

Programmable Controller

**MELSEC iQ-R**  
series

MELSEC iQ-R System Recorder  
User's Manual (Startup)

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# SAFETY PRECAUTIONS

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(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".

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 <b>WARNING</b>	Indicates that incorrect handling may cause hazardous conditions, resulting in death or severe injury.
 <b>CAUTION</b>	Indicates that incorrect handling may cause hazardous conditions, resulting in minor or moderate injury or property damage.

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Under some circumstances, failure to observe the precautions given under "⚠ CAUTION" may lead to serious consequences.

Observe the precautions of both levels because they are important for personal and system safety.

Make sure that the end users read this manual and then keep the manual in a safe place for future reference.

## [Design Precautions]

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### **WARNING**

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- Configure safety circuits external to the programmable controller to ensure that the entire system operates safely even when a fault occurs in the external power supply or the programmable controller. Failure to do so may result in an accident due to an incorrect output or malfunction.
    - (1) Emergency stop circuits, protection circuits, and protective interlock circuits for conflicting operations (such as forward/reverse rotations or upper/lower limit positioning) must be configured external to the programmable controller.
    - (2) When the programmable controller detects an abnormal condition, it stops the operation and all outputs are:
      - Turned off if the overcurrent or overvoltage protection of the power supply module is activated.
      - Held or turned off according to the parameter setting if the self-diagnostic function of the CPU module detects an error such as a watchdog timer error.
    - (3) All outputs may be turned on if an error occurs in a part, such as an I/O control part, where the CPU module cannot detect any error. To ensure safety operation in such a case, provide a safety mechanism or a fail-safe circuit external to the programmable controller. For a fail-safe circuit example, refer to "General Safety Requirements" in the MELSEC iQ-R Module Configuration Manual.
    - (4) Outputs may remain on or off due to a failure of a component such as a relay and transistor in an output circuit. Configure an external circuit for monitoring output signals that could cause a serious accident.
  - In an output circuit, when a load current exceeding the rated current or an overcurrent caused by a load short-circuit flows for a long time, it may cause smoke and fire. To prevent this, configure an external safety circuit, such as a fuse.
  - Configure a circuit so that the programmable controller is turned on first and then the external power supply. If the external power supply is turned on first, an accident may occur due to an incorrect output or malfunction.
  - For the operating status of each station after a communication failure, refer to 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.
  - 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.
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## [Design Precautions]

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### **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.
  - If a communication cable is disconnected, the network may be unstable, resulting in a communication failure of multiple stations. Configure an interlock circuit in the program to ensure that the entire system will always operate safely even if communications fail. Incorrect output or malfunction due to a communication failure may result in an accident.
  - To maintain the safety of the programmable controller system against unauthorized access from external devices via the network, take appropriate measures. To maintain the safety against unauthorized access via the Internet, take measures such as installing a firewall.
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## [Design Precautions]

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### **CAUTION**

- 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.
  - 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 do not reset the CPU module while the settings are being written. Doing so will make the data in the flash ROM or SD memory card undefined. The values need to be set in the buffer memory and written to the flash ROM or the SD memory card again. Doing so 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.
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## [Installation Precautions]

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### **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.
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## [Installation Precautions]

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### **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 a module, place the concave part(s) located at the bottom onto the guide(s) of the base unit, and push in the module until the hook(s) located at the top snaps into place. Incorrect interconnection may cause malfunction, failure, or drop of the module.
  - To mount a module with no module fixing hook, place the concave part(s) located at the bottom onto the guide(s) of the base unit, push in the module, and fix it with screw(s). Incorrect interconnection may cause malfunction, failure, or drop of the module.
  - When using the programmable controller in an environment of frequent vibrations, fix the module with a screw.
  - Tighten the screws within the specified torque range. Undertightening can cause drop of the screw, short circuit, or malfunction. Overtightening can damage the screw and/or module, resulting in drop, short circuit, or malfunction.
  - When using an extension cable, connect it to the extension cable connector of the base unit securely. Check the connection for looseness. Poor contact may cause malfunction.
  - When using an SD memory card, fully insert it into the 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.
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## [Wiring Precautions]

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### **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.
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## [Wiring Precautions]

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### **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.
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## [Startup and Maintenance Precautions]

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### **WARNING**

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- 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 or 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.
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## [Startup and Maintenance Precautions]

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### CAUTION

- When connecting an external device with a CPU module or intelligent function module to modify data of a running programmable controller, configure an interlock circuit in the program to ensure that the entire system will always operate safely. For other forms of control (such as program modification, parameter change, forced output, or operating status change) of a running programmable controller, read the relevant manuals carefully and ensure that the operation is safe before proceeding. Improper operation may damage machines or cause accidents.
  - Especially, when a remote programmable controller is controlled by an external device, immediate action cannot be taken if a problem occurs in the programmable controller due to a communication failure. To prevent this, configure an interlock circuit in the program, and determine corrective actions to be taken between the external device and CPU module in case of a communication failure.
  - Do not disassemble or modify the modules. Doing so may cause failure, malfunction, injury, or a fire.
  - Use any radio communication device such as a cellular phone or PHS (Personal Handy-phone System) more than 25cm away in all directions from the programmable controller. Failure to do so may cause malfunction.
  - Shut off the external power supply (all phases) used in the system before mounting or removing the module. Failure to do so may cause the module to fail or malfunction.
  - Tighten the screws within the specified torque range. Undertightening can cause drop of the component or wire, short circuit, or malfunction. Overtightening can damage the screw and/or module, resulting in drop, short circuit, or malfunction.
  - After the first use of the product, do not perform each of the following operations more than 50 times (IEC 61131-2/JIS B 3502 compliant). Exceeding the limit may cause malfunction.
    - Mounting/removing the module to/from the base unit
    - Inserting/removing the extended SRAM cassette or battery-less option cassette to/from the CPU module
    - Mounting/removing the terminal block to/from the module
  - After the first use of the product, do not insert/remove the SD memory card to/from the CPU module more than 500 times. Exceeding the limit may cause malfunction.
  - Do not touch the metal terminals on the back side of the SD memory card. Doing so may cause malfunction or failure of the module.
  - Do not touch the integrated circuits on the circuit board of an extended SRAM cassette or a battery-less option cassette. Doing so may cause malfunction or failure of the module.
  - 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.
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## [Operating Precautions]

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### 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 or SD memory card undefined. The values need to be set in the buffer memory and written to the flash ROM or SD memory card again. Doing so can cause malfunction or failure of the module.
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## [Disposal Precautions]

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### 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]

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### 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.
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# CONDITIONS OF USE FOR THE PRODUCT

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(1) Mitsubishi 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 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'S USER, 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 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 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 representative in your region.

# INTRODUCTION

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

This manual describes the performance specifications and procedure for operation to use System Recorder.

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

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.

## COMPLIANCE WITH THE EMC AND LOW VOLTAGE DIRECTIVES

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### Method of ensuring compliance



To ensure that Mitsubishi programmable controllers maintain EMC and Low Voltage Directives when incorporated into other machinery or equipment, certain measures may be necessary. Please refer to one of the following manuals.

-  MELSEC iQ-R Module Configuration Manual
-  Safety Guidelines (included in a base unit)

The CE mark on the side of the programmable controller indicates compliance with EMC and Low Voltage Directives.

### Additional measures

To ensure that this product maintains EMC and Low Voltage Directives, please refer to one of the following manuals.

-  MELSEC iQ-R Module Configuration Manual
-  Safety Guidelines (included in a base unit)

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# RELEVANT MANUALS

Manual name [manual number]	Description	Available form
MELSEC iQ-R System Recorder User's Manual (Startup) [SH-082279ENG] (this manual)	Specifications, procedure for operation, and system configuration of System Recorder, and specifications of a recorder module	Print book e-Manual PDF
MELSEC iQ-R System Recorder User's Manual (Application) [SH-082281ENG]	Functions, parameter settings, recording settings, and troubleshooting of System Recorder, and detailed specifications of a recorder module	Print book e-Manual PDF
MELSEC iQ-R CPU Module User's Manual (Startup) [SH081263ENG]	Specifications, procedures before operation, and troubleshooting of a CPU module	Print book e-Manual PDF
MELSEC iQ-R CPU Module User's Manual (Application) [SH081264ENG]	Memory, functions, devices, and parameters of a CPU module	Print book 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 [SH081262ENG]	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
Camera Recording Package User's Manual [BCN-P5999-1324]	Network camera settings, programmable controller settings, and function blocks for the camera recording function	e-Manual PDF
Video Verification Tool Operating Manual [BCN-P5999-1327]	Basic operations and method for playing a video file in Video Verification Tool	e-Manual PDF

This manual does not include detailed information on the following:

- General specifications
- Applicable combinations of CPU modules and the other modules, and the number of mountable modules
- Applicable combinations of remote head modules and the other modules, and the number of mountable modules
- Installation

For details, refer to the following:

 MELSEC iQ-R Module Configuration Manual

## Point

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
Buffer area for data sampling	A memory area in a CPU module to pass sampled devices and labels to a recorder module.
Recording file	A file that consists of folders to which information such as a date and time or character strings can be added and files saved in the folders.
Recording setting	A setting for the recording function such as a sampling target, sampling interval, and saving period.

# 1 System Recorder

System Recorder is a solution that integrates the following three steps performed in the breakdown maintenance phase.

Step	Description	Supported function	Required module or tool
Recording	Labels and camera images are sampled and recorded with time stamps in addition to all devices of a programmable controller CPU.	Recording function	<ul style="list-style-type: none"><li>• CPU module</li><li>• Recorder module</li><li>• GX Works3</li></ul>
		Camera recording function	<ul style="list-style-type: none"><li>• Camera Recording Package</li></ul>
Reproduction	Recorded data is linked and reproduced. A timing when an error occurs can be easily identified.	Offline monitor function	<ul style="list-style-type: none"><li>• Recorder module</li><li>• GX Works3</li></ul>
Analysis	A sequence program is traced. It can be easily traced and the time required to identify the cause of an error can be shortened.	Data flow analysis function	<ul style="list-style-type: none"><li>• GX Works3</li></ul>

# MEMO

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# 2 PERFORMANCE SPECIFICATIONS

This chapter shows the performance specifications of System Recorder.

## 2.1 Recording Function


2

This section shows the performance specifications of the recording function.

Item		Specification
Number of settings		Up to 4
Maximum number of device and label data points that can be sampled/accumulated	Maximum number of points that can be sampled (CPU module)	6 MB (total of all settings) <sup>*1</sup>
	Maximum number of points that can be accumulated (Recorder module)	800 MB (total of all settings) <sup>*2</sup>
Save destination memory capacity		SD memory card capacity (SD/SDHC memory card: Up to 16 GB)


\*1 Can be set in the buffer area setting for data sampling in the CPU parameter.

For details, refer to the following:

 MELSEC iQ-R System Recorder User's Manual (Application)

\*2 Can be set in the recording buffer setting in the module parameter (recorder module).

For details, refer to the following:

 MELSEC iQ-R System Recorder User's Manual (Application)

### Point

For the specifications of a recorder module, refer to the following:

 Page 27 Recorder Module



# 3 FUNCTION LIST

This chapter shows the function list of System Recorder.

For details on each function, refer to the following:

📖 MELSEC iQ-R System Recorder User's Manual (Application)

## 3.1 Recording Function

The recording function can be used to output data in a CPU module to a recording file and save it to an SD memory card inserted in a recorder module when a file saving trigger is satisfied.

Item	Specification	
Setting name	Number of available characters: Up to 32 characters Available character: Unicode Basic Multilingual Plane Character code: UTF-16LE	
Recording target data	<ul style="list-style-type: none"> <li>• Devices and labels of a CPU module</li> <li>• Event histories saved in a CPU module</li> </ul>	
Recording method	<ul style="list-style-type: none"> <li>• File saving trigger only</li> <li>• Recording startup trigger + file saving trigger</li> </ul>	
Recording startup trigger <sup>*1</sup>	Number of settings	1 per recording setting
	Establishment condition	<ul style="list-style-type: none"> <li>• Rise</li> <li>• Fall</li> </ul>
	Accumulation period <sup>*2</sup>	<ul style="list-style-type: none"> <li>• 1 to 86400 s</li> <li>• 1 to 1440 m</li> <li>• 1 to 24 h</li> </ul>
File saving trigger <sup>*1</sup> (A specified time elapses after completion of data accumulation)	Number of settings	1 per recording setting
	Specification	<ul style="list-style-type: none"> <li>• Specify</li> <li>• Not specify</li> </ul>
	Elapsed time after completion of data accumulation <sup>*2</sup>	<ul style="list-style-type: none"> <li>• 0 to 86400 s</li> <li>• 0 to 1440 m</li> <li>• 0 to 24 h</li> </ul>
File saving trigger (Rise or fall of a device of a CPU module)	Number of settings	Up to 16 per recording setting
	Establishment condition	<ul style="list-style-type: none"> <li>• Rise</li> <li>• Fall</li> </ul>
	Saving period before trigger <sup>*2,*3</sup>	<ul style="list-style-type: none"> <li>• 0 to 86400 s</li> <li>• 0 to 1440 m</li> <li>• 0 to 24 h</li> </ul>
	Saving period after trigger <sup>*2,*3</sup>	0 to 60 s
	Trigger comment	Number of available characters: Up to 32 characters Available character: Unicode Basic Multilingual Plane Character code: UTF-16LE
Sampling method	<ul style="list-style-type: none"> <li>• Each scan</li> <li>• Time specification<sup>*4</sup></li> <li>• Trigger instruction (instruction name: DATATRIG)</li> </ul>	
Time interval <sup>*5</sup>	<ul style="list-style-type: none"> <li>• 1 to 60000 ms</li> <li>• 1 to 86400 s</li> <li>• 1 to 1440 m</li> <li>• 1 to 24 h</li> </ul>	

Item		Specification	
Save folder name	Folder name	Up to 64 characters	
	Format	Additional information + fixed information	
	Additional information	<ul style="list-style-type: none"> <li>• Date and time (when a file saving trigger is satisfied or a recording file is saved)<sup>*6</sup></li> <li>• Numerical value data</li> <li>• Any character strings</li> </ul>	
	Fixed information	Format	Recording setting number + saving cause + folder number
		Recording setting number	Setting No.1: 1 Setting No.2: 2 Setting No.3: 3 Setting No.4: 4
		Saving cause	<ul style="list-style-type: none"> <li>• A file is saved in the "Recording Monitor" screen: MS</li> <li>• A set time elapses after completion of data accumulation: AS</li> <li>• A device of a CPU module rises or falls: TS + condition number (two digits)</li> </ul>
		Folder number	001 to 999
Number of recording files that can be saved		1 to 999	
Saving a file when there is no free folder number		<ul style="list-style-type: none"> <li>• Overwrite</li> <li>• Not save</li> </ul>	

\*1 Can be set only when selecting "Recording Startup Trigger + File Saving Trigger" for "Recording Method."

\*2 The recording function runs based on the time in a recorder module.

\*3 The total of the saving periods before and after trigger must be one second or more.

\*4 The recording function runs based on the time in a CPU module.

\*5 Can be set only when selecting "Time Specification" for "Sampling Method."

\*6 A date and time acquired from a CPU module is added.

## 3.2 Offline Monitor Function

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The offline monitor function can be used to reproduce data saved in a programmable controller in the monitor screen of GX Works3.

This allows the status to be checked when a trouble occurs.

## 3.3 Camera Recording Function

---

The camera recording function can be used to record camera images linked with a CPU module by using a network camera connected to the built-in Ethernet of the CPU module.

Recorded video files can be played in Video Verification Tool.

## 3.4 Data Flow Analysis Function

---

The data flow analysis function can be used to search for devices, labels, and parameters in a program and the event history of the current value change that cause selected devices and labels to be changed, and display their related items in a flow diagram.

# 4 PROCEDURE FOR OPERATION

## 4.1 Recording Function

This section shows the procedure for performing the recording function.


1. Mount a CPU module and a recorder module on a base unit and wire them.

Do not use an electric screwdriver to attach and remove module fixing screws.

### Point

To use an SD memory card for saving an event history file, insert the SD memory card in the CPU module.

2. Insert an SD memory card in the recorder module.

 Page 33 Insertion/removal method of an SD memory card

3. Turn the power of the system ON.

Check the following items, then turn the power ON.

- The power supply is wired correctly.
- The power supply voltage is within the specification.
- The CPU module is in the STOP state.

4. Connect a personal computer on which GX Works3 is installed to the CPU module.

5. Initialize the CPU module.

If an SD memory card is inserted in the CPU module, initialize it.

For the method for initializing a CPU module and SD memory card, refer to the following:

 GX Works3 Operating Manual

6. Set the recorder module in the system parameter in GX Works3.

System parameters can be set by reading an actual system configuration to a module configuration diagram in GX Works3.

### Point

After setting the recorder module, "Save Device/Label Operations" in the event history setting in the CPU parameter is automatically set to "Save." Therefore, writing data to devices and labels from an engineering tool, external device, programmable controller on another station, or another CPU module is registered as an event history.

7. Set parameters of the recorder module.

 Page 22 Parameter setting

In addition, set parameters of the CPU module as necessary.

8. Create a sequence program in GX Works3.

9. Configure the recording settings for the recorder module.

 Page 23 Recording setting

10. Write data such as the parameters and program, and the recording settings to the CPU module at the same time.

If not reading the project data at the same time as a recording file, read and save the project separately after writing. (Manage the read project with the recording file saved while the project is being used.)

For details on reading recording files, refer to the following:

 GX Works3 Operating Manual

### Point

Recording settings cannot be written to an SD memory card; therefore, the boot operation cannot be performed. For the boot operation, recording settings must be written to the data memory.

11. Reset the CPU module or turn the power OFF and ON to apply the settings.

12. Format the SD memory card inserted in the recorder module.

For the method for formatting an SD memory card, refer to the following:

 MELSEC iQ-R System Recorder User's Manual (Application)

**13.** Check the connection between the recorder module and the personal computer.\*1

Connect the CPU module and the personal computer to check the IP address setting of the recorder module in the system monitor of GX Works3.

**14.** Check the READY LED and ERROR LED of the CPU module and the ERR LED of the recorder module.

If an error occurs, check the error descriptions by using the diagnostic function of GX Works3 and clear the error.

**15.** Switch the CPU module to RUN.


The P RUN LED of the CPU module turns ON.

The program runs and recording starts.

**16.** Make sure that the recording function is running properly.

Whether the recording function is running properly can be checked with 'In recording operation' (Un\G1501) of the recorder module, recording monitor, or the status of the module LEDs (RUN LED and OPR LED).

For details on the buffer memory and recording monitor, refer to the following:

 MELSEC iQ-R System Recorder User's Manual (Application)

**17.** Satisfy a file saving trigger.

When the trigger is satisfied, the recording file is saved in the SD memory card inserted in the recorder module.

**Point** 


---

Information saved in a CPU module, such as errors occurred in each module or on networks, is also saved at the same time as the recording file is saved.

---

**18.** Select [Recording] ⇒ [Read Recording File] in GX Works3 to read the recording file.


For details on reading recording files, refer to the following:

 GX Works3 Operating Manual


**19.** Select [Recording] ⇒ [Start Offline Monitor] ⇒ [Recording File] in GX Works3 to start offline monitoring.

**20.** Operate the seek bar to check the recording result.

For details on the offline monitor, refer to the following:

 GX Works3 Operating Manual

\*1 The procedure is as follows:

- ① Make sure that the personal computer and the recorder module are connected with an Ethernet cable.
- ② Click [Windows System] ⇒ [Command Prompt] from Windows® Start.
- ③ Enter "ping (IP address set for the recorder module)" in the command prompt. ( Page 22 Parameter setting)
- ④ Check the response from the recorder module the IP address of which is set in the command prompt.

# Parameter setting


The mode setting, IP address setting, and recording buffer setting for a recorder module can be set in the parameter setting of GX Works3.

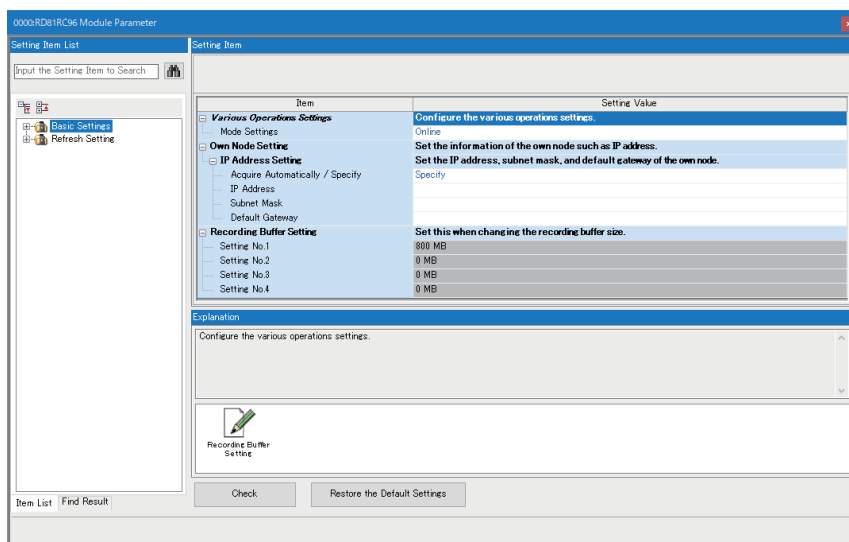
For details on the parameter setting, refer to the following:

 MELSEC iQ-R System Recorder User's Manual (Application)

## Operating procedure

1. Set the module parameters of a recorder module.

 [Navigation window] ⇒ [Parameter] ⇒ [Module Information] ⇒ [(target module)] ⇒ [Basic Settings]



## Point

To read a recording file, a recorder module and a personal computer must be connected with an Ethernet cable.

Set the IP address and subnet mask of the recorder module in advance.

The IP address setting of a recorder module can be checked in the system monitor.

For details on the system monitor, refer to the following:

 GX Works3 Operating Manual



# Recording setting

The recording setting for a recorder module can be set by using GX Works3.

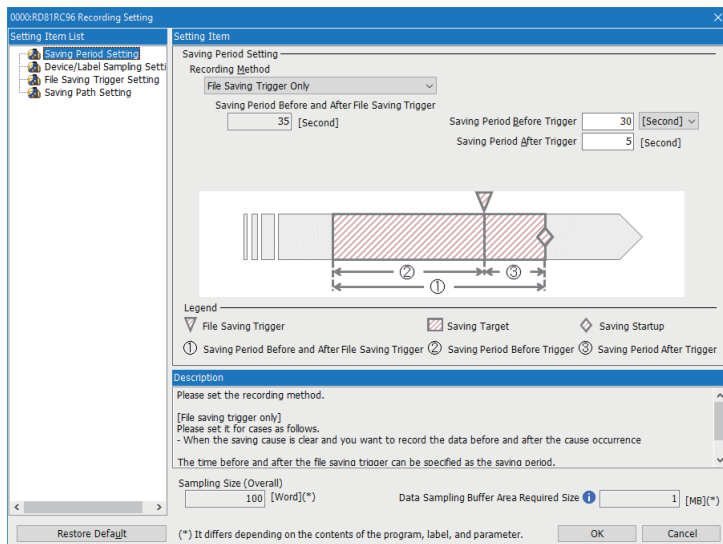
For details on the recording setting, refer to the following:

📖 MELSEC iQ-R System Recorder User's Manual (Application)

## Operating procedure

1. Display the "Recording Setting" screen.

🖱️ [Navigation window] ⇒ [Parameter] ⇒ [Recording Setting] ⇒ right-click ⇒ [New]




## 4.2 Offline Monitor Function

---

This section shows the procedure for performing the offline monitor function.

1. Select [Recording] ⇒ [Read Recording File] in GX Works3 to read a recording file.


For details on reading recording files, refer to the following:

 GX Works3 Operating Manual

2. Select [Recording] ⇒ [Start Offline Monitor] ⇒ [Recording File] in GX Works3 to start offline monitoring.

3. Operate the seek bar to check the recording result.

For details on the offline monitor, refer to the following:

 GX Works3 Operating Manual

## 4.3 Camera Recording Function

---

This section shows the procedure for performing the camera recording function.

1. Use FBs included in Camera Recording Package to record camera images.

For details, refer to the following:

 Camera Recording Package User's Manual

2. Play recorded video files in Video Verification Tool.

For details, refer to the following:

 Video Verification Tool Operating Manual

## 4.4 Data Flow Analysis Function

---

This section shows the procedure for performing the data flow analysis function.

1. Perform data flow analysis in GX Works3.

For details, refer to the following:

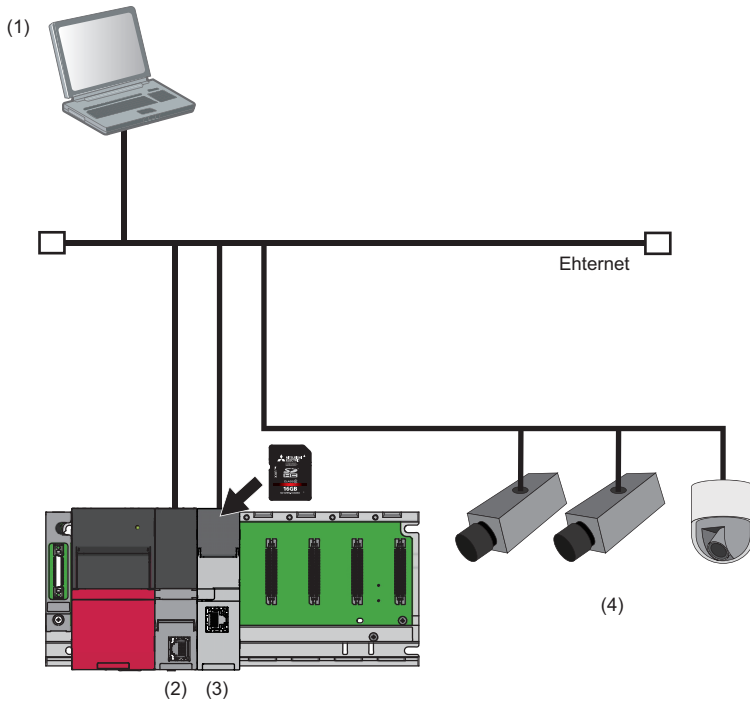
 GX Works3 Operating Manual

# 5 SYSTEM CONFIGURATION

This chapter shows the system configuration of System Recorder.

## 5.1 Overall System Configuration

This section shows the overall system configuration of System Recorder.



Type		
(1)	Engineering tool	GX Works3
		GX LogViewer
		GT Designer3
(2)	CPU module	
(3)	Recorder module	
(4)	Network camera	

## 5.2 System Components and Engineering Tools

This section shows the system components and engineering tools for System Recorder.

### System components

#### Programmable controllers

Module	Model name	3rd or 4th digits of product information <sup>*2</sup>	Firmware version <sup>*2</sup>	Reference
CPU module <sup>*1</sup>	RnCPU	R04CPU	'19' or later	<a href="#">MELSEC iQ-R CPU Module User's Manual (Startup)</a> <a href="#">MELSEC iQ-R CPU Module User's Manual (Application)</a>
		R08CPU	'20' or later	
		R16CPU	'20' or later	
		R32CPU	'17' or later	
		R120CPU	'17' or later	
	RnENCPU	R04ENCPU	'32' or later	
		R08ENCPU	'30' or later	
		R16ENCPU	'27' or later	
		R32ENCPU	'30' or later	
		R120ENCPU	'22' or later	
Recorder module <sup>*1</sup>	RD81RC96	No restrictions	'01' or later	Page 27 Recorder Module

\*1 Only one recorder module can be used per CPU module.

In a multiple CPU system, up to four recorder modules can be used.

\*2 For the method for checking the product information and firmware version, refer to the following:

[MELSEC iQ-R Module Configuration Manual](#)

#### Other devices

Device	Reference
Network camera <sup>*1</sup>	<a href="#">Network cameras supporting the Camera recording package(FA-A-0306-A)</a>

\*1 Use a MELIPC MI1000 or general-purpose NAS for an external storage.

### Engineering tools

Engineering tool	Model name	Version	Reference
GX Works3	SW1DND-GXW3-J	1.065T or later	<a href="#">GX Works3 Operating Manual</a>
GX LogViewer	SW1DNN-VIEWER-J	1.106K or later	<a href="#">GX LogViewer Version 1 Operating Manual</a>
GT Designer3	SW1DND-GTWK3-J	1.236W or later	<a href="#">GT Designer3 (GOT2000) Screen Design Manual</a>

## 5.3 Recorder Module

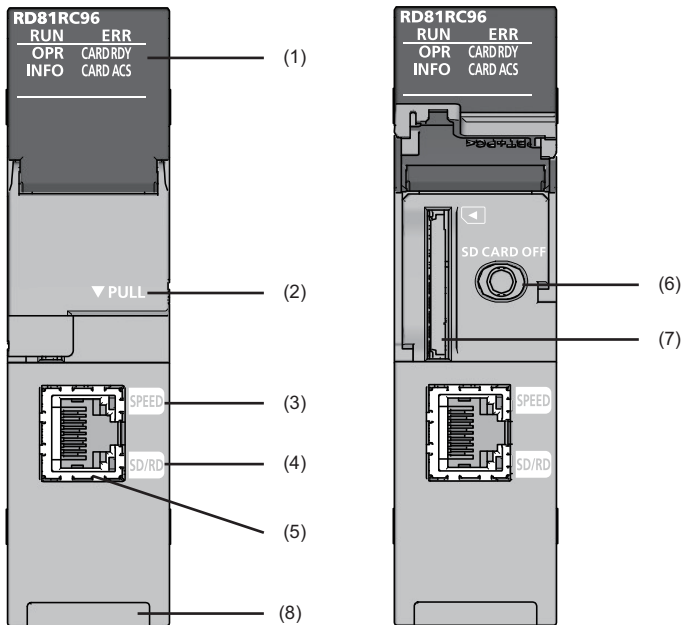
This section explains a recorder module.

For details on the functions, module labels, input/output signals, and buffer memory of a recorder module, refer to the following:


📖 MELSEC iQ-R System Recorder User's Manual (Application)

### Part names


The following shows the part names of a recorder module.



No.	Name	Description
(1)	RUN LED	Indicates the operating status. • ON: In operation • OFF: Hardware error
	ERR LED	Indicates the error status. • ON: Minor error or hardware error • Flashing: Moderate error or major error • OFF: In normal status
	OPR LED	Indicates the status of a module. • ON: In operation • OFF: Stopped
	INFO LED	Indicates the warning occurrence status. • ON: Warning • OFF: In normal status
	CARD RDY LED	Indicates the accessibility of an SD memory card. • ON: Accessible (mounted) • Flashing: Being mounted/unmounted • OFF: Inaccessible (not inserted/unmounted/write-protected)
	CARD ACS LED	Indicates the access status of an SD memory card. • ON: Being accessed • OFF: Not accessed
(2)	Slot cover	A cover of the SD memory card slot and the SD memory card lock switch. Open this cover to insert/remove an SD memory card or to operate the switch. Close the cover unless inserting/removing an SD memory card or operating the switch to prevent foreign material intrusion such as dust.
(3)	SPEED LED	Indicates the communication speed and the link status for Ethernet. • ON (orange): Linking-up (1 Gbps) • ON (green): Linking-up (100 Mbps) • OFF: Linking-down or linking-up (10 Mbps)

No.	Name	Description
(4)	SD/RD LED	Indicates the data sending/receiving status in Ethernet. <ul style="list-style-type: none"> <li>• ON: Being sent/received</li> <li>• OFF: Not being sent/received</li> </ul>
(5)	Ethernet port	A port for connecting a recorder module to 10BASE-T/100BASE-TX/1000BASE-T. (A recorder module distinguishes among 10BASE-T, 100BASE-TX, and 1000BASE-T depending on an external device.)
(6)	SD memory card lock switch (SD CARD OFF button)	A switch for disabling access to an SD memory card to remove it. Removing an SD memory card is prohibited while the CARD RDY LED is ON or flashing. For the procedures for inserting and removing an SD memory card, refer to the following:  Page 31 SD memory card
(7)	SD memory card slot	A slot for inserting an SD memory card. (SD, SDHC standards-compliant: 2 GB (SD) to 16 GB (SDHC))
(8)	Product information marking	Displays the product information (16 digits) of a module.

**Point** 

An INFO LED lighting factor can be checked in the INFO LED information of the "Module Diagnostics" screen or in the buffer memory. Check the factor and take a corrective action. ( MELSEC iQ-R System Recorder User's Manual (Application))

# Hardware specifications

The following table shows the hardware specifications of a recorder module.


Item		Specification		
Ethernet port	Interface	1000BASE-T	100BASE-TX	10BASE-T
	Data transmission speed	1 Gbps	100 Mbps	10 Mbps
	Number of cascade connections (When using a repeater hub)	—	2 levels maximum	4 levels maximum
	Transmission method	Base band		
	Maximum segment length	100 m (length between a hub and a node)		
	Supported function	Auto-negotiation (automatic recognition of the communication speed/communication method) Auto-MDI/MDI-X (automatic recognition of a straight/crossing cable)		
	IP version	IPv4 supported		
SD memory card slot	Power supply voltage	3.3 VDC		
	Power supply capacity	Up to 200 mA		
	Card size	SD memory card/SDHC memory card		
	Number of insertable cards	1		
Number of occupied I/O points		32 points/slot (I/O assignment: Intelligent function module 32 points)		
Clock		<ul style="list-style-type: none"> <li>Acquired from a CPU module (CPU No.1 in a multiple CPU system).</li> <li>Time accuracy after obtaining the time, daily error of <math>\pm 9.504</math> seconds</li> </ul>		
5 VDC internal current consumption		1.3 A		
External dimensions	Height	106 mm		
	Width	27.8 mm		
	Depth	110 mm		
Weight		0.23 kg		


# Function list

---

The following table shows the function list of a recorder module.

For details on each function, refer to the following:

 MELSEC iQ-R System Recorder User's Manual (Application)

Function	Description
Recording function	To accumulate devices and labels sampled by a CPU module, and output them and the event history of the CPU module to a recording file and save the file to an SD memory card when a file saving trigger is satisfied.
SD memory card format function	To format an SD memory card inserted in a recorder module.
Self-diagnostic function	To diagnose whether a recorder module operates normally.
Firmware update function	To update the firmware of a recorder module. For details, refer to the following:  MELSEC iQ-R Module Configuration Manual



# SD memory card

The following shows an SD memory card inserted and used in a recorder module.

## Supported SD memory cards (sold separately)

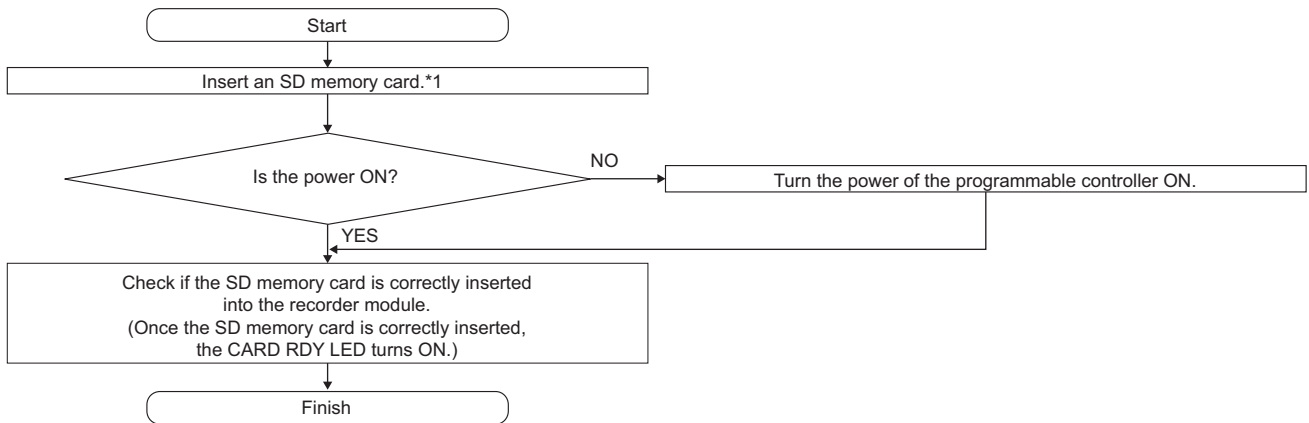
The following table shows the supported SD memory cards.

For using an SD memory card, make sure to refer to the following: (📖 Page 34 Considerations for using an SD memory card)

Model name	Description
NZ1MEM-2GBSD	2 GB SD memory card
NZ1MEM-4GBSD	4 GB SD memory card
NZ1MEM-8GBSD	8 GB SD memory card
NZ1MEM-16GBSD	16 GB SD memory card

## Operation for inserting an SD memory card

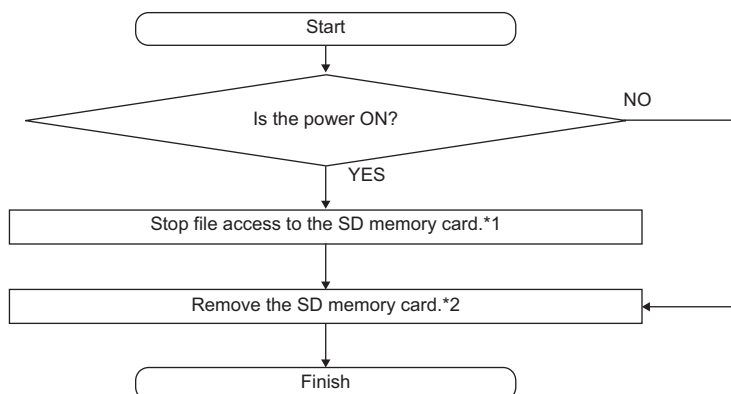
The following shows the method for inserting an SD memory card.



\*1 📖 Page 35 Connection procedure

## Operation for removing an SD memory card

The following shows the method for removing an SD memory card.



\*1 📖 Page 32 Method for stopping file access

\*2 📖 Page 33 Removal procedure

## Method for stopping file access

The following are the methods for stopping file access.

Whether an SD memory card is being accessed such as when a recording file is being saved can be checked with the CARD ACS LED.

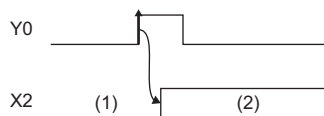
- Using the switch on the front of a module
- Using input/output signals

### ■Method by using the switch on the front of a module

1. Press the SD memory card lock switch for one second or more.
2. Check that the CARD RDY LED is turned OFF.

### ■Method by using input/output signals

1. Turn 'File access stop request' (Y0) from OFF to ON.
2. Check that 'File access status' (X2) turns from OFF to ON, or the CARD RDY LED turns OFF.



- (1) Accessible  
(2) Access stopped

If 'File access stop request' is unintentionally turned ON, turn 'Clear file access stop request' ON.

An output signal is not turned from ON to OFF by a system. To turn the signal ON again, turn it from ON to OFF, then back to ON.

## Method for clearing file access stop

The following are the methods for clearing file access stop.

- Mounting an SD memory card
- Using input/output signals

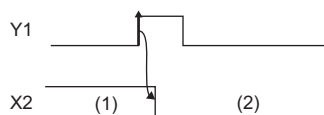
### ■Method by mounting an SD memory card

1. Remove an SD memory card if it is inserted.
2. Insert the SD memory card again.
3. Check that the CARD RDY LED turns ON.

### ■Method by using input/output signals

File access can be restarted by turning 'Clear file access stop request' ON without replacing an SD memory card after turning 'File access stop request' ON.

1. Turn 'Clear file access stop request' (Y1) from OFF to ON.
2. Check that 'File access status' (X2) turns from ON to OFF.
3. Check that the CARD RDY LED turns ON.



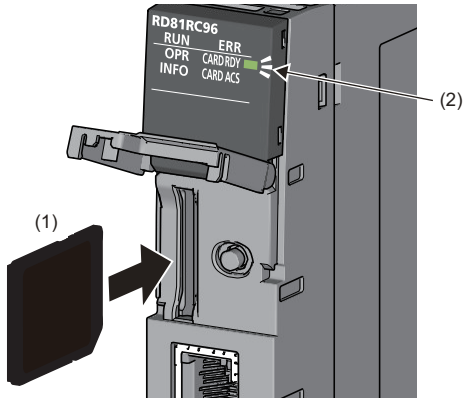
- (1) Access stopped  
(2) Accessible

## Insertion/removal method of an SD memory card

Make sure to stop file access when removing or replacing an SD memory card.

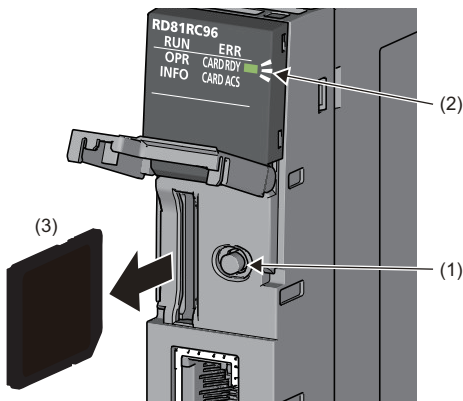
If the power of a recorder module is turned OFF or the module is reset while a file is being accessed, the file may be corrupted.

### ■ Insertion procedure



- 1.** Insert an SD memory card (1) straight into the SD memory card slot with its cutout pointed down.  
Make sure it is not uplifted after inserting it.  
If it is inserted insufficiently, it may cause malfunction due to poor contact.
- 2.** The CARD RDY LED (2) keeps flashing until the SD memory card is ready to be used. Once the CARD RDY LED (2) turns ON, the SD memory card can be used.

### ■ Removal procedure



- 1.** Press the SD memory card lock switch (1) for one second or longer to stop the SD memory card access.
- 2.** The CARD RDY LED (2) is flashing while stopping the file access, and it turns OFF once the processing is completed.
- 3.** Push the SD memory card (3) in once, and pull it out straight.

## Considerations for using an SD memory card

The following shows the considerations for using an SD memory card.

### ■Creating files/folders on an SD memory card

Do not insert an SD memory card used for the recording function in a device such as a personal computer to directly edit or create files and folders.

Otherwise, the function may not run properly.

### ■SD memory card to be used

Use a supported SD memory card. (☞ Page 31 Supported SD memory cards (sold separately))

If an unsupported 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 (2450H) occurs in a CPU module).

### ■Turning the power OFF or resetting a CPU module

When turning the power OFF or resetting a CPU module while data is being written to an SD memory card, the writing is not completed and the file may be corrupted.

Turn the power OFF or reset a CPU module after stopping file access. For the important data, create backups periodically.

If an SD memory card is damaged due to turning the power OFF or resetting a CPU module during writing, format the SD memory card.

### ■Removing or replacing an SD memory card

Make sure to stop file access before removing or replacing an SD memory card.

Otherwise, the data in the SD memory card being accessed may be corrupted or a file system failure may occur.

In addition, the status of the SD memory card may be falsely recognized by a recorder module.

If an error occurs in the SD memory card, refer to the following:

☞ MELSEC iQ-R System Recorder User's Manual (Application)

### ■Formatting an SD memory card

For formatting an SD memory card, use the SD memory card format function of a recorder module. (☞ MELSEC iQ-R System Recorder User's Manual (Application))

Do not reset a CPU module or turn the power OFF while an SD memory card is being formatted.

### ■SD memory card life

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

When the write protect switch of an SD memory card is locked (write protected), no file can be written.

Make sure that the write protect switch is unlocked (write allowed).

# Ethernet cable

The following shows the Ethernet cables that can be connected to a recorder module.

## Connectable Ethernet (twisted pair) cables (sold separately)

The Ethernet cables compliant with IEEE802.3 1000BASE-T/100BASE-TX/10BASE-T standards can be used.

Type	Unshielded twisted pair cable (UTP cable) Shielded twisted pair cable (STP cable)	
	Straight cable	Crossover cable
1000 Mbps	Category 5e or higher	Category 5e
100 Mbps	Category 5 or higher	Category 5 or 5e
10 Mbps	Category 3 or higher	Category 3 to 5e

## Wiring of an Ethernet Cable

The following shows the methods for connecting and disconnecting an Ethernet cable.

### ■ Connection procedure

1. Check the insertion direction, and insert an Ethernet cable into the Ethernet port on a recorder module until it clicks.
2. Lightly pull the cable to check that it is securely connected.
3. Check the SPEED LED lighting status of the Ethernet port connected with the Ethernet cable. (📖 Page 27 Part names)

#### Point

- The time required from when an Ethernet cable is connected to when the SPEED LED turns ON may vary. Normally, it turns ON in a few seconds. However, it may take longer because the linking-up processing is repeated due to the device condition on the line.
- When the SPEED LED does not turn ON, check if the connected Ethernet cable has any failure.
- The SPEED LED turns OFF when connecting with an Ethernet device on the network the data transmission speed of which is 10 Mbps. Check the communication status by performing the PING test etc.

### ■ Disconnection procedure

1. Pull out the Ethernet cable while pinching a clip on the connector.

### ■ Considerations for 1000BASE-T/100BASE-TX connection

A communication error may occur due to the high frequency noise generated from a device other than a programmable controller depending on the installation environment.

The following shows the measures to be taken on the module side to prevent the influence of high frequency noise.

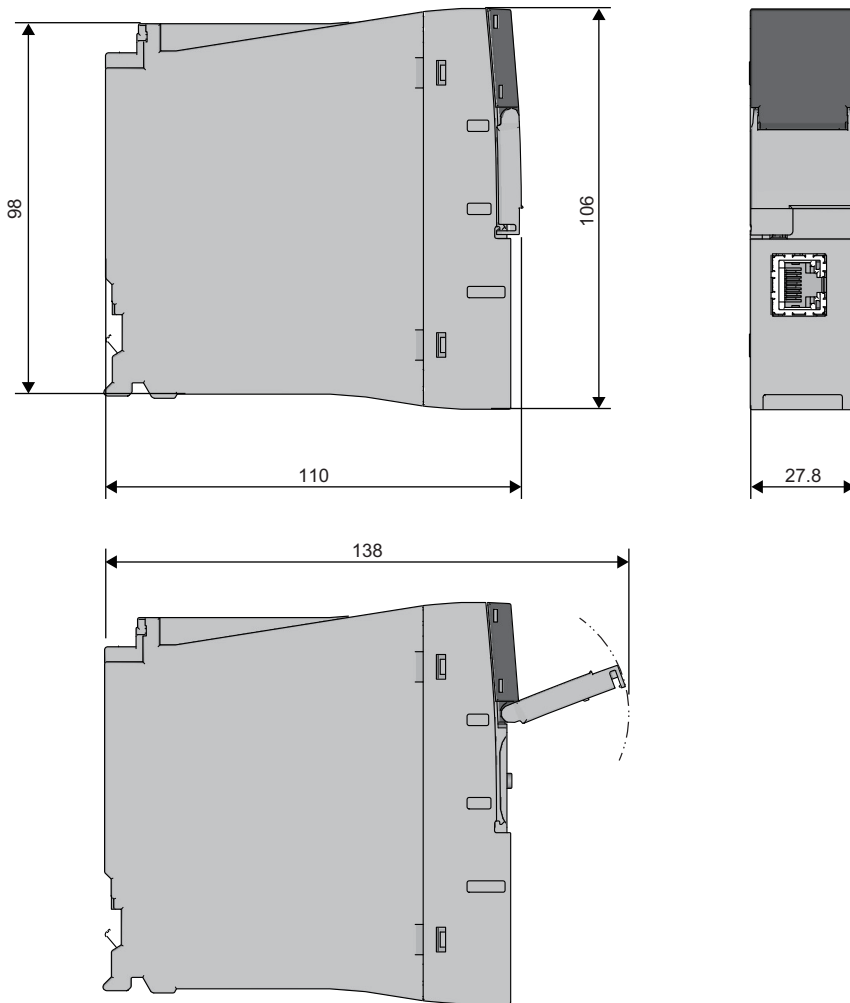
- Do not bundle a cable with the main circuit or power cable, or do not place it near those lines.
- Place cables in a duct.
- In the environment where a cable is susceptible to noise, use the STP cable.
- Change a target device connected with a recorder module to one which communicates at 10 Mbps, and decrease the data transmission speed.

## Wiring considerations

- To establish a reliable system and fully use the functions of a module, a wiring that does not easily receive the effects of noise is required.
- Sufficient safety measures must be taken when constructing the IEEE802.3 1000BASE-T/100BASE-TX/10BASE-T networks.  
Consult a specialist when handling the terminal processing of connection cable, installing trunk cables, etc.
- Use a cable compliant with IEEE802.3 1000BASE-T/100BASE-TX/10BASE-T standards. (☞ Page 35 Connectable Ethernet (twisted pair) cables (sold separately))
- For the connection on the target device side, check the specifications of the target device in advance.
- Place an Ethernet cable in a duct or clamp it.  
Otherwise, the dangling cable may swing or inadvertently be pulled. It may cause a module or the cable to damage or malfunction due to poor contact.
- Protect the core wire in the connector of a cable or the port of a module to prevent touching by hand and sticking dirt or dust.  
If any oil from your hand, dirt or dust sticks the core wire, it may increase the transmission loss and fail a data link.
- Check if an Ethernet cable used is disconnected, a short-circuit is generated, and the connector is properly connected.
- Do not use an Ethernet cable with a broken clip.  
Doing so may cause the unplugged cable or malfunction.
- Hold the connector of an Ethernet cable when connecting or disconnecting it.  
If the cable is pulled while being connected to a module, it may cause the module or Ethernet cable to damage or malfunction due to poor contact.
- Attach the provided connector cover to protect an unused Ethernet port from dirt and dust.
- The maximum segment length of an Ethernet cable is 100 m. However, the length may be shorter depending on the use environment of the cable. For details, contact the manufacturer of the cable used.
- The bend radius of an Ethernet cable is limited. For details, check the specifications of the Ethernet cable used.

## External dimensions

The following figures show the external dimensions of a recorder module.



(Unit: mm)

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# MEMO

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# MEMO

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# MEMO

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# REVISIONS

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

Revision date	*Manual number	Description
June 2020	SH(NA)-082279ENG-A	First edition
June 2020	SH(NA)-082279ENG-B	Partial correction

Japanese manual number: SH-082278-A

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# WARRANTY

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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.

# TRADEMARKS

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MODEL: SYSRECORDER-U-IN-E

MODEL CODE: 13JX3A

## **mitsubishi electric corporation**

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