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4K@60 4:4:4 10BIT DISPLAY
FLEXIBLE SPLIT WITH ULTRA-WIDE RANGE



VF1

USER MANUAL

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1. Product Features



- Support HDMI 1.2, HDMI 1.4, HDMI 2.0, 4K@60HZ input
- Support EDID Management, standard 2K or 4K@60HZ, pixel to pixel mapping
- Support any customized resolution with any ultra-wide and ultra-high
- Support standard 2K and 4K signals seamless switching with preview
- Support standard 2K video input
- Support 4 backup output
- Support optional module design
- Support central control with open protocol

2. Product Introduction

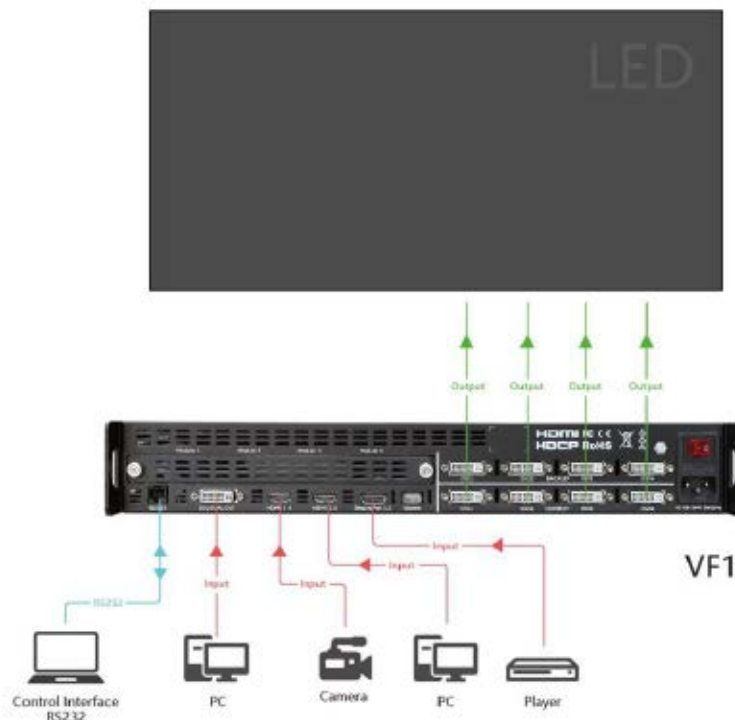
With the popularization of 4K@30HZ video processor, 4K@60HZ becomes new requirements in the market. VF1 is a new professional video switcher and video splicer according to customer new requirements.

VF1 not only supports common standard 2K input, HDMI 1.4 (4K*2K@30HZ) input, but also support HDMI 1.2 (4K*2K@60HZ) and HDMI 2.0 (4K*2K@60HZ) .

At the same time, it supports optional inputs. It can realize seamless switching between 4K and 2K, also with all signals preview mode.

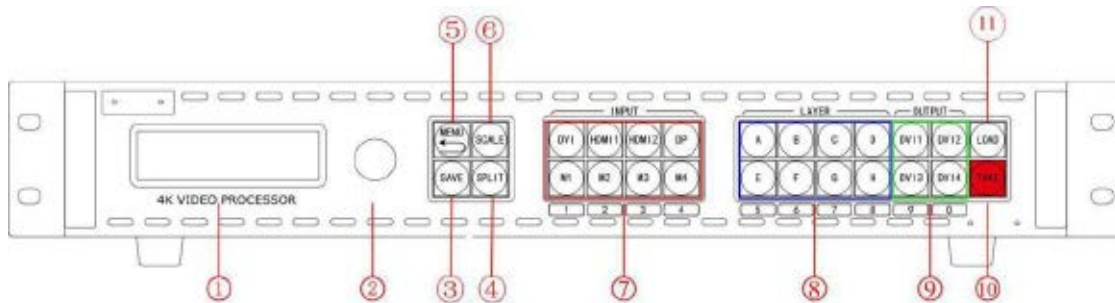
The device has 4 DVI main output and 4 DVI backup output. It supports any customized pixel and pixel split. Meanwhile, it supports multiple in and multiple out high- definition split, which can load 150 squares of P3.91 LED screen at max.

VF1 System Diagram



3. Hardware Overview

3.1 Front Panel



OLED Display

1	Displays current status of the device, and provides interactive choices in conjunction with buttons on the front panel.
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Rotary Button

2	This button uses for menu selections and confirmation.
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Button

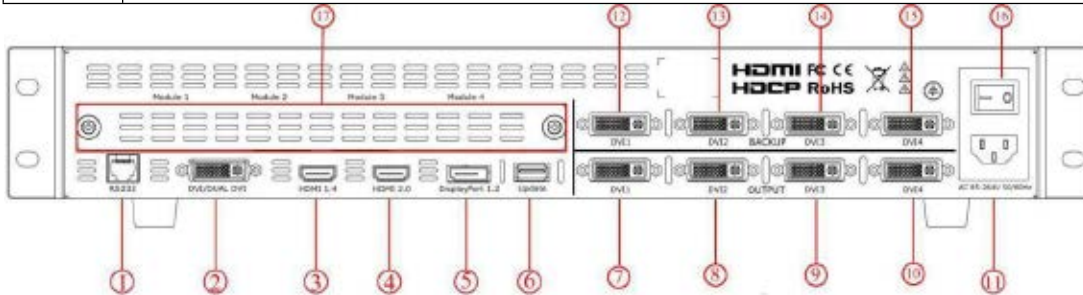
3	<p>SAVE Button:</p> <p>Save the setting into mode, use LOAD Button to cooperate.</p> <p>Press SAVE button, then M1\M2\M3\M4\E\F\G\H\DVI 3\DVI 4 Button changes into silk-screen 1\2\3\4\5\6\7\8\9\0 SAVE channels. Press any one to save current setting into that channel.</p>
4	<p>SPLIT Button: Split function button</p> <p>Used for selecting split mode and split parameter setting.</p>
5	<p>MENU Button:</p> <p>Menu and return previous page button</p> <p>Used for entering into MENU and corresponding Menu function.</p> <p>Repress the MENU will come back to previous Menu.</p>

6	<p>SCALE Button:</p> <p>For size and position adjusting, working in with M1\M2\M3\M4\E\F\G\H\DVI 3\DVI 4 Button Silk-screen 1\2\3\4\5\6\7\8\9\0, or change the size and position by knob.</p>
7	<p>Input Area: Input signals choice button</p> <p>Used for input signals, the user can choose the signals lights. When there are more than two signal inputs, the flashing red light means that the signal is in output.</p> <p>When setting output resolution or scaling, M1\M2\M3\M4 changes to number 1\2\3\4.</p>
8	<p>Layer area: Layer choice button</p> <p>This device has 8 layers at most, which uses for adjusting scaling of layer and signal. When choosing one of the layers, scaling the layer using SCALE button; press the signal at this time, which means the layer choose the signal. When setting resolution or scaling, E\F\G\H changes to number 5\6\7\8.</p>
9	<p>Output Area: Output port choice button</p> <p>For adjusting the scaling and layer of each output. When choosing the layer with layer, the user can add the layer image into the output, at the meanwhile, the user can add more than one layer in one output to realize multiple pictures.</p>
10	<p>TAKE Button: Effect taking button:</p> <p>It uses for taking the previewed image to main output when in preview Mode.</p>
11	<p>LOAD button:</p> <p>Load the templates in SAVE button. When pressing LOAD button, M1\M2\M3\M4\E\F\G\H\DVI 3\DVI 4 button changes into 1\2\3\4\5\6\7\8\9\0 SAVE channels. Press any button among them, will take the saved image effect into the output channel.</p>

Shortcuts

1	<p>TAKE:</p> <p>Under 4 port split mode, use TAKE button can lead to PIP setting menu.</p>
2	<p>MENU:</p> <p>Push MENU button for 5S can lock or unlock front panel.</p>

3.2
Back



Panel

Control and Update Connectors

1	Connection used by RS 232
2	Connection for product firmware upgrades

Input Connectors

1	<p>DUAL DVI Input Port:</p> <p>Support 3840*2160@30HZ and 4K*1K\2K*1K input; Support customize input</p>
2	<p>HDMI 1.4 Input Port:</p> <p>Support 3840*2160@30HZ and 4K*1K\2K*1K input; Support customize input</p>
3	<p>HDMI 2.0 Input Port</p> <p>Support 3840*2160@60HZ 3840*2160@30HZ and 4K*1K\2K*1K input; Support customize input</p>

4	DP 1.2 Input Port Support 3840*2160@60HZ 3840*2160@30HZ and 4K*1K\2K*1K input
5	Option Input ports Support DVI\HDMI\CVBS\SDI\VGA\USB etc. Input port option

Output Connectors

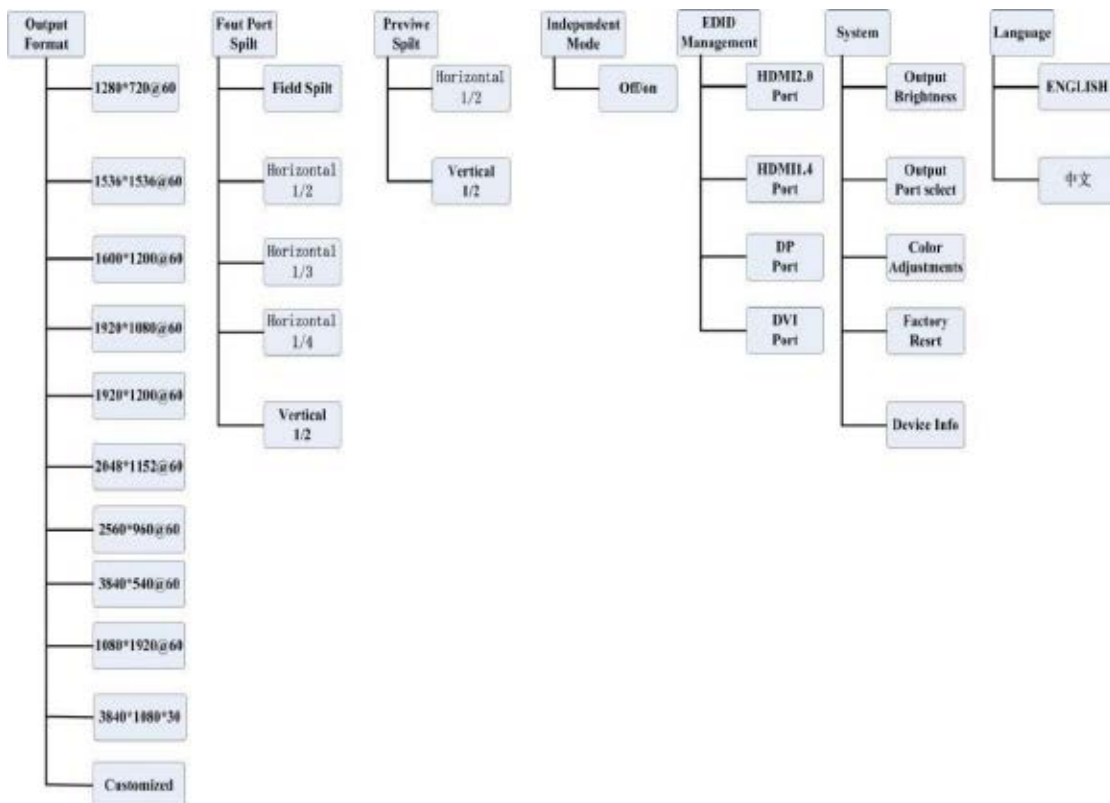
1	DVI 1 Output port: Different Split mode: When facing the display, Horizontal 1/4 split (The leftmost display), Vertical 1/4 split (The uppermost display) and the field split (the left top display).
2	DVI 2 Output port: Different Split mode: When facing the display, Horizontal 1/4 split (The second display from left), Vertical 1/4 split (The second display from top) and the field split (the right top display).
3	DVI 3 Output Port: Different Split mode: When facing the display, Horizontal 1/4 split (The third display from left), Vertical 1/4 split (The third display from top) and the field split (the left bottom display).
4	DVI 4 Output Port: Different Split mode: When facing the display, Horizontal 1/4 split (The fourth display from left), Vertical 1/4 split (The fourth display from top) and the field split (the right bottom display).
5	DVI 1 Output backup port is same as DVI 1 Output, which uses for sending card backup in general.
6	DVI 2 Output backup port is same as DVI 2 Output, which uses for sending card backup in general.
7	DVI 3 Output backup port is same as DVI 3 Output, which uses for sending card backup in general
1	IEC- Power interface: AC 85-264V, 50/60HZ, max 45W
2	Power Switch

Power

4. Operations

- Menu Structure
- Output Format
- Four Port Split Setting
- PIP Setting
- Preview Split Setting
- Individual output Setting
- EDID Management
- System

4.1 Menu Structure



4.2 Output Format

The default output resolution is 1920*1080*60. If one sending card width is no more than 1920, height is not more than 1080, there is no need to do resolution setting. If the sending card resolution is more than 1920*1080, please set the resolution which is higher than sending card.

For example: If the user has 4 displays, which use 4 sending card, the resolutions are as below:

1728*768, 2432*864, 2432*864, 1728*768

The device resolution should be higher than the sending card.

Please note when choosing the resolution.

The width should choose the widest display, while above display is 2432;

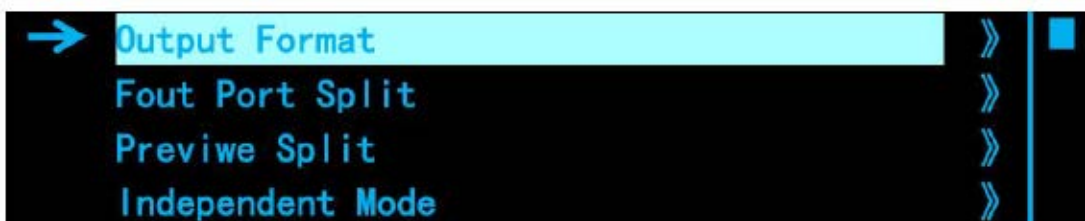
The height should choose the highest display, while above display is 864.

So, we choose the resolution 2560*960, as the width should be more than 2432 and the height should be more than 864.

Operation Steps:

Step 1:

Press MENU button, select the OUPUT and enter.



Step 2:

Please search the 2560*960 output resolution.



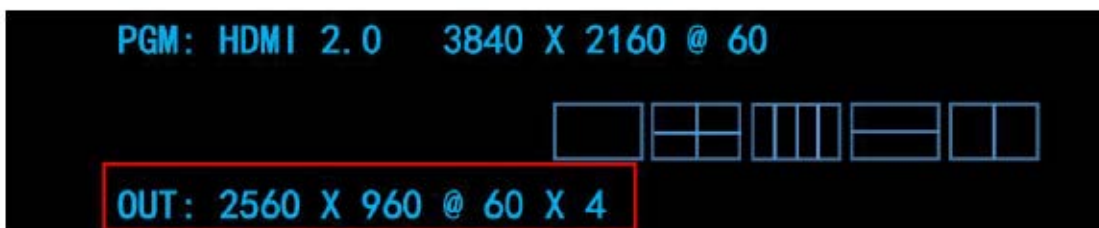
Step 3:

Select the resolution and revise, which needs around 10 seconds.



Step 4:

When the revised arrow disappears, press MENU to home page to check whether it succeeds.

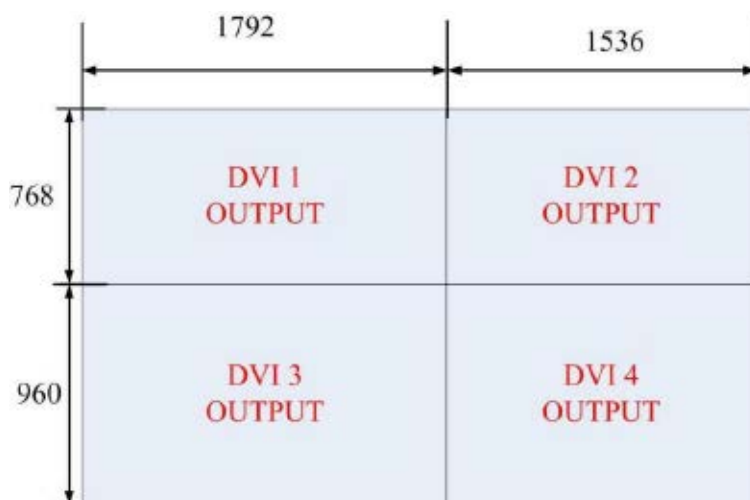


4.3 Four Port Split Setting

Four Port Split Mode: The split of DVI 1, DVI 2, DVI 3, DVI 4 output port with variable layout.

2: 2 Splicing

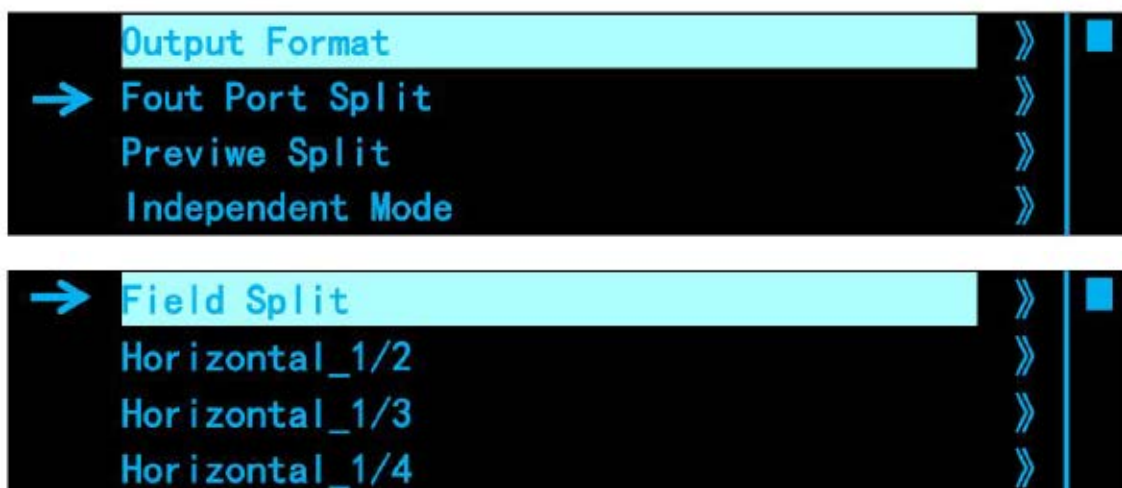
If the user has 4 LED display, whose top left display is 1792*768, top right display is 1536*768, bottom left 1792*960, bottom right 1536*960, needs to setup split to 3328*1728.



Operation steps:

Step 1:

Choose Split Mode: Press Menu button, enter into 4 port splits 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.



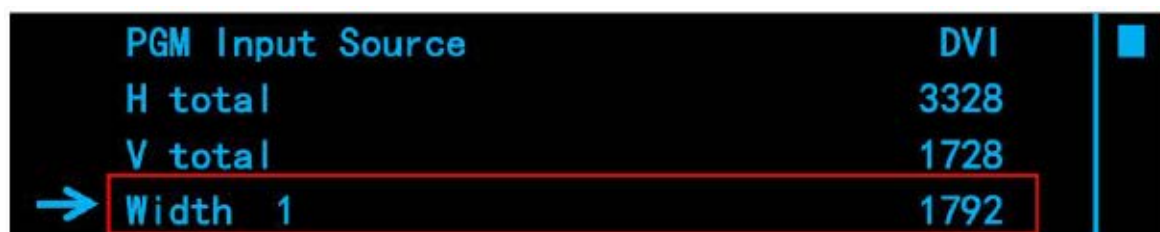
Step 4:

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.



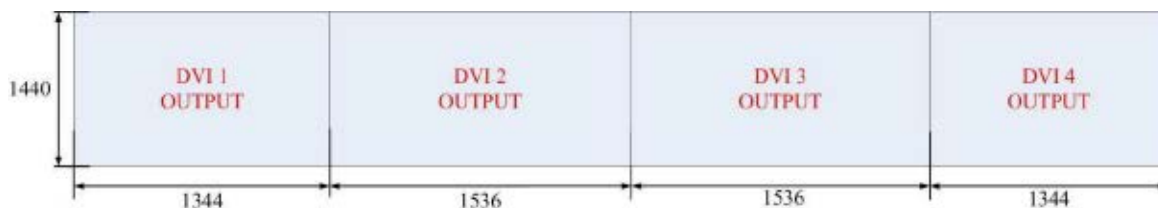
There is no need to set the Second, third and fourth display, the device will calculate itself.

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

If the user has 4LED display 1344*1440,1536*1440,1536*1440.1344*1440

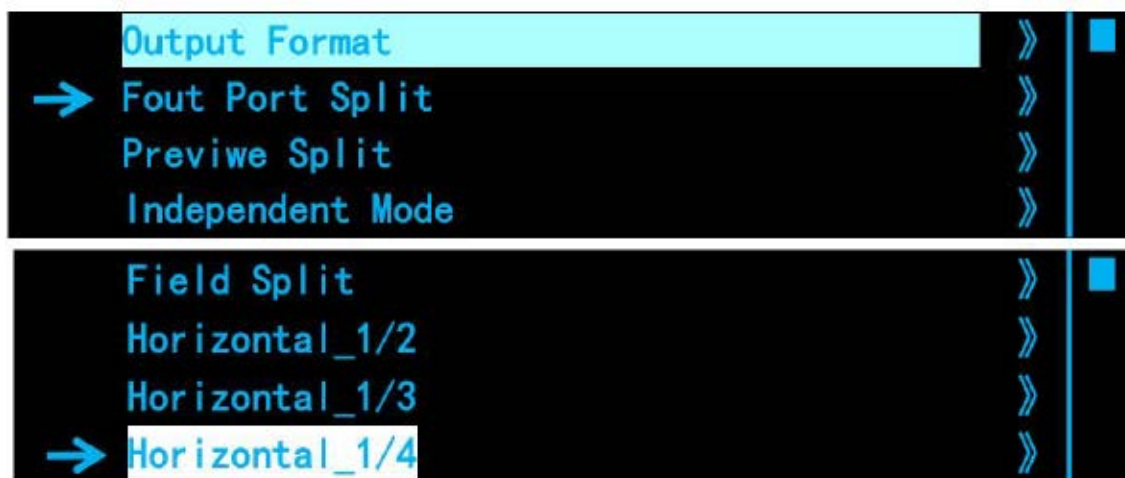
(from left to right), needs to setup Split to 5760*1440

Operation steps:



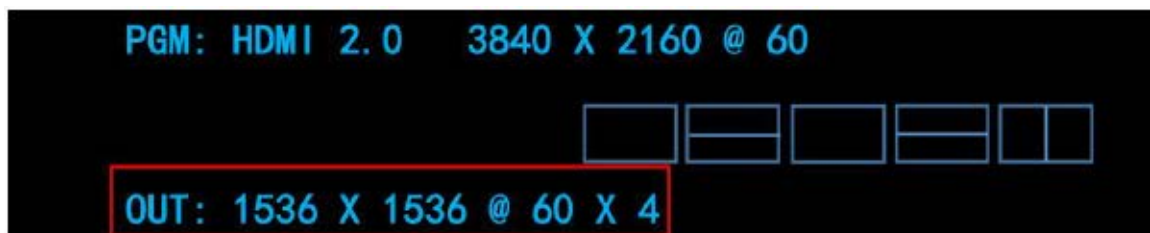
Step 1:

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

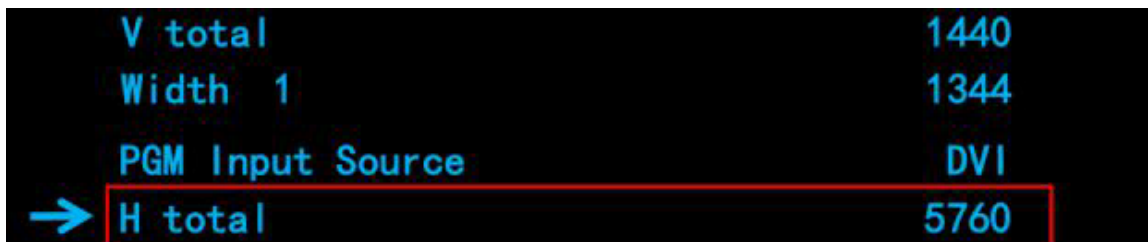


Step 2:

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.



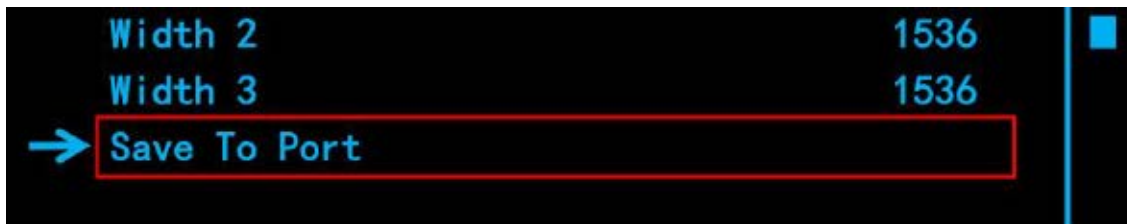
Step 6: Set the second display width to 1536.



Step 7: Set the third display width to 1536.



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

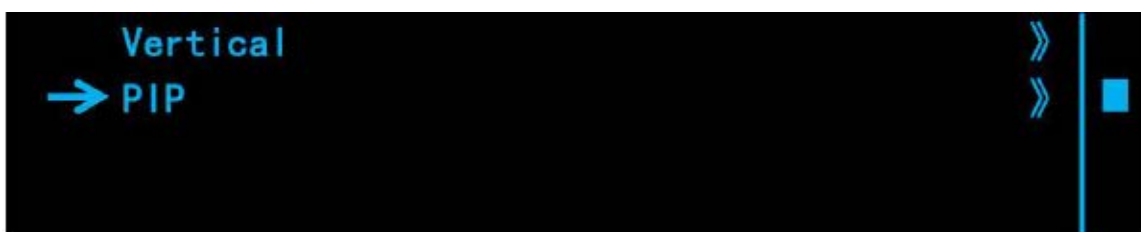


There is no need to set the fourth display, the device will calculate by itself.

4.4 PIP Setting

VF1 can realize PIP and PBP setting after splicing. The operation steps as below:

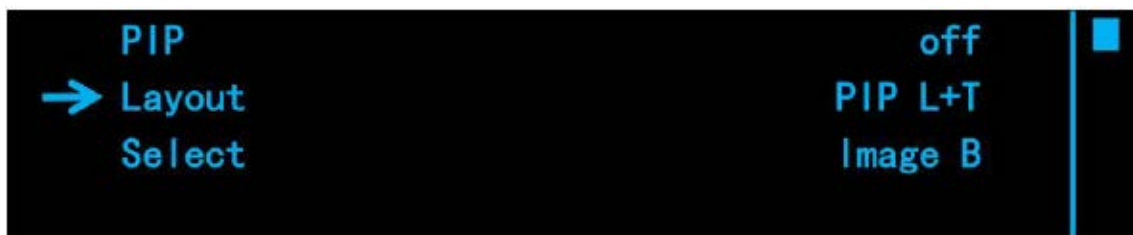
1. Follow the splicing operation to realize background splicing setting.
2. Push MENU button to access splicing menu for PIP.



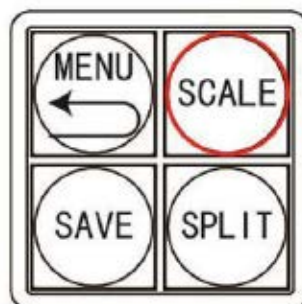
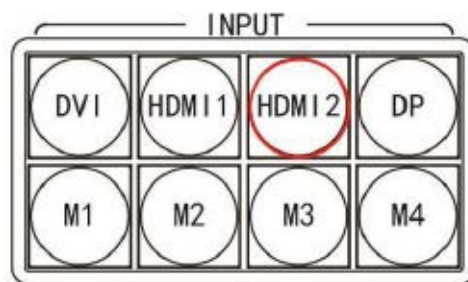
3. Push the knob to confirm. Go to PIP setting menu.



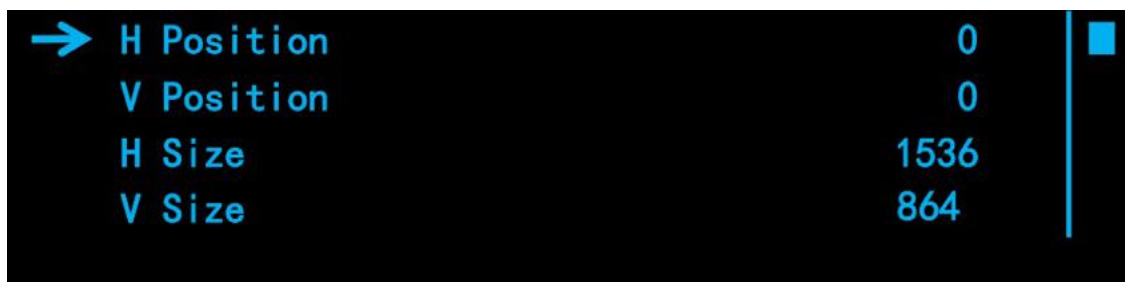
4. Choose PIP layout.



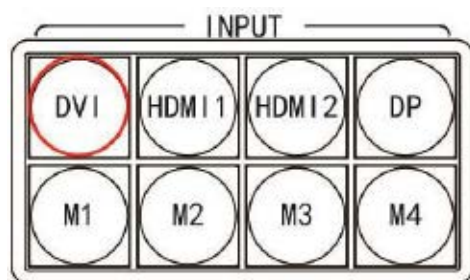
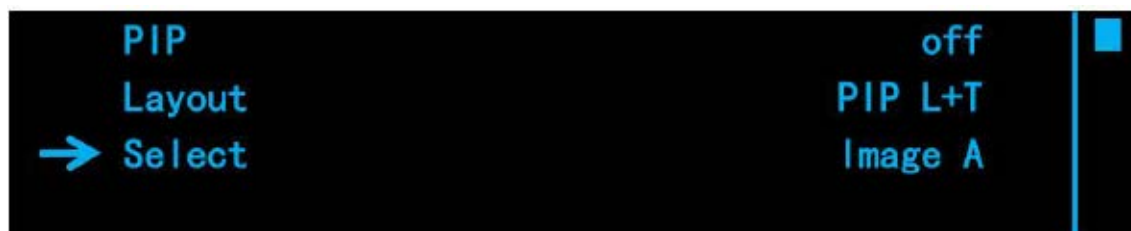
5. Enable Image A or Image B for adjustment.



6. Choose HDMI 2 as Image B input source
7. Push Scale for Image B size and position setting



8. Back to PIP setting, Enable Image A.



9. Choose DVI as the signal source for Image A

10. Use Save and Load function to recall setting

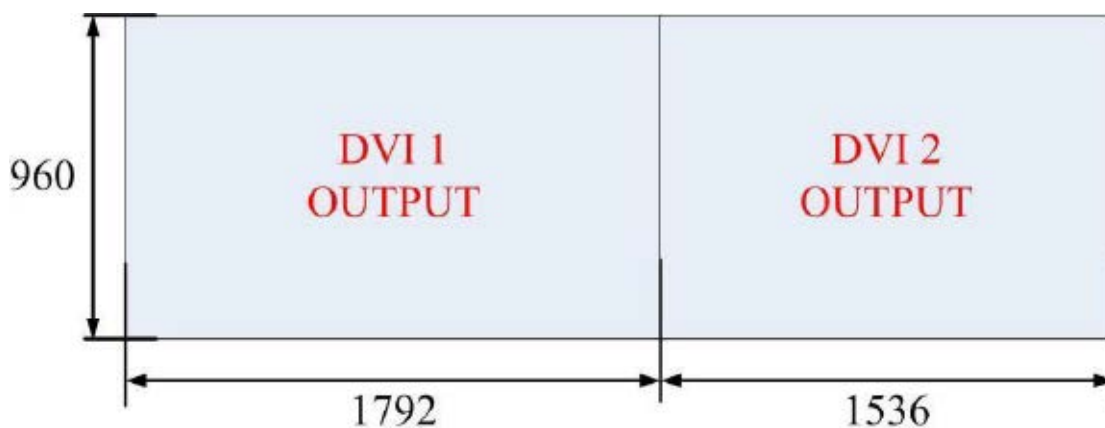
4.5 Preview Split Setting

Two Port Split is the preview mode. DVI 1 and DVI 2 output is the main output;

DVI 3 and DVI 4 is the Preview output.

Horizontal 1: 1

If the user has two displays, the left display is 1792*960, the right display is

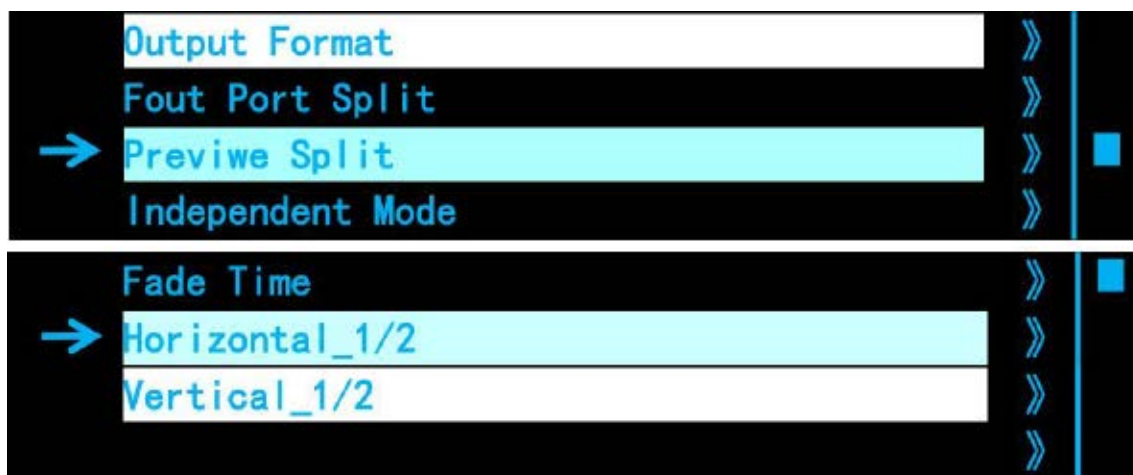


1536*960, which needs display split to 3328*960 and preview setting and take out.

Operation steps:

Step 1:

Choose Split Mode: Press Menu button, enter into two port split by knob and select Horizontal 1/2 mode.



Step 2:

Choose the output resolution. (if any display is lower than 1920*1080, there is no need to operate this step). The left display is 1792*960; the right display is 1536*960. Any display width and height are no more than 1080, so the user does not need to setup the output resolution.

Step 3:

After Horizontal 1/2, set total width to 3328



Step 4:

Set the total height to 960



Step 5:

Rotate to the next page, set the first display with to 1728.



Step 6:

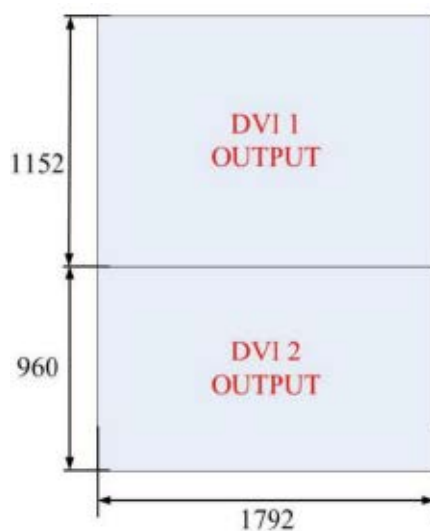
Confirmed to SAVE TO PORT to finish split setting.



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

Vertical 1: 1

If the user has two displays, top display is 1792*1152, the bottom display is 1792*960, it needs display split to 1792*2112 and preview setting and take out.



Operation steps:

Step 1:

Choose Split Mode: Press Menu button, enter into two port split by knob and select 1/2 vertical mode.

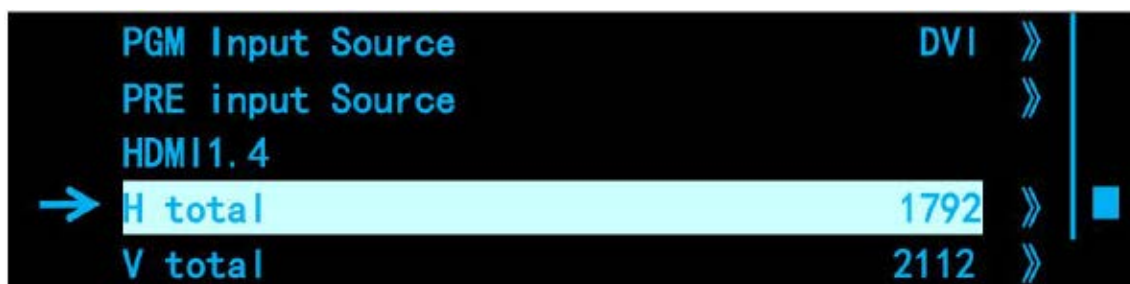


Step 2:

Choose the output resolution. (if any display is lower than 1920*1080, there is no need to operate this step). The top display is 1792*1152; the bottom display is 1792*960. The top display height is more than 1080, so the user needs to setup the output resolution to 2048*1152*60HZ. (The steps are details, please review to output resolution page).

Step 3:

After Vertical 1/2, set total width to 1792



Step 4:

Set the total height to 2112.

Step 5:

Set the first display height to 1152 (the top display is viewed as the first display)



Step 6:

Confirmed to SAVE TO PORT to finish split setting.



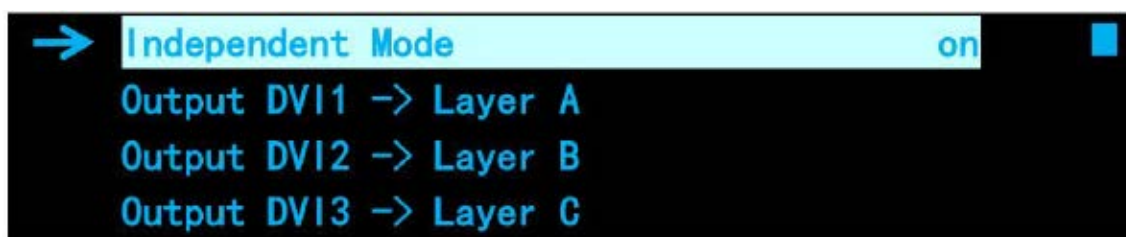
There is no need to set the Second display, the device will calculate itself.

4.6 Individual Output Setting

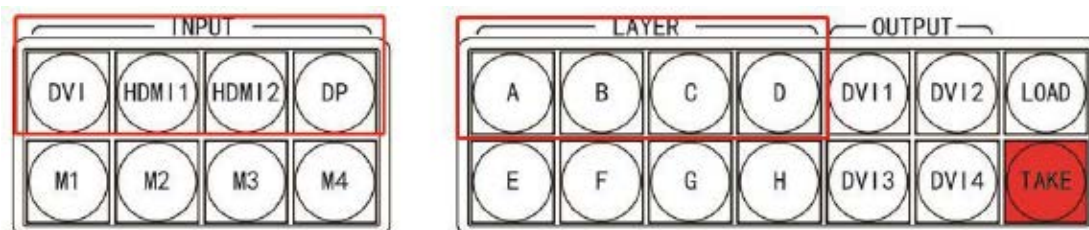
In the individual output working made 4 outputs on Q-ONE could control 4 different screens separately, any of the four pictures could be adjusted individually, including the source signal, picture size etc.

EG. 4 screens of different size 2880*384, 2560*576, 2304*768, 1024*768, how to make them to display different pictures or the same picture.

- a. Press MENU button, turn the knob to find the individual output, enable this function.



- b. Set resolution according to the widest and highest screen, the widest is 2880 and highest 768, so it should be 2880*768@60.
- c. Select the source signal of each output, select DVI as source signal for 4 ports, the outputs port DVI 1/2/3/4 are layer ABCD separately. Press layer A and choose DVI to change the source signal for DVI 1 into DVI, it is the same way to change source signals for layer BCD.




```

A-DVI: 1920X1080      B-DVI: 1920X1080
C-DVI: 1920X1080      D-DVI: 1920X1080
OUT:   2880 X 768 @ 60 X 4
    
```

d. After source signal changed, adjust the size of the ABCD layers into. 2880*384, 2560*576, 2304*768, 1024*768 Note! Size adjustments would not be valid until all parameters saved to the port.

```

PGM Input Source      DVI
Layer A Width         2880
→ Layer A Height     384
Save To Port
    
```

```

PGM Input Source      DVI
Layer B Width         2560
→ Layer B Height     576
Save To Port
    
```

```

PGM Input Source      DVI
Layer C Width         2304
→ Layer C Height     768
Save To Port
    
```

```

PGM Input Source      DVI
Layer D Width         1024
→ Layer D Height     768
Save To Port
    
```

e. Press SAVE to save all above settings to saving mode 1, now the four screens are showing the same picture.

f. Change source signal for layer ABCD separately, (find how to do it in "c."), save it

to saving mode 2, the four screens are displaying 4 different pictures.

g. By loading saving mode 1 / 2 could easily switching the four screens. to display

four same picture or four different ones.

4.7 EDID Management

One display 3072*1536 needs pixel to pixel effect. How to set if the computer only has the resolution 3840*2160 but not 3072*1536? The answer is EDID management.

Operating steps:

Press Menu Button, and enter into EDID Management by knob.



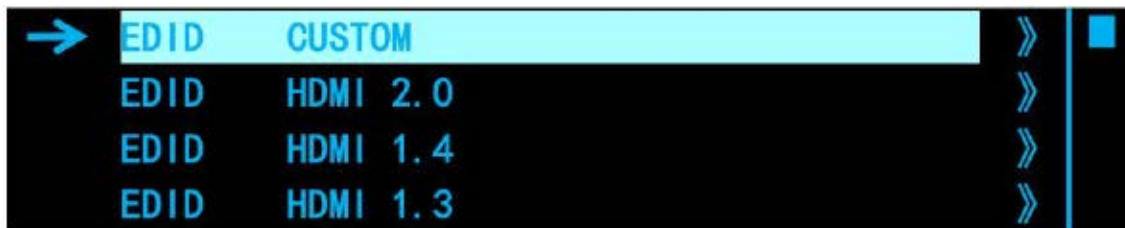
Press EDID input interface by knob (The adjustable interface can be revised).

Now we take HDMI 2.0 for an example to revise input interface EDID.

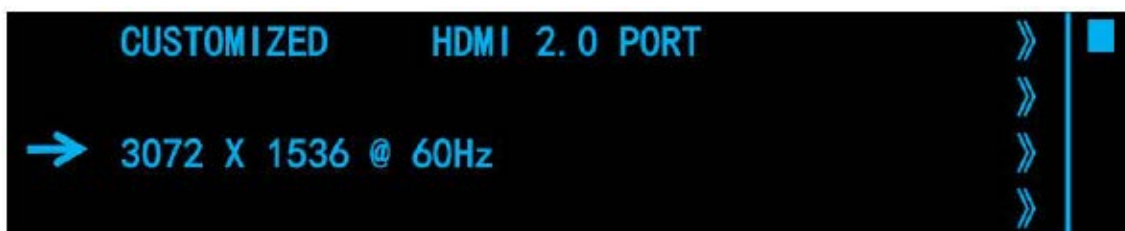


Select HDMI 2.0 interface and enter,

The user can choose standard HDMI 2.0(4K60HZ) HDMI 1.4(4K30HZ) Or HDMI 1.3(2K) if the resolution is standard. But the user needs to customize EDID for the example, so choose CUSTOM.



When entering into CUSTOM, press the numbers 3072, 1536 and 60 to finish the EDID setting.



After that, the user checks back to the home page (Some computers take effects after reconnection the cables).



4.8 System

Output Brightness: Adjust output brightness 0-255 steps by knob.

Output interface select: Use to copy the output setting.

For example: DVI 2 output of the device is broken. If wanting to split by 3 output, the user can change DVI 4 into DVI 2 setting.



Factory Reset: Reset to its factory setting

System information: Use can view the device version






Language: This device supports Chinese and English.

SPROLINK[®]

CREATIVE VIDEO REVOLUTION

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