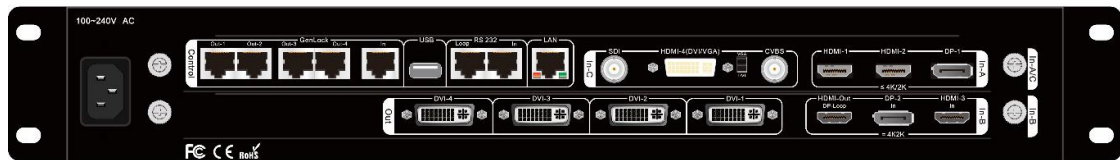


# A65

## 4K Mosaic Processor

### User Manual V1.1



# Contents

<b>Chapter 1: Safety precautions</b> .....	2
<b>Chapter 2: Packing list</b> .....	3
<b>Chapter 3: Hardware connection</b> .....	4
3-1 Rear panel signal port overview.....	4
3-2 Port description.....	4
3-3 Hardware connection diagram.....	6
3-4 Technical specification.....	7
3-5 Installation dimension.....	8
<b>Chapter 4: Front panel button description</b> .....	10
4-1 Front panel button sketch map.....	10
<b>Chapter 5: User basic operation instruction</b> .....	13
5-1 Input card operation.....	14
5-2 Output card operation.....	16
<b>Chapter 6: User setup menu</b> .....	21
6-1 Language setup.....	22
6-2 Video input setup.....	23
6-3 Output image setup.....	26
6-4 Communication setup.....	32
6-5 System setup.....	33

## Chapter 1: Safety precautions



### Danger !

There is high voltage in the processor, to prevent any unexpected hazard, please do not open the cover of the device, unless you are a maintenance personnel.



### Warning !

- 1) This device shall not encounter water sprinkle or splash, please do not place anything containing water on this device.
- 2) To prevent fire, keep this device far from any fire source.
- 3) If this device gives out any strange noise, smoke or smell, please immediately unplug the power cord from receptacle, and contact local dealer.
- 4) Please do not plug or unplug DVI signal cable if the device is powered on.



### Caution !


- 1) Please thoroughly read this manual before using this device, and keep it safe.
- 2) In the event of lighting or when you are not going to use the device for a long time, please pull the power plug out of receptacle.
- 3) Nobody other than professional technicians can operate the device, unless they have been appropriately trained or under guidance of technicians.
- 4) To prevent equipment damage or electric shock, please don't fill anything in the vent of the device.
- 5) Do not place the device near any water source or anywhere damp.
- 6) Do not place the device near any radiator or anywhere under high temperature.
- 7) To prevent rupture or damage of power cords, please handle and keep them properly.
- 8) Please immediately unplug power cord and have the device repaired, when
  1. Liquid splashes to the device.
  2. The device is dropped down or cabinet is damaged.
  3. Obvious malpractice is found or performance degrades.

## Chapter 2: Packing list

Please unpack the product with care, and then check whether all the following items are included in the package. If anything is missing, please contact the dealer or distributor.

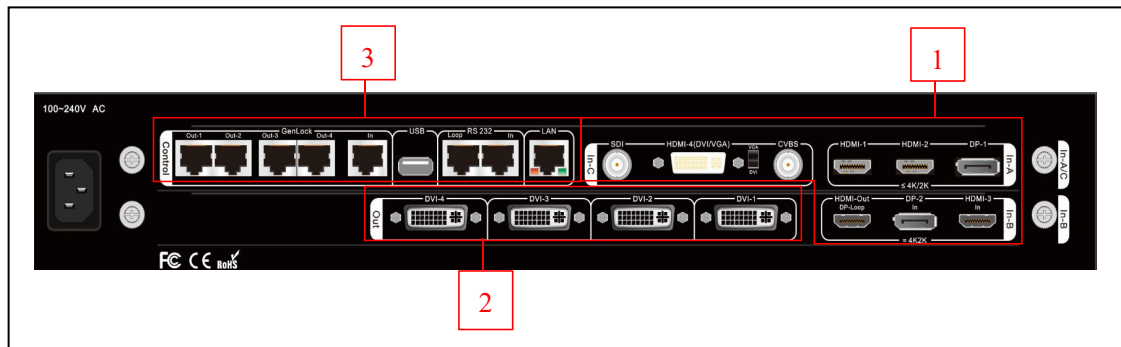
### Standard accessories;

The accessories supplied with this product may differ from the following pictures, but they are applicable for the regions where you live (LED sending card is optional accessory)

		
1.5m Power cable X1	1.5m DVI cable X1 DVI to HDMI adapter X1	0.5m DVI cable X4
		
1.5m HDMI cable X1	DVI-I to VGA adapter X1	1.5m DP cable X1
		
Product data U disk X1	Quick operation instruction X1	1.5m USB cable X1

## Chapter 3: Hardware connection

### 3-1 Rear panel signal port overview



Picture 3-1 Rear panel signal port

- ①Video input port      ②Video output port      ③Communication port

### 3-2 Port description

#### 1. Video signal input

A65 include 3 video input cards, the series numbers are In-A、In-B、In-C.

In-A is 4K input card;

In-B is 4K direct input card;

In-C is 2K input card;

2K input card constitutes 4 input channels, signal input port description as the following table:

Ports	Description
<b>CVBS</b>	1 channel of PAL/ NTSC format composite video input
<b>HDMI(DVI/VGA)</b>	1 channel of HDMI1.3 digital signal input ( compatible with DVI, can access in VGA input via switch beside the port )
<b>SDI</b>	1 channel of SDI digital serial signal input

4K input card provides 3 input channel, input port description as the following table:

Ports	Description
<b>HDMI</b>	2 channel of HDMI2.0 digital input
<b>DP</b>	1 channel of DP1.2 digital input

4K direct input card input port description as the following table:

Ports	Description
<b>HDMI</b>	1 channel of HDMI2.0 digital signal input (only support 4K input)
<b>DP</b>	1 channel of DP1.2 digital signal input (only support 4K input)
<b>HDMI Out</b>	DP1.2 Loop out signal of this card

## 2. Video signal output

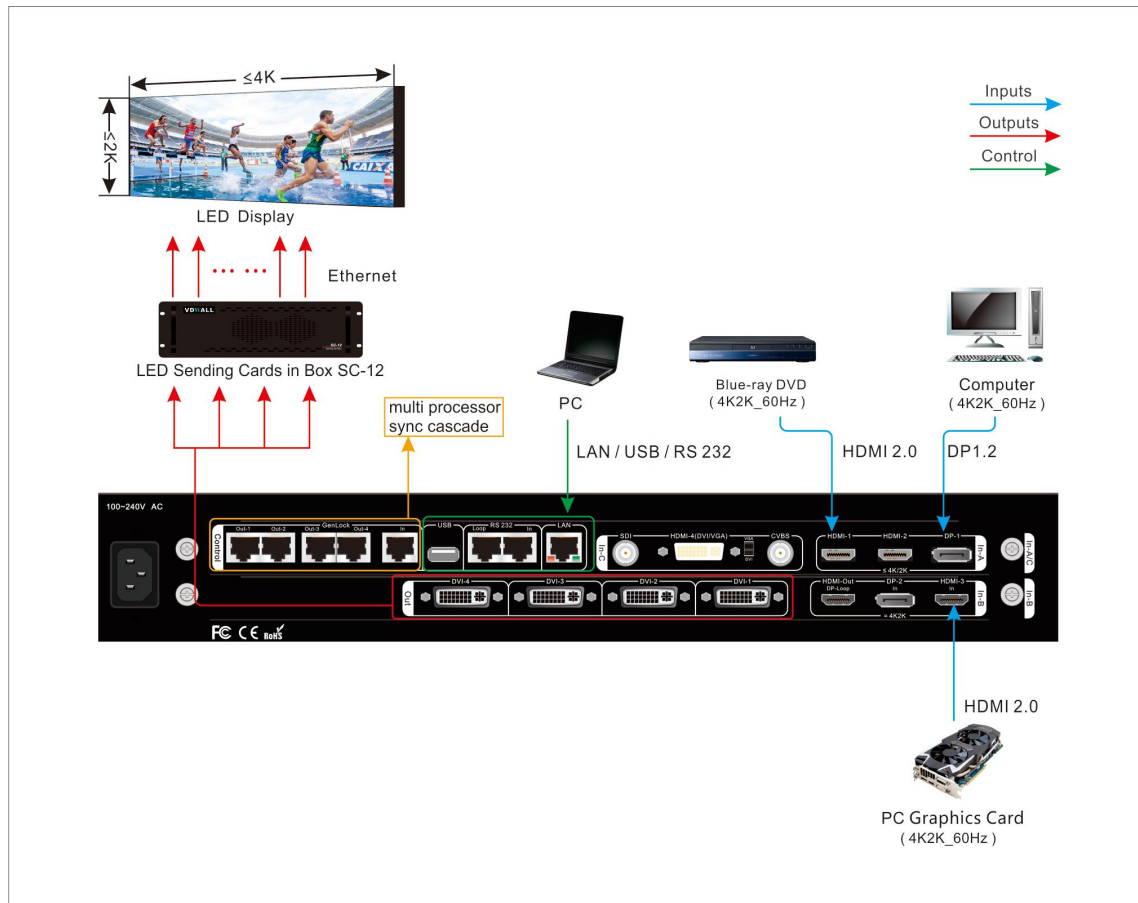
A65 offers 4 DVI outputs, output port description as the following table:

Ports	Description
<b>DVI-1 ~ DVI-4</b>	4 channels of DVI output ports, connect to LED sending card or LCD monitor .

## 3. Communication port

Ports	Description
<b>LAN</b>	Local area network TCP/IP network control port
<b>USB</b>	USB communication port
<b>RS232 In</b>	Serial communication port, RS232 electrical level, connect to PC RS232 port, for PC software control
<b>RS232 Out</b>	RS 232 cascading output port, RS232 electrical level, several processors can be controlled by single PC
<b>GenLock In/Out</b>	Sync lock frame signal, input and output

### 3-3 Hardware connection diagram



Picture 3-2 Hardware connection diagram

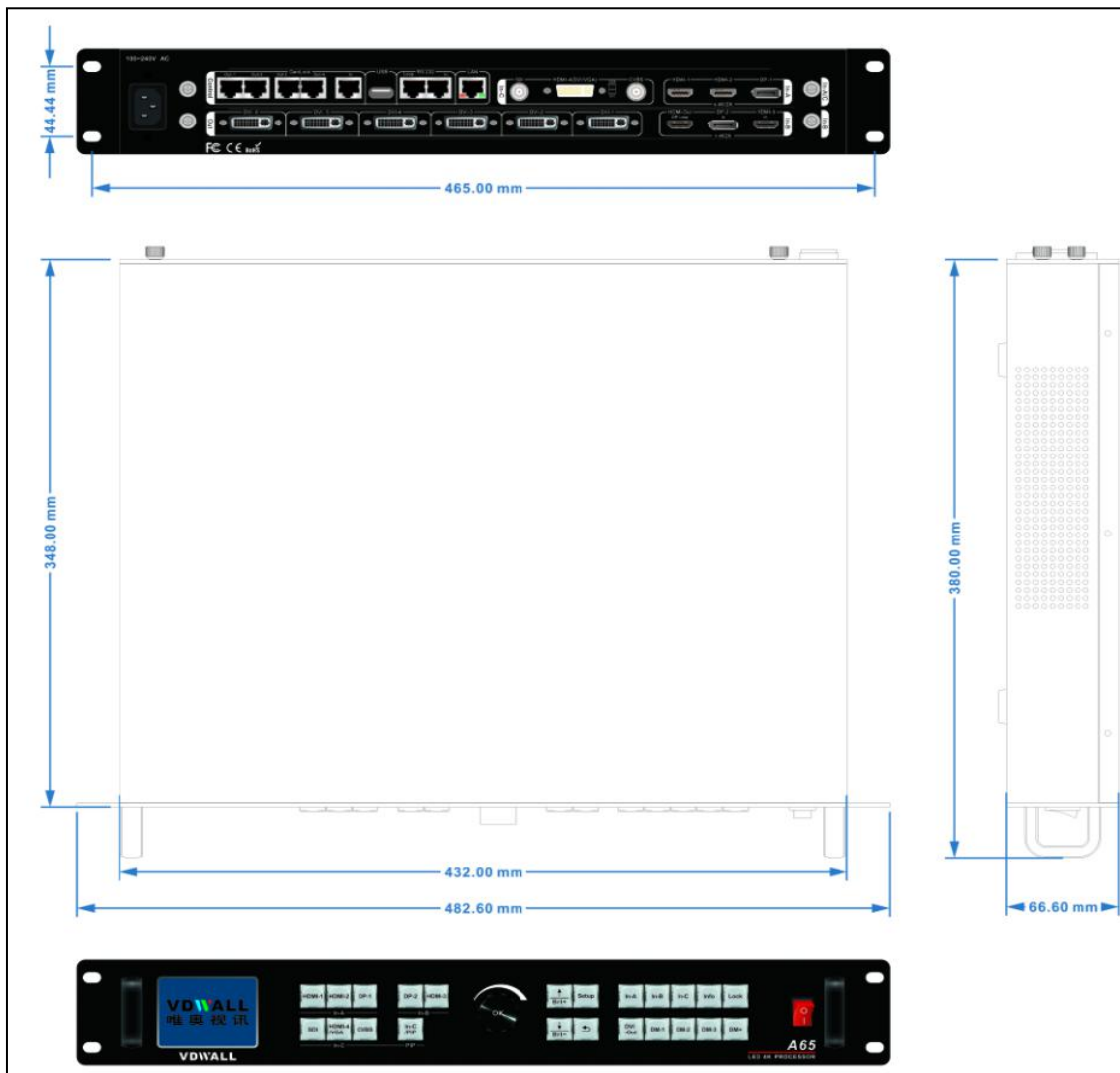
### 3-4 Technical specification

Input signal index		
Quantity / type	3×HDMI 2.0 (VESA/CEA-861) 2×DP1.2 (VESA) 1×CVBS 1×DVI-I (VESA/CEA-861, support VGA/DVI/HDMI 1.3a) 1×SDI (SDI/HD-SDI/3G-SDI)	
Composite video format	PAL/NTSC	
Composite video amplitude / Impedance	1V (p_p) / 75Ω	
VGA format	PC (VESA)	≤1920×1200_60Hz
VGA amplitude / Impedance	R、G、B = 0.7 V (p_p) / 75Ω	
DVI /HDMI format	PC (VESA)	≤1920×1200_60Hz
	HDMI1.3 (CEA-861)	≤1080p_60Hz
SDI format	SMPTE259M-C SMPTE 292M SMPTE 274M/296M SMPTE 424M/425M	480i_60Hz 576i_50Hz 720p、1080i、1080p
HDMI 2.0 (HDCP 2.2)	PC (VESA)	≤4096 x 2160_60Hz
	HDMI2.0 (CEA-861)	
DP1.2 (HDCP 2.2)	DisplayPort1.2 (VESA)	≤4096 x 2160_60Hz
Input port	VGA: 24+5 DVI_I CVBS: BNC DVI: 24+5 DVI_I	HDMI 2.0: HDMI type A DP: DP port SDI: BNC/ 75Ω
Output signal index		
Quantity / type	4×DVI	
DVI format	2160X1160_50Hz、2048X1200_50Hz、1920X1200_50Hz、 1920X1080_50Hz、1680X1440_50Hz、1440X1680_50Hz、 1200X1960_50Hz、1200x1600_60Hz、1440x1440_60Hz、 1600x1344_60Hz、1920×1080_60Hz、2160x960_60Hz、 User-defined output resolution	
Output port	DVI OUT: 24+1 DVI_D	



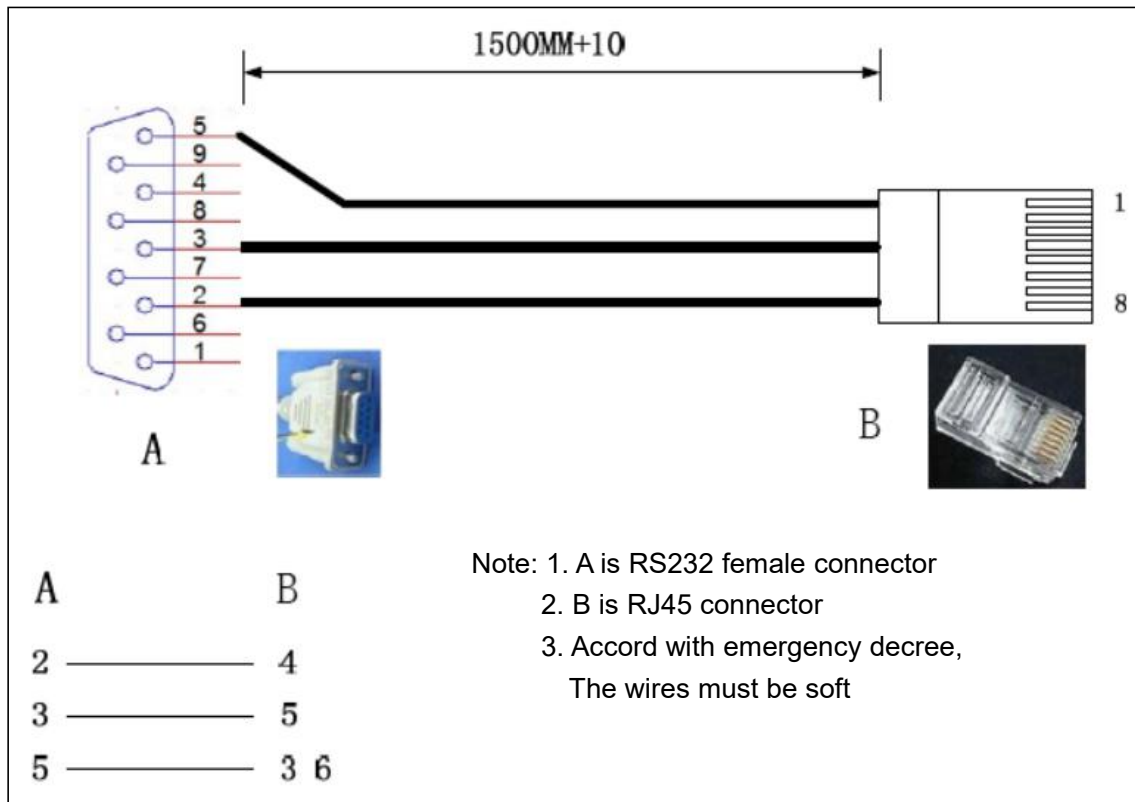
Others	
Control port	RS232/USB/LAN
Input voltage	100-240VAC 50/60Hz
Rated power consumption	35W
Ambient temperature	0-45 °C
Ambient humidity	15-85%
Product size	482.6(L) x 380(W) x 66.6(H)mm
Packing size	535(L) x 475(W) x 145(H)mm
Weight	G.W: 8.5Kg, N.W: 6.0Kg

### 3-5 Installation dimension



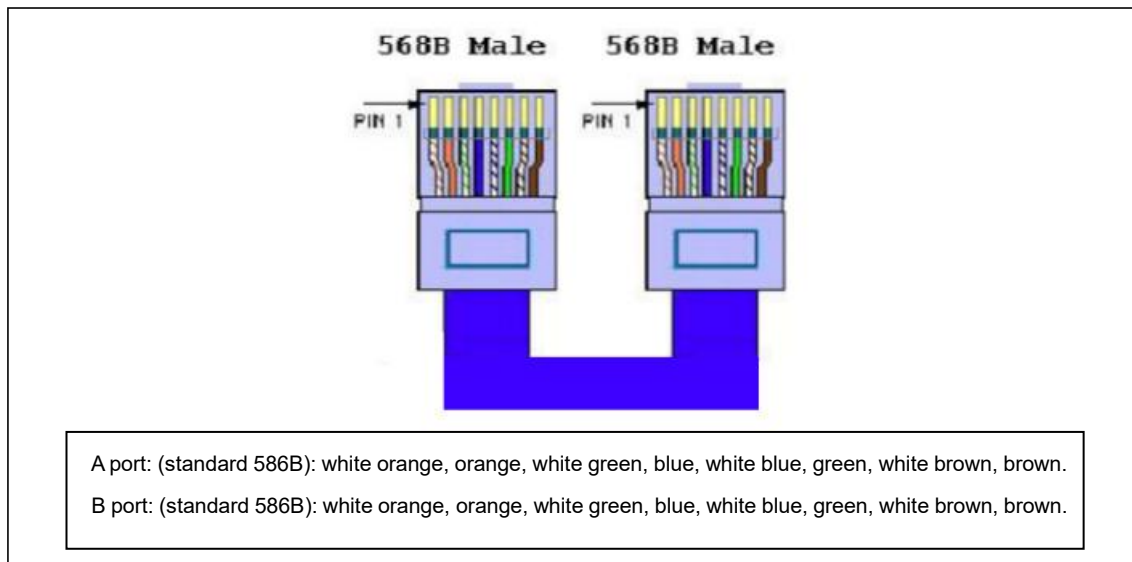
Picture 3-5a Installation dimension drawing

## RS232 connection cable and wire order



Picture 3-5b RS232 connection cable and wire order

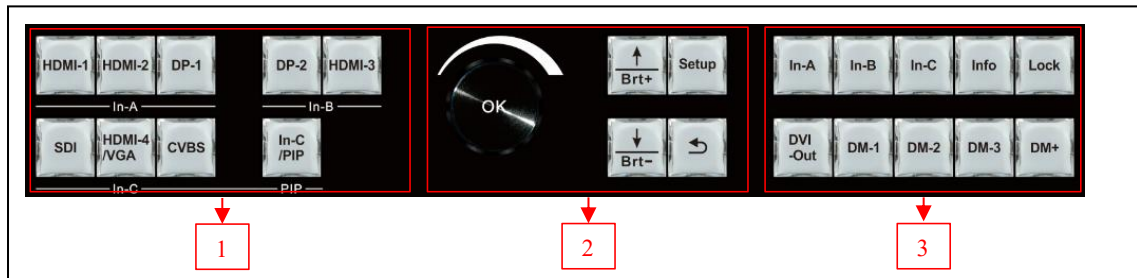
## Genlock network connector wire order



Picture 3-5c Genlock network cable and wire order

## Chapter 4: Front panel button description


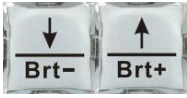



### 4-1 Front panel button sketch map



Picture 4-1 Front panel button sketch map

- ① Input card button
- ② Setup button
- ③ Other function button

Category	Button	Description
Input Signal Selection Button	<b>HDMI1</b> 、 <b>HDMI2</b> 、 <b>DP-1</b> 、 <b>DP-2</b> 、 <b>HDMI-3</b> 、 <b>SDI</b> 、 <b>HDMI-7</b> 、 <b>CVBS</b>	A65 built in 3 input cards, identified as: In-A、 In-B、 In-C. In-A can access in 4K or 2K signal, In-B only support 4K2K signal, In-C support 2K signal. Press signal button directly to select signal channel for each input card, if selected signal is valid, button indicator will light up, or else flicker. Press VGA button of In-C to automatically calibrate VGA signal.
	<b>In-C/PIP</b>	In-C input card provides PIP/POP dual image display. Press this button, button indicator light up, PIP/POP function will be activated, henceforth select sub-Image source by pressing signal source button.
Source Card Selection Button	<b>In-A</b> 、 <b>In-B</b> 、 <b>In-C</b>	Source card selection button. Press this button to switch A65 signal source card, corresponding button indicator will light up.
DVI Output Port Switch Button	<b>DVI-Out</b>	In menu setup, press this button to switch DVI output port.
Lock Info Button	<b>Lock</b>	Button lock. Press this button directly, button indicator will light up, all button on front panel will be invalid, except Lock button itself, so as to avert misoperation. Press this button 3 times repeatedly to exit button lock mode, button indicator will light off.
	<b>Info</b>	Information button, press this button to check A65 setup information and firmware version, press continually to turn page When A65 in Genlock cascading, If slave A65 Genlock signal locked, <b>Info</b> button indicator light up, or else flicker.

Category	Button	Description
Menu Setup Button	<b>Setup</b>	Menu setup button. <b>A65</b> in <b>operation mode</b> , press this button to enter menu setup
	 <b>Ok</b>	<b>Knob</b> or <b>OK</b> button, rotate this button to adjust setup value, press this button to save or apply configuration
		Up and Down selection button. <b>A65</b> in <b>configuration mode</b> , press this button to select menu item. In <b>operation mode</b> , press this button directly to adjust output image brightness
		Return or Exit button. Press this button to exit present setup and return to previous setup menu, until <b>A65</b> enter <b>operation mode</b>
Display Mode Selection Button	<b>DM-1</b> 、 <b>DM-2</b> 、 <b>DM-3</b>	Display mode selection button. Display mode can preset size&position of input and output signal. Press <b>DM-1</b> 、 <b>DM-2</b> 、 <b>DM-3</b> directly to recall different display mode; in menu setup, press <b>DM-1</b> 、 <b>DM-2</b> 、 <b>DM-3</b> to select target display mode for parameter saving
	<b>DM+</b>	More display mode selection button. <b>A65</b> provides 16 preset display mode, identified as: DM1、DM2、DM3、DM4、DM5、DM6、DM7、DM8、DM9、DM10、DM11、DM12、DM13、DM14、DM15、DM16. the last 3 display mode for backup usage, can't be modified or recalled directly. Press  、  button to select display mode, press <b>OK</b> button to confirm and apply

## Chapter 5: User basic operation instruction

After processor boot up, A65 will automatically detect the quantity and configuration information of current device, the default LCD interface as following picture.

```

In-A: HDMI1
In-B: HDMI3
In-C: HDMI4          PIP: SDI
-----
Output Mode:        DM1
Input Source:       In-C
Out Port:           DVI4
In Pos.&Size:        (0, 3840, 0, 2160)
Out Pos.&Size:       (0, 1920, 0, 1080)

```

Picture 5-0 LCD interface: System default operation interface

The top 3 rows show signal channel of each input card, for instance, In-C source from HDMI4, PIP signal is SDI;

The 4<sup>th</sup> row shows current output display mode is DM1;

The 5<sup>th</sup> row shows current display content from In-C;

The 6~8<sup>th</sup> rows illustrate current output port Size&Position Info;

In operation mode, valid operation includes:

- 1: Input card operation:** input signal selection and PIP operation;
- 2: Output card operation:** output port selection, display mode selection;
- 3: Other operation:** mode duplication and brightness adjustment; info check and button lock and other operation.

## 5-1 Input card operation

Under user operation status, input card operation includes: input card signal selection and PIP operation.

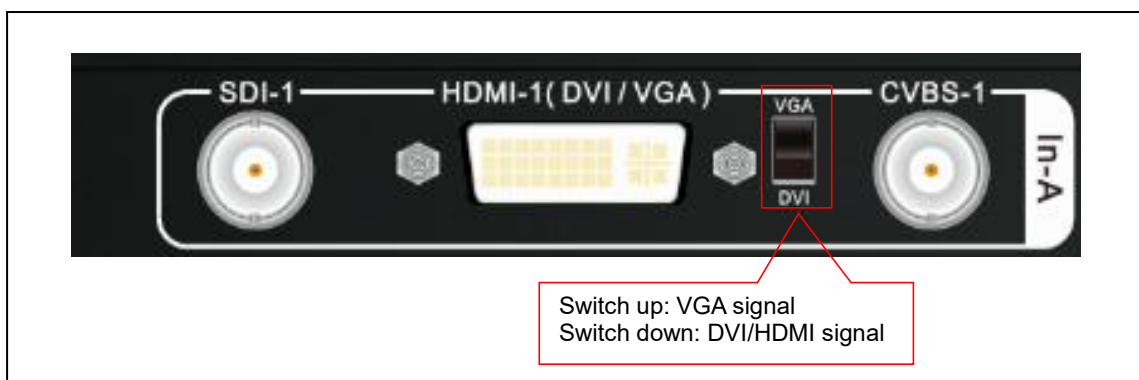
### 1. Input card signal source selection

**Input card A:** press button **HDMI-1**、**HDMI-2**、**DP-1** to select corresponding signal source;

**Input card B:** press button **DP-2**、**HDMI-3** to select corresponding signal source;

**Input card C:** under non PIP mode state, press **SDI**、**HDMI-4**、**CVBS-1** to select corresponding signal channel;

Note: HDMI-4 can select VGA input or DVI/HDMI input by toggling switch beside the DVI port.




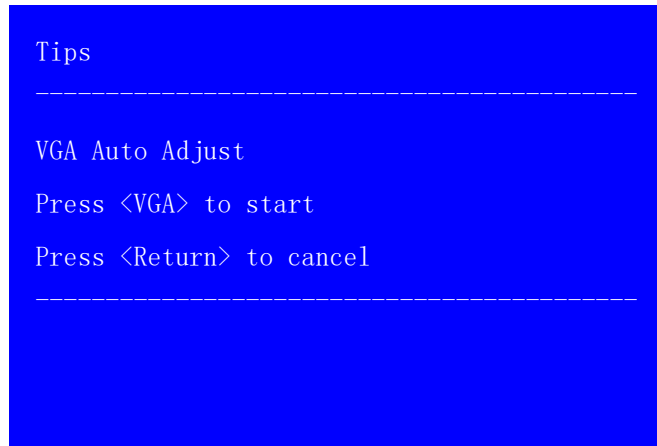
Picture 5-1a DVI-I port switch

### 2. Input card PIP operation

**Input card C:** press button **PIP/In-C** to enter or exit PIP. When in PIP ready status, press button **SDI**、**HDMI-4**、**CVBS** to select sub-image signal source;

### 3. VGA input signal automatic calibration

For input card In-C, if selected VGA signal is valid, press **VGA** button repeatedly for automatic VGA calibration, press  to exit menu.



Picture 5-1b VGA automatic calibration



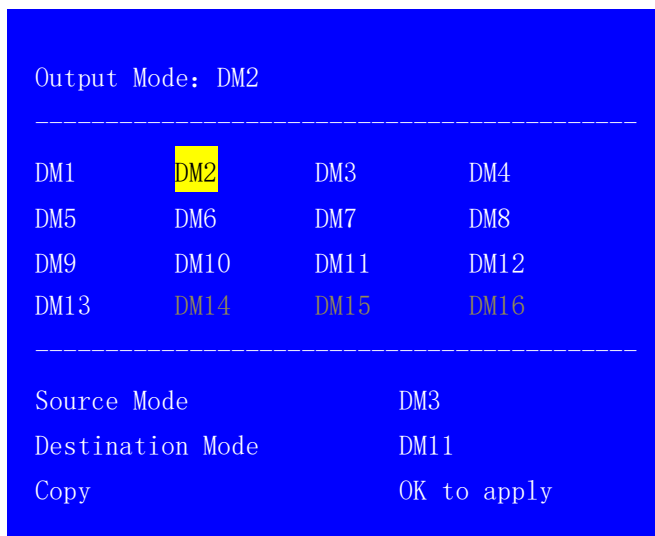
## 5-2 Output card operation

In operation mode, output card operation includes: output card display mode selection, mode duplication, output brightness adjustment.

### 1. Output card display mode recall and mode duplication

A65 offers 16 preset display mode, defined as DM1-DM16, DM1~DM13 is accessible for user direct modification and recall, DM14~DM16 only for mode duplication or backup, can't be edited directly.

Under user operation state, display mode 1,2,3 can be recalled directly by pressing button **DM1**, **DM2** and **DM3**, other display modes can be selected by pressing **DM+** button, then enter more display mode selection menu, press **↑**、**↓** button to select different display mode, press **OK** button to confirm and apply.



Picture 5-2a LCD interface: display mode

## 2. Output brightness setup

Brightness adjustment ranges from 0 – 255, “0” represents the minimum brightness level, press **Brt+** button to increase brightness, and press **Brt-** button to decrease, or rotate **Knob** button to adjust brightness value. In order to guarantee sufficient grayscale, the default and optimized brightness is 128.



Picture 5-2b LCD interface: Output brightness setup

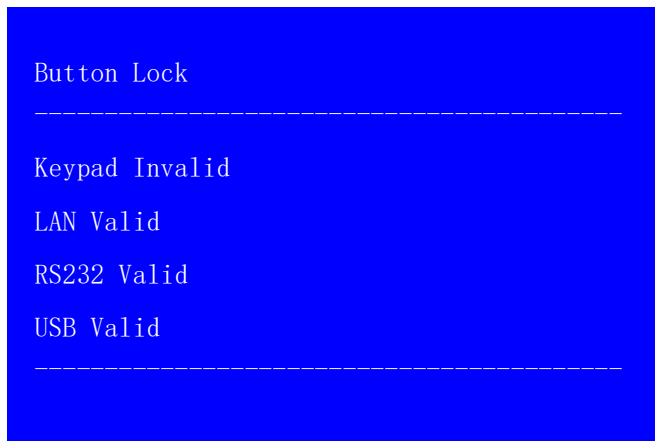
## 5-3 Other functions operation

Besides above operations, there are lock button operation, system Info function and other related operations.

### 1.Lock button operation

Under operation state, press **Lock** button to lock all front panel button, only LAN, RS232, USB control is active, thus to prevent remote control and front panel control conflict. A65 will automatically enter key lock state once received remote control instructions.

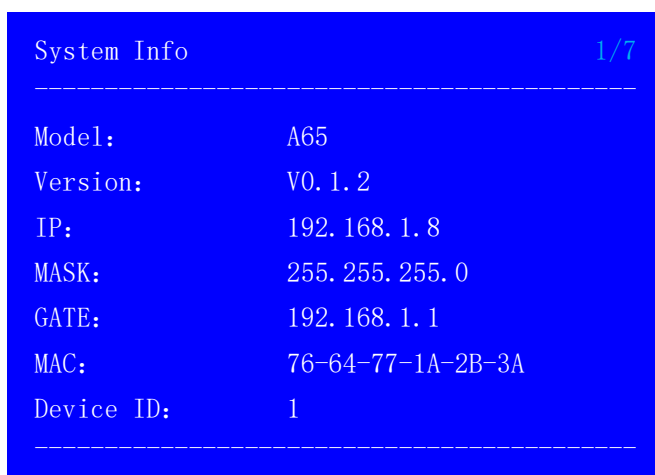
Under lock state, press **Lock** button three times repeatedly to unlock.



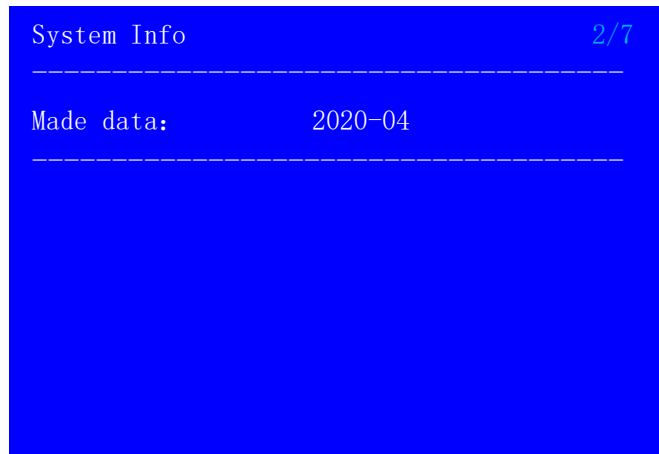
Picture 5-3a LCD interface: Button lock

### 2.Check system information (**Info**)

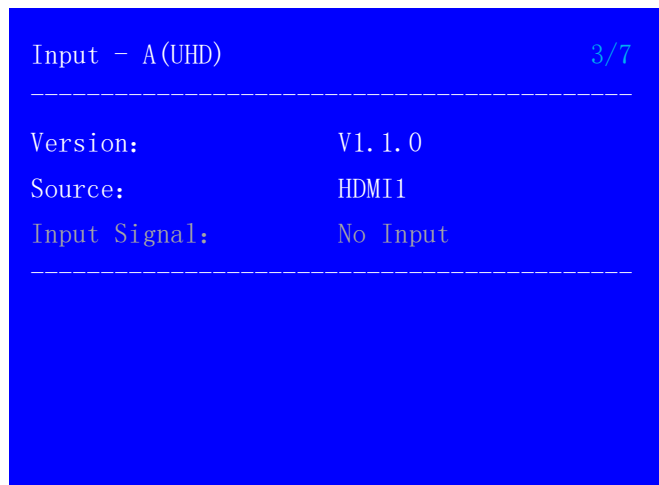
Press **Info** button into System Info menu, check processor info and firmware version etc. Press **Up**, **Down** button turning page, press **Back** to exit. System Info menu as following.



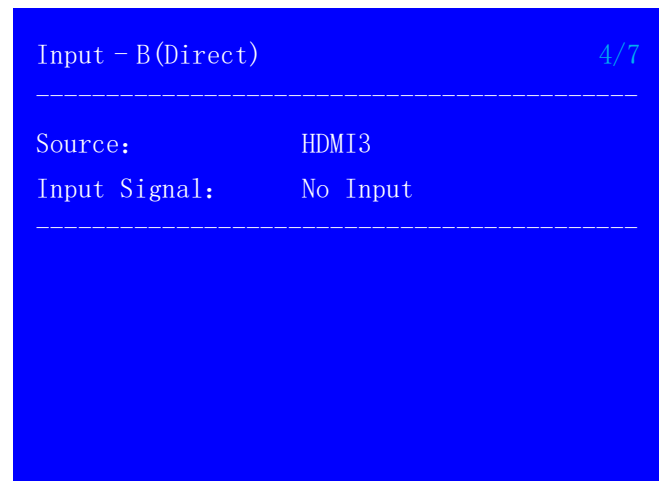
Picture 5-3b LCD interface: System info



Picture 5-3c LCD interface: System info



Picture 5-3d LCD interface: System info



Picture 5-3e LCD interface: System info

```

Input Card - C(HD)                                     5/7
-----
Version:          V1.1.0
Main:             HDMI4
Input Signal:     1080p_60Hz
PIP:              Off
Input Signal:     No Input
-----

```

Picture 5-3f LCD interface: System Info

```

Output                                                  6/7
-----
Version:          V2.1.3
Resolution:       1920x1080_60Hz
-----

```

Picture 5-3g LCD interface: System Info

```

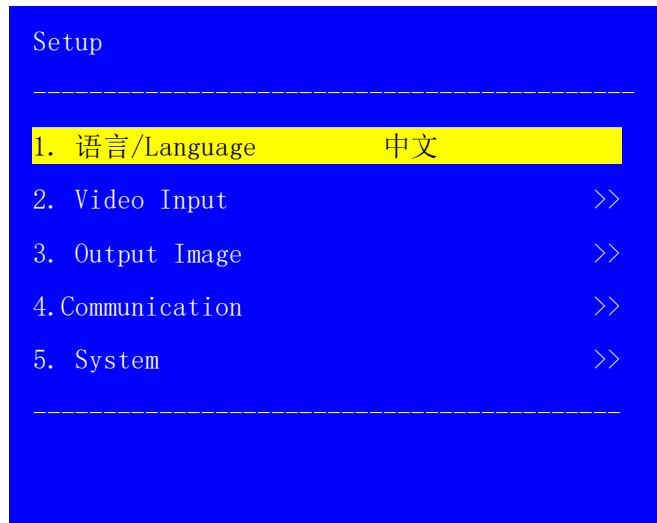
System Random Checksum                               7/7
-----
In-C:  CF8F0E8E0D8DOC8   CF8F0E8E0D8DOC8
Out:   1F8F0E8E0D8DOC8   1F8F0E8E0D8DOC8
-----

```

Picture 5-3h LCD interface: System Info

## Chapter 6: User setup menu

User setup menu consists of 5 sections, *Language setup*, *Video Input setup*, *Output Image setup*, *Communication setup*, *System setup*.

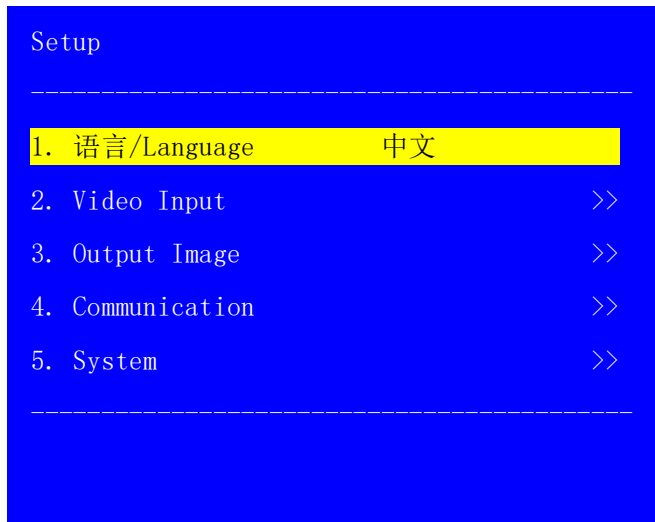


Picture 6-0 LCD interface: Setup

After device boot up, press **Setup** button into user setup menu, press **↑,↓** button to select menu item, press **knob** button (**OK** button) into menu, press **↶** button return to previous menu. Description as following:

## 6-1 Language setup

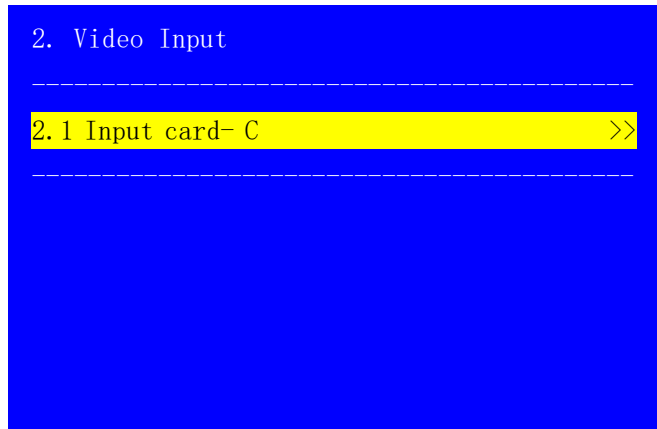
After system boot up, press **Setup** into user setup menu, first item 1.语言/Language, under this menu rotate **Knob** button to switch language, press **OK** button to confirm and apply.



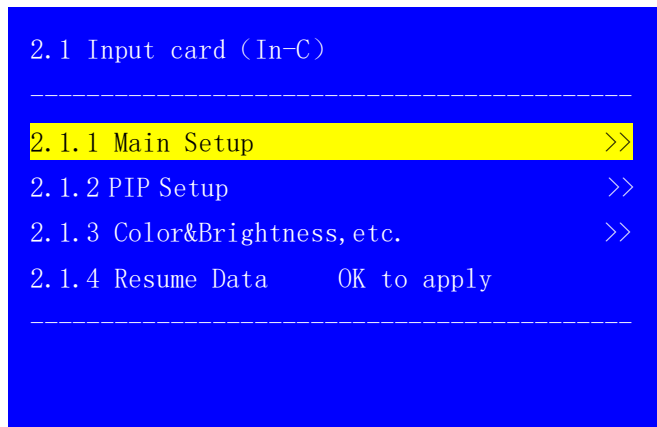
Picture 6-0 LCD interface: Setup

## 6-2 Video input setup

After system boot up, press **Setup** into user setup menu, select **2.Video Input** by pressing **↑,↓** button, press **OK** button into this menu, this menu is used to set the parameters of Input card-C.



Picture 6-2a LCD Interface: Video input setup






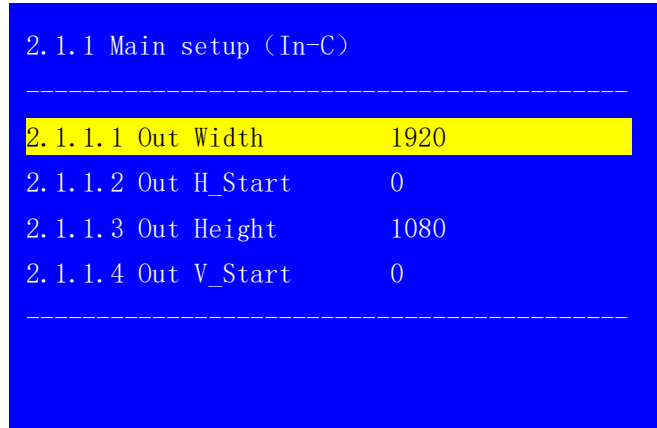
Picture 6-2b LCD Interface: Video input setup



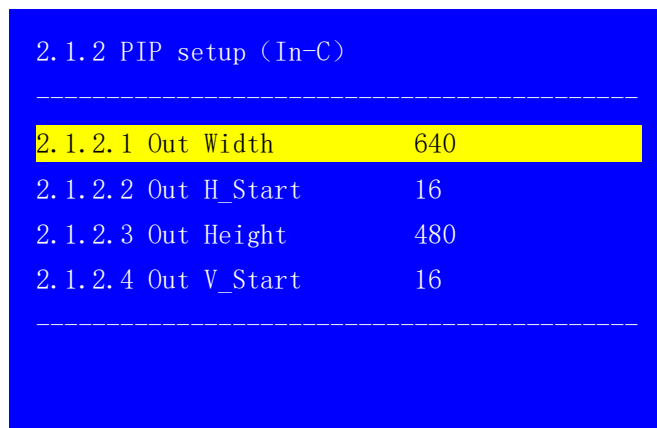
## 1.PIP setup

Main Setup and PIP Setup menu is used to configure main image and sub image size and position.

Under this menu, press  button to select the item, rotate  button to adjust current parameter, press  button to confirm and apply.




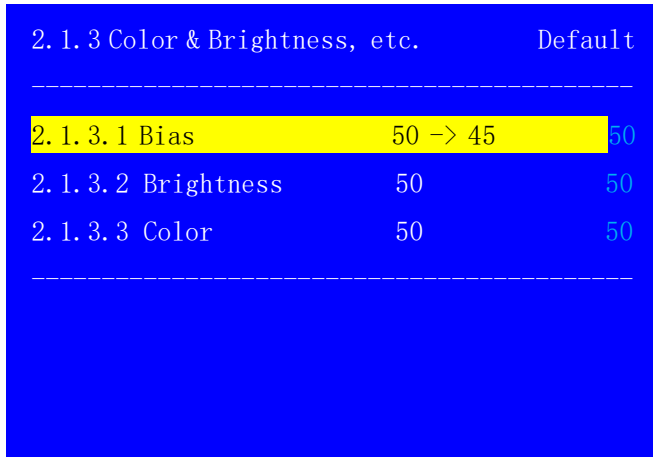
Picture 6-2c LCD interface: Main setup



Picture 6-2d LCD interface: PIP setup

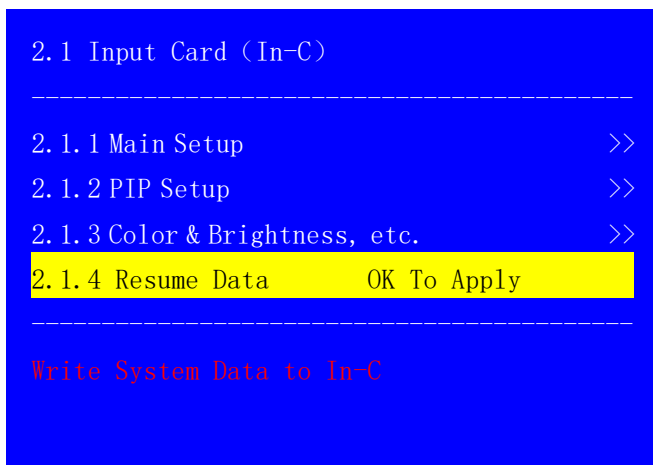
## 2. Color & Brightness, etc.

**Color & Brightness, etc.** menu is used to set the brightness, grayscale, and color parameters of the input signal. Press  button to select the item, then rotate **Knob** button to adjust current value, press **OK** button to confirm and apply.




Picture 6-2e LCD Interface: Color & Brightness, etc

## 3. Resume data setup

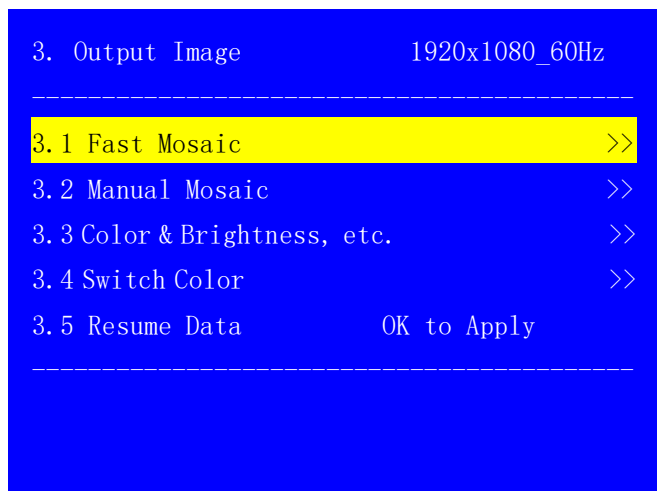


Picture 6-2f LCD interface: Input card resume data setup

**Resume Data** function is used to restore system data to the input card, it is generally used after replacing input card. Press  button to select the **Resume Data** menu, press **OK** button twice to apply **Resume Data**, thus the processor will restore data to the current input card.

## 6-3 Output image setup

After processor boot up, press **Setup** button into menu. Press **↑,↓** button to select **3. Output Image**, press **OK** button into the following menu. This menu is used to adjust output image parameters.



Picture 6-3a LCD Interface: Output image setup

## 1.Mosaic setup

3.1 Mosaic setup menu constitutes 3.1 Fast Mosaic and 3.2 Manual Mosaic . The distinctions are described as following table:

Mosaic Menu	Description
4.2 Fast Mosaic	User set total screen resolution and units screen resolution, processor automatically calculate mosaic parameter and apply
4.3 Manual Mosaic	Manually configure input and output parameters of each output port, generally used for fine-tuning after fast mosaic

3.1 Fast Mosaic		DMI/DVI1
-----		
3.1.1 LED Panel	Panel 1	
3.1.2 LED Total Width	3840	
3.1.3 LED Total Height	2160	
3.1.4 Unit Width	1920	
3.1.5 Unit Height	1080	
3.1.6 Unit H_Start	0	
3.1.7 Unit V_Start	0	
3.1.8 Auto Calculation	OK to Apply	

Picture 6-3b LCD Interface: Fast mosaic

### Fast mosaic procedures

1. Press display mode button (**M0**, **M1**, **M2**, **M+**) to select the display mode;
2. Press **DVI-Out** to select the target output port;
3. Firstly set the total width and height of the LED screen, secondly set the size and position of the unit screen driven by the corresponding output port. 3.1.4 Unit Width and 3.1.5 Unit height is screen unit physical size, 3.1.6 Unit H\_Start and 3.1.7 Unit V\_Start identify unit screen position on whole LED screen;
4. Select 3.1.8 Auto Calculation, press **OK** button to apply the configuration, A65 will automatically calculate and complete the mosaic;
5. If fast mosaic has misalignment, user can enter 3.2 Manual Mosaic to adjust the input and output parameter manually;

3.2 Manual Mosaic		DMI/DVI1
3.2.1 In Width	3840	3840
3.2.2 In H_Start	0	0
3.2.3 In Height	2160	2160
3.2.4 In V_Start	0	0
3.2.5 Out Width	1920	1920
3.2.6 Out H_Start	0	0
3.2.7 Out Height	1080	1080
3.2.8 Out V_Start	0	0

Picture 6-3c LCD Interface: Manual mosaic

3.2 Manual Mosaic menu is usually used for fine-tuning after fast mosaic.

**Setup procedure:** Select 3.2 Manual Mosaic, press the display mode button ( **DM1**, **DM2**, **DM3**, **DM+**) to select preset mode, then press **DVI-n** to select corresponding DVI output port, press **↑**, **↓** button to select the menu item, rotate **Knob** to adjust parameter value, press **OK** to save and apply.

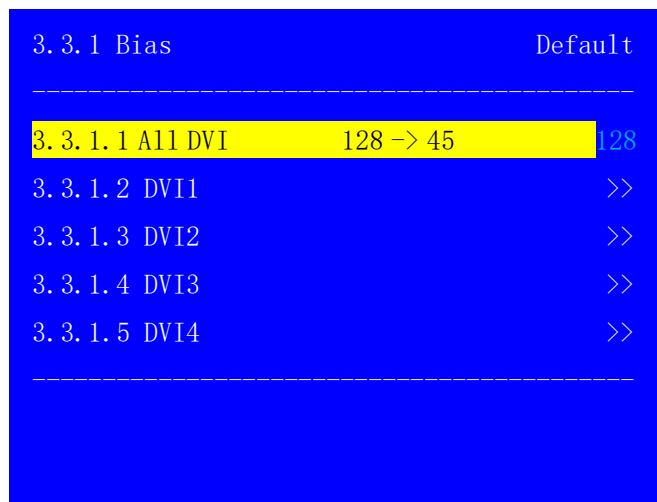
## 2. Image quality setup

Enter **3.3 Color & Brightness, etc.** menu, this menu is used to set the grayscale, brightness and color parameters of output image.

**Setup procedure:** Enter **3.3 Color & Brightness, etc.** menu, press **↑,↓** key to select the menu item, rotate **Knob** button to adjust the current parameters, press **OK** to save and apply.



Picture 6-3d LCD Interface: Image quality setting



Picture 6-3e LCD Interface: Image quality setting

3.3.2 Brightness	Default	
-----		
3.3.2.1 All DVI	128 -> 45	128
3.3.2.2 DVI1		>>
3.3.2.3 DVI2		>>
3.3.2.4 DVI3		>>
3.3.2.5 DVI4		>>
-----		

Picture 6-3f LCD Interface: Image quality setting

3.3.3 Color	Default	
-----		
3.3.3.1 All DVI	128 -> 45	128
3.3.3.2 DVI1	128	128
3.3.3.3 DVI2	128	128
3.3.3.4 DVI3	128	128
3.3.3.5 DVI4	128	128
-----		

Picture 6-3g LCD Interface: Color setting

### 3.Switch color setup

3.4 Switch Color	Default	
3.4.1 Red	0	0
3.4.2 Green	0	0
3.4.3 Blue	255	255

Picture 6-3h LCD Interface: Switch color setup

**Switch Color** menu is used to set the transition background color during signal switching, the default color is pure blue.

**Setup procedure:** press  $\uparrow, \downarrow$  key to select **3.4 Switch Color**, press **OK** to enter menu , press  $\uparrow, \downarrow$  key to select the menu item, rotate **Knob** button to adjust parameters, press **OK** to save and apply.

### 4.Resume Data

3. Output Image	1920x1080_60Hz
3.1 Fast Mosaic	>>
3.2 Manual Mosaic	>>
3.3 Color & Brightness, etc.	>>
3.4 Switching Color	>>
3.5 Resume Data	OK to apply

Write System Data to Out

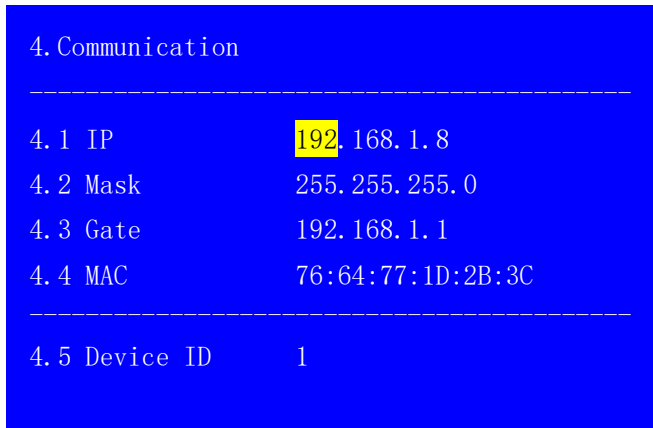
Picture 6-3i LCD interface: Output image setup

**3.6 Resume Data** menu is used to restore system data to the corresponding output, which is generally used after changing output card. Press  $\uparrow, \downarrow$  to select the **3.5 Resume Data** menu, press **OK** to select, press **OK** again to confirm and apply as prompt .



## 6-4 Communication setup



Press **Setup** to enter the setup menu, press  button to select **4. Communication**. Press **OK** button to enter the following menu.



4. Communication	
4.1 IP	192.168.1.8
4.2 Mask	255.255.255.0
4.3 Gate	192.168.1.1
4.4 MAC	76:64:77:1D:2B:3C
-----	
4.5 Device ID	1

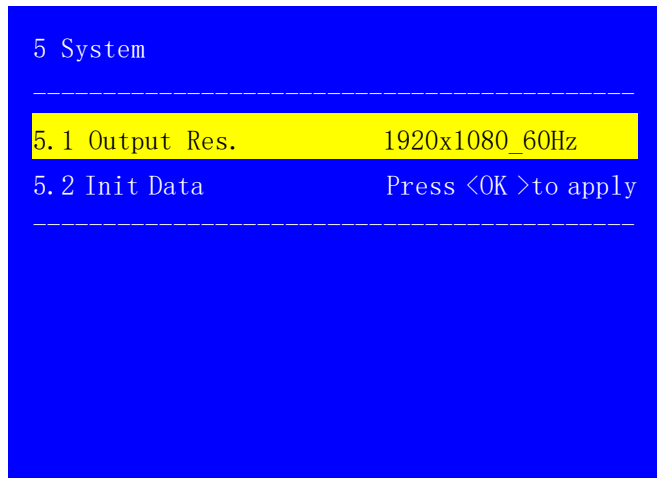
Picture 6-4a LCD Interface: Communication data setup

**4.Communication** menu is used to set the processor's network communication parameter.

Under this menu, press  button to select parameter need adjusted, rotate the **Knob** button to adjust value, press **OK** to confirm and save. Press  to exit menu. Then processor LCD screen will prompt user that network parameter changed and need reboot, follow the instruction, power off and power on to reboot device.

## 6-5 System setup

Press **Setup** button into user setup menu, press **↑,↓** to select the **5.system**, then press **OK** into menu as following picture



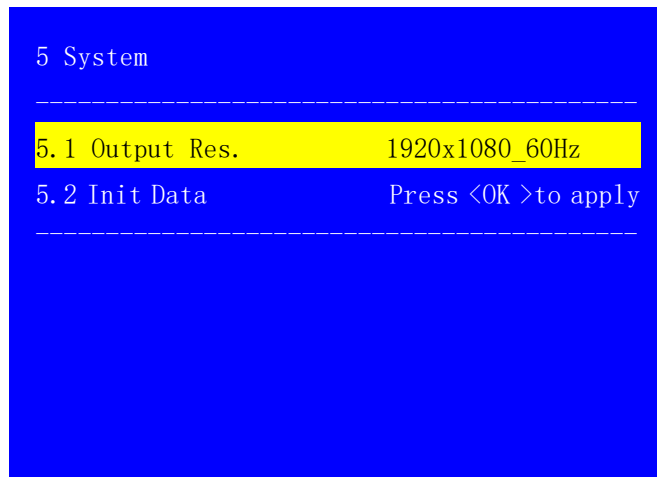
Picture 6-5a LCD interface: System Setup

With this menu, user can setup the output resolutions for output card or initialize the device.

**5.2 Init Data** is used to reset the device to factory default status.

Setup procedures: enter **5.2 Init Data**, press **OK** to confirm selection, then press **OK** again to apply.

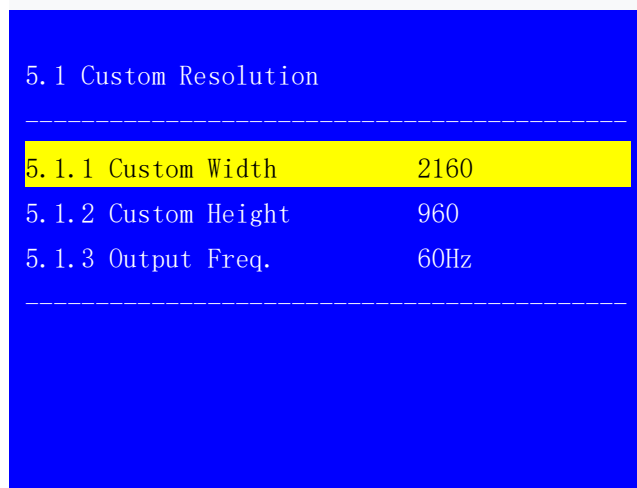
## 1. Output resolution setup



Picture 6-5b LCD Interface: System setup

The **5.1 Output Res.** menu is used to set the output resolution of the output card. Under this menu, rotate the knob to select the output resolution, press **OK** to enter the **5.1 Init Data** menu, and then press **OK** again, the new output resolution will take effect after the processor automatically restarts.

In addition to the fixed preset output resolution, A65 also allows user defined output resolution. For the **Custom Resolution**, after entrance, user need set **5.1.1 Custom Width**, **5.1.2 Custom Height** and **5.1.3 Output Freq.** Parameter. Then enter menu **5.2 Init Data**, press **OK** to apply, A65 will automatically reboot, after reboot, new output resolution will take effect.



Picture 6-5c LCD interface: Custom output resolution

## Appendix: Manual modification record

Version	Time	Description	Custom
V1.0	2020.3.20	First release	Lts
V1.1	2020.4.15	Update the front panel picture and description	Lts