

Programmable Controller



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

This guide describes the procedure for introducing a system recorder, 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 recorder module. By replaying the record in GX Works3, the past system operation can be checked. To determine and analyze the trouble cause, reproduce the status of the site where the trouble has occurred by using the GOT offline monitor or use the video recorded by a camera together.



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1 OVERVIEW

The system recorder is a solution in which the following three steps performed in the breakdown maintenance phase are integrated.

Step	Corresponding function	Description	Required module or engineering tool
Record	Recording function In addition to all the devices of the programmable controller CPU, labels and camera videos are sampled and recorded with timestamps. The recording function outputs the data of the CPU module to a recording file when		CPU module Recorder module GX Works3
	Camera recording function	a file saving trigger is established and saves it in the SD memory card of the recorder module. The camera recording function uses a network camera connected to the built-in Ethernet of the CPU module to record the video of the camera synchronized with the CPU module.	Camera recording package GX VideoViewer
Reproduction	Offline monitor function	The timing of the error occurrence can be easily determined by synchronizing and replaying the various recorded data. The offline monitor function replays the recording files saved in the SD memory card of the recorder module on the offline monitor. In addition, starting the GOT offline monitor replays the monitor screen of the GOT.	• GX Works3 • GT Designer3
Analysis	Data flow analysis function	The time taken to determine the root cause of the error can be reduced by tracing the sequence program. The data flow analysis function searches for event histories 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 recorder module RD81RC96 and network camera and functions of GX Works3 for implementing these three steps.

In addition, procedure examples for determining the trouble cause by monitoring the data recorded by the recording module and using the video of the network camera, analysis function of GX Works3, and GX LogViewer are described.

2

System configuration

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



Device	e/software		Model	IP address
(1)	CPU module		R16CPU	192.168.3.39 (default)
(2)	Recorder module (For the recorder module, an SD memory card must be inserted.)		RD81RC96	_
(3)	Personal computer for setting	GX Works3 ^{*1}	—	192.168.3.100
	GX LogViewer ^{*2}		-	
		GT Designer3 ^{*3}	-	
		GX VideoViewer ^{*4}	-	
(4)	Network camera		M1065-L	192.168.3.42
(5)	General-purpose personal computer (Windows10)		-	192.168.3.30
(6)	GOT		GT2715-XTBA	192.168.3.18 (default)
(7)	PoE switching hub		GS108PE	-

*1 The version 1.070Y is used in this document.

*2 The version 1.112R is used in this document.

*3 The version 1.241B is used in this document.

*4 The version 1.006G is used in this document.

1.1 Introduction Flowchart

Configure the settings and check the operation with the following procedures. For details, refer to Chapter 2 and subsequent chapters in this document.



2 PREPARATION

2.1 Wiring

The following shows the wiring described in this document.

Connect the personal computer, CPU module, recorder module, network camera, general-purpose personal computer (Windows10), and GOT to the PoE switching hub using Ethernet cable.



Point P

For the programmable controller, network camera, general-purpose personal computer (Windows10), personal computer for setting, and GOT, set the IP addresses. The IP addresses must be in the same segment.

2.2 Inserting an SD Memory Card

Insert SD memory cards to the CPU module and recorder module.

Inserting an SD memory card to the CPU module is not necessary. However, the lifetime of the CPU module is shortened due to the limited number of writing if the save destination of event logging is ROM. Therefore, inserting an SD memory card is recommended.

The SD memory card in the recorder module is required for saving recording files.



CPU module



Recorder module

2.3 IP Settings of Personal Computers

Set the IP addresses of the personal computer for setting and general-purpose personal computer (Windows10).

Operating procedure

1. Set the IP address of the personal computer 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 automatical	у							
Use the following IP address:								
IP address:	192.168.3.100							
Subnet mask:	255 . 255 . 255 . 0							
Default gateway:								
Obtain DNS server address autom	atically							
• Use the following DNS server add	resses:							
Preferred DNS server:								
Alternate DNS server:								
Validate settings upon exit Advanced								
	OK Cancel							

6

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: 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									
Point									

• Set the IP address so that it is in the same segment as the ones of the devices to be connected.

• For setting IP addresses of the other devices, refer to the following.

Programmable controller: 5 Page 38 Programmable Controller Setting

Network camera: 🖾 Page 25 Network Camera Setting

GOT: CGT Designer3 (GOT2000) Screen Design Manual

3 RECORDING FUNCTION

The recording function stores the devices, labels, and event histories of the CPU module in the recorder module, outputs the data within the saving period in a recording file when a file saving trigger is established, and saves it in the SD memory card.



To use the recording function, set the following.

Two recording methods are provided: "File Saving Trigger Only" and "Recording Startup Trigger + File Saving Trigger". The following table lists the setting example in the recording method using only the file saving trigger for recording data within the period between 30 seconds before and 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 Device/Label in batch: Selected Device: M0

3.1 Creating a New Project

Create projects for the CPU module and GOT.

CPU module

Set the following in GX Works3.

Operating procedure

1. Create a new project.

New		×	
Series Type	에 RCPU III R16	~	 Set the series to RCPU. Set the type according to the system configuration.
Mode Program Language	Ladder	~ ~	
	OK Cancel		

2. Set the module configuration diagram.

∑ [Navigation] ⇒ [Module Configuration]

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



3. Confirm the parameters.

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



4. The recorder module is added.



Point P

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

They are related to the following settings.

Series Page 15 When configuring multiple recording settings, Page 79 Event History Function (Saving Device/ Label Operations)



GOT

-

Set the following in GT Designer3.

Operating procedure

- 1. Start GT Designer3.
- **2.** In New Project Wizard, configure the following settings to create a project.

ew Project Wizard				×
R Now Project Winard	Confirmation of GOT System Set	ting		
New Project Wizard System Setting Onfirmation If Communication U Communication O I/F Com. Driver O Confirmation O L II Address Setting	GOT Type Setup Direction Color Setting Graphics Setting Package Folder Name Gesture Function Base Screen Size Expansion	GT27**-X (1024x768) Horizontal 65536 Colors GOT Graphic Ver.2 G2PACKAGE\Package1 Use Disabled		
GOT IP Address Setting GT IP Address Setting Screen Switch Screen Design	Set a controller to be connected	to GOT next.		
u Devinet Winard		< Back Next >	Cancel	
w Project wizard				^
New Project Wizard System Setting Ornfirmation Confirmation Ornfunction Ornfirmation Ornfirmation Ornfirmation Ornfirmation	CH 1 I/F Etherne Controller Type MELSEC Communication Driver Etherne	Setting (1st) et:Multi i Q-R, RnMT/NC/RT, CR800-D et(MITSUBISHI ELECTRIC), Gateway		
Confirmation GOT IP Address Setting GT IP Address Setting GT Screen Switch Screen Design	GT27**X (1024x768) can be co Click on the "Add" button to set :	nnected to multiple controllers. another controller item.		
		< Back Next > Add	Cancel	

3.2 Recording Setting

Use GX Works3 to configure the recording setting of the recorder module. For details on the recording setting screen, refer to the following. MELSEC iQ-R System Recorder User's Manual (Application)

Operating procedure

- **1.** Add a new recording setting.
- [★] [Navigation] window \Rightarrow [Parameter] \Rightarrow [Recording Setting] \Rightarrow Right-click \Rightarrow [New]^{*1}



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

ERecording Method: File Saving Trigger Only, Saving Period Before Trigger: 30 seconds, Saving Period After Trigger: 5 seconds



Displays the approximate value of the processing time for sampling the devices/labels.

3. Configure the device/label sampling setting.

Ex. Specify Device/Label in batch: Selected (default)

0000:RD81RC96 Recording Setting(No.1)		×
Setting Item List	Setting Item	
Saving Period Setting Monoperiod Setting Monoperiod Setting Monoper Setting Saving Trager Setting Saving Path Setting	Device/Label Sampling Target Setting Specify Device/Label in batch Sampling Size 11776 [Word] Device Individual Specification Setting Sampling Size 0 [Word]	
	Device/Label Sampling Target List	
	Sampling Interval Setting	
	Sampling Method Each Scan v Time Interval 100 [[Milleecon]	d] ~
	<	>
	Description	
	Please use this setting when specifing devices and labels in batch in the program.	^
	Please specify the devices and labels individually if specifing in batch is not necessary. Even in the case of batch specification, please also specify the Device individually as required in the following cases, - Use the devices and labels not specified in the device batch specification.	~
< >	iampling Size (Overall) Sampling Time(Approx.) 0.214 [m 11776 [Word](*) Data Sampling Buffer Area Required Size 1 [Mit]	s](*) 3](*)
Restore Defa <u>u</u> lt	(*) It differs depending on the contents of the program, label, and parameter. OK Cancel	

Point P

When Specify Device/Label in batch is selected, the devices and labels in the created program are automatically set as the sampling targets.

0000:RD81RC96 Recording Setting(No.1)						
Setting Item List	Setting Item List Setting Item					
 Saving Period Setting Device/Label Sampling Setting 	File	Saving T	rigger Setting —			
File Saving Trigger Setting		No.	Device	Establishment Condit	tion	Comment
		▶ 1	мо	¢	•	File saving trigger 0
		2		↑ (•	
		3		1	•	
		4		Ť	•	
		5		t	-	
		6		Ť	-	
		7		Ť	•	
		8		Ť.	-	
		9		Ť	-	
		10		↑.	-	
		11		Ť	-	
		12		t t	-	
		13		Ť	-	
		14		↑	-	
		15		†	-	v
	<					>
	Desc	ription				
	Pleas	se specify	the device to be u	used as the file saving t	rigge	er. (Up to 16 devices)
[Allowable devices"1] Bit device: X, Y, M, L, F, SM, V, B, SB, TS, STS, CS, LTS, LSTS, LCS Word device"2: D, SD, W, SW, R, ZR, RD "*1 A local device, index modification, or indirect specification cannot be specified. *2 Only the bit specification is allowable for word devices.					STS, LCS n cannot be specified.	
< >>	iampl	ing Size (11)	Overall) 776 [Word](*)	Data Sa	mpl	Sampling Time(Approx.) 0.214 [ms](*) ling Buffer Area Required Size 1 [MB](*)
Restore Defa <u>u</u> lt	(*) It c	liffers dep	pending on the con	tents of the program, la	ibel,	, and parameter. OK Cancel

When configuring multiple recording settings

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

Operating procedure

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

0000:RD81RC96 Module Parameter					
Setting Item List	Setting Item				
Input the Setting Item to Sea	Item	Settine Value			
대 U U U U U U U U U U U U U U U U U U	Various Operations Sattings Mode Settings Own Node Setting DrAddress Setting Aquire Automatically / Specify P Address Subnet Mask Default Gateway DNS Server 1 Address DNS Server 1 Address Setting No.1 Setting No.1 Setting No.3 Setting No.4	Configure the various operations settings. Online Set the information of the own node such as IP address. Set the IP address, subnet mask, and default gateway of the own node. Specify Set the setting on DNS Server. Specify Set this when changing the recording buffer size. 800 MB 0 MB			
Item List Find Result	Explanation Configure the various operations settings. Recording Buffer Setting Check_ Restore th	e Defaylt Settings			

2. Change the capacity of the recording buffer to be used for the recording setting.

Recording Buffer Setting X								
Total Size 800 MB								
Settir	ng No.		Recording Buffer S	Size [MB]				
Setting No.1		700						
Setting No.2		100						
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 Setting No.1 to Setting No.4 \leq 800 MB]								
Chec <u>k</u>	Restore the Defa <u>u</u> lt Se	ttings	OK	Cancel				

- **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	Setting Item		
Name Setting Operation Related Setting Price Processing Setting File Setting Device/Label Memory/Area Setting Device/Label Memory Area Setting Device/Label Memory Area Setting Device Latch Interval Setting Device Latch Interval Setting Device Latch Interval Setting Device Setting Device Setting Device Setting Detrier Setting Detrier Setting Defrem Setting SFC Setting SFC Setting Refresh Setting between Multiple CPUs Routing Setting	Item Getting No.5 Setting No.5 Setting No.7 Setting No.7 Setting No.9 Setting No.10 Ink Direct Device Setting Unk Direct Device Setting Device/Label Data Sampling Device/Label Data Sampling Setting No.1 Setting No.1 Setting No.4 Explanation Set the buffer area for data sampling.	Setting / 128 K Byte 1 Q Series Conneatible Mode 1 Use 1 4 M Byte 1 1 M Byte 1 0 M Byte 1 0 M Byte 1	
Item List Find Result	Check_ Restore the Default Settings		
		Арріу	

Point P

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

0000:RD81RC96 Recording Setting(No.1)	×
Setting Item List	Setting Item
Saving Period Setting Saving Period Setting Saving Tiges Setting Saving Tiges Setting Saving Path Setting	Saving Period Setting Recording Method File Saving Trigger Only Saving Period Before and After File Saving Trigger 35 [Second] Saving Period Before Trigger 30 [Second] Saving Period After Trigger 5 [Second]
	Legend
	🕅 File Saving Trigger 🛛 Saving Target 🔗 Saving Startup
	\oplus Saving Period Before and After File Saving Trigger \oslash Saving Period Before Trigger \circledast Saving Period After Trigger
	< >>
	Description
	Please set the recording method.
	 (File saving trigger only) Please set is for cases as follows. When the saving cause is clear and you want to record the data before and after the cause occurrence
	ampling Size (Overall) Sampling Time(Approx.) 0.214 [ms](*)
< >	11776 [Word](*) Data Sampling Buffer Area Required Size 1 [MB](*)
Restore Defa <u>u</u> lt	(*) It differs depending on the contents of the program, label, and parameter. OK Cancel

3.3 Creating a Program

The following program is used as a recording example.





Create a GOT screen supporting the above program, and use it.



3.4 Writing

Write the parameters, program, and recording setting to the CPU module, and write the project data to the GOT. Then, reset the CPU module and GOT, or turn off and on the power of them.

CPU module

Operating procedure

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

Conline] ⇒ [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

Onl	ine	Debug	Recording	Diagnostics	Тос
	Сι	urrent Con	nection Desti	nation	
2 9	Re	ad from P	LC		
	W	rite to PLC	au		
	Ve	rify with P	LC		
	Re	mote Ope	eration(S)		
	Sa	fety PLC C	Operation		•
	Redundant PLC Operation(G)				
	CPU Memory Operation				
	Delete PLC Data				
	User Data				•
	Set Clock				
	Monitor •				•
	FB Property Management (Online)				
	Watch +				
	Us	er Authen	tication		•
	Re	ad Modul	e Configurati	on from PLC	

	Online Data Operation									- (×
	Display Setting Related	Functions										
	Write			1	Verify	- 🖳 🧳	Delet	te				
Click here.	Parameter + Program(E) Select <u>A</u> ll	Legend									
	Open/Close All(<u>T</u>)	Deselect All(<u>N</u>)	CPU I	Built-in Mer	nory	SD M	emory Card	💼 Intelligent Function Module				_
	Module Name/Data Name					Detail	Title	Last Change	Size (Byte)		^	^
	🖬 👔 Untitled Projec	:t										
	🕀 🛃 Parameter											
	🐶 System Pa	arameter/CPU Parameter	•					11/11/2020 10:04:0	Not Calculate	ed	- 1	
	Module Pa	rameter	~					11/11/2020 10:04:0	Not Calculate	ed	- 1	
	Memory C	ard Parameter						11/11/2020 10:02:0	Not Calculate	ed	- 1	
	Remote P	assword	•					11/11/2020 10:02:0	Not Calculate	ed	- 1	
	🖹 🙆 Recording S	Setting	•									
	Setting No	0.1	•					-	Not Calculate	ed	-1	
	🖯 🛅 Global Labe	el										
	Global Lab	el Setting	•				_	11/11/2020 10:02:1	Not Calculate	ed	- 1	
	🖻 🔚 Program		•			Detail						
	MAIN		•					11/11/2020 10:02:1	Not Calculate	ed	~	~
	Display Memory Capac	sity 😻										
	Memory Capacity	D										
	Size Calculation	Program Memory								640/640KB		
	Legend	Data Memory								Free		
	Used									10232/10244KB		
	Increased	Device/Label Memory (File Sto	rage Area) –							Free		
	Decreased									1536/1536KB		
	Free: 5% or Less	SD Memory Card								Free		
										0/0KB		
									Execute		Close	
									I			
								Click here	to wri	te the c	lata	a.

GOT

Operating procedure

1. Start GT Designer3, configure the connection setting with the personal computer, and then click the [OK] button.

 \bigcirc [Communication] \Rightarrow [Write to GOT] from the menu

	Communication Configuration		×
Configure the settings	Connection to GOT: Oprect Connection Image PC side I/F Ethernet Ethernet	O Via PLC *GT21 does not support the communication via PLC. Detail Setting PC side I/F	
as shown on the right.	GOT Timeout (Sec): 30 • Retry Times: 0 •	GOT GOT IP Address: 192 . 168 . 3 . 18 Select from the setting/list: Peripheral S/W Communication Port No.: 5015 • 192.168.3.18 Ethernet St	List
	Test Acquire GOT information and oper Display the dialog of [Communication]	n the dialog ion Configuration] the next time as well OK	Cancel

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



When the data cannot be written via Ethernet, connect the GOT and personal computer with a USB cable to write it via USB.

Communication Configu	ration				×
Connection to GOT:	Oirect	○ Via PLC Detail Setting	*GT21 does not support the communication via	PLC.	
	~	PC side I/F			
Ļ		GOT			
GOT					
Timeout (Sec): 30	×				
Retry Times: 0	•				
Test					
Acquire GOT inform	nation and open	the dialog			
Display the dialog o	f [Communicatio	n Configuration] the ne	xt time as well	OK Cance	I

2. Set the data to be written and writing destination, and then click the [GOT Write] button.

	Communicate with GOT				>	(
	GOT Write	GOT Read 🛒 Ґ	GOT Verification			
Configure the settings as shown on the right.	Vrite Data: Data Size: Data Size: Destination Drive: What is package dat Package data are pro system applications (Package Data	Write Option	GOT Information GOT Type: GOT Name: Drive of package data Free Space/Capacity: KB / KB	GOT Information	Click here to write the data.
	Communication Config	uration Communication Path: P	C - Ethernet - GOT		Close	

3.5 Recording

Operate the program described in " Page 17 Creating a Program" to perform recording, and read the record data from the recorder module.

Operating procedure

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

Point P

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.
- **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	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 established, the recording file is saved in the SD memory card of the 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

Point P

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

Recording Monitor × Stop Monito Recording Stat Setting No Maximum Saving Period (Estimate) [s] Error (Latest) Status Saving Period [s] Detail 1 2 Stopped No Error 3 Stopped No Error 4 Stopped No Error igger, accumulation, and s the standard value calcula can be checked in [Detail] on, and saving can be checked in [Detai]. Le calculated with the cumulative size (av The detailed info mation regarding the ing period (estimate) /erage), Each conter erage) in [Detail] and the ing inte Operati The following operations are performed on the selected line setting. Start/Stop Operation Start Stop File saving Close

℃[Diagnostics] ⇔ [Recording Monitor]

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

8. Read the recording file from the recorder module.

 [Recording] ⇒ [Read Recording File]
 Recording Diagnostics Tool Recording Setting
 Click here to open the read screen.
 Start Offline Monitor GOT Offline Monitor
 When a window for checking the communication

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.

	Record	ing File Reading			
	Rec	ording File Selection	Option		
	Re	cording File List			
	Р	lease select the read	ding target.		
	Dis	play Target	Setting No.1 Se	tting No.2 🗌 Setting No.3 🗌 Setting No.4	Refresh(<u>W</u>)
		Setting No.	Recording File	Date Modified	Size (KB)
elect		Setting No.1	1TS01_003	2020/11/11 10:55	Not Calculated
		Setting No.1	1TS01_002	2020/11/11 10:54	Not Calculated
		Setting No.1	1TS01_001	2020/11/11 10:53	Not Calculated
		Select <u>A</u> ll	Deselect All(<u>N</u>)		<u>S</u> ize Calculation

Click here to save the data in the personal computer.



Multiple recording files cannot be read.

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

MELSOFT	GX Works3	×
1	When "Read project data" is selected, more than one recording file cannot be read. Please deselect "Read project data" or select only one recording file to be read, then try again.	
	ОК	

4 CAMERA RECORDING FUNCTION

The camera recording function records the captured footage of the network camera connected directly to the built-in Ethernet port of the CPU Module.

The camera video is recorded when a trigger for executing the video recording event of the network camera is turned on in the CPU module, and the video recording file is saved in the general-purpose personal computer (Windows10).

The video recording file can be replayed in GX VideoViewer.



To use the camera recording function, set the following.

Setting item	Description
Network camera setting	Connect the network camera to the personal computer for setting and general-purpose personal computer (Windows10), and configure the settings for video recording.
Programmable controller setting	Set the parameters of the CPU module, and create a program using FBs.

4.1 Network Camera Setting

Use a web browser to configure the network camera setting. 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.

Initial start-up setting

Operating procedure

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

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 automatical	ly							
• Use the following IP address:								
IP address:	192.168.3.100							
Subnet mask:	255.255.255.0							
Default gateway:								
Obtain DNS server address auton	natically							
Use the following DNS server add	resses:							
Preferred DNS server:								
Alternate DNS server:								
Ualidate settings upon exit	Advanced							
	OK Cancel							

Point P

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

IP AXIS IP Utility			-		\times
File View Tools Help					
🝸 🗊 S		Type to filter			×
Name	IP Address		Serial N	umber	
AXIS M1065-L - ACCC8EF19EA0	192.168.0.90		ACCC8	F19EA0	
<)
1 devices		Inte	rface 192.	168.7.117	

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



3. When the web server is accessed, the administrator password setting window appears.

Set a password and the language, and click the [Create login] button.



Restriction ("?

- Set the password within 4 to 64 characters.
- Do not use "\$" in the password.

4. Log in to the network camera.

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

	Windows Security		×					
	Microsoft Edge							
	The server 192.168.0.90 is asking for your user name and password.							
	That server also reports: "AXIS_ACCC8EF	19EA0".						
	User name							
	Password							
1	Remember my credentials							
	ОК	Cancel	I					

4

5. Select the power line frequency.

AXIS	AXIS M1065-L Network Camera
	Get started
	Select your power line frequency

6. Set IPv4 to "Manual IP and manual DNS", and set network parameters. IP address: 192.168.3.42

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

AXIS	AXIS M1065-L	Network Camera
	Get started	
	IPv4	Date and time
	Manual IP and manual DNS	Automatic date and time
	IP address Subnet mask	Year Month Day Hour Min 2020 08 15 () 11 09 AM
	192.188.3.42 255.255.0	
	Default router	Asia/Tokyo
	Domain name	Connect to NTP-server
	Domain name	Automatically (DHCP)
	+	Manually
	Primary DNS server Secondary DNS server	
	0.0.0.0	
		Ner

Point P

• Set the IP address and subnet mask in the same segment as the IP addresses of the CPU and generalpurpose personal computer (Windows10).

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

8. Set the IP address of the personal computer for setting again in the same segment as the network camera set in step 6.

Internet Protocol Version 4 (TCP/IPv4) Properties						
General						
You can get IP settings assigned autor this capability. Otherwise, you need to for the appropriate IP settings.	natically if your network supports o ask your network administrator					
Obtain an IP address automatical	ly					
• Use the following IP address:						
IP address:	192.168.3.100					
Subnet mask:	255 . 255 . 255 . 0					
Default gateway:						
Obtain DNS server address auton	natically					
• Use the following DNS server add	resses:					
Preferred DNS server:						
Alternate DNS server:						
Ualidate settings upon exit	Advanced					
	OK Cancel					

- 9. Enter the IP address of the network camera in the web browser, and access the web server again.
- **10.** After the setting is completed, the live view window appears.
- **11.** Click the [Done] button.



Date and time settings

Set the date and time of the network camera.

These settings are not required if they have already been set in the initial start-up setting.

Operating procedure

- **1.** Log in to the network camera.
- **2.** Display the date and time setting window.
- \bigcirc [Settings] \Rightarrow [System] \Rightarrow [Date and time]



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



Video recording event settings

Configure the video recording event settings. These settings use a virtual input as a trigger to save generated video files in the general-purpose personal computer (Windows10).

Profile settings

Operating procedure

- **1.** Log in to the network camera.
- 2. Display the stream profile window.
- ☆ [Settings] ⇒ [Stream] ⇒ [Stream profiles]



3. Click the [Create new] button.





4. Enter a profile name in "Name", and set items such as resolution.

New profile	
Name	
sample	
Description	
● H.264 ○ MJPEG	Preview
General	~
Encoding	~
Audio	~



Set each item of 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 depending on the network camera model. For details, refer to the datasheet of the network camera used.

Point P

When the video is recorded at a high frame rate or a high resolution, the "Prebuffer" (video recording time before trigger) video may not be recorded on time. 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.

5. Click the [Create] button.

Rule settings

Operating pro	ocedure	
1. Display the eve	ent window.	
\bigcirc [Settings] ⇒ [§ 2. Click the [+] bu	System] ⇔ [Events] tton.	
	AXIS M1065-L Network Camera	÷ 0 0
	Rules Schedules Recipients Manual triggers	

Image	Stream	Overlay	PTZ	Audio	Privacy mask	View area	Apps	System								~
		Language Č	Dat	te and time Controls AVHS	e Orientation		Users	ONVIE I/O por	-	SNMP	© Detector	a M	X aintenance	Plain confi	9	>

3. Set a rule name in "Name".

New rule	
✓ Use this rule Name	
sample_event	
Wait between actions (max 23:59:59) 00:00:00	
Condition	^
Select a condition	
Use this condition as a trigger	
+	
Action	^
Select an action	•
Cancel	Save

4. Set "Condition" to "Virtual input".

For the virtual input port No., select a number within 1 to 32.

New rule
✓ Use this rule
Name sample_event
Wait between actions (max 23:59:59)
Condition ^
Virtual input 💌
Invert this condition
Use this condition as a trigger
Port
+

5. Set the video recording period of the camera video.

Action	^
Record video	•
Stream profile	
Don't use a stream profile	▼
Prebuffer (seconds) 05 Postbuffer (mm:ss) 00:30	
Storage	
Select storage alsk	Ŧ
Cancel Sa	ve

The video recording period can be selected from two settings.

Setting	Description
(1) Recording the camera video before and after the video recording trigger	 Configure the following three settings. Select "Record video". Set the video recording time (second) before event occurrence in "Prebuffer". Set the video recording time (mm:ss) after event occurrence in "Postbuffer".
(2) Recording the camera video while the video recording trigger is ON	Select "Record video while the rule is active".

The following shows the images of the video recording period by each setting.

(1) Recording the video before and after the video recording trigger







(a) Video recording trigger ON

(b) Video recording trigger OFF

(c) Video data to be recorded

(d) Video recording time before trigger

(e) Video recording time after trigger

(f) Video recording period



7. Click the [Save] button.

Record video		▼
Stream profile		
sample		▼
Prebuffer (seconds)		
05		
Postbuffer (mm:ss)		
00:30		
Storage		
Network storage		▼

Video file save destination settings

Operating procedure

- **1.** Set the save destination of video files.
- \bigcirc [Settings] \Rightarrow [System] \Rightarrow [Storage]
- 2. Click the [Set up] button under "Network storage".

AXIS	AXIS M1065-L Network Camera		± 0	0
	Storage Network storage			
	Onboard storage Formal new cards to ext4 💿 💿			
	Recordings 0 Recordings			
Image Stream Overlay PTZ Audio Privacy mask View	v area Apps System			~
Language Date and time Orientation	Users ONVIF SNMP	O N P Detectors Maintenance Plain config		
TCP/IP AVHS Security	Storage I/O ports Events			

3. Set the IP address of the storage destination of the video data (general-purpose personal computer (Windows10)) in "Host", and set the name of the folder to "Share", where the video data will be saved (within the general-purpose personal computer (Windows10)).

Network storage	
Host	
192.168.3.30	
Share	
share	
Security 🗸	
	Cancel Connect
Format new cards to	ext4
Recordings 0 Recordings	
Point P	Create a shared folder in

- Create a shared folder in the general-purpose personal computer (Windows10) in advance.
- Set the IP address to the value set in the following.
- Page 6 IP Settings of Personal Computers
4. When login to the general-purpose personal computer (Windows10) is required, select "The share requires login" and enter the login ID and password of the general-purpose personal computer (Windows10) in "Username" and "Password" respectively.

Network storage		
Host		
192.168.3.30		
Share		
share		
Security 🔨		
The share requires login		
Username		
melco		
Password		
•••••		
SMB version Auto		
	Cancel	Connect

5. Click the [Connect] button.

Network storage		
Host		
192.168.3.30		
Share		
share		
Security 🔨		
The share requires logi	n 💶	
Username		
melco		
Password		
•••••		
SMB version Auto		
	Cancel	Connect

6. When the connection is succeeded, the status of the general-purpose personal computer (Windows10) is displayed.

Network storage
Server (55.3 GB) Host: 192.168.3.30 Share: share Free: 32.5 GB Status: Unable to record
Onboard storage Format new cards to ext4
Recordings 0 Recordings

7. When the connection fails, the following window appears. Return to step 4 to correct the settings.

Connection failed
Couldn't connect to network storage. Check host address, share, username and password and try again.
Close

8. Set the saving period of the video files in "Keep recordings up to".



Point *P*

When the general-purpose personal computer (Windows10) runs out of space, the old recording files will be deleted regardless of the specified saving period.

4.2 Programmable Controller Setting

Parameter settings of the CPU module

Start GX Works3, set the IP address and subnet mask of the CPU module, and configure the event history, external device configuration, 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.

R16CPU Module Parameter		×
Setting Item List	Setting Item	
Input the Setting Item to Search	Item	Setting
Event the Setting Item to Search Image: Setting Conv Node Settings Image: Conv Node Settings	Own Node Settings Parameter Setting Nethod P Address Subret Mask Desair Calendary Nethod No. Setting Nethod No. Setting Nethod No. Setting Nethod Ore-init IEF Basic Settings To Use or Not to Use Co-Link IEF Basic Setting Network. Configuration Settings To Use or Not to Use Co-Link IEF Basic Setting Network.Configuration Settings External Device Configuration External Device Configuration Set the information of the own node such as IP address.	Parameter Editor Parameter Editor 192. 168. 3. 39 Disable Ube IP Address Disable AII (SLMP) Binary Do Not Open by Program Not to Use (Oberlaided Setting> (Oberlaided Setting>
Daw List Find Result	Check_ Restore the Default Sett	v
IGHT LIST THE PARAME		Apply

Point P

- 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 25 Network Camera Setting

Event history setting

Operating procedure

- 1. To save device/label operations in the event history, set the following item to "Save".
- ℃ [Navigation] window ⇔ [Parameter] ⇔ CPU module to be used ⇔ [CPU Parameter] ⇔ [RAS Setting] ⇔ [Event History Setting]

R16CPU CPU Parameter				*
Setting Item List		Setting Item		
	LAN I	Item	Setting	^
input the Setting Item to Search	m	File Name Specification Incorrect	Stop	_
		Operation Error	Stop	
		Memory Card Error	Stop	
R Name Setting		Module Verification Error	Stop	
Operation Related Setting		Fuse Blown	Stop	
🖶 🚰 Interrupt Settings		Synchronous Interrupt Execution Interval Error (CPU Module)	Stop	
🐵 🔤 Service Processing Setting		ELED Display Setting		
🖶 🧱 File Settine		ERROR LED		
Memory/Device Setting		Minor Error (Continue Error)	Display	
RAS Setting				
Constant Scan Setting		Annunciator ON	Display	
Error Detections Setting		Hep BATTERY LED		
CPU Module Operation Setting at Error Detected		Battery Error	Display	
LED Display Setting		- FUNCTION LED		
Event History Setting		Eurotion to use ELINCTION LED	Data Loreine Function	- 11
🖻 🕎 Program Setting		Event History Setting		
Britank Setting		Save Destination	Data Memory	
Register Setting between Multiple CPUs Register Setting		Storage Capacity Setting per File	128 K Byte	
1 A Pouring Serring		Save Device/Label Operations	Save	~ ~
		Explanation		
		Set whether to 'Save' or 'Not to Save' device/label operations.		~
				~
Them List Find Result		Check Restore the Default Settings		
				_
			Apply	

Point P

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

Page 79 Event History Function (Saving Device/Label Operations)

External device configuration

Configure the settings of the network camera to be connected to the programmable controller.

Operating procedure

- **1.** Display the Ethernet configuration window.
- (Navigation) window ⇒ [Parameter] ⇒ [RCPU] ⇒ [Module Parameter] ⇒ [Basic Settings] ⇒ [External Device Configuration]
- 2. Select "Active Connection Module" in the module list, and drag and drop it to "List of devices" or "Device map area".

3. Set "Communication Method" of the set "Active Connection Module", "Port No." of "PLC", "IP Address" and "Port No." of "Sensor/Device", and "Existence Confirmation".

4. Click the [Close with Reflecting the Setting] button.

(]	thern	t Conf	iguration (Built-in Ethernet Pe	ort)													-		×
EtH	ernet	Config	uration Edit View Close	e with Discarding th	ne Settin <mark>i</mark>	Close with Refle	ecting the Setting												
	_	-														Module List			×
		D	etect Now													Ethernet Selection Find Module	My Favorites		
						Ewed Buffer	PLC				Sensor/De	vice				記 24 1 部 1 小 12 × -			
_		No.	Model Name	Communication	Protocol	Send/Receive	TD Address	Deck No.	MAC Address	Linet Name	TD Address	Dest No.	Cube et Made	Default	Existence Confirmation	Ethernet Device (General)		
				Hechou		Setting	IP Address	Port No.	MAC Address	Host Name	IP Address	POR NO.	Subnet Mask	Gateway		MELSOFT Connection Mo	dule	-	
-			Host Station		-	-	102 168 2 20									📲 🚔 SLMP Connection Module		-	
	e 🗄	1	Active Connection Module	Socket Communi	TCP		192.168.3.39	1			192.168.3.42	80			KeepAlive	UDP Connection Module		-	
																OPS Connection Module		-	
																Active Connection Module	9	-	
																Unpassive Connection Mo	dule	-	
																Fullpassive Connection M	odule	-	
																MODBUS/TCP Connection	n Module	-	
																Ethernet Device (Mitsubi	shi Electric Corp	oration)	
																GOT2000Series			
	_															Inverter(FR-A800 Series	es)		
			Connection No.1													Inverter(FR-F800 Serie	es)		
			NO.1													Servo Amplifier(MELSE	RVO-J4 Series)		
Ê.	5															Ethernet Device (COGNEX)		
Co	nnect	ed Cou														COGNEX Vision System			
nt	1		A													Ethernet Device (Panaso	nic Industrial De	vices SU	JNX)
																🗉 Laser Displacement Se	nsor		
			Active接続																
			化炭石油																
			<												>				
			. ()																
	P	Din																	

Match the IP address and port No. of the sensor/device with the setting of the network camera set in the following.

Page 25 Network Camera Setting

5. Click the [Apply] button of the module parameter.

R16CPU Module Parameter		x
Setting Item List	Setting Item	
Eput the Setting Item to Search Image: Search	Item Own Node Setting Parameter Setting Method P Address P Address Default Gateway Communications by Network. No./Station No. Setting Method Network. No. Setting Method Network. No. Station No. Enable/Disable Online Change Communication Data Code Opening Method OC-Link IEF Basic Settings To Use or No Ito Use CoC-Link IEF Basic Setting Network. Configuration Settings Refresh Settings External Device Configuration	Setting Parameter Editor 192 . 188 . 8 . 89 Use IP Address Disable Use IP Address Disable All (SLMP) Binary Do Not Open by Program Not to Use (Detailed Setting> (Chetailed Setting>
Item List Find Result	External Device Configuration Explanation Set external devices to be used for communications. Ohieck_ Restore the Default Set	(Detailed Setting)

Clock settings

Set the clock data of the programmable controller.

- **1.** Display the clock setting window.
- \bigcirc [Online] \Rightarrow [Set Clock]
- **2.** Check and enter the time, and click the [Execute] button.

Set Clock	<
PLC Time Zone	
Date Time Specify Execution Target	
Sun Mon Tue Wed Thu Fri Sat 25 26 27 28 29 30 31 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 29 30 1 2 3 4 5 29 30 1 2 3 4 5 1 12 12 3 4 5 6 7 8 9 10 11 12 13 14 1 1 22 23 24 25 26 27 28 29 30 1 2 3 4 5 6 7 1 16 17 18 19 20 21 23 24 25 26 27 28	
11/11/2020 10:59:48 AM Image: Construction of the set of the set Clock setting.	
Get Time from PC Get Time from PLC	
Execute Close	

Point P

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

Creating a program

To record videos with the camera, creating the following two programs are required: one for setting the clock data of the CPU module in the network camera and another for executing the video recording event set in the network camera. Using the FBs of the camera recording package makes creating the sequence programs easy.

Three types of FBs are provided. The following table lists the purpose of each FB.

Name	Description
M+CameraRecord_AXIS_SetTime_R (Clock setting)	Sets the clock data of the CPU module to the network camera connected to the CPU module.
M+CameraRecord_AXIS_EventTrigger_R (Video recording before and after trigger)	Records the video before and after the video recording trigger is turned on in the network camera connected to the CPU module.
M+CameraRecord_AXIS_VirtualInputControl_R (Video recording during trigger ON)	Controls the virtual input port status of the network camera connected to the CPU module to record video while the video recording trigger is on or before and after the video recording trigger is turned on. (Use this function mainly when recording video while the video recording trigger is on.)

For details on the FBs, refer to the following.

Camera Recording Package User's Manual

Registering the FB library

Register the FB library to be used to the program.

Operating procedure

1. Display the "Register Library to Library List" window.

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

📓 MELSOFT GX Works3 🛯 📲 📲 🚛 🚛 🚛 📭 👫 🚰 着 💷 🖝 💵 🏣 (CameraRecording [PRG] [LD] (Read Only) 128Step



2. Select the library (mslm file) of the camera recording package, and then click the [Open] button.



3. The FBs are registered to the library.

Element Selection	д ×
(Find POU) 🆓 🖄 📽 😨 🐼 🖄	×
User Library	
Library	
🖃 🛄 fb_CameraRecord_AXIS_r	
🖃 ز FB	
🗆 🛺 FBFILE	
M+CameraRecord_AXIS_EventTrigger_R_00C	Network IPcamera Recording Event
M+CameraRecord_AXIS_SetTime_R_00C	Network IP camera time setting FB
M+CameraRecord_AXIS_VirtualInputControl_R_00C	Network IPcamera Virtual Input

Program example

■Global label list

Define the global labels as follows.

	Label Name	Data Type	Class		Assign (Device/Label)		Initial Value		
1	bSetTime_EN	Bit	 VAR_GLOBAL	Ŧ				1	
2	uSetTime_ConnectionNo	Word [Unsigned]/Bit String [16-bit]	 VAR_GLOBAL	Ŧ			1		
3	sSetTime_UserName	String(255)	 VAR_GLOBAL	Ŧ		1	root'	1	
4	sSetTime_PassWord	String(255)	 VAR_GLOBAL	•		1	MELSEC0000'		1
5	bSerTime_END	Bit	 VAR_GLOBAL	•				1	
6	bSerTime_OK	Bit	 VAR_GLOBAL	Ŧ	*1				
7	bSerTime_Err	Bit	 VAR_GLOBAL	•				1	*0
8	uSetTime_ErrID	Word [Unsigned]/Bit String [16-bit]	 VAR_GLOBAL	•					°Z
9	bEventTrigger_EN	Bit	 VAR_GLOBAL	٠				1	
10	uEventTrigger_ConnectionNet	Word [Unsigned]/Bit String [16-bit]	 VAR_GLOBAL	•			1		
11	sEventTrigger_UserName	String(255)	 VAR_GLOBAL	•		1	root'	1_	
12	sEventTrigger_PassWord	String(255)	 VAR_GLOBAL	Ŧ		1	MELSEC0000'	1	
13	uEventTrigger_VirtualInputPo	Word [Unsigned]/Bit String [16-bit]	 VAR_GLOBAL	Ŧ				1	
14	bEventTrigger_END	Bit	 VAR_GLOBAL	•					
15	bEventTrigger_OK	Bit	 VAR_GLOBAL	Ŧ					
16	bEventTrigger_Err	Bit	 VAR_GLOBAL	Ŧ					
17	uEventTrigger_ErrID	Word [Unsigned]/Bit String [16-bit]	 VAR_GLOBAL	-				1	

*1 The initial value is the connection No. of the active connection module set in the external device configuration.

*2 The initial values are the user name and password set when the network camera is started up for the first time. SP Page 25 Initial start-up setting

Point P

Although labels are used in this sample program, devices can be created as well.

■M+CameraRecord_AXIS_SetTime_R

The clock data of the CPU module is synchronized with the network camera five seconds after the program is run.



(4)	Set the user name of the network camera set in the following.
(5)	Set the password of the network camera set in the following.
	🖙 Page 25 Initial start-up setting

■M+CameraRecord_AXIS_EventTrigger_R

Turning on the file saving trigger device executes the video recording event set in the network camera.



Page 32 Rule settings

Writing

Write the project to the programmable controller.

Page 18 Writing

4.3 GX VideoViewer

The video recorded with the network camera can be replayed in GX VideoViewer by Mitsubishi Electric. This section describes how to use GX VideoViewer.

Add log markers to positions assumed to be the causes of the device error occurrence, and read the log marker information file (*.vms) in GX Works3. This adds the log markers added in GX VideoViewer to the seek bar of the offline monitoring in GX Works3 and allows the program operation to be checked in synchronization.

Operating procedure

1. When GX VideoViewer (GVViewer.exe) is executed, a window for selecting a video to be opened appears.*1



*1 Video can be opened by selecting the following items.

‴⊘ [File] ⇔ [Open]

I MELSOFT GX VideoViewer							
File	View Help						
	Open						
	Close Selected Video File						
	Close All Video Files						
	Exit						

2. Replay the video with the **b**utton.



3. Make a log marker at any position in the video with the $\mathbf{\overline{Q}}$ button.



A bar in a color other than red indicates the position where the log mark is made.

Point P

The frame-by-frame playback can be performed in the positions where the log markers have been made with the \leftarrow and \rightarrow buttons.

When using two or more cameras

When using multiple cameras, use the log marker information read function to check the video of each camera at the same time.

The following describes an example. By reading the log marker added in the video of Camera A to the video of Camera B, a log marker is added to the position at the same time to check.

Operating procedure

1. Adding a log marker to the video of Camera A creates a log marker information file (*.vms) in the same folder as the video recording file.



2. Open the video of Camera B with the one of Camera A opened.



3. Select the replay window for the video of Camera B, click the [Read Log Marker information] button.



The selected window is surrounded by a light blue frame.

4. Open the log marker information file (*.vms) described in step 1.

5 OFFLINE MONITOR FUNCTION

This chapter describes the offline monitor function for monitoring the data recorded by the system recorder offline. This function reproduces the status at the during the error on the engineering tool by using the device/label data and event histories saved in the programmable controller (recorder module) to replay the trouble on the offline monitor. The following describes how to start the offline monitoring.

Operating procedure

- 1. Use the recording file saved in " Page 21 Recording" to perform the offline monitoring.
- (Recording) ⇒ [Start Offline Monitor] ⇒ [Recording File]

Rec	ording	Diagnostics	Tool	Window Help
	Recor	ding Setting	•	夜 民 民 [🎧 🎇 🗦
	Read	Recording File		
	Start (Offline Monitor	•	Recording File
	Stop (Offline Monitor		Logging File
	GOT)ffline Monitor	×	Memory Dump

2. Select the recording file to open.

📙 Open					×	
← → × ↑ 📙 → Th	is PC > Desktop > 1TS01_001 >	•	Search 1TS	601_001	Q	
Organize 🔻 New fold	er			···· ·	?	
	Name	Date modified	Туре	Size		
> 🐙 Quick access	DEV	11/11/2020 1:24 PM	File folder			
> 📥 OneDrive	EVT	11/11/2020 1:24 PM	File folder			
Y This PC	PRJ	11/11/2020 1:24 PM	File folder			
> 1 3D Objects	REO	11/11/2020 1:24 PM	File folder			
	record.melrc	11/11/2020 1:24 PM	MELRC File	1 KB		 Select the MELRC file.
> Desktop						
> Documents						
> Uownioads						
> J Music						
> E Pictures						
> 📑 Videos						
> 🏪 Local Disk (C:)						
> 💣 Network						
File n	ame: record.melrc		~ Recording	g File(*.melrc)	\sim	
	L		Oper	n Connect		 Click the [Open] button

3. The offline monitoring starts.

MELSOFT GX Works3 C:\Users\010	7\Desktop\1TS01_007\record.melrc - [ProgPou [PRG] [LD] Monitoring (Read Only) 7Step]	– 🗆 ×	
Project Edit Find/Replace Con	vert View Online Debug Recording Diagnostics Tool Window Help	_ 8 ×	
i 🗅 📂 💾 🎒 😢 🖉		1 🖦 🕒 🥥 🖉 📲 🐘 👘	
🔁 📾 🕾 🖃 📾 🛲 🖼	했고 🖼 🧱 🔐 🚱 🕒 🦑 🌭 🐨 🛯 🗖 📭 📮 🗄 💷 💷 🗐 👫 🖕		
:;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;	爲 許將毀毀 離離毀毀 壽志為 ● 강경영 열 월 동 등 등 정정 빈영 백祉 🔒 & 정월 험람들	일 문 22 밤 뿜 .	
🔚 Navigation 🕂 🗜	n) ProgPou [PRG] [LD] Monitorin ×	े े च Event History (Offline Monitor) म ×	
§ 📭 🖭 🌣	Kedu - 1 2 3 4 5 6 7 8 9 10 11 12	+Refine Event History(D)	
All •	ErrorCause1 DeviceError	Occurrence Date Status Even ^	
Project		2020/06/16 15:41:14.819 () H24E	
. Module Configuration	ErrorCause2	2020/06/16 15:41:10.929 (*) H001	
🚆 🕱 🌄 Program		2020/06/16 15:41:10.922 🕠 H240	
E Cabel	ErrorCause3	2020/06/16 15:41:10.921 🚯 H24E	
😫 🖬 🦉 Device		2020/06/16 15:39:57.061 () H240	Event history
🚊 🗉 🛃 Parameter	ErrorCause4	2020/06/16 15:39:49 725	Evenit history
gent		2020/06/16 15:39:49.111 () H240	(Offline monitor)
-		2020/06/16 15:39:49.115 🕠 H001	(
otion	5 (5)	2020/06/16 15:39:49.110 🕠 H24E	
Moo		2020/06/16 15:39:38.413 () H001	
<u>ste</u>		2020/06/16 15:39:36.434 H001	
Moni		> 2020/06/16 15:39:31.094 () H001	
₫ 		2020/06/16 15:39:31.085 🕠 H241	
	Seek Bar	2020/06/16 15:39:26.533 () H241	
	Log Marker • Ye - TC • 2. Ste	2020/06/16 15:39:11.305 () H004	
	2020/6/16 15:41:10.920 Index: [36915 / 43076] File Saving Trigger: Setting No.1. No.1	[Oncention initiates information]	
		Connection port Ethernet	
		IP address :192,106.5,100	O a ala h an
			- Seek bar
		<	
💖 Watch 1 🛯 📽 Intelligent Func	ion Module Monitor 3 🏙 Dataflow Analysis		
	R16 Offline Monitor 5/7 Step	Overwrite CAP NUM	

■Seek bar

The seek bar is a function for specifying the index (serial number to be recorded in the recording file per scan) of the data to be monitored.

The seek bar can apply the specified index or the monitor value of the index to the linked monitor screen, "Event History (Offline Monitor)" window, and GX LogViewer.

■Event history (offline monitor)

The event information (error information, operation history, system information, and current value change history) stored in the recording file being monitored can be checked.

Point P

By operating the slider of the seek bar, the event information of the specified index can be checked. In addition, selecting the event information whose background color is light green moves the slider of the seek bar to the corresponding index and applies the monitor value of the index to the monitor screen.

Displaying waveform data

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.

🏹 Shortcut menu displayed by right-clicking ⇒ [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.

GOT offline monitor

The same monitor screen of the GOT as the one at the error occurrence can be displayed and checked.

Operating procedure

- 1. Start the offline monitoring. (Page 51 OFFLINE MONITOR FUNCTION)
- 2. Start the GOT offline monitor.
- "[Recording] ⇒ [GOT Offline Monitor] ⇒ [Start]



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

Open Project					×	
Look in:	GOT Offline M	onitor 🗸 🗸	G 🤌 📂 🛄 -			
<u>_</u>	Name	^	Date modified	Туре	1	
-X Ouick accord	sample 🕞		11/9/2020 4:15 PM	GT Designer3 (GO	
QUICK access						
Desktop						
1 1 1						
Libraries						
~~						
This PC						
						
Network						
	<				<u> </u>	Click the
	File name:	sample			pen	[Open] button.
	Files of type:	GT Designer3 Files (* GTX;* GTXS)		∨ Cs	ncel	
	0	and the second	· · · · · · ·			
	Open v	workspace format project	The format is available	in MELSOFT Nav	igator	

4. The GOT offline monitor is displayed.

GOT Offline Monitor [Untitled]	-		×
Project View Set Online Tool Resource File Viewer Help			
🖳 🖳 🎇 🅦 🐘 🎅 📟 🖕			
Base 1221 🔹 😋 💭 Window Overlap 1 🔹 - 👻 Language Switching	3 2	•	
Security 0 👻			-
[Designated Signal Monitor]			
		IN	OUT
Controller Power ON Servo ON			
Remote Mode Servo OFF			
Teach Mode Cycle Stop			
OP Mode To Waiting Position			
Operation Right 🗾 🔲 Low Battery			
Start Output Signal Reset			
Stop 🛛 📄 📕 Level Error			
Stop Signal Input			
Program Reset Caution			
Error Reset 🛛 📄 Device Error			
Ready			

Replay Function is synchronized with the seek bar (editor, event hirstory 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.



Replay Function is synchronized with the seek bar (GOT offline monitor)

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



At normal operation

At device error

Replay Function is synchronized with the seek bar (resource file biewer of the GOT offline monitor)

The time of the seek bar and events of the GOT (operation history and alarm history) can be synchronized mutually to replay the status of the site.



Jumps to the log at the same time as the time of the seek bar.

Jumps to the event at the same time as the resource file viewer.

6 DATA FLOW ANALYSIS FUNCTION

The data flow analysis function automatically creates a data flowchart from the GX Works3 program to visually display the execution conditions of a specific Device/Label.

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.



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

x X
M211 🔹 🔎 Setting View 🛛 Number of Rows to Display: 1 🖌 🔊 😴 🔓 😷 🗨 🕀 📿 100% 🕞 🕎
with the control of paper is a second of the control of t
nalvsis Result of Device/Label 'M211'

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



6.1 Overview of Data Flow Analysis

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.

7 OPERATION EXAMPLE

Chapter 3 through Chapter 6 describe the settings and how to start the functions of the record, reproduction, and analysis that are the three phases of the system recorder. This chapter describes examples of actual utilization of the system recorder.

7.1 How to Check the Recording Result

Replay the data sampled by the recorder module and video recorded by the camera to assume the error cause, and then dig deep into it by analysis.

Operation details

The inspection process of a print circuit board is used as an operation example.



Belt conveyor

- 1. Workpieces flow on the belt conveyor.
- 2. The sensor detects the flowing workpieces and measures their heights to judge them as passed or failed products.
- **3.** If any of the four causes are enabled, such as failed product generation and detection of multiple workpieces, a device error occurs.

Device error cause



4. The device error triggers the saving operation of the data sampled by the recorder module in the SD memory card and video of the network camera in the general-purpose personal computer (Windows10).

Analysis procedure

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

The following describes the analysis procedure.



- In GX LogViewer, check the cause of the device error set as the saving trigger has turned on.
- 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.
- After the execution condition is determined, make a log mark at the position where the operation, which is the execution condition, is performed in GX VideoViewer, and add the log marker information to the seek bar in GX Works3.
- O Check the device which is the execution condition of the error cause in the program of GX Works3. By clicking a device in the data flow analysis screen, the program where the clicked device is used can be displayed.
- **6** Check the operation of the displayed program and GX LogViewer.

Synchronous playback of GX Works3 and GX LogViewer

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

Operating procedure

- 1. Start the offline monitoring. (SP Page 51 OFFLINE MONITOR FUNCTION)
- **2.** Double-click "File Saving Trigger Establishment" in the event history to open the program of the file saving trigger establishment condition.
- At this time, one of the four devices that are a condition of the error device cannot be determined.



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





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





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.



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 error cause device/label. (SP Page 59 DATA FLOW ANALYSIS FUNCTION)

C Right-click ⇔ [Dataflow Analysis]

Device to be the basing point

Read Mntr	×		2	3	4	5	6	7	8	9	10	11	12
10	(44	FailedProductArrival	ailedProdu	M99									DeviceError
11													
12		HomePositionNotDetected											
13		ConveyortimeOut											
14		DeviceError											
<													ProductPassing
Dataflow Analy	affow Analysis[Monitoring]												



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



Expand items on the left side.

3. It is determined that comparing the workpiece height real number and failed product detection threshold is the execution condition of the failed product pass flag enabled the failed product arrival..

Adding log markers in GX VideoViewer to GX Works3

Add log markers to the positions where the program operation is to be checked in GX VideoViewer, and synchronize the positions with the seek bar in GX Works3.

Operating procedure

1. Since it has been determined that the workpiece height real number has effects in the data flow analysis, make log marks at the positions where the workpiece heights are measured in GX VideoViewer. (Page 47 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).

📴 Open						×
← → · ↑ 🔤 « 2020	0421_150041_0BCC_ACCC8EF71238 > 20200421_15	~ Ū	Search 20200421_15		ļ	Q
Organize 👻 New folder						?
 Quick access OneDrive This PC Network 	20200421_150041_A5C9.mkv.vms					
File nan	ne:		 Log Marker Open 	Information F	file (*.l \ ancel	× .:

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

∑ [Log Marker] ⇒ [Read from GX VideoViewer]

Seek Bar				
Log Marker 🔹 🖖 🔧 文 🔆				
Read				
Read from GX VideoViewer	Index:[<u>10189</u>	/	37827]
Edit Comment/Color				П
	-			U

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

Jump to a device/label

Check the workpiece heights at the positions where the log markers are made.

1. Double-click the workpiece height real number in the data flow analysis.



2. Jump to the label in which the workpiece height read with the sensor is stored.



3. With the frame-by-frame playback of the positions where the log markers have been made. Check the workpiece height at each position where the log marker has been made.



The frame-by-frame playback can be performed at the positions where the logo marks are made. **4.** It is determined that the workpiece height at one position is a little higher than the others.

WorkpieceH··· 17.680	E>	FailedProdu *** 17.192	
•••	WorkpieceA		
	WorkpieceA		
Layering in GX LogViewer

Display the workpiece height in a waveform in GX LogViewer to check.

Operating procedure

- 1. Display the failed product detection threshold and workpiece height real number in waveforms in GX LogViewer.



2. Layer the waveforms of the failed product detection threshold and workpiece height real number.

Waveform of the workpiece



3. It is determined that one workpiece was judged as a failed product since its height was higher than the threshold, and the error occurred.

7

APPENDIX

Appendix 1 Troubleshooting

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

Errors in the recorder module

The following shows the checking methods of errors which may occur in the recorder module and troubleshooting.

Error checking method

The following two checking methods of errors are provided for the recorder module.

System monitor of the engineering tool

Operating procedure

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

Diagnostics	Tool	Window	Help			
System Monitor						
Sensor/	Device	Monitor				
Record	ing Mo	nitor				
Module	e Diagno	ostics (CPU	Diagnostics)			
Etherne	Ethernet Diagnostics					
CC-Lin	CC-Link IE Control Diagnostics (Optical Cable)					
CC-Lin	k IE Cor	ntrol Diagno	ostics (Twisted Pair Cable)			
CC-Lin	CC-Link IE TSN/CC-Link IE Field Diagnostics					
CC-Lin	CC-Link IEF Basic Diagnostics					
MELSE	MELSECNET Diagnostics					
CC-Lin	k Diagn	ostics				
Simple	CPU Co	ommunicati	ion Diagnostics			

2. Double-click the recorder module.



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

Module Diagno	ostics(Start I/O No. 00	00)						>
	Module Name		Producti	ion information		Supplementary Funct	Monitoring	
	RD81RC96 07046823F8210041			SD memory card opera	tion	~		
							Execute	Stop Monitoring
_						Display Format of Erro	or Code	
Error Information	Module Information List					O Decimal	۱	Hexadecimal
No. Occurr	ence Date	Status	Error	Overview				Error Jump
1 2020/11/	/11 11:08:32.948	♪	H1902	Recording Files	Saving E	rror		Event History
								Clear Error
								2 1
			•		Sv	/itch Display		Detail 🗶
Legend	🛓 Major 🛛 🧥	Modera	te 🔥	Minor		Error Details		Hierarchy Information
Detailed I	Information Recor	ding Op	eration Statu	us Information			•	
	Settin Trigg Trigg	g No. :1 er Type : er No. :1	:Device					
c	ause Failed	to save	recording fi	les because access	sing the S	D memory card failed.		
Correct	tive Action - Plea	se check	whether th	e SD memory car	d is insert	ed.		<u>,</u>
	- Plea - If th	se save f e write-p	protect switc	h of the SD memo	ory card	card is in the accessible s enabled, please insert	the SD memory ca	e). ard after disabling it.

■Buffer memory

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

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

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

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

Troubleshooting by symptom

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

Sampling target of the index modification

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

(5)	SM402	MOV	K1 00	Z0 100
(8)		MOV	K200	W0 200
(11)		MOV	W0 200	DOZO -1

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

Although D0Z0 = D100 is set here, D100 is not sampled automatically as well.

Device/Label	evice/Label Sampling Target List — 🗆 🗙							
Sampling Target Device List ————————————————————————————————————								
No.	Device/Local Devic	e Start Device	End Device	Points (Decimal)	Size [Word]			
▶ 1	Device	MO	M511	512	32			
2	Device	D0	D31	32	32			
3	Device	W0	W1F	32	32			
4	Device	SM0	SM1023	1024	64			
5	Device	SD1504	SD1535	32	32			
6	Device	ZO	Z19	20	20			
7	Device	LZ0	LZ1	2	4			
Sampling Ta	arget Label Size List		_	_	_		-	_
	abel Type	Size [Word]						
Giobal Labe		16760						
Module Lab	el	0						
*The Global Label/Module Label to which the device is assigned is collected as a device.								
Sampling Si 1	ze (Overall) 7768 [Word]						Clo	se

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]

Device Indivi	dual Specification					-		×
Device Indi	ividual Specification							
No.	Device/Local Device	Start Device	End Device	Points (Decimal)	Sampling Target	Size	[Word]	
1	Device -	D100	D100	1	D96 to D127		32	
▶ 2	•							
								_
Sampling S	ize (Device Individual Specificatio	in)						
	32 [Word]					OK	Cano	;el

Errors related to camera recording

The following shows the checking method of errors which may occur in use of the camera recording package and troubleshooting.

Error checking method

Error codes are output from o_uErrld which is an output label of the FB. Connect a device/label to the output label, and check the output values.



Troubleshooting by symptom

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

Camera Recording Package User's Manual

■Unable to connect to the general-purpose personal computer (Windows10)

Check if a shared folder is created in the general-purpose personal computer (Windows10).

Operating procedure

- **1.** Create a new folder, and open its properties.
- C Right-click ⇒ [Properties]

Open	
 Pin to Quick access	
Scan with Windows Defender	
Give access to	>
Restore previous versions	
Include in library	>
Pin to Start	
Send to	>
Cut	
Сору	
Create shortcut	
Delete	
Rename	
Properties	

- **2.** Configure the detailed sharing settings.
- ∑ [Sharing] tab ⇔ [Advanced Sharing]

📕 share	e Properti	es			×
General	Sharing	Security	Previous Versions	Customize	
Netwo Netwo Not S	ork File and share Not SI ork Path: Shared	l Folder Sha	aring		
Advanced Sharing Set custom permissions, create multiple shares, and set other advanced sharing options.					

3. Select "Share this folder", and click [Permissions].

Advanced Sharing X
Share this folder
Settings
Share name:
share
Add Remove
Limit the number of simultaneous users to: 20
Comments:
Permissions Caching
OK Cancel Apply

4. Select "Full Control", and click the [OK] button.

Permissions for share		×
Share Permissions		
Group or user names:		
💐 Everyone		
	Add	Remove
Permissions for Everyone	Allow	Deny
Permissions for Everyone Full Control	Allow	Deny
Permissions for Everyone Full Control Change		Deny
Permissions for Everyone Full Control Change Read	Allow U U U	Deny
Permissions for Everyone Full Control Change Read		Deny
Permissions for Everyone Full Control Change Read		Deny
Permissions for Everyone Full Control Change Read	Allow U U	Deny
Permissions for Everyone Full Control Ohange Read	Allow U U	Deny
Permissions for Everyone Full Control Change Read	Allow U U	Deny

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 recorder module is added to the system configuration and the parameters are confirmed.

Page 9 Creating a New Project

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

R16CPU CPU Parameter				×
Setting Item List		Setting Item		
Insuit the Setting Item to Search	din.	Item	Setting	^
Input the Detting Item to Dealer		Operation Error	Stop	_
		Memory Card Error	Stop	-
		Module Verification Error	Stop	-
💀 🔚 Name Setting		Fuse blown Supervise Interrupt Eventition Interrupt Event (CBU Medule)	Stop	- 1
Operation Related Setting		IED Display Setting	atop	
Interrupt Settings				
File Setting		Minor Error (Continue Error)	Display	
E Memory/Device Setting		- USER LED		
🖨 🔯 RAS Setting		Annunciator ON	Display	
Scan Time Monitoring Time (WDT) Setting				
Constant Scan Setting		Battery Error	Display	
CPU Module Operation Setting at Error Detect	ed	FUNCTION LED		
LED Display Setting		Function to use FUNCTION LED	Data Logging Function	_
Event History Setting		Event History Setting		
Program Setting		Save Destination	Data Memory	- 11
Befresh Setting between Multiple CPUs		Save Device (Label Operations	Cause	
🗄 🤷 Routing Setting		Save Device/Laber Operations	oave	~
		Explanation		
		Set the event history because of saving the operation information t	or the error or module which is detected by the module.	^
				\vee
Item List Find Result		Chec <u>k</u> Restore the Defa <u>u</u> lt Settings		
			Apply	
,				

History target operations

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 (current value change operation)	Watch window				
	Device/buffer memory batch monitor				
	SFC diagram editor (activating and deactivating 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 are the saving targets.

■Label

79

All the label writing operations that can be specified with the engineering too (GX Works3 Version1.065T) are the saving targets.

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 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 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
Camera Recording Package User's Manual [BCN-P5999-1324]	Network camera settings, CPU module settings, and function blocks for the camera recording function
GX VideoViewer Version 1 Operating Manual [SH-082370ENG]	Basic operating procedure of GX VideoViewer and playback procedure of video files
GT Designer3 (GOT2000) Screen Design Manual [SH-081220ENG]	Operations and settings of GT Designer3, which is the 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]	Procedure for connecting the GOT2000 series to Mitsubishi Electric products such as the MELSEC iQ-R CPU

REVISIONS

Revision date	*Manual number	Description	
July 2020	L(NA)08732ENG-A	First edition	
November 2020	L(NA)08732ENG-B	■Added or modified part Screen changes due to the version upgrade of the engineering tool, Chapter 1, 2, Section 3.3, 3.4, Chapter 4, 5, 6, 7, RELEVANT MANUALS	
March 2021	L(NA)08732ENG-C	■Added or modified part RELEVANT MANUALS	

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

Japanese manual number: L-08728-D

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