

User Manual for Framing Control Software

Revision 1.0.0

2019/7/12

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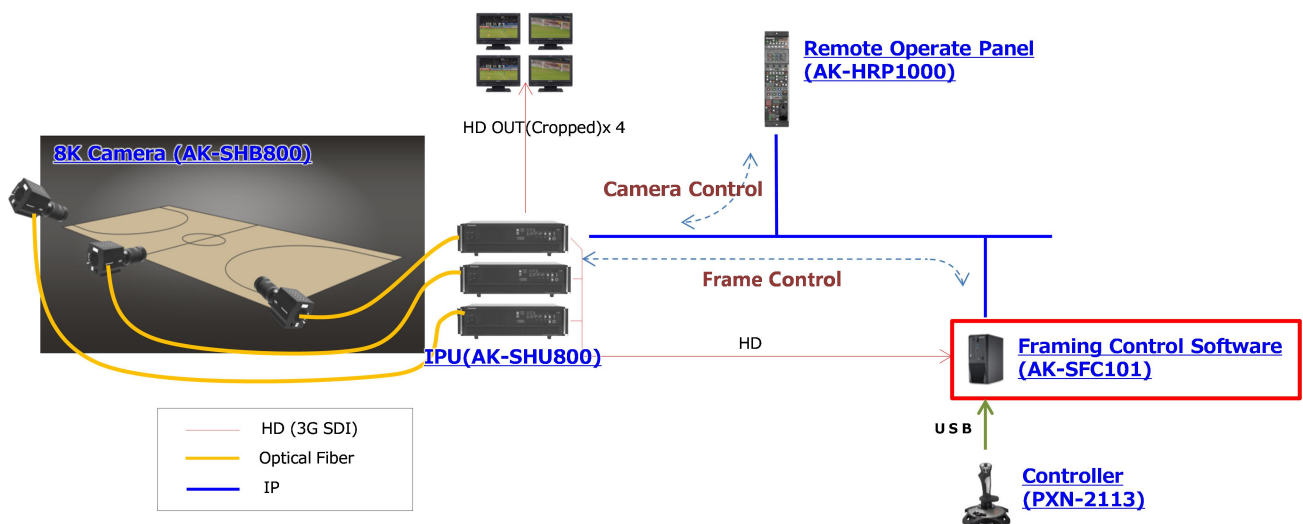
Framing Control Software

Introduction

Framing Control Software is an application software that operates on Ubuntu 18.04 LTS. Using this software, settings for device that configures 8K Multi camera system and crop control settings can be done.

System Configuration example

Configuration example for 8K multi camera system is as shown below.



AK-SHB800 is an 8K multipurpose camera. Also, it is an IPU (Imaging Processing Unit) that performs video signal processing. 8K videos shot with AK-SHB800 can be transmitted to AK-SHU800, wherein video signal processing can be done, by connecting both the devices through Optical Fiber.

In AK-SHU800, camera video adjustments etc., can be done by connecting it to AK-HRP1000 Remote Operate Panel (ROP).

Further, AK-SHU800 can capture HD videos from specific 4 positions of an 8K video, along with taking HD high-angle shots. Particularly, it can capture a video naturally as if the camera is panned and tilted and not just simple capturing through signal processing.

Framing Control Software is the application software that controls the position etc., of these captured HD videos. Control command is notified to AK-SHU800 by connecting it to personal computer (PC) which is equipped with this application software via Ethernet. Further, it can capture the HD high-angle shots taken from AK-SHU800 and control the position of captured HD videos from multiple videos with minimal operations through combine settings of the application software. Also, since AW-RP150 Control Unit is used, operations for positions of HD videos etc., can easily be carried out by joystick or button.

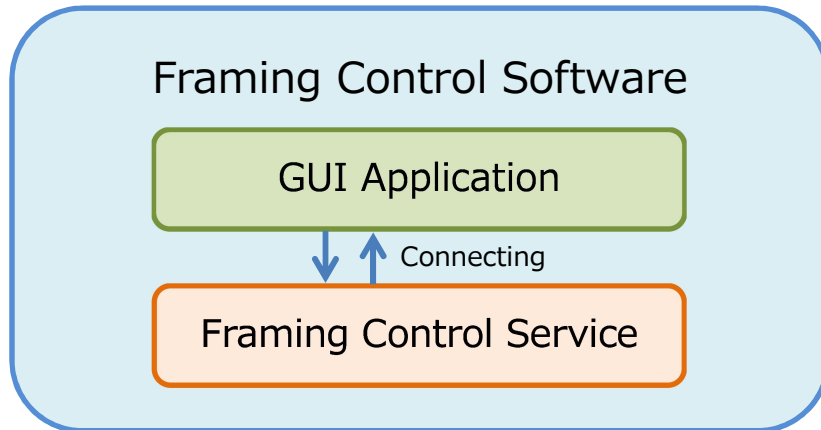
Recommended personal computer configuration

Recommended configuration for personal computer to install Framing Control Software is as mentioned below.

	Part number
Personal Computer	HP, Z4G4
CPU	Intel, Xeon W-2102
Memory	DDR4 8GB(2666MHz, ECC, Registered)
SDI Capture Board	BlackMagic, DeckLink Duo2 (4 Port) or BlackMagic, DeckLink Quad2 (8 Port)
Graphic Board	NVIDIA, Quadro P400 2GB
Operating System	Linux, Ubuntu18.04 LTS

Software Configuration

Framing Control Software is configured from two applications shown below.



■ GUI Application

- GUI is an user interface application to configure each setting.
- Click the Frame Control Software icon on Launcher to run the application.

■ Framing Control Service

- It is a software to receive command from controller and to carry out an interlocking process for captured frame and control command sending frame of camera.
- It automatically runs when the PC starts.
- Previous settings are saved, and it operates according to those settings even when there are no settings from GUI Application.

Operating environment

Refer to our company's website (<http://panasonic.biz/sav> [Support and Download]) for the operating environment of this software.

<Note>

- According to the PC's condition, when the captured HD high angle shot is played back, there are cases of dropped frames or the graphics appear black and white.
- Multi display operations are not guaranteed.

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- Linux is a trademark or registration trademark owned by Linus Torvalds in the US and other countries.
- Ubuntu is a trademark or registration trademark of Canonical Ltd.
- Company's name or product's name other than the ones mentioned above is the trademark or registration trademark of respective companies. Hereafter, TM, ® mark shall not be mentioned in this document.

Software Information regarding this product

1. Software licensed in accordance with the zlib License is included in this software.

TinyXML (2.6.2-4)

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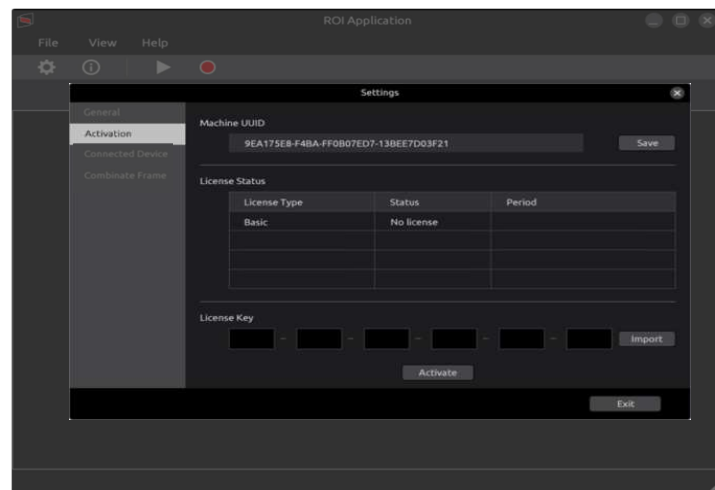
1. The origin of this software must not be misrepresented; you must not claim that you wrote the original software. If you use this software in a product, an acknowledgment in the product documentation would be appreciated but is not required.
2. Altered source versions must be plainly marked as such, and must not be misrepresented as being the original software.
3. This notice may not be removed or altered from any source distribution.

Screens

Start Screen (Not yet activated)

Activation screen shown below is displayed when this application is initiated in case framing Control Software is not yet activated after its purchase or if the validity date expires.

. If the EXIT button is pressed before the activation process is complete, the application shuts off.



Start Screen (Activated)

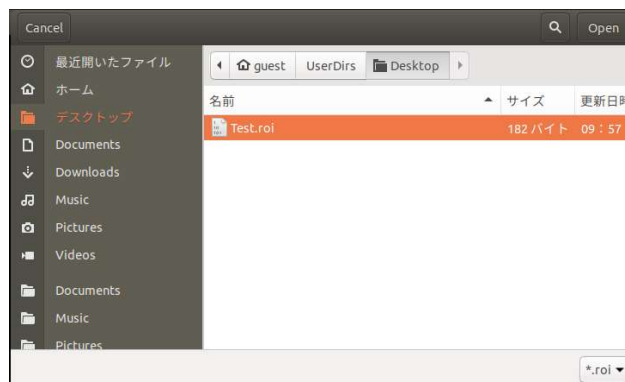
Below shown dialog box is displayed when FRAMING CONTROL SOFTWARE starts up. Select [New Set] in case of new settings and [Load Setting File] to load already saved setting file.

FRAMING CONTROL SOFTWARE shuts down when [Cancel] or top right × button is clicked on.



Below shown dialog box for loading setting file is displayed when [Load Setting file] is selected. Select the setting file (.roi file) and click [Open Button].

If [Cancel] is pressed, FRAMING CONTROL SOFTWARE starts up with new setting.



Main Screen

On the main screen, HD high-angle shot from the camera (IPU) can be confirmed. When the settings of connected device are not in effect, following screen is displayed.

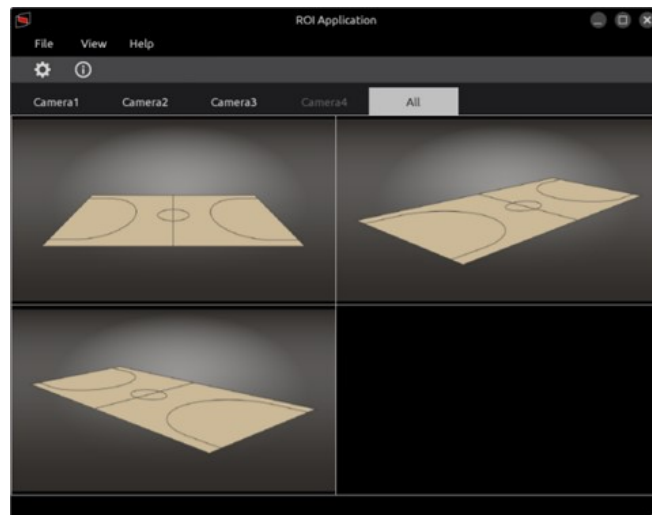


In the Menu bar, various kinds of menu operations can be carried out. Refer to [Menu Configuration](#) for details. Menu operations are possible only from the main screen. In the Setting screen Toolbar, **Setting Screen** or **Property Screen** can be displayed. For more details, refer to each item.

As for the Camera View, HD high-angle shot can be confirmed as shown in the below illustration by configuring the camera (IPU) settings in [Connected Device Settings](#). In the selecting tab, set HD high-angle shot of camera (IPU) can be switched.

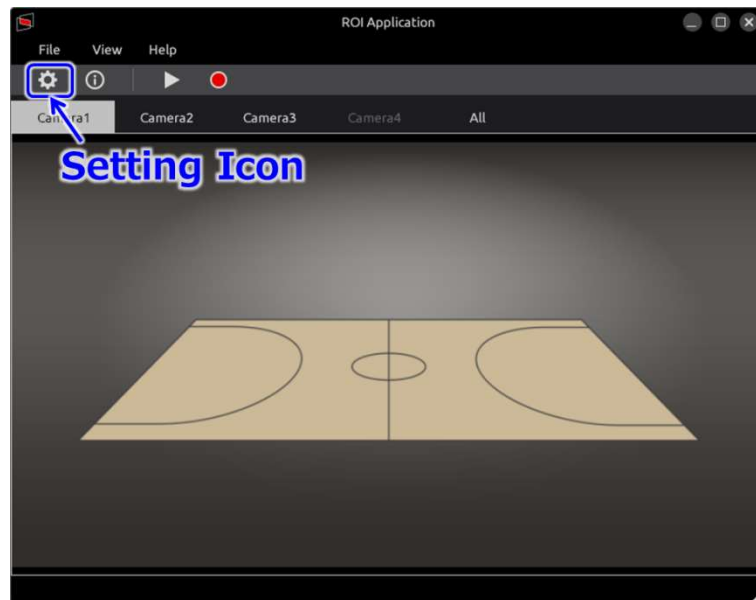


When [All] is selected in the selecting tab, multiple high-angle shots can be confirmed as shown in below. The selection of displayed camera (IPU) and settings of multiple displayed videos can be set in application settings.

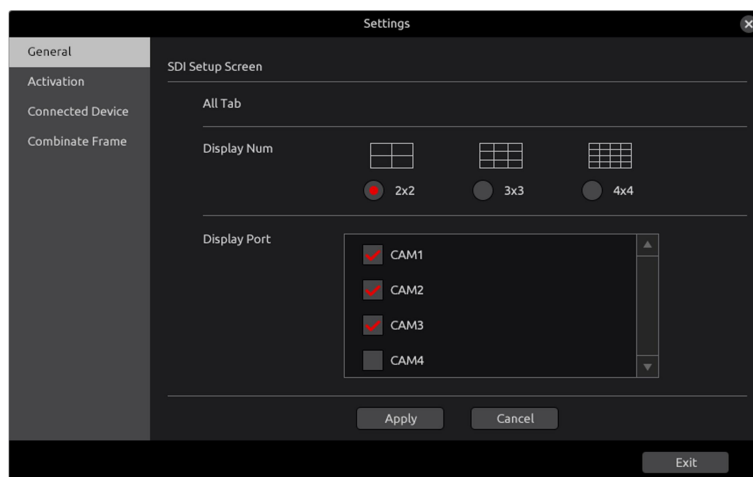


Setting Screen

In the setting screen, various kinds of settings can be done. Select [View] - [Setting] on Menu bar in the Main screen or click the setting icon on Tool bar as shown below.

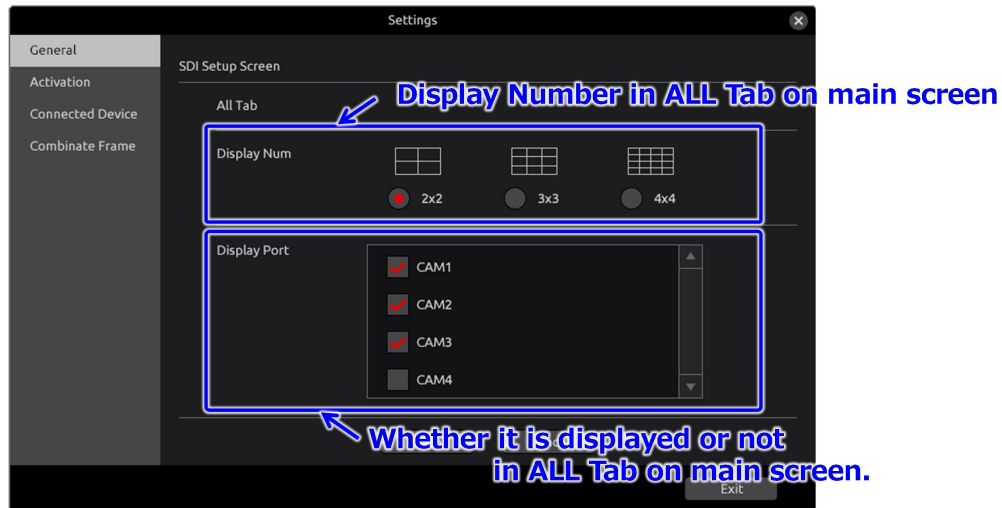


In the setting screen, setting items are displayed on the left side as shown below, namely General, Connected Device, Combine Frame. Also, menu bar and tool bar become disabled when setting screen is displayed.

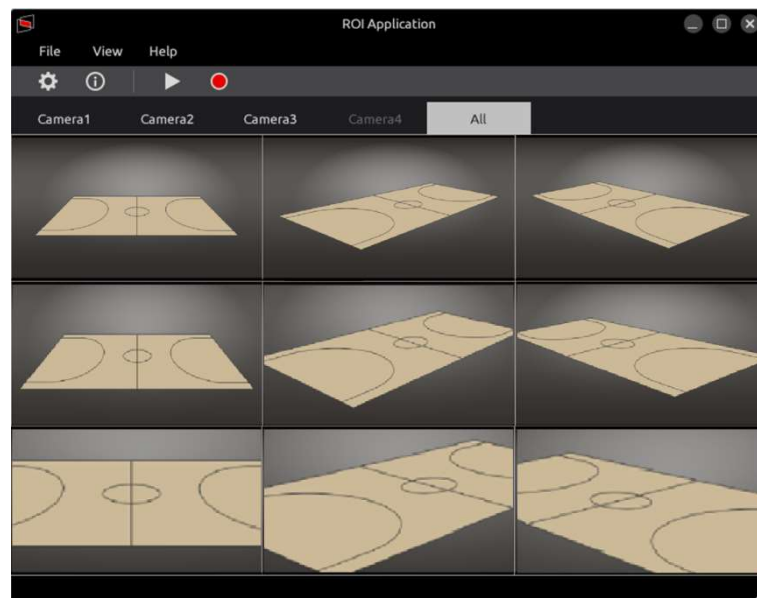


Application Setting

Settings for application can be done in the application setting (General) as shown below.



[Display Num] sets the number of displayed videos in ALL Tab on main screen. For example, if [3x3] is selected, $3 \times 3 = 9$ videos are displayed as shown below.



In the [Display Port], camera videos displayed on [ALL] tab in main screen is selected. As for the camera videos that can be selected, device groups are displayed that are set in the [Connected Device Settings](#). Also, the camera videos can only be selected up till the number set in [Display Num].

Activation Settings

In the activation settings, license settings can be done to use the application functions as shown below.



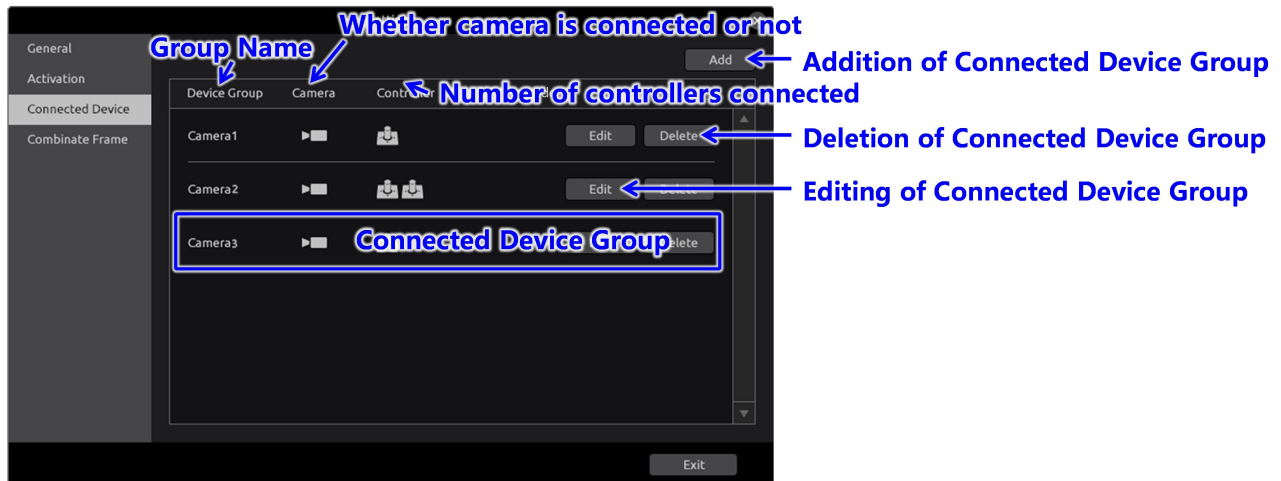
UUID of PC is an ID to identify the PC. Save the ID in memory card etc., as it is required during license purchase. For more details, refer to [License Purchase](#).

In the License Status, License type (For this version, there is only Basic), Status (Utilizable [OK], [Expired] and [No license]) and utilizable period are displayed. If the status is [Expired] or [No license], the corresponding function cannot be used.

In the license key, enter the license key acquired during the [License Purchase](#) or click on the [Import] button to load the license key saved in memory card etc. Thereafter, execute the authentication process by clicking on [Activate] button. If the authentication process is successful, the license status is updated to [OK].

Connected Device Settings

In the connected device settings, controller settings etc., can be done to control the camera (IPU) or captured frame.

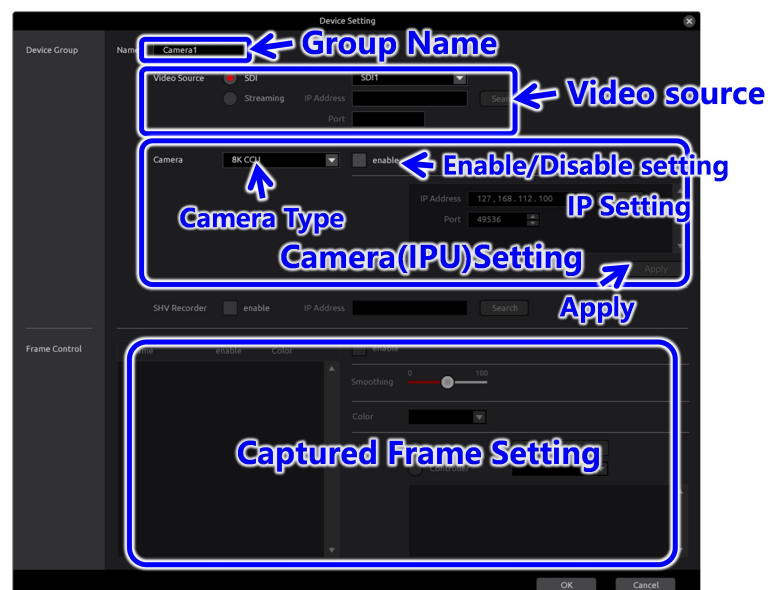


In the Connected Device settings, the controller that controls the camera (IPU) and captured frame can be taken as 1 group and group name can be set.

Click on [Add] button to add the connected device group. Connected device detail screen is displayed as shown below.

Click on [Delete] button to delete the connected device group. Thereafter, confirm dialogue is displayed, click on [Yes] to delete.

Click on [Edit] button to edit the connected device group. As shown below connected device detail screen is displayed similar to [Add]



Group name shows the connected device group. There is no problem in the operations even if the name is not entered (left empty) or is similar to another group, however, it is recommended to enter a different name as it is difficult to distinguish in the **Main Screen**, screens for **Combinate Captured Frame Settings** and **Network Status**. The group name can be input up to 256 bytes, but if the number of characters is large, it may not fit on the screen.

As for the SDI Port, number of input ports of SDI Capture Board loaded in the PC, are displayed in the Combo Box. Select the corresponding port number wherein HD high-angle shot signal is entered from IPU. In case of already being use, display is grayed-out and cannot be selected.

In Camera (IPU) settings, type, enable/disable, IP information is set. As for the type, there are future plans for extension, presently, [8K IPU] is the only type. In the enable/disable settings, if the check box is selected, camera (IPU) settings are enabled, and IP settings can be done. In IP settings, enter the Camera's (IPU) IP address and IP Port number. Confirm the settings for Camera (IPU), i.e., Camera's (IPU) IP address and IP Port number.

Thereafter, when the [Tab] key of keyboard is pressed, the connection with Camera (IPU) is tested. When the connection is established, captured frame settings are enabled as shown below.



Captured Frame list displays the list for captured frames. Select the captured frame that is to be set. However, in case it is set in interlocked frames in **combinate captured frame settings**, the display turns gray-out and it cannot be selected.

In enable/disable settings, when the check box is selected, captured frame becomes enabled, which in turn enables the settings for smooth motion, frame colour and control

method. However, when the captured frame is enabled by checking into the check box, settings cannot be done in the interlocked frames in **combine captured frame settings**. Uncheck the check boxes for the frames that are to be interlocked.

In the smooth motion settings, smooth motion of captured frame can be set. Motion becomes smooth as the value increases.

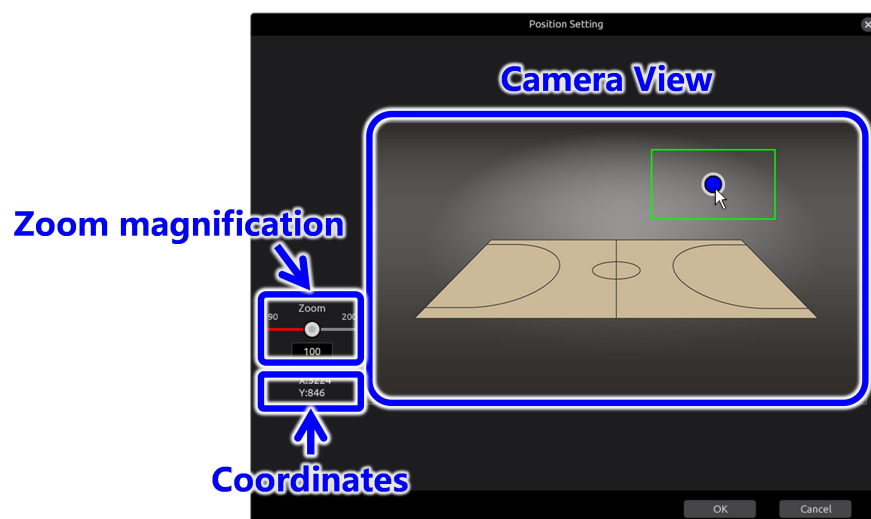
In the Frame Colour settings, captured frame colour which is displayed in the HD high angle shot, is set. Options in the combo box include white, yellow, cyan, green, magenta, red, blue; select one among them.

In the control method settings, Fixed Position or Controller can be selected.

If controller is selected, controller type and IP address setting enable. Extension of controller type is planned in the future, presently, [AW] is the only type. Enter remote camera's (AW-RP150) IP address and IP port number in IP setting. Confirm the settings for remote camera (AW-RP150), i.e. remote camera's (AW-RP150) IP address and IP Port number.

Selecting Fixed Position enables the [Position Setting] button. When [Position Setting] button is pressed, fixed position setting screen is displayed as shown below, therefore execute the settings as mentioned later.

When all the settings are completed, press [OK] button. If [Cancel] button is pressed, settings are cancelled.



In the fixed position setting screen, position of captured frame can be set by clicking on the Camera View screen. At this time, central position of captured frame is displayed in coordinates column as 8K angle of view (7680x4320).

Also, minor adjustments can be made in the captured frame position by arrow key in the keyboard. As the arrow key is pressed, 1 pixel at a time moves on the screen display. Further, if the arrow button is pressed while pressing Shift button, 1 pixel at a time as 8K angle of view moves.

<Note>

If display on the PC monitor is 800x450 and horizontal position of captured frame is 400 (3840 in [coordinates]), press right button and position on the PC monitor becomes 401.

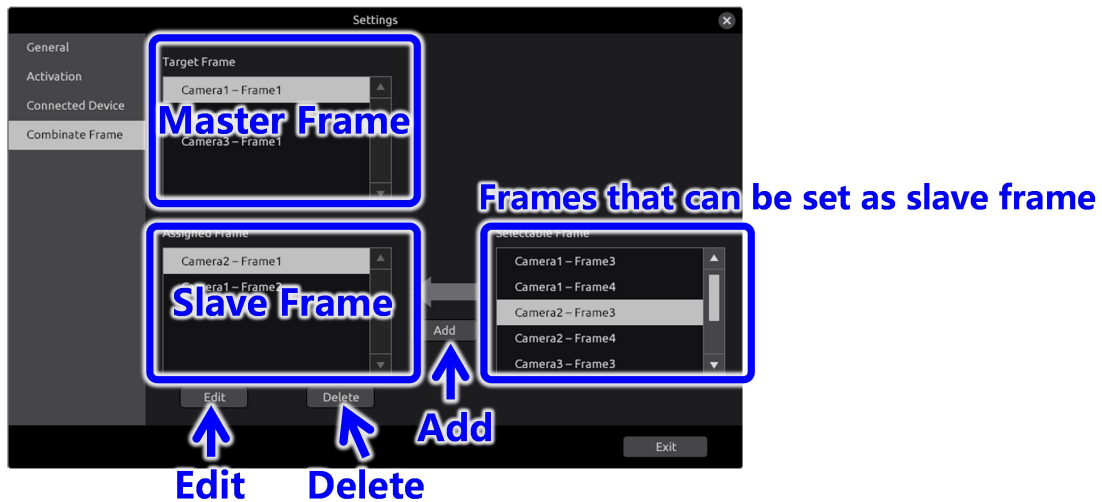
On the other hand, since it is 9.6 ($7680 \div 800$) times per pixel in 8K angle of view, 3850 (rounded off below decimal places) is displayed in the [captured position coordinates]. Next, if Shift+ right button is pressed, 3851 is displayed in the [coordinates].

Zoom magnification of captured frame is changed by moving the slide bar. Captured video zooms with the increased zoom magnification. Consequently, as the captured frame, it becomes small.

When all the settings are completed, press [OK] button. If [Cancel] button is pressed, settings are cancelled.

Combine Captured Frame Settings

In the combine captured frame settings, settings for frame that are (slave frames) interlocked with the frames operated by controller are set as shown below.

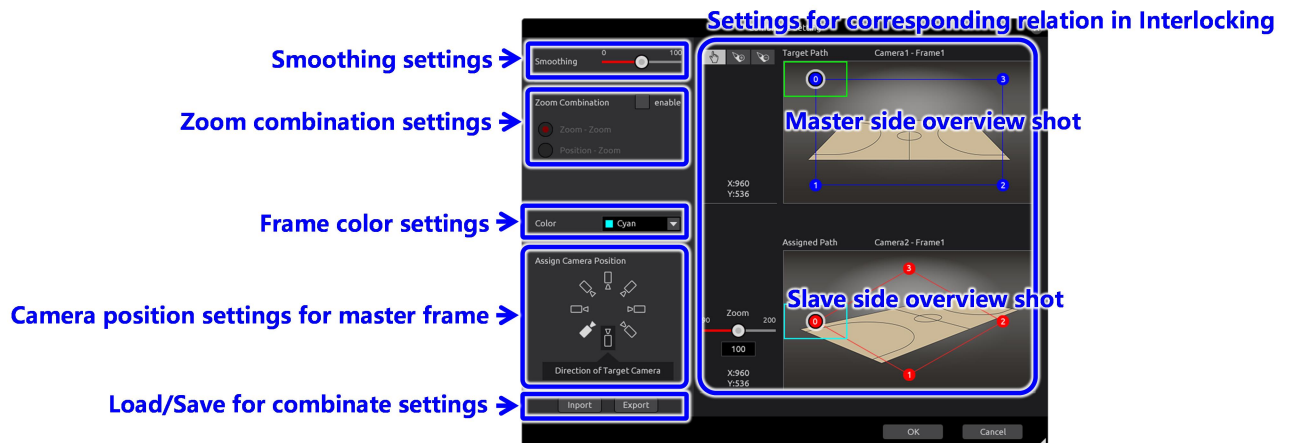


In the master frame list, [enable] is set in enable/disable settings among the captured frames of camera group that are set in **connected device settings** and the ones for which controller is selected, are displayed.

In the frame list for slave frame selectable frames, frames are displayed for which [disabled] is set in enable/disable settings among the captured frames of camera group that are set in **connected device settings**. Frames, for which interlocking settings are to be done, are selected from master list, and the frames, which are to be interlocked with motion of master frames, are selected from frame list for slave frame selectable frames, after which if Add button is pressed, following shown combine captured frame detail screen is displayed. After the settings are done, press OK button and the selected frames move to slave frame list from frame list for slave frame selectable frame.

In case one wants to delete the frame in slave frame list which is already set as an interlocked frame, press Delete button. Press [Yes] when the confirmation dialog is displayed, and it is deleted.

Press edit button to change the settings. Make the changes in combine captured frame detail screen as shown below.

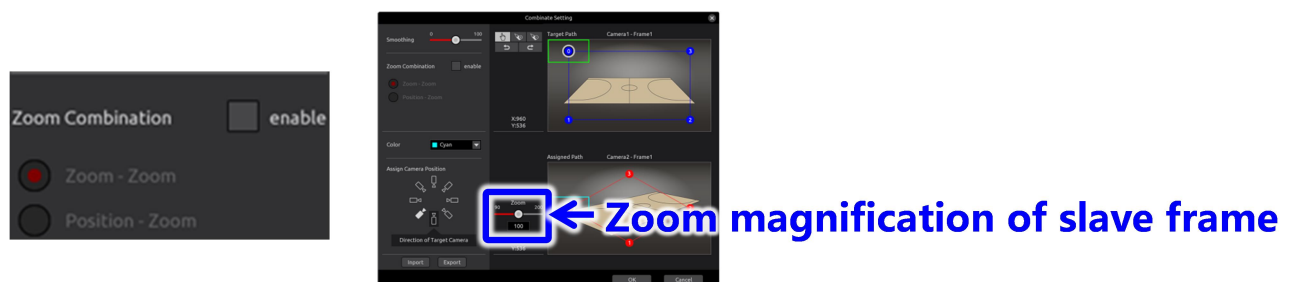


In the combine frame detail setting screen, settings for slave frame and settings for their corresponding relation, when the operations are interlocked with the master frame, can be done.

In smoothing settings, the smoothness of slave frame motion can be set. With increasing value, the motion becomes smooth.

In zoom combination settings, settings can be done for interlocking the zoom operations of slave frames to master frame zoom operations.

In case the zoom combination cannot be done, uncheck the [enable] check box as shown below. A slide bar is displayed which can set the zoom magnification of slave frame. Zoom magnification can be changed by operating the slide bar. This zoom magnification becomes fixed without depending on master frame.

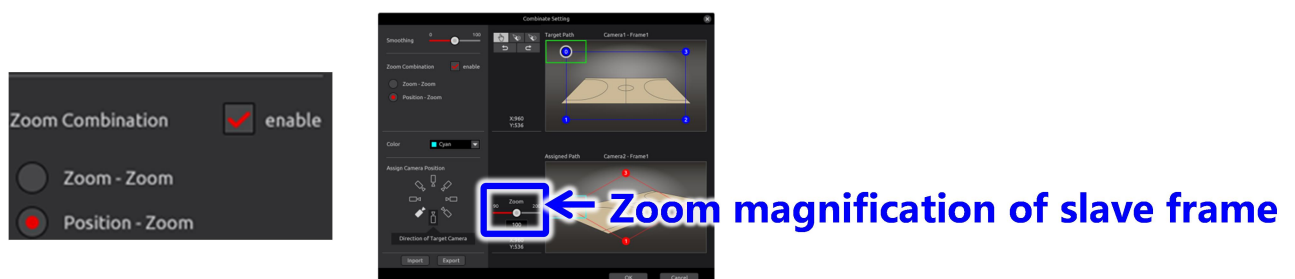


In case one wants to interlock the master frame zoom operations by interlocking with slave frame zoom operations, check the [enable] check box and select [Zoom – Zoom]. Slide bar with which the master frame zoom magnification can be set, slide bar that can set the zoom magnification of slave frame when master frame is zoomed in (value = 200), slide bar that can set the zoom magnification of slave frame when master frame is zoomed out (value = 70) are displayed. Slave frame zoom magnification can be changed by operating the slide bar of slave frame. Execute the settings of zoom magnification for each case when the master frame is zoomed in (value=200) and when it is zoomed out

(value=70). Master frame zoom magnification can be changed by operating the slide bar of master frame, at the same time, the behavior of change in zoom magnification of slave frame according to the setting values of slave frame zoom magnification can be confirmed.



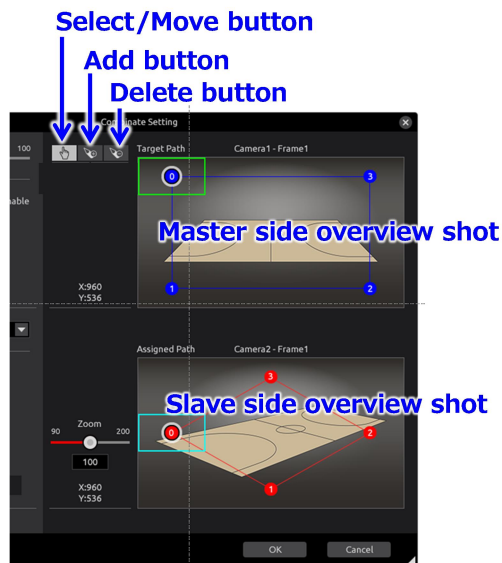
In case one wants to interlock the zoom operations of slave frame by interlocking with the position of master frame, check the [enable] check box and select [Position – Zoom] as shown below. A slide bar is displayed with which zoom magnification of slave frame can be set. Zoom magnification of slave frame can be changed by operating the slide bar. This zoom magnification can be set for each slave frame position, and zoom magnification can be changed according to the position of slave farm.



In the frame colour settings, the colour of slave frame displayed in slave side overview shot can be set. Options in the combo box include white, yellow, cyan, green, magenta, red, blue; select one among them.

Slave frame camera position settings designates the position for camera installation for slave frame as against the camera installation (front) position for main frame. By specifying the camera installation position for slave frame, corresponding point of slave frame i.e. the initial position changes in the settings for corresponding relation in interlocking.

In the settings for corresponding relation in interlocking, relation in the position of slave frame as against the main frame position is set. As shown below, equal number of points are displayed on both master side overview shot, and slave side overview shot. Same number of points for master and slave becomes the corresponding points.



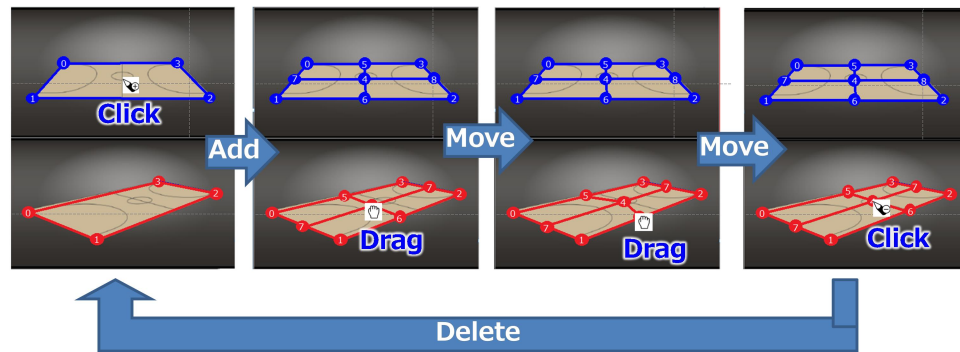
The corresponding points can be moved, added and deleted as shown below. In addition, since noise will occur in the CROP image if the clipping area is out of the range of the 8K angle of view, it is recommended to set while checking the CROP image. (Note: When operating with the controller, the movement range is limited so that it can not move out of the range of the 8K angle of view. In such a case, the captured frame does not operate smoothly, so it is recommended to set the captured frame not to move to the edge area of the screen as much as possible.)

When select/move button is pressed, as mouse cursor changes to hand cursor, click and select the corresponding point that is to be selected/moved. It can be moved when dragged as it is. Also, the corresponding point of master side moves in a way that the line it belongs to maintains same ratio with the adjacent ones. Furthermore, it cannot move beyond the adjacent point. The corresponding points of slave side cannot move in a way that the interior angle of the square it belongs to becomes an obtuse angle or cannot move beyond adjacent line/point.

When add button is pressed, as mouse cursor changes to add cursor, click on the position on which it is to be added on main side. The corresponding point is added on the clicked position on main side and further a line is drawn in a way that the proportion of position of contact point of the 4 sides of the outer frame to the opposite side becomes same. Corresponding point can be added in the contact point with other lines as well. In slave side also, same number of corresponding points are added in similar proportion. Corresponding point support up to maximum 99 points. Points cannot be added if it exceeds 99 points. For example, if there are 97 points, and add button is clicked, then the corresponding point including the contact point exceeds 99 points, therefore no points are added, and it stays to 97 points.

When delete button is pressed, the mouse cursor changes to delete cursor, then click on the position of corresponding point that is required to be deleted on main side.

Corresponding point that is clicked and the contact point of the line it belongs to are all deleted. In slave side also, the corresponding points are deleted.



In load/save for combine settings, press [Import] button, select the setting file and press [OK] button and the setting information can be loaded. Press [Export] button, enter the name of setting file, click on [OK] button and the setting information can be saved.

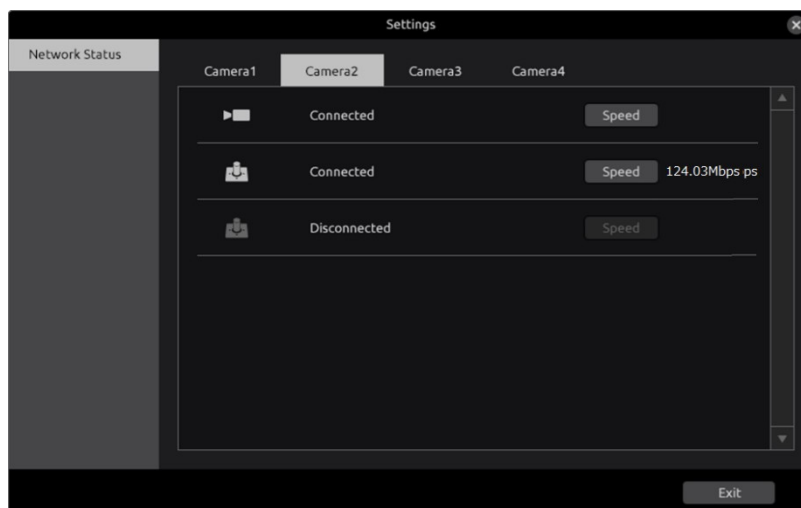
Press [OK] button when all the settings are completed. When [Cancel] button is pressed, settings are cancelled.

Property Screen

In the property screen, various kinds of statuses can be referred to. Select [View] - [Property] on menu bar in the main screen and click on the property icon on the tool bar as shown below.

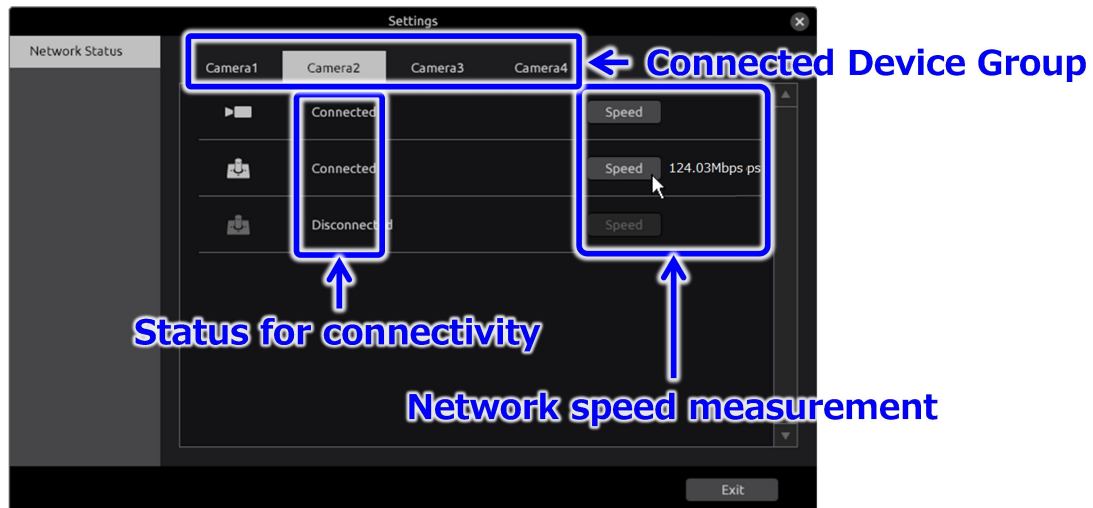


In the property screen, item for reference is displayed to the left side as shown below. There is Network as the item for reference. Further, menu bar and the tool bar are disabled when property screen is displayed.



Network Status

In the Network Status screen, the connectivity status of network can be confirmed as shown below.



Select the group for which the network status is required to be confirmed from the connected device group tab. Since Connectivity status can be confirmed, confirm the connectivity of the devices for which [Disconnected] is displayed.

Further, as for the devices wherein [Connected] is displayed, speed of the network can be measured by pressing on the [Speed] button.

If the speed is 10Mbps or more, there is no problem in system operations, however, the operations cannot be guaranteed.

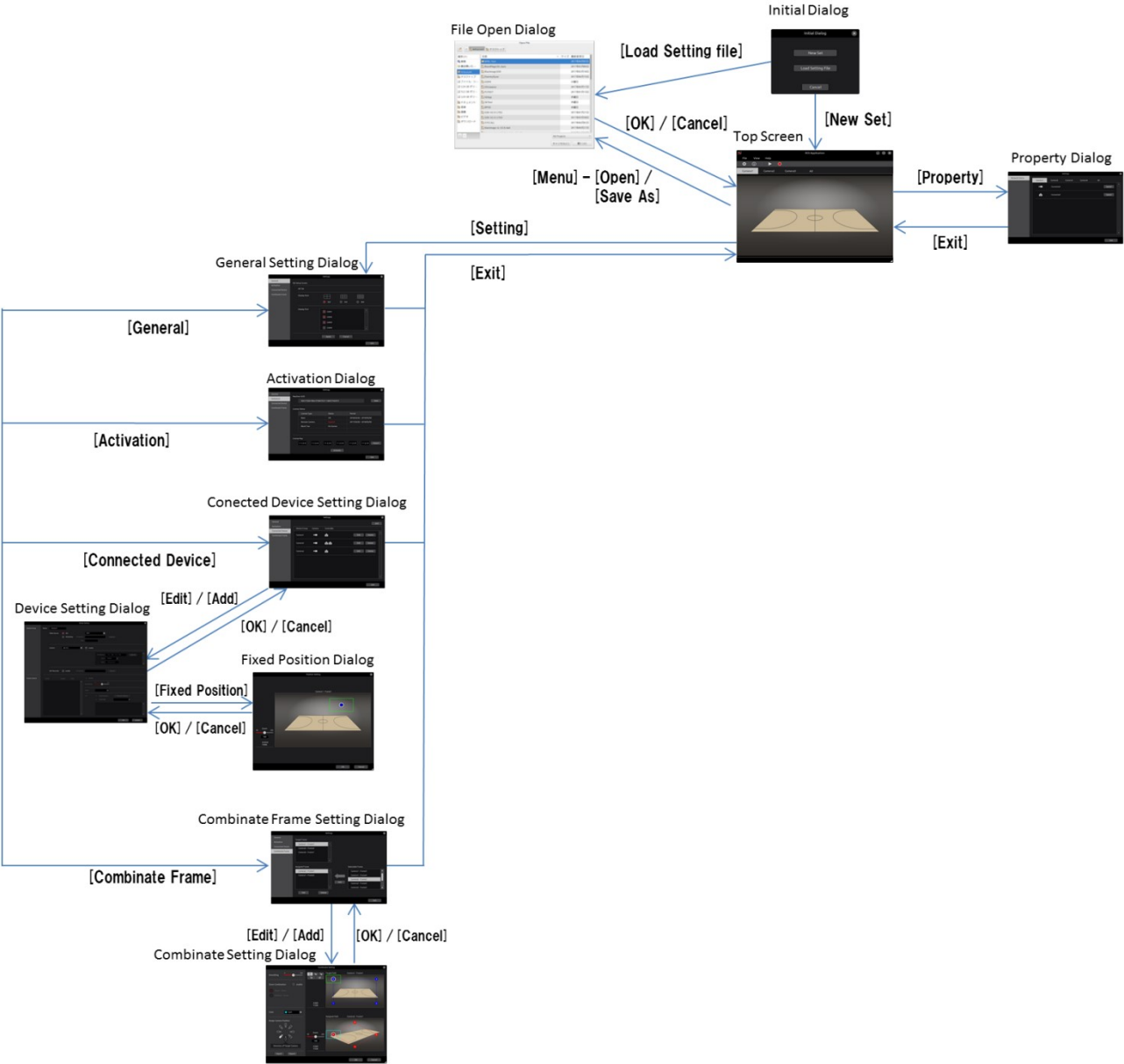
In case when the value increases with each measurement or when the value is 50% or less for the network bandwidth (For example 500Mbps in 1Gbps network), there is a possibility that there is network congestion or router overhead etc. In this case, confirm the network environment.

Menu Configuration

Level1	Level 2	Content	Shortcut Key
File			
	New	Creates new project.	Ctrl + N
	Open	Load existing project.	Ctrl + O
	Save	Save the changes made in loaded project file. In case of new creation, save the file after naming the file.	Ctrl + S
	Save As	Save the file after naming it.	
	Exit	Closes the application.	Ctrl + Q
View			
	Toolbar	Can switch the display/non-display of tool bar.	
	Setting	Displays the setting screen.	
	Property	Displays the property screen.	
Help			
	Manual	Displays the document	
	Version	Displays the version information	

Table 0-1. Menu Configuration

Screen Transition



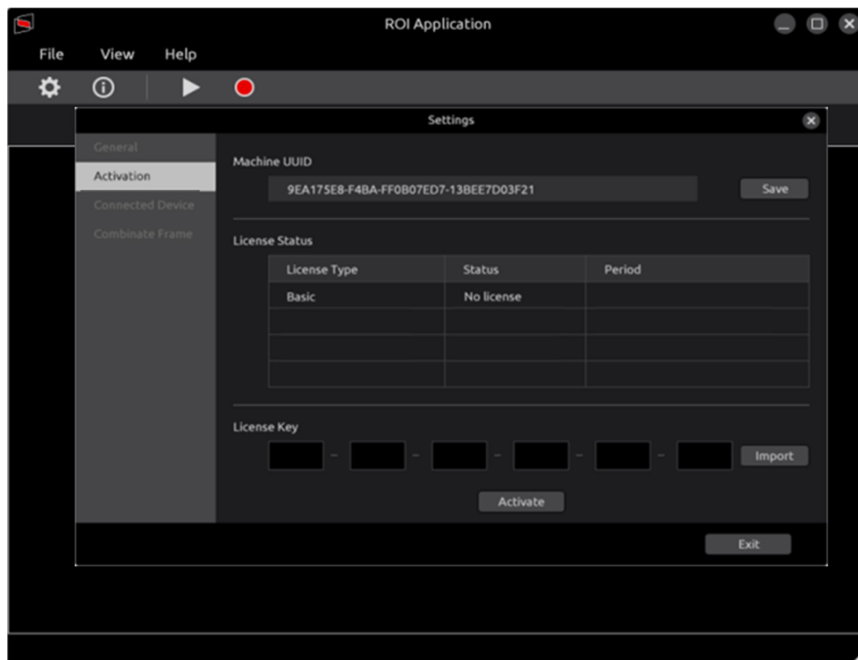
License Purchase

In order to use Framing Control Software, one needs to carry out the procedures (mentioned as [activation] below) to register for the license by purchasing the key code.

If the license has an expiration date, you will not be able to use the corresponding function of the software if the expiration date is over. In that case, please purchase a new license and reactivate.

Activation

In the Activation process, your PC, which uses purchased keycode and advanced features, is registered on our server and procedures are carried out to activate the advanced features.



Activation Procedures

1. Insert a SD card into your PC with the software.
2. Click on the Save button in the Machine UUID to save the UUID of your PC.
3. Insert the SD card into a PC connected to the Internet.
4. Click the following URL.
https://panasonic.biz/cns/sav/actkey_e
5. Click the link of this software key in the displayed page.
6. Save the Activation Code into the SD card according to the instructions on the screen.
7. Insert the SD card with the Activation Code into your PC.
8. Click on the Import button and make sure the code appears in the LICENSE KEY area.
9. Click on the Activate button to complete the Activation procedure.

Appendix

Procedure for uninstallation

Run FCSMaintenance in the install folder to uninstall the software.

Alternatively, you can uninstall the software for uninstallation.(In the case that the install folder is /usr/local/bin/FCSInstaller)

```
$ /usr/local/bin/FCSInstaller/FCSMaintenance
```

The uninstallation screen appears and follow the instructions in the screen.

Auxiliary tool

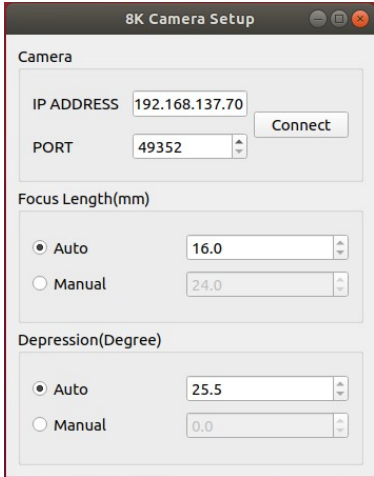
Focus length and depression angle setting application

The IPU (AK-SHU800) uses the focus length of the lens and the camera's depression angle information for signal processing when cutting out HD video from 8K video.

Usually, focus length and depression angle information is acquired automatically within the IPU, but some lenses can not acquire focus length automatically. In that case, the clipped HD video may be a video of an unintended area.

In this application, you can check and set the focus length and depression angle information used for calculation in the IPU.

When 8KCameraSetup is started, the following screen appears.

The image shows a screenshot of a software window titled "8K Camera Setup". The window has a light gray background and a dark title bar. It is divided into three main sections. The first section, labeled "Camera", contains fields for "IP ADDRESS" (set to 192.168.137.70) and "PORT" (set to 49352), with a "Connect" button to the right. The second section, labeled "Focus Length(mm)", has two radio buttons: "Auto" (selected) and "Manual". The "Auto" option is linked to a value of 16.0, and the "Manual" option is linked to a value of 24.0. The third section, labeled "Depression(Degree)", also has two radio buttons: "Auto" (selected) and "Manual". The "Auto" option is linked to a value of 25.5, and the "Manual" option is linked to a value of 0.0. All numerical values are displayed in small input boxes with up and down arrows.

Enter the IPU IP address and port number and press the Connect button. If the connection is successful, the settings for Focus Length and Depression will be displayed.

If the setting is Auto and the displayed value is irregular, select Manual and enter the correct value.