

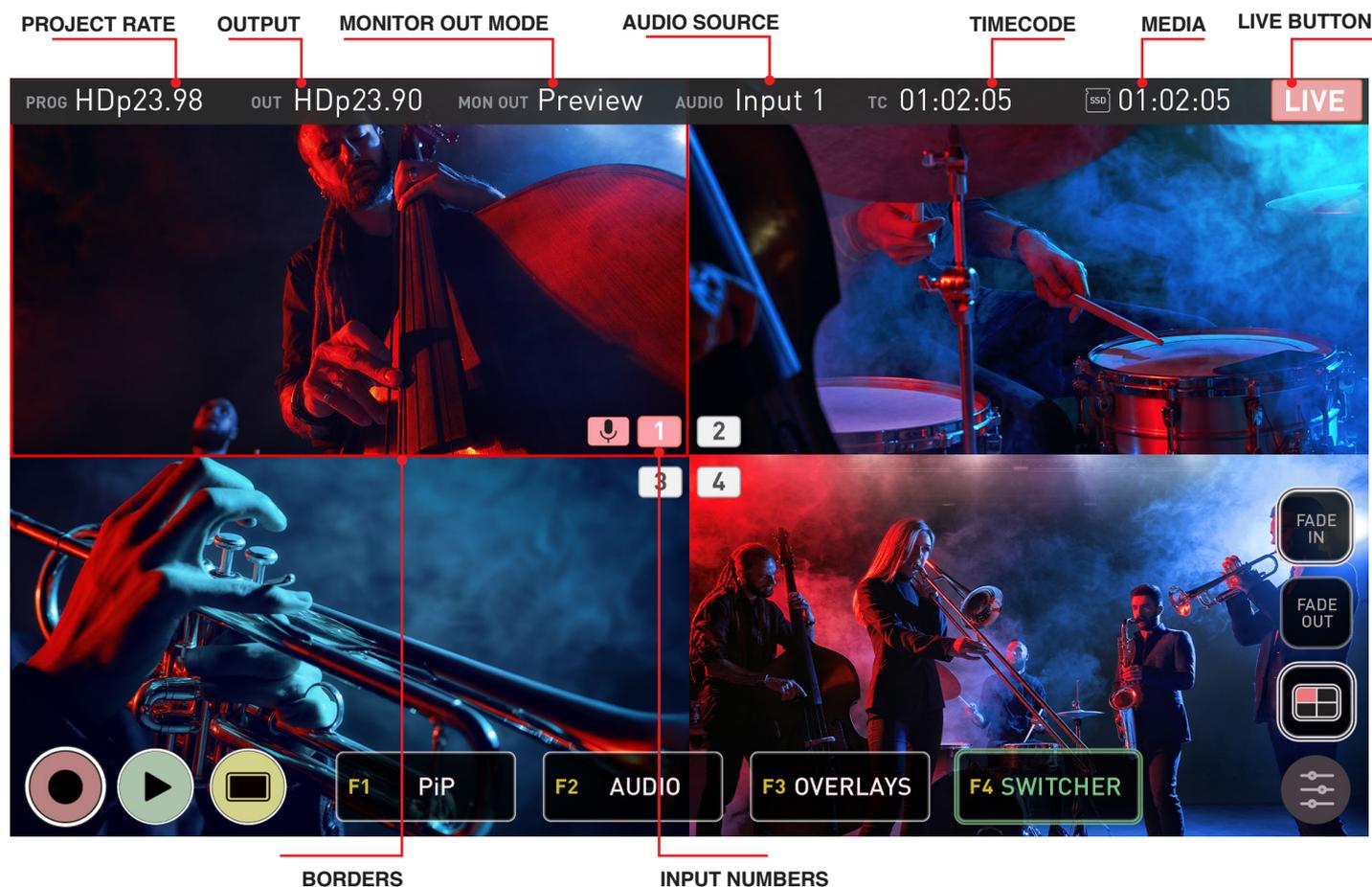
## 8. Using the AtomX CAST

### AtomX CAST

The AtomX CAST is a modular expansion for the Ninja V, that connects to the AtomXpansion port to convert the Ninja V into a fully functional stand-alone video switcher with 4 x 1080p HDMI inputs, a multiview monitor and broadcast quality recorder, with graphic overlays, picture in picture functionality and a streaming output.

When using AtomX CAST, the Information Bar at the top of the Ninja V screen displays information and settings for your project rate, outputs, audio settings and more. Touching any of these areas will take you to the relevant menu. To use AtomX CAST with your Ninja V, firmware version 10.71 or later needs to be installed.

### Main Screen



**PROJ:** Displays the Project Rate, which is determined by the resolution and frame rate of the Primary Input.

**OUT:** Displays the active video resolution and frame rate being output from the CAST Out and the CAST USB-C connectors on AtomX CAST.

**MON OUT:** The output mode of the Ninja V HDMI Out connector. This can be selected in the Output and Switcher menu pages, and can be set to: Program, Preview or Multiview.

**AUDIO:** Displays the audio source that you selected in the Audio menu page. When HDMI Input is selected, the chosen input will be displayed, eg. Input 1. Where Mic/Line has been selected, MIC/LIN will be displayed and AFV will be displayed where Audio Follows Video has been selected.

**TC:** Displays Timecode.

**MEDIA:** Displays the remaining recording time on your media, based on the chosen codec and remaining capacity of the drive.

**LIVE:** The Live button allows you to enable or disable the live stream output. It is important to note that the LIVE button must be pressed to allow your program feed to be output to your streaming software and/or connected Program display via the CAST USB-C and CAST HDMI outputs.

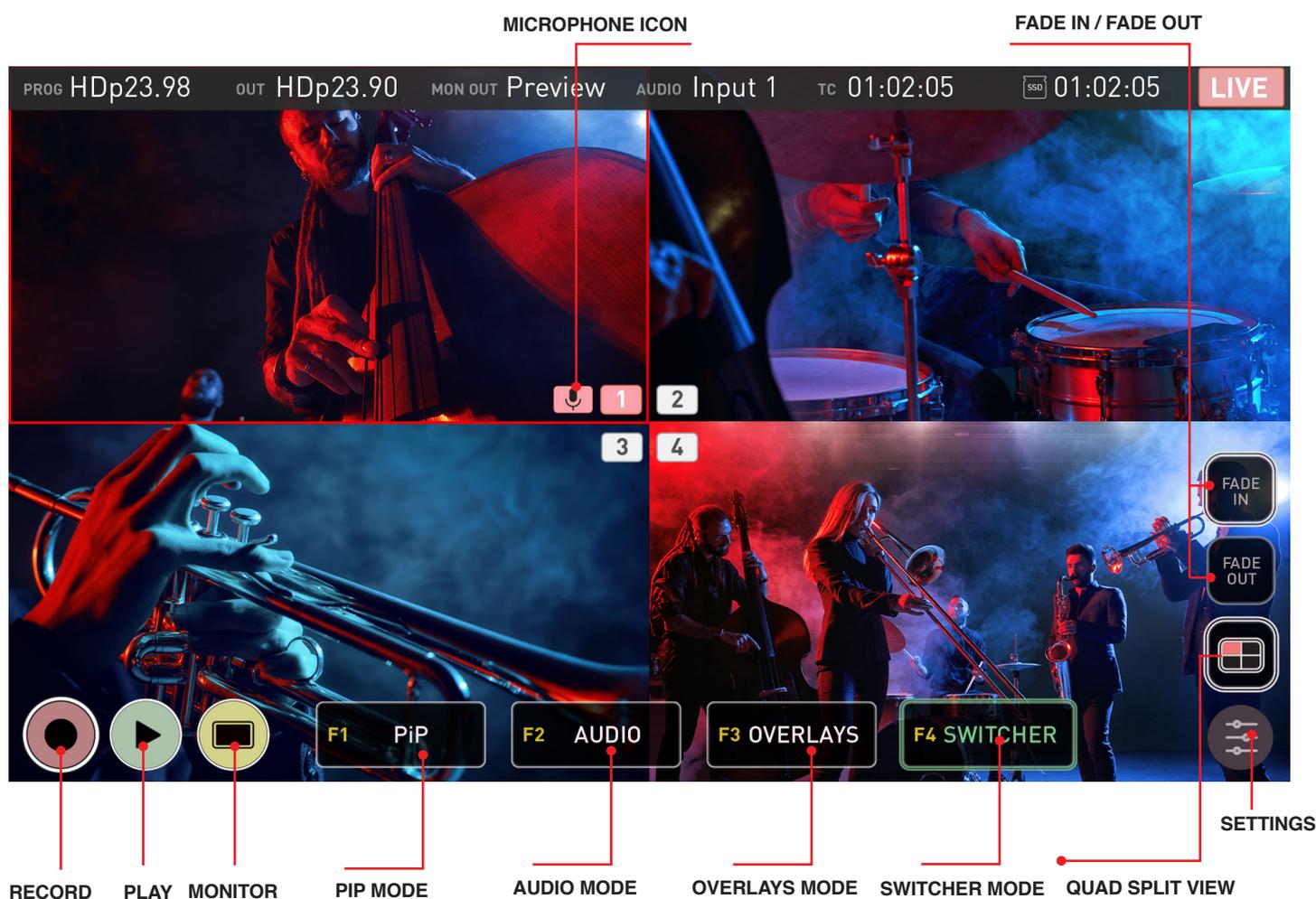
A connected display in Program mode can be used to confirm that you are outputting a stream to your audience, as well as what they are seeing. This output will not have an image until you are live. Tapping the button will cycle between red for enabled, and greyed out when disabled.

 *If a Primary Input has not been selected, the Live button cannot be enabled.*

**BORDERS:** The borders around the inputs indicate the status of each input. When selected as the program output, the border around that input will be red. A green border indicates that the input is being previewed in Two Touch switching mode.

**INPUT NUMBERS:** The input numbers in the center of the screen indicate the status of each input. They will be white when there is a valid input, and greyed out when there is no input. When selected as the program output, the input number will be red. The input number will be green when the input is being previewed in Two Touch switching mode.

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**MICROPHONE ICON:** Where the audio source is set to HDMI Input, a red microphone icon will appear next to the input number in the center of the screen to indicate that the input is the current audio source. If there is no audio coming from the input, a grey microphone will be displayed instead. In Audio Follows Video (AFV) mode, a blue microphone icon will be displayed next to the input that is the current audio source.

Where Mic/Line has been selected as the Audio Source, MIC/LIN will appear at Audio at the top of the screen to indicate the mode. No microphone icon is displayed over any of the inputs.

**FADE IN / FADE OUT:** These buttons can be used to fade in or fade out of your program. You can set the color to fade to/from as White or Black in the Switcher menu. Having dedicated Fade In/Out buttons gives you complete control so that you can fade out from one input, switch to another input and fade back in. Fading In/Out also applies an Audio fade effect.

Fading In/Out of the program stream is visible on the live stream over USB-C and on displays connected to the HDMI Output on the AtomX CAST. It is not recorded to the HDD/SSD.

**QUAD SPLIT VIEW BUTTON:** Tap to toggle between the multiview mode where you can see all four inputs at once for switching, and the single input view which displays one input at a time. The single input view is perfect for checking and adjusting each input fullscreen, with the aid of the monitoring tools. Tap the button again to return to the quad split view for switching.

**SETTINGS:** Pressing the settings button will take you to the corresponding menu page for the current mode: PiP, Audio, Overlays and Switcher.

**RECORD:** Press to begin recording the program stream.

Program graphics, PiP and Fade In/Out cannot be recorded onto the SSD/HDD in the Ninja V. To record these graphical elements, connect an external recorder to PGM Out of the AtomX CAST

The LIVE button must be pressed to allow your program feed to be output to your streaming software and/or connected Program display via the CAST USB-C and CAST HDMI outputs. The LIVE button must be enabled for either of these outputs to be active.

**PLAY:** Press to enter playback mode and play back the most recently recorded clip. Tap RECORD to return to the switching/recording mode.

When you are live, the Playback button will be greyed out and disabled. This ensures that the stream cannot accidentally be played back during a live session.

**MONITOR:** Tapping Monitor in single input view mode reveals the monitoring tools, so that you can switch between the camera inputs and use the tools to check your shots. You can use scopes like the Waveform to check exposure, Focus Peaking to check focus and Frame Guides to help you frame your content for a specific aspect ratio or for social media. For more information, refer to the Monitoring & Recording section.

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**Function ICONS F1- F4:** These icons have the same effect as the physical F1-F4 function buttons on AtomX CAST. Tapping the F1-F4 icons or pressing the physical F1-F4 buttons will allow you to use the four physical 1,2,3,4 pad buttons on the unit to switch between options in the selected mode. The following refers to the icons on screen, as well as the physical buttons on the unit.

- **F1 PiP (Picture in Picture)**

In this mode, the 1-4 buttons act as a PiP switcher. Once F1 has been selected, you can use the pad buttons to select an input to use as a PiP over the Program Out. The currently selected input button on AtomX CAST will be red to indicate it is live. Pressing one of the other input buttons will turn them yellow, and select that source to be displayed as a picture in picture over the current program output. Press one of the other pad buttons to use that input as a picture in picture instead. Pressing the input button whilst it is yellow or pressing the red input button, will turn off the PiP effect on the program out.

When in F1 PiP mode, pressing the settings button will open the PiP menu page. For more settings in relation to the PiP function, refer to the Picture in Picture menu page section.

 You can change the size, position and opacity of the PiP whilst it is live, by using the PiP menu page.

- **F2 AUDIO**

In this mode, the 1-4 pad buttons act as an audio switcher. Once F2 has been selected, you can then use the input selection pads 1-4 to switch between the audio from the 4 x HDMI inputs connected to AtomX CAST. The selected input button will turn red when pressed. Pressing the pad button whilst it is red, will switch to AFV (Audio Follows Video) mode, and the button will turn blue. Pressing on the selected input button when blue will switch to the audio from the selected input again.

When in F2 Audio mode, pressing the settings button will open the Audio menu page. For more settings in relation to Audio sources, refer to the Audio menu page section.

- **F3 OVERLAYS**

In this mode, the 1-4 pad buttons act as a graphics switcher. Once F3 has been selected, pressing one of the input selection pads 1-4 will turn the selected pad button green and apply the overlay to the Preview output of the Ninja HDMI output. This allows you to preview each of the graphical presets over the current input. When you decide on the preset to use, press and hold the green input button to turn the button red and lock that graphical preset to the input.

The preset will appear on the Program feed and be locked to this input so that whenever you switch to that input in switcher mode, the graphics in the selected preset will appear. This is especially useful where you have multiple speakers, as they can all have a lower thirds graphic with their name and details appear whenever you cut to them. You can deactivate an overlay in both program and preview modes, by holding the the button until the red light changes to white.

When in F3 Overlays mode, pressing the settings button will open the Overlays menu page. To create or adjust the graphical overlay presets and for more settings, refer to the Overlays menu page section.

 If the F2 function is used as described above when Mic/Line is selected in the audio menu page, the Audio Source will switch to HDMI Input mode.

 If you have selected analog audio input, none of the pads will be illuminated red.

- **F4 SWITCHER**

In this mode, the 1-4 pad buttons preview and switch between the inputs. When F4 is initially selected, it will turn red and One Touch switching mode will be enabled. Tapping/pressing the F4 key again whilst it is red, will cause the F4 button to become green and the Two Touch switching mode will be enabled. In this mode, you can preview inputs before actually switching to them.

Tapping on another input via the 1-4 pad buttons or on the multiview screen in this mode, will place a green preview border around the chosen input on screen, and the corresponding input selection button on the AtomX CAST will also be green. The selected input will also be displayed on a connected display in Preview mode. If you select another input instead, the selected input will be previewed instead. This allows you to literally preview your inputs before you cut to them in the program feed.

A second tap on the same input on the display or on the input selection button whilst they are green, will turn it red and cut to that input immediately. If you do not want to switch to the input being previewed, tap on the currently selected input again on the Ninja V display or press the input selection button that is red. Selecting the F4 key whilst green will return to One Touch switching mode.

When in F4 Switcher mode, pressing the settings button will open the Switcher menu page. For more information on switching settings, refer to the Switcher menu page section.

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### Input

#### Source Input

The Input menu provides information and settings for the 4 x HDMI inputs on AtomX Cast.

#### HDMI ICONS 1 > IN 2 > IN 3 > IN 4 > IN

The HDMI icons for each input will be white where a valid input is detected. The icons will be faded with an 'x' when no input is connected. The physical 1,2,3,4 buttons on the AtomX Cast will also have a white light when a valid input is detected and will not be illuminated when there is no input.

 *If an input is not detected, unplug and reconnect the HDMI cable for the input to AtomX CAST.*

#### Name

Provides information on the names of each input.

#### Primary Input

A green circle with a 'P' will be visible below the source that is the current Primary Input. The Primary Input will determine the project rate and provide sync for other inputs. By default, the first connected source will be used as the Primary Input. To select another source, tap on the white circle in the Primary Input row, below another input. Other inputs with a different frame rate up to 1080p60 will be conformed in the background to match the project rate.

 *Ensure that you have selected the project rate before going live, as this cannot be changed when live. If you do change the project rate whilst being LIVE you may lose your USB-C connection, and have to unplug it and reboot the device.*

#### Video Mode

Displays the resolution and frame rate for each input. No Input will be displayed where a valid input is not detected.

#### Project Rate

The frame rate of the Primary Input will be used as the Project Rate by default, and all other inputs up to 1080p60 will be conformed to this frame rate.

#### Graphics

Indicates the graphical overlay presets that are applied to each input.

#### Audio Pairs

Indicates how many audio pairs are associated with each input. No Input will be displayed where a valid input is not detected.



### Output

#### Output

The Output menu allows you to customize your setup, by choosing what to display on the outputs.

#### Mode

Displays the mode that each of the outputs is currently set to. The icons will be faded with an 'x' when not connected.

#### NINJA V OUT

Allows you to select the mode for the Ninja V's HDMI Out connector, for displaying on a secondary output. The frame rate will be the same as the project rate. Tap on the currently selected mode to cycle through the following options:

- **Program:** Displays the 'program' that you are streaming to your audience. This mode shows you exactly what they will see.
- **Preview:** Allows you to preview inputs before you cut to them in the program feed, as well as preview graphics.
- **Multiview:** This mode allows you to see all four inputs at once, without Graphic overlays, PiP, Program/Preview and audio channel status

#### CAST OUT / CAST USB-C

Displays the current mode for the HDMI Program Out and USB-C connectors on AtomX CAST. These outputs are linked and will always display the program feed.

#### FPS Conversion

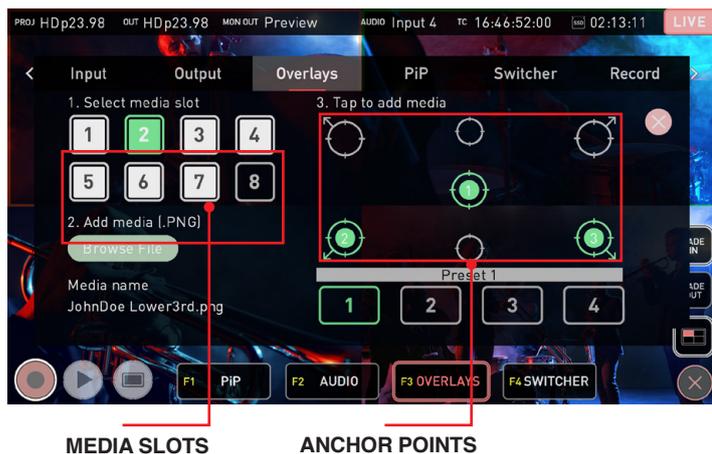
Displays conversions of resolution and frame rate. A green circle with a tick will indicate successful FPS conversion to the project rate. A circle with an 'X' will be displayed in the CAST OUT and CAST USB-C columns when FPS conversion is not activated.

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CAST USB-C streaming output is limited to a maximum of 1920x1080p30. Projects that have a frame rate of 50p or 60p, FPS conversion will be applied, and both the HDMI and USB-C outputs from the AtomX CAST will output at a half frame rate i.e p50 as p25 and p60 as p30.

HDMI projects can be output as 1920x1080p50 or p60 without FPS conversion but the CAST USB-C streaming output will not be available.

 FPS conversion can only be activated when you are not live.



### Overlays

## Graphical Overlays

The settings in this menu allow you to upload up to 8 custom graphics to the Ninja V's internal memory, and then assign them to the anchor positions within the four layout presets. The presets can then be set to appear on certain inputs whilst switching.

Image creation programs like Adobe Photoshop can be used to create your own custom graphics for a logo, masthead, lower thirds graphic or even a large image that covers the entire screen.

Graphics must be in the PNG format, but can be any resolution up to 1920 x 1080. Graphics that contain alpha channels/ transparency are also supported.

 If using an image creation program like Adobe Photoshop to create graphics, ensure that you save them in .PNG format.

 Graphics can be up to 1MB in file size.

Graphical overlays do not appear on the multiview screen of the Ninja V, but can be previewed on a connected display in Preview mode before being used in the Program. You can also set and lock a graphical preset to an input so that it appears each time that you switch to that input. For more information refer to the Using the AtomX CAST section.

## Presets 1-4

Select one of the four presets along the bottom marked 1-4 to select a preset to create/edit. When this preset is selected during switching, the graphics will appear on screen in the position(s) you have selected.

## Media Slots 1-8

Each of these numbered media slots can store a .PNG graphic in the Ninja V's internal memory. Tap on one of the numbered media slots to select one of the slots. If all slots are full and you want to add a new graphic, select one of the slots and tap Browse File. You will be prompted to overwrite the graphic that is currently saved in this slot.

## Browse File

Tap on Browse File to browse the SSD/HDD inserted in your Ninja V for PNG media. Tap on a .PNG file to select it and tap on it again to load it into the selected media slot. The filename of the selected media will be displayed below Browse File.

 You can use a graphic in multiple presets, but you can only have one instance of each graphic in each of the presets.

## Anchor Points

Each of these circular positions is an anchor point, which anchors the graphic to the chosen position. If you select the top left anchor point, the top left corner of the graphic will be anchored to the top left corner of the frame. If you select the bottom left anchor point, the bottom left corner of the graphic will be anchored to the bottom left corner of the frame. For the three center anchor points, the centre of the image will be anchored to the chosen anchor point.

After selecting one of the media slots, tap on an anchor point to add the graphic to the chosen anchor point location on screen. A green circle with the media slot number will appear in this position.

To relocate the graphic, tap the location anchor and the green icon will disappear, removing the graphic from the location. Tap on another anchor point to relocate the graphic to that anchor point instead.

 In order to clear graphics from assigned positions, tap on each graphic in each preset to disable them individually.

 Program graphics are not recorded onto the SSD/HDD in the Ninja during recording. This allows you to record a clean feed of the program without overlays for revisioning during the editing process. To record graphical elements, connect an external recorder to PGM Out of the AtomX CAST.

 If your graphic is not in the correct file format or within the 1MB size limit, an error message will advise that the image is not in the correct format.

## 8. Using the AtomX CAST



### PiP

#### Picture in Picture (PiP)

This menu allows you to display an input as a scaled input overlay in the corner of the screen over the top of any program output, so that they both appear on screen at the same time. You can use this feature to present to the camera, whilst showing the viewer another angle, a presentation or pre-recorded content at the same time. In order to see the PiP appear over another input, a connected display in Program mode is required.

##### Picture in Picture On/Off

Enable/Disable the Picture in Picture function by tapping the On/Off switch.

##### Opacity

Use the slider to adjust the opacity of the PiP input.

##### PIP Size

Allows you to select the size of the PiP effect by tapping on one of the two preset sizes: small or large.

##### Set PiP Position

Adjust the position on screen for the picture in picture effect to be displayed.

##### PiP Input

Select the input that will appear as a PiP over the input that is live.

 The system automatically disables PiP when it is not required, such as in situations where you would have a PiP image displayed over the same image.

 The PiP is not recorded onto the SSD/HDD inserted in the Ninja V during record mode. To record the PiP, connect an external recorder to PGM Out of the AtomX CAST



### Switcher

#### Switcher

This menu allows you to customize your settings for switching.

##### Switch With

Allows you to select the style of switching to use whilst in the Switcher mode. Tapping Switch With or the F4 button, cycles between the options:

- **One Touch**

In this mode, a single touch on one of the inputs on the Ninja display when in multiview mode, or on one of the physical 1-4 buttons on the AtomX CAST, will switch to the corresponding input immediately. The input on screen will have a red border around it and the corresponding button on the CAST will turn red when selected, to indicate that it is live. The F4 button will also be red in One Touch mode.

- **Two Touch**

Two touch recording, follows the traditional broadcast preview and program switching style, which allows you to preview an input before actually switching to it. Whilst in this mode, the program feed on the Ninja V display will have a red border and the corresponding input selection button on the AtomX CAST will also be red.

Tapping on another input will place a green preview border around the chosen input on the display, and the corresponding input selection button on the AtomX CAST will also be green. This indicates that the input is being previewed as the next source to cut to. The selected input will also be displayed on a connected display that is in preview mode.

A second tap on the same input on the display or on the input selection button whilst they are green, will cut to that input immediately. If you select another input instead, that will cause that input to be previewed instead. If you do not wish to switch to the input being previewed, tap on the program feed again on the Ninja V display or press the input selection button that is red.

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### Ninja HDMI Output

This setting allows you to select the mode for the HDMI Output connector on your Ninja V. This will determine what is displayed on a monitor connected to this output.

Tap the setting to cycle through the options:

- Program
- Preview
- Multiview.

### Background Color

Sets the background color that your image will fade to when using the Fade In or Fade Out buttons. Tap the setting to cycle through the options: White and Black.



## Audio

### Audio

This menu allows you to select the audio sources that will be used for the program output.

#### Audio Source

Tap the buttons to select the audio source:

- **HDMI Input:**  
Allows you to select the audio from one of the inputs connected via HDMI as your audio source. If you have four cameras connected to AtomX CAST, it would allow to use the audio from one of the cameras, which could be scratch audio from the camera's internal microphones, or audio from a microphone connected to the camera. For other types of inputs like pre-recorded videos, the audio could be coming directly from the source. After selecting HDMI Input, tap on the input number to switch to the audio from that input. A red microphone appears in the corner of the input displayed on the Ninja V when in multiview mode, to indicate the source of the audio.

- **Mic/Line:** This option allows you to connect an external audio source to the analog 3.5mm Mic/Line jack on your Ninja V. In Mic mode, a dedicated high quality microphone can be connected directly or via an audio mixer which can dramatically improve your audio quality. You could also use this input in Line mode, to add music to your production from an external source. The Mic/Line menu page allows you to adjust the settings for Mic/Line inputs.

- **Audio Follow (Audio Follows Video):**

When Audio Follow is selected in the Audio menu page, the audio will follow the video switching, so the audio from the currently selected input will be used. The corresponding physical pad button will also turn blue in this mode.

### Headphone icons

The program audio can be monitored by connecting headphones to the 3.5mm headphone/audio out jack on your Ninja V. Whilst in CAST mode, only the program out can be monitored. If you switch between audio sources or AFV, the headphone monitoring will automatically switch to allow constant monitoring of the program audio. Levels for other inputs can only be monitored on the meters visually.

### Audio Meters

Displays audio levels from the embedded audio of the four HDMI inputs/cameras.

### Headphone Volume Slider

This slider allows you to adjust the monitoring volume of the selected audio input.

- 🚩 *The headphone slider volume has no impact on the actual audio levels for each connected source, so if it is too loud you will need to adjust the audio levels on the connected camera or source.*
- 🚩 *You can select either the audio pair coming from the analog in (Mic/Line connection), OR the audio pair from the selected camera. There is no support multi channel audio.*
- 🚩 *To ensure that analog audio is synced correctly with the audio from your HDMI sources, connect analog audio sources to one of the HDMI cameras/sources and select the audio from this input as your audio source. This will ensure that the audio will always be in sync with the video.*