



Programmable Controller

MELSEC iQ-R
series

MELSEC iQ-R High Speed Data Communication Module User's Manual (Application)

-RD81DC96

-SW1DNN-RDCUTL (High Speed Data Communication Module Tool)



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.

The precautions given in this manual are concerned with this product only. For the safety precautions for the programmable controller system, refer to 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.

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.
 - Configure a circuit so that the external power supply is turned off first and then the programmable controller. If the programmable controller is turned off 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 manuals relevant to the network. 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. When a Safety CPU is used, data cannot be modified while the Safety CPU is in SAFETY MODE.
 - 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.
-

[Design Precautions]

WARNING

- 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. For areas used for safety communications, they are protected from being written by users, and thus safety communications failure caused by data writing does not occur.
 - 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. When safety communications are used, an interlock by the safety station interlock function protects the system from an incorrect output or malfunction.
-

[Design Precautions]

CAUTION

- Do not bundle the control wires and the communication cables with the main circuit and the power wires, and do not install them close to each other. They should be installed at least 100 mm (3.94 in.) away from each other. Failure to do so may generate noise that may cause malfunctions.
 - 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.
 - When changing the operating status of the CPU module from external devices (such as the remote RUN/STOP functions), select "Do Not Open by Program" for "Opening Method" of "Module Parameter". If "Open by Program" is selected, an execution of the remote STOP function causes the communication line to close. Consequently, the CPU module cannot reopen the line, and external devices cannot execute the remote RUN function.
-

[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 general specifications written in Safety Guidelines included in the base unit. Failure to do so may result in electric shock, fire, malfunction, or damage to or deterioration of the product.
 - To mount this module, place the concave part(s) located at the bottom onto the guide(s) of the base unit, and push in the module, and make sure to fix the module with screws since this module has no module fixing hook. 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.
 - Before mounting/dismounting the module, be sure to shut off all phases of external power supply used by the system. Failure to do so may cause product damage.
 - 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.
 - Connectors for wiring must be crimped or pressed with the tool specified by the manufacturer, or must be correctly soldered. Incomplete connections may cause a short circuit, fire, 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 and an included extension connector protective cover to the unused extension cable connector before powering on the system for operation. Failure to do so may result in electric shock.
-

[Wiring Precautions]

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 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 100 mm 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.
 - 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.
 - A protective film is attached to the top of the module to prevent foreign matter, such as wire chips, from entering the module during wiring. Do not remove the film during wiring. Remove it for heat dissipation before system operation.
 - 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.
-

[Startup and Maintenance Precautions]

WARNING

- Do not touch any terminal while power is on. Doing so will cause electric shock or malfunction.
 - Correctly connect the battery connector. Do not charge, disassemble, heat, short-circuit, solder, or throw the battery into the fire. Also, do not expose it to liquid or strong shock. Doing so will cause the battery to produce heat, explode, ignite, or leak, resulting in injury and fire.
 - 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.
-

[Startup and Maintenance Precautions]

CAUTION

- 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.
 - Do not drop or apply shock to the battery to be installed in the module. Doing so may damage the battery, causing the battery fluid to leak inside the battery. If the battery is dropped or any shock is applied to it, dispose of it without using.
 - 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. Failure to do so may cause the module to fail or malfunction.
-

[Operating Precautions]

WARNING

- Ensure safety before controlling a running programmable controller (e.g. data modification).
 - Do not write any data in the system area of the buffer memory in the intelligent function module. Also, do not use any "use prohibited" signals as an output signal from the programmable controller CPU to the intelligent function module. Doing so may cause malfunction of a programmable controller system.
-

[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.
 - Do not power off the programmable controller or reset the CPU module while the setting values in the buffer memory are being written to the flash ROM in the module. 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 can cause malfunction or failure of the module.
-

[Disposal Precautions]

CAUTION

- When disposing of this product, treat it as industrial waste.
 - When disposing of batteries, separate them from other wastes according to the local regulations. For details on battery regulations in EU member states, refer to the MELSEC iQ-R Module Configuration Manual.
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[Transportation Precautions]

CAUTION

- When transporting lithium batteries, follow the transportation regulations. For details on the regulated models, refer to the MELSEC iQ-R Module Configuration Manual.
 - 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.

CONSIDERATIONS FOR USE

This section explains the following considerations.

- ☞ Page 9 Considerations for performance and specifications
- ☞ Page 9 Precautions for the streaming transfer, data read, and data write functions
- ☞ Page 10 Considerations for other functions
- ☞ Page 10 Considerations for accessing a high speed data communication module
- ☞ Page 10 Considerations for security
- ☞ Page 10 Considerations for using an SD memory card

Considerations for performance and specifications

■Sequence scan time of a CPU module

- Using a high speed data communication module may increase the scan time of a CPU module. Design a system and programs keeping in mind this increase in sequence scan time of the CPU module. (☞ Page 160 Influence on the sequence scan time)

■Network connection using Ethernet

- When connecting to an Ethernet network, basically configure the communication route to an access target with Ethernet (twisted pair) cables and hubs. If using a device such as a wireless LAN (Wi-Fi) or router, note that communication may not be established properly due to an error such as timeout or data missing depending on the status of the device or configured route.
- If the access load to a high speed data communication module is high, the following issues may occur due to an error such as timeout or data missing: a streaming transfer, data reading and writing take time, and communication with the module is not established properly. In this case, reduce the load on the Ethernet network to which the module is connected.

■Time handled on a high speed data communication module

- Time handled on a high speed data communication module is the time on a CPU module. For details on errors and the optimum timing for setting the time, refer to the following:
(☞ Page 36 Time Synchronization Function)
(IMELSEC iQ-R High Speed Data Communication Module User's Manual (Startup))

■High speed sampling

- High speed sampling is not supported by CPU modules on other stations via a network.

Precautions for the streaming transfer, data read, and data write functions

- The streaming transfer, data read, and data write functions are of the best effort type. Since the processing time of a module and data transfer time varies depending on the settings and the status of a network and other devices, these functions may not perform at the set sampling interval and transfer cycle. Run the system by fully verifying the processing time of each function and the data transfer time when constructing it. For details on processing time, refer to the following:
(☞ Page 152 Processing Time)
- If the streaming transfer, data read, and data write functions are used, they affect on the sequence scan time of the access target CPU. Run the system by fully verifying the affect to the sequence scan time when constructing it. For details on the influence on the sequence scan time, refer to the following:
(☞ Page 160 Influence on the sequence scan time)
- When a linear function is converted using the scaling function, a rounding error may occur depending on the type of data being output.
- Since general sampling specified data is sampled asynchronously with the sequence scan, data inconsistency may occur. To prevent data inconsistency, set the number of devices sampled at one time within the access units, or use high speed sampling.

Considerations for other functions

■Access target CPU setting


- When rewriting the settings in Configuration Tool, turning the power OFF and ON, or resetting a CPU module, a high speed data communication module is prepared to communicate with an access target CPU module. Therefore, if a large number of access target CPU modules are set, several minutes are required for this preparation.
- The following conditions may affect the general sampling: a CPU module that does not exist is set as an access target CPU module, or a high speed data communication module cannot communicate with the access target CPU module temporarily because of the power interruption of access target CPU module or network failure. Before using a high speed data communication module, make sure that the module can communicate with a CPU module set as an access target CPU.

■Time synchronization function

- If implementing the time synchronization with a CPU module, it will change the time in a high speed data communication module. If the time in a CPU module is changed, the time in a high speed data communication module may be greatly changed.
- Since there is inaccuracy in the clock element of a CPU module and high speed data communication module, the time may be moved slightly forward or backward when the time is synchronized. Changing the time in the high speed data communication module affects the time information of transfer data and the time stamps of error/event history and access history; therefore, configure the module to synchronize its time at the minimum requirements.

Considerations for accessing a high speed data communication module

■Web browser operations and settings

- In the local area network (LAN) setting of the web browser, do not set a proxy server for the local address. ( MELSEC iQ-R High Speed Data Communication Module User's Manual (Startup))

■Replacement of an older version of a module

- When replacing an older version of a high speed data communication module, delete temporary internet files (caches) of a web browser before accessing a newer version of the module.

■Number of connections

- Up to five connections^{*1} can be established simultaneously for one high speed data communication module. To connect the sixth or later host computer/Configuration Tool, disconnect any active connection.

^{*1} If all the connections are from host computers, the maximum number of simultaneous connections will be four.

■Connection with Configuration Tool

- Note that a module may be in an unintended status when operating it in multiple pieces of Configuration Tool at the same time.

Considerations for security

- Although a high speed data communication module supports basic authentication (account setting) using a user name and password, it does not completely protect the system from illegal access. Avoid an account (user name, password) consisting of simple alphanumeric characters only, and include some non-alphanumeric characters (\$, &, ?) to create a complicated user name and password.

Considerations for using an SD memory card

■SD memory card file/directory

- Do not create a file or folder on an SD memory card with a personal computer. If a file or folder is created on an SD memory card with a personal computer, they may be deleted.

■SD memory card to be used

- Use an SD memory card manufactured by Mitsubishi Electric Corporation described in the manual below. If any other SD memory card is used, data in the SD memory card may be corrupted while the system is running or the system may stop (a module major error (error code: 2450H) occurs in a CPU module).

( MELSEC iQ-R High Speed Data Communication Module User's Manual (Startup))

■Turning the power OFF or resetting a CPU module

- If the power is turned OFF or a CPU module is reset while data is being written to an SD memory card, the writing may not be completed. A high speed data communication module automatically recovers files when the power is turned ON again, but the recovery will not succeed in some cases. If any problem arises, turn the power OFF or reset the CPU after stopping file access. (📖MELSEC iQ-R High Speed Data Communication Module User's Manual (Startup))
For the important data, create backups periodically.

■Removing or replacing an SD memory card

- Make sure to stop file access before removing or replacing an SD memory card. (📖MELSEC iQ-R High Speed Data Communication Module User's Manual (Startup))
- Not following the procedure in the manual below may cause a corruption of data in an SD memory card that is being accessed, a file system error, or false recognition of the mounting status of the SD memory card.
(📖MELSEC iQ-R High Speed Data Communication Module User's Manual (Startup))
- If an error occurs on an SD memory card, refer to the following:
(🔍 Page 109 Troubleshooting on an SD memory card)
- High speed data communication module settings are saved on an SD memory card. Therefore, the IP address of the high speed data communication module returns to the initial status (192.168.3.3) when turning the power OFF and ON or resetting a CPU module without an SD memory card inserted in the module or without the settings written to the SD memory card. As necessary, read the current settings before removing the SD memory card, and promptly write those settings to the new card after replacing the card.

■SD memory card capacity

- A minimum size occupied by the files on the hard disk varies depending on the SD memory card capacity. Therefore, the actual file size and the occupied file size on the hard disk may differ.

■SD memory card diagnostic time

- A high speed data communication module diagnoses data (recovers a file, etc.) in an SD memory card inserted in the module at the following timings:
 - When turning the power OFF and ON or resetting a CPU module
 - When inserting an SD memory card while the power is ON

■Formatting an SD memory card

- Use the format function of Configuration Tool to format an SD memory card. (🔍 Page 84 SD memory card diagnostics)
- Do not format an SD memory card using the format function of Windows.
- Do not reset the control CPU or turn the power OFF when formatting an SD memory card.
- High speed data communication module settings are saved on an SD memory card. Therefore, all settings are lost when formatting the SD memory card. As necessary, read the current settings before formatting, and promptly write those settings after formatting. The IP address of the high speed data communication module returns to the initial status (192.168.3.3) when turning the power OFF and ON or when resetting a CPU module without writing the settings to the SD memory card.

■SD memory card life span (Limit on writing)

- An SD memory card has a life (a limit on the number of times for writing data). For details, refer to the specification of an SD memory card to use.

■Write protect switch

- Make sure that the write protect switch of the memory card is in the unlocked position. When the write protect switch is in the locked position, no file can not be written on the SD memory card.

INTRODUCTION

Thank you for purchasing the Mitsubishi MELSEC iQ-R series programmable controllers.

This manual describes the functions, Configuration Tool, and troubleshooting to use the modules listed below.


Before using the product, please read this manual and relevant manuals carefully and develop familiarity with the performance of MELSEC iQ-R series programmable controller to handle the product correctly.

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.

Point

The program examples shown in this manual are the examples in which a high speed data communication module (RD81DC96) is assigned to the input/output No. X/Y0 to X/Y1F unless otherwise specified. To use the program examples shown in this manual, the input/output number assignment is required. For details on the assignment of input/output number, refer to the following:

 MELSEC iQ-R Module Configuration Manual

Relevant product

RD81DC96

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RELEVANT MANUALS

Manual name [manual number]	Description	Available form
MELSEC iQ-R High Speed Data Communication Module User's Manual (Application) [SH-082362ENG] (this manual)	Functions, Configuration Tool, parameter setting, troubleshooting, I/O signal, and buffer memory of a high speed data communication module	Print book e-Manual PDF
MELSEC iQ-R High Speed Data Communication Module User's Manual (Startup) [SH-082360ENG]	Specifications, procedures before operation, wiring, and operation examples of a high speed data communication module	Print book e-Manual PDF
MELSEC iQ-R High Speed Data Communication Module Programming Manual [SH-082388ENG]	Programming specifications and dedicated function library of a high speed data communication module	e-Manual PDF
GX Works3 Operating Manual [SH-081215ENG]	System configurations, parameter settings, and operation methods for the online function in GX Works3	e-Manual PDF
MELSEC iQ-R Module Configuration Manual [SH-081262ENG]	The combination of the MELSEC iQ-R series modules, common information on the installation/wiring in the system, and specifications of the power supply module, base unit, SD memory card, and battery	Print book e-Manual PDF




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.
- 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.

Term	Description
Device memory and device	Various memory data in a CPU module. There are devices handled as bit data and word data.
Engineering tool	A tool used for setting up programmable controllers, programming, debugging, and maintenance. For the supported tools, refer to the following:  MELSEC iQ-R Module Configuration Manual
Streaming transfer	A data transfer method where a transfer destination continuously processes data while a server transfers a stream of data over the network to the destination.

GENERIC TERMS AND ABBREVIATIONS

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

Generic term/abbreviation	Description
Configuration personal computer	A personal computer to operate Configuration Tool, GX LogViewer, and GX Works3.
Configuration Tool	MELSEC iQ-R High Speed Data Communication Module Configuration Tool. This tool configures and maintains a high speed data communication module.
GX LogViewer	GX LogViewer Version 1.
High Speed Data Communication Library	MELSEC iQ-R High Speed Data Communication Library. This library is used for communication from a host computer to a high speed data communication module. There are two types of libraries: Visual C# library and Java library.
High speed data communication module	A MELSEC iQ-R high speed data communication module.
Host computer	A computer to process data transferred from a high speed data communication module.
LCPU	A MELSEC-L series CPU module.
QCPU (Q mode)	A MELSEC-Q series CPU module and a MELSEC-Q series C Controller module.
RCPU	A MELSEC iQ-R series CPU module and a MELSEC iQ-R series C Controller module.

1 FUNCTIONS

This chapter explains the details on the functions of a high speed data communication module.

Point

User programs for the label function, streaming transfer function, data read function, and data write function can be created with High Speed Data Communication Library.

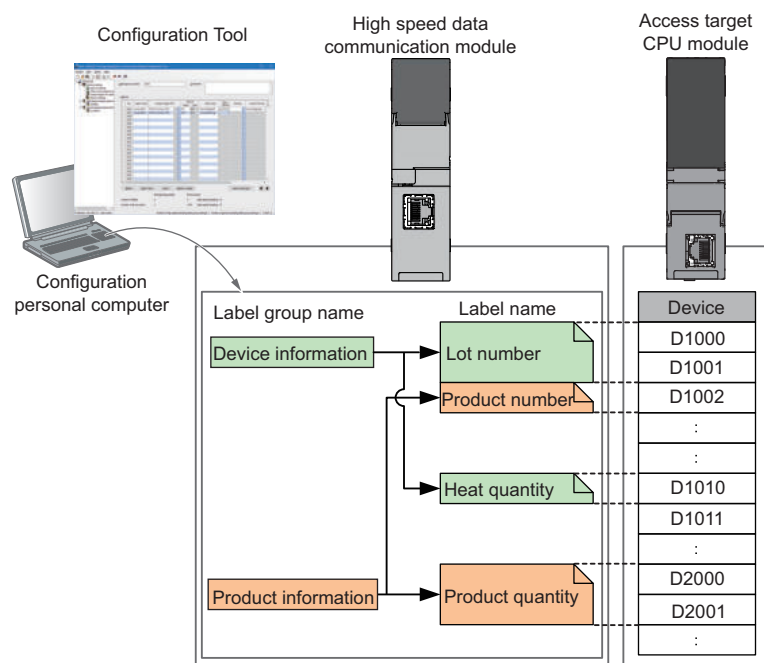
For details on a user program and the specifications of methods used for each function, refer to the following:
IMELSEC iQ-R High Speed Data Communication Module Programming Manual

1.1 Label Function

The label function names (assigns labels to) devices to be accessed.

Labels can be managed easily by grouping labels (making label groups).

Use Configuration Tool to set labels. (Page 69 High Speed Sampling Label Setting, Page 74 General Sampling Label Setting)



Label types

There are the following two types of labels.

High speed sampling labels

High speed sampling labels are used to perform a streaming transfer by synchronizing with a sequence scan.

An access target CPU module is fixed to the control CPU of a high speed data communication module.

For the method for setting high speed sampling labels, refer to the following:

Page 69 High Speed Sampling Label Setting

General sampling labels

General sampling labels are used to access a CPU module connected hierarchically in a network. (Data cannot be sampled by synchronizing with a sequence scan.)

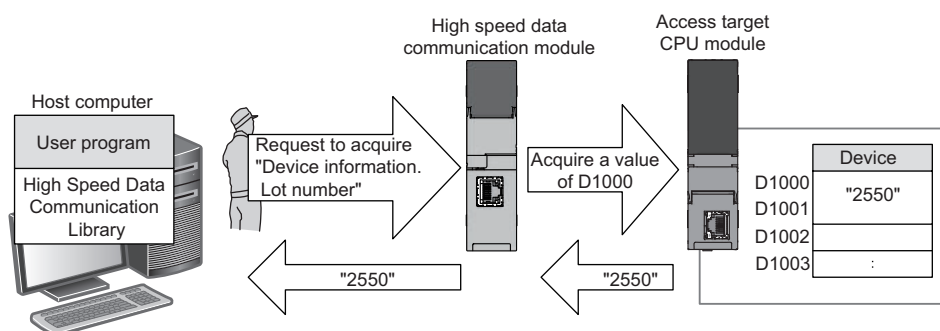
For the method for setting general sampling labels, refer to the following:

Page 74 General Sampling Label Setting

Label specification function

The label specification function specifies a device by its label name from a host computer to a high speed data communication module.

A user can create a program without being aware of device information.



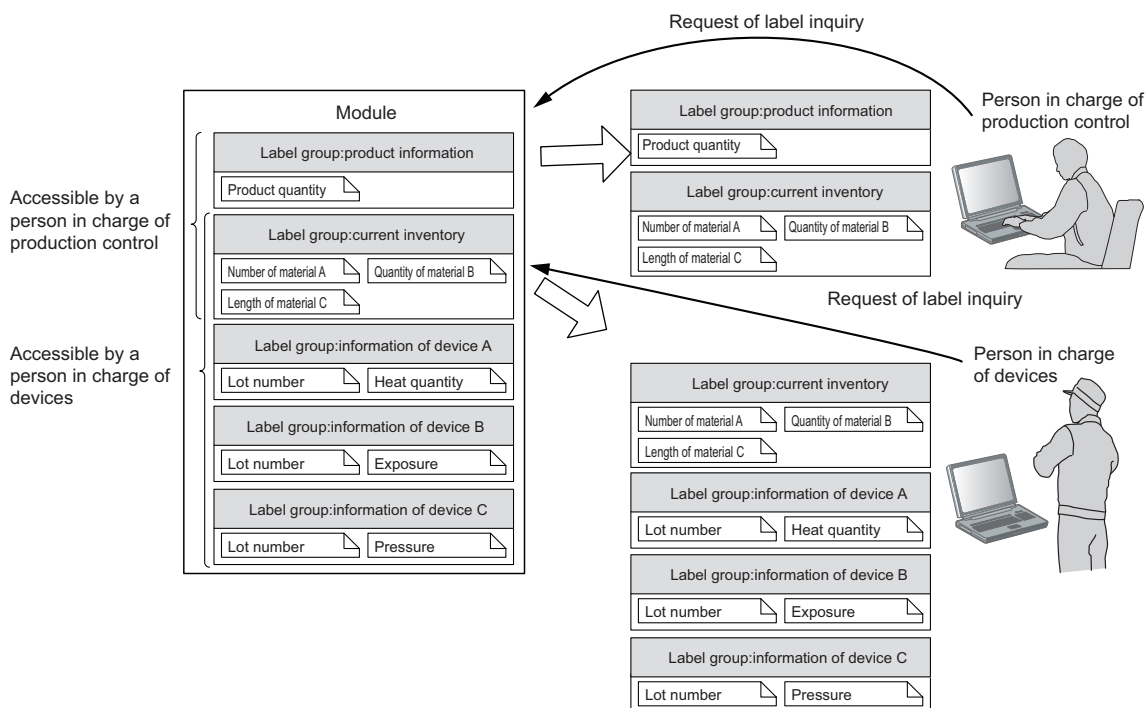
Restriction

For a streaming transfer, high speed sampling labels and general sampling labels cannot be specified together.

Label inquiry function

The label inquiry function responds to a request for inquiring labels from a host computer.





A high speed data communication module returns a list of labels that a user requesting the inquiry can use for the label specification function.




1.2 Streaming Transfer Function

The streaming transfer function samples device data of labels specified by a host computer from a CPU module, and continuously transfers the data to the host computer via Ethernet.

A streaming transfer is performed by the following steps:


Step		Host computer	High speed data communication module
1	Registering labels to be streamed	Sends a command to register labels.	—
2		—	Registers specified labels as the ones for a streaming transfer. ( Page 20 Registration function)
3	Performing a streaming transfer	Sends a command to start a streaming transfer.	—
4		—	Starts a streaming transfer after receiving the command. ❶ Samples device data in an access target CPU module. ( Page 21 Sampling function) ❷ Scales the sampled data. ( Page 23 Scaling function) ❸ Transfers the sampled data. ( Page 24 Transfer function)

Precautions

- If the data write function or data read function is performed in a different connection during a streaming transfer, the processing time of a module may vary. This change may cause data missing, sampling delay, or transfer delay. ( Page 152 Processing Time)
In addition, if sampling is delayed, the data time added at the streaming transfer may differ from the actual time at which data was sampled.
- The operations other than the one for stopping a streaming transfer, such as ones for reading/writing data, cannot be performed in the connection where the streaming transfer is being performed.

Registration function

The registration function registers devices to be streamed as labels according to a command sent from a host computer. Labels need to be set in Configuration Tool and written to a high speed data communication module in advance.

A host computer can acquire labels that can be registered by using the label inquiry function; therefore, the host computer can send a command to register labels for a streaming transfer without label setting information. ( Page 19 Label inquiry function)

Sampling function

The sampling function samples device data from an access target CPU module.

Data of one sampling cycle to which date and time data (time at which data is sampled) is added and a scaling result is applied is referred to as a record.

High speed sampling

Device data is sampled by synchronizing with the sequence scan of a control CPU using its sequence scan synchronization sampling function.

Device data is transferred to a high speed data communication module during each END processing of a control CPU, and the high speed data communication module samples the device data in a specified cycle.

There are the following two types of sampling cycles.

■Each sequence scan

Data is sampled at each sequence scan time of a control CPU.

When a control CPU is in the STOP or PAUSE state, data is not sampled.

■Time specification

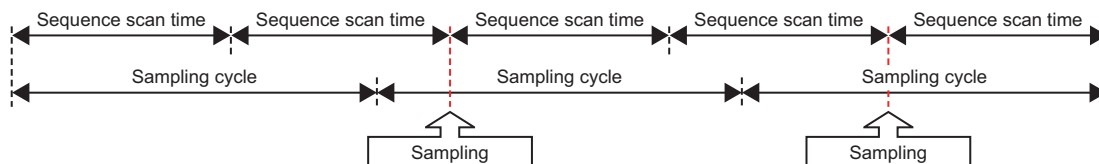
Data is sampled in each sequence scan after a specified sampling cycle elapses.

Data can be sampled even when a control CPU is in the STOP or PAUSE state.

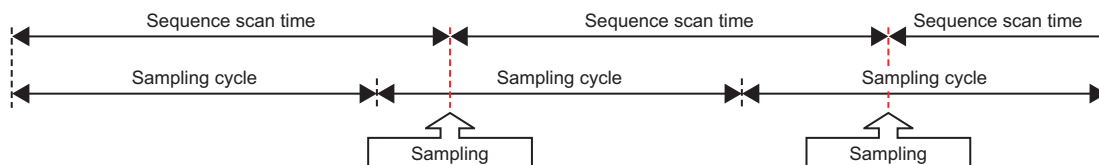
A sampling cycle can be specified as follows:

Sampling cycle (ms)	Specification unit
0.5 to 0.9	0.1 milliseconds
1 to 32767	1 millisecond

If the sequence scan time is shorter than a specified sampling cycle, data is sampled after the first sequence scan of a control CPU after the specified time elapses.



If the sequence scan time is longer than a specified sampling cycle, data is sampled at the sequence scan time.



Precautions

For the time specification, if α calculated by the formula below is greater than '1,' replace the value of sequence scan time (ST) with the following ST' value.

Formula

- When the number of device points for high speed sampling^{*1} ≤ 256 :

$\alpha = 0.5 \div \text{ST}$ (Values after the decimal point are rounded up.)


- When the number of device points for high speed sampling^{*1} > 256 :

$\alpha = (0.5 + 0.0008 \times (\text{number of device points for high speed sampling}^{*1} - 256)) \div \text{ST}$ (Values after the decimal point are rounded up.)

ST' value

- $\text{ST}' = \text{ST} \times \alpha$

^{*1} Refers to the number of device points for high speed sampling in an entire project.

It can be checked in Configuration Tool. ( Page 70 High speed sampling label group setting)

Ex.

When the number of device points for high speed sampling is 4096 and the sequence scan time is 2 ms:

$\alpha = (0.5 + 0.0008 \times (4096 - 256)) \div 2 = 2$ (Values after the decimal point of 1.786 are rounded up.)

Since $\alpha > 1$, $\text{ST}' = 2 \times 2 = 4$

Read the sequence scan time as 4 ms, not 2 ms.

General sampling

Device data is sampled by accessing the following CPU modules:

- CPU module on the own station
- CPU modules other than a control CPU
- CPU modules connected hierarchically in a network such as CC-Link IE Controller Network, MELSECNET/H, CC-Link, etc.

Data is sampled in the specified sampling cycle. However, time required for sampling varies depending on a network route and the number of data points to be sampled. If data cannot be sampled in the specified sampling cycle, the next sampling is started immediately after the previous sampling is completed.

A sampling cycle can be specified as follows:

Sampling cycle (ms)	Specification unit
0.1 to 0.9	100 milliseconds
1 to 32767	


Restriction

- Since general sampling is not synchronized with the sequence scan of a control CPU, data inconsistency may occur. To sample data by synchronizing with the sequence scan, use the high speed sampling function.
- If a fraction of less than 100 milliseconds exists in a sampling cycle specified with High Speed Data Communication Library, the fraction is rounded down. Specify the sampling cycle in units of 100 milliseconds. (Example: When specifying 210 milliseconds, 10 milliseconds are rounded down and the operation is the same as when specifying 200 milliseconds.)
- If specifying a value less than 100 milliseconds for a sampling cycle, data is sampled in a 100 millisecond cycle.

Date and time data when sampling data

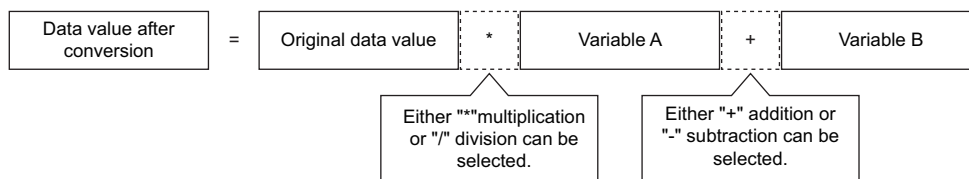
Local time or coordinated universal time (UTC) can be selected for the format of date and time data to be added to a record. (Specify either in a user program.)

Point

Time in a high speed data communication module is set with the time synchronization function. Date and time data in the module may change when time is synchronized. ( Page 36 Time Synchronization Function)

Scaling function

The scaling function converts sampled device data into a linear function.



1

Point

- All values are calculated as double precision floating point numbers, and the result is output in the specified format.

For details on data that is output when the result value cannot be expressed in the specified format, refer to the following:

(MELSEC iQ-R High Speed Data Communication Module User's Manual (Startup))

- Scaling for writing data performs the inverse operation of a set expression.

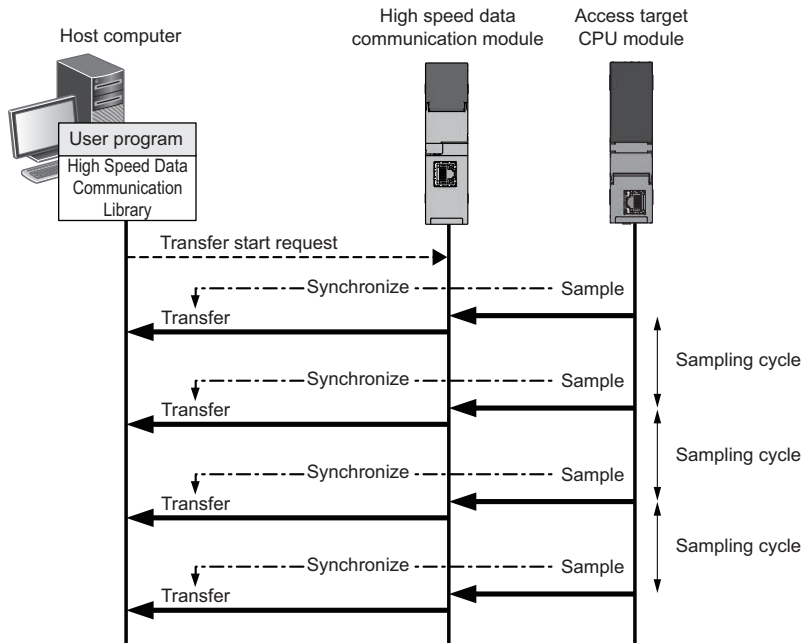
For example, if an expression is set to "/ 5 - 100," the expression for writing data will be "((value to be written) + 100) * 5."

Transfer function

The transfer function transfers sampled device data to a host computer.
There are the following two types of transfer cycles (transfer timings).

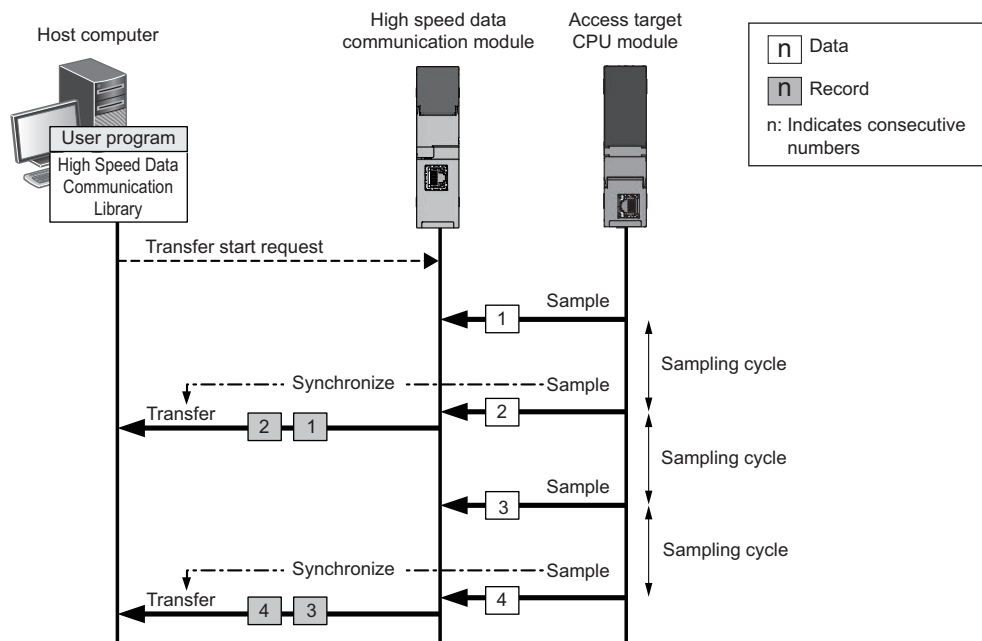
Sampling synchronization

Records are transferred by synchronizing with the sampling timing. (They are transferred when sampling is completed.)



For a high speed sampling label group, the number of records to be transferred can be specified, which can reduce the communication overhead.

If the number of records is specified, the specified number of records is always transferred.



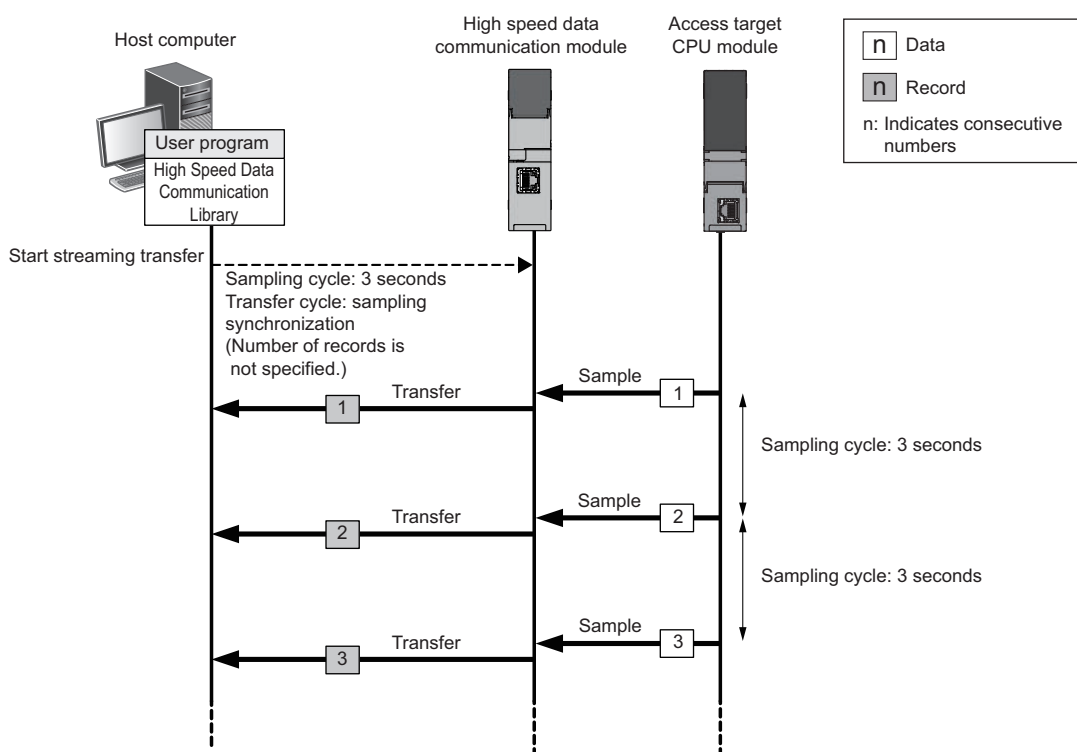
If a sampling cycle is shorter than a transfer cycle, multiple records may be transferred at once. (However, in a user program, they are handled as if transferred one by one by High Speed Data Communication Library.)



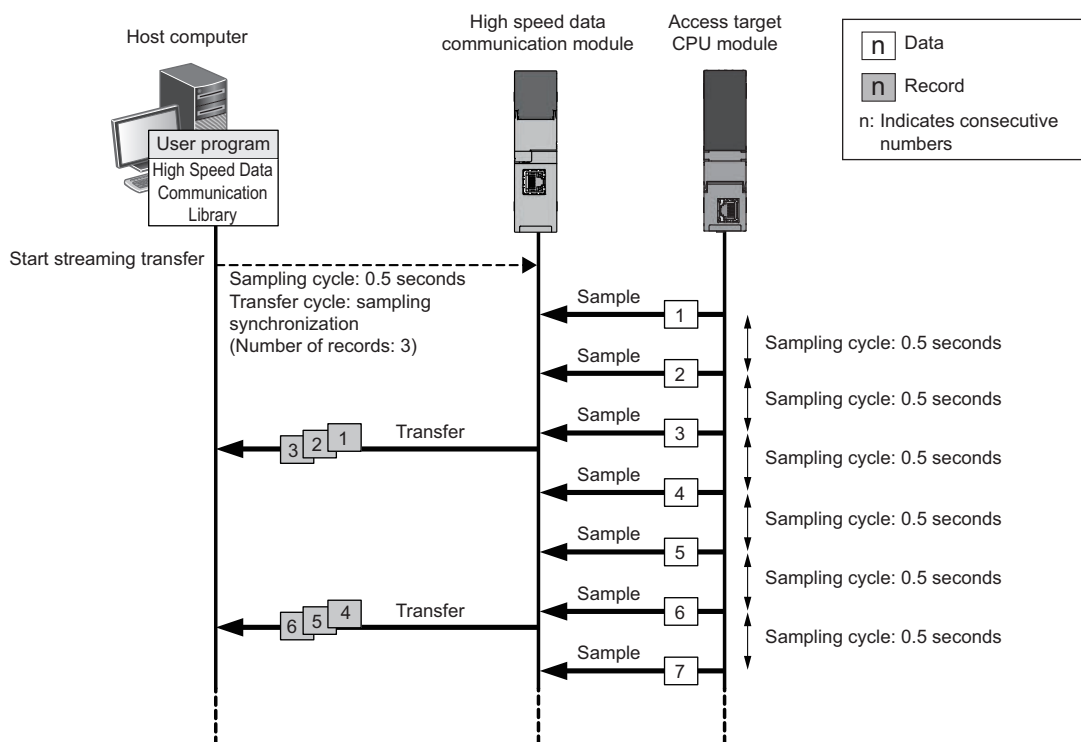
Operation examples

The following shows the operation example of each combination of sampling cycle and transfer cycle.

■ Sampling cycle: time specification (3 seconds), transfer cycle: sampling synchronization (number of records: not specified)

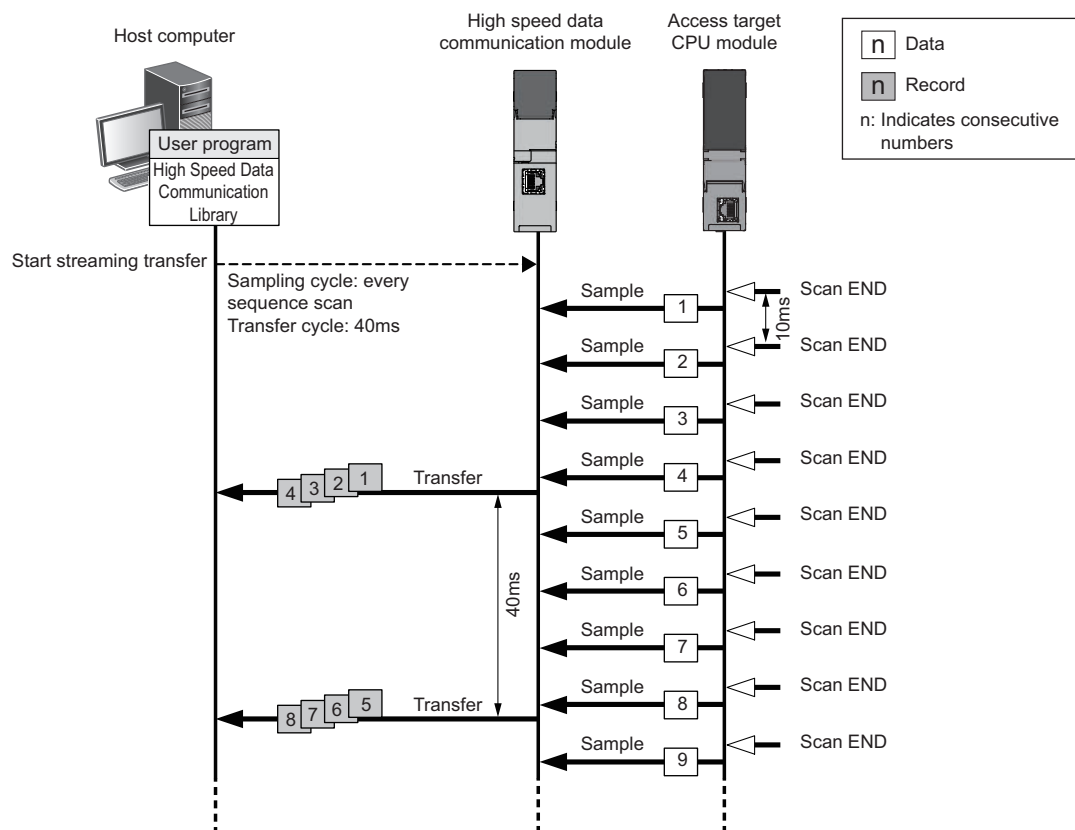


■ Sampling cycle: time specification (0.5 seconds), transfer cycle: sampling synchronization (number of records: 3)



■ **Sampling cycle: each sequence scan (sequence scan time: 10 milliseconds), transfer cycle: time specification (40 milliseconds)**

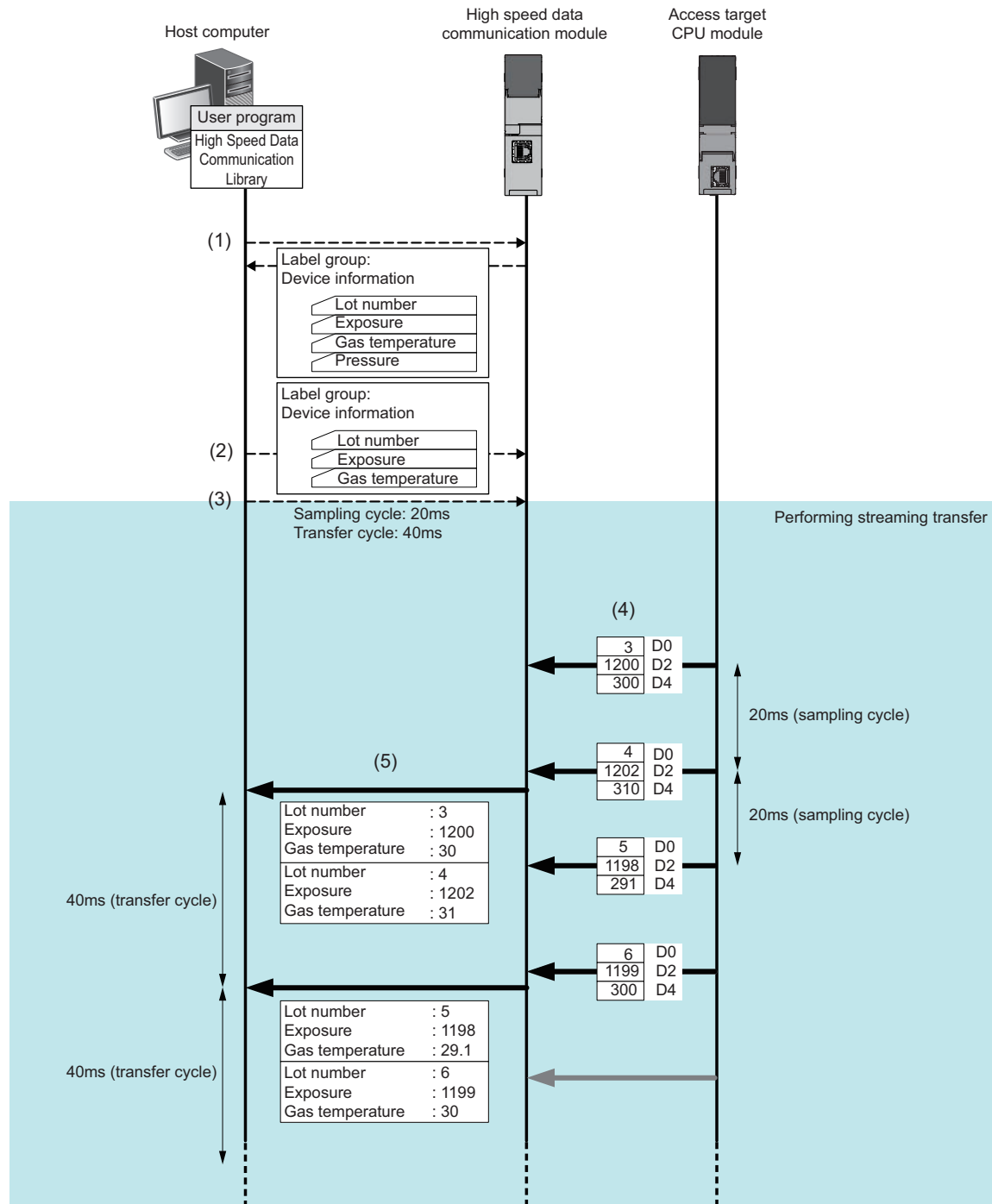
1



Operation example of the streaming transfer function

The following shows the operation example of a streaming transfer when the following high speed sampling label group is set.

Label group name	Label name	Device	Data type	Scaling
Device information	Lot number	D0	Word [Unsigned]	Not set
	Exposure	D2	Double Word [Signed]	Not set
	Gas temperature	D4	FLOAT [Double Precision]	÷ 10
	Pressure	D8	FLOAT [Double Precision]	Not set



Item	Description
(1) Inquiring labels that can be transferred	Information on settings for labels, such as their names, data types, and size, can be acquired.
(2) Registering labels to be streamed	Labels are registered with the combination of label group name and label name. (It is not necessary to specify devices.)
(3) Starting a streaming transfer	A streaming transfer is started when a host computer sends a command to start a streaming transfer to a high speed data communication module. The sampling cycle and transfer cycle are specified here.
(4) Sampling data	Data of registered labels is sampled according to the sampling cycle.
(5) Transferring records to a host computer	Sampled data is transferred to a host computer according to the transfer cycle. If a label is set to be scaled, the scaling result is transferred.

Data missing

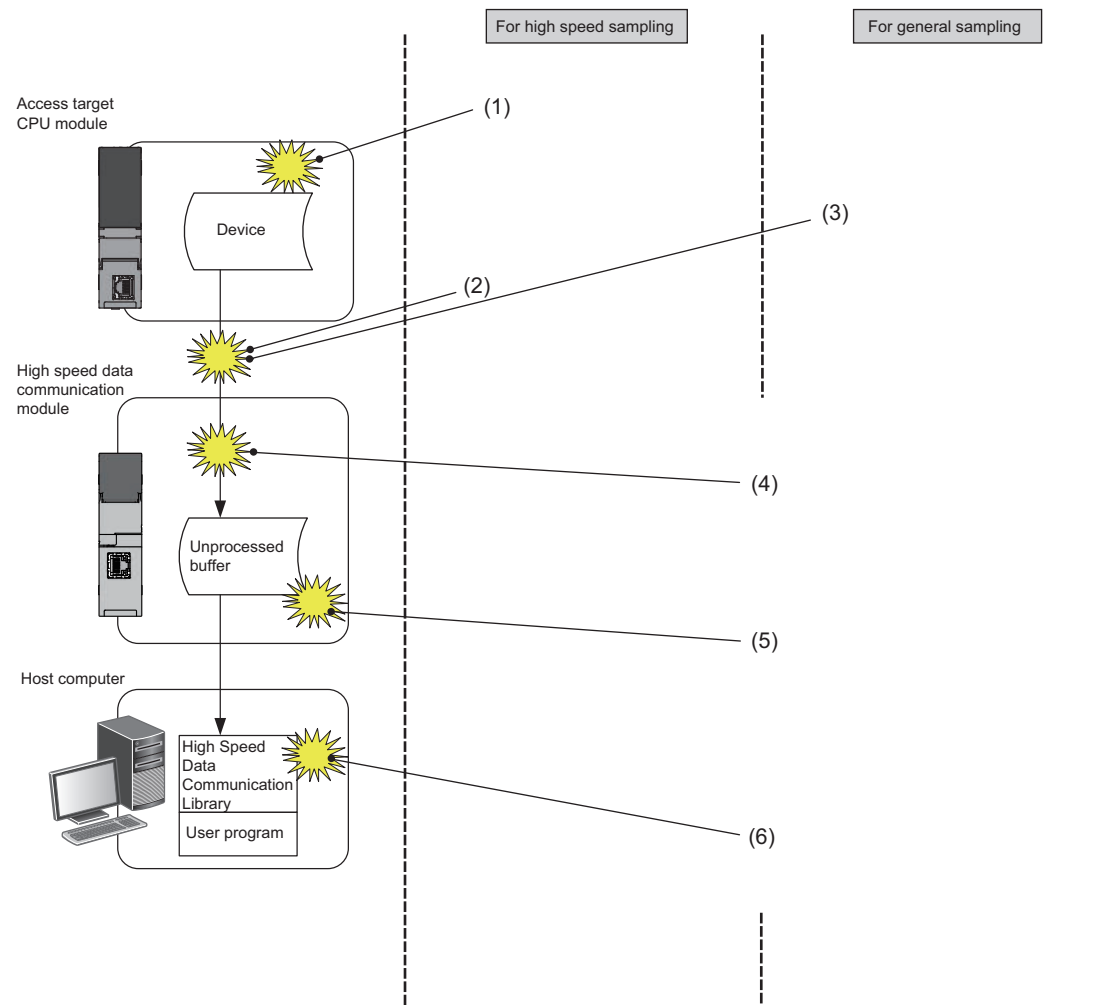
Data missing means that sampled data is lacking and not continuous.

Whether data is missing or not can be checked with the index information of transfer data in High Speed Data Communication Library.

Index information of transfer data can be checked in the following:

Library	Class	Property/method	Reference
Visual C#® library	RecordData class	Index	MELSEC IQ-R High Speed Data Communication Module Programming Manual
Java® library		getIndex	

Conditions that cause data missing and notification methods are as follows.



Item	Condition	Notification method
(1) CPU module operation	A control CPU is switched from STOP to RUN when high speed sampling (each sequence scan) is specified.	<ul style="list-style-type: none"> • The index returns to '1.'
	Parameters are written to a control CPU when high speed sampling is specified.	
(2) High speed sampling failure	Sampling processing does not catch up with a specified sampling cycle when high speed sampling is specified.	<ul style="list-style-type: none"> • "High speed sampling failure count" of the buffer memory increases. • The index returns to '1.'
(3) Sampling error	Sampling fails due to a cable disconnection, etc. when general sampling is specified.	<ul style="list-style-type: none"> • A sampling error is registered in the error/event history and in the access history. • A streaming transfer stops.
(4) Module operation	"Update settings" is executed to a high speed data communication module.	<ul style="list-style-type: none"> • Execution of "Update settings" is registered in the error/event history and in the access history. • A streaming transfer stops. • Connection is disconnected after the update.
(5) Processing overload	Transfer processing takes time and some data in the unprocessed buffer is discarded.	<ul style="list-style-type: none"> • "Processing overload count" of the buffer memory increases. • The index returns to '1.' • A streaming transfer stops.
	Transfer processing takes time and the unprocessed buffer becomes full.	
	Any packet is lost due to a network failure.	
	Transfer processing takes time and the network send buffer becomes full.	
(6) Reception processing failure	Next transfer data is received while receiving the previous transfer data.	<ul style="list-style-type: none"> • The index of the next transfer data is missing.

1.3 Data Read Function

The data read function reads device data from an access target CPU module and transfers the data to a host computer according to a command sent from the host computer.

Unlike a streaming transfer, data is read only once per execution command. In addition, date and time data is not added.

Scaling can be applied to the read data.

Data is read by the following steps:

Step	Host computer	High speed data communication module
1	Specifies labels (or devices ^{*1}) to be read and sends a read command. (High speed sampling labels and general sampling labels can be specified together.)	—
2	—	Reads the specified labels (or devices). (Data inconsistency may occur since the read operation is not synchronized with the sequence scan of a control CPU.)
3		Scales the read data. ^{*2} (Page 23 Scaling function)
4		Transfers the read data to a host computer.

*1 Only devices in a control CPU can be read. To read other devices, specify them by using labels.

*2 Available only for reading labels.

Precautions

If the streaming transfer function or data write function is performed while reading data, time required for reading and transferring the data may vary. (Page 152 Processing Time)

1.4 Data Write Function

The data write function writes data specified by a host computer to devices in an access target CPU module according to a command sent from the host computer.

Scaling can be applied to the data to be written.

Data is written by the following steps:

Step	Host computer	High speed data communication module
1	Specifies labels (or devices ^{*1}) to be written to and data to be written to the labels or devices, and sends a write command. (High speed sampling labels and general sampling labels can be specified together.)	—
2	—	Scales the data to be written. ^{*2} (Page 23 Scaling function)
3		Writes the data to specified labels (or devices).

*1 Data can be written to devices in a control CPU only. To write data to other devices, specify them by using labels.

*2 Available only for writing labels.

Point

Scaling for writing data performs the inverse operation of a set expression.

For example, if an expression is set to " $\div 5 - 100$," the expression for writing data will be " $((\text{value to be written} + 100) \times 5$."

- When a value to be written from a host computer is 100: $(100 + 100) \times 5 = 1000$
- When a value to be written from a host computer is -100: $(-100 + 100) \times 5 = 0$

Precautions

If the streaming transfer function or data read function is performed while writing data, time required for writing the data may vary. (Page 152 Processing Time)

1.5 Security Function

1

The security function prevents assets stored in a high speed data communication module from being stolen, falsified, operated incorrectly, and executed improperly due to unauthorized access from a third party.

Security can be set in Configuration Tool. (📖 Page 66 Security setting)

Precautions

The security function is one of the methods for preventing unauthorized access (such as program or data corruption) from an external device. However, this function does not prevent unauthorized access completely. Incorporate measures other than this function if the programmable controller system's safety must be maintained against unauthorized access from an external device. Mitsubishi Electric Corporation cannot be held responsible for any system problems that may occur from unauthorized access. Examples of measures for unauthorized access are shown below.

Examples of measures for unauthorized access are shown below.

- Install a firewall.
- Install a personal computer as a relay station, and control the relay of send/receive data with an application program.
- Install an external device for which the access rights can be controlled as a relay station. (For details on the external devices for which access rights can be controlled, consult the network provider or equipment dealer.)

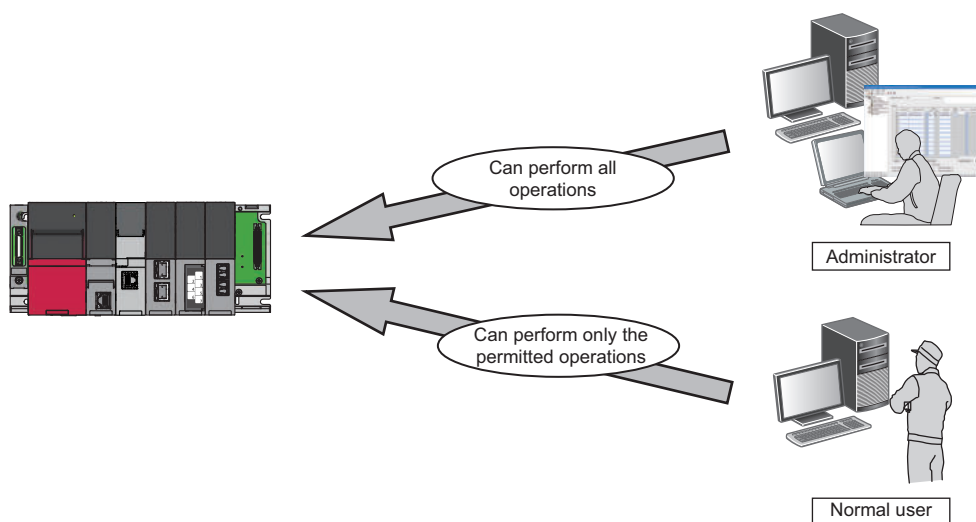
Access Authentication Function

The access authentication function restricts access to a high speed data communication module by authenticating a user name and password.

Access authority can be selected between "Administrator" or "Normal user."

"Administrator" has all authority to operate the module.

Authority for "Normal user" can be changed by settings. (Accessible label group, access availability by device specification, etc.)



The restrictions for the number of users, user name, and password are as follows.

Item	Setting range
Number of users	0 to 16 users
User name	1 to 20 characters
Password	6 to 32 characters

Access authentication of a high speed data communication module is performed when connecting with any of the following software:

- Configuration Tool
- User program
- GX LogViewer

Access authority

The following shows authority of an administrator and normal user.

○: Authorized △: Can be changed by settings ×: Not authorized

Operation				Access authority		
				Admini strator	Normal user	
Connecting/disconnecting access to a high speed data communication module				○	○	
Acquiring a label list					△*1	
Performing a streaming transfer					△*2	
Accessing from GX LogViewer					△*2	
Reading data	Label				△*3	
	Device specification				△*4	
Writing data	Label				△*3*5	
	Device specification				△*4*6	
Acquiring connection information					○	
Accessing from Configuration Tool	Communication test (online - transfer setup)				○	
	Connection test (access target CPU setting)			×		
	Label access test (label group setting)			×		
	Read (online)			×		
	Write (online)			×		
	Verify (online)			×		
	Diagnostics (online)	Module time			○	
		Module	Module status	Operating status	○	
				Error status	○	
			Error information	Current error information	○	
				Error clear	×	
				Error detail	○	
				Error history	○	
				Event history file	×	
				INFO LED information	INFO LED status	○
			Cause of lighting		○	
			INFO LED turn off		×	
			Module operation		Update settings	×
			SD memory card	SD memory card information	Access status	○
					Total capacity/free capacity/ usage capacity/usage rate	○
SD memory card operation				Access stop	×	
		Access restart		×		
SD memory card format		Format		×		
Connected device		Connected device list		○		
		Connection details		○		
		Access history file		×		
Ping test			○			
Product information			○			
Manage (online)		Firmware update	Acquiring the permitted/prohibited state of the function		×	
			Changing the set state of the function (prohibiting the function)		×	
			Changing the state of the function (removing the prohibition)		×	

*1 ○ for a label group of which data can be read, and × for the others. (If data can be read, the label list can be acquired.)

*2 Can be changed for each label group in the "Account setting" screen of Configuration Tool. (Authority is granted only when data can be read.)

*3 Can be changed for each label group in the "Account setting" screen of Configuration Tool.

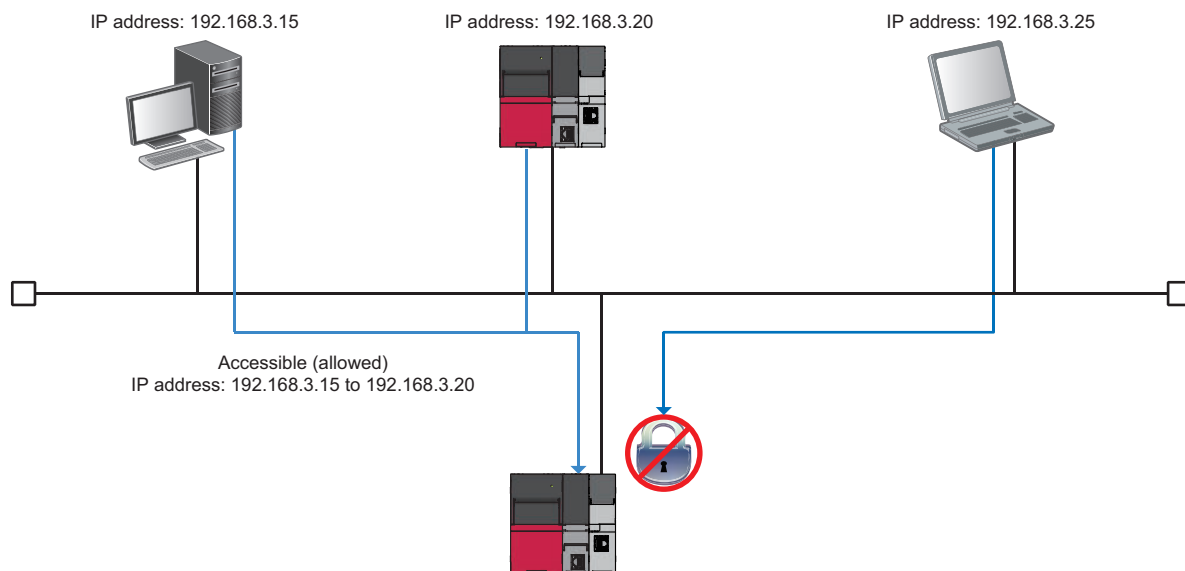
- *4 Can be changed in the "Account setting" screen of Configuration Tool.
- *5 Can be authorized only for label groups of which data can be read.
- *6 Can be authorized only when data can be read with "Device specification."

IP filter function

The IP filter function prevents access from unauthorized IP addresses by filtering the IP address of a communication target.

There are the following two types in the IP filter function:

- Allow function: It allows access only from specified IP addresses.
- Deny function: It denies access only from specified IP addresses.



The IP filter function is applied to all the access to a high speed data communication module, such as from Configuration Tool and a user program.

1.6 Time Synchronization Function

The time synchronization function synchronizes the time in a high speed data communication module with a CPU module (CPU No.1 in a multiple CPU system).
Time information is used for the time of event occurrence/restoration, date and time information in the "Diagnostics" screen of Configuration Tool, etc.

Time synchronization timings

Time is synchronized at all the following timings:

■Timing specified in Configuration Tool

Time is synchronized at the timing specified in "Time synchronization setting" in Configuration Tool. (📖 Page 62 Time synchronization setting)
The synchronization timing can be specified in fixed cycles (interval in minutes) or in fixed time (time and day of the week).

■Module startup

Time is synchronized at the timing when a high speed data communication module is started or restarted after performing any of the following operations:

- Turning the power OFF and ON
- Resetting a CPU module
- Updating settings

■Time synchronization request

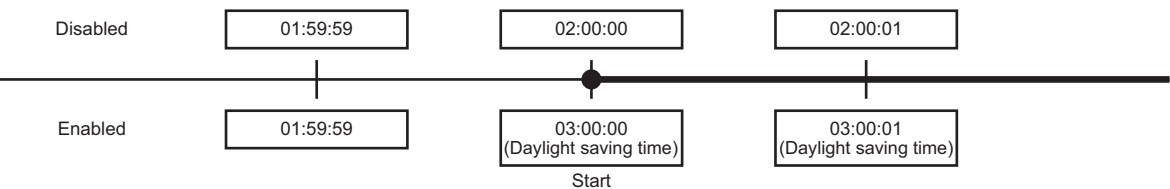
Time is synchronized at the timing when the 'time synchronization request' (YB) is turned from OFF to ON.

Daylight saving time

If daylight saving time is set in a CPU module, the clock will be set ahead by 1 hour when the daylight saving time starts, and it will set back to the original time when the daylight saving time ends.

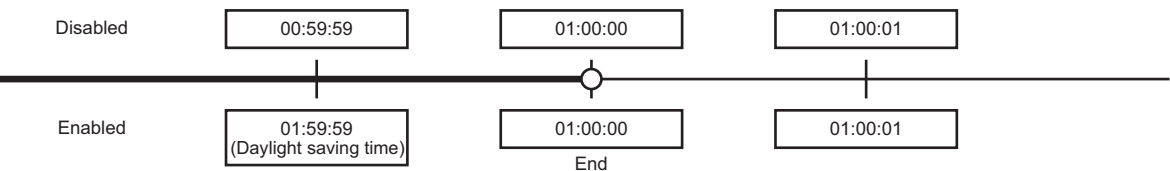
Ex.

If the daylight saving time starts from 02:00
The clock will be set ahead by 1 hour at the start time.



Ex.

If the daylight saving time ends at 02:00
The clock will be set back to the original time at the end time.



Precautions

Acquired data sampling time may not be accurate if a streaming transfer is performed before and after the daylight saving time starts or ends.

Operation for time synchronization

When implementing synchronization with the time in a CPU module, the time in a high speed data communication module is changed.

As a result, the time in the high speed data communication module may be greatly changed.

Since there is inaccuracy in the clock element of a CPU module and high speed data communication module, the time may be moved slightly forward or backward when the time is synchronized.

However, data is sampled at a fixed cycle.

Time is synchronized →	2015/1/15 15:48:32.8	1028	1	100	15.9
	2015/1/15 15:48:32.9	1029	1	101	16.0
	2015/1/15 15:48:31.5	1030	1	102	16.1
	2015/1/15 15:48:31.6	1031	0	103	16.2
	2015/1/15 15:48:31.7	1032	0	104	16.3

Data is normally sampled at intervals of 100 milliseconds.

■When the time in a high speed data communication module is set forward by time synchronization:

Data may be sampled at a timing shorter than the specified cycle.

■When the time in a high speed data communication module is set backward by time synchronization:

Data may be sampled at a timing longer than the specified cycle.

Considerations for time synchronization function

- Before using a high speed data communication module, set the clock data of CPU No.1.
For the method for setting clock data, refer to the user's manual for a CPU module used.
- There is a deviation in the clock data of CPU No.1 used by a high speed data communication module.
For the clock data accuracy, refer to the user's manual for a CPU module used.
- When a high speed data communication module acquires the clock data from CPU No.1, a maximum of one second of delay occurs as the transfer time.
Therefore, a one-second deviation may occur in data sampling time when setting the time.
- A time zone is not required to be set with the time synchronization function of a high speed data communication module because the clock data follows the time zone set in a CPU module. When specifying a time zone, set it with the CPU module.

Time information added at a streaming transfer

Data time at which a streaming transfer is performed (the time at which data is sampled) can be added to a record in either of the following formats.

Specify the format in a user program. (MELSEC iQ-R High Speed Data Communication Module Programming Manual)

■Local time

This is a local time that people use in their everyday life. It is affected by time zone or whether daylight saving (summer time) is in effect.

Time is converted into a local time based on the time zone and daylight saving time settings, then added as time information.

■Coordinated universal time (UTC)

This is a universal time that does not change regardless of time zone or whether daylight saving (summer time) is in effect. It is used to compare data time across time zones.

When synchronizing time, the time in a CPU module is regarded as a local time. Therefore, time information displayed in Configuration Tool is based on the time in CPU module.

Time is converted into the coordinated universal time (UTC) based on the time zone set in a CPU module, then added as time information.

1.7 Initialization Function

The initialization function initializes a firmware update-prohibited password retained in a high speed data communication module.

Operating procedure

1. Select "Module Initialization Setting" in "Basic Settings" ⇒ "Various Operations Settings" ⇒ "Mode Settings" for a high speed data communication module in an engineering tool. (📖 Page 95 Basic Settings)
2. Set the CPU module to the STOP state, and write the parameters.
3. Reset the CPU module.

After the CPU module is reset, a firmware update-prohibited password is initialized automatically. The LED display for the initialization is as follows:

Status		RUN LED status	ERR LED status
Initialization completed	Normal completion	ON	OFF
	Abnormal completion	ON	ON

4. When the initialization is completed normally, change the mode set in the step 1 back to "Online," and reset the CPU module.
5. When the initialization is completed abnormally, check if measures are taken to reduce noise of the programmable controller system, and perform the initialization again. If it is completed abnormally again, a hardware failure may occur in a high speed data communication module. Please contact your local Mitsubishi Electric sales office or representative. Do not use an electric screwdriver when removing the module. Loose the module fixing screws completely to remove the module.

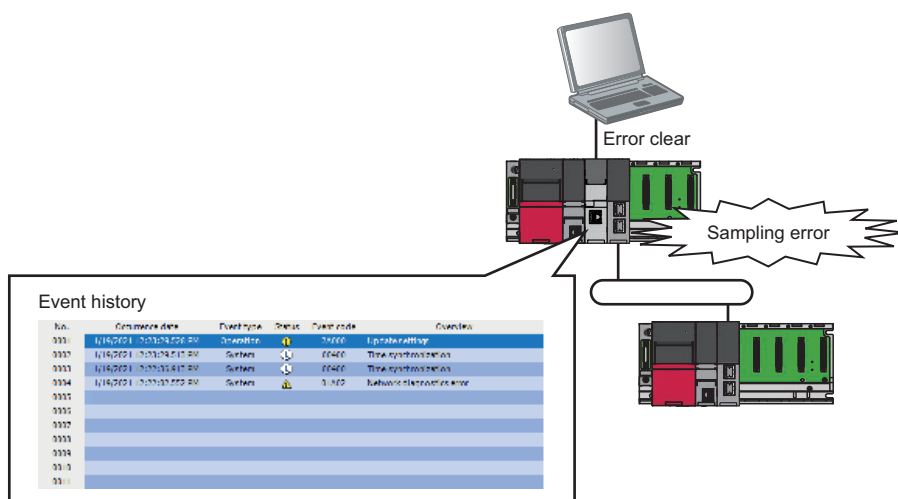
1.8 Event History Registration Function

1

The event history registration function registers (saves) the following information in an SD memory card: errors detected by a high speed data communication module and events such as operations performed to the module.

The operation status of the module so far can be checked because registered errors and events are not deleted even when the power is turned OFF.

Registered errors and events can be checked in Configuration Tool. (☞ Page 83 Event history)



For errors and events registered by a high speed data communication, refer to the following:

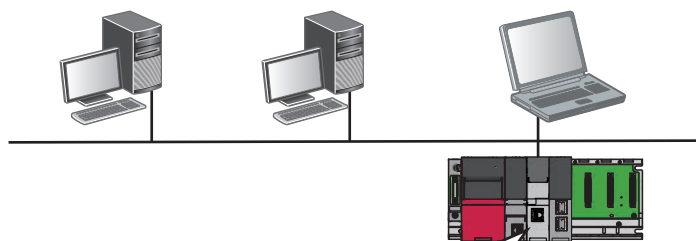
☞ Page 113 Error Code List, Page 132 Event Code List

1.9 Access History Registration Function

The access history registration function automatically registers (saves) the information on access to a high speed data communication module from a host computer and configuration personal computer in an SD memory card.

The access status to the module so far can be checked because registered information is not deleted even if the power is turned OFF.

Registered information can be checked in Configuration Tool. (☞ Page 89 Access history)



Access history


No.	Occurrence date	Event type	Status	Connected device	User name
0001	3/8/2021 17:34:27.000 AM	Operation	↓	192.168.3.100(Tool)	Done
0002	3/8/2021 12:08:46.000 PM	Operation	↓	192.168.3.100(Tool)	Disc
0003	3/8/2021 12:08:46.000 PM	Operation	↓	192.168.3.100(Tool)	Comp
0004	3/8/2021 12:01:31.000 PM	Operation	↓	192.168.3.100(Tool)	Disc
0005	3/8/2021 11:57:18.000 AM	Operation	↓	192.168.3.100(User program)	Disc
0006	3/8/2021 11:57:18.000 AM	System	⚠	192.168.3.100(User program)	Other
0007	3/8/2021 11:57:18.000 AM	Operation	↓	192.168.3.100(User program)	Write
0008	3/8/2021 11:57:18.000 AM	Operation	↓	192.168.3.100(User program)	Write
0009	3/8/2021 11:57:18.000 AM	Operation	↓	192.168.3.100(User program)	Read
0010	3/8/2021 11:57:18.000 AM	Operation	↓	192.168.3.100(User program)	Read
0011	3/8/2021 11:57:18.000 AM	Operation	↓	192.168.3.100(User program)	Comp

1.10 Self-diagnostic Function

1

The self-diagnostic function performs a self-diagnostic test to check the hardware of a high speed data communication module.

The following tests are included in the self-diagnostics:

- Automatic hardware test ( Page 101 Automatic hardware test)
- Hardware test for LED check ( Page 102 Hardware test for LED check)

2 Configuration Tool


This chapter explains Configuration Tool.

2.1 Overview of Configuration Tool

Configuration Tool performs the following operations to a high speed data communication module:

- Editing settings of the module
- Writing settings to the module
- Reading settings from the module
- Displaying information on the running module
- Operating the running module


For details on the startup method and screen configuration in Configuration Tool, refer to the following:

 MELSEC iQ-R High Speed Data Communication Module User's Manual (Startup)


Setting flow

Follow the procedure below.

1. Set the initial settings.


 Page 60 Common Setting

2. Set label groups.

 Page 69 High Speed Sampling Label Setting

 Page 74 General Sampling Label Setting

3. Write the settings to a high speed data communication module.

 Page 79 Writing settings

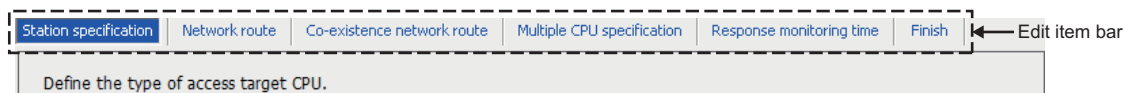
2.2 Common Operations

This section shows common operations of Configuration Tool.

Operations in the wizard screen

The title of each wizard screen is displayed on the edit item bar in the upper part of the detailed setting editing screen.

Set items in each tab on the edit item bar from the left to the right.



Wizard display and operations

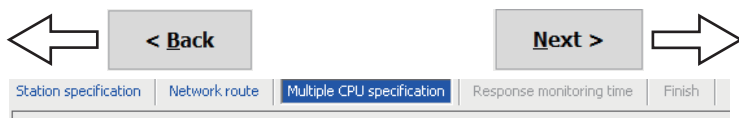
■Edit item status

The setting status of the wizards on the edit item bar can be checked by color.

Status	Text color	Background color	Example
Configured	Blue	White	Network route
Being edited	White	Blue	Multiple CPU specification
Not configured	Gray	White	Response monitoring time

■Screen transitions with the [Back]/[Next] buttons

The detailed setting editing screen can be switched with the [Back]/[Next] buttons.



■Screen transitions with mouse

The detailed setting editing screen for the item that is already set can be displayed by clicking the item directly on the edit item bar.

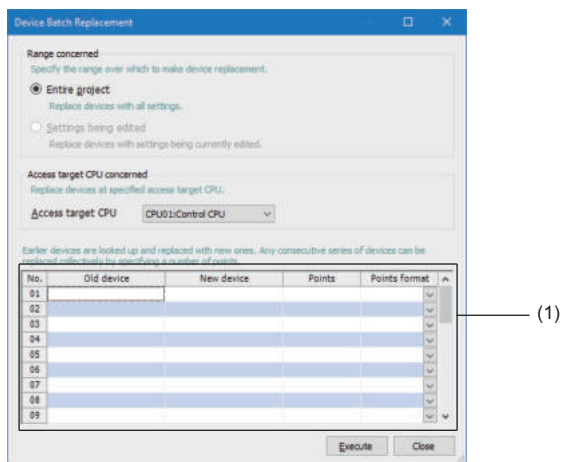


Device batch replacement

The following shows the screen for replace devices (except for related data) used in high speed sampling label group settings and general sampling label settings in a batch.

Window

Select [Edit] ⇨ [Device batch replacement].



Displayed items

Item		Description
Range concerned	Entire project	Select this to replace an entire project.
	Settings being edited	Select this to replace the setting (high speed sampling label group setting or general sampling label group setting) that is currently displayed in the detailed setting editing screen.
Access target CPU concerned		Select the access target CPU of the devices to be replaced.
(1) Replace device list	Old device	Specify the replacement target start device.
	New device	Specify the start device after replacement.
	Points	Set the number of device points for the replacement target.
	Points format	Select the specification format of "Points."
[Execute] button		Click this to replace devices in a batch.

Importing global labels and common device comments

Global labels (including module labels) and common device comments set in an engineering tool can be imported into a project in Configuration Tool.

Labels created by importing global labels are related to the global labels of an import source. (They are referred to as related data.)

Related data can be updated according to changes in global labels of an import source.

Data which can be imported is as follows:

○: Available, ×: Not available, —: No data

Item	Engineering tool
Common device comment	○
Each program device comment	×
Global label (Global)	○
Module label (M+Global)	○
Local label	×
System label	—

For details on global labels and device comments, refer to the following:

 GX Works3 Operating Manual

Considerations for importing data

■Importing global labels

- An engineering tool (GX Works3 Version 1.075D or later) must be installed to import global labels or to update related data.
- If the device, device type, and character string size of a global label are not applicable in Configuration Tool, the global label cannot be imported. (However, it is displayed in the screen for selecting global labels to be imported.)
- When 32769 or more global labels are set in one project, those exceeding 32768 are not displayed in the screen for selecting global labels to be imported.
- Do not import global labels during the save process of an engineering tool project. If attempted, the engineering tool project may not be saved properly.
- A global label to which a device or label is not assigned is not imported.
- Global labels cannot be imported from an engineering tool project that requires entering a user name and password or cannot be opened in an installed engineering tool.



■Importing common device comments

- An engineering tool (GX Works3 Version 1.075D or later) must be installed to import common device comments.
- The common device comment for a device that is not applicable in Configuration Tool cannot be imported. (However, it is displayed in the screen for selecting common device comments to be imported.)
- When 32769 or more common device comments are set in one project, those exceeding 32768 are not displayed in the screen for selecting common device comments to be imported.
- Do not import common device comments during the save process of an engineering tool project. If attempted, the engineering tool project may not be saved properly.
- Common device comments cannot be imported from an engineering tool project that requires entering a user name and password or cannot be opened in an installed engineering tool.


Importing global labels

The following shows the procedure for importing global labels set in an engineering tool.
If global labels created in an engineering tool are changed, they are updated in a batch. It is therefore necessary to link the global labels.

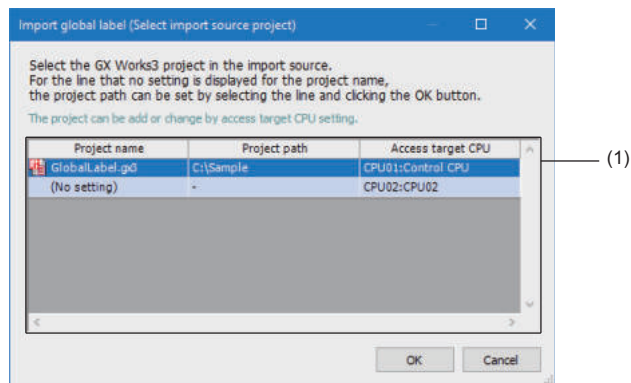
Operating procedure

1. Open the "Import global label (Select import source project)" screen or "Import" screen by performing either of the following operations in the screen for setting a high speed sampling label group or general sampling label group.
 - Select [Edit] ⇒ [Import global label].
 - Click the [Import] button in the screen.
2. Select an import source project for global labels in the "Import global label (Select import source project)" screen or "Import" screen, and click the [OK] button. ( Page 46 "Import global label (Select import source project)" screen, Page 47 "Import" screen)
3. Select global labels to be imported in the "Import global label" screen, and click the [OK] button. ( Page 48 "Import global label" screen)



Point

After global labels are imported, an icon () indicating related data is displayed in the label name column of the label group setting screen.
In addition, to relate data to global labels, data in the "Access target CPU," "Device," "Data Type," and "Size" columns cannot be edited.

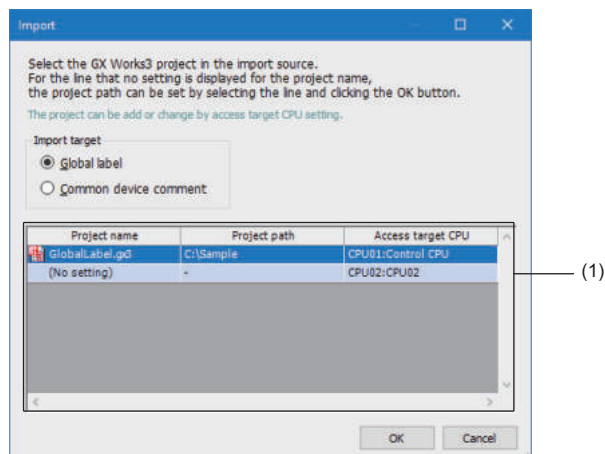
"Import global label (Select import source project)" screen



Displayed items

Item	Description
(1) Import source list	An engineering tool project and access target CPU that are set as import sources of global labels are displayed. If no project is set in the access target CPU, "(No setting)" is displayed.
[OK] button	Click this to display the screen for selecting global labels to be imported from a selected project. ( Page 48 "Import global label" screen) When "(No setting)" is selected, the "Global label/Common device comment import setting" screen appears. ( Page 47 "Global label/Common device comment import setting" screen)

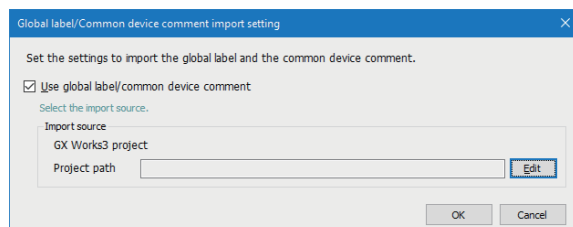
■"Import" screen



Displayed items

Item	Description
Import target	Select a target to be imported from a project.
(1) Import source list	An engineering tool project and access target CPU that are set as import sources are displayed. If no project is set in the access target CPU, "(No setting)" is displayed.
[OK] button	Click this to display the screen for selecting global labels (or common device comments) to be imported from a selected project. <ul style="list-style-type: none"> When "Global label" is selected for "Import target": Page 48 "Import global label" screen When "Common device comment" is selected for "Import target": Page 56 "Import common device comment" screen When "(No setting)" is selected, the "Global label/Common device comment import setting" screen appears. (Page 47 "Global label/Common device comment import setting" screen)

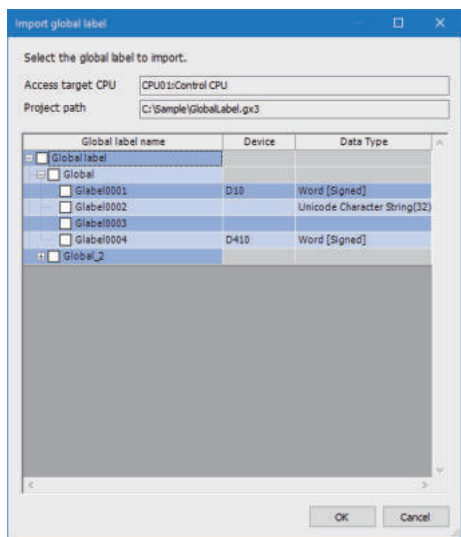
■"Global label/Common device comment import setting" screen



Displayed items

Item	Description
Use global label/common device comment	Select the checkbox to import global labels (or common device comments).
Import source	—
[Edit] button	Click this to display the screen for selecting an engineering tool project to be an import source.
[OK] button	Click this to display the screen for selecting global labels (or common device comments) to be imported from a selected project. (Page 48 "Import global label" screen , Page 56 "Import common device comment" screen) If this screen was displayed from the [Finish] tab of "Access target CPU setting," the settings are applied and the screen is closed by clicking this button.

■ "Import global label" screen



Displayed items

Item	Description
Access target CPU	The access target CPU selected in the transition source screen is displayed.
Project path	The path of an import source project is displayed.
Global label name	A global label name (set in an engineering tool) is displayed. Select the checkbox of a global label to be imported.
Device	The start device of a global label is displayed. If a device is not assigned, the cell will be blank.
Data type	The data type of a global label is displayed.
[OK] button	Click this to import a specified global label and close the screen.

■ Global label name

- Simple types

A display example when a global label is of the simple type and one of a label name after import are as follows:

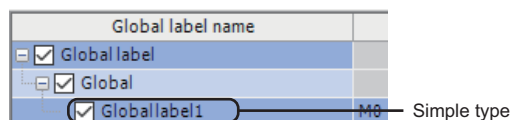
○: Available

Type	Display example of a global label name	Import ^{*1}	Label name example ^{*2}
Simple type	GlobalLabel1	○	GlobalLabel1

*1 Available only when a global label name, data type, and device are set for import source data.

*2 If a label name has more than 32 characters, the last 32 characters of the name are displayed.

Ex.



- Array

A display example when a global label is an array and one of a label name after import are as follows:

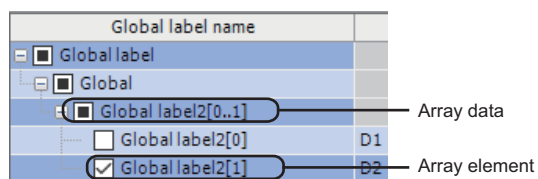
○: Available, ×: Not available

Type	Display example of a global label name	Import ^{*1}	Label name example ^{*2}
Array data	GlobalLabel2[0..1]	×	—
Array element	GlobalLabel2[1]	○	GlobalLabel2[1]

*1 Available only when a global label name, data type, and device are set for import source data.

*2 If a label name has more than 32 characters, the last 32 characters of the name are displayed.

Ex.



- Structure

A display example when a global label is a structure and one of a label name after import are as follows:

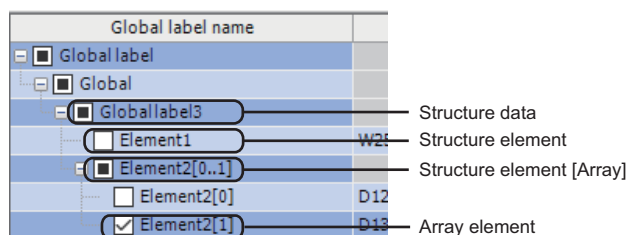
○: Available, ×: Not available

Type	Display example of a global label name	Import ^{*1}	Label name example ^{*2}
Structure data	GlobalLabel3	×	—
Structure element	Element1	○	GlobalLabel3.Element1
Structure element [Array]	Element2[0..1]	×	—
Array element	Element2[1]	○	GlobalLabel3.Element2[1]

*1 Available only when a global label name, data type, and device are set for import source data.

*2 If a label name has more than 32 characters, the last 32 characters of the name are displayed. If the label name of an expanded structure has more than 32 characters, the element name is used as the label name. If the element name has more than 32 characters, the last 32 characters of the name are displayed.

Ex.



- Structured array

A display example when a global label is a structure array and one of a label name after import are as follows:

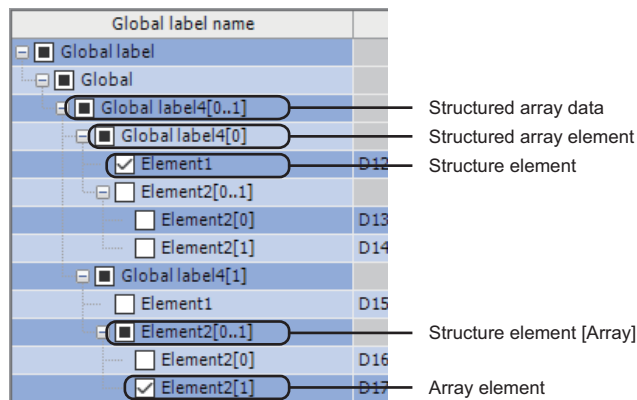
○: Available, ×: Not available

Type	Display example of a global label name	Import ^{*1}	Label name example ^{*2}
Structure array data	GlobalLabel4[0..1]	×	—
Structure array element	GlobalLabel4[0]	×	—
Structure element	Element1	○	GlobalLabel4[0].Element1
Structure element [Array]	Element2[0..1]	×	—
Array element	Element2[1]	○	GlobalLabel4[0].Element2[1]

*1 Available only when a global label name, data type, and device are set for import source data.

*2 If a label name has more than 32 characters, the last 32 characters of the name are displayed. If the label name of an expanded structure has more than 32 characters, the element name is used as the label name. If the element name has more than 32 characters, the last 32 characters of the name are displayed.

Ex.



- Timer/Counter/Retentive timer

A display example when a global label is a timer/counter/retentive timer and one of a label name after import are as follows:

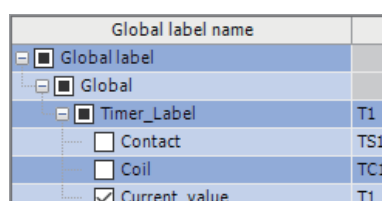
○: Available, ×: Not available

Type		Display example of a global label name	Import ^{*1}	Label name example ^{*2}
Timer	—	Timer_Label	×	—
	Contact	Contact	○	Timer_Label.Contact
	Coil	Coil	○	Timer_Label.Coil
	Current value	Current_value	○	Timer_Label.Current_value
Counter	—	Counter_Label	×	—
	Contact	Contact	○	Counter_Label.Contact
	Coil	Coil	○	Counter_Label.Coil
	Current value	Current_value	○	Counter_Label.Current_value
Retentive timer	—	Retentive_timer_Label	×	—
	Contact	Contact	○	Retentive_timer_Label.Contact
	Coil	Coil	○	Retentive_timer_Label.Coil
	Current value	Current_value	○	Current_value

*1 Available only when a global label name, data type, and device are set for import source data.

*2 If a label name has more than 32 characters, the last 32 characters of the name are displayed. If the label name of an expanded timer, counter, or retentive timer has more than 32 characters, the element name is used as the label name.

Ex.



■ Assignment of a device/label to a global label

Content displayed in the device column of the "Import global label" screen and whether a global label can be imported differ according to the setting for the global label in an engineering tool.

Global label setting	Content displayed in the device column of the screen	Import
A device is assigned.	Assigned device	○
A label (alias) is assigned.	Assigned label name	×
No device or label is assigned.	Blank	×

■ Availability of global label import by data type

The following table shows whether a global label can be imported by data type set in an engineering tool.

○: Available, ×: Not available

Data type in an engineering tool	Import ^{*1}	Data type in Configuration Tool
Bit	○	Bit
Word [Signed]	○	Word [Signed]
Double Word [Signed]	○	Double Word [Signed]
Word [Unsigned]/Bit String [16-bit]	○	Word [Unsigned]/Bit String [16-bit]
Double Word [Unsigned]/Bit String [32-bit]	○	Double Word [Unsigned]/Bit String [32-bit]
FLOAT [Single Precision]	○	FLOAT [Single Precision]
FLOAT [Double Precision]	○	FLOAT [Double Precision]
String (n) ^{*2}	○	String
String [Unicode] (n) ^{*2}	○	Unicode String
Hour	×	—
Timer	○	Contact: Bit
Counter	○	Coil: Bit
Retentive timer	○	Current value: Word [Signed]
Long timer	○	Contact: Bit
Long counter	○	Coil: Bit
Long retentive timer	○	Current value: Double Word [Signed]
Pointer	×	—

*1 Available only when a global label name, data type, and device are set for import source data.

*2 'n' indicates the number of characters.

Precautions

The following table shows the data types and their corresponding devices when the VAR_GLOBAL_CONSTANT class is specified in an engineering tool.

n: A value entered to each data type

Notation in an engineering tool		Notation in Configuration Tool
Data type	Constant	Device
Bit	FALSE	SM401
	TRUE	SM400
Word [Signed]	n	Kn
Double Word [Signed]	n	Kn
Word [Unsigned]/Bit String [16-bit]	n	Kn
Double Word [Unsigned]/Bit String [32-bit]	n	Kn
FLOAT [Single Precision]	n	En
FLOAT [Double Precision]	n	En
String (32)	'n'	"n"
String [Unicode] (32)	'n'	"n"
Hour	T#nd	Kn*8640000
	T#nh	Kn*360000
	T#nm	Kn*60000
	T#ns	Kn*1000
	T#nms	Kn

Releasing relation to global labels

The following shows the procedure for releasing the relation between a global label of an engineering tool project and related data.

Each item can be edited after the relation is released.

Operating procedure

Release the relation by any of the following operations:

■ In the screen for setting a high speed sampling label group or general sampling label group

- Select [Edit] ⇒ [Release relation to global label].
- Right-click in the screen and select [Release Relation to Global Label] from the shortcut menu.
- Click the [Relation release] button in the screen.

■ In the "Global label/Common device comment import setting" screen

- Unselect the checkbox of "Use global label/common device comment."
- Change the import source project.

Updating data related to global labels

The following shows the procedure for updating related data to the latest value.

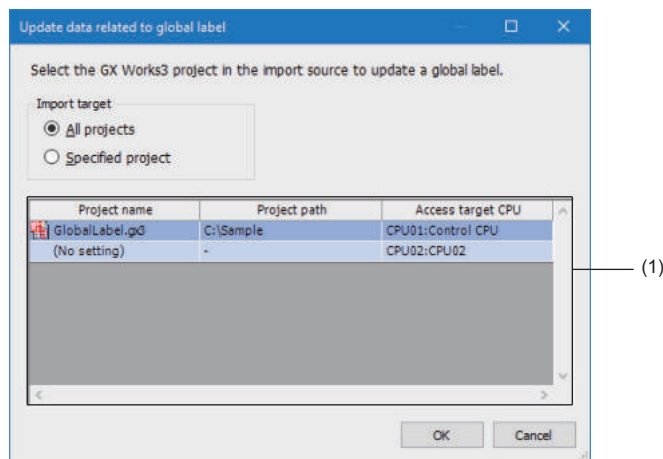
Data cannot be updated in the following cases; therefore, the relation will be released when the update is attempted.

- An import source project does not exist.
- A global label does not exist in an import source project.
- A global label name is changed.
- The device of a global label is not applicable in Configuration Tool.
- The data type of a global label is not applicable in Configuration Tool.
- The character string size of a global label is not applicable in Configuration Tool.

Operating procedure

1. Select [Edit] ⇒ [Update data related to global label].
2. Select an import source project of related data to be updated in the "Update data related to global label" screen, and click the [OK] button. (☞ Page 53 "Update data related to global label" screen)
3. Select labels to be updated in the "Update label" screen, and click the [OK] button. (☞ Page 54 "Update label" screen)

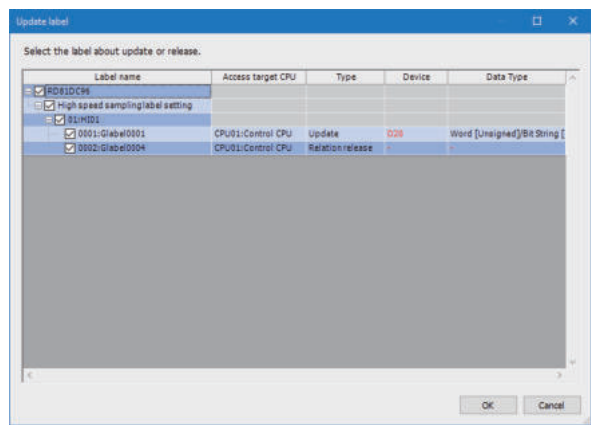
■"Update data related to global label" screen



Displayed items

Item		Description
Import target	All projects	Select this to update related data of all projects.
	Specified project	Select this to update related data of a specified project.
(1) Import source list		An engineering tool project and access target CPU that are set as import sources of global labels are displayed. If no project is set in the access target CPU, "(No setting)" is displayed.
[OK] button		Click this to acquire updated data in a selected project and display the screen for selecting labels to be updated from a selected project. (☞ Page 54 "Update label" screen)

■"Update label" screen



Displayed items

Item	Description
Label name	Each setting name ("High speed sampling label setting" or "General sampling label setting") and label names are displayed. Select the checkbox of a setting or label to be updated.
Access target CPU	An access target CPU is displayed.
Type	Either of the following items is displayed. <ul style="list-style-type: none">• Update: The device and data type will be updated to the latest values.• Relation release: The relation will be released.
Device	A start device after update is displayed. It is displayed in red if the start device is changed after update.
Data type	A data type after update is displayed. It is displayed in red if the data type or character string size is changed after update.
[OK] button	Click this to update a selected label or release the relation.



Only labels that can be updated or of which the relation can be released are displayed.

Importing common device comments

The following shows the procedure for importing common device comments set in an engineering tool.

2

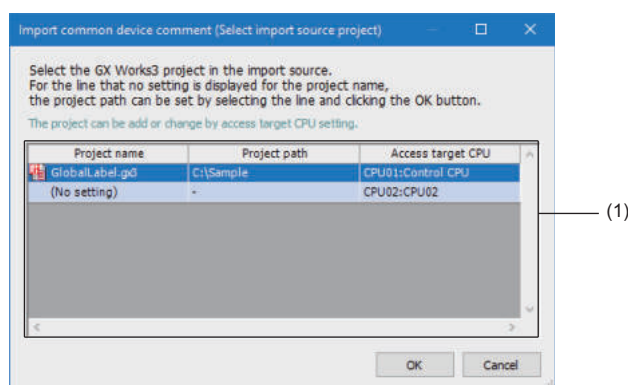
Operating procedure

1. Open the "Import common device comment (Select import source project)" screen or "Import" screen by performing any of the following operations in the screen for setting a high speed sampling label group or general sampling label group.
 - Select [Edit] ⇒ [Import common device comment].
 - Right-click in the screen and select [Import common device comment] from the shortcut menu.
 - Click the [Import] button in the screen.
2. Select an import source project of common device comments in the "Import common device comment (Select import source project)" screen or "Import" screen, and click the [OK] button. (☞ Page 55 "Import common device comment (Select import source project)" screen, Page 47 "Import" screen)
3. Select common device comments to be imported in the "Import common device comment" screen, and click the [OK] button. (☞ Page 56 "Import common device comment" screen)

Point

After common device comments are imported, the settings are applied in the label name column and device (head) column of the label group setting screen.

■"Import common device comment (Select import source project)" screen



Displayed items

Item	Description
(1) Import source list	An engineering tool project and access target CPU that are set as import sources of common device comments are displayed. If no project is set in the access target CPU, "(No setting)" is displayed.
[OK] button	Click this to display the screen for selecting common device comments to be imported from a selected project. (☞ Page 56 "Import common device comment" screen) When "(No setting)" is selected, the "Global label/Common device comment import setting" screen appears. (☞ Page 47 "Global label/Common device comment import setting" screen)

■"Import" screen

The setting items are the same as those described in the following:

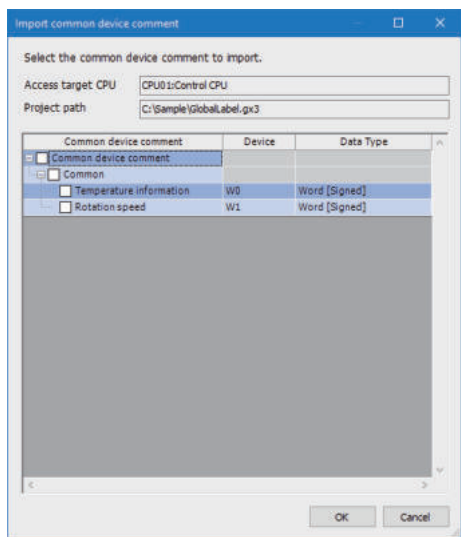
☞ Page 47 "Import" screen

■"Global label/Common device comment import setting" screen

The setting items are the same as those described in the following:

☞ Page 47 "Global label/Common device comment import setting" screen

■ "Import common device comment" screen



Displayed items

Item	Description
Access target CPU	The access target CPU selected in the transition source screen is displayed.
Project path	The path of an import source project is displayed.
Common device comment	Common device comments (set in an engineering tool) are displayed. Select the checkbox of a common device comment to be imported.
Device	A device with a common device comment is displayed.
Data type	The data type of a device is displayed. Bit device: Bit Word device: Word [Signed]
[OK] button	Click this to import a selected common device comment and close the screen.

2.3 Project Management

In Configuration Tool, settings to be written to a high speed data communication module can be created as a project. This section explains how to create, open, and save a project.

Creating a new project

Create a new project.

Operating procedure

Select [Project] ⇒ [New].

Opening a project

Read a saved project.

Operating procedure

1. Select [Project] ⇒ [Open].
2. Select a target file in the "Open" screen, then click the [Open] button.

Saving a project

Save the settings being edited as a project file.

Saving a project

Operating procedure

Select [Project] ⇒ [Save].

Naming and saving a project

Operating procedure

1. Select [Project] ⇒ [Save As].
2. Specify a save location and file name in the "Save as" screen, then click the [Save] button.

Opening a project for a Q series high speed data communication module (QJ71DC96)

Read a project created in MELSEC-Q series High Speed Data Communication Module Configuration Tool.

Operating procedure

1. Select [Project] ⇒ [Open Q-Series High Speed Data Communication Module (QJ71DC96) project].
2. Select a target file in the "Open" screen, then click the [Open] button.

The settings to be changed are as follows:

Setting name	Changed content	Reflected in
Network setting	A host name is changed to the default (RD81DC96).	Network setting
Time synchronization setting	The setting values are changed to the default setting. (Time is not synchronized periodically.)	Time synchronization setting
Access target CPU setting	The series of own station CPU is changed to RCPU. The series of other CPUs is changed to QCPU or LCPU.	Access target CPU setting
	An import source of global labels or device comments is deleted. All the relations between the related data are canceled.	Access target CPU setting High speed sampling label setting General sampling label setting
High speed sampling label setting General sampling label setting	The following data types of devices are changed: • Word [Unsigned] → Word [Unsigned]/Bit String [16-bit] • Double Word [Unsigned] → Double Word [Unsigned]/Bit String [32-bit]	High speed sampling label setting General sampling label setting
	If a device number out of the setting range is used, the corresponding label setting is not imported and it is changed to the default setting.	
Access authentication setting	If a password of one to five characters is set for any account setting, the corresponding account setting is not imported and it is changed to the default setting. If all the account settings with the administrator authority are changed to the default settings, "Use the access authentication function" is disabled.	Security setting
	If "*" (a wild card) is included in an IP address of which the access is allowed in the IP filter setting, the IP address is changed to the target of range setting. If a numeric value is set after "*" (a wild card) of an allowed IP address (example: 192.168.*.10), the corresponding IP filter setting is not imported and it is changed to the default setting.	
	If ranges of allowed IP addresses overlap in the IP filter setting, the setting for overlapping IP addresses gets deleted.	

Precautions

- The default value is set for a setting which does not exist in a project for a MELSEC iQ-R series high speed data communication module (RD81DC96).
- The series of own station CPU of access target CPU (setting No.01 in "Access target CPU setting") is changed to RCPU, while the series of setting No.02 to 64 is changed to QCPU or LCPU. If a MELSEC iQ-R series CPU module is set in any of the setting No.02 to 64, change the series as necessary.

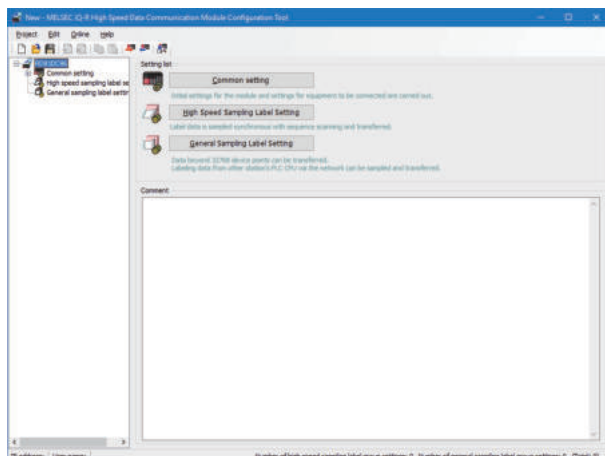
2.4 Project Setting

This section shows the screen for setting a comment for a project.

2

Window

Select the project root in the edit item tree.



Displayed items

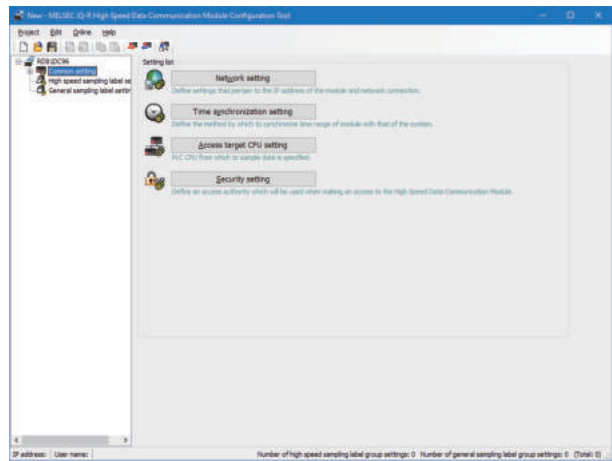
Item		Description	Reference
Setting list	[Common setting] button	Click this to display the common setting list.	Page 60 Common Setting
	[High Speed Sampling Label Setting] button	Click this to display the high speed sampling label group list.	Page 69 High Speed Sampling Label Setting
	[General Sampling Label Setting] button	Click this to display the general sampling label group list.	Page 74 General Sampling Label Setting
Comment		Set a comment (up to 2048 characters) for a project. The first line of the comment (up to 160 characters) is displayed in the comment column of the "Find High Speed Data Communication Module" screen.	—

2.5 Common Setting

This section shows the screen for configuring the initial settings to use a high speed data communication module.

Window

Select "Common setting" in the edit item tree.



Displayed items

Item		Description	Reference
Setting list	[Network setting] button	Click this to configure the settings required for a high speed data communication module to establish a network connection.	Page 61 Network setting
	[Time synchronization setting] button	Click this to set the method for synchronizing the time in a high speed data communication module with that in a CPU module.	Page 62 Time synchronization setting
	[Access target CPU setting] button	Click this to set the connection route to an access target CPU module.	Page 63 Access target CPU setting
	[Security setting] button	Click this to set an account for authentication to access a high speed data communication module and the IP address of an external device that can access the module.	Page 66 Security setting

Network setting

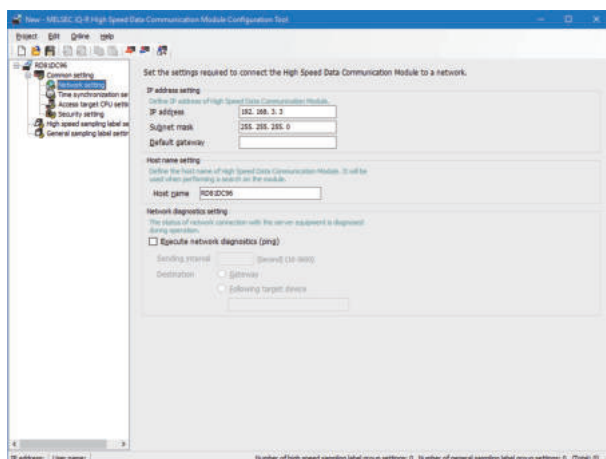
The following shows the screen for configuring settings required for a high speed data communication module to establish a network connection.

When the network setting is changed, the setting is enabled by turning the power OFF and ON or by resetting a CPU module.

2

Window

Click the [Network setting] button in the screen for the common setting.



Displayed items

Item			Description	
IP address setting	IP address		Set the IP address of a high speed data communication module in decimal.	
	Subnet mask		Set the subnet mask in decimal notation when used. All devices on the same network must use the common subnet mask.	
	Default gateway		Set the default gateway in decimal. Only one default gateway can be registered on a high speed data communication module.*1	
Host name setting	Host name		Set the host name for a high speed data communication module (up to 32 characters). "\" cannot be set. The set host name is used for the following: <ul style="list-style-type: none">• Project route name in the edit item tree• Host name when searching for a module	
Network diagnostics setting	Execute network diagnostics (ping)	—		Select the checkbox to diagnose network and send a ping packet (one packet) regularly.*2
		Sending interval		Set the transmission interval between ping packets.*3
		Destination	Gateway	Select this to send a ping packet to the gateway.
			Following target device	Select this to send a ping packet to the specified target device, and set an IP address.

*1 Can be omitted if only accessing the same network.

*2 When there is no response from the destination within 5 seconds, retries once. If there is still no response after that, the module error occurs.

*3 Set the transmission interval considering the load on the network.

Time synchronization setting

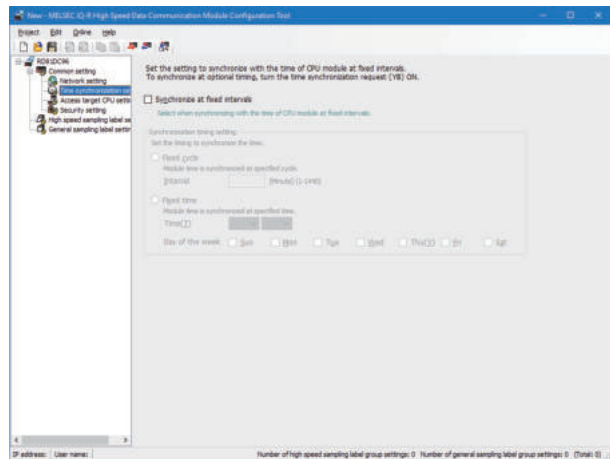
The following shows the screen for setting the time to be used in a high speed data communication module.
The time to be used in a high speed data communication module is acquired from a CPU module (CPU No.1 in a multiple CPU system).

For details on the time synchronization setting function, refer to the following:

☞ Page 36 Time Synchronization Function

Window

Click the [Time synchronization setting] button in the screen for the common setting.



Displayed items

Item			Description
Synchronize at fixed intervals			Select the checkbox to synchronize time with a CPU module periodically.
Synchronization timing setting	Fixed cycle	—	Select this to synchronize time at the specified time interval (minutes).
		Interval	Set the interval to synchronize the time in minutes.
	Fixed time	—	Select this to synchronize time at the specified time.
		Time	Select the time (hour, minutes) to synchronize the time.
		Day of the week	Select the checkbox of a day of the week to synchronize time. If no checkboxes are selected, the time synchronization will be applied everyday.

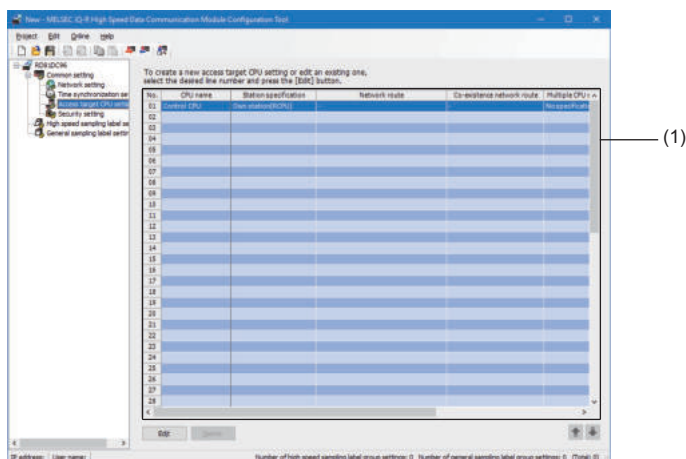
Access target CPU setting

The following shows the screen for setting a connection route to an access target CPU module. (Up to 64 settings)

Window

Click the [Access target CPU setting] button in the screen for the common setting.

2



Displayed items

Item	Description	
(1) Access target CPU setting list	CPU name	An access target CPU name is displayed.
	Station specification	The station (own/other) specified for an access target CPU module is displayed. ^{*1}
	Network route	Information on a network to be accessed is displayed when another station is specified.
	Co-existence network route	Co-existence network information for accessing a co-existence network is displayed when another station is specified.
	Multiple CPU specification	A CPU number is displayed when an access target is in a multiple CPU system.
	Response monitoring time	The response monitoring time when accessing a target CPU module is displayed.
	Import setting	Settings in the "Global label/Common device comment import setting" screen are displayed.
	[Edit] button	Click this to display the screen for editing a selected access target CPU setting. (Page 64 Access target CPU setting (editing screen))
	[Delete] button	Click this to delete a selected access target CPU setting. ^{*2}

*1 Fixed to the own station for No.01.

*2 Not valid when No.01 is selected.

■Consideration

The following conditions may affect the streaming transfer function (general sampling), data read function, and data write function. Before using a high speed data communication module, make sure that the module can communicate with a CPU module set as an access target CPU.

- A CPU module which does not exist is set as an access target CPU.
- A high speed data communication module cannot communicate with an access target CPU module temporarily due to the power interruption of access target CPU module or network failure.

■Displayed content for a network route

In "Network route" and "Co-existence network route," settings are displayed in the following format:

- "Access source system format -> access target (routed) system format"

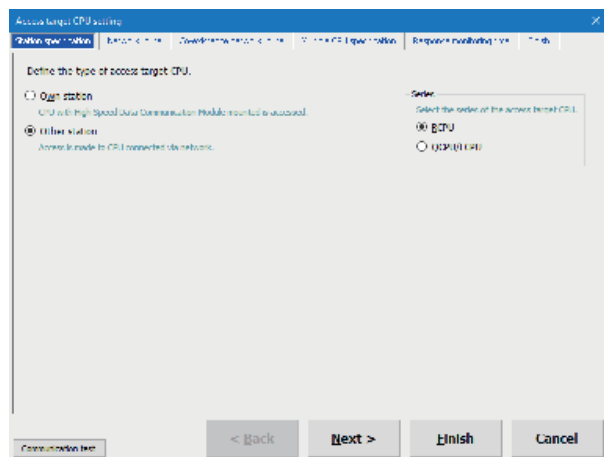
Each format is as follows:

Module type	Access source system format	Access target (routed) system format
CC-Link IE Controller Network Module	CC IE Control	CC IE Control (Net: [network number], St: [station number])
CC-Link IE Field Network Module	CC IE Field	CC IE Field (Net: [network number], St: [station number])
MELSECNET/H Module	NET/H	NET/H (Net: [network number], St: [station number])
CC-Link Module	CC-Link (I/O: [start I/O address])	CC-Link (St: [station number])
Ethernet Module	Ethernet	<ul style="list-style-type: none"> • When "Ethernet Module" is selected for the access source system: Ethernet (Net: [network number], St: [station number]) • When "High Speed Data Communication Module Ethernet Port" is selected for the access source system: Ethernet (IP: [IP address], St: [station number])
Serial Communication Module	C24 (I/O: [start I/O address])	C24 (St: [station number])
High Speed Data Communication Module Ethernet Port	<ul style="list-style-type: none"> • When "Built-in Ethernet CPU" is selected for the access target (routed) system: Built-in Ethernet • When "Ethernet Module" is selected for the access target (routed) system: Built-in Ethernet (Net: [network number], St: [station number]) 	—
Built-in Ethernet CPU	—	Built-in Ethernet CPU ([IP address])

Access target CPU setting (editing screen)

Window

Select a row to be edited in the access target CPU setting list, and click the [Edit] button.



Displayed items

Item	Description	Reference
[Station specification] tab	To set an access target CPU module.	Page 65 [Station specification] tab
[Network route] tab	To set a network route.	Page 65 [Network route] tab
[Co-existence network route] tab	To set a co-existence network route.	Page 65 [Co-existence network route] tab
[Multiple CPU specification] tab	To set multiple CPU modules.	Page 65 [Multiple CPU specification] tab
[Response monitoring time] tab	To set the timeout time from when a high speed data communication module sends a request to an access target CPU module until when it receives a reply.	Page 65 [Response monitoring time] tab
[Finish] tab	To set the name of an access target CPU module.	Page 65 [Finish] tab
[Communication test] button ^{*1}	Click this to perform the communication test for an access target CPU module with the set contents.	Page 65 [Finish] tab

Item	Description	Reference
[Back] button	Click this to move back to the previous setting tab.	—
[Next] button	Click this to move forward to the next setting tab.	—
[Finish] button ^{*1}	Click this to apply the settings and close the screen.	—

^{*1} Can be clicked after reaching the [Finish] tab.

■[Station specification] tab

Item	Description
Own station	Select this to access a CPU module on the system in which a high speed data communication module is mounted.
Other station	Select this to access a CPU module connected via a network.
Series	Select the series of an access target CPU module. ^{*1}

^{*1} If an incorrect series is selected, data may not be sampled properly.

■[Network route] tab

Item	Description
Access source system	Module type
	Module setting
	Head I/O
Access target (routed) system	Station No.
	Module type
	Module setting
	IP address
	Network No.
	Station No.
Use the co-existence network route	

^{*1} When "Built-in Ethernet CPU" is selected, UDP (MELSOFT Connection) needs to be added to the open setting for a built-in Ethernet port of an access target CPU module.

^{*2} Disabled when "High Speed Data Communication Module Ethernet Port" is selected for "Module type" in "Access source system."

■[Co-existence network route] tab

Item	Description
Intervening system	Module type
	Module setting
Access target system	Head I/O
	Module type
	Module setting
	Network No.
Station No.	

■[Multiple CPU specification] tab

Item	Description
Multiple CPU specification	Select the CPU number when an access target s in a multiple CPU system.

■[Response monitoring time] tab

Item	Description
Timeout time	Set the timeout time from when a high speed data communication module sends a request to an access target CPU module until when it receives a response. If there is no response from an access target CPU module within the set time, a response timeout error occurs.

■[Finish] tab

Item	Description
Access target CPU name	Set the access target CPU name (up to 32 characters).
[Global label/Common device comment import setting] button	Click this to open the "Global label/Common device comment import setting" screen. (Page 47 "Global label/Common device comment import setting" screen)
[Communication test] button	Click this to perform the communication test for an access target CPU module with the set contents.

Security setting

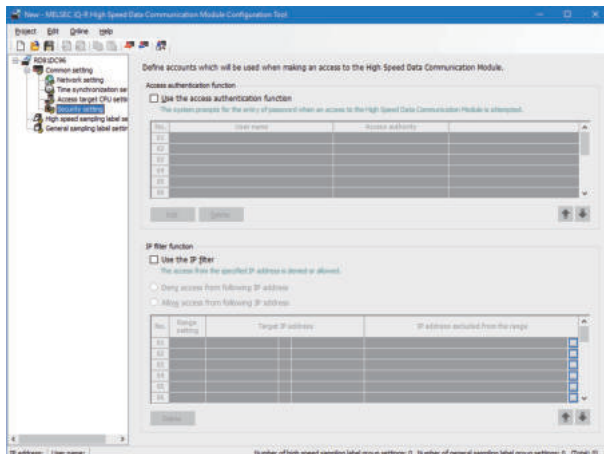
The following shows the screen for setting an account for authentication to access a high speed data communication module (up to 16 accounts) and the IP address of an external device that can access the module via Ethernet (up to 32 IP addresses). For details on the security function, refer to the following:

☞ Page 33 Security Function

When the IP filter function settings are changed, the settings are enabled by turning the power OFF and ON or by resetting a CPU module.

Window

Click the [Security setting] button in the screen for the common setting.



Displayed items

Item			Description
Access authentication function ^{*1}	Use the access authentication function	—	Select the checkbox to restrict access to a high speed data communication module by authenticating a user.
		User name	A user name is displayed.
		Access authority	Either "Administrator" or "Normal user" is displayed.
		[Edit] button	Click this to display the screen for editing a selected account. (☞ Page 67 Account setting)
		[Delete] button	Click this to delete a selected account.
IP filter function	Use the IP filter	—	Select the checkbox to use the IP filter function.
		Deny access from following IP address	Select this to block the target IP address.
		Allow access from following IP address	Select this to allow the target IP address.
		Range setting	Select the checkbox to specify an IP address range for the IP filter function.
		Target IP address	Specify a target IP address for the IP filter function.
		IP address excluded from the range	An exceptional IP address can be set when specifying the range. Set it in the "IP address to be deleted from the range" screen which appears by clicking the [...] button. (☞ Page 68 IP address excluded from the range)
		[Delete] button	Click this to delete a selected IP address.

^{*1} To use the access authentication function, set at least one user who has the administrator authority.

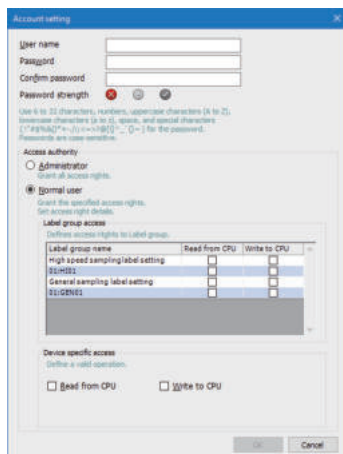
Account setting

The following shows the screen for configuring the detailed settings for an account for authentication.

Window

Select an account to be edited in the screen for the security setting, then click the [Edit] button.

2



Displayed items

Item				Description
User name				Set a user name (1 to 20 characters). ^{*1*2}
Password				Set a password (6 to 32 characters). ^{*1}
Confirm password				Enter the password again for verification.
Password strength				The password strength is displayed with an icon. (🔑 Page 67 Password strength) The [OK] button cannot be clicked while 🔴 is displayed.
Access authority	Administrator ^{*3}			Select this to grant all the access authority.
	Normal user ^{*3}	Label group access	—	Set the access authority for each label group.
			Label group name	Names of high speed sampling label groups and general sampling label groups are listed.
			Read from CPU	Select the checkbox to grant the authority to read data of a label group from a programmable controller CPU.
			Write to CPU ^{*4}	Select the checkbox to grant the authority to write data of a label group to a programmable controller CPU.
	Device specific access	—	Set the access authority for a specific device.	
		Read from CPU	Select the checkbox to grant the authority to read a specific device from a programmable controller CPU.	
		Write to CPU ^{*4}	Select the checkbox to grant the authority to write a specific device to a programmable controller CPU.	
[OK] button				Click this to apply the settings and close the screen.

^{*1} Characters are case-sensitive.

^{*2} A user name used for another account cannot be set.

^{*3} For the available operations for each access authority, refer to the following:

Page 34 Access authority

^{*4} Available only when the checkbox of "Read from CPU" is selected.

■ Password strength

The password strength is displayed with an icon according to the character type and number of characters used in the entered password.

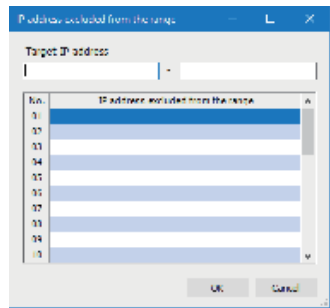
Entered password	Password strength	Icon
The entered password is too short (within 0 to 5 characters).	Setting error	
6 or more characters and 2 or less types of characters are used.	Weak	
8 or more characters and 3 or less types of characters are used.	Strong	

IP address excluded from the range

The following shows the screen for setting an IP address to be excluded from a range specified for the IP filter function.

Window

Select an IP address range to be edited in the screen for the security setting, then click the [...] button.



Displayed items

Item	Description
Target IP address	The specified range of IP addresses is displayed. (The range can be edited directly.)
IP address excluded from the range	Set an IP address to be excluded from the range of "Target IP address." (Up to 32 IP addresses)
[OK] button	Click this to apply the settings and close the screen.

2.6 High Speed Sampling Label Setting

This section shows the screens for setting high speed sampling labels to be used by a high speed data communication module.

The maximum numbers of label groups, labels, and devices that can be set are as follows:

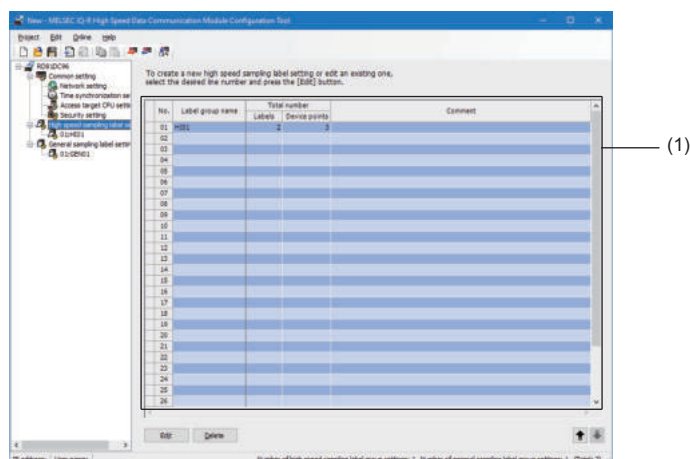
Label group	Label	Device
32 groups* ¹	32768 labels (up to 1024 labels per label group)	32768 points (up to 4096 points per label group)

*1 Up to 64 high speed sampling label groups and general sampling label groups can be set in total.

2

Window

Select "High speed sampling label setting" in the edit item tree.



Displayed items

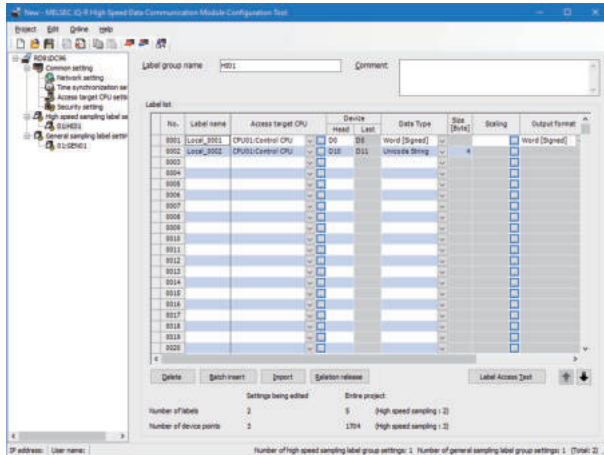
Item		Description	
(1) High speed sampling label group list	Label group name		The name of a high speed sampling label group is displayed.
	Total number	Labels	The total number of labels is displayed.
		Number of device points	The total number of device points is displayed.
	Comment		The comment for a high speed sampling label group is displayed.
	[Edit] button		Click this to display the screen for editing a selected high speed sampling label group. (🔍 Page 70 High speed sampling label group setting)
	[Delete] button		Click this to delete a selected high speed sampling label group. (Multiple selections allowed.)

High speed sampling label group setting

The following shows the screen for setting a high speed sampling label group.

Window

Select a label group to be edited in the high speed sampling label group list, then click the [Edit] button.



Displayed items

Item		Description
Label group name		Set a label group name (up to 32 characters). A name that is duplicate with another group name (including a general sampling label group name) cannot be set.
Comment		Set a comment (up to 1024 characters) for a label group. (A line feed is counted as two characters.)
Label list	Label name ^{*1}	Set a label name (up to 32 characters). A name that is duplicate in a label group cannot be set. If blank, the start device name is automatically applied as a label name. For related data, an icon (🌐) is displayed.
	Access target CPU	This item is fixed to a control CPU.
	Device	Head ^{*2}
		Last
	Data Type ^{*2}	
	Size ^{*2}	
	Scaling ^{*3}	
	Output format	
	Comment	
Global label name		For related data, a global label name is displayed.
[Delete] button		Click this to delete a selected label.
[Batch insert] button		Click this to set labels for consecutive devices in a batch. (📖 Page 72 Label batch insertion)
[Import] button		Click this to import global labels or common device comments. (📖 Page 46 Importing global labels, Page 55 Importing common device comments)
[Relation release] button		Click this to release the relation with a global label. (📖 Page 52 Releasing relation to global labels)
[Label Access Test] button		Click this to check if there is an error in the settings being edited. (📖 Page 73 Label access test)
Number of labels		The number of labels in the settings being edited and the total number of labels in an entire project ("High speed sampling label setting" and "General sampling label setting") are displayed.
Number of device points		The number of device points in the settings being edited and the total number of device points in an entire project ("High speed sampling label setting" and "General sampling label setting") are displayed.

^{*1} If a global label name has more than 32 characters, the last 32 characters of the name are displayed. (📖 Page 49 Global label name)

*2 Cannot be edited for related data.

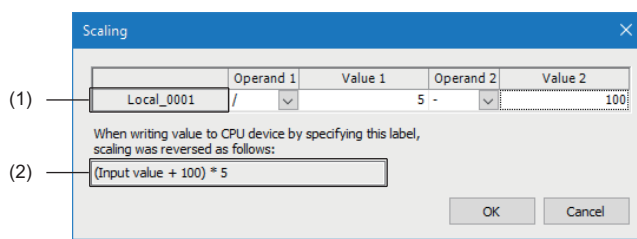
*3 Whether scaling can be applied differs depending on the data type. The following table shows the details:

Data type	Scaling
Bit	×
Word [Signed]	○
Double Word [Signed]	○
Word [Unsigned]/Bit String [16-bit]	○
Double Word [Unsigned]/Bit String [32-bit]	○
FLOAT [Single Precision]	○
FLOAT [Double Precision]	○
16bit BCD	○
32bit BCD	○
String	×
Unicode String	×
Raw	×

Scaling

The following shows the screen for setting an expression to convert data into a linear function.

Window



Displayed items

Item	Description
(1) Label name	A label name is displayed. If not set, "(start device)" is displayed.
Operand 1	Select a multiplication or division operator.
Value 1	Set a value to be multiplied or divided.*1
Operand 2	Select an addition or subtraction operator.
Value 2	Set a value to be added or subtracted.*1
(2) Inverse scaling expression	An inverse scaling expression is displayed. This expression is used for writing a value to a device in a CPU module by specifying a label.
[OK] button	Click this to apply the settings and close the screen.

*1 Set a numeric value of up to 10 characters including a sign and decimal point. Available value examples are as follows:

9999999999 (10 numeric characters)

-999999999 (1 sign + 9 numeric characters)

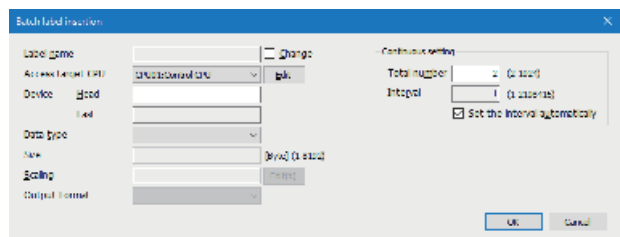
-0.0000001 (1 sign + 1 decimal point + 8 numeric characters)

*2 '0' cannot be set.

Label batch insertion

The following shows the screen for setting labels for consecutive devices in a batch.

Window



Displayed items

Item		Description
Label name	—	A label name (up to 32 characters) is displayed.
	Change	Select the checkbox to change a label name. If the checkbox is not selected, the start device name is automatically applied as a label name.
Access target CPU		Select an access target CPU. ^{*1} To add an access target CPU, select "(Add CPU)" and click the [Edit] button. (Page 64 Access target CPU setting (editing screen))
Device	Head	Specify the start device.
	Last	The end device is displayed.
Data type		Select the data type of a device.
Size		Set the size of data type.
Scaling		Set a scale conversion expression for data. Enter an expression here directly, or set it in the "Scaling" screen that appears by clicking the [Edit] button. (Page 71 Scaling)
Output format		Select the output format.
Continuous setting	Total number	Set the total number of labels to be inserted in a batch.
	Interval	Set the device interval for labels to be inserted in a batch.
	Set the interval automatically	Select the checkbox to set the interval automatically according to the size of device data type.
[OK] button		Click this to apply the settings to the original screen.

^{*1} For a high speed sampling label group, it is fixed to a control CPU

Label names when inserted in a batch

Label names after a batch insertion differ depending on whether the checkbox of "Change" is selected.

- When the checkbox of "Change" is not selected, the character string of start device will be the label name.
- When the checkbox of "Change" is selected, the character string that a suffix is added to a set label name will be the label name.

Ex.

Label name = Label

Start device = D0

Total number set in the continuous setting = 5

Interval set in the continuous setting = 2

For the above settings, devices are set as shown below.

Checkbox status	Label name after a batch insertion
Unselected	D0, D2, D4, D6, D8
Selected	Label, Label(1), Label(2), Label(3), Label(4)

Label access test

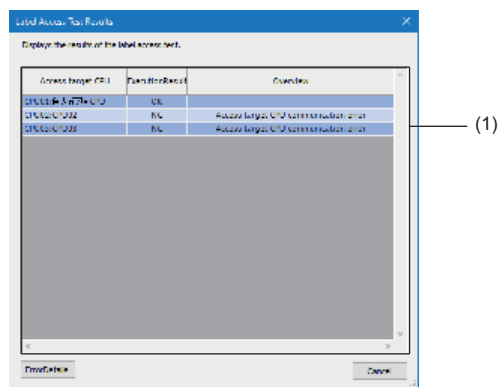
The following shows the procedure for performing the label access test for each label or each label group.
This test checks whether a set device can be read from an access target CPU module.

Operating procedure

- Perform either of the following operations in the screen for setting a high speed sampling label group or general sampling label group.
- To perform the label access test for each label
Select and right-click a row of target setting for the label access test, then select [Label Access Test] from the shortcut menu.
 - To perform the label access test for each label group
Click the [Label Access Test] button in the screen.

Test result

The "Label Access Test Execution result" screen appears if the test detects an error in any access target CPU module.



Displayed items

Item	Description
(1) Test result	The execution result of label access test is displayed.
[Details] button	Detailed information on the execution result is displayed.

2.7 General Sampling Label Setting

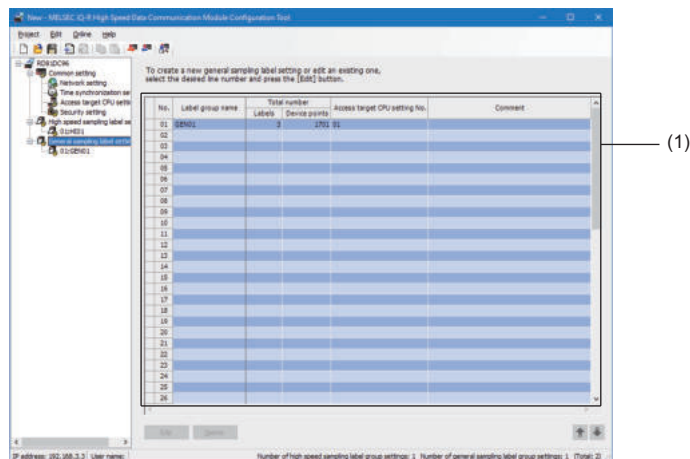
This section shows the screens for setting general sampling labels to be used by a high speed data communication module. The maximum numbers of label groups, labels, and devices that can be set are as follows:

Label group	Label	Device
64 groups*1	65536 labels (up to 1024 labels per label group)	262144 points (up to 4096 points per label group)


*1 Up to 64 high speed sampling label groups and general sampling label groups can be set in total.

Window

Select "General sampling label setting" in the edit item tree.



Displayed items

Item			Description
(1) General sampling label group list	Label group name		The name of a general sampling label group is displayed.
	Total number	Labels	The total number of labels is displayed.
		Number of device points	The total number of device points is displayed.
	Access target CPU setting No.		The access target CPU module of a labeled device is displayed. (The setting number in "Access target CPU setting" is displayed.)
	Comment		The comment for a general sampling label group is displayed.
	[Edit] button		Click this to display the screen for editing a selected general sampling label group. ( Page 75 General sampling label group setting)
	[Delete] button		Click this to delete a selected general sampling label group. (Multiple selections allowed.)

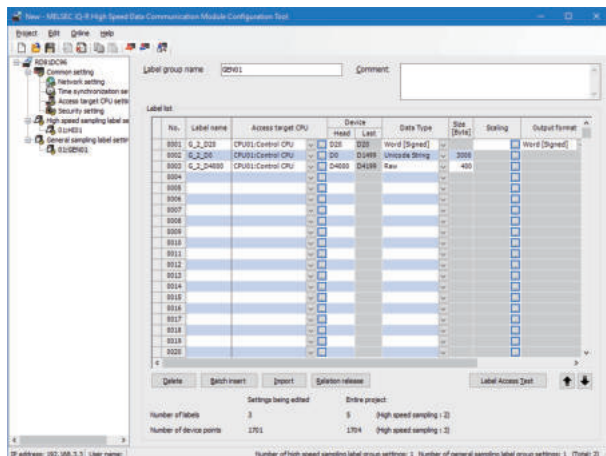
General sampling label group setting

The following shows the screen for setting a general sampling label group.

Window

Select a label group to be edited in the general sampling label group list, then click the [Edit] button.

2



Displayed items

Item		Description
Label group name		Set a label group name (up to 32 characters). A name that is duplicate with another group name (including a high speed label group name) cannot be set.
Comment		Set a comment (up to 1024 characters) for a label group. (A line feed is counted as two characters.)
Label list	Label name* ¹	Set a label name (up to 32 characters). A name that is duplicate in a label group cannot be set. If blank, the start device name is automatically applied as a label name. For related data, an icon (🌐) is displayed.
	Access target CPU* ²	Select the access target CPU. To add an access target CPU, select "(Add CPU)" and click the [...] button. (📖 Page 64 Access target CPU setting (editing screen))
	Device	Head* ²
		Last
	Data type* ²	
	Size* ²	
	Scaling* ³	
	Output format	
	Comment	
Global label name		For related data, a global label name is displayed.
[Delete] button		Click this to delete a selected label.
[Batch insert] button		Click this to set labels for consecutive devices in a batch. (📖 Page 72 Label batch insertion)
[Import] button		Click this to import global labels or common device comments. (📖 Page 46 Importing global labels, Page 55 Importing common device comments)
[Relation release] button		Click this to release the relation with a global label. (📖 Page 52 Releasing relation to global labels)
[Label Access Test] button		Click this to check if there is an error in the settings being edited. (📖 Page 73 Label access test)
Number of labels		The number of labels in the settings being edited and the total number of labels in an entire project ("High speed sampling label setting" and "General sampling label setting") are displayed.
Number of device points		The number of device points in the settings being edited and the total number of device points in an entire project ("High speed sampling label setting" and "General sampling label setting") are displayed.

*1 If a global label name has more than 32 characters, the last 32 characters of the name are displayed. (📖 Page 49 Global label name)

*2 Cannot be edited for related data.

*3 Whether scaling can be applied differs depending on the data type. The following table shows the details:

Data type	Scaling
Bit	×
Word [Signed]	○
Double Word [Signed]	○
Word [Unsigned]/Bit String [16-bit]	○
Double Word [Unsigned]/Bit String [32-bit]	○
FLOAT [Single Precision]	○
FLOAT [Double Precision]	○
16bit BCD	○
32bit BCD	○
String	×
Unicode String	×
Raw	×

2.8 Online

This section shows the online operations performed to a high speed data communication module connected on a network.

Transfer setup

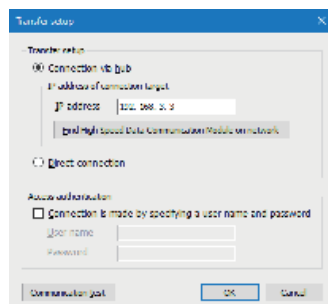
The following shows the settings for specifying a high speed data communication module to perform an online operation to. For the available operations for each access authority, refer to the following:

 Page 34 Access authority


2

Window

Select [Online] ⇒ [Transfer setup].



Displayed items

Item			Description
Transfer setup	Connection via hub	—	Select this to connect via the network.
		IP address	Specify the IP address of a connection destination.
		[Find High Speed Data Communication Module on network] button	Click this to search for a high speed data communication module on a network to which a configuration personal computer belongs. ( Page 78 High speed data communication module search)
	Direct connection		Select this to connect directly to a high speed data communication module.
Access authentication	Connection is made by specifying a user name and password	—	Select this to perform the access authentication.
		User name	Specify a user name to log in with.
		Password	Specify a password for a user name to log in with.
[Communication test] button			Click this to perform the communication test with a specified access target.
[OK] button			Click this to apply the settings and close the screen.

High speed data communication module search

The following shows the procedure for searching for a high speed data communication module on a network to which a configuration personal computer belongs.

Operating procedure

1. Click the [Find High Speed Data Communication Module on network] button in the "Transfer setup" screen.
2. Select a high speed data communication module to be connected in the list.
3. Click the [OK] button.

Point

In "Comment," the first line (up to 160 characters) of a comment set for the project written in the module is displayed.

Precautions

When more than one high speed data communication modules with the same IP address are displayed, multiple high speed data communication modules on the same network may have a duplicate IP address. Review the IP address of each high speed data communication module.

A high speed data communication module may not be searched for properly on a configuration personal computer if multiple IP addresses are enabled at the same time as follows.

- An IP address is assigned to each Ethernet port of the configuration personal computer with multiple Ethernet ports.
- The wireless LAN setting is enabled in addition to the Ethernet port of a configuration personal computer.
- Multiple IP addresses are assigned to one network device (Ethernet port) of a configuration personal computer.

Online data operations

The following shows the operations to write, read, and verify settings (a project) for a high speed data communication module.

Writing settings

Settings can be written to the SD memory card that is inserted in a high speed data communication module specified in the "Transfer setup" screen by the following procedure:

2


Operating procedure

Select [Online] ⇒ [Write].

Precautions

Settings cannot be applied to a high speed data communication module by only writing the settings.

Perform either of the following operations to apply the settings:

- Executing "Update settings" in "Module Diagnostics" ( Page 82 Module diagnostics)
- Turning the power OFF and ON or resetting a CPU Module

■Considerations for updating settings

- While updating settings in a running high speed data communication module, the module stops temporarily. Therefore, all functions such as the streaming transfer function, data read function, and data write function stop during the update processing.
- When changing any setting in "Network setting" or in "IP filter function" of "Security setting," it is required to turn the power OFF and ON or reset a CPU module. (Each function does not run by only executing "Update settings.")

Reading settings

Settings can be read from a high speed data communication module specified in the "Transfer setup" screen by the following procedure:

Operating procedure

Select [Online] ⇒ [Read].

Verifying settings

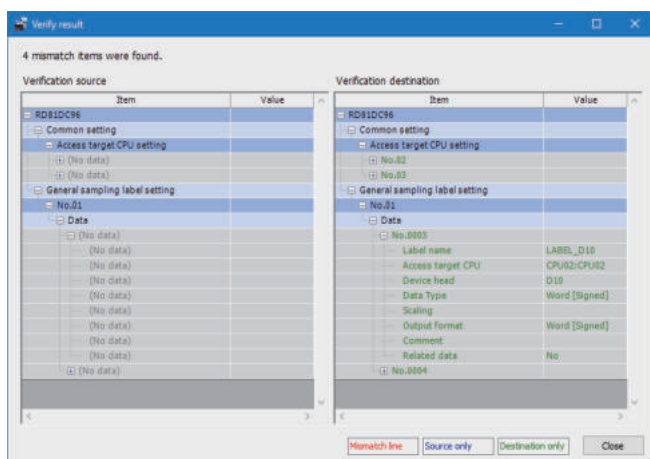
Settings in a high speed data communication module that is specified in the "Transfer setup" screen can be verified with settings of the project being edited by the following procedure:

The "Verify result" screen appears if any mismatched setting is found by the verification.

Operating procedure

Select [Online] ⇒ [Verify].

Window



Restriction

- Even if "(No data)" is displayed in multiple lines in the list, they are counted as one mismatch in the number of mismatch items displayed in the upper part of screen.
- "Access target CPU setting" and "Security setting" are verified based on their setting numbers in Configuration Tool. Even when the settings are the same between a project being edited and high speed data communication module, they will be mismatched if the setting numbers are different.

Diagnostics

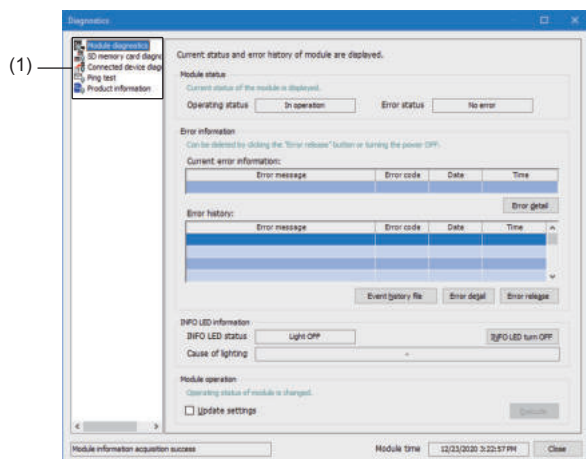
The following shows the screen for checking the diagnostic information on a high speed data communication module, such as the module operating status and error status.

In this screen, the following operations are available: clearing an error or updating settings in a high speed data communication module.

2

Window

Select [Online] ⇒ [Diagnostics].



Displayed items

Item		Description	Reference
(1) Diagnostic item tree	Module diagnostics	To display the operating status and error history of a high speed data communication module, and update settings.	Page 82 Module diagnostics
	SD memory card diagnostics	To display the current status and usage status of an SD memory card, change the access status, and format the SD memory card.	Page 84 SD memory card diagnostics
	Connected device diagnostics	To display the access status between a high speed data communication module and a device connected to the module.	Page 85 Connected device diagnostics
	Ping test	To perform the network connection test for a target device specified by a high speed data communication module.	Page 90 Ping test
	Product information	To display the product information of a high speed data communication module.	Page 91 Product information

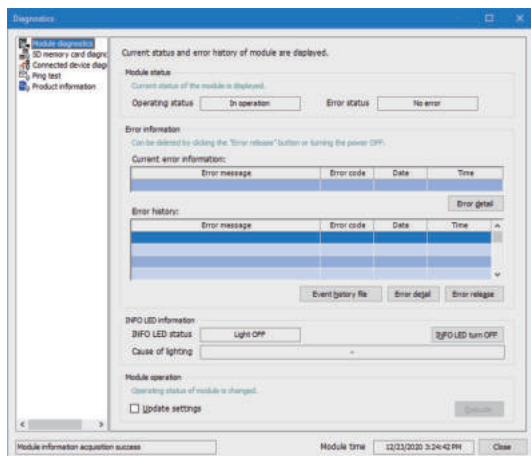
Module diagnostics

The following shows the screen for displaying the operating status and error history of a high speed data communication module.

In this screen, settings in a high speed data communication module can be updated.

Window

Select "Module diagnostics" in the diagnostic item tree.



Displayed items

Item		Description
Module status	Operating status	The current operating status of a high speed data communication module is displayed. <ul style="list-style-type: none"> In operation: The module is operating normally. Stop: The module is stopped. Initializing: Settings are being read or updated. Stopping: The module is waiting for a running function to end and shifting to the "Stop" state.
	Error status	The current error status of a high speed data communication module is displayed. <ul style="list-style-type: none"> Continue error: The module can continue operating though an error has occurred. Stop error: The module cannot continue operating due to an error.
Error information	Current error information	—
		[Error detail] button
	Error history	—
		[Event history file] button
		[Error detail] button
INFO LED information	INFO LED status	—
		[INFO LED turn OFF] button
	Cause of lighting	The cause for which the INFO LED turned ON is displayed.*2 For corrective action for the cause, refer to the following: Page 143 Module status area (Un\G0 to 20)
Module operation	Update settings	Select the checkbox to restart a high speed data communication module and apply the settings in an SD memory card to the module. After selecting the checkbox, click the [Execute] button to update settings.*3 While updating settings, the operating status of the module will be "Initializing."

*1 Up to 15 minor errors and 1 moderate or major error are displayed.
Even if a new error occurs after a moderate error or major error occurs, the new one is not registered.
If 15 minor errors are displayed, new minor errors will not be displayed.
If the new error has the same error code as the already displayed error, the error occurrence date/time and its detailed information will not be updated.
For details on the error status (major/moderate/minor), refer to the following:

Page 97 Error code types

- *2 Content is cleared if executing "Update settings."
- *3 "Update settings" cannot be executed while an error is occurring.
In this case, execute "Update settings" by the following procedure:
 - ① Click the [Error clear] button in "Error history" to release the error status.
 - ② Execute "Update settings" in "Module operation."

2

Precautions

All functions such as the streaming transfer function, data read function, and data write function stop during the update processing.

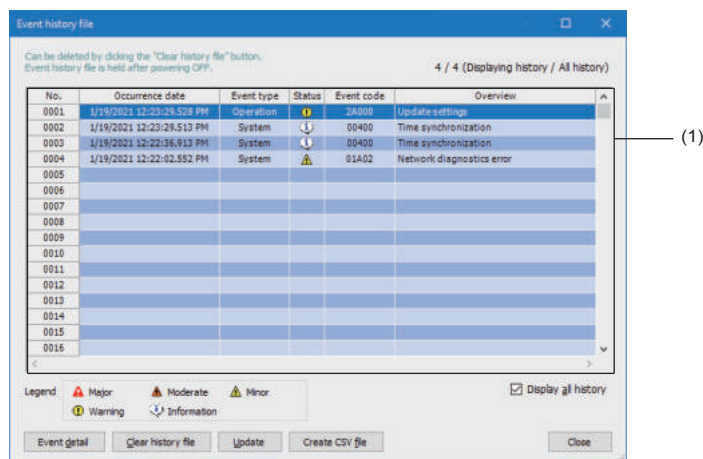
■Event history

The following shows the screen for displaying the history of all errors and events that occurred in a high speed data communication module in a list.

The error/event history is saved on an SD memory card.

Window

Click the [Event history file] button in the screen for the module diagnostics.



Displayed items

Item	Description
Displaying history / All history	Displaying history: The number of entries shown in the screen is displayed. All history: The number of all entries stored in an SD memory card is displayed.
(1) Error/event history list	The error/event history is displayed in a list.
Display all history	Select the checkbox to display all entries stored in an SD memory card. If not selected, 1024 latest entries are displayed.
[Event detail] button	Click this to display the "Error/Event detail" screen where the details of the error or event selected in the error/event history list can be checked.
[Clear history file] button	Click this to clear the error/event history list.*1
[Update] button	Click this to acquire information of the error/event history list from an SD memory card again.
[Create CSV file] button	Click this to save each information of the error/event history list as a CSV file. To save information on all errors and events in the error/event history, select the checkbox of "Display all history" before clicking this button.

*1 The list cannot be cleared if a major error occurs in a high speed data communication module.

Precautions

- After the module is started, the date and time is not registered for errors and events that occurred until the time is synchronized; therefore, "-" is displayed in "Occurrence date."
- The error/event history is registered (saved) on an SD memory card. When an SD memory card is not inserted or the access status is "Access stop," errors and events are not registered.
- Even if an error that is displayed in "Error history" of the screen for the module diagnostics occurs multiple times, it is registered in the error/event history only when it occurs for the first time. (Up to 16 errors can be displayed in "Error

history.")

- Up to 65536 errors and events can be registered in the error/event history. If the number exceeds 65536, the oldest ones are deleted.

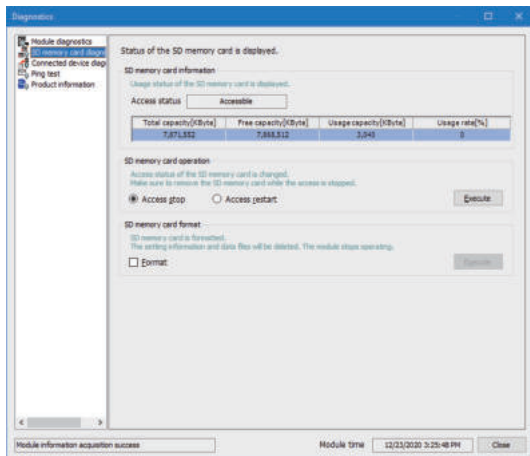
SD memory card diagnostics

The following shows the screen for displaying the current status of an SD memory card inserted in a high speed data communication module and its usage status.

In this screen, the following operations are available: changing the access status and formatting the SD memory card.

Window

Select "SD memory card diagnostics" in the diagnostic item tree.



Displayed items

Item		Description
SD memory card information ^{*1,2}	Access status	The current state of an SD memory card is displayed.
	Total capacity	The total capacity of an SD memory card is displayed.
	Free capacity	The free space on an SD memory card is displayed.
	Usage capacity	The usage capacity of an SD memory card is displayed.
	Usage rate	The usage rate of an SD memory card is displayed.
SD memory card operation	Access stop	Select this to stop accessing an SD memory card. An SD memory card can be removed safely from the module once the access is stopped.
	Access restart	Select this to restart accessing an SD memory card. ^{*3}
	[Execute] button	Click this to execute the selected operation.
SD memory card format	Format	Select the checkbox to format an SD memory card.
	[Execute] button	Click this to format an SD memory card. ^{*4,5}

*1 "Free capacity" and "Usage rate" include the size of the file system.

*2 When a status other than "Accessible" is displayed in "Access status," "-" is displayed in "Total capacity," "Free capacity," and "Usage rate."

*3 The module operation is not restarted even after restarting the access. To restart the module operation, execute "Update settings." (Page 82 Module diagnostics)

*4 Do not turn the power OFF or reset a CPU module while formatting an SD memory card.

*5 A high speed data communication stops its operation when formatting an SD memory card.

To restart the module operation, write settings to the module, then restart the module or execute "Update settings."

Precautions

High speed data communication module settings are saved on an SD memory card. Therefore, the IP address of the high speed data communication module returns to the initial status (192.168.3.3) when turning the power OFF and ON or resetting a CPU module without an SD memory card inserted in the module or without the settings written to the SD memory card. As necessary, read the current settings before removing (or formatting) the SD memory card, and promptly write those settings to the new card after replacing (or formatting) the card.

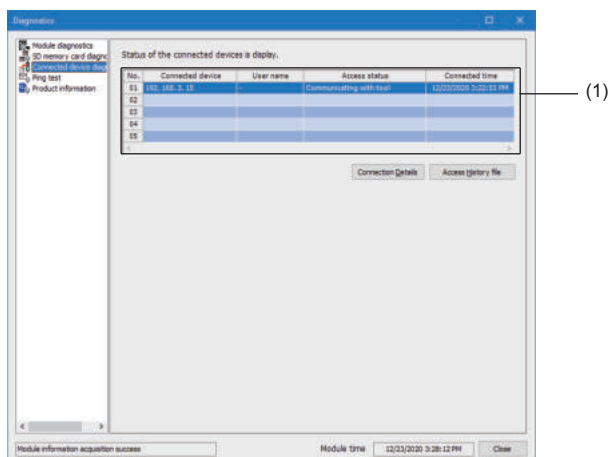
Connected device diagnostics

The following shows the screen for displaying the access status between a high speed data communication module and devices (host computers and configuration personal computers) connected to the module.

2

Window

Select "Connected device diagnostics" in the diagnostic item tree.



Displayed items

Item	Description	
(1) Connected device list	No.	The connection number to a high speed data communication module is displayed.
	Connected device	The IP address of a device connected to a high speed data communication module is displayed.
	User name	A user name used to connect to a high speed data communication module is displayed. If the access is not authenticated, "-" is displayed.
	Access status	The access status between a device and high speed data communication module is displayed. (Page 87 Access status list)
	Connected time	The date and time when a device was connected to a high speed data communication module is displayed.
[Connection Details] button		Click this to display the screen for checking the sampling information on data that was transferred to a connected device selected in the connected device list. (Page 88 Connection details)
[Access History file] button		Click this to display the screen where the history of all the past connections can be checked. (Page 89 Access history)

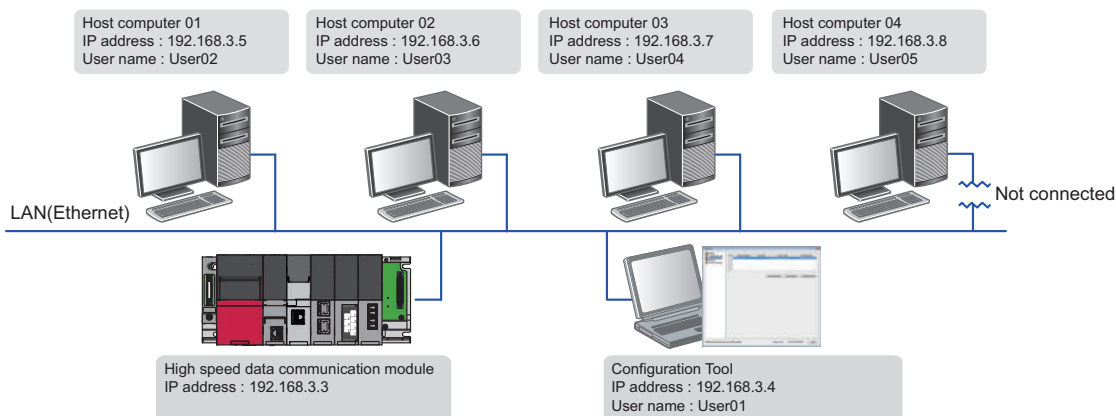
Point

A configuration personal computer (Configuration Tool) is displayed as a connected device in this screen because it is connected to a high speed data communication module while displaying the "Diagnostics" screen. If communication with the module is disconnected because the processing load of the module is high or the load of a communication line is high, the display position of the configuration personal computer may be changed.

■Actual system configuration and display example of a connected device list

Example 1: The host computers 01 to 03 and configuration personal computer (Configuration Tool) are connected to a high speed data communication module.

System configuration

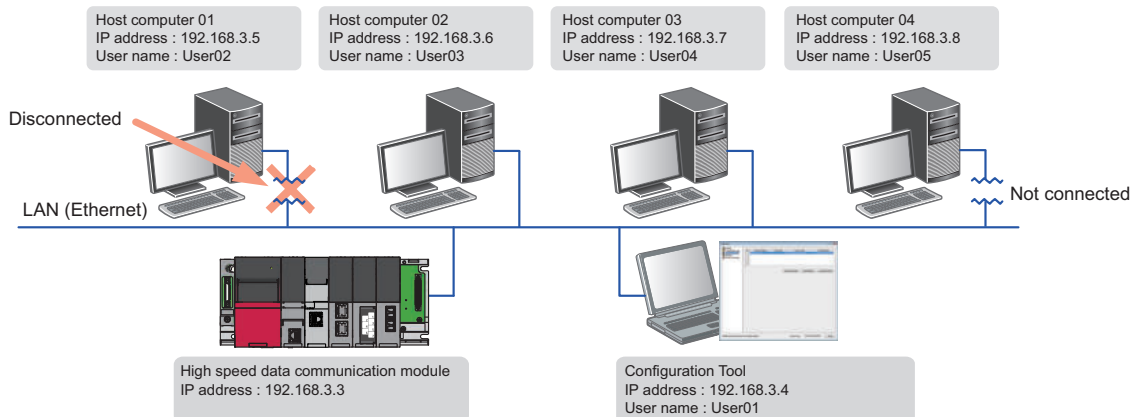


Display example

No.	Connected device	User name	Access status	Connected time
01	192.168.3.4	User01	Communicating with tool	2021/01/19 15:58:34
02	192.168.3.5	User02	Connecting	2021/01/19 16:00:03
03	192.168.3.6	User03	Connecting	2021/01/19 16:00:58
04	192.168.3.7	User04	Connecting	2021/01/19 16:01:36
05				

Example 2: The host computer 01 is disconnected from the high speed data communication module in the configuration of example 1.

System configuration



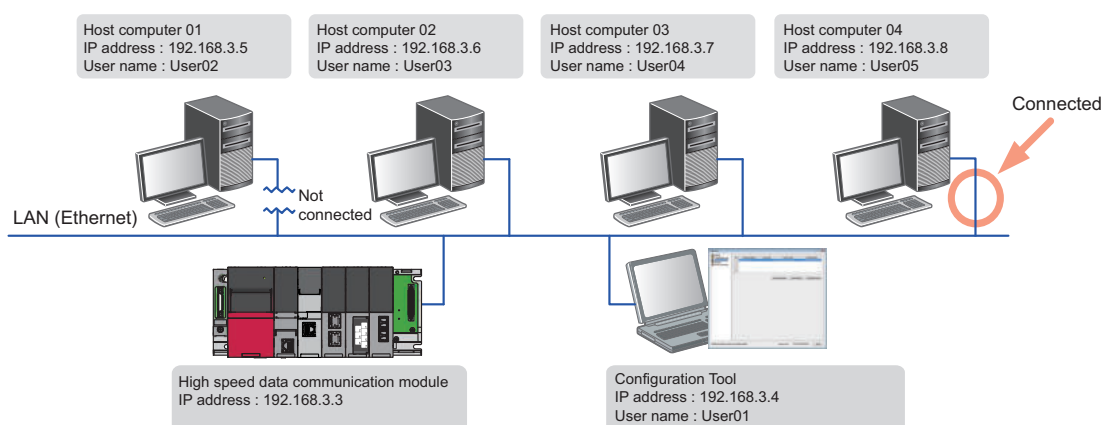
Display example

No.	Connected device	User name	Access status	Connected time
01	192.168.3.4	User01	Communicating with tool	2021/01/19 15:58:34
02	192.168.3.5	User02	Connecting	2021/01/19 16:00:03
03	192.168.3.6	User03	Connecting	2021/01/19 16:00:58
04	192.168.3.7	User04	Connecting	2021/01/19 16:01:36
05				

Disconnected

Example 3: The host computer 04 is connected to the high speed data communication module in the configuration of example 2.

System configuration



Display example

No.	Connected device	User name	Access status	Connected time
01	192.168.3.4	User01	Communicating with tool	2021/01/19 15:58:34
02	192.168.3.8	User05	Connecting	2021/01/19 16:06:46
03	192.168.3.6	User03	Connecting	2021/01/19 16:00:58
04	192.168.3.7	User04	Connecting	2021/01/19 16:01:36
05				

Connected

Access status list

The statuses displayed in "Access status" are as follows:

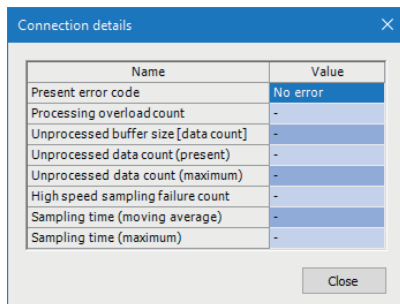
Status	Description
Connecting	A host computer is connected to a high speed data communication module. (A streaming transfer is not performed.)
Reading device data	Data is being read from a CPU module to a host computer.
Writing device data	Data is being written from a host computer to a CPU module.
On transfer (High speed sampling)	High speed sampling labels registered in a high speed data communication module are being streamed to a host computer.
On transfer (General sampling)	General sampling labels registered in a high speed data communication module are being streamed to a host computer.
Communicating with tool	A configuration personal computer (Configuration Tool) is communicating with a high speed data communication module.

■Connection details



The following shows the screen for displaying the sampling information on data transferred to a connected device.

Window

Select a connected device in the connected device list, then click the [Connection Details] button.



Displayed items

Item	Description
Present error code	The code of the latest error occurred during connection is displayed.
Processing overload count	When transfer processing cannot catch up with the data sampling speed, the total number of times that data missing occurs is displayed. Take corrective action described in the following:  Page 160 Checking transfer processing time
Unprocessed buffer size [data count]	The size of unprocessed buffer that stores sampled data temporarily is displayed. Sampled data can be stored for the unprocessed buffer size.
Unprocessed data count (present)	The number of units of data that are currently stored in the unprocessed buffer is displayed. If the number of units of unprocessed data reaches the unprocessed buffer size, the processing overload occurs when sampling the next unprocessed data.
Unprocessed data count (maximum)	The maximum number of units of data stored in the unprocessed buffer after the connection is established with a high speed data communication module is displayed.
High speed sampling failure count	When the sampling speed of a high speed data communication module cannot catch up with the sequence scan time or specified time interval, the total number of times that data missing occurs is displayed. Take corrective action described in the following:  Page 159 Checking sampling processing time
Sampling time (moving average)	The moving average of a streaming transfer is displayed. The unit of the value is as follows: <ul style="list-style-type: none">• High speed sampling: Microsecond• General sampling: Millisecond
Sampling time (maximum)	The maximum value of a streaming transfer is displayed. The unit of the value is as follows: <ul style="list-style-type: none">• High speed sampling: Microsecond• General sampling: Millisecond

Unprocessed buffer

The unprocessed buffer refers to the internal memory of a high speed data communication module that stores data sampled from a CPU module temporarily.


The streaming transfer status of a high speed data communication module can be checked with the number of units of data stored in the unprocessed buffer.

- When the value in "Unprocessed data count (present)" is '0' or equal to or less than a fixed value:

There is no problem with the streaming transfer of a high speed data communication module.

- When the value in "Unprocessed data count (present)" increases as time passes:

The streaming transfer processing is not catching up with the speed with which the target data is sampled. Take corrective action described in the following:

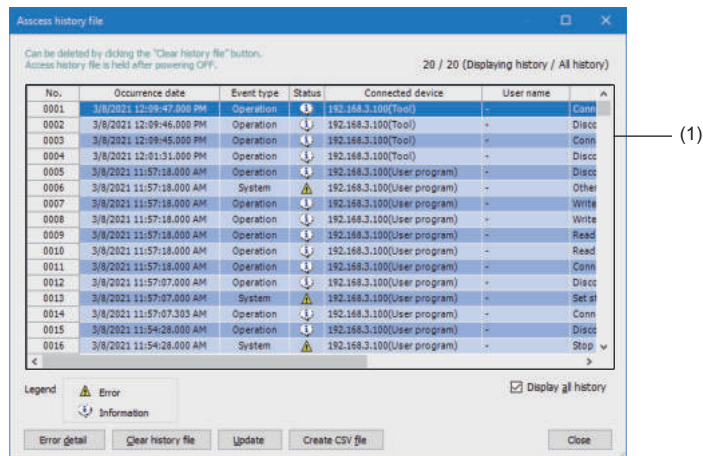
( Page 160 Checking transfer processing time)

Access history

The following shows the screen for displaying the history of all the past connections in a list.
The access history is saved on an SD memory card.

Window

Click the [Access History file] button in the screen for the connected device diagnostics.



Displayed items

Item	Description
Displaying history / All history	Displaying history: The number of entries shown in the screen is displayed. All history: The number of all entries stored in an SD memory card is displayed.
(1) Access history list	The access history is displayed in a list.*1
Display all history	Select the checkbox to display all entries stored in an SD memory card. If not selected, 1024 latest entries are displayed.
[Error detail] button	When selecting an error in the access history list, click this to display the "Error/Event detail" screen where the details of the error can be checked.
[Clear history file] button	Click this to clear the access history list.*2
[Update] button	Click this to acquire information of the access history list from an SD memory card again.
[Create CSV file] button	Click this to save each information of the access history list as a CSV file. To save information on all connections in the access history, select the checkbox of "Display all history" before clicking this button.

*1 Among the items displayed in "Access type," the ones indicating an error or access failure are as follows:

Access type	Description
Tool access	Configuration Tool failed to access a module.
On transfer (High speed sampling)	An error occurred during a streaming transfer (high speed sampling).
On transfer (General sampling)	An error occurred during a streaming transfer (general sampling).
On transfer access	Accessing a module failed during a streaming transfer.

*2 The list cannot be cleared if a major error occurs in a high speed data communication module.

Precautions

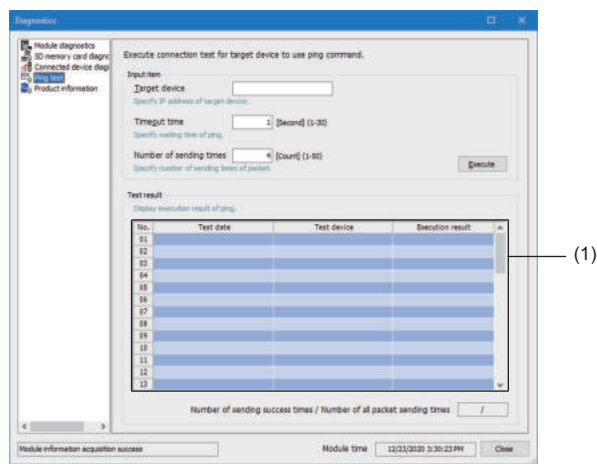
- After the module is started, the date and time is not registered for connections that are established until the time is synchronized; therefore, "-" is displayed in "Occurrence date."
- The access history is registered (saved) on an SD memory card. When an SD memory card is not inserted or the access status is "Access stop," connections are not registered.
- Up to 65536 connections can be registered in the access history. If the number exceeds 65536, the oldest ones are deleted.

Ping test

The following shows the screen for performing the test on a network connection from a high speed data communication module to a specified target device.

Window

Select "Ping test" in the diagnostic item tree.



Displayed items

Item		Description
Input item	Target device	Specify the IP address of a target device for the ping test in decimal.
	Timeout time	Set the response waiting time when performing the ping test.
	Number of sending times	Set the number of times to send a packet when performing the ping test.
	[Execute] button	Click this to send a ping packet to a specified target device.
Test result ^{*1}	(1) Test result list	The results of ping test are displayed for the number of times set in "Sending count."
	Number of sending success times / Number of all packet sending times	The total number of times that a packet was sent and the number of times that it succeeded during the ping test are displayed.

^{*1} The previous test result is cleared by the following operations:

- Clicking the [Execute] button
- Closing the "Diagnostics" screen

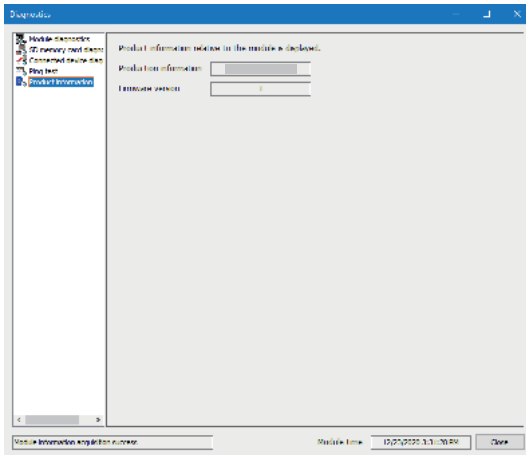
Product information

The following shows the screen for displaying the product information of a high speed data communication module.

Window

Select "Product information" in the diagnostic item tree.

2



Displayed items

Item	Description
Production information	The production information of a high speed data communication module is displayed.
Firmware version	The firmware version of a high speed data communication module is displayed.

Management

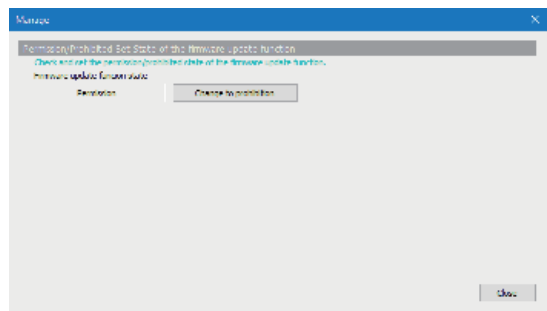
Information in a high speed data communication module can be displayed.
In addition, operations can be performed to the displayed information.

Firmware update management

The following shows the screen for displaying whether the firmware update is permitted or prohibited for a high speed data communication module.

Window

Select [Online] ⇒ [Manage].



Displayed items

Item	Description
Firmware update function state	Whether the firmware update is permitted or prohibited is displayed.
[Change to prohibition] button*1	Click this to display the screen for changing the set state of the firmware update function. (Page 92 Changing the set state of the firmware update)
[Change to permission] button*2	

- *1 Displayed when "Permission" is displayed for "Firmware update function state."
*2 Displayed when "Prohibition" is displayed for "Firmware update function state."

Changing the set state of the firmware update

Operating procedure

To prohibit the firmware update

1. Set a password for removing the prohibition (8 to 16 characters).
2. Enter the password again for verification.
3. Click the [OK] button.

To permit the firmware update

1. Enter the password for removing the prohibition, which was set to prohibit the firmware update.
2. Click the [OK] button.

Point

If a password is forgotten, initialize a high speed data communication module. "Firmware update function state" will be set to "Permission." (Page 38 Initialization Function)

2.9 Help

This section shows the help function for the following operations.

- Checking the version information
- Connecting to MITSUBISHI ELECTRIC FA Global Website
- Opening the user's manual

Checking the version information

The version information of Configuration Tool can be checked by the following operation.

Operating procedure

Select [Help] ⇒ [About Configuration Tool].

Connecting to MITSUBISHI ELECTRIC FA Global Website

MITSUBISHI ELECTRIC FA Global Website can be opened in a web browser by the following operation.

Operating procedure

Select [Help] ⇒ [Connection to MITSUBISHI ELECTRIC FA Global Website].

Opening the user's manual

The user's manual (operation help) for a high speed data communication module can be displayed by the following operation.




Operating procedure

Select [Help] ⇒ [MELSEC iQ-R High Speed Data Communication Module Help].

3 PARAMETER SETTING

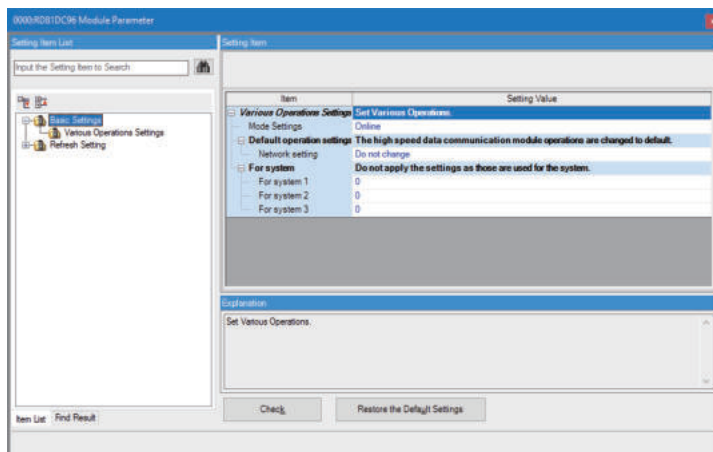
This chapter shows the parameter settings in an engineering tool.

3.1 Parameter Setting Procedure

- 1.** Add a high speed data communication module to an engineering tool.
 [Navigation window] ⇒ [Parameter] ⇒ [Module Information] ⇒ right-click ⇒ [Add New Module]
- 2.** Set two types of parameter settings, basic settings and refresh settings, by selecting in the tree in the screen displayed by the following operation:
 [Navigation window] ⇒ [Parameter] ⇒ [Module Information] ⇒ [RD81DC96]
- 3.** Write the settings to a CPU module in the engineering tool.
 [Online] ⇒ [Write to PLC]
- 4.** Apply the settings by resetting the CPU module or turning the power OFF and ON.

3.2 Basic Settings

This section shows the various operation settings of a high speed data communication module.



3

Various operation settings

The mode and default operation of a high speed data communication module can be set.

Item		Description	Setting range
Mode Settings ^{*1}		<p>The operation mode of the high speed data communication module is set.</p> <ul style="list-style-type: none"> Online: It is a normal operation mode. Online(Asynchronous Mode): The high speed data communication module and the CPU module start without synchronization. Automatic hardware test: H/W such as ROM/RAM/Ethernet of the high speed data communication module is tested. Hardware test for LED check: The LED of the high speed data communication module is tested. Firmware update: Update the firmware of high speed data communication module. Module Initialization Setting: Initializes the information held by the high speed data communication module. 	<ul style="list-style-type: none"> Online Online(Asynchronous Mode) Automatic hardware test Hardware test for LED check Firmware update Module Initialization Setting (Default: Online)
Default operation settings	Network setting ^{*2}	<p>Set whether or not to change the "Network setting" of the high speed data communication module forcibly.</p> <ul style="list-style-type: none"> Do not change: Operate by using the setting contents specified in the "Network setting" of the Configuration Tool. Change to default^{*3}: Operate by changing the IP address and subnet mask as follows: IP address = 192.168.3.3 Subnet mask = 255.255.255.0 	<ul style="list-style-type: none"> Do not change Change to default (Default: Do not change)
For system	For system 1 to 3	Do not apply the settings as those are used for the system.	—

^{*1} For the differences between 'online' and 'online (asynchronous mode)', refer to the following:

☞ Page 96 Online and online (asynchronous mode)

^{*2} Host name is the setting contents specified in the "Network setting" of the Configuration Tool.

^{*3} Does not execute network diagnostics (ping).

Point

The default operation settings are used to change the settings of a high speed data communication module connected to a personal computer on a 1:1 basis.

Online and online (asynchronous mode)

The following explains the differences between 'online' and 'online (asynchronous mode)'.

■Online

A CPU module and a high speed data communication module synchronize each other and complete their start processing, then start at the same time. (A CPU module stands by until a high speed data communication module completes its start processing.)

■Online (asynchronous mode)

A CPU module and a high speed data communication module start individually when their start processing is completed without waiting for the completion of the processing of the other module.

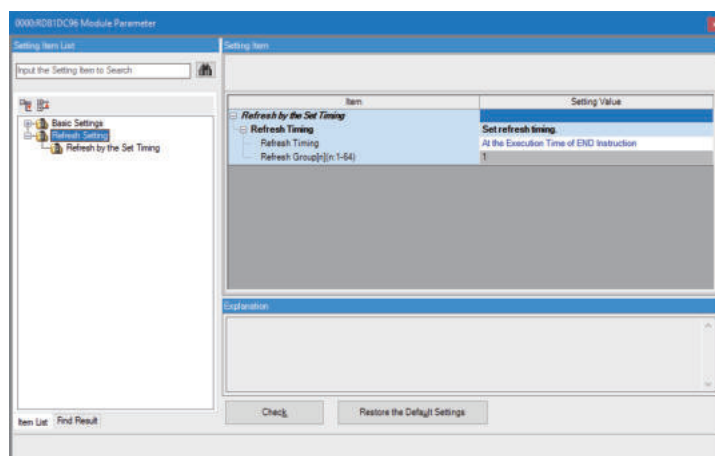
Precautions

The following shows the considerations for using 'online (asynchronous mode)'.

- Do not access the buffer memory of a high speed data communication module until the module starts after a CPU module starts. Otherwise, an indefinite value may be acquired and a sequence program may not run as intended.
When accessing the buffer memory, make sure that 'Module READY' (X0) is turned ON.

3.3 Refresh Setting

This section shows the setting of the refresh timing of a specified target.








Item	Setting value	Description
Refresh Timing	At the Execution Time of END Instruction	The setting is refreshed at the END processing in the CPU module.
	At the Execution Time of Specified Program	The setting is refreshed when a program specified in "Refresh Group[n](n: 1-64)" is executed.

4 TROUBLESHOOTING


This chapter explains the errors which may occur when using a high speed data communication module and the troubleshooting.

4.1 Checking Method for Error Descriptions


The following are the methods for checking error descriptions.

Checking method	Details
"Module Diagnostics" screen of an engineering tool	Error codes ^{*1} can be checked in the "Module Diagnostics" screen of an engineering tool. The "Module Diagnostics" screen can be opened from the system monitor.  Page 99 Checking the Module Status
Buffer memory	Error codes ^{*1} can be checked in the following buffer memory:  Page 145 Current error area (Un\G140 to 149)  Page 146 Error log area (Un\G150 to 311)
Configuration Tool	Error codes ^{*1} can be checked by the diagnostics function.  Page 81 Diagnostics
User program	Error codes ^{*2} can be checked with a variable that stores the execution result.  MELSEC IQ-R High Speed Data Communication Module Programming Manual

*1 The error codes in the following section can be checked.

 Page 97 Errors reported to a high speed data communication module

*2 The error codes in the following section can be checked.

 Page 97 Errors reported to a user program

Point

If multiple errors occur at the same time, take corrective action for the errors in chronological order.

Error code types

For errors on a high speed data communication module, some are reported to the module and the others are reported to a user program.

■Errors reported to a high speed data communication module

The status of errors that are reported to the module can be determined with the statuses of the RUN LED and ERR LED.

RUN LED	ERR LED	Error status	Error code	Description
OFF	ON, Flashing	Major error	3C00H to 3FFFH	An error such as a hardware or memory error that causes a module to stop operating.
ON	Flashing	Moderate error	2000H to 3BFFH ^{*1}	An error such as a memory error that causes a module to stop operating.
ON	ON	Minor error	1000H to 1FFFH	An error such as a sampling or transfer failure that causes a module to continue or stop operating.

*1 The SD memory card error (error code: 2121H) is a minor error.

■Errors reported to a user program

Errors reported to a user program are minor errors; therefore, the status of the ERR LED does not change.

RUN LED	ERR LED	Error status	Error code	Description
ON	No change	Minor error	0001H to FFFFH	An execution error that is caused by a user program.

Error types


There are three types of errors of a high speed data communication module as follows:

Error type	Description	Corrective action
Module stop error	A module stops operating.	Take a corrective action for the error, and turn OFF the ERR LED by any of the following operations: <ul style="list-style-type: none">• Turn ON 'Error clear request' (Y10).• Select [Online] ⇒ [Diagnostics] ⇒ "Module diagnostics," and click the [Error clear] button.• Turn the power OFF and ON.• Reset the CPU module.
Module continuation error	A module continues operating.	
Execution error	This type of error occurs due to some operations of a user program or Configuration Tool. <ul style="list-style-type: none">• A module continues operating.• An error code is not stored in the buffer memory.	When an error occurs in a user program: <ul style="list-style-type: none">• Check the execution result of the user program, and take corrective action for the error. (An error code is stored to the return value.)• Change module settings or modify the user program as necessary. When an error occurs in Configuration Tool: <ul style="list-style-type: none">• Check the displayed error message, and take corrective action for the error.

4.2 Checking the Module Status

The module status can be checked in the "Module Diagnostics" screen of an engineering tool.

Item	Purpose	Reference
Error information	To display the description of an error occurring. The history of errors detected and operations performed in a high speed data communication module can be checked by clicking the [Event History] button.	Page 99 Error information
Module information list	To display the information of each status of a high speed data communication module.	Page 100 Module information list

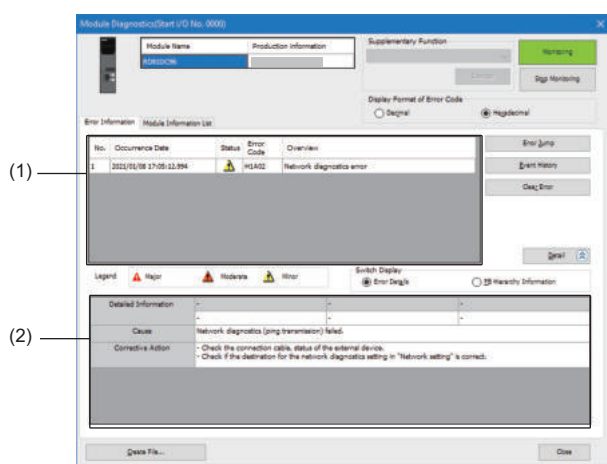
In addition, the self-diagnostic tests that check the hardware of a high speed data communication module can be performed in an engineering tool. ( Page 101 Self-diagnostic tests)

Error information

The description of an error occurring and its corrective action can be checked in the [Error Information] tab.

4


Window



Displayed items

Item	Description
(1) Error information list	Errors occurring are listed.
(2) Error detailed information	—
	Detailed Information
	Cause
	Corrective Action

Restriction

An error in a high speed data communication module cannot be cleared with the [Clear Error] button. Use the diagnostic function of Configuration Tool to clear the error. ( Page 82 Module diagnostics)

Module information list

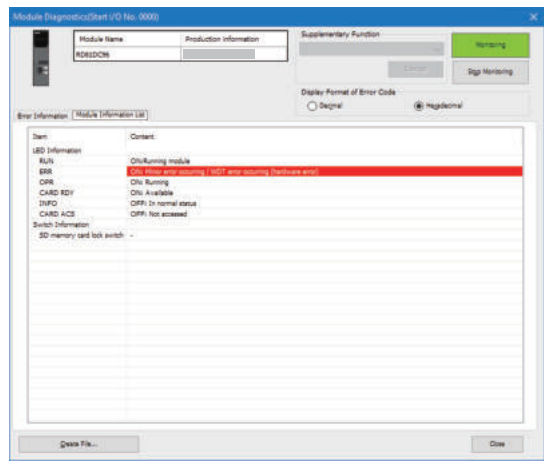
The LED information and switch information can be checked in the [Module Information List] tab.

During a self-diagnostic test, "Automatic hardware is being tested" or "Hardware test for LED check is being executed" is displayed in all the LED information and switch information.

If an error occurs, refer to the following section and take corrective action.

☞ Page 103 Troubleshooting by Symptom

Window



Displayed items

Item		Description
LED information	RUN	The operating status of a module is displayed.
	ERR	The error status of a module is displayed.
	OPR	The operating status of a module is displayed.
	CARD RDY	The status of an SD memory card is displayed.
	INFO	Information on the module operation is displayed.
	CARD ACS	The access status of an SD memory card is displayed.
Switch Information	SD memory card lock switch	Information on the SD memory card lock switch is displayed.

Self-diagnostic tests

Automatic hardware test

The following explains the test on hardware such as ROM/RAM/Ethernet of a high speed data communication module.

Restriction

- The values in the buffer memory cannot be referenced in an engineering tool during the automatic hardware test.
- If the automatic hardware test is completed abnormally, the error details cannot be checked even if the error code is displayed in an engineering tool.

4

Operating procedure

1. Select "Automatic hardware test" in "Basic Settings" ⇒ "Various Operations Settings" ⇒ "Mode Settings" for a high speed data communication module in an engineering tool.
2. Disconnect a cable if it is connected to a 1000BASE-T/100BASE-TX/10BASE-T interface.
3. Remove an SD memory card if it is inserted.
4. Set the CPU module to the STOP state, and write the parameters.
5. Reset the CPU module.

After resetting the CPU module, the automatic hardware test is performed. The LED display when performing the automatic hardware test is as follows:

Status		RUN LED status	ERR LED status
Automatic hardware test is in process.		Flashing	OFF
Automatic hardware test is completed.	Normal completion	ON	OFF
	Abnormal completion	ON	ON

6. When the test is completed normally, change the mode set in the step 1 back to "Online," and reset the CPU module.
7. When the test is completed abnormally, check if measures are taken to reduce noise of the system, and perform the test again. If it is completed abnormally again, a hardware failure may occur in the high speed data communication module. Please contact your local Mitsubishi Electric sales office or representative.
Do not use an electric screwdriver when removing the module. Loose the module fixing screws completely to remove the module.

Hardware test for LED check

The following explains the LED hardware diagnostic of a high speed data communication module. For the diagnostic, the LED of a recorder module needs to be turned ON.



The values in the buffer memory cannot be referenced in an engineering tool during the hardware test for LED check.

Operating procedure

1. Select "Hardware test for LED check" in "Basic Settings" ⇒ "Various Operations Settings" ⇒ "Mode Settings" for a high speed data communication module in an engineering tool.
2. Set the CPU module to the STOP state, and write the parameters.
3. Reset the CPU module.

After the CPU module is reset, the hardware test for LED check is performed automatically. The following contents are displayed. Check visually whether there is no error.

LED name	Display color	Display status
RUN	Green	ON
ERR	Red	ON
OPR	Green	ON
INFO	Green	ON
CARD RDY	Green	ON
CARD ACS	Green	ON

4. When the test is completed normally, change the mode set in the step 1 back to "Online," and reset the CPU module.
5. When the test is completed abnormally (when any color or status is different from the one shown in the table above), check if measures are taken to reduce noise of the system, and perform the test again. If it is completed abnormally again, a hardware failure may occur in the high speed data communication module. Please contact your local Mitsubishi Electric sales office or representative.
Do not use an electric screwdriver when removing the module. Loosen the module fixing screws completely to remove the module.

4.3 Troubleshooting by Symptom

This section shows the procedure for troubleshooting while a high speed data communication module is operating. The method names are described based on Java in this section unless otherwise noted.

1. Check if the RUN LED is ON. If not, refer to the following:

 Page 104 Troubleshooting on RUN LED


2. Check if the ERR LED is OFF. If not, refer to the following:

 Page 104 Troubleshooting on ERR LED

3. Check if the OPR LED is ON or flashing. If not, refer to the following:

 Page 104 Troubleshooting on OPR LED

4. Check if the CARD RDY LED is ON or flashing. If not, refer to the following:

 Page 104 Troubleshooting on CARD RDY LED


5. Check if the INFO LED is OFF. If not, refer to the following:

 Page 105 Troubleshooting on INFO LED


6. Refer to the following sections according to the symptom occurring, and take corrective action.

 Page 105 Troubleshooting on I/O signals

 Page 105 Troubleshooting on a streaming transfer


 Page 107 Troubleshooting on data reading and data writing

 Page 107 Troubleshooting on network connection


 Page 108 Troubleshooting on the target device communication

 Page 109 Troubleshooting on an SD memory card

 Page 110 Troubleshooting on Configuration Tool

 MELSEC iQ-R High Speed Data Communication Module Programming Manual

Point

The LED status can be checked in the "Module Diagnostics" screen of an engineering tool. ( Page 100 Module information list)

Troubleshooting on RUN LED

Symptom	Check point	Corrective action
The RUN LED does not turn ON.	Is the module in preparation?	• Wait for the module to start.
	Is the module properly mounted on the base unit?	• Mount the module properly.
	Is 'Module READY' (X0) OFF?	• Check if a supported SD memory card is used. (MELSEC iQ-R High Speed Data Communication Module User's Manual (Startup)) If doing so, please contact your local Mitsubishi Electric sales office or representative.
	Has a module major error (error code: 2450H) occurred in a CPU module?	
	Has an error occurred in a CPU module?	• Take corrective action for the error that occurred in the CPU module.
	Is the ERR LED flashing?	• Refer to the following section to take corrective action. Page 104 Troubleshooting on ERR LED
The RUN LED is flashing in red or ON in red.	Is the mode of the RD81DC96 set to "Firmware update" in an engineering tool?	• Wait until the firmware update is completed, and check the error code and take corrective action if it is completed abnormally. (MELSEC iQ-R Module Configuration Manual) • Select "Online" for the mode setting in an engineering tool.

Troubleshooting on ERR LED

Symptom	Check point	Corrective action
The ERR LED is ON or flashing.	Check the error code. (Page 97 Checking Method for Error Descriptions)	• Check the error description and take corrective action by referring to the following: Page 113 Error Code List
	Is the mode of the RD81DC96 set to "Automatic hardware test" in an engineering tool?	• Wait until the automatic hardware test is completed, and refer to the following section to take corrective action if it is completed abnormally. Page 101 Automatic hardware test • Select "Online" for the mode setting in an engineering tool.

Troubleshooting on OPR LED

Symptom	Check point	Corrective action
The OPR LED does not turn ON.	Is the SD memory card inserted correctly?	• Remove the SD memory card once, and insert it again.
	Have the settings been written to the SD memory card?	• Write the settings to the high speed data communication module. (Page 79 Writing settings)
	Has the SD memory card been removed while being formatted?	• Reset the CPU module or cycle the power. (Do not remove an SD memory card while being formatted.)

Troubleshooting on CARD RDY LED

Symptom	Check point	Corrective action
The CARD RDY LED does not turn ON.	Refer to the symptom "Unable to recognize an SD memory card. (The CARD RDY LED does not turn ON.)" in the troubleshooting on an SD memory card. (Page 109 Troubleshooting on an SD memory card)	
It takes time for the CARD RDY LED to turn ON.	Is the number of files in the inserted SD memory card large?	• Delete unnecessary files from the SD memory card.
The CARD RDY LED remains flashing after removing an SD memory card.	Has the SD memory card been removed while being mounted (while the CARD RDY LED is flashing)?	• Reset the CPU module or cycle the power. (Do not remove an SD memory card while being mounted. Make sure to stop file access before removing the SD memory card.)

Troubleshooting on INFO LED

Symptom	Check point	Corrective action
The INFO LED is ON.	Is b0 in 'INFO LED lighting factor' (Un\G12) ON (Is data missing)? (☞ Page 143 Module status area (Un\G0 to 20))	<ul style="list-style-type: none"> Fully verify the processing time for each function of the entire system and adjust so that data missing does not occur. (☞ Page 152 Processing Time)
	Is b1 in 'INFO LED lighting factor' (Un\G12) ON (Is the sampling cycle rounded down)? (☞ Page 143 Module status area (Un\G0 to 20))	<ul style="list-style-type: none"> Review the user program to specify the sampling cycle for general sampling labels in units of 100 ms. If the sampling cycle for high speed sampling labels is 0.5 to 0.9 ms, review the user program to specify the cycle in units of 0.1 ms. If the sampling cycle for high speed sampling labels is 1 to 32767 ms, review the user program to specify the cycle in units of 1 ms.
	Is b2 in 'INFO LED lighting factor' (Un\G12) ON (Is the transfer cycle rounded down)? (☞ Page 143 Module status area (Un\G0 to 20))	<ul style="list-style-type: none"> If the sampling cycle for high speed sampling labels is 0.5 to 0.9 ms, review the user program to specify the cycle in units of 0.1 ms. If the sampling cycle for high speed sampling labels is 1 to 100 ms, review the user program to specify the cycle in units of 1 ms.

4

Troubleshooting on I/O signals

Symptom	Check point	Corrective action
'Module READY' (X0) does not turn ON, or it takes time to turn ON.	Is the module in preparation?	<ul style="list-style-type: none"> Delete the unnecessary access target CPU setting. (It may take several minutes for 'Module READY' (X0) to turn ON depending on the number of access target CPU settings.) (☞ Page 63 Access target CPU setting)
	Is there any error in the communication route between a high speed data communication module and access target CPU module?	<ul style="list-style-type: none"> Check the communication route between the high speed data communication module and access target CPU module.
'SD memory card status' (X1) does not turn ON.	Refer to the symptom "Unable to recognize an SD memory card. (The CARD RDY LED does not turn ON.)" in the troubleshooting on an SD memory card. (☞ Page 109 Troubleshooting on an SD memory card)	

Troubleshooting on a streaming transfer

Symptom	Check point	Corrective action
Unable to sample data in each sequence scan.	Does "High speed sampling failure count" of the buffer memory increase? (☞ Page 148 Access status area (Un\G1500 to 1819))	<ul style="list-style-type: none"> ☞ Page 159 For high speed sampling Reduce the number of device points for high speed sampling. Set a constant scan to a programmable controller CPU. Stop other streaming transfers.
	Check the power supply status. (Has a momentary power failure occurred?)	<ul style="list-style-type: none"> Review the power supply status.
Unable to sample data in the specified cycle. (High speed sampling)	Does "High speed sampling failure count" of the buffer memory increase? (☞ Page 148 Access status area (Un\G1500 to 1819))	<ul style="list-style-type: none"> ☞ Page 159 For high speed sampling Reduce the number of device points for high speed sampling. Set a constant scan to a programmable controller CPU. Stop other streaming transfers.
	Check the power supply status. (Has a momentary power failure occurred?)	<ul style="list-style-type: none"> Review the power supply status.
Unable to sample data in the specified cycle. (General sampling)	Is the value in "Sampling time" of the buffer memory greater than the setting value of sampling cycle? (☞ Page 148 Access status area (Un\G1500 to 1819))	<ul style="list-style-type: none"> ☞ Page 160 For general sampling Reduce the number of labels to be streamed. Stop other streaming transfers. Mount a high speed data communication module on an access target CPU station, and perform a streaming transfer in high speed sampling.
The timestamp of the transfer data does not match the sampling cycle.	Is time synchronized during the streaming transfer?	<ul style="list-style-type: none"> Check the event history if time is synchronized during the transfer. Change the setting so that time is synchronized only when the power is turned ON. Execute the getTimeSyncFlag method in the user program to check if time is synchronized. (☞ MELSEC iQ-R High Speed Data Communication Module Programming Manual)

Symptom	Check point	Corrective action
Something is wrong with the timestamp of the transfer data.	Is the type of time received from the module specified correctly? (☞ Page 37 Time information added at a streaming transfer)	<ul style="list-style-type: none"> Execute the <code>getAdditionTimeType</code> method in the user program to check if the type of time is specified as intended. (MELSEC iQ-R High Speed Data Communication Module Programming Manual) Execute the <code>setAdditionTimeType</code> method in the user program to specify the type of time. (MELSEC iQ-R High Speed Data Communication Module Programming Manual)
	Is the time zone specified correctly?	<ul style="list-style-type: none"> Review the time zone setting. (☞ Page 37 Considerations for time synchronization function)
Data inconsistency occurs.	Is general sampling being used?	<ul style="list-style-type: none"> Use high speed sampling.
	Is the number of device points within the access units? (MELSEC iQ-R High Speed Data Communication Module User's Manual (Startup))	<ul style="list-style-type: none"> Set the number of device points sampled at one time to within the access units.
Unable to start a streaming transfer.	Are the methods on a streaming transfer completed normally?	<ul style="list-style-type: none"> Refer to the troubleshooting for methods on a streaming transfer. (MELSEC iQ-R High Speed Data Communication Module Programming Manual)
Unable to transfer data though a streaming transfer can be started normally.	Is the CPU in the RUN state when specifying 'each sequence scan' as a sampling cycle?	<ul style="list-style-type: none"> Check if the CPU is in the RUN state. Specify not 'each sequence scan' but time for the sampling cycle.
	Is the transfer data receive processing registered?	<ul style="list-style-type: none"> Refer to the troubleshooting for methods on a streaming transfer. (MELSEC iQ-R High Speed Data Communication Module Programming Manual)
Unable to perform a streaming transfer in the specified sampling cycle.	Does "High speed sampling failure count" of the buffer memory increase? (☞ Page 148 Access status area (Un/G1500 to 1819))	☞ Page 159 For high speed sampling <ul style="list-style-type: none"> Reduce the number of device points for high speed sampling. Set a constant scan to a programmable controller CPU. Stop other streaming transfers.
	Check the power supply status. (Has a momentary power failure occurred?)	<ul style="list-style-type: none"> Review the power supply status.
	Is the value in "Sampling time" of the buffer memory greater than the setting value of sampling cycle? (☞ Page 148 Access status area (Un/G1500 to 1819))	☞ Page 160 For general sampling <ul style="list-style-type: none"> Reduce the number of labels to be streamed. Stop other streaming transfers. Mount a high speed data communication module on an access target CPU station, and perform a streaming transfer in high speed sampling.
	Has the processing overload occurred? (☞ Page 148 Access status area (Un/G1500 to 1819))	☞ Page 160 Checking transfer processing time <ul style="list-style-type: none"> Reduce the number of labels to be sampled. Lengthen the sampling cycle. Stop other streaming transfers. Improve network performance by reducing traffic.
	Is time synchronized during the streaming transfer?	<ul style="list-style-type: none"> Check the event history if time is synchronized during the transfer. Change the setting so that time is synchronized only when the power is turned ON. Execute the <code>getTimeSyncFlag</code> method in the user program to check if time is synchronized. (MELSEC iQ-R High Speed Data Communication Module Programming Manual)
	Is the memory space for a user program adequately reserved?	<ul style="list-style-type: none"> Check the free space of the operating system. Check the heap size used by the user program.

Troubleshooting on data reading and data writing

Symptom	Check point	Corrective action
Fails to read or write data.	Is the device value within the range that can be represented with specified data type?	• Review the setting value of the device value.
	Does a specified access CPU module exist?	• Check the settings for an access target CPU if a specified CPU module exists.
	Are the methods on data reading and writing completed normally?	• Refer to the troubleshooting for methods on data reading and data writing. (MELSEC iQ-R High Speed Data Communication Module Programming Manual)
Data inconsistency occurs.	Is the number of device points within the access units? (MELSEC iQ-R High Speed Data Communication Module User's Manual (Startup))	• Set the number of device points sampled at one time to within the access units.

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Troubleshooting on network connection

Symptom	Check point	Corrective action
Unable to access a high speed data communication module.	Is "Online" selected for the mode setting of RD81DC96 in an engineering tool?	• Select "Online" for the mode setting in the engineering tool.
	Is the high speed data communication module connected to a network?	• Connect the high speed data communication module to a network.
	Is there any disconnection in the connection route?	• Connect the cables properly. • Replace the cables with new ones.
	Is the IP address duplicated?	• Review the IP address.
	Are there a firewall and proxy server in the connection route?	• Check the firewall and proxy server settings with the network administrator.
	Is Windows firewall enabled on the personal computer?	• Disable Windows firewall on the personal computer when using "Find High Speed Data Communication Module" or direct connection.
	Is antivirus software blocking Ethernet communications?	• Change the antivirus software settings to allow Ethernet communication. • Lower the level of the security settings of the antivirus software. • Stop the antivirus software.
	Is there any problem on the personal computer?	• Replace it with another personal computer.
	Are the authorities of the user logged on to Windows sufficient?	• Log on as a user with a standard or higher access authority.
	Is the IP address of high speed data communication module specified in the "Transfer setup" screen correct? (The module operates with the initial IP address (192.168.3.3) if turning the power OFF and ON or resetting the CPU module without an SD memory card inserted.) (Page 77 Transfer setup)	• Review the IP address of high speed data communication module specified in the "Transfer setup" screen. • Connect the module and personal computer directly and select "Direct connection" in the "Transfer Setup" screen. (MELSEC iQ-R High Speed Data Communication Module User's Manual (Startup))
	Has an error occurred in a CPU module on the own station?	• Check the error code of the CPU module and take corrective actions according to the error code.
	Is another module set to the slot on which the high speed data communication module is mounted in the system parameter (I/O assignment setting) of the CPU module on the own station?	• Review the system parameter (I/O assignment setting) of the CPU module.
	Are the high speed data communication module and personal computer connected to each other via a hub?	• For a direct connection, connect the high speed data communication module to the personal computer on a 1:1 basis. (MELSEC iQ-R High Speed Data Communication Module User's Manual (Startup))
	Are multiple IP addresses enabled on the personal computer side at the same time?	• For a direct connection, make sure multiple IP addresses are not enabled at the same time in the personal computer. • Disable the wireless LAN function.
	Is the access blocked by the IP filter function?	• Review "Security setting" in Configuration Tool. • Check the IP address of the personal computer.

Symptom	Check point	Corrective action
Unable to access a high speed data communication module.	Does the number of connections reach five which is the upper limit?	<ul style="list-style-type: none"> Check the module access status in "Connected device diagnostics" of Configuration Tool or in 'Access status area' (Un\G1500 to 1819) of the buffer memory, and check if five connections are established with the module. If there are five connections, take the following corrective actions, then access the module again: <ul style="list-style-type: none"> ●Closing the "Diagnostics" screen of Configuration Tool ●Closing the user program or ending GX LogViewer
	Is the access authentication function enabled?	<ul style="list-style-type: none"> Check if the access authentication function of high speed data communication module is disabled.
	Does the number of connections exceed the number of transfer-enabled personal computers?	<ul style="list-style-type: none"> Check the module access status in "Connected device diagnostics" of Configuration Tool or in 'Access status area' (Un\G1500 to 1819) of the buffer memory, and check if four connections are established with the module besides connections in the "Communicating with tool" status. If there are four connections, close the user program or end GX LogViewer, then access the module again.
	Is the load on the Ethernet network high between the personal computer and high speed data communication module?	<ul style="list-style-type: none"> Check the status of the Ethernet network and reduce the load. After that, wait for a while and access the module again.
	Are the methods on module connection completed normally?	<ul style="list-style-type: none"> Refer to the troubleshooting on the connect method in the user program. (MELSEC iQ-R High Speed Data Communication Module Programming Manual)
Unable to enable the IP filter function.	Is the power turned OFF and ON or the CPU module reset after configuring the IP filter function?	<ul style="list-style-type: none"> Turn the power OFF and ON or reset the CPU module.

Troubleshooting on the target device communication

Symptom	Check point	Corrective action
Unable to access another station via an Ethernet module.	Is a remote password set for the engineering tool communication port (UDP/IP) of the Ethernet module on the target or relay station?	<ul style="list-style-type: none"> Remove the remote password.
Unable to access another station via the built-in Ethernet port of a high speed data communication module.	Are the devices on the communication route (such as router) operating normally?	<ul style="list-style-type: none"> Check their operating status. Perform the ping test for the high speed data communication module from the access target CPU module side (built-in Ethernet port CPU or Ethernet module), then turn the power of own station OFF and ON.
	Is the access target a CPU module of Q series or L series? In that case, is UDP (MELSOFT Connection) added to the open setting for a built-in Ethernet port of the access target CPU module?	<ul style="list-style-type: none"> Add UDP (MELSOFT Connection).
A timeout error occurs.	Are multiple modules communicating with the access target CPU module where the timeout error occurs?	<ul style="list-style-type: none"> Review the service processing setting for the access target CPU module. Review the system to reduce the frequency of access to the access target CPU module.
An error such as timeout or data missing occurs when accessing another station via the built-in Ethernet port of a high speed data communication module.	If a device (such as router) except for Ethernet (twisted pair) cables and hubs exists on the access route, is the device operating normally?	<ul style="list-style-type: none"> Check the status of route and that of device (such as router) on the route. Reconfigure the communication route to the access target CPU module with Ethernet (twisted pair) cables and hubs.

Troubleshooting on an SD memory card

Symptom	Check point	Corrective action
Unable to format an SD memory card.	Is the SD memory card being accessed?	<ul style="list-style-type: none"> Wait until the SD memory card access is completed.
The following symptoms occur when accessing an SD memory card from a personal computer. <ul style="list-style-type: none"> The file size is displayed as 0 bytes. A space is added to the end of the data in a file. Unable to open files due to a message indicating a file error, file entry error, file size error, etc. 	Was file access stopped before removing or replacing the SD memory card regardless of the power ON/OFF status?	<ul style="list-style-type: none"> Make sure to stop the file access before removing or replacing the SD memory card regardless of the power OFF/ON status. (LMELSEC iQ-R High Speed Data Communication Module User's Manual (Startup)) To repair the SD memory card with an error, insert the SD memory card in the high speed data communication module again, stop file access, then remove the SD memory card. (LMELSEC iQ-R High Speed Data Communication Module User's Manual (Startup))
	Is there any problem with the type of SD memory card?	<ul style="list-style-type: none"> Use a supported SD memory card. (LMELSEC iQ-R High Speed Data Communication Module User's Manual (Startup))
Files in an SD memory card disappear when the power is interrupted.	Has the power been turned OFF or a control CPU been reset while writing a file to the SD memory card?	<ul style="list-style-type: none"> Stop file access before turning the power OFF or resetting the control CPU. (LMELSEC iQ-R High Speed Data Communication Module User's Manual (Startup)) Format the SD memory card. (Page 84 SD memory card diagnostics)
	Is the SD memory card inserted correctly?	<ul style="list-style-type: none"> Remove the SD memory card once and insert it again.
Unable to recognize an SD memory card. (The CARD RDY LED does not turn ON.)	Is 'File access status' (X2) ON (Is file access stopped)?	<ul style="list-style-type: none"> Clear the file access stop status.
	Is a supported SD memory card used?	<ul style="list-style-type: none"> Use a supported SD memory card. (LMELSEC iQ-R High Speed Data Communication Module User's Manual (Startup))
	Has the SD memory card been formatted in another device such as a personal computer?	<ul style="list-style-type: none"> Format the SD memory card by using the high speed data communication module. (Page 84 SD memory card diagnostics)
	Has the power been turned OFF or a control CPU been reset while formatting the SD memory card?	
	Has the power been turned OFF or a control CPU been reset while writing a file to the SD memory card?	<ul style="list-style-type: none"> Stop file access before turning the power OFF or resetting the control CPU. (LMELSEC iQ-R High Speed Data Communication Module User's Manual (Startup)) Format the SD memory card. (Page 84 SD memory card diagnostics)
	Is the write protect switch of the SD memory card locked?	<ul style="list-style-type: none"> Unlock the write protect switch of the SD memory card and insert it again.
The total capacity, free space, and usage rate of an SD memory card are not displayed.	Is the access status "Access stop"?	<ul style="list-style-type: none"> Restart the access. (Page 84 SD memory card diagnostics)
	Is the access status "Formatting"?	<ul style="list-style-type: none"> Wait until the access status becomes "Accessible."
	Is the access status "Preparing access"?	<ul style="list-style-type: none"> Wait until the access status becomes "Accessible."
	Is the access status "Card error detected"?	<ul style="list-style-type: none"> Format the SD memory card. (Page 84 SD memory card diagnostics) Replace the SD memory card with another one.
The CARD RDY LED remains flashing after removing an SD memory card.	Has the SD memory card been removed while being mounted (while the CARD RDY LED is flashing)?	<ul style="list-style-type: none"> Turn the power OFF and ON or reset the CPU module. (Do not remove an SD memory card while being mounted. Make sure to stop file access before removing the SD memory card.)

Troubleshooting on Configuration Tool

Symptom	Check point	Corrective action
A message such as "Please insert a disk" appears when opening or saving a file.	Was a removal drive or network drive specified when opening or saving the file last time?	<ul style="list-style-type: none"> • Reselect an existing drive on the personal computer.
Unable to start Configuration Tool online. (Unable to start it from a web browser.)	Are the permissions granted to the user logged on to Windows sufficient?	<ul style="list-style-type: none"> • Log on as a user with a standard or higher access authority.
	Is the parental control (family safety) enabled for the user logged on to Windows?	<ul style="list-style-type: none"> • Disable the parental control (family safety).
	Are the security settings configured for a web browser?	<ul style="list-style-type: none"> • Set the security settings for Internet Explorer to "Medium" or lower. (MELSEC iQ-R High Speed Data Communication Module User's Manual (Startup))
	Is the free space on a hard disk sufficient?	<ul style="list-style-type: none"> • Check the free space on the hard disk. (MELSEC iQ-R High Speed Data Communication Module User's Manual (Startup))
	Is the memory or the system resources on a personal computer sufficient?	<ul style="list-style-type: none"> • Increase the necessary memory on the personal computer. (MELSEC iQ-R High Speed Data Communication Module User's Manual (Startup)) • Close other programs and restart Configuration Tool.
	Is .NET Framework 4.6 installed?	<ul style="list-style-type: none"> • Install .NET Framework 4.6.
	Is SmartScreen disabled?	<ul style="list-style-type: none"> • Disable SmartScreen.
	Is the message "Application cannot be started. Contact the application vendors." displayed?	<ul style="list-style-type: none"> • Wait for a while and retry. • Execute the following command on the Windows command prompt to delete a cache used for online startup. (This command deletes the entire ClickOnce cache saved in a personal computer.) rmdir /S /Q %USERPROFILE%\AppData\Local\Apps\2.0
Unable to start Configuration Tool online. (The source code is displayed.)	Is there a proxy server in the connection route?	<ul style="list-style-type: none"> • Disable the proxy settings in a web browser. (MELSEC iQ-R High Speed Data Communication Module User's Manual (Startup)) • Delete temporary internet files, or reload the screen in which the source code is displayed by pressing the Ctrl + F5 keys and retry online startup. (MELSEC iQ-R High Speed Data Communication Module User's Manual (Startup))
	Are the settings for temporary internet files configured in a web browser?	<ul style="list-style-type: none"> • Delete temporary internet files, or reload the screen in which the source code is displayed by pressing the Ctrl + F5 keys and retry online startup. (MELSEC iQ-R High Speed Data Communication Module User's Manual (Startup))
Unable to communicate with a module. (Unable to perform any operations online.)	Are the permissions granted to the user logged on to Windows sufficient?	<ul style="list-style-type: none"> • Log on as a user with a standard or higher access authority.
	Is Windows firewall enabled on the personal computer?	<ul style="list-style-type: none"> • Disable Windows firewall on the personal computer when using "Find High Speed Data Communication Module" or direct connection.
	Is antivirus software blocking Ethernet communications?	<ul style="list-style-type: none"> • Change the antivirus software settings to allow Ethernet communication. • Lower the level of the security settings of the antivirus software. • Stop the antivirus software.
	Is "Direct connection" selected in the "Transfer Setup" screen? (Page 77 Transfer setup)	<ul style="list-style-type: none"> • For a direct connection, connect the high speed data communication module to the personal computer on a 1:1 basis. (MELSEC iQ-R High Speed Data Communication Module User's Manual (Startup))
	Are multiple IP addresses enabled on the personal computer side at the same time?	<ul style="list-style-type: none"> • For a direct connection, make sure multiple IP addresses are not enabled at the same time in the personal computer. • Disable the wireless LAN function.
	Is the load on the Ethernet network high between the personal computer and high speed data communication module?	<ul style="list-style-type: none"> • Check the status of the Ethernet network and reduce the load. After that, wait for a while and access the module again.
	Is the write protect switch of the SD memory card locked?	<ul style="list-style-type: none"> • Unlock the write protect switch of the SD memory card and access the module again.

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Symptom	Check point	Corrective action
A timeout occurs when executing "Update settings," or it takes time to update settings.	Is there any error in the communication route between a high speed data communication module and access target CPU module?	<ul style="list-style-type: none"> Check the communication route between the high speed data communication module and access target CPU module.
	Is there any error in settings for an access target CPU?	<ul style="list-style-type: none"> Review "Access target CPU setting." (📖 Page 63 Access target CPU setting)
	Is there any unnecessary access target CPU setting?	<ul style="list-style-type: none"> Delete the unnecessary access target CPU setting. (It may take several minutes for 'Module READY' (X0) to turn ON depending on the number of access target CPU settings.) (📖 Page 63 Access target CPU setting)

4.4 Error Code List

This section shows the error code lists.

Errors reported to a high speed data communication module

Error code	Error name	Error description	Corrective action
18A0H	High speed sampling error	Failed to execute the high speed sampling.	<ul style="list-style-type: none"> Write the settings to the module again with the Configuration Tool. Replace the SD memory card.
18A1H to 18A2H	High speed sampling unsupported CPU error	The control CPU does not support high speed sampling.	<ul style="list-style-type: none"> Replace it with a CPU that supports high speed sampling.
18A3H to 18A8H	High speed sampling error	Failed to execute the high speed sampling.	<ul style="list-style-type: none"> Write the settings to the module again with the Configuration Tool. Replace the SD memory card.
18A9H	High speed sampling error	An incorrect device is specified. Otherwise an unusable device in the high speed sampling is specified.	<ul style="list-style-type: none"> Correct the set device.
18AAH	High speed sampling error	A device size out of range is specified.	<ul style="list-style-type: none"> Specify a device size within range of the high speed sampling size.
18ABH to 18AEH	High speed sampling error	Failed to execute the high speed sampling.	<ul style="list-style-type: none"> Write the settings to the module again with the Configuration Tool. Replace the SD memory card.
18AFH	High speed sampling error	<ul style="list-style-type: none"> Module operation is executed by more than one location at the same time. Failed to execute the high speed sampling. 	<ul style="list-style-type: none"> Execute update settings again. Write the settings to the module again with the Configuration Tool. Replace the SD memory card.
18B0H	High speed sampling error	Failed to execute the high speed sampling.	<ul style="list-style-type: none"> Write the settings to the module again with the Configuration Tool. Replace the SD memory card. Check the status of the CPU being accessed.
18B1H	High speed sampling error	Failed to execute the high speed sampling.	<ul style="list-style-type: none"> Write the settings to the module again with the Configuration Tool. Replace the SD memory card.
18B2H to 18B3H	High speed sampling unsupported CPU error	The control CPU does not support high speed sampling.	<ul style="list-style-type: none"> Replace it with a CPU that supports high speed sampling.
18B4H to 18BDH	High speed sampling error	Failed to execute the high speed sampling.	<ul style="list-style-type: none"> Write the settings to the module again with the Configuration Tool. Replace the SD memory card.
18BEH	High speed sampling error	<ul style="list-style-type: none"> Module operation is executed by more than one location at the same time. Failed to execute the high speed sampling. 	<ul style="list-style-type: none"> Execute update settings again. Write the settings to the module again with the Configuration Tool. Replace the SD memory card.
18BFH to 18C0H	High speed sampling error	Failed to execute the high speed sampling.	<ul style="list-style-type: none"> Write the settings to the module again with the Configuration Tool. Replace the SD memory card.
18C1H to 18C2H	High speed sampling unsupported CPU error	The control CPU does not support high speed sampling.	<ul style="list-style-type: none"> Replace it with a CPU that supports high speed sampling.
18C3H to 18CCH	High speed sampling error	Failed to execute the high speed sampling.	<ul style="list-style-type: none"> Write the settings to the module again with the Configuration Tool. Replace the SD memory card.
18CDH	High speed sampling error	<ul style="list-style-type: none"> Module operation is executed by more than one location at the same time. Failed to execute the high speed sampling. 	<ul style="list-style-type: none"> Execute update settings again. Write the settings to the module again with the Configuration Tool. Replace the SD memory card.
18CEH to 18D0H	High speed sampling error	Failed to execute the high speed sampling.	<ul style="list-style-type: none"> Write the settings to the module again with the Configuration Tool. Replace the SD memory card.
18D1H to 18D2H	High speed sampling unsupported CPU error	The control CPU does not support high speed sampling.	<ul style="list-style-type: none"> Replace it with a CPU that supports high speed sampling.
18D3H to 18DCH	High speed sampling error	Failed to execute the high speed sampling.	<ul style="list-style-type: none"> Write the settings to the module again with the Configuration Tool. Replace the SD memory card.

Error code	Error name	Error description	Corrective action
18DDH	High speed sampling error	<ul style="list-style-type: none"> - Module operation is executed by more than one location at the same time. - Failed to execute the high speed sampling. 	<ul style="list-style-type: none"> • Execute update settings again. • Write the settings to the module again with the Configuration Tool. • Replace the SD memory card.
18DEH to 18E0H	High speed sampling error	Failed to execute the high speed sampling.	<ul style="list-style-type: none"> • Write the settings to the module again with the Configuration Tool. • Replace the SD memory card.
18E1H to 18E2H	High speed sampling unsupported CPU error	The control CPU does not support high speed sampling.	<ul style="list-style-type: none"> • Replace it with a CPU that supports high speed sampling.
18E3H to 18E9H	High speed sampling error	Failed to execute the high speed sampling.	<ul style="list-style-type: none"> • Write the settings to the module again with the Configuration Tool. • Replace the SD memory card.
18EAH	High speed sampling error	Total device points of each module setting performing "high speed sampling (synchronizes to the sequence function)" from same control CPU exceeds the maximum points. (Access points is calculated rounding up at 8,192 points unit.)	<ul style="list-style-type: none"> • Check the number of high speed sampling device points. • Change the sampling method to general sampling. • Configure the setting of control CPU so that total device points of each module setting using "high speed sampling (synchronizes to the sequence function)" dose not exceed the maximum points.
18EBH	High speed sampling error	<ul style="list-style-type: none"> - Total module number performing "high speed sampling (synchronizes to the sequence function)" from same control CPU exceeds maximum module number. - Module operation is executed by more than one location at the same time. 	<ul style="list-style-type: none"> • Change the sampling method to general sampling. • Configure the system so that module number using "high speed sampling (synchronizes to the sequence function)" dose not exceed the maximum number. • Execute update settings again.
18ECH	High speed sampling error	<ul style="list-style-type: none"> - Failed to start high speed sampling. - Module operation is executed by more than one location at the same time. 	<ul style="list-style-type: none"> • Restore the device points to points before updating setting. • Cycle the power of the system where the high speed data communication module is mounted or reset. • Check the device points performing high speed sampling. • Change the sampling method to general sampling. • Execute update settings again.
18EDH to 18EFH	High speed sampling error	<ul style="list-style-type: none"> - Module operation is executed by more than one location at the same time. - Failed to execute the high speed sampling. 	<ul style="list-style-type: none"> • Execute update settings again. • Write the settings to the module again with the Configuration Tool. • Replace the SD memory card.
18F0H	High speed sampling error	Failed to execute the high speed sampling.	<ul style="list-style-type: none"> • Write the settings to the module again with the Configuration Tool. • Replace the SD memory card. • Check the status of the CPU being accessed.
18F1H	High speed sampling error	Failed to execute the high speed sampling.	<ul style="list-style-type: none"> • Write the settings to the module again with the Configuration Tool. • Replace the SD memory card.
18FAH to 18FCH	File write error	Failed to write the file.	<ul style="list-style-type: none"> • Delete unnecessary files on the SD memory card to ensure free space. • Replace the SD memory card.
1A02H	Network diagnostics error	Network diagnostics (ping transmission) failed.	<ul style="list-style-type: none"> • Check the connection cable, status of the external device. • Check if the destination for the network diagnostics setting in "Network setting" is correct.
1D09H	SD memory card access error	Failed to register the access history.	<ul style="list-style-type: none"> • Check if the SD memory card is inserted properly. • Replace the SD memory card.
1D0AH	SD memory card access error	Failed to register the event history.	<ul style="list-style-type: none"> • Check if the SD memory card is inserted properly. • Replace the SD memory card.
1D83H	SD memory card mount failed	The SD memory card mount is failed because a failure was detected.	<ul style="list-style-type: none"> • Check if the SD memory card was inserted properly. • Replace the SD memory card.
1D9BH	Unsupported CPU error	Unsupported CPU is accessed.	<ul style="list-style-type: none"> • Check the type of access target CPU.
1D9CH	Network communication route error	A nonexistent module was specified for the start I/O of the network route in "Access target CPU setting".	<ul style="list-style-type: none"> • Check the start I/O address in "Access target CPU setting".
1DA0H	High speed sampling unsupported CPU error	The control CPU does not support high speed sampling.	<ul style="list-style-type: none"> • Replace it with a CPU that supports high speed sampling.

Error code	Error name	Error description	Corrective action
1DA1H	Invalid device name error	The specified device name is incorrect. Or an invalid device is specified.	<ul style="list-style-type: none"> Check the specified device name.
2121H	SD memory card error	An error has been detected in the SD memory card.	<ul style="list-style-type: none"> Format the SD memory card. Reinsert the SD memory card. Check the SD memory card. Replace the SD memory card if it is damaged. When the write protect switch of the SD memory card is locked, unlock the switch and insert the card.
2440H	Module major error	<ul style="list-style-type: none"> In the multiple CPU system, the control CPU setting in the system parameters is different from that of other numbered CPU modules. An error has been detected in the I/O module or intelligent function module during the initial processing. 	<ul style="list-style-type: none"> Review the system parameters of the second or higher numbered CPU modules and match them with those of the smallest numbered CPU module. A hardware failure may occur in the module. Please consult your local Mitsubishi representative.
2450H	Module major error	<ul style="list-style-type: none"> A major error has been detected from the I/O module or intelligent function module. 	<ul style="list-style-type: none"> Check the connection status of the extension cable. Check that the I/O module or intelligent function module is mounted correctly. Reset the CPU module and switch it to RUN. If the same error is displayed again, a hardware failure may occur in the module. Please consult your local Mitsubishi representative.
24C0H to 24C1H	System bus error	<ul style="list-style-type: none"> An error has been detected on the system bus. 	<ul style="list-style-type: none"> Take measures to reduce noise. Reset the CPU module and switch it to RUN. If the same error is displayed again, a hardware failure may occur in the CPU module, I/O module, intelligent function module, base unit, or extension cable. Please consult your local Mitsubishi representative.
24C2H	System bus error	<ul style="list-style-type: none"> An error has been detected on the system bus. 	<ul style="list-style-type: none"> Check the connection status of the extension cable. Take measures to reduce noise. Reset the CPU module and switch it to RUN. If the same error is displayed again, a hardware failure may occur in the CPU module, I/O module, intelligent function module, base unit, or extension cable. Please consult your local Mitsubishi representative.
24C3H	System bus error	<ul style="list-style-type: none"> An error has been detected on the system bus. 	<ul style="list-style-type: none"> Take measures to reduce noise. Reset the CPU module and switch it to RUN. If the same error is displayed again, a hardware failure may occur in the CPU module, I/O module, intelligent function module, base unit, or extension cable. Please consult your local Mitsubishi representative.
24C4H to 24C5H	System bus error	<ul style="list-style-type: none"> An error has been detected on the system bus. 	<ul style="list-style-type: none"> Take measures to reduce noise. Reset the CPU module and switch it to RUN. If the same error is displayed again, a hardware failure may occur in the CPU module, I/O module, intelligent function module, base unit, or extension cable. Please consult your local Mitsubishi representative.
24C6H	System bus error	<ul style="list-style-type: none"> An error has been detected on the system bus. 	<ul style="list-style-type: none"> Take measures to reduce noise. Reset the CPU module and switch it to RUN. If the same error is displayed again, a hardware failure may occur in the CPU module, I/O module, intelligent function module, base unit, or extension cable. Please consult your local Mitsubishi representative.
24C8H	System bus error	<ul style="list-style-type: none"> An error has been detected on the system bus. 	<ul style="list-style-type: none"> Take measures to reduce noise. Reset the CPU module and switch it to RUN. If the same error is displayed again, a hardware failure may occur in the CPU module, I/O module, intelligent function module, base unit, or extension cable. Please consult your local Mitsubishi representative.

Error code	Error name	Error description	Corrective action
3018H	Module error	A module error has been detected.	<ul style="list-style-type: none"> Take measures to reduce noise. Reset the CPU module and switch it to RUN. If the same error is displayed again, a hardware failure may occur in high speed data communication module. Please consult your local Mitsubishi representative.
301BH to 301EH	Module error	A module error has been detected.	<ul style="list-style-type: none"> Take measures to reduce noise. Reset the CPU module and switch it to RUN. If the same error is displayed again, a hardware failure may occur in high speed data communication module. Please consult your local Mitsubishi representative.
303AH	Configuration parameter error	An invalid configuration parameter is found.	<ul style="list-style-type: none"> Write the settings to the module again with Configuration Tool. Replace the SD memory card.
303CH	Configuration parameter error	An invalid configuration parameter is found.	<ul style="list-style-type: none"> Write the settings to the module again with Configuration Tool. Replace the SD memory card.
3042H to 3043H	Setting file error	There is no setting file. Or SD memory card is not mounted. Or the setting file is corrupted. Or the operation to unmount the SD memory card was executed while restarting file access.	<ul style="list-style-type: none"> Write the settings to the module again with Configuration Tool. Mount the SD memory card. Check if the SD memory card is inserted properly. Replace the SD memory card. Execute operation to unmount the SD memory card after restarting file access.
3045H to 3046H	Module error	• A module error has been detected.	<ul style="list-style-type: none"> Take measures to reduce noise. Reset the CPU module and switch it to RUN. If the same error is displayed again, a hardware failure may occur in high speed data communication module. Please consult your local Mitsubishi representative.
3048H to 3050H	Module error	• A module error has been detected.	<ul style="list-style-type: none"> Take measures to reduce noise. Reset the CPU module and switch it to RUN. If the same error is displayed again, a hardware failure may occur in high speed data communication module. Please consult your local Mitsubishi representative.
3054H to 305FH	Module error	• A module error has been detected.	<ul style="list-style-type: none"> Take measures to reduce noise. Reset the CPU module and switch it to RUN. If the same error is displayed again, a hardware failure may occur in high speed data communication module. Please consult your local Mitsubishi representative.
3100H	Module error	• A module error has been detected.	<ul style="list-style-type: none"> Take measures to reduce noise. Reset the CPU module and switch it to RUN. If the same error is displayed again, a hardware failure may occur in high speed data communication module. Please consult your local Mitsubishi representative.
3C00H to 3C03H	Hardware failure	• A hardware failure has been detected.	<ul style="list-style-type: none"> Take measures to reduce noise. Reset the CPU module and switch it to RUN. If the same error is displayed again, a hardware failure may occur in high speed data communication module. Please consult your local Mitsubishi representative.
3C0FH	Hardware failure	• A hardware failure has been detected.	<ul style="list-style-type: none"> Take measures to reduce noise. Reset the CPU module and switch it to RUN. If the same error is displayed again, a hardware failure may occur in high speed data communication module. Please consult your local Mitsubishi representative.
3C22H	Memory error	• An error has been detected in the memory.	<ul style="list-style-type: none"> Take measures to reduce noise. Reset the CPU module and switch it to RUN. If the same error is displayed again, a hardware failure may occur in high speed data communication module. Please consult your local Mitsubishi representative.

Error code	Error name	Error description	Corrective action
3C2FH	Memory error	<ul style="list-style-type: none"> An error has been detected in the memory. 	<ul style="list-style-type: none"> Take measures to reduce noise. Reset the CPU module and switch it to RUN. If the same error is displayed again, a hardware failure may occur in high speed data communication module. Please consult your local Mitsubishi representative.
3E10H	Module error	<ul style="list-style-type: none"> A module error has been detected. 	<ul style="list-style-type: none"> Take measures to reduce noise. Reset the CPU module and switch it to RUN. If the same error is displayed again, a hardware failure may occur in high speed data communication module. Please consult your local Mitsubishi representative.
3E12H to 3E14H	Module error	<ul style="list-style-type: none"> A module error has been detected. 	<ul style="list-style-type: none"> Take measures to reduce noise. Reset the CPU module and switch it to RUN. If the same error is displayed again, a hardware failure may occur in high speed data communication module. Please consult your local Mitsubishi representative.
3E26H	Module error	<ul style="list-style-type: none"> A module error has been detected. 	<ul style="list-style-type: none"> Take measures to reduce noise. Reset the CPU module and switch it to RUN. If the same error is displayed again, a hardware failure may occur in high speed data communication module. Please consult your local Mitsubishi representative.
3E80H to 3E8DH	Module error	<ul style="list-style-type: none"> A module error has been detected. 	<ul style="list-style-type: none"> Take measures to reduce noise. Reset the CPU module and switch it to RUN. If the same error is displayed again, a hardware failure may occur in high speed data communication module. Please consult your local Mitsubishi representative.
3E91H to 3E9BH	Module error	<ul style="list-style-type: none"> A module error has been detected. 	<ul style="list-style-type: none"> Take measures to reduce noise. Reset the CPU module and switch it to RUN. If the same error is displayed again, a hardware failure may occur in high speed data communication module. Please consult your local Mitsubishi representative.
3F01H to 3F04H	Memory error	<ul style="list-style-type: none"> An error has been detected in the memory. 	<ul style="list-style-type: none"> Take measures to reduce noise. Reset the CPU module and switch it to RUN. If the same error is displayed again, a hardware failure may occur in high speed data communication module. Please consult your local Mitsubishi representative.

Errors reported to a user program

Error code	Error name	Error description	Corrective action
0001H	Access target CPU communication error	Failed to communicate with access target CPU.	<ul style="list-style-type: none"> • Correct "Access target CPU setting". • Check the communication cable status and access target CPU status. • Adjust the response monitoring time setting. • Check if the control CPU of the network module on the network route to the access target CPU is set to QCPU(Q mode). • Check the routing parameter settings of the CPU(s) on the access route. • Check the network on the access route.
0002H	Response timeout error	No response has been received from the other station.	<ul style="list-style-type: none"> • Correct "Access target CPU setting". • Check the communication cable status and access target CPU status. • Adjust the response monitoring time setting. • Check the control CPU(s) of the network module(s) on the access route to the Access target device module. • Check the routing parameter settings of the CPU(s) on the access route. • Check the network on the access route. • Adjust the service processing setting of the access target CPU. • When the load of the network is high, adjust the system and lessen the processing load.
0042H to 0043H	Access target CPU communication error	Failed to communicate with access target CPU.	<ul style="list-style-type: none"> • Correct "Access target CPU setting". • Check the communication cable status and access target CPU status. • Adjust the response monitoring time setting. • Check if the control CPU of the network module on the network route to the access target CPU is set to QCPU(Q mode). • Check the routing parameter settings of the CPU(s) on the access route. • Check the network on the access route.
0045H	Processing code error	The issued processing code cannot be processed on the other end.	Check the CPU(s) on the access route.
004DH	Access target CPU communication error	Failed to communicate with access target CPU.	<ul style="list-style-type: none"> • Correct "Access target CPU setting". • Check the communication cable status and access target CPU status. • Adjust the response monitoring time setting. • Check if the control CPU of the network module on the network route to the access target CPU is set to QCPU(Q mode). • Check the routing parameter settings of the CPU(s) on the access route. • Check the network on the access route.
0066H	Access target CPU communication error	Failed to communicate with access target CPU.	<ul style="list-style-type: none"> • Check the CPU(s) on the access route. • Check the network on the access route.
0067H	Access target CPU communication error	Failed to communicate with access target CPU.	<ul style="list-style-type: none"> • When accessing via built-in Ethernet port, check if UDP (MELSOFT Connection) is added to the open setting of a built-in Ethernet port for the access target CPU. • Check the CPU(s) on the access route. • Check the network on the access route.
0120H	Access target CPU communication error	Failed to communicate with access target CPU.	Check the source error code.
0121H	Errors detected in the CPU module	—	Check the source error code in the user's manual of the CPU module.
0122H	Errors detected in the serial communication module	—	Check the source error code in the user's manual of the serial communication module.
0123H	Errors detected in the CC-Link module	—	Check the source error code in the user's manual of CC-Link module.

Error code	Error name	Error description	Corrective action
0124H	Errors detected in the Ethernet-equipped module	—	Refer to the user's manual of the Ethernet-equipped module and check the errors displayed in the source error code.
0125H	Errors detected in the CC-Link IE Field Network module	—	Check the source error code in the user's manual of CC-Link IE Field Network module.
0126H	Errors detected in the CC-Link IE Controller Network module	—	Check the source error code in the user's manual of CC-Link IE Controller Network module.
0127H	Errors detected in the MELSECNET/H network module	—	Check the source error code in the user's manual of MELSECNET/H network module.
0128H	Access target CPU communication error	Failed to communicate with access target CPU.	Check the source error code.
0129H	Errors detected in the CPU module	—	Check the source error code in the user's manual of the CPU module.
012AH	Errors detected in the serial communication module	—	Check the source error code in the user's manual of the serial communication module.
012BH	Errors detected in the CC-Link module	—	Check the source error code in the user's manual of CC-Link module.
012CH	Errors detected in the Ethernet-equipped module	—	Refer to the user's manual of the Ethernet-equipped module and check the errors displayed in the source error code.
012DH	Errors detected in the CC-Link IE Field Network module	—	Check the source error code in the user's manual of CC-Link IE Field Network module.
012EH	Errors detected in the CC-Link IE Controller Network module	—	Check the source error code in the user's manual of CC-Link IE Controller Network module.
012FH	Errors detected in the MELSECNET/H network module	—	Check the source error code in the user's manual of MELSECNET/H network module.
0220H	High speed sampling error	Failed to execute the high speed sampling.	<ul style="list-style-type: none"> • Write the settings to the module again with the Configuration Tool. • Replace the SD memory card.
0221H to 0222H	High speed sampling unsupported CPU error	The control CPU does not support high speed sampling.	<ul style="list-style-type: none"> • Replace it with a CPU that supports high speed sampling.
0223H to 0228H	High speed sampling error	Failed to execute the high speed sampling.	<ul style="list-style-type: none"> • Write the settings to the module again with the Configuration Tool. • Replace the SD memory card.
0229H	High speed sampling error	An incorrect device is specified. Otherwise an unuseable device in the high speed sampling is specified.	<ul style="list-style-type: none"> • Correct the set device.
022AH	High speed sampling error	A device size out of range is specified.	<ul style="list-style-type: none"> • Specify a device size within range of the high speed sampling size.
022BH to 022EH	High speed sampling error	Failed to execute the high speed sampling.	<ul style="list-style-type: none"> • Write the settings to the module again with the Configuration Tool. • Replace the SD memory card.
022FH	High speed sampling error	- Module operation is executed by more than one location at the same time. Failed to execute the high speed sampling.	<ul style="list-style-type: none"> • Execute update settings again. • Write the settings to the module again with the Configuration Tool. • Replace the SD memory card.
0230H to 0231H	High speed sampling error	Failed to execute the high speed sampling.	<ul style="list-style-type: none"> • Write the settings to the module again with the Configuration Tool. • Replace the SD memory card.
0232H to 0233H	High speed sampling unsupported CPU error	The control CPU does not support high speed sampling.	<ul style="list-style-type: none"> • Replace it with a CPU that supports high speed sampling.
0234H to 023DH	High speed sampling error	Failed to execute the high speed sampling.	<ul style="list-style-type: none"> • Write the settings to the module again with the Configuration Tool. • Replace the SD memory card.
023EH	High speed sampling error	- Module operation is executed by more than one location at the same time. Failed to execute the high speed sampling.	<ul style="list-style-type: none"> • Execute update settings again. • Write the settings to the module again with the Configuration Tool. • Replace the SD memory card.
023FH to 0240H	High speed sampling error	Failed to execute the high speed sampling.	<ul style="list-style-type: none"> • Write the settings to the module again with the Configuration Tool. • Replace the SD memory card.

Error code	Error name	Error description	Corrective action
0241H to 0242H	High speed sampling unsupported CPU error	The control CPU does not support high speed sampling.	<ul style="list-style-type: none"> Replace it with a CPU that supports high speed sampling.
0243H to 024CH	High speed sampling error	Failed to execute the high speed sampling.	<ul style="list-style-type: none"> Write the settings to the module again with the Configuration Tool. Replace the SD memory card.
024DH	High speed sampling error	<ul style="list-style-type: none"> Module operation is executed by more than one location at the same time. Failed to execute the high speed sampling. 	<ul style="list-style-type: none"> Execute update settings again. Write the settings to the module again with the Configuration Tool. Replace the SD memory card.
024EH to 0250H	High speed sampling error	Failed to execute the high speed sampling.	<ul style="list-style-type: none"> Write the settings to the module again with the Configuration Tool. Replace the SD memory card.
0251H to 0252H	High speed sampling unsupported CPU error	The control CPU does not support high speed sampling.	<ul style="list-style-type: none"> Replace it with a CPU that supports high speed sampling.
0253H to 025CH	High speed sampling error	Failed to execute the high speed sampling.	<ul style="list-style-type: none"> Write the settings to the module again with the Configuration Tool. Replace the SD memory card.
025DH	High speed sampling error	<ul style="list-style-type: none"> Module operation is executed by more than one location at the same time. Failed to execute the high speed sampling. 	<ul style="list-style-type: none"> Execute update settings again. Write the settings to the module again with the Configuration Tool. Replace the SD memory card.
025EH to 0260H	High speed sampling error	Failed to execute the high speed sampling.	<ul style="list-style-type: none"> Write the settings to the module again with the Configuration Tool. Replace the SD memory card.
0261H to 0262H	High speed sampling unsupported CPU error	The control CPU does not support high speed sampling.	<ul style="list-style-type: none"> Replace it with a CPU that supports high speed sampling.
0263H to 0269H	High speed sampling error	Failed to execute the high speed sampling.	<ul style="list-style-type: none"> Write the settings to the module again with the Configuration Tool. Replace the SD memory card.
026AH	High speed sampling error	Total device points of each module setting performing "high speed sampling (synchronizes to the sequence function)" from same control CPU exceeds the maximum points. (Access points is calculated rounding up at 8,192 points unit.)	<ul style="list-style-type: none"> Check the number of high speed sampling device points. Change the sampling method to general sampling. Configure the setting of control CPU so that total device points of each module setting using "high speed sampling (synchronizes to the sequence function)" dose not exceed the maximum points.
026BH	High speed sampling error	<ul style="list-style-type: none"> Total module number performing "high speed sampling (synchronizes to the sequence function)" from same control CPU exceeds maximum module number. Module operation is executed by more than one location at the same time. 	<ul style="list-style-type: none"> Change the sampling method to general sampling. Configure the system so that module number using "high speed sampling (synchronizes to the sequence function)" dose not exceed the maximum number. Execute update settings again.
026CH	High speed sampling error	<ul style="list-style-type: none"> Failed to start high speed sampling. Module operation is executed by more than one location at the same time. 	<ul style="list-style-type: none"> Restore the device points to points before updating setting. Cycle the power of the system where the high speed data communication module is mounted or reset. Check the number of high speed sampling device points. Change the sampling method to general sampling. Execute update settings again.
026DH to 026FH	High speed sampling error	<ul style="list-style-type: none"> Module operation is executed by more than one location at the same time. Failed to execute the high speed sampling. 	<ul style="list-style-type: none"> Execute update settings again. Write the settings to the module again with the Configuration Tool. Replace the SD memory card.
0270H to 0271H	High speed sampling error	Failed to execute the high speed sampling.	<ul style="list-style-type: none"> Write the settings to the module again with the Configuration Tool. Replace the SD memory card.
061DH	Invalid label group name error	The specified label group name is not found.	<ul style="list-style-type: none"> Check the specified label group name. Check the authority on "Access authentication function".
061EH to 061FH	Invalid label name error	The specified label name is not found.	<ul style="list-style-type: none"> Check the specified label name. Check the authority on "Access authentication function".

Error code	Error name	Error description	Corrective action
0624H	Module error	<ul style="list-style-type: none"> A module error has been detected. 	<ul style="list-style-type: none"> Take measures to reduce noise. Reset the CPU module and switch it to RUN. If the same error is displayed again, a hardware failure may occur in high speed data communication module. Please consult your local Mitsubishi representative.
0625H	Invalid label group name error	The specified label group name is not found.	<ul style="list-style-type: none"> Check the specified label group name. Check the authority on "Access authentication function".
0626H	Module error	<ul style="list-style-type: none"> A module error has been detected. 	<ul style="list-style-type: none"> Take measures to reduce noise. Reset the CPU module and switch it to RUN. If the same error is displayed again, a hardware failure may occur in high speed data communication module. Please consult your local Mitsubishi representative.
0627H	Invalid label group name error	The specified label group name is not found.	<ul style="list-style-type: none"> Check the specified label group name. Check the authority on "Access authentication function".
0628H	Invalid label name error	The specified label name is not found.	<ul style="list-style-type: none"> Check the specified label name. Check the authority on "Access authentication function".
0630H	Updating configuration error	The operation could not be performed due to the configuration update or restarting file access.	<ul style="list-style-type: none"> Perform the operation again after updating the configuration or after restarting file access.
06A1H to 06A3H	Network reception error	Received invalid data from the network.	<ul style="list-style-type: none"> Check that invalid packets are not being sent over the network. Check if the user program is not closed.
06A4H	No authority error	The connected account does not have authority to perform the specified operation.	<ul style="list-style-type: none"> Check the authority on "Access authentication function".
06A5H	Network send error	Failed to send data over the network.	<ul style="list-style-type: none"> Check the network connection. Check if the user program is not closed.
06A6H	No authority error	The connected account does not have authority to perform the specified operation.	<ul style="list-style-type: none"> Check the authority on "Access authentication function".
06A7H to 06A8H	Network send error	Failed to send data over the network.	<ul style="list-style-type: none"> Check the network connection. Check if the user program is not closed.
06A9H	Network send error	Failed to send streaming transfer data over the network.	<ul style="list-style-type: none"> Check the network connection. Check if the user program is not closed.
06AAH	Invalid label group name error	The specified label group name is not found.	<ul style="list-style-type: none"> Check the specified label group name. Check the authority on "Access authentication function".
06ABH	No authority error	The connected account does not have authority to perform the specified operation.	<ul style="list-style-type: none"> Check the authority on "Access authentication function".
06ACH	Excessive number of connections	The applicable number of connections for high speed sampling or general sampling exceeded.	<ul style="list-style-type: none"> Reduce the number of connections for high speed sampling or general sampling.
06AEH	Network send error	Failed to send data over the network.	<ul style="list-style-type: none"> Check the network connection. Check if the user program is not closed.
06AFH	Pre-transfer error	Executed the stop command before starting the transfer.	<ul style="list-style-type: none"> Check if the transfer has started.
06B0H	Transferring error	Execute an invalid method during streaming transfer.	<ul style="list-style-type: none"> Execute the method after stopping the streaming transfer. Execute the method with another connection.
06B1H to 06B8H	Network send error	Failed to send streaming transfer data over the network.	<ul style="list-style-type: none"> Check the network connection. Check if the user program is not closed.
06B9H to 06C6H	Network reception error	Failed to receive data over the network.	<ul style="list-style-type: none"> Check the network connection. Check if the user program is not closed.
06C7H	Excessive number of connections	The applicable number of connections for high speed sampling exceeded.	<ul style="list-style-type: none"> Reduce the number of connections for high speed sampling.
06C8H	Excessive number of connections	The applicable number of connections for general sampling exceeded.	<ul style="list-style-type: none"> Reduce the number of connections for general sampling.

Error code	Error name	Error description	Corrective action
06C9H	Excessive number of connections	The applicable number of connections for data read with label specification exceeded.	<ul style="list-style-type: none"> Reduce the number of connections for data read with label specification.
06CAH	Excessive number of connections	The applicable number of connections for data read from device exceeded.	<ul style="list-style-type: none"> Reduce the number of connections for data read from device.
06CBH	Excessive number of connections	The applicable number of connections for data write with label specification exceeded.	<ul style="list-style-type: none"> Reduce the number of connections for data write with label specification.
06CCH	Excessive number of connections	The applicable number of connections for data write to device exceeded.	<ul style="list-style-type: none"> Reduce the number of connections for data write to device.
06CDH	SD memory card access error	Failed to perform the SD memory card operation (access stop).	<ul style="list-style-type: none"> Check if the SD memory card is inserted properly. Replace the SD memory card.
06CEH	SD memory card access error	Failed to perform the SD memory card operation (access restart).	<ul style="list-style-type: none"> Check if the SD memory card is inserted properly. Replace the SD memory card.
06CFH	SD memory card access error	Failed to perform the SD memory card operation (format).	<ul style="list-style-type: none"> Check if the SD memory card is inserted properly. Replace the SD memory card.
06D0H to 06D2H	SD memory card access error	Failed to perform the SD memory card operation (event history file clear).	<ul style="list-style-type: none"> Check if the SD memory card is inserted properly. Replace the SD memory card.
06D3H	SD memory card access error	Failed to perform the SD memory card operation (access stop).	<ul style="list-style-type: none"> Check if the SD memory card is inserted properly. Replace the SD memory card.
06D4H	SD memory card access error	Failed to perform the SD memory card operation (format).	<ul style="list-style-type: none"> Check if the SD memory card is inserted properly. Replace the SD memory card.
06D5H	SD memory card access error	Failed to perform the SD memory card operation (access history file clear).	<ul style="list-style-type: none"> The access history files cannot be cleared during the module stop error. Perform the operation again after clearing the module stop error.
06D6H to 06D8H	SD memory card access error	Failed to perform the SD memory card operation (access history file clear).	<ul style="list-style-type: none"> Check if the SD memory card is inserted properly. Replace the SD memory card.
06D9H	SD memory card access error	Failed to perform the SD memory card operation (access stop).	<ul style="list-style-type: none"> Check if the SD memory card is inserted properly. Replace the SD memory card.
06DAH	SD memory card access error	Failed to perform the SD memory card operation (event history file clear).	<ul style="list-style-type: none"> The event history files cannot be cleared during the module stop error. Perform the operation again after clearing the module stop error.
06DBH	Module suspension error	The method request could not be accepted because the module is not running.	<ul style="list-style-type: none"> Check if the module stop error is occurring. Check if the settings are being updated. Check if the SD memory card is inserted properly. Refresh the settings and restart the module operation. Cycle the power of the CPU module where the High Speed Data Communication Module is mounted, or reset the CPU module to restart the module operation.
06DCH	SD memory card access error	SD memory card is not mounted.	<ul style="list-style-type: none"> Check if the SD memory card is inserted properly. Replace the SD memory card.
06DEH	Transferring error	Execute an invalid method during streaming transfer.	<ul style="list-style-type: none"> Execute the method after stopping the streaming transfer. Execute the method with another connection.
06E6H to 06E8H	Network reception error	Failed to receive data over the network.	<ul style="list-style-type: none"> Check the network connection. Check if the user program is not closed.
06E9H	Network reception error	Failed to receive data over the network.	<ul style="list-style-type: none"> Check the network connection. Check if the user program is not closed.
06EAH	Configuration update error	An error occurred in the module.	<ul style="list-style-type: none"> Remove the error and execute again.
0705H	Unsupported CPU error	Unsupported CPU is accessed.	<ul style="list-style-type: none"> Check the type of access target CPU.
0706H	Network communication route error	A nonexistent module was specified for the start I/O of the network route in "Access target CPU setting".	<ul style="list-style-type: none"> Check the start I/O address in "Access target CPU setting"
070BH to 070CH	Module error	<ul style="list-style-type: none"> A module error has been detected. 	<ul style="list-style-type: none"> Take measures to reduce noise. Reset the CPU module and switch it to RUN. If the same error is displayed again, a hardware failure may occur in high speed data communication module. Please consult your local Mitsubishi representative.
070DH	High speed sampling unsupported CPU error	The control CPU does not support high speed sampling.	<ul style="list-style-type: none"> Replace it with a CPU that supports high speed sampling.

Error code	Error name	Error description	Corrective action
070EH to 0710H	Invalid device name error	The specified device name is incorrect. Or an invalid device is specified.	Check the specified device name.
0711H to 0713H	Module error	• A module error has been detected.	• Take measures to reduce noise. • Reset the CPU module and switch it to RUN. If the same error is displayed again, a hardware failure may occur in high speed data communication module. Please consult your local Mitsubishi representative.
0714H	Invalid device name error	The specified device name is incorrect. Or an invalid device is specified.	Check the specified device name.
071AH to 071CH	Module error	• A module error has been detected.	• Take measures to reduce noise. • Reset the CPU module and switch it to RUN. If the same error is displayed again, a hardware failure may occur in high speed data communication module. Please consult your local Mitsubishi representative.
071DH	Configuration parameter error	An invalid configuration parameter is found.	• Write the settings to the module again with Configuration Tool. • Replace the SD memory card.
071EH	Invalid device name error	The specified device name is incorrect. Or an invalid device is specified.	• Check the specified device name.
071FH	Invalid device name error	The specified device name is incorrect. Or an invalid device is specified.	Check the specified device name.
0721H to 072CH	Module error	• A module error has been detected.	• Take measures to reduce noise. • Reset the CPU module and switch it to RUN. If the same error is displayed again, a hardware failure may occur in high speed data communication module. Please consult your local Mitsubishi representative.
072DH to 072EH	Configuration parameter error	An invalid configuration parameter is found.	• Write the settings to the module again with Configuration Tool. • Replace the SD memory card.
072FH	Module error	• A module error has been detected.	• Take measures to reduce noise. • Reset the CPU module and switch it to RUN. If the same error is displayed again, a hardware failure may occur in high speed data communication module. Please consult your local Mitsubishi representative.
0730H	Invalid device name error	The specified device name is incorrect. Or an invalid device is specified.	• Check the specified device name.
0731H	Module error	• A module error has been detected.	• Take measures to reduce noise. • Reset the CPU module and switch it to RUN. If the same error is displayed again, a hardware failure may occur in high speed data communication module. Please consult your local Mitsubishi representative.
0732H	Invalid device name error	The specified device name is incorrect. Or an invalid device is specified.	• Check the specified device name.
0733H to 0734H	Module error	• A module error has been detected.	• Take measures to reduce noise. • Reset the CPU module and switch it to RUN. If the same error is displayed again, a hardware failure may occur in high speed data communication module. Please consult your local Mitsubishi representative.
0735H	Invalid device name error	The specified device name is incorrect. Or an invalid device is specified.	• Check the specified device name.
0738H	Method execution error	The method request could not be accepted.	• Check if the corresponding High Speed Data Communication Library is in use. • Check if High Speed Data Communication Library file is not corrupt.
0739H	Column specification error	One of columns K5 to K8 is specified.	• Check the device name.
073AH	Invalid device name error	The specified device name is incorrect. Or an invalid device is specified.	• Check the specified device name.
073BH	Column specification error	One of columns K5 to K8 is specified.	• Check the device name.

Error code	Error name	Error description	Corrective action
073CH to 073DH	Invalid device name error	The specified device name is incorrect. Or an invalid device is specified.	<ul style="list-style-type: none"> Check the specified device name.
073EH	Access target CPU open error	Failed to open the CPU to be accessed.	<ul style="list-style-type: none"> Check the communication cable status and access target CPU status. Write the settings to the module again with Configuration Tool. Replace the SD memory card.
0750H to 0751H	Device unsupported error	An unsupported device was specified in the executed method.	<ul style="list-style-type: none"> Specify a bit device or word device.
0772H	Module error	<ul style="list-style-type: none"> A module error has been detected. 	<ul style="list-style-type: none"> Take measures to reduce noise. Reset the CPU module and switch it to RUN. If the same error is displayed again, a hardware failure may occur in high speed data communication module. Please consult your local Mitsubishi representative.
0775H	Module error	<ul style="list-style-type: none"> A module error has been detected. 	<ul style="list-style-type: none"> Take measures to reduce noise. Reset the CPU module and switch it to RUN. If the same error is displayed again, a hardware failure may occur in high speed data communication module. Please consult your local Mitsubishi representative.
0778H	Invalid device name error	The specified device name is incorrect. Or an invalid device is specified.	<ul style="list-style-type: none"> Check the specified device name.
0779H	Configuration parameter error	An invalid configuration parameter is found.	<ul style="list-style-type: none"> Write the settings to the module again with Configuration Tool. Replace the SD memory card.
078AH to 078CH	Transfer start error	An error occurred while starting the transfer.	<ul style="list-style-type: none"> Check if the corresponding High Speed Data Communication Library is in use. Check if High Speed Data Communication Library file is not corrupt.
078DH	Module error	<ul style="list-style-type: none"> A module error has been detected. 	<ul style="list-style-type: none"> Take measures to reduce noise. Reset the CPU module and switch it to RUN. If the same error is displayed again, a hardware failure may occur in high speed data communication module. Please consult your local Mitsubishi representative.
078EH	Device value sampling error	Failed to sample the device value from the programmable controller CPU.	<ul style="list-style-type: none"> Check the connection with the CPU being accessed. Check the status of the CPU being accessed. Make sure that the device being accessed is not out of bounds.
0790H	Module error	<ul style="list-style-type: none"> A module error has been detected. 	<ul style="list-style-type: none"> Take measures to reduce noise. Reset the CPU module and switch it to RUN. If the same error is displayed again, a hardware failure may occur in high speed data communication module. Please consult your local Mitsubishi representative.
0792H	Module error	<ul style="list-style-type: none"> A module error has been detected. 	<ul style="list-style-type: none"> Take measures to reduce noise. Reset the CPU module and switch it to RUN. If the same error is displayed again, a hardware failure may occur in high speed data communication module. Please consult your local Mitsubishi representative.
0794H	Invalid device name error	The number of characters in the device name is out of range.	<ul style="list-style-type: none"> Check the specified device name.
0795H to 0797H	Configuration parameter error	An invalid configuration parameter is found.	<ul style="list-style-type: none"> Write the settings to the module again with Configuration Tool. Replace the SD memory card.
079BH	Excessive number of data write labels	The number of labels for data writes is greater than the limit.	<ul style="list-style-type: none"> Reduce the number of labels for data writes.
079CH	Module error	<ul style="list-style-type: none"> A module error has been detected. 	<ul style="list-style-type: none"> Take measures to reduce noise. Reset the CPU module and switch it to RUN. If the same error is displayed again, a hardware failure may occur in high speed data communication module. Please consult your local Mitsubishi representative.

Error code	Error name	Error description	Corrective action
079DH	Method execution error	The method request could not be accepted.	<ul style="list-style-type: none"> • Check if the corresponding High Speed Data Communication Library is in use. • Check if High Speed Data Communication Library file is not corrupt.
079EH	Invalid device name error	The specified device name is incorrect. Or an invalid device is specified.	<ul style="list-style-type: none"> • Check the specified device name.
079FH to 07A2H	Module suspension error	The method request could not be accepted because the module is not running.	<ul style="list-style-type: none"> • Check if the module stop error is occurring. • Check if the settings are being updated. • Check if the SD memory card is inserted properly. • Refresh the settings and restart the module operation. • Cycle the power of the CPU module where the High Speed Data Communication Module is mounted, or reset the CPU module to restart the module operation.
07A3H to 07A4H	Invalid device name error	The specified device name is incorrect. Or an invalid device is specified.	<ul style="list-style-type: none"> • Check the specified device name.
07A5H	Method execution error	The method request could not be accepted.	<ul style="list-style-type: none"> • Check if the corresponding High Speed Data Communication Library is in use. • Check if High Speed Data Communication Library file is not corrupt.
07A6H	Module suspension error	The method request could not be accepted because the module was not running.	<ul style="list-style-type: none"> • Check if the module stop error is occurring. • Check if the settings are being updated. • Check if the SD memory card is inserted properly. • Refresh the settings and restart the module operation. • Cycle the power of the CPU module where the High Speed Data Communication Module is mounted, or reset the CPU module to restart the module operation.
07C1H	Setting file error	There is no setting file. Or SD memory card is not mounted. Or the setting file is corrupted.	<ul style="list-style-type: none"> • Write the settings to the module again with the Configuration Tool. • Mount the SD memory card. • Check if the SD memory card is inserted properly. • Replace the SD memory card.
07C3H	Setting file error	There is no setting file. Or SD memory card is not mounted. Or the setting file is corrupted.	<ul style="list-style-type: none"> • Write the settings to the module again with Configuration Tool. • Mount the SD memory card. • Check if the SD memory card is inserted properly. • Replace the SD memory card.
07F4H	Data transfer error	Failed to send streaming transfer data over the network.	<ul style="list-style-type: none"> • Check the network.
07F5H	Data transfer error	Failed to send streaming transfer data over the network.	Check the network.
0C06H	Updating configuration error	A request is received from a library, GX LogViewer or another Configuration Tool while updating configurations or restarting file access.	<ul style="list-style-type: none"> • Send the request from the library, GX LogViewer or another Configuration Tool again after the module is running.
0C0BH	Invalid label group name error	The number of characters in the label group name is out of range.	<ul style="list-style-type: none"> • Check the specified label group name.
0C0CH	Invalid label name error	The specified label name is not found.	<ul style="list-style-type: none"> • Check the specified label name. • Check the authority on "Access authentication function".
0C0DH to 0C0EH	Label registration error	An error occurred while registering the label to be transferred.	<ul style="list-style-type: none"> • Check if the corresponding High Speed Data Communication Library is in use. • Check if High Speed Data Communication Library file is not corrupt.
0C11H	Transfer start invalid parameter error	An out of the range sampling cycle is specified for a general sampling label.	<ul style="list-style-type: none"> • Check the specified sampling cycle.
0C12H	Transfer start invalid parameter error	An out of the range transfer cycle is specified for a general sampling label.	<ul style="list-style-type: none"> • Check the specified transfer cycle.
0C13H	Transfer start invalid parameter error	The specified transfer cycle is shorter than the sampling cycle.	<ul style="list-style-type: none"> • Make the transfer cycle equal to or greater than the sampling cycle.

Error code	Error name	Error description	Corrective action
0C14H	Transfer start invalid parameter error	The number of transfer records other than 1 was specified for a general sampling label.	<ul style="list-style-type: none"> Check the specified number of transfer records.
0C15H	Transfer start error	An error occurred while starting the transfer.	<ul style="list-style-type: none"> Check if the corresponding High Speed Data Communication Library is in use. Check if High Speed Data Communication Library file is not corrupt.
0C16H	Transfer label not registered error	The label for transfer is not registered.	<ul style="list-style-type: none"> Use the "SetStreamingLabel"/"SetStreamingLabelGroup" method to register the label to transfer.
0C17H	Transfer start invalid parameter error	An out of the range transfer cycle is specified for a high speed sampling label.	<ul style="list-style-type: none"> Check the specified transfer cycle.
0C1BH to 0C1CH	Method execution error	The method request could not be accepted.	<ul style="list-style-type: none"> Check if the corresponding High Speed Data Communication Library is in use. Check if High Speed Data Communication Library file is not corrupt.
0C23H	Invalid label group name error	The specified label group name is not found.	<ul style="list-style-type: none"> Check the specified label group name. Check the authority on "Access authentication function".
0C24H	Invalid label name error	The specified label name is not found.	<ul style="list-style-type: none"> Check the specified label name. Check the authority on "Access authentication function".
0C25H to 0C26H	Label acquisition error	The method request could not be accepted.	<ul style="list-style-type: none"> Check if the corresponding High Speed Data Communication Library is in use. Check if High Speed Data Communication Library file is not corrupt.
0C27H	Label registration error	An error occurred while registering the label to be transferred.	<ul style="list-style-type: none"> Check if the corresponding High Speed Data Communication Library is in use. Check if High Speed Data Communication Library file is not corrupt.
0C29H	System file corrupt error	Corruption to the system file required for module operation is detected.	<ul style="list-style-type: none"> Check if the SD memory card is inserted properly. Write the settings to the module again with Configuration Tool. Replace the SD memory card.
0C2AH	Excessive number of label registrations	The number of label registrations for transfer is greater than the limit for one connection.	<ul style="list-style-type: none"> Reduce the number of label registrations for transfer.
0C2BH to 0C2EH	Module error	<ul style="list-style-type: none"> A module error has been detected. 	<ul style="list-style-type: none"> Take measures to reduce noise. Reset the CPU module and switch it to RUN. If the same error is displayed again, a hardware failure may occur in high speed data communication module. Please consult your local Mitsubishi representative.
0C2FH	Number of labels specification error	The number of labels for data read is 0.	<ul style="list-style-type: none"> Check the specified number of labels.
0C30H	Number of device points specification error	The number of device points for data read is 0.	<ul style="list-style-type: none"> Check the specified number of device points.
0C32H	Mixed label sampling types error	Both high speed sampling labels and general sampling labels are registered.	<ul style="list-style-type: none"> Check the labels' sampling types. Transfer each sampling type on a separate connection.
0C33H to 0C36H	Invalid label group name error	The specified label group name is not found.	<ul style="list-style-type: none"> Check the specified label group name. Check the authority on "Access authentication function".
0C38H to 0C39H	Invalid label group name error	The specified label group name is not found.	<ul style="list-style-type: none"> Check the specified label group name. Check the authority on "Access authentication function".
0C3AH	Transfer label not registered error	The label for transfer is not registered.	<ul style="list-style-type: none"> Use the "SetStreamingLabel"/"SetStreamingLabelGroup" method to register the label to transfer.
0C3BH	Invalid label name error	The number of characters in the label name is out of range.	<ul style="list-style-type: none"> Check the specified label name.
0C3CH	Invalid label group name error	The specified label group name is not found.	<ul style="list-style-type: none"> Check the specified label group name. Check the authority on "Access authentication function".

Error code	Error name	Error description	Corrective action
0C3DH	Excessive number of label registrations	The number of label registrations for transfer is greater than the limit for the entire module.	<ul style="list-style-type: none"> Reduce the number of label registrations for transfer. Stop transfers on other connections.
0C3EH	No device read authority error	The connected account does not have authority to read the specified data from the device.	<ul style="list-style-type: none"> Check the authority on "Access authentication function".
0C3FH	No device write authority error	The connected account does not have authority to write the specified data to the device.	<ul style="list-style-type: none"> Check the authority on "Access authentication function".
0C42H	Sampling cycle change truncation	The sampling cycle of the general sampling label was truncated down to the nearest unit of 100 ms.	Check the sampling cycle.
0C43H	Number of labels specification error	The number of labels for data write is 0.	<ul style="list-style-type: none"> Check the specified number of labels.
0C44H	Number of device points specification error	The number of device points for data write is 0.	<ul style="list-style-type: none"> Check the specified number of device points.
0C45H	Invalid label group name error	The number of characters in the label group name is out of range.	<ul style="list-style-type: none"> Check the specified label group name.
0C46H	Invalid label name error	The number of characters in the label name is out of range.	<ul style="list-style-type: none"> Check the specified label name.
0C47H	Transfer start invalid parameter error	The specified number of transfer records is out of the range.	<ul style="list-style-type: none"> Check the specified number of transfer records.
0C48H	Excessive number of label registrations	The number of label registrations for transfer is greater than the limit for the entire module.	<ul style="list-style-type: none"> Reduce the number of label registrations for transfer. Stop transfers on other connections.
0C49H	Excessive number of label registrations	The number of label registrations for transfer is greater than the limit for the entire module.	<ul style="list-style-type: none"> Reduce the number of label registrations for transfer. Stop transfers on other connections.
0C4AH	Method execution error	The method request could not be accepted.	<ul style="list-style-type: none"> Check if the corresponding High Speed Data Communication Library is in use. Check if High Speed Data Communication Library file is not corrupt.
0C4BH	Excessive number of label registrations	The number of label registrations for transfer is greater than the limit for one connection.	<ul style="list-style-type: none"> Reduce the number of label registrations for transfer.
0C4CH	Method execution error	The method request could not be accepted.	<ul style="list-style-type: none"> Check if the corresponding High Speed Data Communication Library is in use. Check if High Speed Data Communication Library file is not corrupt.
0C4EH	Label data size acquisition error	An error occurred when acquiring the label's data size.	<ul style="list-style-type: none"> Check if the corresponding High Speed Data Communication Library is in use. Check if High Speed Data Communication Library file is not corrupt.
0C4FH	Number of labels specification error	The number of labels for streaming transfer is 0.	<ul style="list-style-type: none"> Check the specified number of labels.
0C50H	Label registration error	An error occurred while registering the label to be transferred.	<ul style="list-style-type: none"> Check if the corresponding High Speed Data Communication Library is in use. Check if High Speed Data Communication Library file is not corrupt.
0C51H to 0C57H	Method execution error	The method request could not be accepted.	<ul style="list-style-type: none"> Check if the corresponding High Speed Data Communication Library is in use. Check if High Speed Data Communication Library file is not corrupt.
0C58H	Realtime trend graph execution error	An error occurred while starting the real time monitor.	<ul style="list-style-type: none"> Check the GX LogViewer version.
0C59H	Transfer start invalid parameter error	The specified number of transfer records is out of the range.	<ul style="list-style-type: none"> Check the specified number of transfer records.
0C5AH	Transfer start invalid parameter error	An out of the range sampling cycle is specified for a high speed sampling label.	<ul style="list-style-type: none"> Check the specified sampling cycle.
0C5BH	No label write authority error	The connected account does not have authority to write the specified data to the label.	<ul style="list-style-type: none"> Check the authority on "Access authentication function".

Error code	Error name	Error description	Corrective action
0C5CH	Transfer label not registered error	The label for transfer is not registered.	<ul style="list-style-type: none"> • Use the "SetStreamingLabel"/ "SetStreamingLabelGroup" method to register the label to transfer.
0C5DH	Over transfer capacity	The length of data that can be transferred at one time is exceeded.	<ul style="list-style-type: none"> • Reduce the number of specified records. • Reduce the number of labels to register.
0C5EH	Excessive number of label registrations	The number of label registrations for streaming transfer is greater than the limit for one connection.	<ul style="list-style-type: none"> • Reduce the number of label registrations for streaming transfer.
0C5FH to 0C61H	Excessive number of label registrations	The number of label registrations for streaming transfer is greater than the limit.	<ul style="list-style-type: none"> • Reduce the number of label registrations for streaming transfer. • Stop transfers on other connections.
0C62H	Module suspension error	The data read request is accepted when the module is being suspended.	<ul style="list-style-type: none"> • Check if the module stop error is occurring. • Check if the settings are being updated. • Check if the SD memory card is inserted properly. • Refresh the settings and restart the module operation. • Cycle the power of the CPU module where the High Speed Data Communication Module is mounted, or reset the CPU module to restart the module operation.
0C63H	Module suspension error	The data write request is accepted when the module is being suspended.	<ul style="list-style-type: none"> • Check if the module stop error is occurring. • Check if the settings are being updated. • Check if the SD memory card is inserted properly. • Refresh the settings and restart the module operation. • Cycle the power of the CPU module where the High Speed Data Communication Module is mounted, or reset the CPU module to restart the module operation.
0C64H	Transfer start invalid parameter error	The number of label registrations for streaming transfer is 0, or greater than the limit.	<ul style="list-style-type: none"> • Check the number of label registrations for streaming transfer.
0C65H	Transfer label not registered error	The label for transfer is not registered.	<ul style="list-style-type: none"> • Use the "SetStreamingLabel"/ "SetStreamingLabelGroup" method to register the label to transfer.
0C66H	System file corrupt error	Corruption to the system file required for module operation is detected.	<ul style="list-style-type: none"> • Check if the SD memory card is inserted properly. • Write the settings to the module again with Configuration Tool. • Replace the SD memory card.
0C67H	Invalid label group name error	The specified label group name is not found.	<ul style="list-style-type: none"> • Check the specified label group name. • Check the authority on "Access authentication function".
100EH	Access target CPU communication error	Failed to communicate with access target CPU.	<ul style="list-style-type: none"> • Correct "Access target CPU setting". • Check the communication cable status and access target CPU status. • Adjust the response monitoring time setting. • Check if the control CPU of the network module on the network route to the access target CPU is set to QCPU(Q mode). • Check the routing parameter settings of the CPU(s) on the access route. • Check the network on the access route.
200CH to 2015H	Access target CPU communication error	Failed to communicate with access target CPU.	<ul style="list-style-type: none"> • Correct "Access target CPU setting". • Check the communication cable status and access target CPU status. • Adjust the response monitoring time setting. • Check if the control CPU of the network module on the network route to the access target CPU is set to QCPU(Q mode). • Check the routing parameter settings of the CPU(s) on the access route. • Check the network on the access route.

Error code	Error name	Error description	Corrective action
2017H to 201DH	Access target CPU communication error	Failed to communicate with access target CPU.	<ul style="list-style-type: none"> • Correct "Access target CPU setting". • Check the communication cable status and access target CPU status. • Adjust the response monitoring time setting. • Check if the control CPU of the network module on the network route to the access target CPU is set to QCPU(Q mode). • Check the routing parameter settings of the CPU(s) on the access route. • Check the network on the access route.
201FH to 203FH	Access target CPU communication error	Failed to communicate with access target CPU.	<ul style="list-style-type: none"> • Correct "Access target CPU setting". • Check the communication cable status and access target CPU status. • Adjust the response monitoring time setting. • Check if the control CPU of the network module on the network route to the access target CPU is set to QCPU(Q mode). • Check the routing parameter settings of the CPU(s) on the access route. • Check the network on the access route.
2042H to 2044H	Access target CPU communication error	Failed to communicate with access target CPU.	<ul style="list-style-type: none"> • Correct "Access target CPU setting". • Check the communication cable status and access target CPU status. • Adjust the response monitoring time setting. • Check if the control CPU of the network module on the network route to the access target CPU is set to QCPU(Q mode). • Check the routing parameter settings of the CPU(s) on the access route. • Check the network on the access route.
2046H to 2056H	Access target CPU communication error	Failed to communicate with access target CPU.	<ul style="list-style-type: none"> • Correct "Access target CPU setting". • Check the communication cable status and access target CPU status. • Adjust the response monitoring time setting. • Check if the control CPU of the network module on the network route to the access target CPU is set to QCPU(Q mode). • Check the routing parameter settings of the CPU(s) on the access route. • Check the network on the access route.
FFD0H	Access target CPU communication error	Failed to communicate with access target CPU.	<ul style="list-style-type: none"> • Correct "Access target CPU setting". • Check the communication cable status and access target CPU status. • Adjust the response monitoring time setting. • Check if the control CPU of the network module on the network route to the access target CPU is set to QCPU(Q mode). • Check the routing parameter settings of the CPU(s) on the access route. • Check the network on the access route.
FFD1H	Monitor condition dissatisfied error	Reading is not possible because the monitor condition is not established.	Delete the monitor condition with an engineering tool.
FFD2H to FFD4H	Access target CPU communication error	Failed to communicate with access target CPU.	<ul style="list-style-type: none"> • Correct "Access target CPU setting". • Check the communication cable status and access target CPU status. • Adjust the response monitoring time setting. • Check if the control CPU of the network module on the network route to the access target CPU is set to QCPU(Q mode). • Check the routing parameter settings of the CPU(s) on the access route. • Check the network on the access route.
FFD5H	ROM operation error	Writing a TC setting value was attempted to the programmable controller CPU that was running the ROM.	Change the TC setting value during ROM operation.

Error code	Error name	Error description	Corrective action
FFD6H to FFD7H	Access target CPU communication error	Failed to communicate with access target CPU.	<ul style="list-style-type: none"> • Correct "Access target CPU setting". • Check the communication cable status and access target CPU status. • Adjust the response monitoring time setting. • Check if the control CPU of the network module on the network route to the access target CPU is set to QCPU(Q mode). • Check the routing parameter settings of the CPU(s) on the access route. • Check the network on the access route.
FFD9H	Access target CPU communication error	Failed to communicate with access target CPU.	<ul style="list-style-type: none"> • Correct "Access target CPU setting". • Check the communication cable status and access target CPU status. • Adjust the response monitoring time setting. • Check if the control CPU of the network module on the network route to the access target CPU is set to QCPU(Q mode). • Check the routing parameter settings of the CPU(s) on the access route. • Check the network on the access route.
FFDAH	Access target CPU connection error	Incorrect IP address is specified in access target CPU. Or failed to communicate with access target CPU.	<ul style="list-style-type: none"> • Correct the Description (IP address) of access target CPU setting. • Check the configuration of the access target CPU. • Correct "Access target CPU setting". • Check the communication cable status and access target CPU status. • Check the network settings. • Adjust the response monitoring time setting. • Check the control CPU of the network module on the network route to the access target device. • Check the routing parameter settings of the CPU(s) on the access route. • Check the network on the access route.
FFDBH to FFDEH	Access target CPU communication error	Failed to communicate with access target CPU.	<ul style="list-style-type: none"> • Correct "Access target CPU setting". • Check the communication cable status and access target CPU status. • Adjust the response monitoring time setting. • Check if the control CPU of the network module on the network route to the access target CPU is set to QCPU(Q mode). • Check the routing parameter settings of the CPU(s) on the access route. • Check the network on the access route.
FFDFH	Incorrect access target error	The setting for the access target CPU is incorrect.	Correct "Access target CPU setting".
FFE0H	Communication timeout error	The communication did not established because the access to the other access target CPU failed.	<ul style="list-style-type: none"> • Correct "Access target CPU setting". • Check the communication cable status and access target CPU status.
FFE1H	Access target CPU communication error	Failed to communicate with access target CPU.	<ul style="list-style-type: none"> • Correct "Access target CPU setting". • Check the communication cable status and access target CPU status. • Adjust the response monitoring time setting. • Check if the control CPU of the network module on the network route to the access target CPU is set to QCPU(Q mode). • Check the routing parameter settings of the CPU(s) on the access route. • Check the network on the access route.
FFF3H	Write protect error	The block number of the specified extension file register has been allocated to the write-protect area of the memory cassette.	<ul style="list-style-type: none"> • Check the block number of the extension file register (device type). • Check the write-protect DIP switch on the memory cassette of the access target CPU.
FFF4H	Block error	The block number of the specified extension file register is invalid.	<ul style="list-style-type: none"> • Check the block number of the extension file register (device type).

Error code	Error name	Error description	Corrective action
FFF8H	Access target CPU communication error	Failed to communicate with access target CPU.	<ul style="list-style-type: none"> • Correct "Access target CPU setting". • Check the communication cable status and access target CPU status. • Adjust the response monitoring time setting. • Check if the control CPU of the network module on the network route to the access target CPU is set to QCPU(Q mode). • Check the routing parameter settings of the CPU(s) on the access route. • Check the network on the access route.
FFFBH	Size error	The device size exceeded the device range.	Correct the set device number.
FFFDH	Device type error	The device type specified for the access target station is invalid.	<ul style="list-style-type: none"> • Correct the set device type. • Check series of the access target CPU setting.
FFFEH	Device number error	The device number specified for the access target station is out of range.	<ul style="list-style-type: none"> • Correct the set device number. • Check series of the access target CPU setting.

4.5 Event Code List

This section shows the event code list.

Event code	Event type	Event category	Overview	Cause
00400	System	Information	Time synchronization	Time synchronization with the control CPU was executed.
00411	System	Information	Transfer cycle rounded down	Rounded down sampling cycle.
00412	System	Information	The transfer cycle is rounded down.	Rounded down transfer cycle.
00420	System	Information	Online module change request	Online module change request was received.
00421	System	Information	Online module change completion	Online module change was completed.
14000	Operation	Information	Access denied	An access from an IP address which is not permitted by IP Filter settings was accepted.
20400	Operation	Information	Firmware update succeeded(Intelligent Function Module)	The firmware of the Intelligent Function Module was successfully updated.
20401	Operation	Information	Firmware update failed(Intelligent Function Module)	The firmware update of the Intelligent Function Module failed.
24010	Operation	Information	SD memory card enabled	The SD memory card was enabled.
24011	Operation	Information	SD memory card access stop	The SD memory card was ready for removal.
24040	Operation	Information	Error clear	Error clear was executed.
24044	Operation	Information	INFO LED light off	INFO LED light off was executed.
2A000	Operation	Warning	Update settings	Update settings was executed.

APPENDIX

Appendix 1 Module Label

This section shows the module labels used to set input/output signals and the buffer memory of a high speed data communication module.

Module label configuration

The name of a module label is defined in the following configurations:

- "Instance name"_"Module number"."Label name"
- "Instance name"_"Module number"."Label name"_D

Ex.

DC96_1.stlOSignal.bModuleReady

■Instance name

The instance name of a high speed data communication module (RD81DC96) is 'DC96.'

■Module number

A module number is a number starting from 1, which is added to identify a module that has the same instance name.

■Label name

This is a label name unique to a module.

■_D

This indicates that the module label is for direct access. Without this symbol, the label is for refresh. There are some differences between refresh and direct access as shown below.

Type	Description	Access timing
Refresh	Values written to/read from a module label are applied to a module in a batch at the time of refresh. This shortens the program execution time.	At the time of refresh
Direct access	Values written to/read from a module label are immediately applied to a module. Although the program execution time is longer than refresh, the responsiveness will be increased.	At the time of writing to/ reading from a module label

A

Appendix 2 I/O Signals

This section explains the input/output signals of a high speed data communication module.

The following shows an example of assigning input/output signals when the start input/output number of a high speed data communication module is '0.'

A device X indicates an input signal from a high speed data communication module to a CPU module.

A device Y indicates an output signal from a CPU module to a high speed data communication module.

Precautions

As for I/O signals to a CPU module, do not output (turn ON) 'Use prohibited' signals.

Do not turn ON the I/O signal of "Use prohibit"

Doing so may cause malfunction of a programmable controller system.

Input/output signal list

The following shows the input/output signal list of a high speed data communication module.

For details on each input/output signal, refer to the following:

📖 Page 135 Input signal details

📖 Page 138 Output signal details

Input signals

Device No.	Signal name
X0	Module READY
X1	SD memory card status
X2	File access status
X3 to X4	Use prohibited
X5	Module operating status
X6	Access status
X7	INFO LED status
X8	Setting renew status
X9 to XA	Use prohibited
XB	Time synchronization timing
XC	Streaming transfer communication status
XD to XF	Use prohibited
X10	ERR LED status
X11 to X1F	Use prohibited

Output signals

Device No.	Signal name
Y0 to Y1	Use prohibited
Y2	File access stop request
Y3	Clear file access stop request
Y4 to Y6	Use prohibited
Y7	INFO LED off request
Y8	Setting renew request
Y9 to YA	Use prohibited
YB	Time synchronization request
YC to YF	Use prohibited
Y10	Error clear request
Y11 to Y1F	Use prohibited

Input signal details

The following shows the details on the input signals from a high speed data communication module to a CPU module.

Module READY (X0)

This signal turns ON when a high speed data communication module is ready after turning the power OFF and ON or resetting a CPU module.

It turns OFF when a watchdog timer error occurs.

SD memory card status (X1)

This signal turns ON when an SD memory card is inserted and 'File access status' (X2) is OFF.

It turns OFF when an SD memory card is not inserted or 'File access status' (X2) is ON.

File access status (X2)

- This signal turns ON while file access is stopped.

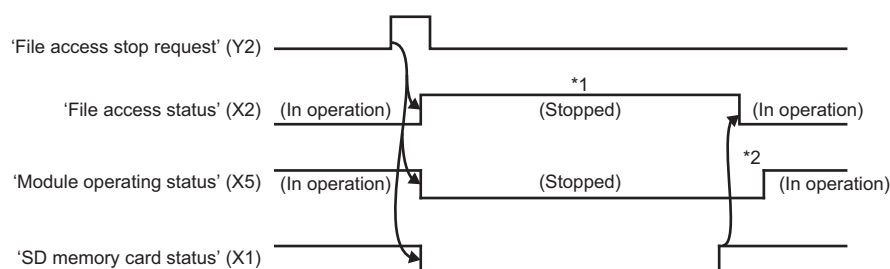
The following operations can be performed while file access is stopped.

- Inserting and removing an SD memory card (MELSEC iQ-R High Speed Data Communication Module User's Manual (Startup))

The status is in the following state while file access is stopped.

- SD memory card read/write-protected
- Module operation stopped






- This signal turns OFF when a file is accessible.



*1 An SD memory card can be replaced.

*2 This signal turns ON by updating the settings.

Module operating status (X5)

- This signal turns ON when the following functions can be performed:
 - Streaming transfer function
 - Data read function
 - Data write function
 - Time synchronization function
 - Label function
- This signal turns OFF in the following cases:
 - Settings are not written to a high speed data communication module.
 - A module stop error occurs.
 - File access is stopped ('X2' is ON).
- This signal turns back ON again by following the procedure below:
 - When settings are not written to a high speed data communication module:
 1. Write settings to the high speed data communication module in Configuration Tool. ( Page 79 Writing settings)
 2. Execute "Update settings" in Configuration Tool. ( Page 82 Module diagnostics)
 - When a module stop error occurs*1:
 1. Remove the error cause.
 2. Clear the error in Configuration Tool or by turning ON 'Error clear request' (Y10). ( Page 82 Module diagnostics)
 3. Execute "Update settings" in Configuration Tool. ( Page 82 Module diagnostics)
 - When file access is stopped (X2 is ON)*1:
 1. Turn ON 'Clear file access stop request' (Y3). (File access starts (X2 turns OFF).
 2. Execute "Update settings" in Configuration Tool. ( Page 82 Module diagnostics)

*1 This signal (X5) turns back ON again also by turning the power OFF and ON or resetting a CPU module.

Access status (X6)

This signal turns ON while Configuration Tool, GX LogViewer, and host computer are accessing a high speed data communication module.

It turns OFF when none of them is accessing a high speed data communication module.

INFO LED status (X7)

This signal turns ON when the INFO LED turns ON.

For the factor that the INFO LED turns ON, refer to the following:

 Page 82 Module diagnostics, Page 143 Module status area (Un\G0 to 20)

This signal turns OFF when the INFO LED is turned OFF by turning ON 'INFO LED off request' (Y7) while the INFO LED is ON.

It also turns OFF when settings are updated.

Setting renew status (X8)

This signal turns ON when settings are updated by turning ON 'Setting renew request' (Y8).

'Setting renew status' (X8) turns OFF when 'Setting renew request' (Y8) is turned OFF after 'Setting renew status' (X8) turns ON.

Time synchronization timing (XB)

This signal turns ON when a time inquiry is successful for the time synchronization request by turning ON 'Time synchronization request' (YB).

'Time synchronization timing' (XB) turns OFF when 'Time synchronization request' (YB) is turned OFF after 'Time synchronization timing' (XB) turns ON.

Streaming transfer communication status (XC)

This signal turns ON when communication is disconnected during a streaming transfer.

It turns OFF in the following cases:

- Communication is reconnected.
- Settings are updated.

ERR LED status (X10)

This signal turns ON while the ERR LED is ON (a continue error is occurring) or flashing (a stop error is occurring).

It turns OFF when the ERR LED is turned OFF by turning ON 'Error clear request' (Y10) while the ERR LED is ON.

Output signal details

The following shows the details on the output signals from a high speed data communication module to a CPU module.

Precautions

Turn ON each output signal after 'Module READY' (X0) turns ON. Otherwise, a setting file may be corrupted or an unintended operation may occur.

Point

The output signals will be enabled when they turn from OFF to ON. In addition, they are not turned from ON to OFF by a system. To turn the signals ON again, turn them from ON to OFF once, then OFF to ON.

File access stop request (Y2)

When turning this signal ON, file access is stopped.

Clear file access stop request (Y3)

Turn this signal ON when 'File access stop request' is accidentally turned ON.

When turning this signal ON without replacing an SD memory card after turning 'File access stop request' ON, file access restarts.

The module operation is stopped; therefore, turn ON 'Setting renew request' (Y8) or execute "Update settings" in Configuration Tool.

INFO LED off request (Y7)

When turning this signal ON with information on data missing or sampling cycle rounded down, the following operations are performed:

- The INFO LED is turned OFF.
- 'INFO LED status' (X7) is turned OFF.
- 'INFO LED lighting factor' (Un\G12) is cleared.

Setting renew request (Y8)

When turning this signal ON, settings written in a high speed data communication module are updated and the module operates according to the updated settings.

Settings are not updated in the following cases:

- The module is initializing.
- The module is stopping.
- Settings are not written to the module.
- An operation for the module, such as updating settings, is being performed in the "Diagnostics" screen or with an output signal.

Turn this signal OFF after 'Setting renew status' (X8) turns ON.

Error clear request (Y10)

When turning this signal ON while a module error is occurring, the following operations are performed:

- The ERR LED is turned OFF.
- 'ERR LED status' (X10) is turned OFF.
- 'Current error area' (Un\G140 to 149) is cleared.
- 'Error log area' (Un\G150 to 311) is cleared.

Time synchronization request (YB)

When turning this signal ON, the time in a module is synchronized according to the time synchronization setting. (If the time in a CPU module is changed, wait for one second or longer, then turn this signal ON.)

Turn this signal OFF after 'Time synchronization timing' (XB) turns ON.

Appendix 3 Buffer Memory

This section explains the buffer memory of a high speed data communication module.

Precautions

Do not write any data in the "system area" of the buffer memory. Doing so may cause malfunction of a programmable controller system.

Buffer memory list

The following table shows the buffer memory list.

All the buffer memory areas are read-only; therefore, writing values is not allowed.

Address Dec (Hex)	Application	Name	Initial value
0 (0H)	Module status area	RUN LED status	0
1 (1H)		ERR LED status	0
2 (2H)		CARD RDY LED status	0
3 (3H)		System area	—
4 (4H)		OPR LED status	0
5 (5H)		INFO LED status	0
6 (6H)		System area	—
7 (7H)		Default operation setting	0
8 to 11 (8H to BH)		System area	—
12 (CH)		INFO LED lighting factor	0
13 to 19 (DH to 13H)		System area	—
20 (14H)		Module operating status	0
21 to 22 (15H to 16H)	SD memory card information area	SD memory card total capacity	0
23 to 24 (17H to 18H)		SD memory card free capacity	0
25 (19H)		SD memory card usage rate	0
26 to 27 (1AH to 1BH)		SD memory card usage capacity	0
28 to 46 (1CH to 2EH)	System area		—
47 to 54 (2FH to 36H)	Network connection setting status area	IP address (string)	—
55 to 56 (37H to 38H)		IP address	—
57 to 58 (39H to 3AH)		Subnet mask	—
59 to 60 (3BH to 3CH)		Default gateway	0
61 to 69 (3DH to 45H)		System area	—

A

Address Dec (Hex)	Application	Name		Initial value
70 (46H)	Common setting status area	System area		—
71 to 72 (47H to 48H)		IP address		0
73 to 74 (49H to 4AH)		Subnet mask		0
75 to 76 (4BH to 4CH)		Default gateway		0
77 to 86 (4DH to 56H)		System area		—
87 to 99 (57H to 63H)	System area			—
100 (64H)	Time synchronization information area	Time synchronization status		0
101 to 107 (65H to 6BH)		Time synchronization result		—
108 (6CH)		Daylight saving time status		—
109 (6DH)		System area		—
110 to 139 (6EH to 8BH)	System area			—
140 (8CH)	Current error area	Error code		0
141 (8DH)		System area		—
142 to 147 (8EH to 93H)		Time		0
148 to 149 (94H to 95H)		System area		—
150 (96H)	Error log area	Error count		0
151 (97H)		Error log write pointer		0
152 (98H)		Error log 1	Error code	0
153 (99H)			System area	—
154 to 159 (9AH to 9FH)			Time	0
160 to 161 (A0H to A1H)			System area	—
162 to 311 (A2H to 137H)		Error log 2 to 16	Same as error log 1	
312 to 1499 (138H to 5DBH)	System area			—

Address Dec (Hex)	Application	Name		Initial value
1500 (5DCH)	Access status area	Access status 1	Access status	0
1501 to 1504 (5DDH to 5E0H)			Connection time	0
1505 to 1512 (5E1H to 5E8H)			Connection IP address (string)	0
1513 to 1514 (5E9H to 5EAH)			Connection IP address(32 bit unsigned integer)	0
1515 to 1546 (5EBH to 60AH)			User name	0
1547 (60BH)			System area	—
1548 (60CH)			Error code	0
1549 to 1550 (60DH to 60EH)			Sampling time (moving average)	0
1551 to 1552 (60FH to 610H)			Sampling time (maximum)	0
1553 (611H)			High speed sampling failure count	0
1554 (612H)			Processing overload count	0
1555 to 1556 (613H to 614H)			Unprocessed buffer size	0
1557 to 1558 (615H to 616H)			Unprocessed data count (current)	0
1559 to 1560 (617H to 618H)			Unprocessed data count (maximum)	0
1561 to 1563 (619H to 61BH)			System area	—
1564 to 1819 (61CH to 71BH)		Access status 2 to 5	Same as access status 1	
1820 to 1899 (71CH to 76BH)		System area		—
1900 to 8999 (76CH to 2327H)	System area		—	

Address Dec (Hex)	Application	Name			Initial value
9000 (2328H)	Firmware update history information area	Firmware update completion with/without an error			0
9001 to 9009 (2329H to 2331H)		System area			—
9010 (2332H)		Latest firmware update information	History information	Execution time (year)	0
9011 (2333H)				Execution time (month)	0
9012 (2334H)				Execution time (day)	0
9013 (2335H)				Execution time (hour)	0
9014 (2336H)				Execution time (minute)	0
9015 (2337H)				Execution time (second)	0
9016 (2338H)				Execution time (day of the week)	0
9017 (2339H)				Firmware version after update	0
9018 (233AH)				Firmware version before update	0
9019 (233BH)				Latest firmware update result	Firmware update target		0
9020 (233CH)		Firmware update result			0
9021 (233DH)		Previous firmware update information	History information	Execution time (year)	0
9022 (233EH)				Execution time (month)	0
9023 (233FH)				Execution time (day)	0
9024 (2340H)				Execution time (hour)	0
9025 (2341H)				Execution time (minute)	0
9026 (2342H)				Execution time (second)	0
9027 (2343H)				Execution time (day of the week)	0
9028 (2344H)				Firmware version after update	0
9029 (2345H)				Firmware version before update	0
9030 (2346H)		Previous firmware update result	Firmware update target		0
9031 (2347H)			Firmware update result		0
9032 to 9035 (2348H to 234BH)		System area			—
9036 to 32767 (234CH to 7FFFH)	System area				—

Buffer memory details

This section explains the buffer memory details.

Module status area (Un\G0 to 20)

The status of each LED, parameter settings, and operation of a high speed data communication module can be checked.

Buffer memory name	Address	Description
RUN LED status	Un/G0	0: OFF 1: ON 2: Flashing
ERR LED status	Un/G1	0: OFF 1: ON 2: Flashing
CARD RDY LED status	Un/G2	0: OFF 1: ON
OPR LED status	Un/G4	0: OFF 1: ON 2: Flashing
INFO LED status	Un/G5	0: OFF 1: ON
Default operation setting	Un/G7	b2: ON: The network default setting is enabled.
INFO LED lighting factor*1	Un/G12	The factor that the INFO LED turns ON is stored. b0: ON: Data is missing. b1: ON: The sampling cycle is rounded down. b2: ON: The transfer cycle is rounded down.
Module operating status	Un/G20	0: Initializing 1: Running 2: Stopping 3: Stopped

*1 Check the INFO LED lighting factor, and take a corrective action shown in the following table:
The INFO LED lighting factor is cleared when "Update settings" is executed.

Lighting factor	Corrective action
Data is missing.	Check "High speed sampling failure count" (if using high speed sampling), "Sampling time" (if using general sampling), and "Processing overload count" in 'Access status area' (Un\G1500 to 1819). Fully verify the processing time for each function of the entire system and adjust so that no data missing occurs as necessary. (☞ Page 152 Processing Time)
The sampling cycle is rounded down.	Check the user program if the specified sampling cycle satisfies the following conditions: <ul style="list-style-type: none"> When the sampling cycle for high speed sampling labels is 0.5 to 0.9 ms, the cycle is specified in units of less than 0.1 ms. When the sampling cycle for high speed sampling labels is 1 to 32767 ms, the cycle is specified in units of less than 1 ms. The sampling cycle for general sampling labels is specified in units of less than 100 ms. If the above conditions are satisfied, review the user program as follows: <ul style="list-style-type: none"> When the sampling cycle for high speed sampling labels is 0.5 to 0.9 ms, specify the cycle in units of 0.1 ms. When the sampling cycle for high speed sampling labels is 1 to 32767 ms, specify the cycle in units of 1 ms. Specify the sampling cycle for general sampling labels in units of 100 ms.
The transfer cycle is rounded down.	Check the user program if the specified transfer cycle for high speed sampling labels satisfies the following conditions: <ul style="list-style-type: none"> When the transfer cycle is 0.5 to 0.9 ms, the cycle is specified in units of less than 0.1 ms. When the transfer cycle is 1 to 100 ms, the cycle is specified in units of less than 1 ms. If the above conditions are satisfied, review the user program as follows: <ul style="list-style-type: none"> When the transfer cycle is 0.5 to 0.9 ms, specify the cycle in units of 0.1 ms. When the transfer cycle is 1 to 100 ms, specify the cycle in units of 1 ms.

A

SD memory card information area (Un\G21 to 27)

The status of an SD memory card inserted in a high speed data communication module can be checked. Output the free space and usage rate of the SD memory card to an HMI etc. to check the status.

Buffer memory name	Address	Description
SD memory card total capacity	Un/G21 to 22	Stored as a double word (32-bit value). (Unit: KB)
SD memory card free capacity	Un/G23 to 24	Stored as a double word (32-bit value). (Unit: KB)
SD memory card usage rate	Un/G25	Stored as a double word (16-bit value). (Unit: %)
SD memory card usage capacity	Un/G26 to 27	Stored as a double word (32-bit value). (Unit: KB)

Network connection setting status area (Un\G47 to 64)

The status of network connection settings for a high speed data communication module can be checked.

Buffer memory name	Address	Description
IP address (string notation)	Un/G47 to 54	Stored as a string. The initial value is '192.168.3.3.'
IP address	Un/G55 to 56	Stored as a double word (32-bit value). The initial value is 'C0A80303H.'
Subnet mask	Un/G57 to 58	Stored as a double word (32-bit value). The initial value is 'FFFFFF00H' (255.255.255.0).
Default gateway	Un/G59 to 60	Stored as a double word (32-bit value).

Common setting status area (Un\G70 to 80)

The status of the network setting in the common setting can be checked.

Buffer memory name	Address	Description
IP address	Un/G71 to 72	Stored as a double word (32-bit value).
Subnet mask	Un/G73 to 74	Stored as a double word (32-bit value).
Default gateway	Un/G75 to 76	Stored as a double word (32-bit value).

Time synchronization information area (Un\G100 to 108)

Information on time synchronization can be checked.

Buffer memory name		Address	Description
Time synchronization status		Un/G100	A time synchronization method is stored. 0: Time is synchronized with a CPU module.
Time synchronization result	Year	Un/G101	Four-digit year data is stored.
	Month	Un/G102	Month data (01 to 12) is stored.
	Day	Un/G103	Date data (01 to 31) is stored.
	Hour	Un/G104	Time data (00 to 23) is stored.
	Minute	Un/G105	Minute data (00 to 59) is stored.
	Second	Un/G106	Second data (00 to 59) is stored.
	Day of the week	Un/G107	Day-of-week data is stored. 0: Sun, 1: Mon, 2: Tue, 3: Wed, 4: Thu, 5: Fri, 6: Sat
Daylight saving time status		Un/G108	0: Not daylight saving time 1: Daylight saving time

Current error area (Un\G140 to 149)

The latest code of an error occurring can be checked.

Buffer memory name	Address	Description
Error code	Un/G140	An error code is stored.
Time	Un/G142	b0 to 7: Time zone and summer time flag b8 to 15: System area
	Un/G143	b0 to 7: Last two digits of the year b8 to 15: Month (01 to 12)
	Un/G144	b0 to 7: Day (01 to 31) b8 to 15: Hour (00 to 23)
	Un/G145	b0 to 7: Minute (00 to 59) b8 to 15: Second (00 to 59)
	Un/G146	b0 to 7: Day of the week (0: Sun, 1: Mon, 2: Tue, 3: Wed, 4: Thu, 5: Fri, 6: Sat) b8 to 15: First two digits of the year
	Un/G147	b0 to 7: First two digits of the millisecond b8 to 15: Last two digits of the millisecond

■Error code (Un\G140)

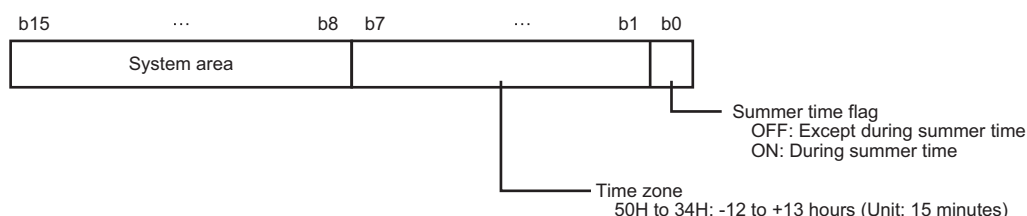
An error code is stored.

■Time (Un\G142 to 149)

The time when an error occurred is stored as a BCD code.

	b15	...	b8	b7	...	b0
Un\G142	System area			Time zone and summer time flag ^{*1}		
Un\G143	Month (01H to 12H)			Year (00H to 99H) last 2 digits		
Un\G144	Hour (00H to 23H)			Day (01H to 31H)		
Un\G145	Second (00H to 59H)			Minute (00H to 59H)		
Un\G146	Year (00H to 99H) first 2 digits			Day of the week (0H to 6H)		
Un\G147	Lower milliseconds (00H to 99H)			Upper milliseconds (00H to 09H)		

*1 Time zone and summer time flag details are as follows:



Point

Information of the current error area can be checked in the following screens:

- Screen displayed by selecting [Online] ⇒ [Diagnostics] ⇒ "Module diagnostics" in Configuration Tool (Page 82 Module diagnostics)
- System monitor of an engineering tool (GX Works3 Operating Manual)

The current error area can be cleared by the following operations:

- Select [Online] ⇒ [Diagnostics] ⇒ "Module diagnostics" in Configuration Tool, and click the [Error clear] button. (Page 82 Module diagnostics)
- Turn ON 'Error clear request' (Y10).
- Turn the power OFF and ON or reset a CPU module.

Error log area (Un\G150 to 311)

The history of errors occurred in a high speed data communication module can be checked.

Buffer memory name		Address	Description
Error count		Un\G150	The total number of times an error log is registered in the error log area is stored.
Error log write pointer		Un\G151	An error log number in which the latest error log is registered is stored. 0: No error 1 to 16: Error log number
Error log 1	Error code	Un\G152	An error code is stored.
	Time	Un\G154	b0 to 7: Time zone and summer time flag b8 to 15: System area
		Un\G155	b0 to 7: Last two digits of the year b8 to 15: Month (01 to 12)
		Un\G156	b0 to 7: Day (01 to 31) b8 to 15: Hour (00 to 23)
		Un\G157	b0 to 7: Minute (00 to 59) b8 to 15: Second (00 to 59)
		Un\G158	b0 to 7: Day of the week (0: Sun, 1: Mon, 2: Tue, 3: Wed, 4: Thu, 5: Fri, 6: Sat) b8 to 15: First two digits of the year
		Un\G159	b0 to 7: First two digits of the millisecond b8 to 15: Last two digits of the millisecond
Error log 2		Un\G162 to 171	Details are the same as error log 1.
Error log 3		Un\G172 to 181	
Error log 4		Un\G182 to 191	
Error log 5		Un\G192 to 201	
Error log 6		Un\G202 to 211	
Error log 7		Un\G212 to 221	
Error log 8		Un\G222 to 231	
Error log 9		Un\G232 to 241	
Error log 10		Un\G242 to 251	
Error log 11		Un\G252 to 261	
Error log 12		Un\G262 to 271	
Error log 13		Un\G272 to 281	
Error log 14		Un\G282 to 291	
Error log 15		Un\G292 to 301	
Error log 16		Un\G302 to 311	

■Error count (Un\G150)

The total number of times an error log is registered in the error log area is stored.

■Error log write pointer (Un\G151)

An error log number in which the latest error log is registered is stored. (When '16' is stored, the latest error log is registered in the area of error log 16.)

Up to 15 continuation errors and 1 stop error are registered.

If 15 continuation errors are displayed, new continuation errors will not be registered. If the new error has the same error code as the already registered error, the error occurrence date/time and its detailed information will not be updated.

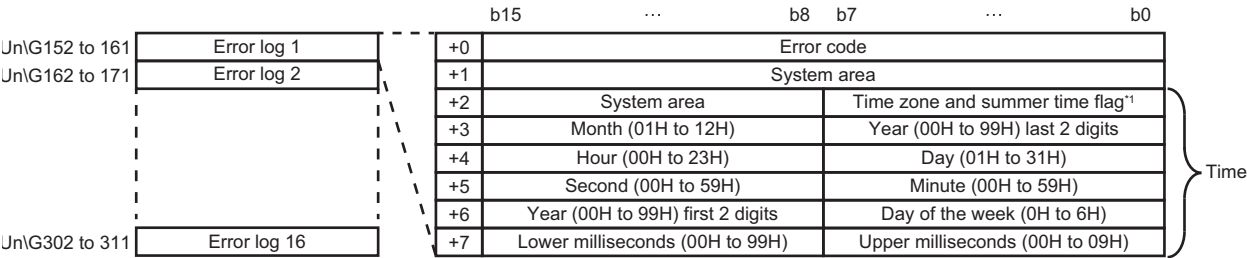
Even if a new error occurs after a stop error occurs, the new one is not registered.

■Error log 1 to 16 (Un\G152 to 311)

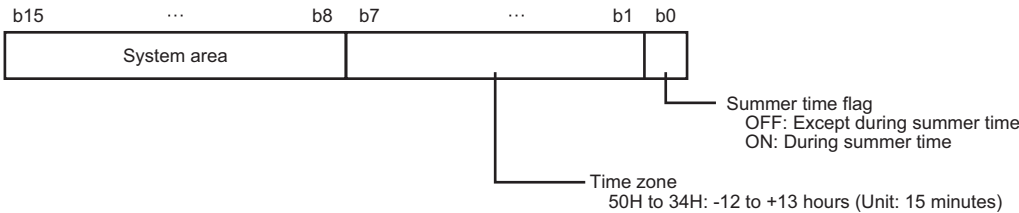
The history of errors occurred in a high speed data communication module is stored.

The error log area consists of 16 error logs with the same data configuration.

If an error that is already stored in the error log area occurs again, its error code is not stored in the area.



*1 Time zone and summer time flag details are as follows:



● Error code

An error code is stored.

● Time

The time when an error occurred is stored as a BCD code.



Information of the error log area can be checked in the following screens:


- Screen displayed by selecting [Online] ⇒ [Diagnostics] ⇒ "Module diagnostics" in Configuration Tool (Page 82 Module diagnostics)
- Screen displayed by clicking the [Event History] button in the "Module Diagnostics" screen of an engineering tool (GX Works3 Operating Manual)

The error log area can be cleared by the following operations:

- Select [Online] ⇒ [Diagnostics] ⇒ "Module diagnostics" in Configuration Tool, and click the [Error clear] button. (Page 82 Module diagnostics)
- Turn the power OFF and ON or reset a CPU module.

Access status area (Un/G1500 to 1819)

The access status between each connected Configuration Tool/host computer and a module can be checked.

The number assigned to the access status 1 to 5 corresponds to the connection No.1 to 5 in the connected device list of Configuration Tool. The status of each connected device is stored in the access status 1 to 5. ( Page 85 Connected device diagnostics)

Buffer memory name		Address	Description																																			
Access status 1	Access status	Un/G1500	The current connection status is stored. 0: No connection 10: On connection 20: Reading device data 30: Writing device data 40: On transfer (High speed sampling) 60: On transfer (General sampling) 255: On communication with tool																																			
	Connection time	Un/G1501 to 1504	The time when a connection is started is stored as a BCD code. <table><tr><td></td><td>b15</td><td>...</td><td>b8</td><td>b7</td><td>...</td><td>b0</td></tr><tr><td>Un\G1501</td><td colspan="3">Month (01H to 12H)</td><td colspan="3">Year (00H to 99H) lower 2 digits</td></tr><tr><td>Un\G1502</td><td colspan="3">Hour (00H to 23H)</td><td colspan="3">Day (01H to 31H)</td></tr><tr><td>Un\G1503</td><td colspan="3">Second (00H to 59H)</td><td colspan="3">Minute (00H to 59H)</td></tr><tr><td>Un\G1504</td><td colspan="3">Year (00H to 99H) upper 2 digits</td><td colspan="3">Day of the week (0H to 6H)¹</td></tr></table>		b15	...	b8	b7	...	b0	Un\G1501	Month (01H to 12H)			Year (00H to 99H) lower 2 digits			Un\G1502	Hour (00H to 23H)			Day (01H to 31H)			Un\G1503	Second (00H to 59H)			Minute (00H to 59H)			Un\G1504	Year (00H to 99H) upper 2 digits			Day of the week (0H to 6H) ¹		
		b15	...	b8	b7	...	b0																															
	Un\G1501	Month (01H to 12H)			Year (00H to 99H) lower 2 digits																																	
	Un\G1502	Hour (00H to 23H)			Day (01H to 31H)																																	
	Un\G1503	Second (00H to 59H)			Minute (00H to 59H)																																	
	Un\G1504	Year (00H to 99H) upper 2 digits			Day of the week (0H to 6H) ¹																																	
	Connection IP address (string)	Un/G1505 to 1512	The IP address of connected Configuration Tool or host computer is stored as a string. (Default: 192.168.3.3)																																			
	Connection IP address(32 bit unsigned integer)	Un/G1513 to 1514	The IP address of connected Configuration Tool or host computer is stored as a 32-bit value.																																			
	User name	Un/G1515 to 1546	The connection user name is stored.																																			
	Error code	Un/G1548	The latest error code is stored.																																			
	Sampling time (moving average)	Un/G1549 to 1550	The sampling cycle when sampling data from a CPU module with a streaming transfer is stored by calculating the moving average out of 30 times of sampling. ■Unit High speed sampling: Microsecond General data sampling: Millisecond																																			
	Sampling time (maximum) ^{*2}	Un/G1551 to 1552	The maximum sampling cycle when sampling data from a CPU module with a streaming transfer is stored. ■Unit High speed sampling: Microsecond General data sampling: Millisecond																																			
High speed sampling failure count	Un/G1553	When sampling data at high speed with a streaming transfer, data may be missing if the sampling speed of a high speed data communication module cannot catch up with the sequence scan or specified time interval. In this case, the total number of times that data missing occurs is stored.																																				
Processing overload count	Un/G1554	Data may be missing if transfer processing cannot catch up with the data sampling speed. In this case, the total number of times that data missing occurs is stored.																																				
Unprocessed buffer size	Un/G1555 to 1556	The size of unprocessed buffer ^{*3} that stores sampled data temporarily until the data is transferred is stored. Sampled data can be stored for the unprocessed buffer size.																																				
Unprocessed data count (current)	Un/G1557 to 1558	The number of units of unprocessed data that are currently stored in the unprocessed buffer is stored.																																				
Unprocessed data count (maximum)	Un/G1559 to 1560	The maximum number of units of unprocessed data is stored.																																				
Access status 2		Un/G1564 to 1627	Same as access status 1.																																			
Access status 3		Un/G1628 to 1691																																				
Access status 4		Un/G1692 to 1755																																				
Access status 5		Un/G1756 to 1819																																				

*1 0: Sun, 1: Mon, 2: Tue, 3: Wed, 4: Thu, 5: Fri, 6: Sat

*2 A value is not stored until data is sampled twice.

If the maximum sampling cycle is updated, the value is stored.

- *3 An internal memory of a high speed data communication module. This memory stores data sampled from a CPU module temporarily. The streaming transfer status of a high speed data communication module can be checked with the number of units of data in the unprocessed buffer.
- When the value of "Unprocessed data count (current)" is '0' or equal to or less than a fixed value: There is no problem with the streaming transfer.
 - When the value of "Unprocessed data count (current)" increases as time passes: The streaming transfer processing is not catching up with the speed with which the target data is sampled. Take corrective action described in the following:
- ☞ Page 158 Method for checking the processing time of a streaming transfer

Firmware update history information area (Un\G9000 to 9035)

The firmware update history of a high speed data communication module is stored in this area.

Buffer memory name			Address	Description
Firmware update completion with/without an error			Un/G9000	The error occurrence state on the firmware update function is stored. <ul style="list-style-type: none"> • 0: Update completed without an error (including successful completion) • 1: Update completed with an error When any of 100 to 300H is stored in 'Firmware update result' (Un\G9020), '1' is stored.
System area			Un/G9001 to 9009	Use prohibited
Latest firmware update information	History information	Execution time (year)	Un/G9010	The value of the year (four digits) when the firmware update was executed is stored as a BIN code.
		Execution time (month)	Un/G9011	The value of the month when the firmware update was executed is stored as a BIN code.
		Execution time (day)	Un/G9012	The value of the day when the firmware update was executed is stored as a BIN code.
		Execution time (hour)	Un/G9013	The value of the hour when the firmware update was executed is stored as a BIN code.
		Execution time (minute)	Un/G9014	The value of the minutes when the firmware update was executed is stored as a BIN code.
		Execution time (second)	Un/G9015	The value of the seconds when the firmware update was executed is stored as a BIN code.
		Execution time (day of the week)	Un/G9016	The value of the day of the week when the firmware update was executed is stored as a BIN code. (0: Sun, 1: Mon, 2: Tue, 3: Wed, 4: Thu, 5: Fri, 6: Sat)
		Firmware version after update	Un/G9017	The firmware version after update is stored. (When the update is completed with an error, '0' is stored.)
		Firmware version before update	Un/G9018	The firmware version before update is stored.
Latest firmware update result	Firmware update target		Un/G9019	The start input/output number of the module where the firmware update was executed is stored.
	Firmware update result		Un/G9020	The execution result of the firmware update is stored. <ul style="list-style-type: none"> • 1H: Normal end • 100H: Flash ROM error • 200H: Model mismatched • 201H: File invalid • 203H: Firmware update prohibited state • 300H: Firmware data error

Buffer memory name			Address	Description
Previous firmware update information	History information	Execution time (year)	Un/G9021	The value of the year (four digits) when the firmware update was executed is stored as a BIN code.
		Execution time (month)	Un/G9022	The value of the month when the firmware update was executed is stored as a BIN code.
		Execution time (day)	Un/G9023	The value of the day when the firmware update was executed is stored as a BIN code.
		Execution time (hour)	Un/G9024	The value of the hour when the firmware update was executed is stored as a BIN code.
		Execution time (minute)	Un/G9025	The value of the minutes when the firmware update was executed is stored as a BIN code.
		Execution time (second)	Un/G9026	The value of the seconds when the firmware update was executed is stored as a BIN code.
		Execution time (day of the week)	Un/G9027	The value of the day of the week when the firmware update was executed is stored as a BIN code. (0: Sun, 1: Mon, 2: Tue, 3: Wed, 4: Thu, 5: Fri, 6: Sat)
		Firmware version after update	Un/G9028	The firmware version after update is stored. (When the update is completed with an error, '0' is stored.)
		Firmware version before update	Un/G9029	The firmware version before update is stored.
Previous firmware update result	Firmware update target		Un/G9030	The start input/output number of the module where the firmware update was executed is stored.
	Firmware update result		Un/G9031	The execution result of the firmware update is stored. <ul style="list-style-type: none"> • 1H: Normal end • 100H: Flash ROM error • 200H: Model mismatched • 201H: File invalid • 203H: Firmware update prohibited state • 300H: Firmware data error

Appendix 4 Available Characters

All characters can be used for each setting item in Configuration Tool. *1*2

However, some characters cannot be used for "Password" and "User name" in the screens shown in the table below.

The unavailable characters cannot be entered in the entry field or an error occurs after entering them.

Screen	Reference
Transfer setup	Page 77 Transfer setup
Account setting	Page 67 Account setting

*1 A surrogate pair (the method to express a character in 4 bytes) is not supported.

*2 Special characters may be garbled.

Available characters for a password

Characters in the shaded area can be used.

	0	1	2	3	4	5	6	7
0	NUL		(SP)	0	@	P	'	p
1			!	1	A	Q	a	q
2			"	2	B	R	b	r
3			#	3	C	S	c	s
4			\$	4	D	T	d	t
5			%	5	E	U	e	u
6			&	6	F	V	f	v
7			'	7	G	W	g	w
8			(	8	H	X	h	x
9			)	9	I	Y	i	y
A			*	:	J	Z	j	z
B			+	;	K	[	k	{
C			,	<	L	\	l	|
D			-	=	M	]	m	}
E			.	>	N	^	n	~
F			/	?	O	_	o	

A

Available characters for a user name

Characters in the shaded area can be used.

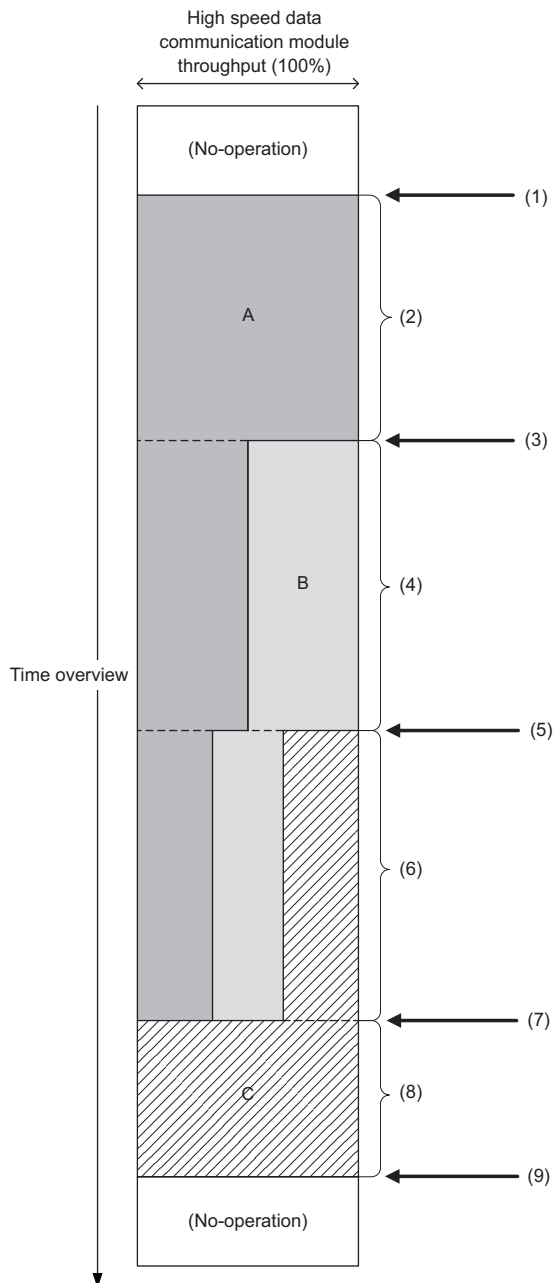
	0	1	2	3	4	5	6	7
0	NUL		(SP)	0	@	P	'	p
1			!	1	A	Q	a	q
2			"	2	B	R	b	r
3			#	3	C	S	c	s
4			\$	4	D	T	d	t
5			%	5	E	U	e	u
6			&	6	F	V	f	v
7			'	7	G	W	g	w
8			(	8	H	X	h	x
9			)	9	I	Y	i	y
A			*	:	J	Z	j	z
B			+	;	K	[	k	{
C			,	<	L	\	l	|
D			-	=	M	]	m	}
E			.	>	N	^	n	~
F			/	?	O	_	o	

Appendix 5 Processing Time

Each function of a high speed data communication module is of the best effort type.

Processing time of each function varies depending on the settings and the processing of other functions. Run the system by fully verifying the processing time of each function when constructing it.

In addition, if multiple connections are established from user programs to one high speed data communication module, they share the throughput of the module to operate.



Item	Description
(1)	The connection A starts a streaming transfer.
(2)	A uses the full throughput of a high speed data communication module.
(3)	The connection B starts a streaming transfer.
(4)	A and B share the throughput.
(5)	The connection C starts a streaming transfer.
(6)	A, B, and C share the throughput.
(7)	A and B end the streaming transfers.
(8)	C uses the full throughput of the module since A and B no longer use it.
(9)	C ends the streaming transfer.

Processing time of each function

The following shows the measurement results for the processing time.

Note that the processing time may be increased depending on any of the following factors.

- Sequence scan time
- Network speed and load status
- Access status from another host computer to a high speed data communication module
- Access status from Configuration Tool or GX LogViewer to a high speed data communication module
- Access status from a personal computer, HMI, or another intelligent function module to a CPU module
- Load status of a host computer CPU



Use the measurement results as a reference for processing time.

The processing time varies depending on the settings and external factors such as the status of other devices.

Measurement environment

Item		Description
Host computer	CPU	Intel® Core™ i7-6700 3.40GHz
	Memory	16 GB
	OS	Windows® 10 Enterprise (64-bit version)
	Interface	1000BASE-T
Crossing cable		Category 5e

Streaming transfer (high speed sampling)

The following shows the measurement results for the processing time required for a streaming transfer (high speed sampling).

■Measurement conditions

Item		Description
CPU module		<ul style="list-style-type: none"> • R04CPU • Own station (single CPU configuration)
Sampling cycle		Every sequence scan
Sampled data	Device type	<ul style="list-style-type: none"> • Data register (D) • Consecutive devices
	Data volume	16, 64, 256, 1024, 4096, 8192, 16384, 32768 words
	Data type	Raw
Transfer cycle		<ul style="list-style-type: none"> • Sampling synchronization (number of records: 1) • Sampling synchronization (number of records: 10)
Measurement method		<ul style="list-style-type: none"> • Minimum value (in milliseconds) of the sequence scan time in which a streaming transfer can be performed • Volume (in Kbps) of data transferred within a unit of time when measuring the sequence scan time

■Measurement results

Minimum value (in milliseconds) of the sequence scan time in which a streaming transfer can be performed

Transfer cycle	Number of device points (word)							
	16	64	256	1024	4096	8192	16384	32768
Sampling synchronization (number of records: 1)	0.5	0.5	0.6	1	2.8	5	10	19
Sampling synchronization (number of records: 10)	0.5	0.5	0.6	1	2.8	5	10	19

Volume (in Kbps) of data transferred within a unit of time when measuring the sequence scan time

Transfer cycle	Number of device points (word)							
	16	64	256	1024	4096	8192	16384	32768
Sampling synchronization (number of records: 1)	3220	6300	13050	24350	32430	34000	35300	35840
Sampling synchronization (number of records: 10)	2000	5140	12260	23950	32300	34220	35280	35860

Streaming transfer (general sampling)

The following shows the measurement results for the processing time required for a streaming transfer (general sampling).

■Measurement conditions

Item		Description
CPU module		<ul style="list-style-type: none"> • R04CPU • Own station (single CPU configuration)
Sequence scan time		<ul style="list-style-type: none"> • 2 milliseconds • 20 milliseconds
Sampled data	Device type	Data register (D)
	Data volume	16, 64, 256, 1024, 4096, 16384, 32768, 65536 words
	Data type	Raw
Measurement method		<ul style="list-style-type: none"> • Minimum value (in seconds) of the sampling cycle in which a streaming transfer can be performed • Volume (in Kbps) of data transferred within a unit of time when measuring the sampling cycle

■Measurement results

Minimum value (in seconds) of the sampling cycle in which a streaming transfer can be performed

Sequence scan time	Number of device points (word)							
	16	64	256	1024	4096	16384	32768	65536
2 milliseconds	0.1	0.1	0.1	0.2	0.3	0.8	1.6	3.2
20 milliseconds	0.1	0.1	0.1	0.4	1.2	5	10	20

Volume (in Kbps) of data transferred within a unit of time when measuring the sampling cycle

Sequence scan time	Number of device points (word)							
	16	64	256	1024	4096	16384	32768	65536
2 milliseconds	8	16	48	180	340	340	350	360
20 milliseconds	8	16	48	60	80	80	90	100

Data reading

The following shows the measurement results for the processing time required for data reading.

■Measurement conditions

Item		Description
CPU module		<ul style="list-style-type: none"> • R04CPU • Own station (single CPU configuration)
Sequence scan time		20 milliseconds
Read data	Device type	Data register (D)
	Data volume	16, 64, 256, 1024, 4096, 16384, 32768, 65536 words
	Data type	Raw (when specifying labels)
	Specification method	<ul style="list-style-type: none"> • Label specification • Device specification
Measurement method		<ul style="list-style-type: none"> • Time (in seconds) from when a read command is sent until when the result is returned • Volume (in Kbps) of data transferred within a unit of time when measuring the data reading time

■Measurement results

Data reading time (in seconds)

Specification method	Number of device points (word)							
	16	64	256	1024	4096	16384	32768	65536
Label	0.2	0.2	0.4	0.9	3.2	13	26	52
Device	0.1	0.1	0.2	0.6	2	8	16	32

Volume (in Kbps) of data transferred within a unit of time when measuring the data reading time

Specification method	Number of device points (word)							
	16	64	256	1024	4096	16384	32768	65536
Label	60	190	430	580	780	840	900	1060
Device	40	60	110	160	180	200	210	210

Data writing

The following shows the measurement results for the processing time required for data writing.

■Measurement conditions

Item		Description
CPU module		<ul style="list-style-type: none"> • R04CPU • Own station (single CPU configuration)
Sequence scan time		20 milliseconds
Written data	Device type	Data register (D)
	Data volume	16, 64, 256, 1024, 4096, 16384, 32768, 65536 words
	Data type	Raw (when specifying labels)
	Specification method	<ul style="list-style-type: none"> • Label specification • Device specification
Measurement method		<ul style="list-style-type: none"> • Time (in seconds) from when a write command is sent until when data writing is completed • Volume (in Kbps) of data transferred within a unit of time when measuring the data writing time

■Measurement results

Data writing time (in seconds)

Specification method	Number of device points (word)							
	16	64	256	1024	4096	16384	32768	65536
Label	0.1	0.2	0.4	0.9	3.2	13	26	52
Device	0.1	0.1	0.3	0.7	2.4	10	20	40

Volume (in Kbps) of data transferred within a unit of time when measuring the data writing time

Specification method	Number of device points (word)							
	16	64	256	1024	4096	16384	32768	65536
Label	110	280	470	590	790	840	890	1060
Device	40	60	100	120	150	170	170	170

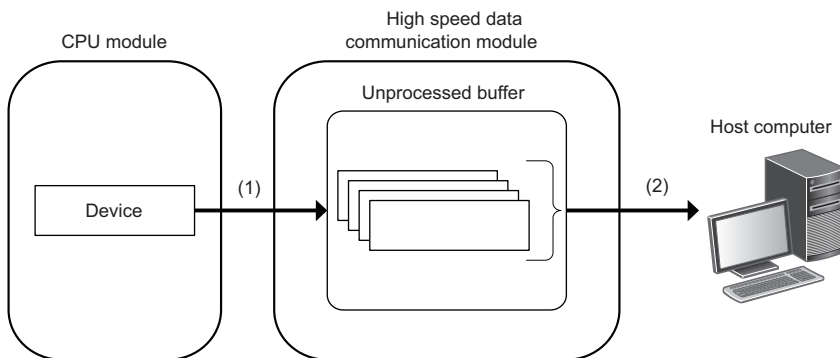
Method for checking the processing time of a streaming transfer

A streaming transfer may not be performed in the set sampling cycle or transfer cycle since the processing time varies depending on the following factors:

- Status of an access target CPU module
- Settings of a module
- Connection status from a host computer
- Network status
- Number of units of data to be scaled

The following figure shows the process from when a high speed data communication module samples data from a CPU module until when it transfers the data to a host computer.

This section shows the check points for processing time related to the processing below.



Process	Description	Check point	Reference
(1) Sampling	Data is sampled from a CPU module, and the sampled data is temporarily stored in the unprocessed buffer (internal memory of a high speed data communication module). This processing is performed in the set sampling cycle or by synchronizing with a sequence scan; however, it may not be performed in the set sampling cycle (which causes the lack of data) depending on the conditions such as data volume, network speed, and sequence scan time.	Check if the processing that samples data from a CPU module is performed in the set cycle.	Page 159 Checking sampling processing time
(2) Transfer	Data stored in the unprocessed buffer is transferred to a host computer. If this processing cannot catch up with the sampling speed, the processing overload occurs, which causes the lack of data.	Check if the sampled data is all transferred.	Page 160 Checking transfer processing time

Checking sampling processing time

■For high speed sampling

Check "High speed sampling failure count" in the buffer memory.

If '1' or greater value is stored in "High speed sampling failure count," it means that data could not be sampled in the set sampling cycle (each sequence scan, time specification) after a streaming transfer was started. Take the following corrective actions:

For each sequence scan

Change the number of device points for high speed sampling or set a constant scan to a CPU module so that the following conditions are satisfied:

Number of device points	Condition
Number of device points for high speed sampling \leq 256	Sequence scan time (milliseconds) > 0.5
Number of device points for high speed sampling $>$ 256	Sequence scan time $> 0.5 + 0.0008 \times (\text{number of device points for high speed sampling} - 256)$

For the time specification

Change the number of device points for high speed sampling or the sampling cycle so that all the following conditions are satisfied:

Number of device points	Condition
Number of device points for high speed sampling \leq 256	<ul style="list-style-type: none"> Sampling cycle (milliseconds) > 0.5 Sampling cycle (milliseconds) $>$ sequence scan time
Number of device points for high speed sampling $>$ 256	<ul style="list-style-type: none"> Sampling cycle (milliseconds) $> 0.5 + 0.0008 \times (\text{number of device points for high speed sampling} - 256)$ Sampling cycle (milliseconds) $>$ sequence scan time

Precautions

Data is sampled at the END processing of a CPU module; therefore, for the time specification, a time-lag for a sequence scan time occurs compared with the set sampling cycle. ("High speed sampling failure count" does not increase.)

In addition, for the time specification, if α calculated by the formula below is greater than '1,' replace the value of sequence scan time (ST) with the following ST' value.

Formula

- When the number of device points for high speed sampling^{*1} \leq 256:

$\alpha = 0.5 \div \text{ST}$ (Values after the decimal point are rounded up.)


- When the number of device points for high speed sampling^{*1} $>$ 256:

$\alpha = (0.5 + 0.0008 \times (\text{number of device points for high speed sampling}^{\ast 1} - 256)) \div \text{ST}$ (Values after the decimal point are rounded up.)

ST' value

- $\text{ST}' = \text{ST} \times \alpha$

^{*1} Refers to the number of device points for high speed sampling in an entire project.

It can be checked in Configuration Tool. ( Page 70 High speed sampling label group setting)

Ex.

When the number of device points for high speed sampling is 4096 and the sequence scan time is 2 ms:

$\alpha = (0.5 + 0.0008 \times (4096 - 256)) \div 2 = 2$ (Values after the decimal point of 1.786 are rounded up.)

Since $\alpha > 1$, $\text{ST}' = 2 \times 2 = 4$

Read the sequence scan time as 4 ms, not 2 ms.

■For general sampling

Check "Sampling time" in the buffer memory.

If a value greater than the set sampling cycle is stored in "Sampling time," take the following corrective actions:

- Reduce the volume of data to be sampled.
- Organize data to be transferred per access target CPU module.
(If data of multiple access target CPU modules exists in a unit of transferred data, it takes time to sample the data.)
- Reduce other active processing.
- Mount a high speed data communication module on the access target CPU station and perform high speed sampling.

Checking transfer processing time

Check "Processing overload count" in the buffer memory.

If '1' or greater value is stored in "Processing overload count," it means that the transfer processing is not catching up with the data sampling speed. Take the following corrective actions:

- Reduce the volume of data to be sampled.
- Lengthen the sampling cycle.
- Shorten the transfer cycle.
- Reduce other active processing.
- Accelerate the route to a transfer destination. (Reduce the network traffic on the route.)

After the corrective actions, perform a streaming transfer again, then make sure that '0' is stored in "Processing overload count" of the buffer memory and that "Unprocessed data count (current)" does not increase as time passes.

Influence on the sequence scan time

If the streaming transfer function, data read function, and data write function are used, they affect on the sequence scan time of an access target CPU.

Function		Description
Streaming transfer function	High speed sampling*1	For the influence on the sequence scan time, refer to the following: 📖MELSEC iQ-R CPU Module User's Manual (Application)
	General sampling	They affect on the service processing time of an access target CPU module.
Data read function		Refer to the user's manual for the access target CPU module.
Data write function		

*1 Operates while the operating status of a high speed data communication module is 'Running,' not only when the module is being accessed by a user program.

Appendix 6 Data Sampling Method for CPU Modules that cannot be Accessed Directly

This section explains a method for sampling device data from a CPU module that cannot be accessed directly (hereafter, explained with a motion CPU).

Performing refresh by using CPU buffer in a multiple CPU system

By performing refresh between an RCPU and motion CPU in a multiple CPU system, device data in the motion CPU can be read to the RCPU.

By registering data that is read to an RCPU as transfer target devices, the device data in a motion CPU can be sampled.

Settings required for auto refresh

Set the number of points to be sent by each CPU module and a device to store data in "Refresh Setting between Multiple CPUs" of an engineering tool.

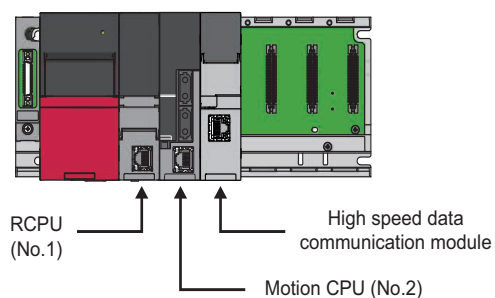
[Navigation window] ⇒ [Parameter] ⇒ (CPU module) ⇒ [CPU Parameter] ⇒ [Refresh Setting between Multiple CPUs]

For refresh settings, refer to the following:

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

Acquisition example of device data in a motion CPU

■System configuration



A

■Refresh settings for an RCPU (CPU No.1)

Set a device on an RCPU to store data in the CPU buffer memory and the number of receive points in "Refresh Setting (At the END)" of the RCPU.

Ex.

CPU buffer memory → D256 to D511 of an RCPU (256 points)

Setting No.	Device		
	Points	Start	End
⊕ No. 1(Send)			
⊖ No. 2(Receive)			
⊖ Total	256/522240 Points		
1	256	D256	D511
2			
3			

■Refresh settings for a motion CPU (CPU No.2)

Set a device to be stored in the CPU buffer memory and the number of send points in "Refresh (END) Setting" of the motion CPU.

CPU1(Receive) CPU2(Send)

Refresh Device (CPU2) --> CPU Buffer Memory (CPU2)

The device will be used to send the data to other CPU.

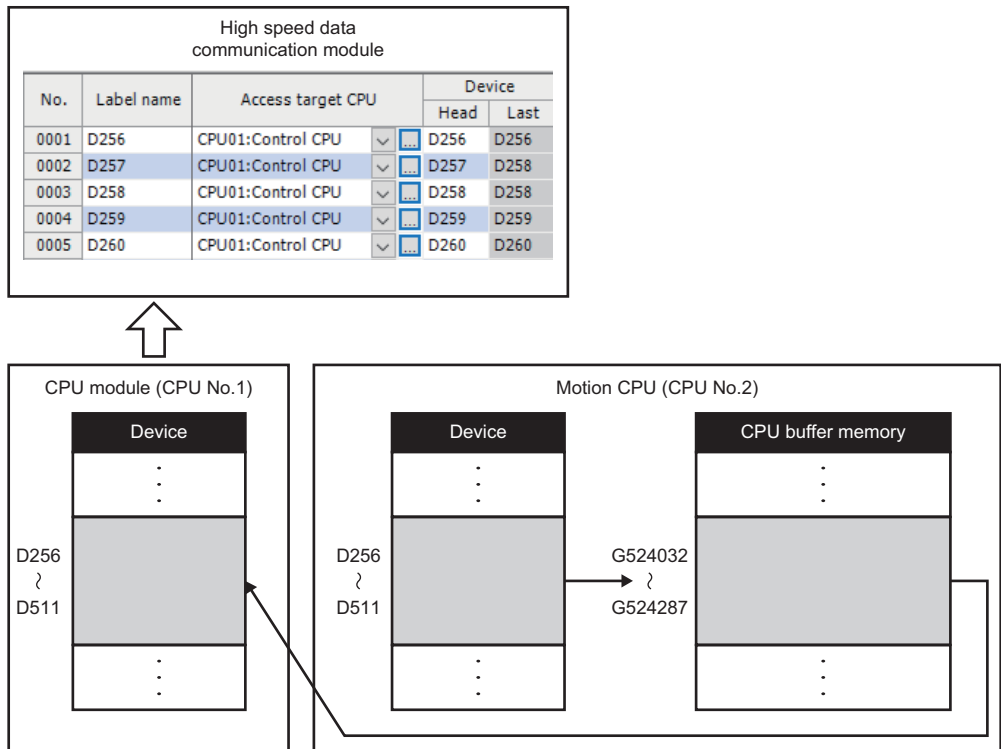
Setting No.	Points (*)	Refresh (END)			CPU Specific Send Range(U3E1)	
		Start	End		Start	End
1	256	D256	D511	-->	G524032	G524287
2						
3						

■Settings for a high speed data communication module

Set devices of an RCPU (CPU No.1) which are set in the refresh setting as transfer target devices.

Ex.

Setting D256 to D511 of an RCPU (CPU No.1) as transfer target devices



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REVISIONS

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

Revision date	*Manual number	Description
April 2021	SH(NA)-082362ENG-A	First edition

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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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MODEL: RD81DC96-U-OU-E

MODEL CODE: 13JX4B

mitsubishi electric corporation

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