cannot be displayed correctly while the network module is executing the offline test.
Other Station Information

From this window, the status of communication, data link, parameters, CPU module, loop, and reserved stations at each station can be checked.
## 4.3 Checking the Network Status

<table>
<thead>
<tr>
<th>Item</th>
<th>Description</th>
<th>Displayed information</th>
</tr>
</thead>
<tbody>
<tr>
<td>Network Information</td>
<td>Indicates the same information as own station information.</td>
<td><img src="#" alt="Page 109 Host Station Information" /></td>
</tr>
<tr>
<td>Other Station Information</td>
<td>Communication Status of each Station</td>
<td>- Normal display: Baton pass status (transient transmission availability).</td>
</tr>
<tr>
<td></td>
<td>Data-Link Status of each Station</td>
<td>- Normal display: Normal station, reserved station</td>
</tr>
<tr>
<td></td>
<td>Parameter Status of each Station</td>
<td>- Normal display: Faulty station (Data link not in operation)</td>
</tr>
<tr>
<td></td>
<td>CPU Operation Status of each Station</td>
<td>- Normal display: Normal CPU, reserved station, unconnected station</td>
</tr>
<tr>
<td></td>
<td>CPU RUN Status of each Station</td>
<td>- RUN: RUN, STEP-RUN</td>
</tr>
<tr>
<td></td>
<td>Loop Status of each Station</td>
<td>- RUN: RUN, STEP-RUN</td>
</tr>
<tr>
<td></td>
<td>Reversed Station Designation of each Station</td>
<td>- Normal display: Non-reserved station</td>
</tr>
<tr>
<td></td>
<td>External Power Operation Status of each Station</td>
<td>- Normal display: 24VDC not input, MELSECNET/H network module without a supply terminal</td>
</tr>
<tr>
<td></td>
<td>Each Station PLC Operation Mode Status</td>
<td>- Backup Mode</td>
</tr>
<tr>
<td></td>
<td>Each Station Pairing Status</td>
<td>- No Pair</td>
</tr>
<tr>
<td></td>
<td>Each Station PLC System Status</td>
<td>- Control System</td>
</tr>
<tr>
<td></td>
<td>Each Station Network Type Status</td>
<td>- Standby System</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Normal display: Reserved station, communication faulty station</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Reverse display: Shown below</td>
</tr>
<tr>
<td></td>
<td></td>
<td>- Normal station set to MELSECNET/H mode or MELSECNET/10 mode when the control station is in MELSECNET/H extended mode</td>
</tr>
<tr>
<td></td>
<td></td>
<td>- Normal station set to MELSECNET/H extended mode when the control station is in MELSECNET/H mode or MELSECNET/10 mode</td>
</tr>
</tbody>
</table>

**Item Details:**
- **Network Information:** Indicates the same information as own station information.
- **Communication Status of each Station:** Indicates the baton pass status (transient transmission availability).
- **Data-Link Status of each Station:** Indicates the cyclic transmission status.
- **Parameter Status of each Station:** Indicates the parameter status of each station.
- **CPU Operation Status of each Station:** Indicates the operating status of the CPU module. Enables when the communication status of each station is "Baton pass normal station".
- **CPU RUN Status of each Station:** Indicates the RUN/STOP status of the CPU module. Enables when the communication status of each station is "Baton pass normal station".
- **Loop Status of each Station:** Indicates the forward/reverse loop status. Enables only for normally operating stations in "Baton pass status of each station".
- **Reversed Station Designation of each Station:** Indicates the reserved station setting status.
- **External Power Operation Status of each Station:** Indicates the external 24VDC power supply status of the network module. Enables when the communication status of each station is "Baton pass normal station".
- **Each Station PLC Operation Mode Status:** Indicates the operation mode of the redundant CPU. For the items other than the redundant CPU, "-----" is displayed.
- **Each Station Pairing Status:** Indicates the status of the pairing setting.
- **Each Station PLC System Status:** Indicates the redundant CPU system status. For the items other than the redundant CPU, "-----" is displayed.
- **Each Station Network Type Status:** Displays the consistency between the network type set for the control station and the network type set for the normal station.
Circuit Monitor Details

From this window, the control station information, data link information, and the own station parameter status can be checked.

<table>
<thead>
<tr>
<th>Item</th>
<th>Description</th>
<th>Displayed information</th>
</tr>
</thead>
<tbody>
<tr>
<td>Network Information</td>
<td>Indicates the same information as own station information.</td>
<td>Page 109 Host Station Information</td>
</tr>
<tr>
<td>Control Station Information</td>
<td>Specified Control Station Indicates the station number of the control station specified by the parameter.</td>
<td>• 0: Control station does not exist.</td>
</tr>
<tr>
<td></td>
<td>Present Control Station Indicates the station number of the station actually controlling the network.</td>
<td>• 1 to 64: Station number of the control station</td>
</tr>
<tr>
<td>Communication Information</td>
<td>Indicates the type of the station controlling the network. When the control station is down, the display automatically changes to the sub-control station.</td>
<td>• Control Station</td>
</tr>
<tr>
<td>Sub Control Station Transmission</td>
<td>Indicates the data link execution selection at the sub-control station when the control station is down.</td>
<td>• Sub-Control Station</td>
</tr>
<tr>
<td>I/O Master Station Block 1</td>
<td>Indicates the station number of the I/O master station of X/Y communication block 1.</td>
<td>• Yes</td>
</tr>
<tr>
<td></td>
<td>Block 2 Indicates the station number of the I/O master station of X/Y communication block 2.</td>
<td>• None</td>
</tr>
<tr>
<td>Item</td>
<td>Description</td>
<td>Displayed information</td>
</tr>
<tr>
<td>------</td>
<td>-------------</td>
<td>-----------------------</td>
</tr>
<tr>
<td>Data Link Information</td>
<td>Total Number of Linked Stations</td>
<td>Indicates the total number of the link stations specified by the parameter.</td>
</tr>
<tr>
<td></td>
<td>Station of Maximum Normal Communication</td>
<td>Indicates the maximum station number with a successful baton pass (in a state in which transient transmission is possible). The T PASS LED of the network module is turned on in a station with a successful baton pass.</td>
</tr>
<tr>
<td></td>
<td>Station of Maximum Data Link</td>
<td>Indicates the maximum station number with a successful data link (cyclic transmission and transient transmission). The D LINK LED of the network module is turned on in a station with a successful data link.</td>
</tr>
<tr>
<td>Communication Status</td>
<td></td>
<td>Indicates the own station communication status. • Data Linking • Suspend Data Link(Other) • Suspend Data Link(Host) • Baton Pass(No Area) • Baton Pass(Parameter Halt) • Baton Pass(No Receive) • Disconnecting(No Baton) • Disconnecting(Line Error) • In Test • Resetting</td>
</tr>
<tr>
<td>Data Link Information</td>
<td>Communication Interruption Factors</td>
<td>Indicates the cause behind communication (transient transmission) not being performed at the own station. • Normal • Offline • Offline Test • Initial state • Shift Control Station • Online testing • Baton disappearance • Baton repetition • Same Station Present • Control station repetition • Reception retry error • Transmission retry error • Timeout error • Network Disorder • Disconnecting • No baton to local station Indicates an error code if communication is interrupted for any reason other than the above. (Page 131 List of Error Codes)</td>
</tr>
<tr>
<td>Communication Stop Factors</td>
<td>Indicates the cause behind data link (cyclic transmission) not being performed at the own station. • Normal • There is a stop instruction (Station Own) • There is a stop instruction (Station All) • Stop Instruction Present (1) to Stop Instruction Present (64)*1 • No Parameter • Illegal Parameter • Host PLC Error • Suspend Communication</td>
<td></td>
</tr>
<tr>
<td>Host Status</td>
<td>Parameter Setting</td>
<td>Indicates the own station parameter setting status. • Common Parameter</td>
</tr>
<tr>
<td></td>
<td>Reserved Station Specification</td>
<td>Indicates the reserved station specification status. • Exists • Does Not Exist</td>
</tr>
<tr>
<td></td>
<td>Communication Mode</td>
<td>Indicates the link scan status. • Normal • Constant Scan</td>
</tr>
<tr>
<td></td>
<td>Duplex Transmission Setting</td>
<td>Indicates the multiplex transmission specification status. &quot;———&quot; is displayed for the RJ71BR11. • None • Multiple Transmission</td>
</tr>
<tr>
<td></td>
<td>Duplex Transmission Setting</td>
<td>Indicates the multiplex transmission status. &quot;———&quot; is displayed for the RJ71BR11. • Normal • Multiple Transmitting</td>
</tr>
</tbody>
</table>

*1 The station number of the other station that issued the stop instruction is displayed.
Error History Monitor

From this window, the occurrence condition of the forward/reverse loop error, communication error, and transient transmission error can be checked.

Error history details and error histories can also be cleared from here.

The number of occurrences of each error does not cause any problem unless the count value rises frequently during operation. Take the following actions if the count value rises frequently:

- Check the power on/off status of the own station and other station.
- Check the cable and connector status (removal and loosening of connectors, cable disconnection, and cable length).
- Perform self-loopback test, internal selfloopback test, and hardware test.
- Perform station-to-station test and forward loop test (RJ71LP21-25)/reverse loop test (RJ71LP21-25).
- Rewire the cable by referring to the wiring described in MELSEC iQ-R MELSECNET/H Network Module User's Manual (Startup). Also, perform installation again by referring to the user's manual for the CPU module used.

### Error History Monitor Details

<table>
<thead>
<tr>
<th>Item</th>
<th>Description</th>
<th>Displayed information</th>
</tr>
</thead>
<tbody>
<tr>
<td>Network Information</td>
<td>Indicates the same information as own station information.</td>
<td>Page 109 Host Station Information</td>
</tr>
<tr>
<td>F. Loop Retry Count</td>
<td>Indicates the number of retries (re-communication during communication error).</td>
<td></td>
</tr>
<tr>
<td>Circuit Error</td>
<td>Indicates the number of line errors.</td>
<td></td>
</tr>
<tr>
<td>UNDER</td>
<td>Indicates the number of under-errors.</td>
<td></td>
</tr>
<tr>
<td>CRC</td>
<td>Indicates the number of CRC errors.</td>
<td></td>
</tr>
<tr>
<td>OVER</td>
<td>Indicates the number of overrun errors.</td>
<td></td>
</tr>
<tr>
<td>SHORTFRAME</td>
<td>Indicates the number of short frame (message too short) errors.</td>
<td></td>
</tr>
<tr>
<td>ABORT</td>
<td>Indicates the number of abort errors.</td>
<td></td>
</tr>
<tr>
<td>TIMEOUT</td>
<td>Indicates the number of timeout errors.</td>
<td></td>
</tr>
<tr>
<td>Exceeding 2KB</td>
<td>Indicates the number of reception errors of 2K bytes or more.</td>
<td></td>
</tr>
<tr>
<td>DPLL ERROR</td>
<td>Indicates the number of DPLL errors.</td>
<td></td>
</tr>
<tr>
<td>Loop Switching Count</td>
<td>Indicates the number of occurrence times of switching.</td>
<td></td>
</tr>
<tr>
<td>Transient Transmission Errors</td>
<td>Indicates the number of transient transmission errors.</td>
<td></td>
</tr>
</tbody>
</table>

[Error History Detail] button Opens the "Error History Monitor Details" window.  
[Clear Error History] button Opens the "Clear Error History Monitor" window.

[Point]

The number of occurrences of each error does not cause any problem unless the count value rises frequently during operation. Take the following actions if the count value rises frequently:

- Check the power on/off status of the own station and other station.
- Check the cable and connector status (removal and loosening of connectors, cable disconnection, and cable length).
- Perform self-loopback test, internal selfloopback test, and hardware test.
- Perform station-to-station test and forward loop test (RJ71LP21-25)/reverse loop test (RJ71LP21-25).
- Rewire the cable by referring to the wiring described in MELSEC iQ-R MELSECNET/H Network Module User's Manual (Startup). Also, perform installation again by referring to the user's manual for the CPU module used.
## Error History Monitor Details

This window displays the loop switching cause and transient transmission error history.

### Item | Description | Displayed information
--- | --- | ---
Network Information | Indicates the same information as own station information. | [Page 109 Host Station Information](#)

#### Loop Switching

| Station No. | Indicates the station number that requested switching and loopback. (The displayed station is not necessarily an adjacent station.) | 1 to 64 |
| Cause | Indicates the cause for performing switching and loopback. | • H/W Error(F)  
• H/W Error(R)  
• Forced Error(F)  
• Forced Error(R)  
• Communication(F) Error  
• Communication(R) Error  
• Seq-Line Error(F)  
• Seq-Line Error(R)  
• Return Instruction |

| Status after Switching | Indicates the data link status after switching. | • Multiple Transmission  
• F.Loop  
• R.Loop  
• Loopback |

#### Transient Transmission Errors

| Error Code | Indicates error codes and error types. | [Page 131 List of Error Codes](#) |
| Error Type | | |
Clear Error History Monitor

Select the checkbox of the item whose error history is to be cleared and click the [Execute] button.

<table>
<thead>
<tr>
<th>Item</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Clear Retry Count</td>
<td>Clears the retry count.</td>
</tr>
<tr>
<td>Clear Communication Error Count</td>
<td>Clears the communication error count</td>
</tr>
<tr>
<td>Clear F.Loop Transmission Error</td>
<td>Clears the forward loop transmission error.</td>
</tr>
<tr>
<td>Clear R.Loop Transmission Error</td>
<td>Clears the reverse loop transmission error.</td>
</tr>
<tr>
<td>Clear Loop Switching Count</td>
<td>Clears the switching count.</td>
</tr>
<tr>
<td>Clear Transient Transmission Error</td>
<td>Clears the transient transmission error count.</td>
</tr>
</tbody>
</table>
Loop Test (RJ71LP21-25 only)

This function performs the loop test of the forward/reverse loop status in the status where the wiring of the optical loop system is completed. The loopback station can also be checked during loopback.

Loop test can be used only with RJ71LP21-25.

Select "Test Method" and "Target Module" and click the [Execute] button.

<table>
<thead>
<tr>
<th>Item</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Network Information</td>
<td>Indicates the same information as own station information. (Page 109 Host Station Information)</td>
</tr>
<tr>
<td>Loop Test</td>
<td>Test Method</td>
</tr>
<tr>
<td></td>
<td>■Parameter Specified</td>
</tr>
<tr>
<td></td>
<td>Select this item to test the total number of stations set in the network parameters (excluding reserved stations).</td>
</tr>
<tr>
<td></td>
<td>If no network parameter exists, test is performed for all stations.</td>
</tr>
<tr>
<td></td>
<td>■All Stations Specified</td>
</tr>
<tr>
<td></td>
<td>Select this item to test all stations.</td>
</tr>
<tr>
<td>Target Module</td>
<td>Select a module that is to perform loop test.</td>
</tr>
<tr>
<td>Execution Result</td>
<td>Indicates the number of stations and results (normal/error, reserved station: R).</td>
</tr>
</tbody>
</table>
Setting Check Test

Select "Test Method" and "Target Module" and click the [Execute] button.

The following three checks are performed:

- Checking for the presence of any duplicated control station
- Checking for the presence of any duplicated station number
- Checking for consistency between the network number set for the station connected with the engineering tool and the network number set in the network parameter of the own station

<table>
<thead>
<tr>
<th>Item</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Network Information</td>
<td>Indicates the same information as own station information. (Page 109 Host Station Information)</td>
</tr>
<tr>
<td>Setting Check Test</td>
<td>Test Method</td>
</tr>
<tr>
<td></td>
<td>Parameter Specified</td>
</tr>
<tr>
<td></td>
<td>Select this item to test the total number of stations set in the network parameters (excluding reserved stations).</td>
</tr>
<tr>
<td></td>
<td>If no network parameter exists, test is performed for all stations.</td>
</tr>
<tr>
<td></td>
<td>All Stations Specified</td>
</tr>
<tr>
<td></td>
<td>Select this item to test all stations.</td>
</tr>
<tr>
<td>Target Module</td>
<td>Select a module to perform setting check test.</td>
</tr>
<tr>
<td>Execution Result</td>
<td>1 to 64</td>
</tr>
<tr>
<td></td>
<td>Indicates the station number of the station for which the setting check test was executed. (Up to 64 stations)</td>
</tr>
<tr>
<td>Control Station Duplicated</td>
<td>Places the sign for the control stations whose station number is duplicated.</td>
</tr>
<tr>
<td>Duplicated Station No.</td>
<td>Places the sign for the target stations whose station number is duplicated.</td>
</tr>
<tr>
<td>Network No.</td>
<td>Indicates the network number of the station for which the setting check test was executed. The station whose network number is different from that of the own station is indicated in red.</td>
</tr>
<tr>
<td>Group No.</td>
<td>Indicates the group number of the station for which the setting check test was executed. (When the test execution method is set to &quot;Parameter Specified&quot;)</td>
</tr>
<tr>
<td>Reserved station</td>
<td>Places the sign for stations that are specified as a reserved station by the parameter setting. (When the test execution method is set to &quot;Parameter Specified&quot;)</td>
</tr>
<tr>
<td>Error Station</td>
<td>Places the sign for any stations that are specified as a reserved station by the parameter setting or whose module is faulty in all stations specification.</td>
</tr>
<tr>
<td>Network Type Error Station</td>
<td>Places the sign for any stations whose parameter setting and the actual connection type are inconsistent.</td>
</tr>
<tr>
<td>Multiplexed R Sub M Station (Multiplexed remote sub-master station duplication)</td>
<td>Places the sign for any submaster stations that are in the same network.</td>
</tr>
<tr>
<td>Parallel R Sub M Station (Parallel remote sub-master station duplication)</td>
<td></td>
</tr>
</tbody>
</table>

4 TROUBLESHOOTING
4.3 Checking the Network Status
Station Order Check Test (RJ71LP21-25 only)

Station order check test can be used only with RJ71LP21-25.
Select "Test Method" and "Target Module" and click the [Execute] button.

The following connection order can be checked using the loop status:
- Forward/reverse loop: The station number of the stations connected in the forward loop direction from the own station, and
  the station number of the stations connected in the reverse loop direction from the own station
- Forward loop: Only the station number of the stations connected in the forward loop direction from the own station
- Reverse loop: Only the station number of the stations connected in the reverse loop direction from the own station
- Loopback: Only the station number of the stations connected in the forward loop direction from the own station

<table>
<thead>
<tr>
<th>Item</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Network Information</td>
<td>Indicates the same information as own station information. (Page 109 Host Station Information)</td>
</tr>
<tr>
<td>Station Order Check Test</td>
<td>Test Method</td>
</tr>
<tr>
<td></td>
<td>Parameter Specified</td>
</tr>
</tbody>
</table>
|                               | Select this item to test the total number of stations set in the network parameters (excluding reserved stations).
|                               | If no network parameter exists, test is performed for all stations.       |
|                               | All Stations Specified                                                     |
|                               | Select this item to test all stations.                                     |
| Target Module                 | Select a module to perform station order check test.                      |
| Execution Result              | Indicates the station number of the station in the forward or reverse loop direction from the own station.
|                               | In loopback, it is executed only for the station in the forward loop direction from the own station.
|                               | The station number of the reserved station is not displayed.              |
Communication Test

This test checks whether the own station and the communication destination (specified by the network number and station number) can communicate normally.

Since this window displays the network number and station number that are being relayed, it can be used to check whether the routing parameter is correctly set.

Set "Destination" and "Communication Data" and click the [Execute Test] button.

<table>
<thead>
<tr>
<th>Item</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Communication Test</td>
<td>Destination Set the network number and station number.</td>
</tr>
<tr>
<td>Communication Data</td>
<td>Set the parameters required for the execution of the communication test.</td>
</tr>
<tr>
<td></td>
<td>• Data length (1 to 900 bytes)</td>
</tr>
<tr>
<td></td>
<td>• Communication count (1 to 100 times)</td>
</tr>
<tr>
<td></td>
<td>• Communication monitoring time (1 to 100 seconds)</td>
</tr>
<tr>
<td>Execution Result</td>
<td>Indicates the result of the communication test between networks.</td>
</tr>
</tbody>
</table>

Precautions

When a relay sending station is set to "Destination", only an error code appears without an error message. Set a relay receiving station to "Destination".
Network Test

This test stops/restarts cyclic transmission. This function is used when it is not desirable to receive data from another station or to send own station data when starting up the system.

**Point**

For stopping/restarting cyclic transmission, data communication (link refresh) between the CPU module and the MELSECNET/H network module is not stopped or restarted. Use the program to stop/restart data communication (link refresh).

<table>
<thead>
<tr>
<th>Item</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Network Information</td>
<td>Indicates the same information as own station information. (Page 109 Host Station Information)</td>
</tr>
<tr>
<td>Operation Status of All Stations</td>
<td>Indicates the link status of each station on the network for which the test was executed.</td>
</tr>
<tr>
<td><strong>Link Start/Stop</strong></td>
<td></td>
</tr>
<tr>
<td>Operation</td>
<td></td>
</tr>
<tr>
<td>Link Start</td>
<td>Select this item to execute the link start in the own station for the station whose link was stopped. The link start cannot be executed for the station whose link was stopped by another station.</td>
</tr>
<tr>
<td>Link Stop</td>
<td>Select this item to execute the link stop from the own station/another station.</td>
</tr>
<tr>
<td>Forced Link Start</td>
<td>Select this item to forcibly execute the link start in the own station or another station for the station whose link was stopped or for the station whose link was stopped by special relay or special register. However, forcible start cannot be performed for each station while all stations are stopped. Check the setting of ‘Link startup/stop direction' (SW0000) to check whether the station is stopped by the all station stop instruction.</td>
</tr>
<tr>
<td>Target Station Specified</td>
<td>Specify the target station of network test.</td>
</tr>
<tr>
<td>Target Module</td>
<td>Selects a module that is to perform network test.</td>
</tr>
<tr>
<td>Monitor Status</td>
<td>Indicates the monitor status.</td>
</tr>
<tr>
<td>Host Status</td>
<td>Indicates the operating status of the own station of the selected module.</td>
</tr>
</tbody>
</table>

**Point**

Link start cannot be done even if the link start operation is performed to an offline-mode station (disconnected from the network). No error will be detected, in this case, because no response is returned from the target station.
4.4 Troubleshooting by Symptom

Perform these troubleshooting if data link cannot be performed even though no error is detected in the MELSECNET/H network module.

If an error has occurred in the MELSECNET/H network module, identify the error cause using the engineering tool. (Page 93 Checking the Module Status)

When cyclic transmission cannot be performed

The following lists the actions to be taken if cyclic transmission cannot be performed.

<table>
<thead>
<tr>
<th>Check item</th>
<th>Action</th>
</tr>
</thead>
<tbody>
<tr>
<td>Is the D LINK LED of the control or normal station turned off?</td>
<td>Perform troubleshooting for when the D LINK LED turns off. (Page 92 When the D LINK LED turns off)</td>
</tr>
<tr>
<td>Is the setting value of data link monitoring time shorter than that of actual link scan time?</td>
<td>Increase the setting value of &quot;Data Link Monitoring Time&quot; in &quot;Application Settings&quot;. (Page 66 Supplementary Cyclic Settings)</td>
</tr>
<tr>
<td>Is a target station set as a reserved station in &quot;Network Range Assignment&quot; of &quot;Required Settings&quot; of the control station?</td>
<td>Cancel the reserved station setting. (Page 56 Network Range Assignment)</td>
</tr>
<tr>
<td>Has &quot;Network Range Assignment&quot; of &quot;Required Settings&quot; of the control station been set?</td>
<td>Set &quot;Network Range Assignment&quot; of &quot;Required Settings&quot; of the control station. (Page 56 Network Range Assignment)</td>
</tr>
<tr>
<td>Is there any station which exceed total number of stations set in &quot;Network Range Assignment&quot; of &quot;Required Settings&quot; of the control station?</td>
<td>Correct station numbers. (Page 55 Station No.)</td>
</tr>
<tr>
<td>Are station numbers unique?</td>
<td>Change the duplicated station number. (Page 55 Station No.)</td>
</tr>
<tr>
<td>Is the data link set by the sub-control station when the control station is down?</td>
<td>Change the data link setting by the sub-control station when the control station is down to &quot;Yes&quot;.</td>
</tr>
</tbody>
</table>
| Is the program correct?                                                    | • Check that data can be sent to the receiving station normally by switching the CPU modules to STOP on the sending station and receiving station and by the link devices on the sending station is turned on and off with the test operation of the engineering tool to communicate data.  
  • If the data communications have no problem, check whether the program is correct. |
| Is the setting range in "Link Refresh Settings" of "Basic Settings" correct? | Correct the setting range in "Link Refresh Settings" of "Basic Settings". (Page 62 Link Refresh Settings) |
| Is any link refresh target device in "Link Refresh Settings" of "Basic Settings" overlapped with that of another network module? | Correct the range setting in "Link Refresh Settings" of "Basic Settings". (Page 62 Link Refresh Settings) |
| Are the transfer ranges set in "Interlink Transmission Settings" of "Application Settings" correct? | Correct the transfer ranges set in "Interlink Transmission Settings" of "Application Settings". (Page 75 Interlink Transmission Settings) |
| Are the source and destination modules set in "Interlink Transmission Settings" of "Application Settings" correct? | Correct the source and destination modules set in "Interlink Transmission Settings" of "Application Settings". (Page 75 Interlink Transmission Settings) |
| Are MELSECNET/10 mode, MELSECNET/H mode, and MELSECNET/H extended mode mixed? | Correct the mode setting. (Page 55 Station Type) |

If the above action does not solve the problem, perform the self-diagnostics test to check for hardware failure. (Page 96 Self-diagnostics test)
## Transient transmission cannot be performed

The following lists the actions to be taken if transient transmission cannot be performed.

<table>
<thead>
<tr>
<th>Check item</th>
<th>Action</th>
</tr>
</thead>
<tbody>
<tr>
<td>Does any error occur during execution of transient transmission?</td>
<td>Follow the instruction displayed on the window.</td>
</tr>
<tr>
<td>Is the setting of the station number in the connected station correct?</td>
<td>Correct station numbers.</td>
</tr>
<tr>
<td>Are the following control data of the dedicated instruction correct?</td>
<td>Correct the control data of the dedicated instruction.</td>
</tr>
<tr>
<td>- Is the CPU type of the target module correct?</td>
<td></td>
</tr>
<tr>
<td>- Is the network number of the target station correct?</td>
<td></td>
</tr>
<tr>
<td>- Is the target station number correct?</td>
<td></td>
</tr>
<tr>
<td>Is the routing parameter for the sending source of transient transmission correct?</td>
<td>Correct the &quot;Routing Setting&quot; of &quot;CPU Parameters&quot;.</td>
</tr>
<tr>
<td>Have the routing parameters of the relay station correctly been set?</td>
<td>Correct the &quot;Routing Setting&quot; of &quot;CPU Parameters&quot;.</td>
</tr>
<tr>
<td>Is the network number duplicated on the network?</td>
<td>Change the duplicated network number.</td>
</tr>
<tr>
<td>Is a value out of the range set for the CPU type in the target station?</td>
<td>Correct the setting according to the manual of the CPU in the target station.</td>
</tr>
<tr>
<td>Is the communication path to the target network number decided?</td>
<td>• Power on the system and start transient transmission after a while.</td>
</tr>
<tr>
<td></td>
<td>• When &quot;Dynamic Routing&quot; under &quot;Application Settings&quot; of the station on the communication path is set to &quot;Disable&quot;, change it to &quot;Enable&quot;. Correct the setting if the setting in &quot;Link Refresh Settings&quot; of &quot;Basic Settings&quot; is incorrect.</td>
</tr>
<tr>
<td>Does the relay station to be passed support the dynamic routing function?</td>
<td>If the relay station to be passed does not support the dynamic routing function, set all the stations on the communication path in &quot;Routing Setting&quot; of &quot;CPU Parameter&quot;.</td>
</tr>
<tr>
<td>Are multiple link dedicated instructions with same channel setting executed simultaneously?</td>
<td>• Set different channel to each instructions.</td>
</tr>
<tr>
<td></td>
<td>• Shift the execution timing of the link dedicated instructions.</td>
</tr>
<tr>
<td>Is the access range of transient transmission satisfied?</td>
<td>Correct the system configuration.</td>
</tr>
<tr>
<td>Does the communication pass through the network module in the standby system when passing through the redundant system?</td>
<td>Change the routing parameter using the RTWRITE instruction so that the communication passes through the network module in the control system.</td>
</tr>
<tr>
<td>Is the version of the QCPU and network module in the target station the one shown below?</td>
<td>Use the QCPU and network modules with the following version.</td>
</tr>
<tr>
<td></td>
<td>• QCPU: Serial number (first five digits) of &quot;06092&quot; or later</td>
</tr>
<tr>
<td></td>
<td>• Network module: Serial number (first five digits) of &quot;06092&quot; or later</td>
</tr>
<tr>
<td>Is the number of resends set every time an instruction is executed?</td>
<td>Correct the program so that the number of resends is set every time an instruction is executed.</td>
</tr>
<tr>
<td>Is the station issuing the link dedicated instruction set to offline?</td>
<td>• Set the station issuing the link dedicated instruction to online and execute the link dedicated instruction.</td>
</tr>
<tr>
<td></td>
<td>• To check the online status with the program, use 'Mode setting of own station' (SB0043) as an interlock.</td>
</tr>
</tbody>
</table>

If the above action does not solve the problem, perform the communication test and self-diagnostics test to check for failure in the network configuration or module. (Page 122 Communication Test, Page 96 Self-diagnostics test)
# Modules cannot join a network

If the modules cannot join a network, check the following.

<table>
<thead>
<tr>
<th>Check item</th>
<th>Action</th>
</tr>
</thead>
<tbody>
<tr>
<td>Is the RUN LED of the own station turned off?</td>
<td>Perform troubleshooting for when the RUN LED turns off. (Page 91 When the RUN LED turns off)</td>
</tr>
<tr>
<td>Is the ERR LED of the own station turned on or flashing?</td>
<td>Perform troubleshooting for when the ERR LED turns on or is flashing. (Page 91 When the ERR LED turns on or is flashing)</td>
</tr>
<tr>
<td>Is the set station number greater than the number of connected modules?</td>
<td>Correct the station number so that it is within the number of connected modules.</td>
</tr>
<tr>
<td>For the RJ71LP21-25, check ‘Loop usage status of each station’ (SW009C to SW009F).</td>
<td>Correct the cable connection status of the faulty part.</td>
</tr>
<tr>
<td>For the RJ71LP21-25, is wiring performed correctly?</td>
<td>Check the wiring status using the loop test of the MELSECNET diagnostics.</td>
</tr>
<tr>
<td>Is any cable disconnected? Or is any cable missing?</td>
<td>Check and correct the overall cable connection status and system configuration. Check the status of each station and check the faulty area.</td>
</tr>
<tr>
<td>Is the link monitoring time correctly set?</td>
<td>Set the link monitoring time to the maximum and check if the modules can join the network.</td>
</tr>
<tr>
<td>For the RJ71LP21-25, is the transmission speed setting of the MELSECNET/H network module of all stations the same?</td>
<td>Match the transmission speed setting of all stations.</td>
</tr>
<tr>
<td>For the RJ71BR11, is the terminating resistor about to come loose?</td>
<td>Correct the terminating resistor connection status.</td>
</tr>
</tbody>
</table>

### Point

In the optical loop system, do not reset the CPU modules of adjacent stations on the wiring at the same time. Otherwise, the modules may not join the network. When simultaneous initialization is required for adjacent stations, turn the power off and on.

---

# When a station is disconnected from the network

The following is the action to be taken when a station in data link is disconnected.

<table>
<thead>
<tr>
<th>Check item</th>
<th>Action</th>
</tr>
</thead>
<tbody>
<tr>
<td>Is the ambient temperature for the module within the specified range?</td>
<td>Keep the ambient temperature within the specified range by taking action such as removing heat source.</td>
</tr>
</tbody>
</table>

If the above action does not solve the problem, perform the self-diagnostics test to check for hardware failure. (Page 96 Self-diagnostics test)

---

# When a station is repeatedly disconnected and reconnected

The following lists the actions to be taken when a station in data link is repeatedly disconnected and reconnected.

<table>
<thead>
<tr>
<th>Check item</th>
<th>Action</th>
</tr>
</thead>
<tbody>
<tr>
<td>Does the communication cable used conform to the standard?</td>
<td>Replace the communication cable with one conforming to the standard. [MELSEC iQ-R MELSECNET/H Network Module User’s Manual (Startup)]</td>
</tr>
<tr>
<td>Does the length of the communication cable meet the specifications?</td>
<td>Set the length of the communication cable within range. [MELSEC iQ-R MELSECNET/H Network Module User’s Manual (Startup)]</td>
</tr>
<tr>
<td>Does the cabling condition (bending radius) meet the specifications?</td>
<td>Refer to the manual for the communication cable, and correct the bending radius.</td>
</tr>
<tr>
<td>Is any cable disconnected?</td>
<td>Replace the cable.</td>
</tr>
</tbody>
</table>

If the above action does not solve the problem, perform the self-diagnostics test to check for hardware failure. (Page 96 Self-diagnostics test)
If the cyclic data becomes 0 when each station is reset and the power is turned on, check the following items.

<table>
<thead>
<tr>
<th>Check item</th>
<th>Action</th>
</tr>
</thead>
<tbody>
<tr>
<td>Is the send range latched?</td>
<td>Check whether the B/W device in the send range is latched by the latch setting of the CPU parameter. Refer to the following.</td>
</tr>
<tr>
<td></td>
<td>MELSEC iQ-R Programmable Controller CPU Module User's Manual</td>
</tr>
<tr>
<td>Is the block data assurance per station of the cyclic data set?</td>
<td>Check whether &quot;Block send data assurance per station&quot; is set to &quot;Enable&quot;. (Page 66 Supplementary Cyclic Settings)</td>
</tr>
</tbody>
</table>

A network module may send the initial value 0 in LB/LW data, even if the B/W device in the send range of CPU parameter is latched.
Setting the send data assurance per station prevents cyclic data from being 0, since LB/LW data is sent after link refresh.

When communication is unstable
The following lists the actions to be taken when link scan time or transmission delay time is long or when a transient transmission timeout occurred.

<table>
<thead>
<tr>
<th>Check item</th>
<th>Action</th>
</tr>
</thead>
<tbody>
<tr>
<td>Is the ambient temperature for the module within the specified range?</td>
<td>Keep the ambient temperature within the specified range by taking action such as removing heat source.</td>
</tr>
<tr>
<td>Is the module being affected by noise?</td>
<td>For the RJ71BR11, consider cable laying by using double shield coaxial cables.</td>
</tr>
<tr>
<td></td>
<td>MELSEC iQ-R MELSECNET/H Network Module User's Manual (Startup)</td>
</tr>
</tbody>
</table>

If the above action does not solve the problem, perform the self-diagnostics test to check for hardware failure. (Page 96 Self-diagnostics test)

When redundant system function is used

An error occurs in a CPU module
When a redundant system is configured, if an error occurs in a CPU module, check the following items.

<table>
<thead>
<tr>
<th>Check item</th>
<th>Action</th>
</tr>
</thead>
<tbody>
<tr>
<td>Is pairing setting made when the redundant function module is used?</td>
<td>Set pairing in &quot;Network Range Assignment&quot; of &quot;Required Settings&quot;. (Page 56 Network Range Assignment)</td>
</tr>
</tbody>
</table>

System switching cannot be performed
When system switching cannot be performed by a system switching cause of the RJ71LP21-25, check the following.

<table>
<thead>
<tr>
<th>Check item</th>
<th>Action</th>
</tr>
</thead>
<tbody>
<tr>
<td>Is the power supply module, CPU module, or redundant function module of the standby system operating normally?</td>
<td>Perform troubleshooting on the power supply module, CPU module, or redundant function module of the standby system.</td>
</tr>
<tr>
<td></td>
<td>MELSEC iQ-R CPU Module User's Manual (Application)</td>
</tr>
<tr>
<td>Is the cable disconnected in the standby system network module?</td>
<td>Check the wiring condition and put the network of the standby system in normal condition.</td>
</tr>
</tbody>
</table>

Cyclic data communications are disconnected or are unstable
If cyclic data communications are disconnected or are unstable when the RJ71LP21-25 system switching occurs, check the following items.

<table>
<thead>
<tr>
<th>Check item</th>
<th>Action</th>
</tr>
</thead>
<tbody>
<tr>
<td>Is the station number of the network module set to &quot;No. n&quot; and &quot;No. n+1&quot; for system A and system B in the redundant system?</td>
<td>Correct the setting so that the station number of the network module is set to &quot;No. n&quot; and &quot;No. n+1&quot; for system A and system B in the redundant system.</td>
</tr>
<tr>
<td>Is the cyclic data communication range included in the tracking target?</td>
<td>Correct the tracking setting.</td>
</tr>
</tbody>
</table>

(Refer to MELSEC iQ-R CPU Module User's Manual (Application))
When a communication error such as a CRC error occurs frequently

The following lists the actions to be taken when a communication error such as a CRC error occurs frequently.

<table>
<thead>
<tr>
<th>Check item</th>
<th>Action</th>
</tr>
</thead>
<tbody>
<tr>
<td>Is the optical fiber cable or the RJ71LP21-25 faulty?</td>
<td>Power off all stations, then power on stations in order, starting from the control station. At this time, check which station causes an increase in the number of communication errors (such as CRC errors) in the error history monitor of MELSECNET diagnostics when the station is powered on, and identify the error location. Replace the optical fiber cable or the RJ71LP21-25 where the error occurs with new one. The examples of identifying the error locations are shown below.</td>
</tr>
</tbody>
</table>

(1) Power off all stations.

(2) Power on the control station (station No.1) and normal station (station No.2).

Check if the number of communication errors is increased during a certain time in the error history monitor of MELSECNET diagnostics.

If the number of communication errors is increased, the RJ71LP21-25 at the station number 1 or 2 is faulty or the optical fiber cable between station number 1 and 2 is faulty.

When the number of communication errors is not increased, go to step (3).
(3) Power on the normal station (station number 3).
Check if the number of communication errors is increased during a certain time in the error history monitor of MELSECNET diagnostics.
If the number of communication errors is increased, the RJ71LP21-25 at the station number 2 or 3 is faulty or the optical fiber cable between station number 2 and 3 is faulty.
When the number of communication errors is not increased, go to step (4).

(4) Power on the normal station (station number 4).
Check if the number of communication errors is increased during a certain time in the error history monitor of MELSECNET diagnostics.
If the number of communication errors is increased, the RJ71LP21-25 at the station number 3 or 4 is faulty or the optical fiber cable between station number 3 and 4 is faulty.
When the number of communication errors is not increased, go to step (5).

(5) Disconnect the optical fiber cable from OUT side of the end of the normal station (station number 5), then power on the station.
Check if the number of communication errors is increased during a certain time in the error history monitor of MELSECNET diagnostics.
If the number of communication errors is increased, the RJ71LP21-25 at the station number 4 or 5 is faulty or the optical fiber cable between station number 4 and 5 is faulty.
When the number of communication errors is not increased, go to step (6).
(6) Connect the optical fiber cable to OUT side of the end of the normal station (station number 5). Check if the number of communication errors is increased during a certain time in the error history monitor of MELSECNET diagnostics.

If the number of communication errors is increased, the RJ71LP21-25 at the station number 5 or 1 is faulty or the optical fiber cable between station number 5 and 1 is faulty.

![Diagram of MELSECNET network](image-url)

- Power-on Station number 1
- Power-on Station number 2
- Power-on Station number 3
- Power-on Station number 4
- Power-on Station number 5

Connect the optical fiber cable.
### 4.5 List of Error Codes

This section lists the error codes, error details and causes, and action for the errors occur in the processing for data communication between the MELSECNET/H network module and external devices or caused by processing requests from the CPU module on the own station.

Error codes are classified into major error, moderate error, and minor error, and can be checked in the [Error Information] tab of the "Module Diagnostics" window of the MELSECNET/H network module. (Page 93 Checking the Module Status)

<table>
<thead>
<tr>
<th>Error code</th>
<th>Error details and causes</th>
<th>Action</th>
<th>Detailed Information</th>
</tr>
</thead>
<tbody>
<tr>
<td>1811H</td>
<td>An error was detected in the CPU module.</td>
<td>Check the error of the CPU module and take action using the module diagnostics of the engineering tool.</td>
<td>—</td>
</tr>
<tr>
<td>1812H</td>
<td>The module is installed in a CPU module that does not support the MELSEC iQ-R MELSECNET/H network module.</td>
<td>Check the version of the CPU module and use a product supporting the MELSEC iQ-R MELSECNET/H network module.</td>
<td>—</td>
</tr>
<tr>
<td>1830H</td>
<td>Number of reception requests of transient transmission (link dedicated instruction) exceeded upper limit of simultaneously processable requests.</td>
<td>Lower the transient transmission usage frequency, and then retry the operation.</td>
<td>—</td>
</tr>
<tr>
<td>1845H</td>
<td>Too many processings of transient transmission (link dedicated instruction) and cannot perform transient transmission.</td>
<td>Correct the transient transmission execution count.</td>
<td>—</td>
</tr>
<tr>
<td>1860H</td>
<td>Baton pass stops with an error of communication line or MELSECNET/H network module.</td>
<td>• Check the network status using the MELSECNET diagnostics of the engineering tool.</td>
<td>—</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• If the error occurs again even after taking the above, please consult your local Mitsubishi representative.</td>
<td>—</td>
</tr>
<tr>
<td>20E0H</td>
<td>The module cannot communicate with the CPU module.</td>
<td>The hardware failure of the CPU module may have been occurred. Please consult your local Mitsubishi representative.</td>
<td>—</td>
</tr>
<tr>
<td>2220H</td>
<td>The parameter setting is corrupted.</td>
<td>Check the detailed information of the error by executing module diagnostics using the engineering tool, and write the displayed parameter. If the error occurs again even after taking the above, the possible cause is a hardware failure of the module. Please consult your local Mitsubishi representative.</td>
<td>—</td>
</tr>
<tr>
<td>2221H</td>
<td>• The set value is out of the range.</td>
<td>• Check the detailed information of the error by executing module diagnostics using the engineering tool, and correct the parameter setting corresponding to the displayed number.</td>
<td>—</td>
</tr>
<tr>
<td></td>
<td>• The network type of the own station is inconsistent with that of the control station.</td>
<td>• Change the network type of the normal station to the one set for the control station.</td>
<td>—</td>
</tr>
<tr>
<td>24C0H to 24C3H</td>
<td>An error was detected on the system bus.</td>
<td>• Take measures to reduce noise.</td>
<td>—</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• After the CPU module is reset, switch to RUN. If the error occurs again even after taking the above, the possible cause is a hardware failure of the module, base unit, or extension cable. Please consult your local Mitsubishi representative.</td>
<td>—</td>
</tr>
<tr>
<td>24C6H</td>
<td>An error was detected on the system bus.</td>
<td>• Take measures to reduce noise.</td>
<td>—</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• After the CPU module is reset, switch to RUN. If the error occurs again even after taking the above, the possible cause is a hardware failure of the module, base unit, or extension cable. Please consult your local Mitsubishi representative.</td>
<td>—</td>
</tr>
<tr>
<td>3001H</td>
<td>• A station with the same station number was found in the same network.</td>
<td>Correct the station number or station type of the station where the error was detected. After taking the above actions, power off and on or reset all stations where the error was detected.</td>
<td>—</td>
</tr>
<tr>
<td>Error code</td>
<td>Error details and causes</td>
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</tr>
<tr>
<td>3006H</td>
<td>Pairing is not set to the stations in a redundant system.</td>
<td>Check the pairing setting in &quot;Network Range Assignment&quot; of &quot;Required Settings&quot; of the control station.</td>
<td>Parameter information&lt;br&gt;• Parameter type&lt;br&gt;• I/O No.&lt;br&gt;• Parameter No.&lt;br&gt;• Network No.&lt;br&gt;• Station No.</td>
</tr>
<tr>
<td>3007H</td>
<td>Pairing is set to the stations not included in a redundant system.</td>
<td>Check the pairing setting in &quot;Network Range Assignment&quot; of &quot;Required Settings&quot; of the control station.</td>
<td>Parameter information&lt;br&gt;• Parameter type&lt;br&gt;• I/O No.&lt;br&gt;• Parameter No.&lt;br&gt;• Network No.&lt;br&gt;• Station No.</td>
</tr>
<tr>
<td>3008H</td>
<td>&quot;RJ71LP21-25&quot; is selected for the module name in a redundant system.</td>
<td>When using the module in a redundant system, select &quot;RJ71LP21-25(R)&quot; for the module model name in the &quot;Add New Module&quot; window.</td>
<td>Parameter information&lt;br&gt;• Parameter type&lt;br&gt;• I/O No.&lt;br&gt;• Parameter No.&lt;br&gt;• Network No.&lt;br&gt;• Station No.</td>
</tr>
<tr>
<td>3008H</td>
<td>&quot;RJ71LP21-25(R)&quot; is selected for the module name in a system other than a redundant system.</td>
<td>When using the module in a system other than a redundant system, select &quot;RJ71LP21-25&quot; for the module model name in the &quot;Add New Module&quot; window.</td>
<td>Parameter information&lt;br&gt;• Parameter type&lt;br&gt;• I/O No.&lt;br&gt;• Parameter No.&lt;br&gt;• Network No.&lt;br&gt;• Station No.</td>
</tr>
<tr>
<td>3040H</td>
<td>Response data of the dedicated instruction cannot be created.</td>
<td>• Increase the request interval.&lt;br&gt;• Decrease the number of request stations.&lt;br&gt;• Wait for a response to the previous request before sending the next request.&lt;br&gt;• Correct the timeout value.</td>
<td>—</td>
</tr>
<tr>
<td>3C00H to 3C02H</td>
<td>A hardware failure has been detected.</td>
<td>• Take measures to reduce noise.&lt;br&gt;• After the CPU module is reset, switch to RUN. If the error occurs again even after taking the above, the possible cause is a hardware failure of the module, base unit, or extension cable. Please consult your local Mitsubishi representative.</td>
<td>—</td>
</tr>
<tr>
<td>3C08H</td>
<td>A hardware failure has been detected.</td>
<td>• Take measures to reduce noise.&lt;br&gt;• After the CPU module is reset, switch to RUN. If the error occurs again even after taking the above, the possible cause is a hardware failure of the module, base unit, or extension cable. Please consult your local Mitsubishi representative.</td>
<td>—</td>
</tr>
<tr>
<td>3C10H</td>
<td>A hardware failure has been detected.</td>
<td>• Take measures to reduce noise.&lt;br&gt;• After the CPU module is reset, switch to RUN. If the error occurs again even after taking the above, the possible cause is a hardware failure of the module, base unit, or extension cable. Please consult your local Mitsubishi representative.</td>
<td>—</td>
</tr>
<tr>
<td>3C14H</td>
<td>A hardware failure has been detected.</td>
<td>After the CPU module is reset, switch to RUN. If the error occurs again even after taking the above, the possible cause is a hardware failure of the error module or CPU module. Please consult your local Mitsubishi representative.</td>
<td>—</td>
</tr>
<tr>
<td>3C2FH</td>
<td>An error was detected in the memory.</td>
<td>After the CPU module is reset, switch to RUN. If the error occurs again even after taking the above, the possible cause is a hardware failure of the error module. Please consult your local Mitsubishi representative.</td>
<td>—</td>
</tr>
<tr>
<td>3E00H</td>
<td>An error was detected in the network module.</td>
<td>After the CPU module is reset, switch to RUN. If the error occurs again even after taking the above, the possible cause is a hardware failure of the error module. Please consult your local Mitsubishi representative.</td>
<td>—</td>
</tr>
<tr>
<td>3E01H</td>
<td>Network type of the own station is unexpected setting.</td>
<td>Rewrite the module parameter using the engineering tool. If the error occurs again even after taking the above, the possible cause is a hardware failure of the error module. Please consult your local Mitsubishi representative.</td>
<td>—</td>
</tr>
<tr>
<td>F007H to F008H</td>
<td>An error was detected in the network module.</td>
<td>Please consult your local Mitsubishi representative.</td>
<td>—</td>
</tr>
<tr>
<td>F013H</td>
<td>The network parameter setting is incorrect.</td>
<td>• Correct the network parameter setting and write data to the programmable controller.&lt;br&gt;• If the error occurs again even after taking the above, please consult your local Mitsubishi representative.</td>
<td>—</td>
</tr>
<tr>
<td>F101H to F102H</td>
<td>The network is booting.</td>
<td>Wait until 'Baton pass error status of own station' (SB0047) and 'Data link error status of own station' (SB0049) go back to normal.</td>
<td>—</td>
</tr>
<tr>
<td>F103H</td>
<td>Online test is being executed.</td>
<td>Wait until 'Baton pass error status of own station' (SB0047) and 'Data link error status of own station' (SB0049) go back to normal.</td>
<td>—</td>
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<tr>
<td>F104H</td>
<td>The control station and sub-control station are under transition.</td>
<td>Wait until 'Baton pass error status of own station' (SB0047) and 'Data link error status of own station' (SB0049) go back to normal.</td>
<td>—</td>
</tr>
<tr>
<td>F105H</td>
<td>Parameter processing is being performed.</td>
<td>Wait until 'Baton pass error status of own station' (SB0047) and 'Data link error status of own station' (SB0049) go back to normal.</td>
<td>—</td>
</tr>
<tr>
<td>F106H</td>
<td>The control station went down.</td>
<td>Check the power supply status, cable failure, disconnection, connector connection failure, wiring error, and control station CPU status of the control station.</td>
<td>—</td>
</tr>
<tr>
<td>F107H</td>
<td>A baton has disappeared in baton pass.</td>
<td>• Check the line status for cable failure and check for the presence of a power-off station.</td>
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<td>• If transient transmission is performed frequently and the link scan time sometimes exceeds 200ms, adjust &quot;Supplementary Cyclic Settings&quot; in &quot;Application Settings&quot; to reduce the link scan time.</td>
<td>—</td>
</tr>
<tr>
<td>F108H</td>
<td>A baton has been duplicated in baton pass.</td>
<td>• Check the station number duplication and control station duplication by the setting check test using the MELSECNET diagnostics of the engineering tool.</td>
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<td>• If the setting check test cannot be performed, check the data link faulty station in &quot;Data-Link Status of each Station&quot; under &quot;Other Station Information&quot; of the MELSECNET diagnostics and check the station number setting and parameters of the faulty station.</td>
<td>—</td>
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<td>• Check for cable failure, disconnection, connector connection failure, and wiring error.</td>
<td>—</td>
</tr>
<tr>
<td>F109H</td>
<td>Online test is being executed.</td>
<td>Wait until 'Baton pass error status of own station' (SB0047) and 'Data link error status of own station' (SB0049) go back to normal.</td>
<td>—</td>
</tr>
<tr>
<td>F10AH</td>
<td>Online test or offline loop test is being executed.</td>
<td>• When online test is being executed, wait until 'Baton pass error status of own station' (SB0047) and 'Data link error status of own station' (SB0049) go back to normal.</td>
<td>—</td>
</tr>
<tr>
<td>F10BH</td>
<td>The station number of the own station is already used for another station.</td>
<td>Correct the station number setting.</td>
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<td>Check the duplicated station number by the setting check test using the MELSECNET diagnostics of the engineering tool.</td>
<td>—</td>
</tr>
<tr>
<td>F10CH</td>
<td>There is a control station other than the own station in the network.</td>
<td>Correct the control station setting.</td>
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<td>Check the duplicated control station by the setting check test using the MELSECNET diagnostics of the engineering tool.</td>
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<tr>
<td>F10DH</td>
<td>The mode setting is set to offline.</td>
<td>Correct the setting of &quot;Module Operation Mode&quot; under &quot;Application Settings&quot; to &quot;Online&quot;.</td>
<td>—</td>
</tr>
<tr>
<td>F10EH</td>
<td>Reception has failed consecutively.</td>
<td>• Check for cable failure, hardware failure, wiring error, station number duplication, control station duplication, and mismatched transmission speed in the same network.</td>
<td>—</td>
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<td>• Check for an error by the setting check test and loop test performed from the MELSECNET diagnostics of the engineering tool.</td>
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<tr>
<td>F10FH</td>
<td>Send operation has failed consecutively.</td>
<td>• Check for cable failure, hardware failure, wiring error, station number duplication, control station duplication, and mismatched transmission speed in the same network.</td>
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<td>• Check for an error by the setting check test and loop test performed from the MELSECNET diagnostics of the engineering tool.</td>
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<tr>
<td>F110H</td>
<td>Timeout error has occurred consecutively.</td>
<td>• Check for cable failure, hardware failure, wiring error, station number duplication, control station duplication, and mismatched transmission speed in the same network.</td>
<td>—</td>
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<td>• Check for an error by the setting check test and loop test performed from the MELSECNET diagnostics of the engineering tool.</td>
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<tr>
<td>F111H</td>
<td>No baton pass is performed by the target station.</td>
<td>• Correct the target station status.</td>
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<td>• Correct the relay station status if the instruction is sent to another network.</td>
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<td>• Correct the module parameter. (Check if a parameter error has occurred or if the target station is correctly set in the control station.)</td>
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<td>• Check the power supply status of the target station. (Check if the power-on and off is repeated.)</td>
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<tr>
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<td></td>
<td>• Check for cable failure, hardware failure, wiring error, station number duplication, control station duplication, and mismatched transmission speed in the same network.</td>
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<tr>
<td></td>
<td></td>
<td>• Check for an error by the setting check test and loop test performed from the MELSECNET diagnostics of the engineering tool.</td>
<td>—</td>
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</table>
| F112H | The loop status is faulty. | • Check for cable failure, hardware failure, wiring error, station number duplication, control station duplication, and mismatched transmission speed in the same network.  
• Check the power supply status of each module. (Check if the power-on and off is repeated.)  
• Check whether the network module of the MELSECNET/H mode is mixed with that of the MELSECNET/10 mode. (Check the control station type.) | — |
| F113H | No baton pass is performed by the own station or relay station. | • Retry the operation later. If the error cannot be eliminated after a retry, check for cable failure, hardware failure, wiring error, station number duplication, control station duplication, and mismatched transmission speed in the same network.  
• Check if a parameter error has occurred or if the target station is correctly set in the control station.  
• Wait until 'Baton pass error status of own station' (SB0047) and 'Data link error status of own station' (SB0049) of own station or relay station go back to normal. | — |
| F114H | Send operation has failed. | • Retry the operation later. If the error cannot be eliminated after a retry, check for cable failure, hardware failure, wiring error, station number duplication, control station duplication, and mismatched transmission speed in the same network.  
• Check if a parameter error has occurred or if the target station is correctly set in the control station.  
• Wait until 'Baton pass error status of own station' (SB0047) and 'Data link error status of own station' (SB0049) go back to normal. | — |
| F115H | The send packet data specification is incorrect. | • Check for cable failure, hardware failure, wiring error, station number duplication, control station duplication, and mismatched transmission speed in the same network.  
• If this error occurs during online test, check if offline test or online test is also executed in another station. | — |
| F116H | Online test is not performed normally. | Check for cable failure, hardware failure, wiring error, station number duplication, control station duplication, and mismatched transmission speed in the same network. | — |
| F117H | Send operation has failed in online test. | Check for cable failure, hardware failure, noise, and wiring error. | — |
| F118H | Send operation has been interrupted. | Wait until 'Baton pass error status of own station' (SB0047) and 'Data link error status of own station' (SB0049) go back to normal. | — |
| F119H | Send operation has failed because a loop error has occurred during send operation. | Retry the operation later. | — |
| F11BH | There is no normal station other than the own station in the network. | • Correct the module parameter of the control station. (Check if a parameter error has occurred or if the target station is correctly set in the control station.)  
• Check for cable failure, hardware failure, noise, wiring error, station number duplication, control station duplication, and mismatched transmission speed in the same network. | — |
| F11CH | The hardware of the network module has failed. | Please consult your local Mitsubishi representative. | — |
| F11FH | No baton to the own station is detected. | • Check for the operating status of the control station/sub-control station, cable failure, wiring error, station number duplication, control station duplication, and mismatched transmission speed in the same network.  
• Check whether the network module of the MELSECNET/H mode is mixed with that of the MELSECNET/10 mode. (Check the control station type.) | — |
| F120H | The sending station is incorrectly specified. | Check for cable failure, hardware failure, wiring error, station number duplication, control station duplication, and mismatched transmission speed in the same network. | — |
| F122H | The coaxial cable is not connected. | Check for coaxial cable connection, connector connection failure, terminating resistor connection, and cable failure. | — |
| F172H | An error was detected in the network module. | Please consult your local Mitsubishi representative. | — |
| F179H | Cable failure or network module error is detected. | • If a communication error occurs, correct the communication cable.  
• If no communication error has occurred, the error is caused by hardware failure. Please consult your local Mitsubishi representative. | — |
<table>
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<td>F17BH</td>
<td>An error was detected in the network module.</td>
<td>Please consult your local Mitsubishi representative.</td>
<td>—</td>
</tr>
<tr>
<td>F200H</td>
<td>An error was detected in the network module.</td>
<td>Please consult your local Mitsubishi representative.</td>
<td>—</td>
</tr>
<tr>
<td>F201H</td>
<td>The same transient data have been received two times or more.</td>
<td>Check the network status using the MELSECNET diagnostics of the engineering tool, and retry the operation. Although the error occurs, the second or later received transient data is discarded in the module.</td>
<td>—</td>
</tr>
</tbody>
</table>
| F202H      | Cable failure or network module error is detected. | • If a communication error occurs, correct the communication cable.  
• If no communication error has occurred, the error is caused by hardware failure. Please consult your local Mitsubishi representative. | — |
| F203H      | The send buffer is full. | • Pause the transient transmission temporarily, and retry the operation.  
• Lower the transient transmission usage frequency, and then retry the operation.  
• Use the COM instruction or "Device/Label Access Service Processing Setting" in "Service Processing Setting" using the CPU parameter to increase the frequency of transient transmission. If the error occurs again even after taking the above, please consult your local Mitsubishi representative. | — |
| F204H      | The specified number of resends has been reached. | Check the network status using the MELSECNET diagnostics of the engineering tool. | — |
| F207H      | Although the target station of transient transmission is connected in the same network, different network number is set. | Correct "Network No." in "Required Settings". When the parameter is not set, network number is set to 1 (default). Correct the network number of the other station. | — |
| F209H      | The transient transmission data is incorrect. | Correct the transient transmission data. | — |
| F20CH      | The transient transmission data is incorrect. | Correct the transient transmission data. | — |
| F210H      | The transient transmission data is incorrect. | Correct the transient transmission data. | — |
| F211H      | There is no control station when "Specified Control Station" is specified for the target station of transient transmission. | • Correct the target station number at the own station, and retry the operation.  
• If the error occurs again even after taking the above, please consult your local Mitsubishi representative. | — |
| F212H      | There is no control station when "Present Control Station" is specified for the target station of transient transmission. | • Correct the target station number at the own station, and retry the operation.  
• If the error occurs again even after taking the above, please consult your local Mitsubishi representative. | — |
| F213H      | Timeout has occurred in the state of waiting for the completion of send operation. | • Wait until 'Baton pass error status of own station' (SB0047) and 'Data link error status of own station' (SB0049) go back to normal.  
• Check for cable failure, hardware failure, wiring error, station number duplication, control station duplication, and mismatched transmission speed in the same network.  
• Check the network status using the MELSECNET diagnostics of the engineering tool.  
• If the error occurs again even after taking the above, please consult your local Mitsubishi representative. | — |
| F216H      | A command indicating that group/global specification cannot be performed is received. | • Correct the SLMP command.  
• If the error occurs again even after taking the above, please consult your local Mitsubishi representative. | — |
| F217H      | A command indicating that specification to another station cannot be performed is received. | • Correct the SLMP command.  
• If the error occurs again even after taking the above, please consult your local Mitsubishi representative. | — |
| F218H      | A command indicating that specification to the own station cannot be performed is received. | • Correct the SLMP command.  
• If the error occurs again even after taking the above, please consult your local Mitsubishi representative. | — |
| F219H to F21AH | An error was detected in the network module. | Please consult your local Mitsubishi representative. | — |
| F21CH      | The number of reception requests of transient transmission (link dedicated instruction) exceeds the upper limit of simultaneously processable requests. | • Lower the transient transmission usage frequency, and then retry the operation.  
• If the error occurs again even after taking the above, please consult your local Mitsubishi representative. | — |
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| F21DH      | An invalid value is received for the clear type. | • Correct the SLMP command.  
• If the error occurs again even after taking the above, please consult your local Mitsubishi representative. | — |
| F21EH      | A command that is not supported is received. | • Correct the SLMP command.  
• If the error occurs again even after taking the above, please consult your local Mitsubishi representative. | — |
| F220H to F221H | The hardware of the network module has failed. | Please consult your local Mitsubishi representative. | — |
| F222H      | The maximum number of the receive buffer is used. | • Retry the operation later. If the error cannot be eliminated after a retry, correct the number of transient transmission and the communication interval of the entire system.  
• Turn off and on the power of the entire system. | — |
| F223H      | Invalid data is received. | • Correct the SLMP command.  
• If the error occurs again even after taking the above, please consult your local Mitsubishi representative. | — |
| F224H to F225H | The hardware of the module from which the transient transmission was started has failed. | Please consult your local Mitsubishi representative. | — |
| F226H      | The logical channel number of the SEND instruction is incorrectly set. | • Check whether the logical channel number of the target network module is set to the target station storage channel (logical channel number) of the control data at the start of the SEND instruction.  
• Specify the logical channel number that is set for the target network module. | — |
| F228H      | The control data of the SEND instruction is incorrectly set. | Correct the target network number and target station number of the control data at the start of the SEND instruction. | — |
| F258H      | The network number specified for the dedicated instruction is out of range. | • Execute the instruction again after correcting the target network number in the control data.  
• If the error occurs again even after taking the above, please consult your local Mitsubishi representative. | — |
| F268H      | In the execution/abnormal completion type specification which was set at the execution of the dedicated instruction, the bit in the area fixed to 0 is turned on. | • Execute the instruction again after correcting the execution/abnormal completion type in the control data.  
• If the error occurs again even after taking the above, please consult your local Mitsubishi representative. | — |
| F301H<sup>1</sup> | The hardware of the network module has failed. | Please consult your local Mitsubishi representative. | — |
| F701H to F702H | When the dedicated instruction is executed, the target station number setting is not correct. | • Execute the instruction again after correcting the target station number in the control data.  
• If the error occurs again even after taking the above, please consult your local Mitsubishi representative. | — |
| F703H      | The send destination group number is incorrectly set. | • Correct the send destination group number.  
• If the error occurs again even after taking the above, please consult your local Mitsubishi representative. | — |
| F704H      | Invalid data is received. | • Correct the SEND instruction.  
• If the error occurs again even after taking the above, please consult your local Mitsubishi representative. | — |
| F705H      | The send destination CPU is incorrectly set. | • Correct the send destination CPU.  
• If the error occurs again even after taking the above, please consult your local Mitsubishi representative. | — |
| F706H      | Cable failure or network module error is detected. | • If a communication error occurs, correct the communication cable.  
• If no communication error has occurred, the error is caused by hardware failure. Please consult your local Mitsubishi representative. | — |
| F707H<sup>1</sup> | In transient transmission, the number of relay to other networks exceeded seven. | • Change the system configuration so that the number of relay stations may be seven or less.  
• Check if “Routing Setting” in “CPU Parameter” is correctly set. | — |
| F708H      | When the dedicated instruction is executed, the target group number setting is out of range. | • Execute the instruction again after correcting the target group number in the control data.  
• If the error occurs again even after taking the above, please consult your local Mitsubishi representative. | — |
| F709H      | The network number specified for the dedicated instruction is out of range. | • Execute the instruction again after correcting the target network number in the control data.  
• If the error occurs again even after taking the above, please consult your local Mitsubishi representative. | — |
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<tr>
<td>F70AH</td>
<td>Cable failure or network module error is detected.</td>
<td>• If a communication error occurs, correct the communication cable.</td>
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<td></td>
<td></td>
<td>• If no communication error has occurred, the error is caused by hardware failure. Please consult your local Mitsubishi representative.</td>
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<tr>
<td>F70BH*1</td>
<td>No response has been returned after send operation.</td>
<td>Wait until 'Baton pass error status of own station' (SB0047) and 'Data link error status of own station' (SB0049) go back to normal.</td>
<td></td>
</tr>
<tr>
<td>F70CH*1</td>
<td>Cable failure or network module hardware failure has occurred.</td>
<td>• If a communication error occurs, correct the communication cable.</td>
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<td>• If no communication error has occurred, the error is caused by hardware failure. Please consult your local Mitsubishi representative.</td>
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</tr>
<tr>
<td>F70EH*1</td>
<td>Cable failure or network module hardware failure has occurred.</td>
<td>• If a communication error occurs, correct the communication cable.</td>
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<td>• If no communication error has occurred, the error is caused by hardware failure. Please consult your local Mitsubishi representative.</td>
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<tr>
<td>F710H to F712H</td>
<td>An error was detected in the network module.</td>
<td>Please consult your local Mitsubishi representative.</td>
<td></td>
</tr>
<tr>
<td>F781H</td>
<td>The target network number specified for transient transmission is out of range.</td>
<td>• Correct the target network number at the own station, and retry the operation.</td>
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<td>• If the error occurs again even after taking the above, please consult your local Mitsubishi representative.</td>
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</tr>
<tr>
<td>F782H</td>
<td>The target station number specified for transient transmission is out of range.</td>
<td>• Correct the target station number at the own station, and retry the operation.</td>
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<td></td>
<td></td>
<td>• If the error occurs again even after taking the above, please consult your local Mitsubishi representative.</td>
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</tr>
<tr>
<td>F783H</td>
<td>The request data size of transient transmission is out of range.</td>
<td>• Correct the request command at the request source, and retry the operation.</td>
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<td>• If the error occurs again even after taking the above, please consult your local Mitsubishi representative.</td>
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</tr>
<tr>
<td>F7C1H</td>
<td>The channel used at the own station is used by another instruction.</td>
<td>• Change the channel number or retry the instruction after a while.</td>
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<td></td>
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<td>• Check the channel interlock.</td>
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<td>• Change the channels used by own station or the target station storage channel in the control data.</td>
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<tr>
<td>F7C2H</td>
<td>The target station storage channel is used by another instruction.</td>
<td>• Retry the SEND instruction after a while.</td>
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<td></td>
<td></td>
<td>• Check whether the target station has executed the instruction by using the target channel or the RECV processing has been executed.</td>
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<td></td>
<td></td>
<td>• Check whether a station other than the own station has executed the SEND instruction for the target channel of the target station.</td>
<td></td>
</tr>
<tr>
<td>F7C3H</td>
<td>The instruction was not completed within the arrival monitoring time.</td>
<td>• If this error occurs at the ZNRD/ZNWR instruction execution, check whether the version of the CPU module of another station being accessed is AY (manufactured in July 1995) or later when the module is A2UCPU(S1), A3UCPU, or A4UCPU, or is CP (manufactured in July 1995) or later when the module is A2ASCPU(S1).</td>
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<td>• If this error occurs at the RECV instruction execution and another station is executing the SEND instruction, specify a large value for the arrival monitoring time. Or, activate the RECV instruction by turning on the RECV execution request flag.</td>
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</tr>
<tr>
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<td></td>
<td>• If this error occurs at an instruction execution other than the RECV instruction, specify a large value for the arrival monitoring time, or check the target station operating status, network status, and relay station status (if the instruction is sent to another network).</td>
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<td>• If this error occurs at the RRUN/RSTOP/RTMRD/RTMWR instruction execution and the CPU module of another station being accessed is QnACPU, change the instruction to the REQ instruction supporting QnACPU.</td>
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<td>• When the dynamic routing function is used, check if communication to the target network number is possible using the MELSECNET diagnostics communication test.</td>
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<td>• Check that the data length is within the range of the size that can be used for the CPU module of another station being accessed. If the error occurs again even after taking the above, please consult your local Mitsubishi representative.</td>
<td></td>
</tr>
<tr>
<td>Error code</td>
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<td>Action</td>
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</tbody>
</table>
| F7C4H      | The instruction is not completed although the number of resends is reached. | • Increase the value of the arrival monitoring time.  
• Check the target station operating status, network status, and relay station status (if the instruction is sent to another network).  
• If this error occurs at the ZNRD/ZNWR instruction execution, check whether the CPU module of another station being accessed is the A2UCPU(S1), A3UCPU, A2ASCP(S1), or A4UCPU. In that case, check that the version of the A2UCPU(S1), A3UCPU, or A4UCPU is AY (manufactured in July 1995) or later, or the version of the A2ASCP(S1) is CP (manufactured in July 1995) or later.  
• If this error occurs at the RRUN/RSTOP/RTMRD/RTMWR instruction execution and the CPU module of another station being accessed is QnACPU, change the instruction to the REQ instruction supporting QnACPU.  
• Check that the data length is within the range of the size that can be used for the CPU module of another station being accessed.  
• If the request destination is another network, check if the CPU module of the relay station supports the routing setting, and take an action.  
If the error occurs again even after taking the above, please consult your local Mitsubishi representative. | — |
| F7C5H      | The target network number or target station number for the control data of the send/receive instruction is incorrectly set. | Correct the target network number or target station number for the control data of the send/receive instruction. | — |
| F7C6H      | The channel number for the own station or target station is incorrectly set. | • Correct the channel number of the own station and target station in the control data.  
• If the error occurs again even after taking the above, please consult your local Mitsubishi representative. | — |
| F7C7H      | The target station number is incorrectly set. | • Specify a station number other than that of the own station for the target station number in the control data.  
• If the error occurs again even after taking the above, please consult your local Mitsubishi representative. | — |
| F7C8H      | The execution type is incorrectly set. | • If the execution/abnormal completion type in the control data is set to all stations specification or group specification, set the execution type to “No arrival acknowledgment”.  
• If the error occurs again even after taking the above, please consult your local Mitsubishi representative. | — |
| F7C9H      | The number of resends is incorrectly set. | • Correct the number of resends in the control data.  
• If the error occurs again even after taking the above, please consult your local Mitsubishi representative. | — |
| F7CAH      | The arrival monitoring time is incorrectly set. | • Correct the arrival monitoring time in the control data.  
• If the error occurs again even after taking the above, please consult your local Mitsubishi representative. | — |
| F7CBH      | The send data length is incorrectly set. | • Correct the send data length in the control data.  
• If the error occurs again even after taking the above, please consult your local Mitsubishi representative. | — |
| F7CDH      | An error was detected in the network module. | Please consult your local Mitsubishi representative. | — |
| F7CEH      | The same instruction is being executed. | • Retry the instruction after a while.  
• Check the instruction interlock. | — |
| F7E1H      | The control data is incorrectly set. | • Correct the setting value in the control data.  
• If the error occurs again even after taking the above, please consult your local Mitsubishi representative. | — |
| F7E2H      | The hardware of the network module has failed. | Please consult your local Mitsubishi representative. | — |
| F7E3H      | • An error was detected in the network module.  
• The device specified for the ZNRD/ZNWR instruction is incorrect. | • Execute the instruction again after checking the setting data.  
• If the error occurs again even after executing the instruction, please consult your local Mitsubishi representative. | — |
| F7E4H      | The target CPU does not support the instruction. | • Check if the target station CPU type specified by the control data is out of range.  
• If the error occurs again even after taking the above, please consult your local Mitsubishi representative. | — |
| F7E5H      | Send operation has failed. | • Retry the REMFR/REMTO instruction after a while.  
• Check the target station operating status and network status. If the instruction is sent to another network, check the relay station status. | — |
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<tr>
<td>F7E7H*1</td>
<td>The buffer memory address is incorrectly set.</td>
<td>Check if the buffer memory address specified by the REMFR/REMTO instruction exceeds 8000H.</td>
<td>—</td>
</tr>
<tr>
<td>F7E8H*1</td>
<td>The target network does not support the instruction.</td>
<td>Check if the PLC to PLC network is set by the network number specified by the REMFR/REMTO instruction.</td>
<td>—</td>
</tr>
<tr>
<td>F7E9H*1</td>
<td>The REMFR/REMTO instruction was executed during disconnection.</td>
<td>Check if the own station is performing data link when the REMFR/REMTO instruction is executed.</td>
<td>—</td>
</tr>
</tbody>
</table>
| F7EAH     | The SEND instruction was received from other network. | • Change the target station at the station that executed the SEND instruction.  
• If the error occurs again even after taking the above, please consult your local Mitsubishi representative. | — |
| F7EBH     | When there was no control station on the network, the dedicated instruction was executed specifying the specified control station or current control station. | • Execute the instruction again after correcting the target station number in the control data.  
• If the error occurs again even after taking the above, please consult your local Mitsubishi representative. | — |
| F7ECH     | The channel specified is being used for event parameters. | • Execute the instruction again after correcting the channel used by own station in the control data.  
• Execute the instruction again after correcting the channel used in "Interrupt Settings" of "Application Setting".  
• If the error occurs again even after taking the above, please consult your local Mitsubishi representative. | — |
| F800H*1   | The mode switch is incorrectly set.  | • Check the mode switch setting.  
• If the error still occurs after re-setting, the hardware has failed. Please consult your local Mitsubishi representative. | — |
| F801H*1   | The network number in the parameter is incorrectly set.  | • Correct the network parameter setting and write data to the programmable controller.  
• If the error occurs again, the error is the hardware failure of the CPU module or network module. Please consult your local Mitsubishi representative. | — |
| F802H*1   | The group number in the parameter is incorrectly set.  | • Correct the network parameter setting and write data to the programmable controller.  
• If the error occurs again, the error is the hardware failure of the CPU module or network module. Please consult your local Mitsubishi representative. | — |
| F803H*1   | The station number is incorrectly set.  | • Check if the station number is set within 1 to 64.  
• If the error still occurs after re-setting, the hardware has failed. Please consult your local Mitsubishi representative. | — |
| F804H*1   | The DIP switch in the parameter is incorrectly set. | • Correct the network parameter setting and write data to the programmable controller.  
• If the error occurs again, the error is the hardware failure of the CPU module or network module. Please consult your local Mitsubishi representative. | — |
| F805H*1   | The hardware of the network module has failed.  | Please consult your local Mitsubishi representative. | — |
| F806H*1   | The hardware of the CPU module or network module has failed. | Please consult your local Mitsubishi representative. | — |
| F808H*1   | The hardware of the network module has failed.  | Please consult your local Mitsubishi representative. | — |
| F80AH to F80FH*1 | The hardware of the network module has failed. | Please consult your local Mitsubishi representative. | — |
| F811H to F812H*1 | The hardware of the network module has failed. | Please consult your local Mitsubishi representative. | — |
| F813H*1   | The common parameter and unique parameter are faulty.  | • Replace the network module of the control station or normal station to one supporting the MELSECNET/H extended mode.  
• Change the network type of the normal station to the one set for the control station. Correct the network parameter setting and write data to the programmable controller.  
• If the error occurs again, the error is the hardware failure of the CPU module or network module. Please consult your local Mitsubishi representative. | — |
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| F814H*1    | The common parameter and unique parameter are faulty.                                   | • Correct the network parameter setting and write data to the programmable controller.  
• If the error occurs again, the error is the hardware failure of the CPU module or network module. Please consult your local Mitsubishi representative. | —                    |
| F820H      | The network parameter is faulty.                                                        | • Replace the network module of the normal station to the one supporting the MELSECNET/H extended mode.  
• Change the network type of the normal station to the one set for the control station.  
• Correct the network parameter setting and write data to the programmable controller.  
• If the error occurs again, the error is the hardware failure of the CPU module or network module. Please consult your local Mitsubishi representative. | —                    |
| F821H      | The unique parameter is faulty.                                                         | • Correct the unique parameter for each station.  
• If the error occurs again, the error is the hardware failure of the CPU module or network module. Please consult your local Mitsubishi representative. | —                    |
| F822H*1    | The hardware of the CPU module or network module has failed.                            | Please consult your local Mitsubishi representative.                    | —                    |
| F823H*1    | The common parameter is inconsistent with the unique parameter.                         | • Set the own station send range so that the common parameter ≥ unique parameter of each station.  
• If there is no parameter unique to the station, the error is the hardware failure of the CPU module or network module. Please consult your local Mitsubishi representative. | —                    |
| F825H      | The hardware of the CPU module or network module has failed.                            | Please consult your local Mitsubishi representative.                    | —                    |
| F826H      | The parameter of the own station is inconsistent with that of the control station.      | • Change the module parameter setting to the one set for the sub-control station. Or, activate the own station as a control station.  
• If the error occurs again, the error is the hardware failure of the CPU module or network module. Please consult your local Mitsubishi representative. | —                    |
| F828H      | "Control Station Shift Setting" under "Supplementary Cyclic Settings" in "Application Settings" is not set to "Set". | Set "Control Station Shift Setting" under "Supplementary Cyclic Settings" in "Application Settings" to "Set". | —                    |
| F829H      | Pairing is not set to the stations equipped with a redundant CPU. Or, pairing is set to the stations without a redundant CPU. | For the station equipped with a redundant system, set "Network Range Assignment" of "Required Settings" to "Enable". | —                    |
| F82AH      | The network type of the own station is inconsistent with that of the control station.   | Change the network type of the normal station to the one set for the control station. | —                    |
| F82BH*1    |                                                                                        | Please consult your local Mitsubishi representative.                    | —                    |
| F830H*1    | The hardware of the CPU module or network module has failed.                            |                                                                          | —                    |
| F831H      |                                                                                        | Please consult your local Mitsubishi representative.                    | —                    |
| F832H      | Data link could not be activated because there are multiple data link stop instructions. | • If the data link stop is performed for the station by all stations specification, activate the data link by setting all stations specification.  
• If the data link stop is performed for the station by station specification, activate the data link by setting station specification from the data link stop station or forcibly activate the station. | —                    |
| F833H      | Link startup is executed from the station that is different from the one that stopped cyclic transmission. | Activate the data link from the station that stopped the data link. Or, forcibly start the data link. | —                    |
| F834H to F835H*1 | Cable failure or network module hardware failure has occurred.                          | • If a communication error occurs, correct the communication cable.  
• If no communication error has occurred, the error is caused by hardware failure. Please consult your local Mitsubishi representative. | —                    |
| F836H      | Cable failure or network module hardware failure has occurred.                          | • If a communication error occurs, correct the communication cable.  
• If no communication error has occurred, the error is caused by hardware failure. Please consult your local Mitsubishi representative. | —                    |
<p>| F837H to F838H | Although start or stop of cyclic transmission was requested, no response is received. | Check the control station status to see if reset or error has occurred during transmission. | —                    |</p>
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<tr>
<td>F839H</td>
<td>The network parameter is not registered.</td>
<td>Check if the control station exists. If the control station exists, correct the network parameter setting and write data to the programmable controller. If the control station does not exist, add a control station.</td>
<td></td>
</tr>
<tr>
<td>F83AH</td>
<td>'Link start/stop instruction details' (SW0000) or 'Link start/stop station' (SW0001 to SW0004) is incorrectly set.</td>
<td>Check the setting and stop or restart cyclic transmission.</td>
<td></td>
</tr>
<tr>
<td>F83BH</td>
<td>The conditions for switching the multiplexed remote master station are not satisfied.</td>
<td>Check if the following conditions are satisfied.</td>
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<tr>
<td></td>
<td>• The system is a multiplexed remote I/O network system.</td>
<td>• The parameter of the master station is set to &quot;Returns as Control Station&quot;.</td>
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</tr>
<tr>
<td></td>
<td>• The own station is operating as the master station.</td>
<td>• The submaster operating station is performing data link.</td>
<td></td>
</tr>
<tr>
<td>F83CH to F83DH</td>
<td>An error was detected in the CPU module or network module.</td>
<td>Please consult your local Mitsubishi representative.</td>
<td></td>
</tr>
<tr>
<td>F840H</td>
<td>The low speed common parameter is faulty.</td>
<td>• Correct the network parameter setting and write data to the programmable controller.</td>
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<td></td>
<td>• If the error occurs again, the error is the hardware failure of the CPU module or network module. Please consult your local Mitsubishi representative.</td>
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<tr>
<td>F841H to F842H</td>
<td>The network parameter is faulty or the hardware of the network module has failed.</td>
<td>• Correct the network parameter setting and write data to the programmable controller.</td>
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<tr>
<td></td>
<td>• If the error occurs again, the error is the hardware failure of the CPU module or network module. Please consult your local Mitsubishi representative.</td>
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<tr>
<td>F881H to F888H</td>
<td>An error was detected in the network module.</td>
<td>Please consult your local Mitsubishi representative.</td>
<td></td>
</tr>
<tr>
<td>F890H</td>
<td>Number of transient request exceeded the upper limit of simultaneously processable requests.</td>
<td>• Pause the transient transmission temporarily, and retry the operation.</td>
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<td>• Lower the transient transmission usage frequency, and then retry the operation.</td>
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<tr>
<td>F891H</td>
<td>The request data size of memory read/write command is out of range.</td>
<td>Correct the read or write size specification at the transient request source, and retry the operation.</td>
<td></td>
</tr>
<tr>
<td>F892H</td>
<td>• Routing information to the destination network number is not registered.</td>
<td>• Correct the target network number at the request source, and retry the operation.</td>
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<tr>
<td></td>
<td>• In transient transmission, the number of relay to other networks exceeded seven.</td>
<td>• Correct the communication path from the transient request source to the destination, and retry the operation.</td>
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<td></td>
<td>• When the dynamic routing is not used, or the module of the series other than MELSEC iQ-R is included, retry the operation after correcting the routing setting.</td>
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<td>• Change the system configuration so that the number of relay stations may be seven or less.</td>
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<tr>
<td>F893H</td>
<td>The module operation mode is set to a mode in which transient transmission cannot be executed.</td>
<td>After completion of the offline test, retry the transient transmission.</td>
<td></td>
</tr>
<tr>
<td>F894H</td>
<td>Incorrect frame is received.</td>
<td>Correct the request data at the transient request source, and retry the operation.</td>
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<td>• Unsupported pre-conversion protocol</td>
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<td>• Unsupported frame type</td>
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<td>• Application header variable part</td>
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<td>• Application header HDS</td>
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<td>• Application header RTP</td>
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<td></td>
<td>• Read command not requiring response</td>
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<tr>
<td>F901H</td>
<td>Cable failure or network module error is detected.</td>
<td>• If a communication error occurs, correct the communication cable.</td>
<td></td>
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<tr>
<td></td>
<td></td>
<td>• If no communication error has occurred, the error is caused by hardware failure. Please consult your local Mitsubishi representative.</td>
<td></td>
</tr>
<tr>
<td>F902H</td>
<td>In transient transmission, the number of relay to other networks exceeded seven.</td>
<td>• Change the system configuration so that the number of relay stations may be seven or less.</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>• Check if &quot;Routing Setting&quot; in &quot;CPU Parameter&quot; is correctly set.</td>
<td></td>
</tr>
<tr>
<td>F903H</td>
<td>The target network number specified for transient transmission is out of range.</td>
<td>• Correct the target network number at the own station, and retry the operation.</td>
<td></td>
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<tr>
<td></td>
<td></td>
<td>• If the error occurs again even after taking the above, please consult your local Mitsubishi representative.</td>
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<tr>
<td>F904H</td>
<td>The target station number specified for transient transmission is out of range.</td>
<td>• Correct the target station number at the own station, and retry the operation.</td>
<td>—</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• If the error occurs again even after taking the above, please consult your local Mitsubishi representative.</td>
<td>—</td>
</tr>
<tr>
<td>F905H</td>
<td>Cable failure or network module error is detected.</td>
<td>• If a communication error occurs, correct the communication cable.</td>
<td>—</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• If no communication error has occurred, the error is caused by hardware failure. Please consult your local Mitsubishi representative.</td>
<td>—</td>
</tr>
<tr>
<td>FA00H to FA04H, FA10H to FA18H</td>
<td>An error was detected in the network module.</td>
<td>Please consult your local Mitsubishi representative.</td>
<td>—</td>
</tr>
<tr>
<td>FAEH to FAE1H</td>
<td>An error was detected in the CPU module or network module.</td>
<td>Please consult your local Mitsubishi representative.</td>
<td>—</td>
</tr>
<tr>
<td>FAE2H</td>
<td>An error was detected in the network module.</td>
<td>Please consult your local Mitsubishi representative.</td>
<td>—</td>
</tr>
<tr>
<td>FAE4H</td>
<td>An error was detected in the network module.</td>
<td>Please consult your local Mitsubishi representative.</td>
<td>—</td>
</tr>
<tr>
<td>FAE5H</td>
<td>An error was detected in the network module.</td>
<td>Please consult your local Mitsubishi representative.</td>
<td>—</td>
</tr>
<tr>
<td>FAF0H to FAF7H</td>
<td>An error was detected in the network module.</td>
<td>Please consult your local Mitsubishi representative.</td>
<td>—</td>
</tr>
<tr>
<td>FD01H*1</td>
<td>A CRC error has occurred during the execution of the station-to-station test and self-loopback test.</td>
<td>No action is required because the system performs a retry. However, if the error occurs frequently, check for cable failure, hardware failure, noise, and wiring error.</td>
<td>—</td>
</tr>
<tr>
<td>FD02H*1</td>
<td>An overrun error has occurred during the execution of the station-to-station test and self-loopback test.</td>
<td>No action is required because the system performs a retry. However, if the error occurs frequently, check for cable failure, hardware failure, noise, and wiring error.</td>
<td>—</td>
</tr>
<tr>
<td>FD03H*1</td>
<td>An abort error has occurred during the execution of the station-to-station test and self-loopback test.</td>
<td>No action is required because the system performs a retry. However, if the error occurs frequently, check for cable failure, hardware failure, noise, and wiring error.</td>
<td>—</td>
</tr>
<tr>
<td>FD04H*1</td>
<td>A timeout error has occurred during the execution of the station-to-station test and self-loopback test.</td>
<td>No action is required because the system performs a retry. However, if the error occurs frequently, check for cable failure, hardware failure, noise, and wiring error.</td>
<td>—</td>
</tr>
<tr>
<td>FD05H*1</td>
<td>A data error has occurred during the execution of the station-to-station test and self-loopback test.</td>
<td>No action is required because the system performs a retry. However, if the error occurs frequently, check for cable failure, hardware failure, noise, and wiring error.</td>
<td>—</td>
</tr>
<tr>
<td>FD06H*1</td>
<td>An under-error has occurred during the execution of the station-to-station test and self-loopback test.</td>
<td>No action is required because the system performs a retry. However, if the error occurs frequently, check for cable failure, hardware failure, noise, and wiring error.</td>
<td>—</td>
</tr>
<tr>
<td>FD07H*1</td>
<td>The sending data has failed during the execution of the station-to-station test and self-loopback test.</td>
<td>No action is required because the system performs a retry. However, if the error occurs frequently, check for cable failure, hardware failure, noise, and wiring error.</td>
<td>—</td>
</tr>
<tr>
<td>FD08H</td>
<td>The sending data has failed during the execution of the station-to-station test and self-loopback test.</td>
<td>Check for coaxial cable connection and looseness, terminating resistor connection, and cable failure.</td>
<td>—</td>
</tr>
<tr>
<td>FD09H</td>
<td>The loop status is changed during the execution of the loop test.</td>
<td>No action is required because the system performs a retry. (Do not switch the loop in the middle.) However, if the error occurs frequently, check the line and wiring status.</td>
<td>—</td>
</tr>
<tr>
<td>FD0AH</td>
<td>The loop status is unstable during the execution of the loop test.</td>
<td>No action is required because the system performs a retry. (Do not switch the loop in the middle.) However, if the error occurs frequently, check the line and wiring status.</td>
<td>—</td>
</tr>
<tr>
<td>FD0BH</td>
<td>Wiring error is detected during the execution of the loop test.</td>
<td>Check the wiring.</td>
<td>—</td>
</tr>
<tr>
<td>FD0CH</td>
<td>An error was detected in the network module.</td>
<td>Please consult your local Mitsubishi representative.</td>
<td>—</td>
</tr>
<tr>
<td>FD11H</td>
<td>The setting check test, station order check test, loop test, and communication test are executed in duplicate.</td>
<td>Perform the test after the completion of the test from another station.</td>
<td>—</td>
</tr>
<tr>
<td>FD12H</td>
<td>The setting check test, station order check test, and loop test are executed during disconnection.</td>
<td>Eliminate the cause of disconnection and take actions.</td>
<td>—</td>
</tr>
<tr>
<td>Error code</td>
<td>Error details and causes</td>
<td>Action</td>
<td>Detailed Information</td>
</tr>
<tr>
<td>------------</td>
<td>--------------------------</td>
<td>--------</td>
<td>----------------------</td>
</tr>
<tr>
<td>FD13H</td>
<td>An error was detected in the test data.</td>
<td>• Check for cable failure, hardware failure, wiring error, station number duplication, control station duplication, and mismatched transmission speed in the module in the same network.</td>
<td>—</td>
</tr>
<tr>
<td>FD14H</td>
<td>An error was detected in the network module.</td>
<td>Please consult your local Mitsubishi representative.</td>
<td>—</td>
</tr>
<tr>
<td>FD15H</td>
<td>Send operation has failed in online test.</td>
<td>Check for cable failure, hardware failure, noise, and wiring error.</td>
<td>—</td>
</tr>
<tr>
<td>FD16H to FD17H</td>
<td>An error was detected in the test data.</td>
<td>• Check for cable failure, hardware failure, wiring error, station number duplication, control station duplication, and mismatched transmission speed in the module in the same network.</td>
<td>—</td>
</tr>
<tr>
<td>FD18H to FD19H</td>
<td>An error was detected in the network module.</td>
<td>Please consult your local Mitsubishi representative.</td>
<td>—</td>
</tr>
<tr>
<td>FD1AH</td>
<td>The station whose station number is duplicated is detected by the station order check test.</td>
<td>Correct the station whose station number is duplicated.</td>
<td>—</td>
</tr>
<tr>
<td>FD1BH</td>
<td>The test is interrupted.</td>
<td>• Retry the test.</td>
<td>—</td>
</tr>
<tr>
<td>FD1CH</td>
<td>The setting check test, station order check test, and loop test are executed during line control.</td>
<td>• Do not switch the loop in the middle.</td>
<td>—</td>
</tr>
<tr>
<td>FD1DH</td>
<td>An error was detected in the test data.</td>
<td>• Check for cable failure, hardware failure, wiring error, station number duplication, control station duplication, and mismatched transmission speed in the module in the same network.</td>
<td>—</td>
</tr>
<tr>
<td>FD1EH*1</td>
<td>The test cannot be executed by the bus type.</td>
<td>Perform the test that can be executed by the bus type.</td>
<td>—</td>
</tr>
<tr>
<td>FD20H*1</td>
<td>The mode is incorrectly set.</td>
<td>• Correct the network parameter setting and write data to the programmable controller.</td>
<td>—</td>
</tr>
<tr>
<td>FD21H to FD22H*1</td>
<td>The cable was disconnected during the execution of the online test.</td>
<td>Restore the cable and execute the online test.</td>
<td>—</td>
</tr>
<tr>
<td>FD23H*1</td>
<td>An error caused by data comparison has occurred during the execution of the station-to-station test.</td>
<td>Check for cable failure, hardware failure, wiring error, station number duplication, control station duplication, and mismatched transmission speed in the same network.</td>
<td>—</td>
</tr>
<tr>
<td>FD24H</td>
<td>A communication error has occurred during the station-to-station test and self-loopback test.</td>
<td>Check for cable failure, hardware failure, wiring error, station number duplication, control station duplication, and mismatched transmission speed in the same network.</td>
<td>—</td>
</tr>
<tr>
<td>FD25H*1</td>
<td>The hardware of the network module has failed.</td>
<td>Please consult your local Mitsubishi representative.</td>
<td>—</td>
</tr>
<tr>
<td>FD26H to FD27H*1</td>
<td>The cable is faulty.</td>
<td>Connect a correct cable and execute the online test.</td>
<td>—</td>
</tr>
<tr>
<td>FD28H to FD29H*1</td>
<td>An error was detected in the network module.</td>
<td>Please consult your local Mitsubishi representative.</td>
<td>—</td>
</tr>
<tr>
<td>FD31H*1</td>
<td>Offline diagnostics is executed during the execution of online diagnostics.</td>
<td>Retry the operation after the completion of one online diagnostics.</td>
<td>—</td>
</tr>
<tr>
<td>FD32H to FD33H*1</td>
<td>An error was detected in the network module.</td>
<td>Please consult your local Mitsubishi representative.</td>
<td>—</td>
</tr>
<tr>
<td>FD35H*1</td>
<td>Response wait timeout has occurred during the communication test.</td>
<td>• Retry the operation later.</td>
<td>—</td>
</tr>
<tr>
<td>FD36H</td>
<td>Response wait timeout has occurred during the communication test.</td>
<td>• Check the target station and line status.</td>
<td>—</td>
</tr>
<tr>
<td>Error code</td>
<td>Error details and causes</td>
<td>Action</td>
<td>Detailed Information</td>
</tr>
<tr>
<td>------------</td>
<td>-------------------------</td>
<td>--------</td>
<td>----------------------</td>
</tr>
</tbody>
</table>
| FD37H¹¹ | Communication test is executed for the station in which online test is being executed. | • Retry the operation later.  
• Check the target station and line status. | — |
| FD38H | The duplicated request packet is received during the communication test. | • Retry the operation later.  
• Check the target station and line status. | — |
| FD39H | Communication test is executed for the own station. | Change the request destination. | — |
| FD3AH | Communication test is executed for the relay sending station and the station which is mounted on the same base unit (main base unit and extension base unit). | Change the request destination. | — |
| FD40H | A send size error has occurred during the execution of the station-to-station test and self-loopback test. | No action is required because the system performs a retry.  
However, if the error occurs frequently, check for cable failure, hardware failure, noise, and wiring error. | — |
| FD41H | An under-error has occurred during the execution of the station-to-station test and self-loopback test. | No action is required because the system performs a retry.  
However, if the error occurs frequently, check for cable failure, hardware failure, noise, and wiring error. | — |
| FD42H | A line error has occurred during the execution of the station-to-station test and self-loopback test. | No action is required because the system performs a retry.  
However, if the error occurs frequently, check for cable failure, hardware failure, noise, and wiring error. | — |
| FD43H | A timeout error (send) has occurred during the execution of the station-to-station test and self-loopback test. | No action is required because the system performs a retry.  
However, if the error occurs frequently, check for cable failure, hardware failure, noise, and wiring error. | — |
| FD44H | Error reception has occurred during the execution of the station-to-station test and self-loopback test. | No action is required because the system performs a retry.  
However, if the error occurs frequently, check for cable failure, hardware failure, noise, and wiring error. | — |
| FD45H | A parity error has occurred during the execution of the station-to-station test and self-loopback test. | No action is required because the system performs a retry.  
However, if the error occurs frequently, check for cable failure, hardware failure, noise, and wiring error. | — |
| FD46H | A timeout error (receive) has occurred during the execution of the station-to-station test and self-loopback test. | No action is required because the system performs a retry.  
However, if the error occurs frequently, check for cable failure, hardware failure, noise, and wiring error. | — |
| FD47H | A reception error other than an overrun error has occurred during the execution of the station-to-station test and self-loopback test. | No action is required because the system performs a retry.  
However, if the error occurs frequently, check for cable failure, hardware failure, noise, and wiring error. | — |
| FD48H | An overrun error (normal frame) has occurred during the execution of the station-to-station test and self-loopback test. | No action is required because the system performs a retry.  
However, if the error occurs frequently, check for cable failure, hardware failure, noise, and wiring error. | — |
| FD49H | An overrun error has occurred during the execution of the station-to-station test and self-loopback test. | No action is required because the system performs a retry.  
However, if the error occurs frequently, check for cable failure, hardware failure, noise, and wiring error. | — |
| FD4AH | A short frame error or a reception error of 2K bytes or more has occurred during the execution of the station-to-station test and self-loopback test. | No action is required because the system performs a retry.  
However, if the error occurs frequently, check for cable failure, hardware failure, noise, and wiring error. | — |
| FD4BH | A data error has occurred during the execution of the station-to-station test and self-loopback test. | No action is required because the system performs a retry.  
However, if the error occurs frequently, check for cable failure, hardware failure, noise, and wiring error. | — |
<p>| FE20H¹² | The transient data received from the MELSECNET/10 is faulty. | Correct the routing parameter or change the relay CPU module to the one supporting the MELSECNET/10, such as AnUCPU or QnACPU. | — |
| FE21H¹² | The start number and the number of access points for the access target device specified by the ZNRD/ZNWR instructions are incorrectly set. | Correct the range of the access target device of the ZNRD/ZNWR instructions to be sent to ACPU. | — |
| FE22H¹² | An access to another station was executed with the project type different from the actual CPU module. | With the engineering tool, check if an access to another station was executed in the CPU module with a different project type. | — |</p>
<table>
<thead>
<tr>
<th>Error code</th>
<th>Error details and causes</th>
<th>Action</th>
<th>Detailed Information</th>
</tr>
</thead>
<tbody>
<tr>
<td>FE23H^1</td>
<td>Hardware failure has occurred at the start of the dedicated instruction and MC protocol.</td>
<td>Please consult your local Mitsubishi representative.</td>
<td>—</td>
</tr>
<tr>
<td>FE24H</td>
<td>An error has occurred in the CPU module of the target station and relay station.</td>
<td>Check the status of the CPU module of the target station and relay station. Or, change the corresponding CPU module.</td>
<td>—</td>
</tr>
<tr>
<td>FE25H</td>
<td>Power supply error has occurred in the target station and relay station. (Check for voltage shortage, momentary power failure, and overvoltage.) Or, change the corresponding CPU module.</td>
<td>—</td>
<td>—</td>
</tr>
<tr>
<td>FE26H</td>
<td>An error has occurred in the CPU module of the target station and relay station.</td>
<td>Check the operating status (such as a watchdog timer error) of the CPU module of the target station and relay station. Or, change the corresponding CPU module.</td>
<td>—</td>
</tr>
<tr>
<td>FE27H</td>
<td>The hardware of the CPU module or network module has failed.</td>
<td>Please consult your local Mitsubishi representative.</td>
<td>—</td>
</tr>
<tr>
<td>FE28H</td>
<td>The hardware of the target station for the transient transmission or the network module of the own station has failed.</td>
<td>Please consult your local Mitsubishi representative.</td>
<td>—</td>
</tr>
<tr>
<td>FE30H to</td>
<td>The hardware of the network module has failed.</td>
<td>Please consult your local Mitsubishi representative.</td>
<td>—</td>
</tr>
<tr>
<td>FE32H^1</td>
<td></td>
<td></td>
<td>—</td>
</tr>
<tr>
<td>FE34H^1</td>
<td>The hardware of the network module has failed.</td>
<td>Please consult your local Mitsubishi representative.</td>
<td>—</td>
</tr>
<tr>
<td>FE36H to</td>
<td>The hardware of the network module has failed.</td>
<td>Please consult your local Mitsubishi representative.</td>
<td>—</td>
</tr>
<tr>
<td>FE38H^1</td>
<td></td>
<td></td>
<td>—</td>
</tr>
<tr>
<td>FE39H</td>
<td>The hardware of the CPU module or network module has failed.</td>
<td>Please consult your local Mitsubishi representative.</td>
<td>—</td>
</tr>
<tr>
<td>FE3BH to</td>
<td>The hardware of the network module has failed.</td>
<td>Please consult your local Mitsubishi representative.</td>
<td>—</td>
</tr>
<tr>
<td>FE3FH^1</td>
<td></td>
<td></td>
<td>—</td>
</tr>
<tr>
<td>FFF9H</td>
<td>An error was detected in the network module.</td>
<td>Please consult your local Mitsubishi representative.</td>
<td>—</td>
</tr>
</tbody>
</table>

*1 This error code occurs in another station such as the QJ71LP21-25. It does not occur in RJ71LP21-25 and the RJ71BR11.
4.6 List of Parameter Numbers

This section lists the parameter numbers displayed in the module diagnostics. If a parameter number is displayed when an incorrect parameter is set, the target parameter can be identified.

Parameter numbers are displayed in "Detailed Information" in the [Error Information] tab under the "Module Diagnostics" window of the MELSECNET/H network module. (Page 93 Error information)

<table>
<thead>
<tr>
<th>Item</th>
<th>Parameter No.</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Required Settings</strong></td>
<td></td>
</tr>
<tr>
<td>Station Type</td>
<td>7100H/7110H/7700H</td>
</tr>
<tr>
<td>Network No.</td>
<td>7100H/7110H</td>
</tr>
<tr>
<td>Station No.</td>
<td>7100H/7110H</td>
</tr>
<tr>
<td>Network Range Assignment</td>
<td>A06EH</td>
</tr>
<tr>
<td>Total No. of Stations</td>
<td>A06EH</td>
</tr>
<tr>
<td>LB/LW Setting</td>
<td>A06EH</td>
</tr>
<tr>
<td>LX/LY(1) Setting</td>
<td>A06EH</td>
</tr>
<tr>
<td>LX/LY(2) Setting</td>
<td>A06EH</td>
</tr>
<tr>
<td>I/O Master Station</td>
<td>A06EH</td>
</tr>
<tr>
<td>Reserved Station</td>
<td>A06EH</td>
</tr>
<tr>
<td>Pairing</td>
<td>A06EH</td>
</tr>
<tr>
<td>Operation after Reconnection</td>
<td>7100H/7110H</td>
</tr>
<tr>
<td>Transmission Speed</td>
<td>7100H/7110H</td>
</tr>
<tr>
<td><strong>Basic Settings</strong></td>
<td></td>
</tr>
<tr>
<td>Link Refresh Settings</td>
<td>7401H</td>
</tr>
<tr>
<td>SB</td>
<td>7401H</td>
</tr>
<tr>
<td>SW</td>
<td>7401H</td>
</tr>
<tr>
<td>LB/LW/LX/LY setting (1 to 64)</td>
<td>7401H</td>
</tr>
<tr>
<td><strong>Application Settings</strong></td>
<td></td>
</tr>
<tr>
<td>Supplementary Cyclic Settings</td>
<td>A06EH</td>
</tr>
<tr>
<td>Data Link Monitoring Time</td>
<td>A06EH</td>
</tr>
<tr>
<td>System Switching Monitoring Time</td>
<td>A06EH</td>
</tr>
<tr>
<td>Constant Link Scan Time</td>
<td>A06EH</td>
</tr>
<tr>
<td>Maximum No. of Returns to System Stations in 1 Scan</td>
<td>A06EH</td>
</tr>
<tr>
<td>Control Station Shift Setting</td>
<td>A06EH</td>
</tr>
<tr>
<td>Block send data assurance per station</td>
<td>A06EH</td>
</tr>
<tr>
<td>Block receive data assurance per station</td>
<td>A06EH</td>
</tr>
<tr>
<td>Maximum No. of Transient Transmissions</td>
<td>A06EH</td>
</tr>
<tr>
<td>Maximum No. of Transient in One Station</td>
<td>A06EH</td>
</tr>
<tr>
<td>Low Speed Cyclic Setting</td>
<td>7310H/7311H</td>
</tr>
<tr>
<td>Low Speed Cyclic Setting</td>
<td>A06FH</td>
</tr>
<tr>
<td>Fixed Interval Cycle Setting</td>
<td>A06FH</td>
</tr>
<tr>
<td>System Timer Setting (1 to 8)</td>
<td>A06FH</td>
</tr>
<tr>
<td><strong>Interrupt Settings</strong></td>
<td></td>
</tr>
<tr>
<td>Transient Transmission Group No.</td>
<td>7100H/7110H</td>
</tr>
<tr>
<td>Dynamic Routing</td>
<td>A07FH</td>
</tr>
<tr>
<td>Parameter Name</td>
<td>7310H/7311H</td>
</tr>
<tr>
<td>Event Reception from Other Stations</td>
<td>A07FH</td>
</tr>
<tr>
<td>Module Operation Mode</td>
<td>7100H/7110H</td>
</tr>
<tr>
<td>Redundant System Settings</td>
<td>A07FH/A015H/7800H</td>
</tr>
<tr>
<td>Module Operation Mode (System B)</td>
<td>7110H</td>
</tr>
<tr>
<td>Others</td>
<td></td>
</tr>
<tr>
<td>Interlink Transmission Parameters</td>
<td>7500H</td>
</tr>
</tbody>
</table>
## 4.7 Event List

The following lists the events that occur in the MELSECNET/H network module.

### System

<table>
<thead>
<tr>
<th>Event code</th>
<th>Overview</th>
<th>Cause</th>
</tr>
</thead>
<tbody>
<tr>
<td>00500</td>
<td>Own station: Baton pass return (network entry)</td>
<td>Baton pass of the own station was returned from interruption status to normal status.</td>
</tr>
<tr>
<td>00501</td>
<td>Another station: Baton pass return (network entry)</td>
<td>Baton pass of another station was returned from interruption status to normal status.</td>
</tr>
<tr>
<td>00502</td>
<td>All stations baton pass normalization (network entry in all stations)</td>
<td>Baton pass was returned to normal status at all stations.</td>
</tr>
<tr>
<td>00510</td>
<td>Own station: Data link restart (cyclic transmission started)</td>
<td>Data link of the own station was restarted.</td>
</tr>
<tr>
<td>00511</td>
<td>Another station: Data link restart (cyclic transmission started)</td>
<td>Data link of another station was restarted.</td>
</tr>
<tr>
<td>00512</td>
<td>All stations data link normalization (cyclic transmission in all stations started)</td>
<td>Data link was returned to normal status at all stations.</td>
</tr>
<tr>
<td>00513</td>
<td>Own station: Data link start instruction acceptance</td>
<td>Data link startup of the own station instruction was received.</td>
</tr>
<tr>
<td>00514</td>
<td>Own station: Data link stop instruction acceptance</td>
<td>Data link stop instruction of the own station was received.</td>
</tr>
<tr>
<td>00540</td>
<td>Loopback resolution</td>
<td>Loopback execution status was resolved when using a ring topology (using the loopback function).</td>
</tr>
<tr>
<td>00541</td>
<td>Receive parameter error resolution</td>
<td>A parameter error received from the control station was resolved. (Normal parameter was received.)</td>
</tr>
<tr>
<td>00A00</td>
<td>System switching request issued</td>
<td>A system switching request occurred.</td>
</tr>
<tr>
<td>00C00</td>
<td>Own station: Baton pass interruption (departure from network)</td>
<td>Baton pass of the own station was interrupted.</td>
</tr>
<tr>
<td>00C01</td>
<td>Another station: Baton pass interruption (departure from network)</td>
<td>Baton pass of another station was interrupted.</td>
</tr>
</tbody>
</table>
| 00C02      | Response error from/to another station             | • Abnormal response was returned from another station when accessing another station.  
|            |                                                    | • Abnormal response was returned to another station when accessed from another station. |
| 00C10      | Own station: Data link stop (cyclic transmission stopped) | Data link of the own station was stopped. |
| 00C11      | Another station: Data link stop (cyclic transmission stopped) | Data link of another station was stopped. |
| 00C20      | Another station: Parameter error occurrence        | A parameter error has occurred in another station.                     |
| 00C21      | Another station: CPU error occurrence              | An error has occurred in the CPU module on another station.            |
| 00C23      | Loopback occurrence                                | Path switching has occurred when using a ring topology (using the loopback function). |
| 00C25      | Receive parameter error occurrence                 | A parameter error received from the control station has been detected. |

### Operation

<table>
<thead>
<tr>
<th>Event code</th>
<th>Overview</th>
<th>Cause</th>
</tr>
</thead>
<tbody>
<tr>
<td>24000</td>
<td>Data link startup instruction</td>
<td>Data link startup to the own station or another station was instructed.</td>
</tr>
<tr>
<td>24001</td>
<td>Data link stop instruction</td>
<td>Data link stop to the own station or another station was instructed.</td>
</tr>
<tr>
<td>24100</td>
<td>Own station: Parameter change/new parameter acceptance</td>
<td>Parameter was changed. Or new parameter was received at power-on.</td>
</tr>
<tr>
<td>24F00</td>
<td>Another station: CPU operating status change detection</td>
<td>Operating status of the programmable controller CPU on another station was changed.</td>
</tr>
</tbody>
</table>
APPENDICES

Appendix 1  Module Label

The link special relay (SB) and link special register (SW) of the MELSECNET/H network module can be set using module label.

Structure of the module label

The module label name is defined with the following structure.

*Instance name*"_"*Module number*"_"*Label name*

*Instance name*"_"*Module number*"_"*Label name*"_"D

Ex.

LP21_1.bDetect_DataLinkError

■Instance name

The following are the instance names of the RJ71LP21-25 and the RJ71BR11.

<table>
<thead>
<tr>
<th>Module model name</th>
<th>Instance name</th>
</tr>
</thead>
<tbody>
<tr>
<td>RJ71LP21-25</td>
<td>LP21</td>
</tr>
<tr>
<td>RJ71BR11</td>
<td>BR11</td>
</tr>
</tbody>
</table>

■Module number

A sequential number starting with "1" for identifying a module from the one with the same instance name.

■Label name

A label name unique to the module.

■_D

This symbol indicates that the module label is for direct access. The label without "_D" is for link refresh. The following are the differences between link refresh and direct access.

<table>
<thead>
<tr>
<th>Type</th>
<th>Description</th>
<th>Access timing</th>
</tr>
</thead>
<tbody>
<tr>
<td>Link refresh</td>
<td>The values read/written from/to the module labels are reflected to the module at link refresh. The execution time of the program can be shortened.</td>
<td>At link refresh</td>
</tr>
<tr>
<td>Direct access</td>
<td>The values read/written from/to the module labels are reflected to the module immediately. Although the execution time of the program is longer than the one at the link refresh, the responsiveness is improved. For the instruction processing time, refer to the following. [MELSEC iQ-R Programming Manual (CPU Module Instructions, Standard Functions/Function Blocks)]</td>
<td>At writing to or reading from the module label</td>
</tr>
</tbody>
</table>

When multiple MELSECNET/H network modules of the same network number are mounted and the module labels of link special relay (SB) and link special register (SW) are used for direct access, the access target is the module which has the smallest slot number in the base unit.
Appendix 2 Buffer Memory

The buffer memory is used to exchange data between the MELSECNET/H network module and the CPU module. Buffer memory values are defaulted when the CPU module is reset or the system is powered off.

List of buffer memory addresses

<table>
<thead>
<tr>
<th>Address (decimal)</th>
<th>Address (hexadecimal)</th>
<th>Name</th>
<th>Initial value</th>
<th>Read, write</th>
</tr>
</thead>
<tbody>
<tr>
<td>0 to 12079</td>
<td>0H to 2F2FH</td>
<td>System area</td>
<td></td>
<td></td>
</tr>
<tr>
<td>12080</td>
<td>2F30H</td>
<td>Communication path determination status</td>
<td>0</td>
<td>Read</td>
</tr>
<tr>
<td>12081 to 12095</td>
<td>2F31H to 2F3FH</td>
<td>Communication path determination status</td>
<td></td>
<td></td>
</tr>
<tr>
<td>12096 to 65535</td>
<td>2F40H to FFFFH</td>
<td>System area</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

- Do not write data to the system area. Doing so may cause malfunction of the programmable controller system.
- If the value in an area of one word in size becomes equal to or higher than 65536, the count stops at 65535 (FFFFH).

Details of buffer memory addresses

Communication path determination status

Communication path determination status (Un\G12080 to Un\G12095)
The determination information on the communication path for each network number of the destination station is stored.
- 0: Path undetermined
- 1: Path determined

<table>
<thead>
<tr>
<th>Address</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>Un\G12080</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>Un\G12081</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>Un\G12082</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>Un\G12083</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>Un\G12084</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>Un\G12085</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>Un\G12086</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>Un\G12087</td>
<td>128</td>
<td>127</td>
<td>126</td>
<td>125</td>
<td>124</td>
<td>123</td>
<td>122</td>
<td>121</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>
<tr>
<td>Un\G12088</td>
<td>144</td>
<td>143</td>
<td>142</td>
<td>141</td>
<td>140</td>
<td>139</td>
<td>138</td>
<td>137</td>
<td>136</td>
<td>135</td>
<td>134</td>
<td>133</td>
<td>132</td>
<td>131</td>
<td>130</td>
<td>129</td>
</tr>
<tr>
<td>Un\G12089</td>
<td>160</td>
<td>159</td>
<td>158</td>
<td>157</td>
<td>156</td>
<td>155</td>
<td>154</td>
<td>153</td>
<td>152</td>
<td>151</td>
<td>150</td>
<td>149</td>
<td>148</td>
<td>147</td>
<td>146</td>
<td>145</td>
</tr>
<tr>
<td>Un\G12090</td>
<td>176</td>
<td>175</td>
<td>174</td>
<td>173</td>
<td>172</td>
<td>171</td>
<td>170</td>
<td>169</td>
<td>168</td>
<td>167</td>
<td>166</td>
<td>165</td>
<td>164</td>
<td>163</td>
<td>162</td>
<td>161</td>
</tr>
<tr>
<td>Un\G12091</td>
<td>192</td>
<td>191</td>
<td>190</td>
<td>189</td>
<td>188</td>
<td>187</td>
<td>186</td>
<td>185</td>
<td>184</td>
<td>183</td>
<td>182</td>
<td>181</td>
<td>180</td>
<td>179</td>
<td>178</td>
<td>177</td>
</tr>
<tr>
<td>Un\G12092</td>
<td>208</td>
<td>207</td>
<td>206</td>
<td>205</td>
<td>204</td>
<td>203</td>
<td>202</td>
<td>201</td>
<td>200</td>
<td>199</td>
<td>198</td>
<td>197</td>
<td>196</td>
<td>195</td>
<td>194</td>
<td>193</td>
</tr>
<tr>
<td>Un\G12093</td>
<td>224</td>
<td>223</td>
<td>222</td>
<td>221</td>
<td>220</td>
<td>219</td>
<td>218</td>
<td>217</td>
<td>216</td>
<td>215</td>
<td>214</td>
<td>213</td>
<td>212</td>
<td>211</td>
<td>210</td>
<td>209</td>
</tr>
<tr>
<td>Un\G12094</td>
<td>Emp</td>
<td>239</td>
<td>238</td>
<td>237</td>
<td>236</td>
<td>235</td>
<td>234</td>
<td>233</td>
<td>232</td>
<td>231</td>
<td>230</td>
<td>229</td>
<td>228</td>
<td>227</td>
<td>226</td>
<td>225</td>
</tr>
<tr>
<td>Un\G12095</td>
<td>Empty</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

The numbers in the table indicate network numbers.
Appendix 3  List of Link Special Relay (SB) Areas

The link special relay (SB) is turned on/off depending on various factors during data link. Any error status of the data link can be checked by using or monitoring it in the program.

Application of the link special relay (SB)
By using link special relay (SB), the status of MELSECNET/H network can be checked from HMI (Human Machine Interfaces) as well as the engineering tool.

Link refresh of the link special relay (SB)
To use the link special relay (SB), set them in "Link Refresh Settings" in "Basic Settings" so that they are link-refreshed to the devices or labels of the CPU module. (Page 62 Link Refresh Settings)

Ranges turned on/off by users and by the system
The following ranges correspond to when the link special relay (SB) areas are assigned from SB0000 to SB01FF.
- Turned on/off by users: SB0000 to SB001F
- Turned on/off by the system: SB0020 to SB01FF
List of link special relay (SB) areas

The following table lists the link special relay (SB) areas when they are assigned from SB0000 to SB01FF.

Each abbreviation and symbol in the table indicates the following.

Loop: RJ71LP21-25, Bus: RJ71BR11

○: Available, ×: Not available

Do not turn on or off areas whose numbers are not on the following list or ranges turned on/off by the system. Doing so may cause malfunction of the programmable controller system.

<table>
<thead>
<tr>
<th>No.</th>
<th>Name</th>
<th>Description</th>
<th>Availability</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td>Control station</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Loop</td>
</tr>
<tr>
<td>SB0000</td>
<td>Link startup of own station</td>
<td>Starts cyclic transmission of the own station.</td>
<td>○</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Off: Startup not requested</td>
<td>○</td>
</tr>
<tr>
<td></td>
<td></td>
<td>On: Startup requested (valid at rising edge)</td>
<td>○</td>
</tr>
<tr>
<td></td>
<td></td>
<td>(Conditions)</td>
<td>○</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• This register is enabled when 'Baton pass error status of own station' (SB0047) is off.</td>
<td>○</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• For SB0000 to SB0003, only one of the areas can be turned on.</td>
<td>○</td>
</tr>
<tr>
<td>SB0001</td>
<td>Link stop of own station</td>
<td>Stops cyclic transmission of the own station.</td>
<td>○</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Off: Stop not requested</td>
<td>○</td>
</tr>
<tr>
<td></td>
<td></td>
<td>On: Stop requested (valid at rising edge)</td>
<td>○</td>
</tr>
<tr>
<td></td>
<td></td>
<td>(Conditions)</td>
<td>○</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• This register is enabled when 'Baton pass error status of own station' (SB0047) is off.</td>
<td>○</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• For SB0000 to SB0003, only one of the areas can be turned on.</td>
<td>○</td>
</tr>
<tr>
<td>SB0002</td>
<td>System link start</td>
<td>Starts cyclic transmission of the entire system.</td>
<td>○</td>
</tr>
<tr>
<td></td>
<td></td>
<td>The station where cyclic transmission is started is specified in 'Link start/stop instruction details' (SW0000) and 'Link start/stop station' (SW0001 to SW0004).</td>
<td>○</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Off: Startup not requested</td>
<td>○</td>
</tr>
<tr>
<td></td>
<td></td>
<td>On: Startup requested (valid at rising edge)</td>
<td>○</td>
</tr>
<tr>
<td></td>
<td></td>
<td>(Conditions)</td>
<td>○</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• This register is enabled when 'Baton pass error status of own station' (SB0047) is off.</td>
<td>○</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• For SB0000 to SB0003, only one of the areas can be turned on.</td>
<td>○</td>
</tr>
<tr>
<td>SB0003</td>
<td>System link stop</td>
<td>Stops cyclic transmission of the entire system.</td>
<td>○</td>
</tr>
<tr>
<td></td>
<td></td>
<td>The station where cyclic transmission is stopped is specified in 'Link start/stop instruction details' (SW0000) and 'Link start/stop station' (SW0001 to SW0004).</td>
<td>○</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Off: Stop not requested</td>
<td>○</td>
</tr>
<tr>
<td></td>
<td></td>
<td>On: Stop requested (valid at rising edge)</td>
<td>○</td>
</tr>
<tr>
<td></td>
<td></td>
<td>(Conditions)</td>
<td>○</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• This register is enabled when 'Baton pass error status of own station' (SB0047) is off.</td>
<td>○</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• For SB0000 to SB0003, only one of the areas can be turned on.</td>
<td>○</td>
</tr>
<tr>
<td>SB0005</td>
<td>Clear retry count</td>
<td>Clears 'Number of retries on the forward loop side' (SW00C8) and 'Number of retries on the reverse loop side' (SW00C9) to 0.</td>
<td>○</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Off: Clear not requested</td>
<td>○</td>
</tr>
<tr>
<td></td>
<td></td>
<td>On: Clear requested (valid while on)</td>
<td>○</td>
</tr>
<tr>
<td>SB0006</td>
<td>Clear communication error count</td>
<td>Clears the link special register areas related to communication errors (SW00B8 to SW00C7) to 0.</td>
<td>○</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Off: Clear not requested</td>
<td>○</td>
</tr>
<tr>
<td></td>
<td></td>
<td>On: Clear requested (valid while on)</td>
<td>○</td>
</tr>
<tr>
<td>SB0007</td>
<td>Clear forward loop transmission error count</td>
<td>Clears 'Line error on the forward loop side' (SW00CC) to 0.</td>
<td>○</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Off: Clear not requested</td>
<td>○</td>
</tr>
<tr>
<td></td>
<td></td>
<td>On: Clear requested (valid while on)</td>
<td>○</td>
</tr>
<tr>
<td>SB0008</td>
<td>Clear reverse loop transmission error count</td>
<td>Clears 'Line error on the reverse loop side' (SW00CD) to 0.</td>
<td>○</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Off: Clear not requested</td>
<td>○</td>
</tr>
<tr>
<td></td>
<td></td>
<td>On: Clear requested (valid while on)</td>
<td>○</td>
</tr>
<tr>
<td>No.</td>
<td>Name</td>
<td>Description</td>
<td>Availability</td>
</tr>
<tr>
<td>-----</td>
<td>-------------------------------------------</td>
<td>------------------------------------------------------------------------------</td>
<td>--------------</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Loop</td>
</tr>
<tr>
<td>SB0009</td>
<td>Clear loop switching count</td>
<td>Clears the path switching detection area of the own station (SW00CE to SW00E7) to 0. Off: Clear not requested On: Clear requested (valid while on) SB0009 is turned on until SW00CE reaches 0.</td>
<td>☒</td>
</tr>
<tr>
<td>SB000A</td>
<td>Clear transient transmission error count</td>
<td>Clears the transient transmission error area of the own station (SW00EE, SW00EF) to 0. Off: Clear not requested On: Clear requested (valid while on)</td>
<td>☒</td>
</tr>
<tr>
<td>SB000B</td>
<td>Transient transmission error area setting</td>
<td>Prohibits 'Transient transmission error history' (SW00F0 to SW00FF) from being overwritten. Off: Overwriting permitted On: Overwriting prohibited</td>
<td>☒</td>
</tr>
<tr>
<td>SB0011</td>
<td>Data link operation designation</td>
<td>Requests data link operation. Off: Switch not requested On: Switch requested (valid at rising edge) When ON is detected, the operation switches from online (normal data link) operation to online (debug) operation, or from online (debug) operation to online (normal data link) operation.</td>
<td>☒</td>
</tr>
<tr>
<td>SB0018</td>
<td>System switching monitoring time setting</td>
<td>Enables or disables 'System switching monitoring time setting' (SW0018). Off: Disabled On: Enabled (valid at rising edge)</td>
<td>☒</td>
</tr>
<tr>
<td>SB0020</td>
<td>Communication status with CPU module</td>
<td>Stores the communication status between the MELSECNET/H network module and CPU module. Off: Normal On: Error</td>
<td>☒</td>
</tr>
<tr>
<td>SB0040</td>
<td>Network type of own station</td>
<td>Stores the network type of the own station. Off: PLC to PLC network (fixed)</td>
<td>☒</td>
</tr>
<tr>
<td>SB0041</td>
<td>Redundant function information of own station</td>
<td>Stores the redundant system support information of the own station. Off: Redundant function not supported On: Redundant function supported (Conditions) Enabled only when the own station is online.</td>
<td>☒</td>
</tr>
<tr>
<td>SB0043</td>
<td>Mode of own station</td>
<td>Stores the module operation mode of the own station. Off: Online On: Other than online</td>
<td>☒</td>
</tr>
<tr>
<td>SB0044</td>
<td>Station setting of own station</td>
<td>Stores the station type of the own station. Off: Normal station On: Control station</td>
<td>☒</td>
</tr>
<tr>
<td>SB0046</td>
<td>Data link operation designation result of own station</td>
<td>Stores the data link operation specification status of the network module of the own station. Off: Normal data link in operation On: Operating in debug mode</td>
<td>☒</td>
</tr>
<tr>
<td>SB0047</td>
<td>Baton pass error status of own station</td>
<td>Stores the baton pass status (transient transmission availability) of the own station. Off: Normal Error When this relay is turned on, the cause of the error can be checked with 'Baton pass status of own station' (SW0047) and 'Cause of baton pass interruption' (SW0048). Depending on the link refresh timing, the update of 'Baton pass status of own station' (SW0047) and 'Cause of baton pass interruption' (SW0048) may be offset by one sequence scan.</td>
<td>☒</td>
</tr>
<tr>
<td>SB0048</td>
<td>Station status of own station</td>
<td>Stores the current station type status of the own station. Off: Normal station On: Control station (when SB0044 is turned on)/sub-control station (when SB0044 is turned off) (Conditions) • This register is enabled when 'Baton pass error status of own station' (SB0047) is off.</td>
<td>☒</td>
</tr>
<tr>
<td>No.</td>
<td>Name</td>
<td>Description</td>
<td>Availability</td>
</tr>
<tr>
<td>-----</td>
<td>------</td>
<td>-------------</td>
<td>-------------</td>
</tr>
<tr>
<td>SB0049</td>
<td>Data link error status of own station</td>
<td>Stores the data link status of the own station. Off: Normal On: Error When this relay is turned on, the cause of the error can be checked with 'Cause of data link stop' (SW0049). Depending on the link refresh timing, the update of 'Cause of data link stop' (SW0049) may be offset by one sequence scan.</td>
<td>☐ ☐ ☐ ☐</td>
</tr>
<tr>
<td>SB004A</td>
<td>CPU minor error status of own station</td>
<td>Stores the minor error occurrence status of the CPU module on the own station. Off: No minor error On: Minor error</td>
<td>☐ ☐ ☐ ☐</td>
</tr>
<tr>
<td>SB004B</td>
<td>CPU moderate to major error status of own station</td>
<td>Stores the moderate/major error occurrence status of the CPU module on own station. Off: No moderate/major error On: Moderate/major error</td>
<td>☐ ☐ ☐ ☐</td>
</tr>
<tr>
<td>SB004C</td>
<td>Link start request accept status of own station</td>
<td>Stores the acceptance status of 'Link startup of own station' (SB0000). Off: Not accepted (SB0000 is off.) On: Accepted (SB0000 is on.) (Conditions) • This register is enabled when 'Baton pass error status of own station' (SB0047) is off. When 'Baton pass error status of own station' (SB0047) is turned on (error), data prior to error is held.</td>
<td>☐ ☐ ☐ ☐</td>
</tr>
<tr>
<td>SB004D</td>
<td>Link start completion status of own station</td>
<td>Stores the status of link startup processing requested with 'Link startup of own station' (SB0000). Off: Link startup not completed (SB0000 is off.) On: Link startup completed (SB0000 is on.) (Conditions) • This register is enabled when 'Baton pass error status of own station' (SB0047) is off. When 'Baton pass error status of own station' (SB0047) is turned on (error), data prior to error is held.</td>
<td>☐ ☐ ☐ ☐</td>
</tr>
<tr>
<td>SB004E</td>
<td>Link stop request accept status of own station</td>
<td>Stores the acceptance status of 'Link stop of own station' (SB0001). Off: Not accepted (SB0001 is off.) On: Accepted (SB0001 is on.) (Conditions) • This register is enabled when 'Baton pass error status of own station' (SB0047) is off. When 'Baton pass error status of own station' (SB0047) is turned on (error), data prior to error is held.</td>
<td>☐ ☐ ☐ ☐</td>
</tr>
<tr>
<td>SB004F</td>
<td>Link stop completion status of own station</td>
<td>Stores the link stop processing status requested with 'Link stop of own station' (SB0001). Off: Not completed (SB0001 is off.) On: Completed (SB0001 is on.) (Conditions) • This register is enabled when 'Baton pass error status of own station' (SB0047) is off. When 'Baton pass error status of own station' (SB0047) is turned on (error), data prior to error is held.</td>
<td>☐ ☐ ☐ ☐</td>
</tr>
<tr>
<td>SB0050</td>
<td>System link start request accept status</td>
<td>Stores the acceptance status of 'System link startup' (SB0002). Off: Not accepted (SB0002 is off.) On: Accepted (SB0002 is on.) (Conditions) • This register is enabled when 'Baton pass error status of own station' (SB0047) is off. When 'Baton pass error status of own station' (SB0047) is turned on (error), data prior to error is held.</td>
<td>☐ ☐ ☐ ☐</td>
</tr>
<tr>
<td>SB0051</td>
<td>System link start completion status</td>
<td>Stores the status of link startup processing requested with 'System link startup' (SB0002). Off: Not completed (SB0002 is off.) On: Completed (SB0002 is on.) (Conditions) • This register is enabled when 'Baton pass error status of own station' (SB0047) is off. When 'Baton pass error status of own station' (SB0047) is turned on (error), data prior to error is held.</td>
<td>☐ ☐ ☐ ☐</td>
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<td>No.</td>
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<td>Description</td>
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<tr>
<td>SB0052</td>
<td>System link stop request accept status</td>
<td>Stores the acceptance status of 'System link stop' (SB0003). Off: Not accepted (SB0003 is off.) On: Accepted (SB0003 is on.) (Conditions) • This register is enabled when 'Baton pass error status of own station' (SB0047) is off. When 'Baton pass error status of own station' (SB0047) is turned on (error), data prior to error is held.</td>
<td>Loop Bus Loop Bus</td>
</tr>
<tr>
<td>SB0053</td>
<td>System link stop completion status</td>
<td>Stores the status of link stop processing requested with 'System link stop' (SB0003). Off: Not completed (SB0003 is off.) On: Completed (SB0003 is on.) (Conditions) • This register is enabled when 'Baton pass error status of own station' (SB0047) is off. When 'Baton pass error status of own station' (SB0047) is turned on (error), data prior to error is held.</td>
<td>Loop Bus Loop Bus</td>
</tr>
<tr>
<td>SB0054</td>
<td>Parameter reception incomplete status</td>
<td>Stores the status of parameter reception. (For the control station, this relay stores the status of parameter reception from the CPU module.) Off: Reception completed On: Reception not completed</td>
<td>Loop Bus Loop Bus</td>
</tr>
<tr>
<td>SB0055</td>
<td>Receive parameter error</td>
<td>Stores the status of received parameter. (For the control station, this relay stores the own parameter status.) Off: Parameters normal On: Parameter error</td>
<td>Loop Bus Loop Bus</td>
</tr>
<tr>
<td>SB0056</td>
<td>Communication status</td>
<td>Stores the transient transmission status. Off: Transient transmission by the control station On: Transient transmission by the sub-control station (Conditions) • This register is enabled when 'Baton pass error status of own station' (SB0047) is off. When 'Baton pass error status of own station' (SB0047) is turned on (error), data prior to error is held.</td>
<td>Loop Bus Loop Bus</td>
</tr>
<tr>
<td>SB0057</td>
<td>Parameter type</td>
<td>Stores the parameter type that has been set. Off: MELSENET/10 parameter On: MELSENET/H parameter</td>
<td>Loop Bus Loop Bus</td>
</tr>
<tr>
<td>SB0058</td>
<td>Operation designation at fault of control or remote master station</td>
<td>Stores the operation specification when the control station fails. Off: Cyclic transmission performed by the sub-control station On: Cyclic transmission not performed by the sub-control station</td>
<td>Loop Bus Loop Bus</td>
</tr>
<tr>
<td>SB0059</td>
<td>Low-speed cyclic designation</td>
<td>Stores low speed cyclic parameter setting information. Off: No setting On: Set</td>
<td>Loop Bus Loop Bus</td>
</tr>
<tr>
<td>SB005A</td>
<td>Control station type</td>
<td>Stores the station type (mode) of the control station. Off: MELSENET/10 mode, MELSENET/H mode On: MELSENET/H extended mode</td>
<td>Loop Bus Loop Bus</td>
</tr>
<tr>
<td>SB005B</td>
<td>Block 1 I/O master station</td>
<td>Stores the I/O master station settings status of block 1 (LX/LY setting (1)). Off: No setting On: Set When this relay is turned on, the station number is stored in 'Block 1 I/O master station' (SW005C). (Conditions) • This register is enabled when 'Data link error status of own station' (SB0049) is off.</td>
<td>Loop Bus Loop Bus</td>
</tr>
<tr>
<td>SB005C</td>
<td>Block 2 I/O master station</td>
<td>Stores the I/O master station settings status of block 2 (LX/LY setting (2)). Off: No setting On: Set When this relay is turned on, the station number is stored in 'Block 2 I/O master station' (SW005D). (Conditions) • This register is enabled when 'Data link error status of own station' (SB0049) is off.</td>
<td>Loop Bus Loop Bus</td>
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<tr>
<td>No.</td>
<td>Name</td>
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<td>Control</td>
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<tr>
<td>SB0064</td>
<td>Reserved station setting status</td>
<td>Stores the reserved station setting status.</td>
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<td></td>
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<td>Off: No setting</td>
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<td>On: Set</td>
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<td></td>
<td>When this relay is turned on, the status of each station can be checked</td>
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<td>with 'Reserved station setting' (SW0064 to SW0067).</td>
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<td>Depending on the link refresh timing, the update of 'Reserved station setting'</td>
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<td></td>
<td>(SW0064 to SW0067) may be offset by one sequence scan.</td>
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<td>(Conditions)</td>
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<td></td>
<td>• This register is enabled when 'Data link error status of own station' (SB0049) is off.</td>
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<tr>
<td>SB0068</td>
<td>Constant link scan status</td>
<td>Stores the constant link scan setting status.</td>
<td>○</td>
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<td></td>
<td>Off: No setting</td>
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<td>On: Set</td>
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<td>(Conditions)</td>
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<td>• This register is enabled when 'Data link error status of own station' (SB0049) is off.</td>
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<tr>
<td>SB0069</td>
<td>Multiplex transmission designation</td>
<td>Stores the transmission specification status (the status of supplementary setting of common parameters).</td>
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<td>Off: Normal transmission specified</td>
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<td>On: Multiplex transmission specified</td>
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<td>(Conditions)</td>
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<td>• This register is enabled when 'Data link error status of own station' (SB0049) is off.</td>
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<tr>
<td>SB006A</td>
<td>Multiplex transmission status</td>
<td>Displays the transmission status.</td>
<td>○</td>
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<td>Off: Normal transmission performed</td>
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<td></td>
<td></td>
<td>On: Multiplex transmission performed</td>
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<td>• When multiplex transmission is performed, each status can be checked with 'Multiplex transmission status of forward loop side' (SW00B0 to SW00B3) and 'Multiplex transmission status of reverse loop side' (SW00B4 to SW00B7).</td>
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<td>(Conditions)</td>
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<td>This register is enabled when 'Baton pass error status of own station' (SB0047) is off.</td>
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<td></td>
<td>When 'Baton pass error status of own station' (SB0047) is turned on (error), data prior to error is held.</td>
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<tr>
<td>SB0070</td>
<td>Baton pass status of each station</td>
<td>Stores the baton pass status of each station.</td>
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<td>Off: All stations normal</td>
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<td></td>
<td>On: Faulty station exists</td>
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<td>When this relay is turned on, the status of each station can be checked with 'Baton pass status' (SW0070 to SW0073).</td>
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<td>Depending on the link refresh timing, the update of 'Baton pass status' (SW0070 to SW0073) may be offset by one sequence scan.</td>
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<td>(Conditions)</td>
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<td>• This register is enabled when 'Baton pass error status of own station' (SB0047) is off.</td>
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<td></td>
<td>• Reserved stations and stations exceeding the maximum station number are ignored.</td>
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<tr>
<td>SB0074</td>
<td>Data link error status of each station</td>
<td>Stores the data link status for each station.</td>
<td>○</td>
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<td>Off: Data link in progress for all stations</td>
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<td></td>
<td></td>
<td>On: Data link not in progress for some stations</td>
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<td>When this relay is turned on, the status of each station can be checked with 'Data link status' (SW0074 to SW0077).</td>
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<td>Depending on the link refresh timing, the update of 'Data link status' (SW0074 to SW0077) may be offset by one sequence scan.</td>
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<td>(Conditions)</td>
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<tr>
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<td></td>
<td>• This register is enabled when 'Baton pass error status of own station' (SB0047) is off.</td>
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<td>• Reserved stations and stations exceeding the maximum station number are ignored.</td>
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<tr>
<td>No.</td>
<td>Name</td>
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<td>Availability</td>
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<tr>
<td>SB0078</td>
<td>Parameter communication status of each station</td>
<td>Stores the parameter communication status of each station. Off: Parameter communication not in progress&lt;br&gt;On: Parameter communication in progress&lt;br&gt;When this relay is turned on, the status of each station can be checked with 'Parameter communication status' (SW0078 to SW007B). Depending on the link refresh timing, the update of 'Parameter communication status' (SW0078 to SW007B) may be offset by one sequence scan. (Conditions)&lt;br&gt;• This register is enabled when 'Baton pass error status of own station' (SB0047) is off. When 'Baton pass error status of own station' (SB0047) is turned on (error), data prior to error is held.&lt;br&gt;• Reserved stations and stations exceeding the maximum station number are ignored.</td>
<td><img src="image" alt="Parameter communication status" /></td>
</tr>
<tr>
<td>SB007A to SB007B</td>
<td>Low-speed cyclic communication status</td>
<td>Stores the low speed cyclic communication status. It indicates that transmission was performed when the bit of either SB007A or SB007B is turned on.</td>
<td><img src="image" alt="Low-speed cyclic communication status" /></td>
</tr>
<tr>
<td>SB007C</td>
<td>Parameter status of each station</td>
<td>Stores the parameter status of each station. Off: There is no station where a parameter error is detected.&lt;br&gt;On: There is a station where a parameter error is detected.&lt;br&gt;When this relay is turned on, the status of each station can be checked with 'Parameter error status' (SW007C to SW007F). Depending on the link refresh timing, the update of 'Parameter error status' (SW007C to SW007F) may be offset by one sequence scan. (Conditions)&lt;br&gt;• This register is enabled when 'Baton pass error status of own station' (SB0047) is off. When 'Baton pass error status of own station' (SB0047) is turned on (error), data prior to error is held.&lt;br&gt;• Reserved stations and stations exceeding the maximum station number are ignored.</td>
<td><img src="image" alt="Parameter status of each station" /></td>
</tr>
<tr>
<td>SB0080</td>
<td>CPU moderate to major error occurrence status</td>
<td>Stores the moderate/major error occurrence status of the CPU module on each station. (Including own station) Off: No moderate/major error&lt;br&gt;On: Station with a moderate/major error exists&lt;br&gt;When this relay is turned on, the status of each station can be checked with 'CPU moderate to major error occurrence status' (SW0080 to SW0083). Depending on the link refresh timing, the update of 'CPU moderate to major error occurrence status' (SW0080 to SW0083) may be offset by one sequence scan. (Conditions)&lt;br&gt;• This register is enabled when 'Baton pass error status of own station' (SB0047) is off. When 'Baton pass error status of own station' (SB0047) is turned on (error), data prior to error is held.</td>
<td><img src="image" alt="CPU moderate to major error occurrence status" /></td>
</tr>
<tr>
<td>SB0084</td>
<td>CPU operating status of each station</td>
<td>Stores the operating status of the CPU module on each station. (Including own station)&lt;br&gt;Off: All stations are at RUN or STEP-RUN state&lt;br&gt;On: Station at STOP or PAUSE state, or station with a moderate/major error exists.&lt;br&gt;When this relay is turned on, the status of each station can be checked with 'CPU operating status' (SW0084 to SW0087). Depending on the link refresh timing, the update of 'CPU operating status' (SW0084 to SW0087) may be offset by one sequence scan. (Conditions)&lt;br&gt;• This register is enabled when 'Baton pass error status of own station' (SB0047) is off. When 'Baton pass error status of own station' (SB0047) is turned on (error), data prior to error is held.</td>
<td><img src="image" alt="CPU operating status of each station" /></td>
</tr>
<tr>
<td>No.</td>
<td>Name</td>
<td>Description</td>
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</tbody>
</table>
| SB008 | CPU minor error occurrence status         | Stores the minor error occurrence status of the CPU module on each station. (Including own station)  
Off: All stations normal or station with a moderate/major error exists.  
On: Station with a minor error exists.  
When this relay is turned on, the status of each station can be checked with 'CPU minor error occurrence status' (SW0088 to SW008B).  
Depending on the link refresh timing, the update of 'CPU minor error occurrence status' (SW0088 to SW008B) may be offset by one sequence scan.  
(Conditions)  
• This register is enabled when 'Baton pass error status of own station' (SB0047) is off.  
• When 'Baton pass error status of own station' (SB0047) is turned on (error), data prior to error is held. | ○  ○  ○  ○ |
| SB008 | External power supply information of each station | Stores the power supply status for external power supply by the MELSECNET/H network module with external power supply function of each station. (Including own station)  
Off: No external power supplied to any station  
On: External power supplied to station(s)  
When this relay is turned on, the status of each station can be checked with 'External power supply status' (SW008C to SW008F).  
Depending on the link refresh timing, the update of 'External power supply status' (SW008C to SW008F) may be offset by one sequence scan.  
(Conditions)  
• This register is enabled when 'Baton pass error status of own station' (SB0047) is off.  
• When 'Baton pass error status of own station' (SB0047) is turned on (error), data prior to error is held. | ○  ×  ○  × |
| SB008 | Module type of each station               | Stores the module type of each station.  
Off: Stations with MELSECNET/10 type module included  
On: All stations with MELSECNET/H type module  
(Conditions)  
• This register is enabled when 'Baton pass error status of own station' (SB0047) is off.  
• When 'Baton pass error status of own station' (SB0047) is turned on (error), data prior to error is held.  
• This register is enabled when 'Baton pass status of each station' (SB0070) is off. | ○  ○  ○  ○ |
| SB008 | Path switching detection flag             | Stores the path switching detection status.  
Off: Path switching not detected  
On: Path switching detected  
When 'Clear loop switching count' (SB0009) is turned on, the stored value is cleared. | ○  ×  ○  × |
| SB009 | Loop status of own station                | Stores the transmission path status of the own station. When this relay is turned on, the error definition can be checked with 'Loopback information' (SW0090).  
Off: Normal  
On: Error  
(Conditions)  
• This relay is turned on when a value other than 00H is set for 'Loopback information' (SW0090). | ○  ×  ○  × |
| SB009 | Forward loop (IN-side) status             | Stores the status of the station connected to the forward loop (IN-side).  
Off: All stations normal  
On: Faulty station exists  
When this relay is turned on, the status of each station can be checked with 'Forward loop status of each station' (SW0091 to SW0094).  
Depending on the link refresh timing, the update of 'Forward loop status of each station' (SW0091 to SW0094) may be offset by one sequence scan.  
(Conditions)  
• This register is enabled when 'Baton pass error status of own station' (SB0047) is off.  
• When 'Baton pass error status of own station' (SB0047) is turned on (error), data prior to error is held. | ○  ×  ○  × |
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<tr>
<th>No.</th>
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<th>Availability</th>
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<td>Control</td>
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<td>Station</td>
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<tr>
<td>SB0095</td>
<td>Reverse loop (OUT-side) status</td>
<td>Stores the status of the station connected to the reverse loop (OUT-side).</td>
<td>○</td>
</tr>
<tr>
<td>SB0099</td>
<td>Forward (IN-side) Loopback status</td>
<td>Stores the loopback status for the loopback function. The station number of the forward loop (IN-side)</td>
<td>○</td>
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<tr>
<td>SB009A</td>
<td>Reverse (OUT-side) Loopback status</td>
<td>Stores the loopback status for the loopback function. The station number of the reverse loop (OUT-side)</td>
<td>○</td>
</tr>
<tr>
<td>SB009C</td>
<td>Send transmission path mismatch status</td>
<td>Stores the status of the transmission path used for transmission at another station.</td>
<td>○</td>
</tr>
<tr>
<td>SB00A0</td>
<td>RECV execution request flag CH1</td>
<td>Stores the data reception status of own station channel 1.</td>
<td>○</td>
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<tr>
<td>SB00A1</td>
<td>RECV execution request flag CH2</td>
<td>Stores the data reception status of own station channel 2.</td>
<td>○</td>
</tr>
<tr>
<td>SB00A2</td>
<td>RECV execution request flag CH3</td>
<td>Stores the data reception status of own station channel 3.</td>
<td>○</td>
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<td>Control station</td>
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<td>Loop</td>
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<tr>
<td>SB00A3</td>
<td>RECV execution request flag CH4</td>
<td>Stores the data reception status of own station channel 4. Off: No data received On: Data received (Conditions) • This register is enabled when 'Baton pass error status of own station' (SB0047) is off. When 'Baton pass error status of own station' (SB0047) is turned on (error), data prior to error is held.</td>
<td>○</td>
</tr>
<tr>
<td>SB00A4</td>
<td>RECV execution request flag CH5</td>
<td>Stores the data reception status of own station channel 5. Off: No data received On: Data received (Conditions) • This register is enabled when 'Baton pass error status of own station' (SB0047) is off. When 'Baton pass error status of own station' (SB0047) is turned on (error), data prior to error is held.</td>
<td>○</td>
</tr>
<tr>
<td>SB00A5</td>
<td>RECV execution request flag CH6</td>
<td>Stores the data reception status of own station channel 6. Off: No data received On: Data received (Conditions) • This register is enabled when 'Baton pass error status of own station' (SB0047) is off. When 'Baton pass error status of own station' (SB0047) is turned on (error), data prior to error is held.</td>
<td>○</td>
</tr>
<tr>
<td>SB00A6</td>
<td>RECV execution request flag CH7</td>
<td>Stores the data reception status of own station channel 7. Off: No data received On: Data received (Conditions) • This register is enabled when 'Baton pass error status of own station' (SB0047) is off. When 'Baton pass error status of own station' (SB0047) is turned on (error), data prior to error is held.</td>
<td>○</td>
</tr>
<tr>
<td>SB00A7</td>
<td>RECV execution request flag CH8</td>
<td>Stores the data reception status of own station channel 8. Off: No data received On: Data received (Conditions) • This register is enabled when 'Baton pass error status of own station' (SB0047) is off. When 'Baton pass error status of own station' (SB0047) is turned on (error), data prior to error is held.</td>
<td>○</td>
</tr>
<tr>
<td>SB00A8</td>
<td>Online test instruction (acceptance at the own station)</td>
<td>Stores the online test request status (the status of request acceptance at the own station). Off: Not requested On: Requested</td>
<td>○</td>
</tr>
<tr>
<td>SB00A9</td>
<td>Online test completion (issuance at the own station)</td>
<td>Stores the online test completion status (the status of request issuance from the own station). Off: Not completed On: Completed When the relay is turned on, the online test information can be checked with 'Online test execution item/faulty station of requesting side' (SW00A8) and 'Online test result of requesting side' (SW00A9).</td>
<td>○</td>
</tr>
<tr>
<td>SB00A10</td>
<td>Online test response instruction (acceptance at another station)</td>
<td>Stores the online test response status (the status of response acceptance from another station). Off: Response not received On: Response received</td>
<td>○</td>
</tr>
<tr>
<td>SB00A11</td>
<td>Online test response completion (issuance at another station)</td>
<td>Stores the online test response completion status (the status of response completion from another station). Off: Response not completed On: Response completed When the relay is turned on, the online test information can be checked with 'Online test execution item of responding side' (SW00AA) and 'Online test execution item of responding side' (SW00AB).</td>
<td>○</td>
</tr>
<tr>
<td>SB00A12</td>
<td>Offline test instruction (acceptance at the own station)</td>
<td>Stores the offline test request status (the status of request acceptance from the own station). Off: Not requested On: Requested</td>
<td>○</td>
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<tr>
<td>No.</td>
<td>Name</td>
<td>Description</td>
<td>Availability</td>
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<tr>
<td>SB00A D</td>
<td>Offline test completion (issuance at the own station)</td>
<td>Stores the offline test completion status (the status of request issuance from the own station). Off: Not completed On: Completed When the relay is turned on, the offline test information can be checked with 'Offline test execution item/faulty station of requesting side' (SW00AC) and 'Offline test result of requesting side' (SW00AD).</td>
<td>○ ○ ○ ○</td>
</tr>
<tr>
<td>SB00A E</td>
<td>Offline test response instruction (acceptance at another station)</td>
<td>Stores the offline test instruction status (the status of response acceptance from another station). Off: Response not received On: Response received</td>
<td>○ × ○ ×</td>
</tr>
<tr>
<td>SB00A F</td>
<td>Offline test response completion (issuance at another station)</td>
<td>Stores the offline test response completion status (the status of response completion from another station). Off: Response not completed On: Response completed When the relay is turned on, the offline test information can be checked with 'Offline test execution item of responding side' (SW00AE) and 'Offline test result of responding side' (SW00AF).</td>
<td>○ × ○ ×</td>
</tr>
<tr>
<td>SB00E E</td>
<td>Transient error</td>
<td>Stores the transient transmission error detection status. Off: Error not detected On: Error detected When this relay is turned on, the number of errors can be checked with 'Transient transmission error cumulative count' (SW00EE).</td>
<td>○ ○ ○ ○</td>
</tr>
<tr>
<td>SB01E0</td>
<td>Network type consistency check</td>
<td>Indicates the status of the occurrence of inconsistency between the network type of the control station and the network type of the normal station. Off: Consistent (All normal stations are set to the MELSECNET/H extended mode) On: Inconsistent (There are normal stations set to the MELSECNET/H mode or MELSECNET/10 mode.) If the control station is set to the MELSECNET/H extended mode Off: Consistent (All normal stations are set to the MELSECNET/H extended mode.) On: Inconsistent (There are normal stations set to the MELSECNET/H extended mode.) When this relay is turned on, the status of each station can be checked with 'Network type consistency status' (SW01E0 to SW01E3). Depending on the link refresh timing, the update of 'Network type consistency status' (SW01E0 to SW01E3) may be offset by one sequence scan. (Conditions) • This register is enabled when 'Baton pass error status of own station' (SB0047) is off. When 'Baton pass error status of own station' (SB0047) is turned on (error), data prior to error is held.</td>
<td>○ ○ ○ ○</td>
</tr>
<tr>
<td>SB01F4</td>
<td>Separate mode status in redundant system</td>
<td>Stores the CPU operation mode status of each station. Off: CPU backup mode set for all stations On: Separate mode This relay is turned off when 0 is set for all the settings of 'Separate mode status in redundant system' (SW01F4 to SW01F7). When this relay is turned on, the status of each station can be checked with 'Separate mode status in redundant system' (SW01F4 to SW01F7). Depending on the link refresh timing, the update of 'Separate mode status in redundant system' (SW01F4 to SW01F7) may be offset by one sequence scan. (Conditions) • This register is enabled when 'Baton pass error status of own station' (SB0047) is off. When 'Baton pass error status of own station' (SB0047) is turned on (error), data prior to error is held. • Reserved stations and stations exceeding the maximum station number are ignored.</td>
<td>○ ○ ○ ○</td>
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<td>No.</td>
<td>Name</td>
<td>Description</td>
<td>Availability</td>
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<tr>
<td>SB01F8</td>
<td>Pairing setting status in redundant system</td>
<td>Stores the pairing setting status for each station.</td>
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<td>Off: No pairing-set station</td>
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<td>On: Pairing-set station exists</td>
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<td>When this relay is turned on, the status of each station can be checked</td>
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<td>with 'Pairing setting status in redundant system' (SW01F8 to SW01FB).</td>
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<td>Depending on the link refresh timing, the update of 'Pairing setting status</td>
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<td>in redundant system' (SW01F8 to SW01FB) may be offset by one sequence scan.</td>
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<td>(Conditions)</td>
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<td>• This register is enabled when 'Baton pass error status of own station'</td>
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<td>(SB0047) is off.</td>
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<td>• When 'Baton pass error status of own station' (SB0047) is turned on</td>
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<td>(error), data prior to error is held.</td>
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<td>• Reserved stations and stations exceeding the maximum station number are</td>
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<td>ignored.</td>
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<tr>
<td>SB01F8C</td>
<td>Standby system CPU status in redundant</td>
<td>Stores the CPU operation status (control/standby system) of each station.</td>
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<tr>
<td></td>
<td>system</td>
<td>Off: Control system CPU at all stations</td>
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<td>On: Standby system CPU exists</td>
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<td>When this relay is turned on, the status of each station can be checked</td>
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<td>with 'Standby system CPU status in redundant system' (SW01FC to SW01FF).</td>
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<td>Depending on the link refresh timing, the update of 'Standby system CPU</td>
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<td></td>
<td>status in redundant system' (SW01FC to SW01FF) may be offset by one sequence</td>
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<td></td>
<td>scan.</td>
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<td>(Conditions)</td>
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<td>• This register is enabled when 'Baton pass error status of own station'</td>
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<td>(SB0047) is off.</td>
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<td>• When 'Baton pass error status of own station' (SB0047) is turned on</td>
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<td>(error), data prior to error is held.</td>
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<td>• Reserved stations and stations exceeding the maximum station number are</td>
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<td>ignored.</td>
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</tr>
</tbody>
</table>
Appendix 4  List of Link Special Register (SW) Areas

The link special register (SW) stores the information during data link as a numerical value. Error locations and causes can be checked by using or monitoring the link special register (SW) in programs.

Application of the link special register (SW)
By using link special register (SW), the status of MELSECNET/H network can be checked from HMI (Human Machine Interfaces) as well as the engineering tool.

Link refresh of the link special register (SW)
To use the link special register (SW), set them in "Link Refresh Settings" in "Basic Settings" so that link refresh is performed for the devices or labels of the CPU module. (= Page 62 Link Refresh Settings)

Range where data are stored by users and range where data are stored by the system
The following ranges correspond to when the link special register (SW) areas are assigned from SW0000 to SW01FF.
- Stored by users: SW0000 to SW001F
- Stored by the system: SW0020 to SW01FF
# List of link special register (SW) areas

The following table lists the link special register (SW) areas when they are assigned from SW0000 to SW01FF.

Each abbreviation and symbol in the table indicates the following.
- Loop: RJ71LP21-25, Bus: RJ71BR11
- ○: Available, ×: Not available

Do not write any data to an area whose number is not on the following list or ranges where data are stored by the system. Doing so may cause malfunction of the programmable controller system.

<table>
<thead>
<tr>
<th>No.</th>
<th>Name</th>
<th>Description</th>
<th>Availability</th>
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</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td>Control station</td>
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<tr>
<td></td>
<td></td>
<td></td>
<td>Loop</td>
</tr>
<tr>
<td>SW0000</td>
<td>Link start/stop instruction details</td>
<td>Set the content of link startup/stop directions. 00H: Own station 01H: All stations 02H: Specified stations 80H: Own station enforced (enabled only for link startup) 81H: All stations enforced (enabled only for link startup) 82H: Specified stations enforced (enabled only for link startup) • Link startup is performed by 'System link start' (SB0002), and link stop is performed 'System link stop' (SB0003).</td>
<td>○</td>
</tr>
<tr>
<td>SW0001 to SW0004</td>
<td>Link start/stop station</td>
<td>Set the station number to start or stop data link when 02H or 82H is set in 'Link start/stop instruction details' (SW0000). Off: Startup or stop not requested On: Startup or stop requested</td>
<td>0</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Loop</td>
</tr>
<tr>
<td>SW0005</td>
<td>Logical channel setting (Channel 1)</td>
<td>Set the channel number for Physical Channel 1. (Only enabled for the receiving side channel) 0: Logical Channel No.1 (Default) 1 to 64: Set</td>
<td>○</td>
</tr>
<tr>
<td>SW0009</td>
<td>Logical channel setting (Channel 2)</td>
<td>Set the channel number for Physical Channel 2. (Only enabled for the receiving side channel) 0: Logical Channel No.2 (Default) 1 to 64: Set</td>
<td>○</td>
</tr>
<tr>
<td>SW000A</td>
<td>Logical channel setting (Channel 3)</td>
<td>Set the channel number for Physical Channel 3. (Only enabled for the receiving side channel) 0: Logical Channel No.3 (Default) 1 to 64: Set</td>
<td>○</td>
</tr>
<tr>
<td>SW000B</td>
<td>Logical channel setting (Channel 4)</td>
<td>Set the channel number for Physical Channel 4. (Only enabled for the receiving side channel) 0: Logical Channel No.4 (Default) 1 to 64: Set</td>
<td>○</td>
</tr>
<tr>
<td>SW000C</td>
<td>Logical channel setting (Channel 5)</td>
<td>Set the channel number for Physical Channel 5. (Only enabled for the receiving side channel) 0: Logical Channel No.5 (Default) 1 to 64: Set</td>
<td>○</td>
</tr>
<tr>
<td>SW000D</td>
<td>Logical channel setting (Channel 6)</td>
<td>Set the channel number for Physical Channel 6. (Only enabled for the receiving side channel) 0: Logical Channel No.6 (Default) 1 to 64: Set</td>
<td>○</td>
</tr>
<tr>
<td>SW000E</td>
<td>Logical channel setting (Channel 7)</td>
<td>Set the channel number for Physical Channel 7. (Only enabled for the receiving side channel) 0: Logical Channel No.7 (Default) 1 to 64: Set</td>
<td>○</td>
</tr>
<tr>
<td>No.</td>
<td>Name</td>
<td>Description</td>
<td>Availability</td>
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<td></td>
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<td></td>
<td>Control station</td>
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<td></td>
<td>Loop</td>
</tr>
<tr>
<td>SW000F</td>
<td>Logical channel setting (Channel 8)</td>
<td>Set the channel number for Physical Channel 8. (Only enabled for the receiving side channel) 0: Logical Channel No.8 (Default) 1 to 64: Set</td>
<td>○</td>
</tr>
<tr>
<td>SW0018</td>
<td>System switching monitoring time setting</td>
<td>Sets the time from when a data link error occurs to when the data link stop is recognized in a redundant system. 0: 2s (default) 1 to 500: Can be set in increments of 10ms (10ms to 5s)</td>
<td>○</td>
</tr>
<tr>
<td>SW0020</td>
<td>Communication status with CPU module</td>
<td>Stores the communication status between the MELSECNET/H network module and CPU module. 0: Normal 1 or greater: Error (An error code is stored.)</td>
<td>○</td>
</tr>
<tr>
<td>SW0031</td>
<td>Link dedicated instructions processing result CH1</td>
<td>Stores the processing results of the link dedicated instruction that used channel 1 of the own station. 0: Completed normally 1 or greater: Completed with an error (An error code is stored.)</td>
<td>○</td>
</tr>
<tr>
<td>SW0033</td>
<td>Link dedicated instructions processing result CH2</td>
<td>Stores the processing results of the link dedicated instruction that used channel 2 of the own station. 0: Completed normally 1 or greater: Completed with an error (An error code is stored.)</td>
<td>○</td>
</tr>
<tr>
<td>SW0035</td>
<td>Link dedicated instructions processing result CH3</td>
<td>Stores the processing results of the link dedicated instruction that used channel 3 of the own station. 0: Completed normally 1 or greater: Completed with an error (An error code is stored.)</td>
<td>○</td>
</tr>
<tr>
<td>SW0037</td>
<td>Link dedicated instructions processing result CH4</td>
<td>Stores the processing results of the link dedicated instruction that used channel 4 of the own station. 0: Completed normally 1 or greater: Completed with an error (An error code is stored.)</td>
<td>○</td>
</tr>
<tr>
<td>SW0039</td>
<td>Link dedicated instructions processing result CH5</td>
<td>Stores the processing results of the link dedicated instruction that used channel 5 of the own station. 0: Completed normally 1 or greater: Completed with an error (An error code is stored.)</td>
<td>○</td>
</tr>
<tr>
<td>SW003B</td>
<td>Link dedicated instructions processing result CH6</td>
<td>Stores the processing results of the link dedicated instruction that used channel 6 of the own station. 0: Completed normally 1 or greater: Completed with an error (An error code is stored.)</td>
<td>○</td>
</tr>
<tr>
<td>SW003D</td>
<td>Link dedicated instructions processing result CH7</td>
<td>Stores the processing results of the link dedicated instruction that used channel 7 of the own station. 0: Completed normally 1 or greater: Completed with an error (An error code is stored.)</td>
<td>○</td>
</tr>
<tr>
<td>SW003F</td>
<td>Link dedicated instructions processing result CH8</td>
<td>Stores the processing results of the link dedicated instruction that used channel 8 of the own station. 0: Completed normally 1 or greater: Completed with an error (An error code is stored.)</td>
<td>○</td>
</tr>
<tr>
<td>SW0040</td>
<td>Network No.</td>
<td>Stores the network number of the own station. Range: 1 to 239</td>
<td>○</td>
</tr>
<tr>
<td>SW0041</td>
<td>Transient transmission group No.</td>
<td>Stores the transient transmission group number of the own station. 0: No group specification 1 to 32: Transient transmission group number</td>
<td>○</td>
</tr>
<tr>
<td>SW0042</td>
<td>Station No.</td>
<td>Stores the station number of the own station. 1 to 64: Own station's station number</td>
<td>○</td>
</tr>
<tr>
<td>SW0043</td>
<td>Mode status of own station</td>
<td>Stores the module operation mode setting of the own station. 0: Online mode 2: Offline mode 3: Forward loop test (RJ71LP21-25) 4: Reverse loop test (RJ71LP21-25) 5: Station-to-station test (Executing station) 6: Station-to-station test (Executed station) 7: Self-loopback test 8: Internal self-loopback test 9: Hardware test</td>
<td>○</td>
</tr>
<tr>
<td>No.</td>
<td>Name</td>
<td>Description</td>
<td>Availability</td>
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<td>Control station</td>
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<td>Loop</td>
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<tr>
<td>SW0044</td>
<td>Station setting</td>
<td>Stores the settings status of the own station.</td>
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<td>b15 b14 b13 b12 b11 b10 b9 b8 b7 b6 ... b2 b1 b0</td>
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<td></td>
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<td>b0: Network type</td>
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<td>• 0: PLC to PLC network (Fixed to 0)</td>
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<td>b1: Station type</td>
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<td></td>
<td>• 0: Normal station</td>
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<td>• 1: Control station</td>
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<td>b7: Control station operation</td>
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<tr>
<td></td>
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<td></td>
<td>• 0: Specified control station switching</td>
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<td>• 1: Current control station maintained</td>
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<td>b8: Operation mode</td>
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<td></td>
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<td>• 0: Online mode</td>
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<td></td>
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<td>• 1: Debug mode</td>
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<td>b12: Own station network type</td>
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<td></td>
<td>• 0: MELSECNET/H mode, MELSECNET/10 mode</td>
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<td>• 1: MELSECNET/H extended mode</td>
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<tr>
<td>SW0046</td>
<td>Module type</td>
<td>Stores the hardware status of the own station.</td>
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<td>b15 b14 b13 ... b2 b1 b0</td>
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<td>■RJ71LP21-25</td>
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<td>b1 to b0: Hardware status</td>
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<td>• 01: Light (fixed at 01)</td>
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<td>b14: Hardware status</td>
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<td>• 0: Duplex (fixed at 0)</td>
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<td>b15: Hardware status</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• 0: Loop (fixed at 0)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>■RJ71BR11</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>b1 to b0: Hardware status</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• 10: Coaxial (fixed at 10)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>b14: Hardware status</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• 1: Simplex (fixed at 1)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>b15: Hardware status</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>• 1: Bus (fixed at 1)</td>
</tr>
<tr>
<td>SW0047</td>
<td>Baton pass status of own station</td>
<td>Stores the baton pass status (transient transmission availability) of the own station.</td>
<td>○</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>00H: Data link in progress</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>01H: Data link stop (Instructed by another station)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>02H: Data link stop (Instructed by the own station)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>03H: Baton pass in progress (Parameter received (No own station send area))</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>04H: Baton pass in progress (Parameter error)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>05H: Baton pass in progress (Parameter not received)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>06H: Disconnecting (No baton pass)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>07H: Disconnecting (Line error)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>11H: Loop test</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>12H: Setup check test</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>13H: Station order check test</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>14H: Communication test</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>1FH: Offline test</td>
</tr>
<tr>
<td>SW0048</td>
<td>Cause of baton pass interruption</td>
<td>Stores the cause of interruption in the communication (baton pass) of the own station.</td>
<td>○</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>00H: Normal communication</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>01H: Offline</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>02H: Offline test</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>03H or greater: Cause of interruption (Error code)</td>
</tr>
<tr>
<td>SW0049</td>
<td>Cause of data link stop</td>
<td>Stores the cause which stopped the data link of the own station.</td>
<td>○</td>
</tr>
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<td></td>
<td></td>
<td></td>
<td>00H: Normal</td>
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<tr>
<td></td>
<td></td>
<td></td>
<td>01H: Stop direction</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>02H: No common parameter exists</td>
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<td></td>
<td></td>
<td></td>
<td>03H: Common parameter error</td>
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<tr>
<td></td>
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<td>04H: Own station CPU error</td>
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<tr>
<td></td>
<td></td>
<td></td>
<td>06H: Communication interruption</td>
</tr>
<tr>
<td>No.</td>
<td>Name</td>
<td>Description</td>
<td>Availability</td>
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<td>-----------------------------------------------------------------------------</td>
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<tr>
<td></td>
<td></td>
<td></td>
<td>Control station</td>
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<td></td>
<td>Loop</td>
</tr>
<tr>
<td>SW004A</td>
<td>Data link stop request station</td>
<td>Stores the station number of the station that performed the data link stop request for the own station. The data link stop request is performed by 'System link stop' (SB0003).</td>
<td>○</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>b15 b14 b13 ... b2 b1 b0</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>b6 to b0: Station number</td>
</tr>
<tr>
<td>SW004B</td>
<td>CPU status of own station</td>
<td>Stores the status of the CPU module of the own station. 0: Normal 1 or greater: Error (An error code is stored.)</td>
<td>○</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>b15</td>
</tr>
<tr>
<td>SW004D</td>
<td>Link start result of own station</td>
<td>Stores the results when link is started by 'Link startup of own station' (SB0000). 0: Completed normally 1 or greater: Completed with an error (An error code is stored.) (Conditions)</td>
<td>○</td>
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<td></td>
<td></td>
<td></td>
<td>b15</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>This register is enabled when 'Baton pass error status of own station' (SB0047) is off. When 'Baton pass error status of own station' (SB0047) is turned on (error), data prior to error is held.</td>
</tr>
<tr>
<td>SW004F</td>
<td>Link stop result of own station</td>
<td>Stores the results when link is stopped by 'Link stop of own station' (SB0001). 0: Completed normally 1 or greater: Completed with an error (An error code is stored.) (Conditions)</td>
<td>○</td>
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<td></td>
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<td></td>
<td>b15</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>This register is enabled when 'Baton pass error status of own station' (SB0047) is off. When 'Baton pass error status of own station' (SB0047) is turned on (error), data prior to error is held.</td>
</tr>
<tr>
<td>SW0051</td>
<td>System link start results</td>
<td>Stores the results when link is started by 'System link start' (SB0002). 0: Completed normally 1 or greater: Completed with an error (An error code is stored.) (Conditions)</td>
<td>○</td>
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<td></td>
<td></td>
<td></td>
<td>b15</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>This register is enabled when 'Baton pass error status of own station' (SB0047) is off. When 'Baton pass error status of own station' (SB0047) is turned on (error), data prior to error is held.</td>
</tr>
<tr>
<td>SW0053</td>
<td>System link stop results</td>
<td>Stores the results when link is stopped by 'System link stop' (SB0003). 0: Normal 1 or greater: Completed with an error (An error code is stored.) (Conditions)</td>
<td>○</td>
</tr>
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<td></td>
<td></td>
<td></td>
<td>b15</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>This register is enabled when 'Baton pass error status of own station' (SB0047) is off. When 'Baton pass error status of own station' (SB0047) is turned on (error), data prior to error is held.</td>
</tr>
<tr>
<td>SW0054</td>
<td>Parameter information</td>
<td>Stores parameter information. b15 b14 b13 ... b2 b1 b0 b1 to b0: Type</td>
<td>○</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>b15 b14 b13 ... b2 b1 b0</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>b6 to b0: Station number</td>
</tr>
</tbody>
</table>
## Appendix 4  List of Link Special Register (SW) Areas

<table>
<thead>
<tr>
<th>No.</th>
<th>Name</th>
<th>Description</th>
<th>Availability</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td>Loop</td>
</tr>
<tr>
<td>SW0055</td>
<td>Parameter setting status</td>
<td>Stores the parameter status.</td>
<td>☒</td>
</tr>
<tr>
<td></td>
<td></td>
<td>0: Normal</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>1 or greater: Error (An error code is stored.)</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>• This register is enabled when 'Receive parameter error' (SB0055) is on.</td>
<td></td>
</tr>
<tr>
<td>SW0056</td>
<td>Current control station</td>
<td>Stores the station number of the station which is actually operating as a control station.</td>
<td>☒</td>
</tr>
<tr>
<td></td>
<td></td>
<td>(Including sub-control station)</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>0: Control station or sub-control station does not exist.</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>1 to 64: Station number of the control station or sub-control station</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>• This register is enabled when 'Baton pass error status of own station' (SB0047) is off.</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>When 'Baton pass error status of own station' (SB0047) is turned on (error), data prior to error is held.</td>
<td></td>
</tr>
<tr>
<td>SW0057</td>
<td>Designated control station</td>
<td>Stores the control station number that has been set using a parameter.</td>
<td>☒</td>
</tr>
<tr>
<td></td>
<td></td>
<td>0: Control station does not exist in a network.</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>1 to 64: Station number of the control station</td>
<td></td>
</tr>
<tr>
<td>SW0059</td>
<td>Total number of link stations</td>
<td>Stores the total number of stations which is set by a parameter.</td>
<td>☒</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Range: 1 to 64</td>
<td></td>
</tr>
<tr>
<td>SW005A</td>
<td>Maximum baton pass station</td>
<td>Stores the maximum station number of the stations where the baton pass is normally performed.</td>
<td>☒</td>
</tr>
<tr>
<td></td>
<td></td>
<td>0: Own station disconnected</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>1 to 64: Station number</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>• This register is enabled when 'Baton pass error status of own station' (SB0047) is off.</td>
<td></td>
</tr>
<tr>
<td>SW005B</td>
<td>Maximum data link station</td>
<td>Stores the maximum station number of the station where the data link is normally performed.</td>
<td>☒</td>
</tr>
<tr>
<td></td>
<td></td>
<td>0: Own station disconnected</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>1 to 64: Station number</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>• This register is enabled when 'Data link error status of own station' (SB0049) is off.</td>
<td></td>
</tr>
<tr>
<td>SW005C</td>
<td>I/O master station of block 1</td>
<td>Stores the I/O master station number of block 1 (LX/LY setting (1)).</td>
<td>☒</td>
</tr>
<tr>
<td></td>
<td></td>
<td>0: No I/O master station</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>1 to 64: Station number</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>• This register is enabled when 'Data link error status of own station' (SB0049) is off.</td>
<td></td>
</tr>
<tr>
<td>SW005D</td>
<td>I/O master station of block 2</td>
<td>Stores the I/O master station number of block 2 (LX/LY setting (2)).</td>
<td>☒</td>
</tr>
<tr>
<td></td>
<td></td>
<td>0: No I/O master station</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>1 to 64: Station number</td>
<td></td>
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<tr>
<td></td>
<td></td>
<td>• This register is enabled when 'Data link error status of own station' (SB0049) is off.</td>
<td></td>
</tr>
<tr>
<td>SW0064 to SW0067</td>
<td>Reserved station setting status</td>
<td>Stores a station that is set as a reserved station.</td>
<td>☒</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Off: A station other than a reserved station</td>
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<tr>
<td></td>
<td></td>
<td>On: Reserved station</td>
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<td></td>
<td></td>
<td>Each number in the table represents a station number.</td>
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<tr>
<td></td>
<td></td>
<td>• This register is enabled when 'Data link error status of own station' (SB0049) is off.</td>
<td></td>
</tr>
<tr>
<td>SW0068</td>
<td>Constant link scan set value</td>
<td>Stores the setting value of the constant link scan which is set by a parameter.</td>
<td>☒</td>
</tr>
<tr>
<td></td>
<td></td>
<td>0: No setting</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>1 to 500: Setting value of constant link scan (Unit: ms)</td>
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</tr>
<tr>
<td></td>
<td></td>
<td>• This register is enabled when 'Data link error status of own station' (SB0049) is off.</td>
<td></td>
</tr>
<tr>
<td>No.</td>
<td>Name</td>
<td>Description</td>
<td>Availability</td>
</tr>
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<td>-------------------------------</td>
<td>-----------------------------------------------------------------------------</td>
<td>--------------</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Loop</td>
</tr>
<tr>
<td>SW006B</td>
<td>Maximum link scan time</td>
<td>Stores the maximum value of the link scan time during cyclic transmission. (Unit: ms)</td>
<td>○</td>
</tr>
<tr>
<td></td>
<td></td>
<td>When the constant link scan is specified, the register is set as follows:</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>■ For the control station</td>
<td></td>
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<tr>
<td></td>
<td></td>
<td>• When the setting value is smaller than &quot;Link scan actual measurement value + KB in the link scan time calculation formula&quot;, the value of &quot;Link scan actual measurement value + KB in the link scan time calculation formula&quot; is stored.</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>• When the setting value is larger than &quot;Link scan actual measurement value + KB in the link scan time calculation formula&quot;, the link scan actual measurement value is stored.</td>
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<tr>
<td></td>
<td></td>
<td>(Conditions)</td>
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<tr>
<td></td>
<td></td>
<td>• This register is enabled when 'Baton pass error status of own station' (SB0047) is off. When 'Baton pass error status of own station' (SB0047) is turned on (error), data prior to error is held.</td>
<td></td>
</tr>
<tr>
<td>SW006C</td>
<td>Minimum link scan time</td>
<td>Stores the minimum value of the link scan time during cyclic transmission. (Unit: ms)</td>
<td>○</td>
</tr>
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<td></td>
<td></td>
<td>When the constant link scan is specified, the register is set as follows:</td>
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<tr>
<td></td>
<td></td>
<td>■ For the control station</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>• When the setting value is smaller than &quot;Link scan actual measurement value + KB in the link scan time calculation formula&quot;, the value of &quot;Link scan actual measurement value + KB in the link scan time calculation formula&quot; is stored.</td>
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</tr>
<tr>
<td></td>
<td></td>
<td>• When the setting value is larger than &quot;Link scan actual measurement value + KB in the link scan time calculation formula&quot;, the link scan actual measurement value is stored.</td>
<td></td>
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<td></td>
<td></td>
<td>(Conditions)</td>
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<tr>
<td></td>
<td></td>
<td>• This register is enabled when 'Baton pass error status of own station' (SB0047) is off. When 'Baton pass error status of own station' (SB0047) is turned on (error), data prior to error is held.</td>
<td></td>
</tr>
<tr>
<td>SW006D</td>
<td>Current link scan time</td>
<td>Stores the present value of the link scan time during cyclic transmission. (Unit: ms)</td>
<td>○</td>
</tr>
<tr>
<td></td>
<td></td>
<td>When the constant link scan is specified, the register is set as follows:</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>■ For the control station</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>• When the setting value is smaller than &quot;Link scan actual measurement value + KB in the link scan time calculation formula&quot;, the value of &quot;Link scan actual measurement value + KB in the link scan time calculation formula&quot; is stored.</td>
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<tr>
<td></td>
<td></td>
<td>• When the setting value is larger than &quot;Link scan actual measurement value + KB in the link scan time calculation formula&quot;, the link scan actual measurement value is stored.</td>
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<td>(Conditions)</td>
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<td>• This register is enabled when 'Baton pass error status of own station' (SB0047) is off. When 'Baton pass error status of own station' (SB0047) is turned on (error), data prior to error is held.</td>
<td></td>
</tr>
<tr>
<td>SW006E</td>
<td>Low-speed cyclic scan time</td>
<td>Stores the link scan count for the implementation of low speed cyclic transmission (send interval).</td>
<td>○</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Low-speed data send request</td>
<td></td>
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<tr>
<td></td>
<td></td>
<td>Link scan</td>
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<td>Low-speed cyclic transmission</td>
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<td>(Conditions)</td>
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<td></td>
<td>• This register is enabled when 'Baton pass error status of own station' (SB0047) is off. When 'Baton pass error status of own station' (SB0047) is turned on (error), data prior to error is held.</td>
<td></td>
</tr>
<tr>
<td>SW0070 to SW0073</td>
<td>Baton pass status</td>
<td>Stores the baton pass status of each station. Off: Baton pass normal status On: Baton pass faulty station</td>
<td>○</td>
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<td>b15 b14 b13 b12 b11 b10 b9 b8 b7 b6 b5 b4 b3 b2 b1 b0</td>
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<td>16 15 14 13 12 11 10 9 8 7 6 5 4 3 2 1</td>
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<td>32 31 30 29 28 27 26 25 24 23 22 21 20 19 18 17</td>
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<td></td>
<td>Each number in the table represents a station number.</td>
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<td></td>
<td></td>
<td>(Conditions)</td>
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<td></td>
<td></td>
<td>• This register is enabled when 'Baton pass error status of own station' (SB0047) is off. When 'Baton pass error status of own station' (SB0047) is turned on (error), data prior to error is held.</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>• Reserved stations and stations exceeding the maximum station number are ignored.</td>
<td></td>
</tr>
</tbody>
</table>
### Appendix 4  List of Link Special Register (SW) Areas

#### Data link status

Stores the data link status for each station.

- **Off**: Data link normal station
- **On**: Data link faulty station

<table>
<thead>
<tr>
<th>No.</th>
<th>Name</th>
<th>Description</th>
<th>Availability</th>
</tr>
</thead>
<tbody>
<tr>
<td>SW0074 to SW0077</td>
<td>Data link status</td>
<td>Stores the data link status for each station.</td>
<td></td>
</tr>
<tr>
<td></td>
<td>b15 b14 b13 b12 b11 b10 b9 b8 b7 b6 b5 b4 b3 b2 b1 b0</td>
<td>16 15 14 13 12 11 10 9 8 7 6 5 4 3 2 1</td>
<td></td>
</tr>
</tbody>
</table>

Each number in the table represents a station number.
- When the CPU unit equipped with the MELSECNET/H network module with external power supply function is turned off, the data link error detection timing may be delayed. To detect the data link error immediately in this case, create a program by configuring an interlock with the link relay (LB) in each station's send range.

(Conditions)
- This register is enabled when 'Baton pass error status of own station' (SB0047) is off. When 'Baton pass error status of own station' (SB0047) is turned on (error), data prior to error is held.
- Stations exceeding the maximum station number are ignored.

#### Parameter communication status

Stores the parameter communication status of each station.

- **Off**: Parameter communication completed or not executed
- **On**: Parameter communication in progress

<table>
<thead>
<tr>
<th>No.</th>
<th>Name</th>
<th>Description</th>
<th>Availability</th>
</tr>
</thead>
<tbody>
<tr>
<td>SW0078 to SW007B</td>
<td>Parameter communication status</td>
<td>Stores the parameter communication status of each station.</td>
<td></td>
</tr>
<tr>
<td></td>
<td>b15 b14 b13 b12 b11 b10 b9 b8 b7 b6 b5 b4 b3 b2 b1 b0</td>
<td>16 15 14 13 12 11 10 9 8 7 6 5 4 3 2 1</td>
<td></td>
</tr>
</tbody>
</table>

Each number in the table represents a station number.
- This register is enabled when 'Baton pass error status of own station' (SB0047) is off. When 'Baton pass error status of own station' (SB0047) is turned on (error), data prior to error is held.
- Stations exceeding the maximum station number are ignored.

#### Parameter error status

Stores the parameter error status of each station.

- **Off**: Normal
- **On**: Error

<table>
<thead>
<tr>
<th>No.</th>
<th>Name</th>
<th>Description</th>
<th>Availability</th>
</tr>
</thead>
<tbody>
<tr>
<td>SW007C to SW007F</td>
<td>Parameter error status</td>
<td>Stores the parameter error status of each station.</td>
<td></td>
</tr>
<tr>
<td></td>
<td>b15 b14 b13 b12 b11 b10 b9 b8 b7 b6 b5 b4 b3 b2 b1 b0</td>
<td>16 15 14 13 12 11 10 9 8 7 6 5 4 3 2 1</td>
<td></td>
</tr>
</tbody>
</table>

Each number in the table represents a station number.
- This register is enabled when 'Baton pass error status of own station' (SB0047) is off. When 'Baton pass error status of own station' (SB0047) is turned on (error), data prior to error is held.
- Stations exceeding the maximum station number are ignored.
## Appendix 4  List of Link Special Register (SW) Areas

<table>
<thead>
<tr>
<th>No.</th>
<th>Name</th>
<th>Description</th>
<th>Availability</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td>Control station</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Loop</td>
</tr>
<tr>
<td>SW0080 to SW0083</td>
<td>CPU moderate to major error occurrence status</td>
<td>Stores the moderate/major error occurrence status of the CPU module on each station. (Including own station) Off: No moderate/major error On: Moderate/major error</td>
<td><strong>SW0080</strong></td>
</tr>
</tbody>
</table>

Each number in the table represents a station number.

(Conditions)
- This register is enabled when 'Baton pass error status of own station' (SB0047) is off. When 'Baton pass error status of own station' (SB0047) is turned on (error), data prior to error is held.
- This register is enabled only for normally operating stations in 'Baton pass status' (SW0070 to SW0073).
- Reserved stations and stations exceeding the maximum station number are ignored.

| SW0084 to SW0087 | CPU operating status | Stores the CPU RUN state of each station. (Including own station) Off: RUN, STEP-RUN On: STOP, PAUSE, or a moderate or serious error occurring | **SW0084** | 16 | 15 | 14 | 13 | 12 | 11 | 10 | 9 | 8 | 7 | 6 | 5 | 4 | 3 | 2 | 1 | **SW0085** | 32 | 31 | 30 | 29 | 28 | 27 | 26 | 25 | 24 | 23 | 22 | 21 | 20 | 19 | 18 | 17 | **SW0086** | 48 | 47 | 46 | 45 | 44 | 43 | 42 | 41 | 40 | 39 | 38 | 37 | 36 | 35 | 34 | 33 | **SW0087** | 64 | 63 | 62 | 61 | 60 | 59 | 58 | 57 | 56 | 55 | 54 | 53 | 52 | 51 | 50 | 49 |

Each number in the table represents a station number.

(Conditions)
- This register is enabled when 'Baton pass error status of own station' (SB0047) is off. When 'Baton pass error status of own station' (SB0047) is turned on (error), data prior to error is held.
- This register is enabled only for normally operating stations in 'Baton pass status' (SW0070 to SW0073).
- Reserved stations and stations exceeding the maximum station number are ignored.

| SW0088 to SW008B | CPU minor error occurrence status | Stores the minor error occurrence status of the CPU module on each station. (Including own station) Off: Normal operation, or a moderate or serious error occurring On: Minor error | **SW0088** | 16 | 15 | 14 | 13 | 12 | 11 | 10 | 9 | 8 | 7 | 6 | 5 | 4 | 3 | 2 | 1 | **SW0089** | 32 | 31 | 30 | 29 | 28 | 27 | 26 | 25 | 24 | 23 | 22 | 21 | 20 | 19 | 18 | 17 | **SW008A** | 48 | 47 | 46 | 45 | 44 | 43 | 42 | 41 | 40 | 39 | 38 | 37 | 36 | 35 | 34 | 33 | **SW008B** | 64 | 63 | 62 | 61 | 60 | 59 | 58 | 57 | 56 | 55 | 54 | 53 | 52 | 51 | 50 | 49 |

Each number in the table represents a station number.

(Conditions)
- This register is enabled when 'Baton pass error status of own station' (SB0047) is off. When 'Baton pass error status of own station' (SB0047) is turned on (error), data prior to error is held.
- This register is enabled only for normally operating stations in 'Baton pass status' (SW0070 to SW0073).
- Reserved stations and stations exceeding the maximum station number are ignored.
### SW008C to SW008F: External power supply status

<table>
<thead>
<tr>
<th>No.</th>
<th>Name</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>SW008C</td>
<td>Stores the power supply status for external power supply by the MELSECNET/H network module with external power supply function of each station. (Including own station)</td>
</tr>
<tr>
<td></td>
<td>SW008D</td>
<td>Off: Not supplied</td>
</tr>
<tr>
<td></td>
<td>SW008E</td>
<td>On: Supplied This register is always off when the MELSECNET/H network module does not have the external power supply function.</td>
</tr>
<tr>
<td></td>
<td>SW008F</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>No.</th>
<th>Name</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>The register is always off when the MELSECNET/H network module does not have the external power supply function.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>No.</th>
<th>Name</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>Each number in the table represents a station number.</td>
</tr>
</tbody>
</table>

(Conditions)
- This register is enabled when 'Baton pass error status of own station' (SB0047) is off.
- When 'Baton pass error status of own station' (SB0047) is turned on (error), data prior to error is held.
- This register is enabled only for normally operating stations in 'Baton pass status' (SW0070 to SW0073).
- Reserved stations and stations exceeding the maximum station number are ignored.

### SW0090: Loopback information

<table>
<thead>
<tr>
<th>No.</th>
<th>Name</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>SW0090</td>
<td>Stores the loop status of the own station.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>0: Normal loop</td>
</tr>
<tr>
<td></td>
<td></td>
<td>1: Forward loop error</td>
</tr>
<tr>
<td></td>
<td></td>
<td>2: Reverse loop error</td>
</tr>
<tr>
<td></td>
<td></td>
<td>3: Loopback</td>
</tr>
<tr>
<td></td>
<td></td>
<td>4: Data link disabled</td>
</tr>
</tbody>
</table>

### SW0091 to SW0094: Forward loop (IN-side) status of each station

<table>
<thead>
<tr>
<th>No.</th>
<th>Name</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>SW0091</td>
<td>Stores the forward loop (IN-side) status of each station. (Including own station)</td>
</tr>
<tr>
<td></td>
<td>SW0092</td>
<td>Off: Normal</td>
</tr>
<tr>
<td></td>
<td>SW0093</td>
<td>On: Error</td>
</tr>
<tr>
<td></td>
<td>SW0094</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>No.</th>
<th>Name</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>Each number in the table represents a station number.</td>
</tr>
</tbody>
</table>

(Conditions)
- This register is enabled when 'Baton pass error status of own station' (SB0047) is off.
- When 'Baton pass error status of own station' (SB0047) is turned on (error), data prior to error is held.
- This register is enabled only for normally operating stations in 'Baton pass status' (SW0070 to SW0073).
- Reserved stations and stations exceeding the maximum station number are ignored.
- The disconnected station is held in the state of disconnection.
### Reverse loop status of each station

Stores the reverse loop (OUT-side) status of each station. (Including own station)

<table>
<thead>
<tr>
<th>Number</th>
<th>Name</th>
<th>Description</th>
<th>Availability</th>
</tr>
</thead>
<tbody>
<tr>
<td>SW0095</td>
<td>Reverse loop status of each station</td>
<td>Stores the reverse loop (OUT-side) status of each station. (Including own station)</td>
<td>Control station</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Off: Normal</td>
<td>Loop</td>
</tr>
<tr>
<td></td>
<td></td>
<td>On: Error</td>
<td>○</td>
</tr>
<tr>
<td>b15</td>
<td>b14</td>
<td>b13</td>
<td>b12</td>
</tr>
<tr>
<td>SW0095</td>
<td>16</td>
<td>15</td>
<td>14</td>
</tr>
<tr>
<td>SW0096</td>
<td>32</td>
<td>31</td>
<td>30</td>
</tr>
<tr>
<td>SW0097</td>
<td>48</td>
<td>47</td>
<td>46</td>
</tr>
<tr>
<td>SW0098</td>
<td>64</td>
<td>63</td>
<td>62</td>
</tr>
</tbody>
</table>

Each number in the table represents a station number.

- This register is enabled when 'Baton pass error status of own station' (SB0047) is off.
- When 'Baton pass error status of own station' (SB0047) is turned on (error), data prior to error is held.
- This register is enabled only for normally operating stations in 'Baton pass status' (SW0070 to SW0073).
- Reserved stations and stations exceeding the maximum station number are ignored.
- The disconnected station is held in the state of disconnection.

### Loopback station of forward loop side

Stores the number of the station where loopback is being performed on the forward loop (IN-side).

<table>
<thead>
<tr>
<th>Number</th>
<th>Name</th>
<th>Description</th>
<th>Availability</th>
</tr>
</thead>
<tbody>
<tr>
<td>SW0099</td>
<td>Loopback station of forward loop side</td>
<td>Stores the number of the station where loopback is being performed on the forward loop (IN-side). 1 to 64: Station number</td>
<td>Control station</td>
</tr>
<tr>
<td></td>
<td></td>
<td>(Conditions)</td>
<td>Loop</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• This register is enabled when 'Baton pass error status of own station' (SB0047) is off. When 'Baton pass error status of own station' (SB0047) is turned on (error), data prior to error is held.</td>
<td>○</td>
</tr>
</tbody>
</table>

### Loopback station of reverse loop side

Stores the number of the station where loopback is being performed on the reverse loop (OUT-side).

<table>
<thead>
<tr>
<th>Number</th>
<th>Name</th>
<th>Description</th>
<th>Availability</th>
</tr>
</thead>
<tbody>
<tr>
<td>SW009A</td>
<td>Loopback station of reverse loop side</td>
<td>Stores the number of the station where loopback is being performed on the reverse loop (OUT-side). 1 to 64: Station number</td>
<td>Control station</td>
</tr>
<tr>
<td></td>
<td></td>
<td>(Conditions)</td>
<td>Loop</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• This register is enabled when 'Baton pass error status of own station' (SB0047) is off. When 'Baton pass error status of own station' (SB0047) is turned on (error), data prior to error is held.</td>
<td>○</td>
</tr>
</tbody>
</table>

### Loop usage status of each station

Stores the status of reverse insertion (IN-IN, OUT-OUT) of the optical fiber cable. All 0 or all 1: Optical fiber cable normally connected

Other than above: A station with an optical fiber cable inserted in reverse exists.

<table>
<thead>
<tr>
<th>Number</th>
<th>Name</th>
<th>Description</th>
<th>Availability</th>
</tr>
</thead>
<tbody>
<tr>
<td>SW009C</td>
<td>Loop usage status of each station</td>
<td>Stores the status of reverse insertion (IN-IN, OUT-OUT) of the optical fiber cable. All 0 or all 1: Optical fiber cable normally connected</td>
<td>Control station</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Other than above: A station with an optical fiber cable inserted in reverse exists.</td>
<td>Loop</td>
</tr>
<tr>
<td>b15</td>
<td>b14</td>
<td>b13</td>
<td>b12</td>
</tr>
<tr>
<td>SW009C</td>
<td>16</td>
<td>15</td>
<td>14</td>
</tr>
<tr>
<td>SW009D</td>
<td>32</td>
<td>31</td>
<td>30</td>
</tr>
<tr>
<td>SW009E</td>
<td>48</td>
<td>47</td>
<td>46</td>
</tr>
<tr>
<td>SW009F</td>
<td>64</td>
<td>63</td>
<td>62</td>
</tr>
</tbody>
</table>

Each number in the table represents a station number.

- This register is enabled when 'Baton pass error status of own station' (SB0047) is off.
- When 'Baton pass error status of own station' (SB0047) is turned on (error), data prior to error is held.
- This register is enabled only for normally operating stations in 'Baton pass status' (SW0070 to SW0073).
- Reserved stations and stations exceeding the maximum station number are ignored.
<table>
<thead>
<tr>
<th>No.</th>
<th>Name</th>
<th>Description</th>
<th>Availability</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td>Control station</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Loop</td>
</tr>
</tbody>
</table>
| SW00A8 | Online test execution item/faulty station of requesting side | Stores the items/faulty stations of the online test at the request side. The station disconnected from the network is not included in faulty stations because no response is made. | b15 to b0: Item number  
• 10H: Loop test  
• 20H: Setup check test  
• 30H: Station order check test  
• 40H: Communication test  
b15 to b8: Faulty station number  
• When there are multiple stations, the station detected first is stored. (Conditions)  
• This register is enabled when 'Online test completion (issuance at the own station)' (SB00A9) is on. | ○ | ○ | ○ | ○ |
| SW00A9 | Online test result of requesting side | Stores the results of the online test at the request side.  
0: Completed normally  
1 or greater: Completed with an error (An error code is stored.) (Conditions)  
• This register is enabled when 'Online test completion (issuance at the own station)' (SB00A9) is on. | | | | |
| SW00AA | Online test execution item of responding side | Shows the items of the online test at the response side.  
10H: Loop test  
20H: Setup check test  
30H: Station order check test  
40H: Communication test (Conditions)  
• This register is enabled when 'Online test response completion (issuance at another station)' (SB00AB) is on. | | | | |
| SW00AB | Online test result of responding side | Stores the online test result at the response side.  
0: Completed normally  
1 or greater: Completed with an error (An error code is stored.) (Conditions)  
• This register is enabled when 'Online test response completion (issuance at another station)' (SB00AB) is on. | | | | |
| SW00AC | Offline test execution item/faulty station of requesting side | Stores the items/faulty stations of the offline test at the request side. The station disconnected from the network is not included in faulty stations because no response is made. | b7 to b0: Item number  
• 3: Loop test (Forward loop)  
• 4: Loop test (Reverse loop)  
• 5: Station-to-station test (Executing station)  
• 6: Station-to-station test (Executed station)  
• 7: Self-loopback test  
• 8: Internal self-loopback test  
• 9: Hardware test  
b15 to b8: Maximum faulty station number (Conditions)  
The maximum faulty station number (b15 to b8) is enabled when 'Offline test completion (issuance at the own station)' (SB00AD) is on. | | | | |
| SW00AD | Offline test result of requesting side | Stores the results of the offline test at the request side.  
0: Completed normally  
1 or greater: Completed with an error (An error code is stored.) (Conditions)  
• This register is enabled when 'Offline test completion (issuance at the own station)' (SB00AD) is on. | | | | |
<table>
<thead>
<tr>
<th>No.</th>
<th>Name</th>
<th>Description</th>
<th>Availability</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>SW00AE</td>
<td>Offline test execution item of responding side</td>
<td>Loop Bus Loop Bus</td>
</tr>
<tr>
<td></td>
<td>SW00AF</td>
<td>Offline test result of responding side</td>
<td>Loop Bus Loop Bus</td>
</tr>
<tr>
<td></td>
<td>SW00B0 to SW00B3</td>
<td>Multiplex transmission status of forward loop side</td>
<td>Loop Bus Loop Bus</td>
</tr>
<tr>
<td></td>
<td>SW00B4 to SW00B7</td>
<td>Multiplex transmission status of reverse loop side</td>
<td>Loop Bus Loop Bus</td>
</tr>
<tr>
<td></td>
<td>SW00B8</td>
<td>UNDER on the forward loop side</td>
<td>Loop Bus Loop Bus</td>
</tr>
</tbody>
</table>

**SW00AE**  
Offline test execution item of responding side  
Shows the items of the offline test at the response side.  
3: Loop test (Forward loop)  
4: Loop test (Reverse loop)  
(Conditions)  
• This register is enabled when 'Offline test response completion (issuance at another station)' (SB00AF) is on.

**SW00AF**  
Offline test result of responding side  
Stores the results of the offline test at the response side.  
0: Completed normally  
1 or greater: Completed with an error (An error code is stored.)  
(Conditions)  
• This register is enabled when 'Offline test response completion (issuance at another station)' (SB00AF) is on.

**SW00B0 to SW00B3**  
Multiplex transmission status of forward loop side  
Stores the forward loop (IN-side) use status of each station during multiplex transmission.  
Off: Other than forward loop (IN-side)  
On: Forward loop (IN-side) used  
Each number in the table represents a station number.  
(Conditions)  
• This register is enabled when 'Baton pass error status of own station' (SB0047) is off.  
When 'Baton pass error status of own station' (SB0047) is turned on (error), data prior to error is held.  
• Reserved stations and stations with a number equal to or greater than the maximum station number are ignored.

**SW00B4 to SW00B7**  
Multiplex transmission status of reverse loop side  
Stores the reverse loop (OUT-side) use status of each station during multiplex transmission.  
Off: Other than reverse loop (OUT-side)  
On: Reverse loop (OUT-side) used  
Each number in the table represents a station number.  
(Conditions)  
• This register is enabled when 'Baton pass error status of own station' (SB0047) is off.  
When 'Baton pass error status of own station' (SB0047) is turned on (error), data prior to error is held.  
• Reserved stations and stations with a number equal to or greater than the maximum station number are ignored.

**SW00B8**  
UNDER on the forward loop side  
- RJ71LP21-25  
• Stores the cumulative error occurrence count of the forward loop (IN-side) communication under-error.  
- RJ71BR11  
• Stores the cumulative error occurrence count of communication under-error.  
0: No error  
1 or greater: Cumulative count  
There is no problem if values are counted up little by little over a long period of time. If values are rapidly counted up in a short period of time, check if the cables are faulty.
<table>
<thead>
<tr>
<th>No.</th>
<th>Name</th>
<th>Description</th>
<th>Availability</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td><strong>SW00B9 CRC on the forward loop side</strong></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>- RJ71LP21-25</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>• Stores the cumulative error occurrence count of the forward loop (IN-side) communication CRC error.</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>• Stores the cumulative error occurrence count of communication CRC error.</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>0: No error</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>1 or greater: Cumulative count</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>There is no problem if values are counted up little by little over a long period of time. If values are rapidly counted up in a short period of time, check if the cables are faulty.</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td><strong>SW00BA OVER on the forward loop side</strong></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>- RJ71LP21-25</td>
<td></td>
</tr>
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<td>• Stores the cumulative error occurrence count of the forward loop (IN-side) communication overrun error.</td>
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<td>• Stores the cumulative error occurrence count of communication overrun error.</td>
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<td>0: No error</td>
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<td><strong>SW00BB Short frame on the forward loop side</strong></td>
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<td>- RJ71LP21-25</td>
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<td>• Stores the cumulative error occurrence count of the forward loop (IN-side) communication short frame error.</td>
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<td>• Stores the cumulative error occurrence count of communication short frame error.</td>
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<td>0: No error</td>
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<td><strong>SW00BC Abort on the forward loop side (AB, IF)</strong></td>
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<td>- RJ71LP21-25</td>
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<td>• Stores the cumulative error occurrence count of the forward loop (IN-side) communication abort error.</td>
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<td>• Stores the cumulative error occurrence count of communication abort error.</td>
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<td>0: No error</td>
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<td><strong>SW00BD Timeout on the forward loop side (TIME)</strong></td>
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<td>- RJ71LP21-25</td>
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<td>• Stores the cumulative error occurrence count of the forward loop (IN-side) communication timeout.</td>
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<td>• Stores the cumulative error occurrence count of communication timeout.</td>
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<td>0: No error</td>
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<td>1 or greater: Cumulative count</td>
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<td>There is no problem if values are counted up little by little over a long period of time. If values are rapidly counted up in a short period of time, check if the cables are faulty.</td>
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<td></td>
<td><strong>SW00BE Receiving 2k bytes or more on forward loop side (DATA)</strong></td>
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<td>- RJ71LP21-25</td>
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<td>• Stores the cumulative error occurrence count of the reception of 2K bytes or more at the forward loop (IN-side).</td>
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<td>• Stores the cumulative error occurrence count of the reception of 2K bytes or more.</td>
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<td></td>
<td>0: No error</td>
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<td>1 or greater: Cumulative count</td>
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<td>There is no problem if values are counted up little by little over a long period of time. If values are rapidly counted up in a short period of time, check if the cables are faulty.</td>
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<td><strong>SW00BF DPLL error on the forward loop side</strong></td>
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<td>- RJ71LP21-25</td>
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<td>• Stores the cumulative error occurrence count of the forward loop (IN-side) communication DPLL error.</td>
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<td>• Stores the cumulative error occurrence count of communication DPLL error.</td>
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<td>0: No error</td>
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<td>1 or greater: Cumulative count</td>
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<td>There is no problem if values are counted up little by little over a long period of time. If values are rapidly counted up in a short period of time, check if the cables are faulty.</td>
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<tr>
<td>No.</td>
<td>Name</td>
<td>Description</td>
<td>Availability</td>
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</tr>
<tr>
<td>SW00C0</td>
<td>UNDER on the reverse loop side</td>
<td>Stores the cumulative error occurrence count of the reverse loop (OUT-side) communication under-error.</td>
<td>○ x</td>
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<td></td>
<td></td>
<td>0: No error</td>
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<td>1 or greater: Cumulative count</td>
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<tr>
<td>SW00C1</td>
<td>CRC on the reverse loop side</td>
<td>Stores the cumulative error occurrence count of the reverse loop (OUT-side) communication CRC error.</td>
<td>○ x</td>
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<td></td>
<td></td>
<td>0: No error</td>
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<td>1 or greater: Cumulative count</td>
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<tr>
<td>SW00C2</td>
<td>OVER on the reverse loop side</td>
<td>Stores the cumulative error occurrence count of the reverse loop (OUT-side) communication overrun error.</td>
<td>○ x</td>
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<tr>
<td></td>
<td></td>
<td>0: No error</td>
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<td>1 or greater: Cumulative count</td>
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<td>There is no problem if values are counted up little by little over a long period of time. If values are rapidly counted up in a short period of time, check if the cables are faulty.</td>
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<tr>
<td>SW00C3</td>
<td>Short frame on the reverse loop side</td>
<td>Stores the cumulative error occurrence count of the reverse loop (OUT-side) communication short frame error.</td>
<td>○ x</td>
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<tr>
<td></td>
<td></td>
<td>0: No error</td>
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<td>1 or greater: Cumulative count</td>
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<td>There is no problem if values are counted up little by little over a long period of time. If values are rapidly counted up in a short period of time, check if the cables are faulty.</td>
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<tr>
<td>SW00C4</td>
<td>Abort on the reverse loop side (AB, IF)</td>
<td>Stores the cumulative error occurrence count of the reverse loop (OUT-side) communication abort error.</td>
<td>○ x</td>
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<tr>
<td></td>
<td></td>
<td>0: No error</td>
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<td></td>
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<td>1 or greater: Cumulative count</td>
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<tr>
<td>SW00C5</td>
<td>Timeout on the reverse loop side (TIME)</td>
<td>Stores the cumulative error occurrence count of the reverse loop (OUT-side) communication timeout.</td>
<td>○ x</td>
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<td></td>
<td></td>
<td>0: No error</td>
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<td></td>
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<td>1 or greater: Cumulative count</td>
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<td></td>
<td>There is no problem if values are counted up little by little over a long period of time. If values are rapidly counted up in a short period of time, check if the cables are faulty.</td>
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<tr>
<td>SW00C6</td>
<td>Receiving 2k bytes or more on reverse loop side (DATA)</td>
<td>Stores the cumulative error occurrence count of the reception of 2K bytes or more at the reverse loop (OUT-side).</td>
<td>○ x</td>
</tr>
<tr>
<td></td>
<td></td>
<td>0: No error</td>
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<td>1 or greater: Cumulative count</td>
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<tr>
<td>SW00C7</td>
<td>DPLL error on the reverse loop side</td>
<td>Stores the cumulative error occurrence count of the reverse loop (OUT-side) communication DPLL error.</td>
<td>○ x</td>
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<td></td>
<td></td>
<td>0: No error</td>
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<td>1 or greater: Cumulative count</td>
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<td>There is no problem if values are counted up little by little over a long period of time. If values are rapidly counted up in a short period of time, check if the cables are faulty.</td>
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<tr>
<td>SW00C8</td>
<td>Number of retries on the forward loop side</td>
<td>■RJ71LP21-25 • Stores the cumulative occurrence count of the forward loop (IN-side) communication retry.</td>
<td>○</td>
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<td>■RJ71BR11 • Stores the cumulative occurrence count of communication retry.</td>
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<td>0: No error</td>
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<td>1 or greater: Cumulative count</td>
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<td></td>
<td></td>
<td>Values may be counted up at power-on or reset, but it is not an error. If the retry count is unnecessary before data link starts, clear the value using 'Clear retry count' (SB0005).</td>
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<tr>
<td>SW00C9</td>
<td>Number of retries on the reverse loop side</td>
<td>Stores the cumulative occurrence count of the reverse loop (OUT-side) communication retry.</td>
<td>○ x</td>
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<td></td>
<td></td>
<td>0: No error</td>
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<td>1 or greater: Cumulative count</td>
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<td>Values may be counted up at power-on or reset, but it is not an error. If the retry count is unnecessary before data link starts, clear the value using 'Clear retry count' (SB0005).</td>
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<td>No.</td>
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<td>Description</td>
<td>Availability</td>
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<td></td>
<td>Control station</td>
<td>Normal Station</td>
<td>Loop</td>
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<tr>
<td>SW00C</td>
<td>Line error on the forward loop side</td>
<td>Stores the cumulative occurrence count of the forward loop (IN-side) line error detection (hardware error detection).</td>
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<td></td>
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<td>0: No error</td>
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<td>1 or greater: Cumulative count</td>
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<tr>
<td>SW00C</td>
<td>Line error on the reverse loop side</td>
<td>Stores the cumulative occurrence count of the reverse loop (OUT-side) line error detection (hardware error detection).</td>
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<td></td>
<td></td>
<td>0: No error</td>
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<td>1 or greater: Cumulative count</td>
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<tr>
<td>SW00C</td>
<td>Loop switch cumulative occurrence count</td>
<td>Stores the cumulative occurrence count of loop switching.</td>
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<td></td>
<td>0: No count</td>
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<td></td>
<td></td>
<td>1 or greater: When 'Clear reverse loop transmission error count' (SB0009) is turned on, the cumulative count is cleared.</td>
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<tr>
<td>SW00D</td>
<td>Loop switching history pointer</td>
<td>Stores a pointer storing the latest loop switching status in loop switching history (1) (SW00D0 to SW00DF).</td>
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<td></td>
<td>0: The latest loop switching status is stored in SW00DF.</td>
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<td>1: The latest loop switching status is stored in SW00D0.</td>
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<td>2: The latest loop switching status is stored in SW00D1.</td>
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<td>3: The latest loop switching status is stored in SW00D2.</td>
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<td>4: The latest loop switching status is stored in SW00D3.</td>
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<td>5: The latest loop switching status is stored in SW00D4.</td>
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<td>6: The latest loop switching status is stored in SW00D5.</td>
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<td>7: The latest loop switching status is stored in SW00D6.</td>
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<td>8: The latest loop switching status is stored in SW00D7.</td>
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<td>9: The latest loop switching status is stored in SW00D8.</td>
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<td>10: The latest loop switching status is stored in SW00D9.</td>
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<td>11: The latest loop switching status is stored in SW00DA.</td>
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<td>12: The latest loop switching status is stored in SW00DB.</td>
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<td>13: The latest loop switching status is stored in SW00DC.</td>
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<td>14: The latest loop switching status is stored in SW00DD.</td>
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<td>15: The latest loop switching status is stored in SW00DE.</td>
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<tr>
<td>SW00D</td>
<td>Loop switching history (1)</td>
<td>Stores the error status when loop switching occurs.</td>
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<td></td>
<td>Paired with 'Loop switching history (2)' (SW00E0 to SW00E7).</td>
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<td></td>
<td></td>
<td><strong>b7</strong> to <strong>b0</strong>: Cause</td>
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<td></td>
<td>Stores a bit corresponding to each error.</td>
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<td>0 for <strong>b7</strong> to <strong>b0</strong>: Return instruction</td>
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<td></td>
<td></td>
<td>• <strong>b0</strong>: Forward loop (IN-side) hardware error</td>
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<td></td>
<td></td>
<td>• <strong>b1</strong>: Reverse loop (OUT-side) hardware error</td>
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<td></td>
<td>• <strong>b2</strong>: Forward loop (IN-side) enforced error</td>
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<td>• <strong>b3</strong>: Reverse loop (OUT-side) enforced error</td>
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<td>• <strong>b4</strong>: Forward loop (IN-side) continuous communication error</td>
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<td>• <strong>b5</strong>: Reverse loop (OUT-side) continuous communication error</td>
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<td>• <strong>b6</strong>: Forward loop (IN-side) continuous line error</td>
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<td></td>
<td>• <strong>b7</strong>: Reverse loop (OUT-side) continuous line error</td>
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<td></td>
<td><strong>b15</strong> to <strong>b8</strong>: Post-switching status</td>
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<td></td>
<td>0: Multiplex transmission</td>
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<td></td>
<td></td>
<td>1: Forward loop (IN-side) transmission</td>
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<td></td>
<td>2: Reverse loop (OUT-side) transmission</td>
<td></td>
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<td></td>
<td></td>
<td>3: Loopback transmission</td>
<td></td>
</tr>
<tr>
<td>SW00D</td>
<td>Loop switching history (2)</td>
<td>Stores the switching request station when loop switching occurs.</td>
<td></td>
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<td></td>
<td></td>
<td>Paired with 'Loop switching history (1)' (SW00D0 to SW00DF).</td>
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<td></td>
<td></td>
<td><strong>b7</strong> to <strong>b0</strong>: Odd number count switching station</td>
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<td></td>
<td></td>
<td><strong>b15</strong> to <strong>b8</strong>: Even number count switching station</td>
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<td></td>
<td>Since the station that first detected the loop error functions as a loop switching request station, stations other than the both end stations having loop errors are stored.</td>
<td></td>
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<tr>
<td>No.</td>
<td>Name</td>
<td>Description</td>
<td>Availability</td>
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</tr>
<tr>
<td>SW00E8 to SW00EB</td>
<td>Module type of each station</td>
<td>Stores the module type of each station. Off: MELSECNET/10 type On: MELSECNET/H type</td>
<td>Loop: 0&lt;br&gt;Bus: 0&lt;br&gt;Normal Station: 0&lt;br&gt;Loop: 0&lt;br&gt;Bus: 0</td>
</tr>
<tr>
<td>SW00EB</td>
<td></td>
<td></td>
<td>0 0 0 0</td>
</tr>
<tr>
<td>SW00EC</td>
<td>Low-speed cyclic transmission start execution results</td>
<td>Stores the execution result of the low speed cyclic startup request. 0: Completed normally 1 or greater: Completed with an error (An error code is stored.)</td>
<td>0 0 0 0</td>
</tr>
<tr>
<td>SW00EE</td>
<td>Transient transmission error</td>
<td>Stores the cumulative error occurrence count of transient transmission. 0: No error 1 or greater: Cumulative count</td>
<td>0 0 0 0</td>
</tr>
<tr>
<td>SW00EF</td>
<td>Transient transmission error pointer</td>
<td>Stores a pointer of 'Transient transmission error history' (SW00F0 to SW00FF). 0: The latest transient transmission error is stored in SW00FF. 1: The latest transient transmission error is stored in SW00F0. 2: The latest transient transmission error is stored in SW00F1. 3: The latest transient transmission error is stored in SW00F2. 4: The latest transient transmission error is stored in SW00F3. 5: The latest transient transmission error is stored in SW00F4. 6: The latest transient transmission error is stored in SW00F5. 7: The latest transient transmission error is stored in SW00F6. 8: The latest transient transmission error is stored in SW00F7. 9: The latest transient transmission error is stored in SW00F8. 10: The latest transient transmission error is stored in SW00F9. 11: The latest transient transmission error is stored in SW00FA. 12: The latest transient transmission error is stored in SW00FB. 13: The latest transient transmission error is stored in SW00FC. 14: The latest transient transmission error is stored in SW00FD. 15: The latest transient transmission error is stored in SW00FE.</td>
<td>0 0 0 0</td>
</tr>
<tr>
<td>SW00FF</td>
<td>Transient transmission error history</td>
<td>Stores the history of the transient transmission error occurrence status. 1 or greater: Error code</td>
<td>0 0 0 0</td>
</tr>
<tr>
<td>No.</td>
<td>Name</td>
<td>Description</td>
<td>Availability</td>
</tr>
<tr>
<td>-----</td>
<td>------</td>
<td>-------------</td>
<td>-------------</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Control station Normal Station</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Loop</td>
</tr>
<tr>
<td>SW01E0 to SW01E3</td>
<td>Network type consistency check</td>
<td>Indicates the status of the occurrence of inconsistency between the network type of the control station and the network type of the normal station.</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>• If the control station is set to the MELSECNET/H extended mode</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Off: Consistent (set to the MELSECNET/H extended mode (including stations higher than the maximum station number, reserved stations, and communication faulty stations))</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>On: Inconsistent (set to the MELSECNET/H mode or MELSECNET/10 mode)</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>• If the control station is set to the MELSECNET/H mode or MELSECNET/10 mode</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Off: Consistent (set to the MELSECNET/H mode or MELSECNET/10 mode (including stations exceeding the maximum station number, reserved stations, and communication faulty stations))</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>On: Inconsistent (set to the MELSECNET/H extended mode)</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Each number in the table represents a station number. (Conditions)</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>• This register is enabled when 'Baton pass error status of own station' (SB0047) is off. When 'Baton pass error status of own station' (SB0047) is turned on (error), data prior to error is held.</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>• This register is enabled only for normally operating stations in 'Baton pass status' (SW0070 to SW0073).</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>• Reserved stations and stations exceeding the maximum station number are ignored.</td>
<td></td>
</tr>
<tr>
<td>SW01F4 to SW01F7</td>
<td>Separate mode status in redundant system</td>
<td>Stores the redundant system CPU operating mode of each station.</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Off: Backup mode (including a stand-alone system)</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>On: Separate mode</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Each number in the table represents a station number. (Conditions)</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>• This register is enabled when 'Baton pass error status of own station' (SB0047) is off. When 'Baton pass error status of own station' (SB0047) is turned on (error), data prior to error is held.</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>• This register is enabled only for normally operating stations in 'Baton pass status' (SW0070 to SW0073).</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>• Reserved stations and stations exceeding the maximum station number are ignored.</td>
<td></td>
</tr>
<tr>
<td>SW01F8 to SW01FB</td>
<td>Pairing setting status in redundant system</td>
<td>Stores the pairing setting status for each station.</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Off: No pairing setting (including a stand-alone system)</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>On: Pairing set</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>If pairing is set, the bit corresponding to the system B station is turned on.</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Each number in the table represents a station number. (Conditions)</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>• This register is enabled when 'Baton pass error status of own station' (SB0047) is off. When 'Baton pass error status of own station' (SB0047) is turned on (error), data prior to error is held.</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>• This register is enabled only for normally operating stations in 'Baton pass status' (SW0070 to SW0073).</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>• Reserved stations and stations exceeding the maximum station number are ignored.</td>
<td></td>
</tr>
</tbody>
</table>
### Appx. Appendix 4 List of Link Special Register (SW) Areas

<table>
<thead>
<tr>
<th>No.</th>
<th>Name</th>
<th>Description</th>
<th>Availability</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td>Control station</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Loop</td>
</tr>
</tbody>
</table>

- **SW01FC to SW01FF**: Standby system CPU status in redundant system
  - Stores the redundant CPU system status (control/standby system) of each station.
  - **On**: Control system (including a stand-alone system)
  - **Off**: Standby system

|   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |
|   | 16 | 15 | 14 | 13 | 12 | 11 | 10 | 9  | 8  | 7  | 6  | 5  | 4  | 3  | 2  | 1  |   |   |   |   |   |   |
|   | 32 | 31 | 30 | 29 | 28 | 27 | 26 | 25 | 24 | 23 | 22 | 21 | 20 | 19 | 18 | 17 |   |   |   |   |   |   |
|   | 48 | 47 | 46 | 45 | 44 | 43 | 42 | 41 | 40 | 39 | 38 | 37 | 36 | 35 | 34 | 33 |   |   |   |   |   |   |
|   | 64 | 63 | 62 | 61 | 60 | 59 | 58 | 57 | 56 | 55 | 54 | 53 | 52 | 51 | 50 | 49 |   |   |   |   |   |   |

- Each number in the table represents a station number.
- (Conditions)
  - This register is enabled when 'Baton pass error status of own station' (SB0047) is off.
  - When 'Baton pass error status of own station' (SB0047) is turned on (error), data prior to error is held.
  - This register is enabled only for normally operating stations in 'Baton pass status' (SW0070 to SW0073).
  - Reserved stations and stations exceeding the maximum station number are ignored.

*1 "0: Online" is stored when operating in debug mode.
Appendix 5  Dedicated Instruction

This section describes the dedicated instructions and transmission ranges that can be used in the MELSECNET/H network module.

For details on dedicated instructions, refer to the following.

MELSEC iQ-R Programming Manual (Module Dedicated Instructions)

Link dedicated instructions

The following table lists the instructions used for transient transmission to or from programmable controllers on other stations. Each link dedicated instruction allows access to a station on a network other than MELSECNET/H network.

<table>
<thead>
<tr>
<th>Instruction</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>READ</td>
<td>Reads data from the word device of another station.</td>
</tr>
<tr>
<td>SREAD</td>
<td>Reads data from the word device of another station. (With completion device)</td>
</tr>
<tr>
<td>WRITE</td>
<td>Writes data in the word device of another station.</td>
</tr>
<tr>
<td>SWRITE</td>
<td>Writes data in the word device of another station. (With completion device)</td>
</tr>
<tr>
<td>SEND</td>
<td>Sends data to another station.</td>
</tr>
<tr>
<td>RECV</td>
<td>Reads the receive data from another station. (For main program)</td>
</tr>
<tr>
<td>RECVS</td>
<td>Reads the receive data from another station. (For interrupt program)</td>
</tr>
<tr>
<td>REQ</td>
<td>Requests the remote RUN/STOP to the CPU module on another station. Reads/writes clock data from/to another station.</td>
</tr>
<tr>
<td>ZNRD</td>
<td>Reads data from the word device of another station. (For MELSEC-A series)</td>
</tr>
<tr>
<td>ZNWR</td>
<td>Writes data in the word device of another station. (For MELSEC-A series)</td>
</tr>
<tr>
<td>RRUN</td>
<td>Sends the request of remote RUN to another station.</td>
</tr>
<tr>
<td>RSTOP</td>
<td>Sends the request of remote STOP to another station.</td>
</tr>
<tr>
<td>RTMRD</td>
<td>Reads the clock data from another station.</td>
</tr>
<tr>
<td>RTMWR</td>
<td>Writes the clock data to another station.</td>
</tr>
</tbody>
</table>
Precautions for dedicated instructions

This section describes precautions when using dedicated instructions.

Precautions for dedicated instructions (common)

■ When changing data specified by dedicated instructions
Do not change any data (such as control data) until execution of the dedicated instruction is completed.

■ When the dedicated instruction is not completed
Check whether the module operation mode setting of the MELSECNET/H network module is online mode. The instruction cannot be executed when the module operation mode setting is set to a mode other than online mode.

■ When executing multiple link dedicated instructions simultaneously
When executing multiple link dedicated instructions simultaneously, check that the channels for the instructions are not duplicated.

■ ZNRD and ZNWR instructions
The ZNRD and ZNWR instructions cannot be executed for the RCPU. If they are executed, an error occurs. If the target station is specified as the RCPU, replace the instruction with the READ/WRITE instruction.

Precautions for dedicated instructions (when used in a redundant system)

■ System switching during execution of a dedicated instruction
When systems are switched during execution of a dedicated instruction, the dedicated instruction may not be completed. Execute the dedicated instruction again from the control system CPU module after system switching.

■ Processing at abnormal end of a dedicated instruction
When the dedicated instruction is executed by specifying the access destination CPU module, it may be completed with an error if systems are switched in the target station. If the dedicated instruction was completed with an error, execute it again.

■ SEND instruction
- When the target station is in a redundant system, the communication request source station must identify that the target station is the control system to execute the SEND instruction. When the target station is the standby system, the RECV instruction is not executed at the target station after data is sent by the SEND instruction, and the target station storage channel becomes occupied and unable to be used.
- When a redundant system exists in a network where broadcast communications are performed, the RECV instruction is not executed at the standby system, and the storage channel becomes occupied and unable to be used.

■ RECV and RECVS instructions
- When the SEND instruction is executed for the control system, the RECV instruction and interrupt program will be executed by the RECV execution request flag (SB00A0 to SB00A7) and the retained interrupt program interrupt factor.
- When the SEND instruction is executed for the standby system, and the standby system receives data from the sending station, the standby system retains RECV execution request flag (SB00A0 to SB00A7) and the interrupt program interrupt factor. Therefore, when the standby system is switched to the control system due to system switching, the RECV instruction and interrupt program will be executed by the RECV execution request flag (SB00A0 to SB00A7) and the retained interrupt program interrupt factor.

■ REQ, RRUN, and RSTOP instructions
When performing remote STOP or remote RUN on a redundant system, do as follows: Perform STOP on the standby system → STOP on the control system → RUN on the control system → RUN on the standby system.
Appendix 6  Processing Time

The cyclic transmission delay time of the MELSECNET/H network module consists of the following:

1. Sending-side sequence scan time + 2. Link scan time + 3. Receiving-side sequence scan time = Transmission delay time

- Sequence scan time:  MELSEC iQ-R CPU Module User’s Manual (Application)
- Link scan time:  Page 184 Link scan time
- Transmission delay time:  Page 185 Cyclic transmission delay time
**Link scan time**

The following is the formula to calculate the link scan time (LS).

---

**Precautions**

The calculation formula is a guideline and does not guarantee that the actual measurement value of the link scan time will be less than the calculation formula for each scan.

---

**Calculation formula**

<table>
<thead>
<tr>
<th>For the MELSECNET/H mode</th>
</tr>
</thead>
<tbody>
<tr>
<td>• At a communication speed of 10Mbps</td>
</tr>
<tr>
<td>( LS [\text{ms}]^1 = KB + (n \times 0.45) + (LB + LY + (LW \times 16)) \div 8 \times 0.001 + (T \times 0.001) + (F \times 4) )</td>
</tr>
<tr>
<td>• At a communication speed of 25Mbps (RJ71LP21-25 only)</td>
</tr>
<tr>
<td>( LS [\text{ms}]^1 = KB + (n \times 0.40) + (LB + LY + (LW \times 16)) \div 8 \times 0.0004 + (T \times 0.0004) + (F \times 4) )</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>For the MELSECNET/H extended mode</th>
</tr>
</thead>
<tbody>
<tr>
<td>• At a communication speed of 10Mbps</td>
</tr>
<tr>
<td>( LS [\text{ms}]^1 = KB + (SP \times 0.45) + (LB + LY + (LW \times 16)) \div 8 \times 0.001 + (T \times 0.001) + (F \times 4) )</td>
</tr>
<tr>
<td>• At a communication speed of 25Mbps (RJ71LP21-25 only)</td>
</tr>
<tr>
<td>( LS [\text{ms}]^1 = KB + (SP \times 0.40) + (LB + LY + (LW \times 16)) \div 8 \times 0.0004 + (T \times 0.0004) + (F \times 4) )</td>
</tr>
</tbody>
</table>

*1 The decimal part is rounded up.

The meanings of the variables and constants in the equation are as follows.

<table>
<thead>
<tr>
<th>Variable</th>
<th>Meaning</th>
</tr>
</thead>
<tbody>
<tr>
<td>( n )</td>
<td>Total number of stations (stations actually connected, not including reserved stations)</td>
</tr>
<tr>
<td>( SP )</td>
<td>( \sum_{i=1}^{n} \left( \frac{\text{Number of send bytes in station No. } i}{2000} \right) )</td>
</tr>
<tr>
<td>( n )</td>
<td>Total number of stations</td>
</tr>
<tr>
<td>LB</td>
<td>Total number of LB points set using LB/LW setting (excluding reserved stations)(^2)</td>
</tr>
<tr>
<td>LW</td>
<td>Total number of LW points set using LB/LW setting (excluding reserved stations)(^2)</td>
</tr>
<tr>
<td>LY</td>
<td>Total number of LY points set using LX/LY setting (1) and LX/LY setting (2) (excluding reserved stations)(^2)</td>
</tr>
<tr>
<td>T</td>
<td>The maximum number of bytes for transient transmissions within one link scan.(^3)</td>
</tr>
<tr>
<td>F</td>
<td>Number of return stations (only when there is a faulty station: Maximum number of return stations for scan (set value))</td>
</tr>
</tbody>
</table>

\(^2\) Total number of link devices set under "Network Range Assignment" \( \quad \) Page 56 Network Range Assignment

\(^3\) This variable means the total number of bytes at each station when the instruction is simultaneously executed from multiple stations.

<table>
<thead>
<tr>
<th>Constant</th>
<th>Total number of stations set under &quot;Network Range Assignment&quot;</th>
</tr>
</thead>
</table>
| KB | \( \begin{array}{cccccccc}
N = 1 \text{ to } 8 & N = 9 \text{ to } 16 & N = 17 \text{ to } 24 & N = 25 \text{ to } 32 & N = 33 \text{ to } 40 & N = 41 \text{ to } 48 & N = 49 \text{ to } 56 & N = 57 \text{ to } 64 \\
4.0 & 4.5 & 4.9 & 5.3 & 5.7 & 6.2 & 6.6 & 7.0 \\
\end{array} \) |

For the link scan time in the MELSECNET/10 mode, refer to the following.

For QnA/Q4AR MELSECNET/10 Network System Reference Manual
Cyclic transmission delay time

The following are the formulas to calculate cyclic transmission delay time.

**For a single network system**

<table>
<thead>
<tr>
<th>Condition</th>
<th>Calculation formula [ms]</th>
</tr>
</thead>
</table>
| For ST > LS | Normal value TD1 = (ST + aT) + (LS \times 0.5) + (SR + aR) + \alpha 
Station-based block data assured MELSECNET/H extended mode Normal value TD1 = (ST + aT) + (LS \times 0.5) + (SR + aR) \times ST + aT |
| | Maximum value TD1max = (ST + aT) + (LS \times 1) + (SR + aR) \times 2 \times 1.0 \times ST + aT |
| | Normal value TD1 = (ST + aT) + (LS \times 0.5) + (SR + aR) \times ST + aT |
| | Maximum value TD1max = (ST + aT) + (LS \times 1) + (SR + aR) \times 2 \times 1.0 \times ST + aT |
| For ST < LS | Normal value TD1 = (ST + aT) + (LS \times 0.5) + (SR + aR) \times ST + aT |
| Station-based block data not assured MELSECNET/H extended mode Normal value TD1 = (ST + aT) + (LS \times 0.5) + (SR + aR) \times ST + aT |
| | Maximum value TD1max = (ST + aT) + (LS \times 1) + (SR + aR) \times 2 \times 1.0 \times ST + aT |

**When a redundant system is not used**

<table>
<thead>
<tr>
<th>Condition</th>
<th>Calculation formula [ms]</th>
</tr>
</thead>
<tbody>
<tr>
<td>For ST &gt; LS</td>
<td>Normal value TD1 = (ST + aT) + (LS \times 0.5) + (SR + aR) \times ST + aT</td>
</tr>
<tr>
<td>Station-based block data assured MELSECNET/H extended mode Normal value TD1 = (ST + aT) + (LS \times 0.5) + (SR + aR) \times ST + aT</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Maximum value TD1max = (ST + aT) + (LS \times 1) + (SR + aR) \times 2 \times 1.0 \times ST + aT</td>
</tr>
<tr>
<td></td>
<td>Normal value TD1 = (ST + aT) + (LS \times 0.5) + (SR + aR) \times ST + aT</td>
</tr>
<tr>
<td></td>
<td>Maximum value TD1max = (ST + aT) + (LS \times 1) + (SR + aR) \times 2 \times 1.0 \times ST + aT</td>
</tr>
<tr>
<td>For ST &lt; LS</td>
<td>Normal value TD1 = (ST + aT) + (LS \times 0.5) + (SR + aR) \times ST + aT</td>
</tr>
<tr>
<td>Station-based block data not assured MELSECNET/H extended mode Normal value TD1 = (ST + aT) + (LS \times 0.5) + (SR + aR) \times ST + aT</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Maximum value TD1max = (ST + aT) + (LS \times 1) + (SR + aR) \times 2 \times 1.0 \times ST + aT</td>
</tr>
</tbody>
</table>

**When a redundant system is used**

<table>
<thead>
<tr>
<th>Condition</th>
<th>Calculation formula [ms]</th>
</tr>
</thead>
<tbody>
<tr>
<td>For ST &gt; LS</td>
<td>Normal value TD1 = (ST + aT) + (LS \times 0.5) + (SR + aR + TS) \times 1.5 + 0.5 \times ST + aT</td>
</tr>
<tr>
<td>Station-based block data assured MELSECNET/H extended mode Normal value TD1 = (ST + aT) + (LS \times 0.5) + (SR + aR + TS) \times 1.5 + 0.5 \times ST + aT</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Maximum value TD1max = (ST + aT) + (LS \times 1) + (SR + aR + TS) \times 2 \times 1.0 \times ST + aT</td>
</tr>
<tr>
<td></td>
<td>Normal value TD1 = (ST + aT) + (LS \times 0.5) + (SR + aR + TS) \times 1.5 + 0.5 \times ST + aT</td>
</tr>
<tr>
<td></td>
<td>Maximum value TD1max = (ST + aT) + (LS \times 1) + (SR + aR + TS) \times 2 \times 1.0 \times ST + aT</td>
</tr>
<tr>
<td>For ST &lt; LS</td>
<td>Normal value TD1 = (ST + aT) + (LS \times 0.5) + (SR + aR + TS) \times 1.5 + 0.5 \times ST + aT</td>
</tr>
<tr>
<td>Station-based block data not assured MELSECNET/H extended mode Normal value TD1 = (ST + aT) + (LS \times 0.5) + (SR + aR + TS) \times 1.5 + 0.5 \times ST + aT</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Maximum value TD1max = (ST + aT) + (LS \times 1) + (SR + aR + TS) \times 2 \times 1.0 \times ST + aT</td>
</tr>
</tbody>
</table>

APPX Appendix 6 Processing Time 185
The transmission delay time (TD1) for B/W/Y periodic communication is asynchronous between scan and link scan. Therefore, if the condition differs, use the formula to calculate the transmission delay time (maximum value) (TD1max).

The meaning of the variables in the equation are as follows.

<table>
<thead>
<tr>
<th>Condition</th>
<th>Calculation formula [ms]</th>
</tr>
</thead>
<tbody>
<tr>
<td>For ST &lt; LS</td>
<td></td>
</tr>
<tr>
<td>Station-based block data assured</td>
<td></td>
</tr>
<tr>
<td>Other than the MELSECNET/H extended mode</td>
<td></td>
</tr>
<tr>
<td>Normal value</td>
<td>$TD1 = (ST + \alpha T) + (LS \times 0.5) + (SR + \alpha R + TS) \times 1.5 + 0.5 \times LS$</td>
</tr>
<tr>
<td>Maximum value</td>
<td>$TD1_{max} = (ST + \alpha T) + (LS \times 1) + (SR + \alpha R + TS) \times 2 + 1.0 \times LS$</td>
</tr>
<tr>
<td>MELSECNET/H extended mode</td>
<td></td>
</tr>
<tr>
<td>Normal value</td>
<td>$TD1 = (ST + \alpha T) + (LS \times 0.5) + (SR + \alpha R + TS) \times 1.5 + 0.5 \times LS$</td>
</tr>
<tr>
<td>Maximum value</td>
<td>$TD1_{max} = (ST + \alpha T) + (LS \times 1) + (SR + \alpha R + TS) \times 2 + 1.0 \times LS$</td>
</tr>
<tr>
<td>Station-based block data not assured</td>
<td></td>
</tr>
<tr>
<td>Other than the MELSECNET/H extended mode</td>
<td></td>
</tr>
<tr>
<td>Normal value</td>
<td>$TD1 = (ST + \alpha T) + (LS \times 0.5) + (SR + \alpha R + TS) \times 1.5$</td>
</tr>
<tr>
<td>Maximum value</td>
<td>$TD1_{max} = (ST + \alpha T) + (LS \times 1) + (SR + \alpha R + TS) \times 2$</td>
</tr>
<tr>
<td>MELSECNET/H extended mode</td>
<td></td>
</tr>
<tr>
<td>Normal value</td>
<td>$TD1 = (ST + \alpha T) + (LS \times 0.5) + (SR + \alpha R + TS) \times 1.5 + 0.5 \times LS$</td>
</tr>
<tr>
<td>Maximum value</td>
<td>$TD1_{max} = (ST + \alpha T) + (LS \times 1) + (SR + \alpha R + TS) \times 2 + 1.0 \times LS$</td>
</tr>
</tbody>
</table>

The transmission delay time (TD1) for B/W/Y periodic communication is asynchronous between scan and link scan. Therefore, if the condition differs, use the formula to calculate the transmission delay time (maximum value) (TD1max).

The meaning of the variables in the equation are as follows.

<table>
<thead>
<tr>
<th>Variable</th>
<th>Meaning</th>
</tr>
</thead>
<tbody>
<tr>
<td>TD1</td>
<td>Transmission delay time (normal value)</td>
</tr>
<tr>
<td>TD1max</td>
<td>Transmission delay time (maximum value)</td>
</tr>
<tr>
<td>ST</td>
<td>Sequence scan time on sending side (excluding link refresh time)</td>
</tr>
<tr>
<td>SR</td>
<td>Sequence scan time on receiving side (excluding link refresh time)</td>
</tr>
<tr>
<td>$\alpha T$</td>
<td>Sending side link refresh time $^1$</td>
</tr>
<tr>
<td>$\alpha R$</td>
<td>Receiving side link refresh time $^1$</td>
</tr>
<tr>
<td>TS</td>
<td>Extended scan time due to tracking For details, refer to the following. MELSEC iQ-R CPU Module User's Manual (Application)</td>
</tr>
<tr>
<td>LS</td>
<td>Link scan time</td>
</tr>
</tbody>
</table>

$^1$ Total number of mountable network modules
For 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.

$$TD [\text{ms}] = KM4 \times (LB \div 16 + LW)$$

The meaning of the variables in the equation are as follows.

<table>
<thead>
<tr>
<th>Variable</th>
<th>Meaning</th>
</tr>
</thead>
<tbody>
<tr>
<td>TD</td>
<td>Transmission delay time</td>
</tr>
<tr>
<td>LB</td>
<td>Total number of LB points set using &quot;Interlink Transmission Settings&quot; in &quot;Application Settings&quot;</td>
</tr>
<tr>
<td>LW</td>
<td>Total number of LW points set using &quot;Interlink Transmission Settings&quot; in &quot;Application Settings&quot;</td>
</tr>
</tbody>
</table>

The meanings of the constants (KM4) in the equation are as follows.

<table>
<thead>
<tr>
<th>Base unit to which the network module is mounted</th>
<th>KM4(-10^3)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Transfer source</td>
<td>Transfer destination</td>
</tr>
<tr>
<td>Main base unit</td>
<td>Main base unit</td>
</tr>
<tr>
<td>Main base unit</td>
<td>Extension base unit</td>
</tr>
<tr>
<td>Extension base unit</td>
<td>Main base unit</td>
</tr>
<tr>
<td>Extension base unit</td>
<td>Extension base unit</td>
</tr>
</tbody>
</table>

For the calculation formula used for the relay station that is configured with other module than that of the MELSEC iQ-R series, refer to the manual of the relay target module.

Precautions

The interlink transmission time may become longer due to the following causes.

- Communication with the engineering tool (such as MELSECNET diagnostics or module diagnostics)
- Execution of a link dedicated instruction
- Link refresh
- Interlink transmission between other units
Interlink transmission time

The following is the formula to calculate the time required for interlink transmission. Interlink transmission does not affect the sequence scan time.

Calculation formula

■ Interlink transmission time required for one END processing

The time required for one END processing is 0 [ms] for interlink transmission with the MELSEC iQ-R series network module.

■ Interlink transmission time to completely transmit all set points

\[ \alpha_{DL} \ [\text{ms}] = KM4 \times (LB \div 16 + LW) \]

The meanings of the variables and constants in the equation are as follows.

<table>
<thead>
<tr>
<th>Variable</th>
<th>Meaning</th>
</tr>
</thead>
<tbody>
<tr>
<td>( \alpha_{DL} )</td>
<td>Interlink transmission time</td>
</tr>
<tr>
<td>LB</td>
<td>The total number of LB points actually transferred is within the range set in the interlink transmission setting. (Page 75 Interlink Transmission Settings)</td>
</tr>
<tr>
<td>LW</td>
<td>The total number of LW points actually transferred is within the range set in the interlink transmission setting. (Page 75 Interlink Transmission Settings)</td>
</tr>
</tbody>
</table>

The meanings of the constants (KM4) in the equation are as follows.

<table>
<thead>
<tr>
<th>Base unit to which the network module is mounted</th>
<th>KM4 ((-10^3))</th>
</tr>
</thead>
<tbody>
<tr>
<td>Transfer source</td>
<td>Transfer destination</td>
</tr>
<tr>
<td>Main base unit</td>
<td>Main base unit</td>
</tr>
<tr>
<td>Main base unit</td>
<td>Extension base unit</td>
</tr>
<tr>
<td>Extension base unit</td>
<td>Main base unit</td>
</tr>
<tr>
<td>Extension base unit</td>
<td>Extension base unit</td>
</tr>
</tbody>
</table>

Precautions

The interlink transmission time may become longer due to the following causes.

- Communication with the engineering tool (such as MELSECNET diagnostics or module diagnostics)
- Execution of a link dedicated instruction
- Link refresh
- Interlink transmission between other units
Cyclic data holding time when system switching occurs

This section describes cyclic data holding time when system switching occurs.

Calculation formula

The following are the formulas to calculate cyclic data holding time when system switching occurs.

<table>
<thead>
<tr>
<th>Pattern number</th>
<th>System switching cause</th>
<th>Condition</th>
<th>Cyclic data holding time ((T_H)) [ms]</th>
<th>Timing chart</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>• Power-off of the control system</td>
<td>• The control station is in a redundant system.</td>
<td>Delay time until detection of the system switching cause(^1) + (T_{sw} + C_{sw} + S_S)</td>
<td>Page 190 Pattern 1</td>
</tr>
<tr>
<td></td>
<td>• Failure of the control system CPU module</td>
<td>• T_{jo} &lt; C_{sw}</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>• Failure of the control system base unit</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2</td>
<td>• The control station is in a redundant system.</td>
<td>• The control station is in a redundant system.</td>
<td>Delay time until detection of the system switching cause(^1) + (T_{sw} + T_{jo} + S_S)</td>
<td>Page 191 Pattern 2</td>
</tr>
<tr>
<td></td>
<td>• T_{jo} &gt; C_{sw}</td>
<td>• T_{jo} &gt; C_{sw}</td>
<td></td>
<td></td>
</tr>
<tr>
<td>3</td>
<td>A normal station is in a redundant system.</td>
<td>A normal station is in a redundant system.</td>
<td></td>
<td>Page 192 Pattern 3</td>
</tr>
<tr>
<td>4</td>
<td>• Stop error of the control system CPU module</td>
<td>• System switching request from another network module</td>
<td>Delay time until detection of the system switching cause(^1) + (T_{sw} + T_{jo} + S_S)</td>
<td>Page 193 Pattern 4</td>
</tr>
<tr>
<td></td>
<td>• Execution of the system switching instruction</td>
<td>• System switching request from another network module</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>• System switching operation from the engineering tool</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>• System switching request from another network module</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>5</td>
<td>System switching request from the RJ71LP21-25 (own station)</td>
<td>System switching request from the RJ71LP21-25 (own station)</td>
<td>Delay time until detection of the system switching cause(^1) + (T_{d} + T_{c}) system switching cause(^1) + (T_{sw} + T_{jo} + S_S)</td>
<td>Page 194 Pattern 5</td>
</tr>
<tr>
<td></td>
<td>• System switching request from the RJ71LP21-25 (own station)</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

\(^1\) For delay time until detection of the system switching cause, refer to the following.

The meaning of the variables in the equation are as follows.

<table>
<thead>
<tr>
<th>Variable</th>
<th>Meaning</th>
</tr>
</thead>
<tbody>
<tr>
<td>(T_H)</td>
<td>Cyclic data holding time [ms]</td>
</tr>
<tr>
<td>(T_{sw})</td>
<td>CPU module system switching time [ms] (MELSEC iQ-R CPU Module User's Manual (Application))</td>
</tr>
<tr>
<td>(T_{jo})</td>
<td>Delay time until initial output after system switching [ms] (MELSEC iQ-R CPU Module User's Manual (Application))</td>
</tr>
<tr>
<td>(T_{c})</td>
<td>System switching monitoring time [ms] (Setting value of &quot;System Switching Monitoring Time&quot; of the network parameter) (Page 66 Supplementary Cyclic Settings)</td>
</tr>
<tr>
<td>(T_{d})</td>
<td>Data link monitoring time [ms] (Setting value of &quot;Data Link Monitoring Time&quot; of the network parameter) (Page 66 Supplementary Cyclic Settings)</td>
</tr>
</tbody>
</table>
| \(C_{sw}\) | Control station switching time \(C_{sw} [ms] = (a \times 12) + (b \times 11) + (c \times 3) + 450\) \n  a: Number of the normally operating stations after disconnection of the control station  
b: Number of the faulty stations after disconnection of the control station  
c: Constant link scan setting value (Page 66 Supplementary Cyclic Settings) |
| \(S_S\) | CPU module sequence scan time [ms] (MELSEC iQ-R CPU Module User's Manual (Application)) |
| \(\alpha\) | Module internal processing time \(\alpha [ms] = 150ms\) (Constant) |
**Timing chart**

This section describes a timing chart for each system switching cause.

### Pattern 1

The following figure shows a timing chart for normal value.

- **Control station**
  - **Station No.1**
    - Sequence scan time (SS)
    - Data sent from station No.1 to another station
    - Delay time until system switching cause detection

- **System A**
  - Normal station**
    - Station No.2
      - Sequence scan time (SS)
      - Data sent from station No.2 to another station
      - Control station switching time (Csw)

- **Another station**
  - Cyclic transmission delay time
  - Cyclic data holding time (TH)

- **Communication faulty station**

- **Power down**

- **Control system**
  - **Standby system**

- **System switching time (Tsw)**

- **Delay time until first output after system switching (Tjo)**

- **System B**
  - **Normal station**
    - Station No.2
      - Cyclic transmission delay time

- **Sub-control station**

- **Delay time until system switching cause detection**
**Pattern 2**
The following figure shows a timing chart for normal value.
Pattern 3

The following figure shows a timing chart for normal value.
Pattern 4

CPU stop error

- Sequence scan time (SS)
- Data sent from station No.1 to another station
- Delay time until system switching cause detection
- System A
  - Control system
  - Standby system
- System B
  - Standby system
  - Control system
- System switching time ($T_{sw}$)
- Delay time until first output after system switching ($T_{io}$)

- Data sent from station No.2 to another station
- Sequence scan time (SS)

- Receive data in another station (from station No.1 or No.2)
- Cyclic transmission delay time
- Cyclic data holding time ($T_{dh}$)
Pattern 5

Control station
Station No.1

Control station
Communication faulty station

Data link error
status of own
station
(SB0049)

OFF

ON

System A
Control
station
Station No.1

System B
Normal
station
Station No.2

System switching
request is issued.

Delay time until system switching cause detection

Sequence
scan time (SS)

Data sent from
station No.1 to
another station

Data sent from
station No.2 to
another station

Receive data
in another
station (from
station No.1
or No.2)

Control system

Standby system

Control system

Standby system

Delay time until system switching
(System switching time (Tsw))

Delay time until first output
after system switching (T_p)

Cyclic transmission delay time

Cyclic data holding time (T_w)

1 2 3

0) 1) 4) 5)

System A

System B

Another
station

Communication error occurred

Data link monitoring
time

System switching
monitoring
time

Delay time during system switching cause detection

194
APPX
Appendix 6 Processing Time
Appendix 7  Differences Between MELSEC-Q Series and MELSEC iQ-R Series

The following differences must be addressed when replacing the MELSEC-Q series with the MELSEC iQ-R series (RJ71LP21-25, RJ71BR11). For the replacement procedure, refer to the following.

MELSECNET/H Transition Handbook (MELSEC-Q Series)

### Specifications

<table>
<thead>
<tr>
<th>Item</th>
<th>MELSEC-Q series</th>
<th>MELSEC iQ-R series</th>
<th>Action</th>
</tr>
</thead>
<tbody>
<tr>
<td>System supported</td>
<td>• Optical loop system&lt;br&gt;• Coaxial bus system&lt;br&gt;• Twist bus system</td>
<td>• Optical loop system&lt;br&gt;• Coaxial bus system</td>
<td>Replacement is not possible when the system is configured using a twist bus system. All modules and wiring need to be replaced.</td>
</tr>
<tr>
<td>Optical loop system</td>
<td>• SI optical fiber cable&lt;br&gt;• H-PCF optical fiber cable&lt;br&gt;• Broadband H-PCF optical fiber cable&lt;br&gt;• QSI optical fiber cable, 1000m&lt;br&gt;• GI optical fiber cable (QJ71LP21G only)</td>
<td>• SI optical fiber cable&lt;br&gt;• H-PCF optical fiber cable&lt;br&gt;• Broadband H-PCF optical fiber cable&lt;br&gt;• QSI optical fiber cable</td>
<td>Replacement is not possible when the system is configured using a GI optical fiber cable. All modules and wiring need to be replaced.</td>
</tr>
<tr>
<td>Coaxial bus system</td>
<td>• 3C-2V coaxial cable&lt;br&gt;• 5C-2V coaxial cable&lt;br&gt;• 5C-FB, S-5C-FB coaxial cable</td>
<td>• 3C-2V coaxial cable&lt;br&gt;• 5C-2V coaxial cable&lt;br&gt;• 5C-FB, S-5C-FB coaxial cable</td>
<td>System was used in the Q series and can be replaced as is.</td>
</tr>
<tr>
<td>External power supply</td>
<td>Available (QJ71LP21S-25 only)</td>
<td>Not available</td>
<td>Cannot be replaced from the QJ71LP21S-25.</td>
</tr>
<tr>
<td>Network supported</td>
<td>• PLC to PLC network&lt;br&gt;• Remote I/O network</td>
<td>PLC to PLC network</td>
<td>Cannot be replaced from the remote I/O network.</td>
</tr>
</tbody>
</table>

### Functions

<table>
<thead>
<tr>
<th>Item</th>
<th>MELSEC-Q series</th>
<th>MELSEC iQ-R series</th>
<th>Action</th>
</tr>
</thead>
<tbody>
<tr>
<td>Parameter unique to the station</td>
<td>Enabled</td>
<td>Disabled</td>
<td>Replace assignments of parameters unique to the station with refresh parameters. (Page 196 Replacing a parameter unique to the station)</td>
</tr>
<tr>
<td>Multiplex transmission function</td>
<td>Enabled&lt;br&gt;• RJ71LP21-25&lt;br&gt;Enabled: Sub-control station, Normal station&lt;br&gt;Disabled: Control station&lt;br&gt;• RJ71BR11&lt;br&gt;Disabled</td>
<td>Multplex transmission cannot be specified when replacing the control station.</td>
<td></td>
</tr>
<tr>
<td>Simple redundancy</td>
<td>Enabled (High Performance model QCPU, Process CPU only)</td>
<td>Disabled</td>
<td>Perform replacement so as to execute refresh with the program without making refresh settings. (Page 196 Method of replacement for simple redundancy)</td>
</tr>
<tr>
<td>ZNRD/ZNWR instruction</td>
<td>No restriction</td>
<td>An error occurs when the RCPU is set as the target station.</td>
<td>Replace with the READ/WRITE instruction.</td>
</tr>
<tr>
<td>Redundant system</td>
<td>• QJ71LP21-25&lt;br&gt;• QJ71BR11</td>
<td>RJ71LP21-25</td>
<td>Cannot be replaced from a QJ71BR11 redundant system.</td>
</tr>
</tbody>
</table>
Replacing a parameter unique to the station

The following describes the method of replacing a parameter unique to the station.

**Ex**

To use the same program for stations No.2 and No.3, replace the assignment of the stations No.2 and No.3.

- For MELSEC-Q series

<table>
<thead>
<tr>
<th>CPU device</th>
<th>Link device</th>
<th>Network range assignment</th>
</tr>
</thead>
<tbody>
<tr>
<td>Station No.1 B0000 to B01FF</td>
<td>Station No.1 LB0000 to LB01FF</td>
<td>Station No.1 LB0000 to LB01FF</td>
</tr>
<tr>
<td>Station No.3 B0200 to B02FF</td>
<td>Station No.1 LB0000 to LB01FF</td>
<td>Station No.1 LB0000 to LB01FF</td>
</tr>
<tr>
<td>Station No.2 B0300 to B03FF</td>
<td>Station No.1 LB0000 to LB01FF</td>
<td>Station No.1 LB0000 to LB01FF</td>
</tr>
</tbody>
</table>

(1) Refresh parameter  
(2) Parameter unique to the station

- For MELSEC iQ-R series (RJ71LP21-25, RJ71BR11)

<table>
<thead>
<tr>
<th>CPU device</th>
<th>Link device</th>
<th>Network range assignment</th>
</tr>
</thead>
<tbody>
<tr>
<td>Station No.1 B0000 to B01FF</td>
<td>Station No.1 LB0000 to LB01FF</td>
<td>Station No.1 LB0000 to LB01FF</td>
</tr>
<tr>
<td>Station No.3 B0200 to B02FF</td>
<td>Station No.1 LB0000 to LB01FF</td>
<td>Station No.1 LB0000 to LB01FF</td>
</tr>
<tr>
<td>Station No.2 B0300 to B03FF</td>
<td>Station No.1 LB0000 to LB01FF</td>
<td>Station No.1 LB0000 to LB01FF</td>
</tr>
</tbody>
</table>

(1) Refresh parameter

**Precautions**

The number of refresh parameters that can be set is 64. When more than 65 parameters unique to the station are set, it is required to review the refresh range or perform refresh with the program.

**Method of replacement for simple redundancy**

The refresh parameter in the network can be replaced with the refresh by instructions using the link direct device (J0 \ B0, J0 \ W0).

For details on the method of replacement for multiplex transmission, refer to the following.

- Method of replacing High Performance model QCPU with Universal model QCPU (FA-A-0001)
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REVISIONS

*The manual number is given on the bottom left of the back cover.

<table>
<thead>
<tr>
<th>Revision date</th>
<th>*Manual number</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>February 2020</td>
<td>SH(NA)-082204ENG-A</td>
<td>First edition</td>
</tr>
<tr>
<td>April 2022</td>
<td>SH(NA)-082204ENG-B</td>
<td>Added or modified parts SAFETY PRECAUTIONS, CONDITIONS OF USE FOR THE PRODUCT, RELEVANT MANUALS, Section 2.2, 2.4, 4.5, Appendix 1</td>
</tr>
<tr>
<td>February 2023</td>
<td>SH(NA)-082204ENG-C</td>
<td>Added or modified parts SAFETY PRECAUTIONS, INTRODUCTION, Section 1.5, 2.2, 4.3, 4.4</td>
</tr>
<tr>
<td>May 2023</td>
<td>SH(NA)-082204ENG-D</td>
<td>Added model RJ71BR11 Added or modified parts SAFETY PRECAUTIONS, INTRODUCTION, TERMS, GENERIC TERMS AND ABBREVIATIONS, Section 1.1, 1.2, 1.3, 1.4, 1.5, Chapter 2, Section 2.1, 2.2, 2.3, 2.4, 3.1, 3.2, Chapter 4, Section 4.1, 4.2, 4.3, 4.4, 4.5, 4.6, 4.7, Appendix 1, 2, 3, 4, 5, 6, 7</td>
</tr>
</tbody>
</table>

Japanese manual number: SH-082203-D

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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.
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