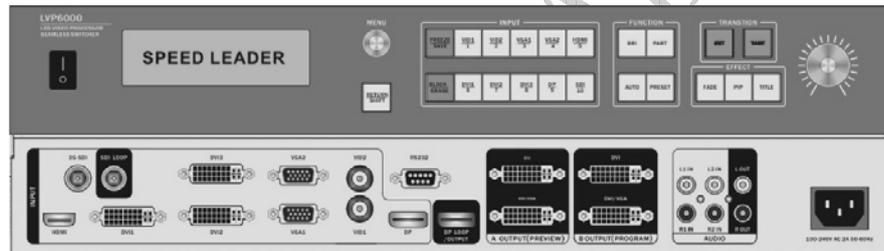


User Manual



LVP6000

Video Processor

Seamless Switcher



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About the Manual

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Please carefully read this manual before using this equipment. All the product specifications and information mentioned in the manual are only for reference. If there is the content updating, the company will not make further notice. Unless there is a special agreement, this manual is only taken as an instruction, and all statements and information will not constitute a guarantee of any kind.

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VGA and XGA are the registered trademarks of IBM Corporation.

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The logo of HDMI and High-Definition Multimedia Interface are the trademark of HDMI Licensing LLC.

Safety Instructions

- This equipment must be connected with ground wire.
- This equipment needs a rated power voltage. Ensure that the input voltage error should be between - 10% and +10%.
- Do not connect AC power cord with another AC power cord which may lead to excessive noise.
- Please use the equipment when the surrounding temperature is from -10 °C to



45 °C, and the relative humidity is 90% or less than that.

- Do not use this equipment in certain special circumstances, such as, closing to a heat source, which may cause overheating of the equipment and damage it. Please use it in a well-ventilated place and pay attention not to block the equipment vents.
- Do not expose this equipment in the place which has the possibility for accidental collision or vibration, and reinforcement processing is necessary in the vibration place.
- When you use the equipment, please make sure that there are no objects, such as water and metal objects, inside the equipment. Otherwise, it will damage the equipment and cause a fire.
- If there is any irregularity or abnormality for the equipment, please immediately turn off the power supply, disconnect the AC power cord, and see “Trouble Clearing”.
- If this equipment is damaged, do not disassemble it. Please contact our maintenance service department.

Overview

About LVP6000

LVP6000 series consists of the following four models:

- **LVP6000**: 9-channel signal input
- **LVP6000S**: 10-channel signal input (including SDI module)
- **LVP6000A**: 9-channel signal input and an audio module
- **LVP6000SA**: 10-channel signal input (including SDI module) and an audio module

Features

LVP6000 is a video processor which supports the resolution of input signal up to 4K*2K and the output up to 4K*1K, and it provides a perfect solution to the demands of high-quality, point-to-point applications of automobile exhibitions and high-end conferences, etc.

LVP6000 is also a seamless switcher with rich switching effects and preview output. The original knob switching mode and rich switching effects can meet the demands of various advanced functions required by the high-end presentation environment.

Fig. 1-1 shows a typical application of the LVP6000. It can receive a variety of signals and various resolution (which can support SD to UHD) inputs as follows:

- VIDEO (NTSC, PAL, SECAM) video
- VGA (VESA standard) video
- HDMI (HDMI 1.4 / DVI 1.0) video
- DVI (VESA standard) video
- DP (DP 1.2) video
- 3G-SDI video (optional)

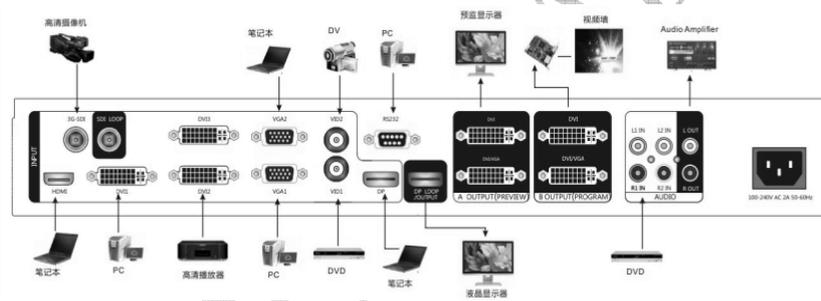


Fig. 1-1 Typical Application of LVP6000

LVP6000 has two channels outputs for preview(A) and program(B), each output applies DVI-I and DVI-D interface, which can realize two-channel DVI and one-channel VGA (using DVI to VGA connector to connect the DVI-I interface) and meet more device attachment. The user can determine seamless switching and effect switching of any channel at random.

The user can set any two input video into preview and program output and achieve the real seamless switching or other switching effect easily.

The user can define the resolution of the input video and output signal freely, meeting various special application requirements.

LVP6000 is more humanized in design, stronger in function and easy to use. Only tapping your fingers on the simple button panel and menu system can finish complex settings. Rich physical interfaces are provided to meet the requirements of the common output equipment. And the rotary knob can adjust relevant parameters of the picture quickly, which is convenient for the users.

Installation

Install LVP6000

The user can choose whether to install LVP6000 to the rack or flight case. LVP6000 is a standard 1.5U chassis, with the size of 6.5cm (Height) x 44cm (Width) x 32CM (Depth). While installing, please avoid scratching the case and use cushion for fixing suspension loop.

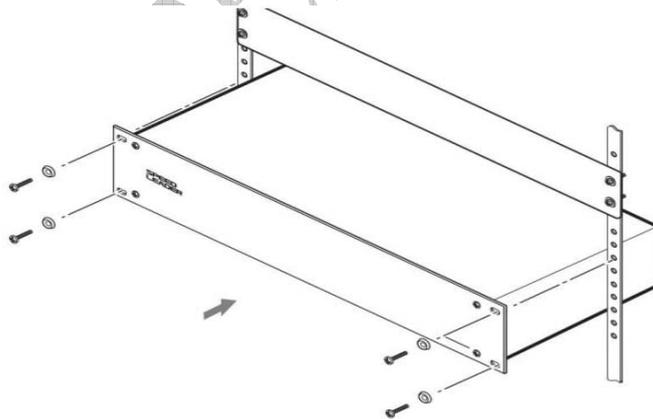


Fig. 2-1 Installation of LVP6000

Rear panel

The rear panel is as shown in Fig. 2-2:

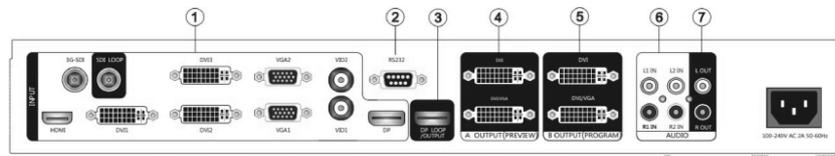


Fig. 2-2 Connection Terminals of LVP6000 Rear Panel

① Video input

VID1, VID2	2-channel composite video input port (BNC seat)
VGA1, VGA2	2-channel VGA input port (DB15 seat)
DVI1, DVI2, DVI3	3-channel DVI input port (DVI-I seat)
HDMI	1-channel HDMI input port (HDMI seat)
DP	1-channel DP input port (DP seat)
SDI (optional)	1-channel SDI input port (BNC seat)

② Communication interface

RS-232	RS-232 interface (DB9 seat)
--------	-----------------------------

**③DP looping-out interface**

DP LOOP(OUTPUT)	DP looping-out port (DP seat)
-----------------	-------------------------------

④⑤Output interface

A OUTPUT (PREVIEW)	Preview output interface which is connected to a preview display usually.
B OUTPUT (PROGRAM)	Program output interface which output to an LED sending card or a projector usually.

Two DVI-I seats are employed, which can output DVI and VGA signals at the same time.

When VGA signals are output, a DVI-VGA adapter shall be used to connect the seats to the DVI-I interface.

⑥Audio interface

L1 IN, R1 IN, L2 IN, R2 IN	Two groups of audio input interfaces
L OUT, R OUT	One group of audio output interfaces

⑦AC power interface



LVP6000 provides a standard IEC power, with the input power of 100 ~ 240VAC, 50Hz or 60Hz, at the same time, the ground wire of the power supply must be grounded to avoid equipment damage or the electric shock to human body.

Definitions

Preview signal	Signal name displayed in the preview area at default menu.
Program signal	Signals name displayed in the program area at default menu.
Preview picture	Picture connected by the preview output (PREVIEW) in switcher mode
Program picture	Picture connected by the program output (PROGRAM) in switcher mode
Spliced picture	Picture spliced by the A output or the B output interface in splicing mode.
PIP picture	Picture overlaid on the program or spliced picture when PIP effect is enabled.

Operation

Mode descriptions of LVP6000

Switcher mode: It is the seamless switcher with rich switching effects and preview and program

output. The user can choose the switcher mode in "OUTPUT→Output Timing" and connect a monitor which displaying the preview picture to A OUTPUT (PREVIW) to and connect B OUTPUT (PREVIW) to LED screen or project to display the program picture.

Splicing mode: This mode is used for two picture splicing. The user can choose the splicing mode in " OUTPUT→Output Timing" and connect A OUTPUT (PREVIW) and B OUTPUT (PREVIW) to the two LED screens respectively to realize the picture splicing function of the two LED screens.

Introductions to Front Panel and Keys

A 240*64 LED is adopted by the LVP6000 processor to indicate the current state, menu selection, data state and other parameters. Background lights of the keys can reflect the current input selection and operation, etc. Hence, the user can operate the whole menu system easily through the keys and rotary knobs as well as the state of the LCD screen and background lights of the keys.

All controls and indications of the processor are focused on the front panel (Fig. 4-1). The keys on the front panel can be divided into six areas: MENU, INPUT, FUNCTION, TRANSITION, EFFECT and Switch Knobs.

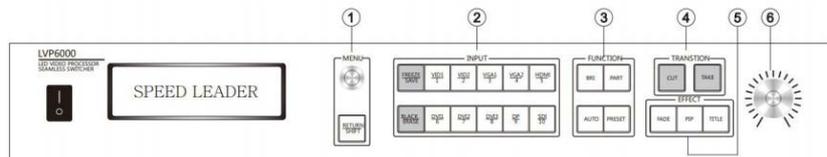


Fig. 4-1 LVP6000 Front Panel



①MENU area

The area includes RETURN and MENU key, the MENU key can be rotated left and right and be pressed down.

MENU key

1. Rotate the MENU key left and right can adjust menu options and parameters left and right or up and down, or adjust the size and position of the output window.
2. Press MENU key can enter a specific menu or confirm the operation or realize other functions.
3. Press MENU key at the default menu can enter the main menu interface.

RETURN/SHIFT key

1. Press the key can return to the upper menu.
2. It can be matched with the keys in INPUT area to realize program input video switching, black screen output and screen freeze (detailed in INPUT area) as a combination key.

Note Operation instructions for combination key formed by "SHIFT+ other keys":

Press SHIFT key continuously and simultaneously press other keys, thereby finishing the operation of the combination key.

②INPUT area

The area includes FREEZE key, BLACK key and 10-channel input keys.

FREEZE/SAVE key



1. Freeze and lock the preview picture. Press\ the key can enable the freeze function, pressing the key again or choosing the other inputs can cancel the freeze function. When the FREEZE key is enabled, key light turns on.

2. Press SHIFT+FREEZE key can freeze the program picture

3. Storing function can be realized in PRESET state (channel key in INPUT area is on)

BLACK/ERASE key

1. Press the key can make the preview picture to the black screen. Press the BLACK key again can cancel the black screen output. When the BLACK key is enabled, the key light is on.

2. Press SHIFT+BLACK key makes the program picture to the black screen

3. Erase function can be realized in PRESET state.

Input channel key

1. Input channel function

PREVIEW channel switching: Press the corresponding channel key in the area (the light of the key is on).

PROGRAM channel switching: Press RETURN/SHIFT key continuously and then press the corresponding channel key.

2. Numeric key function

Selection for preset mode number can be realized in PRESET state (channel key in INPUT area is normally on). For more descriptions, refer to " Menu system→PRESET shortcut menu".

**③FUNCTION area**

The area comprises BRI, PART, AUTO and PRESET keys.

Table 4-1 Functions of BRI, PART, AUTO and PRESET Keys

	Descriptions on key function	Background light of key
BRI	Tap BRI key to enter the shortcut menu and adjust the brightness of the corresponding channel by the rotary knob.	The light is on in brightness shortcut menu.
PART	Switch to part or full screen.	Part screen: Background light is on. Full screen: Background light is off.
AUTO	Auto calibrate VGA signal of the preview(It be carried out only when the preview signal is the VGA and the valid signal)	Background light is on when the AUTO key is pressed and off after calibration.
PRESET	Enter PRESET mode and press RETURN or PRESET key to exit the mode.	After entering the PRESET mode, all channel keys in INPUT area are on.

④TRANSTION area

The area includes CUT and TAKE keys.

Table 4-2 Functions of CUT and TAKE Keys

	Descriptions on key function	Background light of key



CUT	Directly switching	Background light normally is on in default state; after the key is pressed, the light flashes once and then normally on.
TAKE	Effect switching	Background light is normally on in common state; After the key is pressed, the light flashes as long as effect setting time.

Effect of CUT and TAKE keys in different modes

Table 4-3 Effect of CUT and TAKE Keys in Different Modes

	Switcher mode	Splicer mode
FADE	Switch between the preview picture and the program picture	Switch the preview signal to the spliced picture.
PIP	Add the PIP picture on the program picture.	Add the PIP signal to the spliced picture.
TITLE	Key the preview picture and add the preview picture to the program picture.	Key the preview signal and add to the spliced picture.

⑤EFFECT area

The area includes FADE, PIP and TITLE keys which respectively represent three effect modes of the system: fade, picture-in-picture (PIP) and title. Only one effect mode can be selected at the same time and the background light of the key indicates the effect mode of the current system.

In a selected effect mode, press another mode key can switch to the other effect modes and press the same mode key can open the shortcut menu of the mode itself.

⑥ Rotary knob switching area

The rotary knob switching area is precisely the rotary knob with scales. The rotary knob is to switch the picture effect by rotation. Rotating the knob from zero to full scale gradually is equal to the effect that the current program picture is faded gradually after the TAKE key is pressed and the preview picture is switched to the program picture slowly. Through the rotary knob, the switching between the pictures can be fixed at a specific intermediate state, thus realizing the switching effect more flexibly.

Note: Rotating the knob to the intermediate state indicates that the picture is switched to the intermediate state. Tapping TAKE or CUT key can finish the rest switching process. Now, the current scale of the rotary knob has no effect to the switching state; and only rotating the knob again can enable the effect of the switch knob.

Menu system overview

Startup menu is displayed on the LCD screen in startup process of system after the system is powered on; after the system is started completely, the default menu is displayed. If the shortcut menu or main menu is not operated at some time, the menu will return to the default menu automatically with the flowchart as shown in Fig. 4-2:

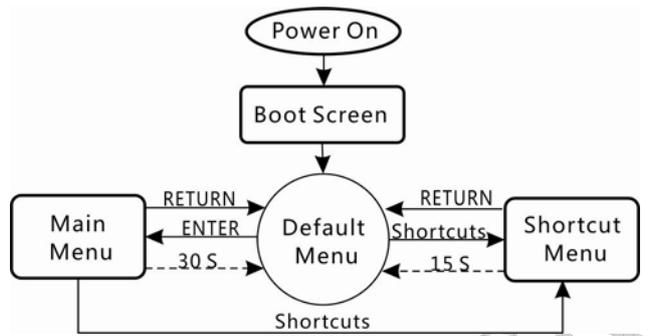


Fig. 4-2 Flowchart of System Menu

Default menu introductions

With different splicing methods, the default menu can be divided into two types:

When multi-machine splicing of the LVP6000 is off (refer to descriptions on multi-machine splicing for more information), the default menu is as shown in Fig. 4-3:



Fig. 4-3 Default Menu

The default menu can be divided into four areas, namely, preview area (left part), program area (right part), switching speed (middle upper part) and effect mode area (middle lower part).

Preview area:

Display the preview video name and resolution,if no signal in the channel, the third line of the preview area will display “No Sync”

Program area:

Display the program video name and resolution,if no signal in the channel, the third line of the program area will display “No Sync”

Switching progress bar:

Reflect the progress of the current switching knob (rotating the switching knob can display the switching percentage in time).

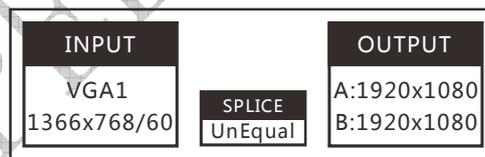
Effect mode area

Upper line displays the current effect mode (FADE, PIP, and TITLE).

Lower line displays the effect switching time (0-5S).

Note: The effect switching time can be adjusted directly by the knob.

When the multi-machine splicing method of the LVP6000 is on, the default menu is as shown in the Fig. 4-4:



INPUT VGA1 1366x768/60	SPLICE UnEqual	OUTPUT A:1920x1080 B:1920x1080
-------------------------------------	--------------------------	---

Fig. 4-4 Default Menu in Multi-machine Splicing Mode

The default menu can be divided into three areas: input area (left part), output area (right part) and splicing mode area (middle lower part).

Input area:

Display the input video name and resolution

Output area:

Display the resolution of A output and B output.

Splicing mode area:

Display the current splicing mode (equal or unequal).

Main menu introductions

Tapping and rotating the MENU key in the default menu can enter the main menu interface. Fig. 5-2 shows the first-level menus of the main menu system on the LCD display screen. There are eight first-level submenus in the main menu, including picture quality, crop, output, splicing, effect, function, advanced and system. The user can rotate and tap the MENU key to quickly select and enter the next menus.

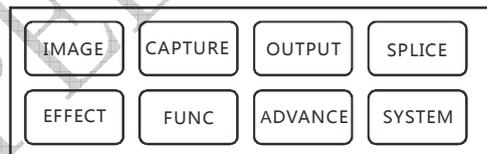


Fig. 4-5 First-level Submenus

Main menu involves in the following functions:



- **IMAGE** – Brightness, contrast, color, sharpness and color temperature, etc.
- **CAPTURE** –Settings of the input video crop parameters
- **OUTPUT** - Output resolution setting, output window setting, part or full function, etc.
- **SPLICE** – Parameter settings for equal or unequal splicing
- **EFFECT** –Parameter settings in FADE, PIP and TITLE mode.
- **FUNC** – VGA,DP,HDMI,DVI,Flip,Hot Backup settings
- **ADVANCE** – Contrast mode, motion mode, black extend, DNR, MPEG NR functions.
- **SYSTEM** – OSD language, system version, fan switch and system reset function.

Image quality menu

PORT	PREV
Brightness	50
Contrast	50
Color	50
Sharpness	12
Color TEMP	Normal
Gain Red	256
Green	256
Blue	256
Offset Red	0
Green	0
Blue	0
Reset	←

The image quality menu is mainly used for adjusting the input video's image quality.

- **PORT** – Port can be adjusted only when PIP is on when the splicing mode. In other conditions, the port only is displayed the current state.

- **BRIGHTNESS** – Default: 50; range: 0-100
- **CONTRAST** – Default: 50; range: 0-100
- **COLOR** – Default: 50; range: 0-100
- **SHARPNESS** – Default: 12; range: 0-24
- **COLOR TEMP** – Default: Normal; options: Warm,Normal, Cool and User
- **WHITE BALANCE** – Adjust the values of Gain Red, Green and Blue; range: 0-256; adjusting the white balance will set the Color TEMP as User.
- **BLACK BALANCE** –Adjust the values of Offset Red, Green and Blue; range: 0-256; adjusting the white balance will set the Color TEMP as User.
- **RESET** –Initialize above parameters of the selected port.

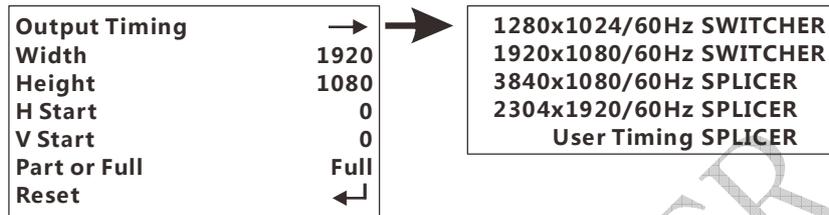
Crop menu

Port	Prev
Crop Width	1920 < 100% >
Crop Height	1080 < 100% >
H Start	0
V Start	0
Reset	←

The crop function can capture any part and any position of the input video to display

- **PORT** - Port can be adjusted only when PIP is on when the splicing mode. In other conditions, the port only is displayed the current state.
- **CROP WIDTH** – Default: 100%, range: (10-100%)
- **CROP HEIGHT** - Default:100%, range: (10-100%)
- **H START** – Default: 0; range: 0-2048
- **V START** - Default: 0; range: 0-2048
- **RESET** - Initialize above crop parameters of the selected port.

Output menu



- **OUTPUT TIMING** – Set output resolution; the output resolution can set as switcher mode or splicer mode.

Switcher mode

This mode is applied to preview and program picture output (Fig. 4-6) and is precisely a seamless switcher with rich switching effect. Generally, the preview output is connected with a monitor and the program output is connected with an LED screen, thereby realizing the seamless switching perfectly.

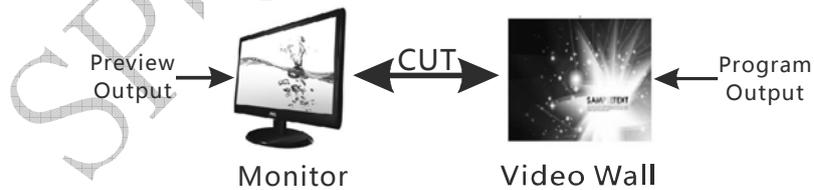


Fig. 4-6 LVP6000 Switcher Mode

Splicing mode

This mode is applied to splice the picture of A and B output. It can output up to 4K*1K (3840*1080) resolution. The A and B output are respectively connected with an LED screen, as shown in Fig. 4-7.



Fig. 4-7 LVP6000 Splicer Mode

Resolution selection

For the output resolution, the user shall select the switcher mode or splicer mode upon the function you want to achieve firstly, then choose the output resolution greater than or equal to real resolution of the LED screen (both horizontal resolution and vertical resolution are greater than or equal to the real resolution) and finally adjust the window parameters below.

Note: When the resolution of the LED display screen is relatively small, we suggest using the common resolution; and when length-width ratio of the resolution is too large or small, we suggest using the user resolution. When setting the user resolution, you shall set the horizontal resolution and vertical resolution and field frequency, then the system will automatically decide whether the resolution exceeds the bandwidth limit.

WIDTH – Default: the width of selected resolution Range: 192- the width of selected resolution

HEIGHT - Default: the height of selected resolution Range: 96- the height of selected resolution

H START - Default: 0 Range: 0-(the width of selected resolution –width)

V START - Default: 0 Range: 0-(the height of selected resolution –height)

Note The Width, Height, H Start and V Start are the window parameters adjusted as the resolution of the LED screen.

Example: If the actual resolution of the LED screen is 800*600, the selected output resolution is 1280*1024; when the Width, Height, H Start and V Start are respectively adjusted to 800, 600, 0 and 0, the full picture will appear on the LED screen.

PART OR FULL – The default is the full. Options: Full and part.

Full: The LED screen displays the whole picture

Part: The LED screen displays a part of the picture

Example: When the resolution of the LED display screen is 800*600, choose the switcher mode with the output resolution being 1280*1024; at this moment, the picture displayed by the LED screen is incomplete; then, adjust the width to 800 and height to 600; now, the picture on the LED screen is complete. Fig. 4-8 and 4-9 are the sketch maps of the monitor and LED display screen in part screen and full screen.



Fig. 4-8 Sketch Map of Monitor



Fig. 4-9 Sketch Map of LED Display Screen

When the output resolution is in the splicing mode, the output menu is as shown in the Fig. below:

Output Timing	→
A Output Width	1920
B Output Width	1920
Height	1080
A Output HStart	0
B Output HStart	0
V Start	0
Part or Full	Full
Reset	↶

Difference between the splicer mode and the switcher mode is that the menu in the splicer mode the two outputs are respectively connected with an LED display screen, realizing the horizontal splicing of the two display screens. In view of this, the width adjustment involves in A output width and B output width and the horizontal start adjustment involves in A output horizontal start and B output horizontal start. However, other parameters are the same.

When the two groups of parameters are adjusted, the A output width corresponds to the horizontal physical resolution of the A screen and the B output width responds to the horizontal physical resolution of the B screen as shown in Fig. below:

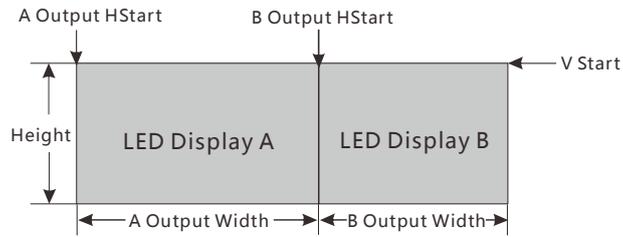


Fig. 4-10 Schematic Diagram for Output Parameters

Splice menu

Multi-machine splicing function is to solve the problem that the single video processor cannot drive ultra-large LED screen. Splice function can be applied to various LED splicing systems.

To realize the multi-machine cascade, **each equipment's resolution must be set as splice mode** (OUTPUT→Output Timing) before entering the splicing menu.

The splice menu include Off, Equal and Unequal.

Equal splicing refers to the horizontal pixels and vertical pixels of each part of the spliced video wall are equal.

Unequal splicing refers to the pixels of each part of the video wall may be unequal.

EQUAL SPLICE MENU

Splice Way	Equal
H Splice Unit	1
V Splice Unit	1
Splice Pos	1
Reset	←

- H Splice Unit – Quantity for horizontal splicing led wall
- V Splice Unit –Quantity for vertical splicing led wall
- Splice Pos: Positions of the splicing units controlled by LVP6000 equipment in splicing; calculation order for the positions is from left to right and top to bottom

The following example describes above three parameters in 2*2 and 1*3 splicing in details:

Example:

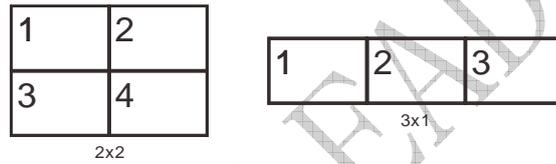


Fig. 4-11 Example of LVP6000 Multi-machine Equal Splicing

H Splice Unit : 2 when 2*2.splicing

3 when 3*1 splicing

V Splice Unit : 2 when 2*2 splicing

1 when 3*1 splicing

Splice Pos: Serial number of the splicing unit in the Fig.



Unequal splicing menu

Splice Way	UnEqual
H Total Size	3840
V Total Size	1080
H Splice Pos	0
V Splice Pos	0
Reset	←

- **H Total Size:** Total horizontal pixels of the spliced wall.
- **V Total Size:** Total vertical pixels of the spliced wall.
- **H Splice Pos:** Horizontal start pixel of the current output in the spliced wall.
- **V Splice Pos:** Vertical start pixel of the current output the spliced wall.
- For splicing operation, the following sections will illustrate it explicitly.

Effect menu

For different effect modes, the effect menus are also different (Press FADE, PIP and TITLE in EFFECT area on the key-press panel can switch to the corresponding effect mode).

The effect menus at different modes are as shown in the table below:

Table 4-4 Effect Menus at Different Modes

	Switch Mode	Splice Mode						
FADE	<table border="1"> <tr> <td>TIME</td> <td>1.5S</td> </tr> <tr> <td>MODE</td> <td>→</td> </tr> </table>	TIME	1.5S	MODE	→	<table border="1"> <tr> <td>TIME</td> <td>1.5S</td> </tr> </table>	TIME	1.5S
TIME	1.5S							
MODE	→							
TIME	1.5S							

PIP	<table border="1"> <tr><td>Width</td><td style="text-align: right;">960</td></tr> <tr><td>Height</td><td style="text-align: right;">540</td></tr> <tr><td>H Start</td><td style="text-align: right;">0</td></tr> <tr><td>V Start</td><td style="text-align: right;">0</td></tr> <tr><td>Reset</td><td style="text-align: center;">↶</td></tr> </table>	Width	960	Height	540	H Start	0	V Start	0	Reset	↶	Same as left
Width	960											
Height	540											
H Start	0											
V Start	0											
Reset	↶											
TITLE	<table border="1"> <tr><td>Key</td><td style="text-align: center;">Black</td></tr> </table>	Key	Black	Same as left								
Key	Black											

- **Time** – Effect switching time
- **Mode** – Effect switching mode. 23 switching modes are provided and described in the shortcut menu explicitly.

Note: The effect mode is not available in multi-machine splice.

- **WIDTH** – Default: the width of PIP's resolution Range: 192- the width of PIP's resolution
- **HEIGHT** - Default: the height of PIP's resolution Range: 96- the height of PIP's resolution
- **H START** - Default: 0 Range: 0-(the width of PIP's resolution –width)
- **V START** - Default: 0 Range: 0-(the height of PIP's resolution –height)
- **Color key** –options: Black, red, green and blue

Color key is the effect that the image color input by the preview channel subtracts the designated color, which is applied to some simple effect processing and title superposition.



Preview channel + Program channel =Title effect

Fig. 4-12 Schematic Diagram of LVP6000 Image Matting Function

As seen in the Fig. above, white characters on black background are input to the preview channel; when the two pictures are added, the title effect can be seen once the black is removed

For the operation, the user shall switch to TITLE mode (tap TITLE shortcut key) firstly and then set the preview channel and program channel and tap CUT key or TAKE key to realize the image mating function.

Function menu

VGA SETTING SUBMENU

Port	PREV
Auto Adjust	↙
H Position	0
V Position	0
H Clock	0
Clock Phase	0

For the VGA signal, the position, clock and phase parameter can be calibrated automatically or adjusted manually. When the VGA picture is deflected, the user can use this menu to make adjustments.

DP SETTING SUBMENU

DP Output	LOOP
EDID	→

- DP OUTPUT – Default: LOOP; options: LOOP, iDP



LOOP: the DP output picture is DP input signal.

iDP: the DP output picture is the spliced picture of the preview and the program output.

- **EDID** – EDID setting of the DP channel, including five common EDID of 1024*768/60, 1280*1024/60, 1680*1050/60, 1920*1080/60 and 1920*1200/60 and User EDID.

DVI setting submenu

EDID	→
Output EQ	→

- **EDID** – EDID setting of the DVI channel, including five common EDID of 1024*768/60, 1280*1024/60, 1680*1050/60, 1920*1080/60 and 1920*1200/60 and User EDID.

- **Output EQ**

Port A Up	4
Port A Down	4
Port B Up	4
Port B Down	4

HDMI setting submenu

- **EDID** – EDID setting of the HDMI channel, including three common EDID of 720P/60, 1080P/60 and 4K*2K/30 and User EDID.

Flip submenu

H FLIP	OFF
V FLIP	OFF

- **H Flip:** The pictures is reversed horizontally.



- V Flip: The pictures is reversed vertically.

Advanced menu

Port	PREV
Contrast PT	Natural
Motion Mode	Normal
BLK Extend	OFF
DNR	OFF
MPEG NR	OFF

- **PORT** – Port can be adjusted only when PIP is on when the splicing mode. In other conditions, the port only is displayed the current state.
- **Contrast PT** – Default: Natural; options: Peak, Natural, Dynamic and Normal
- **Motion Mode** –Default: Normal; options: Normal and Auto
- **Black Extend** –Default: Off; options: Off, Low, Normal and high
- **DNR** –Default: Off; options: Off, Low, Normal and High
- **MPEG NR**–Default: Off; options: Off, Low and High

System menu

OSD Language	CH/ENG
System Version	→
Fan Switch	ON
Reset	←

- **OSD Language** – Set the menu language, including Chinese and English.
- **System Version** – Display the software version and hardware version of the system.
- **Fan switch** – Set the state of the fan switch and the default is on.



- **RESET** –Reset system to factory settings.

Shortcut menu

LVP6000 is provided with six shortcut keys which can take the shortcut menu quickly. The six shortcut keys are BRI, PRESET and AUTO in FUNCTION area as well as FADE, PIP and TITLE in EFFECT area.

Preset shortcut menu

Preset menu is used for saving and calling the scene mode. Through saving and calling, scene parameters can be rebuilt quickly, avoiding the repeated and complex setting.

Descriptions on saving parameters:

When the preset scene is saved, the crop parameter, output window parameter and effect mode are saved.

The following table illustrates the channels for saving the preset scene at different modes:

	FADE	PIP
Switcher mode	Save the preview scene.	Save the PIP scene
Splicer mode	Store the spliced scene.	Save the spliced and PIP scene both

Descriptions Preset shortcut menu

Press the PRESET key can pop out the Preset shortcut menu as shown in the Fig. below:

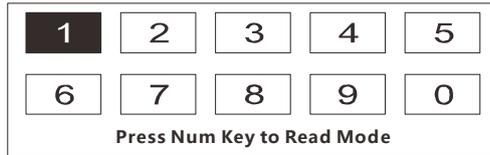


Fig. 4-13 Preset shortcut Menu

The user can save up to 10 templates and each number represents a group of templates. The states for the background lights of the SAVE and ERASE keys represent the current function.

The white characters on black background (template 1 as shown in above Fig.) indicate that the template has saved. However, the black characters on white background (template 2-0) refer to the template is empty (cannot be called).

In PRESET mode, SAVE, ERASE and numeric keys can be operated to realize all functions. Through the SAVE and ERASE keys, read, save and erase functions can be switched; and furthermore, the templates can be operated by the numeric keys correspondingly.

Operate as per state of the key light or indication on the display screen. For descriptions on the key lights, refer to the table below:

Table 4-6 Current Functions Corresponding to States of Key Lights



lights of SAVE and ERASE key	Function
Both key light is off	Preset calling function
SAVE key light is on	Preset saving function
ERASE key light is on	Preset erase function

Press RETURN or PRESET key can return to the default menu from PRESET mode.

Effect shortcut menu

The EFFECT shortcut menu includes FADE, PIP and TITLE.

Press the selected effect key will pop out the corresponding shortcut menu. Press another effect key will switch to another effect mode.

For example, if FADE effect is selected now, press FADE key will pop out the FADE shortcut menu.

FADE shortcut menu

When output resolution is set to the splicer mode, the shortcut menu only displays effect switching time option. However, when the output resolution is set to the switcher mode, the shortcut menu will quickly call out 23 switching effects as shown in Fig. 4-14, where the black part indicates the picture to be shown and the arrow indicates the movement direction.

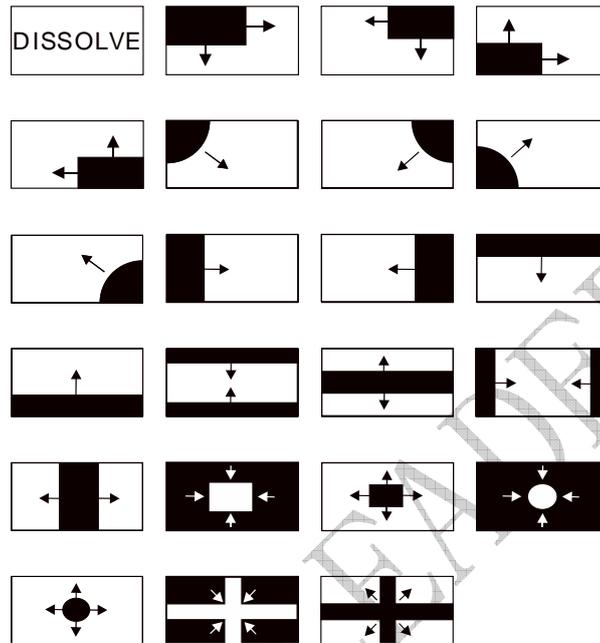


Fig. 4-14 Switching Effects

PIP SHORTCUT MENU

Width	960
Height	540
H Start	0
V Start	0

- **WIDTH** – Default: the width of PIP’s resolution Range: 192- the width of PIP’s resolution
- **HEIGHT** - Default: the height of PIP’s resolution Range: 96- the height of PIP’s resolution
- **H START** - Default: 0 Range: 0-(the width of PIP’s resolution –width)
- **V START** - Default: 0 Range: 0-(the height of PIP’s resolution –height)

**TITLE shortcut menu**

Key	Black
-----	-------

Refer to effect menu introduction for the color key setting.

Brightness shortcut menu

PREV Brightness	50
-----------------	----

The brightness of preview or program can be adjusted

AUTO shortcut menu

Auto Adjust doing

Press AUTO key can auto calibrate VGA signal of preview window

After automatic calibration, it will go back to the default menu automatically.

More functions about VGA automatic calibration, go to FUNC→VGA setting.

Splice operation

Splice is divided into single-machine splice and multi-machine splice.

Setting and application of single-machine splice:

1. Set the output resolution to splicer mode (including 3840*1080/60Hz, 2304*1920/60Hz and User Timing).

2. Ensure that the multi-machine splice is Off.

Example of 2*1 splice of LED video wall

Table 5-1 Current Equipment and Relevant Parameters

Equipment name/model	Function/parameter	Quantity
LED video wall	A 1152*1024 LED video wall and a 960*1024 LED video wall are spliced into the 2112*1024 LED video wall in the manner of 2*1.	2
LED sending card	Support 1280*1024 at maximum.	2
LVP6000	Video splicer	1

Splice operation:

1. Hardware connection: as shown in the following Fig.:

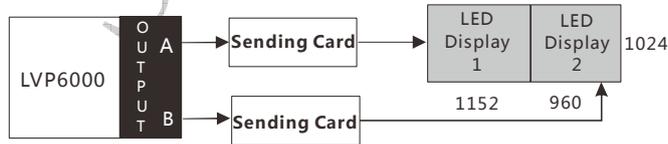


Fig. 5-1 Schematic Diagram of single-machine Splicing Connection

2. Set output resolution: "OUTPUT →Output Timing→3840x1080 60Hz SPLICER"
3. Set output window size: The output menu is set as follows.

Output Timing	→
A Output Width	1152
B Output Width	960
Height	1024
A Output HStart	0
B Output HStart	0
V Start	0
Part or Full	Full
Reset	↶

Setting and application of multi-machine splice

LVP6000 has simple and practical splice function which can be realized only by the **splice** menu. The multi-machine splice is based on the single-machine splice.

The multi-machine splice can be classified into **equal splicing** and **unequal splicing**, in which the **equal splice** refers to the horizontal pixels and vertical pixels of each part of the spliced video wall are equal, the **unequal splice** refers to the pixels of each part of the video wall may be unequal. Here, we will focus on the equal splicing and unequal splice of LED video wall.

Connection for multi-machine splice:

When multiple LVP6000 are spliced, a signal distributor or DP looping can be employed to transmit the signal to all the LVP6000.

Setting for DP looping-out connection: When multiple LVP6000 are connected, connect the input signal to the first LVP6000, set "FUNC→DP Setting→DP output" to LOOP and

then connect the equipment by DP cables to realize hardware connection of the multiple LVP6000. The Fig. below demonstrates the splicing of three LVP6000 by the DP cables:

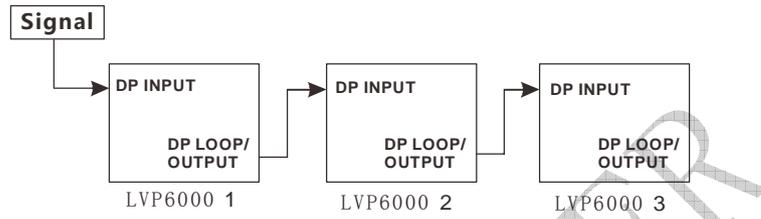


Fig. 5-2 Schematic Diagram of LVP6000 Multi-machine Splice Connection

Setting before splicing

Before multi-machine splicing,

1. Set the output resolution to the splicer mode.
2. Set the output parameter so that the whole picture can be displayed on the two LED screens of each set of equipment.

1. Example of 2*2 equal splicing of LED video wall

Table 5-2 Current Equipment and Relevant Parameters

Equipment name/model	Function/parameter	Quantity
LED video wall	Eight 1270*896 LED video walls are spliced into the 5080*1792 LED video wall	8

	in the manner of 4*2.	
LED sending card	Support 1280*1024 at maximum.	8
LVP6000	Video splicer	4

A single LVP6000 can splice two LED video walls, so one LVP6000, two sending cards and two LED video walls form a splicing unit.

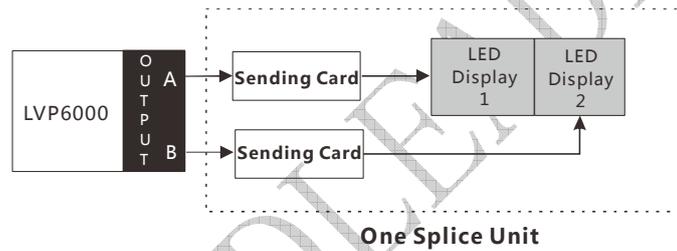


Fig. 5-3 Schematic Diagram of LVP6000 Single-machine Splice Connection

Note: For connection of multi-machine splicing, the signal distributor shall be used to input the signal to the four sets of LVP6000 equipment.

Operating steps:

- ① Set single-machine connection

Before the multi-machine splicing, each set of equipment shall be set and connected as shown in above Fig. to form a splicing unit. The two channels of DVI output of each LVP6000 are respectively connected with the LED sending cards; the



LED sending cards are connected to each part of the spliced wall by CAT5 cables; and the output resolution shall be set to 1920x1080/60 SPLICER mode).

Adjust other parameters as shown in the Fig. below:

Output Timing	→
A Output Width	1280
B Output Width	1280
Height	896
A Output HStart	0
B Output HStart	0
V Start	0
Part or Full	Full
Reset	↶

② Set multi-machine connection

Connect the four sets of equipment, input the signal and operate as per the step 1.

③ Set sending cards

Set relevant parameters of the eight sending cards respectively so that the eight spliced walls can work separately. For detailed operation of the sending cards, please refer to instruction manual provided by the sending card manufacturer.

④ Open the multi-machine splicing and set the splicing menu as shown in the Fig below:

LVP6000-1		LVP6000-2	
Splice Way	Equal	Splice Way	Equal
H Splice Unit	2	H Splice Unit	2
V Splice Unit	2	V Splice Unit	2
Splice Pos	1	Splice Pos	2

LVP6000-3		LVP6000-4	
Splice Way	Equal	Splice Way	Equal
H Splice Unit	2	H Splice Unit	2
V Splice Unit	2	V Splice Unit	2
Splice Pos	3	Splice Pos	4

Fig. 5-4 Schematic Diagram of LVP6000 Multi-machine Equal Splice

Connection

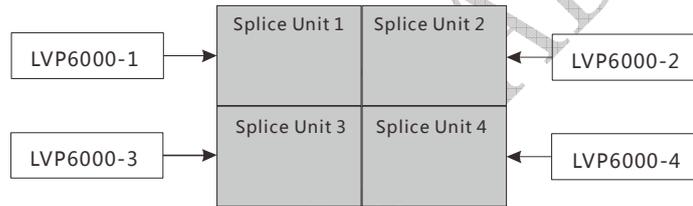


Fig. 5-5 Schematic Diagram of Multi-machine Equal Splice Connection

2. Example of unequal splicing of LED video wall

Table 5-3 Current Equipment and Relevant Parameters

Equipment name/model	Function/parameter	Quantity
LED video wall	Screen 1: 1152*1024; two	4
	Screen 2: 960*1024; two	
	Total horizontal pixels:	

	4224 Total vertical pixels: 1024	
LED sending card	Support 1280*1024 at maximum.	4
LVP6000	Video splicer	2

① Set single-machine connection

Before the multi-machine splicing, each set of equipment shall be set and connected as shown in above Fig. 5-3 to form a splicing unit. The two channels of DVI output of each LVP6000 are respectively connected with the LED sending cards; the LED sending cards are connected to each part of the spliced wall by CAT5 cables; and the output resolution shall be set to 1920*1080/60 (splicing mode).

Adjust other parameters as shown in the Fig. below:

Output Timing	→	Output Timing	→
A Output Width	1152	A Output Width	960
B Output Width	1152	B Output Width	960
Height	1024	Height	1024
A Output HStart	0	A Output Hstart	0
B Output HStart	0	B Output Hstart	0
V Start	0	V Start	0

LVP6000-1 Setting

LVP6000-2 Setting

Fig. 5-6 Schematic Diagram of Multi-machine Equal Splice Connection

② Set multi-machine connection

Connect the two sets of equipment, input the signal and operate as per the step.

③ Set sending cards

Set relevant parameters of the four sending cards respectively so that the four spliced walls can work separately. For detailed operation of the sending cards, please refer to instruction manual provided by the sending card manufacturer.

④ Open the multi-machine splicing and set the splicing menu as shown in the Fig below:

LVP6000-1		LVP6000-2	
Splice Way	Unequal	Splice Way	Unequal
H Total Size	4224	H Total Size	4224
V Total Size	1024	V Total Size	1024
H Splice Pos	0	H Splice Pos	2304
V Splice Pos	0	V Splice Pos	0

Fig. 5-7 Schematic Diagram of LVP6000 Multi-machine Equal Splice

Connection

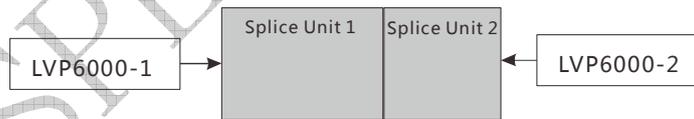


Fig. 5-8 Schematic Diagram of Multi-machine Unequal Splice Connection



Specifications

DP video output	
Input quantity	1
Connector	DP
Signal standard	DP1.2 downward compatibility
Supported resolution	VESA standard, PC to 3840*2160
DP video input	
Input quantity	1
Connector	DP
Signal standard	DP1.2 downward compatibility
Supported resolution	VESA standard, PC to 3840*2160
HDMI video input	
Input quantity	1
Connector	HDMI



Signal standard	HDMI 1.4 downward compatibility
Supported resolution	VESA standard, PC to 1920*1200, HD to 4K*2K@30Hz
DVI video input	
Input quantity	3
Connector	DVI-I
Signal standard	DVI-I 1.0
Supported resolution	VESA standard, PC to 1920*1200, HD to 1080p
VGA video input	
Input quantity	2
Connector	DB15
Signal standard	R, G, B, Hsync, Vsync: 0 to1Vpp±3dB (0.7V Video+0.3v Sync) 75 ohm black level: 300mV Sync-tip: 0V
Supported resolution	VESA standard, PC to 1920*1200



VIDEO video input	
Input quantity	2
Connector	BNC
Signal standard	PAL/NTSC/SECAM 1Vpp±3db (0.7V Video+0.3v Sync) 75 ohm
Supported resolution	480i, 576i
3G-SDI video input optional	
Input quantity	1
Connector	BNC
Signal standard	SD-SDI, HD-SDI, 3G-SDI
Supported resolution	1080p 60/50/30 720p 60/50 1080i 60/50 625/525 line
3G-SDI video looping-out optional	



Input quantity	1
Connector	BNC
Signal standard	SD-SDI, HD-SDI, 3G-SDI
Supported resolution	1080p 60/50/30 720p 60/50 1080i 60/50 625/525 line
Preview (PREVIEW) video output	
Output quantity	One channel of VGA; two channels of DVI
Connector	DVI-I
Signal standard	VGA standard: R, G, B, Hsync, Vsync: 0 to 1Vpp±3dB (0.7V Video+0.3v Sync) 75 ohm black level: 300mV Sync-tip: 0V DVI standard: DVI1.0



Supported resolution	1280*1024@60Hz 1920*1080@60Hz 3840*1200@60Hz (A+B) 2304*1920@60Hz (A+B) Custom resolution (A+B)
Program (PROGRAM) video output	
Output quantity	One channel of VGA; two channels of DVI
Connector	DVI-I
Signal standard	VGA standard: R, G, B, Hsync, Vsync: 0 to 1Vpp±3dB (0.7V Video+0.3v Sync) 75 ohm black level: 300mV Sync-tip: 0V DVI standard: DVI1.0



Supported resolution	1280*1024@60Hz 1920*1080@60Hz 3840*1200@60Hz (A+B) 2304*1920@60Hz (A+B) Custom resolution (A+B)
Equipment parameters	
Weight	4.5kg
Dimension	6.5cm (height)*44cm (width)*32cm (depth)
Input power	100VAC-240VAC 50/60Hz
Maximum power	35W
Working temperature	0-45℃
Storage humidity	10-90%
Specification parameters are subject to improvement without notice.	



Troubleshooting

Problems may be encountered during installation or use. Here, the user can follow the steps below to remove the troubles; if the steps below still cannot fix the problems for you, please contact the local dealer.

- **The equipment has no image and the indicator light doesn't work.**

Check whether the power supply is connected well and the power switch is turned on.

- **LCD screen on the key panel has data displayed, but no image output.**

Check whether the signal is connected correctly.

Check whether the equipment supports the resolution and refresh the frequency.

Reset the equipment to factory default settings.

- **VGA picture cannot be displayed on the full screen or is deflected.**

Check whether VGA wire is up to standard or overlong.

Open the menu: System→VGA settings→Automatic adjustment; and hit VGA automatic adjustment.

Adjust the picture manually in VGA settings.

- **HDMI/DVI output picture cannot be displayed on the full screen.**

Reset output resolution of the equipment.

Check whether output resolution of PC or notebook is identical to the resolution received by the splicer.

Check whether desktop wallpaper is too small.



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