AVMATRIX



SHARK S5

5-Channel Touch Control Video Switcher

USING THE UNIT SAFELY

Before using this unit, please read below warning and precautions which provide important information concerning the proper operation of the unit. Besides, to assure that you have gained a good grasp of every feature of your new unit, read below manual. This manual should be saved and kept on hand for further convenient reference.



Warning And Cautions

※ Operate unit only on the specified supply voltage.

※ Disconnect power cord by connector only. Do not pull on cable portion.

※ Do not place or drop heavy or sharp-edged objects on power cord. A damaged cord can cause fire or electrical shock hazards. Regularly check power cord for excessive wear or damage to avoid possible fire / electrical hazards.

※ Ensure unit is properly grounded at all times to prevent electrical shock hazard.

※ Do not operate unit in hazardous or potentially explosive atmospheres. Doing so could result in fire, explosion, or other dangerous results.

※ Handle with care to avoid shocks in transit. Shocks may cause malfunction. When you need to transport the unit, use the original packing materials or alternate adequate packing.

※ Do not remove covers, panels, casing, or access circuitry with power applied to the unit! Turn power off and disconnect power cord prior to removal. Internal servicing / adjustment of unit should only be performed by qualified personnel.

※ Turn off the unit if an abnormality or malfunction occurs. Disconnect everything before moving the unit.

Please select the best installation position

※ Do not cover the air inlet and outlet of the unit, make sure that there is sufficient space around the ventilation holes on both sides to avoid blockage of ventilation.

※ To avoid falling or damage, please do not place this unit on an unstable cart, stand, or table. Make sure install this unit on a very stable horizontal surface for use.

※ Do not use this unit in a humid, dusty location or near water. Avoid liquids, metal pieces or other foreign materials to enter the unit.

※ Do not use this unit in an environment where the temperature is too cold or too hot.

※ Avoid placing this unit in direct sunlight or in a place where hot air from other products can blow.

Note: due to constant effort to improve products and product features, specifications may change without notice

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1. Introduction

1.1. Overview

The SHARK S5 is a high-performance, multi-format 5-channel HDMI & SDI + AUX video switcher integrated with a built-in 5.5-inch IPS LCD touch screen display. It supports versatile 5-channel signal inputs: 4 dedicated channels that can freely mix HDMI and SDI signals to match diverse front-end equipment, and 1 multi-functional AUX channel supporting local playback, USB camera, pull stream, and NDI sources(Optional). It features HDMI/SDI PGM output and HDMI Multiview output. Combining video switching, audio mixing, advanced transitions, Luma/Chroma Key, Downstream Key (DSK), LOGO overlay, Picture-in-Picture (PIP), PTZ control, direct network streaming, and recording, the SHARK S5 delivers an all-in-one solution for professional video production workflows.



1.2. Key Features

- Built-in 5.5-inch touch screen
- Inputs: 4×SDI / 4×HDMI, 1× AUX channel (5 total channels)
- Outputs: 2×SDI/HDMI PGM, 1×HDMI Multi-view, 1×USB Type-C
- Supports RTMP/RTMPS/SRT streaming, recording via USB drive and SD card
- Connect to computer via USB for capture and live streaming
- Professional Upstream Key(Chroma Key/Luma Key/PIP1/PIP2), Downstream Key (DSK/LOGO overlay)
- Supports T-bar, Auto and Cut transitions, with multiple effects: MIX, DIP, WIPE
- Full audio mixer: embedded audio from 4 SDI/HDMI + AUX + 2 MIC inputs, 1× Line out, 1× 3.5mm headphone monitoring jack
- PTZ camera control via VISCA over IP & ONVIF protocols
- Multiview layout: landscape & portrait mode
- FTB Fade-To-Black, STILL, GPIO Tally port support
- Assignable capture/stream sources: Input 1–4, AUX, PGM, Clean PGM, PVW, Color Bar

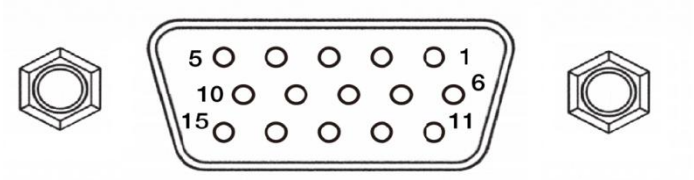
2. Interfaces

2.1. Interface Overview



1	LAN port (Firmware upgrade, streaming, Web control)	**9**	Power Switch (ON/OFF)
2	USB REC port (For recording, importing images, and LOGO)	**10**	Tally Port (GPIO)
3	HDMI Multiview Output ×1	**11**	SD Card Slot (For recording)
4	HDMI Output A ×1 / HDMI Output B ×1	**12**	USB Type-C Output ×1 (For PC capture)
5	HDMI Inputs ×4	**13**	Line Out (3.5mm) ×1
6	SDI Inputs ×4	**14**	Headphone Monitor Output (3.5mm) ×1
7	SDI Output A ×1 / SDI Output B ×1	**15**	MIC IN Audio Inputs ×2
8	DC 12V Power Input (8V - 24V support) ×1		

2.2. Tally PIN Definition



PIN	Definition	PIN	Definition
11	PGM-IN1	**6**	PVW-IN1
12	PGM-IN2	**7**	PVW-IN2
13	PGM-IN3	**8**	PVW-IN3
14	PGM-IN4	**9**	PVW-IN4
15	PGM-IN5	**10**	PVW-IN5
5	GND	**1**	GPIO
2	GPIO		

3. Specifications

INTERFACE	
Video Input	SDI ×4, HDMI ×4, AUX Input ×1
AUX Input Functions	Supports local playback, USB camera, pull stream, and NDI sources(Optional)
Network	LAN ×1 for firmware updates, streaming and Web control
Capture Output	USB 3.0 Type-C ×1 (UVC / UAC compliant)
PGM Output	HDMI PGM ×2, SDI PGM ×2
Multiview Output	HDMI Multiview ×1
Audio Input	MIC ×2
Streaming	LAN ×1
Audio Output	Line Out ×1, 3.5mm Headphone Jack ×1
Camera Control	Supports VISCA-over-IP and ONVIF protocols (up to 5 cameras)
Tally Port	USB Type-C ×1
Power Supply	DC 12V (8V - 24V)
Streaming & Recording	
Bitrate	Up to 32 Mbps
Rate Control	CBR/VBR
Streaming Protocols	RTMP/RTMPS/SRT
REC USB Disk/ SD Card Format	FAT32, exFAT, or NTFS
FUNCTIONS	
Transition Effects	WIPE (11×3 patterns), MIX, DIP, STILL (Freeze), FTB (Fade to Black)
Multiview Layout	Landscape & Portrait Mode
Upstream Key	Luma Key ×1, Chroma Key ×1, PIP ×2
Downstream Key	DSK ×1, LOGO Overlay ×1, Transition Tie functionality
PTZ Control	Supports up to 5 PTZ cameras; VISCA-IP / ONVIF control protocol
Audio Function	AFV,audio mixing, audio delay(max.300ms)
LOGO Library	Up to 8 PNG images, max resolution 512×320 per image, supporting 24-bit and 32-bit bit depth
Record	USB Disk & SD Card storage for recording PGM out, up to 1080p60
Display	5.5-inch touch LCD screen

STANDARDS	
SDI Input Format	1080p 60/59.94/50/30/29.97/25/24/23.98 1080psF 30/29.97/25/24/23.98 1080i 60/59.94/50 720p 60/59.94/50/30/29.97/25/24/23.98
HDMI Input Format	1080p 60/59.94/50/30/29.97/25/24/23.98 1080i 50/59.94/60 720p 60/59.94/50/30/29.97/25/24/23.98 720（1440）×480 i59.94/i60,720（1440）×576 i50
PGM Output Format	1080p 60/59.94/50/30/29.97/25/24/23.98 1080i 60/59.94/50
Multiview Output Format	1080p 60
Color Space	RGB Full/ RGB Limited/ YUV
SDI Video Rate	Auto detection, HD/3G-SDI
SDI Compliance	SMPTE 292M/ SMPTE 424M/ SMPTE 296M/ SMPTE 425M
USB Capture Out	RGB32 up to 1080p30; YUY2 / NV12 up to 1080p60
OTHERS	
Consumption	Wide voltage Input：8~24V Power Consumption：18W（12V 1.5A）
Dimensions (L×W×H)	244.5×175.2×68.1mm
Weight	1401g
Temperature	Working：-20℃~60℃，Storage：-30℃~70℃

4. Front Panel



1	Transitions & Audio	WIPE: Selects transition effect (defaults to Wipe 1). MIX: Gradually blending from one frame to the next, the switching of frames is accomplished in a soft and smooth manner. The dissolve effect enhances the artistry and coherence of the picture. DIP: A switching effect where one screen is immersed into another. AUDIO: Configuration controls for channel audio, including AFV mode, mixing, on/off, and volume levels.
2	Upstream Key & Downstream Key	CHROMA: Activates Chroma Key LUMA: Activates Luma Key PIP1 / PIP2: Activates two independent PIP with adjustable sizes/positions. DSK: Activates the Downstream Key LOGO: Add logo from USB disk, enable logo overlay
3	PTZ & PLAYER	PTZ: Accesses the PTZ camera control configuration menu. PLAYER: Direct shortcut to enter the media player playback interface.

4	Stream & Record	STREAM: One-touch button to start/stop live streaming to up to three preset platforms. RECORD: One-touch button to record PGM to USB Disk or SD card storage (Light on during recording, light off when stopped.).
5	PTZ Control	Control the camera by adjusting pan rotation, vertical tilt and lens zoom via joystick and buttons.
6	PGM & PVW	Select live program (PGM) and preview (PVW) signal sources.
7	CUT / AUTO	CUT: Simple instant switch between PVW and PGM. AUTO: Executes the transition automatically with the selected effect and rate.
8	T-Bar	Switching PVW and PGM via T-Bar The T-bar switch is controllable to enable or disable the switching function of the T-bar. Support A/B mode. In A/B mode, the function of PGM/PVW is determined by the upper and lower positions of the T-bar. Users can make settings in the menu page.
9	Menu & Shortcut Key	MENU: Used for menu control to set various parameters F1 - F4: Shortcut keys; you can configure the functions of F1-F4 shortcut keys in the menu.
10	Display Screen	5.5-inch LCD touch screen, multiview monitoring

5. LCD Touch Screen Display

The device is equipped with a built-in 5.5-inch LCD touch screen, which supports real-time,multiview preview and allows access to function menus via touch operations. Pressing the physical MENU encoder or swiping upward on the screen displays the main menu layout.

6. Multiview Status

The multiview monitoring screen includes 6 small screens and 2 large screens. The small screen is used to monitor each switching input source IN1~IN4, AUX and static pattern, while the large screens are used to monitor the program and preview view. In conjunction with the source selection buttons PGM/PVW, quick switching between broadcast and preview screens can be easily achieved.

There is a status bar located at the bottom right corner of the multi-view screen, which display the working status of each module component and some system information. User can view the working status of transition effects, recording, streaming, shortcut keys and other functions, and parameters will refresh synchronously with settings.

The audio meter, input signal information, and label display for each screen are also shown on the multiview. Supports landscape and portrait modes.

- **Landscape multiview display:**



- **Portrait multiview display:**

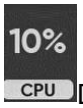


6.1. Status Bar

Located at the lower-right corner of the Multiview display, the system status bar provides real-time diagnostic indicators:



Shows the currently selected transition effect and rate duration



Displays the current main control system's CPU. When resource usage is too high, it may affect the performance of recording, streaming, and the AUX channel, which may manifest as frame dropping during streaming or recording. Checking network quality, reducing encoding bitrate, or pausing decoding playback can alleviate resource usage. The current parameter limits ensure that all functions can work normally and stably even when all are turned on.



Displays the system time, which can be set in the menu or synchronized with the network to set the local date and time.



Streaming Status: The user need to first configure the streaming platform information on the web page, and use the streaming button to realize one-click streaming and status display. The light blinks during connection, stays solid on during streaming, and turns off when streaming stops. After the connection is established, the cumulative streaming duration will start to be recorded.



Displays the current recording status, and recording duration.



Display the status of currently connected storage media, showing the total and remaining capacity of SD cards and USB drives. When recording is enabled, the icon for the designated storage path will be highlighted.



Displays the function status of the F key. The upper part shows the current short press function, and the lower part shows the function set for a long press.

6.2. Audio Meter

Every video window within the Multiview layout contains embedded audio meters for IN1–IN4 and AUX. Dedicated MIC1 and MIC2 meters are placed flanking the primary PVW window (MIC1 on the left, MIC2 on the right). Meters can be globally or individually enabled, repositioned (left/right of the pane), and adjusted for transparency via the Multiview configuration menu.



6.3. Signal Label

Each input window displays real-time resolution, frame rate and custom UMD channel name tags (default IN1–IN4, AUX). Toggle visibility of signal status readouts and text labels separately in multi-view menu.





6.4. UMD Text Setting

Users can set the signal status and opacity (25%, 50%, 75%, 100%) for the screen labels under UMD settings in the Multiview.

The character content of the screen labels can be set from the menu. Users can rename the label character content for each screen window through a virtual keyboard and the rotation button. Up to 7 characters of label content are supported.

The default label format is IN1-IN4 and AUX.Users may customize the screen labels according to actual application scenarios.



7. PGM and PVW Switching Control

7.1. PGM PVW Channel Selection

The user can select PGM and PVW sources from the PGM, PVW and PATTERN (which can be configured in different patterns on the menu) on the front panel button area. The PGM channel button for broadcast will display a red LED and the PVW button for pre-broadcast will display a green LED. the PGM source will be circled in red and the PVW source will be circled in green in the Source Monitor mini-screen.



7.2. Transition Mode: CUT / AUTO / T-BAR

This video switcher has two types of transition control: switching without effect (CUT) and switching with effect (AUTO, T-BAR).

CUT Simple instant switching between preview and program. This is a seamless switch with no delay and does not use the selected transition effects WIPE, MIX or DIP. Direct PGM source key switching also switches the playout in real time without effects.

AUTO is used to automatically switch between preview and program view. The switching time can be set by the speed button. The switching effects WIPE, DIP, MIX can also be used.

T-BAR manual switching is similar to AUTO, with more flexible operation and the switching time depends on the speed of manual switching.Supports A/B operation mode: PGM and PVW routing follows T-Bar slider position. T-Bar enable/disable switch configurable in Transition Effects > T-Bar menu.



8. Transition Effects

The video switcher provides a variety of switching transitions for users to choose from, including WIPE, DIP, and MIX.

8.1. WIPE

WIPE is a transition effect from one screen to another. Users can configure settings via the transition effect menu on the touch screen, or press the Effect key on the device panel to quickly jump to the transition effect menu for configuration. Users can select different WIPE styles through the menu and set the softness of the edge. The menu provides 11 distinct wipe pattern styles, alongside adjustable edge softness to smooth wipe borders. The INV button is used to switch the running direction of wipes. Wipe effects include three modes: forward, reverse, and reciprocating cycle. Press INV to switch the current wipe direction. Users can set three quick WIPE effects in the WIPE1-4 keys on the panel.

In some live streaming applications users usually use this effect pushed to about halfway, by adjusting the edge softness to achieve the effect of dual-lens out-of-picture.



8.2. DIP

Press the DIP key on the display screen to activate the DIP transition effect. Users may select any color from the menu palette as the dissolve screen, with black set as the default color.

DIP to Black (fade out):



DIP to White (fade out):



8.3. MIX

Press the MIX button on the display screen to apply the MIX transition effect.



8.4. Transition Speed Settings

Swipe upward on the touch display to bring up the main menu, then navigate to the transition effects page to configure two independent transition speed presets. All adjusted parameters will be saved automatically. The adjustable speed range spans from 0.1 seconds to 8.0 seconds — a higher value results in a slower, smoother transition. After finishing configuration, press the EFFECT button on the front panel to quickly switch between Speed 1 and Speed 2. The currently active transition speed is displayed in real time on the status bar.

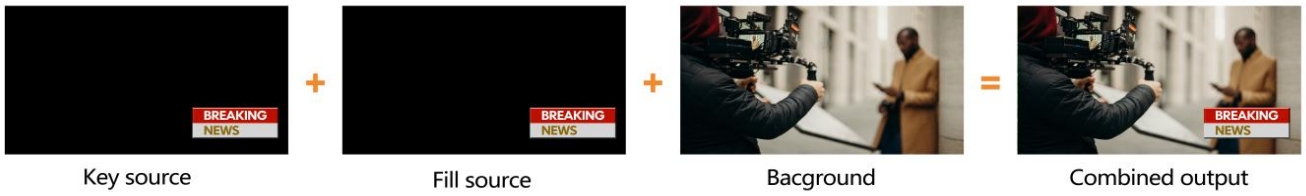
9. Upstream Keys

Upstream keys essentially mean that these are keys that are part of the switch, so anything belonging to the upstream keys will be switched over when switching from PVW to PGM.

9.1. Luma Key

The luma key provides a method for compositing text clips on a background clip based on the brightness levels in the video. Turn on the luma key and adjust the appropriate brightness threshold. Parts of the key source image with brightness values lower than the set threshold will be removed, and the corresponding parts of the fill source image will be displayed in the removed areas. If the fill source and key source are the same, the removed parts will become transparent, revealing the background image, which is either the PGM or PVW selected source image. Users can make settings in the menu. After completing the settings, press the chroma key on the panel to activate the luminance key. Meanwhile, users can quickly switch to the program or preview channel via the shortcut menu to check the effects.

Key Source = Fill Source



Key source　Fill source　Bacground　Combined output

Key Source ≠ Fill Source



Key source　Fill source　Bacground　Combined output

Key Source: Select the source image to be keyed.

Fill Source: Select the source image to fill the removed parts of the key source.

Clip: The brightness value at which parts of the image will be removed. Increasing this value will remove more of the key source image, revealing more of the background. If the entire key source image is visible, it indicates that the keying effect range value is too low.

Gain: The range of brightness values around the threshold that will gradually become transparent. Adjusting this value can make the edges of the key softer or sharper.

Invert Key: Switches whether images with brightness lower than the threshold or higher than the threshold are removed.

Mask: Select the effective area for keying.

The luma key menu and parameters are as follows:

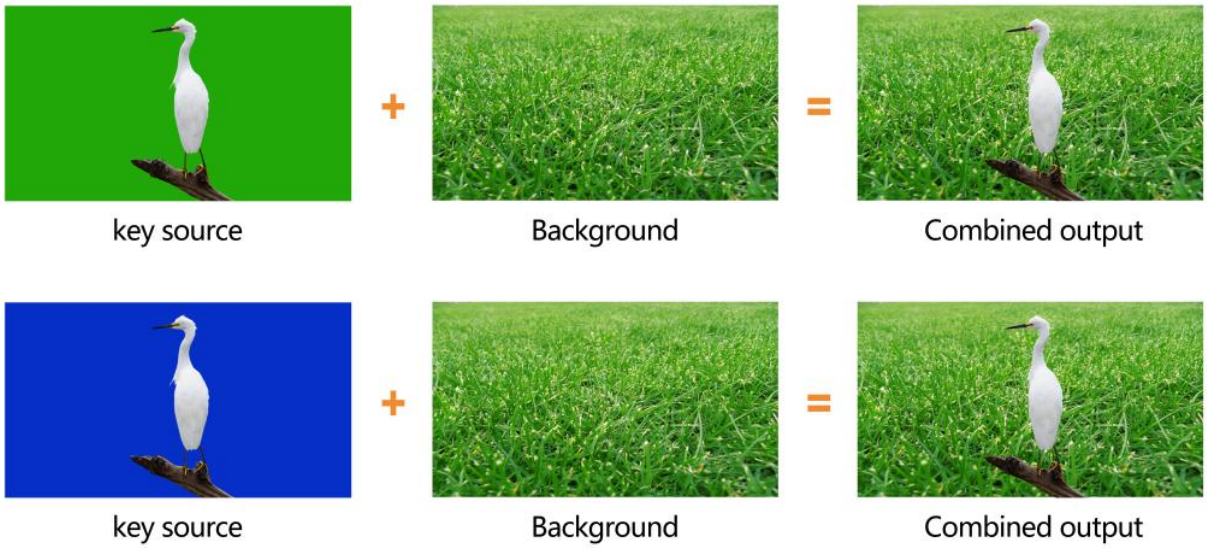
Menu	Sub-menu	Item	Parameters	Default
USK	Luma	Status	OFF/ KEY (PVW)/ ON AIR (PGM)/ KEY & ON AIR	OFF
		Fill Source	Black / IN1 / IN2 / IN3 / IN4 / AUX / Pattern / Color Bar	PAT1
		Key Source	Black / IN1 / IN2 / IN3 / IN4 / AUX / Pattern / Color Bar	PAT 1
		Clip	0%-100%	10%
		Gain	0%-100%	0%
		Invert Key	Off /On	Off
		Mask Enable	Off /On	Off

		Mask Left	0%-100%	0%
		Mask Top	0%-100%	0%
		Mask Right	0%-100%	50%
		Mask Bottom	0%-100%	50%
		Reset	Off /On	Off

9.2. Chroma Key

Chroma Key is a visual-effects and post-production technique for compositing (layering) two images or video streams together based on color hues (chroma range). The technique has been used in many fields to remove a background from the subject of a photo or video, particularly the newscasting, motion picture, and video game industries.

Users can configure chroma key parameters via the menu page, including key source, key color, mask and other related settings.



Key Source: Select the source image that needs to be keyed, which usually has a large area of solid color background.

Background Color: Select the color to be removed from the key source background. This can be configured through RGB values, preset red/blue/green background colors, or directly sampling the background color from the key source image. Usually, the sampling method is used to quickly obtain the actual background color from the key source.

Similarity: The range of colors to be removed based on the set background color. For example, if the set background color is blue, increasing this value will remove both dark and light blue areas, making them transparent or semi-transparent. The larger the value, the more transparent areas will appear,

revealing more of the background. If the entire key source image is visible, it indicates that the keying background color is set incorrectly or the similarity value is too low.

Gain: Feathering the edges of the key to make the transition between the foreground and background more natural.

Spill: Removes residual background color fringing around foreground subjects to eliminate green or colored edge artifacts.

Opacity: Adjust the overall transparency of the foreground layer.

Brightness, Contrast, Saturation: Fine-tune lighting and color performance of the foreground image to optimize composite visual results.

Mask: Toggle mask on/off. When enabled, adjust the crop range of left, top, right and bottom mask margins to remove redundant edge areas that do not require keying, eliminating fringe color noise along frame borders which disrupts chroma key performance.

All chroma key parameters are accessible under the Chroma Key submenu within the Upstream Key section on the touchscreen. Once configuration is finished, press the front-panel CHROMA button to activate the chroma keyer. You may quickly switch preview or program output in the shortcut menu to inspect the composite result.

The detailed settings for the chroma key are as follows:

Menu	Sub-menu	Item	Parameters	Default
USK	Chroma	Key State	OFF/ KEY (PVW)/ ON AIR (PGM)/ KEY & ON AIR	Off
		Key Source	Black / IN1 / IN2 / IN3 / IN4 / AUX / Pattern / Color Bar	IN2
		Key Color Type	Green / Blue / Red / Custom	Green
		Key Color	Custom Color Selection	Custom
		Fetch XY	(0，0)	(0，0)
		Similarity	0%-100%	5%
		Smoothness	0%-100%	50%
		Spill	0%-100%	0%
		Opacity	0%-100%	100%
		Brightness	0%-100%	50%
		Contrast	0%-100%	50%
		Saturation	0%-100%	50%
		Mask Enable	Off/On	Off

		Mask Left	0%-100%	0%
		Mask Top	0%-100%	0%
		Mask Right	0%-100%	50%
		Mask Bottom	0%-100%	50%
		Reset	Off/On	Off

9.3. PIP



The switcher provides two independent overlay layers: PIP 1 and PIP 2. Users can select the PIP source, adjust window scale, horizontal and vertical position in the menu, and reset all position & size parameters with one click. The key state option allows the PIP effect to be applied to Preview only, Program only, or both buses simultaneously.

You may toggle the PIP border on or off, switch between multiple border colors, and adjust border thickness to polish the overlay appearance. The two PIP layers can be configured separately or stacked together. All relevant settings are located under the PIP submenu inside Upstream Key on the touchscreen. Press the front-panel PIP1 / PIP2 buttons to quickly open the shortcut setting menu.

The detailed parameters for PIP are as follows:

Menu	**Sub-menu**	**Item**	**Parameters**	**Default**
USK	PIP1	Status	Off / KEY(PVW) / ON AIR(PGM) / KEY&ON AIR	Off
		Key Source	Black / IN1 / IN2 / IN3 / IN4 / AUX / Pattern/ Color Bar	Black
		Zoom Size	12%~75%	30%
		Key Position X	0~100	0
		Key Position Y	0~100	0
		Reset	Off/On	Off
	PIP2	Status	Off / KEY(PVW) / ON AIR(PGM) / KEY&ON AIR	Off
		Key Source	Black / IN1 / IN2 / IN3 / IN4 / AUX /	Black

			Pattern / Color Bar	
		Zoom Size	12%~75%	30%
		Key Position X	0~100	0
		Key Position Y	0~100	0
		Reset	Off/On	Off
		Border Enable	Off / On	On
		Border Color	White / Red / Green / Blue / Black	White
		Border Width	0-15	2

10. Downstream Key

10.1. Transition Tie (TIE)

The DSK is generally used to overlay logos or titles directly onto the PGM output. If the user wants the downstream key to take effect in AUTO or T-Bar mode, simply enable TIE transition binding from the menu.

10.2. DSK



Downstream keys are the last layer of keying and operate independently of the selected "background." No matter what operation is performed on the switch, the overlayed downstream key will remain on the screen. Downstream keys are very suitable for displaying logos on the screen.

Key Source: Select the source image to be keyed.
Fill Source: Select the source image to fill the removed parts of the key source.
Clip: The brightness value at which parts of the image will be removed. Increasing this value will remove more of the key source image, revealing more of the background. If the entire key source image is visible, it indicates that the keying effect range value is too low.

Gain: The range of brightness values around the threshold that will gradually become transparent. Adjusting this value can make the edges of the key softer or sharper.

Invert Key: Switches whether images with brightness lower than the threshold or higher than the threshold are removed.

Mask: Select the effective area for keying.

When TIE is off, using AUTO or T-Bar to switch PVW and DSK to PGM. The DSK effect will not change when switching between PVW and PGM.

Users can set DSK parameters including key source, clip threshold, gain and mask settings (Mask Enable, Mask Left, Mask Top, Mask Right, Mask Bottom) within the Downstream Key menu. The key state option defines where the DSK overlay appears: Preview only, Program only, or both buses simultaneously. The DSK layer remains unchanged when switching sources between PVW and PGM. Besides the touchscreen menu, press the DSK shortcut button on the control panel to open the quick adjustment menu for basic parameter tuning. All advanced DSK settings are fully configurable in the dedicated Downstream Key menu on the touch display.

The detailed settings for DSK are as follows:

Menu	Submenu	Item	Parameters	Default
DSK	DSK	Status	Off / KEY(PVW) / ON AIR(PGM) / KEY&ON AIR	Off
		Fill Source	Black / IN1 / IN2 / IN3 / IN4 / AUX / Pattern / Color Bar	IN4
		Key Source	Black / IN1 / IN2 / IN3 / IN4 / AUX / Pattern / Color Bar	IN4
		Clip	0%-100%	10%
		Gain	0%-100%	0%
		Invert Key	Off/On	Off
		Mask Enable	Off/On	Off
		Mask Left	0%-100%	0%
		Mask Top	0%-100%	0%
		Mask Right	0%-100%	50%
		Mask Bottom	0%-100%	50%
		Reset	Off/On	Off

10.3. LOGO

The video switcher supports logo import. Go to the DSK menu and open the logo setting page to import custom station logos and watermarks from a USB drive. Imported logo files can be switched freely. Logo display channels are configurable: preview only, program only, or both, separating pre-adjustment and live broadcast operations.
Slide to adjust logo X/Y coordinates, scaling ratio and opacity for diverse overlay scenarios. One-click reset restores all logo position, size and transparency parameters to factory defaults. Besides the touchscreen menu, press the LOGO shortcut on the operation panel to pop up the quick logo control menu for watermark toggle and basic parameter tuning. All logo parameters can be fine-tuned in the DSK menu on the touchscreen.

Logo format support： png

Logo size support:： 512*320 pixel(Max)





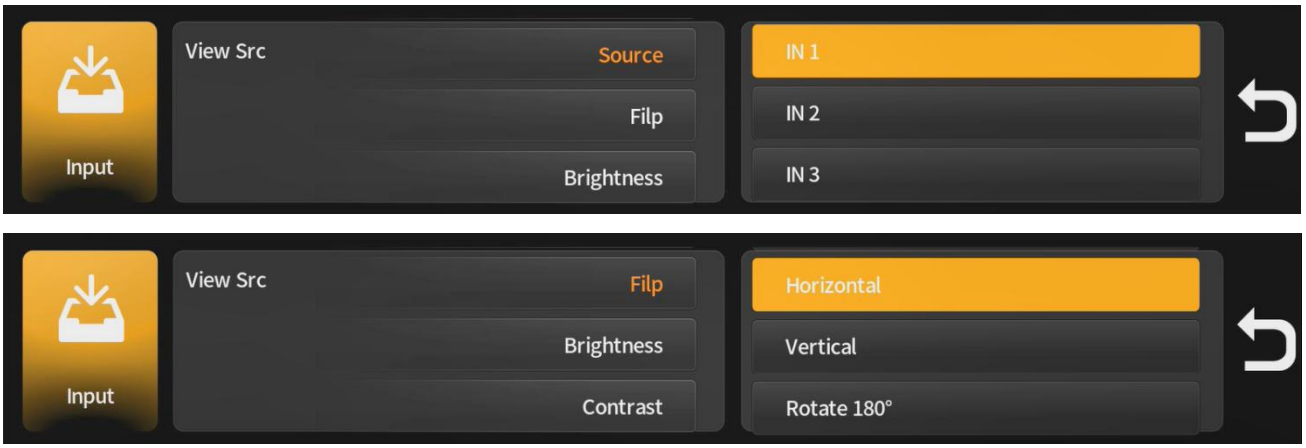
11. Input Settings

11.1. Source Selection

The SHARK S5 supports input signal routing configuration. The 5 preview screens (View1-View5) can freely select the same or different input signal sources (including IN1-IN5), allowing flexible configuration of screen order. There is no need to unplug and plug interface cables to complete the custom adjustment of screen order.
All view support flip functions, including horizontal flip, vertical flip, and 180° rotation flip, which are commonly used for correcting image orientation from aerial photography, PTZ inverted cameras, etc. It also supports adjustment of brightness, contrast, and saturation of the image.
To restore the default routing configuration, you can select the source reset option to restore the default state. In the default state, screens correspond to interfaces in order.

Note: In all functions of the S5 where there is a corresponding signal source selection, the selection

is based on the preview screen number. If the routing is in the default state, it corresponds to the interface. If the routing configuration has been changed, refer to the order of the preview screens, which may not correspond to the interface.



11.2. Input Type Configuration

Within the Input Configuration menu, the four physical input channels IN1 to IN4 support independent video interface assignment. Each channel can be individually switched to accept either HDMI or SDI signal sources. The fifth channel (Key5) can be assigned to the AUX auxiliary feed or static graphic pattern sources. This flexible routing architecture allows matching the input port type to connected hardware including cameras, PCs and media players, enabling simultaneous multi-source workflows with mixed HDMI and SDI equipment onsite.



11.3. Freeze

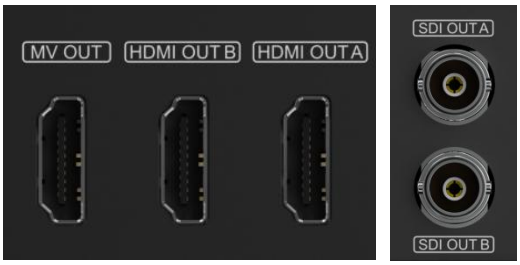
The video switcher supports the FREEZE function, allowing users to freeze the input source image.

Users can select to freeze PGM or PVW in the menu. In the PVW or PGM row. Select the target channel to freeze under the PVW or PGM bus. Once freeze frame is activated, the screen locks onto the current frame. Preview mode only displays the still frame within the PVW monitoring window, while Program mode outputs the frozen frame directly to the main PGM program output.



12. Output Settings

12.1. Output Interface



The SHARK S5 delivers highly flexible video output configurations to meet the monitoring, recording and live streaming requirements of multiple scenarios.

Multi-view output: 1-channel HDMI MV OUT interface, capable of displaying all input signal sources simultaneously to realize all-in-one monitoring.

Custom assignment output:

2-channel HDMI Output (HDMI OUT A / HDMI OUT B): Supports independent signal source assignment, with selectable output sources including Screen 1–Screen 4, AUX, Program, Clean Feed, Preview and Color Bars.

2-channel SDI Output (SDI OUT A / SDI OUT B): Identical in function to HDMI OUT A/B, supports the same signal source assignment options, and is compatible with broadcast-grade professional equipment.

The side of the device is also equipped with one USB-C port, which supports USB data acquisition and streaming.

12.2. Stream Output

Streaming engine supports independent source selection: Input 1–4, AUX, PGM Program, Clean PGM (no overlays), PVW Preview, color bars. Clean PGM output removes all keyer/logo/UMD overlays for raw feed streaming to external encoders.Color bars are used for display device calibration.

12.3. UVC Output

When the user connects the USB output to the PC, the user can use software such as OBS, PotPlayer, VMix, etc. to play or capture the USB output video and audio on live platforms such as YouTube, Facebook, Twitter, etc. USB3.0 streaming output is based on UVC (USB video class) and UAC (USB audio class) standards. No additional drivers need to be installed.

In addition, the USB video source can be not only PGM output, but also IN1-IN4, AUX, PGM, Clean, PVW, Color Bar output. Users can set up, capture and stream the video they need.

12.4. LCD Output

The video switcher's LCD output supports multiview mode and PGM mode. Users can switch between the multiview and the currently selected screen on the LCD (e.g. PGM).

Note: When the multiview is switched to PGM, if the selected output is set to multiview, the display will also switch to the PGM full-screen view.

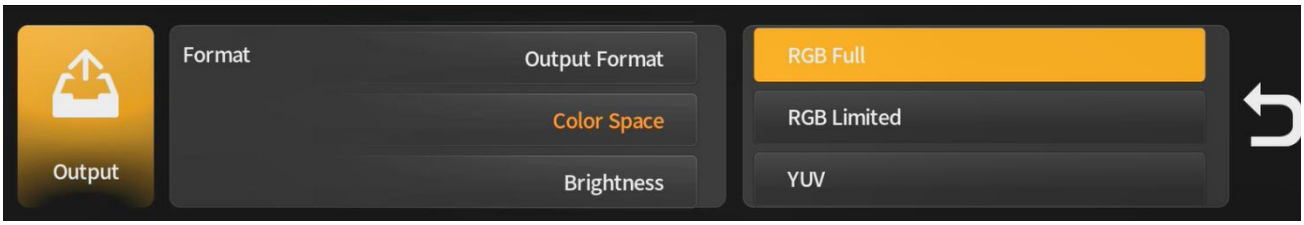
12.5. Output Format

12.5.1. Output Format

The video switcher supports up- and down-conversion output, with output formats supporting both integer and decimal values. When the frame rate mode is set to an integer, the supported output formats are 1080i50, 1080i60, 1080p24, 1080p25, 1080p30, 1080p50 and 1080p60. When the frame rate mode is set to a decimal value, the available options are 1080i59.94, 1080p23.98, 1080p29.97 and 1080p59.94. The default format for PGM and multi-view is 1080p60. Colour space, brightness, contrast and saturation can also be adjusted.

12.5.2. Color Space

The video switcher supports multiple color spaces including YUV, RGB Full and RGB Limit. The default output color space is RGB Full.



12.6. FTB Fade To Black & Mute Follow

The FTB (Fade to Black) function is generally used for emergency scenarios.



(1) Set FTB and Mute Speed

The FTB/MUTE speed can be adjusted in the menu from 0-3s, which is the entire switching time between FTB and MUTE. For example, by setting the speed to 2s, the PGM video will fade to black and the audio will fade to silence in 2s.

(2) FTB With MUTE

When this function is enabled, the device will automatically mute audio simultaneously when the FTB blackout effect is activated. While the PGM main output screen turns completely black, the output audio will be muted automatically. If disabled, only the video will switch to black screen, and the audio will keep normal output without muting.

13. Audio Settings

Users can access the audio page in the menu to precisely adjust the audio levels of Source 1–4, AUX, PGM, headphone output, and two MIC audio inputs.



13.1. Master Audio

Master audio is an audio control for PGM output. User can turn on/off the master audio or adjust audio volume.

13.2. Volume

Users can independently adjust the volume of each audio channel, including Source 1–4, AUX, PGM, headphone output, and two MIC audio inputs.

13.3. Audio Mix Settings

The video switcher features seven audio sources, consisting of four SDI/HDMI embedded audio channels, one AUX channel, and two MIC audio inputs. Users may individually enable/disable or adjust the volume of each audio channel for Source 1–4, AUX, MIC 1 and MIC 2. When an audio channel is enabled, its audio signal will be permanently mixed into the PGM output.

13.4. AFV Audio Follow Mode

All AFV： In the audio settings, the "All AFV" function means audio signals will switch in tandem with video signals without separate adjustments for audio sources. When switching between different video inputs, the corresponding audio will switch automatically, eliminating manual audio configuration. This function greatly simplifies operations when working with multi-source devices such as multiple cameras, game consoles or Blu-ray players, ensuring consistent audio-video synchronization at all times.

For example, when All AFV is enabled, switching the video feed from one camera to another will automatically shift the audio source to match the new camera. No extra manual steps are required,

delivering smoother live streaming and recording workflows and reducing errors caused by manual audio switching.

Each channel of the four SDI/HDMI embedded audio and the AUX channel supports AFV (Audio Follow Video) configuration. When an SDI or HDMI audio channel is set to AFV mode, its audio will only activate when the corresponding video source is routed to PGM. For instance, if Source 1 audio is set to AFV mode, the embedded audio of Source 1 will only turn on when the switcher assigns Source 1 as the PGM video source.

13.5. Audio Delay

The menu provides audio delay settings for Source 1 to Source 4, AUX, MIC 1 and MIC 2. Users can adjust audio delay to align audio with video. The maximum adjustable audio delay is 300 milliseconds.

13.6. MIC Input Mode

The video switcher is equipped with two MIC inputs, supporting two operation modes: Microphone and Balanced Audio. It can be connected to analog audio devices or microphones. Users may switch modes according to connected devices via the MIC Mode option in the audio menu. Each channel independently supports channel on/off, volume adjustment and audio delay calibration.



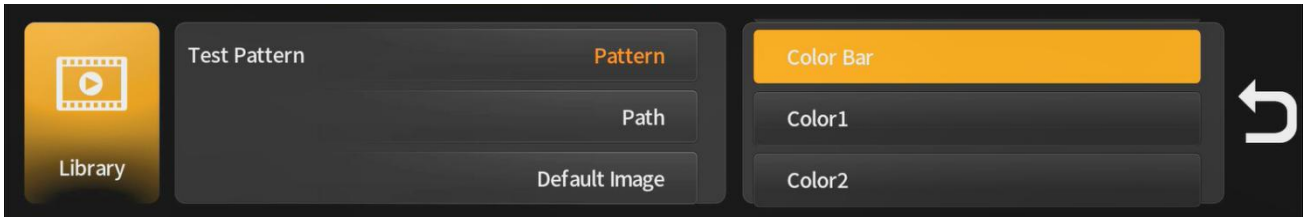
13.7. Audio Monitoring

The video switcher features a headphone output for monitoring all audio signals. Users can select one audio source for headphones from PGM, Source 1–Source 4, AUX and two MIC channels. The headphone output can be turned on/off and its volume adjusted.

14. Media Library

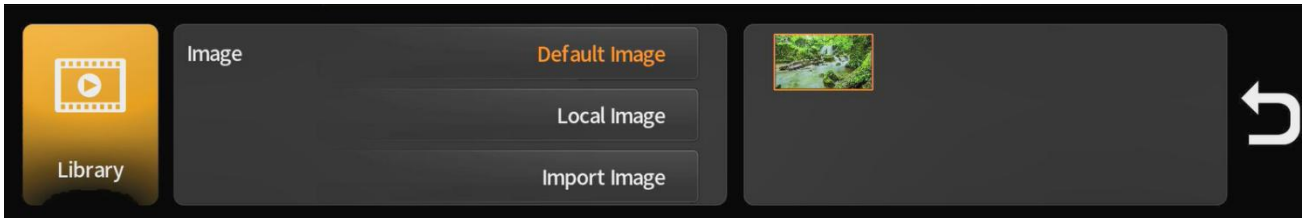
14.1. Image Assignment

The Pattern of this video switcher can be set to custom patterns. Available PAT pattern sources include Black, Color Bars, Color 1, Color 2, Image 1 and Image 2.



14.2. Image Management

Users can use images as PAT patterns. Image sources can be selected from default images, local images, imported images and captured images.



14.2.1. Default Images

Default images are pre-installed images stored in SHARK S5. Users can select one default image as the source for PAT patterns.

14.2.2. Local Images

Local images refer to images captured on the device, which can be obtained via the Capture Image menu option.

14.2.3. Imported Images

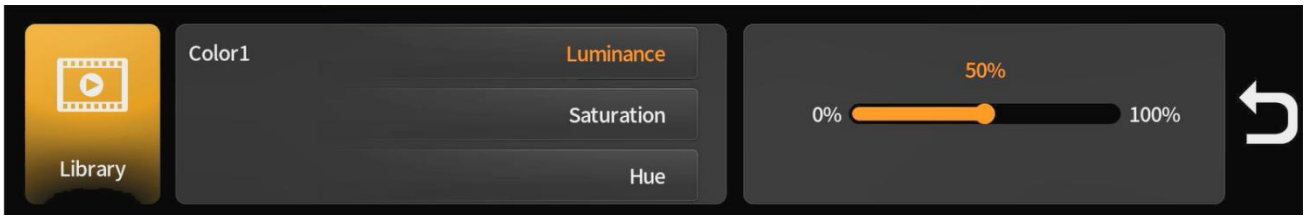
The Import Image function loads picture files from USB disk or SD cards. After inserting the storage medium, select SD card or USB disk as the access path in the menu first, then navigate to the Import Image page to finish picture upload. All successfully imported materials will be automatically saved to the local image library. Users can assign captured images as pattern sources for Image 1/ Image 2, and configure or delete captured images within the local image library.

14.2.4. Captured Images

Captured images are screenshots taken from PGM output. All captured image materials are stored uniformly in the local image library, with a maximum capacity of 8 captured images. Users can assign captured images as pattern sources for Image 1 / Image 2, and configure or delete captured images within the local image library.

14.3. Color Generator

SHARK S5 supports custom patterns, with two color modes, Color 1 and Color 2, for users to define. Users can generate color patterns of Color 1 and Color 2 by setting hue, saturation, and brightness. See the figure below.



15. PTZ Control

When the switcher and PTZ camera are connected directly or through a switch, make sure the video switcher and PTZ camera are in the same network segment. Search for the camera through VISCA-IP or ONVIF from the menu, and then add the searched camera to the camera ID. If the camera is directly connected to the switcher, change the switcher's IP address in the system and set them in the same LAN so that the switcher can successfully search for the camera. Use the joystick and buttons to pan, tilt or zoom the camera.

- **Camera Search**

The video switcher supports searching for PTZ cameras connected via Ethernet. It supports searching for cameras that support the VISCA-IP and ONVIF protocols (provided the PTZ cameras are capable of responding to network search requests using these protocols).



- **Camera Settings**

If the camera does not support automatic search, manual configuration is available. Select the control protocol supported by the camera, then enter the camera IP address and the control port corresponding to the protocol.

- **Function**

PT Reverse:can make the up and down, left and right control directions of the camera joystick reverse.

Camera Link Modes：

1. Set the call option to ‘Follow ID’, which means setting the ID option for cameras 1–5. Once connected to the cameras, you can use the numeric buttons in the switcher’s camera control area. For example, when set to CAM 2, camera 2 is under control.

2. Set the option to ‘Follow PGM’, which means the controlled camera corresponds to the selected PGM channel among cameras 1–5. For example, when PGM is set to Camera 2 (IN 2), Camera 2 is under control.

3. Set the option to “Follow PVW”; this means that the controlled camera corresponds to the selected PVW channel amongst Cameras 1–5. For example, when PVW is set to Camera 2 (IN 2), Camera 2 is under control.

- **Rate Setting**

Pan/Tilt speed, can be selected from 20-100%, default 100%.

Zoom / Focus rate, can be selected from 10-100%, default is 50%.

- **Camera Image Adjustment Shortcuts**

Control PTZ cameras to realize pan, tilt and zoom operations. It supports manual / automatic focus, gain, iris, shutter and other common functions. Quick setup, recall and preset positions are available. Up to 5 cameras can be connected simultaneously.



A. Function Selection Buttons

CAM (Camera Select)： Press this button, then use the numeric keys 1~5 below to select and switch to the controlled camera with the corresponding number. After switching, the camera information will be displayed synchronously in the list on the right.

CALL (Recall Preset Position)： After activation, use the numeric keys to quickly recall the PTZ preset position of the corresponding number for the current camera.

PRESET (Save Preset Position)： After activation, use the numeric keys to save all current image parameters including PTZ position, zoom and exposure as the preset position of the corresponding number.

RESET（Clear Preset Position）： After activation, use the numeric keys to delete the custom preset position data of the corresponding number for the current camera.

AWB（Auto White Balance）： One-touch button to enable the camera's auto white balance function.

AE（Auto Exposure）： One-touch button to activate auto exposure; the camera will automatically adjust iris, shutter and gain.

AF（Auto Focus）： Enable auto focus mode; the camera tracks the subject in the frame and focuses in real time.

B. Image Parameter Adjustment Buttons

R GAIN / B GAIN (Red Gain / Blue Gain): Used to adjust red and blue color gain of the image separately for fine white balance correction. Press the corresponding button to switch the adjustment channel, then turn the adjustment knob to increase or decrease the value.

IRIS (Iris): Manually adjust the lens aperture to control the light intake of the image.

SHUTTER (Shutter): Manually adjust the electronic shutter speed.

GAIN (Gain): Manually adjust the image sensor gain to brighten the picture under low-light conditions.

FOCUS (Focus): Manual focus adjustment channel. Cooperate with the speed knob to control focusing speed; turn clockwise for close focus, counterclockwise for far focus.

C. Numeric Shortcut Area

The numeric keys 1–5 at the bottom work with the CAM / CALL / PRESET / RESET function buttons above to switch cameras, save, recall and clear preset positions. The device supports up to 5 cameras with 5 groups of preset positions per camera.

16. Streaming and Recording

16.1. Streaming

The switcher offers two streaming methods: via USB output and via LAN port output.

Through the USB Type-C port, users can capture the video to a computer and stream live using software such as OBS, Vmix etc.

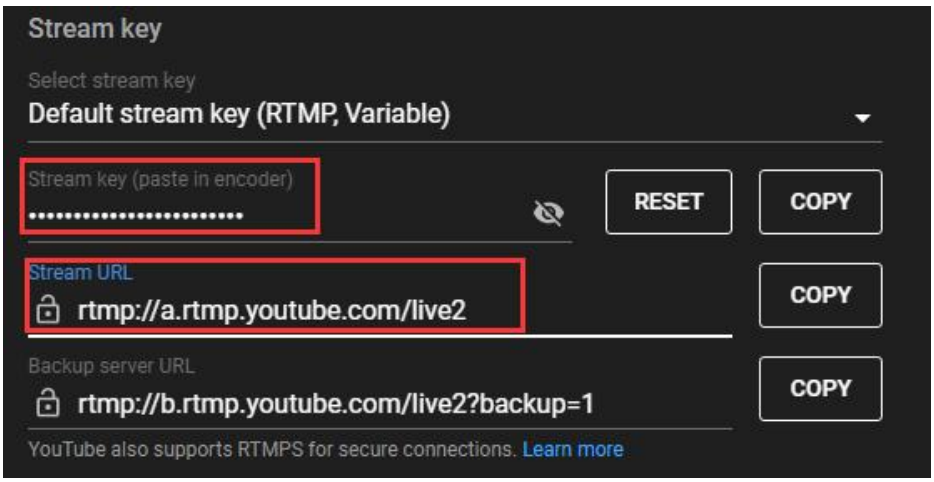
Users can push streams directly to live streaming platforms via IP address through the LAN port. The maximum bitrate of the stream is 32 Mbps, and simultaneous live broadcast to up to 3 platforms is supported.

Network Streaming:

Step1： Users may adjust live streaming video parameters including bitrate, bitrate control mode, encoding format, encoding resolution, encoding frame rate, audio sampling rate and audio bitrate in Video Settings according to actual conditions. For example, in poor network conditions, switch the bitrate control from CBR to VBR and modify the bitrate value accordingly. All configurations can also be completed via the web interface.

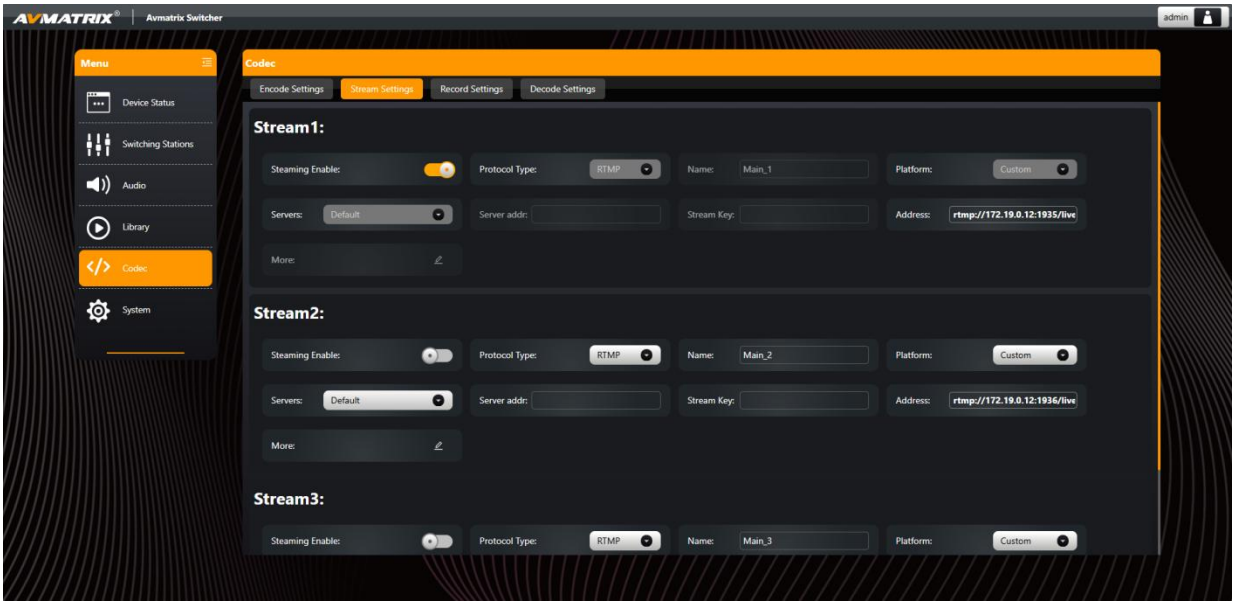


Step2： Open the streaming settings page of the live streaming platform to obtain the streaming URL and stream key of the platform.



Step3： Enter the switcher's IP address (192.168.1.216) in a browser and log in with the account (Username: admin, Password: admin) to access the switcher web page and configure Stream Settings.

Open Stream Push Settings, select your target live streaming platform, then paste the stream key into the designated input field. Enable the Start Streaming option to begin live broadcast. If your required platform is not listed in the menu, select Custom mode instead.



Live streaming starts when the streaming status indicator on the status bar turns green and the streaming duration timer begins counting on the status menu page. A yellow blinking streaming status on the status bar indicates an ongoing connection attempt. A gray streaming status on the status bar means the connection has failed.



16.2. Record

The switcher supports two storage media: USB storage and SD card, select the recording file storage medium in the recording settings and press the REC button on the panel to start recording. The status will display device information. MP4 and TS video file formats are supported for storing recorded files.



Press the REC button on the panel. When the recording time on the multiview starts counting, it indicates that the recording has started. Press the REC button again to end the recording. Additionally, the recording status will display the recording time and the status of the SD card/USB storage, making it convenient for users to check.

Moreover, the switcher's recording feature has an overwrite function. When the SD card and USB storage are full, it will automatically delete and overwrite previously recorded content and start recording new content again. Users can enable/disable this function in the menu.

Note: It is recommended that the storage medium has only one partition. Multiple partitions may only be recognized as one partition.

Inferior low-speed storage media may lead to recording failures, frame dropping, or unplayable videos.

Abnormal operations during recording, such as power loss or removal of the recording storage medium, may result in an unplayable video file.

Users can format their USB Disk/SD card through the menu. In the recording menu, select "Format USB" or "Format SD" to start formatting the corresponding storage device. Formatting will permanently erase all data on the disk, so back up important data in advance.

17. Decoding and Playback

17.1. AUX Source Selection

The switcher supports AUX signal source selection, allowing you to choose from multiple signal sources, including local playback, USB camera, pull stream, and NDI sources(Optional).

17.2. Local Playback

Select one video source from an SD card, USB storage. Users can choose SD card, USB storage in the file path. Open the video selection in the file directory and select the desired video.

File Sorting: Play in the order of file name a-z, media addition time, or file size.

Playback Mode: Choose between repeat playback, single playback, or loop playback.

Playback Speed: Select slow playback and speed playback from 02.5X to 4X.

Audio Sync: Choose from 0ms to 300ms.

Step Size: Skip playback time interval, off, 10 seconds, 20 seconds, 30 seconds, 1 minute, 5 minutes.

Auto Play: Choose off, follow PGM, or follow PVW.

18. System Settings

18.1. Language

Entering system settings from the menu to switch the system language between English and Chinese.

18.2. Fan Setting

Setting the cooling fan speed to control the temperature and noise of the switcher. There are 3 options, AUTO/ OFF/ ON.

The default setting of the fan is in AUTO mode that the speed of the fan is adjusted automatically depending on the switcher's operating temperature. If the working environment requires special quiet for a special application, the user can turn off the fan manually from the menu. And when the switcher's operating temperature is increasing and reaching a preset value, the fan will be auto turned on in a high speed to cool down the CPU quickly and switch the fan to AUTO mode at the same time. If the switcher operates in a high-temperature environment and the fan under automatic mode cannot meet heat dissipation requirements, users may switch to manual mode and set the fan speed to 100% to maintain high-speed fan operation.

18.3. Temperature

Users can customize temperature units, flexibly switch between Celsius ℃ and Fahrenheit ℉.

18.4. Joystick Calibration

When the joystick requires calibration, enter the joystick calibration page via the system menu to ensure accurate PTZ control. Do not touch the joystick during the calibration process.

18.5. Version

Check the firmware versions of the switcher, including system, video, key, display, screen and hardware firmware.

18.6. System Reset

Restore Default Parameters:Reset all configurations to factory default values while retaining partial settings, including encoding parameters, streaming switch, recording format, overwrite switch and time synchronization.

Factory Reset:Restore all settings to the original factory defaults.

18.7. Shortcut Key Settings

Enter the shortcut key page under System Settings to customize functions for short press and long press of F1, F2, F3 and F4 respectively. Available functions include None, Exit, MV, Wipe 1~Wipe 4 transition effects, Mix transition effect, Dip transition effect, Freeze Frame, Speed 1, Speed 2, FTB and other common director functions.

After configuration, simply short-press or long-press the corresponding F keys on the device panel to execute pre-bound operations with one click. All configurations are saved automatically, which simplifies live operation steps and improves the director's operating efficiency.

18.8. On-Screen Display

Enter to the Screen Display page within System Settings to customize various display parameters of the local touch screen. All parameters are adjustable from 0% to 100%; drag the slider for real-time effect. Adjustable items cover Basic Image, Color Gain and Color Offset:

Basic Display: Brightness, Contrast, Saturation

Image Texture: Color Cast, Sharpness, Color Temperature

Color Gain: Red Gain, Green Gain, Blue Gain

Color Offset: Red Offset, Green Offset, Blue Offset

Adjust parameters according to on-site lighting and viewing requirements to optimize screen visual experience. All settings are automatically saved.

18.9. Network Setting

The video switcher supports two connection methods. When DHCP is selected on the menu, the switcher can automatically obtain an IP address after connecting it to a router that supports DHCP.

When DHCP is turned off, the user can manually set the IP address, subnet mask, and gateway method in the menu. The default IP address of the switcher is 192.168.1.216.



18.10. System Time

18.10.1. Manual Time Setting



Users can manually set the year, month, day, hour, and minute through the menu, and select the 12-hour (default) or 24-hour time display mode

18.10.2. Time Synchronization

Connect the switcher to a Windows PC via the LAN port. Open a web browser and enter the device's IP address to access the embedded web UI. Navigate to Time Settings, where automatic time synchronization and manual time configuration are both supported.

18.11. User Settings

Users can save all the current settings to the switcher's account according to their needs and different application scenarios. Adding new user accounts, renaming accounts, switching between accounts, deleting accounts, and also importing or exporting accounts to a USB disk is very flexible, convenient and user-friendly.

18.11.1. New

Adding a new user account and save all current settings to the account. Input the name through a virtual keyboard from the menu.

18.11.2. Rename

Rename the current user account name.

18.11.3. Delete

Delete a saved user account which you will never use again.

18.11.4. Import

Import the current user account and settings to USB disk.

18.11.5. Export

Export the user account and settings saved in USB disk.

19. Web Control

Connect PC and SHARK S5 to the same LAN subnet. Open any web browser and enter the default static IP address 192.168.1.216. Default login credentials:

Username: admin

Password: admin

Web GUI functional sections: Device Status, Switcher Control, Audio Mixer, Streaming Encoder, Recording Settings, System Configuration.

All switcher operational parameters can be fully adjusted remotely via web interface without touching the physical unit.