

Mixer Plus

4 HDMI Professional Video Switcher



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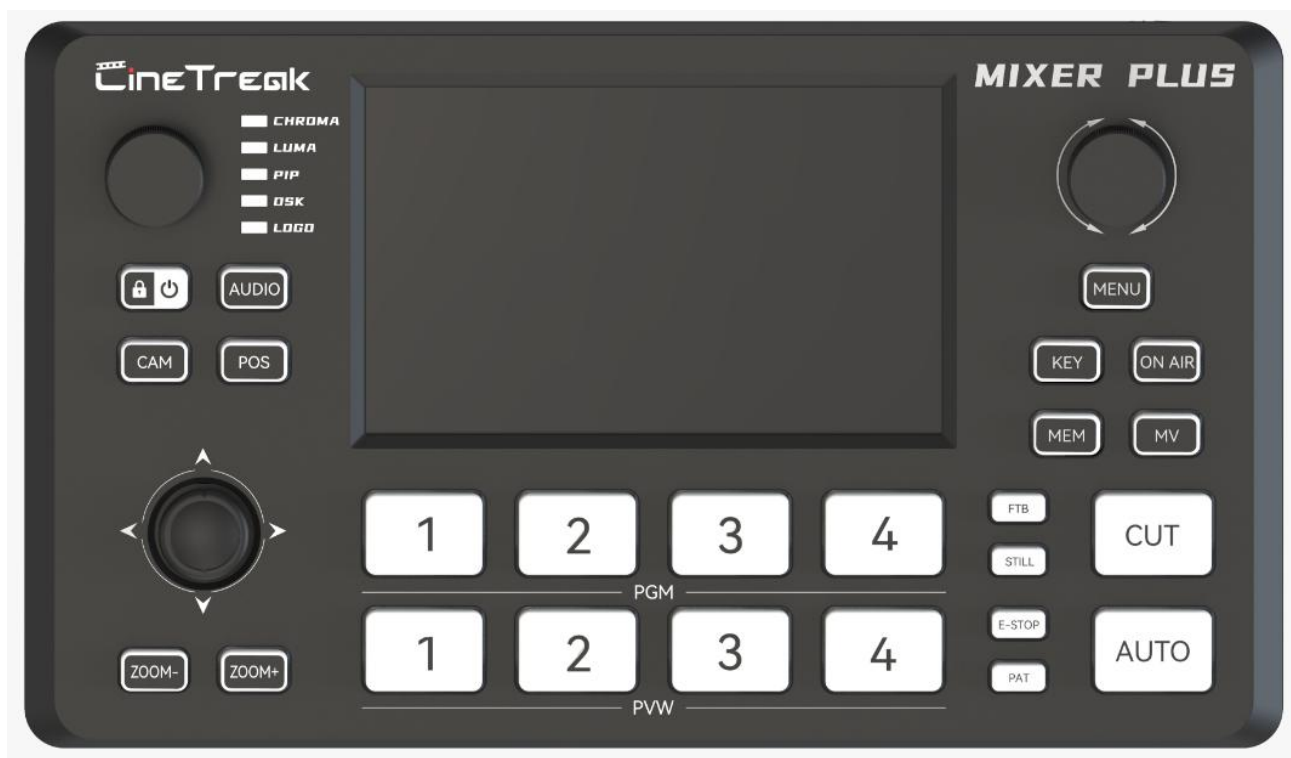
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1. Product Introduction

1.1 Overview

The Mixer Plus features four HDMI inputs (all supporting resolutions up to 1920x1080 @ 60p), one HDMI PGM output, one HDMI AUX output, and one USB 3.1 (Type-C) output.

The Mixer Plus video switcher is built on an FPGA hardware platform, supporting broadcast-grade features including video effects, transition, chroma keying, audio mixing and adjustment, PIP (Picture-in-Picture) with flexible positioning and sizing, arbitrary LOGO placement, and multi-layer overlay. The Mixer Plus video switcher features a 4-inch LCD screen for direct multi-view signal monitoring, while its PTZ control joystick enables precise operation of multiple PTZ cameras.



1.2 Main Features

- 4 Channel HDMI input, PGM OUT x 1+AUX x 1 output, USB 3.1 x 1 lossless output
- PGM supports up to 6 layers, providing powerful production capabilities
- 1 Picture-In-Picture, Supports any cropping and size adjustable to meet the needs of various scenarios
- 1 LOGO, supports Alpha channel
- Supports up to 30 Transition effects
- 1 UVC output for direct USB streaming
- Support for external background images (PAT)
- Supports DSK, allows for subtitles and other functions
- Integrated PTZ camera control for streamlined operation
- Professional Chroma key to create a realistic virtual studio
- Luma key to help users achieve video effects

2. Interface

2.1 Interface Introduction



1	HDMI IN x 4
2	HDMI OUT x 1
3	AUX x 1
4	LAN port for PTZ camera control
5	DC 12V IN (for power supply)
6	USB Type-A (for UVC streaming)
7	USB-A for Images (note 1), firmware upgrades (note 2), etc
8	Line (3.5mm Stereo) Output x 1
9	MIC/Line(3.5mm Stereo) Input x 2

Note 1: To set a background image: 1. Format a USB drive to FAT32. 2. Save a BMP image named PAT.bmp in the root directory. 3. Insert the USB drive into the port. The MENU button indicator will flash during loading and stop when complete.

Note 2: To update firmware: 1. Place the mcu.bin file in the root directory of a FAT32 USB drive. 2. Insert the USB drive. 3. Power on the device while holding the MENU button.

3. Specifications

Inputs / Outputs	
Video In	HDMI IN x 4
Video Out	HDMI PGM Out x 1, HDMI AUX Out x 1, USB 3.1 Type-A (UVC) x 1
Audio Input	MIC/Line (3.5mm Stereo) x 2
Audio Output	Line (3.5mm Stereo) x 1
USB	Used for images, firmware upgrades, etc
Control Interface	LAN x 1 is used for PTZ camera control
Power Supply	DC 12V x 1
Functions	
Transition	AUTO/ CUT
Transition Effects	WIPE (multiple patterns) /MIX/DIP/STILL (freeze) /FTB(Fade To Black)
Key	Upstream key: Luma key x 1/Chroma key x 1/PIP x 1 Downstream key: DSK x 1/LOGO x 1
Layer	PGM supports up to 6 layers
Audio	HDMI x 4, audio delay: -30ms-500ms Microphone / analog audio input x 2, audio delay: 0ms-500ms
PTZ	VISCA IP protocol
LOGO	Supports arbitrary position adjustment and alpha transparency channel (png images)
Format Support	
HDMI Input Support	1080p 60/59.94/50/30/29.97/25/24/23.98 1080i50/1080i60
HDMI OUT / AUX Output	1080p 60/50/30/25/24 1080i50/1080i60
UVC Output	USB 3.1 lossless output, maximum support YUV2 1080p60
Media Format Support	USB disk format support: FAT32 Image format support: bmp; size support: 1920*1080
Other	
Voltage	7~24V
Power Consumption	≤10W
Size (LDW)	189 x 49 x 109mm
Weight	393g
Temperature	Operating temperature: -20°C~50°C, storage temperature: -20°C~60°C
Accessories	Power Adaptor (12V 2A) x1; USB cable (A to A) x1

4. Front Panel

4.1 Front Panel Introduction



1	KNOB	Menu navigation Function selection
	MENU	Access system menu
2	KEY	In conjunction with the mode selection knob, the PVW window opens brightness cutout, chroma cutout, picture-in-picture, DSK, logo effect
	ON AIR	In conjunction with the mode selection knob, the PGM window opens Luma key, chroma key, picture-in-picture, DSK, logo effects
3	MEM	Recalls saved user settings
	MV	LCD screen display switch. When on, the white light is on and the LCD screen displays multiple pictures; when off, you can monitor IN1, IN2, IN3, IN4, PAT, Clean PGM, PGM, Clean PVW, and PVW single picture.
4	FTB	When turned on, the light flashes, the PGM output fades to black
	STILL	Enable the frame freeze effect. When enabled, the red light is on
	CUT	Instant switching between PVW and PGM
	AUTO	PVW and PGM transition using selected transition effect
5	PGM:1-4	Shows the currently selected PGM output indicated by the button illuminated red.
6	PVW:1-4/E-STOP/ PAT	PVW signal source, E-STOP, PAT selection and indication, button is illuminated green when active
7	CAM/POS/ ZOOM-/ ZOOM +	CAM: Enables/disables PTZ camera control mode. When enabled, the button is illuminated white POS: Used to save or recall camera preset positions To Save a Preset: Enable CAM mode, press POS, then press a PVW1-4 button. To Recall a Preset: Enable CAM mode, press POS, then press a PGM1-4 button. ZOOM-/ ZOOM+: Controls the PTZ camera's zoom function.
	PTZ	Camera control, controls the coordinates of the camera Position control: 1. Control the layer position in conjunction with the PIP button. 2. Control the mask position. 3. Control the LOGO position. 4. PickColor in chroma key function
8	Lock Screen/Power	Press the power button to power on the unit

	Button	When on, short press to flash the red light and lock the front panel button. Long press to shut down the switcher
	AUDIO	Audio shortcut keys
9	Mode Selection Knob	1. Select rotation mode for brightness, chroma, PIP, DSK, and LOGO 2. Short press the knob, PIP/LOGO indicator light flashes, and move the position with PTZ

5、 Functions

5.1 Transition Control

The transition control is composed of keys PVW1-4, PGM1-4, CUT, AUTO, PAT and E-STOP

Keypad PAT: Used to control the source selection of the current layer in the PVW (preliminary monitoring screen)

E-STOP button: used to control the source selection of the current layer in the PVW preview screen

Key PVW1~4: used to control the source selection of the current layer in the PVW preview screen

Key PGM1~4: used to control the source selection of the corresponding layer of the broadcast picture (PGM)

Press the CUT button: For cutting between the PVW and PGM inputs

Key AUTO: PVW and PGM automatically switch effects according to transition time setting and transition effect setting

5.2 Function Keys

MV: LCD display switching. When activated, the white indicator light illuminates while the LCD screen displays multiple monitoring screens. When MV is deactivated, the indicator light turns off and the LCD screen displays a single monitoring screen, which can monitor IN1, IN2, IN3, IN4, PAT, Clean PGM, PGM, Clean PVW, and PVW single screens.

STILL: Creates a freeze frame from the current input.

FTB: After pressing the FTB button, the PGM output fades to black and the FTB light flashes; press it again to exit.

Audio: Can be used to quickly adjust the volume of the 4 HDMI inputs, 2 MIC inputs, 1 headset input and PGM

MEM: By entering the settings menu and going to MEM option, you can save your user setting. Select the desired user and click the MEM button. You can then access your saved settings.

5.3 Camera Control Operations

After connecting the camera, the PTZ camera is controlled by pressing the CAM, POS, PTZ joystick, PVW1-4 and PGM1-4 keys.

To activate the camera short press the CAM button, and the light will turn on to show that you have entered the camera control mode.

Motion control: After activating the camera, you can control the horizontal and vertical movement of the camera through the PTZ joystick.

Camera position saving: After activating the camera, press the POS button to enter the camera position setting mode. Press any of the 4 PVW buttons to save the current position of the camera, up to 4 positions can be saved.

Camera position recall: After activating the camera, press the POS button to enter the camera location setting mode. Press the PGM1-4 button that corresponds to the PVW button used to save the position.

Button ZOOM-/ZOOM+: Zoom function for PTZ camera lens.

5.4 Key Button Light Status

Keylight	Off	On	Flashing
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MV	Single screen monitoring	Multi-screen monitoring	
CAM	Not in camera control	Activate camera controls	
POS		Wait for the camera position to be set	
PGM1~4	The source is not selected	The corresponding source is selected	
PVW1~4	The source is not selected	The corresponding source is selected	
E-STOP	The source is not selected	Select E-STOP as the source	
PAT	The source is not selected	Select PAT as the source	
CUT	Switch signal source		
AUTO	Transition is over	Automatic transition in progress	
FTB			Fade to black in progress
STILL		Freeze frame mode enabled	
Lock Keys			Front panel buttons locked

6. Status Page Display



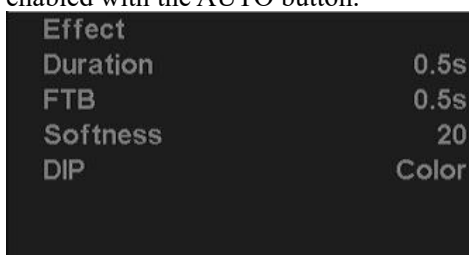
①	UMD show	⑤	HDMI input audio level display	⑨	Transition time and special effects display
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②	MIC 2 audio level display	⑥	Cinetreak Logo	⑩	Audio inputs volume display
③	MIC 1 audio level display	⑦	PTZ camera position number and lens movement speed display	⑪	Model Name
④	PGM audio level display	⑧	Loaded LOGO preview	⑫	Multi-screen output frame rate

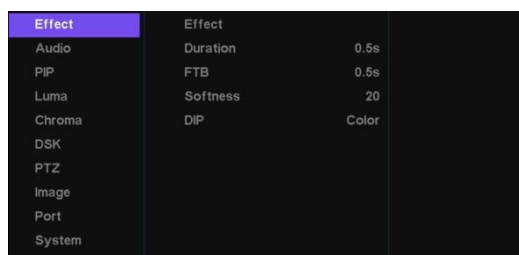
7. Main Menu

7.1 Transition

The video switcher has built-in WIPE, MIX, DIP and other professional transition effects, which can be enabled with the AUTO button.



LCD transition Settings



MV multi-screen transition Settings

7.1.1 Transition Effect Settings

Enter the transition settings, click the transition effect, enter the transition effect page, including MIX, DIP, WIPE and other 30 transition effects, the default is MIX transition effect.



LCD transition effects

7.1.1.1 MIX

Select MIX, click the AUTO button, and execute the MIX transition effect.



7.1.1.2 DIP

Select DIP, click the AUTO button to execute the DIP transition effect. With the source settings, you can select the DP source. The default source is color, and the default color is black.

DIP to Black (fade out):



7.1.1.3 WIPE

WIPE is a transition effect that “wipes” from one source to another. Users can rotate the knob to select different WIPE styles and soften the edge of the wipe.

7.1.2 Transition Duration Setting

Enter the transition settings, click the transition duration, and set the transition duration by rotating the knob. The longer the duration, the slower the transition speed. You can set the duration from 0.1s - 5.0s. 0.5s is the default.

7.1.3 FTB Settings

Enter the transition settings, click FTB, and set the duration of FTB by rotating the knob. The longer the duration, the slower the speed of FTB. The duration 0.1s-5.0s can be set, and the default is 0.5s.

Click the FTB button, then and the red light will flash as the PGM source fades to black

7.1.4 Softening Setting

In the transition setting, click Softening and set the softening by turning the knob. The lower the softening, the clearer the edges of the transition will be. You can set it to 1-100, default is 20.

7.1.5 DIP Settings

In the transition settings, click "DIP Source". You can select the DIP source by rotating the knob. Customize settings include color, IN1, IN2, IN3, IN4, and PAT. The default DIP source is color, with the default color being black.

When the DIP source selection is color you can select the color using the red, green and blue color codes.

DIP Source	Color
Red	0
Green	0
Blue	0

LCD Dip Source Settings

Effect	DIP Source	Color
Audio	Red	0
PIP	Green	0
Luma	Blue	0
Chroma		
DSK		
PTZ		
Image		
Port		
System		

MV Multi-screen Dip Source Settings

7.2 Audio

Supports 4 channels of HDMI digital audio and 2 independent 3.5mm microphone inputs, each channel of audio can be independently adjusted for volume, switch, delay, and IN1-4 supports audio follow mode (AFV).

PGM	On
IN1	AFV
IN2	AFV
IN3	AFV
IN4	AFV
Mic1	On
Mic2	On

LCD audio Settings

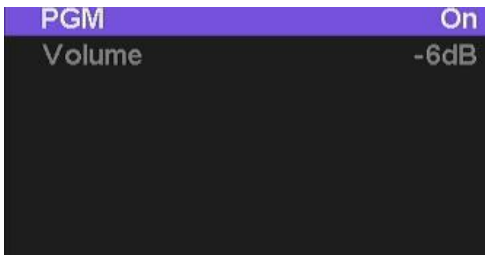
Effect	PGM	On
Audio	IN1	AFV
PIP	IN2	AFV
Luma	IN3	AFV
Chroma	IN4	AFV
DSK	Mic1	On
PTZ	Mic2	On
Image	EAR	PGM
Port		
System		

Audio Settings for MV multi-screen

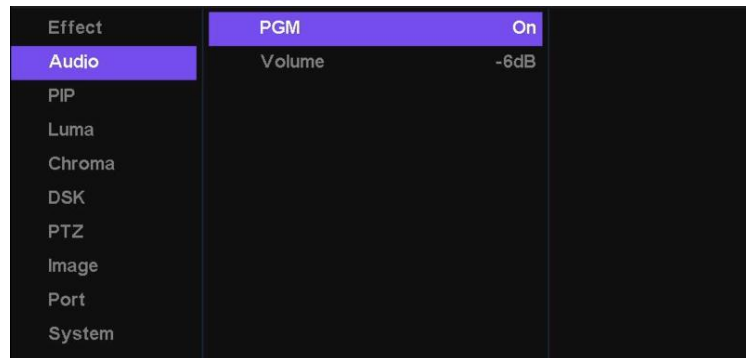
7.2.1 PGM Audio Settings

The unit supports 6 channels of audio overlay, including 4 channels of HDMI embedded audio and 2 channels of MIC/Line audio input.

In audio settings, click PGM to enable or disable PGM audio via the rotary knob. Click Volume to adjust the PGM's volume using the rotary knob. The volume range is -60dB to 0dB. By default, the PGM sound is enabled with a volume of -6dB.



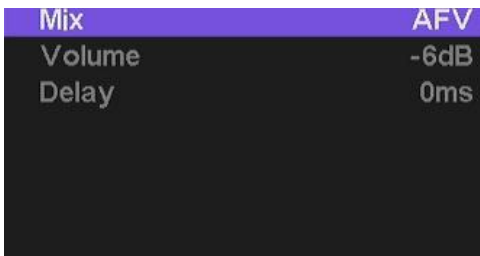
LCD PGM audio Settings



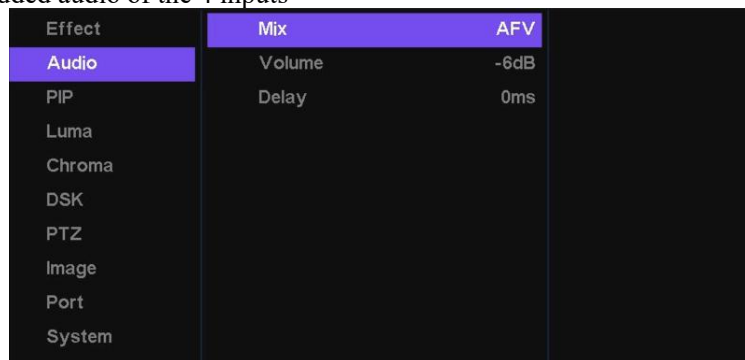
MV Audio Settings for multi-screen

7.2.2 Four-Channel HDMI Input Audio Settings

Enter the audio settings to set the embedded audio of the 4 inputs



LCD IN1\2\3\4 audio Settings



MV Multi-screen IN1\2\3\4 audio Settings

7.2.2.1 Mix Mode Settings

Users can turn on/off the mix mode independently, or set it to AFV audio follow mode, The default is AFV audio follow mode.

When an audio channel is set to AFV, the audio will only be audible when the video is in PGM.

7.2.2.2 Volume Control

Users can adjust the volume of each input audio channel, ranging from -60dB to 0dB, with a default of -6dB.

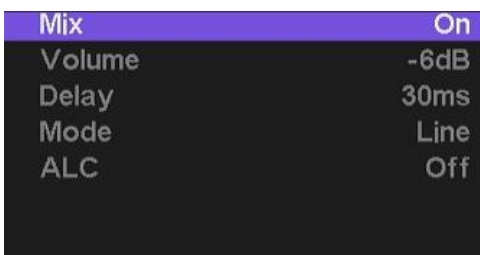
7.2.2.3 Audio Delay

Users can set the audio delay for the inputs to synchronize the audio and video. The audio delay range is -30ms-500ms, by default 0ms.

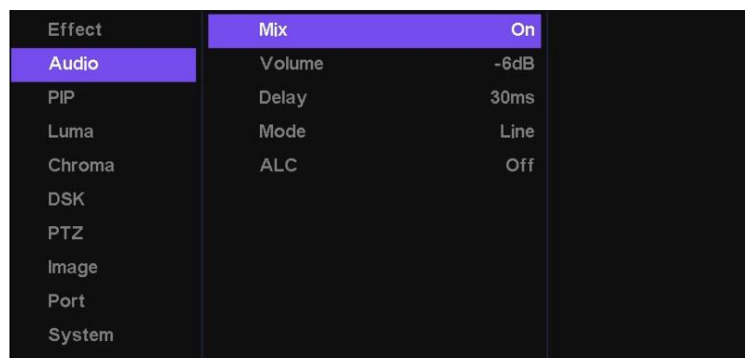
0ms delay will automatically synchronize audio and video.

7.2.3 Two Microphone Input Audio Settings

In audio settings, select Microphone 1 and Microphone 2 to configure both channels. Users can connect them to linear devices or desktop/microphone stands. Adjust audio volume, delay, and enable/disable the microphones as needed.



LCD MIC1/2 audio Settings



MV Multi-screen MIC1/2 audio Settings

7.2.3.1 Mix Mode Settings

Users can turn on/off the microphone mixing mode independently, which is enabled by default.

7.2.3.2 Volume Control

Users can adjust the volume of microphone audio on each channel, ranging from -60dB to 0dB, with a default of -6dB.

7.2.3.3 Audio Delay

Users can set the audio delay of MIC1 and MIC2. The maximum audio delay is 500ms, and the default value is 30ms.

7.2.3.4 Audio Mode Settings

If the MIC interface is connected to a microphone device, select the microphone mode for audio; if connected to a line level device, select line mode for audio.

Mode: Select between Microphone and Line input. The default is Line mode.

7.2.3.5 ALC Settings

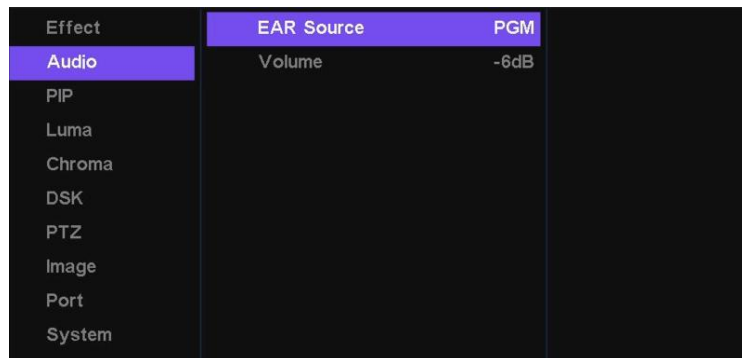
The ALC feature automatically adjusts the audio gain and makes appropriate adjustments according to the background noise. Users can customize the level by choosing 1, 2, and 3. The default is off.

7.2.4 Headphone Settings

The switcher features a headphone output for audio monitoring. Users can select one audio source from three options: Main Audio (PGM), four embedded HDMI audio channels, or two MIC audio channels. The headphone volume can be adjusted between -60dB and 0dB. The default audio source is set to PGM, with the volume initially at 0dB.



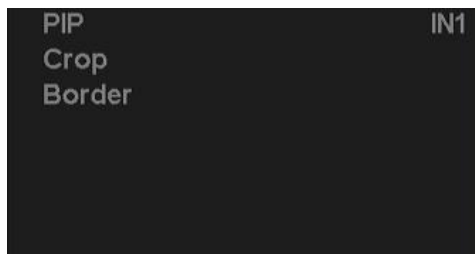
LCD headset audio Settings



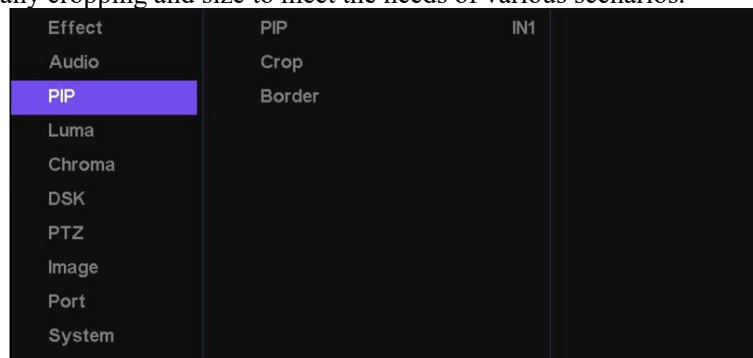
MV Multi-screen headset audio Settings

7.3 Picture-In-Picture

The picture-in-picture setting can support any cropping and size to meet the needs of various scenarios.



Picture-in-picture Settings



Picture-in-picture Settings for MV multi-screen

7.3.1 Enable Picture-In-Picture

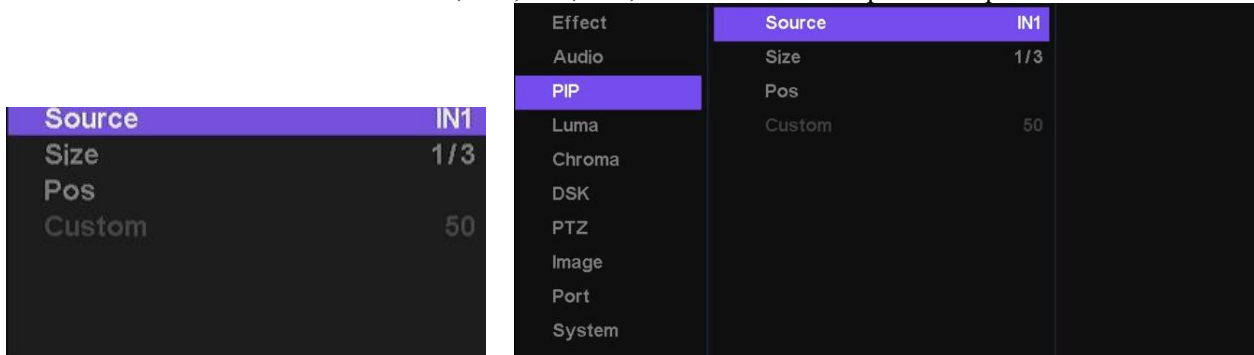
To enable PIP mode: Rotate the mode selection knob to PIP. Press the KEY button to activate the PIP indicator, which will turn green and allow you to open a separate picture-in-picture window in the PVW interface. Press the ON AIR button to activate the PIP indicator, which will turn red and enable a separate picture-in-picture window in the PGM interface. When the PIP indicator turns yellow, both the PGM and PVW interfaces will display the picture-in-picture mode.

7.3.2 Picture-In-Picture Setup

In the picture-in-picture setting, you can set the source, size, and position of the picture-in-picture.

7.3.2.1 Source Selection

Users can choose the source for picture-in-picture. In the picture-in-picture settings, click picture-in-picture - Source and rotate the knob to select IN1, IN2, IN3, IN4, or PAT. The default picture-in-picture is IN1.



LCD picture-in-picture source setting

Picture-in-picture source setting for MV multi-screen

7.3.2.2 Size Selection

Users can adjust the size of the picture-in-picture. In the picture-in-picture Settings, click Picture-in-picture-Size, and rotate the knob to select 1/8, 1/6, 1/4, 1/3, 1/2, or custom. The default size of the picture-in-picture is 1/3.

7.3.2.3 Picture-In-Picture Position Adjustments

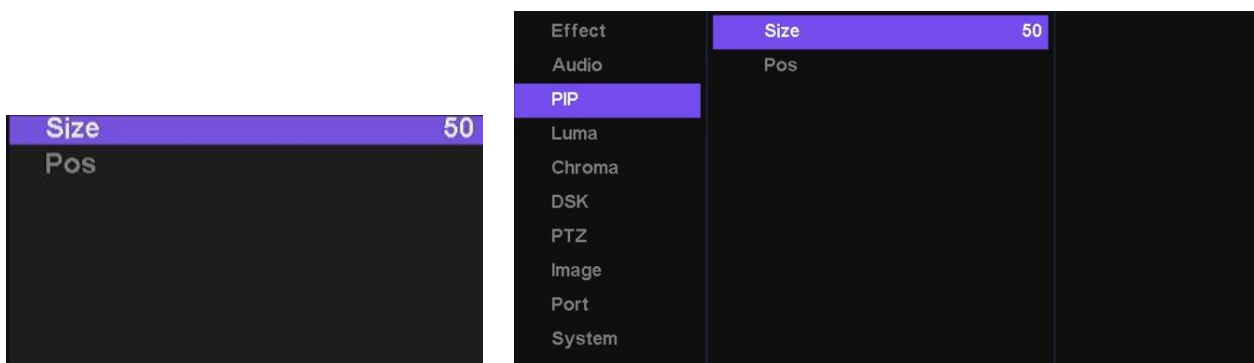
In the picture-in-picture setting, click picture-in-picture-Position, and adjust the position of the picture-in-picture using the PTZ five-way keys.

7.3.2.4 Custom Size

Users can customize the size of the picture-in-picture. In the picture-in-picture Settings, click Picture-in-picture-Size to select custom; Click Custom, and adjust the size proportionally by rotating the knob. The size ranges from 10 to 70, with a default value of 50.

7.3.3 Crop

The user can use the crop function to select the part of the picture to be displayed in the picture.



LCD Crop Settings

Crop Settings for MV multi-screen

7.3.3.1 Crop Size Adjustment

In the picture-in-picture setting, click Crop-Size to adjust the size of the crop by turning the knob. The range is 50-100, and the default is 50.

7.3.3.2 Crop Position Adjustment

In the picture-in-picture setting, click Crop-Position and rotate the position of the crop using the PTZ five-way keys.

7.3.4 Borders

Users can customize the border width and color of the picture-in-picture border.

Width	2
Red	128
Green	128
Blue	128

LCD crop border settings

Effect	Width	2
Audio	Red	128
PIP	Green	128
Luma	Blue	128
Chroma		
DSK		
PTZ		
Image		
Port		
System		

MV multi-screen crop border settings

7.3.4.1 Border Width

In the picture-in-picture setting, click Border-Width and adjust the width of the border by turning the knob. The range is 2-16 and the default width is 2.

7.3.4.2 Border Color

In the picture-in-picture setting, click the border and adjust the color codes of red, green and blue by turning the knob to set the border color of the picture-in-picture.

7.4 Luma Key

Luma Key is a technique used in video editing that creates a mask based on luminance (brightness) rather than color. It allows for the removal of specific brightness levels in a video, making certain areas transparent. Enter the Luma key, select the key source and fill source to set the effect of the Luma key. The Luma key can be effective in PVW and PGM.

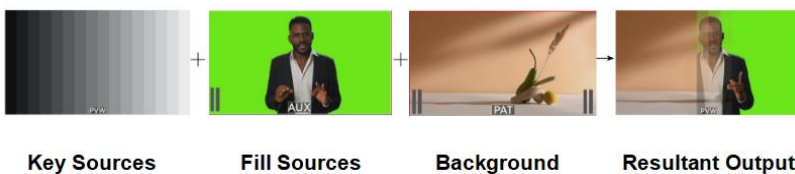
The threshold adjusts the area where the key source cuts out, and the fill source fills in the area being cut out; the background selected by the signal source will cover the key source image and change as the threshold is adjusted.

Key Source	IN1
Fill Source	IN1
Parameter	
Mask	Off

LCD Luma key settings

Effect	Key Source	IN1
Audio	Fill Source	IN1
PIP	Parameter	
Luma	Mask	Off
Chroma		
DSK		
PTZ		
Image		
Port		
System		

MV multi-screen Luma key settings



7.4.1 Enable Luma Key

Rotate the mode selection knob to LUMA. Press the KEY button to activate the LUMA indicator, which will turn green. This enables Luma keying effect in the PVW window. Press the ON AIR button to activate the LUMA indicator, which will turn red. This activates Luma keying effect in the PGM window. When the LUMA indicator turns yellow, both the PGM and PVW windows will display the Luma keying effect simultaneously.

7.4.2 Key Sources

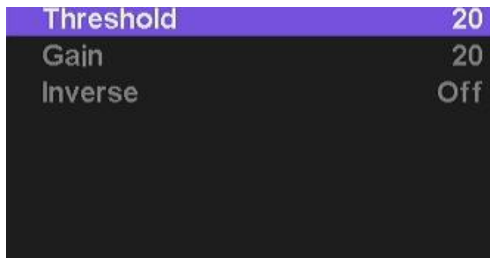
Users can customize and adjust the key source. Enter the Luma key settings, click the key source, rotate the knob to select the key source, you can choose IN1, IN2, IN3, IN4. The default key source is IN1.

7.4.3 Filling Sources

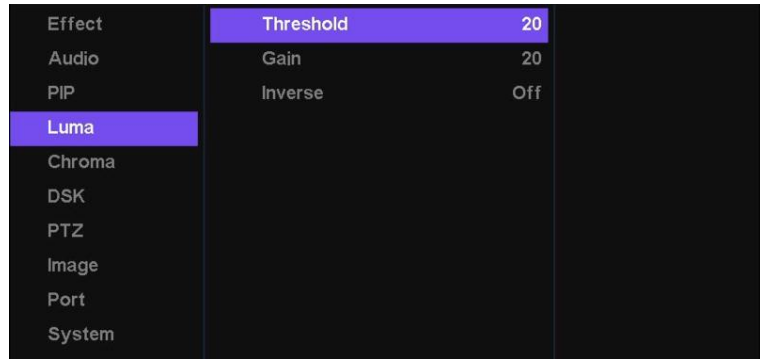
Users can customize and adjust the fill source. Enter the Luma key settings, click the fill source, rotate the knob to select the fill source, you can choose IN1, IN2, IN3, IN4, PAT. The default key source is IN1.

7.4.4 Adjustment

Enter the Luma key settings adjustment menu, the Luma key effect is set by adjusting the threshold, gain and Inverse.



LCD Luma key adjustment Settings



MV multi-screen Luma key adjustment Settings

7.4.4.1 Threshold

In Luma key, the threshold is used to define which brightness range of pixels will be transparent, which directly determines the effect of the keying. When a part of the brightness value in the key source is higher than the threshold, that part is removed and filled with the fill source.

Enter the Luma key settings, click adjust-threshold, by turning the knob to adjust the threshold selection, the threshold range from 1 to 100, the default threshold is 20.

7.4.4.2 Gain

In Luma key, the gain sets the smoothness of the border when you draw a cutout. The higher the value, the smoother the border.

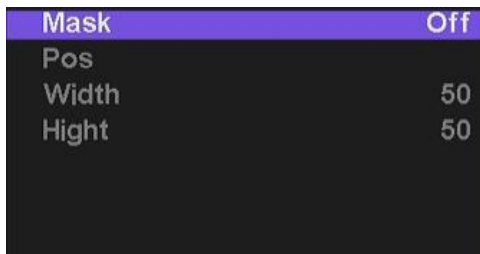
Enter the Luma key settings, click adjust-gain, by turning the knob to adjust the gain selection, the gain range is from 1 to 100, the default gain value is 20.

7.4.4.3 Inverse

Enter the Luma key setting, click adjust-inverse, and turn the knob to turn on or off the Inverse. Turn on the Inverse, and the area that is removed is less than the threshold. It is closed by default.

7.4.5 Mask

The mask function adjusts the part of the picture displayed by the masking layer.



LCD Luma key mask setting



MV multi-screen Luma key mask setting

7.4.5.1 Mask Switch

Enter the Luma key setting, click mask-mask, and adjust the on/off of the mask by turning the knob. The default is off.

7.4.5.2 Mask Position Adjustment

Enter the Luma key setting, click mask-position, you can move the position of the mask through PTZ five-way keys.

7.4.5.3 Mask Width Adjustment

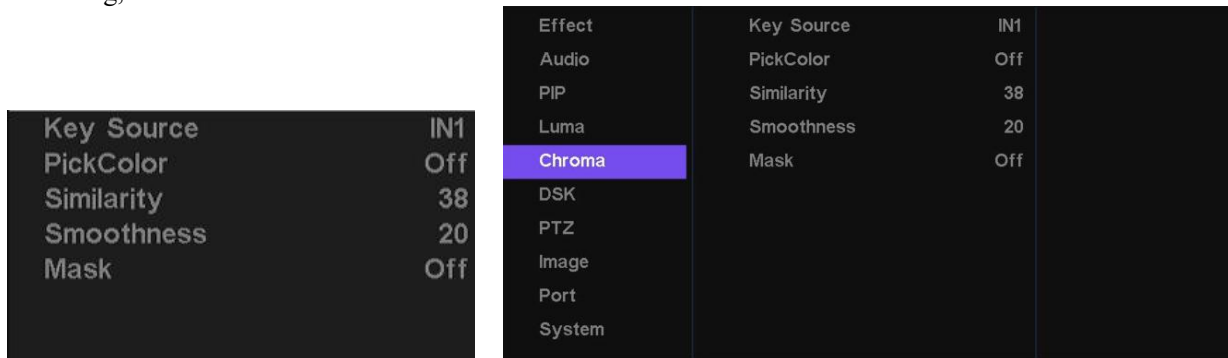
Enter the Luma key setting, click mask-width, and adjust the width of the mask by turning the knob. The range is 10-100, and the default is 50.

7.4.5.4 Mask Height Adjustment

Enter the Luma key setting, click mask-height, and adjust the height of the mask by turning the knob. The range is 10-100, and the default is 50.

7.5 Chroma Key

Chroma key is a visual effects and post-production technique that combines two images or video streams by separating them based on hue (chromatic range). This technology has been widely used across industries to remove backgrounds from photos or videos, particularly in news broadcasting, film production, gaming, live streaming, and related fields.



LCD Chroma key setting

MV Chroma key setting for multiple screens



7.5.1 Enable Chroma Key

Rotate the mode selection knob to CHROMA. Press the KEY button to activate the CHROMA indicator, which will display green. This enables chroma keying in the PVW window. Press the ON AIR button to activate the CHROMA indicator, which will display red. This activates chroma keying in the PGM window. When the LUMA indicator turns yellow, both the PGM and PVW windows will display chroma keying effects simultaneously.

7.5.2 Key Sources

Users can customize and adjust the key source. Enter the chroma key setting, click the key source, rotate the knob to select the key source, you can choose IN1, IN2, IN3, IN4. The default key source is IN1.

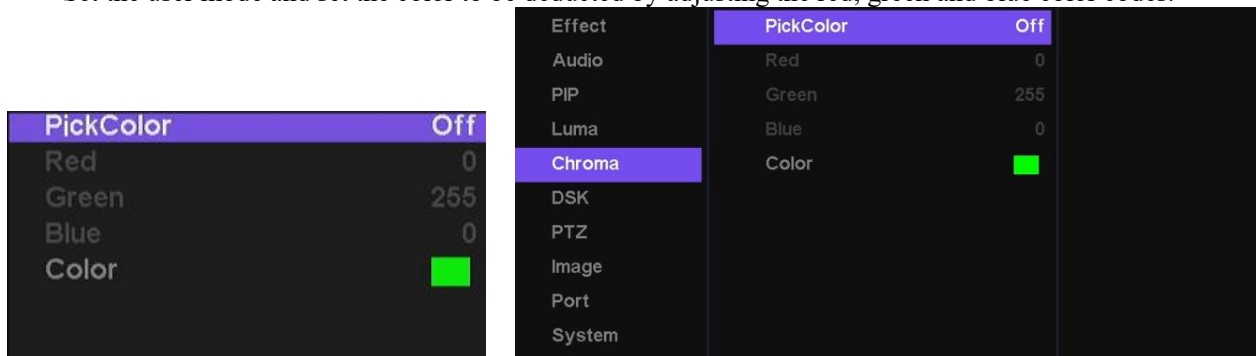
7.5.3 PickColor

Users can customize the key color.

In default mode, the PickColor function is turned off;

Set the PickColor mode, and remove colors from the key source by using the five-directional keys;

Set the user mode and set the color to be deducted by adjusting the red, green and blue color codes.



Chroma key color setting

MV multi-screen chroma key color setting

7.5.4 Similarity

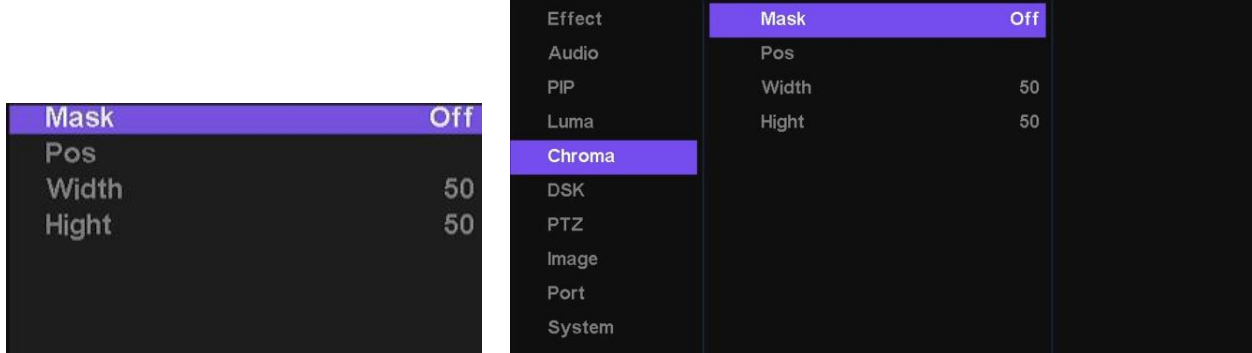
In the chroma key settings, the similarity setting sets the range of color similarity for the key. The larger the number, the larger the range of color that will be keyed out. The similarity range ranges from 0 to 100, and the default similarity is 38.

7.5.5 Smoothness

In the chroma key settings, smoothness sets the smoothness of the area around the subject being keyed. The higher the number, the smoother the border. Smoothness ranges from 0 to 100, with a default smoothness of 20%.

7.5.6 Mask

The mask function adjusts the part of the picture displayed by the masking layer.



Chroma key mask setting

MV multi-screen chroma key mask setting

7.5.6.1 Mask Switch

Enter the chroma key settings, click mask-mask, and enable the mask by turning the knob. It is off by default.

7.5.6.2 Mask Position Adjustment

In the Chroma key settings, click mask-position to move the mask position through the PTZ five-way key.

7.5.6.3 Mask Width Adjustment

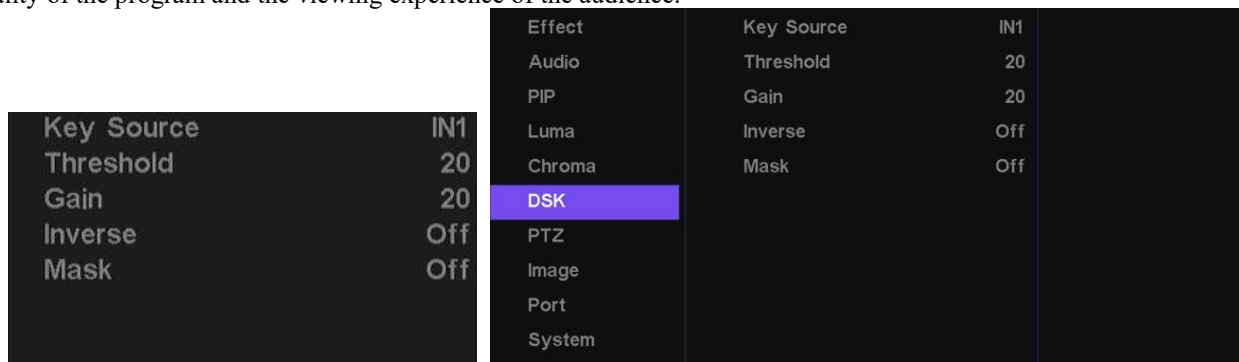
Enter the chroma key setting, click mask-width, and adjust the width of the mask by turning the knob. The range is 10-100, and the default is 50.

7.5.6.4 Mask Height Adjustment

Enter the chroma key setting, click mask-height, and adjust the height of the mask by turning the knob. The range is 10-100, and the default is 50.

7.6 DSK Key

The Mixer plus video switcher supports DSK, allowing users to easily add professional subtitles or graphic packaging system during the broadcast of the program to meet the standards of TV broadcast, thus improving the quality of the program and the viewing experience of the audience.



DSK Settings

MV Multi-screen DSK Settings



Key Sources

Background

Resultant Output

7.6.1 Enable DSK

To enable DSK mode: Rotate the mode selection knob to DSK. Press the KEY button to activate the DSK effect in the PVW window. Press the ON AIR button to activate the DSK effect in the PGM window. When the DSK indicator turns yellow, enable the DSK effect in both the PGM and PVW windows simultaneously.

7.6.2 Key Sources

Users can customize and adjust the key source. Enter the DSK setting, click the key source, rotate the knob to select the key source, you can choose IN1, IN2, IN3, IN4. The default key source is IN1.

7.6.3 Threshold

In the DSK key settings, the threshold is set in a similar range to the brightness range. The larger the value, the larger the range of the cutout.

Enter the DSK Settings, click Threshold, and adjust the selection of the threshold by turning the knob. The threshold range is from 1 to 100, with a default value of 20.

7.6.4 Gain

In the DSK key settings, the gain sets the smoothness of the border when the drawing is set. The larger the value, the smoother the border.

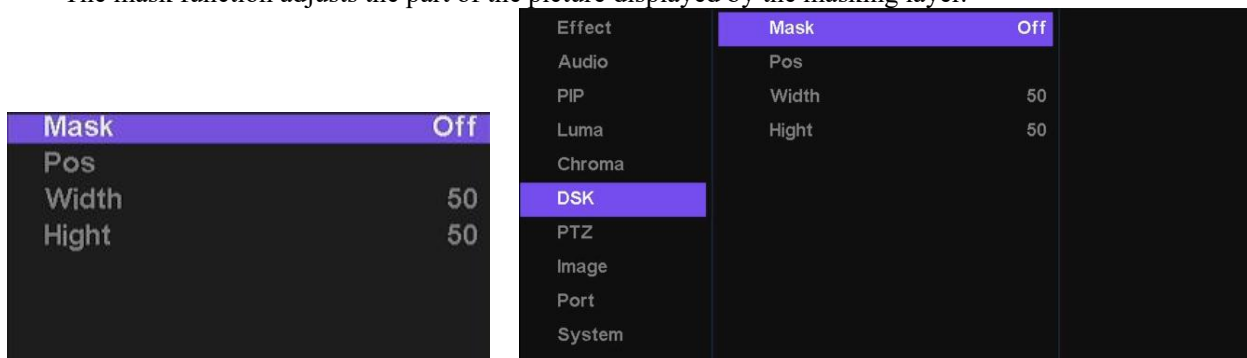
Enter the DSK Settings, click Gain, and adjust the gain selection by turning the knob. The threshold range is from 1 to 100, with a default threshold of 20.

7.6.5 Inverse

In the DSK key settings, turn on inversion and remove areas that are greater than the threshold. It is disabled by default.

7.6.6 Mask

The mask function adjusts the part of the picture displayed by the masking layer.



LCD DSK mask settings

MV multi-screen DSK mask settings

7.6.6.1 Mask Switch

Enter the DSK settings, click mask-mask, and adjust the on/off of the mask by turning the knob. The default is off.

7.6.6.2 Mask Position Adjustment

In the DSK settings, click mask-position to move the mask position using the PTZ five-way key.

7.6.6.3 Mask Width Adjustment

Go to DSK settings, click Mask-Width, and adjust the width of the mask by turning the knob. The range is 10-100, and the default is 50.

7.6.6.4 Mask Height Adjustment

Enter the DSK Settings, click Mask-Height, and adjust the height of the mask by turning the knob. The range is 10-100, and it defaults to 50.

7.7 PTZ

The Mixer Plus video switcher supports the VISCA camera control protocol. The five-way key can be used to control the camera movement quickly and conveniently. Meanwhile, the camera menu can be used to set the camera's focus, exposure, white balance and other settings.

In addition, it also supports the camera position memory function, which can be quickly invoked (see "5.3 Camera Control Operation")

CAM ID	CAM1
Search	Off
IP	
Speed	1
Focus	Off
Exposure	Auto
WB	Off

LCD PTZ Settings

Effect	CAM ID	CAM1
Audio	Search	Off
PIP	IP	
Luma	Speed	1
Chroma	Focus	Off
DSK	Exposure	Auto
PTZ	WB	Off
Image		
Port		
System		

MV multi-screen PTZ Settings

7.7.1 Camera Selection

Enter the PTZ settings, click select camera selection, and select the camera position to be set through the knob.

CAM1	192.168. 3 .133
CAM2	192.168. 3 .142
CAM3	192.168. 3 .134
CAM4	192.168. 3 .142

PTZ IP setting

Effect	CAM1	192.168. 3 .133
Audio	CAM2	192.168. 3 .142
PIP	CAM3	192.168. 3 .134
Luma	CAM4	192.168. 3 .142
Chroma		
DSK		
PTZ		
Image		
Port		
System		

MV multi-screen PTZ IP setting

7.7.2 Search

Enter the PTZ setting, click search, and set the search to on mode by rotating the knob; click IP and it will display all the found IP addresses of cameras on the same LAN, and select the camera IP through the knob.

7.7.3 Manual IP Setting

Enter the PTZ setting, click search, rotate the knob to set the search to off mode; click IP, in the IP address bar, manually set the IP address.

7.7.4 Speed Setting

In the PTZ setting, click speed to adjust the camera lens movement speed by turning the knob. The speed range is 1-24. The higher the value, the faster the lens moves. The default speed is 1.

7.7.5 Focus

Enter the PTZ setting, click Focus-AF(Auto Focus), you can set auto-focus or manual focus; auto-focus setting off mode, click manual, manually focus through the rotation knob; auto-focus setting on mode, automatically focus.

AF	Off
Manual	∞

LCD PTZ focus setting

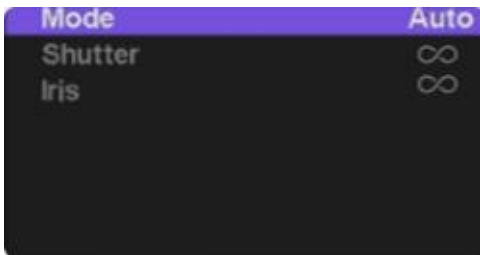
Effect	AF	Off
Audio	Manual	∞
PIP		
Luma		
Chroma		
DSK		
PTZ		
Image		
Port		
System		

MV multi-picture PTZ focus setting

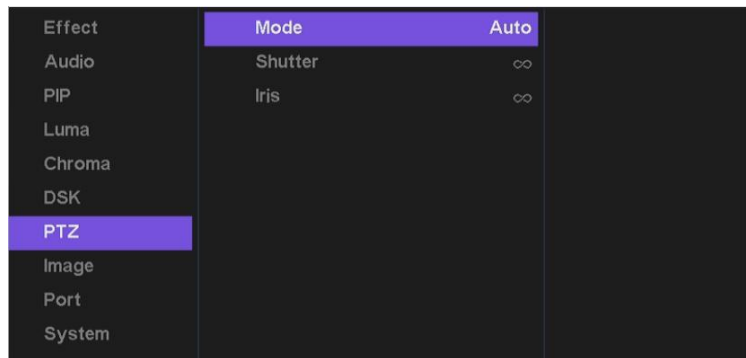
7.7.6 Exposure

In the PTZ settings, click Exposure to select exposure modes: Automatic, Manual, Shutter Priority, or

Aperture Priority. When selecting Manual Exposure, adjust shutter speed and aperture using the knob. With Shutter Priority mode, only the selected shutter speed settings take effect, while Aperture Priority mode applies only the selected aperture settings.



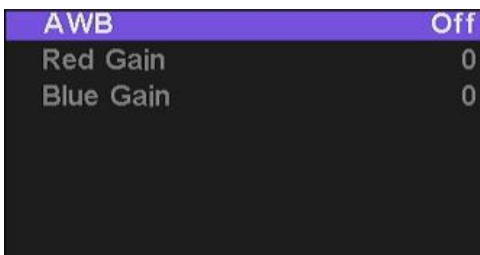
LCD PTZ exposure Settings



MV Multi-screen PTZ exposure Settings

7.7.7 White Balance

In the PTZ settings, click on White Balance. In Auto White Balance mode, you can set the function to Off or On. When set to Off, you can adjust the red and blue gain values using the knob, with a range of 0-255. The default gain value is 0. When set to On, the system automatically adjusts the white balance.



LCD PTZ white balance setting



MV multi-screen PTZ white balance setting

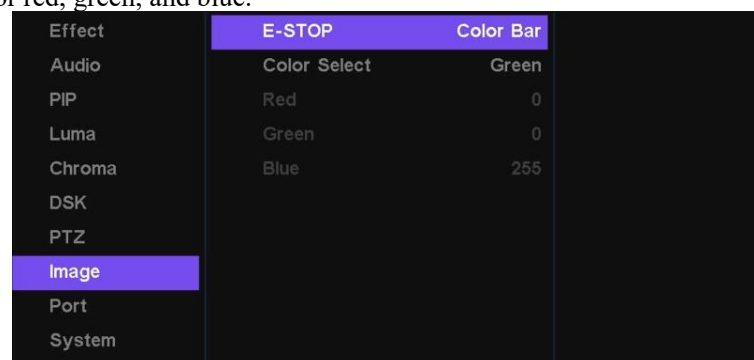
7.8 Images

Enter the image setting, click E-STOP, you can set the E-STOP.

E-STOP can be set to color and color bars. When setting color, it should be used in conjunction with monochrome settings. Monochrome options include white, red, green, blue, yellow, cyan, and purple. In user mode, users can customize the color codes for red, green, and blue.



LCD image Settings



MV Multi-screen image Settings

7.9 Port

In the port setting menu, PGM port output, AUX port output, LCD output, frame rate and screen flip can be set.



LCD port Settings



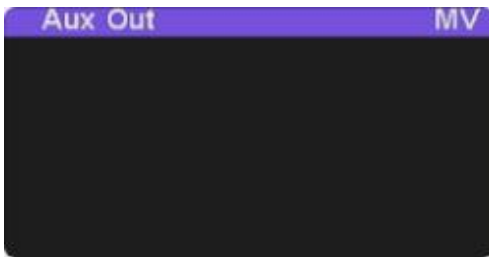
MV multi-screen port Settings

7.9.1 PGM Output

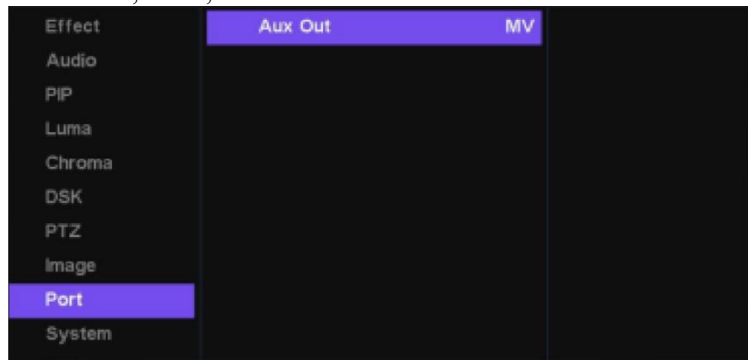
Enter the port Settings, click PGM out to set the picture output by PGM port. You can select IN1, IN2, IN3, IN4, PAT, Clean PGM, PGM, Clean PVW, PVW, MV.

7.9.2 AUX Output

Enter the port Settings, click AUX out-AUX out, and set the image output from the AUX port. You can select IN1, IN2, IN3, IN4, PAT, Clean PGM, PGM, Clean PVW, PVW, MV.



LCD AUX output Settings



MV Multi-screen AUX output Settings

7.9.3 LCD Output

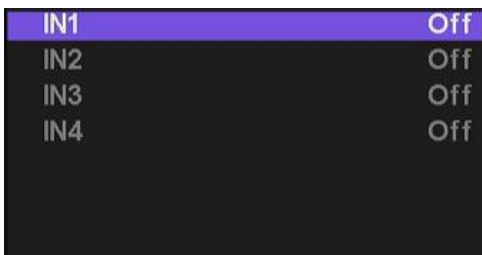
Enter the port settings, click LCD output to set the single screen displayed on the machine's built-in screen. You can select IN1, IN2, IN3, IN4, PAT, Clean PGM, PGM, Clean PVW, PVW, MV. Click the MV button, and the button light will turn off. The machine's screen will display the configured image.

7.9.4 Frame Rate Setting

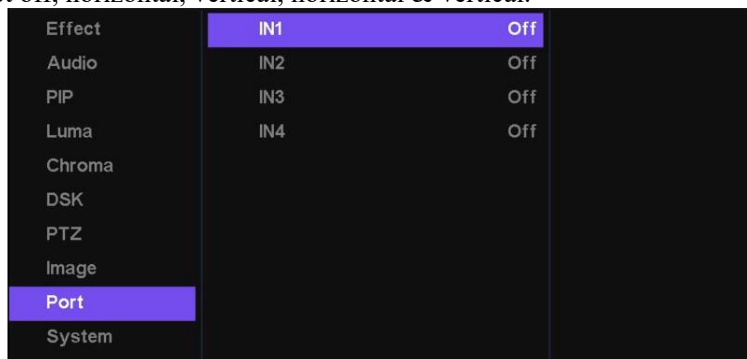
Enter the port Settings, click frame rate, and set the output frame rate by rotating the knob. You can select 1080p24,1080p25,1080p30,1080p48,1080p50,1080p60,1080i60,1080i50. The default is p60.

7.9.5 Input Source Screen Flip

Enter the port setting, click the screen flip to enter the screen flip setting page, you can set the IN1/2/3/4 input signals to screen flip setting, you can set off, horizontal, vertical, horizontal & vertical.



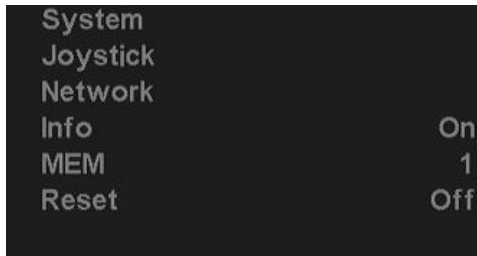
LCD input source screen flip setting



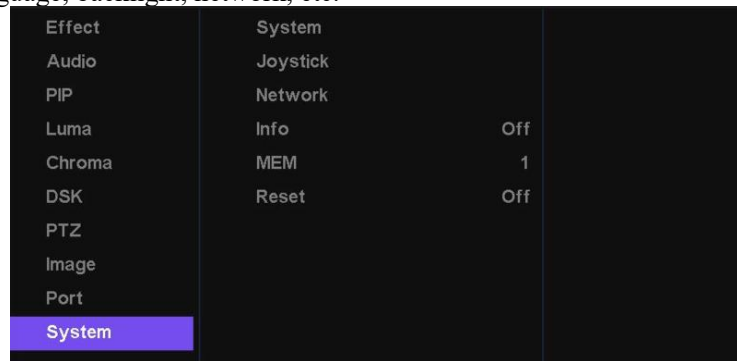
MV multi-screen input source screen flip setting

7.10 System

Enter the system Settings to set the language, backlight, network, etc.



LCD System Settings



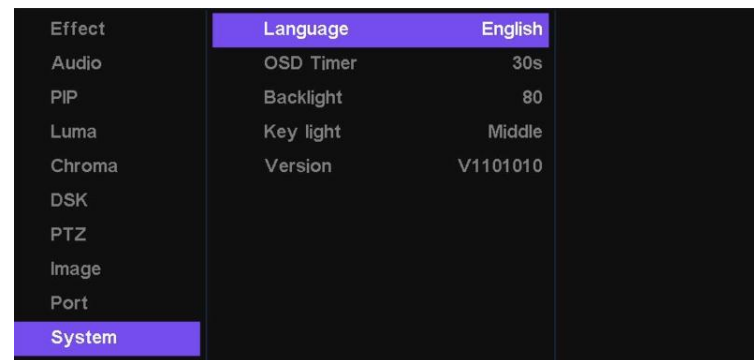
MV multi-screen system Settings

7.10.1 System Settings

Enter the Settings page, click on System Settings to set the language, OSD time, backlight, and button brightness.



System Settings



MV multi-screen system Settings

7.10.1.1 Language Settings

Enter the system Settings page, click system-language, here you can set Chinese or English.

7.10.1.2 OSD Time Setting

Enter the system Settings page and click System-OSD Time to set the OSD time to 10 seconds, 30 seconds, or 60 seconds. The default is 30 seconds.

7.10.1.3 Backlight

Go to the system Settings page, click System-backlight, and adjust the screen backlight by turning the knob from 0 to 100. The higher the value, the brighter the screen. The default is 80.

7.10.1.4 Key Brightness

Enter the system Settings page, click system-button brightness, set the brightness of the button lights to low, medium and high.

7.10.1.5 Version Information

Enter the system Settings page, click on the system, and the version number of the software is displayed in Version.

7.10.2 T-Bar Calibration

Enter the system Settings page, click the joystick calibration, and calibrate the T-bar according to the prompts.

Note: When the buttons malfunction (a joystick icon appears at the lower right corner of the status page

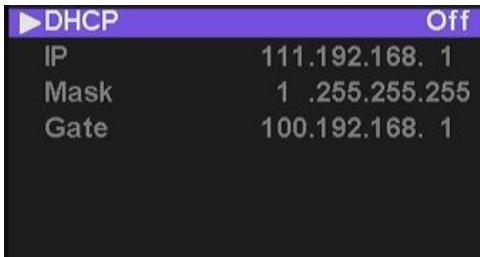


), PTZ calibration is required to restore normal operation.

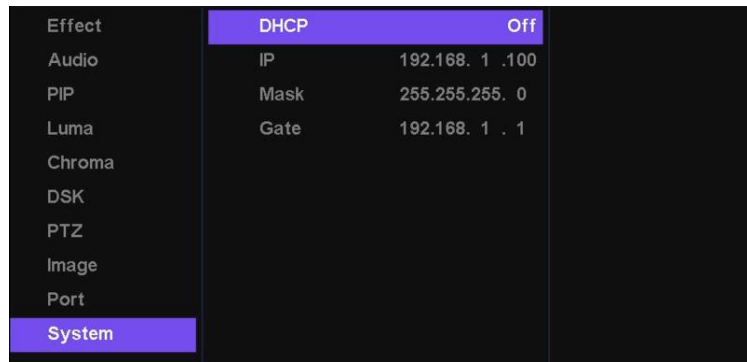
7.10.3 Network Settings

Enter the system Settings page, click Network to enter the network Settings page. When DHCP Settings is

turned off, you can manually set IP, mask, and gateway; when DHCP Settings is turned on, you can automatically obtain network addresses.



LCD network Settings



Network Settings for MV Multi-screen

7.10.4 Signal Status

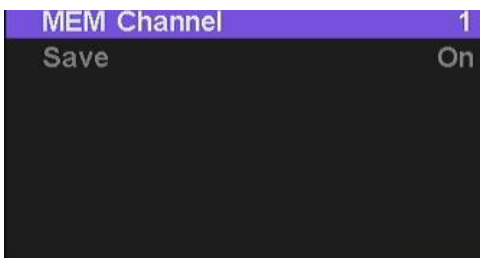
Enter the system Settings page and click signal status to set the switch of signal status. When on, the resolution of four input signals can be displayed. The default is off.

7.10.5 MEM Settings

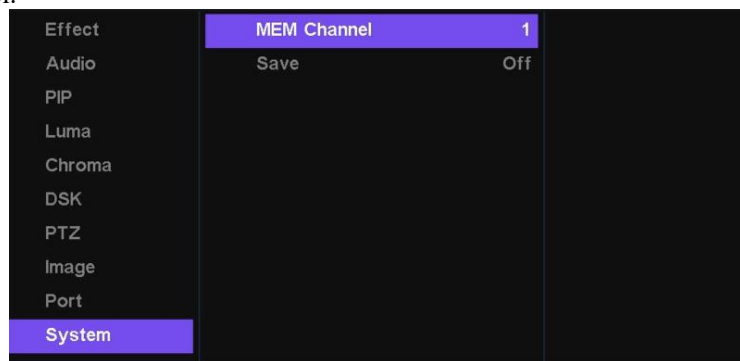
The MEM function can save four custom configurations.

Enter the system Settings page, click MEM to enter the MEM Settings page, select the MEM channel to be saved, then save the selected open, and click the knob to save the channel user Settings.

Enter the system Settings page-MEM-MEM channel, select the channel to be called, click the MEM button, you can call the Settings saved in the channel.



LCD MEM settings



MEM setting for MV multi-screen

7.10.6 Reset

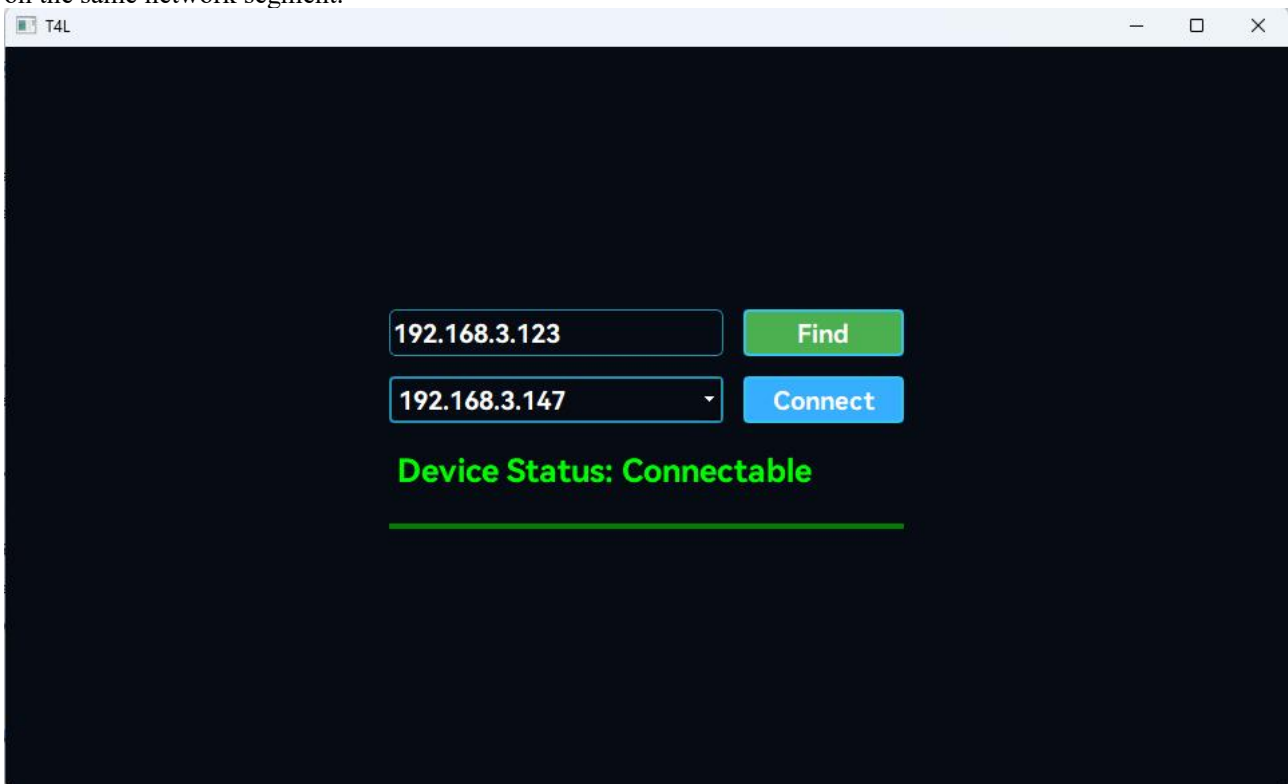
Enter the system Settings, reset the selection to "on" , click the knob, you can carry out the reset operation.

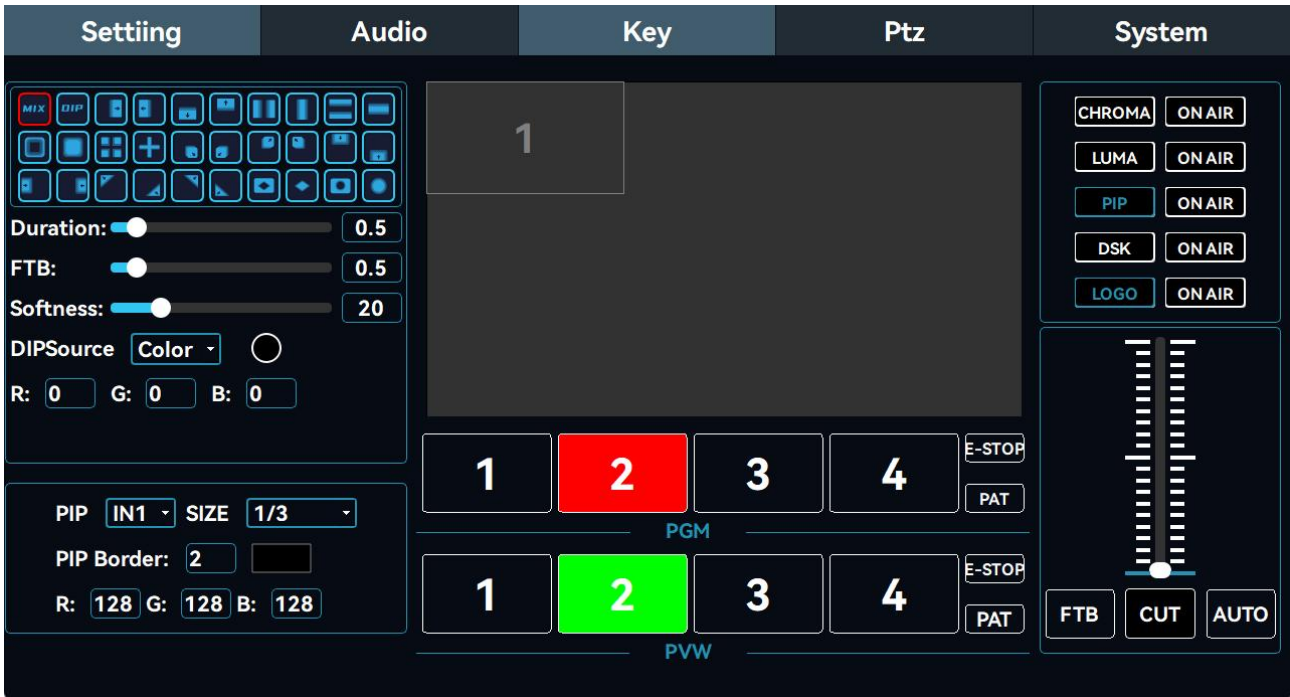
8. Host Computer Software

8.1 Connect To The Host Computer Software

8.1.1 Computer Connect To The Host Computer Software

Connect the switcher to the network. Open the host software on your computer. Click the 'Find' button to search for and display the switcher's IP address in the network. Ensure the computer and switcher are on the same network segment. Click the Connect button to enter the host interface. Note: The computer and switcher must be on the same network segment.





8.2 Settings Page

In the settings page, you can set transition, picture-in-picture, key on/off, and PGM/PVW source.

8.2.1 Transition Setting Menu

Enter the settings page of the host computer software. In the transition menu, you can set the transition effect, transition duration, FTB duration, softening degree and DIP source.



Click the color displayed on the right side of the DIP source. Select the color in the color selector that pops up. Click OK button to set the color of the DIP source.

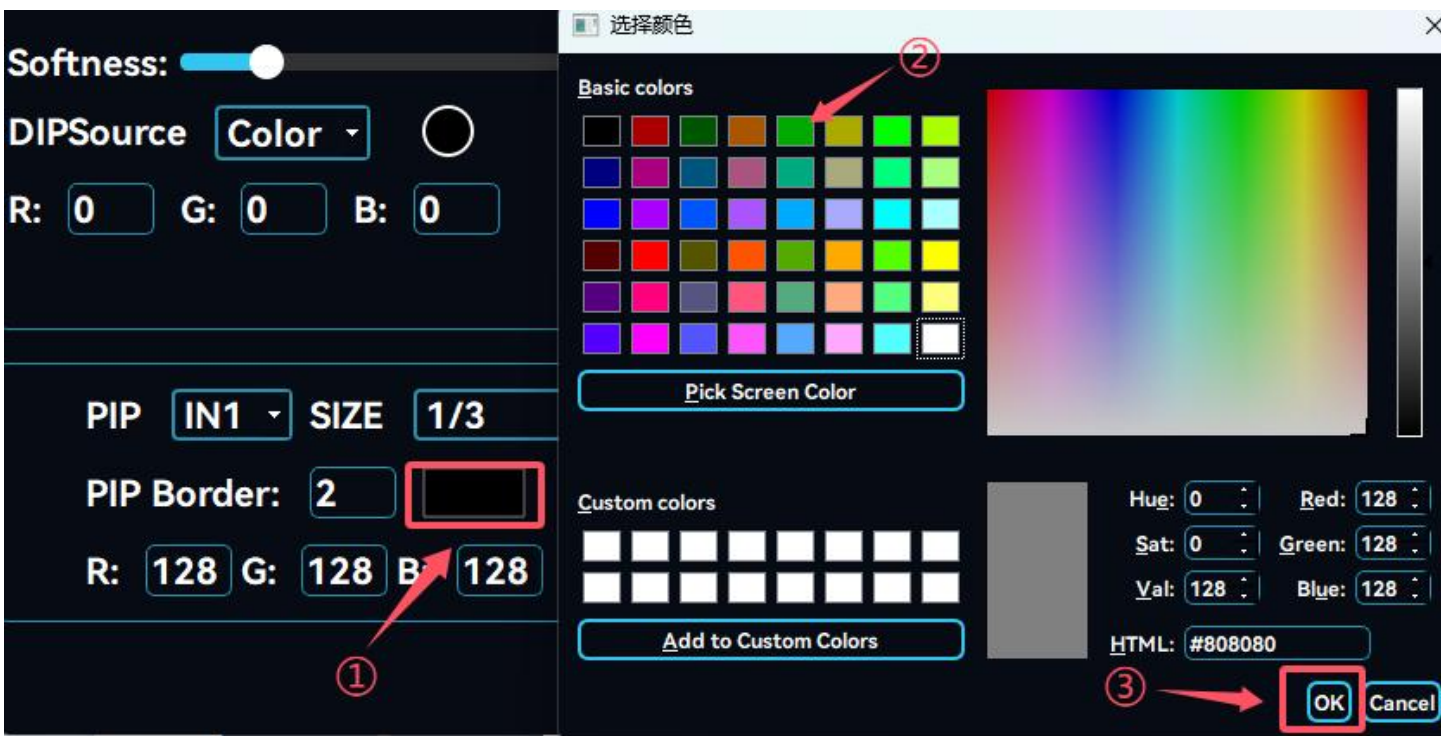


8.2.2 Picture-In-Picture Setup Menu

Enter the settings page of the host computer software. In the picture-in-picture menu, you can select the source of the picture-in-picture, set the size and set the border.



Click the color on the right side of the border to display the color. Select the color in the color selector that pops up, and click OK button to set the border color.



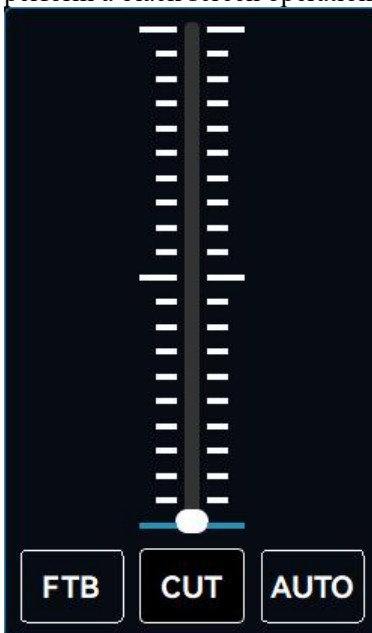
8.2.3 Key ON/OFF Setting Menu

Enter the settings page of the host computer software. In the key on/off menu, you can set the on/off status of chroma key, Luma key, picture-in-picture, DSK and LOGO in PVW/PGM.



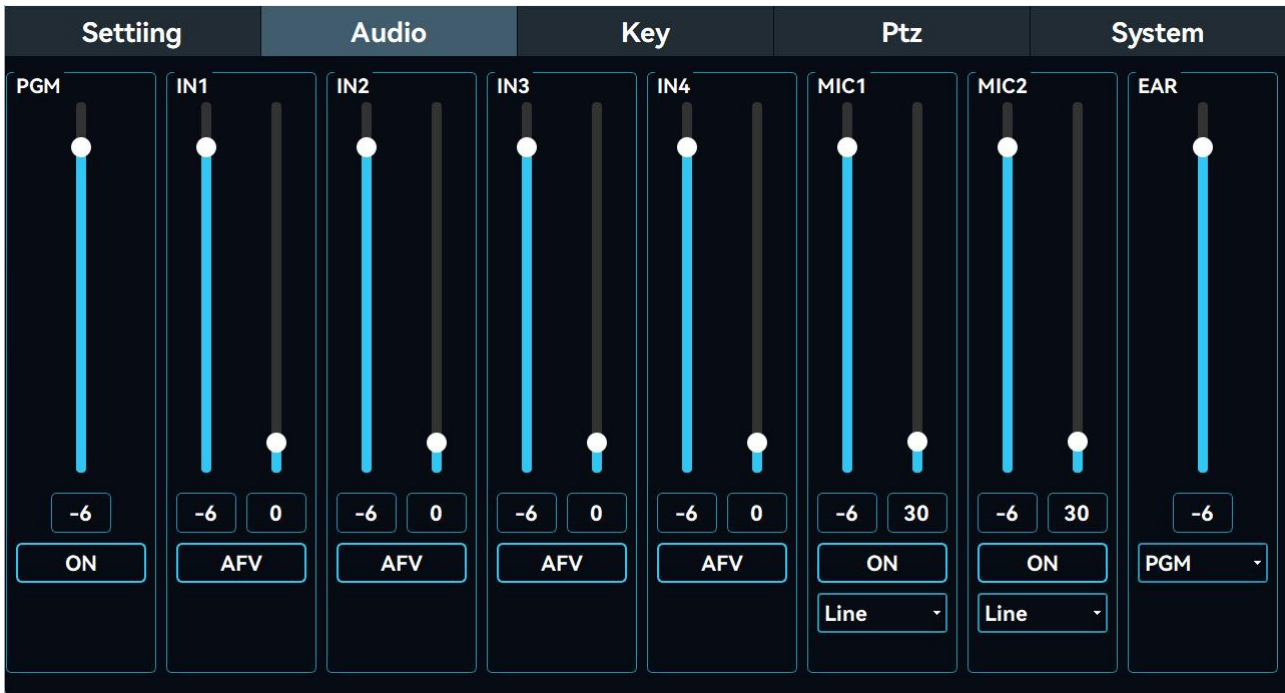
8.2.4 Transition Menu

Enter the settings page of the host computer software. In the transition menu, click the CUT button to perform a non-effects transition; click AUTO and push the push rod to perform an effects transition; click FTB to perform a black screen operation.



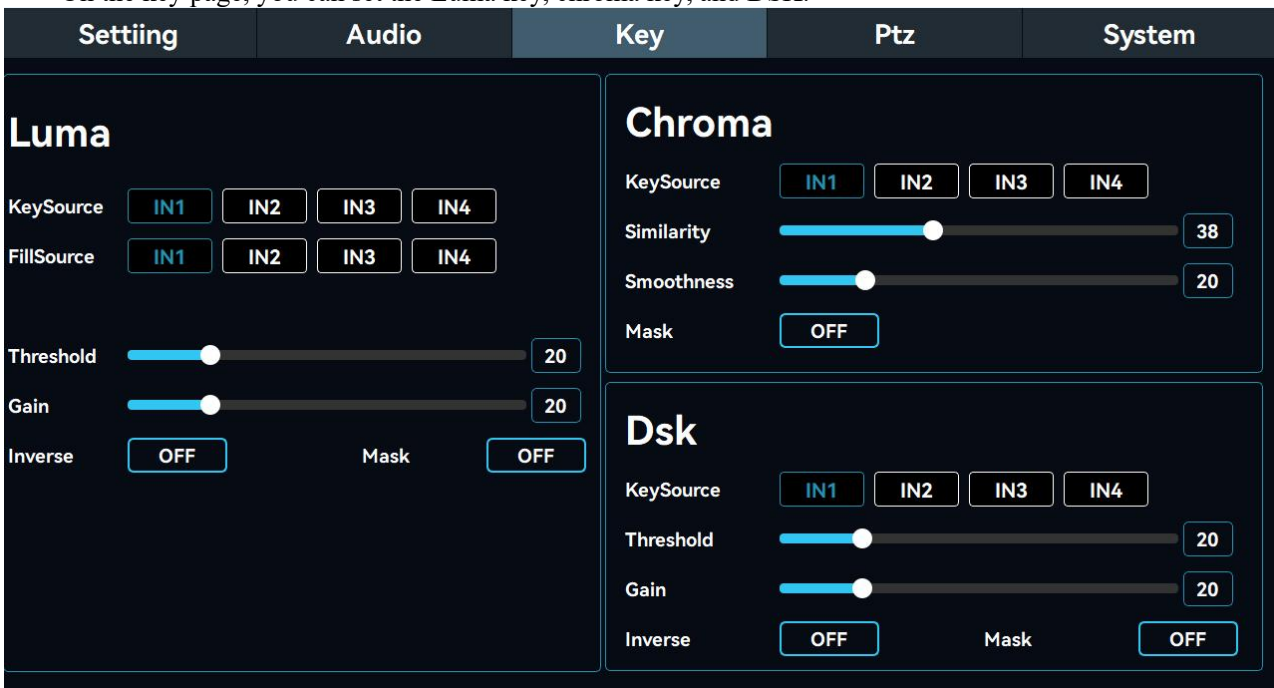
8.3 Audio Settings Page

On the audio page, you can control 4 channels of input audio, 2 MIC audio, 1 headphone monitor audio and PGM audio.



8.4 Key Settings Page

On the key page, you can set the Luma key, chroma key, and DSK.



8.5 PTZ Camera Settings Page

On the PTZ camera page, you can set the IP address of the camera, and set the focus, exposure, white balance,

camera lens movement speed.

8.6 System Settings Page

In the system Settings page, you can set PAT, interface, screen flip, language and reset.

In the logo menu, click select to select the logo image to be uploaded, and click update to upload the logo.

9. Warranty

If there is any problem with the product, please contact our service center.



Failure to follow the following safety instructions may cause fire, electric shock, damage, or other injuries

- Do not mix this product with other incompatible products.
- Do not place the equipment near high temperature equipment to avoid danger.
- Do not use wireless functions, including Bluetooth, during thunderstorms; Wireless transmission equipment working in lightning environment will increase the risk of lightning strike.
- After use, the battery should be charged in time. Do not leave the battery in the state of no power for a long time.
- If you do not use the product frequently, please recharge the product at least once within three months, otherwise the battery life will be reduced.
- If the battery life is exhausted, please contact our after-sales service.
- Do not replace the battery by yourself, so as to avoid danger caused by using unqualified batteries or improper operation.



DEALER



REPAIR CENTER

Please present your purchase receipt or warranty card to receive service. If the serial number, date code label, product label or private disassembly is removed, the warranty is not guaranteed.

The Company shall not be liable for any incidental or consequential damage arising from improper use or misunderstanding.



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