



Users' Manual

SWITCHER

Model: HDS9101

VER 3.0



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<http://www.devicewell.com>

Precautions

About this device:

- This device belongs to the high-frequency video processing equipment. Therefore, please strictly observe the following points:
- Non-professionals are not allowed to disassemble the equipment case without permission. Do not repair it yourself to avoid accidents or damage to the equipment.
- Do not spill any chemicals or liquids on or near the equipment.
- The power supply of the device will generate heat during operation. Therefore, keep the working environment well ventilated to avoid damage to the device due to excessive temperature.
- Do not place system equipment in a location that is too cold or too hot.
- Operate the equipment in an environment where the temperature is between 0-70 degrees Celsius (32-158 degrees Fahrenheit) and the humidity is between 10% and 80%.
- Try to keep the product environment clean and avoid dust, otherwise there is a danger of destroying the product.
- When using the product, keep it away from electromagnetic fields.



- Do not dispose of this product as normal waste. This product is designed to be recyclable.

Copyright:

When using this unit for video and/or audio switching, publishing over the Internet, or the like, in some cases it may be necessary to authorize the copyright owner of the video or audio. In order to protect copyright, please strictly observe the following points when using this device:

- When connecting a recording device to this unit and recording video or audio, be sure to follow the relevant copyright laws.
- It is prohibited by law to display or publish third-party copyrighted video and audio materials, or to allow private or public access without the permission of the copyright holder.
- Even if you have the right to display or publish, for example, editing activities that use this unit to erase or disassemble the original content may still be prohibited by law. For the purpose of copyright protection, the specifications of the video and audio signals that can be input may change without notice due to software upgrades or feature extensions.
- According to copyright laws, recorded video and audio may not be used for purposes other than personal preferences without the permission of the copyright holder. Please note that even if it is based on personal preference,
- It may also limit shooting during live performances, performances or exhibitions.

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1. Overview

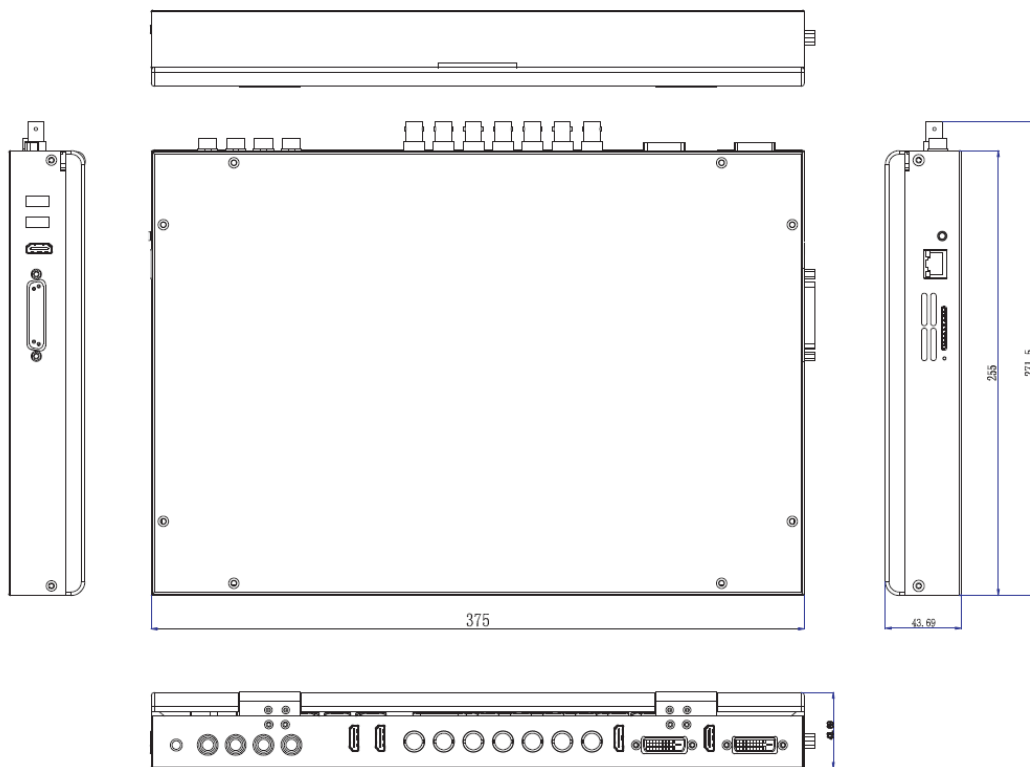
1.1 Introduction

The DeviceWell HD video switcher features a portable all-in-one design, all-aluminum alloy case, small size and light weight, which can be used for video effects switching in out-of-office scenarios. The device integrates common components such as multi-screen preview processor, special effects generator, mixed audio processor, OSD menu, control keyboard, T-type putter, audio fader, USB multimedia player and LCD panel.

The HDS9101 supports 4 channels of broadcast SDI and 2 channels of DVI/VGA/HDMI/USB input for a total of 12 channels of video signals. In addition to the built-in LCD display preview screen, the external preview signal can be output synchronously for user expansion. The HDS9101 supports SDI embedded audio + external analog audio. After mixing, it can be embedded in the output SDI signal or output from the analog port. Built-in USB multimedia player, support video, picture, can be quickly controlled through the control panel. The resolution of all input signals is automatically adapted, and the output signal resolution can be selected as required, which is quite flexible. The HDS9101 has a built-in recording function. For video switching needs such as broadcast TV, outdoor sports events, and school courseware production, the HDS9101 can fully satisfy the functions.



1.2 Size: 375*271.5*43.69mm

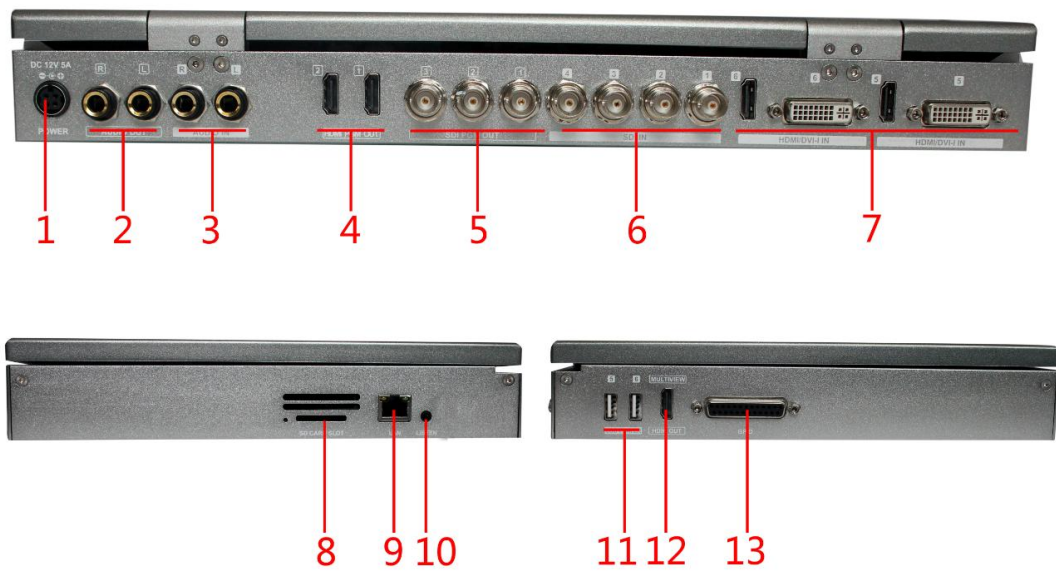


Unit: mm

2 Interface Specification

2.1 Interface Introduction

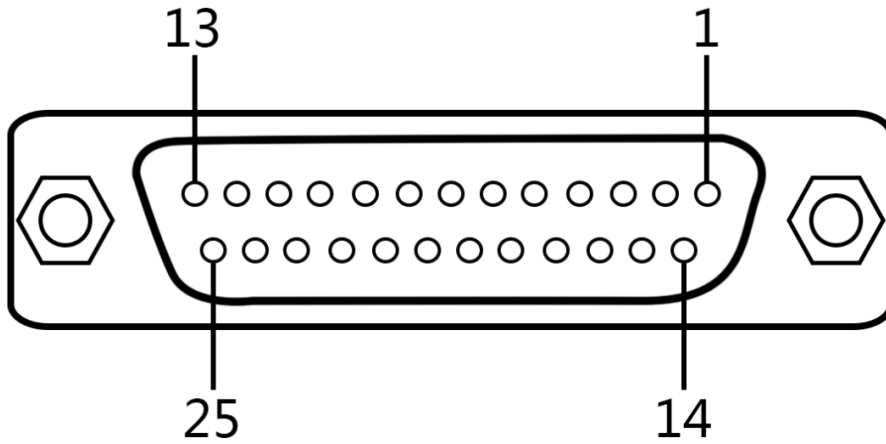
The DeviceWell HDS9101 interface is shown below.



NO.	Definition	Description
1	DC POWER IN	DC12V /5A power input
2	Audio OUT	Analog differential audio output
3	Audio IN	Analog differential audio input
4	HDMI PGM OUT	2*HDMI PGM(live) output
5	SDI PGM OUT	PGM (live) output, SDI OUT3 custom PGM/PVW output
6	SDI IN	4*SDI source input
7	HDMI/DVI-I IN	HDMI or DVI-I input
8	SD Card	SD card recording
9	RJ45	Network port control and upgrade
10	LISTEN	Audio monitoring
11	USB Player	2*USB player
12	HDMI OUT	Multi-view output
13	TALLY	Tally interface (DB-25)

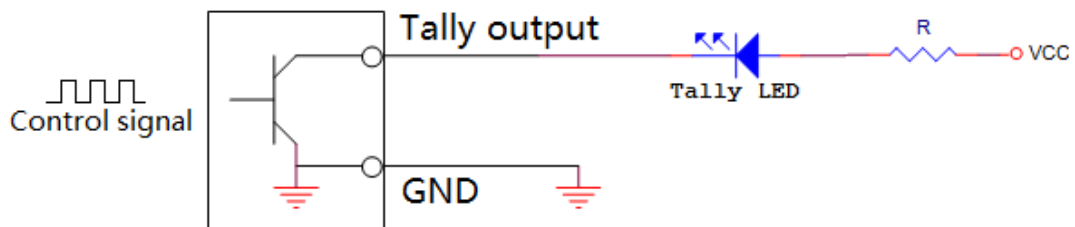
2.2TALLY Interface

HDS9101 DB-25 Interface Definition



Channel	PGM (LED Red)	PVW (LED Green)
1	1	14
2	2	15
3	3	16
4	4	17
5	5	18
6	6	19
GND (9、 22)		

TALLY : Online schematic



Note : Tally LED: for external display device

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

2.3Parameters

Product Name	Portable Video Switcher	
Product Model	HDS9101	
Video Signal Input	Input signal	SDI/HDMI/DVI Video Signal
	Bit rate	270Mbps~3Gbps
	Connector	Standard
	Reflection loss	>15dB 5MHz~3GHz
	Signal amplitude	800mV \pm 10%(SDI/VGA /HDMI/DVI)
	Impedance	100 Ω (HDMI/DVI) 75 Ω (SDI/VGA)
	Equilibrium	Adaptive
Video Signal Output	Output signal	SDI/HDMI /DVI/VGA Video Signal
	Bit rate	270Mbps~3Gbps
	Connector	Standard
	Reflection loss	>15dB 5MHz~3GHz
	Signal amplitude	800mV \pm 10%(SDI/VGA /HDMI/DVI)
	Impedance	100 Ω (HDMI/DVI) 75 Ω (SDI/VGA)
	DC offset	0V \pm 0.5V
Common Parameters	Power supply	12V/DC
	Power	Rated power 40w
	Size	375*271.5*43.69mm
	Control panel	Support on-site production, integration of a variety of buttons.
	Weight	3.365KG
	Operating temperature	0 $^{\circ}$ C~50 $^{\circ}$ C No condensation
	Storage temperature	-20 $^{\circ}$ C~75 $^{\circ}$ C
	Working humidity	20%~70%RH
	Storage humidity	0%~90%RH , No condensation

3 Functional Characteristics



1. Portable integrated design
2. All-aluminum body, streamlined design, high strength and light weight
3. Integrated 15.6-inch full HD LCD display, on-site multiview
4. Support SD/HD/3G signal format
5. 4-channel SDI, input resolution adaptive
6. 3-CH SDI/2 HDMI live PGM output, 1 HDMI multiview output
7. The 5th and 6th input interfaces are rich, and the HDMI/DVI/VGA/USB video interface is multiplexed;
8. 1 set of TRS analog differential audio input; 1 set of TRS analog differential audio output; support SDI audio de-embedding, external audio and SDI/HDMI de-embedded audio can be arbitrarily assigned output, support audio follow-up and mix switching function.
9. The color bar test screen output can also be generated inside the device.
10. HDMI input supports 4K60, backward compatible
11. Support PIP function, the size and position of the sub-window can be adjusted arbitrarily, and the thickness and color of the border can be set.
12. Support SD card to record PGM screen, and record video quality is optional;
13. The menu control is integrated into the multi-screen display window, which can conveniently set the parameters of the device and display the working status of the device in real time.
14. 1 group of KEY, support brightness key, chroma key, key image and superimposed character function;
15. Support MIX/FADE/WIPE switching effects; support CUT hard cut, AUTO automatic switching and FTB emergency switching, and the switching rate can be set;
16. Support TALLY connection call system;
17. Support 3.5mm audio output to monitor any audio channel.
18. Support network RTMP streaming

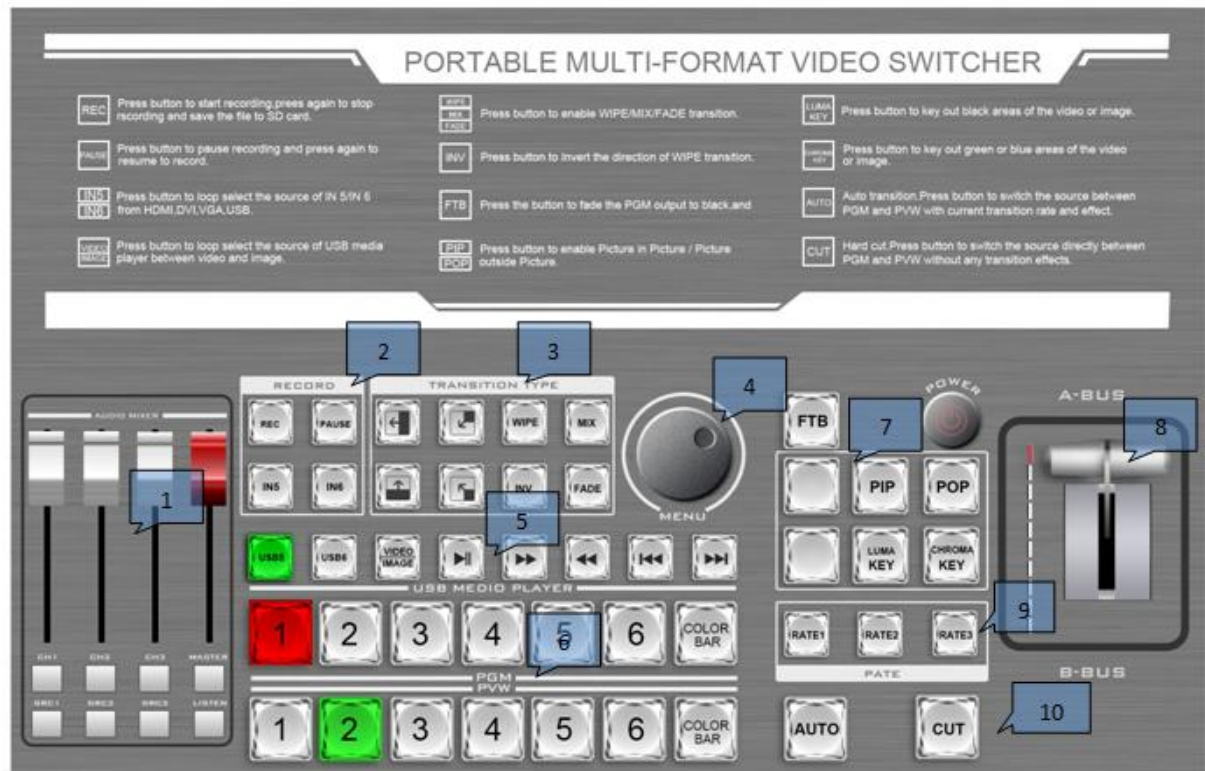
4 Control panel and interface

Before using the DeviceWell HD switcher, please take a few minutes to read this section. This chapter will introduce you to the panel and interface of the DeviceWell HD switcher for your convenience and operation.

The new high-strength aluminum alloy has high-strength characteristics, which improves the anti-drop, anti-shock and anti-seismic ability of the whole machine, and effectively protects 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 enclosure, the DeviceWell 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, providing customers with more stable, cost-effective and environmentally friendly products.

4.1 Control Panel



4.2 Introduction of Control Panel Partition

No.	Name	Introduction
1	Mixer	Mainly for audio follow, add and mix settings.
2	Recording and channel selection area	Record button and 5th, 6th channel selection settings
3	Transition control area	Set transition mode
4	Knob	Menu control
5	media Player	USB media player selection and control
6	PGM and PVW	Main output (live) and preview (preview) selection
7	Integrated control area	Mainly to control the switching screen picture overlay, keying, etc.
8、 9、 10	Transition control area	AUTO automatic, CUT hard cut, manual transition (push rod)

4.3 Description of partition and button

4.3.1 Mixer

Audio channel control :

CH1/ CH 2/ CH 3 --indicates that 3 input audio can be controlled ,

MASTER: Adjust the output master volume

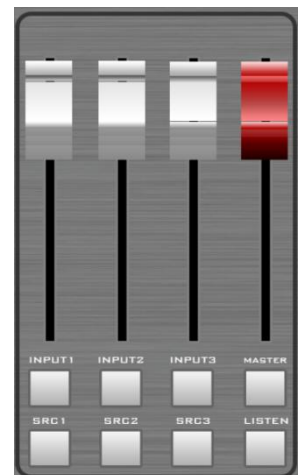
Audio Source Switch :

SRC is the audio channel binding selection, press SRC1 /SRC2/ SRC3

Loop switching selects the desired audio channel

Audio monitoring:

LISTEN monitor button, cyclically switch to select any one of the monitors;



5.3.2 Channel selection and recording



Recording: :

The HDS9101 supports recording, which can record live broadcasts and store SD cards.

Press REC directly to record, press PAUSE to pause recording, press again REC stops recording. (Note: During recording, you cannot suddenly power off or unplug the SD card; if an accident occurred during recording, or the previous recording file could not be played)

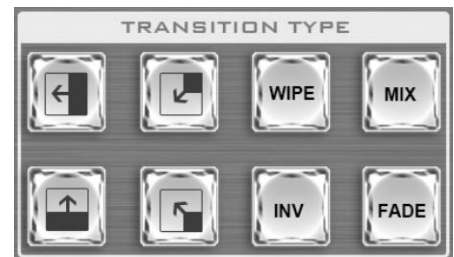
5th and 6th channel Source switch:

IN5 and IN 6 are channel source switching, and can be switched to DVI, VGA, HDMI, USB after pressing.

5.3.3 Transition Control Area

There are three transition modes: MIX mixed effects transition, WIPE wipe, FADE fade in and out;

The direction key is the WIPE direction, the INV key is the mirror key. Press the arrow key before pressing, and then press the INV mirror key. The wipe direction is opposite to the arrow direction.



5.3.4 Knob

The HDS9101 integrates an LCD menu that can be set with the knob

STATUS	
CH1	SDI 1
CH2	SDI 2
CH3	SDI 3
Monitor source	PGM
SDI OUT 3	PGM
Audio mode	Mixing
Output resolution	1080P30



5.3.5 Media Player



Select the channel to be set, USB5 or USB6.



Play video/picture selection keyboard: The default is to play video; if you want to play the picture, press this button.



Corresponding to play/pause, fast forward, rewind, previous song, next song.

5.3.6 PVW and PGM



Mainly select the channel of PGM and PVW output, red means broadcast, green means advance.



After pressing this button, the screen will output color bars.

5.3.7 Integrated control area



Black field, flashing after clicking, indicates that the main output is outputting a black field.



The picture-in-picture special effect button turns on the picture-in-picture function.



The picture-painting effect button is used to open the picture-drawing function.



Power switch, press boot, long press 3S shutdown

F1: Customize button functions, operate via the knob → Main menu → System settings → F1

→ PIP/POP/KEY/Stream (Push Stream)/Freeze (Picture freeze);

F2: Customize button functions, operate via the knob → Main menu → System settings → F1

→ PIP/POP/KEY/Stream (Push Stream)/Freeze (Picture freeze);

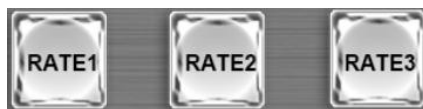
The main functions of these two custom buttons are streaming and screen freezing, which require the user to enter the main menu through the knob for setting.



The brightness key, the special effect key, presses the buckle to black and superimpose the background source.



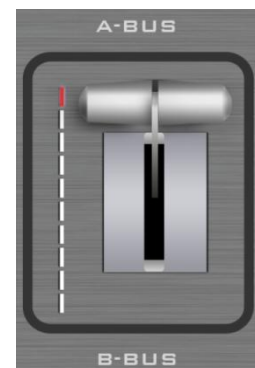
The brightness keys, the cutout effect key, press the buckle to black and superimpose the background source.



Transition rate selection: RATE1, RATE2, RATE3 can be customized through the menu (Note: only when using AUTO transition)

5.3.8 Transition Control Area

When the push rod is pushed to the A-BUS, the left indicator light is as shown on the right. When only one indicator light is displayed, it indicates that it has been pushed to the top, indicating that the preview and live broadcast have been switched.



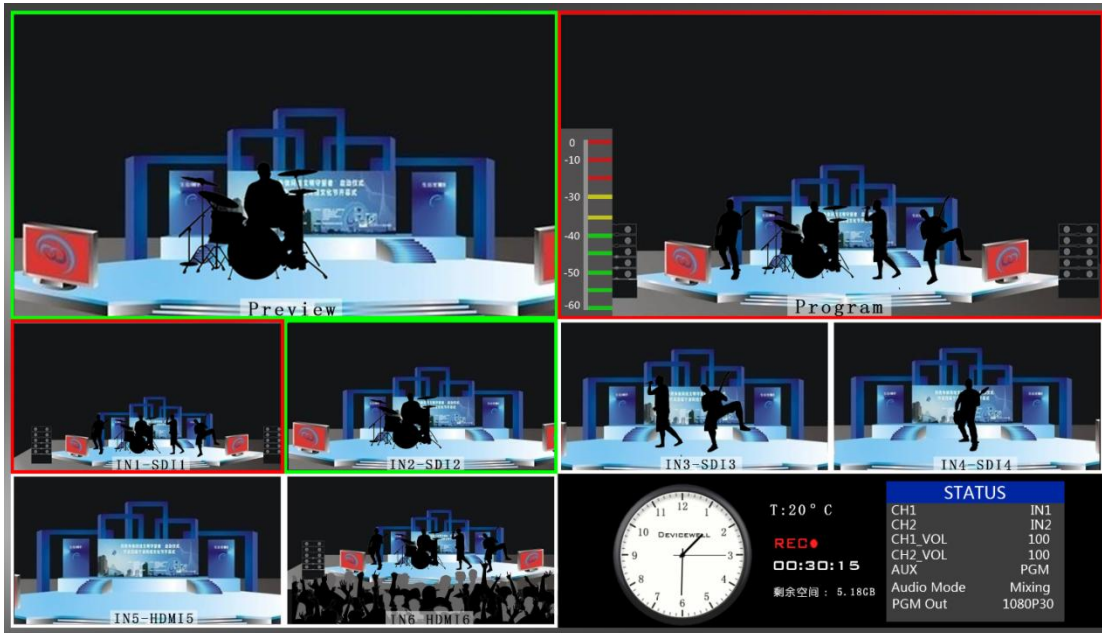
AUTO transition with special effect



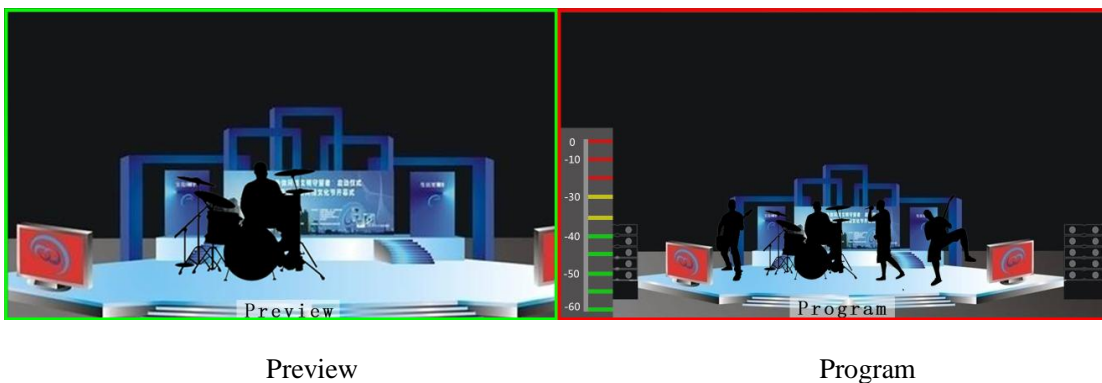
Hard cut transition without special effect

6.Operation Description

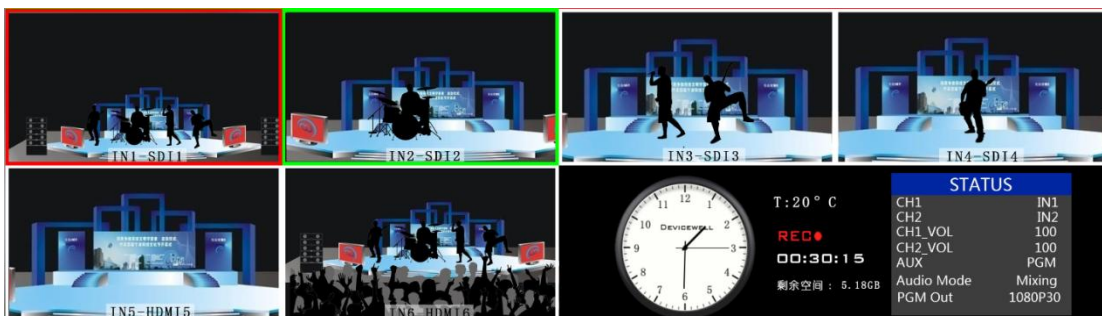
6.1Introduction of multiview output



PVW and PGM are preview and Program respectively, as show below:



There are 6 windows below, which are input source monitoring, SDI and USB or DVI.



The lower right corner is the information display of the switcher, the digital clock, the analog clock and the system state of the switcher (CH1-CH3 audio is the source of the audio channel in the right state).

6.2PGM and PVW switching

6.2.1 T-bar calibration

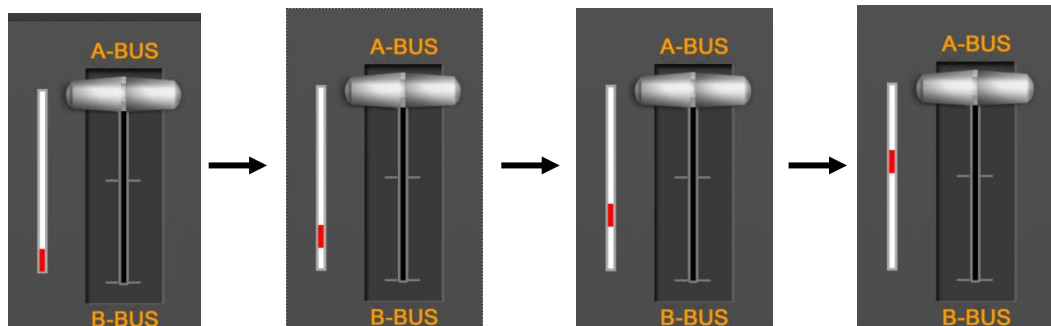
In the use of the switcher, the T-bar misalignment may occur, and the shift of the original point coordinates of the T-bar will be offset, so the T-bar system should be calibrated before use.

First, press the 1 and 2 keys in the PGM area at the same time when the device is off. The following diagram

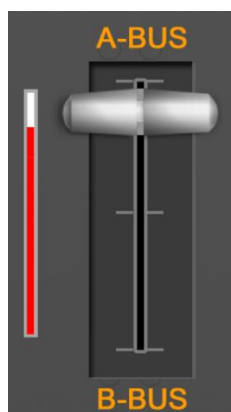


Note: the 1 and 2 keys are not allowed to be released during calibration.

Then turn on the power switch. After the boot is completed, the instructions next to the putter will be lit up in sequence.



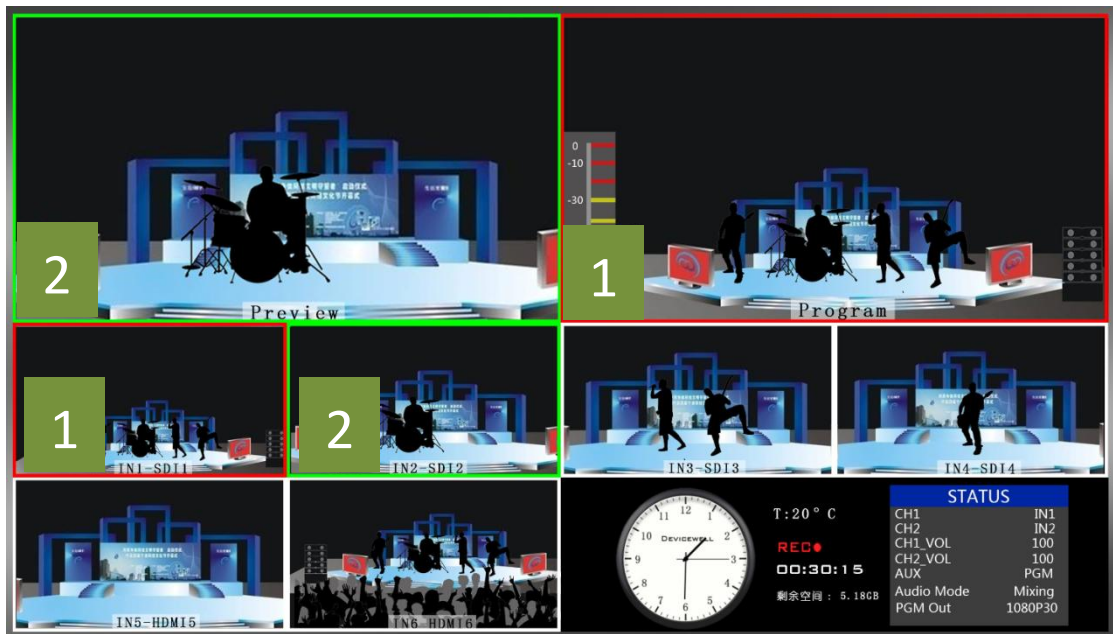
Push the T-bar back and forth until the indication is normal. (all up or all down) are shown below.



If the right picture is shown to indicate that the calibration is completed, the 1 and 2 keys pressed before can be released.

The picture on the left shows the status of the push indicator light from bottom to top.

After the device connection is completed, enter the SDI camera 1 and the camera 2, by default it will be displayed in the lower red mark 1 and 2; then press the control panel PVW and the PGM area to press the corresponding signal source with the PVW and the PGM frame above the 1 and 2, respectively.



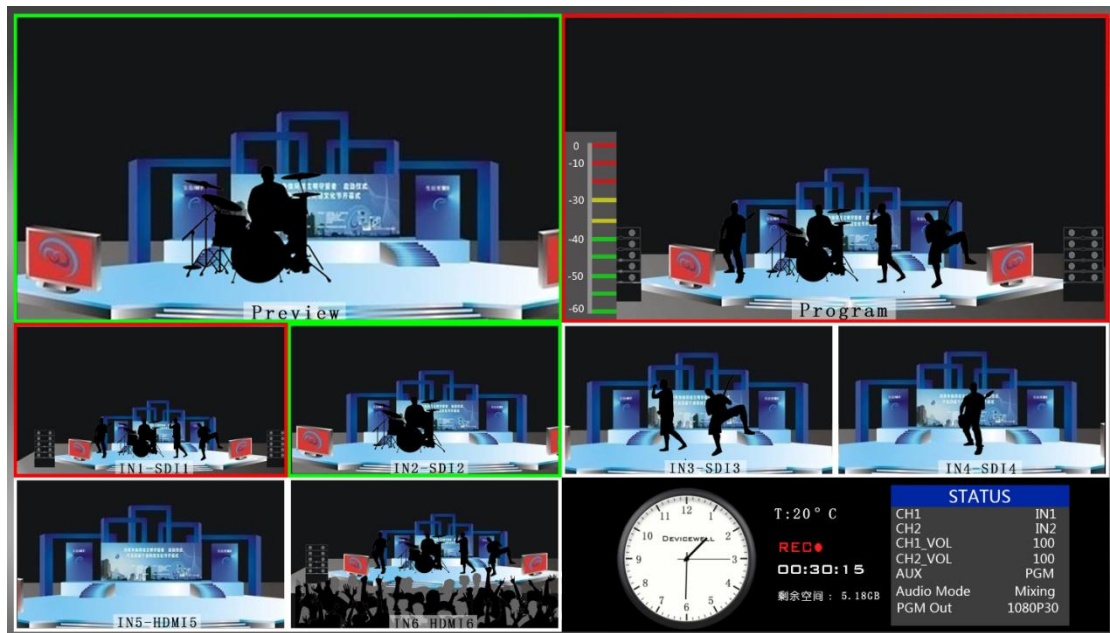
Then press the AUTO or CUT of the control panel, or manually push the T-bar to switch operation. AUTO for automatic switching can set transition effects, CUT hard cutting, no transition effect, manual T-bar can set special effects, speed and switch speed is proportional to the speed.

Note: when the AUTO or T-bar is in the process of transition, the 1 key of PGM and the 2 key of PVW are all red at this time, and the channel to switch PGM or PVW is invalid. The following diagram



6.2.2 5 and 6 channel source switching in PVW

Among them, 5 and 6 channels have 4 kinds of signal sources, which are DVI, USB, HDMI, VGA, can be set by button on control panel..





First press IN5 or IN6 in the recording and transition control area, where IN5 and IN6 correspond to the 5 and 6 channels of multi-screen preview, press the channel selection button multiple times, and cycle the selected channel signal source for the first time. The default order is DVI/VGA/HDMI/USB. If it is set, the next open source defaults to the last configured source.


6.2.3 Transition control

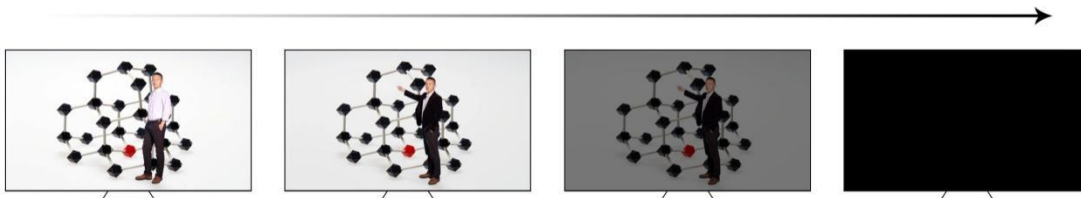
The control mode of the transition of HDS9101 portable switcher is mainly divided into two kinds. One is the transition with special effect and the other is the transition without the special

effect.

1. No transition special effect: Press , CUT key for hard cut, if select preview (PVW), screen directly switches to the main output (PGM), because it is no delay of seamless switching, so no transition effect.
2. Transition with special effect:
 - ✧ AUTO key, first select the special effect of the transition, and then set the rate of the transition, the transition effect has been access: MIX, WIEP, FADE (after the special effect of detailed explanation). Finally, press  will be able to carry out special effects.
 - ✧ T-Bar transition and AUTO special effect settings are consistent, the difference is that the speed of driving determines the speed of the transition is directly proportional to the two, more flexible.

6.2.4 PGM Output Black

In the integrated control area FTB key  this key function: PGM output black field, press FTB key will flicker the main output will fade, can deal with all kinds of sudden situation, the effect such as the lower figure.



If you find the PGM output is black and turn black, check whether the FTB button is pressed (blinking). Press down the black field again.

6.3 USB media Player

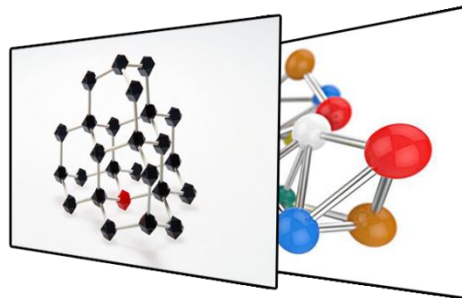
Before use, please make sure that the U disk is connected, then select 5 or 6 channel for USB and use control panel to control



Select the 5 or 6 channel input signal for USB and use the control panel for control.



Cycle through the recording and source switching area IN5 or IN6, select USB5 or USB6 to select the USB channel to be controlled, and USB5



Play video/picture selection keyboard: The default is to play video; if you want to play the picture, press this button.



Corresponding to play/pause, rewind, fast forward, previous song, next song.

The media player supports image formats: .jpeg, .png, .bmp

The media player supports video formats: HEVC, MPEG2_HD, GAAC, MPEG2, Miracast, MPEG4_HD, MPEG4, MVC, VP9, MPEG4_SD, H.264, VC1, VP8, FLV.

Note: (The encoding compression method must be H.264)


6.4 SD Card Recording

After connecting the device first, insert the SD card.



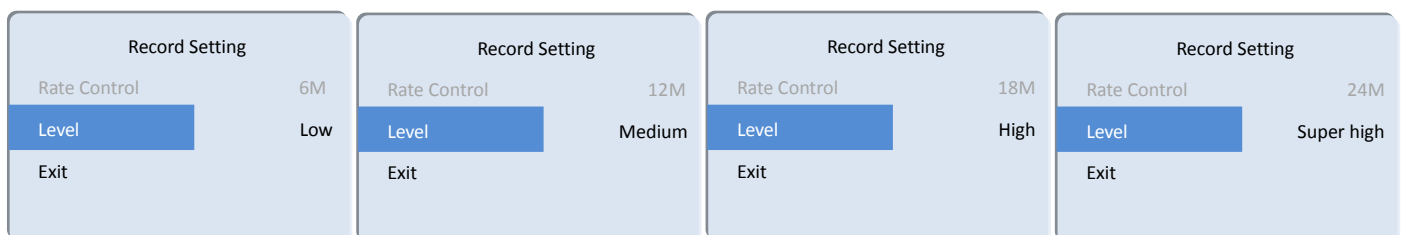
When the SD card is inserted, the system detects the SD card, and the SD card indicator will light up. If the LED is not lit, please check if the SD card is plugged in.

Note: (Before using the SD card, format the SD card first, the system format is FAT32/exFAT, the maximum support 256G SD card) When the LED indicator is normally lit, press the recording and

source , switching area to PGM Output video for recording, click the PAUSE button to pause.

The recorded resolution is the same as the PGM output.

The recorded bit rate is divided into 4 levels: low 6M, medium 12M, high 18M, and ultra high 24M. (Through the knob to enter the recording settings in the main menu, the code rate setting level is shown in the figure below, from left to right, respectively, from high to low)



Note: After switching the output format, if you want to record, please record after re-powering; if the inserted SD card does not recognize the remaining capacity, please re-insert the SD card or replace the SD card.

The LED will flash during recording, and the status of the recording will be displayed in real time in the status bar of the switcher.

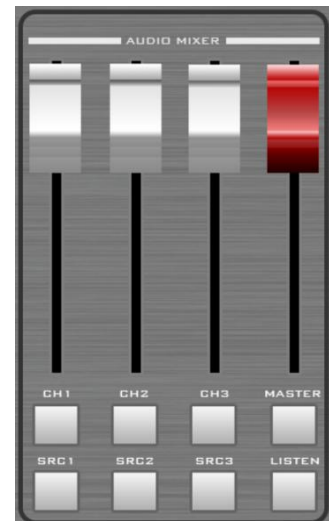


When recording, REC will turn red **REC**, the timer will start timing, and the remaining space of the SD card will be displayed in real time.

6.5 Audio settings

6.5.1 Audio introduction


HDS9101 switcher is 1 channel audio input of XLR analog differential and 1 channel of audio output XLR analog differential; support SDI audio de-embedding, external audio and SDI/HDMI de-embedded audio that can be assigned output, support audio follow-up and mix switching function, interface and the panel is shown below.




6.5.2 Audio description

6.5.2.1 Following mode


Restoring the factory default audio is audio follow-up (the audio source is HDMI or SDI

input). If you press , the audio follow-up capability is enabled. The volume level corresponds to the position of the audio fader. At this time, the volume of the audio follow-up audio can be adjusted.


6.5.2.2 Mixing mode

Switch the audio mode to mix in the menu, press CH1, CH2, CH3  to turn on the mix mode, up to 3 channels of mix, and adjust the sound size with the audio fader.

6.5.2.3 Audio source switching

Cycle through the SRC1, SRC2, SRC3  to bind the source of the audio channel multiple times. The default order is multi-screen preview channel 1 – 6 channel audio source and then external audio input.

6.5.2.4 Audio monitoring

The HDS9101 supports audio live monitoring. The 3.5mm standard headphones can be used to monitor the specified audio. By default, the PGM is monitored. By pressing the LISTEN  on the mixer, you can monitor any audio.

6.6 Instructions for the use of HDS9101 Audio

The HDS9101 audio mode is divided into FOLLOW and Mixing;

Follow: The audio follows the video output to the PGM live broadcast, which means what the audio is coming in from the camera, and what is the audio output from the switcher live broadcast;

Mixing: Mixing three different audio output to PGM at the same time, which means that I specify the audio of one camera as the live sound, and specify the audio of the camera as the audience applause, then I use the audio from the mixer. Embedded in my switcher; after the audio channel is fixed, the video channel can be switched at will.

● Audio mode switching

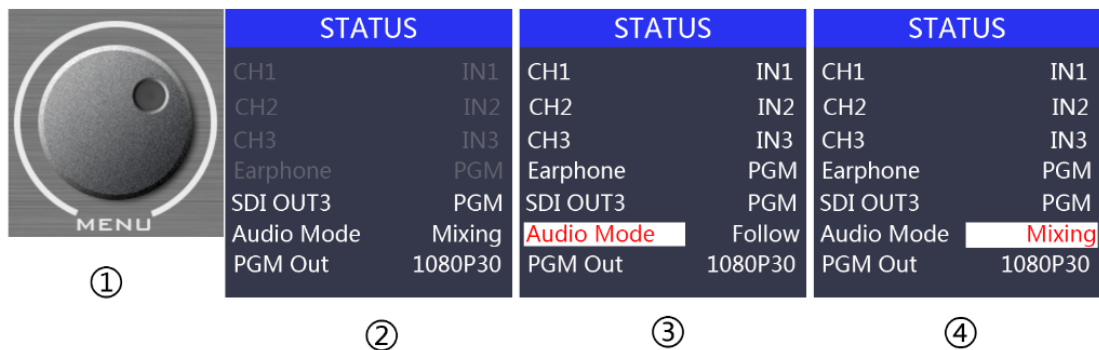
Switch the audio mode through the black knob of the operation panel (as shown in Figure 1)

Corresponding to the lower right corner menu of the LCD screen (as shown in Figure 2)

Turn the knob clockwise to the Audio Mode option (shown in Figure 3)

Press the knob to enter the mode selection (as shown in Figure 4)

Rotate the knob to select Mixing or Follow ;



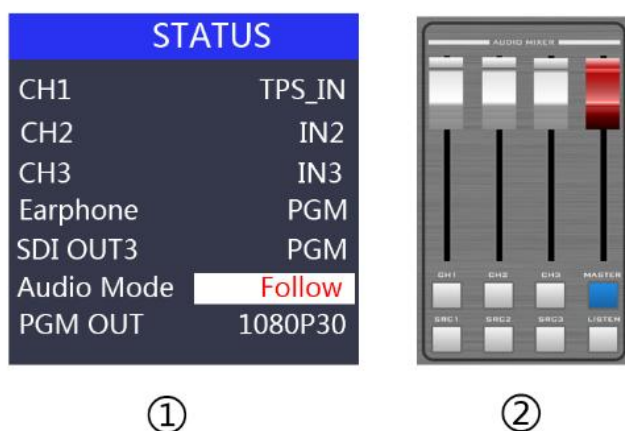
● How to use the audio follow mode

1. First adjust the audio mode to follow by the knob

Press the mixer's MASTER button (the button lights up in blue)

The channel of the audio follow mode is turned on, pushes the corresponding red fader upwards, adjusts the volume of the PGM output, and switches the video signal with audio to the PGM window. At this time, the audio table of the PGM window will have a sound column fluctuation.

To turn off the audio output, push the red fader down or press the MASTER button (the button light goes out).



2. The audio following channels are IN1-SDI1, IN2-SDI2, IN3-SDI3, IN4-SDI4, IN5-HDMI5 (USB6/DVI6/VGA6), IN6-HDMI6 (USB6/DVI6/VGA6), corresponding operation panel buttons



● Function analysis of the mixer

According to the picture on the right:

1. CH1 means the first audio channel open key, and SRC1 means the source selection of the first audio channel;
2. CH2 means the second audio channel open key, and SRC2 means the source selection of the second audio channel;
3. CH3 means the third channel of the audio channel, and SRC3 means the source of the third channel.
4. MASTER means the total volume switch button;
5. LISTEN means the source selection of the listening audio channel;



● How to use the mix assignment

1. Adjust the audio mode to Mixing by the knob first

Corresponding to the status bar of the LCD screen, the audio channel source is displayed. The factory default is CH1 source IN1, CH2 source IN2, CH3 source IN3.

The three audio channels can be arbitrarily selected as IN1, IN2, IN3, IN4, IN5, IN6, TRS_IN, and TRS_IN indicates external large three-core audio interface input.

STATUS	
CH1	IN1
CH2	IN2
CH3	IN3
Earphone	PGM
SDI OUT3	PGM
Audio Mode	Mixing
PGM OUT	1080P30

①

CH1	IN1
CH2	IN2
CH3	IN3

②



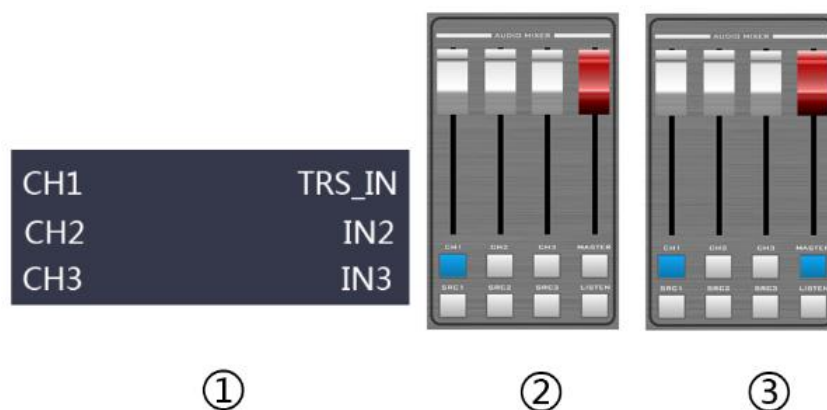
③

2. Operate the mixer control area, press the SRC1 button to enter the first audio channel to select IN1, IN2, IN3, IN4, IN5, IN6, TRS_IN. The corresponding menu status bar will change according to your choice in real time.

After confirming that the audio channel you selected has been pressed, press the CH1 button (the button lights up in blue)

Indicates that the first audio channel is turned on, and finally the MASTER button main switch is turned on (the button lights up in blue)

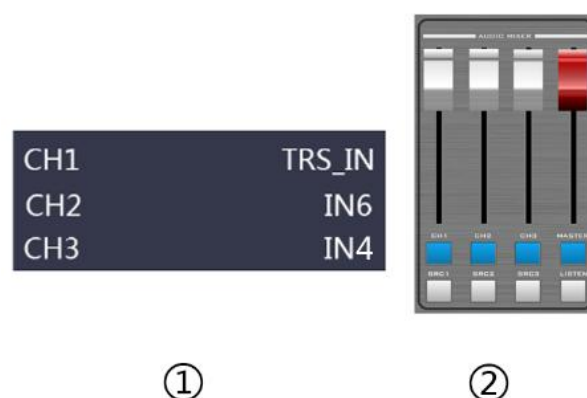
Push the white fader corresponding to the first channel to adjust the volume of the first channel audio. At this time, the audio output of the PGM live broadcast is fixed as the first audio that you turn on.



3. Operate the mixer control area, press the SRC2 button to enter the second audio channel to select IN1, IN2, IN3, IN4, IN5, IN6, TRS_IN. The corresponding menu status bar will change according to your choice in real time.

After confirming the audio channel you selected, press the CH2 button (the button lights up in blue)

It means to open the second audio channel, push the white fader corresponding to the second channel, and adjust the volume of the second channel audio. At this time, the audio output of the PGM live broadcast is fixed to the audio of the first and second channels that you turn on.

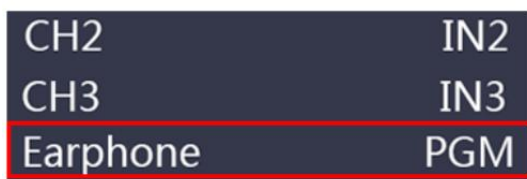


● How to listen to audio

Operate the mixer control area, press the LISTEN button to select the monitor source, and the corresponding menu status bar will change according to your choice in real time.

The monitor source channel defaults to PGM. The channel selection of the monitor source is IN1, IN2, IN3, IN4, IN5, IN6, PGM, TRS_IN. The 3.5mm headphone hardware interface is on the side of the switcher.

The PGM is selected for the monitor headphone channel, and the headphone monitor volume is adjusted by the mixer red fader; the IN1, IN2, IN3, IN4, IN5, IN6, and TRS_IN audio channels are selected, and the headphone monitor fixed volume cannot be adjusted.



①

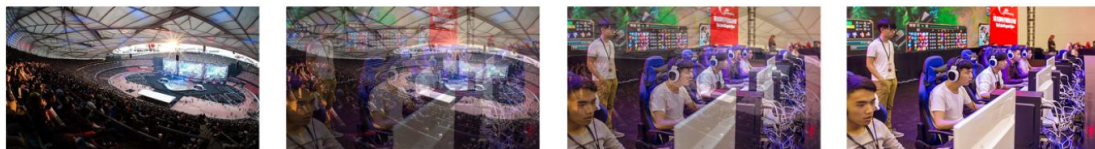


②

6.7 Special effects instructions


6.7.1 MIX effects

The MIX blend effect is a transition effect. After setting the transition, the original live screen will be lightened at the main output, and then completely transition to the new live screen, as shown below.




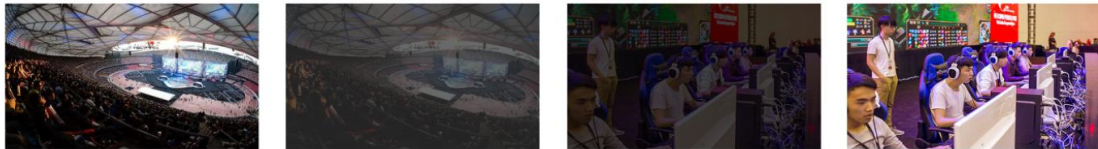
A ————— —————▶ B



Click  on the effect control area and then click to use the fader or AUTO to switch.


6.7.2 FADE fades in and out

Click  on the effect control area and then click to use the fader or AUTO to switch.

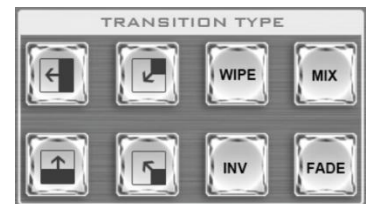



FADE fades in and out, and A gradually darkens until it is completely black, and then gradually changes from black to B.

6.7.3 WIPE effect

Press  to select the mode of the wipe, there are 9 modes. Can be selected through menu or PC software

After selecting the wipe mode, you can see the effect of the switch by operating the AUTO button or pushing the fader.



If selected , the effect is as follows, The other three transitions are the same

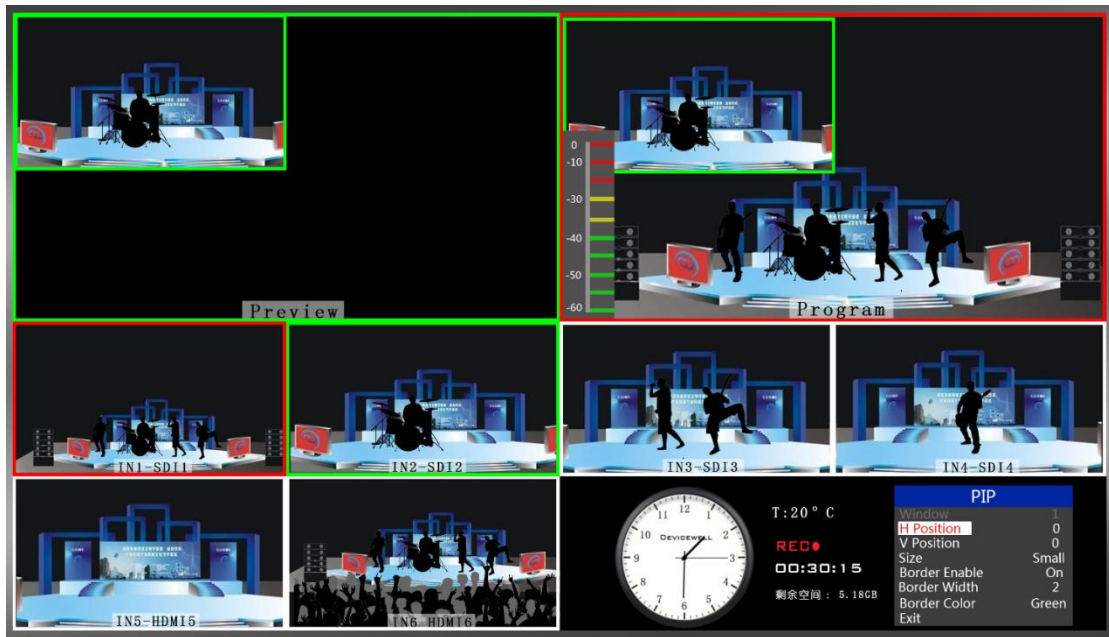


Stroke up the transition effect, the A picture is unchanged, and the B picture is gradually drawn in the upward direction until the picture completely becomes B.

6.7.4 Picture in picture effects

When the fader is operated in the B-BUS state, the PIP button will have a small screen appearing in the upper left corner of the preview. The source signal of the SDI1 is displayed by default. The default background is PVW. As

shown below:



At this time, the information on the menu bar will be switched to the PIP picture-in-picture setting. After pressing the knob, it can be set according to the requirements. As shown below

PIP	
Screen Select	1
Horizontal	0
Vertical	0
Display Size	Small
Border switch	ON
Border width	2
Border color	Green

6.7.4.1 PIP size and position

You can use the knob to set the parameters of the PIP picture-in-picture, as follows:

Horizontal position setting: The value from the top left to the top right is 0-1280, 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 0-760, and the value of each rotation 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.

6.7.4.2 Picture-in-picture source switching

You can switch the input source of the PIP by pressing 1, 2, 3... in the PVW number keys.



6.7.5 Picture out picture effects

The fader operates in the B-BUS state. Clicking on the POP button will display a small screen in the upper left corner of the preview. The source signal of the SDI1 is displayed by default. The default background is PVW. As shown below:



At this time, the information on the menu bar will switch to the POP picture-out setting, and the knob can be set as required. As shown below

POP	
Screen Select	2
Horizontal	0
Vertical	270
Display size	Large
Border switch	ON
Border width	2
Border color	White

6.7.5.1 POP size and position

You can use the knob to set the parameters of the POP drawing, 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/blue/green to set the border color.

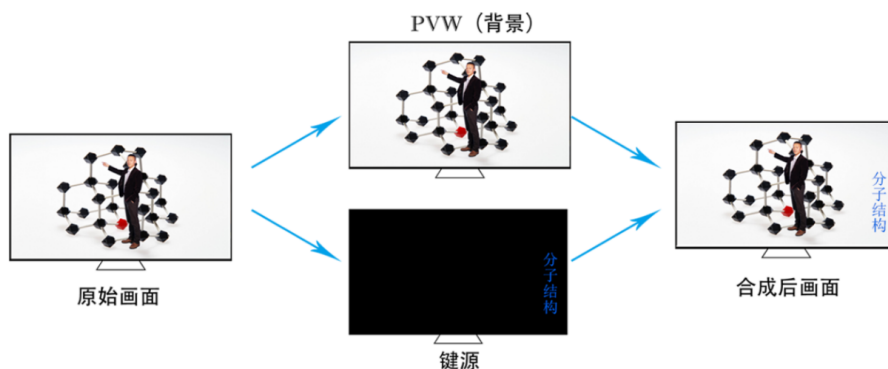
6.7.5.2 Picture drawing source switching

Press 1, 2, 3... of the PVW number keys to switch the input source of the picture.



6.7.6 Luma KEY brightness key


Turning on this function will deduct the black part of the key source. Then it overlaps with the background image to achieve the purpose of keying and superimposing the background. This function is generally used for superimposing subtitles in virtual studios.

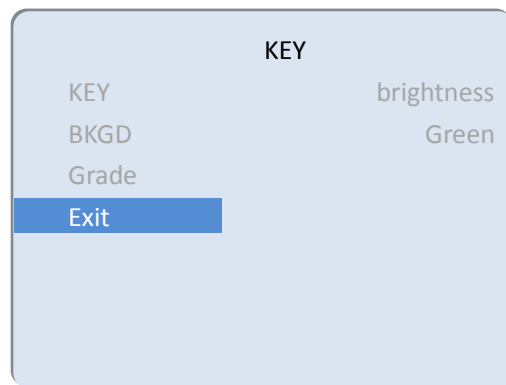


6.7.7 Panels for Luma Key

Switch the video or picture of the black background white font to the PVW preview window, and turn on the Luma KEY brightness key function. At this time, the LCD will display a Luma key parameter setting interface, and then use the CUT/AUTO/T-Bar switch to superimpose the characters to PGM

Image information settings:

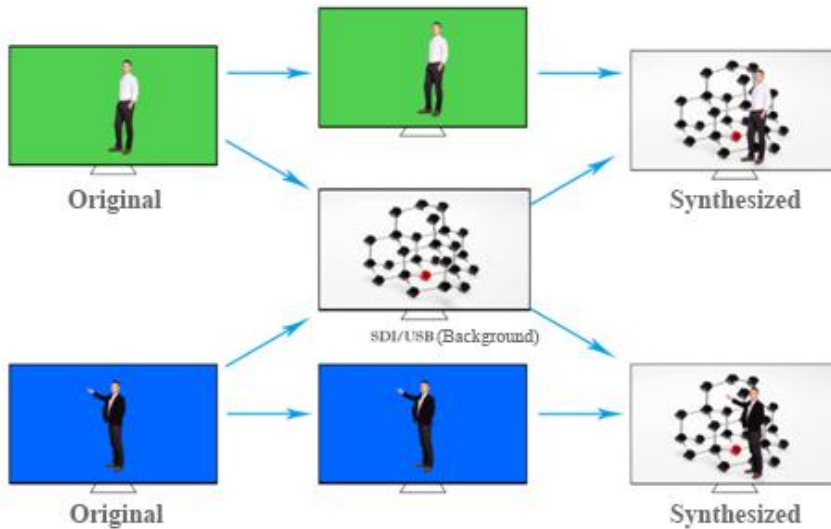
After pressing the Luma key , the LCD panel displays the current Luma key image information as shown below.



Under the menu, you can set the key source, select the video source, press the knob, and then rotate the knob to adjust various parameters;

6.7.8 Chroma KEY


Turning on this function will deduct the specified color of the key source. Then it overlaps with the background image to achieve the purpose of keying and superimposing the background. This function is generally used for superimposing subtitles in virtual studios.

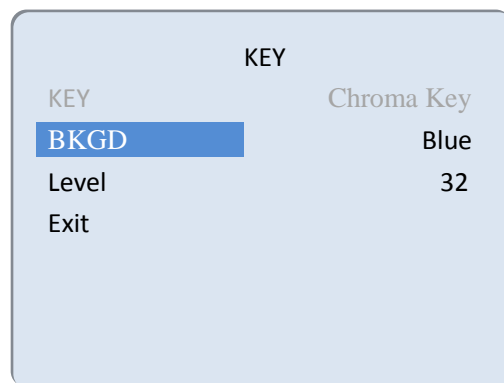


6.7.9 Panels for Chroma Key

Switch the blue background or green background to the PVW preview window. When the KEY2 chroma key function is enabled, a parameter setting interface of the chroma key will appear on the LCD screen. Select the background of your key through the knob. The image is achieved by CUT/AUTO/T-Bar, and the image you want to superimpose appears in the PGM;



When the button  is pressed, the LCD panel displays the current chroma key image information as shown below.



The video source item can choose the key source; the KEY type has the chroma key, the green and the chroma key blue.

6.8 System Menu Setting

There is a status menu display in the lower right corner of the device's multi-screen, the default is the status display of the device when it is turned on;

CH1/CH2/CH3 source represents the current mixing channel status of the device;

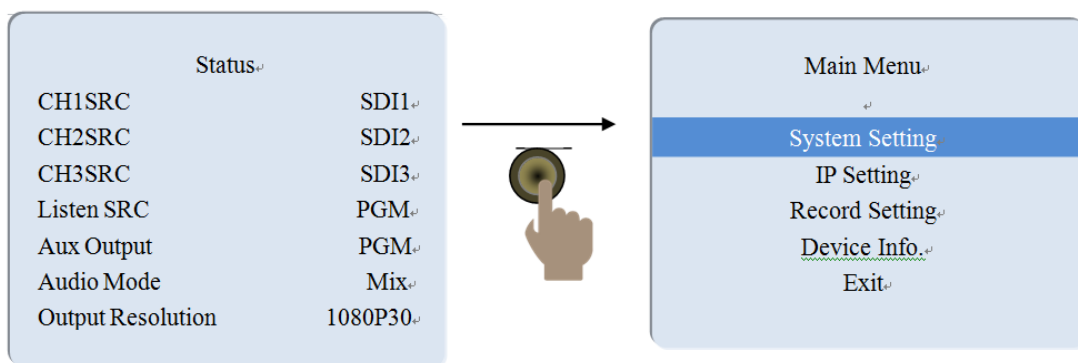
The monitor source represents the audio channel currently being monitored;

The SDI OUT3 interface can customize the PGM/PVW output and switch through the knob;

The audio mode corresponds to the selection of mixing and following, which can be selected through the knob;

The output resolution is the PGM output of the corresponding device, which can be switched by the knob, 1080I50/60, 1080P24/25/30/50/60;

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



6.8.1 System Setting

After turning the knob to the system setting, you can click the knob to enter the system setting submenu, as shown below:

System Setting	
language selection	EN/CH
Time display	Digital/analog
F1	PIP/POP/KEY/ flow / freeze /OFF
F2	PIP/POP/KEY/ flow / freeze /OFF
Audio delay	0-30/ OFF
Date display	ON/OFF
Reset	
Exit	

F1, F2: Mainly customize streaming and screen freezing functions;

The audio delay corresponds to the PGM output video, there are 0-30 values that can be adjusted, and one value means 20 milliseconds;

Whether the date display switch is displayed on the analog clock;

In this menu, you can choose between Chinese or English. If you encounter an unknown error during use, you can choose to restore the factory settings and reset it.

6.8.2 IP Setting

IP Setting	
IP obtaining	Static IP
IP address	192.168.1.215
Subnet mask	255.255.255.0
Gateway	192.168.1.1
Save	
Exit	

There are two modes for obtaining an IP address. One is dynamic configuration, and the other is a static IP address that needs to be manually configured. Remember to save and exit after the setup is complete.

Note: When setting the device IP address, do not repeat the IP address to avoid address conflicts.

6.8.3 Record Setting

Record Setting	
Rate Control	VBR
Level	Middle
Exit	

The level can be set in the recording settings, and can be set with low, medium, high and super high.

6.8.4 Device Information

Device Information	
Serial number	2f-21-24-17-13- 13-18-08-11-02
Exit	

6.8.5 Streaming settings

Streaming settings	
Stream type	RTMP
Streaming server	1-8-
Stream rate	1-10Mbps
Stream IP	192.168.xxx.xxx
Exit	

6.9 Instructions for using push streaming

1. HDS9101 is a hardware push device, which needs to be connected to the local area network through the RJ45 network port
2. First, we need a computer, open the browser and enter the default WEB interface IP address of our device: 192.168.1.239, as shown below

The screenshot shows the DeviceWell web interface. At the top, there is a logo for DeviceWell (中帝威科技) and a language selection dropdown menu (中文, 中文, English). The main content area is titled '设备设置' (Device Settings). Under the '网络设置' (Network Settings) section, the IP address is set to 192.168.1.238. A red box highlights this section, and a red arrow points to it with the following text: 'IP地址设置区域，重新更改IP地址过后，需要点击保存设置，然后在浏览器里面重新搜索你保存的IP地址进入WEB界面：' (IP address setting area, after changing the IP address, you need to click 'Save Settings' and then search for the saved IP address in the browser to enter the WEB interface:). Below the network settings are sections for '用户设置' (User Settings) and '推流设置' (Push Settings).

3. User settings

The screen rotates clockwise 0/90/180/270 degrees, the drop-down box selection takes effect immediately, and the recorded video and the streaming video rotate at the same time.

The recording bit rate corresponds to the same setting in the menu, low, medium, high and super high level.

The streaming code rate setting range is 1-10Mbps, and the drop-down box selection will take effect immediately;

4. Push streaming settings

Index 1-8 groups, which means that 8 groups of push addresses can be stored inside the device;

User name means that each group of push addresses can be named by themselves, and the naming is only valid for letters and numbers; in the push settings in the menu, you can see the push name you saved on the WEB interface;

The streaming address is the streaming address of the live streaming platform, and the settings need to be saved after filling in; you can view the name of the streaming platform you saved in the device menu.

The multi-screen status bar will display the streaming status when the streaming is enabled, the RTMP icon will be red, and the 0 degree behind it indicates whether the screen is rotated at this time; the non-streaming icon will be gray. As shown below



5. Analysis of WEB interface functions

1) When the recording function is turned on, the screen rotation, recording bit rate and other functions of the WEB interface are prohibited to be set, so please set the parameters before turning on the recording function.

2) When the push streaming function is enabled, the push streaming bit rate and screen rotation function can be changed at any time.

3) If the screen rotation parameters are changed, the recording and streaming functions will take effect accordingly. Therefore, the recorded video and the streaming video are all rotated images. Please confirm the parameters you want before setting.

4) Unilaterally changed the streaming code rate and recording level on the device side, the state

of the WEB interface will not be refreshed automatically, you need to manually press the F5 key of the keyboard to refresh the interface.

5) The default IP address of the WEB interface is 192.168.1.239. After connecting to the WEB interface, you can change the IP address in the interface. If you can't remember the IP address of the WEB interface for a long time, you can restore the factory settings on the device side. (It is forbidden to change the IP address when the streaming function is enabled)

6) To change the IP address and push streaming settings, you need to save the settings under the parameter setting module.

7) The index in the push stream settings can save 8 groups of push streams, the user name only displays English characters and numbers, and the push stream address is the address of the live broadcast platform.

8) You can connect the streaming address to the device through the WEB interface in advance, and save the live streaming platform address in the device in advance. The device can select the previously saved live streaming platform address to push streaming at any time on site.

9) In the WEB interface, the read settings under the push stream settings can read the push stream addresses saved in the device; for example, there are many groups of push stream addresses saved in the device, first select the index, and then click read, you can read it The streaming address previously saved in the device.

10) After the device is powered off, the screen rotation function of recording and streaming is not saved.

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 (generally: Computer network port) 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.