OMRON

Factory Drive Recorder

Users Guide

STC-FDR-SW01

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INTRODUCTION

Thank you for purchasing the Factory Drive Recorder.
This manual contains information that is necessary to use the Factory Drive Recorder.
Please read this manual and make sure you understand the functionality and performance of the Factory Drive Recorder before you attempt to use it in a control system.
Keep this manual in a safe place where it will be available for reference during operation.

Intended Audience

This manual is intended for the following personnel, who must also have knowledge of electrical systems (an electrical engineer or the equivalent).

- Personnel in charge of introducing FA systems.
- Personnel in charge of designing FA systems.
- Personnel in charge of installing and maintaining FA systems.
- Personnel in charge of managing FA systems and facilities.

Applicable Products

This manual covers the following products.

- Gig-E Vision STC−M Series
- Gig-E Vision Board-level Model STC−B Series
- USB3 Vision STC−M Series
- USB3 Vision Remote Head Model STC−R Series
- UVC STC-S133 Series

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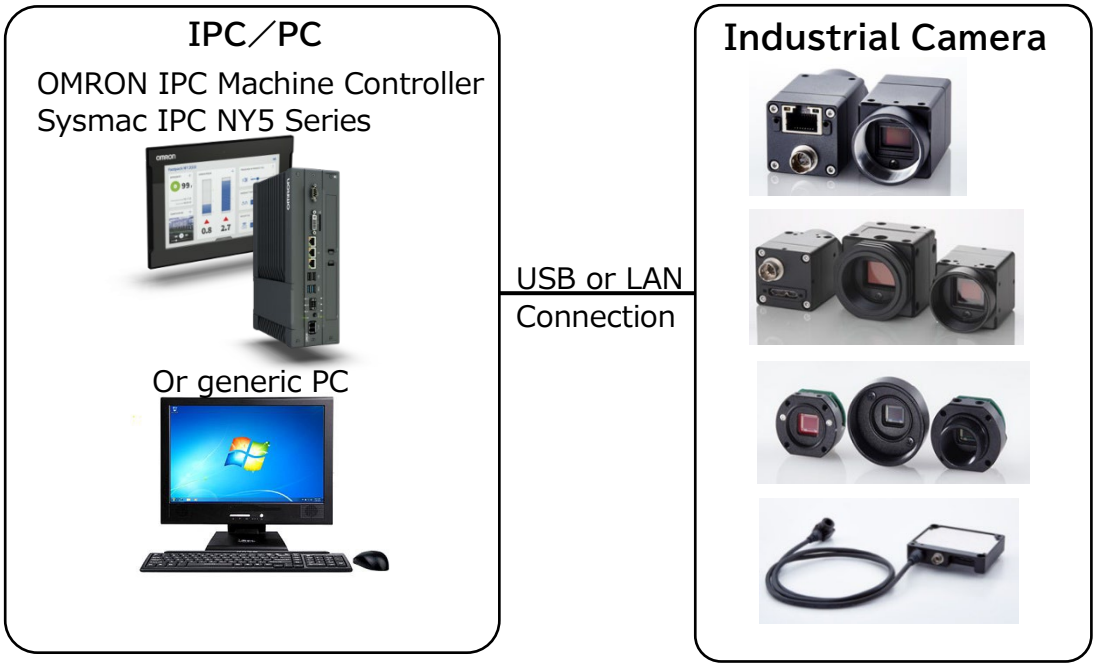
1. CONCEPT OF THIS DOCUMENT

This document describes about “Factory Drive Recorder” system and function design of its applications.

2. SYSTEM CONFIGURATION

This system is an application that connects industrial camera to Windows PC and records video from camera.



2-1. Machine Configuration

Recommended machines/Specifications

Machines	Design	Specifications/Functions
IPC／PC	OMRON IPC Machine Controller Sysmac IPC NY5 Series or generic PC	OS: Windows10 (64bit ver.) CPU:Core-i7 3GHz or higher RAM:16GB Display:1600×900
Cameras	Gig-E Vision STC−M Series	Maximum of 8 cameras See [Camera configuration example]
	Gig-E Vision Board-level Model STC−B Series	
	USB3 Vision STC−M Series	
	USB3 Vision Remote Head Model STC−R Series	
	UVC STC-S133 Series	

Camera configuration example

Pixels	# of cameras	Connection Type	Maximum Frame rate (※)
0.4 MP	1・color	USB3.0	330 fps
0.4 MP	1・monochrome	USB3.0	440 fps
0.4 MP	1・color	GigE	240 fps
0.4 MP	2・color・monochrome	USB3.0	300 fps
0.4 MP	8・color	GigE	30 fps
1.3 MP	1・color	USB3.0	60 fps
1.3 MP	1・monochrome	USB3.0	60 fps
1.3 MP	2・color・monochrome	USB3.0	60 fps
1.3 MP	4・monochrome	USB3.0	30 fps
1.3 MP	1・color	UVC	60 fps
1.3 MP	2・color	UVC	60 fps
1.3 MP	4・color	UVC	60 fps
1.6 MP	1・color	USB3.0	95 fps
2.0 MP	2・monochrome	GigE	25 fps
2.0 MP	4・color2・monochrome2	GigE	10 fps
3.0 MP	1・monochrome	USB3.0	55 fps
3.0 MP	2・monochrome	USB3.0	55 fps
5.0 MP	1・color	USB3.0	30 fps
8.9 MP	1・color	USB3.0	20 fps
12.0 MP	1・color	USB3.0	15 fps
20.0 MP	1・monochrome	USB3.0	18 fps

※:The maximum frame rate depends on the performance of your PC.

3. INSTALLING APPLICATIONS

Install applications to your PC to use this system.
Installation required

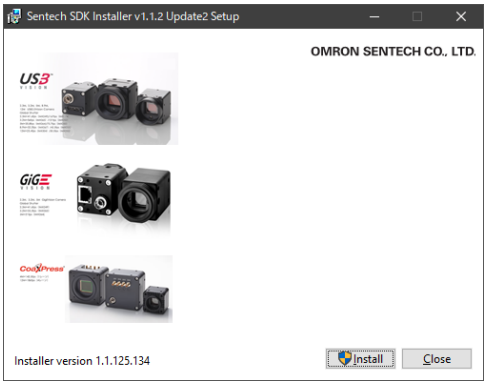
Application Name	File Name	Description
SentechSDK	SentechSDKInstaller.exe	Camera driver and detailed camera settings
Factory Drive Recorder	Setup.exe	This application

Required for PC environment to use system

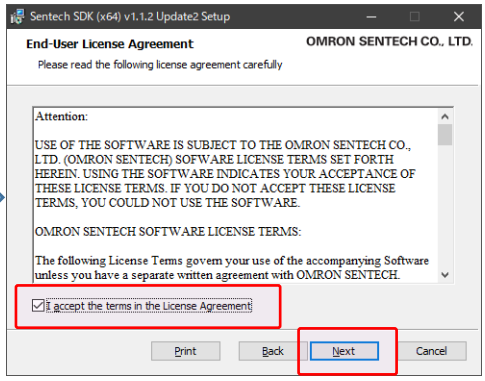
Application Name	Version	Description
Windows Media Player	12 or later	For playing recorded video

3-1. Installing Sentech SDK

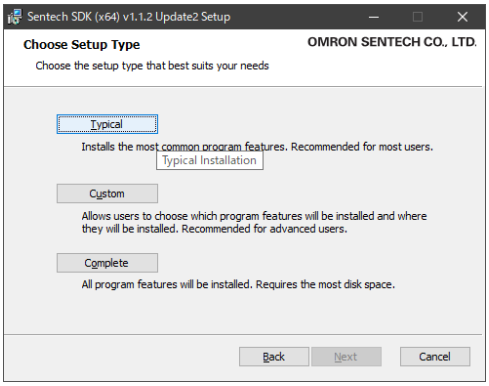
1) Execute SentechSDKInstaller.exe.



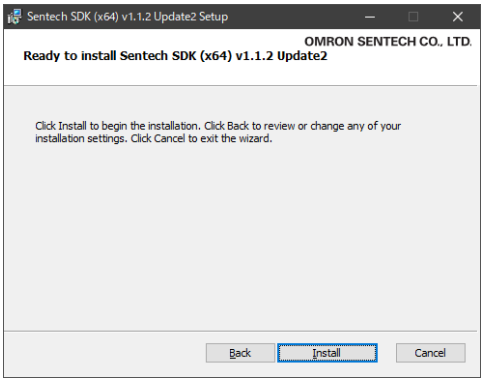
2) Check on “I accept…” and click the [Next] button.



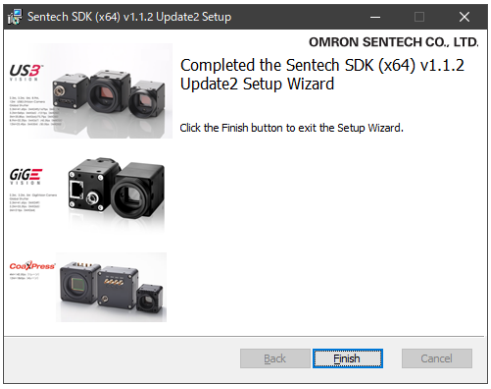
3) Click the [Typical] button.



4) Click the [Install] button.

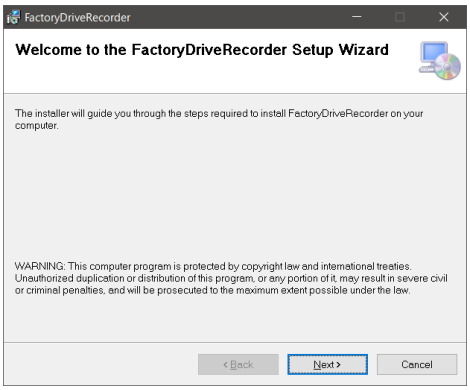


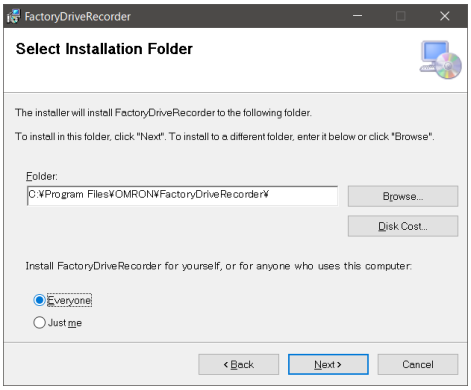
5) Click the [Finish] button and complete the installation.



3-2. Installing Factory Driver Recorder

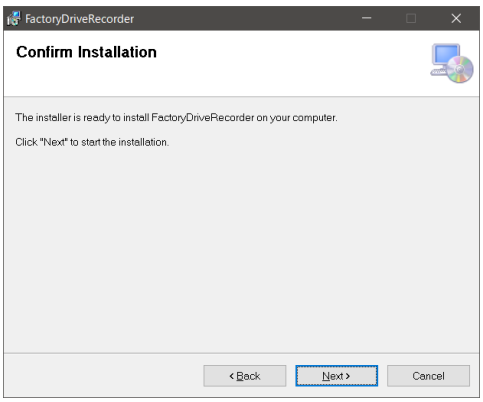
1) Execute Setup.exe. 2) Change installation folder or click the [Next] button.

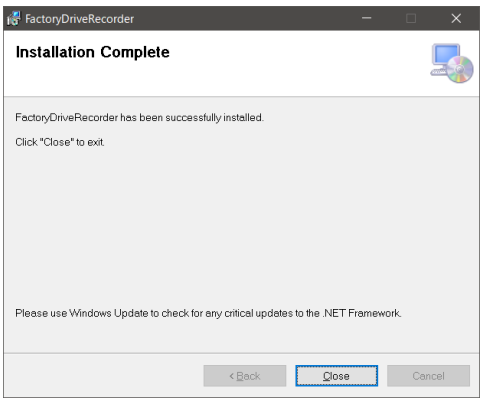




3) Click the [Next] button.

4) Click the [Close] button and complete the installation.





3-3. Uninstallation

Here are steps to uninstall this system from your PC:

1) Open Windows Start menu > Control Panel > All Control Panel Items > Program and features
2) Right click and uninstall [Sentech SDK(x64)v1.1.2 Update5].
3) Right click and uninstall [FactoryDriveRecorder].

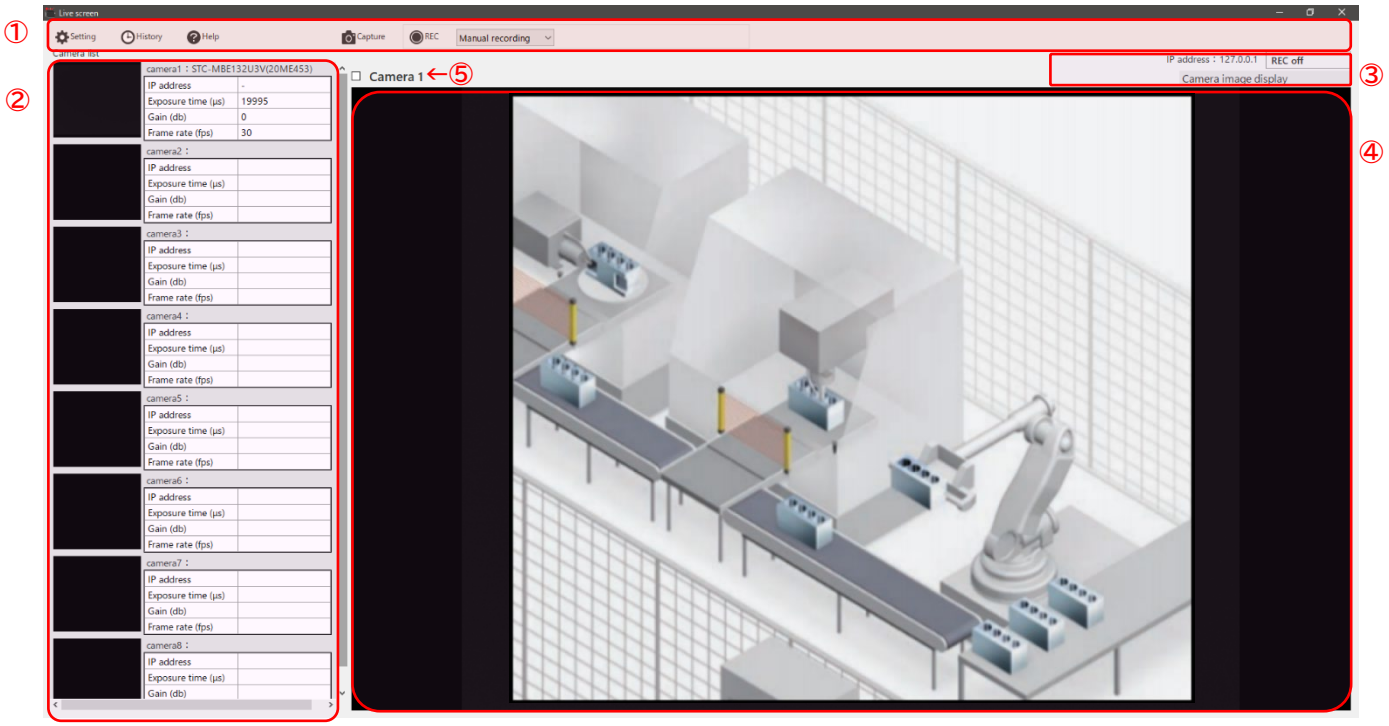
4. Application

Please execute this application with administrator account. Also, please connect cameras before running the application.

4-1. About GUI of this Application

4-1-1. Application window

The main window is displayed when application is started.



No.	Name
1	Toolbar
2	Camera list
3	Status
4	Camera live video
5	Camera No.

4-1-2. Toolbar

Tool Name	Description
Setting	This can change detailed settings in the advanced setting window. This will not work while recording.
History	This shows a list of recorded files. This will not work while recording.
Help	This shows the version of this application.
Capture	This records video capture images of all connected cameras.

REC	If [Manual recording] is selected from recording selector, this will start the manual recording. If [Trigger recording] is selected, trigger recording will start.
Recording selector	Recording behavior can be selected from [Manual recording] or [Trigger recording].
Continuous	Continuous recording will run if this is ON. Turn this OFF if you want to stop the continuous recording.

4-1-3. Camera List

This list shows thumbnails and settings of connected cameras.

Items	Description
IP address	IP addresses of cameras connected by LAN(GigE)
Exposure time	Exposure time of camera (μs)
Gain	Camera gain (db)
Frame rate	Camera frame rate (Fps)

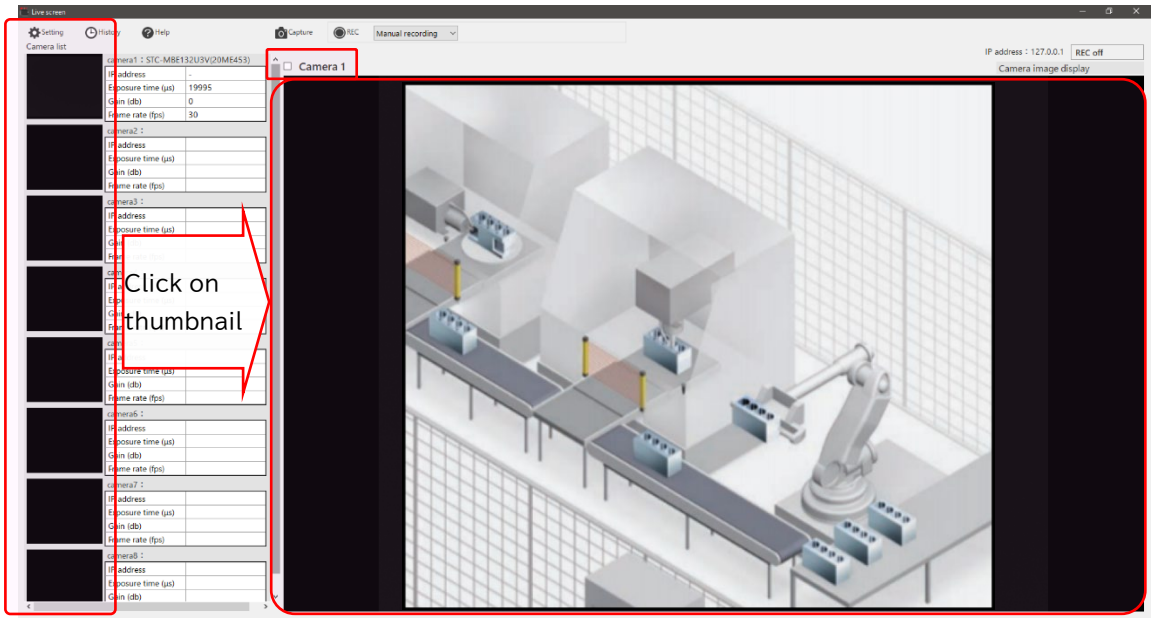
4-1-4. Status

This shows working status of the application.

Status	Description
Camera image display	Camera is showing live video.
Recording	Video is being saved (except for continuous recording).
I saved the image	Images from camera are saved by [Capture] button.
Waiting for trigger	For trigger recording (See 6-3.6 Timing of Trigger Recording).
Video is being saved	Video is being saved with Motion Detection, Master Image Comparison, or Trigger Signal is selected.

4-1-5. Camera Live Video

This shows video of camera selected from thumbnail in the camera list.



Camera No. is shown on top left side of live video.
If the box near the camera No. is clicked, detection area set by motion detection recording/master image comparison recording is shown.

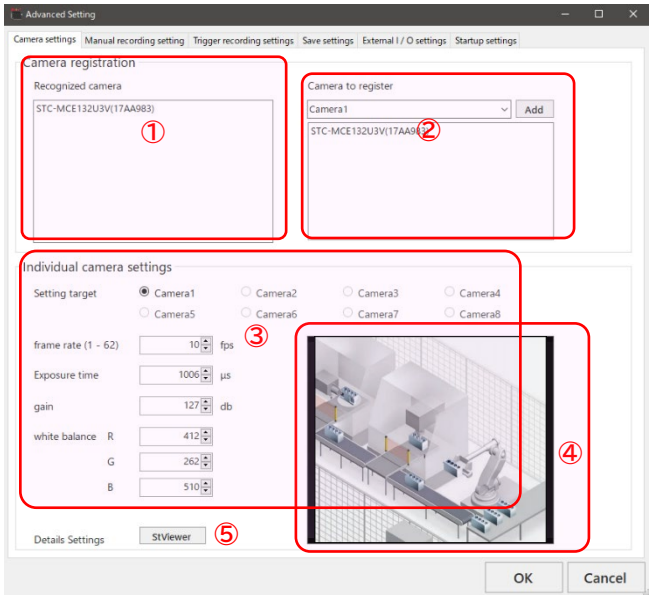
5. Camera Connection and Settings

This window can configure settings of connected cameras.

5-1. Description of Camera Settings

5-1-1. Camera Registration and Settings

This settings will register connected cameras.



No.	Items	Description
1	Recognized camera	The list of connected cameras is shown here. Click and select cameras to register. ※Selected cameras at Camera type in the Startup settings will be shown here.
2	Camera to register	Select registered camera No. from list and click the [Add] button. Selected camera will be registered, and registered camera will be shown here.
3	Individual camera settings	This can change frame rate/exposure time/gain/white balance settings of selected camera. ☞ The frame rate range will change by value of exposure time.
4	Camera video preview	This shows preview video of camera selected in Individual camera settings.
5	Details Settings	More detailed settings of camera can be changed. StViewer will run if [StViewer] button is clicked. →See 8-4.StViewer

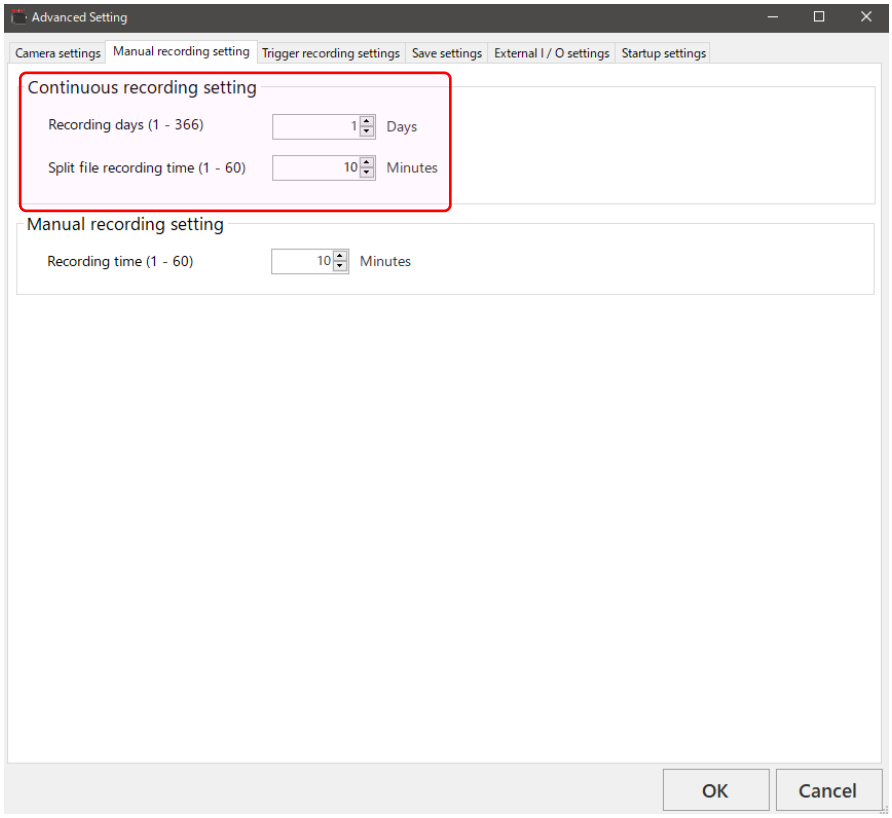
6. Recording

This system can select following recording behaviors:

Recording Behavior		Description
Continuous recording		Video will be recorded all the time. This can record and save video by maximum of 1 year (366 days).
Manual recording		Recording can be started/stopped manually. This can record video by maximum of 60 minutes.
Trigger recording	Time trigger	Recording will run once a day at specified time.
	Motion detection	Recording will run when any change of camera's video is detected.
	Master image comparison	Recording will run when any difference between prepared image and camera's video is detected.
	Trigger signal	Uses switch input connected to camera for trigger of recording.
	Trigger signal (TCP command)	Uses TCP command input for trigger of recording.

6-1. Continuous Recording

This recording will allow all registered camera to record video all the time.
The behavior of continuous recording can be configured at the [Manual recording setting] tab in the Advanced Setting window.



Configuration item	Description
Recording days	Sets number of days of continuous recording. Range: 1 – 366 days
Split file recording time	Sets recording time for each file. Range: 1 – 60 minutes (If time is set to 60 minutes, 24 files are generated each day.)

[1]Setting continuous recording

1) Click the [Setting] button in the main window, then click the [Manual recording setting] tab in the Advanced Setting window.
2) Set “Recording days” and “Split file recording time” in the Continuous recording setting section.
3) Close the Advanced Setting window by clicking the [OK] button.

[2]Starting continuous recording

4) Recording will start if [Continuous] button in the main window is clicked ([Continuous] is turned ON).
5) All registered camera’s video will be recorded.

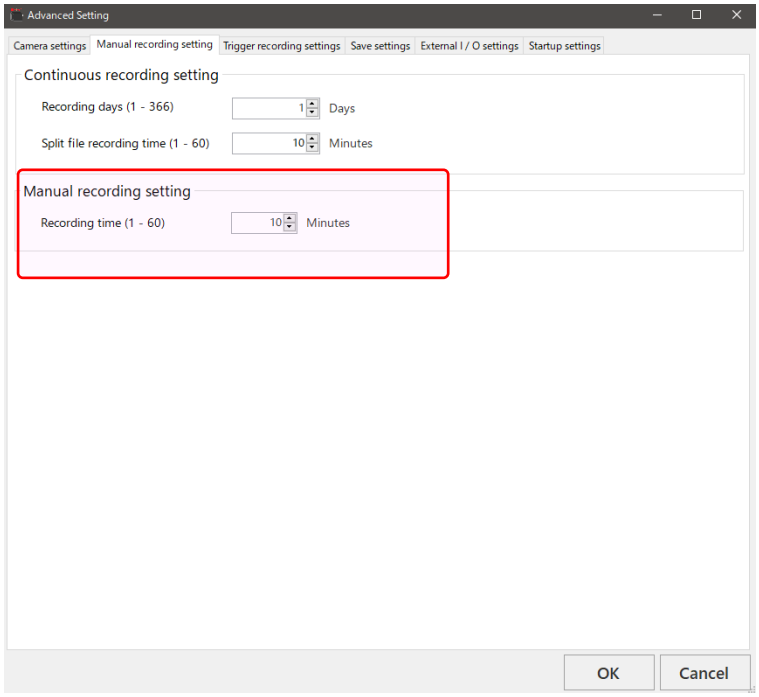
[3]Confirming recorded videos

6) Confirm save folder by Windows explorer, etc.
Save folder path for continuous recording:
C:¥OMRON¥FactoryDriveRecorder¥Movies¥Always (Default)
Folders are split by date.

☞ Save folder for video files can be changed by settings. (See 8-1. Save Setting)
☞ Video files of continuous recording will not be shown in [History] window.
☞ Recording will stop if [Continuous] button is clicked during continuous recording. ([Continuous] is turned OFF)
☞ [Recording days] can be set up to 366 days. Recorded files are split by each date folder.
☞ Old files whom date is over [Recording days] will be automatically deleted.
Ex.) When [Recording days] is 10, files and folders generated 11 days ago or earlier are deleted.

6-2. Manual Recording

This allows all registered camera to record video manually.
The behavior of manual recording can be configured at the [Manual recording setting] tab in the Advanced Setting window.



Configuration item	Description
Recording time	Sets maximum time of manual recording. Range: 1 – 60 minutes After starting manual recording, the recording will stop automatically when specified recording time is exceeded. (Recording can be stopped manually)

[1]Setting manual recording

1) Click the [Setting] button in the main window, then click the [Manual recording setting] tab in the Advanced Setting window.
2) Set “Recording days” in the Manual recording setting section.
3) Close the Advanced Setting window by clicking the [OK] button.

[2]Starting manual recording

4) Select [Manual recording] and click [REC] button in the main window.
5) All registered camera’s video will be recorded.

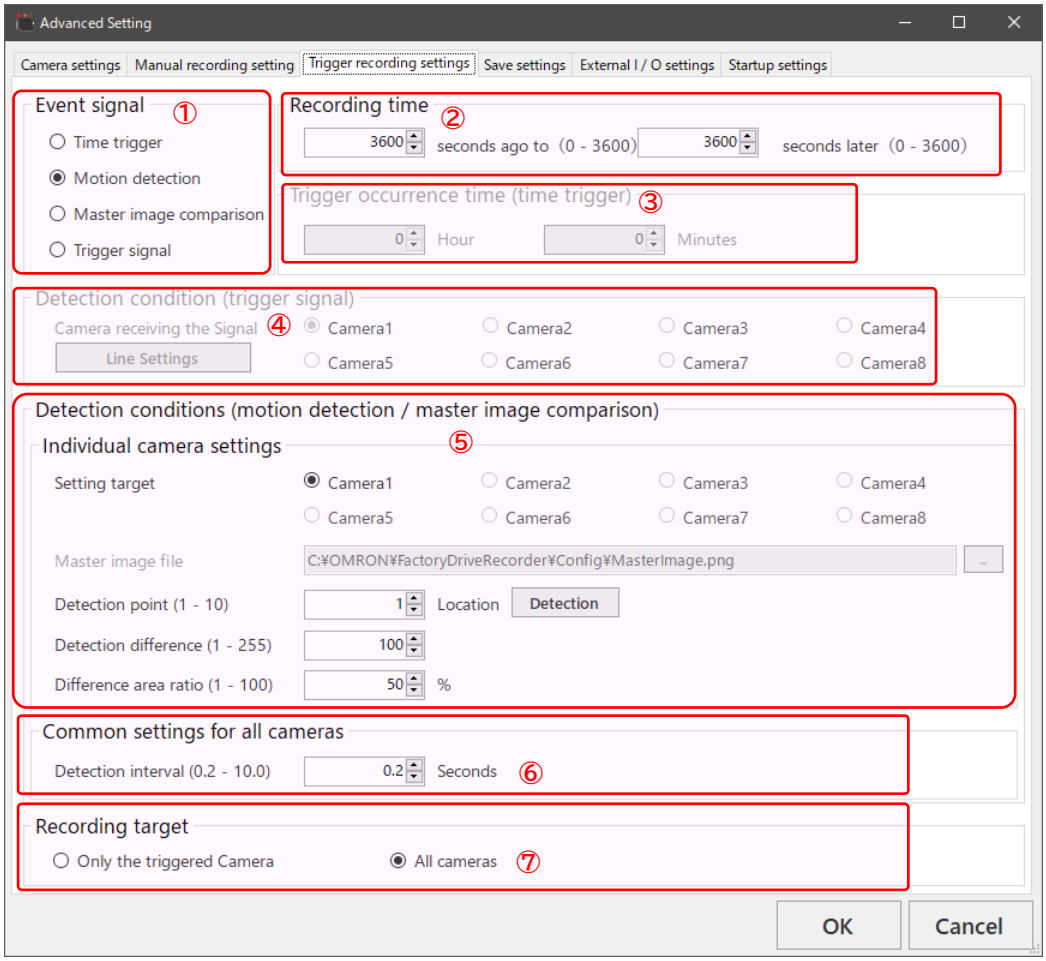
[3]Confirming recorded videos

6) Click the [History] button in the main window and confirm.
(See 7. Watching Recorded Video)

☞ Save folder for video files can be changed by settings. (See 8-1. Save Setting)
☞ Recording will stop when [REC] button is clicked during the manual recording.
☞ [Setting] button is inactive during manual recording.

6-3. Trigger recording

This recording allows cameras to record videos before/after events by using specified event signal for trigger.
The behavior of trigger recording can be configured at the [Trigger recording settings] tab in the Advanced setting window.



No.	Name	Description
1	Event signal	Selects type of trigger recording.
2	Recording time	Sets trigger recording time.(※1) Range: 3600 sec. before trigger – 3600 sec. after trigger
3	Trigger occurrence time (time trigger)	If [Time trigger] is selected in the Event signal section, trigger time can be specified. Range: 0:00 – 23:59
4	Detection condition (trigger signal)	If [Trigger signal] is selected in the Event signal section, a camera to receive trigger signal can be selected.

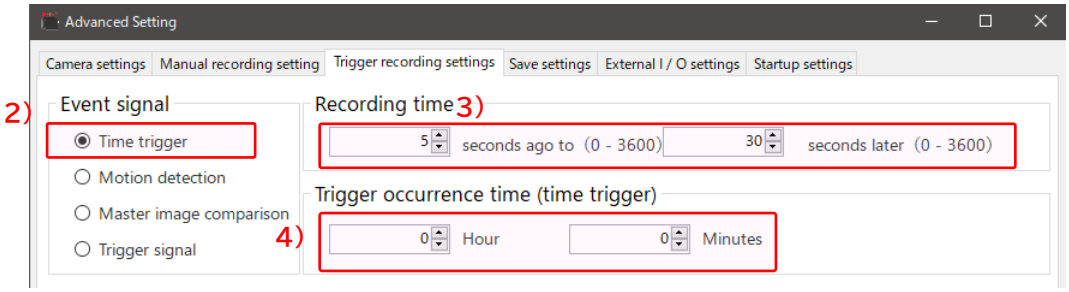
5	Detection condition (motion detection / master image comparison)	If [Motion detection] or [Master image comparison] is selected in the Event signal section, trigger condition for registered camera's video can be specified. →See 6.3.2 Motion Detection / 6.3.4 Master Image Comparison
6	Common settings for all cameras	Sets detection interval of trigger events.
7	Recording target	Selects camera to record video when event is occurred.

※1:If you set the recording time to 1 second or more ago, the recording file will continue to be created even if the trigger does not occur, so be careful about the limit on the number of times you can write to the recording medium.

6-3-1. Time Trigger

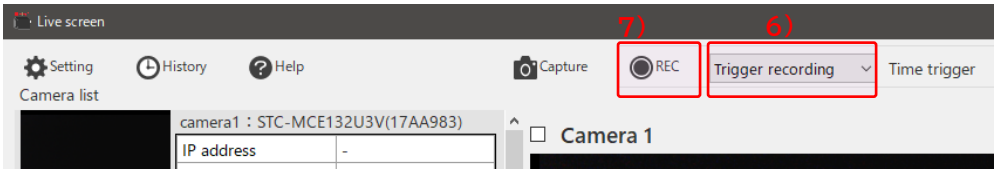
Time trigger recording allows camera to record video at specified time.

[1]Setting time trigger



1) Click the [Setting] button in the main window, then select [Trigger recording settings] tab in the Advanced setting window.
2) Select [Time trigger] in the Event signal section.
3) Configure the recording time.
4) Configure the trigger occurrence time.
5) Close the Advanced Setting window by clicking the [OK] button.

[2]Starting trigger recording



6) Select [Trigger recording] in the main window.
7) If [REC] button is clicked, status will change to waiting trigger.
→Recording will start on the configured time (near time set in the recording time setting).

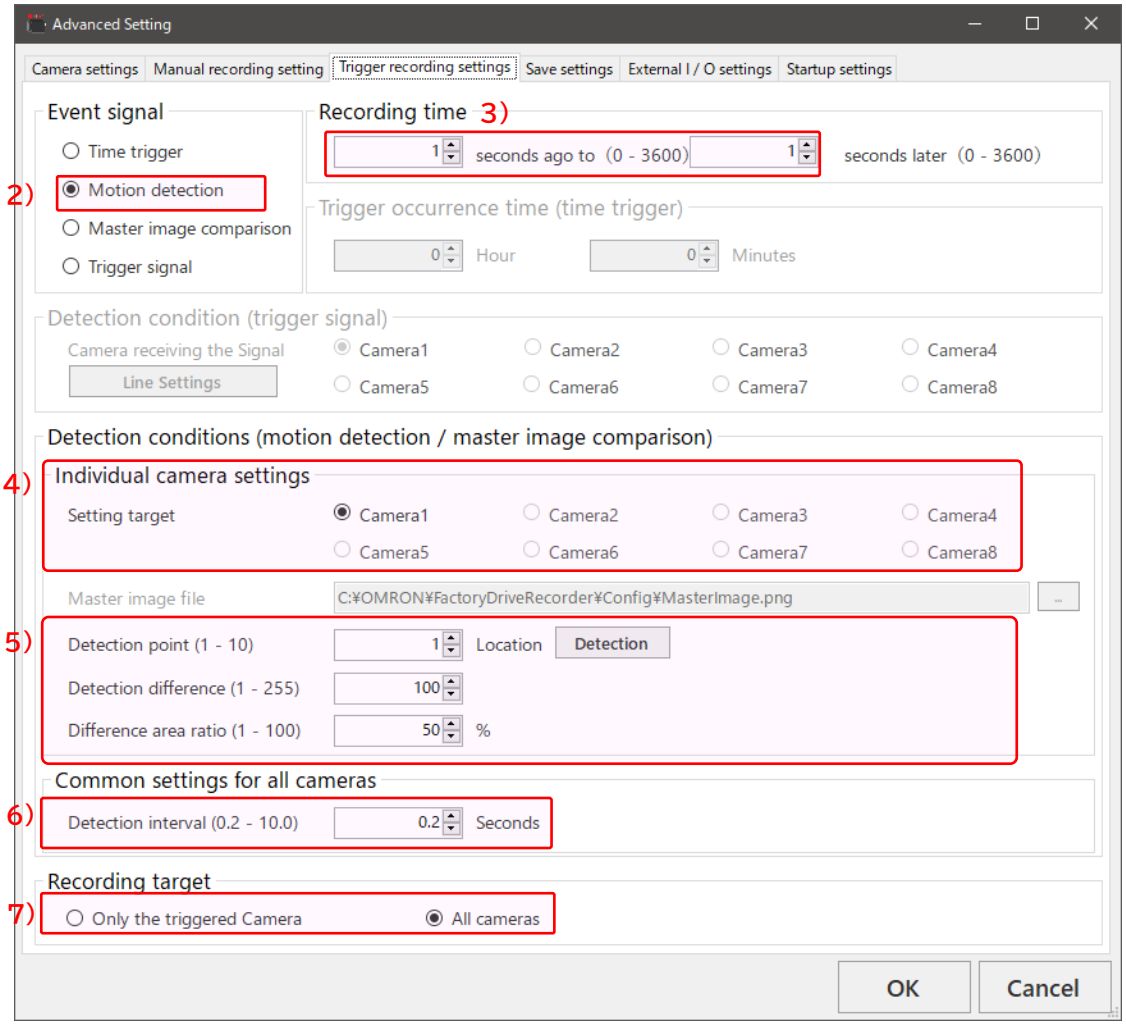
[3]Confirming recorded video

8) Click the [History] button in the main window and confirm.
(See 7. Watching Recorded Video)

6-3-2. Motion Detection

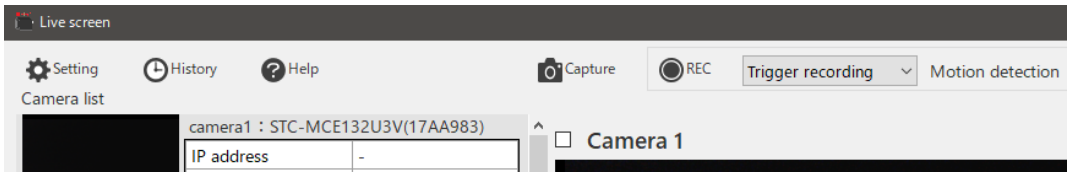
Motion detection recording allows using change of camera images as trigger of recording.

[1]Setting motion detection trigger



1) Click the [Setting] button in the main window, then select [Trigger recording settings] tab in the Advanced setting window.
2) Select [Motion detection] in the Event signal section.
3) Configure the recording time.
4) Select a camera to configure detection conditions.
5) Configure details of detection conditions for camera selected in 4).
6) Configure running interval of detection conditions set in 5).
7) Select recording target.
8) Close the Advanced Setting window by clicking the [OK] button.

[2]Starting trigger recording



9) Select [Trigger recording] in the main window.
([Motion detection] is shown on right side.)
10) If [REC] button is clicked, status will change to waiting trigger.
→Video is saved when motion is detected.

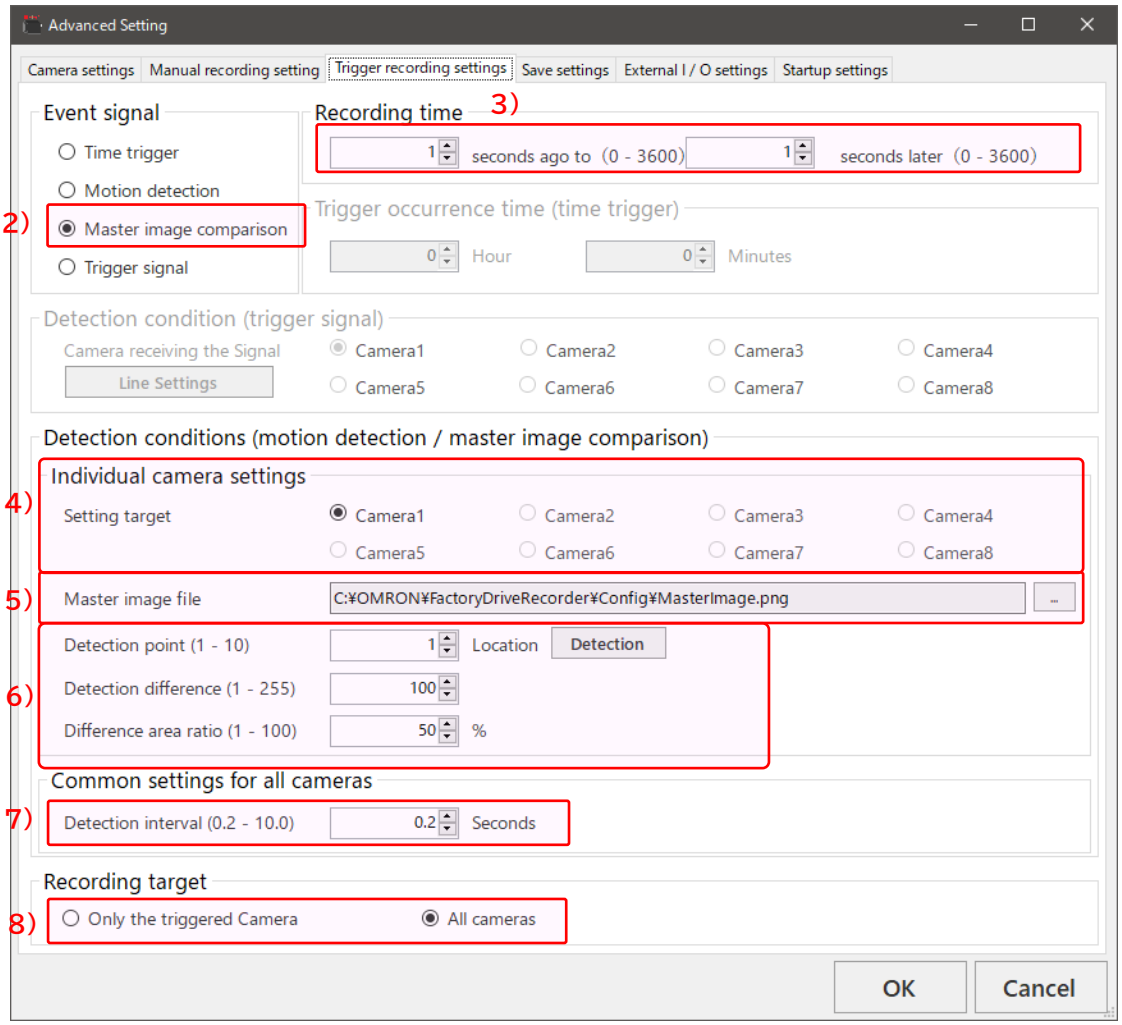
[3]Confirming recorded video

11) Click the [History] button in the main window and confirm.
(See 7. Watching Recorded Video)

6-3-3. Master Image Comparison

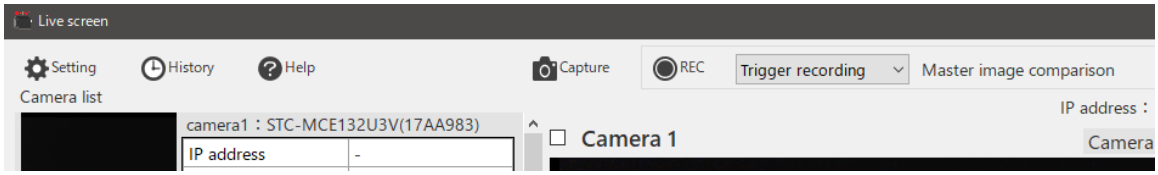
Master image comparison recording enables recording that uses difference between master image and camera video as trigger.

[1]Setting master image comparison



1) Click the [Setting] button in the main window, then select [Trigger recording settings] tab in the Advanced setting window.
2) Select [Master image comparison] in the Event signal section.
3) Configure the recording time.
4) Select a camera to configure detection conditions.
5) Set a master image to compare for camera selected in 4).
   Set an image file which was taken in the main window in advance.
   (Both camera and master image's resolution must be same.)
   Master image setting is applied for all connected cameras.
6) Configure details of detection conditions for camera selected in 4).
7) Configure running interval of detection conditions set in 6).
8) Select recording target.
9) Close the Advanced Setting window by clicking the [OK] button.

[2]Starting trigger recording



10) Select [Trigger recording] in the main window.
([Master image comparison] is shown on right side.)
11) If [REC] button is clicked, status will change to waiting trigger.
→Video is saved when trigger is detected.

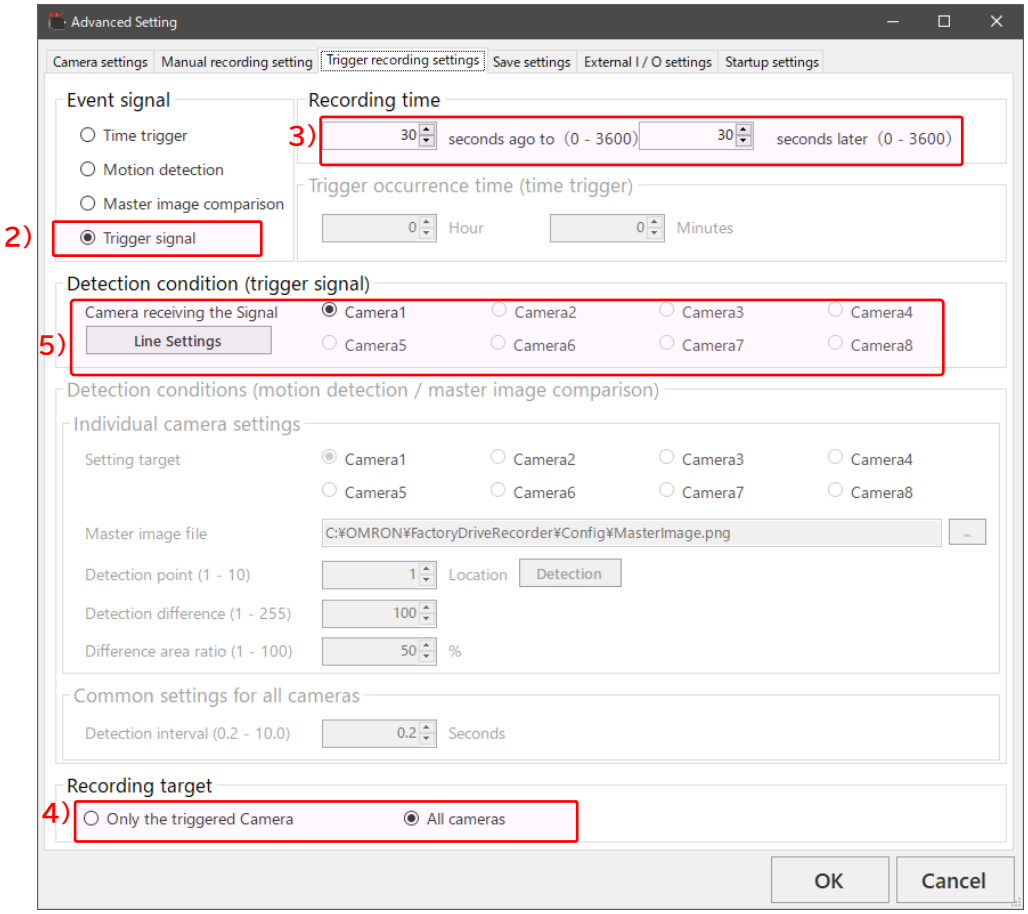
[3]Confirming recorded video

12) Click the [History] button in the main window and confirm.
(See 7. Watching Recorded Video)

6-3-4. Trigger Signal

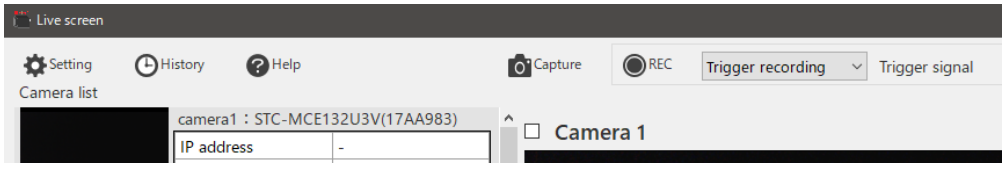
Trigger signal recording enables recording that uses external input connected to camera or TCP command input as trigger of recording.

[1]Setting trigger signal



1) Click the [Setting] button in the main window, then select [Trigger recording settings] tab in the Advanced setting window.
2) Select [Trigger signal] in the Event signal section.
3) Configure the recording time.
4) Select the recording target.
5) Configure the detection condition.
   →Only if “All cameras” is selected in 4), Camera receiving the Signal can be selected. Only one camera can be selected.
6) Close the Advanced Setting window by clicking the [OK] button.

[2]Starting trigger recording



6) Select [Trigger recording] in the main window. ([Trigger signal] is shown on right side.)

7) If [REC] button is clicked, status will change to waiting trigger.
→Video is saved when trigger is detected.

☞ The external input signal from the camera is “input 0”.
Please see your camera’s manual for external input signals.

☞ For TCP command external input, following command is send to this application.

Command	Description
trigger n(CR)	n:Camera No.(1～8) “0” is a recording from all cameras (CR): Carriage return code (0x0d)

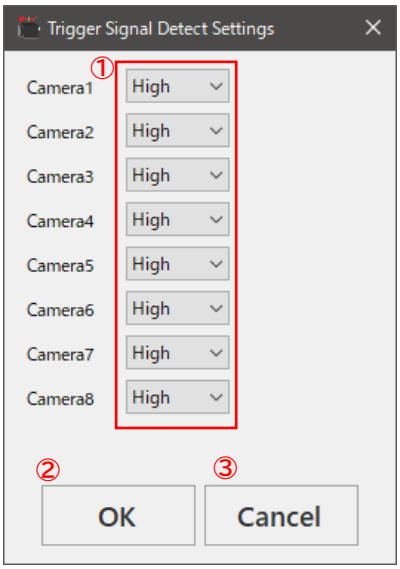
“OK” is returned if command is successfully received.

[3]Confirming recorded video

8) Click the [History] button in the main window and confirm.
(See 7. Watching Recorded Video)

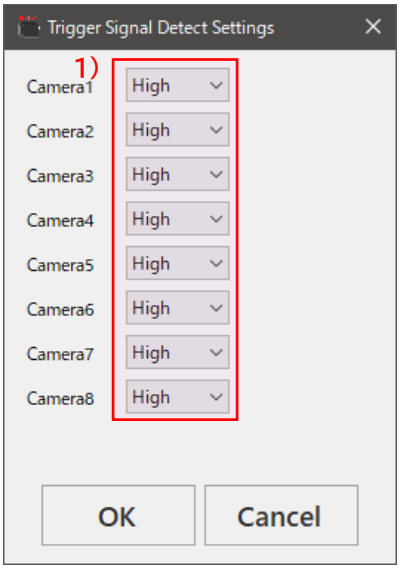
6-3-5. Trigger Signal Detect Settings

Detection condition of trigger signal can be configured here.
Trigger Signal Detect Settings window is shown, when [Line Settings] button at Detection condition (trigger signal) in Advanced setting window is clicked.



No.	Items	Description
1	Detection trigger settings	Sets the detection trigger for each camera.
2	OK	Saves settings and close this window.
3	Cancel	Closes this window without saving settings.

[1]Detection trigger settings



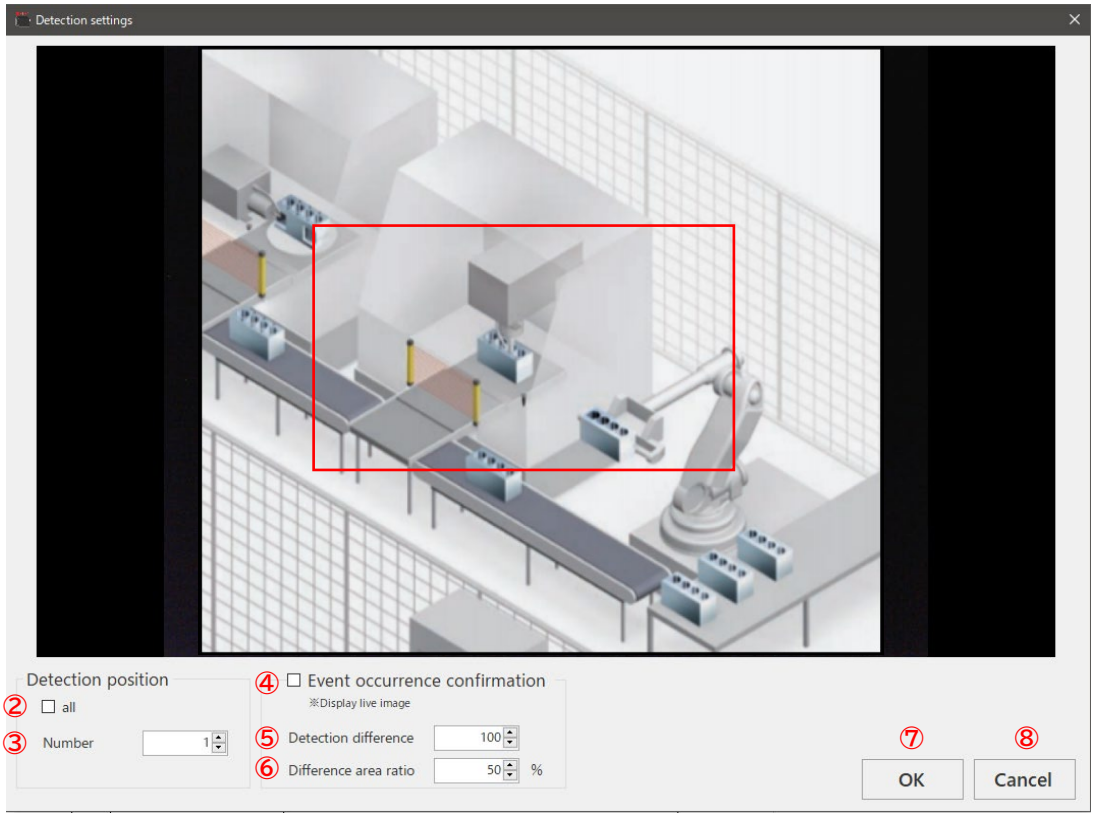
1) Select the detection trigger of input signal for cameras.

[2]Saving settings

2) Click “OK” to close the window and return to Advanced setting window.
3) Close the Advanced Setting window by clicking the [OK] button.

6-3-6. Detection Setting

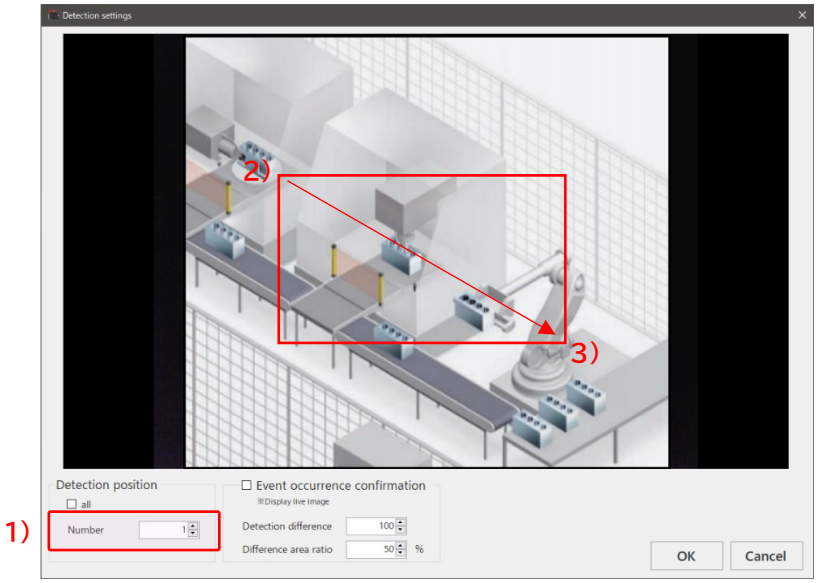
For detection condition settings in motion detection and master image detection, detailed detection settings can be configured here.
Detection setting window is shown, when [Detection] button at Detection condition (motion detection/master image comparison) in Advanced setting window is clicked.



No.	Items	Description
1	Display area	Camera image is shown here if “Motion detection” is selected in the event signal settings. Master image is shown here if “Master image comparison” is selected.
2	all (Checkbox)	All configured area are displayed in the image if this is checked. Currently configured area is indicated with red lines, and others are with gray lines. Only selected No. area is displayed with red lines if this is not checked.
3	Number	Selects area No. to configure. Only numbers set in number of detection positions set in Advanced setting window can be selected.
4	Event occurrence confirmation (Checkbox)	If this is checked, current camera image is shown as live image. This enables confirmation of event occurrence status based on detection area, detection difference value, and difference area rate. See “[2] Confirming event occurrence” for details.

5	Detection difference	Sets difference value for event occurrence. (Range: 1 - 255) Setting value set in the Advanced setting window is initially set, and any changes made in here will be applied to Advanced setting windows. If this value is small, events will occur more frequently, and if this value is large, events will occur less frequently.
6	Difference area ratio	Sets difference area rate inside configured area. (Range:1 - 100%) Setting value set in the Advanced setting window is initially set, and any changes made in here will be applied to Advanced setting windows. If this value is small, events will occur more frequently, and if this value is large, events will occur less frequently.
7	OK	Saves settings and close this window.
8	Cancel	Closes this window without saving settings.

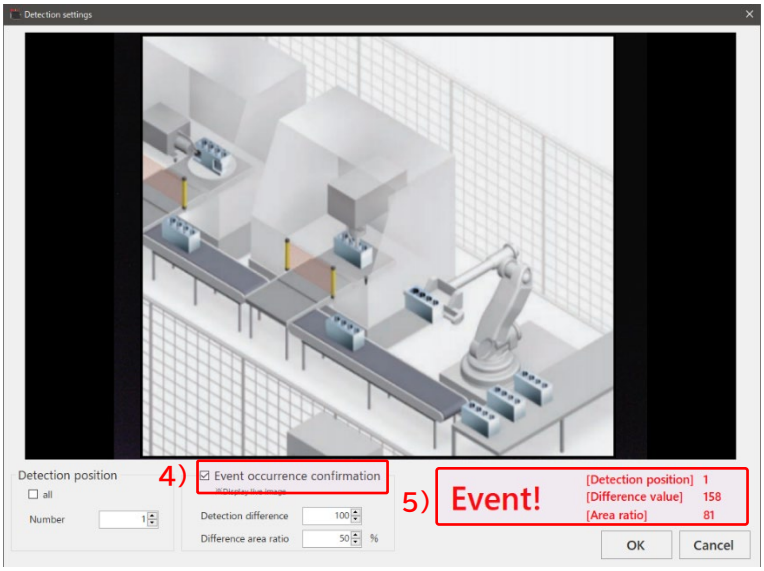
[1]Setting detection area



1) Select setting No. to add area.
2) Move mouse cursor to the image, and set start point (top-left) by left mouse click.
3) Drag the mouse cursor to the end point (bottom-right) and stop clicking.
Please make sure that end point is on bottom-right side of start point.

If [Number] is set to 1 or more in the Advanced setting button, 1) – 3) is done by number of detection points.

[2]Confirming event occurrence



4) Camera video is shown if [Event occurrence confirmation] checkbox is ON.
5) If event is detected by configured setting, [Event!] and detection value is displayed.

Items	Description
Detection position	Area number that difference is monitored
Difference value	The maximum difference value occurred in the area
Area ratio	Area rate that difference (※) exceeds the threshold

※difference
Master Image Comparison: comparison result of master image with the current camera frame
Motion Detection: comparison result of the immediately preceding camera frame with the current camera frame

[3]Saving settings

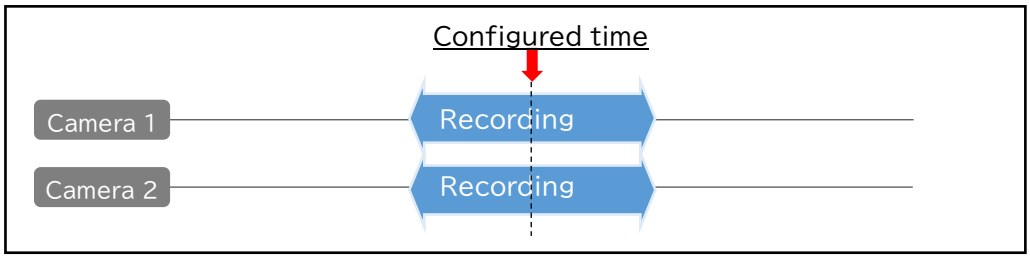
6) Click “OK” to close the window and return to Advanced setting window.
7) Close the Advanced Setting window by clicking the [OK] button.

6-3-7. Timing of Trigger

Timing of trigger recording depends on selected event signal types.

1) Timing of Time trigger recording

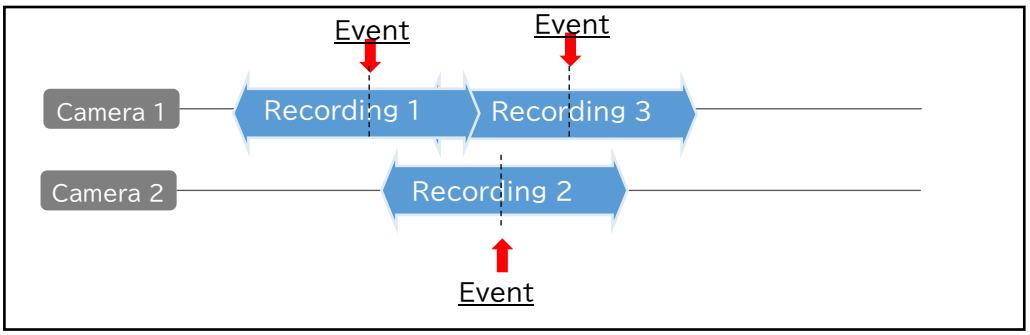
All cameras start recording around the configured time.



2) Timing of Motion detection/Master image comparison/Trigger signal (external input signal) recording

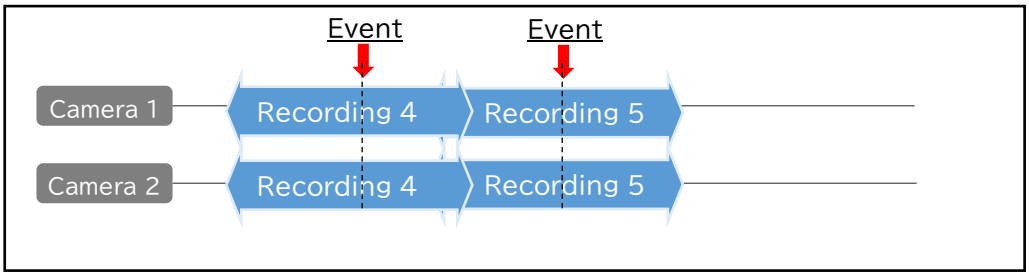
・If recording target is “Only the triggered camera”

After event, only the target camera’s recording starts automatically.
(“Recording 1” in the diagram)
Events for same camera will not occur until the recording is finished.
Recording will run in parallel if events occur in other camera which is not recording.
(“Recording 2” in the diagram)
New events for same camera can be detected during recording after previous event.
(“Recording 3” in the diagram)
(Note that part of Recording 3 overlapping with Recording 1 will not be recorded as shown below.)



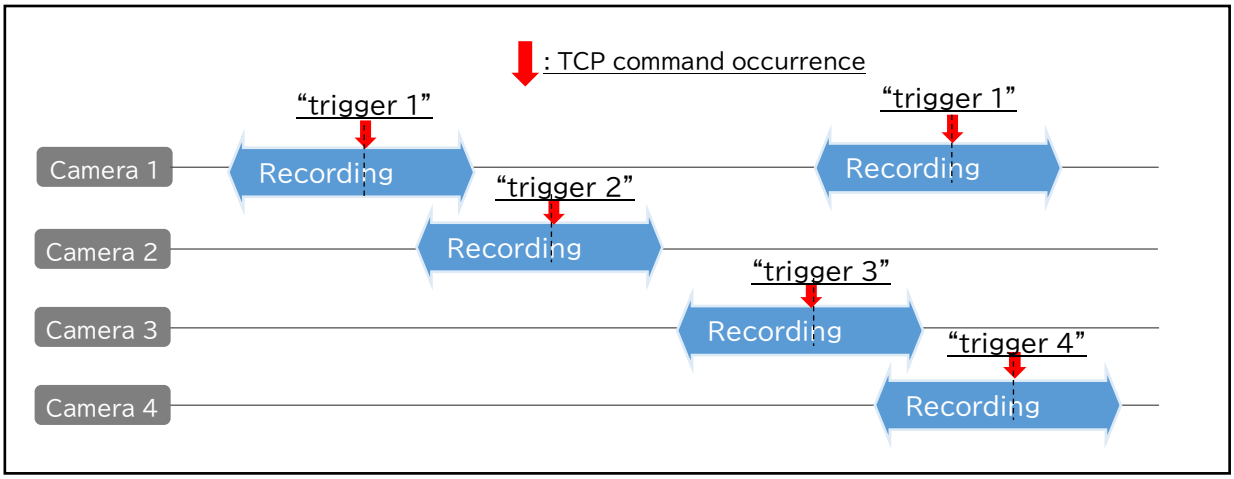
・If recording target is “All cameras”

All camera’s recording start at same time if events occur in any camera.
(“Recording 4” in the diagram)
After the event, new events will not occur until the recording is finished.
After recording is done, next event can be occurred without waiting for recording time completion before the event. (“Recording 5” in the diagram)



3) Trigger signal (TCP command input)

Camera specified by TCP command starts recording.

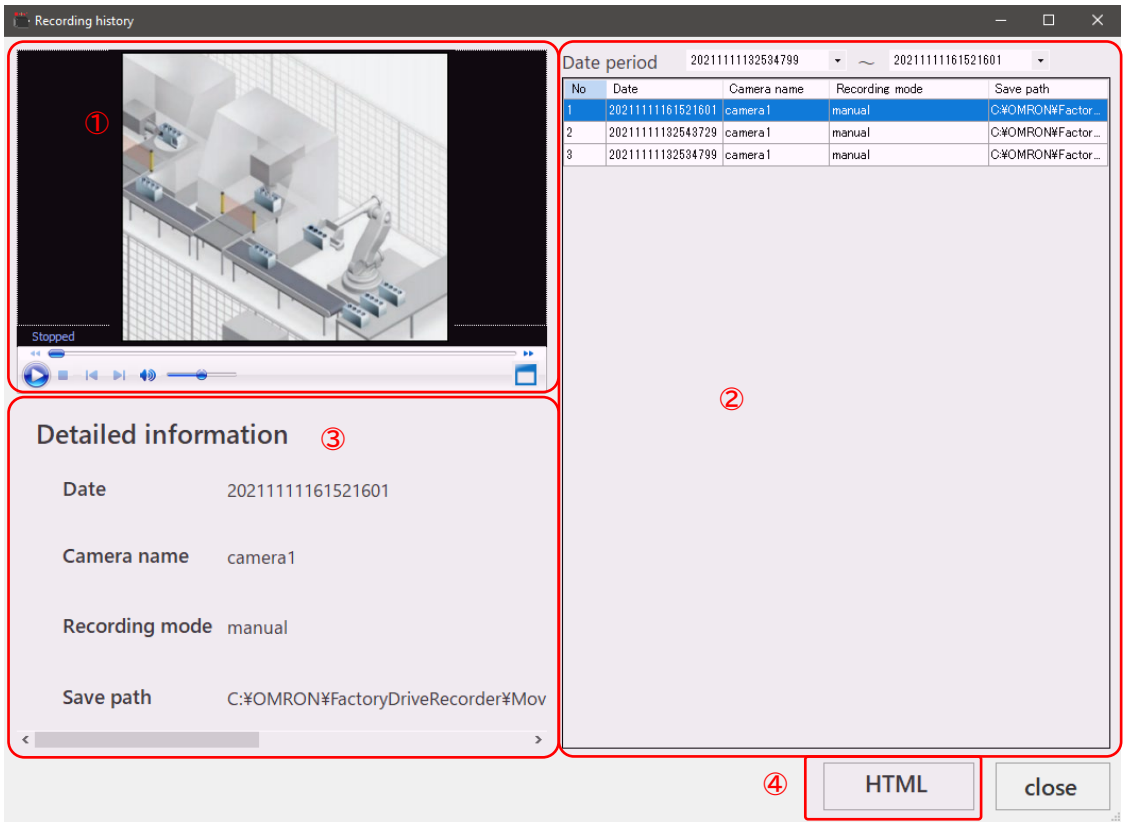


Status display during trigger recording

Status	Just after switching	[REC] button clicked (Start recording)	Before trigger Recording time passed	Triggered	After trigger Recording time passed	[REC] button clicked (End recording)
Display	Camera image display	Waiting for trigger	Waiting for trigger	Recording	Waiting for trigger →During combining: “Video is being saved”	Camera image display

7. Watching Recorded Video

This history window can play recorded video files in
History window is displayed when [History] button in the main window is clicked.

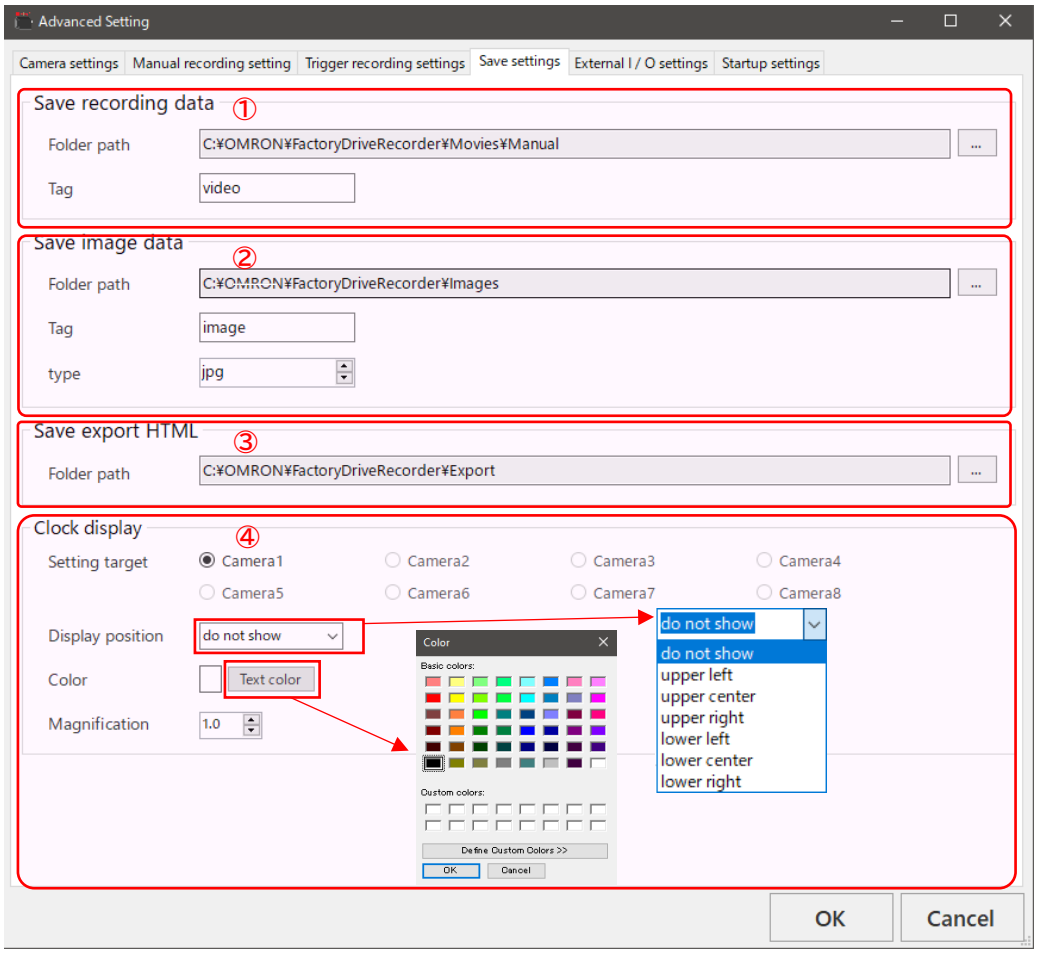


No.	Items	Description
1	Playing area	Plays recorded video files.
2	Recorded file list	List of recorded files is shown here. Recorded file selected from this list is played on the playing area. Recorded files can be searched by “Date period”. Also, the list can be sorted by clicking on list items (No/Date/Camera name/Recording mode/Save path).
3	Details of recorded file	Details of recording file is shown here. Recording mode “manual” is a file recorded by “Manual recording”. Recording mode “trigger” is a file recorded by “Trigger recording”.
4	HTML	Exports recorded file list by HTML format. The list of recorded files and details can be confirmed via browser.

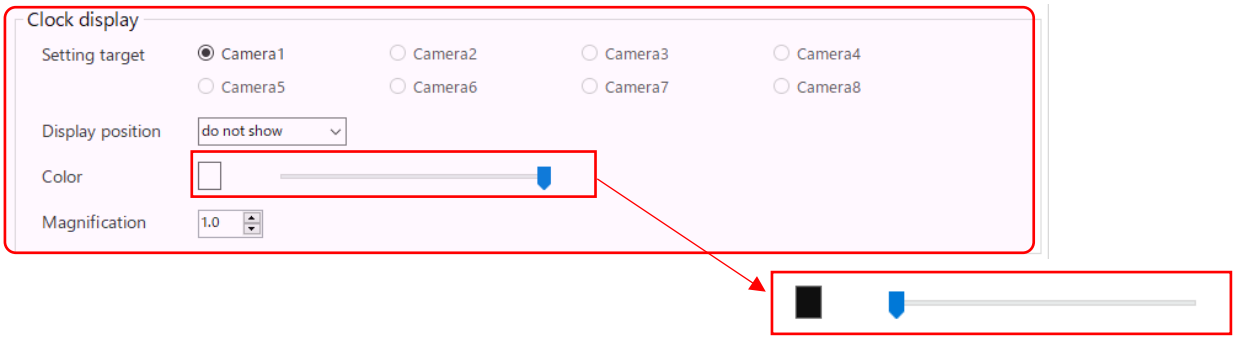
☞Video files are played via Windows Media Player.
Please install Windows Media Player to your PC if it is not installed.

8. Other Settings

8-1. Save settings



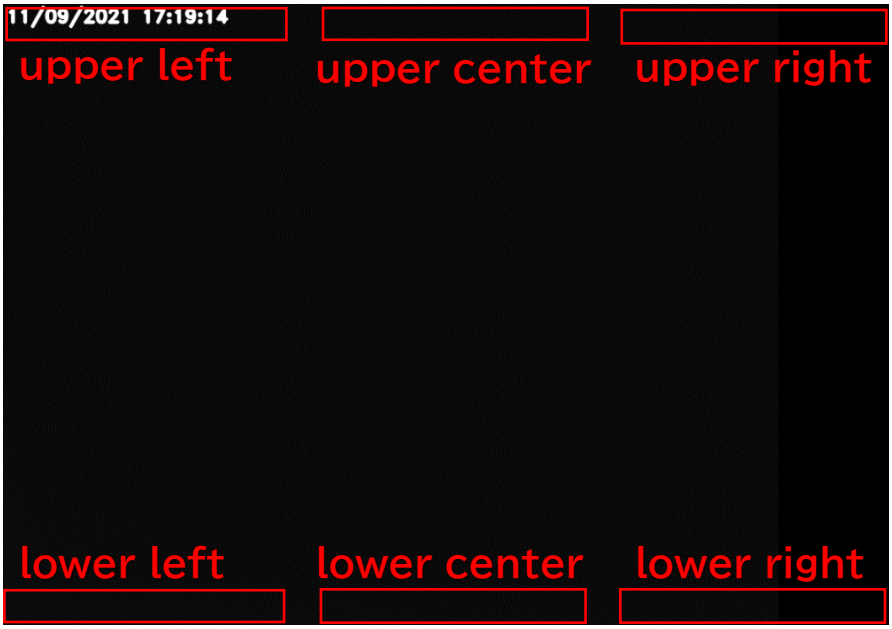
For monochrome camera

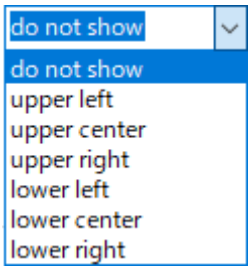


No.	Items	Description
1	Save recording data	Save folder for recorded data. “C:¥OMRON¥FactoryDriveRecorder¥Movies” is set as default. Click on ... button to select folder if this needs to be changed.

		“Tag” will be added on beginning of recorded data filename.
2	Save image data	Save folder for image data. “C:¥OMRON¥FactoryDriveRecorder¥Images” is set as default. Click on ... button to select folder if this needs to be changed. “Tag” will be added on beginning of recorded data filename. Image format can be selected from JPG/PNG/BMP.
3	Save export HTML	Save folder for exported HTML from history window. “C:¥OMRON¥FactoryDriveRecorder¥Export” is set as default. Click on ... button to select folder if this needs to be changed.
4	Clock display	Embed the clock during recording, and display it while playing video. Select a camera that configures Clock display in Setting target. →Only one camera can be selected. Select clock display position in Display position (See the below). Select text color in Color. (※For monochrome camera, adjust text color using color bar. It turns white to the right, and black to the left.) Select font size in Magnification.

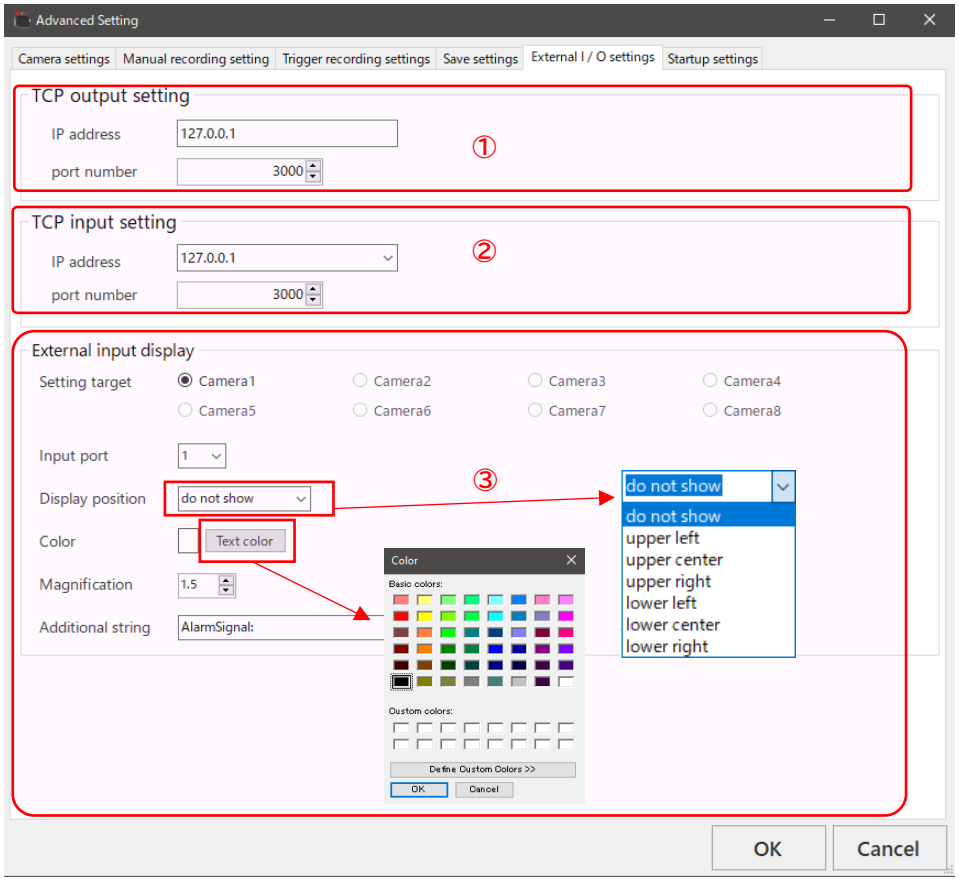
About clock display position



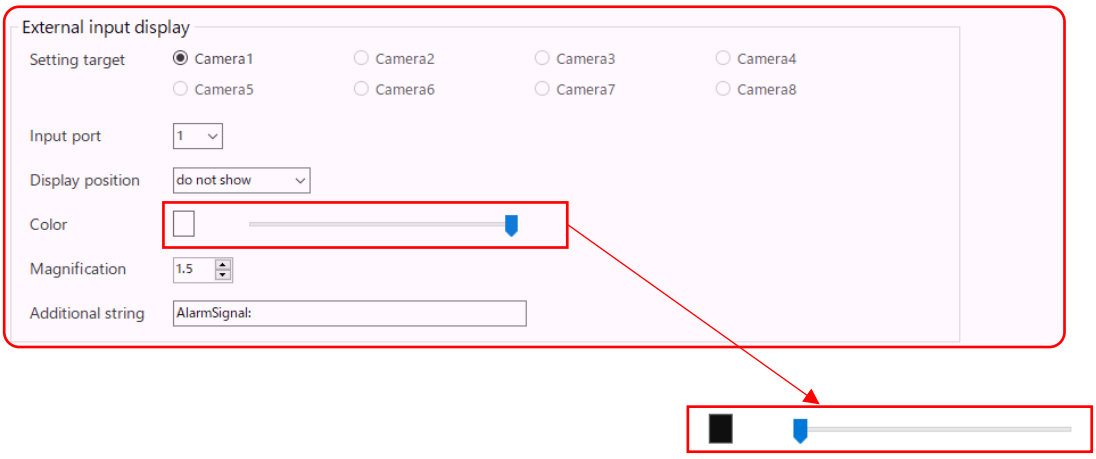


8-2. External I/O Settings

TCP communication can be configured here.



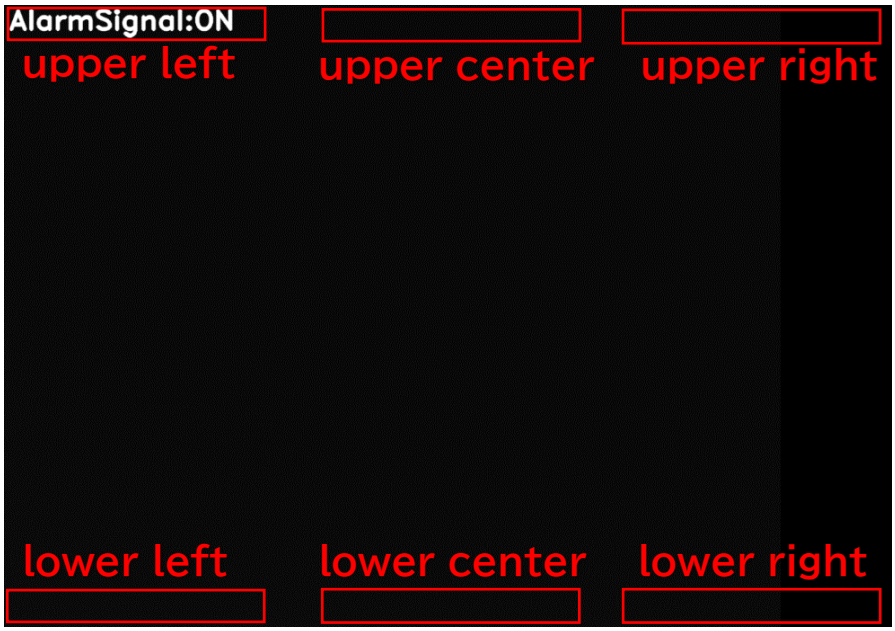
For monochrome camera

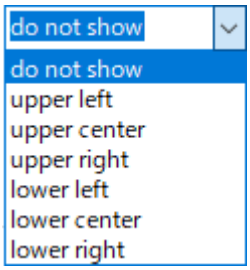


No.	Items	Description
1	TCP output setting	Outputs this system's status via TCP. Sets output IP address and port number. Please see the table below for TCP output information.
2	TCP input setting	Configures TCP port for TCP command in trigger recording when "trigger signal" is selected for event signal. Sets input IP address and port number.

3	External input display	Embeds the external signal input during recording, and display it while playing video. Select a camera that configures external input display in Setting target. →Only one camera can be selected. Select input port. Select external input display position in Display position (See the below). Select text color in Color. (※For monochrome camera, adjust text color using color bar. It turns white on the right, and black on the left.) Select font size in Magnification. Enter strings in Additional string.

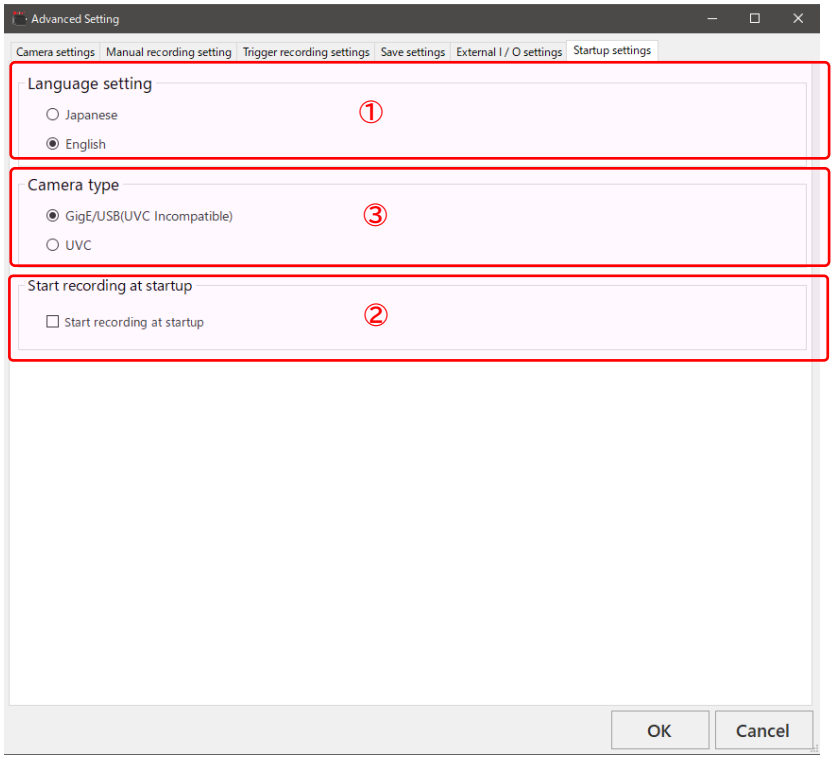
About external input display position





8-3. Startup settings

Startup settings of this application can be configured here.

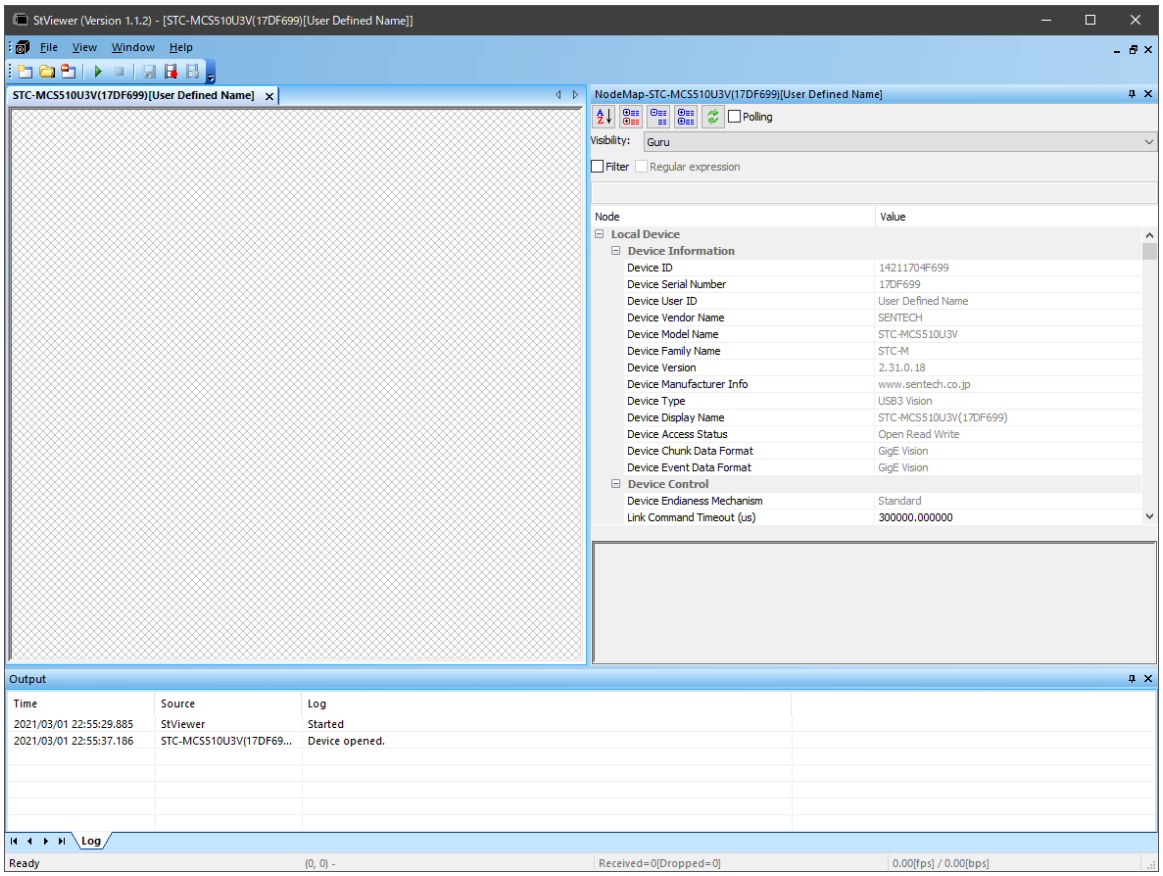


No.	Items	Description
1	Language setting	If Japanese is selected, this application is displayed in Japanese. If English is selected, this application is displayed in English.
2	Camera type	If GigE/USB is selected, the camera mode is set in GigE/USB. If UVC is selected, the camera mode is set in UVC.
3	Start recording at startup	Recording can be started without clicking the REC button at startup.

This application will be closed automatically if this setting is changed.
Please run the application again.

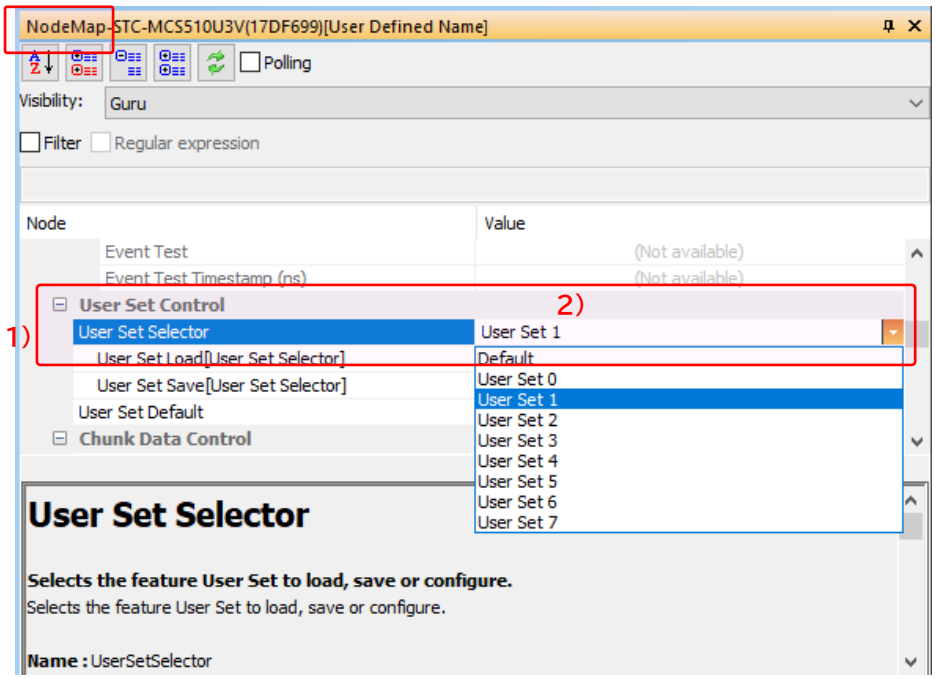
8-4. StViewer

This is a camera setting tool included in Sentech SDK.
Other settings not included in Advanced setting window can be configured in this tool.

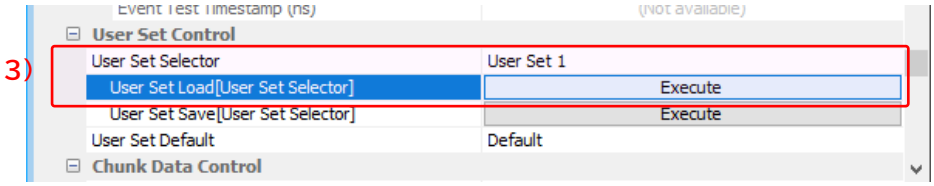


8-4-1. Reading Settings

“Reading settings” must be done before setting cameras. Control “NodeMap” on the right side of the StViewer window.



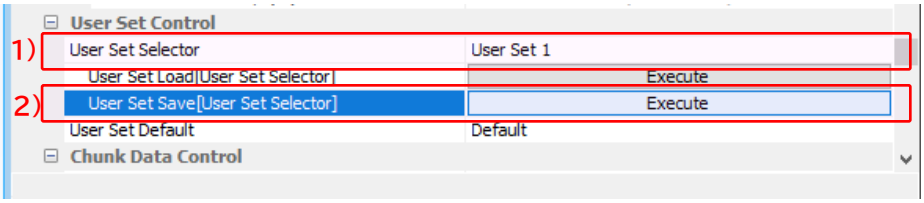
1) Select “User Set Selector” Node.
2) Select “User Set 1” from the list.
*This system uses “User Set 1”.



3) Click the “Execute” button in “User Set Load” Node.
Camera settings will be read.

8-4-2. Saving Settings

After configuration, this tool can “save” these settings.



1) Confirm that “User Set 1” is selected in “User Set Selector”Node.
2) Click the “Execute” button in “User Set Save”Node.
Camera settings will be saved.

9. TCP input/output

9-1. TCP command list

Command name	Command	Option	Parameter	Data details
Manual recording start	recstart	manual	Camera No.	0: All cameras recording 1 – 8: Individual camera recording
Manual recording stop	recstop	manual	Camera No.	0: All cameras recording 1 – 8: Individual camera recording
Trigger recording start	recstart	trigger	-	-
Trigger input	trigger	-	Camera No.	**Camera No.** 0: All cameras recording 1 – 8: Individual camera recording
Trigger recording stop	recstop	trigger	-	-
Capture	capture	-	-	-
File name change	settings	recname	strings	Processes data from space to CR as a path. (extension need not to add)
Folder path change	settings	recdirectory	strings	Processes data from space to CR as a path. (extension need not to add)
Trigger type change	settings	triggertype	timer	-
			motion	-
			master	-
			signal	-

※Parameter finishes in CR(0x0d).
※Command (Command type) is stored at the front.
※Separates the Command, Option and Parameter with a space.

9-1-1. TCP Command details

Common error
・Command, Option, or Parameter is wrong.
・Cannot run because the main window is not displayed.
・Cannot run because the camera is not connected.

■Manual recording start
Specifies the manual recording start.

<Command format>
recstart manual □ (CR)
※□ means Camera No.

<Response format>
Success:OK(CR)
Error:NG(CR)
・Cannot run because the recording is currently in progress.
・Cannot run because the Camera No. is out of range.

<Usage example>
recstart manual 0 (CR)

■Manual recording stop
Specifies the manual recording stop.

<Command format>
recstop manual □ (CR)
※□ means Camera No.

<Response format>
Success:OK(CR)
Error:NG(CR)
・Cannot run because the Camera No. is out of range.

<Usage example>
recstop manual 0 (CR)

■Trigger recording start
Specifies the trigger recording start.

<Command format>
recstart trigger (CR)

<Response format>
Success:OK(CR)
Error:NG(CR)
・Cannot run because the recording is currently in progress.

<Usage example>
recstart trigger (CR)

■Trigger input
Inputs the trigger.

<Command format>
trigger □ (CR)
※□ means Camera No.

<Response format>
Success:OK(CR)
Error:NG(CR)
・Cannot run because the recording is currently in progress.
・Cannot run because the Camera No. is out of range.
・Cannot run because the trigger recording is not started.

<Usage example >
trigger 0 (CR)

■Trigger recording stop
Specifies the trigger recording stop.

<Command format>
recstop trigger (CR)

<Response format>
Success:OK(CR)
Error:NG(CR)

<Usage example>
recstop trigger (CR)

■Capture
Specifies the image capture.

<Command format>
capture (CR)

<Response format>
Success:OK(CR)
Error:NG(CR)

<Usage example>
capture (CR)

■File name change
Specifies the file name change.

<Command format>
settings recname file name (CR)

<Response format>
Success:OK(CR)
Error:NG(CR)
・Cannot run because the recording is currently in progress.

・The file name includes strings that cannot be specified.

<Usage example>
settings recname SampleVideoName001 (CR)

■Folder path change
Specifies the folder path change.

<Command format>
settings recdirectory folder path (CR)

<Response format>
Success:OK(CR)
Error:NG(CR)
・Cannot run because the recording is currently in progress.
・The folder name includes strings that cannot be specified.
・The specified path cannot generate a folder.

<Usage example>
settings recdirectory C:¥Sample Video¥FctoryDriveRecorder (CR)

■Trigger type change
Specifies the trigger type change.

<Command format>
settings triggertype □□□□□ (CR)
※□□□□□ means the following strings.
timer : Time trigger
motion : Motion detection
master : Master image comparison
signal : Trigger signal

<Response format>
Success:OK(CR)
Error:NG(CR)
・Cannot run because the recording is currently in progress.

<Usage example>
settings triggertype timer (CR)

9-2.TCP Output list

Command name	Command	Option	Parameter 1	Parameter 2
Recording start	recstart	manual	Camera No.	-
		motion		
		master		
		timer		
		signal		
Recording stop	recstop	manual	Camera No.	-
		motion		
		master		
		timer		
		signal		
Recorded file name notice	recfilename	-	Camera No.	File path

9-2-1. TCP Output details

■Recording start

<Command format>

recstart □□□□□ △ (CR)

※□□□□□ means the following strings.

manual : Manual recording
motion : Motion detection
master : Master image comparison
timer : Time trigger
signal : Trigger signal

※△ means Camera No.

<Usage example>

recstart manual 0 (CR)

■Recording stop

<Command format>

recstop □□□□□ △ (CR)

※□□□□□ means the following strings.

manual : Manual recording
motion : Motion detection
master : Master image comparison
timer : Time trigger
signal : Trigger signal

※△ means Camera No.

<Usage example>

recstop motion 1 (CR)

■Recorded file name notice

<Command format>

recfilename △ ○○○○○ (CR)

※△ means Camera No.

※○ means file path

<Usage example>

recfilename 2 C:¥Sample¥Manual¥video_manual_20211102_161829033_camera1.avi (CR)

10. Limitations

10-1. USB Connectors for your PC

If camera can connect to PC via USB, please make sure to connect to “USB3.0” port on your PC.

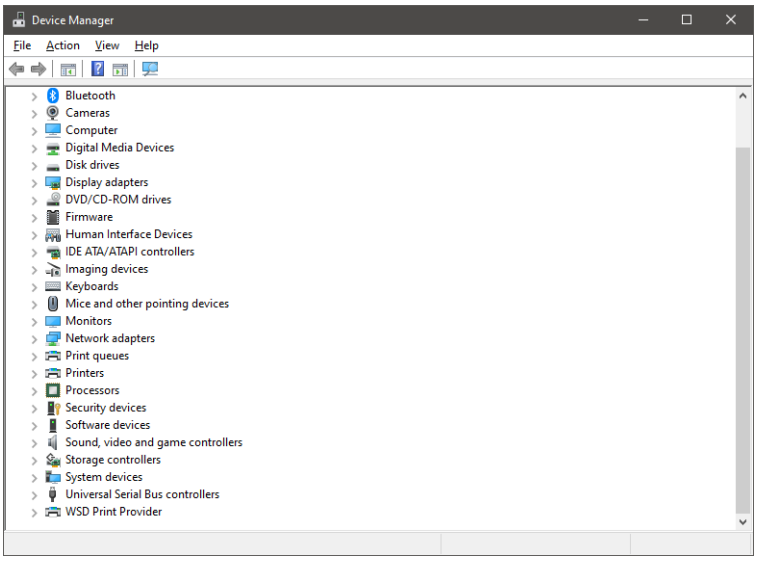
	USB2. 0	USB3. 0
Logo		
Connector		 Blue connector

If camera is connected to USB 2.0 port, recording by high resolution/high frame rate may not work properly.

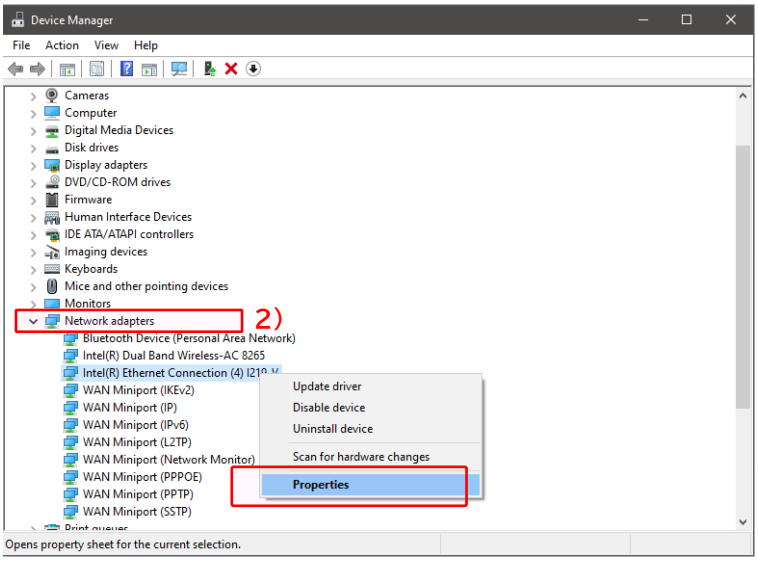
10-2. PC Network Settings

Please follow steps below if camera is connecting to your PC via GigE.

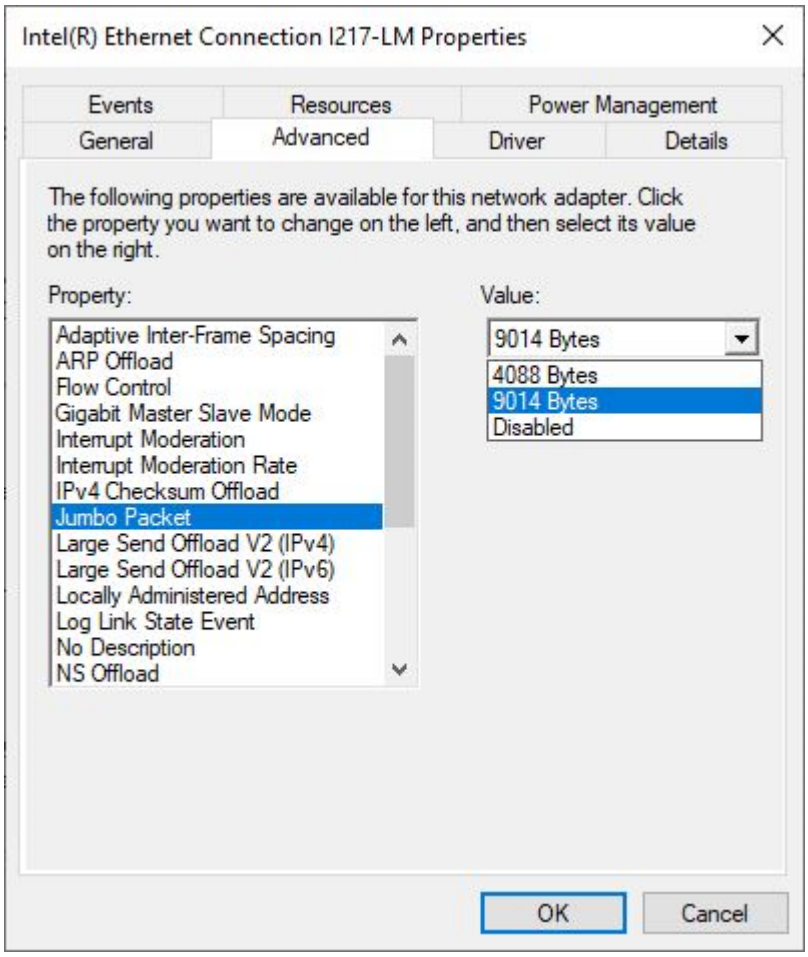
1) Open the Device Manager from Windows Control Panel.



2) Select the LAN adapter that uses “Network adapters”, then select Properties.



3) Select “Jumbo Packet” from [Advanced] tab.
4) Change value from “Disabled” to “9014 bytes”, then click the “OK” button.



Without this setting, recording by high resolution/high frame rate may not work properly.

11. Error Processing

11-1. Troubleshooting

Problems	Solutions
Camera video is not displayed on main window.	・Confirm camera connection. ・Confirm that PC is compatible with USB 3.0 if camera is connected by USB. ・Confirm that camera's power is charged if camera is connected via LAN.
Cannot record video.	・Confirm PC storage capacity. ・Lower the frame rate. ※When message "Failed to save recorded data." is shown, the speculated cause and solutions are displayed. Ex.) "Failed to save recorded data. Out of memory. Restart the app and lower the frame rate."
Recording file is played too fast.	・Confirm that PC is compatible with USB 3.0 if camera is connected by USB. ・Confirm settings shown in chapter 10.2 if camera is connected via LAN.
Camera cannot be recognized.	・Confirm camera connection. ・Confirm that camera's power is charged if camera is connected via LAN. ・Confirm that IP address is in the same network if camera is connected via LAN.
TCP command cannot be received.	・Confirm that TCP input port is matched. ・Confirm PC's firewall settings.
Cannot output via TCP.	・Confirm that output IP address and port number is correct. ・Confirm whether port number is disconnected at output side or not.
Motion detection recording is not working.	・Confirm if the detection is intended by detection settings window.
Master image comparison recording is not working.	・Confirm that master image and camera resolution is matched. ・Confirm if the detection is intended by detection settings window.

11-2. Error Status

Messages	Solutions
”Out of memory error”	・Set camera’s resolution or frame rate lower than current settings.
“Failed to save recorded data. Out of disk space. Restart the app and increase the amount of free space.”	・Confirm camera connection. ・Confirm whether PC storage is enough or not.
“Failed to save recorded data. Out of memory. Restart the app and lower the frame rate.”	・Confirm camera connection. ・Set camera’s resolution or frame rate lower than current settings.
“Out of disk space” (System error)	・PC storage is not enough. Clean up PC storage by moving recording files to external storage, etc.
“Sentech SDK is not installed.”	・Follow steps in “3-1.Installing Sentech SDK”.

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Note: Do not use this document to operate the Unit.

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