User Manual for
Framing Control Software

Revision 3.1.2

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Framing Control Software

Introduction

Framing Control Software is an application software that operates on Ubuntu 18.04LTS. 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.
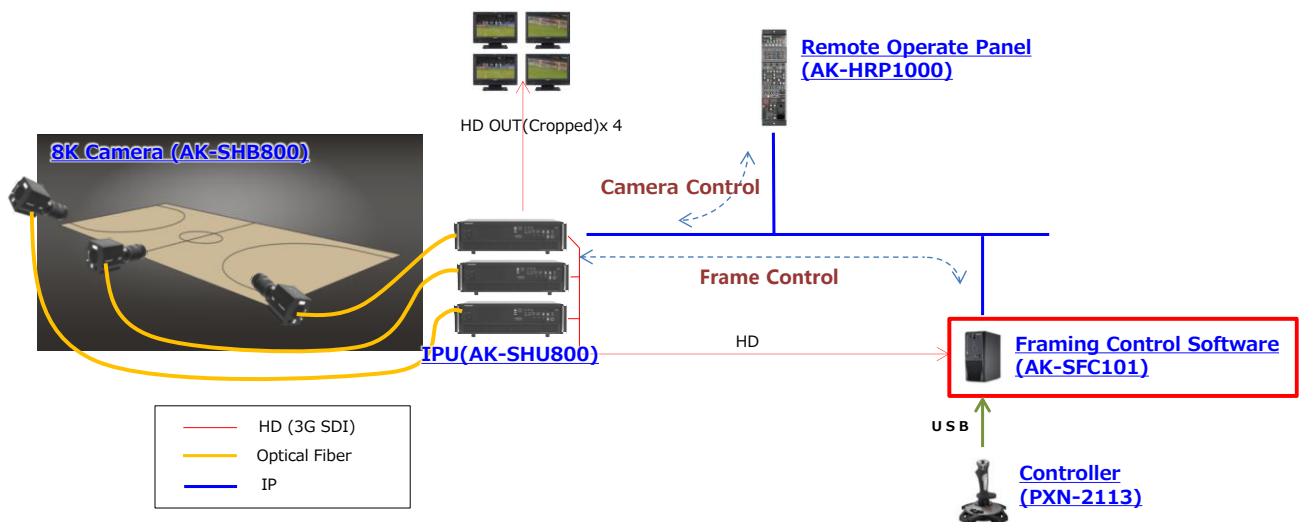
AK-SHB800 is an 8K multipurpose camera. Also, it is an IPU (Imaging Processing Unit) that performs video signal processing. 8K videos shot with AK-SHB800 can be transmitted to AK-SHU800, wherein video signal processing can be done, by connecting both the devices through Optical Fiber.

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

Further, the AK-SHU800 is not limited simply to a mode that outputs an 8K video signal, it can also capture HD videos from 4 specified points in an 8K video as well as take high-angle shots in HD. This video capture function is not limited to just simple capturing; through signal processing it is able to output a more natural-looking video that makes it seem as though the camera is actually being panned and tilted.

Framing Control Software is the application software that controls the position, etc., of these captured HD videos. Control commands are relayed to the AK-SHU800 by connecting it via Ethernet to a personal computer (PC) which has this application software installed. Further, it can capture the HD high-angle shots taken from AK-SHU800 and control the positions and settings of multiple captured HD videos, making the control of multiple captured HD videos through the application software possible with minimum manipulation.

Additionally, manipulation of the position of HD videos, etc., can be easily done using designated controllers. (The number of compatible controllers is scheduled to increase.)

Moreover, it's possible to control a network-connected remote camera (PTZ) as one of the HD video captures through a link with the remote camera (PTZ) and through addition of a designated board to a personal computer with this application software installed, it's possible to control 8K multipurpose cameras and tallies for IPUs.

Recommended personal computer configuration

Recommended configuration for personal computer to install Framing Control Software is as mentioned below. The SDI capture board only uses input. For ports that can switch between input/output, please set the assignment to input.

	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
Tally Signal IO Board	CONTEC DIO-3232B-PE Digital I/O PCI Express card 32ch/32ch
Operating System	Linux, Ubuntu18.04 LTS

Equipment that can be used as accessories are as listed below

		Part number
Controller	Remote Camera Controller	Panasonic, AW-RP150
	USB Joystick	PXN, PXN-2113
	USB Joystick	APEM, IPD DESKTOP
	VariZoom Pan Bar	VariZoom, VZCPM-K3＋VZCP-T12
Linked remote camera（PTZ）		AW-UE150, AW-UE100

Software Configuration

Framing Control Software is configured from two applications shown below.

```
┌─────────────────────────────────────────┐
│        Framing Control Software          │
│   ┌─────────────────────────────────┐    │
│   │        GUI Application           │    │
│   └─────────────────────────────────┘    │
│              ↓  ↑  Connecting            │
│   ┌─────────────────────────────────┐    │
│   │     Framing Control Service      │    │
│   └─────────────────────────────────┘    │
└─────────────────────────────────────────┘
```
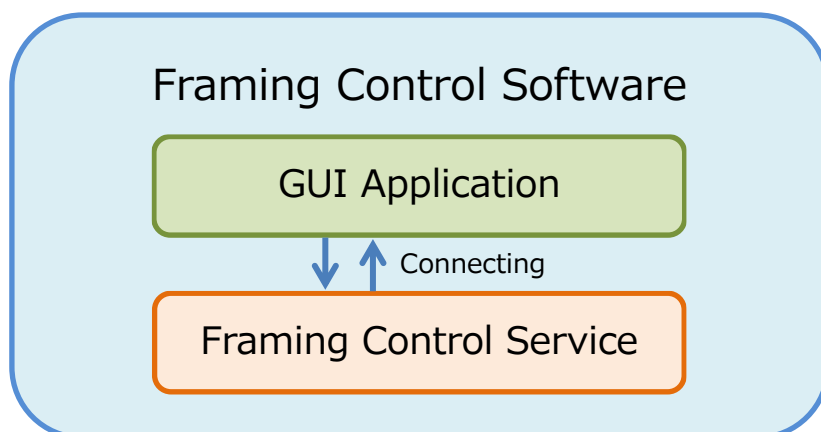
■ **GUI Application**
- ・GUI is an user interface application to configure each setting.
- ・Click the Frame Control Software icon on Launcher to run the application.

■ **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 videos 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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TinyXML (2.6.2-4)

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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.
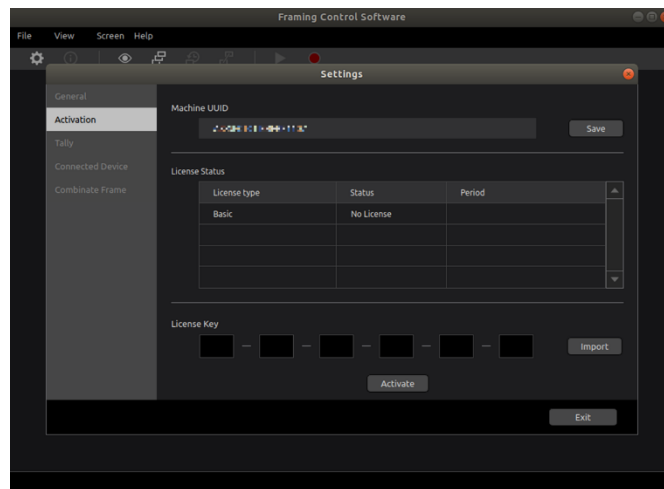
Start Screen (Activated)

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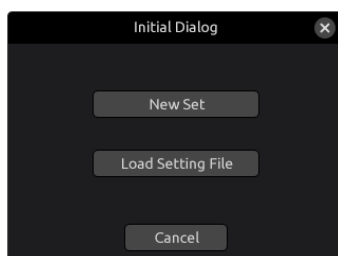
Below shown dialog box for loading setting file is displayed when [Load Setting file] is selected. Select the setting file (.roi file) and click [Open Button].

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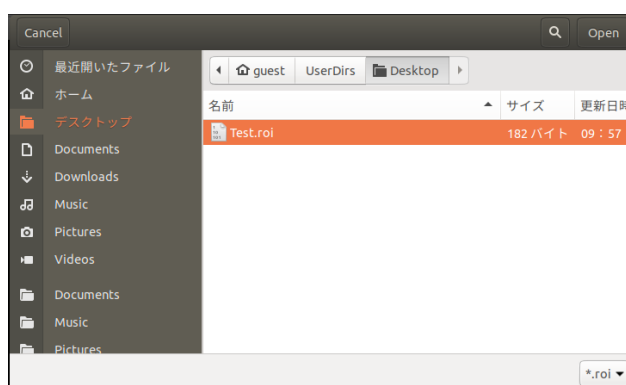
View Screen

On the view screen, captured HD videos from the camera can be checked. When the settings of the connected device are not in effect, the screen will display as follows.
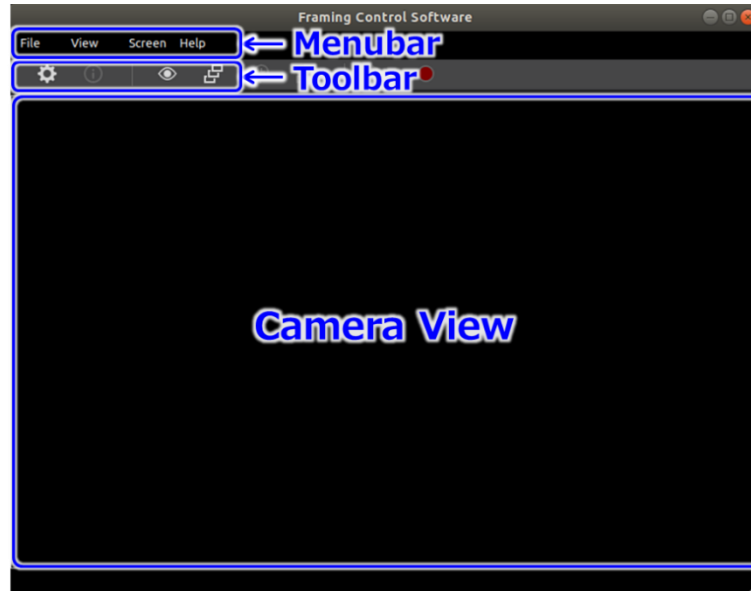

In the Menu bar, various menu operations can be carried out. Refer to **Menu Configuration** for details. Menu operations are possible only from the view screen, the preset screen screen. From the Toolbar, you can view the **Settings Screen** and **Property Screen,** and transit to the **Preset / Tracing Memory Screen** and **Tracing Memory screen**. Other buttons are not currently useable, but are scheduled to have functionality added. For more details, refer to each item.

As for the Camera View, captured HD video can be checked as shown in the below illustration by configuring the camera settings in the **Connected Device Settings.** In the selection tab, the selected camera that is having captured HD video displayed can be switched.

When [All] is selected in the selecting tab, multiple captured HD videos can be confirmed as shown in below. The selection of displayed camera and settings of multiple displayed videos can be set in application settings.
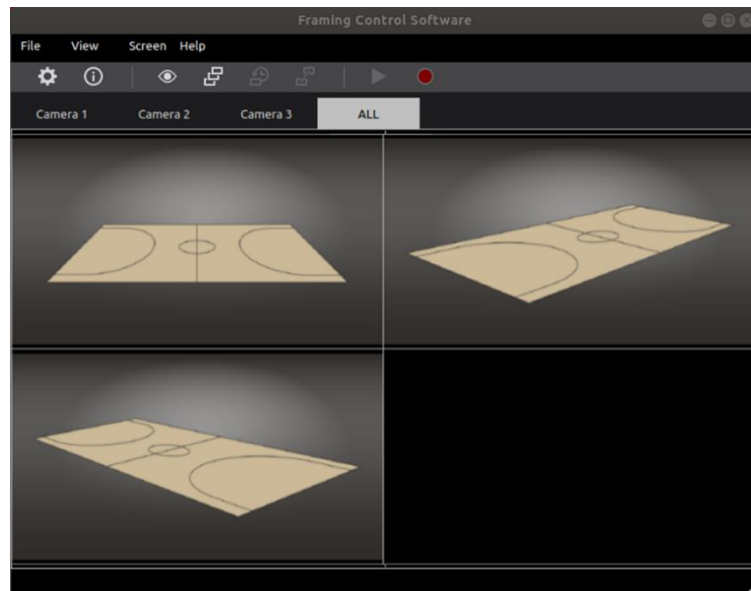
Setting Screen

In the setting screen, various kinds of settings can be done. Select [View] - [Setting] on Menu bar in the view screen or click the setting icon on Tool bar as shown below.
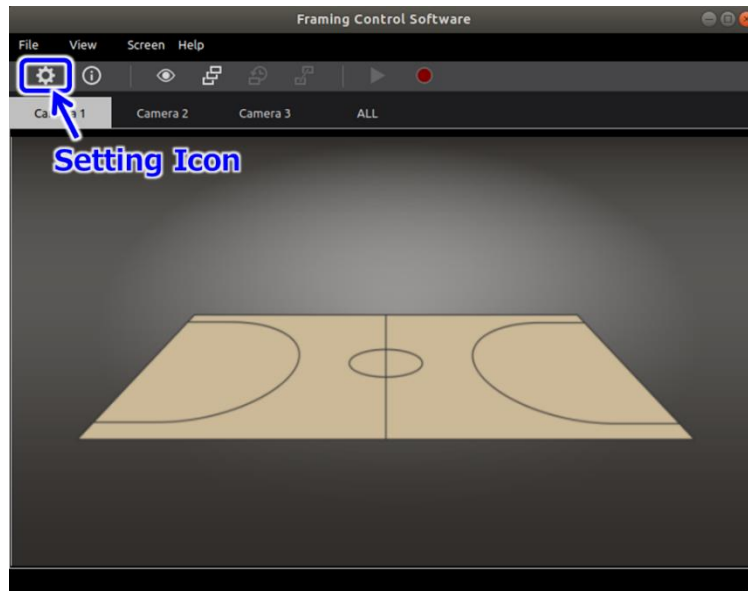
In the setting screen, setting items are displayed on the left side as shown below, namely General, Activation, Tally, Connected Device and Combinate Frame. Also, menu bar and tool bar become disabled when setting screen is displayed.
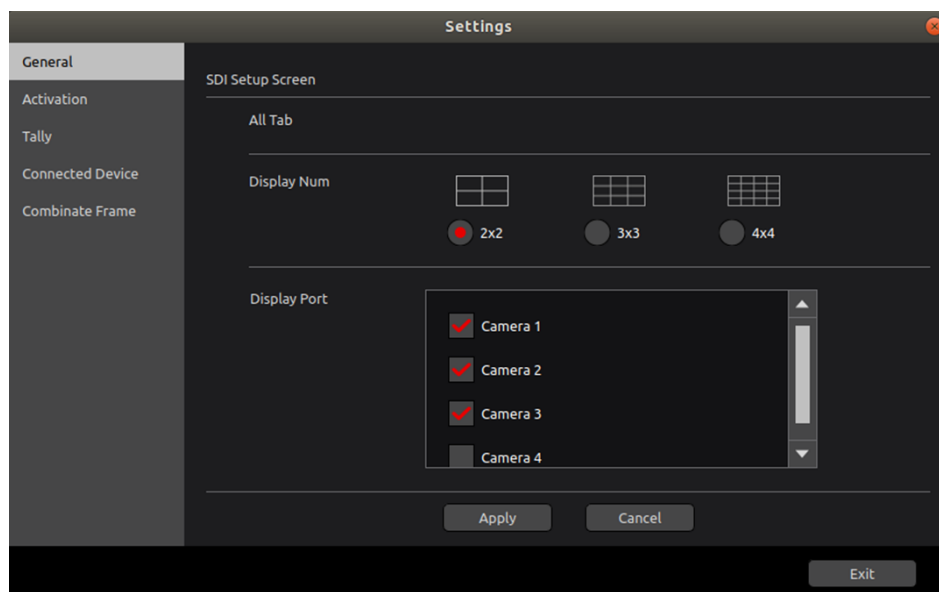
Application Setting

Settings for application can be done in the application setting (General) as shown below.
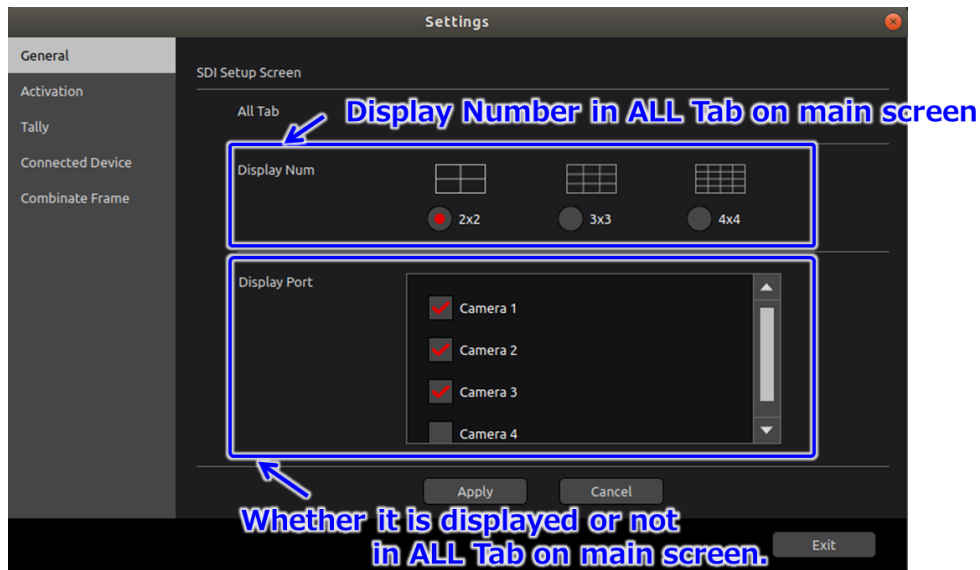
[Display Num] sets the number of displayed videos in the [ALL] tab on the view screen. For example, if [3x3] is selected, 3x3=9 videos are displayed as shown below.
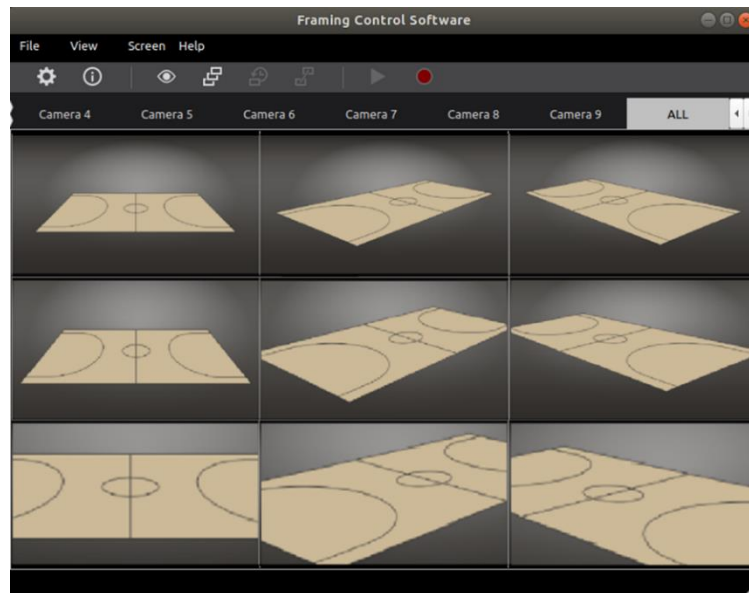
In [Display Port], camera videos displayed on the [ALL] tab in the view screen is selected. As for the camera videos that can be selected, device groups are displayed that are set in the **Connected Device Settings**. Also, the camera videos can only be selected up till the number set in [Display Num].

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.
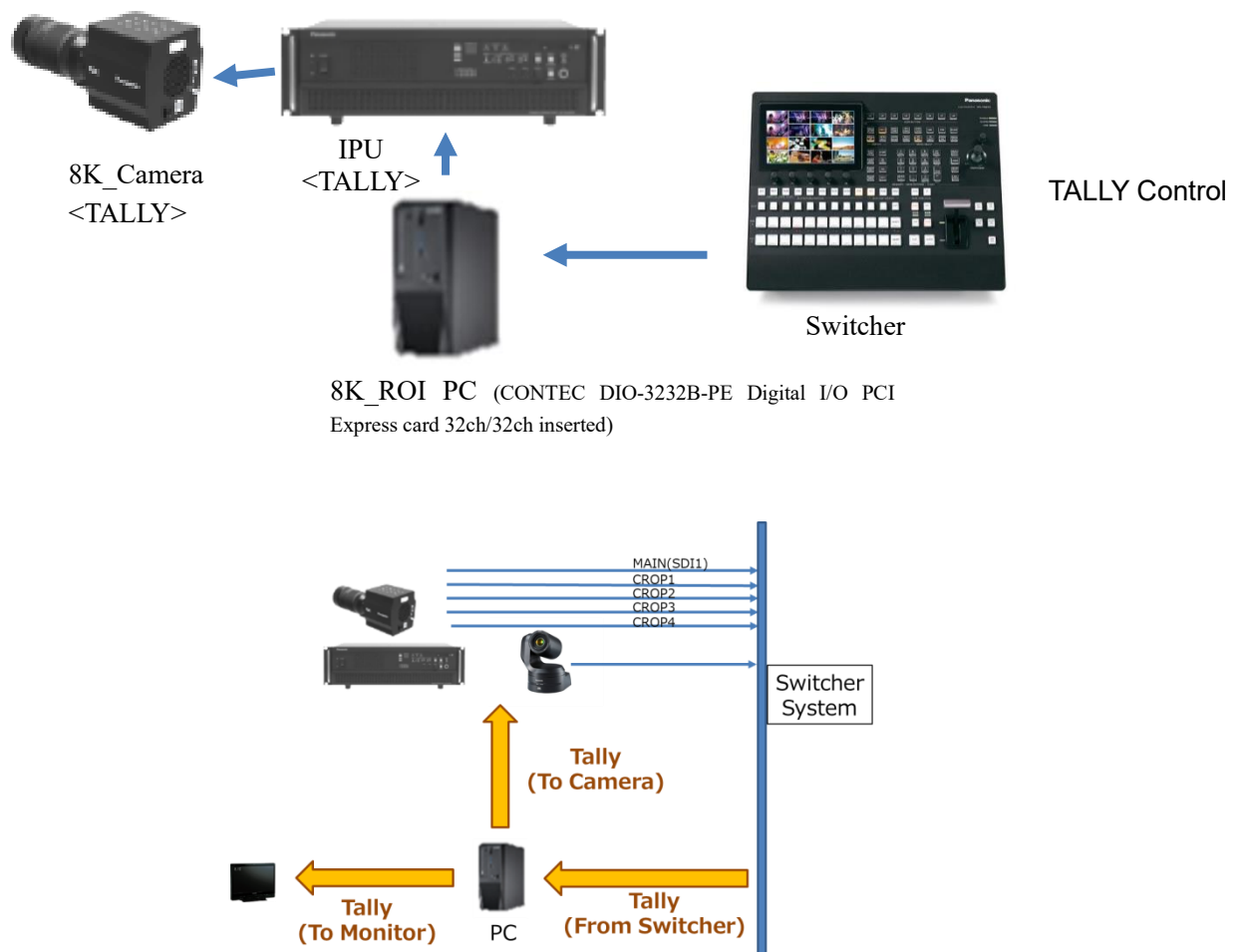
Thereafter, execute the authentication process by clicking on [Activate] button. If the authentication process is successful, the license status is updated to [OK].

Tally Settings

Tally operation in a system is as displayed below. It's possible to choose between a Coupler that directly reads out the tally signal from a switcher through connecting with a designated board and a TSL Protocol *1(TSL) that transmits over IP protocol. Operation of the tally signal from the switcher will be explained here.

The switcher sends (From Switcher) red tallies for videos that are currently being streamed and green tallies for possible candidates for following streams.

This software sends tally information to the corresponding video cameras (To Camera) that receive tally information from the switcher. Additionally, tally information is sent to the monitor (To Monitor) video that is being referenced by the operator controlling the corresponding video cameras.

8K_Camera
<TALLY>

IPU
<TALLY>

TALLY Control

Switcher

8K_ROI PC (CONTEC DIO-3232B-PE Digital I/O PCI Express card 32ch/32ch inserted)

MAIN(SDI1)
CROP1
CROP2
CROP3
CROP4

Switcher System

Tally (To Camera)

Tally (To Monitor)   PC   Tally (From Switcher)

Settings for the I/F and protocols necessary for the receipt of tally information from the switcher and settings for the I/F and protocols to send tally information to the video monitor can be set from the tally settings.
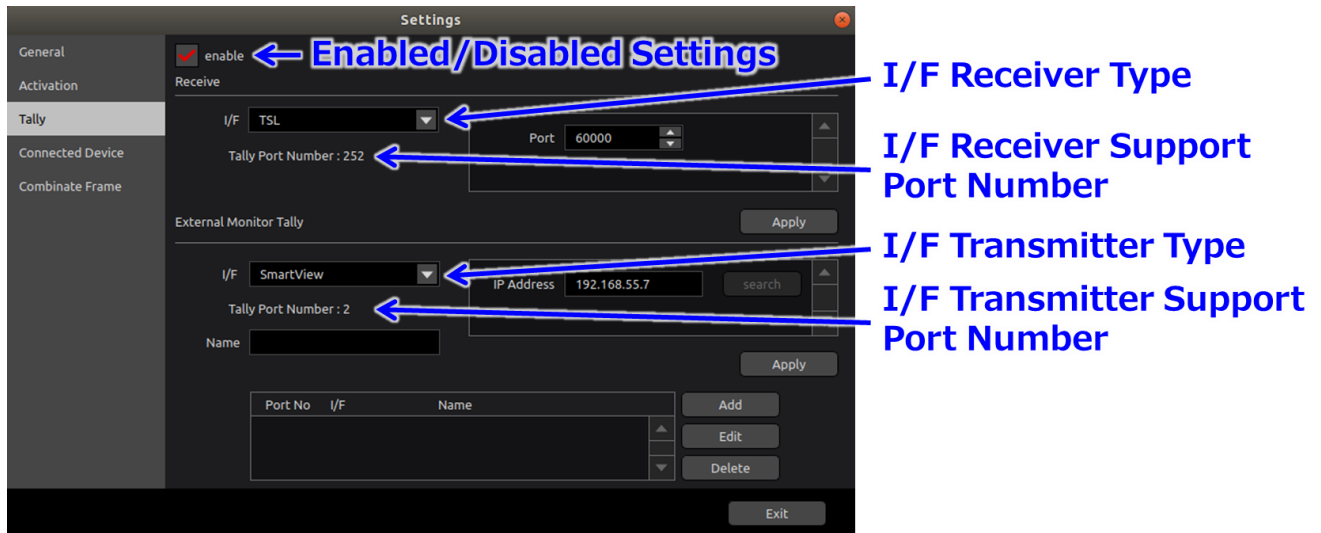
Usage of the tally function can be set with the enabled/disabled settings. By checking the check box, I/F receiver types and I/F transmitter types can be selected. I/F receiver types are scheduled to be expanded but at present, only [Coupler] and [TSL] are selectable. The I/F receiver type can be selected and set from the combo box. When the [Apply] button is pressed, the support port number for that I/F receiver will be displayed. It is assumed that the transmitting switcher will be limited to a single unit, so when [Apply] is pressed the previous I/F receiver settings will be rendered disabled.

Additionally, I/F transmitter types are scheduled to be expanded but at present, only [Coupler] and [SmartView] are selectable. The I/F transmitter type can be selected and set from the combo box. When the [Apply] button is pressed, the support port number for that I/F transmitter will be displayed.

Additionally, to distinguish between multiple I/F transmitter ports, each I/F transmitter port will be numbered sequentially. The setting of an easy to distinguish name for I/F transmitters will make it easier to associate them with ports numbers.

Clicking the [Add] button will add the transmitter to the I/F transmitter list. If an existing list item is selected, clicking the [Edit] button will overwrite it and clicking the [Delete] button will delete it.
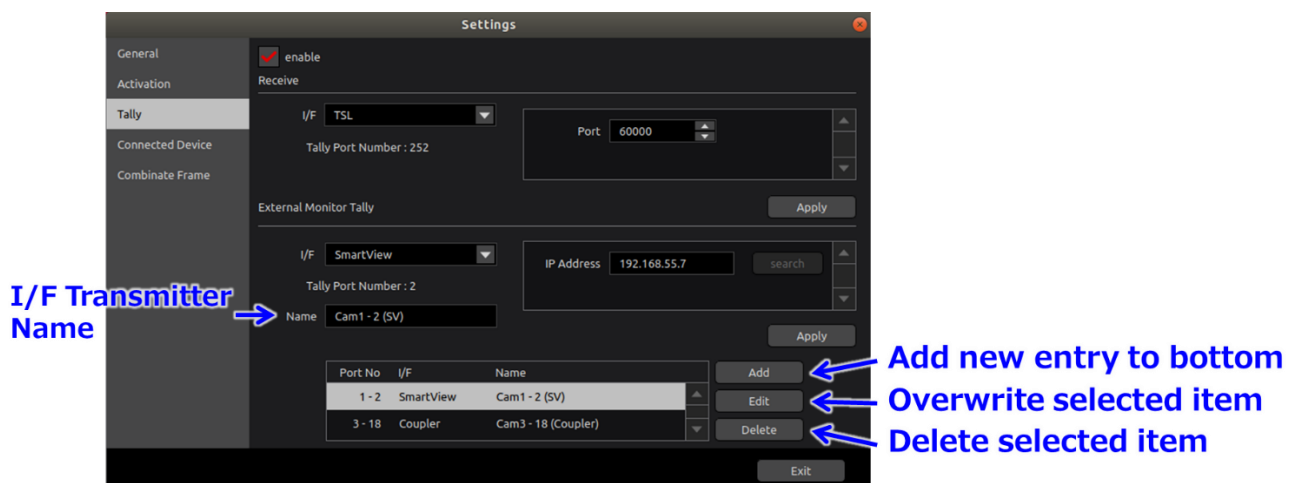
It's possible to assign the I/F receiver and I/F transmitter ports set here to the captured frames from the **connected device settings**. Now, if setting the I/F receiver or transmitter again after assigning to captured frames from the **connected device settings**, the assigned port will not be followed-up.

In the event you change the settings for the I/F receiver or transmitter, please take another look at the assignment setting for captured frames on the **connected device settings**.

*1 TSL Protocol

<https://www.tslproducts.com/product-support/control-products-support/>

Connected Device Settings

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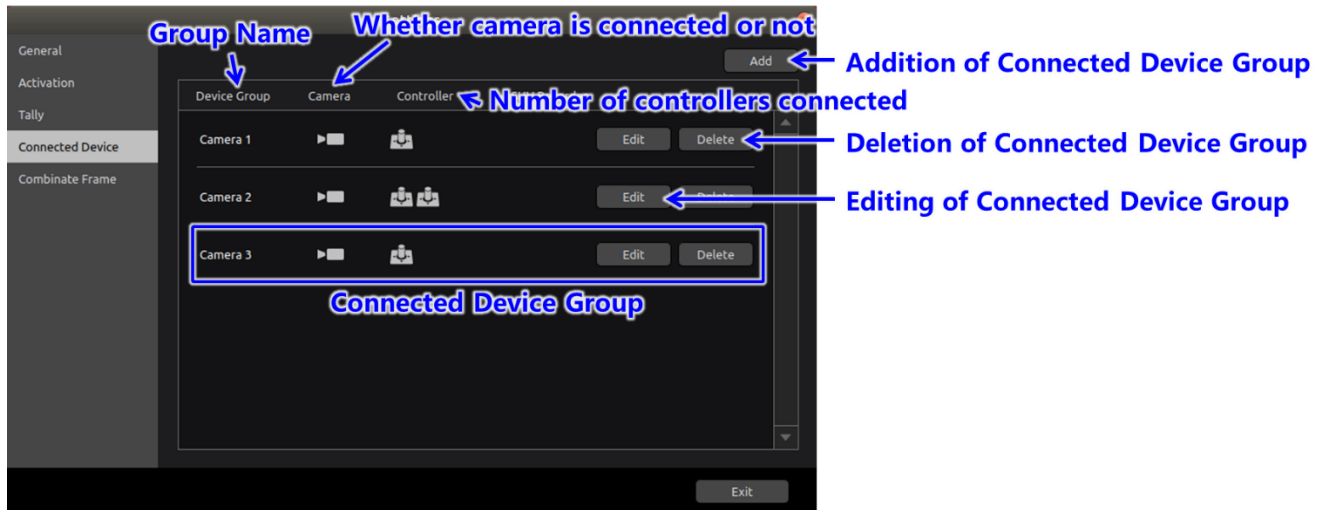
Connected Device Grouping

In the Connected Device settings, the controller that controls the camera 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]
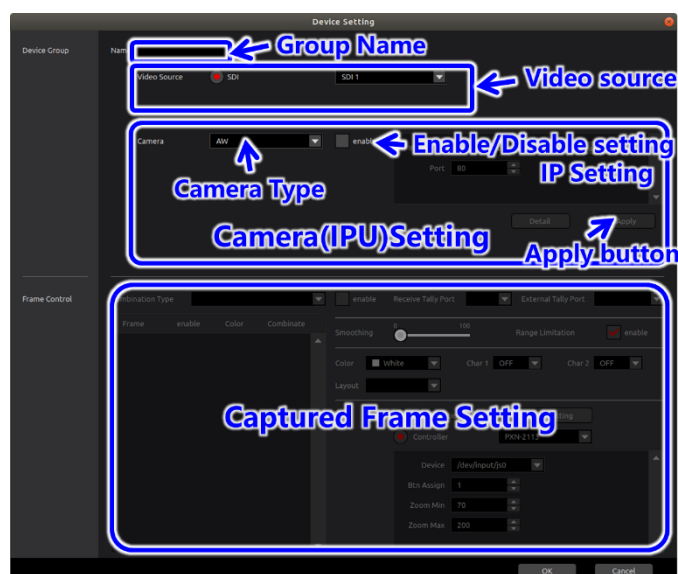
Group name shows the connected device group. There is no problem in the operations even if the name is not entered (left empty) or is similar to another group, however, it is recommended to enter a different name as it is difficult to distinguish in the **View Screen** and screens for **Preset / Tracing Memory Screens**, **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.

SDI is the only compatible means of video capture. 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 the camera. In case of already being use, display is grayed-out and cannot be selected.

In Camera settings, type, enable/disable and camera information can be set. Selectable types are [8K IPU] and [AW].

8K_IPU Connections

IP Settings

Selecting [8K IPU] in camera settings and setting the check box to "enable" will enable the camera (IPU) settings 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. The default value for the IP address is [192.168.0.10] and the default IP port is [49536]. The [Search] button cannot currently be used.

Remote Camera Connections

IP Settings

Selecting [AW] in Camera settings and setting the check box to "enable" will enable the remote camera settings and it will be possible to set the IP and camera. Please enter the IP address and IP port number of the remote camera in IP settings. Please check the IP address and IP port number of the remote camera in the settings on the remote camera. The default value for the IP address is [192.168.0.10] and the default IP port is [80]. The [Search] button cannot currently be used.

Detailed Settings

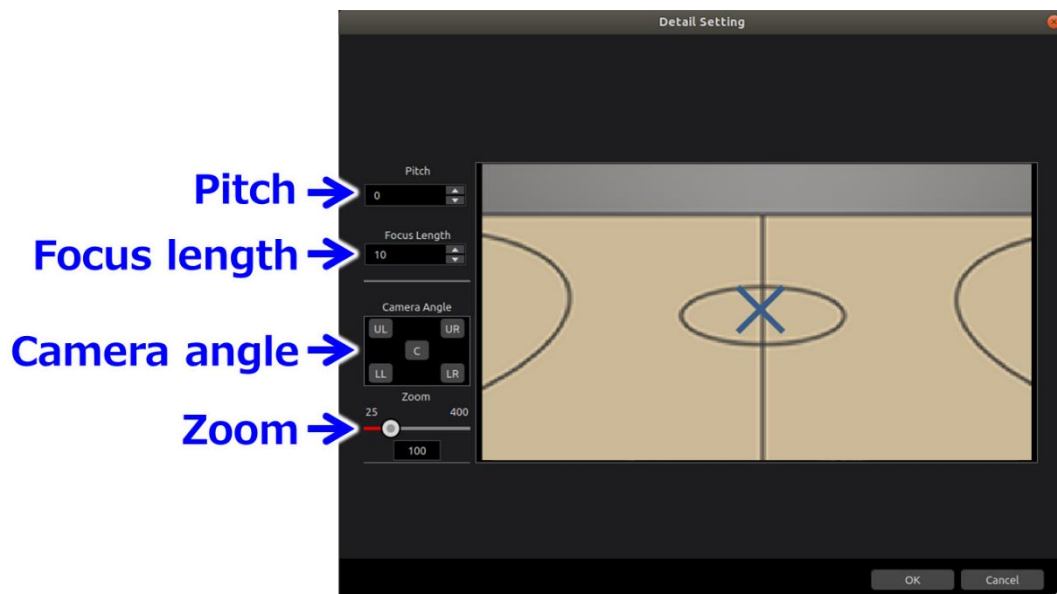Settings can be performed for the virtual pitch and focus length as shown below in the remote camera settings screen that comes up when the [Detail] button is pushed in camera settings. Through these settings, the remote camera's moveable range of filming will be

largely decided.

Opening the setting screen when a remote camera is connected will display the captured video. There is an x mark in the middle of the picture to make it easy to ascertain where the center is. Pitch and focus length can be set using the corresponding settings for the 8K camera when the captured frames are taken from a remote camera through an 8K camera. Additionally, the camera angle can be similarly specified within the shooting position of the 8K's angle of view.

Zoom magnification of the remote camera can be specified with Zoom. The zoom value can be changed by moving the slider on the bar with your mouse. Releasing the mouse button will return the value to 100.

With the pitch setting, changing the value will shift the captured video vertically. If you want to make adjustments, clicking [C] in Camera Angle will display the center portion of the remote camera's image, so please set the center to show the center of the area you wish to film (if you are linked with an 8K camera for example, the center of the main 8K camera's image).

In the focus length settings, if you click the [UL] (Upper Left) button in Camera Angle, the upper left of the remote camera's image will be displayed, so please set the area you wish to film. Adjustments can be made to show more of the outer area by make the value of the Focus Length smaller. However, please be careful as setting the outer area larger than the area you want to film will make link settings difficult. In the same way, please click each of the [LL] (Lower Left), [UR] (Upper Right) and [LR] (Lower Right) buttons to adjust the filming area. When all of the settings are completed, please click the [OK] button. Clicking the [Cancel] button will cancel the settings.

Captured Frame Settings
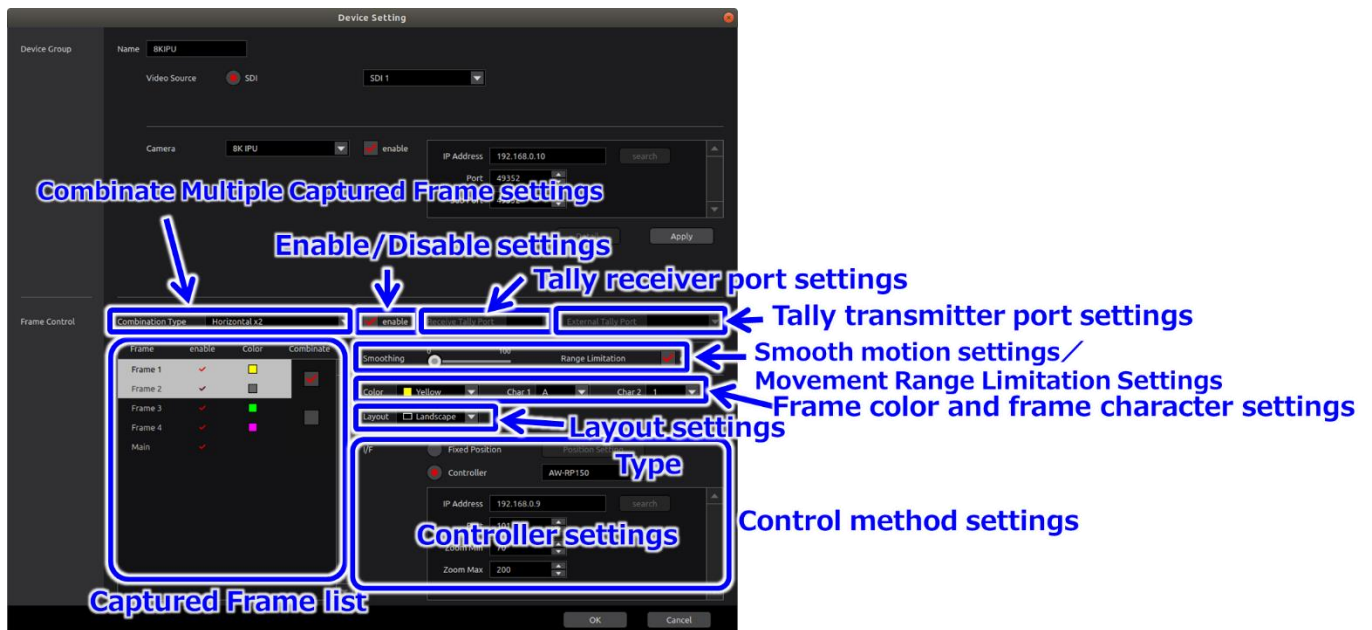
Pressing the [Apply] button for 8K_IPU and remote cameras will make the captured frame settings useable.

Please select the captured frame you want to set from the captured frame list. However, frames linked through settings in the **combinate captured frame settings** will be grayed-out and not selectable.

Additionally, if 8K, MAIN (high-angle shots) will be selectable. Settings limited to the tally only can be performed.

Clicking [enable] will enable the selected captured frame, and allow for smooth motion settings, frame color settings and control method settings. Items that have their enable check box clicked will not be selectable in the **Combinate Captured Frame settings**, so please uncheck any items you would like to use as Combinate.

In the Tally Receiver port settings, it's possible to assign the number of ports set in the **Tally Settings** I/F Receiver area to Captured Frames. Please confirm which port the corresponding captured frame's image is connected to, and then select the port number.

In Tally Transmitter Port settings, it's possible to assign the number of ports set in the **Tally Settings** I/F Transmitter area to Captured Frames. Please confirm which port the corresponding captured video's monitor is connected to, and then select the port number.

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

With the Fixed Position setting, you can choose whether or not to limit the movement range of the captured frame. Checking the check box will enable movement range limitation and you can set the edges of the boundary for the captured frame of the high-angle shot and keep it from moving in those directions. Further, as distortion correction occurs during the processing of captured footage, video data will be referenced from an area that goes beyond the edges of the boundary. This is why the high-angle shot is limited from the inner edges of the boundary. Additionally, if you uncheck the checkbox, the restriction will be lifted and maneuvering the captured frame outside of the high-angle shot will be possible. However, the area outside of the high-angle shot's area will be black.

In the Frame Color settings, captured frame color which is displayed in the HD high angle shot, is set. The combo box list has selections for white, yellow, cyan, green, magenta, red, blue, brown, grey, pink and purple, so please choose from those. Further, when the camera is [AW], there is no HD high-angle shot, so there will be no effect no matter what color is chosen.

In the Frame Character settings, you can set up to two characters for display in the captured frame. The combo box list has selections for OFF / A to H / 1 to 8, so please choose from those. The combo box for the second character can be set only if the combo box for the first character is other than OFF. When A to H / 1 to 8 are set, the set character is displayed at the top left of the captured frame. Assigning a letter to each operator will make it easier to determine what captured frame is being operated. This letter will also be displayed in linked captured frames. Additionally, if the camera is [AW], there is no HD high-angle shot, so there will be no effect no matter what letter is chosen.

In the case of the 8K_IPU, settings can be configured to combine multiple captured frames using the Combinate Multiple Captured Frame settings. The values that can be selected are as follows:
　　None ： 　The captured frames are not combined.
　　Horizontal x2 ： 　Captured frames 1 and 2, and captured frames 3 and 4 are combined horizontally.
　　Horizontal x3 ： 　Captured frames 1, 2, and 3 are combined horizontally.
　　Horizontal x4 ： 　Captured frames 1, 2, 3, and 4 are combined horizontally.
　　Vertical x2 ： 　Captured frames 1 and 2, and captured frames 3 and 4 are combined vertically.
　　Vertical x3 ： 　Captured frames 1, 2, and 3 are combined vertically.
　　Vertical x4 ： 　Captured frames 1, 2, 3, and 4 are combined vertically.
　　Horizontal x2 & Vertical x2 ： 　Captured frames 1, 2 are combined horizontally and captured frames 3, 4 are combined vertically.
　　Square x4 ： 　Captured frames 1, 2, 3, and 4 are combined in a square grid.

If other than None is selected, a Combinate checkbox is displayed on the right side of the frames to be combined in the Captured Frame list. Select the checkbox and turn it ON to combine the frames.

When frames are combined, the frame having the smallest number among the combined frames acts as the parent frame, and control operations such as movement of frames are performed for this parent frame. Settings such as the color and characters of the displayed frames are also based on the parent frame. Control and settings are disabled for the rest, which will be child frames, and cannot be performed.

In the case of the 8K_IPU, the display method of the captured frames can be selected from the three types of Landscape / Portrait (L) / Portrait (R) in the Frame Layout settings.

Landscape： The captured frames are displayed in a horizontally oriented manner.

Portrait(L)： The captured frames are displayed in a vertically oriented manner. Output images appear correctly oriented from the 8K_IPU when the monitor is rotated to the left.

Portrait(R)： The captured frames are displayed in a vertically oriented manner. Output images appear correctly oriented from the 8K_IPU when the monitor is rotated to the right.

When Combinate Multiple Captured Frame settings are made, frames are combined using the layout settings of the parent frame.

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

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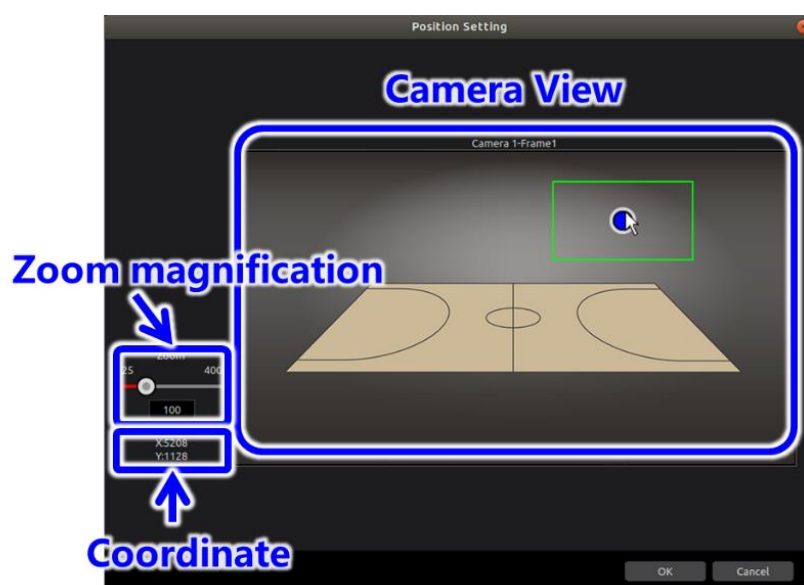
In the fixed position setting screen, position of captured frame can be set by clicking on the Camera View screen. At this time, central position of captured frame is displayed in coordinates column as 8K angle of view (7680x4320).

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÷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 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. Further, when the camera is an [8K IPU], the captured frame will show the general scope of the CROP image coming out of the camera (IPU) and will not be an exact match. If the capture range is outside of the 8K angle of view, the CROP image will be invalid (this is as a signal outside of the 8K angle of view that does not exist will be required). Please ensure a signal outside of the 8K range is not required. Please confirm using the CROP image when setting the zoom magnification.

Additionally, when the camera is an [AW], a mouse click on the camera view screen will show coordinates on a virtual 8K angle of view. A captured video from a remote camera will be displayed, so please use your mouse and keyboard to adjust the position.

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

Further, after closing the Fixed Position settings dialogue, settings will not be complete until the [OK] button has been pressed for the connected device. Please be careful when establishing new settings, as the captured frame settings may disappear if the [OK] button is not pressed. When setting Controller settings, controller restrictions may be reverted if the [OK] button is not pressed.

- Controller Setting

   If controller is selected, controller type and IP address setting enable. The controller type can be selected from the following:

 IPD DESKTOP:
 PXN-2113:
   If multiple joysticks are connected, select the joystick device file to be assigned in the Device settings. It's possible to use a single controller to manipulate multiple captured frames through button switching if you assign buttons to captured frames.
 AW-RP150:
   See "Setting and Operation of AW-RP150" in this manual.
 VariZoom Panbar:
   See "Setting and Operation of VariZoom Panbar" in this manual.

   It's possible to set a zoom range for any controller. The possible range is between 25 and 400. When all the settings are completed, press [OK] button. If [Cancel] button is pressed, settings are cancelled.

 <Notes>
   AI (Multi / XY) is for future expansion. Not available now.

Combinate Captured Frame Settings

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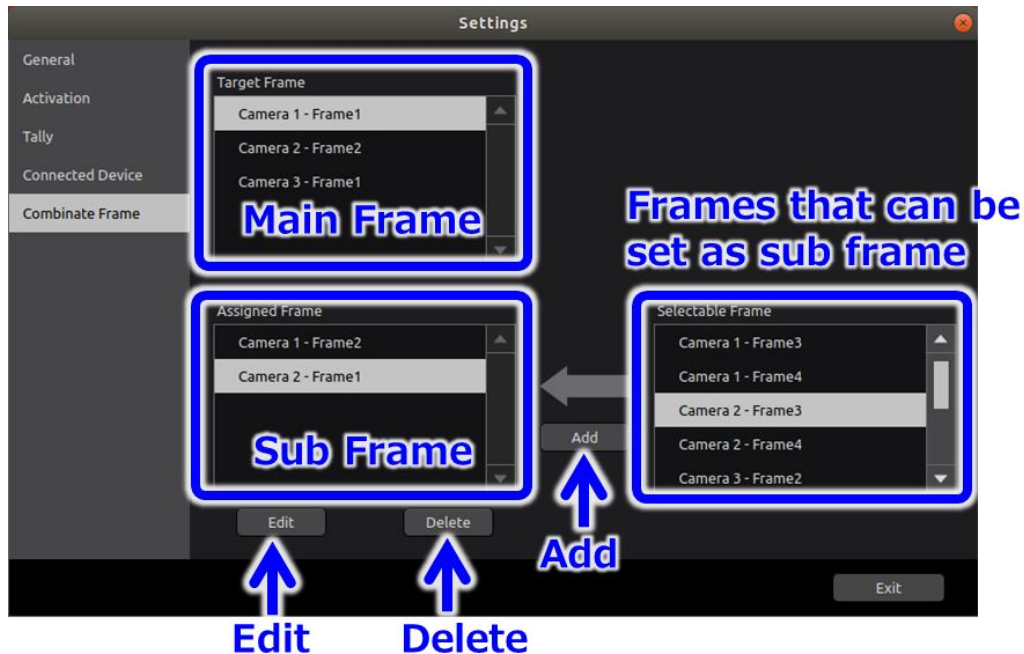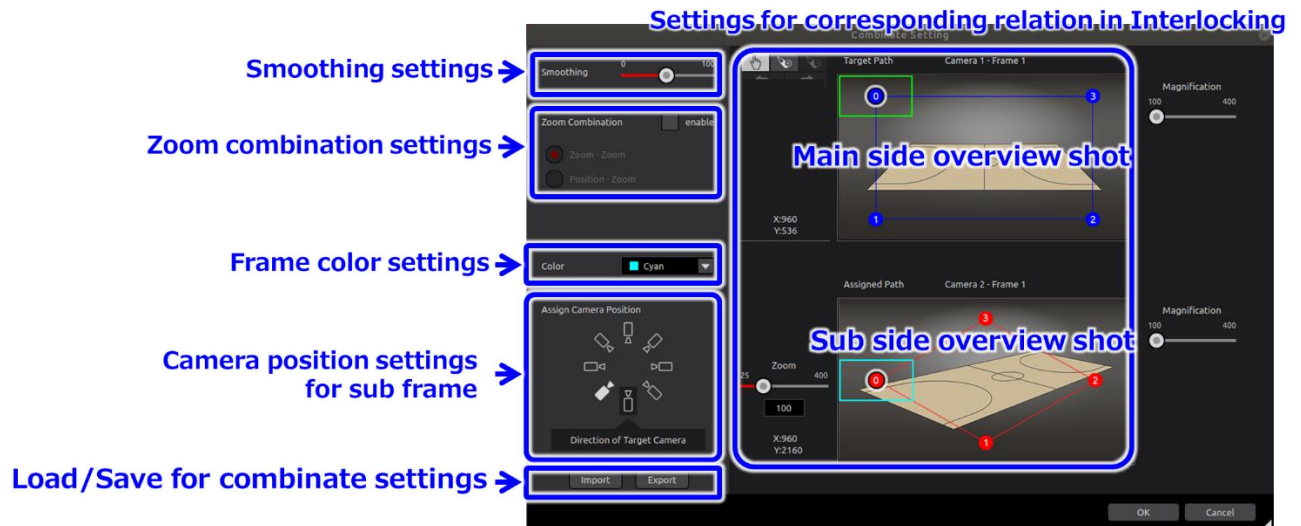

In the main frame list, [enable] is set in enable/disable settings among the captured frames of camera group that are set in **connected device settings** and the ones for which controller is selected, are displayed. However, [AW] cameras will not be displayed.

In the frame list for sub 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 main list, and the frames, which are to be interlocked with motion of main frames, are selected from frame list for sub frame selectable frames, after which if Add button is pressed, following shown combinate captured frame detail screen is displayed. After the settings are done, press OK button and the selected frames move to sub frame list from frame list for sub frame selectable frame.

In case one wants to delete the frame in sub 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 combinate captured frame detail screen as shown below.

Settings for corresponding relation in Interlocking

Smoothing settings →

Zoom combination settings →

Frame color settings →

Camera position settings for sub frame →

Load/Save for combinate settings →

**Main side overview shot**

Sub side overview shot

Further, as [AW] cameras do not have high-angle shots, the sub high-angle shot will be black and the remote camera image will be displayed at its side.

← **Magnification**

← **Remote Camera Image**
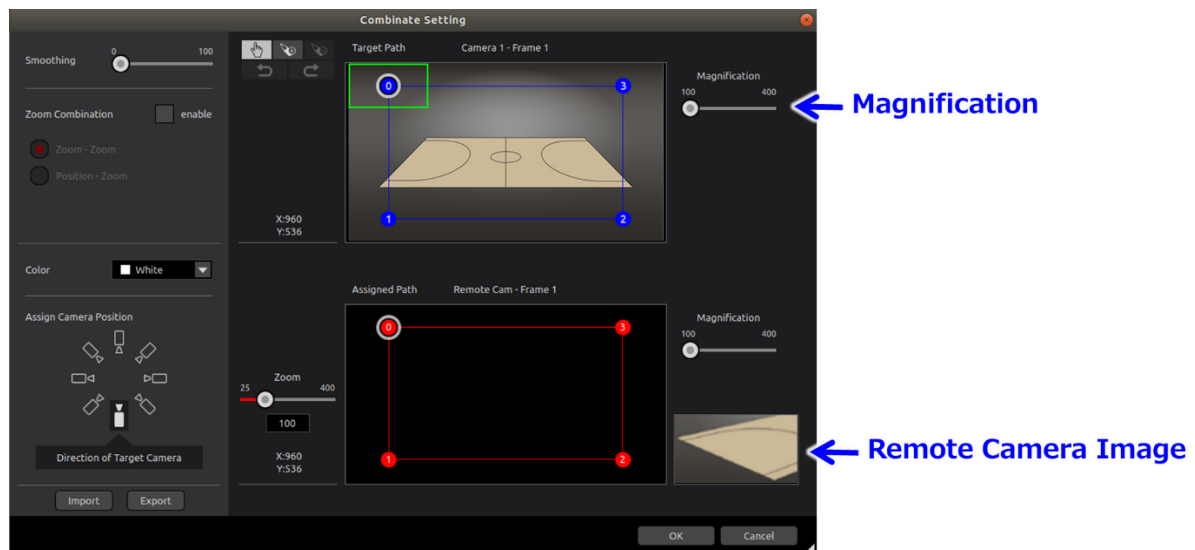
In the combinate frame detail setting screen, settings for sub frame and settings for their corresponding relation, when the operations are interlocked with the main frame, can be done.

Changing the display magnification will enlarge the image as shown below, so please change it accordingly.
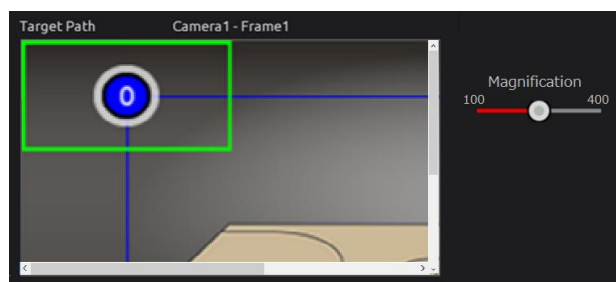
In smoothing settings, the smoothness of sub frame motion can be set. With increasing value, the motion becomes smooth.

In zoom combination settings, settings can be done for interlocking the zoom operations of sub frames to main 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 sub frame. Zoom magnification can be changed by operating the slide bar. This zoom magnification becomes fixed without depending on main frame.

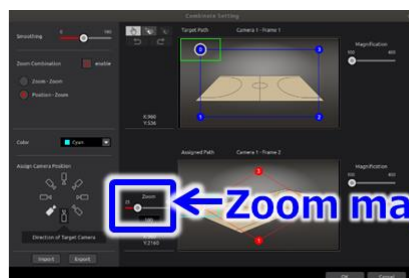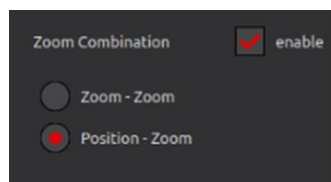← Zoom magnification of sub frame
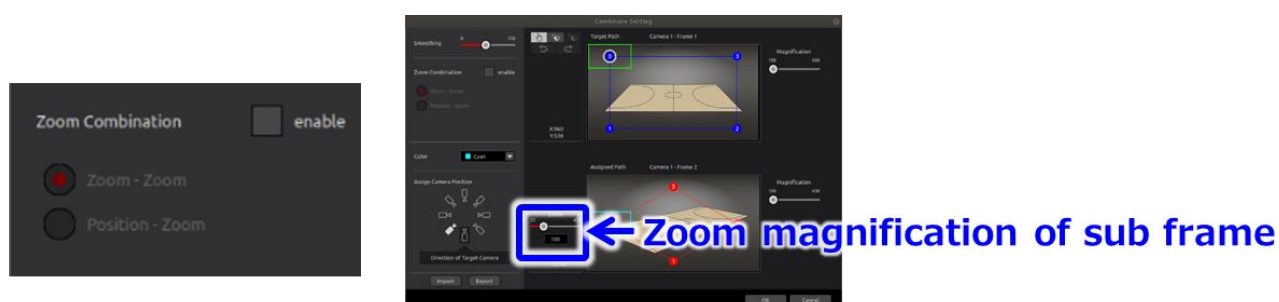
In case one wants to interlock the main frame zoom operations by interlocking with sub frame zoom operations, check the [enable] check box and select [Zoom – Zoom]. Slide bar with which the main frame zoom magnification can be set, slide bar that can set the zoom magnification of sub frame when main frame is zoomed in (value = 200), slide bar that can set the zoom magnification of sub frame when main frame is zoomed out (value = 70) are displayed. Sub frame zoom magnification can be changed by operating the slide bar of sub frame. Execute the settings of zoom magnification for each case when the main frame is zoomed in (value=200) and when it is zoomed out (value=70). Main frame zoom magnification can be changed by operating the slide bar of main frame, at the same time, the behavior of change in zoom magnification of sub frame according to the setting values of sub frame zoom magnification can be confirmed.

← Zoom magnification of main frame
← Zoom magnification of sub frame (when zoomed in)
← Zoom magnification of sub frame (when zoomed out)

In case one wants to interlock the zoom operations of sub frame by interlocking with the position of main frame, check the [enable] check box and select [Position – Zoom] as shown below. A slide

bar is displayed with which zoom magnification of sub frame can be set. Zoom magnification of sub frame can be changed by operating the slide bar. This zoom magnification can be set for each sub frame position, and zoom magnification can be changed according to the position of sub farm.


In the frame color settings, the color of sub frame displayed in sub side overview shot can be set. Options in the combo box include white, yellow, cyan, green, magenta, red, blue, brown, grey, pink, purple; select one among them.

Sub frame camera position settings designates the position for camera installation for sub frame as against the camera installation (front) position for main frame. By specifying the camera installation position for sub frame, corresponding point of sub 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 sub frame as against the main frame position is set. As shown below, equal number of points are displayed on both main side overview shot, and sub side overview shot. Same number of points for main and sub becomes the corresponding points.
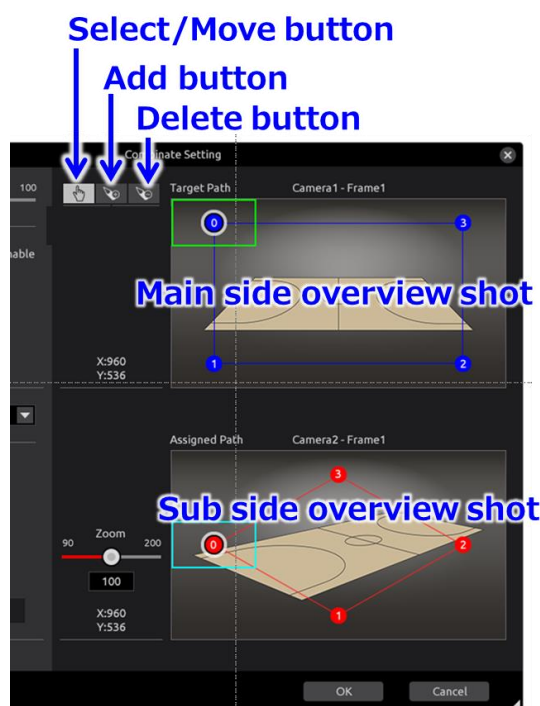

The corresponding points can be moved, added and deleted as shown below. In addition, as the

area outside of the range of the CROP image will be black if the clipping area is out of the range of the 8K angle of view, it is recommended to set the CROP image while checking. (Note: When operating with a controller, the movement range is limited so that it cannot move out of the range of the 8K angle of view if the angle of view range restriction is enabled in **Captured Frame settings**. In this case, the captured frame will not operate smoothly, so, as much as possible, it is recommended to set the captured frame to not move to the edge area of the screen.)

   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 main 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 sub 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 sub 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 sub side also, the corresponding points are deleted.
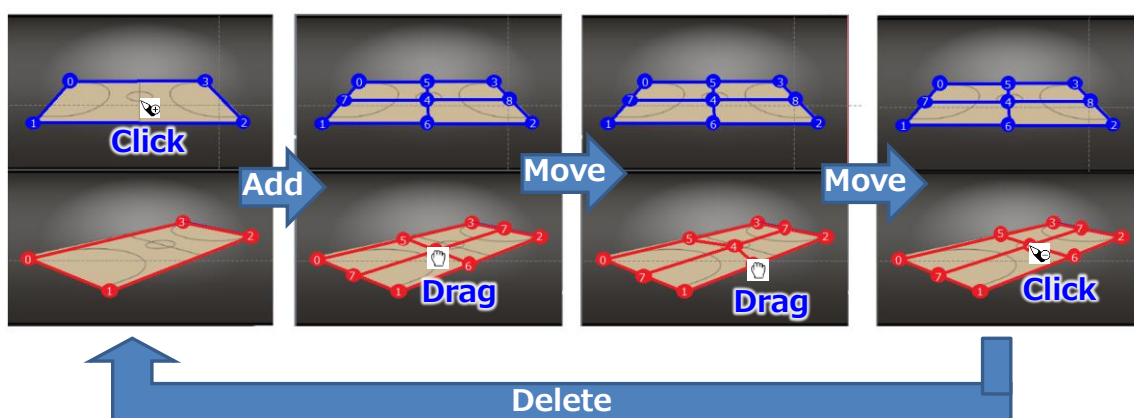

   In load/save for combinate settings, press [Import] button, select the setting file and press [OK] button and the setting information can be loaded. Press [Export] button, enter the name of setting file, click on [OK] button and the setting information can be saved.

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 view screen and click on the property icon on the tool bar as shown below.
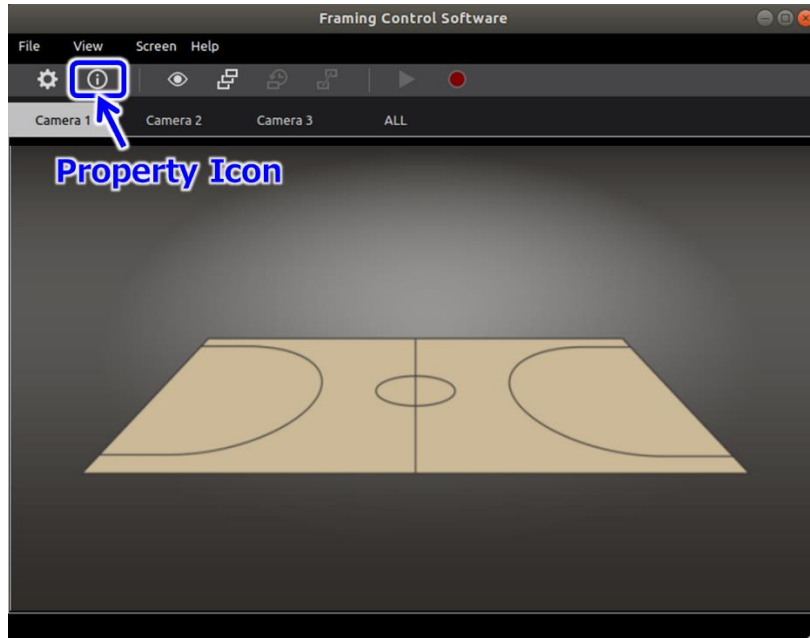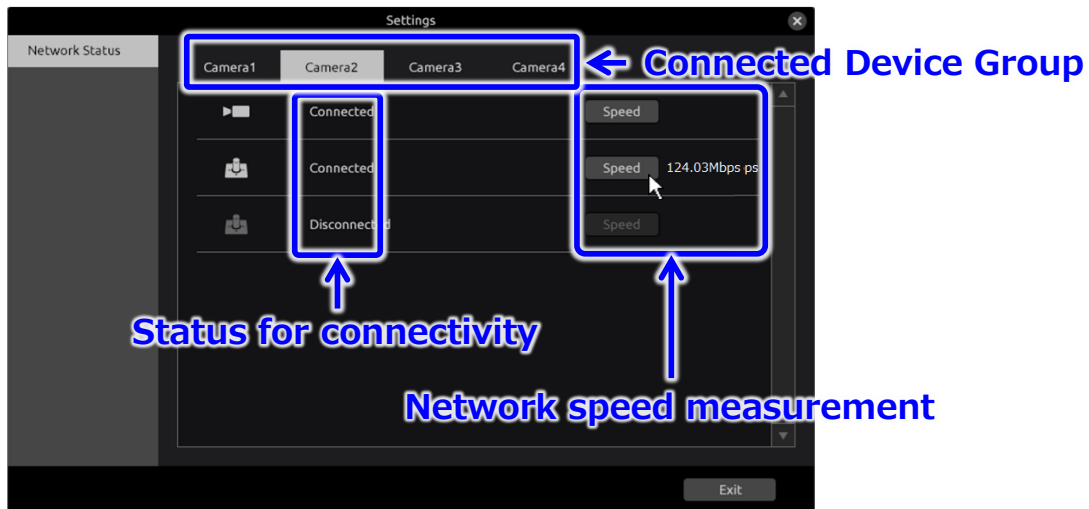

In the property screen, item for reference is displayed to the left side as shown below. There is Network as the item for reference. Further, menu bar and the tool bar are disabled when property screen is displayed.
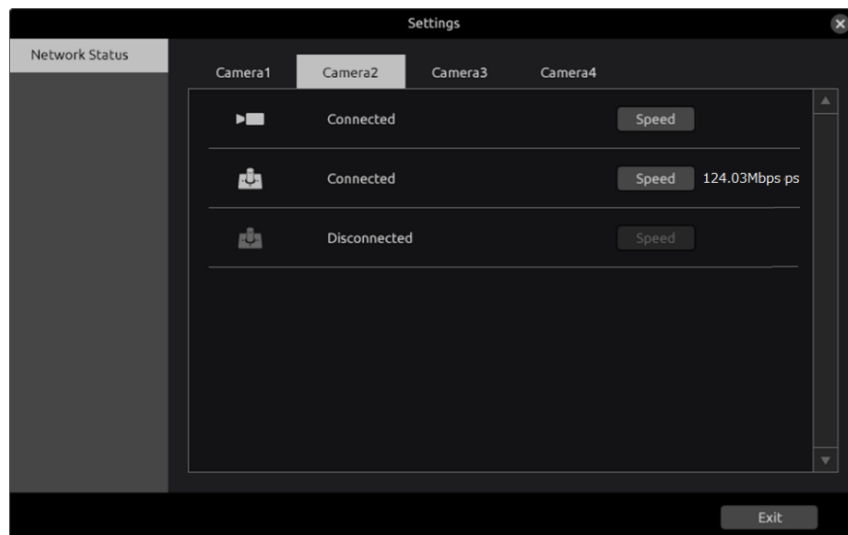
Network Status

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。

Preset / Tracing Memory Screens

The software has a Preset function that remembers and restores the position of frames, and a Tracing Memory function that remembers and restores changes in the position of the frames.
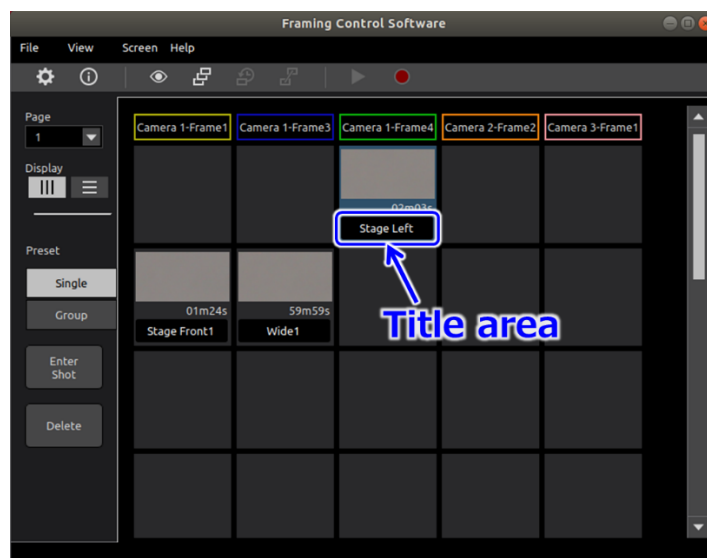
Preset Screen

Clicking the Preset icon on the view screen's toolbar will transfer you to the preset screen. On the preset screen, there are both Single and Group modes. Single mode allows for the setting of presets for each camera's captured frame, whereas Group mode allows for the presets of each captured frame set in the Single mode to be applied across a group. Grouping allows preset operations to be set for each camera's captured frame all at once.
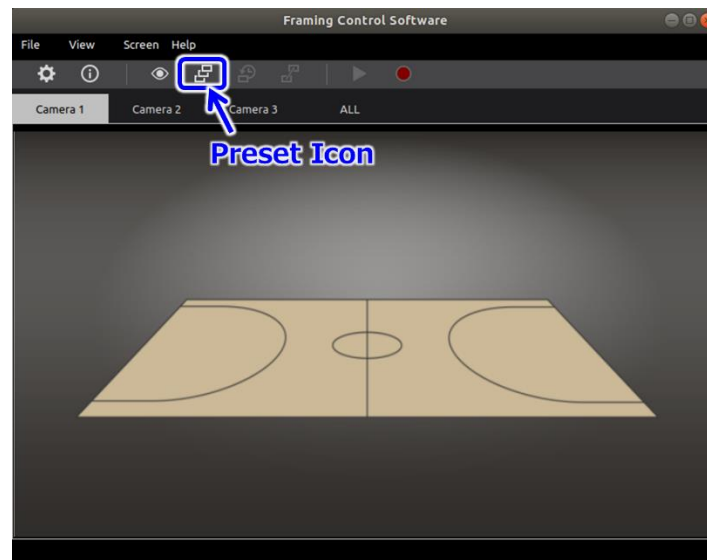
Thumbnails for each of the set captured frame preset positions will be displayed in a table on the preset screen. First, we will explain Single mode below.

Selecting a thumbnail from the thumbnail screen and clicking it will put focus on the corresponding thumbnail. Clicking the title area below the thumbnail when it has focus will allow you to edit the title.
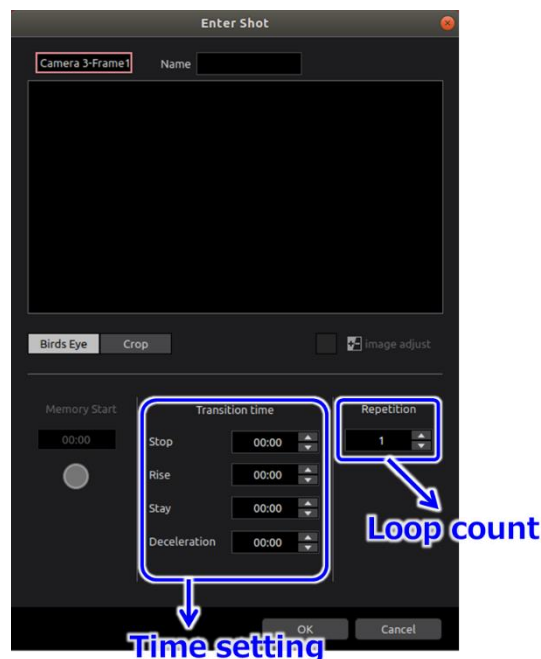
・Preset Settings

　Clicking the [Enter Shot] button on the upper-left of the preset screen will display the preset settings screen. You can choose between the selected captured frame image or the high-angle shot to be displayed on the default view window of the preset settings screen. You can display the high-angle shot with the Bird's Eye selection and the selected captured frame image using the Crop selection with the selection button at the bottom of the view window. Further, the captured video is being processed from the high-angle shot captured by the PC so signal processing has not been performed. So, the position will differ slightly from the actual capture image.
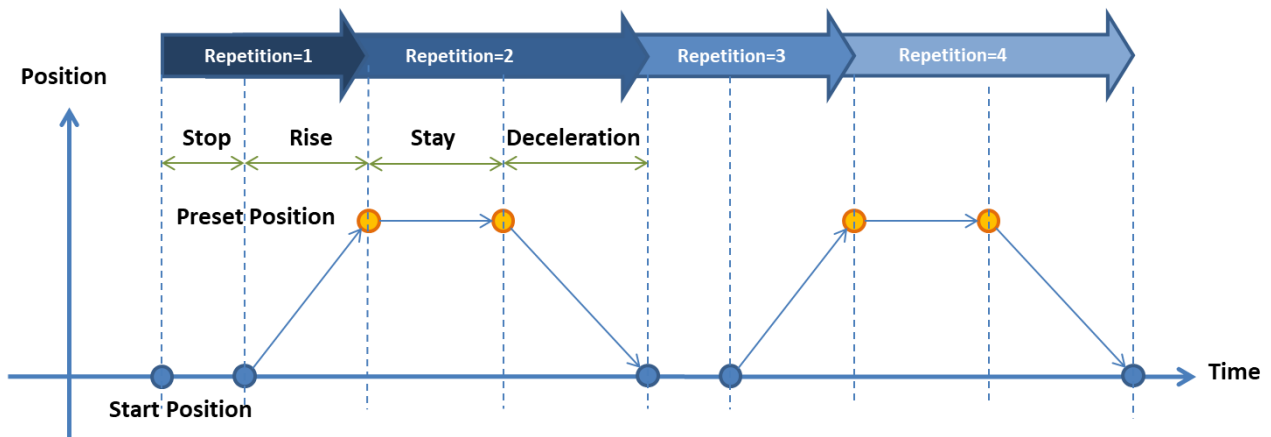
　Using the Joystick or Pan Bar set in the device settings screen, the capture position can be moved and set in preset position settings. Clicking the [OK] button after moving to the position you would like the preset to remember will save the preset position and close the preset settings screen.

　Transitions to the preset position will take place starting from the current position and finishing at the preset position. The default is for an instant transition, but transition time can be set from the preset settings screen. The following setting values are possible from the preset settings screen.

Stop	Length of time to remain in start position and length of time to remain after returning to start position (seconds)
Rise	Transition time from start position to preset position (seconds)
Stay	Stand-by time at preset position (seconds)
Deceleration	Transition time from preset position to start position (seconds)

It's also possible to make a loop using the transition from the start position to the preset position and from the preset position to the start position.

The diagram shows a Position vs Time graph with repetition arrows labeled Repetition=1, Repetition=2, Repetition=3, Repetition=4. Below them are phase labels Stop, Rise, Stay, Deceleration. The graph shows Preset Position (orange markers) and Start Position (blue markers).

・Preset Playback

Double-clicking a thumbnail on the thumbnail screen will playback a thumbnail's recorded operation. If transition settings are being performed during this time, even if they are related to time, playback will be based on those settings.
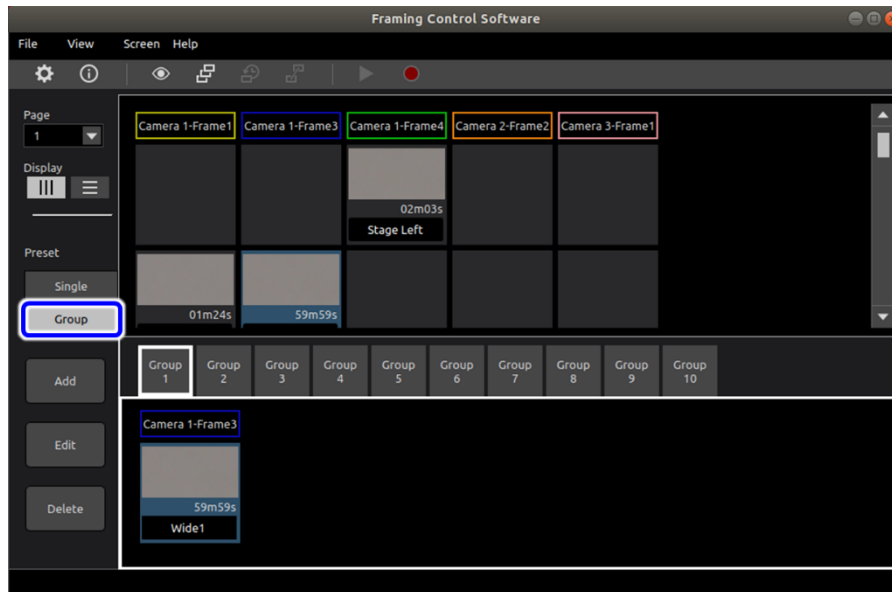
・Stop playing Preset

Playback will be canceled if any of the following operations are performed.
- Use the controller (excluding VariZoom Panbar) to move the frame
- Double-click the thumbnail being played on the thumbnail screen.

・Preset Group Mode

Clicking the [Group] button on the left of the preset screen will change things to Group mode. In Group mode, Group number tags (it's possible to set up to 10 groups) and a selection tray showing presets in that group are displayed.

Selecting and clicking on a thumbnail in the upper portion of the Group mode will put focus on that thumbnail. Clicking the [Add] button will add the preset with focus to the current selected group. Further, only a single entry per camera captured frame can be added to a group, so re-adding will overwrite the entry.

・Preset (Group) Playback

　　Double-clicking a single thumbnail from the selection tray will playback all of the presets for a group at once.

・Stop playing Preset (Group)

　Playback will be canceled if any of the following operations are performed.
　　- Moving the frame with the controller (excluding VariZoom Panbar), playback will be stopped only for the frame.
　　- Double-clicking on any thumbnail in the thumbnail screen to stop all playback in the group.

Tracing Memory screen

　　If you select Tracing Memory from the Tool Bar on the View screen, the display transits to the Tracing Memory screen. The basic layout is the same as that of the Preset screen, and a thumbnail screen with a list of thumbnails is displayed for each captured frame with each thumbnail containing a recording of an operation.
　　Selecting and clicking on a thumbnail from the thumbnail screen will put focus on that thumbnail. If you click the title area below the thumbnail with the thumbnail being focused, you can edit the title.

・ Recording the tracing memory

If you select on the thumbnail screen a blank frame or an existing thumbnail frame and then press the "Enter Shot" button at the side of the screen, the Enter Shot screen appears.

Recording of the operation will start by pressing the "Memory Start" button on the Enter Shot screen. If you move the frame in focus during recording by using the controller, the movement of the frame while it is being moved will be recorded. Recording of the operation will stop by again pressing "Memory Start" during recording.
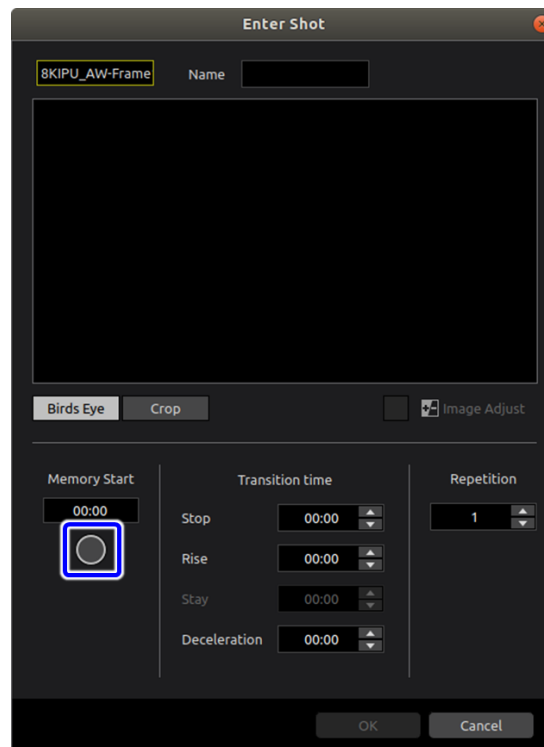
On the Enter Shot screen, you can configure the settings regarding the transition time. The following setting values can be set.

Stop	Length of time to remain in start position, and length of time to remain after returning to the start position (seconds)
Rise	Transition time from start position to recording start time (seconds)
Deceleration	Transition time from recording end position to start position (seconds)

・ Playing back the tracing memory

Double-clicking a thumbnail on the thumbnail screen will play back the recorded operation.

・Stop playing tracing memory

Playback will be canceled if any of the following operations are performed.
- Use the controller (excluding VariZoom Panbar) to move the frame
- Double-click the thumbnail being played on the thumbnail screen.

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.	
Screen			
	View	Displays the view screen.	
	Preset	Displays the preset screen.	
	Tracing Memory	Displays the tracing memory screen.	
Help			
	Manual	Displays the document	
	Version	Displays the version information	

Table 0-1. Menu Configuration

Setting and Operation of AW-RP150

Setting of this software

Follow the steps below to set up the AW-RP150 on this software.

1. Open the Settings screen of this software, and go to the Settings screen of the captured frame from the Connected Device settings.
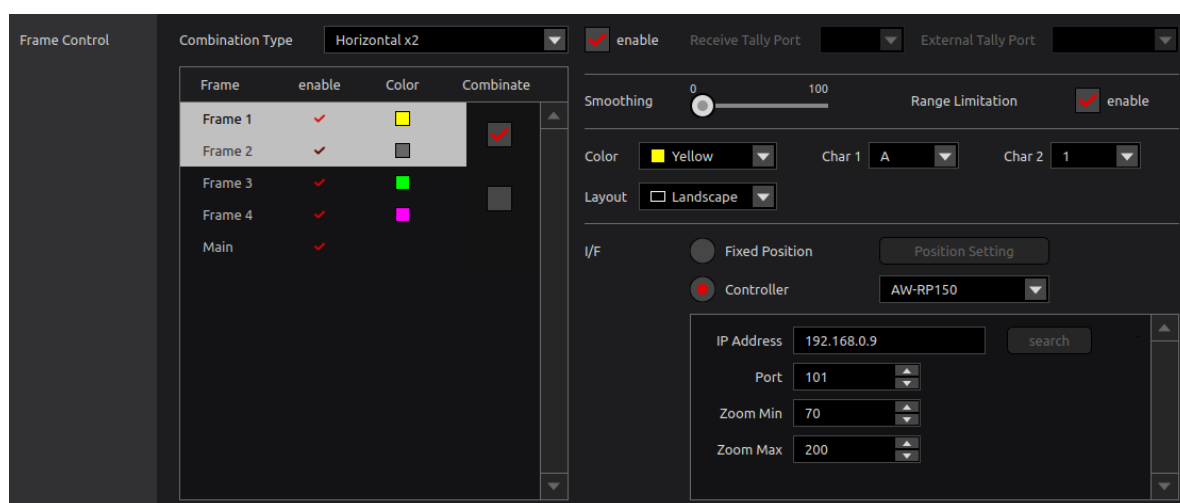
2. Select the captured frame to be controlled by the AW-RP150.
3. Select "Controller" in the I/F settings, and select "AW-RP150" from the list.
4. In the IP Address setting field, enter the IP address of the AW-RP150.
5. In the Port setting field, assign a Port number to the captured frame using an arbitrary value. Set a Port number that does not conflict with another captured frame.

AW-RP150 main unit settings

Follow the steps below to set up the AW-RP150 main unit.

1. Press the SYSTEM button on the AW-RP150 to display the SYSTEM menu screen.
2. Select "CONNECT SETTING" on the SYSTEM menu screen.
3. In the "CAM SEL" item of the CONNECT SETTING screen, select the camera control number used for controlling the captured frame, and set the "CNNCT MD" item to "LAN".
4. In the "DATA SAVE" item of the CONNECT SETTING screen, select "YES" to save the settings.

5. Perform the operation in steps 3 and 4 for all camera control numbers used for controlling the captured frames.
6. Select "MANUAL IP SET" on the SYSTEM menu screen.
7. In the "CAM SEL" item of the MANUAL IP SET screen, select the camera control number used for controlling the captured frame, and set the following items:
    CAM IP： Set the IP address of the PC on which this software is executed.
    PORT： Set the Port number assigned to the captured frame that is to be controlled.
    (This is the value set in step 5 of "Setting of this software" in this section.)
8. In the "UPLOAD" item of the MANUAL IP SET screen, select "YES" to save the settings.
9. Perform the operation in steps 7 and 8 for all camera control numbers used for controlling the captured frames.

Operation of captured frames

By operating each part of the AW-RP150, you can perform the Pan / Tilt / Zoom operation on the captured frames, and the operation of calling the preset.

Switching the captured frames
    Select the captured frame to be operated by the camera selection button of the AW-RP150.
    If a captured frame of this software is selected, the camera name is displayed in CAM: on the LCD screen of the AW-RP150 in the format
    "8K CRP [Frame No.] - [Characters displayed on the frame]".

Pan / Tilt / Zoom operation of the captured frames
    The Pan / Tilt operation of the captured frames is performed by the operation lever of the AW-RP150, and the Zoom operation of the captured frames is performed by the Zoom operation slider.

Calling the preset of the captured frames
    If you tap a preset number on the LCD screen of the AW-RP150, the corresponding preset is called.
    <Notes>
    Only the preset of a single captured frame can be called.
    Group preset calling is not supported.

Setting and Operation of VariZoom Panbar

VariZoom Panbar main unit connection

The following equipment is required to use Varizoom Panbar.

- USB to RS232C adapter
- RS232C straight cable (type: male-female)
- RS232C cable for VariZoom

Please prepare a commercially available USB to RS232C adapter and RS232C straight cable (male-female).

RS232C cable for VariZoom must be created separately. Contact your distributor for details.

Follow the steps below to connect VariZoom Panbar to the PC on which this software is installed.

1. Connect the USB to RS232C adapter to the USB port of the PC.

2. Connect the RS232C cable for VariZoom to the Serial terminal of VariZoom Panbar.

3. Connect the USB to RS232C adapter and the RS232C cable for VariZoom with an RS232C straight cable.
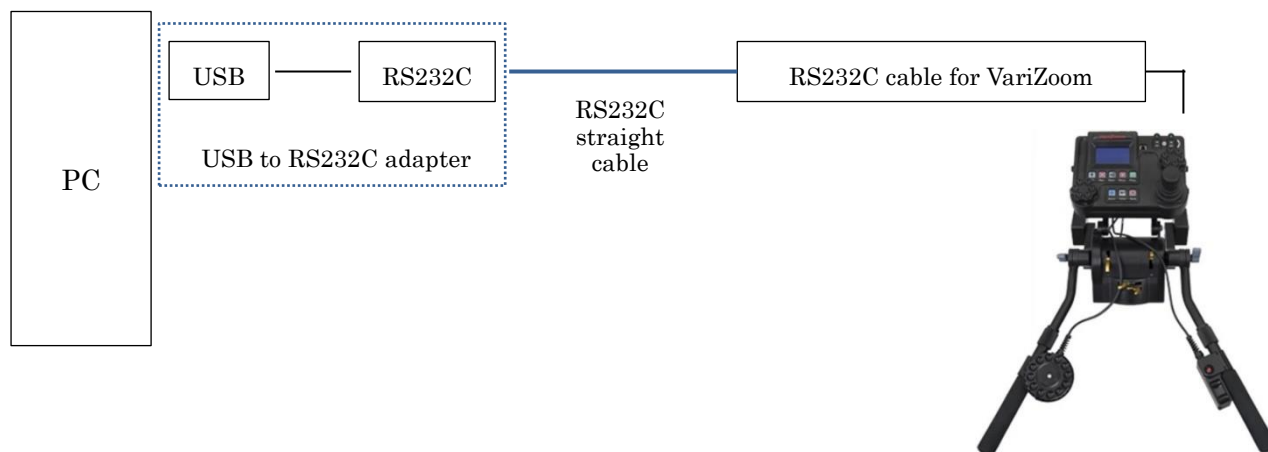
VariZoom Panbar main unit settings

Follow the steps below to set up the VariZoom Panbar main unit.

10. Press the MENU button on the VariZoom Panbar operation panel to display the menu screen.

11. Select [Response] on the menu screen.

12. On the Response screen, set the Pan and Tilt values to the following values.

    Smoothing：1
    Speed：50

13. On the Response screen, set the Zoom and Focus values to the following values.

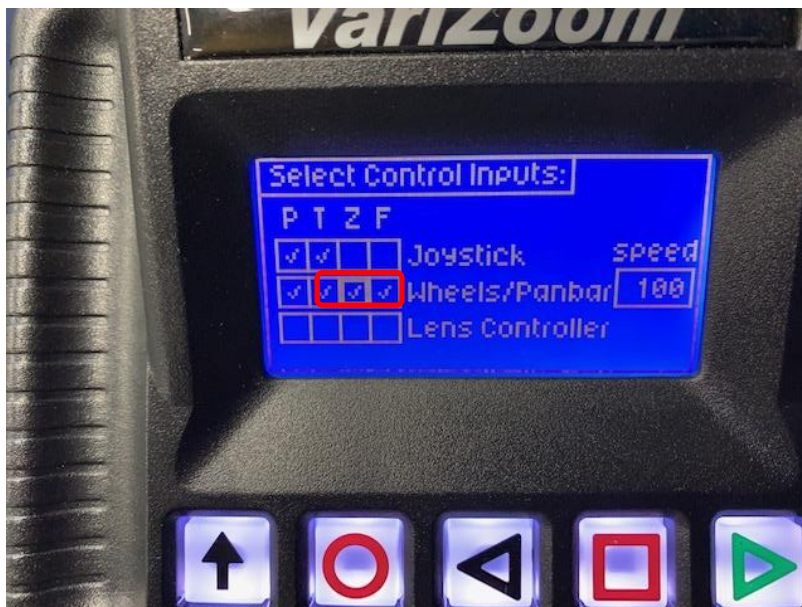   Smoothing：1
    Speed：20

14. Select [Inputs] on the menu screen.
15. Check the Z and F columns in the [Wheels/Panbar] row to enable Zoom and Focus control.

Setting of Ubuntu

Make the following settings on Ubuntu where this software is installed.

1. Start Ubuntu terminal.
2. Execute the following command to disable ModemManager.

    $ sudo systemctl disable ModemManager
    $ sudo systemctl stop ModemManager

   * ModemManager is a daemon that controls mobile broadband (2G / 3G / 4G) devices and connections.

Setting of this software

Follow the steps below to configure the settings for VariZoom Panbar with this software.

6. Open the setting screen of this software and enter the setting screen of the cropping frame from the connected device setting.
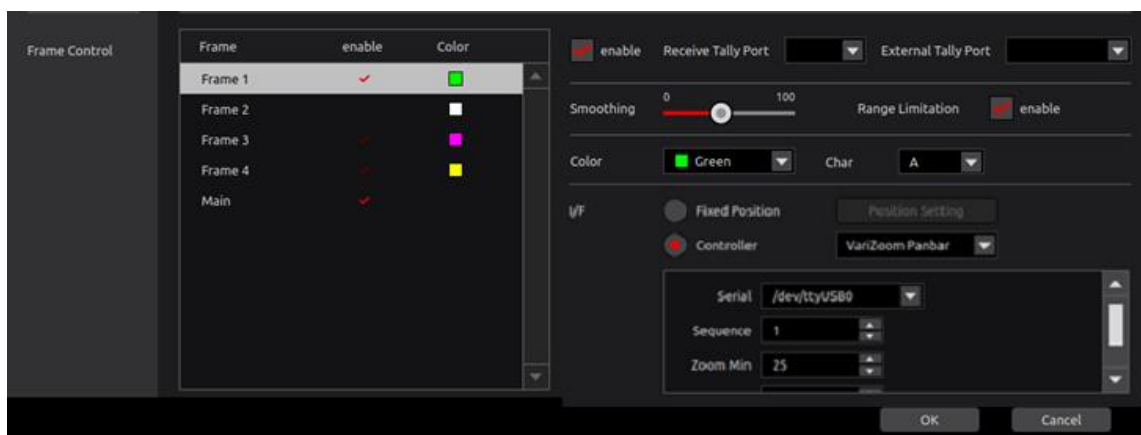
7. Select the captured frame to be controlled by VariZoom Panbar.
8. Select [Controller] in the I/F setting and select [VariZoom Panbar] from the list.
9. In the Serial settings, select the device file of the USB to RS232C adapter connected to the VariZoom Panbar.
10. Set a number between 1 and 32 to assign to the captured frame in Sequence. The number assigned here affects the order when switching the captured frame. For details, refer to "Operation of captured frame".

Operation of captured frame

By operating each part of VariZoom Panbar, Pan / Tilt / Zoom operation of captured frame and change operation of Zoom center can be performed.

Setting the reference position

Before starting operation, set the Panbar reference position by the following procedure.

1. Select "Goto Set" on the top screen of the VariZoom Panbar operation panel.
2. Select "Set Zero" in the Set menu to reset the control coordinates of the VariZoom Panbar.
3. Operate Panbar to move the captured frame to the center of the screen.
4. If you operate Panbar while pressing the red button on the zoom control, you can move Panbar while keeping the position of the captured frame fixed at the center of the screen. After moving the Panbar to the position corresponding to the center of the screen, release the red button on the zoom control, and that position will be set as the reference position.

<Note>

If each of the PTZ values on the VariZoom Panbar panel does not fit in the angle of view, the movement in the direction (PTZ) of that value will be invalid.

In that case, set the reference position again.

Switching the captured frame

Each time the REC button and STOP button of VariZoom Panbar are pressed, the captured frame to be operated is switched in the order of smaller Sequence number.

<Note>

-If a confirmation message is displayed when the REC button is pressed, the operation must be

continued after pressing the Enter button to delete the message.

-If you switch the captured frame to be operated, the captured frame after switching will be moved to the same position as the captured frame before switching, so the frame display will be overlaid and it will be difficult to see.

-Depending on the combination of Combinate Multiple Captured Frame settings and Layout settings, the default size of combined frames may exceed the size of high-angle shots. In such a case, frames cannot be moved if the Movement Range Limitation settings are enabled. Therefore, disable the Movement Range Limitation settings.

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.
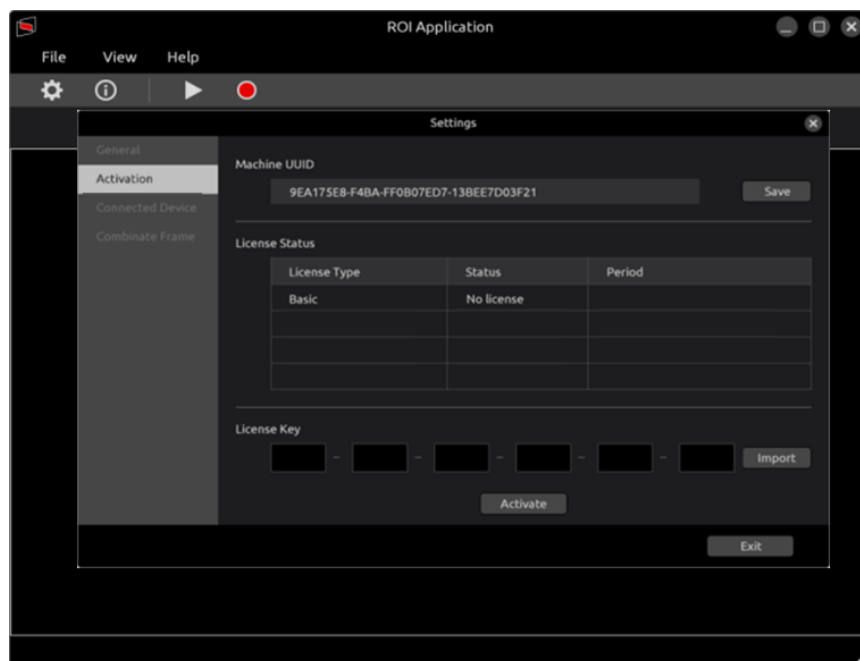
Activation Procedures

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
```

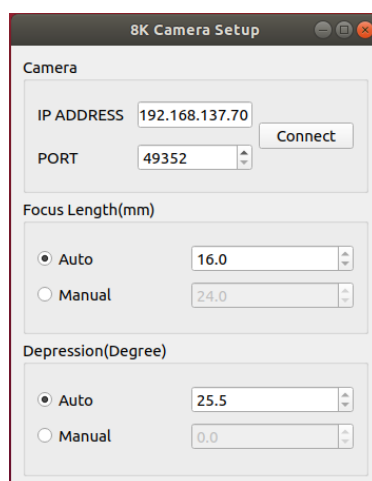The uninstallation screen appears and follow the instructions in the screen.

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.

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.

Precautions when using a Remote Camera

Other Speed With Zoom POS Function

Function that adjusts speed for pan and tilt, linking with zoom magnification. Please ensure that you set to [OFF] if you play to operate with Framing Control Software.

User auth Function

Function that authorizes user when connected to a remote camera. Please ensure that you set to [OFF] if you play to operate with Framing Control Software.

Additionally, please ensure that the remote camera's software is the most up-to-date version. (Performance may be limited with older versions.)