Graphic Operation Terminal GOT2000 NEWS Vol.12

GOT2000 Series/MELIPC MI3000 Maintenance Solutions & Video Solutions
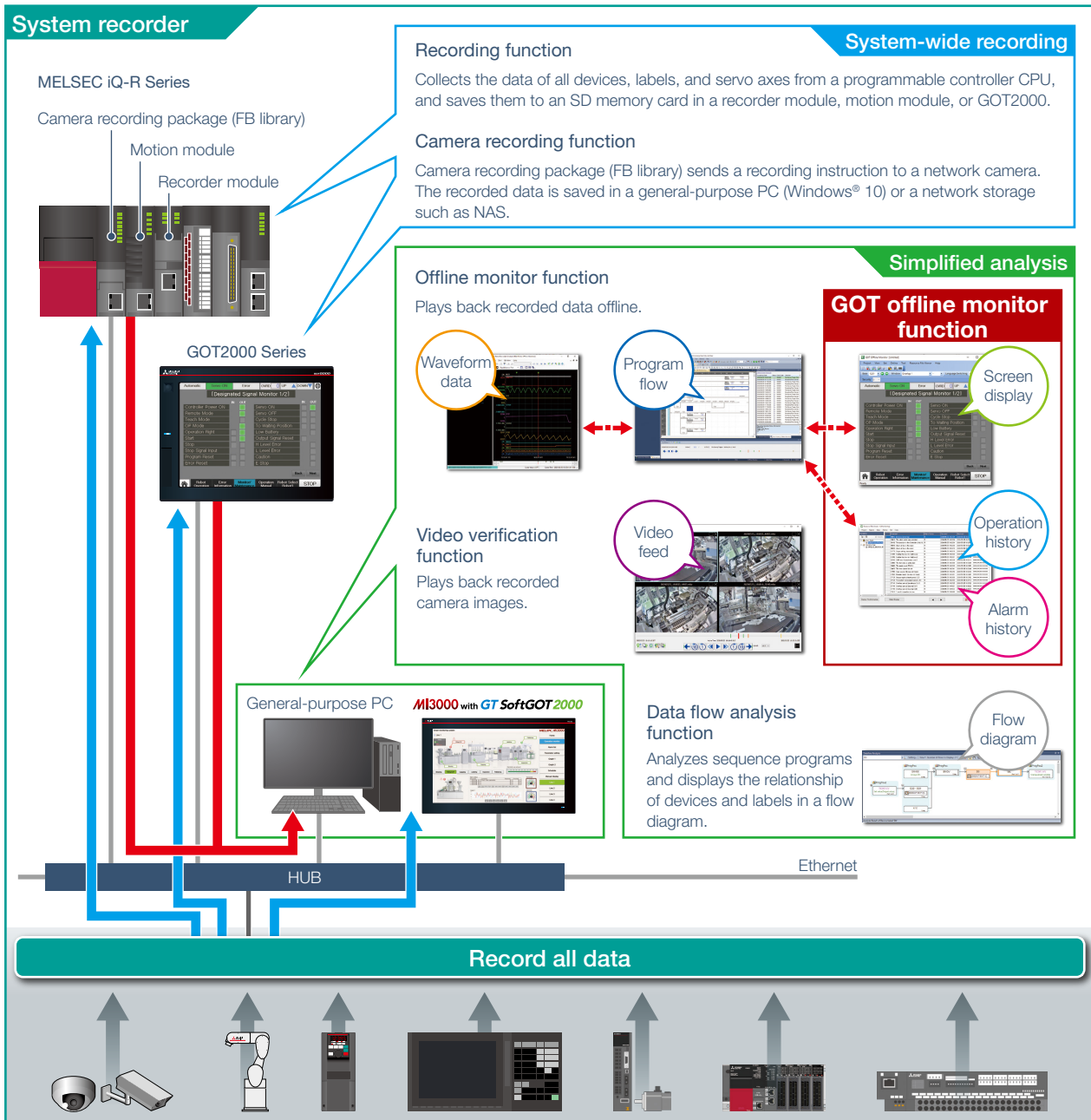

- System-wide recording of production at a problem occurrence
- Simplified analysis using data, waveform, and video feeds
- Support visualization with various video solutions

GOT2000 Series/MELIPC MI3000

Maintenance Solutions

Graphically monitor production at a problem occurrence and support corrective maintenance

The GOT offline monitor function reproduces the on-site GOT screen graphically with a dedicated tool on a personal computer by using device values of the data (recording file) that was recorded by the system recorder before and after a problem occurrence. The problem cause can be identified efficiently by associating historical alarms and operation logs with the state when a problem occurred at the shop floor.

System recorder

MELSEC iQ-R Series

Camera recording package (FB library)

Motion module

Recorder module

GOT2000 Series

System-wide recording

Recording function

Collects the data of all devices, labels, and servo axes from a programmable controller CPU, and saves them to an SD memory card in a recorder module, motion module, or GOT2000.

Camera recording function

Camera recording package (FB library) sends a recording instruction to a network camera. The recorded data is saved in a general-purpose PC (Windows® 10) or a network storage such as NAS.

Simplified analysis

Offline monitor function

Plays back recorded data offline.

Waveform data

Program flow

GOT offline monitor function

Screen display

Operation history

Alarm history

Video verification function

Plays back recorded camera images.

Video feed

General-purpose PC

MI3000 with GT SoftGOT 2000

Data flow analysis function

Analyzes sequence programs and displays the relationship of devices and labels in a flow diagram.

Flow diagram

HUB

Ethernet

Record all data
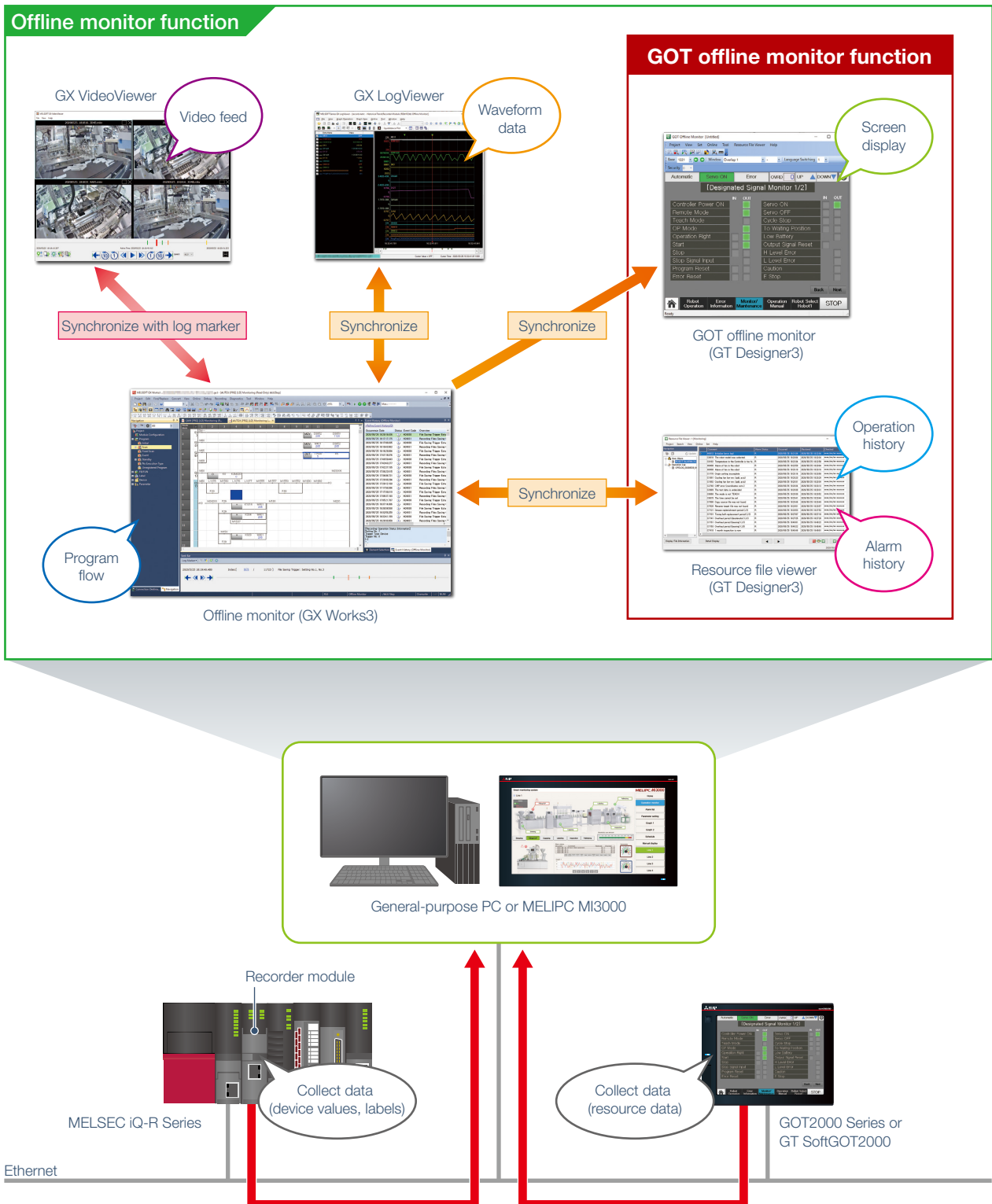
What is system recorder?

The system recorder is a corrective maintenance solution that ensures effective resumption of operations reducing downtime through its extensive system-wide data recording and simplified analysis software features.

★For the details, please refer to the iQ Platform-compatible PAC System Recorder catalog (L(NA)08736ENG).

Offline monitor function

Data (such as device values and labels) can be recorded by using the MELSEC iQ-R Series recorder module, and the changes in data values can be played back offline in a program or waveform display. Camera video feeds can be played back together to check the data in detail when a problem occurred on the shop floor. In addition, synchronizing the data with the GOT offline monitor function enables checking what happened at the shop floor with the data such as the GOT screen display, operation history, and alarm history having the same time stamp along with the flow of a program.

Offline monitor function

GX VideoViewer

Video feed

GX LogViewer

Waveform data

GOT offline monitor function

Screen display

GOT offline monitor
(GT Designer3)

Synchronize with log marker

Synchronize

Synchronize

Operation history

Program flow

Synchronize

Alarm history

Offline monitor (GX Works3)

Resource file viewer
(GT Designer3)

General-purpose PC or MELIPC MI3000

Recorder module

Collect data
(device values, labels)

Collect data
(resource data)

MELSEC iQ-R Series

GOT2000 Series or
GT SoftGOT2000

Ethernet

GOT offline monitor function

The GOT offline monitor function reads the project file from the on-site GOT to the GOT offline monitor (GT Designer3) on a personal computer, and provides the following two functions.
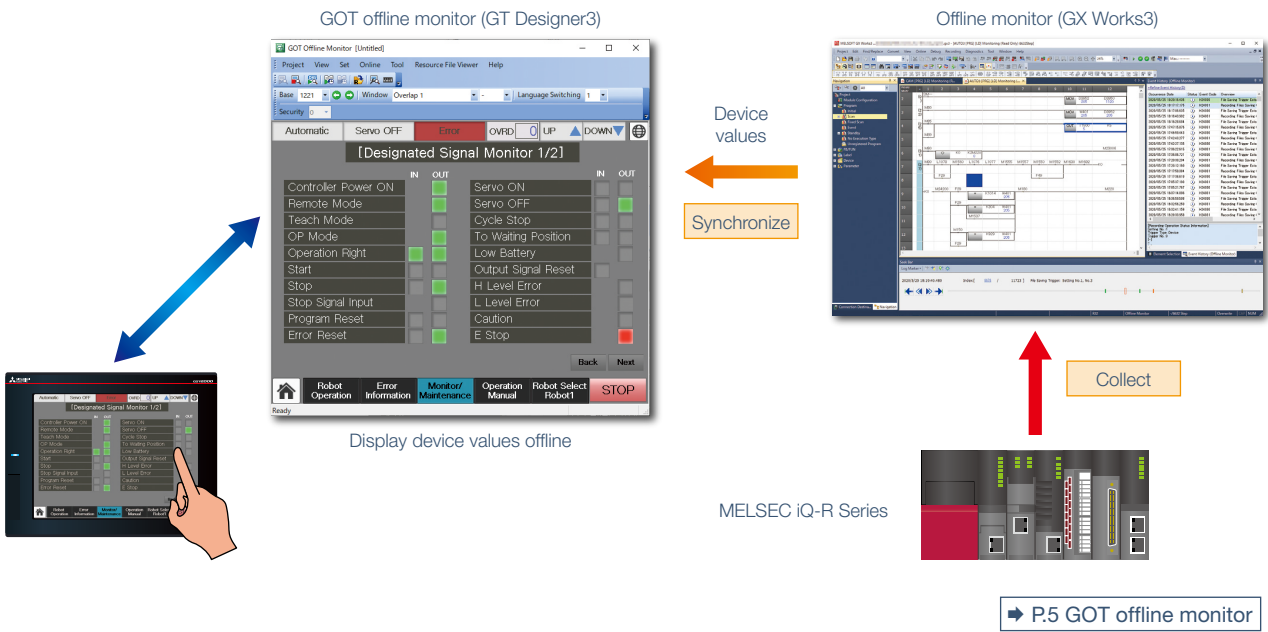
GOT offline monitor: Synchronizing the GOT project data with the offline monitor (GX Works3) and displaying the changes in device values.

Resource file viewer: Synchronizing the GOT resource file with the offline monitor (GX Works3) and displaying the changes in operation logs and alarms.

These can be used to check what happened at the shop floor when an error occurred by synchronizing the data such as device values, operation logs, and alarm history with the flow of a program.

Synchronized display of control panel screen and program

The GOT offline monitor graphically displays device values of the data (recording file) that was recorded by the system recorder before and after a problem occurrence on a personal computer.

GOT offline monitor (GT Designer3)

Offline monitor (GX Works3)

Device values

Synchronize

Display device values offline

Collect

MELSEC iQ-R Series

➡ P.5 GOT offline monitor

Synchronized display of equipment operation history, alarm history, and program

Synchronizing with the offline monitor (GX Works3) enables to jump back and forth between GX Works3 program monitoring and GT Designer3 resource file viewer. Operation logs and alarms of the on-site GOT (or GT SoftGOT2000) can be checked to monitor the shop floor.
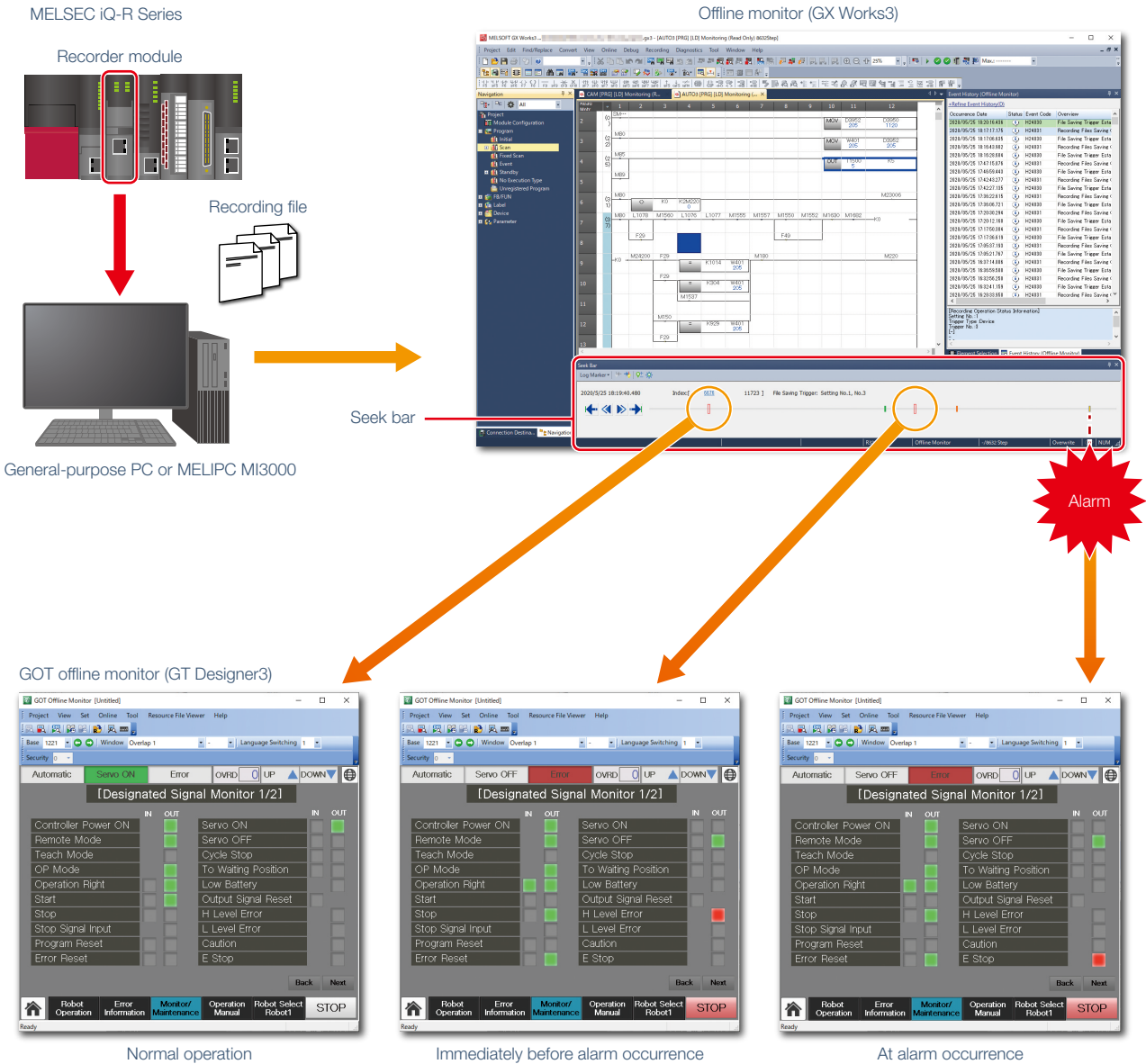
Offline monitor (GX Works3)

Resource file viewer (GT Designer3)

Display the resource data of the time indicated by the seek bar on GX Works3

Synchronize each other

Display the program of the time indicated by the event on the resource file viewer

Seek bar

➡ P.6 Resource file viewer
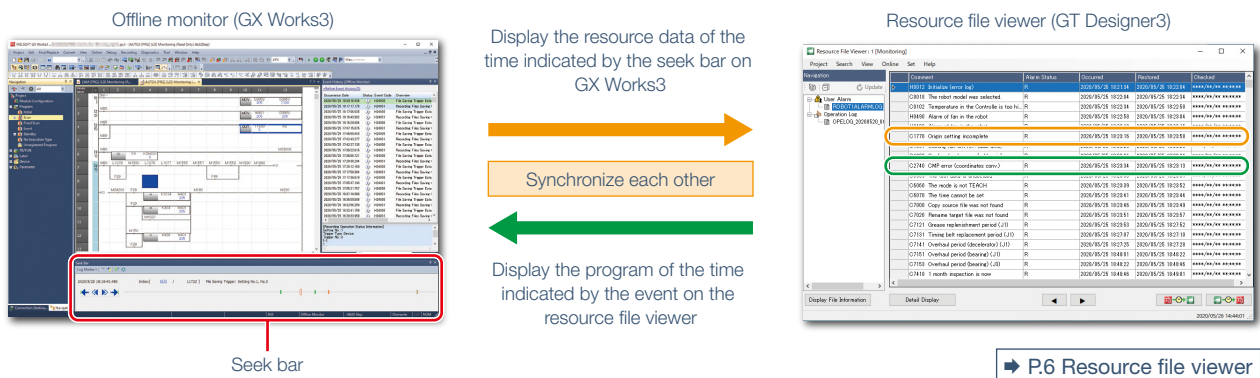
Synchronized display of control panel screen and program

◆ GOT offline monitor   NEW

| GT27 | GT25 | GT23 | GT21 | GS21 | SoftGOT |

The GOT offline monitor graphically displays device values of the data (recording file) that was recorded by the system recorder before and after a problem occurrence on a personal computer.

Since the operation screen and the program having the same time stamp can be reproduced along with the operation of the seek bar on GX Works3, the actual operation and the state of the equipment can be checked simultaneously, thus helping to identify the cause of the problem quickly.

MELSEC iQ-R Series

Recorder module

Recording file

General-purpose PC or MELIPC MI3000

Offline monitor (GX Works3)

Seek bar

Alarm

GOT offline monitor (GT Designer3)

Normal operation

Immediately before alarm occurrence

At alarm occurrence

■ Seek bar

Seek bar is the function to specify the index (consecutive number that is recorded for each scan of the recording file) of the data to monitor. Operating the slider on the seek bar enables to jump to the event information of the specified index, or jump to a tool that interacts with the offline monitor so that the data can be checked by synchronizing the time among recorded data.

Synchronized display of equipment operation history, alarm history, and program
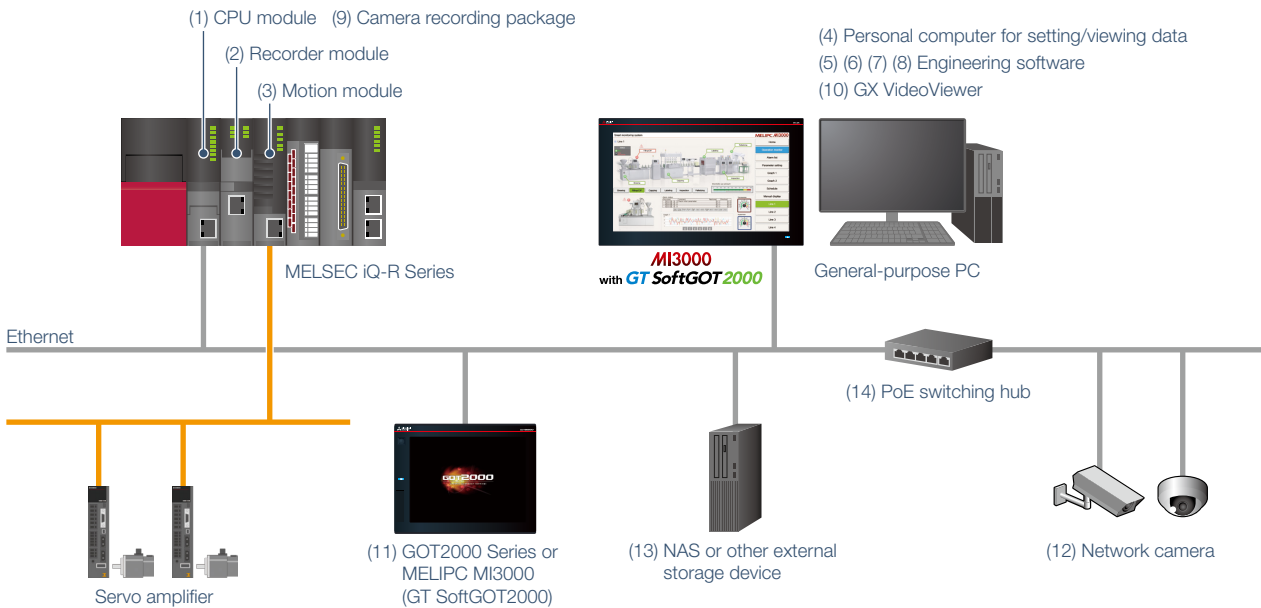
◆ Resource file viewer `NEW`

`GT27` `GT25` `GT23` `GT21` `GS21` `SoftGOT`

The resource file viewer displays the operation history and the alarm history from the resource files recorded on GOT. By synchronizing the time between the seek bar of the offline monitor (GX Works3) and the events (operation history, alarm history) on GOT, the relationship between the event data before and after an alarm occurrence and the flow of a program can be checked.

Offline monitor (GX Works3)

GX LogViewer

Event and waveform data
at an alarm occurrence

Seek bar

Jump to the operation/alarm history
having the same time stamp
indicated by the seek bar

Jump to the program that ran at the same time
as the operation/alarm history

Operation
history

Resource file viewer
(GT Designer3)

Jump to the data
having the same time
stamp as the seek bar

Jump to the data
having the same
time stamp as the
event

System configuration example

(1) CPU module   (9) Camera recording package

(2) Recorder module

(3) Motion module

(4) Personal computer for setting/viewing data
(5) (6) (7) (8) Engineering software
(10) GX VideoViewer

MELSEC iQ-R Series

MI3000 with *GT SoftGOT2000*   General-purpose PC

Ethernet

(14) PoE switching hub

Servo amplifier

(11) GOT2000 Series or
MELIPC MI3000
(GT SoftGOT2000)

(13) NAS or other external
storage device

(12) Network camera

Required items			
(1)	MELSEC iQ-R Series CPU module		Data of all devices and labels is collected from a programmable controller CPU with time stamps, and saved to an SD memory card in a recorder module.
(2)	Recorder module	RD81RC96	
(3)	Motion module	RD78GH RD78G	When an error occurs, data such as speed, torque, and positioning is automatically collected from MELSERVO-J5 Series servo amplifiers that are connected to a motion module, and saved to an SD memory card in the motion module with time stamps.
(4)	Personal computer for setting/viewing data	General-purpose PC + display or MELIPC MI3000	Used to make settings of the system recorder function and to check the recorded data.
(5)	Engineering software*1	GX Works3 (offline monitor)	Software to playback the recording file that was saved to an SD memory card in a recorder module.
(6)		GX LogViewer	Used to check the device state and servo axis data in a waveform display.
(7)		GT Designer3 (GOT offline monitor)	Software to graphically reproduce device values of the data (recording file) that was recorded by the system recorder before and after a problem occurrence on a personal computer.
		GT Designer3 (resource file viewer)	Software to display the list of operation history and alarm history from the resource files recorded on GOT.
(8)		GX Works3 (data flow analysis)	Software to analyze sequence programs and display the relationship of devices and labels in a flow diagram.
(9)	Camera recording package (FB library)*2*3		The camera recording package is a FB library that issues recording instruction to a network camera connected to the Ethernet port and records camera images by synchronizing with a CPU module. The recorded video feeds can be played back on GX VideoViewer.
(10)	GX VideoViewer*2		
(11)	GOT2000 or MELIPC MI3000 (GT SoftGOT2000)		Used to operate the control panel at the shop floor. Data such as the history of operations by operators and the errors of equipment is recorded to a resource file.
(12)	Network camera*3	AXIS® M1065-L, etc.	Used to obtain a camera image from the shop floor.
(13)	NAS or other external storage device		Used to save the recorded data and video feeds. The data can also be saved to a personal computer ((4) in the above) or an SD memory card in a recorder module.
(14)	PoE switching hub*4		IEEE802.3at (PoE+) supported

*1 GX Works3 Ver.1.065T or later, GX LogViewer Ver.1.106K or later, and GT Designer3 Ver.1.236W or later can be used.

*2 For the details of camera recording package (FB library) and GX VideoViewer, please contact your local sales office.

*3 For the supported network cameras, please refer to the Technical Bulletin "Network cameras supporting the Camera recording package" (FA-A-0306).

*4 PoE is an abbreviation of Power over Ethernet.

Network Camera and Video Solutions

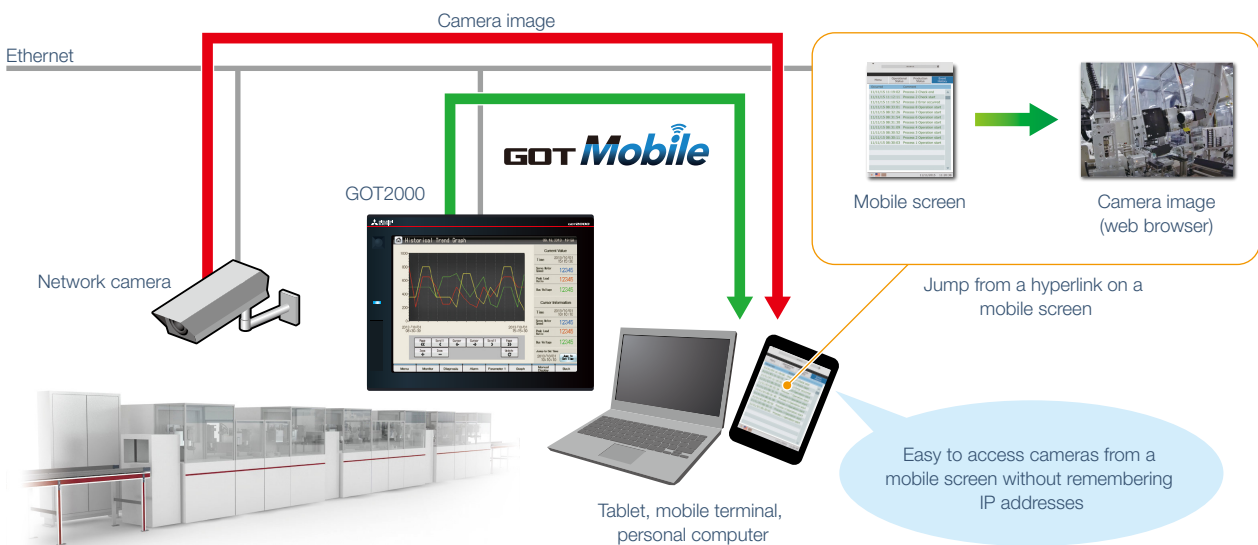## Record production at a problem occurrence and quickly analyze with video feeds

The GOT2000 Series provides various solutions using IP camera and video to meet the needs on the shop floor such as checking video feeds from a remote location and saving camera images before and after an error occurrence.

Checking camera images from a remote location

◆ GOT Mobile function hyperlink

| GT27 | GT25 | GT23 | GT21 | GS21 | SoftGOT |

Start a web browser on a personal computer or a tablet using the GOT Mobile function, and check live camera images and video feeds saved in a network camera on the browser. It is easy to access cameras without remembering their IP addresses by setting them on a mobile screen in advance.

Camera image

Ethernet

GOT2000

GOT *Mobile*

Mobile screen

Camera image (web browser)

Network camera

Jump from a hyperlink on a mobile screen

Tablet, mobile terminal, personal computer

Easy to access cameras from a mobile screen without remembering IP addresses

Checking video feeds collected by a personal computer on on-site GOT (Ethernet connection)

◆ Remote personal computer operation function (Ethernet)

| GT27 | GT25 | GT23 | GT21 | GS21 | SoftGOT |

The screen of a personal computer, which is playing back a video feed, can be displayed on GOT by setting the remote personal computer operation function license (paid) on the GOT.[*1]
In addition, if a setting application is built in a camera, camera settings such as zoom adjustment can be changed.

*1 A separate license (GT25-PCRAKEY) is required.

GOT2000

Remote personal computer operation function (Ethernet) license (VNC client license)

Desktop screen including camera image

Video playback and camera operation is possible only with Ethernet connection

Ethernet

Camera image

VNC server software

Personal computer

Network camera
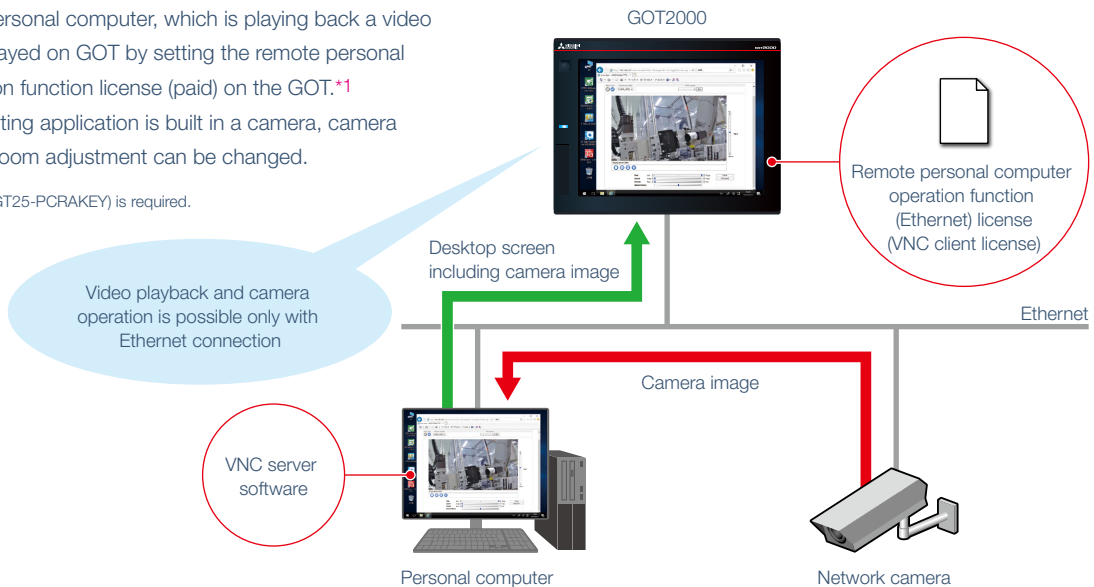
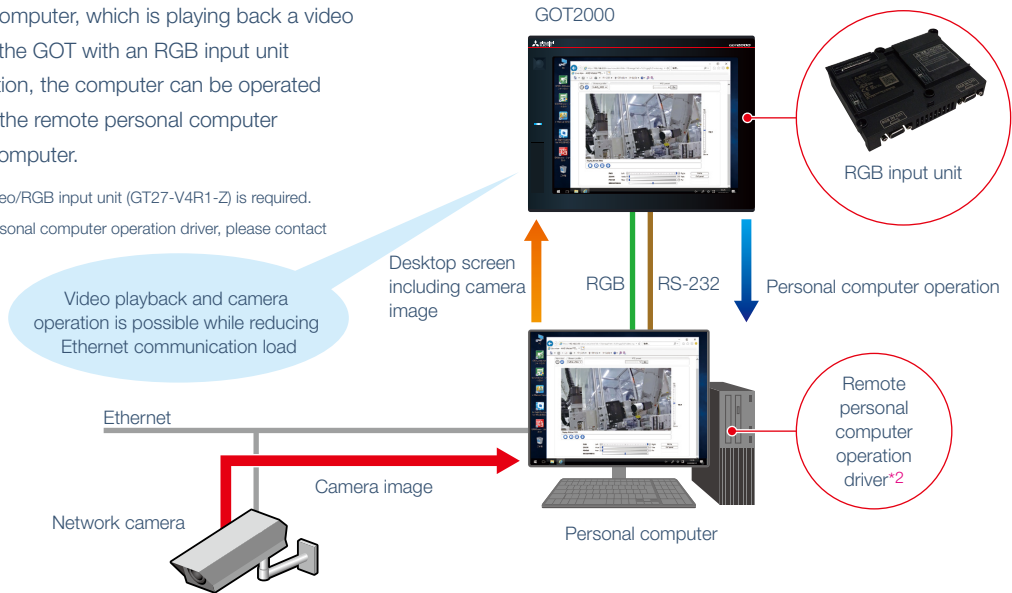# Checking video feeds collected by a personal computer on on-site GOT (RGB connection)

◆ RGB display function

| GT27 | GT25 | GT23 | GT21 | GS21 | SoftGOT | * Excluding GT2705 |

The screen of a personal computer, which is playing back a video feed, can be displayed on the GOT with an RGB input unit (option)*1 installed. In addition, the computer can be operated from the GOT by installing the remote personal computer operation driver*2 on the computer.

*1 RGB input unit (GT27-R2) or video/RGB input unit (GT27-V4R1-Z) is required.

*2 For the details of the remote personal computer operation driver, please contact your local sales office.

GOT2000

RGB input unit

Video playback and camera operation is possible while reducing Ethernet communication load

Desktop screen including camera image

RGB   RS-232   Personal computer operation

Remote personal computer operation driver*2

Ethernet

Camera image

Network camera

Personal computer

Recording on GOT by using an error as a trigger

◆ Multimedia function*1

| GT27 | GT25 | GT23 | GT21 | GS21 | SoftGOT | * Excluding GT2705 |

GOT displays and records the image taken by a video camera connected to the multimedia unit (installed on GOT) and plays back the video that is saved to a data storage. When an error occurs on an equipment, it can be used as a trigger to start recording and the video before and after the error can be recorded.

*1 Multimedia unit (GT27-MMR-Z) and CF card are required.

NTSC/PAL camera   Multimedia unit

Error!

Maximum 240 seconds can be saved

Error!

10 - 120 seconds before

10 - 120 seconds after

Event trigger device: ON (start recording)
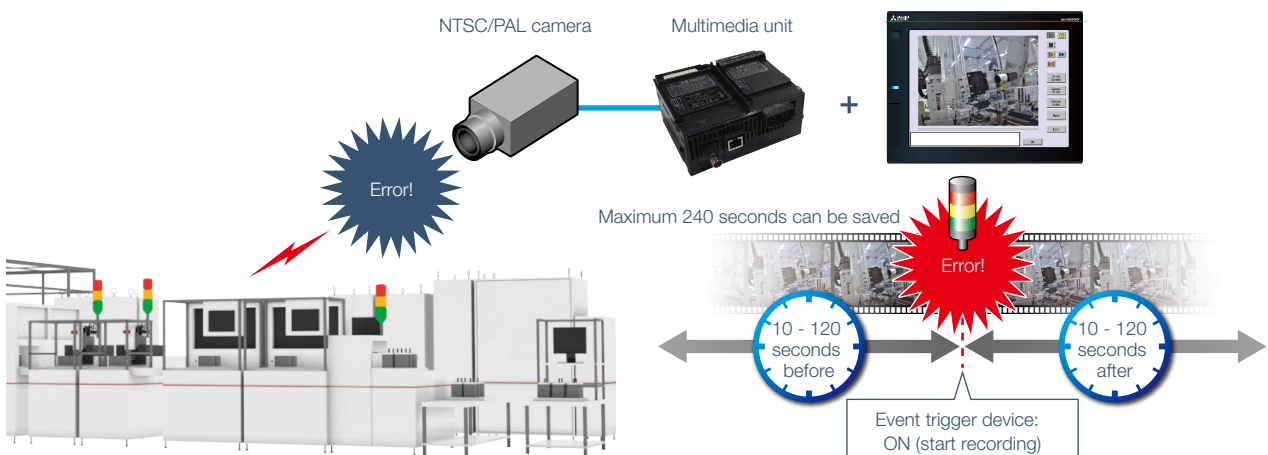
Easy to play video on the alarm display screen

Since the recorded data can be played back by linking it to the error that was set as a recording trigger, it is useful to analyze the cause of the error on the shop floor.

There is no need to create a screen to playback video feeds. The dedicated multimedia screen can be used.
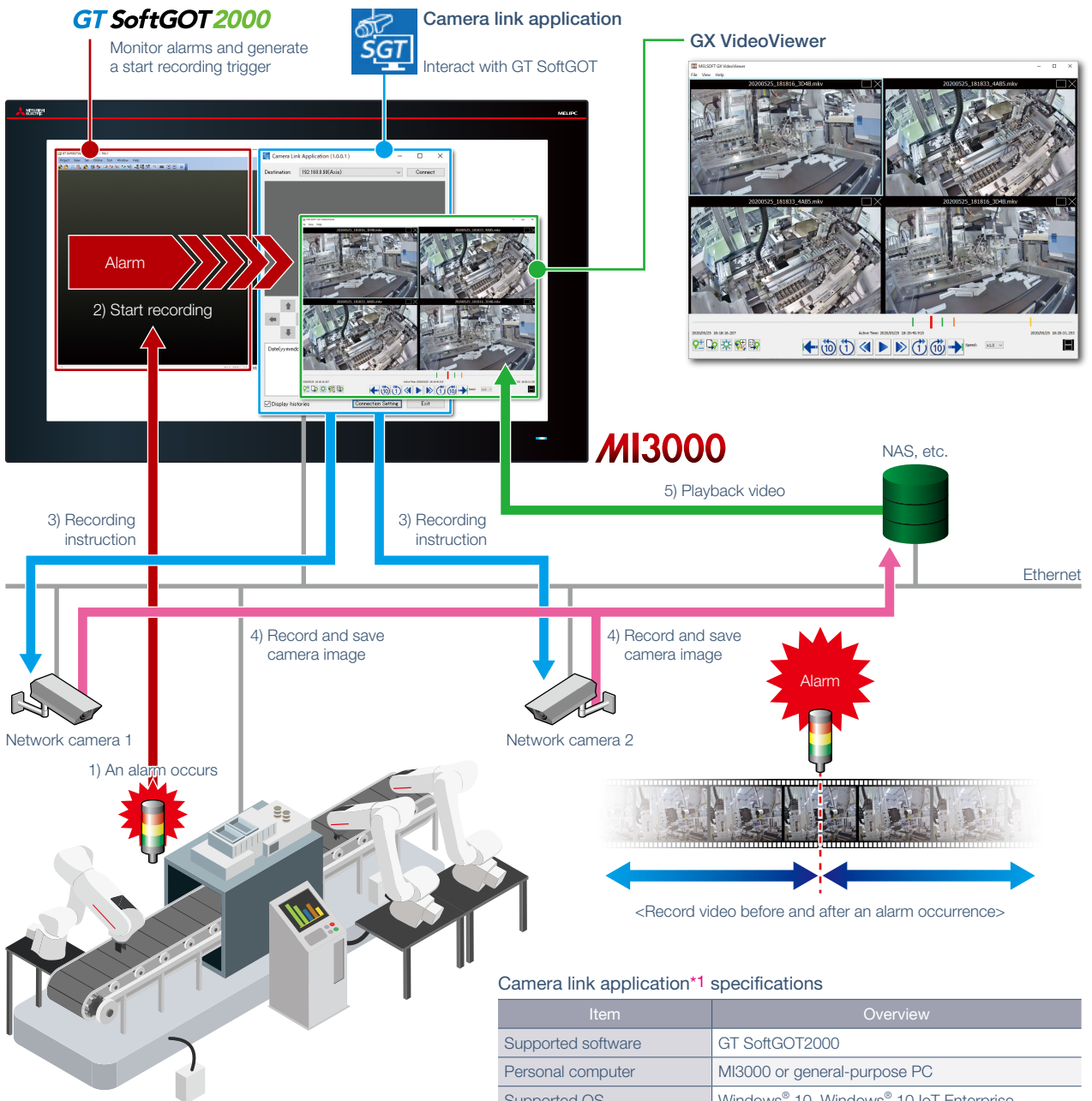
Alarm display screen

10/01/2013 10:00 Error B110
10/01/2013 10:10 Error B112
10/01/2013 9:55 Error B110

Video search
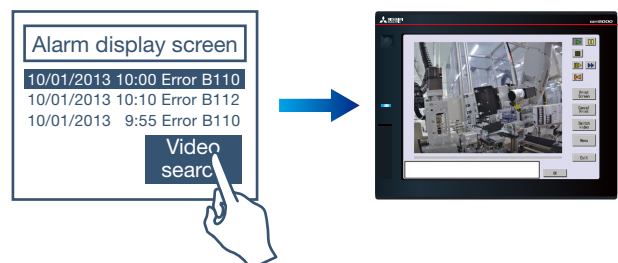
Start recording when an alarm occurs

◆ **Camera link application*1**   NEW   GT27   GT25   GT23   GT21   GS21   SoftGOT

Images from network cameras can be recorded before and after an alarm occurrence by using the alarm of an on-site equipment as a trigger. If multiple alarms occurred simultaneously, camera images of multiple alarms can be recorded all at once. Since the destination to record camera images can be set to a network storage such as a personal computer or NAS, the recorded files can be viewed at a time.

GT SoftGOT 2000
Monitor alarms and generate a start recording trigger

Camera link application
Interact with GT SoftGOT

GX VideoViewer

Alarm
2) Start recording

MI3000

NAS, etc.

5) Playback video

3) Recording instruction

3) Recording instruction

Ethernet

4) Record and save camera image

4) Record and save camera image

Alarm

Network camera 1

Network camera 2

1) An alarm occurs

<Record video before and after an alarm occurrence>

Camera link application*1 specifications

Item	Overview
Supported software	GT SoftGOT2000
Personal computer	MI3000 or general-purpose PC
Supported OS	Windows® 10, Windows® 10 IoT Enterprise
Supported network camera	Network camera manufactured by AXIS®*2
Video playback tool	GX VideoViewer*1

*1 For the details of camera link application and GX VideoViewer, please contact your local sales office.
*2 Usable network cameras are the same as those for the camera recording package. For the details, please refer to the Technical Bulletin "Network cameras supporting the Camera recording package" (FA-A-0306).

Products used for GOT maintenance solutions/IP camera and video solutions

■ GOT2000 and option units

Product name	Model	Description
GOT (GT27, GT25, GT23)	For the details, please refer to the Graphic Operation Terminal GOT2000 Series catalog (L(NA)08270ENG).	
RGB input unit	GT27-R2	For analog RGB input, 2 channels (simultaneous display)
Video/RGB input unit	GT27-V4R1-Z	For video input (NTSC/PAL), 4 channels/analog RGB, 1 channel input
Multimedia unit	GT27-MMR-Z	For video input (NTSC/PAL), 1 channel, recording video/playing video files

■ Engineering software and licenses

Product name	Model	Description	
HMI/GOT Screen Design Software MELSOFT GT Works3	SW1DND-GTWK3-E	English Version	Standard license product[1]
License key for GT SoftGOT2000[2]	GT27-SGTKEY-U	USB port license key	
GOT Mobile Function License[3]	GT25-WEBSKEY-1	1 license product[4]	
Remote Personal Computer Operation Function (Ethernet) License[3]	GT25-PCRAKEY-1	1 license product[4]	

[1] Volume license product and additional license product are also available. For details, please contact your local sales office.

[2] License key for GT SoftGOT2000 is required for each personal computer that uses GT SoftGOT2000.
When using MELIPC MI3000, the license key is pre-installed so that it is not required to purchase separately.
The GT SoftGOT2000 software is included in GT Works3.

[3] Each GOT requires one license.

[4] Products with 5, 10, or 20 licenses are also available. For details, please contact your local sales office.

■ MELIPC

Product name	Model	Screen size	Panel color	Description
MELIPC MI3000	MI3321G-W	21.5" widescreen, Full HD	Black	Edgecross Basic Software, SLMP Data Collector, GT SoftGOT2000 pre-installed[1]
	MI3315G-W	15" XGA	Black	

[1] A separate license key for GT SoftGOT2000 is not required.

Related materials

System Recorder Catalog L(NA)08736ENG
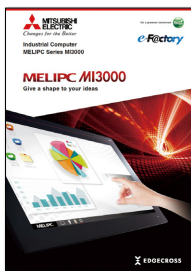
MELIPC Series MI3000 Catalog L(NA)08600ENG

GOT2000 Series/ GOT SIMPLE Series Catalog L(NA)08270ENG

GT SoftGOT2000 Solutions Catalog L(NA)08606ENG

GOT Mobile Catalog L(NA)08399ENG

The actual color may differ slightly from the pictures in this catalog.
The actual display may differ from what are shown on GOT screen images.

Global Partner. Local Friend.

American Offices

USA **Mitsubishi Electric Automation, Inc.** 500 Corporate Woods Parkway, Vernon Hills, IL 60061, U.S.A. Tel: +1-847-478-2100	Mexico **Mitsubishi Electric Automation, Inc.** **Mexico Branch** Boulevard Miguel de Cervantes Saavedra 301, Torre Norte Piso 5, Ampliacion Granada, Miguel Hidalgo, Ciudad de Mexico, Mexico, C.P.11520 Tel: +52-55-3067-7512	Brazil **Mitsubishi Electric do Brasil Comercio e Servicos Ltda.** Avenida Adelino Cardana, 293, 21 andar, Bethaville, Barueri SP, Brazil Tel: +55-11-4689-3000

Asia-Pacific Offices

China **Mitsubishi Electric Automation (China) Ltd.** Mitsubishi Electric Automation Center, No.1386 Hongqiao Road, Shanghai, China Tel: +86-21-2322-3030	Taiwan **SETSUYO ENTERPRISE CO., LTD.** 6F, No.105, Wugong 3rd Road, Wugu District, New Taipei City 24889, Taiwan Tel: +886-2-2299-2499	Korea **Mitsubishi Electric Automation Korea Co., Ltd.** 7F to 9F, Gangseo Hangang Xi-tower A, 401, Yangcheon-ro, Gangseo-Gu, Seoul 07528, Korea Tel: +82-2-3660-9569
Singapore **Mitsubishi Electric Asia Pte. Ltd.** 307 Alexandra Road, Mitsubishi Electric Building, Singapore 159943 Tel: +65-6473-2308	Malaysia **Mitsubishi Electric Sales Malaysia Sdn. Bhd.** Lot 11, Jalan 219, 46100 Petaling Jaya, Selangor Darul Ehsan, Malaysia Tel: +60-3-7958-3544	Indonesia **PT. Mitsubishi Electric Indonesia** Gedung Jaya 8th Floor, JL. MH. Thamrin No.12, Jakarta Pusat 10340, Indonesia Tel: +62-21-3192-6461
Vietnam **Mitsubishi Electric Vietnam Co., Ltd.** 11th & 12th Floor, Viettel Tower B, 285 Cach Mang Thang 8 Street, Ward 12, District 10, Ho Chi Minh City, Vietnam Tel: +84-28-3910-5945	Thailand **Mitsubishi Electric Factory Automation (Thailand) Co., Ltd.** 101, True Digital Park Office, 5th Floor, Sukhumvit Road, Bangchak, Phra Khanong, Bangkok 10260, Thailand Tel: +66-2092-8600	Philippines **MELCO Factory Automation Philippines Inc.** 128, Lopez-Rizal St. Brgy, Highway Hills, Mandaluyong City, MM, Philippines Tel: +63-(0)2-8256-8042
India **Mitsubishi Electric India Pvt. Ltd.** **Pune Branch** Emerald House, EL-3, J Block, M.I.D.C., Bhosari, Pune - 411026, Maharashtra, India Tel: +91-20-2710-2000	Australia **Mitsubishi Electric Australia Pty. Ltd.** 348 Victoria Road, P.O. Box 11, Rydalmere, N.S.W. 2116, Australia Tel: +61-2-9684-7777	

European Offices

Germany **Mitsubishi Electric Europe B.V.** **German Branch** Mitsubishi-Electric-Platz 1, 40882 Ratingen, Germany Tel: +49-2102-486-0	UK **Mitsubishi Electric Europe B.V.** **UK Branch** Travellers Lane, UK-Hatfield, Hertfordshire, AL10 8XB, U.K. Tel: +44-1707-28-8780	Italy **Mitsubishi Electric Europe B.V.** **Italian Branch** Centro Direzionale Colleoni - Palazzo Sirio, Viale Colleoni 7, 20864 Agrate Brianza (MB), Italy Tel: +39-039-60531
Spain **Mitsubishi Electric Europe B.V.** **Spanish Branch** Carretera de Rubi 76-80-Apdo. 420, E-08190 Sant Cugat del Valles (Barcelona), Spain Tel: +34-935-65-3131	France **Mitsubishi Electric Europe B.V.** **French Branch** 25, Boulevard des Bouvets, 92741 Nanterre Cedex, France Tel: +33-1-55-68-55-68	Czech Republic **Mitsubishi Electric Europe B.V.** **Czech Branch** Pekarska 621/7, 155 00 Praha 5, Czech Republic Tel: +420-255-719-200
Turkey **Mitsubishi Electric Turkey A.S.** **Umraniye Branch** Serifali Mahallesi Nutuk Sokak No:5, TR-34775 Umraniye / Istanbul, Turkey Tel: +90-216-526-3990	Poland **Mitsubishi Electric Europe B.V.** **Polish Branch** ul. Krakowska 48, 32-083 Balice, Poland Tel: +48-12-347-65-00	Russia **Mitsubishi Electric (Russia) LLC** **St. Petersburg Branch** Startovaya street, 8, BC "Aeroplaza", office 607; 196210, St. Petersburg, Russia Tel: +7-812-449-51-34
South Africa **Adroit Technologies** 20 Waterford Office Park, 189 Witkoppen Road, Fourways, South Africa Tel: +27-11-658-8100		

The release date varies depending on the product and your region. For details, please contact your local sales office.

MITSUBISHI ELECTRIC CORPORATION

HEAD OFFICE: TOKYO BLDG., 2-7-3, MARUNOUCHI, CHIYODA-KU, TOKYO 100-8310, JAPAN
NAGOYA WORKS: 1-14, YADA-MINAMI 5, HIGASHI-KU, NAGOYA, JAPAN