

# TOUCH-S

## 10.1 Inch Touchscreen Professional Video Switcher



User Manual

## Contents

1.Product Introduction .....	5
1.1 Overview .....	5
1.2 Main Features .....	5
2. Interface .....	6
2.1 Interface Introduction .....	6
3、 Configuration .....	7
4. Front Panel .....	8
4.1 Front Panel Introduction .....	8
5、 Functions .....	10
5.1 Transition Control .....	10
5.2 Switch Function Keys .....	10
5.3 Camera Control Operation .....	10
5.4 FTB Button .....	10
5.5 Button Light Status .....	11
6. Display The Status Page .....	12
7. Main Menu .....	13
7.1.1 Transition Effect Settings .....	13
7.1.1.1 MIX .....	13
7.1.1.2 DIP .....	14
7.1.1.3 WIPE .....	14
7.1.2 Duration Setting .....	14
7.1.5 DIP Source Settings .....	15
7.2 Audio .....	16
7.2.1 PGM Audio Settings .....	16
7.2.2 Four-way HDMI/SDI Input Audio Settings .....	16
7.2.2.1 Mix Mode Settings .....	16
7.2.2.2 Volume Control .....	16
7.2.2.3 Audio Delay .....	16
7.2.3 Multimedia MEDIA Audio Settings .....	17
7.2.3.1 Mix Mode Settings .....	17
7.2.3.2 Volume Control .....	17
7.2.3.3 Audio Delay .....	17
7.2.4 Two Microphone Input Audio Settings .....	17
7.2.4.1 Mix Mode Settings .....	17
7.2.4.2 Volume Control .....	17

7.2.4.3 Audio Delay .....	17
7.2.5 Headphone Settings .....	18
7.3 Image Settings .....	18
7.3.1 Video .....	18
7.3.1.1 Video Playback .....	18
7.3.1.2 Video Deletion .....	18
7.3.1.3 Video Playback Mode Setting .....	19
7.3.1.4 Video Addition .....	19
7.3.2 Image .....	19
7.3.2.1 Image Application .....	20
7.3.2.3 Image Addition .....	20
7.3.3 Logo .....	20
7.3.3.1 Logo Application .....	20
7.3.3.2 Logo Deletion .....	20
7.3.3.3 Logo Addition .....	21
7.3.3.4 Logo Size Setting .....	21
7.3.3.5 Logo Position .....	21
7.3.3.6 Logo ON/OFF Setting .....	22
7.4 Media .....	22
7.4.1 Recording .....	22
7.4.1.2 Frame Rate .....	23
7.4.1.3 Format .....	23
7.4.1.4 Storage Path .....	23
7.4.1.5 Formatting .....	23
7.4.2.1 Bit Rate .....	24
7.4.2.2 Frame Rate .....	24
7.4.2.3 Push Stream Control .....	24
7.4.3 Pull Stream .....	25
7.4.4 NDI .....	25
7.4.5 Webcam .....	26
7.5 Chroma .....	27
7.5.1 Luma Key .....	27
7.5.1.1 Key Source .....	27
7.5.1.2 Fill Source .....	28
7.5.1.3 Open .....	28
7.5.1.4 Threshold .....	28

7.5.1.5 Gain .....	28
7.5.1.7 Mask .....	29
7.5.2 Chroma Key .....	30
7.5.2.1 Chroma Key Effect Function Setting .....	30
7.5.2.2 Key Source .....	31
7.5.2.3 Similarity .....	31
7.5.2.4 Smoothness .....	31
7.5.2.5 Chroma Key Color .....	31
7.5.2.6 Mask .....	32
7.5.3 DSK Key .....	33
7.5.3.2 Key Source .....	34
7.5.3.3 Threshold .....	34
7.5.3.4 Gain .....	34
7.6 Picture-In-Picture .....	35
7.6.1 Picture-In-Picture Settings .....	35
7.6.1.1 Picture-In-Picture On .....	36
7.6.1.2 Source Selection .....	36
7.6.1.3 Size Selection .....	36
7.6.1.4 Custom Width & Height .....	37
7.6.1.5 Crop .....	37
7.6.1.6 Border Width Settings .....	37
7.6.1.7 Border Color .....	37
7.6.1.8 Layer Move .....	37
7.6.1.9 Screen Movement .....	37
7.6.2 Conference Settings .....	37
7.6.2.1 Meeting Status .....	38
7.6.2.2 Meeting Mode .....	38
7.7 PTZ .....	38
7.7.1 Camera Selection .....	39
7.7.2 Camera Connection .....	39
7.7.2.1 Search .....	39
7.7.2.2 Manual IP .....	39
7.7.3 Camera Settings .....	39
7.7.3.1 Speed .....	39
7.7.3.2 Focus .....	40
7.7.3.3 Exposure .....	40

	4
7.7.3.4 White Balance .....	40
7.8 Interface .....	41
7.8.2 Recording/Streaming Direction .....	43
7.8.3 Output Frame Rate Settings .....	43
7.8.4 Output Source .....	43
7.8.5 Input Source .....	43
7.8.6 Screen Flip .....	43
7.9 Settings .....	44
7.9.1 Language Settings .....	44
7.9.2 Fan Settings .....	44
7.9.3 Backlight Settings .....	44
7.9.4 Time/Date Settings .....	45
7.9.5 Network Settings .....	45
7.9.6 User Configuration .....	45
7.9.7 T-Bar Calibration .....	45
7.9.8 NDI .....	45
7.9.9 Reset .....	46
7.9.10 Remote Control .....	46
7.9.11 Check Software Version .....	46
8.Host Computer Software .....	46
8.1 Connect To The Host Computer Software .....	46
8.1.1 Connect The Computer To The Host Computer Software .....	46
8.1.2 Connect the mobile phone to the host computer software .....	47
8.2 Switcher Front Panel Control .....	48
8.3 Multimedia Settings .....	48
8.3.1 Push Stream Settings .....	48
8.3.1.1 Set the stream address .....	48
8.3.2 Pull Stream Settings .....	49
8.4 System Settings .....	49

# 1. Product Introduction

## 1.1 Overview

The Touch-S features 4 HDMI inputs (HDMI IN1 and HDMI IN2 support 4K60P, HDMI IN3 and HDMI IN4 support 1080p60, + Four-channel SDI support 3G Level A YCbCr422 10 bit Input) and one USB 2.0 Input, two HDMI AUX Output (+ 1 SDI PGM Output) + One USB 3.1 (Type-C) and one RJ45 network port Output video switcher.

The TOUCH-S video switcher is designed on an FPGA hardware platform, supporting broadcast-grade functions such as video effect switching, green screen compositing, audio mixing and adjustment, built-in media library, PIP (Picture-in-Picture) at any position and size, logo overlay, multi-layer stacking, and more. Its powerful multimedia capabilities enable simultaneous support for USB 3.1 live streaming, live recording, direct multi-channel network transmission, and single-channel network capture. The Touch-S features a 10.1-inch HD screen for direct multi-view signal display and flexible touchscreen menu operations, while also supporting control of multiple PTZ cameras via a five-axis joystick.



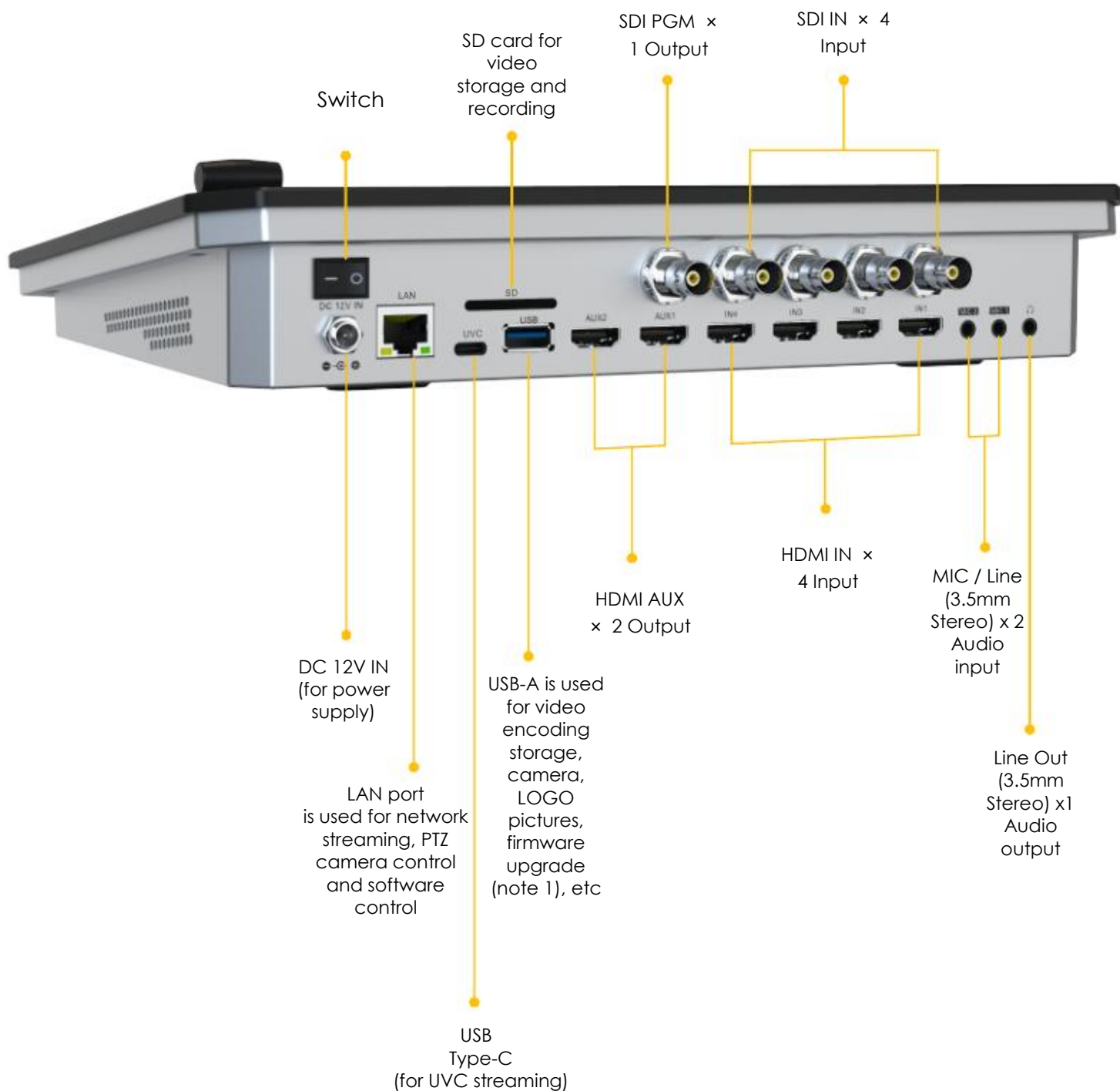
## 1.2 Main Features

- 4 HDMI inputs + 4 SDI inputs, HDMI AUX x 2 + SDI PGM x 1 output, USB 3.1 x 1 lossless output
- PGM can superimpose up to 8 layers, providing powerful directing capabilities
- 2 picture-in-picture, can support any cropping and size adjustment to meet the needs of various scenarios
- 2 Logo, support alpha channel, effect more realistic and natural
- Supports T-Bar switching, supporting more than 30 transition effects
- 2 network push stream, 1 network pull stream
- Built-in media library and image generator, allowing users to customize preset patterns and import images from external sources
- Supports DSK, for use with subtitles, graphics, chroma keying and other functions. natural
- Supports both horizontal and vertical video
- Video recording and playback, the recorded video can be used as an auxiliary source for program production
- Integrated PTZ camera control
- Professional chroma keying to create a realistic virtual studio
- Luma key to help users achieve video effects
- Built-in support for remote control via PC or Smart Phone

## 2. Interface

### 2.1 Interface Introduction

Note 1: To upgrade the firmware put the firmware file (.img extension) in the USB drive in the root directory. Insert the USB drive into the USB port, and the switcher will automatically identify the upgrade file. It will show a prompt to upgrade. Select YES to upgrade.



## 3、 Configuration

<b>Specifications</b>	
Video In	HDMI IN x 4 SDI IN x 4 USB x1
Video Output	HDMI AUX x 2 + SDI PGM x 1 USB 3.1 x1 (Type-C) and RJ45x1 (network streaming)
Audio Input	Line (3.5mm Stereo) x2
Audio Output	Line (3.5mm Stereo) x1
USB	Used for video recording and storage, camera, LOGO pictures, firmware upgrade, etc
Control Interface	LAN x 1 is used for network streaming, PTZ camera control, and software control
SD Card	Used for video recording storage, and image import
Power Source	DC 12V x 1
<b>Functions</b>	
Transition	T-Bar / AUTO / CUT
Transition Effects	WIPE (multiple patterns) / MIX / DIP /Transition Preview / BKGD / Still (freeze) / FTB
Key	Upstream key: luma key x 1 / chroma key x1 / PIP x 2 Downstream key: DSK x 1 / LOGO x 2
Layer	PGM supports a maximum of 8 layers
Audio	HDMI x 4 or SDI x 4, multimedia and 2 microphone / analog audio input; Audio delay: 0-1s
PTZ	VISCA IP protocol
Media Library	Supports preset multiple background images, LOGO and video streams
Streaming Media	H.264 encoding, recording and multi-network streaming support, recording and streaming bit rate separation
LOGO	Supports any size up to 960 x 540 and position, supports alpha transparent channel (png image)
<b>Format Support</b>	
HDMI Input Support	2160p 60/59.94/50/30/29.97/25/24/23.98 (HDMI2.0 interface) 1080p 60/59.94/50/30/29.97/25/24/23.98 1080i50/1080i60
SDI Input Support	3G Level A YCbCr422 10bit
HDMI AUX 1/2 Output	1080p 60/50/48/30/25/24
SDI PGM Output	1080p 60/50/48/30/25/24
HDMI, Color Space	RGB/YUV
UVC Output	USB 3.1 lossless output, up to YUV2 1080p60
Recording And Streaming Bit Rate Support	5-30
Streaming Protocol	RTMP, RTMPS, SRT
Media Format Support	SD card / USB disk format support: FAT32 / exFAT / NTFS Image format support: png, bmp, jpg, jpeg; size support: 1920*1080 Format support: png, bmp, jpg, jpeg; size support: 960x540
<b>Other</b>	
Voltage	7~24V
Power Consumption	≤18W
Size (L x D x W)	295 x 62 x 224mm
Weight	1452g
Temperature	Operating temperature: 0℃~50℃, storage temperature: -30℃~70℃
Accessories	AC Adapter (12V 2A) x 1 USB cable (A to C) x1

## 4. Front Panel

### 4.1 Front Panel Introduction



01	<b>Power Button</b>	Powers the unit on or off
02	<b>T-bar</b>	Switch PVW and PGM manually through the T-bar
03	<b>REC</b>	Recording on / off. When enabled, the red light is on. Note: REC only supports H.264 mode
	<b>STREAM</b>	Push to start and stop the stream. When enabled, it will turn green. Note: STREAM only supports H.264 mode
	<b>MV</b>	The AUX interface display is switched on and off. When it is on, the light will illuminate, and the AUX output will monitor multiple signals; when it is off only one signal will be monitored.

04	<b>STILL</b>	Freeze the PGM and PVW screens. When activated the button will flash.
	<b>PREV</b>	In the PVW (preview screen) layer, previews the transition effect. When it is activated, the button will illuminate.
	<b>GRAB</b>	Take a screenshot of the PGM screen
	<b>BKGD</b>	When activated, the background of PVW is consistent with that of PGM
	<b>FTB</b>	When turned on, the light flashes, the PGM output is black and the PGM is muted.
	<b>CUT</b>	Instant switching between PVW and PGM
	<b>AUTO</b>	PVW and PGM for special effects switching
05	<b>PVW:1-4 / MEDIA / PAT</b>	Selection and indication of PVW signal source, MEDIA and PAT (PVW layer needs to be active BKGD function to use), green light is on when activated.
06	<b>PGM:1-4 / MEDIA / PAT</b>	The selection and indication of PGM signal source, MEDIA and PAT will be lit red when turned on
07	<b>CAM / POS / ZOOM- / ZOOM+</b>	CAM: Camera mode on / off. When activated button will be illuminated POS: Camera coordinate positioning is saved Position and saving: Enter camera mode, open the POS button, and use the PVW1-4 button to save the camera's coordinate position (up to 4 positions can be saved). Position Recall: Enter camera mode, open the POS button, and use the PGM1-4 button to recall the camera's coordinate position. ZOOM-/ZOOM+: Zoom function of PTZ camera lens
08	<b>PTZ Joystick</b>	Camera control, controls the coordinates of the camera Position control: 1. Control the position of the layer in conjunction with PIP1 and PIP2 buttons. 2. Control the position of masks. 3. Control the position of the logos.

## 5、 Functions

### 5.1 Transition Control

The transition control is composed of keys PVW1-4, PGM1-4, CUT, AUTO, MEDIA, PAT and the T-Bar

PAT: used to control the source selection of the current layer in the preview screen (PVW) and program screen (PGM)

Media: used to control the source selection of the current layer in the preview monitor (PVW) and program monitor (PGM)

PVW1~4: used to control the source selection in the preview monitor (PVW)

PGM1~4: used to control the source of the program monitor (PGM)

CUT button: Used to cut from the PVW and PGM

AUTO: PVW and PGM automatically transitions according to transition time set and transition effect settings

T-Bar: PVW and PGM do manual effect switching based on the speed at which the t-bar is pushed.

### 5.2 Switch Function Keys

**Multimedia function keys:**

REC: Turn recording on / off

STREAM: Turn streaming on / off

MV: The AUX interface display is switched on and off. When it is on, the light will illuminate, and the AUX output will monitor multiple signals; when it is off only one signal will be monitored.

STILL: Freeze the PGM and PVW screens. When activated the button will flash.

GRAB: Take a screenshot of the PGM layer

PREV: Preview transition effects in the PVW layer

BKGD: When turned off, the background of PVW is consistent with that of PGM

### 5.3 Camera Control Operation

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

Activate the camera: short press the CAM button to jump directly to the PTZ menu, and the light flash indicates that the camera control mode is entered;

Motion control: After activating the camera, you can control the left and right and up and down 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 the PVW1-4 digital key to save the current position of the camera, up to 4 positions.

Camera location recall: After activating the camera, press the POS button to enter the camera location setting mode. Press the PGM1-4 digital key to directly recall the stored locations of the camera.

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

### 5.4 FTB Button

After pressing the FTB button, the PGM output will fade to black. The FTB light will flash; press again to exit.

## 5.5 Button Light Status

Button	Off	On	Flash
<b>MV</b>	Single screen monitoring	Multi-screen monitoring	
<b>REC</b>	Not currently recording	Recording in progress	
<b>STREAM</b>	Stream not started	Streaming in progress	
<b>CAM</b>	Camera control not activated		Camera control activated
<b>POS</b>			Waiting for camera position to be set
<b>PGM1~4</b>	Camera control not activated	The source is selected	
<b>PVW1~4</b>	The source was not selected	The source is selected	
<b>MEDIA</b>	The source was not selected	MEDIA source is selected	
<b>PAT</b>	The source was not selected	PAT source is selected	
<b>PREV</b>			The PVW displays the selected transition effect
<b>BKGD</b>		PVW and PGM display their respective background images	
<b>CUT</b>	Switch signal sources		
<b>AUTO</b>	No transition in progress	Transition in progress	
<b>FTB</b>			PGM fades to black

## 6. Display The Status Page

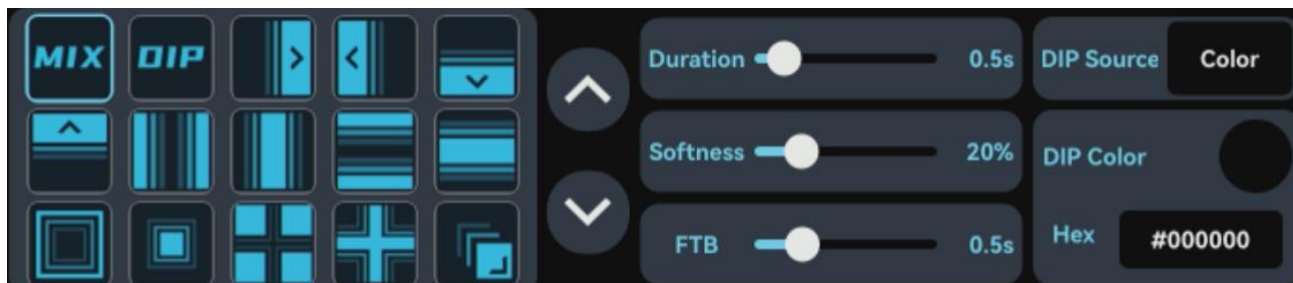


① Return to Home Menu	⑨ Logo 1, 2 display
② Locks interface	⑩ Transition time and special effects display
③ Function module icon	⑪ PTZ camera status and lens movement speed display
④ Date and time display	⑫ MIC 1 / 2 column diagram shown
⑤ PAT image shown	⑬ Audio Level Display
⑥ Recording duration and used / total memory display	⑭ PVW and PGM Display
⑦ Stream display time and bit rate	⑮ Input Signal Displays
⑧ Media video source selection, playback, pause, video playback progress adjustment	⑯ HDMI IN Audio Levels

## 7. Main Menu

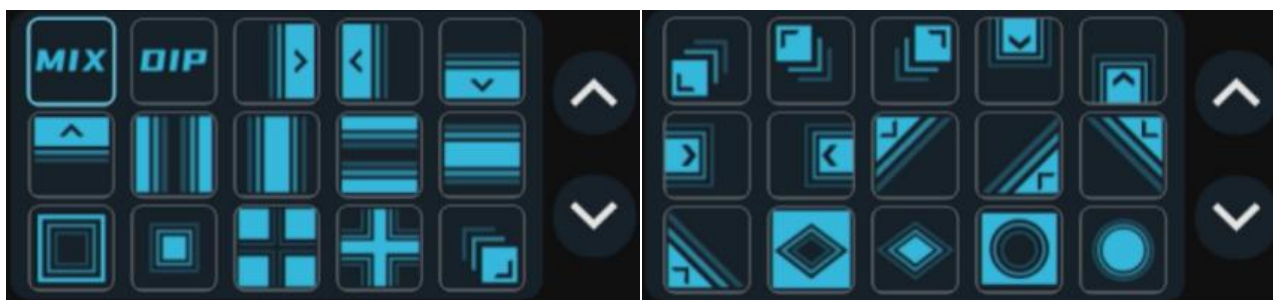
### 7.1 Transition

The video switcher has built-in professional transition effects such as WIPE, MIX and DIP, which can be switched manually by the AUTO button or T-bar manual push rod.



#### 7.1.1 Transition Effect Settings

Enter the transition settings and select the transition effect, including MIX, DIP, WIPE and more than 30 transition effects. The default is MIX transition effect.



##### 7.1.1.1 MIX

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



## 7.1.1.2 DIP

Select DIP and click the AUTO button to execute the DIP transition effect. In conjunction with the immersion settings, select the immersion source. The default immersion source is color, which defaults to black.

DIP to Black (fade out):

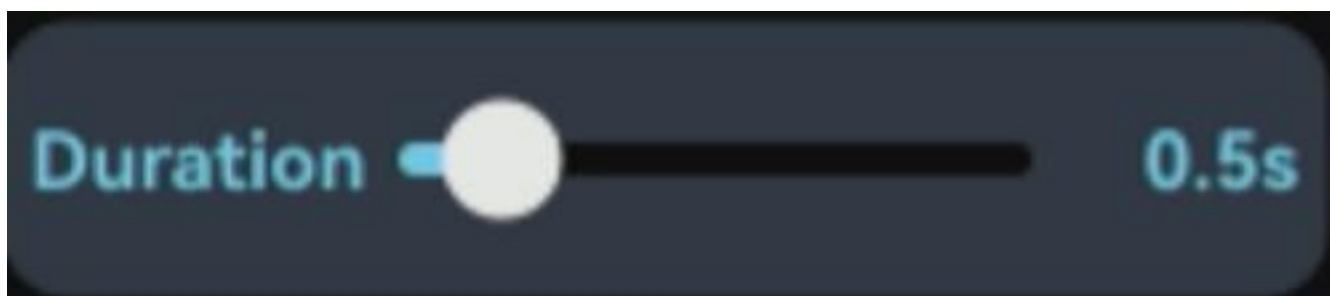


## 7.1.1.3 WIPE

WIPE is a transition effect that moves from one frame to another. Users can select different WIPE styles using the up/down page buttons, and combine them with the softening setting to create transitions.

## 7.1.2 Duration Setting

Enter the transition settings, and set the transition time through the slider of transition time. The longer the time, the slower the transition speed will be. You can set the duration 0.1s-5.0s, which is 0.5s by default.



## 7.1.3 Softness Setting

Enter the transition settings, and set the softness through the slider. The lower the softness is, the clearer the boundary of the transition will be. It can be set to 0% -100%, and the default value is 20%.



## 7.1.4 Fade-to-Black Setting

Enter the transition settings, and set the duration of the Fade-to-Black through the slider of FTB. The longer the duration, the slower the Fade-to-Black speed will be. The duration 0.1s-2.0s can be set, and the default is 0.5s.

Click the FTB button, the red light flashes, and the PGM window is black and silent.

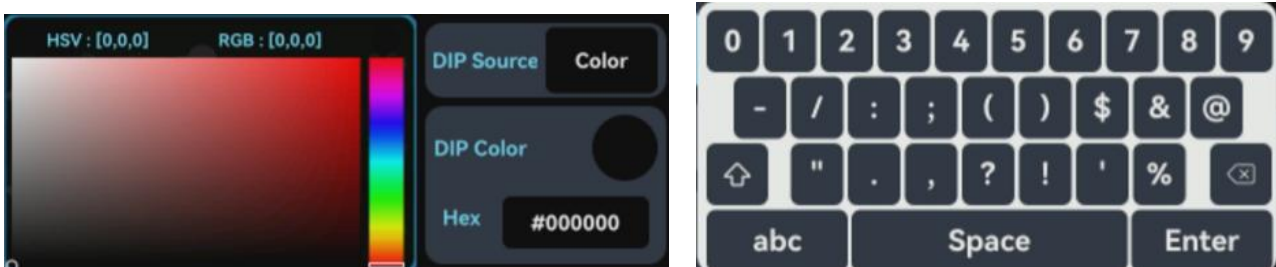


## 7.1.5 DIP Source Settings

Enter the transition setting and click the option box for the DIP source. You can customize the setting to color, IN1, IN2, IN3, IN4, media, and PAT. The DIP source is set to color by default, and the color is set to black by default.

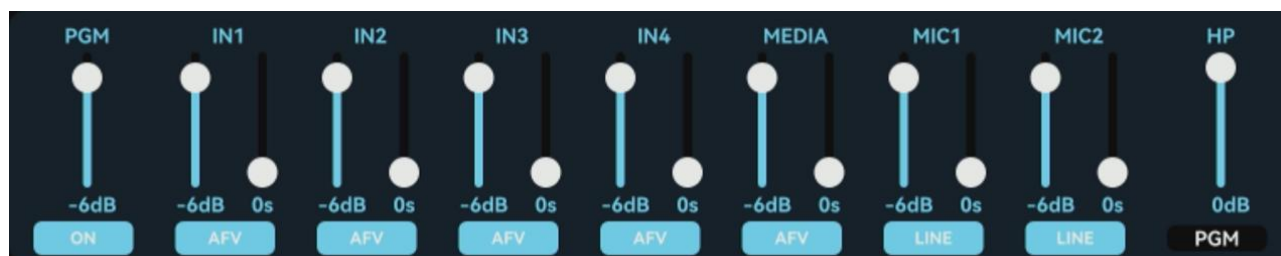


When selecting a DIP source color, use it in conjunction with the DIP color. To select a color: 1) Choose a color from the color selector that appears; 2) Alternatively, click the Hex box to manually set the color code using the soft keyboard that pops up, then press Enter to apply the color.



## 7.2 Audio

Supports 4 HDMI digital audio sources, and 2 independent 3.5mm microphone inputs. Each audio source can be independently configured including volume, switch, mix, delay. HDMI audio support audio follow mode (AFV).



### 7.2.1 PGM Audio Settings

PGM audio control, the Touch-S switcher supports 7 channels of audio overlay, including 4 channels of HDMI/SDI built-in audio, 1 channel of multimedia audio and 2 channels of MIC/Line audio input.

In audio Settings, click the button corresponding to PGM to set OFF mute for PGM. Operation the slide bar corresponding to PGM can adjust the volume of PGM. The volume range is -60dB-0dB. By default, the sound of PGM is on and the volume is -6dB.

### 7.2.2 Four-way HDMI/SDI Input Audio Settings

Enter the audio settings to set the embedded audio of IN1\2\3\4 four-way input.

#### 7.2.2.1 Mix Mode Settings

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

When an audio channel is set to AFV, the audio channel only works 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 input 1-4 to synchronize the audio and video. The audio delay can be delayed up to 1s, and the default is 0s.

## 7.2.3 Multimedia MEDIA Audio Settings

Enter the audio Settings to set the multimedia MEDIA audio.

### 7.2.3.1 Mix Mode Settings

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

When the audio mode is set to AFV, it only works when the multimedia MEDIA video is in PGM.

### 7.2.3.2 Volume Control

Users can adjust the volume of the audio of the multimedia MEDIA, with a range of -60dB to 0dB, and the default is -6dB.

### 7.2.3.3 Audio Delay

Users can set the audio delay of the multimedia MEDIA audio to synchronize the audio and video. The audio delay can be delayed for up to 1s, and the default is 0s.

## 7.2.4 Two Microphone Input Audio Settings

Enter the audio settings and select MIC1 and MIC2 to configure the two microphones. Users can connect them to linear devices or desktop/microphone lavalier. Users can turn the microphones on/off, adjust audio volume, and set audio delay.

### 7.2.4.1 Mix Mode Settings

Users can turn off the mix mode independently, or set it to LINE/MIC mode, which is the default LINE mode.

If the MIC interface is connected to a microphone device, select the MIC mode for audio mode; if connected to a linear device, select the LINE mode for audio mode. The default is Line (linear) mode.

### 7.2.4.2 Volume Control

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

### 7.2.4.3 Audio Delay

Users can set the audio delay of MIC1 and MIC2. The maximum audio delay can be 1s, and the default is 0s.

## 7.2.5 Headphone Settings

The switcher features a headphone output for audio monitoring. Users can select one audio source from four options: Main Audio (PGM), 4 embedded HDMI/SDI audio channels, 2 MIC audio channels, or Multimedia MEDIA audio. The headphone volume range is adjustable between -60dB and 0dB. By default, the system uses PGM as the audio source with the volume set to 0dB.

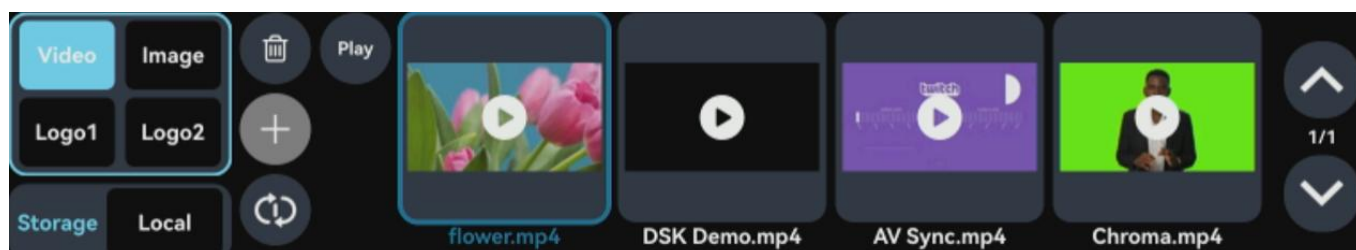
## 7.3 Image Settings

In the image settings, you can customize the background image, logo setting, MEDIA video source setting.

### 7.3.1 Video

Enter into image settings, select video to display the default video stored inside the switcher. After inserting U disk or SD card (can be accessed at the same time), storage select SD card/U disk, can display the logo in the SD card or U disk, and you can select the previous and next page by the paging button.

Note: The video should be placed in the video\_rec folder in the root directory of the SD card/U disk.



#### 7.3.1.1 Video Playback

Select a video from your local disk or U disk/SD card, click the play button, and the video will be played in the multimedia MEDIA window.

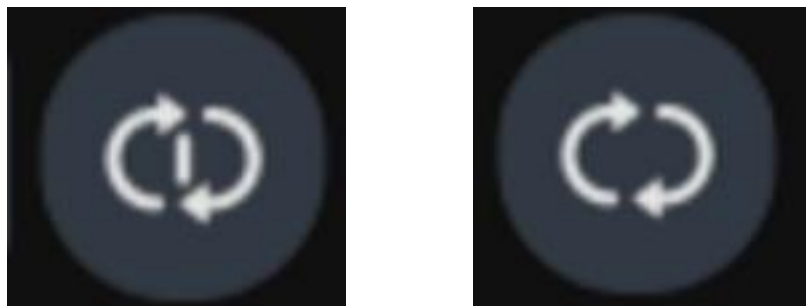
#### 7.3.1.2 Video Deletion

Select the video to be deleted in the local or U disk /SD card, and click the delete button to delete the video.

Note: Videos in play cannot be deleted.

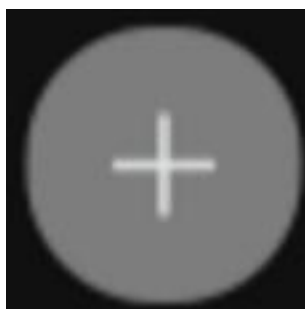
### 7.3.1.3 Video Playback Mode Setting

Enter the image settings, select video, in the video playback mode, you can set the video single cycle, list cycle.



### 7.3.1.4 Video Addition

To add videos, you can import them from a USB drive or SD card. Insert the device and select "SD Card/USB Drive" in the storage options to display videos stored in the "video\_rec" directory. Select the video you want to import, then click the import button to transfer it to the switchboard's internal storage.



Note: Importing a single video does not exceed 100M

No more than 1G of video is stored locally

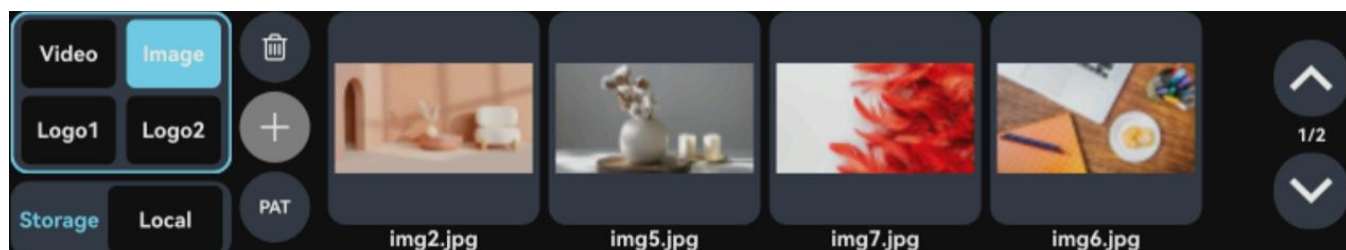
Videos stored locally cannot be added

You can't import video at the same time you're recording the machine

### 7.3.2 Image

In the image settings, select an image to display the default image stored in the device's internal storage. After inserting a USB drive or SD card (which can be connected simultaneously), choose SD card/USB drive as the storage option to view images from the SD card or USB drive. Use the page navigation button to browse previous or next pages.

Note: The image should be placed in the images folder under the root directory of the SD card/U disk.



## 7.3.2.1 Image Application

Select the image to be applied to PAT in the local disk or U disk/SD card, and click the PAT button to apply the image to PAT.

## 7.3.2.2 Image Deletion

Select the picture to be deleted in the local disk or U disk/SD card, and click the delete button to delete the picture.

## 7.3.2.3 Image Addition

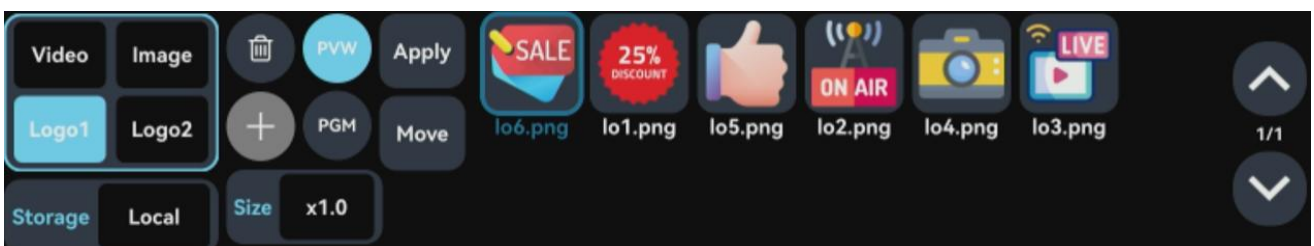
To import images, simply insert a USB drive or SD card and select the SD/USB storage option in the settings menu. The system will display images stored in the "images" directory on your device. Select the desired image and click the import button to transfer it to the switchboard's internal storage. Note: Images resolution support up to 1920×1080.

Images stored locally cannot be added

## 7.3.3 Logo

In the image settings, select "Logo 1/2" to display the default logo stored in the device's internal storage. After inserting a USB drive or SD card (which can be connected simultaneously), select "SD Card/USB Drive" for storage options. The system will show logos from either SD cards or USB drives, and you can navigate between pages using the pagination buttons.

Note: The logo should be placed in the logos folder under the root directory of the SD card/U disk.



### 7.3.3.1 Logo Application

Select the application logo in the local or U disk /SD card, click the application button, and then apply the logo to logo 1/logo 2.

### 7.3.3.2 Logo Deletion

Select the logo to be deleted in the local or U disk /SD card, and click the delete button to delete the logo.

### 7.3.3.3 Logo Addition

To import a logo, you can use a USB drive or SD card. Insert the device and select SD Card/USB Drive in the storage options menu. The logo will be displayed on the SD card/USB drive (make sure the image is stored in the "logos" directory). Select the logo you want to import, then click the Import button to transfer it to the device's internal storage.

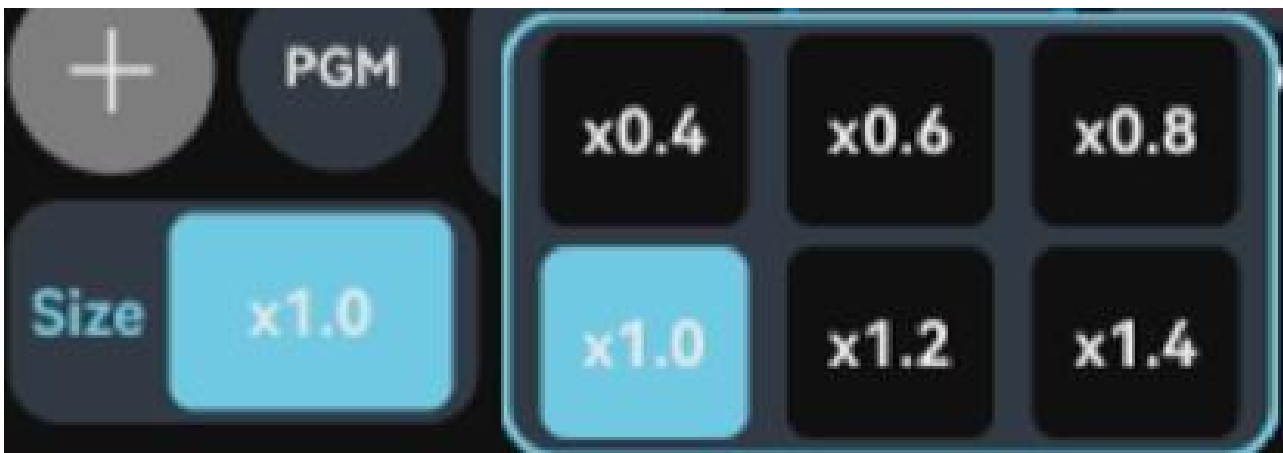
The resolution of the logo can be up to 960x540, and the formats supported are.png,.jpeg,.jpg,.bmp, etc.

Local stored logos cannot be added



### 7.3.3.4 Logo Size Setting

Enter the image setting, select logo 1/Logo 2, and click the size option box to select the desired size. The size specifications include  $\times 0.4$ ,  $\times 0.6$ ,  $\times 0.8$ ,  $\times 1.0$ ,  $\times 1.2$ ,  $\times 1.4$ , with  $\times 1.0$  as the default.

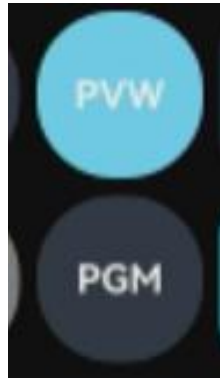


### 7.3.3.5 Logo Position

Enter the image settings, select logo 1/Logo 2, click the move button, the button is blue, and adjust the logo position through PTZ joystick.

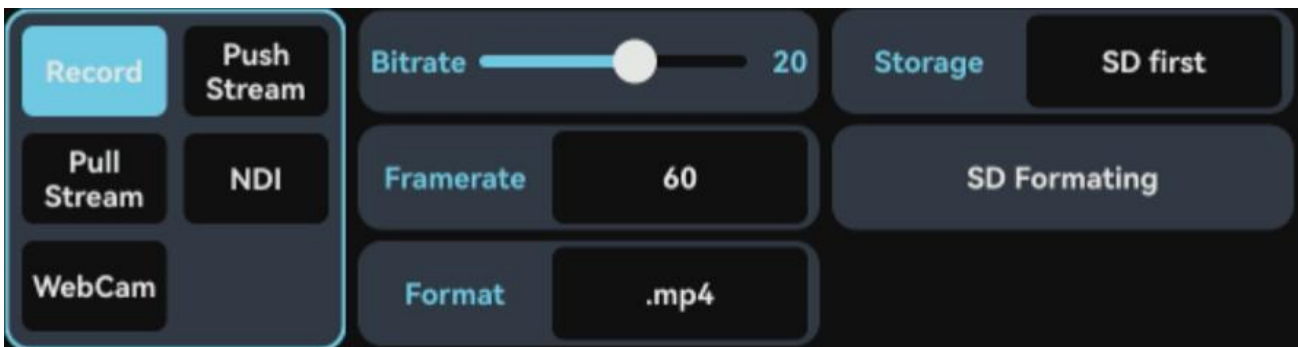
### 7.3.3.6 Logo ON/OFF Setting

Enter the image settings, select logo 1/Logo 2, click PVW/PGM button, set logo 1/Logo 2 to display/Close in PVW window/PGM window; the button is blue to represent open state.



## 7.4 Media

Video recording and playback: recorded videos can serve as auxiliary sources for program production. It uses H.264 encoding and supports both recording and multi-network streaming, allowing for separate recording and streaming bitrates, support for pull streaming, NDI, network camera acquisition.



### 7.4.1 Recording

The Touch-S switcher records the PGM's picture and sound into the "video\_rec" folder on the USB drive/SD card. It supports FAT32, NTFS, and exFAT formats for USB drives/SD cards.

Insert the USB drive/SD card, and the Touch-S will automatically generate the "video\_rec" folder on the USB drive/SD card. Click on the REC button, the button will light up in red, indicating that recording is in progress; click the REC button once, and the button will flash red, indicating that the recorded file is being saved; when the button light turns off, the save is complete.

Note: When the capacity of U disk /SD card is insufficient, the system will automatically stop recording;

A single file recorded by FAT32 USB drive /SD card is up to 4G, and automatically saved to the next file when it reaches 4G;

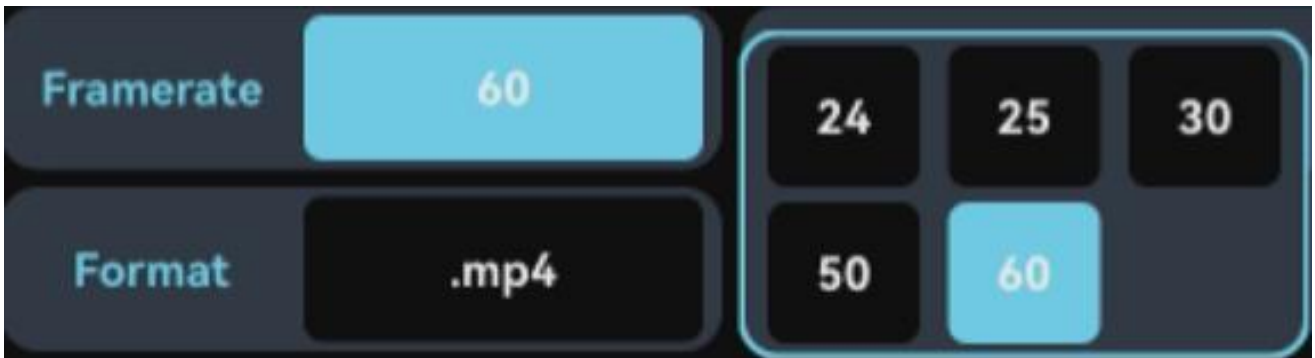
When recording is not stopped normally (such as recording interruption, USB/disk card is unplugged), the recorded files will not be used normally.

### 7.4.1.1 Bit Rate

Users can modify the recording bit rate. Enter into media Settings, select Recording, and set the bit rate using the slider. The bit rate ranges from 5 to 30. The default bit rate is 20.

### 7.4.1.2 Frame Rate

Users can modify the recording frame rate. Enter into media Settings, select recording, click the frame rate option box, and the frame rate range is 24,25,30,50,60. The default frame rate is 60.



### 7.4.1.3 Format

Users can modify the recording format. Enter into media Settings, select Record, and click the format box to modify it to ".mp4", ".ts", or ".flv". The default format is ".mp4".



### 7.4.1.4 Storage Path

Users can customize the storage path of recorded videos. In media Settings, select recording and click the storage location option box to modify it to SD card priority or USB drive priority. The default is SD card priority.

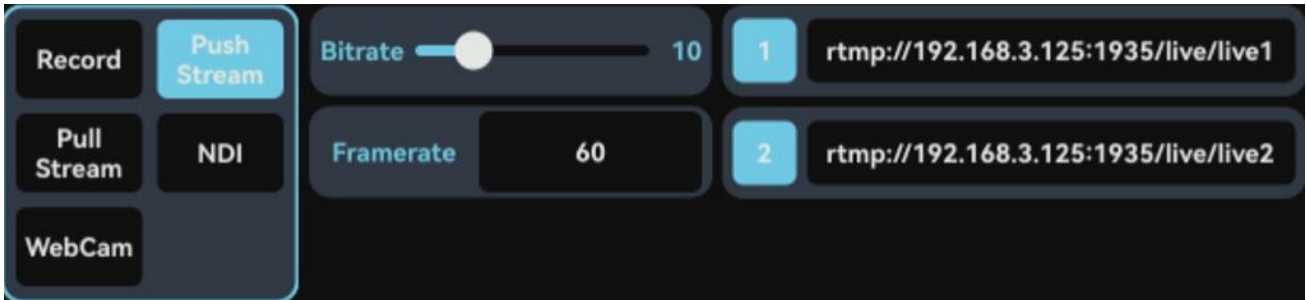


### 7.4.1.5 Formatting

In the media setting, select Record and click Format to format the SD card as exFAT; if no SD card is inserted, it will prompt "No SD Card inserted".

## 7.4.2 Push Stream

Enter the media settings, select Stream. Configure the bitrate and frame rate for streaming. The STREAM button activates when you click the input field to manually enter or configure a streaming address via host computer software. You can save two streaming addresses. Pressing the STREAM button lights up the green indicator, starting the stream. Pressing it once extinguishes the indicator, terminating the stream.

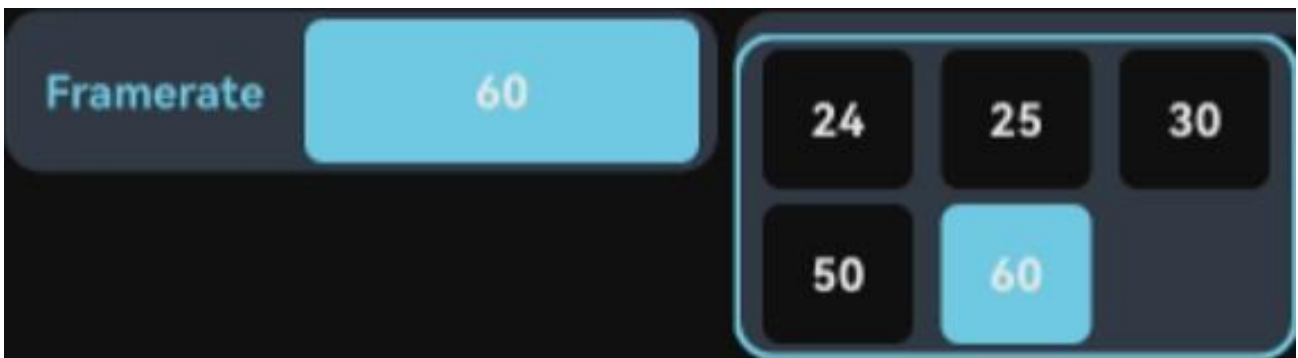


### 7.4.2.1 Bit Rate

Users can modify the stream rate. Enter into the media Settings, select Stream, and set the rate using the slider bar. The range of rates is 5-30. The default rate is 10.

### 7.4.2.2 Frame Rate

Users can modify the streaming frame rate. Enter into the media Settings, select streaming, and click the frame rate option box. The frame rate range is 24,25,30,50, and 60. The default frame rate is 60.



### 7.4.2.3 Push Stream Control

Users can control the two push stream switches. Enter the media Settings, select pushstream, click the 1 and 2 buttons in front of the pushstream address to set it up. The button is blue, that is open.

## 7.4.3 Pull Stream

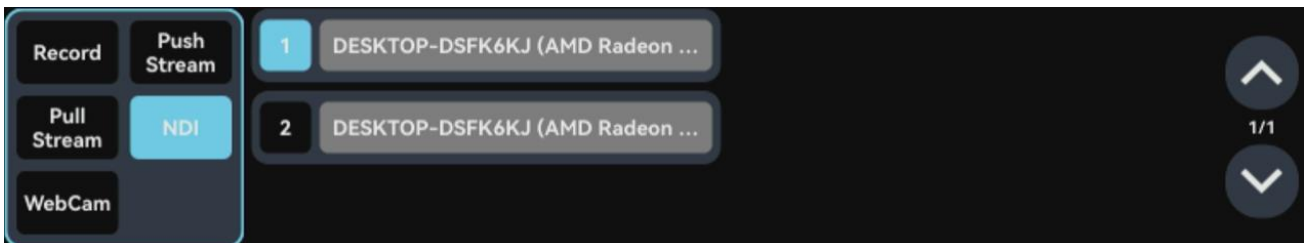
Enter the media settings, select the pull stream. Click the pull stream address input box and manually enter the pull stream address. Alternatively, you can set the pull stream address through the host computer software (you can fill in up to 6 addresses). After setting the address, click the blue number button in front of the pull stream address to start streaming.



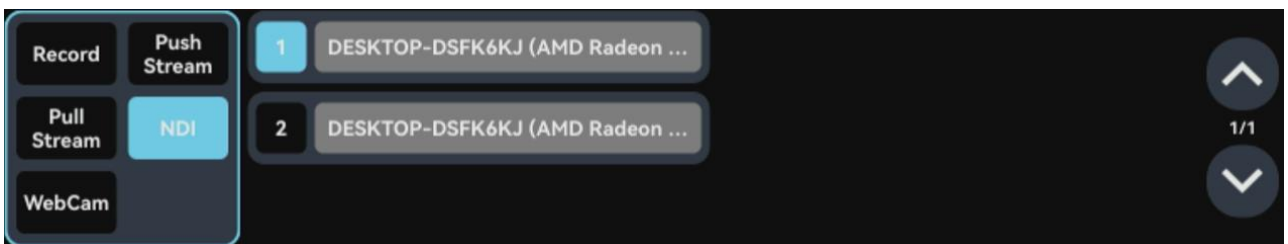
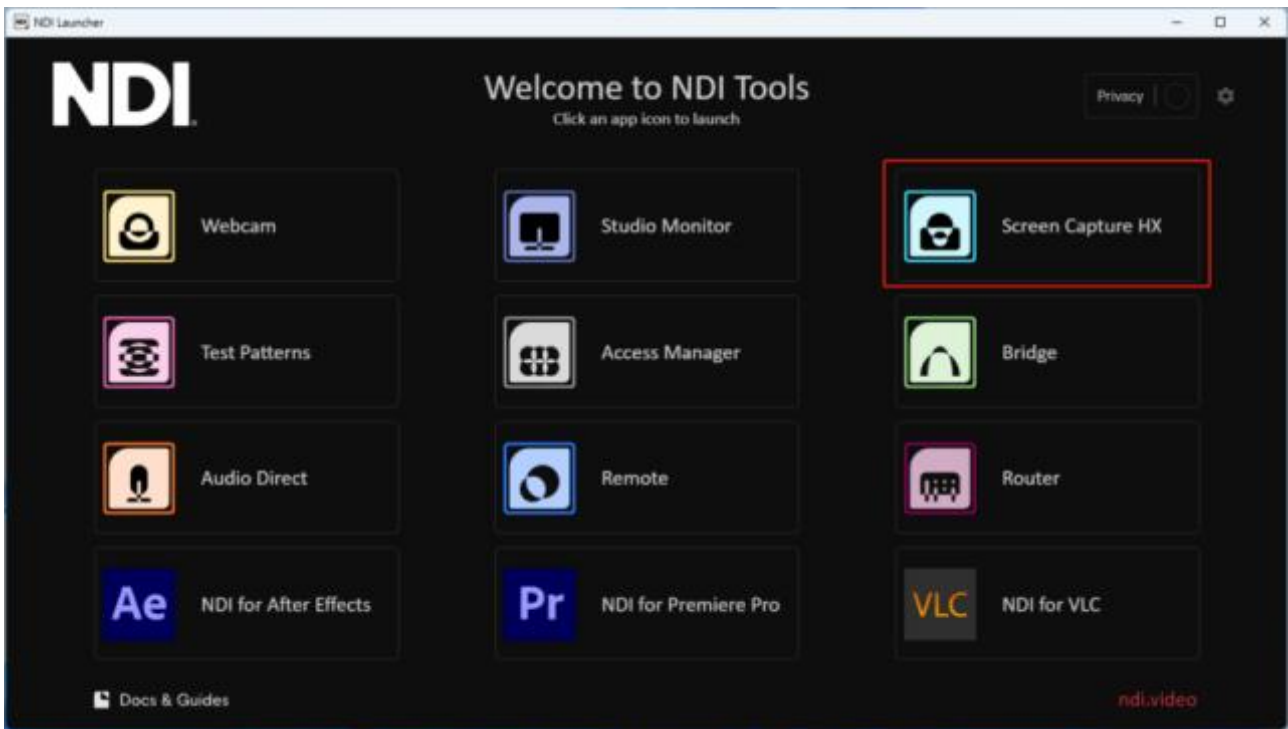
## 7.4.4 NDI

NDI is an efficient network transmission protocol that enables audio and video signals to be transmitted in real time over IP networks with low latency and high picture quality. The NDI function of the switcher is to realize the networked transmission, switching and processing of audio and video signals through NDI technology, which makes video production and transmission more efficient and convenient.

When PTZ camera and the switcher stay in the same LAN, the NDI address can be found in the NDI page of the switcher, click on the numeric button in front of the NDI address, the numeric button is blue, that is, it will be opened, and the screen of the PTZ camera will be displayed in the MEDIA window.



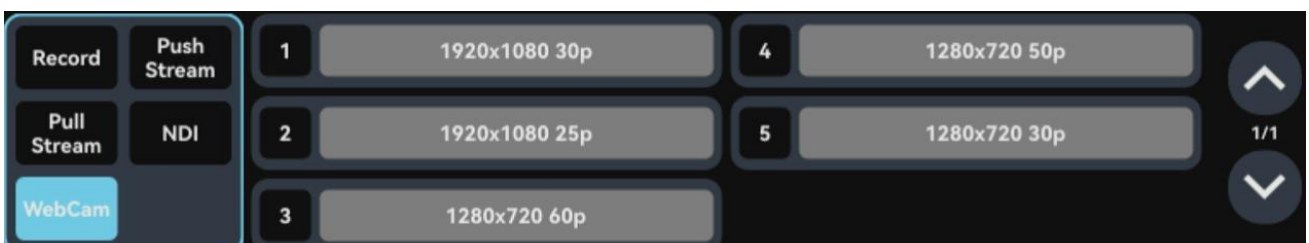
The computer and the switcher remain on the same LAN, open the switcher's network; open the NDI software in the computer, click Screen Capture HX, then in the switcher's NDI page, you can see the NDI address, click on the numeric button in front of the NDI address, and the numeric button is blue that is, open, the computer's desktop will be displayed in the MEDIA window.



## 7.4.5 Webcam

Connect the USB cable to both the switcher's port and the camera's port. Enter the Media settings, select webcam to view supported resolution options. Click the blue number button next to the resolution value (marked as "ON") to enable it, after which the camera interface will appear in the MEDIA window.

Note: The webcam supports a resolution up to 1920x1080 30p, and the frame rate does not support decimal points.



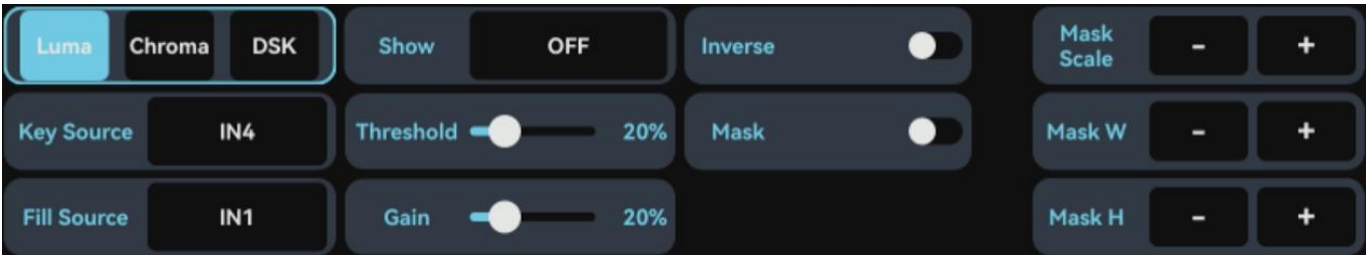
# 7.5 Chroma

## 7.5.1 Luma Key

The Luma key provides a method for synthesizing the background image with the fill source according to the brightness level in the key source.

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.



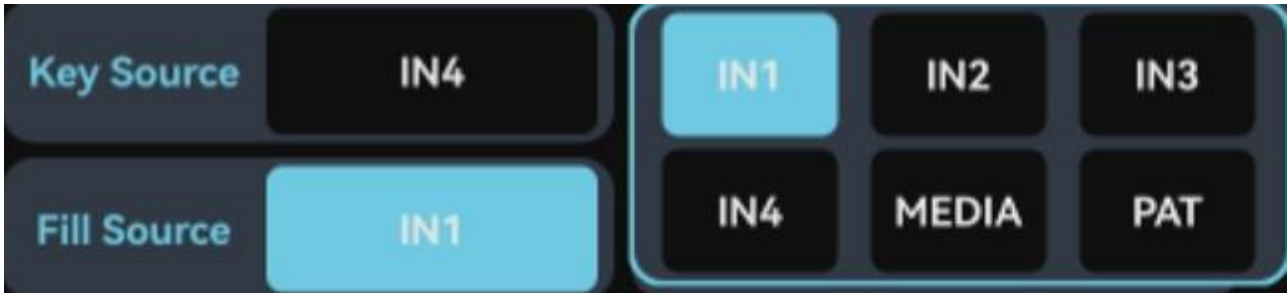
### 7.5.1.1 Key Source

Users can customize and adjust the key source. Enter the Luma key settings, click the key source option box, the key source can be selected IN1, IN2, IN3, IN4, media, PAT. The default key source is IN4.



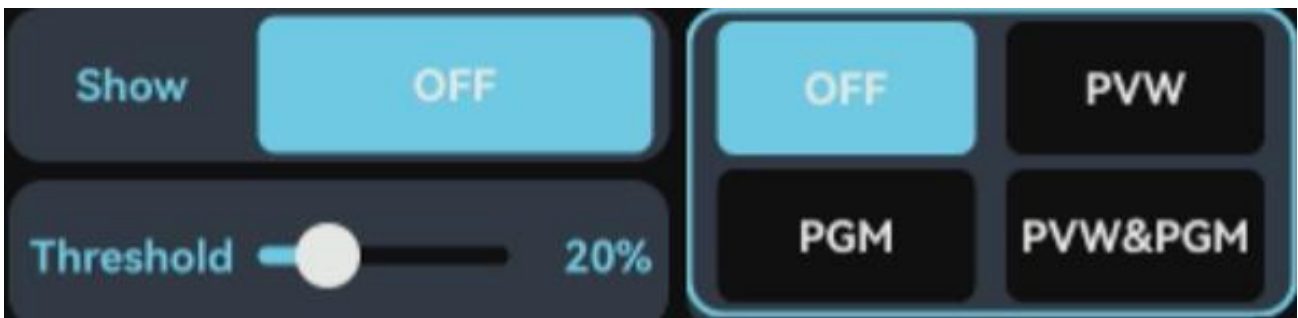
## 7.5.1.2 Fill Source

Users can customize and adjust the fill source. Enter the Luma key settings, click the fill source option box, the fill source can be selected IN1, IN2, IN3, IN4, media, PAT. The default key source is IN1.



## 7.5.1.3 Open

Enter the Luma key settings, set the position of the Luma key function in the enable box. You can select OFF, PVW, PGM, PVW&PGM.



## 7.5.1.4 Threshold

In the Luma key, the threshold defines which brightness ranges of pixels will be subtracted, directly determining the keying effect. When a part of the key source exceeds this threshold, it gets removed and filled with the fill source. The threshold ranges from 0% to 100%, with the default value set at 20%.

## 7.5.1.5 Gain

In the Luma key, the gain sets the smoothness of the border when the drawing is drawn. The higher the value, the smoother the border. The gain ranges from 0 to 100%, and the default gain value is 20%.

## 7.5.1.6 Inverse

Enter the Luma key settings, turn on inversion to remove areas below the threshold. It is disabled by default.

## 7.5.1.7 Mask

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

### 7.5.1.7.1 Mask Enable

Enter the Luma key settings, you can open or close the mask function. It is disabled by default.



### 7.5.1.7.2 Mask Size Setting

Enter the Luma key settings, open the mask function. Click the +/- button for width and height to adjust both dimensions simultaneously. Click the +/- button for width to adjust the mask width individually, and click the +/- button for height to adjust the mask height individually.



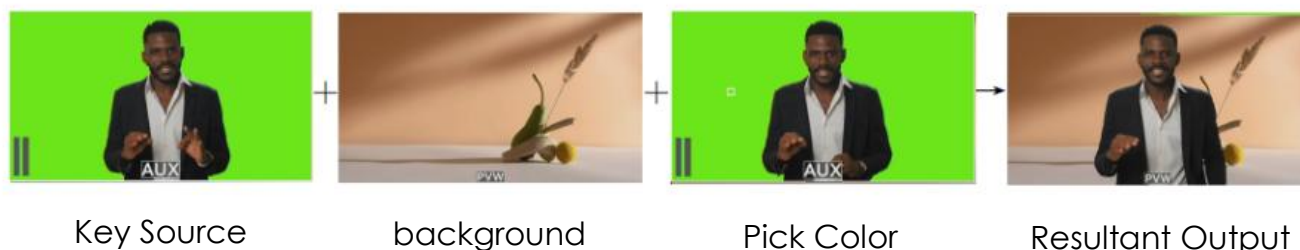
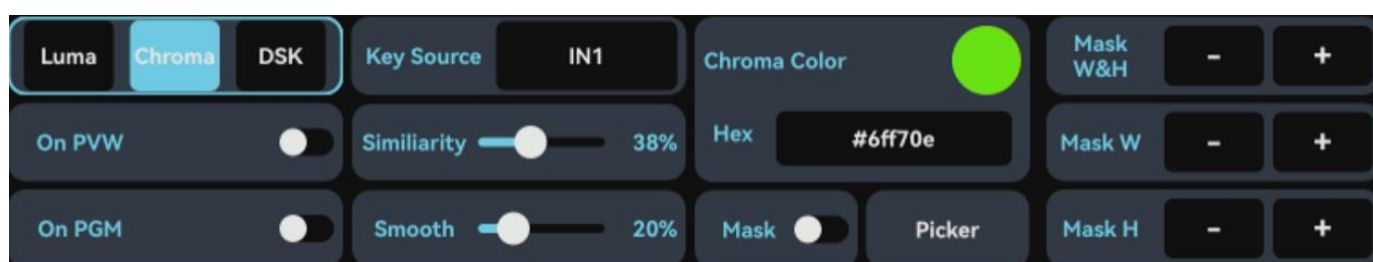
### 7.5.1.7.3 Mask Position Setting

Enter the Luma key settings, open the mask function, you can move the position of the mask through the PTZ five-way key.

## 7.5.2 Chroma Key

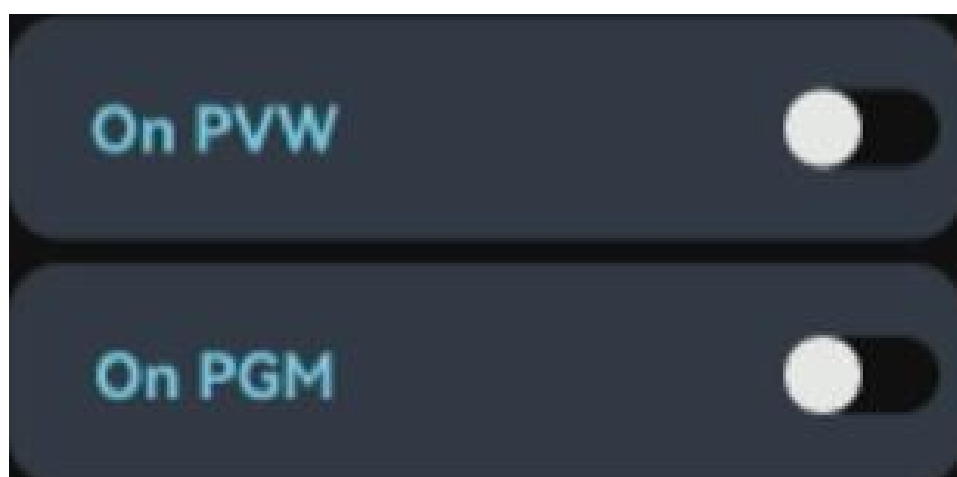
Chroma key is a visual effects and post-production technique that combines two images or video streams by separating them based on hue (chromatic range). This technology has been widely used across industries to remove backgrounds from photos or videos, particularly in news broadcasting, film production,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

Enter the chroma key, select the key source, and set the effect of the chroma key. The chroma key can be applied in PVW and PGM.



### 7.5.2.1 Chroma Key Effect Function Setting

Enter the chroma key settings, you can set whether the chroma key effect is applied to PVW or PGM.



## 7.5.2.2 Key Source

Users can customize and adjust key sources. When entering the chroma key settings, click the Key Source option box. Available options include IN1, IN2, IN3, IN4, Media, PAT, PIP1, and PIP2. The default key source is set to Media.



## 7.5.2.3 Similarity

Enter the Chroma key, the similarity setting set the range of similarity to the color that will be removed, and the larger the number, the larger the range of the matting. The similarity ranges from 1% to 100%, and the default similarity is 38%.

## 7.5.2.4 Smoothness

Enter the Chroma Key, Smooth sets the smoothness of the edges when applying a key. The larger the number, the smoother the border. Smoothness ranges from 1% to 100%, with a default smoothness of 20%.

## 7.5.2.5 Chroma Key Color

Users can customize and adjust the Chroma key color.

### 7.5.2.5.1 Color

Users can customize the color to be extracted in the color selector. To enable chroma keying, open the color selection dialog in the extraction color panel. Alternatively, you can click the Hex option to manually set the color code through the soft button interface that appears, then press Enter to apply the settings.



## 7.5.2.5.2 Color Selection

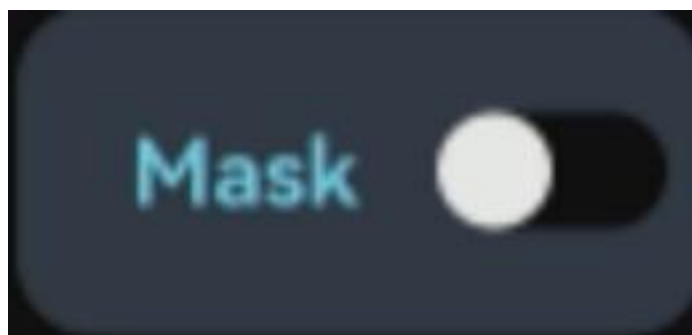
Users can customize the color to be extracted in the key source. Enter Chroma key settings and click Select Color to extract the color from the key source through PTZ five-direction keys.

## 7.5.2.6 Mask

The mask function adjusts the displayed portion of the image using a mask layer.

### 7.5.2.6.1 Mask Enable

Enter the Chroma key settings, you can enable or disable the mask function. The default setting is off.



### 7.5.2.6.2 Mask Size Settings

Enter the Chroma key settings, open the mask function. Click the +/- buttons for width and height to adjust both dimensions simultaneously. Click the +/- button for width to adjust it individually, and click the +/- button for height to adjust it individually.

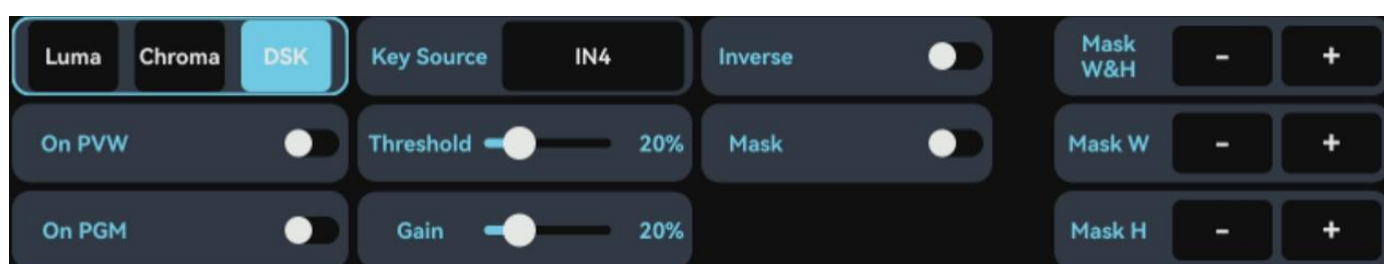


## 7.5.2.6.3 Mask Position Settings

Enter the Chroma key settings, open the mask function, you can move the position of the mask through the PTZ five-way key.

## 7.5.3 DSK Key

The Touch-S switcher supports DSK (Downstream Keying) keying, allowing users to easily add professional subtitles or graphics during broadcasts, meeting television broadcasting standards and enhancing the quality of the program and the viewer's experience.



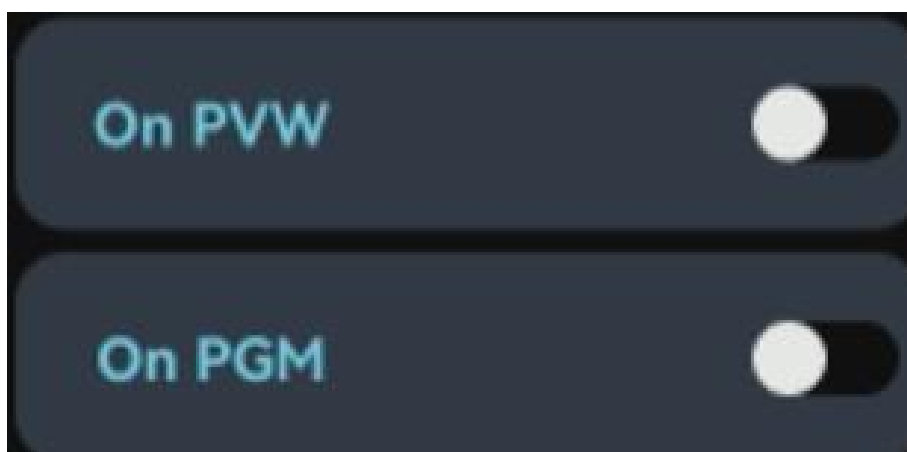
Key Source

background

Resultant Output

### 7.5.3.1 DSK Keying Effect Settings

In the DSK key setting, you can set whether the DSK effect is applied to PVW or PGM.



## 7.5.3.2 Key Source

Users can customize and adjust the key source. Enter the DSK key settings, click the key source option box, the key source can be selected IN1, IN2, IN3, IN4, media, PAT. The default key source is IN4.



## 7.5.3.3 Threshold

In the DSK key, the threshold is set to a similar range to the brightness range. The larger the value, the larger the range of the cutout. The threshold range ranges from 0% to 100%, with the default threshold being 20%.

## 7.5.3.4 Gain

In the DSK key, the gain sets the smoothness of the border when the drawing is set. The higher the value, the smoother the border. The gain ranges from 0% to 100%, and the default gain value is 20%.

## 7.5.3.5 Inverse

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

## 7.5.3.6 Mask

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

### 7.5.3.6.1 Mask Enable

Enter the DSK key settings, you can open or close the mask function. It is turned off by default.



## 7.5.3.6.2 Mask Size Settings

Enter the DSK key settings, open the mask function. Click the +/- button for width and height to adjust both dimensions simultaneously. Click the +/- button for width to adjust the width individually. Click the +/- button for height to adjust the height individually.

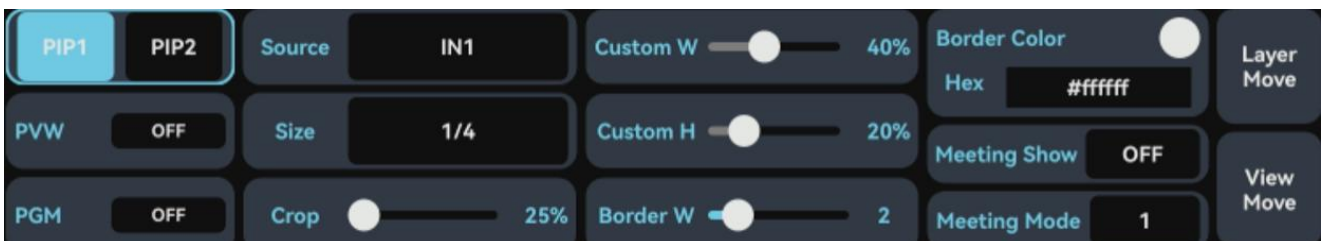


## 7.5.3.6.3 Mask Position Settings

Enter the DSK key setting, open the mask function, you can move the position of the mask through the PTZ five-way key.

## 7.6 Picture-In-Picture

The two picture-in-picture can be cropped and resized to meet the application requirements of various scenarios; the multi-picture function helps users to start meetings quickly remotely.

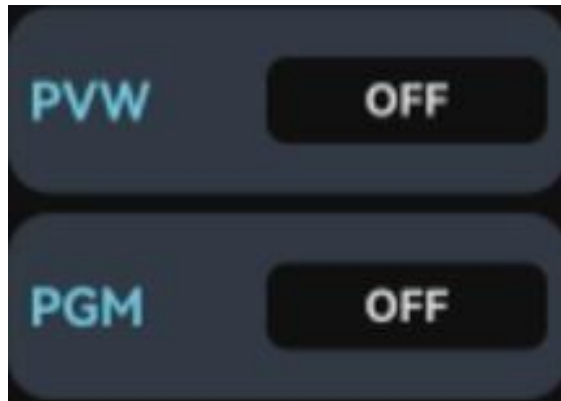


### 7.6.1 Picture-In-Picture Settings

Enter the picture-in-picture settings, select PIP1/PIP2 and set PIP1/PIP2.

## 7.6.1.1 Picture-In-Picture On

Enter the picture-in-picture settings, you can set the picture-in-picture function in PVW and PGM.



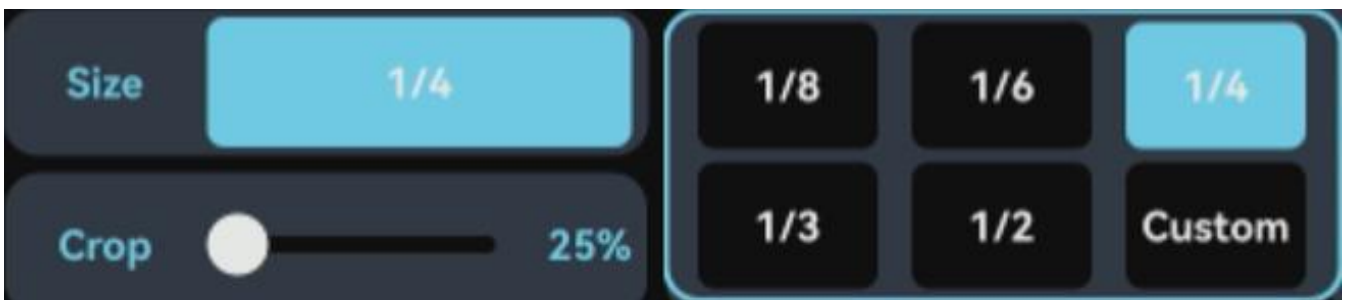
## 7.6.1.2 Source Selection

Users can modify the source selection for half of the picture-in-picture. When entering the picture-in-picture settings and clicking the input source option box, the source selection menu appears with options including IN1, IN2, IN3, IN4, MEDIA, and PAT. Picture-in-picture 1 defaults to IN1, while Picture-in-picture 2 defaults to IN4.



## 7.6.1.3 Size Selection

Users can adjust the size of one-half of the picture-in-picture. Click the size selection box to choose the picture-in-picture size, which can be selected as 1/8, 1/6, 1/4, 1/3, 1/2, or custom. The default size of picture-in-picture 1 is 1/4, and the default size of picture-in-picture 2 is 1/2.



## 7.6.1.4 Custom Width & Height

Users can customize the size of the inset window. The dimensions are adjustable through sliders for width and height, with ranges from 0% to 100%. The default settings are: Width 40% and Height 20% for Inset Window 1; Width 20% and Height 40% for Inset Window 2.

## 7.6.1.5 Crop

The crop function allows users to select specific areas within a picture-in-picture display. When entering the picture-in-picture settings, select Picture-in-Picture 1/2 and adjust the displayed portion using the slider. By default, Picture-in-Picture 1 uses 25% of the screen area, while Picture-in-Picture 2 uses 50%.

## 7.6.1.6 Border Width Settings

The border width setting applies to both picture-in-picture 1 and picture-in-picture 2. Users can customize the width of the picture-in-picture border. Enter the Picture-in-picture Settings and adjust the width of the picture-in-picture border by adjusting the slider, which ranges from 2 to 16. The default width is 2.

## 7.6.1.7 Border Color

Users can customize their preferred color through the color selector. To access this feature, enter the Picture-in-Picture settings and click the border color option to open the color selection dialog. Alternatively, you can click the Hex color code option to manually set the color code using the soft keyboard that appears. Finally, press Enter to apply the changes.

## 7.6.1.8 Layer Move

Enter the picture-in-picture settings, click the layer move button, the layer move button appears blue, and move the layer position through the PTZ five-way key.

## 7.6.1.9 Screen Movement

Enter the picture-in-picture setting, click the screen move button to display blue, and move the position of the screen through the PTZ five-way key.

## 7.6.2 Conference Settings

The conference function can display the signals of four input channels on the pre-monitoring screen or playback screen, or display them in two screens at the same time.

## 7.6.2.1 Meeting Status

Users can customize the display of the screen on PVW, PGM, or both. Enter the picture-in-picture Settings and click the Conference Status box to select OFF, PVW, PGM, or PVW&PGM. The status is off by default.



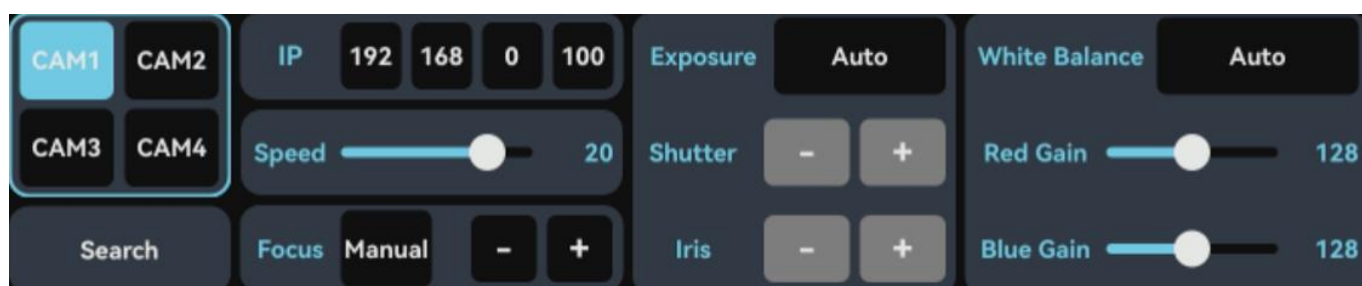
## 7.6.2.2 Meeting Mode

Enter the picture-in-picture setting and click the Conference Mode option box to select one of four modes: 1, 2, 3, or 4. The default mode is 1.



## 7.7 PTZ

The T10S switch supports the VISCA camera control protocol. The five-way key can be used to quickly and conveniently control the camera movement. At the same time, the camera menu can be used to set the camera's focus, exposure, white balance and other parameters. In addition, it also supports the camera position storage function, which can be quickly invoked (see "5.3 Camera Control Operation")



## 7.7.1 Camera Selection

Enter the PTZ setting and click to select the camera position to be set.

## 7.7.2 Camera Connection

The PTZ camera is connected to the Internet and connected to the switch via an HDMI cable. The camera needs to be on the same LAN as the switch.

### 7.7.2.1 Search

Enter the PTZ setting. After selecting the camera position, click the search button to display all the IP addresses of the cameras found in the same LAN. Click the camera IP address to be connected, and then click the return button to return to the PTZ setting page.



### 7.7.2.2 Manual IP

Enter the PTZ settings, select the camera position, and manually set the IP address in the IP address bar.

## 7.7.3 Camera Settings

### 7.7.3.1 Speed

Enter the PTZ settings and adjust the camera lens movement speed by sliding the speed bar. The speed range is 1-24, and the higher the value, the faster the lens moves. The default speed is 20.

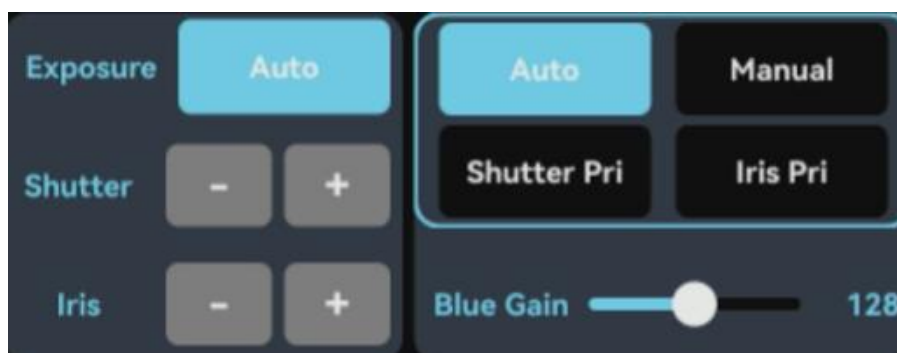
## 7.7.3.2 Focus

Enter the PTZ settings, click the focus option box to set autofocus or manual focus. Manual focus can be set by clicking + -.



## 7.7.3.3 Exposure

Enter the PTZ settings, click the Exposure option box to select exposure modes: Automatic, Manual, Shutter Priority, or Aperture Priority. When selecting Manual Exposure, adjust the corresponding +/- buttons for shutter speed and aperture settings. Note that Shutter Priority only applies when the shutter speed is selected, while Aperture Priority only affects the aperture setting.



## 7.7.3.4 White Balance

Enter the PTZ settings, click the white balance option box to set the automatic or manual mode. The manual mode can be set by sliding the red gain and blue gain bar, and the range of gain is 0-255. The default gain value is 128.



## 7.8 Interface

Interface functions control the layout of monitors and output screens



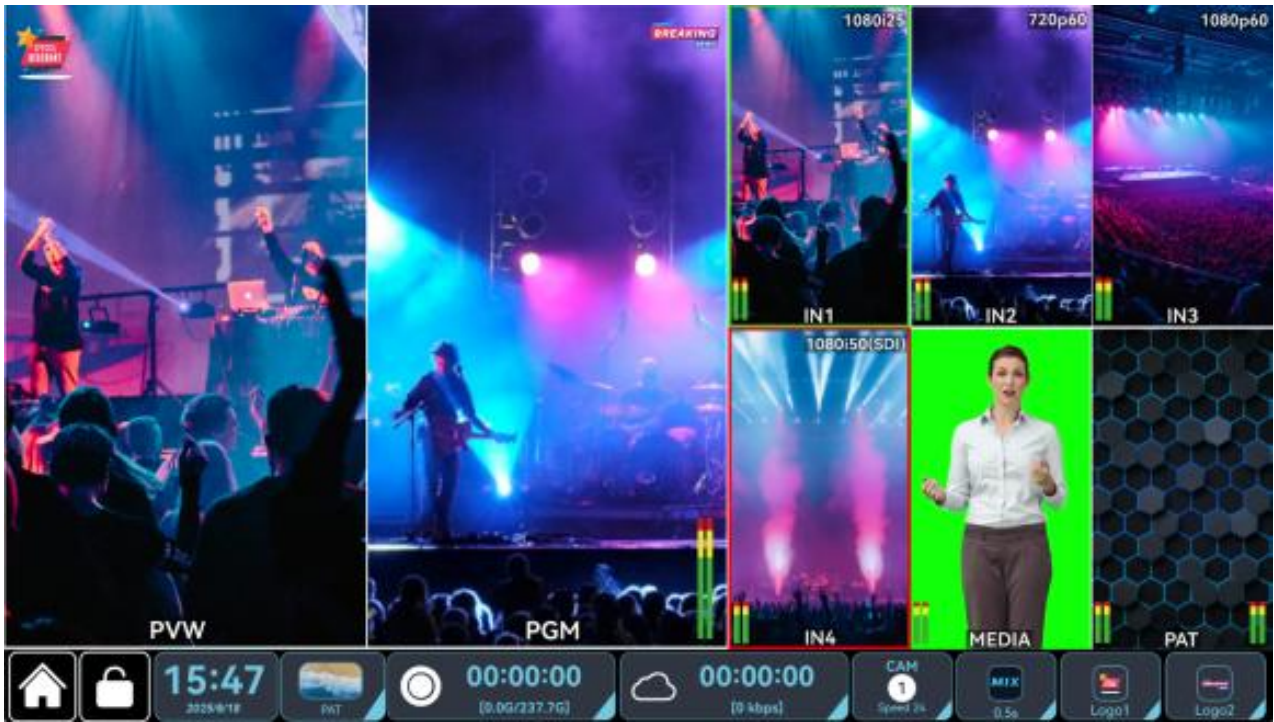
### 7.8.1 Multi-screen Monitoring

Enter the interface Settings and select horizontal or vertical in multi-screen monitoring.

Diagram of landscape mode:



Diagram of vertical mode:



Schematic diagram of vertical screen mode output:



## 7.8.2 Recording/Streaming Direction

Users can change the direction of streaming/recording as needed, which can be set horizontally or vertically.

## 7.8.3 Output Frame Rate Settings

Enter the interface Settings, click the output frame rate option box to select 24p,25p,30p,48p,50p,60p. The default is 60p.



## 7.8.4 Output Source

Enter the interface setting, in the output source module, click the corresponding option boxes of AUX, PGM, LCD and SDI to select IN1, IN2, IN3, IN4, MEDIA, PAT, CIn PGM, PGM, CIn PVW and PVW.

## 7.8.5 Input Source

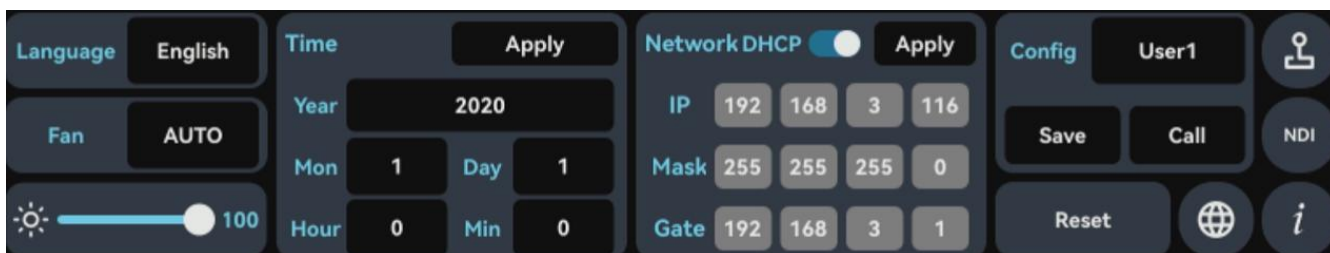
Users can customize and modify the priority display paths of four input signals. Enter the interface Settings, in the input source module, click the option boxes corresponding to IN1, IN2, IN3, and IN4 to select input HDMI or SDI. By default, SDI signal is prioritized.

## 7.8.6 Screen Flip

Users can adjust the flip settings of individual inputs. In the interface Settings, in the screen flip option, click the option boxes corresponding to IN1, IN2, IN3, IN4, and MEDIA to select OFF, horizontal, vertical, and horizontal & vertical.

## 7.9 Settings

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



### 7.9.1 Language Settings

Enter the system Settings, click the language box, you can set Chinese, English, the default display is English.



### 7.9.2 Fan Settings

Enter the system Settings, click the fan option box, select the fan mode, by default is automatic mode.

Automatic mode: the fan speed is controlled according to the temperature of the switching table. The higher the temperature, the faster the speed.

Fan mode: Turn off the fan and switch to automatic mode only when a certain temperature is reached.

Open mode: The fan is on all the time during operation.



### 7.9.3 Backlight Settings

Enter the system Settings and adjust the backlight by sliding the backlight bar from 1 to 100. The higher the value, the brighter the screen.

## 7.9.4 Time/Date Settings

Enter the system Settings, set the year, month, day, hour and minute, and click apply after setting.

## 7.9.5 Network Settings

Enter the network Settings, open DHCP, click on the application, and automatically connect to the network.

Close DHCP, manually enter IP, mask, gateway, click apply, you can manually connect to the network.

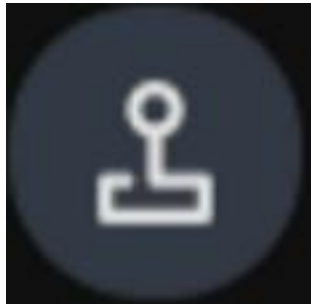
## 7.9.6 User Configuration

The User function allows you to save 6 customized configurations and quick recall configurations.

Click the User Configuration option box, select the user and click Save to save the current configuration in the user; select the user and click Recall to recall the saved user configuration.

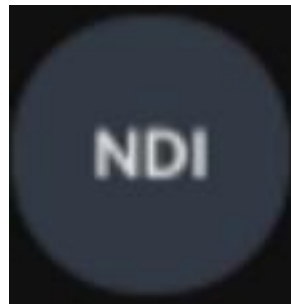
## 7.9.7 T-Bar Calibration

Enter the system Settings, click the joystick, and follow the system prompts to calibrate the 5-way key.



## 7.9.8 NDI

Enter the system Settings and click NDI to view the NDI information of the device.



## 7.9.9 Reset

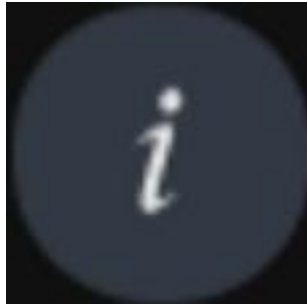
Enter the system Settings, click reset, click OK in the pop-up window, the switcher will perform a reset operation, after the reset, all configurations will be restored to the default state.

## 7.9.10 Remote Control

Keep the switcher and the mobile phone in the same LAN, enter the system settings, click remote control, use your phone's camera to scan the remote QR code. This will take you to the remote control interface on your phone.

## 7.9.11 Check Software Version

Enter the system settings, click version, will display the serial number and version date.



## 8. Host Computer Software

### 8.1 Connect To The Host Computer Software

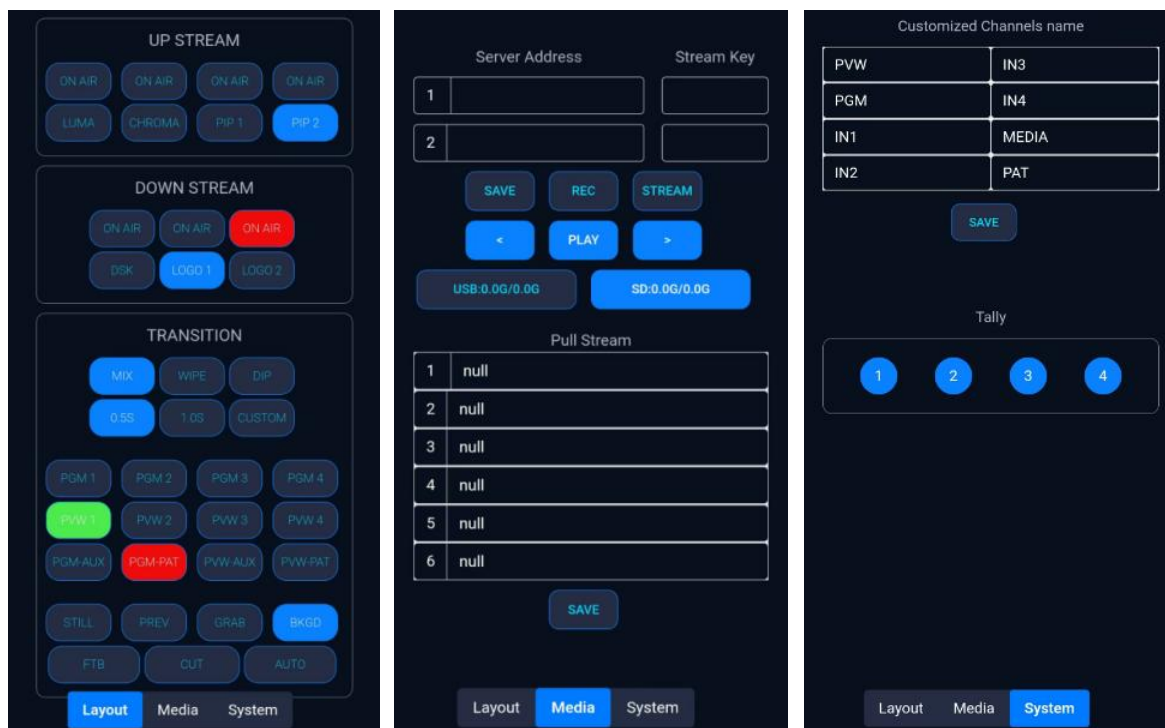
#### 8.1.1 Connect The Computer To The Host Computer Software

By automatically obtaining or manually setting the network IP address of the switcher, ensure that both the computer and switcher are connected to the same local area network. Open a web browser on your computer, enter the switcher's IP address, press Enter to connect, and access the main interface of the host computer, which is the switcher page.



## 8.1.2 Connect the mobile phone to the host computer software

To ensure the mobile phone and video switcher are on the same LAN, enter the video switcher's IP address in the mobile browser and open it to connect to the host computer software. Alternatively, go to the video switcher's setting module, select Network-Remote, and scan the QR code in Remote with your mobile phone to connect to the host computer software.



## 8.2 Switcher Front Panel Control

The front panel of the switcher contains buttons and a push rod. Clicking the button can control the corresponding button on the switcher, or set the transition time; pushing the push rod can perform the push rod transition operation.



## 8.3 Multimedia Settings

### 8.3.1 Push Stream Settings

#### 8.3.1.1 Set the stream address

Custom Stream Address:

Enter the host computer software page, enter the server address and streaming key (for live streaming platforms like Bilibili and Huya) in the "Push Stream Address" field, and click the "Push Stream" button to start the stream.

Default Streaming:

Enter the host computer software page, enter the default server address and streaming key, and click the "Push Stream" button to start local streaming.

## 8.3.2 Pull Stream Settings

Enter the streaming address on the host computer software (up to 6 addresses can be entered), click Save and synchronize to the switcher.

Pull Stream

1	null
2	null
3	null
4	null
5	null
6	null

**SAVE**

## 8.3.3 Storage Path Settings

Displays the storage path of the recorded video.

USB:0.0G/0.0G
SD:0.0G/0.0G

## 8.4 System Settings

The user can customize and modify the name of UMD on the host computer software interface

Customized Channels name

PVW	IN3
PGM	IN4
IN1	MEDIA
IN2	PAT

**SAVE**



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