L4 User manaul

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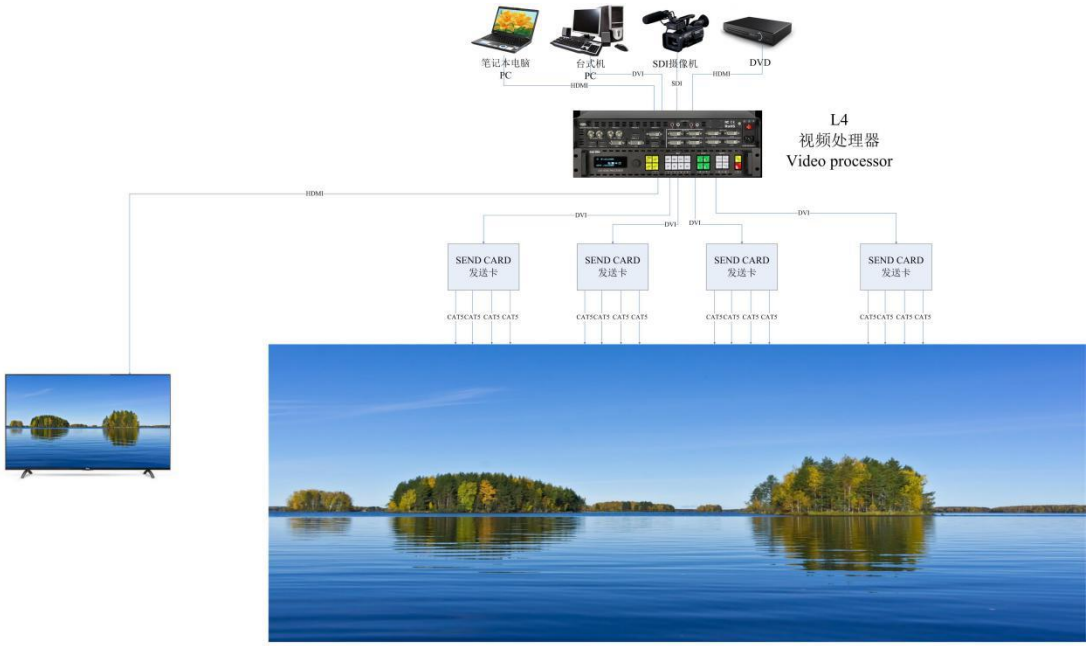
1: Features

- **Support Split, Multi-Window & Switching Operation Models**
- **Support Seamless Switching for Any Source & Image Overlay**
- **Support 8k x 1k Pixel by Pixel Split**
- **Support Ultra-Big Split & Customized Output Resolution**
- **Support on Board EDID Management**
- **Support Optional Input Modules**
- **Support 4：4：4 10bit & 60Hz Image Quality Processing**
- **Support API Control & Third Party Control with Open Protocol**
- **Support Audio Input & Output**

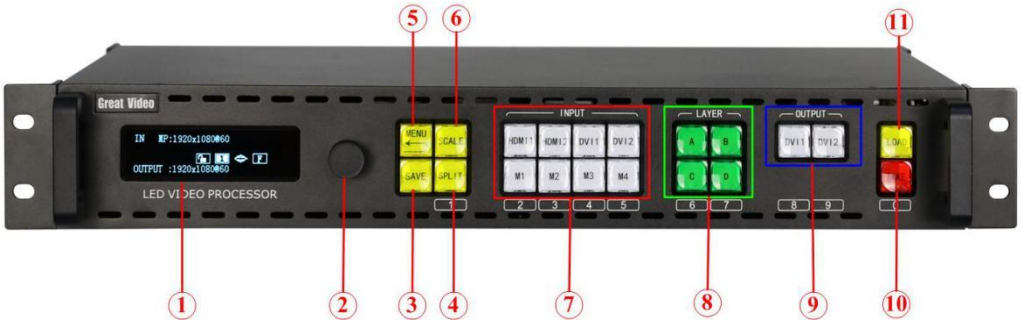
2: Introduction

L4 Diagram Solution



3: Hardware Overview

3.1: Front Panel



OLED Display Panel

1	Display the current working status and menu for buttons control.

Knob

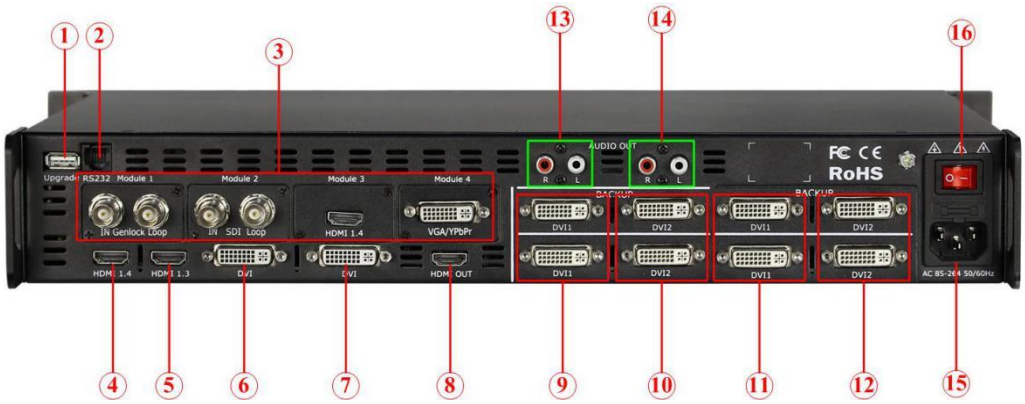
2	For menu selection: rotating knob to find the option & press the knob to confirm.

Buttons

3	**SAVE Button** To save the parameters after setting, by using “LOAD” to load the saved data. Press SAVE, the buttons “SCALE…..BLACK” are representing saving modes of 1\2\3\4\5\6\7\8\9\0 separately, press any button to save the current parameters to the specified saving mode.
4	**SPILT Button** Enter to the cascade split model and set the split parameters
5	**MENU Button** Press to enter to the menu, by using knob to find the specified menu, press MENU again to return to the previous menu
6	**Scale Button** To adjust the size and position of the image by the number buttons”1-0” under

	M1-DVI4, or using the knob to adjust the number.
7	**INPUT Button** To select source signal, the button lights up while used as input. When there are more than 2 buttons lighting up, the one flashing is the one just be chosen, and the steady lighting one is the source signal displayed, M1 represents SDI input.
8	**ABCD Layer Button** For the use of layer editing, adding and size changing
9	**DVI1 & DVI2 Output Buttons** For the use of adding layers A,B,C and D in corresponding output.
10	**TAKE Button** Program and preview switching under Preview model
11	**LOAD Button** To load the preset saving modes. Press LOAD, buttons of “SCALE---BLACK” are representing saving modes of 1\2\3\4\5\6\7\8\9\0, press any of the key to load the corresponding saving modes.

3.2: Back Panel



Control Connector

1	USB Type-B USB port for connecting to PC
2	RS232 port for the use of communication and API and third party control

Input Connector

3	**Optional input module/control** Support 4 input modules with HDMI\DVI\CVBS\VGA\SDI\USB
4	**HDMI1.4 input** Support 3840*2160@30HZ & 4K1K\2K1K inputs and customized input
5	**HDMI1.3 input** Support 2K1K input and customized input resolution
6	**DVI3 Input** Support 2K1K input and customized input resolution
7	**DVI4 Input** Support 2K1K input and customized input resolution

Output Connector

8	**HDMI Loop** The current image or window will be looped automatically without output processing
9	**DVI1 Output** Support 2.5million pixels with widest 3840 pixels or highest 1920 pixels
10	**DVI2 Output**

	Support 2.5million pixels with widest 3840 pixels or highest 1920 pixels
11	**DVI3 Output** Support 2.5million pixels with widest 3840 pixels or highest 1920 pixels
12	**DVI4 Output** Support 2.5million pixels with widest 3840 pixels or highest 1920 pixels
13	**RCA1 Audio Output** External (LR stereo) output port match with the DVI1 output video
14	**RCA2 Audio Output** External (LR stereo) output port match with the DVI2 output video
	Optional 8× RJ45 (external connection)

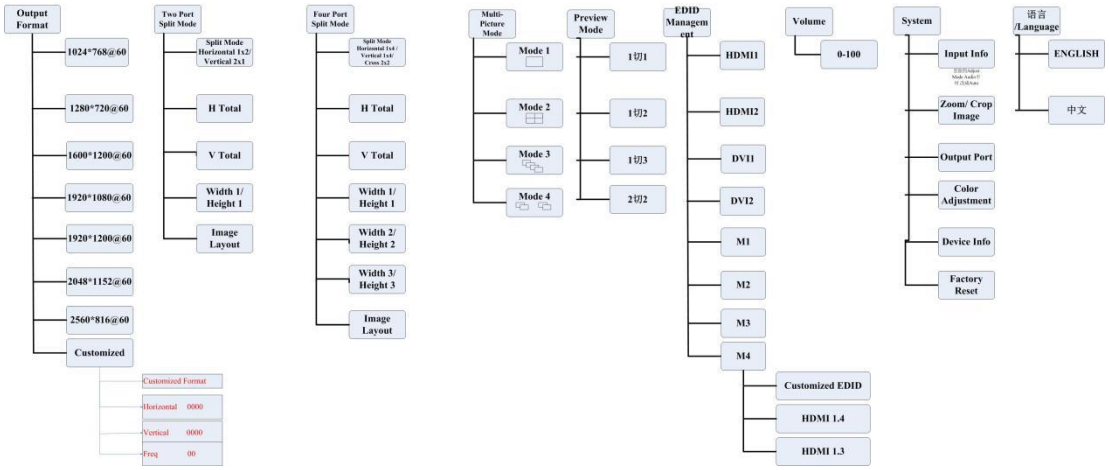
Power Supply

15	IEC- Power connector： AC 85-264V， 50/60HZ， maximum power 45W
16	Power switch

4: Operations

- **Output Resolution**
- **TWO Split**
- **Four Split**
- **Multi-Picture**
- **Preview Change**
- **EDID Management**
- **Volume**
- **System**
- **Language**

Menu Structure



4.1: Output Resolution

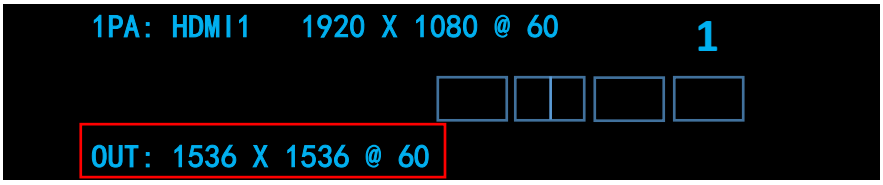
L4 default output resolution is 1920*1080@60Hz, if user would like to change to 1536*1536@60Hz, the steps are as follows:

1.Press MENU button to find the output resolution and press knob to confirm.

1、Rotate the knob to find “CUSTOMIZED” resolution

2、Click the knob to set the width 1536, height 1536 and frequency 60fps with numeric buttons and click the knob to confirm.

3、The setting is success after the arrow is disappear, press MENU and return to the previous menu to check if it was changed successfully.



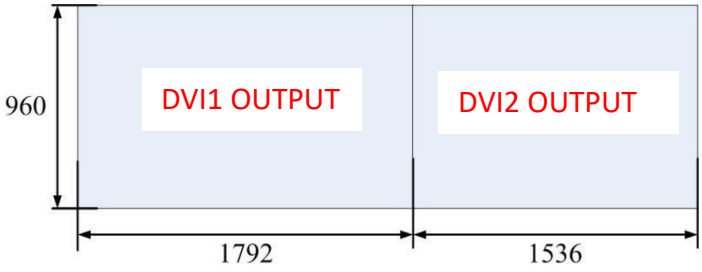
4.2: TWO Split

TWO Split:

DVI1 & DVI2 outputs are for horizontal or vertical split, the DVI1 is for the left (horizontal) or the upper (vertical) screen and DVI2 is for the right (horizontal) or the bottom (vertical) screen.

Horizontal 1/2 Split：

I.E: If client has a screen with 3328 x 960 to make split, the left screen is 1792 x 960, the right screen is 1536 x 960, the steps are as follows:



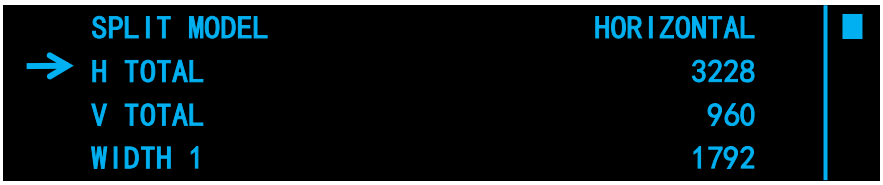
1、**Select split model:** Press Menu and rotate the knob to enter to 4K x 1K split, select horizontal split:

2、After the step 1 is done, change the screen parameter as follows:

Set H total to be 3328

Set V total to be 960

Set the first display width to be 1792 by number button or rotation knob



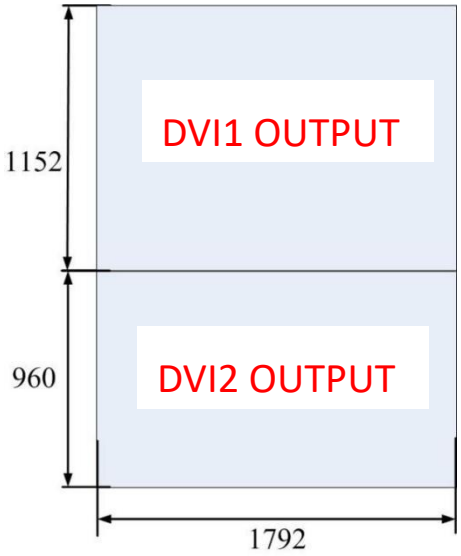
Rotate the knob to image layout menu and select single image, PIP, PBP and three images layouts

There is no need to set the second screen width, the device will calculate and save by itself, if

user want to load the layouts, save the setting and then load the saved setting afterwards.

Vertical 1/2 Split：

I.E.: If client has a screen with 1792 x 2112 to make vertical split, the upper one is 1792 x 1152, the bottom one is 1792 x 1152, the steps are as follows。



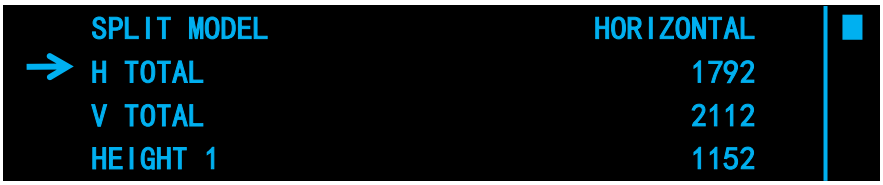
1: Select the split model： Press Menu and rotate the knob to enter to 4K x 1K split, select vertical split:

2、After the step 1 is done, change the screen parameter as follows:

Set H total to be 1792

Set V total to be 2112

Set the first display width to be 1152 by number button or rotation knob



Rotate the knob to image layout menu and select single image, PIP, PBP and three images layouts

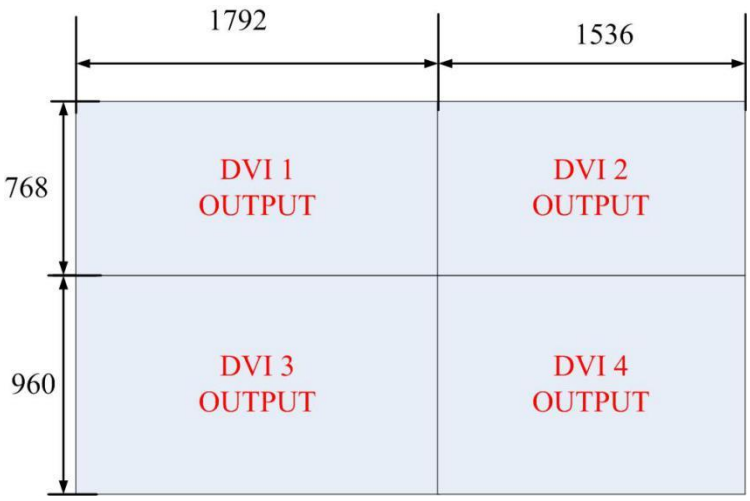
There is no need to set the second screen width, the device will calculate and save by itself, if user want to load the layouts, save the setting and then load the saved setting afterwards.

Four Split

Four Port Split Mode: It is the split of DVI 1, DVI2, DVI3, DVI4 output port. DVI1 Output pot is the far left and uppermost screen. Horizontal 1/3 split is same as the Horizontal 1/4 parameter setting; while Vertical 1/3 split is same as the Vertical 1/3 parameter setting.

2 Splicing

If the user has 4 LED display, whose top left display is 1792*768, top right display is 1536*768, bottom left 1792*960, bottom right 1536*960, needs to setup split to 3328*1728.



Choose Split Mode: Press Menu button, enter into 4 port split by knob and select field split.

Step 2:

Choose the output resolution.(if any display is lower than 1920*1080, there is no need to operate this step). The top left display is 1792*768; the top right display is 1536*768; the bottom left display is 1792*960; the bottom right display is 1536*960. As any display width is no more than 1920, display height is no more than 1080, so the user no need to setup the output resolution.

Step 3:

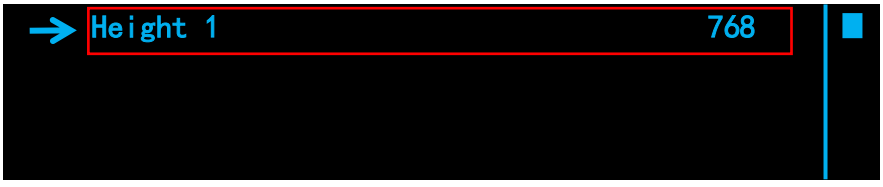
After Field split setting, set total width to 3328.

Step 4:Set the display total height to 1728.

Step 5:Set the first display width to 1792.

Step 6:Set the first display height to 768.

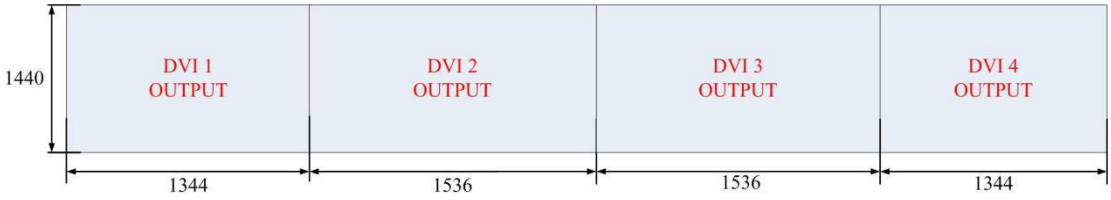
Step 7: Confirmed to SAVE TO PORT to finish split setting.



There is no need to set the Second, third and fourth display, the device will calculate itself.

Horizontal 1/4 (Same as Horizontal 1/3)

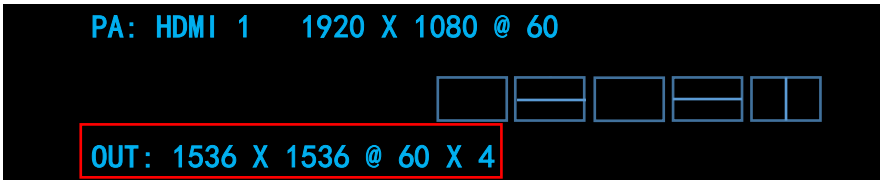
If the user has 4 LED display 1344*1440, 1536*1440, 1536*1440, 1344*1440 （from left to right）, needs to setup split to 5760*1440.



Operation steps:

Step 1: Choose Split Mode: Press Menu button, enter into 4 port split by knob and select 1/4 horizontal split.

Step 2:Choose the output resolution.(if the display is no more than 1920*1080, there is no need to operate this step). The screen height is 1440, so the user needs to setup 1536*1440 @ 60Hz.



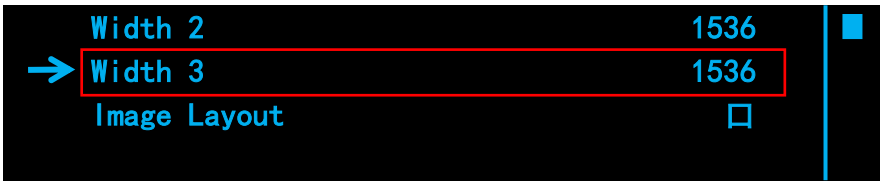
Step 3:After horizontal 1/4 setting, set total width to 5760.

Step 4: Set total width to 1440.

Step 5: Set the first display width to 1344.

Step 6: Set the second display width to 1536.

Step 7: Set the third display width to 1536.

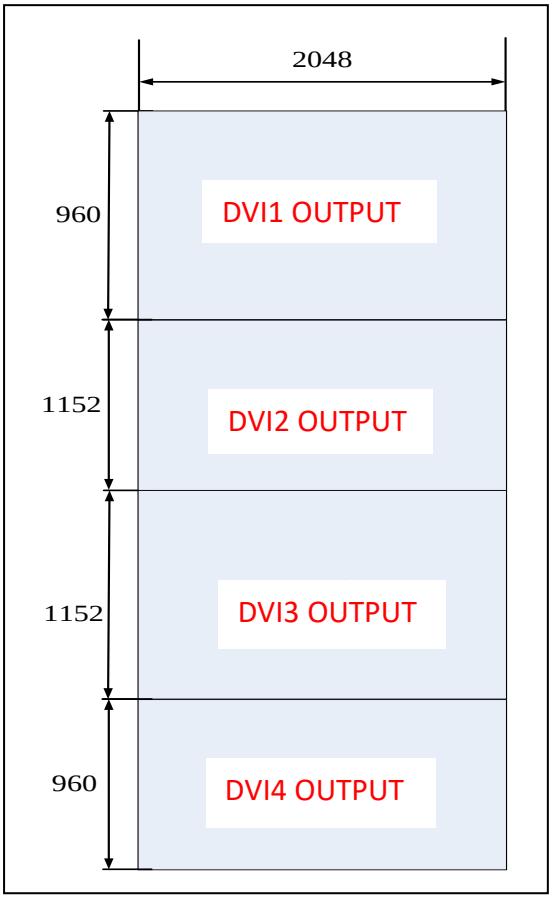


Step 8: Confirmed to SAVE TO PORT finish split setting.

There is no need to set the fourth display, the device will calculate itself.

Vertical1/4 (Same as Vertical 1/3)

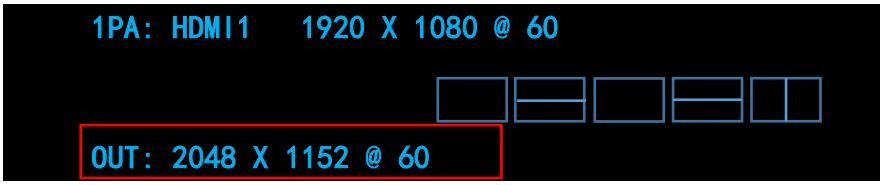
If the user has 4 LED display 2048*960，2048*1152，2048*1152，2048*960 （From top to bottom）, needs to setup split to2048*4224.



Operation steps:

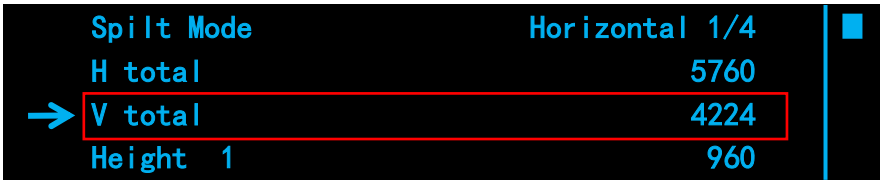
Step 1: Choose Split Mode: Press Menu button, enter into 4 port split by knob and select 1/4 Vertical split.

Step 2:Choose the output resolution.(if the display is no more than 1920*1080, there is no need to operate this step). The screen width is 2048 height is 1152, so the user needs to setup 2048*1152 @ 60Hz.



Step 3:After Vertical 1/4 setting, set H total to 2048.

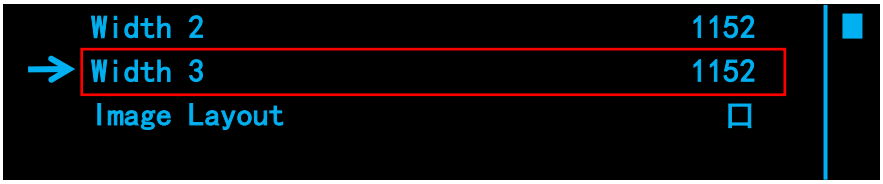
Step 4: Set V total to 1440.



Step 5: Set the first display Height to 960.

Step 6: Set the second display Height to 1152.

Step 7: Set the third display Height to 1152.



Step 8: Confirmed to SAVE TO PORT finish split setting.

There is no need to set the fourth display, the device will calculate itself.

Cascading

Multiple controllers can be cascaded for uniform control

For example, there is a screen 7680*2160, 3840*2160 on the left, 3840*2160 on the right, adjust the picture to full fill the screen,8 sending cards and two units of L 4 used here.

5: Multi-Picture

Multi-window in single output

Model 1：Single image with single output, in this model, press the layer buttons A,B,C & D to add any layer, edit the size of layer and the change the signal source

Model 2：Four images in Cross, in this model, press layer buttons A,B,C & D to change the input source or close the image.

Model 3：Four images overlay, in this model, press layer buttons A,B,C & D to change the input source or close the image.

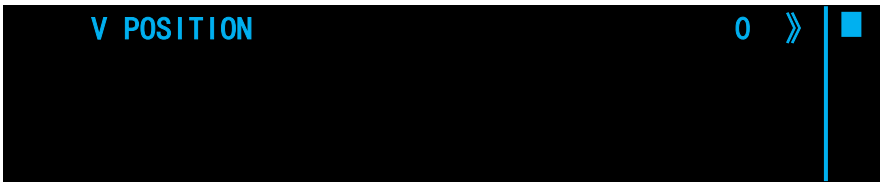
Model 4：Two images with single output, in this model, DVI1 and DVI2 outputs each support two layers to be edited and set.

I.E. If client would like to realize three images display from left to right side, the right and left keep the same, the left display is 480 x 1080, the right is 480 x 1080 and the middle one is 960 x 1080, the steps are as follows:

Rotate the knob to select the Model 1:

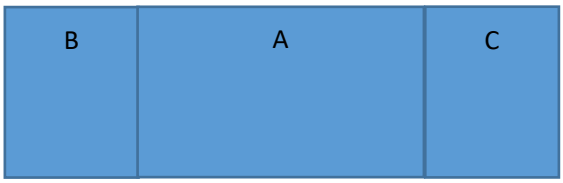
Layer 1 is lighting up at present and we add layer B and layer C to be three images

1: Configure the layer B width and height to be 480 x 1080: press B button to change the width and height and then press the relative signal input DVI1 as the source of layer B.



2: After step 1 is done, we configure the layer A width and height to be 960 x 1080, move the layer A horizontal position to be 480 and the vertical position keep 0, press the relative input HDMI1 as the source of layer A.

3: After step 2 is done, we configure the layer C width and height to be 480 x 1080, move the layer C horizontal position to be1440 and vertical position keep 0, press the relative input DVI1 as the source of the layer C.



After these steps are done, press “SAVE” button to save in the number channel from 0-9, user can load the relative setting by press “LOAD” button.

6: Preview & Switch

Preview & Switch Model: DVI2 is for preview output and DVI1 is for program output, the signal input will be edited in preview output and switch to program output after pressing “TAKE” button

Quick Layout

Single image switching

Single image switch to PIP/PBP

Single image switch to three images

PIP switch

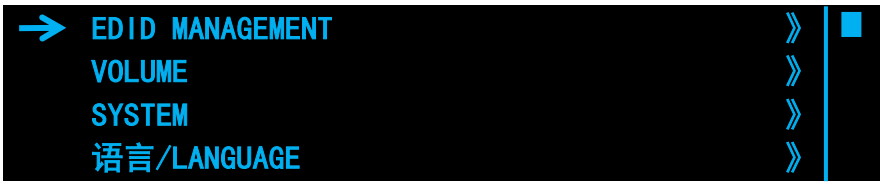
User also are able to add and edit layer A,B,C & D and save the settings in advance, in the future, user can load the settings to the preview output by “LOAD” button and then switch the setting to

program output by “TAKE” button.

7: EDID Management

I.E. If there is a screen with 3072 x 960 pixel pitches and need to be pixel by pixel display, but the PC standard input resolution is 3840 x 1080, how to set the output resolution to be 3072*960 ? The L4 EDID management can work this, the steps are as follows:

1: Press menu button and rotate the knob to EDID menu:

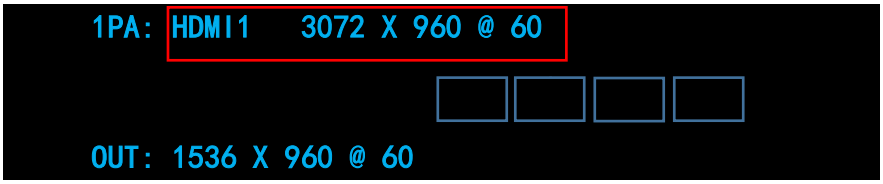


2: Press the knob and enter to input source need to be changed in sub-menu of EDID, the input listed can be changed, we will use HDMI2.0 as a example.

3: Select HDMI1 and press the knob to confirm, we can choose HDMI1.4(4K30Hz) or HDMI1.3(2K), but we will use the customized resolution to change the EDID.

4: After step 3 is done, rotate the knob to input and change the EDID

After the modification is completed, we will return to the main page to check (some computers need to be plugged in and plugged in before it takes effect)



8: System

Input Information: View the input resolution information and adjust the input timing. If there is an input offset, you can change the adjustment mode to manual, and then adjust the horizontal or vertical offset.

ZOOM： Cut off the image size.

Output Port： change DVI1 & DVI2 output content

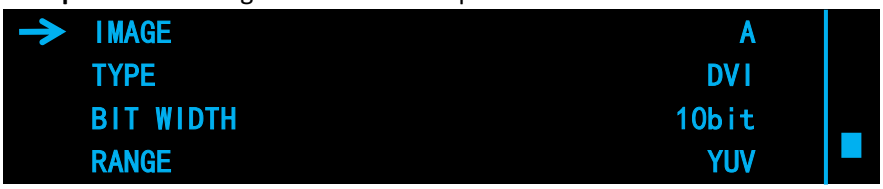
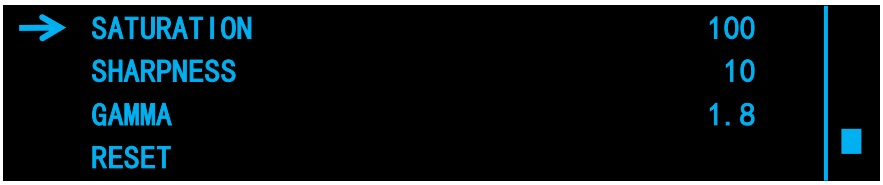
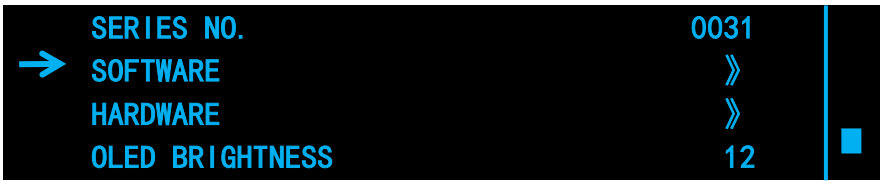


Image quality adjustment: adjust screen brightness, color temperature and GAMMA



System information： View the information of version



Factory reset： Clear all Settings and restore the device

Language: select equipment in Chinese and English

Volume: adjust the volume from 0 to 100