

Programmable Controller

**BOX Data Logger  
User's Manual**

---

-NZ2DL  
-SW1DNN-NLUTL-E(BOX Data Logger Configuration 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.

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

---

 <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.

---

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

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

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

## [Design precautions]

---

### **WARNING**

---

- Configure safety circuits external to BOX Data Logger to ensure that the entire system operates safely even when a fault occurs in the external power supply or BOX Data Logger. Failure to do so may result in an accident due to an incorrect output or malfunction. The output may remain ON or OFF due to a failure of the output circuit. Configure an external circuit for monitoring output signals that could cause a serious accident.
  - In an error 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.
-

## [Design precautions]

---

### **CAUTION**

- BOX Data Logger must be installed in a control panel. To connect the power supply part of BOX Data Logger in a control panel, relay a terminal block.
  - Do not bundle Ethernet cable, RS-232 cable, and UPS connect/external trigger input/I/O cable for error output with the main circuit and the power cables, and do not install them close to each other. Keep a distance of 100 mm (3.94 in.) or more between them. Failure to do so may result in malfunction due to noise.
  - During control of lamp load, heater, solenoid valve using the error output function, a large current (approximately ten times greater than normal) may flow when the output is turned ON. Therefore, design the system that has a sufficient current rating.
  - The time to start BOX Data Logger operation after powering BOX Data Logger ON, or power BOX Data Logger ON without inserting a CompactFlash card and then insert a CompactFlash card with setting files to BOX Data Logger varies depending on the system configuration and CompactFlash card capacity, etc. Design circuits so that the entire system will always operate safely, regardless of the time.
  - During registering each setting, do not power OFF or reset BOX Data Logger. Otherwise, data in the CompactFlash card will be undefined, therefore, resetting and re-registering data will be required. This may also cause BOX Data Logger failure or malfunctions.
- 

## [Security Precautions]

---

### **WARNING**

- To maintain the security (confidentiality, integrity, and availability) of the BOX Data Logger 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**

- Before installing BOX Data Logger, be sure to shut off all phases of external power supply used by BOX Data Logger. Failure to do so may cause product damage.
-

## [Installation precautions]

---

### **CAUTION**

- Use BOX Data Logger in an environment that meets the general specifications in the user's manual. Using BOX Data Logger in any other operating environments may cause electric shocks, fires or malfunctions, or may damage or degrade the module.
  - When installing BOX Data Logger, be sure to shut off all phases of external power supply used by BOX Data Logger.  
Failure to do so may cause product damage.
  - Do not directly touch any conductive part or electronic component of BOX Data Logger.  
Doing so may cause malfunction or failure of BOX Data Logger.
  - Tighten the screws of BOX Data Logger with the specified torque.  
If the screws are loose, it may cause BOX Data Logger to short-circuit, malfunction or fall off.  
If the screws are tightened excessively, it may damage the screws or BOX Data Logger and cause short-circuit, malfunction or fall off.
  - Prevent foreign matter such as dust or wire chips from entering BOX Data Logger.  
Such foreign matter may cause fire, failure, or malfunctions.
  - A protective sheet is pasted on the upper part of BOX Data Logger in order to prevent foreign matter such as wire chips to get inside BOX Data Logger while installing and wiring.  
Do not remove this protective sheet during installation and wiring work.  
However, be sure to remove the protective sheet before operating BOX Data Logger to allow heat radiation during operation.
  - Push a CompactFlash card into the CompactFlash card slot and insert it securely.  
After installing the CompactFlash card, check that it is inserted securely.  
Failure to do so may cause malfunctions due to poor contact.
- 

## [Wiring precautions]

---

### **WARNING**

- Before wiring, be sure to shut off all phases of external power supply used by BOX Data Logger.  
Failure to do so may cause product damage.
-

## [Wiring precautions]

---

### CAUTION

- Individually ground the FG and LG terminals of BOX Data Logger with a ground resistance of 100Ω or less. Failure to do so may result in electric shock or malfunction.
  - A protective sheet is pasted on the upper part of BOX Data Logger in order to prevent foreign matter such as wire chips to get inside BOX Data Logger while installing and wiring.  
Do not remove this protective sheet during installation and wiring work.  
However, be sure to remove it before operating the system to allow heat radiation during operation.
  - Check the rated voltage and terminal layout before wiring to BOX Data Logger, and connect the cables correctly. Connecting a power supply with a different voltage rating or incorrect wiring may cause a fire or failure.
  - Before connecting Ethernet cable, RS-232 cable, UPS connect/external trigger input/I/O cable for error output, or power cable, confirm that the type of interface to be connected is correct. Connecting a wrong interface or incorrect wiring causes failure of the external equipment or BOX Data Logger.
  - Ethernet cables, RS-232 cables, UPS connection/external trigger input/I/O cables for error output to be connected to BOX Data Logger must be correctly crimped, pressed, or soldered with the specified tools by using a crimping terminal or a connector in conformance to BOX Data Logger specification. Incomplete connection may cause short-circuit, fire, or malfunction.  
Do not use spade solderless terminals as power cable solderless terminals. Doing so may cause fall off if the screws get loose, resulting in failure.
  - Tighten the screws using the specified torque.  
If the screws are loose, it may cause BOX Data Logger to short-circuit, malfunction or fall off.  
If the screws are tightened excessively, it may damage the screws or BOX Data Logger and cause short-circuit, malfunction or fall off.
  - Connect Ethernet cable, RS-232 cable, UPS connection/external trigger input/I/O cable for error output, and power cable to BOX Data Logger securely. Failure to do so may cause malfunction.
  - Make sure to place Ethernet cable, RS-232 cable, UPS connect/external trigger input/I/O cable for error output, and power cable to be connected to BOX Data Logger in a duct or fasten them using a clamp.  
If the cables are not placed in a duct or fastened with a clamp, their positions may be unstable or moved, and they may be pulled inadvertently. This may damage BOX Data Logger and the cables or cause the module to malfunction because of faulty cable connections.
  - When disconnecting Ethernet cables, RS-232 cable, UPS connection/external trigger input/I/O cable for error output, and power cables from BOX Data Logger, do not pull the cables by hand.  
For Ethernet cables and RS-232 cable, hold the connector part connected to BOX Data Logger and release a latch to remove the cable.  
For UPS connection/external trigger input/I/O cable for error output, and power cable, inset the dedicated tool in the spring cage and loosen the spring to remove the cable.  
Before removing the power cables connected to the terminal blocks, loosen the terminal screws.  
Pulling the cable connected to BOX Data Logger may result in malfunction or damage to BOX Data Logger or cable.
-

## [Startup and maintenance precautions]

---

### **WARNING**

- Do not touch any terminals, other conductive parts or electronics during energization. Doing so may cause electric shock, malfunction or failure of BOX Data Logger.
  - Correctly connect the battery connector.  
Do not charge, disassemble, heat, short-circuit, solder, attach any liquid or apply strong shock to the battery, or throw it into the fire.  
Doing so may cause the battery to produce heat, explode, or ignite, resulting in injury and fire.
  - Shut off the external power supply (all phases) used in BOX Data Logger before cleaning BOX Data Logger, or retightening the fixing screws of BOX Data Logger or power terminal screws.  
Failure to do so may damage BOX Data Logger or cause failure or malfunction.  
Tighten the screws using the specified torque.  
If the screws are loose, it may cause BOX Data Logger to short-circuit, malfunction or fall off.  
If the screws are tightened excessively, it may damage the screws or BOX Data Logger and cause short-circuit, malfunction or fall off.
- 

## [Startup and maintenance precautions]

---

### **CAUTION**

- Start up and maintenance of BOX Data Logger must be performed by qualified maintenance personnel with knowledge of protection against electric shock. Lock the control panel in order not to operate by the operator except the maintenance personnel.
  - Before handling BOX Data Logger, touch a grounded metal object to discharge the static electricity from your body. Failure to do so may cause a failure or malfunction of BOX Data Logger.
  - Do not drop or apply shock to the battery to be installed in BOX Data Logger.  
Doing so may damage the battery, causing battery fluid leakage inside the battery. If the battery is dropped or any shock is applied to it, do not use and dispose of it.
  - Do not disassemble or transform BOX Data Logger.  
Doing so may cause a failure, malfunctions, personal injuries, or a fire.
- 

## [Operating precautions]

---

### **WARNING**

- Be sure to close the terminal cover while BOX Data Logger is in operation. Failure to do so may result in electric shock.
  - Do not touch the terminals, any conductive part, or electronic component of BOX Data Logger directly while applying a current.  
Doing so may cause malfunction or failure of BOX Data Logger.
- 

## [Operating precautions]

---

### **CAUTION**

- Use any radio communication device such as a cellular phone or PHS (Personal Handy-phone System) more than 25cm away in all directions from BOX Data Logger. Failure to do so may cause malfunction.
-

## [Transportation Precautions]

---

### CAUTION

- The lithium battery (Q6BAT) is mounted on BOX Data Logger. When transporting BOX Data Loggers, make sure to treat them based on the transport regulations. Products are packed properly in compliance with the transportation regulations prior to shipment. When repacking any of the unpacked products to transport it to another location, make sure to observe the IATA Dangerous Goods Regulations, IMDG Code, and other local transportation regulations. The battery (Q6BAT) of BOX Data Logger is a lithium battery, and it classified as non-dangerous goods. For details, please consult your transportation company.
- 

## [Disposal precautions]

---

### CAUTION

- Dispose of BOX Data Logger as an industrial waste.
- When disposing of batteries, separate them from other wastes according to the local regulations. In EU member states, there is a separate collection system for waste batteries. Dispose of batteries properly at the local community waste collection/recycling center. The following symbol is printed on the packaging of batteries used for BOX Data Logger. The symbol is specified in the new EU Battery Directive (2006/66/EC) Article 20 "Information for end-users" and Annex II. The symbol indicates that batteries need to be disposed of separately from other wastes.



Note: This symbol is for EU member states only.

---



# 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 considerations in the order listed below.

- Network connection considerations
- Performance/specification considerations
- Considerations for Data logging function, Event logging function, and Report function
- Considerations for other functions
- Considerations when accessing BOX Data Logger
- Security considerations
- Considerations for CompactFlash card
- Considerations for the Recipe function

## Network connection considerations

### ■Mail server and FTP server connections

When immediately powering ON after powering OFF, connections to mail servers or FTP servers may fail. Power the programmable controller OFF, wait several minutes then power it ON.

## Performance/specification considerations

### ■Programmable controller CPU sequence scan time

When using BOX Data Logger, the programmable controller CPU sequence scan time may increase. Design the system and programs considering the increase in sequence scan time of the programmable controller CPU.

### ■Network connection using Ethernet

When connecting to Ethernet network, basically configure the communication route to the access target via Ethernet (twisted pair) cables and hubs.

Note that when accessing via wireless LAN (Wi-Fi) or router, an error such as timeout or missing data occurs, and cannot be communicated properly depending on the status of the equipment (wireless LAN (Wi-Fi) or router) on the network or the access route.

### ■Considerations for time synchronization

If implementing synchronization with SNTP server time, BOX Data Logger's time is changed. When restored after communicating with the SNTP server fails, BOX Data Logger's time may be greatly changed. Since there is inaccuracy in the clock element in BOX Data Logger, the time may be moved slightly forward or backward when the time is synchronized. Since changing BOX Data Logger's time affects the data logging, event logging, and report cycles, the determination of time, and the time stamp, configure BOX Data Logger to synchronize its time as little as possible.

## Considerations for Data logging function, Event logging function, and Report function

### ■Data logging function, Event logging function, and Report function

- The Data logging function, Event logging function, and Report function of BOX Data Logger are the best effort functions. Since BOX Data Logger processing time changes according to the settings and status of other devices, it may not operate with the set data sampling interval. Run the system by fully verifying the processing time of each function when constructing it. For processing time, refer to the following chapter.

☞ Page 400 PROCESSING TIME

- If Data logging function, Event logging function, and Report function are used, they have an 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.
- If exponential format is selected for the data output format with the data logging, event logging, or report setting, rounding errors will occur in the range of the number of digits that exceed the number of digits set for the decimal part.
- If the result of the primary function transformation with the scaling function exceeds the maximum or minimum range of the specified output format, the maximum or minimum value is output in binary format. Therefore, when outputting in the binary format, errors may occur in the output values.
- E-mail transmissions/file transfers by the saved file transfer function may take a few seconds to tens of seconds depending on the network line/transmission size. Target files may be deleted before e-mail transmission/file transfer completes depending on the settings. Review the number of saved files setting and lengthen the time until the file is deleted.
- When CSV files are opened with Excel, the date column's format is displayed in Excel's default setting. Also, the following format is automatically set to the cells where the creation time of the Excel files output by the Report function and the output date/time of data logging are set. Set the cell format as necessary.

yyyy/mm/dd hh:mm:ss

- Since sampled data and report current value data are sampled asynchronously with the sequence scan, data separation may occur. If data separation must be prevented, set the number of device points sampled at one time to less than the access unit.
- When CSV files are opened with Microsoft Excel2003, all the data may not be displayed depending on the number of the data setting or number of file switching lines. In this case, open the CSV files with Microsoft Excel 2007 or later, or text editor.

### ■Data logging function

- When the number of device points to be sampled by the Trigger logging function exceeds the access units, device values sampled in another sequence scan as the one where the trigger occurred may be included in one data row. To avoid this, the number of device points that can be sampled at once should be less than the access units. For the access units, refer to the following sections.

☞ Page 531 Access Units, ☞ Page 564 Access Units

- Immediately after turning BOX Data Logger ON, if a trigger occurs before sampling the number of lines of data before the trigger, the data before the trigger may be a few lines less than the specified amount.
- When triggers continuously occur with the Trigger logging function, triggers may be discarded or the number of lines of data specified before the trigger may not be output. For operation when triggers continuously occur, refer to the following section.

☞ Page 124 Trigger logging function

## ■Report function

- Immediately after turning BOX Data Logger ON, if a creation trigger occurs when data does not exist in the Data logging file, an error occurs in BOX Data Logger. Configure and construct the system so that the creation trigger occurs after data are saved in the Data logging file.
- Report output takes time. Therefore, according to the data logging save setting, the Data logging file including the data when the creation trigger occurs, may be deleted before outputting the report as completed. In this situation, the data for the specified number of records are not output, and an error occurs in BOX Data Logger. Verify the points written in the following section when configuring and creating the system.

☞ Page 153 Creation Trigger

- When creation triggers continuously occur, they may not be detected. For operation when the creation trigger continuously occurs, refer to the following section.

☞ Page 153 Creation Trigger

- When using Microsoft Excel 2003, Microsoft Excel 2007, Microsoft Excel 2010 (32-bit version), Microsoft Excel 2013 (32-bit version), or Microsoft Excel 2016 (32-bit version), install Visual Basic® for Applications (abbreviated as VBA below). If VBA is not installed, the error message below is displayed when the Layout setting screen is started, and the layout settings cannot be configured.

"This workbook has lost its VBA Project, ActiveX Controls and any other programmability-related features."

- The save format of the Report file output with the Report function is the xls format. A part of the functions added from Microsoft Excel 2007 and later cannot be used.
- One of the following operating systems is required with installing Microsoft Excel 2010 (32-bit version). Microsoft Excel 2010 (64-bit version) is not supported.  
Windows XP Service Pack 3, Windows Vista Service Pack 1 or later, or Windows 7 or later
- For Microsoft Excel 2013 (32-bit version), Windows 7 or later is required. Microsoft Excel 2013 (64-bit version) is not supported.
- When using Microsoft Excel 2016 (32-bit version), Windows 7 Service Pack 1 or Windows 8 or later is required. Microsoft Excel 2016 (64-bit version) is not supported.

## Considerations for other functions

### ■Access target CPU setting

- When rewriting Configuration tool settings, powering OFF → ON, or resetting BOX Data Logger, BOX Data Logger prepares to communicate with the access target CPU. Therefore, if a large number of access target CPUs are set, several minutes are required for this preparation.

For access target CPU setting, refer to the following section.

☞ Page 235 Access target CPU setting

### ■Time synchronization function

- If implementing synchronization with SNTP server time, BOX Data Logger's time is changed. When restored after communicating with the SNTP server fails, BOX Data Logger's time may be greatly changed.
- Since there is inaccuracy in the clock element in BOX Data Logger, the time may be moved slightly forward or backward when the time is synchronized. Since changing BOX Data Logger's time affects the data logging, event logging, and report cycles, the determination of time, and the time stamp, configure the module to synchronize its time as little as possible. For the time synchronization function, refer to the following section.

☞ Page 180 Time Synchronization Function

## Considerations when accessing BOX Data Logger

### ■ 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 (☞ Page 202 Operating procedure up to online startup).

### ■ FTP server function

- Because of FTP client side application restrictions, if the user name or password is input incorrectly, end the FTP operation and redo the FTP connection from the beginning. FTP may not operate correctly by reentering the correct user name or password with the 'user' FTP command.
- The maximum number of simultaneous connections to the FTP server is 10. However, depending on the FTP client, it may make multiple simultaneous connections, so an FTP client may not be able to login even if 10 clients are not connected. In this situation, shutdown all the FTP clients, then restart and connect them.
- If transferring many files at once with FTP, a 426 (Data connection error) may occur. In this situation, split the files up over multiple transfers and retransfer them.
- When a web browser is used for FTP access, the user authentication screen may not be displayed due to the specification of the web browser. In this case, enter the address of BOX Data Logger in the following format.  
ftp://<user name>:<password>@<the address of BOX Data Logger or host name>/
- When a web browser is used for FTP access, Data logging files, Event logging files, Report files, and Recipe files may not be opened directly due to the specification of the web browser. Open those files after saving them to a personal computer.
- When a web browser is used for FTP access, due to the specification of the web browser, errors may not be displayed even if the transfer failed when files are transferred to the CompactFlash card which does not have enough free space. Update the display and check if the files are transferred normally.

### ■ Connecting GX LogViewer

- Up to two GX LogViewers can be accessed to BOX Data Logger simultaneously.

## Security considerations

- Although BOX Data Logger supports basic authentication (account setting) using user names and passwords, it does not completely protect the system from illegal access. Avoid accounts (user name, password) consisting of simple alphanumeric characters only, and include some non-alphanumeric characters (such as \$, &, and ?) to create a complicated user name and password.

## Considerations for CompactFlash card

### ■CompactFlash card file/directory names

- Do not create files (excluding operating files and recipe files) or folders on the CompactFlash card with a personal computer. If files or folders are created on the CompactFlash card with a personal computer, they may be deleted.
- Do not store files with a file name containing unusable characters such as Japanese characters to CompactFlash card. For usable characters in file names, refer to the following section.

☞ Page 594 Characters usable in file names, folder (directory) names

### ■CompactFlash card to be used

- Use CompactFlash cards listed in Page 54 CompactFlash card (sold separately, required). If any other CompactFlash cards are used, a failure such as a data corruption on a CompactFlash card or a system shutdown may occur during an operation.

### ■When turning power OFF

- When BOX Data Logger is powered OFF or reset while writing data to a CompactFlash card, the processing to write data to a CompactFlash card may not be completed. Normally in this situation, the power can be turned OFF without stopping the file access since files are automatically recovered by BOX Data Logger when powering ON again. However, files may not be recovered completely by performing the above operation. If any problem arises, power OFF BOX Data Logger after stopping the file access. For the important data, create backups by performing a backup operation.

☞ Page 650 Stopping file access

### ■When ejecting or replacing a CompactFlash card

- Be sure to stop file access before ejecting or replacing a CompactFlash card.  
☞ Page 646 Operation when replacing CompactFlash card
- Not following the procedures shown in Page 646 Operation when replacing CompactFlash card may cause a loss of logging data during processing, corruption of data on the CompactFlash card while accessing, or a file system error.
- If an error occurs on the CompactFlash card, refer to the following section.  
☞ Page 438 Troubleshooting related to CompactFlash cards
- BOX Data Logger settings are saved to a CompactFlash card. Therefore, BOX Data Logger's IP address returns to the initial status (CH1:192.168.2.20, CH2:192.168.3.21) without a CompactFlash card inserted in BOX Data Logger or when turning the power OFF/ON or resetting BOX Data Logger without the settings written to the CompactFlash card. When necessary, read the current settings before ejecting the CompactFlash card and after replacing the card, promptly write those settings to the new card. However, if the Logging continuance function is active, the setting before replacing will be saved without setting written to the replaced CompactFlash card.

### ■CompactFlash card capacity

- Access speed to a CompactFlash card is affected by the amount of saved files. In particular, access speed becomes extremely slow when saving files up to the capacity limit of the CompactFlash card. Use the CompactFlash card maintaining 10% or more free space on the card.
- A minimum size of the occupied file on the hard disk varies depending on a CompactFlash card capacity. Therefore, the actual file size and the occupied file size on the hard disk may differ.

### ■ CompactFlash card diagnostic time

- BOX Data Logger performs a diagnostics (file recovery, etc.) of the inserted CompactFlash card contents at the times listed below.
  - When power OFF → ON
  - Inserting a CompactFlash card when powered ON
- The CompactFlash card diagnostic time takes longer when there are more files on the card. 100 files takes approximately 5 seconds, 1000 files takes approximately 10 seconds.
- When many files are saved on a CompactFlash card, the following operations require longer time. Delete unnecessary files.
  - CompactFlash card status (system information (S2)+0 bit1) startup time·Time for BOX Data Logger to start processing (BOX Data Logger READY (system information (S2)+0 bit0) and BOX Data Logger operating status (system information (S2)+0 bit5) startup time)

### ■ CompactFlash card format

- To format a CompactFlash card, use the format function of BOX Data Logger.
  - ☞ Page 388 CompactFlash card diagnostics Note that, since a CompactFlash card is formatted when shipped, it is not necessary to format it again.
- Do not format a CompactFlash card using the Windows format function.
- Do not reset BOX Data Logger or turn the power OFF when formatting a CompactFlash card. The module may not be able to recognize the CompactFlash card.
- BOX Data Logger settings are saved to the CompactFlash card. Therefore, all settings are lost when formatting the card. When necessary, read the current settings before formatting and promptly write those settings after formatting. BOX Data Logger's IP address returns to the initial status (CH1:192.168.2.20, CH2:192.168.3.21) when turning the power OFF/ON or resetting BOX Data Logger without writing the settings to the CompactFlash card.

### ■ CompactFlash card life duration (a limit for writing data)

- A CompactFlash card has a life duration (a limit for writing data). For details, refer to the following section.
  - ☞ Page 653 CompactFlash card life duration

## Considerations for the Recipe function

### ■ Recipe files

- When a Recipe file to which 253 or more records are set is opened in Microsoft Excel 2003, the entire file cannot be displayed. Edit the data using Microsoft Excel 2007 or later, text editor, or the "Recipe Editor" screen.
- For Recipe file names, use the characters usable in file names and folder (directory) names only (☞ Page 594 Characters usable in file names, folder (directory) names).

### ■ Recipe execution operation

- Before performing the Recipe Execution Operation function, write BOX Data Logger settings using Configuration tool, and set BOX Data Logger operating status to "In operation". BOX Data Logger operating status can be checked on the "BOX Data Logger diagnostics" screen.
  - ☞ Page 381 BOX Data Logger diagnostics
- Do not power OFF or reset the BOX Data Logger during executing the Recipe Execution Operation function. The Recipe file being edited may be damaged. Power OFF or reset BOX Data Logger after confirming the completion of the Recipe Execution Operation function.

# INTRODUCTION

---

Thank you for purchasing NZ2DL BOX Data Logger (hereinafter, called BOX Data Logger).

Before using the product, please read this manual and the relevant manuals carefully and develop familiarity with the functions and performance of BOX Data Logger to handle the product correctly.

Note that the menu names and operating procedures may differ depending on an operating system in use and its version.

When reading this manual, replace the names and procedures with the applicable ones as necessary.



# CONTENTS

SAFETY PRECAUTIONS .....	1
CONDITIONS OF USE FOR THE PRODUCT .....	7
CONSIDERATIONS FOR USE .....	8
INTRODUCTION .....	14
RELEVANT MANUALS .....	24
TERMS .....	25
PACKING LIST .....	27

## PART 1 ABOUT BOX Data Logger

<b>CHAPTER 1 OVERVIEW</b> .....	<b>30</b>
1.1 Features .....	30
1.2 Processing Overview .....	41
1.3 BOX Data Logger Software Configuration .....	42
<b>CHAPTER 2 SYSTEM CONFIGURATION</b> .....	<b>43</b>
2.1 Overall System Configuration .....	43
System configuration for initial setup, maintenance, and inspection .....	44
System Configuration Examples .....	45
System configuration during operation .....	47
Considerations when connecting BOX Data Logger and configuration/display personal computer directly .....	53
2.2 Equipment Configuration .....	54
2.3 Operating Environment .....	56
Operating environment for configuration personal computer .....	56
2.4 How to Check the Function Version and Serial Number .....	58
<b>CHAPTER 3 SPECIFICATIONS</b> .....	<b>60</b>
3.1 General Specifications .....	60
3.2 Performance Specifications .....	61
3.3 Internal device .....	69
3.4 Directory Structure .....	70
3.5 CSV File Format .....	71
CSV format specification .....	71
Data logging file .....	71
Event logging file .....	75
Recipe file format .....	79
3.6 Binary File Format .....	81
Data logging file .....	81
Event logging file .....	84
3.7 Range of Values per Output Format .....	87
<b>CHAPTER 4 SETTINGS AND PROCEDURES UP TO OPERATION</b> .....	<b>88</b>
4.1 Settings and Procedures Up to Operation .....	89
Procedure to operate by installing BOX Data Logger Configuration Tool .....	89
Procedure to operate without installing BOX Data Logger Configuration Tool .....	91
Operation settings of BOX Data Logger .....	94
4.2 Parts Name .....	95

<b>4.3</b>	<b>Installation and Wiring</b> .....	<b>102</b>
	Installation environment .....	102
	Installation .....	102
	Wiring .....	105
<b>4.4</b>	<b>Hardware Self-Diagnostics Tests</b> .....	<b>113</b>
<b>4.5</b>	<b>Operations to Return BOX Data Logger to Factory Default Status</b> .....	<b>116</b>

---

**CHAPTER 5 FUNCTION LIST** **117**

---

**CHAPTER 6 DATA LOGGING FUNCTION** **120**

<b>6.1</b>	<b>Target Data</b> .....	<b>121</b>
<b>6.2</b>	<b>Sampling Target Data</b> .....	<b>122</b>
	Sampling .....	123
<b>6.3</b>	<b>Logging Types</b> .....	<b>124</b>
	Continuous logging function .....	124
	Trigger logging function .....	124
	Trigger conditions .....	128
<b>6.4</b>	<b>Data Logging Periods</b> .....	<b>131</b>
<b>6.5</b>	<b>Data Logging Files</b> .....	<b>133</b>
	Data logging file save format .....	133
	Saving Data logging files .....	133
	Data logging file save location .....	135
	Transferring Data logging files .....	135
<b>6.6</b>	<b>Missing Data</b> .....	<b>136</b>

---

**CHAPTER 7 EVENT LOGGING FUNCTION** **137**

<b>7.1</b>	<b>Events</b> .....	<b>138</b>
	Target data .....	138
	Event conditions .....	139
<b>7.2</b>	<b>Sampling Target Data</b> .....	<b>142</b>
<b>7.3</b>	<b>Event Logging Periods</b> .....	<b>143</b>
<b>7.4</b>	<b>Event Logging Files</b> .....	<b>144</b>
	Event logging file save format .....	144
	Saving Event logging files .....	144
	Event logging file save location .....	144
	Transferring Event logging files .....	144
<b>7.5</b>	<b>E-mail Notification</b> .....	<b>146</b>

---

**CHAPTER 8 REPORT FUNCTION** **147**

<b>8.1</b>	<b>Target Data</b> .....	<b>148</b>
	Target data types .....	148
	Outputting direction and order .....	150
<b>8.2</b>	<b>Sampling Creation Trigger and Current Value Data</b> .....	<b>152</b>
<b>8.3</b>	<b>Creation Trigger</b> .....	<b>153</b>
<b>8.4</b>	<b>Report Periods</b> .....	<b>154</b>
<b>8.5</b>	<b>Report Files</b> .....	<b>154</b>
	Saving Report files .....	154
	Report file save location .....	154
	Transferring Report files .....	154

<b>CHAPTER 9</b>	<b>RECIPE FUNCTION</b>	<b>155</b>
<b>9.1</b>	<b>Recipe Function Execution Procedure</b>	<b>159</b>
<b>9.2</b>	<b>Screen Configuration</b>	<b>160</b>
	Recipe Editor screen configuration	160
	Menu configuration	160
	Toolbar configuration	161
	Recipe edit area	162
<b>9.3</b>	<b>Creating Recipe Files</b>	<b>164</b>
	Starting Recipe Editor screen	164
	Creating new Recipe file	164
	Opening Recipe files	164
	Saving Recipe files	165
	Editing recipe data	165
<b>9.4</b>	<b>Transferring Recipe Files to BOX Data Logger</b>	<b>168</b>
<b>9.5</b>	<b>Executing Recipe Function</b>	<b>169</b>
	Executing recipe function using programs	169
	Executing Recipe function using Configuration tool	177
<b>CHAPTER 10</b>	<b>OTHER FUNCTIONS</b>	<b>180</b>
<b>10.1</b>	<b>Time Synchronization Function</b>	<b>180</b>
	Synchronization timing	180
	Daylight saving time function	181
<b>10.2</b>	<b>Auto Logging Function</b>	<b>182</b>
<b>10.3</b>	<b>Logging Continuance Function</b>	<b>184</b>
	Considerations for replacing CompactFlash card	184
	Difference of operation caused by new CompactFlash card setting	185
	File switching	186
	Data on replaced CompactFlash card	187
<b>10.4</b>	<b>File Accessing Function</b>	<b>189</b>
	File browser function	189
	FTP server function	190
<b>10.5</b>	<b>Access Authentication Function</b>	<b>191</b>
<b>10.6</b>	<b>FTP Transfer Function</b>	<b>192</b>
	Transfer function	192
	Resend function	193
	Transfer completion notification function	194
<b>10.7</b>	<b>E-mail Function</b>	<b>195</b>
	Transmission function	195
	Resend function	196
	Notification function	196
<b>PART 2</b>	<b>OPERATIONS OF Configuration tool</b>	
<b>CHAPTER 11</b>	<b>CONFIGURATION TOOL STARTUP</b>	<b>198</b>
<b>11.1</b>	<b>Obtaining BOX Data Logger Configuration Tool</b>	<b>198</b>
<b>11.2</b>	<b>Installation Method</b>	<b>199</b>
	Installation procedure	199
	Upgrade procedure	201
	Uninstallation procedure	201

<b>11.3</b>	<b>Starting Configuration Tool</b> .....	<b>202</b>
	Online startup .....	202
	Offline startup (starting from the Start menu) .....	207
	Starting from GX LogViewer .....	207

## **CHAPTER 12 HOW TO USE CONFIGURATION TOOL (BOX Data Logger) 208**

<b>12.1</b>	<b>Setting Operations Overview</b> .....	<b>208</b>
<b>12.2</b>	<b>Screen Configuration and Common Operations</b> .....	<b>209</b>
	Main screen configuration .....	209
	Menu configuration .....	210
	Toolbar configuration .....	212
	Operations using the edit items tree .....	213
	Status bar .....	213
	Common table operations .....	214
	Data list .....	215
	Device batch replacement .....	217
	Data setting screen .....	218
	Device settings .....	219
<b>12.3</b>	<b>Project Management</b> .....	<b>221</b>
	Creating a new project .....	221
	Opening a project .....	221
	Saving a project .....	222
	Importing settings from project file .....	223
	Exporting project to CSV file .....	225
	Exporting operating file .....	226
<b>12.4</b>	<b>Common Setting</b> .....	<b>227</b>
	Network setting .....	228
	Time synchronization setting .....	231
	Access target CPU setting .....	235
	FTP setting .....	240
	E-mail setting .....	242
	Account setting .....	245
	Logging operation setting .....	248
	CompactFlash card setting .....	250
	System information .....	252
	BOX Data Logger setup .....	257
<b>12.5</b>	<b>Data logging setting</b> .....	<b>258</b>
	Data logging setting list .....	258
	Data logging setting screen transitions .....	260
	Logging type and File format .....	262
	Sampling .....	263
	Data setting list .....	264
	Data setting .....	265
	Data batch insertion .....	268
	Period of time .....	270
	Trigger .....	274
	Trigger (Single condition) .....	275
	Trigger (compound condition) .....	278
	Number of logging lines .....	286
	CSV output .....	289

Binary output . . . . .	291
Save . . . . .	292
Finish . . . . .	304
<b>12.6 Event Logging Setting . . . . .</b>	<b>305</b>
Event logging setting list . . . . .	305
Event logging setting screen transitions . . . . .	307
File format . . . . .	309
Sampling . . . . .	310
Event setting list . . . . .	311
Event setting . . . . .	312
Event setting (single condition) . . . . .	313
Event setting (compound condition) . . . . .	316
Event batch insertion . . . . .	324
Period of time . . . . .	326
CSV output . . . . .	330
Binary output . . . . .	331
Save . . . . .	332
E-mail Notice . . . . .	337
Finish . . . . .	339
<b>12.7 Report Setting . . . . .</b>	<b>340</b>
Report setting list . . . . .	340
Report setting screen transitions . . . . .	342
Sampling . . . . .	344
Layout setting list . . . . .	345
Layout setting . . . . .	347
Creation trigger . . . . .	363
Creation trigger (Single condition) . . . . .	364
Creation trigger (Compound condition) . . . . .	366
Period of time . . . . .	368
Save . . . . .	373
Finish . . . . .	376
<b>CHAPTER 13 WRITING/READING/VERIFYING SETTING DATA . . . . .</b>	<b>377</b>
<hr/>	
<b>13.1 Transfer Setup . . . . .</b>	<b>377</b>
<b>13.2 Searching BOX Data Logger . . . . .</b>	<b>378</b>
<b>13.3 Writing Data . . . . .</b>	<b>379</b>
<b>13.4 Reading Data . . . . .</b>	<b>379</b>
<b>13.5 Verifying Data . . . . .</b>	<b>379</b>
<b>CHAPTER 14 CONFIRMING BOX Data Logger OPERATION . . . . .</b>	<b>380</b>
<hr/>	
<b>14.1 Diagnostics . . . . .</b>	<b>380</b>
BOX Data Logger diagnostics . . . . .	381
CPU access diagnostics . . . . .	384
FTP transfer diagnostics . . . . .	385
E-mail send diagnostics . . . . .	386
Product Information . . . . .	387
CompactFlash card diagnostics . . . . .	388
Data logging diagnostics . . . . .	390
Event logging diagnostics . . . . .	391
Report diagnostics . . . . .	392

PING Test .....	393
<b>14.2 File Browser .....</b>	<b>395</b>
<b>14.3 Displaying Product Information .....</b>	<b>397</b>
Version information .....	397
Open the user's manual .....	397

## **PART 3 PROCESSING TIME AND MAINTENANCE**

---

### **CHAPTER 15 PROCESSING TIME 400**

---

<b>15.1 Processing Time .....</b>	<b>400</b>
Trigger logging .....	401
Continuous logging .....	402
<b>15.2 Checking Processing Time .....</b>	<b>403</b>
Checking sampling process time .....	404
Checking data logging process time .....	404
Checking event logging process time .....	405
Checking report process time .....	405

### **CHAPTER 16 MAINTENANCE AND INSPECTION 406**

---

<b>16.1 Daily Inspection .....</b>	<b>406</b>
<b>16.2 Periodic Inspection .....</b>	<b>407</b>
<b>16.3 Battery Replacement .....</b>	<b>408</b>
Battery replacement procedure .....	408
Battery specifications .....	409

### **CHAPTER 17 TROUBLESHOOTING 410**

---

<b>17.1 Error Codes .....</b>	<b>411</b>
Checking error codes .....	411
<b>17.2 Error Code List .....</b>	<b>413</b>
<b>17.3 Troubleshooting by Symptom .....</b>	<b>431</b>
Troubleshooting related to LED indicators and 7-segment LED .....	431
Troubleshooting related to Data logging, Event logging, and Report functions .....	433
Troubleshooting related to Configuration tool and BOX Data Logger connection .....	435
Troubleshooting related to FTP .....	436
Troubleshooting related to e-mail .....	436
Troubleshooting related to communication between the BOX Data Logger and access target CPU .....	436
Troubleshooting related to time synchronization function .....	437
Troubleshooting related to CompactFlash cards .....	438
Troubleshooting related to Configuration tool .....	440
Troubleshooting related to the Recipe function .....	443
Troubleshooting related to system information .....	444

## **PART 4 CONNECTION EQUIPMENT**

---

### **CHAPTER 18 MITSUBISHI PROGRAMMABLE CONTROLLER CONNECTIONS 448**

---

<b>18.1 Settable Device Range .....</b>	<b>448</b>
MELSEC-Q .....	449
MELSEC-L .....	450
MELSEC-QnA .....	451

MELSEC-A	452
MELSEC-FX	453
BOX Data Logger internal device	453
<b>18.2 CPU direct connection</b>	<b>454</b>
Connectable model list	454
System configuration	457
Settings for BOX Data Logger	462
Considerations	466
<b>18.3 Computer Link Connection</b>	<b>468</b>
Connectable model list	468
System Configuration	473
Settings for BOX Data Logger	475
Settings for programmable controller	479
Considerations	488
<b>18.4 Ethernet Connection</b>	<b>489</b>
Connectable model list	489
System configuration	494
Settings for BOX Data Logger	498
Setting for programmable controller	502
Considerations	529
<b>18.5 Access Units</b>	<b>531</b>
<b>CHAPTER 19 CONNECTION TO OMRON PROGRAMMABLE CONTROLLER</b>	<b>535</b>
<b>19.1 Settable Device Range</b>	<b>535</b>
OMRON programmable controller (OMRON SYSMAC)	536
OMRON programmable controller (OMRON SYSMAC CS/CJ)	537
BOX Data Logger internal device	537
<b>19.2 Serial Connection</b>	<b>538</b>
Connectable model list	538
System configuration	539
Settings for BOX Data Logger	543
Settings for programmable controller	545
<b>19.3 Ethernet Connection</b>	<b>558</b>
Connectable model list	558
System configuration	558
Settings for BOX Data Logger	559
Settings for programmable controller	562
Considerations	563
<b>19.4 Access Units</b>	<b>564</b>
<b>CHAPTER 20 CONNECTION TO SIEMENS PROGRAMMABLE CONTROLLER</b>	<b>566</b>
<b>20.1 Settable Device Range</b>	<b>566</b>
SIEMENS programmable controller (SIMATIC S7-200 (Serial))	569
SIEMENS programmable controller (SIMATIC S7-300/400 (Serial))	570
SIEMENS programmable controller (SIMATIC S7-200/300/400/1200 (Ethernet))	571
BOX Data Logger internal device	571
<b>20.2 Serial Connection</b>	<b>572</b>
Connectable model list	572
System configuration	572
Settings for BOX Data Logger	573

Settings for programmable controller .....	576
<b>20.3 Ethernet Connection .....</b>	<b>578</b>
Connectable model list .....	578
System configuration .....	578
Settings for BOX Data Logger .....	579
Settings for programmable controller .....	581
Considerations .....	582
<b>20.4 Access Units .....</b>	<b>583</b>
<b>CHAPTER 21 CONNECTION TO ROCKWELL PROGRAMMABLE CONTROLLER .....</b>	<b>584</b>
<hr/>	
<b>21.1 Settable Device Range .....</b>	<b>584</b>
Rockwell programmable controller .....	584
BOX Data Logger internal device .....	584
<b>21.2 Ethernet Connection .....</b>	<b>585</b>
Connectable model list .....	585
System configuration .....	585
Settings for BOX Data Logger .....	586
Settings for programmable controller .....	588
Considerations .....	589
Restrictions .....	589
<b>APPENDIX .....</b>	<b>590</b>
<hr/>	
<b>Appendix 1 External Dimensions .....</b>	<b>590</b>
<b>Appendix 2 PING Test .....</b>	<b>591</b>
<b>Appendix 3 Usable Characters .....</b>	<b>592</b>
Characters usable in Configuration tool .....	592
Characters usable in file names, folder (directory) names .....	594
Characters usable in output file .....	594
<b>Appendix 4 Numerical Type Comparison Accuracy .....</b>	<b>595</b>
<b>Appendix 5 Supported FTP Command .....</b>	<b>596</b>
<b>Appendix 6 Setting Information CSV File Format .....</b>	<b>597</b>
<b>Appendix 7 FTP Transfer Directory Configuration .....</b>	<b>633</b>
<b>Appendix 8 EMC and Low Voltage Directives .....</b>	<b>634</b>
Measures to comply with the EMC Directive .....	634
Measures to comply with the Low Voltage Directive .....	639
<b>Appendix 9 Sampling Processes of BOX Data Logger .....</b>	<b>640</b>
Data changes between data sampling processes .....	640
Detecting data condition establishment .....	640
<b>Appendix 10 CompactFlash Card .....</b>	<b>642</b>
CompactFlash card specifications .....	642
CompactFlash card part names .....	642
Considerations for using CompactFlash card .....	643
Operations for inserting CompactFlash card .....	645
Operation when replacing CompactFlash card .....	646
CompactFlash card life duration .....	653
<b>Appendix 11 Functions Added/Changed Since Previous Versions .....</b>	<b>657</b>
Added functions .....	657
<b>Appendix 12 Considerations When Replacing Older Version of BOX Data Logger .....</b>	<b>658</b>
Deleting temporary internet files .....	658



**INDEX**

**660**

---

REVISIONS .....	.662
WARRANTY .....	.663
TRADEMARKS .....	.664
COPYRIGHTS .....	.664

# RELEVANT MANUALS

The manuals related to this product are shown below.  
Refer to the following tables when ordering required manuals.

User's manual for CPU module	
Manual name [Manual number]	Description
QCPU User's Manual (Hardware Design, Maintenance and Inspection) [SH-080483ENG]	Specifications of the hardware (CPU modules, power supply modules, base units, batteries, and memory cards), system maintenance and inspection, and troubleshooting
Qn(H)/QnPH/QnPRHCPU User's Manual (Function Explanation, Program Fundamentals) [SH-080808ENG]	Programming methods, devices, and functions of Qn(H)/QnPH/QnPRHCPU module
QnUCPU User's Manual (Function Explanation, Program Fundamentals) [SH-080807ENG]	Functions, programming, and devices of a QnUCPU module
MELSEC-L CPU Module User's Manual (Function Explanation, Program Fundamentals) [SH-080889ENG]	Functions, programming, and devices of an LCPU module
C Controller Module User's Manual (Hardware Design, Function Explanation) [SH-080766ENG]	Functions and programming of a C Controller module (Q06CCPU-V, Q12DCCPU-V)
MELSEC-Q C Controller Module User's Manual [SH-081130ENG]	Functions and programming of a C Controller module (Q24DHCCPU-V, Q24DHCCPU-VG, Q24DHCCPU-LS)
Type AnN/AnA/AnUCPU User's Manual (Hardware) [IB-66542]	Performance and power supply wiring of AnN/AnA/AnUCPU modules
Type A2A(S1)/A3ACPU User's Manual [IB-66544]	Specifications of the hardware (CPU modules, power supply modules, base units, batteries, and memory cards), system maintenance and inspection, and troubleshooting

## Operating manual

Manual name [Manual number]	Description
GX LogViewer Version 1 Operating Manual [SH-080915ENG]	System configuration, functions, and operation methods of GX LogViewer
GX Works2 Version 1 Operating Manual (Common) [SH-080779ENG]	System configuration of GX Works2 and functions common to Simple project and Structured project such as parameter settings and operation methods for the online function
GX Developer Version 8 Operating Manual [SH-080373E]	Methods for programming, printing, monitoring, and debugging in GX Developer

## Programming manual

Manual name [Manual number]	Description
MELSEC-Q/L Programming Manual (Common Instruction) [SH-080809ENG]	Details of instructions used in programming and the operation methods
Type ACPU/QCPU-A (A Mode) Programming Manual (Common Instructions) [IB-66250]	Details of instructions used in programming and the operation methods
QnACPU PROGRAMMING MANUAL (Common Instructions) [IB-66615]	Details of instructions used in programming and the operation methods
THE FX SERIES OF PROGRAMMABLE CONTROLLER PROGRAMMING MANUAL (FX0/FX0S/FX0N/FX/FX2C/ FX2N/FX2NC) PROGRAMMING MANUAL [JY992D48301]	Details of instructions used in programming and the operation methods
THE FX SERIES OF PROGRAMMABLE CONTROLLER PROGRAMMING MANUAL II (FX1S/FX1N/FX2N/FX2NC) PROGRAMMING MANUAL [JY992D88101]	Details of instructions used in programming and the operation methods
FX3S/FX3G/FX3GC/FX3U/FX3UC SERIES PROGRAMMING MANUAL - Basic & Applied Instructions Edition PROGRAMMING MANUAL [JY997D16601]	Details of instructions used in programming and the operation methods

## TERMS

Unless otherwise specified, this manual uses the following terms.

Term	Description
Account	A right to use BOX Data Logger or an ID necessary when using the module
ACPU	A generic term for A2A, A2A-S1, A3A, A2AP21/R21, A2AP21/R21-S1, A3AP21/R21, A2U, A2U-S1, A3U, A4U, A1N, A1NP21/R21, A2N, A2NP21/R21, A2NP21/R21-S1, A3N, A3NP21/R21, A2US, A2US-S1, A2USH-S1, A1S, A1SUC24-R2, A1SH, A2S, A2SH, A1SJ, A1SJ-S3, A1SJH, A0J2H, A0J2HP21/R21, A0J2H-DC24, A2C, A2CP21/R21/C24, A2CC24-PREF, A2CJ-S3, A1FX, Q02(H)-A, and Q06H-A
Auto logging function	A function to automatically start logging when a CompactFlash card with the auto logging settings written to it in advance is inserted in a running BOX Data Logger
Best effort functions	The concept of deriving maximum performance depending on the state at that time
Binary file	A file which is in non-text format and can be interpreted directly by a computer program
BOX Data Logger	An abbreviation for NZ2DL BOX Data Logger
Built-in Ethernet port CPU	A generic term for Built-in Ethernet port QCPU and Built-in Ethernet port LCPU
Built-in Ethernet port LCPU	A generic term for L02CPU, L02CPU-P, L26CPU, L26CPU-BT, and L26CPU-PBT
Built-in Ethernet port QCPU	A generic term for Q03UDECPU, Q03UDVCPU, Q04UDEHCPU, Q04UDVCPU, Q06UDEHCPU, Q06UDVCPU, Q10UDEHCPU, Q13UDEHCPU, Q13UDVCPU, Q20UDEHCPU, Q26UDEHCPU, Q26UDVCPU, Q50UDEHCPU, and Q100UDEHCPU
C Controller module	A generic term for Q12DCCPU-V, Q24DHCCPU-V, and Q24DHCCPU-LS
CompactFlash card	A storage card regulated by the "CF+ and CompactFlash Specification" issued by the CompactFlash Association, which is a memory card required for operating BOX Data Logger
CompactLogix	A generic term for the programmable controllers manufactured by Rockwell

Term	Description
Configuration Tool	An abbreviation for BOX Data Logger configuration tool (model: SW1DNN-NLUTL). This tool configures and maintains BOX Data Logger. The tool is built into BOX Data Logger.
Connection via a hub	A method of connecting BOX Data Logger and a personal computer to a local area network. BOX Data Logger's IP address must be specified for connection. More than one BOX Data Loggers can be accessed from a personal computer over a network.
ControlLogix	A generic term for the programmable controllers manufactured by Rockwell
CSV file	An abbreviation for Comma Separated Values, which is a text file that consists of comma-delimited data
Data logging file	A file in which data sampled by BOX Data Logger is saved in the format specified with Configuration tool
Data logging function	A function to log programmable controller CPU device values at the specified data sampling interval
Daylight saving time (summertime)	A system where clocks are set ahead for a specified period during summer
Device	Types of memory data in a programmable controller CPU There are devices handled in unit of bits and in unit of word.
Direct connection	A connection method using an Ethernet cable to connect BOX Data Logger and a personal computer on a 1:1 basis They can be easily connected without concerning IP address.
Ethernet communications	An abbreviation for performing communications with a programmable controller CPU using an Ethernet module, Built-in Ethernet port QCPU, or Built-in Ethernet port LCPU.
Event logging file	A file in which events sampled by BOX Data Logger is saved in the format specified with Configuration tool
Event logging function	A function to monitor sampled device values from the programmable controller CPU and log events that occur
Excel	A generic term for Microsoft Excel 2003, Microsoft Excel 2007, Microsoft Excel 2010 (32-bit version), Microsoft Excel 2013 (32-bit version), and Microsoft Excel 2016 (32-bit version)
External trigger input	Logging the ON/OFF status of the external input (such as a switch) connected to BOX Data Logger, or start data logging using the external input as a trigger.
FlexLogix	A generic term for the programmable controllers manufactured by Rockwell
FXCPU	A generic term for FX0, FX0S, FX0N, FX1, FX2, FX2C, FX1S, FX1N, FX1NC, FX2N, FX2NC, FX3G, FX3U, FX3UC, and FX3S
GX Developer	A generic product name for model names of SWnD5C-GPPW, SWnD5C-GPPW-A, SWnD5C-GPPW-V, and WnD5C-GPPW-VA (n: version 0 or later) -A indicates a multiple-license product, and -V indicates a version upgraded product.
GX LogViewer	An abbreviation for GX LogViewer Version 1 (SW1DNN-VIEWER-E)
GX Works2	An abbreviation for GX Works2 Version 1 (SWnDND-GXW2 and SWnDNC-GXW2).
Host name	A name of a computer connected to the network in order for users to easily identify
Internet Explorer	A generic term for Windows Internet Explorer 7.0, Windows Internet Explorer 8.0, Windows Internet Explorer 9.0, Windows Internet Explorer 10.0, and Windows Internet Explorer 11.0
L series-compatible E71	Another term for LJ71E71-100
LAN separation function	A function to separate the network with two Ethernet ports
LCPU	A generic term for L02SCPU, L02CPU, L02CPU-P, L02SCPU-P, L06CPU, L06CPU-P, L26CPU, L26CPU-P, L26CPU-BT, and L26CPU-PBT
Logging continuance function	A function to continue logging without stopping logging when replacing the CompactFlash card
Logging file	A generic term for Data logging file and Event logging file
Motion CPU	A generic term for Q172CPU, Q173CPU, Q172CPUN, Q172HCPU, Q173CPUN, Q173HCPU, Q172DCPU, Q173DCPU, Q172DCPU-S1, Q173DCPU-S1, Q170MCP, Q170MSCPU, and Q170MSCPU-S1
Personal computer	A personal computer on which Windows operates
POP before SMTP	A type of authorization methods specified when sending e-mail This is a method that grants permission to use the SMTP server by accessing the specified POP3 server in advance before sending an e-mail.
Programmable controller CPU	A generic term for programmable controller manufactured by respective companies.
Programming tool	A generic term for GX Works2 and GX Developer
Q series-compatible C24	A generic term for QJ71C24, QJ71C24-R2, QJ71C24N, QJ71C24N-R2, and QJ71C24N-R4
Q series-compatible E71	A generic term for QJ71E71, QJ71E71-B2, QJ71E71-B5, and QJ71E71-100
QCPU	A generic term for Q00JCPU, Q00UJCPU, Q00CPU, Q00UCPU, Q01CPU, Q01UCPU, Q02CPU, Q02HCPU, Q02PHCPU, Q02UCPU, Q03UDCPU, Q03UDECPU, Q03UDVCP, Q04UDHCPU, Q04UDEHCPU, Q04UDVCP, Q04UDPVCP, Q06HCPU, Q06PHCPU, Q06UDHCPU, Q06UDEHCPU, Q06UDVCP, Q06UDPVCP, Q10UDHCPU, Q10UDEHCPU, Q12HCPU, Q12PHCPU, Q13UDHCPU, Q13UDEHCPU, Q13UDVCP, Q13UDPVCP, Q20UDHCPU, Q20UDEHCPU, Q25HCPU, Q25PHCPU, Q26UDHCPU, Q26UDEHCPU, Q26UDVCP, Q26UDPVCP, Q50UDEHCPU, Q100UDEHCPU
QnACPU	A generic term for Q2AS, Q2AS-S1, Q2ASH, Q2ASH-S1, Q2A, Q2A-S1, Q3A, and Q4A

Term	Description
Realtime trend graph	A graph to display the recent data sampled by BOX Data Logger is displayed with the trend graph function The data is constantly updated, and the display history from when the monitor is started to the present time can be checked.
Setting/monitoring tools for the C Controller module	A generic term for SW3PVC-CCPU-E and SW4PVC-CCPU-E
SIMATIC	A generic term for the programmable controllers manufactured by SIEMENS
SMTP-Auth	A type of authorization methods specified when sending e-mail This is a method that permits the e-mail transmission only when a user's account and password are authenticated between the SMTP server and user.
SNTP	An abbreviation for Simple Network Time Protocol A protocol for synchronizing a personal computer's time via a TCP/IP network, and a simple version of NTP. Since the SNTP protocol is included in NTP, BOX Data Logger can also synchronize time via NTP.
SYSMAC	A generic term for the programmable controllers manufactured by OMRON
Tag	A name defined for various elements of the project such as controller, data address (tag), routine, and I/O module in the entire project of the Rockwell software package (RSLogix5000).
Tag information CSV file	A file created by exporting a tag in a CSV file format with RSLogix5000.
Time zone	The standard time zones for each region of the world Each nation uses the time difference (within $\pm 12$ hours) from the time at the Greenwich Observatory in England (GMT) as the standard time. Regions using the same time difference are called a time zone. The standard time for Japan is 9 hours ahead of GMT. Depending on the country, daylight saving time is used in summer.
UPS	An abbreviation for Uninterruptible Power Supply A device that has a power supply such as a battery or generator, and provides emergency power for a computer when power failure occurs
URL	An abbreviation for Uniform Resource Locator A notation method for indicating the location of information resources (such as documents and graphics) on the Internet
Web browser	An abbreviation for the software used to view web pages
Windows 7 or later	A generic term for Windows 7, Windows 8, Windows 8.1, and Windows 10
Windows 8 or later	A generic term for Windows 8, Windows 8.1, and Windows 10
Windows Internet Explorer 8.0 or later	A generic term for Windows Internet Explorer 8.0, Windows Internet Explorer 9.0, Windows Internet Explorer 10.0, Windows, and Internet Explorer 11.0
Windows Vista or later	A generic term for Windows Vista, Windows 7, Windows 8, Windows 8.1, and Windows 10

## PACKING LIST

The products included in NZ2DL BOX Data Logger are as follows:

Model	Product name	Quantity
NZ2DL	NZ2DL BOX Data Logger	1
Bundled manual (Safety Guidelines)	IB-0800521	1
Battery	Q6BAT	1

# MEMO

---

This part explains specifications and functions of BOX Data Logger and Configuration tool.

1 OVERVIEW

---

2 SYSTEM CONFIGURATION

---

3 SPECIFICATIONS

---

4 SETTINGS AND PROCEDURES UP TO OPERATION

---

5 FUNCTION LIST

---

6 DATA LOGGING FUNCTION

---

7 EVENT LOGGING FUNCTION

---

8 REPORT FUNCTION

---

9 RECIPE FUNCTION

---

10 OTHER FUNCTIONS

---

# 1 OVERVIEW

This manual explains the specifications, procedures up to operation, functions, and troubleshooting of the BOX Data Logger. When applying the example programs introduced in this manual to an actual system, make sure to examine the applicability and confirm that it will not cause system control problems.

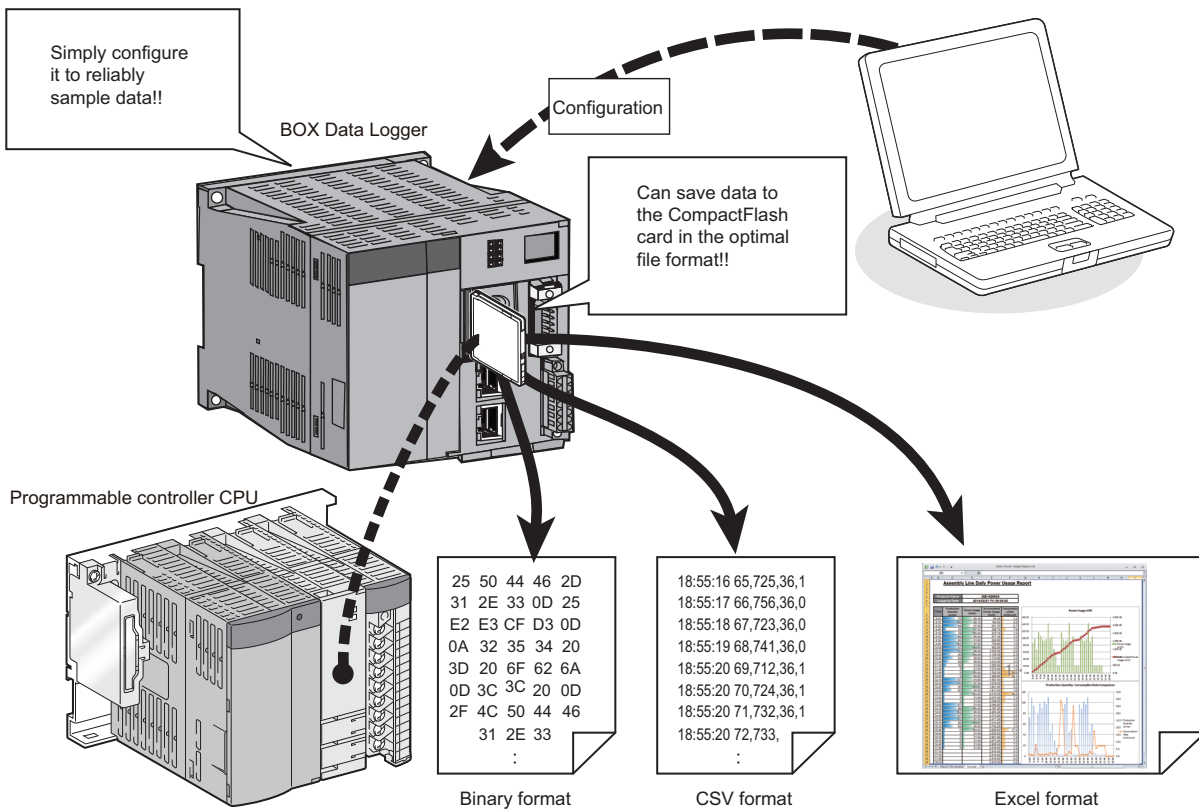
By easily configuring BOX Data Logger, it can save sampled programmable controller device data in the optimal file format to a CompactFlash card (sold separately, required) inserted in the module.

## 1.1 Features

This section explains the features of BOX Data Logger.

### Programmable controller device data can be easily logged without a personal computer

BOX Data Logger logs devices in the programmable controller without using a personal computer. This can reduce costs, as well as prevent a personal computer from shutting system down. Sampled data can be saved in the desired file format to a CompactFlash card by easy settings of BOX Data Logger

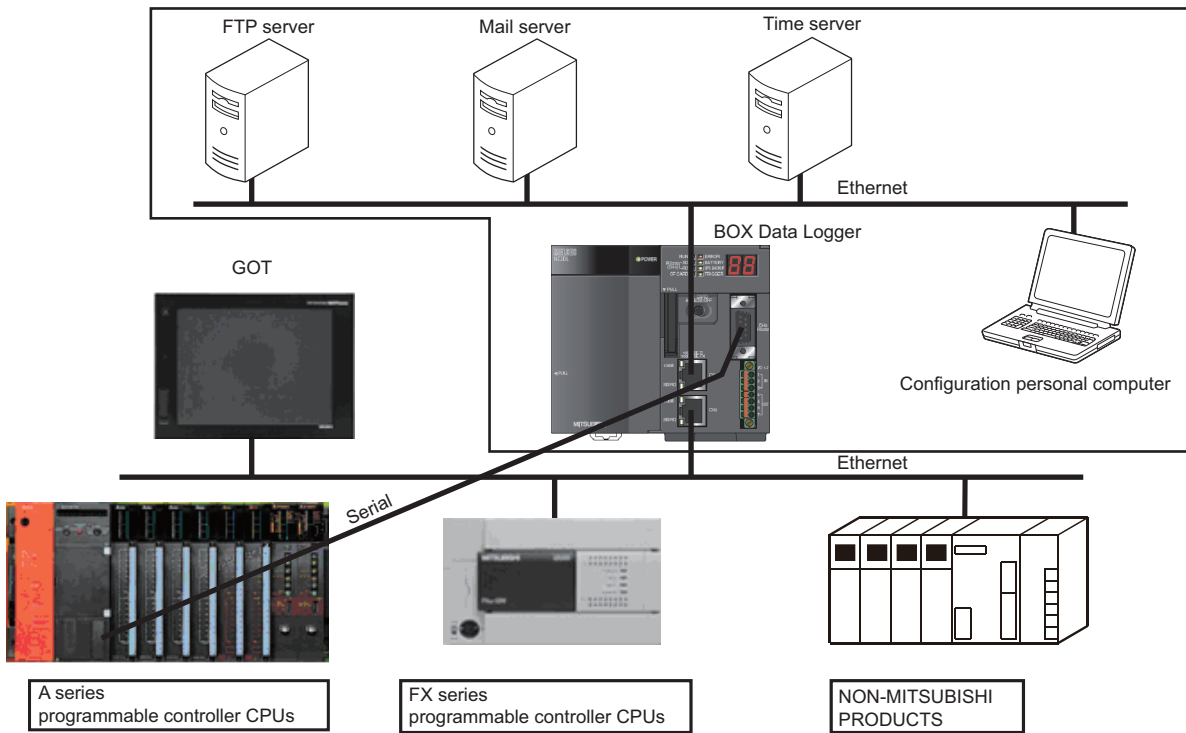




## Data logging can be performed without stopping the existing system

By installing BOX Data Logger, the data of existing system can be logged without stopping the system.

Also, BOX Data Logger supports serial communication. This enables data logging for existing system which only supports serial communication, and makes it easier to troubleshoot the system.



The figure above is only an image. A serial port and Ethernet ports cannot be used simultaneously.

## Problem analysis can be accelerated when problems occur

The data before and after the trigger triggered by the status or change of the data can be saved. This enables saving the data before and after the trouble occurs, the cause of the problem can be identified quickly, as well as saving a file capacity.

For the Trigger logging function, refer to the following section.

☞ Page 124 Trigger logging function

2013/1/10 14:25:34	150	18	356	39
2013/1/10 14:25:34	200	18	330	39
2013/1/10 14:25:34	250	19	280	39
2013/1/10 14:25:34	300	18	310	42
2013/1/10 14:25:34	350	18	300	43
2013/1/10 14:25:34	400	19	285	46
2013/1/10 14:25:34	450	18	290	47
2013/1/10 14:25:34	500	15	310	48
2013/1/10 14:25:34	550	12	312	49
2013/1/10 14:25:34	600	11	333	50
2013/1/10 14:25:34	650	5	340	50
2013/1/10 14:25:34	700	3	352	51
2013/1/10 14:25:34	750	12	360	51
2013/1/10 14:25:34	800	14	362	50
2013/1/10 14:25:34	850	17	363	50
2013/1/10 14:25:34	900	18	363	50
2013/1/10 14:25:34	950	19	365	49
2013/1/10 14:25:35	0	18	370	49

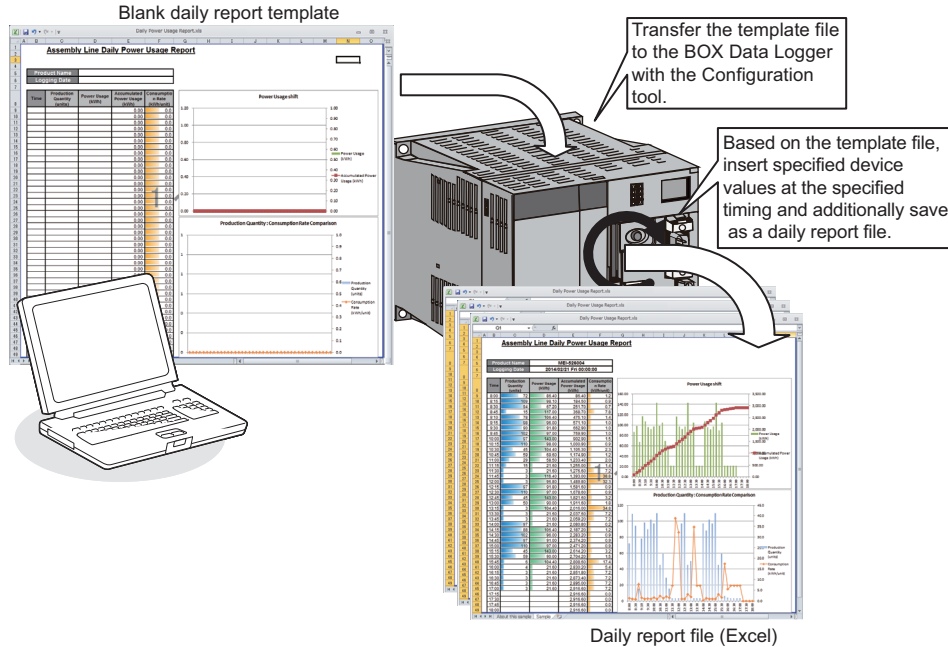
Diagram annotations: A vertical double-headed arrow on the right indicates the "Data file save range" covering the entire table. Brackets on the right side label "Data before trigger" (rows 1-10), "Location of trigger" (row 11), and "Data after trigger" (rows 12-18).

## Creating lists/reports

By setting an Excel file template, such as layouts, graphs, and calculation formulas in advance, BOX Data Logger can save data in list format or report format to the inserted CompactFlash card.

For the Report function, refer to the following chapter.

☞ Page 147 REPORT FUNCTION



## Equipment error detection and failure prediction are possible

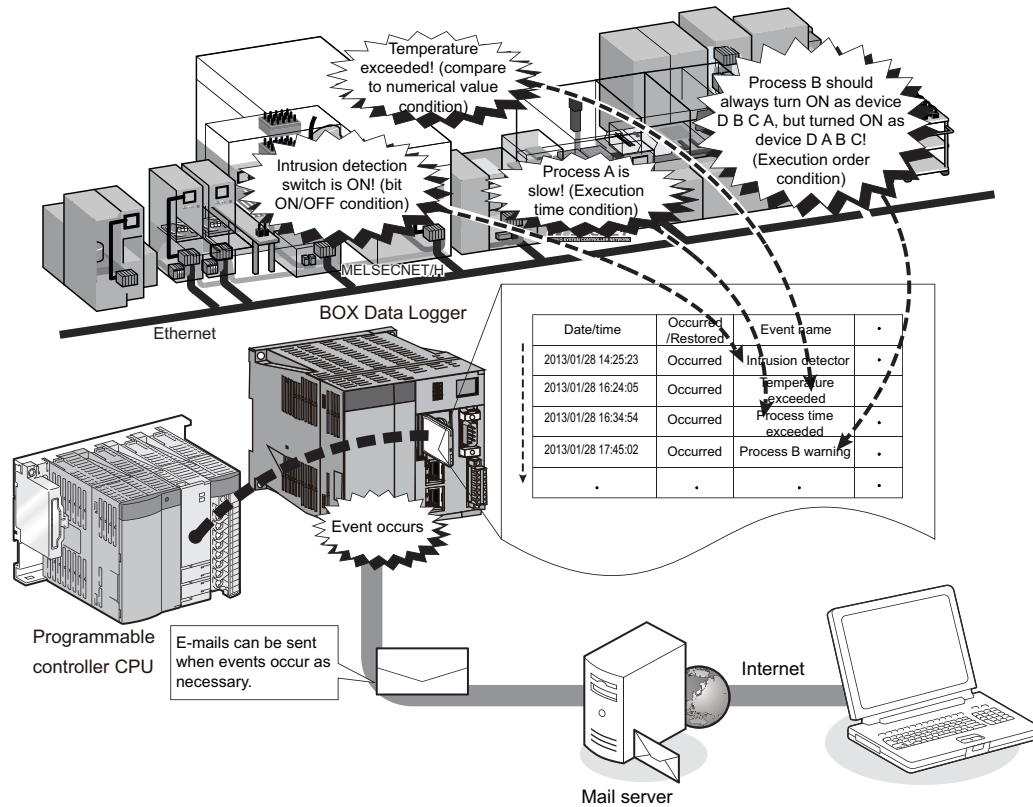
By setting monitoring target data and monitoring conditions, BOX Data Logger can log changes (events) for those conditions. This can be utilized for equipment error detection and failure prediction.

Not only data values can be set as monitoring conditions, the changed time and order of changes for each data can also be set.

A detected event occurrence can be notified by e-mail.

For the Event logging function, refer to the following chapter.

☞ Page 137 EVENT LOGGING FUNCTION

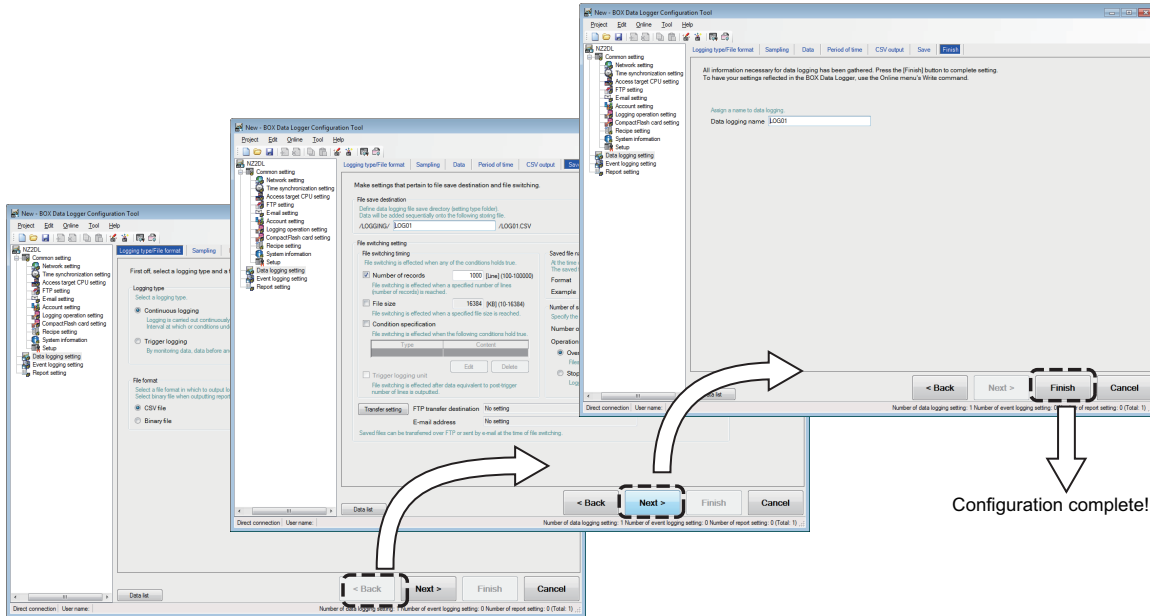


## Logging can be performed with simple configuration

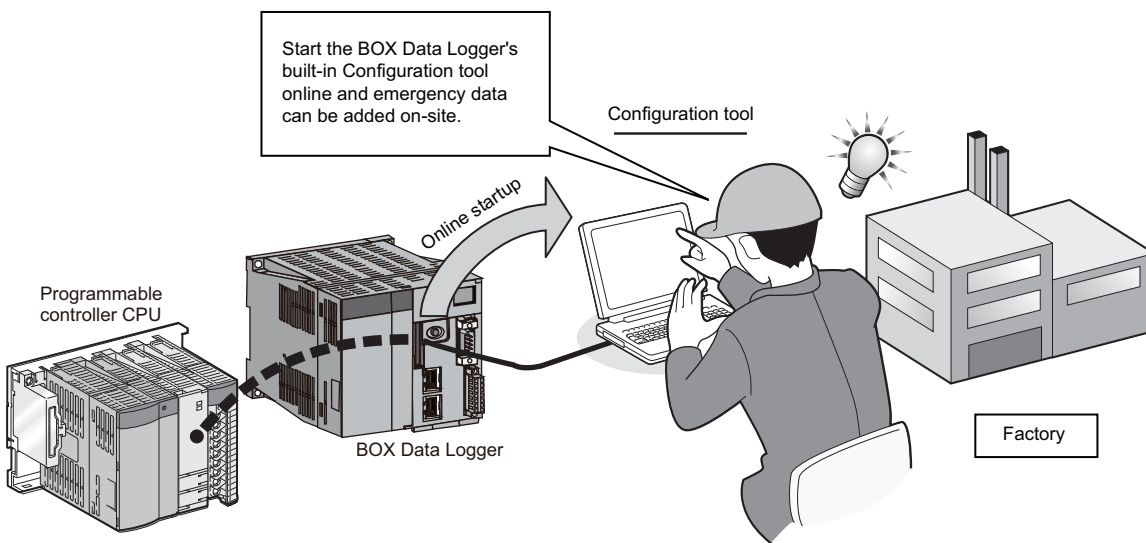
Logging settings can be easily configured with wizard format settings.

Since Configuration tool is built-in to BOX Data Logger, settings can be easily changed on-site by simply connecting a personal computer.

### ■ Wizard format settings



### ■ Setting data are easily changed on-site



## Use of data assets can be enhanced

### ■ Utilize existing project data in Configuration tool

Settings of existing project data in Configuration tool can be specified and imported.

Importing data reduces data creation costs.

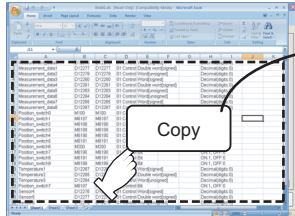
For how to import settings from a project file, refer to the following section.

☞ Page 223 Importing settings from project file

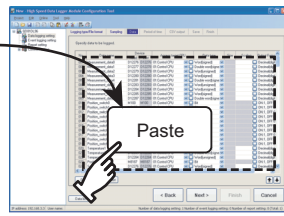
### ■ Utilize tabular format data

A large-volume data created using Excel can be copied and pasted to the data list of Configuration tool.

Create large-volume data on Excel.



Large-volume data are pasted as they are.



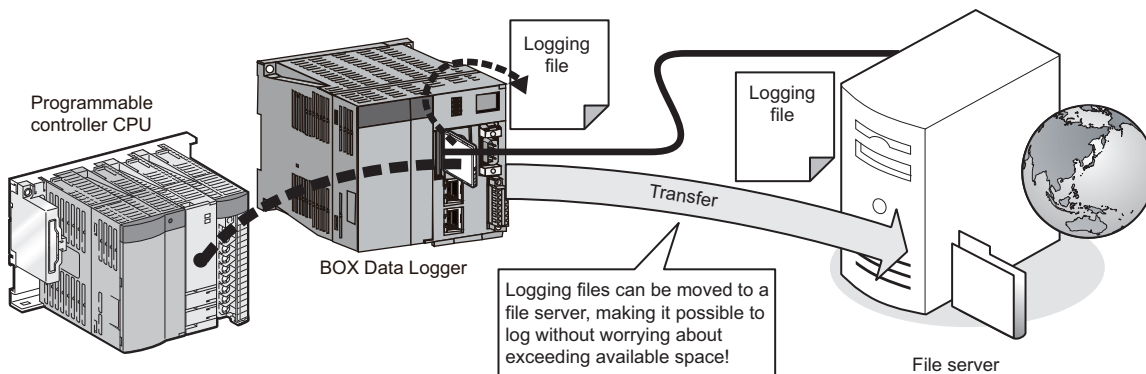
## Large-volume Data logging files can be saved

Since BOX Data Logger can use high-capacity CompactFlash cards up to 8 GB, logging over long periods is possible.

Since the Data logging files saved on the CompactFlash card can also be transferred to a server, logging which exceeds the capacity of the CompactFlash card is possible.

In addition, using the function which automatically deletes old files saved on the CompactFlash card according to the specified number of files or free capacity, logging can be continued without replacement of the CompactFlash card.

Even when the network is disconnected, Data logging files can be resent automatically.



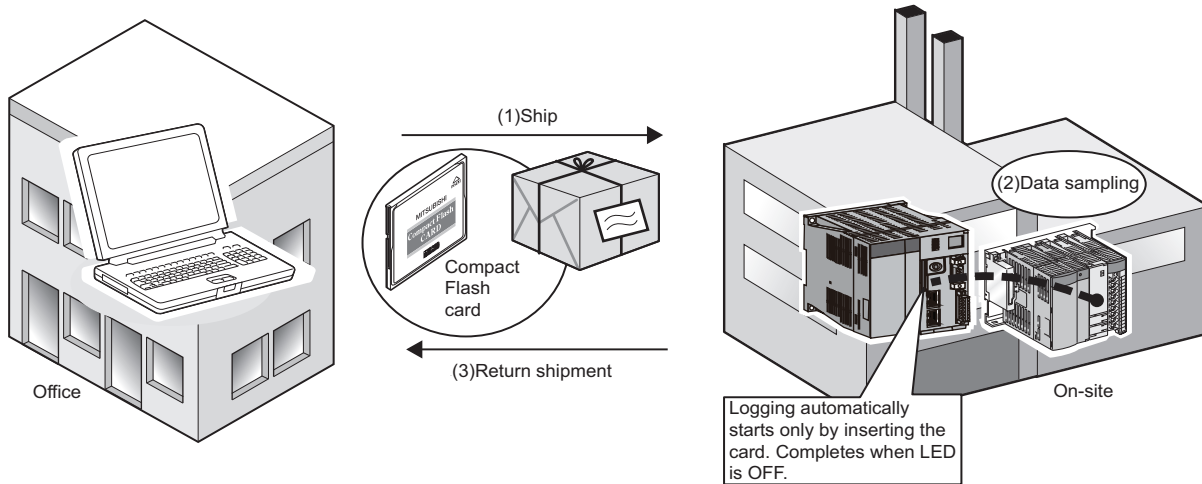
## Simple data sampling instructions for troubleshooting

Logging can be automatically started by inserting a CompactFlash card.

By only sending a CompactFlash card with the settings stored on it to the site and having a worker insert it in BOX Data Logger, the module can sample the necessary data.

For the Auto logging function, refer to the following section.

☞ Page 182 Auto Logging Function



## Time synchronization using SNTP can be performed

BOX Data Logger's time can be set through communication with a SNTP server. After connecting a SNTP server, setting BOX Data Logger's time to a programmable controller CPU enables time synchronization for the entire system.

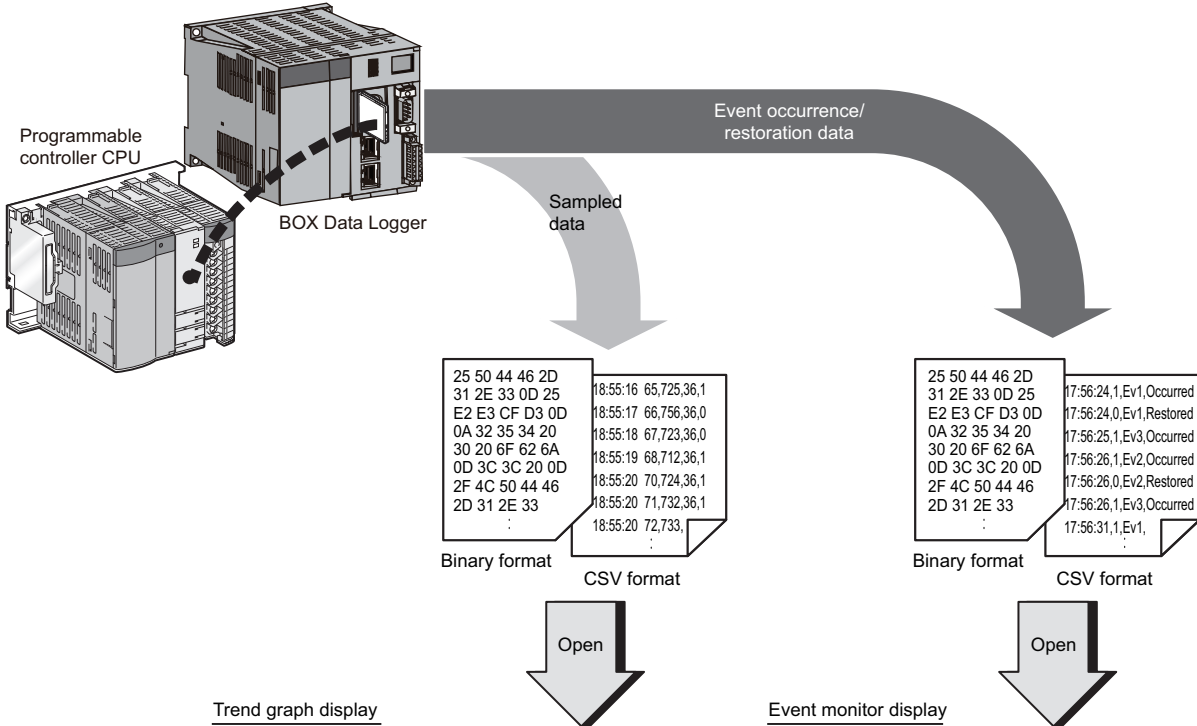
For the time synchronization function, refer to the following section.

☞ Page 180 Time Synchronization Function

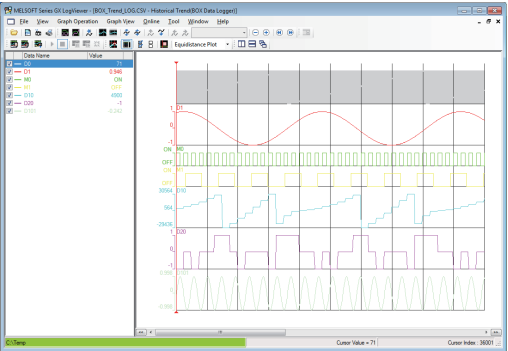
# Displaying data and events depending on the intended use

Using GX LogViewer, sampled data can be displayed as graphs and occurred/restored events can be displayed in a list. For GX LogViewer, refer to the following manual.

📖 GX LogViewer Version 1 Operating Manual



The change in data can be checked easily.



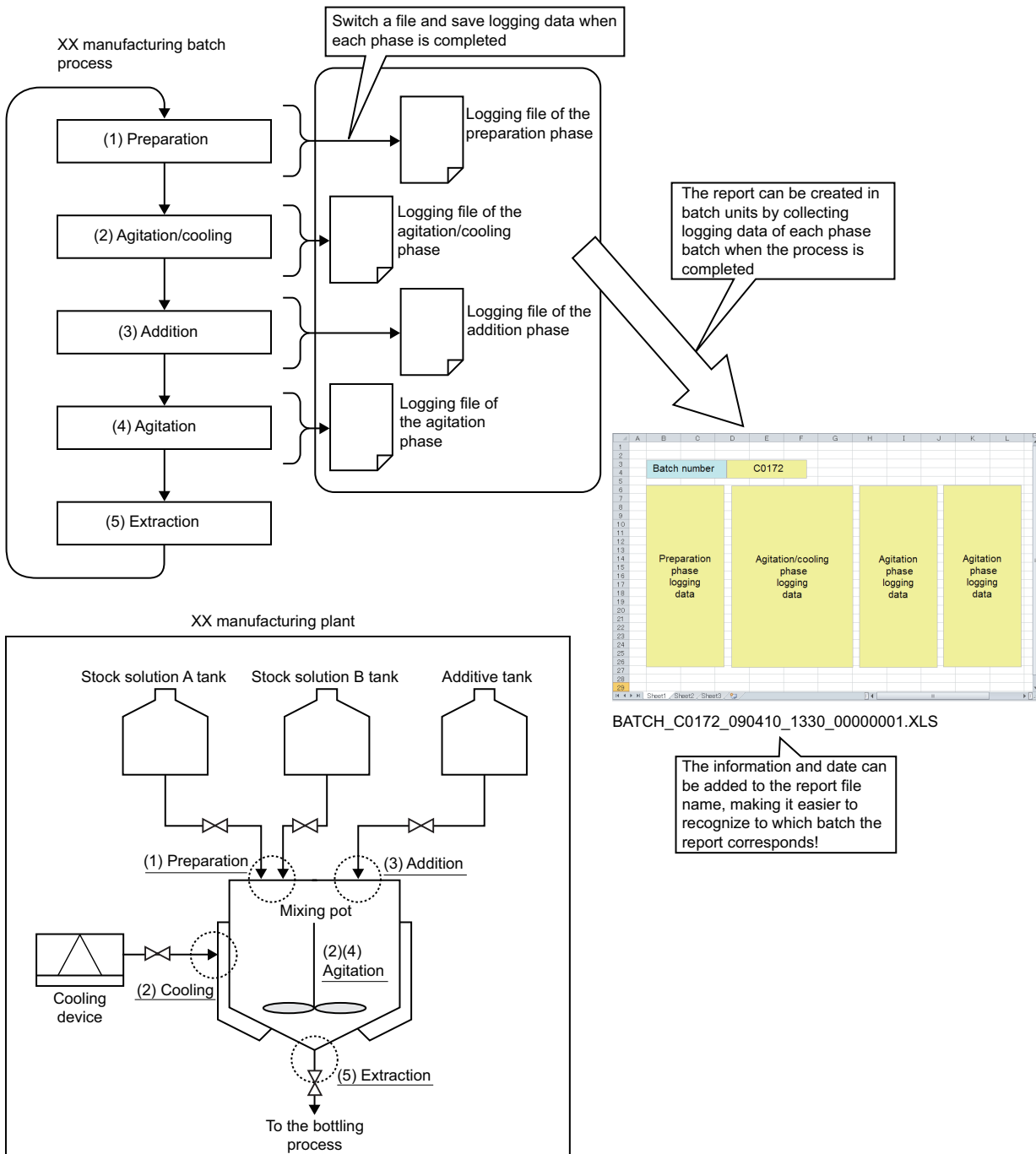
The event occurrence/restoration can be checked.

Date	No.	Event Logging Name	Status	Comment	Monitoring Data
2011/03/20 09:20:00	000	MCDIOL Start	1		
2011/03/20 10:00:00	000	MCDIOL Start	1		
2011/03/20 11:40:30	000	MCDIOL Start	1		
2011/03/20 12:50:00	000	MCDIOL Start	1		
2011/03/20 13:50:00	000	MCDIOL Start	1		
2011/03/20 14:50:00	000	MCDIOL Start	1		
2011/03/20 15:50:00	000	MCDIOL Start	1		
2011/03/20 16:50:00	000	MCDIOL Start	1		
2011/03/20 17:50:00	000	MCDIOL Start	1		
2011/03/20 18:50:00	000	MCDIOL Start	1		
2011/03/20 19:50:00	000	MCDIOL Start	1		
2011/03/20 20:50:00	000	MCDIOL Start	1		
2011/03/20 21:50:00	000	MCDIOL Start	1		
2011/03/20 22:50:00	000	MCDIOL Start	1		
2011/03/20 23:50:00	000	MCDIOL Start	1		
2011/03/20 24:50:00	000	MCDIOL Start	1		
2011/03/20 25:50:00	000	MCDIOL Start	1		
2011/03/20 26:50:00	000	MCDIOL Start	1		
2011/03/20 27:50:00	000	MCDIOL Start	1		
2011/03/20 28:50:00	000	MCDIOL Start	1		
2011/03/20 29:50:00	000	MCDIOL Start	1		
2011/03/20 30:50:00	000	MCDIOL Start	1		
2011/03/20 31:50:00	000	MCDIOL Start	1		
2011/03/20 32:50:00	000	MCDIOL Start	1		
2011/03/20 33:50:00	000	MCDIOL Start	1		
2011/03/20 34:50:00	000	MCDIOL Start	1		
2011/03/20 35:50:00	000	MCDIOL Start	1		
2011/03/20 36:50:00	000	MCDIOL Start	1		
2011/03/20 37:50:00	000	MCDIOL Start	1		
2011/03/20 38:50:00	000	MCDIOL Start	1		
2011/03/20 39:50:00	000	MCDIOL Start	1		
2011/03/20 40:50:00	000	MCDIOL Start	1		
2011/03/20 41:50:00	000	MCDIOL Start	1		
2011/03/20 42:50:00	000	MCDIOL Start	1		
2011/03/20 43:50:00	000	MCDIOL Start	1		
2011/03/20 44:50:00	000	MCDIOL Start	1		
2011/03/20 45:50:00	000	MCDIOL Start	1		
2011/03/20 46:50:00	000	MCDIOL Start	1		
2011/03/20 47:50:00	000	MCDIOL Start	1		
2011/03/20 48:50:00	000	MCDIOL Start	1		
2011/03/20 49:50:00	000	MCDIOL Start	1		
2011/03/20 50:50:00	000	MCDIOL Start	1		
2011/03/20 51:50:00	000	MCDIOL Start	1		
2011/03/20 52:50:00	000	MCDIOL Start	1		
2011/03/20 53:50:00	000	MCDIOL Start	1		
2011/03/20 54:50:00	000	MCDIOL Start	1		
2011/03/20 55:50:00	000	MCDIOL Start	1		
2011/03/20 56:50:00	000	MCDIOL Start	1		
2011/03/20 57:50:00	000	MCDIOL Start	1		
2011/03/20 58:50:00	000	MCDIOL Start	1		
2011/03/20 59:50:00	000	MCDIOL Start	1		
2011/03/20 00:50:00	000	MCDIOL Start	1		

## Data can be managed on a batch/lot basis

By designating the programmable controller data which indicate the end of batches (lots) as the file switching timing, files can be created in units of batches (lots).

In addition, attaching the batch (lot) number to the file name of the Data logging file and Report file makes the batch-based (lot-based) data management easier.





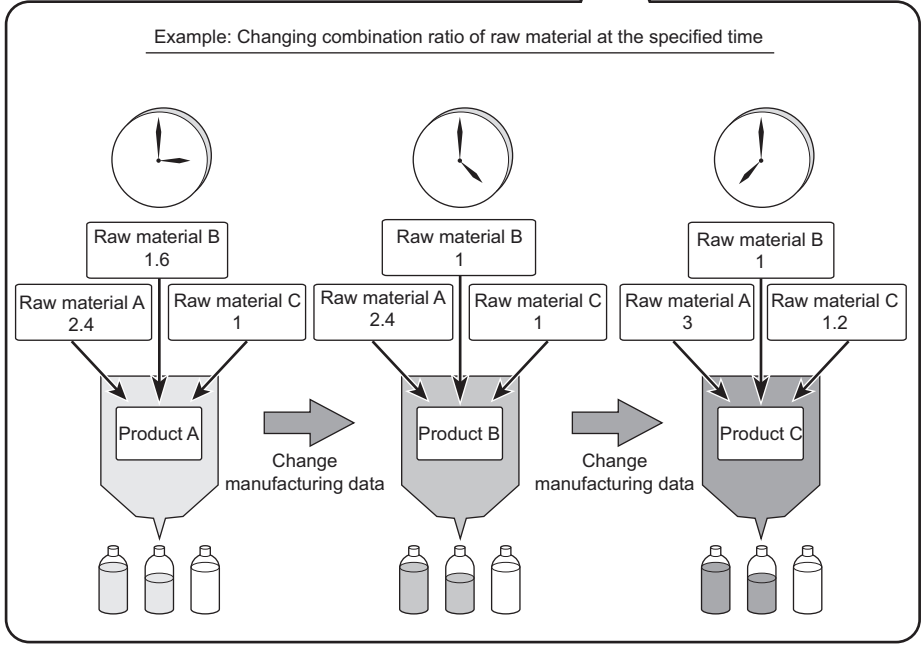
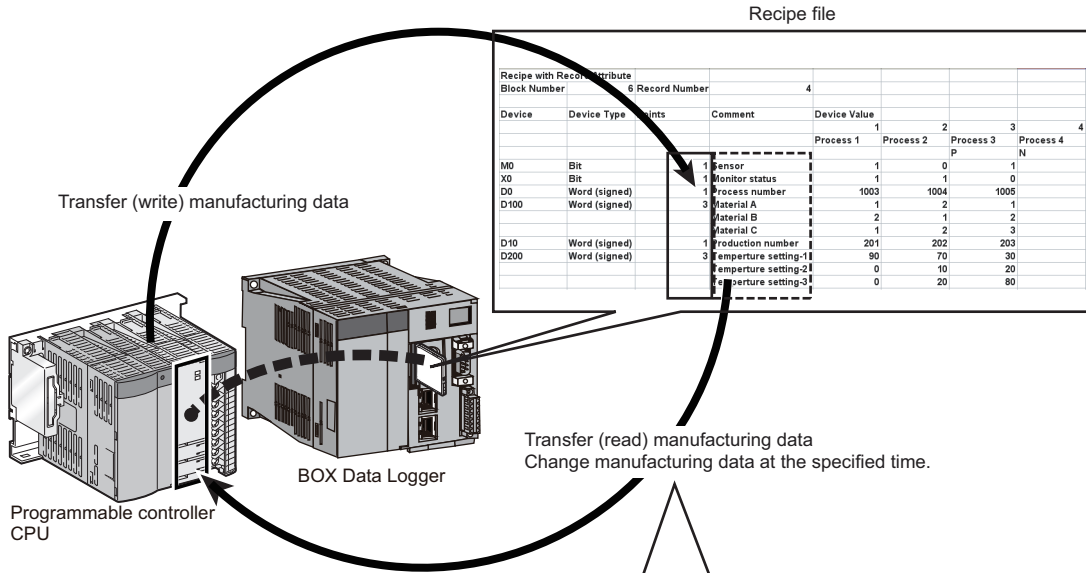
## Manufacturing data (device values) stored in CPU module can be changed

Device values are transferred (read from CompactFlash card to the programmable controller CPU) from the Recipe files (created with Configuration tool and stored) saved in the CompactFlash card to the programmable controller CPU at the specified time.

Furthermore, adjusted manufacturing data can be transferred (written from the programmable controller CPU to CompactFlash card) to Recipe files and utilized.

For the Recipe function, refer to the following chapter.

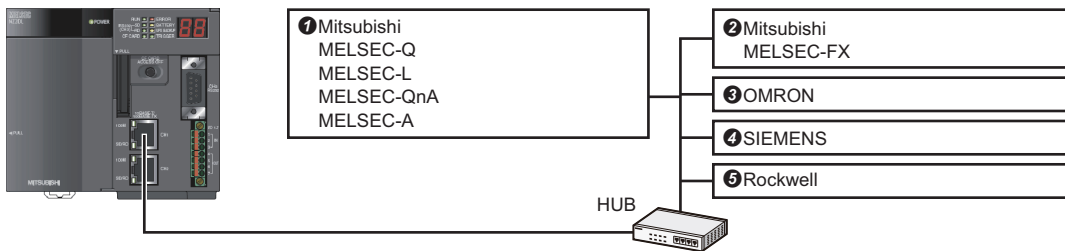
☞ Page 155 RECIPE FUNCTION



## Multiple connection function

BOX Data Logger logs data in programmable controllers of different manufactures/modules at the same time using Ethernet. Up to 64 programmable controllers of different manufactures/modules can be connected.

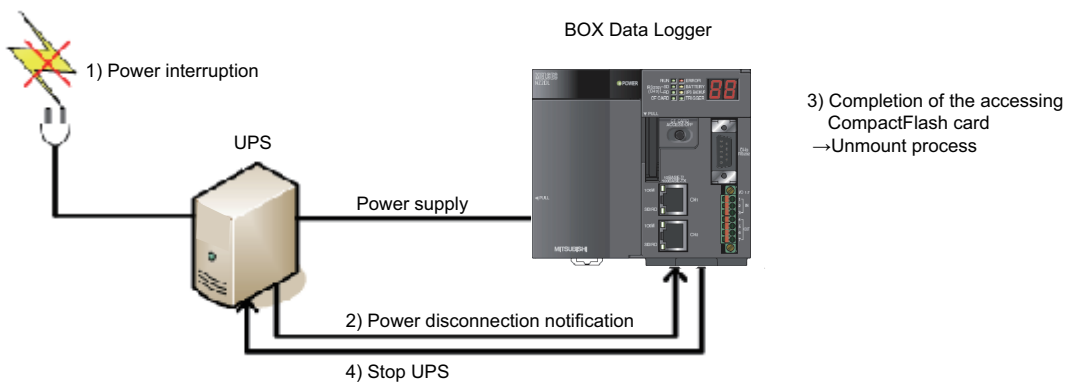
Also, BOX Data Logger can be simultaneously connected to up to four groups in the following groups of the access target CPU ❶ to ❺.



## UPS support

When emergency power failure or power OFF occurs, UPS supplies the power to BOX Data Logger until CompactFlash card complete accessing the logging data, and protect the logging data saved in the CompactFlash card.

When power disconnection occurs, UPS continues supplying power and issues the power disconnection notification to BOX Data Logger. Therefore, BOX Data Logger can continue accessing the CompactFlash card and complete the unmount process.



# 1.2 Processing Overview

BOX Data Logger logs (records/saves) device value sampled from a programmable controller CPU as files on a CompactFlash card.

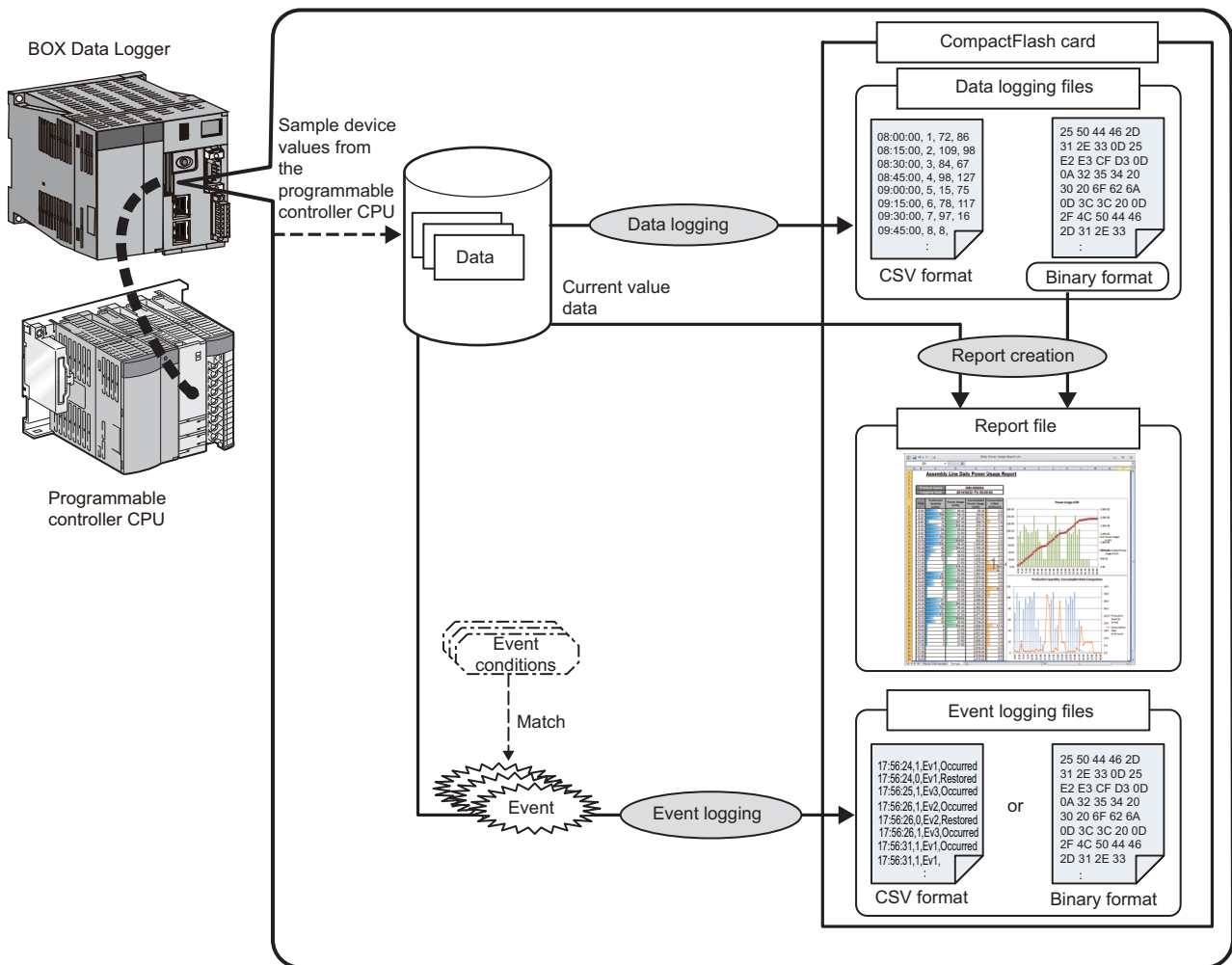
Files which can be created are Data logging files, Event logging files, and Report files.

In the Data logging file, all the sampled data in the specified period can be saved. In this way, sampled data can be analyzed in depth( [Page 120 DATA LOGGING FUNCTION](#)).

In the Event logging file, only the specified data correspond to the event condition can be saved. In this way, only desired data can be identified ( [Page 137 EVENT LOGGING FUNCTION](#)).

In the Report file, data can be saved in an Excel format. In this way, by only configuring the settings in advance, a report with desired graphs and layouts can be created automatically( [Page 147 REPORT FUNCTION](#)).

The overview up to creating a file is as follows:



# 1.3 BOX Data Logger Software Configuration

BOX Data Logger software configuration is as follows:

Item	Description	Reference
BOX Data Logger Configuration Tool	A software to configure and maintain BOX Data Logger There are two startup methods: online startup and offline startup (startup from the start menu)	Page 198 CONFIGURATION TOOL STARTUP Page 88 SETTINGS AND PROCEDURES UP TO OPERATION

For details on how to start BOX Data Logger Configuration Tool, refer to the following chapter.

 Page 198 CONFIGURATION TOOL STARTUP

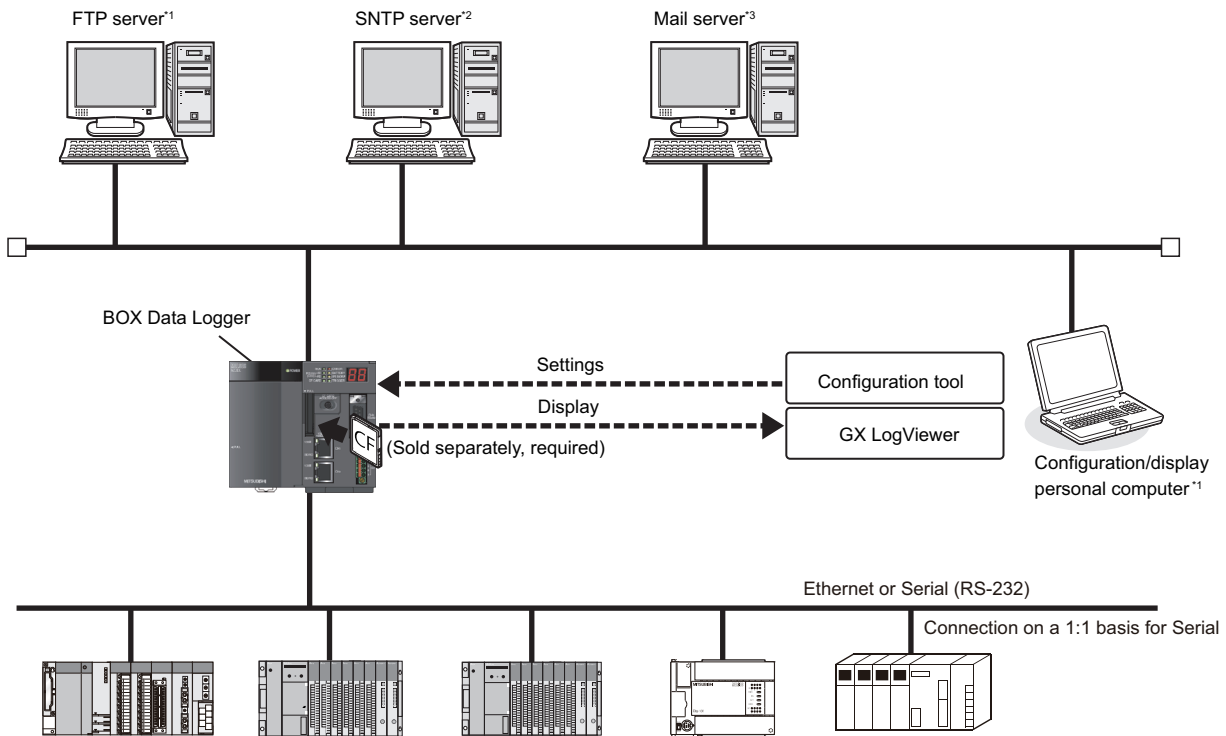
# 2 SYSTEM CONFIGURATION

This chapter explains the system configuration of BOX Data Logger.

## 2.1 Overall System Configuration

2

This section explains the overall system configuration when using BOX Data Logger.



Access target CPU : LCPU, QCPU, QnACPU, ACP, FXCPU, OMRON, SIEMENS, Rockwell

\*1 Required when externally saving logged files.

\*2 Required when synchronizing BOX Data Logger time and a programmable controller CPU time to a standard time.

\*3 Required when sending e-mail.

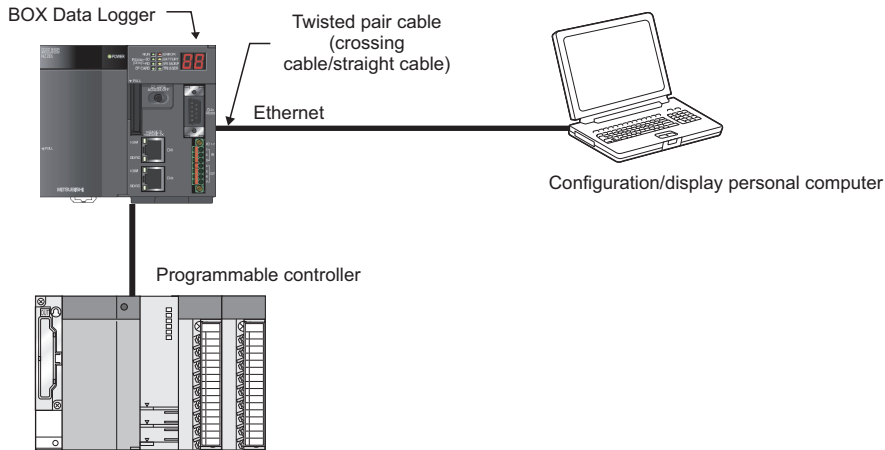
# System configuration for initial setup, maintenance, and inspection

Connect BOX Data Logger and a configuration/display personal computer directly to perform an initial setup, maintenance, and inspection.

For direct connection, refer to the following sections.

☞ Page 47 Connecting to CPU module with serial port

☞ Page 48 Connecting to a single CPU module with Ethernet port



# System Configuration Examples

The pattern of the system configurations are shown below.

Using the different network for the Ethernet port (CH1 and CH2) can prevent any influence on each communication traffic.

○: Connectable, ×: Not connectable

Serial		
System configuration	Programmable controller CPU	The example of configuration diagram
Connecting a programmable controller CPU with serial port + Directly connecting a configuration/display personal computer	○	Page 47 Connecting to CPU module with serial port
Connecting a programmable controller CPU with serial port + Connecting a configuration/display personal computer via a hub with Ethernet port	○	Page 48 Connecting to CPU module with serial port, and connecting to server with Ethernet port
Connecting a programmable controller CPU with Ethernet port + Directly connecting a configuration/display personal computer	×	Page 48 Connecting to a single CPU module with Ethernet port
Connecting a programmable controller CPU with Ethernet port + Connecting a configuration/display personal computer via a hub with Ethernet port	×	Page 49 Connecting to multiple CPU modules and server with Ethernet port (by using 1 port) Page 50 Connecting to multiple CPU modules and server with Ethernet port (by using 2 ports) Page 51 Connecting to multiple CPU modules and server (via router) with Ethernet port

Ethernet CH1					
System configuration	Direct connection	Via a hub <sup>*1,*2,*3</sup>			The example of configuration diagram
	Configuration/display personal computer <sup>*4</sup>	Configuration/display personal computer <sup>*5</sup>	Server	Programmable controller CPU	
Connecting a programmable controller CPU with serial port + Directly connecting a configuration/display personal computer	○	×	×	×	Page 47 Connecting to CPU module with serial port
Connecting a programmable controller CPU with serial port + Connecting a configuration/display personal computer via a hub with Ethernet port	×	○	○	×	Page 48 Connecting to CPU module with serial port, and connecting to server with Ethernet port
Connecting a programmable controller CPU with Ethernet port + Directly connecting a configuration/display personal computer	○	×	×	×	Page 48 Connecting to a single CPU module with Ethernet port
Connecting a programmable controller CPU with Ethernet port + Connecting a configuration/display personal computer via a hub with Ethernet port	×	○	○	○	Page 49 Connecting to multiple CPU modules and server with Ethernet port (by using 1 port) Page 50 Connecting to multiple CPU modules and server with Ethernet port (by using 2 ports) Page 51 Connecting to multiple CPU modules and server (via router) with Ethernet port

\*1 Can be connected via a router. However, the Find BOX Data Logger function cannot be used. The setting for the default gateway can be registered either CH1 or CH2.

\*2 BOX Data Logger can be connected only by using LAN connection. Connection via the Internet is not available.

\*3 When connecting to a single piece of equipment (such as configuration/display personal computer and programmable controller CPU) as the connection target, a hub is not required.

\*4 Connect directly using a LAN cable without using a hub.

\*5 Do not connect Configuration tool to CH1 and CH2 simultaneously.

## Ethernet CH2

System configuration	Via a hub <sup>*1,*2,*3</sup>			The example of configuration diagram
	Configuration/ display personal computer <sup>*4</sup>	Server	Programmable controller CPU	
Connecting a programmable controller CPU with serial port + Directly connecting a configuration/ display personal computer	×	○	×	Page 47 Connecting to CPU module with serial port
Connecting a programmable controller CPU with serial port + Connecting a configuration/display personal computer via a hub with Ethernet port	○	○	×	Page 48 Connecting to CPU module with serial port, and connecting to server with Ethernet port
Connecting a programmable controller CPU with Ethernet port + Directly connecting a configuration/ display personal computer	×	○	○	Page 48 Connecting to a single CPU module with Ethernet port
Connecting a programmable controller CPU with Ethernet port + Connecting a configuration/display personal computer via a hub with Ethernet port	○	○	○	Page 49 Connecting to multiple CPU modules and server with Ethernet port (by using 1 port) Page 50 Connecting to multiple CPU modules and server with Ethernet port (by using 2 ports) Page 51 Connecting to multiple CPU modules and server (via router) with Ethernet port

\*1 Can be connected via a router. However, the Find BOX Data Logger function cannot be used. The setting for the default gateway can be registered either CH1 or CH2.

\*2 BOX Data Logger can be connected only by using LAN connection. Connection via the Internet is not available.

\*3 When connecting to a single piece of equipment (such as configuration/display personal computer and programmable controller CPU) as the connection target, a hub is not required.

\*4 Do not connect Configuration tool to CH1 and CH2 simultaneously.



## System configuration during operation

This section explains the system configuration when operating BOX Data Logger.

BOX Data Logger has one serial port and two Ethernet ports. A programmable controller CPU, configuration/display personal computer, or various servers can be connected to each port. The examples of equipment connected to each port are as follows:

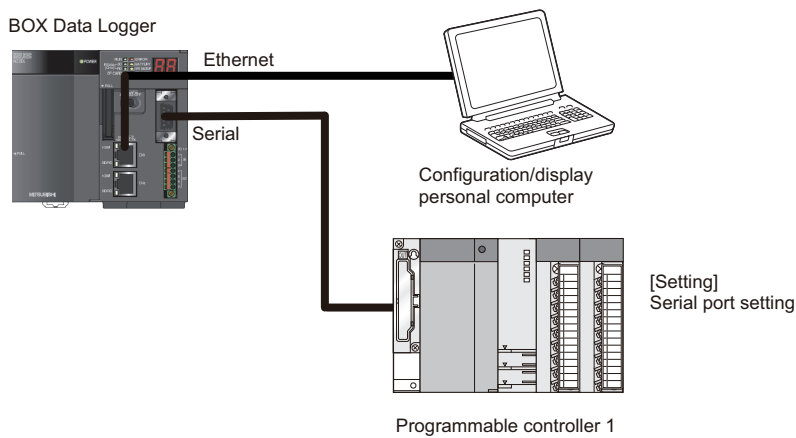
### Connecting to CPU module with serial port

Connect BOX Data Logger to a programmable controller CPU using the built-in serial port.

BOX Data Logger and a configuration/display personal computer can be connected directly on a 1:1 basis using an Ethernet cable (crossing cable/straight cable) without a hub. (AUTO-MDI/MDIX function (automatically recognizing straight/crossing cable) supported)

For a direct connection between BOX Data Logger and a configuration/display personal computer, specification of an IP address of BOX Data Logger is not required. (Broadcast communication is used.)

Ethernet port (CH2) cannot be used for a direct connection.



#### Restriction

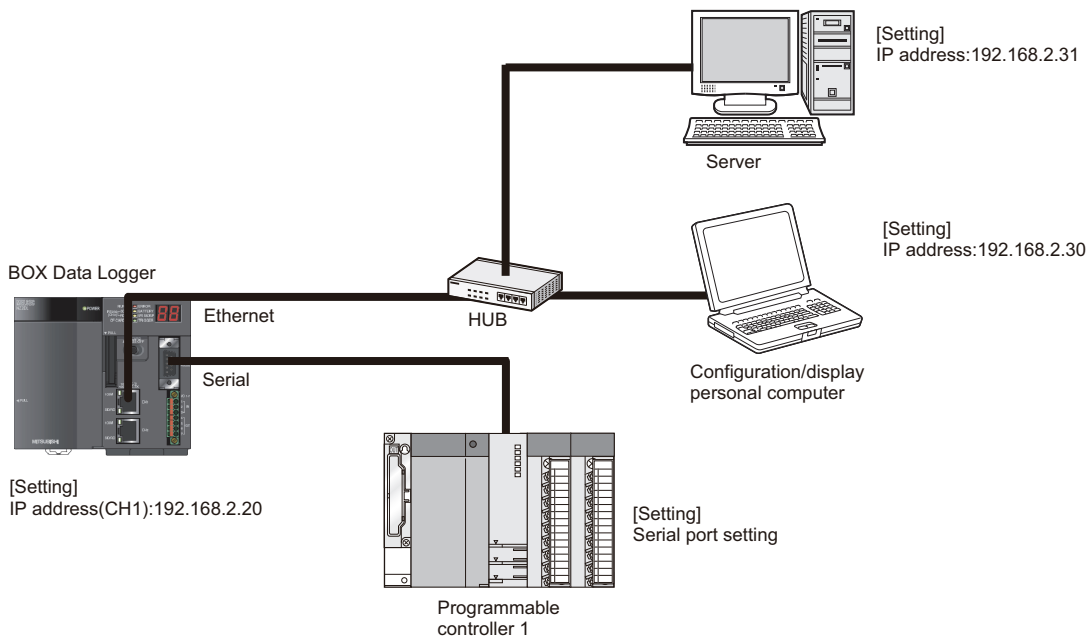
BOX Data Logger can be connected only by using LAN connection. Connection via the Internet is not available.

## Connecting to CPU module with serial port, and connecting to server with Ethernet port

Connect BOX Data Logger to a programmable controller CPU via built-in serial port.

Connect a configuration/display personal computer and various servers to the Ethernet port (CH1) of BOX Data Logger via a hub.

When connecting BOX Data Logger via a hub, the IP address of BOX Data Logger is required to be specified.



### Restriction

BOX Data Logger can be connected only by using LAN connection. Connection via the Internet is not available.

## Connecting to a single CPU module with Ethernet port

Connect BOX Data Logger to a programmable controller CPU via the Ethernet port (CH2).

BOX Data Logger and a configuration/display personal computer can be connected directly on a 1:1 basis using an Ethernet cable (crossing cable/straight cable) without a hub. (AUTO-MDIX supported)

For a direct connection between BOX Data Logger and a configuration/display personal computer, specification of an IP address of BOX Data Logger is not required. (Broadcast communication is used.)

Ethernet port (CH2) cannot be used for a direct connection.

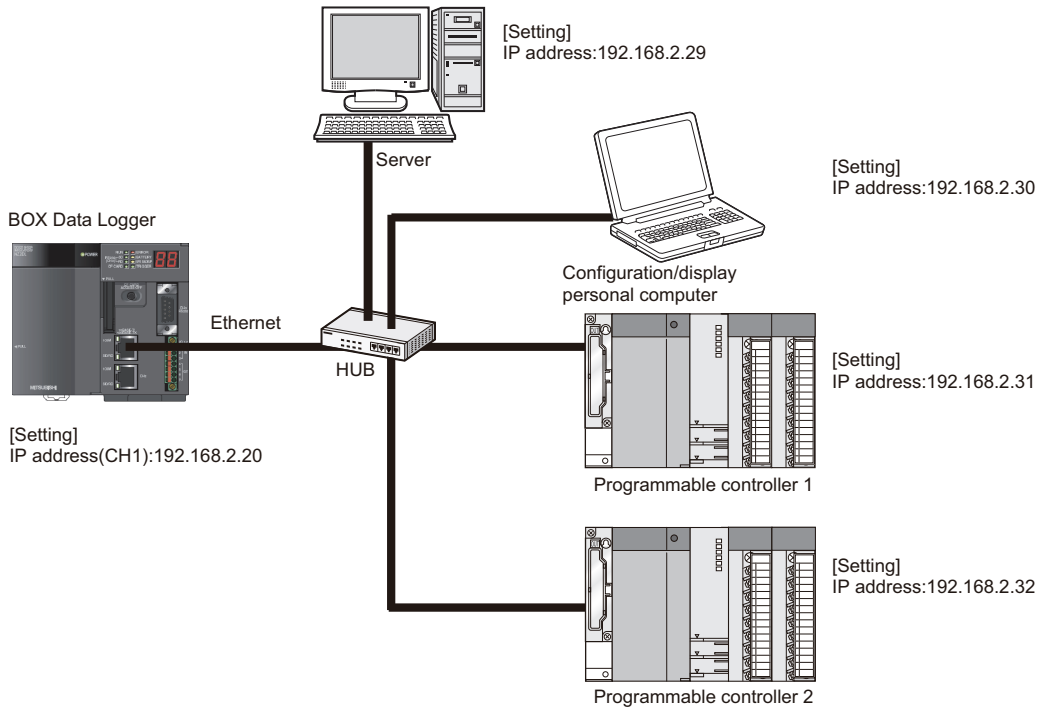
For more information on the programmable controller CPU which can be directly connected using an Ethernet cable without hub, refer to the manuals provided by the manufacturer.

## Connecting to multiple CPU modules and server with Ethernet port (by using 1 port)

Connect BOX Data Logger to a programmable controller CPU using the Ethernet port (CH1) via a hub.

The configuration/display personal computer and various servers can be connected to BOX Data Logger via the same hub.

When connecting BOX Data Logger via a hub, the IP address of BOX Data Logger is required to be specified.

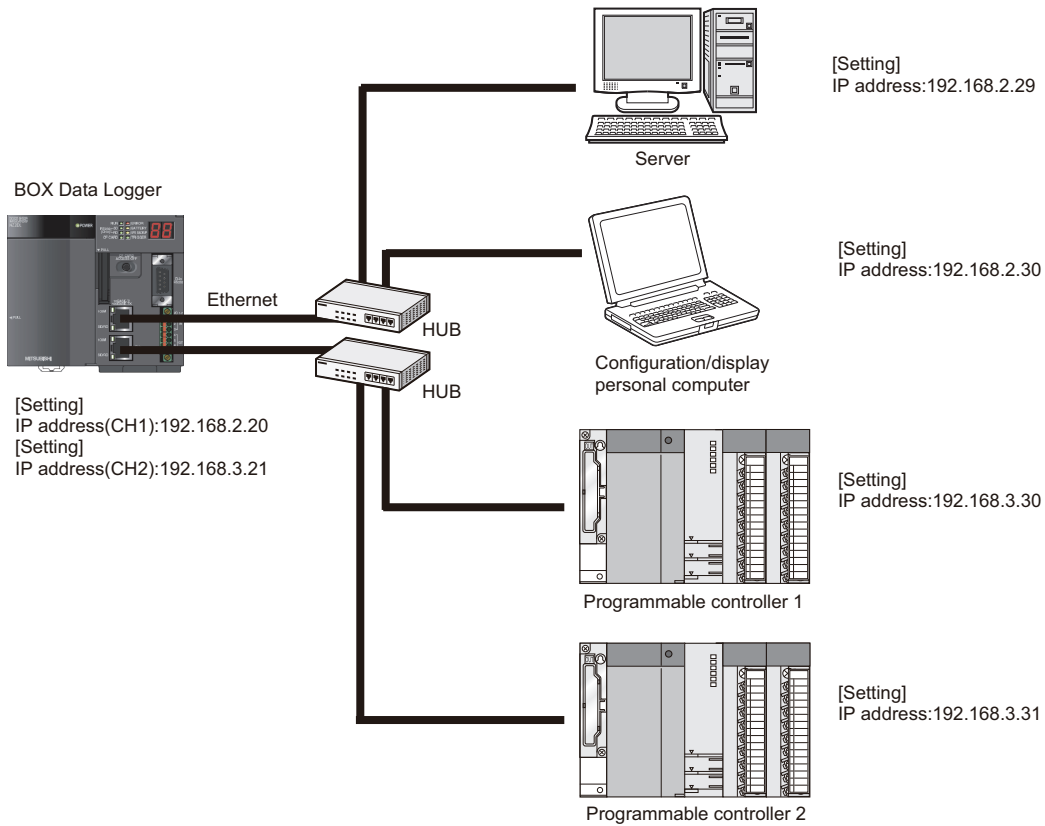


## Connecting to multiple CPU modules and server with Ethernet port (by using 2 ports)

Connect BOX Data Logger to a programmable controller CPU using the Ethernet port (CH2) via a hub.

Connect a configuration/display personal computer and various servers to the Ethernet port (CH1) of BOX Data Logger via a hub.

When connecting BOX Data Logger via a hub, the IP address of BOX Data Logger is required to be specified.

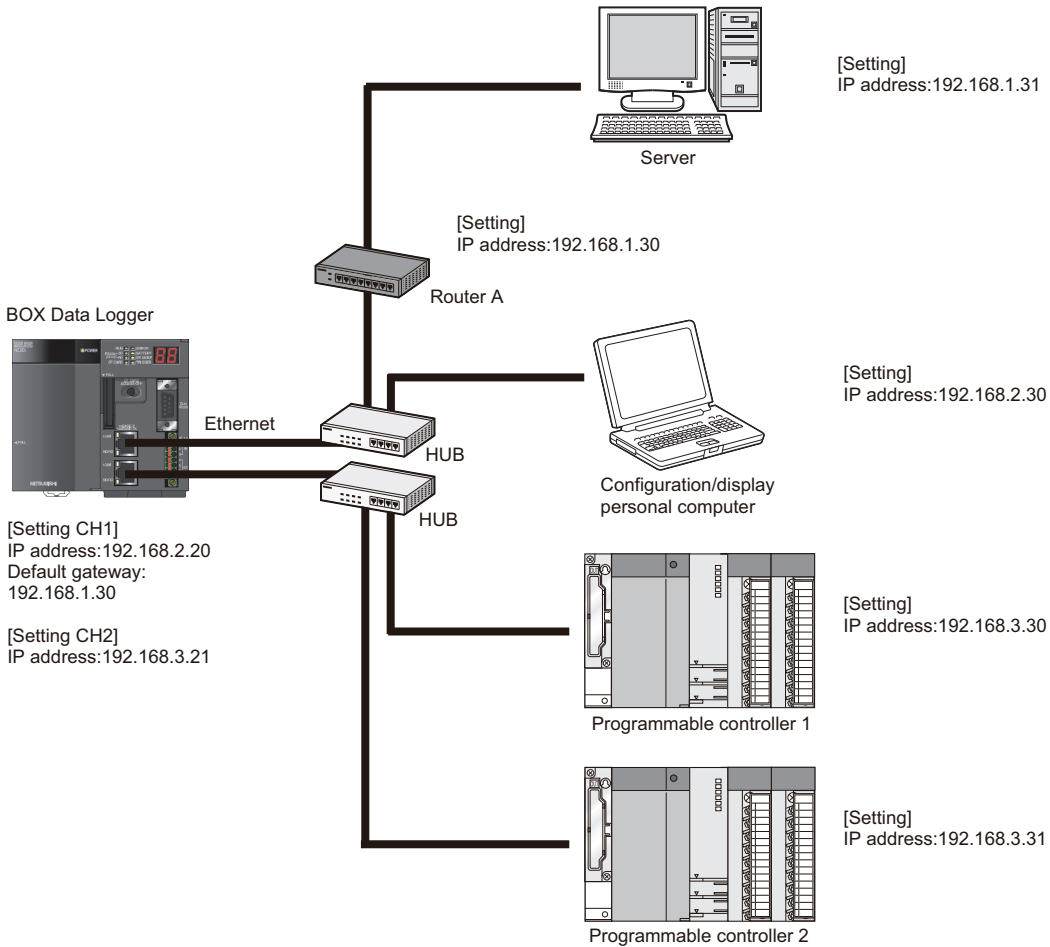


## Connecting to multiple CPU modules and server (via router) with Ethernet port

Connect BOX Data Logger to a programmable controller CPU using the Ethernet port (CH2) via a hub.

Connect a configuration/display personal computer and various servers to the Ethernet port (CH1) of BOX Data Logger via a hub.

Various servers can be connected to a hub via a router.



## Connecting to CPU modules of multiple manufactures

When connecting a single BOX Data Logger to programmable controller CPUs of multiple manufacturers using Ethernet, up to four groups in the following groups of the access target CPU can be set in the access target CPU setting.

Access target CPU group	Access target CPU setting	
	Manufacturer	Controller type
1	mitsubishi	MELSEC-Q MELSEC-L MELSEC-QnA MELSEC-A
2	mitsubishi	MELSEC-FX
3	OMRON	SYSMAC CS/CJ
4	SIEMENS	SIMATIC S7-200 (Ethernet) SIMATIC S7-300/400 (Ethernet) SIMATIC S7-1200 (Ethernet)
5	Rockwell	Rockwell AB (Tag)

# Considerations when connecting BOX Data Logger and configuration/display personal computer directly

Considerations for direct connection of BOX Data Logger and a configuration/display personal computer are as follows:

## Direct connection

For the direct connection, connect BOX Data Logger and a configuration/display personal computer without using a hub.

## Conditions where communication cannot be accomplished with a direct connection

If the conditions below match, communications cannot be performed with a direct connection.

If communications cannot be performed, review the BOX Data Logger or configuration/display personal computer settings.

- For each bit of BOX Data Logger's IP address, the bits corresponding to the configuration/display personal computer's subnet mask 0 portion are all ON or OFF

**Ex.**

BOX Data Logger IP address: 64.64.255.255

Configuration/display personal computer IP address: 64.64.1.1

Configuration/display personal computer subnet mask: 255.255.0.0

- For each bit of BOX Data Logger's IP address, the bits that correspond to the host address of each class for the configuration/display personal computer's IP address are all ON or OFF

**Ex.**

BOX Data Logger IP address: 64.64.255.255

Configuration/display personal computer IP address: 192.168.0.1

Configuration/display personal computer subnet mask: 255.255.0.0

- BOX Data Logger's IP address is obtained automatically by DHCP

### Point

- The IP address of each class is listed below.  
Class A: 0.x.x.x to 127.x.x.x, Class B: 128.x.x.x to 191.x.x.x, Class C: 192.x.x.x to 223.x.x.x
- The host address of each class is the 0 portion below.  
Class A: 255.0.0.0, Class B: 255.255.0.0, Class C: 255.255.255.0

## Other considerations

### ■ When the Windows firewall is ON

Disable the Windows firewall.

### ■ When multiple IP addresses are enabled at the same time

Under the configuration where multiple IP address are enabled at the same time as shown below, do not configure the settings for direct connection.

- IP addresses are assigned to each of multiple Ethernet ports (network devices) of a configuration/display personal computer.
- Aside from the Ethernet port of a configuration/display personal computer, a wireless LAN setting is enabled.
- Multiple IP addresses are assigned to a single Ethernet port of a configuration/display personal computer.

## 2.2 Equipment Configuration

This section explains the equipment that can be used for BOX Data Logger.

### CompactFlash card (sold separately, required)

BOX Data Logger requires one CompactFlash card.

Use a Mitsubishi CompactFlash card listed below.

If a CompactFlash card other than the following is used, a failure such as a data corruption on a CompactFlash card or a system shutdown may occur.

Model	Description
QD81MEM-512MBC*1	CompactFlash card 512 MB
QD81MEM-1GBC*1	CompactFlash card 1 GB
QD81MEM-2GBC*1	CompactFlash card 2 GB
QD81MEM-4GBC*1	CompactFlash card 4 GB
QD81MEM-8GBC*1	CompactFlash card 8 GB

\*1 Fifth digit of DATE column must be "C" or higher.

#### Point

CompactFlash cards have a life span (write cycle limit).

For details on CompactFlash cards, refer to the following sections.

 Page 250 CompactFlash card setting

### Ethernet (twisted pair) cable (sold separately)

Twisted pair cables which meet the IEEE802.3 10BASE-T/100BASE-TX standard can be used.

#### ■For 100 Mbps

(Unshielded twisted pair cable (UTP) or shielded twisted pair cable (STP))

- Straight cable: Category 5 or higher
- Crossing cable: Category 5 or 5e

#### ■For 10 Mbps

(Unshielded twisted pair cable (UTP) or shielded twisted pair cable (STP))

- Straight cable: Category 3 or higher
- Crossing cable: Category 3 to 5e

#### Point

For precautions when wiring twisted pair cables, refer to the following section.

 Page 106 Precautions

### Serial cable (sold separately)

Purchase a serial cable according to the equipment to be connected.



## Option product

The following shows the optional products for BOX Data Logger.

Product name	Model	Required/optional	Remark
BOX Data Logger Configuration Tool	SW1DNN-NLUTL(-E)	Required	Configuration software
GX LogViewer*1	SW1DNN-VIEWER(-E)	Optional	Data display and analysis software
Battery	Q6BAT	Required	For retaining the current time of BOX Data Logger
BOX Data Logger User's Manual	SH-081216ENG	Optional	—

\*1 For GX LogViewer, use SW1DNN-VIEWER(-E) Ver.1.34L or later.

## Recommended products

The following shows the recommended product for BOX Data Logger.

Product name	Model	Remark
UPS manufactured by Phoenix Contact	QUINT-UPS/24 DC/24 DC/5	Operating temperature: -40 to 85°C 18 to 30 VDC input 24 VDC output Rated current 5 A
Battery for UPS manufactured by Phoenix Contact	UPS-BAT/LI-ON/24DC/120WH	Operating temperature: -20 to 58°C Battery expectancy: for 15 years (20°C)
Power supply module manufactured by Phoenix Contact	QUINT-PS/1 AC/24 DC/5	Operating temperature: -25 to 70°C 100 to 264 VAC input 24 VDC±1% output Rated current 5 A

## 2.3 Operating Environment

### Operating environment for configuration personal computer

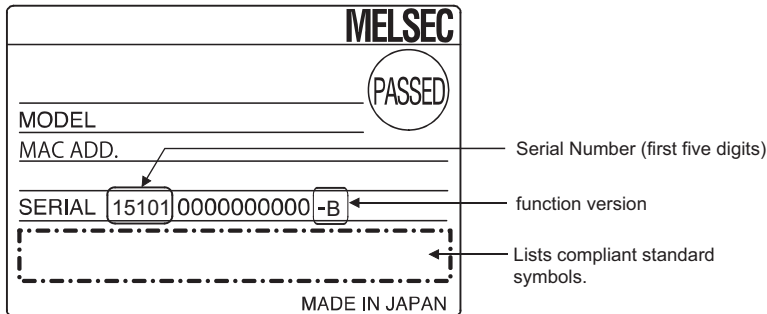
Item	Description
Computer	A personal computer on which Microsoft® Windows® operates
CPU	Intel® Core™ 2 Duo 2 GHz or more recommended
Required memory	<ul style="list-style-type: none"> <li>• 64-bit OS: Recommended 2GB or more</li> <li>• 32-bit OS: Recommended 1GB or more</li> </ul>
Free hard disk space	512 MB or more
Display	Resolution 1024 × 768 pixels or higher
Operating system (OS) <sup>*1,*2,*3,*4,*5</sup>	Windows 10 (Home, Pro, Enterprise, Education) <sup>*6</sup> Windows 8.1, Windows 8.1 (Pro, Enterprise) <sup>*6</sup> Windows 8, Windows 8 (Pro, Enterprise) <sup>*6</sup> Windows 7 (Starter, Home Premium, Professional, Ultimate, Enterprise) <sup>*7</sup> Windows Vista® (Home Basic, Home Premium, Ultimate, Business, Enterprise) <sup>*7</sup> Windows XP® (Professional SP2 or higher, Home SP2 or higher) <sup>*8</sup>
Microsoft Excel <sup>*9,*10</sup>	Microsoft Excel 2016 (32-bit version) <sup>*11</sup> Microsoft Excel 2013 (32-bit version) <sup>*12</sup> Microsoft Excel 2010 (32-bit version) <sup>*13</sup> Microsoft Excel 2007 Microsoft Excel 2003 <sup>*14</sup>
Web browser <sup>*15</sup>	Microsoft Edge <sup>*16</sup> Windows Internet Explorer® 11.0 Windows Internet Explorer 10.0 Windows Internet Explorer 9.0 Windows Internet Explorer 8.0 Windows Internet Explorer 7.0
Interface	Ethernet port

- \*1 Windows XP Professional 64-bit version and Windows Vista 64-bit version cannot be used.
- \*2 When the following functions are used, this product may not run properly.
  - Starting applications in Windows compatibility mode
  - Fast user switching
  - Remote desktop
  - Windows XP Mode
  - Windows Touch or Touch
  - Modern UI
  - Virtual environment such as Client Hyper-V
  - Virtual desktop
  - Tablet mode
  - Windows hibernate or standby
  - Unified Write Filter
- \*3 Cannot be used if the user is logged in with Guest authority.
- \*4 When the Windows firewall setting is enabled, the Find BOX Data Logger function and the Easy connection function may not operate correctly. Disable the Windows firewall setting.
- \*5 In the following case, the screen of this product may not work properly.
  - The size of the text and other items in the screen is other than 100% (96 DPI, 9 pt etc.).
- \*6 When using Windows 8 or later
  - ".NET Framework 3.5 (includes .NET 2.0 and 3.0)" needs to be enabled in "Turn Windows features on or off" on the Control Panel.
  - Select "Don't do anything (turn off Windows SmartScreen)" on the Control Panel.
- \*7 Cannot be used if the user is logged on with parental control enabled.
- \*8 Any of the following is required to be installed:
  - .NET Framework 2.0 Language Pack and .NET Framework 2.0
  - .NET Framework 3.5 Language Pack and .NET Framework 3.5
- \*9 Required when using the report function.
- \*10 The save format of the Report file output with the Report function is the xls format. Some functions added to Excel 2007 and later cannot be used.
- \*11 When using Excel 2016 (32-bit version), Windows 7 Service Pack 1 or Windows 8 or later is required. Excel 2016 (64-bit version) is not supported.
- \*12 When using Excel 2013 (32-bit version), Windows 7 or later is required. Excel 2013 (64-bit version) is not supported.
- \*13 When using Excel 2010 (32-bit version), Windows XP Service Pack 3, Windows Vista Service Pack 1 or later, or Windows 7 or later is required. Excel 2010 (64-bit version) is not supported.
- \*14 Microsoft Office 2003 Service Pack 3 or later is required when using Excel 2003 under the Windows 7 operating system.
- \*15 Required when using the online startup function.
- \*16 When executing online startup by using Microsoft Edge, use Internet Explorer mode. (🔍 Page 203 Setting Internet Explorer mode)  
Note that when using Microsoft Edge in Internet Explorer mode, it may take time to display the main page.

## 2.4 How to Check the Function Version and Serial Number

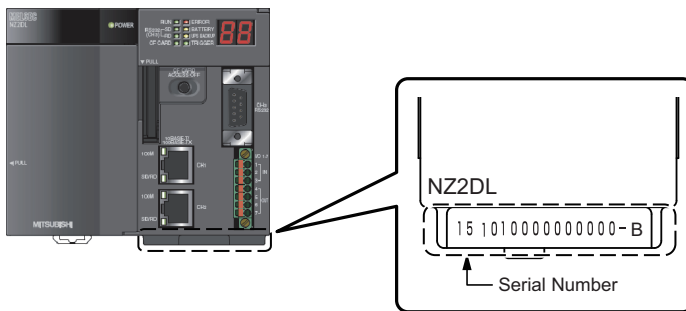
This section explains the method for checking the function version and serial number of BOX Data Logger.

### Checking 'SERIAL on the rating plate' on the side of BOX Data Logger



### Checking on the front of BOX Data Logger

The serial number can be checked with the serial number information indicated on the front of BOX Data Logger (at the bottom).



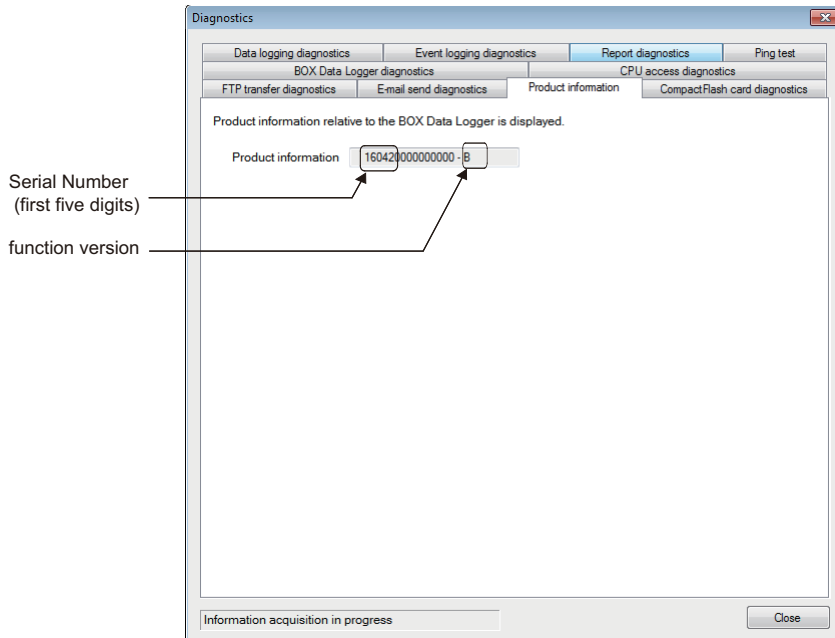
## Checking with Configuration tool

The product information can be checked with [Product information] tab in Configuration tool.

### Operating procedure

Select [Online] ⇒ [Diagnostics] ⇒ [Product information] tab.

### Displayed items



# 3 SPECIFICATIONS

This chapter explains the specifications of BOX Data Logger.

## 3.1 General Specifications

This section explains the general specifications of BOX Data Logger.

Item	Specification					
Operating ambient temperature	0 to 55 °C					
Storage ambient temperature	-25 to 75 °C					
Operating ambient humidity	5 to 95 %RH, non-condensing					
Storage ambient humidity	5 to 95 %RH, non-condensing					
Vibration resistance	Compliant with JIS B 3502 and IEC 61131-2	—	■Frequency	■Constant acceleration	■Half amplitude	■Sweep count
		Under intermittent vibration	5 to 8.4 Hz	—	3.5 mm	10 times each in X, Y, and Z directions
			8.4 to 150 Hz	9.8 m/s <sup>2</sup>	—	
		Under continuous vibration	5 to 8.4 Hz	—	1.75 mm	—
8.4 to 150 Hz	4.9m/s <sup>2</sup>		—			
Shock resistance	Compliant with JIS B 3502 and IEC 61131-2 (147 m/s <sup>2</sup> , 3 times each in X, Y, and Z directions)					
Operating atmosphere	No corrosive gases					
Operating altitude <sup>*1</sup>	0 to 2000 m					
Installation location	Inside a control panel					
Overvoltage category <sup>*2</sup>	II or less (with the mounted state)					
Pollution degree <sup>*3</sup>	2 or less					
Equipment class	Class I					

- \*1 Do not use or store the BOX Data Logger under pressure higher than the atmospheric pressure of altitude 0 m. Doing so may cause malfunction. When using BOX Data Logger under pressure, please consult your local Mitsubishi representative.
- \*2 This indicates the section of the power supply to which the equipment is assumed to be connected between the public electrical power distribution network and the machinery within premises.  
Category II applies to equipment for which electrical power is supplied from fixed facilities. The surge voltage withstand level for up to the rated voltage of 300 V is 2500 V.
- \*3 This index indicates the degree to which conductive material is generated in terms of the environment in which the equipment is used. Pollution level 2 is when only non-conductive pollution occurs. A temporary conductivity caused by condensing must be expected occasionally.

## 3.2 Performance Specifications

This section explains the performance specifications of BOX Data Logger.

### Power specifications

Item	Specification	
Input voltage* <sup>1</sup>	24 VDC [-35% to +30%] (15.6 to 31.2 VDC)	
Current consumption	24 VDC 0.43 A	
Inrush current* <sup>2</sup>	100 A, within 1 ms (24 VDC input)	
Allowable momentary power failure time* <sup>3</sup>	Within 10 ms (24 VDC input)	
Withstand voltage	Between primary and 5 VDC: 500 VAC	
Insulation resistance	10 MΩ or higher by insulation resistance tester	
Noise durability	Noise voltage: 500 Vp-p, noise width: 1μs By noise simulator of noise frequency at 25 to 60 Hz	
Fuse	Built-in (User-unchangeable)	
Contact output part	Application	ERR. Contact (Turns ON when BOX Data Logger run normally.)
	Rated switching voltage and current	24 VDC and 0.5 A
	Minimum switching load	5 VDC and 1 mA
	Response time	OFF → ON: 10 ms or less ON → OFF: 12 ms or less
	Life	Mechanical: 20 million or more Electrical: 100 thousand or more for rated switching voltage and current
	Surge suppressor	None
	Fuse	None
Terminal screw size	M3.5 screw	
Applicable wire size	0.75 to 2 mm <sup>2</sup>	
Applicable solderless terminals	RAV 1.25-3.5, RAV 2-3.5	
Applicable tightening torque	0.66 to 0.89N·m	

\*1 Input voltage is a voltage required for the power supply module to operate normally. If the input voltage is out of the specified range, an error is detected and the system may stop.

\*2 Inrush current is the maximum and instantaneous input current drawn into the circuits immediately after power-on. If power is supplied to the system immediately after shut-off, an inrush current of more than the specified value may flow. Wait for 5 or more seconds after shut-off and then supply power to the system again.

When selecting a fuse or breaker for the external circuit, consider blowouts, sensing property, and descriptions in this section.

\*3 The system detects an input voltage down and stops its operation when a momentary power failure occurs. At the time of momentary power failure exceeding the allowable momentary power failure period, the system may either continue its operation or perform the initial-startup depending on the load of the power supply module. When the system continues its operation, the operation will be the same as that of the system returned within the allowable momentary power failure time.

## Transmission and interface specifications

Item		Specification		
Ethernet	Interface	10BASE-T	100BASE-TX	
	Data transmission rate	10 Mbps	100 Mbps	
	Transmission method	Base band		
	Number of cascaded nodes	Up to 4 bases	Up to 2 bases	
	Maximum segment length <sup>*1</sup>	100 m		
	Supported function	Auto-negotiation function supported <sup>*2</sup> (automatically distinguishes 10BASE-T/100BASE-TX)		
	IP version	Support for IPv4		
Serial part	Interface	Compliant with RS-232		
	Synchronization method	Asynchronous communication		
	Transmission speed	4800, 9600, 19200, 38400, 57600, 115200 (bps)		
	Data format	Start bit	1	
		Data bit	7/8	
		Parity bit	1/None	
		Stop bit	1/2	
	Error detection	Parity check	All protocols are supported. When parity check is enabled, select odd/even number with parameter.	
Sum check code		By communication protocol		
Transmission distance (The total extended distance)	RS-232	Up to 15 m		
CompactFlash card	Supply power voltage	3.3 V $\pm$ 5%		
	Supply power capacity	Up to 150 mA		
	Card size	TYPE I card		
	Number of insertable cards	1		



Item		Specification	
I/O part · UPS connection terminal · External trigger input terminal · Error output terminal	Input	Point	2 points (external trigger signal input, UPS backup signal input)
		Isolation method	Photocoupler insulation
		Supply power voltage	24 VDC (+20/-15%, ripple ratio within 5%)
		Rated input current	4 mA
		ON voltage/ON current	19 VAC or higher/3 mA or higher
		OFF voltage/OFF current	11 VAC or lower/1.7 mA or lower
		Input resistance	Approx. 5.6 kΩ
		Response Time	OFF → ON: 100 ms or less
			ON → OFF: 100 ms or less
		Dielectric withstand voltage	560 VAC rms/3cycles (altitude 2000 m)
		Insulation resistance	10 MΩ or more by insulation resistance tester
		Noise immunity	Noise voltage: 500 Vp-p, noise width: 1μs (by noise simulator of noise frequency at 25 to 60 Hz)
			First transient noise IEC61000-4-4: 1 kV
		Protection degree	IP2X
		Common terminal arrangement	2 points/1 common (plus common)
		Applicable wire size	0.3 to 1.5 mm <sup>2</sup> (AWG 22 to 16)
		Applicable crimping terminal	Bar solderless terminals
	Output	Point	2 points (error signal output, UPS shutdown signal output)
		Isolation method	Photocoupler insulation
		Rated load voltage	12 to 24 VDC (+20/-15%)
		Maximum load current	2 A/1 point
		Maximum rush current	8 A/10 ms or lower
		Leakage current at OFF	0.1 mA or lower
Surge suppressor		Zener diode	
Fuse		None (Page 106 Precautions)	
Common terminal arrangement		All Points Independent, Sink/Source Type	
Applicable wire size		0.3 to 1.5 mm <sup>2</sup> (AWG 22 to 16)	
Applicable crimping terminal	Bar solderless terminal		
Clock function	Function	Year, month, day, hour, minute, second, day of week (automatic leap year detection)	
	Accuracy <sup>*3</sup>	Daily error -10.89 to +8.64 seconds (0 to 55°C) Daily error -4.32 to +5.25 seconds (25°C)	

\*1 This indicates a length between a hub and a node.

\*2 BOX Data Logger distinguishes automatically 10BASE-T from 100BASE-TX according to the target equipment. For connection to a hub without an auto-negotiation function, set the hub to half-duplex communications mode.

\*3 When powering ON BOX Data Logger, the deviation of -0.5 to +0.5 seconds may occur.

### External dimensions, Weight

Item	Specification
External dimensions	98 (H) × 110.8 (W) × 145.5 (D) [mm]
Weight	0.8 kg

## Function specifications

### ■ Data sampling performance specifications

Item	Specification	
Data sampling <sup>*1</sup>	Number of access target CPUs	UP to 64
	Data sampling interval	0.1 to 0.9 seconds, 1 to 32767 seconds Time interval specification (specify hour-minute-second)
	Number of sampled data <sup>*2,*3,*4</sup>	Total number of data: 16384 (per setting: 256) Overall number of device points: 262144 (per setting: 4096)
	Data type <sup>*5</sup>	Bit Word [signed] Double word [signed] Word [unsigned] Double word [unsigned] FLOAT [single precision] FLOAT [double precision] 16bit BCD 32bit BCD String: 1 to 8192 characters Raw: 1 to 8192 bytes
	Data output format (CSV file) <sup>*6</sup>	Bit Decimal format: 0 to 14 digits after the decimal point Exponential format: 0 to 14 digits after the decimal point Hexadecimal format String Raw
Scaling <sup>*7</sup>	Basic arithmetic operations: calculations combining (×, ÷) and (+, -)	

\*1 A specification related to the target data sampling with the Data logging function, Event logging function, and Report function.

\*2 The number of device points available for 1 piece of data depends on the data type.

\*3 The total number of the data logging, event logging, and report data.

- Data logging: logging target data, trigger condition data, period condition data, file switching condition data, saved file name data, and e-mail transmission data
- Event logging: monitoring data, period condition data, file switching condition data, saved file name data, and e-mail transmission data
- Report: current value data, creation trigger condition data, period condition data, saved file name data, and e-mail transmission data

\*4 The number of sampled data per single setting is as follows only when the creation trigger and current value data are not synchronized with the report setting.

Number of data (per single setting): up to 65535, number of device points (per single setting): up to 65535  
However, note that the number of device points per setting of data excluding current value data is up to 4096.

\*5 The data type when reading data from the programmable controller CPU's device memory.

\*6 The format when outputting data to a CSV file with the Data logging function or Event logging function.

Binary files are output in the binary format.

Reports are output in Excel cell format.

\*7 A function to perform data scaling and offset calculations.

#### Point

The Data logging function, Event logging function, and Report function of BOX Data Logger are the best effort functions.

Since BOX Data Logger processing time changes according to the settings and status of other devices, it may not operate with the set data sampling interval.

Run the system by fully verifying the processing time of each function when constructing it.

For processing time, refer to the following chapter.

 Page 400 PROCESSING TIME

## ■ Performance specifications of Data logging function

Item		Specification						
Data logging function	Number of settings	Up to 64 settings <sup>*1</sup>						
	Logging type	<ul style="list-style-type: none"> <li>• Continuous logging</li> <li>• Trigger logging</li> </ul>						
	File format	<ul style="list-style-type: none"> <li>• CSV file (extension: .CSV)</li> <li>• Binary file (extension: .BIN)<sup>*2</sup></li> </ul>						
	Period	Specify applicable period or exclusion period. <ul style="list-style-type: none"> <li>• Data condition: bit ON/OFF, compare data to constant value, compare data to data</li> <li>• Date range: specify start and end with month and day.</li> <li>• Time range: specify start and end with hour, minute and second</li> <li>• Day of week/week condition: specify days of the week and weeks</li> </ul> AND or OR combination of the above: up to 8 conditions <sup>*3</sup>						
	Trigger logging	<table border="1"> <thead> <tr> <th>Trigger conditions</th> <th>Specification</th> </tr> </thead> <tbody> <tr> <td></td> <td>           Condition           <ul style="list-style-type: none"> <li>• Comparison: bit ON/OFF, compare data to constant value, compare data to data</li> <li>• At the time of change of value</li> <li>• Fixed cycle: 1 to 86400 seconds</li> <li>• Time interval specification: specify hour, minute and second</li> <li>• Time of day specification: specify month, day, hour, minute and second</li> <li>• At startup of BOX Data Logger</li> </ul>           AND or OR combination of the above: up to 8 conditions<sup>*3</sup>            Condition established count: 3 conditions<sup>*3</sup>            Condition established order (order and/or time conditions): up to 4 conditions<sup>*3</sup> </td> </tr> <tr> <td>Number of logging lines<sup>*4</sup></td> <td> <ul style="list-style-type: none"> <li>• Before trigger occurs: 0 to 65534 lines</li> <li>• After trigger occurs: 1 to 65535 lines</li> </ul>           The sum of lines of before and after trigger occurrence is up to 65535 lines.         </td> </tr> </tbody> </table>	Trigger conditions	Specification		Condition <ul style="list-style-type: none"> <li>• Comparison: bit ON/OFF, compare data to constant value, compare data to data</li> <li>• At the time of change of value</li> <li>• Fixed cycle: 1 to 86400 seconds</li> <li>• Time interval specification: specify hour, minute and second</li> <li>• Time of day specification: specify month, day, hour, minute and second</li> <li>• At startup of BOX Data Logger</li> </ul> AND or OR combination of the above: up to 8 conditions <sup>*3</sup> Condition established count: 3 conditions <sup>*3</sup> Condition established order (order and/or time conditions): up to 4 conditions <sup>*3</sup>	Number of logging lines <sup>*4</sup>	<ul style="list-style-type: none"> <li>• Before trigger occurs: 0 to 65534 lines</li> <li>• After trigger occurs: 1 to 65535 lines</li> </ul> The sum of lines of before and after trigger occurrence is up to 65535 lines.
	Trigger conditions	Specification						
	Condition <ul style="list-style-type: none"> <li>• Comparison: bit ON/OFF, compare data to constant value, compare data to data</li> <li>• At the time of change of value</li> <li>• Fixed cycle: 1 to 86400 seconds</li> <li>• Time interval specification: specify hour, minute and second</li> <li>• Time of day specification: specify month, day, hour, minute and second</li> <li>• At startup of BOX Data Logger</li> </ul> AND or OR combination of the above: up to 8 conditions <sup>*3</sup> Condition established count: 3 conditions <sup>*3</sup> Condition established order (order and/or time conditions): up to 4 conditions <sup>*3</sup>							
Number of logging lines <sup>*4</sup>	<ul style="list-style-type: none"> <li>• Before trigger occurs: 0 to 65534 lines</li> <li>• After trigger occurs: 1 to 65535 lines</li> </ul> The sum of lines of before and after trigger occurrence is up to 65535 lines.							
File switching timing	Number of lines (number of records) specification: 100 to 100000 lines File size specification: 10 to 16384 kilobytes Condition specification: <ul style="list-style-type: none"> <li>• Comparison: bit ON/OFF, compare data to constant value, compare data to data</li> <li>• At the time of change of value</li> <li>• Fixed cycle: 1 to 86400 seconds</li> <li>• Time interval specification: specify hour, minute and second</li> <li>• Time of day specification: specify month, day, hour, minute and second</li> <li>• At startup of BOX Data Logger</li> </ul> AND or OR combination of the above: up to 8 conditions <sup>*3</sup> Trigger logging unit							
Number of saved files	1 to 65535							

\*1 Up to 64 settings in combination with Data logging setting, Event logging setting, and Report setting can be set.

\*2 By using the Report function, data can be re-output in the Excel file format.

\*3 Up to 10 conditions in combination with period, trigger conditions, and file switching conditions can be set.

\*4 The number of logging lines setting is affected by the amount of memory (trigger buffer) where sampled data are temporarily saved. Since the amount of trigger buffer has an upper limit, there may be situations where the listed number of logging lines cannot be set. For details, refer to the following section.

☞ Page 288 Trigger buffer usage amount

## ■ Performance specifications of the Event logging function

Item	Specification
Event logging function	Number of settings Up to 64 settings <sup>*1</sup>
	Number of events Up to 64 events per single event logging setting
	File format CSV file (extension: .CSV) Binary file (extension: .BIN)
	Event conditions Condition: <ul style="list-style-type: none"> <li>• Comparison: bit ON/OFF, compare data to constant value, compare data to data</li> <li>• At the time of change of value</li> </ul> AND or OR combination of the above: up to 4 conditions Condition established count: 3 conditions Condition established order (order and/or time conditions): up to 4 conditions
	Period Specify applicable period or exclusion period. <ul style="list-style-type: none"> <li>• Data condition: bit ON/OFF, compare data to constant value, compare data to data</li> <li>• Date range: specify start and end with month and day.</li> <li>• Time range: specify start and end with hour, minute and second</li> <li>• Day of week/week condition: specify days of the week and weeks</li> </ul> AND or OR combination of the above: up to 8 conditions <sup>*2</sup>
	File switching timing Number of lines (number of records) specification: 100 to 100000 lines File size specification: 10 to 16384 kilobytes Condition: <ul style="list-style-type: none"> <li>• Comparison: bit ON/OFF, compare data to constant value, compare data to data</li> <li>• At the time of change of value</li> <li>• Fixed cycle: 1 to 86400 seconds</li> <li>• Time interval specification: specify hour, minute and second</li> <li>• Time of day specification: specify month, day, hour, minute and second</li> <li>• At startup of BOX Data Logger</li> </ul> AND or OR combination of the above: up to 8 conditions <sup>*2</sup>
Number of saved files 1 to 65535	

\*1 Up to 64 settings in combination with Data logging setting, Event logging setting, and Report setting can be set.

\*2 Up to 10 conditions in combination with period and file switching condition can be set.

## ■ Performance specifications of the Report function

Item	Specification	
Report function	Number of settings	Up to 64 settings <sup>*1</sup>
	File format	Excel format (extension: .xls)
	Output data type	Data inside Data logging file <sup>*2</sup> Current value data Creation time
	Number of output data	64 layouts per single report setting, 65535 cells in total
	Creation trigger conditions	Condition: <ul style="list-style-type: none"> <li>• Comparison: bit ON/OFF, compare data to constant value, compare data to data</li> <li>• At the time of change of value</li> <li>• Fixed cycle: 1 to 86400 seconds</li> <li>• Time interval specification: specify hour, minute and second</li> <li>• Time of day specification: specify month, day, hour, minute and second</li> <li>• At startup of BOX Data Logger</li> <li>• At the time of the Data logging file is switched</li> </ul> AND or OR combination of the above: up to 8 conditions <sup>*3</sup> Condition established count: 3 conditions <sup>*3</sup> Condition established order (order and/or time conditions): up to 4 conditions <sup>*3</sup>
	Period	Specify applicable period or exclusion period. <ul style="list-style-type: none"> <li>• Data condition: bit ON/OFF, compare data to constant value, compare data to data</li> <li>• Date range: specify start and end with month and day.</li> <li>• Time range: specify start and end with hour, minute, and second</li> <li>• Day of week/week condition: specify days of the week and weeks</li> </ul> AND or OR combination of the above: up to 8 conditions <sup>*3</sup>
	Layout file size	Up to 10 MB (total of all report settings)
Number of saved files	1 to 65535	

\*1 Up to 64 settings in combination with the Data logging function, Event logging function, and Report function can be set.

\*2 Only binary format Data logging files can be output to a report.

\*3 Up to 10 conditions in combination with period and creation trigger condition can be set.

## Other performance specifications

Item		Specification	
E-mail	Application	Notification when event occurs Transmission of saved file	
	Subject	Event notification e-mail : user specified Saved file transmission e-mail: automatically created/user specified	
	Body	Event notification e-mail : user specified Saved file transmission e-mail: automatically created/user specified	
	Attachment	Event notification e-mail : none Saved file transmission e-mail: • Saved file (CSV, binary, or Excel file) • Up to 512 KB	
	Attachment format	MIME format	
	MIME version	1.0	
	Communications with mail server	Port no.	25, 587, other (1 to 65535)
		Authentication method	No authentication SMTP-AUTH (PLAIN, LOGIN, CRAM-MD5) POP before SMTP
	Target address	Up to 16 groups	
	Operability verified e-mail client software	Microsoft Outlook Express 6.0 Microsoft Windows Mail 6.0	
FTP server <sup>*1</sup>	Application	Read and deletion of saved files, and write, read, and deletion of Recipe files	
	Operability verified FTP client software	Microsoft Edge Windows Internet Explorer 11.0 Windows Internet Explorer 10.0 Windows Internet Explorer 9.0 Windows Internet Explorer 8.0 Windows Internet Explorer 7.0	
	Session count <sup>*2</sup>	10	
FTP client <sup>*3</sup>	Application	Transfer of saved files	
	Operability verified FTP server software	Microsoft Internet Information Services	
Recipe	Number of data	Up to 256 data	
	Number of records	Up to 256 records	
	Data type	Bit Word [signed] Double word [signed] Word [unsigned] Double word [unsigned] FLOAT [single precision] FLOAT [double precision] 16bit BCD 32bit BCD	
	Recipe file	CSV file (extension: .csv) Up to 256 files Up to 512 KB (per file)	
	Execution type	Ladder, Configuration tool	

\*1 A function to access BOX Data Logger (FTP server) from a personal computer's FTP client software. For details of supported FTP commands, refer to Page 596 .

\*2 The upper limit of the number of simultaneous connections to BOX Data Logger from FTP client software. FTP client software may use multiple connections per single access session.

\*3 A function to access a personal computer's FTP server software from BOX Data Logger (FTP client).

## 3.3 Internal device

The statuses of the switches connected to the BOX Data Logger's external trigger input (TRIGGER(IN)) terminals are saved as internal devices. Internal devices include the switch status (NTRG0), the number of switch rises (NTRC0), and the number of switch falls (NTRC1). At powering OFF/ON the BOX Data Logger, the number of switch rises/falls returns to 0. The values are retained at setting updates.

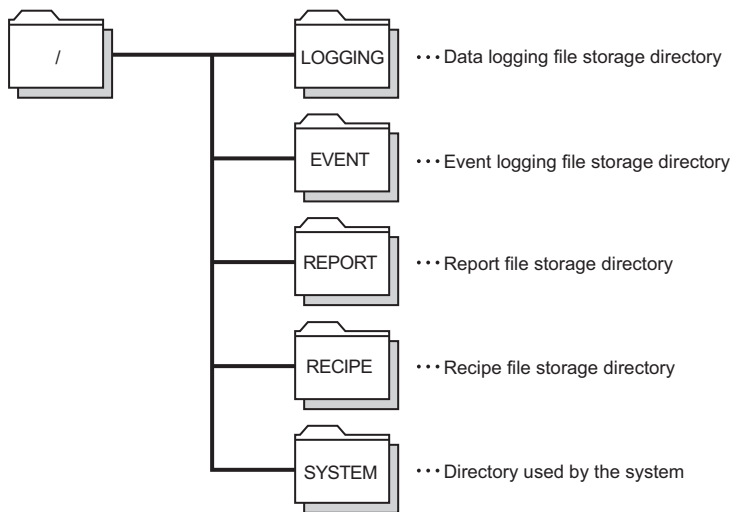
Device		Description	Range
Trigger input (NTR)	NTRG0	ON/OFF status of the switches connected to BOX Data Logger's trigger input (TRIGGER(IN)) terminals	ON/OFF
	NTRC0	Counts the number of NTRG0 rise.*1	0 to 65535*2
	NTRC1	Counts the number of NTRG0 fall.	0 to 65535*2

\*1 If the NTRG0 is ON at startup of BOX Data Logger, the count starts from 1.


\*2 After counting up to the maximum value, it returns to 0.

## 3.4 Directory Structure

The directory structure of the CompactFlash card inserted in BOX Data Logger is as follows:  
When accessed with the FTP function, the root directory of the CompactFlash card is under '/'.



For the file access authority, refer to the following section.

 Page 246 File access authority (when using file browser or FTP)



# 3.5 CSV File Format

## CSV format specification

The CSV file format specification of Data logging file and Event logging file are listed below.

Item	Description
Delimiter	Comma ( , )
Linefeed code	CRLF (0x0D, 0x0A)
Character code	ASCII code
Field data	Not enclosed with double quotes (""). The data cannot use double quotes ("), commas ( , ). However, commas ( , ) can be included in the CSV output settings for "Date column". In this case, commas ( , ) are also included in the data type information line, data name line, and data line.
Number of lines	Up to 100003 lines (data lines + 3)
File size	Up to 16777216 bytes Can be specified in a range of 10 to 16384 × 1024 bytes.



For the CSV file format in which each setting of BOX Data Logger Configuration tool is exported, refer to the following section.

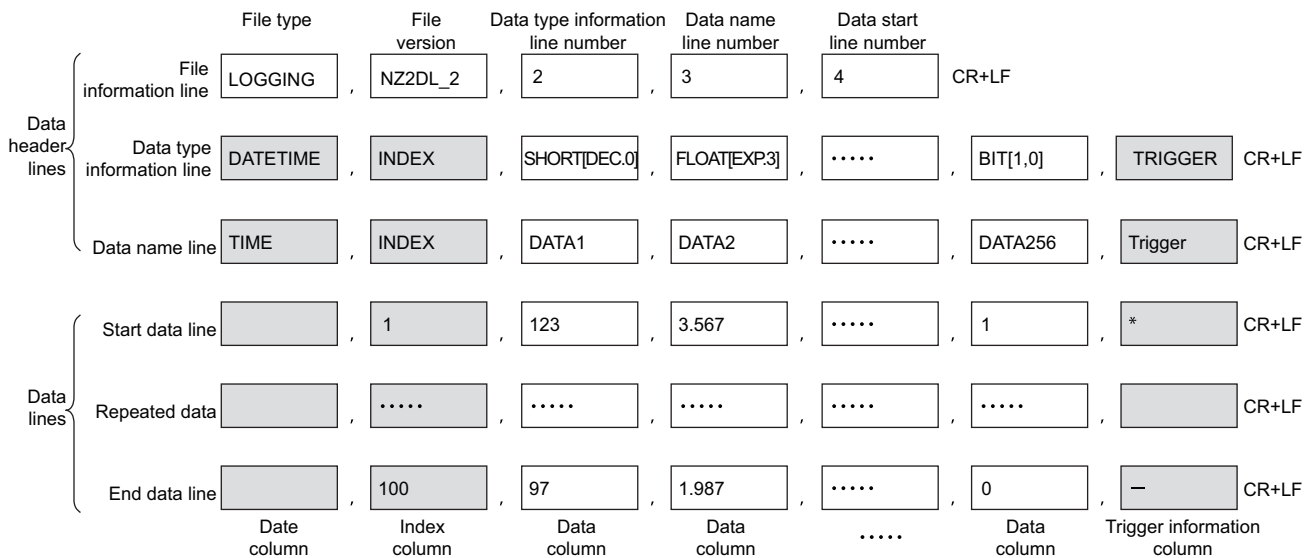
Page 597 Setting Information CSV File Format

## Data logging file

### Format overview

The format of the Data logging file is as follows:

The date, index, and trigger information column (shaded portions) can be specified not to be output. If they are not output, items are left aligned.



## Item descriptions

### ■File information line

Column name	Description	Size (in bytes)
File type	Output [LOGGING]	9
File version	File version (NZ2DL_2 fixed)	7
Data type information line number	The value indicates the line number of the data type information line is entered. ("2" in the format overview example)	1
Data name line number	The value indicates the line number of the data name line is entered. ("3" in the format overview example)	1
Data start line number	The value indicates the start line number of the data line is entered. ("4" in the format overview example)	1

The total size of the file information line is shown below.

File information line size

$$\begin{aligned}
 &= 9 \text{ [file type]} + 7 \text{ [file version]} + 1 \text{ [data type information line number]} + 1 \text{ [data name line number]} \\
 &+ 1 \text{ [data start line number]} + 4 \text{ [number of commas]} + 2 \text{ [CR+LF]} \\
 &= 25 \text{ [bytes]}
 \end{aligned}$$

### ■Data type information line

Output in the format of (data type)[(additional information)].

- Data type

Column name	Output character	Description	Size (in bytes)
Date column	DATETIME	Outputs to the date column.	8
Index column	INDEX	Outputs to the index column.	5
Data column	BIT	Outputs when "Bit" is specified for the data type.	3
	SHORT	Outputs when "Word [signed]" is specified for the data type.	5
	USHORT	Outputs when "Word [unsigned]" is specified for the data type.	6
	LONG	Outputs when "Double word [signed]" is specified for the data type.	4
	ULONG	Outputs when "Double word [unsigned]" is specified for the data type.	5
	FLOAT	Outputs when "FLOAT [single precision]" is specified for the data type.	5
	DOUBLE	Outputs when "FLOAT [double precision]" is specified for the data type.	6
	BCD16	Outputs when "16bit BCD" is specified for the data type.	5
	BCD32	Outputs when "32bit BCD" is specified for the data type.	5
	STRING	Outputs when "String" is specified for the data type.*1	6
RAW	Outputs when "Raw" is specified for the data type.*2	3	
Trigger information column	TRIGGER	Indicates the trigger information column.	7

\*1 Characters outside the ASCII range, double quotes ("), comma (,), and semicolons (;) are substituted with periods (.).

\*2 Hexadecimal representation is converted to a string by byte unit, and output it with the space removed.

Example) For start device D0, 4-byte raw type

D0: 0x8A6B, D1: 0x41C2 → "6B8AC241"

- Additional information

Column name	Description	Size (in bytes)
Date column	Outputs the data line output format specified with the CSV output setting. Example) [YYYY/MM/DD hh:mm:ss.s]	3 to 48
Index column	No additional information	0
BIT	[string when ON];[string when OFF]	Outputs when "Bit" is specified for the data type. 3 to 33
Data column	[DEC.digits]	Outputs when "Decimal format" is specified for the output format. 7 to 8 (Depends on digits)
	[EXP.digits]	Outputs when "Exponential format" is specified for the output format. 7 to 8 (Depends on digits)
	[HEX]	Outputs when "Hexadecimal format" is specified for the output format. 5
	Size	Outputs the specified size when "String" or "Raw" is specified for the data type. 1 to 4 (Depends on size)
Trigger information column	(String when trigger occurs);(String when trigger clears)	Outputs the string when trigger occurs or string when trigger clears specified with the CSV output setting.*1 5 to 67 (Depends on CSV output setting)

\*1 Semicolons (;), double quotes ("), and commas (,) cannot be used in the string when trigger occurs/string when trigger is cleared. The size of the data type information line is calculated as shown below.

**Ex.**

When logging 256 points worth of signed 16-bit integer, decimal format (0 digits) data  
(Date column YYYY/MM/DD hh:mm:ss.s, index column output)

Data type information line size

$$= (8+23) [\text{date column}] + 5 [\text{index column}] + (5+7) \times 256 [\text{data column}] + 257 [\text{number of commas}] + 2 [\text{CR+LF}]$$

$$= 3367 [\text{bytes}]$$

### ■ Data name line

Column name	Description	Size (in bytes)
Date column	Outputs the 'data name line string' specified with the CSV output setting.	1 to 32 (Depends on CSV output setting)
Index column	Outputs "INDEX".	5
Data column	Outputs the 'data name' specified with the CSV output setting.	1 to 32 (Depends on data setting)
Trigger information column	Outputs the 'trigger information column' specified with the CSV output setting.	1 to 32 (Depends on CSV output setting)

The size of the data name line is calculated as shown below.

**Ex.**


When logging 256 points worth of data with a data name length of 10  
(Date column YYYY/MM/DD hh:mm:ss.s, index column output)

Data name line size

$$= 21 [\text{date column}] + 5 [\text{index column}] + 10 \times 256 [\text{data column}] + 257 [\text{number of commas}] + 2 [\text{CR+LF}]$$

$$= 2845 [\text{bytes}]$$

## ■Data line

Column name	Description	Size (in bytes)		
Date column	Outputs according to the data line output format specified with the CSV output setting. <sup>*4</sup> Example) 2009/1/15 10:15:20	1 to 32 (Depends on CSV output setting)		
Index column	Outputs a numerical value starting from 1 incremented in ascending order. When the value exceeds the upper limit of 4294967295, it is returned to 0 and increments again in the range of 0 to 4294967295. When missing sampling data occurs, the index is renumbered again from 1.  Page 136 Missing Data	1 to 10 (Depends on size)		
Data column	Bit	Outputs when data is ON: (string when ON) Outputs when data is OFF : (string when OFF).	1 to 16 (Depends on data setting)	
	Word [unsigned] Word [signed] 16bit BCD <sup>*1,*2</sup>	Outputs data value according to the output format specified with the data setting.	Decimal format <sup>*3</sup>	1 to 21 (Depends on data value and digits)
			Exponential format	5 to 21 (Depends on data value and digits)
			Hexadecimal format	1 to 4 (Depends on data value)
	Double word [unsigned] Double word [signed] FLOAT [single precision] <sup>*1,*2</sup> FLOAT [double precision] <sup>*1,*2</sup> 32bit BCD <sup>*1,*2</sup>	Outputs data value according to the output format specified with the data setting.	Decimal format <sup>*3</sup>	1 to 26 (Depends on data value and digits)
			Exponential format	5 to 22 (Depends on data value and digits)
			Hexadecimal format	1 to 8 (Depends on data value)
String	Outputs a string of the specified size. <sup>*5</sup>	1 to 8192 (Depends on data value and size)		
Raw	Outputs the data values of the specified size in hexadecimal notation. Example) For Raw as data type with '6' set as size from D0 Device value D0=1234, D1=5678, D2=9ABC Output 34127856BC9A	2 to 16384 (Depends on size)		
Trigger information column	When trigger occurs; "string when trigger occurs" When trigger is cleared; outputs "the string when trigger is cleared" Does not output in other situations. (Outputs CR+LF immediately after the comma.)	0 to 32 (Depends on CSV output setting)		

\*1 If the device data value cannot be represented with the data type specified for "Data type", or the operation result cannot be represented with the specified data type, 'NaN' is output to the data line.

\*2 For arithmetic processing specified with scaling, all values are calculated as double precision floating point numbers, and the result is output with the specified format.

If the result of the primary function transformation with the scaling function exceeds the double precision floating point type upper limit value, 'Inf' is output. If the value is lower than the lower limit value, '-Inf' is output.

\*3 When the output numerical values are outside the range of -2147483648.0 to 2147483647.0, they are represented in a format same as 'exponential format and 9 digits in the decimal part'.

\*4 When CSV files are opened with Excel, the date column format is displayed in Excel's default setting.

Set the cell format as necessary.

Example) To display year, month, date, hour, minute, second, and millisecond information

Specify the user defined display format below.

yyyy/mm/dd hh:mm:ss.000

\*5 If there is a string terminator (0) halfway in the data, the data after it are not output.

The (maximum) size of the data line is calculated as shown below.

**Ex.**

When logging 256 points worth of word [unsigned] decimal format 0 digit data (date column: YYYY/MM/DD hh:mm:ss.s, index column: output)

Data line size

= 21 [date column] + 10 [index column] + 6 × 256 [data column] + 257 [number of commas] + 2 [CR+LF]

=1826 [bytes]

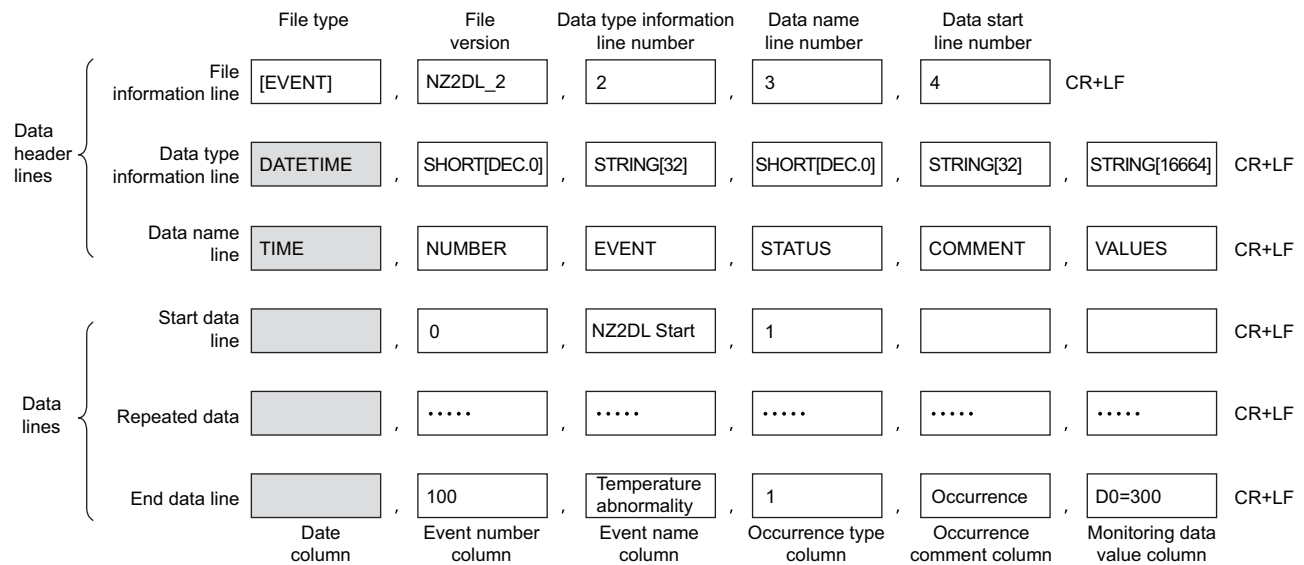
# Event logging file

## Format overview

The format of the Event logging file is as follows:

The date column (shaded portion) can be specified not to be output.

If they are not output, items are left aligned.



## Item descriptions

### ■ File information line

Column name	Description	Size (in bytes)
File type	Outputs 'EVENT'.	7
File version	File version is output. (NZ2DL_2 fixed)	7
Data type information line number	The value indicates the line number of the data type information line is entered. ('2' in the format overview example)	1
Data name line number	The value indicates the line number of the data name is entered. ('3' in the format overview example)	1
Data start line number	The value indicates the start line number of the data line is entered. ('4' in the format overview example)	1

The total size of the file information line is shown below.

File information line size

$$\begin{aligned}
 &= 7 \text{ [file type]} + 7 \text{ [file version]} + 1 \text{ [data type information line number]} + 1 \text{ [data name line number]} \\
 &+ 1 \text{ [data start line number]} + 4 \text{ [number of commas]} + 2 \text{ [CR+LF]} \\
 &= 23 \text{ [bytes]}
 \end{aligned}$$

## ■Data type information line

Output in the format of (data type)[(additional information)].

Data type

Column name	Output character	Description	Size (in bytes)
Date column	DATETIME	Outputs to the date column.	8
Event number column	SHORT	Indicates the event number column is word type.	5
Event name column	STRING	Indicates the event name column is string type.	6
Occurrence type column	SHORT	Indicates the occurrence type column is word type.	6
Occurrence comment column	STRING	Indicates the occurrence comment column is string type.	6
Monitoring data value column	STRING	Indicates the monitoring data value column is string type.	6

Additional information

Column name	Description	Size (in bytes)
Date column	Outputs the data line output format specified with the CSV output setting. Example) [YYYY/MM/DD hh:mm:ss.s]	3 to 48
Event number column	[DEC.0] (fixed)	7
Event name column	[32] (fixed)	4
Occurrence type column	[DEC.0] (fixed)	7
Occurrence comment column	[32] (fixed)	6
Monitoring data value column	[16664] (fixed)	7

The size of the data type information line is calculated as shown below.

**Ex.**

For date column [YYYY/MM/DD hh:mm:ss.s]

Data type information line size

$$\begin{aligned} &= (8+23) \text{ [date column]} + (5+7) \text{ [event number column]} + (6+4) \text{ [event name column]} + (6+7) \text{ [occurrence type column]} \\ &+ (6+6) \text{ [occurrence comment column]} + (6+7) \text{ [monitoring data value column]} + 5 \text{ [number of commas]} + 2 \text{ [CR+LF]} \\ &= 98 \text{ [bytes]} \end{aligned}$$

## ■Data name line

Column name	Description	Size (in bytes)
Date column	Outputs the 'data name line string' specified with the CSV output setting.	1 to 32
Event number column	Outputs 'NUMBER'.	6
Event name column	Outputs 'EVENT'.	5
Occurrence type column	Outputs 'STATUS'.	6
Occurrence comment column	Outputs 'COMMENT'.	7
Monitoring data value column	Outputs 'VALUES'.	6

The size of the data name line is calculated as shown below.

**Ex.**

If the title string for the date column is "TIME"

Data name line size

= 4 [date column] + 6 [event number column] + 5 [event name column] + 6 [occurrence type column] + 7 [occurrence comment column]

+ 7 [occurrence comment column] + 6 [monitoring data value column] + 5 [number of commas] + 2 [CR+LF]

= 41 [bytes]

## ■Data line

Column name	Description	Size
Date column	Outputs according to the data line output format specified with the CSV output setting.*1 Example) 2009/1/15 10:15:20	1 to 32 (Depends on CSV output setting)
Event number column	Outputs the number of the event (1 to 64) which occurred or was restored. If the event type is "At startup of BOX Data Logger", '0' is output.	1 to 2
Event name column	Outputs the name of the event which occurred or was restored. If the event type is "At startup of BOX Data Logger", 'NZ2DL Start' is output.	1 to 32
Occurrence type column	Outputs the type of event which occurred or was restored. When occurred : '1' is output. When restored : '0' is output. If the event type is "At startup of BOX Data Logger", '1' is output.	1
Occurrence comment column	Outputs the occurrence/restoration comment configured on the Event setting screen.*2	1 to 32
Monitoring data value column*5,*6	The monitoring data value at occurrence/restoration is output in the following format. For a single condition '(data name) = (monitoring data value)*7 For a compound condition (comparison) '(data name) = (monitoring data value)*3,*7 For a compound condition (number of times) 'Count = (count value); (data name) = (monitoring data value)*4,*5 For a compound condition (order) '(completion information); (data name) = (monitoring data value)*4,*7 The following is output in the completion information. When normal pattern is detected: 'Complete' When abnormal pattern is detected or timeout is detected: 'Phase=[condition location]' The condition number which detected the abnormal pattern or timeout is output to condition location. 1: 1st condition 2: 2nd condition 3: 3rd condition Does not output when the event type is "At startup of BOX Data Logger". (Output CR+LF immediately after the comma.)	0 to 16664

\*1 If the device data value specified with monitoring data cannot be represented with the type specified for "Data type", 'NaN' is output in the data line.

\*2 Outputs a blank when the BOX Data Logger is restarted.  
Does not output when the event type is "At startup of BOX Data Logger".  
(After the comma, the next comma is immediately output.)

\*3 In the underlined portions, information of set amount of event condition is output delimited with a ';' (semicolon)'

\*4 In the underlined portions, information of the start condition, terminal condition, and count condition is output delimited with a ';' (semicolon)'

\*5 When CSV files are opened with Excel, the date column format is displayed in Excel's default setting.  
Set the cell format as necessary.  
Example) To display year, month, date, hour, minute, second, and millisecond information  
Specify the user defined display format as shown below.  
yyyy/mm/dd hh:mm:ss.000

\*6 This row is not output when the number of data is 0.

\*7 When the monitoring data value is string type data, characters outside the ASCII range, double quotes ("), comma(,), and semicolons (;) are substituted with periods (.).

The size of the data line is calculated as shown below.

Example) When date column format is YYYY/MM/DD hh:mm:ss.s, event name length is 10, occurrence comment length is 4, single condition, monitoring data is word [unsigned] decimal format 0 digits

Data line size

= 21 [date column] + 2 [event number column] + 10 [event name column] + 1 [occurrence type column]  
+ 4 [occurrence comment column] + 13 [monitoring data value column\*8] + 5 [number of commas] + 2 [CR+LF]  
= 58 [bytes]

\*8 13 bytes when 'D12000 = -23456' is set for the monitoring data value column.



# Recipe file format

## Format overview

The format of the Recipe file is as follows:

Recipe with Record Attribute		1) Block number	2) Record number		8) Record attribute				
Block Number	6	Record-Number	5	9) Record comment					
Device	Device Type	Points	Comment	Device Valve	10) Record number				
3) Device		4) Data type		1	2	3	4	5	
				Process 1 setting / Process 2 setting / Process 3 setting / Process 4 setting / Process 5 setting					
				P	N				
D1	Word (signed)	1	Item name/Item number	1	2	3	5		
D11	Word (signed)	1	All process/Material	1000	2000	3000	5000		
M11	Bit	1	All process/Setting-1	1	1	0	1		
M12	Bit	1	All process/Setting-2	1	0	1	1		
D21	Word (signed)	2	Post-process/Shape	15	25	35	55		
			Post-process/Color number	224	248	27	227		
M21	Bit	1	Post-process/Setting-1	1	1	0	0		
Fixed string field		5) Number of data		6) Device comment		7) Device value			
Read target field									
Write target field									
Read/Write target field									
Comment field									

- Fixed string field  
Specific strings for the Recipe function are entered. Editing this field causes the malfunction of the Recipe Execution Operation function.
- Read target field  
Data are read to the programmable controller CPU with the read operation. Value is not changed even with the write operation.
- Write target field  
Device values are written from the programmable controller CPU when the data write function is performed. The field to where N is specified as the record attribute cannot be written unless otherwise read the device value to the programmable controller once. The field will be available after read the value from the programmable controller CPU once.
- Read/Write target field  
Device values are read to the programmable controller CPU when the data read function is executed, and device values from the programmable controller CPU are written to these fields when the data write function is executed.
- Comment field  
Data are not read to the programmable controller CPU even when the data read function is executed. The fields can be left blank. Specify comments to determine the usage of devices and record files within the Recipe file.

## Item descriptions


Item	Description		
1)	Block number	Outputs the number of blocks. (1 to 256)	
2)	Record number	Outputs the number of records. (1 to 256)	
3)	Device	Outputs the devices for the Recipe Execution Operation function. Specify the start device for data types which require multiple points, or when specifying series of multiple data.	
4)	Data type	Outputs any of the following data type.	
		■Notation in CSV file	■Notation in Configuration tool
		Bit	Bit
		Word (signed)	Word [signed]
		Double word (signed)	Double word [signed]
		Word (unsigned)	Word [unsigned]
		Double word (unsigned)	Double word [unsigned]
		Float (single precision)	FLOAT [single precision]
		Float (double precision)	FLOAT [double precision]
		16bit BCD	16Bit BCD
32bit BCD	32Bit BCD		
5)	Number of data <sup>*1</sup>	Outputs the number of sequential devices. The number of data that can be set varies depending on the device type.(Bit device: 1 point, Devices other than bit: 1 to 256 points)	
6)	Device comment (option)	Outputs the device comment. (Up to 32 characters)	
7)	Device value <sup>*2,*3</sup>	Outputs device values used for the data read/write process. When the data read function is performed, data entered in this field are reflected to the specified devices in the programmable controller CPU. For the data write function, the specified devices in the programmable controller CPU are reflected to the data in this field.	
8)	Record attribute	Outputs the record attribute. Blank: No attribute N: N attribute P: P attribute	
9)	Record comment (option)	Outputs the record comment. (Up to 32 characters)	
10)	Record number	Outputs the record number. Same record number cannot be set within the same Recipe file.	

\*1 The total number of data in a single Recipe file is up to 256.

\*2 Fields of device values cannot be left blank except when N is specified for the record attribute.

\*3 Set the device value in decimal notation.

### Point

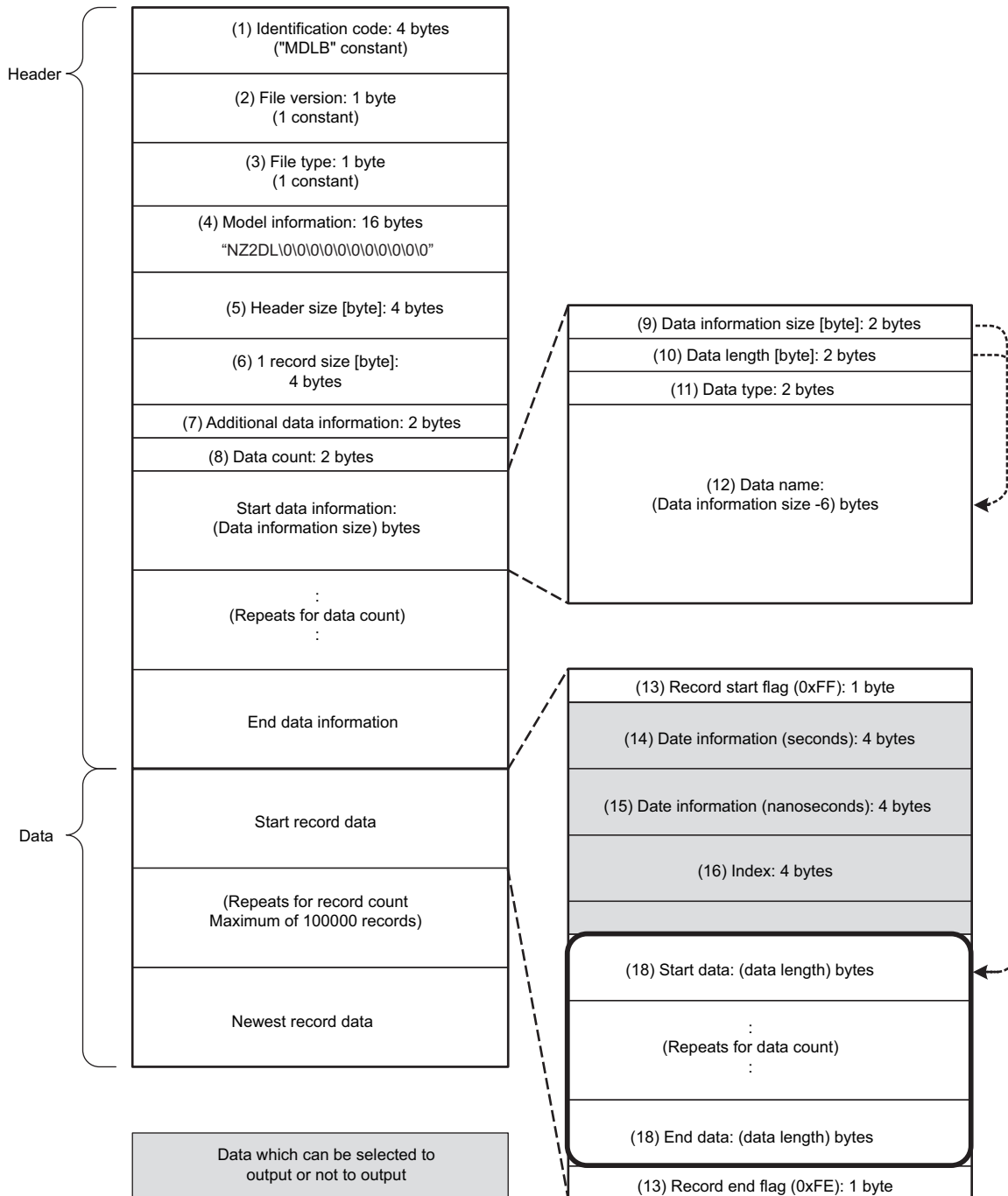
- The items described above can be edited.
- Set a Recipe file name within 32 characters. For the Recipe file names, use the characters usable in file names and folder (directory) names only. For the characters that can be used, refer to the following section.  
 Page 592 Usable Characters

# 3.6 Binary File Format

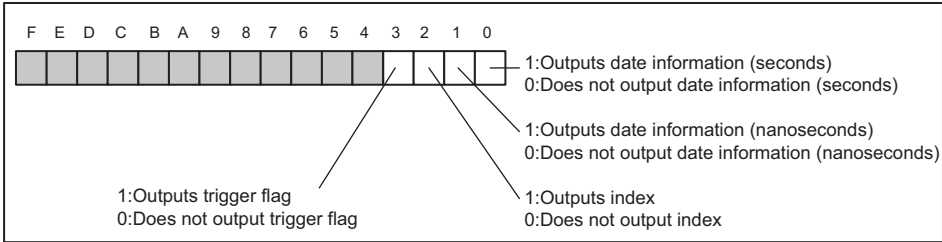

This section explains about the binary data format of the Data logging files and Event logging files.

## Data logging file

### Binary format configuration diagram



## Binary format details

Item	Description	Size (in bytes)
Identification code	Always outputs 'MDLB' as file identification.	4
File version	Outputs 2 as the file version.	1
File type	Output the file type. 1: Continuous/trigger logging 2: Event logging	1
Model information	Outputs the module model name which output the binary file. Outputs 'NZ2DL' in the first 5 bytes, packed with 0x00 in the second 11 bytes.	16
Header size	Outputs the size of the header portion.	4
1 record size	Outputs the size of 1 record.	4
Additional data information	For the data which can be selected to output, outputs information on whether they are being output.  	2
Number of data	Outputs the number of logging data configured in logging.	2
Data information size	Outputs the total size of the data information size (2 bytes) and each of the sizes of data length, data type, data name per logging data.	2
Data length	Outputs the data length of logging data. (If the data type is bit type, outputs 1 byte.)	2
Data type <sup>*1</sup>	Outputs the following values according to the data type specified with output format. 0: Bit 1: Signed integer 2: Unsigned integer 3: Float 4: BCD 5: String 6: Raw	2
Data name	Outputs the logging data name specified by the settings with ASCII code.	1 to 32
Record start flag	Outputs flags to identify the start and end of records.	1
Record end flag	Outputs the following fixed values according to the start/end of records. 0xFF: Record start 0xFE: Record end	1
Date information (seconds)	Outputs the number of elapsed seconds from January 1st 1970.	4
Date information (nanoseconds)	Outputs the remainder of time which is less than a second from the number of elapsed seconds from January 1st 1970 in nanoseconds.	4
Index	Outputs a numerical value starting from 1 incremented in ascending order. When the value exceeds the upper limit of 4294967295, it is returned to 0 and increments again in the range of 0 to 4294967295. When missing sampling data occurs, the index is renumbered again from 1.  Page 136 Missing Data	4
Trigger flag	Outputs trigger information. 0: Not occurred 1: Occurred 2: Cleared	2

Item	Description	Size (in bytes)
Data*1	—	—
	Outputs logging data in binary according to the data type specified with data length and output format. For details on the numerical range of output values, refer to the following section. ☞ Page 87 Range of Values per Output Format	
	Bit	1
	Outputs the following values. If data is ON : 1 If data is OFF: 0	
	Word [unsigned]*1 Word [signed]*1 16bit BCD	2
	Outputs the data value in word units.	
	Double word [unsigned]*1 Double word [signed]*1 FLOAT [single precision]*2 FLOAT [double precision]*2 32bit BCD	4
	Outputs the data value in double word units.	
	String	1 to 8192
	Outputs a string of the specified size. If there is a string terminator (0) halfway in the data, NULL is output up to the end of the specified size after that terminator.	
	Raw	1 to 8192
	Outputs data values of the specified size.	

\*1 If a value which cannot be correctly represented in the specified data type is stored in the device's data value, '0' is output.

\*2 When the device data value output format is '16bit BCD' or '32bit BCD', if a value which cannot be correctly represented in the BCD type is stored in the device's data value, the NaN value is output.

Output format	NaN
FLOAT [single precision]	0xffffffff
FLOAT [double precision]	0xfffffffffffffff

The size of data logging binary file is calculated as shown below.

**Ex.**

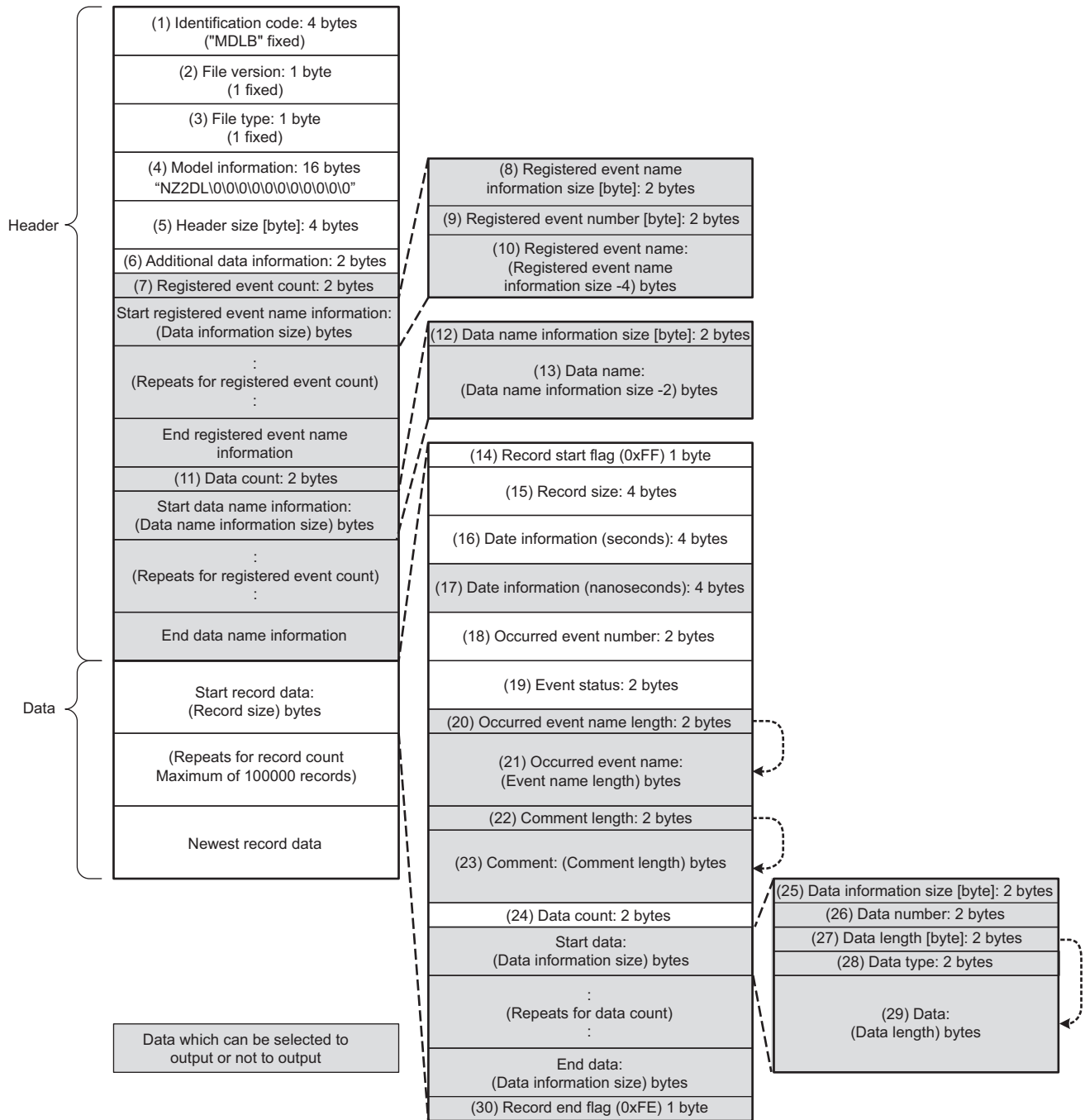
When logging 256 points worth of word [unsigned] decimal format 0 digit data  
(Data name length: 10, date information: output in nanosecond units, index column: output)

File size (maximum)

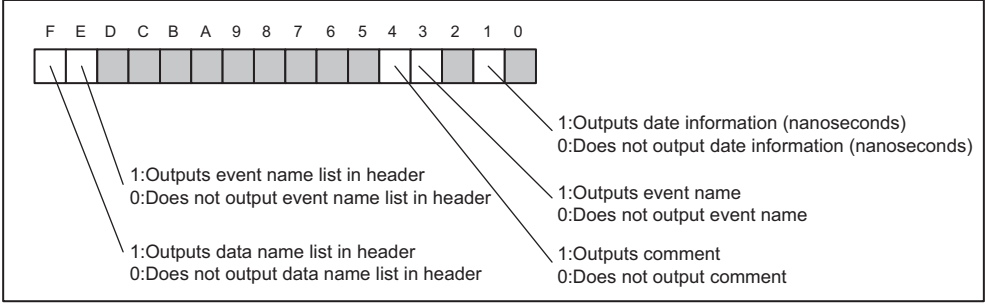
$$\begin{aligned}
 &= 4 \text{ [identification code]} + 2 \text{ [file version]} + 1 \text{ [file type]} + 16 \text{ [model information]} + 4 \text{ [header size]} \\
 &+ 4 \text{ [1 record size]} + 2 \text{ [additional data information]} + 2 \text{ [number of data]} + (2 \text{ [data information size]} + 2 \text{ [data length]} \\
 &+ 2 \text{ [data type]} + 10 \text{ [data name]}) \times 256 \text{ [number of data]} + 1 \text{ [record start flag]} + 4 \text{ [date information (seconds)]} \\
 &+ 4 \text{ [date information (nanoseconds)]} + 4 \text{ [index]} + (2 \text{ [data]} \times 256 \text{ [number of data]}) + 1 \text{ [record end flag]} \\
 &= 4656 \text{ [bytes]}
 \end{aligned}$$


# Event logging file

## Binary format configuration diagram



## Binary format details

Item	Description	Size (in bytes)
Identification code	Always outputs 'MDLB' as file identification.	4
File version	Outputs 2 as the file version.	1
File type	Outputs the file type. 1: Continuous/trigger logging 2: Event logging	1
Model information	Outputs BOX Data Logger model name which output the binary file. Outputs 'NZ2DL' in the first 5 bytes, packed with 0x00 in the second 11 bytes.	16
Header size	Outputs the size of the header portion.	4
Additional data information	For the data which can be selected to output, outputs information on whether they are being output.  	2
Number of registered event	Outputs the number of monitoring events registered in the settings.	2
Registered event name information size	Outputs the size of information on event names including itself (2 bytes).	2
Registered event number	Outputs the event numbers registered in the settings. Use when obtaining the event name that corresponds to occurred event number for occurred/restored events.	2
Registered event name	Outputs the event name registered by the setting with ASCII code. Use when obtaining the event name that corresponds to occurred event number for occurred/restored events.	2
Number of data	Outputs the number of monitoring data registered in all the event settings.	2
Data name information size	Outputs the data name information size including itself (2 bytes). Use when obtaining the data name that corresponds to data number for occurred/restored events.	2
Data name	Outputs the data name registered by the setting with ASCII code. Use when obtaining the data name that corresponds to data number for occurred/restored events.	1 to 32
Record start flag Record end flag	Outputs flags to identify the start and end of records. Outputs the following fixed values according to the start/end of records. 0xFF: Record start 0xFE: Record end	1
Record size	Outputs the record size including itself (4 bytes). Since occurred event name, comment, data are output in variable lengths, outputs a different value per record.	4
Date information (seconds)	Outputs the number of seconds elapsed from January 1st 1970 with local time.	4
Date information (nanoseconds)	Outputs the remainder of time which is less than a second from the number of elapsed seconds from January 1st 1970 in nanoseconds.	4
Occurred event number	Outputs the event number for the occurred/restored event. (When BOX Data Logger is restarted, outputs the event number as 0.)	2
Event status	Outputs the following values according to occurrence/restoration. 1: Occurred 0: Restored (When BOX Data Logger is restarted, 1: Occurred is output.)	2
Occurred event name length	Outputs the size (bytes) of the event name for the occurred/restored event.	2

Item	Description	Size (in bytes)
Occurred event name	Outputs the event name for an occurred/restored event with ASCII code. (When BOX Data Logger is restarted, an event name length of 0 is output.)	2 to 32
Comment length	Outputs the size (bytes) of the comment for the occurred/restored event.	2
Comment	Outputs the occurrence/restoration comment for the occurred/restored event in ASCII code. (When BOX Data Logger is restarted, a comment name length of 0 is output.)	2 to 32
Number of data	Outputs the number of data the occurred/restored event is monitoring. (If "Do output data" is specified in the settings, 0 is output.)	2
Data information size	Outputs the total size of data number , data length , data type , and data.	2
Data number	Outputs the data number for the occurred/restored event. By referring to data name, the data name for the data number can be obtained. However, when compound conditions (number of times or order) are configured in event conditions, the following is output. When number of times is set : 0x1000 When order is set : 0x1001	2
Data length	Outputs the data length of data. If the data type is bit type, 1 byte is output. However, when compound conditions (number of times or order) are configured in event conditions, '2' is output.	2
Data type	Outputs the following values according to the data type specified with output format. 0: Bit 1: Signed integer 2: Unsigned integer 3: Float 4: BCD 5: String 6: Raw However, when compound conditions (number of times or order) are configured in event conditions, '2' is output.	2
Data	Outputs monitoring data in binary format according to data length, data type. For details on the output data, refer to the following section.  Page 82 Binary format details However, when compound conditions (number of times or order) are configured in event conditions, the following is output. When number of times is set : number of counts (up to 65535) When order is set: 1st condition: 1 2nd condition: 2 3rd condition: 3 4th condition: 4 Normal completion: 0	—

The size of the event logging binary file is calculated as shown below.

**Ex.**

For monitoring word [unsigned] decimal format 0 digit data with single condition

(Event name length: 10, data name length: 2, "Event names are outputted into record data.": selected, "Comment is outputted into record data.": selected, comment length: 10, data length: 2)

File size (maximum)

$$\begin{aligned}
&= 4 [\text{identification code}] + 2 [\text{file version}] + 1 [\text{file type}] + 16 [\text{model information}] \\
&+ 4 [\text{header size}] + 2 [\text{additional data information}] + 2 [\text{registered event count}] + (2 [\text{registered event name information size}] \\
&+ 2 [\text{register event number}] + 10 [\text{registered event name}]) \times 1 [\text{registered event count}] + (2 [\text{number of data}] + 2 [\text{data name} \\
&\text{information size}] \\
&+ 2 [\text{data name}]) \times 1 [\text{number of data}] + 1 [\text{record start flag}] + 4 [\text{record size}] + 4 [\text{date information (seconds)}] \\
&+ 4 [\text{date information (nanoseconds)}] + 2 [\text{occurred event number}] + 2 [\text{event status}] + 2 [\text{occurred event name length}] \\
&+ 10 [\text{occurred event name}] + 2 [\text{comment length}] + 10 [\text{comment}] + 2 [\text{number of data}] + (2 [\text{data information size}] + 2 [\text{data} \\
&\text{number}] \\
&+ 2 [\text{data length}] + 2 [\text{data type}] + 2 [\text{data}]) \times 1 [\text{number of data}] + 1 [\text{record end flag}] \\
&= 104 [\text{bytes}]
\end{aligned}$$



# 3.7 Range of Values per Output Format

This section explains the range of values that can be output for each output format.

## Integer type

The following table shows the range of values that can be represented with each integer type.

Output type	Lower limit	Upper limit
Word [unsigned]	0	65535
Word [signed]	-32768	32767
16bit BCD	0000	9999
Double word [unsigned]	0	4294967295
Double word [signed]	-2147483648	2147483647
32bit BCD	00000000	99999999

### Point

If device data values or values after scaling exceed the value range, they are rounded to within the range.

- If the value exceeds the upper limit value, the upper limit value is output.
- If the value is lower than the lower limit value, the lower limit value is output.

## Float type

The following table shows the range of values that can be represented with each float type.

Output type	Negative value		Positive value	
	Lower limit	Upper limit	Lower limit	Upper limit
FLOAT [single precision]	-3.4028235E+38	-1.401298E-45	1.401298E-45	3.4028235E+38
FLOAT [double precision]	-1.79769313486231570E+308	-4.94065645841246544E-324 <sup>*1</sup>	4.94065645841246544E-324 <sup>*2</sup>	1.79769313486231570E+308

\*1 -1.79769313486231570E-308 with the Report function.

\*2 1.79769313486231570E-308 with the Report function.

If device data values or values after scaling exceed the value range, the following is output.

- If the value exceeds the upper limit value of positive value, '+Inf' is output.
- If the value is lower than the lower limit value of negative value, '-Inf' is output.
- For values in a range between the upper limit value of negative value and the lower limit value of positive value, '0' is output.

Output type	-Inf	0	+Inf
FLOAT [single precision]	0xff800000	0x00000000	0x7f800000
FLOAT [double precision]	0xfff0000000000000	0x0000000000000000	0x7ff0000000000000

# 4 SETTINGS AND PROCEDURES UP TO OPERATION

---

This chapter explains the settings and procedure up to operating BOX Data Logger in a system.

**Point** 

---

Read the safety precautions in this manual when using BOX Data Logger.

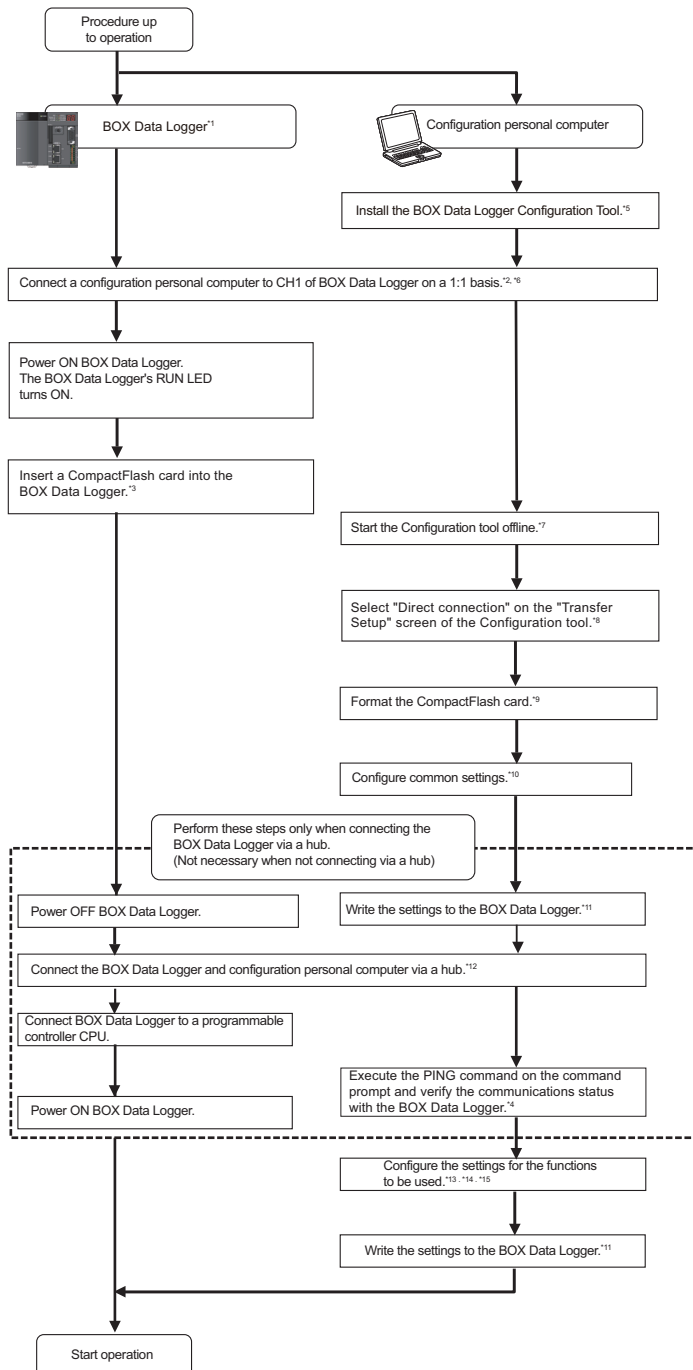
---

# 4.1 Settings and Procedures Up to Operation

This section explains the procedures up to operating BOX Data Logger.

## Procedure to operate by installing BOX Data Logger Configuration Tool

This section explains the procedure for using BOX Data Logger with installing BOX Data Logger Configuration Tool.



















The procedures from the settings to execution of the Recipe function, refer to the following section.

☞ Page 159 Recipe Function Execution Procedure

For 7-segment LED display description when BOX Data Logger is activated, refer to the following section.

☞ Page 98 When BOX Data Logger is activated.

- \*1 To check BOX Data Logger hardware, perform hardware self-diagnostics test as necessary with the battery installed in advance.  
 Page 113 Hardware Self-Diagnostics Tests
- \*2 If you forget your account or cannot log in BOX Data Logger, eject the CompactFlash card from BOX Data Logger, and continue the following steps. For the method for ejecting the CompactFlash card, refer to the following section.  
 Page 643 When ejecting or replacing CompactFlash card
- \*3 For the considerations when using a CompactFlash card and the method for inserting it, refer to the following sections.  
 Page 643 Considerations for using CompactFlash card  
 Page 645 Operations for inserting CompactFlash card
- \*4 When the test ends with an error, check the following settings/state and RUN the PING command again.  
 Page 591 PING Test
  - Network settings for BOX Data Logger and configuration personal computer
  - Connection status for BOX Data Logger and configuration personal computer
- \*5  Page 199 Installation Method
- \*6  Page 44 System configuration for initial setup, maintenance, and inspection
- \*7  Page 207 Offline startup (starting from the Start menu)
- \*8  Page 377 Transfer Setup
- \*9  Page 388 CompactFlash card diagnostics
- \*10  Page 227 Common Setting
- \*11  Page 379 Writing Data
- \*12 For a connection via a hub, refer to the following section.  
 Page 377 Transfer Setup
- \*13  Page 258 Data logging setting
- \*14  Page 305 Event Logging Setting
- \*15  Page 340 Report Setting

---

**Point** 

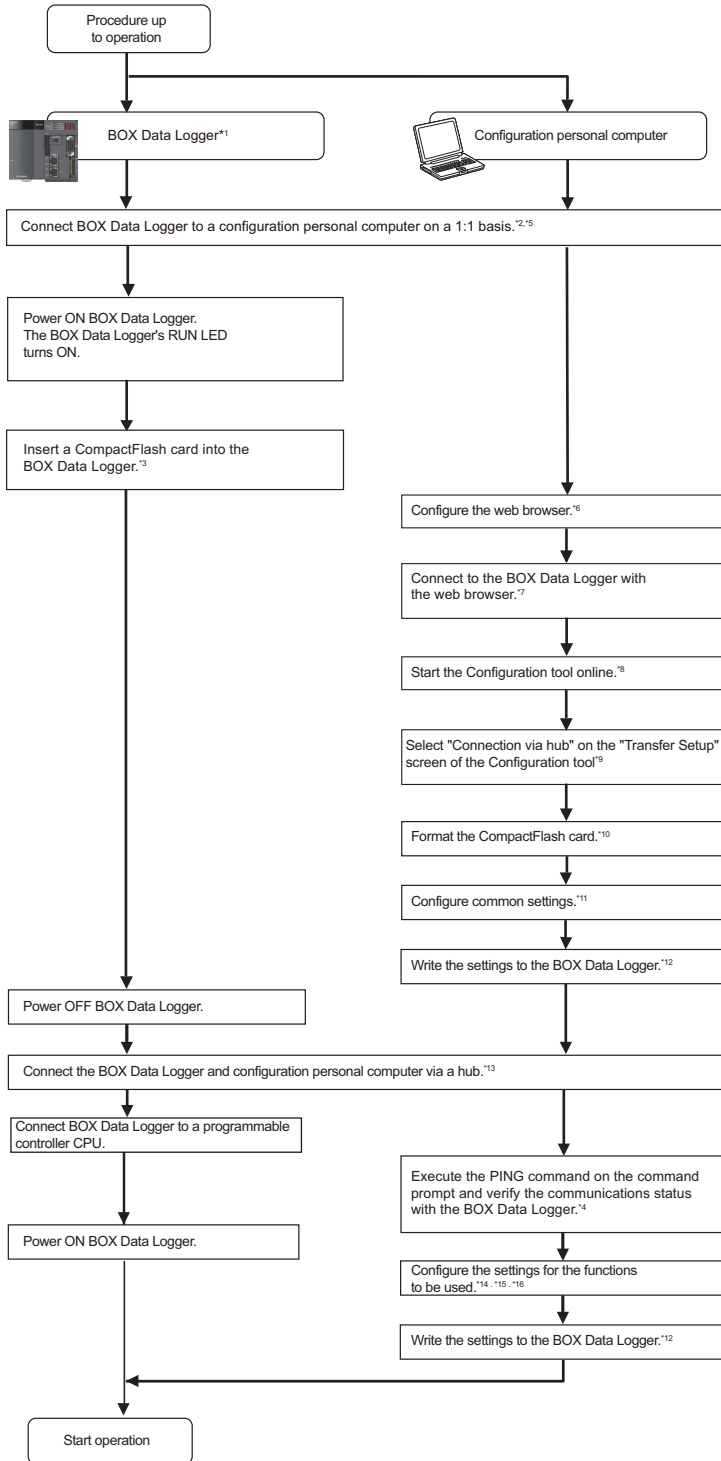
To check logging results in a graph or a list, use GX LogViewer. For information on how to use GX LogViewer, refer to the following manual.

 GX LogViewer Version 1 Operating Manual

---

# Procedure to operate without installing BOX Data Logger Configuration Tool

This section explains the procedure for using the BOX Data Logger without installing BOX Data Logger Configuration Tool.







The procedures from the settings to execution of the Recipe function, refer to the following section.

☞ Page 159 Recipe Function Execution Procedure

For 7-segment LED display description when BOX Data Logger is activated, refer to the following section.

☞ Page 98 When BOX Data Logger is activated.

- \*1 To check BOX Data Logger hardware, perform hardware self-diagnostics test as necessary with the battery installed in advance.  
 Page 113 Hardware Self-Diagnostics Tests
- \*2 If you forget your account or cannot log in to BOX Data Logger, eject the CompactFlash card from BOX Data Logger, and continue the following steps. For the method for ejecting the CompactFlash card, refer to the following section.  
 Page 646 Operation when replacing CompactFlash card
- \*3 For considerations when using a CompactFlash card and the method for inserting it, refer to the following sections.  
 Page 646 Operation when replacing CompactFlash card
- \*4 When the settings end with an error, check the following and execute the PING command again.  
 Page 591 PING Test
  - Network settings for BOX Data Logger and configuration personal computer
  - Connection status for BOX Data Logger and configuration personal computer
- \*5 System configuration when performing initial setup, maintenance, and inspection
- \*6 Configure the web browser
- \*7 Connect with the web browser
- \*8 Configuration tool start procedure
- \*9 Transfer setup
- \*10 CompactFlash card diagnostics
- \*11 Common setting
- \*12 Writing data
- \*13 Connecting via a hub
- \*14 Data logging setting
- \*15 Event logging setting
- \*16 Report setting

---

**Point** 

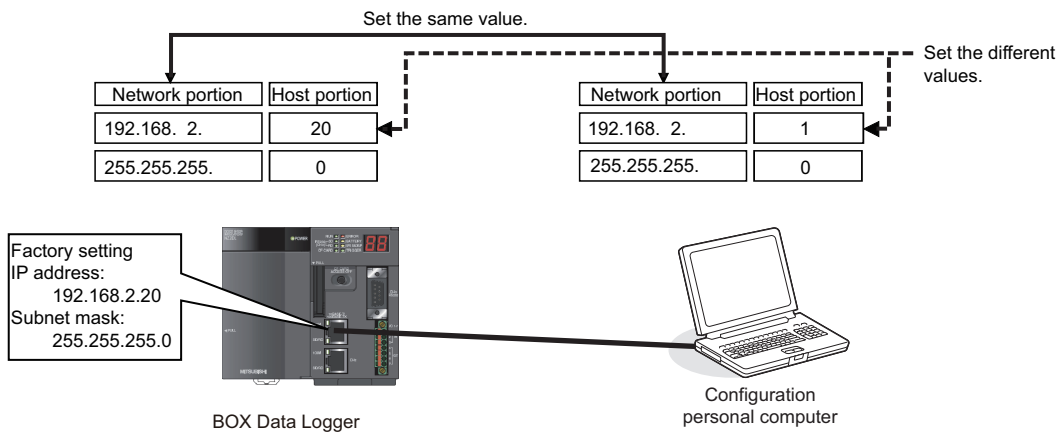
To check logging results in a graph or a list, use GX LogViewer. For information on how to use GX LogViewer, refer to the following manual.

 GX LogViewer Version 1 Operating Manual

---

## Network settings for connection on a 1:1 basis

1. Configure the network address of personal computer to be the same as that of BOX Data Logger.

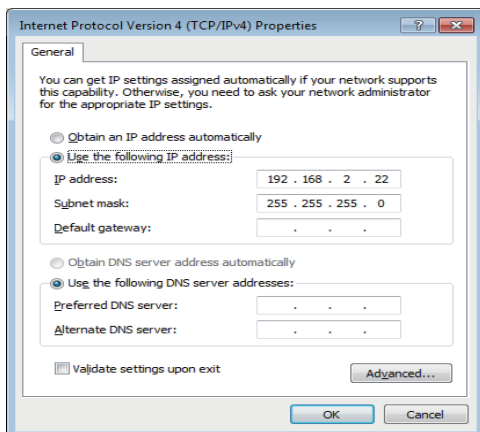


2. Set the network settings for the personal computer on the Internet Protocol (TCP/IP) Properties screen.

**Ex.**

Network configuration procedure for Microsoft® Windows Vista® Business Operating System

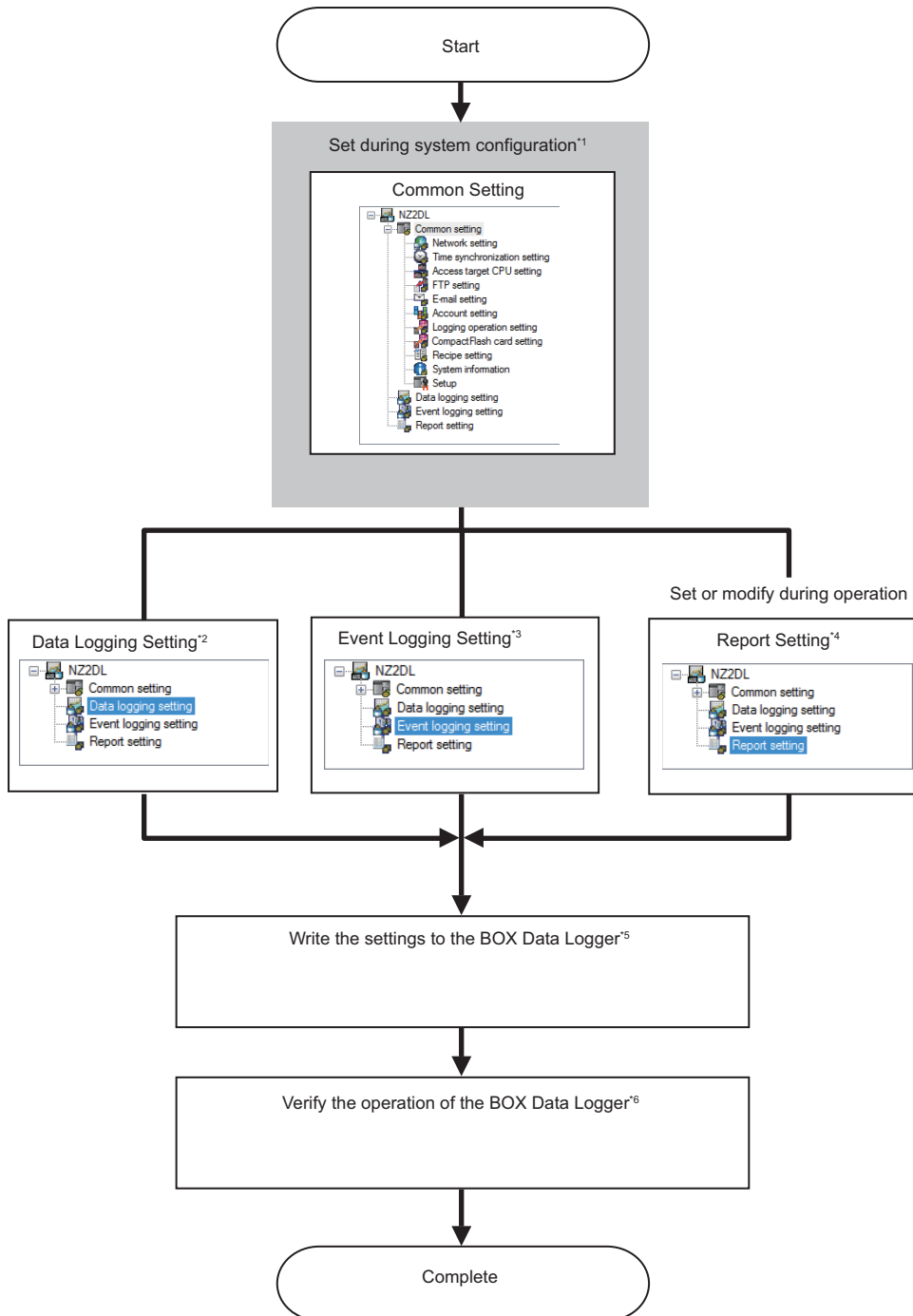
- 1) Select [Control Panel] ⇒ [View network status and tasks] ⇒ [Manages network connections].
- 2) Select "Local Area Connection" and click [Properties] on the right click menu.
- 3) On the "Local Area Connection Properties" screen, select "Internet Protocol Version 4 (TCP/IPv4)" and click the [Properties] button.
- 4) The Internet Protocol Version 4 (TCP/IPv4) Properties screen is displayed.



3. Restart the personal computer to enable the network settings.

# Operation settings of BOX Data Logger

BOX Data Logger operation settings are configured with Configuration tool. The following diagram shows a configuration operation overview of Configuration tool.



The procedures from the settings to execution of the Recipe function, refer to the following section.

☞ Page 159 Recipe Function Execution Procedure

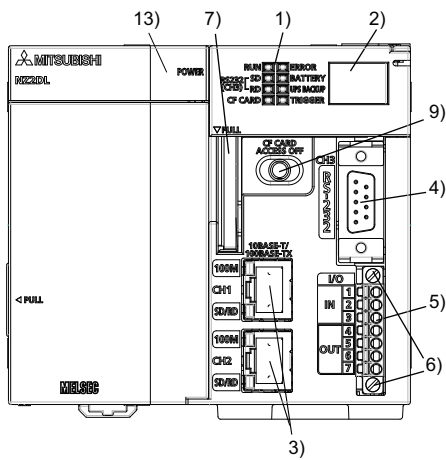
- \*1 ☞ Page 227 Common Setting
- \*2 ☞ Page 258 Data logging setting
- \*3 ☞ Page 305 Event Logging Setting
- \*4 ☞ Page 340 Report Setting
- \*5 ☞ Page 379 Writing Data
- \*6 ☞ Page 380 CONFIRMING BOX Data Logger OPERATION



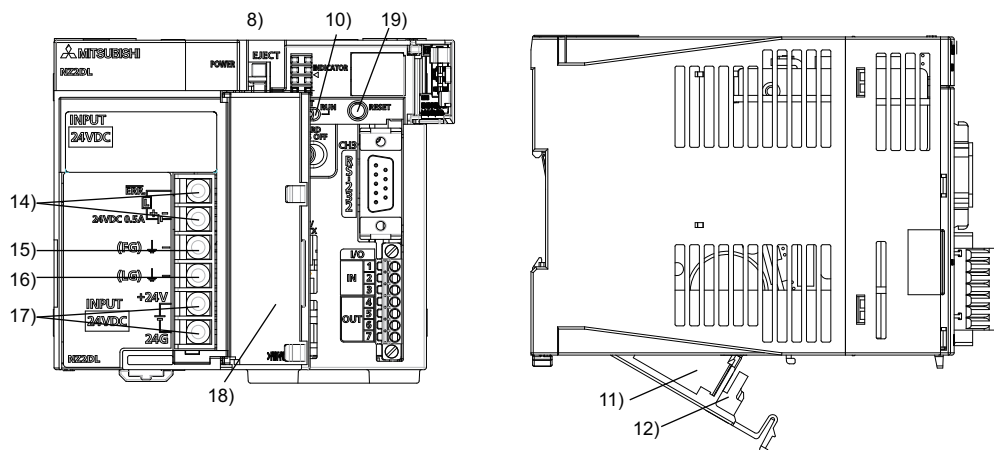
## 4.2 Parts Name

This section explains the parts of BOX Data Logger.

### Power terminal, With the LED cover closed



### Power terminal, With the LED cover open



Parts name are as follows:

No.	Name	Description
1)	LED	Refer to the following section. ☞ Page 97 Indicator LED display
2)	7-segment LED	Refer to the following section. ☞ Page 98 7-segment LED display description
3)	10BASE-T/100BASE-TX Interface connector (RJ45)	Connector to connect a BOX Data Logger to 10BASE-T/100BASE-TX. (The BOX Data Logger decides 10BASE-T or 100BASE-TX according to the target equipment.)
4)	RS-232 interface connector	Connector to connect BOX Data Logger to RS-232.
5)	I/O terminal block	Refer to Page 100 Terminal specifications.
6)	I/O terminal block mounting screws	Screws to fix I/O terminal block When I/O terminals may be subject to vibration or shock causing fire, tighten the I/O terminal block mounting screw within the applicable torque range of 0.4 to 0.5 N·m.
7)	CompactFlash card slot	Slot to insert a CompactFlash card into BOX Data Logger. (The dummy CompactFlash card is inserted at factory default status.)
8)	EJECT button	Press to eject the CompactFlash card from BOX Data Logger.
9)	CF CARD ACCESS OFF switch <sup>*1</sup>	Refer to Page 101 Switch.
10)	RUN/TEST/SELECT switch <sup>*1</sup>	Refer to Page 101 Switch.
11)	Battery	Battery for backup of time.
12)	Battery connector	Connector for connecting to battery. (Battery is disconnected from connector to prevent from exhaustion battery at factory default status.)
13)	POWER LED	Indicate the status of power supply. On (green): Normal OFF: Uninput power supply <sup>*2</sup> or power supply fault (when the input power supply is input correctly) <sup>*3</sup>
14)	ERR. terminal	The terminals will be ON when BOX Data Logger operates normally. When the power supply device fail, the power is not ON, or BOX Data Logger stop error (including reset) occurs, the terminals will be OFF (released) at fuse failure.
15)	FG terminal	A ground terminal connected to the shield pattern of the printed circuit board.
16)	LG terminal	A ground terminal for power supply filter.
17)	Power input terminal	Terminals that are connected to 24 VDC power supply.
18)	Terminal cover	Protection cover for terminal block
19)	RESET switch <sup>*1</sup>	Refer to Page 101 Switch.

\*1 Handle the CF CARD ACCESS OFF switch, RUN/TEST/SELECT switch by hand. Operation using a tool such as driver may cause failure.

\*2 Power OFF within 10 milliseconds by momentary stop.

\*3 It turns OFF due to a circuit failure within the power supply or due to a fuse blown

## Indicator LED display

### ■LED display

Name	LED color	LED status	Description
RUN	Green	ON	Normal (It may take time to turn the RUN LED ON.)
		Flashing <sup>*1</sup>	Hardware self-diagnostics mode
		OFF	Error occurred
ERROR	Red	ON	Continue error occurred (the logging is continued)
		Flashing <sup>*1</sup>	Stop error occurred (the logging is stopped)
		OFF	Normal
RS-232 RD (CH3)	Green	Flashing <sup>*1</sup>	Receiving data
		OFF	Data unreceived, cable unconnected
RS-232 SD (CH3)	Green	Flashing <sup>*1</sup>	Sending data
		OFF	Data unsend, cable unconnected
CF CARD	Green	ON	CompactFlash card accessing status (non-ejectable status)
		Flashing <sup>*1</sup>	Preparing CompactFlash card
		Flashing (fast) <sup>*2</sup>	CompactFlash card access stop status
	—	OFF	CompactFlash card access stop status (CompactFlash card can be removed )
TRIGGER	Green	ON	External trigger input (ON)
		OFF	No External trigger input (OFF)
BATTERY	Orange	ON	Battery error occurred Battery is not installed or required to be changed.
		OFF	Battery normal status
UPS BACKUP	Orange	ON	UPS is on backup (on power failure)
		OFF	UPS is not working.

\*1 Flashes in 0.5 s cycles

\*2 Flashes in 0.25 s cycles

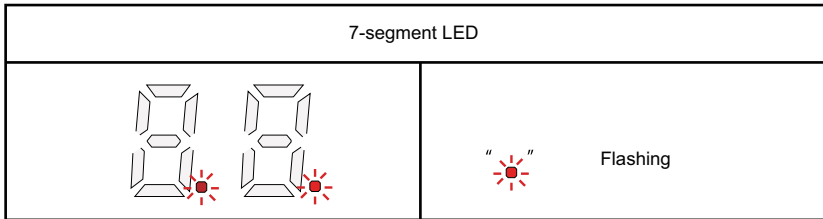
### ■LED display (Ethernet connector (CH1, CH2))

Name	LED color	LED status	Description
100M	Green	ON	100 Mbps
		OFF	10 Mbps
SD/RD	Green	ON/Flashing	Sending or receiving data
		ON	Data untransmitted
		OFF	Cable unconnected

## 7-segment LED display description

Depending on the status of BOX Data Logger, 7-segment LED displays as follows:

### ■When BOX Data Logger is activated.

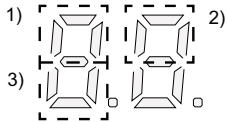
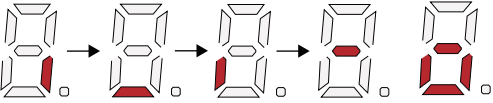
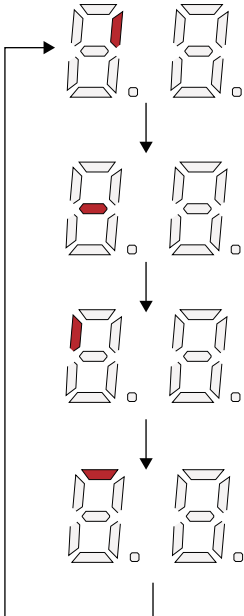


During the startup of BOX Data Logger after powering ON, the first or second digit (.) of 7-segment LED flashes alternately. The 7-segment LED turns OFF when BOX Data Logger preparation is completed.

If the settings are updated in the [BOX Data Logger Diagnostics] tab on the "Diagnostics" screen after the BOX Data Logger is activated, the first or second digit doesn't flash.

The update interval of the 7-segment LED is 500 milliseconds.

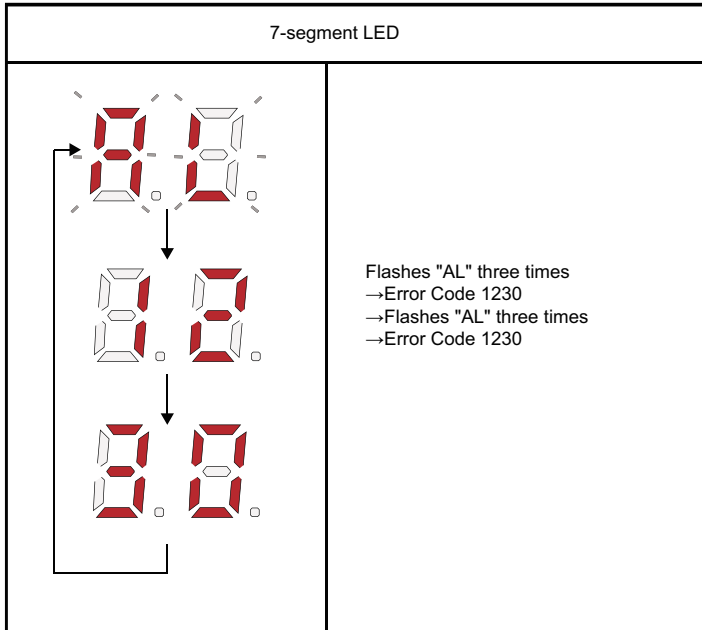
### ■Logging status

7-segment LED	
	<ol style="list-style-type: none"> <li>1) Data Logging</li> <li>2) Event Logging</li> <li>3) Report</li> </ol>
	Each segment shown on the left flashes in order. This is the example of 3) during normal operation.
	This is the example of when only data logging function operates normally. (No settings for the Event logging and Report function)

When the data logging, event logging, or report function operates normally, each 1) to 3) segment shown above flashes in order.

When the settings of each function are configured to the setting file, each segment flashes in order regardless of the trigger setting and period-of-time setting. The update interval of the 7-segment LED is 500 millisecond. However, if an error occurred in BOX Data Logger, the error display is given priority.

### ■Error status



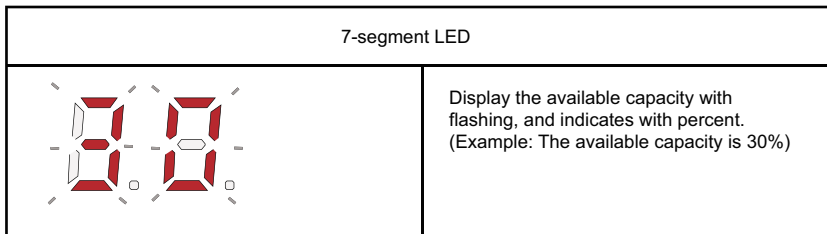
The error currently occurred in BOX Data Logger is displayed on the 7-segment LED. The error is cleared by clicking the [Error clear] button in the [BOX Data Logger diagnostic] tab on the "Diagnostics" screen. The error code is displayed in order of the upper two digits and lower two digits which indicate an error code after flashing "AL" three times.

The update interval of the 7-segment LED is 500 milliseconds.

For error codes, refer to the following section.

☞ Page 411 Error Codes

### ■Logging continuous status



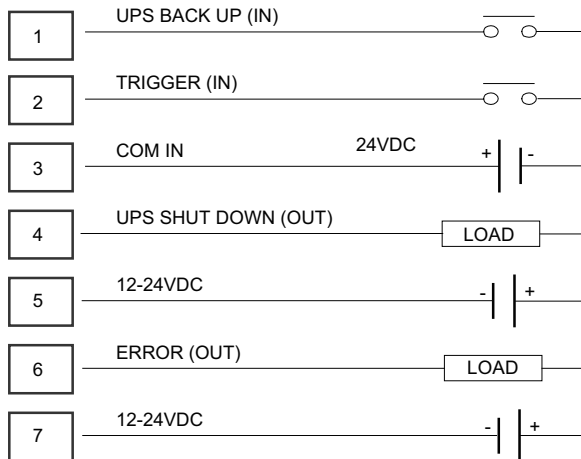
The available capacity in the BOX Data Logger which is performing the logging is displayed with flashing, and indicates with percent. '0' indicates the buffer full.

'99' is displayed when the available buffer capacity is 100%.

The update interval of the 7-segment LED is 500 milliseconds.

If a continue error occurs in the BOX Data Logger, the available capacity display is given priority. If a stop error occurs, an error display is given priority.

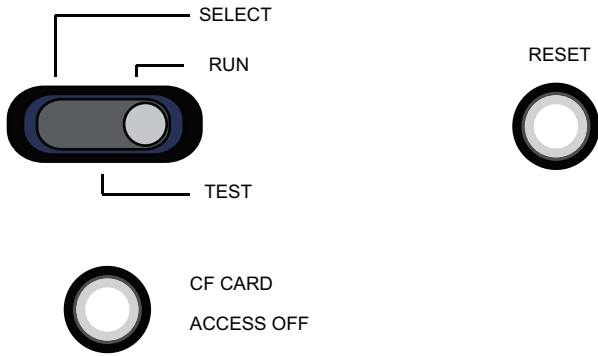
## Terminal specifications



Terminal number	Terminal name	Terminal specifications	Terminal display	Type
1	UPS backup operation	Input terminal for UPS backup operation signal.	UPS BACKUP(IN)	Input
2	External trigger input	Input terminal for external trigger. Use this terminal when the external signal is considered as logging trigger.	TRIGGER(IN)	Input
3	Input common	Input signal common terminal. Input 24 VDC.	COM(IN)	24 VDC (for input)
4	UPS shut down	Output terminal for shutting down signal to UPS. Use this terminal when using UPS.	UPS SHUT DOWN (OUT)	Output
5	Power supply for output	Power supply terminal for output signal. Input 12 to 24 VDC when using output signal.	12-24 VDC	12 to 24 VDC (for output)
6	External error output	Output terminal for external equipment. The contact turns ON when BOX Data Logger is in the following error/status. <ul style="list-style-type: none"> <li>• Stop error occurred</li> <li>• Continue error occurred</li> <li>• WDT occurred</li> </ul>	ERROR(OUT)	Output
7	Power supply for output	Power supply terminal for output signal. Input 12 to 24 VDC when using output signal.	12 - 24 VDC	12 to 24 VDC (for output)

When I/O terminals may be subject to vibration or shock causing fire, tighten the I/O terminal block mounting screw within the applicable torque range of 0.4 to 0.5 N·m.

## Switch



Switch name	Status	Momentary/ alternate <sup>*1</sup>	Description
RESET switch	—	Momentary	Reset BOX Data Logger by hardware. Press the button more than 1 second.
CF CARD ACCESS OFF switch	—	Momentary	Complete accessing to CompactFlash card. Keep on pressing the button more than 1.5 seconds. Refer to the following section. 📖 Page 113 Hardware Self-Diagnostics Tests
RUN/TEST/SELECT switch	RUN	Alternate	Normal operation. Logging starts when powering ON after shifting the switch to RUN.
	TEST	Alternate	Hardware self-diagnostics mode
	SELECT	Momentary	When powering ON with shifting the switch to TEST, the BOX Data Logger will be started with hardware self-diagnostics mode. Set the test settings by shifting the switch to SELECT. Refer to the following section. 📖 Page 650 When using the CF CARD ACCESS OFF switch

\*1 Momentary: Continue the status while pressing the button.  
Alternate: Keep the present status after pressing the button.

## 4.3 Installation and Wiring

---

This chapter explains installation and wiring method of the BOX Data Logger .

### Installation environment

---

Install BOX Data Logger in an environment that meets the general specifications.

☞ Page 60 General Specifications

Do not install BOX Data Logger in the place where:

- The ambient temperature is outside the range of 0 to 55 °C
- The ambient humidity is outside the range of 5 to 95 %RH
- Condensation occurs due to a rapid temperature change,
- Corrosive or combustible gas is present,
- Conductive powder such as dust and iron powder, oil mist, salinity, or organic solvent is present,
- The module is exposed to direct sunlight,
- A strong electric or magnetic field is generated,
- Or, the module is directly subject to vibrations or shocks.

### Installation

---

When installing the BOX Data Logger to a control panel or any other place, consider the operability, maintainability, and environmental resistance.

#### Installation precautions

---

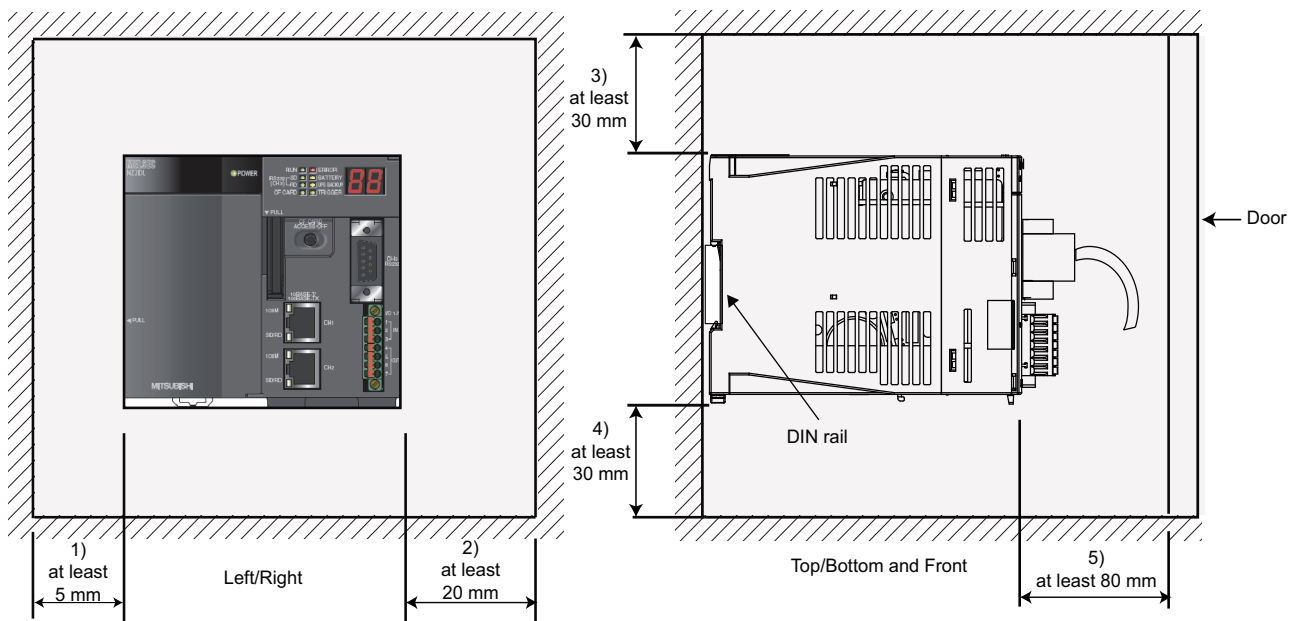
- Do not directly touch any conductive part or electronic component of BOX Data Logger. Doing so may cause malfunction or failure of BOX Data Logger.
- BOX Data Logger case is made of plastic. Do not drop or apply strong shock to it.
- Do not remove the printed-circuit board of BOX Data Logger from the case. Doing so may cause failure.
- Do not release the levers located at the top and bottom of BOX Data Logger. Doing so may cause malfunction or failure of BOX Data Logger.
- BOX Data Logger must be installed on the front of the control panel. Do not install it by rotating. Do not install it on the ceiling, bottom, or by rotating in the control panel.



## Installing a module in a control panel

To ensure good ventilation and to make replacement of BOX Data Logger easy, provide a distance between the top or bottom of the module and other structures or parts as shown below.

BOX Data Logger can be installed by using screws or by using a DIN rail.

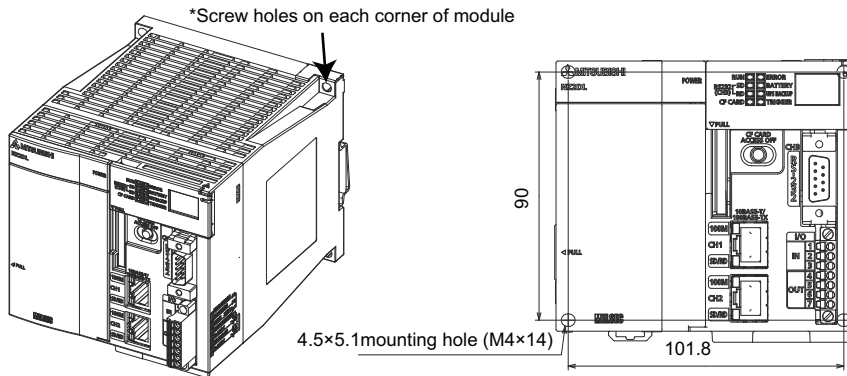


- 1.** Left: More than 5 mm is required. The operation space for such tools as a driver is required when installing directly.
- 2.** More than 20 mm is required for open/close the cover. The operation space for such tools as a driver is required when installing directly.
- 3.** Upper: More than 30 mm is required to allow the inclination when installing BOX Data Logger to DIN rail. The operation space for such tools as a driver is required when installing directly. For Q7BAT, more than 45 mm is required.
- 4.** Lower: More than 30 mm is required for changing the battery.
- 5.** Front: More than 80 mm is required to connect a serial cable.

## Installation by screws

### ■ Installation procedure

1. Check if there are screw holes with the following dimensions.
2. Set the BOX Data Logger on adjusting 4 screw holes to the site to be installed, and tighten the 4 pieces of M4 screws.  
(Specified torque: 0.78 to 1.08 N·m.) Prepare the screws of suitable length for installation situation.



## Installation by DIN rail

### ■ Installation procedure

The procedure for mounting the BOX Data Logger on a DIN rail is as follows:

1. Pull down all of the DIN rail hooks on the back of the BOX Data Logger.  
Pull it until it clicks.
2. Hang the upper clips of the BOX Data Logger on the DIN rail, and push the BOX Data Logger in position.
3. Lock the DIN rail hooks of the BOX Data Logger to secure it in position.  
Push each hook until it clicks.  
If you cannot reach the hooks, use a tool such as a screwdriver.

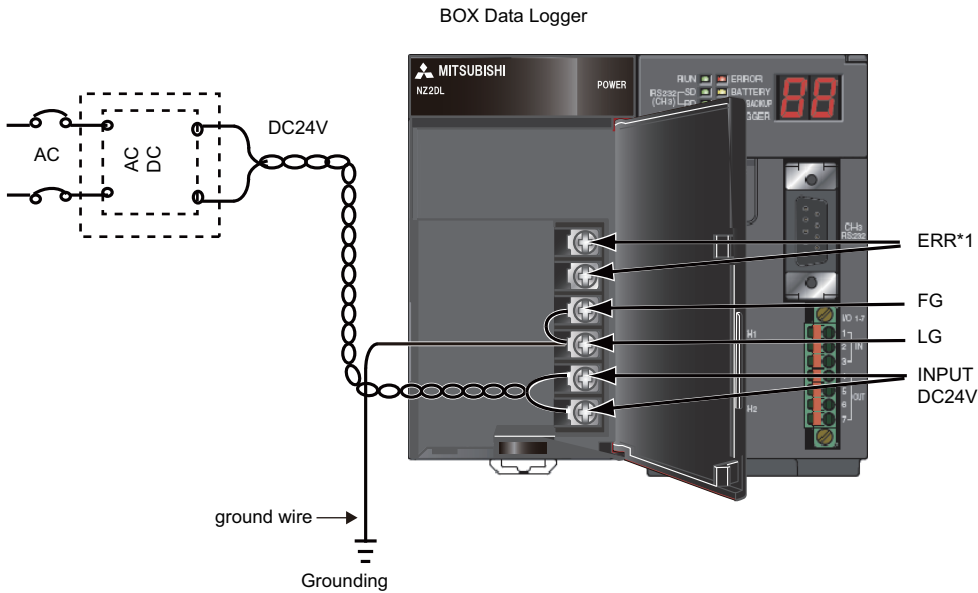
# Wiring

## Wiring of the power supply part

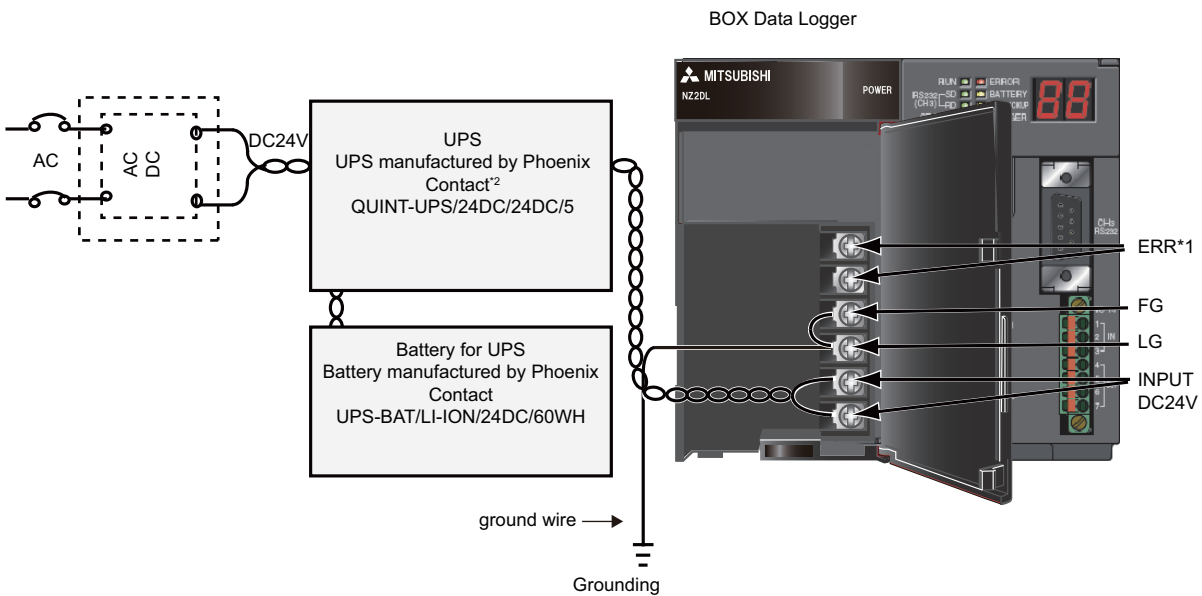
### ■Wiring method

Examples of wiring to the power supply part are as follows:

- Wiring example



- Wiring example for UPS connection



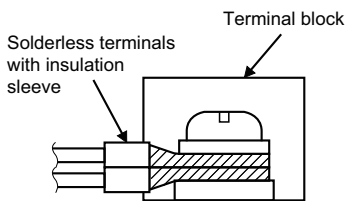
\*1 The ERR. terminal will be OFF (release) when the power is not ON, or BOX Data Logger stop error (including reset) or fuse failure occurs.

\*2 Refer to the specification of UPS when wiring for UPS ground cable.

## ■Precautions

Take the following precautions when wiring the power supply.

- Considering the rated current and inrush current of BOX Data Logger, connect a circuit breaker having an appropriate sensing property or an external fuse causing proper blowout. (When using BOX Data Logger alone, considering the cable protection, 10 A circuit breaker or external fuse is recommended.)
- To minimize a voltage drop, use thickest possible power cables (up to 2 mm<sup>2</sup>), and connect them in the shortest distance by finely twisting them.
- Do not close or bundle the power cables together with the main circuit lines (high voltage and large current), Ethernet cables, RS-232 cables, and I/O signal cables (including common cable). Keep a distance of 100 mm or more between them.
- After wiring, always attach the included terminal cover to the power supply part, and do not touch any terminals while powering up or operating BOX Data Logger.
- Use a Class 2 power supply for the external power supply which inputs power to the power supply part.
- Use solderless terminals when wiring the terminal block of the power supply part. To prevent short-circuit that may occur when a screw become loose, use a solderless terminal with insulation sleeve, of which thickness is 0.8 mm or less. Up to two solderless terminals can be connected to one terminal block.



- Use UL-approved solderless terminals and, for processing, use a tool recommended by their manufacturer.
- Tighten the screws on the power supply part within the applicable torque range of 0.66 to 0.89N·m.
- Use the following wires for connection to the power supply part.

Applicable wire size	Material	Temperature rating
0.75 to 2 mm <sup>2</sup> (18 to 14AWG) (stranded wire)	Copper	75°C or higher

- Inputting a signal of a different voltage level may cause malfunction or failure of the module.
- When supplying power to the power supply part, select a power supply having sufficient power capacity. (Double power capacity or more is recommended.)

### Point

For compliance with the EMC directive, refer to the following section.

☞ Page 634 EMC and Low Voltage Directives

## Connecting UPS

### ■Wiring method

Manufactured by Phoenix Contact: An example when connecting QUINT-UPS/24DC/24DC/5 is as follows:

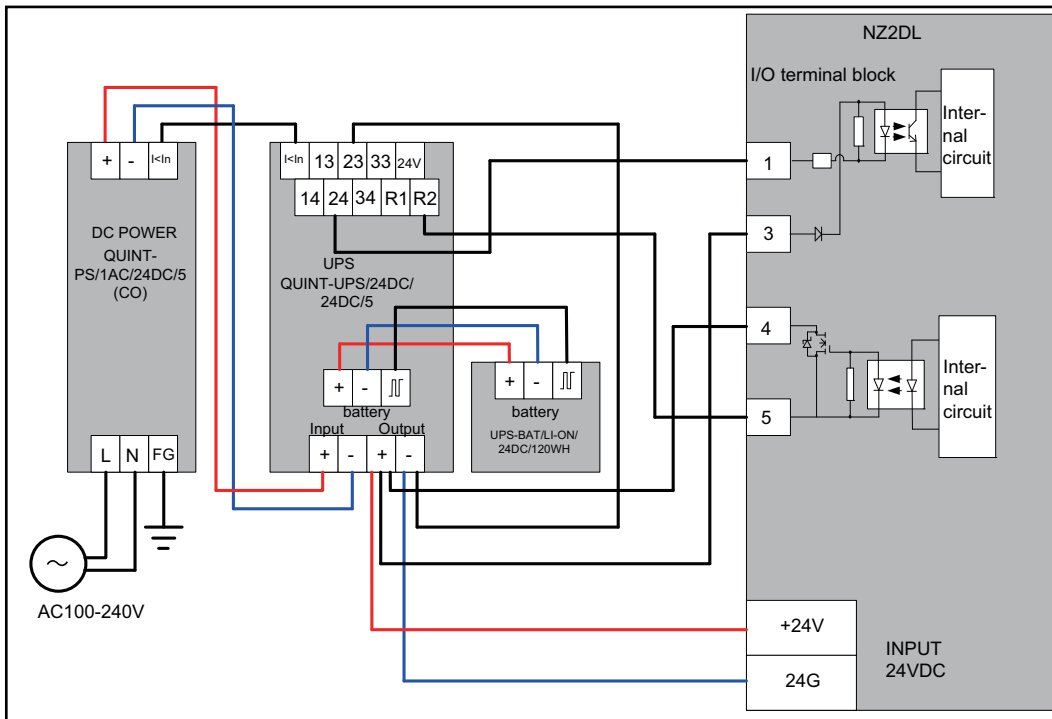
BOX Data Logger can be powered OFF safely by the shutdown process using UPS to stop accessing to CompactFlash card.

- Operation when power failure occurred

When UPS BACKUP (IN) terminal turns ON more than 5 seconds, BOX Data Logger recognizes that the power failure occurred and performs the shutdown process. After the shutdown process is complete, BOX Data Logger requests UPS to stop the output by turning OFF the UPS SHUT DOWN (OUT) terminal.

- Operation after shut down

When UPS BACKUP (IN) terminal turns OFF more than 5 seconds after the shutdown process of BOX Data Logger is completed, BOX Data Logger recognizes the module itself is recovered from power failure and restart itself automatically.



### ■Precautions

- UPS connection terminal (UPS BACKUP terminal, UPS SHUT DOWN terminal) can not be directly connected to BOX Data Logger depending on the UPS specification. When BOX Data Logger is connected to UPS, check the rate and UPS specification which connects to BOX Data Logger. Connect each terminal and cable according to each rate and specification.
- Use the external trigger input terminal and error output terminal within the rate. Connecting a power supply with wrong voltage rating or incorrect wiring may cause a fire or failure of BOX Data Logger or external equipment.

## Fuse to be attached to external terminal

Installing a fuse for each external terminal is recommended to prevent burnout of the external devices or module in case a load short-circuit occurred on the UPS SHUT DOWN terminal or ERROR terminal.

The fuses we have confirmed the operation are as follows:

Fuse model*1	216 3.15	312 003
Rated current	3.15 A	3 A
Manufacturer	Littelfuse, Inc.	

\*1 The fastest type fuse of rated current 3A is recommended.

## Wiring Ethernet cable

There are two Ethernet ports; CH1 and CH2. Use them according to the intended usage.

Ethernet port	Connection target
Ethernet port (CH1)	<ul style="list-style-type: none"><li>• Programmable controller</li><li>• Server (FTP server, etc.)</li><li>• Personal computer in which BOX Data Logger Configuration Tool is installed (Direct connection is available.)</li></ul>
Ethernet port (CH2)	<ul style="list-style-type: none"><li>• Programmable controller</li><li>• Server (FTP server, etc.)</li><li>• Personal computer in which BOX Data Logger Configuration Tool is installed (Direct connection is not available.)</li></ul>

### ■Connecting an Ethernet cable

For Ethernet cables, refer to the following section.

 Page 54 Equipment Configuration

1. Power OFF the BOX Data Logger.
2. Insert the Ethernet cable connector into the port until a click sound is heard. Pay attention to the orientation of the connector.
3. Power ON the BOX Data Logger.
4. Power ON the external equipment connected to the port.

### ■Disconnecting an Ethernet cable

1. Power OFF the BOX Data Logger.
2. Pull out the Ethernet cable while pinching the retaining clip on the connector.

### ■Wiring precautions

- The bending radius near the connector should be at least four times longer than the cable's outside diameter.
- Connect the external equipment according to their specifications.
- Connecting or disconnecting the Ethernet cable  
When connecting or disconnecting the Ethernet cable, hold the connector part of the cable. Failure to do so may cause damage to BOX Data Logger or the cable, or malfunction due to poor contact.
- If the retaining clip of the Ethernet cable is broken  
Do not use any Ethernet cable with a broken retaining clip. Doing so may cause cable disconnection or malfunction.
- Unused Ethernet connector  
To prevent dust from entering the connector, attach the provided connector cover.
- Maximum station-to-station distance (maximum Ethernet cable length)  
The maximum station-to-station distance is 100 m. However, it may be shorter depending on the environment. For details, contact the manufacturer of the cables used.

---

During high speed data communication (100 Mbps) via 100BASE-TX connection, communication errors may occur due to the effect of high frequency noise generated from the equipment other than programmable controller, depending on the installation environment. Take the following countermeasures on BOX Data Logger side to eliminate the effect of high frequency noise when constructing the network system.

- Wiring

- Do not install the twisted pair cables together with the main circuit or power lines, or bring them close to each other.

- Make sure to place the twisted pair cable in a duct.

- Cable

- In the environment where the cable is susceptible to noise, use the shielded twisted pair cable (STP cable).

- 10 Mbps communication

- Connect the 10 Mbps-compatible equipment with BOX Data Logger and transmit the data at a transmission rate of 10 Mbps.

- Hub

- BOX Data Logger discriminates 10BASE-T/100BASE-TX and full duplex/half duplex communication mode according to hub. When connecting to hub without auto-negotiation function, set up hub for half duplex communication mode. CH1 and CH2 have a different sub network.

- Do not connect to CH1 and CH2 to same hub (except switching hub).

For the equipment required for 10BASE-T/100BASE-TX connection and system configuration, refer to the following sections.

 Page 47 System configuration during operation

 Page 54 Equipment Configuration

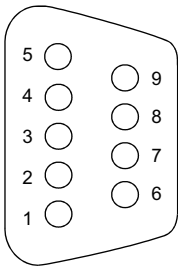
---



## Wiring RS-232 cable

RS-232 cable which is comply with the RS-232 regulation must be used within 15m.

The specifications of RS-232 connector are as follows:



Pin Number	Signal code	Signal name	Signal direction	
			NZ2DL	RS-232 device
1	CD(DCD)	Carrier Detect	←	←
2	RD(RXD)	Received Data	←	←
3	SD(TXD)	Transmitted Data	→	→
4	ER(DTR)	Data Terminal Ready	→	→
5	SG(GND)	Signal Ground	←	←
6	DR(DSR)	Data Set Ready	←	←
7	RS(RTS)	Request To Send	→	→
8	CS(CTS)	Clear To Send	←	←
9	CI(RI)	Ring Indicator	←	←

### Point

Connector specification which is used for RS-232 interface of BOX Data Logger is as follows:

Manufacturer: DDK Ltd.

Model name: 17LE-23090-27 (D4CK) or equivalent models

### Wiring precautions

- Apply 1 point grounding for RS-232 connection cable shield.
- The bending radius near the connector should be at least four times longer than the cable's outside diameter.
- Connect the external equipment according to their specifications.
- Do not short-circuit an FG and SG signal of RS-232 connection cable.
- Do not connect an FG signal to BOX Data Logger when an FG and an SG signals are connected inside the connected equipment.
- When connecting the cable, the space for wiring is required.
- For RS-232 cable to be pulled out of the control panel, be sure to ground the shield part of a shield cable. Also, install a ferrite core.

A ferrite core must be passing two turns of the wire conductor through the ferrite cable core.

(Ferrite core used for the test: TDK Corporation ZCAT3035-1330)

- For EMC direction, refer to the following section.

📖 Page 634 EMC and Low Voltage Directives

### Point

During communication using RS-232 connection cable, communication errors may occur due to the effect of high frequency noise generated from the equipment other than programmable controller, depending on the installation environment.

Take the following countermeasures on BOX Data Logger side to eliminate the effect of high frequency noise when constructing the network system.

- Wiring

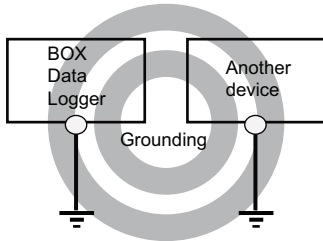
Do not install the RS-232 cables together with the main circuit or power lines, or bring them close to each other.

Make sure to place the RS-232 cable in a duct.

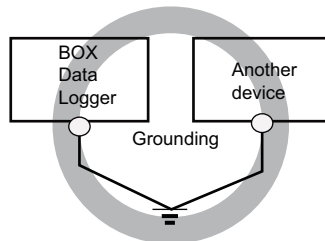
## Grounding

Observe the following:

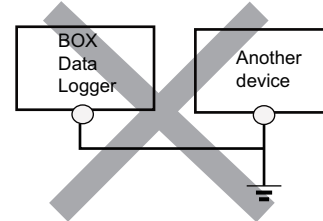
- Provide independent grounding as much as possible. Ground the FG and LG terminals to the protective ground conductor dedicated to the BOX Data Logger. (Ground resistance:  $100\Omega$  or less)
- If independent grounding is not possible, employ shared grounding, making all of the ground wires to the same length.



(1) Independent grounding Best



(2) Shared grounding Good



(3) Common grounding Not allowed

- Use the thickest possible ground wires (up to  $2\text{mm}^2$ ). Also, bring the grounding point close to the Ethernet adapter module as much as possible so that the ground wire can be shortened.

## 4.4 Hardware Self-Diagnostics Tests

This section explains the hardware self-diagnostics tests to check BOX Data Logger hardware.

### Hardware self-diagnostics tests

Hardware self-diagnostics tests are functions to check BOX Data Logger hardware.

The following items can be diagnosed by the hardware self-diagnostics test.

Mode	Diagnostic item	Description
Mode 0	Diagnostic test from mode 1 to 4	Perform the diagnostic test in order of mode 1 to 4.
Mode 1	ROM diagnostic test	Read ROM data and detect errors.
	Work RAM diagnostic test	Perform the write/read/verify check of test data to work RAM.
	Battery backup RAM diagnostic test	Perform write/read/verification check of test data to all the areas in battery back up RAM.
Mode 2	Ethernet diagnostic test	Perform the self-loopback test of CH1 and CH2 (10BASE-T/100BASE-TX interface).
Mode 3	CompactFlash card interface diagnostic test	Diagnose a CompactFlash card interface status. (Not diagnosing normal/abnormal status of the inserted CompactFlash card. Writing to CompactFlash card is not performed.)
Mode 4	RS-232 diagnostic test	Perform CH3 (RS-232 interface) self-loopback test.
Mode 5	7-segment LED test	Perform 7-segment LED test display.

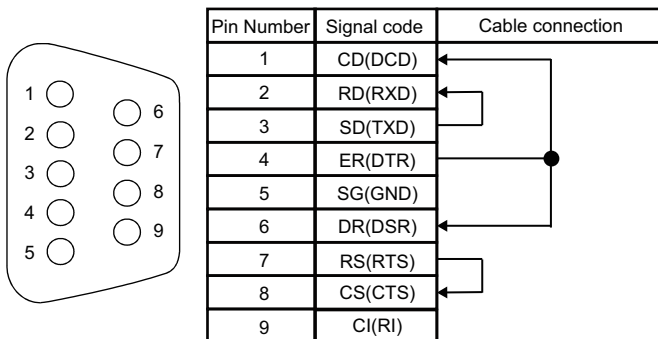
## Before performing hardware self-diagnostics test

### ■ Disconnect all wiring cables from BOX Data Logger.

When performing mode 4 (RS-232 self-loopback test), self-loopback wiring cable is required to be connected. When performing mode 2 (Ethernet diagnostic test), BOX Data Logger is required to be connected using Ethernet cable (crossing cable). When performing mode 0 (diagnostic test of mode 1 to 4), both self-loopback wiring cable and Ethernet cable (crossing cable) are required to be connected.

### ■ Prepare for each hardware self-diagnostics test as follows:

- Performing mode 2  
Connect both CH1 and CH2 using Ethernet cables (crossing cable).
- Performing mode 3  
Insert a CompactFlash card in the CompactFlash card slot.
- Performing mode 4  
Connect the cables to CH3 as shown below.
  - When connecting RS-232 connector conversion cable to BOX Data Logger, and then connecting the cable to Dsub9 pin connector.



- Performing mode 5  
Confirm the LED display status by a visual check.  
(☞ Page 115 How to check 7-segment LED diagnostic)
- Performing mode 0  
Prepare for executing mode 2, 3, and 4.

## Selecting hardware self-diagnostics mode

### ■ Pull the SELECT/TEST/RUN switch down to 'TEST' side, and turn the power ON.

7-segment LED display becomes '00'.

### ■ Pull the SELECT/TEST/RUN switch down to 'SELECT' side and select a mode.

The mode shifts as 0 to 5 in order as pull the switch to 'SELECT' side, 7-segment LED displays the value according to each mode.

## Performing hardware self-diagnostics test

Pull the SELECT/TEST/RUN switch down to 'RUN' side and perform the hardware self-diagnostics test.

During the hardware self-diagnostics test, RUN LED flashes green displaying the 7-segment LED diagnostic mode.

- For mode 1, display '01' and progress [%] alternately.
- For mode 0, '01' and progress [%] alternately The display changes as →'02'→'03'...→'00'.

### Point

Do not power BOX Data Logger ON/OFF during the hardware self-diagnostics test. Doing so may cause the BOX Data Logger abnormal startup.

## Checking hardware self-diagnostics test result

Hardware self-diagnostics test result can be checked by the status of turning 'RUN LED' OFF or flashing 'ERR.LED'.

### ■At normal completion

1. During the hardware self-diagnostics test, flashing 'RUN LED' turns OFF. (ERR.LED turns OFF.)
2. Power OFF and end the hardware self-diagnostics mode.
3. Pull the SELECT/TEST/RUN switch down to 'RUN' side.

### ■At error end

1. The 7-segment LED displays the corresponding value to the hardware self-diagnostics test in which an error has occurred at detecting an error. (RUN.LED turns OFF)

When an error end is detected, the hardware self-diagnostics test after the error is not performed.

Error detected part	7-segment LED display
On ROM diagnostic test	E1
On work RAM diagnostic test	E2
Battery backup RAM On diagnostic test	E3
On Ethernet (CH1) diagnostic test	E4
On Ethernet (CH2) diagnostic test	E5
On Ethernet loopback test	E6
On CompactFlash card interface diagnostic test	E7
On RS-232 diagnostic test	E8

2. When the test completes abnormally, perform the hardware self-diagnostics test again.  
If the result is error again, please consult your local Mitsubishi representative with details of the failure.

### ■How to check 7-segment LED diagnostic

For the 7-segment LED diagnostic, the 7 segment LED flashes each segment one by one in order as pulling the SELECT/TEST/RUN switch down to 'SELECT' side.

Check that all the segment LEDs turn ON by a visual check. If there is a segment that does not turn ON, it will be a hardware error of the BOX Data Logger. In this case, please consult your local Mitsubishi representative with details of the failure.

## 4.5 Operations to Return BOX Data Logger to Factory Default Status

---

BOX Data Logger saves and manages the setting information, Data logging files, Event logging files, Report files, and Recipe files on a CompactFlash card. The status of BOX Data Logger can be returned to its factory default status by performing any of the following operations.

- Eject the CompactFlash card and replace it with the formatted one, and power OFF → ON.
  - ↳ Page 648 Operation when replacing CompactFlash card by stopping the logging
- Format the CompactFlash card
  - ↳ Page 644 CompactFlash card format

# 5 FUNCTION LIST

The list of major functions of BOX Data Logger is shown in the following tables.  
For details on the functions, check the reference.

## Function list of BOX Data Logger

Item		Description	Reference
Data logging function	Sampling function	A function to sample data by accessing to the programmer controller CPU.	☞ Page 122 Sampling Target Data
	Scaling function	A function to use the values transformed by the primary function rather than the original device data itself.	☞ Page 266 Scaling
	Continuous logging function	A function to log device data constantly at the specified interval.	☞ Page 402 Continuous logging
	Trigger logging function	A function to monitor device data and log the data before and after the conditions are established.	☞ Page 124 Trigger logging function
	CSV file saving function	A function to log device data in CSV file format. The output format of the device data can be specified.	☞ Page 262 Logging type and File format
	Binary file saving function	A function to log device data at a high speed in binary file format.	☞ Page 262 Logging type and File format
	Saved file switching function	A function to switch the saved file by specifying number of rows, size, and other timing.	☞ Page 133 Data logging file save format
	Saved file transferring function	A function to transfer a file via e-mail or FTP when switching the saved file.	☞ Page 135 Transferring Data logging files
Event logging function	Sampling function	A function to sample event target data by accessing to the programmable controller CPU. (Same as the sampling function of the Data logging function.)	☞ Page 142 Sampling Target Data
	Scaling function	A function to use the values transformed by the primary function rather than the original device data itself. (Same as the scaling function of the Data logging function.)	☞ Page 266 Scaling
	Event monitoring function	A function to monitor device data and log the event occurrence history.	☞ Page 138 Target data
	CSV file saving function	A function to log events in CSV file format. The output format of the device data can be specified. (Same as the CSV file saving function of the Data logging function.)	☞ Page 309 File format
	Binary file saving function	A function to log event at a high speed in the binary file format (Same as the binary file saving function of the Data logging function.)	☞ Page 309 File format
	Saved file switching function	A function to switch the saved file by specifying number of rows, size, and other timing (Same as the save file switching function of the Data logging function.)	☞ Page 144 Saving Event logging files
	Saved file transferring function	A function to transfer a file via e-mail or FTP when switching the saved file	☞ Page 144 Transferring Event logging files
	E-mail notification function	A function to notify event occurrence by e-mail.	☞ Page 146 E-mail Notification

Item		Description	Reference
Report function	Sampling function	A function to sample data by accessing to the programmer controller CPU (Same as the sampling function of the Data logging function.)	☞ Page 152 Sampling Creation Trigger and Current Value Data
	Current value data sampling function	A function to simultaneously sample the device data to be monitored during trigger sampling and the device data to be output in a report. Or, a function to sample the device data to be output in a report after a trigger occurrence.	☞ Page 152 Sampling Creation Trigger and Current Value Data
	Scaling function	A function to use the values transformed by the primary function rather than the original device data itself.	☞ Page 266 Scaling
	Excel file saving function	A function to collect current value data and logging data, and save them in the Excel file format.	☞ Page 373 Save
	Creation trigger specification function	A function to create a report file at the specified timing.	☞ Page 153 Creation Trigger
	Created file transferring function	A function to transfer a file via e-mail or FTP when creating a Report file	☞ Page 154 Transferring Report files
File accessing function		A function to enable a personal computer to access BOX Data Logger using Configuration tool or an FTP client application. Logging files can be obtained and recipe data file can be written via network.	☞ Page 189 File Accessing Function
Access authentication function		A function to authenticate and restrict the access to BOX Data Logger when performing online configuration, or reading and writing files.	☞ Page 191 Access Authentication Function
Time synchronization function		A function to synchronize the time in BOX Data Logger with a time server on the network. The time of the programmable controller CPU to be accessed can be also synchronized with a time server on the network.	☞ Page 180 Time Synchronization Function
FTP transfer function		A function to transfer data from BOX Data Logger to a file server via FTP.	☞ Page 192 FTP Transfer Function
E-mail function		A function to send e-mail. <ul style="list-style-type: none"> <li>• Send e-mail with attached logging files and Report files.</li> <li>• Send e-mail with the Event logging function.</li> </ul>	☞ Page 195 E-mail Function
Auto logging function		A function to start automatic logging at insertion of a CompactFlash card, based on the setting content of the CompactFlash card.	☞ Page 182 Auto Logging Function
Logging continuance function		A function to continue logging while a CompactFlash card is being replaced.	☞ Page 184 Logging Continuance Function
Recipe function		A function to change device values in the programmable controller CPU from Recipe files stored in CompactFlash card, or to read device values in the programmable controller CPU and write them in the Recipe files.	☞ Page 155 RECIPE FUNCTION



## Functions of BOX Data Logger Configuration Tool

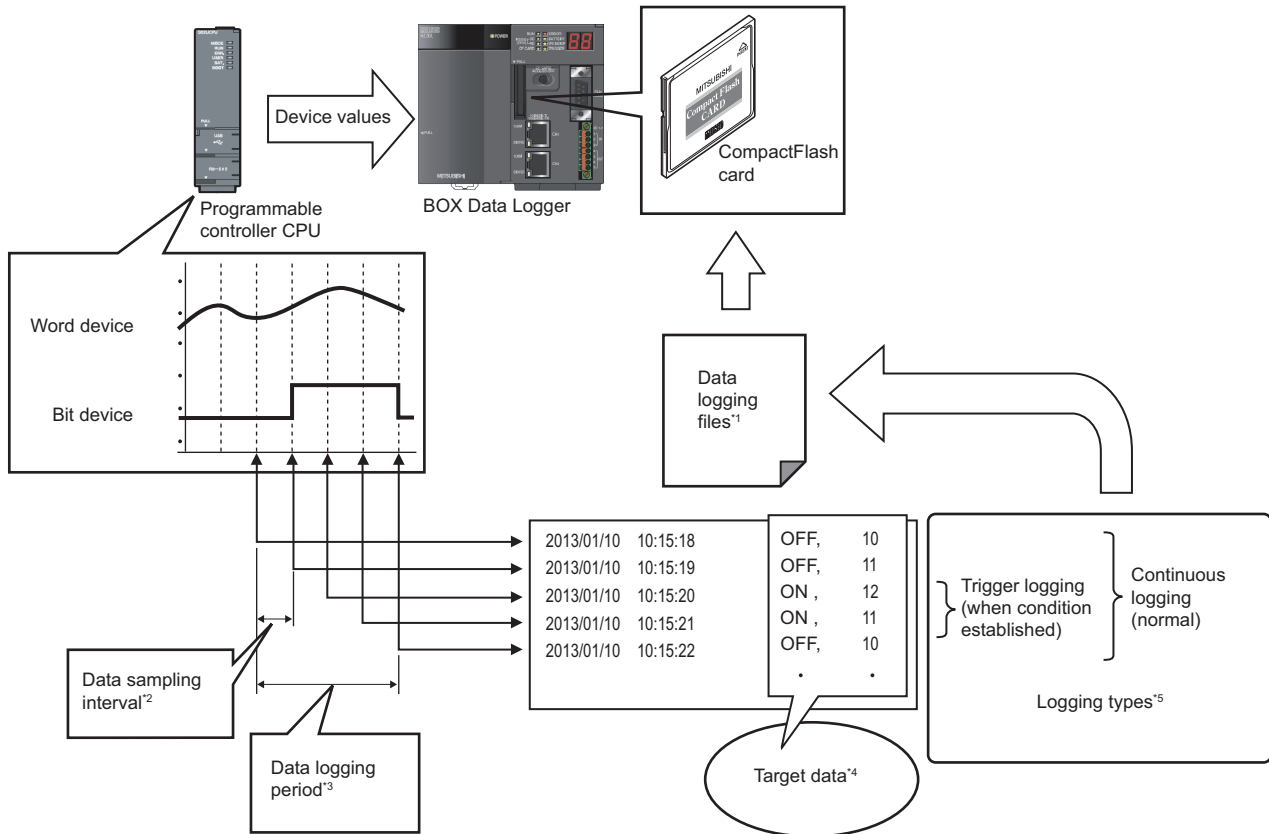
Item	Description	Reference
Online startup function	A function to quickly start the Configuration tool from BOX Data Logger without installing it to a personal computer.	☞ Page 202 Online startup
Data logging setting function	A function to set the Data logging function of BOX Data Logger.	☞ Page 258 Data logging setting
Event logging function	A function to set the Event logging function of BOX Data Logger.	☞ Page 137 EVENT LOGGING FUNCTION
Report setting function	A function to set the Report function of BOX Data Logger.	☞ Page 340 Report Setting
Excel layout creation function	A function to create a layout of report created with the Report function using Excel.	☞ Page 347 Layout setting
Wizard setting function	A function to guide a user through the setting procedure using a wizard.	☞ Page 260 Data logging setting screen transitions
Find BOX Data Logger function	A function to search for and connect to BOX Data Logger on the network.	☞ Page 378 Searching BOX Data Logger
Easy connection function	A function to enable direct and simple connection to BOX Data Logger using a crossing/straight cable without entering IP address.	☞ Page 47 Connecting to CPU module with serial port
Status monitoring function	A function to monitor the statuses of error, e-mail transmission function, file transfer function, logging function, and report creating function of BOX Data Logger.	☞ Page 380 Diagnostics
Operation control function	A function to control BOX Data logger's operations such as stopping, restarting, or partially performing the logging function or the report creation function, enabling/disabling the access to a CompactFlash card, and formatting a CompactFlash card.	☞ Page 380 Diagnostics
File browser function	A function to browse inside a CompactFlash card in BOX Data Logger and to send/receive files to/from there.	☞ Page 189 File browser function

# 6 DATA LOGGING FUNCTION

The Data logging function is a function to log programmable controller CPU device values at the specified data sampling interval. The logged target data is saved in the CompactFlash card inserted in BOX Data Logger.

The group of target data sampled with the same sampling interval and logging type configuration is called a 'Data logging setting'. Up to 64 Data logging setting can be set. For the settings of the Data logging function, refer to the following sections.

☞ Page 258 Data logging setting



- \*1 ☞ Page 133 Data Logging Files
- \*2 ☞ Page 263 Sampling
- \*3 ☞ Page 131 Data Logging Periods
- \*4 ☞ Page 121 Target Data
- \*5 ☞ Page 124 Logging Types

# 6.1 Target Data

'Target data' is the data that saves content of device memory in the programmable controller to the CompactFlash card along with a time stamp.

## Target device memory for data logging

Data logging can be performed for the device memory on a programmable controller CPU.

For details, refer to the following section.

 Page 448 Settable Device Range

## Data types

Target device memory for data logging can be logged as the data types shown in the table below.

Data type	Number of occupied device points
Bit	1 point
Word [signed]	1 point
Double word [signed]	2 points
Word [unsigned]	1 point
Double word [unsigned]	2 points
FLOAT [single precision]	2 points
FLOAT [double precision]	4 points
16bit BCD	1 point
32bit BCD	2 points
String	(String count/2) points
Raw	(Binary size/2) points

## Number of target data settings

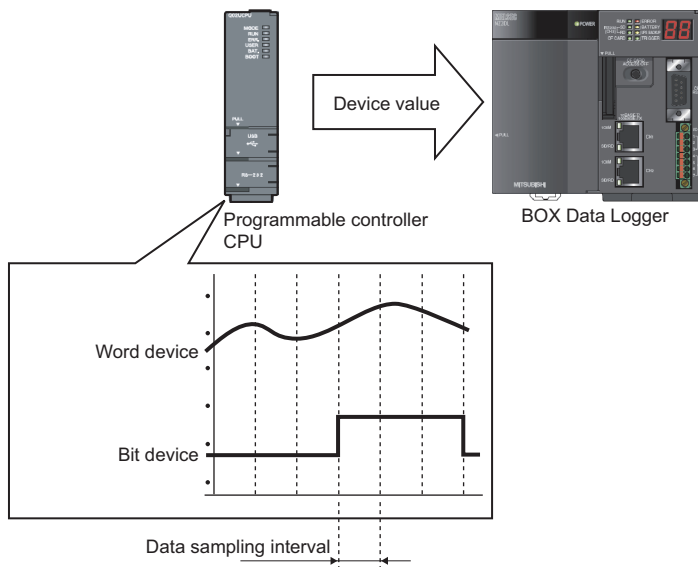
Up to 256 target data can be set for a single Data logging setting.

## 6.2 Sampling Target Data

In "Sampling," the sampling method and sampling interval for target data are specified.

The data sampling methods are as follows:

Data sampling method	Overview
Data sampling (time specification)	Data is sampled at the specified interval (seconds).
Data sampling (time interval specification)	Data is sampled at the specified time interval (hour/minute/second) from the midnight of everyday, the top of every hour, or the top of every minute.



# Sampling

The explanation in this section is common to the 'data sampling' for the Event logging function and Report function.

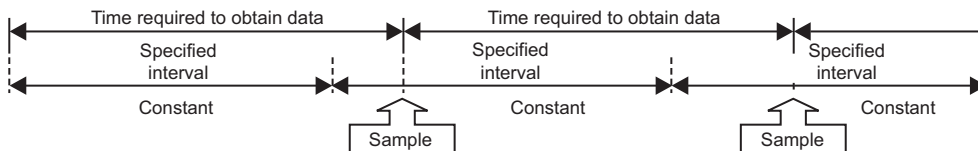
## Timing of processing when "Time specification" is specified

Processing is performed at the specified interval or at the time required to obtain data.

### ■If the time required to obtain data is longer than the specified interval

If the time required to obtain data is longer than the specified interval, data are sampled at the time interval required to obtain data.

The time interval required to obtain data is the timing of processing as shown in the following figure.



## Timing of processing when "Time interval specification" is specified

Data is sampled at the specified time interval (hour/minute/second) from the midnight of everyday, the top of every hour, or the top of every minute.\*1

\*1 Depending on the amount of sampled data and the other settings of logging/report function, the specified sampling time may be delayed.

### ■Available unit that can be specified

Hour: 1, 2, 3, 4, 6, 8, 12, 24

Minute: 1, 2, 3, 4, 5, 6, 10, 12, 15, 20, 30, 60

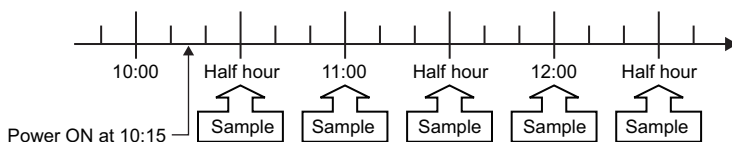
Second: 1, 2, 3, 4, 5, 6, 10, 12, 15, 20, 30, 60

### ■Example of data sampling timing

Samples every half hour from the top of the hour.

Ex.

The time interval of half hour is specified and powered ON at 10:15.



### Point

- The data logging, event logging, and report functions of BOX Data Logger are the best effort functions. Since BOX Data Logger processing time changes according to the settings and status of other equipment, it may not operate with the set data sampling interval. Run the system by fully verifying the processing time of each function when constructing it. For processing time, refer to the following chapter.  
☞ Page 400 PROCESSING TIME
- Up to 4096 device values can be logged for a single Data logging setting.
- Since general data sampling is not synchronized with the programmable controller CPU's sequence scan, data separation may occur. If data separation must be prevented, set the number of devices sampled at one time to less than the access units. ☞ Page 531 Access Units
- Data changes occurred between the data sampling processes are not sampled because a BOX Data Logger only samples data from a programmable controller CPU at the specified data sampling intervals.  
☞ Page 640 Sampling Processes of BOX Data Logger

For 7-segment LED display description indicating logging status, refer to the following section.

☞ Page 98 Logging status

## 6.3 Logging Types

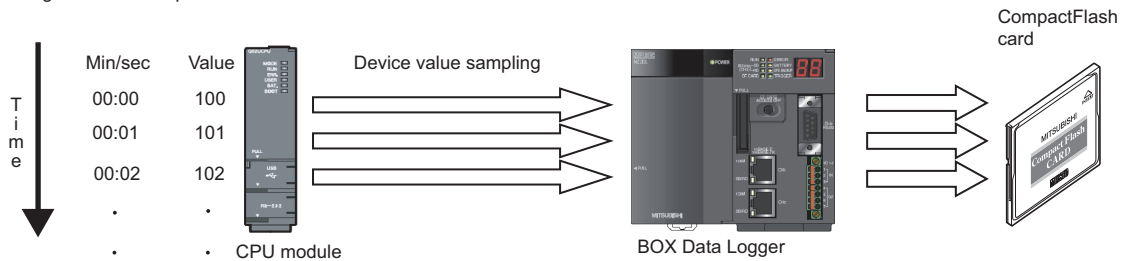
There are two kinds of logging types:

Logging type	Overview
Continuous logging	Logs continuously at the specified data sampling interval.
Trigger logging	Logs the specified number of lines worth of target data before and after a trigger occurs (specified condition is established).

### Continuous logging function

This function continuously logs CPU module device values at the specified data sampling interval.

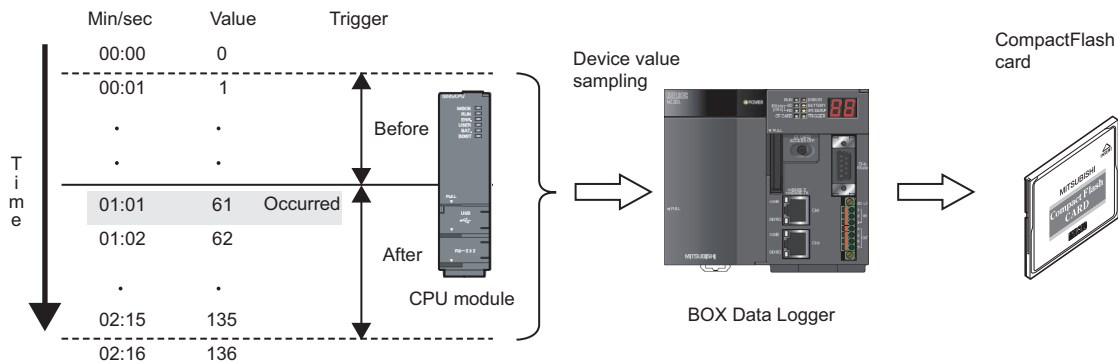
□ Save target data in the specified interval □



### Trigger logging function

This function logs only the specified number of lines worth of CPU module device values before and after a trigger occurs (specified condition is established).

[Save target data when trigger occurs]



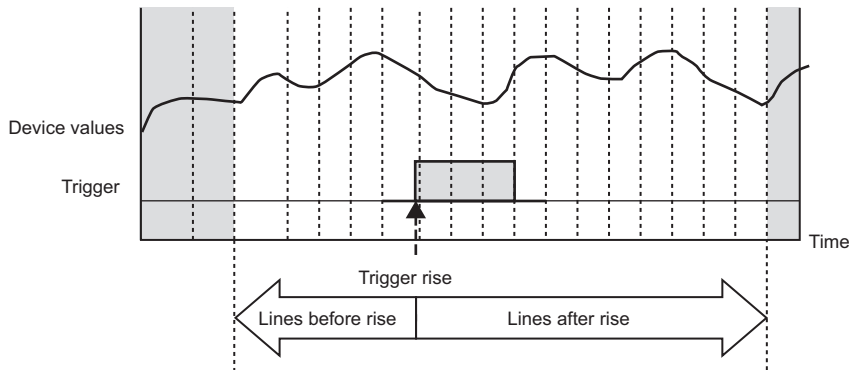
#### Point

- When the number of device points to be sampled exceeds the access units, device values are sampled over multiple sequence scans, and the values are logged as one data row. Therefore, device values sampled in another sequence scan as the one where the trigger occurred may be included in one data row. To avoid this, the number of device points that can be sampled at once should be less than the access units.  
(☞ Page 531 Access Units, ☞ Page 564 Access Units)
- For trigger logging conditions, refer to the following section.  
(☞ Page 128 Trigger conditions)

There are two methods for specifying the number of lines in trigger logging:

## Logging device values before and after trigger condition rise

Specify a number of lines before and after the trigger condition rise.



## Logging data under the following conditions

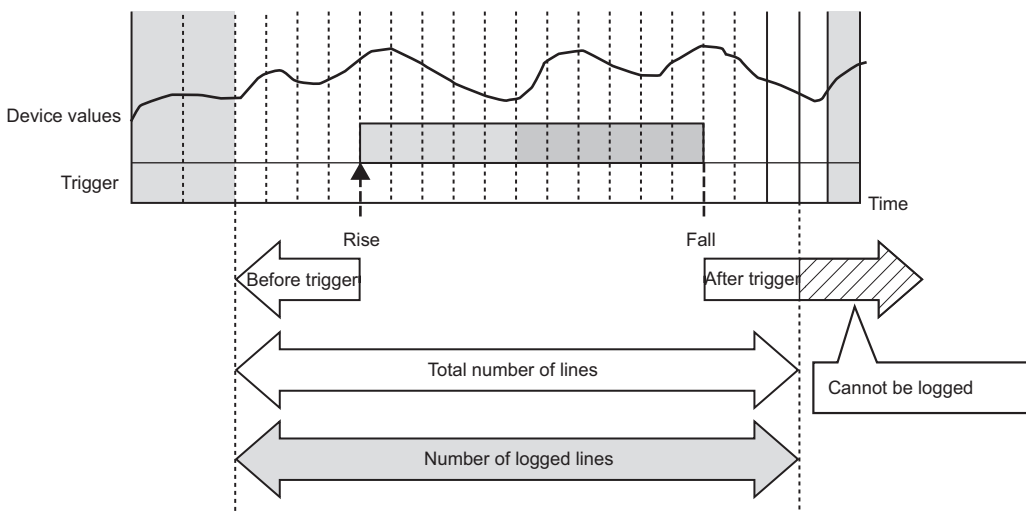
Specify the number of lines before the trigger condition rise and after the trigger condition fall, and the total number of lines. The total number of lines is the maximum number of lines to be logged under this condition.

Specify the value more than the total of lines before the trigger condition rise and after the trigger condition fall. The lines exceeding the total of lines before the trigger condition rise and after the trigger condition fall are assigned to the logging lines on which the trigger condition is established.

With this setting, the logging range differs according to the length of time that the trigger condition is established.

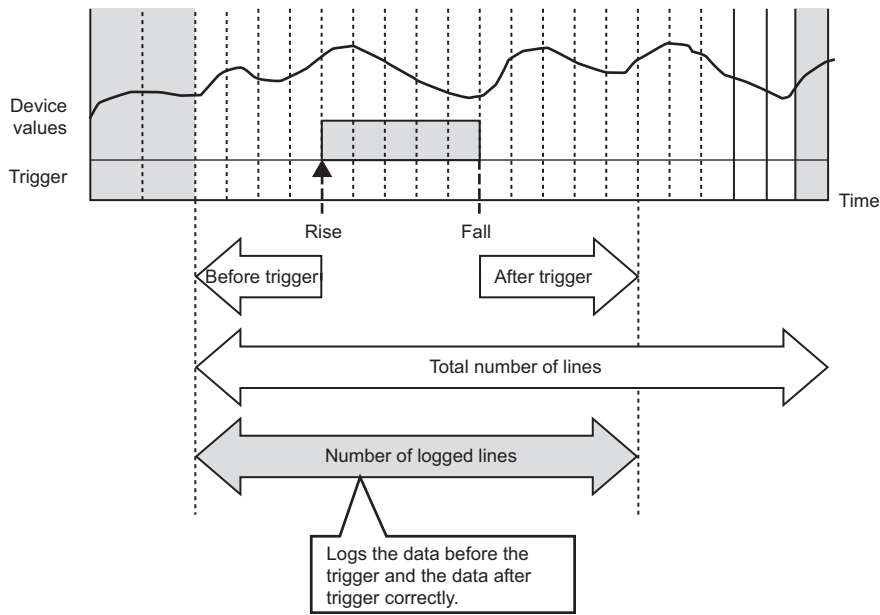
### ■When the time that the trigger condition is established is long

Log the total number of lines worth of data.



■ **When the time that the trigger condition is established is short**

Log the specified number of lines after the trigger.



**Point**

Immediately after powering BOX Data Logger ON, if a trigger occurs before sampling the number of lines worth of data before the trigger, the data sampled before the trigger is less than the specified lines.



## Precautions

- Continuous trigger occurrence leads to the following operations:

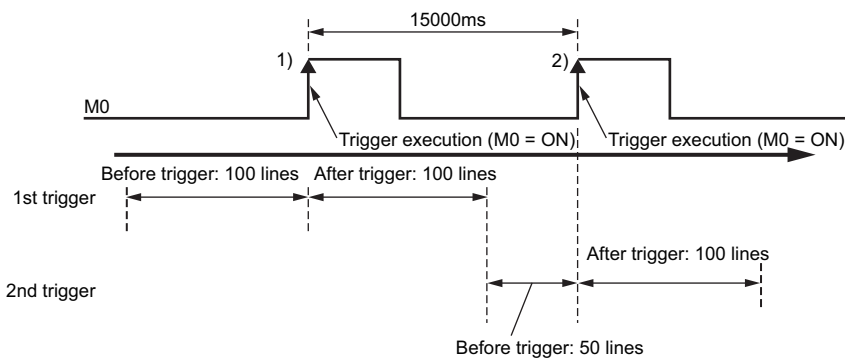
If another trigger occurs while sampling the specified number of lines after a trigger occurrence, the second trigger is not detected (the trigger occurrence is ignored). To check how many triggers are ignored, refer to "Trigger recurrence count" in the [Data logging diagnostics] tab (Page 390 Data logging diagnostics) on the Diagnostics screen.

Example) When the sampling interval is 100 ms, and the lines after a trigger occurrence is 100 lines

Any trigger occurred within 10000 ms after the first trigger will not be processed.

- After the first trigger occurs, triggers which occur after the number of lines worth of data after the trigger are sampled, are detected. However, if the data in the lines after the first trigger overlaps with the data in the lines before the second trigger, the data at the time output by the first trigger is not detected with the second trigger. Therefore, the number of lines before the second trigger may be shortened.

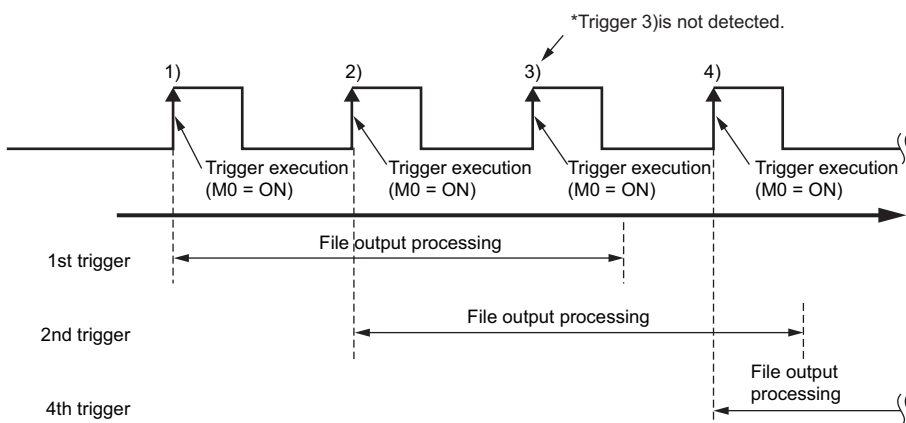
Example Data sampling interval: 100ms  
 Trigger period: 1500ms  
 Number of lines before trigger: 100 lines  
 Number of lines after trigger: 100 lines



- Between a trigger occurrence and output to a file, only one other trigger is processed. While two triggers are being processed to be output to a file, trigger detection is not performed. Thus, if any other trigger (third or later trigger counting from the first trigger) occurs, the trigger is not detected. During this period, subsequent processing is not catching up with the data sampling speed, and the processing gets overloaded. To check the processing overload count and the trigger recurrence count, refer to the [Data logging diagnostics] tab (Page 390 Data logging diagnostics) on the Diagnostics screen.

For the approximate time for data to be saved in a file, refer to the following section.

➔ Page 400 PROCESSING TIME



# Trigger conditions

Conditions shown in the following table can be selected as the trigger conditions.

Condition	Trigger type	Detailed condition
Single condition	—	—
Compound condition	OR combine	—
	AND combine	—
	Number of times	When a terminal condition holds true
		When a specified number of times is exceeded
	Order	Abnormal pattern is detected
Normal pattern is detected		
Timeout detected		

## Single condition

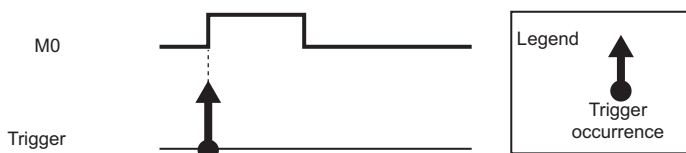
Triggers occur by establishing a single condition.

Select one condition from the conditions shown in the following table.

Condition	Description
Data conditions	Comparison Device values or a device value and constant are compared, and a trigger occurs when the condition is established. ( $>$ , $\geq$ , $<$ , $\leq$ , $=$ , $\neq$ )
	At the time of change of value A trigger occurs when the device value changes.
Fixed cycle [seconds]	A trigger occurs at a fixed cycle (seconds).
Time interval specification	A trigger occurs at the specified time interval (hour/minute/second) from the midnight of everyday, the top of every hour, or the top of every minute.
Specifying a time of day	A trigger occurs at the specified time.
At startup of BOX Data Logger	A condition is established at the time of BOX Data Logger startup.

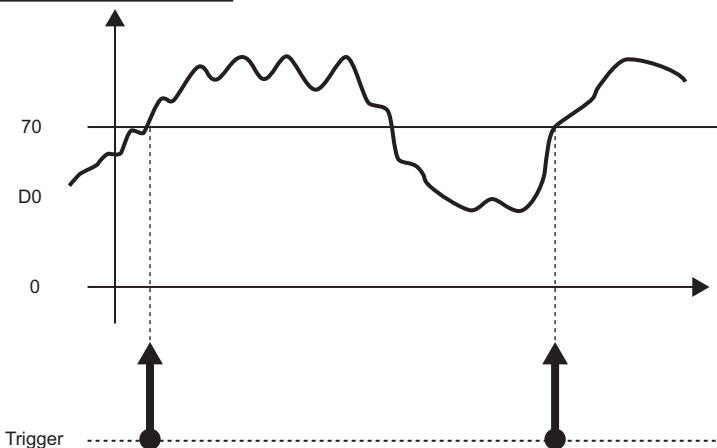
### ■ Comparison of a bit device value set as a condition

Trigger occurrence condition
M0 = ON



### ■ Comparison of a word device value set as a condition

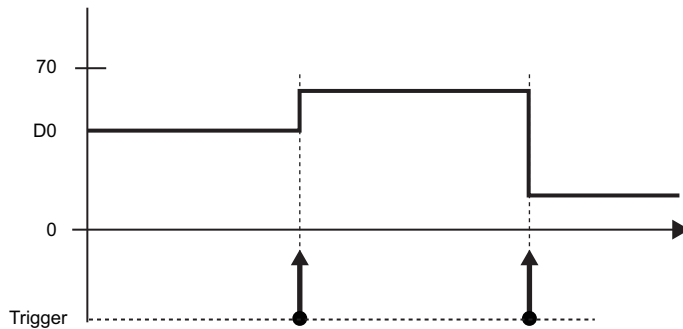
Conditions for the occurrence of a trigger
D0 > 70



## Word device value change set as a condition

Trigger occurrence condition

D0"At the time of change of value"

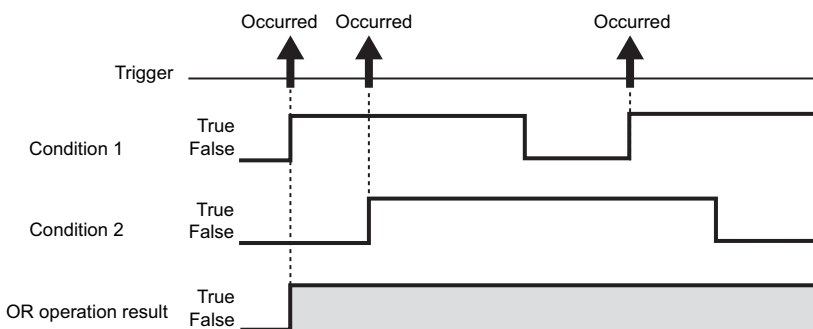


## Compound condition

For compound condition, triggers occur by establishing multiple conditions. The conditions which compose compound conditions are the same as the conditions which can be specified with single conditions.

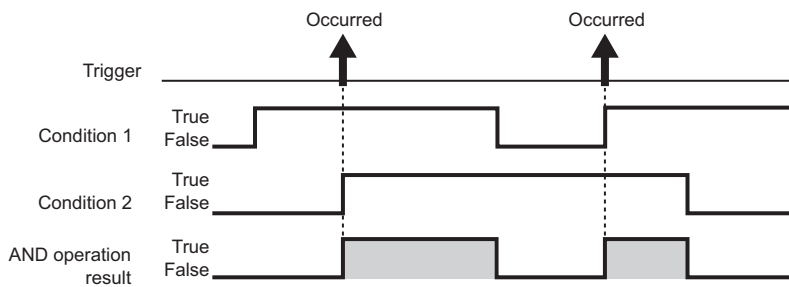
### OR combine

Triggers occur by establishing any of the set conditions.



### AND combine

Triggers occur by establishing all of the set conditions.




## ■Number of times

The number of times that the condition is established (number of counts) is compared with the specified number of times, and a trigger occurs. The timing of the comparison of the number of counts to the specified number of times can be selected.


- When a terminal condition holds true
- When a specified number of times is exceeded

For details on the number of times, refer to the following section.

 Page 280 Number of times

## ■Order

The order of multiple conditions being established is monitored, and a trigger occurs when the order is in correct order or in wrong order, and when a timeout is detected. For more details on the order, refer to the following section.

 Page 367 Order

---

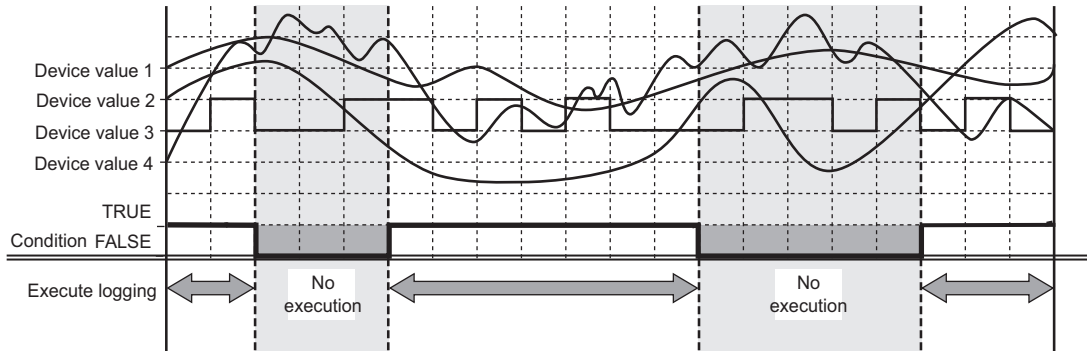
### Point

A combination of AND and OR cannot be specified for the trigger conditions.

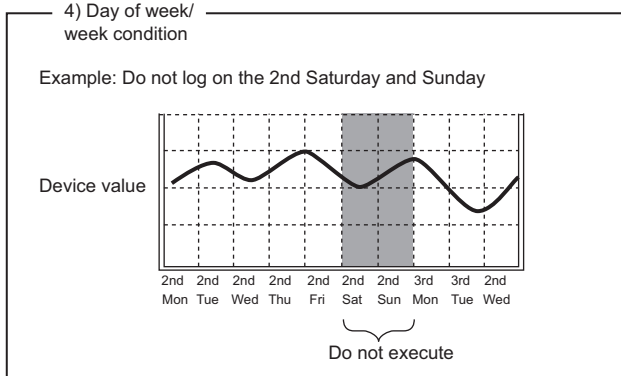
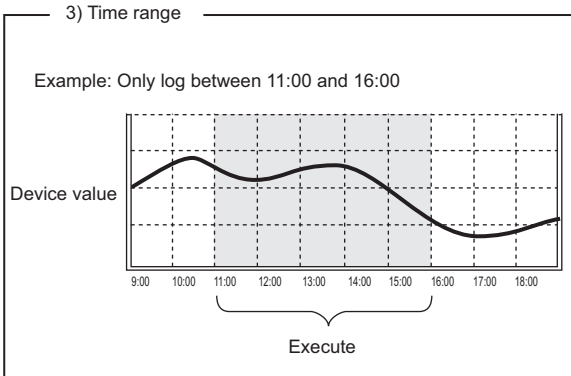
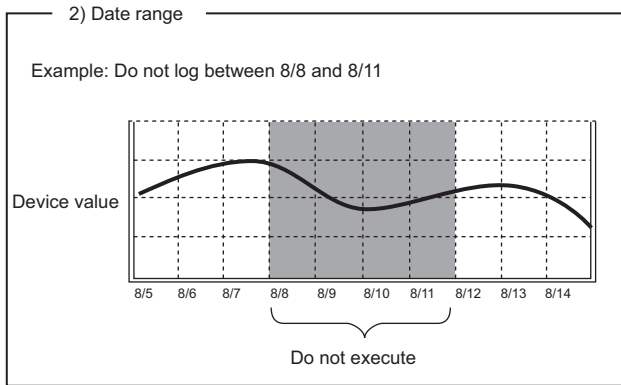
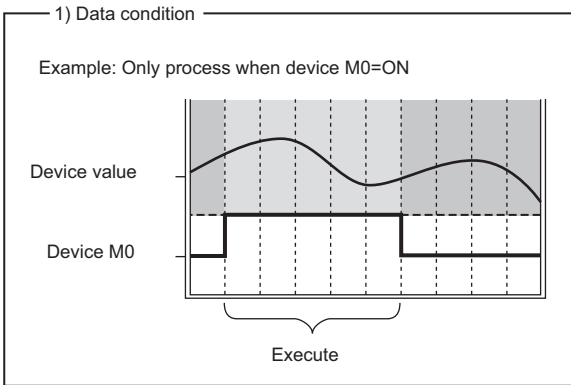
---

# 6.4 Data Logging Periods

The periods to perform logging and the periods not to perform logging can be specified.

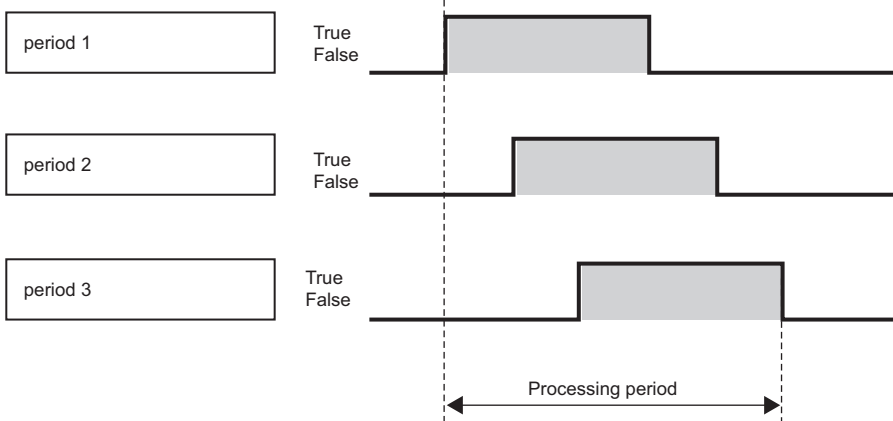


The types of periods which can be specified are as follows:  
 Periods 1) to 4) can be specified in combinations of up to 8 conditions.  
 All periods can be combined with OR or AND combinations.

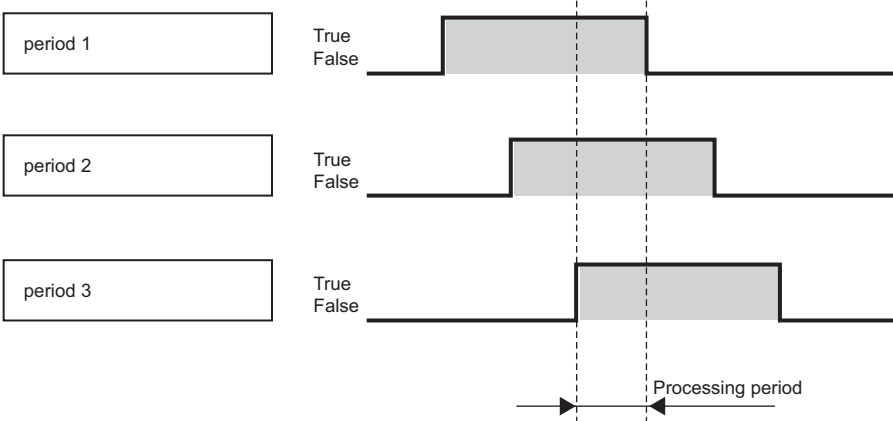


Periods 1) to 4) can be combined up to 8 types.

## When all periods are combined with OR



## When all periods are combined with AND



### Point

When specifying combinations of periods, a combination of AND and OR cannot be specified.

## 6.5 Data Logging Files

---

Data logging target data are saved in the Data logging file.

### Data logging file save format

---

Data logging files can be saved in the following two types of file formats:

- CSV file format (extension: '.CSV')
- Binary file format (extension: '.BIN')


#### CSV file format

---

The file format that can be opened by normal applications such as Excel and Notepad.

It can also be displayed with GX LogViewer.

For the CSV file format, refer to the following section.

 Page 71 CSV format specification

#### Binary file format

---

High-speed file access is possible with this format because it is smaller in size than the CSV file format.

It can also be displayed with GX LogViewer.

For the binary file format, refer to the following section.

 Page 71 Data logging file

### Saving Data logging files

---

BOX Data Logger temporarily saves sampled data logging target data to the 'storing file' on the inserted CompactFlash card.

Since the size of the 'storing file' becomes larger with time, file switching is performed at the specified conditions.

File switching is giving storing file a name to change it to a 'saved file'. (A new storing file is created after the file name is changed.)

In addition to an eight-digit hexadecimal number, the specified information can be attached to the file name.

'Saved files' have a number added to the file name up to the specified number of files, and they are saved on the CompactFlash card.

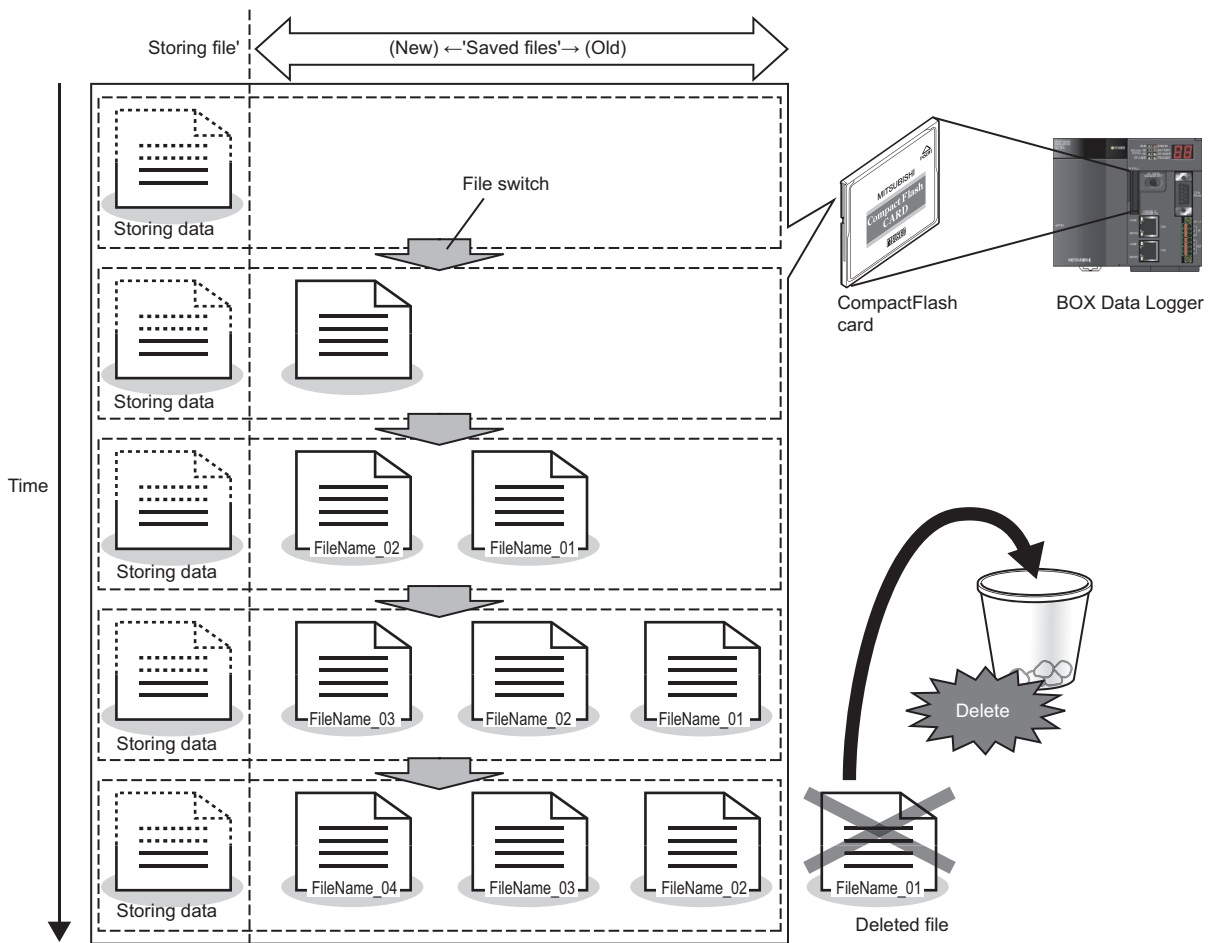
When the number specified to "Saved files" is surpassed, old files are deleted in order.

For the conditions which can be specified, refer to the following section.

 Page 292 Save

Ex.

Saving Data logging files when number of files after the switch is set to an upper limit of 3





## Data logging file save location

---

Data logging files are saved on the CompactFlash card.

For the CompactFlash card directory structure, refer to the following section.

 Page 70 Directory Structure

## Transferring Data logging files



---

Data logging files can be automatically transferred to an FTP server or mail server. There are two methods for transferring Data logging files.

### Transferring files by FTP

---



For details, refer to the following sections.

- Function explanation:  Page 192 FTP Transfer Function
- Setting method:  Page 240 FTP setting

### Transferring files by e-mail

---

For details, refer to the following sections.

- Function explanation:  Page 195 E-mail Function
- Setting method:  Page 242 E-mail setting

#### Point

E-mail transmissions/file transfers by the saved file transfer function may take a few seconds to tens of seconds depending on the network line/transmission size.

Target files may be deleted before e-mail transmission/file transfer completes depending on the logging setting.



Review the settings of timing, file capacity, and the number of saved files, and lengthen the time until the file is deleted.

---

## 6.6 Missing Data

When sampled data are missing or data are not continuous, this is referred to as a data miss.

The occurrence of a data miss can be checked by the following items.

- Index information of Data logging file  
 Page 216 No. (Index)
- Two vertical dashed-dotted lines displayed in the trend window of GX LogViewer  
 GX LogViewer Version 1 Operating Manual)

A data miss occurs in the situations as follows:

○: Occurs, —: Does not occur

Item	Description	Data logging	Realtime trend graph
Processing overload	The data logging processing (trigger determination and file saving) cannot catch up with the specified data sampling interval and a processing overload error occurs.	○	○
Sampling error	When an error occurs in the sampling process by a cause such as the connection cable being disconnected.	○	○
BOX Data Logger operation	When "Update settings" is performed for BOX Data Logger.	○	○
	When "Restart" is performed for BOX Data Logger operations.	○	○
Data logging period	When the data logging period is specified, the sampled data were not saved to a file because they are outside the period.	○	—
Trigger logging function	When sampled data between triggers were not output to a file.	○	—
Realtime trend graph	GX LogViewer data acquisition/display was not in time for the specified data sampling interval.	—	○

# 7 EVENT LOGGING FUNCTION

The Event logging function is a function to monitor sampled device values from a programmable controller CPU and log events that occur.

The logged target data are saved to the CompactFlash card in the BOX Data Logger.

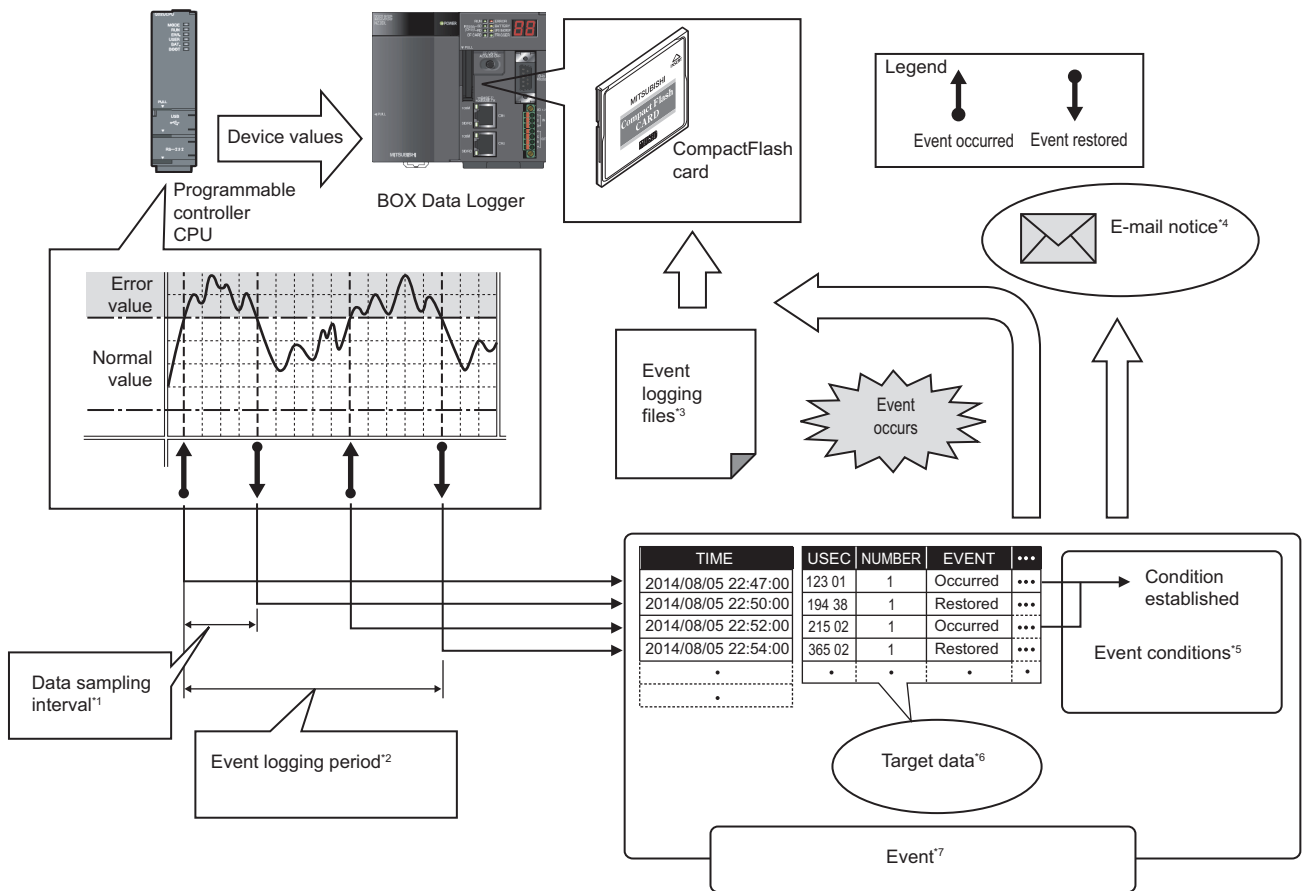
Occurred events can be notified by e-mail.

The group of target data sampled with the same sampling interval and monitoring conditions configuration is called an 'event logging setting'.

Up to 64 event logging settings can be set.

For the settings of the Event logging function, refer to the following section.

☞ Page 305 Event Logging Setting



\*1 ☞ Page 142 Sampling Target Data

\*2 ☞ Page 143 Event Logging Periods

\*3 ☞ Page 144 Event Logging Files

\*4 ☞ Page 146 E-mail Notification

\*5 ☞ Page 139 Event conditions

\*6 ☞ Page 138 Target data

\*7 ☞ Page 138 Events

# 7.1 Events

'Events' are the combination of 'target data' ( [Page 138 Target data](#)) and 'event conditions' ( [Page 139 Event conditions](#)).

## Target data

'Target data' is the data that saves device values sampled from a programmable controller CPU to the CompactFlash card along with a time stamp when the device values are compared to 'event conditions' ( [Page 139 Event conditions](#)) and those conditions are established.

### Target device memory for event logging

Event logging can be performed for the device memory on a programmable controller CPU.

For details, refer to the following section.

[Page 448 Settable Device Range](#)

### Data type

Target device memory for event logging can be logged as the data types shown in the following table.

Data type	Number of occupied device points
Bit	1 point
Word [signed]	1 point
Double word [signed]	2 points
Word [unsigned]	1 point
Double word [unsigned]	2 points
FLOAT [single precision]	2 points
FLOAT [double precision]	4 points
16bit BCD	1 point
32bit BCD	2 points
String	(String count/2) points
Raw	(Binary size/2) points

### Number of target data settings

Up to 64 target data can be set for a single event logging setting.

# Event conditions

Select an event condition from the conditions shown in the following table.

Event condition	Event type	Detailed condition
Single condition	—	—
Compound conditions	Comparison	AND combine
		OR combine
	Number of times	When a terminal condition holds true
		When a specified number of times is exceeded
	Order	Abnormal pattern is detected
		Normal pattern is detected
Timeout detected		

## Single condition

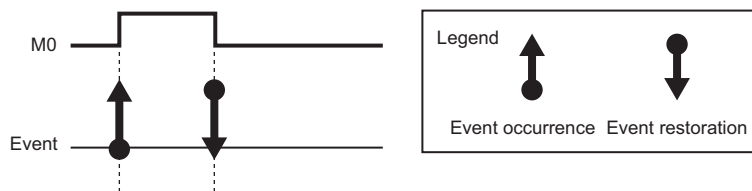
A single condition compares monitoring data and the monitoring value (limited to constant values) with the monitoring condition

The event occurs when the condition changes from not being established to being established.

When the condition also changes from being established to not being established, the event is restored.

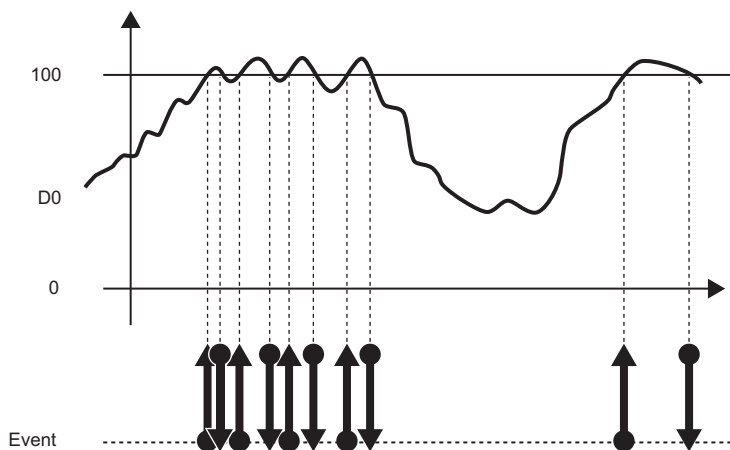
### ■ Comparison of a bit device value set as an event condition

Event conditions
M0 = ON



### ■ Comparison of word device value (restoration value not specified) set as an event condition

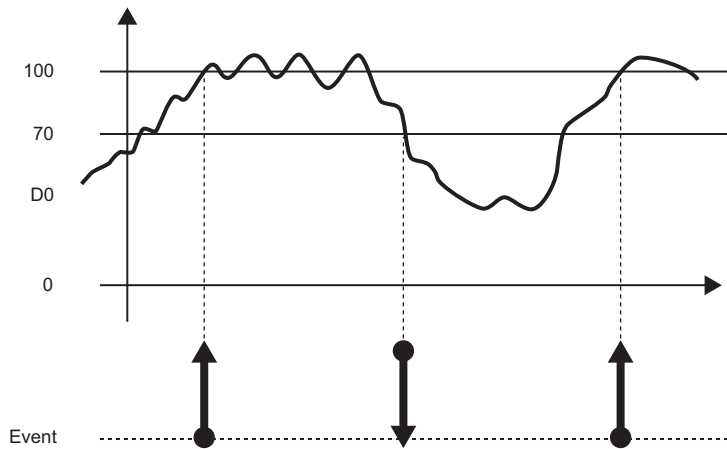
Event conditions	Restoration value
D0 > 100	—



## ■ Comparison of word device value (restoration value specified) set as an event condition

Event conditions	Restoration value
D0 > 100	70

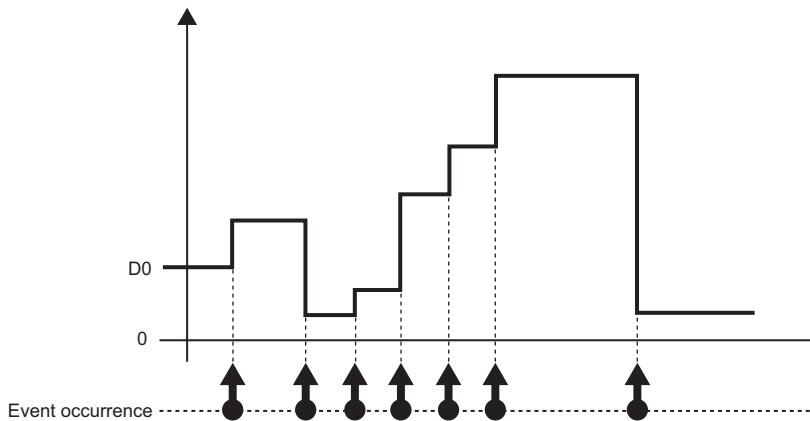
The repetitions of event occurrence/restoration by the value fluctuation as shown in the figure below, can be prevented by specifying a restoration value.



## ■ Word device value change set as a condition

Event conditions
D0 "At the time of change of value"

The event occurs when D0's value changes.  
No event restoration.

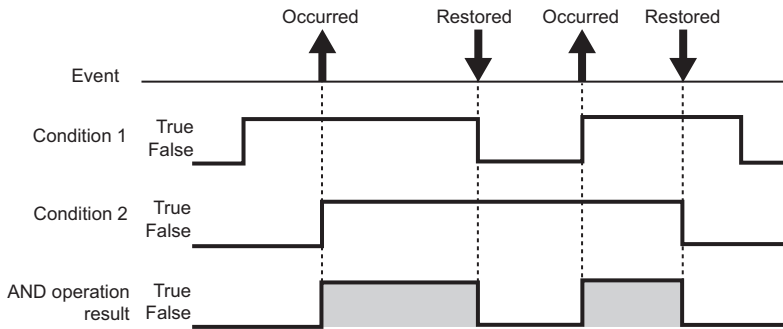


## Compound conditions

### ■AND combine

Events occur by establishing all of the set event conditions.

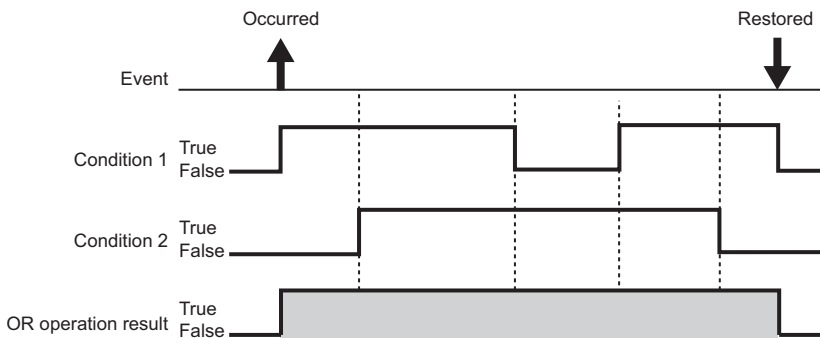
Up to 4 single conditions can be combined.



### ■OR combine

Events occur by establishing any of the set event conditions.

Up to 4 single conditions can be combined.



### ■Number of times

The number of times that the condition is established (number of counts) is compared with the specified number of times, and an event occurs.

The timing of the comparison of the number of counts to the specified number of times can be selected from the following.

- When a terminal condition holds true
- When a specified number of times is exceeded

For details on the number of times, refer to the following section.

📖 Page 280 Number of times

### ■Order

The order of multiple conditions being established is monitored, and a trigger occurs when the order is in correct order or in wrong order, and when a timeout is detected. For more details on the order, refer to the following section.

For details on order, refer to the following section.

📖 Page 283 Order

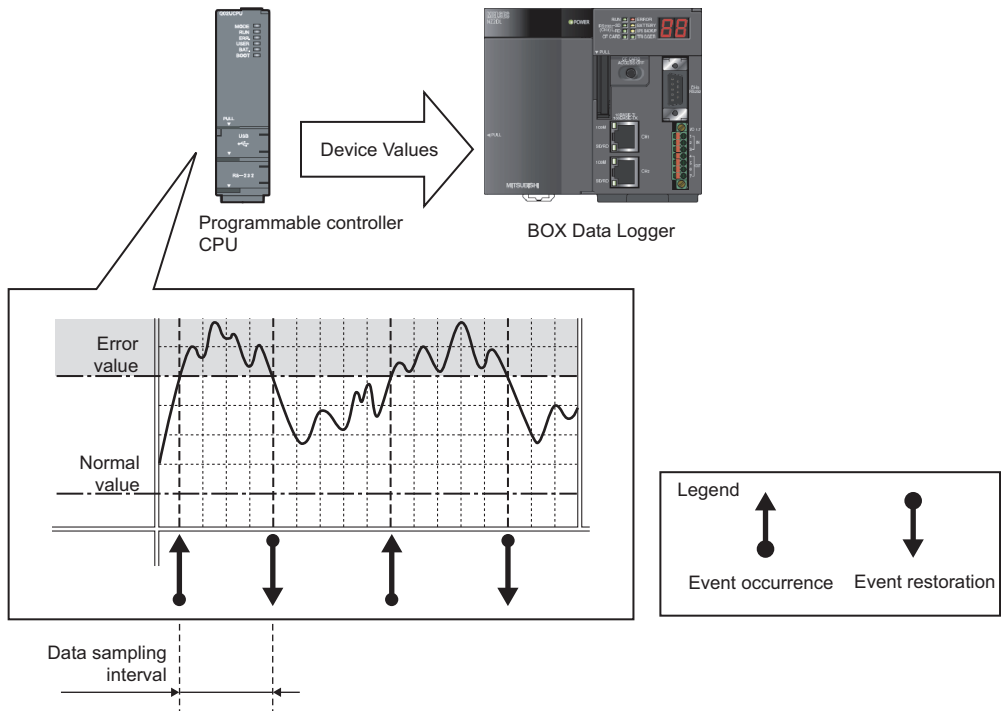


A combination of AND and OR cannot be specified for an event.

# 7.2 Sampling Target Data

In "Sampling," the sampling method and sampling interval for target data are specified.

Data sampling method	Overview
Data sampling (time specification)	Data is sampled at the specified interval (seconds).
Data sampling (time interval specification)	Data is sampled at the specified time interval (hour/minute/second) from the midnight of everyday, the top of every hour, or the top of every minute.



The system configuration and the process timing by the 'data sampling method' is the same as those of the data logging 'data sampling method'. Refer to the following section.

☞ Page 142 Sampling Target Data

### Point

The Event logging function of BOX Data Logger is the best effort function.

Since BOX Data Logger processing time changes according to the settings and status of other equipment, it may not operate with the set data sampling interval. Run the system by fully verifying the processing time of each function when constructing it.

For processing time, refer to the following section.

☞ Page 400 PROCESSING TIME

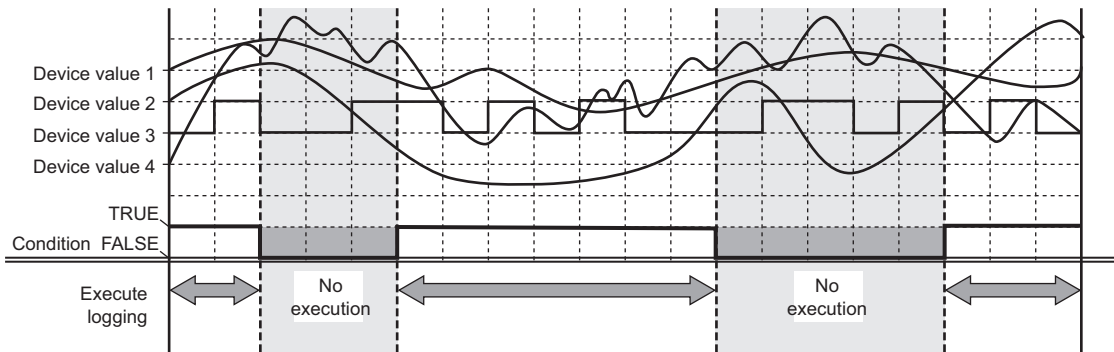
For 7-segment LED display description indicating logging status, refer to the following section.

☞ Page 98 Logging status



## 7.3 Event Logging Periods

The periods to perform logging and the periods not to perform logging can be specified.



Conditions to specify the event logging period can be selected from the following items.

- Data conditions
- Date range
- Time range
- Day of week/week condition

For details, refer to the following section.

📖 Page 143 Event Logging Periods

## 7.4 Event Logging Files

---

Event logging target data are saved in the Event logging file.

### Event logging file save format

---

Event logging files can be saved in the following two types of file formats:

- CSV file format
- Binary file format


#### CSV file format

---

This file format can be opened by normal applications such as Excel and Notepad.

It can also be displayed with GX LogViewer.

For the CSV file format, refer to the following section.

 Page 71 CSV format specification

#### Binary file format

---

High speed file access is possible with this format because it is smaller in size than the CSV file format.

It can also be displayed with GX LogViewer.

For the binary file format, refer to the following section.

 Page 84 Event logging file

### Saving Event logging files

---

BOX Data Logger temporarily saves occurred events to the 'storing file' to the inserted CompactFlash card.

Since the size of the 'storing file' becomes larger with time, file switching is performed at the specified conditions.

A method for file switching and saving files are the same as that of the Data logging file.

For details, refer to the following section.

 Page 133 Saving Data logging files

### Event logging file save location

---

Event logging files are saved on the CompactFlash card.

For the CompactFlash card directory structure, refer to the following section.

 Page 70 Directory Structure

### Transferring Event logging files



---

Event logging files can be automatically transferred to an FTP server or mail server. There are two methods for transferring Event logging files.

#### Transferring files by FTP

---

For details, refer to the following sections.

- Function explanation:  Page 192 FTP Transfer Function
- Setting method:  Page 240 FTP setting

#### Transferring files by e-mail

---

For details, refer to the following sections.

- Function explanation:  Page 195 E-mail Function
- Setting method:  Page 242 E-mail setting

**Point** 

---

E-mail transmissions/file transfers by the saved file transfer function may take a few seconds to tens of seconds depending on the network line/transmission size.

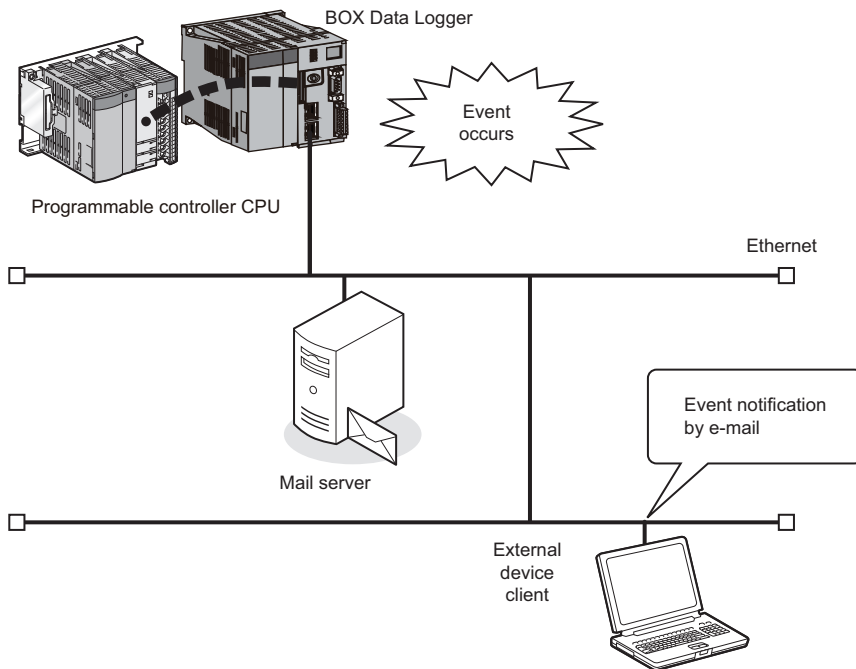
Target files may be deleted before e-mail transmission/file transfer completes depending on the logging settings.

Review the settings of timing, file capacity, and the number of saved files, and lengthen the time until the file is deleted.

---

# 7.5 E-mail Notification

This function sends a notification of an event occurrence to the specified e-mail address using e-mail. It can be resent automatically when the e-mail send failed.



**Ex.**

Sent e-mail

Mail header	From: NZ2DL [xxx@xxx.co.jp] Date: 10/12/2012 Wednesday 20:52 To: xxx@xxx.co.jp Subject: Information from the No.1 factory 10/12/2012 20:52:23
Message	The following error has been occurred. (The header specified by user) Furnace No. 1 Temperature decrease Occurrence (The event name specified by user) Perform the recovery operation immediately. (The footer specified by user)

# 8 REPORT FUNCTION

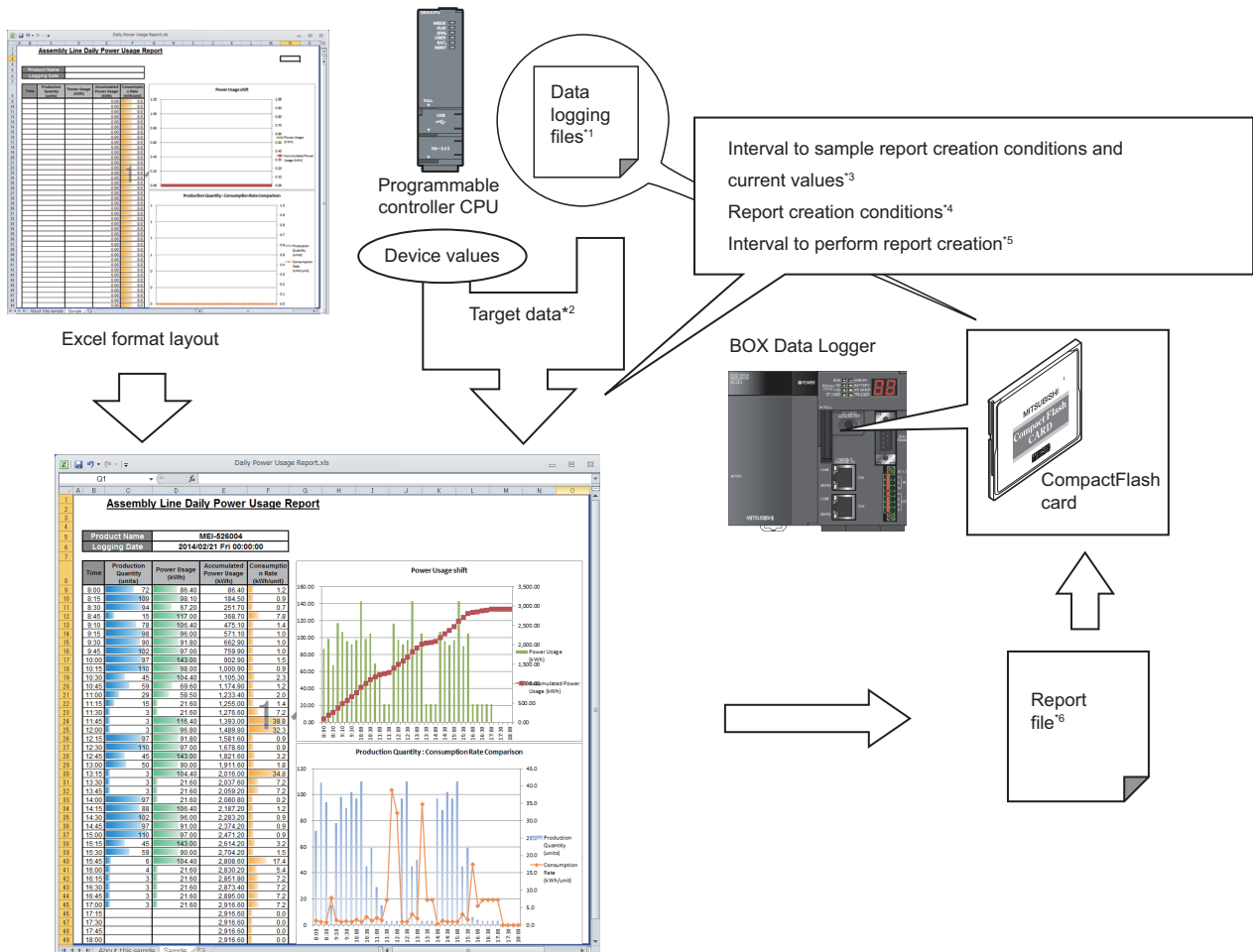
The Report function outputs reports laid out with graphs and calculation formulas as Excel files.

Set the Excel file layout in advance and create reports with values and graphs from Data logging files and current value data sampled by the programmable controller CPU.

Combined with graphs, the changes in data can be summarized in an easy-to-understand manner.

For the Report setting, refer to the following section.

☞ Page 340 Report Setting



Report

- \*1 ☞ Page 133 Data Logging Files
- \*2 ☞ Page 148 Target Data
- \*3 ☞ Page 152 Sampling Creation Trigger and Current Value Data
- \*4 ☞ Page 153 Creation Trigger
- \*5 ☞ Page 154 Report Periods
- \*6 ☞ Page 154 Report Files

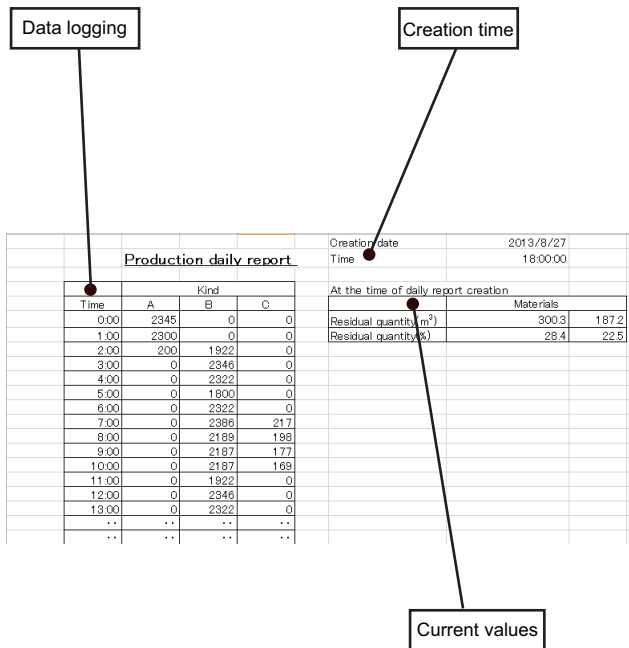
# 8.1 Target Data

'Target data' is the data which can be laid out on a report.

## Target data types

The types of target data are as follows:

Target data type	Description
Data logging	The data in a Data logging file created with the Data logging function can be selected. (Page 133 Data Logging Files) The data corresponding to the specified number of records are read from the Data logging file and output to the report.
Current value	Device data of a programmable controller CPU at the time when the report was created.
Creation time	The date and time when the report was created.



## Precautions

The following are the considerations when laying out logged data in a report.

- The Data logging file format must be binary file.
- If the total number of records in the source Data logging files is fewer than the specified number of records, only the records that exist in the source files are output.
- If a creation trigger occurs when data does not exist in the Data logging file in such cases as immediately after powering BOX Data Logger ON, an error occurs in BOX Data Logger. Specify the timing so that the creation trigger occurs after data are saved in the Data logging file.
- Report output requires time. Therefore, according to the data logging save setting, the Data logging file including the data when the creation trigger occurs, may be deleted before outputting the report has completed. The data for the specified number of records are not output and an error occurs in BOX Data Logger. Configure BOX Data Logger and construct the system as follows.
  - Set the file switch timing in the data logging save settings to output a large number of lines (number of records) to the report.
  - Let the system run, and after reports have been generated a few times, check "Report creation time" in the [Report diagnostics] tab on the "Diagnostics" screen. (Page 392 Report diagnostics)
  - Set the file switch timing so that the time from the Data logging file switch to the next file switch is much longer than the report creation time (two times or more).

Example) When the report creation time is 2 seconds and data logging sampling interval is 100 milliseconds

$(2000 \text{ [ms]} \times 2) / 100 \text{ [ms]} = 40 \text{ [lines]}$

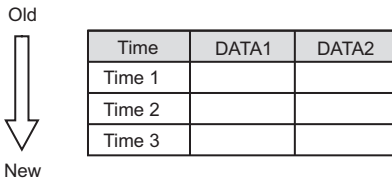
Set the file switch timing to 40 lines or more.

# Outputting direction and order

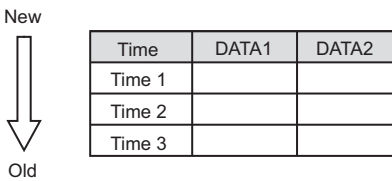
## For Data logging

When the target data is a Data logging file, the outputting direction and outputting order can be combined to output in 4 types of sequences.

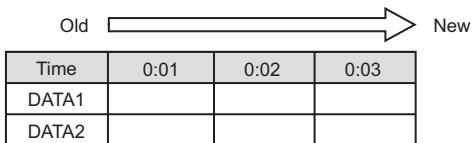
- When outputting direction is "Vertical (top → bottom)", and outputting order is "Chronological order (old → new)"



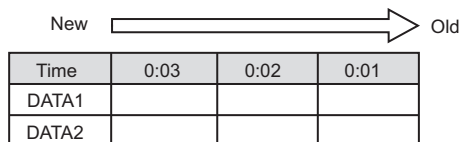
- When outputting direction is "Vertical (top → bottom)", and outputting order is "Reverse chronological order (new → old)"



- When outputting direction is "Horizontal (left → right)", and outputting order is "Chronological order (old → new)"



- When outputting direction is "Horizontal (left → right)", and outputting order is "Reverse chronological order (new → old)"

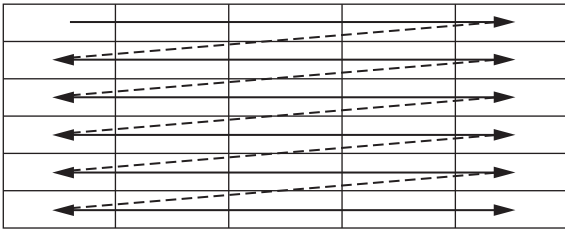




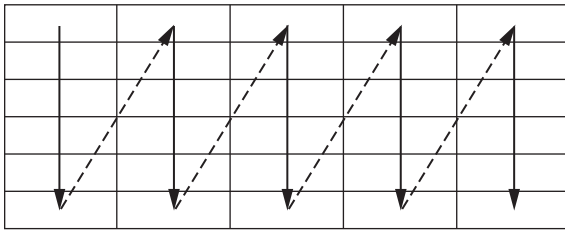
## For current value

When the target data are current values, the values can be output with two types of orders according to the outputting directions.

### ■When outputting direction is "Horizontal (left → right)"



### ■When outputting direction is "Vertical (top → bottom)"

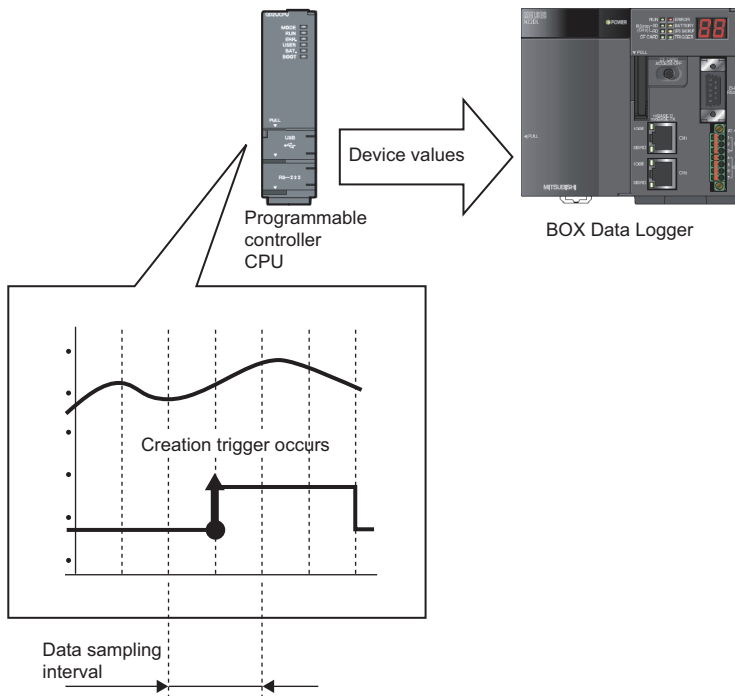


## 8.2 Sampling Creation Trigger and Current Value Data

In the Sampling setting for report creation function, a data sampling method and data sampling interval for creation trigger and current value data are specified.

The data sampling methods are as follows:

Data sampling method	Overview
Data sampling (time specification)	Data is sampled at the specified interval (seconds).
Data sampling (time interval specification)	Data is sampled at the specified time interval (hour/minute/second) from the midnight of everyday, the top of every hour, or the top of every minute.



The system configuration and the process timing by the 'data sampling method' is the same as those of the data logging 'data sampling method'. Refer to the following section.

☞ Page 122 Sampling Target Data

### Point

The Report function of BOX Data Logger is the best effort functions.

Since BOX Data Logger processing time changes according to the settings and status of other equipment, it may not operate with the set data sampling interval. Run the system by fully verifying the processing time of each function when constructing it.

For processing time, refer to the following chapter.

☞ Page 400 PROCESSING TIME

For 7-segment LED display description indicating logging status, refer to the following section.

☞ Page 98 Logging status

## 8.3 Creation Trigger


---

Conditions to create the Report file are specified.

A method for specifying the creation trigger is the same as that of the trigger conditions of the Data logging function.

 Page 128 Trigger conditions

### Point

- The following are the operations when creation triggers continuously occur.  
After the creation trigger occurs, if the next creation trigger occurs while the Report file is being created, the report creation processing is not performed (the creation trigger is ignored). How many times creation triggers have been ignored can be checked with the "Creation trigger reoccurrence count" in the [Report diagnostics] tab ( Page 392 Report diagnostics) on the "Diagnostics" screen.  
The time required to create a report can be checked with the "Report creation time" in the [Report diagnostics] tab on the "Diagnostics" screen.
  - If "At startup of BOX Data Logger" is selected as settings for "Creation trigger" is selected with the data logging set to be output, Data logging files output before the power was turned OFF or the settings were updated previous time can be output to a report.  
However, when configuring this setting when there are no Data logging files, an error occurs because no output target data exists at time of BOX Data Logger startup.
-

## 8.4 Report Periods

---

The period for monitoring a creation trigger can be specified.

Conditions to specify the report creation periods can be selected from the following items.

1) Data condition, 2) Date range, 3) Time range, 4) Day of week/week condition

For details, refer to the following section.

 Page 131 Data Logging Periods

## 8.5 Report Files

---

Created reports are saved in the Report files in Excel format.

### Saving Report files

---

The Report files are saved on the CompactFlash card up to the specified number of files.

When the number of Report files exceeds the specified number of files, the operation to either; delete the oldest file in order or stop BOX Data Logger, can be selected.

### Report file save location

---

Report files are saved on the CompactFlash card.

For the CompactFlash card directory structure, refer to the following section.

 Page 70 Directory Structure

### Transferring Report files

---

Report files can be automatically transferred to an FTP server or mail server. There are two methods for transferring Data logging files:

#### Transferring files by FTP

---

For details, refer to the following sections.

Function explanation:  Page 192 FTP Transfer Function

Setting method:  Page 240 FTP setting

#### Transferring files by e-mail

---

For details, refer to the following sections.

Function explanation:  Page 195 E-mail Function

Setting method:  Page 242 E-mail setting

#### Point

Considerations when using the created file transferring function for e-mail sending and file transfers

E-mail transmissions/file transfers by the saved file transfer function may take a few seconds to tens of seconds depending on the network line/transmission size.

Target files may be deleted before e-mail transmission/file transfer completes depending on the setting for the number of saved files.


Review the setting for the number of saved files and lengthen the time until the file is deleted.

---

# 9 RECIPE FUNCTION

The Recipe function performs following two processes according to the Recipe file data stored in a CompactFlash card.

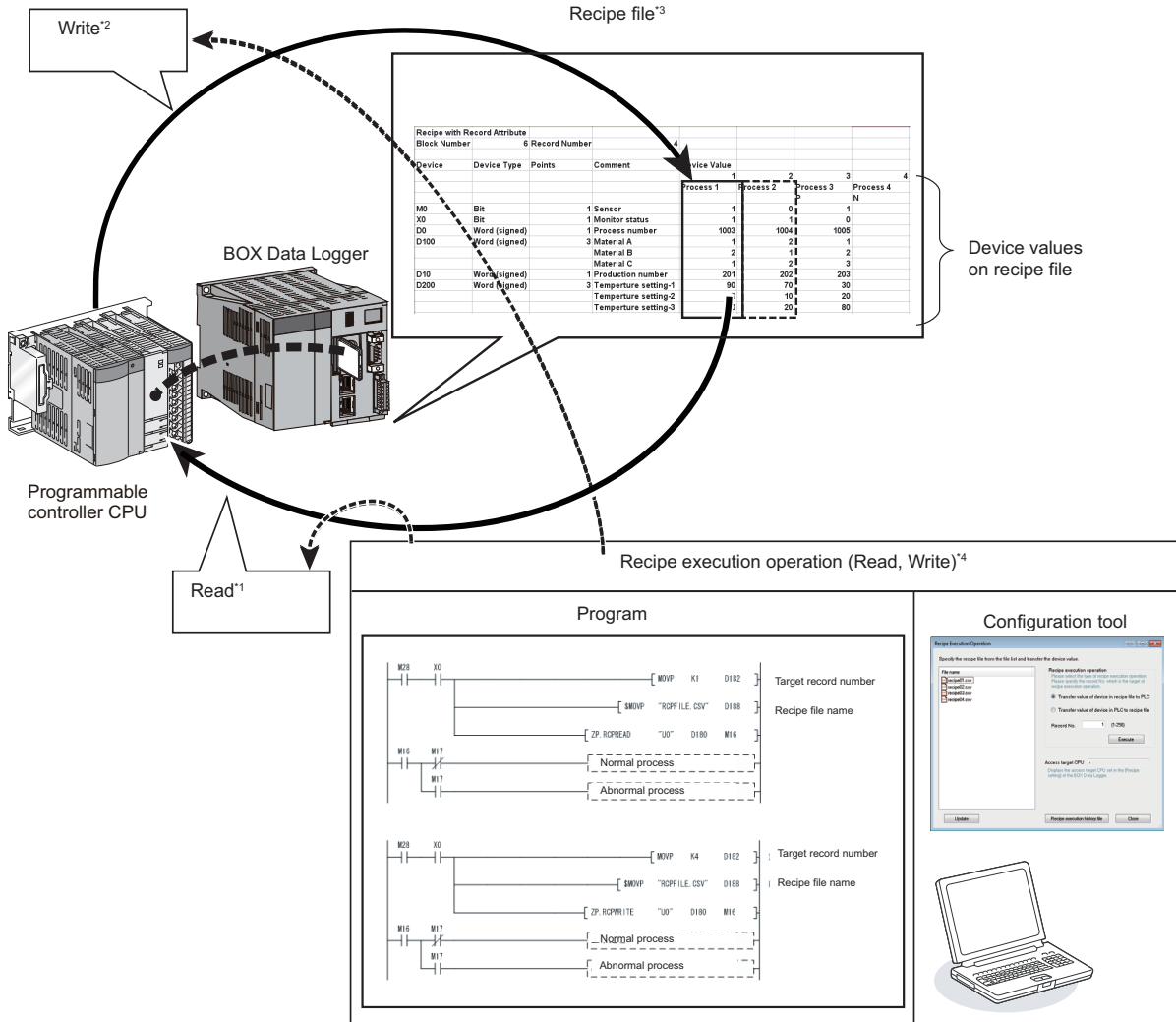
- Read process: Transfers device values written on a Recipe file to devices in a programmable controller CPU.
- Write process: Transfers device values in a programmable controller CPU to a Recipe file.





The read/write process can be performed with programs (  Page 169 Executing recipe function using programs).

Both functions can also be performed by the Recipe Execution Operation function of the Configuration tool.

With the Recipe function, the information of each production process can be read from Recipe files and reflect them to devices in the programmable controller CPU.

In addition, specified device values can also be written and saved in a Recipe file after system adjustments.



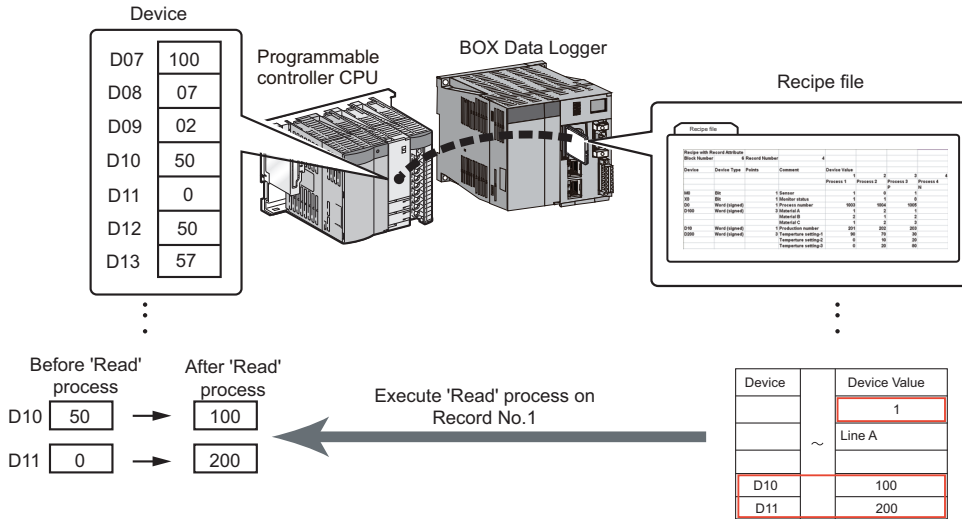
\*1  Page 156 Read process  
 \*2  Page 156 Write process  
 \*3  Page 157 Recipe files  
 \*4  Page 169 Executing Recipe Function

## Read process

This function transfers device values written on a Recipe file (☞ Page 157 Recipe files) to devices in a programmable controller CPU.

**Ex.**

Read from the record number 1 (a recipe to change D10 to 100, and D11 to 200)

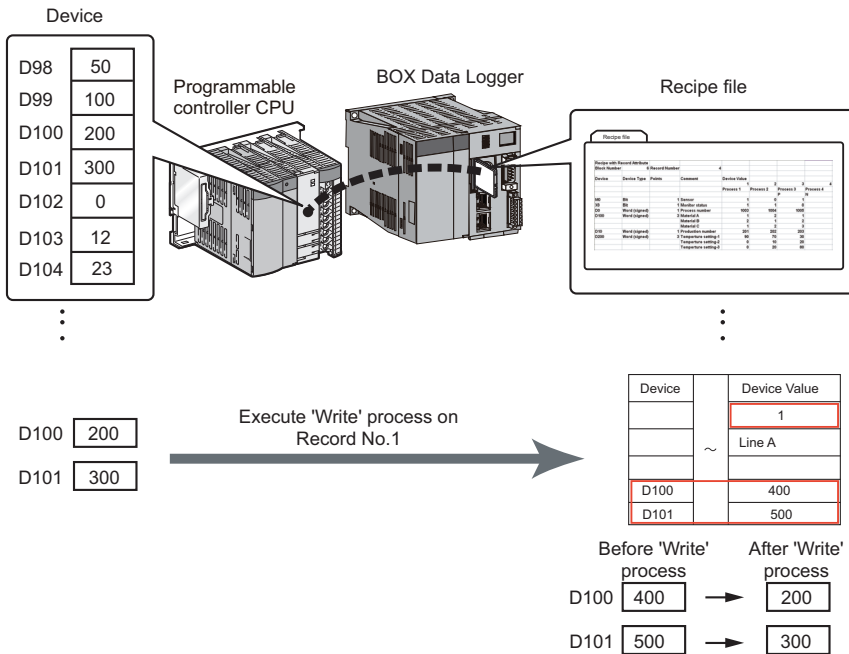


## Write process

Transfer device values in a programmable controller CPU to a Recipe file (☞ Page 157 Recipe files).

**Ex.**

Write to the record number 1 (write values of D100 and D101 to Recipe file)



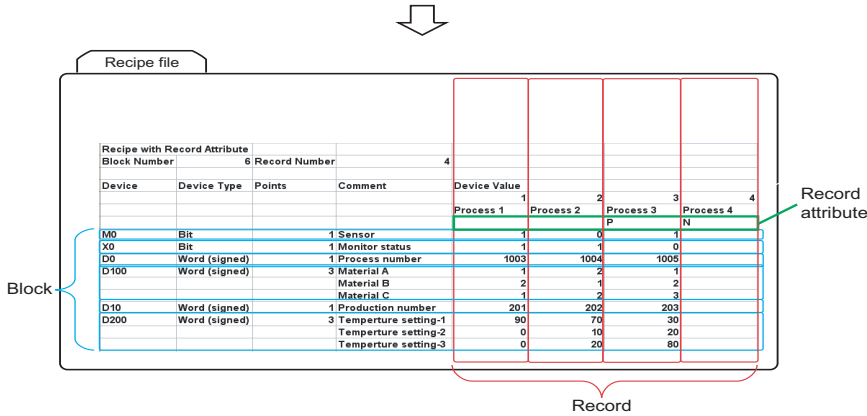
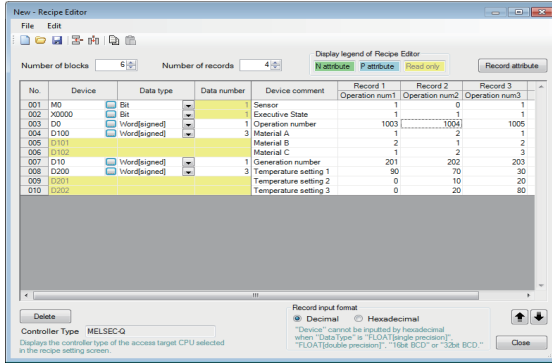
# Recipe files

Recipe file is a CSV format file to which source data for the read and write processes of the Recipe function are written.

☞ Page 79 Recipe file format

The files are created on the "Recipe Editor" screen of the Configuration tool.

Recipe files are composed of "Block" (☞ Page 157 Block), "Record" (☞ Page 158 Record), and "Record attribute" (☞ Page 158 Record attribute).

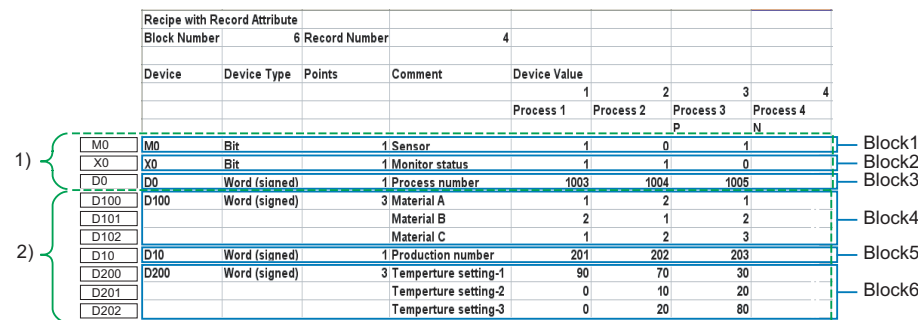


## ■Block

Block is a setting unit for the device data written/read with a Recipe file.

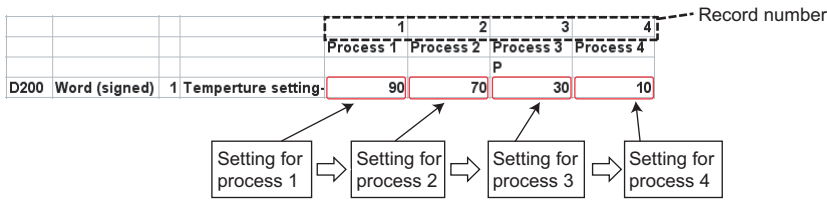
In one Recipe file, non-consecutive device numbers can be set. Different data types can be also set in combinations as follows.

1. A mix of devices with multiple data types.
2. A mix of consecutive and inconsecutive devices.



## Record

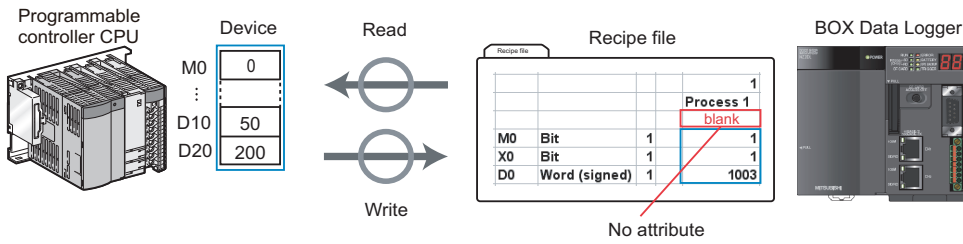
Record is a unit used to distinguish the aggregation of device values on which the read/write process is performed. By specifying a record number, different values can be set for the same device.



## Record attribute

There are three types of attribute for record as follows:

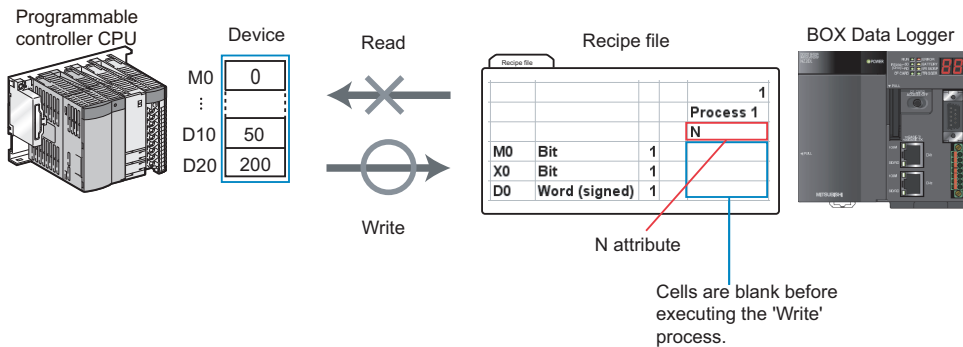
1. No attribute: Read and write processes can be performed.



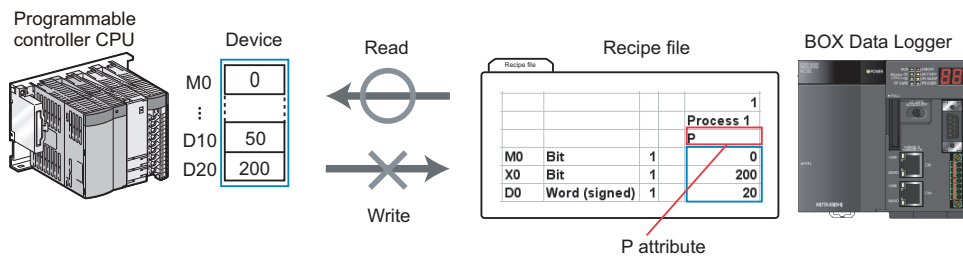
2. N attribute: Only the write process can be performed.

However, after performing the write process, the attribute type will be changed to no attribute.

The device values are not entered to the Recipe file before performing the write process.



3. P attribute: Only the read process can be performed.



Set this attribute when the change of the device value on the Recipe file with the programs or the Recipe Execution Operation function of Configuration tool is not preferable.

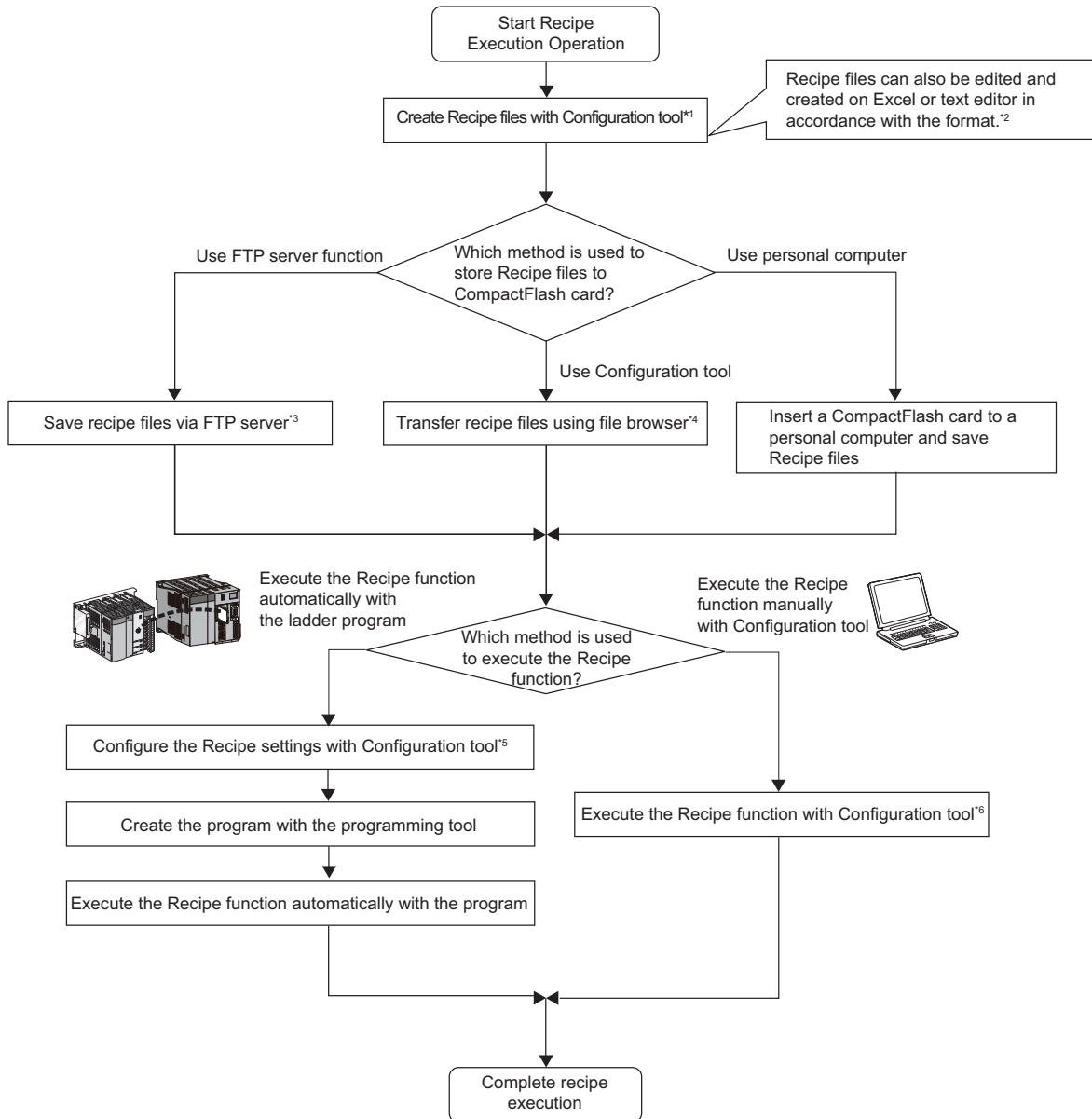
Change the device values on the Recipe file by editing data on a Configuration tool, Excel or text editor.



# 9.1 Recipe Function Execution Procedure

This section explains the procedure for executing the Recipe function.  
 Before executing the Recipe function, prepare for the operation.

☞ Page 89 Procedure to operate by installing BOX Data Logger Configuration Tool

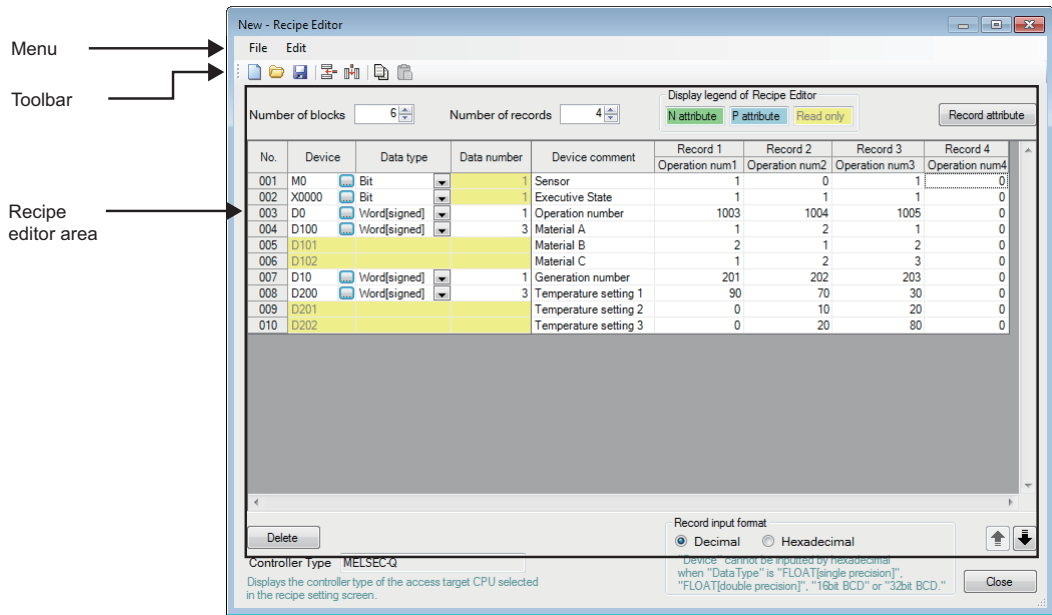


\*1 ☞ Page 164 Creating Recipe Files  
 \*2 ☞ Page 79 Recipe file format  
 \*3 ☞ Page 190 FTP server function  
 \*4 ☞ Page 395 File Browser  
 \*5 ☞ Page 169 Recipe setting  
 \*6 ☞ Page 177 Executing Recipe function using Configuration tool

# 9.2 Screen Configuration

## Recipe Editor screen configuration

The "Recipe Editor" screen configuration to edit recipe data is as follows:



Item	Description	Reference
Menu bar	Displays menus to execute each function.	Page 160 Menu configuration
Toolbar	Displays tool buttons to perform each function.	Page 161 Toolbar configuration
Recipe edit area	Edit recipe data.	Page 162 Recipe edit area
[Close] button	Discards the settings and closes the screen.	—

## Menu configuration

The menu configuration of the Recipe function is as follows:








File		
Item	Description	Reference
New	Discards the Recipe file being edited and creates a new Recipe file.	Page 164 Creating new Recipe file
Open	Opens a Recipe file saved to the local disk.	Page 164 Opening Recipe files
Save	Overwrites the edited Recipe file.	Page 165 Saving Recipe files
Save As	Saves the edited Recipe file under a new file name.	
Exit Recipe Editor	Closes the "Recipe Editor" screen, and displays the main screen of BOX Data Logger Configuration Tool.	—

## Edit

Item	Description	Reference
Insert Block	Adds a block in front of the selected block.	Page 166 Adding/deleting blocks
Insert Record	Adds a record in front of the selected record.	Page 166 Adding/deleting records
Copy Settings	Copies the tabular format settings.	—
Paste Settings	Pastes the copied tabular format settings.	—
Delete	Deletes the selected blocks or records.	—
Clear	Clears the selected blocks, records, or data.	—

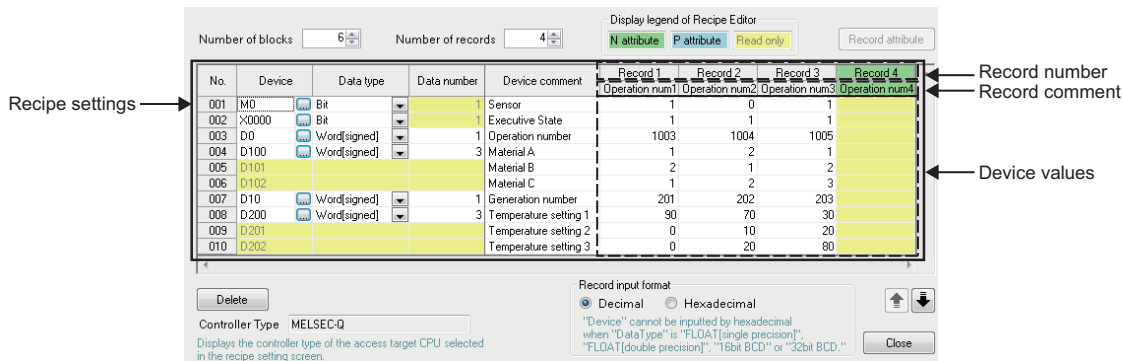
## Toolbar configuration

The toolbar configuration of the Recipe function is as follows:

Item	Description	Reference
	[File]⇒ [New]	Page 164 Creating new Recipe file
	[File]⇒ [Open]	Page 164 Opening Recipe files
	[File]⇒ [Save]	Page 165 Saving Recipe files
	[Edit]⇒ [Insert Block]	Page 166 Adding/deleting blocks
	[Edit]⇒ [Insert Record]	Page 166 Adding/deleting records
	[Edit] ⇒ [Copy Settings]	—
	[Edit] ⇒ [Paste Settings]	—

# Recipe edit area

The configuration of the recipe editor area is as follows:



Item	Description	Reference
Number of blocks	Displays the number of blocks. It is also used to specify the number of blocks.	Page 166 Adding/deleting blocks
Number of records	Displays the number of records. It is also used to specify the number of records	Page 166 Adding/deleting records
Display legend of Recipe Editor	Displays the colors and contents displayed in a cell on the recipe editor.	—
[Record attribute] button	Displays the "Record attribute" screen to edit a record attribute.	Page 167 Changing record attribute
Recipe setting list	<p>Device*<sup>1</sup>, *<sup>2</sup></p> <p>Data type*<sup>1</sup>, *<sup>3</sup></p> <p>Data number*<sup>1</sup>, *<sup>4</sup></p> <p>Device comment</p> <p>Device values</p> <p>Record number</p> <p>Record comments</p>	<p>—</p> <p>—</p> <p>—</p> <p>—</p> <p>—</p> <p>Page 167 Changing record attribute</p>
[Delete] button	Deletes the selected blocks or records.	Page 166 Adding/deleting blocks, Page 166 Adding/deleting records
Controller Type	Displays the model of the access target CPU selected on the "Recipe setting" screen.	—
Record input format* <sup>5</sup>	<p>—</p> <p>Decimal</p> <p>Hexadecimal*<sup>6</sup></p>	<p>—</p> <p>Page 163 Value input range (Decimal-Hexadecimal)</p>
[↑]/[↓] button	Switches the row of the selected block with the one above or one below.	—

\*1 When a number bigger than '1' is entered in a "Data number" cell, rows ("Data number" - 1) are automatically added under the selected row. The background color of "Device", "Data type", and "Data number" of the added rows are displayed in yellow and cannot be edited.

\*2 When the controller type of the access target CPU is "Rockwell AB (Tag)", a tag name can be specified.

\*3 Bit specification of word device is represented as '[Device].b[Bit position]' (Example: 'D100.b6'). '[Device].[Bit position]' (Example: 'D100.6') will be converted to '[Device].b[Bit position]' representation.

\*4 For bit devices, only 1 data can be set for a single block. When setting consecutive bit devices, add blocks.

\*5 Device values are stored in decimal format even when "Hexadecimal" is selected for "Record input format".

\*6 When "Hexadecimal" is selected, device values whose "Data type" is "FLOAT [single precision]", "FLOAT [double precision]", "16bit BCD", or "32bit BCD" cannot be entered.

## Value input range (Decimal-Hexadecimal)

Output format	Value input range	
	Decimal	Hexadecimal
Bit	0 to 1	0 to 1
Word [signed]	-32768 to 32767	0000 to FFFF <sup>*1</sup>
Double word [signed]	-2147483648 to 2147483647	00000000 to FFFFFFFF <sup>*2</sup>
Word [unsigned]	0 to 65535	0000 to FFFF
Double word [unsigned]	0 to 4294967295	00000000 to FFFFFFFF
FLOAT [single precision]	$\pm 3.4028235E+38$ to $\pm 1.401298E-45$	— <sup>*3</sup>
FLOAT [double precision]	$\pm 1.79769313E+308$ to $\pm 4.94065645E-324$	— <sup>*3</sup>
16bit BCD	0 to 9999	— <sup>*3</sup>
32bit BCD	0 to 99999999	— <sup>*3</sup>

—: Entry disabled

\*1 Values in the range between 8000 and FFFF are handled as negative values.

\*2 Values in the range between 80000000 and FFFFFFFF are handled as negative values.

\*3 Values cannot be entered when "Hexadecimal" is selected for "Record input format".  
Select "Decimal" and enter values.

## 9.3 Creating Recipe Files

### Starting Recipe Editor screen

Start the "Recipe Editor" screen to edit the recipe data.


#### Operating procedure

Select [Tool] ⇒ [Display Recipe Editor] on the main screen of Configuration tool.

### Creating new Recipe file

Create a new Recipe file.


#### Operating procedure

Select [File] ⇒ [New] (  ).

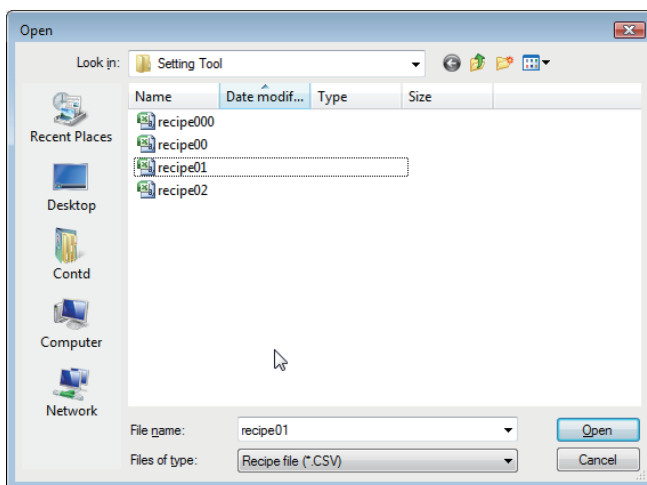
### Opening Recipe files

Open a saved Recipe file.

#### Operating procedure


1. Select [File] ⇒ [Open] (  ).
2. On the "Open" screen, specify the Recipe file and click the [Open] button.

#### Displayed items



Item	Description
Look in	Select a folder where Recipe files are saved.
File name	Specify a name of the Recipe file.
Files of type	Select a type (.csv) of the Recipe file.

#### Point


- The maximum file size of Recipe file is 512 KB. If the size exceeds 512 KB, the file cannot be opened. Delete the records/blocks or change the device values/comments and adjust the file size.
- When editing a Recipe file stored in a CompactFlash card, save the Recipe file to a personal computer using the file browser(  Page 395 File Browser).

## Saving Recipe files

Save the Recipe file being edited.

### Operating procedure

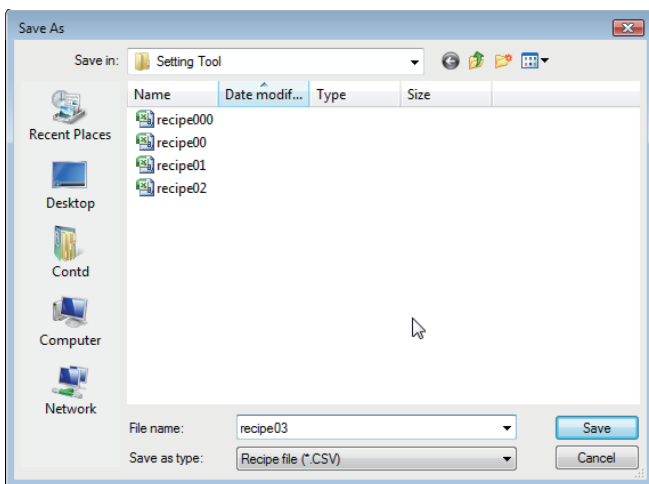
#### ■ Saving and overwriting file

- Select [File] ⇒ [Save] (  ).

#### ■ Saving file under a new name

1. Select [File] ⇒ [Save As].
2. On the "Save As" screen, specify the save destination and a file name, and click the [Save] button.

### Displayed items



Item	Description
Save in	Select a folder to save the Recipe file.
File name	Specify a name of the Recipe file to be saved.*1
Save as type	Select a type (.csv) of the Recipe file to be saved.

\*1 Use alphanumeric within 32 characters for the file name when performing the Recipe Execution Operation function.

## Editing recipe data

### Setting recipe data


#### Operating procedure

Enter data to the "Device", "Data type", "Data number", "Device comment", 'device values' and 'record comments' cells.

## Adding/deleting blocks

### Operating procedure

#### ■ Adding blocks

- Select [Edit] ⇒ [Insert Block] (  ) to add one block.
- Enter the total number of blocks for "Block number" and add the blocks to configure the number of blocks that is specified.

#### ■ Deleting blocks

- Enter the total number of blocks for "Block number", and delete the blocks to configure the number of blocks that is specified.
- Select cell(s) whose data to be deleted (within the area for clearing blocks) and click the [Delete] button.


No.	Device	Data type	Data number	Device comment	Record 1	Record 2	Record 3	Record 4
					Operation1	Operation2	Operation3	Operation4
005	D101			Material B	2	1	2	
006	D102			Material C	1	2	3	
007	D10	Word[signed]	1	Generation	201	202	203	
008	D200	Word[signed]	3	Temperature Settin	90	70	30	
009	D201			Temperature	0	10	20	
010	D202			Temperature Settin	0	20	80	
011			1		0	0	0	
012			1		0	0	0	
013			1		0	0	0	
014			1		0	0	0	

Area for clearing blocks

## Adding/deleting records

### Operating procedure

#### ■ Adding records

- Select [Edit] ⇒ [Insert Record] (  ) to add one record.
- Enter the total number of records for "Record number", and add the records to configure the number of records that is specified.

#### ■ Deleting records

- Enter the total number of records for "Record number", and delete the records to configure the number of records that is specified.
- Select cell(s) whose data to be deleted (within the area for clearing records) and click the [Delete] button.


No.	Device	Data type	Data number	Device comment	Record 1	Record 2	Record 3	Record 4
					Operation1	Operation2	Operation3	Operation4
005	D101			Material B	2	1	2	
006	D102			Material C	1	2	3	
007	D10	Word[signed]	1	Generation	201	202	203	
008	D200	Word[signed]	3	Temperature Settin	90	70	30	
009	D201			Temperature	0	10	20	
010	D202			Temperature Settin	0	20	80	
011			1		0	0	0	
012			1		0	0	0	
013			1		0	0	0	
014			1		0	0	0	

the area for clearing blocks



## Changing record attribute

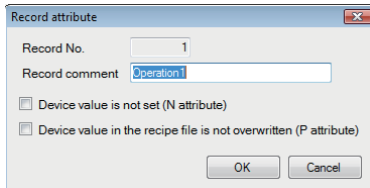
For details of record attribute, refer to the following section.

 Page 158 Record attribute

### Operating procedure

1. Click the [Record attribute] button on the "Recipe Editor" screen, or double-click the record comment.
2. Specify the record attribute on the "Record attribute" screen, and click the [OK] button.

### Displayed items



Item	Description
Record No.	Displays a record number selected on the "Recipe Editor" screen.
Record comment	Set the record comment. (Up to 32 characters) The set record comment is displayed in the record comment cell on the "Recipe Editor" screen.
Device value is not set (N attribute)*1	Select this to append N attribute to the specified record. When selected, the color of the record header changes to green on the "Recipe Editor" screen.
Device value in the Recipe file is not overwritten (P attribute)*1	Select this to append P attribute to the specified record. When selected, the color of the record header changes to light blue on the "Recipe Editor" screen.
[OK] button	Reflects the settings and closes the "Record attribute" screen.
[Cancel] button	Discards the settings and closes the screen.

\*1 Only one attribute (no attribute, N attribute, or P attribute) can be specified for record attribute.

### Point

Saved Recipe files can be edited on Excel or text editor. For details, refer to the following section.


 Page 79 Recipe file format

## 9.4 Transferring Recipe Files to BOX Data Logger


---

Use the file browser to transfer Recipe files to a BOX Data Logger.

For details, refer to the following section.

 Page 395 File Browser

The methods other than using the file browser are as follows:

1. Use the FTP server function and save files via FTP server ( Page 190 FTP server function).
2. Insert a CompactFlash card to a personal computer and save files.

---

### **Point**

Store only files whose extension is '.CSV' in the RECIPE folder of the BOX Data Logger. Files other than '.CSV' format may be deleted during executing the Recipe Execution Operation function.

---

## 9.5 Executing Recipe Function

The Recipe function can be executed using programs or the "Recipe Execution Operation" screen of the Configuration tool. The Recipe function is executed from the beginning of the Recipe file. The function may not be processed normally when the same devices are set in a single Recipe file.

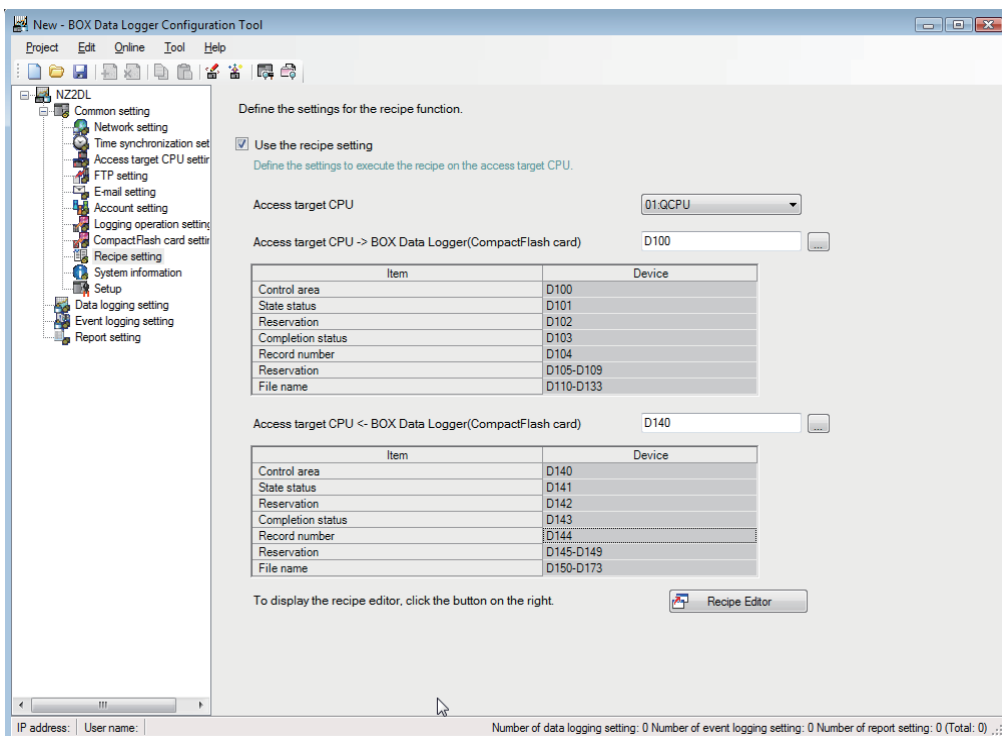
### Executing recipe function using programs

#### Recipe setting

##### Operating procedure

Click "Common setting" on the edit items tree of Configuration tool, then click the [Recipe setting] button.

##### Displayed items



Item		Description
Use the recipe setting	—	Select this to use the recipe setting.
	Access target CPU	Enter the name of access target CPU in the Recipe setting. If the name of the access target CPU is changed, clear the settings of "Access target CPU→BOX Data Logger (CompactFlash card)" and "Access target CPU←BOX Data Logger (CompactFlash card)".
	Access target CPU → BOX Data Logger (CompactFlash card) <sup>*1, *2</sup>	Enter the start word device of the control data to perform the Recipe function set to "Access target CPU → BOX Data Logger (CompactFlash card)". Click the [...] button to open the "Device Setting" screen with the device type set as "Word [signed]".
	Access target CPU ← BOX Data Logger (CompactFlash card) <sup>*1, *2</sup>	Enter the start word device of the control data to perform the Recipe function set to "Access target CPU ← BOX Data Logger (CompactFlash card)". Click the [...] button to open the "Device Setting" screen with the device type set as "Word [signed]".
[Recipe Editor] button	—	Open the "Recipe Editor" screen with the controller type of the selected access target CPU.

- \*1 If the system information and devices are overlapping, an error message appears and the processing will be stopped.
- \*2 When the controller type of the access target CPU is "Rockwell AB (Tag)", specify the head of control data by the imported tag name (array of INT (ARRAY)). (📄 Page 239 Tag import)  
The head of control data can be specified from the start or middle of the array. However, it cannot be specified by crossing the dimensions of array or including an invalid element.

---

**Point** 

Do not change the data set in the Recipe file (control data, request data, etc.) until the Recipe function is complete.

---

## Access target CPU → BOX Data Logger (CompactFlash card)

Write data in the access target CPU to the Recipe file by specifying the Recipe file in a CompactFlash card.  
When the setting data is read, the control data is cleared to '0'.

### ■Control data (Example: D100)

(S1): Start word device (control area)

Device	Item	Setting data	Setting range	Set by
(S1) + 0 (D100)	Control area	<p>■Bit 0: Recipe start trigger Turn this ON when executing the Recipe function. Before executing the Recipe function, perform the following actions.</p> <ul style="list-style-type: none"> <li>• Store the record number</li> <li>• Store the file name</li> </ul> <p>Turn this OFF when the recipe processing bit ((S1) + 1 bit0) is ON.</p> <p>■Bit 1: Recipe status clear Turn this ON to clear the state status and completion status. Turn this OFF when the recipe completion bit ((S1) + 1 bit1) turns ON.</p>	—	User* <sup>1</sup>
(S1) + 1 (D101)	State status	<p>■Bit 0: Recipe processing bit Turn this ON when BOX Data Logger receives a recipe start trigger and stays ON until the processing completes. Turn this OFF when the recipe status clear ((S1) + 0 bit1) turns ON.</p> <p>■Bit 1: Recipe completion bit*<sup>2</sup> Turn this ON when BOX Data Logger completes the Recipe function. Also turn this ON at error end. Turn this OFF when the recipe status clear ((S1) + 0 bit1) turns ON.</p> <p>■Bit 2: Recipe error end bit*<sup>2</sup> Turn this ON when BOX Data Logger ends the Recipe function with error end. Turn this OFF when the recipe status clear ((S1) + 0 bit1) turns ON.</p>	—	System* <sup>3</sup>
(S1) + 2 (D102)	Reserved	Do not use.	—	System* <sup>3</sup>
(S1) + 3 (D103)	Completion status	Status of the recipe completion is stored. 0: Normal completion Other than 0: Error end (Error code) Set this to '0' when the recipe status clear ((S1) + 0 bit1) turns ON.	—	System* <sup>3</sup>
(S1) + 4 (D104)	Record number	Record number of data to be written (☞ Page 79 Recipe file format)	1 to 256	User* <sup>1</sup>
(S1) + 5 to (S1) + 9 (D105 to D109)	Reserved	Do not use.	—	System* <sup>3</sup>
(S1) + 10 to (S1) + 33 (D110 to D133)	File name	Recipe file name for writing data in access target CPU (Up to 48 characters)	Character string	User* <sup>1</sup>

\*1 Set this data before executing the Recipe function.

Even if data is stored in the user area, it will be cleared when the setting file is read for the first time. A caution is required.

\*2 The recipe start trigger turns ON when OFF, and vice versa.

\*3 BOX Data Logger stores the execution result of the Recipe function.

### ■Procedure

The procedure to write device data into the Recipe file by specifying a Recipe file in a CompactFlash card is as follows:

1. On the "Recipe setting" screen, set the access target CPU and start device (access target CPU→Box Data Logger (CompactFlash card)), and write the setting file to BOX Data Logger.
2. Store the Recipe file to the CompactFlash card.
3. Write a ladder program for the recipe execution to a programmable controller. (☞ Page 173 Program example (QCPU))
4. Save the control data (record number, file name) to a programmable controller.
5. Turn the recipe start trigger ((S1) + 0 bit0) ON in the programmable controller.

**Restriction**

- While executing the Recipe function, no additional recipe can be executed. Furthermore, the recipe status cannot be cleared.
- The Recipe function cannot be executed while a communication error is occurring between the access target CPU and BOX Data Logger, or while the Data logging function is not operable (OFF).
- If the same file is accessed by the access target CPU→BOX Data Logger (CompactFlash card) and the access target CPU←BOX Data Logger (CompactFlash card), an error may occur. If the same file must be assessed, take an interlock to execute the Recipe function.

**Point**

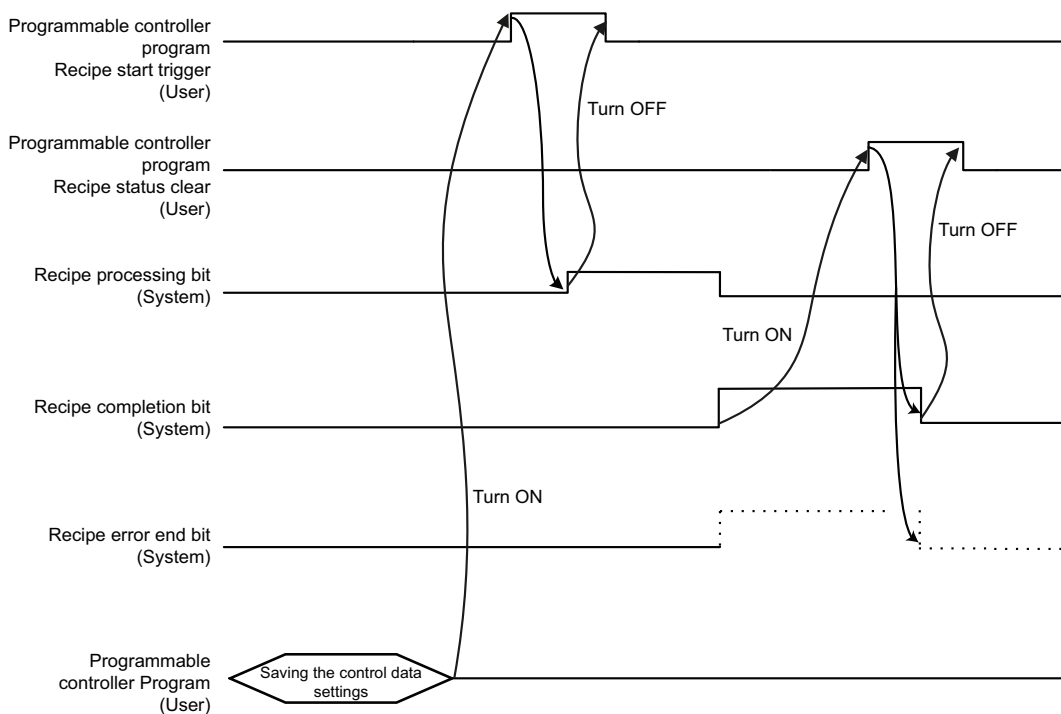
- Recipe files can be specified under the directory '/RECIPE/' in the CompactFlash card.
- Perform sampling in the cycle of 100 ms to check the recipe start trigger/recipe status clear in the control area.

**Procedure for checking recipe processing and status of recipe completion/error end**

Use the state status to check.

State status	Description
Bit 0: Recipe processing bit	<ul style="list-style-type: none"> <li>• Turn this ON when BOX Data Logger receives a recipe start trigger.</li> <li>• Turn this OFF when the recipe completion bit turns ON.</li> <li>• Turn this OFF when the recipe status clear bit turns ON.</li> </ul>
Bit 1: Recipe completion bit	<ul style="list-style-type: none"> <li>• Turn this ON when BOX Data Logger completes the recipe.</li> <li>• Turn this OFF when the recipe status clear bit turns ON.</li> </ul>
Bit 2: Recipe error end bit	<ul style="list-style-type: none"> <li>• Turn this ON when BOX Data Logger ends the Recipe function with error end.</li> <li>• Take a corrective action for the error according to the error code in the completion status.</li> <li>• Turn this OFF when the recipe status clear bit turns ON.</li> </ul>

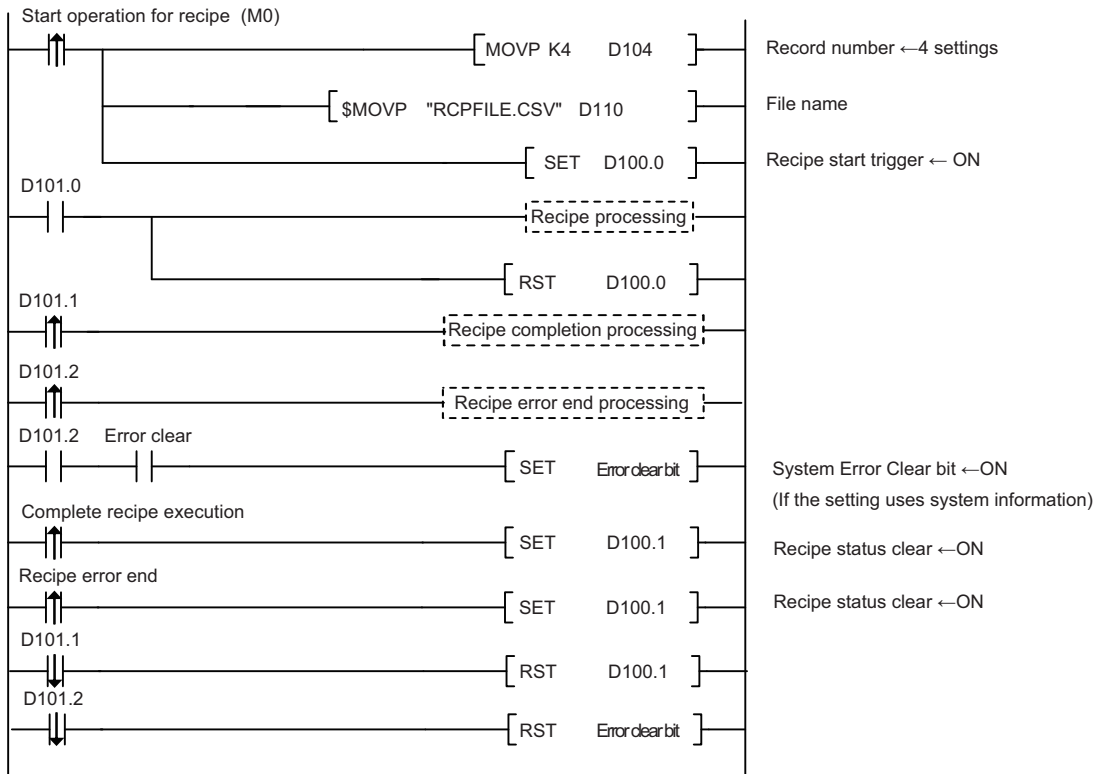
**Operation at recipe execution**



**Error**

In the case of an error end, the error end signal turns ON, and an error code is saved in the completion status ((S1) + 3).

## Program example (QCPU)



## Troubleshooting

To enable re-execution of the Recipe function at recovery from a communication error (cable disconnection, etc.), which has interrupted the original execution, set BOX Data Logger and the Recipe setting device to the start-ready conditions (by turning OFF the recipe error end bit, etc.) The following shows how to set the start-ready conditions.

### 1. How to clear BOX Data Logger error

- If the setting does not include system information, perform the [Error clear] from BOX Data Logger diagnostics of Configuration tool. (Alternatively, turn OFF→ON the BOX Data Logger.)
- For the setting that uses the system information, turn ON the error clear bit in the system information. Use the program shown above.

### 2. How to enable the Recipe function start

Turn the recipe status clear ((S1) + 0 bit1) ON and clear the state status/completion status. Use the program shown above.

## Access target CPU ← BOX Data Logger (CompactFlash card)

Read device data from the access target CPU by specifying Recipe file in a CompactFlash card.

When the setting data is read, the control data is cleared to '0'.

### ■Control data (Example: D140)

(S2): Start word device (control area)

Device	Item	Setting data	Setting range	Set by
(S2) + 0 (D140)	Control area	<p>■Bit 0: Recipe start trigger Turn this ON when executing the Recipe function. Before executing the Recipe function, perform the following actions.</p> <ul style="list-style-type: none"> <li>• Store the record number</li> <li>• Store the file name</li> </ul> <p>Turn this OFF when the recipe processing bit ((S2) + 1 bit0) is ON.</p> <p>■Bit 1: Recipe status clear Turn this ON to clear the state status and completion status. Turn this OFF when the recipe completion bit ((S2) + 1 bit1) turns ON.</p>	—	User <sup>*1</sup>
(S2) + 1 (D141)	State status	<p>■Bit 0: Recipe processing bit Turn this ON when BOX Data Logger receives a recipe start trigger and stays ON until the processing completes. Turn this OFF when the recipe status clear ((S2) + 0 bit1) turns ON.</p> <p>■Bit 1: Recipe completion bit<sup>*2</sup> Turn this ON when BOX Data Logger completes the Recipe function. Also turn this ON at error end. Turn this OFF when the recipe status clear ((S2) + 0 bit1) turns ON.</p> <p>■Bit 2: Recipe error end bit<sup>*2</sup> Turn this ON when BOX Data Logger ends the Recipe function with error end. Turn this OFF when the recipe status clear ((S2) + 0 bit1) turns ON.</p>	—	System <sup>*3</sup>
(S2) + 2 (D142)	Reserved	Do not use.	—	System <sup>*3</sup>
(S2) + 3 (D143)	Completion status	Status of the recipe completion is stored. 0: Normal completion Other than 0: Error end (Error code) Set this to '0' when the recipe status clear ((S2) + 0 bit1) turns ON.	—	System <sup>*3</sup>
(S2) + 4 (D144)	Record number	Record number of data to be read (☞ Page 79 Recipe file format)	1 to 256	User <sup>*1</sup>
(S2) + 5 to (S2)+ 9 (D145 to D149)	Reserved	Do not use.	—	System <sup>*3</sup>
(S2) + 10 to (S2) + 33 (D150 to D173)	File name	Recipe file name for reading device values (Up to 48 characters)	Character string	User <sup>*1</sup>

\*1 Set this data before executing the Recipe function.

Even if data is stored in the user area, it will be cleared when the setting file is read for the first time. A caution is required.

\*2 The recipe start trigger turns ON when OFF, and vice versa.

\*3 BOX Data Logger stores the execution result of the Recipe function.



## ■ Procedure

The procedures to specify a Recipe file in a CompactFlash card and to write device data in the access target CPU into the Recipe file are shown below.

1. On the "Recipe setting" screen, set the access target CPU and start device (access target CPU→Box Data Logger (CompactFlash card)), and write the setting file to BOX Data Logger.
2. Store the Recipe file to the CompactFlash card.
3. Write a ladder program for the recipe execution to a programmable controller. (☞ Page 176 Program example (QCPU))
4. Save the control data (record number, file name) to the programmable controller.
5. Turn the recipe start trigger ((S2) + 0 bit0) ON in the programmable controller.

### Restriction

- While executing the Recipe function, no additional recipe can be executed. Furthermore, the recipe status cannot be cleared.
- The Recipe function cannot be executed while a communication error is occurring between the access target CPU and BOX Data Logger, or while the Data logging function is not operable (OFF).
- If the same file is accessed by the access target CPU→BOX Data Logger (CompactFlash card) and the access target CPU←BOX Data Logger (CompactFlash card), an error may occur. If the same file must be assessed, take an interlock to execute the Recipe function.

### Point

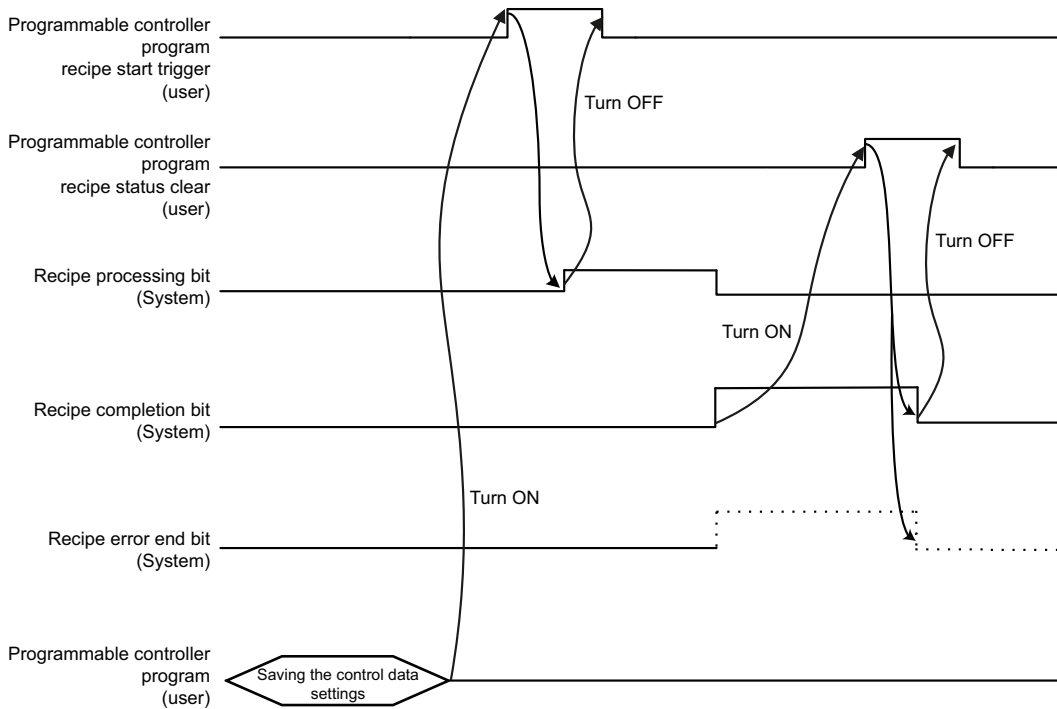
- Recipe files can be specified under the directory '/RECIPE/' in the CompactFlash card.
- Perform sampling in the cycle of 100 ms to check the recipe start trigger/recipe status clear in the control area.

## ■ Procedure for checking recipe processing and status of recipe completion/error end

Use the state status to check.

State status	Description
Bit 0: Recipe processing bit	<ul style="list-style-type: none"> <li>• Turn ON when BOX Data Logger receives a recipe start trigger.</li> <li>• Turn OFF when the recipe completion bit turns ON.</li> <li>• Turn OFF when the recipe status clear bit turns ON.</li> </ul>
Bit 1: Recipe completion bit	<ul style="list-style-type: none"> <li>• Turn this ON when BOX Data Logger completes the recipe.</li> <li>• Turn OFF when the recipe status clear bit turns ON.</li> </ul>
Bit 2: Recipe error end bit	<ul style="list-style-type: none"> <li>• Turn this ON when BOX Data Logger ends the Recipe function with error end.</li> <li>• Take a countermeasure for the error according to the error code in the completion status.</li> <li>• Turn OFF when the recipe status clear bit turns ON.</li> </ul>

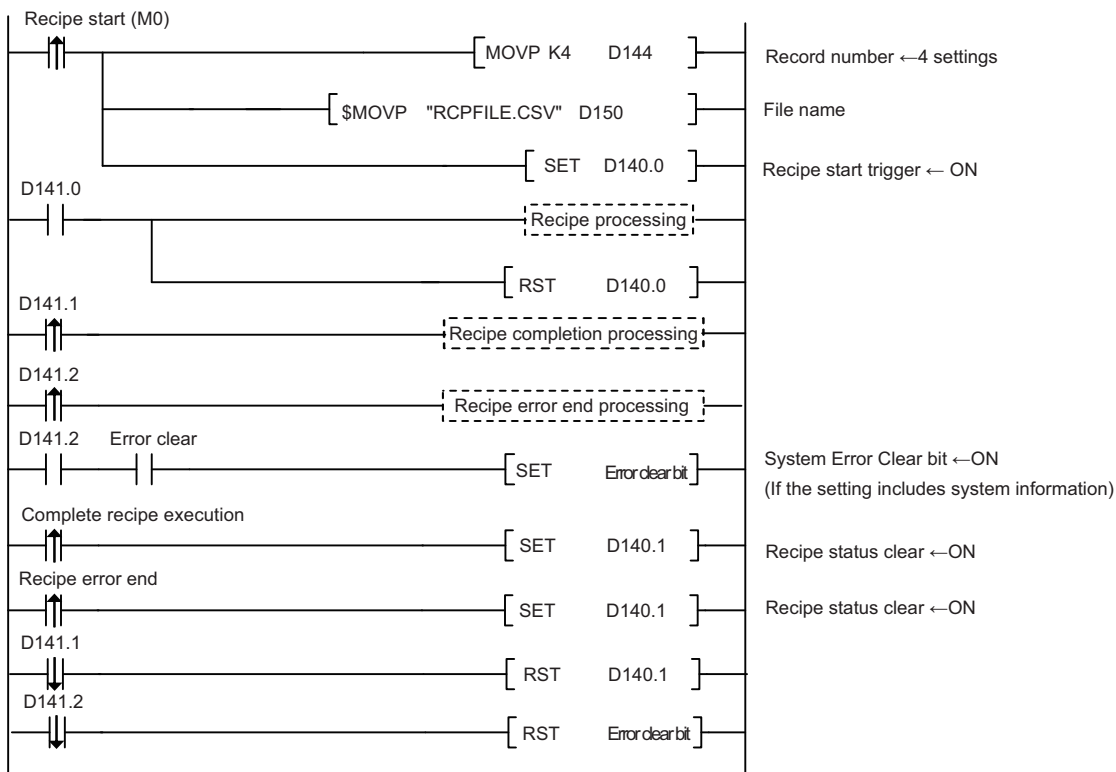
## ■ Operation at recipe execution



## ■ Error

In the case of an error end, the error end signal turns ON, and an error code is saved in the completion status ((S2) + 3).

## ■ Program example (QCPU)



## ■ Troubleshooting

To enable the Recipe function to be executed again at recovery from a communication error (cable disconnection, etc.), which has interrupted the original execution, BOX Data Logger and the Recipe setting device need to be made ready for start (turning OFF the recipe error end bit). The following shows how to make them ready for start.

### 1. How to clear BOX Data Logger error

- If the setting does not include system information, perform the [Error clear] from BOX Data Logger diagnostics of Configuration tool. (Alternatively, turn OFF→ON BOX Data Logger.)
- For the setting that uses the system information, turn ON the error clear bit in the system information. Use the program shown above.

### 2. How to enable the Recipe function start

Turn the recipe status clear ((S2) + 0 bit1) ON and clear the state status/completion status. When doing so, use the program shown earlier.

## Executing Recipe function using Configuration tool

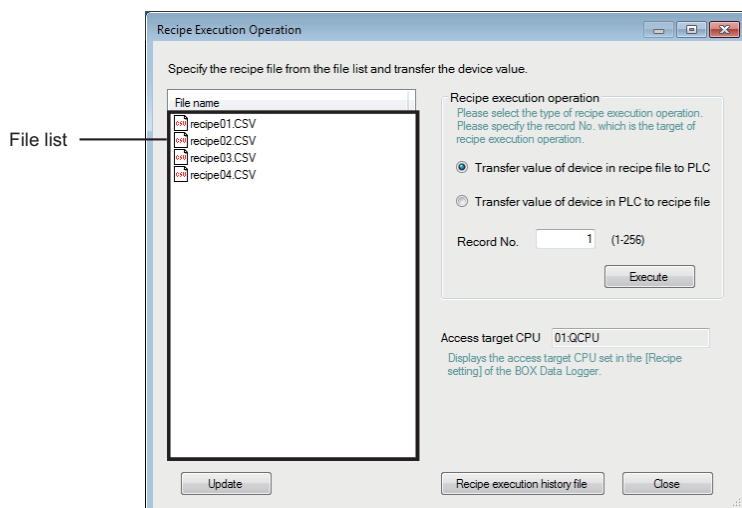
Execute the Recipe function using the "Recipe Execution Operation" screen of the Configuration tool.

### Recipe execution

#### Operating procedure

1. Select [Online] ⇒ [Recipe Execution Operation] on the main screen of the Configuration tool.
2. Select a file to execute the Recipe function on the "Recipe Execution Operation" screen.
3. Select "Transfer value of device in recipe file to PLC" or "Transfer value of device in PLC to recipe file", then specify the record number, and click the [Execute] button.

#### Displayed items



Item	Description	Reference
File list <sup>*1, *2</sup>	Display a list of Recipe files (CSV file format) stored in the RECIPE folder of the CompactFlash card in the BOX Data Logger. The Recipe Execution Operation function is executed on the selected file. Multiple files cannot be selected.	—
Recipe execution operation	Record No.	Specify a record number for the Recipe Execution Operation function.
	Transfer value of device in recipe file to PLC	Select this to perform the read process on the specified Recipe file.
	Transfer value of device in PLC to recipe file	Select this to perform the write process on the specified Recipe file.
	[Execute] button	Execute the Recipe Execution Operation function.


Item	Description	Reference
Access target CPU	Displays the name of the access target CPU set in the Recipe setting by reading it from the project data in the BOX Data Logger.*3	—
[Update] button	Updates the file list.	—
[Recipe execution history file] button	Displays the "Recipe execution history file" screen	Page 179 Recipe execution history
[Close] button	Closes the "Recipe Execution Operation" screen.	—

\*1 Displays up to 256 files on the file list.

\*2 Displays only files whose file name consists 32 characters or less.

\*3 If the "Use the recipe setting" is not selected in the Recipe setting of the BOX Data Logger, '-' is displayed.

### Point

- The Recipe Execution Operation function cannot be performed when the operating status of the BOX Data Logger is "Stop" or the access status of the CompactFlash card is "Access stop".
  - A file whose extension is '.TMP' is created in the RECIPE folder of BOX Data Logger during the write process.
  - When the BOX Data Logger is powered OFF during the write process, a file whose extension is '.TMP' may remain in the RECIPE folder of BOX Data Logger.
  - When multiple Recipe Execution Operation functions are executed on a single programmable controller CPU, only one recipe operation is executed and the rest of the recipe execution operations become an error.
  - Do not access the Recipe file to overwrite or delete the file to which the Recipe Execution Operation function is being executed.
  - Do not power OFF or reset BOX Data Logger during the Recipe Execution Operation function is executed. The Recipe file being edited may be damaged. Before resetting or powering OFF, turn OFF the CF CARD LED of the CompactFlash card by one of the following methods.
    - Turn OFF the CF CARD ACCESS OFF switch
    - On the "CompactFlash card diagnostics" screen of Configuration tool, perform "Access stop", which is a CompactFlash card operation. (  Page 388 CompactFlash card diagnostics)
- CF CARD LED turns OFF after a Recipe file is created.

## Recipe execution history

Display a list of the recipe execution history file stored in the CompactFlash card in the BOX Data Logger.

### Operating procedure

Click the [Recipe execution history file] button on the "Recipe Execution Operation" screen.

### Displayed items

Recipe execution history file list

Date	Time	Execution type	File name	Record No.	Execution source	Error code	Error occurred line
8/10/2013	6:58:14 PM	BOX-> PLC	recipe04.CSV	001	Configuration tool	0002	-
8/10/2013	6:58:08 PM	BOX-> PLC	recipe03.CSV	001	Configuration tool	0002	-
8/10/2013	6:58:02 PM	BOX-> PLC	recipe02.CSV	001	Configuration tool	0002	-
8/10/2013	6:57:55 PM	BOX-> PLC	recipe01.CSV	001	Configuration tool	0002	-

Item		Description	Reference
Recipe execution history file list	Date	Displays the completion date of the Recipe Execution Operation function.	—
	Time	Displays the completion time of the Recipe Execution Operation function.	—
	Execution type	Displays the execution type of the Recipe Execution Operation function ("BOX→PLC" or "PLC←BOX").	—
	File name	Displays the file name for the Recipe Execution Operation function.	—
	Record No.	Displays the record number for the Recipe Execution Operation function.	—
	Execution source	Displays the execution source (Configuration tool, programmable controller CPU) of the recipe execution operation.	—
	Error code	Displays the recipe execution result. When an error occurs, the error code is displayed.	Page 413 Error Code List
	Error occurred line	Displays the line in which the error occurred.	—
[History file clear] button		Clears the recipe execution history file list.	—
[Update] button		Updates the recipe execution history file list.	—
[Close] button		Closes the "Recipe execution history file" screen.	—

# 10 OTHER FUNCTIONS

This chapter explains functions other than the Data logging function, Event logging function, and Report function.

## 10.1 Time Synchronization Function

The time synchronization function synchronizes the time of BOX Data Logger to that of a SNTP server computer on the network.

Time information is used for the logging data time stamp, time of event occurrence/restoration, and report creation time.

### Synchronization timing

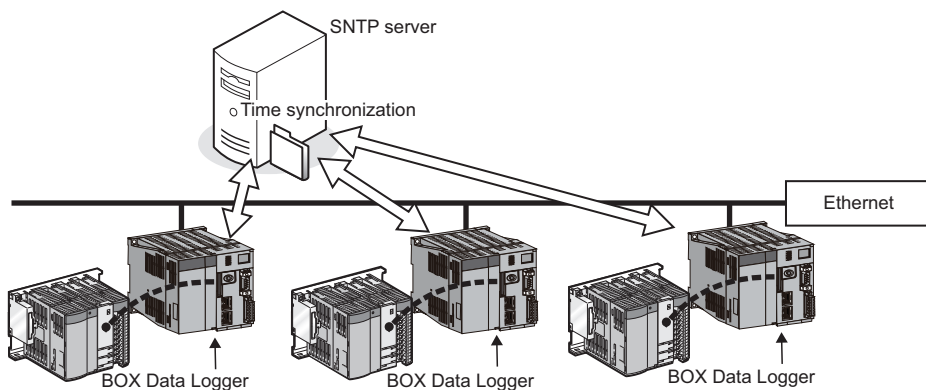
The time is set to the time of the SNTP server personal computer on the network.

The timing to set to the time of SNTP server personal computer is the user specified 'fixed cycle (specifying minute unit)' or 'fixed time (time, day of week)'.

Additionally, the time is also synchronized at the following timing.

- When BOX Data Logger is powered OFF → ON or reset
- When the Auto logging function starts
- When settings are updated

☞ Page 379 Writing Data



#### Point

The time data can be written to the programmable controller CPU after synchronizing with SNTP server. For details, refer to the following section

☞ Page 234 How to write the time data to the CPU module after synchronizing with SNTP

# Daylight saving time function

The daylight saving time function adjusts the time of BOX Data Logger to daylight saving time using the time of SNTP server computer.

For the settings of daylight saving time function, refer to the following section.

☞ Page 231 Time synchronization setting

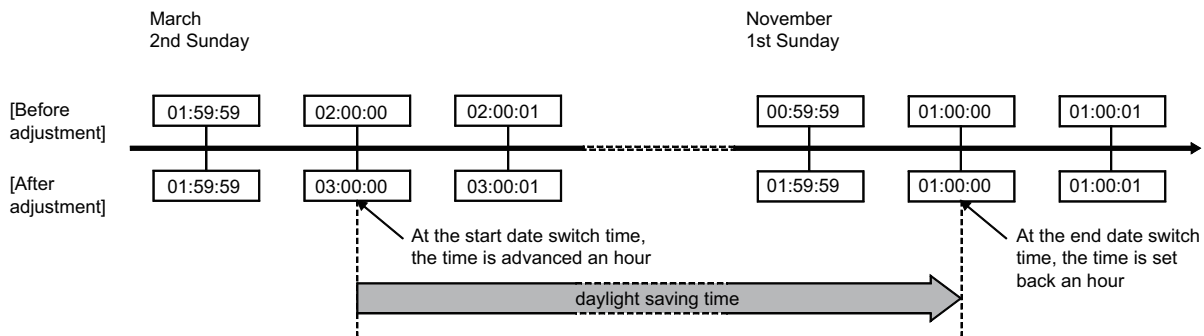
## Daylight saving time function

When "Daylight saving setting" is set, one hour is added to the time at the start of daylight saving time, and one hour is subtracted from the time at the end of daylight saving time.

An example of the start and end of daylight saving time is as follows:

**Ex.**

When daylight saving time starts at 02:00 on the second Sunday in March and ends at 02:00 on the first Sunday in November



## Considerations

When specifying the time before and after the start or end time of daylight saving time with the Data logging setting, Event logging setting, or Report setting, there may be situations where the correct time cannot be determined.

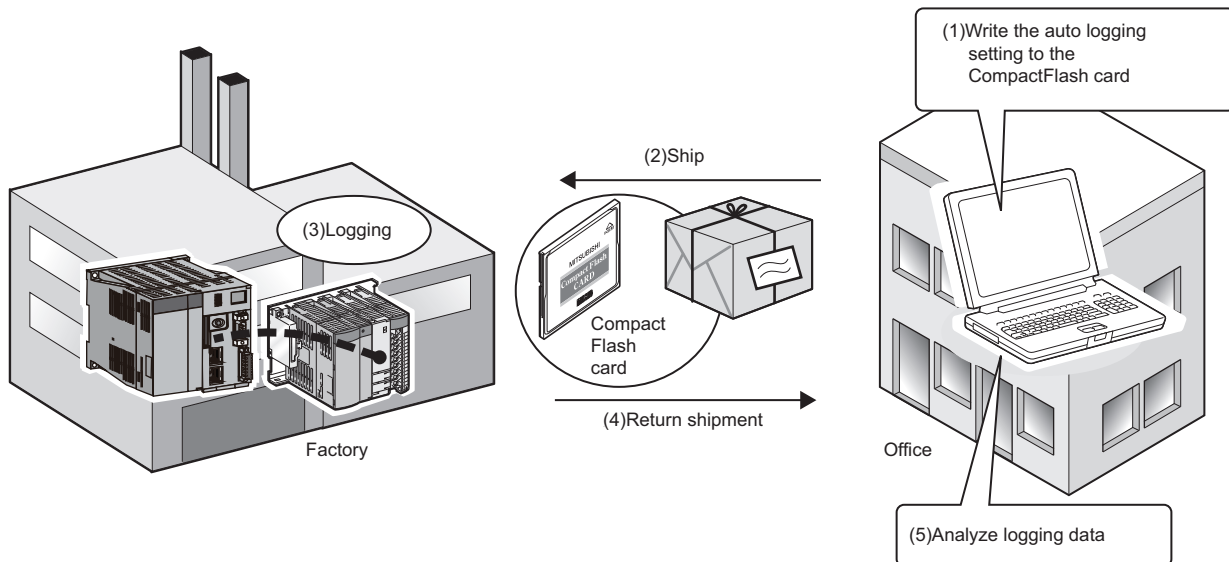
## 10.2 Auto Logging Function

The Auto logging function can automatically start logging when a CompactFlash card with "Enable the auto logging function" written in advance is inserted in running BOX Data Logger.

In addition, the data logging can be stopped automatically by specifying the time to perform data logging.

For example, write "Enable the auto logging function" to a CompactFlash card at an office, and send that CompactFlash card to the factory to insert it in BOX Data Logger on-site. Then, logging can be started automatically.

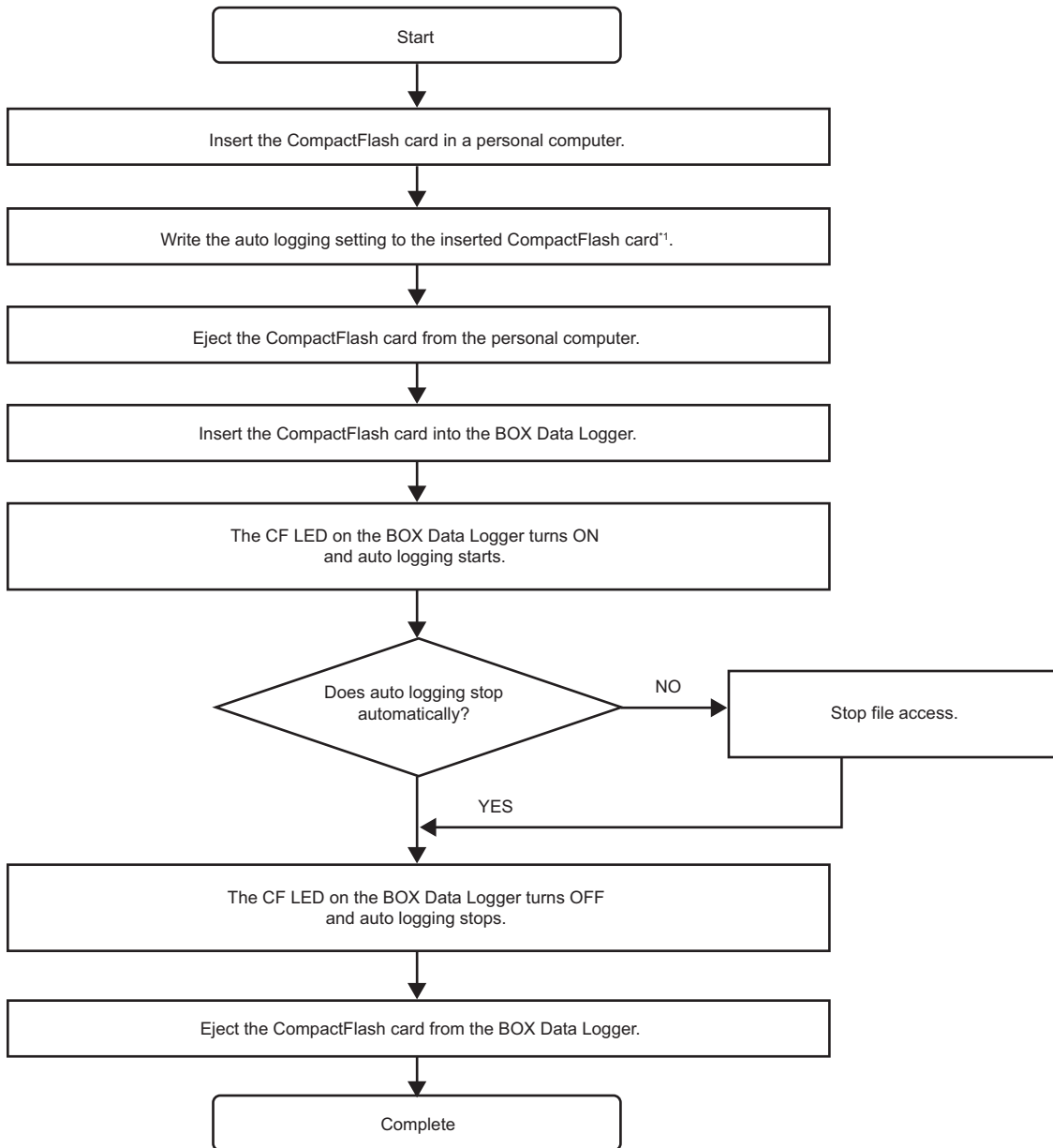
After the logging is completed, return the CompactFlash card to the office so the logging data can be analyzed.





The procedure for using the Auto logging function is as follows:

Before performing the Auto logging function, select "Enable the auto logging function" with Configuration tool.



\*1 Refer to Page 226 Exporting operating file.

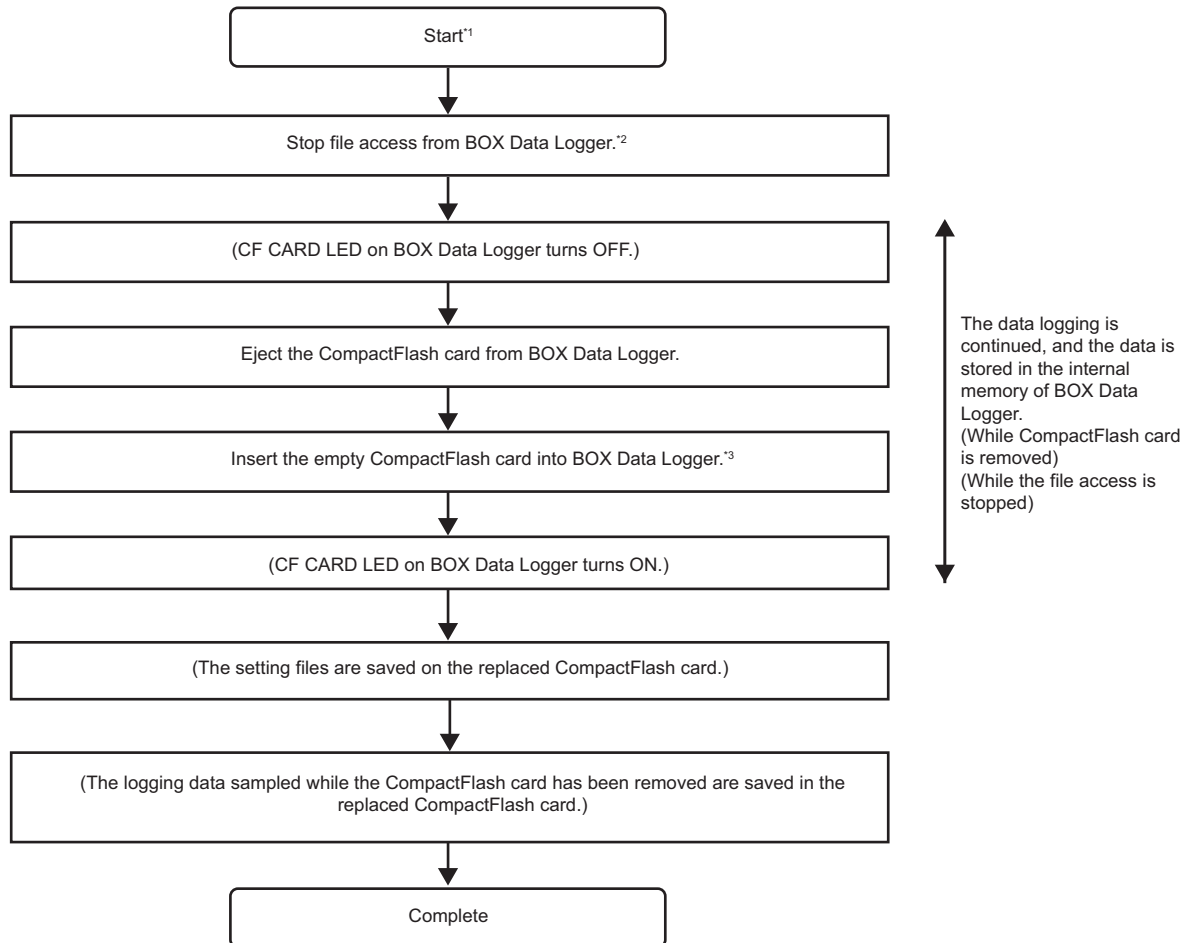
**Point**

- For the method for setting "Enable the auto logging function", refer to the following section.  
☞ Page 248 Logging operation setting
- To force the Auto logging function to end, press down the CF CARD ACCESS OFF switch for 1.5 seconds, or use Configuration tool to stop the CompactFlash card.  
For the operation to stop the CompactFlash card, refer to the following section.  
☞ Page 388 CompactFlash card diagnostics
- If the setting file on the new CompactFlash card is set to enable the Auto logging function, an error stop will occur. To perform operation with the setting on the new CompactFlash card, reset the BOX Data Logger.

## 10.3 Logging Continuance Function

The Logging continuance function enables continuous data logging while a CompactFlash card is being replaced. Logging is continued while a CompactFlash card is being ejected. Thus, even when replacing a CompactFlash card, or when temporarily taking out a CompactFlash card for inspection, logging data can be continuously sampled without any loss. If a Report setting has been configured, however, logging cannot be continued.

### Operating procedure and BOX Data Logger operation



\*1 Before using the Logging continuance function, insert a CompactFlash card with the "Enable the logging continuance function" setting written. Use the Logging operation setting of the Configuration tool to write the setting. For the Logging operation setting, refer to the following section.

☞ Page 248 Logging operation setting

\*2 Refer to ☞ Page 650 Stopping file access.

\*3 Setting files are not required to be written.

### Considerations for replacing CompactFlash card

- Replace a CompactFlash card while no error is occurring on BOX Data Logger.  
☞ Page 98 7-segment LED display description
- Replace a CompactFlash card while no files or e-mails to be resent is remaining on the FTP server or mail server. The remained file will not be resend after a replacement.  
☞ Page 385 FTP transfer diagnostics, Page 386 E-mail send diagnostics

# Difference of operation caused by new CompactFlash card setting

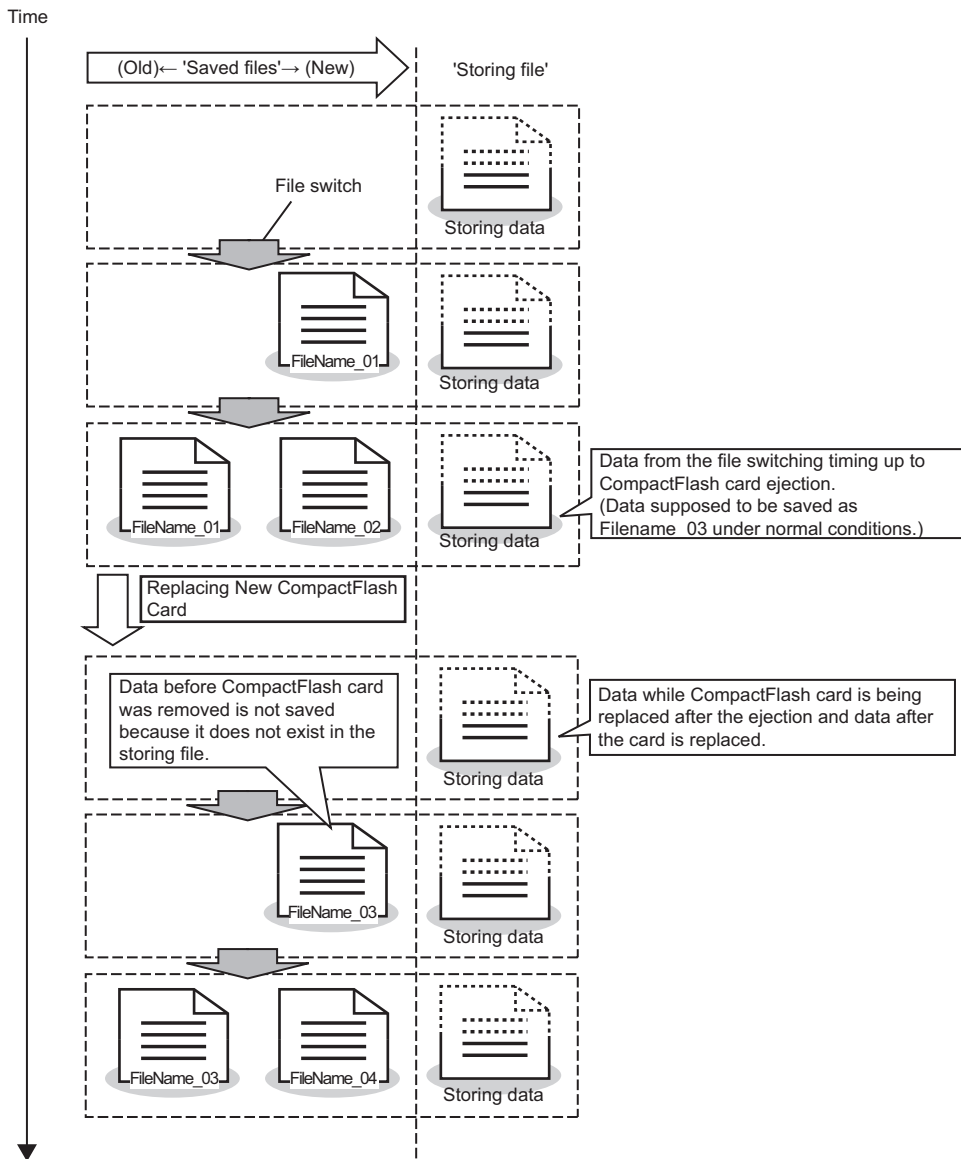
The operation after the CompactFlash card replacement differs as shown below depending on whether or not the setting files exist in a new CompactFlash card.

		Before replacing CompactFlash card	
		With the Logging continuance function setting	Without the Logging continuance function setting
After replacing CompactFlash card	With setting file *1	Same setting file: Continue logging Different setting file: Error stop*2	Stop logging
	With no setting file *1	Write setting files to the CompactFlash card and continues logging.	Stop logging

- \*1 The setting files include the following information: the Common setting, Data logging setting, Event logging setting, Report setting, connection target setting, project comments, and language information of the created setting files.
- \*2 If the setting file of the new CompactFlash card is set to enable the Auto logging function, an error stop will occur. To perform operation with the setting of the new CompactFlash card, reset BOX Data Logger. For the Auto logging function, refer to the following section.  
[📄 Page 182 Auto Logging Function](#)

# File switching

From the file switching timing to the CompactFlash card ejection, the data is saved in the "storing file" of the old CompactFlash card. After replacing the CompactFlash card, the logging data after the CompactFlash card ejection is saved as "stored file" and then saved as "saved file" at file switching timing.



## File switching during the continued logging

When a CompactFlash card is inserted, file switching occurs for several times.

**Ex.**

If logging is performed continuously for 4 minutes with the logging settings as sampling at 1 second interval and file switching at 1 minute cycle, 4 files are generated at CompactFlash card insertion.

## When the logging number is the same

If the CompactFlash card contains storing files with the same logging number but with different header contents, file switching is performed to generate a new storing file.

## Data on replaced CompactFlash card

### Saved file number sequence is retained.

**Ex.**

If the file number immediately before removing the CompactFlash card is 0003, the file number after inserting a CompactFlash card will be 0004.

### When the new CompactFlash card contains a storing file

At the end of the storing file, the logging data sampled during continued logging will be added.

### When logging setting contains free space specified by the CompactFlash card setting

If a CompactFlash card with no free space is inserted, the saved file will be deleted in accordance with the CompactFlash card setting. Then, the logging data during continued logging will be saved in the CompactFlash card.

### When a file has been created by the user and a CompactFlash card is inserted

If a name of a file created by user matches with the name of the file being deleted by the system, the file will be deleted.

#### Precautions

- If a report setting has been configured, the Logging continuance function cannot be used.
  - ☞ Page 248 Logging operation setting
- During continued logging, the display of GX LogViewer will not be updated.

#### Point

- Free space in BOX Data Logger during continued logging can be checked with the 7-segment display.
  - ☞ Page 98 7-segment LED display description
- During continued logging, if the buffer free space of BOX Data Logger drops to 0%, sampling data cannot be saved in the buffer. Make settings to provide sufficient time for the CompactFlash card replacement. The Reference time until the buffer full is as shown in the table below.

• Time until buffer full\*1

No. of setting	Data sampling interval	—	Number of device points per setting		
			64 points	512 points	4096 points
1	1.0 second	■Time until buffer full	50 minutes	50 minutes	50 minutes
		■Buffer size points per setting*2 × Real data sampling interval*3	3000 lines × 1.0 second	3000 lines × 1.0 second	3000 lines × 1.0 second
	0.1 seconds	■Time until buffer full	5 minutes	5 minutes	5 minutes
		■Buffer size points per setting*2 × Real data sampling interval*3	3000 lines × 0.1 seconds	3000 lines × 0.1 seconds	3000 lines × 0.1 seconds
8	1.0 second	■Time until buffer full	50 minutes	50 minutes	8 minutes
		■Buffer size points per setting*2 × Real data sampling interval*3	3000 lines × 1.0 second	3000 lines × 1.0 second	510 lines*4 × 1.0 second
	0.1 seconds	■Time until buffer full	5 minutes	8 minutes	6 minutes
		■Buffer size points per setting*2 × Real data sampling interval*3	3000 lines × 0.1 seconds	3000 lines × 0.16seconds*5	510 lines*4 × 0.72 seconds*5
64	1.0 second	■Time until buffer full	50 minutes	8 minutes	6 minutes
		■Buffer size points per setting*2 × Real data sampling interval*3	3000 lines × 1.0 second	493 lines*4 × 1.02 seconds*5	64 lines*4 × 5.76 seconds*5
	0.1 seconds	■Time until buffer full	30 minutes	8 minutes	6 minutes
		■Buffer size points per setting*2 × Real data sampling interval*3	3000 lines × 0.64 seconds*5	493 lines*4 × 1.02 seconds*5	64 lines*4 × 5.76 seconds*5

\*1 Indicates the time until the buffer full. The time can be calculated with the following formula: lines per setting + real data sampling interval.

\*2 Indicates the buffer size per setting with the number of lines.

\*3 Indicates the actual data sampling interval.

\*4 Indicates that allocated number of lines is small because the number of device points for logging is large.

\*5 Indicates that the sampling logging data with the specified sampling interval is difficult. The value indicates the seconds with the actual sampling interval (QnUDEHCPU Ethernet connection).

For the 7-segment LED display that indicates continued logging, refer to the following section.

☞ Page 99 Logging continuous status

# 10.4 File Accessing Function

The file access function is used to access Data logging files, Event logging files, Report files, and Recipe files saved in a CompactFlash card inserted in BOX Data Logger, and delete, transfer to BOX Data Logger\*<sup>1</sup>, and save them to a personal computer. The following shows how to access the files.

\*<sup>1</sup> Recipe files only

## To use the file accessing function

Configure the web browser settings by referring to the following.

Web browser	Setting	Reference
Microsoft Edge	Deleting temporary internet files	Page 203 Deleting temporary internet files
	Setting Internet Explorer mode	Page 203 Setting Internet Explorer mode
Internet Explorer	Setting temporary internet files	Page 204 Setting temporary internet files
	Deleting temporary internet files	Page 204 Deleting temporary internet files

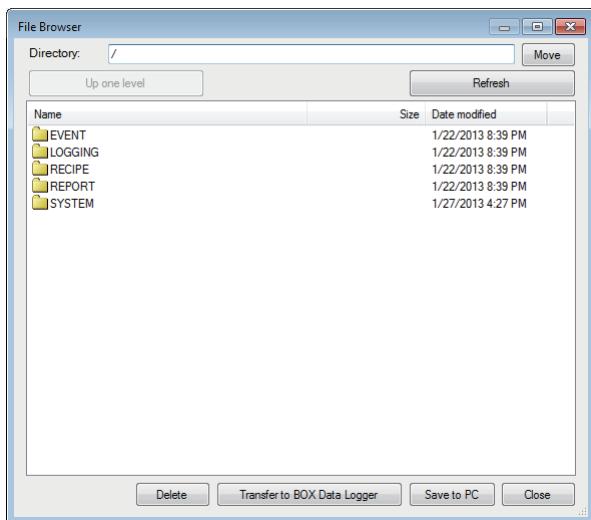
## File browser function

Delete files, transfer files to BOX Data Logger\*<sup>1</sup>, or save files to a personal computer using the screen below.

This function can be used when the connection method is a direct connection or a connection via a hub.

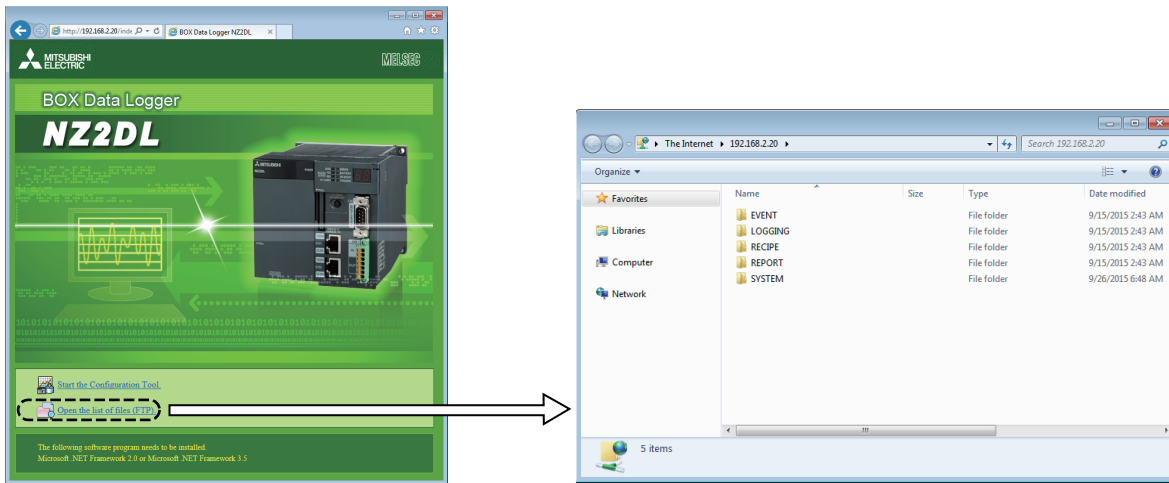
☞ Page 395 File Browser

\*<sup>1</sup> Recipe files only



# FTP server function

Connect to a web browser in the same manner as when executing online startup ( Page 202 Online startup). Perform file operations in the web browser screen displayed by clicking "Open the list of files (FTP)" of the main page. This function can only be used when the connection method is a connection via a hub.



## Point

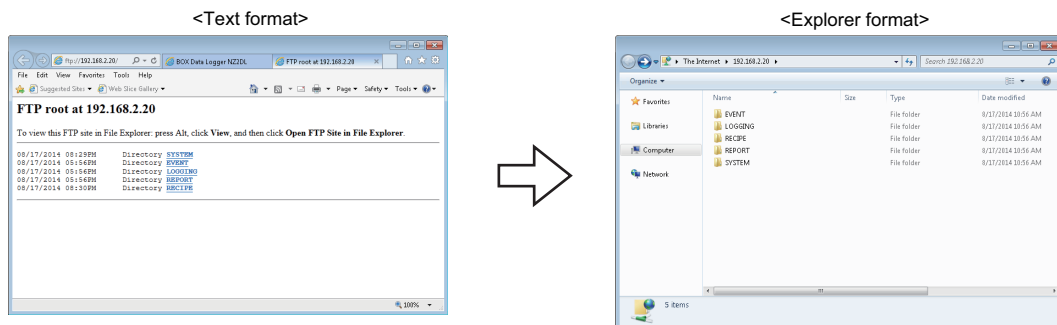
- Display format for file list (FTP)
 

The BOX Data Logger files are displayed in text format. Some functions cannot be used when files are displayed in text format. Open the FTP site in Explorer format by following either of the following operations.

\*1

Internet Explorer 7.0, Internet Explorer 8.0: Select [Page] ⇒ [Open FTP Site in File Explorer].

Internet Explorer 9.0, Internet Explorer 10.0, Internet Explorer 11.0: Select [View] ⇒ [Open FTP Site in File Explorer].



- For RECIPE folder
 

A file with the '.TMP' extension may be displayed when the RECIPE folder is displayed during the write process of the recipe function. This TMP file is deleted at the completion of the write process. For details on the write process of the recipe function, refer to the following chapter.

Page 155 RECIPE FUNCTION

\*1 When using Windows 10 and Microsoft Edge, the site may not open in Explorer format. In this case, start Explorer, and enter the address "ftp://192.168.2.20" of the BOX Data Logger. If the IP address has been changed, specify the IP address set in the network settings. ( Page 228 Network setting)

## Precautions

For Microsoft Edge, use Internet Explorer mode. ( Page 203 Setting Internet Explorer mode)

When using Internet Explorer mode, it may take time to display the main page.



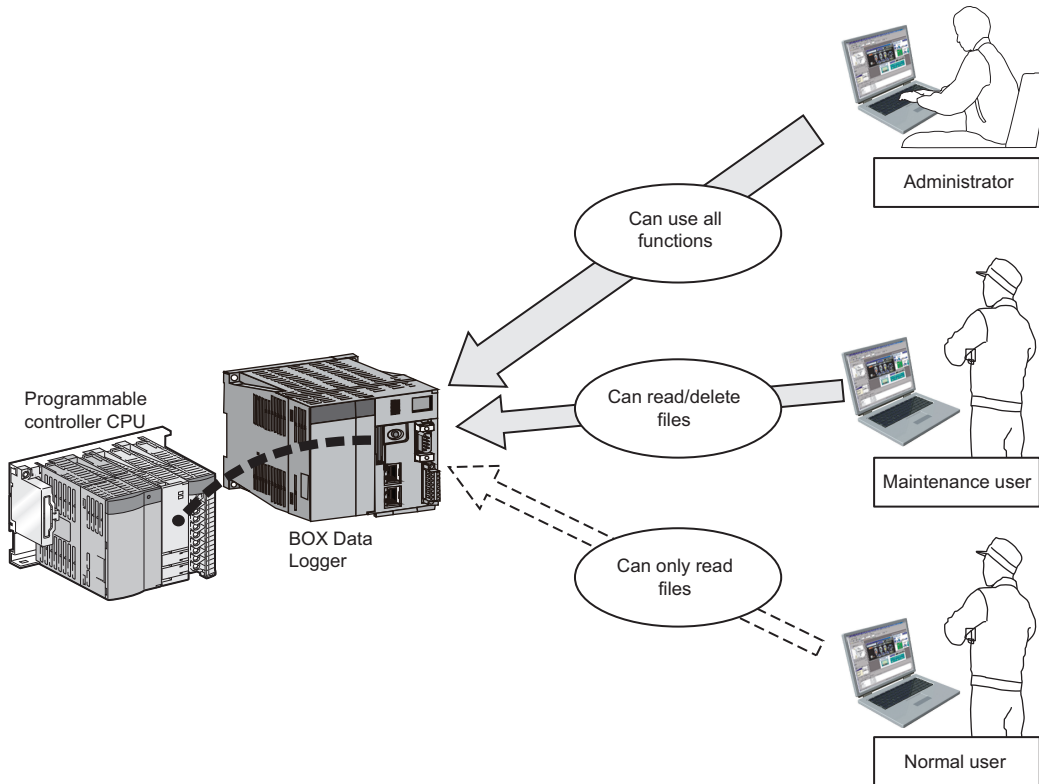
# 10.5 Access Authentication Function

A function to perform authentication by user name and password when accessing BOX Data Logger.

To perform access authentication, configure the account setting. For the account setting, refer to the following section.

☞ Page 245 Account setting

Access authority can be selected from 3 levels (Administrator, Maintenance user, Normal user) as shown in the following figure.



## Precautions

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

# 10.6 FTP Transfer Function

A function to transfer logging files to FTP server.

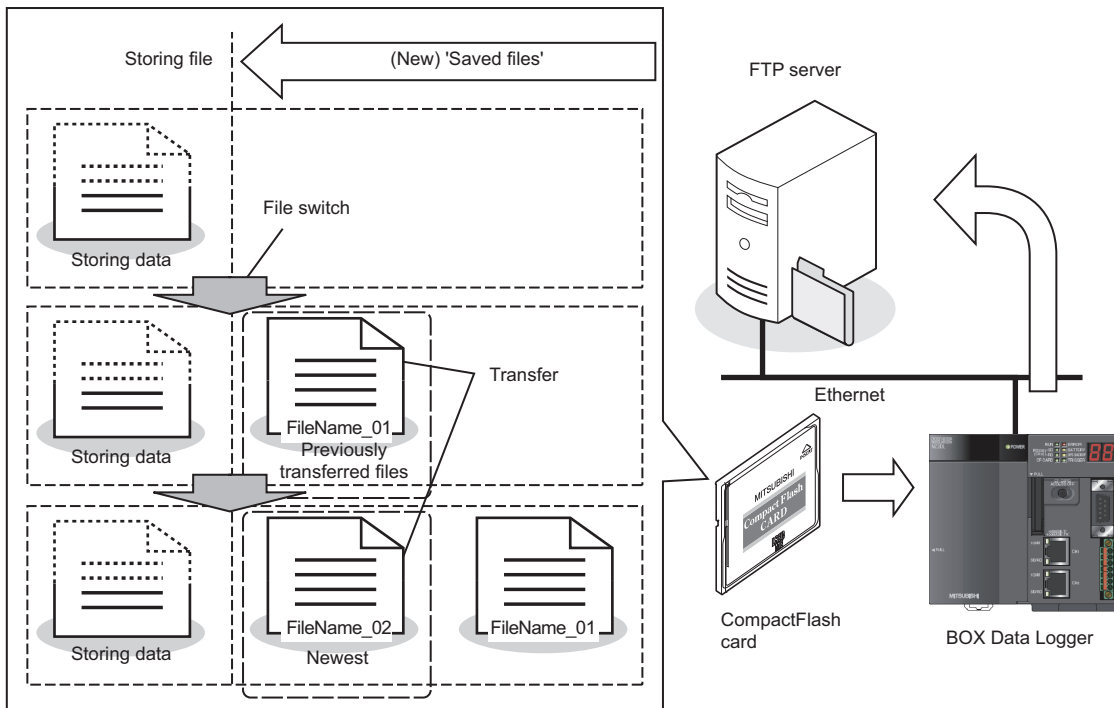
There are three FTP transfer functions.

- Transfer function: Transfers logging files to the specified FTP server automatically.
- Resend function: Resends logging files when a FTP transfer failed.
- Transfer completion notification function: Notifies the server when the transfer completed.

Since the processing time of the FTP transfer function varies according to the settings, file size, network status, and server status, the FTP transfer function may not operate at the set timing. Run the system by fully verifying the processing time of each function when constructing it.

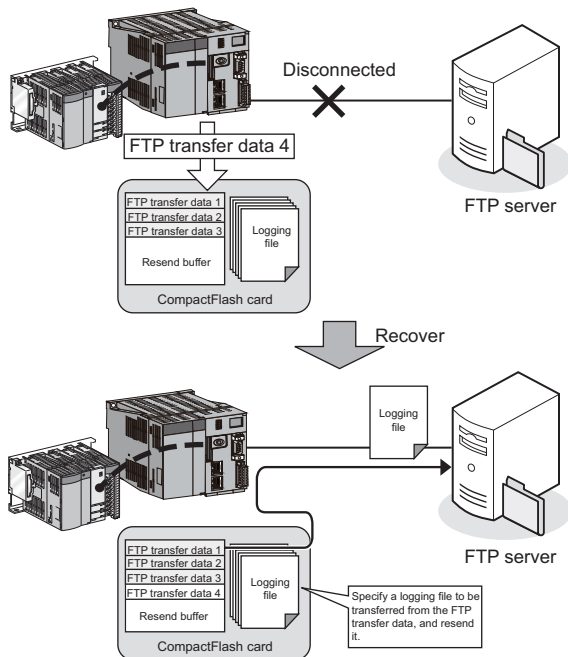
## Transfer function

The most recent 'saved file' is transferred to the FTP server using the FTP protocol.



## Resend function

A file resend is attempted every 10 seconds when a module cannot access the FTP server and the FTP transfer failed due to a network failure.



10

### Point

- When the resend function is enabled, 'FTP file transfer error (0B03H)' is not detected even if a module cannot access the FTP server and the transfer failed. However, 'FTP file transfer error (0B03H)' is detected even if the resend function is enabled when an FTP server processing error occurs and data cannot be transferred due to an error such as incorrect password settings or high load on the FTP server.
- The transfer files which exceed the number of resending buffer specified with the FTP setting are not applicable to the resend function. Specify the sufficient send buffer size.
- Buffer usage rate check and buffer clear can be performed by the FTP transfer diagnostics (Page 385 FTP transfer diagnostics). After writing FTP setting, the buffer clear can also be performed by powering BOX Data Logger OFF/ON, resetting, or updating the settings.
- 'File transfer test' is not applicable to the resend function.
- When BOX Data Logger is powered OFF during network disconnection with the FTP server, a file resend is attempted after BOX Data Logger is powered ON and the access to the FTP server is restored.
- A file transfer by the transfer function may be executed during a file resend.

## Transfer completion notification function

When a logging file transfer completed, the transfer completion notification file which indicates the transfer completion is written to the same directory as the logging file transfer destination directory.

Depending on the FTP server specification, files in the middle of transfer process may be referenced.

The transfer completion can be determined by checking whether or not the transfer completion notification file exists.

This function is used to detect the transfer completion of the logging file at the server side and process automatically after the logging file was transferred to the server.

The extensions for transfer files and transfer completion notification files are as follows:

Extension for transfer file	Extension for transfer completion notification file
.BIN	.BTC
.CSV	.CTC
.XLS	.XTC

If a transfer completion notification file is failed to be transmitted, an error will occur. If the resend function is set enabled, the transfer completion notification file becomes a resend target, too.

- For the FTP setting, refer to the following section.
  - ↳ Page 240 FTP setting
- For the settings of the transfer, resend, and transfer completion notification, refer to the following sections.
  - Data logging file: ↳ Page 292 Save
  - Event logging file: ↳ Page 332 Save
  - Report file: ↳ Page 373 Save

# 10.7 E-mail Function

A function to send logging files and notify event occurrences by e-mail.

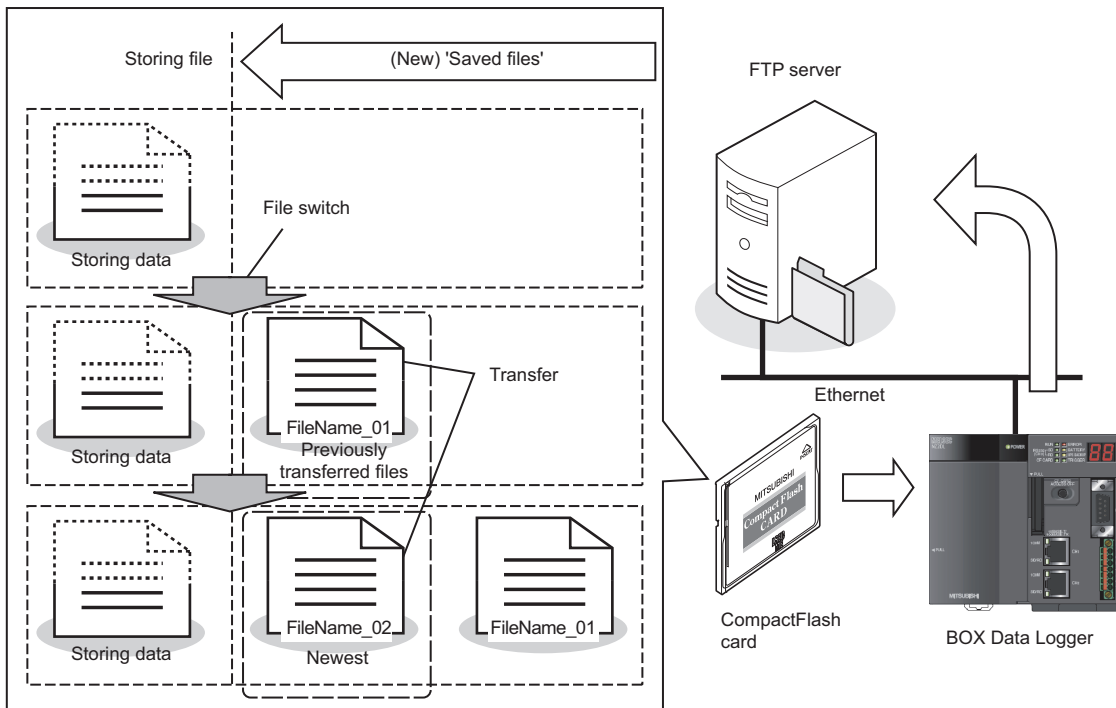
There are three e-mail functions:

- Transmission function: Send logging files automatically.
- Resend function: Resend logging files when e-mail transmission failed.
- Notification function: Notify event occurrences to the specified e-mail address.

Since the processing time of the e-mail transmission function varies according to the settings, file size, network status, and server status, the e-mail transmission function may not operate at the set timing. Run the system by fully verifying the processing time of each function when constructing it.

## Transmission function

With the e-mail transmission function, e-mail with the most recent 'saved file' attached is sent to the mail server.

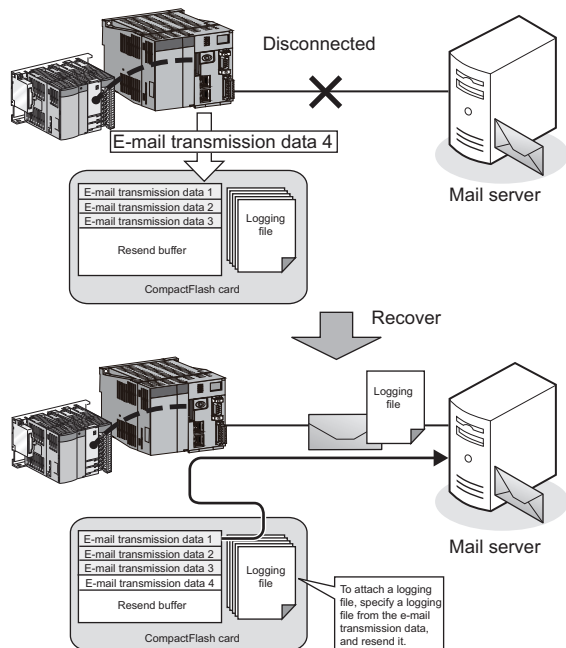


The example of sent e-mail is as follows:

Mail header	From: NZ2DL [xxx@xxx.co.jp] Date: 11/12/2012 Wednesday 20:02 To: xxx@xxx.co.jp Subject: XXLOG_00000008.CSV 2012/12/11 20:02:23
Message	XXLOG_00000008.CSV 2012/12/11 20:02:23
Attached file	[XXLOG_00000008.CSV]

## Resend function

An e-mail resend is attempted every 10 seconds when a module cannot access the mail server and the e-mail transmission failed due to a network failure.



### Point

- When the resend function is enabled, 'E-mail transmission error (0B13H)' is not detected even if a module cannot access the mail server and the e-mail transmission failed. However, 'E-mail transmission error (0B13H)' is detected even if the resend function is enabled when a mail server processing error occurs and data cannot be transferred due to an error such as incorrect password settings or high load on the mail server.
- The transmission files which exceed the number of resending buffer specified with the E-mail setting cannot be resend. Specify the sufficient send buffer size.
- Buffer usage rate check and buffer clear can be performed by the E-mail send diagnostics. After writing e-mail setting, the buffer clear can also be performed by powering BOX Data Logger OFF/ON, resetting, or updating the settings.
  - ☞ Page 386 E-mail send diagnostics
- "E-mail transmission test" is not applicable to the resend function.
- When BOX Data Logger is powered OFF during network disconnection with the mail server, a file resend is attempted after BOX Data Logger is powered ON and the access to the mail server is restored.
- An e-mail transfer by the transfer function may be executed during an e-mail resend.

## Notification function

For the notification function, refer to the following section.

☞ Page 337 E-mail Notice

For the e-mail settings, refer to the following section.

☞ Page 242 E-mail setting

For the transmission and resend settings, refer to the following sections.

Data logging setting: ☞ Page 292 Save

Event logging setting: ☞ Page 332 Save

Report setting: ☞ Page 373 Save

# PART 2

# OPERATIONS OF Configuration tool

This part explains operations of Configuration tool.

11 CONFIGURATION TOOL STARTUP

---

12 HOW TO USE CONFIGURATION TOOL (BOX Data Logger)

---

13 WRITING/READING/VERIFYING SETTING DATA

---

14 CONFIRMING BOX Data Logger OPERATION

---

# 11 CONFIGURATION TOOL STARTUP


---

## 11.1 Obtaining BOX Data Logger Configuration Tool

---

**Point** 

For information on how to start BOX Data Logger Configuration Tool, refer to the following section.

 [Page 202 Online startup](#)

---



# 11.2 Installation Method

This section explains how to install and uninstall BOX Data Logger Configuration Tool. By installing the install file of BOX Data Logger Configuration Tool, Configuration tool can be used.

### Point

- Before installing the Configuration tool, terminate any other applications running on Windows®.
- The installer may not work normally because the operating system's or other companies' software's update programs, such as Windows® Update or the Java update program, start automatically. Install the Configuration tool after configuring those update programs not to start automatically.
- When installing the Configuration tool, logon as a user with the Administrator authority.
- When using Windows 8 or later  
".NET Framework 3.5 (includes .NET 2.0 and 3.0)" needs to be enabled in "Turn Windows features on or off" on the Control Panel.  
Select "Don't do anything (turn off Windows SmartScreen)" on the Control Panel.

## Installation procedure

### Operating procedure

1. Double click the "setup.exe" in the unzipped folder to start the installer.
2. Operate according to the displayed screens.
  - If the user account control is enabled, the "User Account Control" screen is displayed. Click the [Yes] button.
  - In "Customer Information", enter "User Name" and "Company Name".
3. Click the [Complete] button to complete the installation.

For the required personal computer operating environment when installing BOX Data Logger Configuration Tool, refer to the following section.

 Page 56 Operating Environment

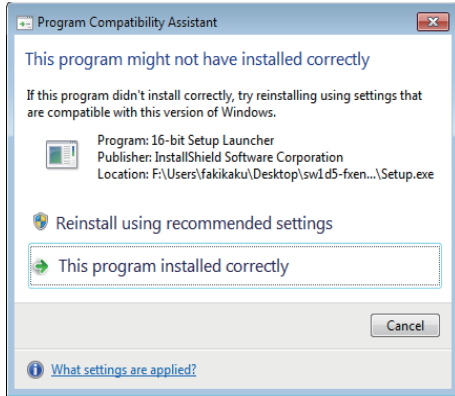
## Precautions

Program Compatibility Assistant screen

When using Windows Vista® or later, the "Program Compatibility Assistant screen" may be displayed after the installation completion.

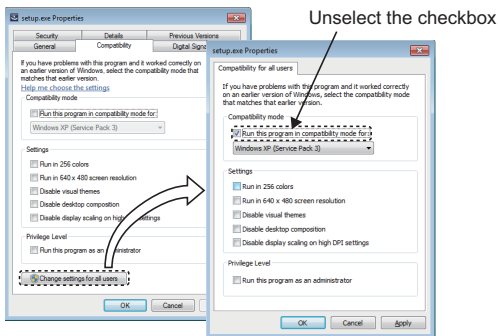
Follow the procedure to complete the installation.

(The following screen images are from Windows Vista®.)



1. Select "This program installed correctly".
2. Restart the Windows® operating system.

If "Reinstall using recommended settings" is selected on the screen above by mistake, unselect the "Run this program in compatibility mode for:" by following the procedure shown below, and perform reinstallation.



1. Right-click on the 'setup.exe' icon of the installation target in the Windows® explorer, and open the "setup Properties" screen.
2. Select the [Compatibility] tab and click the [Show settings for all users] button.
3. Unselect "Run this program in compatibility mode for:" of "Compatibility mode" in the [Compatibility for all users] tab, and click the [OK] button.
4. Click the [OK] button on the "setup Properties" screen.
5. Install the product again. For installation procedure, refer to the following section.

➔ Page 199 Installation Method

# Upgrade procedure

---

## Operating procedure

1. Unzip the file for the obtained upgrade version, and select "setup.exe" in the unzipped folder to start the installer.\*<sup>1</sup>
2. Operate according to the displayed screens.
3. Click the [Complete] button to complete the installation.

\*<sup>1</sup> When using Windows Vista® or later, and the user account control is enabled, the screen for the installer startup confirmation appears. Click the [Continue] button to continue the installation. Click the [Cancel] button to cancel the installation.

## Operating procedure

4. Unzip the file for upgrade version obtained, and select "setup.exe" in the unzipped folder to start the installer.\*<sup>1</sup>
5. Operate according to the displayed screens.
6. Click the [Complete] button to complete the installation.

\*<sup>1</sup> When using Windows Vista® or later, and the user account control is enabled, the screen for the installer startup confirmation appears. Click the [Continue] button to continue the installation. Click the [Cancel] button to cancel the installation.

# Uninstallation procedure

---

Uninstall BOX Data Logger Configuration Tool from the control panel of Windows.

# 11.3 Starting Configuration Tool

There are two methods to start the Configuration tool; 'online startup' and 'offline startup'.

## Online startup

A method to start the Configuration tool directly from BOX Data Logger.

## Offline startup

A method to start BOX Data Logger Configuration Tool installed on a personal computer.

The features of these methods are as follows:


Startup method	Feature	Reference
Online startup	Not necessary to install BOX Data Logger Configuration Tool on a personal computer.	Page 202 Online startup
Offline startup	Can be started without the BOX Data Logger. A personal computer and a BOX Data Logger can be connected without concerning their IP addresses.	Page 207 Offline startup (starting from the Start menu) Page 208 Setting Operations Overview

## Online startup

Invoke Configuration tool from BOX Data Logger and start it online.

## Operating procedure up to online startup

The operating procedure up to starting the Configuration tool online are as follows:

1. Connect BOX Data Logger to a personal computer...  Page 45 System Configuration Examples
2. Configure the web browser
3. Connect with the web browser
4. Start the Configuration tool

### Point

- In the environment that cannot be connected to the Internet, "Publisher: Unknown Publisher" may be displayed on the "Security Warning" screen. In this case, install the update program for root certificates provided by Microsoft® to change the publisher to 'MITSUBISHI ELECTRIC CORPORATION'.
- "The publisher could not be verified. Are you sure you want to run this software?" on the "Security Warning" screen may be displayed at online startup. Click the [Run] button to start BOX Data Logger Configuration Tool. The message will not be displayed in the future by selecting "Local intranet" on the [Security] tab in the Internet Options.

## Microsoft Edge settings

### Point

The setting procedure and the name for each setting item may differ depending on its version.  
For details, contact Microsoft Corporation.

### ■Setting proxy setup

1. Click [...] (Settings and more) in the upper-right corner of Microsoft Edge.
2. Select [Settings] ⇒ [System and performance] ⇒ [Open your computer's proxy settings].
3. Set the following to 'Off.'
  - "Automatically detect settings" under "Automatic proxy setup"
  - "Use setup script" under "Automatic proxy setup"
  - "Use a proxy server" under "Manual proxy setup"

### ■Deleting temporary internet files

1. Click [...] (Settings and more) in the upper-right corner of Microsoft Edge.
2. Select [History] ⇒ [Clear browsing data].
3. Select the checkbox of "Browsing history."
4. Click the [Clear now] button.

### ■Disabling SmartScreen

1. Click [...] (Settings and more) in the upper-right corner of Microsoft Edge.
2. Select [Settings] ⇒ [Privacy, search, and services].
3. Turn off "Microsoft Defender SmartScreen" under "Security."

### ■Enabling ClickOnce

1. Enter the following in the address bar of Microsoft Edge.  
"edge://flags/#edge-click-once"
2. Set "ClickOnce Support" to "Enabled."
3. Restart Microsoft Edge to apply the settings.

### ■Setting Internet Explorer mode

1. Click [...] (Settings and more) in the upper-right corner of Microsoft Edge.
2. Select [Settings] ⇒ [Default browser].
3. Set "Allow sites to be reloaded in Internet Explorer mode" under "Internet Explorer compatibility" to "Allow."
4. If a URL is added for "Internet Explorer mode pages," the set page is opened in Internet Explorer mode.

### Point

Even if a URL is not added for "Internet Explorer mode pages," the screen displayed on Microsoft Edge can be opened in Internet Explorer mode by the following operation.

- Right-click a tab of a screen, and select [Reload tab in Internet Explorer mode] from the shortcut menu.

## Internet Explorer settings

### ■Setting a local area network (LAN)

Unselect the "Automatically detect settings", "Use automatic configuration script", and "Use a proxy server for your LAN" setting on the Internet Explorer "Local Area Network (LAN) Settings" screen.

**Ex.**

Microsoft Windows 7, Internet Explorer 10.0

Select [Tools] ⇒ [Internet Options] ⇒ [Connections] tab, then click the [LAN Settings] button to open the "Local Area Network (LAN) Settings" screen.

### ■Setting temporary internet files

Select [Tools] ⇒ [Internet Options] ⇒ [General] tab, and click the [Settings] button for "Browsing history".

Select "Every time I visit the webpage".

### ■Deleting temporary internet files

• For Windows Internet Explorer 7.0

Select [Tools] ⇒ [Internet Options] ⇒ [General] tab, and click the [Delete] button for "Browsing history", then click the [Delete files] button.

• For Windows Internet Explorer 8.0 or later

Select [Tools] ⇒ [Internet Options] ⇒ [General] tab ⇒ "Browsing history," then click the [Delete] button. Select the checkbox of "Temporary Internet Files," and click the [Delete] button.

### ■Setting security

Set the "Security level for this zone" of Internet Explorer to 'Medium' or lower.

**Ex.**

Microsoft Windows 7, Internet Explorer 10.0

Select [Tools] ⇒ [Internet Options] ⇒ [Security] tab.

### ■Disabling SmartScreen

When using Windows 8 or later, disable SmartScreen by the following procedure.

• Windows 8, Windows 8.1

1. Select [Control Panel] ⇒ [System and Security].
2. Select "Action Center" on the "System and Security" screen.
3. Select "Change Windows SmartScreen settings" on "Action Center" screen.
4. Select "Don't do anything (turn off Windows SmartScreen)".

• Windows 10

1. Select [Control Panel] ⇒ [System and Security].
2. Select "Security and Maintenance" on the "System and Security" screen.
3. Select "Change Windows SmartScreen settings" on "Security and Maintenance" screen.
4. Select "Don't do anything (turn off Windows SmartScreen)".

## Connect with the web browser

Start a web browser on a personal computer, and enter the address of BOX Data Logger.

<http://192.168.2.20>

For the IP address setting, refer to the following:

☞ Page 228 Network setting

If the module is connected normally, the main page is displayed.



### Point

If a personal computer cannot be connected to BOX Data Logger normally, issue the PING command from the personal computer to BOX Data Logger to verify the connection.

For the method for issuing the PING command, refer to the following section.

☞ Page 591 PING Test

## Precautions

For Microsoft Edge, use Internet Explorer mode. (☞ Page 203 Setting Internet Explorer mode)

When using Internet Explorer mode, it may take time to display the main page.

## Configuration tool start procedure

The operating procedure up to the start of Configuration tool is as follows:

### Operating procedure

- 1.** On the "BOX Data Logger Configuration Tool connection" screen on a web browser, click the "Start the Configuration Tool".
- 2.** Click the [Execute] button in the "Application Run - Security Warning" screen.  
The Configuration tool is downloaded from BOX Data Logger and will be started.



## Offline startup (starting from the Start menu)

---

After installing BOX Data Logger Configuration Tool, it can be started with the operation below.

### Operating procedure

Start BOX Data Logger Configuration Tool from "MELSOFT Application" in Windows Start.

## Starting from GX LogViewer

---

The Configuration tool can also be started from GX LogViewer.

For details, refer to the following manual.

 GX LogViewer Version 1 Operating Manual

# 12 HOW TO USE CONFIGURATION TOOL (BOX Data Logger)

---

This chapter explains the setting procedures and operations for BOX Data Logger.

## 12.1 Setting Operations Overview

---

Set in the order below.

Common setting  Page 227 Common Setting

↓


Data logging setting  Page 258 Data logging setting/Event logging setting  Page 305 Event Logging Setting

Report setting  Page 340 Report Setting

↓

Write the settings to BOX Data Logger  Page 377 WRITING/READING/VERIFYING SETTING DATA

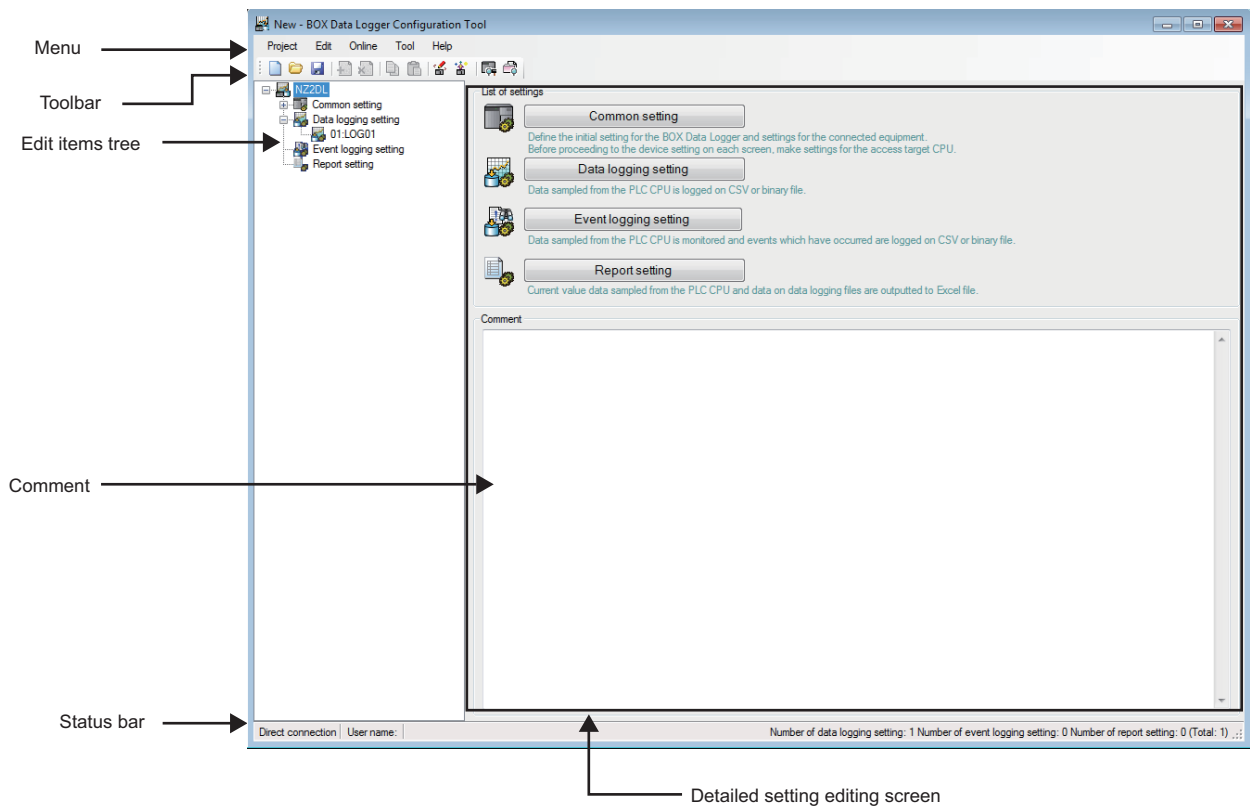
↓

Verify the operation of BOX Data Logger  Page 380 CONFIRMING BOX Data Logger OPERATION

# 12.2 Screen Configuration and Common Operations

## Main screen configuration

The main screen configuration of Configuration tool is as follows:



Name	Description	Reference
Menu	Displays the menu to execute various functions.	Page 210 Menu configuration
Toolbar	Displays the tool buttons to execute various functions.	Page 212 Toolbar configuration
Edit items tree	Displays the detailed setting editing screen when a tree item is selected.	Page 213 Operations using the edit items tree
Comment	Write comments on the project. Up to 2048 characters can be entered. The first line of the comment (up to 160 characters) is displayed in the "Comment" column on the "Find BOX Data Logger" screen.	—
Status bar	Displays information about the current project.	Page 213 Status bar
Detailed setting editing screen	Displays the setting screen for each function.	—

# Menu configuration

The menu configuration of Configuration tool is as follows:

Project			
Item		Description	Reference
New		Discard the project being edited and create a new project.	Page 221 Creating a new project
Open		Open a project file saved in a personal computer.	Page 221 Opening a project
Save		Overwrite and save the edited project to a file.	Page 222 For overwrite save
Save As		Save the edited project under a new file name.	Page 222 For saving under a new file name
Import	Project File	Import the specified settings from the project files saved in a personal computer.	Page 223 Importing settings from project file
Export	Operating File	Export the edited project to a CompactFlash card in the personal computer in a format which can operate BOX Data Logger.	Page 226 Exporting operating file
	CSV File	Export the settings of the project being edited to a CSV file (setting information CSV file).	Page 225 Exporting project to CSV file
Recent Files		Open files which were recently used by Configuration tool.	—
Exit		Exit Configuration tool.	—

Edit			
Item		Description	Reference
Add Item		Add the item selected in the edit items tree.	Page 213 Adding item
Delete Item		Delete the item selected in the edit items tree.	Page 213 Deleting item
Replicate Item		Add the item selected in the edit items tree by copying it.	Page 213 Replicating item
Copy Settings		Copy table format settings.	Page 214 Copying/pasting/clearing/deleting settings
Paste Settings		Paste the copied table format settings.	Page 214 Copying/pasting/clearing/deleting settings
Move Settings Up to Top		Move the selected table format settings upward.	Page 214 Moving settings upward
Device Batch Replacement		Replace the devices for all settings.	Page 217 Device batch replacement

Online			
Item		Description	Reference
Transfer Setup		Configure the communication settings to connect to BOX Data Logger.	Page 377 Transfer Setup
Read		Read the settings from BOX Data Logger.	Page 379 Reading Data
Write		Write the settings to BOX Data Logger.	Page 379 Writing Data
Verify		Compare the Configuration tool setting data with the BOX Data Logger setting.	Page 379 Verifying Data
Diagnostics		Diagnose BOX Data Logger.	Page 380 Diagnostics
File Browser		Connect to BOX Data Logger and transfer the files in the CompactFlash card to BOX Data Logger or save those files in a personal computer.	Page 395 File Browser
Recipe Execution Operation		Write/read data using Recipe files in the CompactFlash card in BOX Data Logger.	Page 177 Executing Recipe function using Configuration tool

## Tool












Item	Description	Reference
Start GX LogViewer	Start GX LogViewer. 📖 GX LogViewer Version 1 Operating Manual	—
Display Recipe Editor	Display the "Recipe Editor" screen.	Page 160 Recipe Editor screen configuration

## Help

Item	Description	Reference
About Configuration Tool	Display the version information of Configuration tool.	Page 397 Displaying Product Information
Open User's Manual	Display the user's manual.	Page 397 Open the user's manual

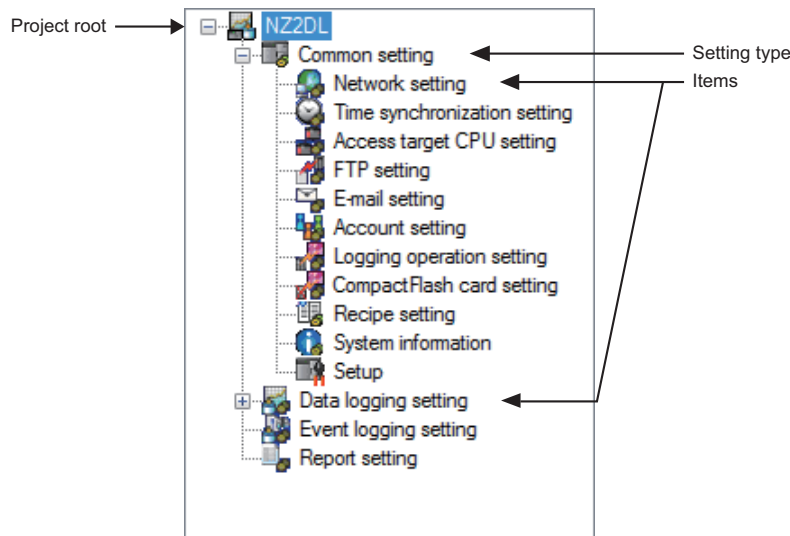
# Toolbar configuration

The toolbar configuration of Configuration tool is as follows:

Icon	Corresponding menu	Reference
	[Project] ⇒ [New]	Page 221 Creating a new project
	[Project] ⇒ [Open]	Page 221 Opening a project
	[Project] ⇒ [Save]	Page 222 For overwrite save
	[Edit] ⇒ [Add Item]	Page 213 Adding item
	[Edit] ⇒ [Delete Item]	Page 213 Deleting item
	[Edit] ⇒ [Copy Settings]	Page 214 Copying/pasting/clearing/deleting settings
	[Edit] ⇒ [Paste Settings]	Page 214 Copying/pasting/clearing/deleting settings
	[Online] ⇒ [Write]	Page 379 Writing Data
	[Online] ⇒ [Read]	Page 379 Reading Data
	[Online] ⇒ [Diagnostics]	Page 380 Diagnostics
	[Online] ⇒ [File Browser]	Page 395 File Browser

# Operations using the edit items tree

The edit items tree shows the overall project settings in a tree display. This section explains how to operate the edit items tree.



The following operations can be performed with the edit items tree of Configuration tool.

## Selecting item

1. Items are displayed by double clicking each setting type.
2. The editing screen for the selected item is displayed in the detailed setting editing screen by selecting the displayed item.

## Adding item

1. Select the setting type, and select [Edit] ⇒ [Add Item] to add the item.
2. When the item is added normally, it is automatically selected and the editing screen switches to the one for the added item.

## Deleting item

Select the item to be deleted, and select [Edit] ⇒ [Delete Item] to delete the item.

## Replicating item

1. Select the item to be copied, and select [Edit] ⇒ [Replicate Item] to add a copy of the item.
2. When the item is added normally, it is automatically selected and the editing screen switches to the one for the added item.

## Status bar

The items displayed on the status bar of Configuration tool are as follows:

Item	Description
IP address	Display the IP address of BOX Data Logger. [IP address: *.*.*] If "Transfer Setup" is "Direct connection", "Direct connection" is displayed.
User name	Display the user name when using access authentication. [User name: ****]
Number of data logging setting	Display n1, the number of data logging settings. [Number of data logging setting: n1]
Number of event logging setting	Display n2, the number of event logging settings. [Number of event logging setting: n2]
Number of report setting	Displays n3, the number of report settings. [Number of report setting: n3]
Total	Displays n4, the total number of the above data logging setting, event logging setting, and report logging setting. [Total: n4]

# Common table operations

---

## Adjusting column width

The column width can be adjusted in the table format on the detailed setting editing screen of Configuration Tool. Drag the right-side border of the column.

## Displaying Tooltip

If the mouse is placed on an item in a cell in the table format on the detailed setting editing screen of Configuration Tool, the entire item name is displayed in a tooltip. Use tooltips to verify item names when they are too long and cannot be entirely displayed.

## Copying/pasting/clearing/deleting settings

Cells and rows can be copied, pasted, cleared or deleted in the table format on the detailed setting editing screen of Configuration tool.

### ■ Copy/paste/clear settings in cell units

To copy/paste/clear a cell, select "Copy Settings"/"Paste Settings"/"Clear" on the right-click menu with the cell being selected. The setting items can be copied/pasted/deleted in a cell unit are as shown below. They can be copied/pasted in the table and among other applications.

- [Data logging setting] ⇒ [Data]
- [Common setting] ⇒ [FTP setting]
- [Common setting] ⇒ [E-mail setting]
- [Common setting] ⇒ [Device Batch Replacement]
- [Common setting] ⇒ [Display Recipe Editor]

### ■ Copy/paste/clear/delete settings in row units

To copy/paste/clear a row, select "Copy Settings"/"Paste Settings"/"Clear" on the right-click menu with the entire row being selected. To delete row(s), select cell(s), and select "Delete" on the right-click menu.

## Moving settings upward

Empty rows with no settings can be deleted and the settings can be moved upward in the table format on the detailed setting editing screen of Configuration tool.

To move settings upward, select [Edit] ⇒ [Move Settings Up to Top].



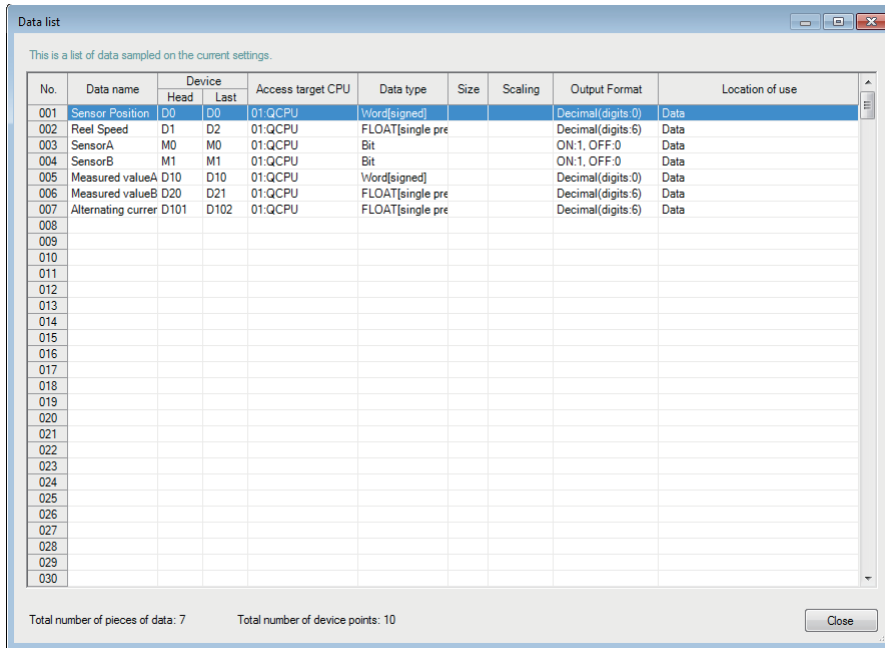
# Data list

Data used for the settings being edited are displayed in a list format.

## Operating procedure

Click the [Data list] button displayed in the lower left of the detailed setting editing screen for "Data logging setting", "Event logging setting", or "Report setting" selected on the edit items tree of Configuration tool.

## Displayed items



Item	Description
No.	Display the data index.
Data name	Display the data name.
Device	Display the start device and the end device.
Access target CPU	Display the access target CPU.
Data type	Display the data type.
Size	Display the data size.
Scaling	Display the conversion equation for the scaling conversion.
Output Format	Display the output format (such as decimal format and exponential format).
Location of use	Display the location of data being used.
Total number of pieces of data	Display the total number of data used by each setting.
Total number of device points	Display the total device points for the data used by each setting.
[Close] button	Close the screen.

## No. (Index)

According to the data type, the data index is displayed in the format below.

Data type	Format <sup>*1</sup>
Logging data (data logging) Monitoring data (event logging) Current value data (report)	nnn
Additional data <sup>*2, *3</sup>	*nnn

\*1 n: An integer of 0 to 9. Cannot be omitted.

\*2 Data that are added by selecting "(Add)" from the list box and clicking the [...] button.

\*3 Data added in the Saved file name setting are only available for the Saved file name setting.

## Display in Location of use

The location where device data is used is displayed.

When the data is specified at more than one location, they are displayed with a delimiter ','.

A display example of the location of use is as follows:

**Ex.**

When D0 is specified for "Trigger", and D1 is specified for "Period of time" with the trigger logging setting

This is a list of data sampled on the current settings.

No.	Data name	Device		Access target CPU	Data type	Size	Scaling	Output Format	Location of use
		Head	Last						
001	Sensor Position	D0	D0	01:QCPU	Word[signed]			Decimal(digits:1)	Data,Trigger
002	Reel Speed	D1	D2	01:QCPU	FLOAT[single prec			Decimal(digits:6)	Data,Trigger(Setting a period of time)

# Device batch replacement

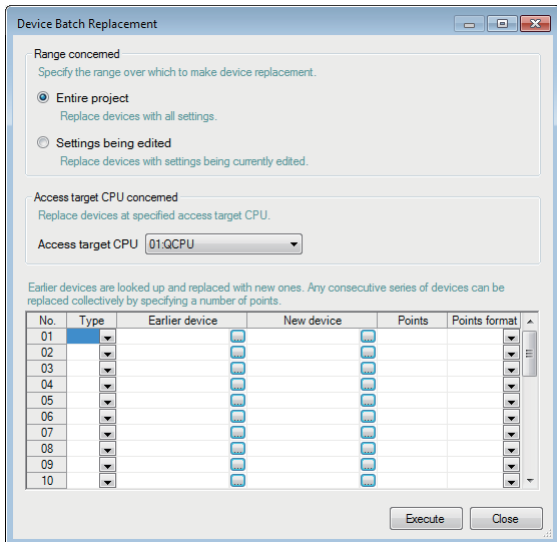
This function replaces devices used by Data logging setting, Event logging setting, and Report setting of Configuration tool in a batch.

However, device batch replacement cannot be executed when the tag of Rockwell is specified.

## Operating procedure

Select [Edit] ⇒ [Device Batch Replacement].

## Displayed items



Item		Description
Range concerned	Entire project	Select this to set the replacement target to the entire project.
	Settings being edited	Select this to set the replacement target to the settings being edited (data logging/report setting).
Access target CPU concerned		Specify the access target CPU of the devices to be replaced.
List of device to be replaced	Type	Select a device type from "Bit" or "Word". Once a device is changed, the row in the device list is cleared.
	Earlier device	Specify the start device of the replacement target. Click the [...] button to open the "Device Setting" screen. (Page 219 Device settings)
	New device	Specify the start device after replacement. Click the [...] button to open the "Device Setting" screen. (Page 219 Device settings)
	Points	Specify the number of device points for the replacement target.
	Points format	Select the specification format of points (DEC/HEX).
[Execute] button		Execute device batch replacement.
[Close] button		Close the screen.

# Data setting screen

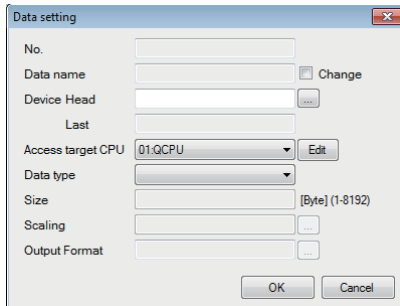
This screen is displayed when setting programmable controller CPU data.

This is a common screen displayed from various screens when setting programmable controller CPU data.

## Operating procedure

Select "(Add)" on the displayed "Data setting" screen and click the [...] button.

## Displayed items



Item	Description	Reference
No.	Display the index of data to be set.	—
Data name	"Change" checkbox Display or change the data name. (Up to 32 characters) Select this checkbox to specify the data name. When unselected, the start device is displayed.	—
Device	Head Set the start device. Click the [...] button to open the "Device Setting" screen.	Page 219 Device settings
	Last Update the end device display according to the data type and size.	—
Access target CPU	Select the access target CPU. The access target CPU can be added by selecting "(Add)" and clicking the [Edit] button.	Page 235 Access target CPU setting
Data type <sup>*1,*2</sup>	Select the data type.	—
Size	Display the size of the data in bytes. If the data type is "String" or "Raw", the size (1 to 8192) must be specified. For the saved file name setting, specify the size between 1 and 16. For the e-mail detailed setting and the e-mail notice setting, specify the size between 1 and 16.	—
Scaling	Set the equation to convert the data. Click the [...] button on the right of the input field and set on the displayed "Scaling" screen. For the saved file name setting, values after the decimal point are rounded off after the scaling conversion. If values after scaling exceed the value range of Double word [unsigned], they are rounded to within the range. For details on the numerical range of output values, refer to the following section. ☞ Page 87 Range of Values per Output Format	Page 266 Scaling
Output Format	Display the format (such as decimal format, exponential format) when outputting data to a file. To change the output format, click the [...] button on the right of the input field and change it on the displayed "Output format (integer/float)" screen. For the saved file name setting, change it on the "Output format" screen.	Page 267 Output Format
[OK] button	Reflect the settings and close the screen.	—
[Cancel] button	Discard the settings and closes the screen.	—

\*1 The usable ASCII characters in strings (☞ Page 592 ASCII characters) are the same as characters usable in file names and folder (directory) names (☞ Page 594 Characters usable in file names, folder (directory) names).

If a character other than usable characters are output to the saved file name, it is replaced with "\_" (underscore).

If there is a string terminator (0) halfway in the data, the data after it are replaced with "\_" (underscore).

\*2 For details on the device head that can be specified and the selectable data type, refer to the following section.

☞ Page 448 Settable Device Range

### Point

Depending on the settings of the screen calling up the "Data setting" screen, inputs and selections may be restricted.

# Device settings

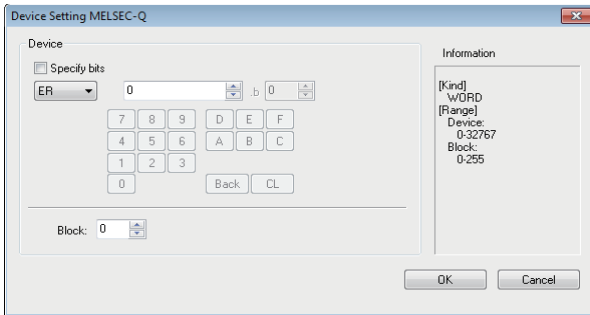
A device according to the controller type and data type can be selected.

## Operating procedure

At the device input area, click the [...] button at the right side of each cell.

## Displayed items

### ■ "Device Setting" screen



Item	Description	Default
Titlebar	Displays the controller type selected at the device input area. If nothing is selected, the default name is displayed.	Controller type: MELSEC-Q
"Specify bits" checkbox	Select this checkbox when specifying bit . The checkbox is invalid when a word device not accepting bit specification or a bit device not accepting word specification is used.	Unselected (If bit has been selected as the data type, the checkbox is already selected on this screen.)
Device name list box	Lists the name of devices <sup>*1</sup> that can be set. If nothing has been entered, the default name is displayed.	[Manufacturer is MITSUBISHI] Bit: X Word: D [Manufacturer is OMRON] Bit: .. Word: DM [Manufacturer is SIEMENS] • S7-200 (serial) Bit: I Word: NTRC0 • S7-300/400 (serial) Bit: I Word: DB1.0 • S7-200 (Ethernet), S7-300/400 (Ethernet), S7-1200 (Ethernet) Bit: V Word: DB1.0 [Manufacturer is Rockwell] Bit: NTRG0 Word: NTRC0
Device number spin box	Displays the device number entered at the device input area. If nothing has been entered, the default number is displayed. The device number is displayed in a format <sup>*1</sup> in accordance with the controller type and the device name.	Minimum value of device range
Bit position spin box	Displays a value when the data type is bit and the selected device type <sup>*1</sup> is word. Displays the bit position entered at the device input area. If nothing has been entered, the default number is displayed.	0
Device number input assistance button	Use these buttons to enter numeric values (OCT/DEC/HEX) in the device number spin box. The numeric value can be deleted one by one or all value can be deleted. A value is inserted at the cursor position in the device number area or in the bit position area.	—
Block spin box	Selectable only when ER is selected as the valid device. With the controller type without R block setting, the spin box does not appear.	—
Information edit box	Displays the currently selected device types and their ranges <sup>*1</sup> .	—
[Switch to the tag list dialog] button <sup>*2</sup>	Switches to the "Tag List" screen.	—
[OK] button	Settles the settings and closes this screen.	—

Item	Description	Default
[Cancel] button	Discards the settings and closes this screen.	—

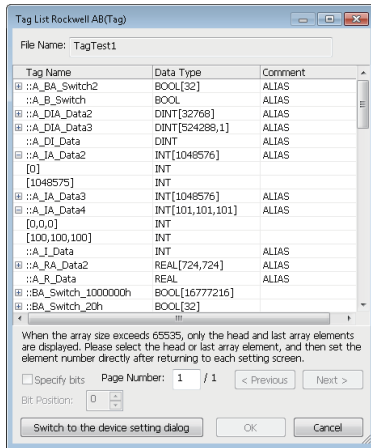
\*1 For the device names that can be set, device number range/format, device types, and device type and range in the information column, refer to the following sections.

☞ Page 448 Settable Device Range

\*2 Displayed when the controller type of the access target CPU is "Rockwell AB (Tag)".

## ■ "Tag List" screen

Displayed when a tag is being imported. (☞ Page 239 Tag import)



Item	Description	Default
File Name	Displays the file name (tag information CSV file name) when the tag displaying the tag list is imported.	—
Tag Name* <sup>1</sup>	Displays the tag name. Elements are displayed by clicking the [+] button when the tag name of array is displayed. (However, when the number of array exceeds 65535, only first [0] and last array number are displayed. Select the first or last element, and specify the element number directly after returning to each setting screen.	—
Data Type* <sup>1</sup>	Displays the data type of a tag.	—
Comment* <sup>1</sup>	Displays the tag comment.	—
"Specify bits" checkbox	The bit position can be specified when the tag name with the data type of "INT" or tag array element are selected. The checkbox is invalid when a tag not accepting bit specification other than INT is selected.	Unselected
Bit Position spin box	When the "Specify bits" checkbox is selected, a bit position can be specified.	0
Page Number	Displays the page number being displayed and the last page number. The page can be switched by entering a page number.	1
[Previous] button	Switches to the previous page.	—
[Next] button	Switches to the next page.	—
[Switch to the device setting dialog] button	Switches to the "Device Setting" screen.	—
[OK] button	Settles the settings and close this screen.	—
[Cancel] button	Discards the settings and close this screen.	—

\*1 The settings cannot be changed.

# 12.3 Project Management

## Creating a new project

This function creates a new project.  
The project being edited is discarded.

### Operating procedure

Select [Project] ⇒ [New].

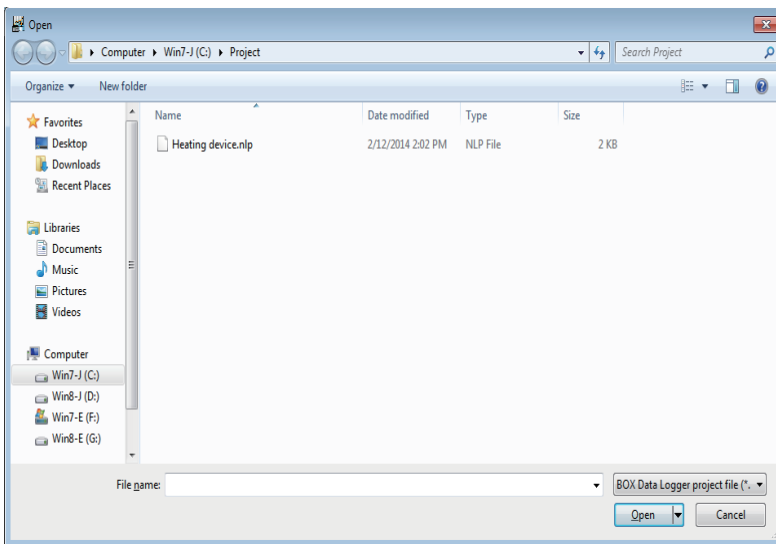
## Opening a project

This function reads a saved project.

### Operating procedure

1. Select [Project] ⇒ [Open].
2. On the displayed "Open" screen, specify the project file to be read and click the [Open] button.

### Displayed items



Item	Description
Look in	Select the folder where the project file is saved.
File name	Specify the name of the project file.
File of type	Select the type (.nlp) of project file.

# Saving a project

This function saves the settings being edited to a project file.

## Operating procedure

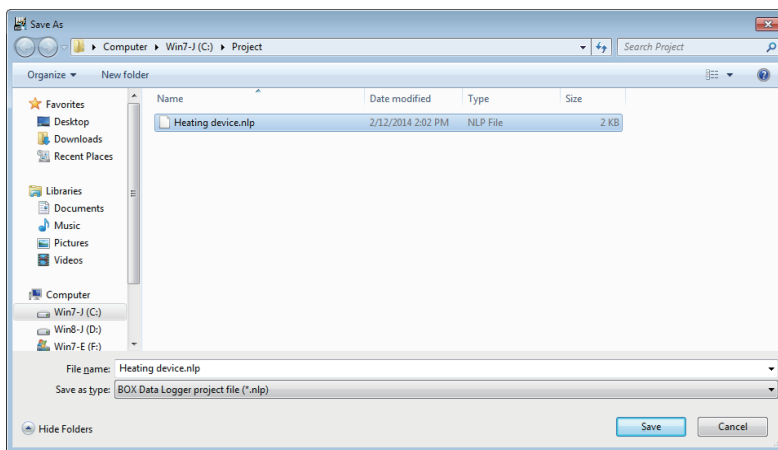
### ■ For overwrite save

Select [Project] ⇒ [Save].

### ■ For saving under a new file name

1. Select [Project] ⇒ [Save As].
2. On the displayed "Save As" screen, specify the save destination and file name, and click the [Save] button.

## Displayed items



Item	Description
Save in	Select the folder to save the project file.
File name	Specify the name of the project file to save.
Save as type	Select the type (.nlp) of project file to save.



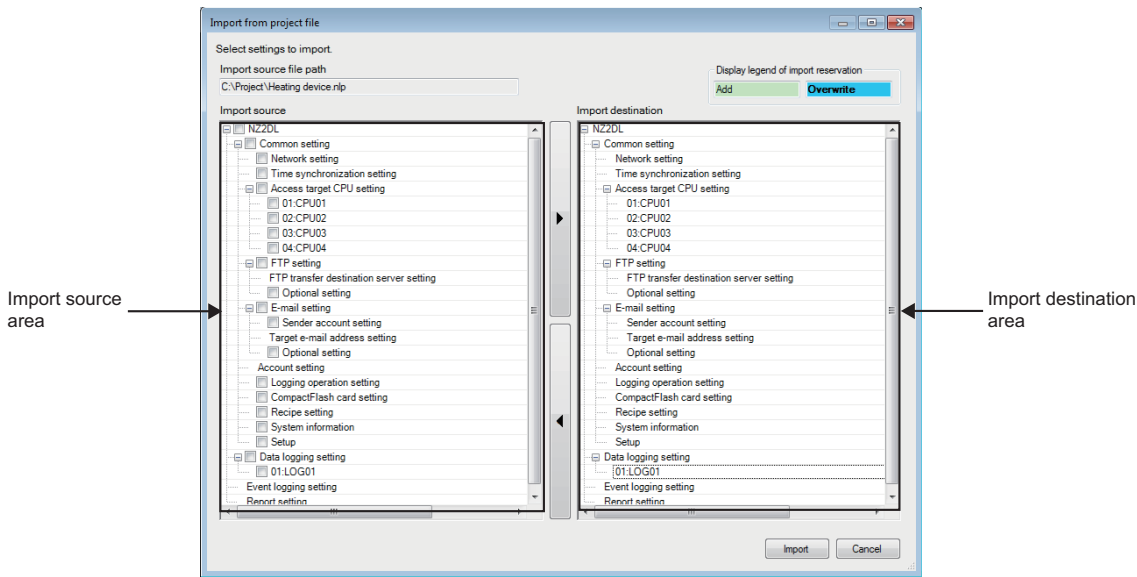
# Importing settings from project file

This function specifies any settings (Common setting, Data logging setting, Event logging setting, and Report setting) from a saved project and utilize them in the project being edited. This function can be used to utilize the respective settings of saved projects.

## Operating procedure

1. Select [Project] ⇒ [Import] ⇒ [Project File].
2. On the "Open" screen, specify the project file (.nlp) to be read and click the [Open] button.  
 ↳ Page 221 Opening a project
3. Select the settings to be imported from "Import source" on the "Import from project file" screen, and click [▶] in the center. (Click [◀] to cancel the import.)
4. Click the [Import] button to import the setting.

## Displayed items



Item	Description
Import source file path	Display the project file path of the import source.
Display legend of import reservation	Indicate the colors displayed in the import destination area for import reservation.
Import source area	Display a list of settings of the project file specified in "Import source file path".
[▶] button (Import reservation button)	Reserve the import of the settings selected in the import source area. (Import reservation) If the same setting name exists in the import destination area, it will be overwritten.*1
[◀] button (Import cancellation button)	Cancel the import reservation of the settings selected in the import destination area.
Import destination area	Display the project status after importing the settings.
[Import] button	Import the settings according to the status in "Import destination area". After the import completes, the import destination area shows the status of import completion, and the import reservation is canceled.
[Cancel] button	Discard the import reservation contents, and close the screen.

\*1 Access target CPUs are not included.

## When importing referenced settings

Some settings in BOX Data Logger have reference relationship.

Example)

- Data logging setting: Access target CPUs are referenced from data
- Event logging setting: FTP transfer destination server settings are referenced from the transfer settings of the "Save" screen.
- Report setting: Data logging settings are referenced from the layout settings

When a referenced setting is selected in the import source area, the settings related to the referenced setting are also selected.

To avoid importing the referenced settings, unselect the unfavorable checkbox.

## When the same name is assigned to multiple access target CPU settings

The same access target CPU names can be assigned to multiple settings in a single project. However, in such a case, the Import function cannot be performed.

When using the Import function, do not use the same access target CPU name in a project of the import source and import destination.

## When importing "FTP transfer destination server setting" of FTP setting

- FTP transfer destination server settings cannot be selected and imported individually.
- All settings are imported additionally when the total number of settings after the import is 16 or less.
- Only the referenced settings are imported additionally when the total number of settings after the import is 17 or more.
- Settings cannot be imported when only the referenced settings are imported and the total number of settings after the import is 17 or more.

## When importing "Access target CPU setting"

When the port type of the access target CPU setting for the import source and import destination is different, the settings cannot be imported.

# Exporting project to CSV file

This function exports the settings (Common setting, Data logging setting, Event logging setting, and Report setting) of a project being edited to a CSV file (setting information CSV file).

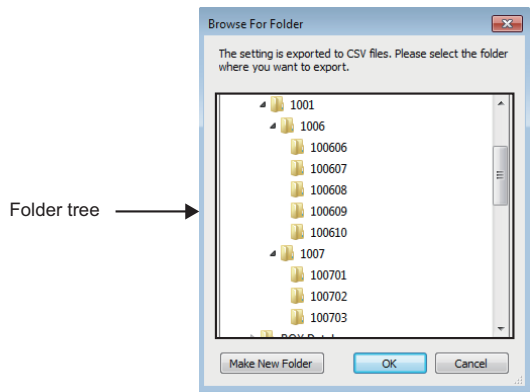
For details on the formats of a setting information CSV file, refer to the following section.

☞ Page 597 Setting Information CSV File Format

## Operating procedure

1. Select [Project] ⇒ [Export] ⇒ [CSV File].
2. On the "Browse For Folder" screen, specify the export destination, and click the [OK] button.

## Displayed items



Item	Description
Folder tree	Select a folder to which settings are exported.
[Make New Folder] button	Create a new folder in the directory displayed in the folder tree.
[OK] button	Export a CSV file to the selected folder, and close the screen.
[Cancel] button	Cancel the export, and close the screen.

## Exporting operating file

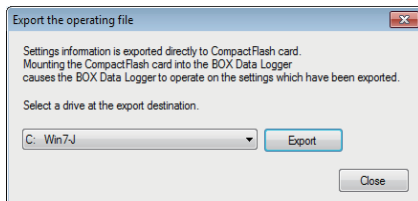
---

This function exports the project being edited in a format which allows data to be operated on BOX Data Logger. The project is exported to the CompactFlash card in a personal computer, and can be used on BOX Data Logger as it is.

### Operating procedure

1. Select [Project] ⇒ [Export] ⇒ [Operating File].
2. The following screen is displayed. Select a drive at the export destination, and click the [Export] button.

### Displayed items



### Point

The Auto logging function can be performed by exporting setting data with the Auto logging function set to be enabled, and inserting that CompactFlash card in BOX Data Logger.

☞ Page 248 Logging operation setting, ☞ Page 182 Auto Logging Function

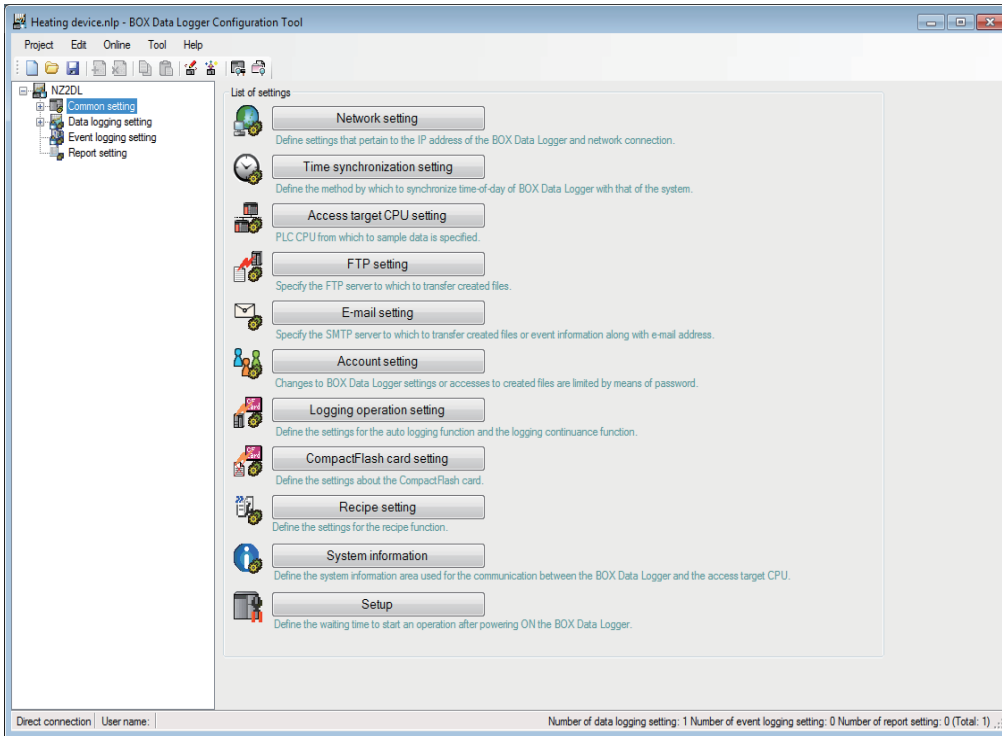
---

# 12.4 Common Setting


This section explains the initial settings in order to use BOX Data Logger.

Click "Common setting" on the edit items tree of Configuration tool to display the "Common setting" screen.

## Displayed items



Item	Description
Network setting	Configure the settings related to the IP address of BOX Data Logger and network connection.
Time synchronization setting	Set a method to synchronize the time of BOX Data Logger with the time of the system.
Access target CPU setting	Specify a programmable controller CPU from which data is sampled.
FTP setting	Specify the FTP servers for transferring created files.
E-mail setting	Specify the SMTP servers and e-mail addresses for sending created files and event information.
Account setting	Restrict changes of BOX Data Logger settings and access to created files by password.
Logging operation setting	Configure the settings related to the Auto logging function and the Logging continuance function.
CompactFlash card setting	Configure the settings related to a CompactFlash card.
Recipe setting	Set the start word device for the area used in the Recipe function.
System information	Set the start word device for the system information area.
Setup	Set the waiting time to start an operation after powering ON BOX Data Logger.

The existing common setting data can be utilized by importing a project file (  Page 223 Importing settings from project file). The time required to configure settings can be reduced by utilizing the existing settings.

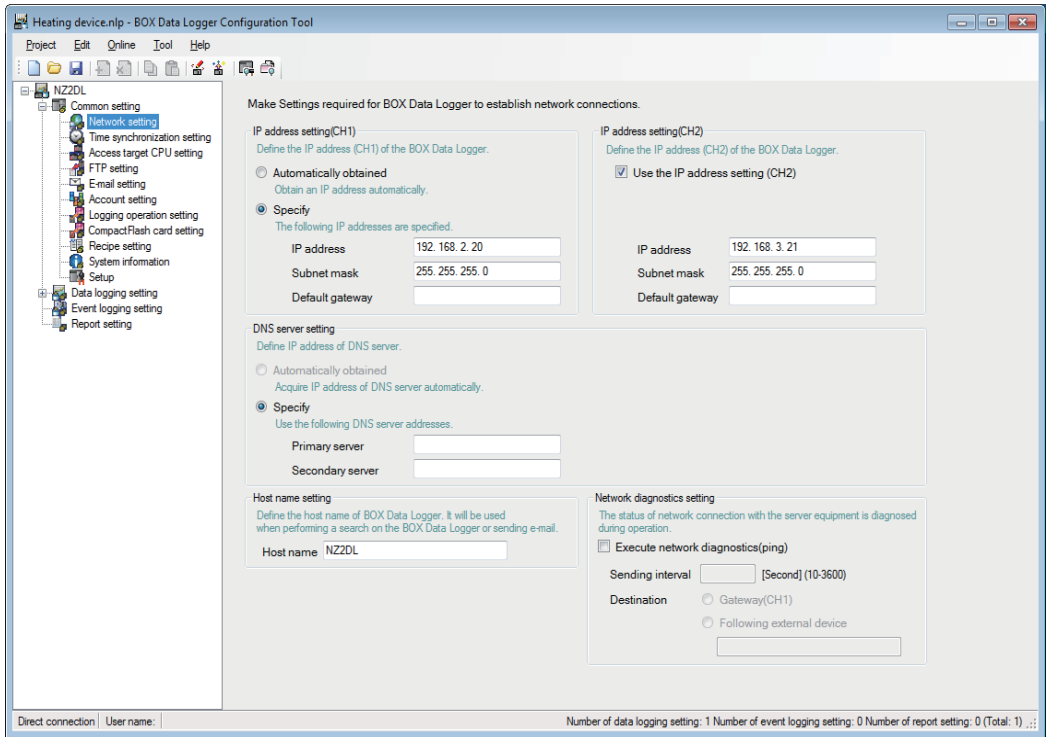
# Network setting

This section explains the settings necessary for BOX Data Logger network connection.

## Operating procedure

Click "Common setting" on the edit items tree of Configuration tool, then click the [Network setting] button.

## Displayed items



Item	Description
IP address setting (CH1)	Set the IP address for BOX Data Logger to be connected to a personal computer.
DNS server setting	Set the IP address of the DNS server.
Host name setting	Set the host name of BOX Data Logger. This is used for searching BOX Data Logger and sending e-mails.
Network diagnostics setting	Set whether the network diagnostics (ping) is executed or not. Network diagnostics is performed to diagnose the network connection status with the servers.
IP address setting (CH2)	Set the IP address

Any change in the Network setting is applied by powering OFF/ON BOX Data Logger or by updating the settings.

If the default gateway is set to the both of IP address setting (CH1) and IP address setting (CH2), an error message will appear and the Network setting screen will be displayed at screen transitions.

If the IP address setting (CH1) is set to "Automatically obtained" and the IP address setting (CH2) is set to be used with the default gateway setting, the default gateway set with the IP address setting (CH2) is always valid even if the default gateway of the IP address setting (CH1) is automatically obtained.

## IP address setting

Set the IP address necessary for BOX Data Logger network connection.

Item		Description	Default
IP address setting	—	Select the method for specifying the IP address of BOX Data Logger.	—
	Automatically obtained <sup>*1</sup>	Obtain the IP address automatically. (For CH1 only)	Specify
	Specify	Specify the IP address. (For CH1 only)	
	IP address <sup>*2, *3</sup>	Set the IP address of BOX Data Logger in decimal notation.	192.168.2.20
	Subnet mask	Set the subnet mask in decimal notation when used. Equipment on the same network must use the same subnet mask.	255.255.255.0
	Default gateway	Set the default gateway in decimal notation. For BOX Data Logger, the default gateway can be registered on only either CH1 or CH2. (Can be omitted if only accessing the same network.)	None

\*1 If "BOX Data Logger Ethernet Port" has been set from [Common setting] ⇒ [Access target CPU setting] ⇒ [Source Port], "Automatically obtained" cannot be set.

\*2 If CH1 "Automatically obtained" is selected, select "Use the IP address setting (CH2)" for the IP address setting (CH2) of the Network setting.

\*3 Set different values in the network address areas of the IP address for CH1 and CH2.

### Point

BOX Data Logger settings are saved on the CompactFlash card. Therefore, the IP address of BOX Data Logger returns to the initial status (CH1:192.168.2.20, CH2:192.168.3.21) when powering OFF/ON or resetting BOX Data Logger without a CompactFlash card in the module or without the settings written to the CompactFlash card. When replacing or formatting the CompactFlash card, read the current settings in advance, and promptly write those settings to the CompactFlash card after replacing or formatting it as necessary.

## DNS server setting

Set the IP address of the DNS server.

Item		Description	
DNS server setting	Automatically obtained	Select this to specify the IP address of the DNS server by automatically obtaining it.	
	Specify	Primary server	Set the IP address of the primary DNS server in decimal notation.*1
		Secondary server	Set the IP address of the secondary DNS server in decimal notation.*2

\*1 When obtaining an IP address from a domain name, the IP address is searched in order from the DNS server specified as the primary DNS server.

\*2 When obtaining an IP address from a domain name, if the IP address cannot be obtained from the primary DNS server, the IP address is searched from the DNS server specified as the secondary DNS server.

## Host name setting

Set the host name of BOX Data Logger.

Item	Description
Host name	Set the host name for BOX Data Logger (up to 32 characters). "\" cannot be set. This is used for searching BOX Data Logger or sending e-mail.

## Network diagnostics setting

Configure the network diagnostics (ping) settings to diagnose the network connection status with the servers.

Item		Description	
Execute network diagnostics (ping)	—	If this setting is enabled, a ping packet (1 packet) is transmitted regularly to execute the network diagnostics.*1 If enabled, set the transmission interval and destination.	
	Sending interval [Second] (10-3600)	Set the ping packet transmission interval.*2	
	Destination	—	Select the ping packet destination.
		Gateway	Select this to send a ping packet to the gateway.
		Following external device	Select this to send a ping packet to the specified target equipment. Specify the IP address or host name. (Up to 32 characters)

\*1 When there is no response from the destination within 5 seconds, it retries once. If there is still no response after that, the error occurs.

\*2 Set the transmission interval considering the load on the network.



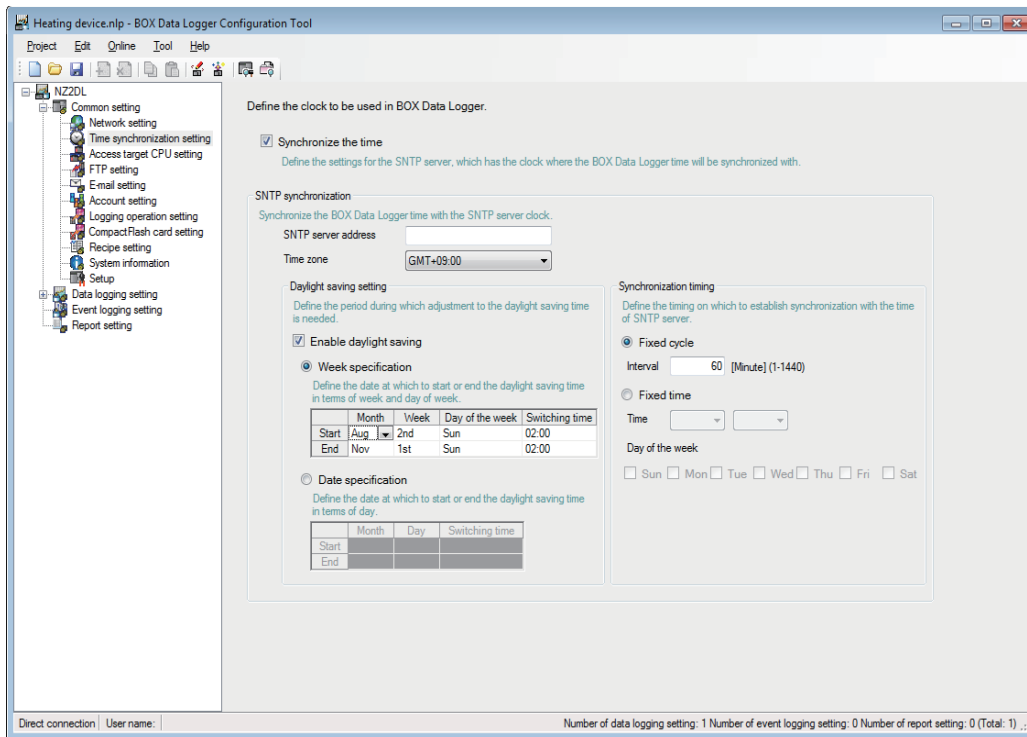
# Time synchronization setting

This section explains the settings for synchronizing the time used by BOX Data Logger to an SNTP server computer on the network.

## Operating procedure

Click "Common setting" on the edit items tree of Configuration tool, then click the [Time synchronization setting] button.

## Displayed items



Item	Description	Default	
Synchronize the time	When the time synchronization is not performed, the clock of BOX Data Logger is used.	Unselected	
SNTP synchronization	—	Synchronize BOX Data Logger clock with the SNTP server clock.	
	SNTP server address	Set the IP address of the SNTP server.	None
	Time zone	Select the area clock.	GMT+09:00
	Daylight saving setting	Configure the settings to use daylight saving time (summer time).	—
	Synchronization timing	Select the SNTP to be synchronized to.	—

## Daylight saving setting

Set the settings to use daylight saving time (summer time).

Item		Description
Enable daylight saving		Set whether to enable the daylight saving time. <sup>*1</sup>
Week specification	—	Set the date on which the daylight saving time starts and ends in terms of week and day of week.
	Start - Month	Set the month to start daylight saving time.
	Start - Week	Set the week to start daylight saving time.
	Start - Day of the week	Set the day of week to start daylight saving time.
	Start - Switching time	Set the time to start daylight saving time.
	End - Month	Set the month to end daylight saving time.
	End - Week	Set the week to end daylight saving time.
	End - Day of the week	Set the day of week to end daylight saving time.
	End - Switching time	Set the time to end daylight saving time.
Date specification	—	Set the date on which the daylight saving time starts and ends in terms of day.
	Start - Month	Set the month to start daylight saving time.
	Start - Day	Set the day to start daylight saving time.
	Start - Switching time	Set the time to start daylight saving time.
	End - Month	Set the month to end daylight saving time.
	End - Day	Set the day to end daylight saving time.
	End - Switching time	Set the time to end daylight saving time.

\*1 When the daylight saving time is enabled, the period of time from the specified start date/time to the end date/time is defined as daylight saving time, and the start time and end time during the period are moved forward 1 hour.

### Point

- Before or after the start time/end time of daylight saving time, the Data logging function, Event logging function, and Report function may not start with the time set as the condition.
- February 29 cannot be directly set. To specify February 29, select 'last day of February'.

## Synchronization timing

Set the timing to perform synchronization of the time used the BOX Data Logger.

Item	Description
Synchronization timing	Select a specification method for the timing to synchronize BOX Data Logger clock
Fixed cycle	Select this to synchronize time at the specified time interval (minutes).
Fixed time	Select this to synchronize time at the specified time.
Interval	Perform the time synchronization at the specified time interval (minutes) Set the interval for fixed cycle. (1 to 1440 minutes)
Time—Hours	Perform the time synchronization at the specified time Set the time (0 to 23 hours) for fixed time.
Time—Minutes	Perform the time synchronization at the specified time Set the time (0 to 59 minutes) for fixed time.
Day of the week	Select the checkbox for the day of the week when "Fixed time" is selected If no checkbox is selected, the time synchronization is performed every day of the week.

## Considerations for synchronization with SNTP

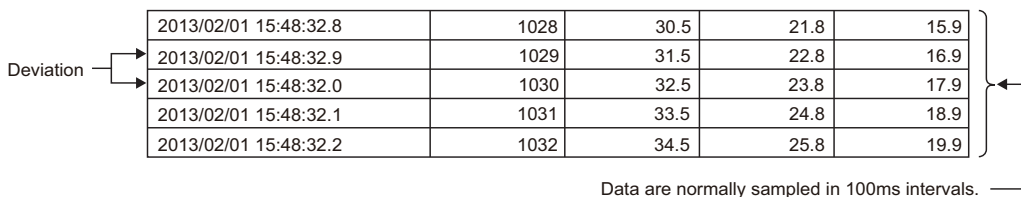
### ■When time is synchronized with the SNTP server

When synchronizing with the time of SNTP server, the time of BOX Data Logger is changed. Especially when the synchronization with the SNTP is succeeded after the communications with the SNTP server fails, the time BOX Data Logger may be greatly changed.

Since changing the BOX Data Logger's time affects the data logging, event logging, and report cycles, the determination of time, and the time stamp, configure the module to synchronize its time as little as possible.

- When the time of BOX Data Logger is set forward by time synchronization
  - Cycle determination: Sampling and condition satisfaction time may be shorter than the specified cycle.
  - Time determination: Conditions may be satisfied immediately after the time updates.
- When the time of BOX Data Logger is set back by time synchronization
  - Cycle determination: Sampling and condition satisfaction time may be longer than the specified cycle.
  - Time determination: Conditions have been satisfied may be satisfied again.
- Effect on time stamps
 

When the time is set, a deviation may possibly occur in the time information of the Data logging file, Event logging file, or Report file.



### ■When BOX Data Logger cannot obtain time information from the SNTP server computer

When BOX Data Logger cannot obtain time information from the SNTP server computer due to a network failure or time synchronization server failure, the module performs the operations as follows:

- When time information cannot be obtained when a programmable controller is powered OFF → ON, or when settings are updated
  - 1) The time of BOX Data Logger is used.
  - 2) Error code, 0B30H is output to the error log.
  - 3) A time query to the SNTP server is executed again one minute later.
  - 4) The operation 3) is repeated until the time query succeeds.
- When time information cannot be obtained
  - 1) The module continues to operate based on the time information when the time query succeeded.
  - 2) If the previous time query succeeded, the error code, 0B31H is output to the error log.
  - 3) The time query is executed at the next synchronization timing.

## How to write the time data to the CPU module after synchronizing with SNTP

The correct time data after synchronizing with SNTP can be written to a programmable controller CPU with the program shown below.

SNTP server clock is saved in the system information (system information (S2) + 3 to 6). The following example shows how to synchronize the saved clock using programmable controller programs (QCPU).

### Ex.

Start device number of BOX Data Logger system signal: D100

D100.b11: SNTP clock synchronization timing (Example: August 9, 2010, 12:30, Monday)

D103 [Time data set value (last two digits of the year, month)]: 1008H

D104 [Time data set value (day and hour)]: 0912H

D105 [Time data set value (minute-second)]: 0030H

D106 [Time data set value (first two digits of the year-day of the week)]: 2001H



In some communication conditions (due to data sampling from the programmable controller and recipe execution), transmission to the programmable controller may be delayed adding a few seconds to the actual time.

# Access target CPU setting

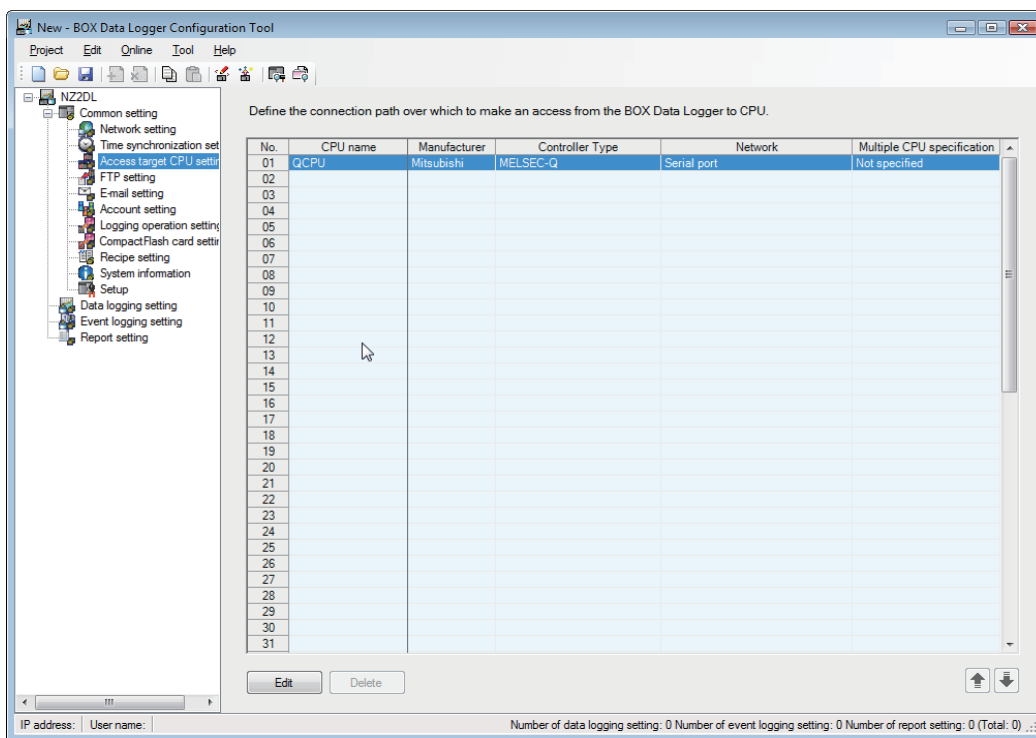
This section explains the settings for specifying the programmable controller CPUs which are the target of data sampling by BOX Data Logger.

Up to 64 access target CPUs can be configured.

## Operating procedure

Click "Common setting" on the edit items tree of Configuration tool, then click the [Access target CPU setting] button.

## Displayed items



Item	Description
CPU name	Display the access target CPU name.
Manufacturer	Display the name of manufacturer to be connected.
Controller Type	Display the controller type to be connected.
Network	Display the network information to access the CPU.
Multiple CPU specification	Display the unit number when the access target CPU is a multiple CPU. (MITSUBISHI only.)
[Edit] button	Display the setting screen to edit the selected "Access target CPU setting" screen.
[Delete] button	Delete the selected access target CPU setting. Multiple settings can be selected and deleted. (When No.01 is selected, the button is disabled.)
[↑] button	Shift the selected access target CPU setting to the row above. (No.01 cannot be moved.)
[↓] button	Shift the selected access target CPU setting to the row below. (No.01 cannot be moved.)

Display content in the Network column

In the Network column, setting contents are displayed in the following format.

[Communication source setting content]->[Communication target setting content]

● Communication source setting content

Serial port	Serial port
Ethernet port	Ethernet port

● Communication target setting content

CPU (Built-in Ethernet Port)	CPU (Built-in Ethernet port) ([IP address])
Ethernet module	Ethernet (IP:[IP address])
CPU (Built-in Ethernet Port) Ethernet module	Ethernet port (IP:[IP address])

**Point** 

When more than one access target CPUs are set, the Data logging, Event logging, and Report function may be affected if there is any CPU that does not exist as access target CPU or that cannot be communicated from BOX Data Logger temporarily due to power disconnection or network failure of the access target CPU. Use BOX Data Logger in the condition that it can be communicated with all CPUs set as the access target CPU.

### Access target CPU setting screen ([Manufacturer/Controller Type] tab)

Set the accessed CPU for the connection route setting from BOX Data Logger to the CPU, which will be accessed.

#### Operating procedure

Open the "Common setting" on the edit items tree, and open the "Access target CPU setting". Then, select the "CPU name", "Manufacturer" or "Controller type" on the access target CPU setting row to be edited, and click the [Edit] button. If the "Access target CPU setting" screen has been displayed, click the [Manufacturer/Controller Type] tab.

Item	Description	Default
Manufacturer	Select the name of manufacturer to be connected.	MITSUBISHI
Controller Type	Select the controller type to be connected.*1	MELSEC-Q
[Next] button	Move to the network route setting.	—
[Finish] button	Reflect the settings and close the screen.	—
[Cancel] button	Discard the settings and close the screen.	—

\*1 If the manufacturer or the controller type is changed while the access target CPU setting is being used by another setting, or a serial port is selected in the access target CPU setting No.01, an error message will appear. The change to the manufacturer-controller type is discarded.

### Access target CPU setting screen ([Source Port] tab)

If the "Manufacturer/Controller Type" is displayed on the "Access target CPU setting" screen, click the [Next] button.

If anything else is displayed on the "Access target CPU setting" screen, click "Source Port".

If the "Access target CPU setting" screen is not displayed, open the "Common setting" from the edit items tree, and then select the access target CPU setting row to be edited, and click the [Edit] button.

## "Access target CPU setting" screen ([Network] tab)

In the connection route setting from BOX Data Logger to the CPU to be accessed, set the network route.

### Operating procedure


While the "Access target CPU setting" screen of "Common setting" on the edit items tree of Configuration tool is displayed, click the [Network] tab.

Depending on the selected source ports, the display on the [Network] tab differs between the BOX Data Logger serial port and the BOX Data Logger Ethernet port.

#### ■[Network] tab... BOX Data Logger serial port

Item	Description	Default
Port type	Display the port type that can be used by BOX Data Logger.	Serial port (fixed)
Serial port setting	Configure the detailed settings for the serial port of BOX Data Logger to connect to the access target. For the access target CPU setting No.02 or later, the settings made by the No.01 is displayed in gray. (The access target CPU setting of No.01 is also used by the No.02 or later.)	Differs by the manufacturer and controller type.
Module type	Display the access target module type. For the access target CPU setting No.02 or later, the settings made by the No.01 is displayed in gray.	Differs by the manufacturer and controller type.
Module setting	Configure the access target system module settings.	Differs by the manufacturer and controller type.

#### ■[Network] tab... BOX Data Logger Ethernet port

Item	Description	Default (setting range)	
Access source system	Port type	Display the port type of BOX Data Logger. Whether the "Use the IP address setting (CH2)" of the network setting is selected or not in the Network setting affects the display. Selected: Ethernet port (CH1), Ethernet port (CH2) Not selected: Ethernet port (CH1)	—
	Ethernet port setting	Display the Ethernet port channels of BOX Data Logger. Whether the "Use the IP address setting (CH2)" of the network setting is selected or not in the Network setting affects the display. Selected: Ethernet port (CH1), Ethernet port (CH2) Not selected: Ethernet port (CH1)	—
	IP address	Display the IP address (CH1, CH2) of BOX Data Logger. Display the IP address set in the Network setting. Display "Automatically obtained" when it is set to be automatically obtained. If "Use the IP address setting (CH2)" is selected in the Network setting, the IP address of the IP address (CH2) is displayed.	—
	Port No.	Specify BOX Data Logger Ethernet communication port.	 Page 499 Network settings
	BOX Data Logger Station No.	Specify a station number of BOX Data Logger.	—
	Retry [Times]	Set the number of retries to be performed when a communication timeout occurs. When receiving no response after retries, the communication times out.	3 (3 to 5 times)
	Timeout Time [Sec]	Set the time period for a communication to time out.	<ul style="list-style-type: none"> <li>• MELSEC-FX: 6 (6 to 90 seconds)</li> <li>• Rockwell AB (Tag): 30 (3 to 30 seconds)</li> <li>• Other than above: 3 (3 to 90 seconds)</li> </ul>
	Delay Time[x10ms]	Set the delay time for reducing the load of the network/connection target programmable controller.	0 (0 to 10000)

Item		Description	Default (setting range)
Access target system	Module type	Set the module type of the access target CPU.	CPU (Built-in Ethernet Port)
	Module setting	Configure the access target system module settings.	—
	IP address* <sup>1</sup>	Specify the IP address of the access target system module.	192.168.3.39
	Port No.	Specify the port number of the access target system module. Set a unique port number for each controller type.	Page 499 Network settings
	Protocol	Specify the protocol of the access target system module.	Page 499 Network settings
	Network No.	Specify the network number of the access target system module.	—
	Station No.	Specify the station number of the access target system module.	—
	Connection No./ Rack No.	Specify the connection number/rack number of the access target system module.	Page 574 Network settings
	Module Position/Slot No.	Specify the module position/slot number of the access target system module.	Page 574 Network settings
Connection	Select UCMM (non-connection type) or Class3 (connection type) according to the target equipment.	Page 587 Network settings	
[Back] button		Return to the [Manufacturer/Controller type] tab.	—
[Next] button		Switch to the "Multiple CPU specification" screen.	—
[Finish] button		Reflect the settings and close the screen.	—
[Cancel] button		Discard the settings and close the screen.	—

\*1 When setting a different port number in a same controller type, set a different IP address.  
If a same IP address is set, the logging function and the Recipe function do not perform properly.

## "Access target CPU setting" screen ([Multiple CPU specification] tab)

In the connection route setting from BOX Data Logger to the CPU to be accessed, set the multiple CPU specification.

### Operating procedure

While the "Access target CPU setting" screen of "Common setting" on the edit items tree of Configuration tool is displayed, click the [Multiple CPU specification] tab.


Item	Description
Multiple CPU specification	Select the unit number when the access target CPU is a multiple CPU system.
[Back] button	Return to the [Network] tab.
[Next] button	Switch to the [Finish] tab.
[Cancel] button	Discard the settings and close the screen.

## "Access target CPU setting" screen ([Finish] tab)

Name the access target CPU and complete the Access target CPU setting.

### Operating procedure

While the "Access target CPU setting" screen of "Common setting" on the edit items tree of Configuration tool is displayed, click the [Finish] tab.

Item	Description
Name of access target CPU	Set the access target CPU name (Up to 32 characters).
[Tag import] button* <sup>1</sup>	Import tags.  Page 239 Tag import
[Back] button	Return to the [Multiple CPU specification] tab.
[Finish] button	Reflect the settings and close the screen.
[Cancel] button	Discard the settings and close the screen.

\*1 Displayed when the controller type is "Rockwell AB (Tag)".



## ■ Tag import

The tag set by the Rockwell software package (RSLogix5000 Ver.13 or later) is imported as a data. Create (export) tag files in CSV format.

### Operating procedure

1. Click the [Tag import] button in the [Finish] tab on the "Access target CPU setting" screen.
2. Click the [Browse] button to select a tag information CSV file to be imported.
3. Click the [Run] button to import the tag.

Up to 20480 tag names and aliases can be imported.

If any of the items other than the following valid values exist in the setting data (tag information CSV file), the data cannot be imported.

Data label	Valid value	Device setting (tag list)	Remarks
TYPE	ALIAS TAG	—	—
SCOPE	Controller (blank)	—	—
NAME	(Optional)* <sup>1</sup>	Tag name	—
DESCRIPTION	(Optional)	Comment	—
DATATYPE	■When TYPE is "TAG" BOOL INT DINT REAL Array types listed above* <sup>2</sup> ■When TYPE is "ALIAS" (Optional)	Data type	—
SPECIFIER	(Optional)* <sup>1</sup>	—	When an array number of a tag is specified to SPECIFIER, ALIAS is not imported.
ATTRIBUTES	RADIX:=(Optional)	—	—
	PLCMappingFile:=(Optional)	—	—
	ExternalAccess:=Read/Write	—	Attribute: External access Readable/writable
	ExternalAccess:=Read Only	—	Attribute: External access Read only
	Constant:=false	—	Attribute: Constant Non-constant

\*1 For the regulations on the tag name, refer to Rockwell programmable controller user's manual.

\*2 A valid array is up to three dimensions. However, the valid array for the BOOL type is only one dimension.

The range of the array subscripts for each dimension is as follows:

Dimension	Minimum value	Maximum value
One dimension	0	2147483647
Two dimensions	0	268435455
Three dimensions	0	262143

### Point

Export only tags necessary for BOX Data Logger with RSLogix5000.

When the number of tags increases, the pages of the "Tag List" screen also increase accordingly. (Page 220 "Tag List" screen)

### Precautions

When importing the tag of which the name, data type, and array size were changed after configuring each setting again, make sure to check the tag setting on each setting screen since the data set before importing is not changed. In particular, when changing the tag name, make sure to change it on the setting screen that the change was made.

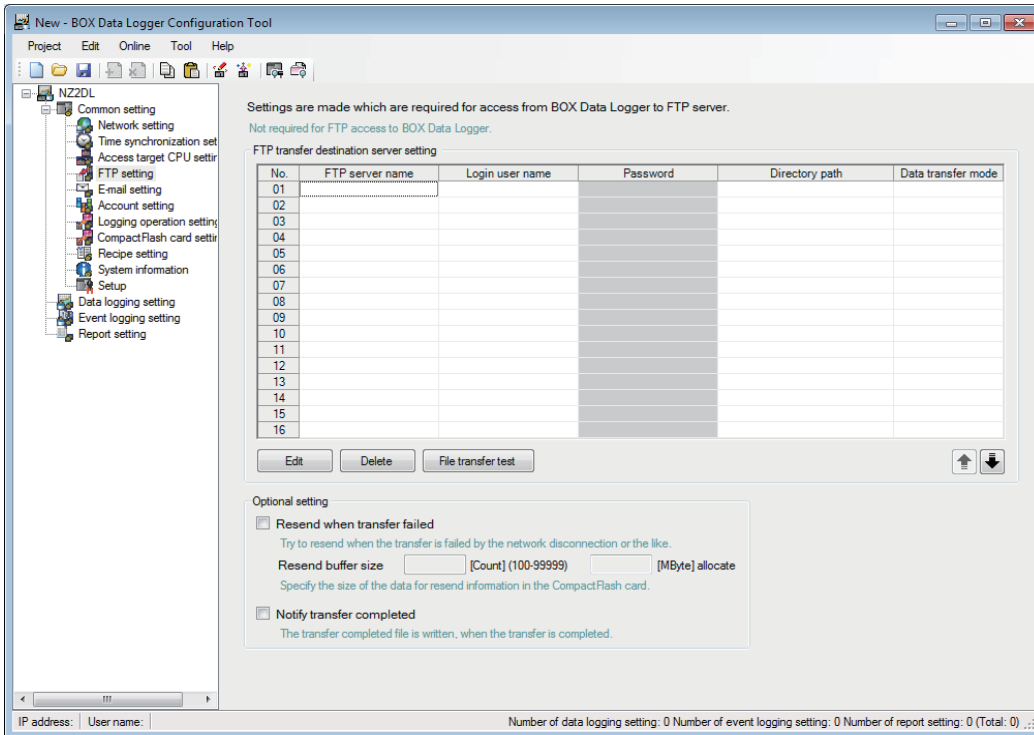
# FTP setting

This section explains the settings necessary for BOX Data Logger to access FTP servers.

## Operating procedure

Click "Common setting" on the edit items tree of Configuration tool, and then click the [FTP setting] button.

## Displayed items



Item	Description
FTP server name	Display the FTP server name of the file transfer destination.
Login user name	Display the account (user name).
Password	Display the login password for the FTP server.
Directory path	Display the directory path of the file transfer destination.
Data transfer mode	Display (Edit <sup>*1</sup> ) the FTP data transfer mode (PORT mode/PASV mode).
[Edit] button	Display the "FTP setting" screen to edit the selected FTP setting.
[Delete] button	Delete the selected FTP setting.
[File transfer test] button	Perform a file transfer test to the selected FTP server. <sup>*2</sup>
[↑] button	Shift the selected FTP setting to the row above.
[↓] button	Shift the selected FTP setting to the row below.
Optional setting	Set the options for the FTP transfer.

\*1 The setting is made from the "FTP setting" screen, but it can also be directly edited by double clicking (or pressing **F2** key) on the selected cell.

\*2 The results of the file transfer test are not reflected to the "FTP transfer diagnostics" screen.

## FTP setting screen

Item	Description
FTP server name	Set the FTP server name of the file transfer destination with the IP address or domain name (up to 64 characters). <sup>*1</sup>
Login user name	Set the login user name to the FTP server (up to 32 characters).
Login password	Set the login password for the FTP server (up to 16 characters).
Confirm login password	Set the login password again for verification (up to 16 characters).
Directory path	Set the file directory path of the file transfer destination (up to 64 characters). <sup>*2</sup>
Data transfer mode	Set the FTP data transfer mode as "PORT mode (normal)" or "PASV mode" <sup>*3</sup>
[OK] button	Reflect the settings and close the screen.
[Cancel] button	Discard the settings and close the screen.

\*1 When the SMTP server name is set with the domain name, the DNS server needs to be set in "DNS server setting" of the Network setting (☰ Page 228 Network setting).

\*2 Use '/' or '\' as the delimiter between directories.

\*3 Normally specify "PORT mode". Specify "PASV mode" when communications with the FTP server are only allowed in "PASV mode" by Windows firewall or other firewalls.

## Optional setting

Set options for the FTP transfer.

For the optional setting, the settings for resending when the FTP transfer failed and notification of the FTP transfer completion are available.

Item	Description	
Resend when transfer failed	—	Specify this to perform the resend process when the FTP transfer failed.
	Resend buffer size	The files to be resent are saved in the resend buffer of CompactFlash card until the resend is completed. Specify the maximum size to be reserved for resend buffer.
Notify transfer completed	Specify this to send a file indicating an FTP transfer completion to the FTP server.	

### ■ Buffer size

Calculate the resend buffer size using the following formula.

Usage area [MB] = (8 [KB] × Number of files) / 1024

- Based on the specified maximum size for resend buffer, spaces in the CompactFlash card are occupied according to the number of buffered data.
- Depending on the size of free space in the CompactFlash card, the specified size for resend buffer may not be reserved in the CompactFlash card.

### ■ Extension for transfer completion notification file

Transfer completion notification files are stored in the same folder as the transfer files with a different extension. The following table shows the extensions correspond to each file.

Extension of transfer file	Extension of transfer completion notification file
.BIN	.BTC
.CSV	.CTC
.XLS	.XTC

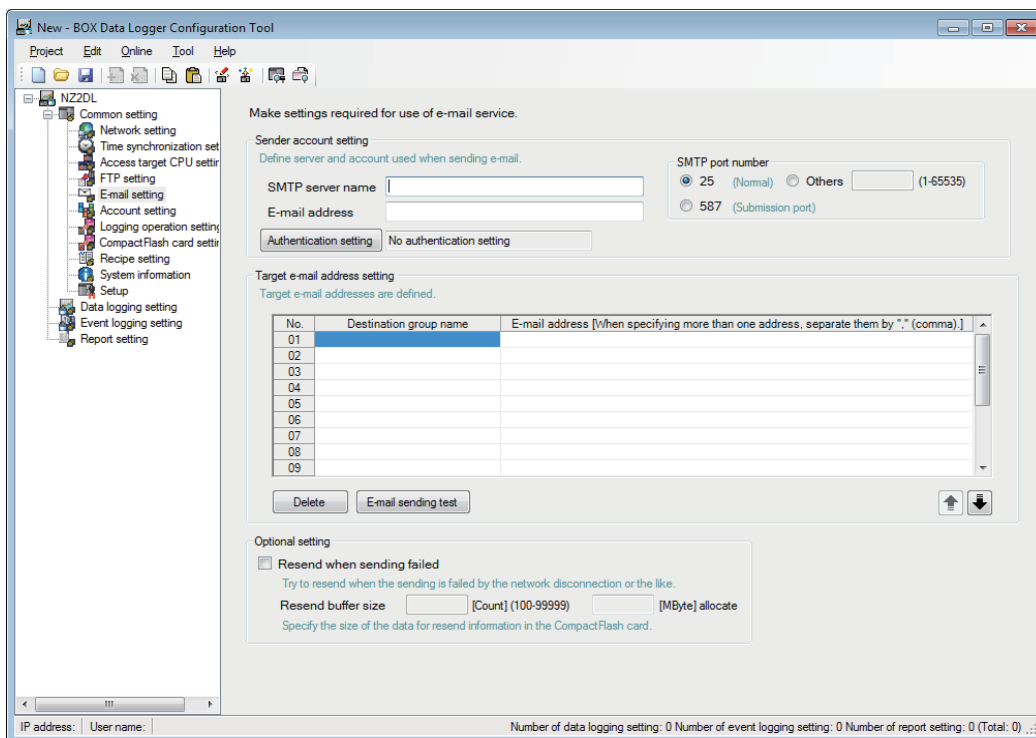
# E-mail setting

This section explains the settings of the mail servers and account that are used for sending e-mails.

## Operating procedure

Click "Common setting" on the edit items tree of Configuration tool, then click the [E-mail setting] button.

## Displayed items



Item	Description
Sender account setting	Set the account necessary for BOX Data Logger to send e-mail.
Target e-mail address setting	Set the destination e-mail addresses.
Optional setting	Set the options for sending e-mail.

## Sender account setting

Set the account necessary for BOX Data Logger to send e-mail.

Item	Description
SMTP server name	Set the SMTP server name with the IP address or domain name (up to 64 characters). <sup>*1</sup>
E-mail address	Set the e-mail address for BOX Data Logger (up to 64 characters).
SMTP port number	Specify the port number (1 to 65535) when accessing the SMTP server.
[Authentication setting] button	Display the "Authentication setting" screen to configure the authentication settings for sending e-mail.

\*1 When the SMTP server name is set with the domain name, the DNS server needs to be set in [DNS server setting] of the Network setting(Page 230 DNS server setting).

## Authentication setting screen

Item	Description
This server has authentication requirements which have to be met	Select this when authentication is required to send e-mail.
Method of authentication	Select the authentication method when sending e-mail. <sup>*1</sup>
User name	Set the mail server user name used for authentication when sending email (Up to 32 characters).
Password	Set the mail server password used for authentication when sending email (Up to 16 characters).
Confirm password	Enter the password again for verification.
POP server name	Set the POP server name (Up to 64 characters). <sup>*2</sup>
POP port number	Specify the port number (1 to 65535) when accessing the POP server. <sup>*2</sup>
[OK] button	Reflect the settings and close the screen.
[Cancel] button	Discard the settings and close the screen.

\*1 Select the authentication method when sending e-mail. Specify according to the mail server.

\*2 It is required when the authentication method is set to "POP before SMTP".

## Target e-mail address setting

Set the destination addresses to send e-mail from BOX Data Logger.

Item	Description
Destination group name	Set the group name for managing destinations as a group (up to 32 characters). <sup>*1</sup>
E-mail address	Set the destination e-mail addresses (up to 128 characters). <sup>*1</sup> When specifying multiple destinations, separate them with ',' (comma).
[Delete] button	Delete the selected destination e-mail address setting.
[E-mail sending test] button	Perform an e-mail transmission test to the selected destination group. <sup>*2</sup>
[↑] button	Shift the selected destination e-mail address setting to the row above.
[↓] button	Shift the selected destination e-mail address setting to the row below.

\*1 The content of the selected cell can be directly edited by double clicking (or pressing **F2** key) on the cell.

\*2 The results of the e-mail sending test are not reflected in the "e-mail send diagnostics" screen.

## Optional setting

Configure the resend setting when e-mail transmission failed.

Item		Description
Resend when sending failed	—	Specify this to perform the resend process when the e-mail transmission failed.
	Resend buffer size	The files to be resent are saved in the resend buffer of CompactFlash card until the resend is completed. Specify the maximum size to be reserved for resend buffer.

### ■Buffer size

Calculate the resend buffer size using the following formula.

Usage area [MB] = (8 [KB] × Number of files) / 1024

- Depending on the size of free space in the CompactFlash card, the specified size for resend buffer may not be reserved in the CompactFlash card.
- Based on the specified maximum size for resend buffer, spaces in the CompactFlash card are occupied according to the number of buffered data.

### ■Resend function

The SMTP server name needs to be set with the IP address when using the resend function.

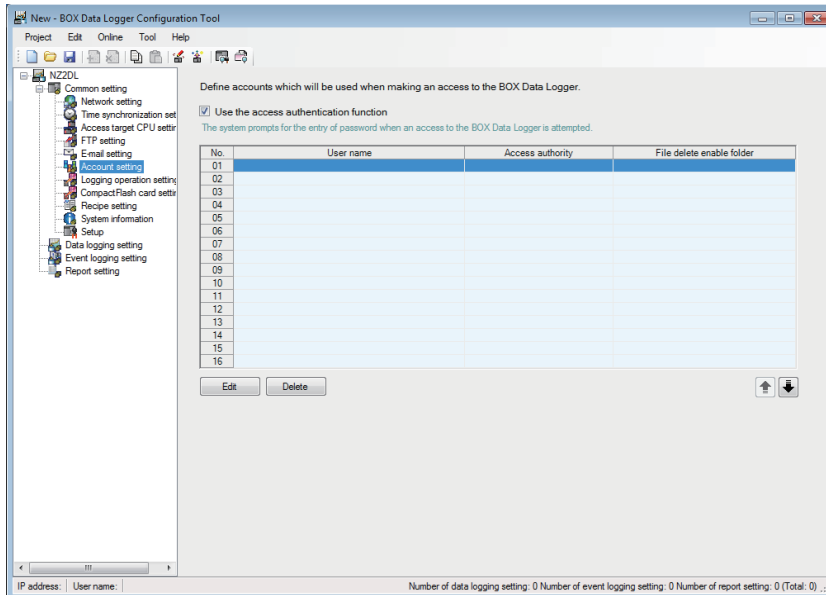
# Account setting

This section explains the settings of user authentication accounts used for accessing BOX Data Logger. Up to 16 account settings can be configured.

## Operating procedure

Click "Common setting" on the edit items tree of Configuration tool, and then click the [Account setting] button.

## Displayed items



Item	Description
Use the access authentication function	Select this to authenticate users accessing BOX Data Logger and restrict their access.*1
User name	Display the user name.*2
Access authority	Display any of Normal user, Maintenance user, or Administrator.
File delete enable folder	Display folders where file deletion is permitted.
[Edit] button	Display the setting screen to edit the selected account setting.*3
[Delete] button	Delete the selected account setting.
[↑] button	Shift the selected account setting to the row above.
[↓] button	Shift the selected account setting to the row below.

\*1 When using the access authentication function, configure one or more users with administrator's access authority.

\*2 Displayed user name is case-sensitive.

\*3 For details on the setting screen, refer to Page 245 Account setting screen.

## Account setting screen

Item	Description
User name	Set the user name (1 to 20 characters).*1
Password	Set the password (8 to 16 characters).*1
Confirm password	Enter the password again.
Access authority	—
	File delete enable folder
[OK] button	Reflect the settings and close the screen.
[Cancel] button	Discard the settings and close the screen.

\*1 User name is case-sensitive.

\*2 It can be selected when "Maintenance user" is selected for the access authority.

## Access authority

The following two tables show the access authority of the Administrator/ Maintenance user/Normal user.

### ■File access authority (when using file browser or FTP)

○:Authorized,△:Can be changed on the "account setting" screen,×:Not authorized

Operation	Directory	Access authority		
		Administrator	Maintenance user	Normal user
Write file (File browser: Transfer to BOX Data Logger)	/LOGGING	×	×	×
	/EVENT	×	×	×
	/REPORT	×	×	×
	/RECIPE	○	△ <sup>*1</sup>	×
	/SYSTEM	×	×	×
Read file (File browser: Save to PC)	/LOGGING	○	○	○
	/EVENT	○	○	○
	/REPORT	○	○	○
	/RECIPE	○	○	○
	/SYSTEM	×	×	×
Delete file (File browser: Delete)	/LOGGING	○	△ <sup>*1</sup>	×
	/EVENT	○	△ <sup>*1</sup>	×
	/REPORT	○	△ <sup>*1</sup>	×
	/RECIPE	○	△ <sup>*1</sup>	×
	/SYSTEM	×	×	×

\*1 Whether this access authority is enabled or disabled is set on the Page 245 Account setting screen.



## ■Access authority for Configuration tool operation

○:Authorized, ×:Not authorized

Item	Function	Access authority		
		Administrator	Maintenance user	Normal user
Access target CPU setting [Common setting]	Communication test	○	×	×
FTP setting [Common setting]	File transfer test	○	×	×
E-mail setting [Common setting]	E-mail sending test	○	×	×
BOX Data Logger diagnostics [Online] ⇨ [Diagnostics]	Current status acquisition	○	○	○
	Present error information	○	○	○
	Error history acquisition	○	○	○
	Error clear	○	×	×
	History clear	○	×	×
	Error history file clear	○	×	×
	Operation	○	×	×
	Time	○	○	○
	Time setting	○	×	×
CPU access diagnostics [Online] ⇨ [Diagnostics]	CPU access status acquisition	○	○	○
FTP transfer diagnostics [Online] ⇨ [Diagnostics]	FTP transfer status acquisition	○	○	○
	FTP resending buffering status acquisition	○	○	○
	FTP resending buffer clear	○	×	×
E-mail send diagnostics [Online] ⇨ [Diagnostics]	E-mail sending status acquisition	○	○	○
	E-mail resending buffering status acquisition	○	○	○
	E-mail resending buffer clear	○	×	×
Product information [Online] ⇨ [Diagnostics]	Product information acquisition	○	○	○
CompactFlash card diagnostics [Online] ⇨ [Diagnostics]	CompactFlash card operation	○	×	×
	CompactFlash card formatting	○	×	×
	CompactFlash card information acquisition	○	○	○
Data logging diagnostics [Online] ⇨ [Diagnostics]	Data logging operation status acquisition	○	○	○
Event logging diagnostics [Online] ⇨ [Diagnostics]	Event logging operation status acquisition	○	○	○
Report diagnostics [Online] ⇨ [Diagnostics]	Report operation status acquisition	○	○	○
Ping test [Online] ⇨ [Diagnostics]	Ping test	○	×	×
	Ping test result display	○	×	×
FTP file transferring test		○	×	×
E-mail sending test		○	×	×
Read [Online] ⇨ [Read]	Read of setting data	○	×	×
Write [Online] ⇨ [Write]	Write of setting data	○	×	×
Verify [Online] ⇨ [Verify]	Setting data verification	○	×	×
Recipe execution operation	File list acquisition	○	○	○
	Read	○	×	×
	Write	○	×	×
	Recipe execution history acquisition	○	○	○
	History file clear	○	×	×

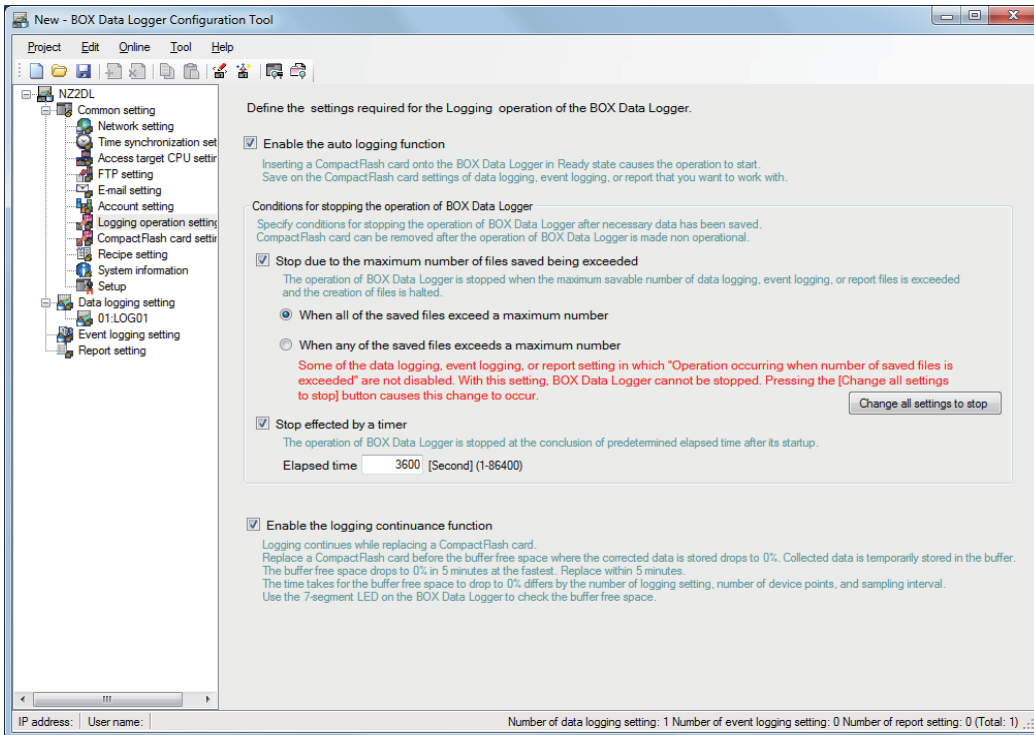
# Logging operation setting

This section explains the settings for the Auto logging function ( Page 182 Auto Logging Function) to start logging automatically when a CompactFlash card is inserted and stop logging after the specified time, and the Logging continuance function( Page 184 Logging Continuance Function).

## Operating procedure


Click "Common setting" on the edit items tree of Configuration tool, and then click the [Logging operation setting] button.

## Displayed items



Item	Description
Enable the Auto logging function <sup>*1</sup>	Select this to use the Auto logging function.

Item		Description	
Conditions for stopping the operation of BOX Data Logger	Stop due to the maximum number of files saved being exceeded	—	Select this to stop BOX Data Logger operation when the maximum number of data logging, event logging, or report saved files is exceeded.
		When all of the saved files exceed a maximum number	Select this to stop BOX Data Logger operation when the maximum number for all of the data logging, event logging, and report saved files is exceeded. In each "Save" setting for the Data logging, Event logging, and Report settings, set all "Operation occurring when number of saved files is exceeded" to "Stop".
		When any of the saved files exceeds a maximum number	Select this to stop BOX Data Logger operation when the maximum number of any of the data logging, event logging, and report saved files is exceeded. In each "Save" setting for the Data logging, Event logging, and Report setting, set one or more "Operation occurring when number of saved files is exceeded" to "Stop".
		Change all settings to stop	Click this to change "Operation occurring when number of saved files is exceeded" for all of the Data logging setting, Event logging setting, and Report setting to "Stop". This is displayed in the following cases. "When all of the saved files exceed a maximum number" is selected: When "Overwrite" is selected for "Operation occurring when number of saved files is exceeded" in any of settings of the Data logging, Event logging, or Report settings. "When any of the saved files exceeds a maximum number" is selected: When "Overwrite" is selected for "Operation occurring when number of saved files is exceeded" in all of the settings of the Data logging, Even logging, and Report settings.
	Stop effected by a timer	—	Select this to stop BOX Data Logger operation when the specified time elapses after BOX Data Logger operation starts.
Elapsed time		Specify the period of time until the module stops when "Stop effected by a timer" is specified.	
Enable the logging continuance function		Select this to use the Logging continuance function.	

\*1 By exporting the setting data(  Page 225 Exporting project to CSV file)with the Auto logging function set to be enabled to a CompactFlash card, logging data can be started without updating the settings when the CompactFlash card is replaced.

## Details on conditions for stopping the operation of module

### ■Stop due to the maximum number of files saved being exceeded

Specify this to stop BOX Data Logger operation when the maximum number of the data logging, event logging, or report saved files is exceeded and put BOX Data Logger in a state where the CompactFlash card can be ejected.

Select the stop condition from the following.

- When the maximum number of all data logging, event logging, and report saved files is exceeded
- When the maximum number of any of the data logging, event logging, or report saved files is exceeded

### ■Stop effected by a timer

Specify this to stop BOX Data Logger at a certain time passed after it starts operating and make the CompactFlash card free to be ejected.

The elapsed time can be set in seconds from 1 to 86400 seconds (24 hours).

When BOX Data Logger operation stops, unprocessed data are not logged.


#### Point

CF CARD LED turns OFF when the CompactFlash card is ready to be ejected.

If a CompactFlash card with the Auto logging function set to be enabled is inserted to BOX Data Logger in the logging continuous state, the Auto logging function does not start.

After inserting a CompactFlash card with the Network setting changed from its default to BOX Data Logger, which has been started without a CompactFlash card, reset BOX Data Logger.

To connect Configuration tool and GX LogViewer using the Auto logging function, follow the instructions below.

 Page 44 System configuration for initial setup, maintenance, and inspection

If the inserted CompactFlash card contains a change in the Network setting or the Access target CPU setting, reset BOX Data Logger. Thus, it may take time to start logging data.

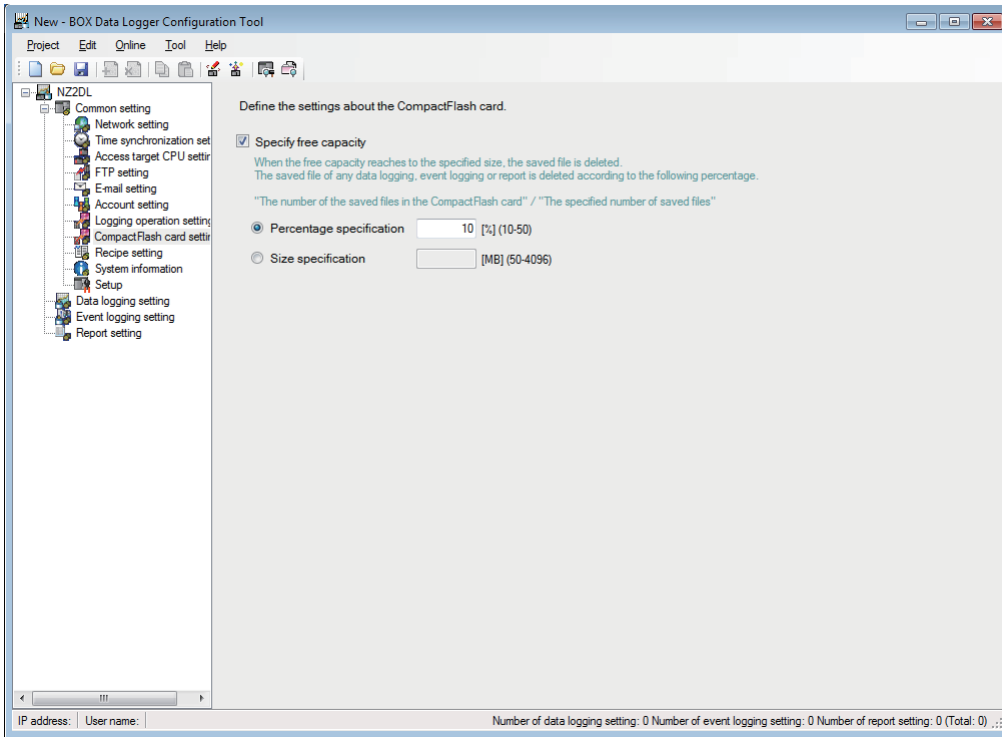
# CompactFlash card setting

This section explains the settings to delete old saved files automatically to ensure the free capacity in the CompactFlash card. Set the settings to prevent a logging stop due to the capacity shortage in the CompactFlash card.

## Operating procedure

Click "Common setting" on the edit items tree of Configuration tool, then click the [CompactFlash card setting] button.

## Displayed items



Item		Description
Specify free capacity	—	Select this to delete saved files in the CompactFlash card automatically.
	Percentage specification	Specify the free capacity of the CompactFlash card in a percentage (10 to 50 %) to delete files.
	Size specification* <sup>1</sup>	Specify the free capacity of the CompactFlash card in a size (50 to 4096 MB) to delete files.

\*<sup>1</sup> When the value specified in "Size specification" is greater than 50 percent of the total capacity of the CompactFlash card inserted in BOX Data Logger, the same operation is performed as when '50%' is specified in "Percentage specification".

### Ex.

When specifying '400 MB' in "Size specification" with a 512 MB CompactFlash card inserted, saved files are deleted when the free capacity of the CompactFlash card becomes 256 MB or less.

- The following processing is performed when the free capacity is specified in the CompactFlash card setting.
  - To check the free capacity of the CompactFlash card in 10-second periods.
  - To delete saved files of any of the data logging, event logging or report which takes the greatest share in the following rate.

(Number of saved files on the CompactFlash card)/(Specified number of saved files)

If the rates are the same, saved files of any of the data logging, event logging or report of which the specified number of saved files is the greatest are deleted. If the specified numbers of saved files are the same, the saved files of the data logging, event logging and report in that order from the smallest setting number are deleted.

- The objects of deletion are saved files created by the Data logging, Event logging or Report function operated on BOX Data Logger.

The files below are not the objects of deletion. When the total size of these files is larger than the specified size of free capacity, files are not deleted and the specified size of free capacity cannot be ensured. Storing file, Latest saved file, Saved files of the data logging/event logging/report whose "Operation occurring when number of saved files is exceeded" setting is set to 'Stop', Saved files created by the data logging, event logging or report function not registered on BOX Data Logger

**Ex.**

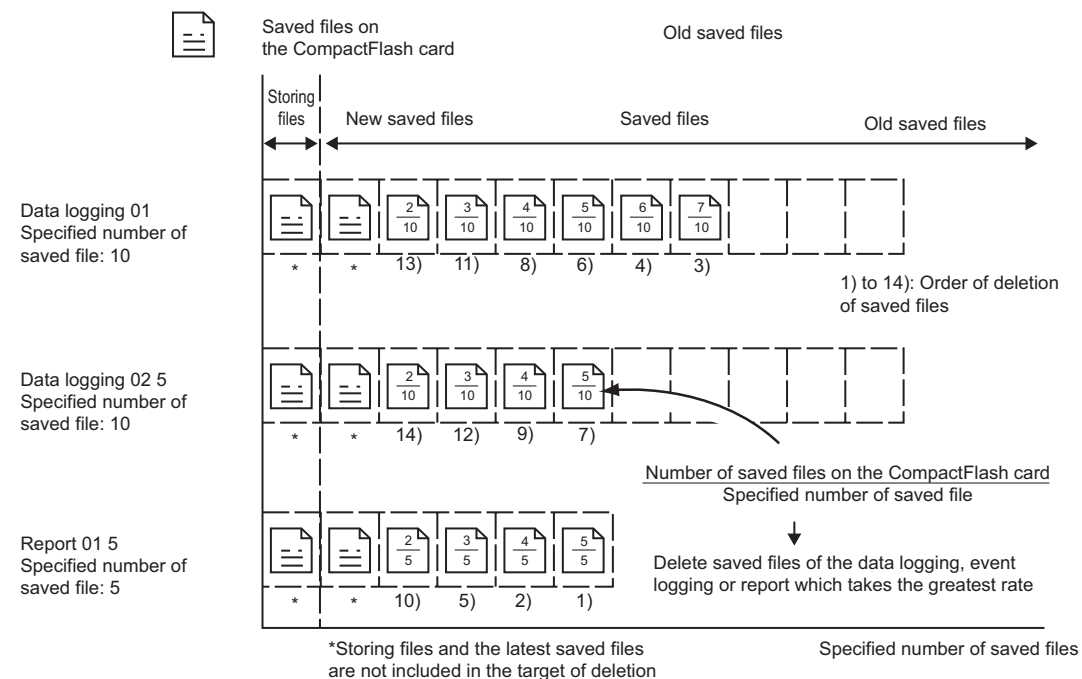
Order of deletion of saved files under the free capacity setting

Under the settings described in 1), saved files are deleted in the order shown in 2).

1) Setting example and number of saved files on CompactFlash card

Setting	Specified number of saved files	Number of saved files on the CompactFlash card
Data logging 01	10	7
Data logging 02	10	5
Report 01	5	5

2) Saved file deletion order based on setting example



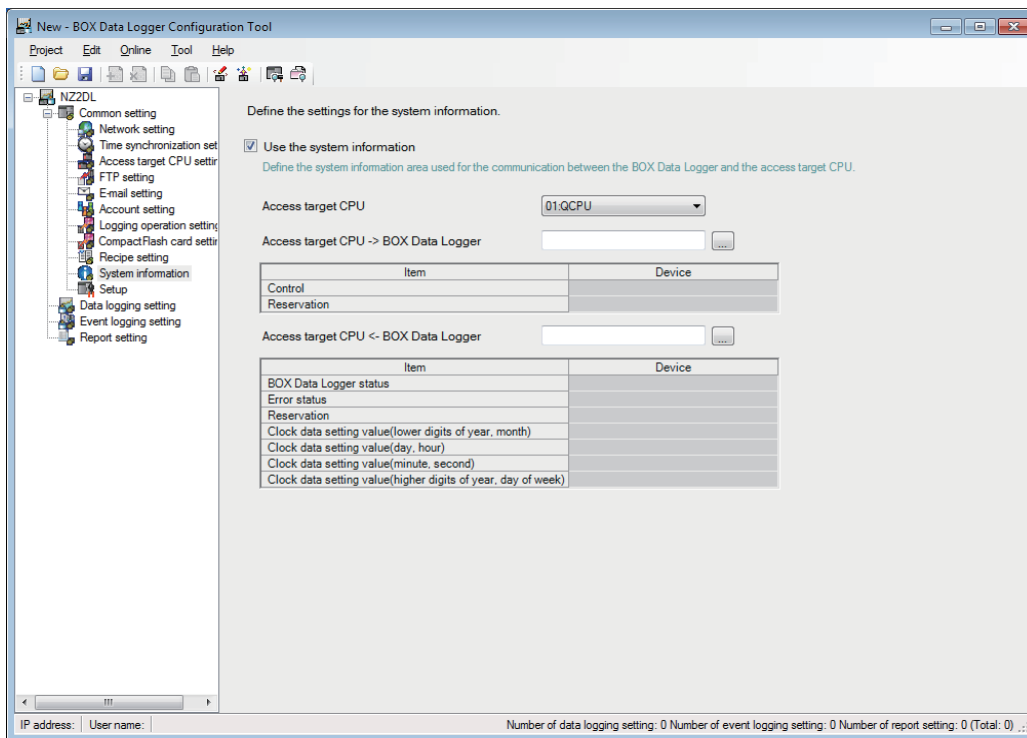
# System information

This section explains the settings to set the start word device in the system area, which is used for the communication between BOX Data Logger and a programmable controller.

## Operating procedure

Open the "Common setting" on the edit items tree, then select "System information".

## Displayed items



Item	Description	Default	
Use the system information	Select this to use the system information.	Unchecked	
Access target CPU	Select the name of access target CPU with which the system information is communicated.	Not selected	
Access target CPU → BOX Data Logger*1,*2	—	Enter the start word device to be transferred from access target CPU to BOX Data Logger. Click the [...] button to open the "Device Setting" screen. (Page 219 Device settings)	Not selected
	Control	Control BOX Data Logger from the access target CPU.	—
	Reservation	Do not use	—
Access target CPU ← BOX Data Logger*1,*2	—	Enter the start word device to be transferred from BOX Data Logger to access target CPU. Click the [...] button to open the "Device Setting" screen. (Page 219 Device settings)	Not selected
	BOX Data Logger status	Write the system condition of BOX Data Logger to the access target CPU devices.	
	Error status	Write the error status of BOX Data Logger to the devices of the access target CPU.	
	Reservation	Do not use	
	Clock data setting value (lower digits of year, month)	Write the lower digits of year and month of the clock to the access target CPU devices at SNTP synchronization.	
	Clock data setting value (day, hour)	Write the date and hour of the clock to the access target CPU devices at SNTP synchronization.	
	Clock data setting value (minute, second)	Write the minute and second of the clock to the access target CPU devices at SNTP synchronization.	
Clock data setting value (high digits of year, day of week)	Write the high digits of year and day of the week of the clock to the access target CPU devices at SNTP synchronization.		

- \*1 If the devices are overlapped with the Recipe setting, an error message will appear and the processing will be stopped.
- \*2 When the controller type of the access target CPU is "Rockwell AB (Tag)", specify the head of control data by the imported tag name (array of INT (ARRAY)). (Page 239 Tag import)  
The head of control data can be specified from the start or middle of the array. However, it cannot be specified by crossing the dimensions of array or including an invalid element.

**Point** 

Even after ejecting the CompactFlash card, in which "Use the system information" has been selected, from BOX Data Logger, communication can be continued with the system information. BOX Data Logger settings are saved in a CompactFlash card. Therefore, powering ON/OFF BOX Data Logger, without any CompactFlash card inserted or without any CompactFlash setting written, BOX Data Logger's system information returns to its initial status (system information is not used) and the communication with the system information is unavailable. When replacing or formatting the CompactFlash card, read the current setting in advance, and promptly write those settings to the CompactFlash card after replacing or formatting it as necessary.

**Access target CPU → BOX Data Logger**

Write the control information of BOX Data Logger from the access target CPU to BOX Data Logger.

- (S1): Start word device (control)
- (S2): Start word device (BOX Data Logger status)

**Ex.**

When D100 is used

Device		Item	Name of signal	Signal content
(S1) + 0 (D100)	Bit0	Control	Error clear request ON: Error clear request OFF:—	If turned ON when BOX Data Logger error has occurred, the following are performed. • ERR.LED is turned OFF • (S2) + 1 Bit0, (S2) + 1 Bit2 to (S2) + 1 Bit4, (S2) + 1 Bit6 to (S2) + 1 Bit9 are turned OFF. • Most recent error code is cleared
	Bit1 to 15		Do not use	
(S1) + 1 (D101)	Bit0 to 15	Reservation	Do not use	—

**Point** 

The output signal is enabled when turning OFF to ON.  
In addition, since the system does not turn the output signal ON to OFF, turn ON → OFF, and then OFF → ON to perform again.

## Access target CPU ← BOX Data Logger

Write the information of BOX Data Logger to the access target CPU.

**Ex.**

When D106 is used

Device	Item	Name of signal	Signal content
(S2) + 0 (D106)	Bit0	BOX Data Logger READY [ON: BOX Data Logger is prepared, OFF: —]	Turns ON when BOX Data Logger is powered OFF → ON and when BOX Data Logger becomes ready.
	Bit1	CompactFlash card status [ON: Inserted, OFF: Not inserted]	<ul style="list-style-type: none"> <li>• Turns ON when a CompactFlash card has been inserted and when the access state ((S2) + 0 bit2) is OFF.</li> <li>• Turns OFF when no CompactFlash card has been inserted or when the access state ((S2) + 0 bit2) is ON.</li> </ul>
	Bit2	File access status [ON: Stopped, OFF: Running]	<ul style="list-style-type: none"> <li>• Turns ON while file access is being stopped.</li> </ul> <p>The following operations are available while file access is being stopped.</p> <ul style="list-style-type: none"> <li>· Inserting/ejecting a CompactFlash card.</li> </ul> <p>While file access is being stopped, BOX Data Logger has the following status.</p> <ul style="list-style-type: none"> <li>· Reading from or writing to the CompactFlash card is stopped.</li> </ul> <p>The file access can be stopped by the following operations.</p> <ul style="list-style-type: none"> <li>· Press the BOX Data Logger's CF CARD ACCESS OFF switch for 1.5 seconds.</li> <li>· Execute the access stop on the [CompactFlash card diagnostics] tab on the "Diagnostics" screen.</li> </ul> <ul style="list-style-type: none"> <li>• Turns OFF during file access operation.</li> </ul>
	Bit3	Do not use	—
	Bit4	Network connection status [ON: Connected, OFF: Not connected]	Turns ON when BOX Data Logger becomes ready after BOX Data Logger is powered OFF → ON, or BOX Data Logger is reset.
	Bit5	BOX Data Logger operating status [ON: Running, OFF: Stopped]	<ul style="list-style-type: none"> <li>• Turns ON while the Data logging function, Event logging function, and Report function are operating.</li> <li>• Turns OFF while the Data logging function, Event logging function, and Report function are stopped.</li> <li>• The following shows how to cancel the stopped state.</li> </ul> <p>When BOX Data Logger operation has been stopped using Configuration tool<sup>*1</sup>:</p> <p>Use Configuration tool to restart BOX Data Logger operation.</p> <p>When BOX Data Logger does not contain any setting:</p> <ul style="list-style-type: none"> <li>· Use Configuration tool to write the settings to BOX Data Logger.</li> <li>· Update the settings.</li> </ul> <p>When BOX Data Logger stops by an error<sup>*1</sup>:</p> <ul style="list-style-type: none"> <li>· Refer to the troubleshooting and take a corrective action.</li> <li>· Use Configuration tool or the error clear request ((S1) + 0 bit0) to clear the error.</li> <li>· Use Configuration tool to update the settings.</li> </ul> <p>When the file state is in the stopped status ((S2) + 0 bit2 is ON):</p> <p>Use Configuration tool to restart BOX Data Logger operation or update the settings.</p>
	Bit6	Battery alarm [ON: alarm occurring, OFF: normal]	<ul style="list-style-type: none"> <li>• Turns ON when the battery capacity drops low.</li> <li>• Turns OFF when the battery is restored (replaced).</li> </ul>
	Bit7	Internal cycle bit Reverses in 1 second cycle.	Reverses in 1 second cycle.
	Bit 8 to 10	Do not use	—
	Bit11	SNTP time synchronization timing [ON: Synchronizing complete, OFF:—]	<ul style="list-style-type: none"> <li>• Turns ON after the time synchronization is succeed, and the time is stored in the time data set value ((S2) + 3 to 5) when 'SNTP synchronization' is performed in "Time synchronization setting".</li> <li>• While the (S2) + 0 bit11 is ON, reads the time data from the time synchronization result.</li> <li>• Turns OFF 1 second after the (S2) + 0 bit11 turns ON.</li> </ul>
	Bit12 to 15	Do not use	—



Device	Item	Name of signal	Signal content
(S2) + 1 (D107)	Bit0	Error status ERR.LED status [ON: Illuminated/flashing, OFF: Off]	<ul style="list-style-type: none"> <li>The ON state of ERR.LED means that BOX Data Logger continue error is occurring, and the flashing state means that BOX Data Logger stop error is occurring.</li> <li>Turns OFF when ERR. LED is turned OFF by turning ON error clear request ((S1) + 0 Bit0) while ERR. LED is ON. (However, this is not possible while ERR. LED is flashing.)</li> <li>While ERR. LED is ON or flashing (when (S2) + 1 Bit0 is ON), any (or more than one) of (S2) + 1 Bit2 to (S2) + 1 Bit4,(S2) + 1 Bit6 to(S2) + 1 Bit9 turn ON.</li> </ul>
	Bit1	Do not use	—
	Bit2	Data logging error [ON: Error, OFF: Normal]	<ul style="list-style-type: none"> <li>When this device is ON, the error code is stored in the data logging status area.</li> <li>Refer to the troubleshooting and take corrective action.</li> <li>Turns OFF when the error clear request ((S1) + 0 Bit0) is turned ON.</li> </ul>
	Bit3	Event logging error [ON: Error, OFF: Normal]	<ul style="list-style-type: none"> <li>When this device is ON, the error code is stored in the event logging status area.</li> <li>Refer to the troubleshooting and take corrective action.</li> <li>Turns OFF when the error clear request ((S1) + 0 Bit0) is turned ON.</li> </ul>
	Bit4	Report creation error [ON: Error, OFF: Normal]	<ul style="list-style-type: none"> <li>When this device is ON, the error code is stored in the report creation status area.</li> <li>Refer to the troubleshooting and take corrective action.</li> <li>Turns OFF when the error clear request ((S1) + 0 Bit0) is turned ON.</li> </ul>
	Bit5	Do not use	—
	Bit6	Access target CPU error [ON: Error, OFF: Normal]	<ul style="list-style-type: none"> <li>Turns ON when communication error with the access target CPU occurs.</li> <li>When this device is ON, the error code is stored in the access target CPU setting status area.</li> <li>Refer to the troubleshooting and take corrective action.</li> <li>Turns OFF when the error clear request ((S1) + 0 Bit0) is turned ON.</li> </ul>
	Bit7	E-mail transmission error [ON: Error, OFF: Normal]	<ul style="list-style-type: none"> <li>When this device is ON, the error code is stored in the e-mail transmission status area.</li> <li>Refer to the troubleshooting and take corrective action.</li> <li>Turns OFF when the error clear request ((S1) + 0 Bit0) is turned ON.</li> </ul>
	Bit8	FTP transfer error [ON: Error, OFF: Normal]	<ul style="list-style-type: none"> <li>When this device is ON, the error code is stored in the FTP client status (PUT) area.</li> <li>Refer to the troubleshooting and take corrective action.</li> <li>Turns OFF when the error clear request ((S1) + 0 Bit0) is turned ON.</li> </ul>
	Bit9	Other errors [ON: Error, OFF: Normal]	<ul style="list-style-type: none"> <li>Turns ON when an error not corresponding to (S2) + 1 Bit2 to (S2) + 1 Bit4,(S2) + 1 Bit6 to (S2) + 1 Bit8 occurs.</li> <li>When this device is ON, the error code is stored in the error log area.</li> <li>Refer to the troubleshooting and take corrective action.</li> <li>Turns OFF when the error clear request ((S1) + 0 Bit0) is turned ON. (Only When BOX Data Logger continue error occurs.)</li> </ul>
	Bit10	Do not use	—
	Bit11	Processing overload occurrence [ON: Occurred, OFF: No occurrence]	<ul style="list-style-type: none"> <li>Turns ON when a processing overload occurs in the Data logging, Event logging, or Report function.</li> <li>Turns OFF by updating the settings.</li> </ul>
	Bit12	Trigger reoccurrence [ON: Occurred, OFF: No occurrence]	<ul style="list-style-type: none"> <li>Turns ON when a creation trigger reoccurs in the Data logging function.</li> <li>Turns OFF by updating the settings.</li> </ul>
	Bit13	Creation trigger reoccurrence [ON: Occurred, OFF: No occurrence]	<ul style="list-style-type: none"> <li>Turns ON when a creation trigger reoccurs in the Report function.</li> <li>Turns OFF by updating the settings.</li> </ul>
	Bit14 <sup>2</sup>	Data sampling delay occurrence [ON: Occurred, OFF: No occurrence]	<ul style="list-style-type: none"> <li>Turns ON when sampling delay occurs in the Data logging, Event logging, or Report function.</li> <li>Turns OFF by any of the following. <ul style="list-style-type: none"> <li>Updating the settings.</li> <li>Updating the settings after shortening the constant scan of the programmable controller, and rewriting the data of programmable controller CPU.</li> </ul> </li> </ul>
Bit15	Do not use	—	
(S2) + 2 (D108)	Bit0 to 15	Reservation	Reservation

Device		Item	Name of signal	Signal content
(S2) + 3 (D109)	Bit0 to 7	Time data set value (Year and Month)	Time (Month)	The month of the SNTP synchronized clock is saved.
	Bit8 to 15		Time (last two digits of the year)	The last two digits of the year of the SNTP synchronized clock are saved.
(S2) + 4 (D110)	Bit0 to 7	Time data set value (Day and Hour)	Time (Hour)	The hour of the SNTP synchronized clock is saved.
	Bit8 to 15		Time (Day)	The day of the SNTP synchronized clock is saved.
(S2) + 5 (D111)	Bit0 to 7	Time data set value (Minute and Second)	Time (Second)	The second of the SNTP synchronized clock is saved.
	Bit8 to 15		Time (Minute)	The minute of the SNTP synchronized clock is saved.
(S2) + 6 (D112)	Bit0 to 7	Time data set value (Day of the week)	Time (Day of the week)	The day of the week of the SNTP synchronized clock is saved.
	Bit8 to 15		Time (first two digits of the year)	The first two digits of the year of the SNTP synchronized clock are saved.

\*1 Powering BOX Data Logger OFF→ON also recovers the operating status.

\*2 Examples of sampling delays occurrence and the countermeasures are as follows:

### ■ Occurrence examples and countermeasures for sampling delays

Two examples of sampling delay occurrences and their countermeasures are as follows:

#### ● Occurrence example 1

- The data logging setting includes three 0.1-second-cycle settings in D0 to D250.
- The 50ms constant scan is set in the parameter settings of the programmable controller. The scan is performed in the waiting time set in the constant scan setting.
- In the file sampling results saved in the above condition, the actual sampling cycle was 200ms.
- This bit ((S2) + 1 bit14) turns ON.

#### ● Countermeasure 1

- Set the sampling interval in the Data logging setting to more than 0.2 seconds, and update BOX Data Logger settings. (This bit ((S2) + 1 bit14) turns OFF.
- Reduce the number of the Data logging settings (reduce to one), and update BOX Data Logger settings. (This bit ((S2) + 1 bit14) turns OFF.
- Change the programmable controller parameters to a small value (example: 3ms) in the constant scan. (After resetting the programmable controller, this bit ((S2) + 1 bit14) turns OFF.)

#### ● Occurrence example 2

- The data logging setting is set to sample D0 to D250 in 0.1 second cycle.
- The 50ms constant scan is set in the programmable controller parameter. Service processing number is specified to 1 time.
- In the file sampling results saved in the above condition, the actual sampling cycle was 300ms.
- This bit ((S2) + 1 bit14) turns ON.

#### ● Countermeasure 2

- Set the sampling interval in the Data logging setting to more than 0.3 seconds, and update BOX Data Logger settings. (This bit ((S2) + 1 bit14) turns OFF.
- Change the programmable controller parameters to a small value (example: 3ms) in the constant scan. (After resetting the programmable controller, this bit ((S2) + 1 bit14) turns OFF.)

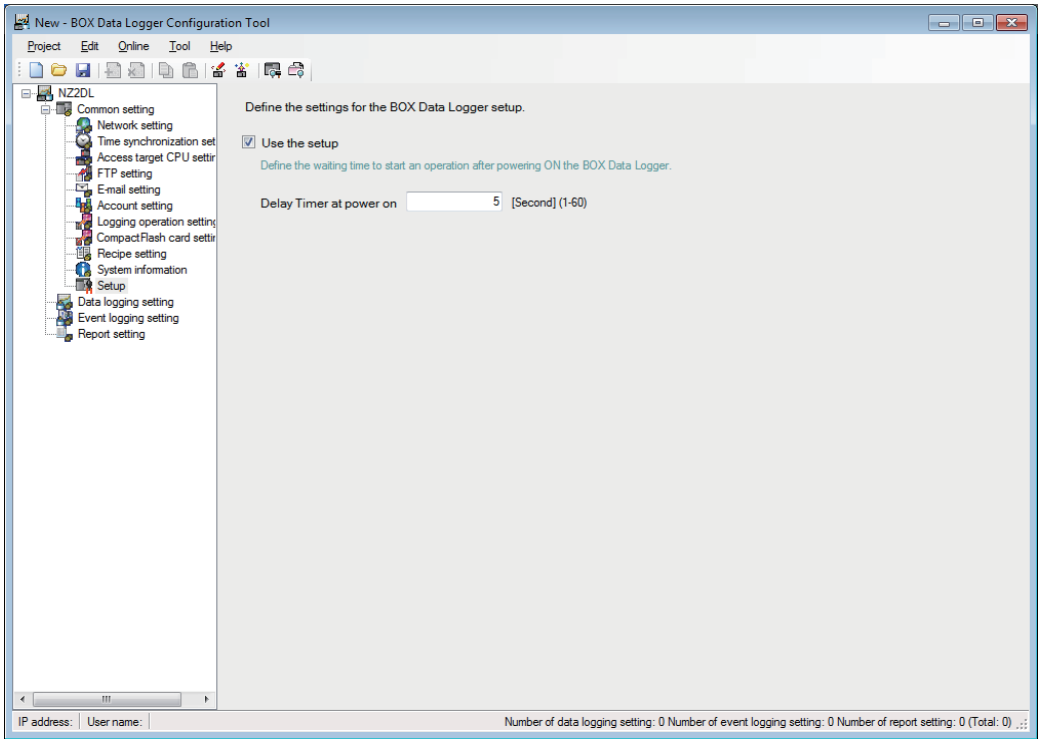
# BOX Data Logger setup

This section explains the settings to set the delay timer at power on for BOX Data Logger.

## Operating procedure

Open the "Common setting" on the edit items tree, then select "Setup".

## Displayed items



Item	Description	Default	
Use the setup.	—	Select this when using the setup.	Unchecked
Delay Timer at power on	Set the waiting time to start the operation after resetting or powering ON BOX Data Logger.	5 seconds (1 to 60)	

# 12.5 Data logging setting

This section explains the settings for the Data logging function.  
 For an overview of the Data logging function, refer to the following chapter.

☞ Page 120 DATA LOGGING FUNCTION

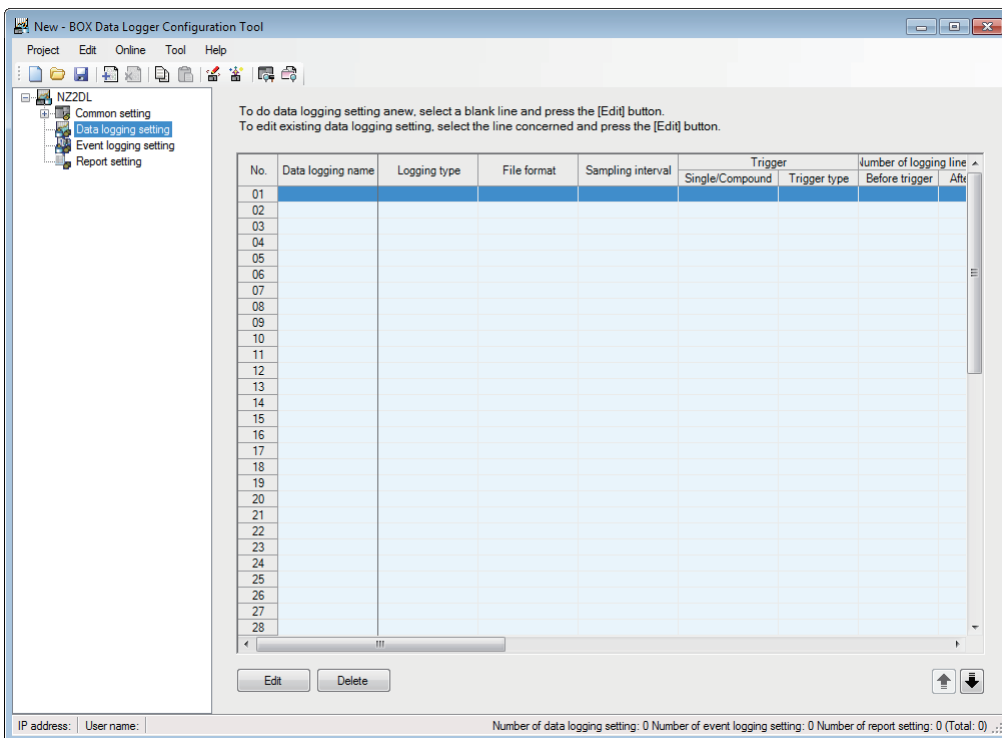
## Data logging setting list

This section explains the items on the screen of data logging setting list.

### Operating procedure

Click "Data logging setting" on the edit items tree.

### Displayed items



The existing data logging settings can be utilized by using the project file import function (☞ Page 223 Importing settings from project file).

The setting time can be reduced by utilizing the existing settings.

The items displayed on the screen of data logging setting list are as follows:

Item	Description	Reference
Data logging name	Displays the data logging name.	Page 304 Finish
Logging type	Displays "Continuous" or "Trigger".	Page 262 Logging type and File format
File format	Displays the file format of the Data logging file.	
Sampling interval	Displays the sampling interval of the target data.	Page 263 Sampling
Trigger	—	Displays the trigger settings for the Trigger logging function.
	Single/Compound	Displays "Single" or "Compound".
	Trigger type	Displays "OR Combine", "AND Combine", "Number of times", or "Order".
Number of logging lines	—	Displays the number of trigger logging lines.
	Before trigger	Displays the number of logging lines before the trigger.
	After trigger	Displays the number of logging lines after the trigger.
	Total number of lines	Displays the total number of logging lines.

Item	Description	Reference	
CSV output	—	Displays the CSV output settings for the Data logging file.	Page 289 CSV output
	Date	Displays if the date/time (time stamp) is output.	
	Trigger information	Displays if trigger information is output.	
Binary output	—	Displays the binary output settings for the Data logging file.	Page 291 Binary output
	Date	Displays if the date/time (time stamp) is output.	
	Trigger information	Displays if trigger information is output.	
Save	—	Displays the save settings for the Data logging file.	Page 292 Save
	File save destination	Displays the save destination.	
	File switching timing	Displays the switching timing for the Data logging file by separating with commas. Example) 1000[Line],16384[KB]Trigger logging.	
	Saved file name	Displays the information to attach to the Data logging file name.	
	Number of saved files	Displays the upper limit of the number of saved files.	
Transfer	—	Displays the transfer settings for the Data logging file.	
	FTP transfer	Displays whether or not FTP transfer setting exists.	
	E-mail sending	Displays whether or not e-mail transmission setting exists.	

The buttons for operating the data logging setting list are as follows:

Item	Description	Reference
[Edit] button	Displays the "Data logging setting" screen to edit the settings of the selected row. If the selected row is empty, new data logging settings are added to that row.	Page 260 Data logging setting screen transitions
[Delete] button	Deletes the settings of the selected row.	
[↑]/[↓] button	Shifts the selected row one row up or one row down.	—

- There is no difference in operation according to the order of the Data logging settings.
- Multiple rows can be selected and deleted or moved in batch by clicking on them while pressing the **[Ctrl]** key or **[Shift]** key.

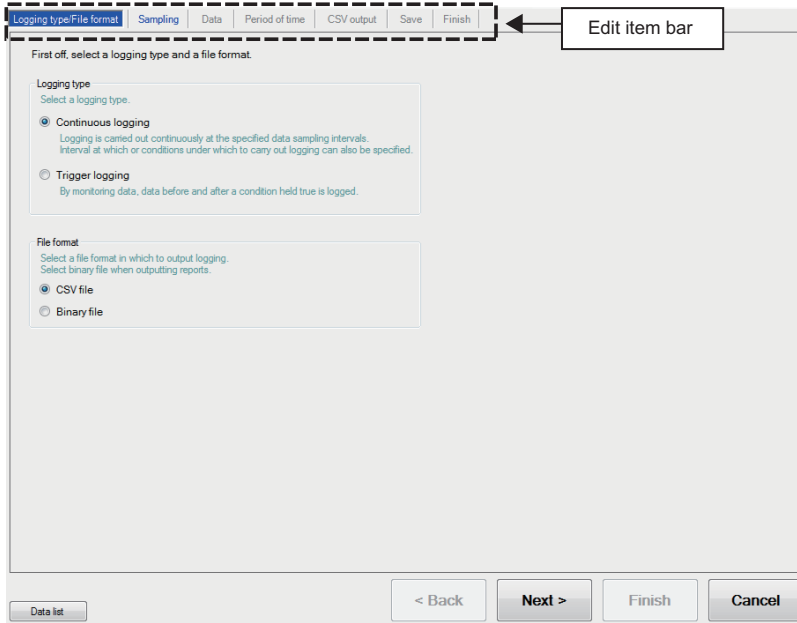
# Data logging setting screen transitions

Data logging settings are configured in a wizard format.

The title of each wizard screen is displayed in the 'edit item bar' in the upper portion of the detailed setting screen.

Setting operations are performed in order from the items to the left in the 'edit item bar' to those in the right.

## Displayed items






Item	Description	Reference
[Data list] button	Displays a list of all data being used by all the data logging setting.	Page 215 Data list
[Back] button	Moves the setting wizard screen being edited to the previous (left) screen.	Page 261 Screen transitions with the [Back] / [Next] buttons
[Next] button	Moves the setting wizard screen being edited to the next (right) screen.	
[Finish] button	Settles the data logging settings being edited and completes editing. After completing the settings, returns to the screen of data logging setting list.	—
[Cancel] button	Discards the data logging settings being edited and ends editing. After cancelling the settings, returns to the screen of data logging setting list.	—

## Wizard display and operations

### ■ Edit item status

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

Status	Configured	Being edited	Not configured
Text color	Blue	White	Gray
Background color	Light gray	Blue	Light gray
Example			

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

Move between edit item screens with the [Back] / [Next] buttons.

### ■ Screen transitions by mouse

The setting screen for configured items can be moved directly by clicking the 'edit item bar'.

### ■ Edit items of data logging setting

Edit items of data logging setting are made up of the following types.

For the continuous logging function

Setting item	Reference
Logging type/File format	Page 262 Logging type and File format
Sampling	Page 263 Sampling
Data	Page 264 Data setting list
Period of time	Page 270 Period of time
CSV output <sup>*1</sup>	Page 289 CSV output
Binary output <sup>*1</sup>	Page 291 Binary output
Save	Page 292 Save
Finish	Page 304 Finish

For the trigger logging function

Setting item	Reference
Logging type/File format	Page 262 Logging type and File format
Sampling	Page 263 Sampling
Data	Page 264 Data setting list
Trigger	Page 274 Trigger
Number of logging lines	Page 286 Number of logging lines
CSV output <sup>*1</sup>	Page 289 CSV output
Binary output <sup>*1</sup>	Page 291 Binary output
Save	Page 292 Save
Finish	Page 304 Finish

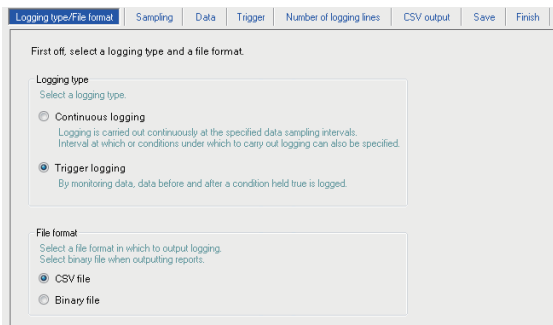
\*1 Configures the output format setting selected in "Logging type/File format".

# Logging type and File format

Specify the data logging type and the file format for saving the logging data.  
 For details on processes of each logging type, refer to the following section.

☞ Page 124 Logging Types

## Displayed items



Item		Description	Reference
Logging type	—	Specify the data logging type.	—
	Continuous logging	Always logs data at the specified interval.	Page 124 Continuous logging function
	Trigger logging	Monitors data and only logs the data before and after the conditions are established.	Page 124 Trigger logging function
File format	—	Select the file format to save logging data.	—
	CSV File	Save in the CSV file format.	Page 71 CSV format specification
	Binary File	Save in the binary file format.	Page 81 Binary File Format

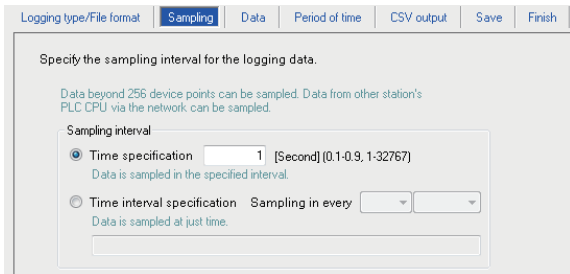


# Sampling

Specify the data sampling interval for the logging target data.  
 For details on the sampling processing, refer to the following section.

☞ Page 122 Sampling Target Data

## Displayed items



Item	Description	Reference
Sampling interval	—	Set the data sampling interval in seconds. (0.1 to 0.9, 1 to 32767 seconds)
	Time specification	Sample data at the specified interval. (0.1 to 0.9 second, 1 to 32767 second)
	Time interval specification	Sample data at the specified time interval (hour/minute/second) from the midnight of everyday, the top of every hour, or the top of every minute.

## Available time intervals

The time units and their intervals which can be specified for the sampling interval are as follows:

Hour: 1, 2, 3, 4, 6, 8, 12, 24

Minute: 1, 2, 3, 4, 5, 6, 10, 12, 15, 20, 30, 60

Second: 1, 2, 3, 4, 5, 6, 10, 12, 15, 20, 30, 60

### Point

Since general data sampling is not synchronized with the control CPU's sequence scan, data separation may occur.

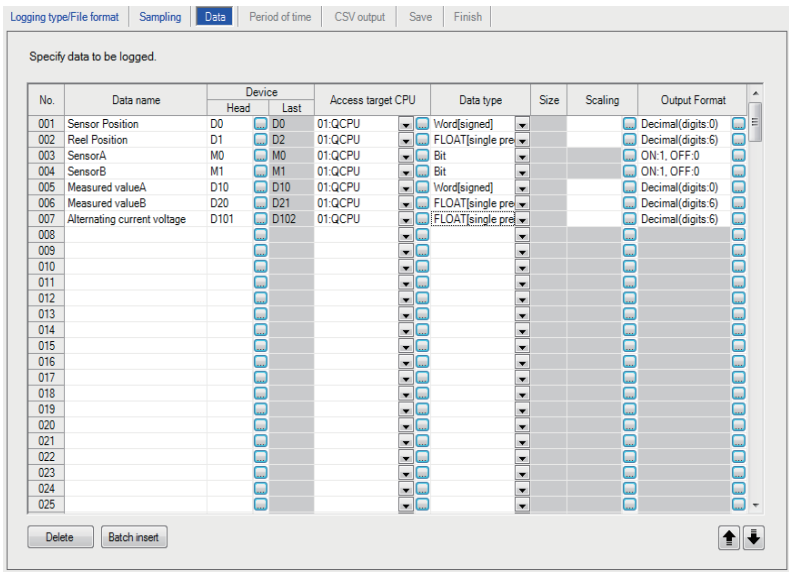
☞ Page 531 Access Units, Page 564 Access Units

BOX Data Logger samples data from the programmable controller at the timing of the set sampling interval. The data change within the sampling interval is not sampled.

# Data setting list

Display the list of data set with the Data logging function.

## Displayed items



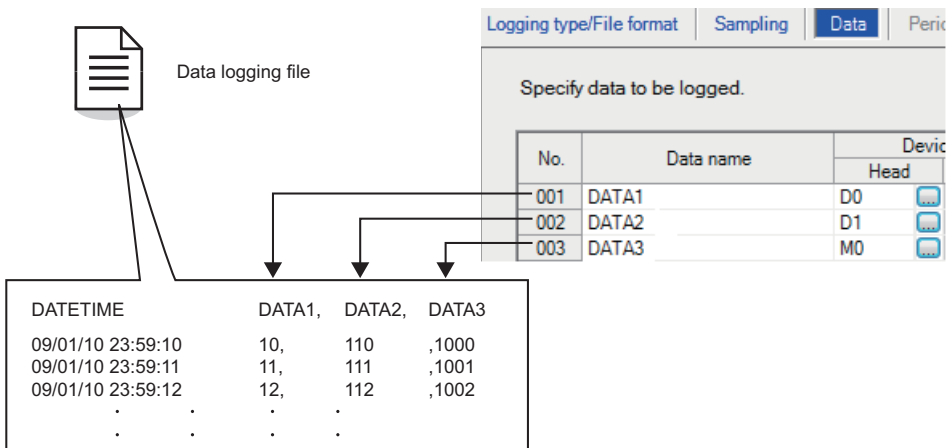
The items displayed on the data list are as follows:

Item	Description	Reference
Data name	Displays the data name.	Page 265 Data setting
Device	Displays the start device and the end device.	—
Access target CPU	Displays the access target CPU.	—
Data type	Displays the data type.	Page 265 Data setting
Size	Displays the size if the data type is "String" or "Raw".	—
Scaling	Displays the conversion equation for the scaling conversion.	Page 266 Scaling
Output Format	Displays the output format (such as decimal format, and exponential format).	Page 267 Output Format

The buttons for operating the data list are as follows:

Item	Description	Reference
[Delete] button	Deletes the settings of the selected row.	—
[Batch insert] button	Inserts data in batch.	Page 268 Data batch insertion
[↑]/[↓] button	Shifts the selected row one row up or one row down.	—


The data configured in each row of data settings are saved to the Data logging file in the order shown below.



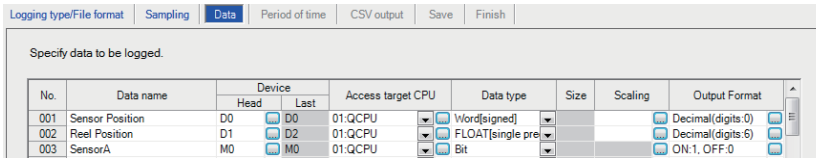
# Data setting

Configure the settings for devices of which data is logged.

## Operating procedure

Select a cell on the data logging setting list screen (  Page 264 Data setting list), and enter data directly or select an item from the list box.

## Displayed items



Item	Description	Reference	
Data name	Specify the data name. (Up to 32 characters. Can be blank)	—	
Device	—	Specify the data logging target device.	
	Head	Specify the start device.* <sup>1</sup> Click the [...] button to open the "Device Setting" screen.	Page 219 Device settings
	Last	Display the end device calculated from the data type and size.	—
Access target CPU	Select the access target CPU name set with the Access target CPU setting. To add an access target CPU, select "(Add)" from the list box and click the [...] button.	Page 235 Access target CPU setting	
Data type	Select the data type.* <sup>2</sup>	—	
Size	Specify the size if the data type is "String" or "Raw". (1 to 8192 bytes)	—	
Scaling	Set when performing a scaling conversion from the programmable controller CPU device value to the data.	Page 266 Scaling	
Output Format	Specify the format (such as decimal format and exponential format) when the data are output to a file.	Page 267 Output Format	

- \*1 Bit specification of word device is represented as '[Device].b[Bit position]' (Example: 'D100.b6').  
'[Device].[Bit position]' (Example: 'D100.6') will be converted to '[Device].b[Bit position]' representation.
- \*2 Match to the data type with the one used for writing device values using a sequence program or HMI.

## Scaling

Configure when setting a device value read from the programmable controller CPU as data calculated with a conversion equation. There are two methods to enter data for scaling.

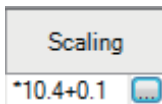
- Enter the conversion equation directly in a cell.
- Click the [...] button and specify on the "Scaling" screen.

**Ex.**

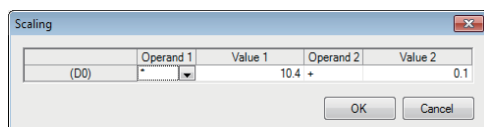
Scaling the floating point value stored in device D0 with the following equation

$$(D0 \times 10.4) + 0.1$$

Example of conversion equation direct input



Example of data input on the "Scaling" screen



Item	Description
Data name	Display the data name. If the data name is blank, show the start device in parenthesis. Example 1) No. 3, data name is "Word1" → "003:Word1" Example 2) No. 15, no data name, start device is 'D0' → "015:(D0)"
Operand 1	Select from [Blank], ×, ÷ On the "Data" screen, an operand (×) is expressed as (*), and (÷) as (/). (To directly input to a cell, use * and /.)
Value 1	Set the value to be modified by Operand 1 as a numerical value up to a maximum of 10 characters including sign/decimal point. Example settings) <ul style="list-style-type: none"> <li>• 9999999999 (10 character numerical value)</li> <li>• -999999999 (1 character sign, 9 character numerical value)</li> <li>• 0.00000001 (1 character decimal point, 9 character numerical value)</li> <li>• -0.0000001 (1 character sign, 1 character decimal point, 8 character numerical value)</li> </ul>
Operand 2	Select from [Blank], +, -.
Value 2	Set the value modified by Operand 2. This setting is the same as "Value 1" in this table.

- Scaling cannot be performed if the data type is Bit, String, or Raw.
- If the 'Data name' set with scaling is specified by other settings, those settings handle the value after the scaling conversion.
- For operation processing specified with scaling, all values are calculated as double precision floating point numbers. The result is output in the format specified with output format.
- The data output when the calculation result is over the maximum value or under the minimum value for the specified output format range differs according to file format.

For the CSV format: Page 74 Data line For the binary format: Page 81 Data logging file

## Output Format

Specify the format when the data are output to a file.

The settings below can be configured for the output format according to the data type and file format.

Save file format	Data type	Output format setting	Reference
CSV	Bit	Can be specified as a string up to 16 characters long.	Page 267 When the data type is a bit
	Word Double word Float BCD	Can be selected from the following: <ul style="list-style-type: none"> <li>• Decimal format (example: "123.456789")</li> <li>• Exponential format (example: "1.234E2")</li> </ul>	Page 267 When the data type is an integer or float
	String Raw	(Specification not required)	—
Binary	Word Double word Float BCD	Can be selected from the following: <ul style="list-style-type: none"> <li>• Word [signed]</li> <li>• Double word [signed]</li> <li>• Word [unsigned]</li> <li>• Double word [unsigned]</li> <li>• FLOAT [single precision]</li> <li>• FLOAT [double precision]</li> <li>• 16bit BCD</li> <li>• 32bit BCD</li> </ul>	Page 267 When the data type is an integer or float
	Bit String Raw	(Specification not required)	—

12

### ■When the data type is a bit

Item	Description	
Default	Output '1' if ON, '0' if OFF.	
Specify	ON	Specify the string to output when it is ON. (Up to 16 characters)
	OFF	Specify the string to output when it is OFF. (Up to 16 characters)

### ■When the data type is an integer or float

Item	Description	
CSV output format <sup>*1</sup>	Decimal format	Select this to output in decimal format. Example) '123.456789'
	Exponential format	Select this to output in exponential format. Example) '1.234E'
	Hexadecimal format	Select this to output in a hexadecimal integer format (characters are upper case). Example) '1B8F' Can be output in a range of 0 to FFFFFFFF.
	Number of digits in decimal part	Specify the number of digits in the decimal part. (0 to 14) Fixed as 0 when hexadecimal format is set.
Binary output format <sup>*2, *3</sup>	Word [signed]	Signed 16 bit integer
	Double word [signed]	Signed 32 bit integer
	Word [unsigned]	Unsigned 16 bit integer
	Double word [unsigned]	Unsigned 32 bit integer
	FLOAT [single precision]	Single precision float (32 bit)
	FLOAT [double precision]	Double precision float (64 bit)
	16bit BCD	Cannot be selected when scaling is set. Cannot be selected if the data type is 32bit BCD when scaling is not set.
	32bit BCD	Cannot be selected when scaling is set. Cannot be selected if the data type is 16bit BCD when scaling is not set.
[OK] button	Confirm the settings and close the screen.	
[Cancel] button	Discard the settings and close the screen.	

\*1 Can be set when CSV is selected for the output file format.

\*2 Can be set when binary is selected for the output file format.

\*3 For the range of values that can be output for each output format, refer to Page 87 Range of Values per Output Format.

# Data batch insertion

Insert data to the data list in batch.

## Operating procedure

Click the [Batch insert] button on the "Data" screen (☞ Page 264 Data setting list).

## Displayed items

Item		Description	Reference
Data name	—	Display or change the data name.	Page 265 Data setting
	Change	Select this to change the data name. When unselected, the data name is automatically set to the start device.	—
	Append subscripts	Select this to append a serial number to the data name set by the user.	Page 268 Data names and subscripts in the continuous setting
Device	Head	Specify the start device. Click the [...] button to open the "Device Setting" screen.	Page 265 Data setting
	Last	Display the end device automatically calculated according to the "Data type" and "Continuous setting".	
Access target CPU		Select the access target CPU name set with the Access target CPU setting. To add an access target CPU, select "(Add)" from the list box and click the [Edit] button.	
Data type		Select the data type.	
Size		Specify the size if the data type is "String" or "Raw". (1 to 8192 bytes)	
Scaling		Set when performing a scaling conversion on programmable controller CPU device values.	
Output Format		Specify the format (such as decimal format, exponential format) when the data are output to a file.	
Continuous setting	—	Set the total number of devices to insert in batch with a continuous number and the interval.	Page 269 Total number and interval in the continuous setting
	Total number	Specify the total amount of data to insert in batch. (2 to 256 points)	
	Interval	Specify the device interval for the data to insert in batch. (1 to 2108416 points)	
	Auto interval setting	Select this to set the interval automatically in order to avoid gaps between the devices to be inserted in batch.	
[OK] button		Settle the settings and close the screen.	—
[Cancel] button		Discard the settings and close the screen.	—

## Data names and subscripts in the continuous setting

The following shows how the data name is set by the "Change" and "Append subscripts" checkboxes.

**Ex.**

Data name= DATA

the start device= D0

Continuous setting total number = 3

Continuous setting interval = 1

For the above example settings, the data names are set as shown below.

Item	Example 1	Example 2	Example 3
Checkbox	Change: Unselected Append subscripts: Unselected	Change: Selected Append subscripts: Unselected	Change: Selected Append subscripts: Selected
Data name	D0	LOGGINGNAME	LOGGINGNAME(1)
	D1	LOGGINGNAME	LOGGINGNAME(2)
	D2	LOGGINGNAME	LOGGINGNAME(3)

## Total number and interval in the continuous setting

Configure when setting devices by leaving a fixed interval.

**Ex.**

Data name= DATA

Continuous setting total number = 3

Continuous setting interval = 10

the start device= D0

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

No.	Data name	Device	
		Head	Last
001	DATA1	D0	D1
002	DATA2	D10	D11
003	DATA3	D20	D21

# Period of time

Specify the period to perform the Data logging function.

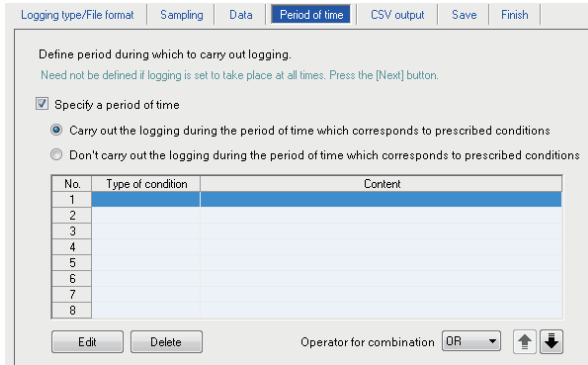
Configuring these settings is not required if constantly performing logging.

For details on processes of each period condition, refer to the following section.

☞ Page 131 Data Logging Periods

If the logging type is trigger logging, this sets the trigger monitoring period.

## Displayed items



Item		Description	Reference
Specify a period of time	—	Select this when not always performing data logging.	—
	Carry out the logging during the period of time which corresponds to prescribed conditions	Select this to perform continuous logging and monitor triggers for trigger logging during the period corresponding to the conditions displayed in the list.	—
	Don't carry out the logging during the period of time which corresponds to prescribed conditions	Select this not to perform continuous logging or monitor triggers for trigger logging during the period corresponding to the conditions displayed in the list.	—
	Type of condition	Display the condition type. (Data condition, Date range, Time-of-the-day range, Day-of-the-week/Week-of-the-month conditions)	—
	Content	Display the overview of the condition. To check the contents, select the corresponding row and click the [Edit] button.	—
[Edit] button		Edit the selected condition.	Page 271 "Setting a period of time" screen
[Delete] button		Delete the selected condition.	—
Operator for combination		Specify how to combine the conditions of each row. (OR, AND)	Page 273 Combination of conditions
[↑]/[↓] button		Shift the selected row one row up or one row down.	—



## "Setting a period of time" screen


Specify the condition to define the period.

### ■Data conditions

Compare data and perform data logging during the period when the condition is satisfied.

Item	Description
Data name	Select the target data from the data set with "Data logging setting". To add a new data setting, select "(Add)" from the list box and click the [...] button.
Conditions*1	Select a comparison operator. (=, ≠, <, ≤, >, ≥)
Data/Constant	Select the type of data to compare to the target data. ("Data" or "Constant")
Data name/Constant value	Set the data or constant data (up to 16 characters) to compare to the target data. To add a new data setting, select "(Add)" from the list box and click the [...] button.

\*1 When data of different data types are compared, the condition may not be satisfied because of the difference in internal representations.  
For the value type comparison accuracy, refer to the following section.

 Page 595 Numerical Type Comparison Accuracy

### ■Date range

Perform data logging during the specified date\*1 period.

\*1 February 29 cannot be directly set. To specify February 29, select 'last day of February'.

**Ex.**

When specifying the date range as shown below

Start: March 28, End: April 2

For the above example settings, data logging is performed as shown in the table below.

○: Performed ×: Not performed

Date	...	March 27	March 28	...	April 2	April 3	...
Carry out the logging during the period of time which corresponds to prescribed conditions	×	×	○	○	○	×	×
Don't carry out the logging during the period of time which corresponds to prescribed conditions	○	○	×	×	×	○	○

### ■Time-of-the-day range

Perform data logging during the specified time period.

**Ex.**

When specifying the time range as shown below

Start: 8:00:00, End: 8:00:59

For the above example settings, data logging is performed as shown in the table below.

Time (hour:minute:second)	...	7:59:59	8:00:00	...	8:00:59	8:01:00
Carry out the logging during the period of time which corresponds to prescribed conditions	×	×	○	○	○	×
Don't carry out the logging during the period of time which corresponds to prescribed conditions	○	○	×	×	×	○

## ■Day-of-the-week/Week-of-the-month conditions

Perform data logging for the specified day of the week or week. The period of time can be specified by combining the day of the week and week.

- To perform data logging on the specified day of the week every week  
Unselect "Specifying a week of the month".

**Ex.**

When specifying from Monday to Friday

For the above example settings, data logging is executed as shown in the table below.

Day of the week	Sun	Mon	Tue	Wed	Thu	Fri	Sat	Sun	Mon	...
Carry out the logging during the period of time which corresponds to prescribed conditions	×	○	○	○	○	○	×	×	○	..
Don't carry out the logging during the period of time which corresponds to prescribed conditions	○	×	×	×	×	×	○	○	×	..

○: Performed ×: Not performed

- To perform data logging in combination with the week and day of the week  
Select "Specifying a week of the month".

The week conditions are as follows:

Week condition	Description
1st	From the 1st to the 7th
2nd	From the 8th to the 14th
3rd	From the 15th to the 21st
4th	From the 22nd to the 28th
Last	The 7 days at the end of the month for the corresponding month Example) If the 31st is the end of the month, the 25th to the 31st If the 30th is the end of the month, the 24th to the 30th

**Ex.**

When specifying the following day of the week conditions and week conditions with the period specified as "Carry out the logging during the period of time which corresponds to prescribed conditions"

Day of week condition: Select Mon, Tue, Wed, Thu, Fri

Specifying a week of the month/Week condition: Select 1st, 4th, Last

Data logging is executed on the shaded portions.

August 2013						
Sun	Mon	Tue	Wed	Thu	Fri	Sat
				1	2	3
4	5	6	7	8	9	10
11	12	13	14	15	16	17
18	19	20	21	22	23	24
25	26	27	28	29	30	31

Day of week condition "Mon/Tue/Wed/Thu/Fri"

1st "1st to 7th"

4th "22nd to 28th"

Last "25th to 31st"

←

←

←

←

## Combination of conditions

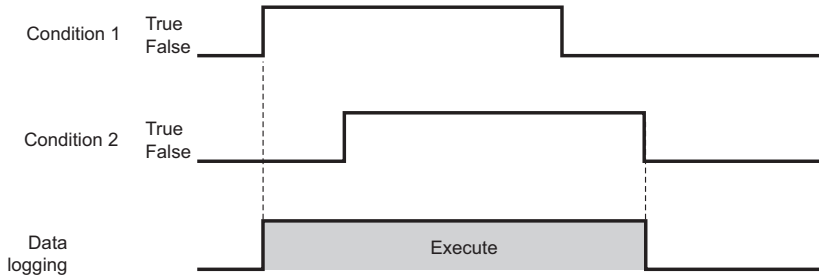
Multiple specified conditions can be combined.

"OR" or "AND" can be selected as the combined condition (Operator for combination).

The combined condition is applied to all of the conditions. "AND" and "OR" cannot be mixed.

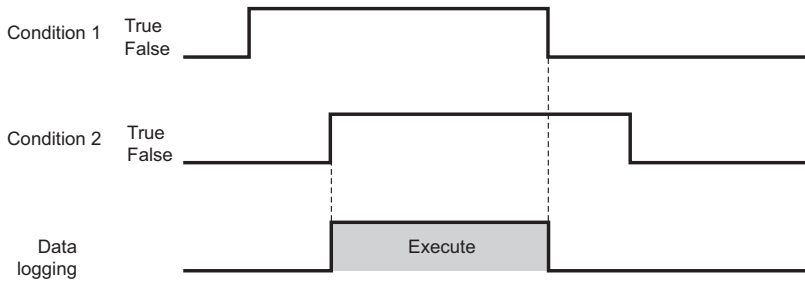
### ■For OR combine

When "Carry out the logging during the period of time which corresponds to prescribed conditions" is selected for the period of time



### ■For AND combine

When "Carry out the logging during the period of time which corresponds to prescribed conditions" is selected for the period of time



# Trigger

---

Specify the trigger occurrence conditions when "Trigger logging" is selected as the logging type.

There are the two types of trigger occurrence conditions below depending on the number of conditions combined.

- Single condition (if the number of conditions is 1)
  - ☞ Page 275 Trigger (Single condition)
- Compound condition (if multiple conditions are combined)
  - ☞ Page 278 Trigger (compound condition)

For details on processes of each trigger condition, refer to the following section.

☞ Page 124 Trigger logging function

The period to monitor the trigger can be set by clicking the [Setting a period of time] button. For details, refer to the following section.

☞ Page 270 Period of time

# Trigger (Single condition)

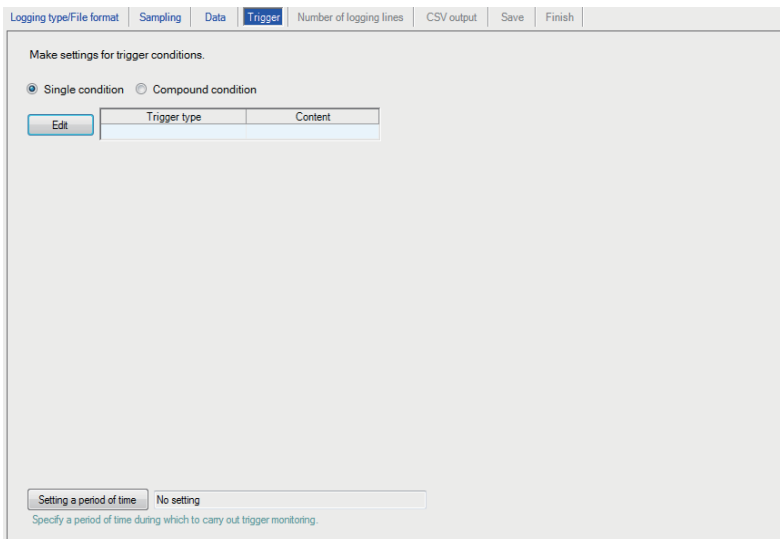
This section explains the method for configuring a single trigger condition when the logging type is set to "Trigger logging". For details on processes of each trigger (single condition), refer to the following section.

☞ Page 128 Single condition

## Operating procedure

Select "Single condition".

## Displayed items



Item	Description	Reference
Single condition	Select this to set a single trigger condition.	—
Compound condition	Select this to set multiple trigger conditions in combination.	Page 278 Trigger (compound condition)
Trigger type	Display the specified type of trigger condition (Data conditions (Comparison), Data conditions (At the time of change of value), Fixed cycle, Time interval specification, Specifying a time of day, At startup of BOX Data Logger).	—
Content	Display the overview of the trigger condition.	—
[Edit] button	Display the "Trigger condition setting" screen.	Page 276 Trigger condition setting screen

## Trigger condition setting screen

One type of trigger condition can be specified.

Item	Description		Reference	
Data conditions	Comparison <sup>*1</sup>	—	Compare data, and make the trigger occur when the condition is satisfied.	—
		Data name	Select the target data from the data set with "Data logging setting". To add a new data setting, select "(Add)" from the list box and click the [...] button.	—
		Conditions	Select a comparison operator. (=, ≠, <, >, ≥)	—
		Data/Constant	Select the type of data to compare to the target data. ("Data" or "Constant")	—
		Data name/ Constant value	Set the data or constant data (up to 16 characters) to compare to the target data. Data can be selected from the data set with "Data logging setting". To add a new data setting, select "(Add)" from the list box and click the [...] button.	—
	At the time of change of value	—	Make the trigger occur when the value changes.	Page 276 At the time of change of value
Data name		Select the data to monitor for the value change from the data set with "Data logging setting". To add a new data setting, select "(Add)" from the list box and click the [...] button.		
Fixed cycle		Make the trigger occur at the specified cycle (1 to 86400 seconds).	Page 277 Fixed cycle	
Time interval specification		Make the trigger occur at the specified time interval (hour/minute/second) from the midnight of everyday, the top of every hour, or the top of every minute.	Page 277 Time interval specification	
Specifying a time of day <sup>*2, *3</sup>	—	Make the trigger occur at the specified time.	Page 277 Specifying a time of day	
	Month	(Jan to Dec, Every)		
	Day	(1 to 31, Every, Last)		
	Hour	(00 to 23, Every)		
	Minute	(00 to 59, Every)		
	Second	(00 to 59)		
At startup of BOX Data Logger		Make the trigger occur at the startup of BOX Data Logger.	—	

\*1 When data of different data types are compared, the condition may not be satisfied because of the difference in internal representations.  
For the value type comparison accuracy, refer to the following section.

☞ Page 595 Numerical Type Comparison Accuracy

\*2 February 29 cannot be directly set. To specify February 29, select 'last day of February'.

\*3 If "Every" is specified, "Every" needs to be set for all date/time items above it.  
Example) If "Every" is set in "Hour", set "Every" also in "Month" and "Day".

### Point

Since the determination of the data condition is performed with the data sampled at the specified data sampling interval, it is not detected if the condition is not satisfied at the data sampling.

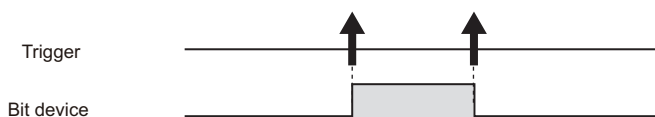
☞ Page 640 Sampling Processes of BOX Data Logger

### ■At the time of change of value

The timing of the trigger occurrences when "At the time of change of value" is specified as the condition is as follows:

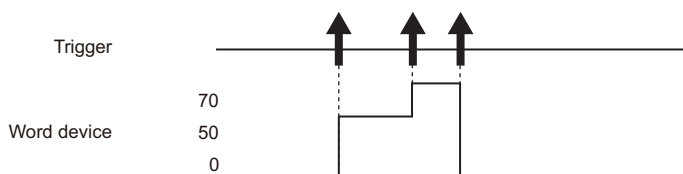
- For a bit device:

The trigger occurs when it changes from ON to OFF and from OFF to ON.



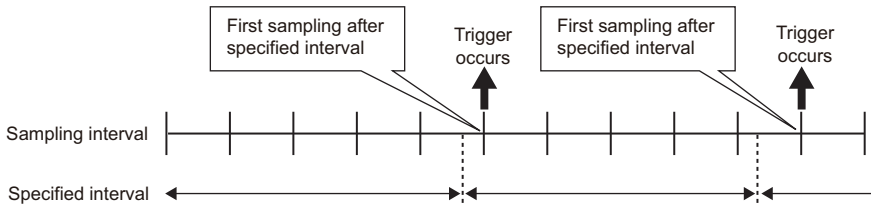
- For a word device:

The trigger occurs with each change of the value.



### ■Fixed cycle

The trigger occurs at the specified interval after powering ON or updating the settings. However, the trigger does not occur at the first sampling. When the specified interval for the fixed cycle and the timing of sampling don't match, the trigger occurs at the first sampling after the specified fixed cycle interval elapses.



When the fixed cycle specified interval is shorter than the sampling interval, the trigger operates at the sampling interval.

### ■Time interval specification

- Available unit that can be specified

Hour: 1, 2, 3, 4, 6, 8, 12, 24

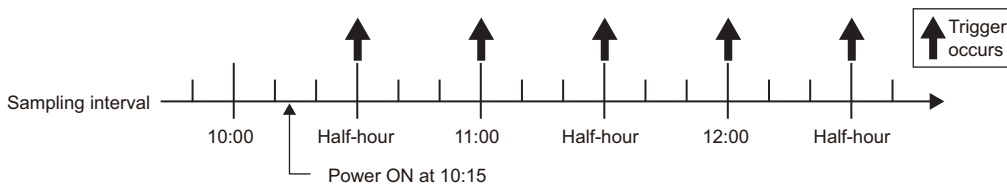
Minute: 1, 2, 3, 4, 5, 6, 10, 12, 15, 20, 30, 60

Second: 1, 2, 3, 4, 5, 6, 10, 12, 15, 20, 30, 60

- Trigger occurrence timing

The trigger occurs every half hour from the top of the hour.

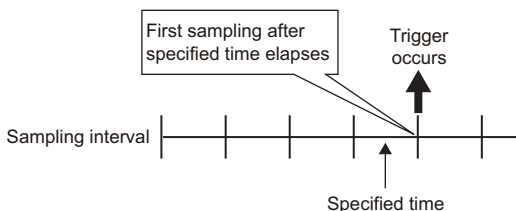
Example) When specifying '30 minutes' for the time interval, and the power is turned ON at 10:15.



### ■Specifying a time of day

The trigger occurs at the specified time.

However, when the specified time and the timing of sampling don't match, the trigger occurs at the first sampling after the specified time elapses.



#### Point

For trigger logging conditions, refer to the following section.

📖 Page 128 Trigger conditions

# Trigger (compound condition)

This section explains the method for specifying a combination of multiple trigger conditions when the logging type is set to "Trigger logging".

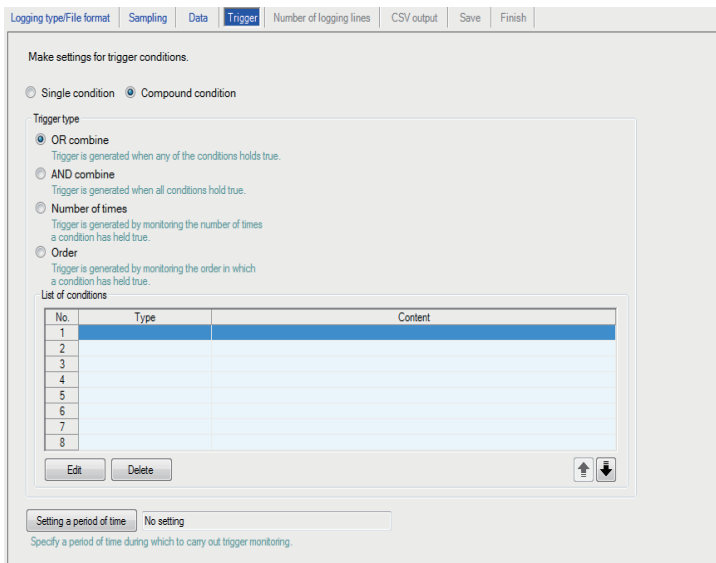
For details on processes of each trigger (compound condition), refer to the following section.

☞ Page 129 Compound condition

## Operating procedure

Select "Compound condition".

## Displayed items

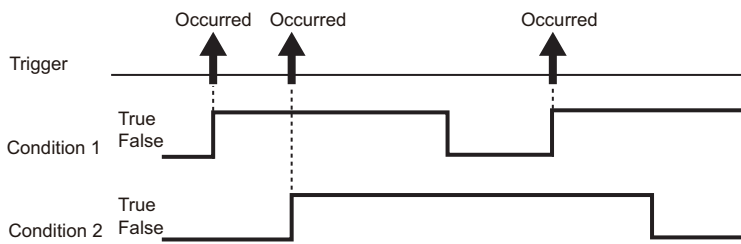


Item	Description	Reference	
OR combine	Make the trigger occur when any of the conditions specified on the list of conditions are satisfied.	Page 279 OR combine	
AND combine	Make the trigger occur during the period when all of the conditions specified on the list of conditions are satisfied.	Page 279 AND combine	
Number of times	Make the trigger occur by monitoring the number of times the condition is satisfied.	Page 280 Number of times	
Order	Make the trigger occur by monitoring the order of the conditions satisfied.	Page 283 Order	
List of conditions	—	Display the list of conditions.	—
	Type	Display any of the following items. <ul style="list-style-type: none"> <li>• For OR combine: Data conditions (Comparison), Data conditions (At the time of change of value), Fixed cycle, Time interval specification, Specifying a time of day, At startup of BOX Data Logger</li> <li>• For AND combine: Data conditions (Comparison)</li> <li>• For Number of times: Comparison, At the time of change of value</li> <li>• For Order: Comparison, At the time of change of value</li> </ul>	—
	Content	Display the overview of the condition.	—
[Edit] button	Display the setting screen to edit the condition in the selected row.	—	
[Delete] button	Delete the condition in the selected row.	—	
[↑]/[↓] button	Shift the selected row one row up or one row down.	—	
[Setting a period of time] button	Specify the trigger monitoring period.	—	



## OR combine

The trigger occurs when any of the conditions specified on the list of conditions are satisfied.

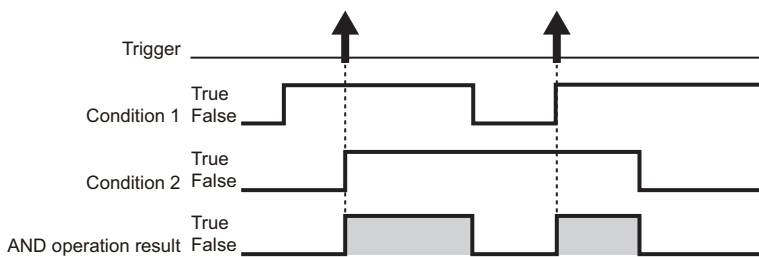


The setting items are the same as those of Single condition. Refer to the following section.

Page 276 Trigger condition setting screen

## AND combine

The trigger occurs during the period when all of the conditions specified on the list of conditions are satisfied.



The setting items are the same as those of "Data conditions" of Single condition. Refer to the following section.

Page 276 Trigger condition setting screen

## Number of times

The trigger occurs by comparing the number of times the count condition is satisfied with the specified number of times.

Item		Description	Reference
Conditions for occurrence	When a terminal condition holds true	Judge the number of times the count condition was satisfied during the period at the end of the period.	Page 281 When a terminal condition holds true
	When a specified number of times is exceeded	During the period, always judge the number of times the count condition is satisfied.	Page 282 When a specified number of times is exceeded
Conditions for the occurrence of a trigger	—	Set the "specified number of times" to compare with the number of times the count condition is satisfied (Number of counts) and the comparison operator ("=", "≠", "≤", "≥", "<", ">"). The trigger occurs if the comparison result is true. If "When a specified number of times is exceeded" is selected, the condition is fixed as ">".	—
	Specified number of times	Set the number of times to compare to the number of counts. (0 to 32767)	—
List of conditions	—	Display the list of conditions.	—
	Start condition	Display the condition to start counting for the number of counts.	—
	Terminal condition	Display the condition to stop counting for the number of counts.	—
	Count condition	Display the condition to increment the number of counts.	—
	Type	Display "Comparison" or "At the time of change of value".	—
	Content	Display the overview of the condition.	—
[Edit] button		Display the setting screen to edit the condition in the selected row.	Page 281 Editing the conditions for number of times
[Delete] button		Delete the condition in the selected row.	—
[↑]/[↓] button		Shift the selected row one row up or one row down.	—

Since the determination of the number of times is performed with the data sampled at the specified data sampling interval, it is not detected if the condition is not satisfied at the data sampling.

 Page 640 Sampling Processes of BOX Data Logger

### ■Editing the conditions for number of times

Editing of the conditions of number of times is performed on the "Number of times" screen.

The settings on the "Number of times" screen are the same as those of the "AND combine" screen. For details, refer to the following section.

☞ Page 279 AND combine

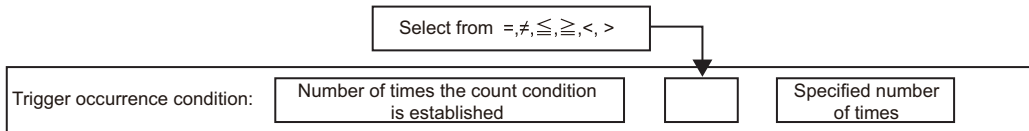
### ■When a terminal condition holds true

The number of times the count condition is satisfied is counted from when the start condition has been established to when the terminal condition has been established (count period).

The trigger occurrence condition is evaluated when the terminal condition is established, and a trigger occurs if true.

After that, the number of counts is reset when the terminal condition is established and the next count starts.

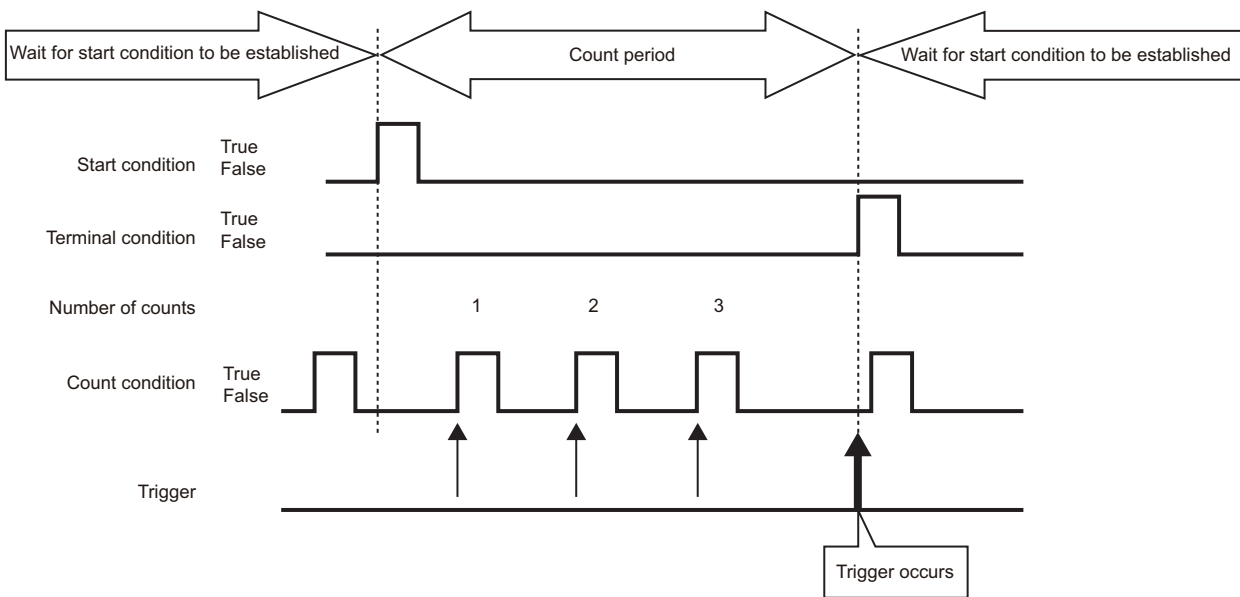
The start, terminal, and count conditions are judged on the rise of the condition satisfaction.



Example: For Trigger occurrence condition: (Number of counts) > 2 (specified number of times)

In the diagram below, the number of counts at the time of the terminal condition satisfaction is 3, and the occurrence condition is fulfilled.

The trigger occurs when the terminal condition is satisfied.



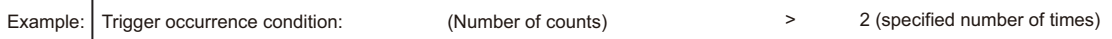
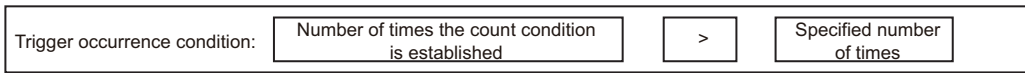
## ■When a specified number of times is exceeded

The number of times the count condition is satisfied is counted from when the start condition has been established to when the terminal condition has been established (count period).

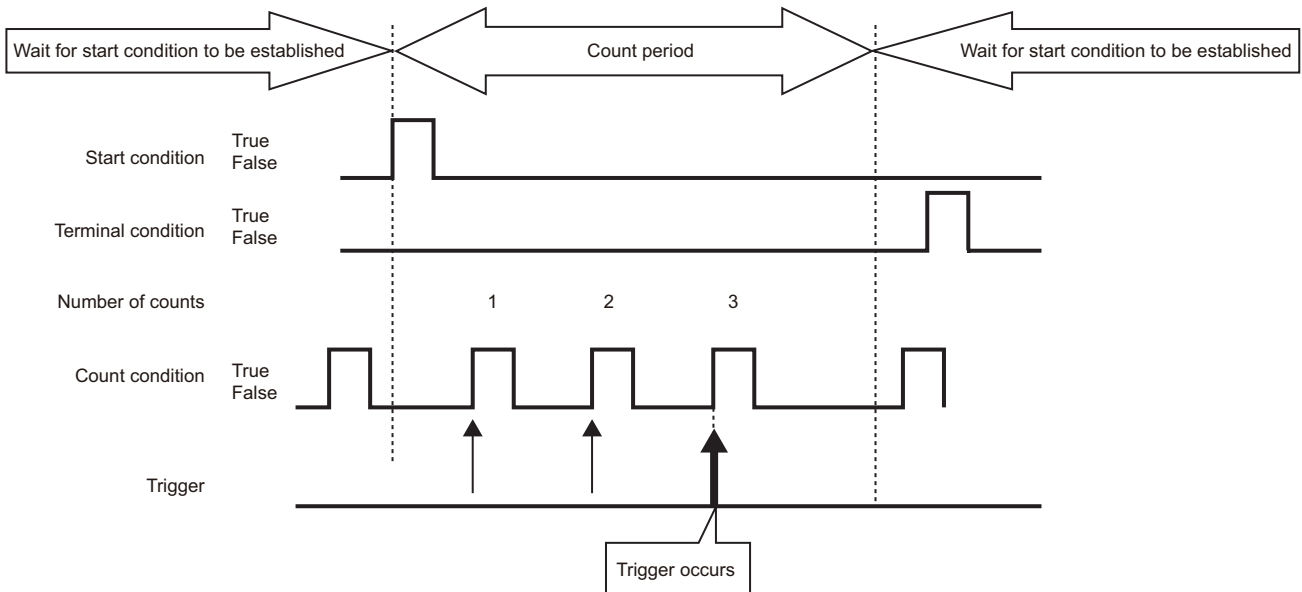
During the count period, the trigger occurrence condition is always evaluated, and a trigger occurs immediately if true.

After that, the number of counts is reset when the terminal condition has been satisfied, and the next count is started.

The start, terminal, and count conditions are judged on the rise of the condition satisfaction.



The trigger occurs when the trigger occurrence condition is fulfilled as shown below.



## Order

The trigger occurs when the order is in wrong order (abnormal pattern is detected) or when the order is in correct order (normal pattern is detected) by monitoring the order of multiple conditions satisfaction.

Item	Description	Reference	
Selecting conditions for occurrence	Abnormal pattern is detected	Make the trigger occur when conditions are satisfied out of order.	Page 284 Abnormal pattern is detected
	Normal pattern is detected	Make the trigger occur when conditions are all satisfied in order.	Page 284 Normal pattern is detected
	Timeout detected	Make the trigger occur when any of the conditions are not satisfied within the monitoring timeout.	Page 285 Monitoring timeout
List of conditions	—	Display the list of conditions.	—
	Start condition	Display the condition to start monitoring the condition satisfaction order.	—
	1st/2nd/3rd condition	Display the conditions to monitor in order.	—
	Type	Display "Comparison" or "At the time of change of value".	—
	Content	Display the overview of the condition.	—
	Monitoring timeout [Second]	Display the timeout time when monitoring the conditions in each order.	—
[Edit] button	Display the setting screen to edit the condition in the selected row.	Page 283 Editing the order conditions	
[Delete] button	Delete the condition in the selected row.	—	
[↑]/[↓] button	Shift the selected row one row up or one row down.	—	

Since the determination of the order is executed with the data sampled at the specified data sampling interval, it is not detected if the condition is not satisfied at the data sampling.

☞ Page 640 Sampling Processes of BOX Data Logger

### ■Editing the order conditions

Editing of the order conditions is performed on the "Order" screen.

The setting items of "Comparison" and "At the time of change of value" are the same as those of "Data conditions" of Single condition. For details, refer to the following section.

☞ Page 276 Trigger condition setting screen

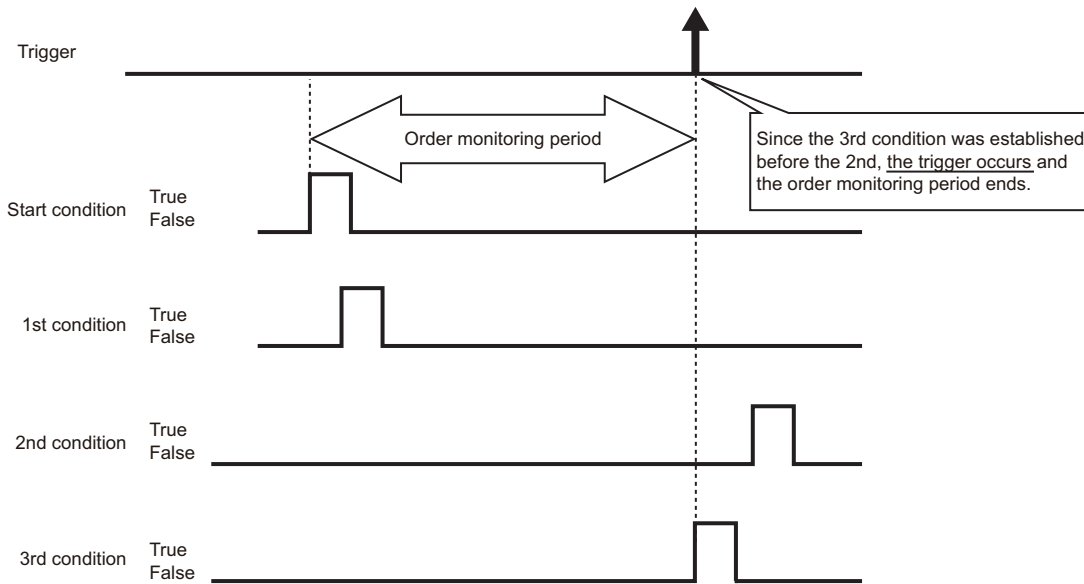
For "Monitoring timeout", refer to the following section.

☞ Page 285 Monitoring timeout

### ■Abnormal pattern is detected

A pattern of conditions satisfied in an order which differs from the 1st condition, 2nd condition, and 3rd condition order by start monitoring the order from when the start condition has been satisfied.

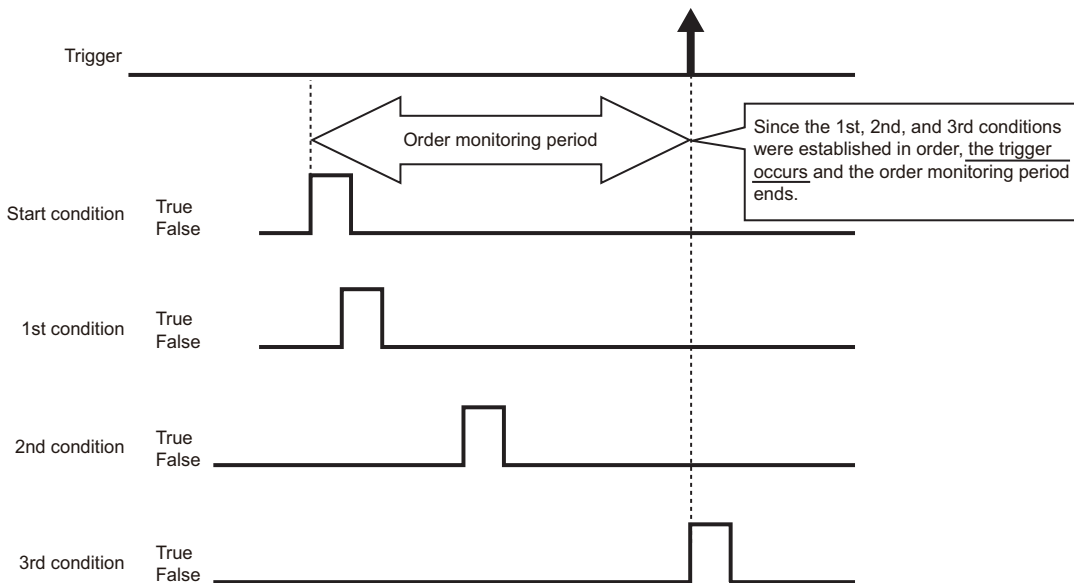
The trigger occurs when the conditions are satisfied in an order which differs from the specified order.



### ■Normal pattern is detected

A pattern of conditions satisfied in the 1st condition, 2nd condition, and 3rd condition order by start monitoring the order from when the start condition has been satisfied.

The trigger occurs when the conditions are satisfied in the specified order.



**Point** 

- If the start condition is satisfied again during the order monitoring period, it returns to the waiting state for the 1st condition satisfaction and continues the order monitoring.
- If two or more conditions are satisfied simultaneously, the conditions are considered to have been satisfied in the specified order, so the trigger will not occur when an abnormal pattern is detected.

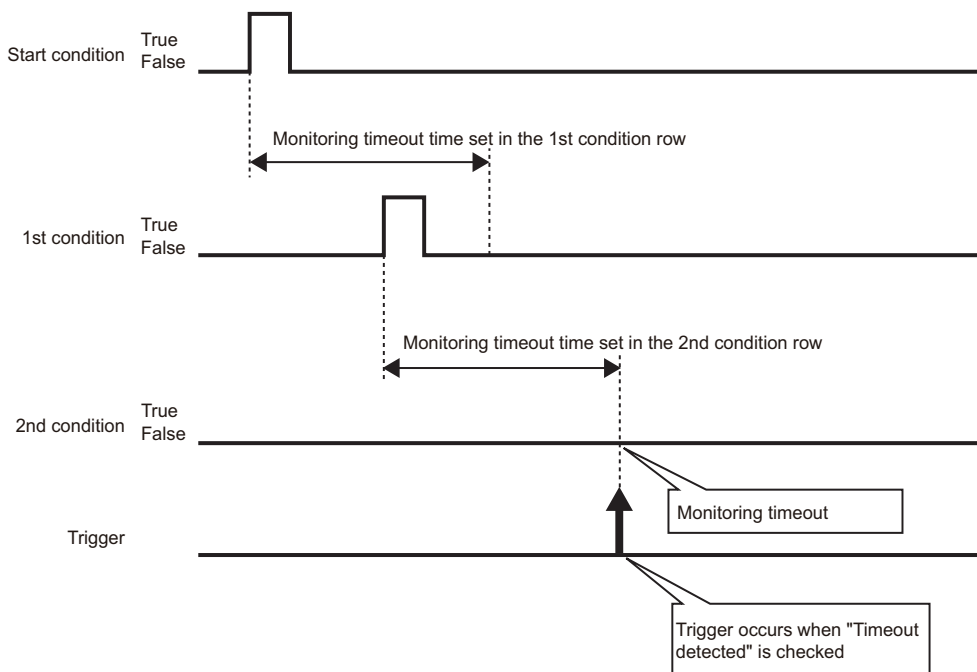
## ■Monitoring timeout

The condition until the next condition is satisfied is monitored after one condition has been satisfied.

If the next condition is not satisfied even if the specified monitoring timeout time elapses, it is considered as a timeout, and it ends the order monitoring and waits for the order start condition to be satisfied again.

For the diagram below, it will be a monitoring timeout since the 2nd condition is not satisfied within the monitoring timeout time after the 1st condition has been satisfied.

If "Timeout detected" is selected on the "Order" list screen (☞ Page 283 Order), a trigger occurs at the same time the timeout occurs.



Set "Monitoring timeout" time on the "Order" screen.

☞ Page 283 Editing the order conditions

The setting range is shown below.

0.1 to 0.9, 1 to 32767 seconds

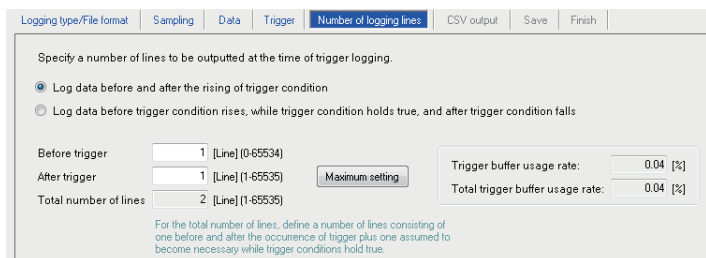
When the setting value of "Monitoring timeout" is smaller than that of the sampling interval, a timeout occurs. When "Timeout detected" is selected, a trigger occurs.

# Number of logging lines

Set the number of logging lines when "Trigger logging" is specified as the logging type on the "Logging type/File format" screen.

With this setting, the number of lines for data output before and after the trigger occurs is specified.

## Displayed items



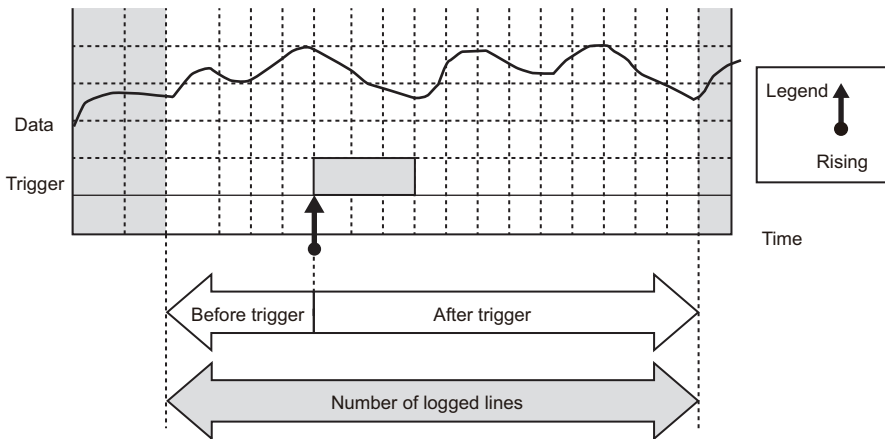
Item	Description	Reference
Log data before and after the rising of trigger condition	Select this to log data before and after the trigger condition rise.	Page 287 Log data before and after the rising of trigger condition
Log data before trigger condition rises, while trigger condition holds true, and after trigger condition falls	Select this to log data before the trigger condition rise, while the trigger condition is satisfied, and after the trigger condition fall.	Page 287 Logging data before trigger condition rises, holds true, and after falls
Before trigger	Set the number of lines to log before the trigger condition rise. (0 to 65534 lines)	Page 287 Log data before and after the rising of trigger condition,
After trigger	<ul style="list-style-type: none"> <li>When "Log data before and after the rising of trigger condition" is selected: Specify the number of lines to log after the trigger condition rise.(1 to 65535 lines)</li> <li>When "Log data before trigger condition rises, while trigger condition holds true, and after trigger condition falls" is selected: Specify the number of lines to log after the trigger condition fall.(1 to 65535 lines)</li> </ul>	Page 287 Logging data before trigger condition rises, holds true, and after falls
Total number of lines <sup>*1</sup>	Specify the number of lines before and after the trigger adding the number of lines assumed necessary while the trigger condition is satisfied (1 to 65535 lines).	Page 287 Logging data before trigger condition rises, holds true, and after falls
[Maximum setting] button	Set the maximum number of lines which can be set for before trigger and after trigger.	—
Trigger buffer usage rate	Display the amount of trigger buffer being used with the data logging setting being edited as a percentage of the total amount.	Page 288 Trigger buffer usage amount
Total trigger buffer usage rate	Display the necessary amount of trigger buffer for all Data logging settings (including the one being edited) as a percentage of the total amount.	

\*1 Can be specified only when "Log data before trigger condition rises, while trigger condition holds true, and after trigger condition falls" is set.



## Log data before and after the rising of trigger condition

Specify the number of lines to log before the trigger condition rise (before trigger) and after the fall (after trigger).



## Logging data before trigger condition rises, holds true, and after falls

Specify the number of lines before the trigger condition rise (before trigger) and after the fall (after trigger), and the total number of lines.

With this setting, the logging range differs according to the length of time the trigger conditions are satisfied.

### ■ Total number of lines

Set the value of more than the total number of lines for "Before trigger" and "After trigger" as "Total number of lines".

The number of lines which exceeds the total of "Before trigger" and "After trigger" is allocated to 'Number of lines to be logged' while the trigger condition is satisfied.

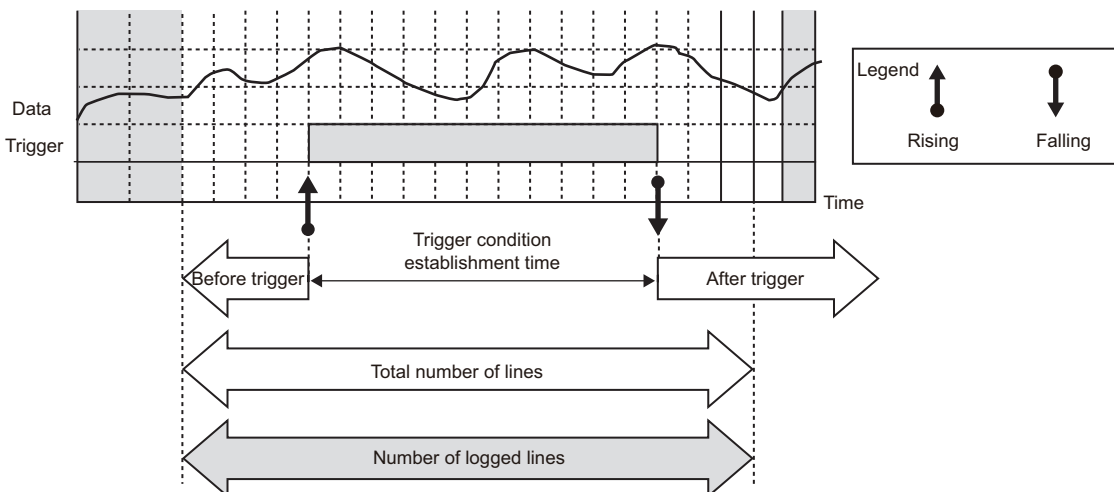
### ■ Conditions for specification

This setting can be specified in the following situations.

- When "Single condition" is selected with the trigger setting, and "Comparison" is selected for the data condition
- When "Compound conditions" is selected with the trigger setting, and "AND combine" is selected for the trigger type

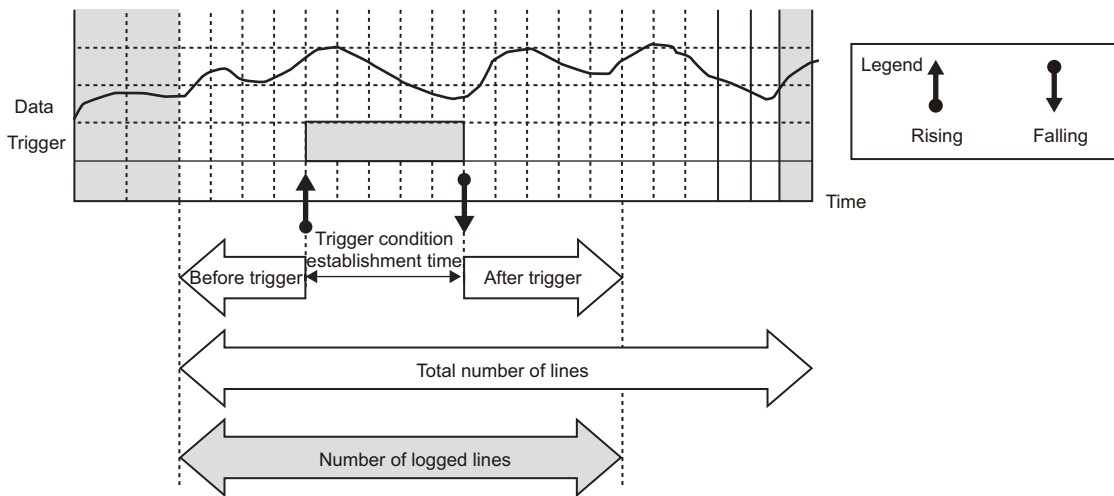
### ■ Number of lines to be logged when the time that the trigger condition is satisfied is long

Logging of the data corresponding to the total number of lines is performed.



**Number of lines to be logged when the time that the trigger condition is satisfied is short**

Logging of the data corresponding to the number of lines while the trigger condition is satisfied as well as in "Before trigger" and "after trigger" is performed.



**Point**

If a trigger occurs before sampling the data corresponding to the number of lines before the trigger, in such cases as immediately after powering ON the programmable controller system, the data before the trigger become less than the specified number of lines.

**Trigger buffer usage amount**

Settings cannot be configured that exceed the total trigger buffer usage amount on BOX Data Logger.

The total trigger buffer usage amount: 8 megabytes (8388608 bytes).

The trigger buffer amount to be used can be calculated with the calculation formula below.

$$\text{Trigger buffer usage amount per single data logging} = ((\text{device points} \times 2 + 40) \times (\text{number of lines} + 1)) \times 2$$

**Device points**

The device points of data types per single data logging are as follows:

Data type	Device point
Bit	1 point
Word [signed]	1 point
Double word [signed]	2 points
Word [unsigned]	1 point
Double word [unsigned]	2 points
FLOAT [single precision]	2 points
FLOAT [double precision]	4 points
16bit BCD	1 point
32bit BCD	2 points
String	(Number of strings/2) points
Raw	(Binary size/2) points

**Number of lines**

The number of lines per single data logging differs depending on the specification method of the number of logging lines.

Data logging will be performed for 30 lines or more.

Specification method of the number of logging lines	Number of lines per single data logging
Log data before and after the rising of trigger condition	Number of lines of before trigger + after trigger
Log data before trigger condition rises, while trigger condition holds true, and after trigger condition falls	Total number of lines

# CSV output

Configure the settings related to CSV file output content.

The "CSV output" screen is only displayed when "CSV file" is selected on the "Logging type/File format" screen.

For details on the CSV file format, refer to the following section.

☞ Page 71 CSV File Format

## Displayed items

Item	Description	Reference
Output date column	Select this to output the date column in the CSV file.	Page 290 Date column
Trigger information column	Specify the output of the trigger information. Can only be specified when "Trigger logging" is specified on the "Logging type/File format" screen.	Page 290 Trigger information column
Output index column	Select this to output the index number in the file. The continuity of logging can be checked by the index.	Page 71 Data logging file

## Date column

Item		Description	
Output date column	—	Select this to log data with attaching a time stamp.	
	Specify date format	—	Select this to specify the format of the date column.
		Data name line string <sup>*2</sup>	Specify the title of the date column data header line. (Up to 32 characters)
		Data line output format <sup>*1, *2, *3</sup>	Specify the date format displayed on the data line of the date column. <ul style="list-style-type: none"> <li>• YYYY: Year (4 digits)</li> <li>• YY: Year (2 digits)</li> <li>• MM: Month (2 digits)</li> <li>• DD: Day (2 digits)</li> <li>• hh: Time (2 digits)</li> <li>• mm: Minute (2 digits)</li> <li>• ss: Second (2 digits)</li> <li>• ms: Millisecond (3 digits)<sup>*4</sup></li> <li>• .ss... : Digits after the decimal point in seconds (1 to 3 digits)<sup>*4</sup> (example:ss.sss→51.100)</li> </ul>
Example of output	Display an image of the date column output with the current settings.		

\*1 The date units must be consecutively specified.

'year/day' without the month, for example, cannot be specified. Specify it with 'year/month/day'.

\*2 The date column can be split into multiple strings with commas.

In this case, enter the same number of commas in "Data name line string" and "Data line output format".

\*3 When CSV files are opened with Excel, the date column format is displayed in the Excel's default setting. Set the cell format as necessary.

Example: To display year, month, date, hour, minute, second, millisecond information

Specify the user defined display format below.

yyyy/mm/dd hh:mm:ss.000

\*4 Data value is rounded off to 100 ms unit.

## Trigger information column

Item		Description
Output trigger information column	—	Select this to log data with attaching the specified mark to the data line where the trigger occurred.
	Data name line string	Specify the title of the trigger information column data header line. (Up to 32 characters)
	When trigger condition rises	Specify the string to output at the trigger condition rise. (Up to 32 characters)
	When trigger condition falls	Specify the string to output at the trigger condition fall. (Up to 32 characters)

# Binary output

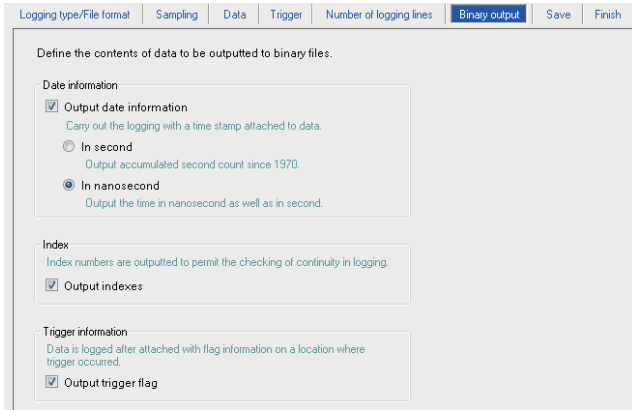
Configure the settings related to binary file output content.

The "Binary output" screen is only displayed when "Binary file" is selected on the "Logging type/File format" screen.

For details on the binary file format, refer to the following section.

☞ Page 81 Binary File Format

## Displayed items



Item		Description
Date information	Output date information	—
		In second
		In nanosecond <sup>*1</sup>
Index	Output indexes	Select this to output the index number in the file. The continuity of data logging can be checked by the index.
Trigger information	Output trigger flag	Select this to output the occurrence flag at the data position where the trigger occurred.

\*1 Data value is rounded off to 100 ms unit.

# Save

Configure the settings for the Data logging file save destination and the saved file switching settings. This setting is applied to both the "CSV file" and "Binary file" formats. For details on processes of saving settings, refer to the following section.

☞ Page 133 Saving Data logging files

## Displayed items

Item	Description	Reference	
File save destination	Specify the save directory (setting type folder) for the Data logging file. Data are added sequentially to the specified file.	Page 293 File save destination	
File switching setting	—	Page 133 Saving Data logging files	
	File switching timing	Specify the timing to switch the file to a new file.	Page 294 File switching timing
	Saved file name	Change the name of the file up to then when the file is switched. Information attached to the changed file name can be set.	Page 298 Saved file name
	Number of saved files	Specify the maximum number of files to be saved on a CompactFlash card.	Page 301 Number of saved files
[Transfer setting] button	—	Page 301 Transfer setting screen	
	FTP transfer destination	Display the FTP transfer destination setting. <ul style="list-style-type: none"> <li>If no setting : No setting</li> <li>If there is a setting: Display the FTP setting number</li> </ul>	
	E-mail address	Display the e-mail destination setting. <ul style="list-style-type: none"> <li>If no setting : No setting</li> <li>If there is a setting: Display the target e-mail address setting number</li> </ul>	

## File save destination

Item	Description
File save destination	Specify the name of the folder to save files in. For the characters that can be set, refer to the section below. ☞ Page 594 Characters usable in file names, folder (directory) names Specify a name not to overlap with the file save destination of other Data logging files. (Within 32 characters)

256 Data logging files are saved in a folder of the specified "File save destination". The files with low numbers which have been deleted by the setting of "Number of saved files" are included in this number.

The 257th file is saved in a new folder.

The saved file name when the save folder and additional information are not set is as follows:

Save folder			Saved file name	Maximum number of file	
File type folder	Setting type folder	Number folder			
\LOGGING	\LOG01	\0000001	00000001.CSV(.BIN)	256	
			00000002.CSV(.BIN)		
			:		
			000000FF.CSV(.BIN)		
			00000100.CSV(.BIN)		
	\0000101	\0000101	\0000101	00000101.CSV(.BIN)	256
				00000102.CSV(.BIN)	
				:	
				000001FF.CSV(.BIN)	
				00000200.CSV(.BIN)	
	\LOG02	\0000001	\0000001	00000001.CSV(.BIN)	256
				00000002.CSV(.BIN)	
:					
000000FF.CSV(.BIN)					
00000100.CSV(.BIN)					
\0000101	\0000101	\0000101	00000101.CSV(.BIN)	256	
			00000102.CSV(.BIN)		
			:		
			000001FF.CSV(.BIN)		
			00000200.CSV(.BIN)		
		:	:	:	

Item	Description
File type folder	Folders are created automatically according to the type of saved file. "LOGGING": Store Data logging files. "EVENT": Store Event logging files. (☞ Page 333 File save destination) "REPORT": Store Report files. (☞ Page 373 Save)
Setting type folder	Files are sorted according to the save directory name set for "File save destination" on the "Save" tab of the Data logging setting.
Number folder	Files are sorted according to the specified number of saved file. Folder name: $100 \times n + 1$ is displayed in 8 digits ( $n=0, 1, 2, 3, \dots$ ) Example: 00000001, 00000101, 00000201, 00000301
Saved file name	A saved file name is expressed as 8 digits. The output format can be changed in the "Saved file name" setting on the "Save" tab of the Data logging setting.

## File switching timing

Specify the timing to switch the file to a new file.

If the condition specified in "File switching timing" is fulfilled, the file where data are being stored (storing file) is saved in the save folder with the saved file name (Page 298 Saved file name) as the Data logging file.

Item	Description	Reference	
Number of records	Switch the file when the specified number of lines (records) is reached. (100 to 100000 lines)	—	
File size	Switch the file when the specified file size is reached. (10KB to 16384KB)	—	
Condition specification	—	Specify the condition to switch the file.	
	Type	Display the type of condition specified on the "File switching condition setting" screen. (Data conditions, Fixed cycle, Time interval specification, Specifying a time of day, At startup of BOX Data Logger) The file switching is performed even if the condition is fulfilled during the period when data logging is not performed	
	Content	Display the content of the condition specified on the "File switching condition setting" screen.	
	[Edit] button	Open the "File switching condition setting" screen to specify the condition. (Select either Single condition or Compound condition)	Page 295 File switching condition setting screen
	[Delete] button	Delete the specified condition.	—
Trigger logging unit	After the trigger, output the number of lines' worth of data and immediately switches the file. (Can only be set when Trigger logging is specified)	—	

Even when the above file switching condition is not satisfied, the file is switched in the following situations regardless of the set timing.

- When the number of lines (number of records for binary) reaches 65535 in case "Number of records" is not selected.
- When there is no e-mail destination setting and the file size reaches 16MB in case "File size" is not selected.
- When there is an e-mail destination setting and the file size reaches 512KB in case "File size" is not selected.

### ■When "Data conditions" is selected for "Condition specification"

At least twice the time of the sampling interval is required in order for BOX Data Logger to recognize the condition. Therefore, set a time at least double of the sampling interval to a device that specifies conditions. If the sampling interval is 1 second, set the condition satisfaction time to 2 seconds or longer.

### ■When "Fixed cycle" or "Specify a time of day" is selected for "Condition specification"

File switching is performed when the power is turned ON if the specified cycle elapses or the specified time reaches until the power is turned ON again since the power has been turned OFF.

### ■When "At startup of BOX Data Logger" is selected in "Condition specification"

File switching is performed at the time of BOX Data Logger startup, and a file containing only a header will be created. The sampled data will be saved from the next file.

#### Point

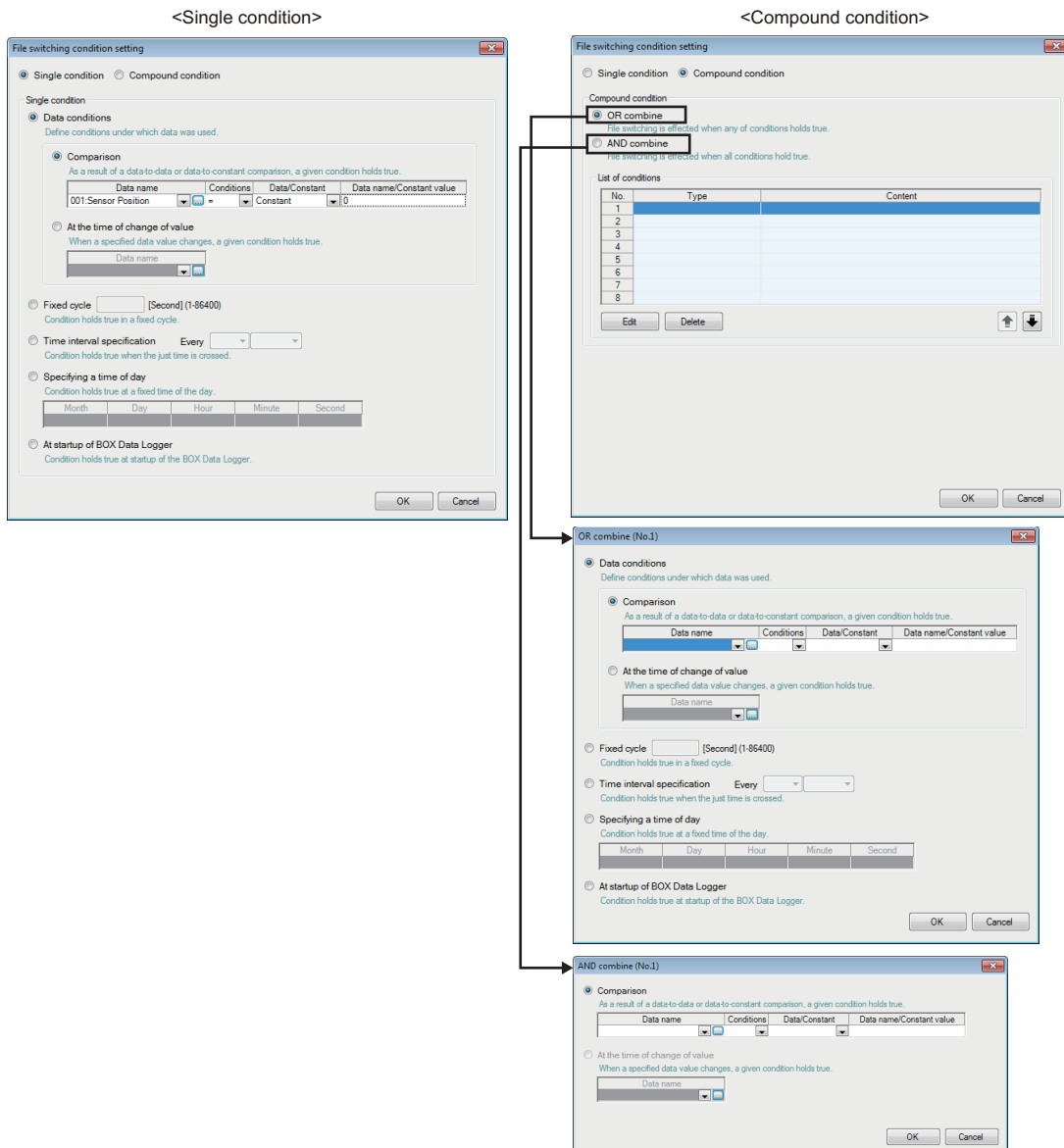
By configuring the following settings, only trigger logging data before and after the rising of trigger condition can be output to a report.

- Select [Data logging setting] ⇒ [Save] ⇒ "File switching timing" ⇒ "Trigger logging unit".
- Select [Report setting] ⇒ [Layout] ⇒ "Data logging layout" ⇒ "Source file" ⇒ "Saved file" (Page 349 Data logging layout screen).
- Select [Report setting] ⇒ [Creation trigger] ⇒ "At the time of the Data logging file is switched." (Page 363 Creation trigger).



## File switching condition setting screen

### Displayed items



12

File switching condition	Description
Single condition	Switch files when the specified condition is established. The setting items of Single condition are the same as those of "Trigger condition setting" screen of Trigger (Single condition). For details, refer to the following section. ☞ Page 276 Trigger condition setting screen
Compound condition	Switch files when either specified condition is satisfied for "OR combine", and when all of the conditions are satisfied for "AND combine". The setting items of Compound condition are the same as those of "OR combine" or "AND combine" of Trigger (Compound condition). For details, refer to the following sections. OR combine: ☞ Page 279 OR combine AND combine: ☞ Page 279 AND combine

## ■ Operation example

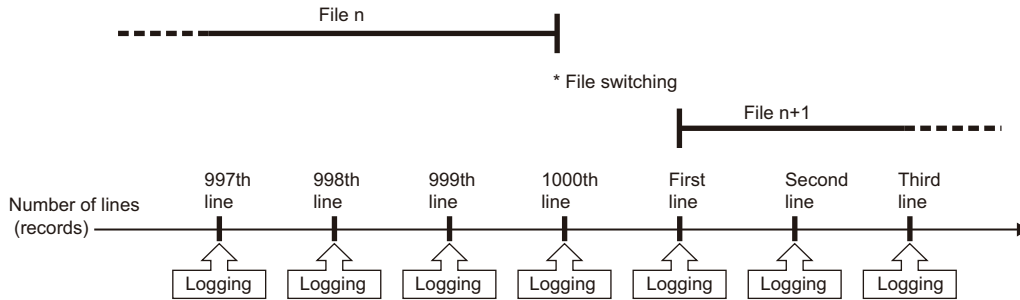
Operation examples of the file switching under each setting are as follows:

The file switching (processing described below) is performed at the timing of "\*\* File switching" in each operation example.

- Creating a saved file
- Deleting data in the storing file (A header-only file is created)
- Transferring the saved file to the FTP server or mail server (When the transfer setting is set)

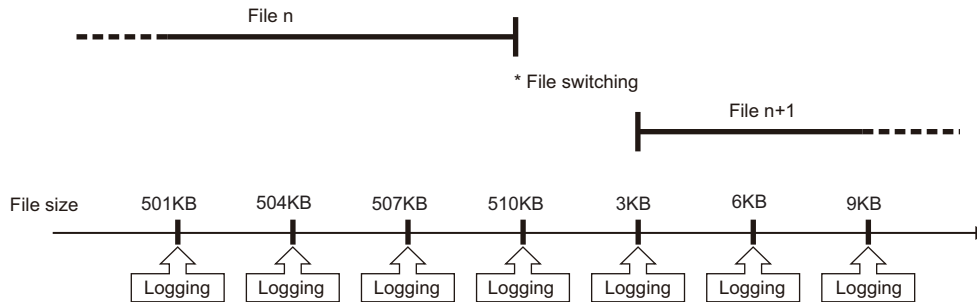
1) Number of lines (number of records) is specified

Example) "Number of records": 1000 lines



2) File size is specified

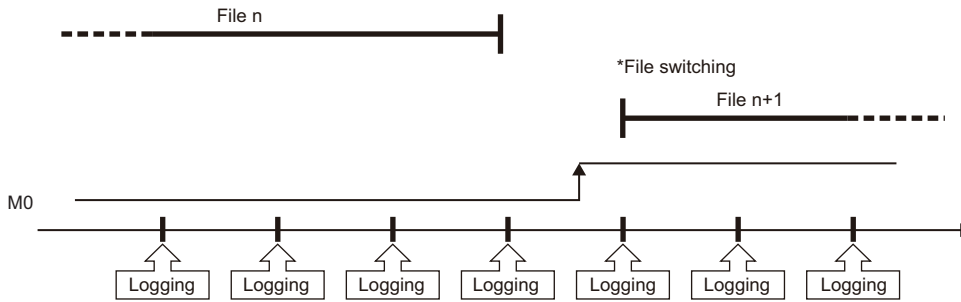
Example) "File size": 512 KB



The file switching is performed at the timing before the file size exceeds the specified size. Since the output size of one line (record) may vary depending on the data value when the file format is CSV file, the file switching timing is determined by predicting the next output size on the basis of the present output time.

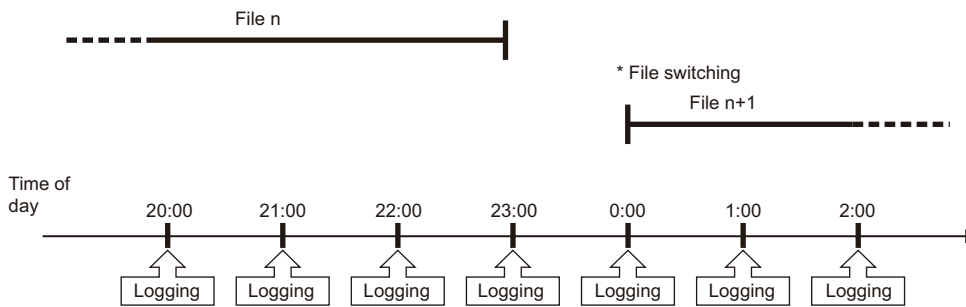
### 3) Condition specification (Data conditions)

Example) "Data condition": M0=ON

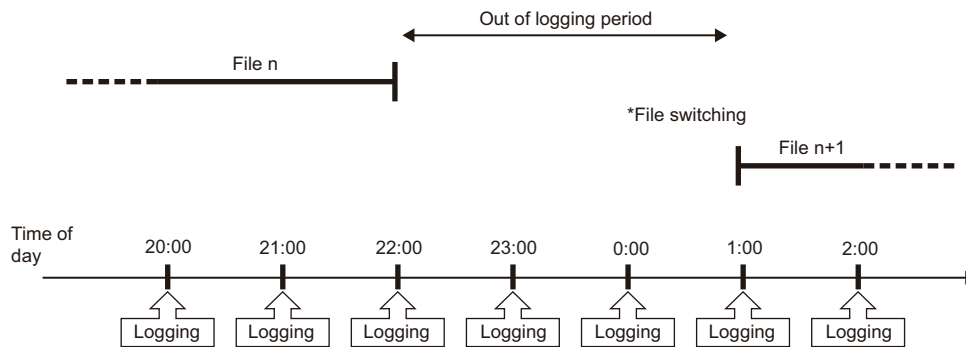


### 4) Condition specification (Fixed cycle/Specifying a time of day/At startup of BOX Data Logger)

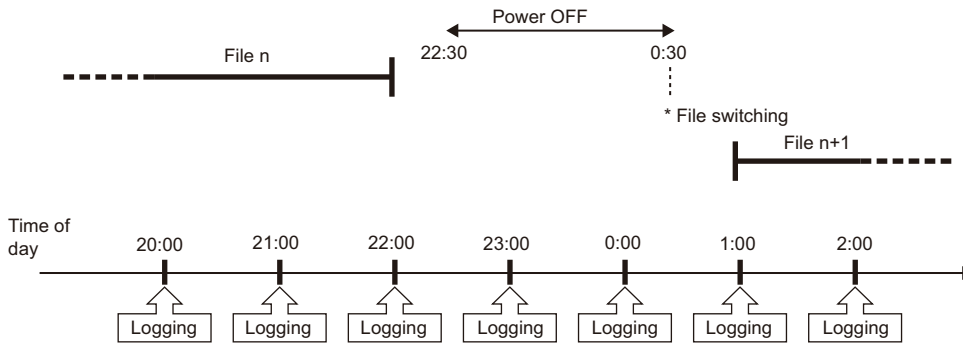
Example 1) "Specifying a time of day": 0 o'clock



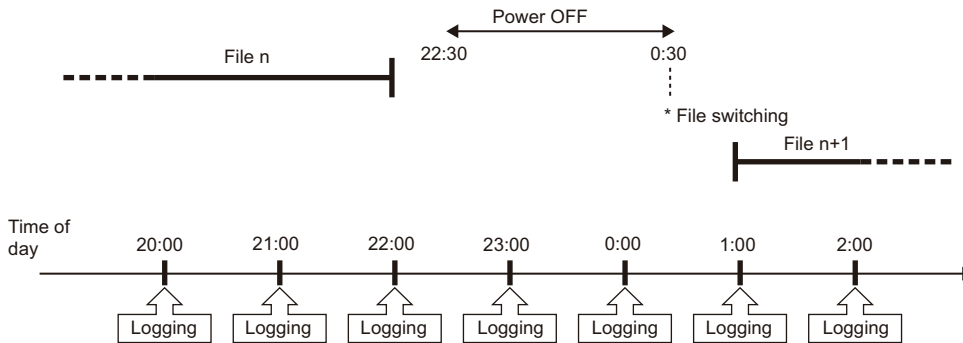
Example 2) "Specifying a time of day": 0 o'clock, logging period: 1 to 22 o'clock



Example 3) "Specifying a time of day": 0 o'clock, and BOX Data Logger is powered OFF from 22:30 to 0:30

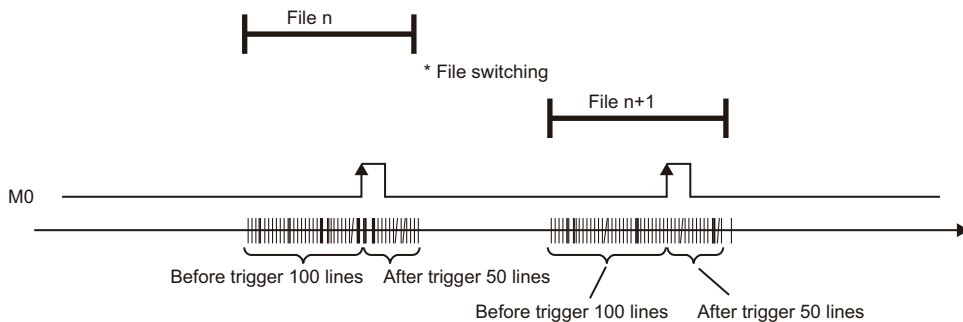


Example 4) At startup of BOX Data Logger



Example 5) Trigger logging unit

Example) "Trigger condition": M0=ON, "Before trigger": 100 lines, "After trigger": 50 lines



File switching is performed at the time of BOX Data logger startup and the setting update when the file format is "CSV file" and the "Output index column" checkbox is unselected on the "CSV output" screen.

## Saved file name

Set the information which is to be attached to the saved file name.

Item	Description	Reference
Format	Display the output format of the saved file.	—
Example	Display the output image of the file name in a current format.	—
[Edit] button	Open the "Saved file name setting" screen to set the information which is to be attached to the saved file name.	Page 299 Saved file name setting screen

The saved file number (00000001 to FFFFFFFF) to identify saved files is always attached to a saved file name.

## ■ Saved file name setting screen

Item	Description	Reference		
Simple setting	—	Add the information to the file name in a fixed format.	—	
	Attach the name	Select this to attach the characters, which are specified with the file save destination setting, to the file name.	—	
	Attach the date	Select this to attach the date to the file name. Year-month-day (YYYYMMDD) is attached.* <sup>1</sup>	—	
	Attach the time	Select this to attach the time to the file name. Hour-minute-second (hhmmss) is attached.* <sup>1</sup>	—	
Detailed setting	—	Specify the format of the information which is to be attached to the file name.	—	
	Format	Specify the output format of the information which is to be attached to the file name. Enter the output format using the characters usable in file names and folder (directory) names (☞ Page 594 Characters usable in file names, folder (directory) names) (Within 32 characters). Date and time, and data can be specified using the following reserved words.* <sup>2, 3</sup> <ul style="list-style-type: none"> <li>• YYYY:Year (4 digits)</li> <li>• YY:Year (2 digits)</li> <li>• MM: Month (2 digits)</li> <li>• DD: Day(2 digits)</li> <li>• ddd:Day of the week(3 digits)</li> <li>• hh: Time (2 digits)</li> <li>• mm: Minute (2 digits)</li> <li>• ss: Second (2 digits)</li> <li>• &lt;DATA1&gt; :Content of data specified at &lt;DATA1&gt;</li> <li>• &lt;DATA2&gt; :Content of data specified at &lt;DATA2&gt;</li> </ul> The following abbreviations are output for days of the week. Monday: Mon Tuesday: Tue Wednesday: Wed Thursday: Thu Friday: Fri Saturday :Sat Sunday: Sun	—	
	Attached data setting	—	Set the data to be attached to the file name. The content of the set data is attached to the file name.	—
		Data* <sup>4</sup>	Select this to attach the data to the file name. <DATA1><DATA2> are added to the end of the "Format".	—
	Data name	Display the data specified at <DATA1><DATA2>. To change the data to be attached to the file name, click the [...] button on the right of the input field and change it on the displayed "Data setting" screen.	Page 218 Data setting screen	
Attached time (date) type	—	Select the time (date) type to be attached to the file name.	—	
	File switching condition hold true time	Select this to attach the time (date) when file switching conditions are fulfilled.	—	
	File creation time	Select this to attach the time (date) when the storing file was created (when the previous file switching was performed) to the file name..	—	
Example	Display the output image of the file name in a current format.	—		

- \*<sup>1</sup> When both of time and date are to be attached, the format is fixed as [YYYYMMDD\_hhmmss]. Time cannot be attached before date.
- \*<sup>2</sup> The number of "<DATA1>" and "<DATA2>" that can be set in the format is one respectively.
- \*<sup>3</sup> A reserved word quoted with double quotes (") is attached as a string to the file name. A double quote (") itself is not attached as a string to the file name.  
The reserved word <DATA1><DATA2> cannot be attached to the file name.  
Example: If the format is set to ""HDD"\_LOTNo\_<DATA1>\_YYYYMMDD", where <DATA1> is the device head D0, word [unsigned], and 0 padded number of total digits 4, HDD\_LOTNo\_0000\_20090630\_00000001.CSV  
(The file name will additionally have "HDD" as a string and "20090630" as an after-reservation value.)
- \*<sup>4</sup> When data cannot be sampled at the time of file switching, "NODATA" (fixed string) is added to the saved file name.

- Regardless of selection of the simple setting or detailed setting, the saved file number is always attached to a saved file name.
- Depending on the settings, the file switching process may take time. In this case, a newer time than the time stamp of the first record in the logging file is attached even if "File creation time" is selected.
- In the following cases, when "File creation time" is selected, the different time from the time stamp of the first record in the Logging file may be attached to the file name depending on the length of file switching processing time or the timing of performing file switching.
  - "Trigger logging unit" is selected for "File switching timing".
  - File switching has been performed while data logging is not performed.
- When "File creation time" is selected, the even number of seconds are attached to the file name. The odd number of seconds is rounded down to the even number of seconds.

## ■ Output format screen

Specify the output format of data which are to be attached to the file name.

Item	Description
Decimal integer format	Select this to output in a decimal integer format.
Hexadecimal format	Select this to output in a hexadecimal integer format (characters are upper case).
Zero padding	Select this to zero pad the output data. If the number of digits of output data is less than the specified number of digits, the data are zero padded.
Number of total digits	Specify the number of total digits of output data at zero padding. If the number of digits of the output data is the same as or more than the specified number of total digits, the data are not zero padded.

When "Zero padding" is selected, '0' is appended to the saved file name according to the specified number of total digits.

**Ex.**

When 'BAT<DATA1>\_YYYYMMDD\_ddd\_hhmmss' is set as the format, and the start device D0 for <DATA1>, Word [Unsigned], 4 for "Number of the total digits" are specified

- When D0=12

BAT0012\_20090410\_Fri\_154030\_00000001.CSV

('0' is appended to the value of D0 and the value will be '0012' because the number of digits is less than the specified number of total digits.)

- When D0=32768

BAT32768\_20090410\_Fri\_154030\_00000001.CSV

(Only the value of D0 itself is output because the number of digits is the same or more than the specified number of total digits.)

## Number of saved files

Set the maximum number of saved files and the operation when the maximum number is exceeded.

Item		Description
Number of saved files		Specify the maximum number of saved files (1 to 65535).
Operation occurring when number of saved files is exceeded	Overwrite	Select this to delete files with low numbers and continue data logging when at file switching the number of saved files has already exceeded the specified number. When the folder where files with low numbers are deleted becomes empty, that folder is automatically deleted.
	Stop	Select this to stop data logging when at file switching the number of saved files has already exceeded the specified number. <sup>*1</sup> Delete the latest saved file or the saved file with the lowest number via FTP or with the file browser of Configuration tool to restart data logging.

\*1 The storing file and the specified number of saved files are saved in a CompactFlash card.

The number of saved files is calculated by the saved file number as shown below.

Latest saved file number - Lowest saved file number + 1

## Transfer setting screen

Transfer the latest saved file when the file is switched.

Item		Description
Transfer files to the following FTP server	—	Select this to transfer the file to the FTP servers.
	Transfer destination 1. to 3.	Select from the FTP servers registered on the "FTP setting" screen.
	[Editing FTP setting] button	Open the "FTP setting" screen to edit the details of each destination FTP server.
E-mail files to the following destination	—	Select this to attach the file to an e-mail and send it.
	E-mail address 1. to 3.	Select from the destination group names registered with "E-mail setting" screen.
	[Editing e-mail setting] button	Open the "E-mail setting" screen to edit the e-mail destinations.
	[E-mail content setting] button	Open the "E-mail content setting" screen to edit the e-mail contents.

E-mail transmissions/file transfers by the saved file transfer function may take a few seconds to tens of seconds depending on the network line/transmission size.


Target files may be deleted before e-mail transmission/file transfer completes depending on the settings.

Review the file switching timing and the number of saved files setting and lengthen the time until the file is deleted.

### ■FTP setting screen

The setting items are the same as those of "FTP setting" screen of Common setting.


For details, refer to the following section.

 Page 240 FTP setting

### ■E-mail setting screen

The setting items are the same as those of "E-mail setting" screen of Common setting.

For details, refer to the following section.

 Page 242 E-mail setting

## ■E-mail content setting screen

Item		Description	Reference			
Settings	—	Set the subject and text.	—			
	Simple setting	Append the file name and sent date/time to the e-mail subject and text.	—			
	Detailed setting	—	Specify the information to be appended to the e-mail subject and text.	—		
		E-mail subject	Specify the format of e-mail subject. The tag format can be used. (Up to 64 characters)	—		
		E-mail text	Specify the format of e-mail text. The tag format can be used. (Up to 2048 characters)	—		
	Use tags	—	Select this to enable the tag input.	—		
		Tag format	Specify the following tag items to append the sent date/time and data to the e-mail when selecting this checkbox. <sup>*1, *2</sup> <FILENAME>: File name <YYYY>: Year <YY>: Year <MM>: Month <DD>: Day <hh>: Time <mm>: Minute <ss>: Second <DATA1>: Data specified at <DATA1> <DATA2>: Data specified at <DATA2>	—		
			Data setting	—	Set when outputting data.	—
			Data	Select this to append data to the E-mail subject or E-mail text.	—	
			Data name	Display data names set for <DATA1> and <DATA2>.	—	
			Data name display field	Display set data.	—	
	[...] button	Display the "Data setting" screen.	Page 218 Data setting screen			
[E-mail content check] button	Display the "E-mail content check" screen.	Page 303 E-mail content check screen				

\*1 Total of 16 tags can be set for E-mail subject and E-mail text.

\*2 Tags can be disabled by adding another brackets.

(The item enclosed with outer brackets can be handled as a string.)

Example: "<FILENAME>" is handled as a string by describing it as <<FILENAME>>.



### ■E-mail content check screen

Item	Description
Destination	Display the send target group name.
E-mail subject	Display the contents entered in "E-mail subject" on the "E-mail content setting" screen.
E-mail text	Display the contents entered in "E-mail text" on the "E-mail content setting" screen.

When the data tag (<DATA1>, <DATA2>) is used on the "E-mail content setting" screen, the following character is displayed on the "E-mail content check" screen.

Data setting	Output character
Decimal/Hexadecimal	0
String	s

The displayed value changes depending on the specified size or the number of digits specified for zero padding. As an output example, "ssssssss" is displayed when the specified size is 8, and "0000000000000000" is displayed when the number of digits specified for zero padding is 16 (size 8). (When the number of digits for zero padding is not specified, 0 is displayed.)

Example

The diagram illustrates the process of rendering email content. On the left, a template for "E-mail text" is shown with placeholders: <YY> <MM> <DD> <hh> <mm> <ss> transmission, [Logging Data], Operation Name <DATA1>, and Line No. <DATA2>. A downward arrow indicates the rendered output, where the placeholders are replaced with actual values: 14 02 20 14 24 02 transmission, [Logging Data], Operation Name SSSSSSSS, and Line No. 0000000000000000.

A callout box on the right details the settings for the data tags:

- <DATA1>**: Data type is set to "String" and Size is set to 8.
- <DATA2>**: Data type is set to "Raw" and Size is set to 8.

# Finish

Assign a name to the Data logging setting and complete the settings.

## Displayed items

Logging type/File format | Sampling | Data | Trigger | Number of logging lines | CSV output | Save | **Finish**

All information necessary for data logging has been gathered. Press the [Finish] button to complete setting.  
To have your settings reflected in the BOX Data Logger, use the Online menu's Write command.

Assign a name to data logging.  
Data logging name LOG01

Data list | < Back | Next > | **Finish** | Cancel

Item	Description
Data logging name	Specify the name of the setting being edited. For the characters that can be set, refer to the following section. 📖 Page 592 Usable Characters (Up to 32 characters)
[Finish] button	Settle the settings being edited. After settling the settings, the data logging name is displayed in the following. <ul style="list-style-type: none"><li>• On the edit items tree, under the "Data logging setting" folder</li><li>• Data logging setting list</li></ul>
[Cancel] button	Discard the data logging settings being edited and end editing.

# 12.6 Event Logging Setting

This section explains the settings for the Event logging function.  
For an overview of the Event logging function, refer to the following chapter.

☞ Page 137 EVENT LOGGING FUNCTION

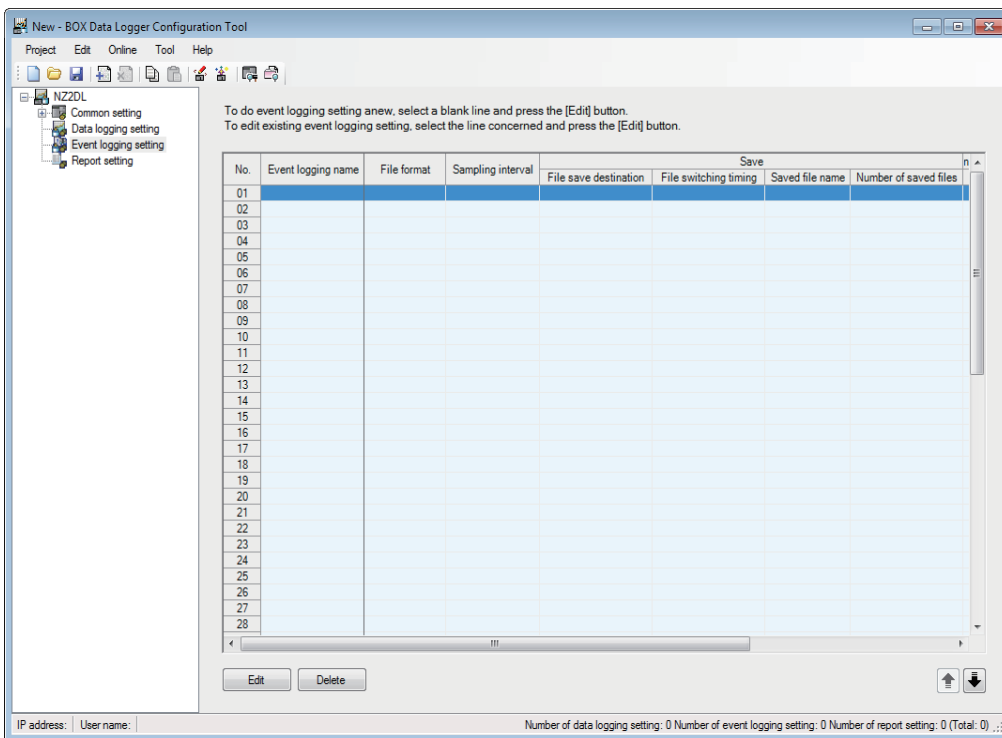
## Event logging setting list

This section explains the items on the screen of event logging setting list.

### Operating procedure

Click "Event logging setting" on the edit items tree.

### Displayed items



The existing event logging settings can be utilized by using the project file import function (☞ Page 223 Importing settings from project file).

The setting time can be reduced by utilizing the existing settings.



The items displayed on the event logging setting list are as follows:

Item	Description	Reference
Event logging name	Displays the event logging name.	Page 339 Finish
File format	Displays the file format of the Event logging file.	Page 309 File format
Sampling interval	Displays the sampling interval of the target data.	Page 310 Sampling
Save	—	Displays the save settings of the Event logging file.
	File save destination	Displays the save destination.
	File switching timing	Displays the switching timing for the Event logging file by separating with commas. Example) 1000[Line],16384[KB].
	Saved file name	Displays the information to attach to the Event logging file name.
	Number of saved files	Displays the upper limit of the number of saved files.
Transfer	—	Displays the transfer settings of the Event logging file.
	FTP transfer	Displays whether or not FTP transfer setting exists.
	E-mail sending	Displays whether or not e-mail transmission setting exists when an event occurs.
E-mail notice	Displays whether or not e-mail notification setting exists when an event occurs.	Page 337 E- mail Notice

The buttons for operating the event logging setting list are as follows:

Item	Description	Reference
[Edit] button	Displays the "Event logging setting" screen to edit the settings of the selected row. If the selected row is empty, new event logging settings are added to that row.	Page 307 Event logging setting screen transitions
[Delete] button	Deletes the settings of the selected row.	—
[↑]/[↓] button	Shifts the selected row one row up or one row down.	—

**Point** 

Multiple rows can be selected and deleted or moved in batch by clicking on them while pressing the  key or  key.

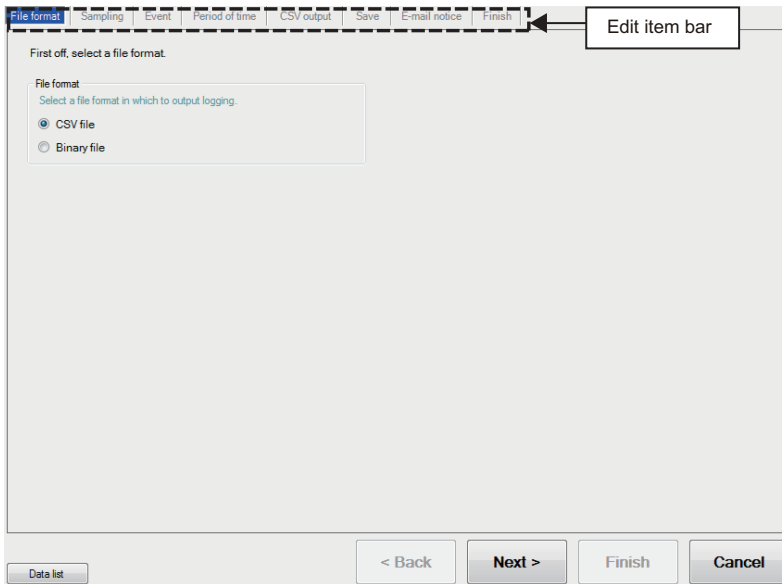
# Event logging setting screen transitions

Event logging settings are configured in a wizard format.

The title of each wizard screen is displayed in the 'edit item bar' in the upper portion of the detailed setting screen.

Setting operations are performed in order from the items to the left in the 'edit item bar' to those in the right.

## Displayed items






Item	Description	Reference
[Data list] button	Displays a list of all data being used by all the Event logging setting.	Page 215 Data list
[Back] button	Moves the setting wizard screen being edited to the previous (left) screen.	Page 308 Screen transitions with the [Back] / [Next] buttons
[Next] button	Moves the setting wizard screen being edited to the next (right) screen.	
[Finish] button	Settles the event logging settings being edited and completes editing. After completing the settings, returns to the screen of event logging setting list.	—
[Cancel] button	Discards the event logging settings being edited and ends editing. After cancelling the settings, returns to the screen of event logging setting list.	—

## Wizard display and operations

### ■ Edit item status

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

Status	Configured	Being edited	Not configured
Text color	Blue	White	Gray
Background color	Light gray	Blue	Light gray
Example			

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

Move between edit item screens with the [Back] / [Next] buttons.

### ■ Screen transitions by mouse

The setting screen for configured items can be moved directly by clicking the 'edit item bar'.

### ■ Edit items of Event logging settings

Edit items of Event logging settings are made up of the following types.

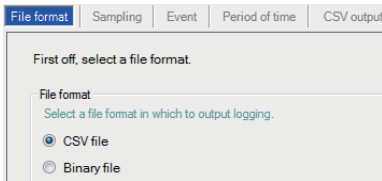
Setting item	Reference
File format	Page 309 File format
Sampling	Page 310 Sampling
Event	Page 311 Event setting list
Period of time	Page 326 Period of time
CSV output <sup>*1</sup>	Page 330 CSV output
Binary output <sup>*1</sup>	Page 331 Binary output
Save	Page 332 Save
E-mail notice	Page 337 E-mail Notice
Finish	Page 339 Finish

\*1 Configures the output format setting selected in "File format".

# File format

Specify the file format for saving events.

## Displayed items



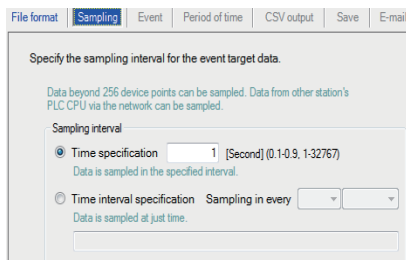
Item		Description	Reference
File format	—	Select the file format to save events.	—
	CSV File	Save in the CSV file format.	Page 75 Event logging file
	Binary File	Save in the binary file format.	Page 84 Event logging file

# Sampling

Select the data sampling method for the event target data, and specify the data sampling interval.  
 For details on processes of each sampling method, refer to the following section.

☞ Page 142 Sampling Target Data

## Displayed items



Item	Description	Reference
Sampling interval	Set the data sampling interval in seconds. (0.1 to 0.9, 1 to 32767 seconds)	Page 152 Sampling Creation Trigger and Current Value Data
Time specification	Sample data at the specified interval. (0.1 to 0.9 seconds, 1 to 32767 seconds)	—
Time interval specification	Sample data at the specified time interval (hour/minute/second) from the midnight of everyday, the top of every hour, or the top of every minute.	Page 263 Available time intervals

### Point

Since data sampling is not synchronized with the sequence scan, data separation may occur.

☞ Page 531 Access Units



# Event setting list

Display the list of events set with the Event logging function.

## Displayed items

No.	Event name	Event type	Conditions	Device	Occurrence	Restoration	Data value output
01	Event1	Single	1	D100	Occurrence	Restoration	Not to be outputted
02	Event2	Single	1	D101	Occurrence	Restoration	Not to be outputted
03	Event3	Single	1	D102	Occurrence	Restoration	Not to be outputted
04	Event4	Single	1	D103	Occurrence	Restoration	Not to be outputted
05	Event5	Single	1	D104	Occurrence	Restoration	Not to be outputted
06	Event6	Single	1	D105	Occurrence	Restoration	Not to be outputted
07	Event7	Single	1	D106	Occurrence	Restoration	Not to be outputted
08	Event8	Single	1	D107	Occurrence	Restoration	Not to be outputted
09	Event9	Single	1	D108	Occurrence	Restoration	Not to be outputted
10	Event10	Compound (Comparison)	1	M0	Occurrence	Restoration	Not to be outputted
11							
12							
13							
14							
15							
16							
17							
18							
19							
20							
21							
22							
23							
24							
25							
26							

The items displayed on the event list are as follows:

Item	Description	Reference
Event name	Displays the event name.	Page 312 Event setting
Event type	Displays the type of event. (Single, Compound (Comparison), Compound (Number of times), Compound (Order))	—
Conditions	Displays the number of conditions set for the event. (1 to 4)	—
Device	Displays the monitoring target devices used by the event setting.	—
Occurrence	Displays the comment when the event occurs.	Page 312 Event setting
Restoration	Displays the comment when the event is restored.	
Data value output	Displays whether or not the data value is output when the event occurs.	—

The buttons for operating the event list are as follows:

Item	Description	Reference
[Edit] button	Displays the setting screen to edit the settings of the selected row.	Page 312 Event setting
[Delete] button	Deletes the settings of the selected row.	—
[Batch insert] button	Inserts events in batch.	Page 324 Event batch insertion
[↑]/[↓] button	Shifts the selected row one row up or one row down.	—

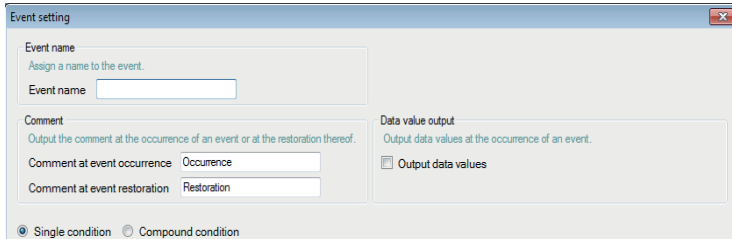
# Event setting



Configure the settings of event occurrence conditions and the information to output to the Event logging file at an event occurred/restored.

For details on processes of each event occurrence condition, refer to the following section.

 [Page 139 Event conditions](#)

## Displayed items



Item		Description
Event name	—	Set the event name to be output at the event occurrence/restoration.
	Event name	Set the event name (Up to 32 characters).
Comment	—	Set the comments to be output at the event occurrence/restoration.
	Comment at event occurrence	Specify the string to be output at the event occurrence (Up to 32 characters).
	Comment at event restoration	Specify the string to be output at the event restoration (Up to 32 characters).
Data value output	Output data values	Select this to output the data value at the event occurrence.
Single condition		Select this to set a single trigger condition.  <a href="#">Page 313 Event setting (single condition)</a>
Compound condition		Select this to set multiple trigger conditions in combination.  <a href="#">Page 316 Event setting (compound condition)</a>

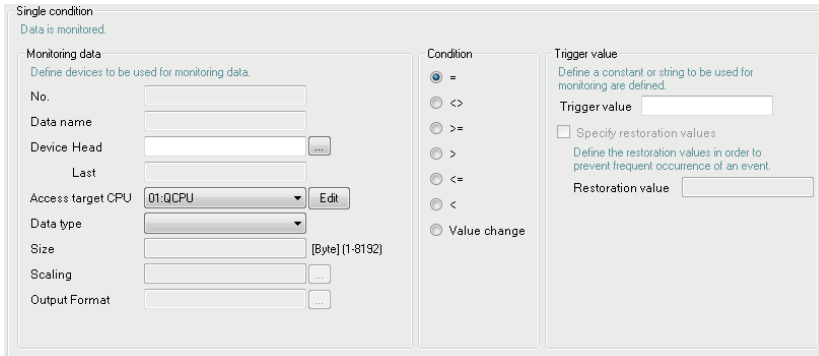
# Event setting (single condition)

The event setting with a single event occurrence condition is shown below.  
 For details on processes of each single condition, refer to the following section.

☞ Page 139 Single condition

One type of event condition can be specified on the screen below.

## Displayed items



Item		Description	Reference	
Monitoring data	—	Set the monitoring target data.	—	
	No.	Display the index number of the monitoring target data.	—	
	Data name	Display the start device.	—	
	Device	—	Specify the event monitoring device.	—
		Head	Specify the start device. Click the [...] button to open the "Device Setting" screen.	Page 219 Device settings
		Last	Display the end device calculated from the data type and size.	—
	Access target CPU	Select the access target CPU name set with the Access target CPU setting. To add an access target CPU, select "(Add)" from the list box and click the [Edit] button.	Page 235 Access target CPU setting	
	Data type	Select the data type.*1	—	
	Size	Specify the size if the data type is "String" or "Raw".(1 to 8192 bytes)	—	
	Scaling	Set when performing a scaling conversion from the programmable controller CPU device value to the monitoring data.	Page 266 Scaling	
Output Format	Specify the format (such as decimal format, exponential format) when the monitoring data are output to a file.	Page 267 Output Format		
Condition	—	Select the condition.	—	
	=, ≠, ≥, >, ≤, <	Select the operator used to compare the trigger value with the monitoring data.	—	
	Value changes	Select this to make an event occur when the value of the monitoring data changes. (When "Value changes" is specified, the event is not restored.)	Page 314 Value changes	
Trigger value	—	Specify the constant or string to compare with the monitoring data.	—	
	Trigger value	Specify the constant data (up to 16 characters) to compare with the monitoring data.	—	
	Specify restoration values	Select this to specify the restoration value to suppress event occurrence.	Page 314 Restoration values	
	Restoration value	Specify the restoration value (up to 16 characters).		
[OK] button		Settle the settings and close the screen.	—	
[Cancel] button		Discard the settings and close the screen.	—	

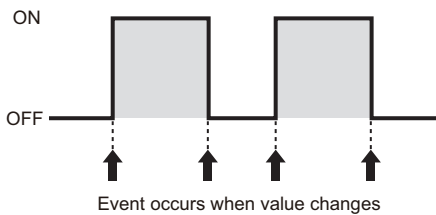
\*1 Match to the data type with the one used for writing device values using a sequence program or HMI.

## Value changes

The timing of the event occurrence when "value changes" is specified as the condition is as follows:

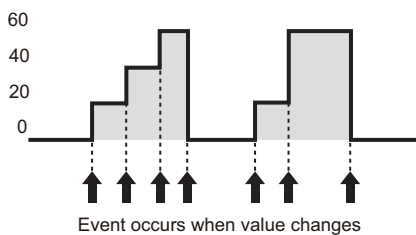
For a bit device:

The event occurs when it changes from ON to OFF and from OFF to ON.



For a word device:

The event occurs by each change of the value.



## Restoration values

- Set the restoration value from the monitoring conditions.
- Can be set when the monitoring condition is  $\geq$ ,  $>$ ,  $<$ , or  $\leq$ .
- The event is restored in the situations below.

Monitoring condition	Restoration condition
Monitoring data = Trigger value	Monitoring data $\neq$ Trigger value
Monitoring data $\neq$ Trigger value	Monitoring data = Trigger value
Monitoring data $\geq$ Trigger value	Monitoring data $<$ Restoration value
Monitoring data $>$ Trigger value	Monitoring data $\leq$ Restoration value
Monitoring data $<$ Trigger value	Monitoring data $\geq$ Restoration value
Monitoring data $\leq$ Trigger value	Monitoring data $>$ Restoration value

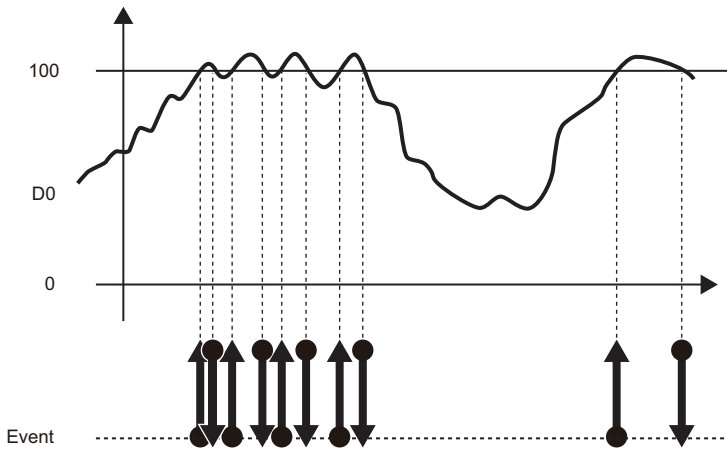
**Ex.**

When a restoration value is not specified

Event condition	Restoration value
$D0 > 100$	—

When  $D0 > 100$ , the event occurs, and the event is restored when  $D0 \leq 100$ .

The event occurs frequently.

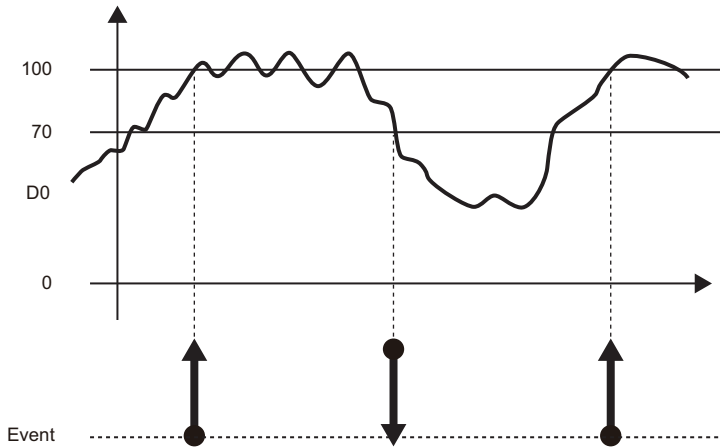


**Ex.**

When a restoration value is specified

Event condition	Restoration value
D0 > 100	70

When  $D0 > 100$ , the event occurs, and the event is restored when  $D0 \leq 70$ . Frequent occurrence of the event is suppressed by specifying a restoration value.



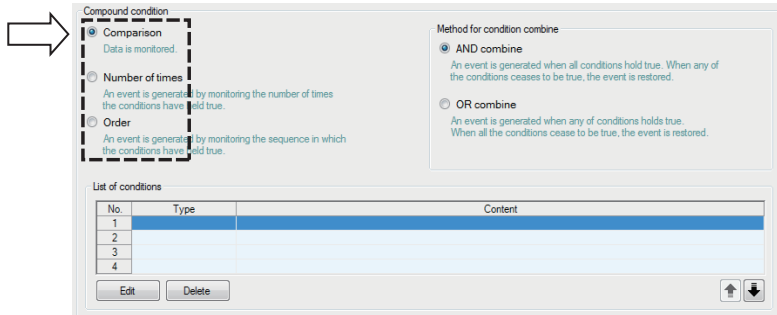
# Event setting (compound condition)

The method for specifying a combination of multiple event occurrence conditions is shown below.  
 For details on processes of compound condition, refer to the following section.

☞ Page 141 Compound conditions

## Comparison

### Displayed items



Item		Description	Reference
Comparison	—	Make the event occur when conditions are satisfied by comparing monitoring data.	—
	AND combine	Make the event occur during the period when all of the conditions specified on the list of conditions are satisfied.	Page 317 For AND combine
	OR combine	Make the event occur when any of the conditions specified on the list of conditions are satisfied.	Page 317 For OR combine
Number of times		Make the event occur by monitoring the number of times conditions are satisfied.	Page 318 Number of times
Order		Make the event occur by monitoring the order of the conditions satisfied.	Page 321 Order
List of conditions	—	Display the list of conditions.	—
	Type	Display "Comparison" when comparison is selected.	
	Content	Display the overview of the condition.	
[Edit] button		Display the setting screen to edit the condition in the selected row.	Page 317 Editing the comparison condition
[Delete] button		Delete the condition in the selected row.	—
[↑]/[↓] button		Shift the selected row one row up or one row down.	—
[OK] button		Settle the settings and close the screen.	—
[Cancel] button		Discard the settings and close the screen.	—

### ■Editing the comparison condition

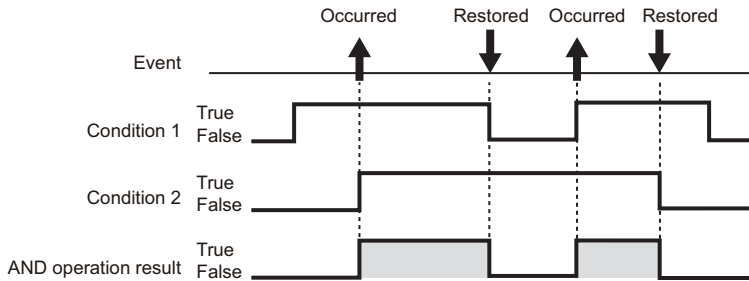
Editing of the comparison condition is performed on the "Comparison" screen.

The setting items are the same as those of single condition. Refer to the following section.

☞ Page 313 Event setting (single condition)

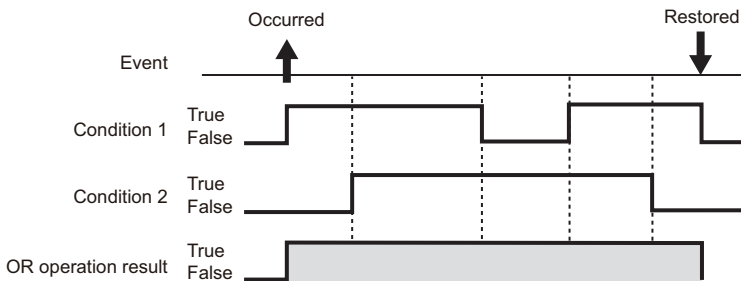
### ■For AND combine

The event occurs during the period when all of the conditions specified on the list of conditions are satisfied.



### ■For OR combine

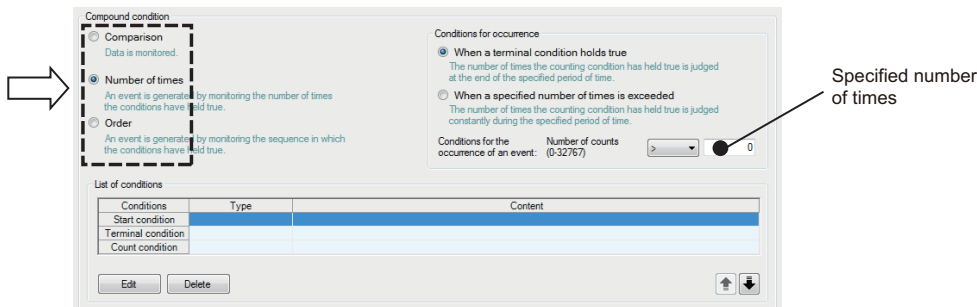
The event occurs when any of the conditions specified on the list of conditions are satisfied.



## Number of times

The event occurs by comparing the number of times the count condition is satisfied with the specified number of times.

### Displayed items



Item	Description		Reference	
Comparison	Makes the event occur when conditions are satisfied by comparing monitoring data.		Page 281 Editing the conditions for number of times	
Number of times	—	Makes the event occur by comparing the number of times the count condition is satisfied with the specified number of times.	—	
	Conditions for occurrence	When a terminal condition holds true	Judges the number of times the count condition has been satisfied during the period when the terminal condition is satisfied.	Page 319 When a terminal condition holds true
		When a specified number of times is exceeded	Makes the event occur immediately after the number of counts exceeds the specified number of times.	Page 320 When a specified number of times is exceeded
		Conditions for the occurrence of an event	Sets the "specified number of times" to compare with the number of times the count condition is satisfied (Number of counts) and its comparison operator ("=", "≠", "≤", "≥", "<", ">"). The event occurs if the comparison result is true. If "When a specified number of times exceeded" is selected, the condition is fixed as ">".	—
		Specified number of times	Sets the number of times to compare with the number of counts (0 to 32767).	—
Order	The event occurs by monitoring the order of conditions satisfied.		Page 321 Order	
List of conditions	—	Displays the list of conditions.		—
	Start condition	Displays the condition to start counting for the number of counts.		
	Terminal condition	Displays the condition to stop counting for the number of counts.		
	Count condition	Displays the condition to increment the number of counts.		
	Type	Displays "Comparison" or "At the time of change of value".		
	Content	Displays the overview of the condition.		
[Edit] button	Displays the setting screen to edit the condition in the selected row.		Page 319 Editing the conditions for number of times	
[Delete] button	Deletes the condition in the selected row.		—	
[↑]/[↓] button	Shifts the selected row one row up or one row down.		—	



### ■Editing the conditions for number of times

Editing of the conditions for number of times is performed on the "Number of times" screen.

The setting items on the "Number of times" screen are the same as those of "Data conditions" of Trigger (Single condition) in the Data logging setting. For details, refer to the following section.

☞ Page 276 Trigger condition setting screen

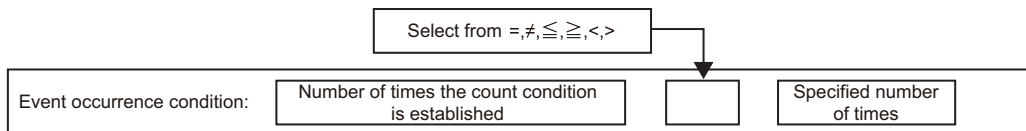
### ■When a terminal condition holds true

The number of times the count condition is satisfied is counted from when the start condition has been established to when the terminal condition has been established (count period).

The event occurrence condition is evaluated when the terminal condition has been satisfied, the event occurs if it's true.

After that, the number of counts is reset when the terminal condition has been satisfied, and the next count is started.

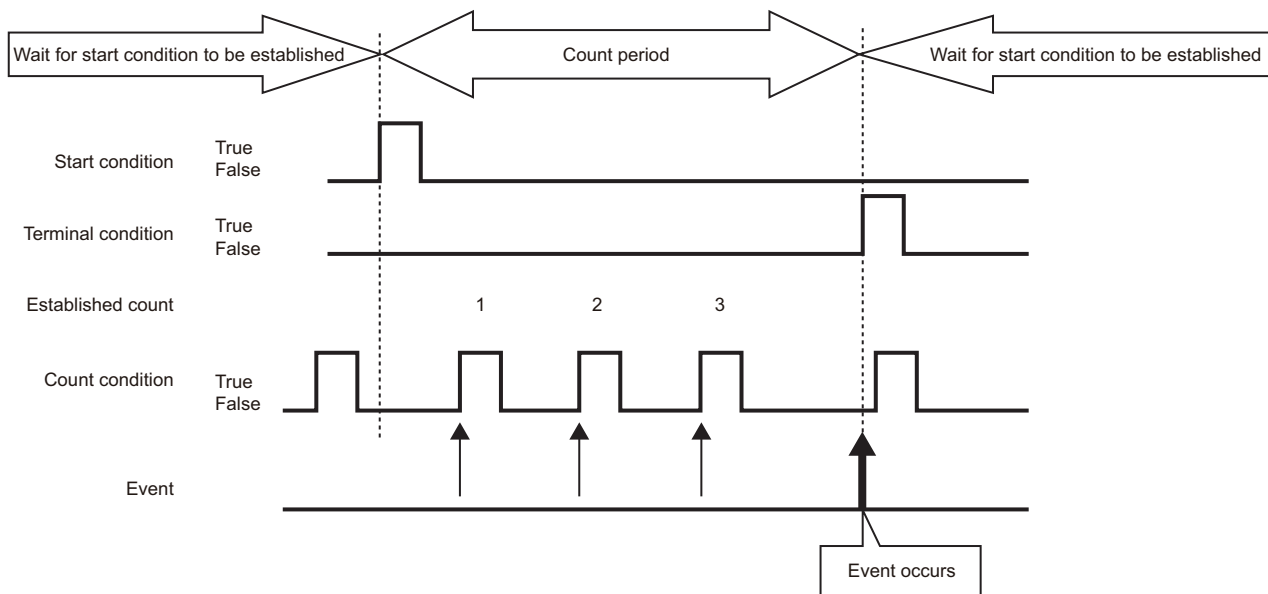
The start, terminal, and count conditions are judged on the rise of the condition satisfaction.



Example: For Event occurrence condition: (Number of counts) > 2 (specified number of times)

In the diagram below, the number of counts at the time of the terminal condition satisfaction is 3, and the occurrence condition is fulfilled.

The event occurs when the terminal condition has been satisfied.



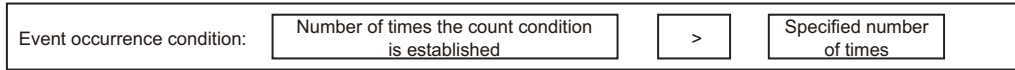
## ■When a specified number of times is exceeded

The number of times the count condition is satisfied is counted from when the start condition has been established to when the terminal condition has been established (count period).

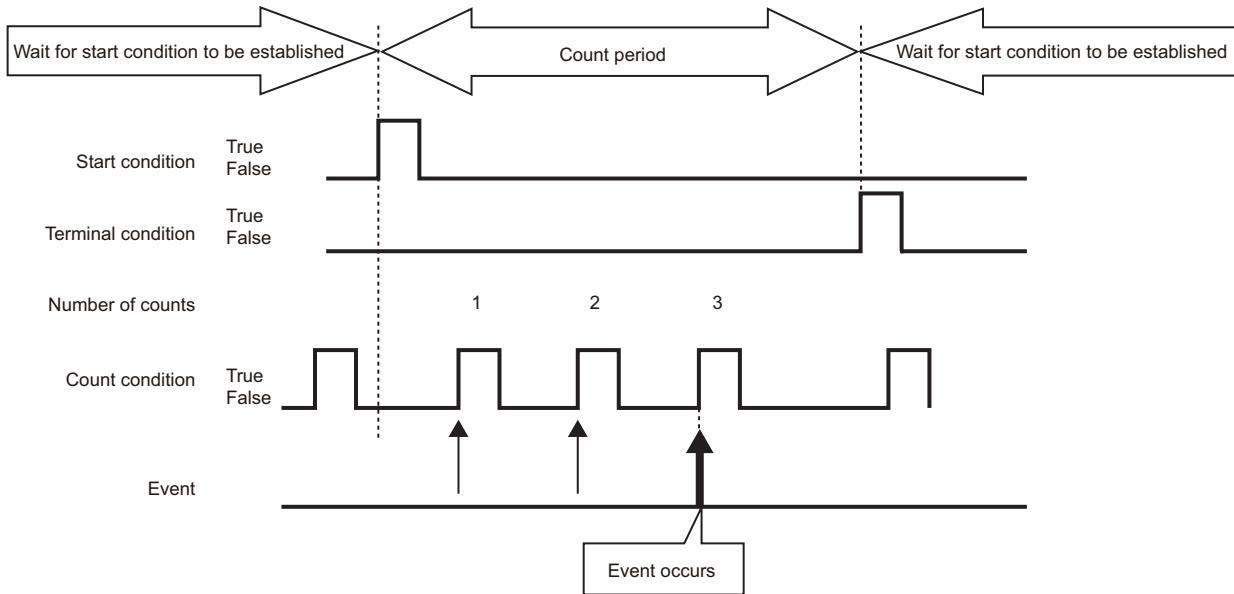
The event occurrence condition is always evaluated during the count period, and the event occurs immediately if it's true.

After that, the number of counts is reset when the terminal condition has been satisfied, and the next count is started.

The start, terminal, and count conditions are judged on the rise of the condition satisfaction.



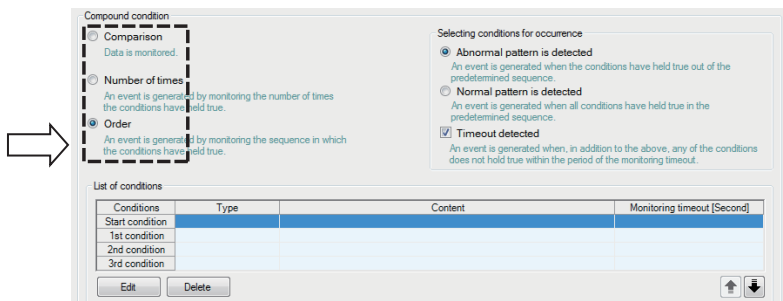
The event occurs at the point when the event occurrence condition is fulfilled as shown below.



## Order

The event occurs when the order is in wrong order (abnormal pattern is detected) or when the order is in correct order (normal pattern is detected) by monitoring the order of multiple conditions satisfaction.

### Displayed items



Item	Description		
Comparison	Makes the event occur when the condition is satisfied by comparing monitoring data.		
Number of times	Makes the event occur by comparing the number of times the count condition is satisfied and the specified number of times.		
Order	—	Makes the event occur by monitoring the order of the conditions satisfied.	
	Selecting conditions for occurrence	Abnormal pattern is detected	Makes the event occur when conditions are satisfied out of order.
		Normal pattern is detected	Makes the event occur when conditions are all satisfied in order.
		Timeout detected	Makes the event occur when any of the conditions are not satisfied within the monitoring timeout.
List of conditions	—	Displays the list of conditions.	
	Start condition	Displays the condition to start monitoring the condition satisfaction order.	
	1st/2nd/3rd condition	Displays the conditions to monitor in order.	
	Type	Displays "Comparison" or "At the time of change of value".	
	Content	Displays the overview of the condition.	
	Monitoring timeout [second]	Displays the timeout time when monitoring the conditions in each order.	
[Edit] button	Displays the setting screen to edit the condition in the selected row.		
[Delete] button	Deletes the condition in the selected row.		
[↑]/[↓] button	Shifts the selected row one row up or one row down.		

## ■Editing the order conditions

Editing of the order conditions is performed on the "Order" screen.

The setting items of "Comparison" and "At the time of change of value" are the same as those of "Data conditions" of Trigger (Single condition) in the Data logging setting. For details, refer to the following section.

☞ Page 276 Trigger condition setting screen

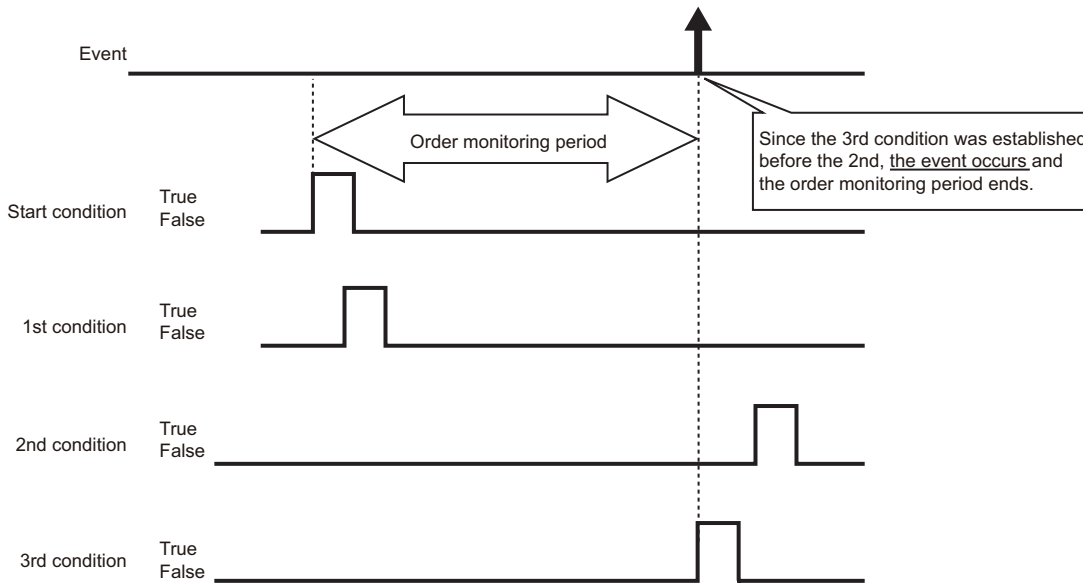
For "Monitoring timeout", refer to the following section.

☞ Page 323 Monitoring timeout

## ■Abnormal pattern is detected

A pattern of conditions satisfied in an order which differs from the 1st condition, 2nd condition, and 3rd condition order by start monitoring the order from when the start condition has been satisfied.

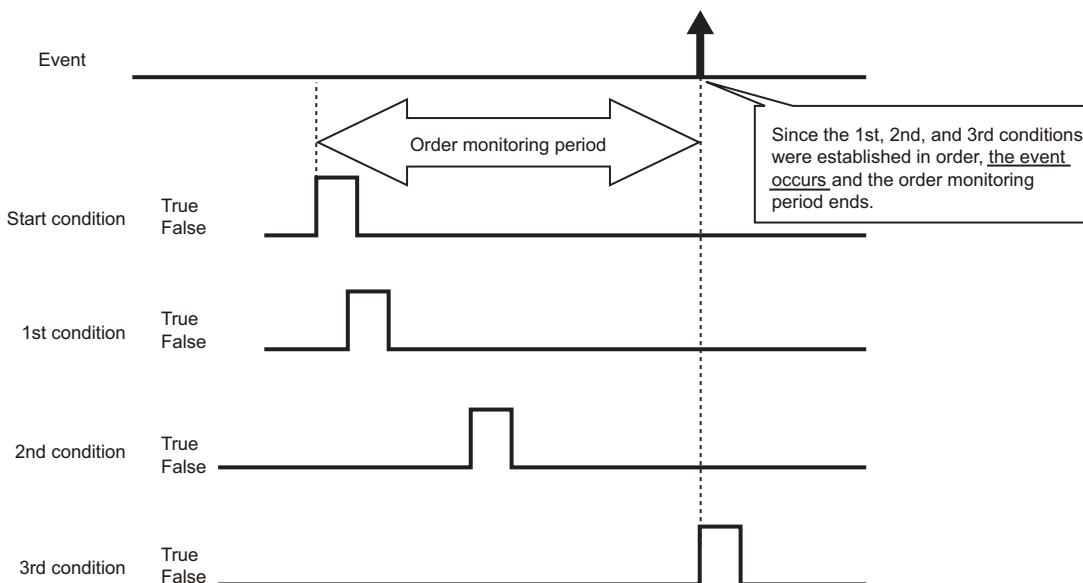
The event occurs when the conditions are satisfied in an order which differs from the specified order.



## ■Normal pattern is detected

A pattern of conditions satisfied in the 1st condition, 2nd condition, and 3rd condition order by start monitoring the order from when the start condition has been satisfied.

The event occurs when the conditions are satisfied in the specified order.



- If the start condition is satisfied again during the order monitoring period, it returns to the waiting state for the 1st condition satisfaction and continues the order monitoring
- If two or more conditions are satisfied simultaneously, the conditions are considered to have been satisfied in the specified order, so the event will not occur when an abnormal pattern is detected.

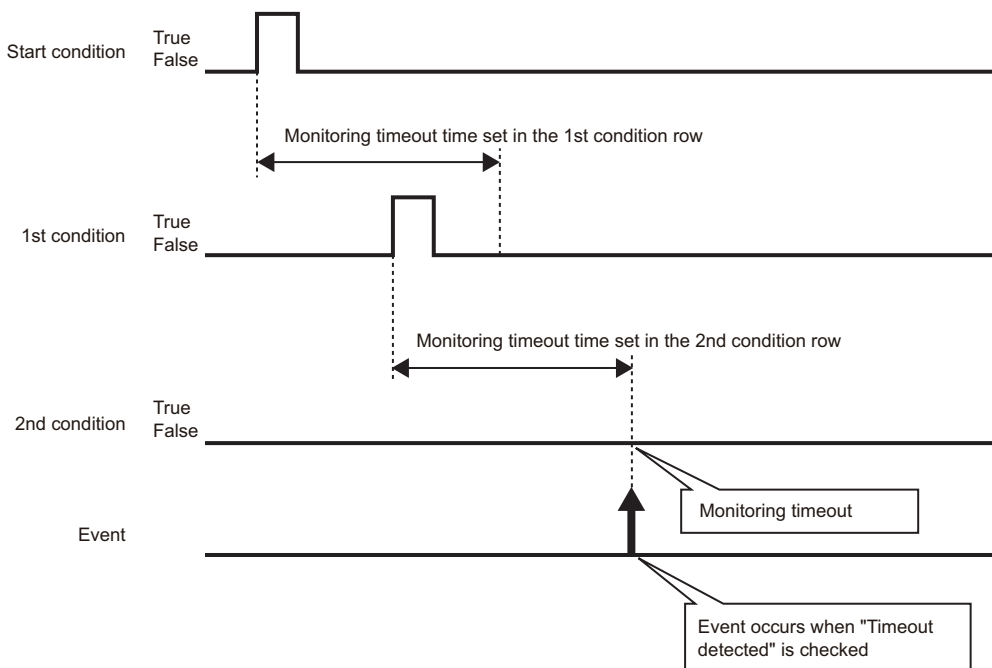
### ■Monitoring timeout

The condition until the next condition is satisfied is monitored after one condition has been satisfied.

If the next condition is not satisfied even if the specified monitoring timeout time elapses, it is considered as a timeout, and it ends the order monitoring and waits for the order start condition to be satisfied again.

For the diagram below, it will be a monitoring timeout since the 2nd condition is not satisfied within the monitoring timeout time after the 1st condition has been satisfied.

If "Timeout detected" is selected on the "Order" list screen, the event occurs at the same time the timeout occurs.



Set "Monitoring timeout" time on the "Order" screen.

☞ Page 322 Editing the order conditions

The setting range is shown below.

0.1 to 0.9, 1 to 32767 seconds

When the setting value of "Monitoring timeout" is smaller than that of the sampling interval, a timeout occurs. When "Timeout detected" is selected, an event occurs.

# Event batch insertion

Insert events to the Event logging setting in batch.

When the controller type of the access target CPU is "Rockwell AB (Tag)", events cannot be inserted in batch. Set the events individually.

## Operating procedure

Click the [Batch insert] button on the "Event" screen (☞ Page 311 Event setting list).

## Displayed items

Item	Description	Reference	
Event name	—	Display or changes the event name (Up to 32 characters).	Page 312 Event setting
	Append subscripts to event names	Select this to append a serial number to the event name set by the user.	Page 325 Event names and subscripts in the continuous setting
Continuous setting	—	Set the total amount of events to insert in batch with a continuous number and the interval.	Page 325 Total number and interval in the continuous setting
	Total number	Specify the total amount of events to insert in batch (2 to 64 points).	
	Interval	Specify the device interval of the monitoring data to insert in batch (1 to 2108416 points).	
	Auto interval setting	Select this to set the interval automatically in order to avoid gaps between the devices to be inserted in batch.	
Comment setting	Set the comments to be output at the event occurrence/restoration.	Page 312 Event setting	
Data value output	Outputs the data value at the event occurrence.	Page 312 Event setting	
Conditions	Specify the event occurrence condition.	Page 313 Event setting (single condition), Page 316 Event setting (compound condition)	
[OK] button	Settle the settings and close the screen.	—	
[Cancel] button	Discard the settings and close the screen.	—	

## Event names and subscripts in the continuous setting

The following shows how the event name is set by the selection of the "Append subscripts to event names" checkbox.

**Ex.**

Event name= Event

Continuous setting total number = 3

Continuous setting interval = 1

For the above example settings, the data names are set as shown below.

Item	Example 1	Example 2
Append subscripts to event names	Unselected	Selected
Event name	Event	Event(1)
	Event	Event(2)
	Event	Event(3)

12

## Total number and interval in the continuous setting

Configure when setting devices by leaving a fixed interval.

**Ex.**

Event name= Event

Continuous setting total number = 3

Continuous setting interval = 10

The start device= D0

For the above example settings, the data names are set as shown below.

No.	Event name	Event type	Conditions	Device
01	Event1	Single	1	D0
02	Event2	Single	1	D10
03	Event3	Single	1	D20

# Period of time

Specify the period for monitoring the event occurrence.

Configuring these settings is not required if constantly performing event logging.

Processes of period of time are the same as those of the data logging period setting. Refer to the following section.

☞ Page 131 Data Logging Periods

## Displayed items

Item	Description
Specify a period of time	Select this when not always performing event logging.
Monitor the event during the period of time which meets specified conditions*1	Select this to perform event logging during the period corresponding to the conditions displayed in the list.
Don't monitor the event during the period of time which meets specified conditions*1	Select this not to perform event logging during the period corresponding to the conditions displayed in the list.
Type of condition	Display the condition type (Data conditions, Date range, Time-of-the-day range, Day-of-the-week/Week-of-the-month conditions).
Content	Display the overview of the condition. To check the content, select the corresponding row and click the [Edit] button.
[Edit] button	Display the setting screen to edit the selected condition.
[Delete] button	Delete the selected condition.
Operator for combination	Specify how to combine the conditions of each row. (OR, AND)
[↑]/[↓] button	Shift the selected row one row up or one row down.

\*1 Restoration of already occurred events can be monitored even outside the event monitoring period. If an event is restored outside the monitoring period, a restoration comment is output to the Logging file.



## "Setting a period of time" screen

Specify the condition to define the period.

### ■Data conditions

Compare data and perform event logging during the period when the condition is satisfied.

Item	Description
Data name	Select the target data from the data set with "Event setting". To add a new data setting, select "(Add)" from the list box and click the [...] button.
Conditions* <sup>1</sup>	Select a comparison operator. (=, ≠, <, ≤, >, or ≥)
Data/Constant	Select the type of data to compare to the target data. ("Data" or "Constant")
Data name/Constant value	Set the data or constant data (up to 16 characters) to compare to the target data. To add a new data setting, select "(Add)" from the list box and click the [...] button.

\*<sup>1</sup> When data of different data types are compared, the condition may not be satisfied because of the difference in internal representations.  
For the value type comparison accuracy, refer to the following section.

 Page 595 Numerical Type Comparison Accuracy

### ■Date range

Perform event logging during the specified date period\*<sup>1</sup>.

\*<sup>1</sup> February 29 cannot be directly set. To specify February 29, select 'last day of February'.

**Ex.**

When specifying the date range below

Start: March 28, End: April 2

For the above example settings, event logging is performed as shown in the table below.

○: Performed ×: Not performed

Date	...	March 27	March 28	...	April 2	April 3	...
Monitor the event during the period of time which meets specified conditions	×	×	○	○	○	×	×
Don't monitor the event during the period of time which meets specified conditions	○	○	×	×	×	○	○

### ■Time-of-the-day range

Perform event logging during the specified time period.

**Ex.**

When specifying the time range as shown below

Start: 8:00:00, End: 8:00:59

For the above example settings, event logging is performed as shown in the table below.

Time (hour:minute:second)	...	7:59:59	8:00:00	...	8:00:59	8:01:00
Monitor the event during the period of time which meets specified conditions	×	×	○	○	○	×
Don't monitor the event during the period of time which meets specified conditions	○	○	×	×	×	○

○: Performed ×: Not performed

## ■Day-of-the-week/Week-of-the-month conditions

Perform event logging for the specified day of the week or week. The period of time can be specified by combining the day of the week and week.

- To perform event logging on the specified day of the week every week  
Unselect "Specifying a week of the month".

**Ex.**

When specifying from Monday to Friday

For the above example settings, event logging is performed as shown in the table below.

Day of the week	Sun	Mon	Tue	Wed	Thu	Fri	Sat	Sun	Mon	...
Monitor the event during the period of time which meets specified conditions	×	○	○	○	○	○	×	×	○	...
Don't monitor the event during the period of time which meets specified conditions	○	×	×	×	×	×	○	○	×	...

○: Performed ×: Not performed

- To perform event logging in combination of the week and the day of the week  
Select "Specifying a week of the month".

The week conditions are as follows:

Week condition	Description
1st	From the 1st to the 7th
2nd	From the 8th to the 14th
3rd	From the 15th to the 21st
4th	From the 22nd to the 28th
Last	The 7 days at the end of the month for the corresponding month Example) If the 31st is the end of the month, the 25th to the 31st If the 30th is the end of the month, the 24th to the 30th

**Ex.**

When specifying the following day of the week conditions and week conditions with the period specified as "Monitor the event during the period of time which meets specified conditions"

Day of week condition: Select Mon, Tue, Wed, Thu, Fri

Specifying a week of the month/Week condition: Select 1st, 4th, Last

Event logging is performed on the shaded parts

August 2013						
Sun	Mon	Tue	Wed	Thu	Fri	Sat
				1	2	3
4	5	6	7	8	9	10
11	12	13	14	15	16	17
18	19	20	21	22	23	24
25	26	27	28	29	30	31

Day of week condition "Mon/Tue/Wed/Thu/Fri"

1st "1st to 7th"

4th "22nd to 28th"

Last "25th to 31st"

## Combination of conditions

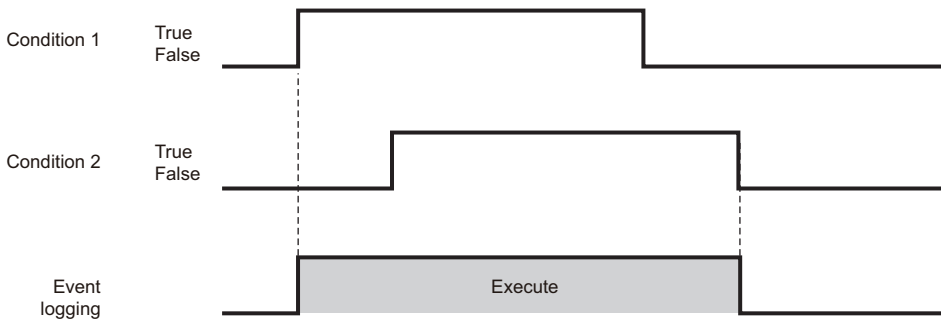
Multiple specified conditions can be combined.

"OR" or "AND" can be selected as the combined condition (Operator for combination).

The combined condition is applied to all of the conditions. "AND" and "OR" cannot be mixed.

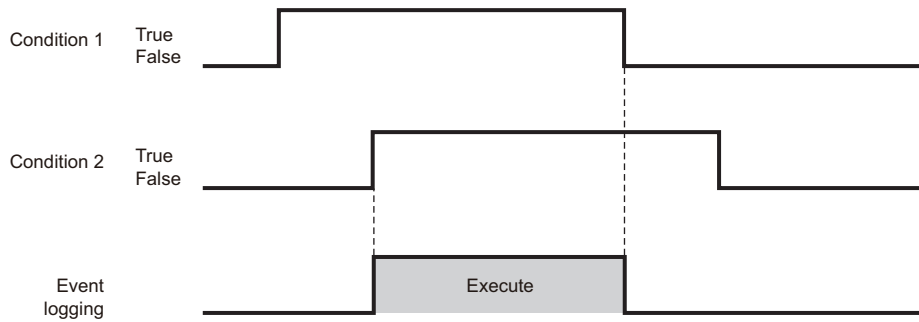
### ■For OR combine

When "Monitor the event during the period of time which meets specified conditions" is selected for the period of time



### ■For AND combine

When "Monitor the event during the period of time which meets specified conditions" is selected for the period of time



# CSV output

Configure the settings related to CSV file output content.

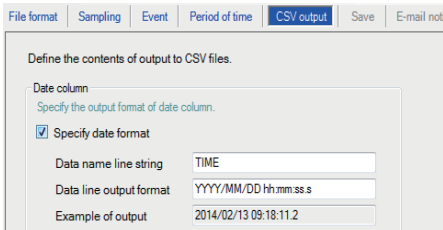
The "CSV output" screen is only displayed when "CSV file" is selected on the "File format" screen.



For details on the CSV file format, refer to the following section.

[Page 71 CSV File Format](#)

## Displayed items



Item		Description	Reference	
Date column	Specify date format	—	Page 290 Date column	
		Data name line string		Specify the title of the date column data header line. (Up to 32 characters)
		Data line output format		Specify the output format of the data line for the date column (Up to 32 characters).
		Example of output		Display an image of the date column output with the current settings.



When CSV files are opened with Excel, the date column format is displayed in Excel's default setting. Set the cell format as necessary.

Example) To display year, month, date, hour, minute, second, millisecond information Specify the user defined display format below.

yyyy/mm/dd hh:mm:ss.000

# Binary output

Configure the settings related to binary file output content.

The "Binary output" screen is only displayed when "Binary file" is selected on the "File format" screen.



For details on the binary file format, refer to the following section.

Page 81 Binary File Format

## Displayed items

Item		Description
Event name information <sup>*1</sup>	Output the list of event names into the header	Select this to output the list of event name to the header in the order of event number.
	Output the event names into record data	Select this to output names of event occurred to the record data.
Data name information	Output the list of data names into the header	Select this to output the list of data name used by the Event setting to the header.
Date information	—	Perform logging by attaching time stamps.
	In second	Select this to output the date data in second units. (Output the accumulated number of seconds since 1970)
	In nanosecond <sup>*2</sup>	Select this to output the date data in nanosecond units in addition to seconds.
Comment information	Output comment into record data	Select this to output comments to record data.

\*1 File space can be saved by setting to only output the event name to the header and not to the record. In this case, the event name output to the header can be referred from the event number in the record data.

\*2 Data value is rounded off to 100 ms unit.

# Save

Configure the settings for the Event logging file save destination and the saved file switching settings.

This setting is applied to both the "CSV file" and "Binary file" formats.

Processes for the saving settings are the same as those of Data logging setting. Refer to the following section.

☞ Page 133 Saving Data logging files

## Displayed items

Item	Description	
File save destination	Specify the save directory (setting type folder) for the Event logging file. Data are added sequentially to the specified file.	
File switching setting	—	—
	File switching timing	Specify the timing to switch the file to a new file.
	Saved file name	Change the name of the file up to then when the file is switched. Information attached to the changed file name can be set.
	Number of saved files	Specify the maximum number of files to be saved on a CompactFlash card.
[Transfer setting] button	—	Display the setting screen to edit the settings to transfer the saved file by FTP or to send it by e-mail.
	FTP transfer destination	Display the FTP transfer destination setting. <ul style="list-style-type: none"> <li>• If no setting : No setting</li> <li>• If there is a setting: Display the FTP setting number</li> </ul>
	E-mail address	Display the e-mail destination setting. <ul style="list-style-type: none"> <li>• If no setting : No setting</li> <li>• If there is a setting: Display the target e-mail address setting number</li> </ul>

## File save destination

Item	Description
File save destination	Specify the name of the folder to save files in. For the characters that can be set, refer to the section below. ☞ Page 594 Characters usable in file names, folder (directory) names Specify a name not to overlap with the file save destination of other Event logging files. (Within 32 characters)

256 Event logging files are saved in a folder of the specified "File save destination". The files with low numbers which have been deleted by the setting of "Number of saved files "are included in this number.

The 257th file is saved in a new folder.

The saved file name when the save folder and additional information are not set is as follows:

Save folder			Saved file name	Maximum number of file
File type folder	Setting type folder	Number folder		
\EVENT	\EVT01	\0000001	00000001.CSV(.BIN)	256
			00000002.CSV(.BIN)	
			:	
			000000FF.CSV(.BIN)	
			00000100.CSV(.BIN)	
		\0000101	00000101.CSV(.BIN)	
	00000102.CSV(.BIN)			
	:			
	000001FF.CSV(.BIN)			
	00000200.CSV(.BIN)			
	:	:	:	
	\EVENT	\EVT02	\0000001	00000001.CSV(.BIN)
00000002.CSV(.BIN)				
:				
000000FF.CSV(.BIN)				
00000100.CSV(.BIN)				
\0000101			00000101.CSV(.BIN)	256
00000102.CSV(.BIN)				
:				
000001FF.CSV(.BIN)				
00000200.CSV(.BIN)				
:		:	:	

Item	Description
File type folder	Folders are created automatically according to the type of saved file. "LOGGING": Store Data logging files. (☞ Page 293 File save destination) "EVENT": Store Event logging files. "REPORT": Store Report files.
Setting type folder	Files are sorted according to the save directory name set for "File save destination" on the "Save" tab of the Event logging setting.
Number folder	Files are sorted according to the specified number of saved file. Folder name: $100 \times n + 1$ is displayed in 8 digits ( $n=0, 1, 2, 3, \dots$ ) Example: 00000001, 00000101, 00000201, 00000301
Saved file name	A saved file name is expressed as 8 digits. The output format can be changed in the "Saved file name" setting on the "Save" tab of the Event logging setting.

## File switching timing

Specify the timing to switch the file to a new file.

If the condition specified in "File switching timing" is fulfilled, the file where data are being stored (storing file) is saved in the save folder with the saved file name as the Event logging file.

Item	Description	
Number of records	Switch the file when the specified number of lines (records) is reached. (100 to 100000 lines)	
File size	Switch the file when the specified size is reached. (10KB to 16384KB)	
Condition specification	—	Specify the condition to switch the file.
	Type	Display the type of condition specified on the "File switching condition setting" screen. (Data conditions, Fixed cycle, Time interval specification, Specifying a time of day, At startup of BOX Data Logger) File switching is performed even if the condition is fulfilled during the period when logging is not performed.
	Content	Display the contents of the condition specified on the "File switching condition setting" screen.
	[Edit] button	Open the "File switching condition setting" screen to specify the condition. (Select either Single condition or Compound condition)
	[Delete] button	Delete the specified condition.

Even when the above file switching condition is not satisfied, the file is switched in the following situations regardless of the set timing.

- When the number of lines (number of records for binary) reaches 65535 in case "Number of records" is not selected.
- When there is no e-mail destination setting and the file size reaches 16MB in case "File size" is not selected.
- When there is an e-mail destination setting and the file size reaches 512KB in case "File size" is not selected.

### ■When "Data conditions" is selected for "Condition specification"

At least twice the time of the sampling interval is required in order for BOX Data Logger to recognize the condition. Therefore, set a time at least double of the sampling interval to a device that specifies conditions. If the sampling interval is 1 second, set the condition satisfaction time to 2 seconds or longer.

### ■When "Fixed cycle" or "Specify a time of day" is selected for "Condition specification"




File switching is performed when the power is turned ON if the specified cycle elapses or the specified time reaches until the power is turned ON again since the power has been turned OFF.

### ■When "At startup of BOX Data Logger" is selected for "Condition specification"

File switching is performed at the time of BOX Data Logger startup, and a file containing only a header will be created. The sampled data will be saved from the next file.

#### Point

By configuring the following settings, only trigger logging data before and after the rising of trigger condition can be output to a report.

- Select [Data logging setting] ⇒ [save] ⇒ "File switching timing" ⇒ "Trigger logging unit". ( Page 294 File switching timing)
- Select [Report setting] ⇒ [Layout] ⇒ "Data logging layout" ⇒ "Source file" ⇒ "Saved file" ( Page 349 Data logging layout screen).
- Select [Report setting] ⇒ [Creation trigger] ⇒ "At the time of the data logging file is switched" ( Page 363 Creation trigger))



## ■File switching condition setting screen

File switching condition	Description
Single condition	Switch files when the specified conditions are satisfied. The setting items of Single condition are the same as those of "Trigger condition setting" screen of Trigger (Single condition) for the Data logging setting. For details, refer to the following section. ☞ Page 276 Trigger condition setting screen
Compound condition	Switch files when either specified condition is satisfied for "OR combine", and when all the conditions are satisfied for "AND combine". The setting items of Compound condition are the same as those of Trigger (Compound condition). For details, refer to the following sections. OR combine: ☞ Page 279 OR combine AND combine: ☞ Page 279 AND combine

## Saved file name

Set the information which is to be attached to the saved file name.

Item	Description	Reference
Format	Display the output format of the saved file.	—
Example	Display the output image of the file name in a current format.	—
[Edit] button	Open the "Saved file name setting" screen to set the information which is to be attached to the saved file name.	Page 299 Saved file name setting screen



The saved file number (00000001 to FFFFFFFF) to identify saved files is always attached to the saved file name.

## Number of saved files

Set the maximum number of saved files and the operation when the maximum number is exceeded.

Item		Description
Number of saved files		Specify the maximum number of saved files. (1 to 65535)
Operation occurring when number of saved files is exceeded	Overwrite	Select this to delete files with low numbers and continue event logging when at file switching the number of saved files has already exceeded the specified number. When the folder where files with low numbers are deleted becomes empty, that folder is automatically deleted.
	Stop	Select this to stop data logging when at file switching the number of saved files has already exceeded the specified number.*1 Delete the latest saved file or the saved file with the lowest number via FTP or with the file browser of Configuration tool to restart event logging.

\*1 The storing file and the specified number of saved files are saved in a CompactFlash card.

### Point


The number of saved files is calculated by the saved file number as shown below.

Latest saved file number - Lowest saved file number + 1

## Transfer setting screen

Transfer the latest saved file when the file is switched.

The setting items are the same as those of "Transfer setting" screen of Data logging setting.

 Page 301 Transfer setting screen

### Point

E-mail transmissions/file transfers by the saved file transfer function may take a few seconds to tens of seconds depending on the network line/transmission size.

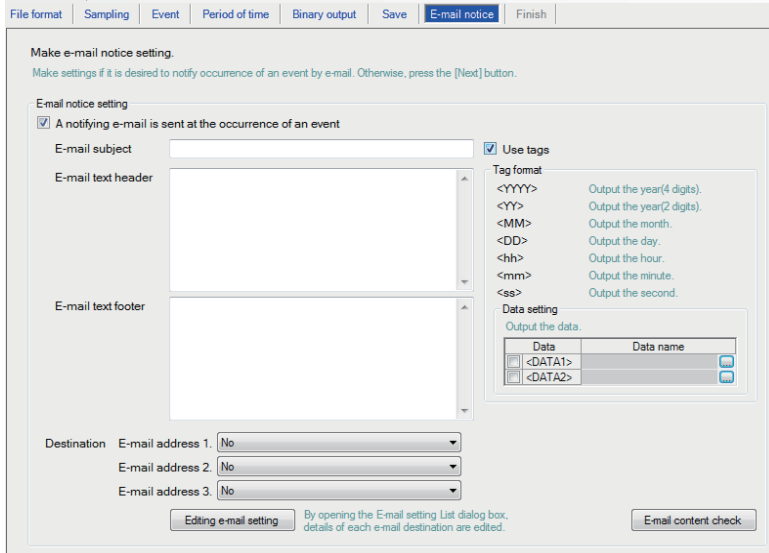
Target files may be deleted before e-mail transmission/file transfer completes depending on the settings.

Review the file switching timing and the number of saved files setting and lengthen the time until the file is deleted.

# E-mail Notice

Configure the settings to send notification when the event occurs by e-mail.  
Configuring these settings is not required if not performing the e-mail notification.

## Displayed items



Item			Description	Reference
A notifying e-mail is sent at the occurrence of an event	—		Select this to send a notification e-mail at the event occurrence.	—
	E-mail subject		Enter the notification e-mail subject (Up to 64 characters).	—
	E-mail text header		Specify a string for the header portion of the e-mail text. (Up to 512 characters)	—
	E-mail text footer		Specify a string for the footer portion of the e-mail text. (Up to 512 characters)	—
	E-mail address 1 to 3		Specify the notification e-mail destination.	—
	[Editing e-mail setting] button		Display the "E-mail setting" screen. Edit sender account settings and destination e-mail address settings.	Page 242 E-mail setting
Use tags	Tag format	—	Select this to enable the tag input. Specify the following tag items to append the sent date/time and data to the e-mail when selecting this checkbox.*1,*2 <YYYY>: Year <YY>: Year <MM>: Month <DD>: Day <hh>: Time <mm>: Minute <ss>: Second <DATA1>: Data set for <DATA1>. <DATA2>: Data set for <DATA2>.	—
		Data setting	—	Set when outputting data.
	Data	—	Select this to append data to the E-mail subject, E-mail text header or E-mail text footer.	—
	Data name	—	Display data names set for <DATA1> and <DATA2>.	—
	Data name display field	—	Display set data.	—
[...] button	—	Display "Data setting" screen.	Page 218 Data setting screen	
[E-mail content check] button			Display "E-mail content check" screen.	Page 338 E-mail content check screen

- \*1 Total of 16 tags can be set for E-mail subject and E-mail text.
- \*2 Tags can be disabled by adding another brackets.  
(The item enclosed with outer brackets can be handled as a string.)

## E-mail content check screen

Item	Description
Destination	Display the send target group name.
E-mail subject	Display the contents entered in "E-mail subject" on the "E-mail notice" screen.
E-mail text	Display the contents entered in "E-mail text header" or "E-mail text footer" on the "E-mail notice" screen.
[Close] button	Close the "E-mail content check" screen.

### Example of e-mail transmission contents

<u>Error has occurred.</u> 2009/1/15 10:21:35	E-mail subject
<u>The following error has occurred.</u> [CR+LF]	E-mail text header
<u>Temperature abnormality Occurrence</u> [CR+LF]	Event information
<u>Perform the recovery operation immediately.</u> [CR+LF]	E-mail text footer

When the data tag (<DATA1>, <DATA2>) is used for "E-mail text" on the "E-mail notice" screen, the following character is displayed on the "E-mail content check" screen.

Data setting	Output character
Decimal/Hexadecimal	0
String	s

The displayed value changes depending on the specified size or the number of digits specified for zero padding. As an output example, "ssssssss" is displayed when the specified size is 8, and "0000000000000000" is displayed when the number of digits specified for zero padding is 16 (size 8). (When the number of digits for zero padding is not specified, 0 is displayed.)

### Example

E-mail subject	Line No. <DATA2> <DATA1> Abrupt increase
E-mail text header	<YYYY> <MM> <DD> <hh> <mm> <ss> Abrupt increase Line No. <DATA2> <DATA1> Abrupt increase

↓

E-mail subject	Line No. 0000000000000000 SSSSSSSS Abrupt increase
E-mail text	2014 02 20 14 29 42 Abrupt increase Line No. 0000000000000000 SSSSSSSS Abrupt increase test Occurrence

<DATA1>

Data type: String

Size: 8

---

<DATA2>

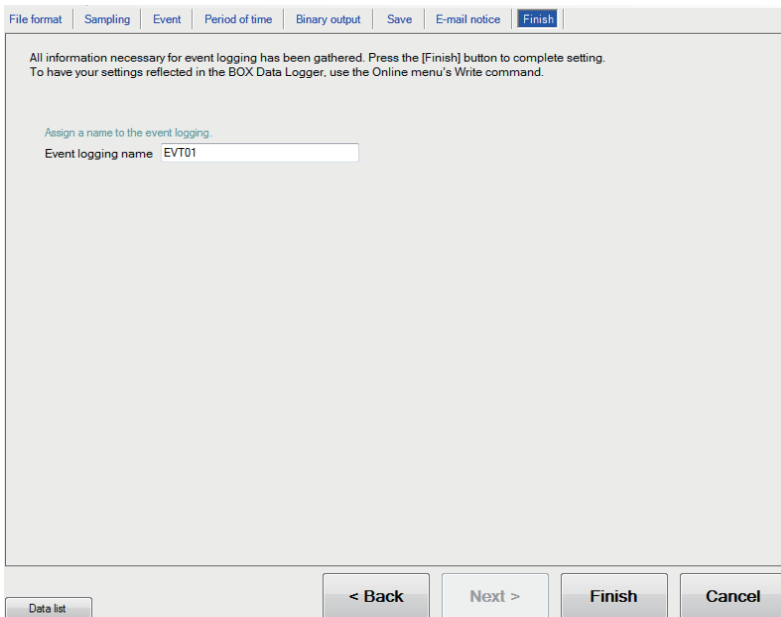
Data type: Raw

Size: 8

# Finish

Assign a name to the Event logging setting and complete the settings.

## Displayed items



Item	Description
Event logging name	Specify the name of the setting being edited. For the characters that can be set, refer to the section below. 📖 Page 592 Usable Characters (Up to 32 characters)
[Finish] button	Settle the settings being edited. After the settings are settled, the event logging name is displayed in the following. <ul style="list-style-type: none"><li>• On the edit items tree, under the "Event logging setting" folder</li><li>• Event logging setting list</li></ul>
[Cancel] button	Discard the event logging settings being edited and end editing.

# 12.7 Report Setting

This section explains the settings for the Report function.  
For an overview of the Report function, refer to the following chapter.

☞ Page 147 REPORT FUNCTION

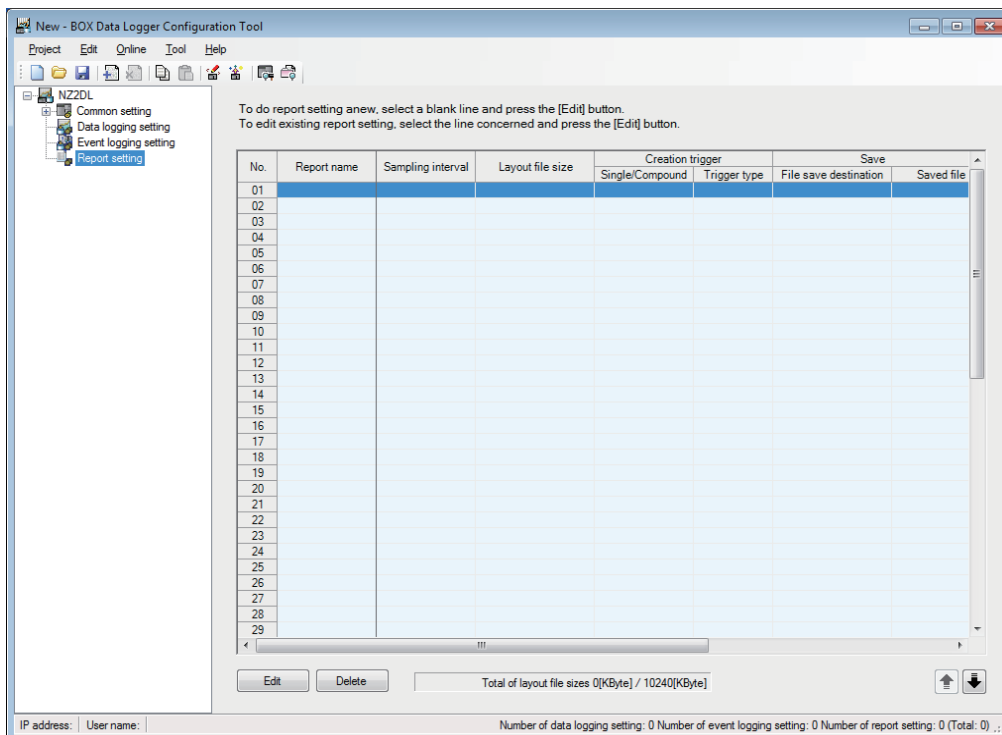
## Report setting list

This section explains the items on the screen of report setting list.

### Operating procedure

Click "Report setting" on the edit items tree.

### Displayed items



The existing report settings can be utilized by using the project file import function.

The setting time can be reduced by utilizing the existing settings.

For importing project files, refer to the following section.

☞ Page 223 Importing settings from project file)



The items displayed on the report setting list are as follows:

Item	Description	Reference	
Report name	Displays the report name.	Page 340 Report Setting	
Sampling interval	Displays the sampling interval of the data used by the report.	Page 344 Sampling	
Layout file size	Displays the size of the Excel layout file.	Page 345 Layout setting list	
Creation trigger	—	Page 363 Creation trigger	
	Single/Compound		Displays "Single" or "Compound".
	Trigger type		Displays "OR combine", "AND combine", "Number of times", or "Order".
Save	File save destination	Page 374 File save destination	
	Saved file name	Page 375 Saved file name	
	Number of saved files	Page 375 Number of saved files	
Transfer	—	Page 375 Transfer setting	
	FTP transfer		Displays whether or not FTP transfer setting exists. <ul style="list-style-type: none"> <li>• To be transferred : Perform FTP transfer</li> <li>• Not to be transferred: Does not perform FTP transfer</li> </ul>
	E-mail sending		Displays whether or not e-mail transmission setting exists. <ul style="list-style-type: none"> <li>• To be sent : Perform e-mail transmission</li> <li>• Not to be sent : Does not perform e-mail transmission</li> </ul>
Total of layout file sizes	Displays the total size of the Excel layout file of all Report settings.	—	

The buttons for operating the report setting list are as follows:

Item	Description	Reference
[Edit] button	Displays the "Report setting" screen to edit the settings of the selected row. If the selected row is empty, new report settings are added to that row.	Page 342 Report setting screen transitions
[Delete] button	Deletes the settings of the selected row.	—
[↑]/[↓] button	Shifts the selected row one row up or one row down.	—

**Point** 

Multiple rows can be selected and deleted or moved in batch by clicking on them while pressing the  key or  key.

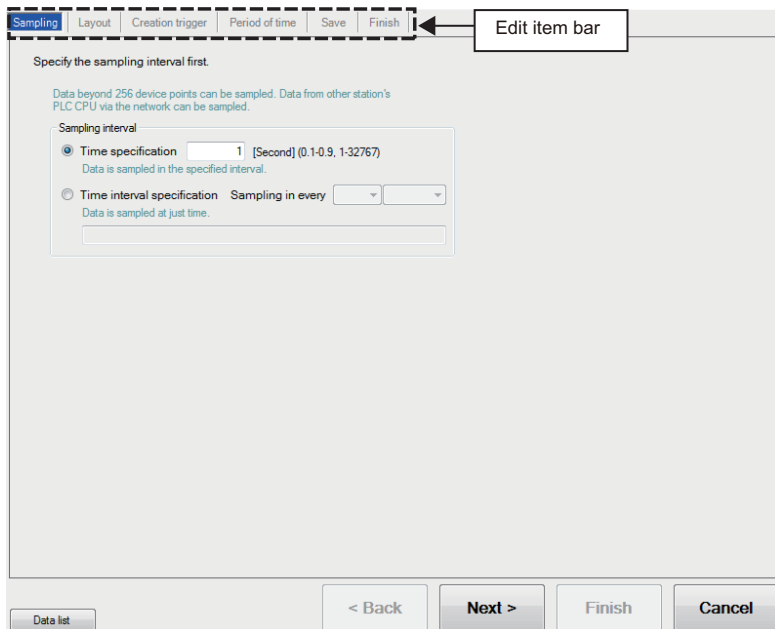
# Report setting screen transitions

Report settings are configured in a wizard format.

The title of each wizard screen is displayed in the 'edit item bar' in the upper portion of the detailed setting screen.

The title of each wizard screen is displayed in the 'edit item bar' in the upper portion of the detailed setting screen.

## Displayed items



Item	Description	Reference
[Data list] button	Displays a list of all data being used by all the Report setting.	Page 215 Data list
[Back] button	Moves the setting wizard screen being edited to the previous (left) screen.	Page 343 Screen transitions with the [Back] / [Next] buttons
[Next] button	Moves the setting wizard screen being edited to the next (right) screen.	
[Finish] button	Settles the report settings being edited and completes editing. After completing the editing, returns to the screen of report setting list.	—
[Cancel] button	Discards the report settings being edited and ends editing. After cancelling the settings, returns to the screen of report setting list.	—



## Wizard display and operations

### ■ Edit item status

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

Status	Configured	Being edited	Not configured
Text color	Blue	White	Gray
Background color	Light gray	Blue	Light gray
Example			

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

Move between edit item screens with the [Back] / [Next] buttons.

### ■ Screen transitions by mouse

The setting screen for configured items can be moved directly by clicking the 'edit item bar'.

### ■ Edit items of the Report setting

Edit items of the Report setting are made up of the following types.

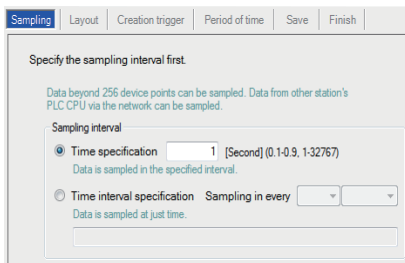
Setting item	Reference
Sampling	Page 344 Sampling
Layout	Page 345 Layout setting list
Creation trigger	Page 363 Creation trigger
Period of time	Page 368 Period of time
Save	Page 373 Save
Finish	Page 376 Finish

# Sampling

Select the data sampling method for creation trigger and current value data for reports, and specify the data sampling interval. For details on processes of each sampling method, refer to the following section.

☞ Page 152 Sampling Creation Trigger and Current Value Data

## Displayed items



Item		Description	Reference
Sampling interval	—	Set the data sampling interval in seconds. (0.1 to 0.9, 1 to 32767 seconds)	Page 152 Sampling Creation Trigger and Current Value Data
	Time specification	Sample data at the specified interval. (0.1 to 0.9 seconds, 1 to 32767 seconds)	—
	Time interval specification	Sample data at the specified time interval (hour/minute/second) from the midnight of everyday, the top of every hour, or the top of every minute.	—

### Point

Since data sampling is not synchronized with sequence scan, data separation may occur.

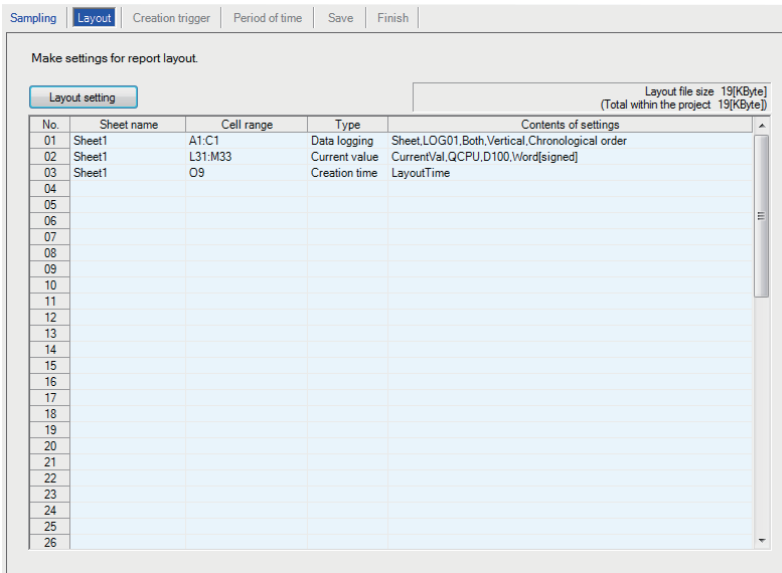
☞ Page 531 Access Units

# Layout setting list

To create a report, an Excel format layout file must be created in advance.

Layout the report's target data (Data logging file, current values at the time the report was created or creation time) in the Excel format layout and save as the layout file.

## Displayed items



The items displayed on the layout setting list are as follows:

Item	Description	Reference
Layout file size	Displays the size of the layout file being edited.	—
(Total within the project)	Displays the total size of all of the layout files including other report settings. (Total size is within 10,240 kilobytes)	—
Sheet name	Displays the name of the sheet set with the layout.	—
Cell range	Displays the range of cells set with the layout.	—
Type	Displays the type of data laid out. (Data logging/Current value/Creation time)	—
Contents of settings	Displays the contents of the layout setting. <ul style="list-style-type: none"> <li>For Data logging: layout name, data logging name, source file, outputting direction, and outputting order</li> <li>For Current value: layout name, access target CPU, start device, data type</li> <li>For Creation time: layout name</li> </ul>	—

The button displayed on the layout setting list is as follows:

Item	Description	Reference
[Layout setting] button	Starts Excel and displays the "Layout setting" screen.	Page 347 Layout setting

## Precautions

- An Excel macro must be executed to configure the layout settings. Configure layout settings after configuring Excel to execute macros.
- Layout settings cannot be configured when the VBA function is not installed when installing Excel 2003, Excel 2007, Excel 2010 (32-bit version), Excel 2013 (32-bit version), and Excel 2016 (32-bit version).
- Some functions added to Excel 2007 and later cannot be used.
- When activating the "Layout setting" screen by clicking the [Layout setting] button, the "Security Warning" screen or "Microsoft Office Excel Security Notice" screen may appear.  
In this situation, close the screen with the procedure below and set it not to be displayed the next time it is activated.

### When using Excel 2003

- ❶ Check "Always trust macros from this publisher".
- ❷ Click the [Enable Macros] button.

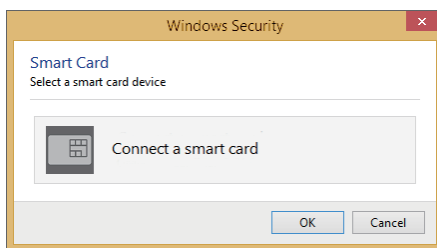
### When using Excel 2007, Excel 2010 (32-bit version), Excel 2013 (32-bit version), or Excel 2016 (32-bit version)

- ❶ Click the [Trust all from publisher] button.

Note that, perform the above procedure within 60 seconds. An error screen is displayed when exceeding 60 seconds.

In that case, activate the "Layout setting" screen with the procedure below.

- ❶ Close the error screen with the [OK] button.
  - ❷ Close the "Security Warning" screen or "Microsoft Office Excel Security Notice" screen with the procedure above.
  - ❸ Follow the message in the displayed screen and close Excel.
  - ❹ After Excel is closed, click the [Layout setting] button again to start the "Layout setting" screen.
- In the environment that cannot be connected to the Internet, the warning message indicating that the certificate (signature or publisher) has expired is displayed on the "Security Warning" screen, and the procedures above may not be available. In this case, install the update program for the root certificates provided by Microsoft.
  - When Excel 2010 (64-bit version), Excel 2013 (64-bit version), or Excel 2016 (64-bit version) is used, the layout setting cannot be performed. In this case, install Excel 2003, Excel 2007, Excel 2010 (32-bit version), Excel 2013 (32-bit version), or Excel 2016 (32-bit version).
  - The layout setting may not be performed when the error message, "Compile Error in Hidden Module: This Workbook" appears after clicking the [Layout setting] button. In this case, apply "2007 Microsoft Office Suite Service Pack (SP3)" provided by Microsoft.
  - When activating the "Layout setting" screen by clicking the [Layout setting] button in Windows 8 or later, the "Windows Security" screen may appear. In this case, change the setting temporarily with the procedure given below, and activate the "Layout setting" screen.

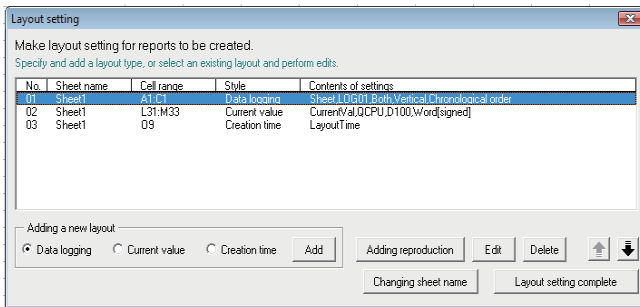


- ❶ Click the [Cancel] button on the "Windows Security" screen, and close it.
- ❷ Start Excel, and select [File] ⇒ [Options].
- ❸ Click the [Trust Center Settings] button on the [Trust Center] tab.
- ❹ Select "Enable all macros (not recommended; potentially dangerous code can run)" on the [Macro Settings] tab.
- ❺ After closing Excel, click the [Layout setting] button again and activate the "Layout setting" screen.

# Layout setting

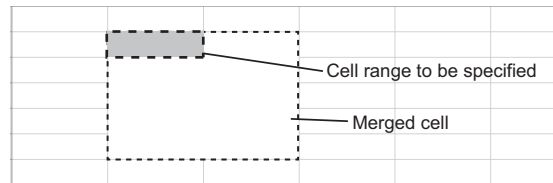
Set the report layout by specifying data to be sampled and specifying cells of Excel.

## Displayed items



Item	Description	Reference
Layout setting list	Display the contents of the layout setting.	—
Adding a new layout	Data logging	Select the Data logging file as the layout target data.
	Current value	Select the programmable controller CPU device value when the report is created as the layout target data.
	Creation time	Select the time when the report is created as the layout target data.
	[Add] button	Display the layout screen for the selected target data.
[Adding reproduction] button	Add the layout selected in the layout setting list screen by copying it.	Page 360 Adding reproduction
[Edit] button	Edit the layout selected in the layout setting list screen.	Page 361 Editing layout settings
[Delete] button	Delete the layout selected in the layout setting list screen.	—
[Changing sheet name] button	Change the layout file sheet name. The report cannot be created correctly when the sheet name is changed without using this button.	Page 362 Changing sheet name
[Layout setting complete] button	Reflect the settings and close the screen.	—
[↑]/[↓] button	Shift the selected row one row up or one row down.	—

- Configure fixed strings, format settings (font type, color, etc.), and graphs while the Layout setting screen is displayed.
- The layout file size of reports sent by e-mail is up to 512KB.
- The size of the layout file created by the layout settings depends on the version of Excel installed. Therefore, the upper limit of the layout file size may be exceeded by editing the project configured with the layout settings on a personal computer installed with a different version of Excel. Design the layout file with some allowance for its size.
- If any merged cells exist in the cell range of the layout setting, the upper left cell in the merged cell range can be specified as the cell range.





- Do not specify the following types for the format of cells specified in the cell range. If specified, data may not be output normally.
  - Strings
  - User defined type contains @
- Values in the cell range are cleared when the [Layout setting] button is clicked.
- Do not add the digital signature to the layout file. The Report files to which the digital signatures are added cannot be created.
- Do not use the external data import function of Excel. The Report files imported with the external data import function cannot be created.

## Data logging layout screen

Configure the layout settings of the records in the Data logging file to be output to the report.

### Operating procedure






Select "Data logging" for the layout type on the "Layout setting" screen and click the [Add] button.

Item	Description	Reference
Layout name	Enter the name of the layout (Up to 32 characters).	—
Leading cell	Specify the leading cell to output the records in the Data logging file. Can also be set with the  button.	—
 (Input assistance button)	By clicking this button, the leading cell can be selected with the mouse.	Page 350 Specifying the leading cell
Number of records	Specify the number of records to output from the leading cell.	—
Data logging name	Select the data logging name. To add a new data logging setting, select "(Add)" from the list box and click the [Edit] button.	Page 258 Data logging setting list
Source file	Select the file (Saved file/Storing file/Both) of which data logging records are to be output.	Page 350 Source file
Outputting direction	Select the direction (vertical/horizontal) to output the records in the Data logging file.	Page 356 Outputting direction
Outputting order	Select the order (chronological order/reverse chronological order) to output the records in the Data logging file.	Page 356 Outputting order
Output data	Logging data	Select the data logging name to display output data candidates.
	Output data <sup>*1</sup>	Display the selected output data.
Sheet name	Display the sheet name of the layout being edited.	—
Cell range	Display the cell range of the layout being edited.	—
Output title (data name) at the head of data <sup>*2</sup>	Select this to output the title (data name) in the first row (first column when the outputting direction is vertical) from the leading cell.	—

\*1 When the data type of the logging data is string, characters outside the ASCII range are substituted with periods (.).

\*2 For date information and index, the strings of "Logging time" and "Index" are output respectively.

#### Point

- When "Saved file" is selected as the source file, adjust processing so that the creation trigger occurs after the file switching is once performed.
- By configuring the following settings, Report files corresponding to Data logging files one-to-one basis can be created.
  - Select [Report setting] ⇒ [Layout] ⇒ "Data logging layout" ⇒ "Source file" ⇒ "Saved file" ( Page 349 Data logging layout screen).
  - Select [Report setting] ⇒ [Creation trigger] ⇒ "At the time of the data logging file is switched" ( Page 365 Trigger condition setting screen).
- By configuring the following settings, only trigger logging data before and after the rising of trigger condition can be output to a report.
  - Select [Data logging setting] ⇒ [save] ⇒ "File switching timing" ⇒ "Trigger logging unit" ( Page 294 File switching timing).
  - Select [Report setting] ⇒ [Layout] ⇒ "Data logging layout" ⇒ "Source file" ⇒ "Saved file" ( Page 349 Data logging layout screen).
  - Select [Report setting] ⇒ [Creation trigger] ⇒ "At the time of the data logging file is switched" ( Page 365 Trigger condition setting screen).

## ■Specifying the leading cell

### Operating procedure

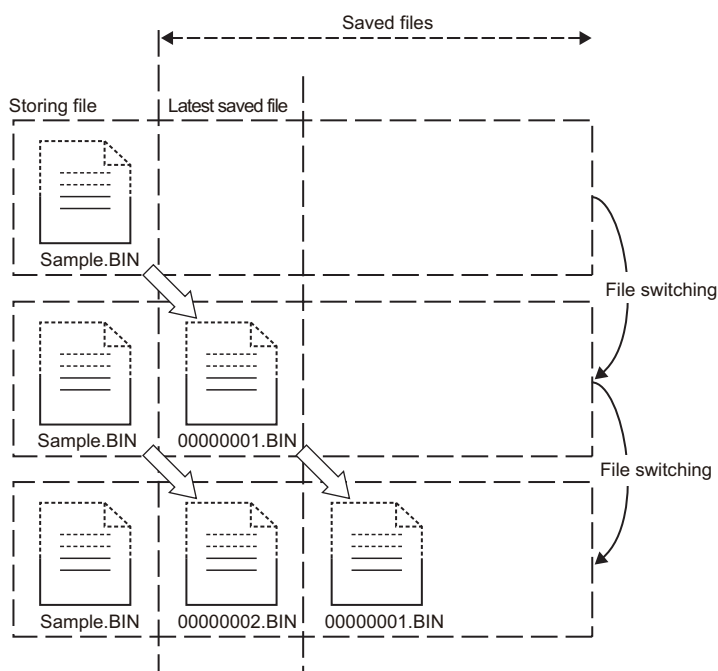
By clicking the input assistance button, the "Selection of leading cell" screen is displayed and the range of cells to layout data can be specified with the mouse. After specifying it, click the [OK] button.

### Precautions

While selecting the cell range, a screen with the title "RefEdit" may be displayed, but ignore it and continue to select the leading cell.

## ■Source file

Select the file of which data logging records are to be output. Select from the 'storing file' or 'latest saved file' stored in the CompactFlash card.



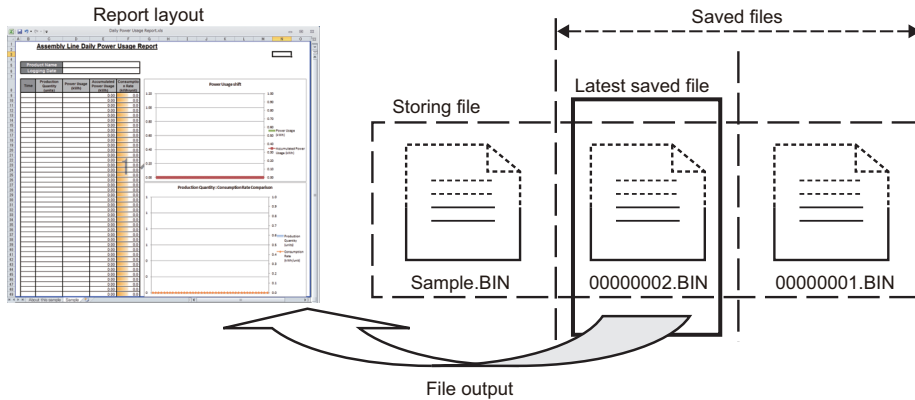


■ Saved file: Output the data that have completed to be stored.

A report is output from the latest file among the Data logging files (saved files), which have completed to be stored every file switching. Reports can be created from the logging data divided according to the data condition or time, or from the logging data before and after the rising of trigger condition. Reports can be output according to the number of records which may differ in each saved file.

Ex.

Create a per-batch (per-lot) report when the Data logging file is switched at the timing of the end of a batch or lot.

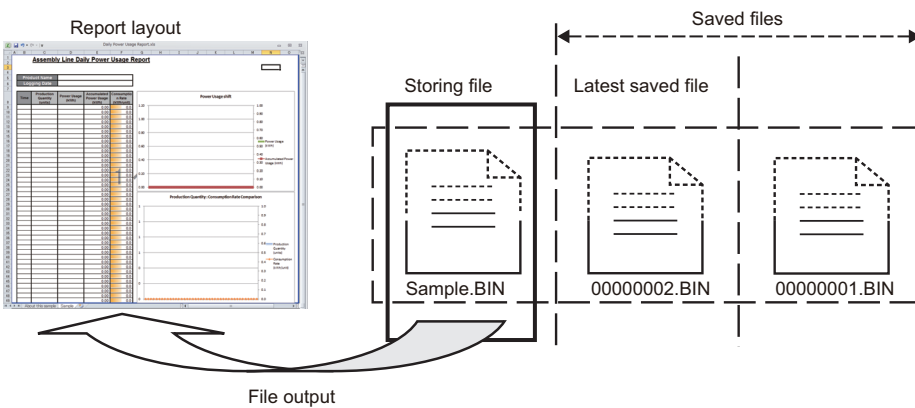


■ Storing file: Output the data that are being stored.

A report can be output from the Data logging file which is being stored. The processing can be tracked by creating reports such as a daily report or preprocess report from the data being stored.

Ex.

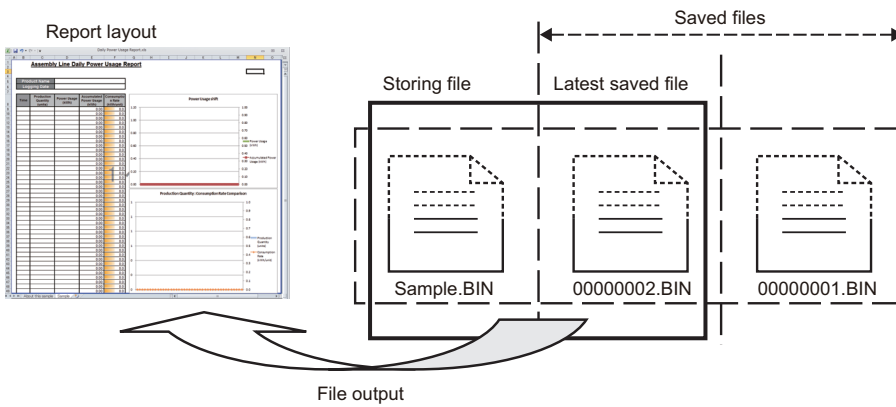
Output the latest logging data which is being stored when the Data logging file is switched at the timing of the end of a batch or lot.



■Both: Output the both data.

A report is created from the data of both the storing file and the latest saved file. By specifying the number of records, the latest logging data up to the timing of occurrence of the creation trigger can be output to a report.

In this case, specify the number of records of the file switching so that it is always greater than the number of records to be output to a report.

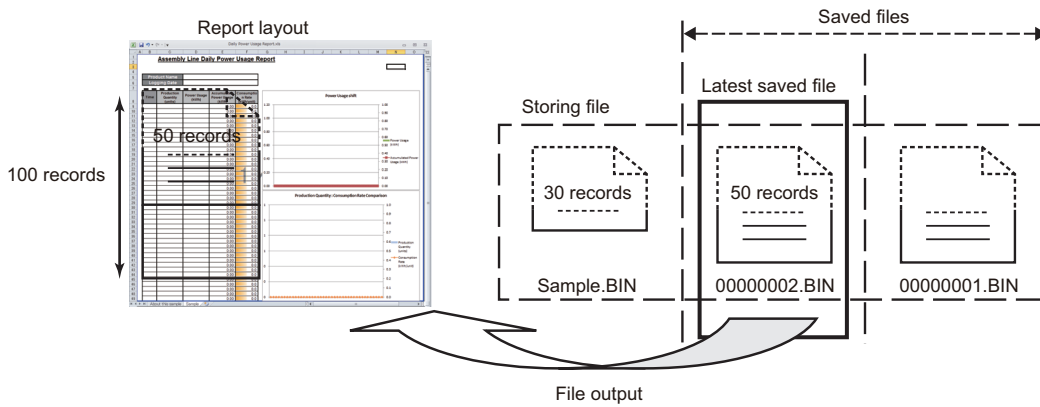


- Difference of report operation due to difference of source files

The following explains the report operation of each source file: 'Saved file', 'Storing file', and 'Both'.

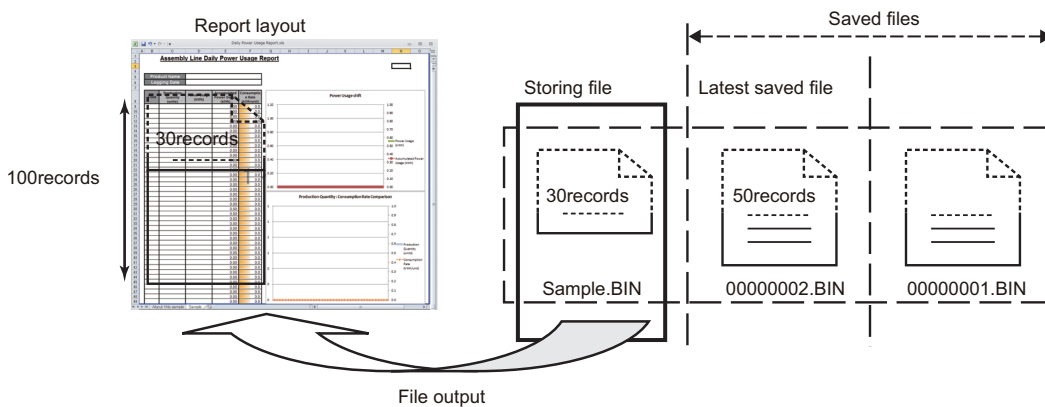
The following shows how data are output when '100' for "Number of records" and 'Chronological order (old → new)' for "Outputting order" are set in the data logging layout settings and 50 records in the saved file and 30 records in the storing file exist at the creation trigger execution.

Operation when the source file is 'Saved file'



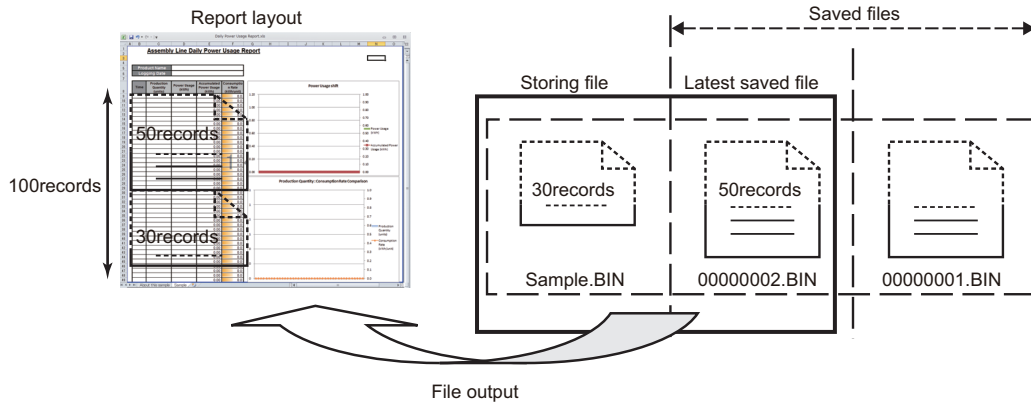
When the source file is 'Saved file', 50 records' worth of data are output to the Report file from the latest saved file. (Because the specified number of records is 100, the remaining 50 records become blank.)

Operation when the source file is 'Storing file'



When the source file is 'Storing file', 30 records' worth of data are output to the Report file from the storing file. (Because the specified number of records is 100, the remaining 70 records become blank.)

Operation when the source file is 'Both'



The data for the specified number of records are read from the storing file and output to the report. If the required number of records of data does not exist in the storing file, data are read from the latest saved file.

However, if data does not exist in the storing file, data are read from the latest saved file and the saved file one before the storing file.

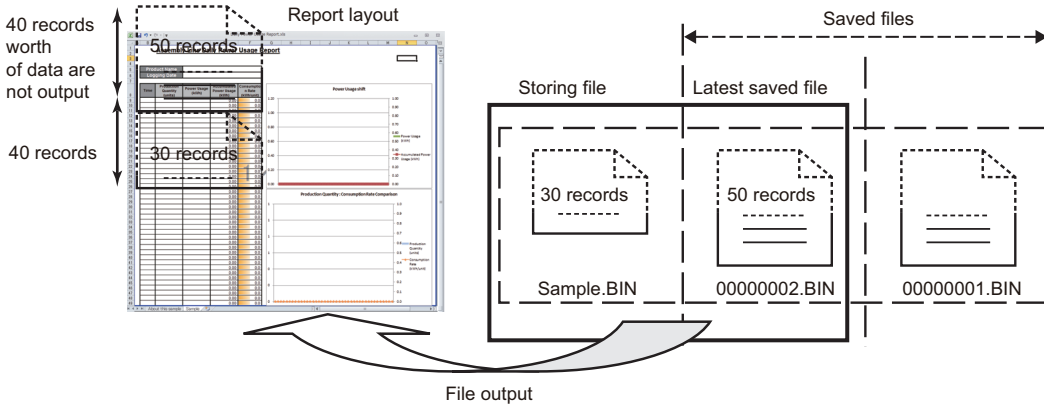
When the source file is 'Both', a total of 80 records' worth of data, which is 30 records worth of data from the storing file and 50 records worth of data from the latest saved file, are output to the Report file.

(Because the specified number of records is 100, the remaining 20 records become blank.)

- Number of records in layout is fewer than that in the source files

When the specified number of records is 40, 30 records worth of data from the storing file and 10 records worth of data from the latest saved file are output to the Report file.

(The remaining older 40 records worth of data in the latest saved file are not output.)

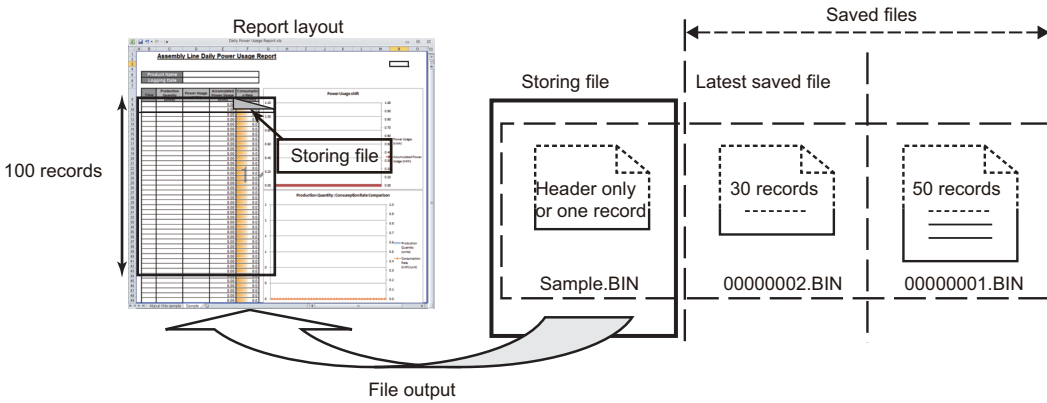


- When a creation trigger executes immediately after the output target Data logging file is switched

When a creation trigger executes immediately after the output target Data logging file is switched, an unintended operation may occur due to the storing file which only has a header or too few number of records.

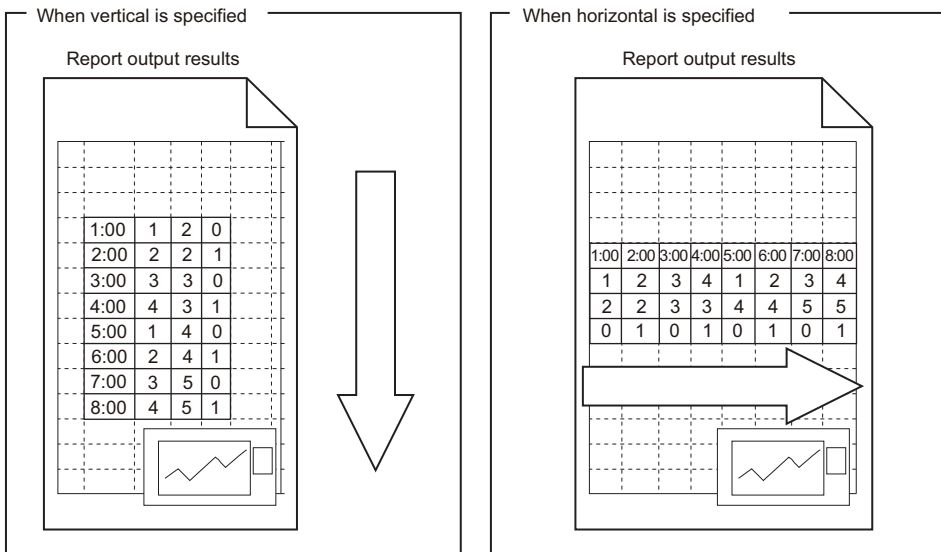
For example, when "At the time of the data logging file is switched" is selected as the creation trigger, only a header or one record's worth of data may exist in the storing file. Therefore, no record or only one record may output when the source file is set to 'Storing file'.

Adjust the system so the creation trigger executes with the necessary number of records' worth of data.



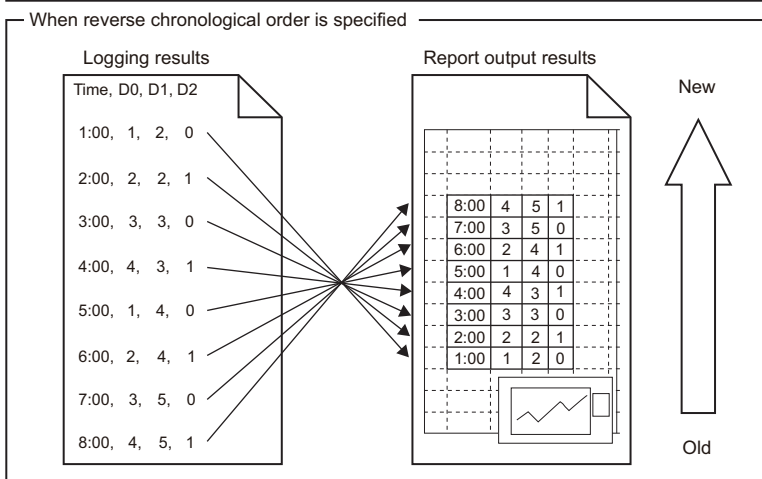
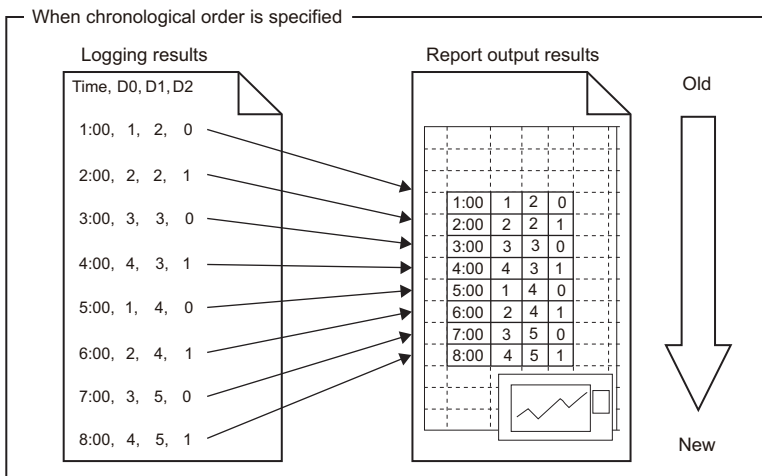
## ■Outputting direction

Select the direction (vertical/horizontal) to output the records in the Data logging file.



## ■Outputting order

Select the order to output the records in the Data logging file.



## ■Output data

The operation buttons to select the data to output from the records in the Data logging file and to specify the order are as follows:

Item	Description
[▶] button (add button)	Add the selected data to the output data.
[◀] button (delete button)	Delete the selected data from the output data.
[▶▶] button (batch add button)	Add all the data to the output data.
[◀◀] button(batch delete button)	Delete all the data from the output data.
[↑]/[↓] button	Shift the order of the selected output data up or down one row.

### Point

The format below is automatically set in the cell where output date/time is set.

yyyy/mm/dd ddd hh:mm:ss

To change the date/time display format, change the cell format setting in Excel. However, a display error  $\pm 1$  on the value of the last digit may occur due to a rounding error<sup>\*1</sup>.

Example) To display year, month, date, hour, minute, second, millisecond information

Specify the user defined display format below.

yyyy/mm/dd hh:mm:ss.000

\*1 A floating-point type approximate value including an error is stored as date data in Excel. Therefore the value of the last digit may be displayed shifting  $\pm 1$  due to rounding calculation even if the display accuracy of date data in Excel is the same as that of date data in sampled CSV files or date data displayed by the GX LogViewer.

## Current value layout screen

Configure layout settings of the current value to be output to the report.

### Operating procedure

Select "Current value" for the layout type on the "Layout setting" screen and click the [Add] button.

### Displayed items

Current value layout - New -  
 Make settings for a layout used to arrange current values on a report.

Layout name: \_\_\_\_\_

Cell range: Sheet1!A1:D10

Number of pieces of data: (1-65535)

Data name: \_\_\_\_\_

Device Head: \_\_\_\_\_

Last: \_\_\_\_\_

Access target CPU: 01:QCPU [Edit]

Data type: \_\_\_\_\_

Size: [Byte] (1-8192)

Scaling: \_\_\_\_\_

Outputting direction:  Vertical  Horizontal

[OK] [Cancel]

Item	Description	Reference
Layout name	Enter the name of the layout (Up to 32 characters).	—
Cell range	Specify the range of cells to output the current value. Can also be specified with the  button.	—
(Input assistance button)	By clicking this button, the range of cells to output the current value can be selected with the mouse.	—
Number of pieces of data	Specify the number of consecutive devices to allocate within the cell range. The amount of data specified here is output in the order specified for outputting direction.	—
Data name	Display the "Device Head".	Page 218 Data setting screen
Device <sup>*1</sup>	Head	Enter the start device name to be output.
	Last	Display the end device automatically calculated from the start device, data count, and data type. Click the [...] button to open the "Device Setting" screen.
Access target CPU	Select the access target CPU name set with the Access target CPU setting. To add an access target CPU, select "(Add)" from the list box and click the [Edit] button.	Page 235 Access target CPU setting
Data type <sup>*2</sup>	Select the data type.	Page 265 Data setting
Size	Specify the size in bytes when "String" or "Raw" is selected for data type.	
Scaling	Enter the scaling formula for scaling.	
Outputting direction	Select the direction (Vertical/Horizontal) to output the records in the Data logging file.	Page 359 Outputting direction
[OK] button	Reflect the settings and closes the screen.	—
[Cancel] button	Discard the settings and close the screen.	—

\*1 When the controller type of the access target CPU is "Rockwell AB (Tag)", the tag name can be specified.

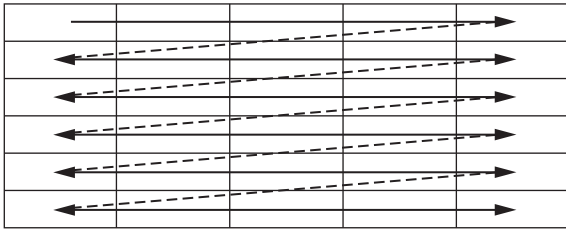
\*2 When the data type is string, characters outside the ASCII range are substituted with periods (.).



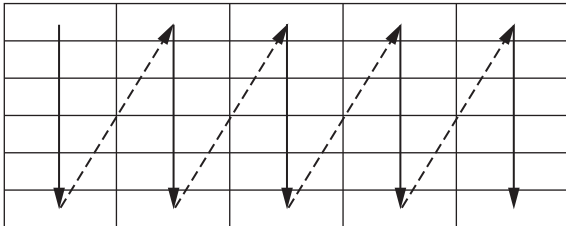
## ■Outputting direction

When the target data is current value, the values can be output in two types of outputting directions.

1) When outputting direction is "Horizontal (left → right)"



2) When outputting direction is "Vertical (top → bottom)"



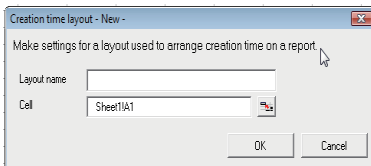
## Creation time layout screen



Configure layout settings of the creation time to be output to the report.

### Operating procedure

Select "Creation time" for the layout type on the "Layout setting" screen and click the [Add] button.

### Displayed items



Item	Description
Layout name	Enter the name of the layout (Up to 32 characters).
Cell	Specify the cell to output the creation time. Can also be specified with the  button.
 (Input assistance button)	By clicking this button, the range of cells to output the creation time can be selected with the mouse.

### Point

The format below is automatically set in the cell where output date/time is set.

yyyy/mm/dd ddd hh:mm:ss

To change the date/time display format, change the cell format setting in Excel. However, a display error ( $\pm 1$ ) on the value of the last digit may occur due to a rounding error.

Example) To display year, month, date, hour, minute, second, millisecond information

Specify the user defined display format below.

yyyy/mm/dd hh:mm:ss.000

## Adding reproduction

Copy the layout settings selected on the "Layout setting" screen and use them to add a new layout.

### Operating procedure

Select the layout setting to be copied on the "Layout setting" screen and then click the [Adding reproduction] button. The copied layout setting screen is displayed according to the data type (data logging/current value/creation time). Configure the blank setting items and click the [OK] button.

### Displayed items

**Ex.**

For a data logging layout

Data logging layout - New -

Make layout setting for outputting data logging file record to each report.

Layout name: Logging\_Layout      Sheet name:

Leading cell:      Cell range:

Number of records: 1

Data logging name: 01.LDG01      Edit

Source file

Saved file      Output the data in the file which has stored.

Storing file      Output the data in the file which are being stored.

Both      Output the data in the both files.

Outputting direction

Vertical (top -> bottom)       Horizontal (left -> right)

Outputting order

Chronological order (old -> new)       Reverse chronological order (new -> old)

Output data

Select data names to be outputted and add them to the output data.

Logging data			Output data		
No.	Data name	Contents	No.	Data name	Contents
			001	LOG02	D0[word{signed}]

Output title (data name) at the head of data

OK      Cancel

For the setting items on the "Layout setting" screen corresponding to the data type (data logging/current value/creation time), refer to the following sections.

☞ Page 349 Data logging layout screen

☞ Page 358 Current value layout screen

☞ Page 359 Creation time layout screen

## Editing layout settings

Edit the layout setting selected on the "Layout setting" screen.

### Operating procedure

Select the layout setting to be edited on the "Layout setting" screen and then click the [Edit] button.

The layout setting to be edited is displayed according to the data type (data logging/current value/creation time).

Change the portions need to be changed and click the [OK] button.

### Displayed items

**Ex.**

For a data logging layout

Data logging layout - Edit Index No.01

Make layout setting for outputting data logging file record to each report.

Layout name: Logging Layout      Sheet name: Sheet1

Leading cell: Sheet1!A1      Cell range: A1

Number of records: 1

Data logging name: 01.LOG01      Edit

Source file

Saved file      Output the data in the file which has stored.

Storing file      Output the data in the file which are being stored.

Both      Output the data in the both files.

Outputting direction

Vertical (top -> bottom)       Horizontal (left -> right)

Outputting order

Chronological order (old -> new)       Reverse chronological order (new -> old)

Output data

Select data names to be outputted and add them to the output data.

No.	Data name	Contents
001	tst	DS(word[signed])

No.	Data name	Contents
	TIME	Logging output date

Output title (data name) at the head of data

OK      Cancel

For the setting items on the "Layout setting" screen corresponding to the data type (data logging/current value/creation time), refer to the following sections.

☞ Page 349 Data logging layout screen

☞ Page 358 Current value layout screen

☞ Page 359 Creation time layout screen

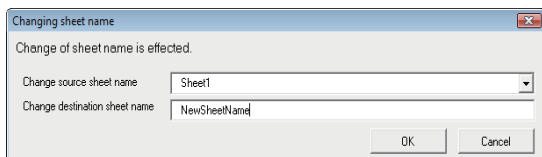
## Changing sheet name

Change the Excel sheet name.

### Operating procedure

Click the [Changing sheet name] button on the "Layout setting" screen.

### Displayed items



Item	Description
Change source sheet name	Select the change source sheet name.
Change destination sheet name	Enter the change destination sheet name.
[OK] button	Settle the settings and close the screen.
[Cancel] button	Discard the settings and close the screen.

## Creation trigger

---

Specify the timing of trigger occurrence to create the Report file.

There are the two types of creation triggers below depending on the number of conditions combined.

- Single condition (if the number of conditions is 1)
  - ☞ Page 364 Creation trigger (Single condition)
- Compound condition (if multiple conditions are combined)
  - ☞ Page 366 Creation trigger (Compound condition)

For details on processes of each trigger condition, refer to the following section.

☞ Page 153 Creation Trigger

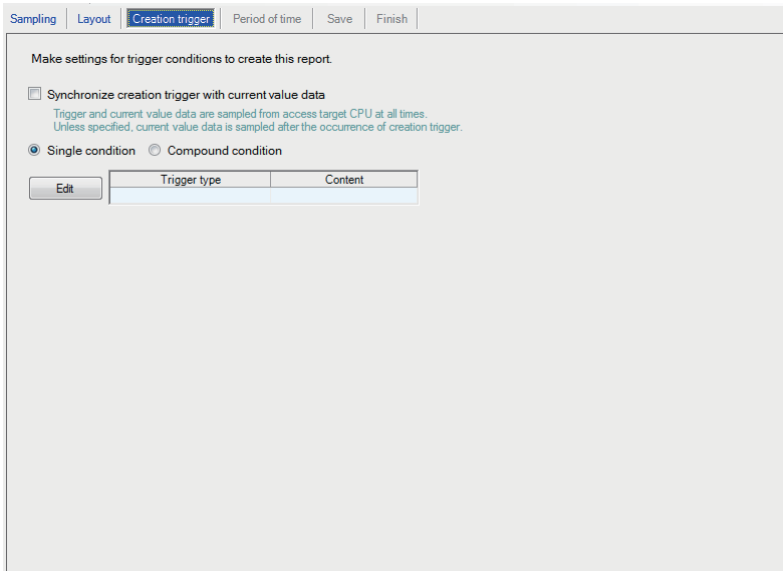
# Creation trigger (Single condition)

The following shows how to set a single trigger condition.

## Operating procedure

Select "Single condition".

## Displayed items



Item	Description	Reference
Synchronize creation trigger with current value data	When selected, the creation trigger and current value data are always sampled simultaneously from the access target CPU. When unselected, the current value data is sampled after the creation trigger occurs.	—
Single condition	Select this to set a single trigger condition.	—
Compound condition	Select this to set multiple trigger conditions in combination.	Page 366 Creation trigger (Compound condition)
Trigger type	Display the specified type of trigger condition (Data conditions (Comparison), Data conditions (At the time of change of value), Fixed cycle, Time interval specification, Specifying a time of day, At startup of BOX Data Logger, At the time of the data logging file is switched).	Page 365 Trigger condition setting screen
Content	Display the overview of the trigger condition.	—
[Edit] button	Display the "Trigger condition setting" screen.	Page 365 Trigger condition setting screen

### Restriction


- The following are the operations when creation triggers continuously occur.  
After the creation trigger occurs, if the next creation trigger occurs while the Report file is being created, the report creation processing is not performed (the creation trigger is ignored). How many times creation triggers have been ignored can be checked with the "Creation trigger reoccurrence count" in the [Report diagnostics] tab on the "Diagnostics" screen.  
The time required to create a report can be checked with the "Report creation time" in the [Report diagnostics] tab on the "Diagnostics" screen.
- If "At startup of BOX Data Logger" is selected as settings for "Creation trigger" is selected with the data logging set to be output, Data logging files output before the power was turned OFF or the settings were updated previous time can be output to a report. However, when configuring this setting when there are no Data logging files, an error occurs because no output target data exists at time of BOX Data Logger startup.

## Trigger condition setting screen

One type of trigger condition can be specified.

Item		Description	Reference	
Data conditions	Comparison <sup>*1</sup>	—	Compare data, and make the trigger occur when the condition is satisfied.	—
		Data name	Select the target data. To add a new data setting, select "(Add)" from the list box and click the [...] button.	Page 265 Data setting Page 218 Data setting screen
		Conditions	Select a comparison operator.( =, ≠, <, ≤, >, ≥)	—
		Data/Constant	Select the type of data to compare to the target data. ("Data" or "Constant")	—
		Data name/ Constant value	Set the data or constant data (up to 16 characters) to compare to the target data. To add a new data setting and compare to the target data, select "(Add)" from the list box and click the [...] button.	—
	At the time of change of value	—	Make the trigger occur when the value changes.	Page 276 Trigger condition setting screen
Data name		Select the data to monitor for the value change. To add a new data setting, select "(Add)" from the list box and click the [...] button.	—	
Fixed cycle		Make the trigger occur at the specified cycle. (1 to 86400 seconds)	Page 276 Trigger condition setting screen	
Time interval specification		Make the trigger occur at the specified time interval (hour/minute/second) from the midnight of everyday, the top of every hour, or the top of every minute.	Page 276 Trigger condition setting screen	
Specifying a time of day <sup>*2, *3</sup>	—	Make the trigger occur at the specified time.	Page 276 Trigger condition setting screen	
	Month	(Jan to Dec, Every)		
	Day	(1 to 31, Every, Last)		
	Hour	(00 to 23, Every)		
	Minute	(00 to 59, Every)		
	Second	(00 to 59)		
At startup of BOX Data Logger		Make the trigger occur when the BOX Data Logger is powered ON or after reset	—	
At the time of the data logging file is switched <sup>*4, *5</sup>		Make the trigger occur after the specified data logging file is switched.	—	

\*1 When data of different data types are compared, the condition may not be satisfied because of the difference in internal representations. Refer to the following section for the value type comparison accuracy.

 Page 595 Numerical Type Comparison Accuracy

\*2 February 29 cannot be directly set. To specify February 29, select 'last day of February'.

\*3 If "Every" is specified, "Every" needs to be set for all date/time items above it.

\*4 Specify it from the specified data logging settings.

If the data logging layout is configured in the Layout setting, the data logging name specified at the head is displayed.

\*5 Cannot be specified when the Data logging setting does not exist.

### Restriction

- The following are the operations when creation triggers continuously occur.  
After the creation trigger occurs, if the next creation trigger occurs while the Report file is being created, the report creation processing is not performed (the creation trigger is ignored). How many times creation triggers have been ignored can be checked with the "Creation trigger reoccurrence count" in the [Report diagnostics] tab on the "Diagnostics" screen.  
The time required to create a report can be checked with the "Report creation time" in the [Report diagnostics] tab on the "Diagnostics" screen.
- If "At startup of BOX Data Logger" is selected as settings for "Creation trigger" is selected with the data logging set to be output, Data logging files output before the power was turned OFF or the settings were updated previous time can be output to a report. However, when configuring this setting when there are no Data logging files, an error occurs because no output target data exists at time of BOX Data Logger startup.

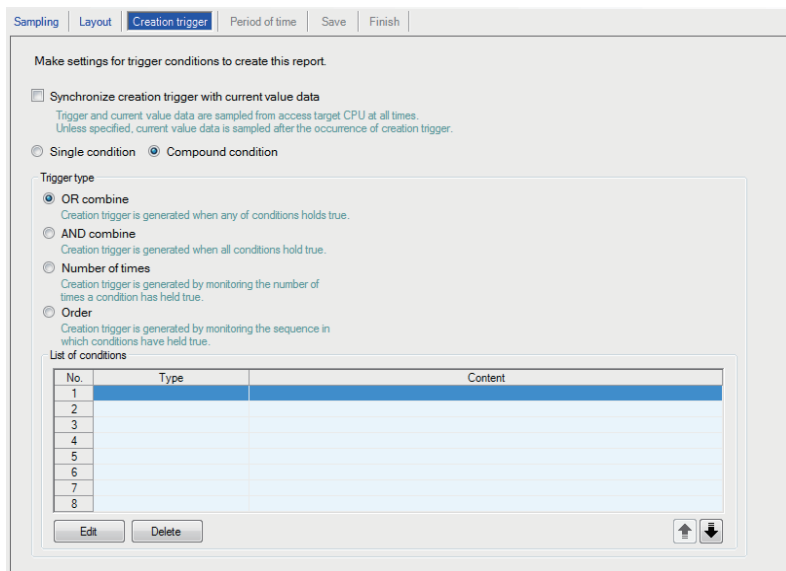
# Creation trigger (Compound condition)

The following shows how to specify multiple trigger creation condition in combination.

## Operating procedure

Select "Compound condition".

## Displayed items



Item	Description	Reference
Synchronize creation trigger with current value data	If selected, the creation trigger and current value data are always sampled simultaneously from the access target CPU. If unselected, the current value data is sampled after the creation trigger occurs.	—
Single condition	Select this to set a single trigger condition.	Page 364 Creation trigger (Single condition)
Compound condition	Select this to set multiple trigger conditions in combination.	—
OR combine	Make the trigger occur when any of the conditions specified on the list of conditions are satisfied.	Page 367 OR combine
AND combine	Make the trigger occur during the period when all of the conditions specified on the list of conditions are satisfied.	Page 279 AND combine
Number of times	Make the trigger occur by monitoring the number of times the condition is satisfied.	Page 280 Number of times
Order	Make the trigger occur by monitoring the order of the conditions satisfied.	Page 283 Order
List of conditions	—	Display the list of conditions.
	Type	Display any of the following items. <ul style="list-style-type: none"> <li>For OR combine: Data conditions (Comparison), Data conditions (At the time of change of value), Fixed cycle, Time interval specification, Specifying a time of day, At the time of BOX Data Logger startup</li> <li>For AND combine: Data conditions (Comparison)</li> <li>For Number of times: Comparison, At the time of change of value</li> <li>For Order: Comparison, At the time of change of value</li> </ul>
	Content	Display the overview of the condition.
[Edit] button	Display the setting screen to edit the condition in the selected row.	—
[Delete] button	Delete the condition in the selected row.	—
[↑]/[↓] button	Shift the selected row one row up or one row down.	—


### Restriction

When AND combine or OR combine are specified, the number of conditions that can be combined is up to 10 with "Period of time".




## OR combine

The setting items are the same as those of Creation trigger (Single condition). Refer to the following section.

 Page 364 Creation trigger (Single condition)


## AND combine

The setting items are the same as those of "AND combine" of Trigger logging (Compound condition). Refer to the following section.

 Page 279 AND combine


## Number of times

The setting items are the same as those of "Number of times" of Trigger logging (Compound condition). Refer to the following section.




 Page 280 Number of times

## Order

The setting items are the same as those of "Order" of Trigger logging (Compound condition). Refer to the following section.

 Page 283 Order

### Point

- By configuring the following settings, Report files corresponding to Data logging files one-to-one basis can be created.
  - Select [Report setting] ⇒ [Layout] ⇒ "Data logging layout" ⇒ "Source file" ⇒ "Saved file" ( Page 349 Data logging layout screen).
  - Select [Report setting] ⇒ [Creation trigger] ⇒ "At the time of the data logging file is switched".
- By configuring the following settings, only trigger logging data before and after the rising of trigger condition can be output to a report.
  - Select [Data logging setting] ⇒ [save] ⇒ "File switching timing" ⇒ "Trigger logging unit". ( Page 294 File switching timing)
  - Select [Report setting] ⇒ [Layout] ⇒ "Data logging layout" ⇒ "Source file" ⇒ "Saved file" ( Page 349 Data logging layout screen).
  - Select [Report setting] ⇒ [Creation trigger] ⇒ "At the time of the data logging file is switched".

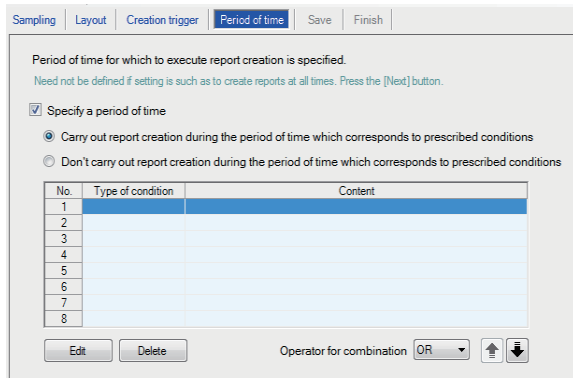
# Period of time

Specify the period for monitoring the report creation trigger.

Processes of period of time are the same as those of the data logging period setting. Refer to the following section.

☞ Page 131 Data Logging Periods

## Displayed items



Item	Description	Reference
Specify a period of time	Select this when not always monitoring the report creation trigger.	Page 369 "Setting a period of time" screen
Carry out report creation during the period of time which corresponds to prescribed conditions	Select this to monitor the report creation trigger during the period corresponding to the conditions displayed in the list.	—
Don't carry out report creation during the period of time which corresponds to prescribed conditions	Select this not to monitor the report creation trigger during the period corresponding to the conditions displayed in the list.	—
Type of condition	Display the condition type. (Data conditions, Date range, Time-of-the-day range, Day-of-the-week/Week-of the-month conditions)	—
Content	Display the overview of the condition. To check the content, select the corresponding row and click the [Edit] button.	—
[Edit] button	Display the setting screen to edit the selected condition.	Page 369 "Setting a period of time" screen
[Delete] button	Delete the selected condition.	—
Operator for combination	Specify how to combine the conditions of each row. (OR, AND)	Page 372 Combination of conditions
[↑]/[↓] button	Shift the selected row one row up or one row down.	—

## "Setting a period of time" screen


Specify the condition to define the period of time.

### ■Data conditions

Compare data and monitor the report creation trigger during the period when the condition is satisfied.

Item	Description
Data name	Select the target data from the data set with "Report setting". To add a new data setting, select "(Add)" from the list box and click the [...] button.
Conditions*1	Select a comparison operator.(=, ≠, <, >, ≥)
Data/Constant	Select the type of data to compare to the target data. ("Data" or "Constant")
Data name/Constant value	Set the data or constant data (up to 16 characters) to compare to the target data. To add a new data setting, select "(Add)" from the list box and click the [...] button.

\*1 When data of different data types are compared, the condition may not be satisfied because of the difference in internal representations.  
Refer to the following section for the value type comparison accuracy.

 Page 595 Numerical Type Comparison Accuracy

### ■Date range

Monitor the report creation trigger during the period of specified date\*1.

\*1 February 29 cannot be directly set. To specify February 29, select 'last day of February'.

**Ex.**

When specifying the date range as shown below

Start: March 28, End: April 2

For the setting example shown above, the report is created as follows:

○: Performed ×: Not performed

Date	...	March 27	March 28	...	April 2	April 3	...
Carry out report creation during the period of time which corresponds to prescribed conditions	×	×	○	○	○	×	×
Don't carry out report creation during the period of time which corresponds to prescribed conditions	○	○	×	×	×	○	○

### ■Time-of-the-day range

Monitor the report creation trigger during the specified period of time.

**Ex.**

When specifying the time range as shown below

Start: 8:00:00, End: 8:00:59

For the setting example shown above, the report is created as follows:

○: Performed ×: Not performed

Time (hour:minute:second)	...	7:59:59	8:00:00	...	8:00:59	8:01:00
Carry out report creation during the period of time which corresponds to prescribed conditions	×	×	○	○	○	×
Don't carry out report creation during the period of time which corresponds to prescribed conditions	○	○	×	×	×	○

### ■Day-of-the-week/Week-of-the-month conditions

Monitor the report creation trigger during the specified day of the week or week. The period of time can be specified by combining the day of the week and week.

- To perform report creation on the specified day of the week each week  
Unselect "Specifying a week of the month".

**Ex.**

When specifying from Monday to Friday

For the setting example above, the report is created as follows:

○: Performed ×: Not performed

Day of the week	Sun	Mon	Tue	Wed	Thu	Fri	Sat	Sun	Mon	...
Carry out report creation during the period of time which corresponds to prescribed conditions	×	○	○	○	○	○	×	×	○	...
Don't carry out report creation during the period of time which corresponds to prescribed conditions	○	×	×	×	×	×	○	○	×	...

- To perform report creation in combination of the week and day of the week  
Select "Specifying a week of the month".

The following table shows the week conditions.

Week condition	Description
1st	From the 1st to the 7th
2nd	From the 8th to the 14th
3rd	From the 15th to the 21st
4th	From the 22nd to the 28th
Last	The 7 days at the end of the month for the corresponding month Example) If the 31st is the end of the month, the 25th to the 31st If the 30th is the end of the month, the 24th to the 30th

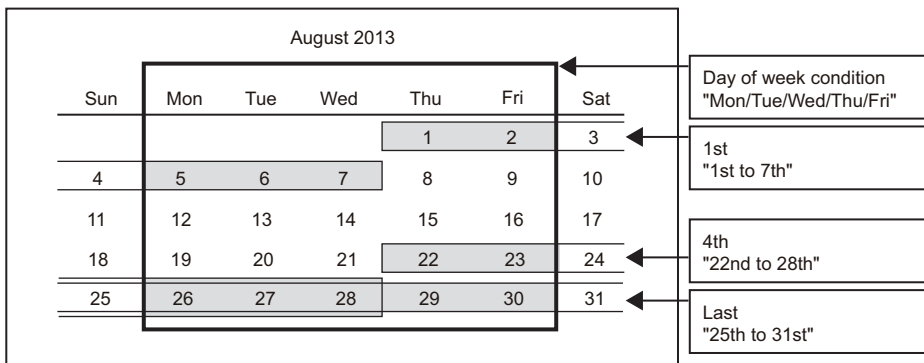
**Ex.**

When specifying the following day of the week conditions and week conditions with the period specified as "Carry out report creation during the period of time which corresponds to prescribed conditions"

Day of week condition: Select Mon, Tue, Wed, Thu, Fri

Specifying a week of the month/Week condition : Select 1st, 4th, Last.

Monitors the report creation trigger on the shaded portions.



## Combination of conditions

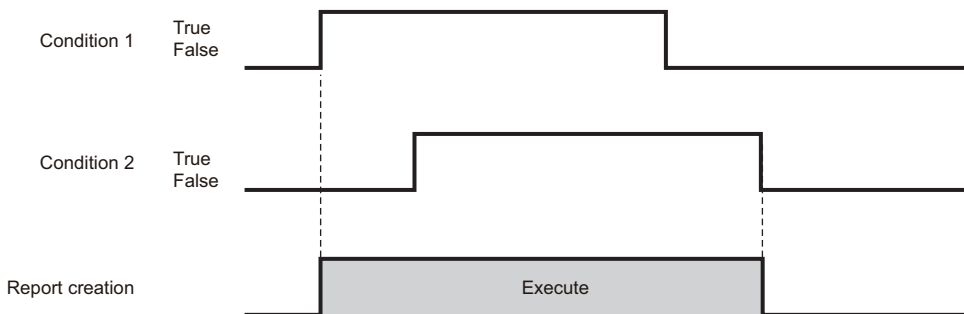
Multiple specified conditions in the list of conditions can be combined.

"OR" or "AND" can be selected as the combined condition (Operator for combination).

The combined condition is applied to all of the conditions. "AND" and "OR" cannot be mixed.

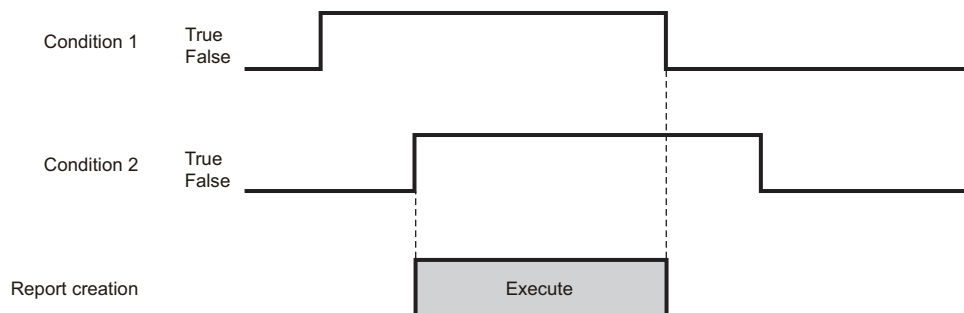
### ■ For OR combine

When "Carry out report creation during the period of time which corresponds to prescribed conditions" is selected for the period of time



### ■ For AND combine

When "Carry out report creation during the period of time which corresponds to prescribed conditions" is selected for the period of time



### Restriction

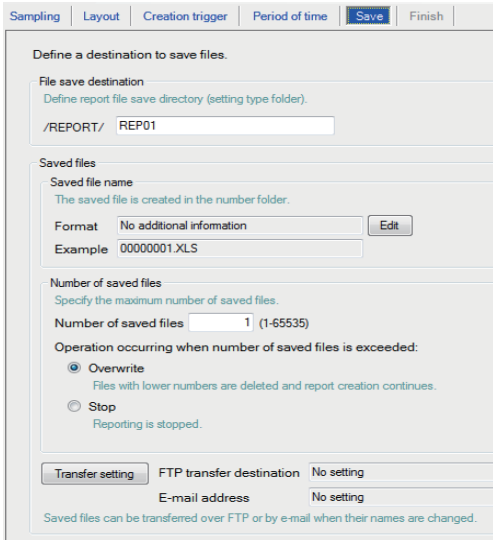
The number of conditions that can be combined is up to 10 with 'creation trigger condition (AND combine or OR combine)'.

# Save

Configure the settings for the Report file save destination and the saved file switching settings. Processes for the saving settings are the same as those for Data logging setting. Refer to the following section.

☞ Page 133 Saving Data logging files

## Displayed items



Item	Description	Reference
File save destination	Specify the save directory (setting type folder) for the Report file.	Page 374 File save destination
Saved files	Saved file name	Page 375 Saved file name
	Number of saved files	Page 375 Number of saved files
[Transfer setting] button	—	Page 375 Transfer setting
	FTP transfer destination	— • If no setting : No setting • If there is a setting: Display the FTP setting number
	E-mail address	— • If no setting : No setting • If there is a setting: Display the target e-mail address setting number

## File save destination

Item	Description
File save destination	Specify the name of the folder to save files in. For the characters that can be set, refer to the section below. ☞ Page 594 Characters usable in file names, folder (directory) names Specify a name not to overlap with the file save destination for other Report files. (Within 32 characters)

256 Report files are saved in a folder of the specified "File save destination". The files with low numbers which have been deleted by the setting of "Number of saved files" are included in this number.

The 257th file is saved in a new folder.

The following table shows the saved file name when the save folder and additional information are not set.

Save folder			Saved file name	maximum number of files
File type folder	Setting type folder	Number folder		
\REPORT	\REP01	\0000001	00000001.XLS	256
			00000002.XLS	
			⋮	
			000000FF.XLS	
			00000100.XLS	
			00000101.XLS	
	\0000101	\0000101	00000101.XLS	256
			00000102.XLS	
			⋮	
			000001FF.XLS	
			00000200.XLS	
			⋮	
\REP02	\0000001	\0000001	00000001.XLS	256
			00000002.XLS	
			⋮	
			000000FF.XLS	
			00000100.XLS	
			00000101.XLS	
	\0000101	\0000101	00000101.XLS	256
			00000102.XLS	
			⋮	
			000001FF.XLS	
			00000200.XLS	
			⋮	

Item	Description
File type folder	Folders are created automatically according to the type of saved file. "LOGGING": Store Data logging files. (☞ Page 293 File save destination) "EVENT": Store Event logging files. (☞ Page 333 File save destination) "REPORT": Store Report files.
Setting type folder	Files are sorted according to the save directory name set for "File save destination" on the "Save" tab of the Report setting.
Number folder	Files are sorted according to the specified number of saved file. Folder name: $100 \times n + 1$ is displayed in 8 digits ( $n=0, 1, 2, 3, \dots$ ) Example: 00000001, 00000101, 00000201, 00000301
Saved file name	A saved file name is expressed as 8 digits. The output format can be changed in the "Saved file name" setting on the "Save" tab of the Report setting.



## Saved file name

Set the information which is to be attached to the saved file name.

Item	Description	Reference
Format	Display the output format of the saved file.	—
Example	Display the output image of the file name in a current format.	—
[Edit] button	Open the "Saved file name setting" screen to set the information which is to be attached to the saved file name.	Page 299 Saved file name setting screen

### Point

The saved file number (00000001 to FFFFFFFF) to identify saved files is always attached to the saved file name.

## Number of saved files

Set the maximum number of saved files and the operation when the maximum number is exceeded.

Item	Description	
Number of saved files	Specify the maximum number of saved files. (1 to 65535)	
Operation occurring when number of saved files is exceeded	Overwrite	Select this to delete files with low numbers and continue report creation when the number of saved files has already exceeded the specified number at the occurrence of a creation trigger. When the folder where files with low numbers are deleted becomes empty, that folder is automatically deleted.
	Stop	Select this to stop report creation when the number of saved files has already exceeded the specified number at the occurrence of a creation trigger. Delete the latest saved file or the saved file with the lowest number via FTP or with the file browser of Configuration tool to restart report creation.

### Point

The number of saved files is calculated by the saved file number as shown below  
 Latest saved file number - Lowest saved file number + 1


## Transfer setting

Transfer the latest Report file when a Report file is created.

The setting items are the same as those of the "Transfer setting" screen of the Data logging setting.

 Page 301 Transfer setting screen

### Point

- If report creation (creation trigger occurrence) and a data logging file switch occur at the same time, report creation has priority and the Data logging file is switched after the report is created.
- E-mail transmissions/file transfers by the saved file transfer function may take a few seconds to tens of seconds depending on the network line/transmission size.  
 Target files may be deleted before e-mail transmission/file transfer completes depending on the settings. Review the number of saved files ( Page 375 Number of saved files) setting and lengthen the time until the file is deleted.

# Finish

Assign a name to the Report setting and complete the settings.

## Displayed items

Sampling | Layout | Creation trigger | Period of time | Save | **Finish**

All information necessary to create a report has been gathered. Press the [Finish] button to complete settings.  
To have your settings reflected in the BOX Data Logger, use the Online menu's Write command.

Assign a name to report creation task.

Report name REP01

Data list | < Back | Next > | Finish | Cancel

Item	Description
Report name	Specify the name of the setting being edited. For the characters that can be set, refer to the section below. 📄 Page 592 Usable Characters (Up to 32 characters)
[Finish] button	Settle the settings being edited. After the settings are settled, the report name is displayed in the following. <ul style="list-style-type: none"><li>• On the edit items tree, under the "Report setting" folder</li><li>• Report setting list</li></ul>
[Cancel] button	Discard the report settings being edited and end editing.

# 13 WRITING/READING/VERIFYING SETTING DATA

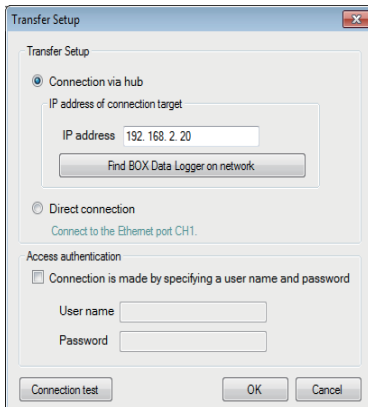
## 13.1 Transfer Setup

Configure the settings connecting to BOX Data Logger after starting up the Configuration tool.

### Operating procedure

Select [Online] ⇒ [Transfer Setup].

### Displayed items



Item	Description		Reference	
Transfer Setup	Connection via hub	—	Select this to connect via a network. The IP address of the BOX Data Logger must be specified.	Page 49 Connecting to multiple CPU modules and server with Ethernet port (by using 1 port)
		IP address	Specify the IP address.	—
		[Find BOX Data Logger on network] button	Open the "Find BOX Data Logger" screen.	Page 378 Searching BOX Data Logger
	Direct connection	—	Select this when directly connecting to the Ethernet port of BOX Data Logger using a cable. Not necessary to specify the IP address of the BOX Data Logger.	Page 48 Connecting to a single CPU module with Ethernet port
Access authentication	Connection is made by specifying a user name and password	—	Select this to perform access authentication.	Page 191 Access Authentication Function
		User name* <sup>1</sup>	Specify the user name to login with. (Up to 20 characters)	
		Password* <sup>1</sup>	Specify the password for the user name to login with. (Up to 16 characters)	
[Connection test] button		—	Perform a connection test.	—
[OK] button		—	Confirm the settings and closes the screen.	—
[Cancel] button		—	Discard the settings and closes the screen.	—


\*1 For the characters that can be used, refer to the following section.

☞ Page 592 Usable Characters

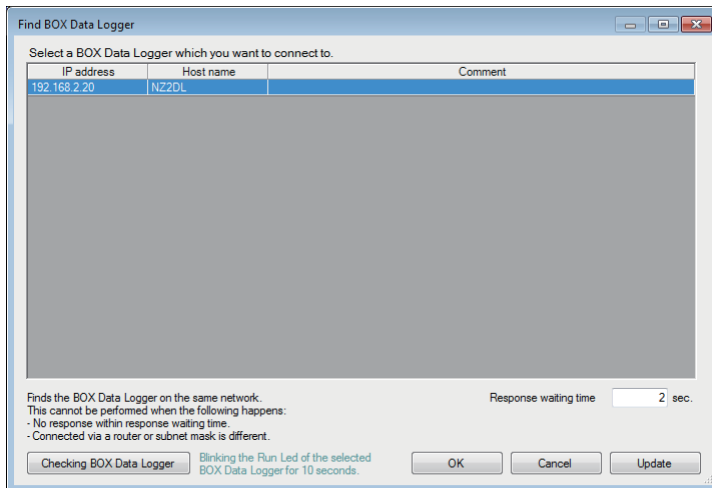
## 13.2 Searching BOX Data Logger


When BOX Data Logger is connected via a hub, search the BOX Data Logger on the same network as the configuration personal computer are searched and displayed in a list.

### Operating procedure

Click the [Find BOX Data Logger on network] button on the "Transfer Setup" (  Page 377 Transfer Setup) screen. BOX Data Loggers which are connected via a router are not searched.

### Displayed items




Item	Description
IP address	Display the IP address of the searched BOX Data Logger.
Host name	Display the host name (the host name registered on Network setting) of the searched BOX Data Logger.
Comment	Display only the first line of the project comment written to the searched BOX Data Logger. (Up to 160 characters)
Response waiting time	Specify the response waiting time for searching BOX Data Logger (1 to 99 seconds).
[Checking BOX Data Logger] button	Flash the 'RUN' LED (  Page 97 Indicator LED display) on the front of BOX Data Logger for 10 seconds in order to confirm the BOX Data Logger of the selected row.
[OK] button	Reflect the IP address of the selected row to the "Transfer Setup" screen and close the screen.
[Cancel] button	Close the screen without reflecting the IP address of the selected row to the "Transfer Setup" screen.
[Update] button	Search for BOX Data Logger again and update the "Find BOX Data Logger" screen.

### Point


BOX Data Logger may not be searched normally in a configuration where multiple IP addresses are enabled at the same time as shown below.

- IP addresses are assigned to each of multiple Ethernet ports (network devices) of a configuration/display personal computer.
- Aside from the Ethernet port of a configuration/display personal computer, a wireless LAN setting is enabled.
- Multiple IP addresses are assigned to a single Ethernet port of a configuration/display personal computer.


## 13.3 Writing Data

Write the settings to a CompactFlash card inserted in BOX Data Logger set with the transfer setup(  Page 377 Transfer Setup).

### Operating procedure


[Online] ⇒ [Write] (  )

#### Point


- To apply the setting, select "Update settings" (  Page 381 BOX Data Logger diagnostics), reset, or cycle the power, etc.
- If "Update settings" is performed during BOX Data Logger operation, the BOX Data Logger stops temporarily.
- While the "Update settings" is being performed, all functions including the Data logging function, Event logging function, and Report function stop.
- If the Network setting or the Access target CPU setting changes as a result of the "Update settings" performance, BOX Data Logger will be reset.

13


## 13.4 Reading Data

Read the settings from BOX Data Logger set with the transfer setup(  Page 377 Transfer Setup).

### Operating procedure

[Online] ⇒ [Read] (  )

## 13.5 Verifying Data

Compare the project settings currently opened with the settings on BOX Data Logger set with the transfer setup (  Page 377 Transfer Setup) and display the result.

### Operating procedure

[Online] ⇒ [Verify]

# 14 CONFIRMING BOX Data Logger OPERATION

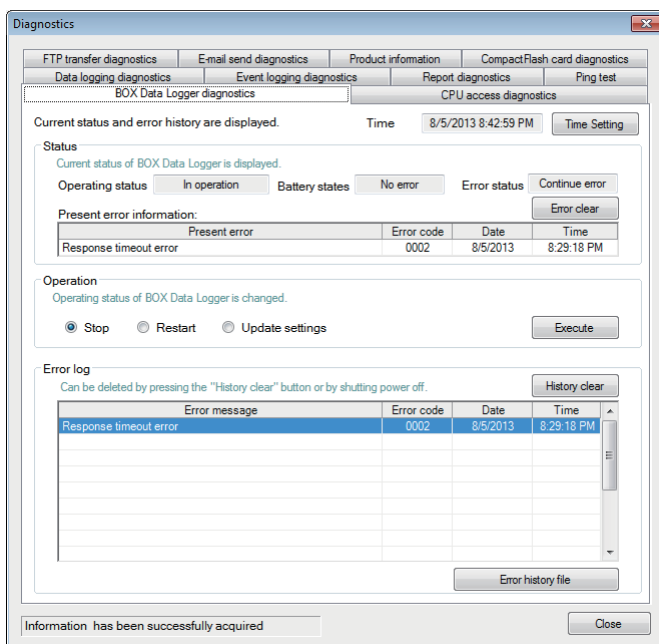
This chapter explains the method for connecting to a running BOX Data Logger, confirming the operating status of BOX Data Logger, and performing BOX Data Logger operations.

## 14.1 Diagnostics

### Operating procedure

1. Configure transfer setup. (Page 377 Transfer Setup)
2. Select [Online] ⇒ [Diagnostics].

### Displayed items



### Tab list

Tab name	Type	Description	Reference
BOX Data Logger diagnostics	Monitor	Displays current status and error log of BOX Data Logger.	Page 381 BOX Data Logger diagnostics
CPU access diagnostics		Displays status of access to a target CPU.	Page 384 CPU access diagnostics
FTP transfer diagnostics		Displays results of file transfer to FTP server.	Page 385 FTP transfer diagnostics
E-mail send diagnostics		Displays results of sending e-mail.	Page 386 E-mail send diagnostics
Product information		Displays product information of BOX Data Logger.	Page 387 Product Information
CompactFlash card diagnostics	Operation	Change the access status to the CompactFlash card, and format the CompactFlash card.	Page 388 CompactFlash card diagnostics
Data logging diagnostics	Monitor	Displays error code for each operation.	Page 390 Data logging diagnostics
Event logging diagnostics			Page 391 Event logging diagnostics
Report diagnostics			Page 392 Report diagnostics
Ping test			Page 393 PING Test

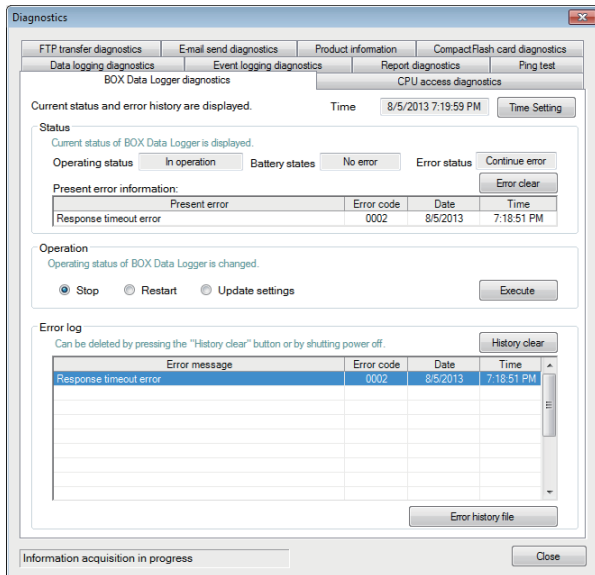
# BOX Data Logger diagnostics

Change the operating status, and displays the operating status and error log for BOX Data Logger.

## Operating procedure

1. Select [Online] ⇒ [Diagnostics].
2. Select the [BOX Data Logger diagnostics] tab.

## Displayed items



Item		Description	Reference
Time	Time	Displays current operating time of BOX Data Logger.	—
	[Time settings] button	Displays the "Time Setting" screen of BOX Data Logger.	Page 382 Time Setting screen
Status	Operating status	Displays current operating status of BOX Data Logger.	Page 382 Operating status
	Battery status	Displays current battery state of BOX Data Logger.	Page 382 Battery status
	Error status	Displays current error status of BOX Data Logger.	Page 383 Error status
	[Error clear] button	Deletes the current error information. The error lamp illuminated on BOX Data Logger also turns OFF.	—
	Present error information	Displays the latest error code and time when it occurred.	—
Operation	Stop	Stops BOX Data Logger operation (Data logging function, Event logging function, and Report function).	—
	Restart	Select this to restart stopped BOX Data Logger operations.	—
	Update settings <sup>*1</sup>	Select this to read the settings on the CompactFlash card and reflects them. <sup>*2</sup> While processing "Update settings", the operating status of BOX Data Logger will be "Initialization in progress".	Page 382 Operating status
	[Execute] button	Executes the selected operation (Stop/Restart/Update settings).	—
Error log	—	Displays the history of errors which occurred on BOX Data Logger. <sup>*3</sup> They are deleted by the [History clear] button.	—
	[History clear] button	Deletes the history of errors which occurred on BOX Data Logger.	—
	[Error history file] button	Opens a screen which displays the contents of the error log file.	Page 383 Error history file screen
Information acquisition status		Displays communications with BOX Data Logger and the information acquisition result in the lower left of the screen.	Page 383 Information acquisition status

- \*1 If the Network setting or the Access target CPU setting changes, a message instructing a reset will appear and the "Diagnostics" screen will be closed.
- \*2 While an error is occurring, the settings cannot be updated.  
While an error is occurring, perform update the settings following the procedure below.
1. Select "Stop" to stop BOX Data Logger operation.
  2. Click the [Error clear] button in "Status" to clear the error status.
  3. Select "Update settings" to update BOX Data Logger operation.
- \*3 If the same error occurs multiple times, only the date and time of occurrence for the first error is displayed.

## Time Setting screen

Define the time of BOX Data Logger.

Item	Description
Synchronize with the PC time	Select this to synchronize BOX Data Logger time with the time of the personal computer. The time of the personal computer is displayed in real time. Unselected this stops the time at the time when the item is unselected.
Date	Display the date of BOX Data Logger.
Time	Display the time of BOX Data Logger.
[Execute] button	Change the date and time to the date and time set in BOX Data Logger. When the "Synchronize with the PC time" is selected, BOX Data Logger time is changed to match the time of the personal computer.
[Close] button	Close this screen and return to the "Diagnostics" screen.

## Operating status

Display	Description	Reference
In operation	Indicates that the BOX Data Logger is operating normally.	—
Stop	Indicates that the BOX Data Logger is in a stopped state. The Data logging function, Event logging function, and Report function are not performed when stopped. Causes: <ul style="list-style-type: none"> <li>• The execution of the Auto logging setting is completed.</li> <li>• "Stop" is performed with BOX Data Logger operation.</li> <li>• File access is stopped with the CF CARD ACCESS OFF switch.</li> <li>• After the CompactFlash card is formatted.</li> </ul>	Page 184 Logging Continuance Function Page 388 CompactFlash card diagnostics
Initialization in progress	Indicates that BOX Data Logger is currently starting up. This is displayed immediately after settings have been read or updated.	—
Stopping	Indicates the status that BOX Data Logger is in transition from "In operation" to "Stop".	—

## Battery status

Display	Description
No errors	The battery has no problem.
Battery error	The battery is low.



## Error status

Display	Description
No error	Indicates that BOX Data Logger is operating normally without errors.
Continuation error	Indicates the status that BOX Data Logger has a minor error but is operable continuously.
Stop error	Indicates the status that BOX Data Logger has a critical error and is inoperable.

### Point

While the "Update settings" process is being performed, all functions including the Data logging function, Event logging function, and Report function stop.

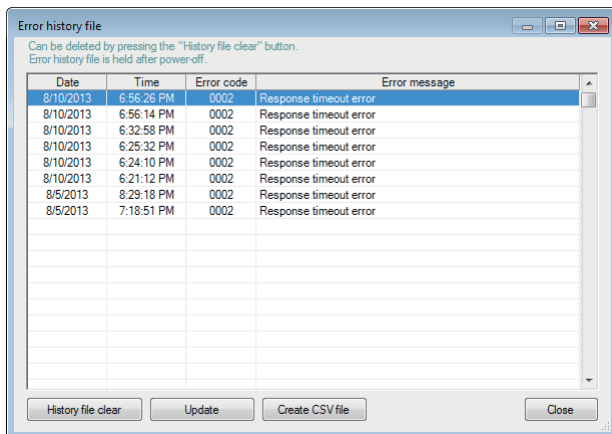
## Error history file screen

Displays the history of errors which occurred on the BOX Data Logger in a list.

### Operating procedure

Click the [Error history file] button in the [BOX Data Logger diagnostics] tab.

### Displayed items



Error log list

Item	Description
Error history list	Display the history of errors as a list. The list is deleted by clicking the [History file clear] button.
[Update] button	Display the latest error history by reloading the file.
[History file clear] button	Deletes the error history list.
[Create CSV file] button	Save the error information of the error history file as a CSV file.
[Close] button	Closes the screen.

## Information acquisition status

Display the communication with the BOX Data Logger and the information acquisition result.

Display	Description
Information has been successfully acquired.	Indicates the information was successfully acquired and the display was updated.
Information acquisition in progress	Indicates the Configuration tool is communicating with the BOX Data Logger in order to update the display.
Information acquisition failed	Indicates a failure to acquire the information. Check the BOX Data Logger status, network and communication cable status, and the settings on the "Transfer Setup" screen.

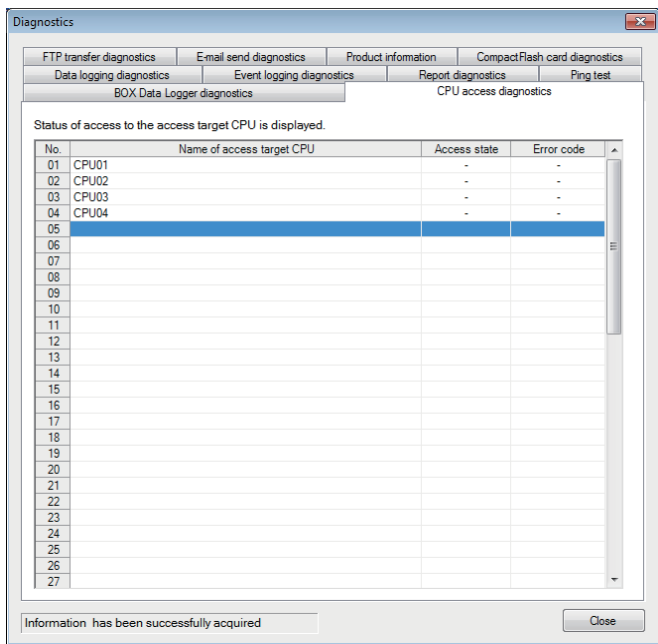
# CPU access diagnostics

Monitor the status of the access target CPU.

## Operating procedure

1. Select [Online] ⇒ [Diagnostics].
2. Select the [CPU access diagnostics] tab.

## Displayed items



Item	Description
No.	Displays the index of the Access target CPU setting.
Name of access target CPU	Displays the CPU name of the Access target CPU setting.
Access state <sup>*1</sup>	Displays the current access target CPU access status ("Normal", "Error", "-").
Error code <sup>*1</sup>	Displays the latest error code of the access target CPU. Page 411 Error Codes

\*1 "-" is displayed up to the first communication or if the Access target CPU setting has been set but not the logging setting.

### Point

When connected the access target CPU with Ethernet: The BOX Data Logger checks the access target CPU status by sending Ping commands to the access target CPU. Thus, if an IP address of another Ethernet equipment is set as an access target CPU by mistake, the access state may be displayed as "Normal". If the access state is displayed as "Normal" on the "BOX Data Logger diagnostics" screen although the response timeout error (0002H) is occurring, review the IP address setting of the access target CPU.

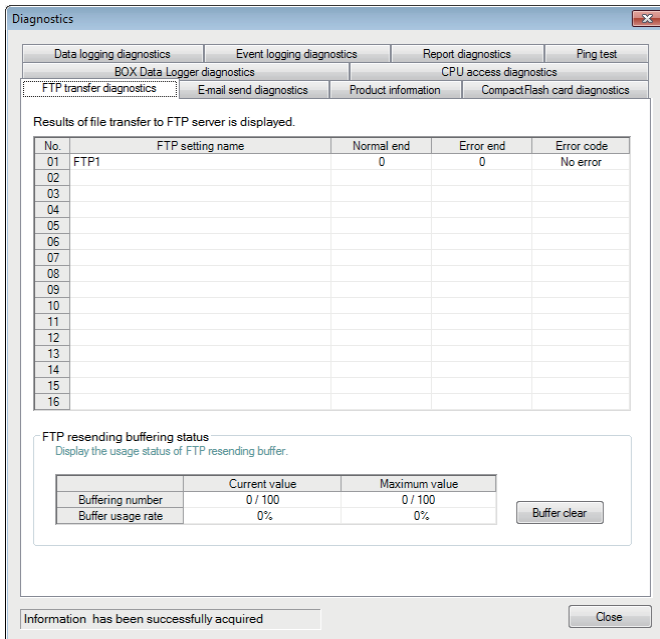
# FTP transfer diagnostics

Monitor the results of file transfers to FTP servers.

## Operating procedure

1. Select [Online] ⇒ [Diagnostics].
2. Select the [FTP transfer diagnostics] tab.

## Displayed items



Item	Description						
No.	Displays the index of the FTP setting.						
FTP setting name	Displays the name of the FTP setting.						
Normal complete	Displays the number of times that the FTP transfer completed normally.						
Error end	Displays the number of times that the FTP transfer completed in an error.						
Error code	Displays the latest error code of the FTP transfer. ☞ Page 411 Error Codes						
FTP resending buffering status <sup>*1</sup>	<table border="1"> <tbody> <tr> <td>Buffering Number<sup>*2</sup></td> <td>Displays the number of data stored in the FTP resend buffer memory. Current value: Current number of buffered data/set number of buffered data Maximum value: The maximum number of buffered data up to the present/set number of buffering data</td> </tr> <tr> <td>Buffer usage rate<sup>*2</sup></td> <td>Displays the usage rate of the FTP resend buffer memory. Current value: Current usage rate Maximum value: The maximum usage rate up to the present</td> </tr> <tr> <td>[Buffer clear] button</td> <td>Clears the FTP resend buffer memory and cancels resending the FTP transfer.</td> </tr> </tbody> </table>	Buffering Number <sup>*2</sup>	Displays the number of data stored in the FTP resend buffer memory. Current value: Current number of buffered data/set number of buffered data Maximum value: The maximum number of buffered data up to the present/set number of buffering data	Buffer usage rate <sup>*2</sup>	Displays the usage rate of the FTP resend buffer memory. Current value: Current usage rate Maximum value: The maximum usage rate up to the present	[Buffer clear] button	Clears the FTP resend buffer memory and cancels resending the FTP transfer.
Buffering Number <sup>*2</sup>	Displays the number of data stored in the FTP resend buffer memory. Current value: Current number of buffered data/set number of buffered data Maximum value: The maximum number of buffered data up to the present/set number of buffering data						
Buffer usage rate <sup>*2</sup>	Displays the usage rate of the FTP resend buffer memory. Current value: Current usage rate Maximum value: The maximum usage rate up to the present						
[Buffer clear] button	Clears the FTP resend buffer memory and cancels resending the FTP transfer.						

\*1 "-" is displayed when "Resend when transfer failed" is not set in the optional setting of the FTP setting.

\*2 The maximum value is cleared when the BOX Data Logger is powered OFF or reset.

After a reset or cycle the power, "Buffering number" and "Buffer usage rate" at that time will be the maximum values.

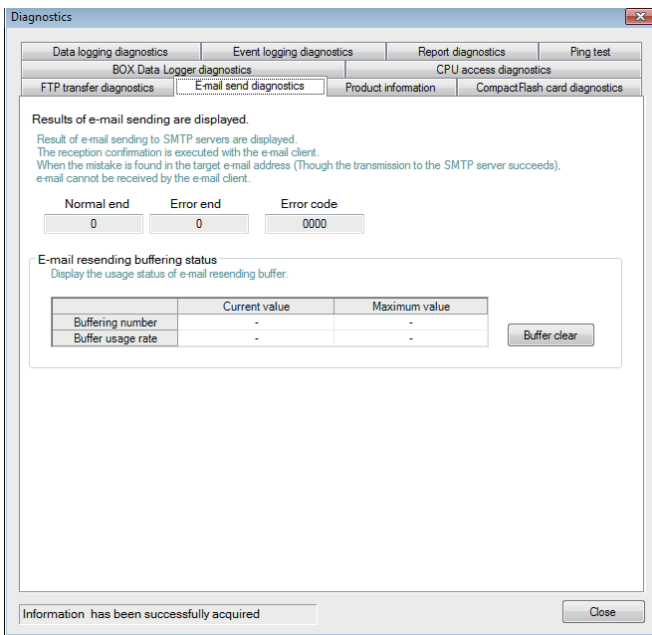
# E-mail send diagnostics

Monitor the results of sending e-mails.

## Operating procedure

1. Select [Online] ⇒ [Diagnostics].
2. Select the [E-mail send diagnostics] tab.

## Displayed items



Item	Description	
Normal end	Displays the number of times that sending e-mail with the BOX Data Logger completed normally.	
Error end	Displays the number of times that sending e-mail with the BOX Data Logger completed in an error.	
Error code	Displays the latest error code of the e-mail transmission. ☞ Page 411 Error Codes	
E-mail resending buffering status <sup>*1</sup>	Buffering number <sup>*2</sup>	Displays the number of data stored in the E-mail resend buffer memory. Current value: Current number of buffered data/set number of buffered data Maximum value: The maximum number of buffered data up to the present/set number of buffering data
	Buffer usage rate <sup>*2</sup>	Displays the usage rate of the E-mail resend buffer memory. Current value: Current usage rate Maximum value: The maximum usage rate up to the present
	[Buffer clear] button	Clears the FTP resend buffer memory and cancels resending the E-mail transfer.

\*1 "-" is displayed when "Resend when sending failed" is not set in the option setting of the E-mail setting.

\*2 The maximum value is cleared when the BOX Data Logger is powered OFF.  
After a reset or cycle the power, "Buffering number" and "Buffer usage rate" at that time will be the maximum values.

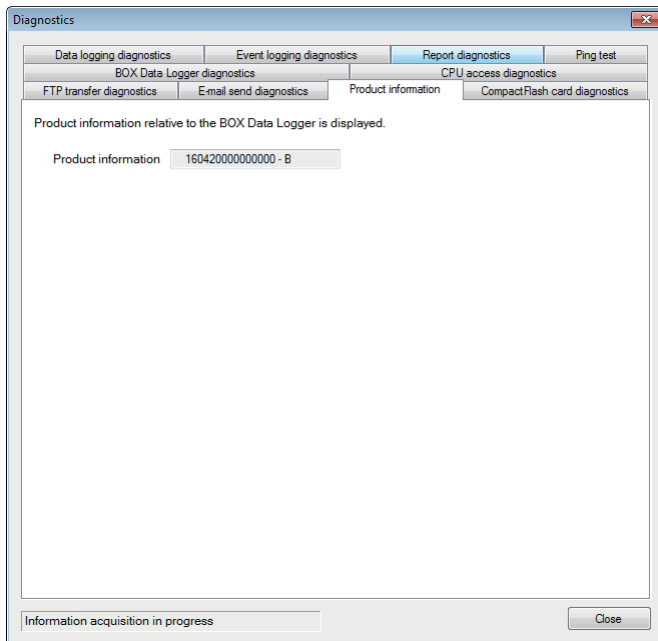
# Product Information

Display the version information of BOX Data Logger.

## Operating procedure

1. Select [Online] ⇒ [Diagnostics].
2. Select the [Product information] tab.

## Displayed items



Item	Description	Reference
Product information	Displays product information of the BOX Data Logger.	Page 58 How to Check the Function Version and Serial Number

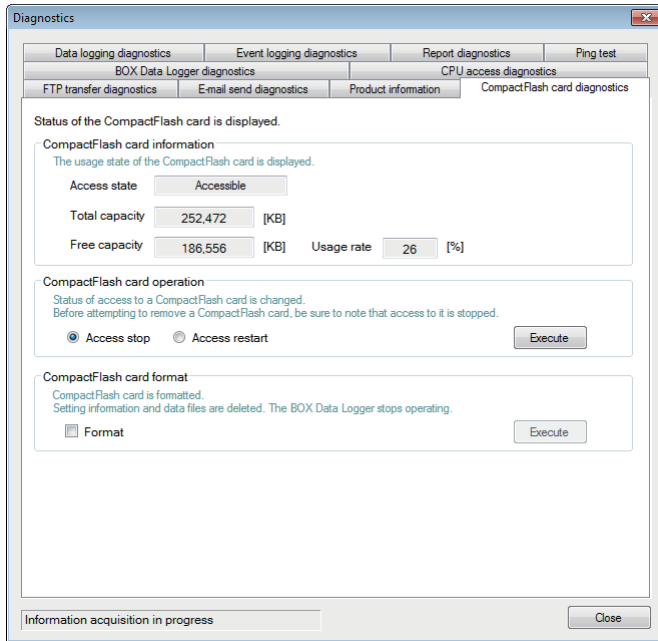
# CompactFlash card diagnostics

Display the access state and usage state of the CompactFlash card, change the status of access to the CompactFlash card, and format the CompactFlash card.

## Operating procedure

1. Select [Online] ⇨ [Diagnostics].
2. Select the [CompactFlash card diagnostics] tab.

## Displayed items




The setting details are described below.



Do not reset BOX Data Logger or power OFF when formatting the CompactFlash card.

Item	Description	Reference	
CompactFlash card diagnostics <sup>*1, *2</sup>	Access state <sup>*3, *4</sup>	Displays the current status of the CompactFlash card. <ul style="list-style-type: none"> <li>• Accessible: Status when accessing the CompactFlash card</li> <li>• Access stop: Status where access to the CompactFlash card is stopped</li> <li>• Formatting: Status when formatting the CompactFlash card</li> <li>• Preparing access: Status when preparing the access to the CompactFlash card</li> <li>• Card error detected: Status when an error occurs on the CompactFlash card</li> </ul>	—
	Total capacity	Displays the total capacity of the CompactFlash card in KB units.	—
	Free capacity	Displays the free capacity of the CompactFlash card in KB units.	—
	Usage rate	Displays the usage rate of the CompactFlash card in percent units.	—
CompactFlash card operation	Access stop	Select this to stop access to the CompactFlash card. The access status becomes "Access stop".	—
	Access restart	Select this to restart access to the CompactFlash card. The access status becomes "Accessible".	—
	[Execute] button	Executes the selected operation (Access stop/Access restart).	—
CompactFlash card format	Format	Select this when formatting the CompactFlash card.	—
	[Execute] button <sup>*5</sup>	Formats the CompactFlash card. After formatting, the operating status of the BOX Data Logger becomes "Stop".	Page 381 BOX Data Logger diagnostics

- \*1 Displays "Free capacity" and "Usage rate" including the size of the file system.
- \*2 When the access state is other than 'Accessible', '-' is displayed in "Total capacity", "Free capacity", and "Usage rate".
- \*3 Eject the CompactFlash card from BOX Data Logger when the access status is "Access stop".
- \*4 The access state can also be checked with the illumination state of the LEDs on the BOX Data Logger( Page 97 Indicator LED display).
- \*5 Formatting deletes all the data (Common settings, Data logging files, Event logging files, Report files) on the CompactFlash card.

**Point** 

---

BOX Data Logger settings are saved on the CompactFlash card. Therefore, the IP address of BOX Data Logger returns to the initial status (CH1: 192.168.2.20, CH2: 192.168.3.21) when powering OFF/ON or resetting BOX Data Logger without a CompactFlash card in the module or without the settings written to the CompactFlash card.

When ejecting or replacing the CompactFlash card, read the current settings in advance before ejecting the CompactFlash card, and promptly write those settings to the new CompactFlash card after replacing it as necessary. If the Logging continuance function is enabled, however, the settings before replacement are saved even if those setting have not been written to the new CompactFlash card.

---

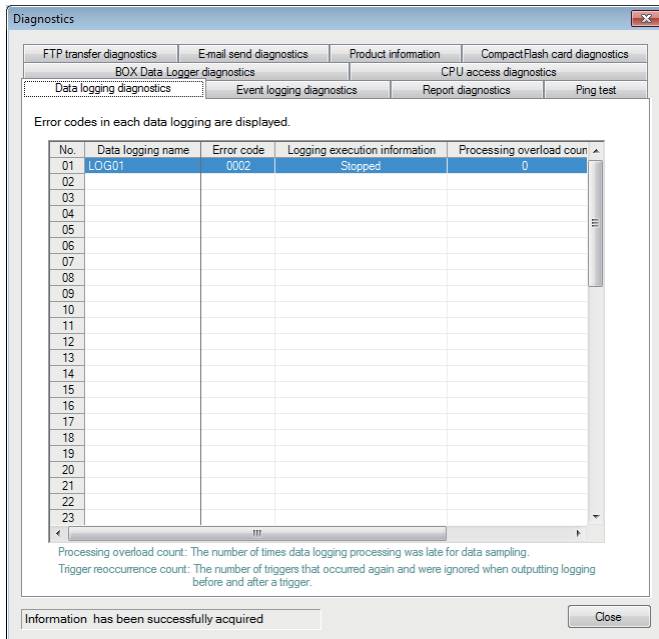
# Data logging diagnostics

Check the error code of each data logging.

## Operating procedure

1. Select [Online] ⇒ [Diagnostics].
2. Select the [Data logging diagnostics] tab.

## Displayed items



Item	Description	Reference
No.	Displays the index of the Data logging setting.	—
Data logging name	Displays the data logging name.	—
Error code	Displays the latest error code of each Data logging setting.	Page 411 Error Codes
Logging execution information	Displays the information regarding the data logging state. (Stopped/Executing)	—
Processing overload count	Displays the cumulative number of data missed when data logging processing is not catching up with the data sampling speed. (Range: 0 to 65535)	—
Trigger reoccurrence count	Displays the number of ignored triggers. Triggers are ignored because the triggers occurred again while sampling the data in the specified number of lines after the first trigger. "-" is displayed to show repetitive settings. (Range: 0 to 65535)	—



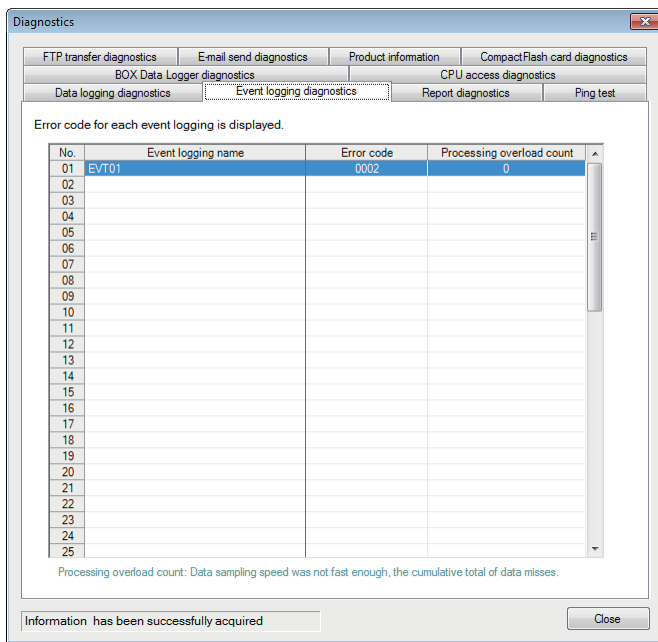
# Event logging diagnostics

Check the error code of each event logging.

## Operating procedure

1. Select [Online] ⇒ [Diagnostics].
2. Select the [Event logging diagnostics] tab.

## Displayed items



Item	Description	Reference
No.	Displays the index of the Event logging setting.	—
Event logging name	Displays the event logging name.	—
Error code	Displays the latest error code of each Event logging setting.	Page 411 Error Codes
Processing overload count	Displays the cumulative number of data missed when event logging processing can not catch up with the data sampling processing speed. (Range: 0 to 65535)	—

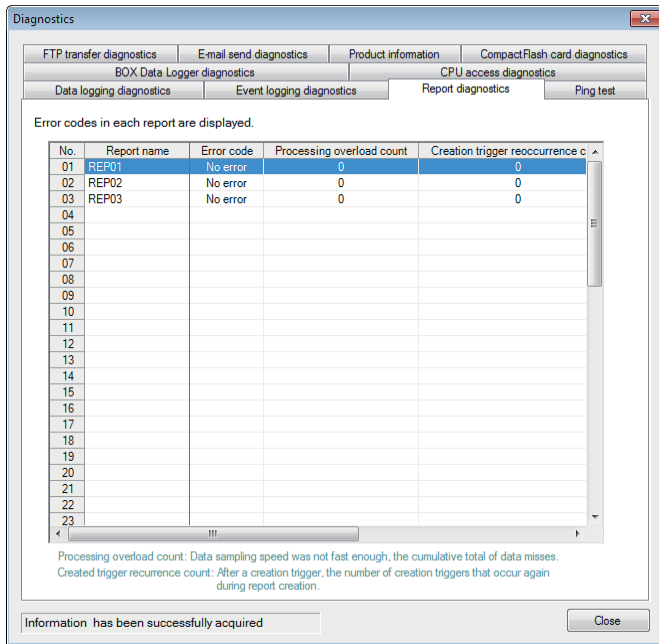
# Report diagnostics

Confirm error code of each report.

## Operating procedure

1. Select [Online] ⇒ [Diagnostics].
2. Select the [Report diagnostics] tab.

## Displayed items



Item	Description	Reference
No.	Displays the index of the report setting.	—
Report name	Displays the report name.	—
Error code	Displays the latest error code of each report.	Page 411 Error Codes
Processing overload count	Displays the cumulative number of data missed when event logging processing can not catch up with the data sampling processing speed. (Range: 0 to 65535)	—
Creation trigger reoccurrence count	Displays the number of ignored triggers. Triggers are ignored because the creation triggers occurred again while creating report after the first trigger. (Range: 0 to 65535)	—
Report creation time (newest) (s)	Displays the time required to create the latest report in seconds. (Range: 0 to 65535)	—
Report creation time (maximum) (s)	Displays the maximum value of time required to create report(s) on the second time scale. (Range: 0 to 65535)	—

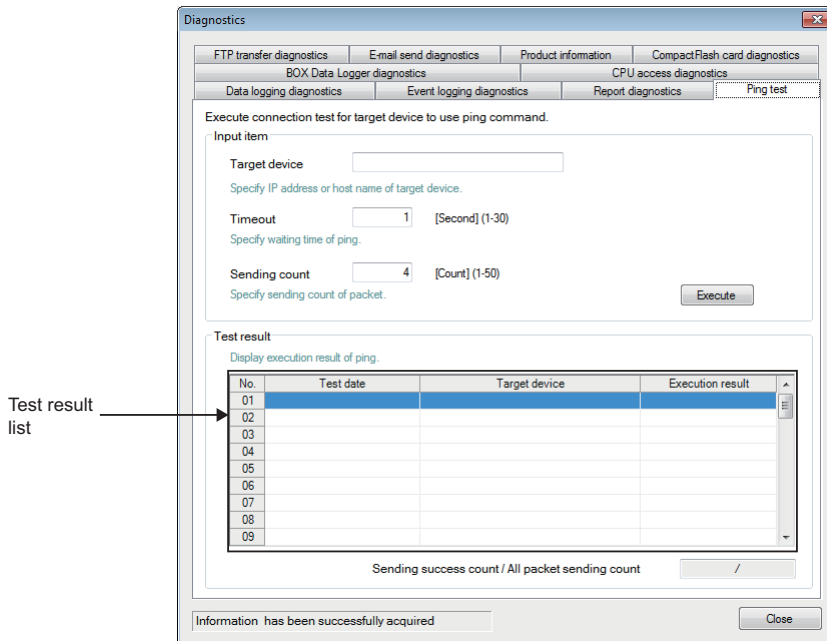
# PING Test

Test the network connection status of the target equipment (such as mail server and FTP server) specified by BOX Data Logger.

## Operating procedure

1. Select [Online] ⇨ [Diagnostics].
2. Select the [Ping test] tab.

## Displayed items



Item	Description	Reference
Input item	Target device	Specify the IP address (decimal format) or host name <sup>*1</sup> of the target equipment to perform the Ping test.
	Timeout	Specify the response time for the Ping test.
	Sending count	Specify the packet sending counts for the Ping test.
	[Execute] button	Send a ping packet to the specified target equipment.
Test result	Test result list	Display the number of Ping test results specified for "Sending count". Page 394 Test result list
	Sending success count/All packet sending count	Displays the sending success count and all packet sending count of the Ping test.

\*1 When specifying a host name, configure the DNS server setting of the Network setting.

## Test result list

### ■Test date

The time when the response from the target equipment is received is displayed.

### ■Target device

The IP address is displayed when an IP address is specified for the target equipment.

The host name [IP address] is displayed when a host name is specified for the target equipment.

The tooltip is displayed by pointing the mouse cursor when all target equipment is not displayed on the screen.


### ■Execution result

The following execution results are displayed.

Execution result	Occurrence status
OK (ms)*1	Displays when a Ping packet is received normally.
TIMEOUT	Displays when the target device did not receive the Ping packet, or BOX Data Logger did not receive the response packet from the target equipment.

\*1 When the response time is less than 1 ms, '1ms' is displayed after "OK".



Perform the PING test (  Page 591 PING Test) when checking the BOX Data Logger on the network from the personal computer.

# 14.2 File Browser

Using the file browser, files on the CompactFlash card in the BOX Data Logger can be accessed.

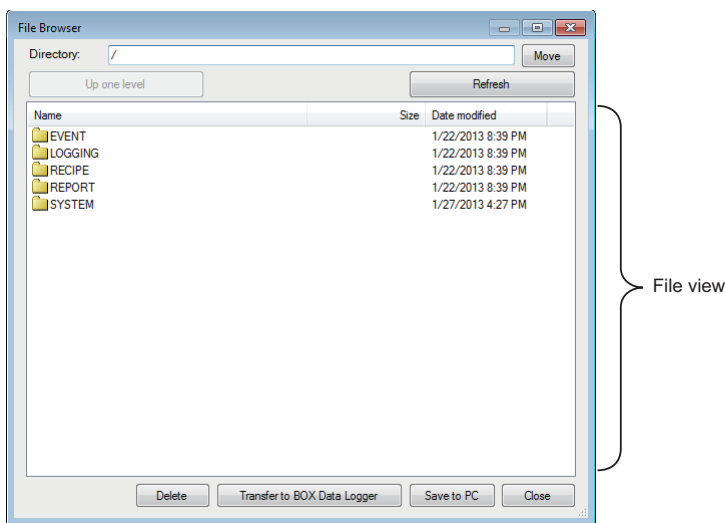
This function is used to display/delete files, transfer files to BOX Data Logger\*1, and save files to a personal computer per directory.

\*1 For RECIPE folders only.

## Operating procedure

1. Configure transfer setup. (☞ Page 377 Transfer Setup)
2. Select [Online] ⇨ [File Browser].

## Displayed items



Item	Description	Reference
Directory	Displays the currently displayed directory path. Or specify the destination directory path.	Page 70 Directory Structure
[Move] button	Moves to the specified directory.	—
[Up one level] button	Moves to the directory one level up.	—
[Refresh] button	Updates the contents displayed in the file view.	—
File view*1	Displays a list of the files/folders in the directory specified in "Directory".	—
[Delete] button	Deletes the file selected in the file view.	—
[Transfer to BOX Data Logger] button	Transfers the Recipe files stored in the personal computer.	Page 396 Transferring Recipe files to BOX Data Logger
[Save to PC] button	Saves the file selected in the file view to the personal computer.	—
[Close] button	Closes the screen.	—

\*1 A file with the '.TMP' extension may be displayed when the RECIPE folder is displayed during the 'Write' process of the Recipe function. This TMP file is deleted at the completion of the write process. For details on the write process of the Recipe function, refer to the following chapter.

☞ Page 155 RECIPE FUNCTION

## Transferring Recipe files to BOX Data Logger

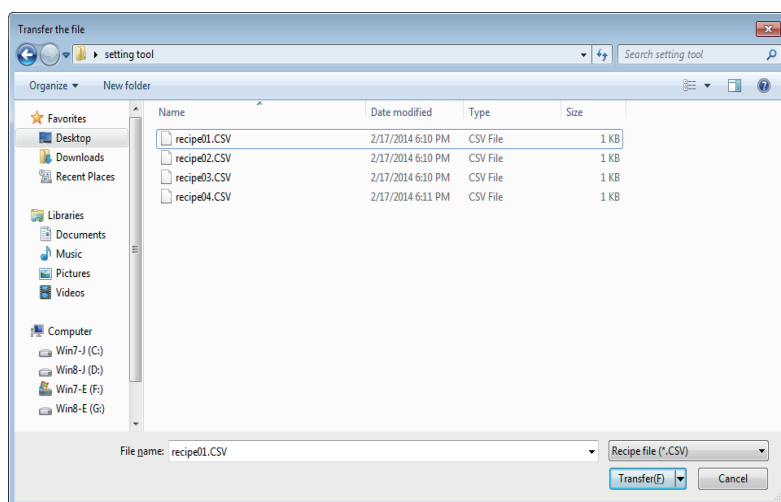
Transfer Recipe files stored in a personal computer to the CompactFlash card in BOX Data Logger.

### Operating procedure

1. Move a Recipe file to the RECIPE folder.
2. Click the [Transfer to BOX Data Logger] button to display the "Transfer the file" screen.
3. Select a Recipe file to be transferred\*1, and click the [Transfer] button.

\*1 Multiple files cannot be selected. Use the FTP transfer function (☞ Page 190 FTP server function) to transfer multiple files to BOX Data Logger.

### Displayed items



For the Recipe function, refer to the following chapter.

☞ Page 155 RECIPE FUNCTION

### Restriction

1) Access to files on the BOX Data Logger is restricted by the access authority granted to a 'user' specified in "Transfer Setup". For details, refer to the following sections.

- ☞ Page 245 Account setting
- ☞ Page 377 Transfer Setup
- ☞ Page 70 Directory Structure

2) When the Recipe file to which the Recipe Execution Operation function is being performed is overwritten or deleted, an error may occur. Set the operating status of the BOX data Logger to "Stop" and transfer the Recipe file.

- ☞ Page 381 BOX Data Logger diagnostics

## 14.3 Displaying Product Information

---

### Version information

---

The version information of the Configuration tool can be checked.

#### Operating procedure

Select [Help] ⇒ [About].

### Open the user's manual

---

Display the user's manual for BOX Data Logger.

#### Operating procedure

Select [Help] ⇒ [Open User's Manual].

#### Precautions

For Windows® 8 or later, the user's manual cannot be opened with the Windows Reader. Adobe Reader is required. Adobe Reader can be downloaded from the website of Adobe Systems Incorporated.

# MEMO

---



# PART 3

# PROCESSING TIME AND MAINTENANCE

This chapter explains the processing time of functions and troubleshooting when using BOX Data Logger and Configuration tool.

15 PROCESSING TIME

---

16 MAINTENANCE AND INSPECTION

---

17 TROUBLESHOOTING

---

# 15 PROCESSING TIME

---

## 15.1 Processing Time

---

This section shows the results of the processing time required for data logging measured under the measurement conditions described below.

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

- Sequence scan time of the access target CPU
- Network speed and load status (connecting to Ethernet)
- Target data value (for CSV files, output size varies according to value size)
- CompactFlash card type
- Number of files, file capacity on a CompactFlash card
- Access status from Configuration tool, GX LogViewer, or FTP client software to BOX Data Logger
- Access status from a personal computer, HMI, or other intelligent function to programmable controller CPU

Use the measurement results as a reference for processing time.

# Trigger logging

## Measurement conditions

Item		Description
Access target CPU	Programmable controller CPU	Q04UDHCPU
	Connection method	Ethernet (QJ71E71-100)/RS-232
	Sequence scan time	20 ms
Data logging setting	Logging type	Trigger logging (Fixed cycle)
	Sampling	Sampling interval: The time when data can be sampled is shown in the measurement results.
	Data	D devices (consecutive) Data type: Word [signed] decimal format (digits: 0)
	CSV output	<ul style="list-style-type: none"> <li>Output date column.</li> <li>Output index column.</li> </ul>
	Binary output	<ul style="list-style-type: none"> <li>Output date information.</li> <li>Output index.</li> </ul>
	Save	File switch timing: 1000 lines Number of saved files: 256
	Data logging amount	Number of device points 16 to 256: Data logging 01 Number of device points 1024 : Data logging 01 to 04 Number of device points 4096 : Data logging 01 to 16 Number of device points 16384 : Data logging 01 to 64
CompactFlash card		QD81MEM-8GBC
Measuring method	Sampling speed	Measure the sampling interval that can log triggers in the specified time.
	File save time	Measure the time taken from when data corresponding to the number of lines before and after trigger has been sampled up to when saving it to a file completes.

## Measurement results

Use the measurement results as a reference for processing time.

Processing time changes according to the settings and external factors such as access from GX LogViewer. (Page 400 Processing Time)

Connection method	Item	Number of device points						
		16	64	256	1024	4096	16384	
Ethernet	Sampling speed (seconds)	0.1	0.1	0.1	0.2	0.6	1.8	
	Trigger logging interval <sup>*1</sup> (seconds)	5800	2400	1500	350	250	200	
	File save time <sup>*2</sup> (seconds)	Binary file	0.8	1.1	1.3	2.6	7.6	29
		CSV file	0.8	1.1	1.6	8.2	32	130
RS-232	Sampling speed (seconds)	0.1	0.1	0.2	0.8	6	15	
	Trigger logging interval <sup>*1</sup> (seconds)	6000	2600	770	920	1050	900	
	File save time <sup>*2</sup> (seconds)	Binary file	0.8	1.1	1.3	2.6	7.6	29
		CSV file	0.8	1.1	1.6	8.2	32	130

\*1 The maximum time before/after the trigger where data can be retained and output to a file when a trigger occurs.

\*2 The time required to output 100 lines (records) of data before/after the trigger.

# Continuous logging

## Measurement conditions

Item	Description	
Access target CPU	Programmable controller CPU	Q04UDHCPU
	Connection method	Ethernet (QJ71E71-100)/RS-232
	Sequence scan time	20 ms
Data logging setting	Logging type	Continuous logging
	Sampling	Sampling interval: The time when data can be sampled is shown in the measurement results.
	Data	D devices (consecutive) Data type: Word [signed] decimal format (digits: 0)
	CSV output	<ul style="list-style-type: none"> <li>Output date column.</li> <li>Output index column.</li> </ul>
	Binary output	<ul style="list-style-type: none"> <li>Output date information.</li> <li>Output index.</li> </ul>
	Save	File switch timing: 1000 lines Number of save files: 256
	Data logging amount	Number of device points 16 to 256: Data logging 01 Number of device points 1024 : Data logging 01 to 04 Number of device points 4096 : Data logging 01 to 16 Number of device points 16384 : Data logging 01 to 64
CompactFlash card	QD81MEM-8GBC	
Measuring method	Measure the sampling interval that can sample data and perform continuous logging in the specified time.	

## Measurement results

Use the measurement results as a reference for processing time.

Processing time changes according to the settings and external factors such as access from GX LogViewer. (Page 400 Processing Time)

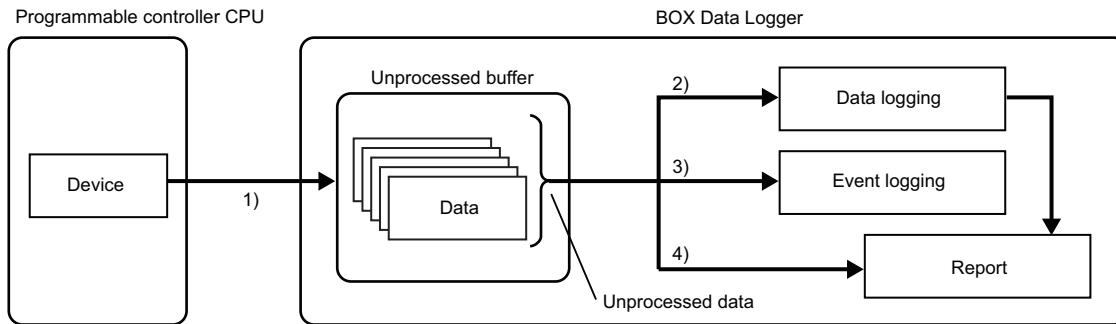
Connection method	File format	Number of device points					
		16	64	256	1024	4096	16384
Ethernet	Binary file	0.1	0.1	0.1	0.2	0.3	1.5
	CSV file	0.1	0.1	0.1	0.2	0.9	1.8
RS-232	Binary file	0.1	0.1	0.2	0.4	1.8	7.8
	CSV file	0.1	0.1	0.2	0.8	3.0	9.8

(Unit: seconds)

# 15.2 Checking Processing Time

The Data logging, Event logging, and Report functions of BOX Data Logger are the best effort functions. Since BOX Data Logger processing time changes according to the settings and status of other equipment, it may not operate with the set data sampling interval. Run the system by fully verifying the processing time of each function when constructing it. The following figure shows the relationship of the processing from when BOX Data Logger samples data from a programmable controller CPU up to when it outputs them to a file.

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



Processing	Description	Check point	Reference
1) Sampling process	Sample data from a programmable controller CPU and store the sampled data temporarily in the internal memory in BOX Data Logger. The sampling process is performed in the specified data sampling interval or by synchronizing with the sequence scan, but it may not be able to operate in the specified data sampling interval depending on the amount of data, network speed, or sequence scan time conditions. (Data will be missed.)	Check if the processing to sample data from the programmable controller CPU is operating in the specified data sampling interval.	Page 404 Checking sampling process time
2) Data logging process <sup>*1, *2</sup>	Save the data stored in the unprocessed buffer to the Data logging file. (If a trigger and period are set, determine if the conditions have been satisfied in advance.) When the data logging process is not in time compared to the data sampling process speed, a processing overload occurs and data are missed. (The conditions satisfaction may not be detected during the settings for Trigger and Period of time.)	Check if the sampled data are all being processed.	Page 404 Checking data logging process time
3) Event logging process <sup>*1, *2</sup>	Determine if event conditions are satisfied by using the data stored in the unprocessed buffer. Save the events in the Event logging file when the conditions are satisfied. When the event logging process is not in time compared with the data sampling process speed, a processing overload occurs and the event conditions satisfaction may not be detected.		Page 405 Checking event logging process time
4) Report process <sup>*1, *2</sup>	Determine if the creation trigger occurs by using the data stored in the unprocessed buffer. Output the data in the Data logging file and the data (current value data) in the unprocessed buffer to an Excel file. When the report process is not in time compared to the data sampling process speed, a processing overload occurs and the creation trigger execution may not be detected.		Page 405 Checking report process time

\*1 The data logging process, event logging process, and report process are performed in order. Therefore, if the load is high for any of the functions, it will affect the other function.

\*2 Using the Data logging, Event logging, or Report function affects the sequence scan time of the access target CPU.

## Checking sampling process time

Check if the processing to sample data from a programmable controller CPU is performed in the specified data sampling interval.

The checking method and the handling method when a problem occurs are as follows:

Checking method	Handling method when a problem occurs
System information (S2) + 1 bit14 (sampling delay occurrence) <sup>*1,*2,*3,*4</sup> ↓if ON A delay occurred compared to the specified data sampling interval.	Take any of the following actions. <ul style="list-style-type: none"> <li>• Decrease the number of settings.</li> <li>• Decrease the amount of sampled data.</li> <li>• Organize the Data logging, Event logging, and Report settings per access target CPU. (When data from multiple access target CPUs is mixed in a single Data logging, Event logging, or Report setting, sampling takes time.)</li> <li>• Check for an error in the access target CPU. If there is an error, check the error description and take the corrective action. (Check for an access target CPU error in the [CPU access diagnostics] tab, [Data logging diagnostics] tab, [Event logging diagnostics] tab, and [Report diagnostics] tab on the "Diagnostics" screen.)</li> </ul> Page 413 Error Code List

\*1 For system information, refer to the following section.

Page 252 System information

\*2 If a delay occurs within the allowed data sampling delay time, data sampling delay occurrence (system information (S2) + 1 bit14) does not turn ON.

The allowed data sampling delay time is half of the shortest sampling time of the data logging, event logging, or report setting in which data sampling is specified.

\*3 BOX Data Logger performs the sampling process for the Data logging, Event logging, and Report functions in order.

Thus, a delay in data logging, event logging, or report sampling process, which is caused due to the number of sampling data or the communication status with the access target CPU, may also delay the other sampling process.

The time stamp added to the data may also slightly differ from the actual data sampling timing.

\*4 If any error on an access target CPU (such as power disconnection and network error) is detected, the sampling time gets longer at the time of the detection.

## Checking data logging process time

Check if the sampled data can all be processed with the data logging (trigger logging, continuous logging) process.

The checking method and the handling method when a problem occurs are as follows:

Checking method	Handling method when a problem occurs
Check "processing overload count" in the [Data logging diagnostics] tab on the "Diagnostics" screen. ↓if not 0 The data logging process (trigger determination and file saving) is not in time compared to the sampling speed of the target data.	Take any of the following actions. <ul style="list-style-type: none"> <li>• Decrease the amount of target data.</li> <li>• Increase the data sampling interval.</li> <li>• Save the only necessary data to the file (Use the trigger logging function).</li> <li>• Stop access from GX LogViewer.</li> <li>• Adjust the system so that the next trigger does not immediately occur after a trigger.</li> </ul> After taking the action, check that the processing overload count is 0.
Check "Trigger reoccurrence count" in the [Data logging diagnostics] tab on the "Diagnostics" screen. ↓if not 0 Not processed because the next trigger occurred immediately after a trigger.	Adjust the system so that the next trigger does not immediately occur after a trigger. For operation when triggers continuously occur, refer to the following section. Page 124 Trigger logging function For the period that the data is being saved in a file, check at the "Logging execution information" in the [Data logging diagnostics] tab (Page 390 Data logging diagnostics) on the "Diagnostics" screen. For the time from when a trigger occurs up to when saving to the file completes, refer to the file save time in the measurement results (Page 401 Trigger logging).

## Checking event logging process time

Check if the sampled data can all be processed with the event logging process.


The checking method and the handling method when a problem occurs are as follows:

Checking method	Handling method when a problem occurs
<p>Check "processing overload count" in the [Event logging diagnostics] tab on the "Diagnostics" screen.</p> <p>↓if not 0</p> <p>The event logging process (event logging determination and file saving) is not in time compared to the sampling speed of the target data.</p>	<p>Take any of the following actions.</p> <ul style="list-style-type: none"> <li>• Decrease the number of events.</li> <li>• Increase the data sampling interval.</li> <li>• Lower the frequency of event occurrence.</li> <li>• Stop access from GX LogViewer.</li> </ul> <p>After taking the action, check that the processing overload count is 0.</p>

## Checking report process time

Check if the sampled data can all be processed with the report process.

The checking method and the handling method when a problem occurs are as follows:

Checking method	Handling method when a problem occurs
<p>Check "processing overload count" in the [Report diagnostics] tab on the "Diagnostics" screen.</p> <p>↓if not 0</p> <p>The report process (trigger determination) is not in time compared to the sampling speed of the target data.</p>	<p>Take any of the following actions.</p> <ul style="list-style-type: none"> <li>• Decrease the number of reports.</li> <li>• Increase the data sampling interval.</li> </ul> <p>After taking the action, check that the processing overload count is 0.</p>
<p>Check "Trigger reoccurrence count" in the [Report diagnostics] tab on the "Diagnostics" screen.</p> <p>↓if not 0</p> <p>Not processed because the next creation trigger occurred immediately after a creation trigger.</p>	<p>Take any of the following actions.</p> <ul style="list-style-type: none"> <li>• Decrease the number of reports.</li> <li>• Increase the data sampling interval.</li> <li>• Adjust the system so that the next creation trigger does not immediately occur after a creation trigger.</li> </ul> <p>For operation when triggers continuously occur, refer to the following section.</p> <p> Page 401 Trigger logging</p>

# 16 MAINTENANCE AND INSPECTION

This chapter explains the check points in daily and periodic inspections for using BOX Data Logger in the optimum condition.

## 16.1 Daily Inspection

The following must be checked daily.

Item	Inspection item	Inspection method	Judgment criteria	Measures
1	Installation status of BOX Data Logger	When using DIN rail: Check that the DIN rail hooks are not missing.	DIN rail hooks must be placed and mounted securely.	Securely place the DIN rail hooks.
		When directly mounted with screws: Check that fixing screws are not loose.	The screws must be installed securely.	Retighten the screws.
2	The front cover of BOX Data Logger	Check the front cover of BOX Data Logger for opening.	The cover must be installed securely.	Fit the cover to the original position.
3	Connecting conditions	Looseness of terminal screws	Screws must not be loosened.	Retighten the terminal screws.
		Check for distance between solderless terminals.	The proper clearance must be provided between solderless terminals.	Correct.
		Check that the cable connector is not loosen.	Connector must not be loose.	Retighten the connector fixing screws.
4	BOX Data Logger LED	'POWER' LED	Check that the LED is ON. ON (green) (Error if the LED is OFF.)	☞ Page 410 TROUBLESHOOTING
		'RUN' LED	Check that the LED is ON (green). ON (green) (Error if the LED is OFF.)	
		'ERROR.' LED	Check that the LED is OFF (red). The LED must be OFF (red). (Error if the LED is OFF or flashing.)	
		7-segment LED	Check that the LED turns ON and OFF. The 7-segment LED appropriately turns ON/OFF.	Please consult your local Mitsubishi representative.
		'BATTERY' LED	Check that the LED is OFF (orange). The LED must be OFF (orange). (The ON status indicates that the battery is not installed, the battery cable is disconnected, or the battery is low.)	Check the battery connection. Replace the battery.



## 16.2 Periodic Inspection

The following must be checked once or twice every six months or a year.

Also, perform this inspection when the system is relocated or modified, or when wiring layout is changed.

Item	Inspection item	Inspection method	Judgment criteria	Measures	
1	Ambient environment	Ambient temperature	Measure with a thermometer and a hygrometer. Measure corrosive gas.	0 to 55°C	When the sequencer is used in the board, the ambient temperature in the board becomes the ambient temperature.
		Ambient humidity		5 to 95 %RH	
		Atmosphere		Corrosive gas must not be present.	
2	Power voltage	Measure a voltage between the terminals of 24 VDC.	15.6 to 31.2 VDC	Change the power supply.	
3	Installation	Looseness, rattling	Move the BOX Data Logger to check for looseness and rattling.	BOX Data Logger must be installed securely.	Retighten the screws.
		Adhesion of dirt and foreign matter	Check visually.	Dirt and foreign matter must not be present.	Remove and clean.
4	Connection	Looseness of terminal screws	Try to further tighten screws with a screwdriver.	Screws must not be loosened.	Retighten the screws.
		Proximity of solderless terminals to each other	Check visually.	Solderless terminals must be positioned at proper intervals.	Correct.
		Looseness of connectors	Check visually.	Screws must not be loosened.	Retighten the connector fixing screws.
5	Battery	Check the "Battery status" in the [BOX Data Logger diagnostics] tab on BOX Data Logger Configuration Tool.	(Preventative measure)	Replace any battery exceeding the standard service life even if it is not displayed as low.	

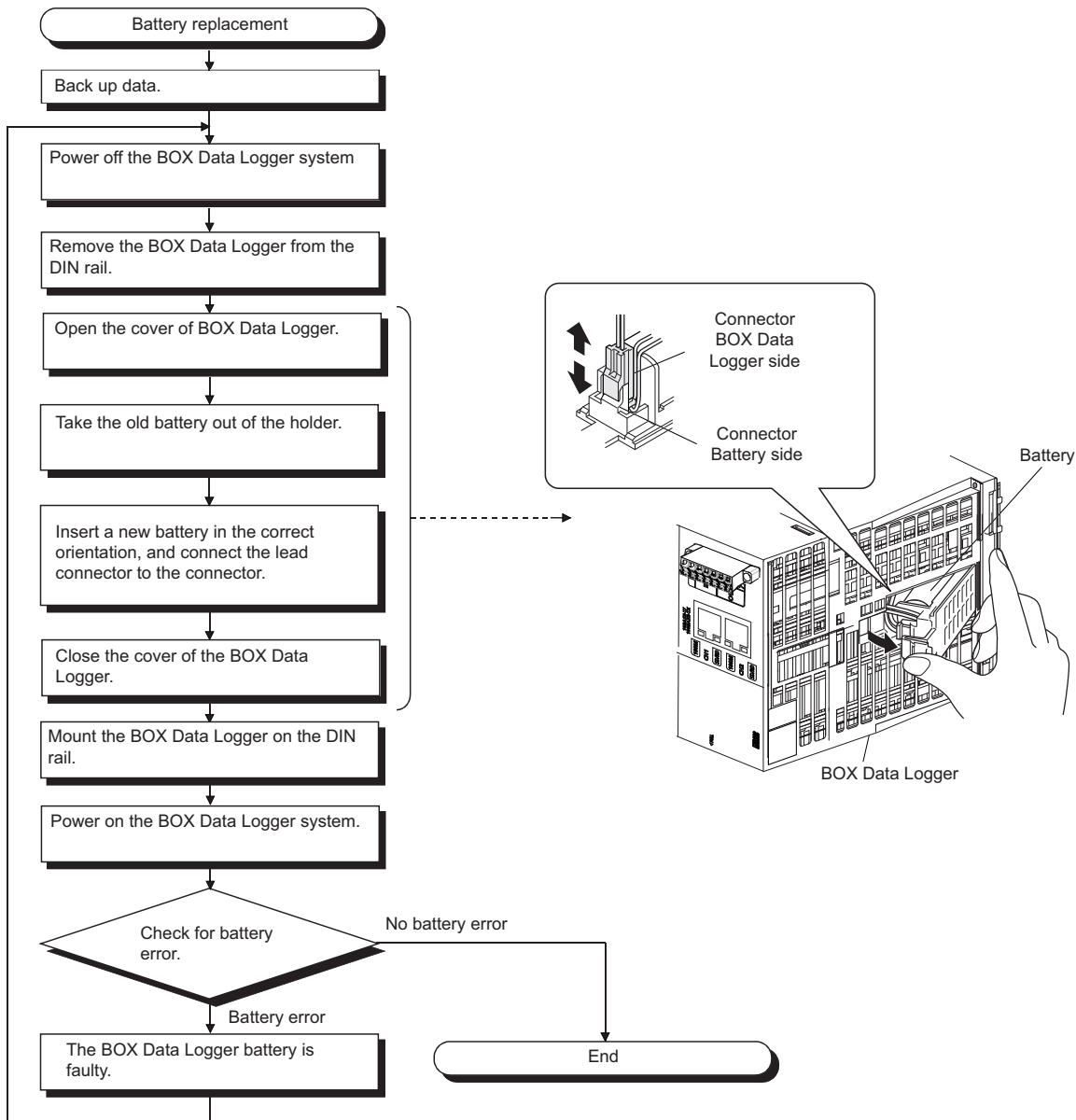
# 16.3 Battery Replacement

## Battery replacement procedure

Replace the battery of BOX Data Logger by the following procedures when it comes to the end of its life.

BOX Data Logger system power must be on for 10 minutes or longer before dismounting the battery.

Data in the memory are backed up for a while by a capacitor even after the battery is removed. However, since data in the memory may be erased if the time for replacement exceeds the backup time (three minutes), replace the battery quickly.



# Battery specifications

## Battery specifications

For battery specifications, refer to the following manual.

📖 QCPU User's Manual (Hardware Design, Maintenance and Inspection)

## Battery life

The service life of the BOX Data Logger battery is as follows:

Power-on time*1	Battery life					
	Q6BAT			Q7BAT		
	Guaranteed value*2 (70°C)	Actual service value (Reference value)*3 (40°C)	Guaranteed time period after a battery error occurred*4	Guaranteed value*2 (70°C)	Actual service value (Reference value)*3 (40°C)	Guaranteed time period after a battery error occurred*4
0%	13,700 hours 1.57 years	39,000 hours 4.45 years	600 hours 25 days	37,100 hours 4.25 years	43,800 hours 5 years	600 hours 25 days
30%	19,100 hours 2.18 years	43,800 hours 5 years		43,800 hours 5 years		
50%	25,800 hours 2.96 years					
70%	40,000 hours 4.57 years					
100%	43,800 hours 5 years					

\*1 The power-on time ratio indicates the ratio of power-on time to one day (24 hours).

(When the total power-on time is 12 hours and the total power-off time is 12 hours, the power-on time ratio is 50%.)

\*2 The guaranteed value is a total power failure time period guaranteed by Mitsubishi. It assumes a storage ambient temperature of -25 to 75°C (operation ambient temperature of 0 to 55°C), based on the characteristic value of the memory (SRAM) provided by the element manufacturer.

\*3 Actual service value (reference value) is the total power failure time calculated with the measured values of Mitsubishi at a storage ambient temperature of 40°C.

This value is intended for reference only, as it varies with characteristics of the memory.

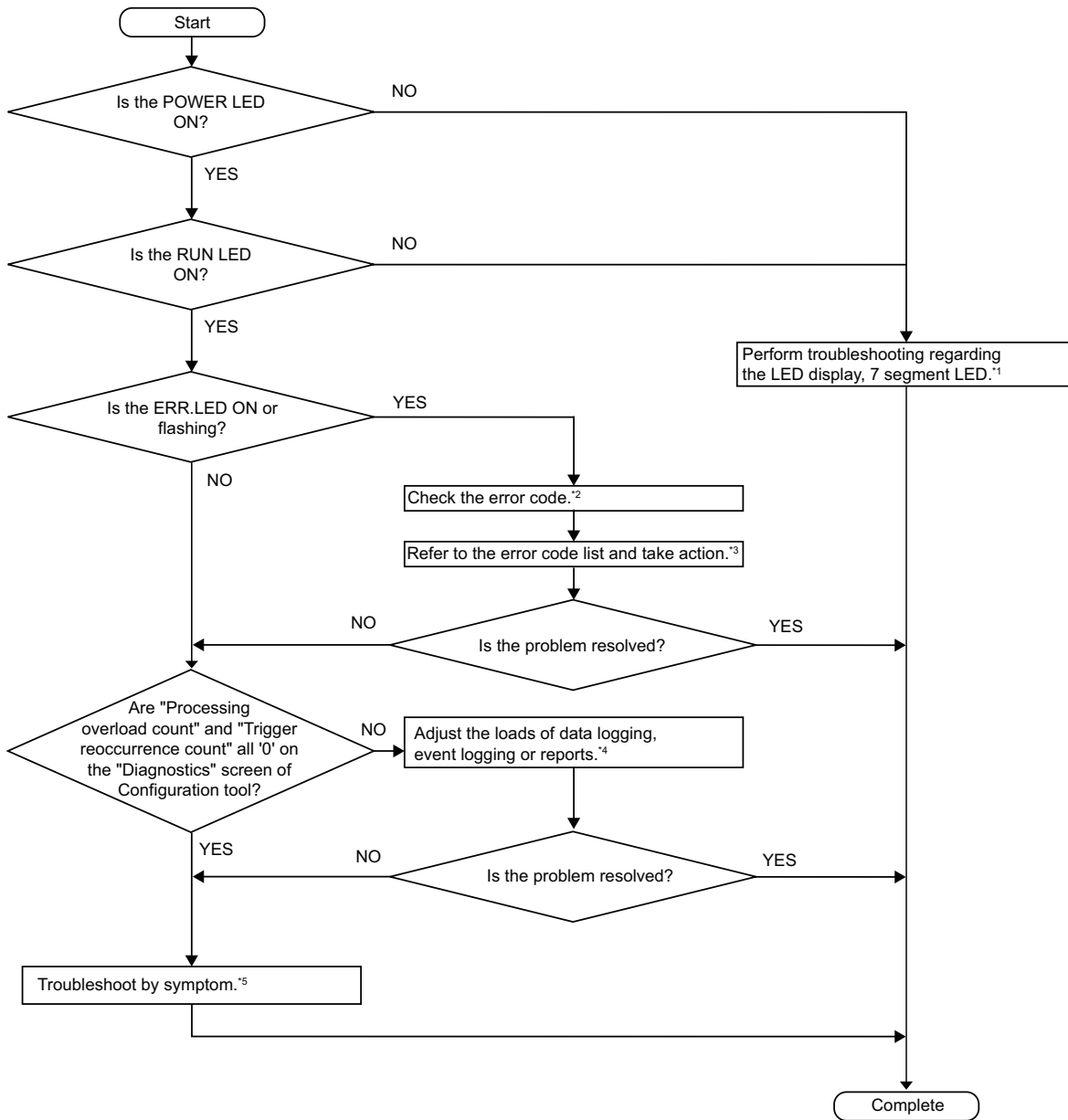
\*4 When the battery connector is disconnected or when the battery lead wire is disconnected, the guaranteed time period after power OFF is 3 minutes.

## Precautions

- Do not use battery beyond its guaranteed service life.
- If the battery is expected to be used beyond its guaranteed service life, take the following measures.
  - Shutdown at BOX Data Logger power OFF.
  - Backup the data.
- When the battery (Q6BAT) is not connected to BOX Data Logger, its service life is five years.
- After a battery error, data is retained for the "Guaranteed time period after a battery error occurrence" shown above. However, replace the battery as soon as possible. Even if a battery error does not occur, according to the usage conditions, periodical battery replacement is recommended.

# 17 TROUBLESHOOTING

The following flowchart shows the troubleshooting procedure for errors that might occur during the operation of BOX Data Logger.



\*1 Page 431 Troubleshooting related to LED indicators and 7-segment LED

\*2 Page 411 Checking error codes

\*3 Page 413 Error Code List

\*4 Page 400 PROCESSING TIME

\*5 Page 431 Troubleshooting by Symptom

# 17.1 Error Codes

This section explains the method for checking the error codes and types of errors.

## Checking error codes

Error codes can be checked on BOX Data Logger with the following methods.

### Checking ERROR LED on the front of BOX Data Logger

Check if an error occurred with ERROR LED on the front of BOX Data Logger.

ON : Continuation error

Flashing: Stop error

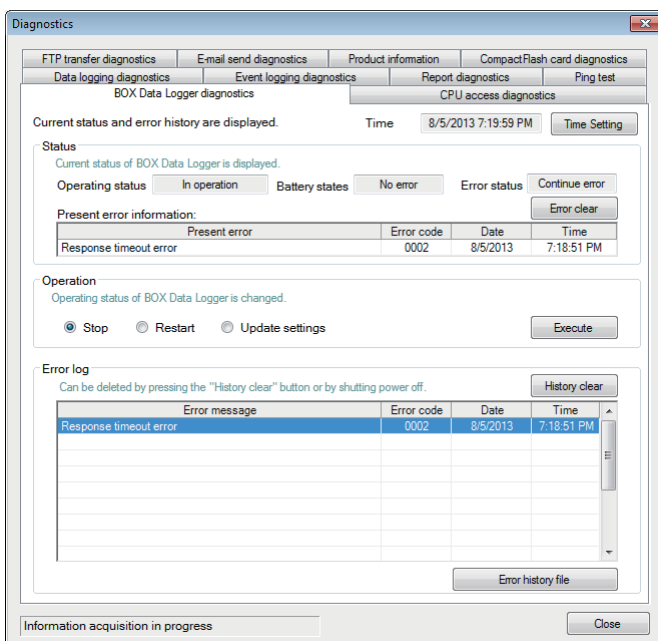
### Checking 7-segment LED on the front of BOX Data Logger

Error codes can be checked on the 7-segment LED in front of BOX Data Logger. ( [Page 413 Error Code List](#) )

### Using Configuration tool

Error codes can be checked in the [BOX Data Logger diagnostics] tab on the "Diagnostics" screen (displayed by selecting [Online] ⇒ [Diagnostics]).

Error codes for access target CPUs and each function can also be checked on the "Diagnostics" screen. ( [Page 380 Diagnostics](#) )



## Error types

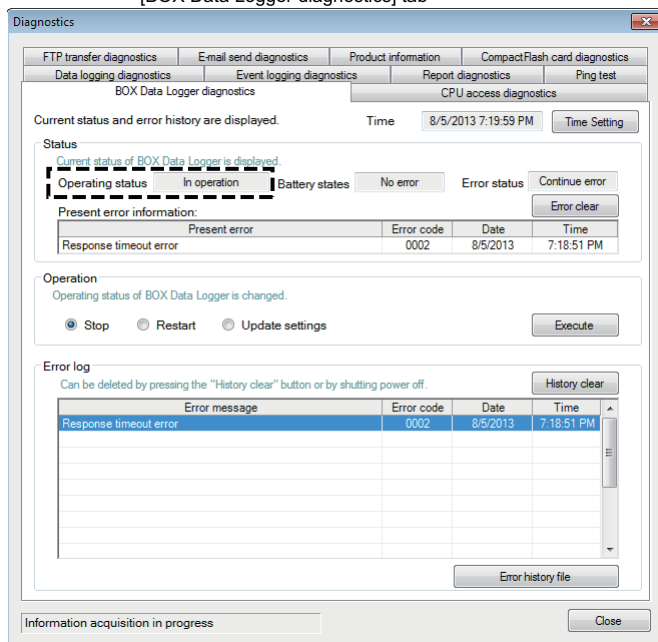
There are two types of errors:

Name	ERROR LED	Operating status	Corrective action
Stop error	Flashing	Stop	<ul style="list-style-type: none"> <li>Check the error code of the error that occurred and take corrective action.</li> </ul>
Continuation error	ON	Continue	<ul style="list-style-type: none"> <li>Turn OFF the ERROR LED with any of the following operations.                             <ul style="list-style-type: none"> <li>Click the [Error clear] button in the [BOX Data Logger diagnostics] tab on the "Diagnostics" screen (displayed by selecting [Online] ⇒ [Diagnostics]) of Configuration tool. (Page 381 BOX Data Logger diagnostics)</li> <li>Power OFF → ON</li> <li>Reset with the RESET switch</li> <li>Reset from the system information</li> </ul> </li> </ul>

The operating status can be checked in the [BOX Data Logger diagnostics] tab on the "Diagnostics" screen (displayed by selecting [Online] ⇒ [Diagnostics]) of Configuration tool.

Page 381 BOX Data Logger diagnostics

[BOX Data Logger diagnostics] tab



# 17.2 Error Code List

The description of error codes and corrective actions are shown below.



When a 'system error' occurs, consult your local Mitsubishi representative.

Error code	Error name	Description	Corrective action
0001H	System error	—	• Please consult your local Mitsubishi representative.
0002H	Response timeout error	No response has been received from the other station. Unsupported CPU is accessed.	<ul style="list-style-type: none"> <li>• Review the "Access target CPU setting".</li> <li>• Check the communication cable status and access target CPU status.</li> <li>• Review the type of access target CPU.</li> <li>• For Rockwell AB (Tag), a response timeout error may be displayed at the first startup. In this case, clear the error before using.</li> </ul>
0005H	CPU communication error	A communication error has occurred.	<ul style="list-style-type: none"> <li>• Review the "Access target CPU setting".</li> <li>• Check the communication cable status and access target CPU status.</li> <li>• Review the considerations of the CPU module set to the access target CPU. (☞ Page 448 MITSUBISHI PROGRAMMABLE CONTROLLER CONNECTIONS) (☞ Page 535 CONNECTION TO OMRON PROGRAMMABLE CONTROLLER)</li> </ul>
0041H to 0044H	System error	—	• Please consult your local Mitsubishi representative.
0045H	Processing code error	The processing code that cannot be processed on the other end is issued.	• Review the CPU(s) on the access route.
0046H	Station No. specification error	The specified station number is incorrect.	• Review the station number setting in "Access target CPU setting".
0047H	Receive data error	Data has not been received.	• Review the CPU(s) on the access route.
0048H	System error	—	• Please consult your local Mitsubishi representative.
0049H			
004DH			
004EH			
0050H			
0051H			
0055H	Channel number error	The Online Program Change setting of the Ethernet module is disabled.	• Review the Ethernet module setting of the access target CPU.
005BH	E71 CPU communication error	The CPU and the Ethernet modules are not communicating.	
0060H	System error	—	• Please consult your local Mitsubishi representative.
0064H			
0065H	Routing parameter error	No routing parameter has been set.	• Set routing parameters to the CC-Link IE Controller Network module or MELSECNET/H(10) module.
0066H	Data send error	Failed to send the data.	• Review the CPU(s) on the access route.
0067H	Data receive error	Failed to receive the data.	• Review the CPU(s) on the access route.
0068H	Connected device response error	An error response has been received from the connected device.	<ul style="list-style-type: none"> <li>• Remove the CPU error.</li> <li>• Review the operating status and parameters etc. of the CPU.</li> <li>• Review the "Access target CPU setting".</li> <li>• Match the data type of the programmable controller with that of project data.</li> <li>• Check if the tag is set in the programmable controller, and set a matched tag name.</li> <li>• In the tag attribute of the programmable controller, correct the tag setting of the external access/read only (Read Only attribute) to readable/writable (Read/Write attribute).</li> <li>• Shallow the hierarchy of the tag structure. (Up to the fifth hierarchy can be accessed.)</li> </ul>
0080H	Read size error	The read size is not correct.	• Review the CPU(s) on the access route.

Error code	Error name	Description	Corrective action
0081H	Device type error	The device type specified for the access target CPU is invalid.	• Review the set device type.
0082H	Device number error	The device number specified for the access target CPU is out of range.	• Review the set device number.
0083H	Device point error	The number of device points specified for the access target CPU is out of range.	
0084H	Write size error	The write size is not correct.	• Review the CPU(s) on the access route.
0085H	Link parameter error	The link parameter is corrupted.	• Reset the link parameter settings for the CPU(s) on the access route.
0087H to 0089H	System error	—	• Please consult your local Mitsubishi representative.
008AH	Tag data type error	The data type of a tag does not match between the programmable controller and the project data.	<ul style="list-style-type: none"> <li>• Match the data type of the programmable controller with that of project data.</li> <li>• In the tag attribute of the programmable controller, correct the tag setting of the external access/read only (Read Only attribute) to readable/writable (Read/Write attribute).</li> <li>• When the data type of a tag for the programmable controller is SINT (8-bit integer) and LINT (64-bit integer), correct it to the data type (BOOL/INT/DINT/REAL) supported by BOX Data Logger.</li> </ul>
008BH	Tag setting error	The tag setting is not correct.	<ul style="list-style-type: none"> <li>• Check if the tag is set in the programmable controller, and set a matched tag name.</li> <li>• Match the data type of the programmable controller with that of project data.</li> <li>• In the tag attribute of the programmable controller, delete the tag setting of the external access/inaccessible (None attribute), and correct it to readable/writable (Read/Write attribute).</li> </ul>
00D2H	RUN time disable error	A request that is not permitted during RUN was issued.	• Review the CPU(s) on the access route.
00D3H	Keyword error	A keyword is set to the access target CPU.	• Reset the keyword set in the access target CPU.
00D4H	System error	—	• Please consult your local Mitsubishi representative.
00D7H	Receive data length error	The receive data length or the byte length exceeded the range.	• Check the cables on the access route.
00D8H	Protocol error	The communication protocol is not correct.	
00D9H	Address error	The address is not correct.	• Review the CPU(s) on the access route.
00DBH	Write error	Data cannot be written.	
00E0H	Station number error	The specified station number does not exist.	• Review the station number setting in "Access target CPU setting".
00E1H	Processing mode error	The access target ACPU is not capable of processing the request.	• Review the CPU(s) on the access route.
00E2H	Intelligent function module error	The specified intelligent function module is faulty.	• Correct the set device (buffer memory specification 'U□\G□').
00E3H	Other data error	The request data has an error.	• Review the CPU(s) on the access route.
00E4H	Link specification error	A link module on the access route received a request that cannot be handled. (The access route is not supported.)	• Review the access route referring to the accessible range.
00E8H	System error	—	• Please consult your local Mitsubishi representative.
00E9H	Link timeout	The access target has disconnected from the link during the process.	• Restore the link to connect the station on the access route.
00EAH	Special module BUSY	The receive buffer of the access target is full. Or it is not ready for reception.	• Examine the hardware of the intelligent function module.
00ECH	Access target BUSY		• Review the access target.
00F0H	Link error	Special module bus error	• Restore the link to connect the station on the access route.
00F1H	00F1H	The specified intelligent function module is not ready for processing.	• Examine the hardware of the intelligent function module.
00F2H	Special module timeout	No response has been received from the specified intelligent function module.	



Error code	Error name	Description	Corrective action
0100H to 0105H	System error	—	<ul style="list-style-type: none"> <li>• Please consult your local Mitsubishi representative.</li> </ul>
0110H			
0112H			
0200H to 0203H			
0210H			
0300H			
0304H	DHCP parameter acquisition error	When set to automatically acquire an IP address in the LAN connection, failed to acquire the network parameter information from the DHCP server.	<ul style="list-style-type: none"> <li>• Check the connection status with the DHCP server.</li> <li>• Check the connection cable.</li> <li>• Review the DHCP server settings.</li> </ul>
0305H to 0308H	System error	—	<ul style="list-style-type: none"> <li>• Please consult your local Mitsubishi representative.</li> </ul>
0319H	DHCP lease renewal failure	The automatic lease renewal process, which occurs when the IP address lease acquired from the DHCP server expires, failed.	<ul style="list-style-type: none"> <li>• Check the connection cable and status of the DHCP server (start status, secured allocated IP addresses).</li> </ul>
031AH	Network diagnostics error	Network diagnostics (ping transmission) failed.	<ul style="list-style-type: none"> <li>• Check the connection cable and status of the external equipment.</li> <li>• Check if the destination for the network diagnostics setting in the Network setting is correct.</li> </ul>
0330H	System error	—	<ul style="list-style-type: none"> <li>• Please consult your local Mitsubishi representative.</li> </ul>
0400H to 0402H			
0480H to 0483H	CompactFlash card mount failed	The CompactFlash card mount is failed because a failure was detected.	<ul style="list-style-type: none"> <li>• Check if the CompactFlash card was inserted securely.</li> <li>• Replace the CompactFlash card.</li> </ul>
0490H to 0493H	System error	—	<ul style="list-style-type: none"> <li>• Please consult your local Mitsubishi representative.</li> </ul>
0494H	CompactFlash card format error	Failed to format the CompactFlash card.	<ul style="list-style-type: none"> <li>• Check if the CompactFlash card was inserted securely.</li> <li>• Replace the CompactFlash card.</li> </ul>
0495H	CompactFlash card check error	Failed to check the CompactFlash card.	<ul style="list-style-type: none"> <li>• Replace the CompactFlash card.</li> </ul>
0496H	CompactFlash card response error	Access to the CompactFlash card timed out while waiting for a response from the card.	
0497H	CompactFlash card drive error	The CompactFlash card mount is failed because a failure was detected. Or the CompactFlash card drive is in error status because the CompactFlash card was ejected during file access.	<ul style="list-style-type: none"> <li>• Cycle the power or reset the BOX Data Logger.</li> <li>• Stop file access, then remove the CompactFlash card. (☞ Page 650 Stopping file access)</li> <li>• Check if improper files of folders exist in the CompactFlash card.</li> </ul>
0498H	CF card WAIT signal failure	The access to CompactFlash card is failed because the failure has been detected.	<ul style="list-style-type: none"> <li>• Replace the CompactFlash card.</li> </ul>
04A0H	CompactFlash card mount failed	The CompactFlash card mount is failed because a failure was detected.	<ul style="list-style-type: none"> <li>• Check if the CompactFlash card was inserted securely.</li> <li>• Replace the CompactFlash card.</li> </ul>
04A1H to 04A4H	System error	—	<ul style="list-style-type: none"> <li>• Please consult your local Mitsubishi representative.</li> </ul>
04D0H	CF card access error	An error occurred when accessing the file.	<ul style="list-style-type: none"> <li>• Check if the CompactFlash card was inserted securely.</li> <li>• Replace the CompactFlash card.</li> </ul>
04D1H	CompactFlash card response error	Access to the CompactFlash card timed out while waiting for a response from the card.	
04E0H	Battery low error	The battery voltage of the BOX Data Logger has dropped to the specified value or lower. Or, the battery lead connector is not inserted to the BOX Data Logger.	<ul style="list-style-type: none"> <li>• Replace the battery.</li> <li>• Insert the lead connector.</li> </ul>
0502H	APS mismatch	APS of the request packet does not match the one of the response packet. The start I/O in "Access target CPU setting" is incorrect.	<ul style="list-style-type: none"> <li>• Retry the transmission.</li> <li>• Review the "Access target CPU setting".</li> </ul>
0550H to 0554H	System error	—	<ul style="list-style-type: none"> <li>• Please consult your local Mitsubishi representative.</li> </ul>
0556H	Setting file error	There is no setting file. Or the setting file is corrupted.	<ul style="list-style-type: none"> <li>• Write the settings again with the Configuration tool.</li> <li>• Replace the CompactFlash card.</li> </ul>
0557H		The BOX Data Logger version is older than the setting file version.	

Error code	Error name	Description	Corrective action
0558H	Logging continuation disabled error	The contents of the setting files being operation and the contents of the setting files saved in the CompactFlash card are different.	• Write the desired settings again with the Configuration tool.
0559H		Failed to write back the setting files being operation to the CompactFlash card.	• Write the settings again with the Configuration tool. • Replace the CompactFlash card.
0600H	File access stopped error	The access to the CompactFlash card was attempted when the file access was being stopped.	• Restart the access to the CompactFlash card using the Configuration tool, confirm that the access state changes to accessible, and then perform the operation again.
0601H	No CompactFlash card error	Access to the CompactFlash card was attempted with no card inserted.	• Access after inserting a CompactFlash card.
0602H	Unformatted CompactFlash card error	Access to the unformatted CompactFlash card was attempted.	• Access after formatting the CompactFlash card.
0603H	CompactFlash card formatting error	Access to the formatting CompactFlash card was attempted.	
0604H to 0615H 0617H to 061DH	System error	—	• Please consult your local Mitsubishi representative.
061EH to 0622H	Setting file error	There is no setting file. Or the setting file is corrupted.	• Write the settings again with the Configuration tool. • Replace the CompactFlash card. • Check if the power OFF without stopping file access.
0623H 0624H 062DH to 0656H 0658H to 065BH 0660H to 0666H 0670H 0671H	System error	—	• Please consult your local Mitsubishi representative.
0672H	Unsupported CPU error	Unsupported CPU is accessed.	• Review the type of access target CPU.
0680H 0681H 0685H	System error	—	• Please consult your local Mitsubishi representative.
0686H 0687H	Device name error	The device name specified in the "Data logging setting", "Event logging setting", or "Report setting" is incorrect. Or an invalid device was specified.	• Review the device specified in the "Data logging setting", "Event logging setting", or "Report setting".
0688H	System error	—	• Please consult your local Mitsubishi representative.
0689H 068AH	Device name error	The device name specified in the "Data logging setting", "Event logging setting", or "Report setting" is incorrect. Or an invalid device was specified.	• Review the device specified in the "Data logging setting", "Event logging setting", or "Report setting".
068BH to 068EH 0690H to 0694H 0696H 069CH to 06A5H	System error	—	• Please consult your local Mitsubishi representative.
06AAH 06ACH	Setting file error	There is no setting file. Or the setting file is corrupted.	• Write the settings again with the Configuration tool. • Replace the CompactFlash card.
06ADH	System error	—	• Please consult your local Mitsubishi representative.
06AEH to 06B0H	Device name error	The device name specified in the "Data logging setting", "Event logging setting", or "Report setting" is incorrect. Or an invalid device was specified.	• Review the device specified in the "Data logging setting", "Event logging setting", or "Report setting".
06B2H	Excessive number of device points for data sampling	The number of sampling device points exceeded 4096 in a single setting.	• Configure so that the number of data sampling device points does not exceed 4096 in a single setting.
06B3H to 06B8H 06BBH to 06BEH	System error	—	• Please consult your local Mitsubishi representative.
06BFH	Insufficient trigger buffer error	Total trigger buffer usage exceeds 100%.	• Write the settings again with the Configuration tool. • Replace the CompactFlash card.
06C0H	System error	—	• Please consult your local Mitsubishi representative.

Error code	Error name	Description	Corrective action
06C1H	Insufficient trigger buffer error	Total trigger buffer usage exceeds 100%.	<ul style="list-style-type: none"> <li>• Write the settings again with the Configuration tool.</li> <li>• Replace the CompactFlash card.</li> </ul>
06C2H	System error	—	<ul style="list-style-type: none"> <li>• Please consult your local Mitsubishi representative.</li> </ul>
06C3H	Insufficient trigger buffer error	Total trigger buffer usage exceeds 100%.	<ul style="list-style-type: none"> <li>• Write the settings again with the Configuration tool.</li> <li>• Replace the CompactFlash card.</li> </ul>
06C4H	System error	—	<ul style="list-style-type: none"> <li>• Please consult your local Mitsubishi representative.</li> </ul>
06C5H	Setting file error	There is no setting file. Or the setting file is corrupted.	<ul style="list-style-type: none"> <li>• Write the settings again with the Configuration tool.</li> <li>• Replace the CompactFlash card.</li> </ul>
06C6H			
0700H to 070BH	System error	—	<ul style="list-style-type: none"> <li>• Please consult your local Mitsubishi representative.</li> </ul>
0712H	E-mail address setting error	The destination specified in the e-mail notification settings for the "Event logging setting" is not registered. Or the setting file is corrupted.	<ul style="list-style-type: none"> <li>• Write the settings again with the Configuration tool.</li> <li>• Replace the CompactFlash card.</li> </ul>
0713H	E-mail send queue full error	The queue for sending e-mails is full.	<ul style="list-style-type: none"> <li>• Lower the frequency that e-mails are sent.</li> <li>• Decrease the settings that send e-mails.</li> <li>• Lower the frequency of file switching.</li> </ul>
0714H	Setting file error	There is no setting file. Or the setting file is corrupted.	<ul style="list-style-type: none"> <li>• Write the settings again with the Configuration tool.</li> <li>• Replace the CompactFlash card.</li> </ul>
0715H	E-mail address setting error	The destination specified with the save setting is not registered. Or the setting file is corrupted.	
0716H	E-mail send queue full error	The queue for sending e-mails is full.	
0717H	Setting file error	There is no setting file. Or the setting file is corrupted.	<ul style="list-style-type: none"> <li>• Write the settings again with the Configuration tool.</li> <li>• Replace the CompactFlash card.</li> </ul>
0718H	FTP transfer destination setting error	The destination specified with the save setting is not registered. Or the setting file is corrupted.	
0719H	System error	—	
071AH			
071BH	FTP transfer queue full error	The queue for FTP transfers is full.	<ul style="list-style-type: none"> <li>• Lower the frequency of FTP transfers.</li> <li>• Decrease the settings with FTP transfers.</li> <li>• Lower the frequency of file switching.</li> </ul>
071CH to 071FH	System error	—	<ul style="list-style-type: none"> <li>• Please consult your local Mitsubishi representative.</li> </ul>
0720H	FTP transfer failed	An error occurred during the FTP transfer. The saved file to transfer was deleted before the FTP transfer by file switching.	<ul style="list-style-type: none"> <li>• Review the FTP setting.</li> <li>• Check the connection status with the FTP server.</li> <li>• Check the destination FTP server status.</li> <li>• Review the save settings (file switch timing, number of saved files)  Page 301 Transfer setting screen</li> </ul>
0721H to 0724H	Setting file error	There is no setting file. Or the setting file is corrupted.	<ul style="list-style-type: none"> <li>• Write the settings again with the Configuration tool.</li> <li>• Replace the CompactFlash card.</li> <li>• Check if the power OFF without stopping file access.</li> </ul>
0728H to 072AH	System error	—	<ul style="list-style-type: none"> <li>• Please consult your local Mitsubishi representative.</li> </ul>
0740H	Directory creation error	Failed to create the directory.	<ul style="list-style-type: none"> <li>• Delete unnecessary files on the CompactFlash card to ensure free space.</li> <li>• Replace the CompactFlash card.</li> </ul>
0741H	File open error	Failed to create the file.	
0744H	Setting file error	There is no setting file. Or the setting file is corrupted.	<ul style="list-style-type: none"> <li>• Write the settings again with the Configuration tool.</li> <li>• Replace the CompactFlash card.</li> </ul>
0745H			
0746H	File write error	Failed to write the file.	<ul style="list-style-type: none"> <li>• Delete unnecessary files on the CompactFlash card to ensure free space.</li> <li>• Replace the CompactFlash card.</li> </ul>
0747H	CSV file write error	Failed to write the CSV file.	
0748H	Binary file write error	Failed to write the binary file.	
0749H	Setting file error	There is no setting file. Or the setting file is corrupted.	<ul style="list-style-type: none"> <li>• Write the settings again with the Configuration tool.</li> <li>• Replace the CompactFlash card.</li> </ul>
074AH	File write error	Failed to write the file.	<ul style="list-style-type: none"> <li>• Delete unnecessary files on the CompactFlash card to ensure free space.</li> <li>• Replace the CompactFlash card.</li> </ul>
074BH	File open error	Failed to open the file.	
074CH	System error	—	<ul style="list-style-type: none"> <li>• Please consult your local Mitsubishi representative.</li> </ul>
074DH			

Error code	Error name	Description	Corrective action
074EH	Data type setting error	An invalid setting has been made in the data type setting. Or the setting file is corrupted.	<ul style="list-style-type: none"> <li>• Write the settings again with the Configuration tool.</li> <li>• Replace the CompactFlash card.</li> </ul>
074FH	Output format setting error	An invalid CSV output format has been set. Or the setting file is corrupted.	
0750H	Data type setting error	An invalid setting has been made in the data type setting. Or the setting file is corrupted.	
0751H	Setting file error	There is no setting file. Or the setting file is corrupted.	
0752H to 075FH 0762H to 0765H 0767H 0768H 076BH to 076EH	Report source file error	Data logging file to be output to the Report file cannot be found.	<ul style="list-style-type: none"> <li>• Configure and construct the system so that the creation trigger occurs after the specified number of records worth of data is saved in the Data logging file.</li> <li>• Adjust the file switch timing for the Data logging file. (Page 148 Target Data)</li> </ul>
078AH	Directory creation error	Failed to create the directory.	<ul style="list-style-type: none"> <li>• Delete unnecessary files on the CompactFlash card to ensure free space.</li> <li>• Replace the CompactFlash card.</li> </ul>
078CH to 078FH	CSV file check error	Failed to check the CSV file.	<ul style="list-style-type: none"> <li>• Replace the CompactFlash card.</li> </ul>
0791H to 0797H	Binary file check error	Failed to check the binary file.	
0798H	File check error	Failed to check the file.	<ul style="list-style-type: none"> <li>• Delete unnecessary files on the CompactFlash card to ensure free space.</li> <li>• Replace the CompactFlash card.</li> </ul>
0799H 079AH	File open error	Failed to open the file.	
079BH	File read error	Failed to read the file.	
079CH	File write error	Failed to write the file.	
079DH	File read error	Failed to read the file.	
07ABH	Data type setting error	An invalid setting has been made in the data type setting. Or the setting file is corrupted.	
07ACH	CSV output format setting error	An invalid setting has been made in the CSV output setting. Or the setting file is corrupted.	
07ADH	Data type setting error	An invalid setting has been made in the data type setting. Or the setting file is corrupted.	
07AEH	CSV output format setting error	An invalid setting has been made in the CSV output setting. Or the setting file is corrupted.	<ul style="list-style-type: none"> <li>• Write the settings again with the Configuration tool.</li> <li>• Replace the CompactFlash card.</li> </ul>
07AFH	Data type setting error	An invalid setting has been made in the data type setting. Or the setting file is corrupted.	
07B0H to 07B9H	Binary output format setting error	An invalid setting has been made in the binary output setting. Or the setting file is corrupted.	
07BAH 07BBH	Setting file error	There is no setting file. Or the setting file is corrupted.	
07BCH	File write error	Failed to write the file.	
07BDH	File creation error	Failed to create the file.	
07BEH	File format setting error	An invalid setting has been made in the file output setting. Or the setting file is corrupted.	
07BFH	Setting file error	There is no setting file. Or the setting file is corrupted.	
07C0H 07C1H	Binary output format setting error	An invalid setting has been made in the binary output setting. Or the setting file is corrupted.	

Error code	Error name	Description	Corrective action
07C2H	CSV file open error	Failed to open the CSV file.	<ul style="list-style-type: none"> <li>Delete unnecessary files on the CompactFlash card to ensure free space.</li> <li>Replace the CompactFlash card.</li> </ul>
07C3H	File check error	Failed to check the file.	
07C4H	Binary file creation error	Failed to create the binary file.	
07C7H	File format setting error	An invalid setting has been made in the file format setting. Or the setting file is corrupted.	<ul style="list-style-type: none"> <li>Write the settings again with the Configuration tool.</li> <li>Replace the CompactFlash card.</li> </ul>
07C8H	Data type setting error	An invalid setting has been made in the data type setting. Or the setting file is corrupted.	
07C9H	Binary output format setting error	An invalid setting has been made in the binary output setting. Or the setting file is corrupted.	
07CAH	File creation error	Failed to create the file.	<ul style="list-style-type: none"> <li>Delete unnecessary files on the CompactFlash card to ensure free space.</li> <li>Replace the CompactFlash card.</li> </ul>
07CBH			
07CCH	Directory creation error	Failed to create the directory.	<ul style="list-style-type: none"> <li>Check if the file was deleted by external FTP.</li> <li>Replace the CompactFlash card.</li> </ul>
07CDH	File access error	An error occurred when accessing the file.	
07CEH			
07D0H	File format setting error	An invalid setting has been made in the file format setting. Or the setting file is corrupted.	<ul style="list-style-type: none"> <li>Write the settings again with the Configuration tool.</li> <li>Replace the CompactFlash card.</li> </ul>
07D1H	Data type setting error	An invalid setting has been made in the data type setting. Or the setting file is corrupted.	
07D2H	Binary output format setting error	An invalid setting has been made in the binary output setting. Or the setting file is corrupted.	
07D3H	File check error	Failed to check the file.	<ul style="list-style-type: none"> <li>Delete unnecessary files on the CompactFlash card to ensure free space.</li> <li>Replace the CompactFlash card.</li> </ul>
07D4H	File open error	Failed to open the file.	
07D5H	File write error	Failed to write the file.	
07D6H	File open error	Failed to open the file.	<ul style="list-style-type: none"> <li>Replace the CompactFlash card.</li> </ul>
07D7H	File information acquisition error	Failed to acquire the file information.	
07D8H to 07DEH	File access error	An error occurred when accessing the file.	
07E1H to 07E4H	Report source file error	Data logging file to be output to the Report file cannot be found.	<ul style="list-style-type: none"> <li>Configure and construct the system so that the creation trigger occurs after the specified number of records worth of data is saved in the Data logging file.</li> <li>Adjust the file switch timing for the Data logging file. (Page 148 Target Data)</li> </ul>
07E5H to 07E9H	System error	—	<ul style="list-style-type: none"> <li>Please consult your local Mitsubishi representative.</li> </ul>
07F0H	Saved file name acquisition error	Failed to acquire the saved file name.	<ul style="list-style-type: none"> <li>Check if the saved file has been deleted.</li> <li>Delete unnecessary files on the CompactFlash card to ensure free space.</li> <li>Replace the CompactFlash card.</li> </ul>
07F1H	Saved file name acquisition error	Failed to acquire the saved file name.	
07F2H	Saved file name acquisition error	Failed to acquire the saved file name.	
07F3H	Saved file name acquisition error	Failed to acquire the saved file name.	<ul style="list-style-type: none"> <li>Write the settings again with the Configuration tool.</li> <li>Replace the CompactFlash card.</li> </ul>
07F4H to 07F6H	File write error	Failed to write the file.	
07F7H	Directory creation error	Failed to create the directory.	
07F8H			
			<ul style="list-style-type: none"> <li>Delete unnecessary files on the CompactFlash card to ensure free space.</li> <li>Replace the CompactFlash card.</li> </ul>

Error code	Error name	Description	Corrective action	
0800H to 0802H	Period of time setting error	An invalid setting has been made in the period setting. Or the setting file is corrupted.	<ul style="list-style-type: none"> <li>• Write the settings again with the Configuration tool.</li> <li>• Replace the CompactFlash card.</li> </ul>	
0803H	Trigger condition (the number of times) setting error	An invalid count condition has been set for the count trigger of trigger type in the Trigger logging setting. Or the setting file is corrupted.	<ul style="list-style-type: none"> <li>• Write the settings again with the Configuration tool.</li> <li>• Replace the CompactFlash card.</li> </ul>	
0804H	Scaling setting error	An invalid setting has been made in the scaling setting. Or the setting file is corrupted.		
0805H				
0806H	Data condition setting error	An invalid setting has been made in the data condition setting. Or the setting file is corrupted.		
0807H	Compound condition (trigger logging) setting error	An invalid setting has been made in the trigger compound condition setting of the Trigger logging setting. Or the setting file is corrupted.		
0808H	Compound condition (event logging) setting error	An invalid setting has been made in the trigger compound condition settings of the Event logging setting. Or the setting file is corrupted.		
0809H				
080AH	Data condition setting error	An invalid setting has been made in the data condition setting. Or the setting file is corrupted.		
080BH	Rename error	Failed to rename.		<ul style="list-style-type: none"> <li>• Delete unnecessary files on the CompactFlash card to ensure free space.</li> <li>• Replace the CompactFlash card.</li> </ul>
080CH	File open error	Failed to open the file.		
080DH	File read error	Failed to read the file.		
080FH	File write error	Failed to write the file.		
0810H	File creation error	Failed to create the file.		
0811H	File write error	Failed to write the file.		
0812H to 0815H	Setting file error	There is no setting file. Or the setting file is corrupted.	<ul style="list-style-type: none"> <li>• Write the settings again with the Configuration tool.</li> <li>• Replace the CompactFlash card.</li> </ul>	
0816H	Trigger condition setting error	An invalid setting has been made in the trigger condition setting of the Trigger logging setting. Or the setting file is corrupted.	<ul style="list-style-type: none"> <li>• Delete all the saved files on the CompactFlash card.</li> <li>• Replace the CompactFlash card.</li> </ul>	
0817H	Data condition setting error	An invalid setting has been made in the data condition setting. Or the setting file is corrupted.		
0818H				
081AH	Save file number excess error	The saved file number exceeded FFFFFFFF.	<ul style="list-style-type: none"> <li>• Delete unnecessary files on the CompactFlash card to ensure free space.</li> <li>• Replace the CompactFlash card.</li> </ul>	
081BH	Directory creation error	Failed to create the directory.		
081CH	File information acquisition error	Failed to acquire the file information.		
081DH	File creation error	Failed to create the file.		
081EH	Data condition setting error	An invalid setting has been made in the data condition setting. Or the setting file is corrupted.	<ul style="list-style-type: none"> <li>• Write the settings again with the Configuration tool.</li> <li>• Replace the CompactFlash card.</li> </ul>	
081FH	Data type setting error	An invalid setting has been made in the data type setting. Or the setting file is corrupted.	<ul style="list-style-type: none"> <li>• Please consult your local Mitsubishi representative.</li> </ul>	
0822H	Setting file error	There is no setting file. Or the setting file is corrupted.		
0823H				
0824H	File switching setting error	An invalid file switch timing has been set in the File switching setting Or the setting file is corrupted.	<ul style="list-style-type: none"> <li>• Write the settings again with the Configuration tool.</li> <li>• Replace the CompactFlash card.</li> </ul>	
0825H	System error	—		
0826H	Setting file error	There is no setting file. Or the setting file is corrupted.	<ul style="list-style-type: none"> <li>• Write the settings again with the Configuration tool.</li> <li>• Replace the CompactFlash card.</li> </ul>	
0900H to 0906H	System error	—	<ul style="list-style-type: none"> <li>• Please consult your local Mitsubishi representative.</li> </ul>	

Error code	Error name	Description	Corrective action
0907H	Layout type specification error	An invalid layout type has been specified. Or the report setting file is corrupted.	<ul style="list-style-type: none"> <li>• Write the settings again with the Configuration tool.</li> <li>• Replace the CompactFlash card.</li> </ul>
0909H	Current value sampling device information acquisition error	An invalid current value sampling device has been set. Or the current value sampling device information cannot be obtained because the report setting file is corrupt.	
090AH	Layout type specification error	An invalid layout type has been specified. Or the report setting file is corrupted.	
090FH	System error	—	<ul style="list-style-type: none"> <li>• Please consult your local Mitsubishi representative.</li> </ul>
0912H to 0914H	Data sampling method specification error	An invalid data sampling method has been specified. Or the report setting file is corrupted.	<ul style="list-style-type: none"> <li>• Write the settings again with the Configuration tool.</li> <li>• Replace the CompactFlash card.</li> </ul>
0915H	Data type specified error	An invalid data type has been specified. Or the report setting file is corrupted.	
091CH	Layout type specification error	An invalid layout type has been specified. Or the report setting file is corrupted.	
091EH	Save file number excess error	The saved file number exceeded FFFFFFFF.	<ul style="list-style-type: none"> <li>• Delete all the saved files on the CompactFlash card.</li> <li>• Replace the CompactFlash card.</li> </ul>
091FH	Number of saved files excess error	The number of files has exceeded the upper limit of the number of saved files.	<ul style="list-style-type: none"> <li>• Delete the saved files on the CompactFlash card.</li> <li>• Change the number of saved files with the Configuration tool.</li> </ul>
0920H	Directory creation error	Failed to create the directory.	<ul style="list-style-type: none"> <li>• Delete unnecessary files on the CompactFlash card to ensure free space.</li> <li>• Replace the CompactFlash card.</li> </ul>
0921H	Rename error	Failed to rename.	<ul style="list-style-type: none"> <li>• Delete unnecessary files on the CompactFlash card to ensure free space.</li> <li>• Check if the Data logging file is being deleted before the report is output.</li> <li>• Replace the CompactFlash card.</li> </ul>
0922H to 0929H	System error	—	<ul style="list-style-type: none"> <li>• Please consult your local Mitsubishi representative.</li> </ul>
092BH	Output format specification error	An invalid output format has been specified. Or the report setting file is corrupted.	<ul style="list-style-type: none"> <li>• Write the settings again with the Configuration tool.</li> <li>• Replace the CompactFlash card.</li> </ul>
092CH	Data type specified error	An invalid data type has been specified. Or the report setting file is corrupted.	
0930H	Setting file error	There is no setting file.	
0931H		Or the setting file is corrupted.	
0949H			
094AH	System error	—	<ul style="list-style-type: none"> <li>• Please consult your local Mitsubishi representative.</li> </ul>
094BH to 094DH	Setting file error	There is no setting file. Or the setting file is corrupted.	<ul style="list-style-type: none"> <li>• Write the settings again with the Configuration tool.</li> <li>• Replace the CompactFlash card.</li> </ul>
0950H	File open error	Failed to open the file.	<ul style="list-style-type: none"> <li>• Check if the file in the /CF/SYSTEM directory was directly edited.</li> <li>• Delete unnecessary files on the CompactFlash card to ensure free space.</li> <li>• Replace the CompactFlash card.</li> </ul>
0951H	File information acquisition error	Failed to acquire the file information.	<ul style="list-style-type: none"> <li>• Delete unnecessary files on the CompactFlash card to ensure free space.</li> <li>• Replace the CompactFlash card.</li> </ul>
0952H	File seek error	Failed to seek the file.	<ul style="list-style-type: none"> <li>• Check if the file in the /CF/SYSTEM directory was directly edited.</li> <li>• Write the settings again with the Configuration tool.</li> </ul>
0953H	File read error	Failed to read the file.	<ul style="list-style-type: none"> <li>• Delete unnecessary files on the CompactFlash card to ensure free space.</li> <li>• Replace the CompactFlash card.</li> </ul>
0954H	File write error	Failed to write the file.	
0955H	File seek error	Failed to seek the file.	<ul style="list-style-type: none"> <li>• Check if the file in the /CF/SYSTEM directory was directly edited.</li> <li>• Write the settings again with the Configuration tool.</li> </ul>
0956H	File read error	Failed to read the file.	<ul style="list-style-type: none"> <li>• Delete unnecessary files on the CompactFlash card to ensure free space.</li> <li>• Replace the CompactFlash card.</li> </ul>

Error code	Error name	Description	Corrective action
0957H	File seek error	Failed to seek the file.	<ul style="list-style-type: none"> <li>• Check if the file in the /CF/SYSTEM directory was directly edited.</li> <li>• Write the settings again with the Configuration tool.</li> </ul>
0958H	File write error	Failed to write the file.	<ul style="list-style-type: none"> <li>• Delete unnecessary files on the CompactFlash card to ensure free space.</li> <li>• Replace the CompactFlash card.</li> </ul>
095AH	File information acquisition error	Failed to acquire the file information.	<ul style="list-style-type: none"> <li>• Check if the file in the /CF/SYSTEM directory was directly edited.</li> <li>• Delete unnecessary files on the CompactFlash card to ensure free space.</li> <li>• Replace the CompactFlash card.</li> </ul>
095BH	File open error	Failed to open the file.	<ul style="list-style-type: none"> <li>• Delete unnecessary files on the CompactFlash card to ensure free space.</li> <li>• Replace the CompactFlash card.</li> </ul>
095CH			
095DH	File read error	Failed to read the file.	<ul style="list-style-type: none"> <li>• Check if the report layout file is edited with a tool other than the Configuration tool.</li> <li>• Delete unnecessary files on the CompactFlash card to ensure free space.</li> <li>• Replace the CompactFlash card.</li> </ul>
095EH	File write error	Failed to write the file.	
095FH	File read error	Failed to read the file.	
0960H	File write error	Failed to write the file.	
0961H	File read error	Failed to read the file.	
0962H			
0963H to 0967H	File write error	Failed to write the file.	
096AH	File read error	Failed to read the file.	
096BH	File write error	Failed to write the file.	
096CH to 096FH	File read error	Failed to read the file.	
0970H to 0978H	File write error	Failed to write the file.	<ul style="list-style-type: none"> <li>• Delete unnecessary files on the CompactFlash card to ensure free space.</li> <li>• Replace the CompactFlash card.</li> </ul>
0979H	Setting file error	The report layout file in the setting files is in unsupported format.	<ul style="list-style-type: none"> <li>• Check if the report layout file is edited with a tool other than the Configuration tool.</li> <li>• Configure the report layout settings with the Configuration tool and save the Excel file again.</li> <li>• Write the settings again with the Configuration tool.</li> <li>• Replace the CompactFlash card.</li> </ul>
097AH	Layout file read error	Failed to read the layout file.	<ul style="list-style-type: none"> <li>• Write the settings again with the Configuration tool.</li> <li>• Delete unnecessary files on the CompactFlash card to ensure free space.</li> <li>• Replace the CompactFlash card.</li> </ul>
097DH			
097EH	File read error	Failed to read the file.	<ul style="list-style-type: none"> <li>• Delete unnecessary files on the CompactFlash card to ensure free space.</li> <li>• Replace the CompactFlash card.</li> </ul>
0980H to 0985H	System error	—	• Please consult your local Mitsubishi representative.
0990H to 0997H	Report source file error	Data logging file to be output to the Report file cannot be found.	<ul style="list-style-type: none"> <li>• Configure and construct the system so that the creation trigger occurs after the specified number of records worth of data is saved in the Data logging file.</li> <li>• Adjust the file switch timing for the Data logging file. (Page 148 Target Data)</li> <li>• Check if the Data logging file is being deleted before the report is output.</li> <li>• Replace the CompactFlash card.</li> </ul>
0999H	System error	—	<ul style="list-style-type: none"> <li>• Write the settings again with the Configuration tool.</li> <li>• Replace the CompactFlash card.</li> </ul>
099AH			
09B0H	Report source file error	Data logging file to be output to the Report file cannot be found.	<ul style="list-style-type: none"> <li>• Adjust the file switch timing for the Data logging file. (Page 148 Target Data)</li> <li>• Check if the Data logging file is being deleted before the report is output.</li> <li>• Replace the CompactFlash card.</li> </ul>












Error code	Error name	Description	Corrective action
09B1H	File open error	Failed to open the file.	<ul style="list-style-type: none"> <li>Delete unnecessary files on the CompactFlash card to ensure free space.</li> <li>Replace the CompactFlash card.</li> </ul>
09B2H			
09B4H			
09B5H			
09B6H	Report source file error	Data logging file to be output to the Report file cannot be found.	<ul style="list-style-type: none"> <li>Adjust the file switch timing for the Data logging file. (☞ Page 148 Target Data)</li> <li>Check if the Data logging file is being deleted before the report is output.</li> <li>Replace the CompactFlash card.</li> </ul>
09B7H	File read error	Failed to read the file.	<ul style="list-style-type: none"> <li>Delete unnecessary files on the CompactFlash card to ensure free space.</li> <li>Replace the CompactFlash card.</li> </ul>
09B8H			
09BAH	File write error	Failed to write the file.	
09BBH			
09BCH	Setting file error	The report layout file in the setting files is in unsupported format.	<ul style="list-style-type: none"> <li>Correct the report layout settings with the Configuration tool and save the Excel file again.</li> <li>Write the settings again with the Configuration tool.</li> <li>Replace the CompactFlash card.</li> </ul>
09BDH	System error	—	<ul style="list-style-type: none"> <li>Please consult your local Mitsubishi representative.</li> </ul>
09BEH	File write error	Failed to write the file.	<ul style="list-style-type: none"> <li>Delete unnecessary files on the CompactFlash card to ensure free space.</li> <li>Replace the CompactFlash card.</li> </ul>
09BFH			
09C0H	System error	—	<ul style="list-style-type: none"> <li>Please consult your local Mitsubishi representative.</li> </ul>
09C2H	File write error	Failed to write the file.	<ul style="list-style-type: none"> <li>Delete unnecessary files on the CompactFlash card to ensure free space.</li> <li>Replace the CompactFlash card.</li> </ul>
09C3H			
09C5H			
09C6H			
09C7H	Setting file error	There is no setting file. Or the setting file is corrupted.	<ul style="list-style-type: none"> <li>Write the settings again with the Configuration tool.</li> <li>Replace the CompactFlash card.</li> </ul>
09D0H	E-mail transmission error	Send a file of which the size exceeds 512KB by e-mail was attempted.	<ul style="list-style-type: none"> <li>Review the settings so that the size of Report file does not exceed 512KB.</li> </ul>
0B00H	FTP setting file error	Failed to read the FTP setting file.	<ul style="list-style-type: none"> <li>Write the settings again with the Configuration tool.</li> <li>Replace the CompactFlash card.</li> </ul>
0B01H	Incorrect FTP transfer destination number error	The FTP destination number is out of the range.	<ul style="list-style-type: none"> <li>Check the FTP destination number for the save setting.</li> </ul>
0B02H	FTP transfer destination number non-setting error	Made a file transfer request for an FTP destination number which was not set in the FTP setting.	<ul style="list-style-type: none"> <li>Write the settings again with the Configuration tool.</li> </ul>
0B03H	FTP file transfer error	An error occurred during the FTP file transfer. The saved file to be transferred was deleted before the FTP transfer by file switching.	<ul style="list-style-type: none"> <li>Review the FTP setting.</li> <li>Check the connection status with the FTP server.</li> <li>Check the destination FTP server status.</li> <li>Review the save settings (file switch timing, number of saved files). (☞ Page 301 Transfer setting screen)</li> </ul>
0B05H	System error	—	<ul style="list-style-type: none"> <li>Please consult your local Mitsubishi representative.</li> </ul>
0B06H			
0B07H	FTP server control port connection error	Failed to connect to the FTP server's control port.	<ul style="list-style-type: none"> <li>Review the FTP setting.</li> <li>Check the network connection status with the PING test.</li> <li>Check the destination FTP server status.</li> <li>When powered ON immediately after it is powered OFF, wait a few minutes before powering ON.</li> </ul>
0B08H	FTP server control port disconnection error	Failed to disconnect from the FTP server's control port.	<ul style="list-style-type: none"> <li>Check the connection status with the FTP server.</li> <li>Check the destination FTP server status.</li> </ul>
0B09H	FTP server login error	Failed to login to the FTP server.	<ul style="list-style-type: none"> <li>Review the FTP setting.</li> <li>Check the connection status with the FTP server.</li> <li>Check the destination FTP server status.</li> </ul>
0B0AH	FTP server command execute error	Failed to execute the FTP command for the FTP server.	<ul style="list-style-type: none"> <li>Check the connection status with the FTP server.</li> <li>Check the destination FTP server status.</li> <li>Check if the write access authority is set on the destination FTP server.</li> </ul>

Error code	Error name	Description	Corrective action
0B0BH	FTP server data transfer port connection error	Failed to connect to the FTP server's data transfer port.	<ul style="list-style-type: none"> <li>Review the FTP setting.</li> <li>Check the connection status with the FTP server.</li> <li>Check the destination FTP server status.</li> </ul>
0B0CH	FTP server data transfer port disconnection error	Failed to disconnect from the FTP server's data transfer port.	<ul style="list-style-type: none"> <li>Check the connection status with the FTP server.</li> <li>Check the destination FTP server status.</li> </ul>
0B0DH	FTP file transfer not allowed	Made an FTP file transfer request during Network setting default operation.	<ul style="list-style-type: none"> <li>Clear the Network setting default operation.</li> </ul>
0B10H	E-mail setting file error	Failed to read the E-mail setting.	<ul style="list-style-type: none"> <li>Review the E-mail setting.</li> <li>Write the settings again with the Configuration tool.</li> </ul>
0B11H	Incorrect e-mail address number error	The e-mail destination number is out of the range.	<ul style="list-style-type: none"> <li>Check the e-mail destination number for the save setting.</li> </ul>
0B12H	E-mail address number non-setting error	Made an e-mail transmission request for an e-mail destination number which was not set in the E-mail setting.	<ul style="list-style-type: none"> <li>Write the settings again with the Configuration tool.</li> </ul>
0B13H	E-mail transmission error	An error occurred during the e-mail transmission.	<ul style="list-style-type: none"> <li>Review the E-mail setting.</li> <li>Check the connection status with the mail server.</li> <li>Check the destination mail server status.</li> <li>Configure the authentication settings in E-mail setting.</li> </ul>
0B14H	System error	—	<ul style="list-style-type: none"> <li>Please consult your local Mitsubishi representative.</li> </ul>
0B15H	No attached file error	The saved file to be attached to the e-mail was deleted before transmission.	<ul style="list-style-type: none"> <li>Review the save settings (file switch timing, number of saved files). ( Page 301 Transfer setting screen)</li> </ul>
0B16H	SMTP server login error	Failed to connect to the mail server (SMTP server).	<ul style="list-style-type: none"> <li>Correct the E-mail setting.</li> <li>Check the connection status with the mail server.</li> <li>Check the destination mail server status.</li> <li>When powered ON immediately after it is powered OFF, wait a few minutes before powering ON.</li> </ul>
0B17H	E-mail header send error	Failed to send the e-mail header.	<ul style="list-style-type: none"> <li>Check the connection status with the mail server.</li> </ul>
0B18H	E-mail main text send error	Failed to send the e-mail body.	<ul style="list-style-type: none"> <li>Check the destination mail server status.</li> </ul>
0B19H	Attached file send error	Failed to send the attachment.	
0B1AH	SMTP server logout error	Failed to disconnect from the mail server (SMTP server).	
0B1BH	E-mail sending not possible	Made an e-mail transmission request during Network setting default operation.	<ul style="list-style-type: none"> <li>Clear the Network setting default operation.</li> </ul>
0B1CH	POP server login error	Failed to connect to the mail server (POP server).	<ul style="list-style-type: none"> <li>Review the E-mail setting.</li> <li>Check the connection status with the mail server.</li> <li>When powered ON immediately after it is powered OFF, wait a few minutes before powering ON.</li> </ul>
0B1DH	E-mail transfer error (a part of e-mail addresses)	Failed to send e-mail to a portion of destinations.	<ul style="list-style-type: none"> <li>Review the destination e-mail address settings in E-mail setting.</li> </ul>
0B20H to 0B22H	System error	—	<ul style="list-style-type: none"> <li>Please consult your local Mitsubishi representative.</li> </ul>
0B23H	Resend buffer write error	Failed to write files to FTP resend buffer.	<ul style="list-style-type: none"> <li>Delete unnecessary files on the CompactFlash card to ensure free space.</li> <li>Replace the CompactFlash card.</li> </ul>
0B24H	Resend buffer write error	Failed to write files to FTP resend buffer.	<ul style="list-style-type: none"> <li>Write the settings again with the Configuration tool.</li> <li>Replace the CompactFlash card.</li> </ul>
0B25H	Resend buffer write error	Failed to write files to FTP resend buffer.	<ul style="list-style-type: none"> <li>Write the settings again with the Configuration tool.</li> <li>Delete unnecessary files on the CompactFlash card to ensure free space.</li> <li>Replace the CompactFlash card.</li> </ul>
0B26H	Resend buffer full error	The number of FTP resend buffered data has exceeded the resend buffer size set in the Configuration tool.	<ul style="list-style-type: none"> <li>Check the network settings.</li> <li>Clear the buffer by the FTP transfer diagnostics of the Configuration tool.</li> <li>Increase the resend buffer size.</li> </ul>
0B28H to 0B2AH	System error	—	<ul style="list-style-type: none"> <li>Please consult your local Mitsubishi representative.</li> </ul>
0B2BH	Resend buffer write error	Failed to write files to e-mail resend buffer.	<ul style="list-style-type: none"> <li>Delete unnecessary files on the CompactFlash card to ensure free space.</li> <li>Replace the CompactFlash card.</li> </ul>
0B2CH	Resend buffer write error	Failed to write files to e-mail resend buffer.	<ul style="list-style-type: none"> <li>Write the settings again with the Configuration tool.</li> <li>Replace the CompactFlash card.</li> </ul>

Error code	Error name	Description	Corrective action
0B2DH	Resend buffer write error	Failed to write files to e-mail resend buffer.	<ul style="list-style-type: none"> <li>• Write the settings again with the Configuration tool.</li> <li>• Delete unnecessary files on the CompactFlash card to ensure free space.</li> <li>• Replace the CompactFlash card.</li> </ul>
0B2EH	Resend buffer full error	The number of FTP resend buffered data has exceeded the resend buffer size set in the Configuration tool.	<ul style="list-style-type: none"> <li>• Check the network settings.</li> <li>• Clear the buffer by the FTP transfer diagnostics of the Configuration tool.</li> <li>• Increase the resend buffer size.</li> </ul>
0B30H	Initial SNTP server time query failure error	The initial time query to the SNTP server failed.	<ul style="list-style-type: none"> <li>• Check the SNTP server address.</li> <li>• Check if the set server is operating as an SNTP server.</li> </ul>
0B31H	SNTP server time query error	The time query to the SNTP server failed.	<ul style="list-style-type: none"> <li>• Check if it is connected to the network.</li> </ul>
0C00H	CF card access error	Access to the CompactFlash card was attempted when its access state was "Preparing access".	<ul style="list-style-type: none"> <li>• Access the CompactFlash card again when the access state is "Accessible". (☞ Page 388 CompactFlash card diagnostics)</li> </ul>
0C01H	CF card access error	The access to the CompactFlash card was attempted when the file access was being stopped.	<ul style="list-style-type: none"> <li>• Check if the CompactFlash card was inserted.</li> <li>• Perform the access restart in the [CompactFlash card diagnostics] tab on the "Diagnostics" screen, and perform the operation again. (☞ Page 388 CompactFlash card diagnostics)</li> </ul>
0C02H	CF card access error	Access to the unformatted CompactFlash card was attempted.	<ul style="list-style-type: none"> <li>• After formatting the CompactFlash card, store Recipe files to the CompactFlash card, and retry.</li> </ul>
0C03H	CF card access error	Access to the CompactFlash card was attempted while it is being formatted.	<ul style="list-style-type: none"> <li>• After formatting the CompactFlash card, store Recipe files to the CompactFlash card, and retry.</li> </ul>
0C05H	Record number specification error	For the control data for the access target CPU←BOX Data Logger, an out-of-range record number is specified.	<ul style="list-style-type: none"> <li>• Review the control data for the access target CPU←BOX Data Logger. (☞ Page 174 Access target CPU ← BOX Data Logger (CompactFlash card))</li> </ul>
0C06H	No specified file error	A file name which does not exist is specified.	<ul style="list-style-type: none"> <li>• Specify the Recipe file exists in the RECIPE folder.</li> </ul>
0C07H	Incorrect file name error	A character which cannot be used for a file name is specified.	<ul style="list-style-type: none"> <li>• Review the control data for the access target CPU←BOX Data Logger. (☞ Page 174 Access target CPU ← BOX Data Logger (CompactFlash card))</li> </ul>
0C08H	Recipe file write error	Failed to write the files because of the insufficient CompactFlash card free space.	<ul style="list-style-type: none"> <li>• Delete unnecessary files on the CompactFlash card to ensure free space.</li> <li>• Replace the CompactFlash card.</li> </ul>
0C09H			
0C0AH	BOX Data Logger suspension error	The Recipe Execution Operation function was executed when the operation of BOX Data Logger was being suspended.	<ul style="list-style-type: none"> <li>• Change the operating status of the BOX Data Logger to "In operation". (☞ Page 381 BOX Data Logger diagnostics)</li> </ul>
0C0BH	Recipe file error	The Recipe file is not correctly formatted, or corrupted Recipe file is specified.	<ul style="list-style-type: none"> <li>• Check the format of the specified Recipe file. (☞ Page 79 Recipe file format)</li> </ul>
0C0CH	Incorrect data type error	A data type which is not compatible with the data type of the Recipe file is specified.	<ul style="list-style-type: none"> <li>• Check the data type of the Recipe file.</li> </ul>
0C0DH	Incorrect data type error	A data type other than "Bit" is specified for the data type of bit device.	
0C0EH	File size error	A Recipe file whose size exceeds 512KB is specified.	<ul style="list-style-type: none"> <li>• Specify a file whose size is less than 512KB.</li> <li>• Review the setting of the Recipe file to be less than 512KB.</li> </ul>
0C0FH	Number of data error	The total of specified Recipe file data exceeded 256.	<ul style="list-style-type: none"> <li>• Review the Recipe file to obtain the total of data less than 256.</li> </ul>
0C10H	Number of data error	A value other than 1 is specified for the number of bit device data.	<ul style="list-style-type: none"> <li>• Change the number of bit device data to '1'.</li> </ul>
0C11H	Number of blocks error	Incorrect number of blocks is specified.	<ul style="list-style-type: none"> <li>• Specify a value for number of blocks within the range. (☞ Page 79 Recipe file format)</li> </ul>
0C12H	Number of blocks error	Insufficient number of blocks against specified number of blocks.	<ul style="list-style-type: none"> <li>• Check the blocks and the number of blocks for Recipe files.</li> </ul>
0C13H	Number of records error	Incorrect number of records is specified.	<ul style="list-style-type: none"> <li>• Specify a value for number of records within the range. (☞ Page 79 Recipe file format)</li> </ul>
0C14H	Record number error	Record numbers are inconsecutive. Or the same record numbers exist.	<ul style="list-style-type: none"> <li>• Check the record numbers of the Recipe file.</li> </ul>

Error code	Error name	Description	Corrective action
0C15H	Number of records error	Insufficient number of records against specified number of records.	<ul style="list-style-type: none"> <li>Check the records and the number of records for Recipe files.</li> </ul>
0C16H	Record attribute error	An incorrect character is specified for the record attribute.	<ul style="list-style-type: none"> <li>Check the record attribute for Recipe file.</li> </ul>
0C17H	Record attribute error	Multiple attributes are specified for a specified record. Or an incorrect character is specified for the record attribute.	
0C18H	Incorrect device value error	A value out of the range is specified for the data type "16bit BCD".	<ul style="list-style-type: none"> <li>Specify a value within the range of '16bit BCD' for the device value.</li> </ul>
0C19H	Incorrect device value error	A value out of the range is specified for the data type "32bit BCD".	<ul style="list-style-type: none"> <li>Specify a value within the range of '32bit BCD' for the device value.</li> </ul>
0C1AH	Incorrect device value error	A value out of the range is specified for the data type "Bit".	<ul style="list-style-type: none"> <li>Specify 0 or 1 for the device value.</li> </ul>
0C1BH	Incorrect device value error	A value out of the range is specified for the data type "Double word [signed]".	<ul style="list-style-type: none"> <li>Specify a value within the range of 'Double word [signed]' for the device value.</li> </ul>
0C1CH	Incorrect device value error	A value out of the range is specified for the data type "FLOAT [double precision]".	<ul style="list-style-type: none"> <li>Specify a value within the range of 'FLOAT [double precision]' for the device value.</li> </ul>
0C1DH	Incorrect device value error	A value out of the range is specified for the data type "Double word [unsigned]".	<ul style="list-style-type: none"> <li>Specify a value within the range of 'Double word [unsigned]' for the device value.</li> </ul>
0C1EH	Incorrect device value error	A value out of the range is specified for the data type "Word [signed]".	<ul style="list-style-type: none"> <li>Specify a value within the range of 'Word [signed]' for the device value.</li> </ul>
0C1FH	Incorrect device value error	A value out of the range is specified for the data type "FLOAT [single precision]".	<ul style="list-style-type: none"> <li>Specify a value within the range of 'FLOAT [single precision]' for the device value.</li> </ul>
0C20H	Incorrect device value error	A value out of the range is specified for the data type "Word [unsigned]".	<ul style="list-style-type: none"> <li>Specify a value within the range of 'Word [unsigned]' for the device value.</li> </ul>
0C21H	Incorrect attribute error	The write process is performed on the record with P attribute.	<ul style="list-style-type: none"> <li>Check the specified record number.</li> <li>Check the specified Recipe file name.</li> <li>Check the specified Recipe file.</li> </ul>
0C22H	Incorrect attribute error	The read process is performed on the record with N attribute.	
0C23H	Incorrect device value error	A record number whose device value cell is blank is specified.	<ul style="list-style-type: none"> <li>Check the device value of the specified record number.</li> </ul>
0C24H	Incorrect data type error	"Bit" is specified for the data type of word device.	<ul style="list-style-type: none"> <li>Check the data type of the Recipe file.</li> </ul>
0C25H	No authority error	The Recipe Execution Operation function was executed by a user who does not have a administrator's authority.	<ul style="list-style-type: none"> <li>Retry with a user who has an administrator's authority.</li> <li>Unselect "Use the access authentication function" in the Account setting.</li> </ul>
0C26H	CF card access error	The access to the CompactFlash card was attempted when the file access was being stopped.	<ul style="list-style-type: none"> <li>Check if the CompactFlash card was inserted.</li> <li>Perform the access restart in the [CompactFlash card diagnostics] tab on the "Diagnostics" screen, and perform the operation again. (☞ Page 388 CompactFlash card diagnostics)</li> </ul>
0C27H	BOX Data Logger suspension error	The Recipe Execution Operation function was executed when the BOX Data Logger stop error is being occurred.	<ul style="list-style-type: none"> <li>Remove the BOX Data Logger stop error factor, reset the BOX Data Logger, and retry.</li> </ul>
0C28H	File size error	A Recipe file whose file size is '0' is specified.	<ul style="list-style-type: none"> <li>Check the specified Recipe file.</li> </ul>
0C29H	BOX Data Logger suspension error	The Recipe Execution Operation function was executed when the operation of BOX Data Logger was being stopped.	<ul style="list-style-type: none"> <li>Change the operating status of the BOX Data Logger to "In operation". (☞ Page 381 BOX Data Logger diagnostics)</li> </ul>
0C2AH	Recipe execution operation error	The Recipe Execution Operation is already being performed.	<ul style="list-style-type: none"> <li>Retry after the Recipe Execution Operation function is completed.</li> </ul>
0C2CH	BOX Data Logger suspension error	The Recipe Execution Operation function was executed when the operation of BOX Data Logger was being stopped.	<ul style="list-style-type: none"> <li>Change the operating status of the BOX Data Logger to "In operation". (☞ Page 381 BOX Data Logger diagnostics)</li> </ul>
0C2DH	Device error	An incorrect device is specified.	<ul style="list-style-type: none"> <li>Check the device of the specified Recipe file.</li> </ul>
0C2EH	Number of data error	Number of data out of the range is specified.	<ul style="list-style-type: none"> <li>Specify '1' for "Number of data" when the data type is "Bit".</li> <li>Specify the range of '1' to '256' for "Number of data" when the data type is other than "Bit".</li> </ul>

Error code	Error name	Description	Corrective action
0C2FH	Incorrect device value error	Failed to acquire the device value.	<ul style="list-style-type: none"> <li>• Check the device value.</li> <li>• Check the records or blocks of the specified Recipe file.</li> <li>• Check the specified Recipe file.</li> </ul>
0C30H	Device error	An incorrect device is specified.	<ul style="list-style-type: none"> <li>• Check the device of the specified Recipe file.</li> </ul>
0C31H	Number of blocks error	Incorrect number of blocks is specified.	<ul style="list-style-type: none"> <li>• Check the number of blocks. (☞ Page 79 Recipe file format)</li> </ul>
0C32H	Number of records error	Incorrect number of records is specified.	<ul style="list-style-type: none"> <li>• Check the number of records. (☞ Page 79 Recipe file format)</li> </ul>
0C33H	Record number error	An incorrect value is specified for the start value of record number.	<ul style="list-style-type: none"> <li>• Specify 1 for the start value of record number. (☞ Page 79 Recipe file format)</li> </ul>
0C34H	Recipe write error	Failed to write the files because of the insufficient CompactFlash card free space.	<ul style="list-style-type: none"> <li>• Delete unnecessary files on the CompactFlash card to ensure free space.</li> <li>• Replace the CompactFlash card.</li> </ul>
0C35H	CF card access error	Access to the CompactFlash card was attempted when its access state was "Preparing access".	<ul style="list-style-type: none"> <li>• Access the CompactFlash card again when the access state is "Accessible". (☞ Page 388 CompactFlash card diagnostics)</li> </ul>
0C36H	CF card access error	The access to the CompactFlash card was attempted when the file access was being stopped.	<ul style="list-style-type: none"> <li>• Check if the CompactFlash card was inserted.</li> <li>• Perform the access restart in the [CompactFlash card diagnostics] tab on the "Diagnostics" screen, and perform the operation again. (☞ Page 388 CompactFlash card diagnostics)</li> </ul>
0C37H	CF card access error	Access to the unformatted CompactFlash card was attempted.	<ul style="list-style-type: none"> <li>• After formatting the CompactFlash card, store Recipe files to the CompactFlash card, and retry.</li> </ul>
0C38H	CF card access error	Access to the CompactFlash card was attempted while it is being formatted.	
0C3AH	BOX Data Logger suspension error	The Recipe Execution Operation function was executed when the operation of BOX Data Logger was being stopped.	<ul style="list-style-type: none"> <li>• Perform "Restart" of "BOX Data Logger operation" and retry. (☞ Page 381 BOX Data Logger diagnostics)</li> <li>• Perform "Update settings" of "BOX Data Logger operation" and retry. (☞ Page 381 BOX Data Logger diagnostics)</li> </ul>
0C3BH	BOX Data Logger suspension error	The Recipe Execution Operation function was executed when the BOX Data Logger stop error is being occurred.	<ul style="list-style-type: none"> <li>• Remove the BOX Data Logger stop error factor, reset the BOX Data Logger, and retry.</li> </ul>
0C3CH	BOX Data Logger suspension error	The Recipe Execution Operation function was executed when the settings are being updated. A Recipe Execution Operation function was executed while the CompactFlash card was being formatted.	<ul style="list-style-type: none"> <li>• Retry after the operating status of the BOX Data Logger is changed to "In operation". (☞ Page 381 BOX Data Logger diagnostics)</li> <li>• After formatting the CompactFlash card, store Recipe files to the CompactFlash card, and retry.</li> </ul>
0C3DH	Recipe execution operation error	Another Recipe Execution Operation function was executed during a recipe execution.	<ul style="list-style-type: none"> <li>• Retry after the Recipe Execution Operation function is completed.</li> </ul>
0C3EH	Record number specification error	For the control data for the access target CPU→BOX Data Logger, an out-of-range record number is specified.	<ul style="list-style-type: none"> <li>• Review the control data for the access target CPU→BOX Data Logger. (☞ Page 171 Access target CPU → BOX Data Logger (CompactFlash card))</li> </ul>
0C3FH	No specified file error	A file name which does not exist is specified.	<ul style="list-style-type: none"> <li>• Specify the Recipe file exists in the RECIPE folder.</li> </ul>
0C40H	Incorrect file name error	A character which cannot be used for a file name is specified.	<ul style="list-style-type: none"> <li>• Review the control data for the access target CPU←BOX Data Logger.</li> </ul>
0C41H	File size error	A Recipe file whose size exceeds 512 KB is specified.	<ul style="list-style-type: none"> <li>• Specify a file whose size is less than 512 KB.</li> <li>• Review the setting of the Recipe file to be less than 512KB.</li> </ul>
0C42H	File size error	The size of Recipe file has exceeded 512 KB by writing data.	<ul style="list-style-type: none"> <li>• After writing data, adjust the number of blocks/ records/data not to exceed 512 KB.</li> </ul>
0C44H to 0C46H 0C49H to 0C5AH	Recipe file error	The Recipe file is not correctly formatted. Or corrupted Recipe file is specified.	<ul style="list-style-type: none"> <li>• Check the format of the specified Recipe file. (☞ Page 79 Recipe file format)</li> </ul>
0C5BH	CF card access error	Access to the CompactFlash card was attempted when its access state was "Preparing access".	<ul style="list-style-type: none"> <li>• Access the CompactFlash card again when the access state is "Accessible". (☞ Page 388 CompactFlash card diagnostics)</li> </ul>

Error code	Error name	Description	Corrective action
0C5CH	CF card access error	The access to the CompactFlash card was attempted when the file access was being stopped.	<ul style="list-style-type: none"> <li>Check if the CompactFlash card was inserted.</li> <li>Perform the access restart in the [CompactFlash card diagnostics] tab on the "Diagnostics" screen, and perform the operation again. ( Page 388 CompactFlash card diagnostics)</li> </ul>
0C5DH	CF card access error	Access to the unformatted CompactFlash card was attempted.	<ul style="list-style-type: none"> <li>After formatting the CompactFlash card, store Recipe files to the CompactFlash card, and retry.</li> </ul>
0C5EH	CF card access error	Access to the CompactFlash card was attempted while it is being formatted.	
0C60H	BOX Data Logger suspension error	The Recipe Execution Operation function was performed when the operation of BOX Data Logger was being suspended.	<ul style="list-style-type: none"> <li>Execute "Restart" of "BOX Data Logger operation" and retry. ( Page 381 BOX Data Logger diagnostics)</li> <li>Execute "Update settings" of "BOX Data Logger operation" and retry. ( Page 381 BOX Data Logger diagnostics)</li> </ul>
0C61H	BOX Data Logger suspension error	The Recipe Execution Operation function was executed when the BOX Data Logger stop error is being occurred.	<ul style="list-style-type: none"> <li>Remove the BOX Data Logger stop error factor, reset the BOX Data Logger, and retry.</li> </ul>
0C62H	BOX Data Logger suspension error	The Recipe Execution Operation function was executed when the settings are being updated. A Recipe Execution Operation function was executed while the CompactFlash card was being formatted.	<ul style="list-style-type: none"> <li>Retry after the operating status of the BOX Data Logger is changed to "In operation". ( Page 381 BOX Data Logger diagnostics)</li> <li>After formatting the CompactFlash card, store Recipe files to the CompactFlash card, and retry.</li> </ul>
0C63H	Recipe execution operation error	Another Recipe Execution Operation function was executed during a recipe execution.	<ul style="list-style-type: none"> <li>Retry after the Recipe Execution Operation function is completed.</li> </ul>
0C64H	CF card access error	The access to the CompactFlash card was attempted when the file access was being stopped.	<ul style="list-style-type: none"> <li>Check if the CompactFlash card was inserted.</li> <li>Perform the access restart in the [CompactFlash card diagnostics] tab on the "Diagnostics" screen, and perform the operation again. ( Page 388 CompactFlash card diagnostics)</li> </ul>
0C65H			
0C66H	File size error	A Recipe file whose file size is '0' is specified.	<ul style="list-style-type: none"> <li>Check the specified Recipe file.</li> </ul>
0C67H	BOX Data Logger suspension error	The Recipe Execution Operation function was executed when the operation of BOX Data Logger was being suspended.	<ul style="list-style-type: none"> <li>Change the operating status of the BOX Data Logger to "In operation". ( Page 381 BOX Data Logger diagnostics)</li> </ul>
0C68H	Recipe setting error	A Recipe Execution Operation function was executed while the recipe setting was set disabled.	<ul style="list-style-type: none"> <li>Write the setting with the enabled recipe setting, and execute the operation again.</li> </ul>
0C69H	Recipe file error	The Recipe file is not correctly formatted, or corrupted Recipe file is specified.	<ul style="list-style-type: none"> <li>Check the format of the specified Recipe file. ( Page 79 Recipe file format)</li> </ul>
0C6AH			
0C6CH	Number of blocks error	Insufficient number of blocks against specified number of blocks.	<ul style="list-style-type: none"> <li>Check the blocks and the number of blocks for Recipe files.</li> </ul>
0C6DH	Device error	An incorrect device is specified.	<ul style="list-style-type: none"> <li>Check the device of the specified Recipe file.</li> </ul>
0C6EH	Incorrect data type error	A data type that cannot be used for digit specified bit device is specified.	<ul style="list-style-type: none"> <li>Check the data type of the Recipe file. ( Page 79 Recipe file format)</li> </ul>
0C6FH			
0C70H	Number of records error	Insufficient number of records against specified number of records.	<ul style="list-style-type: none"> <li>Check the records and the number of records for Recipe files.</li> </ul>
0C71H	Number of data error	The cell for the number of data is blank.	<ul style="list-style-type: none"> <li>Check the number of data.</li> </ul>
0C72H	Number of blocks error	The cell for the number of blocks is blank.	<ul style="list-style-type: none"> <li>Check the number of blocks. ( Page 79 Recipe file format)</li> </ul>
0C73H	Number of records error	The cell for the number of records is blank.	<ul style="list-style-type: none"> <li>Check the number of records. ( Page 79 Recipe file format)</li> </ul>
0C74H	CompactFlash card bad sector detected	Failed to access to the same sector of CompactFlash card consecutively. An error may have occurred on CompactFlash card because BOX Data Logger was powered OFF or reset during the writing process to CompactFlash card. Remounting the CompactFlash card is performed.	<ul style="list-style-type: none"> <li>Stop file access before powering OFF or resetting BOX Data Logger.</li> <li>Replace the CompactFlash card if this error frequently occurs.</li> </ul>

Error code	Error name	Description	Corrective action
0D80H to 0D82H	System error	—	• Please consult your local Mitsubishi representative.
100EH			
2000H to 20FFH			
9000H			
9006H			
9008H	Send buffer full error	There is no available space in the send buffer.	• Check the CPU(s) on the access route.
9202H	System error	—	• Please consult your local Mitsubishi representative.
9204H			
920AH			
9920H			
9922H			
9923H			
9E20H	Processing code error	The issued processing code cannot be processed on the other end.	• Review the CPU(s) on the access route.
9E81H	Device type error	The device type specified for the access target CPU is invalid.	• Review the set device type.
9E82H	Device number error	The device number specified for the access target CPU is out of range.	• Review the set device number.
9E83H	Device point error	The number of device points specified for the access target CPU is out of range.	
FFD0H	System error	—	• Please consult your local Mitsubishi representative.
FFD1H	Monitor condition dissatisfied error	Reading is not possible because the monitor condition is not established.	• Delete the monitor condition with GX Developer.
FFD2H to FFD4H	System error	—	• Please consult your local Mitsubishi representative.
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 RAM operation.
FFD6H	System error	—	• Please consult your local Mitsubishi representative.
FFD7H			
FFD9H to FFDEH			
FFDFH	Incorrect access target error	The setting for the access target CPU is incorrect.	• Review the "Access target CPU setting".
FFE0H	Communication timeout error	The communication did not established because the access to the other access target CPU failed.	• Review the "Access target CPU setting". • Check the communication cable status and access target CPU status.
FFE1H	System error	—	• Please consult your local Mitsubishi representative.
FFEDH to FFEFH			
FFF0H	Station number or network number error	The station or network number is out of range. Or the setting is wrong.	• Review the station and network number in Access target CPU setting.
FFF1H	System error	—	• Please consult your local Mitsubishi representative.
FFF2H	Memory cassette error	No memory cassette is installed in the accessed CPU module. Or an incorrect memory cassette has been inserted.	• Check the memory cassette of the access target CPU.
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.	• 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.	• Check the block number of the extension file register (device type).
FFF5H	System error	—	• Please consult your local Mitsubishi representative.
FFF8H			
FFFAH			
FFFBH	Size error	The device size exceeded the device range.	• Review the set device number.
FFFC	CPU error	An invalid station was specified.	• Check the settings of the network module on the access route. • Review the station number setting in the Access target CPU setting.

Error code	Error name	Description	Corrective action
FFFDH	Device type error	The device type specified for the access target CPU is invalid.	<ul style="list-style-type: none"> <li>Review the set device type.</li> </ul>
FFFEH	Device number error	The device number specified for the access target CPU is out of range. Writing was attempted to a write disabled area.	<ul style="list-style-type: none"> <li>Review the set device number.</li> <li>If the programmable controller parameters have been changed after writing the BOX Data Logger setting, reset the BOX Data Logger.</li> </ul>
FFFFH	System error	—	<ul style="list-style-type: none"> <li>Please consult your local Mitsubishi representative.</li> </ul>



# 17.3 Troubleshooting by Symptom

This section explains the error definition and corrective action by function and symptom.

## Troubleshooting related to LED indicators and 7-segment LED

Symptom	Check point	Corrective action
The 'POWER' LED does not turn ON.	Is the power supplied?	<ul style="list-style-type: none"> <li>Supply the power. (☞ Page 105 Wiring of the power supply part)</li> <li>If the 'POWER' LED does not turn ON even after supplying power, please consult your local Mitsubishi representative with details of the failure.</li> </ul>
The 'RUN' LED does not turn ON.	Is the BOX Data Logger in preparation?	<ul style="list-style-type: none"> <li>Wait till the BOX Data Logger starts.</li> <li>Remove the CompactFlash card, Ethernet cable, and serial cable, and power OFF→ON the BOX Data Logger for three times. Between each OFF→ON, wait for 10 seconds.</li> <li>■When the 'RUN' LED does not turn ON.               <ul style="list-style-type: none"> <li>Perform a hardware self-diagnostics test, and check for a failure. (☞ Page 113 Hardware Self-Diagnostics Tests)</li> <li>If the hardware self-diagnostics test result is normal and the 'RUN' LED stays OFF, please consult your local Mitsubishi representative with details of the failure.</li> </ul> </li> <li>■When the 'RUN' LED is ON.               <ul style="list-style-type: none"> <li>After connecting a cable, turn OFF/ON the BOX Data Logger and check if the 'RUN' LED is ON. Subsequently, power OFF the BOX Data Logger, insert a CompactFlash card, power ON the BOX Data Logger, and check the 'RUN' LED again.</li> </ul> </li> </ul>
The 'ERROR' LED turns ON or flashing.	Check the error code with the 7-segment LED.	<ul style="list-style-type: none"> <li>According to the error code obtained by the error, identify the error and take corrective actions. (☞ Page 413 Error Code List)</li> </ul>
The 'CF CARD' LED does not turn ON.	For the troubleshooting about CompactFlash card, refer to the following section. (☞ Page 438 Troubleshooting related to CompactFlash cards)	
The 'BATTERY' LED is ON in orange.	Is battery connected? Is the battery voltage low?	<ul style="list-style-type: none"> <li>Check the battery connection.</li> <li>Replace the battery.</li> </ul>
RS-232 SD/RD (CH3) is not flashing. (When connected with a programmable controller with a serial cable.)	Are the cables properly connected? Are the cables faulty?	<ul style="list-style-type: none"> <li>Check the cable connection.</li> <li>Check if the cables meet the following criteria. (☞ Page 448 MITSUBISHI PROGRAMMABLE CONTROLLER CONNECTIONS) (☞ Page 535 CONNECTION TO OMRON PROGRAMMABLE CONTROLLER)</li> <li>Replace the cable.</li> </ul>
	Are the access target CPU settings correct?	<ul style="list-style-type: none"> <li>Check if the access target CPU settings meet the following criteria. (☞ Page 448 MITSUBISHI PROGRAMMABLE CONTROLLER CONNECTIONS) (☞ Page 535 CONNECTION TO OMRON PROGRAMMABLE CONTROLLER)</li> </ul>
	Are the programmable controller (MITSUBISHI) settings correct?	<ul style="list-style-type: none"> <li>Check if the programmable controller settings meet the following criteria. (☞ Page 448 MITSUBISHI PROGRAMMABLE CONTROLLER CONNECTIONS)</li> </ul>
	Are the programmable controller (OMRON) settings correct?	<ul style="list-style-type: none"> <li>Check if the programmable controller settings meet the following criteria. (☞ Page 535 CONNECTION TO OMRON PROGRAMMABLE CONTROLLER)</li> </ul>
	Are the programmable controller (SIEMENS) settings correct?	<ul style="list-style-type: none"> <li>Check if the programmable controller settings meet the following criteria. (☞ Page 566 CONNECTION TO SIEMENS PROGRAMMABLE CONTROLLER)</li> </ul>

Symptom	Check point	Corrective action
The SD/RD of Ethernet is not flashing. (When connected with a programmable controller with an Ethernet cable.)	Are the cables properly connected? Are the cables faulty?	<ul style="list-style-type: none"> <li>• Check the cable connection.</li> <li>• Check if the cables meet the following criteria. (☞ Page 448 MITSUBISHI PROGRAMMABLE CONTROLLER CONNECTIONS) (☞ Page 535 CONNECTION TO OMRON PROGRAMMABLE CONTROLLER)</li> <li>• Replace the cable.</li> </ul>
	Check if the network setting and cable connection is correct. In the Network setting, IP address setting (CH2) is set not to be used, but the cable is connected to CH2.	<ul style="list-style-type: none"> <li>• Match the Network setting and the cable condition.</li> </ul>
	Check if the access target CPU is correct.	<ul style="list-style-type: none"> <li>• Check if the access target CPU settings meet the following criteria. (☞ Page 448 MITSUBISHI PROGRAMMABLE CONTROLLER CONNECTIONS) (☞ Page 535 CONNECTION TO OMRON PROGRAMMABLE CONTROLLER)</li> </ul>
	Are the programmable controller and Ethernet module settings (MITSUBISHI) correct?	<ul style="list-style-type: none"> <li>• Check if the settings of the programmable controller and Ethernet module meet the following criteria. (☞ Page 448 MITSUBISHI PROGRAMMABLE CONTROLLER CONNECTIONS)</li> </ul>
	Are the programmable controller and Ethernet module (OMRON) settings correct?	<ul style="list-style-type: none"> <li>• Check if the programmable controller settings meet the following criteria. (☞ Page 535 CONNECTION TO OMRON PROGRAMMABLE CONTROLLER)</li> </ul>
	Are the programmable controller (SIEMENS) settings correct?	<ul style="list-style-type: none"> <li>• Check if the programmable controller settings meet the following criteria. (☞ Page 566 CONNECTION TO SIEMENS PROGRAMMABLE CONTROLLER)</li> </ul>
	Are the programmable controller (Rockwell) settings correct?	<ul style="list-style-type: none"> <li>• Check if the programmable controller settings meet the following criteria. (☞ Page 584 CONNECTION TO ROCKWELL PROGRAMMABLE CONTROLLER)</li> </ul>
7-segment LED display requires time to turn into the logging status from the startup status. (☞ Page 98 7-segment LED display description)	Are the "Retry" and "Timeout Time" settings of "Access target CPU setting" appropriate?	<ul style="list-style-type: none"> <li>• Review the "Retry" and "Timeout Time" settings of "Access target CPU setting". (Adjust the time till the timeout.)</li> </ul>
	Is the access target CPU accessed?	<ul style="list-style-type: none"> <li>• Refer to the following check points; "Cannot access the access target CPU. (Serial connection)" or "Cannot access the access target CPU. (Ethernet connection)." (☞ Page 436 Troubleshooting related to communication between the BOX Data Logger and access target CPU)</li> </ul>

# Troubleshooting related to Data logging, Event logging, and Report functions

Symptom	Check point	Corrective action
Cannot sample data in the specified data sampling interval.	Is the sampling delay occurrence (system information (S2)+1 bit14) ON?	<ul style="list-style-type: none"> <li>Decrease the number of settings.</li> <li>Organize the Data logging setting, Event logging setting, and Report setting per access target CPU. (☞ Page 400 PROCESSING TIME)</li> </ul>
	Is the processing overload count displayed on the "Diagnostics" screen (Data logging diagnostics/ Event logging diagnostics/Report diagnostics) '0'?	<ul style="list-style-type: none"> <li>Decrease the number of settings.</li> <li>Increase the data sampling interval.</li> <li>Use the Trigger logging function.</li> <li>Stop access from GX LogViewer.</li> </ul>
	Has an error occurred on the "Diagnostics" screen (data logging event logging diagnostics/report diagnostics)?	<ul style="list-style-type: none"> <li>According to the error code displayed on the "Diagnostics" screen, identify the error and take corrective actions. (☞ Page 413 Error Code List)</li> </ul>
	Has an error associated with the access target CPU displayed in the [CPU access diagnostics] tab on the "Diagnostics" screen?	<ul style="list-style-type: none"> <li>According to the error code displayed on the "Diagnostics" screen, identify the error and take corrective actions. (☞ Page 413 Error Code List)</li> </ul>
	Has the BOX Data Logger's time been changed by the time synchronization function?	<ul style="list-style-type: none"> <li>Change the timing of the time synchronization. (Do not synchronize time while the system is operating) (☞ Page 233 Considerations for synchronization with SNTP)</li> </ul>
Data separation occurs.	Is the number of device points within the access units?	<ul style="list-style-type: none"> <li>Set the number of device points sampled at one time to within the access units. (☞ Page 531 Access Units) (☞ Page 564 Access Units)</li> </ul>
	Is the report creation trigger set to synchronize with the current value data?	<ul style="list-style-type: none"> <li>Select "Synchronize creation trigger with current value data." in the creation trigger settings. (☞ Page 364 Creation trigger (Single condition)) (☞ Page 366 Creation trigger (Compound condition))</li> </ul>
	Is the data being changed after the report creation trigger occurs?	<ul style="list-style-type: none"> <li>Check the report creation time on the "Diagnostics" screen. Adjust the system so that the sampled devices, which are sampled as current values for the report, do not change during the report creation time.</li> </ul>
When performing the trigger logging, device values sampled in another sequence scan as the one where a trigger occurred is included in one data row.	Is the number of device points within the access units?	<ul style="list-style-type: none"> <li>Set the number of device points sampled at one time to within the access units. (☞ Page 531 Access Units) (☞ Page 564 Access Units)</li> </ul>
When performing the trigger logging, data cannot be output to the Data logging file. (The trigger was not detected)	When specifying data condition in the trigger condition setting, is the time that the trigger condition is established longer than the data sampling interval?	<ul style="list-style-type: none"> <li>Adjust the system so the time that the trigger condition is established is longer than the data sampling interval.</li> </ul>
	Has the BOX Data Logger's time been changed by the time synchronization function?	<ul style="list-style-type: none"> <li>Reduce the timing of the time synchronization. (Do not synchronize the time while the system is in operation.) (☞ Page 233 Considerations for synchronization with SNTP)</li> </ul>
	Is the trigger reoccurrence count in the [Data logging diagnostics] tab on the "Diagnostics" screen set to '0'? Is the creation trigger reoccurrence count in the [Report diagnostics] tab on the "Diagnostics" screen set to '0'?	<ul style="list-style-type: none"> <li>Adjust the system so that triggers do not occur continuously. (☞ Page 400 PROCESSING TIME)</li> </ul>
	Is the processing overload count displayed on the "Diagnostics" screen (Data logging diagnostics/ Event logging diagnostics/Report diagnostics) '0'?	<ul style="list-style-type: none"> <li>Decrease the number of settings.</li> <li>Adjust the system so that triggers do not occur continuously. (☞ Page 400 PROCESSING TIME)</li> <li>Correct the settings and lessen the processing load. (☞ Page 400 PROCESSING TIME)</li> </ul>
	Check the power supply status. (Has a momentary power failure occurred?)	<ul style="list-style-type: none"> <li>Review the power supply status.</li> </ul>

Symptom	Check point	Corrective action
When performing trigger logging, the data before the trigger is less than the number of lines specified before the trigger.	After powering ON or updating the settings, is the trigger occurring before sampling the number of lines of data before the trigger?	<ul style="list-style-type: none"> <li>Adjust the system so the trigger occurs after sampling the number of lines of data after the trigger.</li> </ul>
	Is the trigger continuously occurring?	<ul style="list-style-type: none"> <li>Adjust the system so that the trigger occurs after the number of lines after the trigger for the previous trigger and the number of lines before the trigger for the next trigger are both sampled.</li> </ul>
The event was not detected.	When specifying the data condition, is the time that the condition is established longer than the data sampling interval?	<ul style="list-style-type: none"> <li>Adjust the system so the time that the event condition is established is longer than the sampling interval.</li> </ul>
	Is the processing overload count displayed on the "Diagnostics" screen (Data logging diagnostics/ Event logging diagnostics/Report diagnostics) '0'?	<ul style="list-style-type: none"> <li>Correct the settings and lessen the processing load. (☞ Page 400 PROCESSING TIME)</li> </ul>
	Check the power supply status. (Has a momentary power failure occurred?)	<ul style="list-style-type: none"> <li>Review the power supply status.</li> </ul>
The Report file was not created. (The report creation trigger was not detected)	When specifying data condition in the Trigger condition setting, is the time that the creation trigger condition is established longer than the data sampling interval?	<ul style="list-style-type: none"> <li>Adjust the system so the time that the creation trigger condition is established is longer than the data sampling interval.</li> </ul>
	Has the BOX Data Logger's time been changed by the time synchronization function?	<ul style="list-style-type: none"> <li>Set the minimum synchronization timing required. (Do not perform this while the system is in operation.) (☞ Page 233 Considerations for synchronization with SNTP)</li> </ul>
	Is the processing overload count displayed on the "Diagnostics" screen (Data logging diagnostics/ Event logging diagnostics/Report diagnostics) '0'?	<ul style="list-style-type: none"> <li>Correct the settings and lessen the processing load. (☞ Page 400 PROCESSING TIME)</li> </ul>
	Is the creation trigger reoccurrence count in the [Report diagnostics] tab on the "Diagnostics" screen set to '0'?	<ul style="list-style-type: none"> <li>Adjust the system so that triggers do not occur continuously. (☞ Page 400 PROCESSING TIME)</li> </ul>
	Check the power supply status. (Has a momentary power failure occurred?)	<ul style="list-style-type: none"> <li>Review the power supply status.</li> </ul>
The specified number of records worth of data are not output to the report.	When the creation trigger occurred, was the specified number of records worth of data saved to the Data logging file?	<ul style="list-style-type: none"> <li>Adjust the system so that the creation trigger occurs after the specified number of records worth of data is saved to the Data logging file.</li> </ul>
	Is the creation trigger occurring immediately after powering ON?	
	Is the Data logging file, which includes the data at the time the creation trigger occurred, deleted before completing output to the report?	<ul style="list-style-type: none"> <li>Adjust the file switch timing for data logging.</li> </ul>
The CSV formatted data logging and event logging time/date information are not displayed correctly.	When the CSV file was opened with Excel®, was the cell format change?	<ul style="list-style-type: none"> <li>Set the Excel® cell format matched to the desired date/time format for display. (☞ Page 290 Date column)</li> </ul>
Millisecond information is not displayed in the cell where the time/date was output in the Report file.	Was the cell format configured when the layout was created?	<ul style="list-style-type: none"> <li>Set the Excel® cell format matched to the desired date/time format for display. (☞ Page 345 Layout setting list)</li> </ul>
The data are not correctly output to the Report file.	Are there merged cells in the cell range where the layout is set?	<ul style="list-style-type: none"> <li>Split the merged cells.</li> <li>Do not specify cells which are merged in the cell range.</li> </ul>
	Are there data lines in the output source file of the data logging layout?	<ul style="list-style-type: none"> <li>Adjust the settings and configurations so that a creation trigger occurs after data are output to the Data logging file which is the output source for the report.</li> </ul>
Cannot start the "Layout setting" screen.	Are the authorities of the user logged on to Windows® sufficient?	<ul style="list-style-type: none"> <li>For Windows® XP, logon as a user with a 'limited' or higher user account.</li> <li>For Windows Vista® or later, logon as a user with a 'standard' or higher user account.</li> </ul>
Cannot save the file to a personal computer from file browser.		
Layout setting cannot be ended. (The "Layout setting" screen is disappeared on Excel®)	Was the following operation performed? 1) Display the directory in the CompactFlash card in an Explorer format using the FTP server function. 2) Open the Report file directly from Explorer. 3) Close the opened Report file.	<ul style="list-style-type: none"> <li>Select [Window] ⇨ [Display] after selecting [Window] ⇨ [Hide] in the menu bar of Excel® on the layout file that the "Layout setting" screen has been displayed.</li> </ul>
A corrupted file is created.	Is the free space of the CompactFlash card sufficient?	<ul style="list-style-type: none"> <li>Always reserve 10% or more free space in a CompactFlash card. (☞ Page 643 Considerations for using CompactFlash card)</li> </ul>

# Troubleshooting related to Configuration tool and BOX Data Logger connection

Symptom	Check point	Corrective action
BOX Data Logger cannot be accessed from Configuration tool.	The SD/RD of Ethernet (CH1) is not flashing.	<ul style="list-style-type: none"> <li>• Check the cable connection.</li> <li>• Check if the configuration meets the following criteria. (☞ Page 93 Network settings for connection on a 1:1 basis)</li> <li>• Replace the cable.</li> <li>• Match the network setting and the cable condition.</li> </ul>
	Is an Ethernet cable connected to Ethernet (CH2) while the IP address setting (CH2) is set not to be used in the Network setting of the BOX Data Logger?	<ul style="list-style-type: none"> <li>• Connect the cable to Ethernet (CH1).</li> <li>• In the Network setting, set to use the IP address setting (CH2).</li> </ul>
	Is the Ethernet (CH2) used for direct connection?	<ul style="list-style-type: none"> <li>• Connect the cable to Ethernet (CH1).</li> <li>• Use the Ethernet(CH2) for hub connection.</li> </ul>
	Is there a disconnection along the connection route?	<ul style="list-style-type: none"> <li>• Connect the cables properly.</li> <li>• Replace the cables to new ones.</li> </ul>
	Is the IP address between the personal computer and BOX Data Logger duplicated?	<ul style="list-style-type: none"> <li>• Review the IP address of the personal computer and BOX Data Logger.</li> </ul>
	Is the IP address of the BOX Data Logger specified on the "Transfer Setup" screen correct? (When powering ON without a CompactFlash card inserted, the BOX Data Logger operates with the IP address in the initial status ((CH1:192.168.2.20, CH2:192.168.3.21).)	<ul style="list-style-type: none"> <li>• Review the IP address of the BOX Data Logger specified on the "Transfer Setup" screen.</li> <li>• Connect the personal computer directly and specify direct connection on the "Transfer Setup" screen. (☞ Page 47 System configuration during operation)</li> </ul>
	Are multiple IP addresses enabled at the same time in the personal computer side?	<ul style="list-style-type: none"> <li>• For a direct connection, make sure multiple IP addresses are not enabled at the same time in the personal computer.</li> <li>• Disable the wireless LAN function.</li> </ul>
	Are the BOX Data Logger and personal computer connected to each other via a hub?	<ul style="list-style-type: none"> <li>• For a direct connection, connect the BOX Data Logger and personal computer on a 1:1 basis. (☞ Page 47 System configuration during operation)</li> </ul>
	Does a firewall or proxy server exist along the connection route?	<ul style="list-style-type: none"> <li>• Ask your network administrator about the firewall and proxy server settings.</li> </ul>
	Is Windows firewall enabled on the personal computer?	<ul style="list-style-type: none"> <li>• Disable Windows firewall on the personal computer when using the Find BOX Data Logger function or direct connection.</li> </ul>
	Is antivirus software blocking Ethernet communications?	<ul style="list-style-type: none"> <li>• Change the antivirus software settings to allow Ethernet communications.</li> <li>• Lower the antivirus software's security settings level.</li> <li>• Stop the antivirus software.</li> </ul>
Are the authorities of the user logged on to Windows <sup>®</sup> sufficient?	<ul style="list-style-type: none"> <li>• For Windows<sup>®</sup> XP, logon as a user with a 'limited' or higher user account. For Windows Vista<sup>®</sup> or later, logon as a user with a 'standard' or higher user account.</li> </ul>	

## Troubleshooting related to FTP

Symptom	Check point	Corrective action
Cannot transfer the file.	Is the BOX Data Logger correctly connected to the network?	<ul style="list-style-type: none"> <li>Check the BOX Data Logger status, network connection status of the BOX Data Logger.</li> </ul>
426 error (Data connection error) occurs during the file transfer.	Was the FTP transfer executed specifying a large number of files at one time?	<ul style="list-style-type: none"> <li>Decrease the number of files to transfer at one time and execute FTP again.</li> </ul>
0x0B03 (FTP file transfer error) occurs during the file transfer.	Has the file already been deleted?	<ul style="list-style-type: none"> <li>Review the file switch timing and the number of saved files setting and lengthen the time until the saved file is deleted.</li> </ul>
The file downloaded from the BOX Data Logger via FTP is old.	Have you configured Internet Explorer's Temporary Internet files settings?	<ul style="list-style-type: none"> <li>Configure Internet Explorer's Temporary Internet files settings. (☞ Page 190 FTP server function)</li> </ul>
A file which does not contain data is transferred.	Have you transferred the saved file which only contains a header line?	<ul style="list-style-type: none"> <li>Adjust the settings and configurations so that the file switching is performed after the data output.</li> </ul>

## Troubleshooting related to e-mail

Symptom	Check point	Corrective action
Cannot send e-mail.	Is the BOX Data Logger correctly connected to the network?	<ul style="list-style-type: none"> <li>Check the module status, network connection status of the BOX Data Logger.</li> </ul>
0x0B15 occurs (no attachment error) when sending an attachment.	Has the attachment file already been deleted?	<ul style="list-style-type: none"> <li>Review the file switch timing and the number of saved files setting and lengthen the time until the attachment file is deleted.</li> </ul>
A file which does not contain data is transferred.	Have you transferred the saved file which only contains a header line?	<ul style="list-style-type: none"> <li>Adjust the settings and configurations so that the file switching is performed after the data output.</li> </ul>

## Troubleshooting related to communication between the BOX Data Logger and access target CPU

Symptom	Check point	Corrective action
Cannot access the Ethernet module.	Is a remote password set for the GX Developer communication port (UDP/IP) of the Ethernet module on the target station?	<ul style="list-style-type: none"> <li>Remove the remote password set for the GX Developer communication port (UDP/IP) of the Ethernet module on the target station.</li> </ul>
Cannot access the FXCPU.	Is a keyword set to FXCPU?	<ul style="list-style-type: none"> <li>Reset the keyword set in the FXCPU.</li> </ul>
Cannot access the access target CPU. (Serial connection)	Is the power supply of the access target CPU ON?	<ul style="list-style-type: none"> <li>Check the power of the access target CPU.</li> </ul>
	Are the cables properly connected? Are the cables faulty?	<ul style="list-style-type: none"> <li>Check the cable connection.</li> <li>Check if the cables meet the following criteria. (☞ Page 448 MITSUBISHI PROGRAMMABLE CONTROLLER CONNECTIONS) (☞ Page 535 CONNECTION TO OMRON PROGRAMMABLE CONTROLLER)</li> <li>Replace the cable.</li> </ul>
	Are the access target CPU settings correct?	<ul style="list-style-type: none"> <li>Check if the access target CPU settings meet the following criteria. (☞ Page 448 MITSUBISHI PROGRAMMABLE CONTROLLER CONNECTIONS) (☞ Page 535 CONNECTION TO OMRON PROGRAMMABLE CONTROLLER)</li> </ul>
	Are the programmable controller (MITSUBISHI) settings correct?	<ul style="list-style-type: none"> <li>Check if the programmable controller settings meet the following criteria. (☞ Page 448 MITSUBISHI PROGRAMMABLE CONTROLLER CONNECTIONS)</li> </ul>
	Are the programmable controller (OMRON) settings correct?	<ul style="list-style-type: none"> <li>Check if the programmable controller settings meet the following criteria. (☞ Page 535 CONNECTION TO OMRON PROGRAMMABLE CONTROLLER)</li> </ul>
	Are the programmable controller (SIEMENS) settings correct?	<ul style="list-style-type: none"> <li>Check if the programmable controller settings meet the following criteria. (☞ Page 566 CONNECTION TO SIEMENS PROGRAMMABLE CONTROLLER)</li> </ul>

Symptom	Check point	Corrective action
Cannot access the access target CPU. (Ethernet connection)	Is the power supply of the access target CPU ON?	<ul style="list-style-type: none"> <li>• Check the power of the access target CPU.</li> </ul>
	Are the equipment (such as hub) operating normally on the communication route?	<ul style="list-style-type: none"> <li>• Check the operating status of the equipment (such as router) on the communication route.</li> <li>• Power OFF → ON BOX Data Logger after executing the PING test from the access target CPU (built-in Ethernet port QCPU or Ethernet module) to BOX Data Logger.</li> </ul>
	Is the network setting of the BOX Data Logger correct? Is the cable connected to a right port? <ul style="list-style-type: none"> <li>• In the Network setting, IP address setting (CH2) is set to be used, but the cable is not connected to CH2.</li> <li>• IP address setting (CH2) is set not to be used, but the cable is connected to CH2.</li> </ul>	<ul style="list-style-type: none"> <li>• Match the Network setting and the cable condition.</li> </ul>
	Are the programmable controller (MITSUBISHI) settings correct?	<ul style="list-style-type: none"> <li>• Check if the programmable controller settings meet the following criteria. (☞ Page 448 MITSUBISHI PROGRAMMABLE CONTROLLER CONNECTIONS)</li> </ul>
	Are the programmable controller (OMRON) settings correct?	<ul style="list-style-type: none"> <li>• Check if the programmable controller settings meet the following criteria. (☞ Page 535 CONNECTION TO OMRON PROGRAMMABLE CONTROLLER)</li> </ul>
	Are the programmable controller (SIEMENS) settings correct?	<ul style="list-style-type: none"> <li>• Check if the programmable controller settings meet the following criteria. (☞ Page 566 CONNECTION TO SIEMENS PROGRAMMABLE CONTROLLER)</li> </ul>
	Are the programmable controller (Rockwell) settings correct?	<ul style="list-style-type: none"> <li>• Check if the programmable controller settings meet the following criteria. (☞ Page 584 CONNECTION TO ROCKWELL PROGRAMMABLE CONTROLLER)</li> </ul>
Does the equipment (such as router) operate properly when the equipment (such as router) except Ethernet (twisted pair) cables and hubs exist on the access route?	<ul style="list-style-type: none"> <li>• Check the equipment (such as router) status and the route on the communication route.</li> <li>• Review the communication route to the access target CPU with Ethernet (twisted pair) cables and hubs.</li> </ul>	

## Troubleshooting related to time synchronization function

Symptom	Check point	Corrective action
Time is not synchronized with the SNTP server computer.	Is the "SNTP server address" setting correct?	<ul style="list-style-type: none"> <li>• Review the setting of "SNTP server address".</li> </ul>

# Troubleshooting related to CompactFlash cards

Symptom	Check point	Corrective action
Cannot format the CompactFlash card.	Is the CompactFlash card being accessed?	<ul style="list-style-type: none"> <li>• Wait until the CompactFlash card access completes.</li> </ul>
When CompactFlash card is accessed by a personal computer, the following may occur. <ul style="list-style-type: none"> <li>• File size is displayed as 0 bytes.</li> <li>• Space is added to the end of files.</li> <li>• File error, file entry error, file size error messages are displayed, and files cannot be opened.</li> </ul>	Was file access stopped before ejecting or replacing the CompactFlash card?	<ul style="list-style-type: none"> <li>• Stop file access before ejecting or replacing the CompactFlash card. (☞ Page 650 Stopping file access)</li> <li>■ To repair a CompactFlash card with errors, execute either following option.</li> <li>• Reinsert the CompactFlash card with errors in the BOX Data Logger and after stopping file access, eject the CompactFlash card. (☞ Page 646 Operation when replacing CompactFlash card)</li> <li>• Repair the CompactFlash card with the chkdsk command on the Microsoft® Windows® command prompt.</li> </ul>
When power disconnection occurs, the files on the CompactFlash card disappear.	Is there a problem with the type of CompactFlash card?	<ul style="list-style-type: none"> <li>• Replace with one of the CompactFlash cards shown in the following section. (☞ Page 54 CompactFlash card (sold separately, required))</li> </ul>
	Was the powered OFF when writing data to the CompactFlash card?	<ul style="list-style-type: none"> <li>• Stop file access before powering OFF. (☞ Page 650 Stopping file access)</li> <li>• Format the CompactFlash card again. (☞ Page 388 CompactFlash card diagnostics)</li> </ul>
Cannot recognize the CompactFlash card. (The 'CF CARD' LED does not turn ON)	Is the CompactFlash card inserted correctly?	<ul style="list-style-type: none"> <li>• Eject the CompactFlash card once and insert it again. (☞ Page 646 Operation when replacing CompactFlash card)</li> </ul>
	Has the CompactFlash card been formatted by an equipment other than BOX Data Logger, such as a personal computer?	<ul style="list-style-type: none"> <li>• Format the CompactFlash card with the BOX Data Logger. (☞ Page 388 CompactFlash card diagnostics)</li> </ul>
	Was the powered OFF when formatting the CompactFlash card?	
	Was the powered OFF when writing data to the CompactFlash card?	<ul style="list-style-type: none"> <li>• Stop file access before turning OFF the power. (☞ Page 650 Stopping file access)</li> <li>• Format the CompactFlash card. (☞ Page 388 CompactFlash card diagnostics)</li> </ul>
The access speed to the CompactFlash card becomes slower.	Are files being saved up the capacity limit of the CompactFlash card?	<ul style="list-style-type: none"> <li>• Use the CompactFlash card maintaining 10 % or more free space on the card. (☞ Page 643 Considerations for using CompactFlash card)</li> </ul>
The specified size of free capacity cannot be ensured on the CompactFlash card.	Are there any files on the CompactFlash card other than saved files created by the Data logging function, Event logging function or Report function operated on the BOX Data Logger?	<ul style="list-style-type: none"> <li>• Delete unnecessary files from the CompactFlash card.</li> </ul>
	Is the total size of files that are not the objects of deletion larger than the specified size of free capacity?	<ul style="list-style-type: none"> <li>• Review the settings so that the total size of files that are not the objects of deletion is smaller than the specified size of free capacity. (☞ Page 250 CompactFlash card setting)</li> </ul>
Saved files are not created as many as specified.	Is the CompactFlash card setting configured?	<ul style="list-style-type: none"> <li>• Review the CompactFlash card setting.</li> <li>• Delete unnecessary files from the CompactFlash card.</li> </ul>
	Is the size of files reaching the capacity limit of the CompactFlash card?	<ul style="list-style-type: none"> <li>• Delete unnecessary files from the CompactFlash card.</li> </ul>
The total capacity, free capacity, and usage rate of the CompactFlash card are not displayed.	Is the access state 'Access stop'?	<ul style="list-style-type: none"> <li>• Perform 'Access restart'. (☞ Page 388 CompactFlash card diagnostics)</li> </ul>
	Is the access state 'Formatting'?	<ul style="list-style-type: none"> <li>• Wait until the access state becomes 'Accessible'.</li> </ul>
	Is the access state 'Preparing access'?	
	Is the access state 'Card error detected'?	<ul style="list-style-type: none"> <li>• Format the CompactFlash card with the BOX Data Logger. (☞ Page 388 CompactFlash card diagnostics)</li> <li>• Replace the CompactFlash card.</li> </ul>



Symptom	Check point	Corrective action
Logging is not started when the CompactFlash card is inserted.	Have the settings already been written to the CompactFlash card?	<ul style="list-style-type: none"> <li>Write the settings to the BOX Data Logger. (☞ Page 379 Writing Data)</li> <li>Export the settings to the CompactFlash card to be inserted. (☞ Page 226 Exporting operating file)</li> </ul>
	Have the settings already been updated?	<ul style="list-style-type: none"> <li>Update the settings. (☞ Page 381 BOX Data Logger diagnostics)</li> </ul>
	Have the settings with the Auto logging function set to be enabled already been written to the CompactFlash card?	<ul style="list-style-type: none"> <li>Set the Auto logging function. (☞ Page 248 Logging operation setting)</li> </ul>
When replacing a CompactFlash, the logging is stopped.	Is the Logging continuance function set enabled in the Logging operation setting?	<ul style="list-style-type: none"> <li>Review the Logging operation setting.</li> </ul>
	Is a CompactFlash card being replaced while the BOX Data Logger is in the stop status?	<ul style="list-style-type: none"> <li>Replace the CompactFlash card while the BOX Data Logger is in operation.</li> </ul>
	Check the CompactFlash card after the replacement.	<ul style="list-style-type: none"> <li>Use the empty CompactFlash card after the replacement.</li> <li>Set the new CompactFlash card in the same way as the old CompactFlash card.</li> </ul>
	Is it taking too long to mount the new CompactFlash card at replacement?	<ul style="list-style-type: none"> <li>Replace the CompactFlash card within 5 minutes.</li> </ul>

# Troubleshooting related to Configuration tool

Symptom	Check point	Corrective action
When opening or saving a file, a message such as "Please insert a disk" is displayed.	Is a removable drive or network drive specified at the last time the file was opened or saved?	<ul style="list-style-type: none"> <li>• Correct a drive on the personal computer.</li> </ul>
When configuring a layout setting, cannot close other Excel files.	Are other Excel files opened in the same Excel as the layout settings?	<ul style="list-style-type: none"> <li>• When opening other Excel files, start Excel from the Microsoft Windows start menu.</li> </ul>
When configuring the layout settings and selecting the leading cell, cell range, or cell selection, a small window titled "RefEdit" is displayed.	Are other Excel files opened in the same Excel as the layout settings?	<ul style="list-style-type: none"> <li>• Select the cell(s) and click the [OK] button.</li> <li>• When opening other Excel files, start Excel from the Microsoft Windows start menu.</li> </ul>
Cannot start the Configuration tool online. (Cannot start from a web browser)	Are the authorities of the user logged on to Windows sufficient?	<ul style="list-style-type: none"> <li>• For Windows XP, logon as a user with a 'limited' or higher user account.</li> <li>• For Windows Vista or later, logon as a user with a 'standard' or higher user account.</li> </ul>
	Is the parental control (family safety) enabled for the user logged on to Windows?	<ul style="list-style-type: none"> <li>• Disable the parental control (family safety) for the user logged on to Windows.</li> </ul>
	Was the security setting of Internet Explorer set?	<ul style="list-style-type: none"> <li>• Set the "Security level for this zone" of Internet Explorer to 'Medium' or lower. (<a href="#">Page 204</a> Setting a local area network (LAN))</li> </ul>
	Is the hard disk out of free space?	<ul style="list-style-type: none"> <li>• Check the free space of the hard disk. (<a href="#">Page 56</a> Operating environment for configuration personal computer)</li> </ul>
	Is the memory or the system resources on the personal computer sufficient? Has .NET Framework 2.0 or .NET Framework 3.5 been installed (enabled)? Is the SmartScreen disabled?	<ul style="list-style-type: none"> <li>• Increase the necessary memory on the personal computer. (<a href="#">Page 56</a> Operating environment for configuration personal computer)</li> <li>• Close other applications and restart Configuration tool.</li> <li>• Install .NET Framework 2.0 or .NET Framework 3.5. For Windows 8 or later, enable ".NET Framework 3.5 (includes .NET 2.0 and 3.0)" in the "Turns Windows features on or off" screen of the Control Panel.</li> <li>• Disable SmartScreen.</li> </ul>
Cannot start the Configuration tool online. (Source code is displayed.)	Does a proxy server exist along the connection route?	<ul style="list-style-type: none"> <li>• Disable the proxy setting in a web browser. (<a href="#">Page 203</a> Setting proxy setup, <a href="#">Page 204</a> Setting a local area network (LAN))</li> <li>• Delete temporary internet files (<a href="#">Page 203</a> Deleting temporary internet files? <a href="#">Page 204</a> Deleting temporary internet files), or reload the screen in which the source code is displayed by pressing the <b>Ctrl</b> + <b>F5</b> keys and retry online startup.</li> </ul>
	Are temporary internet files of a web browser deleted?	<ul style="list-style-type: none"> <li>• Delete temporary internet files (<a href="#">Page 203</a> Deleting temporary internet files? <a href="#">Page 204</a> Deleting temporary internet files), or reload the screen in which the source code is displayed by pressing the <b>Ctrl</b> + <b>F5</b> keys and retry online startup.</li> </ul>
Cannot communicate with the BOX Data Logger. (Cannot operate online)	Are the authorities of the user logged on to Windows sufficient?	<ul style="list-style-type: none"> <li>• For Windows XP, logon as a user with a 'limited' or higher user account.</li> <li>• For Windows Vista or later, logon as a user with a 'standard' or higher user account.</li> </ul>
	Is Windows firewall enabled on the personal computer?	<ul style="list-style-type: none"> <li>• Disable Windows firewall on the personal computer when using the Find BOX Data Logger function or direct connection.</li> </ul>
	Is antivirus software blocking Ethernet communications?	<ul style="list-style-type: none"> <li>• Change the antivirus software settings to allow Ethernet communications.</li> <li>• Lower the antivirus software's security setting level.</li> <li>• Stop the antivirus software.</li> </ul>
	Is "Direct connection" selected on the Transfer Setup screen?	<ul style="list-style-type: none"> <li>• For a direct connection, connect the BOX Data Logger to the personal computer on a 1:1 basis. (<a href="#">Page 47</a> System configuration during operation)</li> </ul>
	Are multiple IP addresses enabled at the same time in the personal computer side?	<ul style="list-style-type: none"> <li>• For a direct connection, make sure multiple IP addresses are not enabled at the same time in the personal computer.</li> <li>• Disable the wireless LAN function.</li> </ul>

Symptom	Check point	Corrective action
When editing the layout settings, the layout file size becomes larger regardless of not changing the layout.	Did you edit the layout settings with a version of Excel different from the one that first set the layout?	<ul style="list-style-type: none"> <li>Edit the layout settings with the same version of Excel that was used to first set the layout. (☞ Page 347 Layout setting)</li> </ul>
Cannot start the "Layout setting" screen.	Is the Excel VBA function installed?	<ul style="list-style-type: none"> <li>Reinstall Excel. (At this time, do not set "Do not install" or "Not Available, Hidden, Locked" for the VBA function installation options.)</li> </ul>
	Is Excel 2010 (64-bit version), Excel 2013 (64-bit version) or Excel 2016 (64-bit version) installed?	<ul style="list-style-type: none"> <li>Install Excel 2003, Excel 2007, Excel 2010 (32-bit version), Excel 2013 (32-bit version), or Excel 2016 (32-bit version).</li> </ul>
The characters on the Layout setting screen are truncated.	Are the symbols (such as ○, star) used for the "Sheet name", "Data logging mane", "Data name", "Access target CPU", or "Layout name"?	Do not use the symbols (such as ○, star) for the "Sheet name", "Data logging mane", "Data name", "Access target CPU", or "Layout name".
It takes time to communicate with the BOX Data Logger.	Are the DNS server settings of the personal computer correct? (Check the Internet protocol (TCP/IP) properties of the personal computer.)	<ul style="list-style-type: none"> <li>Set the correct DNS server.</li> <li>If no DNS server exists on the network, do not configure the DNS server.</li> </ul>
It takes time to start the "Layout setting" screen.	Are the DNS server settings of the personal computer correct? (Check the Internet protocol (TCP/IP) properties of the personal computer.)	<ul style="list-style-type: none"> <li>Set the correct DNS server.</li> <li>If no DNS server exists on the network, do not configure the DNS server (set to blank).</li> </ul>
	Is the external data import function of Excel is used in Excel file of the layout setting?	<ul style="list-style-type: none"> <li>Check the reference of the external data import function of Excel.</li> <li>Delete the settings for the external data import function of Excel.</li> </ul>
"Unknown Publisher" is displayed for the publisher when using the online startup function of Configuration tool.	Have the root certificates been updated? (Is the personal computer connected to the Internet?)	<ul style="list-style-type: none"> <li>Install the update program for root certificates provided by Microsoft.</li> </ul>
The message indicating the certificate date has expired appears when the Layout setting screen starts up.		
Configuration tool does not start.	Is the memory or the system resources on the personal computer sufficient? Has .NET Framework 2.0 or .NET Framework 3.5 been installed (enabled)?	<ul style="list-style-type: none"> <li>Increase the necessary memory on the personal computer. (☞ Page 56 Operating environment for configuration personal computer)</li> <li>Close other programs and restart Configuration tool.</li> <li>Install .NET Framework 2.0 or .NET Framework 3.5. For Windows 8/Windows 8.1, enable ".NET Framework 3.5 (includes .NET 2.0 and 3.0)" in the "Turns Windows features on or off" screen of the Control Panel.</li> </ul>
The screen of Configuration tool is not displayed correctly.		
Cannot operate Configuration tool.		
Forced to terminate Configuration tool.		
Characters on a screen are not displayed properly.	Is "Font size" set to "Large Fonts" or "Extra Large Fonts" on the "Display Property" screen of Windows operating system?	<ul style="list-style-type: none"> <li>Set "Font size" to "Normal" on the "Display Property" screen of Windows operating system.</li> </ul>
	Is the DPI setting set other than the normal size on the "Display Property" screen of Windows operating system?	<ul style="list-style-type: none"> <li>Set the normal size for the DPI setting on the "Display Property" screen of Windows operating system.</li> </ul>
An error message is displayed when opening the logging file of GX LogViewer.	Has a logging file containing only a header line opened?	<ul style="list-style-type: none"> <li>Output the data, then open the storing file.</li> </ul>
	Is a logging file broken?	<ul style="list-style-type: none"> <li>Check if the file is correct.</li> </ul>
A dashed-dotted line is displayed on GX LogViewer.	Does the data contain a data miss?	<ul style="list-style-type: none"> <li>Review the settings to prevent any data miss. (☞ Page 136 Missing Data)</li> </ul>
A dashed-dotted line is displayed in the Realtime trend graph of GX LogViewer.	Has the logging displayed in the Realtime trend graph stopped because it was overt the number of saved files?	<ul style="list-style-type: none"> <li>Delete unnecessary saved files, and restart the logging.</li> </ul>
Read (verification) is failed.	Is it communicating with BOX Data Logger?	<ul style="list-style-type: none"> <li>Refer to the troubleshooting of "Cannot communicate with the BOX Data Logger. (Cannot operate online)" in this table.</li> </ul>
	Is a CompactFlash card to which data have never been written (exported) inserted?	<ul style="list-style-type: none"> <li>Write (export) data to the CompactFlash card.</li> </ul>
	Has a cancel (communication failure occurrence) occurred during writing?	<ul style="list-style-type: none"> <li>Perform the write process again.</li> </ul>
	Are there any settings which are not supported by Configuration tool in the BOX Data Logger?	<ul style="list-style-type: none"> <li>Start the Configuration tool directly from the BOX Data Logger.</li> <li>Upgrade to the latest version of the Configuration tool.</li> </ul>

Symptom	Check point	Corrective action
"Specified setting does not exist. Reading setting is aborted." message is displayed when writing (verifying) settings.	Are there any settings which are not supported by Configuration tool in BOX Data Logger?	<ul style="list-style-type: none"> <li>Start the Configuration tool directly from the BOX Data Logger.</li> <li>Upgrade to the latest version of the Configuration tool.</li> </ul>
	Is a CompactFlash card to which data have never been written (exported) inserted?	<ul style="list-style-type: none"> <li>Write (export) data to the CompactFlash card.</li> </ul>
Invalid items are displayed as a mismatched item on the "Verify result" screen when verifying the settings.	<p>Are the settings changed to disable the items after changing the items displayed as a mismatched item from the default setting? (Example) The "Enable the auto logging function" is unselected after selecting the "Stop effected by a timer" in the "Conditions for stopping the operation of BOX Data Logger".</p>	<ul style="list-style-type: none"> <li>Enable the setting of the item displayed as a mismatched item, and disable the item after changing to the default setting, and then write the setting to the module and perform verification. (Example) Select the "Enable the auto logging function" in the "Conditions for stopping the operation of BOX Data Logger", and unselect the "Enable the auto logging function" after unselecting the "Stop effected by a timer".</li> </ul>
The project file cannot be imported.	Is specified project file incorrect?	<ul style="list-style-type: none"> <li>Specify the correct project file.</li> </ul>
	Is inconsistency occurred by import?	<ul style="list-style-type: none"> <li>Review the settings of import source.</li> <li>Review the settings of import destination.</li> <li>Review the settings to be imported.</li> </ul>
	Is the upper limit of the number of settings exceeded?	<ul style="list-style-type: none"> <li>Correct the number of settings.</li> </ul>
	Is the port type of the import source and the import destination same?	<ul style="list-style-type: none"> <li>Match the port type of the import source with that of the import destination, and import the project file.</li> </ul>
A timeout occurs when the settings are updated, or an update of the settings takes long time.	Are there any errors on the communication route between the BOX Data Logger and the access target CPU?	<ul style="list-style-type: none"> <li>Check the communication route between the BOX Data Logger and the access target CPU.</li> </ul>
	Are there any errors in the "Access target CPU setting"?	<ul style="list-style-type: none"> <li>Review the "Access target CPU setting".</li> </ul>
	Are there any unnecessary settings in the "Access target CPU setting"?	<ul style="list-style-type: none"> <li>Delete any unnecessary access target CPU settings. (Depending on the number of items set in the "Access target CPU setting", it may take several minutes to complete the update of the settings.)</li> </ul>
	Are the "Retry" and "Timeout Time" settings of "Access target CPU setting" appropriate?	<ul style="list-style-type: none"> <li>Review the "Retry" and "Timeout Time" settings of "Access target CPU setting". (Adjust the time till the timeout.)</li> </ul>
	Is the access target CPU accessed?	<ul style="list-style-type: none"> <li>Refer to the following check point; "Cannot access the access target CPU. (Ethernet)". (☞ Page 436 Troubleshooting related to communication between the BOX Data Logger and access target CPU)</li> </ul>
Failed to import the tag.	Is the import source of CSV file corrupted?	<ul style="list-style-type: none"> <li>Check if the CSV file is opened in Excel®.</li> </ul>
A tag is not displayed on the "Tag List" screen.	<p>Is the format of the import source CSV file according to the specification of the Configuration tool? Does the total of the tag and the alias exceed 20480?</p>	<ul style="list-style-type: none"> <li>Change the tag setting etc. with RSLogix5000.</li> <li>Decrease the number of the tag setting.</li> <li>Export only tags necessary for BOX Data Logger with RSLogix5000.</li> </ul>

# Troubleshooting related to the Recipe function

Symptom	Check point	Corrective action
Failed to read, write the Recipe file.	Does specified record number exist in the Recipe file?	<ul style="list-style-type: none"> <li>Check the setting of the Recipe file.</li> <li>Correct the value of the record number to be specified.</li> </ul>
	Is the record number which is larger than the number of the records specified?	<ul style="list-style-type: none"> <li>Change the record number of the Recipe file.</li> </ul>
	Is the order of the record number in the Recipe file in series (1, 2, ... 255, 256)?	<ul style="list-style-type: none"> <li>Correct the record number of the Recipe file in series.</li> </ul>
	Is the fixed string area as the format?	<ul style="list-style-type: none"> <li>Set the fixed string area as the recipe format. (☞ Page 79 Recipe file format)</li> </ul>
	Is the upper limit of the number of blocks, the number of records, the number of data exceeded?	<ul style="list-style-type: none"> <li>Set each of the number of blocks, the number of records, the number of data in one Recipe file not to exceed 256.</li> </ul>
	Does the blank row, the blank column exist between the blocks, the records?	<ul style="list-style-type: none"> <li>Delete the blank row, the blank column between the blocks, the records.</li> </ul>
	Is the data written in the record attribute "P"?	<ul style="list-style-type: none"> <li>Review the attribute of the target record.</li> <li>Change the specified record number.</li> </ul>
	Does the blank exist in the device value of the record attribute other than "N"?	<ul style="list-style-type: none"> <li>Set the device value.</li> <li>Add "N" to the record attribute.</li> </ul>
	Is the data read when the device value of the record attribute "N" is blank?	<ul style="list-style-type: none"> <li>After writing data, read the data.</li> </ul>
	Is the device value within the range that can be represented with specified data type?	<ul style="list-style-type: none"> <li>Review the setting value of the device value.</li> </ul>
	Is the data configurable in the Recipe function?	<ul style="list-style-type: none"> <li>Check that the device, the data type, and the number of strings are configurable value in the Recipe file.</li> </ul>
	Does specified Recipe file exist in the RECIPE folder?	<ul style="list-style-type: none"> <li>Check the files in the recipe folder.</li> </ul>
	Is other Recipe Execution Operation function executing?	<ul style="list-style-type: none"> <li>Execute after other dedicated instruction completed.</li> </ul>
	A file name is not displayed in the file list on the "Recipe Execution Operation" screen.	Is the access state of the CompactFlash card "Access stop"?
Is the operating state of the BOX Data Logger "Stop"?		<ul style="list-style-type: none"> <li>Execute "Restart" of "Operation" and retry. (☞ Page 381 BOX Data Logger diagnostics)</li> <li>Execute "Update settings" of "Operation" and retry. (☞ Page 381 BOX Data Logger diagnostics)</li> </ul>
Does a Recipe file exist in the RECIPE folder of the CompactFlash card?		<ul style="list-style-type: none"> <li>Store a Recipe file in the RECIPE folder of the CompactFlash card.</li> </ul>
Is a unsupported character used for a Recipe file name?	Is a unsupported character used for a Recipe file name?	<ul style="list-style-type: none"> <li>Use supported characters for a Recipe file name. (☞ Page 594 Characters usable in file names, folder (directory) names)</li> </ul>
	Does more than 257 CSV files exist in the RECIPE folder of the CompactFlash card?	<ul style="list-style-type: none"> <li>Make the number of CSV files in the RECIPE folder of the CompactFlash card 256 files or less.</li> </ul>
The Recipe file saved in a personal computer from BOX Data Logger is old. (The data before the writing is obtained.)	Have you configured Internet Explorer's "Temporary Internet files" settings?	<ul style="list-style-type: none"> <li>Configure Internet Explorer's temporary Internet file settings. (☞ Page 190 FTP server function)</li> </ul>
Recipe file data stored in a CompactFlash card which is inserted to a personal computer are changed.	Was the write process performed to the Recipe files by the Recipe function?	<ul style="list-style-type: none"> <li>Check the recipe execution history. (☞ Page 179 Recipe execution history)</li> </ul>
	Was the file access stop performed before removing the CompactFlash card from the BOX Data Logger?	<ul style="list-style-type: none"> <li>Store the Recipe files after performing the file access stop. (☞ Page 650 Stopping file access)</li> <li>Save a Recipe file from a file browser or FTP client. (☞ Page 189 File browser function)</li> </ul>

## Troubleshooting related to system information

If the system information is not set, a cable is disconnected, or devices are allocated incorrectly, the system information may not be detected.

If the system information is not detected, check the settings and cables, etc.

Symptom	Check point	Corrective action
The data logging error (system information (S2)+1 bit2) turns ON.	The 'ERR.' LED is flashing.	<ul style="list-style-type: none"> <li>Error codes are saved according to the detected error listed on the left. Use those error codes to check the error contents and take corrective actions.</li> </ul>
The event logging error (system information (S2)+1 bit3) turns ON.		
The report creation error (system information (S2)+1 bit4) turns ON.		
The access target CPU error (system information (S2)+1 bit6) turns ON.		
The e-mail transmission error (system information (S2)+1 bit7) turns ON.		
The FTP transfer error (system information (S2)+1 bit8) turns ON.		
The other error (system information (S2)+1 bit9) turns ON.		
BOX Data Logger READY (System information (S2) + 0 bit 0) does not turn ON, or it takes time to turn ON.	Is the BOX Data Logger in preparation?	<ul style="list-style-type: none"> <li>Depending on the number of items set in access target CPU settings, it may take several minutes until system information (S2) + 0 bit 0 turns ON.</li> </ul>
	Are there many files on the inserted CompactFlash card?	<ul style="list-style-type: none"> <li>If many files are stored on the CompactFlash card, it takes time to turn system information (S2) + 0 bit 0 ON.</li> <li>Delete unnecessary files from the CompactFlash card.</li> </ul>
The CompactFlash card status (system information (S2) + 0 bit 1) does not turn ON, or it takes time to turn ON.	Is the file in the accessed status (system information has (S2)+0 bit2 ON)?	<ul style="list-style-type: none"> <li>Execute the access restart in the [CompactFlash card diagnostics] tab on the "Diagnostics" screen, and execute the operation again.</li> </ul>
	Are there many files on the inserted CompactFlash card?	<ul style="list-style-type: none"> <li>If many files are stored on CompactFlash card, it takes time to turn system information (S2)+0 bit1 ON.</li> <li>Delete unnecessary files from the CompactFlash card.</li> </ul>
The sampling delay occurrence (system information (S2)+1 bit14) is ON.	Is the data sampled in the specified data sampling interval?	<ul style="list-style-type: none"> <li>Decrease the number of settings where sampling data is specified.</li> </ul>
The processing overload occurrence (system information (S2)+1 bit11) is ON.	Is the data logged in the specified data sampling interval?	<ul style="list-style-type: none"> <li>Decrease the amount of target data for data logging.</li> <li>Increase the data sampling interval.</li> <li>Use the Trigger logging function.</li> <li>Stop access from GX LogViewer.</li> </ul>
The trigger reoccurrence (system information (S2)+1 bit12) is ON.	Is data being output to the Data logging file during trigger logging? (Triggers are not detected.)	<ul style="list-style-type: none"> <li>Adjust the system so that triggers do not occur continuously. (☞ Page 400 PROCESSING TIME)</li> </ul>
The processing overload occurrence (system information (S2)+1 bit11) is ON.		<ul style="list-style-type: none"> <li>Adjust the system so that triggers do not occur continuously. (☞ Page 400 PROCESSING TIME)</li> <li>Correct the settings and lessen the processing load. (☞ Page 400 PROCESSING TIME)</li> </ul>
The sampling delay occurrence (system information (S2)+1 bit14) is ON.		<ul style="list-style-type: none"> <li>Decrease the number of settings where sampling data is specified. (☞ Page 400 PROCESSING TIME)</li> </ul>
The processing overload occurrence (system information (S2)+1 bit11) is ON.	The event is not detected.	<ul style="list-style-type: none"> <li>Correct the settings and lessen the processing load. (☞ Page 400 PROCESSING TIME)</li> </ul>
The sampling delay occurrence (system information (S2)+1 bit14) is ON.		<ul style="list-style-type: none"> <li>Decrease the number of settings where sampling data is specified. (☞ Page 400 PROCESSING TIME)</li> </ul>

Symptom	Check point	Corrective action
The processing overload occurrence (system information (S2)+1 bit11) is ON.	The Report file is not created. (The report creation trigger is not detected)	<ul style="list-style-type: none"> <li>Correct the settings and lessen the processing load. (☞ Page 400 PROCESSING TIME)</li> </ul>
The creation trigger reoccurrence (system information (S2)+1 bit13) is ON.		<ul style="list-style-type: none"> <li>Adjust the system so that creation triggers do not occur continuously. (☞ Page 400 PROCESSING TIME)</li> </ul>
The sampling delay occurrence (system information (S2)+1 bit14) is ON.		<ul style="list-style-type: none"> <li>Decrease the number of settings where sampling data is specified. (☞ Page 400 PROCESSING TIME)</li> </ul>
The network connection status (system information (S2)+0 bit4) is OFF.	Is the BOX Data Logger accessed? Is the BOX Data Logger connected to the network?	<ul style="list-style-type: none"> <li>Connect the BOX Data Logger to the network.</li> </ul>





# PART 4

# CONNECTION EQUIPMENT

This part explains the equipment that can be connected to BOX Data Logger.

18 MITSUBISHI PROGRAMMABLE CONTROLLER CONNECTIONS

---

19 CONNECTION TO OMRON PROGRAMMABLE CONTROLLER

---

20 CONNECTION TO SIEMENS PROGRAMMABLE CONTROLLER

---

21 CONNECTION TO ROCKWELL PROGRAMMABLE CONTROLLER

---

# 18 MITSUBISHI PROGRAMMABLE CONTROLLER CONNECTIONS

---

## 18.1 Settable Device Range

---

This section explains the device ranges that can be set for the Mitsubishi programmable controllers.

Note that the device ranges in the following tables are the maximum values that can be set in Configuration tool.

The device specifications of the connected equipment may differ depending on the models, even though belonging to the same series.

Please make the setting according to the specifications of the connected equipment actually used.

☞ Page 449 MELSEC-Q

☞ Page 450 MELSEC-L

☞ Page 451 MELSEC-QnA

☞ Page 452 MELSEC-A

☞ Page 453 MELSEC-FX

☞ Page 453 BOX Data Logger internal device

When a non-existent device or a device number outside the range is set, an error occurs.

For the "Device Setting" screen, refer to the following section.

☞ Page 219 Device settings

# MELSEC-Q

The device ranges that can be set when selecting "MELSEC-Q" as the controller type on the "Access target CPU setting" screen are as follows:

Device name <sup>*1</sup>		Setting range	Device number representation	
Bit device	Input (X)	X0 to X3FFF	Hexadecimal	
	Output (Y)	Y0 to Y3FFF		
	Internal relay (M) <sup>*2, *3</sup>	M0 to M61439	Decimal	
	Latch relay (L)	L0 to L32767		
	Annunciator (F)	F0 to F32767		
	Link relay (B)	B0 to B9FFFF		
	Timer <sup>*2</sup>	Contact (TT)	TT0 to TT32767	Decimal
		Coil (TC)	TC0 to TC32767	
	Counter <sup>*2</sup>	Contact (CT)	CT0 to CT32767	
		Coil (CC)	CC0 to CC32767	
	Special relay (SM)	SM0 to SM2255		
	Retentive timer <sup>*2</sup>	Contact (SS)	SS0 to SS32767	
		Coil (SC)	SC0 to SC32767	
	Step relay (S)	S0 to S32767	Hexadecimal	
	Link special relay (SB)	SB0 to SB7FFF		
Word device bit	Specified bit of the following word devices (Except timer, counter, retentive timer, and index register)	—		
Word device	Data register (D) <sup>*2, *3</sup>	D0 to D4910079	Decimal	
	Special data register (SD)	SD0 to SD2255	Hexadecimal	
	Link register (W)	W0 to W4AEBFF		
	Timer (current value) (TN) <sup>*2</sup>	TN0 to TN32767	Decimal	
	Counter (current value) (CN) <sup>*2</sup>	CN0 to CN32767	Hexadecimal	
	Retentive timer (current value) (SN) <sup>*2</sup>	SN0 to SN32767		
	Link special register (SW)	SW0 to SW7FFF		
	File register (R) <sup>*4, *5</sup>	R0 to R32767	Decimal	
	Extension file register (ER) <sup>*4</sup>	Block	0 to 255	Hexadecimal
		Device	ER0 to ER32767	
	Extension file register (ZR) <sup>*4, *6</sup>	ZR0 to ZR4849633	Decimal	
	Index register (Z)	Z0 to Z19		
	Multiple CPU high speed transmission memory (U3E0)	U3E0-10000 to U3E0-24335		
	Multiple CPU high speed transmission memory (U3E1)	U3E1-10000 to U3E1-24335		
	Multiple CPU high speed transmission memory (U3E2)	U3E2-10000 to U3E2-24335		
	Multiple CPU high speed transmission memory (U3E3)	U3E3-10000 to U3E3-24335	Decimal	
	Motion device (#)	#0 to #12287		
Bit device word <sup>*7</sup>	Converting the above bit devices into words (Except timer, counter, and retentive timer)	—		

\*1 For QS001CPU, only logging (programmable controller→BOX Data Logger) is available.

\*2 Do not use local devices set in MELSEC-Q system.  
Otherwise, logging cannot be performed normally.

\*3 For logging the internal relay (M) or data register (D) of a C Controller module, set the settings related to the device functions in the [device setting] tab of the Setting/Monitoring Tools for the C Controller module.

\*4 Do not set a file register by Configuration tool when executing multiple programs with the file of the file register set to "Use the same file name as the program" by the PLC parameter of GX Works2.  
Otherwise, logging at BOX Data Logger cannot be performed normally.

\*5 Available for file register of block No. switched with the RSET instruction.

\*6 Available for file register of block No. of file name switched with the QDRSET instruction.

\*7 The device number must be set in multiples of 16.

# MELSEC-L

The device ranges that can be set when selecting "MELSEC-L" as the controller type on the "Access target CPU setting" screen are as follows:

Device name		Setting range	Device number representation	
Bit device	Input (X)	X0 to X3FFF	Hexadecimal	
	Output (Y)	Y0 to Y3FFF		
	Internal relay (M) <sup>*1</sup>	M0 to M61439	Decimal	
	Latch relay (L)	L0 to L32767		
	Annunciator (F)	F0 to F32767		
	Link relay (B)	B0 to BEFFF	Hexadecimal	
	Timer <sup>*1</sup>	Contact (TT)	TT0 to TT32767	Decimal
		Coil (TC)	TC0 to TC32767	
	Counter <sup>*1</sup>	Contact (CT)	CT0 to CT32767	
		Coil (CC)	CC0 to CC32767	
	Special relay (SM)	SM0 to SM2047		
	Retentive timer <sup>*1</sup>	Contact (SS)	SS0 to SS32767	
		Coil (SC)	SC0 to SC32767	
	Step relay (S)	S0 to S8191		
Link special relay (SB)	SB0 to SB7FFF	Hexadecimal		
Word device bit	Specified bit of the following word devices (Except timer, counter, retentive timer, and index register)	—		
Word device	Data register (D) <sup>*1</sup>	D0 to D421887	Decimal	
	Special data register (SD)	SD0 to SD2047		
	Link register (W)	W0 to W66FFF	Hexadecimal	
	Timer (current value) (TN) <sup>*1</sup>	TN0 to TN32767	Decimal	
	Counter (current value) (CN) <sup>*1</sup>	CN0 to CN32767		
	Retentive timer (current value) (SN) <sup>*1</sup>	SN0 to SN32767		
	Link special register (SW)	SW0 to SW7FFF	Hexadecimal	
	File register (R) <sup>*2, *3</sup>	R0 to R32767	Decimal	
	Extension file register (ZR) <sup>*2, *4</sup>	ZR0 to ZR393215		
	Index register (Z)	Z0 to Z19		
	Bit device word <sup>*5</sup>	Converting the above bit devices into words (Except timer, counter, and retentive timer)	—	

\*1 Do not use local devices set in the MELSEC-L system.

Otherwise, logging cannot be performed normally. (Data registers (D) can be used for D32768 or later.)

\*2 Do not set a file register by Configuration tool when executing multiple programs with the file of the file register set to "Use the same file name as the program" by the PLC parameter of GX Works2.

Otherwise, logging at BOX Data Logger cannot be performed normally.

\*3 Available for file register of block No. switched with the RSET instruction.

\*4 Available for file register of block No. of file name switched with the QDRSET instruction.

\*5 The device number must be set in multiples of 16.

# MELSEC-QnA

The device ranges that can be set when selecting "MELSEC-QnA" as the controller type on the "Access target CPU setting" screen are as follows:

Device name		Setting range	Device number representation	
Bit device	Input (X)	X0 to X3FFF	Hexadecimal	
	Output (Y)	Y0 to Y3FFF		
	Internal relay (M) <sup>*1</sup>	M0 to M32767	Decimal	
	Latch relay (L)	L0 to L32767		
	Annunciator (F)	F0 to F32767		
	Link relay (B)	B0 to B7FFF	Hexadecimal	
	Timer <sup>*1</sup>	Contact (TT)	TT0 to TT32767	Decimal
		Coil (TC)	TC0 to TC32767	
	Counter <sup>*1</sup>	Contact (CT)	CT0 to CT32767	
		Coil (CC)	CC0 to CC32767	
	Special relay (SM)	SM0 to SM2047		
	Retentive timer <sup>*1</sup>	Contact (SS)	SS0 to SS32767	
		Coil (SC)	SC0 to SC32767	
	Step relay (S)	S0 to S32767	Hexadecimal	
	Link special relay (SB)	SB0 to SB7FF		
Word device bit	Specified bit of the following word devices (Except timer, counter, retentive timer, and index register)	—		
Word device	Data register (D) <sup>*1</sup>	D0 to D32767	Decimal	
	Special data register (SD)	SD0 to SD2047	Hexadecimal	
	Link register (W)	W0 to W7FFF		
	Timer (current value) (TN) <sup>*1</sup>	TN0 to TN32767		Decimal
	Counter (current value) (CN) <sup>*1</sup>	CN0 to CN32767	Hexadecimal	
	Retentive timer (current value) (SN) <sup>*1</sup>	SN0 to SN32767		
	Link special register (SW)	SW0 to SW07FF		
	File register (R) <sup>*2, *3</sup>	R0 to R32767	Decimal	
	Extension file register (ER) <sup>*2</sup>	Block	0 to 255	Hexadecimal
		Device	ER0 to ER32767	
	Extension file register (ZR) <sup>*2, *4, *5</sup>	ZR0 to ZR1042431		
	Index register (Z)	Z0 to Z15		
	Bit device word <sup>*6</sup>	Converting the above bit devices into words (Except timer, counter, and retentive timer)	—	

\*1 Do not use local devices.

Otherwise, logging cannot be performed normally.

\*2 Do not set a file register by the Configuration tool when executing multiple programs with the file of the file register set at "Use the same file name as the program" by the PLC parameter of GX Developer.

Otherwise, logging at BOX Data Logger cannot be performed normally.

\*3 Available for file register of block No. switched with the RSET instruction.

\*4 Available for file register of block No. of file name switched with the QDRSET instruction.

\*5 BOX Data Logger handles the devices in the units of 32 k points (32768 points).

\*6 The device number must be set in multiples of 16.

## MELSEC-A

The device ranges that can be set when selecting "MELSEC-A" as the controller type on the "Access target CPU setting" screen are as follows:

Device name		Setting range	Device number representation	
Bit device	Input (X)	X0 to X1FFF	Hexadecimal	
	Output (Y)	Y0 to Y1FFF		
	Internal relay/Special internal relay (M)	M0 to M32767	Decimal	
	Latch relay (L)	L0 to L32767		
	Annunciator (F)	F0 to F32767		
	Link relay (B)	B0 to B7FFF	Hexadecimal	
	Timer	Contact (TT)	TT0 to TT32767	Decimal
		Coil (TC)	TC0 to TC32767	
	Counter	Contact (CT)	CT0 to CT32767	
		Coil (CC)	CC0 to CC32767	
Word device bit		Specified bit of the following word devices (Except index register (Z))	—	
Word device	Data register/Special data register (D)	D0 to D32767	Decimal	
	Link register (W)	W0 to W7FFF	Hexadecimal	
	Timer (current value) (TN)	TN0 to TN32767	Decimal	
	Counter (current value) (CN)	CN0 to CN32767		
	File register (R)	R0 to R32767		
	Extension file register (ER) <sup>*1</sup>	Block		0 to 255
		Device		ER0 to ER32767
	Index register (Z) <sup>*2</sup>	Z0 to Z15		
	Index register (V) <sup>*2</sup>	V0 to V6		
	Accumulator (A)	A0 to A1		
	Bit device word <sup>*3, *4</sup>		Converting the above bit devices into words (Except timer and counter)	—

\*1 In the computer link connection, the bit specification writing of the word device to ER29-0 (block 29 of the extension file register) or later of A3ACPU, A3UCPU, or A4UCPU is not available.

When the bit specification writing of the word device is required, use the range of block No. 0 to 28.

\*2 In the computer link connection, writing to the index register (recipe (BOX Data Logger to programmable controller)) is not available.

\*3 The device number must be set in multiples of 16.

\*4 If the special internal relay (M) is converted to the word device, treat 9000 of the device number as 0 and set in multiples of 16.

Example: M9000, M9016, M9240

# MELSEC-FX

The device ranges that can be set when selecting "MELSEC-FX" as the controller type on the "Access target CPU setting" screen are as follows:

Device name		Setting range	Device number representation
Bit device	Input (X)	X0 to X377	Octal
	Output (Y)	Y0 to Y377	
	Auxiliary relay (M)	M0 to M7679	Decimal
	Special auxiliary relay (M)	M8000 to M8511	
	State (S)	S0 to S4095	
	Timer contact (T)	T0 to T511	
	Counter contact (C)	C0 to C255	
	Word device bit <sup>*1</sup>	Specified bit of the following word devices	
Word device	Data register (D)	D0 to D0999	Decimal
	RAM file register (D)	D1000 to D7999	
	Special data register (D)	D8000 to D8511	
	Timer (current value) (T)	T0 to T511	
	Counter (current value) (C)	C0 to C255	
	Extension register (R)	R0 to R32767	
	Index register (Z)	Z0 to Z7	
	Index register (V)	V0 to V7	
	Bit device word <sup>*2</sup>	Converting the above bit devices into words (Except timer contact and counter contact)	—

\*1 When executing the Recipe function with the bit specification of the word device set, do not perform the write process of the word device in the sequence program.

\*2 The device number must be set in multiples of 16.

## Precautions

For MELSEC-FX, take caution when setting device numbers since an error may not occur even if an out-of-range device number is set.



The logging function of BOX Data Logger are not available when keywords have been set for all of the online operation prohibition.

## BOX Data Logger internal device

When any of controller types is selected in the access target CPU setting, a device can be set in the following range as internal devices of BOX Data Logger.

The internal devices are common for all controller types.

Device name		Setting range	Device number representation	
Bit device	Trigger input (NTR)	NTRG	NTRG0	Decimal
Word device	Trigger input (NTR)	NTRC	NTRC0 to NTRC1	Decimal

# 18.2 CPU direct connection

## Connectable model list

The connectable models are as follows:

Series	Model name	Communication type	Reference		
MELSEC-Q (Q mode)	Q00JCPU	RS-232	Page 457 Connecting to QCPU		
	Q00CPU <sup>*1</sup>				
	Q01CPU <sup>*1</sup>				
	Q02CPU <sup>*1</sup>				
	Q02HCPU <sup>*1</sup> Q06HCPU <sup>*1</sup> Q12HCPU <sup>*1</sup> Q25HCPU <sup>*1</sup>				
	Q02PHCPU Q06PHCPU Q12PHCPU Q25PHCPU	RS-232			
	Q00UJCPU	RS-232	Page 457 Connecting to QCPU		
	Q00UCPU Q01UCPU Q02UCPU Q03UDCPU				
	Q04UDHCPU Q06UDHCPU Q10UDHCPU Q13UDHCPU Q20UDHCPU Q26UDHCPU				
	Q03UDECPU <sup>*2</sup> Q04UDEHCPU <sup>*2</sup> Q06UDEHCPU <sup>*2</sup> Q10UDEHCPU <sup>*2</sup> Q13UDEHCPU <sup>*2</sup> Q20UDEHCPU <sup>*2</sup> Q26UDEHCPU <sup>*2</sup> Q50UDEHCPU <sup>*2</sup> Q100UDEHCPU <sup>*2</sup>			RS-232	Page 457 Connecting to QCPU
	Q03UDVCPU <sup>*2</sup> Q04UDVCPU <sup>*2</sup> Q06UDVCPU <sup>*2</sup> Q13UDVCPU <sup>*2</sup> Q26UDVCPU <sup>*2</sup>				Page 457 Connecting to QCPU
	Q04UDPVCPU <sup>*2</sup> Q06UDPVCPU <sup>*2</sup> Q13UDPVCPU <sup>*2</sup> Q26UDPVCPU <sup>*2</sup>	RS-232	Page 457 Connecting to QCPU		
C Controller module	Q12DCCPU-V <sup>*2, *3</sup>	RS-232	Page 457 Connecting to QCPU		
	Q24DHCCPU-V <sup>*2</sup>				
	Q24DHCCPU-LS	RS-232	Page 457 Connecting to QCPU		
MELSEC-L	L02SCPU L02CPU <sup>*4</sup> L02CPU-P <sup>*4</sup> L02SCPU-P L06CPU <sup>*4</sup> L06CPU-P <sup>*4</sup> L26CPU <sup>*4</sup> L26CPU-P <sup>*4</sup> L26CPU-BT <sup>*4</sup> L26CPU-PBT <sup>*4</sup>	RS-232	Page 457 Connecting to QCPU		



Series	Model name	Communication type	Reference
MELSEC-Q (A mode)	Q02CPU-A Q02HCPU-A Q06HCPU-A	RS-232	Page 457 Connecting to QCPU
MELSEC-QnA (QnACPU) (Discontinuation of production)	Q2ACPU Q2ACPU-S1 Q3ACPU Q4ACPU	RS-422	Page 457 Connecting to QnACPU
MELSEC-QnA (QnASCPU)	Q2ASCPU Q2ASCPU-S1 Q2ASHCPU Q2ASHCPU-S1	RS-422	Page 457 Connecting to QnACPU
MELSEC-A (AnCPU) (Discontinuation of production)	A2UCPU A2UCPU-S1 A3UCPU A4UCPU A2ACPU A2ACPUP21 A2ACPUR21 A2ACPU-S1 A2ACPUP21-S1 A2ACPUR21-S1 A3ACPU A3ACPUP21 A3ACPUR21 A1NCPUP <sup>*5</sup> A1NCPUP21 <sup>*5</sup> A1NCPUR21 <sup>*5</sup> A2NCPUP <sup>*5</sup> A2NCPUP21 <sup>*5</sup> A2NCPUR21 <sup>*5</sup> A2NCPUS1 <sup>*5</sup> A2NCPUP21-S1 <sup>*5</sup> A2NCPUR21-S1 <sup>*5</sup> A3NCPUP <sup>*5</sup> A3NCPUP21 <sup>*5</sup> A3NCPUR21 <sup>*5</sup>	RS-422	Page 458 Connecting to ACPU
MELSEC-A (AnSCPU)	A2USCPU A2USCPU-S1 (Discontinuation of production) A2USHCPU-S1 A1SCPU (Discontinuation of production) A1SCPUC24-R2 A1SHCPU A2SCPU <sup>*5</sup> (Discontinuation of production) A2SHCPU A1SJCPU (Discontinuation of production) A1SJCPU-S3 (Discontinuation of production) A1SJHCPU	RS-422	Page 458 Connecting to ACPU
MELSEC-A (Discontinuation of production)	A0J2HCPU <sup>*5</sup> A0J2HCPUP21 <sup>*5</sup> A0J2HCPUR21 <sup>*5</sup> A0J2HCPU-DC24 <sup>*5</sup>	RS-422	Page 458 Connecting to ACPU
	A2CCPU <sup>*5</sup> A2CCPUP21 A2CCPUR21 A2CCPUC24 A2CCPUC24-PRF A2CJCPU-S3 A1FXCPU	RS-422	Page 458 Connecting to ACPU

Series	Model name	Communication type	Reference
Motion controller CPU (Q Series)	Q172CPU* <sup>6,7</sup> Q173CPU* <sup>6,7</sup> Q172CPUN* <sup>6</sup> Q173CPUN* <sup>6</sup>	RS-232	Page 457 Connecting to QCPU
	Q172HCPU* <sup>2</sup> Q173HCPU* <sup>2</sup> Q172DCPU* <sup>2</sup> Q173DCPU* <sup>2</sup> Q172DCPU-S1* <sup>2</sup> Q173DCPU-S1* <sup>2</sup> Q172DSCPU* <sup>2</sup> Q173DSCPU* <sup>2</sup>	RS-232	Page 457 Connecting to QCPU
	Q170MCP Q170MSCPU Q170MSCPU-S1	RS-232	Page 461 Connecting to motion controller CPU (Q170MCP)
MELSEC-FX	FX0 (Discontinuation of production)	RS-422	Page 458 Connecting to FXCPU
	FX0S (Discontinuation of production) FX0N (Discontinuation of production)	RS-422	
	FX1 (Discontinuation of production)	RS-422	
	FX2 (Discontinuation of production) FX2C (Discontinuation of production)	RS-422	
	FX1S FX1N FX2N FX1NC	RS-232 RS-422	
	FX2NC	RS-232 RS-422	
	FX3S FX3G FX3GC FX3U FX3UC	RS-232 RS-422	

- \*1 For multiple CPU system configuration, use CPU function version B or later.
- \*2 Access via QCPU (RS-232) in the multiple CPU system.
- \*3 Use a module with a serial number whose first five digits are '12042' or higher.
- \*4 For connecting to a CPU directly, adapter L6ADP-R2 is required.
- \*5 The Recipe function can be performed on the CPU with the following software version or later (Access target CPU←BOX Data Logger).  
AnNCPU(S1) with link: Version L or later, AnNCPU(S1) without link: Version H or later  
A2SCPU: Version H or later  
A0J2HCPU (with/without link): Version E or later  
A0J2HCPU-DC24: Version B or later  
A2CCPU: Version H or later
- \*6 For SV13, SV22, and SV43, use the motion controller CPU on which any of the following operating system version is installed.  
SW6RN-SV13Q□ : 00E or later  
SW6RN-SV22Q□ : 00E or later  
SW6RN-SV43Q□ : 00B or later
- \*7 Use the module with the following product number.  
Q172CPU: Product number K\*\*\*\*\* or later  
Q173CPU: Product number J\*\*\*\*\* or later

# System configuration

## Connecting to QCPU

Programmable controller		Connection cable		Remarks
Model name	Communication type	Cable model	Max. distance	
MELSEC-Q	RS-232	QC30R2 (3 m)	3 m	—
		GT01-C30R2-6P (3 m)		

## Connecting to LCPU

Programmable controller			Connection cable		Remarks	
Model name	Adapter	Communication type	Cable model	Max. distance		
L02CPU L06CPU L26CPU L26CPU-BT L02CPU-P L06CPU-P L26CPU-P L26CPU-PBT	L6ADP-R2	RS-232	QC30R2 (3 m)	3 m	—	
			GT01-C30R2-6P (3 m)			
	—		—	QC30R2 (3 m)		3 m
				GT01-C30R2-6P (3 m)		

## Connecting to QnACPU

Programmable controller		Connection cable		Remarks
Model name	Communication type	Cable model	Max. distance	
MELSEC-QnA	RS-422	F2-232CAB-1 +FX-232AW (C) +FX-422CAB (-150)	3 m + 0.3 (1.5) m	F2-232CAB-1 Use an A-QnA compatible model. Model name label: F2-232CAB-1 (F/FX/A) Y990C*****
		Manufactured by Diatrend Corp. RS-232/RS422 conversion cable DAFX1H-CABV	3 m to 15 m	—
		Manufactured by Diatrend Corp. RS-232/RS422 conversion cable DCNV9F-RS42R+DCR4-003	3 m	—
		Manufactured by System Sacom Industry Corp. CBL11MH+KS-10P-HS/KS-1-HS +CBL45M	3 m	—

## Connecting to ACPU

Programmable controller		Connection cable		Remarks
Model name	Communication type	Cable model	Max. distance	
MELSEC-A	RS-422	F2-232CAB-1 +FX-232AW (C) +FX-422CAB (-150)	3 m + 0.3 (1.5) m	F2-232CAB-1 Use an A-QnA compatible model. Model name label: F2-232CAB-1 (F/FX/A) Y990C*****
		Manufactured by Diatrend Corp. RS-232/RS422 conversion cable DAFX1H-CABV	3 m to 15 m	—
		Manufactured by Diatrend Corp. RS-232/RS422 conversion cable DCNV9F-RS42R+DCR4-003	3 m	—

## Connecting to FXCPU

### ■When connecting to FX0, FX0S, FX0N, FX1, FX2, and FX2C

Programmable controller		Connection cable		Remarks
Model name	Communication type	Cable model	Max. distance	
FX0 FX0S FX0N	RS-422	F2-232CAB-1 +FX-232AW (C) (C-H) +FX-422CABO	3 m + 1.5 m	—
FX1 FX2 FX2C	RS-422	F2-232CAB-1 +FX-232AW (C) (C-H) +FX-422CAB (-150)	3 m + 0.3 (1.5) m)	—

### ■When connecting to FX1S, FX1N, FX2N, FX1NC, and FX2NC (RS-422 connection)

Programmable controller		Connection cable		Remarks
Model name	Communication type	Cable model	Max. distance	
FX1S FX1N FX2N FX1NC FX2NC	RS-422	F2-232CAB-1 +FX-232AW (C) (C-H) +FX-422CABO	3 m + 1.5 m	—

### ■When connecting to FX1S, FX1N, FX2N, FX1NC, FX2NC (RS-232 connection)

Programmable controller				Connection cable		Remarks
Model name	Function expansion board*1	Special adapter*1	Communication type	Cable model	Max. distance	
FX1S FX1N	FX1N-232-BD	—	RS-232	FX-232CAB-1 (3 m)	15 m	—
				GT01-C30R2-9S (3 m)		
	FX1N-CNV-BD	FX2NC-232ADP	RS-232	FX-232CAB-1 (3 m)	15 m	
				GT01-C30R2-9S (3 m)		
FX0N-232ADP	RS-232	F2-232CAB-1 (3 m)	15 m			
		GT01-C30R2-25P (3 m)				
FX2N	FX2N-232-BD	—	RS-232	FX-232CAB-1 (3 m)	15 m	—
				GT01-C30R2-9S (3 m)		
	FX2N-CNV-BD	FX2NC-232ADP	RS-232	FX-232CAB-1 (3 m)	15 m	
				GT01-C30R2-9S (3 m)		
	FX0N-232ADP	RS-232	F2-232CAB-1 (3 m)	15 m		
			GT01-C30R2-25P (3 m)			
FX1NC FX2NC	—	FX2NC-232ADP	RS-232	FX-232CAB-1 (3 m)	15 m	—
				GT01-C30R2-9S (3 m)		
		FX0N-232ADP	RS-232	F2-232CAB-1 (3 m)	15 m	
				GT01-C30R2-25P (3 m)		

\*1 When using function expansion boards or special adapters, check the communication settings.

☞ Page 466 Connecting with function expansion board/communication special adapter

### ■When connecting to FX3G and FX3S (RS-422 connection)

Programmable controller		Connection cable		Remarks
Model name	Communication type	Cable model	Max. distance	
FX3G FX3S	RS-422	F2-232CAB-1 +FX-232AW (C) (C-H)*1+FX-422CABO	3 m + 1.5 m	—

\*1 When using FX-232AWC-H for the connection, the transmission speed can be selected among 9.6 kbps, 19.2 kbps, 38.4 kbps, 57.6 kbps, and 115.2 kbps.

When using either of FX-232AWC or FX-232AW for the connection, the transmission speed should be set to 9.6 kbps or 19.2 kbps.

### ■When connecting to FX3G and FX3S (RS-232 connection)

Programmable controller				Connection cable		Remarks
Model name	Function expansion board*1	Special adapter*1	Communication type	Cable model	Max. distance	
FX3G FX3S	FX3G-232-BD	—	RS-232	FX-232CAB-1 (3 m)	15 m	—
				GT01-C30R2-9S (3 m)		
	—	FX3G-CNV-ADP +FX3U-232ADP	RS-232	FX-232CAB-1 (3 m)	15 m	
				GT01-C30R2-9S (3 m)		

\*1 When using function expansion boards or special adapters, check the communication settings.

☞ Page 466 Connecting with function expansion board/communication special adapter

#### Point

When connecting a function expansion board (communication board) and a special adapter, a BOX Data Logger and one peripheral such as a personal computer on which GX Developer is installed can be connected them individually.

### ■When connecting to FX3GC (FX3GC-□□/D and FX3GC-□□/DSS) (RS-422 connection)

Programmable controller		Connection cable		Remarks
Model name	Communication type	Cable model	Max. distance	
FX3GC-□□/D FX3GC-□□/DSS	RS-422	F2-232CAB-1+FX-232AW (C) (C-H) <sup>*1</sup> +FX-422CABO	3 m + 1.5 m	—

\*1 When using FX-232AWC-H for the connection, the transmission speed can be selected among 9.6 kbps, 19.2 kbps, 38.4 kbps, 57.6 kbps, and 115.2 kbps.

When using FX-232AWC or FX-232AW for the connection, select the transmission speed either 9.6 kbps or 19.2 kbps.

### ■When connecting to FX3GC (FX3GC-□□/D and FX3GC-□□/DSS) (RS-232 connection)

Programmable controller			Connection cable		Remarks
Model name	Special adapter <sup>*1</sup>	Communication type	Cable model	Max. distance	
FX3GC-□□/D FX3GC-□□/ DSS	FX3U-232ADP	RS-232	FX-232CAB-1 (3 m) GT01-C30R2-9S (3 m)	15 m	—

A BOX Data Logger and one peripheral such as a personal computer on which GX Developer is installed can be connected to a special adapter and FXCPU individually.

\*1 When using function expansion boards or special adapters, check the communication settings.

Refer to Page 466 Connecting with function expansion board/communication special adapter.

### ■When connecting to FX3U and FX3UC (FX3UC-□□-LT-(2)) (RS-422 connection)

Programmable controller		Connection cable		Remarks
Model name	Communication type	Cable model	Max. distance	
FX3U FX3UC (FX3UC-□□-LT-(2))	RS-422	F2-232CAB-1 +FX-232AW(C)(C-H) <sup>*1</sup> + FX-422CABO	3 m + 1.5 m	—

\*1 When using FX-232AWC-H for the connection to either of FX3G/FX3U/FX3UC/FX3S, the transmission speed can be selected among 9.6 kbps, 19.2 kbps, 38.4 kbps, 57.6 kbps, and 115.2 kbps.

When using FX-232AWC or FX-232AW for the connection, select the transmission speed either 9.6 kbps or 19.2 kbps.

### ■When connecting to FX3U and FX3UC (FX3UC-□□-LT-(2)) (RS-232 connection)

Programmable controller				Connection cable		Remarks
Model name	Function expansion board <sup>*1</sup>	Special adapter <sup>*1</sup>	Communication type	Cable model	Max. distance	
FX3U FX3UC (FX3UC-□□-LT-(2))	FX3U-232-BD	—	RS-232	FX-232CAB-1 (3 m) GT01-C30R2-9S (3 m)	15 m	—
	FX3U-422-BD FX3U-232-BD FX3U-CNV-BD	FX3U-232ADP	RS-232	FX-232CAB-1 (3 m) GT01-C30R2-9S (3 m)	15 m	

\*1 When using function expansion boards or special adapters, check the communication settings.

☞ Page 466 Connecting with function expansion board/communication special adapter

#### Point

When connecting a function expansion board (communication board) and a special adapter, BOX Data Logger and one peripheral such as a personal computer on which GX Developer is installed can be connected them individually.

## ■When connecting to FX3UC (FX3UC-□□/D, FX3UC-□□/DS, and FX3UC-□□/DSS) (RS-422 connection)

Programmable controller		Connection cable		Remarks
Model name	Communication type	Cable model	Max. distance	
FX3UC-□□/D FX3UC-□□/DS FX3UC-□□/DSS	RS-422	F2-232CAB-1 +FX-232AW (C) (C-H)* <sup>1</sup> +FX-422CABO	3 m + 1.5 m	—


\*1 When using FX-232AWC-H for the connection, the transmission speed can be selected among 9.6 kbps, 19.2 kbps, 38.4 kbps, 57.6 kbps, and 115.2 kbps.

When using FX-232AWC or FX-232AW for the connection, select the transmission speed either 9.6 kbps or 19.2 kbps.

## ■When connecting to FX3UC (FX3UC-□□/D, FX3UC-□□/DS, and FX3UC-□□/DSS) (RS-232 connection)

Programmable controller			Connection cable		Remarks
Model name	Special adapter* <sup>1</sup>	Communication type	Cable model	Max. distance	
FX3UC-□□/D FX3UC-□□/DS FX3UC-□□/DSS	FX3U-232ADP	RS-232	FX-232CAB-1 (3 m) GT01-C30R2-9S (3 m)	15 m	—

\*1 When using function expansion boards or special adapters, check the communication settings.

 Page 466 Connecting with function expansion board/communication special adapter

### Point

A BOX Data Logger and one peripheral such as a personal computer on which GX Developer is installed can be connected to a special adapter and FXCPU individually.

## Connecting to motion controller CPU (Q170MCPU)

Programmable controller		Connection cable		Remarks
Model name	Communication type	Cable model	Max. distance	
Q170MCPU	RS-232	GT01-C30R2-6P (3 m)	3 m	—

### Point

- When connecting to a motion controller CPU (Q Series) other than Q170MCPU

Logging can be performed on a motion controller CPU (Q series) mounted to a QCPU (Q mode) multiple CPU system.

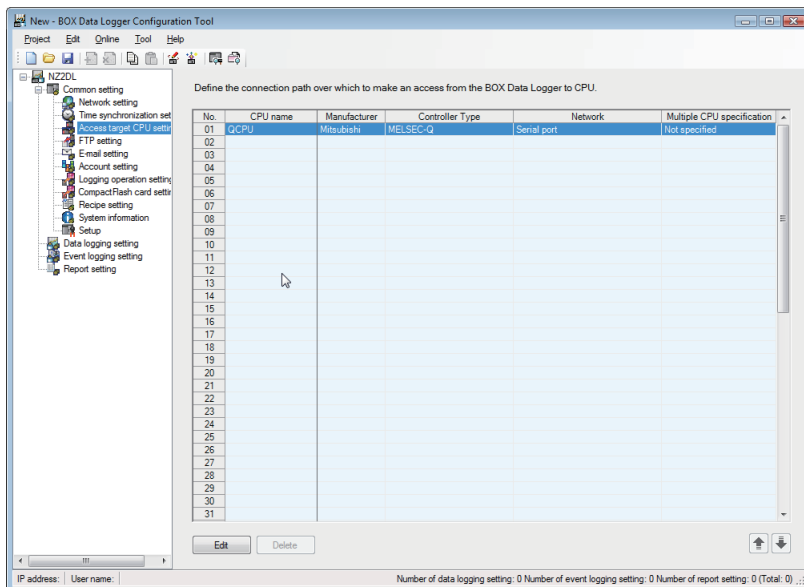
The system configuration, connection conditions, and system equipment for connecting a BOX Data Logger to a motion controller CPU (Q series) are the same as those for connecting to the QCPU.

 Page 457 Connecting to QCPU

# Settings for BOX Data Logger

## Setting communication interface (Access target CPU setting)

Set the access target CPU.



### Operating procedure

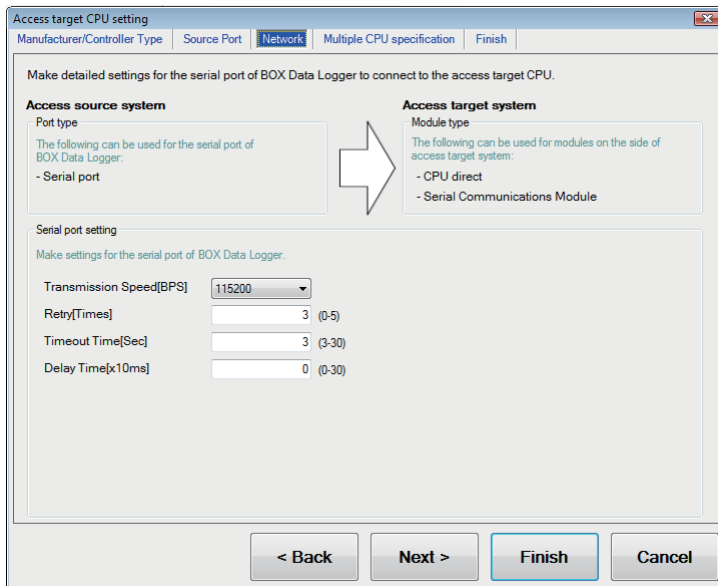
1. Click "Common setting" on the edit items tree of the Configuration tool, and click the [Access target CPU setting] button.
2. On the detailed setting editing screen, select the row of the access target CPU, and click the [Edit] button.
3. Set the access target CPU on the displayed "Access target CPU setting" screen.  
Mitsubishi MELSEC-Q is set by default.
4. Select the following items in the [Manufacturer/Controller Type] tab, and click the [Next] button.  
Manufacturer: MITSUBISHI  
Controller Type: Set according to the controller type to be connected.
5. In the [Source Port] tab, select "BOX Data Logger Serial Port", and click the [Next] button.
6. In the [Network] tab, set the detailed settings of a BOX Data Logger serial port to connect to the access target.  
Make the settings according to the usage environment.  
📖 Page 463 Network settings
7. Click the [Finish] button once the setting is completed.



## Network settings

Set the settings according to the access target.

### ■ MELSEC-Q, MELSEC-QnA, and MELSEC-L



#### • Access source system (Port type)

Item	Description	Range
Port type	The following serial port of BOX Data Logger can be used. • Serial port	—

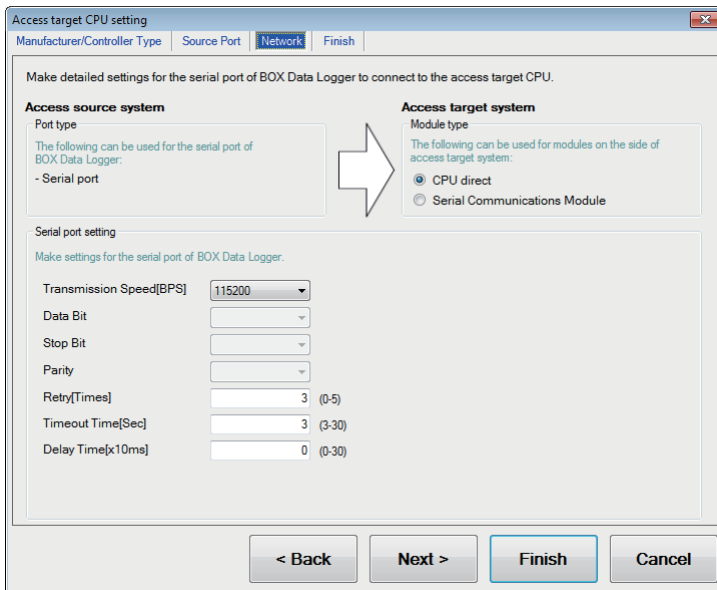
#### • Access source system (Serial port setting)

Item	Description	Range
Transmission Speed	Set this when changing the transmission speed used for communication with a connected equipment. (Default: 115200 bps) When the setting exceeds the limit of the connected equipment, communication will be performed at the fastest transmission speed supported by the connected equipment.	9600 bps, 19200 bps, 38400 bps, 57600 bps, 115200 bps
Retry	Set the number of retries. (Default: 3 times)	0 to 5 times
Timeout Time	Set the timeout period. (Default: 3 sec)	3 to 30 sec
Delay Time	Set this to adjust the transmission timing of the communication request from BOX Data Logger. (Default: 0 ms)	0 to 300 ms

#### • Access target system (Module type)

Item	Description	Range
Module type	The following modules can be set for access target system. <sup>*1</sup> • CPU direct (Default) • Serial Communication Module	For MELSEC-QnA, select "CPU direct".

\*1 For MELSEC-Q and MELSEC-L, it is unnecessary to select since the setting item of the module is common.



• Access source system (Port type)

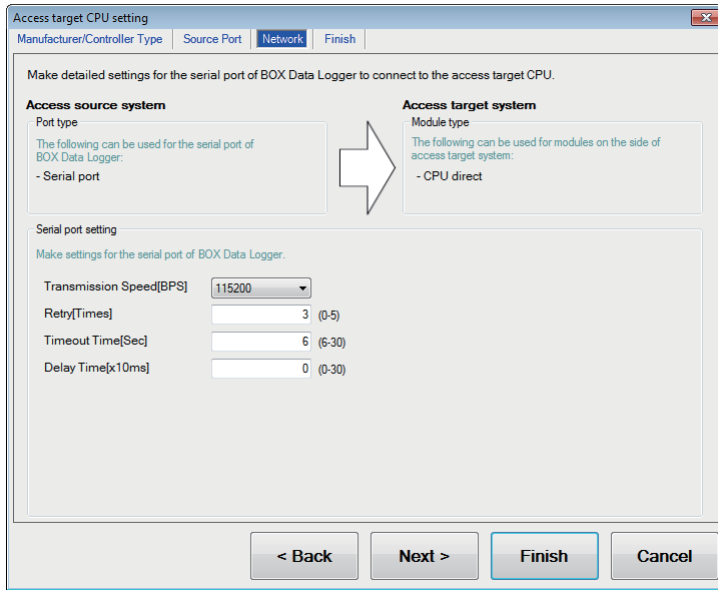
Item	Description	Range
Port type	The following serial port of BOX Data Logger can be used. • Serial port	—

• Access source system (Serial port setting)

Item	Description	Range
Transmission Speed	Set this when changing the transmission speed used for communication with a connected equipment. (Default: 115200 bps) When the setting exceeds the limit of the connected equipment, communication will be performed at the fastest transmission speed supported by the connected equipment.	9600 bps, 19200 bps, 38400 bps, 57600 bps, 115200 bps
Retry	Set the number of retries. (Default: 3 times)	0 to 5 times
Timeout Time	Set the timeout period. (Default: 3 sec)	3 to 30 sec
Delay Time	Set this to adjust the transmission timing of the communication request from BOX Data Logger. (Default: 0 ms)	0 to 300 ms

• Access target system (Module type)

Item	Description	Range
Module type	The following modules can be set for access target system. • CPU direct • Serial Communication Module	For MELSEC-A, select "CPU direct".



• Access source system (Port type)

Item	Description	Range
Port type	The following serial port of BOX Data Logger can be used. • Serial port	—

• Access source system (Serial port setting)

Item	Description	Range
Transmission Speed	Set this when changing the transmission speed used for communication with a connected equipment. (Default: 115200 bps) When the setting exceeds the limit of the connected equipment, communication will be performed at the fastest transmission speed supported by the connected equipment.	9600 bps, 19200 bps, 38400 bps, 57600 bps, 115200 bps
Retry	Set the number of retries. (Default: 3 times)	0 to 5 times
Timeout Time	Set the timeout period. (Default: 6 sec)	6 to 30 sec
Delay Time	Set this to adjust the transmission timing of the communication request from BOX Data Logger. (Default: 0 ms)	0 to 300 ms

• Access target system (Module type)

Item	Description	Range
Module type	The following modules can be set for access target system. • CPU direct	—

# Considerations

## Connection to FXCPU

### ■Connecting to FX3G/FX3GC/FX3U/FX3UC/FX3S series

The FXCPU (FX3G/FX3GC/FX3U/FX3UC/FX3S series) to which the keyword is registered cannot be connected to BOX Data Logger.

### ■Connecting with function expansion board/communication special adapter

When connecting FXCPU using a function expansion board/communication special adapter, the communication cannot be established if the communication settings set with GX Developer etc., is set to program or other than communication.

- Settings with sequence program

Check the sequence program and delete the following settings.

📖 FX SERIES PROGRAMMABLE CONTROLLERS USER'S MANUAL - Data Communication Edition

- Deletion of nonprocedural protocol communication (RS instruction)
- Deletion of sequence program that includes the computer link, N:N network, and parallel link
- Communication parameter settings
- Set the following special registers to '0'.

Except the following: D8120

FX3U, FX3UC: D8120, D8400, and D8420

FX3G, FX3GC: D8120, D8400, D8420, and D8370

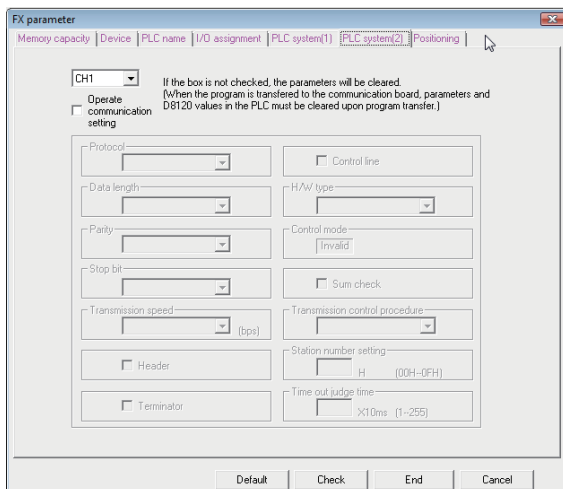
FX3S: D8120, D8400

- Settings with GX Developer

Select [Parameter] ⇒ [PLC parameter], and click the [PLC system (2)] tab on the "FX Parameter" screen.

Unselect "Operate communication setting", and transfer the parameter to a programmable controller.

After the transfer, cycle the power on the programmable controller.



## Connection in the multiple CPU system

When BOX Data Logger is connected to multiple CPU system, the following time is taken until when the programmable controller runs.

- QCPU (Q mode), motion controller CPU (Q series): 10 seconds or more

When the BOX Data Logger starts before the programmable controller runs, a communication error occurs.

To prevent a communication error from occurring, adjust the delay timer at power ON for BOX Data Logger setup.

📖 Page 257 BOX Data Logger setup

## Connection to LCPU

Since LCPU may diagnose (check file system, recovering process, etc.) the SD memory card at the timing of powering OFF → ON or resetting, it will take time until the SD memory card becomes available.

When the BOX Data Logger starts before the SD card becomes available, a communication error occurs.

To prevent a communication error from occurring, adjust the delay timer at power ON for BOX Data Logger setup.

☞ Page 257 BOX Data Logger setup

## Connection to basic model QCPU

Do not set the serial communication function of Q00UJ, Q00U, Q01U, Q02UCPU, Q00, and Q01CPU.

If the function is set, the communication may not be performed.

## Connection to Q170MCPU

To perform logging on the devices of the motion controller CPU (PLC No.2), set the unit number for the Multiple CPU specification to "PLC No.2".

If a unit number is set to "Not specified" or "PLC No.1", the device data in the CPU (No.1) will be logged.

If the unit number is set to other than "Not specified", "PLC No.1", and "PLC No.2", a communication error will occur and cannot perform data logging.

## When changing parameters

If the parameters are changed with GX Works2 or GX Developer, BOX Data Logger must be reset or powered OFF → ON.

# 18.3 Computer Link Connection

## Connectable model list

The connectable models are as follows:

Programmable controller/motion controller CPU			
Series	Model name	Communication type	Reference
MELSEC-Q (Q mode)	Q00JCPU	RS-232	Page 473 Connecting to QCPU (Q mode)
	Q00CPU*1		
	Q01CPU*1		
	Q02CPU*1		
	Q02HCPU*1		
	Q06HCPU*1		
	Q12HCPU*1		
	Q25HCPU*1		
	Q02PHCPU	RS-232	
	Q06PHCPU		
	Q12PHCPU		
	Q25PHCPU		
	Q00UJCPU	RS-232	Page 473 Connecting to QCPU (Q mode)
	Q00UCPU		
Q01UCPU			
Q02UCPU			
Q03UDCPU			
Q04UDHCPU			
Q06UDHCPU			
Q10UDHCPU			
Q13UDHCPU			
Q20UDHCPU			
Q26UDHCPU			
Q03UDECPU			
Q04UDEHCPU			
Q06UDEHCPU			
Q10UDEHCPU			
Q13UDEHCPU			
Q20UDEHCPU			
Q26UDEHCPU			
Q50UDEHCPU			
Q100UDEHCPU			
Q03UDVCPU			
Q04UDVCPU			
Q06UDVCPU			
Q13UDVCPU			
Q26UDVCPU			
Q04UDPVCPU			
Q06UDPVCPU			
Q13UDPVCPU			
Q26UDPVCPU			
C Controller module	Q12DCCPU-V*2, *3	RS-232	Page 473 Connecting to QCPU (Q mode)
	Q24DHCCPU-V*3		
	Q24DHCCPU-LS		
MELSEC-L	L02SCPU	RS-232	Page 473 Connecting to LCPU
	L02CPU		
	L02CPU-P		
	L02SCPU-P		
	L06CPU		
	L06CPU-P		
	L26CPU		
	L26CPU-P		
	L26CPU-BT		
	L26CPU-PBT		

Series	Model name	Communication type	Reference
MELSEC-Q (A mode)	Q02CPU-A Q02HCPU-A Q06HCPU-A	RS-232	Page 473 Connecting to QCPU (A mode)
MELSEC-QnA (QnACPU) <sup>*4</sup> (Discontinuation of production)	Q2ACPU Q2ACPU-S1 Q3ACPU Q4ACPU	RS-232	Page 473 Connecting to QnACPU (QnACPU type)
MELSEC-QnA (QnASCPU) <sup>*4</sup>	Q2ASCPU Q2ASCPU-S1 Q2ASHCPU Q2ASHCPU-S1	RS-232	Page 474 Connecting to QnACPU (QnASCPU type)
MELSEC-A (AnCPU) (Discontinuation of production)	A2UCPU A2UCPU-S1 A3UCPU A4UCPU A2ACPU A2ACPUP21 A2ACPUR21 A2ACPU-S1 A2ACPUP21-S1 A2ACPUR21-S1 A3ACPU A3ACPUP21 A3ACPUR21 A1NCPUP21 A1NCPUR21 A2NCPUP21 A2NCPUR21 A2NCPUS1 A2NCPUP21-S1 A2NCPUR21-S1 A3NCPUP21 A3NCPUR21	RS-232	Page 474 Connecting to ACPU (AnCPU type)
MELSEC-A (AnSCPU)	A2USCPU A2USCPU-S1 (Discontinuation of production) A2USHCPU-S1 A1SCPU (Discontinuation of production) A1SCPUC24-R2 A1SHCPU <sup>*5</sup> A2SCPU <sup>*5</sup> (Discontinuation of production) A2SHCPU <sup>*5</sup> A1SJCPU (Discontinuation of production) A1SJCPU-S3 (Discontinuation of production) A1SJHCPU <sup>*5</sup>	RS-232	Page 474 Connecting to ACPU (AnSCPU type, A0J2HCPU, A2CCPUC)
MELSEC-A (Discontinuation of production)	A0J2HCPU <sup>*5</sup> A0J2HCPUP21 <sup>*5</sup> A0J2HCPUR21 <sup>*5</sup> A0J2HCPU-DC24 <sup>*5</sup>	RS-232	Page 474 Connecting to ACPU (AnSCPU type, A0J2HCPU, A2CCPUC)
	A2CCPUC24 A2CCPUC24-PRF	RS-232	Page 474 Connecting to ACPU (AnSCPU type, A0J2HCPU, A2CCPUC)
Motion controller CPU (Q Series)	Q172CPU <sup>*6, *7</sup> Q173CPU <sup>*6, *7</sup> Q172CPUN <sup>*6</sup> Q173CPUN <sup>*6</sup>	RS-232	Page 473 Connecting to QCPU (Q mode)

Series	Model name	Communication type	Reference
Motion controller CPU (Q Series)	Q172HCPU Q173HCPU Q172DCPU Q173DCPU Q172DCPU-S1 Q173DCPU-S1 Q172DSCPU Q173DSCPU	RS-232	Page 473 Connecting to QCPU (Q mode)
	Q170MCPU* <sup>8</sup> Q170MSCPU Q170MSCPU-S1* <sup>9</sup>	RS-232	Page 473 Connecting to QCPU (Q mode)



- \*1 For multiple CPU system configuration, use CPU function version B or later.
- \*2 Use a module with a serial number whose first five digits are '12042' or higher.
- \*3 Use the serial port of a serial communication module controlled by another CPU in the multiple CPU system.
- \*4 When using an A series computer link module with QnACPU, data logging can be performed only on the devices that are also in the range to log AnACPU and have the same name as the AnACPU devices.  
Set the controller type of the "Access target CPU setting" to "MELSEC-A".  
However, the data of the following devices cannot be logged.
  - Devices added to QnACPU
  - Latch relays (L) and step relays (S)  
(For QnACPU, the latch relay (L) and step relay (S) are different from the internal relay (M). However, both of them can be accessed to the internal relay.)
  - File register (R)
- \*5 The computer link module software version U or later supports A2SCPU(S1), A2SHCPU(S1), A1SHCPU, A1SJHCPU, and A0J2HCPU.  
In addition, A0J2-C214-S1 (A0J2HCPU-dedicated computer link module) cannot be used.
- \*6 For SV13, SV22, and SV43, use the motion controller CPU on which any of the following operating system version is installed.  
SW6RN-SV13Q□: 00H or later  
SW6RN-SV22Q□: 00H or later  
SW6RN-SV43Q□: 00B or later
- \*7 Use the module with the following product number.  
Q172CPU: Product number N\*\*\*\*\* or later  
Q173CPU: Product number M\*\*\*\*\* or later
- \*8 Only the first step can be used on the extension base unit (Q52B/Q55B).
- \*9 The extension base unit (Q5□B/Q6□B) can be used.

## Serial communication module/Computer link module

CPU series	Model name <sup>*1</sup>
MELSEC-Q (Q mode) Motion controller CPU (Q Series)	QJ71C24 <sup>*2</sup> , QJ71C24-R2 <sup>*2</sup>
	QJ71C24N, QJ71C24N-R2
	QJ71CMO <sup>*3</sup> , QJ71CMON <sup>*3</sup>
MELSEC-L	LJ71C24, LJ71C24-R2
MELSEC-Q (A mode)	A1SJ71UC24-R2, A1SJ71UC24-PRF
	A1SJ71C24-R2, A1SJ71C24-PRF
MELSEC-QnA (QnACPU) MELSEC-QnA (QnASCPU)	AJ71QC24 <sup>*4</sup> , AJ71QC24-R2 <sup>*4</sup>
	AJ71QC24N <sup>*4</sup> , AJ71QC24N-R2 <sup>*4</sup>
	A1SJ71QC24 <sup>*4</sup> , A1SJ71QC24-R2 <sup>*4</sup>
	A1SJ71QC24N <sup>*4</sup> , A1SJ71QC24N-R2 <sup>*4</sup>
	A1SJ71QC24N1 <sup>*4</sup> , A1SJ71QC24N1-R2 <sup>*4</sup>
	AJ71UC24 <sup>*4, *6</sup>
	A1SJ71C24-R2 <sup>*6</sup> , A1SJ71C24-PRF <sup>*6</sup>
	A1SJ71UC24-R2 <sup>*6</sup> , A1SJ71UC24-PRF <sup>*6</sup>
MELSEC-A (AnCPU) MELSEC-A (AnSCPU) MELSEC-A	AJ71UC24 <sup>*5</sup>
	A1SJ71UC24-R2 <sup>*5</sup> , A1SJ71UC24-PRF <sup>*5</sup>
	A1SJ71C24-R2 <sup>*5</sup> , A1SJ71C24-PRF <sup>*5</sup>
	A1SCPUC24-R2 <sup>*5</sup>
	A2CCPUC24, A2CCPUC24-PRF

\*1 Communication cannot be performed with RS-485.

A0J2-C214-S1 cannot be used.

\*2 Either CH1 or CH2 can be used for the function version A.

Both CH1 and CH2 can be used together for the function version B or later.

\*3 Only CH2 can be connected.

\*4 Either CH1 or CH2 can be used.

\*5 The computer link module software version U or later supports A2SCPU(S1), A2SHCPU(S1), A1SHCPU, A1SJHCPU, and A0J2HCPU.

\*6 The module operates in the same device range as AnACPU.

Set the controller type of the "Access target CPU setting" to "MELSEC-A".

# System Configuration

## Connecting to QCPU (Q mode)

Programmable controller			Connection cable		Remarks
Model name	Serial communication module <sup>*1</sup>	Communication type	Cable model	Max. distance	
MELSEC-Q (Q mode)	QJ71C24 QJ71C24N QJ71C24-R2 QJ71C24N-R2 QJ71CMO QJ71CMON	RS-232	GT09-C30R2-9P (3 m)	15 m	—

\*1 For the system configuration on the serial communication module, refer to the following manual.

Q Corresponding Serial Communication Module User's Manual (Basic)

For the system configuration on the modem interface module, refer to the following manual.

Q6TEL Modem Interface Module User's Manual

## Connecting to LCPU

Programmable controller			Connection cable		Remarks
Model name	Serial communication module <sup>*1</sup>	Communication type	Cable model	Max. distance	
MELSEC-L	LJ71C24 LJ71C24-R2	RS-232	GT09-C30R2-9P (3 m)	15 m	—

\*1 For the system configuration on the serial communication module, refer to the following manual.

MELSEC-L Serial Communication Module User's Manual (Basic)

## Connecting to QCPU (A mode)

Programmable controller			Connection cable		Remarks
Model name	Computer link module <sup>*1</sup>	Communication type	Cable model	Max. distance	
MELSEC-Q (A mode)	A1SJ71UC24-R2 A1SJ71C24-R2 A1SJ71UC24-PRF A1SJ71C24-PRF	RS-232	GT09-C30R2-9P (3 m)	15 m	—

\*1 For the system configuration on the computer link module, refer to the following manual.

Computer Link Module (Com. link func./Print. func.) User's Manual

## Connecting to QnACPU (QnACPU type)

Programmable controller				Connection cable		Remarks
Model name	Serial communication module <sup>*1</sup>	Computer link module <sup>*2</sup>	Communication type	Cable model	Max. distance	
MELSEC-QnA (QnACPU)	AJ71QC24 AJ71QC24N AJ71QC24-R2 AJ71QC24N-R2	—	RS-232	GT09-C30R2-25P (3 m)	15 m	—
	—	AJ71UC24	RS-232	GT09-C30R2-25P (3 m)	15 m	—

\*1 For the system configuration on the serial communication module, refer to the following manual.

Serial Communications Module User's Manual (Modem Function Additional Version)


\*2 For the system configuration on the computer link module, refer to the following manual.

Computer Link Module (Com. link func./Print. func.) User's Manual


## Connecting to QnACPU (QnASCPU type)

Programmable controller				Connection cable		Remarks
Model name	Serial communication module <sup>*1</sup>	Computer link module <sup>*2</sup>	Communication type	Cable model	Max. distance	
MELSEC-QnA (QnASCPU)	A1SJ71QC24 A1SJ71QC24N A1SJ71QC24N1 A1SJ71QC24-R2 A1SJ71QC24N-R2 A1SJ71QC24N1-R2	—	RS-232	GT09-C30R2-9P (3 m)	15 m	—
	—	A1SJ71UC24-R2 A1SJ71C24-R2 A1SJ71UC24-PRF A1SJ71C24-PRF	RS-232	GT09-C30R2-9P (3 m)	15 m	—

\*1 For the system configuration on the serial communication module, refer to the following manual.

 Serial Communication Module User's Manual (Modem Function Additional Version)


\*2 For the system configuration on the computer link module, refer to the following manual.

 Computer Link Module (Com. link func./Print. func.) User's Manual

## Connecting to ACPU (AnCPU type)

Programmable controller			Connection cable		Remarks
Model name	Computer link module <sup>*1</sup>	Communication type	Cable model	Max. distance	
MELSEC-A (AnCPU)	AJ71UC24	RS-232	GT09-C30R2-25P (3 m)	15 m	—


\*1 For the system configuration on the computer link module side, refer to the following manual.

 Computer Link Module (Com. link func./Print. func.) User's Manual

## Connecting to ACPU (AnSCPU type, A0J2HCPU, A2CCPUC)

Programmable controller			Connection cable		Remarks
Model name	Computer link module <sup>*1</sup>	Communication type	Cable model	Max. distance	
MELSEC-A (AnSCPU) (A0J2H) (A2CCPUC)	A1SJ71UC24-R2 A1SJ71C24-R2 A1SJ71UC24-PRF A1SJ71C24-PRF A1SCPUC24-R2 A2CCPUC24 A2CCPUC24-PRF	RS-232	GT09-C30R2-9P (3 m)	15 m	—

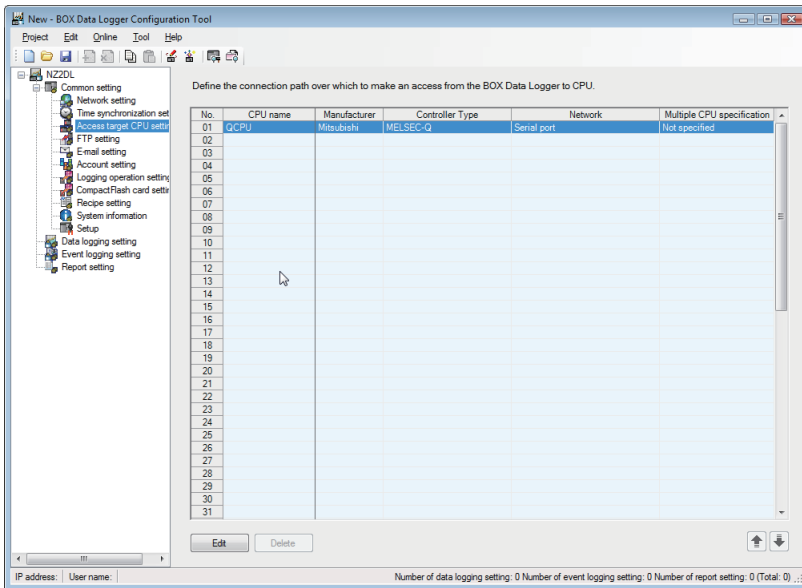
\*1 For the system configuration on the computer link module side, refer to the following manual.

 Computer Link Module (Com. link func./Print. func.) User's Manual

# Settings for BOX Data Logger

## Setting communication interface (Access target CPU setting)

Set the access target CPU.



### Operating procedure

1. Click "Common setting" on the edit items tree of the Configuration tool, and click the [Access target CPU setting] button.
2. On the detailed setting editing screen, select the row of the access target CPU, and click the [Edit] button.
3. Set the access target CPU on the displayed "Access target CPU setting" screen.  
Mitsubishi MELSEC-Q is set by default.
4. Select the following items in the [Manufacturer/Controller Type] tab, and click the [Next] button.  
Manufacturer: MITSUBISHI  
Controller Type: Set according to the controller type to be connected.
5. In the [Source Port] tab, select "BOX Data Logger Serial Port", and click the [Next] button.
6. In the [Network] tab, set the detailed settings of a BOX Data Logger serial port to connect to the access target.  
Make the settings according to the usage environment.  
📖 Page 476 Network settings
7. Click the [Finish] button once the setting is completed.

## Network settings

Set the settings according to the access target.

### ■ MELSEC-Q, MELSEC-L

#### • Access source system (Port type)

Item	Description	Range
Port type	The following serial port of BOX Data Logger can be used. • Serial port	—

#### • Access source system (Serial port setting)

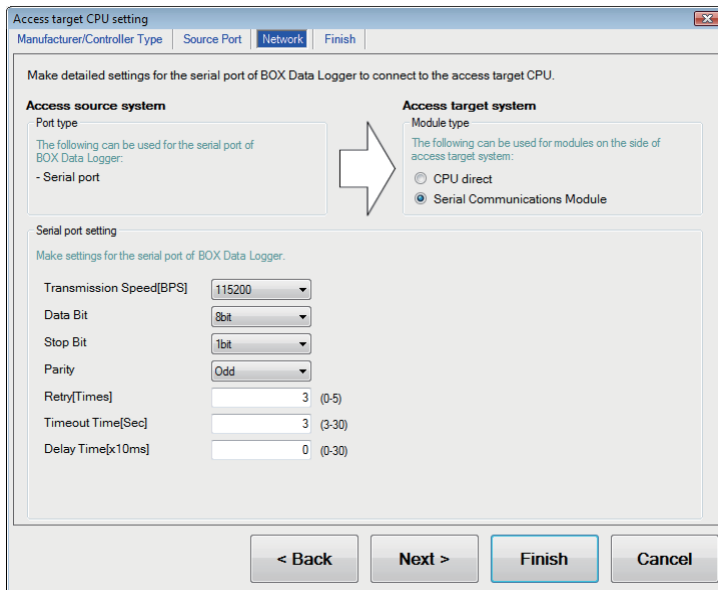
Item	Description	Range
Transmission Speed	Set this when changing the transmission speed used for communication with a connected equipment. (Default: 115200 bps) When the setting exceeds the limit of the connected equipment, communication will be performed at the fastest transmission speed supported by the connected equipment.	9600 bps, 19200 bps, 38400 bps, 57600 bps, 115200 bps
Retry	Set the number of retries. (Default: 3 times)	0 to 5 times
Timeout Time	Set the timeout period. (Default: 3 sec)	3 to 30 sec
Delay Time	Set this to adjust the transmission timing of the communication request from BOX Data Logger. (Default: 0 ms)	0 to 300 ms

#### • Access target system (Module type)

Item	Description	Range
Module type	The following modules can be set for access target system. <sup>*1</sup> • CPU direct • Serial Communication Module	—

\*1 It is unnecessary to select since the setting item of the module is common.

## ■ MELSEC-QnA (AJ71QC24)



### • Access source system (Port type)

Item	Description	Range
Port type	The following serial port of BOX Data Logger can be used. • Serial port	—

### • Access source system (Serial port setting)

Item	Description	Range
Transmission Speed	Set this when changing the transmission speed used for communication with a connected equipment. (Default: 115200 bps)	4800 bps, 9600 bps, 19200 bps, 38400 bps, 57600 bps, 115200 bps
Data Bit	Set this when changing the data length used for communication with a connected equipment. (Default: 8 bits)	8bit (fixed)
Stop Bit	Specify the stop bit length. (Default: 1 bit)	1bit (fixed)
Parity	Specify whether to perform a parity check, and how it is performed during communication. (Default: Odd)	Odd (fixed)
Retry	Set the number of retries. (Default: 3 times)	0 to 5 times
Timeout Time	Set the timeout period. (Default: 3 sec)	3 to 30 sec
Delay Time	Set this to adjust the transmission timing of the communication request from BOX Data Logger. (Default: 0 ms)	0 to 300 ms

### • Access target system (Module type)

Item	Description	Range
Module type	The following modules can be set for access target system. • CPU direct (Default) • Serial Communication Module	For MELSEC-QnA, select "Serial Communication Module".

## ■ MELSEC-A (AJ71C24/UC24 connection)

Access target CPU setting

Manufacturer/Controller Type Source Port **Network** Finish

Make detailed settings for the serial port of BOX Data Logger to connect to the access target CPU.

**Access source system**

Port type

The following can be used for the serial port of BOX Data Logger.

- Serial port

**Access target system**

Module type

The following can be used for modules on the side of access target system.

- CPU direct
- Serial Communications Module

**Serial port setting**

Make settings for the serial port of BOX Data Logger.

Transmission Speed[BPS] 19200

Data Bit 8bit

Stop Bit 1bit

Parity Odd

Retry[Times] 3 (0-5)

Timeout Time[Sec] 3 (3-30)

Delay Time[x10ms] 0 (0-30)

< Back Next > Finish Cancel

### • Access source system (Port type)

Item	Description	Range
Port type	The following serial port of BOX Data Logger can be used. • Serial port	—

### • Access source system (Serial port setting)

Item	Description	Range
Transmission Speed	Set this when changing the transmission speed used for communication with a connected equipment. (Default: 19200 bps)	4800 bps, 9600 bps, 19200 bps
Data Bit	Set this when changing the data length used for communication with a connected equipment. (Default: 8 bits)	8bit (fixed)
Stop Bit	Specify the stop bit length. (Default: 1 bit)	1bit (fixed)
Parity	Specify whether to perform a parity check, and how it is performed during communication. (Default: Odd)	Odd (fixed)
Retry	Set the number of retries. (Default: 3 times)	0 to 5 times
Timeout Time	Set the timeout period. (Default: 3 sec)	3 to 30 sec
Delay Time	Set this to adjust the transmission timing of the communication request from BOX Data Logger. (Default: 0 ms)	0 to 300 ms

### • Access target system (Module type)

Item	Description	Range
Module type	The following modules can be set for access target system. • CPU direct (Default) • Serial Communication Module	For MELSEC-A, select "Serial Communication Module".



## Settings for programmable controller

When connecting BOX Data Logger and Mitsubishi programmable controller in the computer link connection, the modules operate under the following transmission specifications.

Transmission specifications	Setting
Data Bit	8 bits
Parity Bit	Exist (Odd)
Stop bit	1 bit
Sum check	Exist
Transmission speed (Baud rate)	Set the same transmission speed on both BOX Data Logger and programmable controller.

For the settings of the programmable controller (serial communication module, modem interface module, computer link module), refer to the following table.

Model name		Reference
Serial communication module (Q series)	QJ71C24N, QJ71C24	Page 480 Connecting to serial communication module (Q or L series)
	QJ71C24N-R2, QJ71C24-R2	
Modem interface module	QJ71CMO, QJ71CMON	
Serial communication module (L series)	LJ71C24, LJ71C24-R2	
Serial communication module (QnA series)	AJ71QC24N, AJ71QC24	Page 482 Connecting to serial communication module (QnA series)
	AJ71QC24N-R2, AJ71QC24-R2	
	A1SJ71QC24N1, A1SJ71QC24N, A1SJ71QC24	
	A1SJ71QC24N1-R2, A1SJ71QC24N-R2, A1SJ71QC24-R2	
Computer link module	AJ71UC24	Page 484 Connecting to computer link module
	A1SJ71UC24-R2, A1SJ71UC24-PRF, A1SJ71C24-R2, A1SJ71C24-PRF	
	A1SCPUC24-R2	
	A2CCPUC24, A2CCPUC24-PRF	

## Connecting to serial communication module (Q or L series)

For details of the serial communication module (Q, L series), refer to the following manuals.

 Q Corresponding Serial Communication Module User's Manual (Basic)

 MELSEC-L Serial Communication Module User's Manual (Basic)

For details of the modem interface module, refer to the following manual.

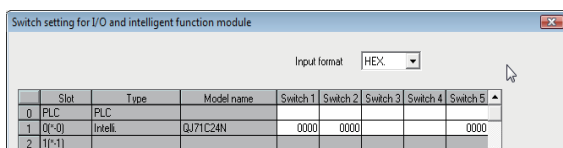
 Q6TEL Modem Interface Module User's Manual

### ■[Intelligent function module switch setting] on GX Developer

The intelligent function module switch setting of GX Developer is not necessary. (When intelligent function module switch setting does not exist, the module runs in the GX Developer connection mode.)

A serial communication module can be also connected to a BOX Data Logger by setting on the following intelligent function module switch setting screen of GX Developer.

- When connecting to CH1



Switch number	Bit		Description	Set value <sup>*3</sup>
	Position	Specified value		
Switch 1	b0	OFF	CH1 transmission settings <sup>*1</sup>	(Operates according to the BOX Data Logger side specifications.)
	b1	OFF		
	b2	OFF		
	b3	OFF		
	b4	OFF		
	b5	OFF		
	b6	OFF		
	b7	OFF		
	b8 to b15	—	CH1 transmission speed setting <sup>*2</sup>	
Switch 2	—		CH1 Communication protocol setting	GX Developer connection
Switch 5	—		Station number setting	0th station

\*1 The module operates under the following transmission specifications.

Operation setting : Independent

Data Bit: 8 bits

Parity Bit : Exist

Even/odd parity : Odd

Stop bit: 1 bit

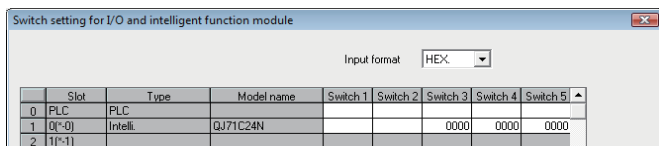
Sum check code : Exist

\*2 The serial communication module operates at the transmission speed set on the BOX Data Logger.

\*3 When the value of switch setting is other than '0', the setting of "Transmission Speed" on the BOX Data Logger side are required to be changed.

 Page 476 Network settings

- When connecting to CH2



Switch number	Bit		Description	Set value <sup>*3</sup>	
	Position	Specified value			
Switch 3	b0	OFF	CH2 transmission settings <sup>*1</sup>	(Operates according to the BOX Data Logger side specifications.)	
	b1	OFF			Operation setting
	b2	OFF			Data Bit
	b3	OFF			Parity Bit
	b4	OFF			Even/odd parity
	b5	OFF			Stop bit
	b6	OFF			Sum check code
	b7	OFF			Online Change
	b8 to b15	—	Setting modifications		
Switch 4	—	—	CH2 transmission speed setting <sup>*2</sup>		
Switch 4	—	—	CH2 Communication protocol setting	GX Developer connection	
Switch 5	—	—	Station number setting	0th station	

\*1 The module operates under the following transmission specifications.

- Operation setting : Independent
- Data Bit: 8 bits
- Parity Bit : Exist
- Even/odd parity : Odd
- Stop bit: 1 bit
- Sum check code : Exist

\*2 The serial communication module operates at the transmission speed set on the BOX Data Logger.

\*3 When the value of switch setting is other than '0', the setting of "Transmission Speed" on the BOX Data Logger side are required to be changed.

☞ Page 476 Network settings

## Precautions

### ■When the intelligent function module switch setting is set

After writing the PLC parameters to a programmable controller CPU, reset or power OFF → ON the programmable controller CPU.

### ■Connecting a GOT simultaneously

Some serial communication module models can be connected to a BOX Data Logger and GOT at the same time using both CH1 and CH2 depending on the controller type.

○: BOX Data Logger is connectable with GOT, △: One BOX Data Logger is connectable, —: Not applicable

Controller type	Availability of the simultaneous connections to BOX Data Logger and GOT	
	Function version A	Function version B
QJ71C24 (-R2)	△	○
QJ71C24N (-R2)	—	○
LJ71C24 (-R2)	○	—

The supported version of GT Designer3 is 1.104J or later.

### ■When connecting to modem interface module

When the modem interface module is connected, only CH2 can be used.

## Connecting to serial communication module (QnA series)

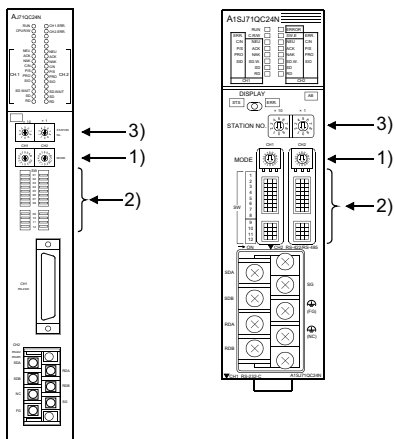
For details of the serial communication module (QnA series), refer to the following manual.

Serial Communications Module User's Manual (Modem Function Additional Version)

### Switch setting on serial communication module

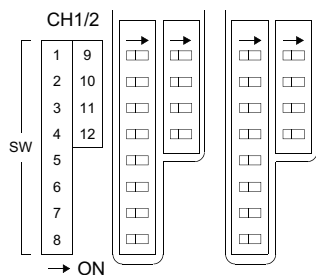
Set the Station number switch, Mode setting switch for the channel used for BOX Data Logger connection, and Transmission specifications switch.

AJ71QC24N, AJ71QC24N-R2, A1SJ71QC24N1, A1SJ71QC24N1-R2,  
AJ71QC24, AJ71QC24-R2 A1SJ71QC24N, A1SJ71QC24N-R2,  
A1SJ71QC24, A1SJ71QC24-R2



Setting switch name	Description		Set value	
1) Mode setting switch <sup>*1</sup>	Dedicated protocol (Format 5) (Binary mode)		5	
2) Transmission specification setting switch <sup>*2</sup>	SW01	Operation setting	Independent	OFF
	SW02	Data Bit	8 bits	ON
	SW03	Parity Bit	Exist	ON
	SW04	Even/odd parity	Odd	OFF
	SW05	Stop bit	1 bit	OFF
	SW06	Sum check code	Enable	ON
	SW07	Online Change	Enable	ON
	SW08	Setting change enable/disable	Disable (prohibit)	OFF
	SW09 to SW12	Transmission speed setting	(Consistent with the BOX Data Logger side specifications)	Transmissi on speed setting (SW09 to SW12)
SW13 to SW15	—	Switches are located at the left side of the module. (only on AJ71QC24 (-R2/R4))	All OFF	
3) Station number switch (for both CH1 and CH2)	Set the station number of the serial communication module accessed from BOX Data Logger.		0	

- \*1 When connecting a BOX Data Logger to CH2, set the CH1 mode switch to any other than '0' (interlocked operation).
- \*2 The following shows the layout of switches in the case of the following hardware versions for the module.  
Switch settings and switch ON/OFF directions are the same.



A1SJ71QC24 : Version E or earlier  
 A1SJ71QC24-R2 : Version D or earlier  
 A1SJ71QC24N, A1SJ71QC24N-R2 : Version A

- Transmission speed setting (SW09 to SW12)

Set the transmission speed setting (SW09 to SW12) as follows.

Set the same transmission speed as that of the BOX Data Logger side.

Setting switch	Transmission speed <sup>*1, *2, *3</sup>					
	4800 bps	9600 bps	19200 bps	38400 bps <sup>*4</sup>	57600 bps <sup>*4</sup>	115200 bps <sup>*4</sup>
SW09	OFF	ON	OFF	ON	OFF	ON
SW10	OFF	OFF	ON	ON	ON	ON
SW11	ON	ON	ON	ON	OFF	OFF
SW12	OFF	OFF	OFF	OFF	ON	ON


- \*1 Only transmission speeds available on the BOX Data Logger side are shown.
- \*2 When the software version of AJ71QC24 (-R2) and A1SJ71QC24 (-R2) is "L" or earlier, and when two pieces of equipment are connected to the two interfaces individually, make the setting so that the total transmission speed of the two interfaces is within 19200 bps.  
When only one device is connected to either of the interfaces, a maximum transmission speed of 19200 bps can be set to the one where the equipment is connected. In this instance, set SW09 to SW12 to "OFF" on the other side.
- \*3 When three pieces of equipment are connected to the two interfaces individually in the case of AJ71QC24N (-R2), A1SJ71QC24N (-R2), and A1SJ71QC24N1 (-R2), make the setting so that the total transmission speed of the two interfaces is within 115200 bps (within 230400 bps in the case of A1SJ71QC24N1 (-R2)).  
When only one equipment is connected to either of the interfaces, a maximum transmission speed of 115200 bps can be set to the one where the equipment is connected. In this instance, set SW09 to SW12 to "OFF" on the other side.
- \*4 This can only be set for AJ71QC24N (-R2), A1SJ71QC24N (-R2), or A1SJ71QC24N1 (-R2).

## Precautions

When the switch setting is changed, reset or power OFF → ON the programmable controller CPU.

## Connecting to computer link module

For details of the computer link module, refer to the following manual.

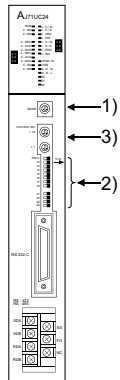
 Computer Link Module (Com. link func./Print. func.) User's Manual


### Switch setting for computer link module

Set the Mode setting switch, transmission specifications switch, and station number setting switches.

- AJ71UC24

AJ71UC24



Setting switch name		Description		Set value
1) Mode setting switch		Dedicated protocol type 1	RS-232 connection	1
2) Transmission specification setting switch	SW11	Main channel setting	RS-232 connection	OFF
	SW12	Data Bit	8 bits	ON
	SW13	Transmission speed setting	(Consistent with the BOX Data Logger side specifications)	 Transmission on speed setting (SW13 to SW15)
	SW14			
	SW15			
	SW16	Parity Bit	Exist	ON
	SW17	Even/odd parity	Odd	OFF
	SW18	Stop bit setting	1 bit	OFF
	SW21	Sum check code	Enable	ON
	SW22	Online Change	Enable	ON
	SW23	Computer link/multi-drop selection	Computer link	ON
	SW24	Master station/Local station setting	(Setting ignored)	OFF
3) Station number switch (for both CH1 and CH2)		Set the station number of the computer link module to be accessed from BOX Data Logger.		0

- Transmission speed setting (SW13 to SW15)

Set the transmission speed setting (SW13 to SW15) as follows.

Set the same transmission speed as that of the BOX Data Logger side.

Setting switch	Transmission speed*1		
	4800 bps	9600 bps	19200 bps
SW13	OFF	ON	OFF
SW14	OFF	OFF	ON
SW15	ON	ON	ON

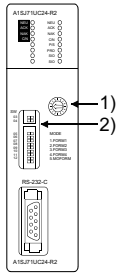
\*1 Only transmission speeds available on the BOX Data Logger side are shown.

## Precautions

When the switch setting is changed, reset or power OFF → ON the programmable controller CPU.

- A1SJ71UC24-R2, A1SJ71UC24-PRF, A1SJ71C24-R2 and A1SJ71C24-PRF

A1SJ71UC24-R2,  
A1SJ71UC24-PRF,  
A1SJ71C24-R2,  
A1SJ71C24-PRF



Setting switch name		Description		Set value
1) Mode setting switch		Dedicated protocol type 1	RS-232 connection	1
2) Transmission specification setting switch	SW03	Unused	—	OFF
	SW04	Online Change	Enable	ON
	SW05	Transmission speed setting	(Consistent with the BOX Data Logger side specifications)	Transmissi on speed setting (SW05 to SW07)
	SW06			
	SW07			
	SW08	Data Bit	8 bits	ON
	SW09	Parity Bit	Exist	ON
	SW10	Even/odd parity	Odd	OFF
	SW11	Stop bit setting	1 bit	OFF
	SW12	Sum check code	Enable	ON
3) Station number switch (for both CH1 and CH2)		Set the station number of the computer link module to be accessed from BOX Data Logger.		0

- Transmission speed setting (SW05 to SW07)

Set the transmission speed setting (SW05 to SW07) as follows.

Set the same transmission speed as that of the BOX Data Logger side.

Setting switch	Transmission speed*1		
	4800 bps	9600 bps	19200 bps
SW05	OFF	ON	OFF
SW06	OFF	OFF	ON
SW07	ON	ON	ON

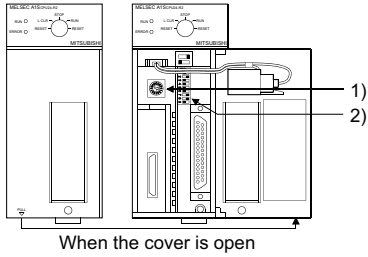
\*1 Only transmission speeds available on the BOX Data Logger side are shown.

## Precautions

When the switch setting is changed, reset or power OFF → ON the programmable controller CPU.

• A1SCPUC24-R2

A1SCPUC24-R2



Setting switch name		Description		Set value
1) Mode setting switch		Dedicated protocol type 1	RS-232 connection	1
2) Transmission specification setting switch	1	Online Change	Enable	ON
	2	Transmission speed setting	(Consistent with the BOX Data Logger side specifications)	☞ Transmissi on speed setting (2 to 4)
	3			
	4			
	5	Data Bit	8 bits	ON
	6	Parity Bit	Exist	ON
	7	Even/odd parity	Odd	OFF
	8	Stop bit setting	1 bit	OFF
	9	Sum check code	Enable	ON
3) Station number switch (for both CH1 and CH2)		Set the station number of the computer link module to be accessed from BOX Data Logger.		0

• Transmission speed setting (2 to 4)

Set the transmission speed setting (2 to 4) as follows.

Set the same transmission speed as that of the BOX Data Logger side.

Setting switch	Transmission speed*1		
	4800 bps	9600 bps	19200 bps
2	OFF	ON	OFF
3	OFF	OFF	ON
4	ON	ON	ON

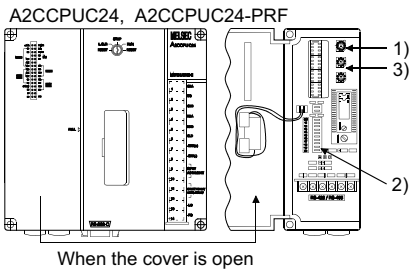
\*1 Only transmission speeds available on the BOX Data Logger side are shown.

## Precautions

When the switch setting is changed, reset or power OFF → ON the programmable controller CPU.



• A2CCPUC24 and A2CCPUC24-PRF



Setting switch name		Description		Set value
1) Mode setting switch		Dedicated protocol type 1	RS-232 connection	1
2) Transmission specification setting switch	SW11	Transmission speed setting (Consistent with the BOX Data Logger side specifications)		Transmissi on speed setting (SW11 to SW13)
	SW12			
	SW13			
	SW14	Data Bit	8 bits	ON
	SW15	Parity Bit	Exist	ON
	SW16	Even/odd parity	Odd	OFF
	SW17	Stop bit setting	1 bit	OFF
	SW18	Sum check code	Enable	ON
	SW19	Main channel setting	RS-232	OFF
SW20	Online Change	Enable	ON	
3) Station number switch (for both CH1 and CH2)		Set the station number of the computer link module to be accessed from BOX Data Logger.		0

• Transmission speed setting (SW11 to SW13)

Set the transmission speed setting (SW11 to SW13) as follows.

Set the same transmission speed as that of the BOX Data Logger side.

Setting switch	Transmission speed*1		
	4800 bps	9600 bps	19200 bps
SW11	OFF	ON	OFF
SW12	OFF	OFF	ON
SW13	ON	ON	ON

\*1 Only transmission speeds available on the BOX Data Logger side are shown.

### Precautions

When the switch setting is changed, reset or power OFF → ON the programmable controller CPU.

## Considerations

---

### Connection in the multiple CPU system

The following time is taken until the programmable controller runs when BOX Data Logger is connected in the multiple CPU system.

- QCPU (Q mode), motion controller CPU (Q series): 10 seconds or more

When the BOX Data Logger starts before the programmable controller runs, a communication error occurs.

To prevent a communication error from occurring, adjust the delay timer at power ON for BOX Data Logger setup.

☞ Page 257 BOX Data Logger setup

### Connection to LCPU

Since LCPU may diagnose (check file system, recovering process, etc.) the SD memory card at the timing of powering OFF → ON or resetting, it will take time until the SD memory card becomes available.

When the BOX Data Logger starts before the SD card becomes available, a communication error occurs.

To prevent a communication error from occurring, adjust the delay timer at power ON for BOX Data Logger setup.

☞ Page 257 BOX Data Logger setup

### Connection to Q170MCPU

To perform logging on the devices of the motion controller CPU (PLC No.2), set the unit number for the Multiple CPU specification to "PLC No.2".

If a unit number is set to "Not specified" or "PLC No.1", the device data in the CPU (No.1) will be logged.

If the unit number is set to other than "Not specified", "PLC No.1", and "PLC No.2", a communication error will occur and cannot perform data logging.

### When changing parameters

If the parameters are changed with GX Works2 or GX Developer, BOX Data Logger must be reset or powered OFF → ON.

# 18.4 Ethernet Connection

## Connectable model list

The connectable models are as follows:

### Programmable controller/motion controller CPU

Series	Model name	Communication type	Reference
MELSEC-Q (Q mode)	Q00JCPU	Ethernet	Page 494 Connecting to Ethernet module
	Q00CPU <sup>*1</sup>		
	Q01CPU <sup>*1</sup>		
	Q02CPU <sup>*1</sup>		
	Q02HCPU <sup>*1</sup>		
	Q06HCPU <sup>*1</sup>		
	Q12HCPU <sup>*1</sup>		
	Q25HCPU <sup>*1</sup>		
	Q02PHCPU	Ethernet	Page 494 Connecting to Ethernet module
	Q06PHCPU		
	Q12PHCPU	Ethernet	Page 494 Connecting to Ethernet module
	Q25PHCPU		
	Q00UJCPU		
	Q00UCPU		
Q01UCPU			
Q02UCPU			
Q03UDCPU			
Q04UDHCPU			
Q06UDHCPU			
Q10UDHCPU			
Q13UDHCPU			
Q20UDHCPU			
Q26UDHCPU			
Q03UDECPU	Ethernet	Page 494 Connecting to Ethernet module Page 496 Connecting to Built-in Ethernet port CPU or C Controller module	
Q04UDEHCPU			
Q06UDEHCPU			
Q10UDEHCPU			
Q13UDEHCPU			
Q20UDEHCPU			
Q26UDEHCPU			
Q50UDEHCPU			
Q100UDEHCPU			
Q03UDVCPU			
Q04UDVCPU			
Q06UDVCPU			
Q13UDVCPU			
Q26UDVCPU			
Q04UDPVCPU	Ethernet	Page 496 Connecting to Built-in Ethernet port CPU or C Controller module	
Q06UDPVCPU			
Q13UDPVCPU			
Q26UDPVCPU			
C Controller module	Q12DCCPU-V <sup>*2</sup>	Ethernet	Page 496 Connecting to Built-in Ethernet port CPU or C Controller module
	Q24DHCCPU-V		
	Q24DHCCPU-LS		
MELSEC-QS	QS001CPU	Ethernet	Page 494 Connecting to Ethernet module

Series	Model name	Communication type	Reference
MELSEC-L	L02SCPU L02CPU L02CPU-P L02SCPU-P L06CPU L06CPU-P L26CPU L26CPU-P L26CPU-BT L26CPU-PBT	Ethernet	Page 496 Connecting to Built-in Ethernet port CPU or C Controller module
MELSEC-Q (A mode)	Q02CPU-A Q02HCPU-A Q06HCPU-A	Ethernet	Page 494 Connecting to Ethernet module
MELSEC-QnA (QnACPU) <sup>*3</sup> (Discontinuation of production)	Q2ACPU Q2ACPU-S1 Q3ACPU Q4ACPU	Ethernet	Page 494 Connecting to Ethernet module
MELSEC-QnA (QnASCPU) <sup>*3</sup>	Q2ASCPU Q2ASCPU-S1 Q2ASHCPU Q2ASHCPU-S1	Ethernet	Page 494 Connecting to Ethernet module
MELSEC-A (AnCPU) (Discontinuation of production)	A2UCPU A2UCPU-S1 A3UCPU A4UCPU A2ACPU A2ACPUP21 A2ACPUR21 A2ACPU-S1 A2ACPUP21-S1 A2ACPUR21-S1 A3ACPU A3ACPUP21 A3ACPUR21 A1NCPUR21 A1NCPUR21 A2NCPUR21 A2NCPUR21 A2NCPUR21 A2NCPUR21-S1 A2NCPUR21-S1 A3NCPUR21 A3NCPUR21 A3NCPUR21	Ethernet	Page 494 Connecting to Ethernet module
MELSEC-A (AnSCPU)	A2USCPU A2USCPU-S1 (Discontinuation of production) A2USHCPU-S1 A1SCPU (Discontinuation of production) A1SCPUC24-R2 A1SHCPU A2SCPU (Discontinuation of production) A2SHCPU A1SJCPU (Discontinuation of production) A1SJCPU-S3 (Discontinuation of production) A1SJHCPU	Ethernet	Page 494 Connecting to Ethernet module
MELSEC-A (Discontinuation of production)	A0J2HCPU A0J2HCPUP21 A0J2HCPUR21 A0J2HCPU-DC24	Ethernet	Page 494 Connecting to Ethernet module

Series	Model name	Communication type	Reference
Motion controller CPU (Q Series)	Q172CPU* <sup>4</sup> , * <sup>5</sup> Q173CPU* <sup>4</sup> , * <sup>5</sup> Q172CPUN* <sup>4</sup> Q173CPUN* <sup>4</sup> Q172HCPU Q173HCPU Q172DCPU Q173DCPU Q172DCPU-S1 Q173DCPU-S1 Q172DSCPU Q173DSCPU Q170MCPU* <sup>6</sup> Q170MCPU-S1* <sup>7</sup>	Ethernet	Page 494 Connecting to Ethernet module Page 497 Connecting to PERIPHERAL I/F (Built-in Ethernet port motion Controller CPU)
MELSEC-FX	FX3S FX3G FX3GC FX3U* <sup>8</sup> FX3UC* <sup>8</sup>	Ethernet	Page 494 Connecting to Ethernet module

- \*1 For multiple CPU system configuration, use CPU function version B or later.
- \*2 Use a module with a serial number whose first five digits are '12042' or higher.
- \*3 When using an A series Ethernet module with QnACPU, data logging can be performed only on the devices that are also in the AnACPU logging device range and have the same name as the AnACPU devices.  
Set the controller type of the "Access target CPU setting" to "MELSEC-A".  
However, the data of the following devices cannot be logged.
  - Devices added to QnACPU
  - Latch relays (L) and step relays (S)  
(For QnACPU, the latch relay (L) and step relay (S) are different from the internal relay (M). However, both of them can be accessed to the internal relay.)
  - File register (R)
- \*4 For SV13, SV22, and SV43, use the motion controller CPU on which any of the following operating system version is installed.  
SW6RN-SV13Q□: 00H or later  
SW6RN-SV22Q□: 00H or later  
SW6RN-SV43Q□: 00B or later
- \*5 Use the module with the following product number.  
Q172CPU: Product number N\*\*\*\*\* or later  
Q173CPU: Product number M\*\*\*\*\* or later
- \*6 Only the first step can be used on the extension base unit (Q52B/Q55B).
- \*7 The extension base unit (Q5□B/Q6□B) can be used.
- \*8 Depending on the Ethernet module to be used, the supported version of the corresponding base unit varies as follows.

Ethernet module	FX3U (C)	FX3G (C)	FX3S
FX3U-ENET-L	Ver.2.21 or later	FX3U-ENET-L is not supported.	
FX3U-ENET-ADP	Ver.3.10 or later	Ver.2.00 or later	Ver.1.00 or later

## Ethernet module

CPU series	Ethernet module
MELSEC-Q (Q mode) MELSEC-QS Motion controller CPU (Q Series)	QJ71E71-100, QJ71E71-B5, QJ71E71-B2, QJ71E71
MELSEC-QnA (QnACPU) MELSEC-QnAS (QnASCPU)	AJ71QE71N3-T, AJ71QE71N-B5, AJ71QE71N-B2, AJ71QE71N-T, AJ71QE71N-B5T, AJ71QE71, AJ71QE71-B5, A1SJ71QE71N3-T, A1SJ71QE71N-B5, A1SJ71QE71N-B2, A1SJ71QE71N-T, A1SJ71QE71N-B5T, A1SJ71QE71-B5, A1SJ71QE71-B2, AJ71E71N3-T <sup>*1</sup> , AJ71E71N-B5 <sup>*1</sup> , AJ71E71N-B2 <sup>*1</sup> , AJ71E71N-T <sup>*1</sup> , AJ71E71N-B5T <sup>*1</sup> , AJ71E71-S3 <sup>*1</sup> , A1SJ71E71N3-T <sup>*1</sup> , A1SJ71E71N-B5 <sup>*1</sup> , A1SJ71E71N-B2 <sup>*1</sup> , A1SJ71E71N-T <sup>*1</sup> , A1SJ71E71N-B5T <sup>*1</sup> , A1SJ71E71-B5-S3 <sup>*1</sup> , A1SJ71E71-B2-S3 <sup>*1</sup>
MELSEC-Q (A mode) MELSEC-A MELSEC-A (AnCPU) MELSEC-A (AnSCPU)	AJ71E71N3-T, AJ71E71N-B5, AJ71E71N-B2, AJ71E71N-T, AJ71E71N-B5T, AJ71E71-S3, A1SJ71E71N3-T, A1SJ71E71N-B5, A1SJ71E71N-B2, A1SJ71E71N-T, A1SJ71E71N-B5T, A1SJ71E71-B5-S3, A1SJ71E71-B2-S3
MELSEC-FX	FX3U-ENET-L, FX3U-ENET-ADP
MELSEC-L	LJ71E71-100

- \*1 When using an A series Ethernet module with QnACPU, data logging can be performed only on the devices that are also in the AnACPU logging device range and have the same name as the AnACPU devices.  
Set the controller type of the "Access target CPU setting" to "MELSEC-A".  
However, the data of the following devices cannot be logged.
- Devices added to QnACPU
  - Latch relays (L) and step relays (S)
- (For QnACPU, the latch relay (L) and step relay (S) are different from the internal relay (M). However, both of them can be accessed to the internal relay.)
- File register (R)

# System configuration

## Connecting to Ethernet module

### ■When connecting to MELSEC-Q/L/QS/QnA/A or motion controller

Programmable controller		Connection cable*1		Remarks
Model name	Ethernet module*2	Cable model	Maximum segment length*3	
MELSEC-Q (Q mode) MELSEC-QS Motion controller CPU (Q Series)	QJ71E71-100 QJ71E71-B5 QJ71E71-B2 QJ71E71	Twisted pair cable • 10BASE-T Shielded twisted pair cable (STP) or unshielded twisted pair cable (UTP):	100 m	—
MELSEC-QnA	AJ71QE71N3-T AJ71QE71N-B5 AJ71QE71N-B2 AJ71QE71N-T AJ71QE71N-B5T AJ71QE71 AJ71QE71-B5 A1SJ71QE71N3-T A1SJ71QE71N-B5 A1SJ71QE71N-B2 A1SJ71QE71N-T A1SJ71QE71N-B5T A1SJ71QE71-B5 A1SJ71QE71-B2	Category 3, 4, and 5 • 100BASE-TX Shielded twisted pair cable (STP): Category 5 and 5e	100 m	
MELSEC-A MELSEC-Q (A mode)	AJ71E71N3-T AJ71E71N-B5 AJ71E71N-B2 AJ71E71N-T AJ71E71N-B5T AJ71E71-S3 A1SJ71E71N3-T A1SJ71E71N-B5 A1SJ71E71N-B2 A1SJ71E71N-T A1SJ71E71N-B5T A1SJ71E71-B5-S3 A1SJ71E71-B2-S3		100 m	
MELSEC-L	LJ71E71-100		100 m	

\*1 The connection destination of the twisted pair cable varies depending on the Ethernet network system configuration to be used. Connect a cable with an Ethernet module, hub, transceiver, or wireless LAN adapter (NZ2WL-JPA, NZ2WL-JPS) in accordance with the Ethernet network system to be used.

Use cables, connectors, and hubs that meet the IEEE802.3 10BASE-T/100BASE-TX standard.

A cross cable is available for connecting a BOX Data Logger and an Ethernet module.

For details on wireless LAN adapter connectable target equipment and how to set wireless LAN adapter, refer to the manual for the wireless LAN adapter to be used.

\*2 For the system configuration of the Ethernet module, refer to the following manuals.

 Q Corresponding Ethernet Interface Module User's Manual (Basic)

 For QnA Ethernet Interface Module User's Manual

 For A Ethernet Interface Module User's Manual

 MELSEC-L Ethernet Interface Module User's Manual (Basic)

\*3 A length between a hub and a node.

The following shows the number of the connectable nodes.

10BASE-T: Max. 4 nodes for a cascade connection

100BASE-TX: Max. 2 nodes for a cascade connection



## ■When connecting to MELSEC-FX


Programmable controller			Connection cable*1	Maximum segment length*3	Remarks
Model name	Ethernet module*2	Communication type	Cable model		
MELSEC-FX (FX3U)	FX3U-ENET-L	Ethernet	Twisted pair cable • 10BASE-T Shielded twisted pair cable (STP) or unshielded twisted pair cable (UTP): Category 3, 4, and 5 • 100BASE-TX Shielded twisted pair cable (STP): Category 5 and 5e	100 m	—
	FX3U-□□□-BD*4 + FX3U-ENET-ADP*5	Ethernet		100 m	
MELSEC-FX (FX3UC-32MT-LT(-2))	FX3UC-1PS-5V, FX2NC-CNV-IF + FX3U-ENET-L*6	Ethernet		100 m	
	FX3U-□□□-BD*4 + FX3U-ENET-ADP*5	Ethernet		100 m	
MELSEC-FX (FX3UC (D, DS, DSS))	FX3UC-1PS-5V, FX2NC-CNV-IF + FX3U-ENET-L*6	Ethernet		100 m	
	FX3U-ENET-ADP*5	Ethernet		100 m	
MELSEC-FX (FX3G)	FX3G-CNV-ADP + FX3U-ENET-ADP*5	Ethernet		100 m	
MELSEC-FX (FX3GC)	FX3U-ENET-ADP*5	Ethernet	100 m		
MELSEC-FX (FX3S)	FX3S-CNV-ADP + FX3U-ENET-ADP*5	Ethernet	100 m		

\*1 The connection destination of the twisted pair cable varies depending on the Ethernet network system configuration to be used. Connect a cable with an Ethernet module, hub, transceiver in accordance with the Ethernet network system to be used.

Use cables, connectors, and hubs that meet the IEEE802.3 10BASE-T/100BASE-TX standard.

A cross cable is available for connecting a BOX Data Logger and an Ethernet module.

\*2 For the system configuration of the Ethernet module, refer to the following manual.

 For FX Ethernet Interface Module User's Manual

\*3 A length between a hub and a node.

The following shows the number of the connectable nodes.

10BASE-T: Max. 4 nodes for a cascade connection

100BASE-TX: Max. 2 nodes for a cascade connection

\*4 When connecting a communication special adapter, any of the following function expansion boards is required.

FX3U-232-BD

FX3U-485-BD

FX3U-422-BD

FX3U-USB-BD

FX3U-8AV-BD

FX3U-CNV-BD

\*5 FX3U-ENET-ADP occupies one channel of the extension communication adapter CH for FX3U(C)/FX3G(C) (2CH at maximum) or the extension communication adapter CH for FX3S (1CH at maximum). A single FX3U-ENET-ADP can be connected to a single CPU.

\*6 When using an Ethernet module with FX3UC series, FX3UC-1PS-5V or FX2NC-CNV-IF is required.

## Connecting to Built-in Ethernet port CPU or C Controller module

Programmable controller	Communication type	Connection cable <sup>*1, *2</sup>	Maximum segment length <sup>*3</sup>	Remarks
		Cable model		
Built-in Ethernet port QCPU <sup>*4</sup>	Ethernet	Twisted pair cable • 10BASE-T	100 m	—
C Controller module	Ethernet	Shielded twisted pair cable (STP) or unshielded twisted pair cable (UTP): Category 3, 4, and 5 • 100BASE-TX	100 m	
Built-in Ethernet port LCPU <sup>*5</sup>	Ethernet	Shielded twisted pair cable (STP): Category 5 and 5e	100 m	

\*1 The connection destination of the twisted pair cable varies depending on the Ethernet network system configuration to be used. Connect a cable with an Ethernet module, hub, transceiver, or wireless LAN adapter (NZ2WL-JPA, NZ2WL-JPS) in accordance with the Ethernet network system to be used.

Use cables, connectors, and hubs that meet the IEEE802.3 10BASE-T/100BASE-TX standard.

A cross cable is available for connecting a BOX Data Logger and an Ethernet module.

For details on wireless LAN adapter connectable target equipment and how to set wireless LAN adapter, refer to the manual of the wireless LAN adapter to be used.

\*2 A straight cable is available.

A cross cable is available for connecting a CPU and BOX Data Logger directly with an Ethernet cable.


\*3 A length between a hub and a node.

The following shows the number of the connectable nodes.


10BASE-T: Max. 4 nodes for a cascade connection

100BASE-TX: Max. 2 nodes for a cascade connection

\*4 For the system configuration on Built-in Ethernet port QCPU, refer to the following manual.

 QCPU User's Manual (Hardware Design, Maintenance and Inspection)

\*5 For the system configuration on Built-in Ethernet port LCPU, refer to the following manual.

 MELSEC-L CPU Module User's Manual (Built-In Ethernet Function)

## Connecting to PERIPHERAL I/F (Built-in Ethernet port motion Controller CPU)

Programmable controller		Connection cable <sup>*1</sup>		Maximum segment length <sup>*2</sup>	Remarks
Model name	Communication type	Cable model			
Motion controller CPU (Q Series) Q172DCPU-S1 Q173DCPU-S1 Q172DSCPU Q173DSCPU Q170MCP Q170MSCPU Q170MSCPU-S1	Ethernet	Twisted pair cable • 10BASE-T Shielded twisted pair cable (STP) or unshielded twisted pair cable (UTP): Category 3, 4, and 5 • 100BASE-TX Shielded twisted pair cable (STP): Category 5 and 5e		30 m	—

\*1 The connection destination of the twisted pair cable varies depending on the Ethernet network system configuration to be used. Connect a cable with an Ethernet module, hub, transceiver, or wireless LAN adapter (NZ2WL-JPA, NZ2WL-JPS) in accordance with the Ethernet network system to be used.

Use cables, connectors, and hubs that meet the IEEE802.3 10BASE-T/100BASE-TX standard.

A cross cable is available for connecting a BOX Data Logger and an Ethernet module.

For details on wireless LAN adapter connectable target equipment and how to set wireless LAN adapter, refer to the manual of the wireless LAN adapter to be used.

\*2 A length between a hub and a node.

The following shows the number of the connectable nodes.

10BASE-T: Max. 4 nodes for a cascade connection

100BASE-TX: Max. 2 nodes for a cascade connection

### Point

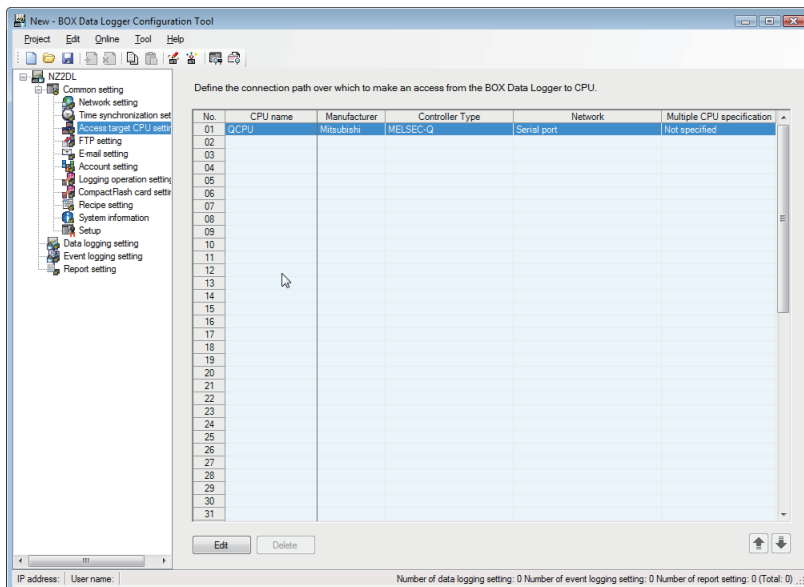
- Direct connection between PERIPHERAL I/F and BOX Data Logger

The PERIPHERAL I/F and BOX Data Logger can be directly connected by using a crossing cable for the Ethernet connection cable.

# Settings for BOX Data Logger

## Setting communication interface (Access target CPU setting)

Set the access target CPU.



### Operating procedure

1. Click "Common setting" on the edit items tree of the Configuration tool, and click the [Access target CPU setting] button.
2. On the detailed setting editing screen, select the row of the access target CPU, and click the [Edit] button.
3. Set the access target CPU on the displayed "Access target CPU setting" screen.  
Mitsubishi MELSEC-Q is set by default.
4. Select the following items in the [Manufacturer/Controller Type] tab, and click the [Next] button.  
Manufacturer: MITSUBISHI  
Controller Type: Set according to the controller type to be connected.
5. In the [Source Port] tab, select "BOX Data Logger Ethernet Port", and click the [Next] button.
6. In the [Network] tab, set the detailed settings of the BOX Data Logger Ethernet port to connect to the access target.  
Make the settings according to the usage environment.  
📖 Page 499 Network settings
7. Click the [Finish] button once the setting is completed.

## Network settings

Set the settings according to the access target.

### ■ MELSEC-Q, MELSEC-QnA, MELSEC-L, MELSEC-A

#### • Access source system (Port type)

Item	Description	Range
Port type	The display of BOX Data Logger Ethernet port varies according to whether the "Use the IP address setting (CH2)" is selected or not in the Network setting. <ul style="list-style-type: none"> <li>• Selected</li> <li>Ethernet port (CH1)</li> <li>Ethernet port (CH2)</li> <li>• Unselected</li> <li>Ethernet port (CH1)</li> </ul>	—

#### • Access source system (Ethernet port setting)

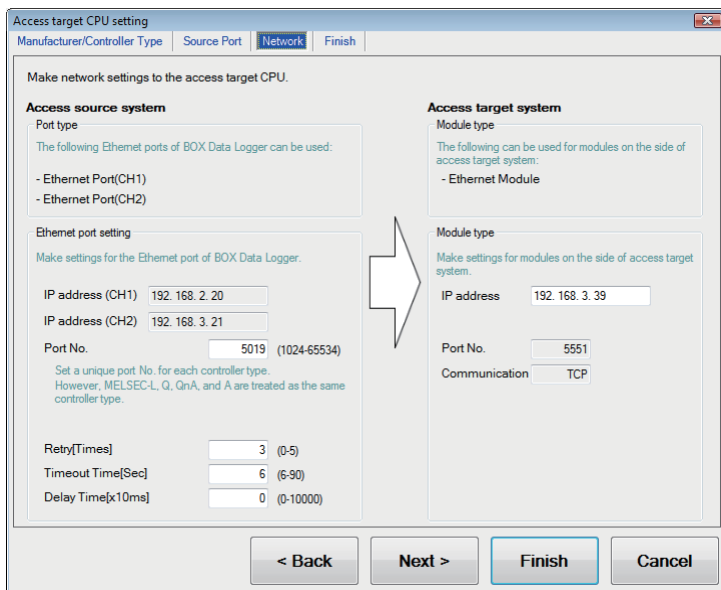
Item	Description	Range
IP address	Display the IP address (CH1, CH2) of BOX Data Logger.	—
Port No.	Set the BOX Data Logger port number for the connection with the Ethernet module. (Default: 5001)	1024 to 5010, 5014 to 65534 (Except for 5011, 5012 and 5013)
BOX Data Logger Station No.	Set the station number of BOX Data Logger. (Default: 2)	1 to 64
Retry	Set the number of retries to be performed when a communication timeout occurs. When receiving no response after retries, the communication times out. (Default: 3 times)	0 to 5 times
Timeout Time	Set the time period for a communication to time out. (Default: 3 sec)	3 to 90 sec
Delay Time	Set the delay time for reducing the load of the network/connection target programmable controller. (Default: 0 ms)	0 to 100000 ms

#### • Access target system (Module type)

Item	Description	Range
Module type	The following modules can be set for access target system. <ul style="list-style-type: none"> <li>■ MELSEC-Q, MELSEC-L <ul style="list-style-type: none"> <li>• CPU (Built-in Ethernet Port) (Default)</li> <li>• Ethernet module</li> </ul> </li> <li>■ MELSEC-QnA, MELSEC-A <ul style="list-style-type: none"> <li>• Ethernet module</li> </ul> </li> </ul>	—

• Access target system (Module setting)

Item	Description	Range
IP address	Set the access target IP address. (Default: 192.168.3.39)	0.0.0.0 to 255.255.255.255
Port No.	Only for MELSEC-A, set the access target port number. • CPU (Built-in Ethernet Port) (Default: 5006 (fixed)) • Ethernet module (Default: 5001 (fixed))	1024 to 65535
Protocol	Set the protocol UDP or TCP. UDP is fixed and cannot be changed.	Fixed
Network No.	Set the network number of the module if the Ethernet module is selected in "Module type". (Default: 1)	1 to 239
Station No.	Set the station number of the module if the Ethernet module is selected in "Module type". (Default: 1)	1 to 64



• Access source system (Port type)

Item	Description	Range
Port type	The display of BOX Data Logger Ethernet port varies according to whether the "Use the IP address setting (CH2)" is selected or not in the Network setting. <ul style="list-style-type: none"> <li>• Selected Ethernet port (CH1) Ethernet port (CH2)</li> <li>• Unselected Ethernet port (CH1)</li> </ul>	—

• Access source system (Ethernet port setting)

Item	Description	Range
IP address	Display the IP address (CH1, CH2) of BOX Data Logger.	—
Port No.	Set the BOX Data Logger port number for the connection with the Ethernet module. (Default: 5019)	1024 to 5010, 5014 to 65534 (Except for 5011, 5012 and 5013)
Retry	Set the number of retries to be performed when a communication timeout occurs. When receiving no response after retries, the communication times out. (Default: 3 times)	0 to 5 times
Timeout Time	Set the time period for a communication to time out. (Default: 6 sec)	6 to 90 sec
Delay Time	Set the delay time for reducing the load of the network/connection target programmable controller. (Default: 0 ms)	0 to 100000 ms

• Access target system (Module type)

Item	Description	Range
Module type	The following modules can be set for access target system. <ul style="list-style-type: none"> <li>• Ethernet module</li> </ul>	—

• Access target system (Module setting)

Item	Description	Range
IP address	Set the access target IP address. (Default: 192.168.3.39)	0.0.0.0 to 255.255.255.255
Port No.*1	Set the BOX Data Logger port number for the connection with the Ethernet module. (Default: 5551) Set the access target port number.	5551, 5556
Protocol	Set the protocol UDP or TCP. TCP is fixed and cannot be changed.	Fixed

\*1 Select '5551' when using FX3U-ENET-L and '5556' when using FX3U-ENET-ADP, respectively.

# Setting for programmable controller

Model name		Reference
Built-in Ethernet port QCPU	Q03UDEHCPU, Q04UDEHCPU, Q06UDEHCPU, Q10UDEHCPU, Q13UDEHCPU, Q20UDEHCPU, Q26UDEHCPU, Q50UDEHCPU, Q100UDEHCPU, Q03UDVCPU, Q04UDVCPU, Q06UDVCPU, Q13UDVCPU, Q26UDVCPU, Q04UDPVCPU, Q06UDPVCPU, Q13UDPVCPU, Q26UDPVCPU, Q172DSCPU, Q173DSCPU, Q172DCPU-S1, Q173DCPU-S1, Q170MPCPU, Q170MSCPU, Q170MSCPU-S1	Page 502 Connecting to Built-in Ethernet port CPU (1:1 basis) ☞ Page 504 Connecting to Built-in Ethernet port CPU (multiple connection)
C Controller module	Q12DCCPU-V, Q24DHCCPU-V, Q24DHCCPU-LS	Page 511 Connecting to C Controller module
Built-in Ethernet port LCPU	L02CPU, L06CPU, L26CPU, L02CPU-P, L06CPU-P, L26CPU-P, L26CPU-BT, L26CPU-PBT	Page 502 Connecting to Built-in Ethernet port CPU (1:1 basis) ☞ Page 504 Connecting to Built-in Ethernet port CPU (multiple connection)
Q series-compatible E71	QJ71E71-100, QJ71E71-B5, QJ71E71-B2, QJ71E71	Page 507 Connecting to Ethernet module (Q/L series)
L series-compatible E71	LJ71E71-100	
Ethernet module (QnA series)	AJ71QE71N3-T, AJ71QE71N-B5, AJ71QE71N-B2, AJ71QE71N-T, AJ71QE71N-B5T, AJ71QE71, AJ71QE71-B5, A1SJ71QE71N3-T, A1SJ71QE71N-B5, A1SJ71QE71N-B2, A1SJ71QE71N-T, A1SJ71QE71N-B5T, A1SJ71QE71-B5, A1SJ71QE71-B2	Page 516 Connecting to Ethernet module (QnA Series)
Ethernet module (A series)	AJ71E71N3-T, AJ71E71N-B5, AJ71E71N-B2, AJ71E71N-T, AJ71E71N-B5T, AJ71E71-S3, A1SJ71E71N3-T, A1SJ71E71N-B5, A1SJ71E71N-B2, A1SJ71E71N-T, A1SJ71E71N-B5T, A1SJ71E71-B5-S3, A1SJ71E71-B2-S3	Page 520 Connecting to Ethernet module (A series)
Ethernet module (FX series)	FX3U-ENET-L FX3U-ENET-ADP	Page 525 Connecting to Ethernet module (FX series)

## Connecting to Built-in Ethernet port CPU (1:1 basis)

This section explains the settings of BOX Data Logger and Built-in Ethernet port CPU in the following case of system configuration.

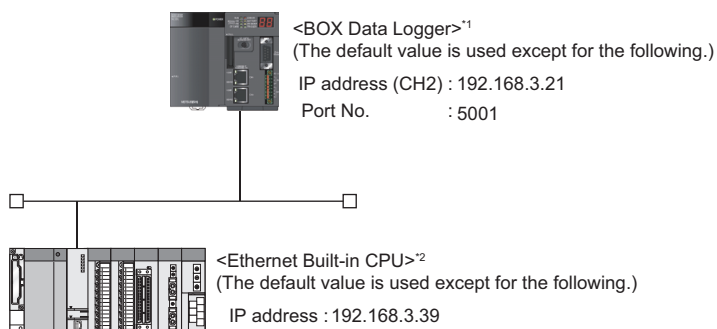
For details of Built-in Ethernet port CPU, refer to the following manuals.

📖 QnUCPU User's Manual (Communication via Built-in Ethernet Port)

📖 MELSEC-L CPU Module User's Manual (Built-In Ethernet Function)

### ■System configuration

When connecting a Built-in Ethernet port QCPU and BOX Data Logger on a 1:1 basis, the settings for programmable controller is not required.



\*1 ☞ Page 503 [Access target CPU setting] of Configuration tool

\*2 For the settings when using external equipment such as a hub and a transceiver, refer to the following section.

☞ Page 504 Connecting to Built-in Ethernet port CPU (multiple connection)



## ■[Access target CPU setting] of Configuration tool

- [Common setting]-[Network setting]

Item	Set value
IP address (CH2)	192.168.3.21
Subnet Mask	255.255.255.0
Default Gateway	—

- [Common setting]-[Access target CPU setting]

Item	Set value		
Manufacturer/Controller Type	Manufacturer	MITSUBISHI	
	Controller Type	MELSEC-Q	
Source Port	Source Port	BOX Data Logger Ethernet Port	
Network	Access source system	IP address (CH2)	192.168.3.21
		Port No.	5001
		Retry	3 times
		Timeout Time	3 sec
		Delay Time	0
	Access target system	Module type	CPU (Built-in Ethernet Port)
		IP address	192.168.3.39
Multiple CPU specification	Multiple CPU specification	Not specified	
Finish	Name of access target CPU	MITSUBISHI QCPU	

## ■Checking communication state of Connecting to Built-in Ethernet port CPU

- When using the Command Prompt of Windows®

Execute a Ping command at the Command Prompt of Windows®.

When normal communication: Ping 192.168.3.39  
Reply from 192.168.3.39: bytes=32 time<10ms TTL=32

When abnormal communication: Ping 192.168.3.39  
Request timed out.

- When abnormal communication

At abnormal communication, check the following and execute the Ping command again.

- Cable connecting condition
- Confirmation of switch and network parameter setting
- Operation state of PLC CPU (faulty or not)
- The IP address of Built-in Ethernet port CPU specified in the ping command

### Point

Ethernet diagnostics of GX Works2 is available to a Ping test from the programmable controller.

For details of Ethernet diagnostics of GX Works2, refer to the following manuals.

📖 QCPU User's Manual (Hardware Design, Maintenance and Inspection)

📖 MELSEC-L CPU Module User's Manual (Hardware Design, Maintenance and Inspection)

## Connecting to Built-in Ethernet port CPU (multiple connection)

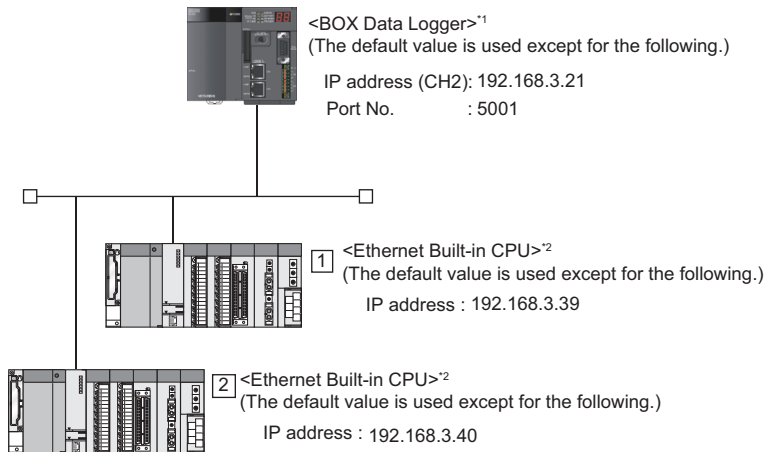
This section explains the settings of BOX Data Logger and Built-in Ethernet port CPU in the following case of system configuration.

For details of Built-in Ethernet port CPU, refer to the following manuals.

📖 QnUCPU User's Manual (Communication via Built-in Ethernet Port)

📖 MELSEC-L CPU Module User's Manual (Built-In Ethernet Function)

### ■System configuration



\*1 📖 Page 506 [Access target CPU setting] of Configuration tool

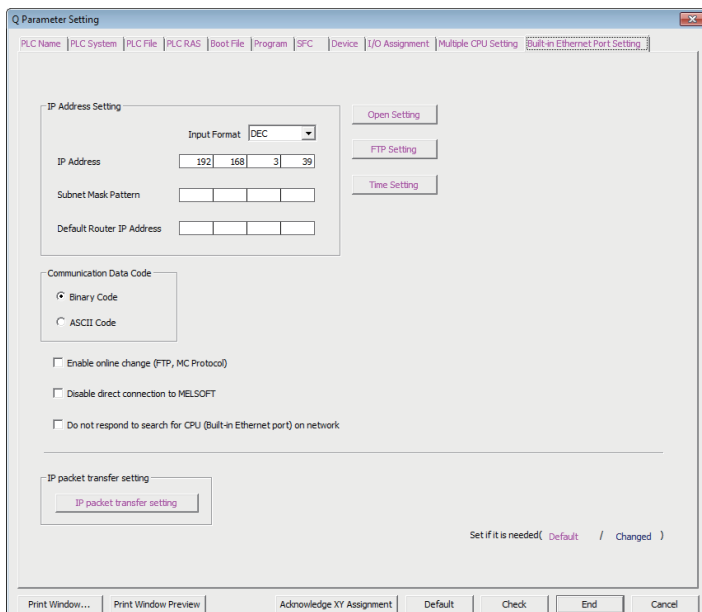
\*2 📖 Page 505 [Q Parameter Setting] or [L Parameter Setting] for GX Works2

## ■[Q Parameter Setting] or [L Parameter Setting] for GX Works2

- Built-in Ethernet port

Ex.

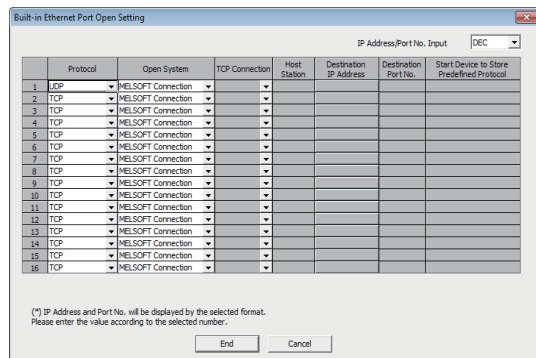
"Q Parameter Setting" screen



○: Necessary, △: As necessary, ×: Not necessary

Item	Set value	Setting necessity at BOX Data Logger connection
IP Address	192.168.3.39	○
Subnet Mask Pattern	—	×
Default Router IP Address	—	×
Communication Data Code	(Use default value)	△
Enable online change (FTP, MC protocol)		△
Disable direct connection to MELSOFT		△
Do not respond to search for CPU (Built-in Ethernet port) on network		△
Open Setting	Open Setting	○
FTP Setting	(Use default value)	△
Time Setting		△

- Open Setting



Item	Set value
Protocol	UDP (fixed)
Open System	MELSOFT Connection (fixed)
Host station port No.	(Use default value)

## ■[Access target CPU setting] of Configuration tool

- [Common setting]-[Network setting]

Item	Set value
IP address (CH2)	192.168.3.21
Subnet Mask	255.255.255.0
Default Gateway	—

- [Common setting]-[Access target CPU setting]

Item			Set value		
Manufacturer/Controller Type	Manufacturer		mitsubishi		
	Controller Type		MELSEC-Q		
Source Port	Source Port		BOX Data Logger Ethernet Port		
Network	Access source system		IP address (CH2)	192.168.3.21	
			Port No.	5001	
			Retry	3 times	
			Timeout Time	3 sec	
			Delay Time	0	
	Access target system		1	Module type	CPU (Built-in Ethernet Port)
				IP address	192.168.3.39
			2	Module type	CPU (Built-in Ethernet Port)
IP address	192.168.3.40				
Multiple CPU specification	Multiple CPU specification		Not specified		
Finish	Name of access target CPU		MITSUBISHI QCPU		

## ■Checking communication state of Connecting to Built-in Ethernet port CPU

- When using the Command Prompt of Windows®

Execute a Ping command at the Command Prompt of Windows®.

```
When normal communication: Ping 192.168.3.39
Reply from 192.168.3.39: bytes=32 time<10ms TTL=32

When abnormal communication: Ping 192.168.3.39
Request timed out.
```

- When abnormal communication

At abnormal communication, check the following and execute the Ping command again.

- Cable connecting condition
- Confirmation of switch and network parameter setting
- Operation state of PLC CPU (faulty or not)
- The IP address of Built-in Ethernet port CPU specified in the ping command



Ethernet diagnostics of GX Works2 is available to a Ping test from the programmable controller.

For details of Ethernet diagnostics of GX Works2, refer to the following manuals.

📖 QCPU User's Manual (Hardware Design, Maintenance and Inspection)

📖 MELSEC-L CPU Module User's Manual (Hardware Design, Maintenance and Inspection)

## Connecting to Ethernet module (Q/L series)

This section explains the settings of BOX Data Logger and Q series-compatible E71 and L series-compatible E71 in the following case of the system configuration.

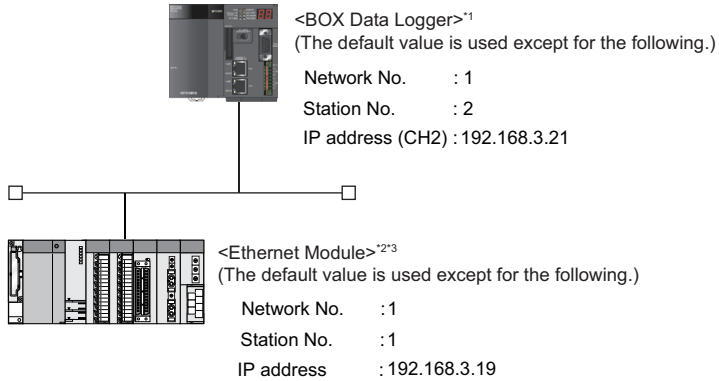
For details of Q series-compatible E71, refer to the following manual.


 Q Corresponding Ethernet Interface Module User's Manual (Basic)


For details of L series-compatible E71, refer to the following manual.

 MELSEC-L Ethernet Interface Module User's Manual (Basic)

### ■System configuration



\*1  Page 510 [Access target CPU setting] of Configuration tool

\*2  Page 508 [Network parameter] of GX Developer

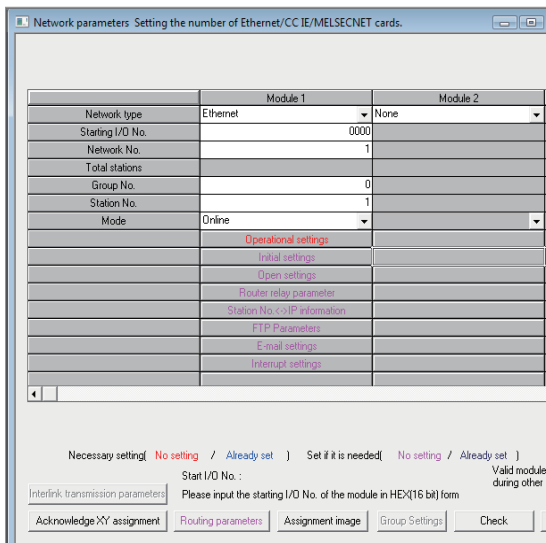
\*3 The Ethernet module is mounted on the base unit slot '0'.

The start I/O No. of the Ethernet module is set to '0'.

However, when connected to Q170MCP, the start I/O No. of an Ethernet module is set to '70'.

## ■[Network parameter] of GX Developer

- Network parameter



○: Necessary, △: As necessary, ×: Not necessary

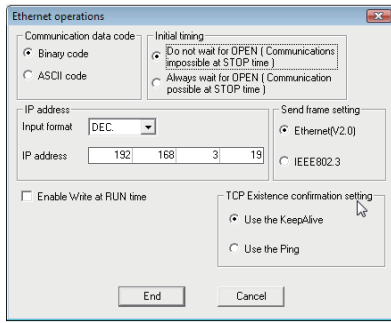
Item	Set value	Setting necessity at BOX Data Logger connection
Network Type	Ethernet (fixed)	○
Starting I/O No.*1	0000H	○
Network No.*2	1	○
Group No.	0 (fixed)	○
Station No.*3	1	○
Mode	Online (fixed)	○
Operational settings	☑ Operational setting	○
Initial settings	(Use default value)	△
Open settings		×
Router relay parameter		×
Station No.<->IP information		×
FTP Parameters		×
E-mail settings		×
Interrupt settings		×
Redundant settings		×
Routing parameters		×

\*1 For Q170MCP, set the system configuration as well.

\*2 Set the same network number as that of BOX Data Logger.

\*3 Do not set the same station number as that of BOX Data Logger.

• Operational setting



○: Necessary, ×: Not necessary

Item	Set value	Setting necessity at BOX Data Logger connection
Communication data code*1	(Use default value)	×
IP address	192.168.3.19	○
Initial timing*1	(Use default value)	×
Send frame setting		×
Enable Write at RUN time*1		×
TCP Existence confirmation setting		×

\*1 Since port No.5001 is used, the module operates as follows regardless of this setting.  
 Communication Date Code: "Binary Code"  
 Initial timing: "Always wait for OPEN" (Communications are possible while the programmable controller CPU is STOP.)  
 Enable Write at RUN time: Enable online change (Writing Data is applicable while running the programmable controller CPU.)

### Precautions

After the network parameter is changed, write the network parameter to the programmable controller CPU, reset or power OFF → ON the programmable controller CPU.

- Communication confirmation

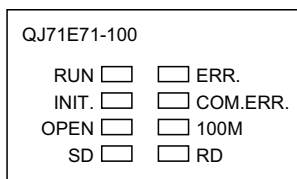
The INIT. LED on the Ethernet module turns ON when the module is ready to communicate.

For the communication state, refer to the following section.

📖 Page 510 Checking the communication state of Ethernet module

**Ex.**

QJ71E71-100



## ■[Access target CPU setting] of Configuration tool

- [Common setting]-[Network setting]

Item	Set value
IP address (CH2)	192.168.3.21
Subnet Mask	255.255.255.0
Default Gateway	—

- [Common setting]-[Access target CPU setting]

Item	Set value		
Manufacturer/Controller Type	Manufacturer	MITSUBISHI	
	Controller Type	MELSEC-Q	
Source Port	Source Port	BOX Data Logger Ethernet Port	
Network	Access source system	IP address (CH2)	192.168.3.21
		Port No.	5001
		Retry	3 times
		Timeout Time	3 sec
		Delay Time	0
	Access target system	Module type	Ethernet module
		IP address	192.168.3.19
		Station No.	1
Multiple CPU specification	Multiple CPU specification	Not specified	
Finish	Name of access target CPU	MITSUBISHI QCPU	

## ■Checking the communication state of Ethernet module

- When using the Command Prompt of Windows®

Execute a Ping command at the Command Prompt of Windows®.

```
When normal communication: Ping 192.168.3.19
Reply from 192.168.3.19: bytes=32 time<1ms TTL=64

When abnormal communication: Ping 192.168.3.19
Request timed out.
```

- When abnormal communication

At abnormal communication, check the following and execute the Ping command again.

- Mounting condition of Ethernet module
- Cable connecting condition
- Confirmation of switch and network parameter setting
- Operation state of PLC CPU (faulty or not)
- IP address of the Ethernet module specified by ping command

### Point


Ethernet diagnostics of GX Developer is available to a Ping test from the programmable controller.  
For details on the Ethernet diagnostics function of GX Developer, refer to the user's manual of Ethernet used.



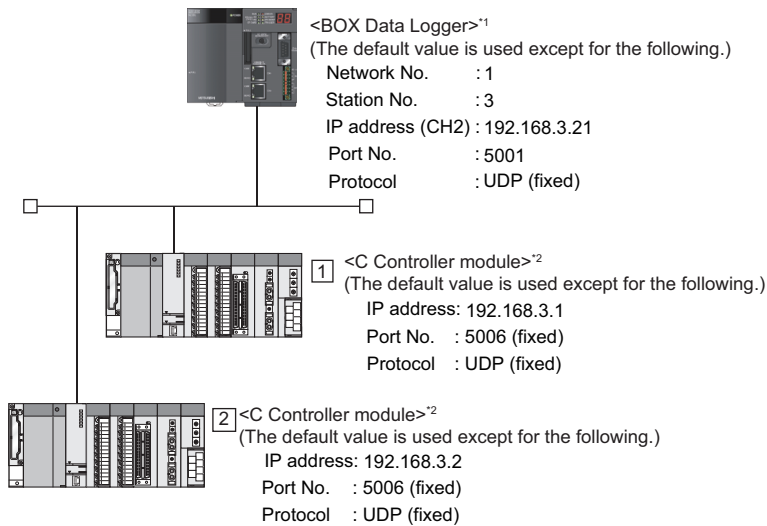
## Connecting to C Controller module


This section explains the settings of BOX Data Logger and C Controller module in the following case of the system configuration.

For details of C Controller module, refer to the following manual.

 C Controller Module User's Manual (Hardware Design, Function Explanation)

### ■System configuration



\*1  Page 515 [Access target CPU setting] of Configuration tool

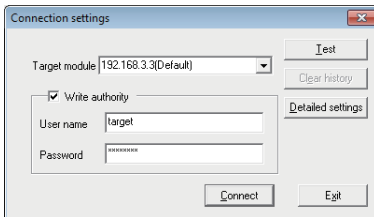
\*2  Page 512 Settings for the Setting/Monitoring Tools for the C Controller module

## ■ Settings for the Setting/Monitoring Tools for the C Controller module

- Q12DCCPU-V (Basic mode)

For Setting/Monitoring Tools for the C Controller Module, use SW3PVC-CCPU-E Ver.3.09K or later.

### 1) Transfer setup



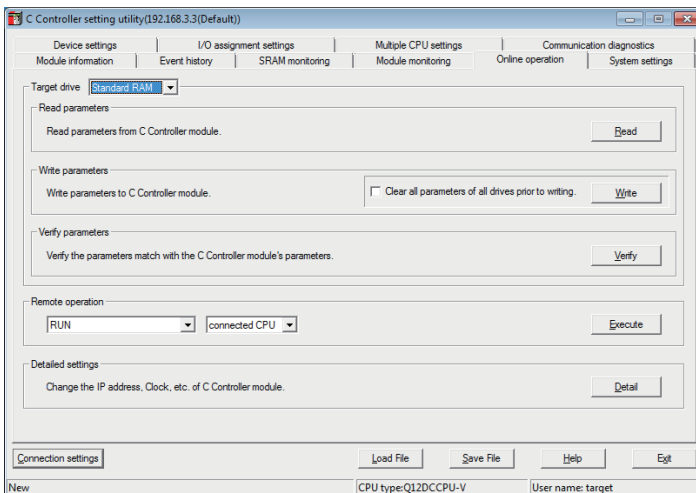
○: Necessary, △: As necessary

Item	Set value	Setting necessity at BOX Data Logger connection
Target module*1	192.168.3.3 (Default)	○
Write authority	Select	○
User name*2	target	○
Password*2	password	○
Detailed settings	—	△

\*1 If the IP address of the C Controller module has been changed, enter the changed IP address or host name.

\*2 If the account of the C Controller module has been changed, enter the changed user name and password.

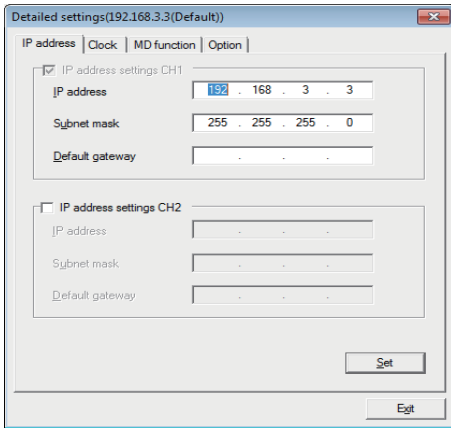
### 2) Online operation



○: Necessary, ×: Not necessary

Item	Set value	Setting necessity at BOX Data Logger connection
Detailed settings of C Controller module	☞ Detailed settings	○

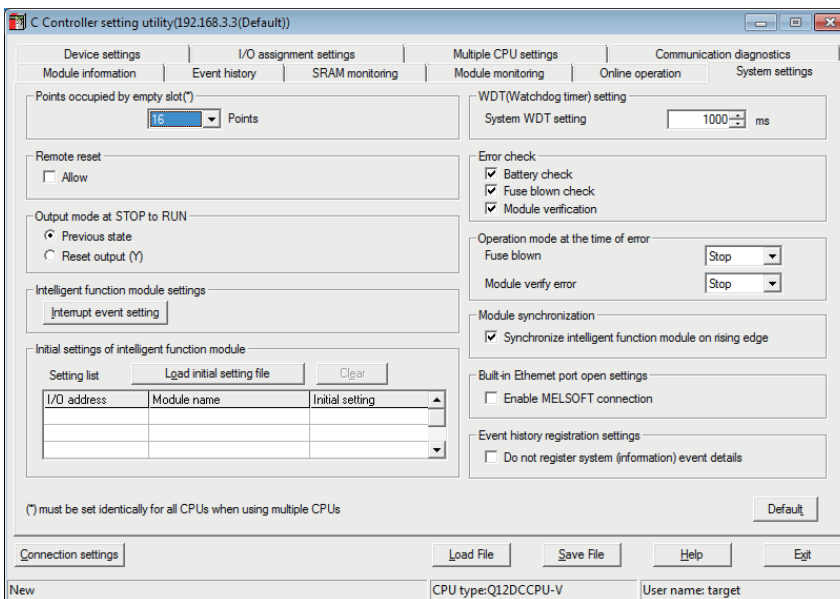
3) Detailed settings



○: Necessary, ×: Not necessary

Item	Set value	Setting necessity at BOX Data Logger connection
IP address	192.168.3.1	○
Subnet mask	255.255.255.0	○
Default Gateway	—	×
IP address settings CH2	—	×

4) System settings



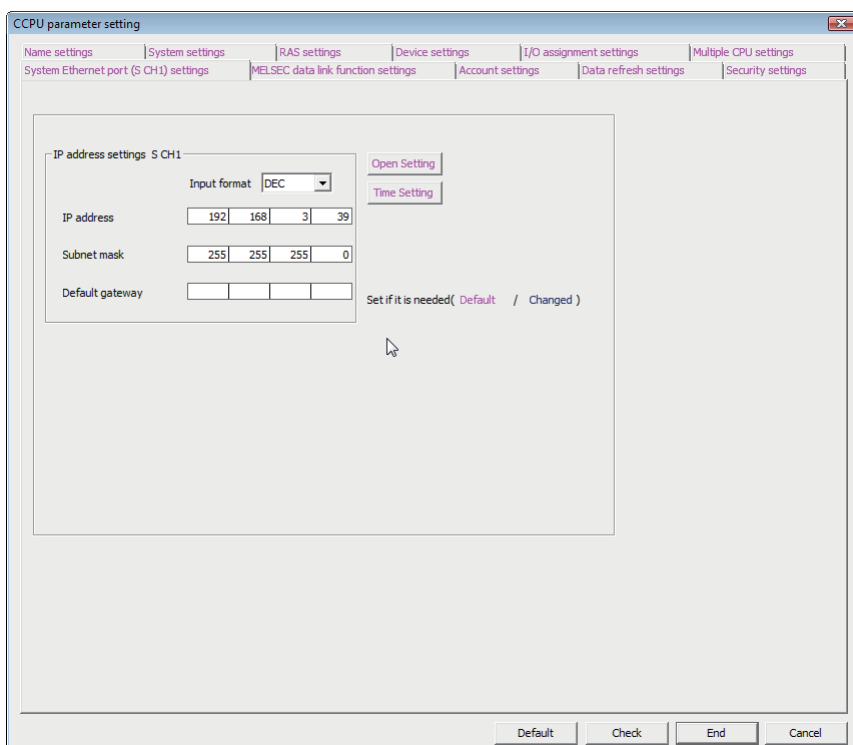
○: Necessary, △: As necessary

Item	Set value	Setting necessity at BOX Data Logger connection
Points occupied by empty slot	(Use default value)	△
Remote reset		△
Output mode at STOP to RUN		△
Intelligent function module settings		△
Initial settings of intelligent function module		△
WDT (Watchdog timer) setting		△
Error check		△
Operation mode at the time of error		△
Module synchronization		△
Built-in Ethernet port open settings	Select	○
Event history registration settings	(Use default value)	△

- Q12DCCPU-V (Extended mode), Q24DHCCPU-V, and Q24DHCCPU-LS

For Setting/Monitoring Tools for the C Controller Module , use SW4PVC-CCPU-E Ver.4.06G or later.

### 1) Connection settings



○: Necessary, ×: Not necessary

Item	Set value	Setting necessity at BOX Data Logger connection
IP address*1	192.168.3.39 (Default)	○
Subnet mask	255.255.255.0 (Default)	○
Default gateway	—	×

\*1 If the IP address of the C Controller module has been changed, enter the changed IP address.

## ■[Access target CPU setting] of Configuration tool

- [Common setting]-[Network setting]

Item	Set value
IP address (CH2)	192.168.3.21
Subnet mask	255.255.255.0
Default gateway	—

- [Common setting]-[Access target CPU setting]

Item			Set value	
Manufacturer/Controller Type	Manufacturer		mitsubishi	
	Controller Type		MELSEC-Q	
Source Port	Source Port		BOX Data Logger Ethernet Port	
Network	Access source system	IP address (CH2)	192.168.3.21	
		Port No.	5001	
		Retry	3 times	
		Timeout Time	3 sec	
		Delay Time	0	
	Access target system	1	Module type	CPU (Built-in Ethernet Port)
			IP address	192.168.3.1
		2	Module type	CPU (Built-in Ethernet Port)
IP address	192.168.3.2			
Multiple CPU specification	Multiple CPU specification		Not specified	
Finish	Name of access target CPU		mitsubishi QCPU	

## ■Checking the communication state of C Controller module

- When using the Command Prompt of Windows®

Execute a Ping command at the Command Prompt of Windows®.

```
When normal          Ping 192.168.3.1
communication:      Reply from 192.168.3.1: bytes=32 time<10ms TTL=32

When abnormal       Ping 192.168.3.1
communication:      Request timed out.
```

- When abnormal communication

At abnormal communication, check the following and execute the Ping command again.

- Cable connecting condition
- Confirmation of switch and network parameter setting
- Operation state of PLC CPU (faulty or not)
- The IP address of C Controller module specified in the ping command

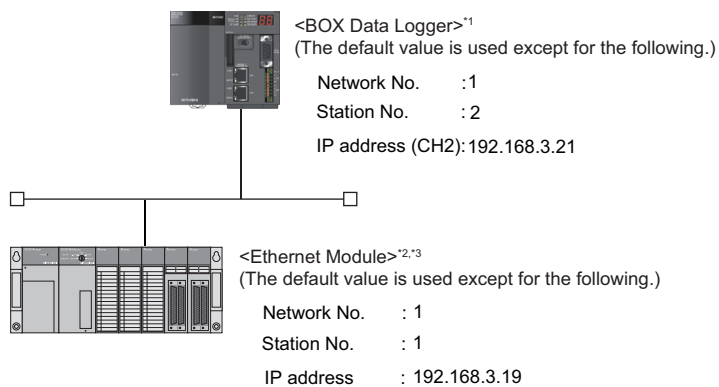
## Connecting to Ethernet module (QnA Series)


This section explains the settings of BOX Data Logger and Ethernet module (QnA series) in the following case of the system configuration.


For details of the Ethernet module (QnA Series), refer to the following manual.


 For QnA Ethernet Interface Module User's Manual

### ■System configuration



\*1  Page 519 [Access target CPU setting] of Configuration tool

\*2  Page 517 Switch settings of Ethernet module

 Page 518 [Network parameter] of GX Developer

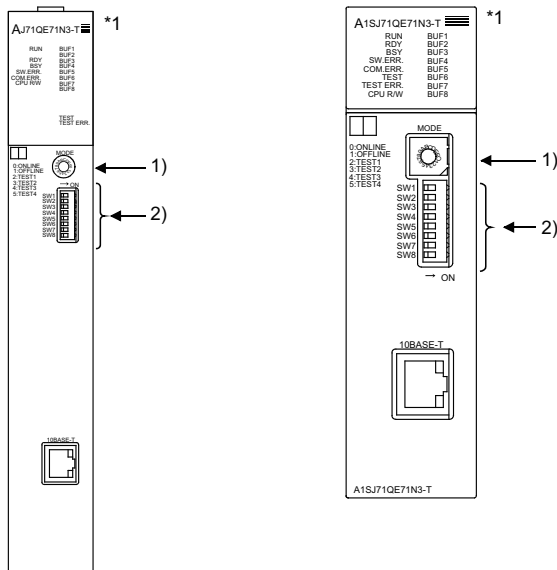
\*3 The Ethernet module is mounted on the base unit slot '0'.  
The start I/O No. of the Ethernet module is set to '0'.

## Switch settings of Ethernet module

Set the operation mode setting switch and exchange condition setting switch.

AJ71QE71N3-T, AJ71QE71N-B5,  
AJ71QE71N-B2, AJ71QE71N-T,  
AJ71QE71N-B5T, AJ71QE71,  
AJ71QE71-B5

A1SJ71QE71N3-T, A1SJ71QE71N-B5,  
A1SJ71QE71N-B2, A1SJ71QE71N-T,  
A1SJ71QE71N-B5T, A1SJ71QE71-B5,  
A1SJ71QE71-B2



\*1 The figure above are AJ71QE71N3-T and A1SJ71QE71N3-T.

○: Necessary, △: As necessary, ×: Not necessary

Setting switch name	Description	Set value	Setting necessity at BOX Data Logger connection
1) Operation mode setting switch	Online	0 (fixed)	○
2) Exchange condition setting switch	SW1	Selection of line processing at TCP timeout error	OFF
	SW2	Data code setting <sup>*1</sup>	OFF (fixed)
	SW3	Self start mode setting <sup>*2</sup>	ON
	SW4	(Not available)	OFF (fixed)
	SW5		
	SW6		
	SW7	CPU exchange timing setting <sup>*1</sup>	OFF (fixed)
	SW8	Initial timing	OFF

\*1 Since port No.5001 is used, the module operates as follows regardless of this setting.

Data code setting : "Binary code"

Enable Online Change : "Enable Write at RUN time" (Writing Data is applicable while running the programmable controller CPU.)

\*2 When SW3 is ON, the initial processing is executed regardless of the initial request signal (Y19).

In addition, communication is applicable while stopping the programmable controller CPU.

For the initial processing by using the initial request signal (Y19), refer to the following manual.

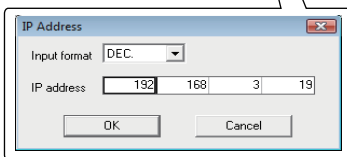
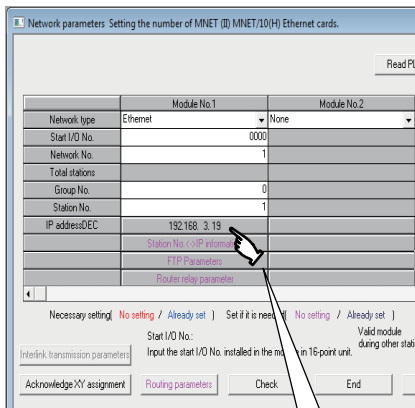
For QnA Ethernet Interface Module User's Manual

## Precautions

When the switch setting is changed, reset or power OFF → ON the programmable controller CPU.

## ■[Network parameter] of GX Developer

- Network parameter



○: Necessary, ×: Not necessary

Item	Set value	Setting necessity at BOX Data Logger connection
Network type	Ethernet (fixed)	○
Start I/O No.	0000H	○
Network No.*1	1	○
Group No.	0 (fixed)	○
Station No.*2	1	○
IP address	192.168.3.19	○
Station No.<->IP information	(Use default value)	×
FTP Parameters		
Router relay parameter		
Routing parameters		

\*1 Specify the same network number as that of the BOX Data Logger.

\*2 Do not set the same station number as that of the BOX Data Logger.

## Precautions

When the network parameter is changed, write the network parameter to the programmable controller CPU, and reset or power OFF → ON the programmable controller CPU.

- Communication confirmation

The RDY LED on the Ethernet module turns ON when the module is ready to communicate.

For confirming the communication state, refer to the following section.

☞ Page 510 Checking the communication state of Ethernet module

AJ71QE71N3-T, AJ71QE71N-B5,  
AJ71QE71N-B2, AJ71QE71N-T,  
AJ71QE71N-B5T, AJ71QE71,  
AJ71QE71-B5

A1SJ71QE71N3-T, A1SJ71QE71N-B5,  
A1SJ71QE71N-B2, A1SJ71QE71N-T,  
A1SJ71QE71N-B5T, A1SJ71QE71-B5,  
A1SJ71QE71-B2

RUN	BUF1
	BUF2
RDY	BUF3
BSY	BUF4
SW.ERR.	BUF5
COM.ERR.	BUF6
CPU R/W	BUF7
	BUF8
TEST	
TEST ERR.	

RUN	BUF1
RDY	BUF2
BSY	BUF3
SW.ERR.	BUF4
COM.ERR.	BUF5
TEST	BUF6
TEST ERR.	BUF7
CPU R/W	BUF8



## ■[Access target CPU setting] of Configuration tool

- [Common setting]-[Network setting]

Item	Set value
IP address (CH2)	192.168.3.21
Subnet mask	255.255.255.0
Default gateway	—

- [Common setting]-[Access target CPU setting]

Item	Set value		
Manufacturer/Controller Type	Manufacturer	MITSUBISHI	
	Controller Type	MELSEC-QnA	
Source Port	Source Port	BOX Data Logger Ethernet port	
Network	Access source system	IP address (CH2)	192.168.3.21
		Port No.	5001
		Retry	3 times
		Timeout Time	3 sec
		Delay Time	0
	Access target system	Module type	Ethernet module
		IP address	192.168.3.19
		Network No.	1
		Station No.	1
Multiple CPU specification	Multiple CPU specification	Not specified	
Finish	Name of access target CPU	MITSUBISHI QnACPU	

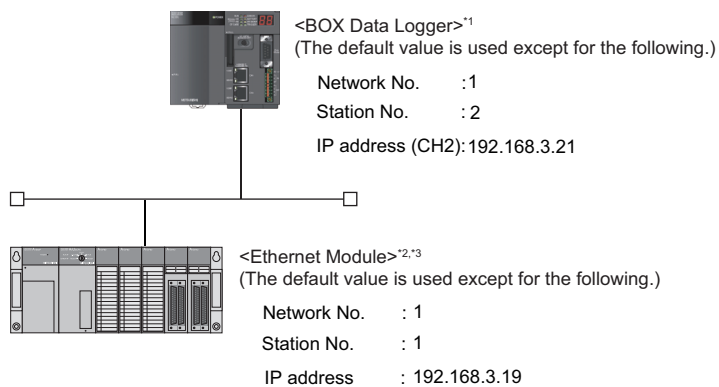
## Connecting to Ethernet module (A series)


This section explains the settings of BOX Data Logger and Ethernet module (A series) in the following case of the system configuration.


For details of the Ethernet module (A series), refer to the following manual.

 For A Ethernet Interface Module User's Manual

### ■System configuration



\*1  Page 524 [Access target CPU setting] of Configuration tool

\*2  Page 521 Switch settings of Ethernet module

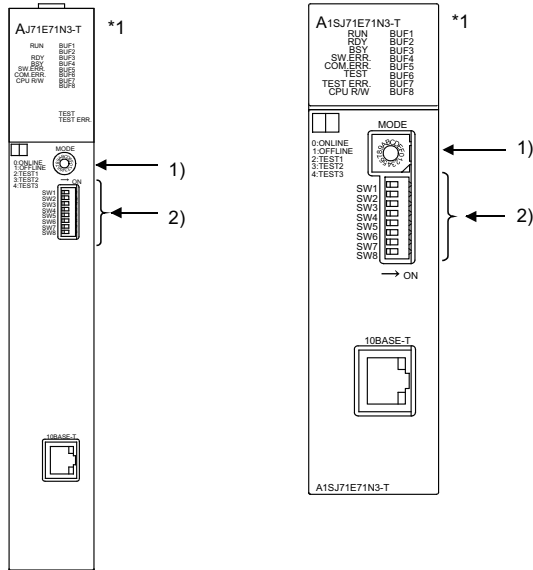
 Page 522 Sequence program

\*3 The Ethernet module is mounted on the base unit slot '0'.  
The start I/O No. of the Ethernet module is set to '0'.

### Switch settings of Ethernet module

Set the operation mode setting switch and exchange condition setting switch.

AJ71E71N3-T, AJ71E71N-B5, A1SJ71E71N3-T, A1SJ71E71N-B5, A1SJ71E71N-B2, A1SJ71E71N-T, A1SJ71E71N-B5T, A1SJ71E71-B5-S3, A1SJ71E71-B2-S3



\*1 The figure of AJ71E71N3-T and A1SJ71E71N3-T  
 • Other than A1SJ71E71-B5-S3 and A1SJ71E71-B2-S3

○: Necessary, △: As necessary, ×: Not necessary

Setting switch name	Description	Set value	Setting necessity at BOX Data Logger connection	
1) Operation mode setting switch	Online	0 (fixed)	○	
2) Exchange condition setting switch	SW1	Selection of line processing at TCP timeout error	OFF	
	SW2	Data code setting (Binary code)	OFF (fixed)	
	SW3	(Not available)	OFF (fixed)	
	SW4		×	
	SW5			
	SW6			
	SW7	CPU exchange timing setting (Enable Online Change)	ON (fixed)	○
	SW8	Initial timing	OFF	△

• A1SJ71E71-B5-S3 and A1SJ71E71-B2-S3

○: Necessary, △: As necessary

Setting switch name	Description	Set value	Setting necessity at BOX Data Logger connection
1) Operation mode setting switch	Online	0 (fixed)	○
2) Exchange condition setting switch	SW1	Selection of line processing at TCP timeout error	OFF
	SW2	Data code setting (Binary code)	OFF (fixed)
	SW3	CPU exchange timing setting (Enable Online Change)	ON (fixed)
	SW4	Initial timing	OFF

### Precautions

When the switch setting is changed, reset or power OFF → ON the programmable controller CPU.

## ■Sequence program

The sequence program for initial processing and communication line opening processing are required.

- Programming condition

A program that executes the initial processing of the Ethernet module and the opening processing of connection No. 1 when switching the programmable controller CPU STOP to RUN.

- I/O signal of Ethernet module

📖 For A Ethernet Interface Module User's Manual

- Device used by user

Device	Application
M102	COM.ERR turned off command
D100	IP address of Ethernet module
D110	Application setting
D111	Port No. of Ethernet module
D112 to D113	IP address of BOX Data Logger
D114	Port No. of BOX Data Logger
D200	Initial fault code

- Buffer memory settings used in the example

Buffer memory address Dec (Hex)	Item	Set value
0 to 1 (0 to 1H)	IP address of Ethernet module	C0A80313H (192.168.3.19)
16 (10H)	Application setting	100H
24 (18H)	Port No. of Ethernet module	5001
25 to 26 (19 to 1AH)	IP address (CH2) of BOX Data Logger	C0A80315H (192.168.3.21)
27 (1BH)	Port No. of BOX Data Logger	5001
80 (50H)	Initial fault code	—

The details of the application setting are as follows:

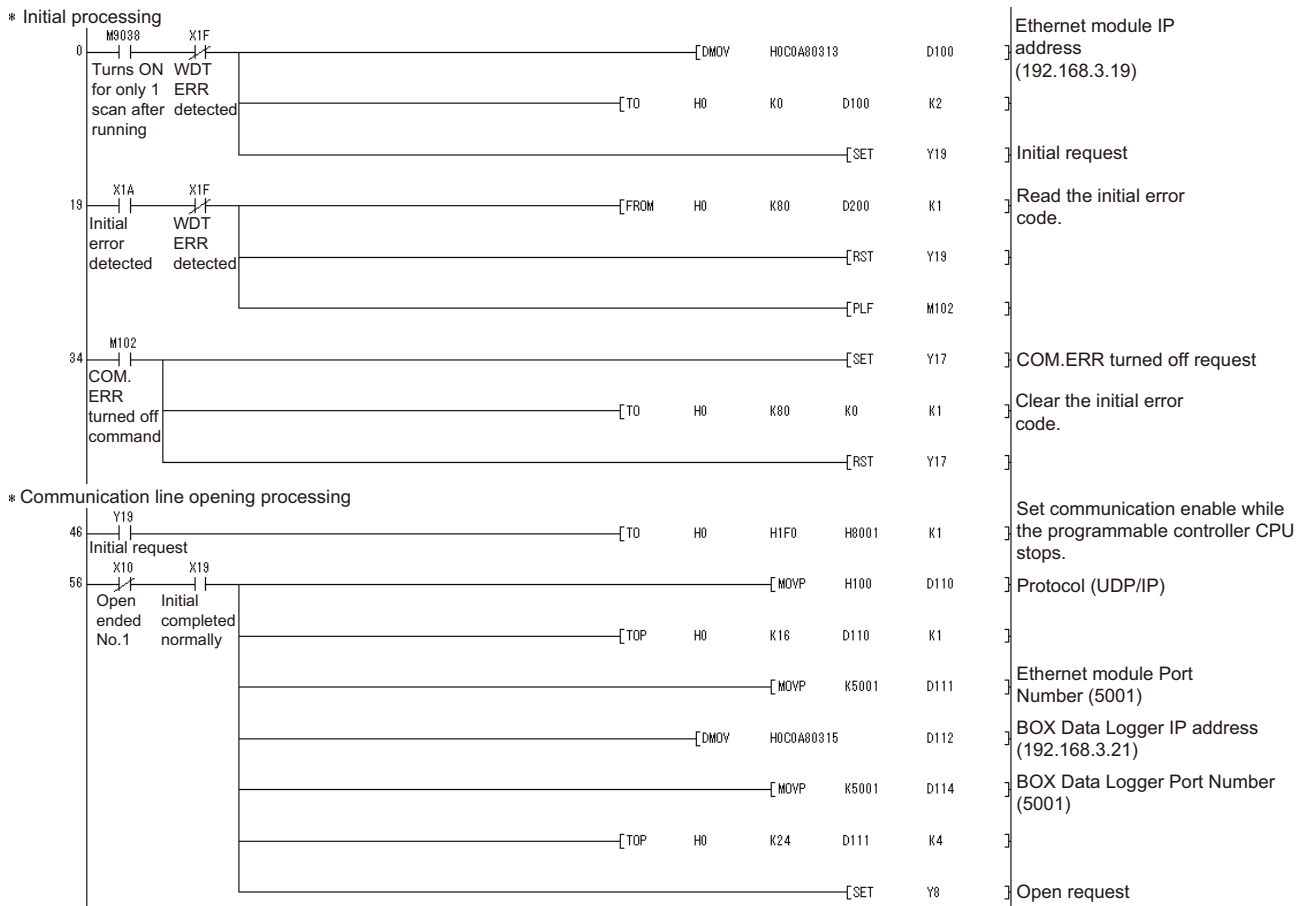
Settings 1), 2) and 3) can be changed by the user.

4), 5) and 6) are fixed.

b15	b14	b13	b12	b11	b10	b9	b8	b7	b6	b5	b4	b3	b2	b1	b0			
0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0			
6)						5)			4)			3)			2)			1)

Number	Item	Set value
1)	Fixed buffer application	0: For sending; no exchange 1: For receiving
2)	Existence check	0: No 1: Yes
3)	Pairing open	0: No 1: Yes
4)	Protocol (Set to 1: UDP/IP.)	0: TCP/IP 1: UDP/IP
5)	Fixed buffer exchange (Set to '0' (With procedure).)	0: With procedure 1: Without procedure
6)	Open system (Set to '00' (Active, UDP/IP).)	00: Active, UDP/IP 10: Unpassive 11: Fullpassive

• Example of sequence program



**Precautions**

When changing the sequence program, write the sequence program to the programmable controller CPU, and reset or power OFF → ON the programmable controller CPU.

• Communication confirmation

The RDY LED on the Ethernet module turns ON when the module is ready to communicate.

For confirming the communication state, refer to the following section.

☞ Page 510 Checking the communication state of Ethernet module

Also, if the open processing of the connection No.1 is ended normally at execution of Example of sequence program, BUF1 LED turns ON.

AJ71E71N3-T, AJ71E71N-B5, A1SJ71E71N3-T, A1SJ71E71N-B5,  
 AJ71E71N-B2, AJ71E71N-T, A1SJ71E71N-B2, A1SJ71E71N-T,  
 AJ71E71N-B5T, AJ71E71-S3, A1SJ71E71N-B5T, A1SJ71E71-B5-S3,  
 A1SJ71E71-B2-S3

RUN	BUF1
	BUF2
RDY	BUF3
BSY	BUF4
SW.ERR.	BUF5
COM.ERR.	BUF6
CPU R/W	BUF7
	BUF8
TEST	
TEST ERR.	

RUN	BUF1
RDY	BUF2
BSY	BUF3
SW.ERR.	BUF4
COM.ERR.	BUF5
TEST	BUF6
TEST ERR.	BUF7
CPU R/W	BUF8

## ■[Access target CPU setting] of Configuration tool

- [Common setting]-[Network setting]

Item	Set value
IP address (CH2)	192.168.3.21
Subnet Mask	255.255.255.0
Default Gateway	—

- [Common setting]-[Access target CPU setting]

Item	Set value		
Manufacturer/Controller Type	Manufacturer	MITSUBISHI	
	Controller Type	MELSEC-A	
Source Port	Source Port	BOX Data Logger Ethernet port	
Network	Access source system	IP address (CH2)	192.168.3.21
		Port No.	5001
		Retry	3 times
		Timeout Time	3 sec
		Delay Time	0
	Access target system	Module type	Ethernet module
		IP address	192.168.3.19
		Port No.	5001
		Network No.	1
		Station No.	1
Multiple CPU specification	Multiple CPU specification	Not specified	
Finish	Name of access target CPU	MITSUBISHI ACPU	

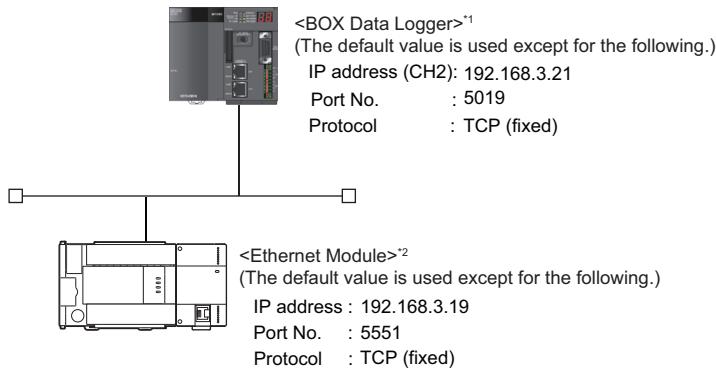
## Connecting to Ethernet module (FX series)

This section explains the settings of BOX Data Logger and Ethernet module (FX series) in the following case of the system configuration.

For details of the Ethernet module (FX series), refer to the following manual.

FX3U-ENET-L USER'S MANUAL

### ■System configuration



\*1 Page 528 [Access target CPU setting] of Configuration tool

\*2 Page 525 Ethernet parameter settings of FX3U-ENET-L Configuration Tool

### ■Ethernet parameter settings of FX3U-ENET-L Configuration Tool

- Ethernet settings

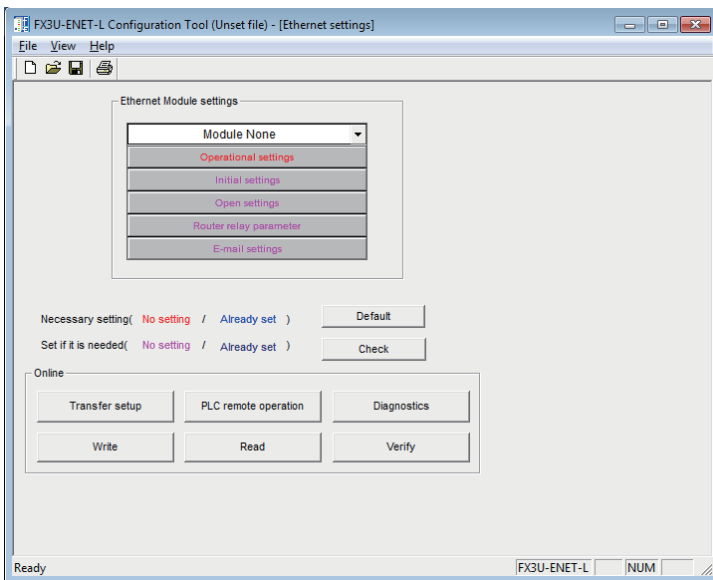
Set the Ethernet parameter with FX3U-ENET-L Configuration Tool.

For using FX3U-ENET-L Configuration Tool, install GX-Developer Ver.8.88S or later on the personal computer.

For details on FX3U-ENET-L Configuration Tool, refer to the following manual.

FX Configurator-EN-L Operation Manual

○: Necessary, ×: Not necessary

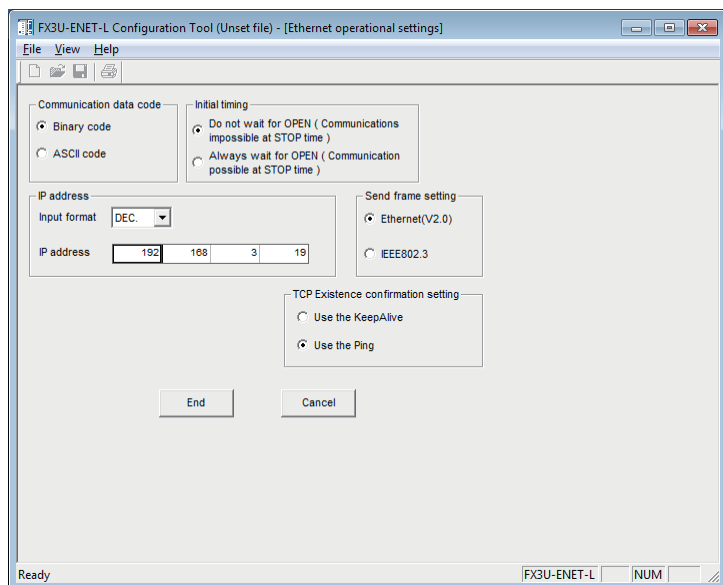


Item	Set value	Setting necessity at BOX Data Logger connection
Ethernet Module settings	Module 0*1	○
Operational settings	Operational settings	○
Initial settings	(Use default value)	×
Open settings	Open settings	○
Router relay parameter	(Use default value)	×
E-mail settings		

\*1 Set the number of the Ethernet module.

• Operational settings

○: Necessary, ×: Not necessary



Item	Set value	Setting necessity at BOX Data Logger connection
Communication date code*1	(Use default value)	×
IP address	192.168.3.19*2	○
Initial timing*1	(Use default value)	×
Send frame setting		
TCP Existence confirmation setting		

\*1 Since port No.5551 is used, the module operates as follows regardless of this setting.

Communication date code : "Binary code"

Initial timing : "Always wait for OPEN" (Communications are possible while the programmable controller CPU is STOP.)

\*2 The default value of IP address is 192.168.1.254.

Set the IP address in accordance with the system configuration.

## Precautions

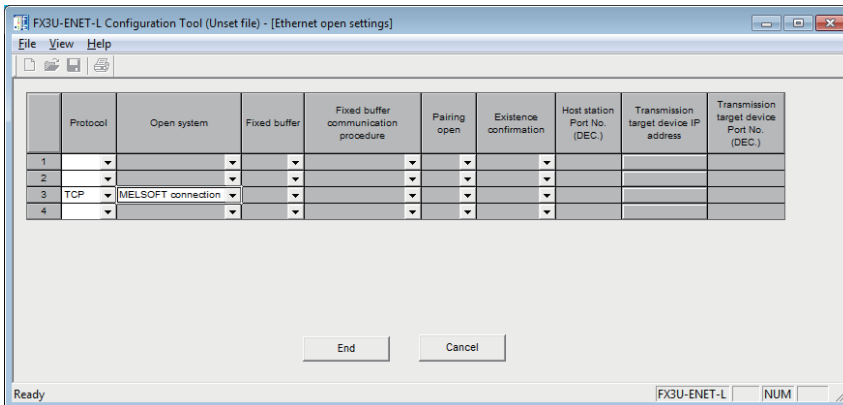
When changing Ethernet parameter, write the Ethernet parameter to the programmable controller CPU, and reset or power OFF → ON the programmable controller CPU.



- Open settings

When connecting to multiple BOX Data Loggers and peripheral devices, the number of protocols equivalent to that of the BOX Data Loggers and peripheral devices must be set.

○: Necessary, ×: Not necessary



Item	Set value	Setting necessity at BOX Data Logger connection
Protocol	TCP	○
Open system	MELSOFT Connection	○
Fixed buffer	(Use default value)	×
Fixed buffer communication procedure		
Pairing open		
Existence confirmation		
Host station Port No. (DEC.)		
Transmission target device IP address		
Transmission target device Port No. (DEC.)		

### ■ Ethernet parameter setting of FX3U-ENET-ADP Configuration Tool

- Ethernet settings

Set the Ethernet parameter on the "FX Parameter" screen of GX Works2.

For setting FX3U-ENET-ADP, installation of GX Works2 Ver.1.90U or later on the personal computer is required.

For details on setting FX3U-ENET-ADP, refer to the following manual.

FX3U-ENET-ADP USER'S MANUAL

○: Necessary, △: As necessary, ×: Not necessary

Item	Set value	Setting necessity at BOX Data Logger connection
Channel	CH1 or CH2*1	×
IP Address Setting	192.168.1.250*2	○
Open Setting	Refer to the open setting for Ethernet parameter settings of FX3U-ENET-ADP Configuration Tool.	○
Communication Data Code	(Use default value)	×
Disable direct connection to MELSOFT		×
Do not respond to search for CPU on network		×

\*1 Set the channel corresponding to the mounted position of CPU module for FX3U-ENET-ADP.

\*2 The default value of IP address is 192.168.1.250. Set the IP address in accordance with the system configuration.

- Open Setting

When connecting to multiple BOX Data Loggers and peripherals, the number of protocols equivalent to that of BOX Data Loggers and peripherals must be set.

○: Necessary

Item	Set value	Setting necessity at BOX Data Logger connection
Protocol	TCP	○
Open System	MELSOFT Connection	○

## ■[Access target CPU setting] of Configuration tool

- [Common setting]-[Network setting]

Item	Set value
IP address (CH2)	192.168.3.21
Subnet mask	255.255.255.0
Default gateway	—

- [Common setting]-[Access target CPU setting]

Item	Set value		
Manufacturer/Controller Type	Manufacturer	MITSUBISHI	
	Controller Type	MELSEC-FX	
Source Port	Source Port	BOX Data Logger Ethernet Port	
Network	Access source system	IP address (CH2)	192.168.3.21
		Port No.	5019
		Retry	3 times
		Timeout Time	3 sec
		Delay Time	0
	Access target system	Module type	Ethernet module
		IP address	192.168.3.19
Multiple CPU specification	Multiple CPU specification	Not specified	
Finish	Name of access target CPU	MITSUBISHI FXCPU	

## ■Checking the communication state of Ethernet module

- When using the Command Prompt of Windows®

Execute a Ping command at the Command Prompt of Windows®

When normal communication on:  
 Ping 192.168.3.19  
 Reply from 192.168.3.19: bytes=32 time<1ms TTL=64

When abnormal communication on:  
 Ping 192.168.3.19  
 Request timed out.

- When abnormal communication

At abnormal communication, check the following and execute the Ping command again.

- Mounting condition of Ethernet module
- Cable connecting condition
- Confirmation of switch and network parameter setting
- Operation state of PLC CPU (faulty or not)
- IP address of the Ethernet module specified by Ping command

### Point

By the Ethernet diagnostics function of FX3U-ENET-L Configuration tool, the Ping test can be executed from the programmable controller side.

For details of the Ethernet diagnostics of FX3U-ENET-L Configuration Tool, refer to the following manual.

 FX Configurator-EN-L Operation Manual

# Considerations

## Connection to QnA (S) CPU type

For an Ethernet module (QnA series) and PLC CPU (QnA/QnASCPU type), use function version B or later.

## Connection to QSCPU

Only data logging is available for QSCPU. QSCPU cannot be set as the access target CPU for the Recipe setting and the system information.

To use the recipe setting and system information with QSCPU, set another CPU as the access target CPU of the Recipe setting and System information.

## Connection to Q170MCP

To perform logging on the devices of the motion controller CPU (PLC No.2), set the unit number for the Multiple CPU specification to "PLC No.2".

If a unit number is set to "PLC No.1", the device data in the CPU (No.1) will be logged.

If the unit number is set to "Not specified", the logging target will be differ depending on the BOX Data Logger connection destination.

BOX Data Logger connection destination	Logging target
QJ71E71 module	Programmable controller CPU (CPU No.1)
PERIPHERAL I/F	Motion CPU (CPU No.2)

If the unit number is set to other than "Not specified", "PLC No.1", and "PLC No.2", a communication error will occur and cannot perform data logging.

## Connection in the multiple CPU system

When BOX Data Logger is connected to multiple CPU system, the following time is taken until when the programmable controller runs.

- QCPU (Q mode), motion controller CPU (Q series): 10 seconds or more

When the BOX Data Logger starts before the programmable controller runs, a communication error occurs.

To prevent a communication error from occurring, adjust the delay timer at power ON for BOX Data Logger setup.

## Connection to LCP

Since LCP may diagnose (check file system, recovering process, etc.) the SD memory card at the timing of powering OFF → ON or resetting, it will take time until the SD memory card becomes available.

When the BOX Data Logger starts before the SD card becomes available, a communication error occurs.

To prevent a communication error from occurring, adjust the delay timer at power ON for BOX Data Logger setup.

## When connecting to the multiple network equipment in a segment

When connecting two or more network equipment (including BOX Data Logger) in the same segment, the transmission speed between BOX Data Logger and programmable controller may be reduced due to the increased network load.

The following actions may improve the communication performance.

- Using a switching hub.
- Using more high speed by 100BASE-TX (100 Mbps).
- Reducing the logging points for BOX Data Logger.

## Setting IP address

Do not use '0' and '255' at the end of an IP address.

(Numbers of \*.\*\*.0 and \*.\*\*.255 are used by the system)

If the above numbers are used, BOX Data Logger may not be able to perform logging normally.

Consult with the administrator of the network before setting an IP address to the BOX Data Logger and external equipment.

### **When logging to another network number on the same line**

When the network number of the BOX Data Logger does not match with that of the programmable controller on the same Ethernet, the programmable controller cannot be logged.

When logging data, set the same network number as that of the BOX Data Logger.

### **Remote password for QCPU**

Do not set a remote password for QCPU.

BOX Data Logger cannot perform logging normally.

### **When changing parameters**

If the parameters are changed with GX Works2 or GX Developer, BOX Data Logger must be reset or powered OFF→ON.

# 18.5 Access Units

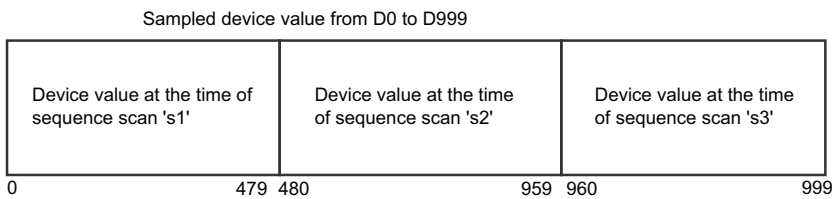
The following explains the number of device points (access units) that can be accessed in a single process when sampling a programmable controller CPU's device values.

When the access units are lower than the number of sampled device points, the module sampled the device values in the same sequence scan.

When the access units exceed the number of sampled device points, device values are sampled over multiple sequence scans, so there is a possibility of data separation occurrence.\*1

\*1 Data separation means that data consist of multiple device value make no sense because new device value and old device value are mixed due to data obtained by more than one processes.

Example) When 1000 points of device value from D0 are sampled in Q03UDCPU with Ethernet connection, different sequence scan data; s1, s2, and s3, is mixed because the data is obtained by three processes. (s1, s2, and s3 indicate the sequence scan at a certain point.)



If data separation must be prevented, set the number of devices sampled at one time to less than the access units.

For the operation when the number of device points sampled by the Trigger logging function exceeds the access units, refer to the following section.

☞ Page 124 Trigger logging function

Series	Model name	CPU direct connection/ Computer link		Ethernet						
		Random <sup>*1</sup>	Continuation <sup>*</sup> 2	Random <sup>*1</sup>	Continuation <sup>*</sup> 2					
MELSEC-Q (Q mode)	Q00JCPU	30 points	1920 bytes	96 points	960 bytes					
	Q00CPU									
	Q01CPU									
	Q02CPU									
	Q02HCPU Q06HCPU Q12HCPU Q25HCPU									
	Q02PHCPU Q06PHCPU Q12PHCPU Q25PHCPU									
	Q00JCPU									
	Q00UCPU Q01UCPU Q02UCPU Q03UDCPU									
	Q04UDHCPU Q06UDHCPU Q10UDHCPU Q13UDHCPU Q20UDHCPU Q26UDHCPU									
	Q03UDECPU Q04UDEHCPU Q06UDEHCPU Q10UDEHCPU Q13UDEHCPU Q20UDEHCPU Q26UDEHCPU Q50UDEHCPU Q100UDEHCPU									
	Q03UDVCPU Q04UDVCPU Q06UDVCPU Q13UDVCPU Q26UDVCPU									
	Q04UDPVCPU Q06UDPVCPU Q13UDPVCPU Q26UDPVCPU									
	MELSEC-QS					QS001CPU	—	—	96 points	960 bytes
	MELSEC-Q (A mode)					Q02CPU-A Q02HCPU-A Q06HCPU-A	1 point	128 bytes	20 points	128 bytes
MELSEC-L	L02SCPU L02SCPU-P L02CPU L02CPU-P L06CPU L06CPU-P L26CPU L26CPU-P L26CPU-BT L26CPU-PBT	30 points	1920 bytes	96 points	960 bytes					
	C Controller module					Q12DCCPU-V	30 points	1920 bytes	96 points	960 bytes
	Q24DHCCPU-V									
	Q24DHCCPU-LS									

Series	Model name	CPU direct connection/ Computer link		Ethernet	
		Random* <sup>1</sup>	Continuation* <sup>2</sup>	Random* <sup>1</sup>	Continuation* <sup>2</sup>
MELSEC-QnA (QnACPU)	Q2ACPU Q2ACPU-S1 Q3ACPU Q4ACPU	24 points	128 bytes	24 points	128 bytes
MELSEC-QnA (QnASCPU)	Q2ASCPU Q2ASCPU-S1 Q2ASHCPU Q2ASHCPU-S1				
MELSEC-A (AnCPU)	A2UCPU A2UCPU-S1 A3UCPU A4UCPU A2ACPU A2ACPUP21 A2ACPUR21 A2ACPU-S1 A2ACPUP21-S1 A2ACPUR21-S1 A3ACPU A3ACPUP21 A3ACPUR21	1 point	128 bytes	20 points	128 bytes
	A1NCPUR21 A1NCPUR21 A2NCPUR21 A2NCPUR21 A2NCPUR21-S1 A2NCPUR21-S1 A3NCPUR21 A3NCPUR21		64 bytes		
MELSEC-A (AnSCPU)	A2USCPU A2USCPU-S1 A2USHCPU-S1 A1SCPU A1SCPUC24-R2 A1SHCPU A2SCPU A2SHCPU A1SJCPU A1SJCPU-S3 A1SJHCPU	1 point	128 bytes	20 points	128 bytes
MELSEC-A	A0J2HCPU A0J2HCPUP21 A0J2HCPUR21 A0J2HCPU-DC24	1 point	128 bytes	20 points	128 bytes
	A2CCPU A2CCPUP21 A2CCPUR21 A2CCPUC24 A2CCPUC24-PRF A2CJCPU-S3 A1FXCPU			—	—

Series	Model name	CPU direct connection/ Computer link		Ethernet	
		Random* <sup>1</sup>	Continuation* <sup>2</sup>	Random* <sup>1</sup>	Continuation* <sup>2</sup>
Motion controller CPU (Q Series)	Q172CPU Q173CPU Q172CPUN Q173CPUN Q172HCPU Q173HCPU Q172DCPU Q173DCPU Q172DCPU-S1 Q173DCPU-S1 Q172DSCPU Q173DSCPU	30 points	1920 bytes	96 points	960 bytes
	Q170MCPU Q170MCPU-S1				
MELSEC-FX	FX0 FX0S FX0N FX1 FX1S FX1N FX1NC FX2 FX2C FX2N FX2NC	30 points	64 bytes	—	—
	FX3G FX3U FX3UC	30 points	252 points	140 points	252 bytes

\*1 When different devices are set, or if the same device is set non-continuously.

\*2 When the same device is set continuously.



# 19 CONNECTION TO OMRON PROGRAMMABLE CONTROLLER

---

## 19.1 Settable Device Range

---

This section explains the device ranges of the connected equipment that can be used for BOX Data Logger.


Note that the device ranges in the following tables are the maximum values that can be set in Configuration tool.

The device specifications of the connected equipment may differ depending on the models, even though belonging to the same series.

Please make the setting according to the specifications of the connected equipment actually used.

When a non-existent device or a device number outside the range is set, an error may occur.

For the "Device Setting" screen, refer to the following section.

 Page 219 Device settings

# OMRON programmable controller (OMRON SYSMAC)

The device ranges that can be set when selecting "OMRON SYSMAC" as the controller type on the "Access target CPU setting" screen are as follows:

Device name		Setting range	Device number representation
Bit device	I/O relay/internal auxiliary relay (...)	..000000 to ..614315	Decimal <sup>*5</sup>
	Data link relay (LR)	LR00000 to LR19915	
	Auxiliary memory relay (AR)	AR00000 to AR95915	
	Holding relay (HR)	HR00000 to HR51115	
	Internal auxiliary relay/Work relay (WR)	WR00000 to WR51115	
	Timer contact (TIM) <sup>*1</sup>	TIM0000 to TIM4095	Decimal
	Counter contact (CNT) <sup>*1</sup>	CNT0000 to CNT4095	—
	Word device bit <sup>*2</sup>	Specified bit of the following word devices	
Word specification for bit device	I/O relay/internal auxiliary relay (...)	..0000 to ..6143	Decimal
	Data link relay (LR)	LR000 to LR199	
	Auxiliary memory relay (AR)	AR000 to AR959	
	Holding relay (HR)	HR000 to HR511	
	Internal auxiliary relay/Work relay (WR)	WR000 to WR511	
Word device	Data memory (DM)	DM00000 to DM32767	
	Timer (current value) (TIM) <sup>*1,*3</sup>	TIM0000 to TIM4095	
	Timer (current value) (CNT) <sup>*1,*3</sup>	CNT0000 to CNT4095	
	Extension data memory (EM current bank) <sup>*4</sup>	EM00000 to EM32767	
	Extension data memory (E0 to EC: 13 banks) <sup>*4</sup>	E000000 to E032767 : EC00000 to EC32767	

\*1 Display examples and the definitions on "Device Setting" screen are as follows:

· Timer

TIM0: Timer up flag

TIM0.b0: Bit specification for timer (current value)

TIM0: Timer (current value)

· Counter

CNT0: Counter up flag

CNT0.b0: Bit specification for counter (current value)

CNT0: Counter (current value)

\*2 When executing the Recipe function with the bit specification of the word device set, do not perform the write process of the word device in the sequence program.

\*3 Timer (current value) and counter (current value) are valid within the range of 0 to 9999.

(This applies to both 16 bit and 32 bit device data length.)

\*4 In the extension data memory, the Data logging function and Recipe function cannot be performed over different banks.

\*5 The first and second digits are value of '00' to '15' (16 kinds) in decimal notation, and the third digit and higher are in decimal notation.

# OMRON programmable controller (OMRON SYSMAC CS/CJ)

The device ranges that can be set when selecting "OMRON SYSMAC CS/CJ" as the controller type on the "Access target CPU setting" screen are as follows:

Device name		Setting range	Device number representation
Bit device	I/O relay/internal auxiliary relay (...)	..000000 to ..614315	Decimal*5
	Data link relay (LR)	LR00000 to LR19915	
	Auxiliary memory relay (AR)	AR000000 to AR147115 AR1000000 to AR1153515	
	Holding relay (HR)	HR00000 to HR51115	
	Internal auxiliary relay/Work relay (WR)	WR00000 to WR51115	
	Timer contact (TIM)*1	TIM0000 to TIM4095	
	Counter contact (CNT)*1	CNT0000 to CNT4095	
	Word device bit*2	Specified bit of the following word devices	—
Word specification for bit device	I/O relay/internal auxiliary relay (...)	..0000 to ..6143	Decimal
	Data link relay (LR)	LR000 to LR199	
	Auxiliary memory relay (AR)	AR0000 to AR1471 AR10000 to AR11535	
	Holding relay (HR)	HR000 to HR511	
	Internal auxiliary relay/Work relay (WR)	WR000 to WR511	
Word device	Data memory (DM)	DM00000 to DM32767	Decimal
	Timer (current value) (TIM)*1,*3	TIM0000 to TIM4095	
	Counter (current value) (CNT)*1,*3	CNT0000 to CNT4095	
	Extension data memory (EM current bank)*4	EM00000 to EM32767	
	Extension data memory (E0 to E18:25 banks)*4	E000000 to E032767 : E1800000 to E1832767	

\*1 Display examples and the definitions on "Device Setting" screen are as follows:

· Timer

TIM0: Timer up flag

TIM0.b0: Bit specification for timer (current value)

TIM0: Timer (current value)

· Counter

CNT0: Counter up flag

CNT0.b0: Bit specification for counter (current value)

CNT0: Counter (current value)

\*2 When executing the Recipe function with the bit specification of the word device set, do not perform the write process of the word device in the sequence program.

\*3 Timer (current value) and counter (current value) are valid within the range of 0 to 9999.  
(This applies to both 16 bit and 32 bit device data length.)

\*4 In the extension data memory, the Data logging function and Recipe function cannot be performed over different banks.

\*5 The first and second digits are value of '00' to '15' (16 kinds) in decimal notation, and the third digit and higher are in decimal notation.

## BOX Data Logger internal device

When any of controller types is selected in the access target CPU setting, a device can be set in the following range as internal devices of BOX Data Logger.

The internal devices are common for all controller types.

Device name		Setting range	Device number representation
Bit device	Trigger input (NTR)	NTRG	NTRG0
Word device	Trigger input (NTR)	NTRC	NTRC0 to NTRC1

# 19.2 Serial Connection

## Connectable model list

The connectable models are as follows:

Series	Model name <sup>*1</sup>	Communication type	Reference
SYSMAC CPM	CPM1	RS-232	Page 539 Connecting to CPM1, CPM1A, CPM2A, CPM2C, or CQM1
	CPM1A		
	CPM2A		
	CPM2C		
SYSMAC CQM1	CQM1 <sup>*2</sup>	RS-232	Page 539 Connecting to CQM1H
SYSMAC CQM1H	CQM1H <sup>*3</sup>	RS-232	Page 539 Connecting to CQM1H
SYSMAC CJ1	CJ1H	RS-232	Page 540 Connecting to CJ1H, CJ1G, CJ1M, CJ2H, or CJ2M
	CJ1G		
	CJ1M		
SYSMAC CJ2	CJ2H	RS-232	Page 540 Connecting to CJ1H, CJ1G, CJ1M, CJ2H, or CJ2M
	CJ2M <sup>*4</sup>		
SYSMAC CP1	CP1H	RS-232	Page 540 Connecting to CP1H, CP1L, or CP1E
	CP1L		
	CP1E (N type) <sup>*5</sup>		
SYSMAC C200HS	C200HS	RS-232	Page 541 Connecting to C200HS, C200H, C200HX, C200HG, or C200HE
SYSMAC C200H	C200H		
SYSMAC $\alpha$	C200HX	RS-232	Page 541 Connecting to C200HS, C200H, C200HX, C200HG, or C200HE
	C200HG		
	C200HE <sup>*6</sup>		
SYSMAC CS1	CS1H	RS-232	Page 541 Connecting to CS1H, CS1G, or CS1D
	CS1G		
	CS1D		
SYSMAC C1000H	C1000H	RS-232	Page 542 Connecting to C1000H or C2000H
SYSMAC C2000H	C2000H		
SYSMAC CVM1/CV	CV500	RS-232	Page 542 Connecting to CV500, CV1000, CV2000, or CVM1
	CV1000		
	CV2000		
	CVM1		

\*1 Product manufactured by OMRON Corporation.

For details on the product, contact OMRON Corporation.

\*2 CQM1-CPU11 is unable to communicate with BOX Data Logger because a CQM1-CPU11 has no RS-232C interface.

\*3 The EM device of the CQM1-CPU61 cannot be used.

\*4 CPU direct connection is available for CJ2M-CPU1□ only.

\*5 20-point CPU module of CP1E(N type) can be only connected by the CPU direct connection.

\*6 C200HE-CPU11 does not support communication board.

Use a host link unit.

# System configuration

## Connecting to CPM1, CPM1A, CPM2A, CPM2C, or CQM1

### ■When connecting to a programmable controller or an RS-232C

Programmable controller			Connection cable		Remarks
Model name	RS-232C adapter*1	Communication type	Cable model	Max. distance	
CPM2A CQM1	—	RS-232	GT09-C30R20101-9P (3 m)	15 m	—
CPM1 CPM1A CPM2A CPM2C	CPM1-CIF01	RS-232	GT09-C30R20101-9P (3 m)	15 m	—
CPM2C	CPM2C-CIF01-V1	RS-232	GT09-C30R20101-9P (3 m)	15 m	—

\*1 Product manufactured by OMRON Corporation.  
For details on the product, contact OMRON Corporation.

### ■When connecting to OMRON connection cable

Programmable controller			Connection cable		Remarks
Model name	OMRON connection cable*1	Communication type	Cable model	Max. distance	
CPM1A	CQM1-CIF01	RS-232	GT09-C30R20102-25S (3 m)	15 m	—
CPM2C	CPM2C-CN111	RS-232	GT09-C30R20101-9P (3 m)	15 m	—

\*1 Product manufactured by OMRON Corporation.  
For details on the product, contact OMRON Corporation.

## Connecting to CQM1H

### ■When connecting to a programmable controller or a serial communication board

Programmable controller			Connection cable		Remarks
Model name	Serial communication board*1	Communication type	Cable model	Max. distance	
CQM1H	—	RS-232	GT09-C30R20101-9P (3 m)	15 m	—
	CQM1-SCB41	RS-232	GT09-C30R20101-9P (3 m)	15 m	—

\*1 Product manufactured by OMRON Corporation.  
For details on the product, contact OMRON Corporation.

### ■When connecting to OMRON connection cable

Programmable controller			Connection cable		Remarks
Model name	OMRON connection cable*1	Communication type	Cable model	Max. distance	
CQM1H	CQM1-CIF02	RS-232	GT09-C30R20101-9P (3 m)	15 m	—

\*1 Product manufactured by OMRON Corporation.  
For details on the product, contact OMRON Corporation.

## Connecting to CJ1H, CJ1G, CJ1M, CJ2H, or CJ2M

Programmable controller			Connection cable		Remarks
Model name	Serial communication module* <sup>1</sup>	Communication type	Cable model	Max. distance	
CJ1H CJ1G CJ1M CJ2H	—	RS-232	GT09-C30R20101-9P (3 m)	15 m	—
CJ1H CJ1G CJ1M	CJ1W-SCU21-V1 CJ1W-SCU41-V1	RS-232	GT09-C30R20101-9P (3 m)	15 m	—
CJ2M-CPU1□	—	RS-232	GT09-C30R20101-9P (3 m)	15 m	—
CJ2M-CPU1□ CJ2M-CPU3□	CJ1W-SCU21-V1 CJ1W-SCU41-V1	RS-232	GT09-C30R20101-9P (3 m)	15 m	—
CJ2M-CPU3□	CP1W-CIF01	RS-232	GT09-C30R20101-9P (3 m)	15 m	—

\*1 Product manufactured by OMRON Corporation.  
For details on the product, contact OMRON Corporation.

## Connecting to CP1H, CP1L, or CP1E

### ■When connecting to a programmable controller or an option board

Programmable controller			Connection cable		Remarks
Model name	Option board* <sup>1</sup>	Communication type	Cable model	Max. distance	
CP1E	—	RS-232	GT09-C30R20101-9P (3 m)	15 m	—
CP1H CP1L CP1E	CP1W-CIF01	RS-232	GT09-C30R20101-9P (3 m)	15 m	—

\*1 Product manufactured by OMRON Corporation.  
For details on the product, contact OMRON Corporation.

### ■When connecting to serial communication module

Programmable controller				Connection cable		Remarks
Model name	CJ unit adapter* <sup>1</sup>	Serial communication module* <sup>1</sup>	Communication type	Cable model	Max. distance	
CP1H	CP1W-EXT01	CJ1W-SCU21 CJ1W-SCU41 CJ1W-SCU21-V1 CJ1W-SCU41-V1	RS-232	GT09-C30R20101-9P (3 m)	15 m	—

\*1 Product manufactured by OMRON Corporation.  
For details on the product, contact OMRON Corporation.

## Connecting to C200HS, C200H, C200HX, C200HG, or C200HE

### ■When connecting to a programmable controller or a rack type host link unit

Programmable controller			Connection cable		Remarks
Model name	Rack type host link unit*1	Communication type	Cable model	Max. distance	
C200HX C200HG C200HE	—	RS-232	GT09-C30R20101-9P (3 m)	15 m	—
C200HS C200H C200HX C200HG C200HE	C200H-LK201-V1	RS-232	GT09-C30R20103-25P (3m)	15 m	—

\*1 Product manufactured by OMRON Corporation.  
For details on the product, contact OMRON Corporation.

### ■When connecting to a communication board

Programmable controller			Connection cable		Remarks
Model name	Communication board*1	Communication type	Cable model	Max. distance	
C200HX C200HG C200HE*2	C200HW-COM02 C200HW-COM05 C200HW-COM06	RS-232	GT09-C30R20101-9P (3 m)	15 m	—

\*1 Product manufactured by OMRON Corporation.  
For details on the product, contact OMRON Corporation.  
\*2 The communication board cannot be mounted to the C2000HE-CPU11.  
Use a host link unit.

## Connecting to CS1H, CS1G, or CS1D

### ■When connecting to a programmable controller or a serial communication module

Programmable controller			Connection cable		Remarks
Model name	Serial communication module*1	Communication type	Cable model	Max. distance	
CS1H CS1G CS1D	— CS1W-SCU21 CS1W-SCU21-V1	RS-232 RS-232	GT09-C30R20101-9P (3 m) GT09-C30R20101-9P (3 m)	15 m 15 m	— —

\*1 Product manufactured by OMRON Corporation.  
For details on the product, contact OMRON Corporation.

### ■When connecting to a serial communication board

Programmable controller			Connection cable		Remarks
Model name	Serial communication board*1	Communication type	Cable model	Max. distance	
CS1H CS1G CS1D	CS1W-SCB21 CS1W-SCB41 CS1W-SCB21-V1 CS1W-SCB41-V1	RS-232	GT09-C30R20101-9P (3 m)	15 m	—

\*1 Product manufactured by OMRON Corporation.  
For details on the product, contact OMRON Corporation.

## Connecting to C1000H or C2000H

Programmable controller			Connection cable		Remarks
Model name	Rack type host link unit*1	Communication type	Cable model	Max. distance	
C1000H C2000H	C500-LK201-V1	RS-232	GT09-C30R20103-25P (3m)	15 m	—

\*1 Product manufactured by OMRON Corporation.  
For details on the product, contact OMRON Corporation.

## Connecting to CV500, CV1000, CV2000, or CVM1

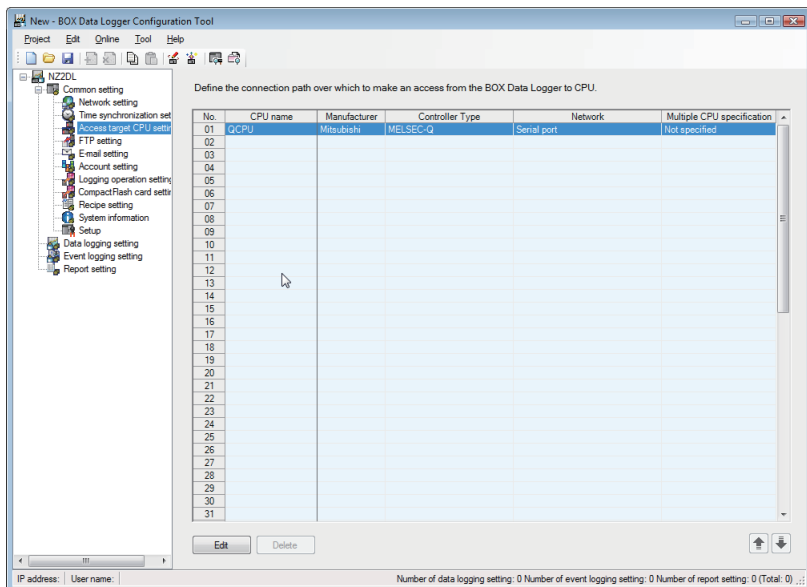
Programmable controller		Connection cable		Remarks
Model name	Communication type	Cable model	Max. distance	
CV500 CV1000 CV2000 CVM1	RS-232	GT09-C30R20101-9P (3 m)	15 m	—



# Settings for BOX Data Logger

## Setting communication interface (Access target CPU setting)

Set the access target CPU.

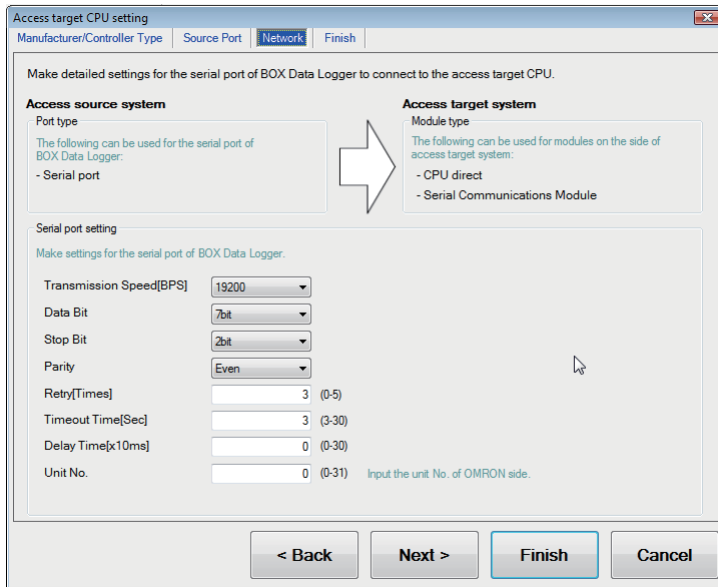


### Operating procedure

1. Click "Common setting" on the edit items tree of the Configuration tool, and click the [Access target CPU setting] button.
2. On the detailed setting editing screen, select the row of the access target CPU, and click the [Edit] button.
3. Set the access target CPU on the displayed "Access target CPU setting" screen.  
Mitsubishi MELSEC-Q is set by default.
4. Select the following items in the [Manufacturer/Controller Type] tab, and click the [Next] button.  
Manufacturer: OMRON  
Controller Type: Set according to the controller type to be connected.
5. In the [Source Port] tab, select "BOX Data Logger Serial Port", and click the [Next] button.
6. In the [Network] tab, set the detailed settings of a BOX Data Logger serial port to connect to the access target.  
Make the settings according to the usage environment.  
📖 Page 544 Network settings
7. Click the [Finish] button once the setting is completed.

## Network settings

Make the settings according to the usage environment.



### • Access source system (Port type)

Item	Description	Range
Port type	The following serial port of BOX Data Logger can be used. • Serial port	Fixed

### • Access source system (Serial port setting)

Item	Description	Range
Transmission Speed	Set this when changing the transmission speed used for communication with a connected equipment. (Default: 19200 bps)	4800 bps, 9600 bps, 19200 bps, 38400 bps, 57600 bps, 115200 bps
Data Bit	Set this when changing the data length used for communication with a connected equipment. (Default: 7bits)	7bit (fixed)
Stop Bit	Specify the stop bit length. (Default: 2bits)	2bit (fixed)
Parity	Specify whether to perform a parity check, and how it is performed during communication. (Default: Even)	Even (fixed)
Retry	Set the number of retries. (Default: 3 times)	0 to 5 times
Timeout Time	Set the timeout period. (Default: 3 sec)	3 to 30 sec
Delay Time	Set this to adjust the transmission timing of the communication request from BOX Data Logger. (Default: 0 ms)	0 to 300 ms
Unit No.	Specify the unit No. to which BOX Data Logger is connected. (Default: 0)	0 to 31

### • Access target system (Module type)

Item	Description	Range
Module type	The following modules can be set for access target system. • CPU direct • Serial Communication Module	—

# Settings for programmable controller

For details of OMRON programmable controllers, refer to OMRON programmable controller user's manual.

Model name		Reference
Programmable controller	CPM2A	Page 546 Connecting to CPM2A, CQM1, CQM1H, C200H $\alpha$ , or RS-232C adapter
	CQM1, CQM1H	
	CS1, CJ1, CJ2	Page 547 Connecting to CJ1, CJ2, CS1, CP1H, CP1L, or CP1E
	CP1H, CP1L, CP1E	Page 547 Connecting to CJ1, CJ2, CS1, CP1H, CP1L, or CP1E
	C200H $\alpha$	Page 546 Connecting to CPM2A, CQM1, CQM1H, C200H $\alpha$ , or RS-232C adapter
	CV500, CV1000, CV2000, CVM1	Page 550 Connecting to CV500/CV1000/CV2000 or CVM1
RS-232C adapter	CPM1-CIF01, CPM2C-CIF01-V1	Page 546 Connecting to CPM2A, CQM1, CQM1H, C200H $\alpha$ , or RS-232C adapter
Connection cable	CQM1-CIF01	Page 551 Connecting to connection cable
	CQM1-CIF02	
	CPM2C-CN111	
Rack type host link unit	C200H-LK201-V1	Page 552 Connecting to rack type host link unit
	C200H-LK202-V1	
	C500-LK201-V1	
Serial communication module	CJ1W-SCU21	Page 555 Connecting to serial communication module
	CJ1W-SCU41	
	CJ1W-SCU21-V1	
	CJ1W-SCU41-V1	
	CS1W-SCU21	
	CS1W-SCU21-V1	
Communication board	C200HW-COM02	Page 556 Connecting to communication board, serial communication board (CQM1-SCB41)
	C200HW-COM03	
	C200HW-COM05	
	C200HW-COM06	
Serial communication board	CQM1-SCB41	Page 556 Connecting to communication board, serial communication board (CQM1-SCB41)
	CS1W-SCB21	Page 557 Connecting to serial communication board (CS1W-SCB21 (-V1), CS1W-SCB41 (-V1))
	CS1W-SCB21-V1	
	CS1W-SCB41	
CS1W-SCB41-V1		

## Connecting to CPM2A, CQM1, CQM1H, C200H $\alpha$ , or RS-232C adapter

### ■ Device settings

Write the following setting values to devices of each programmable controller and initialize each port using a peripheral tool or DM monitor.

Device name	Setting value				
DM6645	0001H (fixed)				
DM6646	<table border="1" style="margin-left: 40px;"> <tr> <td style="text-align: center;">b15~b8</td> <td style="text-align: center;">b7~b0</td> </tr> <tr> <td style="text-align: center;">2)</td> <td style="text-align: center;">1)</td> </tr> </table> <p>1) RS-232C port transmission speed setting*<sup>1</sup>, *<sup>2</sup>            02H: 4800 bps            03H: 9600 bps            04H: 19200 bps            2) RS-232C port communication frame format            03H (fixed): The settings are as follows:            Start bit: 1bit            Data bit: 7bit            Stop bit: 2bit            Parity: Even bits</p>	b15~b8	b7~b0	2)	1)
b15~b8	b7~b0				
2)	1)				
DM6647	0000 (fixed)				
DM6648* <sup>3</sup>	0000 to 0031				
DM6649	0000 (fixed)				

\*1 Only transmission speeds available on the BOX Data Logger side are shown.

\*2 Set the same transmission speed of the RS-232C port as that of the BOX Data Logger side.

\*3 Set the RS-232C port host link unit No. according to the unit No. on the BOX Data Logger side.

### Precautions

Before changing the device values, make sure that the switch settings have been changed as follows.

CPM2A: The communication condition switch to "individual"

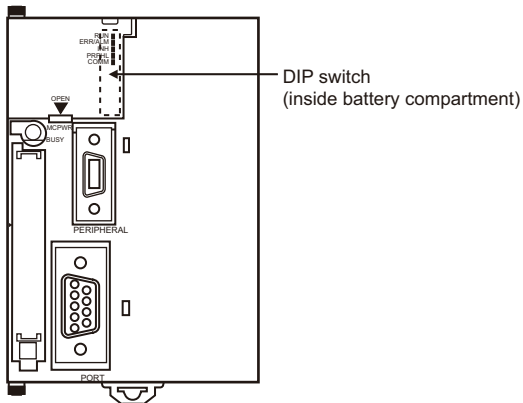
Other programmable controller: Front panel DIP switch SW5 to "OFF"

## Connecting to CJ1, CJ2, CS1, CP1H, CP1L, or CP1E

### ■Setting DIP switches

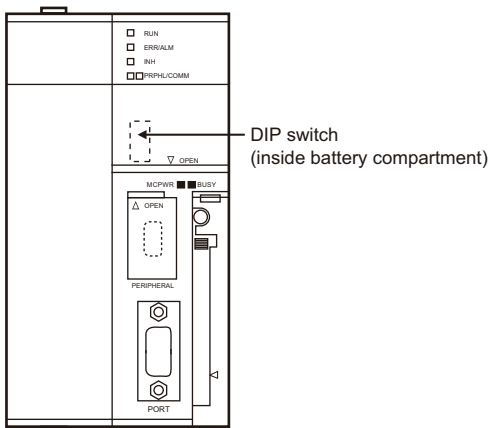
Set the DIP switches.

- Setting on the CJ1, CJ2



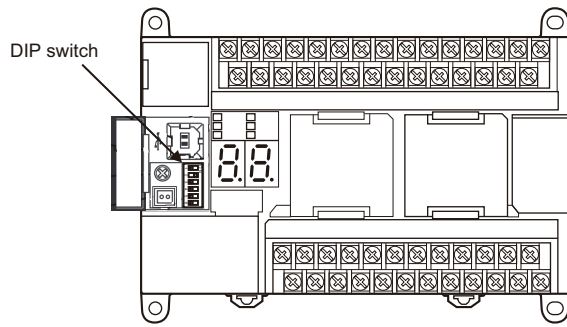
Switch	Description	Setting value
SW1	Enable/disable write to user memory (UM)	OFF
SW2	Enable/disable automatic transfer of user program at power ON	OFF
SW3	Free	OFF
SW4	CJ1: Peripheral port communication condition CJ2: Free	OFF
SW5	RS-232C communication condition	OFF
SW6	User customized DIP switch	OFF
SW7	Type specification for simplified backup	OFF
SW8	—	OFF

- Setting on the CS1



Switch	Description	Setting value
SW1	Enable/disable write to user memory (UM)	OFF
SW2	Enable/disable automatic transfer of user program at power ON	OFF
SW3	—	—
SW4	Peripheral port communication condition	OFF
SW5	RS-232C communication condition	OFF
SW6	User customized DIP switch	OFF
SW7	Type specification for simplified backup	OFF
SW8	—	OFF

- Setting on the CP1H, CP1L



Switch	Description		Setting value
SW4	Option Board Slot1	According to PLC Setup.	OFF
SW5	Option Board Slot2		OFF

- Setting on the CP1E

Settings by DIP switch are not required.

## ■Setting PLC system settings (CJ1, CJ2, CS1)

Make the PLC system settings.

Channel	Bit	Item	Setting value
160	15	Arbitrary settings	1H: Arbitrary settings (fixed)
	8 to 11	Serial communication mode	0H: Upper link (fixed)
	3	Data bit	0H: 7bit (fixed)
	2	Stop bit	0H: 2bit (fixed)
	0 to 1	Parity	0H: Even (fixed)
161	0 to 7	Port transmission speed <sup>*1, *2</sup>	00H: 9600 bps 05H: 4800 bps 06H: 9600 bps 07H: 19200 bps 08H: 38400 bps 09H: 57600 bps 0AH: 115200 bps
163	0 to 7	Host link unit No. <sup>*3</sup>	0H to 1FH: No.00 to 31

\*1 Only transmission speeds available on the BOX Data Logger side are shown.

\*2 Set the same port transmission speed as that of the BOX Data Logger side.

\*3 Set the host link unit No. according to the unit No. on the BOX Data Logger side.

### Precautions

Before changing the PLC system settings, make sure that the switch settings have been changed as follows.

CJ1, CJ2, CS1: Front panel DIP switch SW5 to "OFF"

## ■Setting PLC system settings (CP1H, CP1L, CP1E)

Set the PLC system settings of the option slot used to connect to BOX Data Logger.

Item	Setting value
Mode	Host link
Parameter	7, 2, E
Transmission speed <sup>*1, *2</sup>	4800 bps, 9600 bps, 19200 bps, 38400 bps, 57600 bps, 115200 bps
Unit No. <sup>*3</sup>	00 to 31

\*1 Only transmission speeds available on the BOX Data Logger side are shown.

\*2 Set the same port transmission speed as that of the BOX Data Logger side.

\*3 Set the host link unit No. according to the unit No. on the BOX Data Logger side.

### Precautions

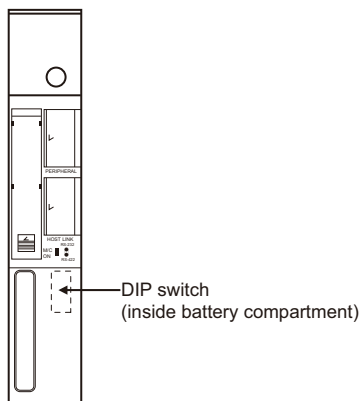
Before changing the PLC system settings, check the setting of the front DIP switch corresponding to the option slot used at the time of communication with BOX Data Logger.

☞ Setting on the CP1H, CP1L

## Connecting to CV500/CV1000/CV2000 or CVM1

### ■Setting DIP switches

Set the DIP switches.



Setting switch name		Setting value
Host link RS-422/232 switch		RS-232 (up)
DIP switches	6	OFF (no terminating resistor)
	5	OFF
	4	OFF
	3	OFF
	2	OFF
	1	OFF

### ■Setting PLC system settings

Make the PLC system settings.

Item	Setting value
Transmission speed <sup>*1, *2</sup>	4800 bps/9600 bps/19200 bps
Stop bit	2 stop bits (fixed)
Parity	Even (fixed)
Data bit	7bit (fixed)
Unit No. <sup>*3</sup>	00 to 31

\*1 Only transmission speeds available on the BOX Data Logger side are shown.

\*2 Set the same transmission speed as that of the BOX Data Logger side.

\*3 Set the same unit No. as the unit No. on the BOX Data Logger side.



## Connecting to connection cable

### ■Device settings

Write the following setting values to devices of each programmable controller and initialize each port using a peripheral tool or DM monitor.

Device name	Setting value				
DM6650	0001H (fixed)				
DM6651	<table border="1"><tr><td>b15~b8</td><td>b7~b0</td></tr><tr><td>2)</td><td>1)</td></tr></table> <p>1) RS-232C port transmission speed setting*1, *2 02H: 4800 bps 03H: 9600 bps 04H: 19200 bps 2) RS-232C port communication frame format 03H (fixed): The settings are as follows: Start bit: 1bit Data bit: 7bit Stop bit: 2bits Parity: Even bits</p>	b15~b8	b7~b0	2)	1)
b15~b8	b7~b0				
2)	1)				
DM6652	0000 (fixed)				
DM6653*3	0000 to 0031				

\*1 Only transmission speeds available on the BOX Data Logger side are shown.

\*2 Set the same transmission speed of the peripheral port as that of the BOX Data Logger side.

\*3 Set the peripheral port host link unit No. according to the unit No. on the BOX Data Logger side.

### Precautions

Before changing the device values, make sure that the switch settings have been changed as follows.

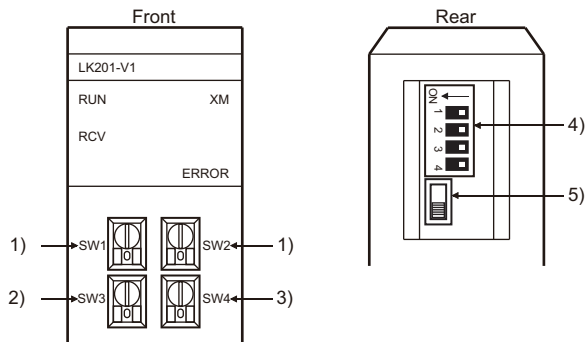
CPM2A: The communication condition switch to "individual"

CPM2C: The communication port function switch to "OFF"

## Connecting to rack type host link unit

### ■ Switch setting on C200H-LK201-V1

Set the switches accordingly.



#### 1) Setting unit No. (SW1, SW2)

Set the unit No. within the range of 00 to 31.

Set the unit No. according to the unit No. on the BOX Data Logger side.

Rotary switch	Description	Setting value
SW1	Unit No. upper digit ( $\times 10^1$ )	0 to 3
SW2	Unit No. lower digit ( $\times 10^0$ )	0 to 9

#### 2) Setting transmission speed (SW3)

Set the same transmission speed as that of the BOX Data Logger side.

Setting value <sup>*1</sup>	Description
4	4800 bps
5	9600 bps
6	19200 bps

\*1 Only transmission speeds available on the BOX Data Logger side are shown.

#### 3) Setting command level/parity/transmission code (SW4)

Setting value	Description		
	Command level	Parity	Transmission code
2 (fixed)	Levels 1, 2 and 3 enabled	Even	ASCII 7bits, 2 stop bits

#### 4) Setting DIP switches

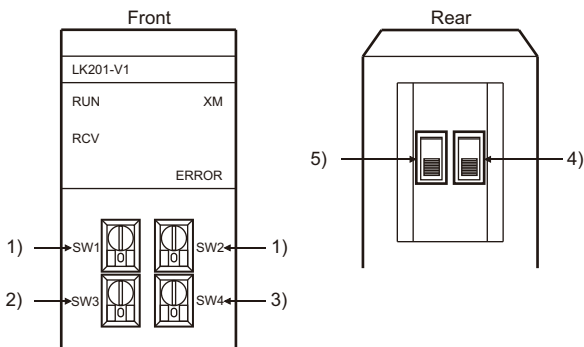
Switch No.	Setting value
1	OFF
2	OFF
3	ON (1:N procedure)
4	OFF (no 5V power supply)

#### 5) Setting the CTS switch

Setting value
0V

### Switch setting on C200H-LK202-V1

Set the switches accordingly.



#### 1) Setting unit No. (SW1, SW2)

Set the unit No. within the range of 00 to 31.

Set the unit No. according to the unit No. on the BOX Data Logger side.

Rotary switch	Description	Setting value
SW1	Unit No. upper digit ( $\times 10^1$ )	0 to 3
SW2	Unit No. lower digit ( $\times 10^0$ )	0 to 9

#### 2) Setting transmission speed (SW3)

Set the same transmission speed as that of the BOX Data Logger side.

Setting value <sup>*1</sup>	Description
4	4800 bps
5	9600 bps
6	19200 bps

\*1 Only transmission speeds available on the BOX Data Logger side are shown.

#### 3) Setting command level/parity/transmission code (SW4)

Setting value	Description		
	Command level	Parity	Transmission code
2 (fixed)	Levels 1, 2 and 3 enabled	Even	ASCII 7bits, 2 stop bits

#### 4) Setting the 1:1/1:N procedure switch

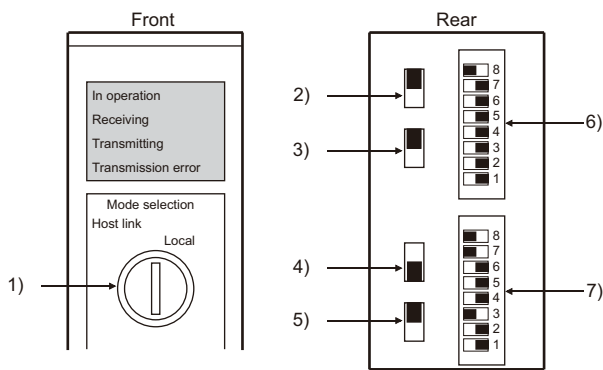
Setting value
OFF (1:N procedure)

#### 5) Setting the terminating resistor connection switch

Setting value
ON (terminating resistor attached)

## ■ Switch setting on C500-LK201-V1

Set the switches accordingly.



### 1) Setting host link/local

#### Setting value

Host link

### 2) RS-232C/RS-422 switch

#### Setting value

RS-232 (down)

### 3) Internal/external clock switch

#### Setting value

Internal (up)

### 4) Terminating resistor connection switch

#### Setting value

Attached (down)

### 5) CTS switch

#### Setting value

0V (up)

### 6) Setting SW1 (Unit No., Run/Stop)

Switch No.	Setting value	Description
8	ON	Run
7	OFF	—
6	OFF	—
5		Set the unit No. within the range of 00 to 31.
4		For details, refer to OMRON programmable controller user's manual.
3		
2		
1		

### 7) Setting SW2 (Transmission speed, Procedure, Level)

Switch No.	Setting value	Description
8	ON	Level 1, 2 and 3 enabled
7	ON	
6	OFF	1:N procedure
5	OFF	—
4	☞ Transmission speed	Transmission speed
3		
2		
1		

- Transmission speed

Only transmission speeds available on the BOX Data Logger side are as follows:

Switch No.	Transmission speed		
	4800 bps	9600 bps	19200 bps
SW1	OFF	ON	OFF
SW2	ON	OFF	OFF
SW3	ON	ON	ON
SW4	OFF	OFF	OFF

## Connecting to serial communication module

### ■Device settings

Write the following setting values to devices of each programmable controller and initialize each port using a peripheral tool or DM monitor.

Device name		Setting value				
Port 1	Port 2					
DM (m)	DM (m+10)	8000H (fixed): The settings are: Port setting: Arbitrary setting Serial communication mode: Host link Start bit: 1bit Data bit: 7bit Stop bit: 2bits Parity: Even				
DM (m+1)	DM (m+11)	<table border="1" style="margin-left: 20px;"> <tr> <td style="text-align: center;">b15~b8</td> <td style="text-align: center;">b7~b0</td> </tr> <tr> <td style="text-align: center;">0H</td> <td style="text-align: center;">1)</td> </tr> </table> <p>1) Transmission speed*1, *2 00H: 9600 bps 05H: 4800 bps 06H: 9600 bps 07H: 19200 bps 08H: 38400 bps 09H: 57600 bps 0AH: 115200 bps</p>	b15~b8	b7~b0	0H	1)
b15~b8	b7~b0					
0H	1)					
DM (m+2)	DM (m+12)	8000H (fixed)				
DM (m + 3)*3	DM (m + 13)*3	8000H to 801FH				

$$m = 30000 + (100 \times \text{unit number})$$

- \*1 Only transmission speeds available on the BOX Data Logger side are shown.
- \*2 Set the same transmission speed as that of the BOX Data Logger side.
- \*3 Set the host link unit No. according to the unit No. on the BOX Data Logger side.

## Connecting to communication board, serial communication board (CQM1-SCB41)

### ■Settings for devices

Write the following setting values to devices of each programmable controller and initialize each port using a peripheral tool or DM monitor.

Device name		Setting value				
Port B	Port A					
DM6550	DM6555	0001H (fixed)				
DM6551	DM6556	<table border="1" style="margin-left: auto; margin-right: auto;"> <tr> <td style="text-align: center;">b15~b8</td> <td style="text-align: center;">b7~b0</td> </tr> <tr> <td style="text-align: center;">2)</td> <td style="text-align: center;">1)</td> </tr> </table> <p>1) Transmission speed<sup>*1, *2</sup>            02H: 4800 bps            03H: 9600 bps            04H: 19200 bps            2) Frame format setting            03H (fixed): The settings are:            Start bit: 1bit            Data bit: 7bit            Stop bit: 2bits            Parity: Even bits</p>	b15~b8	b7~b0	2)	1)
b15~b8	b7~b0					
2)	1)					
DM6552	DM6557	0000H (fixed)				
DM6553 <sup>*3</sup>	DM6558 <sup>*3</sup>	0000H to 0031H				

\*1 Only transmission speeds available on the BOX Data Logger side are shown.

\*2 Set the same transmission speed as that of the BOX Data Logger side.

\*3 Set the host link unit No. according to the unit No. on the BOX Data Logger side.

## Connecting to serial communication board (CS1W-SCB21 (-V1), CS1W-SCB41 (-V1))

Write the following setting values to devices of each programmable controller and initialize each port using a peripheral tool or DM monitor.

Device name		Setting value				
Port 1	Port 2					
D32000	D32010	8000H (fixed): The settings are: Port setting: Arbitrary setting Serial communication mode: Host link Start bit: 1bit Data bit: 7bit Stop bit: 2bit Parity: Even				
D32001	D32011	<table border="1" style="margin-left: auto; margin-right: auto;"> <tr> <td style="text-align: center;">b15~b8</td> <td style="text-align: center;">b7~b0</td> </tr> <tr> <td style="text-align: center;">0H</td> <td style="text-align: center;">1)</td> </tr> </table> <p>1) Transmission speed*1, *2 00H: 9600 bps 05H: 4800 bps 06H: 9600 bps 07H: 19200 bps 08H: 38400 bps 09H: 57600 bps 0AH: 115200 bps</p>	b15~b8	b7~b0	0H	1)
b15~b8	b7~b0					
0H	1)					
D32002	D32012	8000H (fixed)				
D32003*3	D32013*3	0000H to 001FH				

\*1 Only transmission speeds available on the BOX Data Logger side are shown.

\*2 Set the same transmission speed as that of the BOX Data Logger side.

\*3 Set the host link unit No. according to the unit No. on the BOX Data Logger side.

# 19.3 Ethernet Connection

## Connectable model list

The connectable models are as follows:

Series	Model name <sup>*2</sup>	Communication type	Reference
SYSMAC CJ1 <sup>*1</sup>	CJ1H	Ethernet	Page 558 System configuration
	CJ1G		
	CJ1M		
SYSMAC CJ2 <sup>*1</sup>	CJ2H		
	CJ2M		
SYSMAC CS1 <sup>*1</sup>	CS1H		
	CS1G		
	CS1D		

\*1 Not supporting the redundant Ethernet.

\*2 Product manufactured by OMRON Corporation.

For details on the product, contact OMRON Corporation.

## System configuration

Programmable controller		Connection cable <sup>*1</sup>		Remarks
Model name	Ethernet module <sup>*2</sup>	Cable model	Maximum segment length <sup>*3</sup>	
CS1H CS1G CS1D	CS1W-ETN21	Twisted pair cable • 10BASE-T Shielded twisted pair cable (STP) or unshielded twisted pair cable (UTP): Category 3, 4, and 5 • 100BASE-TX Shielded twisted pair cable (STP): Category 5 and 5e	100 m	—
CS1D	CS1D-ETN21D		100 m	—
CJ1H CJ1M CJ1G	CJ1W-ETN21		100 m	—
CJ2H-CPU6□-EIP CJ2M-CPU3□	—		100 m	—
	CJ1W-ETN21		100 m	—
CJ2H-CPU6□ CJ2M-CPU1□	CJ1W-ETN21		100 m	—

\*1 The connection destination of the twisted pair cable varies depending on the Ethernet network system configuration to be used. Connect a cable with an Ethernet module, hub, transceiver in accordance with the Ethernet network system to be used. Use cables, connectors, and hubs that meet the IEEE802.3 10BASE-T/100BASE-TX standard.

\*2 Product manufactured by OMRON Corporation. For details on the product, contact OMRON Corporation.

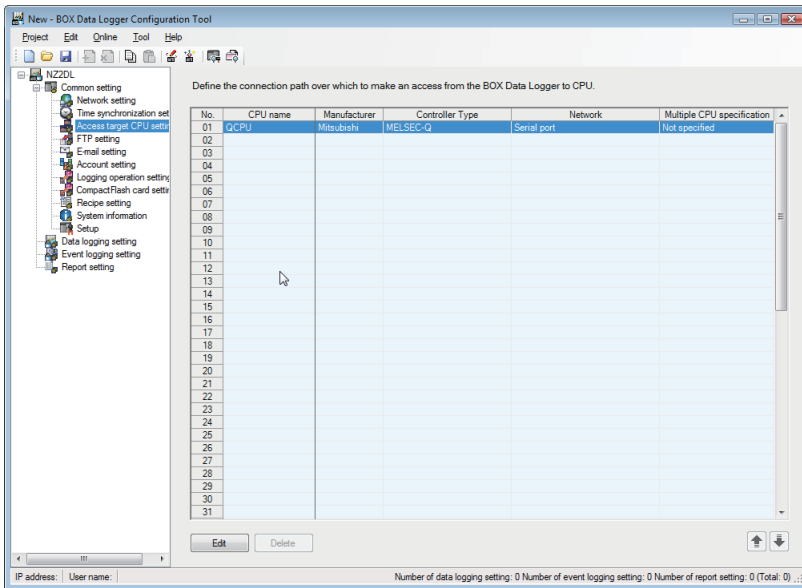
\*3 A length between a hub and a node. The following shows the number of the connectable nodes.  
10BASE-T: Max. 4 nodes for a cascade connection  
100BASE-TX: Max. 2 nodes for a cascade connection



# Settings for BOX Data Logger

## Setting communication interface (Access target CPU setting)

Set the access target CPU.



### Operating procedure

1. Click "Common setting" on the edit items tree of the Configuration tool, and click the [Access target CPU setting] button.
2. On the detailed setting editing screen, select the row of the access target CPU, and click the [Edit] button.
3. Set the access target CPU on the displayed "Access target CPU setting" screen.  
Mitsubishi MELSEC-Q is set by default.
4. Select the following items in the [Manufacturer/Controller Type] tab, and click the [Next] button.  
Manufacturer: OMRON  
Controller Type: SYSMAC CS/CJ
5. In the [Source Port] tab, select "BOX Data Logger Ethernet Port", and click the [Next] button.
6. In the [Network] tab, set the detailed settings of the BOX Data Logger Ethernet port to connect to the access target.  
Make the settings according to the usage environment.  
📖 Page 560 Network settings
7. Click the [Finish] button once the setting is completed.

## Network settings

Set the settings according to the access target.

### ■ SYSMAC CS/CJ

#### • Access source system (Port type)

Item	Description	Range
Port type	The display of BOX Data Logger Ethernet port varies according to whether the "Use the IP address setting (CH2)" is selected or not in the Network setting. <ul style="list-style-type: none"> <li>Selected <ul style="list-style-type: none"> <li>Ethernet port (CH1)</li> <li>Ethernet port (CH2)</li> </ul> </li> <li>Unselected <ul style="list-style-type: none"> <li>Ethernet port (CH1)</li> </ul> </li> </ul>	—

#### • Access source system (Ethernet port setting)

Item	Description	Range
IP address	Display the IP address (CH1, CH2) of BOX Data Logger.	—
Port No.*1	Set the BOX Data Logger port number for the connection with the Ethernet module. (Default: 5018)	1024 to 5010, 5014 to 65534 (Except for 5011, 5012, 5013 and 49153)
BOX Data Logger Station No.	Set the station number of BOX Data Logger. (Default: 2)	1 to 254
Retry	Set the number of retries to be performed when a communication timeout occurs. When receiving no response after retries, the communication times out. (Default: 3 times)	0 to 5 times
Timeout Time	Set the time period for a communication to time out. (Default: 3 sec)	3 to 90 sec
Delay Time	Set the delay time for reducing the load of the network/connection target programmable controller. (Default: 0 ms)	0 to 100000 ms

\*1 If the 'IP address conversion method' of the OMRON programmable controller setting is set to something other than "Automatic conversion method (dynamic)", set the port No. of the access target system same as the "FINS UDP port" of the CX-Programmer.

• Access target system (Module type)

Item	Description	Range
Module type	The following modules can be set for access target system. • Ethernet module	—

• Access target system (Module setting)

Item	Description	Range
IP address	Set the access target IP address. (Default: 192.168.3.39)	0.0.0.0 to 255.255.255.255
Port No.	Set the access target port number. (Default: 9600)	255 to 65534
Protocol	Set the protocol UDP or TCP. (Default: UDP)	UDP/TCP
Station No.	Set the station number. (Default: 1)	1 to 254

## Settings for programmable controller

For the communication between OMRON programmable controller and BOX Data Logger, use the FINS communication. For the FINS communication, the node must be specified according to the realm of FINS. However, for the Ethernet network, the data transfer according to the IP address is required.

- Automatic conversion method (dynamic)
- Automatic conversion method (static)
- IP address table conversion method
- Combined method

The following four methods are available for converting the FINS node address to the IP address.

For details of OMRON programmable controllers, refer to OMRON programmable controller user's manual.

### Communication settings

Configure the settings with the OMRON software for programming apparatus (CX-Programmer Ver.3.20 or later).

Item		Setting range			
		Automatic conversion method (dynamic) <sup>*4</sup>	Automatic conversion method (static) <sup>*4, *5</sup>	IP address table method <sup>*4, *6</sup>	Combined method <sup>*4, *6</sup>
Ethernet module CPU highly functional module	Global	All 1 (Default)	All 1 (Default)	All 1 (Default)	All 1 (Default)
	IP address <sup>*1</sup>	[192].[168].[0].[1] <sup>*3</sup>	[192].[168].[0].[1] <sup>*3</sup>	[192].[168].[0].[1]	[192].[168].[0].[1]
	Subnet Mask	[255].[255].[255].[0]	[255].[255].[255].[0]	[255].[255].[255].[0]	[255].[255].[255].[0]
	FINS UDP port <sup>*1</sup>	9600	9600	9600	9600
	IP address conversion	Automatic conversion method (dynamic)	Automatic conversion method (static)	IP address table method	Combined method
	IP address table	—	—	10[192].[168].[0].[1] 11[192].[168].[0].[18]	10[192].[168].[0].[1]
	Transmission speed	Automatic detection (Default)	Automatic detection (Default)	Automatic detection (Default)	Automatic detection (Default)
	Node IP Address dynamically change <sup>*2</sup>	Change dynamically (Default)	Change dynamically (Default)	Change dynamically (Default)	Change dynamically (Default)

\*1 Set the "IP address" and "FINS UDP port" same as the "IP address" and "Port No." in the access target CPU setting of Configuration tool.

\*2 The Node IP Address dynamically change function is available only when the Ethernet module to be used is Ver.1.3 or later.

For the setting, set in the module setting of CX-Programmer Ver.5.0 or later or in the WEB function.

For details of Node IP Address dynamically change, refer to OMRON programmable controller user's manual.

\*3 Set the same lowermost bit of the "IP address" setting as that of the node setting switch of the module.

\*4 Use Configuration tool to set the "Port No." of the access target system in the access target CPU setting same as the "Port No." of the Ethernet setting.

\*5 In the access target CPU setting of Configuration tool, set the "IP address" lowest byte of the access target system same as the "PLC No".

\*6 In the access target CPU setting of Configuration tool, set the "IP address" lowest byte and the "PLC No." same as the settings in the "IP address table".

# Considerations

---

## Setting IP address

Do not use '0' and '255' at the end of an IP address.

(Numbers of \*.\*\*.0 and \*.\*\*.255 are used by the system.)

If the above numbers are used, BOX Data Logger may not be able to perform logging normally.

Consult with the administrator of the network before setting an IP address to the BOX Data Logger and external equipment.

## When connecting to the multiple network equipment in a segment

When connecting two or more network equipment (including BOX Data Logger) in the same segment, the transmission speed between BOX Data Logger and programmable controller may be reduced due to the increased network load.

The following actions may improve the communication performance.

- Using a switching hub.
- Using more high speed by 100BASE-TX (100 Mbps).
- Reducing the logging points for BOX Data Logger.

## 19.4 Access Units

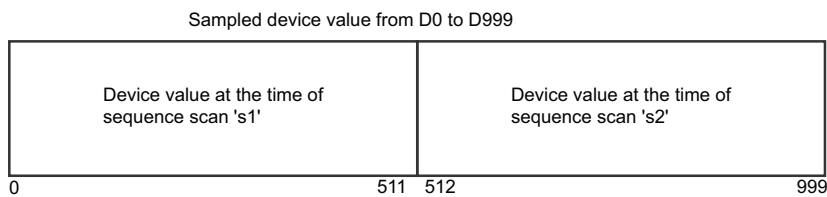
The following explains the number of device points (access units) that can be accessed in a single process when sampling a programmable controller's device values.

When the access units are lower than the number of sampled device points, the module sampled the device values in the same sequence scan.

When the access units exceed the number of sampled device points, device values are sampled over multiple sequence scans, so there is a possibility of data separation occurrence.\*1

\*1 Data separation means that data consist of multiple device value make no sense because new device value and old device value are mixed due to data obtained by more than one processes.

Example) When 1000 points of device value from DM0 are sampled by OMRON SYSMAC CJ1 (Ethernet connection), different sequence scan data; s1 and s2, is mixed because the data is obtained by two processes. (s1 and s2 indicate the sequence scan at a certain point.)



If data separation must be prevented, set the number of devices sampled at one time to less than the access units.

For the operation when the number of device points sampled by the Trigger logging function exceeds the access units, refer to the following section.

☞ Page 124 Trigger logging function

Series	Model <sup>*1</sup>	Serial		Ethernet	
		Random <sup>*2</sup>	Continuation <sup>*3</sup>	Random <sup>*2</sup>	Continuation <sup>*3</sup>
SYSMAC CPM	CPM1	1 point	56 bytes	—	—
	CPM1A				
	CPM2A				
	CPM2C				
SYSMAC CQM1	CQM1				
SYSMAC CPQ1H	CQM1H				
SYSMAC CJ1	CJ1H	30 points	508 bytes	167 points	1024 bytes
	CJ1G				
	CJ1M				
SYSMAC CJ2	CJ2H				
	CJ2M				
SYSMAC CP1	CP1H	1 point	56 bytes	—	—
	CP1L				
	CP1E (N type)				
SYSMAC C200HS	C200HS				
SYSMAC C200H	C200H				
SYSMAC α	C200HX				
	C200HG				
	C200HE				
SYSMAC CS1	CS1H	30 points	508 bytes	167 points	1024 bytes
	CS1G				
	CS1D				
SYSMAC C1000H	C1000H	1 point	56 bytes	—	—
SYSMAC C2000H	C2000H				
SYSMAC CVM1/CV	CV500				
	CV1000				
	CV2000				
	CVM1				

\*1 Product manufactured by OMRON Corporation.

For details on the product, contact OMRON Corporation.

\*2 When different devices are set, or if the same device is set non-continuously.

\*3 When the same device is set continuously.

# 20 CONNECTION TO SIEMENS PROGRAMMABLE CONTROLLER

## 20.1 Settable Device Range

This section explains the device ranges of the connected equipment that can be used for BOX Data Logger.

Note that the device ranges in the following tables are the maximum values that can be set in Configuration tool.

The device specifications of the connected equipment may differ depending on the models, even though belonging to the same series.

Please make the setting according to the specifications of the connected equipment actually used.

When a non-existent device or a device number outside the range is set, an error may occur.

For the "Device Setting" screen, refer to the following section.

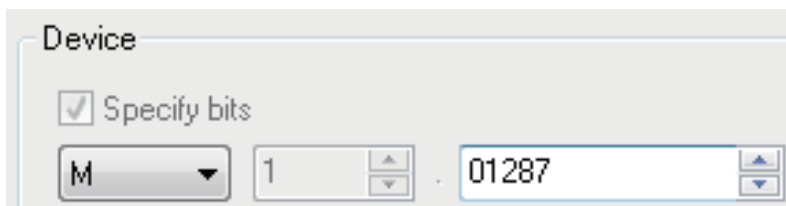
☞ Page 219 Device settings

### Device setting for SIEMENS programmable controller (S7-300/400 (Serial))

#### ■Setting bit device as bit device

Set by byte address (decimal) and bit address (0 to 7).

In the example below, the byte address is '0128', and the bit address is '7'.

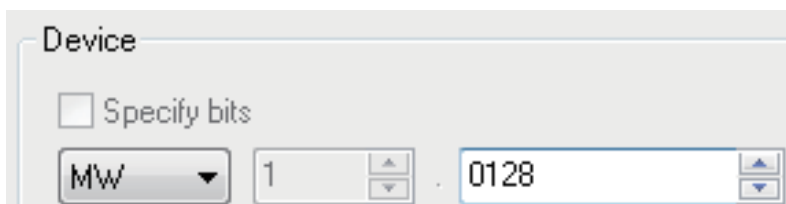


The screenshot shows a 'Device' configuration window. At the top, there is a title 'Device'. Below it, a checkbox labeled 'Specify bits' is checked. Underneath, there are three input fields: a dropdown menu showing 'M', a numeric spinner set to '1', and a text box containing '01287'. The text box has a blue border and a small arrow icon on the right side.

#### ■Setting bit device as word device

Set the device number by even value.

Set the device name that 'W' is attached to the device name of the bit memory.



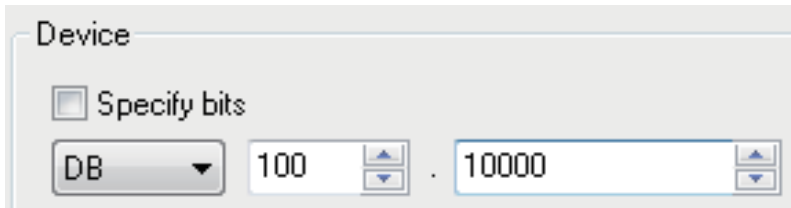
The screenshot shows a 'Device' configuration window. At the top, there is a title 'Device'. Below it, a checkbox labeled 'Specify bits' is unchecked. Underneath, there are three input fields: a dropdown menu showing 'MW', a numeric spinner set to '1', and a text box containing '0128'. The text box has a blue border and a small arrow icon on the right side.



**Setting data register**

Set by data block (DB) and data word (DW).

In the example below, the data block (DB) number is '100', and the data word (DW) number is '10000'.



**Considerations for device setting**

- Bit device representation method

Bit device representation differs between BOX Data Logger and a programmable controller as shown below.

Representation on BOX Data Logger	Representation on programmable controller
Q0007	Q0.7

- Preparation for data register settings

Before using data register, a data block needs to be defined with the peripheral software or the sequence program.

A setting over different data blocks cannot be configured to a data register.

- Bit representation method for data register

Data register representation at bit specification differs between BOX Data Logger and a programmable controller.

The following table shows the correspondence.

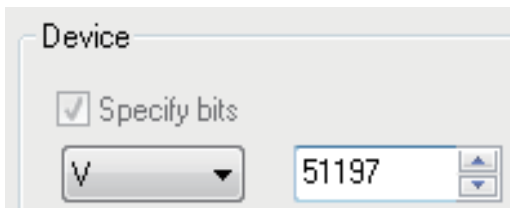
Bit representation on BOX Data Logger	Bit representation on programmable controller
DB1.0.b0	DB1.DBX1.0
DB1.0.b1	DB1.DBX1.1
:	:
DB1.0.b7	DB1.DBX1.7
DB1.0.b8	DB1.DBX0.0
:	:
DB1.0.b15	DB1.DBX0.7
DB1.2.b0	DB1.DBX3.0
:	:
DB1.2.b7	DB1.DBX3.7
DB1.2.b8	DB1.DBX2.0
:	:
DB1.2.b15	DB1.DBX2.7
:	:

**Device setting for SIEMENS programmable controller (S7-200 (Serial))**

**Setting bit device**

Set by byte address (decimal) + bit address (0 to 7).

In the example below, the byte address is '5119' and the bit address is '7'.



## Device setting for SIEMENS programmable controller (S7-200/300/400/1200(Ethernet))

### ■Setting bit device as bit device

Set by byte address (decimal) and bit address (0 to 7).

In the example below, the byte address is '0128' and the bit address is '7'.

Device

Specify bits

M 1 . 01287

### ■Setting data register

Set by data block (DB) and data word (DW).

In the example below, the data block is '100' and the data word is '10000'.

Device

Specify bits

DB 100 . 10000

### ■Considerations for device setting

- Preparation for data register settings

Before using data register, a data block needs to be defined with the peripheral software or the sequence program.

A setting over different data blocks cannot be configured to a data register.

- Bit representation method for data register

Data register representation at bit specification differs between BOX Data Logger and a programmable controller.

The following table shows the correspondence.

Bit representation on BOX Data Logger	Bit representation on programmable controller
DB1.0.b0	DB1.DBX1.0
DB1.0.b1	DB1.DBX1.1
:	:
DB1.0.b7	DB1.DBX1.7
DB1.0.b8	DB1.DBX0.0
:	:
DB1.0.b15	DB1.DBX0.7
DB1.2.b0	DB1.DBX3.0
:	:
DB1.2.b7	DB1.DBX3.7
DB1.2.b8	DB1.DBX2.0
:	:
DB1.2.b15	DB1.DBX2.7
:	:

## SIEMENS programmable controller (SIMATIC S7-200 (Serial))

The device ranges that can be set when selecting "SIMATIC S7-200 (Serial)" as the controller type on the "Access target CPU setting" screen are as follows:

Device Name		Setting range	Device number representation
Bit device	Variable memory (V)	V0 to V51197	Decimal + Octal <sup>*5</sup>
	Input relay (I)	I0 to I77	
	Output relay (Q) <sup>*3</sup>	Q0 to Q77	
	Bit memory (M)	M0 to M317	
	Special memory (SM)	SM0 to SM1947	
	Sequential control relay (S)	S0 to S317	
Word device	Variable memory (VW) <sup>*6</sup>	VW0 to VW5118	Decimal
	Input relay (IW) <sup>*6</sup>	IW0 to IW6	
	Output relay (QW) <sup>*3,*6</sup>	QW0 to QW6	
	Analog input (AIW) <sup>*1,*6</sup>	AIW0 to AIW30	
	Analog output (AQW) <sup>*3,*6</sup>	AQW0 to AQW30	
	Bit memory (MW) <sup>*6</sup>	MW0 to MW30	
	Special memory (SMW) <sup>*6</sup>	SMW0 to SMW192	
	Timer (T) <sup>*4</sup>	T0 to T255	
	Counter (C) <sup>*4</sup>	C0 to C255	
	High-speed counter (HC) <sup>*2</sup>	HC0 to HC2	
	Sequential control relay (SW) <sup>*6</sup>	SW0 to SW30	

\*1 Only data logging is available.

\*2 Only data logging by specifying double word is available.

\*3 Only device values in the Recipe file can be transferred to the programmable controller while the programmable controller is in RUN.

\*4 Only word specification is available.

\*5 The first digit is octal notation, and the second digit and higher are decimal notation.

\*6 The device number must be set by even value.

# SIEMENS programmable controller (SIMATIC S7-300/400 (Serial))

The device ranges that can be set when selecting "SIMATIC S7-300/400 (Serial)" as the controller type on the "Access target CPU setting" screen are as follows:

Device Name		Setting range	Device number representation
Bit device	Input relay (I)	I0000 to I5117	Decimal + Octal <sup>*2</sup>
	Output relay (Q)	Q0000 to Q5117	
	Bit memory (M)	M00000 to M20477	
	Word device bit	Specified bit of the following word devices (input relay, output relay, bit memory, timer and counter are excluded.)	—
Word device	Input relay (IW) <sup>*3</sup>	IW0 to IW510	Decimal
	Output relay (QW) <sup>*3</sup>	QW0 to QW510	
	Bit memory (MW) <sup>*3</sup>	MW0 to MW2046	
	Timer (current value)(T) <sup>*1</sup>	T0 to T511	
	Counter (current value) (C)	C0 to C511	
	Data register (DB) <sup>*3</sup>	DB1.0 to DB1.65534 DB2.0 to DB2.65534 . . DB4094.0 to DB4094.65534 DB4095.0 to DB4095.65534	

\*1 Only data logging (excluding the current value data of the Report setting) is available.

\*2 The first digit is octal notation, and the second digit and higher are decimal notation.

\*3 The device number must be set by even value.

# SIEMENS programmable controller (SIMATIC S7-200/300/400/1200 (Ethernet))

The device ranges that can be set when selecting "SIMATIC S7-200 (Ethernet)", "SIMATIC S7-300/400 (Ethernet)", or "SIMATIC S7-1200 (Ethernet)" as the controller type are as follows:

Device Name		Setting range	Device number representation
Bit device	Variable memory (V) <sup>*2,*6</sup>	V0 to V102397	Decimal + Octal <sup>*7</sup>
	Input relay (I)	I0 to I655357	
	Output relay (Q) <sup>*3</sup>	Q0 to Q655357	
	Bit memory (M)	M0 to M655357	
	Word device bit	Specified bit of the following word devices (Variable memory, input relay, output relay, bit memory, timer and counter are excluded.)	
Word device	Variable memory (VW) <sup>*2,*6,*9</sup>	VW0 to VW10238	Decimal
	Input relay (IW) <sup>*9</sup>	IW0 to IW65534	
	Output relay (QW) <sup>*3,*9</sup>	QW0 to QW65534	
	Bit memory (MW) <sup>*9</sup>	MW0 to MW65534	
	Timer (T) <sup>*1,*2,*4,*5</sup>	T0 to T65535	
	Counter (C) <sup>*1,*2,*4</sup>	C0 to C65535	
	Data register (DB) <sup>*8,*9</sup>	DB1.0 to DB1.65534 DB2.0 to DB2.65534 : DB4094.0 to DB4094.65534 DB4095.0 to DB4095.65534	

\*1 Data format to input to a timer (T) and counter (C) varies by the programmable controller type.

- S7-300/400:BCD code
- S7-200:BIN code

\*2 S7-1200 does not support a timer (T), counter (C), variable memory (V), and variable memory (VW).

\*3 Read of Recipe file (BOX Data Logger (CompactFlash card) → access target CPU) is available only while the programmable controller is running.

\*4 Only word specification is available.

\*5 Only logging (excluding the current value data of the Report setting) is available.

\*6 S7-300/400 does not support a variable memory (V) and variable memory (VW).

\*7 The first digit is octal notation, and the second digit and higher are decimal notation.

\*8 S7-200 does not support a data register (DB).

\*9 The device number must be set by even value.

## BOX Data Logger internal device

When any of controller types is selected in the access target CPU setting, a device can be set in the following range as internal devices of BOX Data Logger.

The internal devices are common for all controller types.

Device name		Setting range	Device number representation
Bit device	Trigger input (NTR)	NTRG	NTRG0
Word device	Trigger input (NTR)	NTRC	NTRC0 to NTRC1

## 20.2 Serial Connection

### Connectable model list

The connectable controller types are as follows:

Series	Communication type	BOX Data Logger	System configuration	Setting for BOX Data Logger	Setting for programmable controller
SIMATIC S7-200	RS-232	Available	☞ Page 572 System configuration	☞ Page 573 Settings for BOX Data Logger	☞ Page 576 Settings for programmable controller
SIMATIC S7-300					
SIMATIC S7-400					

### System configuration

#### Connecting to SIMATIC S7-200

##### ■Connecting to programmable controller

Programmable controller		Connection cable		Remarks
Model	Communication type	Cable model	Max. distance	
SIMATIC S7-200	RS-232	6ES7 901-3BF20-0XA0 <sup>*1</sup>	15 m	—
		6ES7 901-3CB30-0XA0 <sup>*1</sup>		

\*1 Product manufactured by Siemens AG Corporation. For details on the product, contact Siemens AG Corporation.

#### Connecting to SIMATIC S7-300/400 series

##### ■Connecting to a single programmable controller

Programmable controller			Connection cable		Remarks
Model	HMI Adapter	Communication type	Cable model	Max. distance	
SIMATIC S7-300/400	MLFB:6ES7 972-0CA11-0XA0 <sup>*1</sup>	RS-232	GT09-C30R20801-9S (3m)	15 m	—

\*1 Product manufactured by Siemens AG Corporation. For details on the product, contact Siemens AG Corporation.

##### ■Connecting more than one programmable controllers

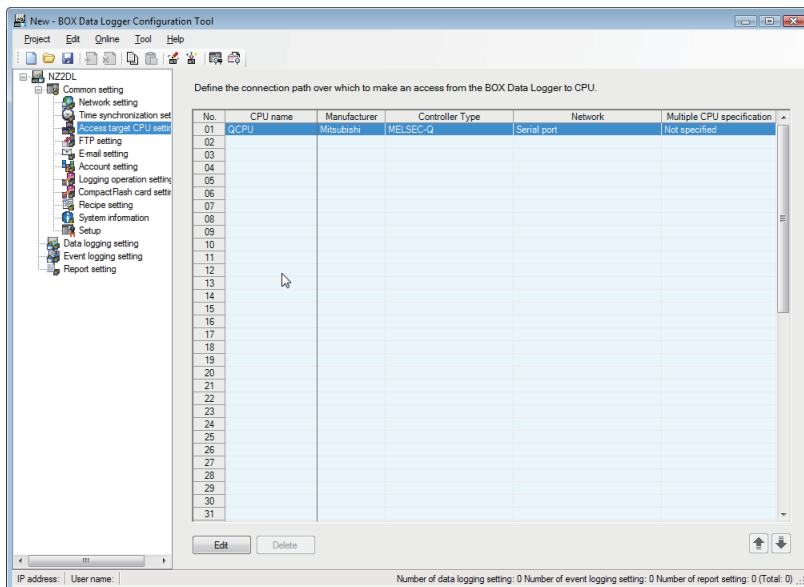
Programmable controller			Connection cable		Remarks
Model	RS-232C adapter	Communication type	Cable model	Max. distance	
SIMATIC S7-300/400	MLFB:6ES7 972-0CA11-0XA0 <sup>*1</sup>	RS-232	GT09-C30R20801-9S (3 m)	15 m	—

\*1 Product manufactured by Siemens AG Corporation. For details on the product, contact Siemens AG Corporation.

# Settings for BOX Data Logger

## Setting communication interface (Access target CPU setting)

Set the access target CPU.



### Operating procedure

1. Click "Common setting" on the edit items tree of the Configuration tool, and click the [Access target CPU setting] button.
2. On the detailed setting editing screen, select the row of the access target CPU, and click the [Edit] button.
3. Set the access target CPU on the displayed "Access target CPU setting" screen.  
Mitsubishi MELSEC-Q is set by default.
4. Select the following items in the [Manufacturer/Controller Type] tab, and click the [Next] button.  
Manufacturer: SIEMENS  
Controller Type: Set according to the controller type to be connected.
5. In the [Source Port] tab, select "BOX Data Logger Serial Port", and click the [Next] button.
6. In the [Network] tab, set the detailed settings of a BOX Data Logger serial port to connect to the access target.  
Make the settings according to the usage environment.  
📖 Page 574 Network settings
7. Click the [Finish] button once the setting is completed.

## Network settings

Make the settings according to the usage environment.

### ■ For SIMATIC S7-200

- Access source system (Port type)

Item	Description	Range
Port type	The following serial port of BOX Data Logger can be used. Serial port	—

- Access source system (Serial port setting)

Item	Description	Range
Transmission Speed	Set this when changing the transmission speed used for communication with a connected equipment. (Default: 19200 bps)	9600 bps, 19200 bps, 38400 bps, 57600 bps, 115200 bps
Data Bit	Set this when changing the data length used for communication with a connected equipment. (Default: 8bit)	7bit/8bit
Stop Bit	Specify the stop bit length. (Default: 1bit)	1bit/2bit
Parity	Specify whether to perform a parity check, and how it is performed during communication. (Default: Even)	None Even Odd
Adapter Address	Specify the station number of adapter connecting BOX Data Logger. (Default: 0)	0 to 31
Unit No.	Specify the unit No. to which BOX Data Logger is connected. (Default: 2)	1 to 31

- Access target system (Module type)

Item	Description	Range
Module type	The following modules can be set for access target system. • CPU direct	—



## ■ For SIMATIC S7-300/400

### • Access source system (Port type)

Item	Description	Range
Port type	The following serial port of BOX Data Logger can be used. • Serial port	—

### • Access source system (Serial port setting)<sup>\*3</sup>

Item	Description	Range
Transmission Speed <sup>*2</sup>	Set this when changing the transmission speed used for communication with a connected equipment. (Default: 38400 bps)	9600 bps, 19200 bps, 38400 bps
Data Bit	Set this when changing the data length used for communication with a connected equipment. (Default: 8bit)	8bit (fixed)
Stop Bit	Specify the stop bit length. (Default: 1bit)	1bit (fixed)
Parity	Specify whether to perform a parity check, and how it is performed during communication. (Default: odd)	Odd (fixed)
Adapter Address <sup>*1*2</sup>	Specify the station number of adapter connecting BOX Data Logger. (Default: 1)	1 to 31

\*1 Select not to overlap the other modules.

\*2 BOX Data Logger automatically sets the set values of transmission speed, adapter address, and unit No. to HMI Adapter.

\*3 The serial port settings are the common settings for all of the access target CPU settings if more than one access target CPUs are set.

### • Access target system (Module type)

Item	Description	Range
Module type	The following modules can be set for access target system. • CPU direct	—

### • Access target system (Module setting)

Item	Description	Range
Station No.	Set the station number. (Default: 2)	1 to 31

# Settings for programmable controller

For details of SIEMENS programmable controllers, refer to SIEMENS programmable controller user's manual.

## Connecting to SIMATIC S7-200

### ■Settings for programmable controller

Configure the settings with the SIEMENS Programming tool (STEP7-Micro/WIN32).

Setting item	Setting for SIEMENS	Setting for programmable controller
Transmission speed*1	[System Block]Baud Rate	9600 bps, 19200 bps
Data bit	—	8bit (fixed)
Parity bit	—	Even (fixed)
Stop bit	—	1bit (fixed)
Unit No.*2	[System Block]PLC Address	1 to 31

\*1 Set this to match with the settings of BOX Data Logger

\*2 Select the unit No. not to overlap with the other programmable controllers.

### ■Settings for PC/PPI cable

Set the transmission speed with DIP switch.

SWITCH1	SWITCH2	SWITCH3	SWITCH4	SWITCH5	Transmission speed
0	0	1	0	0	19200 bps*1
0	1	0	0	0	9600 bps*1

\*1 Set this to match with the settings of BOX Data Logger and the programmable controller.

## Connecting to SIMATIC S7-300/400 (HMI Adapter)

SIEMENS communication settings and the access target CPU setting of BOX Data Logger side are as follows:

For more details on the access target CPU setting, refer to the following section.

☞ Page 573 Settings for BOX Data Logger

### ■Settings for programmable controller

Configure the settings with the SIEMENS Programming tool (SIMATIC Manager).

Setting item	Setting for SIMATIC Manager	Setting for BOX Data Logger
Station number	MPI address	1 to 31

### ■Settings for HMI Adapter

Setting item	Setting for SIMATIC Manager	Setting for BOX Data Logger
Transmission speed	— (not necessary)	9600 bps, 19200 bps, 38400 bps
Data bit	— (not necessary)	8bit (fixed)
Parity bit	— (not necessary)	Odd fixed
Stop bit	— (not necessary)	1bit (fixed)
Adapter Address	— (not necessary)	1 to 31

20

## Precautions

### ■At the system startup

- When powering ON
  - Power ON BOX Data Logger after turning ON the power of all of the programmable controllers.
  - When turning ON the power of the programmable controller after powering ON BOX Data Logger, restart BOX Data Logger.
- When powering OFF programmable controller on other station
  - The logging function of BOX Data Logger stops when turning OFF the power of a programmable controller on other station (a programmable controller to which HMI Adapter is not connected).
  - Restart BOX Data Logger to restart the logging function.
  - (The logging function of BOX Data Logger will not restart even if powering ON the programmable controller again.)

## 20.3 Ethernet Connection

### Connectable model list

The connectable models are as follows:

Series	Communication type	Ethernet connection type	BOX Data Logger	System configuration	Setting for BOX Data Logger	Setting for programmable controller
SIMATIC S7-200	Ethernet	OP communication	Available	☞ Page 572 System configuration	☞ Page 573 Settings for BOX Data Logger	☞ Page 576 Settings for programmable controller
SIMATIC S7-300	Ethernet	FETCH/WRITE	Not available	—	—	—
		OP communication	Available	☞ Page 572 System configuration	☞ Page 573 Settings for BOX Data Logger	☞ Page 576 Settings for programmable controller
SIMATIC S7-400	Ethernet	FETCH/WRITE	Not available	—	—	—
		OP communication	Available	☞ Page 572 System configuration	☞ Page 573 Settings for BOX Data Logger	☞ Page 576 Settings for programmable controller
SIMATIC S7-1200	Ethernet	OP communication	Available	☞ Page 572 System configuration	☞ Page 573 Settings for BOX Data Logger	☞ Page 576 Settings for programmable controller

### System configuration

#### Connecting to SIMATIC S7-200/300/400/1200 series (Ethernet connection type: OP communication)

Programmable controller		Connection cable* <sup>1</sup>		Remarks
Model	Ethernet module* <sup>2</sup>	Cable model	Maximum segment length* <sup>3</sup>	
SIMATIC S7-200	CP 243-1 CP 243-1 IT	<ul style="list-style-type: none"> <li>• 10BASE-T Shielded twisted pair cable (STP) or unshielded twisted pair cable (UTP): Category 3, 4, and 5</li> <li>• 100BASE-TX Shielded twisted pair cable (STP): Category 5 and 5e</li> </ul>	100 m	—
SIMATIC S7-300	CP 343-1 CP 343-1 Lean CP 343-1 Advanced-IT -(Built-in type)			
SIMATIC S7-400	CP 443-1 CP 443-1 Advanced-IT -(Built-in type)			
SIMATIC S7-1200	-(Built-in type)			

\*1 The destination connected with the twisted pair cable varies with the configuration of the applicable Ethernet network system. Connect the cable to the Ethernet module, hub, transceiver, or other system equipment corresponding to the applicable Ethernet network system.

Use cables, connectors, and hubs that meet the IEEE802.3 10BASE-T/100BASE-TX.

\*2 Product manufactured by Siemens AG Corporation. For details on the product, contact Siemens AG Corporation.

\*3 A length between a hub and a node. The maximum length varies by the Ethernet to be used. The number of connectable node when a repeater hub is used is as follows.

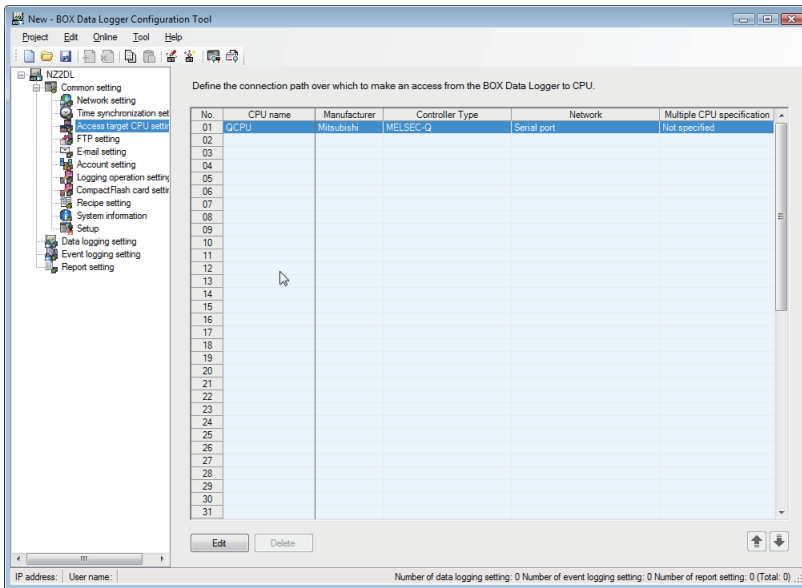
- 10BASE-T: Max. 4 nodes for a cascade connection (500 m)
- 100BASE-TX: Max. 2 nodes for a cascade connection (205 m)

For a cascade connection between switching hubs, there is no limitation on the number can be cascaded in theory. For more information on where or not any limitation exists, confirm with the manufacturer of switching hub to be used.

# Settings for BOX Data Logger

## Setting communication interface (Access target CPU setting)

Set the access target CPU.



### Operating procedure

1. Click "Common setting" on the edit items tree of the Configuration tool, and click the [Access target CPU setting] button.
2. On the detailed setting editing screen, select the row of the access target CPU, and click the [Edit] button.
3. Set the access target CPU on the displayed "Access target CPU setting" screen.  
Mitsubishi MELSEC-Q is set by default.
4. Select the following items in the [Manufacturer/Controller Type] tab, and click the [Next] button.  
Manufacturer: SIEMENS  
Controller Type: Set according to the controller type to be connected.
5. In the [Source Port] tab, select the "BOX Data Logger Ethernet Port", and click the [Next] button.
6. In the [Network] tab, set the detailed settings of the BOX Data Logger Ethernet port to connect to the access target.  
Make the settings according to the usage environment.  
📖 Page 580 Network settings
7. Click the [Finish] button once the setting is completed.

## Network settings

Set the settings according to the access target.

### ■SIEMENS S7-200/300/400/1200(Ethernet)

#### • Access source system (Port type)

Item	Description	Range
Port type	The display of BOX Data Logger Ethernet port varies according to whether the "Use the IP address setting (CH2)" is selected or not in the Network setting. <ul style="list-style-type: none"> <li>• Selected Ethernet port (CH1) Ethernet port (CH2)</li> <li>• Unselected Ethernet port (CH1)</li> </ul>	—

#### • Access source system (Ethernet port setting)

Item	Description	Range
IP address	Display the IP address (CH1, CH2) of BOX Data Logger.	—
Port No.	Set the BOX Data Logger port number for the connection with the Ethernet module. (Default: 5024)	1024 to 5010, 5014 to 65534 (except for 5011, 5012, and 5013)
Timeout Time	Set the time period for a communication to time out. (Default: 3 seconds)	3 to 90 seconds
Delay Time	Set the delay time for reducing the load of the network/connection target programmable controller. (Default: 0 ms)	0 to 100000 ms

#### • Access target system (Module type)

Item	Description	Range
Module type	The following modules can be set for access target system. <ul style="list-style-type: none"> <li>■S7-200 <ul style="list-style-type: none"> <li>• Ethernet module</li> </ul> </li> <li>■S7-300/400*1 <ul style="list-style-type: none"> <li>• CPU (Built-in Ethernet Port)</li> <li>• Ethernet module</li> </ul> </li> <li>■S7-1200 <ul style="list-style-type: none"> <li>• CPU (Built-in Ethernet Port)</li> </ul> </li> </ul>	—

\*1 It is unnecessary to select since the setting item of the module is common.

#### • Access target system (Module setting)

Item	Description	Range
IP address	Set the access target IP address. (Default: 192.168.3.39)	0.0.0.0 to 255.255.255.255
Port No.	Set the access target port number. (Default: 102)	[102] (fixed)
Protocol	Set the protocol UDP or TCP. (Default: TCP)	TCP (fixed)
Connection No./Rack No.	Specify the connection No./rack No. (Default: 0)	S7-200/300/400:0 to 7 S7-1200:-
Module Position/Slot No.	Specify the module position/slot No. S7-200: (Default: 0) S7-300/400: (Default: 2)	S7-200:0 to 6 S7-300/400:0 to 31 S7-1200:-

# Settings for programmable controller

## SIMATIC S7-200

For programmable controller communication setting, set the following parameters.

Item	Setting	
Module Position	Value of [Position] for the module	
Module Address	IP Address	Programmable controller side IP address
	Subnetmask	Programmable controller side subnet mask
Number of connections to configure for this module	Set '1' as the number of BOX Data Logger to be connected.	
This is a Server connection: Servers respond to connection request from remote clients.	Select this item.	
Local Properties(Server)	Select [Accept all connection requests.].	
Remote Properties(Client)	Set '10.00' to [TSAP].	
Enable the Keep Alive function for this connection.	Unselect this item.	

## SIMATIC S7-300/400

For programmable controller communication setting, set the following parameters.

### ■For CPU (Built-in Ethernet Port)

Item	Setting	
Properties	IP Address	Programmable controller side IP address
	Subnetmask	Programmable controller side subnet mask

### ■For Ethernet module

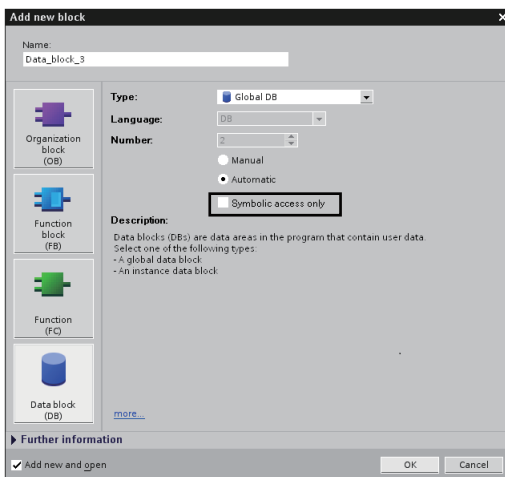
Item	Setting	
Device name	Set to [PN-IO].	
Properties	IP Address	Programmable controller side IP address
	Subnetmask	Programmable controller side subnet mask

## SIMATIC S7-1200

For programmable controller communication setting, set the following parameters.

Item	Setting	
Ethernet addresses	IP Address	Programmable controller side IP address
	Subnetmask	Programmable controller side subnet mask

When sampling data in the data register (DB), unselect the checkbox shown below.



# Considerations

---

## Setting IP address

Do not use '0' and '255' at the end of an IP address.

(Numbers of \*.\*\*.0 and \*.\*\*.255 are used by the system.)

If the above numbers are used, BOX Data Logger may not be able to perform logging normally.

Consult with the administrator of the network before setting an IP address to the BOX Data Logger and external equipment.

## When connecting to the multiple network equipment in a segment

When connecting two or more network equipment (including BOX Data Logger) in the same segment, the transmission speed between BOX Data Logger and programmable controller may be reduced due to the increased network load.

The following actions may improve the communication performance.

- Using a switching hub.
- Using more high speed by 100BASE-TX (100 Mbps).
- Reducing the logging points for BOX Data Logger.

## When non-existent station or station of which power is turned OFF is logged

Note that the initial communication timeout by logging the non-existent station or station of which power is turned OFF causes the delay of communication with the station properly operating.

## Timing to start communication

Start the communication with BOX Data Logger once the programmable controller starts running.

Communication timeout occurs if starting the communication before the programmable controller runs.

## Operation during communication

When performing operations (such as pressing the reset button and writing a project with different network settings) to restart BOX Data Logger during normal communication, the response timeout error (error code: 0002H) may occur at the time of restarting BOX Data Logger.



## 20.4 Access Units

---


SIEMENS programmable controller does not guarantee that device value is sampled in the same sequence scan. For more details, refer to SIEMENS programmable controller user's manual.

# 21 CONNECTION TO ROCKWELL PROGRAMMABLE CONTROLLER

## 21.1 Settable Device Range

This section explains the tag and device of the connected equipment that can be used for BOX Data Logger.

For the "Device Setting" screen, refer to the following section.

 Page 219 Device settings

### Rockwell programmable controller

The data type of a tag that can be set when selecting "Rockwell AB (Tag)" as the controller type on the "Access target CPU setting" screen are as follows:

Data type of a tag	Data type of BOX Data Logger
BOOL	Bit
INT	Word [signed]
	Word [unsigned]
	Bit <sup>*1</sup>
DINT	Double word [signed]
	Double word [unsigned]
REAL	FLOAT [single precision]

\*1 Set this when specifying a bit position.

#### Precautions

Match the data type of the tag with that of BOX Data Logger. Otherwise, the logging function and the Recipe function do not perform properly.

### BOX Data Logger internal device

When any of controller types is selected in the access target CPU setting, a device can be set in the following range as internal devices of BOX Data Logger.

The internal devices are common for all controller types.

Device name			Setting range	Device number representation
Bit device	Trigger input (NTR)	NTRG	NTRG0	Decimal
Word device	Trigger input (NTR)	NTRC	NTRC0 to NTRC1	Decimal

# 21.2 Ethernet Connection

## Connectable model list

The connectable models are as follows:

Series	Model name	Communication type	Reference
FlexLogix	1794-L33 1794-L34	Ethernet	Page 585 System configuration
ControlLogix	■ControlLogix5550 1756-L 1756-L1M1 1756-L1M2 1756-L1M3 ■ControlLogix5555 1756-L55M12 1756-L55M13 1756-L55M14 1756-L55M16 1756-L55M22 1756-L55M23 1756-L55M24 ■ControlLogix5560 1756-L61 1756-L62 1756-L63	Ethernet	
	■ControlLogix5570 1756-L72S	Ethernet	
CompactLogix	1769-L32E 1769-L35E	Ethernet	

## System configuration

Programmable controller		Connection cable <sup>*1</sup>		Remarks
Series	Ethernet module <sup>*2</sup>	Cable model	Maximum segment length <sup>*3</sup>	
FlexLogix	1788-ENBT/A	• 10BASE-T	100 m	—
ControlLogix	1756-ENET (10 Mbps) <sup>*4</sup>	Shielded twisted pair cable (STP) or unshielded twisted pair cable (UTP): Category 3, 4, and 5	100 m	—
	1756-ENBT (10/100 Mbps) <sup>*4</sup>	• 100BASE-TX	100 m	—
	1756-EN2TR (10/100 Mbps) <sup>*5</sup>	Shielded twisted pair cable (STP): Category 5 and 5e	100 m	—
CompactLogix	—			

\*1 The connection destination of the twisted pair cable varies depending on the Ethernet network system configuration to be used. Connect a cable with an Ethernet module, hub, transceiver in accordance with the Ethernet network system to be used. Use cables, connectors, and hubs that meet the IEEE802.3 10BASE-T/100BASE-TX standard.

\*2 Product manufactured by Rockwell Automation, Inc. For details on the product, contact Rockwell Automation, Inc.

\*3 A length between a hub and a node.  
The following shows the number of the connectable nodes.  
10BASE-T: Max. 4 nodes for a cascade connection  
100BASE-TX: Max. 2 nodes for a cascade connection

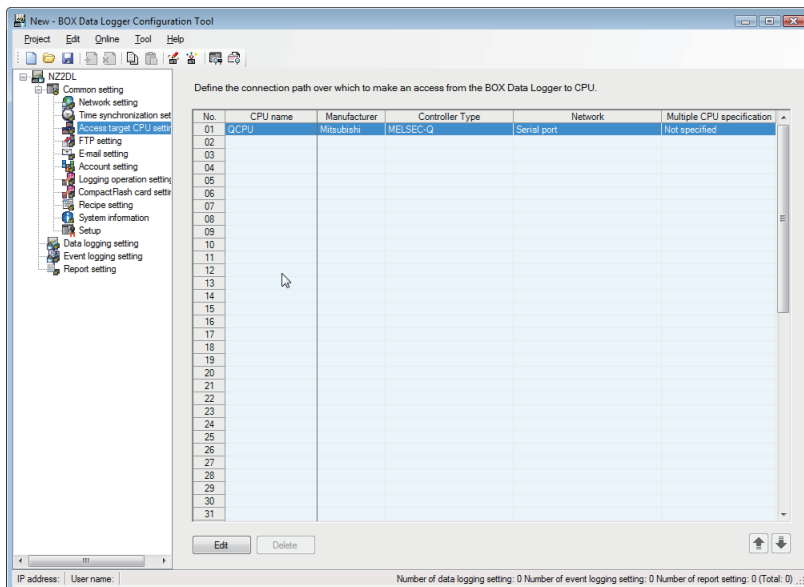
\*4 Mountable when using ControlLogix5550/5555/5560.

\*5 Mountable when using ControlLogix5570.

# Settings for BOX Data Logger

## Setting communication interface (Access target CPU setting)

Set the access target CPU.



### Operating procedure

1. Click "Common setting" on the edit items tree of the Configuration tool, and click the [Access target CPU setting] button.
2. On the detailed setting editing screen, select the row of the access target CPU, and click the [Edit] button.
3. Set the access target CPU on the displayed "Access target CPU setting" screen.  
Mitsubishi MELSEC-Q is set by default.
4. Select the following items in the [Manufacturer/Controller Type] tab, and click the [Next] button.  
Manufacturer: Rockwell  
Controller Type: Rockwell AB(Tag)
5. In the [Source Port] tab, select the "BOX Data Logger Ethernet Port", and click the [Next] button.
6. In the [Network] tab, set the detailed settings of the BOX Data Logger Ethernet port to connect to the access target.  
Make the settings according to the usage environment.  
📖 Page 587 Network settings
7. Click the [Finish] button once the setting is completed.

## Network settings

Set the settings according to the access target.

### • Access source system (Port type)

Item	Description	Range
Port type	The display of BOX Data Logger Ethernet port varies according to whether the "Use the IP address setting (CH2)" is selected or not in the Network setting. <ul style="list-style-type: none"> <li>Selected <ul style="list-style-type: none"> <li>Ethernet port (CH1)</li> <li>Ethernet port (CH2)</li> </ul> </li> <li>Unselected <ul style="list-style-type: none"> <li>Ethernet port (CH1)</li> </ul> </li> </ul>	—

### • Access source system (Ethernet port setting)

Item	Description	Range
IP address	Display the IP address (CH1, CH2) of BOX Data Logger.	—
Port No.	Set the BOX Data Logger port number for the connection with the Ethernet module. (Default: 5026)	1024 to 5010, 5014 to 65534 (Except for 5011, 5012, and 5013)
Timeout Time	Set the time period for a communication to time out. (Default: 30 sec)	3 to 30 seconds
Delay Time	Set the delay time for reducing the load of the network/connection target programmable controller. (Default: 0 ms)	0 to 100000 ms

• Access target system (Module type)

Item	Description	Range
Module type	The following modules can be set for access target system. <ul style="list-style-type: none"> <li>• CPU (Built-in Ethernet Port) (Default)</li> <li>• Ethernet module</li> </ul>	For CompactLogix and FlexLogix, select "CPU (Built-in Ethernet Port)". For ControlLogix, select "Ethernet Module".

• Access target system (Module setting)

Item	Description	Range
IP address	Set the IP address of the access target. (Default: 192.168.3.39)	0.0.0.0 to 255.255.255.255
Port No.	Set the port number of the access target. (Default: 44818)	44818 (fixed)
Protocol	Set the protocol UDP or TCP. (Default: TCP)	TCP (fixed)
Connection	Set the protocol UCMM or Class3. (Default: UCMM)	<ul style="list-style-type: none"> <li>• UCMM</li> <li>• Class3</li> </ul>
Slot No.	Set the slot number.*1 (Default: 0)	0 to 20

\*1 When the module type is "CPU (Built-in Ethernet Port)", it is fixed to '0'.

## Settings for programmable controller

For details of Rockwell programmable controllers, refer to Rockwell programmable controller user's manual.

### Parameter settings

Configure the settings with the Rockwell software package (RSLogix5000).

Item	Setting	Remarks
Name	Set the name.	—
IP Address	Set the IP address of the connected module.	Set this to match with the settings of BOX Data Logger.
Slot	Set the mounting slot number for the Ethernet module.	—

# Considerations

---

## Setting IP address

Do not use '0' and '255' at the end of an IP address.

(Numbers of \*.\*\*.0 and \*.\*\*.255 are used by the system)

If the above numbers are used, BOX Data Logger may not be able to perform logging normally.

Consult with the administrator of the network before setting an IP address to the BOX Data Logger and external equipment.

## When connecting to the multiple network equipment in a segment

When connecting two or more network equipment (including BOX Data Logger) in the same segment, the transmission speed between BOX Data Logger and programmable controller may be reduced due to the increased network load.

The following actions may improve the communication performance.

- Using a switching hub.
- Using more high speed by 100BASE-TX (100 Mbps).
- Reducing the logging points for BOX Data Logger.

21

## When non-existent station or station of which power is turned OFF is logged

Note that the initial communication timeout by logging the non-existent station or station of which power is turned OFF causes the delay of communication with the station properly operating.

## Timing to start communication

Start the communication with BOX Data Logger once the programmable controller starts running.

Communication timeout occurs if starting the communication before the programmable controller runs.

## Operation during communication

When performing operations (such as pressing the reset button and writing a project with different network settings) to restart BOX Data Logger during normal communication, the response timeout error (error code: 0002H) may occur at the time of restarting BOX Data Logger.

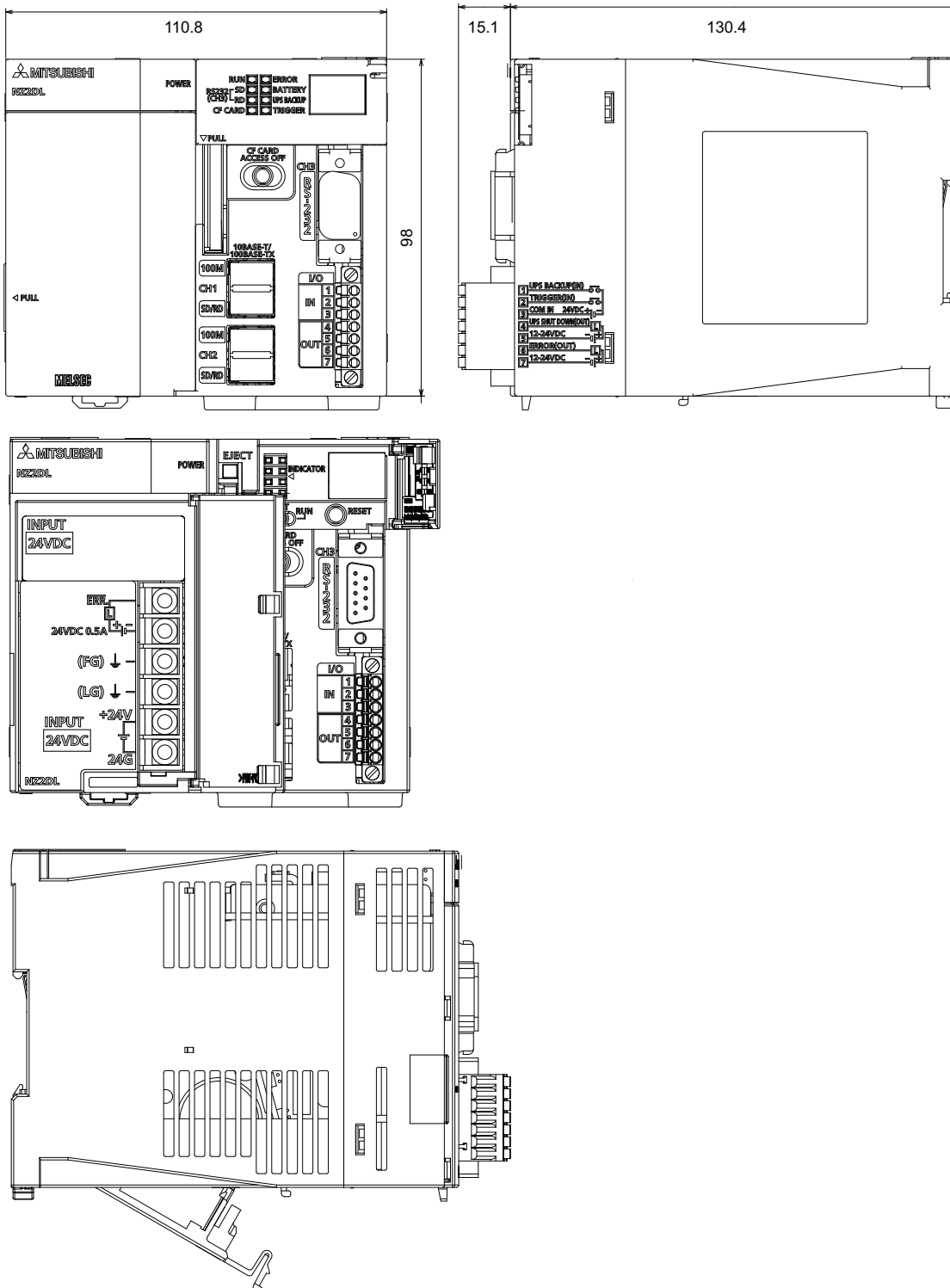
# Restrictions

---

Monitoring a CPU of multiple configurations is not supported.

# APPENDIX

## Appendix 1 External Dimensions



(Unit: mm)



# Appendix 2 PING Test

An example for checking the connection with BOX Data Logger by issuing PING command to BOX Data Logger from an external equipment (personal computer) connected on the same Ethernet network (LAN) is as follows: (Example of checking the connection of BOX Data Logger with an external equipment on the same network address)

## Operating procedure

1. Enter "cmd" in the search box of Windows, and select it from the menu.
2. Using the keyboard, enter the IP address of the BOX Data Logger after 'ping'.

### Ex.

An example when the IP address of BOX Data Logger is 192.168.2.20 is as follows:

```
>ping 192.168.2.20
```

## Output result

### ■When the communication was successful

```
>ping 192.168.2.20
Pinging 192.168.2.20 with 32 bytes of data:
Reply from 192.168.2.20: bytes=32 time<1ms TTL=64
Reply from 192.168.2.20: bytes=32 time<1ms TTL=64
Reply from 192.168.2.20: bytes=32 time<1ms TTL=64
```

### ■When the communication was unsuccessful

```
>ping 192.168.2.20
Pinging 192.168.2.20 with 32 bytes of data:
Request timed out.
Request timed out.
Request timed out.
Request timed out.
```

When the communication was unsuccessful, check the following items and perform the PING test again.

- Network setting for BOX Data Logger or external device
- Cables, hub connection status, power status

### Restriction

The PING test is only valid when the transfer setup method is "Connection via hub".  
It is invalid when the transfer setup method is "Direct connection".

# Appendix 3 Usable Characters

This section shows the characters which can be used in the setting items.

## Characters usable in Configuration tool

### ASCII characters

The shaded portion can be used. However, there are characters which can only be used in the locations shown in the following section.

☞ Page 592 Exception list

If entering of unusable characters is attempted, they cannot be entered in the entry field or there will be an error after entering them.

#### ■ Usable ASCII characters list

	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	

#### ■ Exception list

○: Usable, ×: Unusable

No. *1	Corresponding ASCII character																
	(SP)*2	"	*3	*	+	,	/	:	;	<	>	?	[	\	]		.
1	×	×	○	×	×	×	○	×	×	×	×	×	○	×	○	×	○
2	○	×	○	○	○	×	○	○	×	○	○	○	○	○	○	○	○
3	○	×	○	○	○	×	○	○	×	○	○	○	○	○	○	○	○
4	○	×	○	○	○	○	○	○	×	○	○	○	○	○	○	○	○
5	×	×	○	×	○	×	○	×	×	×	×	×	○	○	○	×	×
6	×	×	○	×	○	×	×	×	×	×	×	×	○	×	○	×	×
7	○	×	○	○	○	×	○	○	×	○	○	○	○	×	○	○	○
8	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○
9	○	×	○	○	○	×	○	×	×	○	○	○	○	○	○	○	○
10	○	×	○	○	○	×	○	○	×	○	○	○	○	×	○	○	○
11	○	×	○	×	○	×	×	×	×	○	○	×	×	×	×	○	○
12	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○

\*1 For the exception corresponding to No.1, refer to the following section.

☞ Page 593 Exception location list

\*2 (SP) indicates a space.

\*3 Cannot be used in the start/end of No. 11 (sheet name).

## ■Exception location list

No.	Exception location
1	<ul style="list-style-type: none"> <li>• Directory [File browser]</li> </ul>
2	<ul style="list-style-type: none"> <li>• Trigger value [Event logging setting]</li> <li>• Restoration value [Event logging setting]</li> <li>• FTP server name [FTP setting]</li> <li>• E-mail address [E-mail setting]</li> <li>• SMTP server name [E-mail setting]</li> <li>• POP server name [E-mail setting]</li> <li>• Following external device [Network setting]</li> <li>• Data name line string (Trigger information column) [Data logging setting]</li> <li>• Target device [Ping test]</li> </ul>
3	<ul style="list-style-type: none"> <li>• Name of access target CPU [Access target CPU setting]</li> <li>• Destination group name [E-mail setting]</li> <li>• Data logging name [Data logging setting]</li> <li>• Event logging name [Event logging setting]</li> <li>• Report name [Report setting]</li> <li>• Data name [Data logging setting/Event logging setting/Report setting]</li> <li>• ON (Output format (bit)) [Data logging setting]</li> <li>• OFF (Output format (bit)) [Data logging setting]</li> <li>• When trigger condition rises (Trigger information column) [Data logging setting]</li> <li>• When trigger condition falls (Trigger information column) [Data logging setting]</li> <li>• Event name [Event logging setting]</li> <li>• Comment at event occurrence [Event logging setting]</li> <li>• Comment at event restoration [Event logging setting]</li> <li>• E-mail subject [E-mail content setting]</li> <li>• E-mail text [E-mail content setting]</li> <li>• Device comment [Recipe editor]</li> <li>• Record comment [Recipe editor]</li> </ul>
4	<ul style="list-style-type: none"> <li>• Data name line string (Date column) [Data logging setting/Event logging setting]</li> <li>• Data line output format (Date column) [Data logging setting/Event logging setting]</li> <li>• E-mail address [E-mail setting]</li> </ul>
5	<ul style="list-style-type: none"> <li>• Directory path [FTP setting]</li> </ul>
6	<ul style="list-style-type: none"> <li>• File save destination [Data logging setting/Event logging setting/Report setting]</li> </ul>
7	<ul style="list-style-type: none"> <li>• Host name [Network setting]</li> </ul>
8	<ul style="list-style-type: none"> <li>• All passwords</li> </ul>
9	<ul style="list-style-type: none"> <li>• All user names</li> </ul>
10	<ul style="list-style-type: none"> <li>• Layout name (Data logging layout setting) [Report setting]</li> <li>• Layout name (Current value layout setting) [Report setting]</li> <li>• Layout name (Current time layout setting) [Report setting]</li> <li>• Leading cell (Data logging layout setting) [Report setting]</li> <li>• Cell range (Current value layout setting) [Report setting]</li> <li>• Cell (Created time layout setting) [Report setting]</li> </ul>
11	<ul style="list-style-type: none"> <li>• Sheet name [Report setting]</li> </ul>
12	<ul style="list-style-type: none"> <li>• Comment [Main screen]</li> <li>• Save folder path [GX Works2 project selection/GX Developer project selection]</li> </ul>

## Characters usable in file names, folder (directory) names

This section shows the characters which can be used in the file names of the Data logging file, Recipe file, and folder (directory) names in the CompactFlash card.

The shaded portion 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	

## Characters usable in output file

The following table shows the characters which can be used in the CSV file and XLS file when the data type is String.

The shaded portion can be used.

	0	1	2	3	4	5	6	7
0	NUL		(SP)	0	@	P	'	p
1			!	1	A	Q	a	q
2			**1	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			+	;*1	K	[	k	{
C			,*1	<	L	\	l	
D			-	=	M	]	m	}
E			.	>	N	^	n	~
F			/	?	O	_	o	

\*1 The characters listed above cannot be used when outputting CSV file. If the characters listed above are used when outputting CSV file, they are substituted with periods(.).

# Appendix 4 Numerical Type Comparison Accuracy

When a numerical type (integer type and float type) data value and a constant are compared with a comparison operator ("=", "≠", "≤", "≥"), the fractional part of the data value is rounded off to the number of digits matched with the one for the comparison target constant.

A data value used for scaling is rounded off after the scaling.

For the numerical type, refer to the following section.

☞ Page 87 Range of Values per Output Format

## Example) When a data value is: 11.23465673, and a comparison operator is: "≤"

### ■When a comparison target constant is: 11.23

The data value is rounded off to 11.23, and the condition ( $11.23 \leq 11.23$ ) is established.

### ■When a comparison target constant is: 11.230

The data value is rounded off to 11.235, and the condition ( $11.235 \leq 11.230$ ) is not established.

# Appendix 5 Supported FTP Command

The FTP commands that are supported by the FTP server function of BOX Data Logger are as follows:

No.	Command*1	Description
(1)	HELP	Help
(2)	USER	User name
(3)	PASS	Password
(4)	CWD	Change working directory
(5)	QUIT	Log out
(6)	PORT	Data port
(7)	PASV	Passive mode
(8)	TYPE	Transfer mode
(9)	RETR	Retrieve
(10)	DELE	Delete
(11)	RMD	Remove directory
(12)	PWD	Print working directory
(13)	LIST	File list
(14)	NLST	Name list
(15)	SYST	System
(16)	STOR	Store

\*1 FTP commands defined in RFC959.

# Appendix 6 Setting Information CSV File Format

## Format overview

Setting information CSV file is comprised of label column and setting area.

When more than one registration information exists in one setting item, the file compose of array (array area).

Array area is the range between labels which are enclosed with '[', ']', and comprised of label column, item line, and setting area.

The format of setting information CSV file which is exported is as follows:

Example of a CSV file

Label column	Setting area
IPADTYPE	
IPADADRS	
IPADSUBNET	
IPADGATEWAY	
DNSSTYPE	
DNSSPRI	
DNSSSEC	
HOSTNAME	
DIAGNOSIS	
DIAGINTV	
DIAGDEST	
DIAGDEVICE	

Example of a CSV file that includes array area

Example: When 3 accounts are registered in the account setting function  
(The area between [ACCOUNT\_START] and [ACCOUNT\_END] in label column becomes array area)

AUTH	TRUE					
[ACCOUNT_START]						
NO	USERNAME	AUTH	DELLOG	DELEVT	DELRPT	DELRCP
1	A	ADMIN				
2	B	MAINTE	YES	NO	YES	YES
3	C	NORMAL				
[ACCOUNT_END]						

Array area	Label column	Setting area
NO	USERNAME	AUTH
1	A	ADMIN
2	B	MAINTE
3	C	NORMAL

## CSV format specification

### ■Data logging file, Event file

Item name	Description
Delimiter	Comma ( , )
Linefeed code	CRLF (0x0D, 0x0A)
Character code	ASCII code
Field data	<ul style="list-style-type: none"> <li>Not enclosed with double quotes (").</li> <li>Double quotes (") and Comma ( , ) cannot be used for each data.</li> <li>Commas ( , ) can be used only for the date column. However, the number of commas ( , ) used in the data type information line, date column data header line, and data column of data line respectively is always the same.</li> </ul>
Number of lines	Up to 100003 lines (data lines + 3)
File size	Up to 16777216 bytes The file size can be specified in a range of 10 to 16384 × 1024 bytes.

A

## ■ Setting information file

Item name	Description
Delimiter	Comma ( , )
Linefeed code	CRLF (0x0D, 0x0A)
Character code	ASCII code
Field data	<ul style="list-style-type: none"> <li>• Not enclosed with double quotes ("). However, when double quotes ("), commas (,), and CRLF (0x0D, 0x0A) are used in the field, it is enclosed with double quotes ("").</li> <li>• Use double quotes (") two times in series when using double quotes (") as a character, not as a delimiter.</li> </ul>
Number of lines	Up to 65535 lines
File size	Up to 16777216 bytes

## Setting information CSV file list

The lists of setting information CSV files which are exported are as follows:

Only existing setting in the Data logging setting, Event logging setting, and Report setting are exported.

Item	File name	Setting
Common setting	NZ2DL.CSV	Project comment
	NETWORK.CSV	Network setting
	TIME.CSV	Time synchronization setting
	ACCESSCPU.CSV	Access target CPU setting
	FTP.CSV	FTP setting
	EMAIL.CSV	E-mail setting
	ACCOUNT.CSV	Account setting
	LOGGINGOPERATION.CSV	Logging operation setting
	COMPACTFLASH.CSV	CompactFlash card setting
	RECIPE.CSV	Recipe setting
	SYSTEMINFORMATION.CSV	System information setting
	SETUP.CSV	Setup setting
Data logging setting	CFG_LOG01.CSV	Data logging setting No.1
	CFG_LOG02.CSV	Data logging setting No.2
	:	:
	CFG_LOG64.CSV	Data logging setting No.64
Event logging setting	CFG_EVT01.CSV	Event logging setting No.1
	CFG_EVT02.CSV	Event logging setting No.2
	:	:
	CFG_EVT64.CSV	Event logging setting No.64
Report setting	CFG_REP01.CSV	Report setting No.01
	CFG_REP02.CSV	Report setting No.02
	:	:
	CFG_REP64.CSV	Report setting No.64



## ■Project comment (NZ2DL.CSV)

Item	Description	Condition	Setting value	Remarks
CMNT	Project comment	—	String	—

## ■Network setting (NETWORK.CSV)

Item	Description	Condition	Setting value	Remarks
IPADTYPE	IP address setting	Obtain an IP address automatically.	AUTO	—
		Use the next IP address	SPECIFY	—
IPADADRS_CH1	IP address	IPADTYPE is "SPECIFY"	*.*.*. (IP address)	This item is not applied in the following situations. • IPADTYPE is "AUTO"
IPADSUBNET_CH1	Subnet mask	IPADTYPE is "SPECIFY"	*.*.*. (IP address)	This item is not applied in the following situations. • IPADTYPE is "AUTO"
IPADGATEWAY_CH1	Default gateway	IPADTYPE is "SPECIFY"	*.*.*. (IP address) or (blank)	This item is not applied in the following situations. • IPADTYPE is "AUTO"
IPADADRS_CH2USE	Set the IP address settings (CH2)	Selected	YES	—
		Unselected	NO	
IPADADRS_CH2	IP address(CH2)	IPADADRS_CH2USE is "YES"	*.*.*. (IP address)	This item is not applied in the following situations. • IPADADRS_CH2USE is "NO"
IPADSUBNET_CH2	Subnet mask(CH2)	IPADADRS_CH2USE is "YES"	*.*.*. (IP address)	This item is not applied in the following situations. • IPADADRS_CH2USE is "NO"
IPADGATEWAY_CH2	Default gateway (CH2)	IPADADRS_CH2USE is "YES"	*.*.*. (IP address) or (blank)	This item is not applied in the following situations. • IPADADRS_CH2USE is "NO"
DNSSTYPE	DNS server setting	Acquire an IP address of DNS server automatically	AUTO	—
		Use the next DNS server address	SPECIFY	
DNSSPRI	Primary server	DNSSTYPE is "SPECIFY"	*.*.*. (IP address) or (blank)	This item is not applied in the following situations. • DNSSTYPE is "AUTO"
DNSSSEC	Secondary server	DNSSTYPE is "SPECIFY"	*.*.*. (IP address) or (blank)	This item is not applied in the following situations. • DNSSTYPE is "AUTO"
HOSTNAME	Host name	—	String	—
DIAGNOSIS	Execute network diagnostics (ping)	Checked	YES	—
		Unselected	NO	
DIAGINTV	Sending interval	DIAGNOSIS is "YES"	10 to 3600	This item is not applied in the following situations. • DIAGNOSIS is "NO"
DIAGDEST	Destination	Gateway	GATEWAY	This item is not applied in the following situations. • DIAGNOSIS is "NO"
		Following external device	FOLLOWING	
DIAGDEVICE	External device	DIAGDEST is "FOLLOWING"	String	This item is not applied in the following situations. • DIAGNOSIS is "NO" • DIAGDEST is "GATEWAY"

## ■Time synchronization setting (TIME.CSV)

Item	Description	Condition	Setting value	Remarks
SYNCHRONOUS	Synchronizing time	Checked	YES	—
		Unselected	NO	
SNTPADRS	SNTP server address	SYNCHRONOUS is "YES"	*.*.* (IP address)	This item is not applied in the following situations. • SYNCHRONOUS is "NO"
SNTPTIMEZONE	SNTP time zone	SYNCHRONOUS is "YES"	+99:99	This item is not applied in the following situations. • SYNCHRONOUS is "NO"
SNTPDST	Enable daylight saving	Checked	YES	This item is not applied in the following situations. • SYNCHRONOUS is "NO"
		Unselected	NO	
SNTPS_MONTH	Start - Month	SNTPDST is "YES"	JAN, FEB, MAR, APR, MAY, JUN, JUL, AUG, SEP, OCT, NOV, DEC	This item is not applied in the following situations. • SYNCHRONOUS is "NO" • SNTPDST is "NO"
SNTPS_TYPE	Specification method	Week specification	WEEK	This item is not applied in the following situations. • SYNCHRONOUS is "NO" • SNTPDST is "NO"
		Date specification	DATE	
SNTPS_WEEKNUM	Start - Week	SNTPS_TYPE is "WEEK"	1 to 4, LAST	This item is not applied in the following situations. • SYNCHRONOUS is "NO" • SNTPDST is "NO" • SNTPS_TYPE is "DATE"
SNTPS_DAYWEEK	Start - Day of the week	SNTPS_TYPE is "WEEK"	SUN, MON, TUE, WED, THU, FRI, SAT	This item is not applied in the following situations. • SYNCHRONOUS is "NO" • SNTPDST is "NO" • SNTPS_TYPE is "DATE"
SNTPS_DAY	Start - Day	SNTPS_TYPE is "DATE", and SNTPS_MONTH is JAN, MAR, MAY, JUL, AUG, OCT, DEC	1 to 31, LAST	This item is not applied in the following situations. • SYNCHRONOUS is "NO" • SNTPDST is "NO" • SNTPS_TYPE is "WEEK"
		SNTPS_TYPE is "DATE", and SNTPS_MONTH is APR, JUN, SEP, NOV	1 to 30, LAST	
		SNTPS_TYPE is "DATE", and SNTPS_MONTH is FEB	1 to 28, LAST	
SNTPS_HOUR	Start - Time	SNTPDST is "YES"	00 to 23	This item is not applied in the following situations. • SYNCHRONOUS is "NO" • SNTPDST is "NO"
SNTPE_MONTH	End - Month	SNTPDST is "YES"	JAN, FEB, MAR, APR, MAY, JUN, JUL, AUG, SEP, OCT, NOV, DEC	This item is not applied in the following situations. • SYNCHRONOUS is "NO" • SNTPDST is "NO"
SNTPE_TYPE	Specification method	Week	WEEK	This item is not applied in the following situations. • SYNCHRONOUS is "NO" • SNTPDST is "NO"
		Date	DATE	
SNTPE_WEEKNUM	End - Week	SNTPE_TYPE is "WEEK"	1 to 4, LAST	This item is not applied in the following situations. • SYNCHRONOUS is "NO" • SNTPDST is "NO" • SNTPE_TYPE is "DATE"
SNTPE_DAYWEEK	End - Day of the week	SNTPE_TYPE is "WEEK"	SUN, MON, TUE, WED, THU, FRI, SAT	This item is not applied in the following situations. • SYNCHRONOUS is "NO" • SNTPDST is "NO" • SNTPE_TYPE is "DATE"

Item	Description	Condition	Setting value	Remarks
SNTPE_DAY	End - Day	SNTPE_TYPE is "DATE", and SNTPE_MONTH is JAN, MAR, MAY, JUL, AUG, OCT, DEC	1 to 31, LAST	This item is not applied in the following situations. <ul style="list-style-type: none"> <li>• SYNCHRONOUS is "NO"</li> <li>• SNTPDST is "NO"</li> <li>• SNTPE_TYPE is "WEEK"</li> </ul>
		SNTPE_TYPE is "DATE", and SNTPE_MONTH is APR, JUN, SEP, NOV	1 to 30, LAST	
		SNTPE_TYPE is "DATE", and SNTPE_MONTH is FEB	1 to 28, LAST	
SNTPE_HOUR	End - Time	SNTPDST is "YES"	00 to 23	This item is not applied in the following situations. <ul style="list-style-type: none"> <li>• SYNCHRONOUS is "NO"</li> <li>• SNTPDST is "NO"</li> </ul>
SNTPTIMING	Synchronization timing	Fixed cycle	CYCLE	This item is not applied in the following situations. <ul style="list-style-type: none"> <li>• SYNCHRONOUS is "NO"</li> </ul>
		Fixed time	TIME	
SNTPINTERVAL	Interval	SNTPTIMING is "CYCLE"	1 to 1440	This item is not applied in the following situations. <ul style="list-style-type: none"> <li>• SYNCHRONOUS is "NO"</li> <li>• SNTPTIMING is "TIME"</li> </ul>
SNTPTIME	Time	SNTPTIMING is "TIME"	99:99	This item is not applied in the following situations. <ul style="list-style-type: none"> <li>• SYNCHRONOUS is "NO"</li> <li>• SNTPTIMING is "CYCLE"</li> </ul>
SNTPDAYWEEK_SUN	Sunday	Selected	YES	This item is not applied in the following situations. <ul style="list-style-type: none"> <li>• SYNCHRONOUS is "NO"</li> <li>• SNTPTIMING is "CYCLE"</li> </ul>
		Unselected	NO	
SNTPDAYWEEK_MON	Monday	Selected	YES	This item is not applied in the following situations. <ul style="list-style-type: none"> <li>• SYNCHRONOUS is "NO"</li> <li>• SNTPTIMING is "CYCLE"</li> </ul>
		Unselected	NO	
SNTPDAYWEEK_TUE	Tuesday	Selected	YES	This item is not applied in the following situations. <ul style="list-style-type: none"> <li>• SYNCHRONOUS is "NO"</li> <li>• SNTPTIMING is "CYCLE"</li> </ul>
		Unselected	NO	
SNTPDAYWEEK_WED	Wednesday	Selected	YES	This item is not applied in the following situations. <ul style="list-style-type: none"> <li>• SYNCHRONOUS is "NO"</li> <li>• SNTPTIMING is "CYCLE"</li> </ul>
		Unselected	NO	
SNTPDAYWEEK_THU	Thursday	Selected	YES	This item is not applied in the following situations. <ul style="list-style-type: none"> <li>• SYNCHRONOUS is "NO"</li> <li>• SNTPTIMING is "CYCLE"</li> </ul>
		Unselected	NO	
SNTPDAYWEEK_FRI	Friday	Selected	YES	This item is not applied in the following situations. <ul style="list-style-type: none"> <li>• SYNCHRONOUS is "NO"</li> <li>• SNTPTIMING is "CYCLE"</li> </ul>
		Unselected	NO	
SNTPDAYWEEK_SAT	Saturday	Selected	YES	This item is not applied in the following situations. <ul style="list-style-type: none"> <li>• SYNCHRONOUS is "NO"</li> <li>• SNTPTIMING is "CYCLE"</li> </ul>
		Unselected	NO	



## ■ Access target CPU setting (ACCESSCPU.CSV)

Item	Description	Condition	Setting value	Remarks
[ACCESSCPU_START]	Start of the array area (access target CPU setting)	—	(blank)	—
((Array area))	Access target CPU setting	—	ACCESSCPU	—
[ACCESSCPU_END]	End of the array area (access target CPU setting)	—	(blank)	—

### • ACCESSCPU

Item	Description		Condition	Setting value	Remarks
NO	No.		—	1 to 64	—
NAME	Access target CPU setting name		—	String	—
MAKER	Manufacturer, Controller Type	Manufacturer	Select Mitsubishi	Mitsubishi	—
			Select OMRON	OMRON	—
			Select SIEMENS	SIEMENS	—
			Select Rockwell	Rockwell	—
CNTRLTYPE		Controller Type	Select MELSEC-A	MELSEC-A	—
			Select MELSEC-FX	MELSEC-FX	—
			Select MELSEC-L	MELSEC-L	—
			Select MELSEC-Q	MELSEC-Q	—
			Select MELSEC-QnA	MELSEC-QnA	—
			Select SYSMAC	SYSMAC	—
			Select SYSMAC CS/CJ	SYSMAC CS/CJ	—
			Select SIMATIC S7-200 (serial)	SIMATIC S7-200 (serial)	—
			Select SIMATIC S7-300/400 (serial)	SIMATIC S7-300/400 (serial)	—
			Select SIMATIC S7-200 (Ethernet)	SIMATIC S7-200 (Ethernet)	—
			Select SIMATIC S7-300/400 (Ethernet)	SIMATIC S7-300/400 (Ethernet)	—
			Select SIMATIC S7-1200 (Ethernet)	SIMATIC S7-1200 (Ethernet)	—
			Select Rockwell AB (Tag)	Rockwell AB(Tag)	—
OWNPORTTYPE	Access source type	Access source port	Select BOX Data Logger serial port	SERIAL	—
			Select BOX Data Logger Ethernet port	ETHER	—

Item	Description		Condition	Setting value	Remarks
BAUDRATE	Network	Transmission Speed	OWNPORTTYPE is "ETHER"	(blank)	—
			Select 4800 bps	4800	—
			Select 9600 bps	9600	—
			Select 19200 bps	19200	—
			Select 38400 bps	38400	—
			Select 57600 bps	57600	—
			Select 115200 bps	115200	—
DATABIT	Data length	OWNPORTTYPE is "ETHER" CNTRLTYPE is any of the following: • "MELSEC-Q" • "MELSEC-L" • "MELSEC-FX"	(blank)	—	
		CNTRLTYPE is any of the following: • "MELSEC-QnA" • "MELSEC-A" and OTHERUNIT is "SERIALCPU"			
		Select 7 bits	7 bit		
		Select 8 bits	8 bit		
		STOPBIT	Stop bit		OWNPORTTYPE is "ETHER"
CNTRLTYPE is any of the following: • "MELSEC-Q" • "MELSEC-L" • "MELSEC-FX"	—				
OWNPORTTYPE is "SERIAL" and CNTRLTYPE is any of the following: • "MELSEC-QnA" • "MELSEC-A" and OTHERUNIT is "SERIALCPU"	(blank)	—			
Select 1 bit		1 bit			
Select 2 bits		2 bit			
PARITY	Parity	OWNPORTTYPE is "ETHER"	(blank)	—	
		CNTRLTYPE is any of the following: • "MELSEC-Q" • "MELSEC-L" • "MELSEC-FX"			
		CNTRLTYPE is any of the following: • "MELSEC-QnA" • "MELSEC-A" and OTHERUNIT is "SERIAL CPU"			



Item	Description		Condition	Setting value	Remarks
ADPTADR	Network	Adapter Address	MAKER is "Mitsubishi"	(blank)	—
			MAKER is "OMRON"	(blank)	—
			MAKER is "SIEMENS" and CNTRLTYPE is SIMATIC S7-200 (serial)	0 to 31	—
			CNTRLTYPE is "SIMATIC S7-300/400 (serial)"	1 to 31	—
			CNTRLTYPE is any of the following: • "SIMATIC S7-200 (Ethernet)" • "SIMATIC S7-300/400 (Ethernet)" • "SIMATIC S7-1200 (Ethernet)"	(blank)	—
			CNTRLTYPE is "Rockwell AB (Tag)"	(blank)	—
OWNADRS		Unit No.	MAKER is "Mitsubishi"	(blank)	—
			MAKER is "OMRON" and OWNPORTTYPE is "ETHER"	(blank)	—
			MAKER is "OMRON" and OWNPORTTYPE is "SERIAL"	0 to 31	—
			MAKER is "SIEMENS" and OWNPORTTYPE is "ETHER"	(blank)	—
			MAKER is "SIEMENS" and CNTRLTYPE is "SIMATIC S7-200 (serial)"	1 to 31	—
			MAKER is "SIEMENS" and CNTRLTYPE is "SIMATIC S7-300/400 (serial)"	(blank)	—
			CNTRLTYPE is "Rockwell AB (Tag)"	(blank)	—
OWNPORTNO		Host station port No.	OWNPORTTYPE is "ETHER"	1024 to 5010, 5014 to 65534	—
			OWNPORTTYPE is "SERIAL"	(blank)	—
OWNSTNO		Station number of the host station	MAKER is "Mitsubishi" and OWNPORTTYPE is "SERIAL"	(blank)	—
			MAKER is "Mitsubishi", OWNPORTTYPE is "ETHER" and CNTRLTYPE is any of the following: • "MELSEC-Q" • "MELSEC-QnA" • "MELSEC-L" • "MELSEC-A" and OTHERUNIT is "ETHERMOD"	1 to 64	—
			MAKER is "Mitsubishi" and OWNPORTTYPE is "ETHER" and CNTRLTYPE is any of the following: • "MELSEC-Q" • "MELSEC-QnA" • "MELSEC-L" • "MELSEC-A" and OTHERUNIT is "ETHERCPU"	(blank)	—
			MAKER is "Mitsubishi" and OWNPORTTYPE is "ETHER" and CNTRLTYPE is "MELSEC-FX"	(blank)	—
			MAKER is "OMRON" and OWNPORTTYPE is "ETHER"	1 to 254	—
			MAKER is "OMRON" and OWNPORTTYPE is "SERIAL"	(blank)	—
			MAKER is any of the following: • "SIEMENS" • "Rockwell"	(blank)	—

Item	Description		Condition	Setting value	Remarks
RETRY	Network	Retry	MAKER is any of the following: • "Mitsubishi" • "OMRON"	0 to 5	—
			MAKER is any of the following: • "SIEMENS" • "Rockwell"	(blank)	—
TIMEOUT		Timeout Time	MAKER is "Mitsubishi" and OWNPORTTYPE is "SERIAL" and CNTRLTYPE is any of the following: • "MELSEC-Q" • "MELSEC-QnA" • "MELSEC-L" • "MELSEC-A"	3 to 30	—
			CNTRLTYPE is "MELSEC-FX"	6 to 30	—
			MAKER is "Mitsubishi" and OWNPORTTYPE is "ETHER" and CNTRLTYPE is any of the following: • "MELSEC-Q" • "MELSEC-QnA" • "MELSEC-L" • "MELSEC-A"	3 to 90	—
			CNTRLTYPE is "MELSEC-FX"	6 to 90	—
			MAKER is "OMRON" and OWNPORTTYPE is "SERIAL"	3 to 30	—
			MAKER is "OMRON" and OWNPORTTYPE is "ETHER"	3 to 90	—
			MAKER is "SIEMENS" and OWNPORTTYPE is "SERIAL"	(blank)	—
			MAKER is "SIEMENS" and OWNPORTTYPE is "ETHER"	3 to 90	—
			MAKER is "Rockwell" and OWNPORTTYPE is "ETHER"	3 to 30	—
			DELAY		Delay Time
MAKER is "Mitsubishi" and OWNPORTTYPE is "ETHER"	0 to 10000	—			
MAKER is "OMRON" and OWNPORTTYPE is "SERIAL"	0 to 30	—			
MAKER is "OMRON" and OWNPORTTYPE is "ETHER"	0 to 10000	—			
MAKER is "SIEMENS" and OWNPORTTYPE is "SERIAL"	(blank)	—			
MAKER is "SIEMENS" and OWNPORTTYPE is "ETHER"	0 to 10000	—			
MAKER is "Rockwell" and OWNPORTTYPE is "ETHER"	0 to 10000	—			
OTHERUNIT		Access target module type	CPU direct	SERIALCPU	—
			Serial Communication module	SERIALMOD	—
			CPU (Built-in Ethernet Port)	ETHERCPU	—
			Ethernet module	ETHERMOD	—
OTHERIPADRS		Access target IP address	OWNPORTTYPE is "ETHER"	***. (IP address)	—
			OWNPORTTYPE is "SERIAL"	(blank)	—
OTHERPORTNO		Access target port number	OWNPORTTYPE is "ETHER"	256 to 65534	—
			OWNPORTTYPE is "SERIAL"	(blank)	—



Item	Description		Condition	Setting value	Remarks
OTHERCOMTYPE	Network	Protocol	OWNPORTTYPE is "SERIAL"	(blank)	—
			Select TCP	TCP	—
			Select UDP	UDP	—
			MAKER is "Rockwell" and OWNPORTTYPE is "ETHER"	TCP	—
OTHERNETNO	Access target network number	MAKER is "Mitsubishi" and OTHERUNIT is "ETHERMOD"	1 to 239	—	
		Other than the above	(blank)	—	
OTHERSTNO	Access target station number	MAKER is "Mitsubishi" and OWNPORTTYPE is "SERIAL"	(blank)	—	
		MAKER is "Mitsubishi", OWNPORTTYPE is "ETHER", and • CNTRLTYPE is any of the following: • "MELSEC-Q" • "MELSEC-QnA" • "MELSEC-L" • "MELSEC-A" and OTHERUNIT is "ETHERMOD"	1 to 64	—	
		MAKER is "Mitsubishi" and OWNPORTTYPE is "ETHER" and CNTRLTYPE is "MELSEC-FX"	(blank)	—	
		MAKER is "Mitsubishi" and OWNPORTTYPE is "ETHER" and OTHERUNIT is "ETHERCPU"	(blank)	—	
		MAKER is "OMRON" and OTHERUNIT is "ETHERMOD"	1 to 254	—	
		MAKER is "OMRON" and OTHERUNIT is "ETHERMOD"	(blank)	—	
		MAKER is "SIEMENS" and OWNPORTTYPE is "ETHER"	(blank)	—	
		MAKER is "SIEMENS" and OWNPORTTYPE is "SERIAL" and CNTRLTYPE is "SIMATIC S7-200 (serial)"	(blank)	—	
		MAKER is "SIEMENS" and OWNPORTTYPE is "SERIAL" and CNTRLTYPE is "SIMATIC S7-300/400 (serial)"	1 to 31	—	
		MAKER is "Rockwell"	(blank)	—	
		OTHERRACKNO	Connection No./ Rack No.	MAKER is "Mitsubishi"	(blank)
MAKER is "OMRON"	(blank)			—	
MAKER is "SIEMENS" and CNTRLTYPE is any of the following: • "SIMATIC S7-200 (serial)" • "SIMATIC S7-300/400 (serial)"	(blank)			—	
MAKER is "SIEMENS" and CNTRLTYPE is any of the following: • "SIMATIC S7-200 (Ethernet)" • "SIMATIC S7-300/400 (Ethernet)"	0 to 7			—	
MAKER is "SIEMENS" and CNTRLTYPE is "SIMATIC S7-1200 (Ethernet)"	(blank)			—	
MAKER is "Rockwell"	(blank)			—	
MAKER is "Rockwell"	(blank)			—	



Item	Description		Condition	Setting value	Remarks
OTHERSLOTNO	Network	Module Position/ Slot No.	MAKER is "Mitsubishi"	(blank)	—
			MAKER is "OMRON"		
			MAKER is "SIEMENS" and CNTRLTYPE is any of the following: • SIMATIC S7-200 (serial) • SIMATIC S7-300/400 (serial)		
			MAKER is "SIEMENS" and CNTRLTYPE is "SIMATIC S7-200 (Ethernet)"	0 to 6	—
			MAKER is "SIEMENS" and CNTRLTYPE is "SIMATIC S7-300/400 (Ethernet)"	0 to 31	—
			MAKER is "SIEMENS" and CNTRLTYPE is "SIMATIC S7-1200 (Ethernet)"	(blank)	—
			MAKER is "Rockwell" and CNTRLTYPE is "Rockwell AB (Tag)" and OTHERUNIT is "ETHERCPU"	0	—
			MAKER is "Rockwell" and CNTRLTYPE is "Rockwell AB (Tag)" and OTHERUNIT is "ETHERMOD"	0 to 20	—
OTHERCONNECT		Connection	Select UCMM	UCMM	—
			Select Class3	Class3	—
MLTCPU	Multiple CPU specification	Multiple CPU specification	Not specified	NOTSPECIFY	—
			PLC No. 1	1st	—
			PLC No. 2	2nd	—
			PLC No. 3	3rd	—
			PLC No. 4	4th	—

## ■FTP setting (FTP.CSV)

Item	Description	Condition	Setting value	Remarks
[FTP_START]	Start of the array area (FTP setting)	—	(blank)	—
((Array area))	FTP setting	—	☞ FTP	—
[FTP_END]	End of the array area (FTP setting)	—	(blank)	—
OPTRESEND	Resend at the time of the transfer failed	Selected	YES	—
		Unselected	NO	—
OPTRESENBUNUM	Resend buffer size ([number of items])	OPTRESEND is "YES"	100 to 99999	This item is not applied in the following situations. • OPTRESEND is "NO"
OPTNOTICOMP	Notify the transfer completed	Selected	YES	—
		Unselected	NO	—

### • FTP

Item	Description	Condition	Setting value	Remarks
NO	No.	—	1 to 16	—
SRVNAME	FTP server name	—	String	—
USRNAME	Login user name	—	String	—
DIRPASS	Directory path	—	String	—
TRNMODE	Data transfer mode	Specify "PORT mode"	PORT	—
		Specify "PASV mode"	PASV	—

## ■E-mail setting (EMAIL.CSV)

Item	Description	Condition	Setting value	Remarks
SENDSMTPSRV	SMTP server name (Sender account setting)	—	String	—
SENDEMAIL	E-mail address (Sender account setting)	—	String	—
SENDSMTPPORT	SMTP port number (Sender account setting)	—	1 to 65535	—
SENDAUTH	This server has authentication requirements which have to be met (Authentication setting (Sender account setting))	Selected	YES	—
		Unselected	NO	—
SENDTYPE	Method of authentication (Authentication setting (Sender account setting))	Specify "SMTP-Auth"	SMTP	This item is not applied in the following situations. • SENDAUTH is "NO"
		Specify "POP before SMTP"	POP	
SENDUSRNAME	User name (Authentication setting (Sender account setting))	SENDAUTH is "YES"	String	This item is not applied in the following situations. • SENDAUTH is "NO"
SENDPOPSRV	POP server name (Authentication setting (Sender account setting))	SENDTYPE is "POP"	String	This item is not applied in the following situations. • SENDAUTH is "NO" • SENDTYPE is "SMTP"
SENDPOPPORT	POP port number (Authentication setting (Sender account setting))	SENDTYPE is "POP"	1 to 65535	This item is not applied in the following situations. • SENDAUTH is "NO" • SENDTYPE is "SMTP"
[MAILTARGET_START]	Start of the array area (target e-mail address setting)	—	(blank)	—
((Array area))	Target e-mail address setting	—	✉ MAILTARGET	—
[MAILTARGET_END]	End of the array area (target e-mail address setting)	—	(blank)	—
OPTRESEND	Resend at the time of the sending failed	Selected	YES	—
		Unselected	NO	—
OPTRESENBUFFER	Resend buffer size ([number of items])	OPTRESEND is "YES"	100 to 99999	This item is not applied in the following situations. • OPTRESEND is "NO"

### • MAILTARGET

Item	Description	Condition	Setting value	Remarks
NO	No.	—	1 to 16	—
NAME	Name of target group	—	String	—
EMAIL	E-mail address	—	String	—

A

## ■Account setting (ACCOUNT.CSV)

Item	Description	Condition	Setting value	Remarks
AUTH	Use Account authentication function	Selected	YES	—
		Unselected	NO	—
[ACCOUNT_START]	Start of the array area (account setting)	—	(blank)	This item is not applied in the following situations. • AUTH is "NO"
((Array area))	Account setting	AUTH is "YES"	ACCOUNT	
[ACCOUNT_END]	End of the array area (account setting)	—	(blank)	

### • ACCOUNT

Item	Description	Condition	Setting value	Remarks
NO	No.	—	1 to 16	—
USRNAME	User name	—	String	—
AUTH	Access authority	Specify "Administrator"	ADMIN	—
		Specify "Maintenance user"	MAINTE	—
		Specify "Normal user"	NORMAL	—
DELLOG	/LOGGING (file delete enable folder)	AUTH is "ADMIN" or "NORMAL"	(blank)	—
		Selected	YES	—
		Unselected	NO	—
DELEVT	/EVENT (file delete enable folder)	AUTH is "ADMIN" or "NORMAL"	(blank)	—
		Selected	YES	—
		Unselected	NO	—
DELRPT	/REPORT (file delete enable folder)	AUTH is "ADMIN" or "NORMAL"	(blank)	—
		Selected	YES	—
		Unselected	NO	—
DELRCP	/RECIPE (file delete enable folder)	AUTH is "ADMIN" or "NORMAL"	(blank)	—
		Selected	YES	—
		Unselected	NO	—

## ■Logging operation setting (LOGGINGOPERATION.CSV)

Item	Description	Condition	Setting value	Remarks
ATLG	Enable the Auto logging function	Selected	YES	—
		Unselected	NO	—
STOPFILEMAX	Stop due to the number of files saved being exceeded (conditions for stopping the operation of BOX Data Logger)	Selected	YES	This item is not applied in the following situations. • ATLG is "NO"
		Unselected	NO	
STOPFILEMAXTYPE	When all of the saved files exceed a maximum number/ When any of the saved files exceeds a maximum number (conditions for stopping the operation of BOX Data Logger)	When all of the saved files exceed a maximum number	ALL	This item is not applied in the following situations. • ATLG is "NO" • STOPFILEMAX is "NO"
		When any of the saved files exceeds a maximum number	ANY	
STOPTIMER	Stop effected by a timer (conditions for stopping the operation of BOX Data Logger)	Selected	YES	—
		Unselected	NO	—
STOPTIMERTIME	Elapsed time (conditions for stopping the operation of BOX Data Logger)	STOPTIMER is "YES"	1 to 86400	This item is not applied in the following situations. • ATLG is "NO" • STOPTIMER is "NO"
LOGCONTINUE	Enable the Logging continuance function	Selected	YES	—
		Unselected	NO	—

## ■CompactFlash card setting (COMPACTFLASH.CSV)

Item	Description	Condition	Setting value	Remarks
FRCP	Specify free capacity	Selected	YES	—
		Unselected	NO	—
TYPE	Specify percentage/Specify size	Percentage specification	PERCENT	This item is not applied in the following situations. • FRCP is "NO"
		Size specification	SIZE	
PERCENT	Percentage specification	TYPE is "PERCENT"	10 to 50	This item is not applied in the following situations. • FRCP is "NO" • TYPE is "SIZE"
SIZE	Size specification	TYPE is "SIZE"	50 to 4096	This item is not applied in the following situations. • FRCP is "NO" • TYPE is "PERCENT"

## ■Recipe setting (RECIPE.CSV)

Item	Description	Condition	Setting value	Remarks
RECIPE	Use the recipe settings	Selected	YES	—
		Unselected	NO	—
CPU	Access target CPU	—	1 to 64	—
CPUTOBOX_DEVICE	Programmable controller CPU→BOX Data Logger (CompactFlash card)	—	String <sup>*1</sup>	—
BOXTOCPU_DEVICE	Programmable controller CPU←BOX Data Logger (CompactFlash card)	—	String <sup>*1</sup>	—

\*1 The string displayed on each setting screen.

## ■System information setting (SYSTEMINFORMATION.CSV)



Item	Description	Condition	Setting value	Remarks
SYSTEMINFORMATION	Use the system information	Selected	YES	—
		Unselected	NO	—
CPU	Access target CPU	—	1 to 64	—
CPUTOBOX_DEVICE	Access target CPU→Start device of BOX Data Logger	—	String <sup>*1</sup>	—
BOXTOCPU_DEVICE	Access target CPU←Start device of BOX Data Logger	—	String <sup>*1</sup>	—


\*1 The string displayed on each setting screen.

## ■Setup setting (SETUP.CSV)

Item	Description	Condition	Setting value	Remarks
SETUP	Use the setup	Selected	YES	—
		Unselected	NO	—
UPTIME	Startup time	—	1 to 60	—

## ■Data logging setting (CFG\_LOGnn.CSV)

Item	Description	Condition	Setting value	Remarks
NAME	Data logging name	—	String	—
TFFLGTP	Logging type	Continuous logging	CONT	—
		Trigger logging	TRIGGER	—
TFFFILE	File format	CSV file	CSV	—
		Binary file	BINARY	—
SMPGNRLTYPE	Sampling interval	Specify "Time specification"	TIME	—
		Specify "Time interval specification"	ONHR	—
SMPGNRLTIME	Specify the time (sampling interval)	SMPGNRLTYPE is "TIME"	0.1 to 0.9, 1 to 32767	This item is not applied in the following situations. • SMPGNRLTYPE is "ONHR"
SMPGNRLONHRTIME	Specify the time interval (interval)	SMPGNRLTYPE is "ONHR"	1, 2, 3, 4, 5, 6, 8, 10, 12, 15, 20, 24, 30, 60	This item is not applied in the following situations. • SMPGNRLTYPE is "TIME"
SMPGNRLONHRUNIT	Specify the time interval (unit)	Specify "Hour"	HOUR	This item is not applied in the following situations. • SMPGNRLTYPE is "TIME"
		Specify "Minute"	MIN	
		Specify "Second"	SEC	
[DAT_START]	Start of the array area (data setting)	—	(blank)	—
((Array area))	Data setting	—	 DATA	—
[DAT_END]	End of the array area (data setting)	—	(blank)	—
PRD	Specify a period of time	Selected	YES	—
		Unselected	NO	—
PRDTYPE	Monitor the event during the period of time which meets specified conditions (monitor the trigger)/Don't monitor the event during the period of time which meets specified conditions (do not monitor the trigger)	Monitor the event during the period of time which meets specified conditions (monitor the trigger)	CARRYOUT	This item is not applied in the following situations. • PRD is "NO"
		Don't carry out the logging during the period of time which corresponds to prescribed conditions (do not monitor the trigger)	NOTCARRYOUT	
PRDCOMB	Conditions for combination	AND	AND	This item is not applied in the following situations. • PRD is "NO"
		OR	OR	
[PRDCOND_START]	Start of the array area (period of time and condition)	—	(blank)	This item is not applied in the following situations. • PRD is "NO"
((Array area))	Period of time and condition	PRD is "YES"	 PERIODOFTIMECONDITION	
[PRDCOND_END]	End of the array area (period of time and condition)	—	(blank)	
TRGCONDTYPE	Single condition/Compound condition	Single condition	SINGLE	This item is not applied in the following situations. • TFFLGTP is "CONT"
		Compound condition	COMBINE	
TRGCOMPTYPE	Trigger type (compound condition only)	OR combine	OR	This item is not applied in the following situations. • TFFLGTP is "CONT" • TRGCONDTYPE is "SINGLE"
		AND combine	AND	
		Number of times	TIMES	
		Order	ORDER	
TRGCOMPTIMESTEP	Conditions for occurrence (Number of times)	When a terminal condition holds true	TERMINAL	This item is not applied in the following situations. • TFFLGTP is "CONT" • TRGCONDTYPE is "SINGLE" • TRGCOMPTYPE is other than "TIMES"
		When a specified number of times is exceeded	EXCEED	

Item	Description	Condition	Setting value	Remarks
TRGCOMPTIMESNUMOPE	Number of counts (symbols)	=	EQUAL	This item is not applied in the following situations. • TFFLGTP is "CONT" • TRGCONDTYPE is "SINGLE" • TRGCOMPTYPE is other than "TIMES" • TRGCOMPTIMESTYPE is "EXCEED"
		≠	NOTEQUAL	
		≥	GREATERTHANEQUAL	
		>	GREATERTHAN	
		≤	LESSTHANEQUAL	
		<	LESSTHAN	
TRGCOMPTIMESNUM	Number of counts (numerals)	Other than the followings: • TFFLGTP is "CONT" • TRGCONDTYPE is "SINGLE" • TRGCOMPTYPE is other than "TIMES"	0 to 32767	This item is not applied in the following situations. • TFFLGTP is "CONT" • TRGCONDTYPE is "SINGLE" • TRGCOMPTYPE is other than "TIMES"
TRGCOMPORDERTYPE	Conditions for occurrence (order)	Detect abnormal pattern	ABNORMAL	This item is not applied in the following situations. • TFFLGTP is "CONT" • TRGCONDTYPE is "SINGLE" • TRGCOMPTYPE is other than "ORDER"
		Detect normal pattern	NORMAL	
TRGCOMPORDERTIMEOUT	Timeout detected	Selected	YES	This item is not applied in the following situations. • TFFLGTP is "CONT" • TRGCONDTYPE is "SINGLE" • TRGCOMPTYPE is other than "ORDER"
		Unselected	NO	
[TRGCOND_START]	Start of the array area (creation trigger condition)	—	(blank)	This item is not applied in the following situations. • TFFLGTP is "CONT"
((Array area))	Trigger condition	TFFLGTP is "TRIGGER"	 TRIGGERCONDITION	
[TRGCOND_END]	End of the array area (creation trigger condition)	—	(blank)	
LLNTYPE	Log data before and after the rising of trigger condition/Log data before trigger condition rises, while trigger condition holds true, and after trigger condition falls	Log data before and after the rising of trigger condition	RIBERIAF	This item is not applied in the following situations. • TFFLGTP is "CONT"
		Log data before trigger condition rises, while trigger condition holds true, and after trigger condition falls	RIBERISEFLAF	
LLNBEFOR	Before trigger	TFFLGTP is "TRIGGER"	0 to 65534	This item is not applied in the following situations. • TFFLGTP is "CONT"
LLNAFTER	After trigger	TFFLGTP is "TRIGGER"	1 to 65535	This item is not applied in the following situations. • TFFLGTP is "CONT"
LLNTOTAL	Total number of lines	TFFLGTP is "TRIGGER"	1 to 65535	This item is not applied in the following situations. • TFFLGTP is "CONT"
CSVDATE	Output date column	Selected	YES	This item is not applied in the following situations. • TFFFILE is "BINARY"
		Unselected	NO	
CSVDATESPFRMT	Specify the date format	Selected	YES	This item is not applied in the following situations. • TFFFILE is "BINARY" • CSVDATE is "NO"
		Unselected	NO	
CSVDATEDATSTR	Data name line string	CSVDATESPFRMT is "YES"	String	This item is not applied in the following situations. • TFFFILE is "BINARY" • CSVDATE is "NO" • CSVDATESPFRMT is "NO"
CSVDATEFRMT	Data line output format	CSVDATESPFRMT is "YES"	String	This item is not applied in the following situations. • TFFFILE is "BINARY" • CSVDATE is "NO" • CSVDATESPFRMT is "NO"

Item	Description	Condition	Setting value	Remarks
CSVTRIG	Output trigger information column	Selected	YES	This item is not applied in the following situations. • TFFFILE is "BINARY" • TFFLGTP is "CONT"
		Unselected	NO	
CSVTRIGDATSTR	Data name line string	CSVTRIG is "YES"	String	This item is not applied in the following situations. • TFFFILE is "BINARY" • TFFLGTP is "CONT" • CSVTRIG is "NO"
CSVTRIGRISE	When trigger condition rises	CSVTRIG is "YES"	String	This item is not applied in the following situations. • TFFFILE is "BINARY" • TFFLGTP is "CONT" • CSVTRIG is "NO"
CSVTRIGFALL	When trigger condition falls	CSVTRIG is "YES"	String	This item is not applied in the following situations. • TFFFILE is "BINARY" • TFFLGTP is "CONT" • CSVTRIG is "NO"
CSVINDX	Output index column	Selected	YES	This item is not applied in the following situations. • TFFFILE is "BINARY" • TFFLGTP is "CONT"
		Unselected	NO	
BINDATE	Output date information	Selected	YES	This item is not applied in the following situations. • TFFFILE is "CSV"
		Unselected	NO	
BINDATETYPE	In second/In nanosecond	In second	SEC	This item is not applied in the following situations. • TFFFILE is "CSV" • BINDATE is "NO"
		In nanosecond	NANOSEC	
BININDX	Output indexes	Selected	YES	This item is not applied in the following situations. • TFFFILE is "CSV"
		Unselected	NO	
BINTRIG	Output trigger flag	Selected	YES	This item is not applied in the following situations. • TFFFILE is "CSV" • TFFLGTP is "CONT"
		Unselected	NO	
SAVDEST	File save destination	—	String	—
SAVSWICTMNTYPE	File switching timing	Only "Number of records specification" is selected	RECORD	—
		Only "File size specification" is selected	FILESIZE	—
		Only "Condition specification" is selected	CONDITION	—
		Only "Trigger logging unit" is selected	TRIGGER	—
		Multiple checkboxes are selected	MULTI	—
SAVSWICTMNTYPE REC	Number of record specification (checkbox)	Selected	YES	This item is not applied in the following situations. • SAVSWICTMNTYPE is other than "MULTI"
		Unselected	NO	
SAVSWICTMNTYPEFILE	File size specification (checkbox)	Selected	YES	This item is not applied in the following situations. • SAVSWICTMNTYPE is other than "MULTI"
		Unselected	NO	
SAVSWICTMNTYPECOND	Condition specification (checkbox)	Selected	YES	This item is not applied in the following situations. • SAVSWICTMNTYPE is other than "MULTI"
		Unselected	NO	
SAVSWICTMNTYPETRIG	Trigger logging unit (checkbox)	Selected	YES	This item is not applied in the following situations. • TFFLGTP is "CONT" • SAVSWICTMNTYPE is other than "MULTI"
		Unselected	NO	



Item	Description	Condition	Setting value	Remarks
SAVSWICTMNUM	Number of records	SAVSWICTMNTYPE is "RECORD"	100 to 100000	This item is not applied other than the situations written on the left.
		SAVSWICTMNTYPE is "MULTI", and SAVSWICTMNTYPEFILE is "YES"		
SAVSWICTMNFILIZE	File size	SAVSWICTMNTYPE is "FILESIZE"	10 to 16384	This item is not applied other than the situations written on the left.
		SAVSWICTMNTYPE is "MULTI", and SAVSWICTMNTYPEPEREC is "YES"		
SAVSWICTMNCNDTYPE	Single condition/Compound condition	Single condition	SINGLE	This item is not applied in the following situations. <ul style="list-style-type: none"> <li>SAVSWICTMNTYPE is any of the following: <ul style="list-style-type: none"> <li>"RECORD"</li> <li>"FILESIZE"</li> <li>"TRIGGER"</li> </ul> </li> <li>SAVSWICTMNTYPE is "MULTI", and SAVSWICTMNTYPECOND is "NO"</li> </ul>
		Compound condition	COMBINE	
SAVSWICTMNCMP TYPE	Trigger type (compound condition only)	OR combine	OR	This item is not applied in the following situations. <ul style="list-style-type: none"> <li>SAVSWICTMNTYPE is any of the following: <ul style="list-style-type: none"> <li>"RECORD"</li> <li>"FILESIZE"</li> <li>"TRIGGER"</li> </ul> </li> <li>SAVSWICTMNTYPE is "MULTI", and SAVSWICTMNTYPECOND is "NO"</li> <li>SAVSWICTMNTYPE is other than "CONDITION"</li> </ul>
		AND combine	AND	
[SAVSWICTMNCND _START]	Start of the array area (file switching condition (each condition))	—	(blank)	This item is not applied in the following situations. <ul style="list-style-type: none"> <li>SAVSWICTMNTYPE is any of the following: <ul style="list-style-type: none"> <li>"RECORD"</li> <li>"FILESIZE"</li> <li>"TRIGGER"</li> </ul> </li> <li>SAVSWICTMNTYPE is "MULTI", and SAVSWICTMNTYPECOND is "NO"</li> </ul>
((Array area))	File switching condition (each condition)	—	TRIGGERCONDITION	
[SAVSWICTMNCND _END]	End of the array area (file switching condition (each condition))	—	(blank)	
SAVNAME TYPE	Saved file name setting	Simple setting	SIMPLE	—
		Detailed setting	DETAILED	—
SAVNAME SIMNAME	Attach the name	Selected	YES	This item is not applied in the following situations. <ul style="list-style-type: none"> <li>SAVNAME TYPE is "DETAILED"</li> </ul>
		Unselected	NO	
SAVNAME SIMDATE	Attach the date	Selected	YES	This item is not applied in the following situations. <ul style="list-style-type: none"> <li>SAVNAME TYPE is "DETAILED"</li> </ul>
		Unselected	NO	
SAVNAME SIMTIME	Attach the time	Selected	YES	This item is not applied in the following situations. <ul style="list-style-type: none"> <li>SAVNAME TYPE is "DETAILED"</li> </ul>
		Unselected	NO	
SAVNAME DETLFRMT	Format	SAVNAME TYPE is "DETAILED"	String	This item is not applied in the following situations. <ul style="list-style-type: none"> <li>SAVNAME TYPE is "SIMPLE"</li> </ul>
SAVNAME DETLDATA 1	Attached data setting <DATA1>	Selected	001 to 256, *001 to *256	This item is not applied in the following situations. <ul style="list-style-type: none"> <li>SAVNAME TYPE is "SIMPLE"</li> </ul>
		Unselected	NO	
SAVNAME DETLDATA 2	Attached data setting <DATA2>	Selected	001 to 256, *001 to *256	This item is not applied in the following situations. <ul style="list-style-type: none"> <li>SAVNAME TYPE is "SIMPLE"</li> </ul>
		Unselected	NO	

Item	Description	Condition	Setting value	Remarks
SAVNAMEIMETYPE	Attached time (date) type	File creation time	FILECREATE	This item is not applied in the following situations. • SAVNAMEIMETYPE is "SIMPLE", and SAVNAMEIMPDATE and SAVNAMEIMPPTIME are "NO" • SAVNAMEIMETYPE is "DETAILED", and SAVNAMEDETLFRMT does not have time (date) information
		File switching condition hold true time	CONDITION	
SAVFNUM	Number of saved files	—	1 to 65535	—
SAVFNUMTYPE	Operation occurring when number of saved files is exceeded	Overwrite	OVERWRITE	—
		Stop	STOP	—
SAVFTPT	Transfer files to the following FTP server	Selected	YES	—
		Unselected	NO	—
SAVFTPT1	Transfer destination 1	SAVFTPT is "YES"	1 to 16, NO	This item is not applied in the following situations. • SAVFTPT is "NO"
SAVFTPT2	Transfer destination 2	SAVFTPT is "YES"	1 to 16, NO	This item is not applied in the following situations. • SAVFTPT is "NO"
SAVFTPT3	Transfer destination 3	SAVFTPT is "YES"	1 to 16, NO	This item is not applied in the following situations. • SAVFTPT is "NO"
SAVMAIL	E-mail files to the following destination	Selected	YES	—
		Unselected	NO	—
SAVMAIL1	E-mail address 1	SAVMAIL is "YES"	1 to 16, NO	This item is not applied in the following situations. • SAVMAIL is "NO"
SAVMAIL2	E-mail address 2	SAVMAIL is "YES"	1 to 16, NO	This item is not applied in the following situations. • SAVMAIL is "NO"
SAVMAIL3	E-mail address 3	SAVMAIL is "YES"	1 to 16, NO	This item is not applied in the following situations. • SAVMAIL is "NO"
SAVMAILTYPE	E-mail content setting	Simple setting	SIMPLE	This item is not applied in the following situations. • SAVMAIL is "NO"
		Detailed setting	DETAILED	
SAVMAILSUB	Subject	SAVMAILTYPE is "DETAILED"	String	This item is not applied in the following situations. • SAVMAIL is "NO" • SAVMAILTYPE is "SIMPLE"
SAVMAILBODY	Body	SAVMAILTYPE is "DETAILED"	String	This item is not applied in the following situations. • SAVMAIL is "NO" • SAVMAILTYPE is "SIMPLE"
SAVMAILTAGUSE	Use tags	Selected	YES	This item is not applied in the following situations. • SAVMAIL is "NO" • SAVMAILTYPE is "SIMPLE"
		Unselected	NO	
SAVMAILDATA1	Data setting 1	Selected	001 to 256, *001 to *256	This item is not applied in the following situations. • SAVMAIL is "NO" • SAVMAILTYPE is "SIMPLE" • SAVMAILTAGUSE is "NO"
		Unselected	NO	
SAVMAILDATA2	Data setting 2	Selected	001 to 256, *001 to *256	This item is not applied in the following situations. • SAVMAIL is "NO" • SAVMAILTYPE is "SIMPLE" • SAVMAILTAGUSE is "NO"
		Unselected	NO	

• DATA

Item	Description	Condition	Setting value	Remarks
NO	No.	—	001 to 256, *001 to *256	—

Item	Description	Condition	Setting value	Remarks
NAME	Name	—	String	—
DEVICE	Start device	—	String <sup>*1</sup>	—
CPU	Access target CPU	—	1 to 64	—
TYPE	Data type	Bit	BIT	—
		Word [signed]	SDWORD	—
		Double word [signed]	SDWORD	—
		Word [unsigned]	UWORD	—
		Double word [unsigned]	UDWORD	—
		FLOAT [single precision]	FLOAT	—
		FLOAT [double precision]	DFLOAT	—
		16bit BCD	16BCD	—
		32bit BCD	32BCD	—
		String	STRING	—
		Raw	RAW	—
SIZE	Size	When TYPE is "STRING" or "RAW"	1 to 8192	—
		Other than the above	(blank)	—
SCAL	Scaling	When TYPE is "SDWORD", "SDWORD", "UWORD", "UDWORD", "FLOAT", "DFLOAT", "16BCD" or "32BCD"	String	—
		Other than the above	(blank)	—
OUTWORDCSVTYPE	CSV output format (word)	In the following situations: • TFFFILE is "BINARY" and not referred by the E-mail content setting. • TYPE is "STRING", "RAW" or "BIT"	(blank)	—
		Decimal format	DECIMAL	—
		Exponential format	EXPONENTIAL	—
		Hexadecimal format	HEXADECIMAL	—
OUTWORDCSVDIGIT	Number of digits in decimal part	In the following situations: • TFFFILE is "BINARY" and not referred by the E-mail content setting. • TYPE is "STRING", "RAW" or "BIT" • OUTWORDCSVTYPE is "HEXADECIMAL"	(blank)	—
		Other than the above	0 to 14	—
OUTWORDBINTYPE	Binary output format	In the following situations: • TFFFILE is "CSV" • TYPE is "STRING", "RAW" or "BIT"	(blank)	—
		Word [signed]	SDWORD	—
		Double word [signed]	SDWORD	—
		Word [unsigned]	UWORD	—
		Double word [unsigned]	UDWORD	—
		FLOAT [single precision]	FLOAT	—
		FLOAT [double precision]	DFLOAT	—
		16bit BCD	16BCD	—
		32bit BCD	32BCD	—
OUTBITCSVTYPE	CSV output format (bit)	In the following situations: • TFFFILE is "BINARY" and not referred by the E-mail content setting. • TYPE is other than "BIT"	(blank)	—
		Default	DEFAULT	—
		Specification	SPECIFY	—



Item	Description	Condition	Setting value	Remarks
OUTBITCSVON	String when CSV output format is ON	In the following situations: • TFFFILE is "BINARY" and not referred by the E-mail content setting. • TYPE is other than "BIT" • OUTBITCSVTYPE is "DEFAULT"	(blank)	—
		OUTBITCSVTYPE is "SPECIFY"	String	—
OUTBITCSVOFF	String when CSV output format is OFF	In the following situations: • TFFFILE is "BINARY" and not referred by the E-mail content setting. • TYPE is other than "BIT" • OUTBITCSVTYPE is "DEFAULT"	(blank)	—
		OUTBITCSVTYPE is "SPECIFY"	String	—
OUTSAVEATYPE	Output format (data to be attached to the saved file name)	Data is not attached to the saved file name	(blank)	Only for data attached to the saved file name
		Decimal integer format	DECIMALINT	
		Hexadecimal format	HEXADECIMAL	
OUTSAVEZEROFILL	Zero padding (output format of data which is to be attached to the saved file name)	Data is not attached to the saved file name	(blank)	—
		Selected	YES	—
		Unselected	NO	—
OUTSAVEDIGIT	Number of total digits (output format of data which is to be attached to the saved file name)	In the following situations • Data is not attached to the saved file name • OUTSAVEZEROFILL is "NO"	(blank)	—
		OUTSAVEZEROFILL is "YES"	2 to 10	—

\*1 The string displayed on each setting screen.

• PERIODOFTIMECONDITION

Item	Description	Condition	Setting value	Remarks
NO	No.	—	1 to 8	—
TYPE	Type of condition	Data conditions	DATA	—
		Date range	DATE	—
		Time-of-the-day range	TIME	—
		Day-of-the-week/Week condition	WEEK	—
DATA1	Data name	TYPE is other than "DATA"	(blank)	—
		TYPE is "DATA"	001 to 256, *001 to *256	—
DATAOPE	Condition	TYPE is other than "DATA"	(blank)	—
		=	EQUAL	—
		≠	NOTEQUAL	—
		≥	GREATERTHANEQUAL	—
		>	GREATERTHAN	—
		≤	LESSTHANEQUAL	—
		<	LESSTHAN	—
DATA2TYPE	Data/Constant	TYPE is other than "DATA"	(blank)	—
		Data	DATA	—
		Constant	CONST	—
DATA2	Data name (data name/constant value)	In the following situations: • TYPE is other than "DATA" • DATA2TYPE is "CONST"	(blank)	—
		DATA2TYPE is "DATA"	001 to 256, *001 to *256	—
DATA2CONST	Constant value (data name/constant value)	In the following situations: • TYPE is other than "DATA" • DATA2TYPE is "DATA"	(blank)	—
		DATA2TYPE is "CONST"	String	—

Item	Description	Condition	Setting value	Remarks
DATES_MONTH	Start - Month	TYPE is other than "DATE"	(blank)	—
		January	JAN	—
		February	FEB	—
		March	MAR	—
		April	APR	—
		May	MAY	—
		June	JUN	—
		July	JUL	—
		August	AUG	—
		September	SEP	—
		October	OCT	—
		November	NOV	—
		December	DEC	—
		Every month	EVERY	—
DATES_DAY	Start - Day	TYPE is other than "DATE"	(blank)	—
		TYPE is "DATE"	1 to 31, LAST	—
DATEE_MONTH	End - Month	TYPE is other than "DATE"	(blank)	—
		January	JAN	—
		February	FEB	—
		March	MAR	—
		April	APR	—
		May	MAY	—
		June	JUN	—
		July	JUL	—
		August	AUG	—
		September	SEP	—
		October	OCT	—
		November	NOV	—
		December	DEC	—
		Every month	EVERY	—
DATEE_DAY	End - Day	TYPE is other than "DATE"	(blank)	—
		TYPE is "DATE"	1 to 31, LAST	—
TIMES_HOUR	Start - Hour	TYPE is other than "TIME"	(blank)	—
		TYPE is "TIME"	0 to 23, EVERY	—
TIMES_MIN	Start - Minute	TYPE is other than "TIME"	(blank)	—
		TYPE is "TIME"	0 to 59, EVERY	—
TIMES_SEC	Start - Second	TYPE is other than "TIME"	(blank)	—
		TYPE is "TIME"	0 to 59	—
TIMEE_HOUR	End - Hour	TYPE is other than "TIME"	(blank)	—
		TYPE is "TIME"	0 to 23, EVERY	—
TIMEE_MIN	End - Minute	TYPE is other than "TIME"	(blank)	—
		TYPE is "TIME"	0 to 59, EVERY	—
TIMEE_SEC	End - Second	TYPE is other than "TIME"	(blank)	—
		TYPE is "TIME"	0 to 59	—
WEEKSUN	Day-of-the-week condition [Sunday]	TYPE is other than "WEEK"	(blank)	—
		Selected	YES	—
		Unselected	NO	—
WEEKMON	Day-of-the-week condition [Monday]	TYPE is other than "WEEK"	(blank)	—
		Selected	YES	—
		Unselected	NO	—
WEEKTUE	Day-of-the-week condition [Tuesday]	TYPE is other than "WEEK"	(blank)	—
		Selected	YES	—
		Unselected	NO	—

Item	Description	Condition	Setting value	Remarks
WEEKWED	Day-of-the-week condition [Wednesday]	TYPE is other than "WEEK"	(blank)	—
		Selected	YES	—
		Unselected	NO	—
WEEKTHU	Day-of-the-week condition [Thursday]	TYPE is other than "WEEK"	(blank)	—
		Selected	YES	—
		Unselected	NO	—
WEEKFRI	Day-of-the-week condition [Friday]	TYPE is other than "WEEK"	(blank)	—
		Selected	YES	—
		Unselected	NO	—
WEEKSAT	Day-of-the-week condition [Saturday]	TYPE is other than "WEEK"	(blank)	—
		Selected	YES	—
		Unselected	NO	—
WEEKSPECIFY	Specify a week of the month	TYPE is other than "WEEK"	(blank)	—
		Selected	YES	—
		Unselected	NO	—
WEEK1ST	Week condition [1st]	In the following situations: • TYPE is other than "WEEK" • WEEKSPECIFY is "NO"	(blank)	—
		Selected	YES	—
		Unselected	NO	—
WEEK2ND	Week condition [2nd]	In the following situations: • TYPE is other than "WEEK" • WEEKSPECIFY is "NO"	(blank)	—
		Selected	YES	—
		Unselected	NO	—
WEEK3RD	Week condition [3rd]	In the following situations: • TYPE is other than "WEEK" • WEEKSPECIFY is "NO"	(blank)	—
		Selected	YES	—
		Unselected	NO	—
WEEK4TH	Week condition [4th]	In the following situations: • TYPE is other than "WEEK" • WEEKSPECIFY is "NO"	(blank)	—
		Selected	YES	—
		Unselected	NO	—
WEEKLAST	Week condition [last]	In the following situations: • TYPE is other than "WEEK" • WEEKSPECIFY is "NO"	(blank)	—
		Selected	YES	—
		Unselected	NO	—

• TRIGGERCONDITION





Item	Description	Condition	Setting value	Remarks
NO	No.	—	1 to 8	—
TYPE	Type of condition	Data conditions (comparison)	DATACOMP	—
		Data conditions (at the time of change of value)	DATACHANGE	—
		Fixed cycle	CYCLE	—
		Time interval specification	ONHR	—
		Specify a time of day	TIME	—
		At startup of BOX Data Logger	STARTMODULE	—
		At the time of the data logging file is switched	DATALOGCHANGE	—


Item	Description	Condition	Setting value	Remarks
DATA1	Data name	TYPE is "CYCLE", "ONHR", "TIME", "STARTMODULE", or "DATALOGCHANGE"	(blank)	—
		TYPE is "DATACOMP" or "DATACHANGE"	001 to 256, *001 to *256	—
DATAOPE	Condition	TYPE is other than "DATACOMP"	(blank)	—
		=	EQUAL	—
		≠	NOTEQUAL	—
		≥	GREATERTHANEQUAL	—
		>	GREATERTHAN	—
		≤	LESSTHANEQUAL	—
		<	LESSTHAN	—
DATA2TYPE	Data/Constant	TYPE is other than "DATACOMP"	(blank)	—
		Data	DATA	—
		Constant	CONST	—
DATA2	Data name (data name/constant value)	In the following situations: • TYPE is other than "DATACOMP" • DATA2TYPE is "CONST"	(blank)	—
		DATA2TYPE is "DATA"	001 to 256, *001 to *256	—
DATA2CONST	Constant value (data name/constant value)	In the following situations: • TYPE is other than "DATACOMP" • DATA2TYPE is "DATA"	(blank)	—
		DATA2TYPE is "CONST"	String	—
CYCL	Fixed cycle	TYPE is other than "CYCLE"	(blank)	—
		TYPE is "CYCLE"	1 to 86400	—
ONHRTIME	Specify the time interval (interval)	TYPE is other than "ONHR"	(blank)	—
		TYPE is "ONHR"	1, 2, 3, 4, 5, 6, 8, 10, 12, 15, 20, 24, 30, 60	—
ONHRUNIT	Specify the time interval (unit)	TYPE is other than "ONHR"	(blank)	—
		Hour	HOUR	—
		Minute	MIN	—
		Second	SEC	—
TIMEMONTH	Month	TYPE is other than "TIME"	(blank)	—
		January	JAN	—
		February	FEB	—
		March	MAR	—
		April	APR	—
		May	MAY	—
		June	JUN	—
		July	JUL	—
		August	AUG	—
		September	SEP	—
		October	OCT	—
		November	NOV	—
		December	DEC	—
TIMEDAY	Day	TYPE is other than "TIME"	(blank)	—
		TYPE is "TIME"	1 to 31, LAST, EVERY	—
TIMEHOUR	Hour	TYPE is other than "TIME"	(blank)	—
		TYPE is "TIME"	0 to 23, EVERY	—

Item	Description	Condition	Setting value	Remarks
TIMEMINUTE	Minute	TYPE is other than "TIME"	(blank)	—
		TYPE is "TIME"	0 to 59, EVERY	—
TIMESECOND	Second	TYPE is other than "TIME"	(blank)	—
		TYPE is "TIME"	0 to 59	—
ORDDTIMEOUT	Monitoring timeout	NO. is '1'	(blank)	—
		NO. is '2' to '8'	0.1 to 0.9, 1 to 32767	—
DATALOG	Data logging name	TYPE is other than "DATALOGCHANGE"	(blank)	—
		TYPE is "DATALOGCHANGE"	1 to 64	Only for report setting.



## ■Event logging setting (CFG\_EVTnn.CSV)

Item	Description	Condition	Setting value	Remarks
NAME	Event logging name	—	String	—
TFFFILE	File format	CSV file	CSV	—
		Binary file	BINARY	—
SMPGNRLTYPE	Sampling interval	Time specification	TIME	—
		Time interval specification	ONHR	—
SMPGNRLTIME	Specify the time (sampling interval)	SMPGNRLTYPE is "TIME"	0.1 to 0.9, 1 to 32767	This item is not applied in the following situations. • SMPGNRLTYPE is "ONHR"
SMPGNRLONHRTIME	Time interval specification (interval)	SMPGNRLTYPE is "ONHR"	1, 2, 3, 4, 5, 6, 8, 10, 12, 15, 20, 24, 30, 60	This item is not applied in the following situations. • SMPGNRLTYPE is "TIME"
SMPGNRLONHRUNIT	Time interval specification (unit)	Hour	HOUR	This item is not applied in the following situations. • SMPGNRLTYPE is "TIME"
		Minute	MIN	
		Second	SEC	
[DAT_START]	Start of the array area (data setting)	—	(blank)	—
((Array area))	Data setting	—	 DATA	—
[DAT_END]	End of the array area (data setting)	—	(blank)	—
[EVT_START]	Start of the array area (event)	—	(blank)	—
((Array area))	Event	—	 EVENT	—
[EVT_END]	End of the array area (event)	—	(blank)	—
[EVTCOND_START]	Start of the array area (event condition)	—	(blank)	—
((Array area))	Event condition	—	 EVENTCOND	—
[EVTCOND_END]	End of the array area (event condition)	—	(blank)	—
PRD	Specify a period of time	Selected	YES	—
		Unselected	NO	—
PRDTYPE	Monitor the event during the period of time which meets specified conditions/Don't monitor the event during the period of time which meets specified conditions	Monitor the event during the period of time which meets specified conditions	CARRYOUT	This item is not applied in the following situations. • PRD is "NO"
		Don't monitor the event during the period of time which meets specified conditions	NOTCARRYOUT	
PRDCOMB	Conditions for combination	AND	AND	This item is not applied in the following situations. • PRD is "NO"
		OR	OR	
[PRDCOND_START]	Start of the array area (period of time and condition)	—	(blank)	This item is not applied in the following situations. • PRD is "NO"
((Array area))	Period of time and condition	PRD is "YES"	 PERIODOFTIMECONDITION	
[PRDCOND_END]	End of the array area (period of time and condition)	—	(blank)	
CSVDATESPFRMT	Specify the date format	Selected	YES	This item is not applied in the following situations. • TFFFILE is "BINARY"
		Unselected	NO	
CSVDATEDATSTR	Data name line string	CSVDATESPFRMT is "YES"	String	This item is not applied in the following situations. • TFFFILE is "BINARY" • CSVDATESPFRMT is "NO"
CSVDATEFRMT	Data line output format	CSVDATESPFRMT is "YES"	String	This item is not applied in the following situations. • TFFFILE is "BINARY" • CSVDATESPFRMT is "NO"
BINEVTNHEADLIST	Output the list of event names into the header	Selected	YES	This item is not applied in the following situations. • TFFFILE is "CSV"
		Unselected	NO	

Item	Description	Condition	Setting value	Remarks
BINEVTNRECEVTNAME	Output the event names into record data	Selected	YES	This item is not applied in the following situations. • TFFFILE is "CSV"
		Unselected	NO	
BINDATNHEADLIST	Output the list of data names into the header	Selected	YES	This item is not applied in the following situations. • TFFFILE is "CSV"
		Unselected	NO	
BINDATETYPE	In second/In nanosecond	In second	SEC	This item is not applied in the following situations. • TFFFILE is "CSV"
		In nanosecond	NANOSEC	
BINCMNTREC	Output comment into record data	Selected	YES	This item is not applied in the following situations. • TFFFILE is "CSV"
		Unselected	NO	
SAVDEST	File save destination	—	String	—
SAVSWICTMNTYPE	File switching timing	Only "Number of records specification" is selected	RECORD	—
		Only "File size specification" is selected	FILESIZE	—
		Only "Condition specification" is selected	CONDITION	—
		Multiple checkboxes are selected	MULTI	—
SAVSWICTMNTYPE REC	Record Number Specification (checkbox)	Selected	YES	This item is not applied in the following situations. • SAVSWICTMNTYPE is other than "MULTI"
		Unselected	NO	
SAVSWICTMNTYPE FILE	File size (checkbox)	Selected	YES	
		Unselected	NO	
SAVSWICTMNTYPE COND	Condition specification (checkbox)	Selected	YES	
		Unselected	NO	
SAVSWICTMNTYPE RECNUM	Number of records	In the following situations: • SAVSWICTMNTYPE is "RECORD" • SAVSWICTMNTYPE is "MULTI", and SAVSWICTMNTYPEPEREC is "YES"	100 to 100000	This item is not applied other than the situations written on the left.
SAVSWICTMNTYPE FILESIZE	File size	In the following situations: • SAVSWICTMNTYPE is "FILESIZE" • SAVSWICTMNTYPE is "MULTI", and SAVSWICTMNTYPEFILE is "YES"	10 to 16384	This item is not applied other than the situations written on the left.
SAVSWICTMNTYPE CONDTYPE	Single condition/Compound condition	Single condition	SINGLE	This item is not applied in the following situations. • SAVSWICTMNTYPE is any of the following: · "RECORD" · "FILESIZE" • SAVSWICTMNTYPE is "MULTI", and SAVSWICTMNTYPECOND is "NO"
		Compound condition	COMBINE	
SAVSWICTMNTYPE COMPTYPE	Trigger type (compound condition only)	OR combine	OR	This item is not applied in the following situations. • SAVSWICTMNTYPE is any of the following: · "RECORD" · "FILESIZE" • SAVSWICTMNTYPE is "MULTI", and SAVSWICTMNTYPECOND is "NO"
		AND combine	AND	
[SAVSWICTMNTYPE COND _START]	Start of the array area (file switching condition (each condition))	—	(blank)	This item is not applied in the following situations. • SAVSWICTMNTYPE is any of the following: · "RECORD" · "FILESIZE"
((Array area))	File switching condition (each condition)	—	 TRIGGERCONDITION	• SAVSWICTMNTYPE is any of the following: · "RECORD" · "FILESIZE"
[SAVSWICTMNTYPE COND _END]	End of the array area (file switching condition (each condition))	—	(blank)	• SAVSWICTMNTYPE is "MULTI", and SAVSWICTMNTYPECOND is "NO"

Item	Description	Condition	Setting value	Remarks
SAVNAMETYPE	Saved file name setting	Simple setting	SIMPLE	—
		Detailed setting	DETAILED	—
SAVNAMEIMPNAME	Attach the name	Selected	YES	This item is not applied in the following situations. • SAVNAMETYPE is "DETAILED"
		Unselected	NO	
SAVNAMEIMPDATE	Attach the date	Selected	YES	This item is not applied in the following situations. • SAVNAMETYPE is "DETAILED"
		Unselected	NO	
SAVNAMEIMPTIME	Attach the time	Selected	YES	This item is not applied in the following situations. • SAVNAMETYPE is "DETAILED"
		Unselected	NO	
SAVNAMEDETLFRMT	Format	SAVNAMETYPE is "DETAILED"	String	This item is not applied in the following situations. • SAVNAMETYPE is "SIMPLE"
SAVNAMEDETLDATA1	Attached data setting <DATA1>	Selected	001 to 256, *001 to *256	This item is not applied in the following situations. • SAVNAMETYPE is "SIMPLE"
		Unselected	NO	
SAVNAMEDETLDATA2	Attached data setting<DATA2>	Selected	001 to 256, *001 to *256	This item is not applied in the following situations. • SAVNAMETYPE is "SIMPLE"
		Unselected	NO	
SAVNAMETIMETYPE	Attached time (date) type	File creation time	FILECREATE	This item is not applied in the following situations. • SAVNAMETYPE is "SIMPLE", and SAVNAMEIMPDATE and SAVNAMEIMPTIME are "NO" • SAVNAMETYPE is "DETAILED", and SAVNAMEDETLFRMT does not have time (date) information
		File switching condition hold true time	CONDITION	
SAVFNUM	Number of saved files	—	1 to 65535	—
SAVFNUMTYPE	Operation occurring when number of saved files is exceeded	Overwrite	OVERWRITE	—
		Stop	STOP	—
SAVFTPT	Transfer files to the following FTP server	Selected	YES	—
		Unselected	NO	—
SAVFTPT1	Transfer destination 1	SAVFTPT is "YES"	1 to 16, NO	This item is not applied in the following situations. • SAVFTPT is "NO"
SAVFTPT2	Transfer destination 2	SAVFTPT is "YES"	1 to 16, NO	This item is not applied in the following situations. • SAVFTPT is "NO"
SAVFTPT3	Transfer destination 3	SAVFTPT is "YES"	1 to 16, NO	This item is not applied in the following situations. • SAVFTPT is "NO"
SAVMAIL	E-mail files to the following destination	Selected	YES	—
		Unselected	NO	—
SAVMAIL1	E-mail address 1	SAVMAIL is "YES"	1 to 16, NO	This item is not applied in the following situations. • SAVMAIL is "NO"
SAVMAIL2	E-mail address 2	SAVMAIL is "YES"	1 to 16, NO	This item is not applied in the following situations. • SAVMAIL is "NO"
SAVMAIL3	E-mail address 3	SAVMAIL is "YES"	1 to 16, NO	This item is not applied in the following situations. • SAVMAIL is "NO"
SAVMAILTYPE	E-mail content setting	Simple setting	SIMPLE	This item is not applied in the following situations. • SAVMAIL is "NO"
		Detailed setting	DETAILED	
SAVMAILSUB	Subject	SAVMAILTYPE is "DETAILED"	String	This item is not applied in the following situations. • SAVMAIL is "NO" • SAVMAILTYPE is "SIMPLE"



Item	Description	Condition	Setting value	Remarks
SAVMAILBODY	Body	SAVMAILTYPE is "DETAILED"	String	This item is not applied in the following situations. • SAVMAIL is "NO" • SAVMAILTYPE is "SIMPLE"
SAVMAILTAGUSE	Use tags	Selected	YES	This item is not applied in the following situations. • SAVMAIL is "NO" • SAVMAILTYPE is "SIMPLE"
		Unselected	NO	
SAVMAILDATA1	Data setting 1	Selected	001 to 256, *001 to *256	This item is not applied in the following situations. • SAVMAIL is "NO" • SAVMAILTYPE is "SIMPLE" • SAVMAILTAGUSE is "NO"
		Unselected	NO	
SAVMAILDATA2	Data setting 2	Selected	001 to 256, *001 to *256	This item is not applied in the following situations. • SAVMAIL is "NO" • SAVMAILTYPE is "SIMPLE" • SAVMAILTAGUSE is "NO"
		Unselected	NO	
MLN	A notifying e-mail is sent at the occurrence of an event	Selected	YES	—
		Unselected	NO	—
MLNSUB	E-mail subject	MLN is "YES"	String	This item is not applied in the following situations. • MLN is "NO"
MLNHEAD	E-mail text header	MLN is "YES"	String	This item is not applied in the following situations. • MLN is "NO"
MLNFOOT	E-mail text footer	MLN is "YES"	String	This item is not applied in the following situations. • MLN is "NO"
MLNDEST1	E-mail address 1	MLN is "YES"	1 to 16, NO	This item is not applied in the following situations. • MLN is "NO"
MLNDEST2	E-mail address 2	MLN is "YES"	1 to 16, NO	This item is not applied in the following situations. • MLN is "NO"
MLNDEST3	E-mail address 3	MLN is "YES"	1 to 16, NO	This item is not applied in the following situations. • MLN is "NO"
MLNTAGUSE	Use tags	Selected	YES	This item is not applied in the following situations. • MLN is "NO"
		Unselected	NO	
MLNDATA1	Data setting 1	Selected	001 to 256, *001 to *256	This item is not applied in the following situations. • MLN is "NO" • MLNTAGUSE is "NO"
		Unselected	NO	
MLNDATA2	Data setting 2	Selected	001 to 256, *001 to *256	This item is not applied in the following situations. • MLN is "NO" • MLNTAGUSE is "NO"
		Unselected	NO	

• EVENT

Item	Description	Condition	Setting value	Remarks
NO	No.	—	1 to 64	—
NAME	Event name	—	String	—
CMNTOCCUR	Comment at event occurrence	—	String	—
CMNTRESTOR	Comment at event restoration	In the following situations: • CONDTYPE is "SINGLE" and corresponding TYPE of EVENTCOND is "DATACHANGE" • COMPTYPE is "TIMES" or "ORDER"	(blank)	—
		—	String	—



Item	Description	Condition	Setting value	Remarks
OUTD	Output data values	Selected	YES	—
		Unselected	NO	—
CONDTYPE	Single condition/Compound condition	Single condition	SINGLE	—
		Compound condition	COMBINE	—
COMPTYPE	Compound condition	CONDTYPE is "SINGLE"	(blank)	—
		OR combine	OR	—
		AND combine	AND	—
		Number of times	TIMES	—
		Order	ORDER	—
COMPTIMESTYPE	Conditions for occurrence (Number of times)	In the following situations: • CONDTYPE is "SINGLE" • COMPTYPE is other than "TIMES"	(blank)	—
		When a terminal condition holds true	TERMINAL	—
		When a specified number of times is exceeded	EXCEED	—
COMPTIMESNUMOPE	Number of counts (symbols)	In the following situations: • CONDTYPE is "SINGLE" • COMPTYPE is other than "TIMES" • COMPTIMESTYPE is "EXCEED"	(blank)	—
		=	EQUAL	—
		≠	NOTEQUAL	—
		≥	GREATERTHANEQUAL	—
		>	GREATERTHAN	—
		≤	LESSTHANEQUAL	—
		<	LESSTHAN	—
COMPTIMESNUM	Number of counts (numerals)	In the following situations: • CONDTYPE is "SINGLE" • COMPTYPE is other than "TIMES"	(blank)	—
		Other than the above	0 to 32767	—
COMPODERTYPE	Conditions for occurrence (order)	In the following situations: • CONDTYPE is "SINGLE" • COMPTYPE is other than "ORDER"	(blank)	—
		Detect abnormal pattern	ABNORMAL	—
		Detect normal pattern	NORMAL	—
COMPODERTIMEOUT	Timeout detected	In the following situations: • CONDTYPE is "SINGLE" • COMPTYPE is other than "ORDER"	(blank)	—
		Selected	YES	—
		Unselected	NO	—

• EVENTCOND

Item	Description	Condition	Setting value	Remarks
NO	No.	—	1-1 to 64-4	—
TYPE	Type of condition (comparison/at the time of change of value)	Data conditions (comparison)	DATACOMP	—
		Data conditions (at the time of change of value) COMPTYPE of EVENT is "TIMES", "ORDER" and TYPE of EVENT is "SINGLE"	DATACHANGE	—
DATA1	Monitoring data	—	001 to 256, *001 to *256	—

Item	Description	Condition	Setting value	Remarks
DATAOPE	Condition	=	EQUAL	This item is not applied in the following situations. • TYPE is "DATACHANGE"
		≠	NOTEQUAL	
		≥	GREATERTHANEQUAL	
		>	GREATERTHAN	
		≤	LESSTHANEQUAL	
		<	LESSTHAN	
DATA2TYPE	Data/Constant	Data	DATA	This item is not applied in the following situations. • COMBTYPE of EVENT is other than "TIMES" and "ORDER" • TYPE is "DATACHANGE"
		Constant	CONST	
DATA2	Data name (data name/constant value)	DATA2TYPE is "DATA"	001 to 256, *001 to *256	This item is not applied in the following situations. • COMBTYPE of EVENT is other than "TIMES" and "ORDER" • TYPE is "DATACHANGE" • DATA2TYPE is "CONST"
DATA2CONST	Constant value (data name/constant value)	—	String	This item is not applied in the following situations. • TYPE is "DATACHANGE" • COMBTYPE of EVENT is "TIMES" or "ORDER", and DATA2TYPE is "DATA"
DATA2REST	Specify restoration values	Selected	YES	This item is not applied in the following situations. • COMBTYPE of EVENT is "TIMES" or "ORDER" • TYPE is "DATACHANGE" • DATAOPE is "EQUAL", "NOTEQUAL"
		Unselected	NO	
DATA2RESTVALUE	Restoration value	DATA2REST is "YES"	String	This item is not applied in the following situations. • COMBTYPE of EVENT is "TIMES" or "ORDER" • TYPE is "DATACHANGE" • DATAOPE is "EQUAL", "NOTEQUAL" • DATA2REST is "NO"
ORDDTIMEOUT	Monitoring timeout	—	0.1 to 0.9, 1 to 32767	This item is not applied in the following situations. • COMBTYPE of EVENT is other than "ORDER" • NO is *-1"

## ■Report setting (CFG\_REPnn.CSV)

Item	Description	Condition	Setting value	Remarks
NAME	Report name	—	String	—
SMPGNRLTYPE	Sampling interval	Time specification	TIME	—
		Time interval specification	ONHR	—
SMPGNRLTIME	Specify the time (sampling interval)	SMPGNRLTYPE is "TIME"	0.1 to 0.9, 1 to 32767	This item is not applied in the following situations. • SMPGNRLTYPE is "ONHR"
SMPGNRLONHRTIME	Specify the time interval (interval)	SMPGNRLTYPE is "ONHR"	1, 2, 3, 4, 5, 6, 8, 10, 12, 15, 20, 24, 30, 60	This item is not applied in the following situations. • SMPGNRLTYPE is "TIME"
SMPGNRLONHRUNIT	Specify the time interval (unit)	Hour	HOUR	This item is not applied in the following situations. • SMPGNRLTYPE is "TIME"
		Minute	MIN	
		Second	SEC	
[DAT_START]	Start of the array area (data setting)	—	(blank)	—
((Array area))	Data setting	—	 DATA	—
[DAT_END]	End of the array area (data setting)	—	(blank)	—
[LAYOUT_START]	Start of the array area (layout setting)	—	(blank)	—
((Array area))	Layout setting	—	 LAYOUT	—
[LAYOUT_END]	End of the array area (layout setting)	—	(blank)	—
TRGSYNC	Synchronize creation trigger with current value data	Selected	YES	—
		Unselected	NO	—
TRGCONDTYPE	Single condition/Compound condition	Single condition	SINGLE	—
		Compound condition	COMBINE	—
TRGCOMPTYPE	Trigger type (compound condition only)	OR combine	OR	This item is not applied in the following situations. • TRGCONDTYPE is "SINGLE"
		AND combine	AND	
		Number of times	TIMES	
		Order	ORDER	
TRGCOMPTIMESTYPE	Conditions for occurrence (Number of times)	When a terminal condition holds true	TERMINAL	This item is not applied in the following situations. • TRGCONDTYPE is "SINGLE" • TRGCOMPTYPE is other than "TIMES"
		When a specified number of times is exceeded	EXCEED	
TRGCOMPTIMESNUMOPE	Number of counts (symbols)	=	EQUAL	This item is not applied in the following situations. • TRGCONDTYPE is "SINGLE" • TRGCOMPTYPE is other than "TIMES" • TRGCOMPTIMESTYPE is "EXCEED"
		≠	NOTEQUAL	
		≥	GREATERTHANEQUAL	
		>	GREATERTHAN	
		≤	LESSTHANEQUAL	
		<	LESSTHAN	
TRGCOMPTIMESNUM	Number of counts (numerals)	—	0 to 32767	This item is not applied in the following situations. • TRGCONDTYPE is "SINGLE" • TRGCOMPTYPE is other than "TIMES"
TRGCOMPORDERYPE	Conditions for occurrence (order)	Detect abnormal pattern	ABNORMAL	This item is not applied in the following situations. • TRGCONDTYPE is "SINGLE" • TRGCOMPTYPE is other than "ORDER"
		Detect normal pattern	NORMAL	
TRGCOMPORDERTIMEOUT	Timeout detected	Selected	YES	This item is not applied in the following situations. • TRGCONDTYPE is "SINGLE" • TRGCOMPTYPE is other than "ORDER"
Unselected	NO			

Item	Description	Condition	Setting value	Remarks
[TRGCOND_START]	Start of the array area (creation trigger condition)	—	(blank)	—
((Array area))	Creation trigger condition	—	☞ TRIGGERCOND NDITION	—
[TRGCOND_END]	End of the array area (creation trigger condition)	—	(blank)	—
PRD	Specify a period of time	Selected	YES	—
		Unselected	NO	—
PRDTYPE	Carry out report creation during the period of time which corresponds to prescribed conditions/Don't carry out report creation during the period of time which corresponds to prescribed conditions	Carry out report creation during the period of time which corresponds to prescribed conditions	CARRYOUT	This item is not applied in the following situations. • PRD is "NO"
		Don't carry out report creation during the period of time which corresponds to prescribed conditions	NOTCARRYOUT	
PRDCOMB	Conditions for combination	AND	AND	This item is not applied in the following situations. • PRD is "NO"
		OR	OR	
[PRDCOND_START]	Start of the array area (period of time and condition)	—	(blank)	This item is not applied in the following situations. • PRD is "NO"
((Array area))	Period of time and condition	PRD is "YES"	☞ PERIODOFTIME MECONDITION	
[PRDCOND_END]	End of the array area (period of time and condition)	—	(blank)	
SAVDEST	File save destination	—	String	—
SAVNAME TYPE	Saved file name setting	Simple setting	SIMPLE	—
		Detailed setting	DETAILED	—
SAVNAME SIMPLIFIED	Attach the name	Selected	YES	This item is not applied in the following situations. • SAVNAME TYPE is "DETAILED"
		Unselected	NO	
SAVNAME SIMPLIFIED DATE	Attach the date	Selected	YES	This item is not applied in the following situations. • SAVNAME TYPE is "DETAILED"
		Unselected	NO	
SAVNAME SIMPLIFIED TIME	Attach the time	Selected	YES	This item is not applied in the following situations. • SAVNAME TYPE is "DETAILED"
		Unselected	NO	
SAVNAME DETAIL FROM	Format	SAVNAME TYPE is "DETAILED"	String	This item is not applied in the following situations. • SAVNAME TYPE is "SIMPLE"
SAVNAME DETAIL DATA 1	Attached data setting <DATA1>	Selected	001 to 256, *001 to *256	This item is not applied in the following situations. • SAVNAME TYPE is "SIMPLE"
		Unselected	NO	
SAVNAME DETAIL DATA 2	Attached data setting <DATA2>	Selected	001 to 256, *001 to *256	This item is not applied in the following situations. • SAVNAME TYPE is "SIMPLE"
		Unselected	NO	
SAVFNUM	Number of saved files	—	1 to 65535	—
SAVFNUM TYPE	Operation occurring when number of saved files is exceeded	Overwrite	OVERWRITE	—
		Stop	STOP	—
SAVFTPT	Transfer files to the following FTP server	Selected	YES	—
		Unselected	NO	—
SAVFTPT1	Transfer destination 1	SAVFTPT is "YES"	1 to 16, NO	This item is not applied in the following situations. • SAVFTPT is "NO"
SAVFTPT2	Transfer destination 2	SAVFTPT is "YES"	1 to 16, NO	This item is not applied in the following situations. • SAVFTPT is "NO"
SAVFTPT3	Transfer destination 3	SAVFTPT is "YES"	1 to 16, NO	This item is not applied in the following situations. • SAVFTPT is "NO"



Item	Description	Condition	Setting value	Remarks
SAVMAIL	E-mail files to the following destination	Selected	YES	—
		Unselected	NO	—
SAVMAIL1	E-mail address 1	SAVMAIL is "YES"	1 to 16, NO	This item is not applied in the following situations. • SAVMAIL is "NO"
SAVMAIL2	E-mail address 2	SAVMAIL is "YES"	1 to 16, NO	This item is not applied in the following situations. • SAVMAIL is "NO"
SAVMAIL3	E-mail address 3	SAVMAIL is "YES"	1 to 16, NO	This item is not applied in the following situations. • SAVMAIL is "NO"
SAVMAILTYPE	E-mail content setting	Simple setting	SIMPLE	This item is not applied in the following situations. • SAVMAIL is "NO"
		Detailed setting	DETAILED	
SAVMAILSUB	E-mail subject	SAVMAILTYPE is "DETAILED"	String	This item is not applied in the following situations. • SAVMAIL is "NO" • SAVMAILTYPE is "SIMPLE"
SAVMAILBODY	E-mail body	SAVMAILTYPE is "DETAILED"	String	This item is not applied in the following situations. • SAVMAIL is "NO" • SAVMAILTYPE is "SIMPLE"
SAVMAILTAGUSE	Use tags	Selected	YES	This item is not applied in the following situations. • SAVMAIL is "NO" • SAVMAILTYPE is "SIMPLE"
		Unselected	NO	
SAVMAILDATA1	Data setting 1	Selected	001 to 256, *001 to *256	This item is not applied in the following situations. • SAVMAIL is "NO" • SAVMAILTYPE is "SIMPLE" • SAVMAILTAGUSE is "NO"
		Unselected	NO	
SAVMAILDATA2	Data setting 2	Selected	001 to 256, *001 to *256	This item is not applied in the following situations. • SAVMAIL is "NO" • SAVMAILTYPE is "SIMPLE" • SAVMAILTAGUSE is "NO"
		Unselected	NO	

• LAYOUT

Item	Description	Condition	Setting value	Remarks
NO	No.	—	1 to 64	—
NAME	Layout name	—	String	—
TYPE	Data logging /Current value/ Creation time	Data logging	DATALOG	—
		Current value	CURRENT	—
		Creation time	CREATION	—
CELLRNG	Cell range	—	A1 reference style	—
RECNUM	Number of records	TYPE is "CURRENT" or "CREATION"	(blank)	—
		TYPE is "DATALOG"	1 to 65535	—
DATALOG	Data logging name	TYPE is "CURRENT" or "CREATION"	(blank)	—
		TYPE is "DATALOG"	1 to 64	—
SRCFILE	Source file	TYPE is "CURRENT" or "CREATION"	(blank)	—
		Saved files	SAVED	—
		Storing file	STORING	—
		Both	BOTH	—
DIRC	Outputting direction	TYPE is "CREATION"	(blank)	—
		Vertical (top → bottom)	VERTICAL	—
		Horizontal (left → right)	HORIZONTAL	—
ORDER	Outputting order	TYPE is "CURRENT" or "CREATION"	(blank)	—
		Chronological order (old → new)	CHRONO	—
		Reverse chronological order (new → old)	REVERSE	—



Item	Description	Condition	Setting value	Remarks
DATALIST	Output data	TYPE is "CURRENT" or "CREATION"	(blank)	—
		TYPE is "DATALOG"	Numerals separated by spaces (001 to 256, INDEX, TIME)	Index: INDEX Logging output date: TIME
OUTTITLE	Output title (data name) at the head of data	TYPE is "CURRENT" or "CREATION"	(blank)	—
		Selected	YES	—
		Unselected	NO	—
DATANUM	Number of data	TYPE is "DATALOG" or "CREATION"	(blank)	—
		TYPE is "CURRENT"	1 to 65535	—
CURRENTDATA	Current value data	TYPE is "DATALOG" or "CREATION"	(blank)	—
		TYPE is "CURRENT"	001 to 256	—

# Appendix 7 FTP Transfer Directory Configuration

When the FTP transfer function is used, files stored in the CompactFlash card inserted in a BOX Data Logger are saved to the FTP server directory.

A directory configuration in the save destination is as follows:

FTP transfer directory				Transfer file name	Maximum number of file	
Home directory <sup>*1</sup> (FTP server)	User-specified directory <sup>*1</sup>	Setting type directory <sup>*2</sup>	Number directory <sup>*2</sup>			
\FTPServer	\WORK	\LOG01	\0000001	00000001.CSV	256	
				00000002.CSV		
				:		
				000000FF.CSV		
			00000100.CSV			
			\0000101	00000101.CSV		256
				00000102.CSV		
				:		
		000001FF.CSV				
				:	:	—
		\LOG02	\0000001	\0000001	00000001.CSV	256
					00000002.CSV	
					:	
					000000FF.CSV	
00000100.CSV						
\0000101	00000101.CSV		256			
	00000102.CSV					
	:					
	000001FF.CSV					
		:	:	—		

\*1 Directory configuration which does not exist in the CompactFlash card

\*2 Directory configuration which is the same as that of the CompactFlash

Item	Description
Home directory (FTP server)	A home directory set by the FTP server. This is set by the FTP server.
User-specified directory	Specify with "Directory path" in the "FTP setting" (up to 64 characters).
Setting type directory	A directory whose name is the same as the name of "setting type folder" exists in the CompactFlash card. Saved files are sorted by each setting.
Number directory	Saved files are sorted by the specified number of saved file. The save target files and the maximum number of storage files are the same as those of "Number folder" exist in a CompactFlash card.
Transfer file name <sup>*1</sup>	A name set for the transfer file. The same name as that of transfer target saved file is set.

\*1 Files which are transferred to the FTP server are not deleted by a BOX Data Logger.



# Appendix 8 EMC and Low Voltage Directives

In each country, regulations concerning electromagnetic compatibility (EMC) and electrical safety are enacted. For the products sold in the European countries, compliance with the EU's EMC Directive has been a legal obligation as EMC regulation since 1996, as well as the EU's Low Voltage Directive as electrical safety regulation since 1997.

Manufacturers who recognize their products are compliant to the EMC and Low Voltage Directives are required to attach a "CE marking" on their products in European countries.

In some other countries and regions, manufacturers are required to make their products compliant with applicable laws or regulations and attach a certification mark on the products as well (such as UK Conformity Assessed (UKCA) marking in the UK, and Korea Certification (KC) marking in South Korea).

Each country works to make their regulatory requirements consistent across countries based on international standards. When the requirements are consistent, measures to comply with the EMC and electrical safety regulations become common across countries.

The UK and South Korea have enacted EMC regulations whose requirements are consistent with those of the EMC Directive. The UK has also enacted electrical safety regulations whose requirements are consistent with those of the Low Voltage Directive. In this section, the requirements of the EMC and Low Voltage Directives are described as examples of those of the EMC and electrical safety regulations.

## Measures to comply with the EMC Directive

The EMC Directive sets two requirements for compliance: emission (conducted and radiated electromagnetic energy emitted by a product) and immunity (the ability of a product to not be influenced by externally generated electromagnetic energy).

This section summarizes the precautions for machinery constructed with BOX Data Logger to comply with the EMC Directive. These precautions are based on the requirements of the EMC Directive and the harmonized standards. However, they do not guarantee that the entire machinery constructed according to the descriptions complies with the EMC Directive.

The manufacturer of the machinery must determine the testing method for compliance and declare conformity to the EMC Directive.

### EMC Directive related standards

#### ■ Emission requirements

Standard	Test item	Test description	Value specified in standard
EN61131-2: 2007	CISPR16-2-3 Radiated emission* <sup>1</sup>	The electromagnetic wave which the product emits to the external space is measured.	• 30 to 230 MHz, QP: 40 dB $\mu$ V/m (measured at 10 m distance) <sup>*2</sup> • 230 to 1000 MHz, QP: 47 dB $\mu$ V/m (measured at 10 m distance)
	CISPR16-2-1, CISPR16-1-2 Conducted emission* <sup>1</sup>	The noise level which the product emits to the power line is measured.	• 0.15 to 0.5 MHz, QP: 79 dB, Mean: 66 dB <sup>*2</sup> • 0.5 to 30 MHz, QP: 73 dB, Mean: 60 dB

\*1 BOX Data Logger is an open type device (a device embedded in other equipment) and must be installed inside a conductive control panel.

The tests were conducted with the BOX Data Logger installed in a control panel.

\*2 QP: Quasi-Peak value, Mean: Average value

## ■ Immunity requirements

Standard	Test item	Test description	Value specified in standard
EN61131-2: 2007	EN61000-4-2 Electrostatic discharge immunity* <sup>1</sup>	An electrostatic discharge is applied to the enclosure of the equipment.	<ul style="list-style-type: none"> <li>• 8 kV Air discharge</li> <li>• 4 kV Contact discharge</li> </ul>
	EN61000-4-3 Radiated, radio-frequency, electromagnetic field immunity* <sup>1</sup>	An electric field is radiated to the product.	80 % AM modulation @1 kHz <ul style="list-style-type: none"> <li>• 80 to 1000 MHz: 10 Vm</li> <li>• 1.4 to 2.0 GHz: 3 Vm</li> <li>• 2.0 to 2.7 GHz: 1 Vm</li> </ul>
	EN61000-4-4 Fast transient/ burst immunity* <sup>1</sup>	Burst noise is applied to power lines and signal lines.	<ul style="list-style-type: none"> <li>• AC/DC power, I/O power, and AC I/O (unshielded) lines: 2 kV</li> <li>• DC I/O, analog, and communication lines: 1 kV</li> </ul>
	EN61000-4-5 Surge immunity* <sup>1</sup>	Lightning surge is applied to power lines and signal lines.	<ul style="list-style-type: none"> <li>• AC power, AC I/O power, and AC I/O (unshielded) lines: 2 kV CM, 1 kV DM</li> <li>• DC power and DC I/O power lines: 0.5 kV CM, 0.5 kV DM</li> <li>• DC I/O, AC I/O (shielded), analog, and communication lines: 1 kV CM</li> </ul>
	EN61000-4-6 Conducted RF immunity* <sup>1</sup>	High-frequency noise is applied to power lines and signal lines.	0.15 to 80 MHz, 80 % AM modulation@1 kHz, 10 Vrms
	EN61000-4-8 Power-frequency magnetic field immunity* <sup>1</sup>	The product is immersed in the magnetic field of an induction coil.	50/60 Hz, 30 A/m
	EN61000-4-11 Voltage dips and interruption immunity* <sup>1</sup>	Power voltage is momentarily interrupted.	<ul style="list-style-type: none"> <li>• 0 %, 0.5 period, starting at zero-crossing</li> <li>• 0%, 250/300 period (50/60 Hz)</li> <li>• 40%, 10/12 period (50/60 Hz)</li> <li>• 70%, 25/30 period (50/60 Hz)</li> </ul>

\*1 BOX Data Logger is an open type device (a device embedded in other equipment) and must be installed inside a conductive control panel.

The tests were conducted with the programmable controller installed in a control panel.

A

## Installation in a control panel

BOX Data Logger is an open type device and must be installed inside a control panel.

This ensures safety as well as effective shielding of BOX Data Logger-emitted electromagnetic noise.

### ■Control panel

- Use a conductive control panel.
- Mask off the area used for grounding when securing the top or bottom plate to the control panel using bolts.
- To ensure electrical contact between the inner plate and the control panel, mask off the bolt installation areas of an inner plate so that conductivity can be ensured in the largest possible area.
- Ground the control panel with a thick ground cable so that low impedance can be ensured even at high frequencies.
- Keep the diameter of the holes on the control panel to 10 cm or less. If the diameter is larger than 10 cm, electromagnetic wave may be emitted. In addition, because electromagnetic wave leaks through a clearance between the control panel and its door, reduce the clearance as much as possible.

Use of EMI gaskets (sealing the clearance) can suppress undesired radiated emissions.

The tests by Mitsubishi were conducted using a control panel having the damping characteristics of 37 dB (maximum) and 30 dB (average) (measured at 3 m distance, 30 to 300 MHz).

### ■Wiring power cables

Ground wire and power supply cable for BOX Data Logger must be connected as described below.

- Provide an grounding point near the power supply module. Ground the power supply's LG and FG terminals (LG : Line Ground, FG : Frame Ground) with the thickest and shortest possible ground wire (The wire length must be 30 cm (11.81 inches) or shorter).

The function of LG and FG terminals is to pass the noise generated in BOX Data Logger to the ground, so an impedance must be ensured to be as low as possible.

Short the LG and FG terminals with the thickest and shortest possible ground wire ( $\phi 2$  mm), and always connect to the ground. The ground wire should be kept short when wired.

As a ground wire is used to relieve the noise, the wire itself carries a large noise and thus short wiring means that the wire is prevented from acting as an antenna.

- The ground wire led from the grounding point must be twisted with the power supply wires. By twisting with the ground wire, noise flowing from the power supply wires can be relieved to the ground. However, if a filter is installed on the power supply wires, the wires and the ground wire may not need to be twisted.

## Cables

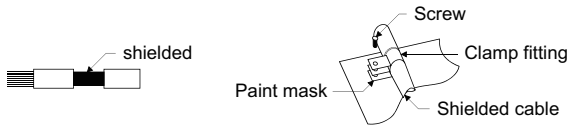
Use a shielded cable for the cable connected to BOX Data Logger and may be extended out of the control panel. If a shielded cable is not used or not grounded correctly, the noise immunity will not meet the required value.

### ■Grounding a shielded cable

Ground the shield of a shielded cable as close to BOX Data Logger as possible so that the grounded cable will not be affected by electromagnetic induction from ungrounded cables.

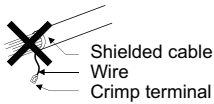
Ground the exposed shield to large area on the control panel.

A clamp fitting can be used as shown below. In this case, apply a cover on the painted inner wall surface of the control panel, which comes in contact with the clamp.



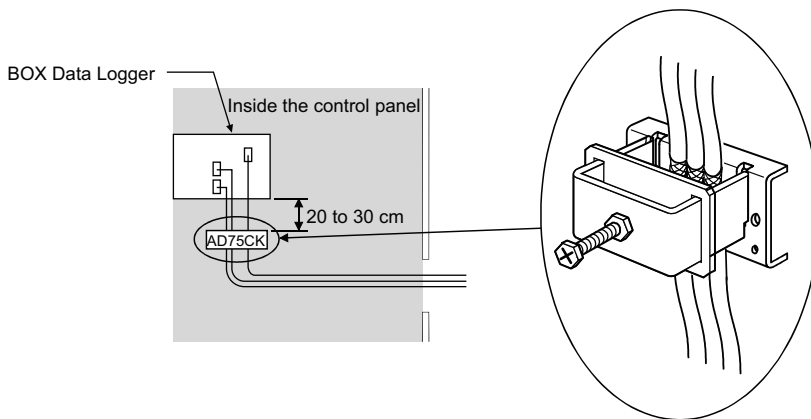
## Precautions

The method of grounding with a vinyl-coated wire soldered onto the shielded section of the shielded cable as shown below is not recommended. Doing so will raise the high-frequency impedance, resulting in loss of the shielding effect.



### ■Grounding cables with a cable clamp

Use a shielded cable for external wiring and ground the shield of the shielded cable to the control panel with the AD75CK cable clamp (Mitsubishi). (Ground the shield within 20 to 30 cm from BOX Data Logger.)



For details on the AD75CK, refer to the following manual.

📖 AD75CK-type Cable Clamping Instruction Manual

## External power supply

For the external power supply terminals for the UPS connection/external trigger input/error output, use the DC power supply compliant to the CE.

Place the DC power supply in the same control panel as BOX Data Logger. Also the power cable connected to the external power supply should be 30 m or shorter.

## Power supply part

Ground the LG and FG terminals after short-circuiting them.

## Other measures

### ■ Ferrite core

Ferrite core is effective for reducing radiated noise in the 30 MHz to 100 MHz frequency band.

Installation of a ferrite core is recommended if a shield cable extended out of the control panel does not provide sufficient shielding effects.

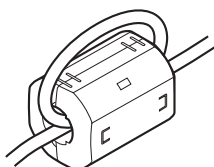
Install a ferrite core to the cable in the position immediately before the cable is extended out of the control panel.

If the installation position is not appropriate, the ferrite core will not work.

Install a ferrite core to each power cable as shown below.

(Ferrite core used for the tests conducted by Mitsubishi: TDK ZCAT3035-1330)

Ex.



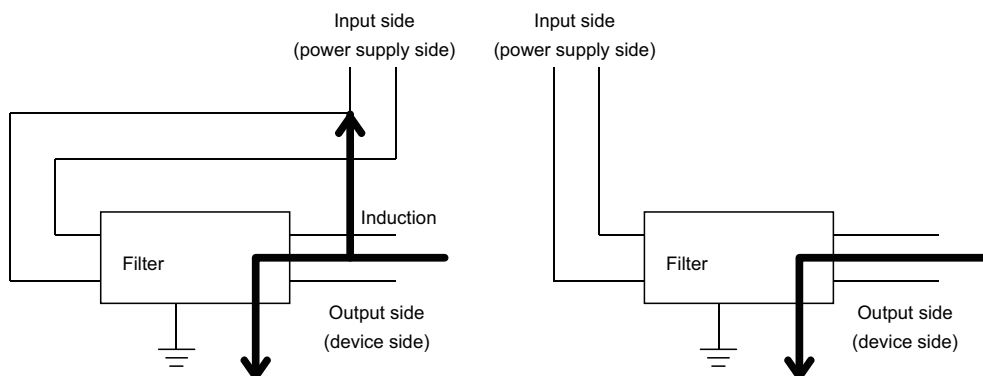
### ■ Noise filter (power supply line filter)

Noise filter is effective for reducing conducted noise in the 10 MHz or less frequency. (Use of a noise filter can suppress noise.)

Noise filter helps suppress more noise. (The noise filter has the effect of reducing conducted noise of 10 MHz or less.)

The installation precautions are as follows:

- Do not bundle the cables on the input side and output side of the noise filter. If bundled, the output side noise will be induced into the filtered cable on the input side.



Noise will be induced when the input and output cables are bundled.

Separately install the input and output cables.



- Ground the ground terminal of the noise filter to the ground point of the control panel with the shortest possible ground wire (approximately 10 cm).

Examples of noise filter are as follows:

Noise filter model name	FN343-3/01	FN660-6/06	ZHC2203-11
Manufacturer	SCHAFFNER	SCHAFFNER	TDK
Rated current	3 A	6 A	3 A
Rated voltage	250 V		

## Measures to comply with the Low Voltage Directive

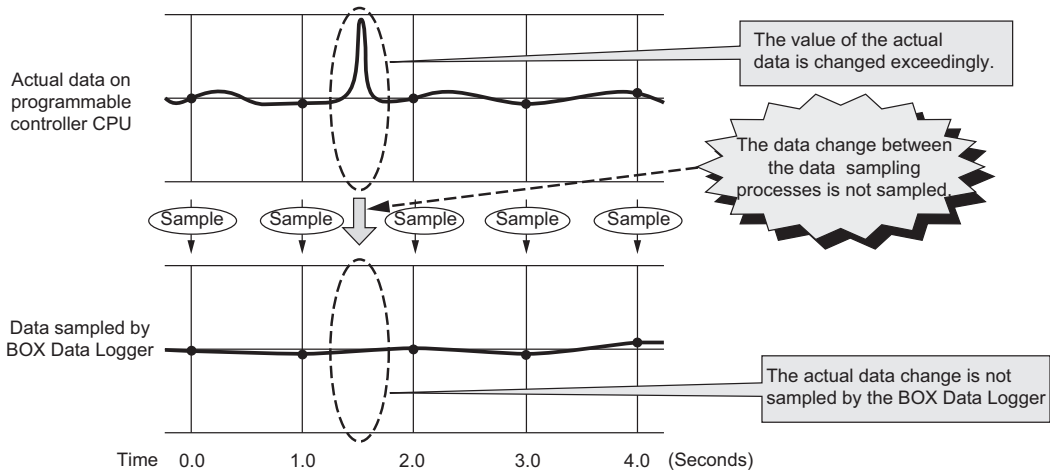
BOX Data Logger operates at the rated voltage of 24 VDC. However, the modules which operate at less than 50 VAC/75 VDC rated input voltage are not the subject for the Low Voltage Directive compliance.

# Appendix 9 Sampling Processes of BOX Data Logger

## Data changes between data sampling processes

Data changes occurred between the data sampling processes are not sampled because a BOX Data Logger only samples data from a programmable controller CPU at the specified data sampling intervals.

Adjust the data sampling interval according to data to be sampled.

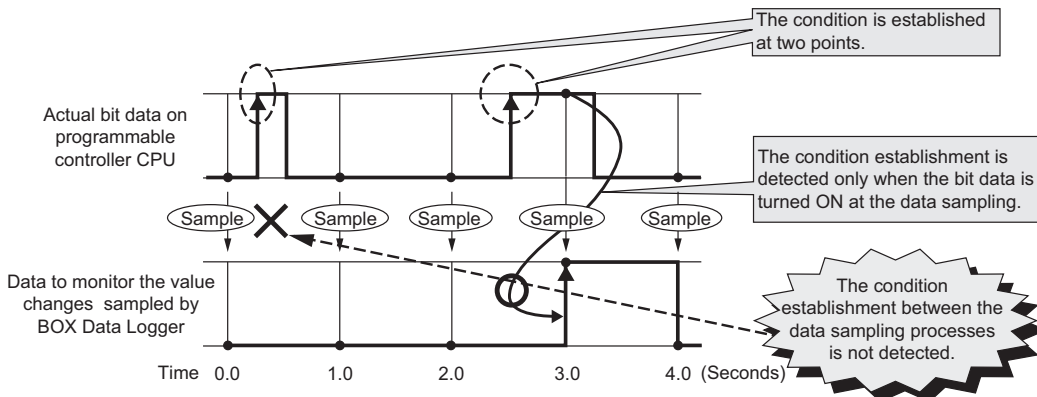


## Detecting data condition establishment

The data condition is determined with the data sampled at the specified data sampling interval.

When the data condition is specified for the trigger, event, or file switching, the determination of the data condition is not detected if the condition is not established at the data sampling.

Set a longer time for the condition establishment time than the data sampling interval.

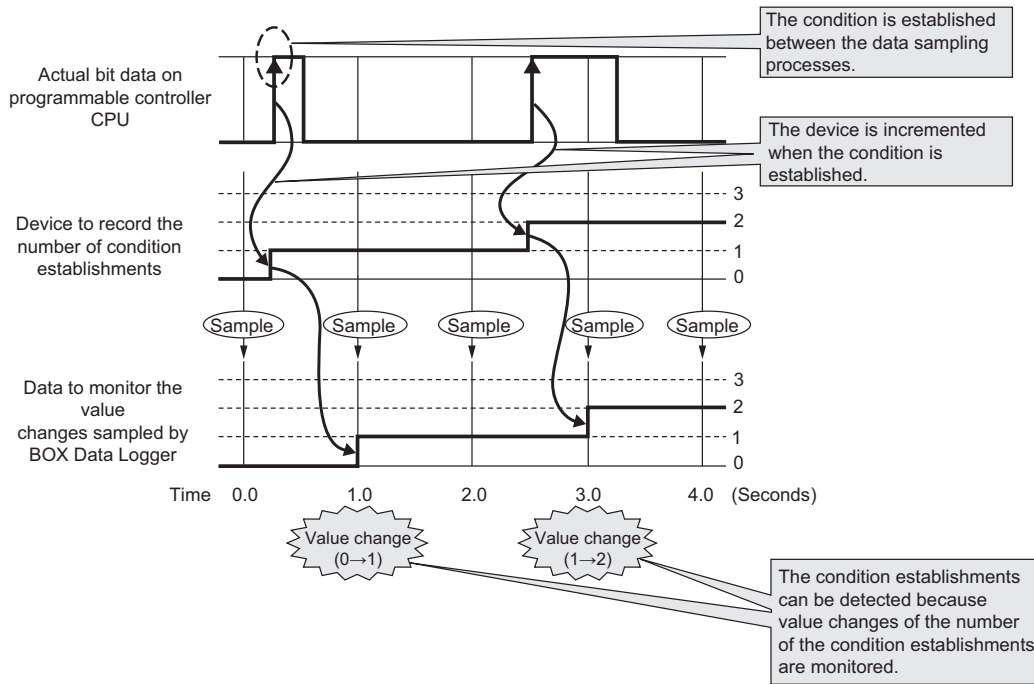


Use the following method to detect the data condition when the detection is difficult even if the condition establishment time is set longer than the data sampling interval.

- Prepare the device to record the number of condition establishments in a sequence program.
- Set "value changes" as a condition for the device on a BOX Data Logger.

Since the device value changes when the condition is established, the "value changes" between the data sampling processes can be detected.

Even when the condition establishment time is less than the data sampling interval, the condition establishment can be detected.



**Ex.**

An example of sequence program to record the number of condition establishments on the device is as follows:

(M0 = bit device to indicate the condition, D0 = device to record the number of condition establishments)



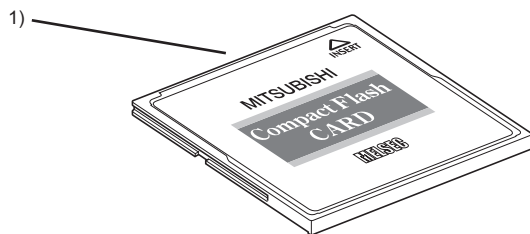
# Appendix 10 CompactFlash Card

## CompactFlash card specifications

Item	Model				
	QD81MEM-512MBC	QD81MEM-1GBC	QD81MEM-2GBC	QD81MEM-4GBC	QD81MEM-8GBC
Memory capacity	512 MB	1 GB	2 GB	4 GB	8 GB
Number of insertions/ejections	10,000 cycles				
External dimensions	H	36 mm			
	W	43 mm			
	D	3.3 mm			
Weight	12 g				

## CompactFlash card part names

This section explains the CompactFlash card part names.



No.	Name	Description
1)	Connector part	For CompactFlash card interface connection

# Considerations for using CompactFlash card

The following explains the considerations when using a CompactFlash card.

## CompactFlash card file/directory names

■ **Do not create files (excluding operating files and Recipe files) or folders on the CompactFlash card.**

If files or folders are created on the CompactFlash card with a personal computer, they may be deleted.

■ **Do not store files with file name containing unusable characters to CompactFlash card.**

For usable characters in file names, refer to the following section.

☞ Page 594 Characters usable in file names, folder (directory) names

## CompactFlash card to be used

Use CompactFlash cards listed in the following section.

☞ Page 54 CompactFlash card (sold separately, required)

If any other CompactFlash cards are used, a failure such as data corruption on CompactFlash card or system shutdown may occur.

## When powering OFF

When BOX Data Logger is powered OFF while writing data to a CompactFlash card, the processing to write data to a CompactFlash card may not be completed.

Normally in this situation, BOX Data Logger can be powered OFF without stopping the file access since files are automatically recovered by the BOX Data Logger when powered ON again.

However, files may not be recovered completely by performing the above operation. If any problem arises, power OFF after stopping the file access.

For the important data, create backups by performing a backup operation such as saving data to other media.

☞ Page 650 Stopping file access

## When ejecting or replacing CompactFlash card

- Be sure to stop file access before ejecting or replacing the CompactFlash card.

☞ Page 646 Operation when replacing CompactFlash card

- Not following the procedure above may cause a loss of logging data during processing, corruption of data on the CompactFlash card while accessing, or a file system error.

- If an error occurs on the CompactFlash card, refer to the following section.

☞ Page 438 Troubleshooting related to CompactFlash cards

- BOX Data Logger settings are saved to a CompactFlash card. Therefore, BOX Data Logger's IP address returns to the initial status (CH1:192.168.2.20, CH2:192.168.3.21) without a CompactFlash card inserted in the BOX Data Logger or when powering OFF/ON without the settings written to the CompactFlash card.

Read the current settings before ejecting the CompactFlash card and after replacing the card, promptly write those settings to the new card as necessary.

If the Logging continuance function is enabled, however, the setting before the replacement is saved even if it has not been written to the new CompactFlash card.


## CompactFlash card capacity

- Access speed to a CompactFlash card is affected by the amount of saved files.  
In particular, access speed becomes extremely slow when saving files up to the capacity limit of the CompactFlash card.  
Use the CompactFlash card maintaining 10% or more free space on the card.
- A minimum size of the occupied file on the hard disk varies depending on the CompactFlash card capacity. Therefore, the actual file size and the occupied file size on the hard disk may differ.

## CompactFlash card diagnostic time

- BOX Data Logger performs a diagnostics (file recovery, etc.) the inserted CompactFlash card at the times listed below.
  - When power OFF → ON or resetting BOX Data Logger
  - Inserting a CompactFlash card when BOX Data Logger is ON
- The CompactFlash card diagnostic time takes longer when there are more files on the card.  
100 files takes approximately 5 seconds, 1000 files takes approximately 10 seconds.
- When many files are saved on the CompactFlash card, the following operations require longer time. Delete unnecessary files.
  - CompactFlash card status (system information (S2) + 0 bit1) startup time
  - The time for BOX Data Logger to start processing (BOX Data Logger READY (system information (S2) + 0 bit0), and BOX Data Logger operating status (rising time for the system information (S2) + 0 bit5)

## CompactFlash card format

- To format a CompactFlash card, use the BOX Data Logger format function. (  Page 388 CompactFlash card diagnostics)  
Note that, since the CompactFlash card is formatted when shipped, it is not necessary to format it again.
- Do not format the CompactFlash card using the Windows® format function.
- Do not reset or power OFF BOX Data Logger while formatting the CompactFlash card.  
BOX Data Logger may not be able to recognize the CompactFlash card.
- BOX Data Logger settings are saved on a CompactFlash card, therefore, all settings are lost when formatting the card.

Read the current settings before formatting and promptly write those settings after formatting as necessary.

BOX Data Logger's IP address returns to the initial status (CH1:192.168.2.20, CH2:192.168.3.21) when powering OFF/ON or resetting BOX Data Logger without writing the settings to the CompactFlash card.

If the Logging continuance function is enabled, however, the setting before the replacement is saved even if it has not been written to the new CompactFlash card.

## CompactFlash card life duration (data writing limit)

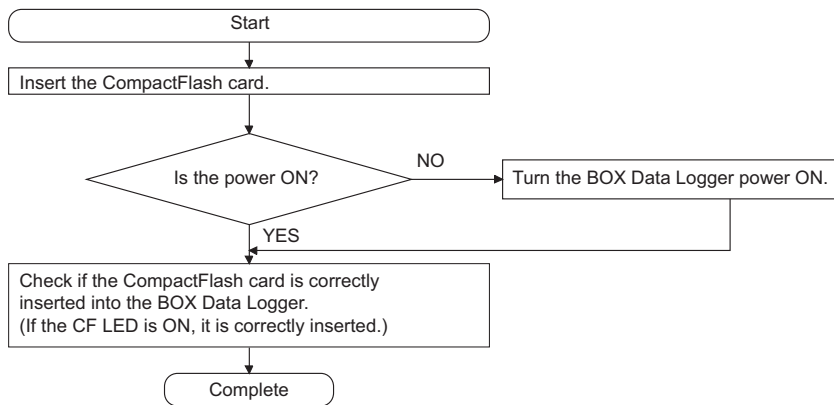
A CompactFlash card has a service life (restriction on the number of writes).

Refer to the following section.

 Page 653 CompactFlash card life duration

# Operations for inserting CompactFlash card

This section explains the method for inserting the CompactFlash card.



\*1  Page 651 Inserting a CompactFlash card

## Point

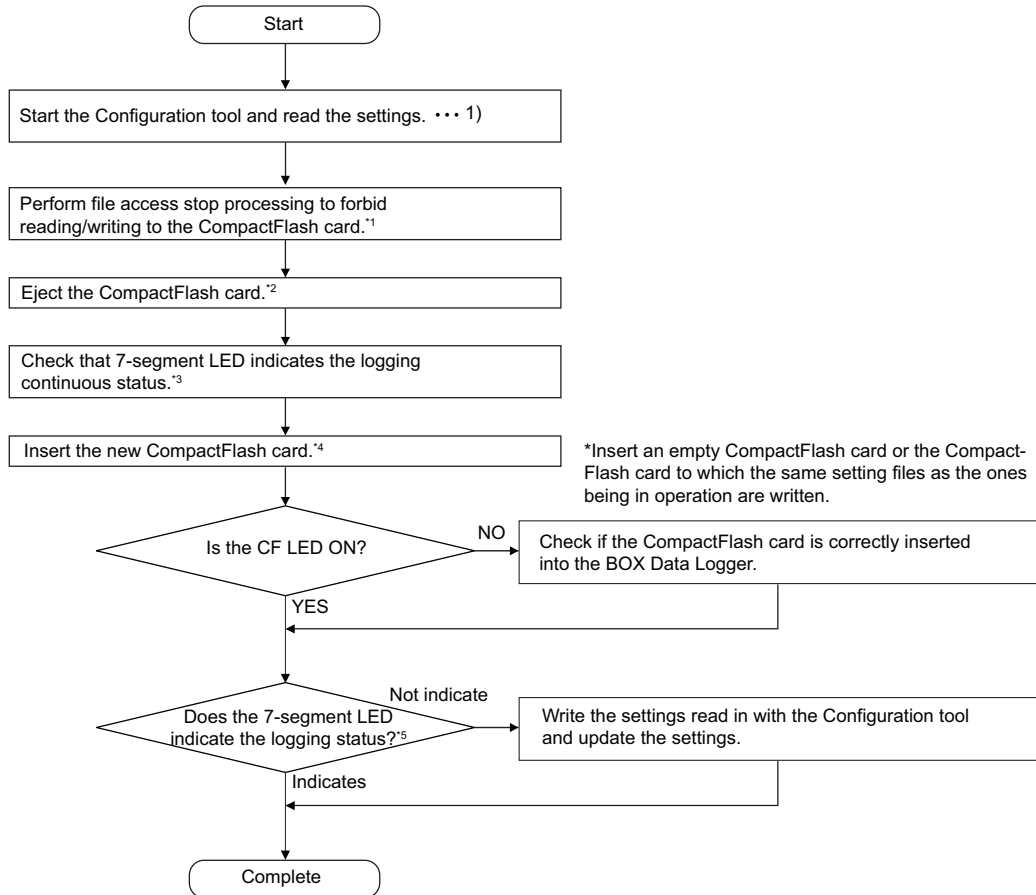
The CompactFlash card insertion status can be checked with the system information.

If CompactFlash card status (system information (S2) + 0 bit1) is ON, the CompactFlash card has been correctly inserted.

# Operation when replacing CompactFlash card

## Operation when replacing CompactFlash card without stopping the logging

Before the operation, check that the Logging continuance function is set enabled in the currently operating BOX Data Logger. When ejecting the CompactFlash card, always stop file access following the procedure below.



\*1 Page 650 Stopping file access

\*2 Page 652 Ejecting CompactFlash card

\*3 Page 99 Logging continuous status

\*4 Page 651 Inserting a CompactFlash card

\*5 Page 99 Logging continuous status

### Point

A FlashCompact card can be replaced without stopping logging by configuring the setting to enable the Logging continuance function beforehand.

If the new CompactFlash card does not have any setting written, the settings will be written to the CompactFlash card automatically. Writing the settings to the CompactFlash card in advance is not required. For the Logging continuance function, refer to the following section.

Page 184 Logging Continuance Function



## Precautions

- Not following the procedure above may cause a loss of logging data during processing, corruption of data on the CompactFlash card while accessing, or a file system error.

If an error occurs on the CompactFlash card, refer to the following section.

☞ Page 438 Troubleshooting related to CompactFlash cards

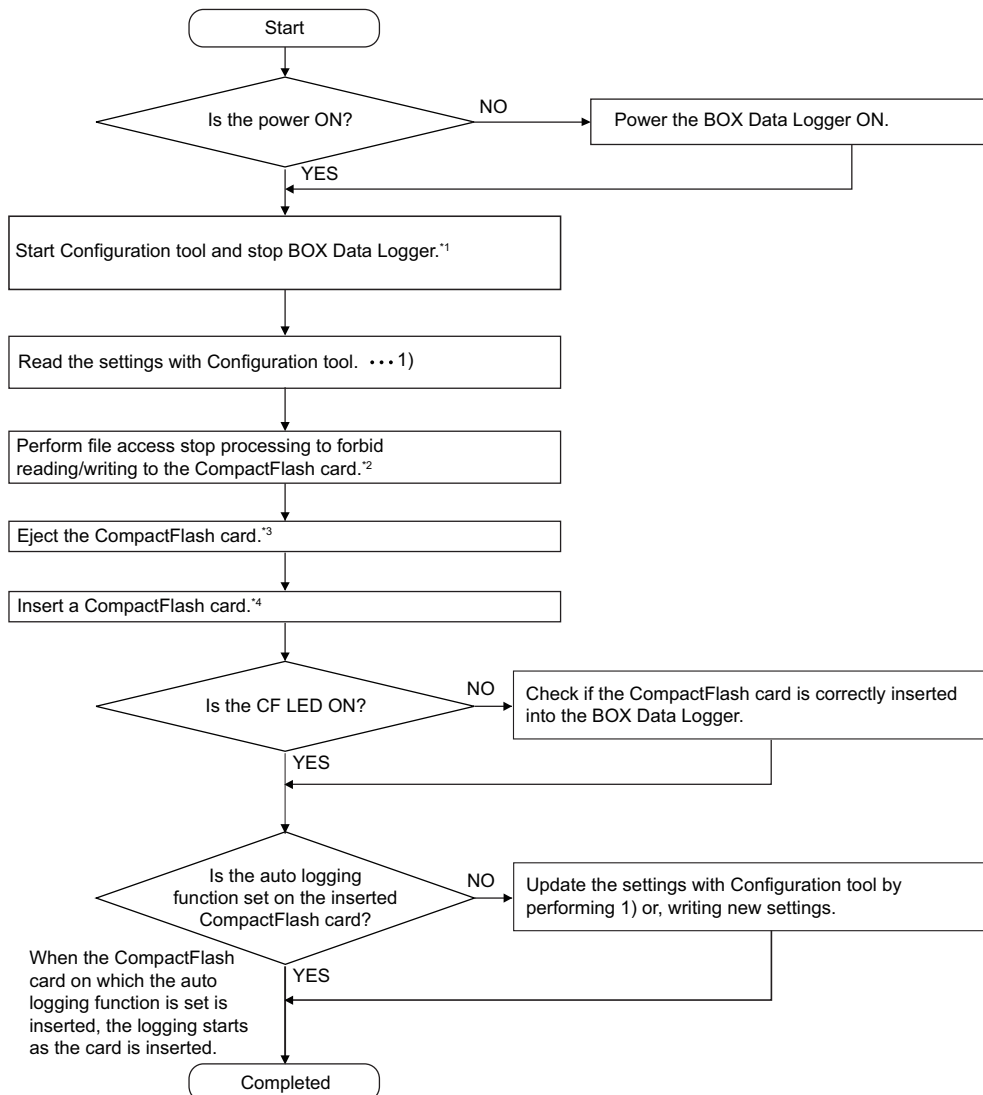
- BOX Data Logger settings are saved to a CompactFlash card. Therefore, BOX Data Logger's IP address returns to the initial status (CH1:192.168.2.20, CH2:192.168.3.21) without a CompactFlash card inserted in the BOX Data Logger or when powering OFF/ON without the settings written to the CompactFlash card.

Read the current settings before ejecting the CompactFlash card and after replacing the card, promptly write those settings to the new card as necessary.

If the Logging continuance function is enabled, however, the setting before the replacement is saved even if it has not been written to the new CompactFlash card.

## Operation when replacing CompactFlash card by stopping the logging

When ejecting the CompactFlash card, always stop file access following the procedure below.



\*1 Stop the Logging continuance function, and prevent the setting of the old CompactFlash card to be written to the new CompactFlash card.

\*2 Page 650 Stopping file access

\*3 Page 652 Ejecting CompactFlash card

\*4 Page 651 Inserting a CompactFlash card

### Point

The enabled Auto logging function setting can be written to the new CompactFlash card in advance to eliminate operations such as reading the settings and updating.

The data logging automatically starts when a CompactFlash card is inserted.

For details on the Auto logging function, refer to the following section.

Page 182 Auto Logging Function

## Precautions

- Not following the procedure above may cause a loss of logging data during processing, corruption of data on the CompactFlash card while accessing, or a file system error.

If an error occurs on the CompactFlash card, refer to the following section.

☞ Page 438 Troubleshooting related to CompactFlash cards

- BOX Data Logger settings are saved to a CompactFlash card. Therefore, BOX Data Logger's IP address returns to the initial status (CH1:192.168.2.20, CH2:192.168.3.21) without a CompactFlash card inserted in the BOX Data Logger or when powering OFF/ON without the settings written to the CompactFlash card.

Read the current settings before ejecting the CompactFlash card and after replacing the card, promptly write those settings to the new card as necessary.

If the Logging continuance function is enabled, however, the setting before the replacement is saved even if it has not been written to the new CompactFlash card.

## Stopping file access

### ■When using the CF CARD ACCESS OFF switch

1. Press the CF CARD ACCESS OFF switch on BOX Data Logger for 1.5 seconds.  
The CompactFlash card will be disconnected.
2. Check that file access has stopped.  
Check that the access status is in Stop (CF CARD LED is OFF).

### ■When using Configuration tool

(☞ Page 388 CompactFlash card diagnostics)

1. Stop the file access.  
Select [Online] ⇒ [Diagnostics], and click the [CompactFlash card diagnostics] tab. Then select CompactFlash card operation "Access stop" and click the [Execute] button.
2. Check that file access has stopped.  
Check that the access status is Stop

## Clearing file access stop

### ■When inserting CompactFlash card

1. Insert a CompactFlash card in BOX Data Logger.
2. Check that file access stop status has cleared.  
Check that the access status is in operation (CF CARD LED is ON).

### ■When using Configuration tool

(☞ Page 388 CompactFlash card diagnostics)

1. Clear the file access stop status.  
Select [Online] ⇒ [Diagnostics] and click the [CompactFlash card diagnostics] tab. Then select CompactFlash card operation "Access restart" and click the [Execute] button
2. Check that file access stop status has cleared.  
Check that the access status is in operation.

## Inserting a CompactFlash card

### ■Eject a dummy CompactFlash card

Open the cover on the front of the BOX Data Logger, and eject the dummy CompactFlash card.

1. Put your finger on the bottom of the cover on the front of the BOX Data Logger and lift the cover up to open.
2. Push the EJECT button to eject the dummy CompactFlash card.

Carefully save the removed dummy CompactFlash card.

### ■Insert CompactFlash card

Insert a CompactFlash card to a BOX Data Logger with the proper orientation.

Push the CompactFlash card securely into the slot until it is flush with the EJECT button.

### ■Close the cover on the front

Close the cover on the front of BOX Data Logger until it clicks.

### ■Check the insertion condition

Check if the CompactFlash card is properly inserted in BOX Data Logger. (Check that the CF CARD LED turns ON at power ON.)

## Ejecting CompactFlash card

### ■Eject the CompactFlash card

1. Put your finger on the bottom of the cover on the front of the BOX Data Logger and lift the cover up to open.
2. Push the EJECT button to remove the CompactFlash card.

### ■Insert dummy CompactFlash card

When not to insert a CompactFlash card, insert a dummy CompactFlash card.

1. Insert a dummy CompactFlash card.
2. Close the cover on the front of BOX Data Logger until it clicks.

# CompactFlash card life duration

The CompactFlash card has a life duration (a limit for writing data).


The method for calculating the life duration of CompactFlash card is as shown below. (QD81MEM-512MBC, QD81MEM-1GBC, QD81MEM-2GBC, QD81MEM-4GBC, QD81MEM-8GBC).

Note that the actual life duration depends on the operating conditions and environment. Use the following calculation as a guide to determine the time for replacement.

## Life duration calculation

The life duration of the CompactFlash card can be found with the following calculation formula.

	Calculation formula
CompactFlash card life duration (years)	= Total writable size×1024 <sup>3</sup> (byte)/write size in one year (byte/year) <sup>*1</sup>

\*1  Page 653 1 year write size

## 1 year write size

The amount of data which can be written to the CompactFlash card in 1 year can be found with the following calculation formula.

	Calculation formula <sup>*1</sup>
Write size in one year (byte/year)	$= (DS_1 + 1024 + 1536^{*2}) \times DN_1 + \dots + (DS_n + 1024 + 1536^{*2}) \times DN_n$ $+ (DCS_1 + 2048) \times DCN_1 + \dots + (DCS_n + 2048) \times DCN_n$ $+ (ES_1 + 1024) \times EN_1 + \dots + (ES_n + 1024) \times EN_n$ $+ (ECS_1 + 2048) \times ECN_1 + \dots + (ECS_n + 2048) \times ECN_n$ $+ (RS_1 + 2048) \times RN_1 + \dots + (RS_n + 2048) \times RN_n$

\*1 The following data must be rounded up to a multiple of the respective minimum writing size.

Example) DS<sub>n</sub>=4096 when DS<sub>n</sub>=600 using QD81MEM-1GBC

DS<sub>n</sub>: 1 record (line) size for data logging No.n

DN<sub>n</sub>: Number of written records (lines) for data logging No.n for 1 year

DCS<sub>n</sub> : Header size for data logging No.n

DCN<sub>n</sub>: Number of file switches for data logging No.n for 1 year

ES<sub>n</sub> : 1 record (line) size for event logging No.n

EN<sub>n</sub>: Number of written records (lines) for event logging No.n for 1 year

ECS<sub>n</sub> : Header size for event logging No.n

ECN<sub>n</sub>: Number of file switches for event logging No.n for 1 year

RS<sub>n</sub> : File size of report No.n

RN<sub>n</sub> : Number of reports created of report No.n for 1 year

\*2 Add '1536' to the data logging No.n, which has been specified in the data logging layout of a report.

## Data logging write size and count

The data logging write size and count can be found in the calculation formula in the following sections.

### ■1 record (line) size for data logging (DSn)

- For CSV format

Refer to the following section.

☞ Page 74 Data line

- For binary format

Refer to the following section.

☞ Page 81 Data logging file

### ■Number of written records (lines) for data logging for 1 year (DNn)

- For the continuous logging function

	Calculation formula
DNn	$60 \times 60 \times 24 \times 365 \div \text{data sampling interval (seconds)}^{*1} \times \text{operating rate}^{*2}$

\*1 Data sampling interval is the data logging sampling setting value.

\*2 Operating rate is calculated from the data logging period setting and programmable controller system operating time.

Example) When the period setting is 9:00 to 17:00 (8 hours)

$8 \text{ (hours)} \div 24 \text{ (hours)} = 0.33$

- For trigger logging

	Calculation formula
DNn	$\text{Total number of lines}^{*1} \times \text{trigger occurrence count for 1 year}^{*2}$

\*1 Total number of lines is the data logging trigger setting value.

\*2 Trigger occurrence count for 1 year is calculated with the anticipated count according to system operation.

### ■Header size for data logging (DCSn)

- For CSV format

Refer to the following section.

☞ Page 73 Data name line

- For binary format

Refer to the following section.

☞ Page 81 Data logging file

### ■Number of file switches for data logging for 1 year (DCNn)

This value is calculated by the data logging save setting and the anticipated count according to system operation.



## Event logging write size and count

The event logging write size and count can be found in the calculation formula in the following sections.

### ■1 record (line) size for event logging (ESn)

- For CSV format

Refer to the following section.

☞ Page 78 Data line

- For binary format

Refer to the following section.

☞ Page 84 Event logging file

### ■Number of written records (lines) for event logging for 1 year (ENn)

Use the event occurrence count anticipated according to system operation as the predicted value for the number of written records (lines).

### ■Header size for event logging (ECSn)

- For CSV format

Refer to the following section.

☞ Page 77 Data name line

- For binary format

Refer to the following section.

☞ Page 84 Event logging file

### ■Number of file switches for event logging for 1 year (ECNn)

This value is calculated by the Event logging files save setting and the anticipated count according to system operation.

## Report file size and number created

The report file size and number created can be found with the following calculation formula.

### ■Report file size (RSn)

	Calculation formula <sup>*1, *2</sup>
RSn	$=LS \times 4 + (SS+BS) \times 2$ $SS = SS_1 + \dots + SS_n$ $SS_n = (SN_n \times 2) + (SN_n \times 2) / 8192 \times 6$ $BS = BS_1 + \dots + BS_m$ $BS_m = (BN_m \times 4) + (BN_m \times 4) / 8192 \times 6$

\*1 Round up the results of division to a whole number.

\*2 The content of each data is as follows:

LS: Layout size (displayed in the report layout list screen)

SS: String type data additional size

SSn: Size of output range of nth string type data set in the layout setting

SNn: Size of nth string type data set in the layout setting

BS: Raw type data additional size

BSm: Size of output range of mth raw type data set in the layout setting

BNm: Size of mth raw type data set in the layout setting

### ■Number of reports created for 1 year (RNn)

This value is calculated by the report creation trigger setting and the anticipated count according to system operation.

# Appendix 11 Functions Added/Changed Since Previous Versions

## Added functions

The added functions of BOX Data Logger and BOX Data Logger Configuration Tool, and the serial number and software version corresponding to those added functions are shown below.

Added function	Location of setting	Upper five digits of BOX Data Logger serial number <sup>*1</sup>	BOX Data Logger Configuration Tool software version <sup>*1</sup>	Reference
Configuration tool (English version) is supported.	—	16042 or higher	1.01B or later	☞ Page 56 Operating Environment
Windows 8 is added to Operating Environment.	—			
Excel 2013 is added to Operating Environment.	—			
The following CPUs are added to Supported System. [CPU] SIEMENS • SIMATIC S7-200 • SIMATIC S7-300 • SIMATIC S7-400 • SIMATIC S7-1200 MITSUBISHI • Q04UDPVCPU • Q06UDPVCPU • Q13UDPVCPU • Q26UDPVCPU • Q24DHCCPU-LS • L02SCPU-P • L06CPU • L06CPU-P • L26CPU-P • FX3SCPU [Module] • LJ71E71-100	• [Common setting] ⇔ [Access target CPU]			☞ Page 454 CPU direct connection ☞ Page 566 CONNECTION TO SIEMENS PROGRAMMABLE CONTROLLER
The following CPUs are added to Supported System. [CPU] Rockwell • FlexLogix • ControlLogix • CompactLogix	• [Common setting] ⇔ [Access target CPU] • "Device Setting" screen	17021 or higher	1.02C or later	☞ Page 219 Device settings ☞ Page 239 Tag import ☞ Page 584 CONNECTION TO ROCKWELL PROGRAMMABLE CONTROLLER
Windows 10 is added to Operating Environment.	—	18042 or higher	1.03D or later	☞ Page 56 Operating Environment
Excel 2016 is added to Operating Environment.	—	20122 or higher	1.04E or later	☞ Page 56 Operating Environment

\*1 ☞: Functions that are not related to serial number or software version



# Appendix 12 Considerations When Replacing Older Version of BOX Data Logger


---


## Deleting temporary internet files

---

When BOX Data Logger is replaced, access the BOX Data Logger after deleting the temporary internet files of a web browser (cache).

For deleting temporary internet files, refer to the following:

Microsoft Edge:  Page 203 Deleting temporary internet files

Internet Explorer:  Page 204 Deleting temporary internet files

# MEMO

---

A

# INDEX

---

## 0 to 9

---

7-segment LED . . . . . 98,115,431

## A

---

Access authentication . . . . . 191,245,377  
Access authority . . . . . 191  
Access target CPU . . . . . 235,238,252,264  
Account setting . . . . . 191,245  
Administrator . . . . . 191,245  
Attached time (date) type . . . . . 299  
Auto logging . . . . . 25,182,248

## B

---

Binary file . . . . . 81  
BOX Data Logger Configuration Tool . . . . . 89,198  
Built-in Ethernet port QCPU . . . . . 25

## C

---

Comment . . . . . 312  
Common setting . . . . . 227  
CompactFlash card . . . . . 12,54,642  
Connectable model . . . . . 454  
Continuous logging . . . . . 124  
Creation trigger . . . . . 152,153,363  
CSV file . . . . . 71  
Current value . . . . . 148

## D

---

Data logging . . . . . 9,120  
Data logging file . . . . . 71,133  
Data logging setting . . . . . 258  
Data sampling . . . . . 142  
Daylight saving time . . . . . 181,232  
Diagnostics . . . . . 380  
Direct connection . . . . . 377  
DNS server . . . . . 230

## E

---

Edit items tree . . . . . 213  
E-mail . . . . . 146,195,242  
E-mail notification . . . . . 146  
Error code . . . . . 99,411  
Error log . . . . . 381  
Ethernet (twisted pair) cable . . . . . 54  
Event . . . . . 138,312  
Event condition . . . . . 139  
Event logging . . . . . 9  
Event logging file . . . . . 75  
Event logging function . . . . . 137  
Event logging setting . . . . . 305  
Excel . . . . . 56,147,345  
Export . . . . . 225

## F

---

File accessing function . . . . . 189

File browser . . . . . 189,395  
File switching . . . . . 133,294  
File transfer . . . . . 135,380  
Format . . . . . 71,81,644  
FTP server . . . . . 190,192,240  
Function version . . . . . 58

## G

---

GX Developer . . . . . 466,467,480,488,508,518

## H

---

Host name . . . . . 228,378

## I

---

Import . . . . . 223  
Index . . . . . 74  
Installation . . . . . 199  
Intelligent function module switch setting . . . . . 480  
IP address . . . . . 213,229,377  
Item . . . . . 210

## L

---

LED . . . . . 97,411  
Logging continuance . . . . . 99,184

## M

---

Mail server . . . . . 135,195  
Maintenance user . . . . . 191,245  
Missing data . . . . . 136  
Monitor . . . . . 380

## N

---

Network setting . . . . . 228  
Normal user . . . . . 191,245

## O

---

Offline startup . . . . . 202  
Online startup . . . . . 202  
Operating file . . . . . 12,226

## P

---

Password . . . . . 191,377  
Ping . . . . . 230,393,591  
Processing time . . . . . 9,400  
Product information . . . . . 59

## R

---

Recipe file . . . . . 79  
Record . . . . . 158  
Record attribute . . . . . 158  
Report . . . . . 9,147  
Report file . . . . . 154

Report setting . . . . .	340
Resend function . . . . .	193,196
Restoration value . . . . .	139,314

## S

---

Sampling . . . . .	122,123,152
Sampling interval . . . . .	122,263
Sampling method . . . . .	122
Saved file . . . . .	133,135
Scaling . . . . .	266
Self-diagnostics test . . . . .	113
Self-loopback test . . . . .	113
Sequence scan time . . . . .	400,403
Serial number . . . . .	58
Setting information CSV file . . . . .	225,597
SNTP server . . . . .	180,231
Status bar . . . . .	213
Storing file . . . . .	133,186

## T

---

Target data . . . . .	121,138,148
Time interval specification . . . . .	123,277
Time synchronization . . . . .	180,231,437
Time zone . . . . .	231
Tooltip . . . . .	214
Transfer completion notification function . . . . .	194
Transfer setup . . . . .	377
Trigger condition . . . . .	125
Trigger logging . . . . .	124

## U

---

UPS support . . . . .	40
User name . . . . .	191,213,377

## W

---

Wizard . . . . .	34,260,261,307,342
------------------	--------------------



# REVISIONS

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

Revision date	*Manual number	Description
March 2014	SH(NA)-081216ENG-A	First edition
August 2015	SH(NA)-081216ENG-B	■Added or modified parts TERMS, Section 1.1, Section 2.1, Section 3.2, Section 9.2, Section 9.5, Section 12.2, Section 12.3, Section 12.4, Section 12.6, Section 12.7, Section 17.2, Section 17.3, Section 18.4, Chapter 21, Appendix 6, Appendix 11
April 2016	SH(NA)-081216ENG-C	■Added or modified parts CONSIDERATIONS FOR USE, TERMS, Section 2.3, Section 10.4, Section 10.5, Section 11.2, Section 12.7, Section 11.3, Section 14.3, Section 17.3, Appendix 11
December 2018	SH(NA)-081216ENG-D	■Added or modified parts CONSIDERATIONS FOR USE, TERMS, Section 2.3, Section 6.3, Section 12.7, Section 17.3, Section 18.5, Section 19.4, Appendix 11
December 2020	SH(NA)-081216ENG-E	■Added or modified parts SAFETY PRECAUTIONS, CONDITIONS OF USE FOR THE PRODUCT, Appendix 10
September 2021	SH(NA)-081216ENG-F	■Added or modified part Appendix 8
July 2022	SH(NA)-081216ENG-G	■Added or modified parts CONSIDERATIONS FOR USE, Section 2.3, Section 3.2, Section 10.4, Section 10.6, Section 10.7, Section 11.3, Section 17.3, Appendix 12

Japanese manual number: SH-081212-H

This manual confers no industrial property rights or any rights of any other kind, nor does it confer any patent licenses.

Mitsubishi Electric Corporation cannot be held responsible for any problems involving industrial property rights which may occur as a result of using the contents noted in this manual.

© 2014 MITSUBISHI ELECTRIC CORPORATION



# 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.

# TRADEMARKS

---

Adobe, Acrobat, and Reader are either registered trademarks or trademarks of Adobe Systems Incorporated in the United States and/or other countries.

CompactFlash is either a registered trademark or a trademark of SanDisk Corporation.

Intel is either registered trademarks or trademarks of Intel Corporation in the United States and/or other countries.

Microsoft, Microsoft Edge, Excel, Windows, Windows Vista, and Windows XP are trademarks of the Microsoft group of companies.

The company names, system names and product names mentioned in this manual are either registered trademarks or trademarks of their respective companies.

In some cases, trademark symbols such as <sup>™</sup> or <sup>®</sup> are not specified in this manual.

# COPYRIGHTS

---

The screens (screenshots) are used in accordance with the Microsoft Corporation guideline.



SH(NA)-081216ENG-G(2207)KWIX

MODEL: NZ2DL-U-E

MODEL CODE: 13JZ90

## **MITSUBISHI ELECTRIC CORPORATION**

HEAD OFFICE : TOKYO BUILDING, 2-7-3 MARUNOUCHI, CHIYODA-KU, TOKYO 100-8310, JAPAN  
NAGOYA WORKS : 1-14, YADA-MINAMI 5-CHOME, HIGASHI-KU, NAGOYA, JAPAN

When exported from Japan, this manual does not require application to the  
Ministry of Economy, Trade and Industry for service transaction permission.

Specifications subject to change without notice.