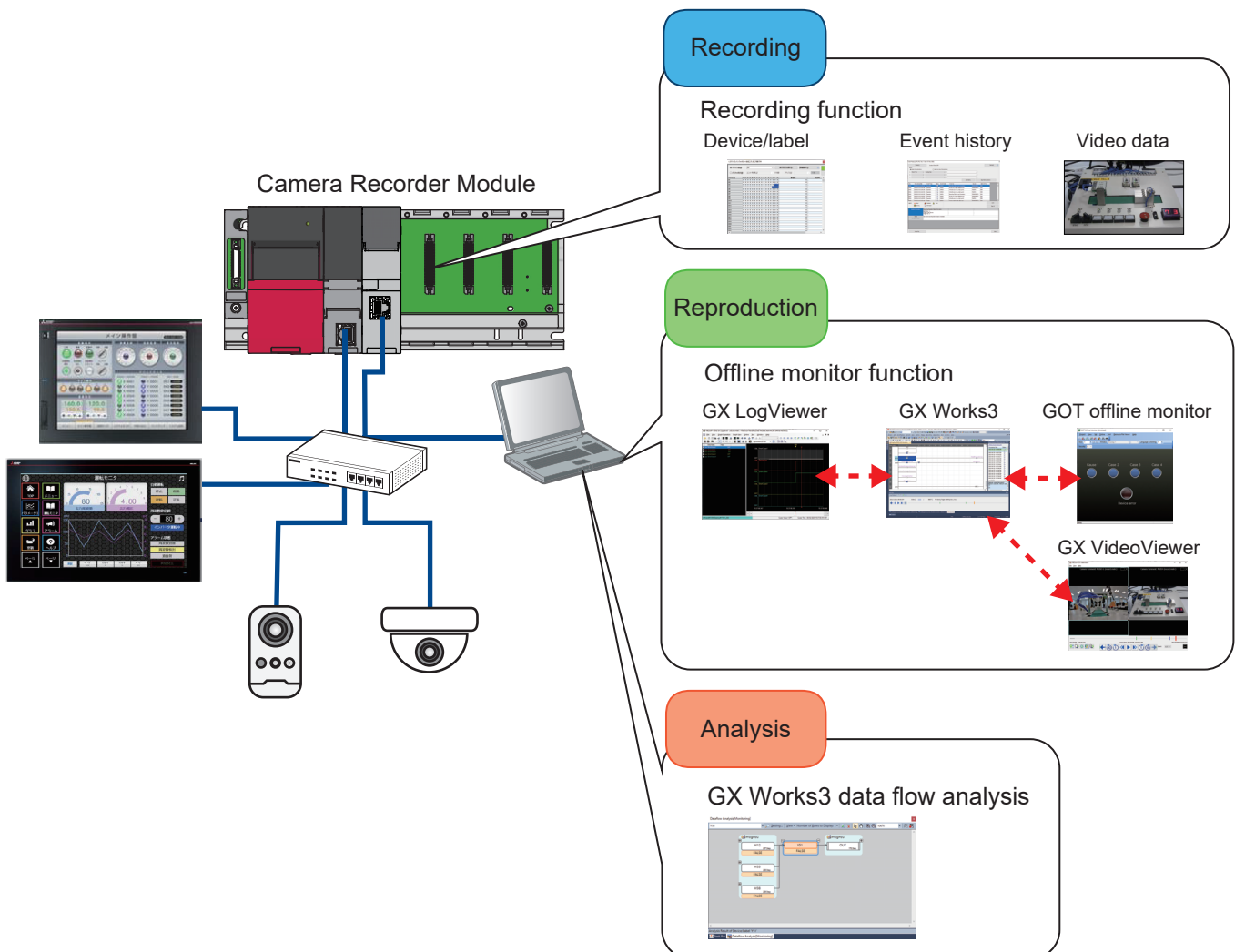


# Programmable Controller



## MELSEC iQ-R System Recorder Introduction Guide (Camera Recorder Module)

This guide describes the procedure for introducing a system recorder (camera recorder module), which is one of our maintenance solutions. The system recorder records the operation of the program data and error/event occurrences during the system operation using the camera recorder module. The recorded data can be replayed using the dedicated MELSOFT Software to check the past system operation. This makes it possible to reproduce the situation at the site where the trouble occurred, and to identify and analyze the cause of the error by using the video recorded by a camera together.



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# 1 OVERVIEW

The system recorder is a solution that integrates the following three steps performed in the breakdown maintenance phase.

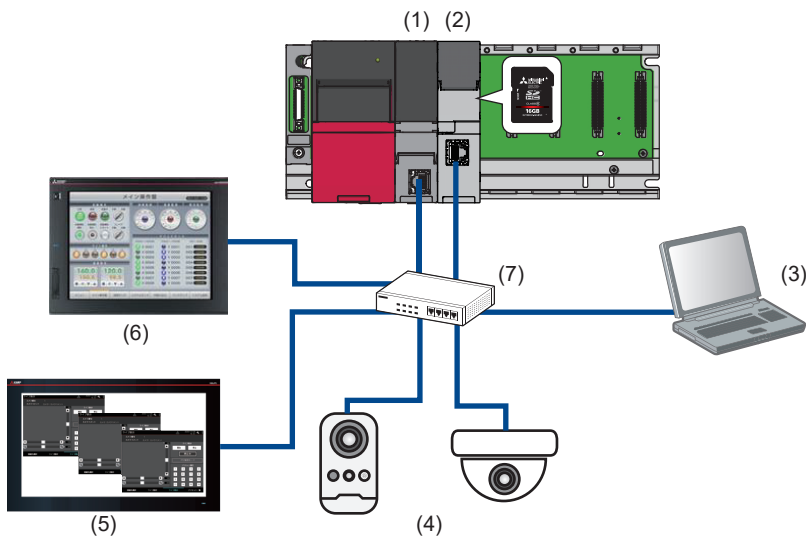
Step	Corresponding function	Description	Required module or engineering tool
Recording	Recording function	In addition to all the devices of the programmable controller CPU, labels and videos recorded by cameras are sampled and recorded with timestamps. The recording function outputs the data of the CPU module and the video data recorded by a network camera to a recording file when a file saving trigger is satisfied, and saves the file to the destination specified in the recording setting.	<ul style="list-style-type: none"><li>• CPU module</li><li>• Camera recorder module</li><li>• GX Works3</li></ul>
Reproduction	Offline monitor function	Various recorded data can be replayed in synchronization to easily identify the timing at which an error occurs. The offline monitor function can be used to replay the recording files saved in the SD memory card or file server of the camera recorder module on the offline monitor. The GOT monitor display can also be replayed by starting the GOT offline monitor.	<ul style="list-style-type: none"><li>• CPU module</li><li>• Camera recorder module</li><li>• GX Works3</li><li>• GX VideoViewer</li><li>• GX LogViewer</li><li>• GT Designer3</li></ul>
Analysis	Data flow analysis function	The time required to determine the root cause of the error can be reduced by tracing the sequence program. The data flow analysis function searches for the event history of devices, labels, parameters, and current value changes in the program that cause the selected device or label to change, and displays the related items in a flowchart.	GX Works3

This document describes the procedures for setting the MELSEC iQ-R series camera recorder module RD81RC96-CA and network camera, as well as each function of GX Works3 to perform these three steps.

In addition, an example is provided to describe how to identify the cause of the error by monitoring data recorded by the recording module and using the video from the network camera, analysis function of GX Works3, and GX LogViewer.

## System configuration

In this document, the following system configuration is used as an example.



Device/software		Model	IP address	
(1)	CPU module	R16CPU	192.168.3.39 (default)	
(2)	Camera recorder module (When setting the SD memory card as the save destination of the recording file, an SD memory card must be inserted to the camera recorder module.)	RD81RC96-CA	192.168.3.49	
(3)	Personal computer for setting	GX Works3 <sup>*1</sup>	192.168.3.100	
		GX LogViewer <sup>*2</sup>		
		GT Designer3 <sup>*3</sup>		
		GX VideoViewer <sup>*4</sup>		
(4)	ONVIF supported network camera	M1065-L	192.168.3.1	
		M5054	192.168.3.2	
(5)	MELIPC MI3000	GT SoftGOT <sup>*3</sup>	MI3321G-W	192.168.3.30
(6)	GOT	GT2710-VTBA	192.168.3.18 (default)	
(7)	PoE switching hub	GS108PE	—	

\*1 The version 1.077F is used in this document.

\*2 The version 1.115U is used in this document.

\*3 The version 1.245F is used in this document.

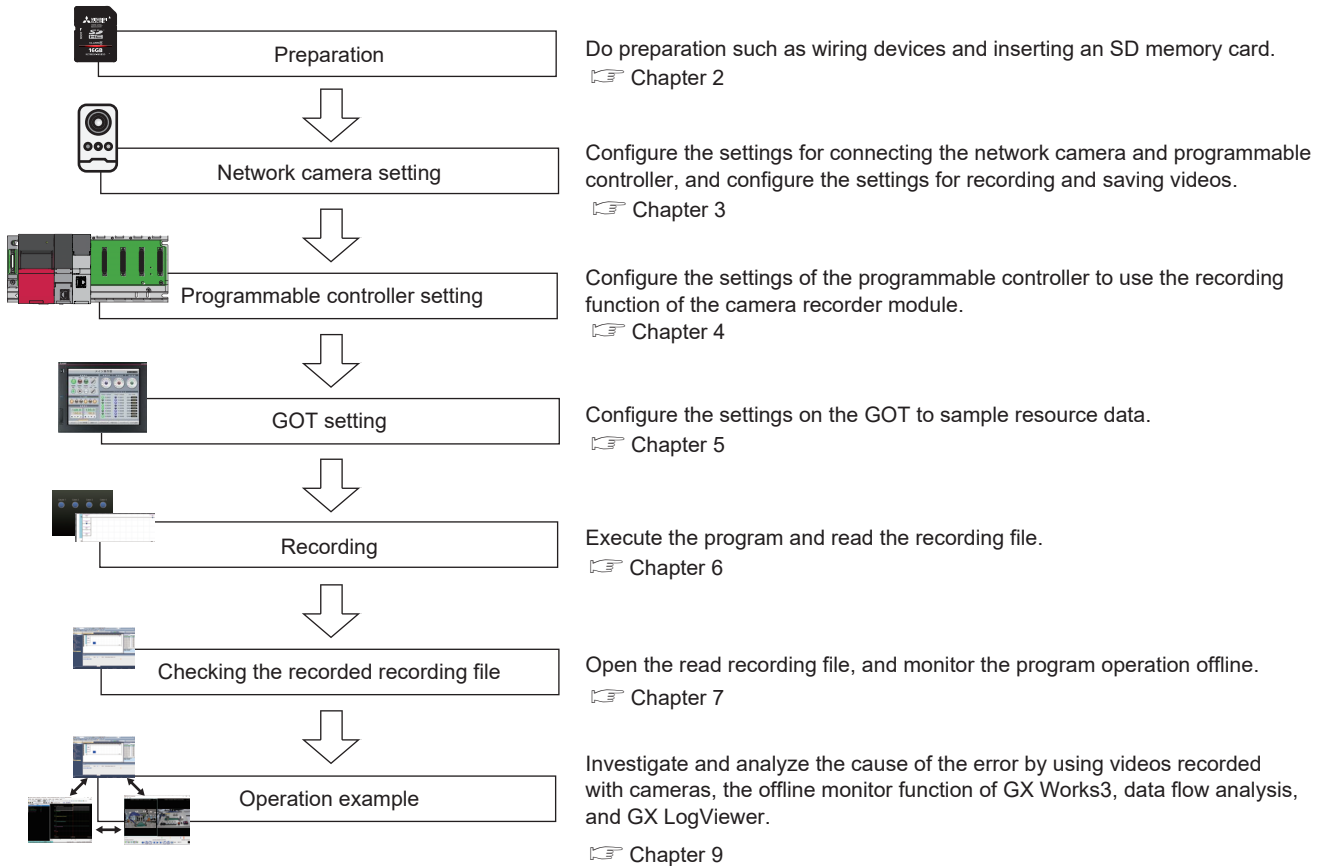
\*4 The version 1.009K is used in this document.



Refer to the following website to check whether the camera to be used supports ONVIF.  
<https://www.onvif.org/conformant-products/>

# 1.1 Entire Process of Introduction

Follow the steps below to configure and check the operation. For details, refer to Chapter 2 and later in this document.

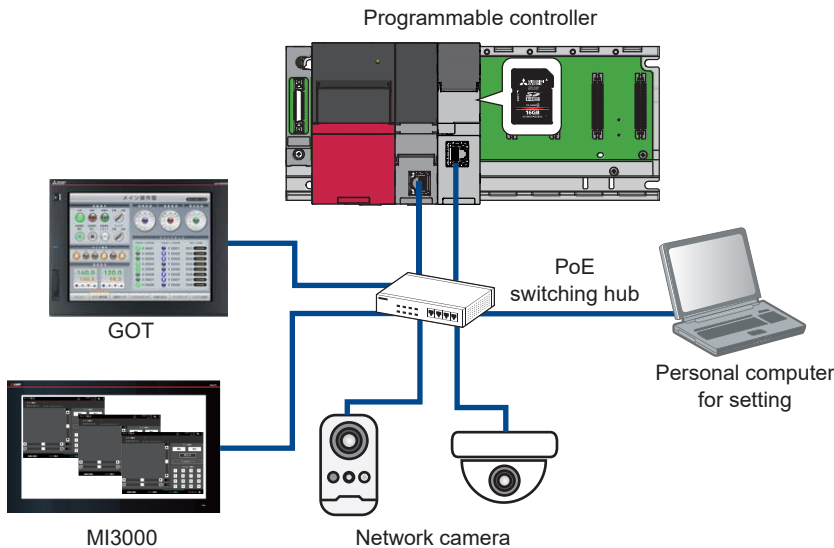


# 2 PREPARATION

## 2.1 Wiring

The following shows the wiring described in this document.

Connect the personal computer, CPU module, camera recorder module, network camera, MI3000, and GOT to the PoE switching hub using the Ethernet cable.



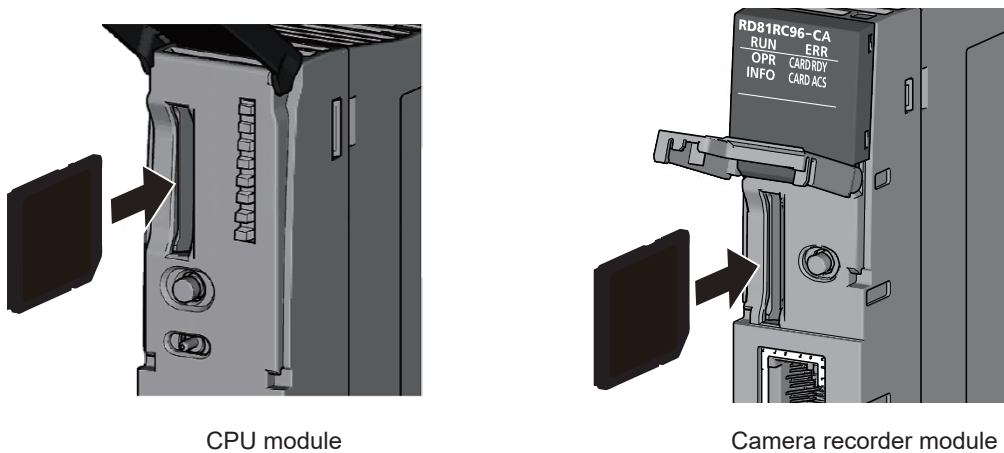
**Point** Set the IP addresses for the programmable controller, network camera, MI3000, personal computer for setting, and GOT. The IP addresses must be set with the same segment.

## 2.2 Inserting SD Memory Cards

Insert SD memory cards into the CPU module, camera recorder module, and GOT.

Although an SD memory card is not required for the CPU module, it is recommended to be used. If the event logging is saved in ROM, the CPU life will be shortened due to the limited number of write cycles.

An SD memory card is required to save recording files. \*1



\*1 An SD memory card is not required to be inserted when data is saved to the file server.

## 2.3 IP Address Setting

Set the IP of the personal computer for setting and MI3000.

### Operating procedure

1. Set the IP address in "Internet Protocol Version 4 (TCP/IPv4)".

**Ex.**

Personal computer for setting: 192.168.3.100

Internet Protocol Version 4 (TCP/IPv4) Properties

General

You can get IP settings assigned automatically if your network supports this capability. Otherwise, you need to ask your network administrator for the appropriate IP settings.

Obtain an IP address automatically

Use the following IP address:

IP address: 192 . 168 . 3 . 100

Subnet mask: 255 . 255 . 255 . 0

Default gateway: . . .

Obtain DNS server address automatically

Use the following DNS server addresses:

Preferred DNS server: . . .

Alternate DNS server: . . .

Validate settings upon exit

Advanced...

OK Cancel

MI3000: 192.168.3.30

Internet Protocol Version 4 (TCP/IPv4) Properties

General

You can get IP settings assigned automatically if your network supports this capability. Otherwise, you need to ask your network administrator for the appropriate IP settings.

Obtain an IP address automatically

Use the following IP address:

IP address: 192 . 168 . 3 . 30

Subnet mask: . . .

Default gateway: . . .

Obtain DNS server address automatically

Use the following DNS server addresses:

Preferred DNS server: . . .

Alternate DNS server: . . .


Validate settings upon exit


Advanced...


OK Cancel



- Set the IP address so that it is in the same segment as the ones of the devices to be connected.
- For the IP address setting of other devices, refer to the following.

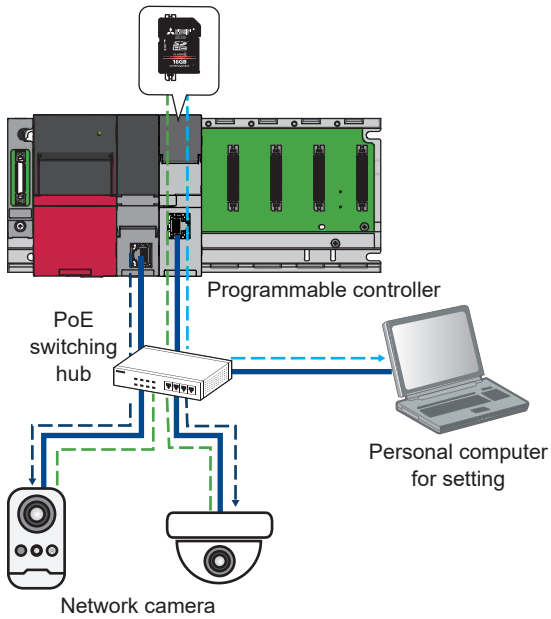
Network camera:  Page 10 Network Camera Settings

Programmable controller:  Page 42 Parameter Settings of CPU Module

GOT:  GT Designer3 (GOT2000) Screen Design Manual

# 3 CAMERA SETTINGS

Configure the settings to establish communications between the camera recorder module and network cameras by Ethernet. This chapter mainly describes the setting of IP address and user account.



Network camera type	Setting method
ONVIF supported network camera	Use the dedicated setting tool of each camera manufacturer. Depending on the network camera used, it may be necessary to create an account for ONVIF communication.

# 3.1 Network Camera Settings

Use a web browser to configure the network camera settings. When the network camera is started for the first time, network settings such as the IP address setting are required. From the second time, you can access the network camera only by entering the password.

## ONVIF supported network camera M1065-L

### Initial start-up setting

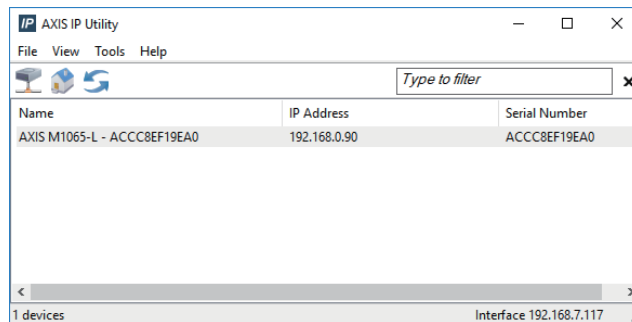
#### Operating procedure

1. Enter the IP address of the network camera in the web browser.

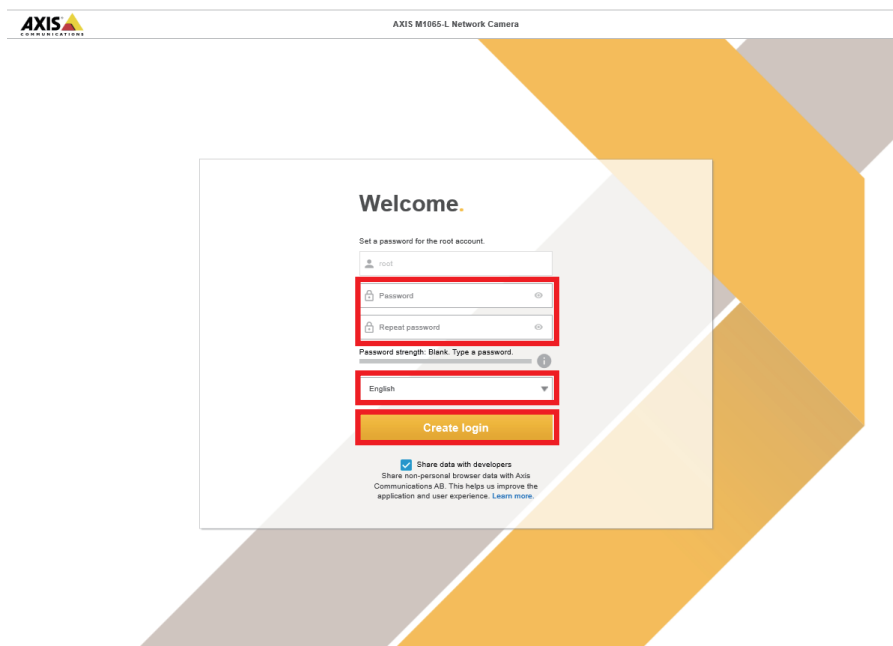


#### Point

The IP address of the network camera can be checked on the network by using AXIS IP Utility. AXIS IP Utility can be downloaded from the following URL. [www.axis.com/en](http://www.axis.com/en)



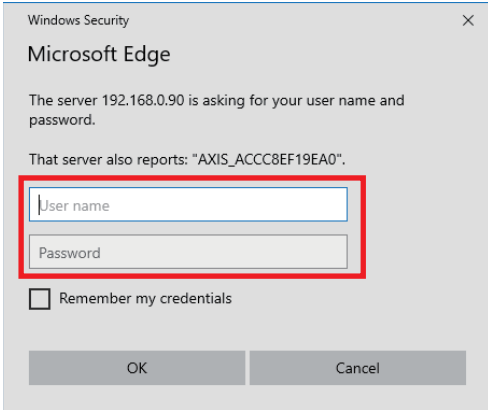
2. When the web server is accessed, the administrator password setting window appears. Set a password and the language, and click the [Create login] button.



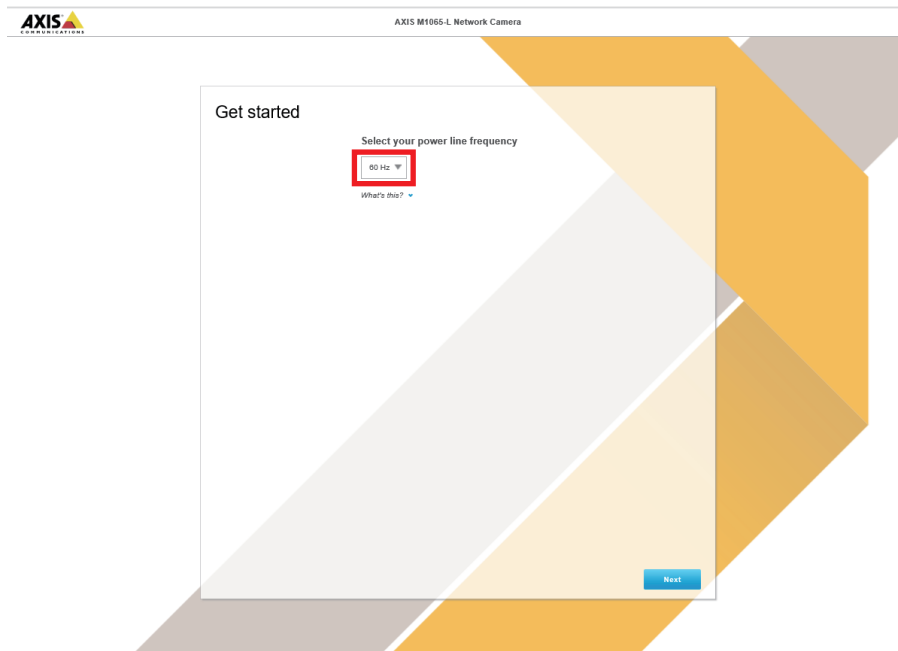
- Set the password within 4 to 32 characters.
- Do not use "\$" in the password.

**3.** Sign-in to the network camera.

Enter the user name and password set in step 2 to sign-in to the network camera. The user name and password are required to sign-in to the network camera next time.



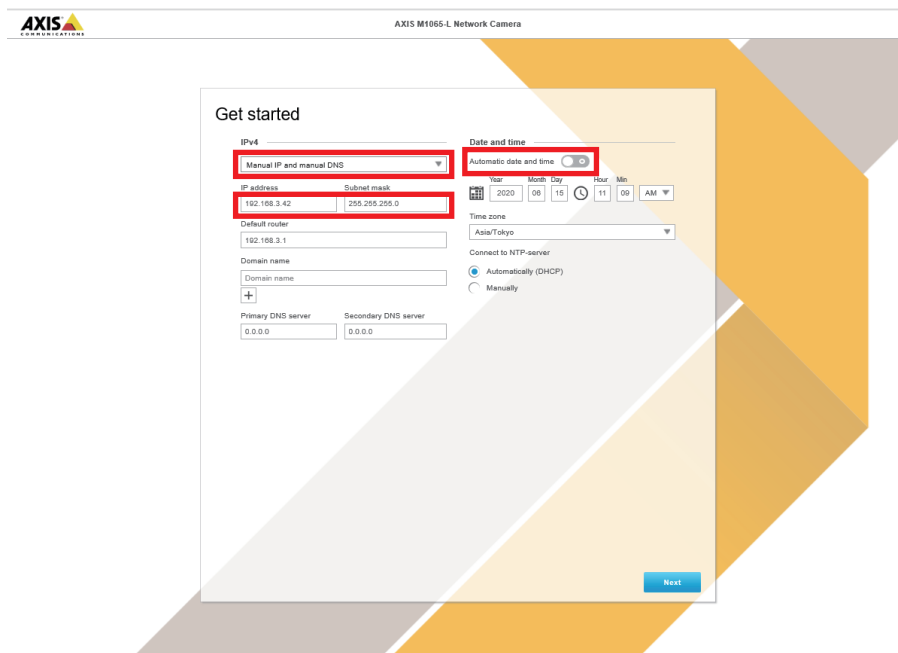
4. Set the power line frequency to "60 Hz".



5. Set IPv4 to "Manual IP and manual DNS", and set network parameters.

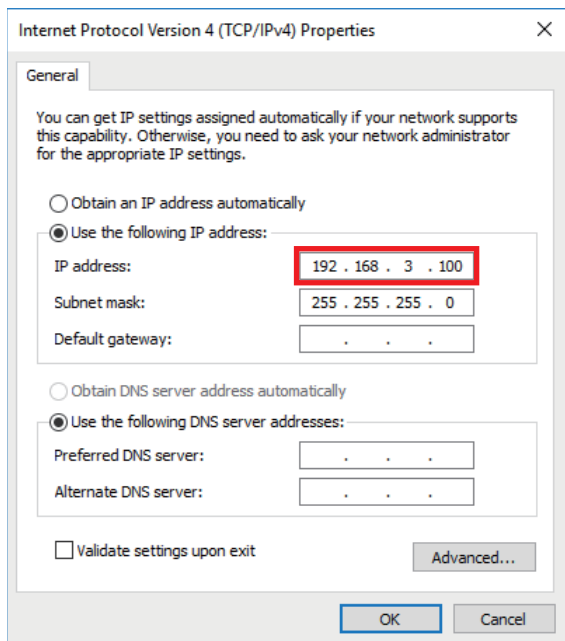
Ex IP address: 192.168.3.1

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



If the setting section for "Date and time" does not appear, set it after completing the initial start-up settings.

7. Reassign the IP address of the personal computer for setting in the same segment as the network camera set in step 5.



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

9. After the setting is completed, the live view window appears.

10. Click the [Done] button.



## ■Creating an account for ONVIF communication

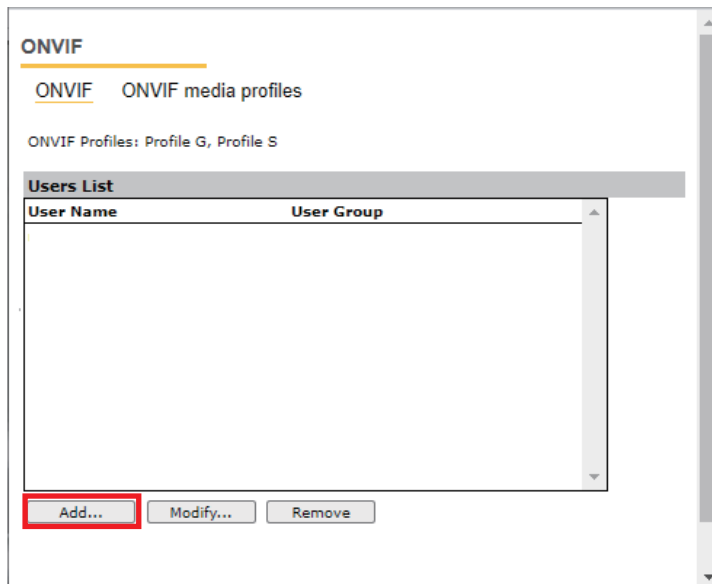
### Operating procedure

1. Sign-in to the network camera.
2. Display the ONVIF setting screen.

[Settings] ⇒ [System] ⇒ [ONVIF]



3. When the account creation screen is displayed, click the [Add] button.



4. Enter the user name and password in the setup window, select Administrator, and click the [OK] button.

**ONVIF User Setup**

User name:

Password:

Confirm password:

User group:

- Media user
- Operator
- Administrator

5. The account is now created for ONVIF communication.

**ONVIF**

ONVIF ONVIF media profiles

ONVIF Profiles: Profile G, Profile S

**Users List**

User Name	User Group
root	Administrator

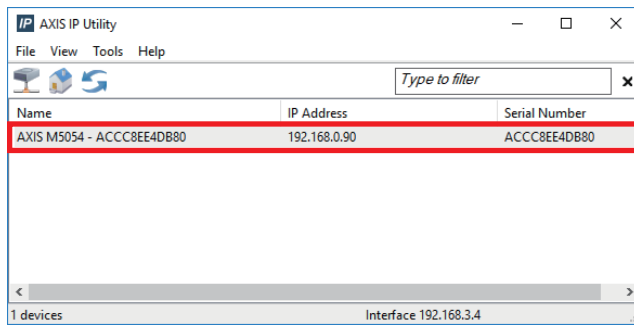


## ONVIF supported network camera M5054

### ■ Initial start-up setting

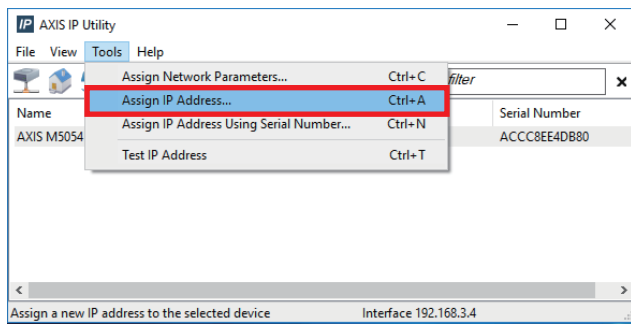
#### Operating procedure

1. Start AXIS IP Utility and select the target network camera from the list of connected cameras.



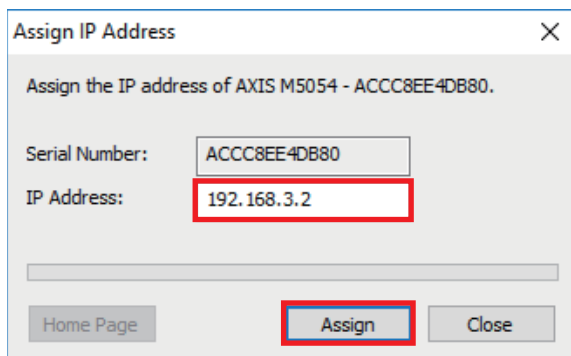
2. Click [Assign IP Address].

[Tools] ⇨ [Assign IP Address]

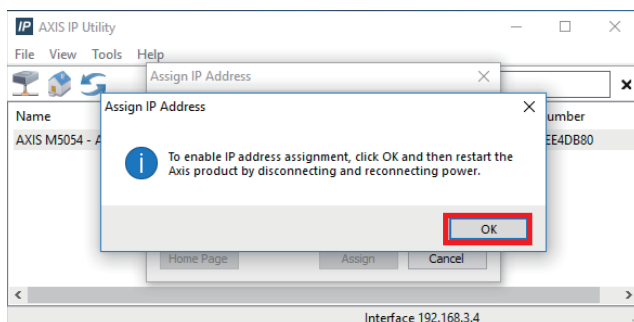


3. Enter the IP address and click [Assign].

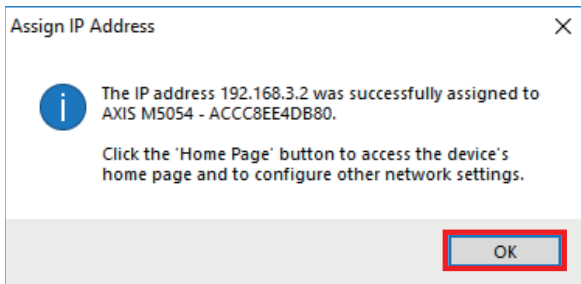
Ex) IP address: 192.168.3.2



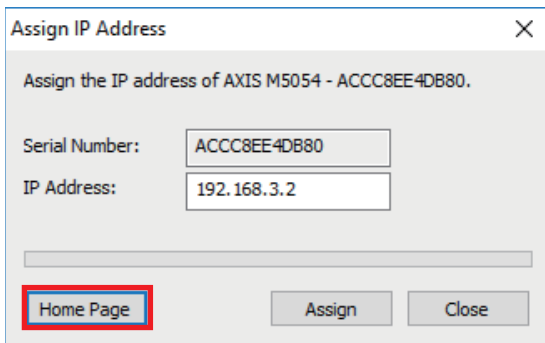
4. Click the [OK] button and restart the connected network camera.



5. After the setting is completed, click the [OK] button again.



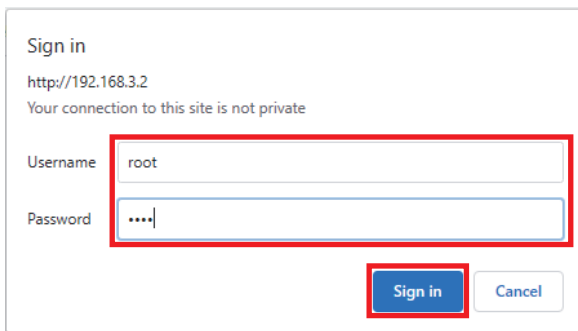
6. Click the [Home Page] button to start the Web browser.



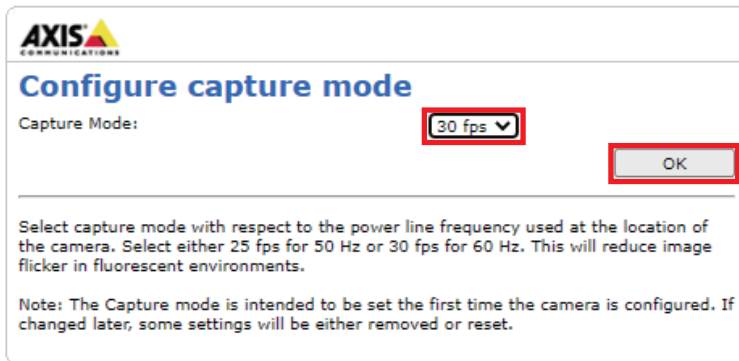
7. After the Web browser is started, set the password and click the [OK] button.



8. Enter the user name and the password set in step 7, click the [Sign in] button.



9. Select the maximum frame rate of 30 fps for M5054 and click the [OK] button.



10. The live view window appears.



## ■Creating an account for ONVIF

Create an account for ONVIF communication.

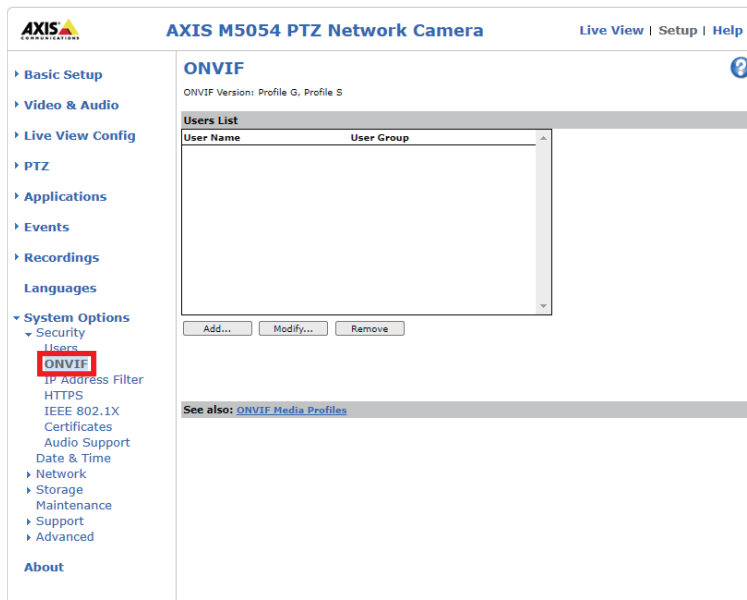
### Operating procedure

1. Sign-in to the network camera.
2. Click [Setup].

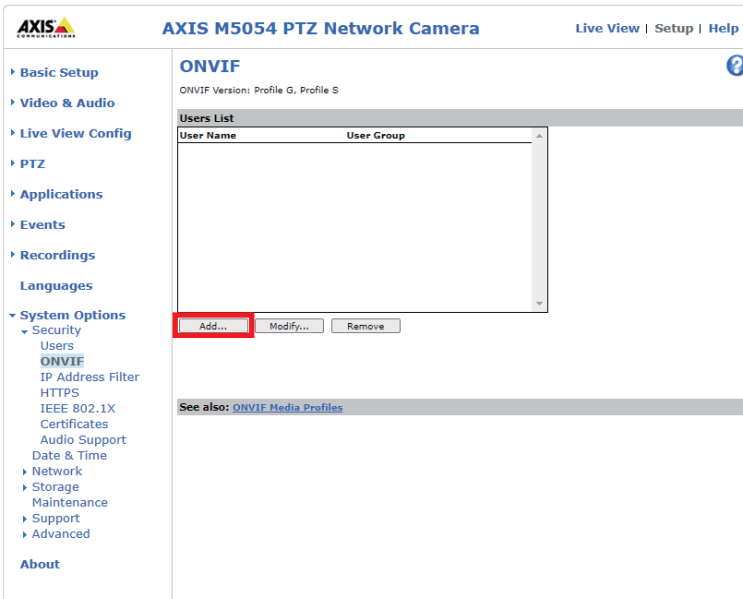


3. Display the ONVIF window setting screen.

[System Options]⇒[Security]⇒[ONVIF]

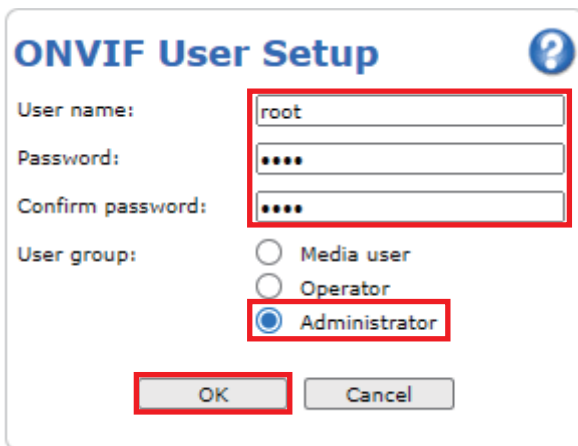


4. Click the [Add] button.



3

5. Enter the user name and password in the setup window, select Administrator, and click the [OK] button.



6. The account is now created for ONVIF communication.

The screenshot shows the web interface for an AXIS M5054 PTZ Network Camera. The page title is "ONVIF" and it indicates the version as "Profile G, Profile S". A "Users List" table is displayed with the following data:

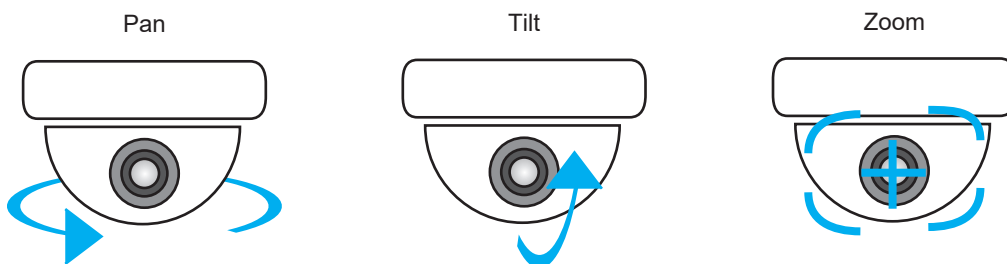
User Name	User Group
root	Administrator

Below the table are three buttons: "Add...", "Modify...", and "Remove". A link "See also: ONVIF Media Profiles" is also visible. The left sidebar contains a navigation menu with categories like Basic Setup, Video & Audio, Live View Config, PTZ, Applications, Events, Recordings, Languages, System Options (Security, Users, ONVIF, IP Address Filter, HTTPS, IEEE 802.1X, Certificates, Audio Support, Date & Time), Network, Storage, Maintenance, Support, Advanced, and About.

## PTZ control

PTZ stands for Pan, Tilt, and Zoom to control the camera view. Pan enables horizontal movement of the camera lens, and Tilt enables vertical movement. With Zoom, you can zoom in or out on a part of the image.

PTZ cameras can monitor large areas with a single camera.



**Ex.**

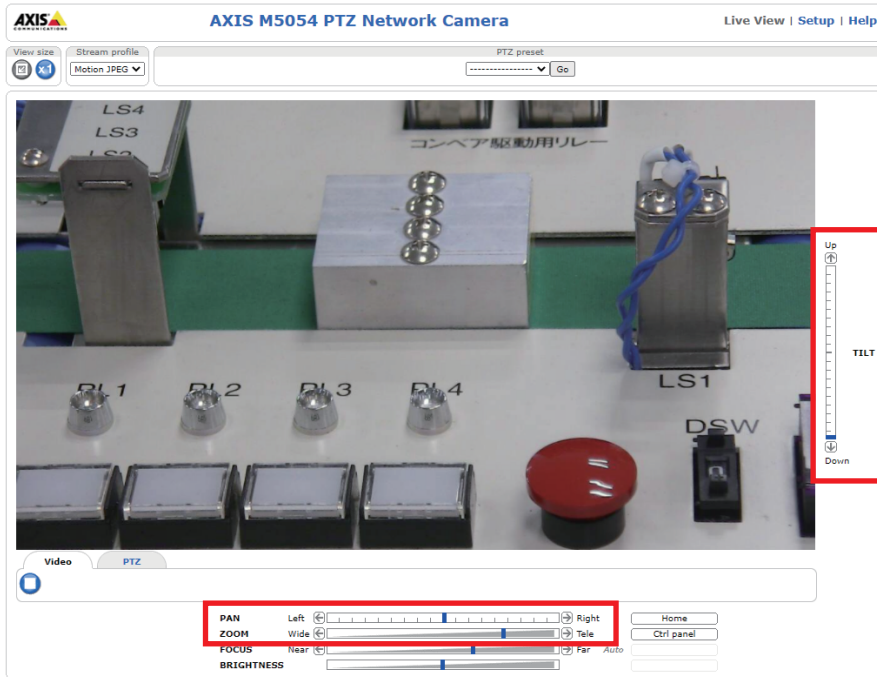
When adjusting the monitoring range of M5054 from the Web browser

### Operating procedure

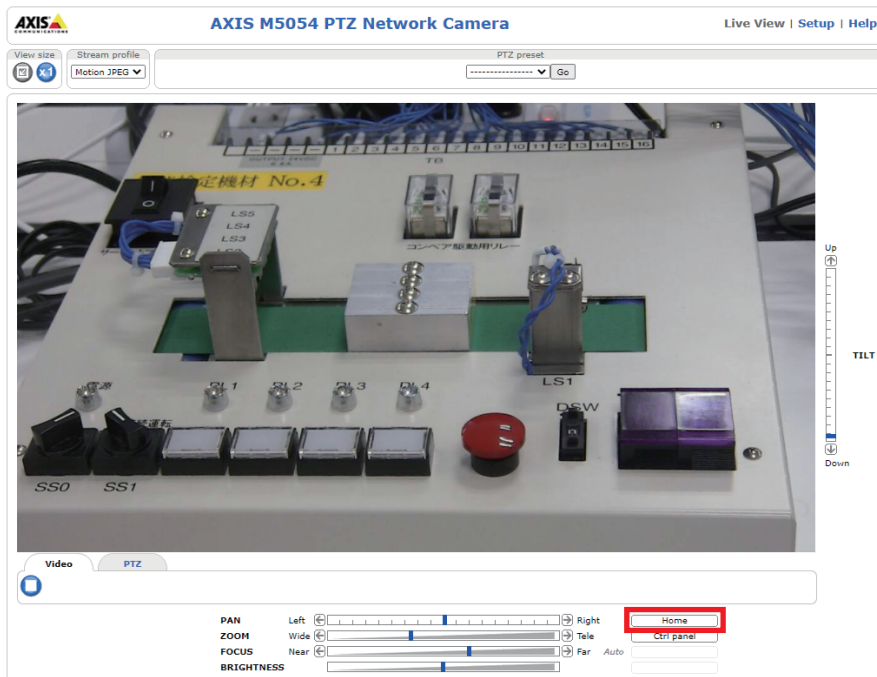
1. Access the Web server. (☞ Page 16 ONVIF supported network camera M5054)
2. The live view window appears.



3. Adjust the slide bar to adjust the Pan, Tilt, and Zoom movements.



4. Click the [Home] button to return the home position.



**Point**

The PTZ control of the camera recorder module can be performed with the GOT.

For the operation method, refer to the following.

☞ Page 74 NETWORK CAMERA ADJUSTMENT



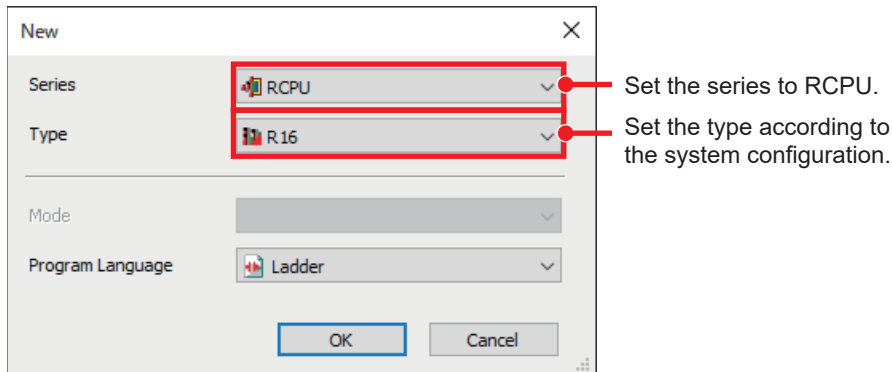
# 4 PROGRAMMABLE CONTROLLER SETTINGS

## 4.1 Creating a New Project

Create a project for the CPU module.  
Set the following in GX Works3.

### Operating procedure

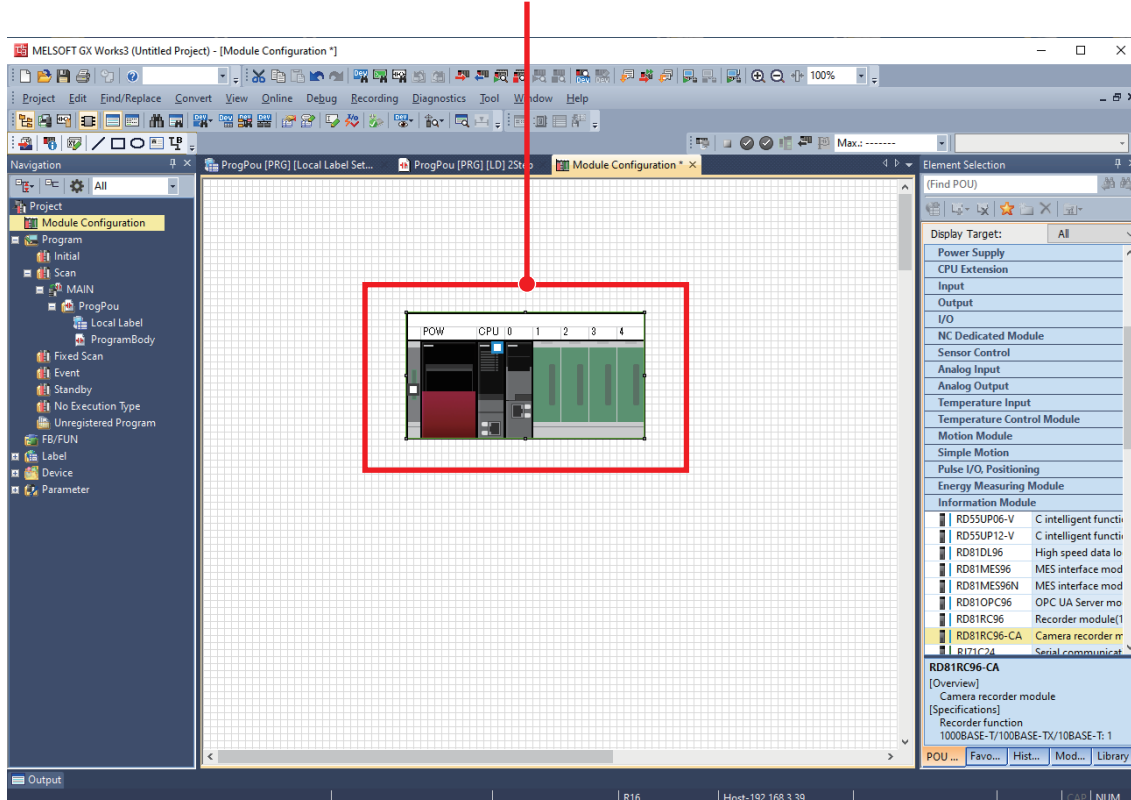
1. Create a new project.



2. Set the module configuration diagram.

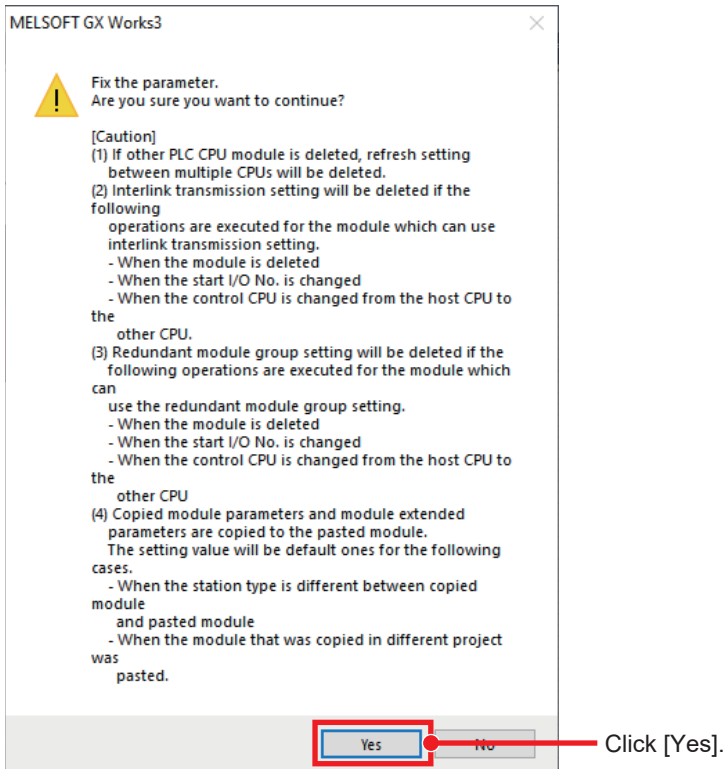
[Navigation] ⇒ [Module Configuration]

Set the required modules (base unit, power supply module, CPU module, and information module "RD81RC96-CA") according to the system configuration.

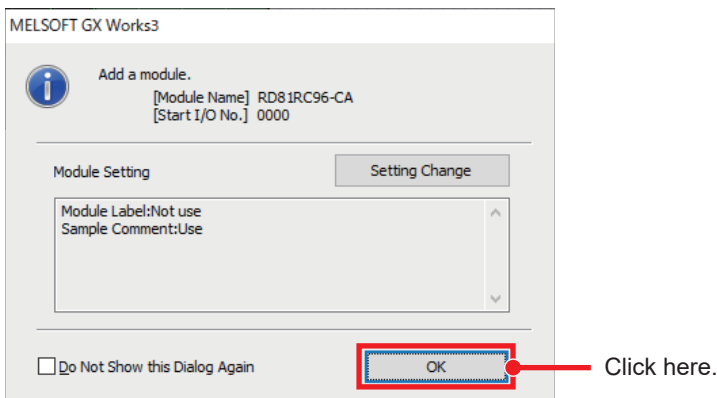


### 3. Confirm the parameters.

Right-click the module configuration diagram ⇒ [Parameter] ⇒ [Fix]



### 4. A camera recorder module is added.

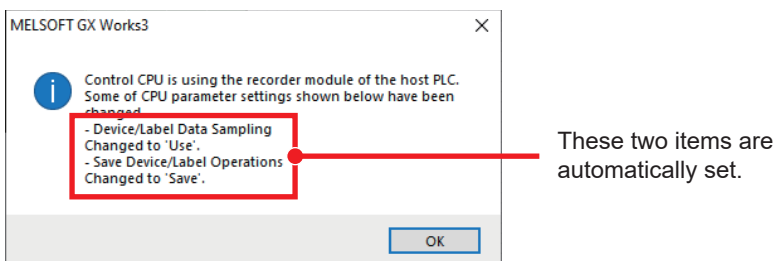


#### Point

When a camera recorder module is added, CPU parameters are automatically set.

This is related to the following settings.

Page 39 When configuring multiple recording settings, Page 93 Event History Function (Saving Device/Label Operations)



## 4.2 Parameter Settings of Camera Recorder Module

Use GX Works3 to configure the parameter setting of the camera recorder module.

For details on the parameter setting screen, refer to the following.

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

### Module parameter

Set the module parameters for the camera recorder module in the module parameter screen. When using multiple camera recorder modules, specify one as the main module and the others as sub modules.

For details on the multiple module configuration, refer to the following.

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

4

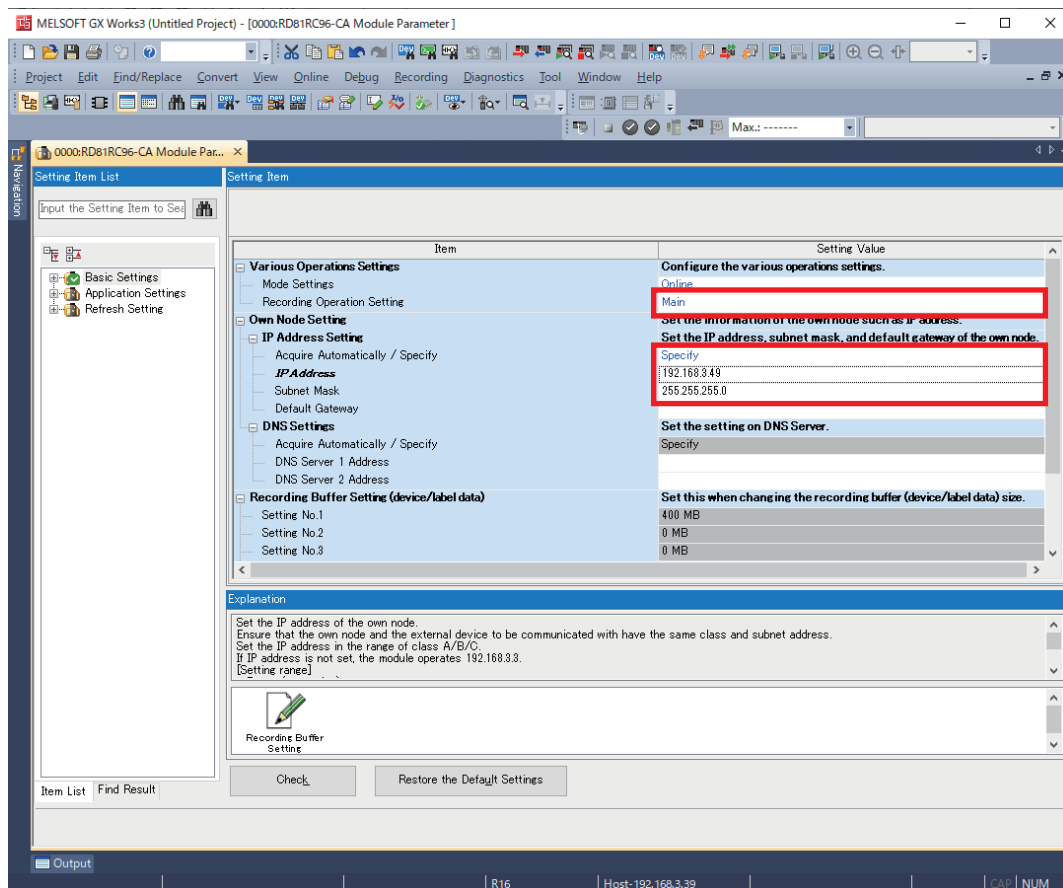
### Operating procedure

1. Set the module parameters for the camera recorder module.

🖱️ [Navigation] window ⇒ [Parameter] ⇒ [Module Information] ⇒ [RD81RC96-CA(Target module)] ⇒ [Module Parameter] ⇒ [Basic Settings]

📄 IP address: 192.168.3.49

Recording operation setting: Main



### Point

When a recording file is saved in the SD memory card, the camera recorder module and personal computer must be connected via Ethernet to read the recording file. Therefore, set the IP address and subnet mask for the camera recorder module.

2. Write the parameters to the CPU module.

For the detailed procedure, refer to the following.


📄 Page 46 Writing

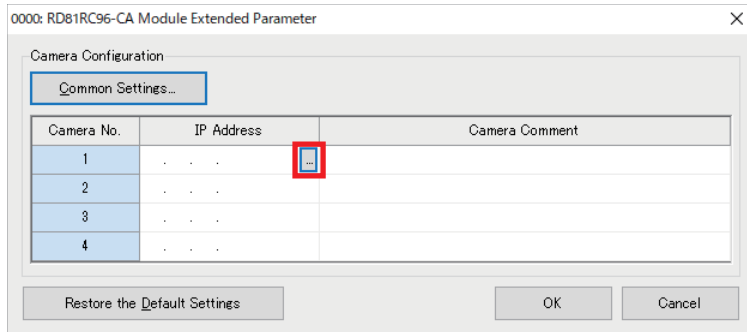
## Module extended parameter

Configure the settings of each network camera in the module extended parameter window.

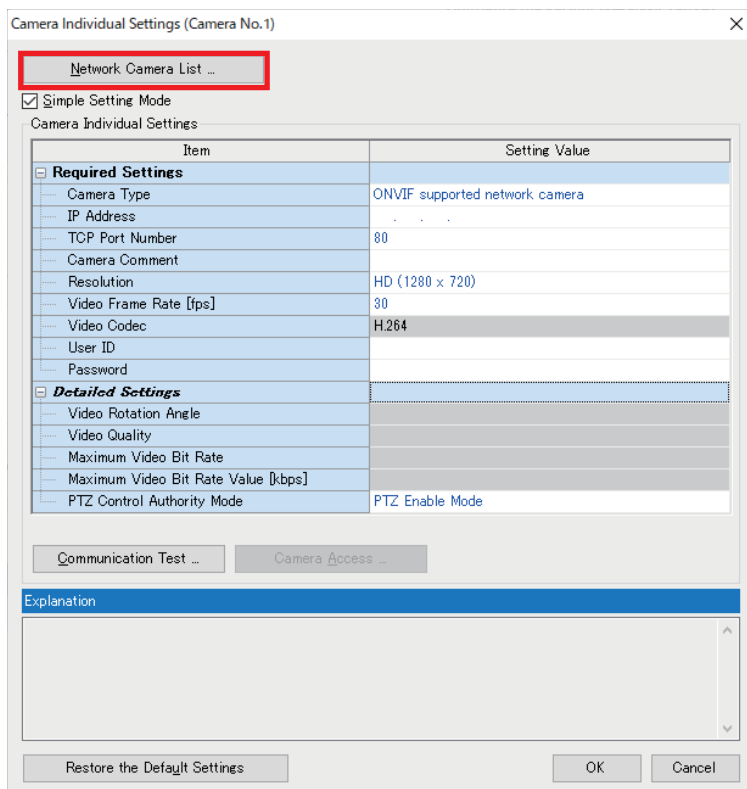
### Operating procedure

1. Display the module extended parameter window of the camera recorder module. Click the [...] button in the "IP address" field to open the camera individual settings window.

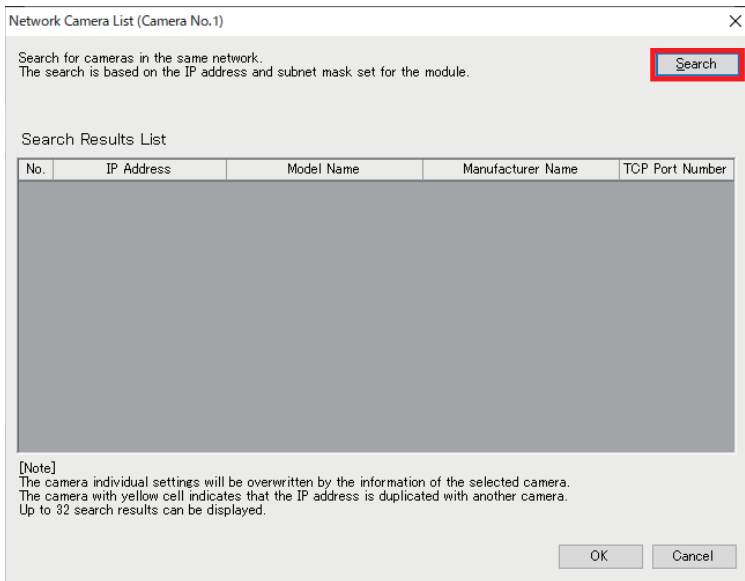
 [Navigation] window ⇒ [Parameter] ⇒ [Module information] ⇒ [(Camera recorder module)] ⇒ [Module Extended Parameter]



2. Click the [Network Camera List] button in the camera individual settings window.

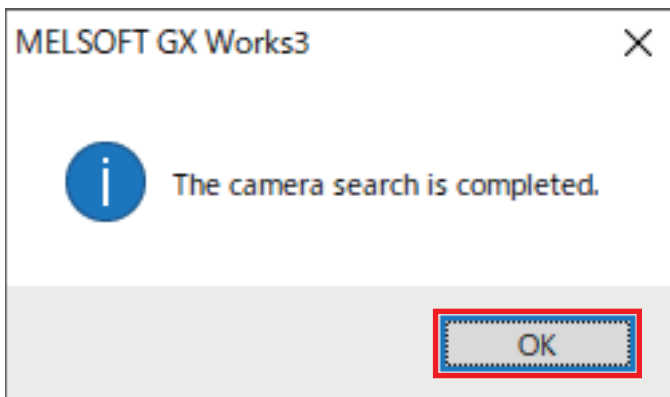


3. Click the [Search] button.

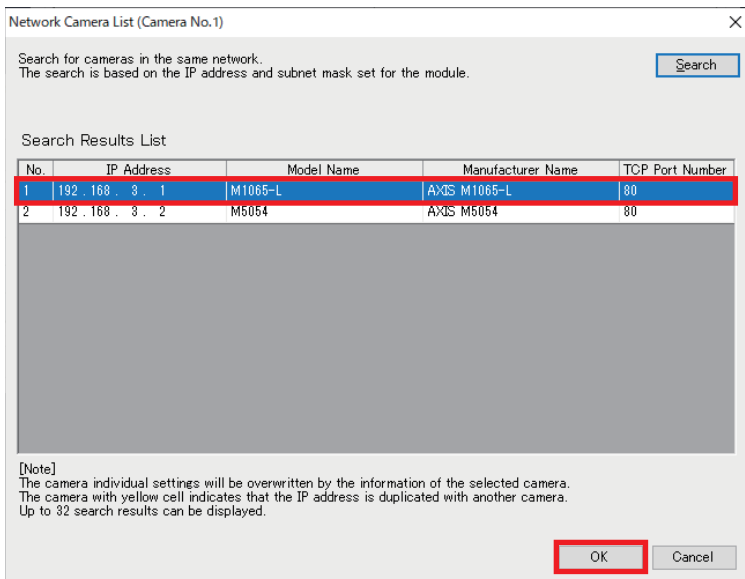


4

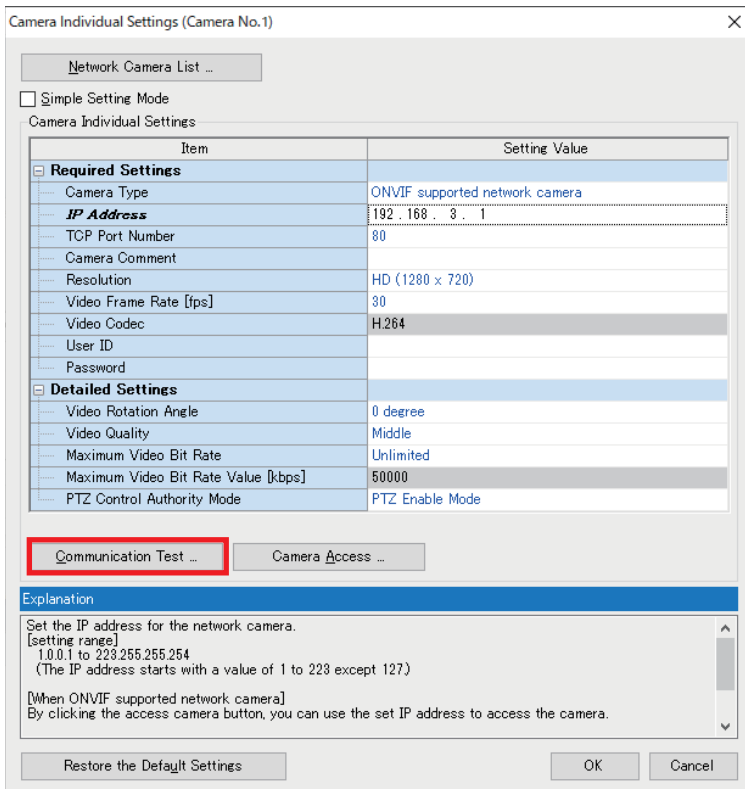
4. When the searching is completed, click the [OK] button.



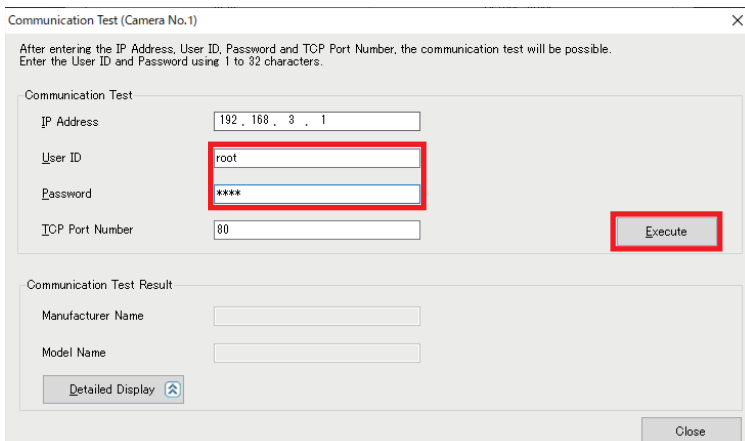
5. The ONVIF supported network cameras being connected are displayed in a list. Select the camera to set, and click the [OK] button.



6. Click the [Communication Test] button.



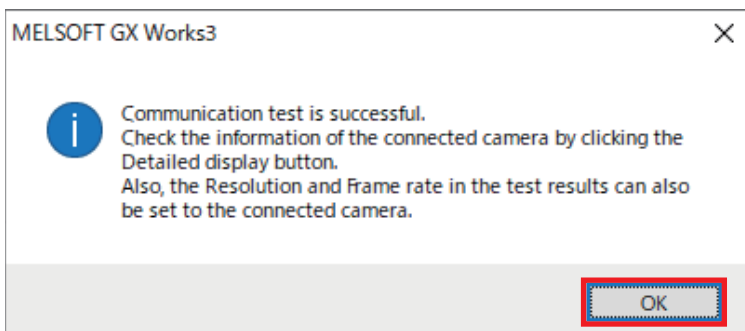
7. Enter the user ID and password, and click the [Execute] button.



**Point**

For the user ID and password to be entered in the communication test window, enter the account information for ONVIF communication created in [Page 10 Network Camera Settings](#).

8. When the communication test is succeeded, the following window appears. Click the [OK] button.



9. Check the connected camera in communication test result, and click the [Close] button.

Communication Test (Camera No.1)

After entering the IP Address, User ID, Password and TCP Port Number, the communication test will be possible.  
Enter the User ID and Password using 1 to 32 characters.

Communication Test

IP Address: 192 . 168 . 3 . 1

User ID: root

Password: \*\*\*\*

TCP Port Number: 80

Execute

Communication Test Result

Manufacturer Name: AXIS

Model Name: M1065-L

Detailed Display

Close

10. Click the [Yes] button.

MELSOFT GX Works3

The value is being edited.  
Do you want to reflect the current input into the camera individual settings?

Yes No Cancel

11. Click the [OK] button to complete the setting.

Camera Individual Settings (Camera No.1)

Network Camera List ...

Simple Setting Mode

Camera Individual Settings

Item	Setting Value
<b>Required Settings</b>	
Camera Type	ONVIF supported network camera
IP Address	192 . 168 . 3 . 1
TCP Port Number	80
Camera Comment	M1065-L
Resolution	HD (1280 x 720)
Video Frame Rate [fps]	30
Video Codec	H.264
User ID	root
Password	****
<b>Detailed Settings</b>	
Video Rotation Angle	0 degree
Video Quality	Middle
Maximum Video Bit Rate	Unlimited
Maximum Video Bit Rate Value [kbps]	50000
PTZ Control Authority Mode	PTZ Enable Mode

Communication Test ... Camera Access ...

Explanation

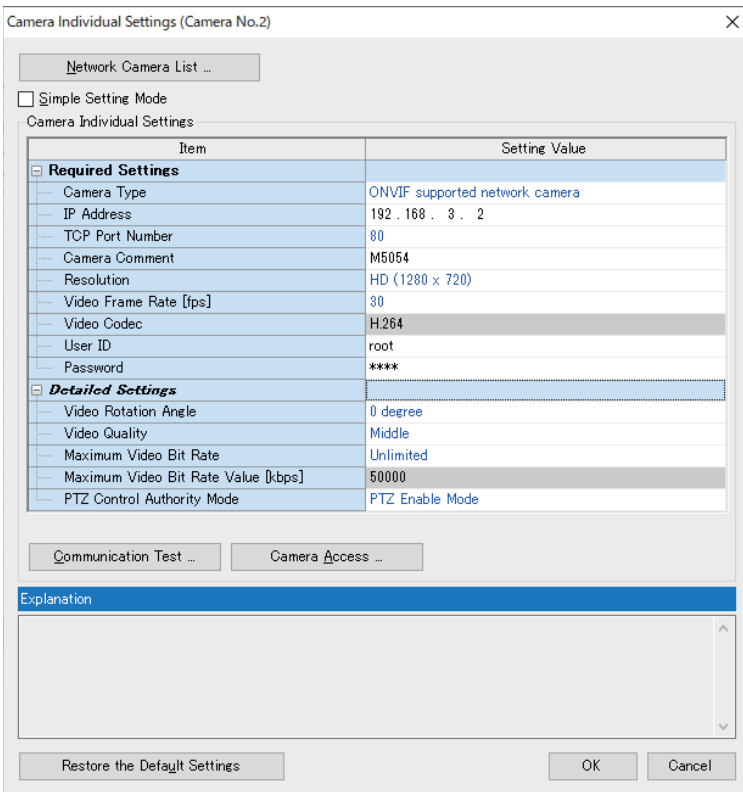
Set the password of the network camera.  
[setting range]  
1 to 32 characters  
The usable characters are half-width alphanumeric characters, half square space, and the following symbols.  
!"#\$%&'()\*+,-./:;<=>?@[\]^\_`{|}~

Restore the Default Settings OK Cancel

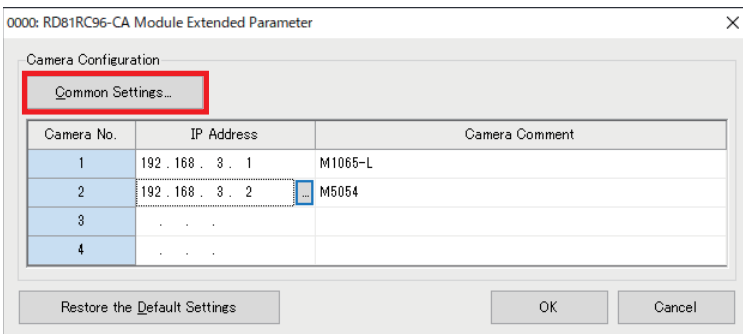
Adding a camera comment will make it easier to identify the camera later.

This is automatically inputted in step 10.

12. Configure the settings for another ONVIF supported network camera in the same way as in steps 5 to 11.



13. Click the [Common Settings] button and configure the settings related to GOT linkage.



- By using the GOT linkage function, the live video of the network camera can be checked and PTZ control can be performed with the GOT connected to the CPU module in the same network as the network camera.
- GOT linkage requires the FTP server settings in advance.

For details, refer to the following.

Mitsubishi Electric Programmable Controller Camera Recorder Module RD81RC96-CA Sample Screen Manual (BCN-P5999-1333)



**14.** After setting the following items, click the [OK] button.

Ex] GOT Linkage Enable/Disable: Enable

IP Address: 192.168.3.30

Login Name: Login name set in the FTP server setting

Password: Password set in the FTP server setting

Common Settings

GOT Linkage

GOT Linkage Enable/Disable: Enable

IP Address: 192.168.3.30

Login Name: [Empty]

Password: [Empty]

Restore the Default Settings | FTP Communication Test

Explanation

Specify the IP address for the FTP server.  
[setting range]  
1.0.0.1 to 223.255.255.254  
(The IP address starts with a value of 1 to 223 except 127.)

OK | Cancel

**Point**

- For the IP address, set the IP address of the connected GOT. When using GT SoftGOT, set the IP address of the personal computer.
- Perform an FTP communication test to verify that the entered values are correct.

**15.** Click the [OK] button to complete the settings of the camera recorder module.

0000: RD81RC96-CA Module Extended Parameter

Camera Configuration

Common Settings...

Camera No.	IP Address	Camera Comment
1	192.168.3.1	M1065-L
2	192.168.3.2	M5054
3	. . .	
4	. . .	

Restore the Default Settings | OK | Cancel

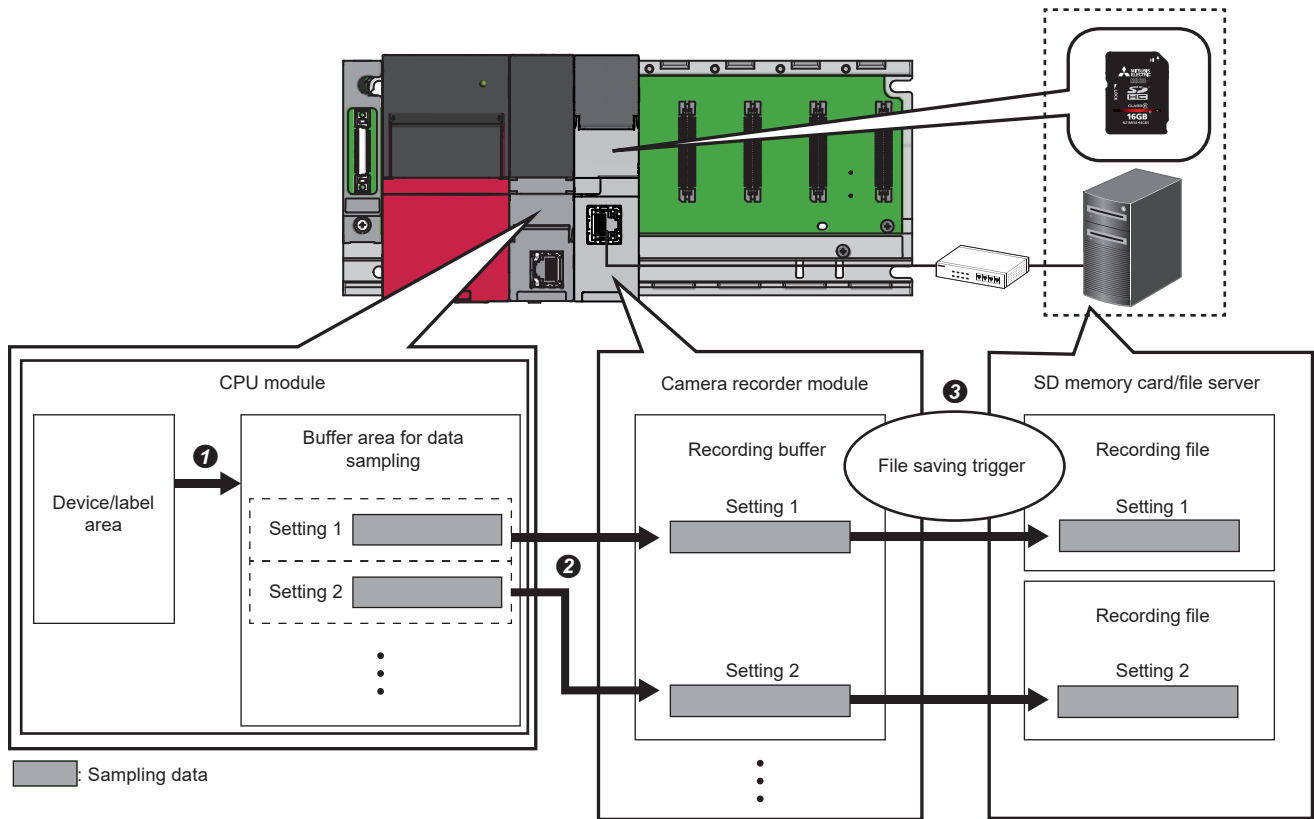
## 4.3 Recording Setting

This section describes the setting method to use the recording function of the camera recorder module.

The recording function stores the data (device or label) sampled by the CPU module and the video data recorded by the network camera in the camera recorder module, outputs the data for a saving period to a recording file when a file saving trigger is satisfied, and saves it to the SD memory card or file server.

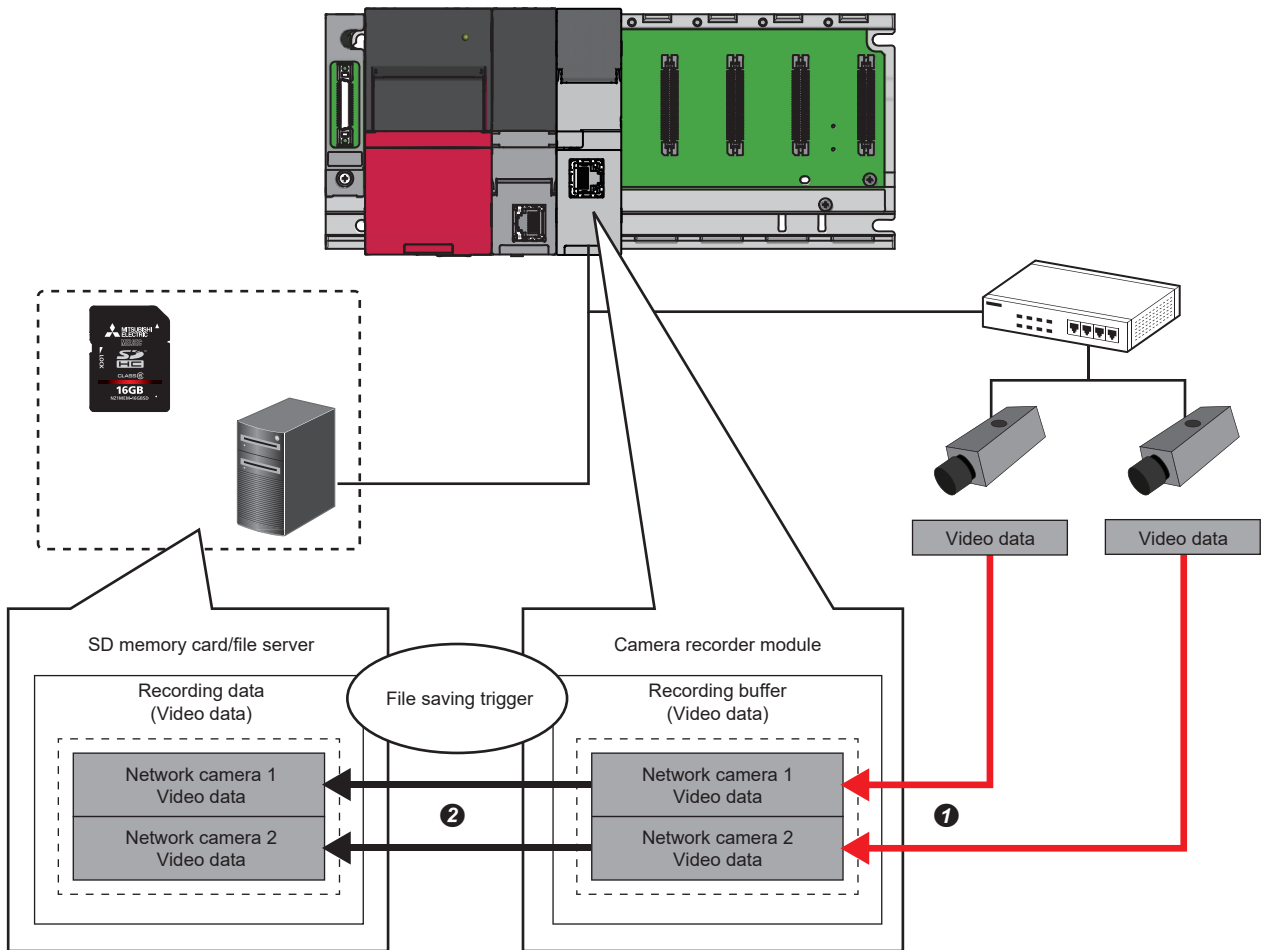
### Process of saving data

#### ■ Saving devices and labels



- ❶ A CPU module samples a device and label specified as a sampling target in the buffer area for data sampling.
- ❷ A camera recorder module accumulates the device and label sampled in the buffer area for data sampling in the recording buffer.
- ❸ The camera recorder module outputs data for a saving period to a recording file and saves it to a save destination specified in the recording setting when a file saving trigger is satisfied.

## ■ Saving video data



- ① The video data received from the network camera is accumulated in the recording buffer.
- ② When the file saving trigger is satisfied, the data for a saving period is output to a recording file, and saved to the save destination specified in the recording setting.

## Creating the recording setting

Use GX Works3 to configure the recording setting of the camera recorder module.

For details on the recording setting screen, refer to the following.

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

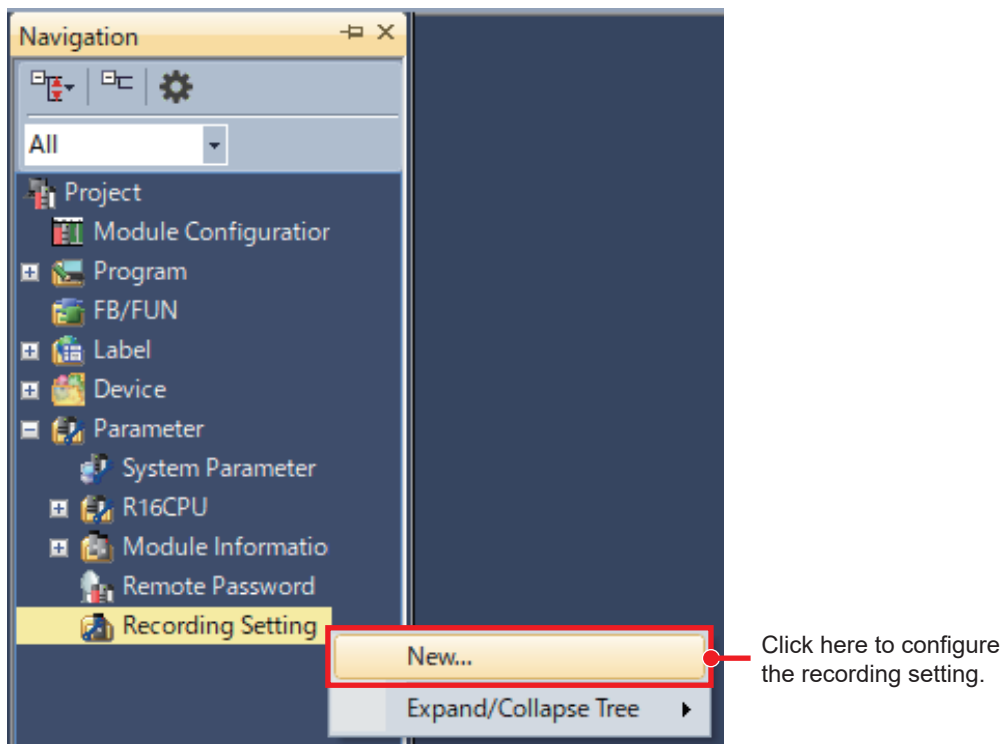
There are two recording methods: "File Saving Trigger Only" and "Recording Startup Trigger + File Saving Trigger". The following shows the setting example with the recording method using only the file saving trigger for recording data from 10 seconds before to 5 seconds after the device M0 turns on.

Setting item	Description
Recording Setting	Configure the settings required for recording. ■ Settings • Recording Method: File Saving Trigger Only • Specify the Devices/Labels in the Program in a Batch: Select • Device: M0 • Saving Path Setting: SD memory card • Video Data Receiving Target Setting: Select all

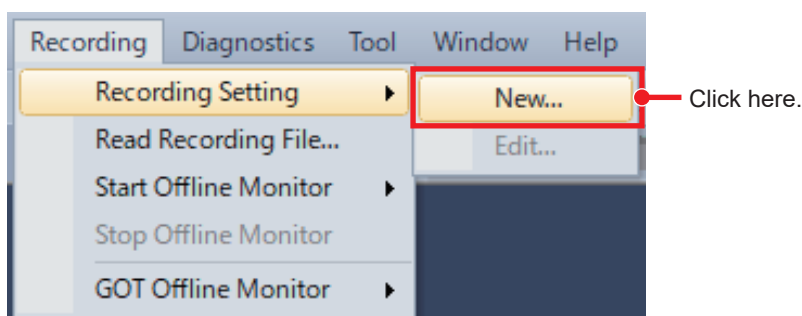
## Operating procedure

1. Add a new recording setting.

🖱️ [Navigation] window ⇒ [Parameter] ⇒ [Recording Setting] ⇒ Right-click ⇒ [New]<sup>\*1</sup>



\*1 A new setting can also be created from the recording menu.



## 2. Select a recording method in the saving period setting.

Ex) Recording Method: File Saving Trigger Only, Saving Period Before Trigger: 10 seconds, Saving Period After Trigger: 5 seconds

0000:RD61RC96-CA Recording Setting(No.1)

Setting Item List

- Saving Period Setting
- Device/Label Sampling Setting
- File Saving Trigger Setting
- Saving Path Setting
- Video Data Receiving Target Setting

Setting Item

Saving Period Setting

Recording Method

File Saving Trigger Only

Saving Period Before and After File Saving Trigger

35 [Second]

Saving Period Before Trigger

10 [Second]

Saving Period After Trigger

5 [Second]

Legend

- File Saving Trigger
- Saving Target
- Saving Startup

(1) Saving Period Before and After File Saving Trigger (2) Saving Period Before Trigger (3) Saving Period After

Explanation

Please set the time before the trigger occurrence in the saving period whose starting point is the file saving trigger. It can be set within the following ranges according to the unit.

[Setting range]

- 0 to 86400 [Second]
- 0 to 1440 [Minute]
- 0 to 24 [Hour]

Sampling Time (Approx.)

0.025 [ms](\*)

Data Sampling Buffer Area Required Size

0 [MB](\*)

Restore Default (\*) It differs depending on the contents of the program, label, and parameter. OK Cancel

The estimated processing time for device/label sampling is displayed.

## 3. Configure the device/label sampling setting.

Ex) Specify the Devices/Labels Used in the Project as Sampling Targets: Select (by default)

Specify the Devices/Labels in the Program in a Batch: Select (by default)

0000:RD61RC96-CA Recording Setting(No.1)

Setting Item List

- Saving Period Setting
- Device/Label Sampling Setting
- File Saving Trigger Setting
- Saving Path Setting
- Video Data Receiving Target Setting

Setting Item

Device/Label Sampling Target Setting

Specify the Devices/Labels Used in the Project as Sampling Targets

Specify the Devices/Labels in the Program in a Batch

Include the Parameter

Sampling Size

0 [Word]

Specify the Target

Specification Method	Sampling Size [Word]	Setting
Specify from the Device/Label List	0	Detail

Specify the Device Range

Setting

Sampling Size

0 [Word]

Device/Label Sampling Target List

Sampling Interval Setting

Sampling Method

Each Scan

Time Interval

100 [MilliSeco]

Explanation

Set this when specifying sampling targets from the devices and labels used in the project.

Sampling Time (Approx.)

0.025 [ms](\*)

Data Sampling Buffer Area Required Size

0 [MB](\*)

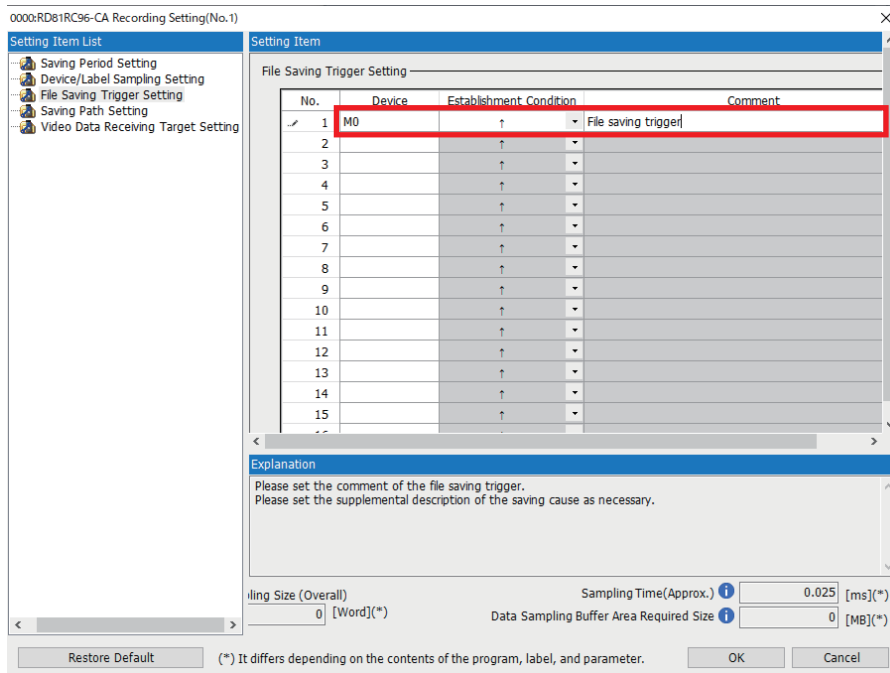
Restore Default (\*) It differs depending on the contents of the program, label, and parameter. OK Cancel

### Point

When specifying the batch Devices/Labels in a program, the devices and labels in the created program are automatically set as the sampling targets.

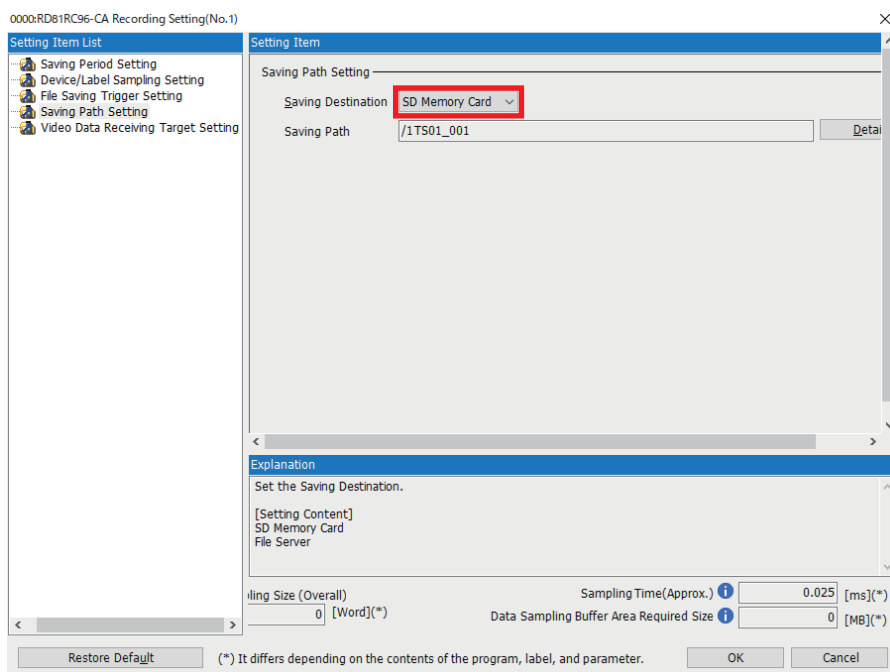
4. Set the device to be used as the file saving trigger in the file saving trigger setting.

Ex) Device: M0 (turning ON)



5. Specify the saving destination in the saving path setting.

Ex) SD Memory Card



The recording file can be saved to the file server.

For details on saving to the file server, refer to the following.

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

- Select the target network camera to receive video data, and click the [OK] button in the video data receiving target setting.

0000:RD81RC96-CA Recording Setting(No.1)

Setting Item List

- Saving Period Setting
- Device/Label Sampling Setting
- File Saving Trigger Setting
- Saving Path Setting
- Video Data Receiving Target Setting

Setting Item

Video Data Receiving Target Setting

Detailed Display    Select All    Deselect All(N)

Module	Camera No.	Receiving Target	IP Address	Video Size [MB]
0000:RD81RC96-CA Slot No.:0	1	<input checked="" type="checkbox"/>	192 . 168 . 3 . 1 8	M106
	2	<input checked="" type="checkbox"/>	192 . 168 . 3 . 2 8	M505
	3	<input type="checkbox"/>		
	4	<input type="checkbox"/>		

Recording Buffer Setting (Video Data)

0000:RD81RC96-CA    Overall Video Size(Approx.)    16 / 400

Examples

- Less than 75%
- 75% or more
- 95% or more

Explanation

Set the video data receiving target, according to the trigger setting and the retention period setting. When there are multiple camera recorder modules that were set as main, the start module with the smallest slot number will be main. The main modules after the second module will be excluded from the target, and will not be displayed in the list. The camera that has been configured in the camera configuration of the module extension parameters can be set as the video data receiving target.

Sampling Size (Overall)    0 [Word](\*)    Sampling Time(Approx.)    0.025 [ms](\*)    Data Sampling Buffer Area Required Size    0 [MB](\*)

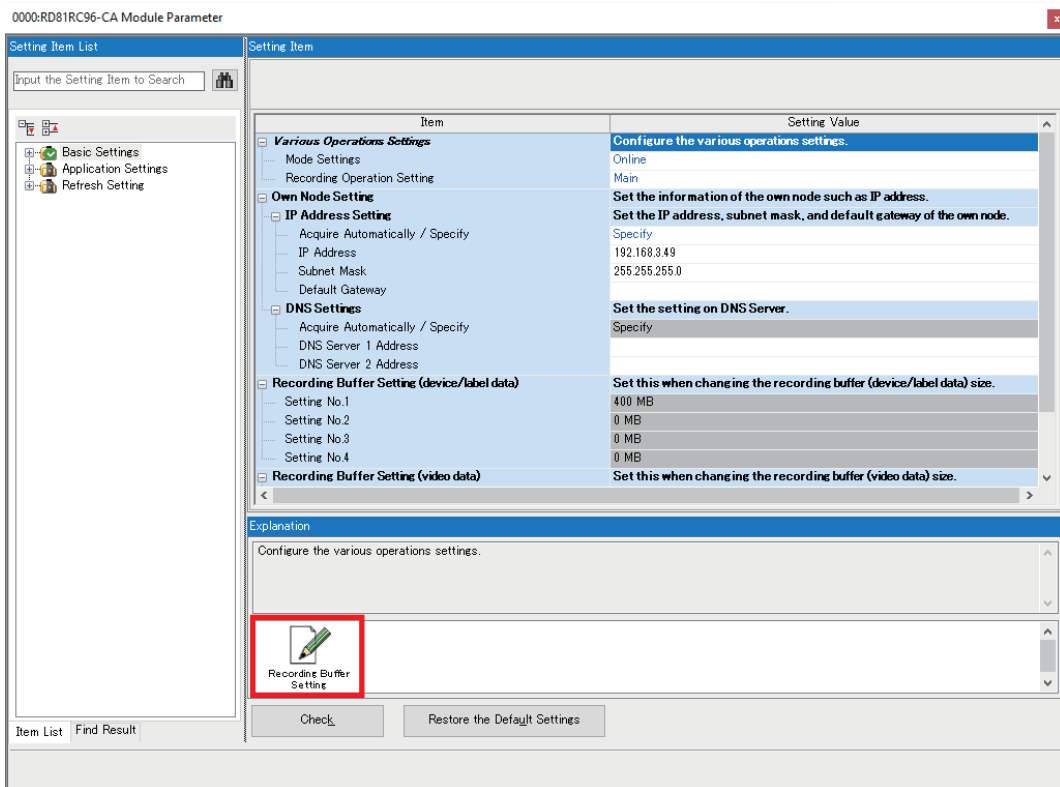
Restore Default    (\*) It differs depending on the contents of the program, label, and parameter.    **OK**    Cancel

# When configuring multiple recording settings

Up to four recording settings can be made. By default, the buffer area setting for data sampling of the CPU parameter in settings 2 to 4 and recording buffer setting of the module parameter in the recorder module are set to 0. Therefore, set the size for each setting.

## Operating procedure

1. Double-click [Recording Buffer Setting] at the lower part of the module parameter window.





## 2. Change the recording buffer size to be used for the recording setting.

Recording Buffer Setting

Total Size: 800 MB

Device/label data

Setting No.	Recording Buffer Size [MB]
Setting No.1	800
Setting No.2	100
Setting No.3	0
Setting No.4	0

The device/label data can be set when "Recording operation setting" is "Main".

Video data

Setting No.	Recording Buffer Size [MB]
Setting No.1	300
Setting No.2	200
Setting No.3	0
Setting No.4	0

Set the recording buffer size to be used for the recording setting.

[Setting range]  
0, 20 to 800 [MB] (in units of 1 MB)

Set the size within the following range.  
[Total of recording buffer settings (device/label data) No. 1 to No. 4] + [Total of recording buffer settings (video data) No. 1 to No. 4] ≤ 800M bytes

Check Restore the Default Settings OK Cancel

4

### Point

- The device/label data size can be set when "Recording Operation Setting" is to "Main".
- Up to 800 MB can be set in total for device/label data and video data.

## 3. Configure the buffer area setting for data sampling in the CPU parameter.

[Navigation] window ⇒ [Parameter] ⇒ CPU module to be used ⇒ [CPU Parameter]

R16CPU CPU Parameter

Setting Item List

Input the Setting Item to Search

Setting Item

Item	Setting
Total Capacity	1280 K Byte
Setting No.1	128 K Byte
Setting No.2	128 K Byte
Setting No.3	128 K Byte
Setting No.4	128 K Byte
Setting No.5	128 K Byte
Setting No.6	128 K Byte
Setting No.7	128 K Byte
Setting No.8	128 K Byte
Setting No.9	128 K Byte
Setting No.10	128 K Byte
Memory Dump Function	256 K Byte
Link Direct Device Setting	Q Series Compatible Mode
Buffer Area Setting for Data Sampling	
Device/Label Data Sampling	Use
Total Capacity	4 M Byte
Setting No.1	3 M Byte
Setting No.2	1 M Byte
Setting No.3	0 M Byte
Setting No.4	0 M Byte

Explanation

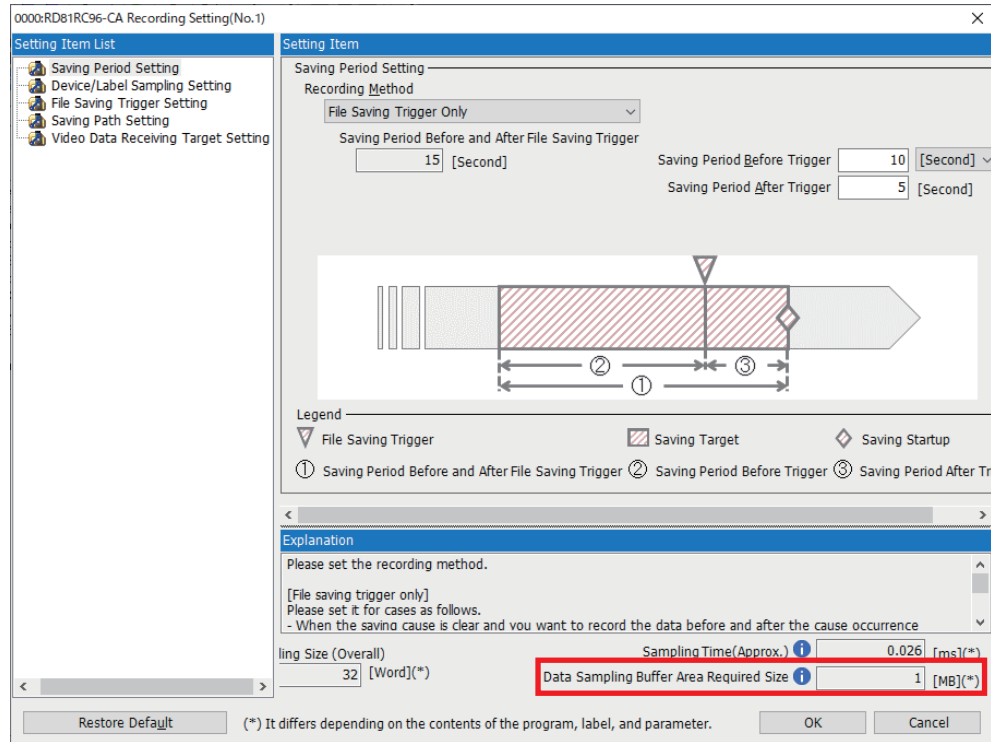
Display the total capacity of buffer area for data sampling.  
Please set 0 when you do not use the corresponding setting No.  
Unable to set 0 as a value for total capacity.

Setting range is as follows.  
[1M byte <= Total of Buffer Capacity <= \*M bytes]  
\* It varies according to the type of module.  
<R16CPU, R16ENCPU, R16SFCPU>  
\*\*=0: 4M bytes, 0: 4M bytes, 1: 4M bytes, 16: 6M bytes, 120: 6M bytes

Item List Find Result

Check Restore the Default Settings Apply

The required size to be specified in the buffer area setting for data sampling in the CPU parameter can be checked in the recording setting screen.



# 4.4 Parameter Settings of CPU Module

Set the IP address and subnet mask of the CPU module, and configure the event history settings and clock settings.

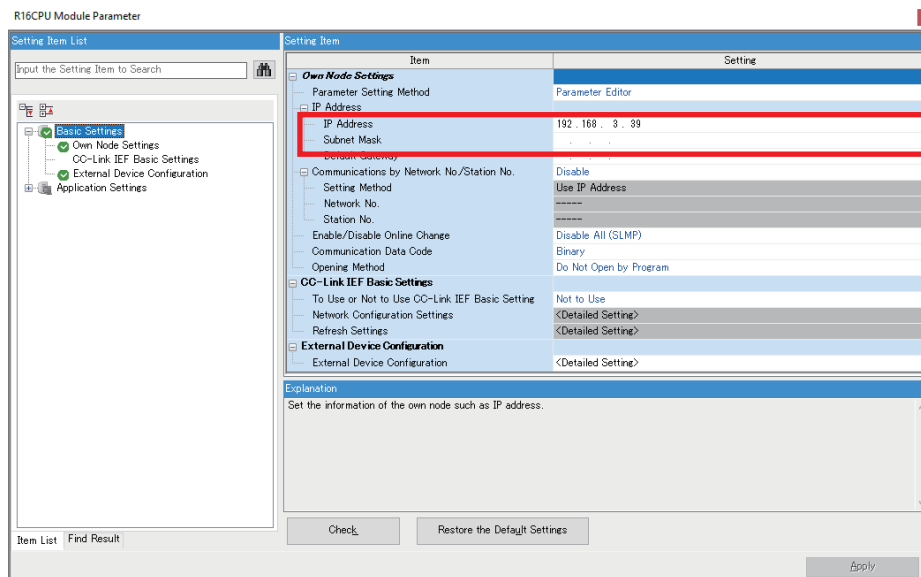
## Own node settings

### Operating procedure

1. Display the own node setting window.

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

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



### Point

- If the IP address is blank, it is automatically set to 192.168.3.39.
- Set the IP address of the CPU in the same segment as the IP address of the network camera set in the following.

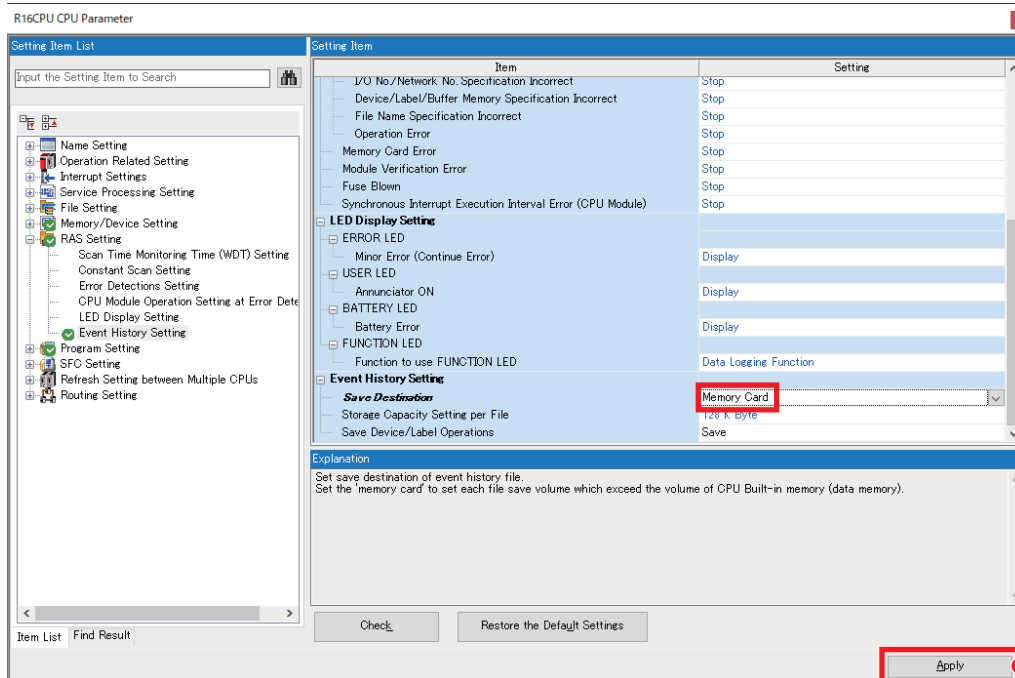
☞ Page 10 Network Camera Settings

## Event history setting

### Operating procedure

1. Change the save destination to the memory card, and click [Apply].

[Navigation] window ⇒ [Parameter] ⇒ Module to be used ⇒ [CPU Parameter] ⇒ [RAS Setting] ⇒ [Event History Setting]




### Point

- For details on the event history setting, refer to the following.  
☞ Page 93 Event History Function (Saving Device/Label Operations)
- When setting the save destination to the memory card, an SD memory card must be inserted to the CPU module.

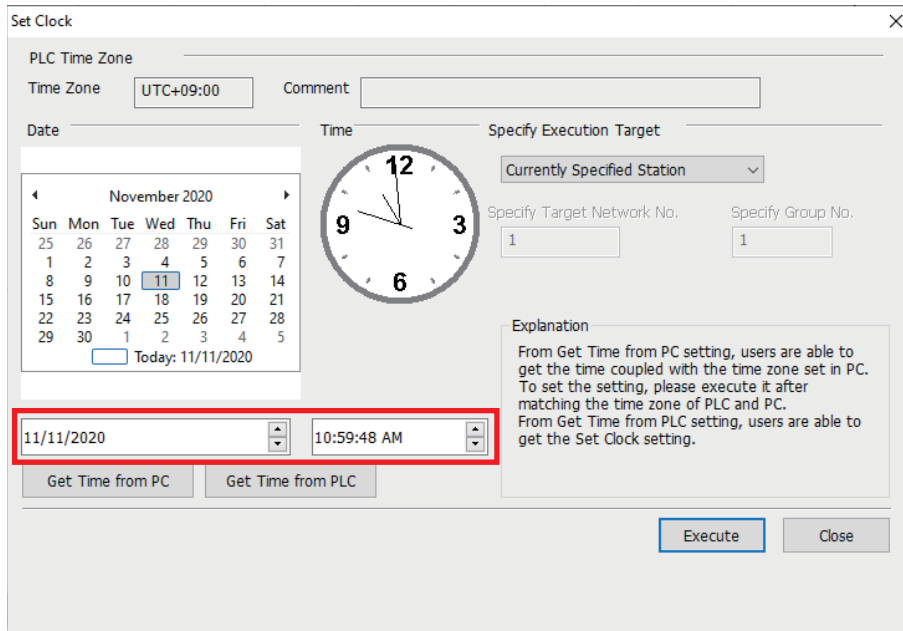
## Clock settings

Set the clock data of the programmable controller.

1. Display the clock setting window.

 [Online] ⇄ [Set Clock]


2. Check and enter the time, and click the [Execute] button.



4

### Point

This setting is not required if the time synchronization setting by the NTP server has been configured 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)




## 4.6 Writing

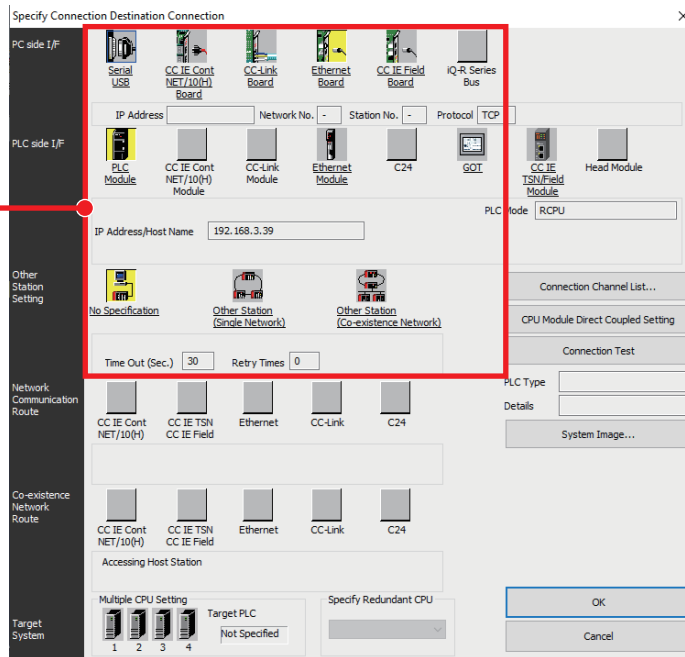
Write the parameters, program, and recording setting to the CPU module.  
Then, reset the CPU module or turn off and on the power.

### Operating procedure


1. Start GX Works3 and connect to the personal computer.

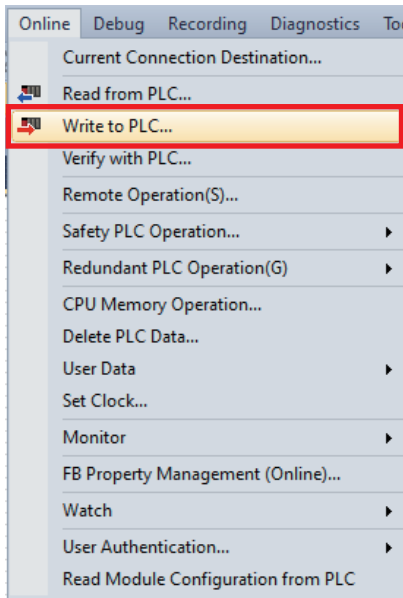
 [Online] ⇒ [Current Connection Destination]

Configure the settings as shown on the right.



2. Write the data to the programmable controller.

 [Online] ⇒ [Write to PLC] from the menu



3. Select [Parameter + Program], and then click the [Execute] button.

Click here.

Online Data Operation

Display Setting Related Functions

Write Read Verify Delete

Parameter + Program(E) Select All

Open/Close All(D) Deselect All(D)

Legend: CPU Built-in Memory, SD Memory Card, Intelligent Function Module

Module Name/Data Name		Detail	Title	Last Change	Size (Byte)
210118_sofRGOT	<input type="checkbox"/>				
Parameter	<input checked="" type="checkbox"/>				
System Parameter/CPU Parameter	<input checked="" type="checkbox"/>			2021/02/08 10:34:27	Not Calculated
Module Parameter	<input checked="" type="checkbox"/>			2021/02/08 10:36:42	Not Calculated
Module Extended Parameter:0000:R...	<input checked="" type="checkbox"/>			2021/02/08 10:34:55	Not Calculated
Memory Card Parameter	<input checked="" type="checkbox"/>			2021/01/15 15:53:52	Not Calculated
Remote Password	<input checked="" type="checkbox"/>			2021/01/15 15:53:52	Not Calculated
Recording Setting	<input checked="" type="checkbox"/>				
Setting No.1	<input checked="" type="checkbox"/>			-	Not Calculated
Global Label	<input checked="" type="checkbox"/>				
Global Label Setting	<input checked="" type="checkbox"/>			2021/02/08 10:38:02	Not Calculated
Program	<input checked="" type="checkbox"/>	Detail			

Display Memory Capacity

Memory Capacity

Size Calculation

Legend: Used, Increased, Decreased, Free: 5% or Less

Program Memory: 640/640KB (Free)

Data Memory: 10232/10244KB (Free)

Device/Label Memory (File Storage Area): 1536/1536KB (Free)

SD Memory Card: 0/0KB (Free)

Execute Close

Click here to write the data.



# 5 GOT SETTINGS

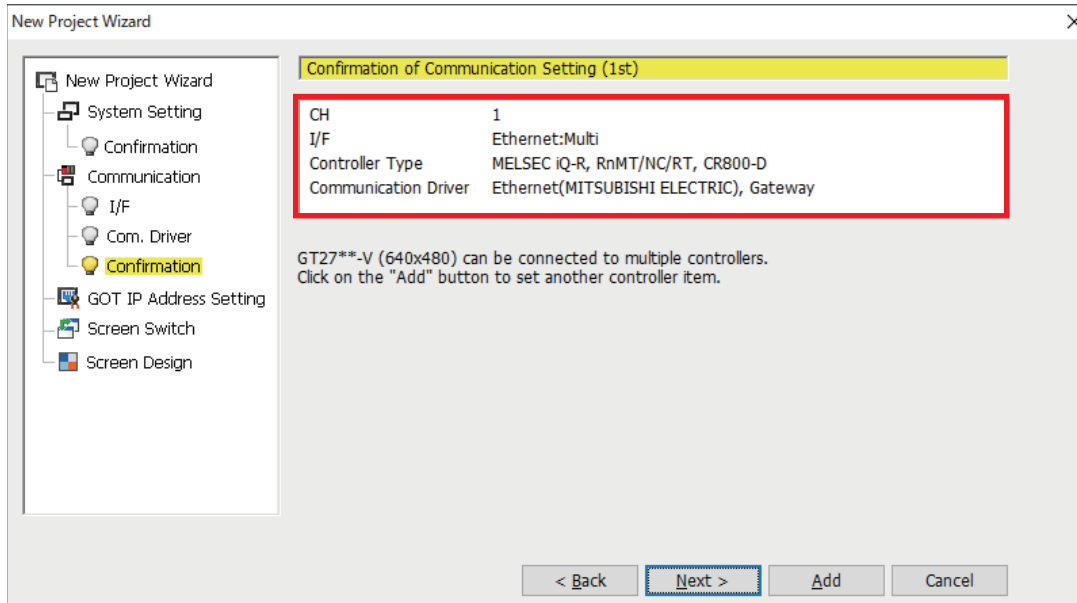
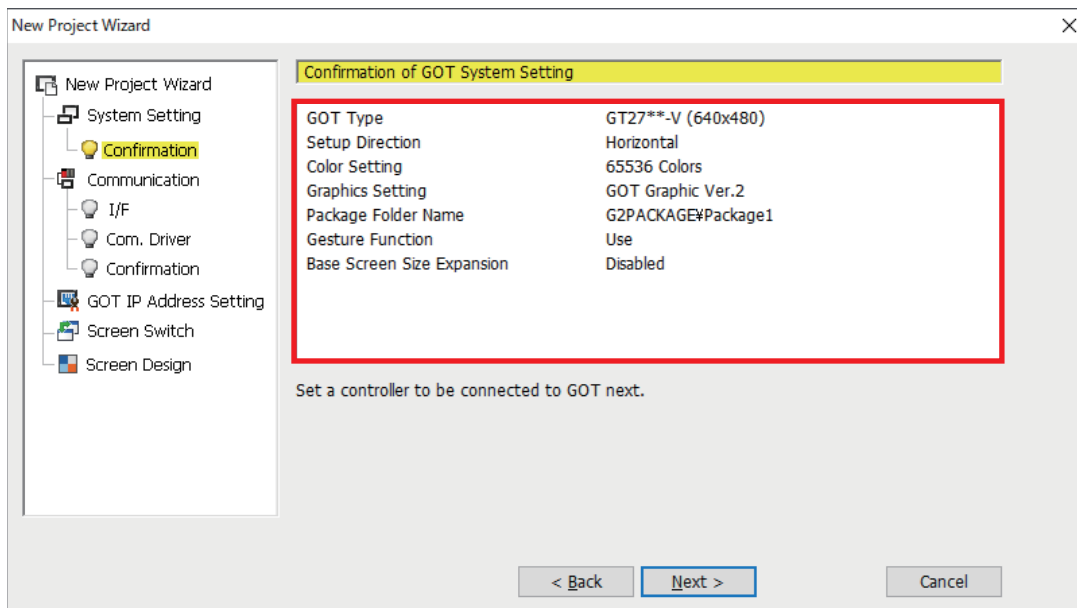
Create a new GOT project and configure the settings to sample the resource data.

## 5.1 Creating a New Project

Create a new GOT project. Set the following in GT Designer3.

### Operating procedure

1. Start GT Designer3.
2. Set as follows in the New Project Wizard and create a new project.



## 5.2 Setting for Creating Operation Log Files

Configure the settings in GT Designer3 to collect operation logs of the GOT.

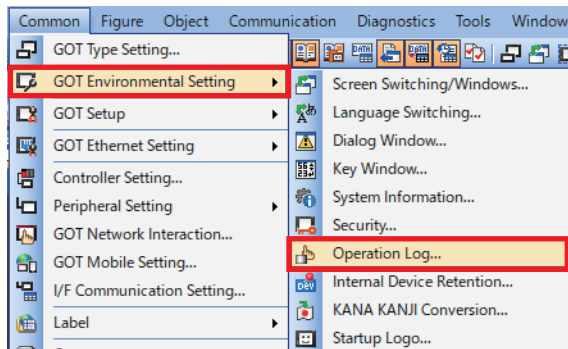
For details on the operation log, refer to the following.

GT Designer3 (GOT2000) Screen Design Manual

### Operating procedure

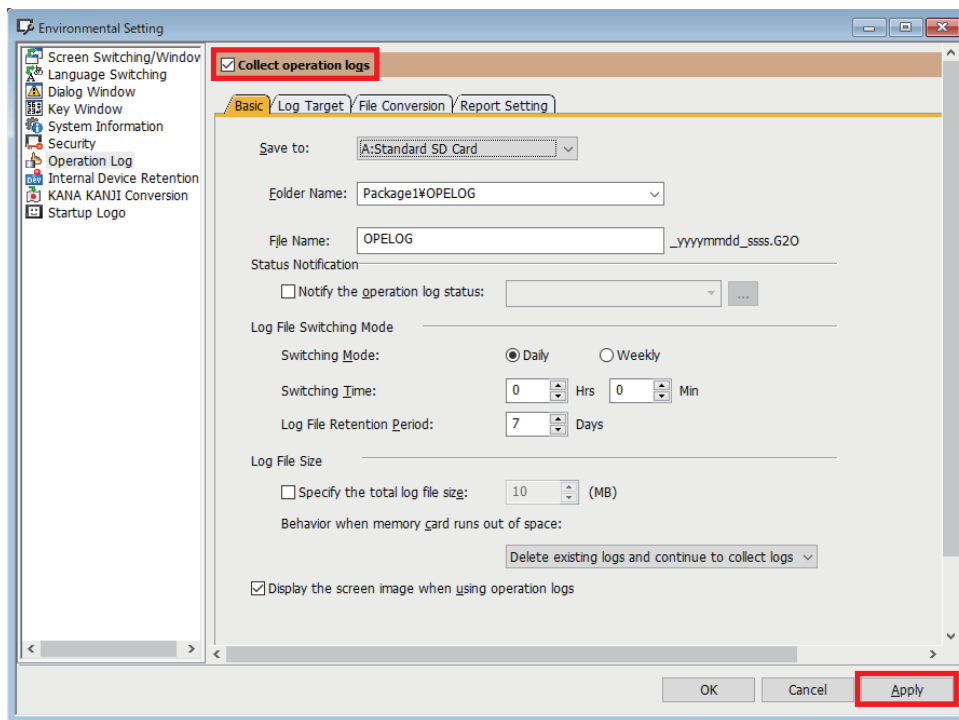
1. Select [Operation Log] to display the Environmental Setting window.

[Common] ⇒ [GOT Environmental Setting] ⇒ [Operation Log]

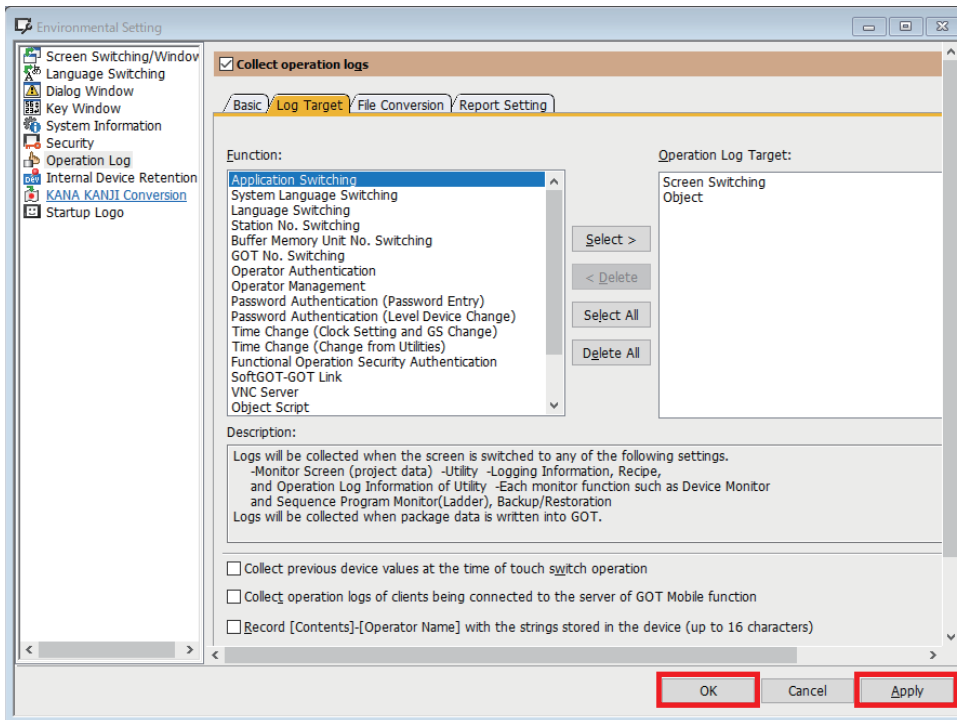


2. Select [Collect operation logs] and set the save destination.

Save Destination: A: Standard SD Card



3. Set the log target and click the [Apply] button. Click the [OK] button to complete the setting.



## 5.3 Setting for Creating Alarm Log Files

Configure the settings in GT Designer3 to create alarm log files of the GOT.

For details on the alarms, refer to the following.

GT Designer3 (GOT2000) Screen Design Manual

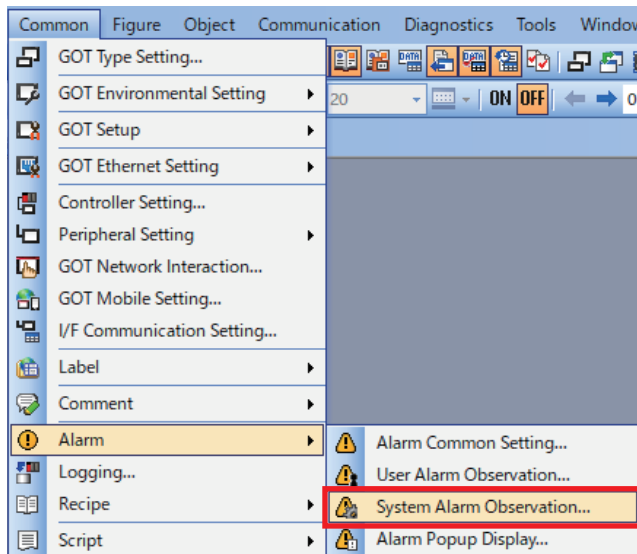
### System alarm observation

Configure the save setting for system alarm observation. Create the alarm target with the desired settings.

#### Operating procedure

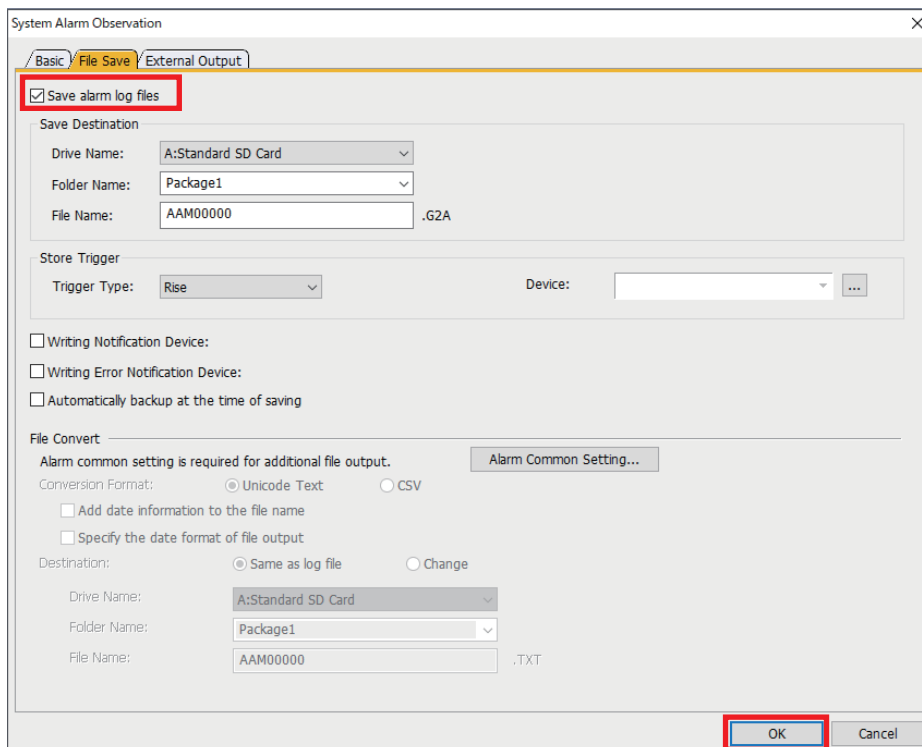
1. Display the [System Alarm Observation] dialog.

[Common] ⇒ [Alarm] ⇒ [System Alarm Observation]



2. Select [Save alarm log files] and set the save destination. Click the [OK] button to complete the setting.

Drive Name: A: Standard SD Card




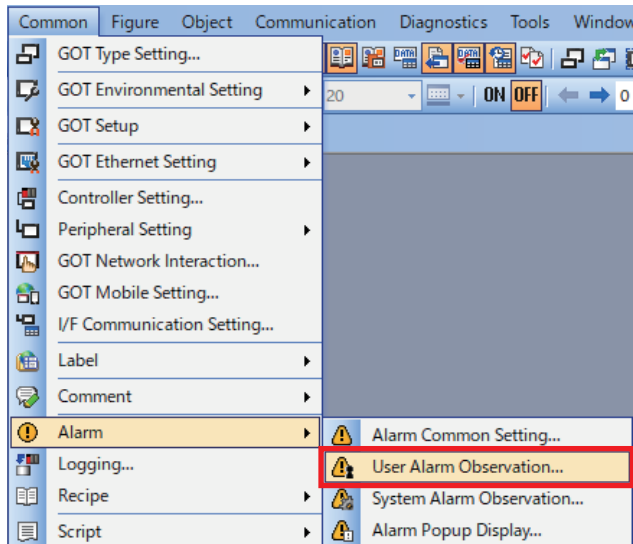
## User alarm observation

Configure the save setting for user alarm observation. Create the alarm target with the desired settings.


### Operating procedure

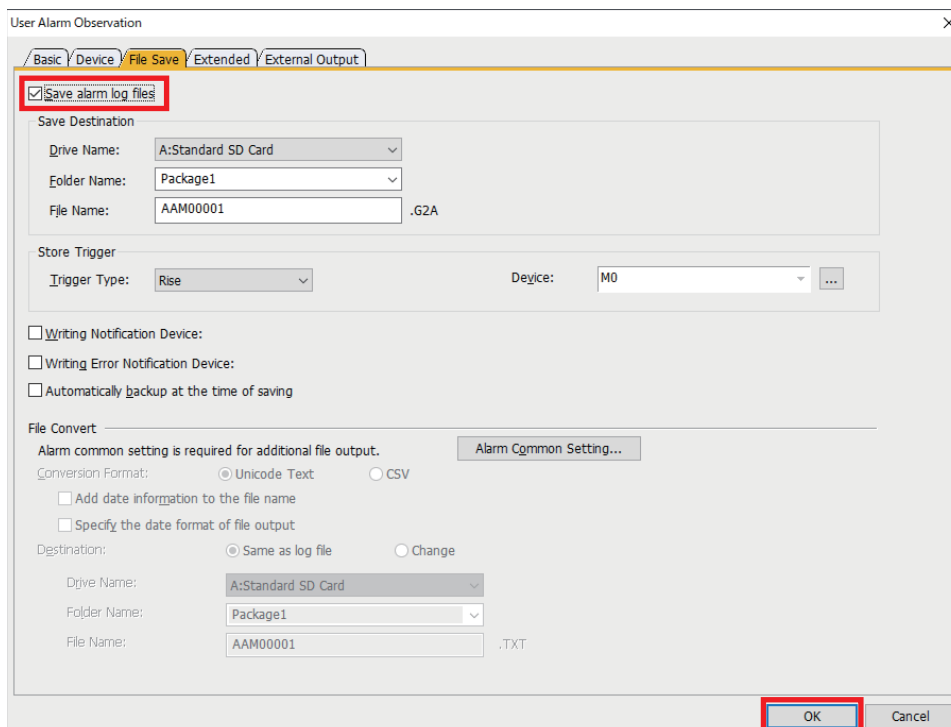
1. Display the [User Alarm Observation] dialog.

 [Common] ⇒ [Alarm] ⇒ [User Alarm Observation]



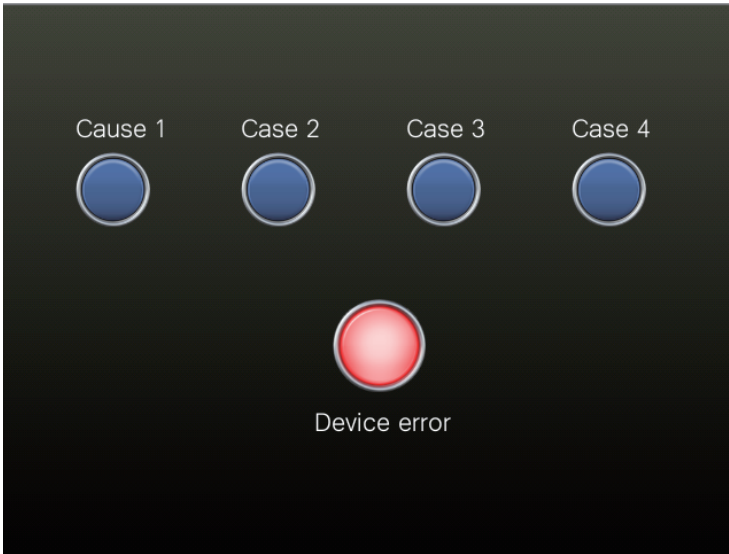
2. Create a new user alarm with the desired settings, select [Save alarm log files], and set the save destination. Click the [OK] button to complete the setting.

 Drive Name: A: Standard SD Card



## 5.4 Creating the Screen

As an example, create and use the following GOT screen corresponding to the program of "☞ Page 45 Creating a Program".



## 5.5 Writing

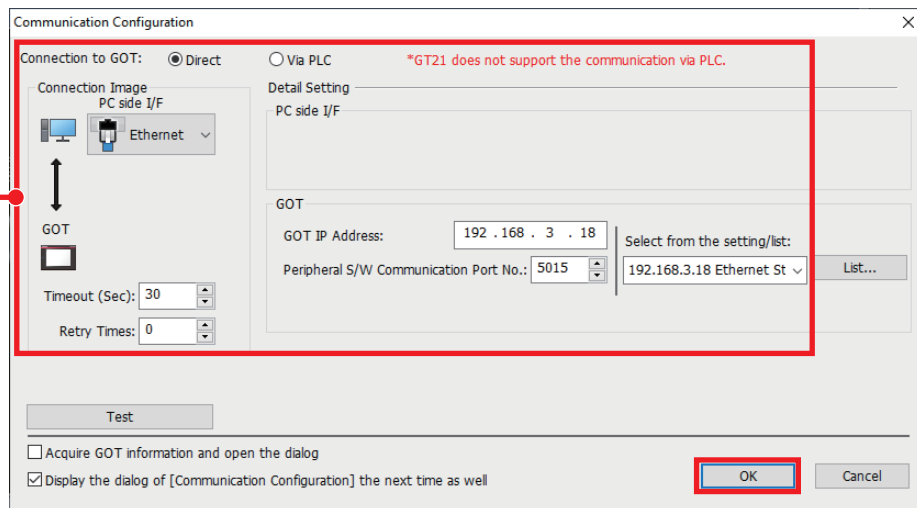
Write the project data to the GOT. Then, reset the GOT or turn off and on the power.

### Operating procedure

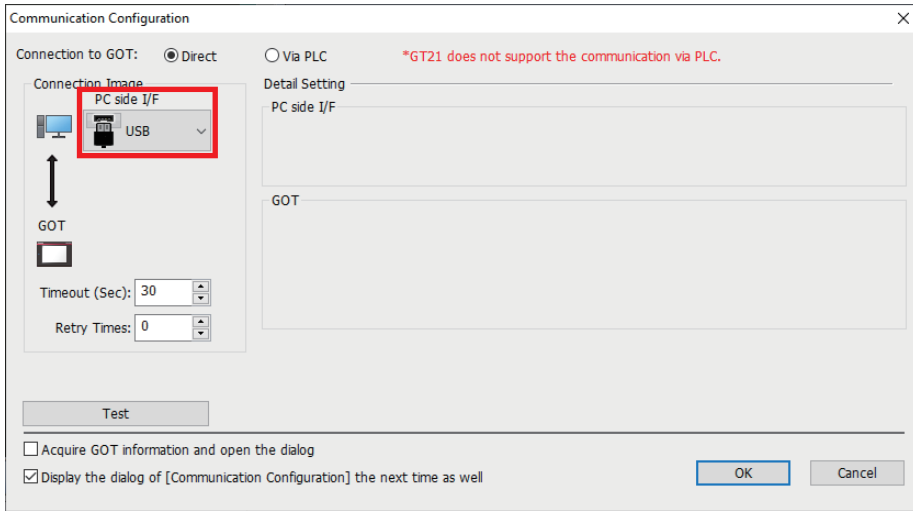
1. Configure the connection setting for the personal computer, and click the [OK] button.

☞ [Communication] ⇒ [Write to GOT] from the menu

Configure the settings as shown on the right.

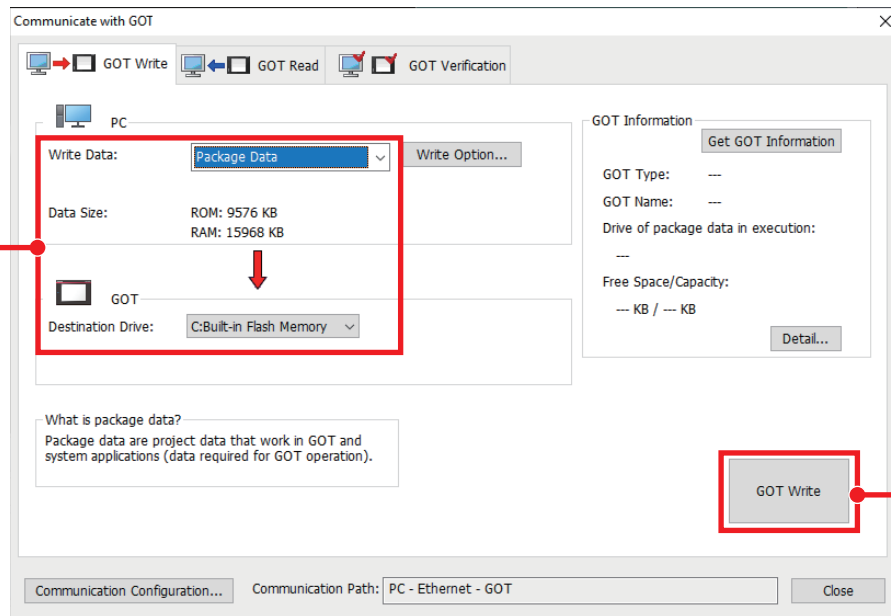


If data cannot be written with Ethernet, connect the GOT and personal computer with USB and perform writing via USB.



2. Set the write data and write destination, and click the [GOT Write] button.

Configure the settings as shown on the right.



Click here to write the data.

# 6 RECORDING

Operate the program of "📖 Page 45 Creating a Program" and the GOT screen of "📖 Page 53 Creating the Screen" to perform recording, and read the recorded data from the camera recorder module.

## Operating procedure

1. Switch the CPU module to the RUN state. Check that the RUN LED and OPR LED of the camera recorder module turn on.

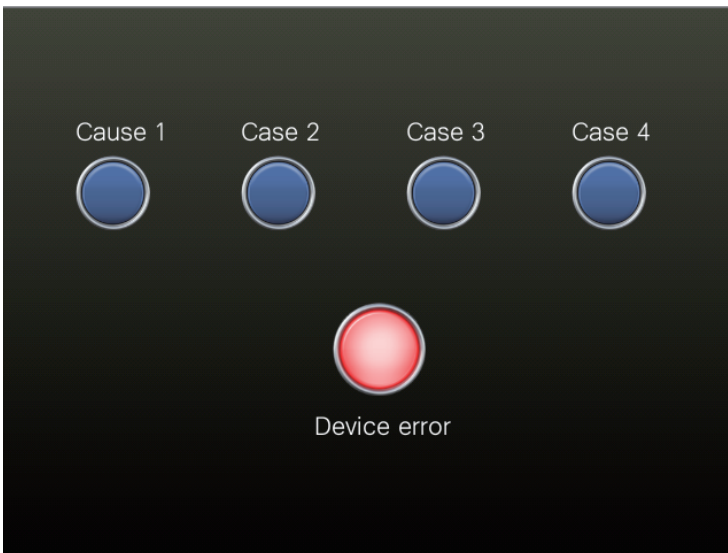
### Point

The recording function automatically starts when the CPU module is switched to the RUN state.

2. Open the program and intelligent function module monitor in GX Works3.  
 ⌨ Right-click [(Target camera recorder module)] ⇨ [Register to Intelligent Function Module Monitor].
3. Start monitoring (all the windows).
4. Check if the recording function operates normally on the intelligent function module monitor.

Recording status area		
Recording setting 1		
In recording operation	Operating	U0#G1501
Recording start error	No error	U0#G1502
Recording start error cause	H0000	U0#G1503
File saving trigger monitor	Unsatisfied	U0#G1504
Recording files saving	Not saving	U0#G1505
Data sampling	Sampling	U0#G1506
Recording buffer storing status	Data exists	U0#G1507
Recording files saving completion	Not completed	U0#G1508
Recording files saving error	No error	U0#G1509
Recording files saving completion code	H0000	U0#G1510

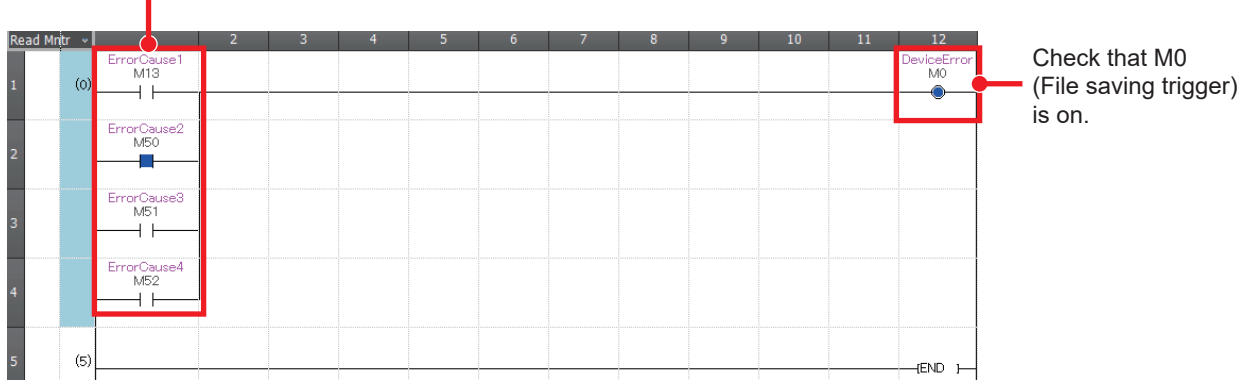
5. Turn on the switch (Cause 2) on the GOT.





**6.** M0 (file saving trigger) turns on.

Error cause 2 (M50) turns on.



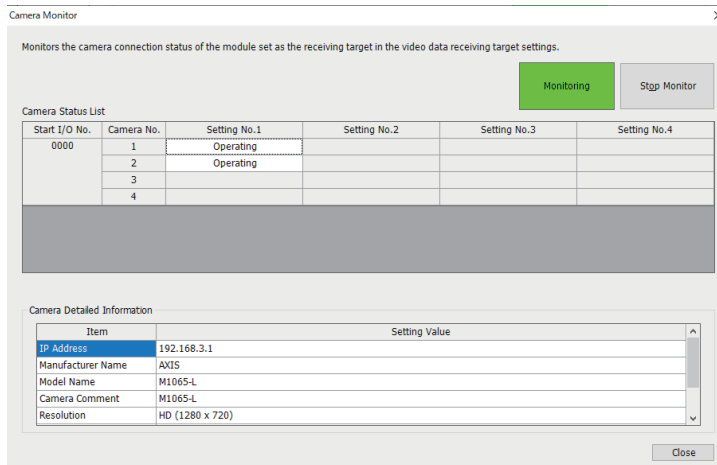
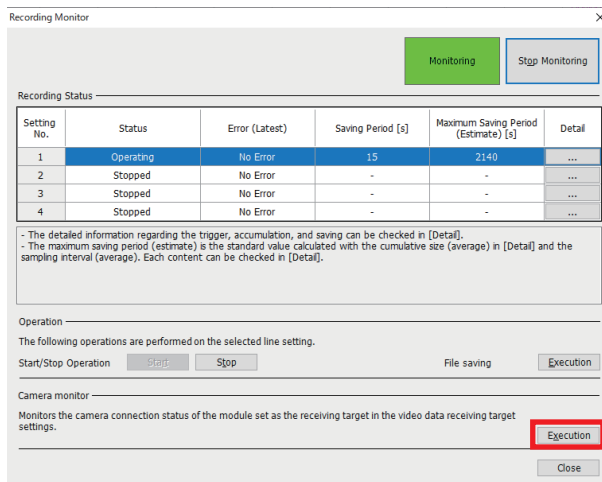
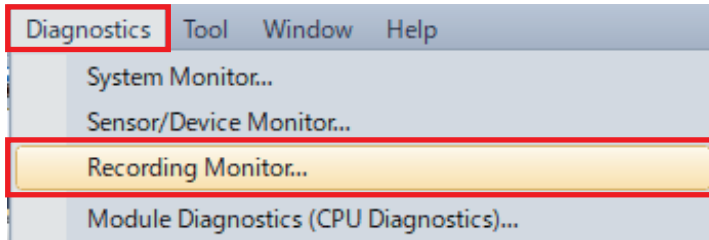
**7.** When the file saving trigger is satisfied, the recording file is saved in the SD memory card of the camera recorder module.

Recording status area		
Recording setting 1		
In recording operation	Operating	U0#G1501
Recording start error	No error	U0#G1502
Recording start error cause	H0000	U0#G1503
File saving trigger monitor	Satisfied	U0#G1504
Recording files saving	Saving	U0#G1505
Data sampling	Not sampling	U0#G1506
Recording buffer storing status	No data	U0#G1507
Recording files saving completion	Not completed	U0#G1508
Recording files saving error	No error	U0#G1509
Recording files saving completion code	H0000	U0#G1510

With the recording monitor, the operation of the recording function can be stopped and restarted, and the status can be checked.

[Diagnostics] ⇒ [Recording Monitor]

Click the [Execution] button for the camera monitor to display the operation status of the network camera connected to the camera recorder module.

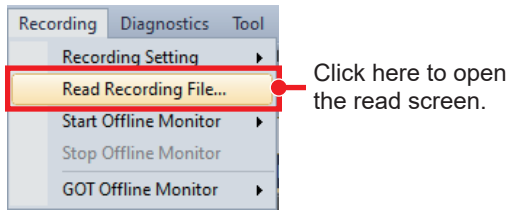


For details on the recording monitor, refer to the following.

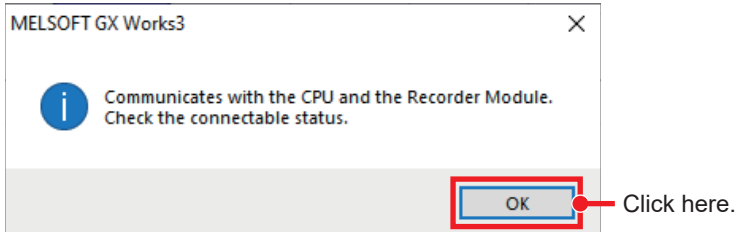
MELSEC iQ-R System Recorder User's Manual (Application)

8. Read the recording file from the camera recorder module.

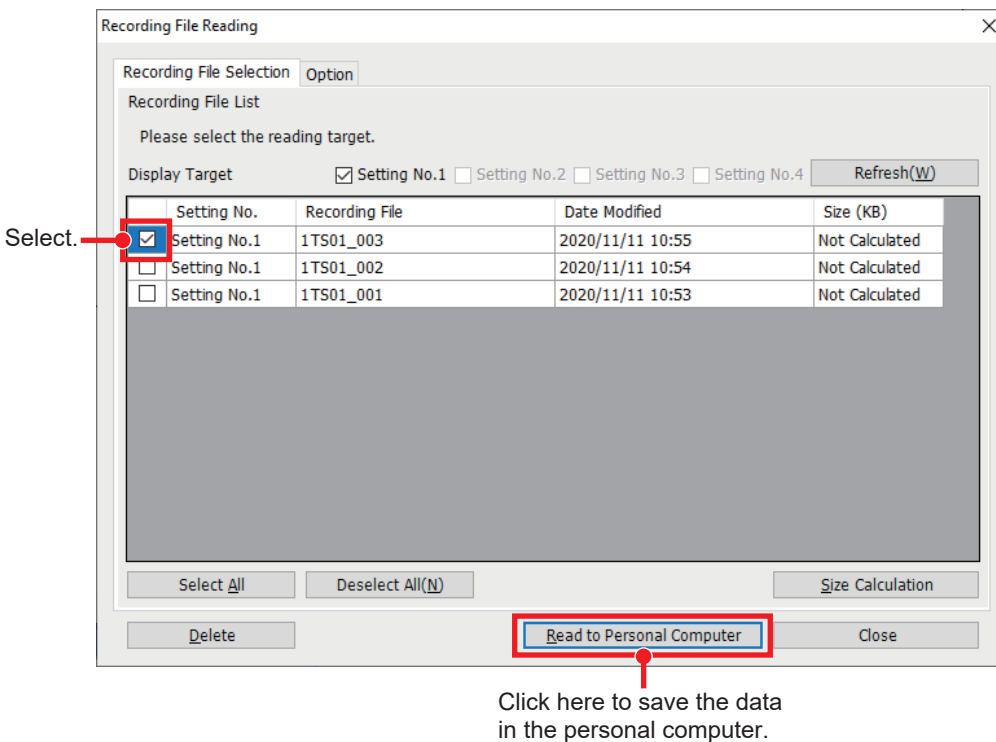
[Recording] ⇒ [Read Recording File]



9. When a window for checking the communication status appears, click the [OK] button.



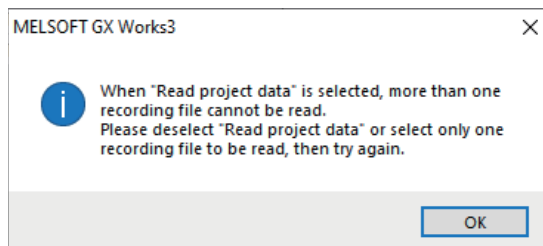
10. Select the recording file to be read, and click the [Read to Personal Computer] button to save it in the personal computer.



**Point**

Multiple recording files cannot be read.

When multiple recording files are selected, the following window appears.



# 7 CHECKING RECORDED RECORDING FILES

This chapter describes how to check the recorded recording files.

## 7.1 Reproducing the Trouble Situation

Check the situation of the error using the offline monitor function.

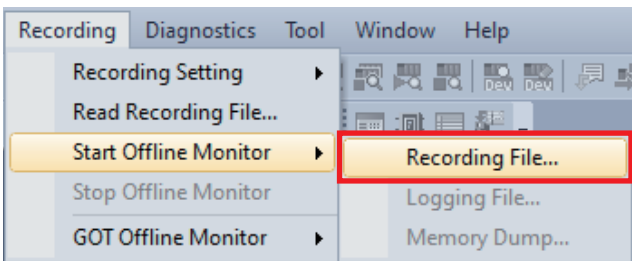
The offline monitor function can be used to reproduce the situation of the error on the engineering tool by replaying device/label data, video data, and event history saved in the programmable controller (camera recorder module) on the offline monitor.

The following describes how to start the offline monitoring.

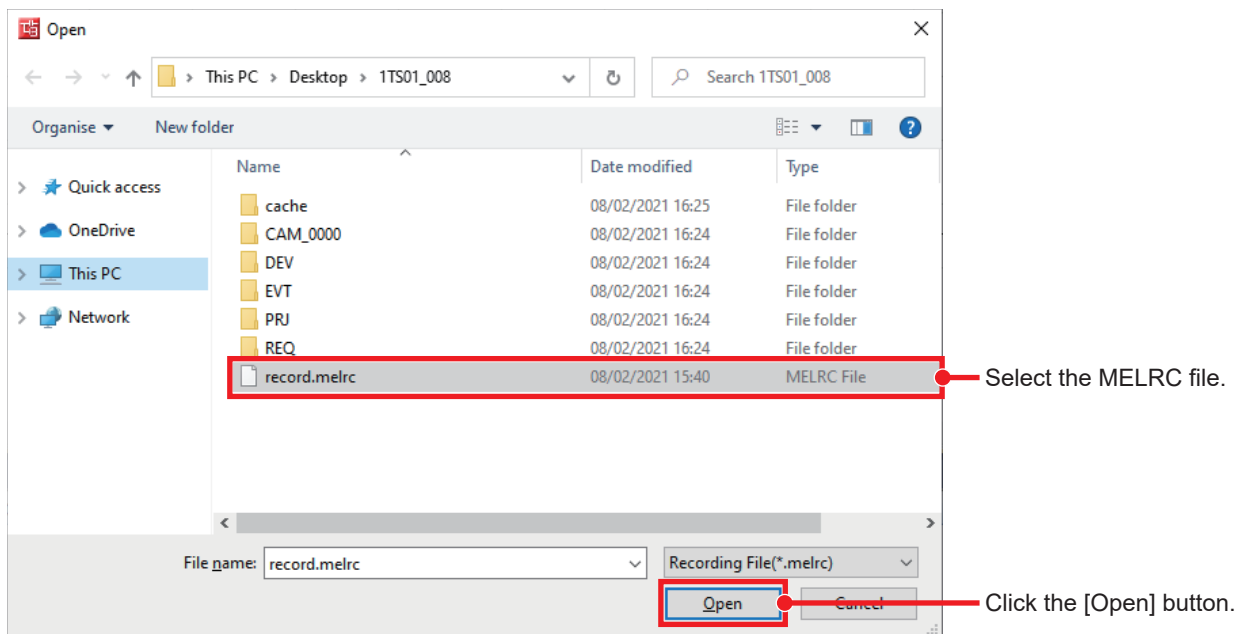
### Operating procedure

1. Use the recording file read from the programmable controller (camera recorder module) to perform offline monitoring.

[Recording] ⇒ [Start Offline Monitor] ⇒ [Recording File]



2. Select the recording file to open.





## Checking the video in the camera (GX VideoViewer)

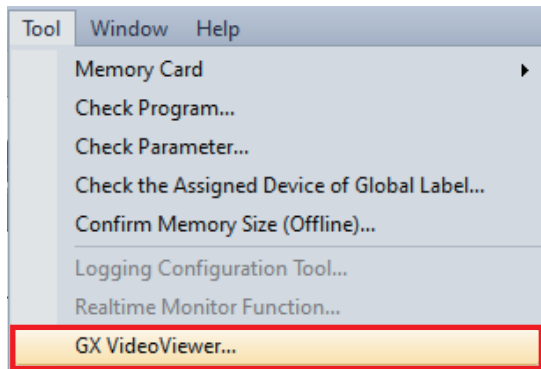
The video data recorded by the network camera and saved in the camera recorder module can be replayed using GX VideoViewer.

By adding log markers to the points which may cause the device error and reading the log marker information file (\*.vms) in GX Works3, the log markers added in GX VideoViewer can be added to the seek bar of the offline monitoring in GX Works3 to synchronize and check the program operation.

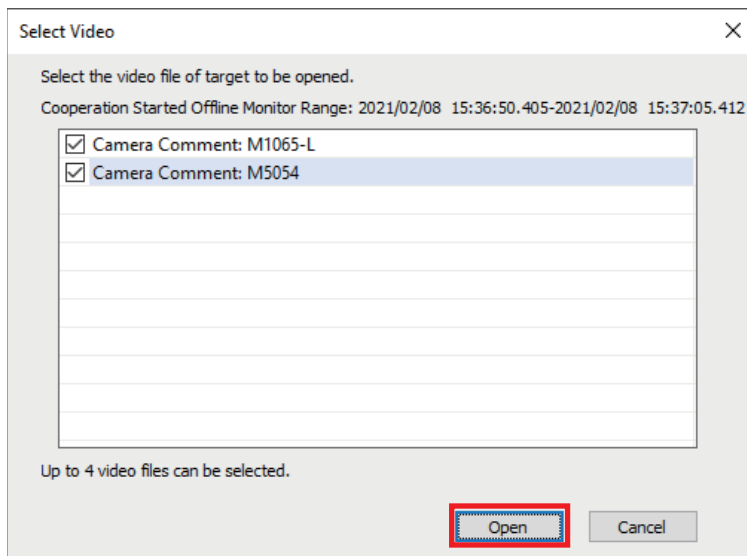
### Operating procedure


1. Start GX VideoViewer.

 [Tool] ⇒ [GX VideoViewer]

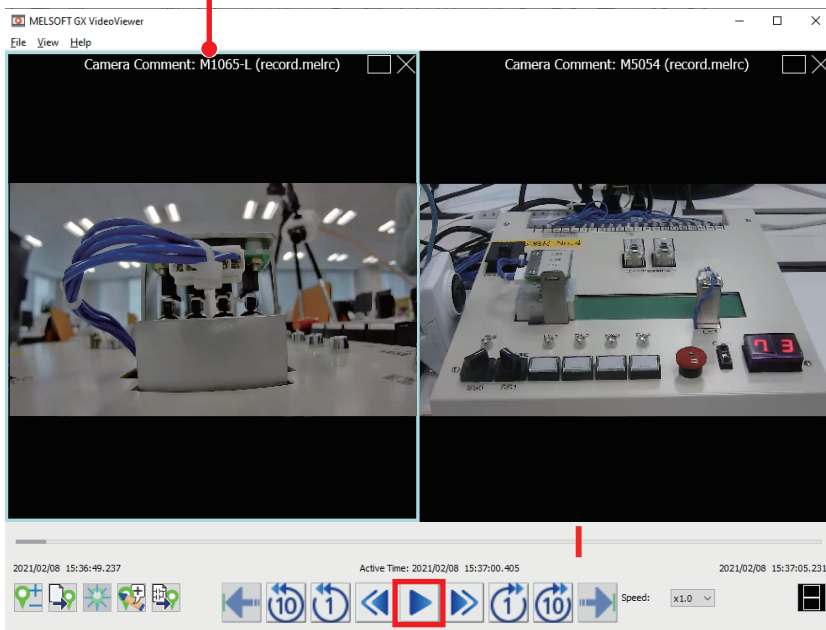



2. Select the video data and click the [Open] button.

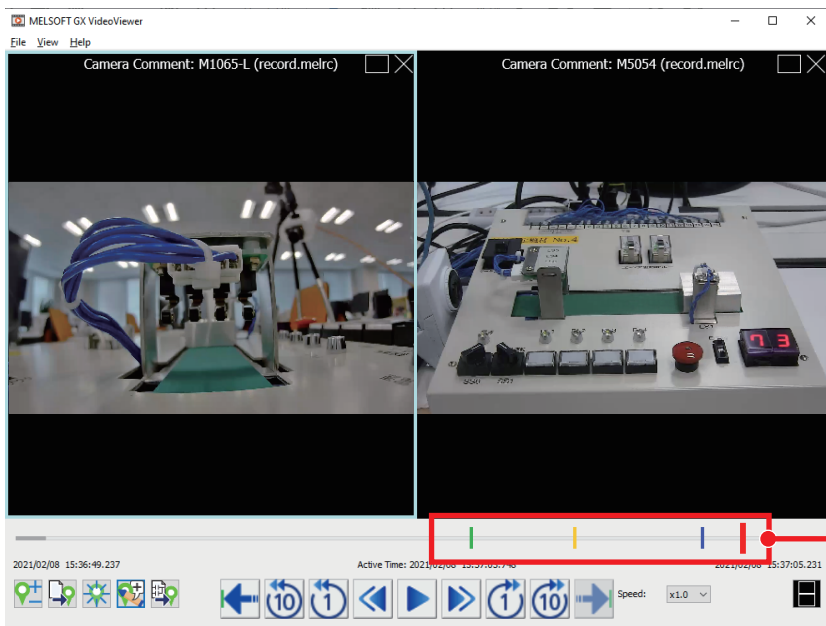


3. Replay the video with the  button.

The selected screen is highlighted in a light blue box.





4. Add a log marker in the video with the  button.



Bars other than red indicate the points where log markers are added.

**Point** 

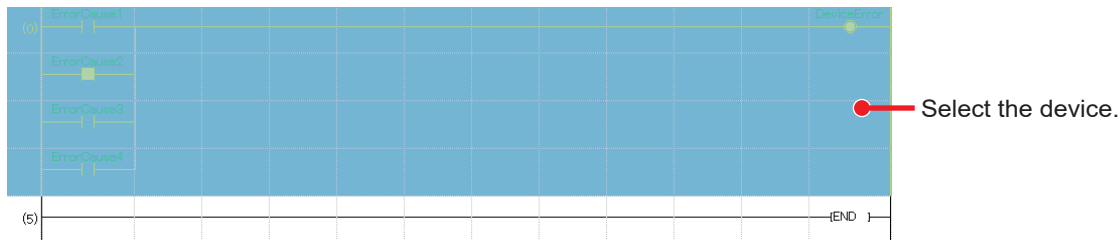
The parts of the video where log markers have been added can be played back frame by frame with the   buttons.

## Checking the changes of waveform data (GX LogViewer)

Display the devices/labels selected in the monitor screen of the offline monitor function in a graph in GX LogViewer.

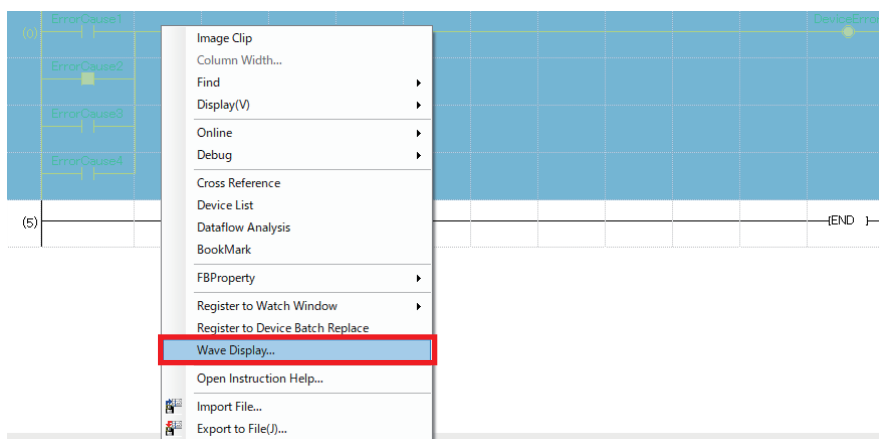
### Operating procedure

1. Select a device in the program editor or watch window.

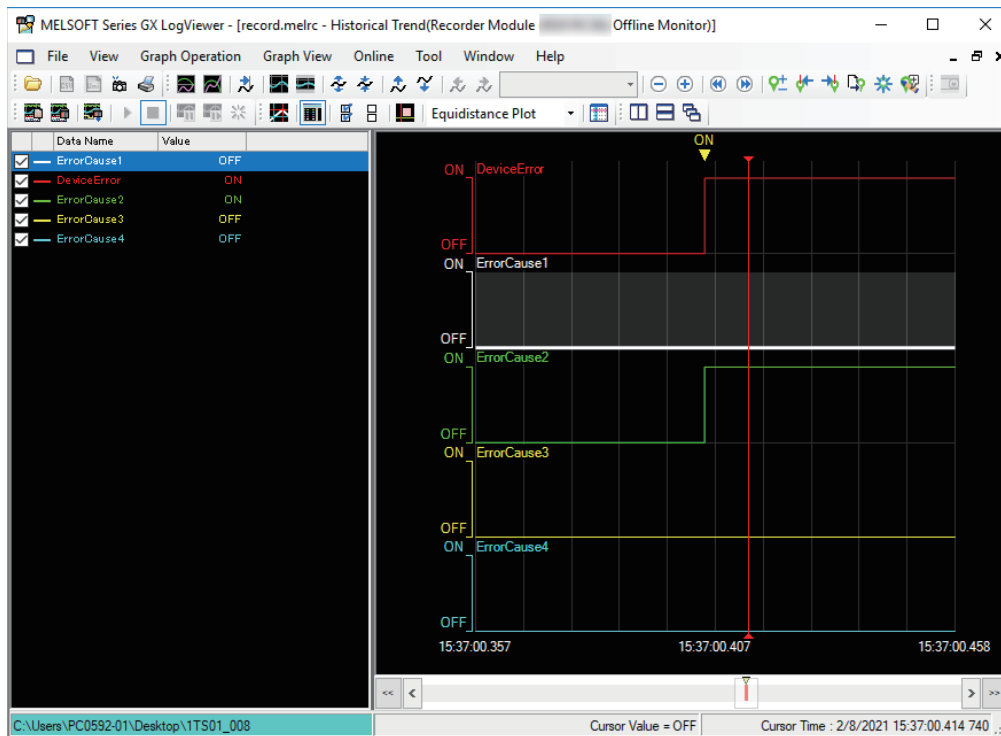


2. Select the waveform display.

Right-click shortcut menu ⇒ [Wave Display]



3. The "Historical Trend" window of GX LogViewer is displayed.



### Precautions

Up to 32 devices/labels can be registered to GX LogViewer.



The seek bar in GX Works3 and the red cursor in GX LogViewer are linked. Moving the slider on the seek bar in GX Works3 moves the red cursor in GX LogViewer, and moving the red cursor in GX LogViewer moves the slider on the seek bar in GX Works3 in synchronization.

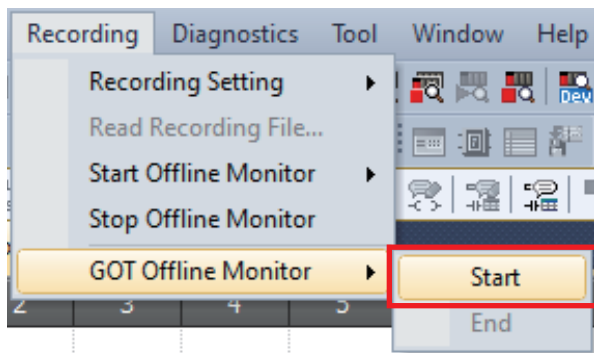
## Checking the GOT operation status (GOT offline monitor)

The monitor screen of the GOT when an error occurs can be displayed and checked.

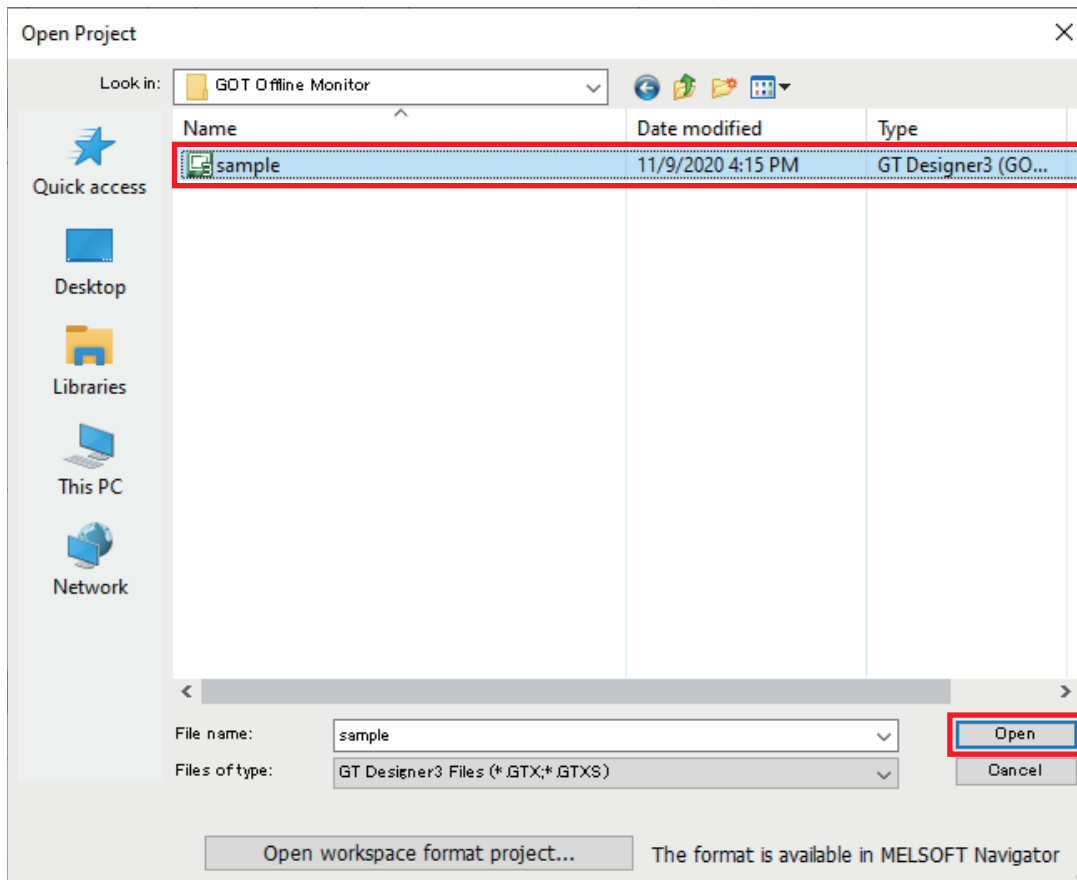
### Operating procedure

1. Start offline monitoring. (☞ Page 59 Reproducing the Trouble Situation)
2. Start the GOT offline monitor.

☞ [Recording] ⇒ [GOT Offline Monitor] ⇒ [Start]

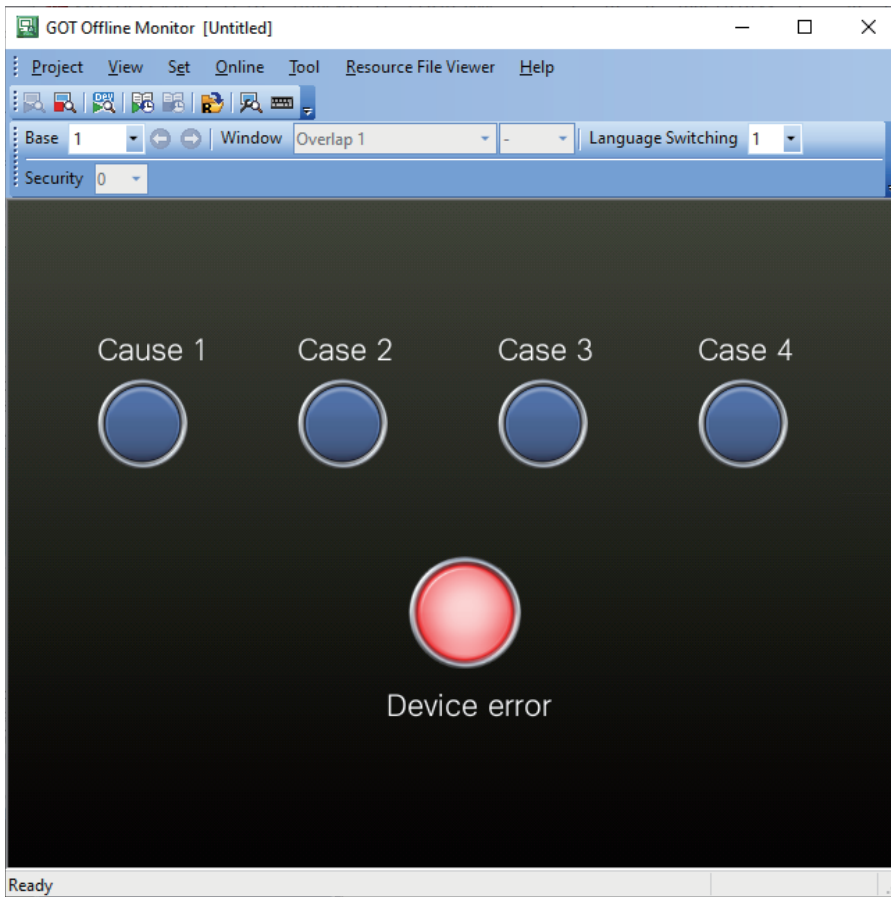


3. Select the project file of GT Designer3 to open.



Click the [Open] button.

4. The GOT offline monitor is displayed.



## Checking the GOT operation history (Resource File Viewer)

The operation logs and alarm history can be displayed in a list and confirmed from resource files recorded by the GOT. Read resource files from the GOT before using Resource File Viewer.

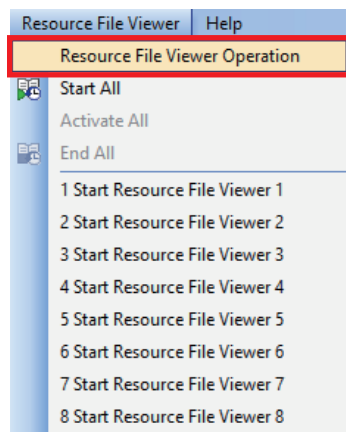
For how to read files from the GOT, refer to the following.

📖 GT Designer3 (GOT2000) Screen Design Manual

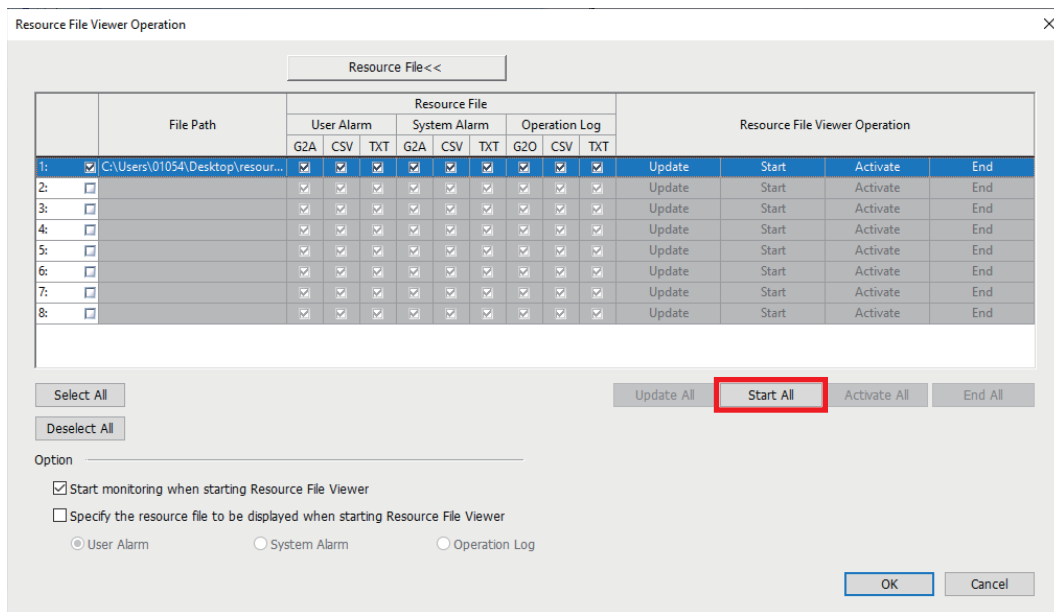
### Operating procedure

1. Start offline monitoring. (📖 Page 59 Reproducing the Trouble Situation)
2. Start the GOT offline monitor. (📖 Page 64 Checking the GOT operation status (GOT offline monitor))
3. Configure the Resource File Viewer setting on the GOT offline monitor.

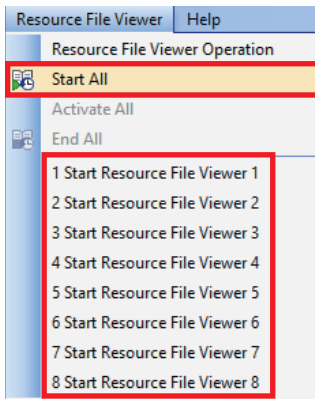
🖱️ [Resource File Viewer] ⇒ [Resource File Viewer Operation]



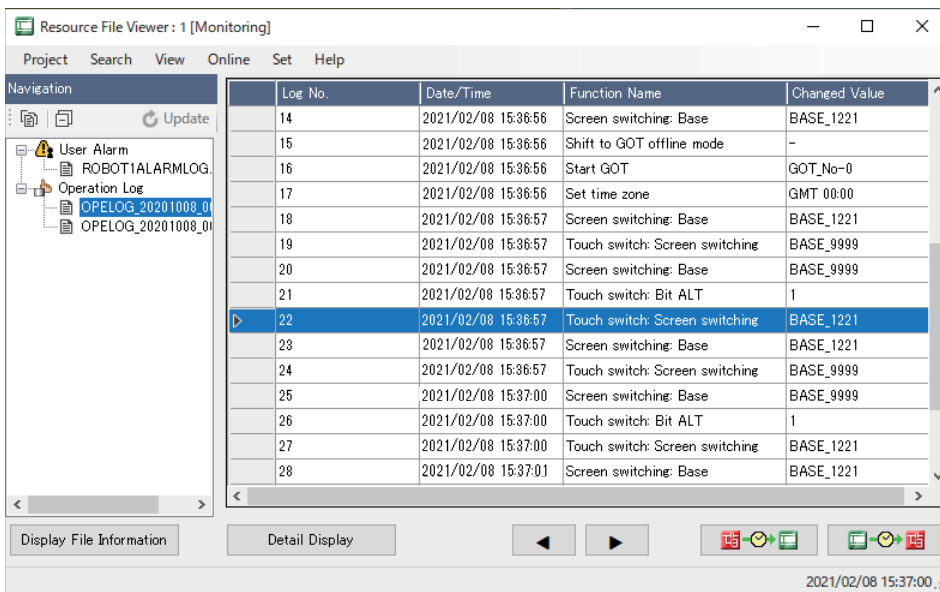
4. Set the resource files to be displayed and click [Start All]\*<sup>1</sup>.



\*1 When the Resource File Viewer Operation window is closed, Resource File Viewer can be started from [Start All] or [Start Resource File Viewer] in [Resource File Viewer].



**5. Resource File Viewer appears.**

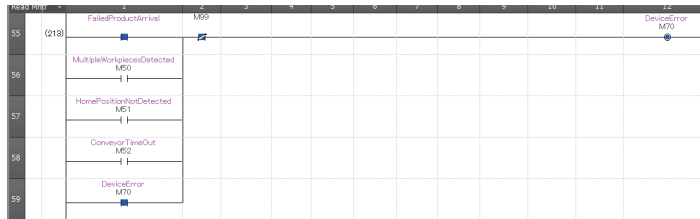


# 7.2 Replay Synchronized with the Seek Bar

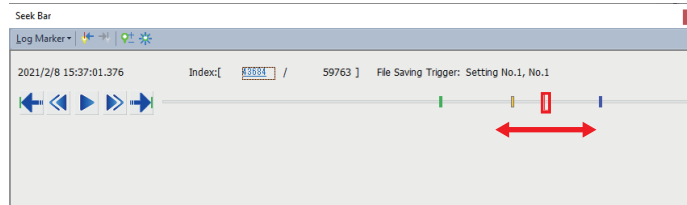
The engineering tool can be synchronized and replayed by moving the slider of the seek bar in the offline monitor.

## Editor, event history, and GX LogViewer

In synchronization with the movement of the slider on the seek bar, the editor being monitored offline, Event History (Offline Monitor) window, and red cursor in GX LogViewer move.



The movement of the slider on the seek bar is shown in the editor during offline monitoring.

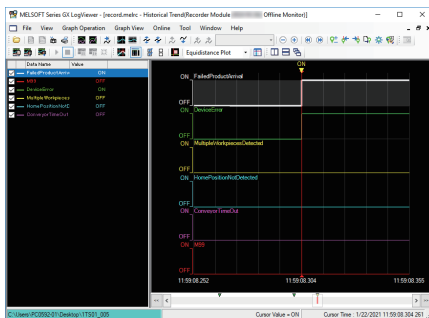


Moving the slider moves the red cursor.

Moving the red cursor moves the slider.

Moving the slider moves the cursor to the event at the specified index.

Selecting an event moves the slider to the corresponding index.



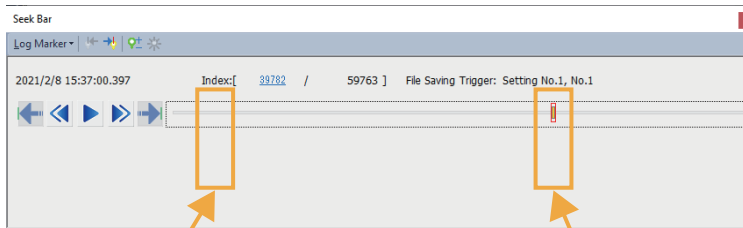
The Event History (Offline Monitor) window displays a table of recorded events. The table has columns for Occurrence Date, Status, Event Code, Overview, Source, and Start D/O N. The data includes various events such as File Saving Trigger, Modify Value, and Clock setting.

Occurrence Date	Status	Event Code	Overview	Source	Start D/O N
2021/02/28 15:37:00.485	OK	H04810	File Saving Trigger Establishment	RDC1/RO86-CA	0000
2021/02/28 15:31:20.482	OK	H04890	Modify Value [UMG44000: 0X00000]	R18CPU	3E00
2021/02/28 15:31:20.326	OK	H04890	Modify Value [UMG44001: 0X00000]	R18CPU	3E00
2021/02/28 15:31:17.824	OK	H04890	Modify Value [UMG44001: 16400003]	R18CPU	3E00
2021/02/28 15:31:17.747	OK	H04890	Modify Value [UMG47242: 0X00000]	R18CPU	3E00
2021/02/28 15:31:17.747	OK	H04890	Modify Value [UMG47241: 0X00000]	R18CPU	3E00
2021/02/28 15:31:17.747	OK	H04890	Modify Value [UMG47239: 0X00000]	R18CPU	3E00
2021/02/28 15:31:17.721	OK	H04890	Modify Value [UMG47204: 00000000]	R18CPU	3E00
2021/02/28 15:31:17.721	OK	H04890	Modify Value [UMG47201: 00000000]	R18CPU	3E00
2021/02/28 15:31:17.689	OK	H04890	Modify Value [UMG44000: 0X00000]	R18CPU	3E00
2021/02/28 15:30:59.000	OK	H04890	Clock setting	R18CPU	3E00
2021/02/28 15:30:59.000	OK	H04890	Clock setting	R18CPU	3E00
2021/02/28 15:30:52.000	OK	H04890	Clock setting	R18CPU	3E00
2021/02/28 14:38:40.740	OK	H04890	Modify Value [UMG44001: 0X00000]	R18CPU	3E00
2021/02/28 14:38:40.740	OK	H04890	Modify Value [UMG44000: 0X00000]	R18CPU	3E00
2021/02/28 14:38:20.657	OK	H04890	Modify Value [UMG47117: 0X00000]	R18CPU	3E00

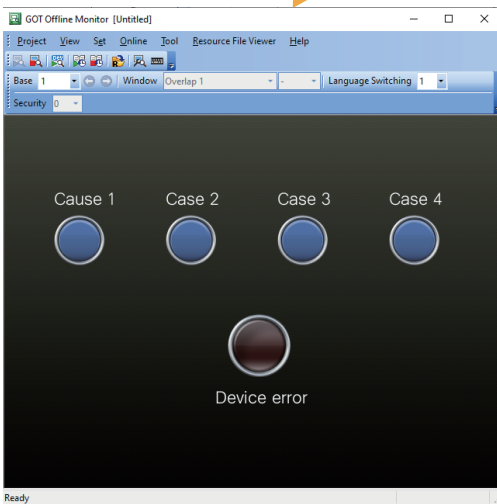
## GOT offline monitor

The GOT monitor screen synchronized with the movement of the slider on the seek bar can be displayed and checked.

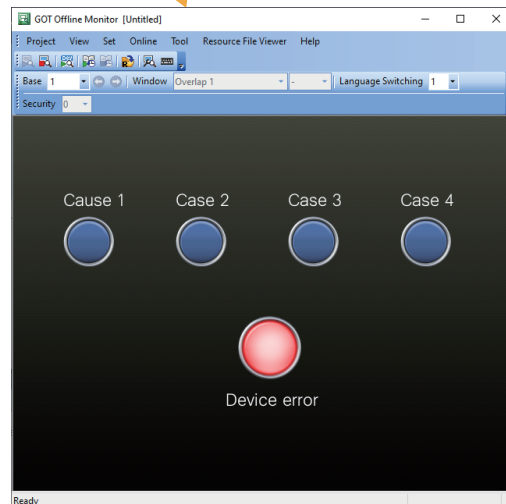
Offline monitor (GX Works3)



GOT offline monitor (GT Designer3)



Normal operation



Device error

## Resource File Viewer of the GOT offline monitor

The on-site situation can be replayed by synchronizing the time of the seek bar and the events (operation history and alarm history) of the GOT.

Offline monitor (GX Works3)

Resource File Viewer (GOT offline monitor)

Log No.	Date/Time	Function Name	Changed Value
14	2021/02/08 15:36:56	Screen switching: Base	BASE_1221
15	2021/02/08 15:36:56	Shift to GOT offline mode	-
16	2021/02/08 15:36:56	Start GOT	GOT_No-0
17	2021/02/08 15:36:56	Set time zone	GMT 00:00
18	2021/02/08 15:36:57	Screen switching: Base	BASE_1221
19	2021/02/08 15:36:57	Touch switching: Screen switching	BASE_9999
20	2021/02/08 15:36:57	Screen switching: Base	BASE_9999
21	2021/02/08 15:36:57	Touch switching: Bit ALT	1
22	2021/02/08 15:36:57	Touch switching: Screen switching	BASE_1221
23	2021/02/08 15:36:57	Screen switching: Base	BASE_1221
24	2021/02/08 15:36:57	Touch switching: Screen switching	BASE_9999
25	2021/02/08 15:37:00	Screen switching: Base	BASE_9999
26	2021/02/08 15:37:00	Touch switching: Bit ALT	1
27	2021/02/08 15:37:01	Touch switching: Screen switching	BASE_1221
28	2021/02/08 15:37:01	Screen switching: Base	BASE_1221

Jumps to the log at the same time as the seek bar time.
Jumps to the event at the same time as Resource File Viewer.


## 7.3 Finding the Error Factor Device

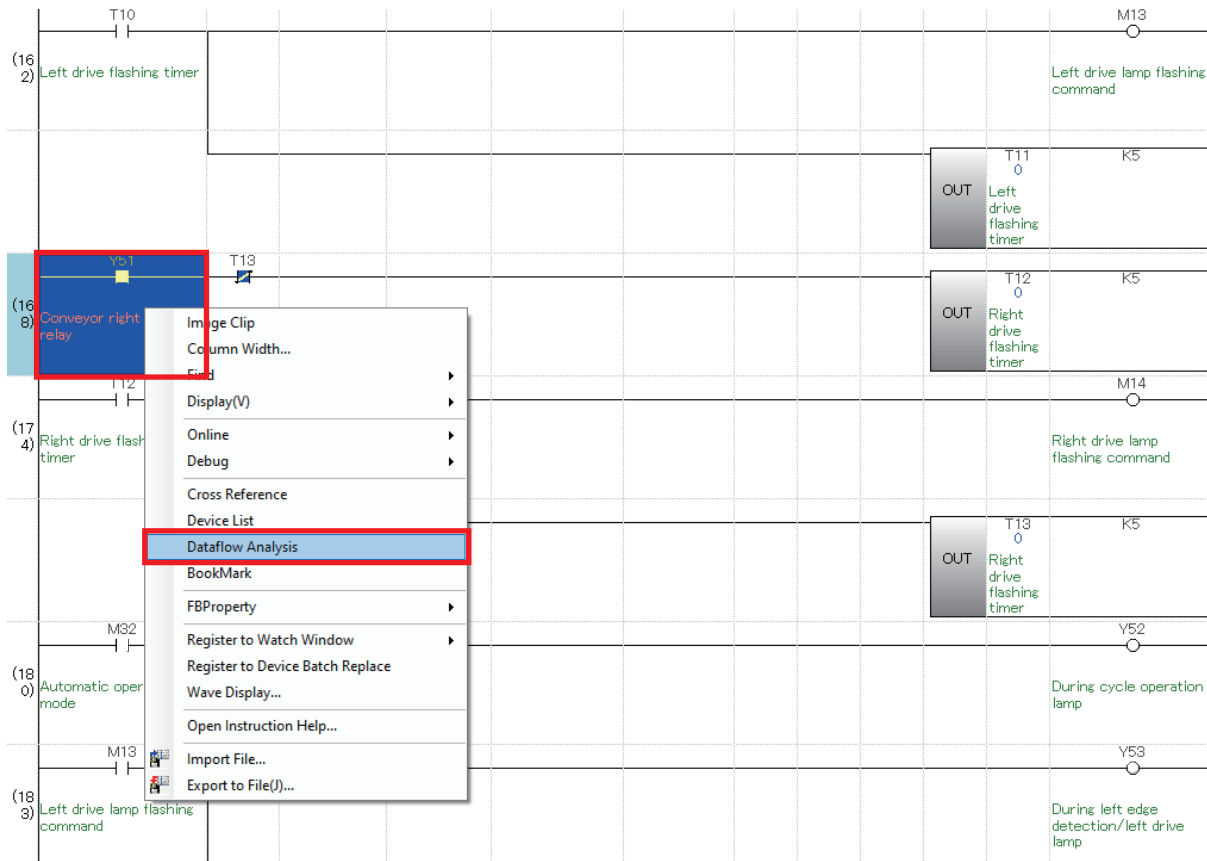
The data flow analysis function automatically creates a data flowchart from the program of GX Works3 to visually display the devices/labels to be the conditions for executing the basing point device/label to be analyzed or those affected by the execution.

The following describes the procedure for starting the operation of the data flow analysis function.

### Operating procedure

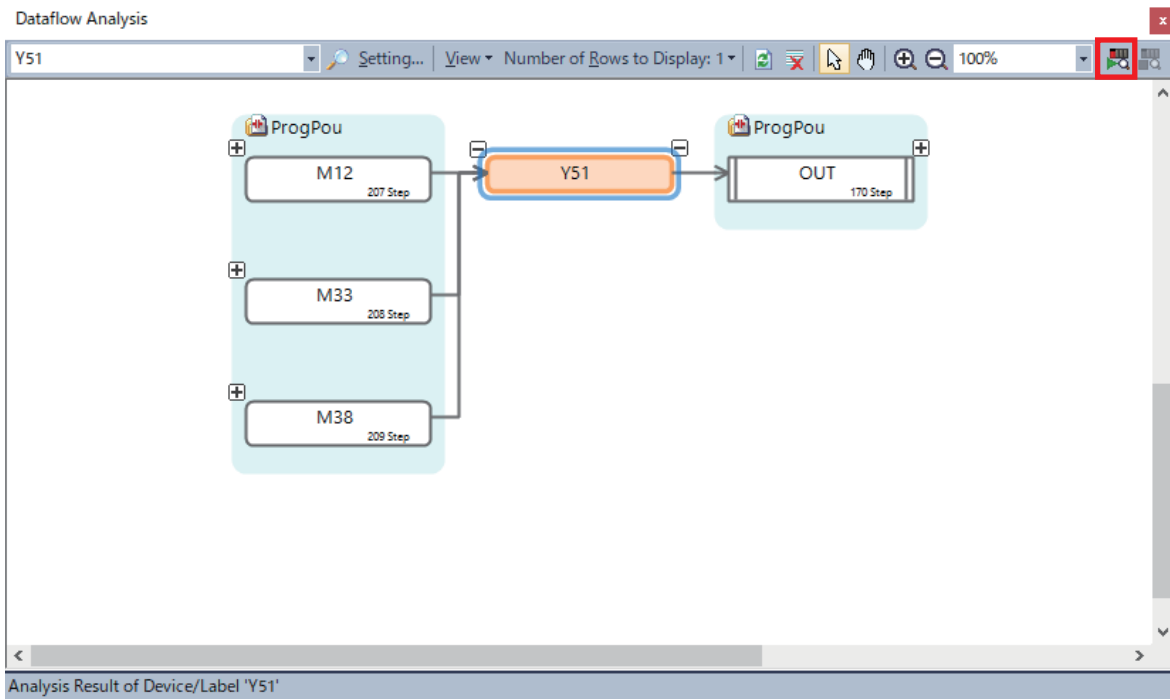
1. Start GX Works3, and open the program.
2. Select a device to be the basing point, and execute the data flow analysis.

 Right-click ⇒ [Dataflow Analysis]

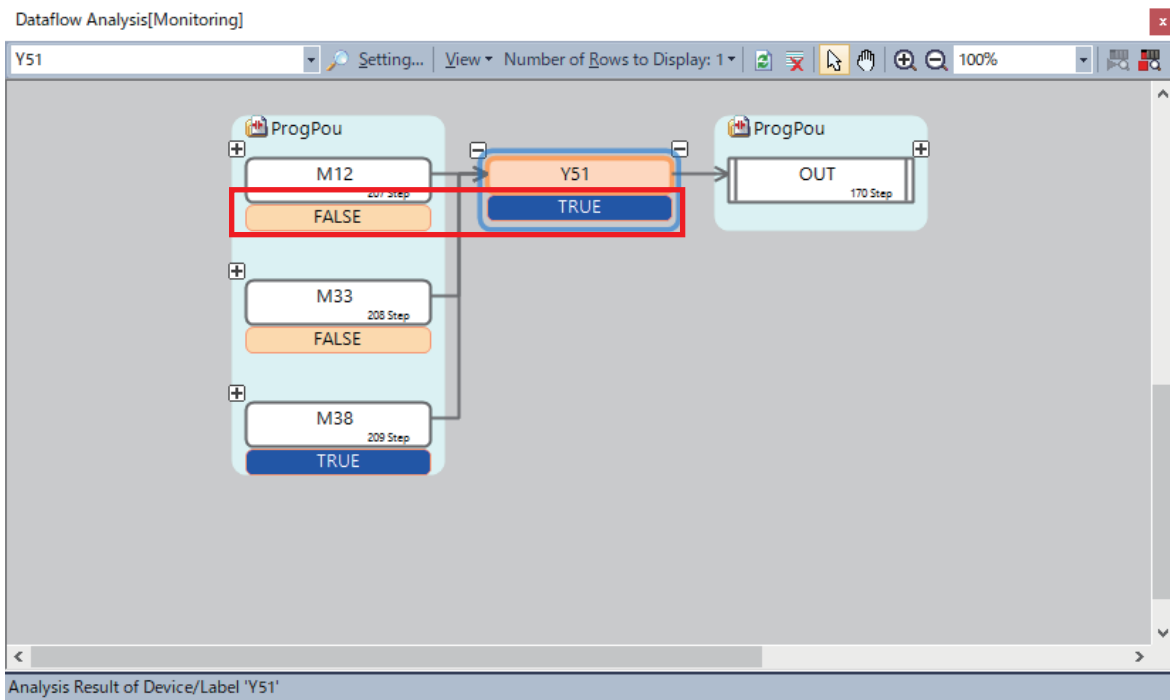




3. The data flow is displayed. Click the [Start Monitoring] button.

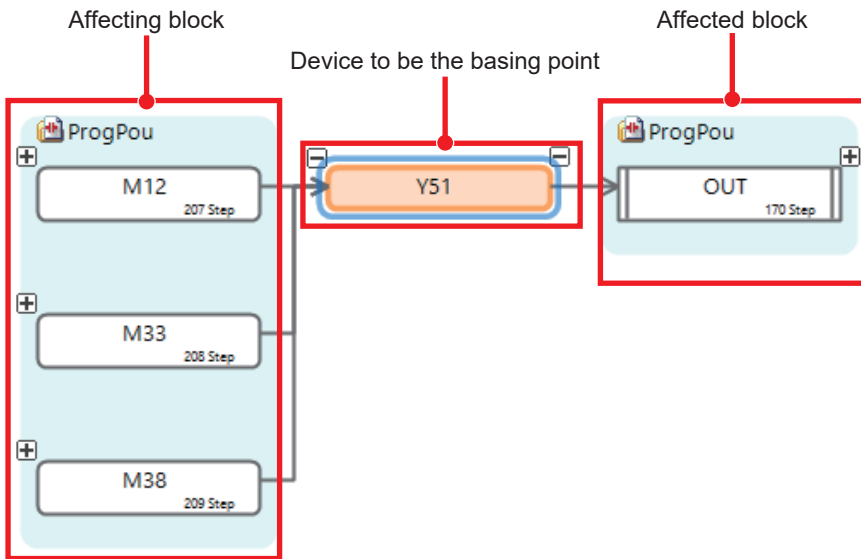


4. The monitor value of the device/label is displayed.




## Overview of data flow display

In the data flow analysis, the device/label to be analyzed is displayed in the center as the basing point. The block which affects the device/label to be analyzed is displayed on the left, and the one to be affected is displayed on the right.



For details on the screen, refer to the following.

 GX Works3 Operating Manual

# 8 NETWORK CAMERA ADJUSTMENT

## 8.1 Adjustment with GOT /GT SoftGOT2000

By using the GOT linkage function, the live video of network camera and the PTZ control can be performed with the GOT/ SoftGOT connected to the CPU module in the same network as the network camera. The live video can be checked and the PTZ control can be adjusted by using the GOT sample screen.

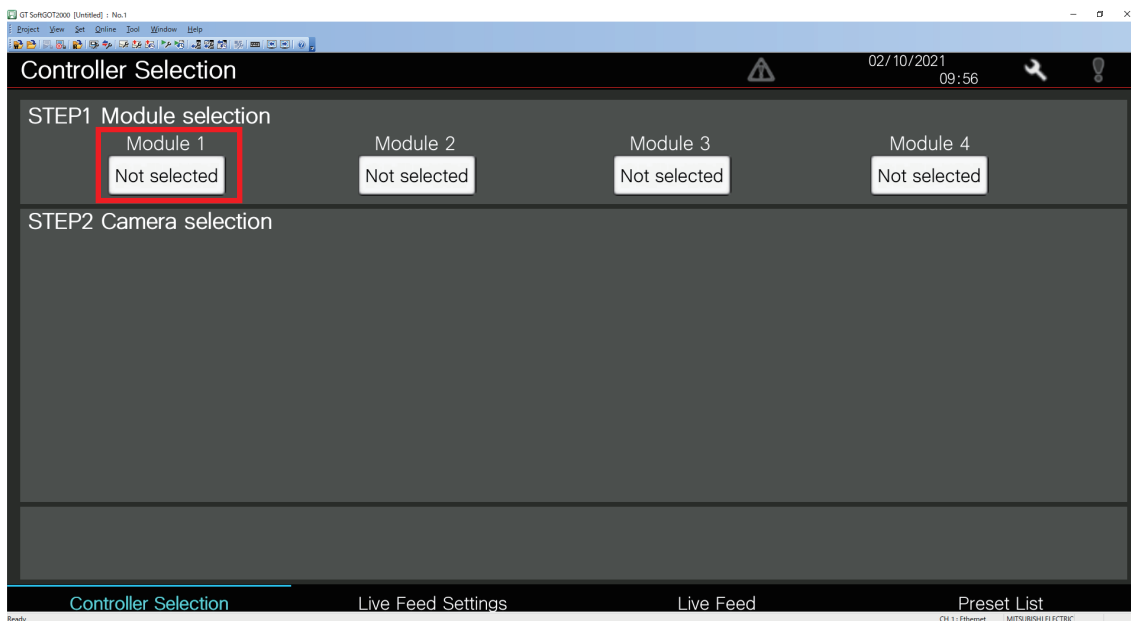
For details on the settings and sample screens used in this guide, refer to the following.

📖 Mitsubishi Electric Programmable Controller Camera Recorder Module RD81RC96-CA Sample Screen Manual (BCN-P5999-1333)\*<sup>1</sup>

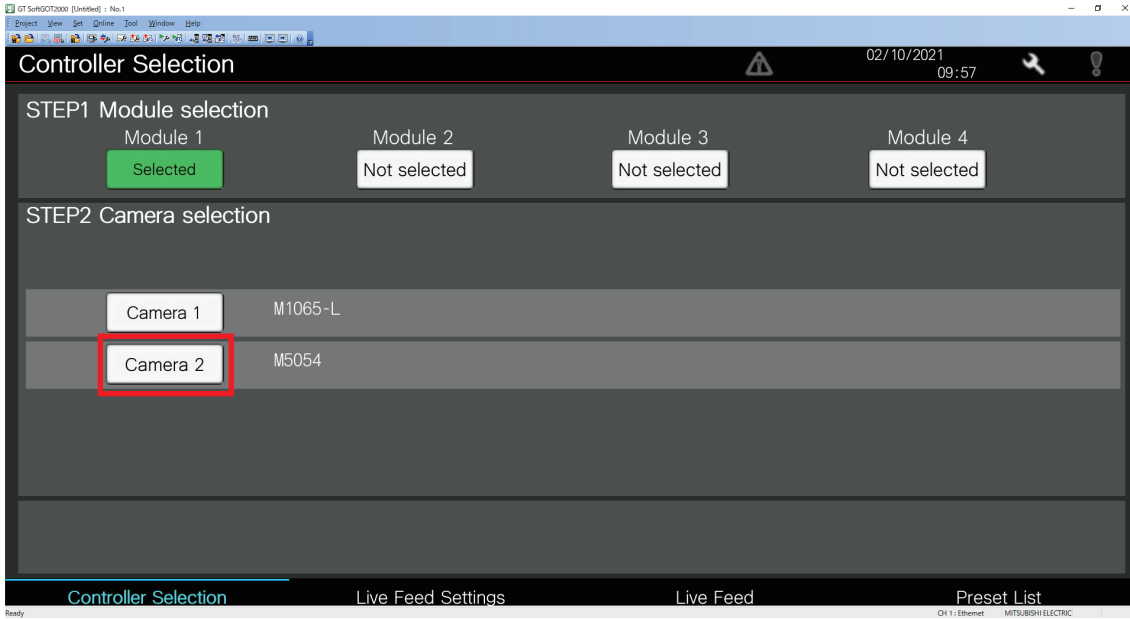
\*1 It can be downloaded from the Mitsubishi Electric Factory Automation Global Website.  
[www.mitsubishielectric.com/en](http://www.mitsubishielectric.com/en)

### Operating procedure

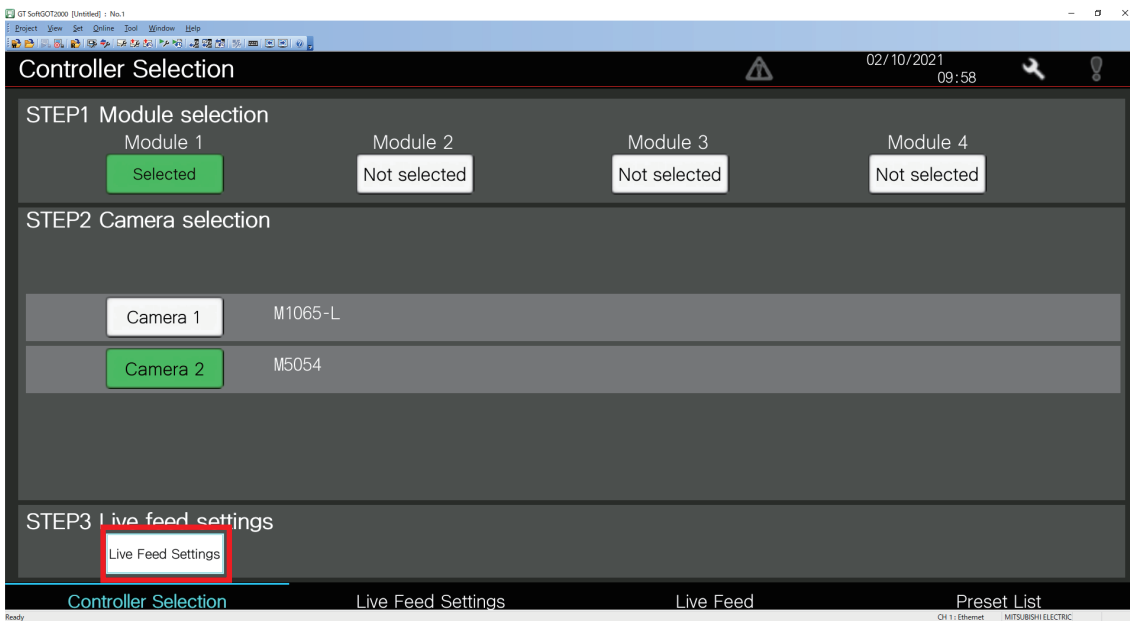
1. Start the GOT with the sample program written, or open the sample program on GT SoftGOT2000.
2. Select the target camera recorder module.



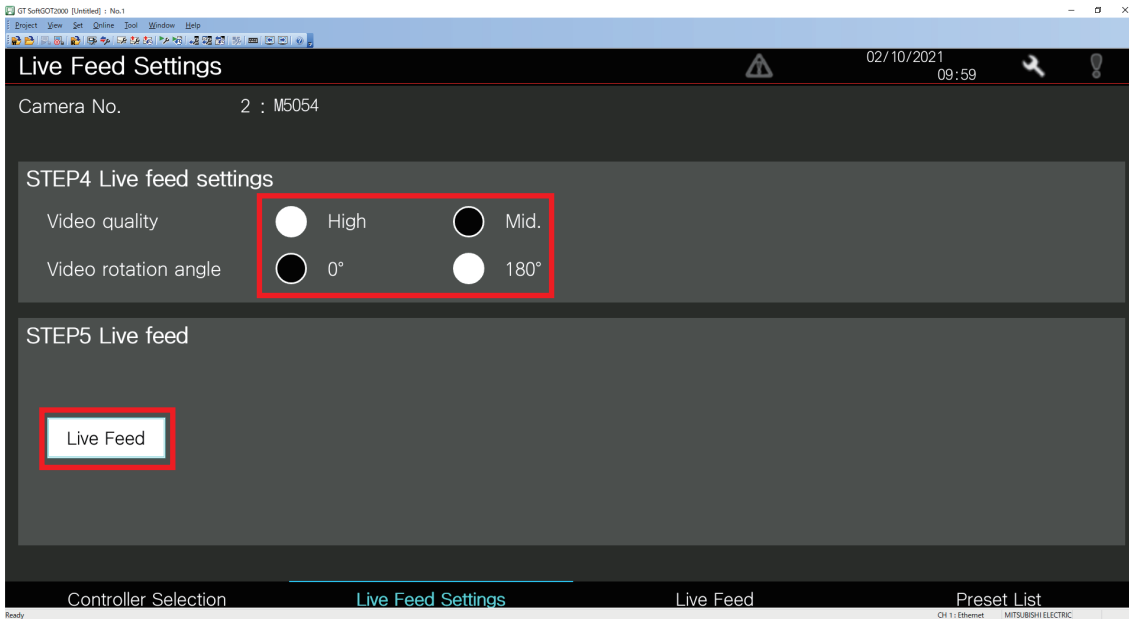
3. The network camera connected to the camera recorder module selected in step 2 is displayed in a list. Select a camera to display the live video.



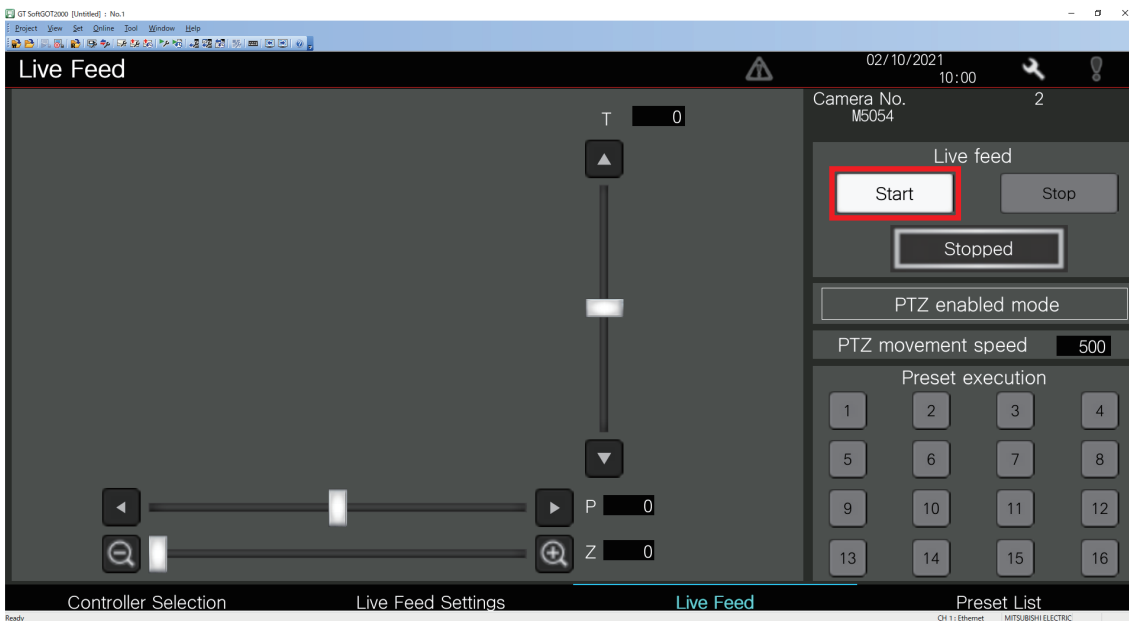
4. Select the [Live Feed Settings] switch.



5. After selecting the video quality and video rotation angle, select the [Live Feed] switch.



6. When the live feed screen is displayed, select [Start] to display the live video of the selected camera.



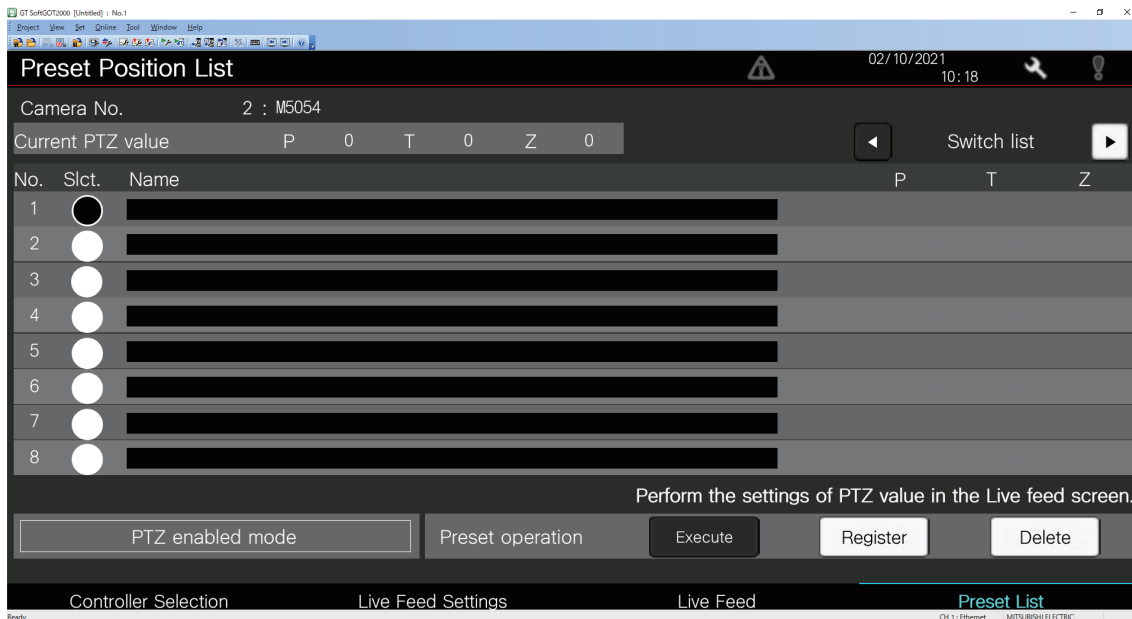


## Registration of the preset position

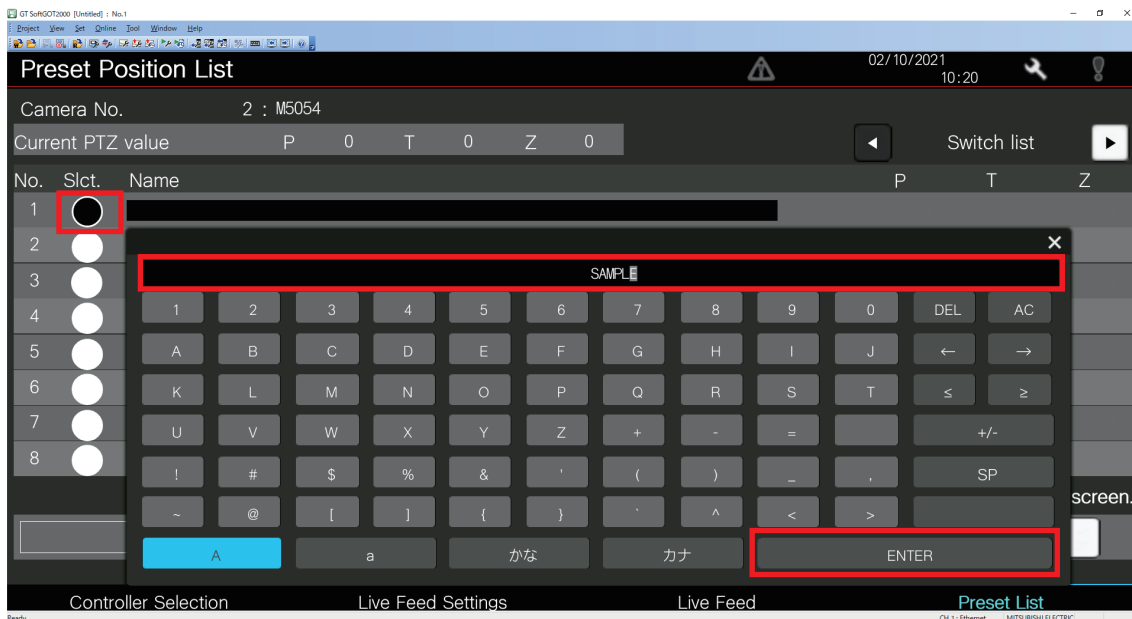
The following describes how to register the motoring range adjusted in the live feed screen as the preset position.

### Operating procedure

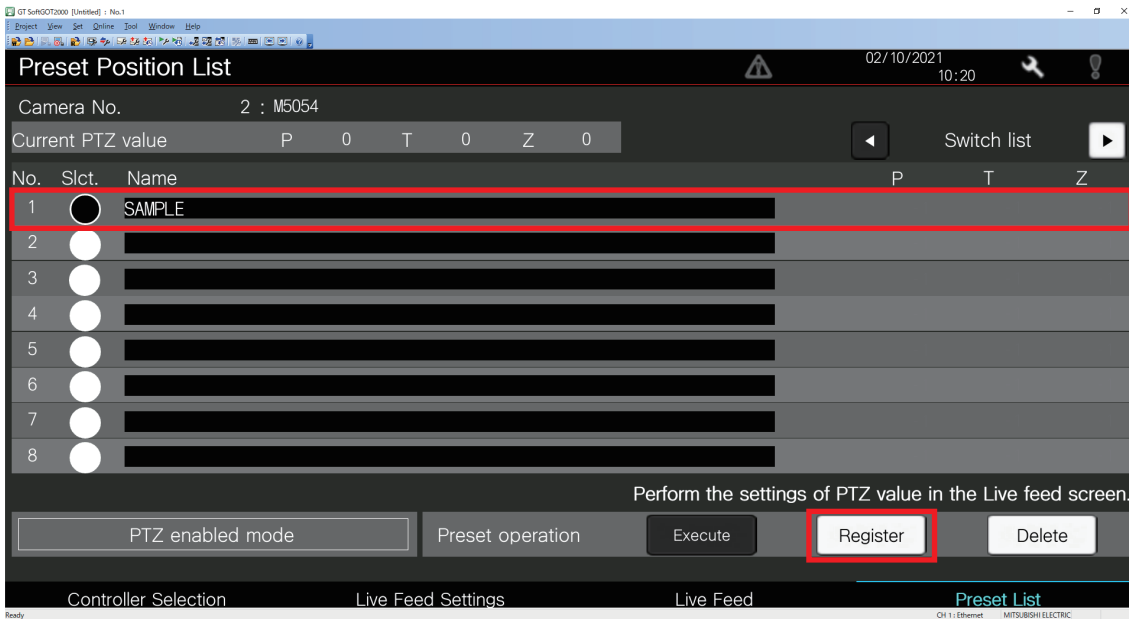
1. Select the preset position list screen of the sample program.



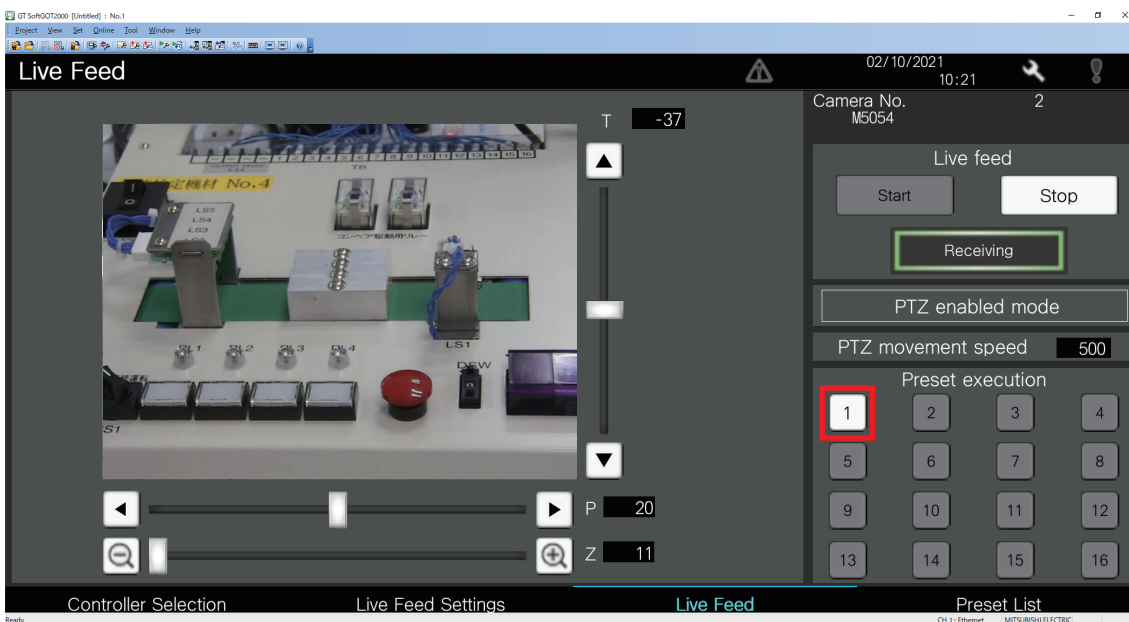
2. Enter the name with the [Slct.] switch of the target preset position No. selected, and select [ENTER].



3. Select [Register] to register the values of P (pan), T (tilt), and Z (zoom) used in the live feed screen as No.1 preset position.



4. Select the preset No. to execute the registered preset position in the live feed screen.



## 8.2 Adjustment with GX Works3

The monitoring range of the network camera can be adjusted with the preset position setting of GX Works3. The adjusted monitoring range can be registered as the preset position to the camera recorder module.

For details on the camera control function (PTZ), refer to the following.

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



# 9 OPERATION EXAMPLE

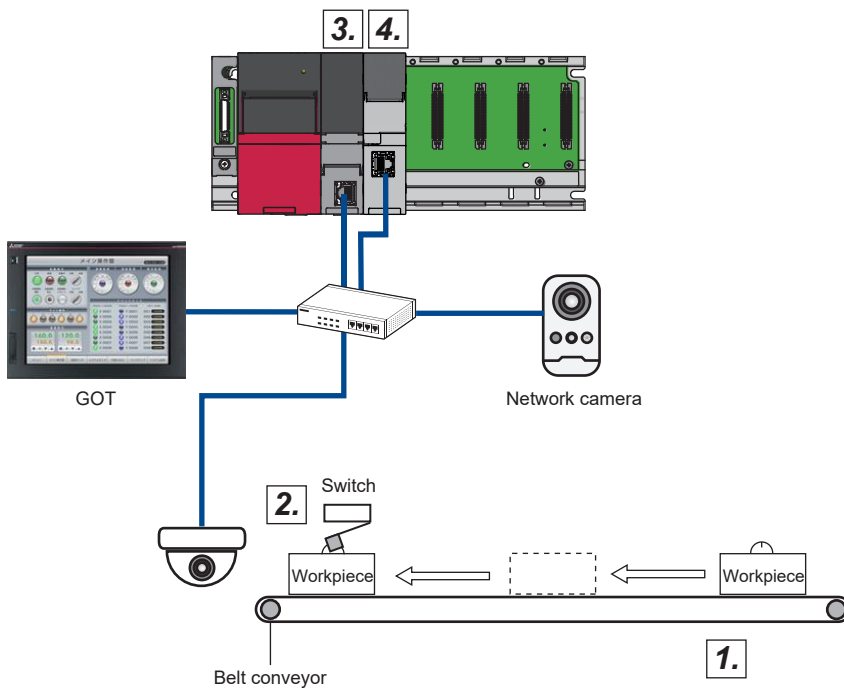
Chapter 3 through Chapter 7 describe the settings and how to start the functions of the recording, reproduction, and analysis that are the three phases of the system recorder. This chapter shows examples of practical use of the system recorder.

## 9.1 How to Check the Recording Result

Replay the data sampled by the camera recorder module and video recorded by the camera to predict the error cause, and then further investigate the cause by analysis.

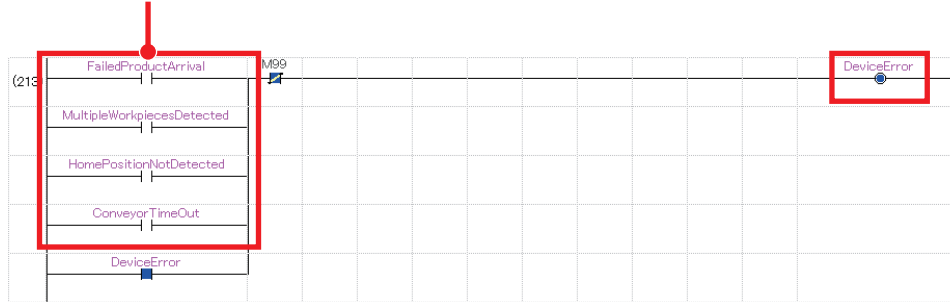
### Operation details

The following shows an operation example to investigate the cause of a device error occurred in the workpiece inspection process.



1. Workpieces flow on the belt conveyor.
2. The limit switch detects the flowing workpiece and its product No., and perform pass/fail inspection.
3. If any of four causes occurs, such as a failed product generation or detection of multiple workpieces, a device error occurs.

Device error cause

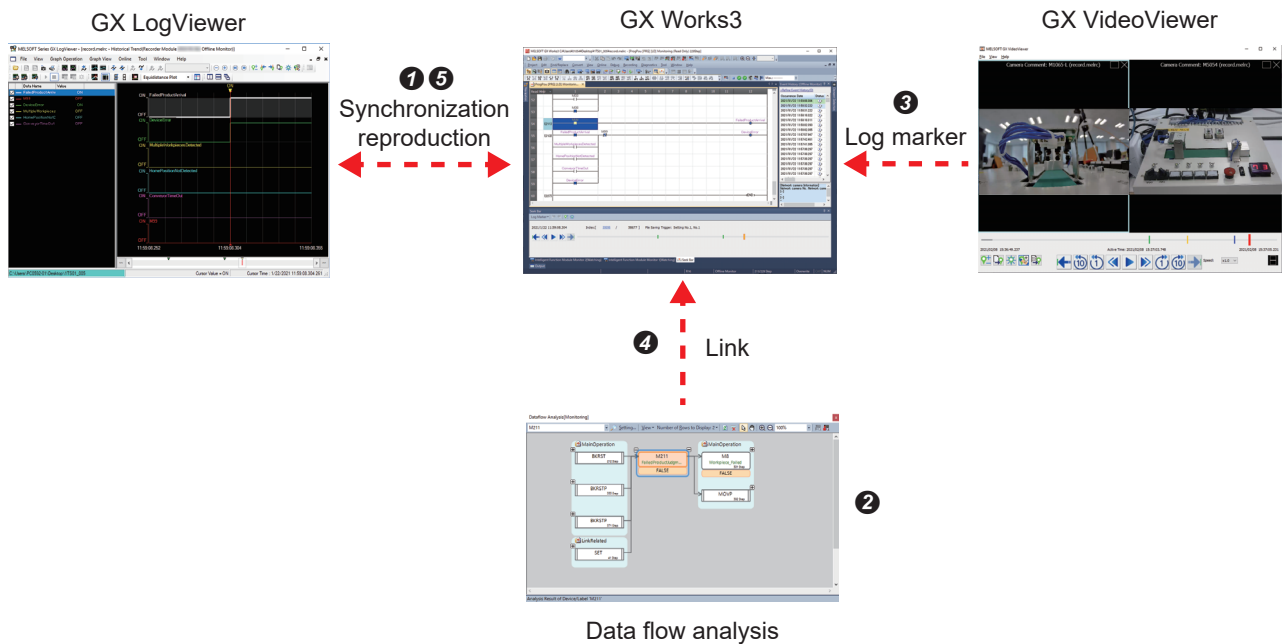


4. A device error triggers the data sampled by the camera recorder unit to be saved in the SD memory card.

# Analysis procedure

If a device error which is a saving trigger of the camera recorder module turns on, the error cause is determined from among the four causes that are the conditions of turning on the device error. As an example, the arrival of a failed product is assumed to be the cause of the error. Then, check the device/label value which causes the error.

The following describes the analysis procedure.



- ① Use GX LogViewer to check the cause of the device error set as the saving trigger.
- ② After the cause is determined, set the device as the basing point device, and check the execution condition of the basing point device by data flow analysis.
- ③ After the execution condition is determined, add a log marker at the point where the execution condition is operated with GX VideoViewer, and add the log marker information to the seek bar of GX Works3.
- ④ Check the device which is the execution condition of the error cause in the program of GX Works3. Click a device in the data flow analysis screen to jump to the program where the clicked device is located.
- ⑤ Check the operation of the destination program.

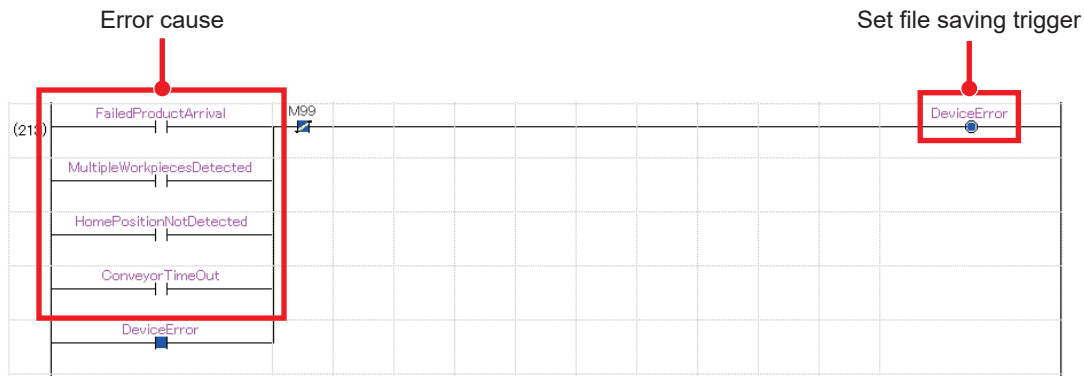
## Synchronous playback of GX Works3 and GX LogViewer

Check which one of the four error causes has caused the error.

### Operating procedure

1. Start offline monitoring. (☞ Page 59 Reproducing the Trouble Situation)
2. Double-click "File Saving Trigger Establishment" in the event history to open the program of the file saving trigger establishment condition.

At this point, you cannot tell which of the four devices causes the device error.

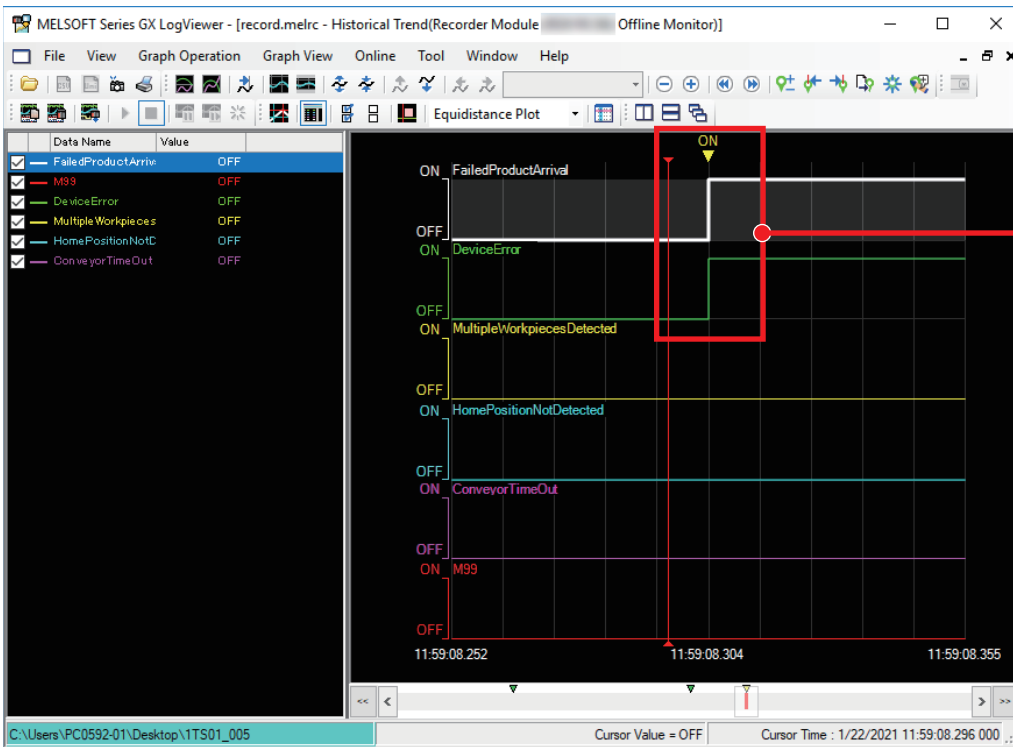


3. To determine the cause, display the waveform data in GX LogViewer.

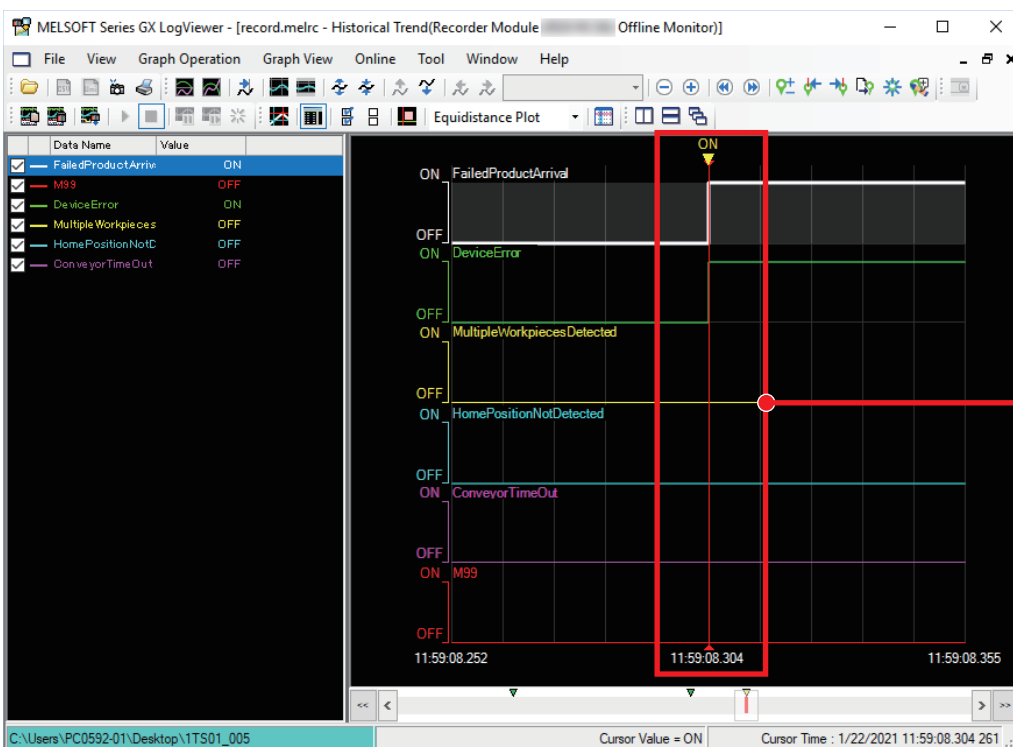
☞ Select a device/label ⇒ Right-click ⇒ [Wave Display]

The screenshot shows the GX LogViewer interface. A waveform is displayed with several pulses. A context menu is open over the waveform, listing various options. The "Wave Display..." option is highlighted with a red box. A red arrow points from the text "Select a device/label to display the waveform." to the "Wave Display..." option in the menu.

4. Check the turning on of the device error in the waveform data.



5. Move the red cursor in GX LogViewer to the position where the failed product arrival turns on.



6. The seek bar in GX Works3 moves in synchronization with the red cursor in GX LogViewer. Check that the error cause is ON in the program.

Error cause turns on.

The screenshot displays the GX Works3 interface. The top window shows a ladder logic program with the following steps:

- 55: (219) FailedProductArrival (M99) → DeviceError
- 56: MultipleWorkpiecesDetected
- 57: HomePositionNotDetected
- 58: ConveyorTimeOut
- 59: DeviceError
- 60: (227) → :END:

The 'FailedProductArrival' step is highlighted with a red box. Below the program, the 'Seek Bar' is visible, showing a red cursor at the end of the bar, indicating the current operation position.

It moves to the same operation position as the red cursor in GX LogViewer.

7. From the above, it is determined that the failed product arrival has caused the device error.

## Data flow analysis

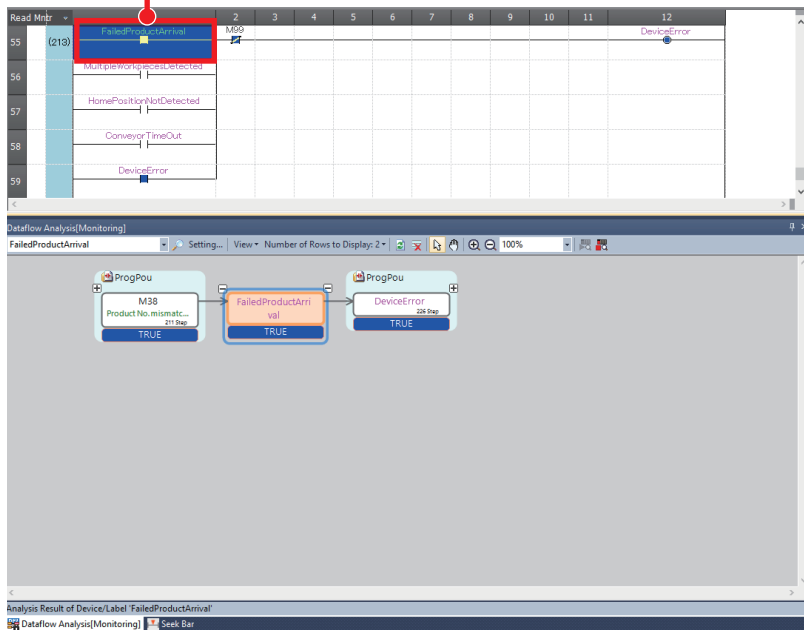
Analyze the device/label error which has caused the device error to inspect the error cause.

### Operating procedure

1. Perform the data flow analysis based on the device/label that caused the error. (☞ Page 71 Finding the Error Factor Device)

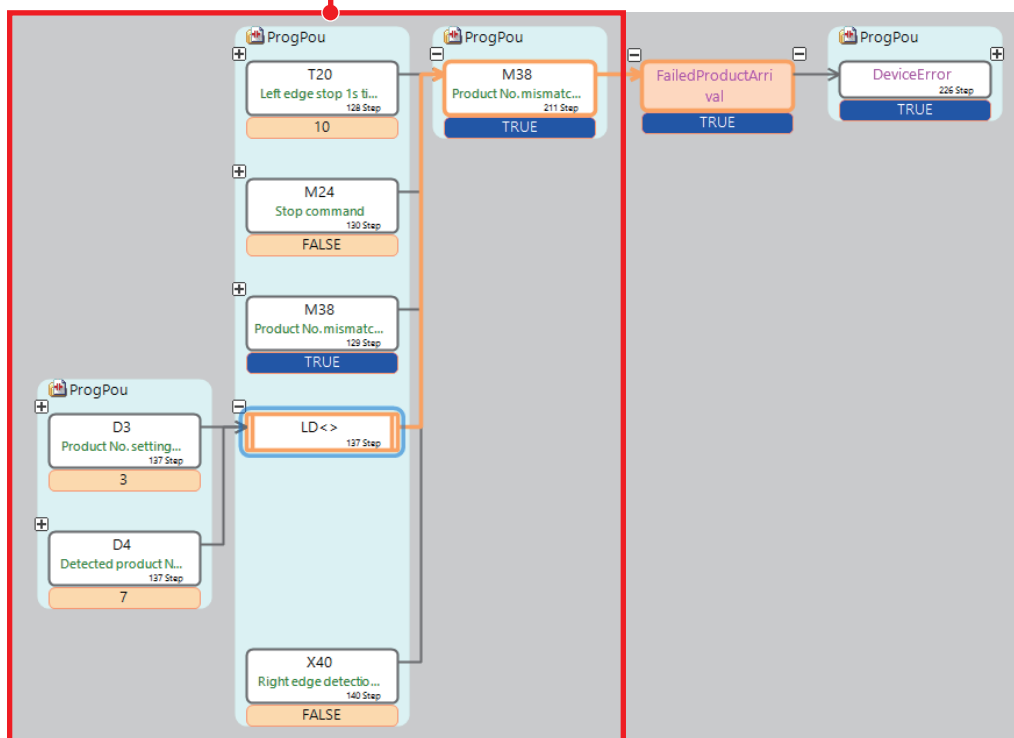
☞ Right-click ⇒ [Dataflow Analysis]

Device to be the basing point



2. Check the execution condition to turn on the failed product arrival.

Expand items on the left side.



3. It is determined that comparison of the product No. setting value and detected product No. value is the execution condition that turns on the product No. mismatch signal and failed product arrival.

## Adding log markers of GX VideoViewer to GX Works3

Add log markers at the point to check the program operation in GX VideoViewer, and synchronize them with the seek bar in GX Works3.

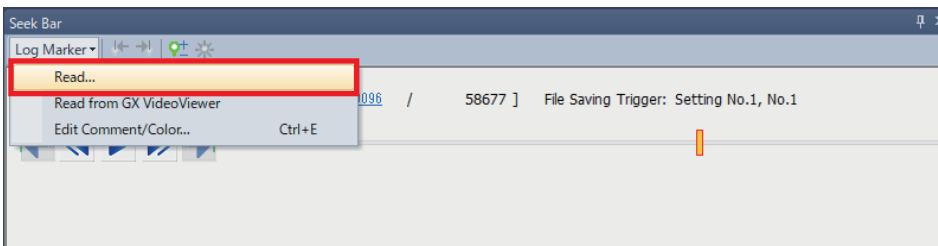
### Operating procedure

1. Since the workflow analysis shows that the product No. mismatch signal is involved, add log markers at the part of the video where the product No. of the workpiece is determined with GX VideoViewer. (☞ Page 61 Checking the video in the camera (GX VideoViewer))

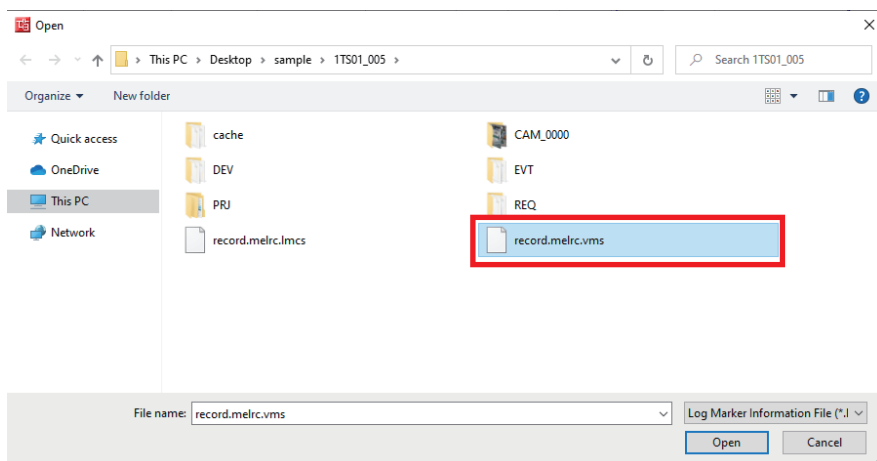


2. Synchronize the log markers with the offline monitoring in GX Works3.

☞ [Log Marker] ⇒ [Read]

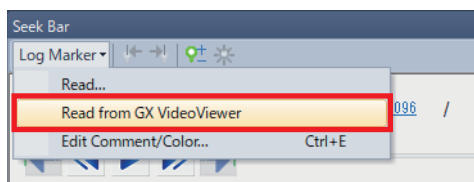


3. Open the log marker information file (\*.vms).

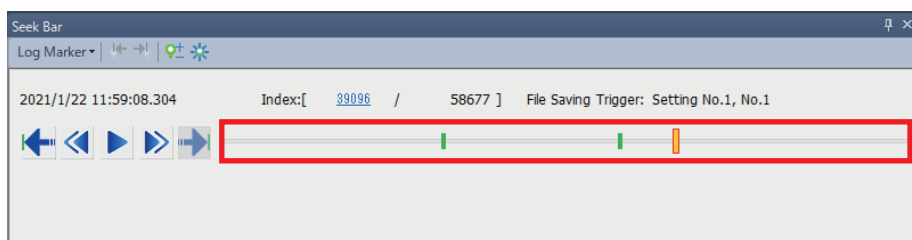


\*1 When GX VideoViewer is started and the video with log markers have been added is opened, they can be synchronized with the following procedure.

[Log Marker] ⇄ [Read from GX VideoViewer]



4. The log markers added in GX VideoViewer are added to the seek bar.



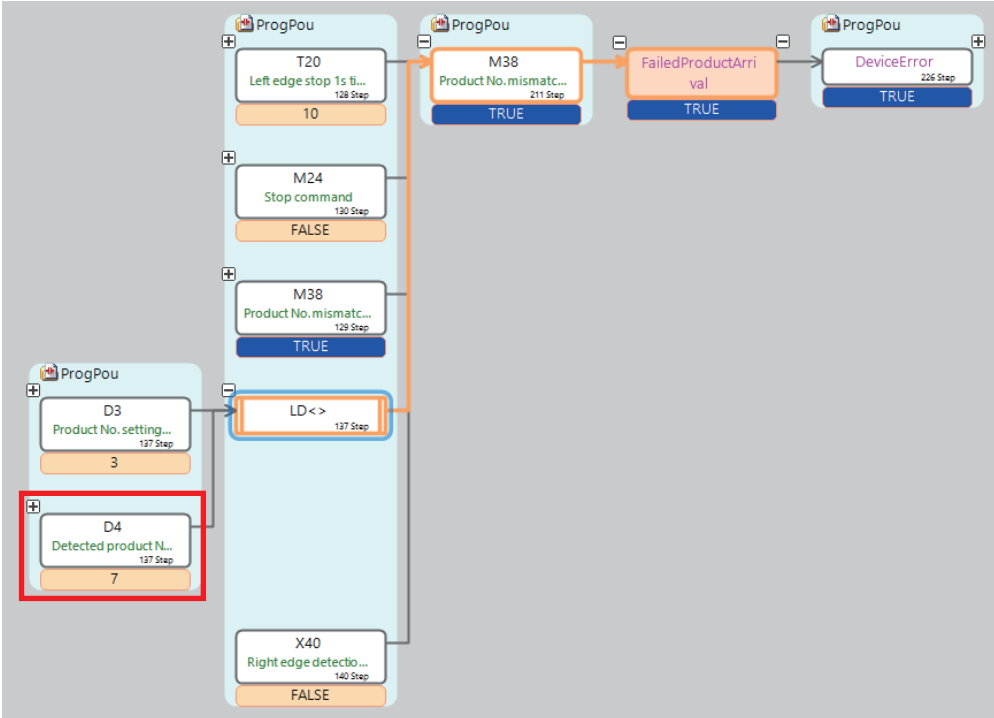


## Jump to a device/label

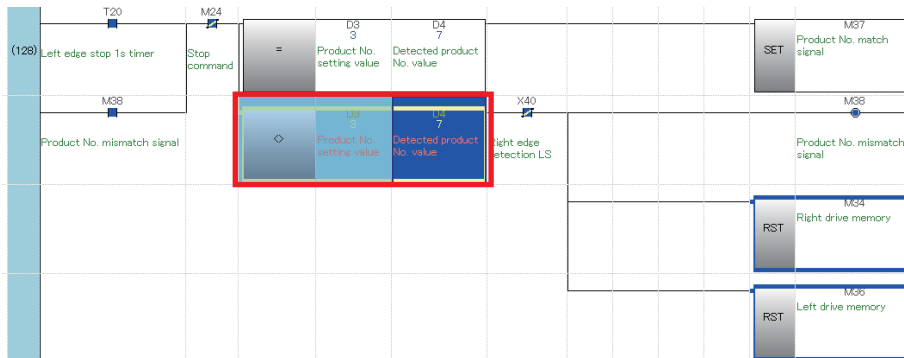
Check the detected product No. at the point where a log marker has been added.

### Operating procedure

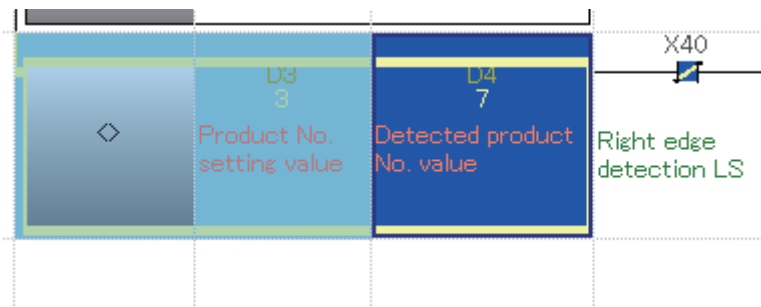
1. Double-click the detected product No. in the data flow analysis.



2. Jump to the label that contains the product No. read with the limit switch.



3. Since there is a mismatch between the set product No. and the detected product No., it can be determined that the product is not accepted and an error has occurred.



# APPENDIX

## Appendix 1 Troubleshooting

This section describes the details, causes, and corrective actions of errors which may occur.

### Errors in the camera recorder module

The following shows how to check errors which may occur in the camera recorder module and their troubleshooting.

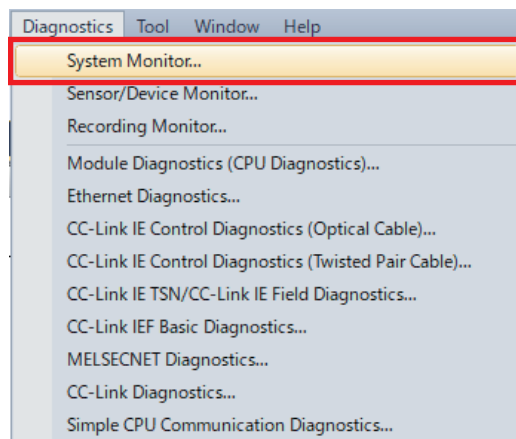
#### Error checking method

There are three ways to check the errors of the camera recorder module.

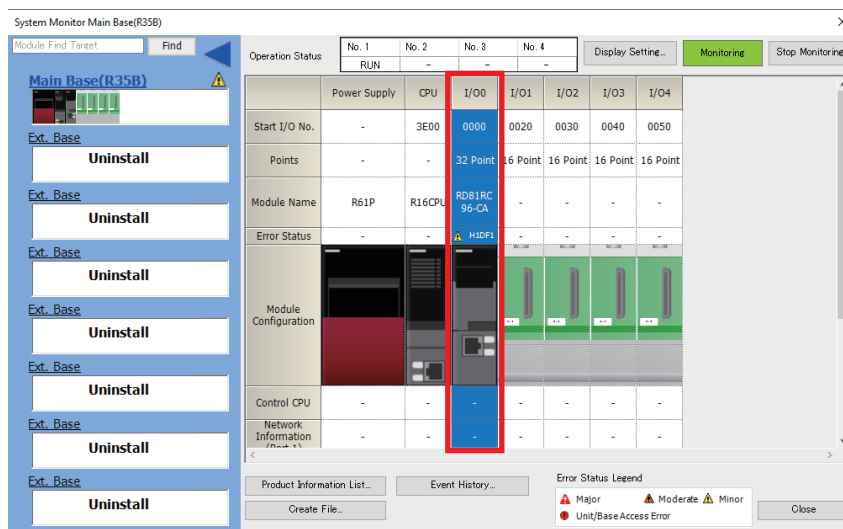
#### ■System monitor in the engineering tool

##### Operating procedure

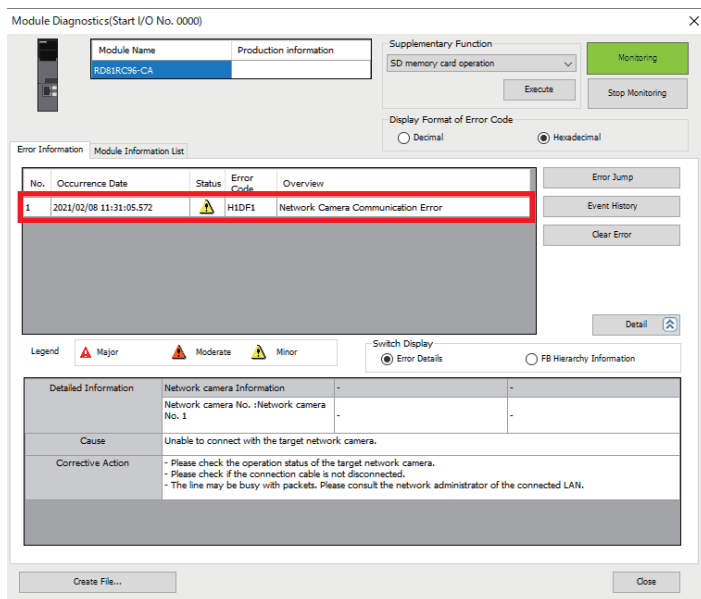
1. Click [Diagnostics] ⇒ [System Monitor] in GX Works3.



2. Double-click the camera recorder module.



3. In the module diagnostics window, check the details and corrective action of the error which has occurred.



### ■ Buffer memory

Error codes can be checked with the following buffer memory areas.

- Current error area (Un\G140 to 149)
- Error log (Un\G152 to 311)

For details on the buffer memory, refer to the following.

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

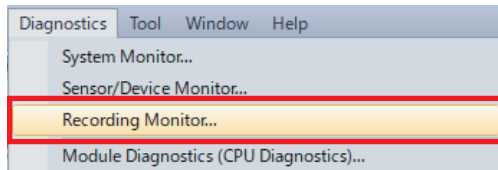


## ■Recording monitor

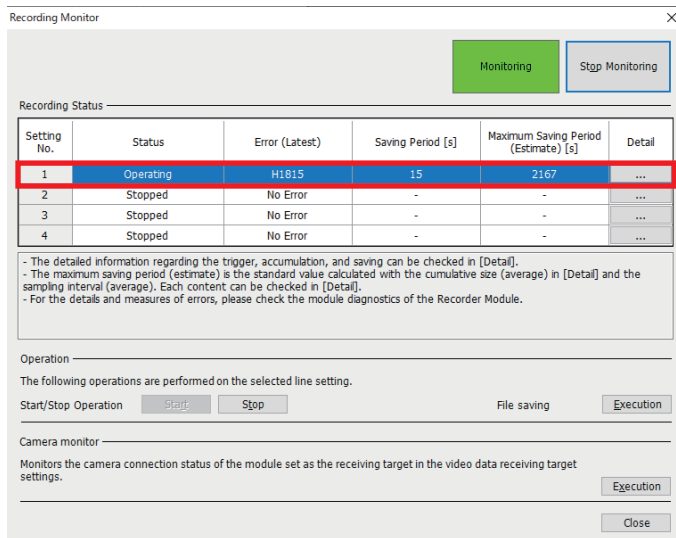
The operation status of the recording function for each recording setting can be checked with the recording monitor.

### Operating procedure

1. Click [Diagnostics] ⇒ [Recording Monitor] in GX Works3.



2. The error status and error codes for each recording setting can be checked with the recording monitor.



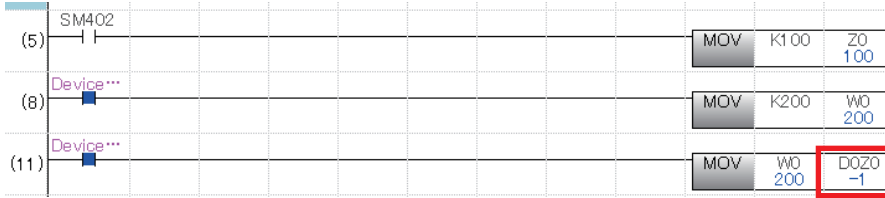
## Troubleshooting by symptom

For troubleshooting related to each symptom, refer to the following.

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

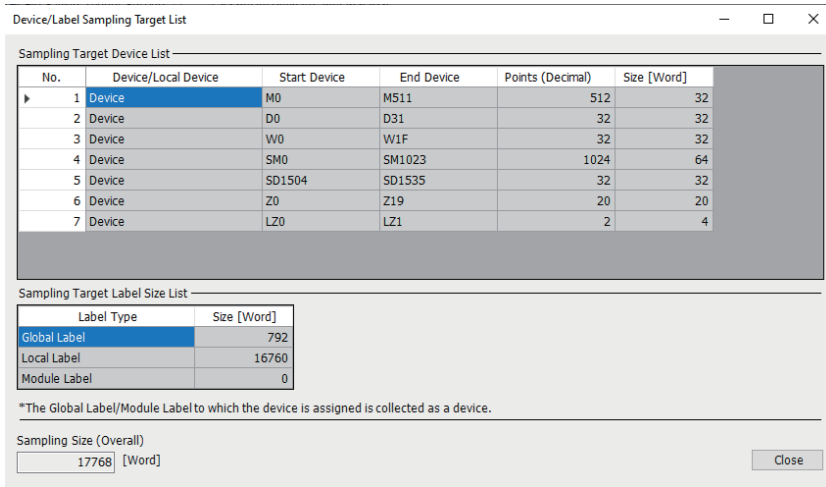
### ■ Sampling target of the index modification

When the program has any index modification devices, they are not sampled.



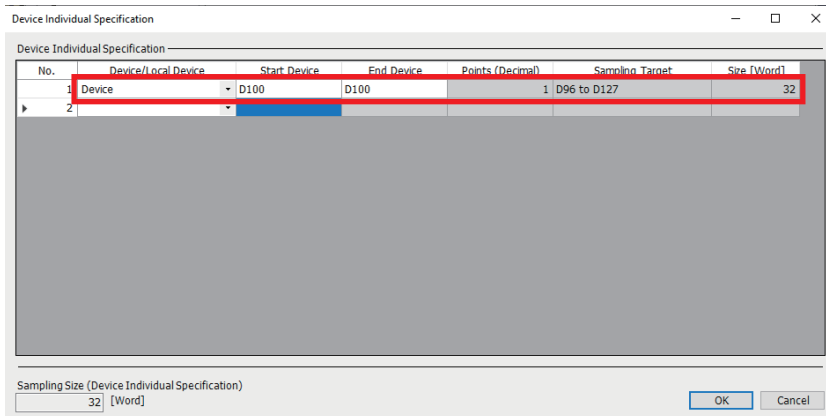
It is confirmed that 200 is the input when checked online. However, it is not applied to the offline monitoring.

Although  $DOZ0 = D100$  is set here,  $D100$  is not sampled automatically as well.



To sample  $D100$ , describe  $D100$  in the program or set  $D100$  in "Device Individual Specification" of "Device/Label Sampling Setting".

🔗 [Recording Setting] ⇒ [Device/Label Sampling Setting] ⇒ [Device Individual Specification]



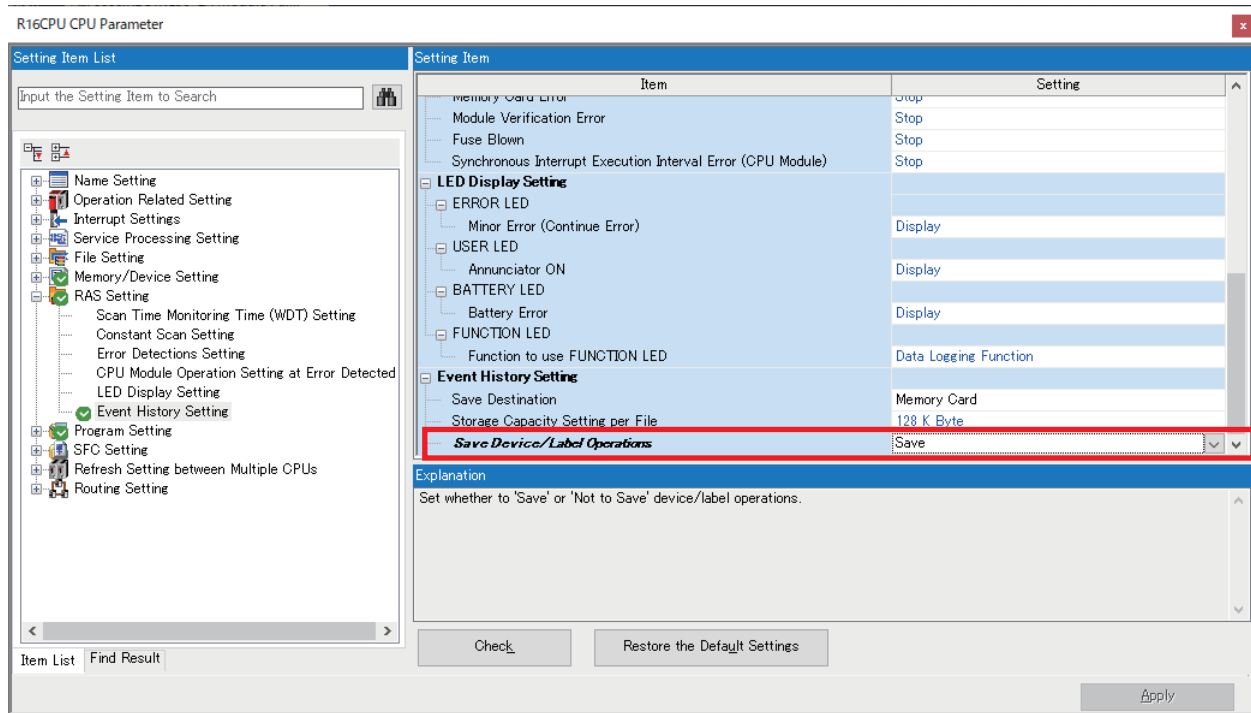
# Appendix 2 Event History Function (Saving Device/Label Operations)

If "Save Device/Label Operations" is set in the event history setting of the CPU parameter, the event history is saved when a device/label operation is performed from an external device.

It is automatically set to "Save" when the camera recorder module is added to the system configuration and the parameters are confirmed.

☞ Page 24 Creating a New Project

🔗 [CPU Parameter] ⇒ [RAS Setting] ⇒ [Event History Setting]



## Point

Since the data memory has a limited number of write cycles, the save destination is set to the memory card in this guide.

For details on the event history setting, refer to the following.

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

## Operations to be logged

The event history is saved when the device writing operations of the following operations and functions are selected.

Operation and function	
Operation from the engineering tool (Changing the current value)	Watch window
	Device/buffer memory batch monitor
	SFC diagram editor (Activating and deactivating the selected steps)
	Writing the device memory to the programmable controller
Writing the device/label by SLMP	
Writing the device with an instruction (Writing operation from another station or another CPU)	
Simple CPU communication function (Writing from the communication target)	

## Target device/label

### ■Device

All the device writing operations that can be specified with the engineering tool and SLMP will be saved.

### ■Label

All the label writing operations that can be specified with the engineering tool (GX Works3 Version1.065T) will be saved. However, the label writing operations from the tools earlier than GX Works3 Version1.065T, GOT2000, and SLMP are displayed as GV, LV, LLV, or UV.

# RELEVANT MANUALS

The following table lists the manuals related to the products described in this document.

Manual name [manual number]	Description
MELSEC iQ-R System Recorder User's Manual (Startup) [SH-082279ENG]	Specifications, procedures before operation, and system configuration of the system recorder and specifications of the camera recorder module
MELSEC iQ-R System Recorder User's Manual (Application) [SH-082281ENG]	Functions, parameter settings, recording settings, and troubleshooting of the system recorder and detailed specifications of the camera recorder module
MELSEC iQ-R CPU Module User's Manual (Startup) [SH-081263ENG]	Specifications, procedures before operation, and troubleshooting of the CPU module
MELSEC iQ-R CPU Module User's Manual (Application) [SH-081264ENG]	Memory, functions, devices, and parameters of the CPU module
GX Works3 Operating Manual [SH-081215ENG]	System configuration, parameter settings, and online operations of GX Works3
MELSEC iQ-R Module Configuration Manual [SH-081262ENG]	Combinations of the available MELSEC iQ-R series modules, common information on the installation/wiring in the system configuration, and specifications of the power supply module, base unit, SD memory card, and battery
GX VideoViewer Version 1 Operating Manual [SH-082370ENG]	Basic operating procedure of GX VideoViewer and how to play video files
GT Designer3 (GOT2000) Screen Design Manual [SH-081220ENG]	Operations and settings of GT Designer3, screen design software for the GOT2000 series
GOT2000 Series User's Manual (Hardware) [SH-081194ENG]	Specifications, procedures before operation, and troubleshooting of the GOT2000 series
GOT2000 Series Connection Manual (Mitsubishi Electric Products) For GT Works3 Version1 [SH-081197ENG]	How to connect the GOT2000 series to Mitsubishi Electric products such as the MELSEC iQ-R CPU



# REVISIONS

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

Revision date	*Manual number	Description
February 2021	L(NA)08789ENG-A	First edition
August 2021	L(NA)08789ENG-B	■Added or modified parts Chapter 1, Section 3.1, 4.2
August 2021	L(NA)08789ENG-C	The back cover has been modified.

Japanese manual number: L-08781-C

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