MITSUBISHI ELECTRIC

Programmable Controller

MELSEC iQ-R series MELSEC iQ-F series MELSEC Q series

Camera Recording Package User's Manual

SAFETY PRECAUTIONS

(Read these precautions before using this product.)

Before using this product, please read this manual and the relevant manuals carefully and pay full attention to safety to handle the product correctly.

The precautions given in this manual are concerned with this product only. For the safety precautions of the programmable controller system, refer to the user's manual for the CPU module used.

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

⚠ **WARNING**	Indicates that incorrect handling may cause hazardous conditions, resulting in death or severe injury.
⚠ **CAUTION**	Indicates that incorrect handling may cause hazardous conditions, resulting in minor or moderate injury or property damage.

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

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

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

[Security Precautions]

⚠WARNING

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

CONDITIONS OF USE FOR THE PRODUCT

(1) MELSEC programmable controller ("the PRODUCT") shall be used in conditions;
i) where any problem, fault or failure occurring in the PRODUCT, if any, shall not lead to any major or serious accident; and
ii) where the backup and fail-safe function are systematically or automatically provided outside of the PRODUCT for the case of any problem, fault or failure occurring in the PRODUCT.

(2) The PRODUCT has been designed and manufactured for the purpose of being used in general industries.
MITSUBISHI ELECTRIC SHALL HAVE NO RESPONSIBILITY OR LIABILITY (INCLUDING, BUT NOT LIMITED TO ANY AND ALL RESPONSIBILITY OR LIABILITY BASED ON CONTRACT, WARRANTY, TORT, PRODUCT LIABILITY) FOR ANY INJURY OR DEATH TO PERSONS OR LOSS OR DAMAGE TO PROPERTY CAUSED BY the PRODUCT THAT ARE OPERATED OR USED IN APPLICATION NOT INTENDED OR EXCLUDED BY INSTRUCTIONS, PRECAUTIONS, OR WARNING CONTAINED IN MITSUBISHI ELECTRIC USER'S, INSTRUCTION AND/OR SAFETY MANUALS, TECHNICAL BULLETINS AND GUIDELINES FOR the PRODUCT.
("Prohibited Application")
Prohibited Applications include, but not limited to, the use of the PRODUCT in;
- Nuclear Power Plants and any other power plants operated by Power companies, and/or any other cases in which the public could be affected if any problem or fault occurs in the PRODUCT.
- Railway companies or Public service purposes, and/or any other cases in which establishment of a special quality assurance system is required by the Purchaser or End User.
- Aircraft or Aerospace, Medical applications, Train equipment, transport equipment such as Elevator and Escalator, Incineration and Fuel devices, Vehicles, Manned transportation, Equipment for Recreation and Amusement, and Safety devices, handling of Nuclear or Hazardous Materials or Chemicals, Mining and Drilling, and/or other applications where there is a significant risk of injury to the public or property.

Notwithstanding the above restrictions, Mitsubishi Electric may in its sole discretion, authorize use of the PRODUCT in one or more of the Prohibited Applications, provided that the usage of the PRODUCT is limited only for the specific applications agreed to by Mitsubishi Electric and provided further that no special quality assurance or fail-safe, redundant or other safety features which exceed the general specifications of the PRODUCTs are required. For details, please contact the Mitsubishi Electric representative in your region.

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

INTRODUCTION

Thank you for purchasing the Mitsubishi Electric programmable controllers.
This manual describes the specifications, procedures before operation, and troubleshooting of the Camera recording package.
Before using this product, please read this manual and the relevant manuals carefully and develop familiarity with the functions and performance of the Mitsubishi Electric programmable controllers to handle the product correctly.
Please make sure that the end users read this manual.

Point

GX VideoViewer is the upgraded version of Video Verification Tool.
When using Video Verification Tool, regard "GX VideoViewer" as "Video Verification Tool".

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RELEVANT MANUALS

Manual name [manual number]	Description	Available form
Camera Recording Package User's Manual [BCN-P5999-1324] (this manual)	Network camera settings, programmable controller settings, and function blocks for the camera recording function	e-Manual PDF
High Speed Data Logger Module User's Manual [SH-080818ENG]	Specifications and operations of the MELSEC-Q series high speed data logger module (QD81DL96) and settings for sampling data and events	Print book PDF
QnUCPU User's Manual (Communication via Built-in Ethernet Port) [SH-080811ENG]	Functions, programming, and devices of the CPU module	Print book PDF
QCPU User's Manual (Hardware Design, Maintenance and Inspection) [SH-080483ENG]	Specifications of the CPU modules, power supply modules, base units, extension cables, memory cards, SD memory cards, extended SRAM cassettes, and batteries, information on how to establish a system, maintenance and inspection, and troubleshooting	Print book PDF
MELSEC iQ-R CPU Module User's Manual (Startup) [SH-081263ENG]	Specifications, procedures before operation, and troubleshooting of the CPU module	Print book e-Manual PDF
MELSEC iQ-R CPU Module User's Manual (Application) [SH-081264ENG]	Memory, functions, devices, and parameters of the CPU module	Print book e-Manual PDF
MELSEC iQ-R Ethernet/CC-Link IE User's Manual (Startup) [SH-081256ENG]	Specifications, procedures before operation, system configuration, wiring, and communication examples of Ethernet, CC-Link IE Controller Network, and CC-Link IE Field Network	Print book e-Manual PDF
MELSEC iQ-R Ethernet User's Manual (Application) [SH-081257ENG]	Functions, parameter settings, programming, troubleshooting, I/O signals, and buffer memory of Ethernet	Print book e-Manual PDF
MELSEC iQ-R System Recorder User's Manual (Startup) [SH-082279ENG]	Specifications, procedure before operation, and system configuration of System Recorder, and specifications of the recorder module	Print book e-Manual PDF
MELSEC iQ-R System Recorder User's Manual (Application) [SH-082281ENG]	Functions, parameter settings, recording settings, and troubleshooting of System Recorder, and detailed specifications of the recorder module	Print book e-Manual PDF
MELSEC iQ-F FX5 User's Manual (Application) [JY997D55401]	Basic knowledge about programming, functions of the CPU module, devices/labels, and parameter settings	Print book
MELSEC iQ-F FX5 User's Manual (Ethernet Communication) [JY997D56201]	Ethernet communication function of the CPU module and the Ethernet module	Print book
Video Verification Tool Operating Manual [BCN-P5999-1327]	Basic operating procedure of Video Verification Tool and playback procedure of video files	e-Manual PDF
GX Works2 Version 1 Operating Manual (Common) [SH-080779ENG]	System configuration, parameter settings, and online operations of GX Works2, which are common to Simple projects and Structured projects	Print book PDF
GX LogViewer Version 1 Operating Manual [SH-080915ENG]	System configuration, functions, and operations of GX LogViewer	Print book e-Manual PDF
GX Works3 Operating Manual [SH-081215ENG]	System configuration, parameter settings, and online operations of GX Works3	e-Manual PDF
GX VideoViewer Version 1 Operating Manual [SH-082370ENG]	Basic operating procedure of GX VideoViewer and playback procedure of video files	e-Manual PDF

Point

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

e-Manual has the following features:

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

TERMS

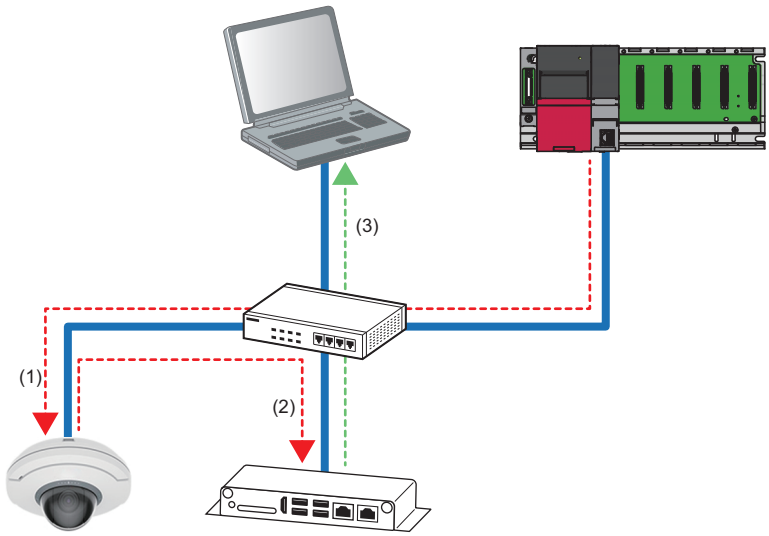
Unless otherwise specified, this manual uses the following terms.

Term	Description
GX VideoViewer	A tool for playing back video files recorded with the Camera recording package. Video Verification Tool was upgraded and renamed GX VideoViewer.
Recording event	A sequence of operations from when a video file is generated to the video file is saved into a desired storage based on the settings in a network camera
Recording trigger	A trigger that executes video recording
Video Verification Tool	A tool for playing back video files recorded with the Camera recording package
Virtual input port	A virtual port that supports built-in Ethernet of network cameras manufactured by Axis Communications

1 OVERVIEW

1.1 Overview of Camera Recording Package

The Camera recording package is a solution to realize a recording system by using dedicated FBs for a network camera connected with an Ethernet port. This product provides the FB library for operating the system mentioned earlier and the setting procedure of the network camera.



(1) A recording trigger is turned on from the programmable controller to the network camera.
(2) The network camera saves a video file into a network storage.
(3) The video file can be played back using GX VideoViewer.

Point

Video files that are generated with this product can be checked using GX VideoViewer. For GX VideoViewer, refer to the following.

GX VideoViewer Version 1 Operating Manual

1.2 FB Library List

The following tables list the FB libraries included in this product for each corresponding device.

MELSEC iQ-R series CPU module (built-in Ethernet port part)

Function name	Name*1	Description
Time setting	M+CameraRecord_AXIS_SetTime_R	Sets the clock data of the CPU module to the network camera connected to the Ethernet port.
Recording direction	M+CameraRecord_AXIS_EventTrigger_R	Records video for a specific period of time before and after a recording trigger on the network camera connected to the Ethernet port.
Virtual input port control	M+CameraRecord_AXIS_VirtualInputControl_R	Controls the virtual input port status of the network camera connected to the Ethernet port to record video while a recording trigger is on or before and after a recording trigger is turned on. (Use this function mainly for recording video while a recording trigger is on.)

*1 An FB name ends with the FB version information such as "_00A", but it is left out in this manual.

MELSEC iQ-R series (RJ71EN71, RnENCPU (network part))

Function name	Name*1	Description
Time setting	M+CameraRecord-E_AXIS_SetTime_R	Sets the clock data of the CPU module to the network camera connected to the Ethernet port.
Recording direction	M+CameraRecord-E_AXIS_EventTrigger_R	Records video for a specific period of time before and after a recording trigger on the network camera connected to the Ethernet port.
Virtual input port control	M+CameraRecord-E_AXIS_VirtualInputControl_R	Controls the virtual input port status of the network camera connected to the Ethernet port to record video while a recording trigger is on or before and after a recording trigger is turned on. (Use this function mainly for recording video while a recording trigger is on.)

*1 An FB name ends with the FB version information such as "_00A", but it is left out in this manual.

MELSEC iQ-F series CPU module

Function name	Name*1	Description
Time setting	M+CameraRecord_AXIS_SetTime_F	Sets the clock data of the CPU module to the network camera connected to the Ethernet port.
Recording direction	M+CameraRecord_AXIS_EventTrigger_F	Records video for a specific period of time before and after a recording trigger on the network camera connected to the Ethernet port.
Virtual input port control	M+CameraRecord_AXIS_VirtualInputControl_F	Controls the virtual input port status of the network camera connected to the Ethernet port to record video while a recording trigger is on or before and after a recording trigger is turned on. (Use this function mainly for recording video while a recording trigger is on.)

*1 An FB name ends with the FB version information such as "_00A", but it is left out in this manual.

MELSEC-Q series CPU module

Function name	Name	Description
Time setting	M+CPU-CamRec_AXIS_SetTime	Sets the clock data of the CPU module to the network camera connected to the Ethernet port.
Recording direction	M+CPU-CamRec_AXIS_ETrigger	Records video for a specific period of time before and after a recording trigger on the network camera connected to the Ethernet port.
Virtual input port control	M+CPU-CamRec_AXIS_VIControl	Controls the virtual input port status of the network camera connected to the Ethernet port to record video while a recording trigger is on or before and after a recording trigger is turned on. (Use this function mainly for recording video while a recording trigger is on.)

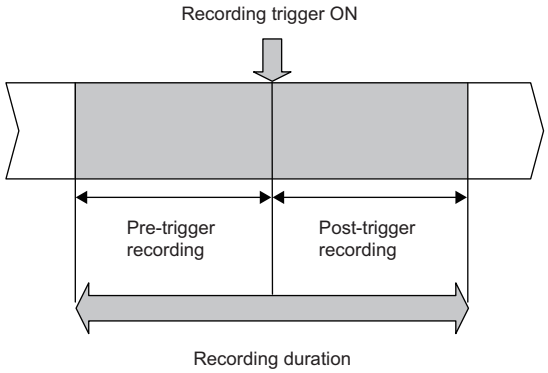
■Subroutine FB

These FBs are the subroutine FBs used in the FB for time setting, recording instruction, and virtual input port control for the MELSEC-Q series.

Function name	Name
Line feed instruction	M+CRLF
Calculation for digest approval	M+MD5
Word data lower-case character conversion	M+Smalltext

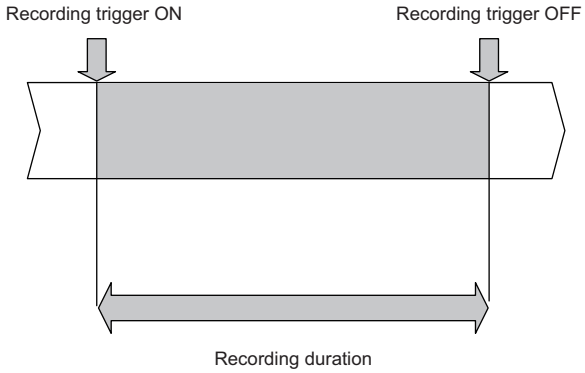
Ex.

Video recording before and after a recording trigger is turned on (Recording direction) (Virtual input port control)



Ex.

Video recording while a recording trigger is on (Virtual input port control)



Point

- For the MELSEC iQ-R series, by synchronizing the time of the network camera and the programmable controller, video files and the data acquired by the recorder module can be aligned and checked on a common time axis. For the modules and the tool, refer to the following.

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

📖 GX VideoViewer Version 1 Operating Manual

- For the MELSEC iQ-F series, by synchronizing the time of the network camera and the programmable controller, video files and the data acquired by the CPU module can be aligned and checked on a common time axis. For the modules and the tool, refer to the following.

📖 MELSEC iQ-F FX5 User's Manual (Application)

📖 GX LogViewer Version 1 Operating Manual

📖 GX VideoViewer Version 1 Operating Manual

- For the MELSEC-Q series, by synchronizing the time of the network camera and the programmable controller, video files and the data acquired by the high speed data logger module can be aligned and checked on a common time axis. For the modules and the tool, refer to the following.

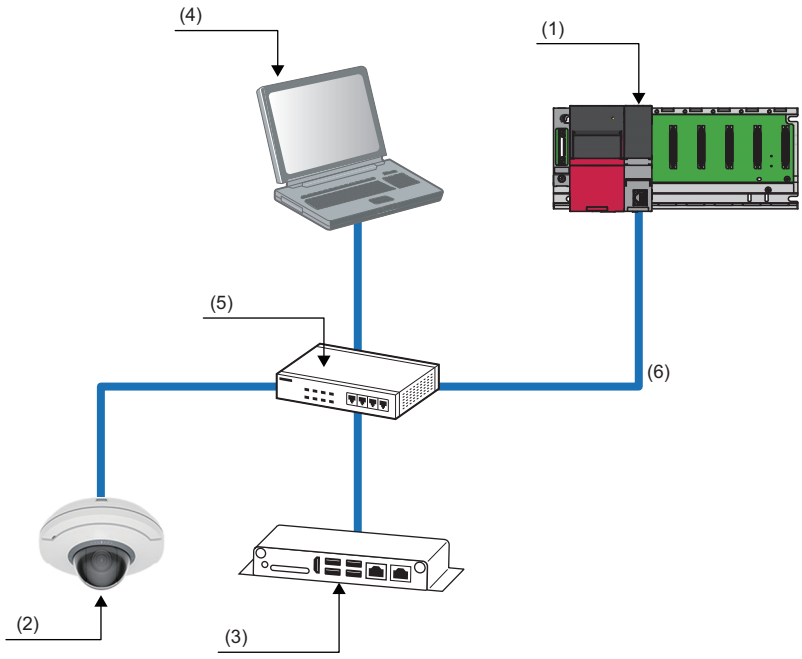
📖 High Speed Data Logger Module User's Manual

📖 GX LogViewer Version 1 Operating Manual

📖 GX VideoViewer Version 1 Operating Manual

2 SYSTEM CONFIGURATION

This section describes the system configuration in which the Camera recording package is used.



No.	Device name	Description
(1)	Programmable controller	☞ Page 13 Compatible Programmable Controllers
(2)	Network camera	• Ethernet-connectable camera (📖 Network cameras supporting the Camera recording package (FA-A-0306)) • The number of connectable network cameras varies depending on the number of simultaneous open TCP/IP connections. For details, refer to the following. 📖 MELSEC iQ-R Ethernet/CC-Link IE User's Manual (Startup) 📖 MELSEC iQ-F FX5 User's Manual (Ethernet Communication) 📖 QnUCPU User's Manual (Communication via Built-in Ethernet Port)
(3)	Network storage	Storage for saving video files
(4)	Personal computer	• Used to set the network camera, write programs, and play back video files. • For the operating environment, refer to the following. 📖 GX Works3 Installation Instructions 📖 GX Works2 Installation Instructions • When using GX VideoViewer, refer to the following. 📖 GX VideoViewer Version 1 Operating Manual
(5)	PoE switching hub	A switching hub capable of PoE power supply
(6)	Ethernet (twisted pair) cable	For the compatible Ethernet cables, refer to the manual for the device to be used.

Point

- The IP address needs to be set for the programmable controller, network camera, and network storage. Set all the IP addresses into the same segment.
- When multiple network cameras are connected simultaneously, connect multiple external storages. A single external storage may be insufficient for saving video files.
- In the MELSEC iQ-R series/MELSEC-Q series programmable controller, up to 16 network cameras can be used at the same time.
- In the MELSEC iQ-F series programmable controller, up to 8 network cameras can be used at the same time.

2.1 Compatible Programmable Controllers

The following table lists the programmable controllers capable of using the FBs of the Camera recording package.

MELSEC iQ-R series CPU module (built-in Ethernet port part)

Module	Model
Programmable controller CPU	R00CPU*1
	R01CPU*1
	R02CPU*1
	R04CPU*2
	R08CPU*2
	R16CPU*2
	R32CPU*2
	R120CPU*2
	R04ENCPU
	R08ENCPU
	R16ENCPU
	R32ENCPU
	R120ENCPU

*1 These CPU modules cannot be used together with a recorder module.
*2 The compatible firmware version is "10" or later.

MELSEC iQ-R series (RJ71EN71, RnENCPU (network part))

Module	Model
Programmable controller CPU	R04ENCPU*1
	R08ENCPU*1
	R16ENCPU*1
	R32ENCPU*1
	R120ENCPU*1
Ethernet module	RJ71EN71*2

*1 Only connection numbers from 17 to 64 can be used.
*2 Only connection numbers from 17 to 128 can be used.

MELSEC iQ-F series CPU module

Module	Model
Programmable controller CPU	FX5SCPU
	FX5UJCPU
	FX5UCPU*1
	FX5UCCPU*1

*1 The compatible firmware version is "1.220" or later.

MELSEC-Q series CPU module

Module	Model
High-speed Universal model QCPU	Q03UDVCPU
	Q04UDVCPU
	Q06UDVCPU
	Q13UDVCPU
	Q26UDVCPU

2.2 Compatible Network Cameras

For the network cameras that can communicate using the FBs of the Camera recording package, refer to the following.

Network cameras supporting the Camera recording package (FA-A-0306)

3 PROCEDURES BEFORE OPERATION

This section describes the procedures preceding operation of the video recording system using this camera recording package by each model.

MELSEC iQ-R series/MELSEC iQ-F series CPU module (built-in Ethernet port part)

1. Configure the settings on the network camera side. (☞ Page 16 NETWORK CAMERA SETTINGS)
2. Configure the settings on the programmable controller side. (☞ Page 27 MELSEC iQ-R Series/MELSEC iQ-F Series CPU Module (Built-in Ethernet Port Part))
3. Connect the devices shown in the system configuration. (☞ Page 30 Connection of devices)
4. Create a program with the FBs of the Camera recording package and execute it. (☞ Page 31 Creating a program)
5. A video file will be generated in the network storage.
6. Play back the generated video file. (☞ Page 60 PLAYBACK OF VIDEO FILES)

MELSEC iQ-R series (RJ71EN71, RnENCPU (network part))

1. Configure the settings on the network camera side. (☞ Page 16 NETWORK CAMERA SETTINGS)
2. Configure the settings on the programmable controller side. (☞ Page 38 MELSEC iQ-R Series RJ71EN71, RnENCPU (Network Part))
3. Connect the devices shown in the system configuration. (☞ Page 41 Connection of devices)
4. Create a program with the FBs of the Camera recording package and execute it. (☞ Page 42 Creating a program)
5. A video file will be generated in the network storage.
6. Play back the generated video file. (☞ Page 60 PLAYBACK OF VIDEO FILES)

MELSEC-Q series CPU module

1. Configure the settings on the network camera side. (☞ Page 16 NETWORK CAMERA SETTINGS)
2. Configure the settings on the programmable controller side. (☞ Page 48 MELSEC-Q Series CPU Module)
3. Connect the devices shown in the system configuration. (☞ Page 51 Connection of devices)
4. Create a program with the FBs of the Camera recording package and execute it. (☞ Page 52 Creating a program)
5. A video file will be generated in the network storage.
6. Play back the generated video file. (☞ Page 60 PLAYBACK OF VIDEO FILES)

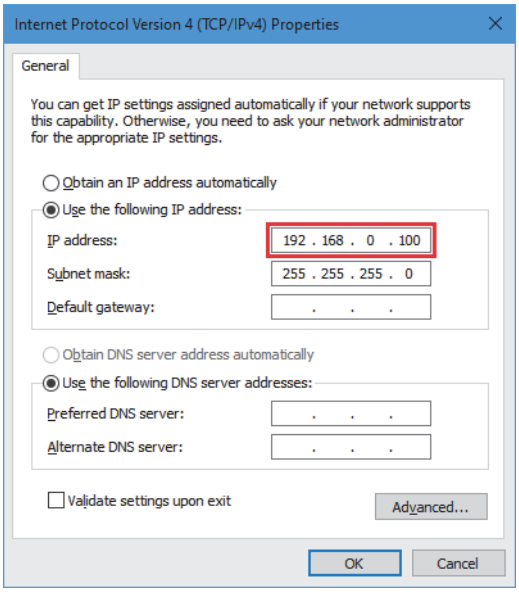
4 NETWORK CAMERA SETTINGS

This section describes the network camera settings. (The actual setting windows may differ from those in the procedure.)

4.1 Initial Start-up Settings for Network Camera

Use a web browser to configure the network camera. When the network camera is started up for the first time, network settings such as the IP address setting are required. At the second and subsequent start-up, the camera can be accessed by entering the password.

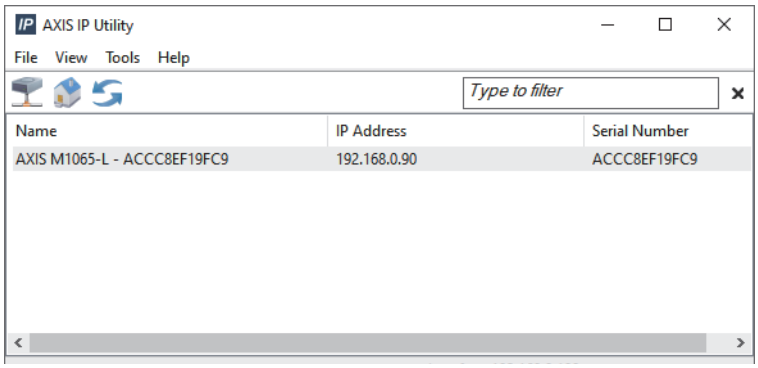
1. Set the IP address of the personal computer so that it is set in the same segment as the IP address of the network camera to be connected.



Point

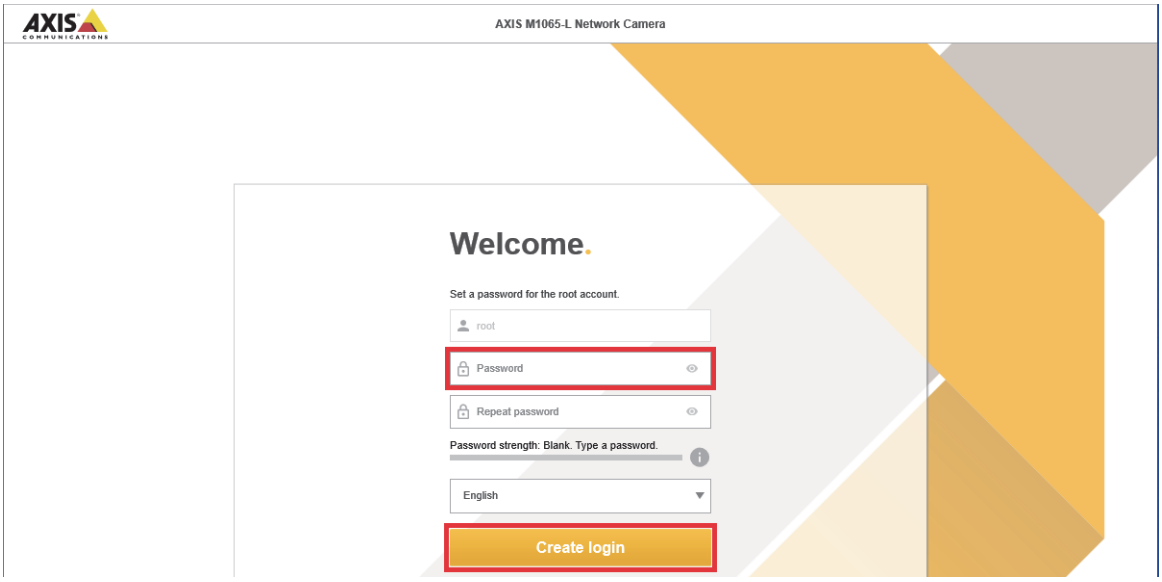
When the IP address of the network camera is unknown, check it on the network by using AXIS IP Utility. AXIS IP Utility can be downloaded from the following URL.

www.axis.com/en



2. Enter the IP address of the network camera in a web browser.

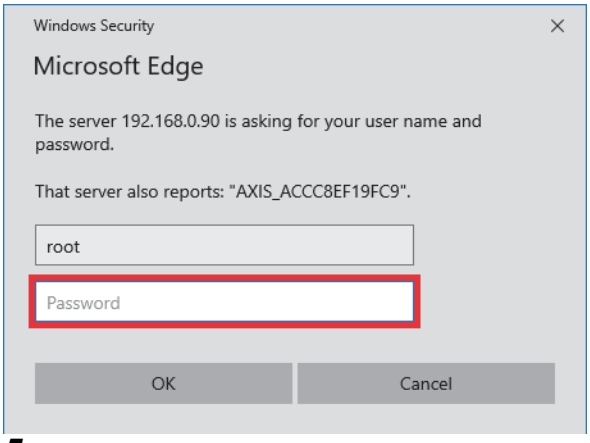
3. When the web server is accessed, the administrator password setting window is displayed.
Set a password and the language, and click the [Create login] button.



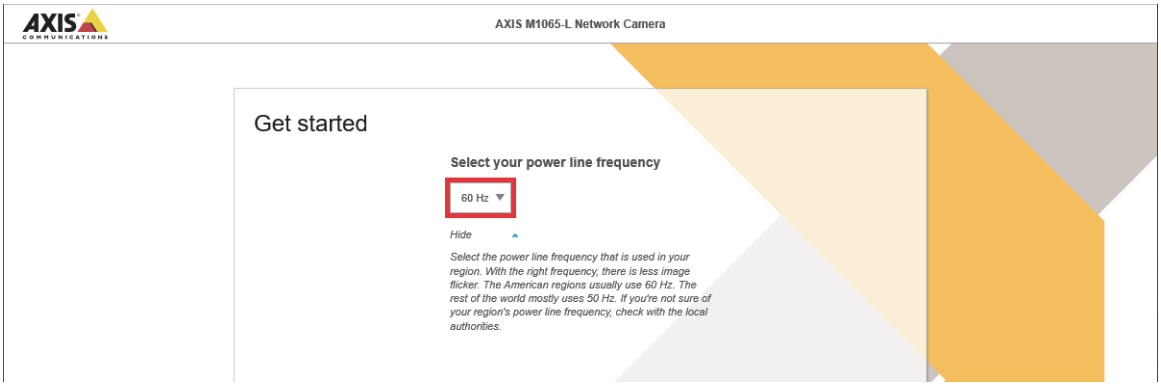
Restriction

- The password should be within 4 to 64 characters.
- Do not use "$" in the password.

4. Log in to the network camera.
Enter the user name and the password set in step 3 to log into the network camera. The user name and password are required for subsequent login to the network camera.

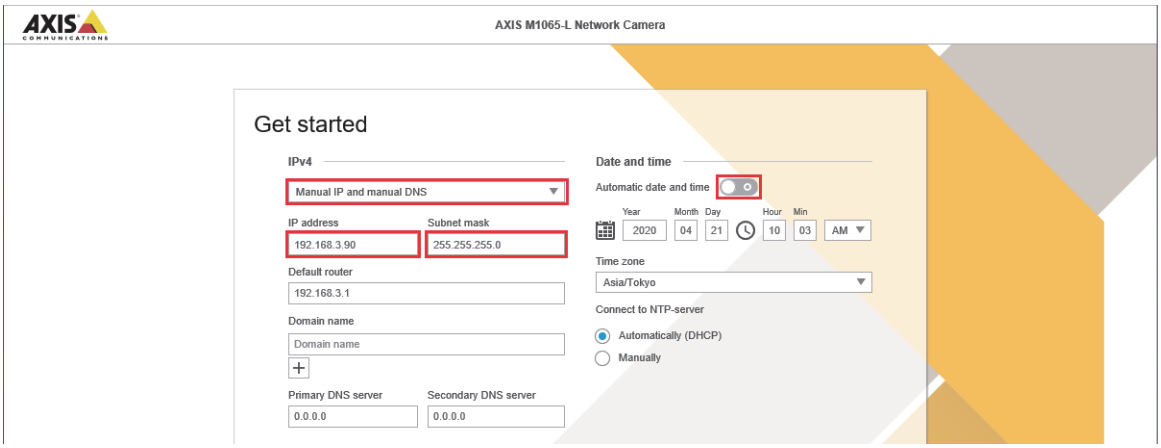


5. Set the power line frequency and other items in accordance with the environment to be used.



6. Configure the settings as follows.

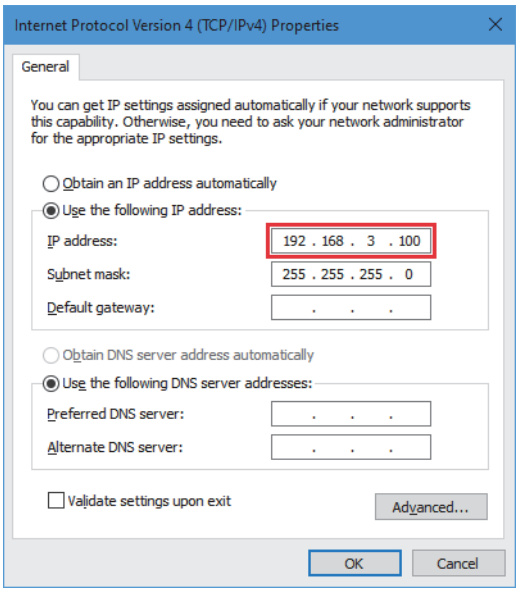
- Set "IPv4" to "Manual IP and manual DNS", and set desired network parameters. Set the IP address and subnet mask in the same segment as the programmable controller and network storage.
- Turn off "Automatic date and time" and set the time manually.



Point

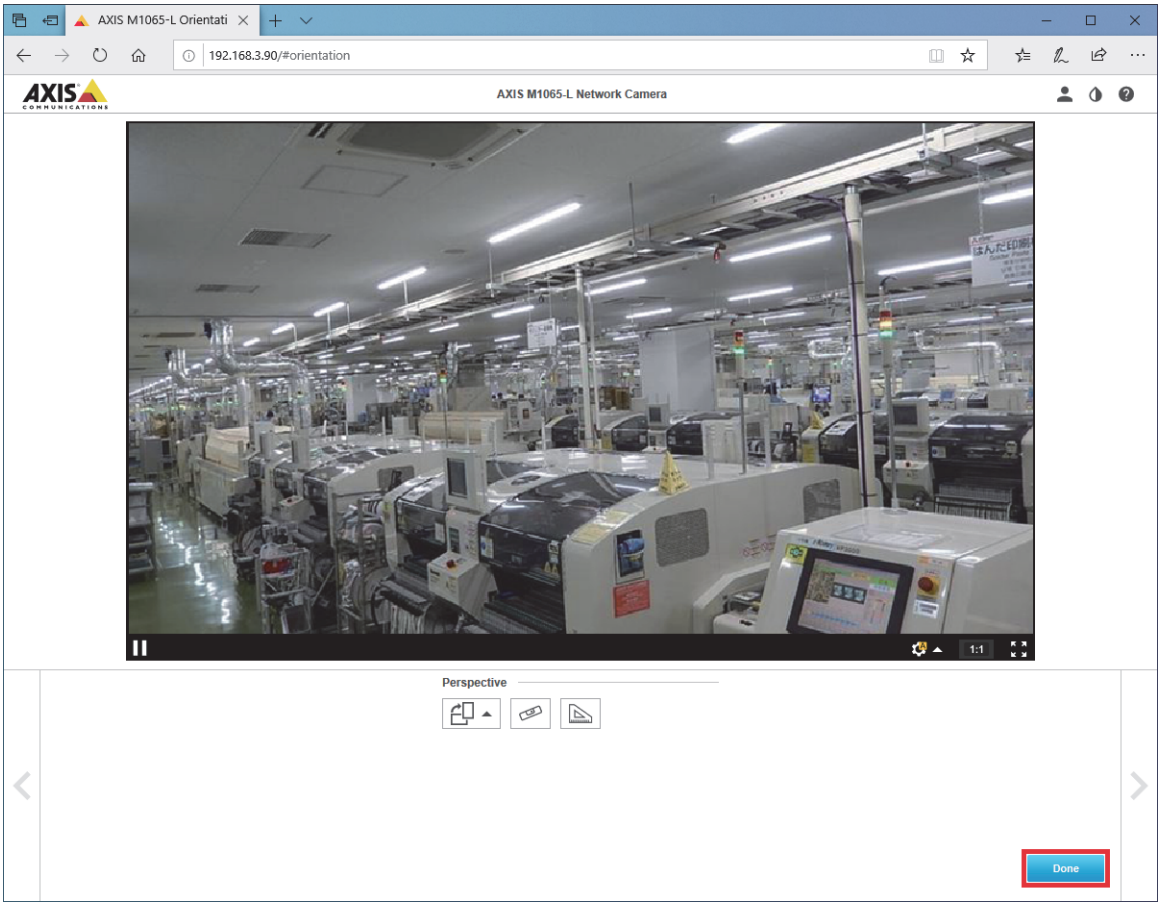
- When an NTP server is present in the same segment as the programmable controller, turn on "Automatic date and time" and perform the time synchronization setting from the NTP server. In that case, the time setting FB is not required.
- If the "Date and time" settings section does not appear, set them after completing the initial start-up settings.

7. If the access to the web server is denied due to the network settings of the network camera, set the IP address of the personal computer again so that it is set in the same segment as the network camera set in step 6.



8. Enter the IP address of the network camera in the web browser, and access the web server again.

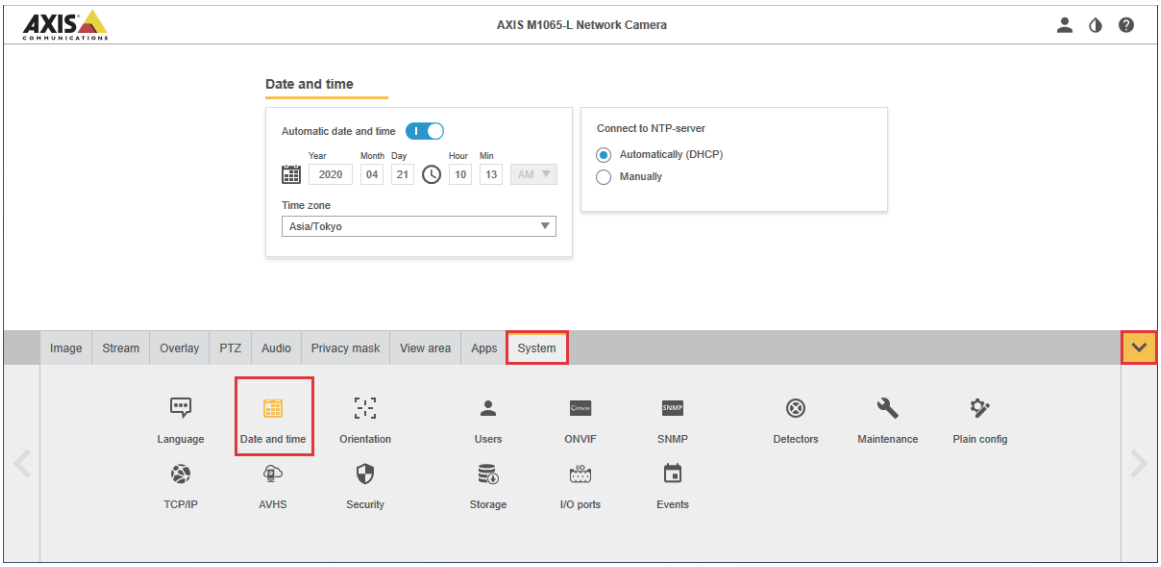
9. The live view window is displayed. Adjust the installation position of the network camera by checking the image, and click the [Done] button.



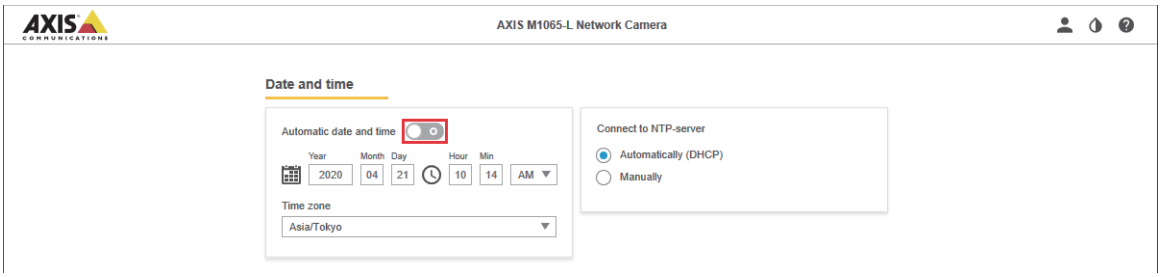
4.2 Date and Time Settings

Set the date and time of the network camera. These settings are not required if they have already been set at initial startup.

1. From the live view window, select [Settings] ⇨ [System] ⇨ [Date and time].



2. Turn off "Automatic date and time" and set the time manually.



Point

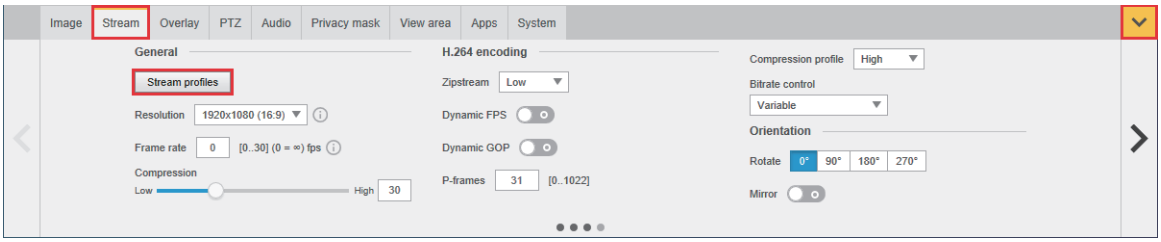
When an NTP server is present in the same segment as the programmable controller, turn on "Automatic date and time" and perform the time synchronization setting from the NTP server. In that case, the time setting FB is not required.

4.3 Recording Event Settings

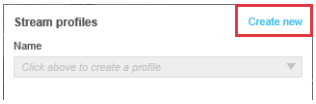
Configure the recording event settings. These settings use a virtual input as a trigger to save generated video files into a desired network storage.

Profile settings

1. From the live view window, select [Settings] ⇨ [Stream] ⇨ [Stream profiles].

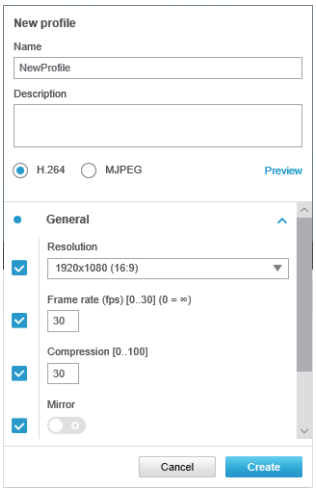


2. From the "Stream profiles" window, click [Create New].



3. Enter any name for the profile.

4. Set items such as resolution, and click [Create].



■Profile specifications

Set the profile to any of the following.

Compression format	Resolution	Frame rate*1
• H.264 • MJPEG	• 1920 × 1080 (16:9) • 1280 × 720 (16:9) • 640 × 480 (4:3) • 320 × 240 (4:3)	120, 100, 60, 50, 30, 25, 15, 10

*1 The maximum frame rate varies by network camera model. For details, refer to the datasheet of the network camera used.

Point

When video is recorded at a high frame rate or a high resolution, the "Prebuffer" (pre-trigger recording time) video may not be recorded for the specified duration. In such a case, adjust the items as follows.

- Set the compression format to "H.264".
- Decrease the resolution.
- Decrease the frame rate.
- Decrease the maximum bit rate.
- Shorten the pre-buffer time. (☞ Page 23 Rule settings)

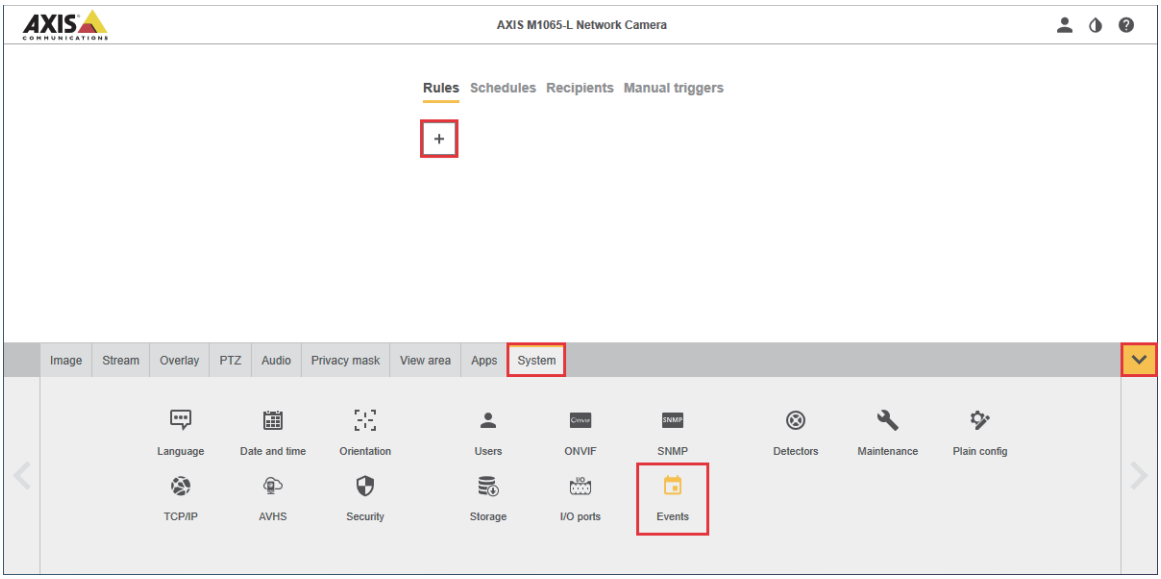
Restriction

When the compression format is set to "MJPEG", the video file cannot be replayed on Windows® 10 IoT Enterprise 2016 LTSB and the following MELIPC products:

- MI5122-VW
- MI3321G-W
- MI3315G-W
- MI2012-W
- MI2012-W-CL

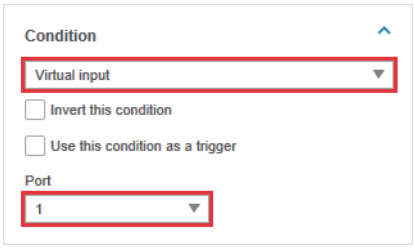
Rule settings

1. From the live view window, select [Settings] ⇨ [System] ⇨ [Events]. Click the [+] button to create a rule.



2. Set any name for the rule.

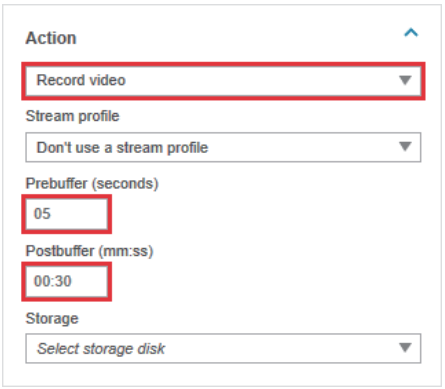
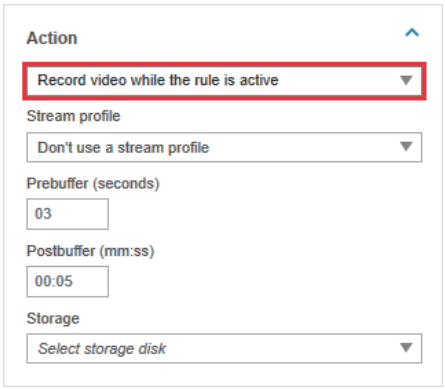
3. In "Condition", select "Virtual input". In "Port", select any number from 1 to 32.



Point

The value set in "Port" is specified as the virtual input port number of the FB library.

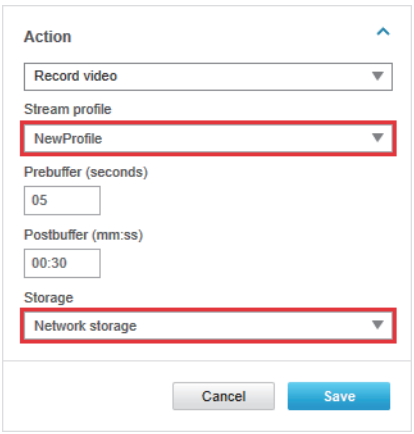
4. Set "Action". Content to be set varies depending on the recording method.

Video recording before and after the recording trigger	Video recording while the recording trigger is on
• Select "Record video". • Set a desired pre-event recording time in "Prebuffer". • Set a desired post-event recording time in "Postbuffer".	Select "Record video while the rule is active".
	

Point

If a duration specified in "Prebuffer" is long, video may not be recorded for the specified duration depending on the performance of the network camera used. Before actual use, verify the operation to ensure that video is recorded for the duration specified in the settings.

5. Set the created stream profile, and select "Network storage" for "Storage".



6. Click the [Save] button to set the rules.

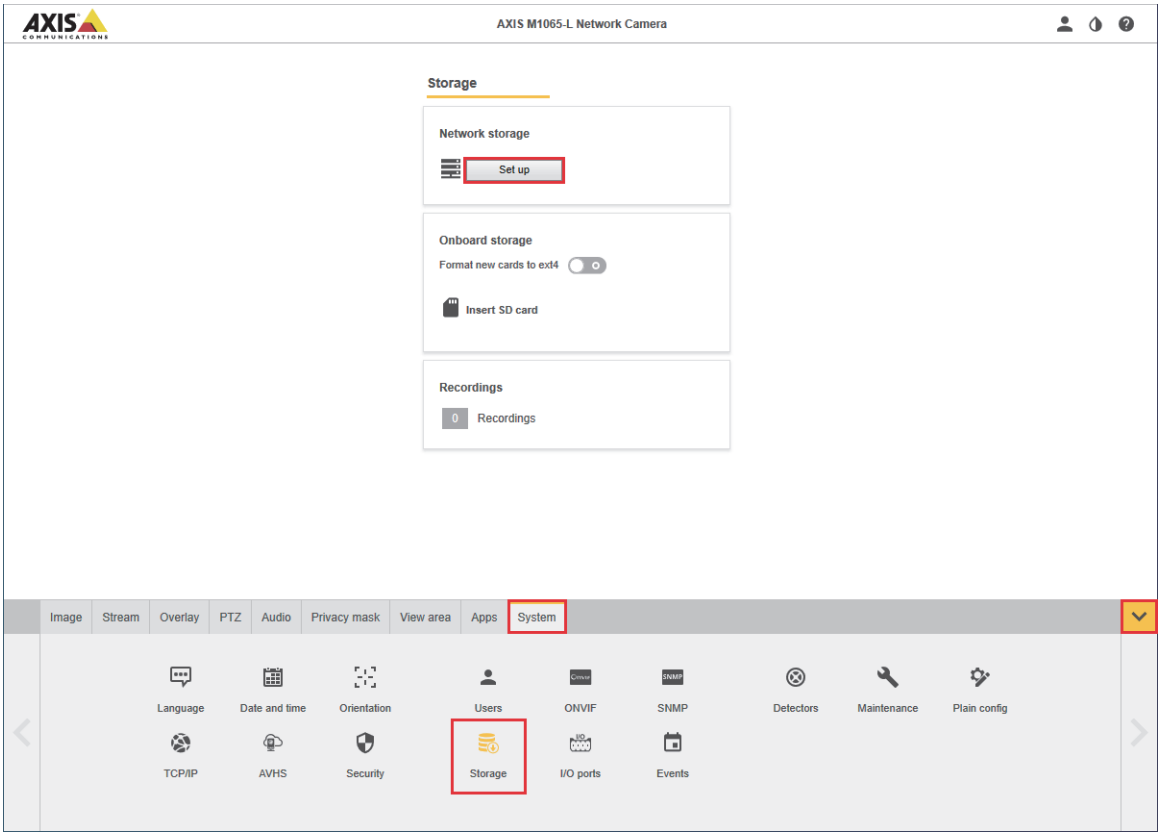
Point

When "SD card" is selected for "Storage", although video files are recorded in the SD memory card, they cannot be played back on GX VideoViewer.

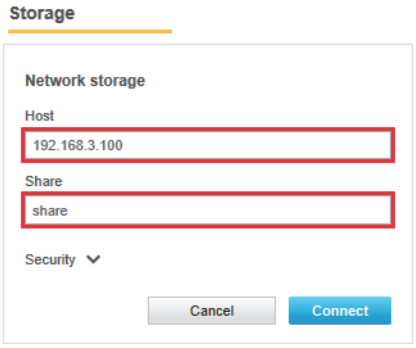
Save destination settings

1. Set the save destination of video files.

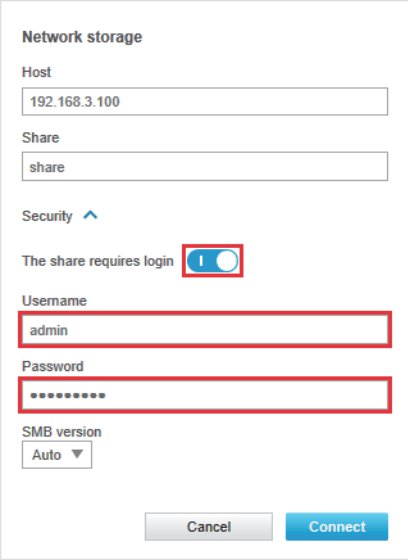
Select [Settings] ⇨ [System] ⇨ [Storage], and click the [Set up] button under "Network storage".



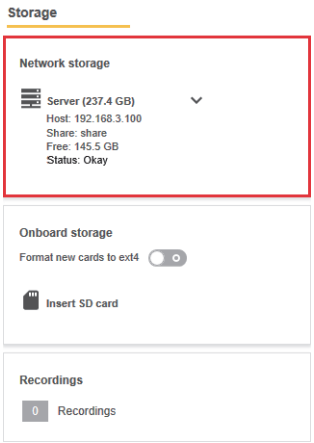
2. Enter the IP address of the network storage in "Host" and the common folder name in "Share".



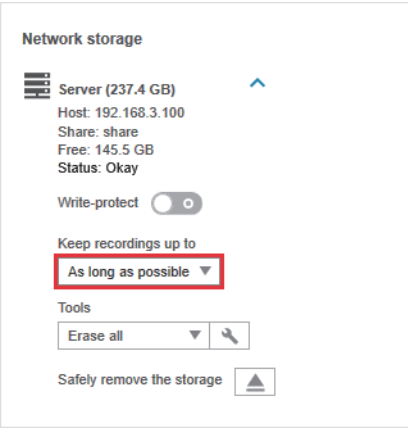
3. When login to the network storage is required, select "The share requires login" and enter the login ID of the network storage in "Username" and the password in "Password".



4. Click the [Connect] button to display the network storage status.
If the connection fails, review the settings from step 2 or check the communication method between the network camera and network storage.



5. Set the save period for the video files in "Keep recordings up to".



Point

When the network storage is out of space, the old network files will be deleted regardless of the specified save period.

5 PROGRAMMABLE CONTROLLER SETTINGS

This section describes the programmable controller settings.

5.1 MELSEC iQ-R Series/MELSEC iQ-F Series CPU Module (Built-in Ethernet Port Part)

Point

In this section, MELSEC iQ-R series setting windows and FB libraries are used as examples to explain the setting procedures.

Ethernet port settings

Configure the Ethernet port settings using GX Works3.

Own node settings

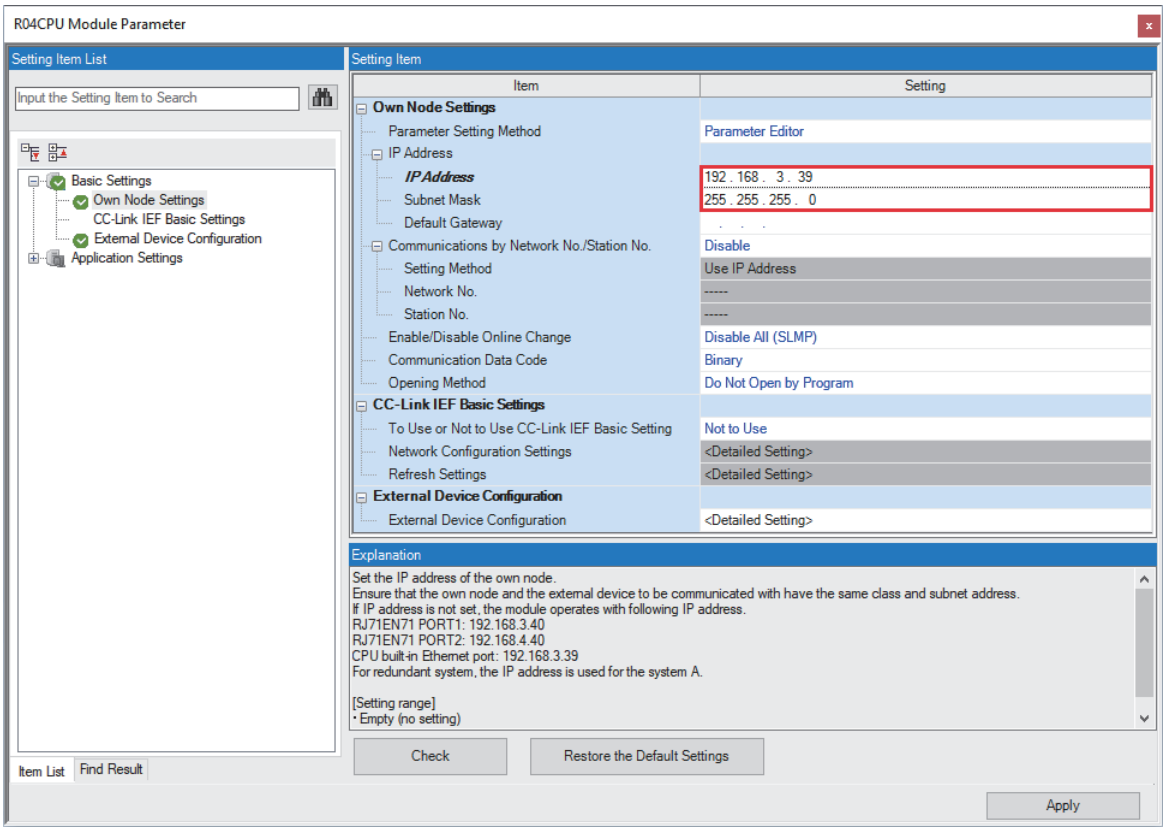
- For MELSEC iQ-R series

[Navigation window] ⇨ [Parameter] ⇨ Module to be used ⇨ [Module Parameter] ⇨ [Basic Settings] ⇨ [Own Node Settings]

- For MELSEC iQ-F series

[Navigation window] ⇨ [Parameter] ⇨ Module to be used ⇨ [Module Parameter] ⇨ [Ethernet Port] ⇨ [Basic Settings] ⇨ [Own Node Settings]

1. Set the IP address and subnet mask of a module to be used.



Point

Set the IP address in the same segment as the network camera.

External device configuration

Set the network camera to be connected.

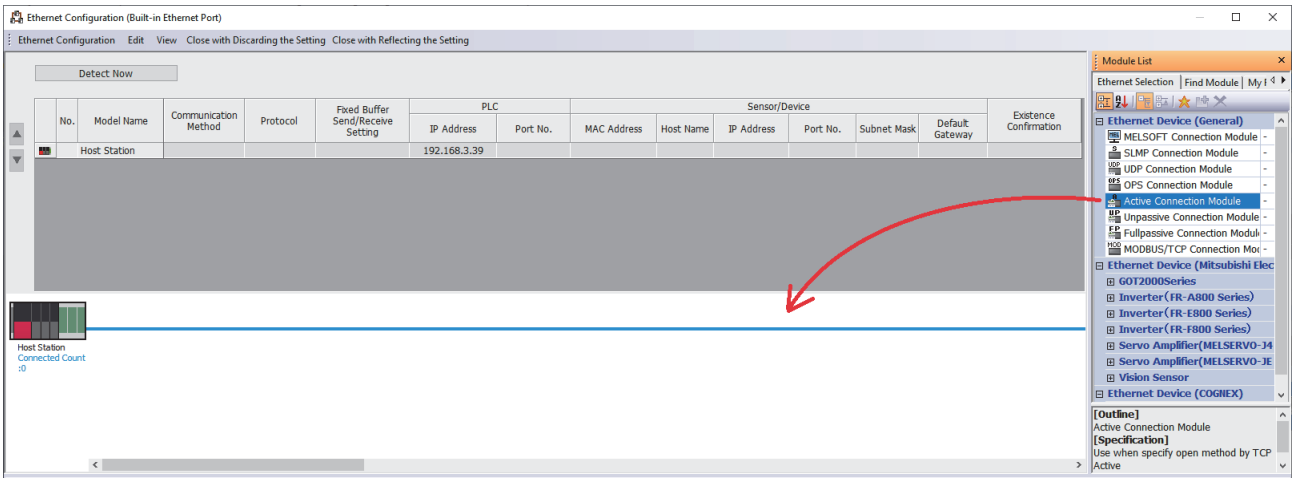
- For MELSEC iQ-R series

[Navigation window] ⇨ [Parameter] ⇨ Module to be used ⇨ [Module Parameter] ⇨ [Basic Settings] ⇨ [External Device Configuration]

- For MELSEC iQ-F series

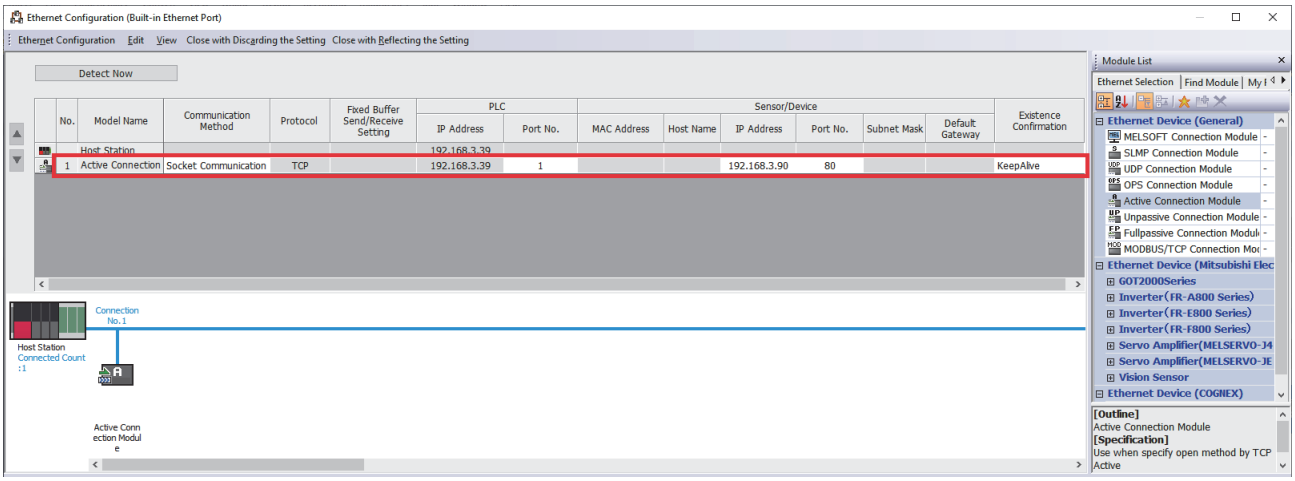
[Navigation window] ⇨ [Parameter] ⇨ Module to be used ⇨ [Module Parameter] ⇨ [Ethernet Port] ⇨ [Basic Settings] ⇨ [External Device Configuration]

1. From "Module List", select "Active Connection Module" and drag and drop it to "List of devices" or "Device map area".



2. For the selected "Active Connection Module", configure the following.

- Communication Method (Socket Communication)
- Port No. of PLC (1 to 4999, 5010 to 65534)
- IP Address of Sensor/Device (IP address of the network camera)
- Port No. of Sensor/Device (80)
- Existence Confirmation (KeepAlive)



Point

- A PLC port number from 1 to 1023 is used as a reserved port number (WELL KNOWN PORT NUMBERS) generally, and a number from 61440 to 65534 is used in other communication functions. A number from 1024 to 4999 or 5010 to 61439 is recommended.
- Set 80 to the port number of sensor/device.

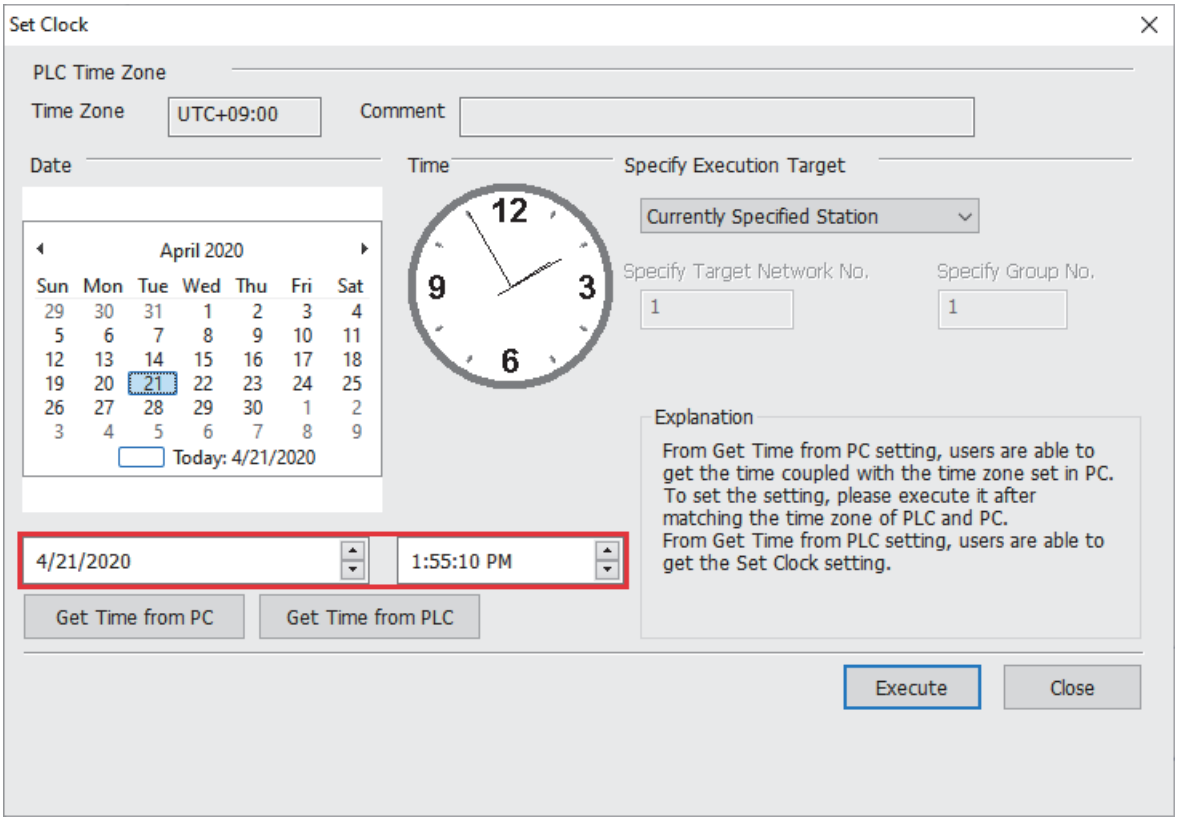
3. Click the [Close with Reflecting the Setting] button and click the [Apply] button in the module parameter.

Clock settings

Set clock data of the programmable controller.

[Online] ⇨ [Set Clock]

1. Check and enter the time, and click [Execute].



Point

This setting is not required if the time synchronization by the NTP server has been set on the network camera side. For details on the time setting function (SNTP client) of CPU modules, refer to the following.

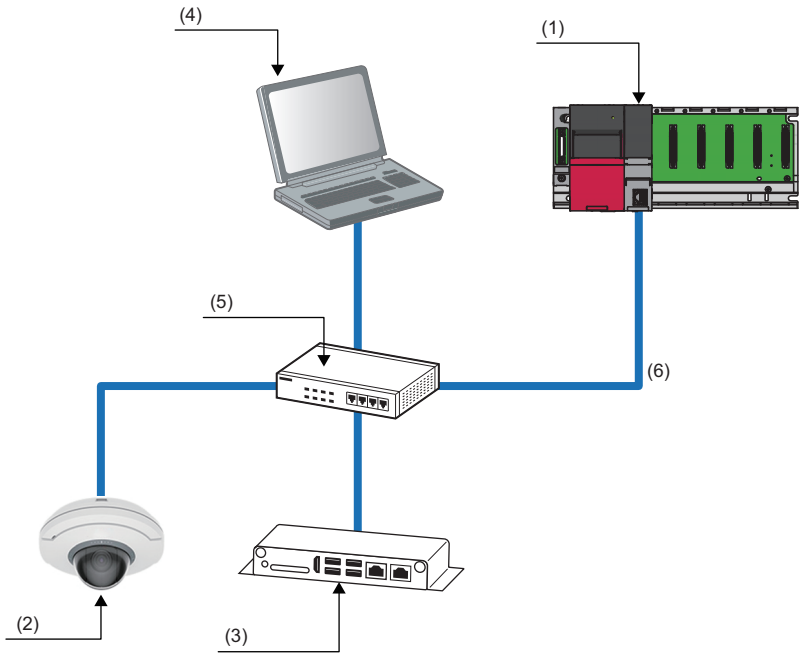
MELSEC iQ-R Ethernet User's Manual (Application)

MELSEC iQ-F FX5 User's Manual (Ethernet Communication)

Connection of devices

Connect the devices shown in the system configuration. (☞ Page 12 SYSTEM CONFIGURATION)

Ex.



No.	Device name	Setting details
(1)	R04CPU	• IP address: 192.168.3.39 (Default) • Subnet mask: 255.255.255.0
(2)	Network camera manufactured by Axis Communications	• IP address: 192.168.3.90 • Subnet mask: 255.255.255.0 • Default router: 192.168.3.254 • User ID: root • Password: Pass1234 • Virtual input port: 9
(3)	MELIPC MI1000 (Network storage)	• IP address: 192.168.3.30 • User ID: admin • Password: PW1234
(4)	Personal computer (Windows®10)	IP address: 192.168.3.100
(5)	PoE switching hub	—
(6)	Ethernet (twisted pair) cable	—

Creating a program

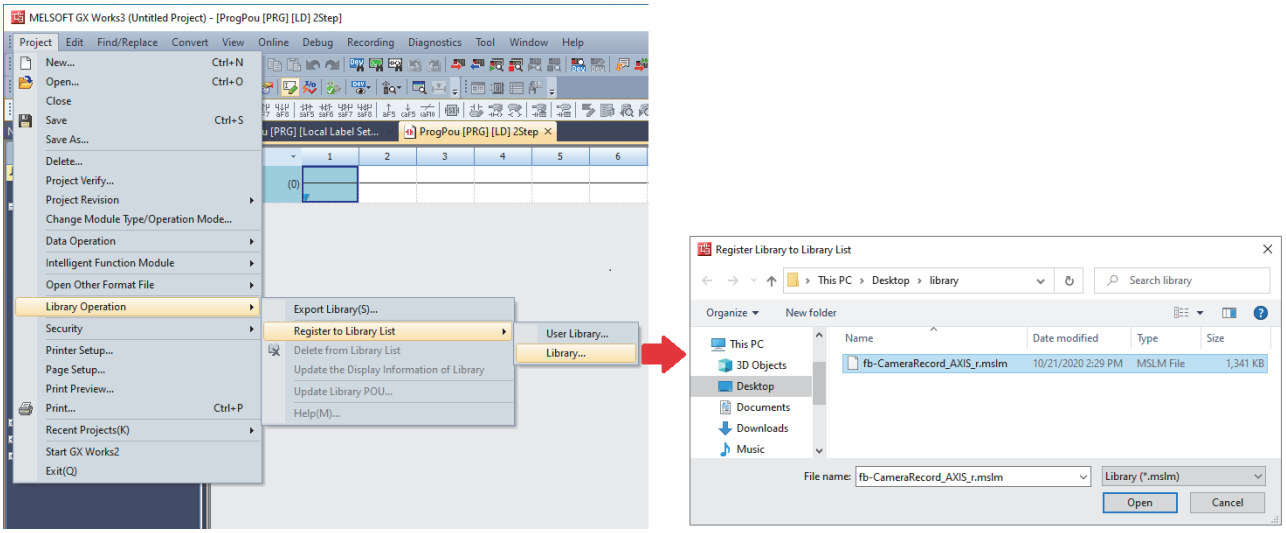
This section describes how to register the FB library to the library list and create a program using GX Works3.

Registering the FB library

Register the FB library to be used to the library list.

[Project] ⇨ [Library Operation] ⇨ [Register to Library List] ⇨ [Library]

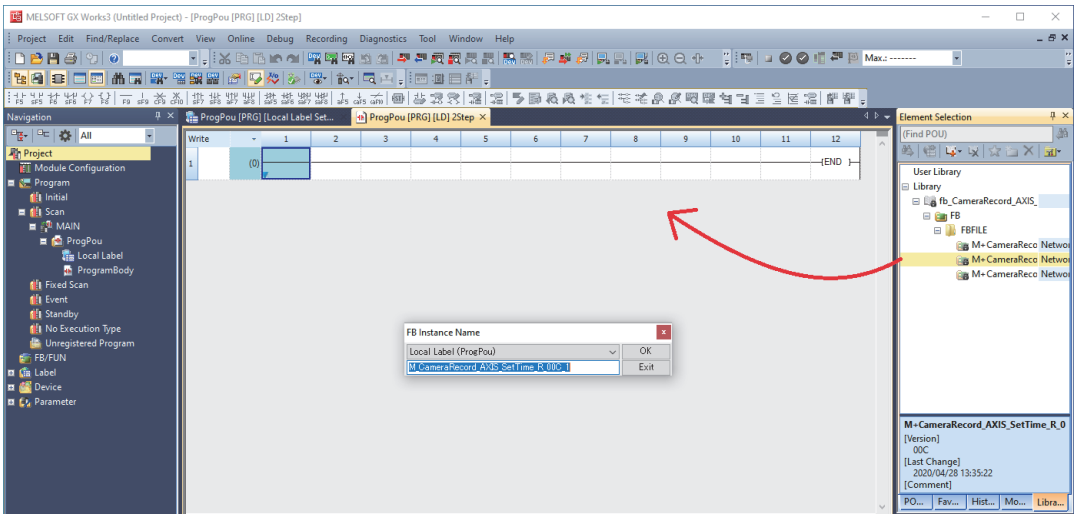
1. Select the mslm file of the Camera recording package.



Creating a program

Create a program using an FB.

1. From "Library" on the "Element Selection" window, drag and drop the applicable FB to the editor.



2. Enter the input labels and output labels of the created FB to create a program.

■Example to create M+CameraRecord_AXIS_SetTime_R (Time setting)

This FB is executed once when the operating status of the CPU module is changed to RUN to set the time information of the CPU module to the network camera.

■When bSetTime_EN (FB execution command) is turned on, the time of the CPU module is set to the network camera.

- The network camera is specified with i_uConnectionNo (Connection number).
- The network camera authentication is cleared with i_sUserName (User name) and i_sPassWord (Password).

- Global label

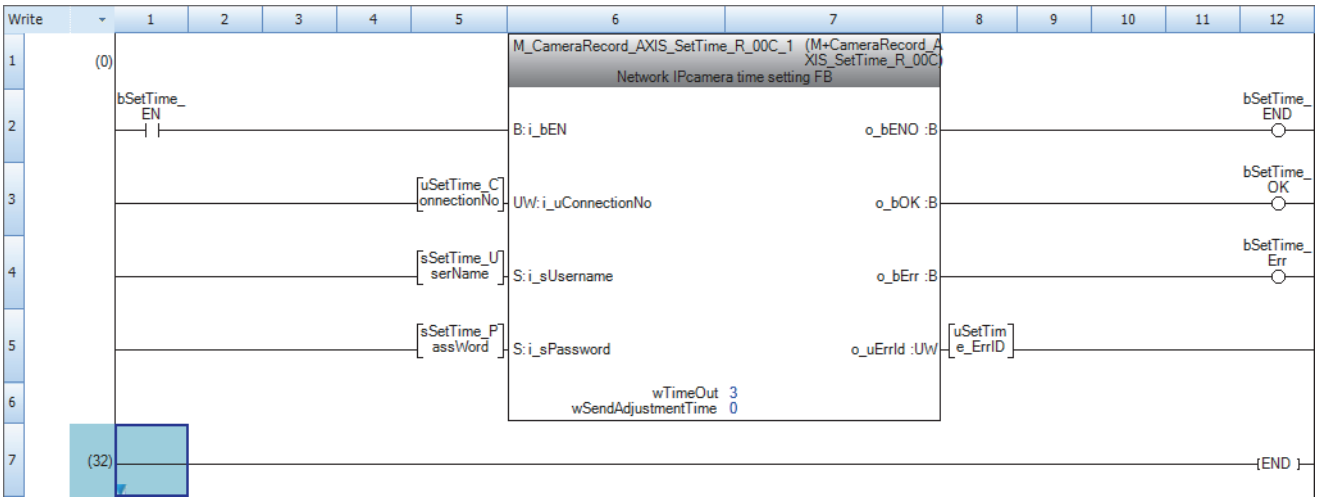
	Label Name	Data Type		Class
1	bSetTime_EN	Bit	...	VAR_GLOBAL
2	uSetTime_ConnectionNo	Word [Unsigned]/Bit String [16-bit]	...	VAR_GLOBAL
3	sSetTime_UserName	String(255)	...	VAR_GLOBAL
4	sSetTime_PassWord	String(255)	...	VAR_GLOBAL
5	bSetTime_END	Bit	...	VAR_GLOBAL
6	bSetTime_OK	Bit	...	VAR_GLOBAL
7	bSetTime_Err	Bit	...	VAR_GLOBAL
8	uSetTime_ErrID	Word [Unsigned]/Bit String [16-bit]	...	VAR_GLOBAL

Point

For the MELSEC iQ-F series CPU module, set "Data Type" of the following global labels as follows.

- sSetTime_UserName: String (15)
- sSetTime_PassWord: String (65)

- Program



Point

For MELSEC iQ-F series programs, use the FB of M+CameraRecord_AXIS_SetTime_F instead.

Input label	Setting details	Setting example
i_bEN	On: The FB is activated. Off: The FB is stopped.	—
i_uConnectionNo	Sets the connection number.	1
i_sUserName	Sets the user name registered in the network camera.	"root"
i_sPassWord	Sets the password registered in the network camera.	"Pass1234"

Output label	Setting details
o_bENO	On: The execution command is on. Off: The execution command is off.
o_bOK	The on state indicates that setting the time has been completed.
o_bErr	The on state indicates that an error has occurred in the FB.
o_uErrId	Returns the error code of an error occurred in the FB.

■Example to create M+CameraRecord_AXIS_EventTrigger_R (Recording direction)

This FB is executed at the timing of recording to execute a recording event of the network camera.

■When bEventTrigger_EN (FB execution command) is turned on, the recording is instructed to the network camera.

- The network camera is specified with i_uConnectionNo (Connection number).
- The network camera authentication is cleared with i_sUserName (User name) and i_sPassWord (Password).
- A recording event specified with i_uVirtualInputPortNo (Virtual input port number) is executed.

- Global label

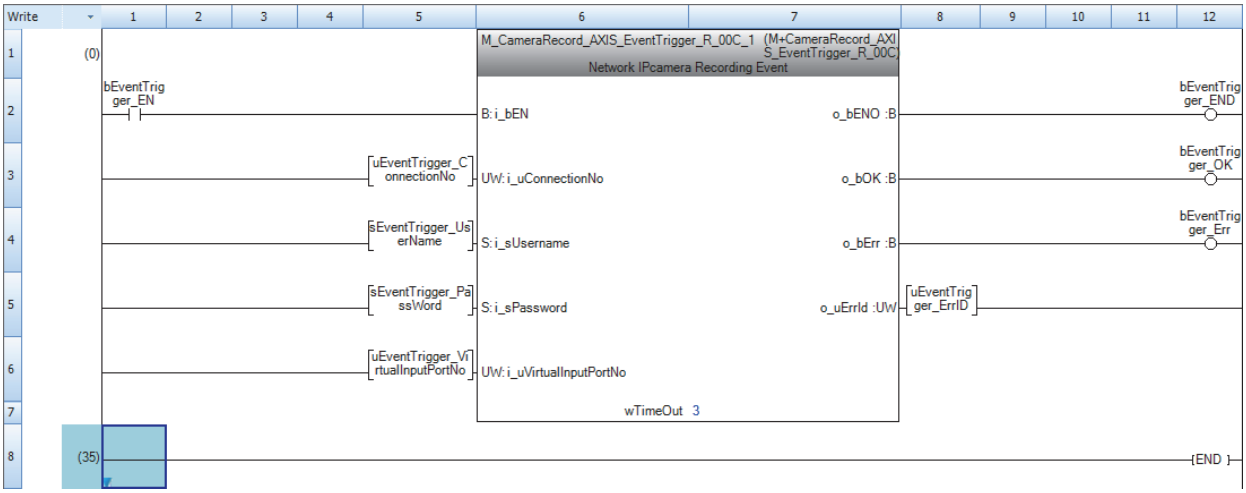
	Label Name	Data Type		Class
1	bEventTrigger_EN	Bit	...	VAR_GLOBAL
2	uEventTrigger_ConnectionNo	Word [Unsigned]/Bit String [16-bit]	...	VAR_GLOBAL
3	sEventTrigger_UserName	String(255)	...	VAR_GLOBAL
4	sEventTrigger_PassWord	String(255)	...	VAR_GLOBAL
5	uEventTrigger_VirtualInputPortNo	Word [Unsigned]/Bit String [16-bit]	...	VAR_GLOBAL
6	bEventTrigger_END	Bit	...	VAR_GLOBAL
7	bEventTrigger_OK	Bit	...	VAR_GLOBAL
8	bEventTrigger_Err	Bit	...	VAR_GLOBAL
9	uEventTrigger_ErrID	Word [Unsigned]/Bit String [16-bit]	...	VAR_GLOBAL

Point

For the MELSEC iQ-F series CPU module, set "Data Type" of the following global labels as follows.

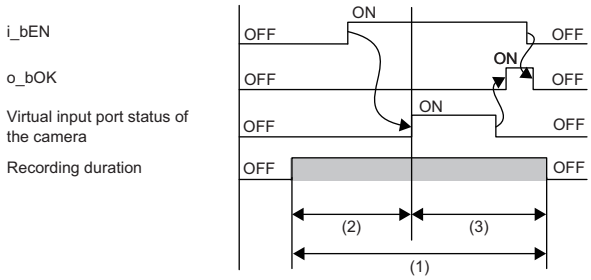
- sEventTrigger_UserName: String (15)
- sEventTrigger_PassWord: String (65)

- Program



Point

For MELSEC iQ-F series programs, use the FB of M+CameraRecord_AXIS_EventTrigger_F instead.



(1) Video recording duration
(2) Pre-trigger recording time (Prebuffer)
(3) Post-trigger recording time (Postbuffer)

Input label	Setting details	Setting example
i_bEN	Connects with a device used as a recording trigger. On: The FB is activated (a recording event is executed). Off: The FB is stopped.	—
i_uConnectionNo	Sets the connection number.	1
i_sUserName	Sets the user name registered in the network camera.	"root"
i_sPassWord	Sets the password registered in the network camera.	"Pass1234"
i_uVirtualInputPortNo	Specifies the port number of the virtual input for the recording event registered in the network camera.	9

Output label	Setting details
o_bENO	On: The execution command is on. Off: The execution command is off.
o_bOK	The on state indicates that the virtual input port status on the network camera side has been switched.
o_bErr	The on state indicates that an error has occurred in the FB.
o_uErrId	Returns the error code of an error occurred in the FB.

Point

- Do not start the second video recording until the post-trigger recording period (Postbuffer) ends.
- If recording events occur consecutively in a brief period of time and the recording duration of one event overlaps the recording duration of the subsequent event, this FB may not be completed successfully and a timeout error (C1E2H) may occur. Ensure that the recording durations of events do not overlap when this FB is executed.

■Example to create M+CameraRecord_AXIS_VirtualInputControl_R (Virtual input port control)

This FB executes a recording event of the network camera with the virtual input port status on or off.

■When bVirtualInputControl_EN (FB execution command) is turned on, the recording is instructed to the network camera.

- The network camera is specified with i_uConnectionNo (Connection number).
- The network camera authentication is cleared with i_sUserName (User name) and i_sPassWord (Password).
- The virtual input port is specified with i_uVirtualInputPortNo (Virtual input port number).
- i_bVirtualInputPortState (Virtual input port status) is turned on (enabled).

■When the recording direction has been completed successfully (bVirtualInputControl_OK is on), bVirtualInputControl_EN is turned off.

■After i_bVirtualInputPortState is turned off, bVirtualInputControl_EN is turned on again.

- When bVirtualInputControl_EN is turned on, the status of the virtual input port that is specified in i_uVirtualInputPortNo is disabled.

- Global label

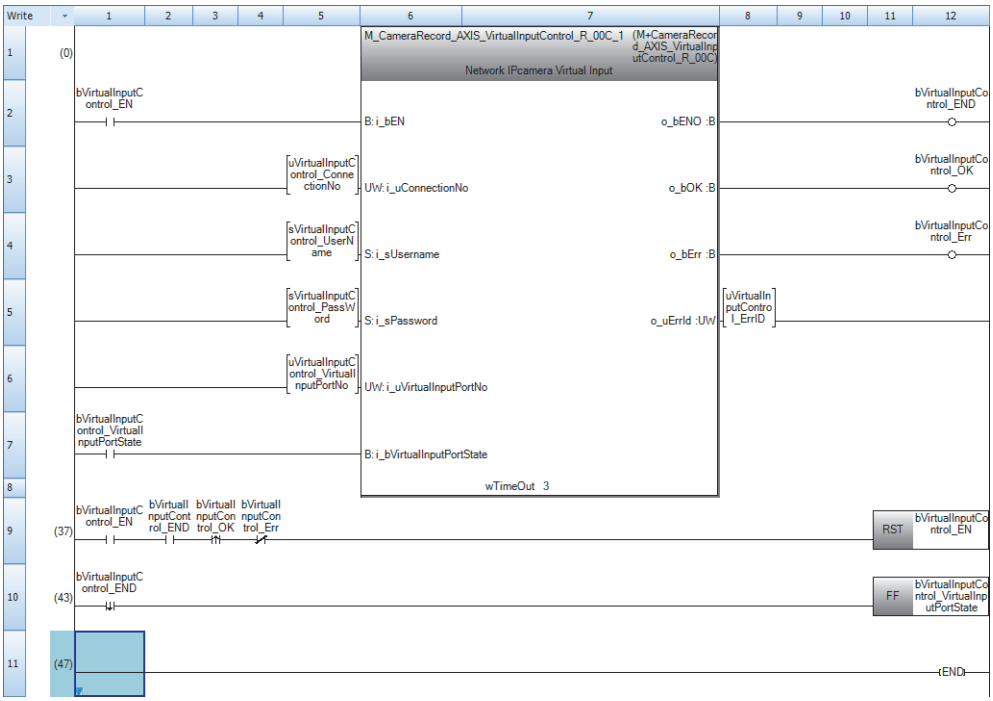
	Label Name	Data Type		Class
1	bVirtualInputControl_EN	Bit	...	VAR_GLOBAL
2	uVirtualInputControl_ConnectionNo	Word [Unsigned]/Bit String [16-bit]	...	VAR_GLOBAL
3	sVirtualInputControl_UserName	String(255)	...	VAR_GLOBAL
4	sVirtualInputControl_PassWord	String(255)	...	VAR_GLOBAL
5	uVirtualInputControl_VirtualInputPortNo	Word [Unsigned]/Bit String [16-bit]	...	VAR_GLOBAL
6	bVirtualInputControl_VirtualInputPortState	Bit	...	VAR_GLOBAL
7	bVirtualInputControl_END	Bit	...	VAR_GLOBAL
8	bVirtualInputControl_OK	Bit	...	VAR_GLOBAL
9	bVirtualInputControl_Err	Bit	...	VAR_GLOBAL
10	uVirtualInputControl_ErrID	Word [Unsigned]/Bit String [16-bit]	...	VAR_GLOBAL

Point

For the MELSEC iQ-F series CPU module, set "Data Type" of the following global labels as follows.

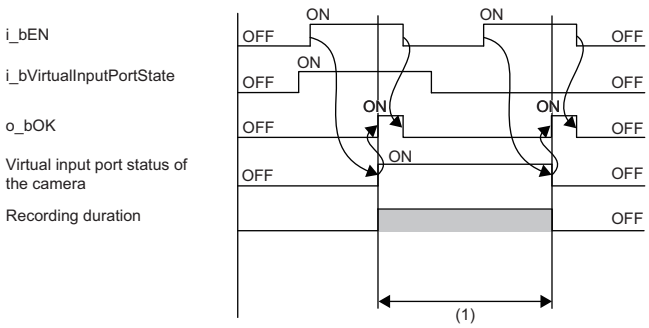
- sVirtualInputControl_UserName: String (15)
- sVirtualInputControl_PassWord: String (65)

- Program



Point

For MELSEC iQ-F series programs, use the FB of M+CameraRecord_AXIS_VirtualInputControl_F instead.



(1) Video recording duration

Input label	Setting details	Setting example
i_bEN	Connects with a device used as a recording trigger. On: The FB is activated (a recording event is executed). Off: The FB is stopped.	—
i_uConnectionNo	Sets the connection number.	1
i_sUserName	Sets the user name registered in the network camera.	"root"
i_sPassWord	Sets the password registered in the network camera.	"Pass1234"
i_uVirtualInputPortNo	Specifies the port number of the virtual input for the recording event registered in the network camera.	9
i_bVirtualInputPortState	Sets the virtual input port status. On: The virtual input port status is enabled. Off: The virtual input port status is disabled. To activate the trigger, enable the virtual input port status. The virtual input port status cannot be automatically disabled once it has been enabled. Therefore, disable the virtual input port status after the event is started.	1

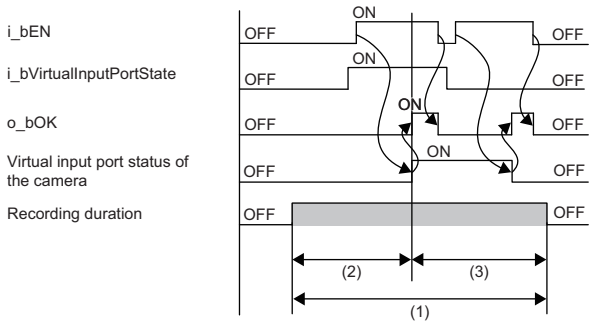
Output label	Setting details
o_bENO	On: The execution command is on. Off: The execution command is off.
o_bOK	The on state indicates that the virtual input port status on the network camera side has been switched.
o_bErr	The on state indicates that an error has occurred in the FB.
o_uErrId	Returns the error code of an error occurred in the FB.

Point

If recording events occur consecutively in a brief period of time and the recording duration of one event overlaps the recording duration of the subsequent event, this FB may not be completed successfully and a timeout error (C1E2H) may occur. Ensure that recording events do not overlap when this FB is executed.

Point

When the virtual input port status of the network camera is turned on in this FB, it cannot be automatically turned off. Therefore, the processing to turn off the virtual input port status of the network camera is required. Therefore, when o_bOK (FB completed successfully) has been turned on, turn off i_bVirtualInputPortState to execute this FB again. When recording video before and after turning on the recording trigger, the second recording cannot be executed in the network camera without this processing.



(1) Video recording duration

(2) Pre-trigger recording time (Prebuffer)

(3) Post-trigger recording time (Postbuffer)

5.2 MELSEC iQ-R Series RJ71EN71, RnENCPU (Network Part)

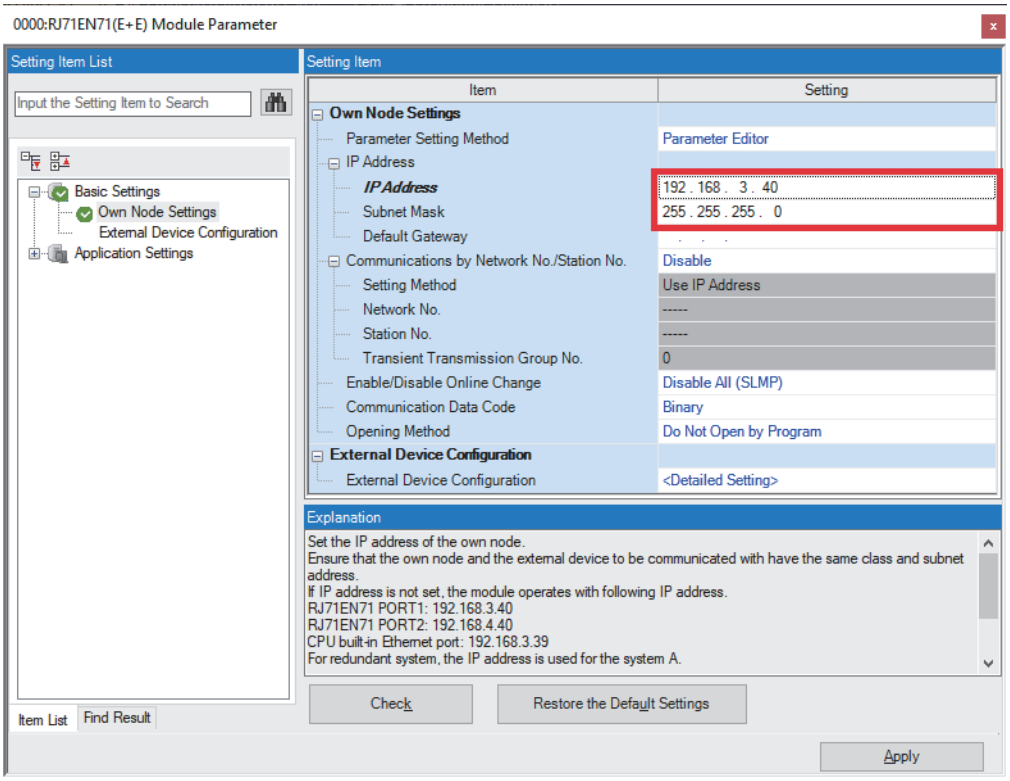
Ethernet port settings

Configure the Ethernet port settings using GX Works3.

Own node settings

[Navigation window] ⇨ [Parameter] ⇨ [Module information] ⇨ Module to be used ⇨ [Port (n) Module Parameter] ⇨ [Basic Settings] ⇨ [Own Node Settings]

1. Set the IP address and subnet mask of the Ethernet port to be used.



Point

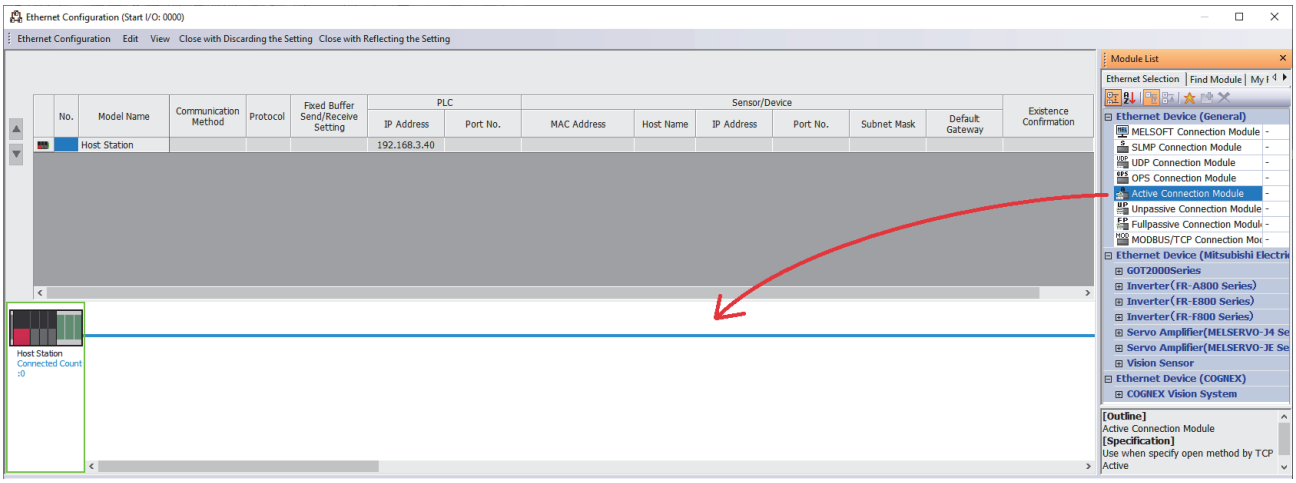
Set the IP address in the same segment as the network camera.

External device configuration

Set the network camera to be connected.

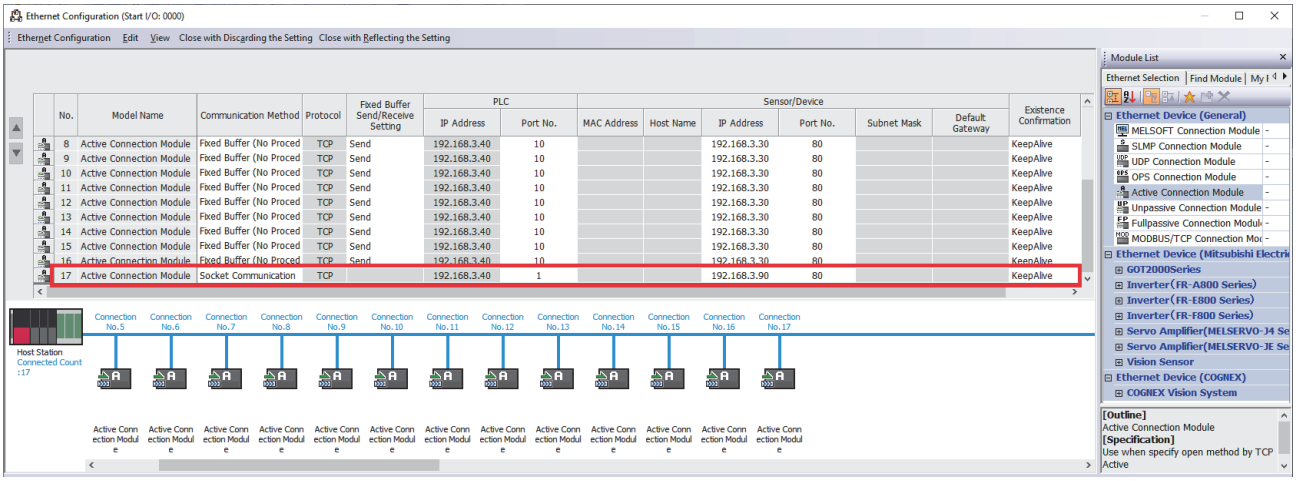
[Navigation window] ⇨ [Parameter] ⇨ [Module Information] ⇨ Module to be used ⇨ [Port (n) Module Parameter] ⇨ [Basic Settings] ⇨ [External Device Configuration]

1. From "Module List", select "Active Connection Module" and drag and drop it to "List of devices" or "Device map area".



2. For the selected "Active Connection Module", configure the following.

- Communication Method (Socket Communication)
- Port No. of PLC (1 to 4999, 5010 to 65534)
- IP Address of Sensor/Device (IP address of the network camera)
- Port No. of Sensor/Device (80)
- Existence Confirmation (KeepAlive)



Point

- When setting Ethernet port 1, set No.17 to 64 because No.1 to 16 cannot perform socket communications.
- A PLC port number from 1 to 1023 is used as a reserved port number (WELL KNOWN PORT NUMBERS) generally, and a number from 61440 to 65534 is used in other communication functions. A number from 1024 to 4999 or 5010 to 61439 is recommended.
- Set 80 to the port number of sensor/device.

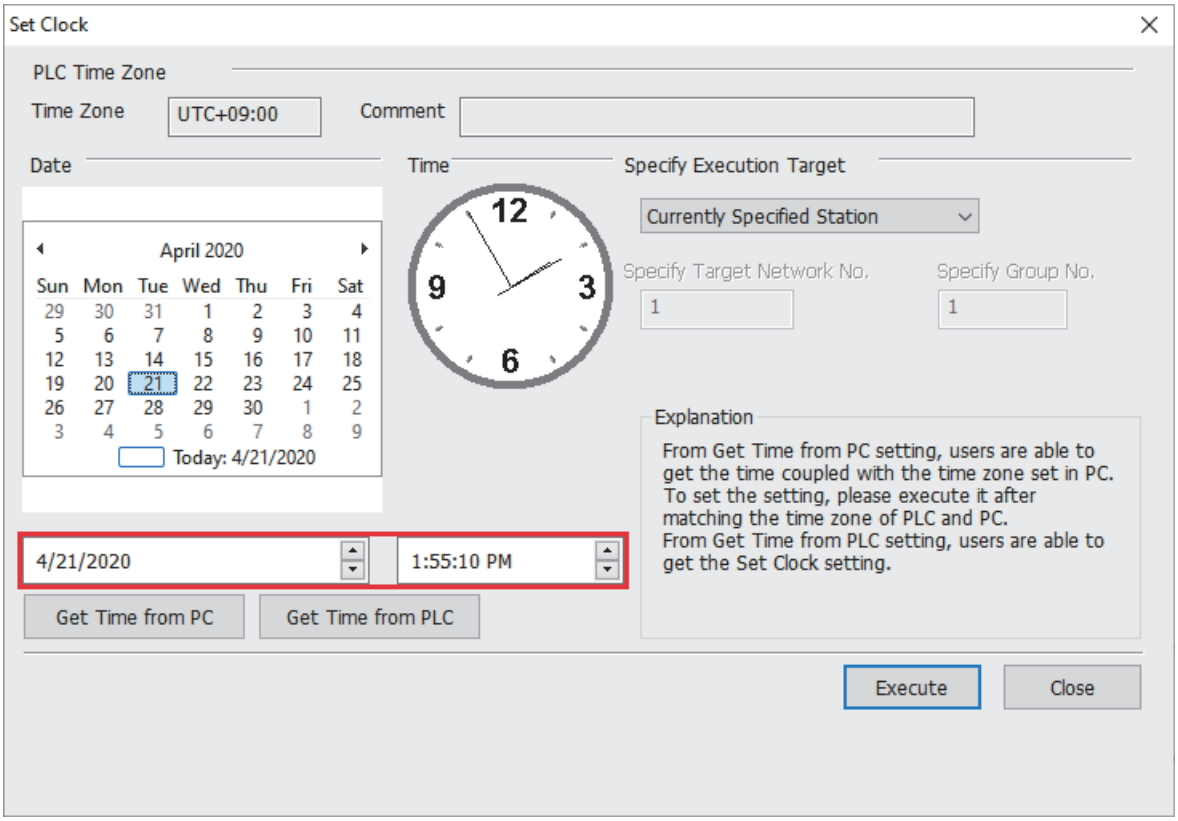
3. Click the [Close with Reflecting the Setting] button and click the [Apply] button in the module parameter.

Clock settings

Set clock data of the programmable controller.

[Online] ⇨ [Set Clock]

1. Check and enter the time, and click [Execute].



Point

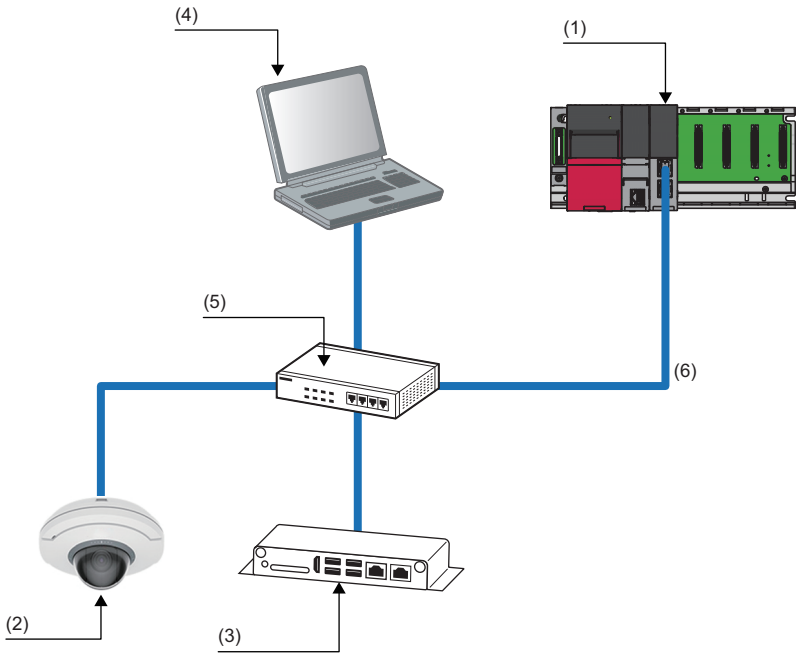
This setting is not required if the time synchronization by the NTP server has been set on the network camera side. For details on the time setting function (SNTP client) of the MELSEC iQ-R series CPU modules, refer to the following.

MELSEC iQ-R Ethernet User's Manual (Application)

Connection of devices

Connect the devices shown in the system configuration. (☞ Page 12 SYSTEM CONFIGURATION)

Ex.



No.	Device name	Setting details
(1)	RJ71EN71	• IP address: 192.168.3.40 (Default) • Subnet mask: 255.255.255.0
(2)	Network camera manufactured by Axis Communications	• IP address: 192.168.3.90 • Subnet mask: 255.255.255.0 • Default router: 192.168.3.254 • User ID: root • Password: Pass1234 • Virtual input port: 9
(3)	MELIPC MI1000 (Network storage)	• IP address: 192.168.3.30 • User ID: admin • Password: PW1234
(4)	Personal computer (Windows® 10)	IP address: 192.168.3.100
(5)	PoE switching hub	—
(6)	Ethernet (twisted pair) cable	—

Restriction

When connecting a network camera to the RnENCPU (network part), only the Ethernet port (P1) can be used.

Creating a program

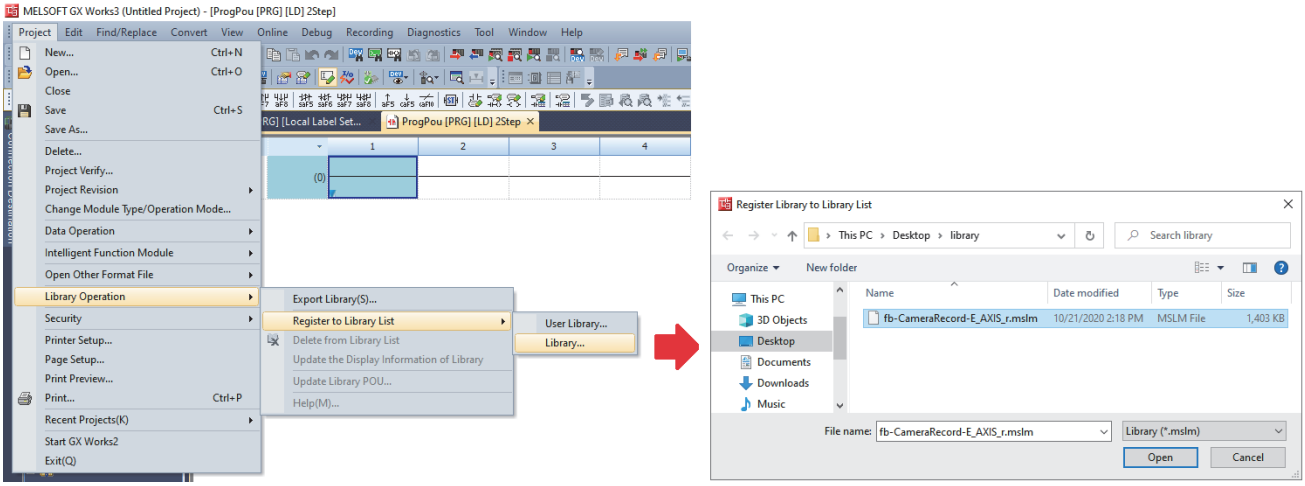
This section describes how to register the FB library to the library list and create a program using GX Works3.

Registering the FB library

Register the FB library to be used to the library list.

[Project] ⇨ [Library Operation] ⇨ [Register to Library List] ⇨ [Library]

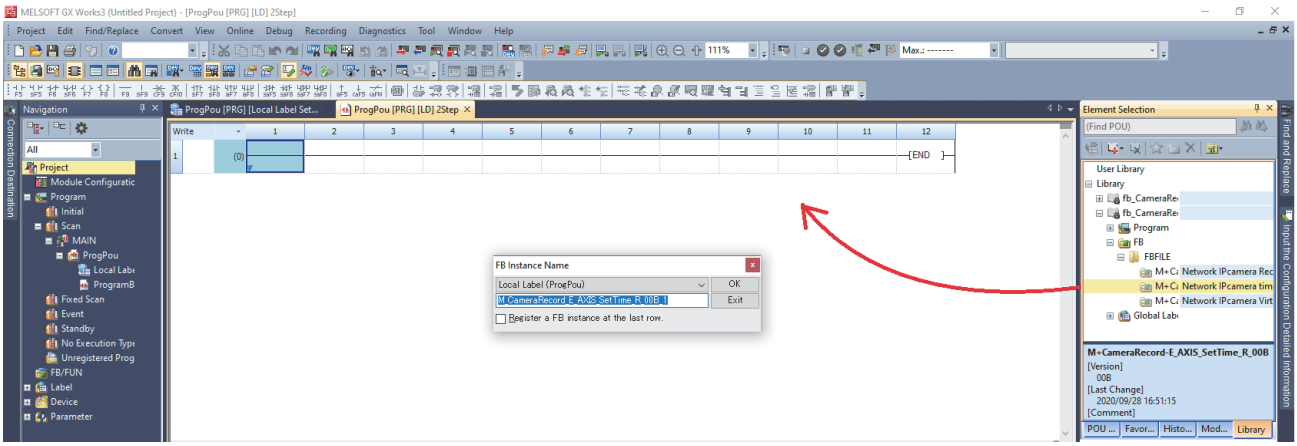
1. Select the mslm file of the Camera recording package.



Creating a program

Create a program using an FB.

1. From "Library" on the "Element Selection" window, drag and drop the applicable FB to the editor.



2. Enter the input labels and output labels of the created FB to create a program.

■Example to create M+CameraRecord-E_AXIS_SetTime_R (Time setting)

This FB is executed once when the operating status of the CPU module is changed to RUN to set the time information of the CPU module to the network camera.

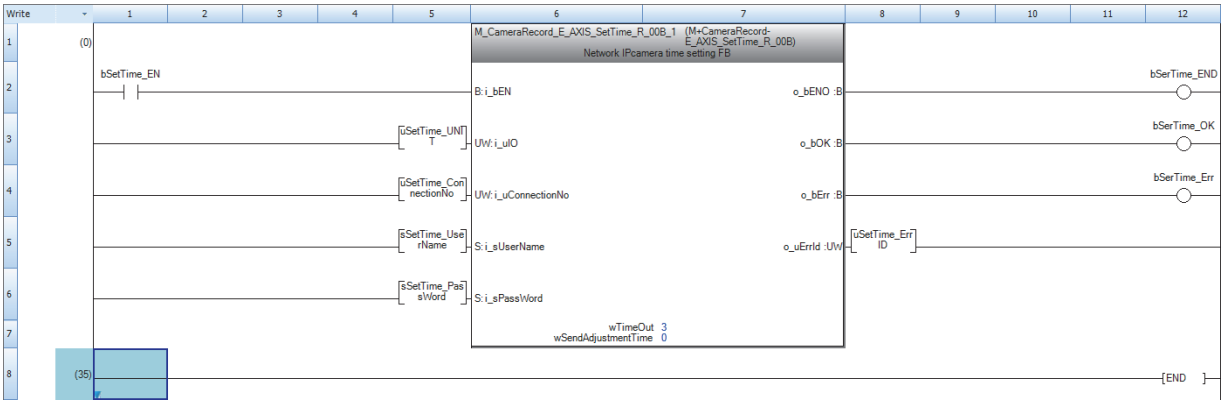
■When bSetTime_EN (FB execution command) is turned on, the time of the CPU module is set to the network camera.

- Store the number of the slot where the RJ71EN71 or RnENCPU is installed in i_uIO (start I/O No.)
- The network camera is specified with i_uConnectionNo (Connection number).
- The network camera authentication is cleared with i_sUserName (User name) and i_sPassWord (Password).

- Global label

	Label Name	Data Type		Class
1	bSetTime_EN	Bit	...	VAR_GLOBAL
2	uSetTime_UNIT	Word [Unsigned]/Bit String [16-bit]	...	VAR_GLOBAL
3	uSetTime_ConnectionNo	Word [Unsigned]/Bit String [16-bit]	...	VAR_GLOBAL
4	sSetTime_UserName	String(255)	...	VAR_GLOBAL
5	sSetTime_PassWord	String(255)	...	VAR_GLOBAL
6	bSerTime_END	Bit	...	VAR_GLOBAL
7	bSerTime_OK	Bit	...	VAR_GLOBAL
8	bSerTime_Err	Bit	...	VAR_GLOBAL
9	uSetTime_ErrID	Word [Unsigned]/Bit String [16-bit]	...	VAR_GLOBAL

- Program



Input label	Setting details	Setting example
i_bEN	On: The FB is activated. Off: The FB is stopped.	—
i_uIO	Set the start I/O number.	0
i_uConnectionNo	Sets the connection number.	17
i_sUserName	Sets the user name registered in the network camera.	"root"
i_sPassWord	Sets the password registered in the network camera.	"Pass1234"

Output label	Setting details
o_bENO	On: The execution command is on. Off: The execution command is off.
o_bOK	The on state indicates that setting the time has been completed.
o_bErr	The on state indicates that an error has occurred in the FB.
o_uErrId	Returns the error code of an error occurred in the FB.

■Example to create M+CameraRecord-E_AXIS_EventTrigger_R (Recording direction)

This FB is executed at the timing of recording to execute a recording event of the network camera.

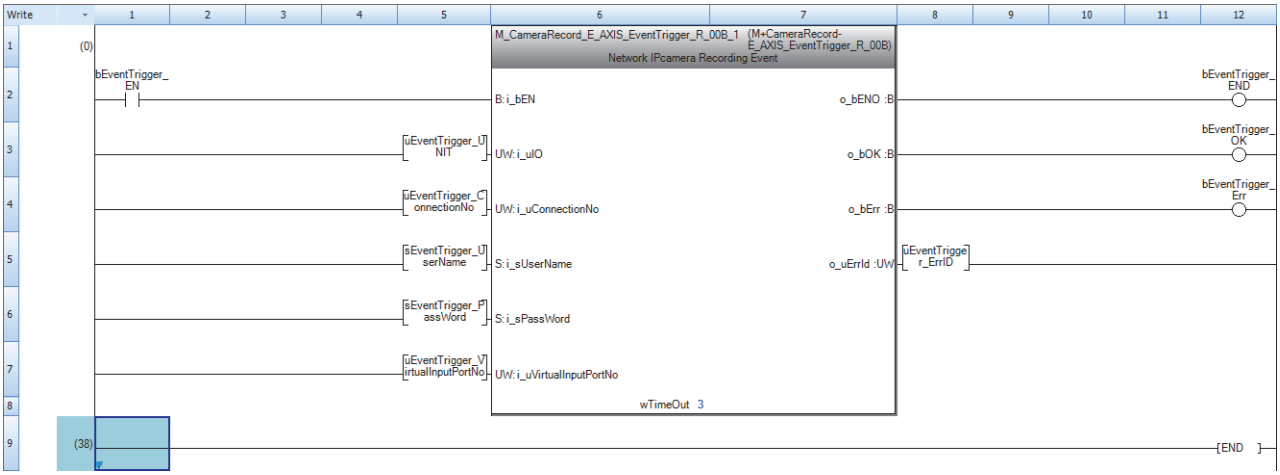
■When bEventTrigger_EN (FB execution command) is turned on, the recording is instructed to the network camera.

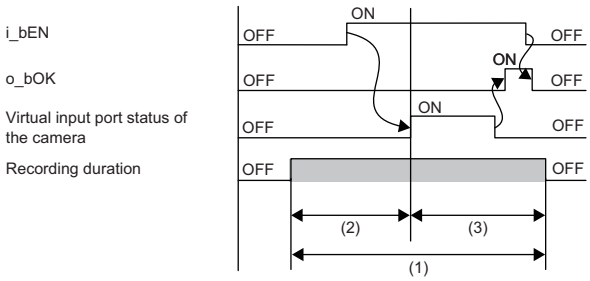
- Store the number of the slot where the RJ71EN71 or RnENCPU is installed in i_uIO (start I/O No.)
- The network camera is specified with i_uConnectionNo (Connection number).
- The network camera authentication is cleared with i_sUserName (User name) and i_sPassWord (Password).
- A recording event specified with i_uVirtualInputPortNo (Virtual input port number) is executed.

- Global label

	Label Name	Data Type		Class
1	bEventTrigger_EN	Bit	...	VAR_GLOBAL
2	uEventTrigger_UNIT	Word [Unsigned]/Bit String [16-bit]	...	VAR_GLOBAL
3	uEventTrigger_ConnectionNo	Word [Unsigned]/Bit String [16-bit]	...	VAR_GLOBAL
4	sEventTrigger_UserName	String(255)	...	VAR_GLOBAL
5	sEventTrigger_PassWord	String(255)	...	VAR_GLOBAL
6	uEventTrigger_VirtualInputPortNo	Word [Unsigned]/Bit String [16-bit]	...	VAR_GLOBAL
7	bEventTrigger_END	Bit	...	VAR_GLOBAL
8	bEventTrigger_OK	Bit	...	VAR_GLOBAL
9	bEventTrigger_Err	Bit	...	VAR_GLOBAL
10	uEventTrigger_ErrID	Word [Unsigned]/Bit String [16-bit]	...	VAR_GLOBAL

- Program





(1) Video recording duration
(2) Pre-trigger recording time (Prebuffer)
(3) Post-trigger recording time (Postbuffer)

Input label	Setting details	Setting example
i_bEN	Connects with a device used as a recording trigger. On: The FB is activated (a recording event is executed). Off: The FB is stopped.	—
i_uIO	Set the start I/O number.	0
i_uConnectionNo	Sets the connection number.	17
i_sUserName	Sets the user name registered in the network camera.	"root"
i_sPassWord	Sets the password registered in the network camera.	"Pass1234"
i_uVirtualInputPortNo	Specifies the port number of the virtual input for the recording event registered in the network camera.	9

Output label	Setting details
o_bENO	On: The execution command is on. Off: The execution command is off.
o_bOK	The on state indicates that the virtual input port status on the network camera side has been switched.
o_bErr	The on state indicates that an error has occurred in the FB.
o_uErrId	Returns the error code of an error occurred in the FB.

Point

- Do not start the second video recording until the post-trigger recording period (Postbuffer) ends.
- If recording events occur consecutively in a brief period of time and the recording duration of one event overlaps the recording duration of the subsequent event, this FB may not be completed successfully and a timeout error (C1E2H) may occur. Ensure that the recording durations of events do not overlap when this FB is executed.

■Example to create M+CameraRecord-E_AXIS_VirtualInputControl_R (Virtual input port control)

This FB executes a recording event of the network camera with the virtual input port status on or off.

■When bVirtualInputControl_EN (FB execution command) is turned on, the recording is instructed to the network camera.

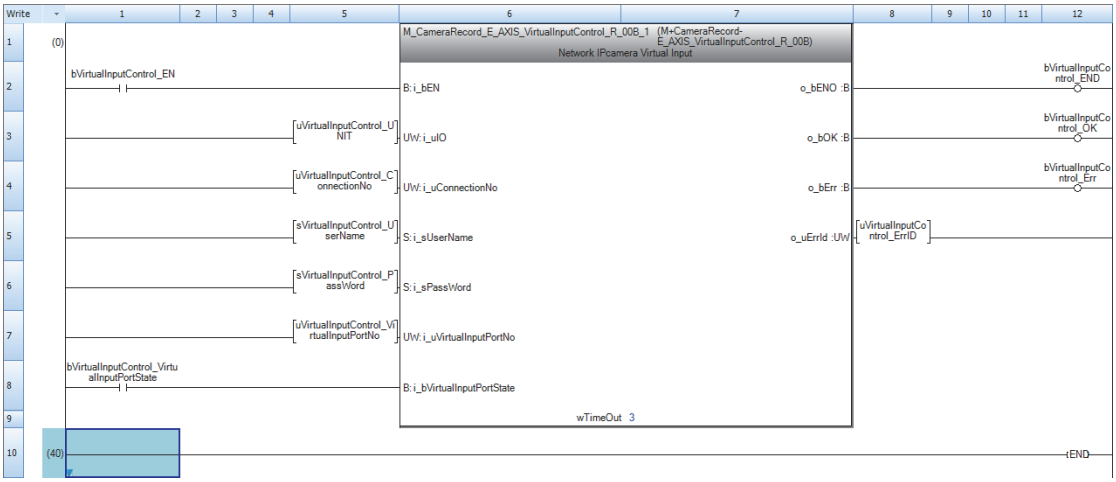
- Store the number of the slot where the RJ71EN71 or RnENCPU is installed in i_uIO (start I/O No.)
- The network camera is specified with i_uConnectionNo (Connection number).
- The network camera authentication is cleared with i_sUserName (User name) and i_sPassWord (Password).
- The virtual input port is specified with i_uVirtualInputPortNo (Virtual input port number).
- i_bVirtualInputPortState (Virtual input port status) is turned on (enabled).

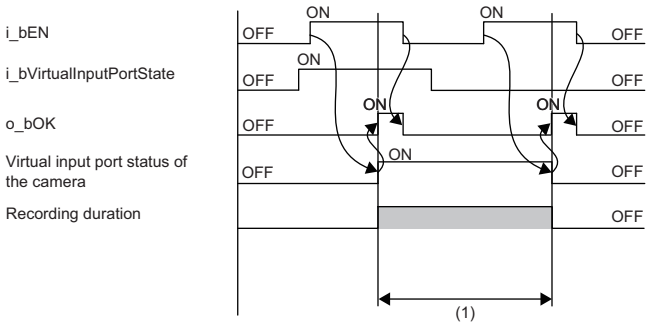
■When the recording direction has been completed successfully (bVirtualInputControl_OK is on), i_bVirtualInputPortState is turned off, and bVirtualInputControl_EN is turned on again.

- Global label

	Label Name	Data Type		Class
1	bVirtualInputControl_EN	Bit	...	VAR_GLOBAL
2	uVirtualInputControl_UNIT	Word [Unsigned]/Bit String [16-bit]	...	VAR_GLOBAL
3	uVirtualInputControl_ConnectionNo	Word [Unsigned]/Bit String [16-bit]	...	VAR_GLOBAL
4	sVirtualInputControl_UserName	String(255)	...	VAR_GLOBAL
5	sVirtualInputControl_PassWord	String(255)	...	VAR_GLOBAL
6	uVirtualInputControl_VirtualInputPortNo	Word [Unsigned]/Bit String [16-bit]	...	VAR_GLOBAL
7	bVirtualInputControl_VirtualInputPortState	Bit	...	VAR_GLOBAL
8	bVirtualInputControl_END	Bit	...	VAR_GLOBAL
9	bVirtualInputControl_OK	Bit	...	VAR_GLOBAL
10	bVirtualInputControl_Err	Bit	...	VAR_GLOBAL
11	uVirtualInputControl_ErrID	Word [Unsigned]/Bit String [16-bit]	...	VAR_GLOBAL

- Program





(1) Video recording duration

Input label	Setting details	Setting example
i_bEN	Connects with a device used as a recording trigger. On: The FB is activated (a recording event is executed). Off: The FB is stopped.	—
i_uIO	Set the start I/O number.	0
i_uConnectionNo	Sets the connection number.	17
i_sUserName	Sets the user name registered in the network camera.	"root"
i_sPassWord	Sets the password registered in the network camera.	"Pass1234"
i_uVirtualInputPortNo	Specifies the port number of the virtual input for the recording event registered in the network camera.	9
i_bVirtualInputPortState	Sets the virtual input port status. On: The virtual input port status is enabled. Off: The virtual input port status is disabled. To activate the trigger, enable the virtual input port status. The virtual input port status cannot be automatically disabled once it has been enabled. Therefore, disable the virtual input port status after the event is started.	1

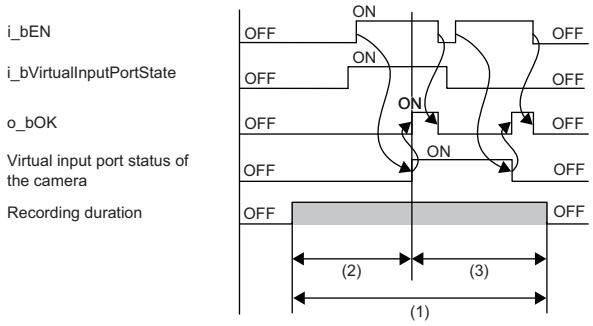
Output label	Setting details
o_bENO	On: The execution command is on. Off: The execution command is off.
o_bOK	The on state indicates that the virtual input port status on the network camera side has been switched.
o_bErr	The on state indicates that an error has occurred in the FB.
o_uErrId	Returns the error code of an error occurred in the FB.

Point

If recording events occur consecutively in a brief period of time and the recording duration of one event overlaps the recording duration of the subsequent event, this FB may not be completed successfully and a timeout error (C1E2H) may occur. Ensure that recording events do not overlap when this FB is executed.

Point

When the virtual input port status of the network camera is turned on in this FB, it cannot be automatically turned off. Therefore, the processing to turn off the virtual input port status of the network camera is required. Therefore, when o_bOK (FB completed successfully) has been turned on, turn off i_bVirtualInputPortState to execute this FB again. When recording video before and after turning on the recording trigger, the second recording cannot be executed in the network camera without this processing.



(1) Video recording duration

(2) Pre-trigger recording time (Prebuffer)

(3) Post-trigger recording time (Postbuffer)

5.3 MELSEC-Q Series CPU Module

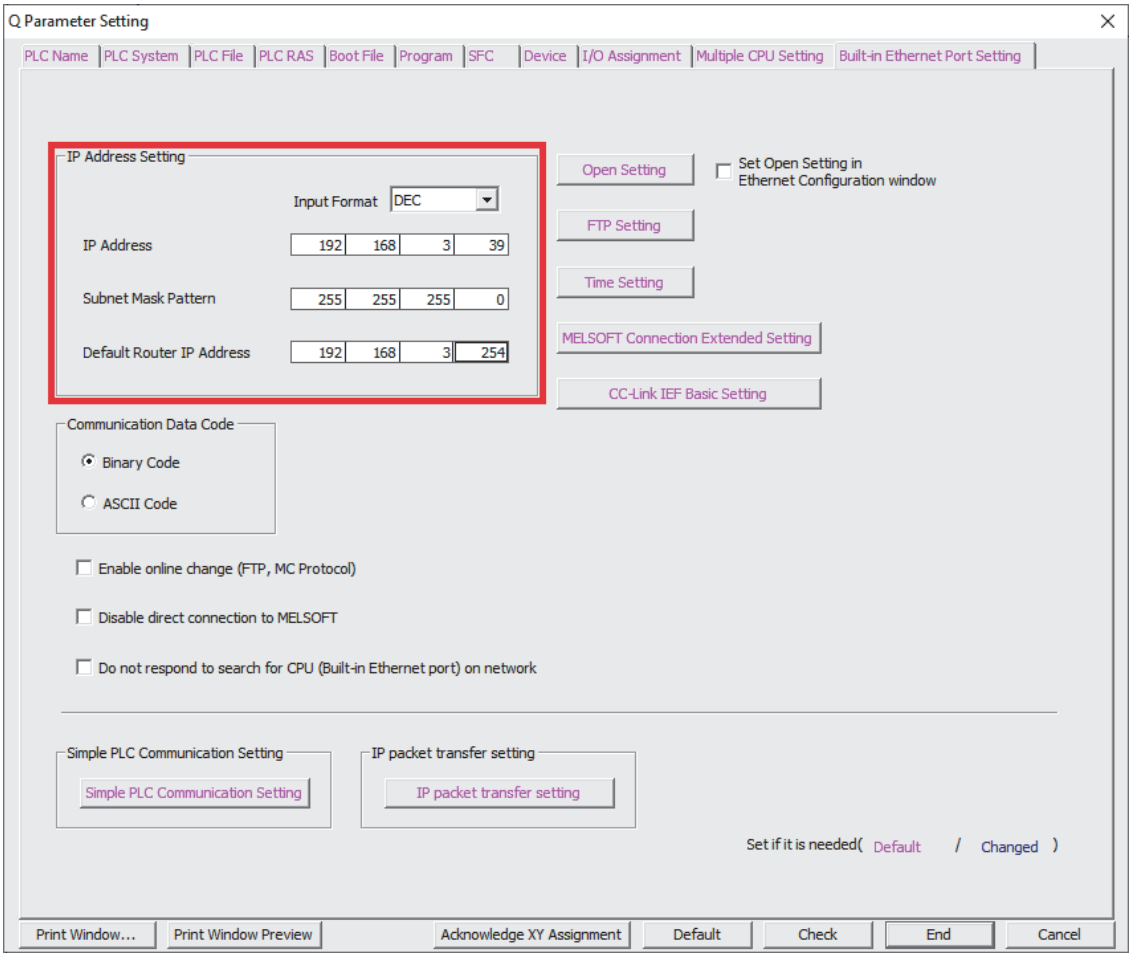
Ethernet port settings

Configure the Ethernet port settings using GX Works2.

IP address settings

[Navigation window] ⇨ [Parameter] ⇨ [PC Parameter] ⇨ [Built-in Ethernet Port Setting]

1. Set the IP address, subnet mask pattern, and default rooter IP address of the module to be used.



Point

- Set the IP address in the same segment as the network camera.
- Set the subnet mask pattern and default rooter IP address in the same settings as the network camera.

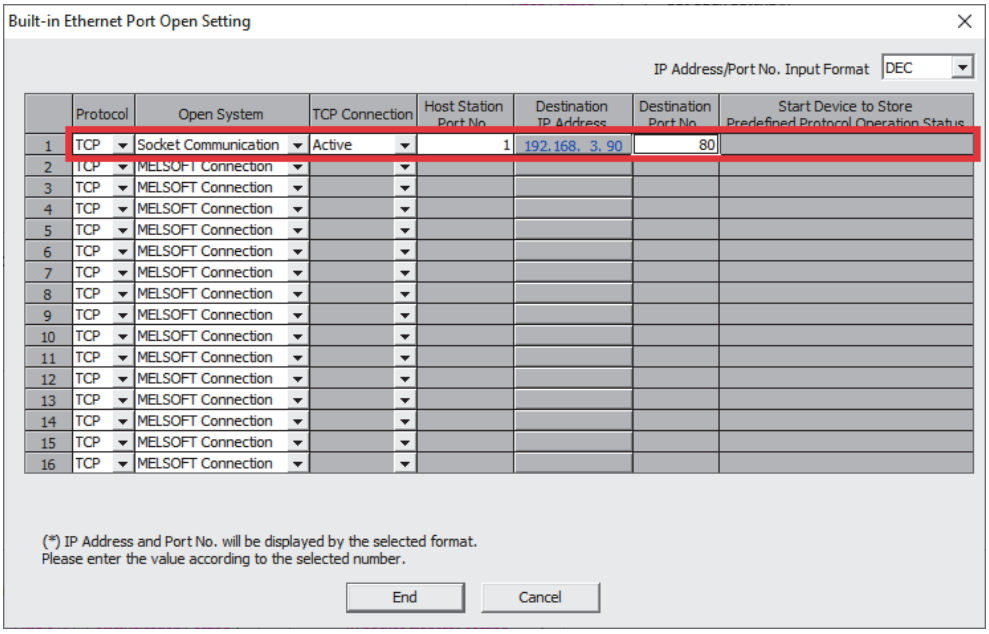
External device configuration

Set the network camera to be connected.

[Navigation window] ⇨ [Parameter] ⇨ [PC Parameter] ⇨ [Built-in Ethernet Port Setting] ⇨ [Open Setting]

1. Set the following items in the "Built-in Ethernet Port Open Setting" window.

- Open system (socket communications)
- TCP connection system (Active)
- Own station port number (1 to 4999, 5010 to 65534)
- IP Address of communication destination (IP address of the network camera)
- Port number of communication destination (80)



Point

- An own port number from 1 to 1023 is used as a reserved port number (WELL KNOWN PORT NUMBERS) generally, and a number from 61440 to 65534 is used in other communication functions. A number from 1024 to 4999 or 5010 to 61439 is recommended.
- Set 80 to the port number of the communication destination.

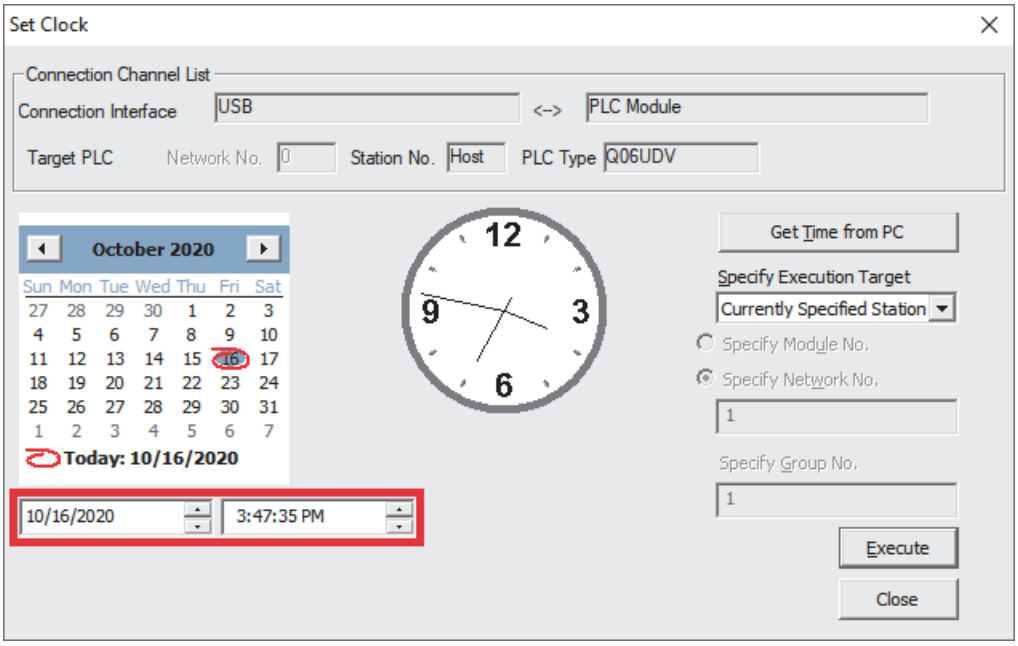
2. Click the [End] button

Clock settings

Set clock data of the programmable controller.

[Online] ⇨ [Set Clock]

1. Check and enter the time, and click [Execute].



Point

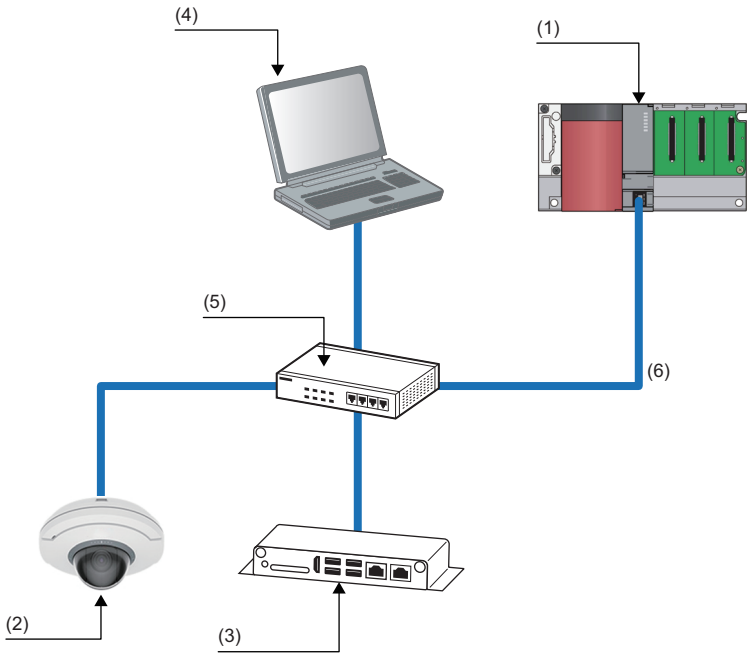
This setting is not required if the time synchronization by the NTP server has been set on the network camera side. For details on the time setting function (SNTP client) of the MELSEC-Q series CPU modules, refer to the following.

QnUCPU User's Manual (Communication via Built-in Ethernet Port)

Connection of devices

Connect the devices shown in the system configuration. (☞ Page 12 SYSTEM CONFIGURATION)

Ex.



No.	Device name	Setting details
(1)	Q06UDVCPU	• IP address: 192.168.3.39 (Default) • Subnet mask pattern: 255.255.255.0 • Default router IP address: 192.168.3.254
(2)	Network camera manufactured by Axis Communications	• IP address: 192.168.3.90 • Subnet mask: 255.255.255.0 • Default router: 192.168.3.254 • User ID: root • Password: Pass1234 • Virtual input port: 9
(3)	MELIPC MI1000 (Network storage)	• IP address: 192.168.3.30 • User ID: admin • Password: PW1234
(4)	Personal computer (Windows® 10)	IP address: 192.168.3.100
(5)	PoE switching hub	—
(6)	Ethernet (twisted pair) cable	—

Precautions

Do not connect an Ethernet port of the MELSEC-Q series CPU module and a PoE port of a PoE switching hub. Doing so may cause a failure.

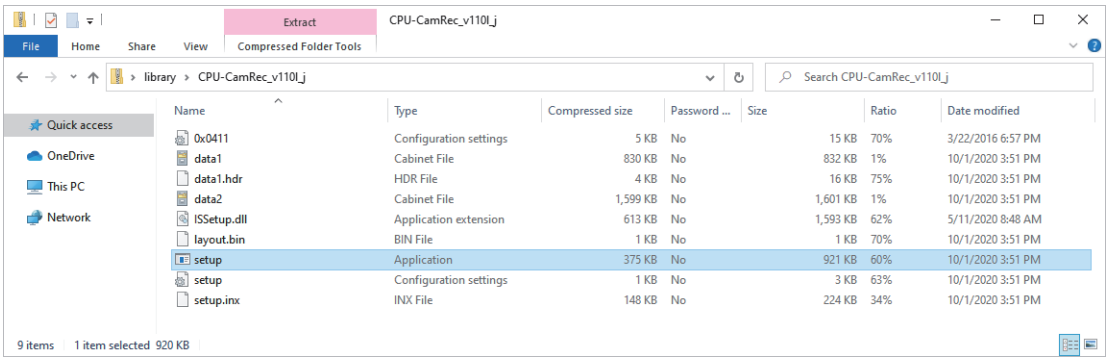
Creating a program

This section describes how to register the FB library to the library list and create a program using GX Works2.

Registering the FB library

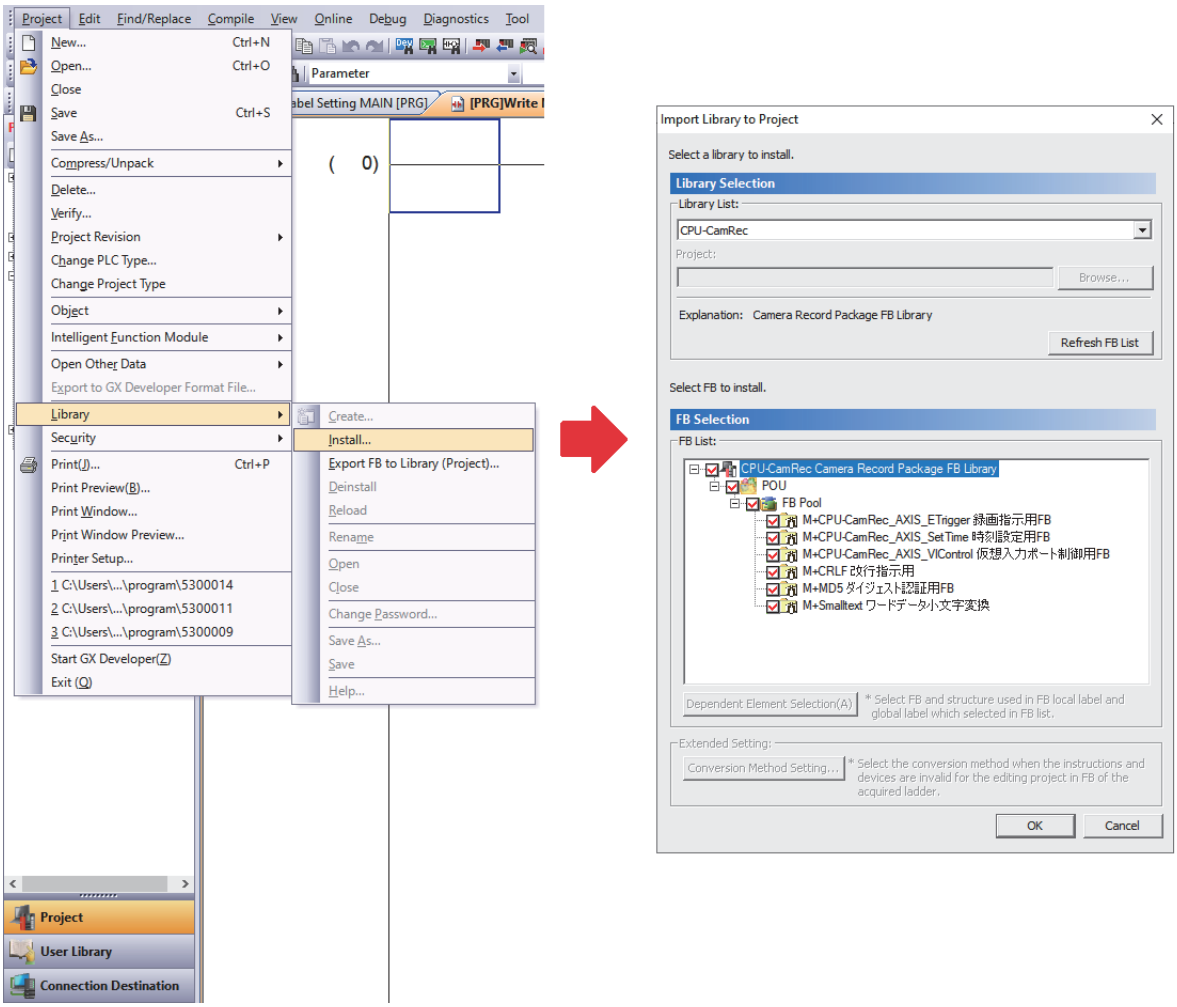
Register the FB library to be used to the library list.

1. Execute "setup.exe" from the ZIP file in the Camera recording package to install the library.



[Project] ⇨ [Library Operation] ⇨ [Install]

2. Select "CPU-CamRec" from the library list and click the [Refresh FB List] button.



3. Select the target FB from the FB list and click the [OK] button.

Restriction

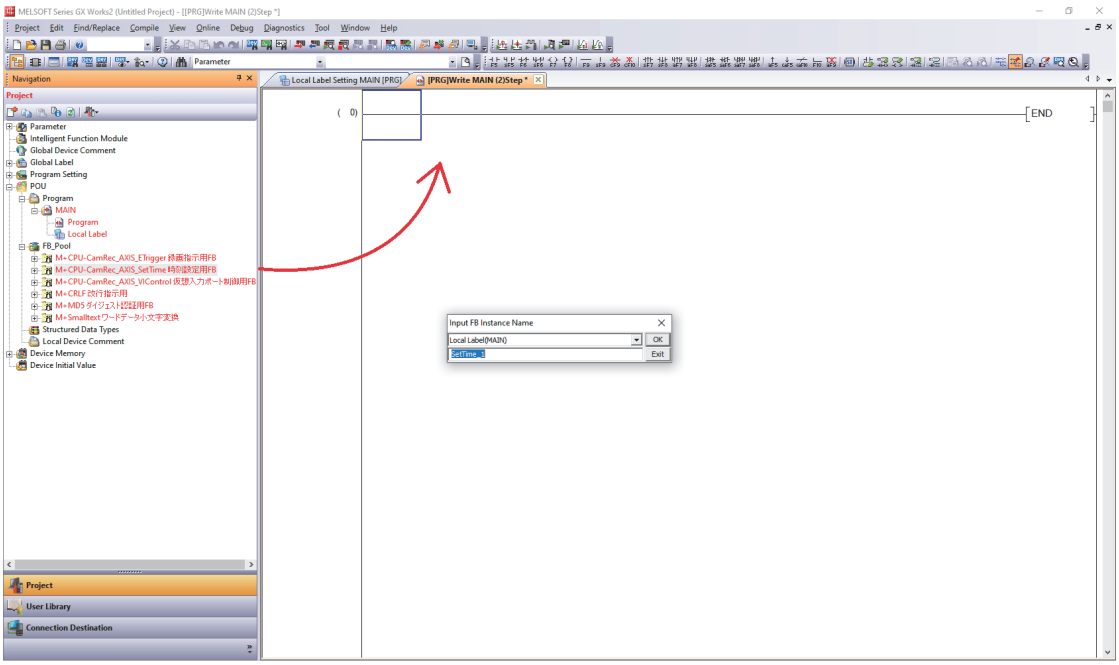
- Installing M+CRLF, M+MD5, and M+Smalltext is required, though they are not used in the program.
- FBs in a project cannot be overwritten or deleted. If any changes are made to FBs due to update of the installer, create a new project.

Creating a program

Create a program using an FB.

[Navigation Window] ⇨ [POU] ⇨ [FB Control]

1. Drag and drop the applicable FB to the editor.



2. Enter the input labels and output labels of the created FB to create a program.

Restriction

For the subroutine FBs, setting labels that are common to the FBs for time setting, recording instruction, and virtual input port control is required. Set the following global labels. Note that the numbers of array elements should be set exactly the same as follows. If different numbers are set, the program may not run normally.

	Class	Label Name	Data Type	
1	VAR_GLOBAL	wnSData	Word[Signed](0..479)	...
2	VAR_GLOBAL	wMD5_INPUT	Word[Signed](0..95)	...
3	VAR_GLOBAL	wMD5_OUTPUT	Word[Signed](0..16)	...
4	VAR_GLOBAL	sMoziData1	String(32)	...

■Example to create M+CPU-CamRec_AXIS_SetTime (Time setting)

This FB is executed once when the operating status of the CPU module is changed to RUN to set the time information of the CPU module to the network camera.

■When bSetTime_EN (FB execution command) is turned on, the time of the CPU module is set to the network camera.

- The network camera is specified with iw_ConnectionNo (Connection number).
- The network camera authentication is cleared with is_UserName (User name) and is_PassWord (Password).

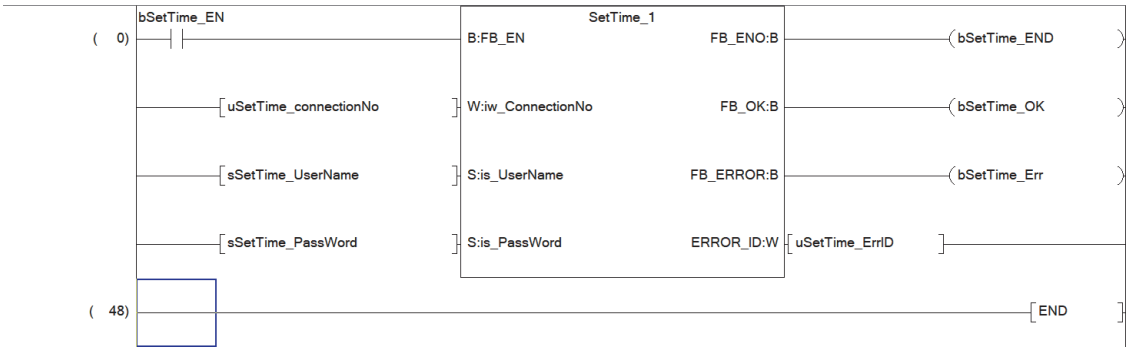
- Global label

1	VAR_GLOBAL	bSetTime_EN	Bit	...
2	VAR_GLOBAL	uSetTime_connectionNo	Word[Signed]	...
3	VAR_GLOBAL	sSetTime_UserName	String(70)	...
4	VAR_GLOBAL	sSetTime_PassWord	String(70)	...
5	VAR_GLOBAL	bSetTime_END	Bit	...
6	VAR_GLOBAL	bSetTime_OK	Bit	...
7	VAR_GLOBAL	bSetTime_Err	Bit	...
8	VAR_GLOBAL	uSetTime_ErrID	Word[Signed]	...

Restriction

To use this FB, setting labels for subroutine FBs is required. (☞ Page 54 Creating a program)

- Program



Input label	Setting details	Setting example
FB_EN	On: The FB is activated. Off: The FB is stopped.	—
iw_ConnectionNo	Sets the connection number.	1
is_UserName	Sets the user name registered in the network camera.	"root"
is_PassWord	Sets the password registered in the network camera.	"Pass1234"

Output label	Setting details
FB_ENO	On: The execution command is on. Off: The execution command is off.
FB_OK	The on state indicates that setting the time has been completed.
FB_ERROR	The on state indicates that an error has occurred in the FB.
ERROR_ID	Returns the error code of an error occurred in the FB.

■Example to create M+CPU-CamRec_AXIS_ETrigger (Recording direction)

This FB is executed at the timing of recording to execute a recording event of the network camera.

■When bEventTrigger_EN (FB execution command) is turned on, the recording is instructed to the network camera.

- The network camera is specified with iw_ConnectionNo (Connection number).
- The network camera authentication is cleared with is_UserName (User name) and is_PassWord (Password).
- A recording event specified with iw_VIPortNo (Virtual input port number) is executed.

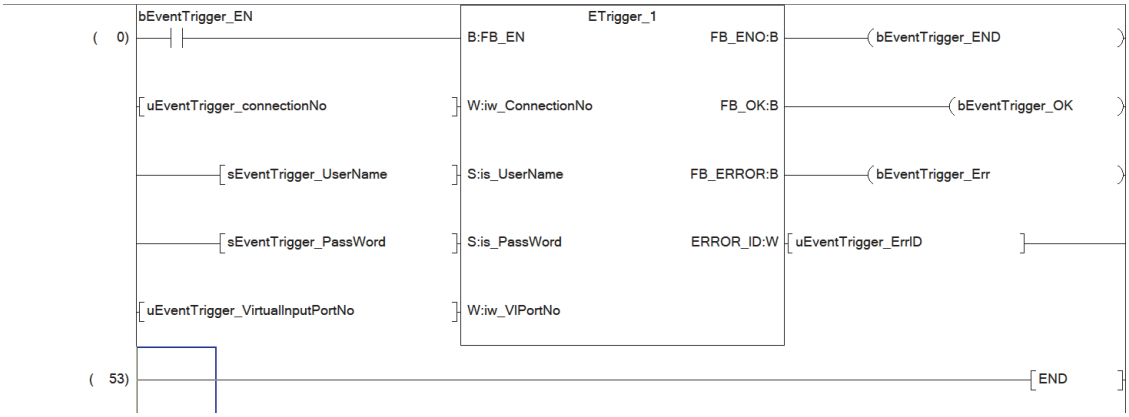
- Global label

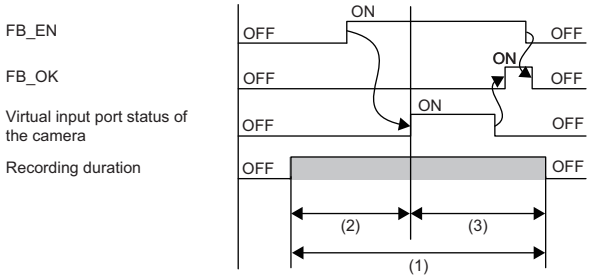
	Class	Label Name	Data Type	
1	VAR_GLOBAL	bEventTrigger_EN	Bit	
2	VAR_GLOBAL	uEventTrigger_connectionNo	Word[Signed]	
3	VAR_GLOBAL	sEventTrigger_UserName	String(70)	
4	VAR_GLOBAL	sEventTrigger_PassWord	String(70)	
5	VAR_GLOBAL	uEventTrigger_VirtualInputPortNo	Word[Signed]	
6	VAR_GLOBAL	bEventTrigger_END	Bit	
7	VAR_GLOBAL	bEventTrigger_OK	Bit	
8	VAR_GLOBAL	bEventTrigger_Err	Bit	
9	VAR_GLOBAL	uEventTrigger_ErrID	Word[Signed]	

Restriction

To use this FB, setting labels for subroutine FBs is required. (☞ Page 54 Creating a program)

- Program





(1) Video recording duration
(2) Pre-trigger recording time (Prebuffer)
(3) Post-trigger recording time (Postbuffer)

Input label	Setting details	Setting example
FB_EN	Connects with a device used as a recording trigger. On: The FB is activated (a recording event is executed). Off: The FB is stopped.	—
iw_ConnectionNo	Sets the connection number.	1
is_UserName	Sets the user name registered in the network camera.	"root"
is_PassWord	Sets the password registered in the network camera.	"Pass1234"
iw_VIPortNo	Specifies the port number of the virtual input for the recording event registered in the network camera.	9

Output label	Setting details
FB_ENO	On: The execution command is on. Off: The execution command is off.
FB_OK	The on state indicates that the virtual input port status on the network camera side has been switched.
FB_ERROR	The on state indicates that an error has occurred in the FB.
ERROR_ID	Returns the error code of an error occurred in the FB.

Point

- Do not start the second video recording until the post-trigger recording period (Postbuffer) ends.
- If recording events occur consecutively in a brief period of time and the recording duration of one event overlaps the recording duration of the subsequent event, this FB may not be completed successfully and a timeout error (C1E2H) may occur. Ensure that the recording durations of events do not overlap when this FB is executed.

■Example to create M+CPU-CamRec_AXIS_VIControl (Virtual input port control)

This FB executes a recording event of the network camera with the virtual input port status on or off.

■When bVirtualInputControl_EN (FB execution command) is turned on, the recording is instructed to the network camera.

- The network camera is specified with iw_ConnectionNo (Connection number).
- The network camera authentication is cleared with is_UserName (User name) and is_PassWord (Password).
- The virtual input port is specified with iw_VIPortNo (Virtual input port number).
- ib_VIPortState (Virtual input port status) is turned on (enabled).

■When the recording direction has been completed successfully (bVirtualInputControl_OK is on), ib_VIPortState is turned off, and bVirtualInputControl_EN is turned on again.

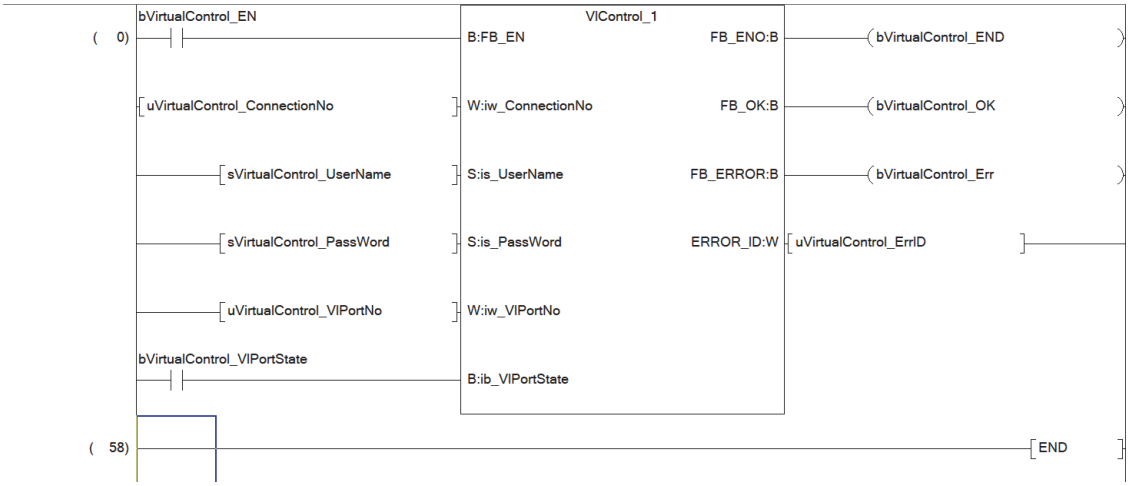
- Global label

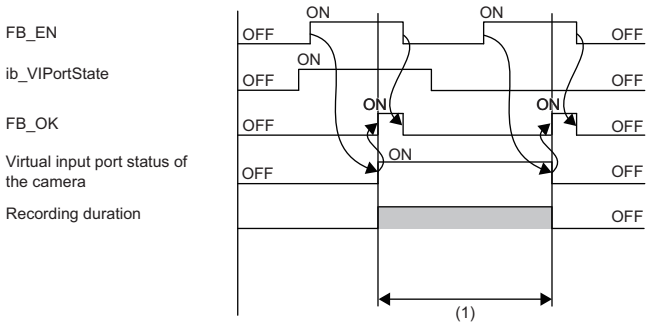
	Class	Label Name	Data Type	
1	VAR_GLOBAL	bVirtualControl_EN	Bit	...
2	VAR_GLOBAL	uVirtualControl_ConnectionNo	Word[Signed]	...
3	VAR_GLOBAL	sVirtualControl_UserName	String(70)	...
4	VAR_GLOBAL	sVirtualControl_PassWord	String(70)	...
5	VAR_GLOBAL	uVirtualControl_VIPortNo	Word[Signed]	...
6	VAR_GLOBAL	bVirtualControl_VIPortState	Bit	...
7	VAR_GLOBAL	bVirtualControl_END	Bit	...
8	VAR_GLOBAL	bVirtualControl_OK	Bit	...
9	VAR_GLOBAL	bVirtualControl_Err	Bit	...
10	VAR_GLOBAL	uVirtualControl_ErrID	Word[Signed]	...

Restriction

To use this FB, setting labels for subroutine FBs is required. (☞ Page 54 Creating a program)

- Program





(1) Video recording duration

Input label	Setting details	Setting example
FB_EN	Connects with a device used as a recording trigger. On: The FB is activated (a recording event is executed). Off: The FB is stopped.	—
iw_ConnectionNo	Sets the connection number.	1
is_UserName	Sets the user name registered in the network camera.	"root"
is_PassWord	Sets the password registered in the network camera.	"Pass1234"
iw_VIPortNo	Specifies the port number of the virtual input for the recording event registered in the network camera.	9
ib_VIPortState	Sets the virtual input port status. On: The virtual input port status is enabled. Off: The virtual input port status is disabled. To activate the trigger, enable the virtual input port status. The virtual input port status cannot be automatically disabled once it has been enabled. Therefore, disable the virtual input port status after the event is started.	1

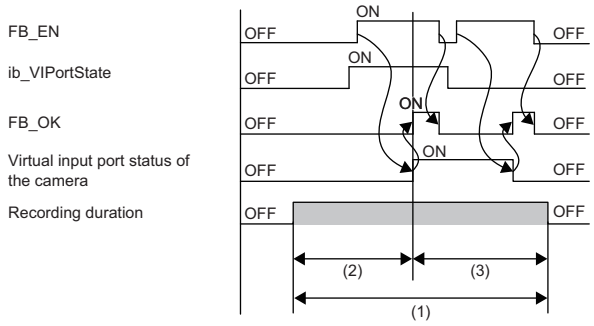
Output label	Setting details
FB_ENO	On: The execution command is on. Off: The execution command is off.
FB_OK	The on state indicates that the virtual input port status on the network camera side has been switched.
FB_ERROR	The on state indicates that an error has occurred in the FB.
ERROR_ID	Returns the error code of an error occurred in the FB.

Point

If recording events occur consecutively in a brief period of time and the recording duration of one event overlaps the recording duration of the subsequent event, this FB may not be completed successfully and a timeout error (C1E2H) may occur. Ensure that recording events do not overlap when this FB is executed.

Point

When the virtual input port status of the network camera is turned on in this FB, it cannot be automatically turned off. Therefore, the processing to turn off the virtual input port status of the network camera is required. Therefore, when o_bOK (FB completed successfully) has been turned on, turn off i_bVirtualInputPortState to execute this FB again. When recording video before and after turning on the recording trigger, the second recording cannot be executed in the network camera without this processing.



(1) Video recording duration
(2) Pre-trigger recording time (Prebuffer)
(3) Post-trigger recording time (Postbuffer)

6 PLAYBACK OF VIDEO FILES

Video files that are generated with this product can be played back using GX VideoViewer.
When checking the video, GX VideoViewer can be used together with GX Works3 and GX LogViewer. For details, refer to the following.
GX VideoViewer Version 1 Operating Manual

6.1 Storage Location of Video Files

Video files are stored into a location that conforms to the following format.

share\axis-ACCCXXXXXXXX\20200221\09\20200221_092633_CED6_ACCCXXXXXXXX\20200221_09
(1) (2) (3) (4) (5) (6)

No.	Description	Explanation
(1)	The common folder set in the recording event settings (☞ Page 21 Recording Event Settings)	—
(2)	axis-"serial number"	A unique number on the printed label on the network camera manufactured by Axis Communications
(3)	"Date"	A date when the video file is generated (YYYYMMDD)
(4)	"Hour"	A time (hour) when the video file is generated (hh)
(5)	"Video file ID"	A unique ID given to a video file (YYYYMMDD_hhmmss_XXXX_"serial number")
(6)	"Date"_"Hour"	A date and a time when the video file is generated (YYYYMMDD_hh)

Point

To play back a video file from GX VideoViewer, copy and specify the hierarchical folder (5).

6.2 Name and Format of Video Files

A video file consists of the file name and extension that conform to the following format.
Only video files in the mkv format can be generated with the Camera recording package.

20200221_092633_ECD5.mkv
(1) (2) (3)

No.	Description	Explanation
(1)	"Date"	A date when the video file is generated (YYYYMMDD)
(2)	"Time"	A time when the video file is generated (hhmmss)
(3)	"Block number"	Management number of the viedo file (XXXX)

Point

- When playing back the device data and generated video file together on GX VideoViewer, do not change the folder configuration and video file name.
- The maximum recording duration per video file is five minutes. If the specified recording duration exceeds five minutes, the video is divided into multiple video files.

Video file specifications

The following table shows the specifications of video files that can be played back on Video Verification Tool.

File format	Maximum file size	Resolution	Frame rate
mkv	2GB	320 × 240 pixel, 640 × 480 pixel, 1280 × 720 pixel, 1920 × 1080 pixel	120fps, 100fps, 60fps, 50fps, 30fps, 25fps, 15fps, 10fps

Other restrictions on video files

- A video file must be in the same folder as an xml file containing time information.
- The frame rate needs to have been recorded correctly with no fast-forward/slow motion playback areas.
- A video file needs to contain continuous-time images.

7 TROUBLESHOOTING

This chapter describes details on various errors that occur in use of the Camera recording package, and determined causes and actions for those errors.

When the FB ends with an error

■When the error code C1B1H is output

Item to check	Action and cause
In the programmable controller settings, check whether the constant scan time exceeding 500ms is set.	After setting the constant scan time to 500ms or lower or leaving it blank, execute the FB again. If the constant scan time exceeds 500ms, the socket communications are disconnected by the network camera operation and data communications is disabled.

■When the error code 1128H or 112EH is output in the connection with the MELSEC iQ-R series module

Item to check	Action and cause
Check the settings of the specified connection number.	Check "External Device Configuration" for the settings of the connection number. There may be an error in the settings.
Check the connection between the network camera and the module.	Check the wiring. When connecting the network camera to the RJ71EN71 or RnENCPU, check whether the correct Ethernet port is used. The network camera may be connected incorrectly.
Check if multiple FBs are simultaneously executed.	Check the program. Multiple FBs may be simultaneously executed to a single network camera.

■When the error code C1D3H or 112EH is output in the connection with the MELSEC iQ-F series module

Item to check	Action and cause
Check the settings of the specified connection number.	Check "External Device Configuration" for the settings of the connection number. There may be an error in the settings.
Check if multiple FBs are simultaneously executed.	Check the program. Multiple FBs may be simultaneously executed to a single network camera.

■When the error code 41B9H or 41A6H is output in the connection with the MELSEC-Q series module

Item to check	Action and cause
Check the settings for the specified connection number.	Check "Open Setting" for the settings of the connection number. There may be an error in the settings.
Check if multiple FBs are simultaneously executed.	Check the program. Multiple FBs may be simultaneously executed to a single network camera.

■When any error code from C1E0H to C1E3H is output

Refer to the list of error codes for each FB.

■When an error code other than the above is output

Refer to the following:

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

📖 MELSEC iQ-F FX5 User's Manual (Ethernet Communication)

📖 QCPU User's Manual (Hardware Design, Maintenance and Inspection)

When the time of the programmable controller cannot be set to the network camera

Item to check	Action and cause
In the configuration tool of the network camera, check whether the "Date and time" window is activated.	After closing the configuration tool of the network camera, execute the FB again. The FB side operates normally when the time setting in the configuration tool on the network camera side is being edited, but the time of the programmable controller is not reflected on the network camera side.

When no video file can be saved in the network storage

Item to check	Action and cause
Check whether the FB is executed with the virtual input port number for which no recording event is set.	Set the virtual input port set for the recording event to the same number as the virtual input port set for the FB. The virtual input port status on the network camera side becomes enabled/disabled and the FB side operates normally. However, since no recording event is assigned to the network camera side, no event occurs.
Check whether the virtual input port status is enabled by the FB while the virtual input port status on the network camera side has already been enabled.	Restart the network camera, or disable the virtual input port status on the network camera side by the FB before execution. Since the virtual input port status on the network camera side has already been enabled, no event occurs.
Check whether the recording is ongoing on the network camera side.	When the recording time (seconds) after the occurrence of the recording event has ended, execute the command send. When the recording is ongoing on the network camera side during the command send, no event occurs.

When an FB cannot be executed for two or more network cameras simultaneously

Item to check	Action and cause
In "External Device Configuration", check whether different port numbers are set to each programmable controller.	After setting different port numbers to each programmable controller, execute the FB again. If the same port number is set to the programmable controllers in "External Device Configuration", the simultaneous socket communications cannot be performed.

When the operation is completed neither successfully nor with an error

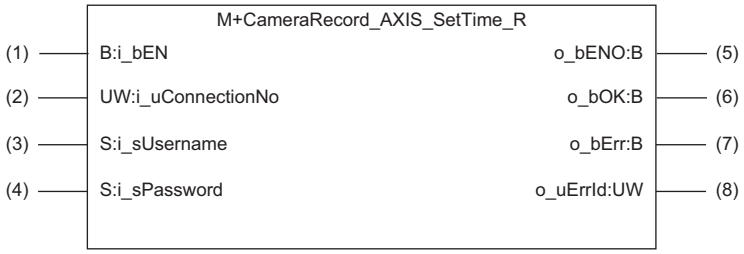
Item to check	Action and cause
Check whether the label (o_bOK or o_bErr) turns on after turning off and on the FB execution command and then 10 seconds has elapsed.	Restart the programmable controller and the network camera, and execute the FB again. The open processing may have failed to complete at the specified connection number.
	When the network camera is connected to a MELSEC iQ-F series CPU module, check that the data in "External Device Configuration", corresponding to the connection number specified in the FB, is correct. (☞ Page 28 External device configuration)

8 FB LIBRARY DETAILS (FOR MELSEC iQ-R SERIES CPU MODULES (BUILT-IN ETHERNET PORT PART))

8.1 M+CameraRecord_AXIS_SetTime_R

Overview

This FB sets the clock data of the CPU module to the network camera manufactured by Axis Communications that is connected to the MELSEC iQ-R series CPU module.



Point

By synchronizing the time of the network camera and the programmable controller, video files and the data acquired by the recorder module can be aligned and checked on a common time axis.
Refer to "Offline Monitor Function" and "Camera Recording Function" in the following:
MELSEC iQ-R System Recorder User's Manual (Application)
Refer to "OPERATION METHODS" in the following:
GX VideoViewer Version 1 Operating Manual

Labels

Input labels

No.	Variable name	Name	Data type	Effective range	Description
(1)	i_bEN	Execution command	Bit	On or off	On: The FB is activated. Off: The FB is not activated.
(2)	i_uConnectionNo	Connection number	Word [unsigned]	1 to 16	Specifies the connection number.
(3)	i_sUserName	User name	String (255)	4 to 14 characters	Specifies the user name registered in the corresponding network camera. (Available strings: a to z, A to Z, 0 to 9)
(4)	i_sPassWord	Password	String (255)	4 to 64 characters	Specifies the password registered in the corresponding network camera.

Output labels

No.	Variable name	Name	Data type	Initial value	Description
(5)	o_bENO	Execution status	Bit	Off	On: The execution command is on. Off: The execution command is off.
(6)	o_bOK	FB completed successfully	Bit	Off	The on state indicates that sending the time setting command has been completed.
(7)	o_bErr	FB completed with an error	Bit	Off	The on state indicates that an error has occurred in the FB.
(8)	o_uErrId	Error code	Word [unsigned]	0	The error code of an error occurred in the FB is stored.

FB details

Relevant modules and software

■Target module

MELSEC iQ-R series programmable controller CPU (built-in Ethernet port) (☞ Page 13 Compatible Programmable Controllers)

■Engineering tool

GX Works3 Version 1.065T or later

Basic specifications

Item	Description
Programming language	Ladder diagram, ST
Number of steps	3021 steps The number of steps of the FB embedded in a program depends on the CPU module used, the input/output definitions, and the option settings of GX Works3. For the option settings of GX Works3, refer to the following. 📖 GX Works3 Operating Manual
FB dependence	No dependence
FB compilation method	Subroutine type
FB operation	Pulse execution type (multiple scan execution type)

Functional description

- When i_bEN (Execution command) is turned on, the time is set by sending the command of the CPU module time to the network camera.
- If the number of the set characters is outside the effective range for i_uConnectionNo (Connection number), i_sUserName (User name), and i_sPassWord (Password), o_bErr (FB completed with an error) turns on and the processing of the FB is interrupted. In addition, the error code, C1E0H, is stored in o_uErrId (Error code). (☞ Page 67 Error codes)
- If no response is returned from the network camera after the command is sent, o_bErr turns on and the processing of the FB is interrupted. In addition, the error code, C1E2H, is stored in o_uErrId. (☞ Page 67 Error codes)
- If an unregistered i_sUserName or i_sPassWord is set, o_bErr turns on and the processing of the FB is interrupted. In addition, the error code, C1E3H, is stored in o_uErrId. (☞ Page 67 Error codes)
- For errors that occur in each processing for data communication between the Ethernet-equipped module and external device, and errors that occur in processing requests from the CPU module in the own station, refer to the following.

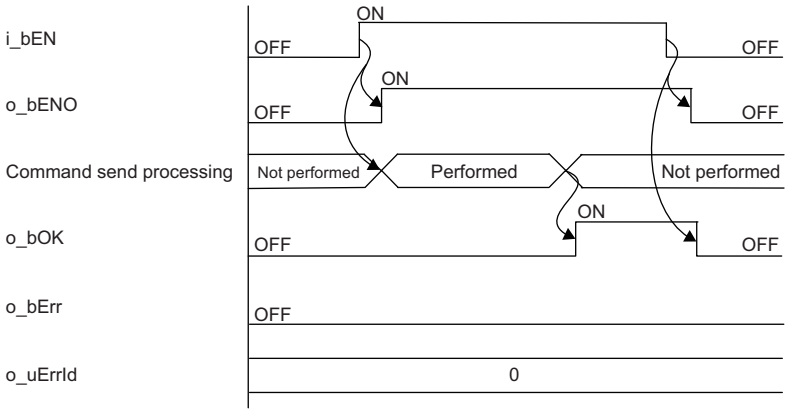
📖 MELSEC iQ-R Ethernet User's Manual (Application)

Restrictions and precautions

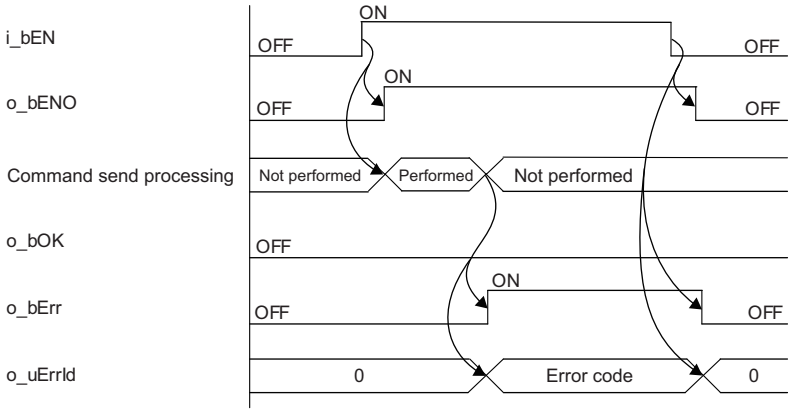
- The FB does not include the error recovery processing. Prepare the error recovery processing separately to suit the actual system and the expected operation.
- The FB cannot be used in an interrupt program.
- Using the FB in a program that is to be executed only once, such as a subroutine program or a FOR-NEXT loop, has a problem that i_bEN (Execution command) can no longer be turned off and normal operation is not possible; Always use the FB in a program that is capable of turning off i_bEN.
- Change the memory/device setting of the CPU parameter so that the memory capacity required to use the FB is secured. If the setting is not changed, an error may occur in GX Works3.
- Turning off i_bEN stops the processing that is being performed. Turning off i_bEN during the processing has a problem that the connection can no longer be closed; Turn off i_bEN after o_bOK (FB completed successfully) or o_bErr (FB completed with an error) is turned on.
- During the execution of this FB, perform exclusive control to avoid using the same connection number.
- Use the FB in an environment where the scan time is 500ms or less.
- When this FB is changed online, o_bENO, o_bOK, o_bErr, and o_uErrId are not retained. Turn off and on i_bEN after the online change.
- After the completion of the FB, wait for 500ms or more before subsequent execution of the FB if it specifies a connection having the same information (external device IP address, own station port number, and external device port number) as the connection specified by the preceding FB. If the subsequent execution must be started within 500ms, executing the FB after changing the own station port number on the Active open side is recommended.
- Do not perform the open/close processing instruction (SP.SOCOPEN/SP.SOCCLOSE) in the socket communications whose connection number is used in the FB. Doing so affects the FB operation.

Timing chart of I/O signals

■When the FB completed successfully



■When the FB completed with an error



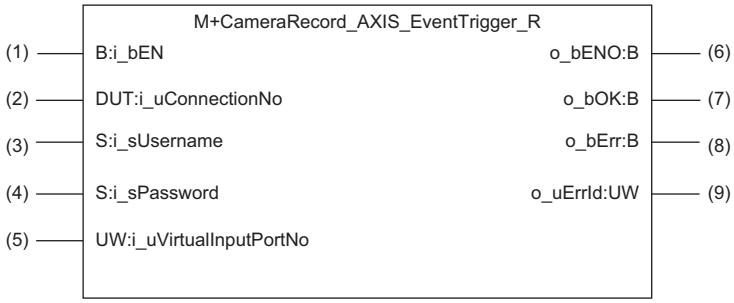
Error codes

Error code	Description	Action
C1E0H	• Effective range error (Connection No./User name/Password) The set data is out of effective range: i_uConnectionNo is not set within 1 to 16; i_sUserName is not set within 4 to 14 characters; or i_sPassWord is not set within 4 to 64 characters.	Review and correct the input label, and execute the FB again.
C1E2H	• Timeout error No response is returned from the network camera after the command is sent.	Review and correct the following, and execute the FB again. • When the constant scan time exceeding 500ms is set, set it to 500ms or less, or leave it blank. • Set the same IP address in the specified connection number as that of the network camera.
C1E3H	• User name/password setting error Unregistered i_sUserName or i_sPassWord is set.	After performing the following, execute the FB again. • Review and correct the input label. • There may be no response from the network camera. Restart the programmable controller and the network camera.
Other than the above	Errors that occur in each processing for data communication between the Ethernet-equipped module and external device, and errors that occur in processing requests from the CPU module in the own station	MELSEC iQ-R Ethernet User's Manual (Application)

8.2 M+CameraRecord_AXIS_EventTrigger_R

Overview

This FB executes the recording event set to the network camera manufactured by Axis Communications that is connected to the MELSEC iQ-R series CPU module.



Labels

Input labels

No.	Variable name	Name	Data type	Effective range	Description
(1)	i_bEN	Execution command	Bit	On or off	On: The FB is activated. Off: The FB is not activated.
(2)	i_uConnectionNo	Connection number	Word [unsigned]	1 to 16	Specifies the connection number.
(3)	i_sUserName	User name	String (255)	4 to 14 characters	Specifies the user name registered in the corresponding network camera. (Available strings: a to z, A to Z, 0 to 9)
(4)	i_sPassWord	Password	String (255)	4 to 64 characters	Specifies the password registered in the corresponding network camera.
(5)	i_uVirtualInputPortNo	Virtual input port number	Word [unsigned]	1 to 32	Specifies the port number of the virtual input for which the recording event is executed. ☞ Page 21 Recording Event Settings

Output labels

No.	Variable name	Name	Data type	Initial value	Description
(6)	o_bENO	Execution status	Bit	Off	On: The execution command is on. Off: The execution command is off.
(7)	o_bOK	FB completed successfully	Bit	Off	The on state indicates that sending the command for switching the virtual input port has been completed.
(8)	o_bErr	FB completed with an error	Bit	Off	The on state indicates that an error has occurred in the FB.
(9)	o_uErrId	Error code	Word [unsigned]	0	The error code of an error occurred in the FB is stored.

FB details

Relevant modules and software

■Target module

MELSEC iQ-R series programmable controller CPU (built-in Ethernet port) (☞ Page 13 Compatible Programmable Controllers)

■Engineering tool

GX Works3 Version 1.065T or later

Basic specifications

Item	Description
Programming language	Ladder diagram, ST
Number of steps	3060 steps The number of steps of the FB embedded in a program depends on the CPU module used, the input/output definitions, and the option settings of GX Works3. For the option settings of GX Works3, refer to the following. 📖 GX Works3 Operating Manual
FB dependence	No dependence
FB compilation method	Subroutine type
FB operation	Pulse execution type (multiple scan execution type)

Functional description

- When i_bEN (Execution command) is turned on, an event execution command of i_uVirtualInputPortNo (Virtual input port number) is sent to the network camera.
- If the number of the set characters is outside the effective range for i_uConnectionNo (Connection number), i_sUserName (User name), and i_sPassWord (Password), o_bErr (FB completed with an error) turns on and the processing of the FB is interrupted. In addition, the error code, C1E0H, is stored in o_uErrId (Error code). (☞ Page 71 Error codes)
- If the set value for i_uVirtualInputPortNo is outside 1 to 32, o_bErr turns on and the processing of the FB is interrupted. In addition, the error code, C1E1H, is stored in o_uErrId. (☞ Page 71 Error codes)
- If no response is returned from the network camera after the command is sent, o_bErr turns on and the processing of the FB is interrupted. In addition, the error code, C1E2H, is stored in o_uErrId. (☞ Page 71 Error codes)
- If an unregistered i_sUserName or i_sPassWord is set, o_bErr turns on and the processing of the FB is interrupted. In addition, the error code, C1E3H, is stored in o_uErrId. (☞ Page 71 Error codes)
- For errors that occur in each processing for data communication between the Ethernet-equipped module and external device, and errors that occur in processing requests from the CPU module in the own station, refer to the following.

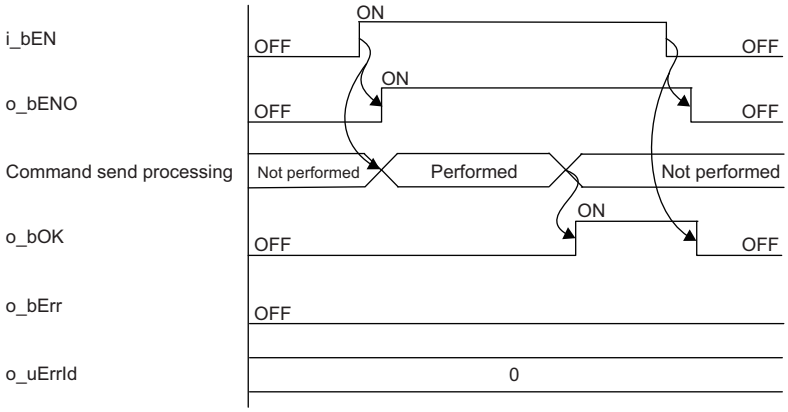
📖 MELSEC iQ-R Ethernet User's Manual (Application)

Restrictions and precautions

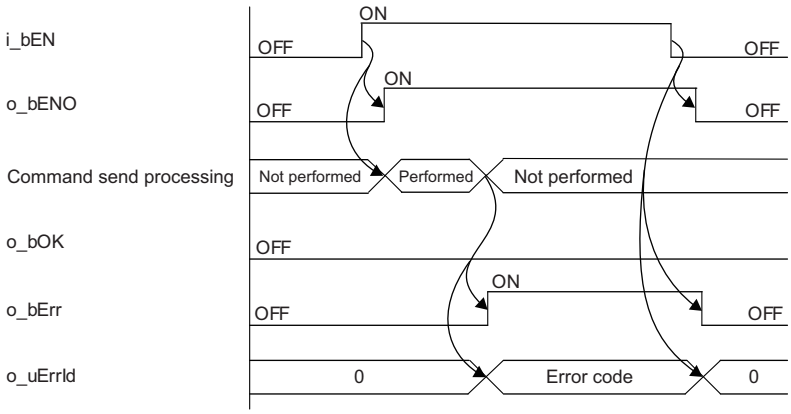
- The FB does not include the error recovery processing. Prepare the error recovery processing separately to suit the actual system and the expected operation.
- The FB cannot be used in an interrupt program.
- Using the FB in a program that is to be executed only once, such as a subroutine program or a FOR-NEXT loop, has a problem that i_bEN (Execution command) can no longer be turned off and normal operation is not possible; Always use the FB in a program that is capable of turning off i_bEN.
- Change the memory/device setting of the CPU parameter so that the memory capacity required to use the FB is secured. If the setting is not changed, an error may occur in GX Works3.
- Turning off i_bEN stops the processing that is being performed. Turning off i_bEN during the processing has a problem that the connection can no longer be closed; Turn off i_bEN after o_bOK (FB completed successfully) or o_bErr (FB completed with an error) is turned on.
- During the execution of this FB, perform exclusive control to avoid using the same connection number.
- Use the FB in an environment where the scan time is 500ms or less.
- When this FB is changed online, o_bENO, o_bOK, o_bErr, and o_uErrId are not retained. Turn off and on i_bEN after the online change.
- If recording events occur consecutively in a brief period of time and the recording duration of one event overlaps the recording duration of the subsequent event, this FB may not be completed successfully and a timeout error (C1E2H) may occur. Ensure that the recording durations of events do not overlap when this FB is executed.
- After the completion of the FB, wait for 500ms or more before subsequent execution of the FB if it specifies a connection having the same information (external device IP address, own station port number, and external device port number) as the connection specified by the preceding FB. If the subsequent execution must be started within 500ms, executing the FB after changing the own station port number on the Active open side is recommended.
- Do not perform the open/close processing instruction (SP.SOCOPEN/SP.SOCCLOSE) in the socket communications whose connection number is used in the FB. Doing so affects the FB operation.

Timing chart of I/O signals

■When the FB completed successfully



■When the FB completed with an error



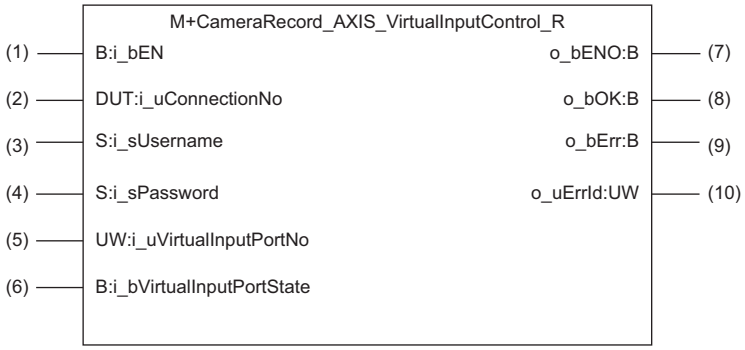
Error codes

Error code	Description	Action
C1E0H	• Effective range error (Connection No./User name/Password) i_uConnectionNo is not set within 1 to 16, i_sUserName not set within 4 to 14 characters, and i_sPassWord not set within 4 to 64 characters.	Review and correct the input label, and execute the FB again.
C1E1H	• Effective range error (Virtual input port number) The set data is out of effective range: i_uVirtualInputPortNo is not set within 1 to 32.	Review and correct the input label, and execute the FB again.
C1E2H	• Timeout error No response is returned from the network camera after the command is sent.	Review and correct the following, and execute the FB again. • When the constant scan time exceeding 500ms is set, set it to 500ms or less, or leave it blank. • Check that recording events are not overlapped due to consecutive recording triggers that occur in a brief period of time.
C1E3H	• User name/password setting error Unregistered i_sUserName or i_sPassWord is set.	After performing the following, execute the FB again. • Review and correct the input label. • There may be no response from the network camera. Restart the programmable controller and the network camera.
Other than the above	Errors that occur in each processing for data communication between the Ethernet-equipped module and external device, and errors that occur in processing requests from the CPU module in the own station	MELSEC iQ-R Ethernet User's Manual (Application)

8.3 M+CameraRecord_AXIS_VirtualInputControl_R

Overview

This FB enables or disables the execution trigger of the recording event set to the network camera manufactured by Axis Communications that is connected to the MELSEC iQ-R series CPU module.



Labels

Input labels

No.	Variable name	Name	Data type	Effective range	Description
(1)	i_bEN	Execution command	Bit	On or off	On: The FB is activated. Off: The FB is not activated.
(2)	i_uConnectionNo	Connection number	Word [unsigned]	1 to 16	Specifies the connection number.
(3)	i_sUserName	User name	String (255)	4 to 14 characters	Specifies the user name registered in the corresponding network camera. (Available strings: a to z, A to Z, 0 to 9)
(4)	i_sPassWord	Password	String (255)	4 to 64 characters	Specifies the password registered in the corresponding network camera.
(5)	i_uVirtualInputPortNo	Virtual input port number	Word [unsigned]	1 to 32	Specifies the port number of the virtual input to be enabled/disabled. ☞ Page 21 Recording Event Settings
(6)	i_bVirtualInputPortState	Virtual input port status	Bit	On or off	On: The virtual input port status is enabled. Off: The virtual input port status is disabled.

Output labels

No.	Variable name	Name	Data type	Initial value	Description
(7)	o_bENO	Execution status	Bit	Off	On: The execution command is on. Off: The execution command is off.
(8)	o_bOK	FB completed successfully	Bit	Off	The on state indicates that sending the command for switching the virtual input port has been completed.
(9)	o_bErr	FB completed with an error	Bit	Off	The on state indicates that an error has occurred in the FB.
(10)	o_uErrId	Error code	Word [unsigned]	0	The error code of an error occurred in the FB is stored.

FB details

Relevant modules and software

■Target module

MELSEC iQ-R series programmable controller CPU (built-in Ethernet port) (☞ Page 13 Compatible Programmable Controllers)

■Engineering tool

GX Works3 Version 1.065T or later

Basic specifications

Item	Description
Programming language	Ladder diagram, ST
Number of steps	2798 steps The number of steps of the FB embedded in a program depends on the CPU module used, the input/output definitions, and the option settings of GX Works3. For the option settings of GX Works3, refer to the following. 📖 GX Works3 Operating Manual
FB dependence	No dependence
FB compilation method	Subroutine type
FB operation	Pulse execution type (multiple scan execution type)

Functional description

- When i_bEN (Execution command) is turned on, a command for enabling/disabling i_uVirtualInputPortState (Virtual input port status) of i_uVirtualInputPortNo (Virtual input port number) is sent to the network camera. i_uVirtualInputPortState cannot be automatically disabled once it has been enabled. Therefore, disable i_uVirtualInputPortState after the event is started. If not disabled, the next event cannot be started.
- If the number of the set characters is outside the effective range for i_uConnectionNo (Connection number), i_sUserName (User name), and i_sPassWord (Password), o_bErr (FB completed with an error) turns on and the processing of the FB is interrupted. In addition, the error code, C1E0H, is stored in o_uErrId (Error code). (☞ Page 76 Error codes)
- If the set value for i_uVirtualInputPortNo is outside 1 to 32, o_bErr turns on and the processing of the FB is interrupted. In addition, the error code, C1E1H, is stored in o_uErrId. (☞ Page 76 Error codes)
- If no response is returned from the network camera after the command is sent, o_bErr turns on and the processing of the FB is interrupted. In addition, the error code, C1E2H, is stored in o_uErrId. (☞ Page 76 Error codes)
- If an unregistered i_sUserName or i_sPassWord is set, o_bErr turns on and the processing of the FB is interrupted. In addition, the error code, C1E3H, is stored in o_uErrId. (☞ Page 76 Error codes)
- For errors that occur in each processing for data communication between the Ethernet-equipped module and external device, and errors that occur in processing requests from the CPU module in the own station, refer to the following.

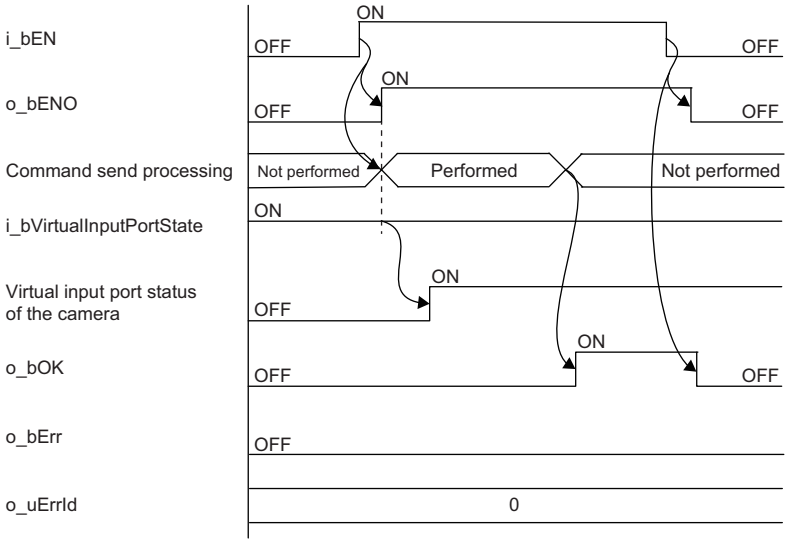
📖 MELSEC iQ-R Ethernet User's Manual (Application)

Restrictions and precautions

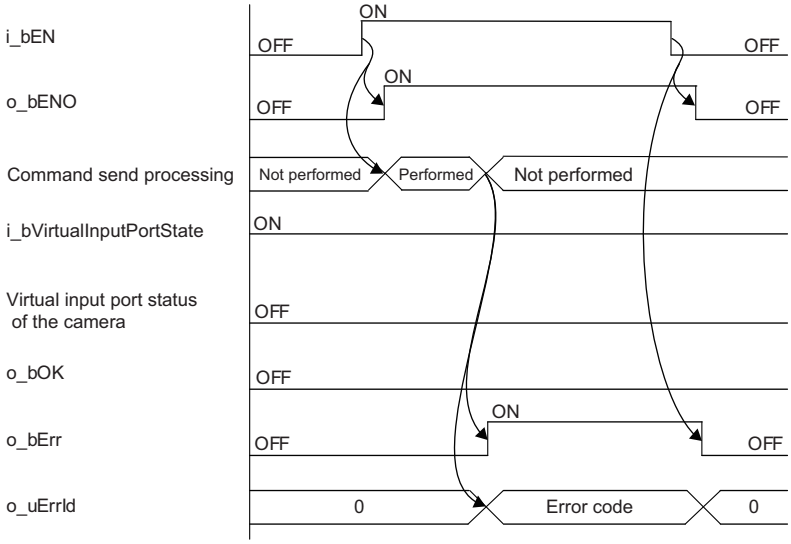
- The FB does not include the error recovery processing. Prepare the error recovery processing separately to suit the actual system and the expected operation.
- The FB cannot be used in an interrupt program.
- Using the FB in a program that is to be executed only once, such as a subroutine program or a FOR-NEXT loop, has a problem that i_bEN (Execution command) can no longer be turned off and normal operation is not possible; Always use the FB in a program that is capable of turning off i_bEN.
- Change the memory/device setting of the CPU parameter so that the memory capacity required to use the FB is secured. If the setting is not changed, an error may occur in GX Works3.
- Turning off i_bEN stops the processing that is being performed. Turning off i_bEN during the processing has a problem that the connection can no longer be closed; Turn off i_bEN after o_bOK (FB completed successfully) or o_bErr (FB completed with an error) is turned on.
- During the execution of this FB, perform exclusive control to avoid using the same connection number.
- Use the FB in an environment where the scan time is 500ms or less.
- When this FB is changed online, o_bENO, o_bOK, o_bErr, and o_uErrId are not retained. Turn off and on i_bEN after the online change.
- If recording events occur consecutively in a brief period of time and the recording duration of one event overlaps the recording duration of the subsequent event, this FB may be completed with an error and a timeout error (C1E2H) may occur. Ensure that the recording durations of events do not overlap when this FB is executed.
- After the completion of the FB, wait for 500ms or more before subsequent execution of the FB if it specifies a connection having the same information (external device IP address, own station port number, and external device port number) as the connection specified by the preceding FB. If the subsequent execution must be started within 500ms, executing the FB after changing the own station port number on the Active open side is recommended.
- Do not perform the open/close processing instruction (SP.SOCOPEN/SP.SOCCLOSE) in the socket communications whose connection number is used in the FB. Doing so affects the FB operation.

Timing chart of I/O signals

■When the FB completed successfully



■When the FB completed with an error



8

Error codes

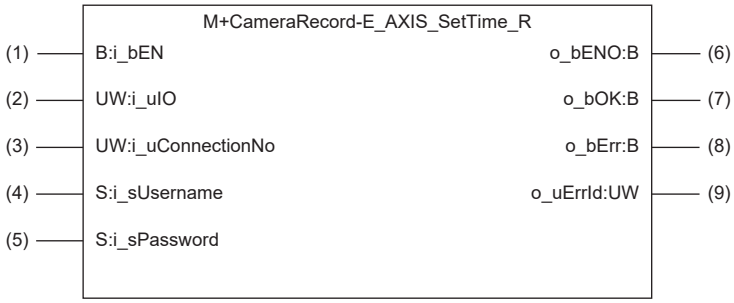
Error code	Description	Action
C1E0H	• Effective range error (Connection No./User name/Password) i_uConnectionNo is not set within 1 to 16, i_sUserName not set within 4 to 14 characters, and i_sPassWord not set within 4 to 64 characters.	Review and correct the input label, and execute the FB again.
C1E1H	• Effective range error (Virtual input port number) The set data is out of effective range: i_uVirtualInputPortNo is not set within 1 to 32.	Review and correct the input label, and execute the FB again.
C1E2H	• Timeout error No response is returned from the network camera after the command is sent.	Review and correct the following, and execute the FB again. • When the constant scan time exceeding 500ms is set, set it to 500ms or less, or leave it blank. • Check that recording events are not overlapped due to consecutive recording triggers that occur in a brief period of time.
C1E3H	• User name/password setting error Unregistered i_sUserName or i_sPassWord is set.	After performing the following, execute the FB again. • Review and correct the input label. • There may be no response from the network camera. Restart the programmable controller and the network camera.
Other than the above	Errors that occur in each processing for data communication between the Ethernet-equipped module and external device, and errors that occur in processing requests from the CPU module in the own station	MELSEC iQ-R Ethernet User's Manual (Application)

9 FB LIBRARY DETAILS (FOR MELSEC iQ-R SERIES MODULES (RJ71EN71, RnENCPU (NETWORK PART))

9.1 M+CameraRecord-E_AXIS_SetTime_R

Overview

This FB sets the clock data of the CPU module to the network camera manufactured by Axis Communications that is connected to the MELSEC iQ-R series Ethernet module or RnENCPU network part.



Point

By synchronizing the time of the network camera and the programmable controller, video files and the data acquired by the recorder module can be aligned and checked on a common time axis.
Refer to "Offline Monitor Function" and "Camera Recording Function" in the following:
📖 MELSEC iQ-R System Recorder User's Manual (Application)
Refer to "OPERATION METHODS" in the following:
📖 GX VideoViewer Version 1 Operating Manual

Labels

Input labels

No.	Variable name	Name	Data type	Effective range	Description
(1)	i_bEN	Execution command	Bit	On or off	On: The FB is activated. Off: The FB is not activated.
(2)	i_uIO	Start I/O number	Word [unsigned]	0H to 0FEH	Set the start I/O number. Start I/O number of own station/own node (upper 3 digits of 4 hexadecimal digits)
(3)	i_uConnectionNo	Connection number	Word [unsigned]	17 to 128*1	Specifies the connection number. 17 to 64: Connection numbers 17 to 64 of the Ethernet port (P1) 65 to 128: Connection numbers 1 to 64 of the Ethernet port (P2)
(4)	i_sUserName	User name	String (255)	4 to 14 characters	Specifies the user name registered in the corresponding network camera. (Available strings: a to z, A to Z, 0 to 9)
(5)	i_sPassWord	Password	String (255)	4 to 64 characters	Specifies the password registered in the corresponding network camera.

*1 For the RnENCPU (network part), the effective range is 17 to 64 because only the Ethernet port (P1) can be connected.

Output label

No.	Variable name	Name	Data type	Initial value	Description
(6)	o_bENO	Execution status	Bit	Off	On: The execution command is on. Off: The execution command is off.
(7)	o_bOK	FB completed successfully	Bit	Off	The on state indicates that sending the time setting command has been completed.
(8)	o_bErr	FB completed with an error	Bit	Off	The on state indicates that an error has occurred in the FB.
(9)	o_uErrId	Error code	Word [unsigned]	0	The error code of an error occurred in the FB is stored.

FB details

Relevant modules and software

■Target module

MELSEC iQ-R series Ethernet module, RnENCPU (network part) (☞ Page 13 Compatible Programmable Controllers)

■Engineering tool

GX Works3 Version 1.065T or later

Basic specifications

Item	Description
Programming language	Ladder diagram, ST
Number of steps	2969 steps The number of steps of the FB embedded in a program depends on the CPU module used, the input/output definitions, and the option settings of GX Works3. For the option settings of GX Works3, refer to the following. 📖 GX Works3 Operating Manual
FB dependence	No dependence
FB compilation method	Subroutine type
FB operation	Pulse execution type (multiple scan execution type)

Functional description

- When i_bEN (Execution command) is turned on, the time is set by sending the command of the CPU module time to the network camera.
- If the number of the set characters is outside the effective range for i_uConnectionNo (Connection number), i_sUserName (User name), and i_sPassWord (Password), o_bErr (FB completed with an error) turns on and the processing of the FB is interrupted. In addition, the error code, C1E0H, is stored in o_uErrId (Error code). (☞ Page 81 Error codes)
- If no response is returned from the network camera after the command is sent, o_bErr turns on and the processing of the FB is interrupted. In addition, the error code, C1E2H, is stored in o_uErrId. (☞ Page 81 Error codes)
- If an unregistered i_sUserName or i_sPassWord is set, o_bErr turns on and the processing of the FB is interrupted. In addition, the error code, C1E3H, is stored in o_uErrId. (☞ Page 81 Error codes)
- For errors that occur in each processing for data communication between the Ethernet-equipped module and external device, and errors that occur in processing requests from the CPU module in the own station, refer to the following.

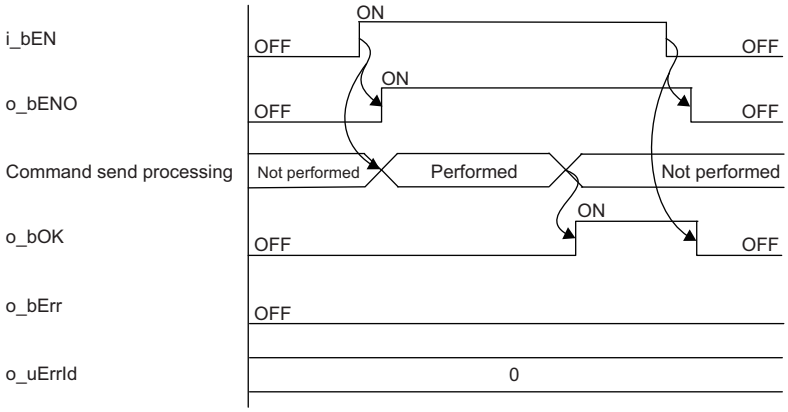
📖 MELSEC iQ-R Ethernet User's Manual (Application)

Restrictions and precautions

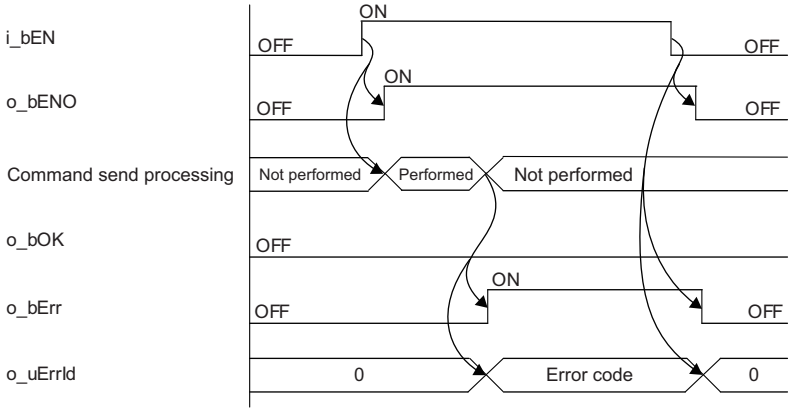
- The FB does not include the error recovery processing. Prepare the error recovery processing separately to suit the actual system and the expected operation.
- This FB uses the index register (Z9). When using an interrupt program, do not use the index register (Z9) in the program.
- Using the FB in a program that is to be executed only once, such as a subroutine program or a FOR-NEXT loop, has a problem that i_bEN (Execution command) can no longer be turned off and normal operation is not possible; Always use the FB in a program that is capable of turning off i_bEN.
- Change the memory/device setting of the CPU parameter so that the memory capacity required to use the FB is secured. If the setting is not changed, an error may occur in GX Works3.
- Turning off i_bEN stops the processing that is being performed. Turning off i_bEN during the processing has a problem that the connection can no longer be closed; Turn off i_bEN after o_bOK (FB completed successfully) or o_bErr (FB completed with an error) is turned on.
- During the execution of this FB, perform exclusive control to avoid using the same connection number.
- Use the FB in an environment where the scan time is 500ms or less.
- When this FB is changed online, o_bENO, o_bOK, o_bErr, and o_uErrId are not retained. Turn off and on i_bEN after the online change.
- If an incorrect number is set for i_uIO (Start I/O number), an error may occur in the CPU module.
- After the completion of the FB, wait for 500ms or more before subsequent execution of the FB if it specifies a connection having the same information (external device IP address, own station port number, and external device port number) as the connection specified by the preceding FB. If the subsequent execution must be started within 500ms, executing the FB after changing the own station port number on the Active open side is recommended.
- Do not perform the open/close processing instruction (SP.SOCOPEN/SP.SOCCLOSE) in the socket communications whose connection number is used in the FB. Doing so affects the FB operation.

Timing chart of I/O signals

■When the FB completed successfully



■When the FB completed with an error



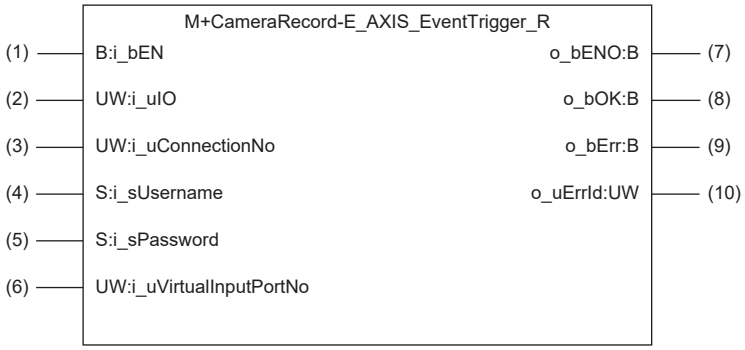
Error codes

Error code	Description	Action
C1E0H	• Effective range error (Connection No./User name/Password/Start I/O number) The set data is out of effective range: i_uConnectionNo is not set within 17 to 128; i_sUserName is not set within 4 to 14 characters; i_sPassWord is not set within 4 to 64 characters; or i_uIO is not set within 0H to 0FEH.	Review and correct the input label, and execute the FB again.
C1E2H	• Timeout error No response is returned from the network camera after the command is sent.	Review and correct the following, and execute the FB again. • When the constant scan time exceeding 500ms is set, set it to 500ms or less, or leave it blank. • Set the same IP address in the specified connection number as that of the network camera.
C1E3H	• User name/password setting error Unregistered i_sUserName or i_sPassWord is set.	After performing the following, execute the FB again. • Review and correct the input label. • There may be no response from the network camera. Restart the programmable controller and the network camera.
Other than the above	Errors that occur in each processing for data communication between the Ethernet-equipped module and external device, and errors that occur in processing requests from the CPU module in the own station	MELSEC iQ-R Ethernet User's Manual (Application)

9.2 M+CameraRecord-E_AXIS_EventTrigger_R

Overview

This FB executes the recording event set to the network camera manufactured by Axis Communications that is connected to the MELSEC iQ-R series Ethernet module or RnENCPU network part.



Labels

Input labels

No.	Variable name	Name	Data type	Effective range	Description
(1)	i_bEN	Execution command	Bit	On or off	On: The FB is activated. Off: The FB is not activated.
(2)	i_uIO	Start I/O number	Word [unsigned]	0H to 0FEH	Set the start I/O number. Start I/O number of own station/own node (upper 3 digits of 4 hexadecimal digits)
(3)	i_uConnectionNo	Connection number	Word [unsigned]	17 to 128*1	Specifies the connection number. 17 to 64: Connection numbers 17 to 64 of the Ethernet port (P1) 65 to 128: Connection numbers 1 to 64 of the Ethernet port (P2)
(4)	i_sUserName	User name	String (255)	4 to 14 characters	Specifies the user name registered in the corresponding network camera. (Available strings: a to z, A to Z, 0 to 9)
(5)	i_sPassWord	Password	String (255)	4 to 64 characters	Specifies the password registered in the corresponding network camera.
(6)	i_uVirtualInputPortNo	Virtual input port number	Word [unsigned]	1 to 32	Specifies the port number of the virtual input for which the recording event is executed. ☞ Page 21 Recording Event Settings

*1 For the RnENCPU (network part), the effective range is 17 to 64 because only the Ethernet port (P1) can be connected.

Output label

No.	Variable name	Name	Data type	Initial value	Description
(7)	o_bENO	Execution status	Bit	Off	On: The execution command is on. Off: The execution command is off.
(8)	o_bOK	FB completed successfully	Bit	Off	The on state indicates that sending the command for switching the virtual input port has been completed.
(9)	o_bErr	FB completed with an error	Bit	Off	The on state indicates that an error has occurred in the FB.
(10)	o_uErrId	Error code	Word [unsigned]	0	The error code of an error occurred in the FB is stored.

FB details

Relevant modules and software

■Target module

MELSEC iQ-R series Ethernet module, RnENCPU (network part) (☞ Page 13 Compatible Programmable Controllers)

■Engineering tool

GX Works3 Version 1.065T or later

Basic specifications

Item	Description
Programming language	Ladder diagram, ST
Number of steps	2976 steps The number of steps of the FB embedded in a program depends on the CPU module used, the input/output definitions, and the option settings of GX Works3. For the option settings of GX Works3, refer to the following. 📖 GX Works3 Operating Manual
FB dependence	No dependence
FB compilation method	Subroutine type
FB operation	Pulse execution type (multiple scan execution type)

Functional description

- When i_bEN (Execution command) is turned on, an event execution command of i_uVirtualInputPortNo (Virtual input port number) is sent to the network camera.
- If the number of the set characters is outside the effective range for i_uConnectionNo (Connection number), i_sUserName (User name), and i_sPassWord (Password), o_bErr (FB completed with an error) turns on and the processing of the FB is interrupted. In addition, the error code, C1E0H, is stored in o_uErrId (Error code). (☞ Page 85 Error codes)
- If the set value for i_uVirtualInputPortNo is outside 1 to 32, o_bErr turns on and the processing of the FB is interrupted. In addition, the error code, C1E1H, is stored in o_uErrId. (☞ Page 85 Error codes)
- If no response is returned from the network camera after the command is sent, o_bErr turns on and the processing of the FB is interrupted. In addition, the error code, C1E2H, is stored in o_uErrId. (☞ Page 85 Error codes)
- If an unregistered i_sUserName or i_sPassWord is set, o_bErr turns on and the processing of the FB is interrupted. In addition, the error code, C1E3H, is stored in o_uErrId. (☞ Page 85 Error codes)
- For errors that occur in each processing for data communication between the Ethernet-equipped module and external device, and errors that occur in processing requests from the CPU module in the own station, refer to the following.

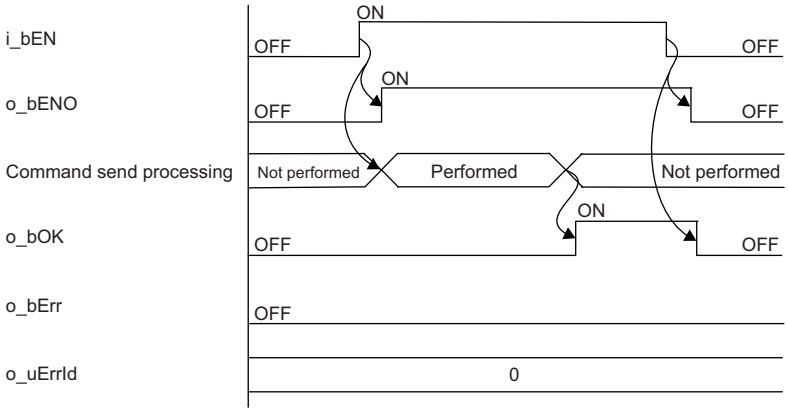
📖 MELSEC iQ-R Ethernet User's Manual (Application)

Restrictions and precautions

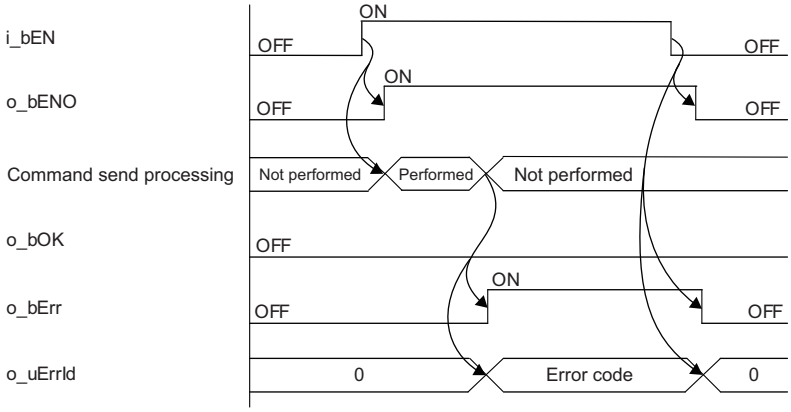
- The FB does not include the error recovery processing. Prepare the error recovery processing separately to suit the actual system and the expected operation.
- This FB uses the index register (Z9). When using an interrupt program, do not use the index register (Z9) in the program.
- Using the FB in a program that is to be executed only once, such as a subroutine program or a FOR-NEXT loop, has a problem that i_bEN (Execution command) can no longer be turned off and normal operation is not possible; Always use the FB in a program that is capable of turning off i_bEN.
- Change the memory/device setting of the CPU parameter so that the memory capacity required to use the FB is secured. If the setting is not changed, an error may occur in GX Works3.
- Turning off i_bEN stops the processing that is being performed. Turning off i_bEN during the processing has a problem that the connection can no longer be closed; Turn off i_bEN after o_bOK (FB completed successfully) or o_bErr (FB completed with an error) is turned on.
- During the execution of this FB, perform exclusive control to avoid using the same connection number.
- Use the FB in an environment where the scan time is 500ms or less.
- If this FB is repeatedly executed with a fixed cycle of less than 60s, a timeout error may occur due to trouble on the camera side.
- If an incorrect number is set for i_uIO (Start I/O number), an error may occur in the CPU module.
- After the completion of the FB, wait for 500ms or more before subsequent execution of the FB if it specifies a connection having the same information (external device IP address, own station port number, and external device port number) as the connection specified by the preceding FB. If the subsequent execution must be started within 500ms, executing the FB after changing the own station port number on the Active open side is recommended.
- Do not perform the open/close processing instruction (SP.SOCOPEN/SP.SOCCLOSE) in the socket communications whose connection number is used in the FB. Doing so affects the FB operation.

Timing chart of I/O signals

■When the FB completed successfully



■When the FB completed with an error



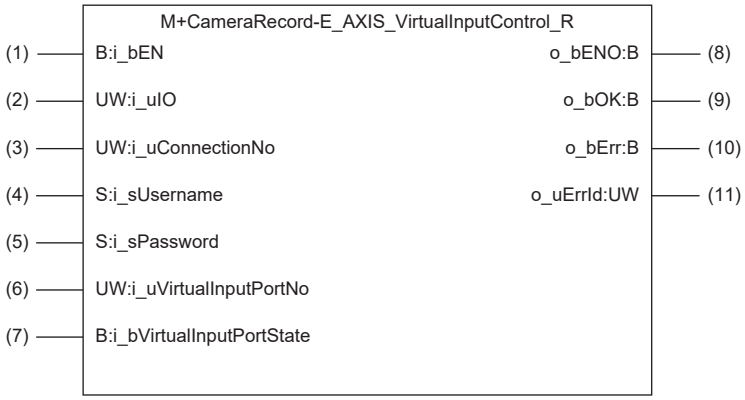
Error codes

Error code	Description	Action
C1E0H	• Effective range error (Connection No./User name/Password/Start I/O number) The set data is out of effective range: i_uConnectionNo is not set within 17 to 128; i_sUserName is not set within 4 to 14 characters; i_sPassWord is not set within 4 to 64 characters; or i_uIO is not set within 0H to 0FEH.	Review and correct the input label, and execute the FB again.
C1E1H	• Effective range error (Virtual input port number) The set data is out of effective range: i_uVirtualInputPortNo is not set within 1 to 32.	Review and correct the input label, and execute the FB again.
C1E2H	• Timeout error No response is returned from the network camera after the command is sent.	Review and correct the following, and execute the FB again. • When the constant scan time exceeding 500ms is set, set it to 500ms or less, or leave it blank. • Check that recording events are not overlapped due to consecutive recording triggers that occur in a brief period of time.
C1E3H	• User name/password setting error Unregistered i_sUserName or i_sPassWord is set.	After performing the following, execute the FB again. • Review and correct the input label. • There may be no response from the network camera. Restart the programmable controller and the network camera.
Other than the above	Errors that occur in each processing for data communication between the Ethernet-equipped module and external device, and errors that occur in processing requests from the CPU module in the own station	MELSEC iQ-R Ethernet User's Manual (Application)

9.3 M+CameraRecord-E_AXIS_VirtualInputControl_R

Overview

This FB enables or disables the execution trigger of the recording event set to the network camera manufactured by Axis Communications that is connected to the MELSEC iQ-R series Ethernet module or RnENCPU network part.



Labels

Input labels

No.	Variable name	Name	Data type	Effective range	Description
(1)	i_bEN	Execution command	Bit	On or off	On: The FB is activated. Off: The FB is not activated.
(2)	i_uIO	Start I/O number	Word [unsigned]	0H to 0FEH	Set the start I/O number. Start I/O number of own station/own node (upper 3 digits of 4 hexadecimal digits)
(3)	i_uConnectionNo	Connection number	Word [unsigned]	17 to 128*1	Specifies the connection number. 17 to 64: Connection numbers 17 to 64 of the Ethernet port (P1) 65 to 128: Connection numbers 1 to 64 of the Ethernet port (P2)
(4)	i_sUserName	User name	String (255)	4 to 14 characters	Specifies the user name registered in the corresponding network camera. (Available strings: a to z, A to Z, 0 to 9)
(5)	i_sPassWord	Password	String (255)	4 to 64 characters	Specifies the password registered in the corresponding network camera.
(6)	i_uVirtualInputPortNo	Virtual input port number	Word [unsigned]	1 to 32	Specifies the port number of the virtual input to be enabled/disabled. ☞ Page 21 Recording Event Settings
(7)	i_bVirtualInputPortState	Virtual input port status	Bit	On or off	On: The virtual input port status is enabled. Off: The virtual input port status is disabled.

*1 For the RnENCPU (network part), the effective range is 17 to 64 because only the Ethernet port (P1) can be connected.

Output label

No.	Variable name	Name	Data type	Initial value	Description
(8)	o_bENO	Execution status	Bit	Off	On: The execution command is on. Off: The execution command is off.
(9)	o_bOK	FB completed successfully	Bit	Off	The on state indicates that sending the command for switching the virtual input port has been completed.
(10)	o_bErr	FB completed with an error	Bit	Off	The on state indicates that an error has occurred in the FB.
(11)	o_uErrId	Error code	Word [unsigned]	0	The error code of an error occurred in the FB is stored.

FB details

Relevant modules and software

■Target module

MELSEC iQ-R series Ethernet module, RnENCPU (network part) (☞ Page 13 Compatible Programmable Controllers)

■Engineering tool

GX Works3 Version 1.065T or later

Basic specifications

Item	Description
Programming language	Ladder diagram, ST
Number of steps	2728 steps The number of steps of the FB embedded in a program depends on the CPU module used, the input/output definitions, and the option settings of GX Works3. For the option settings of GX Works3, refer to the following. 📖 GX Works3 Operating Manual
FB dependence	No dependence
FB compilation method	Subroutine type
FB operation	Pulse execution type (multiple scan execution type)

Functional description

- When i_bEN (Execution command) is turned on, a command for enabling/disabling i_uVirtualInputPortState (Virtual input port status) of i_uVirtualInputPortNo (Virtual input port number) is sent to the network camera. i_uVirtualInputPortState cannot be automatically disabled once it has been enabled. Therefore, disable i_uVirtualInputPortState after the event is started. If not disabled, the next event cannot be started.
- If the number of the set characters is outside the effective range for i_uConnectionNo (Connection number), i_sUserName (User name), and i_sPassWord (Password), o_bErr (FB completed with an error) turns on and the processing of the FB is interrupted. In addition, the error code, C1E0H, is stored in o_uErrId (Error code). (☞ Page 90 Error codes)
- If the set value for i_uVirtualInputPortNo is outside 1 to 32, o_bErr turns on and the processing of the FB is interrupted. In addition, the error code, C1E1H, is stored in o_uErrId. (☞ Page 90 Error codes)
- If no response is returned from the network camera after the command is sent, o_bErr turns on and the processing of the FB is interrupted. In addition, the error code, C1E2H, is stored in o_uErrId. (☞ Page 90 Error codes)
- If an unregistered i_sUserName or i_sPassWord is set, o_bErr turns on and the processing of the FB is interrupted. In addition, the error code, C1E3H, is stored in o_uErrId. (☞ Page 90 Error codes)
- For errors that occur in each processing for data communication between the Ethernet-equipped module and external device, and errors that occur in processing requests from the CPU module in the own station, refer to the following.

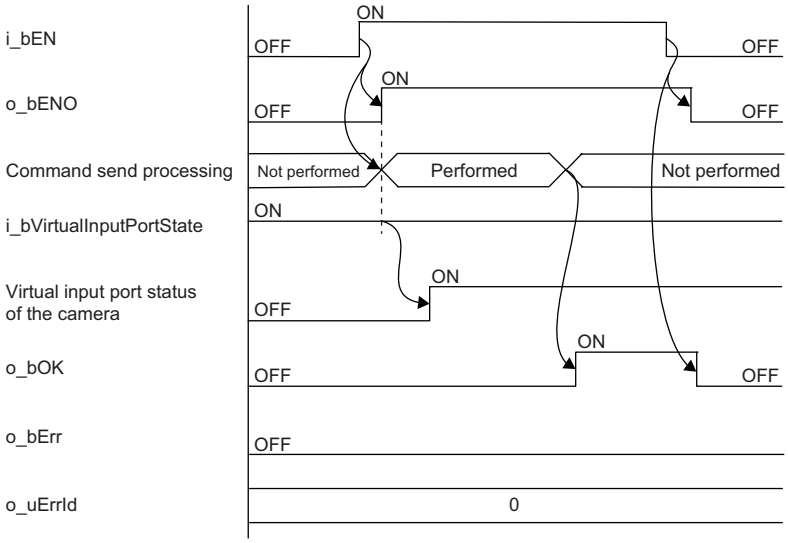
📖 MELSEC iQ-R Ethernet User's Manual (Application)

Restrictions and precautions

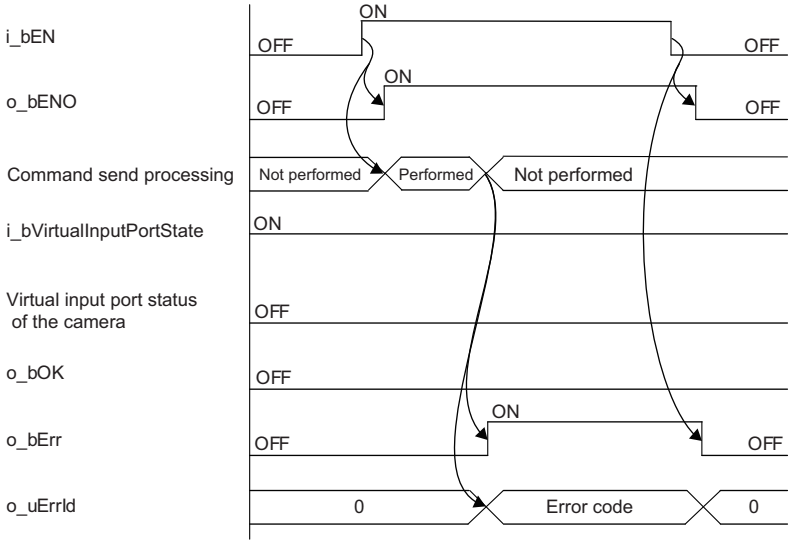
- The FB does not include the error recovery processing. Prepare the error recovery processing separately to suit the actual system and the expected operation.
- This FB uses the index register (Z9). When using an interrupt program, do not use the index register (Z9) in the program.
- Using the FB in a program that is to be executed only once, such as a subroutine program or a FOR-NEXT loop, has a problem that i_bEN (Execution command) can no longer be turned off and normal operation is not possible; Always use the FB in a program that is capable of turning off i_bEN.
- Change the memory/device setting of the CPU parameter so that the memory capacity required to use the FB is secured. If the setting is not changed, an error may occur in GX Works3.
- Turning off i_bEN stops the processing that is being performed. Turning off i_bEN during the processing has a problem that the connection can no longer be closed; Turn off i_bEN after o_bOK (FB completed successfully) or o_bErr (FB completed with an error) is turned on.
- During the execution of this FB, perform exclusive control to avoid using the same connection number.
- Use the FB in an environment where the scan time is 500ms or less.
- If this FB is repeatedly executed with a fixed cycle of less than 60s, a timeout error may occur due to trouble on the camera side.
- If an incorrect number is set for i_uIO (Start I/O number), an error may occur in the CPU module.
- After the completion of the FB, wait for 500ms or more before subsequent execution of the FB if it specifies a connection having the same information (external device IP address, own station port number, and external device port number) as the connection specified by the preceding FB. If the subsequent execution must be started within 500ms, executing the FB after changing the own station port number on the Active open side is recommended.
- Do not perform the open/close processing instruction (SP.SOCOPEN/SP.SOCCLOSE) in the socket communications whose connection number is used in the FB. Doing so affects the FB operation.

Timing chart of I/O signals

■When the FB completed successfully



■When the FB completed with an error



Error codes

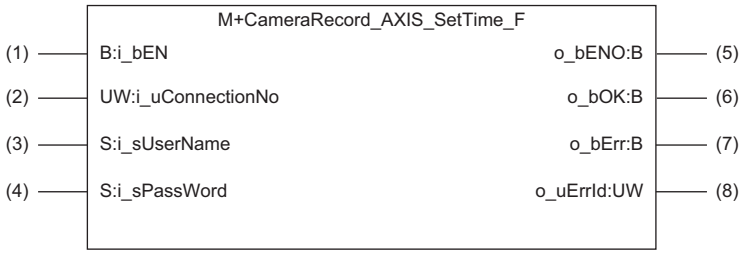
Error code	Description	Action
C1E0H	• Effective range error (Connection No./User name/Password/Start I/O number) The set data is out of effective range: i_uConnectionNo is not set within 17 to 128; i_sUserName is not set within 4 to 14 characters; i_sPassWord is not set within 4 to 64 characters; or i_uIO is not set within 0H to 0FEH.	Review and correct the input label, and execute the FB again.
C1E1H	• Effective range error (Virtual input port number) The set data is out of effective range: i_uVirtualInputPortNo is not set within 1 to 32.	Review and correct the input label, and execute the FB again.
C1E2H	• Timeout error No response is returned from the network camera after the command is sent.	Review and correct the following, and execute the FB again. • When the constant scan time exceeding 500ms is set, set it to 500ms or less, or leave it blank. • Check that recording events are not overlapped due to consecutive recording triggers that occur in a brief period of time.
C1E3H	• User name/password setting error Unregistered i_sUserName or i_sPassWord is set.	After performing the following, execute the FB again. • Review and correct the input label. • There may be no response from the network camera. Restart the programmable controller and the network camera.
Other than the above	Errors that occur in each processing for data communication between the Ethernet-equipped module and external device, and errors that occur in processing requests from the CPU module in the own station	MELSEC iQ-R Ethernet User's Manual (Application)

10 FB LIBRARY DETAILS (FOR MELSEC iQ-F SERIES CPU MODULES)

10.1 M+CameraRecord_AXIS_SetTime_F

Overview

This FB sets the clock data of the CPU module to the network camera manufactured by Axis Communications that is connected to the MELSEC iQ-F series CPU module.



Point

By synchronizing the time of the network camera and the programmable controller, video files and the data acquired by the CPU module can be aligned and checked on a common time axis.
Refer to "DATA LOGGING FUNCTION" in the following:
📖 MELSEC iQ-F FX5 User's Manual (Application)
Refer to "Displaying Data/Events of a Data Logger", "Connecting to a Data Logger or Data Communication", and "Checking Data" in the following:
📖 GX LogViewer Version 1 Operating Manual
Refer to "OPERATION METHODS" in the following:
📖 GX VideoViewer Version 1 Operating Manual

Labels

Input labels

No.	Variable name	Name	Data type	Effective range	Description
(1)	i_bEN	Execution command	Bit	On or off	On: The FB is activated. Off: The FB is not activated.
(2)	i_uConnectionNo	Connection number	Word [unsigned]	1 to 8	Specifies the connection number.
(3)	i_sUserName	User name	String (15)	4 to 14 characters	Specifies the user name registered in the corresponding network camera. (Available strings: a to z, A to Z, 0 to 9)
(4)	i_sPassWord	Password	String (65)	4 to 64 characters	Specifies the password registered in the corresponding network camera.

Output labels

No.	Variable name	Name	Data type	Initial value	Description
(5)	o_bENO	Execution status	Bit	OFF	On: The execution command is on. Off: The execution command is off.
(6)	o_bOK	FB completed successfully	Bit	OFF	The on state indicates that sending the time setting command has been completed.
(7)	o_bErr	FB completed with an error	Bit	OFF	The on state indicates that an error has occurred in the FB.
(8)	o_uErrId	Error code	Word [unsigned]	0	The error code of an error occurred in the FB is stored.

FB details

Relevant modules and software

■Relevant modules

MELSEC iQ-F series programmable controller CPU (☞ Page 13 Compatible Programmable Controllers)

■Engineering tool

GX Works3 versions

- For FX5S CPU module: 1.080J or later
- For FX5UJ/FX5U/FX5UC CPU module: 1.065T or later

Basic specifications

Item	Description
Programming language	Ladder diagram, ST
Number of steps	5079 steps The number of steps of the FB embedded in a program depends on the CPU module used, the input/output definitions, and the option settings of GX Works3. For the option settings of GX Works3, refer to the following. 📖 GX Works3 Operating Manual
Label usage	• When a single FB (this FB) is used, the amount of label usage is as follows: Label: 3.41K points Latch label: 0.004K points • When two or more FBs are used, the amount of label usage is the sum of that of FBs used. For example, when two each of FBs for time setting and FBs for recording direction are used, the amount of label usage is as follows: Word: 3.41K + 3.41K + 3.23K + 3.23K = 13.28K points The usage of labels embedded in a program depends on the devices specified as an argument and the option settings of GX Works3. For the option settings of GX Works3, refer to the following. 📖 GX Works3 Operating Manual Since the amount of label usage of this FB is large, the number of word device points may become insufficient. In this case, increase the number of label points of the devices (standard area).
FB dependence	No dependence
FB compilation method	Subroutine type
FB operation	Pulse execution type (multiple scan execution type)

Functional description

- When i_bEN (Execution command) is turned on, the time is set by sending the command of the CPU module time to the network camera.
- If the number of the set characters is outside the effective range for i_uConnectionNo (Connection number), i_sUserName (User name), and i_sPassWord (Password), o_bErr (FB completed with an error) turns on and the processing of the FB is interrupted. In addition, the error code, C1E0H, is stored in o_uErrId (Error code). (☞ Page 94 Error codes)
- If no response is returned from the network camera after the command is sent, o_bErr turns on and the processing of the FB is interrupted. In addition, the error code, C1E2H, is stored in o_uErrId. (☞ Page 94 Error codes)
- If an unregistered i_sUserName or i_sPassWord is set, o_bErr turns on and the processing of the FB is interrupted. In addition, the error code, C1E3H, is stored in o_uErrId. (☞ Page 94 Error codes)
- For errors that occur in each processing for data communication between the Ethernet-equipped module and external device, and errors that occur in processing requests from the CPU module in the own station, refer to the following.

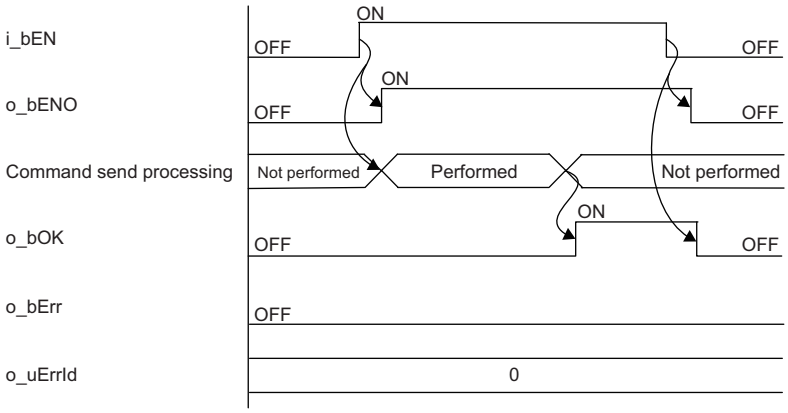
📖 MELSEC iQ-F FX5 User's Manual (Ethernet Communication)

Restrictions and precautions

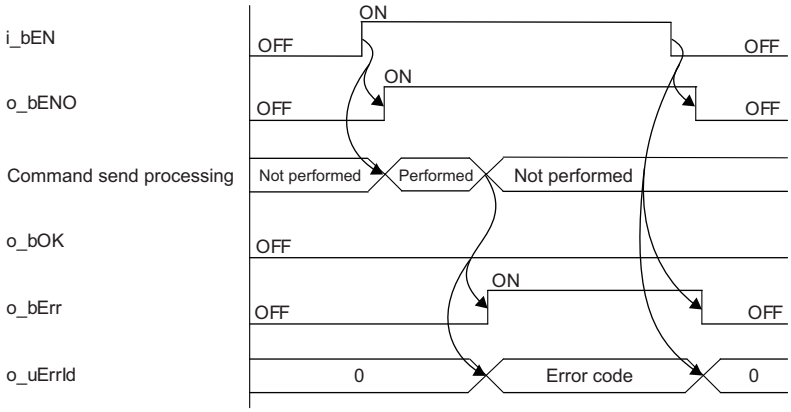
- The FB does not include the error recovery processing. Prepare the error recovery processing separately to suit the actual system and the expected operation.
- The FB cannot be used in an interrupt program.
- Using the FB in a program that is to be executed only once, such as a subroutine program or a FOR-NEXT loop, has a problem that i_bEN (Execution command) can no longer be turned off and normal operation is not possible; Always use the FB in a program that is capable of turning off i_bEN.
- Change the memory/device setting of the CPU parameter so that the memory capacity required to use the FB is secured. If the setting is not changed, an error may occur in GX Works3.
- Turning off i_bEN stops the processing that is being performed. Turning off i_bEN during the processing has a problem that the connection can no longer be closed; Turn off i_bEN after o_bOK (FB completed successfully) or o_bErr (FB completed with an error) is turned on.
- During the execution of this FB, perform exclusive control to avoid using the same connection number.
- Use the FB in an environment where the scan time is 500ms or less.
- When this FB is changed online, o_bENO, o_bOK, o_bErr, and o_uErrId are not retained. Turn off and on i_bEN after the online change.
- After the completion of the FB, wait for 500ms or more before subsequent execution of the FB if it specifies a connection having the same information (external device IP address, own station port number, and external device port number) as the connection specified by the preceding FB. If the subsequent execution must be started within 500ms, executing the FB after changing the own station port number on the Active open side is recommended.
- Do not perform the open/close processing instruction (SP.SOCOPEN/SP.SOCCLOSE) in the socket communications whose connection number is used in the FB. Doing so affects the FB operation.

Timing chart of I/O signals

■When the FB completed successfully



■When the FB completed with an error



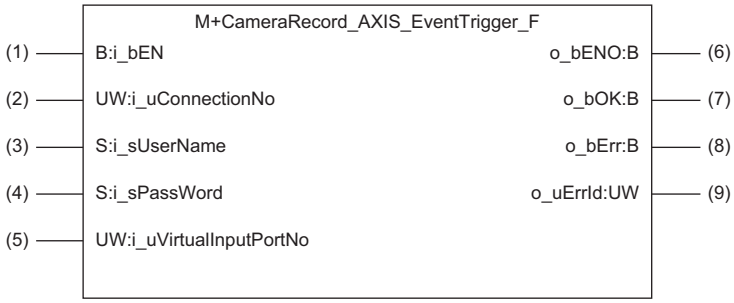
Error codes

Error code	Description	Action
C1E0H	• Effective range error (Connection No./User name/Password) The set data is out of effective range: i_uConnectionNo is not set within 1 to 8; i_sUserName is not set within 4 to 14 characters; or i_sPassWord is not set within 4 to 64 characters.	Review and correct the input label, and execute the FB again.
C1E2H	• Timeout error No response is returned from the network camera after the command is sent.	Review and correct the following, and execute the FB again. • When the constant scan time exceeding 500ms is set, set it to 500ms or less, or leave it blank. • Set the same IP address in the specified connection number as that of the network camera.
C1E3H	• User name/password setting error Unregistered i_sUserName or i_sPassWord is set.	After performing the following, execute the FB again. • Review and correct the input label. • There may be no response from the network camera. Restart the programmable controller and the network camera.
Other than the above	Errors that occur in each processing for data communication between the Ethernet-equipped module and external device, and errors that occur in processing requests from the CPU module in the own station	MELSEC iQ-F FX5 User's Manual (Ethernet Communication)

10.2 M+CameraRecord_AXIS_EventTrigger_F

Overview

This FB executes the recording event set to the network camera manufactured by Axis Communications that is connected to the MELSEC iQ-F series CPU module.



Labels

Input labels

No.	Variable name	Name	Data type	Effective range	Description
(1)	i_bEN	Execution command	Bit	On or off	On: The FB is activated. Off: The FB is not activated.
(2)	i_uConnectionNo	Connection number	Word [unsigned]	1 to 8	Specifies the connection number.
(3)	i_sUserName	User name	String (15)	4 to 14 characters	Specifies the user name registered in the corresponding network camera. (Available strings: a to z, A to Z, 0 to 9)
(4)	i_sPassWord	Password	String (65)	4 to 64 characters	Specifies the password registered in the corresponding network camera.
(5)	i_uVirtualInputPortNo	Virtual input port number	Word [unsigned]	1 to 32	Specifies the port number of the virtual input for which the recording event is executed. ☞ Page 21 Recording Event Settings

Output labels

No.	Variable name	Name	Data type	Initial value	Description
(6)	o_bENO	Execution status	Bit	OFF	On: The execution command is on. Off: The execution command is off.
(7)	o_bOK	FB completed successfully	Bit	OFF	The on state indicates that sending the command for switching the virtual input port has been completed.
(8)	o_bErr	FB completed with an error	Bit	OFF	The on state indicates that an error has occurred in the FB.
(9)	o_uErrId	Error code	Word [unsigned]	0	The error code of an error occurred in the FB is stored.

FB details

Relevant modules and software

■Relevant modules

MELSEC iQ-F series programmable controller CPU (☞ Page 13 Compatible Programmable Controllers)

■Engineering tool

GX Works3 versions

- For FX5S CPU module: 1.080J or later
- For FX5UJ/FX5U/FX5UC CPU module: 1.065T or later

Basic specifications

Item	Description
Programming language	Ladder diagram, ST
Number of steps	4990 steps The number of steps of the FB embedded in a program depends on the CPU module used, the input/output definitions, and the option settings of GX Works3. For the option settings of GX Works3, refer to the following. 📖 GX Works3 Operating Manual
Label usage	• When a single FB (this FB) is used, the amount of label usage is as follows: Label: 3.24K points Latch label: 0.004K points • When two or more FBs are used, the amount of label usage is the sum of that of FBs used. For example, when two each of FBs for time setting and FBs for recording direction are used, the amount of label usage is as follows: Word: 3.41K + 3.41K + 3.23K + 3.23K = 13.28K points The usage of labels embedded in a program depends on the devices specified as an argument and the option settings of GX Works3. For the option settings of GX Works3, refer to the following. 📖 GX Works3 Operating Manual Since the amount of label usage of this FB is large, the number of word device points may become insufficient. In this case, increase the number of label points of the devices (standard area).
FB dependence	No dependence
FB compilation method	Subroutine type
FB operation	Pulse execution type (multiple scan execution type)

Functional description

- When i_bEN (Execution command) is turned on, an event execution command of i_uVirtualInputPortNo (Virtual input port number) is sent to the network camera.
- If the number of the set characters is outside the effective range for i_uConnectionNo (Connection number), i_sUserName (User name), and i_sPassWord (Password), o_bErr (FB completed with an error) turns on and the processing of the FB is interrupted. In addition, the error code, C1E0H, is stored in o_uErrId (Error code). (☞ Page 98 Error codes)
- If the set value for i_uVirtualInputPortNo is outside 1 to 32, o_bErr turns on and the processing of the FB is interrupted. In addition, the error code, C1E1H, is stored in o_uErrId. (☞ Page 98 Error codes)
- If no response is returned from the network camera after the command is sent, o_bErr turns on and the processing of the FB is interrupted. In addition, the error code, C1E2H, is stored in o_uErrId. (☞ Page 98 Error codes)
- If an unregistered i_sUserName or i_sPassWord is set, o_bErr turns on and the processing of the FB is interrupted. In addition, the error code, C1E3H, is stored in o_uErrId. (☞ Page 98 Error codes)
- For errors that occur in each processing for data communication between the Ethernet-equipped module and external device, and errors that occur in processing requests from the CPU module in the own station, refer to the following.

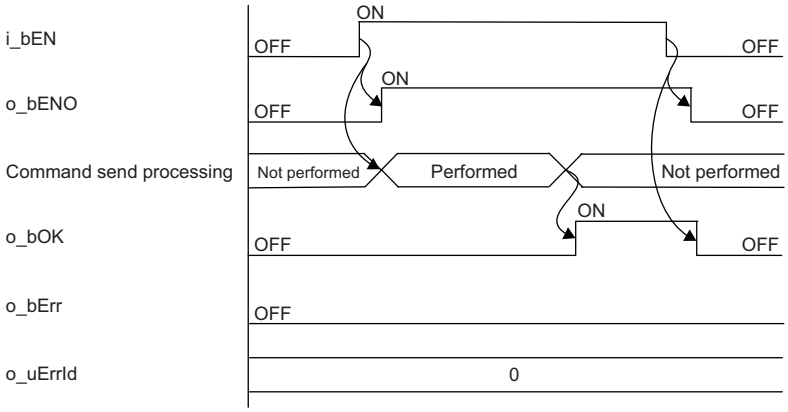
📖 MELSEC iQ-F FX5 User's Manual (Ethernet Communication)

Restrictions and precautions

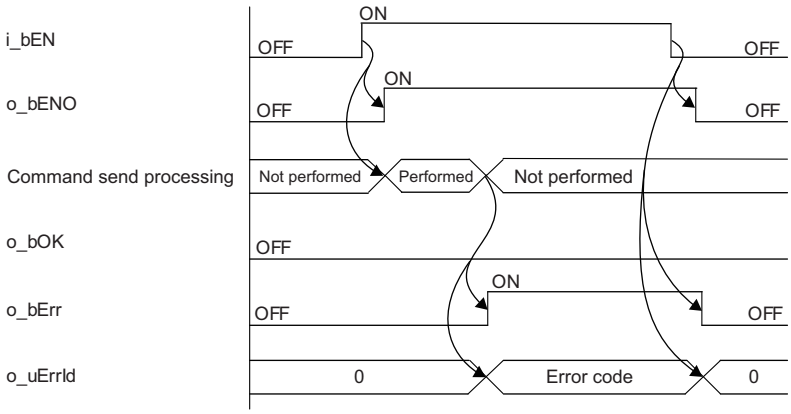
- The FB does not include the error recovery processing. Prepare the error recovery processing separately to suit the actual system and the expected operation.
- The FB cannot be used in an interrupt program.
- Using the FB in a program that is to be executed only once, such as a subroutine program or a FOR-NEXT loop, has a problem that i_bEN (Execution command) can no longer be turned off and normal operation is not possible; Always use the FB in a program that is capable of turning off i_bEN.
- Change the memory/device setting of the CPU parameter so that the memory capacity required to use the FB is secured. If the setting is not changed, an error may occur in GX Works3.
- Turning off i_bEN stops the processing that is being performed. Turning off i_bEN during the processing has a problem that the connection can no longer be closed; Turn off i_bEN after o_bOK (FB completed successfully) or o_bErr (FB completed with an error) is turned on.
- During the execution of this FB, perform exclusive control to avoid using the same connection number.
- Use the FB in an environment where the scan time is 500ms or less.
- When this FB is changed online, o_bENO, o_bOK, o_bErr, and o_uErrId are not retained. Turn off and on i_bEN after the online change.
- If recording events occur consecutively in a brief period of time and the recording duration of one event overlaps the recording duration of the subsequent event, this FB may not be completed successfully and a timeout error (C1E2H) may occur. Ensure that the recording durations of events do not overlap when this FB is executed.
- After the completion of the FB, wait for 500ms or more before subsequent execution of the FB if it specifies a connection having the same information (external device IP address, own station port number, and external device port number) as the connection specified by the preceding FB. If the subsequent execution must be started within 500ms, executing the FB after changing the own station port number on the Active open side is recommended.
- Do not perform the open/close processing instruction (SP.SOCOPEN/SP.SOCCLOSE) in the socket communications whose connection number is used in the FB. Doing so affects the FB operation.

Timing chart of I/O signals

■When the FB completed successfully



■When the FB completed with an error



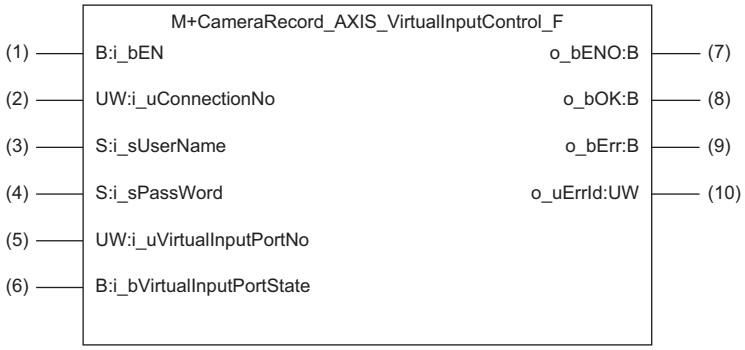
Error codes

Error code	Description	Action
C1E0H	• Effective range error (Connection No./User name/Password) The set data is out of effective range: i_uConnectionNo is not set within 1 to 8; i_sUserName is not set within 4 to 14 characters; or i_sPassWord is not set within 4 to 64 characters.	Review and correct the input label, and execute the FB again.
C1E1H	• Effective range error (Virtual input port number) The set data is out of effective range: i_uVirtualInputPortNo is not set within 1 to 32.	Review and correct the input label, and execute the FB again.
C1E2H	• Timeout error No response is returned from the network camera after the command is sent.	Review and correct the following, and execute the FB again. • When the constant scan time exceeding 500ms is set, set it to 500ms or less, or leave it blank. • Check that recording events are not overlapped due to consecutive recording triggers that occur in a brief period of time.
C1E3H	• User name/password setting error Unregistered i_sUserName or i_sPassWord is set.	After performing the following, execute the FB again. • Review and correct the input label. • There may be no response from the network camera. Restart the programmable controller and the network camera.
Other than the above	Errors that occur in each processing for data communication between the Ethernet-equipped module and external device, and errors that occur in processing requests from the CPU module in the own station	📖 MELSEC iQ-F FX5 User's Manual (Ethernet Communication)

10.3 M+CameraRecord_AXIS_VirtualInputControl_F

Overview

This FB enables or disables the execution trigger of the recording event set to the network camera manufactured by Axis Communications that is connected to the MELSEC iQ-F series CPU module.



Labels

Input labels

No.	Variable name	Name	Data type	Effective range	Description
(1)	i_bEN	Execution command	Bit	On or off	On: The FB is activated. Off: The FB is not activated.
(2)	i_uConnectionNo	Connection number	Word [unsigned]	1 to 8	Specifies the connection number.
(3)	i_sUserName	User name	String (15)	4 to 14 characters	Specifies the user name registered in the corresponding network camera. (Available strings: a to z, A to Z, 0 to 9)
(4)	i_sPassWord	Password	String (65)	4 to 64 characters	Specifies the password registered in the corresponding network camera.
(5)	i_uVirtualInputPortNo	Virtual input port number	Word [unsigned]	1 to 32	Specifies the port number of the virtual input to be enabled/disabled. ☞ Page 21 Recording Event Settings
(6)	i_bVirtualInputPortState	Virtual input port status	Bit	On or off	On: The virtual input port status is enabled. Off: The virtual input port status is disabled.

Output labels

No.	Variable name	Name	Data type	Initial value	Description
(7)	o_bENO	Execution status	Bit	OFF	On: The execution command is on. Off: The execution command is off.
(8)	o_bOK	FB completed successfully	Bit	OFF	The on state indicates that sending the command for switching the virtual input port has been completed.
(9)	o_bErr	FB completed with an error	Bit	OFF	The on state indicates that an error has occurred in the FB.
(10)	o_uErrId	Error code	Word [unsigned]	0	The error code of an error occurred in the FB is stored.

FB details

Relevant modules and software

■Relevant modules

MELSEC iQ-F series programmable controller CPU (☞ Page 13 Compatible Programmable Controllers)

■Engineering tool

GX Works3 versions

- For FX5S CPU module: 1.080J or later
- For FX5UJ/FX5U/FX5UC CPU module: 1.065T or later

Basic specifications

Item	Description
Programming language	Ladder diagram, ST
Number of steps	4701 steps The number of steps of the FB embedded in a program depends on the CPU module used, the input/output definitions, and the option settings of GX Works3. For the option settings of GX Works3, refer to the following. 📖 GX Works3 Operating Manual
Label usage	• When a single FB (this FB) is used, the amount of label usage is as follows: Label: 3.41K points Latch label: 0.004K points • When two or more FBs are used, the amount of label usage is the sum of that of FBs used. For example, when two each of FBs for time setting and FBs for recording direction are used, the amount of label usage is as follows: Word: 3.41K + 3.41K + 3.23K + 3.23K = 13.28K points The usage of labels embedded in a program depends on the devices specified as an argument and the option settings of GX Works3. For the option settings of GX Works3, refer to the following. 📖 GX Works3 Operating Manual Since the amount of label usage of this FB is large, the number of word device points may become insufficient. In this case, increase the number of label points of the devices (standard area).
FB dependence	No dependence
FB compilation method	Subroutine type
FB operation	Pulse execution type (multiple scan execution type)

Functional description

- When i_bEN (Execution command) is turned on, a command for enabling/disabling i_uVirtualInputPortState (Virtual input port status) of i_uVirtualInputPortNo (Virtual input port number) is sent to the network camera. i_uVirtualInputPortState cannot be automatically disabled once it has been enabled. Therefore, disable i_uVirtualInputPortState after the event is started. If not disabled, the next event cannot be started.
- If the number of the set characters is outside the effective range for i_uConnectionNo (Connection number), i_sUserName (User name), and i_sPassWord (Password), o_bErr (FB completed with an error) turns on and the processing of the FB is interrupted. In addition, the error code, C1E0H, is stored in o_uErrId (Error code). (☞ Page 103 Error codes)
- If the set value for i_uVirtualInputPortNo is outside 1 to 32, o_bErr turns on and the processing of the FB is interrupted. In addition, the error code, C1E1H, is stored in o_uErrId. (☞ Page 103 Error codes)
- If no response is returned from the network camera after the command is sent, o_bErr turns on and the processing of the FB is interrupted. In addition, the error code, C1E2H, is stored in o_uErrId. (☞ Page 103 Error codes)
- If an unregistered i_sUserName or i_sPassWord is set, o_bErr turns on and the processing of the FB is interrupted. In addition, the error code, C1E3H, is stored in o_uErrId. (☞ Page 103 Error codes)
- For errors that occur in each processing for data communication between the Ethernet-equipped module and external device, and errors that occur in processing requests from the CPU module in the own station, refer to the following.

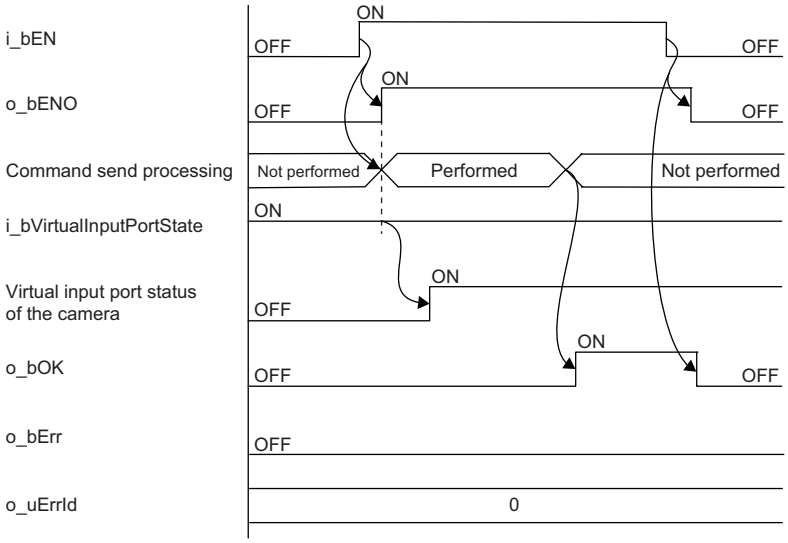
📖 MELSEC iQ-F FX5 User's Manual (Ethernet Communication)

Restrictions and precautions

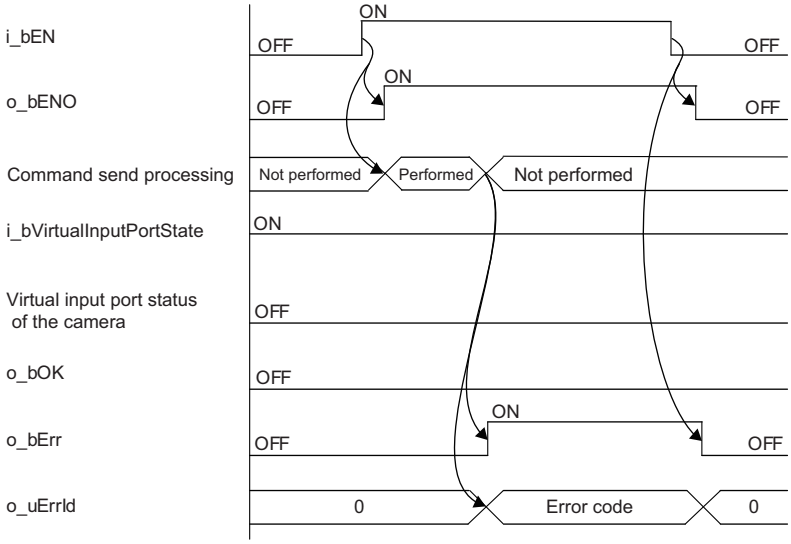
- The FB does not include the error recovery processing. Prepare the error recovery processing separately to suit the actual system and the expected operation.
- The FB cannot be used in an interrupt program.
- Using the FB in a program that is to be executed only once, such as a subroutine program or a FOR-NEXT loop, has a problem that i_bEN (Execution command) can no longer be turned off and normal operation is not possible; Always use the FB in a program that is capable of turning off i_bEN.
- Change the memory/device setting of the CPU parameter so that the memory capacity required to use the FB is secured. If the setting is not changed, an error may occur in GX Works3.
- Turning off i_bEN stops the processing that is being performed. Turning off i_bEN during the processing has a problem that the connection can no longer be closed; Turn off i_bEN after o_bOK (FB completed successfully) or o_bErr (FB completed with an error) is turned on.
- During the execution of this FB, perform exclusive control to avoid using the same connection number.
- Use the FB in an environment where the scan time is 500ms or less.
- When this FB is changed online, o_bENO, o_bOK, o_bErr, and o_uErrId are not retained. Turn off and on i_bEN after the online change.
- If recording events occur consecutively in a brief period of time and the recording duration of one event overlaps the recording duration of the subsequent event, this FB may not be completed successfully and a timeout error (C1E2H) may occur. Ensure that the recording durations of events do not overlap when this FB is executed.
- After the completion of the FB, wait for 500ms or more before subsequent execution of the FB if it specifies a connection having the same information (external device IP address, own station port number, and external device port number) as the connection specified by the preceding FB. If the subsequent execution must be started within 500ms, executing the FB after changing the own station port number on the Active open side is recommended.
- Do not perform the open/close processing instruction (SP.SOCOPEN/SP.SOCCLOSE) in the socket communications whose connection number is used in the FB. Doing so affects the FB operation.

Timing chart of I/O signals

■When the FB completed successfully



■When the FB completed with an error



Error codes

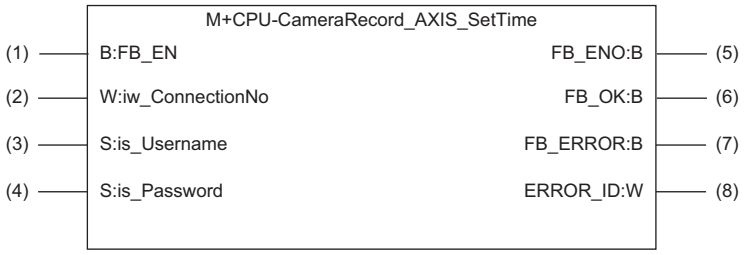
Error code	Description	Action
C1E0H	• Effective range error (Connection No./User name/Password) The set data is out of effective range: i_uConnectionNo is not set within 1 to 8; i_sUserName is not set within 4 to 14 characters; or i_sPassWord is not set within 4 to 64 characters.	Review and correct the input label, and execute the FB again.
C1E1H	• Effective range error (Virtual input port number) The set data is out of effective range: i_uVirtualInputPortNo is not set within 1 to 32.	Review and correct the input label, and execute the FB again.
C1E2H	• Timeout error No response is returned from the network camera after the command is sent.	Review and correct the following, and execute the FB again. • When the constant scan time exceeding 500ms is set, set it to 500ms or less, or leave it blank. • Check that recording events are not overlapped due to consecutive recording triggers that occur in a brief period of time.
C1E3H	• User name/password setting error Unregistered i_sUserName or i_sPassWord is set.	After performing the following, execute the FB again. • Review and correct the input label. • There may be no response from the network camera. Restart the programmable controller and the network camera.
Other than the above	Errors that occur in each processing for data communication between the Ethernet-equipped module and external device, and errors that occur in processing requests from the CPU module in the own station	MELSEC iQ-F FX5 User's Manual (Ethernet Communication)

11 FB LIBRARY DETAILS (FOR MELSEC-Q SERIES CPU MODULES)

11.1 M+CPU-CamRec_AXIS_SetTime

Overview

This FB sets the clock data of the CPU module to the network camera manufactured by Axis Communications that is connected to the MELSEC-Q series QnUDVCPU.



Point

By synchronizing the time of the network camera and the programmable controller, video files and the data acquired by the high speed data logger module can be aligned and checked on a common time axis.
Refer to "DATA LOGGING FUNCTION" in the following:
📖 High Speed Data Logger Module User's Manual
Refer to "Displaying Data/Events of a Data Logger", "Connecting to a Data Logger or Data Communication", and "Checking Data" in the following:
📖 GX LogViewer Version 1 Operating Manual
Refer to "OPERATION METHODS" in the following:
📖 GX VideoViewer Version 1 Operating Manual

Restriction

To use this FB, setting labels for subroutine FBs is required. (☞ Page 54 Creating a program)

Labels

Input labels

No.	Variable name	Name	Data type	Effective range	Description
(1)	FB_EN	Execution command	Bit	On or off	On: The FB is activated. Off: The FB is not activated.
(2)	iw_ConnectionNo	Connection number	Word [signed]	1 to 16	Specifies the connection number.
(3)	is_UserName	User name	String (15)	4 to 14 characters	Specifies the user name registered in the corresponding network camera. (Available strings: a to z, A to Z, 0 to 9)
(4)	is_PassWord	Password	String (65)	4 to 64 characters	Specifies the password registered in the corresponding network camera.

Output label

No.	Variable name	Name	Data type	Initial value	Description
(5)	FB_ENO	Execution status	Bit	Off	On: The execution command is on. Off: The execution command is off.
(6)	FB_OK	FB completed successfully	Bit	Off	The on state indicates that sending the time setting command has been completed.
(7)	FB_ERROR	FB completed with an error	Bit	Off	The on state indicates that an error has occurred in the FB.
(8)	ERROR_ID	Error code	Word [signed]	0	Returns the error code of an error occurred in the FB.

FB details

Relevant modules and software

■Target module

High-speed Universal model QCPU (☞ Page 13 Compatible Programmable Controllers)

■Engineering tool

GX Works2 Version 1.586L or later

Basic specifications

Item	Description
Programming language	Ladder diagram
Number of steps	2550 steps The value is a reference value because of the number of steps in the label program. For details, refer to the following. 📖 GX Works2 Version 1 Operating Manual (Simple Project)
Label usage	• When a single FB (this FB) is used, the amount of label usage is as follows: Word: 2.88K points Bit: 0.03K points • When two or more FBs are used, the amount of label usage is the sum of that of FBs used. For example, when two each of FBs for time setting and FBs for recording direction are used, the amount of label usage is as follows: Word: 2.88K + 2.88K + 2.78K + 2.78K = 11.32K points Bit: 0.03K + 0.03K + 0.03K + 0.03K = 0.12K points The usage of labels embedded in a program depends on the devices specified as an argument and the option settings of GX Works2. For the option settings of GX Works2, refer to the following. 📖 GX Works2 Version 1 Operating Manual (Common) Since the amount of label usage of this FB is large, the number of word device points may become insufficient. In this case, use the file register. For the settings of the file register, refer to the following. 📖 QnUCPU User's Manual (Function Explanation, Program Fundamentals)
FB dependence	No dependence
FB compilation method	Subroutine type
FB operation	Pulse execution type (multiple scan execution type)

Functional description

- When FB_EN (Execution command) is turned on, the time is set by sending the command of the CPU module time to the network camera.
- If the number of the set characters is outside the effective range for iw_ConnectionNo (Connection number), is_UserName (User name), and is_PassWord (Password), FB_ERROR (FB completed with an error) turns on and the processing of the FB is interrupted. In addition, the error code, C1E0H, is stored in ERROR_ID (Error code). (☞ Page 108 Error codes)
- If no response is returned from the network camera after the command is sent, FB_ERROR turns on and the processing of the FB is interrupted. In addition, the error code, C1E2H, is stored in ERROR_ID. (☞ Page 108 Error codes)
- If an unregistered is_UserName or is_PassWord is set, FB_ERROR turns on and the processing of the FB is interrupted. In addition, the error code, C1E3H, is stored in ERROR_ID. (☞ Page 108 Error codes)
- For errors that occur in each processing for data communication between the Ethernet-equipped module and external device, and errors that occur in processing requests from the CPU module in the own station, refer to the following.

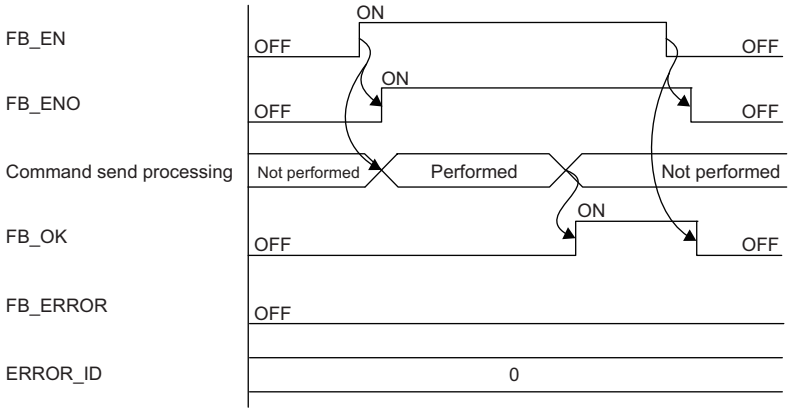
📖 QCPU User's Manual (Hardware Design, Maintenance and Inspection)

Restrictions and precautions

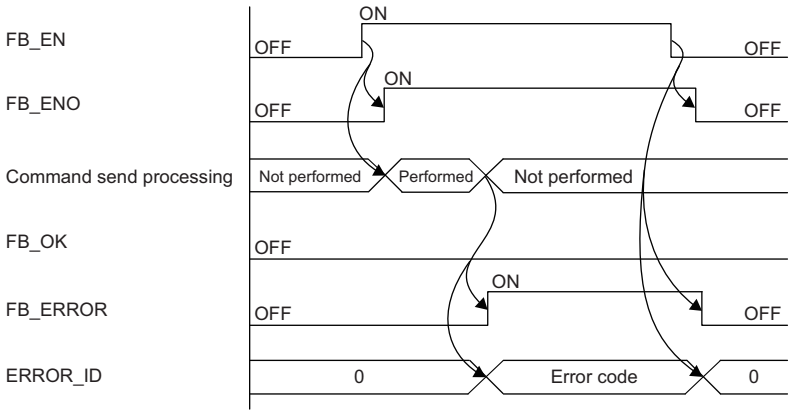
- The FB does not include the error recovery processing. Prepare the error recovery processing separately to suit the actual system and the expected operation.
- The FB cannot be used in an interrupt program.
- Using the FB in a program that is to be executed only once, such as a subroutine program or a FOR-NEXT loop, has a problem where FB_EN (Execution command) can no longer be turned off and normal operation is not possible; always use the FB in a program that is capable of turning off FB_EN.
- Change the memory/device setting of the CPU parameter so that the memory capacity required to use the FB is secured. If the setting is not changed, an error may occur in GX Works2.
- Turning off FB_EN stops the processing that is being performed. Turning off FB_EN during the processing has a problem where the connection can no longer be closed; turn off FB_EN after FB_OK (FB completed successfully) or FB_ERROR (FB completed with an error) is turned on.
- During the execution of this FB, perform exclusive control to avoid using the same connection number.
- Use the FB in an environment where the scan time is 500ms or less.
- When this FB is changed online, o_bENO (Execution status), o_bOK (Completed successfully), o_bErr (Completed with an error), and o_uErrId (Error code) are not retained. Turn i_bEN (Execution command) off and on after the online change.
- After the completion of the FB, wait for 8s or more before subsequent execution of the FB if it specifies a connection having the same information (external device IP address, own station port number, and external device port number) as the connection specified by the preceding FB. If the subsequent execution must be started within 8s, executing the FB after changing the own station port number on the Active open side is recommended.
- Do not perform the open/close processing instruction (SP.SOCOPEN/SP.SOCCLOSE) in the socket communications whose connection number is used in the FB. Doing so affects the FB operation.

Timing chart of I/O signals

■When the FB completed successfully



■When the FB completed with an error



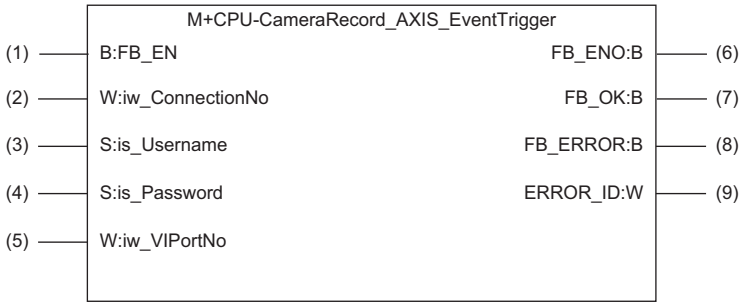
Error codes

Error code	Description	Action
C1E0H	• Effective range error (Connection No./User name/Password) The set data is out of effective range: iw_ConnectionNo is not set within 1 to 16; is_UserName is not set within 4 to 14 characters; or is_PassWord is not set within 4 to 64 characters.	Review and correct the input label, and execute the FB again.
C1E2H	• Timeout error No response is returned from the network camera after the command is sent.	Review and correct the following, and execute the FB again. • When the constant scan time exceeding 500ms is set, set it to 500ms or less, or leave it blank. • Check that recording events are not overlapped due to consecutive recording triggers that occur in a brief period of time.
C1E3H	• User name/password setting error Unregistered is_UserName or is_PassWord is set.	After performing the following, execute the FB again. • Review and correct the input label. • There may be no response from the network camera. Restart the programmable controller and the network camera.
Other than the above	Errors that occur in each processing for data communication between the Ethernet-equipped module and external device, and errors that occur in processing requests from the CPU module in the own station	QCPU User's Manual (Hardware Design, Maintenance and Inspection)

11.2 M+CPU-CamRec_AXIS_ETrigger

Overview

This FB executes the recording event set to the network camera manufactured by Axis Communications that is connected to the MELSEC-Q series QnUDVCPU.



Restriction

To use this FB, setting labels for subroutine FBs is required. (☞ Page 54 Creating a program)

Labels

Input labels

No.	Variable name	Name	Data type	Effective range	Description
(1)	FB_EN	Execution command	Bit	On or off	On: The FB is activated. Off: The FB is not activated.
(2)	iw_ConnectionNo	Connection number	Word [signed]	1 to 16	Specifies the connection number.
(3)	is_UserName	User name	String (15)	4 to 14 characters	Specifies the user name registered in the corresponding network camera. (Available strings: a to z, A to Z, 0 to 9)
(4)	is_PassWord	Password	String (65)	4 to 64 characters	Specifies the password registered in the corresponding network camera.
(5)	iw_VIPortNo	Virtual input port number	Word [signed]	1 to 32	Specifies the port number of the virtual input for which the recording event is executed. ☞ Page 21 Recording Event Settings

Output label

No.	Variable name	Name	Data type	Initial value	Description
(6)	FB_ENO	Execution status	Bit	Off	On: The execution command is on. Off: The execution command is off.
(7)	FB_OK	FB completed successfully	Bit	Off	The on state indicates that sending the command for switching the virtual input port has been completed.
(8)	FB_ERROR	FB completed with an error	Bit	Off	The on state indicates that an error has occurred in the FB.
(9)	ERROR_ID	Error code	Word [signed]	0	Returns the error code of an error occurred in the FB.

FB details

Relevant modules and software

■Target module

High-speed Universal model QCPU (☞ Page 13 Compatible Programmable Controllers)

■Engineering tool

GX Works2 Version 1.586L or later

Basic specifications

Item	Description
Programming language	Ladder diagram
Number of steps	2097 steps The value is a reference value because of the number of steps in the label program. For details, refer to the following. 📖 GX Works2 Version 1 Operating Manual (Simple Project)
Label usage	• When a single FB (this FB) is used, the amount of label usage is as follows: Word: 2.78K points Bit: 0.03K points • When two or more FBs are used, the amount of label usage is the sum of that of FBs used. For example, when two each of FBs for time setting and FBs for recording direction are used, the amount of label usage is as follows: Word: 2.88K + 2.88K + 2.78K + 2.78K = 11.32K points Bit: 0.03K + 0.03K + 0.03K + 0.03K = 0.12K points The usage of labels embedded in a program depends on the devices specified as an argument and the option settings of GX Works2. For the option settings of GX Works2, refer to the following. 📖 GX Works2 Version 1 Operating Manual (Common) Since the amount of label usage of this FB is large, the number of word device points may become insufficient. In this case, use the file register. For the settings of the file register, refer to the following. 📖 QnUCPU User's Manual (Function Explanation, Program Fundamentals)
FB dependence	No dependence
FB compilation method	Subroutine type
FB operation	Pulse execution type (multiple scan execution type)

Functional description

- When FB_EN (Execution command) is turned on, an event execution command of iw_VIPortNo (Virtual input port number) is sent to the network camera.
- If the number of the set characters is outside the effective range for iw_ConnectionNo (Connection number), is_UserName (User name), and is_PassWord (Password), FB_ERROR (FB completed with an error) turns on and the processing of the FB is interrupted. In addition, the error code, C1E0H, is stored in ERROR_ID (Error code). (☞ Page 112 Error codes)
- If the set value for iw_VIPortNo is outside 1 to 32, FB_ERROR turns on and the processing of the FB is interrupted. In addition, the error code, C1E1H, is stored in ERROR_ID. (☞ Page 112 Error codes)
- If no response is returned from the network camera after the command is sent, FB_ERROR turns on and the processing of the FB is interrupted. In addition, the error code, C1E2H, is stored in ERROR_ID. (☞ Page 112 Error codes)
- If an unregistered is_UserName or is_PassWord is set, FB_ERROR turns on and the processing of the FB is interrupted. In addition, the error code, C1E3H, is stored in ERROR_ID. (☞ Page 112 Error codes)
- For errors that occur in each processing for data communication between the Ethernet-equipped module and external device, and errors that occur in processing requests from the CPU module in the own station, refer to the following.

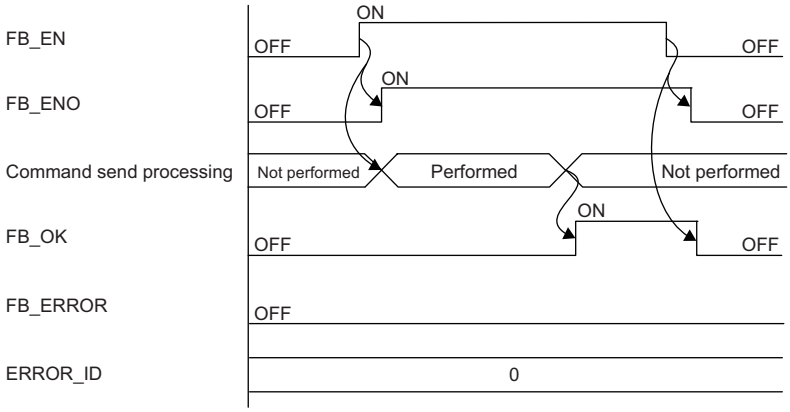
📖 QCPU User's Manual (Hardware Design, Maintenance and Inspection)

Restrictions and precautions

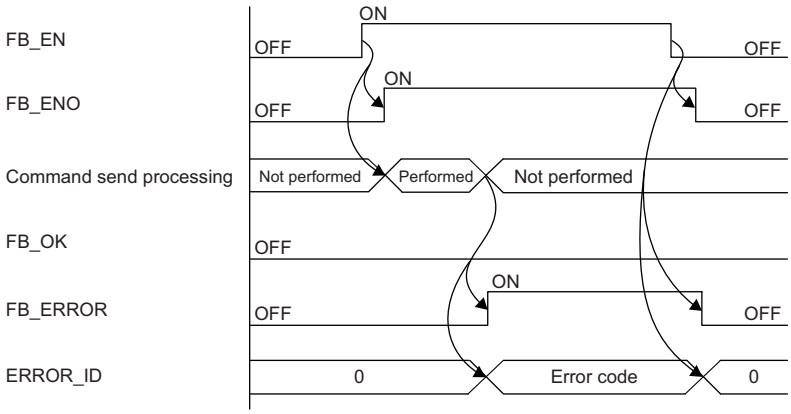
- The FB does not include the error recovery processing. Prepare the error recovery processing separately to suit the actual system and the expected operation.
- The FB cannot be used in an interrupt program.
- Using the FB in a program that is to be executed only once, such as a subroutine program or a FOR-NEXT loop, has a problem where FB_EN (Execution command) can no longer be turned off and normal operation is not possible; always use the FB in a program that is capable of turning off FB_EN.
- Change the memory/device setting of the CPU parameter so that the memory capacity required to use the FB is secured. If the setting is not changed, an error may occur in GX Works2.
- Turning off FB_EN stops the processing that is being performed. Turning off FB_EN during the processing has a problem where the connection can no longer be closed; turn off FB_EN after FB_OK (FB completed successfully) or FB_ERROR (FB completed with an error) is turned on.
- During the execution of this FB, perform exclusive control to avoid using the same connection number.
- Use the FB in an environment where the scan time is 500ms or less.
- When this FB is changed online, o_bENO (Execution status), o_bOK (Completed successfully), o_bErr (Completed with an error), and o_uErrId (Error code) are not retained. Turn i_bEN (Execution command) off and on after the online change.
- If recording events occur consecutively in a brief period of time and the recording duration of one event overlaps the recording duration of the subsequent event, this FB may not be completed successfully and a timeout error (C1E2H) may occur. Ensure that the recording durations of events do not overlap when this FB is executed.
- After the completion of the FB, wait for 8s or more before subsequent execution of the FB if it specifies a connection having the same information (external device IP address, own station port number, and external device port number) as the connection specified by the preceding FB. If the subsequent execution must be started within 8s, executing the FB after changing the own station port number on the Active open side is recommended.
- Do not perform the open/close processing instruction (SP.SOCOPEN/SP.SOCCLOSE) in the socket communications whose connection number is used in the FB. Doing so affects the FB operation.

Timing chart of I/O signals

■When the FB completed successfully



■When the FB completed with an error



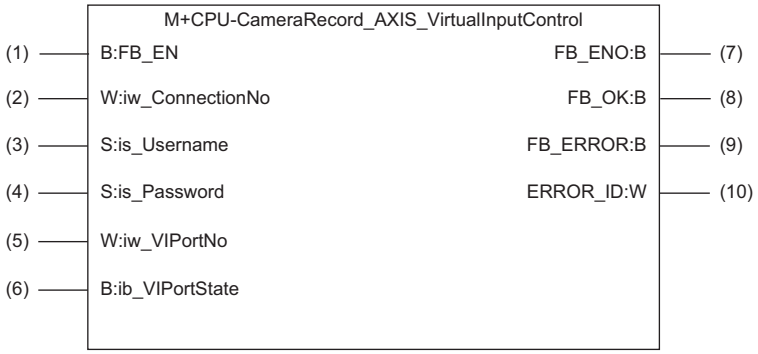
Error codes

Error code	Description	Action
C1E0H	• Effective range error (Connection No./User name/Password) The set data is out of effective range: iw_ConnectionNo is not set within 1 to 16; is_UserName is not set within 4 to 14 characters; or is_PassWord is not set within 4 to 64 characters.	Review and correct the input label, and execute the FB again.
C1E1H	• Effective range error (Virtual input port number) The set data is out of effective range: iw_VIPortNo is not set within 1 to 32.	Review and correct the input label, and execute the FB again.
C1E2H	• Timeout error No response is returned from the network camera after the command is sent.	Review and correct the following, and execute the FB again. • When the constant scan time exceeding 500ms is set, set it to 500ms or less, or leave it blank. • Check that recording events are not overlapped due to consecutive recording triggers that occur in a brief period of time.
C1E3H	• User name/password setting error Unregistered is_UserName or is_PassWord is set.	After performing the following, execute the FB again. • Review and correct the input label. • There may be no response from the network camera. Restart the programmable controller and the network camera.
Other than the above	Errors that occur in each processing for data communication between the Ethernet-equipped module and external device, and errors that occur in processing requests from the CPU module in the own station	📖 QCPU User's Manual (Hardware Design, Maintenance and Inspection)

11.3 M+CPU-CamRec_AXIS_VIControl

Overview

This FB enables or disables the execution trigger of the recording event set to the network camera manufactured by Axis Communications that is connected to the MELSEC-Q series QnUDVCPU.



Restriction

To use this FB, setting labels for subroutine FBs is required. (☞ Page 54 Creating a program)

Labels

Input labels

No.	Variable name	Name	Data type	Effective range	Description
(1)	FB_EN	Execution command	Bit	On or off	On: The FB is activated. Off: The FB is not activated.
(2)	iw_ConnectionNo	Connection number	Word [signed]	1 to 16	Specifies the connection number.
(3)	is_UserName	User name	String (15)	4 to 14 characters	Specifies the user name registered in the corresponding network camera. (Available strings: a to z, A to Z, 0 to 9)
(4)	is_PassWord	Password	String (65)	4 to 64 characters	Specifies the password registered in the corresponding network camera.
(5)	iw_VIPortNo	Virtual input port number	Word [signed]	1 to 32	Specifies the port number of the virtual input to be enabled/disabled. ☞ Page 21 Recording Event Settings
(6)	ib_VIPortState	Virtual input port status	Bit	On or off	On: The virtual input port status is enabled. Off: The virtual input port status is disabled.

Output label

No.	Variable name	Name	Data type	Initial value	Description
(7)	FB_ENO	Execution status	Bit	Off	On: The execution command is on. Off: The execution command is off.
(8)	FB_OK	FB completed successfully	Bit	Off	The on state indicates that sending the command for switching the virtual input port has been completed.
(9)	FB_ERROR	FB completed with an error	Bit	Off	The on state indicates that an error has occurred in the FB.
(10)	ERROR_ID	Error code	Word [signed]	0	Returns the error code of an error occurred in the FB.

FB details

Relevant modules and software

■Target module

High-speed Universal model QCPU (☞ Page 13 Compatible Programmable Controllers)

■Engineering tool

GX Works2 Version 1.586L or later

Basic specifications

Item	Description
Programming language	Ladder diagram
Number of steps	2064 steps The value is a reference value because of the number of steps in the label program. For details, refer to the following. 📖 GX Works2 Version 1 Operating Manual (Simple Project)
Label usage	• When a single FB (this FB) is used, the amount of label usage is as follows: Word: 2.78K points Bit: 0.03K points • When two or more FBs are used, the amount of label usage is the sum of that of FBs used. For example, when two each of FBs for time setting and FBs for virtual input port control are used, the amount of label usage is as follows: Word: 2.88K + 2.88K + 2.78K + 2.78K = 11.32K points Bit: 0.03K + 0.03K + 0.03K + 0.03K = 0.12K points The usage of labels embedded in a program depends on the devices specified as an argument and the option settings of GX Works2. For the option settings of GX Works2, refer to the following. 📖 GX Works2 Version 1 Operating Manual (Common) Since the amount of label usage of this FB is large, the number of word device points may become insufficient. In this case, use the file register. For the settings of the file register, refer to the following. 📖 QnUCPU User's Manual (Function Explanation, Program Fundamentals)
FB dependence	No dependence
FB compilation method	Subroutine type
FB operation	Pulse execution type (multiple scan execution type)

Functional description

- When FB_EN (Execution command) is turned on, a command for enabling/disabling ib_VIPortState (Virtual input port status) of iw_VIPortNo (Virtual input port number) is sent to the network camera. ib_VIPortState cannot be automatically disabled once it has been enabled. Therefore, disable ib_VIPortState after the event is started. If not disabled, the next event cannot be started.
- If the number of the set characters is outside the effective range for iw_ConnectionNo (Connection number), is_UserName (User name), and is_PassWord (Password), FB_ERROR (FB completed with an error) turns on and the processing of the FB is interrupted. In addition, the error code, C1E0H, is stored in ERROR_ID (Error code). (☞ Page 117 Error codes)
- If the set value for iw_VIPortNo is outside 1 to 32, FB_ERROR turns on and the processing of the FB is interrupted. In addition, the error code, C1E1H, is stored in ERROR_ID. (☞ Page 117 Error codes)
- If no response is returned from the network camera after the command is sent, FB_ERROR turns on and the processing of the FB is interrupted. In addition, the error code, C1E2H, is stored in ERROR_ID. (☞ Page 117 Error codes)
- If an unregistered is_UserName or is_PassWord is set, FB_ERROR turns on and the processing of the FB is interrupted. In addition, the error code, C1E3H, is stored in ERROR_ID. (☞ Page 117 Error codes)
- For errors that occur in each processing for data communication between the Ethernet-equipped module and external device, and errors that occur in processing requests from the CPU module in the own station, refer to the following.

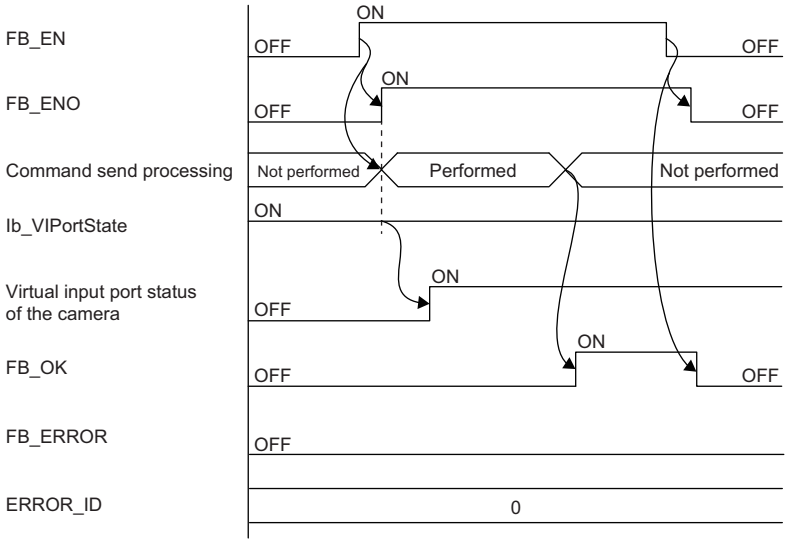
📖 QCPU User's Manual (Hardware Design, Maintenance and Inspection)

Restrictions and precautions

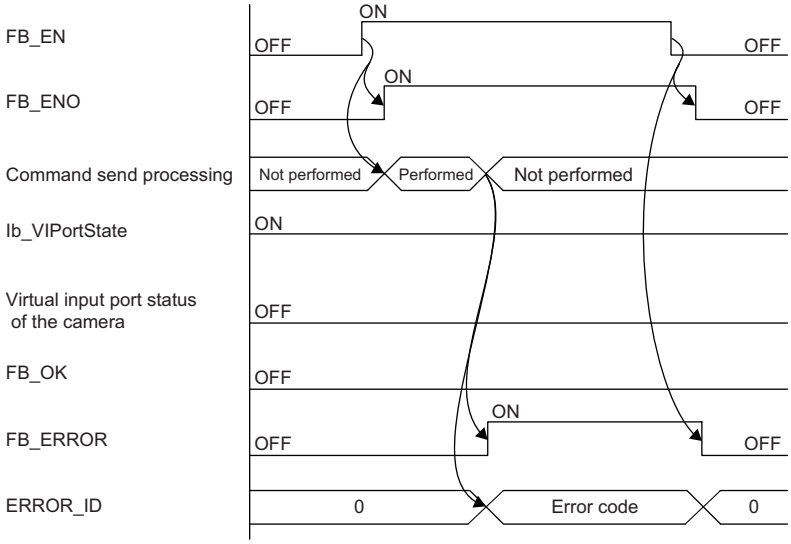
- The FB does not include the error recovery processing. Prepare the error recovery processing separately to suit the actual system and the expected operation.
- The FB cannot be used in an interrupt program.
- Using the FB in a program that is to be executed only once, such as a subroutine program or a FOR-NEXT loop, has a problem where FB_EN (Execution command) can no longer be turned off and normal operation is not possible; always use the FB in a program that is capable of turning off FB_EN.
- Change the memory/device setting of the CPU parameter so that the memory capacity required to use the FB is secured. If the setting is not changed, an error may occur in GX Works2.
- Turning off FB_EN stops the processing that is being performed. Turning off FB_EN during the processing has a problem where the connection can no longer be closed; turn off FB_EN after FB_OK (FB completed successfully) or FB_ERROR (FB completed with an error) is turned on.
- During the execution of this FB, perform exclusive control to avoid using the same connection number.
- Use the FB in an environment where the scan time is 500ms or less.
- When this FB is changed online, o_bENO (Execution status), o_bOK (Completed successfully), o_bErr (Completed with an error), and o_uErrId (Error code) are not retained. Turn i_bEN (Execution command) off and on after the online change.
- If recording events occur consecutively in a brief period of time and the recording duration of one event overlaps the recording duration of the subsequent event, this FB may not be completed successfully and a timeout error (C1E2H) may occur. Ensure that the recording durations of events do not overlap when this FB is executed.
- After the completion of the FB, wait for 8s or more before subsequent execution of the FB if it specifies a connection having the same information (external device IP address, own station port number, and external device port number) as the connection specified by the preceding FB. If the subsequent execution must be started within 8s, executing the FB after changing the own station port number on the Active open side is recommended.
- Do not perform the open/close processing instruction (SP.SOCOPEN/SP.SOCCLOSE) in the socket communications whose connection number is used in the FB. Doing so affects the FB operation.

Timing chart of I/O signals

■When the FB completed successfully



■When the FB completed with an error



Error codes

Error code	Description	Action
C1E0H	• Effective range error (Connection No./User name/Password) The set data is out of effective range: iw_ConnectionNo is not set within 1 to 16; is_UserName is not set within 4 to 14 characters; or is_PassWord is not set within 4 to 64 characters.	Review and correct the input label, and execute the FB again.
C1E1H	• Effective range error (Virtual input port number) The set data is out of effective range: iw_VIPortNo is not set within 1 to 32.	Review and correct the input label, and execute the FB again.
C1E2H	• Timeout error No response is returned from the network camera after the command is sent.	Review and correct the following, and execute the FB again. • When the constant scan time exceeding 500ms is set, set it to 500ms or less, or leave it blank. • Check that recording events are not overlapped due to consecutive recording triggers that occur in a brief period of time.
C1E3H	• User name/password setting error Unregistered is_UserName or is_PassWord is set.	After performing the following, execute the FB again. • Review and correct the input label. • There may be no response from the network camera. Restart the programmable controller and the network camera.
Other than the above	Errors that occur in each processing for data communication between the Ethernet-equipped module and external device, and errors that occur in processing requests from the CPU module in the own station	QCPU User's Manual (Hardware Design, Maintenance and Inspection)

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REVISIONS

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

Revision date	*Manual number	Description
June 2020	BCN-P5999-1324-A	First edition
December 2020	BCN-P5999-1324-B	■Added functions FBs for MELSEC iQ-R series modules (RJ71EN71, RnENCPU (network part)) FBs for MELSEC-Q series CPU modules ■Added or modified parts INTRODUCTION, Section 1.2, 2.1, Chapter 3, Section 5.2, 5.3, Chapter 9, 10
April 2021	BCN-P5999-1324-C	■Added functions FBs for MELSEC iQ-F series modules ■Added or modified parts Section 1.2, 2.1, Chapter 3, Section 5.1, Chapter 7, 10
April 2022	BCN-P5999-1324-D	■Added or modified parts Section 2.1, Chapter 3, Section 5.1, Chapter 10

Japanese manual number: BCN-P5999-1303-D

WARRANTY

Please confirm the following product warranty details before using this product.

1. Gratis Warranty Term and Gratis Warranty Range

If any faults or defects (hereinafter "Failure") found to be the responsibility of Mitsubishi occurs during use of the product within the gratis warranty term, the product shall be repaired at no cost via the sales representative or Mitsubishi Service Company.

However, if repairs are required onsite at domestic or overseas location, expenses to send an engineer will be solely at the customer's discretion. Mitsubishi shall not be held responsible for any re-commissioning, maintenance, or testing on-site that involves replacement of the failed module.

[Gratis Warranty Term]

The gratis warranty term of the product shall be for one year after the date of purchase or delivery to a designated place. Note that after manufacture and shipment from Mitsubishi, the maximum distribution period shall be six (6) months, and the longest gratis warranty term after manufacturing shall be eighteen (18) months. The gratis warranty term of repair parts shall not exceed the gratis warranty term before repairs.

[Gratis Warranty Range]

(1) The range shall be limited to normal use within the usage state, usage methods and usage environment, etc., which follow the conditions and precautions, etc., given in the instruction manual, user's manual and caution labels on the product.

(2) Even within the gratis warranty term, repairs shall be charged for in the following cases.

1. Failure occurring from inappropriate storage or handling, carelessness or negligence by the user. Failure caused by the user's hardware or software design.
2. Failure caused by unapproved modifications, etc., to the product by the user.
3. When the Mitsubishi product is assembled into a user's device, Failure that could have been avoided if functions or structures, judged as necessary in the legal safety measures the user's device is subject to or as necessary by industry standards, had been provided.
4. Failure that could have been avoided if consumable parts (battery, backlight, fuse, etc.) designated in the instruction manual had been correctly serviced or replaced.
5. Failure caused by external irresistible forces such as fires or abnormal voltages, and Failure caused by force majeure such as earthquakes, lightning, wind and water damage.
6. Failure caused by reasons unpredictable by scientific technology standards at time of shipment from Mitsubishi.
7. Any other failure found not to be the responsibility of Mitsubishi or that admitted not to be so by the user.

2. Onerous repair term after discontinuation of production

(1) Mitsubishi shall accept onerous product repairs for seven (7) years after production of the product is discontinued. Discontinuation of production shall be notified with Mitsubishi Technical Bulletins, etc.

(2) Product supply (including repair parts) is not available after production is discontinued.

3. Overseas service

Overseas, repairs shall be accepted by Mitsubishi's local overseas FA Center. Note that the repair conditions at each FA Center may differ.

4. Exclusion of loss in opportunity and secondary loss from warranty liability

Regardless of the gratis warranty term, Mitsubishi shall not be liable for compensation to:

(1) Damages caused by any cause found not to be the responsibility of Mitsubishi.

(2) Loss in opportunity, lost profits incurred to the user by Failures of Mitsubishi products.

(3) Special damages and secondary damages whether foreseeable or not, compensation for accidents, and compensation for damages to products other than Mitsubishi products.

(4) Replacement by the user, maintenance of on-site equipment, start-up test run and other tasks.

5. Changes in product specifications

The specifications given in the catalogs, manuals or technical documents are subject to change without prior notice.

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