4K Multi-Window Splicing Processor

LED Video Splicing & Processor
Multi-window Splicer Processor

—— **English**

User Manual

Multi-Window Splicing Processor

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.

Statement

This document is intended to help you understand and use the product. For accuracy and reliability, our company may make improvements and/or changes to this document at any time and without notice. Any problem in use or any good suggestion, please contact us through ways provided in the document. We will do our utmost to solve the problems and adopt the suggestions after evaluation as soon as possible.

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HDMI logo and High-Definition Multimedia Interface (High-Definition Multimedia Digital Interface) are HDMI Licensing LLC. Trademarks.

Contents

Appearance

The 4K LED Multi-Windows Splicer Processor Panel Includes Front Panel And Rear Panel. The Devices With Different Configurations Will Be Different. The Following As Detailed Description.

1.1 Front Panel
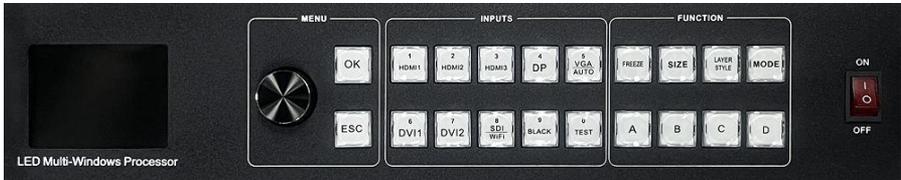
》》 **LCD Screen** — Display the menu and parameters of configuration.

》》 **Operating button** — operate the menu system.

   ● **OK:** "Confirm";

   ● **ESC:** "Exit operation" or "Return";

   ● **Knob:** Press down "OK", turn right "+" turn left "-" adjust the parameters on menu.

》》 **INPUT SOURCE** — **HDMI1、HDMI2、HDMI3、DP、VGA/AUTO、DVI1、DVI2、SDI/WiFi** (Extension Required)、 **BLACK、TEST**, Select the input source signal for current layer.

   ● **VGA AUTO:** Multiplexing key. When "VGA AUT" key is always on, Press the key again will to correct the VGA image.

   ● **SDI/WiFi:** Multiplexing key. When user selects to expand SDI, the key is will switch SDI Input; When user selects to expand WiFi, Press the key will switch to the wireless projection function. Only one of the two functions can be selected;

● **BLACK:** One key black screen button. When this button is selected, all current windows are black screen;

● **Test:** Test function button, open this function, the screen will display test pattern ,total of 11 test patterns；

● The indicator light keep flashing if the selected input no signal.

● The indicator light keep bright if the selected input is signaled.

>>> **FUNCTION**
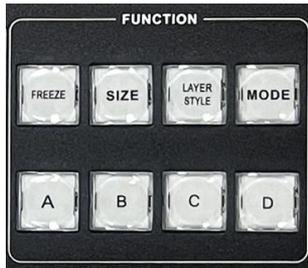
● **FREEZE:** One key freeze screen button. When this button is selected, all current windows are freeze screen;

● **SIZE:** Set the size or position of the selected layer;

● **LAYER STYLE:** There are 10 styles for selection.as below:
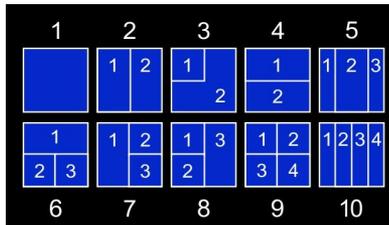
● **MODE:** Recall the preset mode shortcut key. After entering the menu, rotate the corresponding preset template through the knob.

● **A、B、C、D:** 4 layers. After selecting one layer, can adjust the input signal or parameters of the layer.

1.2 Rear Panel

>>> **Power Connector:** IEC standard power cable ，input 100-240 VAC, 50 -60Hz.

>>> **Input Connector**

- DVI**:** DVI video input. DVI-I/DVI-D connector. support VESA standard video format.

- HDMI**:** HDMI video input. Support 3840x2160@30/60Hz,

    HDMI1 (HDMI2.0 standard), HDMI2&3(HDM1.4 standard).

- DP**:** DP video input. Support 3840x2160@60Hz

- VGA**:** VGA video input. DB-15 connector. support VESA standard video format.

- SDI**:** 3G-SDI video input, BNC connector (Expanding).

- USB**:** USB input (Expanding).

- WiFi**:** Wireless screen projection function (Expanding).

>>> **Output:** Total of 4 channels are DVI1～DVI4, each channels has 2 DVI connectors of copy

    outputs.and each channel can output 2.65 million pixel resolution.

>>> **Control Interface**

- **RS-232:** Used to connect the PC control port, referring to the upper computer

    communication protocol

- **USB:** Used for upgrading internal programs of the machine; Or expand USB player input.

- **Network Interface:** The computer is connected to the machine through the network cable

    to realize the upper computer control.

>>> **Audio:** 3.5mm audio input and audio output.

>>> **WIFI Antenna:** Use for mobile phone and tablet to remote control the product.

>>> **GND:** Used for external grounding to enhance anti-interference.

Quick Splice Wizards

2.1 Enter The Splice Wizards

In The Power On State,Press "OK" Or "Knob" To Select "Splice Wizards" In The Main Menu.

Window Info	-1-
A HDMI1	B HDMI1
No Signal	No Signal
C HDMI1	D HDMI1
No Signal	No Signal

Output Info	
4 Screen	3840X2160
1 2 1920X1080 60	
3 4 1920X1080 60	

Main Menu	
Splice Wizards	▶
Output Setting	▶
Splice Setting	▶
Windows Setting	▶
Input Setting	▶
Image Crop	▶
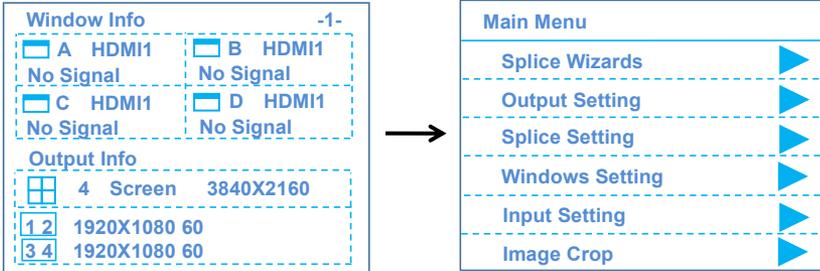
2.2 Regularity Splice Setting Steps

Splice Setting	
View Current Config	▶
Splice Type	Regularity
Next Step	▶

Example

1	2
3	4

Splice Setting	
Splice Layout	
Next Step	▶

1	2
3	4

Splice Size	
Output Select	Output4
Width	1920
Height	1080
Apply Settings	▶

1	2
3	4

Splice Size	
Output Select	Output1
Width	1920
Height	1080
Apply Settings	▶

1	2
3	4
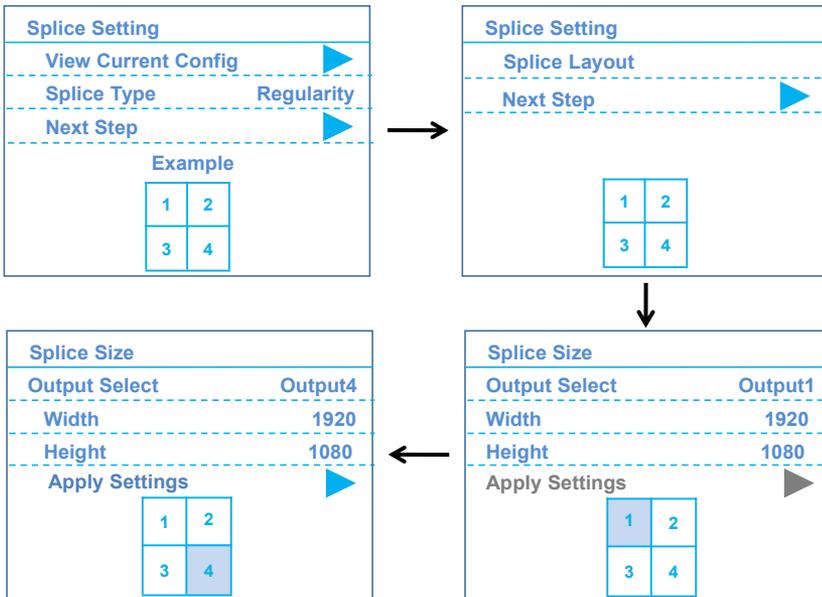
- Splice Layout: 1x1, 2x1, 1x2, 1x3, 3x1, 1x4, 4x1, 2x2 ;

- In The Splice Size Interface, Set The Width&Height (Actual Control Pixel Of Each Output Port) Of Output1,Output2,Output3,Output 4 Respectively. After Setting, Select (Apply Settings) And Click "OK" To Complete The Splicing Display.

2.3 Free Splice Setting Steps

(Recommended)

Splice Setting
- View Current Config ▶
- Splice Type   Free
- Next Step ▶
- Example

View Current Config
- 1 ⟶ DVI1
- 2 ⟶ DVI2
- 3 ⟶ DVI3
- 4 ⟶ DVI4

| 1 | 2 |
| 3 | 4 |

Splice Setting
- Splice Units
- Next Step ▶

| 1 | 2 |
| 3 | 4 |

Splice Size
- Output Select   Output1
- Width   1920
- Height   1080
- Apply Settings ▶

| 1 | 2 |
| 3 | 4 |

Splice Size
- Output Select   Output4
- Width   1920
- Height   1080
- Apply Settings ▶

| 1 | 2 |
| 3 | 4 |
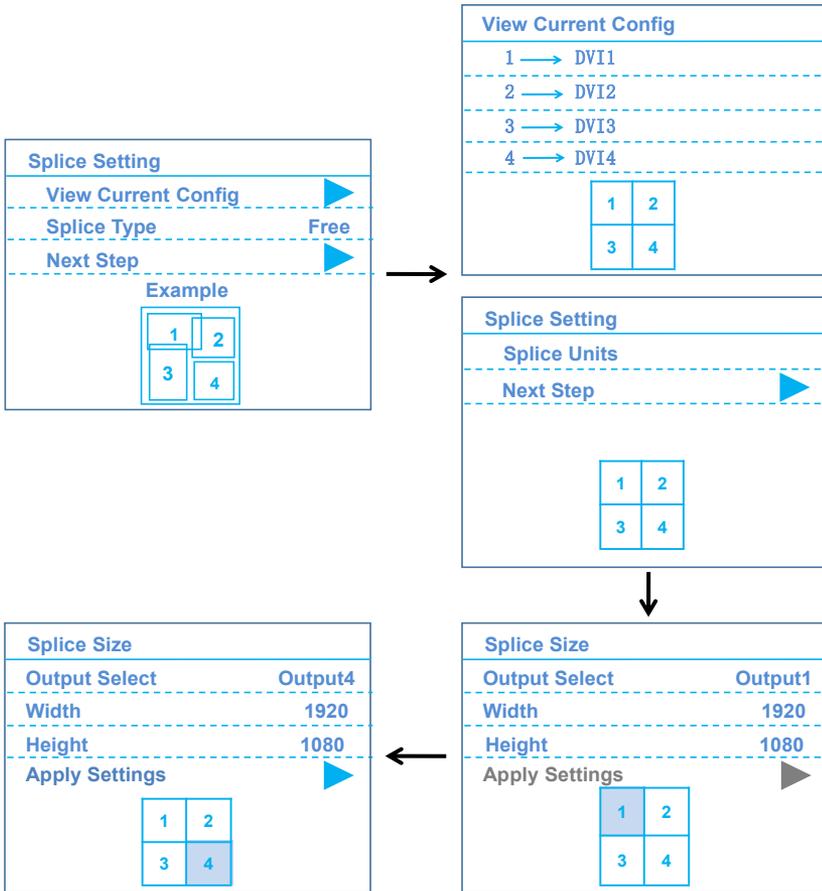
● Splice Units: 1,2,3,4 Corresponding To The Output1、Output2、Output3、Output4;

● In The Splice Size Interface, Set The Width&Height (Actual Control Pixel Of Each Output Port) Of Output1,Output2,Output3,Output 4 Respectively. After Setting, Select (Apply Settings) And Click "OK" To Complete The Splicing Display.

Menu System

3.1 Boot Menu

The Boot Menu is As Follow Picture, Press "ESC" Key Can Be Switched .

Window Info	−1−
A HDMI1	B HDMI1
No Signal	No Signal
C HDMI1	D HDMI1
No Signal	No Signal

Output Info

	4 Screen 3840X2160
1 2	1920X1080 60
3 4	1920X1080 60

Splice Size	−2−
1	1920X1080
2	1920X1080
3	1920X1080
4	1920X1080

Window Size

| A 1920X1080	B 1920X1080
C 1920X1080	D 1920X1080
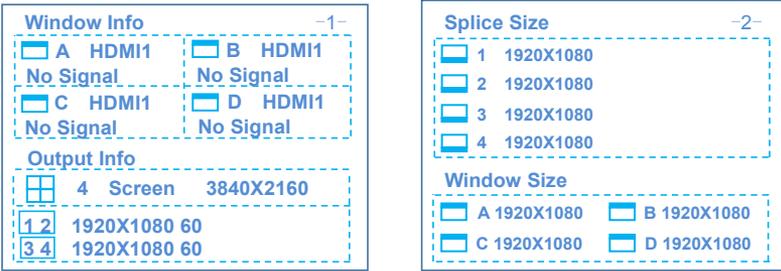
Boot Menu

3.2 Main Menu

The LCD Screen Displays The Input Source And Resolution Information Of All Layers. Press The "OK" Key To Enter.

Main Menu

- Splice Wizards ▶
- Output Setting ▶
- Splice Setting ▶
- Windows Setting ▶
- Input Setting ▶
- Image Crop ▶
- Image Quality ▶
- Mode Setting ▶
- Test Pattern ▶
- Audio Manager ▶
- Time & Tasks ▶
- Advanced Setting ▶
- Language/语言 ▶
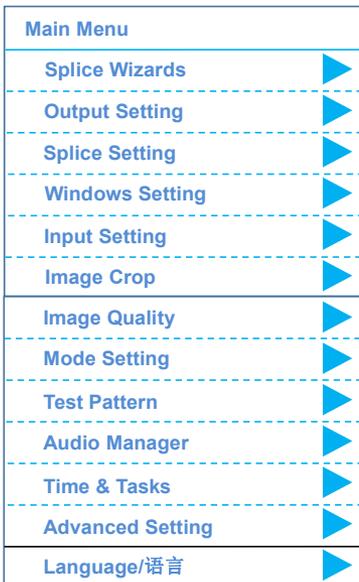
3.3 Sub-Menu

● **Output Setting** (Select "Output Setting" In Main Menu And Press "OK" To Enter The Interface Below);

Output Setting	
Output Resolution	▶
Group Output Resolution	▶
Output Mapping	▶
Output Offset	▶

Output Resolution	
1920x1080 60Hz Custom	▶
1024x768 60Hz	▶
1280x720 60Hz	▶
1280x1024 60Hz	▶
1440x900 60Hz	▶
1600x1200 60Hz	▶
1680x1050 60Hz	▶
1920x1080 60Hz	▶
1920x1200 60Hz	▶
1024x1920 60Hz	▶
1536x1536 60Hz	▶
2048x640 60Hz	▶
2048x1152 60Hz	▶
2304x1152 60Hz	▶
2560x816 60Hz	▶
3840x640 60Hz	▶

Output Port Select	
DVI1_2 1920x1080 60Hz	▶
DVI3_4 1920x1080 60Hz	▶

Output Mapping	
Output 1 ⟶	DVI 1
Output 2 ⟶	DVI 2
Output 3 ⟶	DVI 3
Output 4 ⟶	DVI 4
Apply Settings	▶

Customize Resolution	
Width	1920
Height	1080
Frame Rate	60
Apply Settings	▶

| Splice Position	
Output Offset	Output 1
H Offset	0
V Offset	0

Note: Output Resolution: If Change The Item, All Output Ports Will Be Set To The Same Resolution;

Grouping Output Resolution: The Output Ports 1&2 Or 3&4 Are Must Same Of The Resolutions;

Output Mapping: Map The Output Ports (1-4)To The Physical Interfaces (DVI1-4) According To

The Requirements, As Long As They Correspond One By One.

● **Window Setting**

Windows Setting	
Windows Style	▶
Window Select	A
H Start	0
V Start	0
Width	3840
Height	2160
Image Rotate	OFF

Window Setting Menu   10-Windows Style
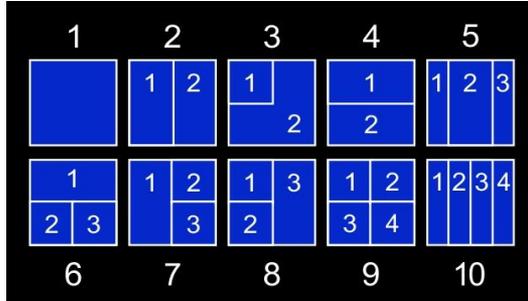
Windows Style: 10 Kinds Of Windows Preset, Which Can Be Directly Recall By Users;

Window Select: Window A,B,C,D Respectively Correspond To A,B,C,D Keys In The Function Area;

Change Window Signal: First Select The Corresponding Window (A, B, C, D), And Then Select The Corresponding Signal Source;

Change Window Size: First Select The Corresponding Window (A, B, C, D)+ "Size" Key.

H Start: Adjust The Horizontal Start Position Of The Corresponding Window;

V Start: Adjust The Vertical Start Position Of The Corresponding Window;

Width: Adjust The Horizontal Size Of The Corresponding Window;

Height: Adjust The Vertical Size Of The Corresponding Window;

Image Rotate: The Select Include: OFF, H-Flip, V-Flip, 90°, 180°,270° ; The User Selects B The Corresponding Options According To The Actual Requires;

● **Input Setting** (Select "Input Setting" In Main Menu And Press "OK" To Enter The Interface Below)

Input Setting	
EDID Setting	▶
DVI Audio Input	Analog
VGA Auto Adjust	▶
ADC Calibration	▶
HDMI12/DVI EQ	Auto
HDMI3 EQ	Auto

→

Input Setting	
Customize Resolution	▶
3840x2160 60Hz	
3840x2160 30Hz	
2560x1600 60Hz	
1920x1080 60Hz	
1280x720 60Hz	

Input Setting	
Input Select	All Inputs
Width	3840
Height	2160
Frame Rate	60
Apply Settings	▶
Reset	▶

(Open " Input Custom Resolution "

Need Enter The Menu)

EDID Setting: Selected Input Signals (All Input, HDMI1/2/3, DVI1/2, DP) For EDID Setting;

DVI Audio Input: If The Input Signal With Audio, Select "Digital"; Otherwise, Select "Analog";

VGA Auto Adjust: Automatic Correction Of VGA Signal;

ADC Calibration : If the VGA image Have Color Deviation, Can Perform ADC Calibration；

● **Image Crop** (Select "Image Crop" In Main Menu And Press "OK" To Enter The Interface Below)

Image Crop	
Window Select	A
Crop Onoff	Off
H Start	0
V Start	0
Width	960
Height	540
Reset	▶
Reset All	▶

Window Select: Select To Crop The Current Window(A,B,C,D), And The Input Signal Selected In

The Current Window Is Valid;

Switch: "On" or "Off", "On" Means To Open The Image Crop Function;

H Start: Corresponding To The Horizontal Start Position Of the Crop Signal;

V Start: Corresponding To The Vertical Start Position Of the Crop Signal;

Width: Corresponding To The Horizontal Size Of the Crop Signal;

Height: Corresponding To The Vertical Size Of the Crop Signal;

Reset: Reset The Parameters Of The Input Signal Selected In The Current Window;

Reset All: Reset The Parameters Of The Selected Input Signals In All Windows.

● **Image Quality**

Image Quality	
Brightness	50
Contrast	50
Sharpness	50
Saturation	50
Hue	50
Gamma	50
Color Temp	Standard ▶
Color Offset	▶
Clear Vision	Off
Additional Settings	▶
Reset	▶

Color Temp	
Color Temp	Standard
Red	50
Green	50
Blue	50

Color Offset	
Red Offset	0
Green Offset	0
Blue Offset	0

Additional Settings	
Color Gamut	Standard
In Color Range	Auto
In Color FMT	Auto
Win Color Range	Auto

Image Quality: Brightness, Contrast, Sharpness, Saturation, Hue, With An Interval Value Of 0-100;

**Color Temp:** Standard, Cool, Warm, User; Can Be Adjusted According To User Requires;

Color Gamut: Standard, SRGB, AdobeRGB1, BT709, DCI_P3, BT2020, DICOM.

● **Mode Setting**

| Mode Setting	
Load Mode	▶
Save Mode	▶
Reset Mode	▶

Load Mode

Save Mode

Load Mode: Enter The Load Interface And Press The "Number Key"To Load The Preset Mode;

Save Mode: Enter The Save Interface To save The Current Preset Mode;

Reset Mode: Clear The Preset Mode Saved By User.

● **Test Pattern** (Select "Test Pattern" In Main Menu And Press "OK" To Enter The Interface Below)

Enter Test Pattern	
OK	▶
Cancel	▶

→

Test Pattern	
Test Pattern	0
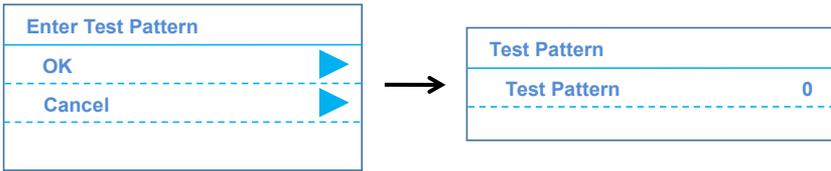
Test Pattern: Test Screen Without Input Of Signal Source,Test Pattern:0-10;

● **Audio Manager** (Select "Audio Manager" In Main Menu And Press "OK" To Enter Interface Below)

Audio Manager	
Volume	30
Mute	Off
Working Mode	Bind Win
Window	A

Volume: 0--30 Level;

Working Mode: ˮ**Bind Win**ˮ&ˮ**Follow CHG**ˮ;

ˮ**Bind Win**ˮ**:** The Audio Output Switches With

The Bound Window Signal;

ˮ**Follow CHG**ˮ:The Audio Switches Following

The Signal Switching;

Window Select: A, B, C, D;

● **Time&Task** (Select "Time&Task" In Main Menu And Press "OK" To Enter The Interface Below)

Time & Task	
Time	▶
Task Setting	▶
Tasks On Off	Off
Reset All Tasks	▶

→

Time Setting	
Date	2022/06/01
Time	11:15:31

→

Task Select	
Task1	Stopped	▶
Task2	Stopped	▶
Task3	Stopped	▶
Task4	Stopped	▶
Task5	Stopped	▶
Task6	Stopped	▶

• • • • • •

| Task15 | Stopped | ▶ |
| Task16 | Stopped | ▶ |

Task Edit	
Trigger Date	2022/09/01
Trigger Time	00:00:00
Task Type	Cycle A Day
Cycle List	▶
Task Run/Stop	Stop
Time Interval	30Min
Time Total	60Min

←

List Items Choice
Mode1
Mode2
Mode3
Mode4
Mode5
Mode6

• • • • • •

Mode9
Mode10

Cycle List →

Note:

If Want To Enable The Function,

Must Ensure The Main-Board Has Battery!

Time Setting: Set Time As The Current Time;

Task Type: Only Once,Every Day,

Cycle A Day, Cycle Daily;

Task Run/Stop: "Run"&"Stop";

● Advanced Setting

(Select "Advanced Setting" In Main Menu And Press "OK" To Enter The Interface Below)

Advanced Setting	
Network Config	▶
System Info	▶
Keypad Lock	Off
Default Guide Params	▶
Factory Reset	▶
Additional Settings	▶

Default Guide Params	
Frame Rate	60
DVI Max Pixels	2460000
Reset	▶

Network Config	
Connect-Type	Static IP
IP Address	192.168.1 .111
Subnet Mask	255.255.255.0

System Info
SW: AMS_MS4K_MCU_V1.32
FW0: AMS_MS4K_VP_V1.31
FW1: AMS_MS4K_VP_V1.31
FW2: AMS_MS4K_VP_V1.31

Additional Settings	
Input Scaler	Auto
Output Scaler	Auto
Com Baud Rate	115200

Keypad Lock: If Opened The Function,

The Front Panel Key Is Invalid; Can Be

Unlocked According To The Prompt.

Factory Reset:

Reset To Factory Parameters;

● **Language** (Select "Language/语言" In Main Menu And Press "OK" To Enter The Interface Below)

Language/语言	
English	▶
简体中文	▶
繁體中文	▶
한국어	▶
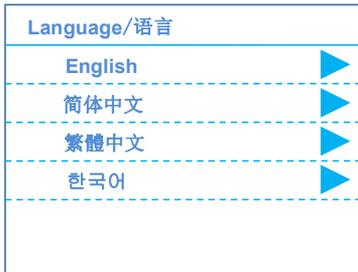
Languages Include: English, Simplified Chinese, Traditional Chinese and Korean.

Basic Operation

4.1 Splicing Operation

MS4K Supports 4 DVI Channel splicing(8 Standard Sending Cards);

MS16K Supports 8 DVI Channel splicing (16 Standard Sending Cards);

Select "Splice Wizards " Or "Splice Setting" In Main Menu And Press "OK", Advise To Use The "Splicing Wizard" To Quickly Complete The Splicing!

First Step: Set The Output Resolution（Menu--Output Setting--Output Resolution）

This Resolution Is Set According To The One With The Highest Actual Resolution Among The 4 channels.The Best Way Is The Output 1, 2, 3,4 With The Same Resolution.

For Example::The Actual Output Resolution Is Output 1:1852x1216, Output2:1728x1216, Output3: 2048x1216, Output4: 1920x1216. The Resolution Should Be Set To 2048x1216, Or It Can Be Larger Than 2048x1216, As Long As It Does Not Exceed 2.6 Megapixel. After Setting, The Resolution Of Output 1~4 Is 2048x1216.

Notes: Output 1&2, 3&4, 5&6, 7&8 Are Group Output; The Output Resolution Of The Same Group Must Be Consistent!

**Second Step:** Set The Output Resolution（Menu--Splice Wizards）

Select Splicing Type(Free) And Select Splicing Quantity;

Adjust The Horizontal Width And Vertical Height Controlled By Each Output;

Adjust The Horizontal Starting Position And Vertical Starting Position Of Each Output Port.

4.2. Layer Setup

The Multi-Windows Video Splicing Processor Has 4 Layers, And Each Layer Can Be Configured With Parameters Such As Input Source, Position, Size, Rotation mode, Layer layout. The Layers Button Is Arrayed On The Front Panel.

If The Layer Cannot Be Operated, Please Confirm Whether The Windows Style Is Correct.

● Input Source

Press The Layer Indication Button On The Front Panel, Then Press The Input Indication Button Which Array In "INPUTS" Area On The Front Panel,For Example, Set The Input Of Layer B to DP1.
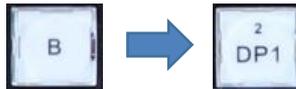
1. select layer   2. choose input source

Note: When Window B Is Closed, Window B Cannot Be Selected, And The Signal Source Of Window B Cannot Be Selected. Other Windows Are Similar. If The Window Is Closed, Go To Window Settings And Select The Corresponding Windows Style Menu To Open It.

● Layer Style

Press The "Layer Style" Key Can Help Users Quickly Configure Layers. After Selecting The Corresponding Mode, Press The "Size" Key Can Adjust The Layer Position, Layer Size, Image Rotation etc. User Can Select A Similar Mode For Further Fine Adjustment.