



# Operation instruction

## Video processor & splicer HDP902

V1.0 20190903

## Safety instructions



This symbol prompts the user, the device user manual has important operating and maintenance instructions.



This symbol warns the user that there is a dangerous voltage that is exposed inside the device enclosure and there is a risk of electric shock.

### Note

**Read the manual** • Read and understand all safety and operating instructions before using the equipment.

**Save the manual** • The safety instructions should be kept for future reference.

**Follow Warnings** • Follow all warnings and instructions marked on the equipment or in the user information.

**Avoid Attachments** • Do not use tools or attachments that are not recommended by the equipment manufacturer because they may be hazardous.

### Warning

**Power sources** • This equipment should be operated only from the power source indicated on the product. This equipment is intended to be used with a main power system with a grounded (neutral) conductor. The third (grounding) pin is a safety feature, do not attempt to bypass or disable it.

**Power disconnection** • To remove power from the equipment safely, remove all power cords from the rear of the equipment, or the desktop power module (if detachable), or from the power source receptacle (wall plug).

**Power cord protection** • Power cords should be routed so that they are not likely to be stepped on or pinched by items placed upon or against them.

**Servicing** • Refer all servicing to qualified service personnel. There are no user-serviceable parts inside. To prevent the risk of shock, do not attempt to service this equipment yourself because opening or removing covers may expose you to dangerous voltage or other hazards.

**Slots and openings** • If the equipment has slots or holes in the enclosure, these are provided to prevent overheating of sensitive components inside. These openings must never be blocked by other objects.

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## Chapter 1 Overview

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HDP902 the LED splicing processor has three powerful video processing cores. Multiple-graphic multiple-input intelligent splicing processor, it can be widely used in performing arts activities, command and control centers, video conferences, hotels, courts and conference rooms.

HDP902 It is a powerful 3-channel multiple-graphic multiple-input splicing processor that can be widely used in small and medium splicing fields, as well as for image switching and image scaling. The splicing processor has 3 channels of splicing, 1 channel of monitoring, and the widest can be spliced by 11520 points, and the highest splicing can be 5760 points.

It can also achieve equal-splicing, unequal splicing, display of different resolutions, three-screen splicing and other functions.

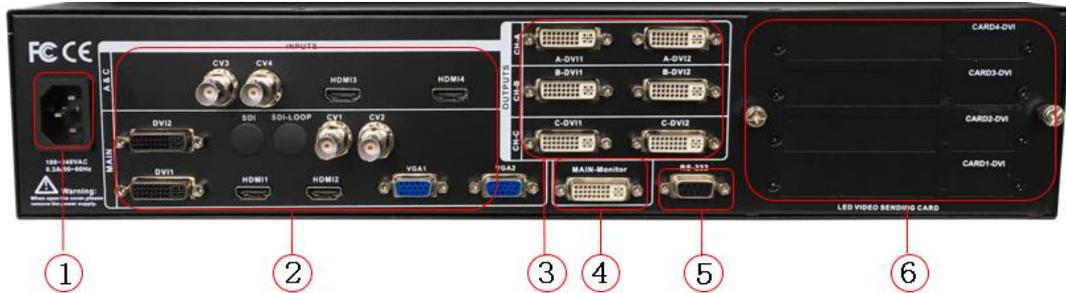
HDP902 Can access up to 13 channels of video input, including 2 channels of DVI, 4 channels of HDMI, 2 channels of VGA, 4 channels of CVBS, 1 channel of 3G-SDI / SDI-LOOP (optional); Each channel can receive standard resolution or high resolution video signals, DVI and VGA can receive up to  $1920 \times 1200 @ 60\text{Hz}$  resolution input.

The splicing processor has 3 channels (6DVI-I interface) video output, 1 channel monitor output (DVI-I), and 2 DVI-I connectors per channel for more device connections. The output resolution of each channel can be set by the user to meet various high-definition performances.

The splicing processor design is more user-friendly, easier to use with powerful features, simple to use the button panel and menu system, just touch your finger to complete complex settings. Complete setup and operation are available with the front panel and RS-232. It provides a wide range of physical interfaces to meet the needs of common output devices. Provides installation locations for up to 4 LED transmit cards, simplifying installation setup. Rotate quickly to adjust the picture or related parameters, user settings are handy.

# Chapter 2 Panel

## 1. Rear panel



Page 1—Video processor rear panel

① **AC power input** — Connect to the video processor using an IEC standard power cord with an input power of 100-240 VAC, 50-60 Hz.

② **Video input** — Input standard for each interface.

- CV1、CV2、CV3、CV4 Composite video input, With the BNC interface, the input video supports PAL, PAL-M/N, NTSC, and SECAM formats. You can connect a DVD player, a video camera, etc.

- **DVI1, DVI2** digital video input, using DVI-I standard interface, can use DVI-I or DVI-D cable, video input format supports VESA standard.

- **HDMI1, HDMI2, HDMI3, HDMI4** HD video input, using HDMI-A standard interface, input video supports HDMI1.3 standard and VESA standard. Commonly used to connect desktop computers and HDMI HD players.

- **VGA1, VGA2** video input, using DB-25 standard interface, input video supports VESA standard, used to connect desktop computer, notebook or other VGA video output device.

- **SDI** digital video input, **SDI-LOOP**, SDI signal loop out, use BNC interface, input video supports HD camera.

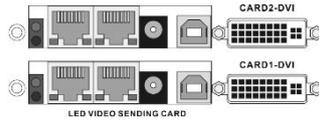
③ **Video output** — Processor programming video output interface

- **DVI** video output, using DVI-I connector, the output video format is set by the processor, three groups of CH-A, CH-B, CH-C simultaneously output the same signal. Often used to connect to an LED send card or monitor.

- **CH-M/Monitor** output, using DVI-I connector, output video is connected to the display, as a display user's real-time operation image position and switching effects.

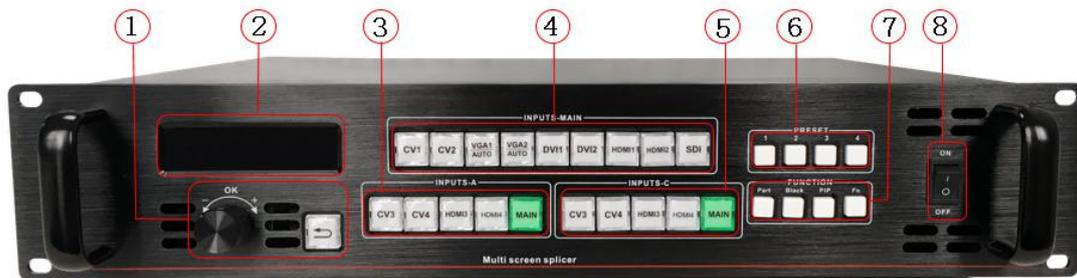
- **RS-232** — Serial communication connector for engineering test, program burning, PC software control, communication baud rate is 115200bps.

- **LED Sending Card** — The reserved LED sending card installation location allows for the installation of 4 sending Cards. When installing, the user can first disassemble the back cover and the small cover, and install and fix it. There are 6 5V power connectors and 2.0x4 PIN connectors inside. Plug in the 5V power supply after installation.



Page 2—LED sending card

## 2.Front panel



Page 3—Processor front panel

① **Menu operation keys** — The menu operation keypad contains the “Back Key” and the knob “Confirm and Adjust”. Here are the meanings and usage of each button:

- Key, menu exit key, or return to the previous menu.
- Knob, press the OK button to enter the menu or the next menu button to confirm the function. Rotate left and right to + "Add" - "Subtract" operation, you can adjust the menu position or adjust the parameter value to become smaller.

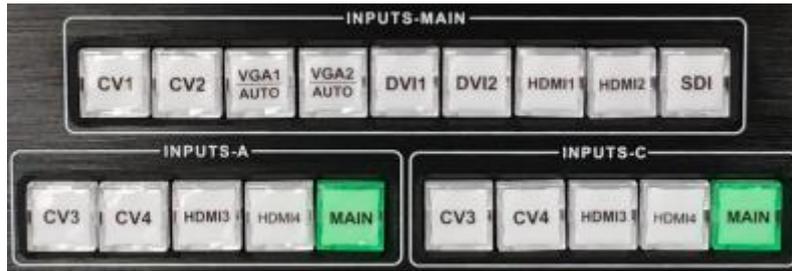
② LCD display — Displays menus and current information.

③④⑤ Input Selection — In the INPUT button area, all 13 channels of input switching keys, test patterns, and VGA auto-correction function keys are included. The button indicators in the keypad have three states, namely:

**The button indicator flashes slowly:** The flicker interval is about 1 second and is always flashing, indicating that there is no signal when the channel switched by the watch.

**The button light flashes rapidly:** When the button is pressed, the button indicates that the flashing time is about 0.3 seconds, which indicates that the device is detecting and decoding the input video.

**The button indicator is always on:** It indicates that the current channel signal is connected normally or the current function is working. The following is a detailed description of the functions of the keys in the input keypad.



Page 4—INPUT Keypad

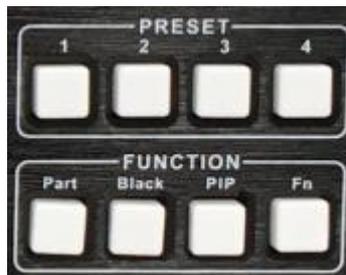
### Main channel input (INPUTS-MAIN)

- CV1, CV2 composite video switching button.
- VGA1, VGA2 button, VGA input switch button and auto correction button (AUTO function).  
When the input channel is VGA1 or VGA2, press the VGA1 or VGA2 button repeatedly, the video processor will correct the current VGA channel and make the picture output normal. AUTO function of VGA channel: When the input channel is VGA1, and VGA1 has screen output, press VGA1 (AUTO) again to re-calibrate the current VGA1 signal. The VGA2 button also has the same function and operation.
- DVI1, DVI2, HDMI1, HDMI2, SDI keys respectively correspond to DVI1, DVI2, HDMI1, HDMI2, SDI video input interfaces on the rear panel.

### A&C Channel input (INPUTS-A,INPUTS-C)

- CV3, CV4 composite video switching button.
- The HDMI3 and HDMI4 buttons correspond to the HDMI3 and HDMI4 video input interfaces on the rear panel.
- The MAIN button is the main channel button, and the A&C channel input defaults to the main channel input (the MAIN button is always on).

⑥⑦Function Keypad — The function keypad contains the on-screen mode, black screen, preset call, PIP( picture-in-picture), and toggle effect buttons for quick operation of each function.



Page 5—Function keypad

**PRESET button**, preset scene loading shortcuts. Press this button to adjust the preset scene list, and then use the menu function button to adjust the preset scene. The saving and recalling of preset scenes will be described in detail in the following sections.

- Part button, part of the screen display mode, after the user sets the interception parameters of some screens in the splicing menu, press this button to display part of the screen effect. A detailed description of the operation is given in the following sections.

- Black button, press this button to output a black screen or freeze to the “Switch” menu to set.
- PIP button to enable or disable the PIP function button. The user sets the PIP parameters in the PIP menu in advance, and uses the PIP shortcut key to quickly turn the PIP function on or off. The use of PIP is described in detail in the following sections.

Tip: When the PIP (Picture in Picture) function is active, the CUT function and the FADE function (fast switching effect and fade transition effect) cannot be used.

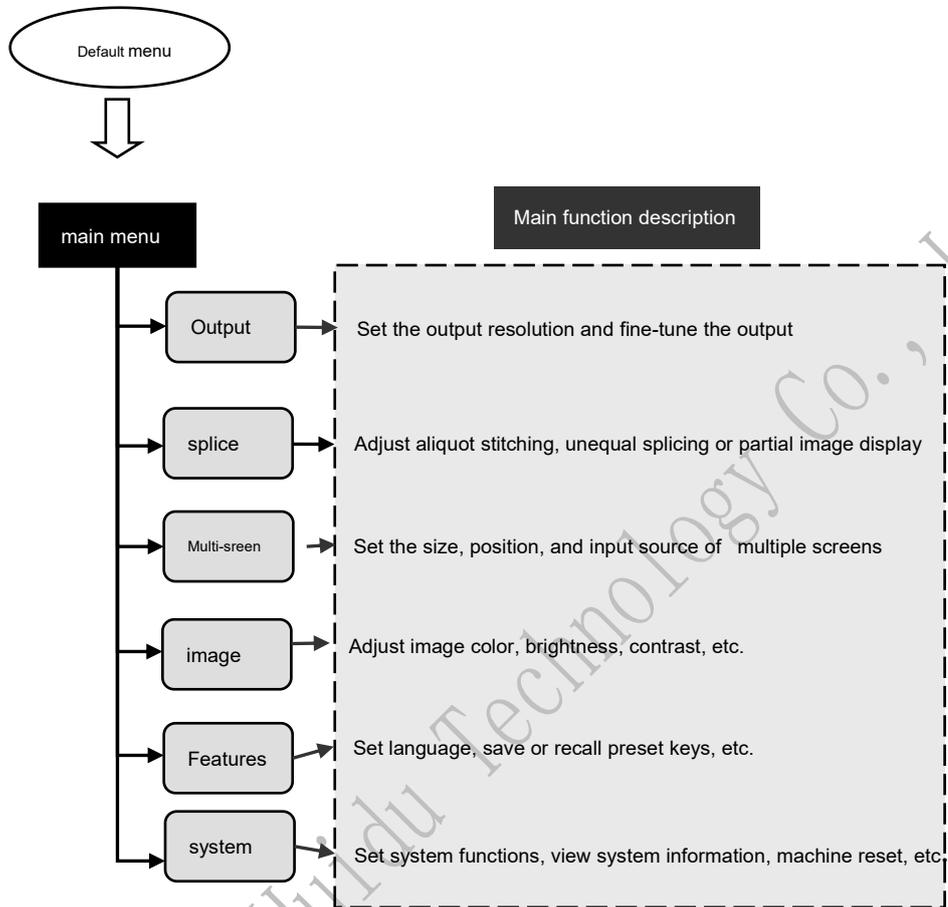
- Fn key, press this key is the multiple-function key, the INPUT-A keypad and the INPUT-C keypad are switched synchronously.

Ⓢ AC switch — The front AC power switch.

# Chapter III Menu System

## 1. Menu structure diagram

### 1) Menu structure

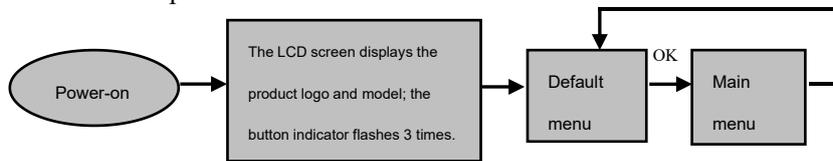


Page 6 Splicing processor main menu structure diagram

## 2) Menu operation

The operation keys of the menu mainly have ↵“return key”, **OK**“confirm”key, The man-machine interface is a 256x64 dot matrix LCD screen.

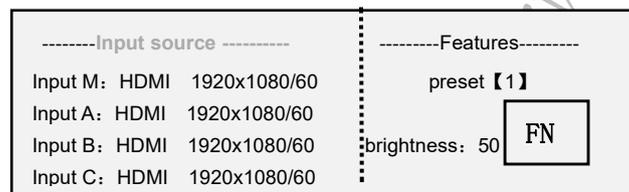
The start process of the device is as follows:



Page7-The processor is powered on and enters the main menu process

## 3) Default menu

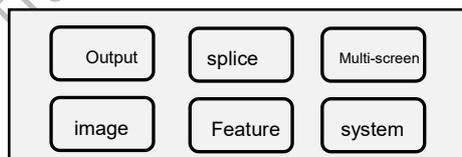
The default menu is the interface of the LCD screen after the device is started. It displays the input signal source, input signal source connection status, input signal source connection status, output resolution, stitching mode, brightness, etc., showing the processor menu system. The main parameters. All input selection keys and function keys are available in the default menu.



Page8-Default menu

## 4) main menu

The main menu is an important operation interface for user parameter adjustment. Almost all settings can be completed under the main menu. The operation and settings of each function are described in detail in the following sections.



Page9-main menu

# Chapter 4 Setup and Operation

## 1. language

Before using the LED video processor, first confirm that the language is suitable for your use. If not, please follow the steps below to complete the setup. as follows

**Default menu→ main menu→ Feature→ language**

Above is the menu operation path. Enter the language setting menu and use the knob "Confirm and Adjust" to select the language.

## 2.Reset

When using the LED video processor, you may enter the menu to reset the whole machine due to incorrect parameter settings or problems that cannot be confirmed. The following is the reset operation process of the whole machine.

**Default menu→ main menu→ system→ Machine reset→ reset confirmation**

After the reset is completed, all user parameters are restored to the factory state, please use caution.

## 3.Output resolution

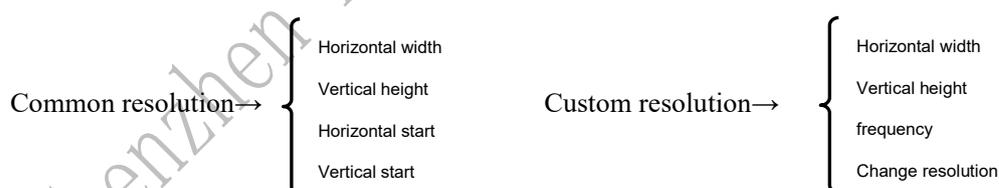
To use a different resolution display or LED screen, to achieve point-to-point output, you must set the output resolution and precise adjustment of the resolution.

(1) First select a resolution larger than the display

Default Menu → Main Menu → Output → Monitor / Output A / Output B / Output C → Output Resolution → Common Resolution → Confirm or

Default Menu → Main Menu → Output → Monitor / Output A / Output B / Output C → Output Resolution → Custom Resolution → Confirm

(2) Finely adjust the output resolution



**Tip:** After the user resets the output resolution, the system will reset all parameters of the splicing menu to ensure data consistency. The user's precisely adjusted resolution can only be smaller than the currently selected resolution. When the precisely adjusted resolution is equal to the currently selected resolution, the horizontal start value and the vertical start value cannot be adjusted.

## 3.Set the switching effect

The processor has two switching effects, which are fast cut and fade in and out.

Go to the menu settings, as follows

**Default menu → main menu → function → seamless switching**

Fade time setting

The fade time can control the length of the fade transition state, and the processor provides a fade time setting of 0.5 seconds to 1.5 seconds. Enter the menu settings as follows

**Default menu → main menu → function → fade time**

#### **4.Black screen and screen freeze settings**

The black screen and the screen freeze share an operation key BLACK, which is displayed as "BLACK key" in the menu system. Its setting method is as follows

Default menu → main menu → function → BLACK button function

After setting, press the BLACK button directly to achieve black screen or screen freeze.

#### **5.Splicing application**

The processor has a powerful splicing function with a maximum output resolution of 3840 x 1920 @60Hz and 2560 x 2880@60Hz for frame synchronization. The splicing methods include horizontal 3 picture 2 splicing, horizontal 1 picture 3 splicing, horizontal 1 picture 2 splicing, horizontal 3 picture 3 splicing, vertical 2 picture 3 splicing, horizontal 2 picture 3 splicing, vertical 1 picture 3 splicing, detailing splicing below usage of.

**Tip:** Before setting the splicing parameters, first confirm whether the output A/output B/output C channel resolution is set.

#### **6.Level 1 picture 3 stitching (take the total number of images 3840X1152@60Hz as an example)**

Output A channel stitching settings

Default menu→Main menu→Splicing→Splicing A→Splicing→On

Default menu → main menu → stitching → stitching A → stitching mode → not equal

Default Menu→Main Menu→Splicing→Splicing A→Parameter Setting→Horizontal Total Pixels→3840

Default Menu→Main Menu→Splicing→Splicing A→Parameter Setting→Vertical Total Pixels→1152

Default menu→Main Menu→Splicing→Splicing A→Parameter Setting→Horizontal Start→0

Default menu→Main Menu→Splicing→Splicing A→Parameter Setting→Vertical Start→0

Output B channel stitching settings

Default menu→Main menu→Splicing→Splicing B→Splicing→On

Default menu → main menu → stitching → stitching B → stitching mode → not equal

Default Menu→Main Menu→Splicing→Splicing B→Parameter Setting→Horizontal Total Pixels→3840

Default Menu→Main Menu→Splicing→Splicing B→Parameter Setting→Vertical Total Pixels→1152

Default menu→Main Menu→Splicing→Splicing B→Parameter Setting→Horizontal Start→768

Default menu→Main Menu→Splicing→Splicing B→Parameter Setting→Vertical Start→0

Output C channel stitching settings

Default menu→Main menu→Splicing→Splicing C→Splicing→On  
Default menu → main menu → stitching → stitching C → stitching mode → not equal  
Default Menu→Main Menu→Splicing→Splicing C→Parameter Setting→Horizontal Total  
Pixels→3840  
Default Menu→Main Menu→Splicing→Splicing C→Parameter Setting→Vertical Total  
Pixels→1152  
Default menu→Main Menu→Splicing→Splicing C→Parameter Setting→Horizontal Start→3072  
Default menu→Main Menu→Splicing→Splicing C→Parameter Setting→Vertical Start→0

**Tip:** Input signals can only be selected by switching to MAIN in INPUTS.

### 7. Horizontal 3 picture 3 stitching (take the total number of images 3328X1920@60Hz as an example)

Output A channel stitching settings

Default menu→Main menu→Splicing→Splicing A→Splicing→On  
Default menu → main menu → stitching → stitching A → stitching mode → not equal  
Default Menu→Main Menu→Splicing→Splicing A→Parameter Setting→Horizontal Total  
Pixels→3328  
Default Menu→Main Menu→Splicing→Splicing A→Parameter Setting→Vertical Total  
Pixels→1920  
Default menu→Main Menu→Splicing→Splicing A→Parameter Setting→Horizontal Start→0  
Default menu→Main Menu→Splicing→Splicing A→Parameter Setting→Vertical Start→0

Output B channel stitching settings

Default menu→Main menu→Splicing→Splicing B→Splicing→On  
Default menu → main menu → stitching → stitching B → stitching mode → not equal  
Default Menu→Main Menu→Splicing→Splicing B→Parameter Setting→Horizontal Total  
Pixels→3328  
Default Menu→Main Menu→Splicing→Splicing B→Parameter Setting→Vertical Total  
Pixels→1920  
Default menu→Main Menu→Splicing→Splicing B→Parameter Setting→Horizontal Start→768  
Default menu→Main Menu→Splicing→Splicing B→Parameter Setting→Vertical Start→0

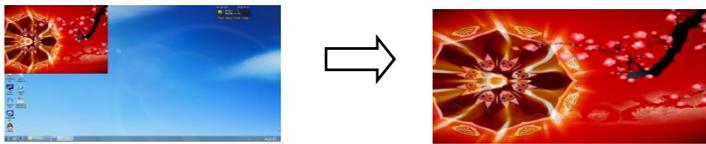
Output C channel stitching settings

Default menu→Main menu→Splicing→Splicing C→Splicing→On  
Default menu → main menu → stitching → stitching C → stitching mode → not equal  
Default Menu→Main Menu→Splicing→Splicing C→Parameter Setting→Horizontal Total  
Pixels→3328  
Default Menu→Main Menu→Splicing→Splicing C→Parameter Setting→Vertical Total  
Pixels→1920  
Default menu→Main Menu→Splicing→Splicing C→Parameter Setting→Horizontal Start→2048  
Default menu→Main Menu→Splicing→Splicing C→Parameter Setting→Vertical  
Start→0

**Tip:** The A and C channel signal selection is in A&C, and the B channel signal selection is in MAIN.

8. Capture part of the screen

Intercepting part of the screen function is an extension of the unequal splicing function. In actual use, a partial screen display may be used to display only a partial area of an input channel. For example, in the Windows operation interface, the user only needs to display the video playback window in the DVII channel, and other input channels are displayed in full screen. Press the PART button to turn on some functions, press the PRART button to turn off some functions. When switching channels, just select the PART effect for the desired channel in advance, the device will automatically save the current output effect for the input channel, that is, for each input channel. The display mode can be different. As shown below.



Full screen effect

Partial effect

Page10-Capture part of the screen

If you want to set the intercept parameters manually, the setting is as follows

:

- (1) Select the channel to capture part of the picture, such as DVII;
- (2) Enter the splicing menu to set the unequal splicing parameters (equivalent to intercepting part of the screen parameters), and the total pixel value and the starting value are adjusted by visual inspection.

Default menu → main menu → function → partial function → open

Default menu → main menu → function → partial function → partial mode → user

Default Menu → Main Menu → Features → Some Functions → Horizontal Total Pixels (User Defined)

Default menu → main menu → function → partial function → vertical total pixel (user defined)

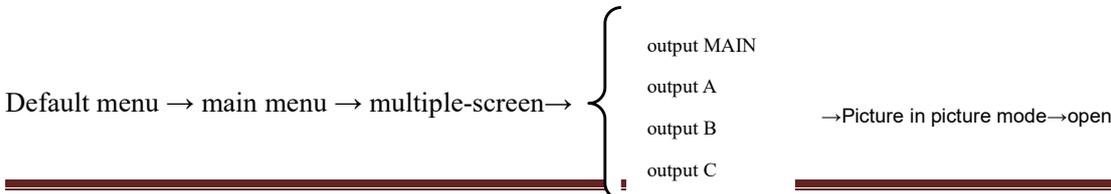
Default menu → main menu → function → partial function → horizontal start (user defined)

Default menu → main menu → function → partial function → vertical start (user defined)

9. Use of multiple screens

Picture-in-picture is the use of digital technology to display two or three sets of programs on the same screen. That is, on the main screen of normal viewing, one or more compressed sub-pictures are simultaneously inserted to monitor other channels while enjoying the main picture. When working in the picture-in-picture mode, the user needs to provide at least two signal inputs and set the corresponding multiple-screen menu accordingly. Steps for using picture-in-picture:

- (1) Open multiple-screen, there are two ways to open, one is to press the PIP button, and the other is to open the menu system.



**Tip:** After the multiple-screen is turned on, the fast cut and fade in and out functions are not

(2) Input signal source setting, the main channel of the processor and the picture-in-picture channel. The same type of input signal source cannot realize the picture-in-picture function, so the user can refer to the picture-in-picture input source conflict table in the table below.

**Default menu → main menu → multiple-screen → picture-in-picture mode → input signal**

PIP input source conflict table

		CV 1	CV 2	VG A1	VG A2	D VI 1	DV I2	HD MI 1	HD MI2	SDI
p I p c h a n n e l	CV 1	√	×	√	√	√	√	√	×	√
	CV 2	×	√	√	√	√	√	√	√	√
	CV 3	×	×	√	√	√	√	√	√	√
	CV 4	×	×	√	√	√	√	√	√	√
	VG A1	√	√	√	×	√	√	√	√	√
	VG A2	√	√	×	√	√	√	√	√	√
	DV I1	√	√	√	√	√	×	√	√	√
	DV I2	√	√	√	√	×	√	√	√	√
P I P c h a n n e l	HD MI 1	√	√	√	√	√	√	√	×	√
	HD MI 2	√	√	√	√	√	√	×	√	√
	HD MI 3	√	√	√	√	√	√	×	×	√
	HD MI 4	√	√	√	√	√	√	×	×	√

	SD	√	√	√	√	√	√	√	√	√
	I									

(2) Size and position parameter settings, specific parameters are set by the user, the user can also adjust the border, transparency and so on.

Default menu → main menu → multiple-screen → enter MAIN → picture-in-picture mode → picture-in-picture parameters → horizontal start

Default Menu → Main Menu → PIP → Input A → PIP Mode → PIP Parameters → Vertical Start

Default Menu → Main Menu → PIP → Input B → PIP Mode → PIP Parameters → Horizontal Width

Default Menu → Main Menu → PIP → Input C → PIP Mode → PIP Parameters → Vertical Height

### 10. Color key map (only suitable for input signals in MAIN)

The image is an extension of the PIP function, which is achieved by subtracting the red, green, blue, black, and white colors of the image input from the PIP channel. The keying function can be used for some simple special effects processing and superimposed subtitles. The setup is easy, please refer to the setup example.

For example, FIG. 11A is a picture-in-picture channel, the played video is a PPT, FIG. 11B is a main input channel, and FIG. 11C is a cutout effect.



Page11A-PPT for picture-in-picture channel 11B-Main input channel diagram 11C-Keying effect

The setup steps in the main menu:

**Default menu → main menu → multiple-screen → picture-in-picture mode → key image**

**Default menu → Main Menu → multiple-screen → Video → Input Source → DV11**

**Default menu → main menu → multiple-screen → key image → color key → black**

### 11. The preset scene save call has 8 groups of presets.

The preset mode is convenient for the user to quickly call out various commonly used application scenarios during use, which reduces the complicated setting of the user during operation and improves work efficiency. Each preset mode includes various parameters such as signal channel mode, display mode, and image quality setting. The processor provides 8 sets of preset save spaces. The following describes the save and recall operations of the preset modes.

### 12. Save the current preset scene

After the user adjusts all the parameters, you need to enter the save current preset scene, as follows:

**Default Menu → Main Menu → Functions → Presets → Save Template → Preset [1] →**

**Confirm**

In the sub-menu of the save mode, there are presets [1] to presets [8], and 8 storage spaces can be

selected by the user. When the storage space is empty, the right status is displayed as ☆, and when the parameter is stored, the right status is displayed as ★. Users can also save overwrites.

### 13. Bring up the preset scene

There are two modes of operation for calling up preset parameters, shortcut key calls and menu calls.

Method 1: Use the buttons in **1, 2, 3, 4, 5, 6, 7, and 8** of **PRESET** to directly press the call operation.

Method 2: Use the menu to call the preset scene.

**Default menu** → **Main Menu** → **Features** → **Presets** → **Read Templates** → **Presets [1]**  
→ **Confirm**

### 14. Use of the key lock

The key lock function is for the user to avoid misuse or misuse by others in a complicated environment, resulting in on-site errors. Improve the success rate of the show.

Lock key

Open the lock function in the system menu

**Default menu** → **main menu** → **function** → **button lock** → **open**

**Unlock**

Press the button for 2 seconds and the processor will automatically unlock.

### 15. VGA input image correction

In general, when switching to a **VGA** input source, the processor automatically corrects the color, image size, and position of the input source. If the processor does not have automatic correction successful, the user can implement manual correction.

Method 1: Use the **AUTO** button to adjust (the **AUTO** function multiplexes the **VGA1** button and the **VGA2** button)

When the input source is switched to the **VGA1** input, press the **VGA1** button again and the system will correct the input source by itself. When the input is **VGA2**, the operation is the same.

Method 2: Use menu correction

Enter the menu when switching to **VGA** input

**Default Menu** → **Main Menu** → **System** → **VGA Settings** → **Auto Correction**

If the automatic calibration is not successful, the user can try to manually correct

**Default Menu** → **Main Menu** → **System** → **VGA Settings** → **Horizontal Position**

**Default Menu** → **Main Menu** → **System** → **VGA Settings** → **Vertical Position**

**Default menu** → **Main Menu** → **System** → **VGA Settings** → **Horizontal Clock**

**Default Menu** → **Main Menu** → **System** → **VGA Settings** → **Clock Phase**

**Tip:** When there is no **VGA** signal input, the system prompts that it cannot be corrected. When **VGA1** and **VGA2** are used simultaneously, it is recommended that users set different output resolutions.