



Users' Manual

6-CH SWITCHER

HDS9106 (2022)

VER:2.0



Preparation Before Installation



Caution

- During transportation, handling, and installation of switchboard equipment, avoid collisions between the switchgear equipment and doors, walls, shelves, etc.
- When the equipment is unpacked and transported, it is strictly forbidden to put it down and drag it gently to avoid damage to the switchboard equipment.
- Do not place the switcher equipment in a flammable, explosive atmosphere or smoke environment. Do not perform any operation in this environment.
- Operating equipment should be kept away from water and moisture. The water in the switchgear or moisture will cause damage to the circuit of the switchgear equipment.
- A certain amount of heat will be generated during the operation of the switcher. Ensure that the switchgear equipment is ventilated and the switcher device can operate normally.



Danger

- It is a fatal hazard that indirect contact with the power supply by wet objects is prohibited. Unregulated, incorrect high-voltage operation can cause accidents such as fire or electric shock.
- It is forbidden to install and remove the switchgear equipment and power cord. When the power cord is in contact with the conductor, an arc or spark may be generated, which may result in fire or electric shock.

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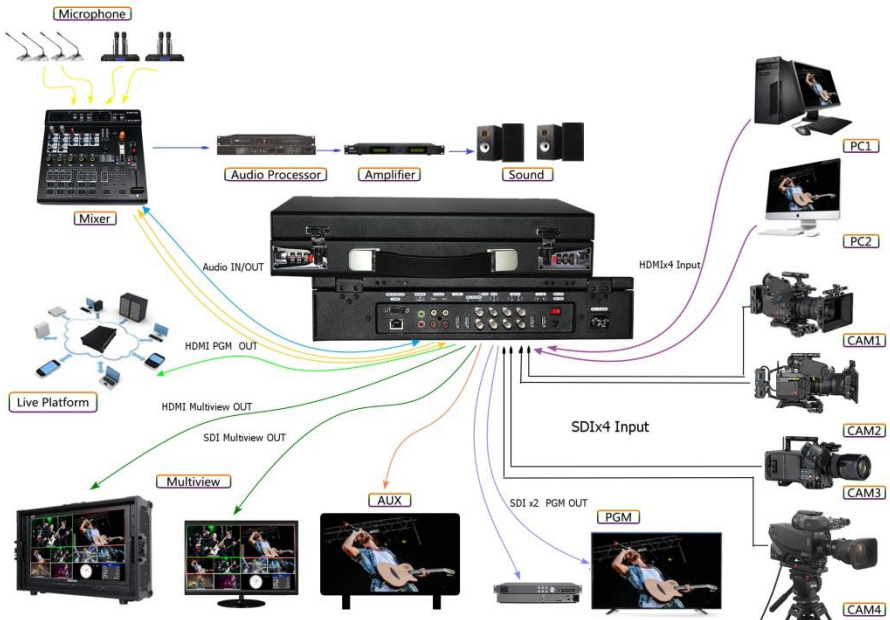
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1. Overview

1.1 Introduction

DeviceWell HD Video Switcher HDS9106 adopts portable integrated design, Clamshell metal casing, standard size: 384*250*76.5 mm, which can be used for video special effects switching in small outdoor scenes. The device integrates common components such as multiview processor, special effects generator, audio processor, and control keyboard.

The HDS9106 supports 4 channels of broadcast SDI and 2 channels of HDMI for a total of six video signals. The external preview signal can be output synchronously. The HDS9106 supports SDI embedded audio + external analog audio. After mixing, it can be embedded in the output SDI signal or output from the analog port. The resolution of all input signals is automatically adapted, and the output signal resolution can be selected as required, which is quite flexible. For the video switching needs of broadcast TV, outdoor sports events, school courseware production, etc., the functions of HDS9106 can be fully satisfied.



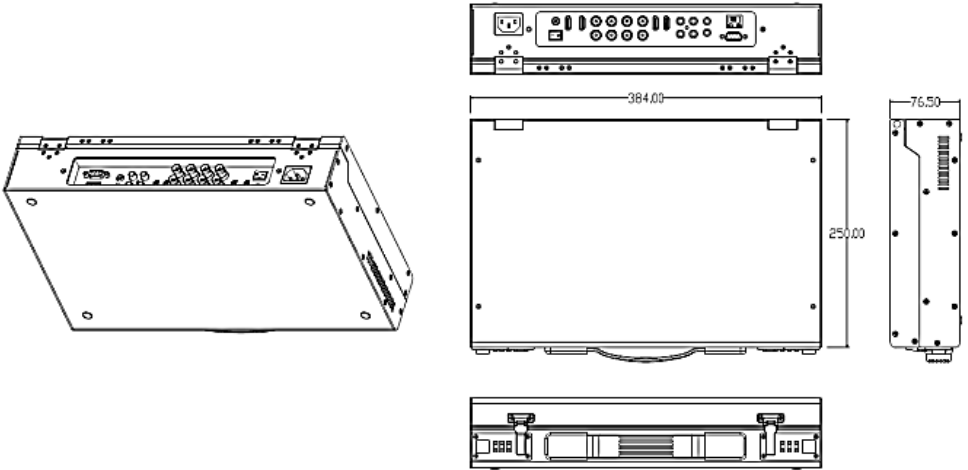
2. Functional characteristics

The DeviceWell HDS9106 6-channel HD video switcher is a multi-function switcher that requires no special knowledge and can be used for video switching and audio mixing with simple operation. This unit can be used in radio and television, live broadcast and various activities.



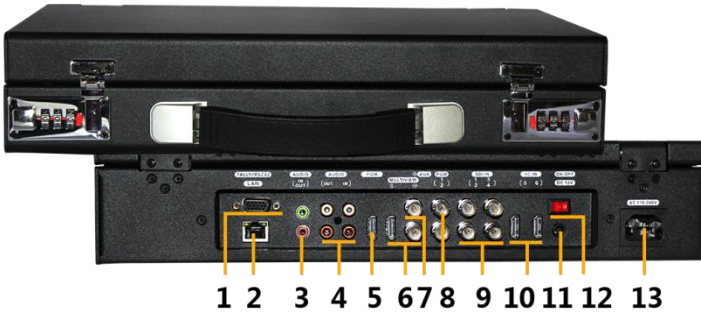
- ◆ Portable integrated design
- ◆ Advanced black metal body, high strength
- ◆ Integrated control keyboard
- ◆ Supports up to 4 SDI and 2 HDMI inputs
- ◆ 3.5mm analog audio input and output
- ◆ 1-channel lotus seat audio input and output
- ◆ Support PIP/POPscreen windowing function
- ◆ Audio support follow and mix assignment mode
- ◆ PGM output: 2-CH SDI and 1-CH HDMI
- ◆ Multiview output: 1 CH HDMI and 1 CH SDI
- ◆ Support special effects switching such as MIX / FADE/WIPE
- ◆ Support CUT hard support for AUTO effect switching
- ◆ Transition rate adjustable
- ◆ Support Tally / network remote control
- ◆ Support 1 channel SDI output custom PGM/PVW
- ◆ Built-in chassis temperature detection and fan intelligent control system
- ◆ Support software online upgrade

2.1 Size: 384*250*76.5mm



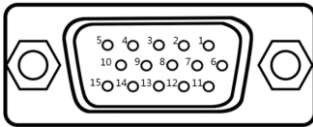
3. Interface Specification

3.1 Interface Introduction



NO.	Definition	Description
1	TALLY/RS232(reserved)	TALLY / serial port control (reserved)
2	LAN	Network upgrade
3	AUDIO IN/OUT	3.5mm audio input and output
4	AUDIO IN/ OUT	RCA audio input and output
5	HDMI OUT	PGM live output
6	MULTIVIEW OUT	HDMI and SDI multiview output
7	AUX	Auxiliary output, custom PGM/PVW
8	SDI OUT	PGM live output
9	SDI IN	4-CH SDI video source input
10	HDMI IN	2-CH HDMI video source input
11	DC 12V	Power input
12	Power	Power switch
13	AC 110-240V	Power input

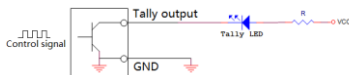
3.2 TALLY Interface



Note: PIN1 PIN2 not used.

PIN	Function	PIN	Function
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
3	PGM-IN6	4	PVW-IN6
5	GND		

TALLY : Online schematic:



Note: Tally LED: for external display devices

Tally output : Active low (Tally LED is lit) High level is invalid
(Tally out is off)

3.3 Parameters

Name	6-CH Portable Switcher	
Model	HDS9106(2022)	
Video Signal Input	Input signal	SDI/HDMI video signal
	Rate	270Mbps~3Gbps
	Connector	Standard
	Reflection loss	>15dB 5MHz~3GHz
	Signal amplitude	800mV±10%(SDI/HDMI)
	Impedance	100Ω (HDMI) 75 Ω(SDI)
	Balance	Adaptive
	DVD input	480i/576i,480p/576p,720p,1080i,1080p,
	Computer HDMI input support	1920x1080,1680x1050,1600x900,1440x1050,1366x768,1360x768,1360x768,1280x1024,1280x960,1280x800,1280x768,1280x720,1280x600,1152x864,1024x768,800x600
Video Signal Output	output signal	SDI/HDMI video output
	Code rate	270Mbps~3Gbps
	Connector	Standard
	Return Loss	>15dB 5MHz~3GHz
	Signal amplitude	800mV±10%(SD /HDMI)
	impedance	100Ω (HDMI) 75 Ω(SDI)
	DC offset	0V±0.5V
	Clock recovery	Support
Control Parameter	Serial	RS232(reserved)
	Control	9600 baud, 8 bits, 1 stop bit, no parity
	Connection	15-pin D-port, 2-RX, 3-TX, 5-GND
	Network control	RJ45,100M
General Parameter	power supply	12V/DC
	Power rate	22w
	control panel	Support on-site production, integration of
	Host weight	About 1.28KG
	Operating temperature	0℃~50℃, No condensation
	Storage temperature	-20℃~75℃
	Working humidity	20%~70%RH
	Storage humidity	0%~90%RH, No condensation

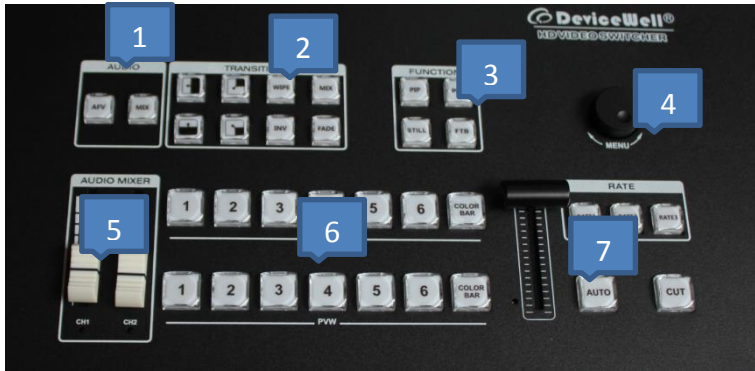
4. Control Panel and Interface

Before using the HD Mini Switcher, please take a few minutes to read this section. This chapter will introduce you the panel and interface of the HD switcher to facilitate your subsequent use and operation.

The new high-strength characteristics of the new aluminum alloy with high-strength characteristics improve the anti-drop, anti-shock and shock-proof capabilities of the whole machine, and effectively protect the internal components of the equipment. Ultra-lightweight features make the unit easier to transport and maintain without the need for additional equipment; it also offers unparalleled thermal performance.

In addition to the innovation of the case, the HD switcher has also been completely optimized for the interface connector. Environmentally friendly materials with new RoHS standards are More demanding in terms of durability and environmental protection, to provide customers with more stable, more environmentally friendly, more cost-effective products.

4.1 Control Panel



4.1.1 Area Description

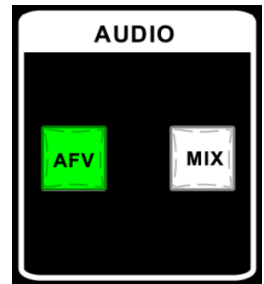
NO.	Name	Description
1	Audio Control	Mainly for Audio Follow and mix settings.
2	Transition Effect Control	Select transition effects
3	Integrated control area	PIP and POP effects
4	Knob Control	Use the knob to set menu information
5	Audio fader	Main control output volume
6	PVW& PGM Select	Live broadcast and preview selection
7	T-Bar	Manual control of transitions

4.1.2 Key Description

4.1.2.1 Audio Control Area

- **How to use the audio follow mode:**

1. Press the AFV button on the operation panel. The button will light green at this time. The corresponding multi-screen menu will also display the current audio status. In the menu, Audio Mode displays Follow, indicating that the audio is in follow mode; as shown on the right.



Under the audio follow mode, CH1, CH2, CH1_VOL and CH2_VOL in the menu will change to light gray, and the option is unusable, as shown in the image to the right.

STATUS	
CH1	IN6
CH2	RCA_IN
CH1_VOL	44
CH2_VOL	100
AUX	PGM
Audio Mode	Follow
PGM Out	1080P25

2. The channels of the audio follow mode are IN1-SDI1, IN2-SDI2, IN3-SDI3, IN4-SDI4, IN5-HDMI5, IN6-HDMI6, and the corresponding operation panel buttons (the button panel 2 lights up at this time, indicating that Operate the IN2-SDI2 signal source as shown below.)



3. The volume adjustment of the audio follow mode is controlled by the mixer of the operation panel; pressing the AFV button of the following mode, the corresponding CH1 light will also be lit, and the audio fader is pushed up, the volume is higher. Big.

The position of the audio fader of CH1 is continuously adjusted up and down, and the corresponding menu portion can also display the current volume.



● How to use the mix assignment:

1. Press the MIX button on the operation panel, the button will light green at this time.



The menu corresponding to the multi-screen will also display the current audio status. In the menu, Audio Mode displays Mixing, indicating that the audio is in the mix assignment mode; (the CH1 and CH2 options are available in the menu) as shown on the right.

STATUS	
CH1	IN1
CH2	IN2
CH1_VOL	44
CH2_VOL	100
AUX	PGM
Audio Mode	Mixing
PGM Out	1080P25

2. The channels assigned by the mix are IN1-SDI1, IN2-SDI2, IN3-SDI3, IN4-SDI4, IN5-HDMI5, IN6-HDMI6, XLR_IN, RCA_IN. The mix assignment mode is followed by two additional audio add-on functions. XLR stands for 3.5mm audio interface, RCA stands for RCA audio interface; PGM live output can mix two channels of audio at the same time, the volume of two channels of audio can also be adjusted separately.



3.5mm Audio Interface



RCA Audio Interface

3. The audio channel adjustment of the mix assignment: through the control panel knob MENU to adjust, corresponding to the multi-screen menu to monitor the adjusted state



The knob rotates clockwise once, and the background color appears in the CH1 character in the menu, indicating that the first channel audio is currently adjusted; press the knob to enter the channel selection of the first channel audio IN1-SDI1, IN2-SDI2, IN3-SDI3, IN4-SDI4, IN5-HDMI5, IN6-HDMI6, Phone_IN (formerly device XLR_IN), RCA_IN, make sure to press the knob to exit;

STATUS	
CH1	IN1
CH2	IN2
CH1_VOL	44
CH2_VOL	100
AUX	PGM
Audio Mode	Mixing
PGM Out	1080P25

STATUS	
CH1	IN3
CH2	Phone_IN
CH1_VOL	44
CH2_VOL	100
AUX	PGM
Audio Mode	Mixing
PGM Out	1080P25

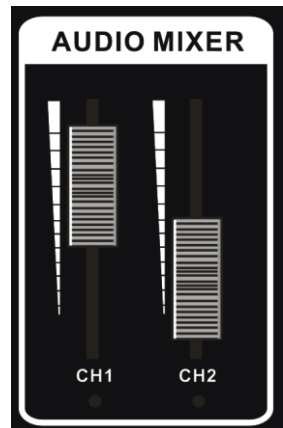
The CH2 audio channel is selected in the same way as the CH1. The knob rotates clockwise once, and the background color appears in the CH2 character in the menu. It indicates that the second channel audio is currently adjusted. Press the knob to enter the second channel and select IN1-SDI1, IN2-SDI2, IN3-SDI3, IN4-SDI4, IN5-HDMI5, IN6-HDMI6, Phone_IN (formerly device XLR_IN), RCA_IN, make sure to press the knob to exit.

STATUS	
CH1	IN3
CH2	Phone_IN
CH1_VOL	44
CH2_VOL	100
AUX	PGM
Audio Mode	Mixing
PGM Out	1080P25

STATUS	
CH1	IN3
CH2	Phone_IN
CH1_VOL	44
CH2_VOL	100
AUX	PGM
Audio Mode	Mixing
PGM Out	1080P25

4. The volume adjustment of the audio mixing mode is also controlled by the mixer of the operation panel; pressing the MIX button of the mixing mode, the corresponding CH1 and CH2 lights will be illuminated. CH1 corresponds to the volume adjustment of the first mix, and CH2 corresponds to the volume adjustment of the second mix. The more the audio fader is pushed up, the louder the volume.

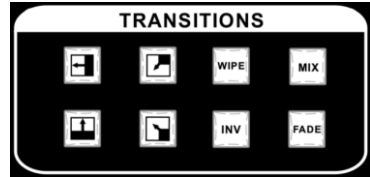
Constantly adjust the position of the audio faders of CH1 and CH2 up and down, and the corresponding menu section can also display the current volume.



4.1.2.2 Transition Effect Control Area


There are 4 transition modes:

MIX transitions, FADE, and Wipes and INV mirror



- **MIX Transition**


The MIX effect is a transition effect. After setting the transition, the original live screen will be lightened at the main output and then know that the transition to the new live screen is complete.

Click on the effect control area  (press the green light afterwards), and then click CUT or use the T-bar or AUTO to switch. The effect is as follows.



MIX transition effect, superimposed and superimposed B picture in A picture until the transition to the end, the picture is completely replaced with B picture

- **FADE Transition**


Click on the effect control area  (press the green light afterwards), and then click CUT or use the T-bar or AUTO to switch, under the effect diagram.




FADE in and out, and A gradually darkens until it is completely black, and then gradually changes from black to B.

● WIPE Transitions

There are 4 types of wipe transition modes

Up transition: Click on the effect control area  (press the green light afterwards),


Click on the effect control area  (press the green light after pressing), and then click CUT or use the T-bar or AUTO to switch. The effect is as follows.




Up transition effect, the A picture is unchanged, and the B picture is gradually drawn in the upward direction until the picture completely becomes B.

● INV Transitions

The INV mirror transition is opposite to the original WIPE transition direction. When the WIPE and INV in the button panel are pressed, and then the direction of the upward

transition is pressed , the screen that appears will be the downward transition

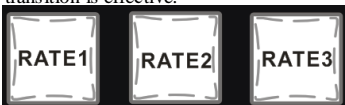
, and the effect diagram is as follows.



Downward transition effect, the A picture is unchanged, and the B picture is gradually drawn in the downward direction until the picture completely becomes B.

● Transition rate adjustment

When operating the transition effect control area, you can control the transition rate by operating RATE1, RATE2, RATE3 in the button panel. Note: Only when using AUTO transition is effective.



4.1.2.3 Integrated Control Area

- **PIP Effect**



Picture-in-picture effects: Press the control panel (press the green light afterwards), and then click CUT or use the T-Bar or AUTO to switch. The effect is as follows.



At this time, the information on the LCD screen will be switched to the PIP setting. After pressing the knob, it can be set according to the requirements, as shown below.

PIP	
Window	1
H Position	0
V Position	0
Size	Large
Border Enable	On
Border Width	2
Border Color	Green
Exit	

PIP size and position

You can use the knob to set the parameters of the PIP picture-in-picture, as follows (the horizontal/vertical position below is the smallest display image)

Horizontal position setting: The value from the top left to the top right is 0-1440, and the value of one rotation per knob is increased/decreased by 10.

Vertical position setting: The value from the top left to the bottom left is 0-810, and the value of one rotation per knob is increased/decreased by 10.

Display size setting: Small/medium/large settings can be selected.

Border switch setting: You can select the on/off setting.

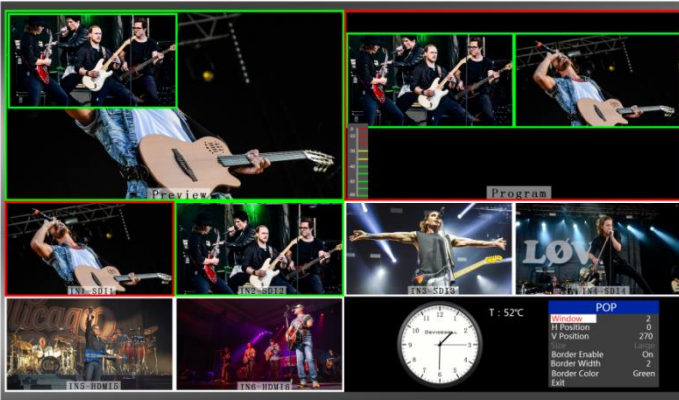
Border width setting: The border width can be selected from 2-7 thickness borders, and the value of each rotation knob is increased/decreased by 1.

Border color setting: You can choose white/red/green to set the border color.

- **POP Effect**

POP

Picture-out-Picture effects: Press the control panel (press the green light), then click CUT or use the T-Bar or AUTO to switch. The effect is as follows.



At this time, the information of the multi-screen monitor output will be switched to the POP picture-out-picture setting. After pressing the knob, it can be set according to the requirements, as shown below.

At this time, the information on the LCD screen will be switched to the POP picture drawing setting. After pressing the knob, it can be set according to the requirements, as shown below.

POP size and position

POP	
Window	2
H Position	0
V Position	270
Size	Large
Border Enable	On
Border Width	2
Border Color	Green
Exit	

You can use the knob to set the parameters of the POP, as follows

Screen selection setting: You can select 1/2 two screens.

Horizontal position setting: The value from the top left to the top right is 0-960, and the value of each rotation knob is increased/decreased by 10.

Vertical position setting: The value from the top left to the bottom left is 0-540, and the value of one rotation per knob is increased/decreased by 10.

Border switch setting: You can select the on/off setting.

Border width setting: The border width can be selected from 2-7 thickness borders, and the value of each rotation knob is increased/decreased by 1.

Border color setting: You can choose white/red/green/green to set the border color.

- **STILL screen freeze effects**

The STILL button is defined as the screen freeze function. Press the button to turn on the green light to turn on the screen freeze function, press the button to turn off the green light, and the screen freeze function to turn off;

- **FTB emergency black field**

The FTB button is defined as the emergency black field screen output, press the button and the green light flashes to turn on the FTB emergency black field output function, press the button to turn off the green light, and the FTB emergency black field function is off;

4.1.2.4 PGM & PVW Selection

- **Multiview output window introduction**



PVW and PGM are the preview and live output respectively, as shown below.



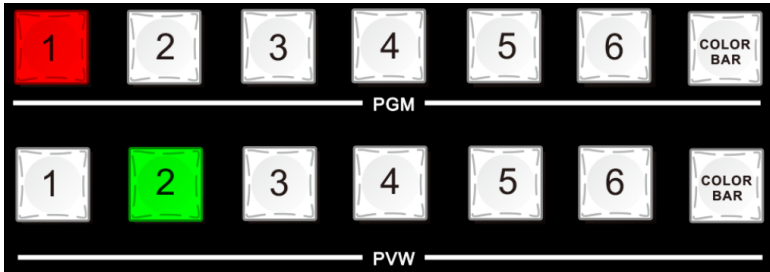
There are 6 windows below which correspond to input source monitoring, corresponding to buttons 1 – 6 on the control panel of the switcher.



● PGM & PVW Output Signal

After the device is connected to the video source, press 1 (PGM) and 2 (PVW) in the button panel. The live and preview signals in the output multi-screen monitor are 1 (PGM) and 2 (PVW) respectively. The signal sources are SDI IN1 and SDI IN2, respectively.

The effect chart is as follows

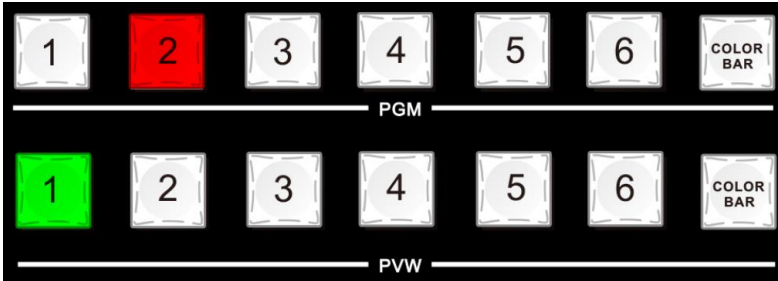


● PGM & PVW Source Switching

If you want to switch between PGM and PVW source in Multiview

Suppose you want to convert live signal source 1 (PGM) and preview source 2 (PVW) into 2 (PGM) and 1 (PVW) in multiple pictures, just press 2 (PGM) and 1 in the button panel (PVW), then use the T-bar to switch. The live PGM signal source 1-6 can be arbitrarily switched with the preview PVW signal source.

The effect chart is as follows:



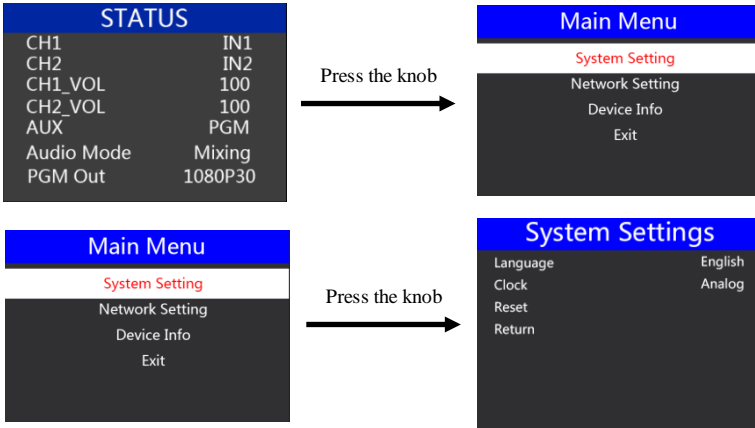
The color bar will be output when the button in the button panel is pressed.

5. System menu settings

- **Menu display**

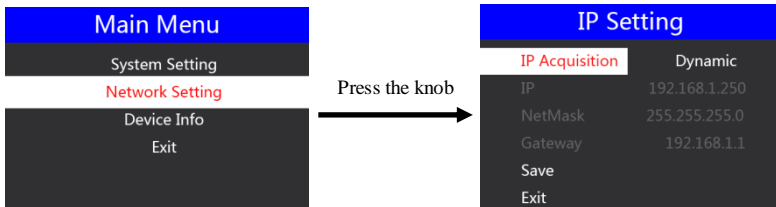
In the menu bar, you can perform IP settings on the device, restore the system to factory settings, and change the language.

In the default state of power on, press the knob to enter the main menu, as shown below.



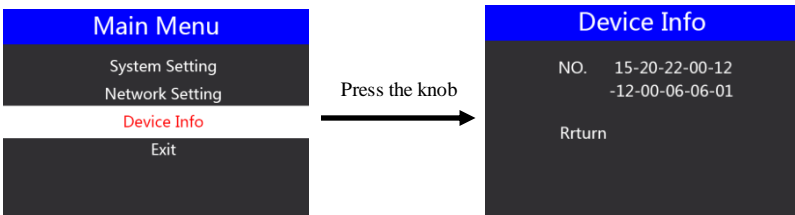
In the system setting menu, you can choose between language selections: Chinese or English. In the time display: select analog or digital display always; if you encounter an unknown error during use, you can choose to restore the factory. Set to reset.

● IP Setting



In the network settings menu, you can select in the IP acquisition: dynamic IP or static IP. After selecting the static IP, you can also set the IP address, subnet mask, and network management settings accordingly, and then save and return.

● Device Info



6. Failure and Maintenance

● Common Faults and Solutions

(1) The output image may be flickered by interference. The quality of the wire used may be poor, and the shielding layer of the wire is not well prepared. When there is a strong radio near the use environment, radio waves may interfere with the transmission of the signal, resulting in unstable signal flicker. Please use the wire produced by regular manufacturers, such as Belden, Jia Nai Mei.

(2) When plugging in the audio and video interface, if there is obvious static electricity, the device power ground wire may not be good grounding, please ground in the correct way; otherwise it will easily damage the host and shorten the life of the mainframe.

(3) When RJ45 cannot control the Switcher, check whether the communication port set by the control software corresponds to the serial port of the connected device; check if the communication port of the computer is good.

● Maintenance

Use a soft, dry cloth to clean the device. Do not use alcohol, paint thinner or benzene to clean.

Make sure that the device is stored and operated in an environment away from liquids and stains.

● Warranty information

The company guarantees that the process and materials of the product are not defective within 12 months after purchase from the company or its authorized distributors, under normal use and service support. We offer a one-year warranty after sale.

7. More switcher options

No.	Model	Description	No.	Model	Description
1	AVS7105	Audio and video switcher (4DMI+1DP)	18	HDS8102	Touch screen switcher (2*HDMI)
2	HDS9101	Portable switcher (4SDI+2HDMI)	19	HDS8101	Touch screen switcher (4*HDMI)
3	HDS9105	Portable switcher (4HDMI +1DP)	20	HDS8107	Touch screen switcher (4*HDMI)
4	HDS9105C	Portable switcher (4HDMI +1DP)	21	HDS8301	Touch screen switcher (4*HDMI)
5	HDS9125	Portable switcher (4HDMI+1DP)	22	HDS8307	Touch screen switcher (4*HDMI)
6	HDS9135	Portable switcher (4HDMI+1DP)	23	HDS8325	Touch screen switcher (2*HDMI)
7	HDS9325	Portable switcher (4HDMI+1DP)	24	HDS8345	Touch screen switcher (4*HDMI)
8	HDS9335	Portable switcher (4HDMI+1DP)	25	HDS8347	Touch screen switcher (4*HDMI)
9	HDS9226	Portable switcher (4SDI+2HDMI)	26	HDS7105S	Simple switcher (4HDMI+1DP)
10	HDS9236	Portable switcher (4SDI+2HDMI)	27	HDS7105	Simple switcher (4HDMI+1DP)
11	HDS9326	Portable switcher (4SDI+2HDMI)	28	HDS7105P	HDS7105 with T-Bar
12	HDS9336	Portable switcher (4SDI+2HDMI)	29	HDS7205S	Simple switcher (4HDMI+1DP)
13	HDS9108	Portable switcher (4HDMI+4SDI)	30	HDS7305	Simple switcher (4HDMI+1DP)
14	HDS9106	Simple switcher (4SDI+2HDMI)	31	HDS7106	Simple switcher (4SDI+2HDMI)
15	HDS9106MINI	MINI Portable switcher (4SDI+2HDMI)	32	HDS6506	All-in-one switcher(6-CH)
16	HDS9110	Portable switcher (8 SDI+2 HDMI)	33	HDS6110	All-in-one switcher(10-CH)
17	HDS9112	Portable switcher (12 SDI)	34	HDS6112	All-in-one switcher(12-CH)

产品保修卡 WARRANTY

保修须知:

Warranty Notice:

一: 凡购买本公司的产品用户, 凭本保修卡享受保修期内维修服务。

1.Customer who buys the product will be offered repair service during the warranty validity period.

二: 本公司所有产品自出货之日起保修一年。保修服务仅限正常使用下有效。

2.The warranty period is one year form the date of shipment,Guarantee service is subject to normally using.

三: 本保修卡不补发, 保修期内请妥善保管, 用户要求维修服务时, 应出示保修卡和保修卡对应的机器。

3. This warranty card is not reissued. Please keep it properly during the warranty period. When the user requests repair services, the warranty card and the machine corresponding to the warranty card should be presented.

四: 因以下情况损坏和出现故障的产品不能享受保修服务:

4.Damage and failures due to following conditions are not covered:

1).一切人为损坏、自行拆机、拆封标、使用不当的维修保养、意外或自然灾害所致之故障或损坏;

1) All man-made damage, self-dismantling, unsealing labels, improper use of maintenance and storage, failure or damage caused by accidents or natural disasters;

2).产品无保修卡或保修卡被涂改、内容无法辨认或内容与实物不符;

2) No product warranty card,warranty card has been alterd;content illegible or incompatible with the product.

3).产品超出保修期。

3) Validity period has expired.

保修单位(Warranty Party): _____ 地 址(Address): _____

联系电话(Tel): _____ 邮 编(Post Code): _____

产品型号(Model): _____ 产品编号(Item No.): _____

产品合格证 CERTIFICATE

本合格证证明客户购买的产品是本公司生产, 完全符合原厂服务要求。

This is to certificate that the product in the package is manufactured by the manufacture and in full complian with the specifications of the original service.

检验员(QC): _____ 出厂日期(Date): _____

产品型号(Model): _____ 产品编号(Item No.): _____





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