

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

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

Camera configuration example

*: 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

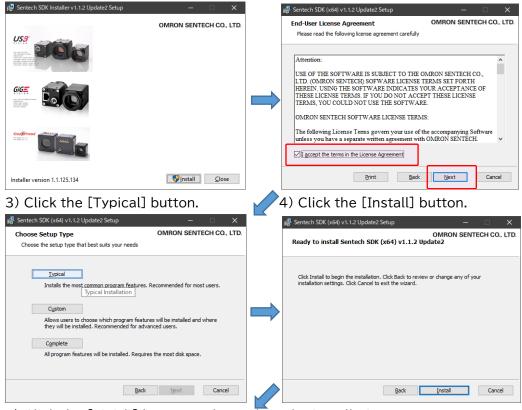
	Application Name	File Name	Description
	SentechSDK	SentechSDKInstaller.exe	Camera driver and detailed
			camera settings
	Factory Drive Recorder	Setup.exe	This application
Requi	red for PC environment to	o use system	

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.

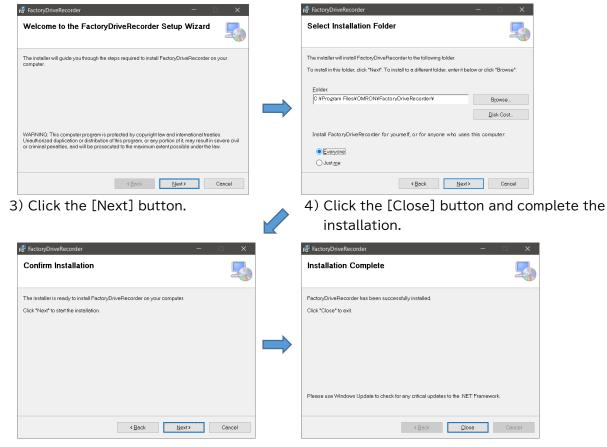


5) Click the [Finish] button and complete the installation.



3-2. Installing Factory Driver Recorder

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



3-3. 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].

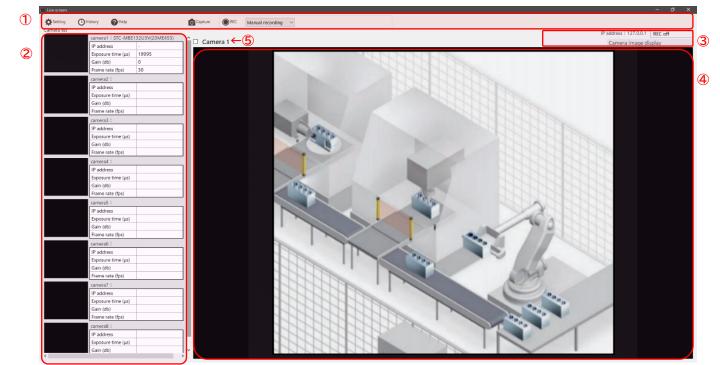
4. Application

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	Recording behavior can be selected from [Manual recording] or
selector	[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)

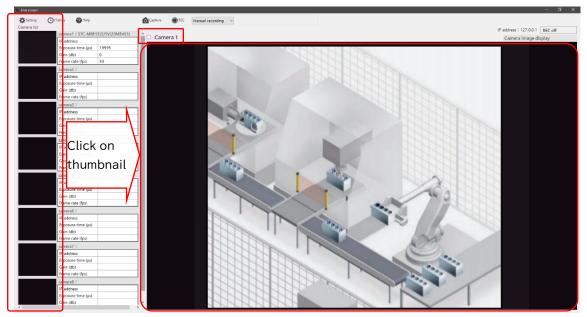
4-1-4. Status

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 <u>6-3.6 Timing of</u>
	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.

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.

			Camera to register		
STC-MCE132U3V(17#	(A983)		Camera1	~	Add
	(1)		STC-MCE132U3V(17AA9	2)	
ndividual camera Setting target	settings © Camera1 ○ Camera5	Camera2	Camera3	Camera4	
		3 (· · · · · · · · · · · · · · · · · · ·		
frame rate (1 - 62)	10 🜩 fp:	,			
	10 + fp:				
frame rate (1 - 62) Exposure time gain			-		
Exposure time	1006 μs				
Exposure time gain	1006 ÷ μs				4

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	This can change frame rate/exposure time/gain/white
	settings	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

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 rec	ording	Recording can be started/stopped manually.		
		This can record video by maximum of 60 minutes.		
Trigger	Time trigger	Recording will run once a day at specified time.		
recording	Motion	Recording will run when any change of camera's video		
	detection	is detected.		
	Master image	Recording will run when any difference between		
	comparison	prepared image and camera's video is detected.		
	Trigger signal	Uses switch input connected to camera for trigger of		
		recording.		
	Trigger signal	Uses TCP command input for trigger of recording.		
	(TCP command)			

This system can select following recording behaviors:

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.

🐣 Advanced Setting		-		×
Camera settings Manual recording settings Trigger recording settings Save settings External I / O settings Startu	p settings			
Continuous recording setting				
Recording days (1 - 366) 1 Days				
Split file recording time (1 - 60) 10 💭 Minutes				
Manual recording setting				
Recording time (1 - 60) 10 🙀 Minutes				
	ОК		Cance	el

Configuration item	Description
Recording days	Sets number of days of continuous recording.
	Range: 1 – 366 days
Split file recording Sets recording time for each file.	
time	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

	- D X
Capture REC Manual recording ~	
^	IP address : 127.0.0.1 REC off
Camera 1	Camera image display
1) Depending will start if [Continuous] hutters in the main window is alighted ([Continuous] is

- 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 <u>8-1. Save Setting</u>)
- ☞ 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.

Advanced Setting				- 🗆 ×
amera settings Manual recording setting Trigger n	ecording settings Save settings	External I / O settings	Startup settings	
Continuous recording setting				
Recording days (1 - 366)	1 Days			
Split file recording time (1 - 60)	10 Minutes			
Manual recording setting				
Recording time (1 - 60)	10 Minutes			
			ОК	Cancel

Configuration item	Description
Recording time	Sets maximum time of manual recording.
	Range: 1 – 60 minutes
After starting manual recording, the recording w	
	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

📄 Live screen							
Setting	History	() Help		O [•] Capture	REC	Manual recording	~
Camera list							
	camera	1:STC-MCE1	32U3V(17AA983)	^ 🗆			
	IP add	ress	-	Came	era i		
					-		

- 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 <u>7. Watching Recorded Video</u>)

☞ Save folder for video files can be changed by settings. (See <u>8-1. Save Setting</u>)

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.

🐣 Advanced Setting	-	
Camera settings Manual recording setting Trigger recording settings Save settings External I / O settings Startup	settings	
Event signal Image: Comparison O Time trigger 3600 ÷ seconds ago to (0 - 3600) O Master image comparison Trigger occurrence time (time trigger) O Trigger signal 0 ÷ Hour	seconds later(0 -	3600)
Detection condition (trigger signal) Camera receiving the Signal ④	Camera	
Detection conditions (motion detection / master image comparison) Individual camera settings Setting target © Camera1 Camera2 Camera3 Camera5 Camera6 Camera7	Camera	
Master image file C:¥OMRON¥FactoryDriveRecorder¥Config¥MasterImage.png Detection point (1 - 10) 1 ÷ Detection difference (1 - 255) 100 ÷ Difference area ratio (1 - 100) 50 ÷		-
Common settings for all cameras Detection interval (0.2 - 10.0) 0.2 Seconds 6 Recording target O Only the triggered Camera		
	ОК	Cancel

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	If [Time trigger] is selected in the
	trigger)	Event signal section, trigger time can be
		specified.
		Range: 0:00 – 23:59
4	Detection condition (trigger	If [Trigger signal] is selected in the Event signal
	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

	🖹 Advanced Setting — 🗆 🗙
	Camera settings Manual recording setting Trigger recording settings Save settings External I / O settings Startup settings
2)	Event signal Recording time 3) Time trigger Motion detection Master image comparison Trigger signal Time trigger) Trigger occurrence time (time trigger) Minutes Minutes Minutes Minutes Minutes Minutes Minutes Minutes Minutes Minutes Minutes Minutes Minutes Minutes Minutes Minutes Minutes

- 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

Live screen					7)	6)	
Setting Camera list	CHistory	? Help	0	Capture	REC	Trigger recording	✓ Time trigger
	1 : STC-MCE132U3V(1 ress -	7AA983)	Came	era 1			

- 6) Select [Trigger recording] in the main window.
- 7) If [REC] button is clicked, status will change to waiting trigger.
- \rightarrow 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 <u>7. Watching Recorded Video</u>)

6-3-2. Motion Detection

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

[1]Setting motion	detection trigger
-------------------	-------------------

ť	Advanced Setting				-	
	Camera settings Manual recording setting	g Trigger recording se	ettings Save settings Extern	nal I / O settings Startup	settings	
	Event signal	Recording time	3)			
	○ Time trigger	1	seconds ago to (0 - 360	00) 1 •	seconds later (0 - 360	00)
2)	Motion detection	Triager occurre	nce time (time trigge	er)		
	 Master image comparison 	0	Hour	0 🗘 Minutes		
	O Trigger signal	U v	Hour	• Winutes		
	Detection condition (trigger					
	Camera receiving the Signal	Camera1	Camera2	Camera3	Camera4	
	Line Settings	Camera5	Camera6	Camera7	Camera8	
	Detection conditions (motio	n detection / m	laster image compar	ison)		
4)	Individual camera settings					
	Setting target	Camera1	Camera2	Camera3	Camera4	
		Camera5	Camera6	Camera7	○ Camera8	J
	Master image file	C:¥OMRON¥Facto	oryDriveRecorder¥Config¥N	vlasterImage.png		
5)	Detection point (1 - 10)	1 🛉	Location Detection			
	Detection difference (1 - 255)	100 🛖				
	Difference area ratio (1 - 100)	50 💂	%			
	Common settings for all ca	meras				
6)	Detection interval (0.2 - 10.0)		Seconds			
	Recording target					
	Only the triggered Camera	● AI	l cameras			
					ОК	Cancel

- 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

Live screen							
Setting	CHistory	? Help		Capture	REC	Trigger recording	✓ Motion detection
Camera list	camera	1:STC-MCE1	32U3V(17AA983)	ר ⊂ Came	wa 1		
	IP addr	ess	-		ra I		

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 <u>7. Watching Recorded Video</u>) Master image comparison recording enables recording that uses difference between master image and camera video as trigger.

[1]Setting	master	image	comparison

🖆 Advanced Setting					- 🗆 X	
Camera settings Manual recording setting	Trigger recording s	ettings Save settings Ex	ternal I / O settings Sta	artup settings		
Event signal	Recording time	3)				
○ Time trigger	1 🔹	seconds ago to (0 -	3600) 1	seconds later (0	- 3600)	
O Motion detection	Trigger occurre	nce time (time trig				
 Master image comparison Trigger signal 		Hour	0 ← Minutes			
Detection condition (trigger	signal)					
Camera receiving the Signal	Camera1	○ Camera2	Camera3	3 Came	ra4	
Line Settings	Camera5	Camera6	Camera7	7 Came	ra8	
Detection conditions (motion	Detection conditions (motion detection / master image comparison)					
Individual camera settings -						
 Setting target 	Camera1	O Camera2	O Camera	3 Came	ra4	
	O Camera5	🔿 Camera6	O Camera	7 Came	ra8	
5) Master image file	C:¥OMRON¥Facto	oryDriveRecorder¥Conf	ig¥MasterImage.png			
Detection point (1 - 10)	1 🗭	Location Detectio	n			
6) Detection difference (1 - 255)	100 🔹					
Difference area ratio (1 - 100)	50 🔹	%				
Common settings for all car	meras					
7) Detection interval (0.2 - 10.0)	0.2	Seconds				
Recording target						
8) O Only the triggered Camera	Al	ll cameras				
				ОК	Cancel	

- 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

Setting History PHelp Capture REC Trigger recording V Master image comparison							Live screen
Comora list	parison	Trigger recording V Master image compariso	REC	O [•] Capture	? Help	History	
IP add	P address :	IP ad			CTC MCE422U2V/47AA002)	1 •	Camera list
camera1 : STC-MCE132U3V(17AA983)	Camera	C	ra 1				

- 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 <u>7. Watching Recorded Video</u>)

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

Advanced Setting				-	
Camera settings Manual recording setti	ng Trigger recording s	ettings Save settings Extern	nal I / O settings Startup	settings	
Event signal	Recording time				
O Time trigger	3) 30 🛊	seconds ago to (0 - 360	30	seconds later (0 -	3600)
O Motion detection	Tringen				
O Master image comparison		nce time (time trigge			
Trigger signal	0	Hour	0 🛉 Minutes		
Detection condition (trigge	<u> </u>				
Camera receiving the Signal	Camera1	Camera2	Camera3	Camera	
Line Settings	Camera5	Camera6	Camera7	Camera	8
	Camera5	Camera6	Camera7	○ Camera	8
Master image file	C:¥OMRON¥Facto	oryDriveRecorder¥Config¥N	VasterImage.png		
Detection point (1 - 10)	1 ×	Location Detection]		
Detection difference (1 - 255)	100 🔹				
Difference area ratio (1 - 100)	50 🔹	%			
Common settings for all c	ameras				
Detection interval (0.2 - 10.0)	0.2	Seconds			
Recording target					
Only the triggered Camera	A	ll cameras			
				OK	Cance

- 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

tive screen						
Setting	CHistory	() Help	O [•] Capture	REC	Trigger recording	 Trigger signal
Camera list						
	Г	STC-MCE132U3V(17AA983)	⊐ Î 🗆 Came	era 1		
	IP addre	255 -				

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 <u>7. Watching Recorded Video</u>) 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.

📇 Trigger Signal Detect Settings 🛛 🗙 🗙					
Camera1	High	<			
Camera2	High	~			
Camera3	High	~			
Camera4	High	\sim			
Camera5	High	\sim			
Camera6	High	~			
Camera7	High	~			
Camera8	High	~			
(2)		3			
0	K		Cancel		

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

[1]Detection trigger settings

Trigger S	Trigger Signal Detect Settings X				
1) Camera1	High	~			
Camera2	High	\sim			
Camera3	High	\sim			
Camera4	High	\sim			
Camera5	High	\sim			
Camera6	High	\sim			
Camera7	High	\sim			
Camera8	High	\sim			
C	OK		el		

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

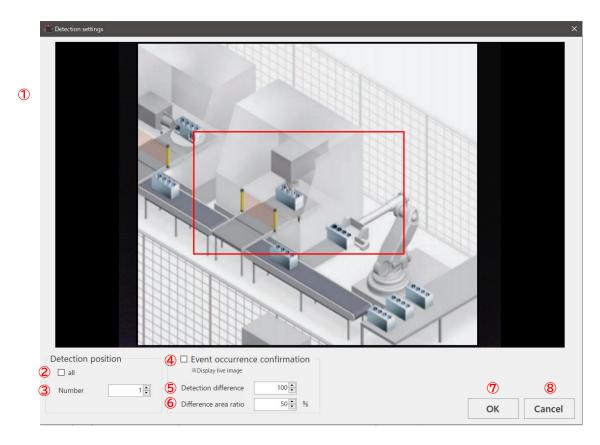
[2]Saving settings

- 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.

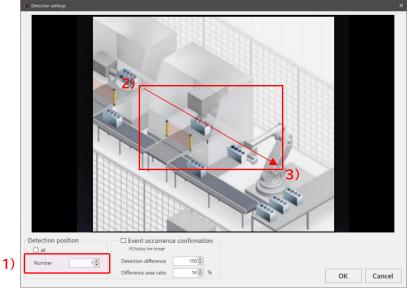
Detection setting window is shown, when [Detection] button at Detection condition (motion detection/master image comparison) in Advanced setting window is clicked.



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	All configured area are displayed in the image if this is	
	(Checkbox)	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	If this is checked, current camera image is shown as	
	confirmation	live image. This enables confirmation of event	
	(Checkbox)	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	ОК	Saves settings and close this window.
8	Cancel	Closes this window without saving settings.

[1]Setting detection area

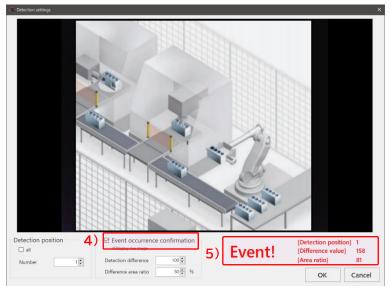


- 1) Select setting No. to add area.
- 2) Move mouse cursor to the image, and set start point (top-left) by left mouse click.
- 3) Drag the mouse cursor to the end point (bottom-right) and stop clicking.

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

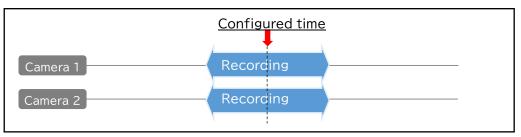
[3]Saving settings

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

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.

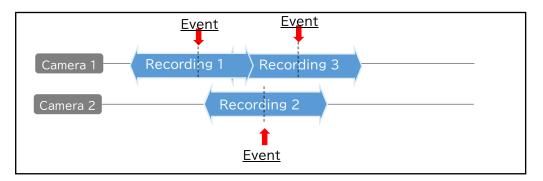
("Recording 1" in the diagram)

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.)



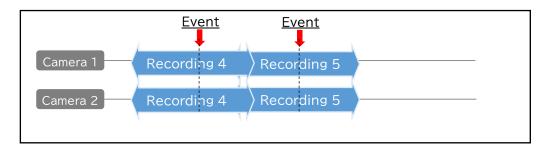
·If recording target is "All cameras"

All camera's recording start at same time if events occur in any camera.

("Recording 4" in the diagram)

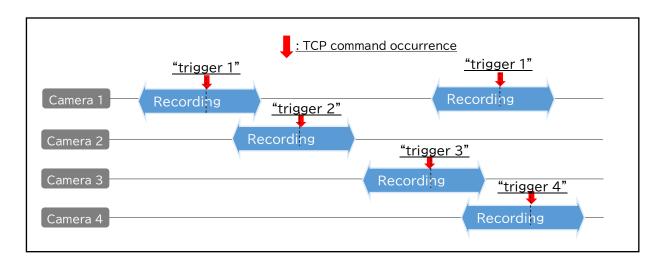
After the event, new events will not occur until the recording is finished.

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

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.

🐣 Recording history	- 0	×
	Date period 20211111132584799 • ~ 20211111161521601 •	
	No Date Camera name Recording mode Save path	
	1 20211111161521601 camera1 manual C:¥OMRON¥	Factor
	2 20211111132543729 camera1 manual C:¥OMRON¥	Factor
	3 20211111132534799 camera1 manual C¥OMRON¥	Factor
	2	
Detailed information 3		
Date 20211111161521601		
Camera name camera1		
Recording mode manual		
Save path C:¥OMRON¥FactoryDriveRecorder¥	Aov >	
	④ HTML close	se

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

Advanced Setting	Advanced Setting – 🗆 X						
Camera settings Manual	Camera settings Manual recording setting Trigger recording settings Save settings External I / O settings Startup settings						
Save recording d	lata 🗻						
Folder path	C:¥OMRON¥Factory	DriveRecorder¥Movies¥M	anual				
Tag	video						
Save image data	(2)						
Folder path	C:¥OMRON¥Factory	DriveRecorder¥Images					
Tag	image						
type	jpg						
Save export HTM	41 -						
	3						
Folder path	C:¥OMRON¥Factory	DriveRecorder¥Export					
Clock display	4						
Setting target	Camera1	Camera2	🔘 Camera3	O Camera4			
	Camera5	Camera6	Camera7	Camera8			
Display position	do not show $~~$	Color	× –	not show 🗸			
Color	Text color	Basic colors:	upp	er left er center			
Magnification	1.0		upp	er right er left			
				er center			
		Oustom colors:		er right			
		Define Custor					
		OK Can					
				ОК	Cancel		

For monochrome camera

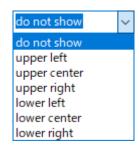
ſ	Clock display					
	Setting target	Camera1	🔿 Camera2	🔿 Camera3	O Camera4	
		🔿 Camera5	🔘 Camera6	🔿 Camera7	🔿 Camera8	
	Display position	do not show	~			
	Color					
l	Magnification	1.0				J
1					\	
					× =	

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

upper left	upper center	upper right
lower left	lower center	lower right



Advanced Setting				Estemat 1/2			- 0	×
Camera settings Manual	I recording setting Trigger re	cording settings	Save settings	External I / O se	ttings Startup	settings		
TCP output sett	ing							
IP address	127.0.0.1							
port number	3000 🜩		1					
port number	3000							J
TCP input settin	g							
IP address	127.0.0.1	~	2					
port number	3000 🗘							
port number	3000							J
External input dis	play							
Setting target	Camera1	Camera2		Camera3		Camera4		
g g	Camera5	Camera6		Camera7		Camera8		
Input port	1 ~					_		
Display position	do not show 🛛 🗸		3		do not sho			
Color	Text color				do not sho upper left	N		
Color	Text color	Color		×	upper cente	er		
Magnification	1.5 🔹	Basic color	s.		upper right lower left			
Additional string	AlarmSignal:	┣┣			lower cente	er		
					lower right			
		Gustom co						
			efine Custom Color:	\$ >>				
		OK	Cancel					
						01/		-1
						OK	Canc	ei

TCP communication can be configured here.

For monochrome camera

External input dis	play			
Setting target	Camera1	O Camera2	🔿 Camera3	O Camera4
	🔘 Camera5	Camera6	🔘 Camera7	🔿 Camera8
Input port	1 ~			
Display position	do not show \sim			
Color				
Magnification	1.5		_	
Additional string	AlarmSignal:			
			_	
			ſ	

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.

2	External input diaplay	Embade the outernal signal input during recording and
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

L

Startup settings of this application can be configured here.

Advanced Setting				- 🗆 >	<
	Trigger recording settings Save settings	External I / O settings	Startup settings		
O Japanese	(1)				
 English 					
Camera type					
GigE/USB(UVC Incompatible)	3				
O uvc					
Start recording at startup	2				
Start recording at startup	<u> </u>				
			ОК	Cancel	

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	Recording can be started without clicking the REC button at
	startup	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.

Time Source Log 2021/03/01 22:55:29.865 StViewer Started 2021/03/01 22:55:37.166 STC-MCS510U3V(17DF69 Device opened. Image:	StViewer (Version 1.1.	.2) - [STC-MCS510U3V(17DF69	9)[User Defined Name]]			
Str. MCS3500/UV/D70990/jUser Defines Name) x Device Str. Name) x Device Str. Name) x Device Str. Name) x Device Version x	inde Eile View Winde	ow <u>H</u> elp				- 7 X
STC MCSS1002V11/DPERSPULSEE Defined Name] A Vertice IndextMap.ETC.MCSS1002V11/DPERSPULSEE Defined Name] Defined Name] Device Trifter IndextMap.ETC.MCSS1002V11/DPERSPULSEE A Device Trifter Device Trifter Device Trifter Device Trifter Device Trifter UEBS Vertice Name] Device Trifter Device Trifter Device Trifter UEBS Vertice Name] Device Trifter Device Trifter Device Trifter UEBS Vertice Name] Device Trifter Device Trift		_				
Output Image: Source Image: Source </th <th></th> <th></th> <th>4 b</th> <th>NodeMap-STC-MCS510U3V(17DE699)/User [</th> <th>Defined Name)</th> <th>л х</th>			4 b	NodeMap-STC-MCS510U3V(17DE699)/User [Defined Name)	л х
Validity: junc v Perr: Regular expression Vide: Value:						
Image:						
Note Vale Intel 1000000000000000000000000000000000000				Visibility: Guru		~
Output Output Device ID 142.1704499 Device ID Log Device ID Device ID Device ID Dev				Filter Regular expression		
Output Output Device ID 142.1704499 Device ID Log Device ID Device ID Device ID Dev						
Output Output Design Survey Survey Survey Survey Survey Survey Sun				Node	Mahar.	
Output Use Status Use Status Use Status Status Status Use Status Use Status Output Use Status Use Status Use Status Use Status Use Status Use Status Use Status					vaue	
Output 141100-6599 Device Start Munder 1075599 Device Start Munder 1075599 Device Verdar Namer 1075599 Device Verdar Namer 1075599 Device Verdar Namer 1075599 Device Verdar Namer 107100 Device Verdar Name 1071000 Device Verdar Name 10710000000000000000000000000000000000						· · · · · · · · · · · · · · · · · · ·
Output Device Serial Number 107/699 Device Version Serie Vondor Name SET(Ted Hame Device Version 2.31.0.18 Device Version 2.31.0.18 Device Version 0.00000 Device Version 2.31.0.18 Device Prove UBB3 Version Device Version 2.31.0.18 Device Prove UBB3 Version Device Access Status Open Read Version Device Event Data Format Oper Version Device Event Data Format Oper Version Device Event Data Format Oper Version Secondard Device Control Device Event Data Format Secondard Secondard Device Control Device Stratistication Secondard Secondard Secondard 202103011225529.885 Strated Secondard Secondard Secondard 202103011225529.885 Strated Secondard Secondard Secondard 202103011225529.					14211704E699	
Durice Uer ID User Derine Name Device Verdin Name SPITECH Device Verdin Name STC-MCSSIDU3V Device Parity Name STC-MCSSIDU3V Device Verdin Name STC-MCSSIDU3V Device Parity Name STC-MCSSIDU3V Device Parity Name STC-MCSSIDU3V(1707699) Device Parity Name STC-MCSSIDU3V(1707699) Device Control Device Tomat Device Control Device Control Device Control Device Control Device Endances Mechanism Standard Device Control Device Control Device Endances Mechanism Standard Device Device Indevice Standard Device Indevice Standard Device Endances Mechanism Standard Devic						
Device Model Name STC-MCS510L3V Device Version 2.3.1.0.18 Device Version 0.2.3.0.10 Device Version 0.2.3.0.0000 Device Version 0.2.3.0.00000 Device Version 0.2.3.0.00000 Device Version 0.2.3.0.0000000000000000000000000000000						
Device Family Name STC-M Device Family Name STC-M Device Version 2.31.0.18 Device Type UB33 Vision Device Control Data Format Oper Read Write Device Control Data Format Oper Vision Device Strate Strat				Device Vendor Name	SENTECH	
Device Version 2.31.0.18 Device Version UB33 Vacon Device Type Ut K Command Timeout (us) Source Stried Device Type Stried Device Type Device Ontrol Device Type Device Ontrol Source Stried Device Type Device Ontrol				Device Model Name	STC-MCS510U3V	
Device Manufacturer Info www.sentech.co.jp Device Type USB3 Vision Device Status Open Read Write Device Charlos Instance Open Read Write Device Foldenses Mechanism Istindard Like Charlos Instance Standard Device Foldenses Mechanism Standard Device Foldenses Mechanism Standard Device Type Standard Device Foldenses Standard Device Foldenses Standard Device Device Status Standard <td></td> <td></td> <td></td> <td>Device Family Name</td> <td>STC-M</td> <td></td>				Device Family Name	STC-M	
Device Type USB Vision Device Type USB Vision Device Colsplay Name STC-MCSS 10U3V(17DF699) Device Access Status Open Read Write Device Control Device Control Device Findaness Mechanism Standard Device Control Device Control Device Endaness Mechanism Standard Unk Command Timeout (us) 300000,00000 Time Source Log 2021/03/01 22:55:29.885 Stifiewer Started Store Log Log Viewer Press Device opened. Use Viewer Viewer Started Use Viewer Viewer Started Use Viewer Viewer Viewer Viewer Viewer				Device Version	2.31.0.18	
Device Display Name STC-MCS510U3V(17DF69) Device Christ Device Device Christ Device Chrite Christ Device Christ Device Chrite Christ				Device Manufacturer Info	www.sentech.co.jp	
Output						
Device Churk Data Format GigE Vision Device Endaness Mechanism Standard Device Endaness Mechanism Standard Link Command Timeout (us) 300000.000000						
Device Event Data Format GigE Vision Device Endmass Mechanism Standard Link Command Timeout (us) 300000.000000 Output						
Output Device Control Device Control Device Endanese Mechanism Standard Unic Command Timeout (us) 300000.00000 Viewer Standard Unic Command Timeout (us) 30000.00000 Periode Endanese Mechanism Standard Unic Command Timeout (us) 30000.00000 Periode						
Device Endaness Mechanism Standard Link Command Timeout (us) 300000.00000 V Output					GigE Vision	
Link Command Timeout (us) 300000.000000 Output Image: Source so					Chandrad	
Output 3000000000000000000000000000000000000						
Time Source Log 2021/03/01 22:55:29.865 StViewer Started 2021/03/01 22:55:37.186 STC-MCSS10U3V(17DF69 Device opened.				Link Command Timeout (us)	30000.000000	
Time Source Log 2021/03/01 22:55:29.865 StViewer Started 2021/03/01 22:55:37.186 STC-MCSS10U3V(17DF69 Device opened. Image: High Part of the P						
Time Source Log 2021/03/01 22:55:29.865 StViewer Started 2021/03/01 22:55:37.186 STC-MCSS10U3V(17DF69 Device opened. Image: High Part of the P						
Time Source Log 2021/03/01 22:55:29.865 StViewer Started 2021/03/01 22:55:37.186 STC-MCSS10U3V(17DF69 Device opened.						
Time Source Log 2021/03/01 22:55:29.865 StViewer Started 2021/03/01 22:55:37.186 STC-MCSS10U3V(17DF69 Device opened.						
Time Source Log 2021/03/01 22:55:29.865 StViewer Started 2021/03/01 22:55:37.186 STC-MCSS10U3V(17DF69 Device opened.						
Time Source Log 2021/03/01 22:55:29.865 StViewer Started 2021/03/01 22:55:37.186 STC-MCSS10U3V(17DF69 Device opened.						
Time Source Log 2021/03/01 22:55:29.865 StViewer Started 2021/03/01 22:55:37.186 STC-MCSS10U3V(17DF69 Device opened.						
2021/03/01 22:55:29.865 2021/03/01 22:55:37.186 STC-MCSS10U3V(17DF69 H	Output					џ >
2021/03/01 22:55:29.865 2021/03/01 22:55:37.186 STC-MCSS10U3V(17DF69 H	Time	Source	100			
2021/03/01 22:55:37.186 STC-MCS510U3V(17DF69 Device opened.						
K () N log						
	2021/03/01 22:33:37:100	310-1003310037(170105	Device opened.			
	H A N N LOG					
	Ready		(0,0)	Pereived-OfDropped-0	0.00(fps] / 0.00(bps]	

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

	NodeMap	p-STC-MCS510U3V(17DF699)[User Defined N	lame]		φ×
-	2↓ 🔡	🖳 😳 🤣 💭 Polling			
V	isibility:	Guru			~
C	Filter	Regular expression			
	Node		Value		
		Event Test		(Not available)	~
		Event Test Timestamp (ns)		(Not available)	
	🗆 Us	er Set Control	2)		
1)	Us	er Set Selector	User Set 1		-
Y		User Set Load[User Set Selector]	Default		
		User Set Save[User Set Selector]	User Set 0		
		er Set Default	User Set 1 User Set 2		
	🗆 Ch	unk Data Control	User Set 2 User Set 3		~
			User Set 4		
F			User Set 5		<u> </u>
	llcor	Set Selector	User Set 6		<u>^</u>
	USCI	Set Selector	User Set 7		
		the feature User Set to load, save or co	-		
ł	Selects th	e feature User Set to load, save or configure.			
	Name:U	JserSetSelector			~
1)	مام	rt "I Iser Set Selector" Nod	0		

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

1		Event Lest Limestamp (ns)	(NOT available)	
	E	User Set Control		
3)		User Set Selector	User Set 1	
J		User Set Load[User Set Selector]	Execute	
		User Set Save[User Set Selector]	Execute	
		User Set Default	Default	
	E	Chunk Data Control		¥

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.

	User Set Control		
1)	User Set Selector	User Set 1	
	User Set Load User Set Selector	Execute	
2)	User Set Save[User Set Selector]	Execute	
	User Set Default	Default	
	Chunk Data Control		~

- 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	recstart	manual	Camera No.	0: All cameras recording
start				1 – 8: Individual camera
				recording
Manual recording	recstop	manual	Camera No.	0: All cameras recording
stop				1 – 8: Individual camera
				recording
Trigger recording	recstart	trigger	-	-
start				
Trigger input	trigger	-	Camera No.	Camera No.
				0: All cameras recording
				1 – 8: Individual camera
				recording
Trigger recording	recstop	trigger	-	-
stop				
Capture	capture	-	-	-
File name change	settings	recname	strings	Processes data from space
				to CR as a path.
				(extension need not to add)
Folder path	settings	recdirectory	strings	Processes data from space
change				to CR as a path.
				(extension need not to add)
Trigger type	settings	triggertype	timer	-
change			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 \Box (CR) \rtimes 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.
- $\cdot \mbox{The specified path cannot generate a folder.}$

<Usage example>

settings recdirectory C:\Sample Video\FctoryDriveRecorder (CR)

Trigger type change

Specifies the trigger type change.

<Command format>

settings triggertype $\Box\Box\Box\Box\Box$ (CR)

 $\square\square\square\square$ 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	recfilename	-	Camera No.	File path
name notice				

9-2-1. TCP Output details

Recording start

<Command format>

recstart $\Box\Box\Box\Box\Box$ \triangle (CR)

 \square means the following strings.

manual : Manual recording

motion : Motion detection

master : Master image comparison

timer : Time trigger

signal : Trigger signal

 $\stackrel{\text{\tiny $\%$}}{\sim}$ means Camera No.

<Usage example>

recstart manual 0 (CR)

■Recording stop

<Command format>

recstop $\Box\Box\Box\Box\Box \Delta$ (CR) $\square\Box\Box\Box\Box$ means the following strings.

- manual : Manual recording
- motion : Motion detection

master : Master image comparison

- timer : Time trigger
- signal : Trigger signal
- Δ means Camera No.

<Usage example>

recstop motion 1 (CR)

Recorded file name notice

<Command format>

recfilename △ OOOOO (CR) ※△ means Camera No. ※O means file path

<Usage example>

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

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.

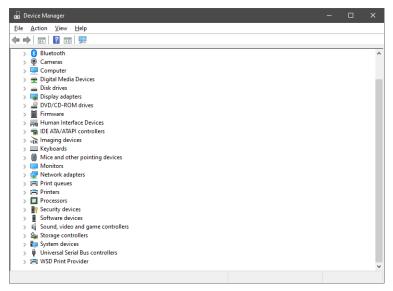
	USB2.0	USB3.0
Logo		SS←
Connector		Blue connector

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.

N 📫 Drint queuer	🖬 Device Manager		
> ● Cameras > ■ Dight Media Devices > ■ Dight drives > ■ Inaging devices > ■ Monitors > ■ Metwork adapters > ■ Intel(R) Dual Band Wireless-AC 8265 ● Intel(R) Dual Band Wireless-AC 8265 ● Intel(R) Dual Band Wireless-AC 8265 ● WAN Minipot (IEV2) ■ Digitable device ● WAN Minipot (IEV2) ■ Digitable device ● WAN Minipot (IEV2) ■ Digitable device ● WAN Minipot (IEV6) ■ Digitable device ● WAN Minipot (IEVPOE) ● Properties ● WAN Minipot (SIPP) ● Properties ● WAN Minipot Reverse ● Properties	File Action View Help		
 Computer Digital Media Devices Disk drives Display adapters DVD/CD-ROM drives Firmware Human Interface Devices Inaging devices Inaging devices Monitors Monitors Monitors Monitors Intel(R) Ethernet Connection (4) (210 M WAIN Minipot (IKe2) WAIN Minipot (ISIP) Properties 	⊨ ⇔ ☶ 📴 🗾 💷 🖳 💺 🗙 💿		
Intel(R) Ethernet Connection (4) (210 V WAN Miniport (IK-V2) WAN Miniport (IP) Disable device WAN Miniport (IP/o) WAN Miniport (Porton WAN Miniport (PPOPOE) WAN Miniport (STP) WAN Miniport (SSTP)			
	WAN Miniport (IKEv2) Update driver WAN Miniport (IP) Ubiable device WAN Miniport (IP0) Winport (Pr0) WAN Miniport (IZTP) WAN Miniport (Network Monitor) Scan for hardware changes WAN Miniport (PPOE) Properties WAN Miniport (SSTP)		
	Dens property sheet for the current selection.		

3) Select "Jumbo Packet" from [Advanced] tab.

4) Change value from "Disabled" to "9014 bytes", then click the "OK" button.

Value: Value: Value: Value: 9014 Bytes 9014 Bytes 9014 Bytes 4088 Bytes 9014 Bytes 4088 Bytes 9014	Events	Resour	ces	Power N	lanagement
he property you want to change on the left, and then select its value n the right. Property: Adaptive Inter-Frame Spacing ARP Offload Flow Control Gigabit Master Slave Mode Interrupt Moderation Interrupt Moderation Interrupt Moderation Rate IPv4 Checksum Offload Jumbo Packet Large Send Offload V2 (IPv4) Large Send Offload V2 (IPv6) Locally Administered Address Log Link State Event No Description	General	Advance	d	Driver	Details
Adaptive Inter-Frame Spacing ARP Offload Flow Control Gigabit Master Slave Mode Interrupt Moderation Interrupt Moderation Rate IPv4 Checksum Offload Jumbo Packet Large Send Offload V2 (IPv4) Large Send Offload V2 (IPv6) Locally Administered Address Log Link State Event No Description				t, and then selec	
ARP Offload Flow Control Gigabit Master Slave Mode Interrupt Moderation Interrupt Moderation Rate IPv4 Checksum Offload Jumbo Packet Large Send Offload V2 (IPv4) Large Send Offload V2 (IPv6) Locally Administered Address Log Link State Event No Description		ame Spacing	^	9014 Bytes	1
Prove Control Gigabit Master Slave Mode Interrupt Moderation Interrupt Moderation Rate IPv4 Checksum Offload Jumbo Packet Large Send Offload V2 (IPv4) Large Send Offload V2 (IPv6) Locally Administered Address Log Link State Event No Description	ARP Offload			and the second s	
Interrupt Moderation Interrupt Moderation Rate IPv4 Checksum Offload Jumbo Packet Large Send Offload V2 (IPv4) Large Send Offload V2 (IPv6) Locally Administered Address Log Link State Event No Description		lave Mode		9014 Bytes	
IPv4 Checksum Offload Jumbo Packet Large Send Offload V2 (IPv4) Large Send Offload V2 (IPv6) Locally Administered Address Log Link State Event No Description				Disabled	
Jumbo Packet Large Send Offload V2 (IPv4) Large Send Offload V2 (IPv6) Locally Administered Address Log Link State Event No Description					
Large Send Offload V2 (IPv4) Large Send Offload V2 (IPv6) Locally Administered Address Log Link State Event No Description		Offload			
	Large Send Offlo Large Send Offlo Locally Administe	ad V2 (IPv6) ered Address	~		

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	•Confirm camera connection.
window.	•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	•Confirm if the detection is intended by detection
working.	settings window.
Master image comparison recording is	•Confirm that master image and camera resolution is
not working.	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	·Confirm camera connection.
disk space.	•Confirm whether PC storage is enough or not.
Restart the app and increase the	
amount of free space."	
"Failed to save recorded data. Out of	·Confirm camera connection.
memory.	\cdot Set camera's resolution or frame rate lower than
Restart the app and lower the frame	current settings.
rate."	
"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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