AVMATRIX SHARK S4

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Multi Camera Video Switcher Mixer for Live Streaming

1. INTRODUCTION

The AVMATRIX SHARK S4 is a compact and versatile multi-camera video switcher and mixer designed for live streaming applications. It integrates 4-channel video inputs (2x HDMI, 2x 3G-SDI), a 6-channel audio mixer, and multiple output options including HDMI PGM, HDMI Multiview, USB Type-C, and LAN for streaming. This device supports various professional features such as Chroma Key, Luma Key, Logo overlay, DSK, and a range of transition effects, making it suitable for broadcast, education, conference, live sports, church, concert, and wedding productions.

2. SAFETY INFORMATION

Please read and understand all safety instructions before operating the device. Failure to follow these instructions may result in electric shock, fire, or damage to the equipment.

- **Power Supply:** Use only the provided power adapter. Ensure the power source matches the device's requirements (DC 12V).
- **Ventilation:** Do not block ventilation openings. Ensure adequate airflow around the unit to prevent overheating.
- **Moisture:** Keep the device away from water, rain, and excessive humidity. Do not operate with wet hands.
- **Cleaning:** Disconnect power before cleaning. Use a dry, soft cloth. Do not use liquid or aerosol cleaners.
- **Servicing:** Do not attempt to service this product yourself. Refer all servicing to qualified service personnel.
- **Placement:** Place the device on a stable, flat surface. Avoid placing it in direct sunlight or near heat sources.

3. PACKAGE CONTENTS

Verify that all items are present in the package:

- AVMATRIX SHARK S4 Video Switcher
- Power Adapter (12V 2A)
- USB-A to USB-C Cable
- Tally Connector

- User Manual (this document)

4. PRODUCT OVERVIEW

The SHARK S4 features a robust design with clearly labeled controls and a comprehensive set of input/output ports. Understanding the layout is crucial for effective operation.

4.1 Front Panel Controls

The front panel provides access to input selection buttons, transition controls (T-bar, Auto, Cut), audio controls, and various effect buttons.

Figure 4.1: Top and Rear View of the AVMATRIX SHARK S4. The top view displays the control surface with input selection buttons, T-bar, and effect controls. The rear view shows all connectivity ports.

4.2 Rear Panel Connections

The rear panel houses all essential input and output ports for video, audio, data, and power.

Figure 4.2: Detailed Rear Panel Connections. This diagram highlights the location and function of each port, including SD Card Slot, SDI IN (1, 2), HDMI IN (3, 4), PGM OUT, Multiview OUT, USB REC, USB OUT, LAN, TALLY, and DC 12V IN.

- **SD Card Slot:** For recording PGM output to an SD card.
- **SDI IN (1, 2):** Two 3G-SDI inputs for professional video sources.
- **HDMI IN (3, 4):** Two HDMI inputs for various video sources.
- **PGM OUT (HDMI):** Program output for the main switched video feed.
- **MULTIVIEW OUT (HDMI):** Output for monitoring all inputs, program, and preview on a single screen.
- **USB REC (USB-A):** For recording PGM output to a USB disk.
- **USB OUT (USB Type-C):** For USB video capture to a computer for streaming.
- **LAN:** Ethernet port for IP streaming (RTMP/SRT) and PC remote control.
- **TALLY:** Connector for Tally light system.
- **DC 12V IN:** Power input.
- **MIC/LINE IN (1, 2):** Two 3.5mm audio inputs.
- **EARPHONE OUT:** 3.5mm audio output for monitoring.

5. SETUP

Follow these steps to set up your AVMATRIX SHARK S4 for operation.

5.1 Power Connection

1. Connect the provided 12V power adapter to the "DC 12V IN" port on the rear panel.
2. Plug the power adapter into a suitable electrical outlet.
3. The device will power on automatically.

5.2 Video Input Connections

The SHARK S4 supports up to four video inputs.

- Connect your SDI cameras or video sources to the "SDI IN 1" and "SDI IN 2" ports.
- Connect your HDMI cameras, computers, or other video sources to the "HDMI IN 3" and "HDMI IN 4" ports.
- Ensure all video sources are set to compatible resolutions and frame rates. The switcher supports up to 1080p 60Hz.

5.3 Audio Input Connections

The switcher features a 6-channel audio mixer, including embedded audio from HDMI/SDI inputs and external analog inputs.

- Connect microphones or line-level audio devices to the "MIC/LINE IN 1" and "MIC/LINE IN 2" 3.5mm ports.
- Embedded audio from connected HDMI and SDI sources will be automatically detected.

5.4 Output Connections

- **Program Output:** Connect a display or recording device to the "PGM OUT" HDMI port for the main switched video feed.
- **Multiview Output:** Connect a monitor to the "MULTIVIEW OUT" HDMI port to view all inputs, preview, and program simultaneously.

Figure 5.1: Configurable Multiview Output. The multiview display allows monitoring of all active video inputs, the program output, and audio levels on a single screen.

- **USB Capture:** Connect the "USB OUT" (USB Type-C) port to a computer for direct video and audio capture using software like OBS, vMIX, ZOOM, Teams, Skype, or VLC.
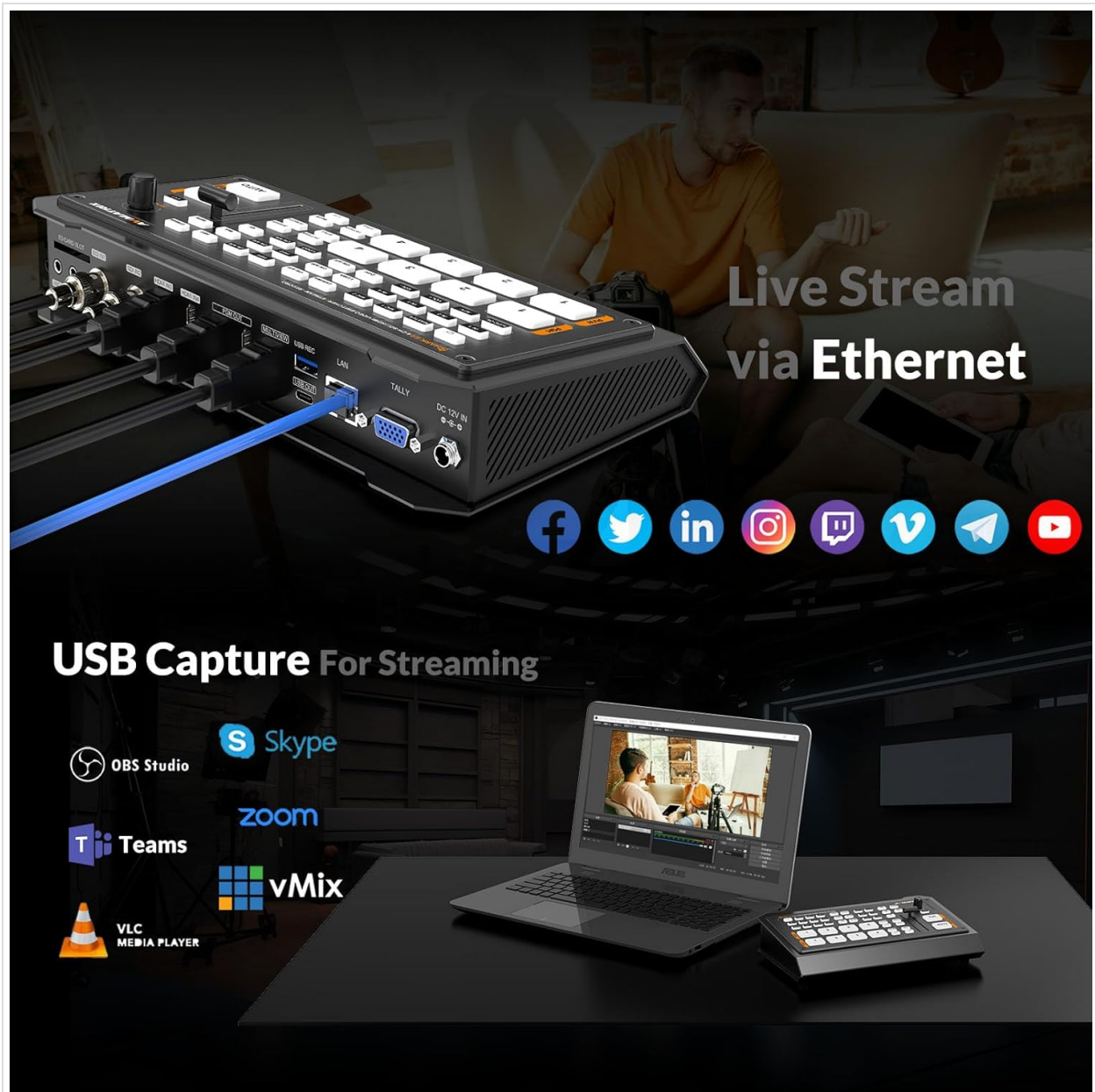
Figure 5.2: USB Capture for Streaming. The USB Type-C output enables the SHARK S4 to function as a webcam, allowing direct streaming to popular software and platforms.

- **LAN Output:** Connect an Ethernet cable from the "LAN" port to your network for RTMP(S) and SRT protocol streaming.
- **Earphone Output:** Connect headphones to the "EARPHONE OUT" port for audio monitoring.

5.5 PC Remote Control Setup

The SHARK S4 can be controlled remotely via PC software.

1. Connect the "LAN" port of the switcher to your computer's network port or a network switch.
2. Download and install the latest PC control software from the official AVMATRIX website.
3. Launch the software and follow the on-screen instructions to connect to the SHARK S4.

6. OPERATING INSTRUCTIONS

This section details the primary functions and operations of the AVMATRIX SHARK S4.

6.1 Basic Switching

- **Input Selection:** Press the numbered buttons (1-4) on the program row to select the input currently live on the program output. Use the preview row buttons to select the next input to be transitioned to.
- **T-Bar:** Smoothly transition between the preview and program sources by moving the T-bar fader.
- **AUTO Button:** Initiates an automatic transition between the preview and program sources using the selected transition effect and duration.
- **CUT Button:** Performs an instant, hard cut between the preview and program sources.

6.2 Transition Effects

The SHARK S4 offers various transition effects to enhance your live production.

- **WIPE:** Select from 9x2 patterns of wipe transitions.
- **MIX:** A smooth dissolve transition.
- **DIP:** A transition that dips to a color before revealing the new source.
- Adjust transition speed using the dedicated controls.

6.3 Audio Mixing and Monitoring

Control audio levels for all 6 channels (2x HDMI embedded, 2x SDI embedded, 2x MIC/Line in).

- Use the audio mixer controls on the device or via PC software to adjust individual channel volumes.
- The "EARPHONE OUT" allows for real-time audio monitoring.
- Audio delay is available for synchronization.

6.4 Keying Effects (Chroma Key, Luma Key, DSK)

The switcher supports up to 6 layers of effects, including advanced keying.

- **Chroma Key:** Used to remove a specific color (e.g., green screen) from a video source, allowing another background to be inserted. Access settings to fine-tune color range, spill suppression, and edge adjustments.
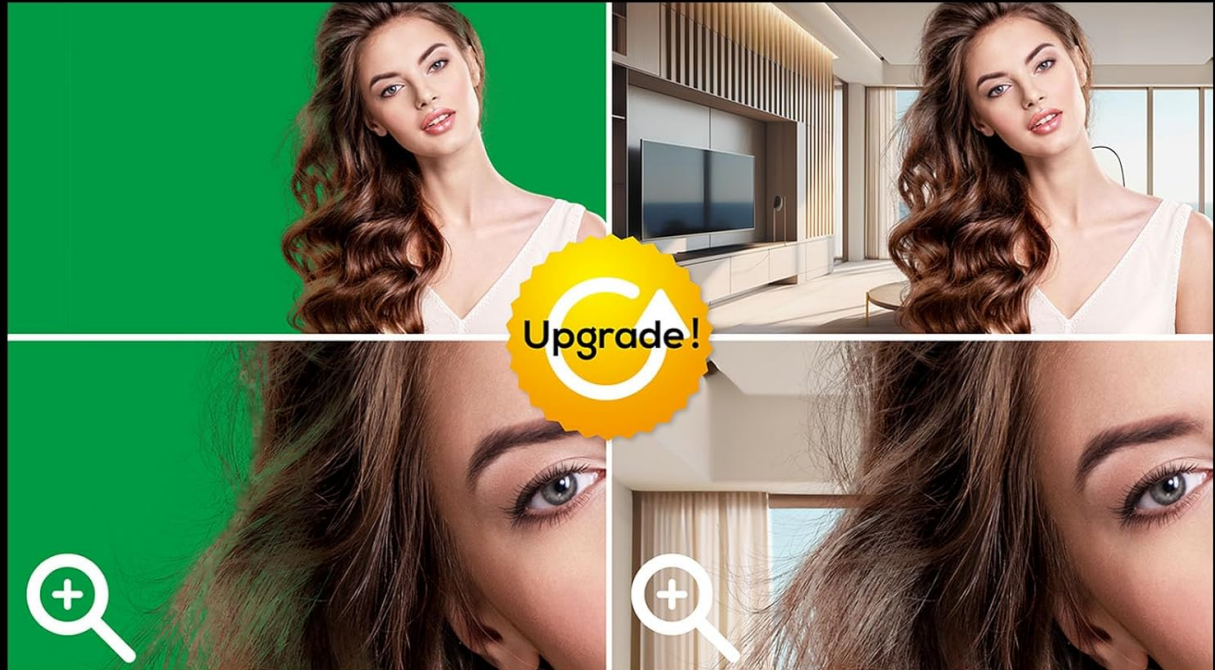
Figure 6.1: Chroma Key Functionality. This image demonstrates the ability to remove a background color (like green) and replace it with another video source or image, enabling virtual sets and layered compositions.

- **Luma Key:** Used to key out areas based on brightness levels.
- **DSK (Downstream Key):** For overlaying graphics, titles, or logos over the program output.

6.5 PIP/POP Mode and Logo Overlay

Enhance your production with picture-in-picture, picture-out-picture, and custom logo overlays.

- **PIP/POP:** Display multiple video sources simultaneously on the screen. PIP (Picture-in-Picture) places a smaller video feed within the main program. POP (Picture-out-Picture) displays multiple sources side-by-side.
- **Logo Overlay:** Import and overlay your custom logo or graphic onto the program output.

Figure 6.2: Functional Diversity. This image illustrates various advanced features including Picture-in-Picture (PIP) and Picture-out-Picture (POP) modes, custom logo overlay, dynamic transition effects, and the PC control interface for remote operation.

6.6 Media Library

The built-in media library stores patterns, imported images, and captured images.

- Access 49 default patterns, 16 imported images, and 16 captured images.
- Import custom images via USB for use as backgrounds or overlays.

6.7 Recording

Record your program output directly to a USB disk or SD card.

- Insert a formatted USB disk into the "USB REC" port or an SD card into the "SD Card Slot".
- Navigate to the recording settings (via device menu or PC software) to start/stop recording.
- Supported file formats: MP4/TS. Bitrate up to 32Mbps.

6.8 Live Streaming

The SHARK S4 offers multiple ways to stream your content.

- **LAN Streaming (RTMP/SRT):** Configure streaming parameters (RTMP/SRT server URL, stream key) via the device menu or PC software. Connect the LAN port to your network and initiate streaming.
- **USB Capture Streaming:** Connect the USB Type-C port to a computer. The switcher will appear as a webcam. Use streaming software (OBS, vMIX, etc.) on your computer to stream the video and audio.

7. MAINTENANCE

Proper maintenance ensures the longevity and optimal performance of your SHARK S4.

- **Cleaning:** Regularly wipe the exterior with a soft, dry, lint-free cloth. Do not use abrasive cleaners or solvents.
- **Ventilation:** Ensure the ventilation slots are clear of dust and debris. Use compressed air to gently clear any blockages.
- **Storage:** When not in use for extended periods, store the device in a cool, dry place, away from direct sunlight and extreme temperatures.
- **Firmware Updates:** Periodically check the AVMATRIX official website for firmware updates. Keeping the firmware updated can improve performance and add new features.

8. TROUBLESHOOTING

This section provides solutions to common issues you might encounter.

Problem	Possible Cause	Solution
No video output on PGM or Multiview.	Incorrect cable connection; input source not active; output display not powered on or set to correct input.	Check all HDMI/SDI cable connections. Ensure input sources are active and output displays are correctly configured. Verify input selection on the switcher.
SDI inputs not recognized.	Incompatible SDI signal; faulty cable; switcher settings.	Ensure SDI sources are 3G-SDI compatible. Try different SDI cables. Check switcher settings for input detection. (Note: Some users have reported issues with SDI input recognition; ensure firmware is up to date and contact support if issue persists.)
No audio output or distorted audio.	Audio levels too low/high; incorrect audio input selected; faulty cables.	Adjust audio levels on the mixer. Verify correct audio input is enabled. Check audio cables and connections. Ensure audio delay is not excessively set.
Chroma Key not working effectively.	Poor lighting on green screen; incorrect color selection; fine-tuning needed.	Ensure even, bright lighting on your green/blue screen. Adjust the chroma key settings (color, tolerance, spill) carefully within the switcher's menu or PC software.
USB streaming not detected by computer.	Incorrect USB cable; driver issue; software not configured.	Use the provided USB Type-C cable. Ensure your computer's operating system (Windows, Linux, Mac) recognizes the device. Check settings in your streaming software (OBS, vMIX) to select the SHARK S4 as the video/audio input device.
Recording to USB/SD card fails.	Unsupported format; insufficient storage; card/disk error.	Ensure USB disk/SD card is formatted to FAT32/exFAT/NTFS. Check available storage space. Try a different USB disk or SD card.

9. Specifications

Detailed technical specifications for the AVMATRIX SHARK S4.

Specifications

		SHARK H4	SHARK H4 PLUS	SHARK S4	SHARK S4 PLUS
CONNECTION	Display	-	10.1 Inch IPS FHD	-	10.1 Inch IPS FHD
	Video Input	HDMI×4	HDMI×4	HDMI×2, SDI×2	HDMI×2, SDI×2
	Video Output	HDMI PGM × 2, HDMI Multiview × 1, LAN × 1 (RJ45 Stream), USB type-C × 1(Capture)			
	Other Interface	USB-A × 1 & SD Card × 1(Record), USB-A × 1(Image import and upgrade), Tally ×1 DB-15 GPIO)			
	Audio	Inputs: MIC/ Line × 2(3.5mm stereo audio), Outputs: Earphone Slot x 1(3.5mm stereo audio)			
STREAM & RECORD	Encoding Bitrate	2/ 4/ 8/ 12/ 16/ 24/ 32Mbps, Support CBR/ VBR			
	Stream Protocols	RTMP/ RTMPS/ SRT			
	Storage Format	USB/ SD card, Support FAT32/ exFAT/ NTFS			
	Recrod File Format	MP4, TS			
	Recrod File Segment	1/ 5/ 10/ 20/ 30/ 60/ 90/ 120mins			
FUNCTION	Transitions	T-Bar/ AUTO/ CUT			
	Effects	WIPE(11×3 patterns)/ MIX/ DIP/ STILL(freeze)/ PATTERN/ MUTE/ FTB			
	Layouts	2 styles of Multiview layout(Landscape and Portrait)			
	Keys	Upstream Key: Luma Key × 1/ Chroma Key × 1/ PIP × 2/ POP；Downstream Key: DSK × 1/ Logo × 1			
	Media Format	Default image: 39 preset patterns, Local image: Up to 16 imported images, Capture image: Up to 16 captured images			
	Generators	Pattern Generator × 1，Color Generators × 2			
	Audio Mixer	Video Input × 4 and MIC/ Line × 2			
	Audio delay	0-500ms			
STANDARD	Input Format Support	Multi-format Auto Signal Detection, Up to 1080p 60			
	Color Space	HDMI: RGB/ YUV, SDI: YUV			
	HDMI PGM/ MV Out	1080p 60/ 59.94/ 50/ 48/ 47.95/ 30/ 29.97/ 25/ 24/ 23.98, 1080i 60/59.94/50			
	USB Capture Out	Up to 1080p 60			
OTHERS	DC Power In	Wide Voltage: 7~24V	Wide Voltage: 7~24V	Wide Voltage: 7~24V	Wide Voltage: 7~24V
	Consumption	≤15.6W (12V 1.3A)	≤20.4W (12V 1.7A)	≤16.8W (12V 1.4A)	≤24W (12V 2A)
	Dimension (LWD)	244.5 × 143.2 × 44.5mm	261.4 × 193.9 × 58mm	244.5 × 143.2 × 44.5mm	261.4 × 193.9 × 58mm
	Weight	Net: 1009.5g, Gross: 1360g	Net: 1734.5g, Gross: 2240g	Net: 1009.5g, Gross: 1360g	Net: 1734.5g, Gross: 2240g
	Working Temp.	-20℃~60℃	-20℃~50℃	-20℃~60℃	-20℃~50℃

Accessories

12V 2A Power Adapter   **USB A-C Cable**   **Tally Connector**
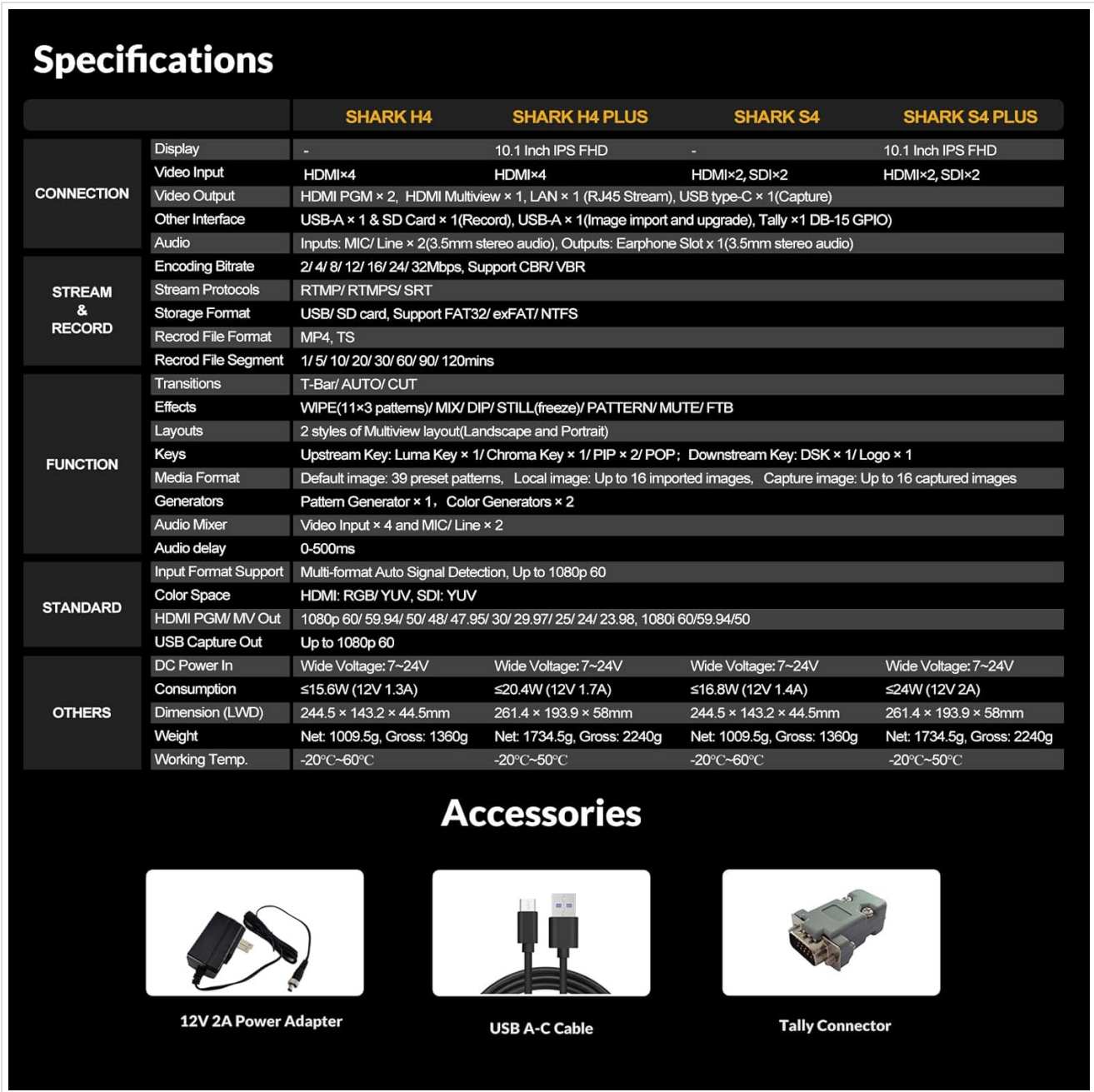
Figure 9.1: Comprehensive Specifications Table. This table provides detailed technical specifications for the SHARK S4, including display, connections, streaming, recording, functions, and physical characteristics, alongside other SHARK series models for comparison.

Feature	Detail (SHARK S4)
Product Dimensions	9.6 x 5.6 x 1.7 inches
Item Weight	3.34 pounds
Item Model Number	SHARK S4
Manufacturer	AVMATRIX
Country of Origin	China

Feature	Detail (SHARK S4)
Color	Black
Connector Type	HDMI, USB-C
Compatible Devices	Personal Computer
Cable Type	Ethernet, USB, HDMI
Video Inputs	2x HDMI, 2x 3G-SDI
Video Outputs	2x HDMI PGM, 1x HDMI Multiview, 1x USB Type-C, 1x LAN
Audio Inputs	2x MIC/Line In (3.5mm), Embedded HDMI/SDI audio
Recording Format	MP4/TS (USB Disk & SD Card)
Streaming Protocols	RTMP(S), SRT
Effects	WIPE (9x2 patterns), MIX, DIP, Chroma Key, Luma Key, Logo, DSK, PIP/POP

10. WARRANTY AND SUPPORT

AVMATRIX products are designed for reliability and performance. For warranty information and technical support, please refer to the official AVMATRIX website or contact their customer service directly.

- **Official Website:** www.avmatrix.net (Please check for the most current contact information and support resources.)
- **Customer Service:** Refer to the contact section on the official website for email or phone support.
- **Firmware Updates:** Regularly check the support section of the AVMATRIX website for the latest firmware and software updates.

Note: Warranty terms and conditions may vary by region. Please retain your proof of purchase for warranty claims.

Related Documents - SHARK S4

AVMATRIX SHARK H4M: Professional 4-Channel HDMI Video Switcher & Audio Mixer for Live Streaming

The AVMATRIX SHARK H4M is a professional, all-in-one 4-channel HDMI audio and video switcher designed for live streaming and complex production needs. It integrates advanced video switching with comprehensive audio mixing, offering features like multiple inputs, USB/SD recording, RTMP/SRT streaming, and USB Type-C capture.

	[AVMATRIX SHARK S8X PLUS: 8-Channel SDI/HDMI Video Switcher User Manual](#) Discover the AVMATRIX SHARK S8X PLUS, a professional 8-channel SDI/HDMI audio/video switcher. This manual details its comprehensive features, including a 17.3-inch FHD display, advanced video effects like chroma key and PIP, PTZ camera control, live streaming, and recording capabilities, designed for professional live production environments.
	[AVMATRIX VS0601U Mini 6-Channel Multi-Format Streaming Video Switcher Manual](#) Comprehensive guide to the AVMATRIX VS0601U, a compact 6-channel SDI/HDMI multi-format video switcher for live streaming, audio mixing, and transitions. Features include USB3.0 live streaming, multiple outputs, and versatile input support.
	[AVMATRIX PVS0613 Portable 6-Channel Multi-Format Video Switcher User Manual](#) This manual provides comprehensive information on the AVMATRIX PVS0613, a portable 6-channel multi-format video switcher. It covers safety precautions, interfaces, specifications, front panel controls, operation instructions, and menu settings for video switching, audio mixing, and transition effects.
	[AVMATRIX VS0601U 6-Channel Multi-Format Streaming Video Switcher User Manual](#) Comprehensive user manual for the AVMATRIX VS0601U, a 6-channel SDI/HDMI multi-format streaming video switcher. Covers features, interfaces, specifications, operation, and menu settings for professional video production and live streaming.
	[AVMATRIX SHARK S8X PLUS 8-Channel SDI/HDMI Audio/Video Switcher User Manual](#) Comprehensive user manual for the AVMATRIX SHARK S8X PLUS, an 8-channel SDI/HDMI audio/video switcher. Covers features, specifications, operation, streaming, recording, and PTZ control for professional live production.