

Safety Instructions



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



This symbol warns the user of the equipment inside the enclosure exposed to hazardous voltages, there is the 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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Introduction

This manual contains information about how to use, install and configuration the LED video processor, in addition, also relates to knowledge LED video processor and LED video systems. If Use the LED video processor , please read this manual carefully.

About LED VideoWall Splicing Processor

The LED splicing processor has three powerful video processing cores, multi-graphics multi-input smart splicing processor, which can be widely used in performing arts activities, command and control center, video conferencing, hotels, courts and conference rooms.

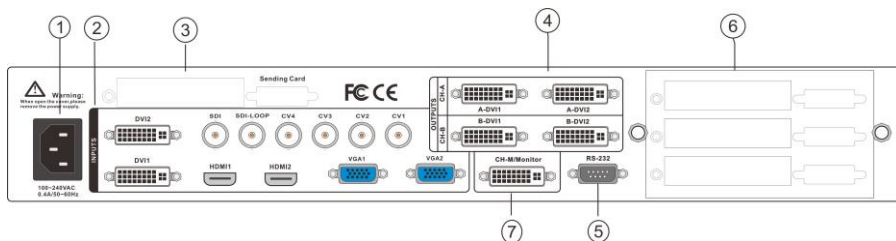
The LED splicing processor has 3-channel output, 2-channel for splicing, 1 channel for monitoring. Can achieve 2 × 1 or 1 × 2 channel hybrid splicing, a single product can splice 5.3 million pixel user-defined output.

The LED splicing processor can accommodate a wide range of input sources, can access up to 11 video inputs, including 2 DVI, 2 HDMI, 4 VIDEO, 2 VGA and 3G-SDI (optional). Each channel can accept standard resolution or high resolution video signals, the DVI and VGA can receive up to 1920 × 1200 @ 60Hz resolution input, to meet a variety of high-definition output.

The splicing processor is easy to use, using the key panel and menu system to complete the complex settings. RS-232 can be used for remote operation. A variety of input interfaces, to meet the different signal needs. Built-in 4 LED send card installation location to meet the installation requirements of large-screen system.

Panel

Rear panel



① **AC connector** — Use IEC standard power cable, input 100-240 VAC, 50-60Hz.

② **Video input connector :**

- CV1, CV2, CV3, CV4 -- Composite video input, BNC connector, support PAL、 PAL-M/N、 NTSC、 SECAM.
- DVI1, DVI2 – DVI video input. DVI-I/DVI-D connector. support VESA standard video format.
- HDMI1, HDMI2 – HDMI video input. HDMI-A connector. support HDMI1.3 / VESA standard.
- VGA1, VGA2 – VGA video input. DB-25 connector. support VESA standard video format.
- SDI, SDI-LOOP – SDI video input, loop out. BNC connector.

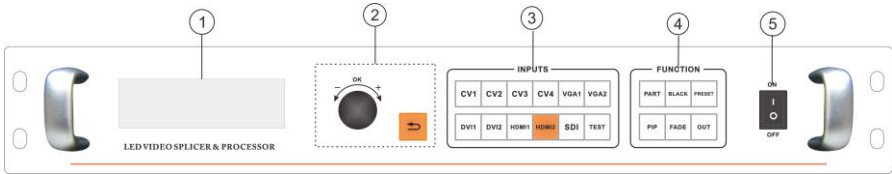
④ **Video output connector:**

- CH-A/CH-B -- DVI video output. DVI-I connector. CH-A, CH-B output same signal.
- CH-M/Monitor -- DVI video output. DVI-I connector. Connect to monitor screen.

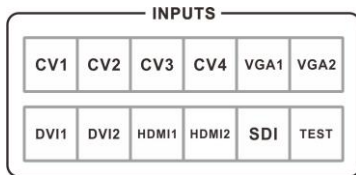
⑤ **RS-232** — Serial communication connector for engineering testing, program burning, PC software control. Baud rate is 115200bps.

③⑥ **LED sending card slot** — Built-in 4 sending card slot.

Front panel



- ① **LCD display** — display the parameters and user settings.
- ② **Operating button** — operate the menu system.
 - ↶ “exit” or “back”
 - **Knob** press downw “OK”, turn right “+” turn left “-” adjust the parameters on menu.
- ③ **INPUTS** — including 11 input signal selection, screen testing function, VGA auto correction.

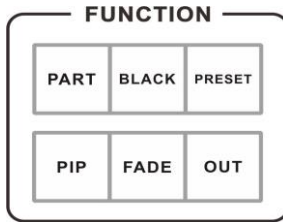


- CV1, CV2, CV3, CV4 -- video input selection button.
- VGA1, VGA2 -- VGA input selection / auto correction button. Keep press VGA1/2 button one more time could enable the auto correction function.
- DVI1, DVI2, HDMI1, HDMI2, SDI – DVI, HDMI, SDI input selection button.
- TEST – output testing pattern(colorful image, color bar etc.).

Indicator light function – the button light on when power on.

- (1) Slow flicker: the interval is 1 second and keep flicker – no input signal.
- (2) Fast flicker: the interval is 0.3 second – decoding the input signal.
- (3) Light on: no flicker – input signal working.

④ **FUNCTION** — including display model, black output, preset, pip function and switch type.



- PART – part screen display function, set the parameters in SPLICE menu.
- BLACK – output black/freeze screen, select the output in the FUNC menu.
- PRESET – save or load the user settings.
- PIP – enable/disable the PIP function, set the parameters in PIP menu.

Hint: when PIP function is working, PART/ FREEZE/BLACK/FADE are disabled.

- FADE – select switching type, support seamless and fade-in/fade-out switching.
- OUT – set the output resolution for A, B output-channel and monitor output.

⑤ **AC switcher** — power on/off.

Menu System

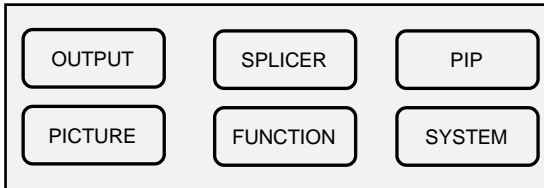
1. Default menu

LCD will display the input source, output resolution of each channel and other parameters when the processor startup.

Input: HDMI 1080p	Model: Full
Monitor: 1024x768/60	Bright: 50
Output A: 1024x768/60	PIP : CV1
Output B: 1024x768/60	

2. Main menu

Main menu display the option of every operation, all the functions could be set in the menu, press “OK” to enable the main menu when the processor is in default menu.



Option	Description
OUTPUT	Set output resolution for each channel
SPLICER	Set splicing parameters and part display, support equal/unequal splicing.
PIP	Set PIP input source, PIP size, PIP position on the screen.
PICTURE	Set the brightness, contrast, etc.
FUNCTION	Set language, user settings save and load
SYSTEM	Set system function, system version, factory reset etc.

Operation: press the “OK” button or Knob could enable the main menu, “↶” is return button, turn right or turn left the knob could adjust the parameters.

Configuration

1. Output resolution

The default output resolution of the processor is 1920x1080/60Hz, user need to set the output resolution according to the display, this is the first setup of using the processor.

Step 1: select a output resolution which large then the display from the menu,

Main menu: **“OUTPUT”** → **“OUTPUT A/B”** → **“Standard Resolution”** → **“OK”**

Step 2: tune the output resolution

Tune the output resolution according to the actual display resolution: Horizontal Width, Vertical Height, Horizontal Start, Vertical Start.

The processor also support user-defined output resolution:

Main menu: **“OUTPUT”** → **“OUTPUT A/B”** → **“User Resolution”**

Then set the parameters according to the actual display resolution.

Hints: After the user resets the output resolution, the system will reset all the parameters of the splice menu to ensure the consistency of the data. The user-adjusted resolution can only be smaller than the currently selected resolution. The horizontal start value and the vertical start value can not be adjusted when the resolution of the fine adjustment is equal to the currently selected resolution.

2. Configure switching effect

The processor support seamless switching and fade-in/fade-out switching, shortcut key is "FADE".

There are two different ways to configure the switching effect in main menu:

- ① **Configuration by shortcut key "FADE", press the "FADE" on front panel.**
- ② **Setting in the menu, "FUNCTION" → "Seamless" → "FADE/CUT".**

When the indicator light on current switching is fade-in/fade-out, light of is seamless switching.

The time of fade-in/fade-out could be set in the menu "FUNCTION" → "Fade Time"→"0.5s ~ 5s".

3. Black and Freeze configuration

The processor could output black screen and freeze the screen, this two functions use one button "BLACK" on the front panel, this shortcut key could be configured to "black" or "freeze".

Main menu: "FUNCTION" → "BLACK Func" → "Black/Freeze"

4. User settings save and load

The user settings could be save in the processor to avoid reset when use same operation, the settings could be loaded from the processor easily. 4 groups are available for the user setting.

(1) Save user settings

This function could save all the parameters which configured by users.

Main menu: "FUNCTION" → "Preset" → "Save Mode" → "Preset[x] ☆" → "OK"

There are 4 groups [0] ~ [3] in the sub menu, when the group is no data, it show ☆, otherwise display ★, The data could be overwrite by users.

(2) Load user settings

There are two different ways to load the user settings, use menu or shortcut key.

- ① **Shortcut key, press the "PRESET" button on the front panel when the menu is default, select a user setting which saved before, press "OK" button or the knob to load.**
- ② **Load from menu.**

Main menu: "FUNCTION" → "Preset" → "Read Mode" → "Preset[x] ★" → "OK"

5. VGA correction

The processor could correct the VGA input automatically including color, image size and position.

User also could correct the VGA input manually in two different ways.

- ① Use "AUTO" button on front panel("AUTO" share the button with VGA1/2), when the VGA1/2 are selected, press the "VGA1/2/AUTO" again, the processor will correct the VGA.

- ② Use the correction function in menu: select VGA1/2 input enter main menu.

Main menu: **"SYSTEM"** → **"VGA Setting"** → **"Auto Adjust"**

User could set the parameters manually.

Main menu: **"SYSTEM"** → **"VGA Setting"** → **"H Position"**

→ **"V Position"**

→ **"H Clock"**

→ **"Clock phase"**

Hint: When the processor no VGA signal input, the function of correction is disabled, it will be better to set different output resolution when user VGA1, VGA2 at same time.

6. Language

The processor support two languages Chinese and English, could be changed in menu:

Main menu: **"FUNCTION"** → **"Language/语言"** → **"ENG/中文"**

7. Lock the button

The processor supports button lock to avoid miss operation. Lock in the menu:

Main menu: **"FUNCTION"** → **"Keypad Lock"** → **"On"**

Keep press the **"OUT"** button 2 seconds to unlock the button.

8. Factory reset

The processor support factory reset if the user parameters are wrong or miss operation, set in menu.

Main menu: **"SYSTEM"** → **"Reset All"** → **"OK/Cancel"**

Warning: factory reset will delete all the user parameters, please be careful to use.

The application of splicing

The processor support large splicing output, the maximum output resolution is 7680x640/60Hz or 4608x1152/60Hz, support 5.30 megapixel user-defined resolution output, frame synchronization. Support bisection splicing, unequal splicing and part display function.

Hints: Before set the splicing parameters, please make sure the output resolution of A and B is configured.

Enter the "SPLICE" menu and set the parameters as follow:

1. Bisection splicing

① left-right



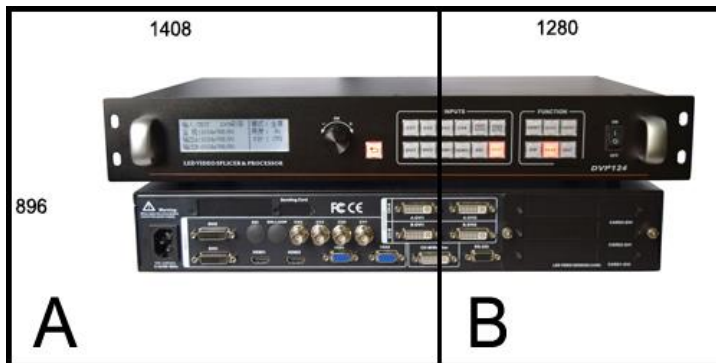
Sub menu		Output A	Output B
Splice		On	On
Pattern		Equal	Equal
Parameters	Horizontal Units	2	2
	Vertical Units	1	1
	Position	1	2

Ⓜup-down



Sub menu		Output A	Output B
Splice		On	On
Pattern		Equal	Equal
Parameters	Horizontal Units	1	1
	Vertical Units	2	2
	Position	1	2

2. Unequal splicing

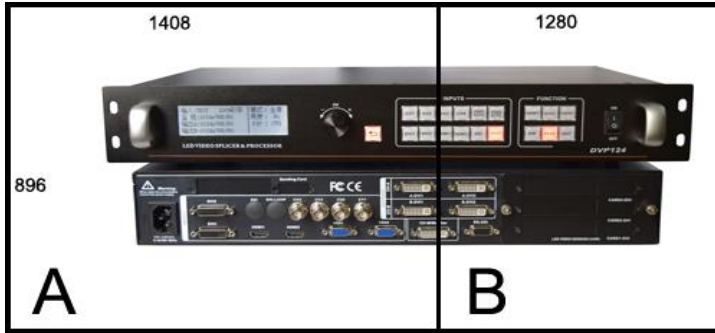


Sub menu		Output A	Output B
Splice		On	On
Pattern		Unequal	Unequal
Parameters	Horizontal Total	2688	2688
	Vertical Total	896	896
	Horizontal Start	0	0
	Vertical Start	0	1408

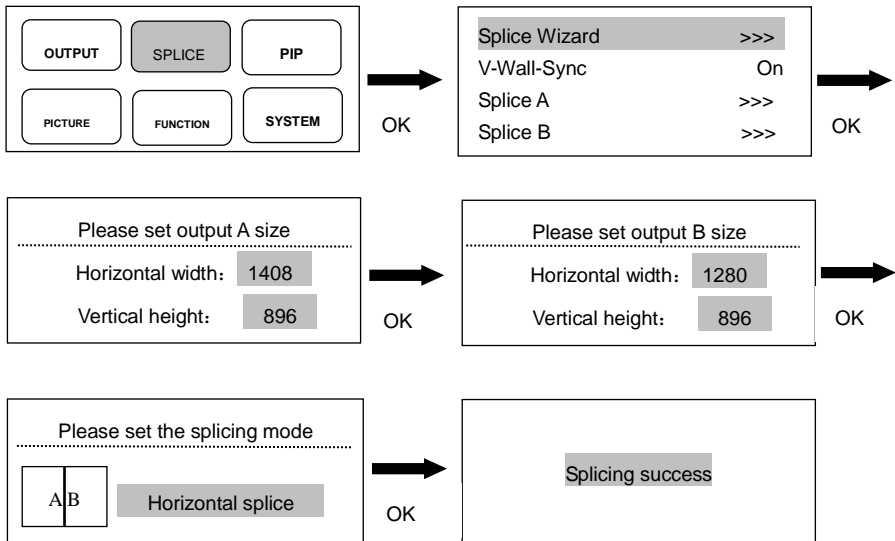
-----Splicing Wizard-----

The purpose of this function is to set the parameters quickly and easily.

For example:

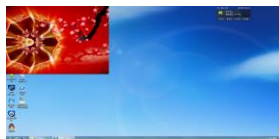


Main menu: "SPLICE" → "Splice Wizards" → "OK"



3. Part/Full display

Part/Full display is based on the splicing function, it could display part of screen for example the user just need to display the red part as follow. Set the parameters in the menu then use the "PART" button on the front panel to enable or disable this function.



Full display



Part display

Set the parameters of display area, select the input signal for example DVII input, enter main menu:

Main menu: **"FUNCTION"** → **"Part Function"** → **"On"**
→ **"Part Mode"** → **"User"**
→ **"Horizontal Total"** → **"user defined"**
→ **"Vertical Total"** → **"user defined"**
→ **"Horizontal Start"** → **"user defined"**
→ **"Vertical Start"** → **"user defined"**

PIP function

1. Picture in Picture

Picture in picture could display two different input source in the same screen. That means in the normal displaying of the main input, inserted one or more compressed sub-screen in order to monitor other input. When working in picture-in-picture mode, the user needs to provide at least two signal input, and make appropriate settings for PIP. This function can also achieve the effect of POP, it is a special application of PIP.

(1) **Enable the PIP:** use “PIP” button on the front panel or the menu,

Main menu: “**PIP**” → “**PIP Mode**” → “**PIP**”

Hint: The fade-in/fade-out and seamless switching will be disabled, when PIP is working.

(2) Set the PIP display size and position, PIP frame and transparency in “**PIP**” menu.

Sub menu		Value
PIP Mode		PIP
Input		User-defined
PIP PARAMS	PIP Horizontal width	User-defined
	PIP Vertical height	User-defined
	PIP Horizontal start	User-defined
	PIP Vertical start	User-defined

(3) The PIP function doesn't work between the same type signal, please check the following table which show the conflict.

		Main Input										
		CV1	C V 2	CV3	CV4	VGA1	VGA2	DVI1	DVI2	HDMI1	HDMI2	SDI
PIP	CV1	√	×	×	×	√	√	√	√	√	√	√
	CV2	×	√	×	×	√	√	√	√	√	√	√
	CV3	×	×	√	×	√	√	√	√	√	√	√
	CV4	×	×	×	√	√	√	√	√	√	√	√
	VGA1	√	√	√	√	√	×	√	√	√	√	√
	VGA2	√	√	√	√	×	√	√	√	√	√	√
	DVI1	√	√	√	√	√	√	√	×	×	×	√
	DVI2	√	√	√	√	√	√	×	√	×	×	√
	HDMI1	√	√	√	√	√	√	×	×	√	×	√
	HDMI2	√	√	√	√	√	√	×	×	×	√	√
	SDI	√	√	√	√	√	√	√	√	√	√	√

2. Keying Color Cutout

This function could cutout the red, green, blue, black and white color from input signal in order to achieve some simple special effects processing and superimposed subtitles. For example as follow:



PIP input



Main input



Output effects

Main menu: “PIP” → “PIP Mode” → “Keying”

“PIP” → “PIP Mode” → “Keying Setup” → “Input ” → “DVI1”

“PIP” → “PIP Mode” → “Keying Setup” → “Chroma Key” → “Black”

Specification

Input		
Composite	Quantity	4
	Scope/Impedance	1V (p_p) / 75Ω
	Format	PAL / NTSC
	Connectors	BNC
VGA	Quantity	2
	Scope/Impedance	R, G, B = 0.7V(p_p)/75Ω
	Format	PC(VESA) ≤2048x1152@60Hz
	Connectors	15pin D_Sub (Female)
DVI	Quantity	2
	Format	PC(VESA) ≤2048x1152@60Hz
		SD/HD(CEA - 861) ≤1920x1080@60Hz
Connectors	24+1 DVI_D	
HDMI1.3	Quantity	2
	Format(HDCP)	SD/HD(CEA - 861) ≤1920x1080@60Hz
		PC(VESA) ≤2048x1152@60Hz
Connectors	HDMI-A	
SDI(Extend)	Quantity	1
	Format	SDI-SMPTE 259M-C (576i @50Hz/480i @60Hz)
	Connectors	BNC
HD-SDI 3G-SDI (Extend)	Quantity	1
	Format	HDSDI-SMPTE292M ≤1920x1080@50Hz/60Hz
		SMPTE 274M/296M ≤1920x1080@50Hz/60Hz
		SMPTE 424M/425M ≤1920x1080@50Hz/60Hz
Connectors	BNC	

Output		
VGA	Quantity	1
	Scope / Impedance	R, G, B = 0.7V(p_p)/75Ω
	Connectors	15pin D_Sub (Female)
DVI	Quantity	5
	Connectors	DVI OUT1: 24+5 DVI_I DVI OUT2: 24+1 DVI_D
SDI-LOOP	Quantity	1
	Format	SDI-SMPTE 259M-C (576i@50Hz/480i @60Hz 1080p 720p)
	Connectors	BNC
VGA/DVI	Format	1024x768@60Hz/75Hz 1280x1024@60Hz/75Hz 1920x1080@50Hz/60Hz 1366x768@60Hz 2304x1152@60Hz 3840x640@60Hz User-defined output

Control	Panel Button / knob / RS232
Power	100-240VAC 22W 50/60Hz
Operating Temp	0 - 50 °C
Humidity	10 - 90%
Dimensions (Package)	69mm x 483 mm x 280mm
Certificate	FCC, CE
MTBF	30,000 hours
Weight (G.W.)	5.0KG
Weight (N.W.)	4.0KG