LED-F706/F708/F710

All-in-one Video Controller

User Manuel V1.1

⚠ Before using this LED video processor, please read this instruction manual carefully and keep it for future reference.

MAGNIMAGE

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Revision History

NO.	Revised Content	Revise Date	Version
1	First release	2022/7/13	V1.1
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Statement

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The product specifications and information mentioned in this manual are for reference only and may be updated without prior notice. Unless there is a special agreement, this manual is only used as a guide, and all statements, information, etc. in this manual do not constitute any form of guarantee.

Introduction

Thank you for purchasing our company's LED all-in-one video controller. Hope you can enjoy the excellent performance of this product. The design of this LED all-in-one video controller complies with international and industry standards, but improper operation may still cause personal injury and property damage. In order to avoid the possible dangers caused by the equipment, and to benefit from your equipment as much as possible, please follow the relevant instructions in this manual when installing and operating the product.

Trademark Credit

- VESA is a trademark of the Video Electronics Standards Association.
- HDMI, the HDMI logo and High-Definition Multimedia Interface are trademarks or registered trademarks of HDMI Licensing LLC.字接口）都是HDMI Licensing LLC.
- Even if the company or product trademark is not specifically stated, the trademark has been fully recognized.

About the software

It is illegal to modify, decompile, disassemble, decrypt or reverse engineer to the software installed on this product.

Product Features

- Standard multiple input interfaces：HDMI2.0×1、DP1.1 ×1 or HDMI1.4 ×1（select 1 of them, support audio transmission）、DVI×2、Audio×1；
- Support HDMI loop out；
- Support image scaling freely；
- Support quick light screen, no need PC software to configure the screen；
- Support seamless switching for multi-layers；
- Support single input port 4K*2K/60Hz(HDMI2.0) resolution；
- Support window size & position adjustment and image crop；
- Support four layers display；
- Support scrolling subtitle function；
- Support cut switching between single input sources without black screen；
- Support customized output resolution；
- Support external independent audio input and output；
- Support customized input EDID；
- Single network port standard load 650,000 pixels；
- Support bandwidth expansion (when receiving card needs to support it), a single network port can carry a maximum of 1 million pixels, a single machine can carry maximum width 8192 and maximum height 3840；
- Support template save and load；
- Support connection to MIG C-Link series receiving cards；
- Support monitoring output function；
- Support free cabling function；
- Support receiving card serial number calibration, switch on the intelligent serial number to visually check the position of the box；
- Support network port communication, set up multiple control units in local area network, realize wireless screen adjustment；
- Support central control.

Port Extension

LED-F706/LED-F708/LED-F710 is basic model number, we can extend one port of 3G SDI on the basis of basic model. Extension model are as follows:

Available Expansion Modules		Product Model
Input module	Expand 1 external SDI input module	LED-F706S
	Expand 1 external SDI input module	LED-F708S
	Expand 1 external SDI input module	LED-F710S

Safety Notice

The input voltage range of the power supply of this product is 100~240V, 50/60Hz, please use the correct power supply.

When you want to connect or unplug any signal cable or control cable, please make sure that all power cables have been unplugged beforehand.

When you want to add hardware devices to this product or remove hardware devices from this product, please make sure that all signal cables and power cables have been unplugged in advance.

Before performing any hardware operations, power off the LED video processor and discharge static electricity from your body by touching a grounded surface.

Please use it in a clean, dry and ventilated environment, and do not use this product in a high temperature, humid environment.

This product is an electronic product, please keep it away from fire, water and flammable and explosive dangerous goods.

There are high-voltage components in this product, please do not open the case or repair the device by yourself.

If you find any abnormality such as smoke or odor, please turn off the power switch immediately and contact the dealer.

Features

Overview

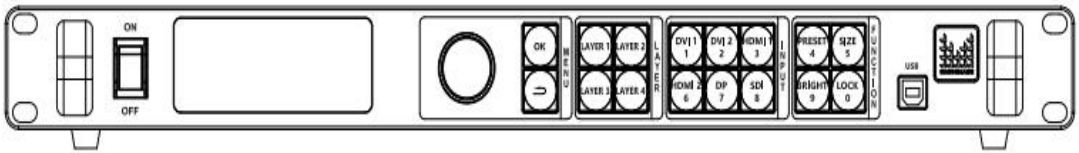
The all-in-one video controller is a video controller created by Magnimage, which integrates video processing, splicing, switching and LED screen sending card functions. This series integrates various professional input interfaces, supports up to 4K × 2K/60Hz, F706S single machine can load 390W pixels, with bandwidth expansion function single machine can load up to 600W pixels, and support 6 Gigabit Ethernet port output; LED-F708S A single machine can load 520W pixels, with bandwidth expansion enabled, a single machine can load up to 800W pixels, and support 8 Gigabit Ethernet ports for output; F710S has a single-machine load of 650W pixels, with bandwidth expansion enabled, a single machine can load up to 880W pixels, and supports 10,000 pixels. Mega network port output, can be used with the company's support to connect Magnimage C-Link series receiving cards

The load capacity of all-in-one video controller is twice of the ordinary all-in-one video controller, and supports EDID management and customize output resolution, single controller output max width can be 8192 pixel, up to 120HZ refresh rate. Greatly improved the utilization of output bandwidth. The output image can be scaled point by point according to the actual size of the

LED display.

Complete video input interface, including: DVI × 2, HDMI1.4 × 1 (support 4K × 1K/60Hz), DP1.1 × 1 (support 4K × 1K/60Hz), HDMI2.0x1 (support 4K × 2K/60Hz), One HDMI loop-out (only supports HDMI2.0D loop-out), supports AUDIO (IN and OUT), and can also extend one 3G SDI input source at the same time. And it supports network, square port USB and RS232 serial port control, which is convenient for interconnection and control with a variety of video equipment.

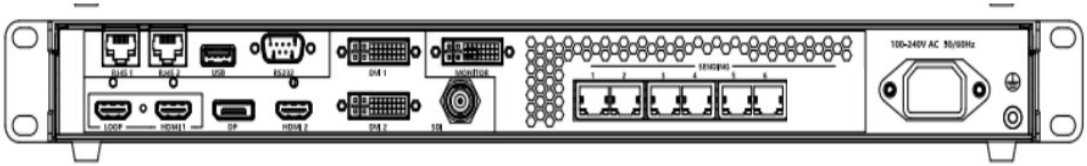
Front panel illustration



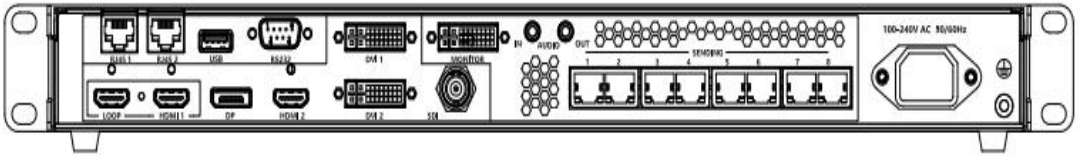
Button Description			
Rotary knob	select menu items and adjust parameters	HDMI1	HDMI input selection/template 3
OK	Call out menu and confirmation key.	HDMI2	HDMI input selection/template 6
⮌	Return key, return to the previous menu	DP	DP input selection/template7
LAYER 1	Layer 1	SDI	SDI input selection/template8
LAYER 2	Layer 2	PRESET	Quick button for load preset/template 4
LAYER 3	Layer 3	SIZE	Quick key for layer size adjust /template 5
LAYER 4	Layer 4	BRIGHT	Quick key for brightness adjust/template 9
DVI1	DVI1 input selection key/template 1	LOCK	LOCK/template 10
DVI2	DVI2 input selection /template 2		

Rear panel illustration

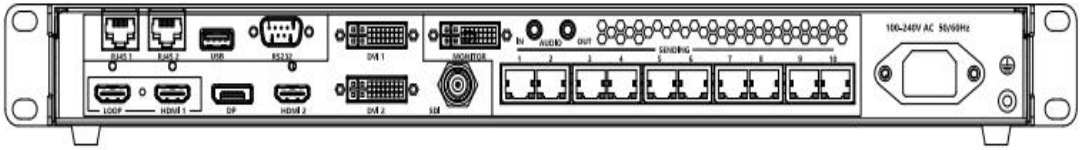
LED-706S



LED-708S



LED-710S



Video input port	
DVI1-DVI2	2 x DVI input ports
DP1.1	1 x DP input port，support 3840x1080/60Hz and customized
HDMI1.4	1 x HDMI1.4 input port，support 3840x1080/60Hz and customized
HDMI2.0	1 x HDMI2.0 input port，support 3840x2160/60Hz and customized
3GSDI(extend)	1 x SDI input port
Audio（IN）	1 Audio input port

Model number	Video output port	
F706S	Gigabit Ethernet port	6 port, single port load 0.65M pixels, whole unit load 3.9M pixels.
F708S	Gigabit Ethernet port	8 port, single port load 0.65M pixels, whole unit load 5.2M pixels.
F710S	Gigabit Ethernet port	10 port，single port load 0.65M pixels, whole unit load 6.5M pixels.
	HDMI loop out	Can loop out HDMI2.0 input source
	Audio（out）	1 port Audio output

Technical Specifications

Input information		
Port	Quantity of	Resolution specification
DVI	2 port	1024×768/60Hz,1920×1080/60Hz and resolution reach to VESA standard, and customized
HDMI1.4	1 port	HDMI-1.4, support 3840×1080/60Hz and customized
DP1.1	1 port	Display Port 1.1, 3840×1080/60Hz and customize
HDMI2.0	1 port	HDMI-2.0, 3840×2160/60Hz and customize
3GSDI(extend)	1 port	Support HD-SDI，3G-SDI（Only layer 4 supports SDI interlacing）

3.5mmAudio (IN)	1 port	Can external audio and output audio signal with multi-function card

Output information			
Model	port	quantity	Resolution specification
LED-F706S	Gigabit Ethernet port	6	single port max. load 0.65M pixels, whole unit load 3.9M pixels. Max. Width 7680 pixel, Max. height 3840.
LED-F708S	Gigabit Ethernet port	8	single port max. load 0.65M pixels, whole unit load 5.2M pixels. Max. Width 7680 pixel, Max. height 3840.
LED-F710S	Gigabit Ethernet port	10	single port max. load 0.65M pixels, whole unit load 6.5M pixels. Max. Width 7680 pixel, Max. height 3840.
	HDMI2.0	1	Loop out HDMI2.0 input source, resolution is same with HDMI2.0 input source.
3.5mm	Audio (out)	1	HDMI or DP with audio channel to output audio directly through the machine

Control port	
Ethernet communication port	Two-way RJ45 control port, used to connect to the host computer or multi-machine cascade communication
Square port USB communication port	Used to connect to the host computer
RS232 port	for central control

Machine specification	
Input voltage	100-240V AC~50/60Hz 0.6A
Operating temperature	0-45℃
Dimensions	482.6×362.3×44 mm (L × W × H)
Net weight	4.5KG
Power Consumption	55w

Menu

Using the product menu system can easily and intuitively set the machine to meet the user's use requirements

The all-in-one video controller uses a full-color LCD display to display the entire user menu. When the user does not operate or the operation times out, the default state will be displayed on the LCD screen. If you use the buttons on the front panel of the machine to set the machine, the LCD screen will display the corresponding menu according to the user's operation to prompt the user to operate better, faster and more intuitively.

The following will combine the button functions and the display of the LCD screen to introduce the menu system of the all-in-one video controller in detail.

How to use the buttons

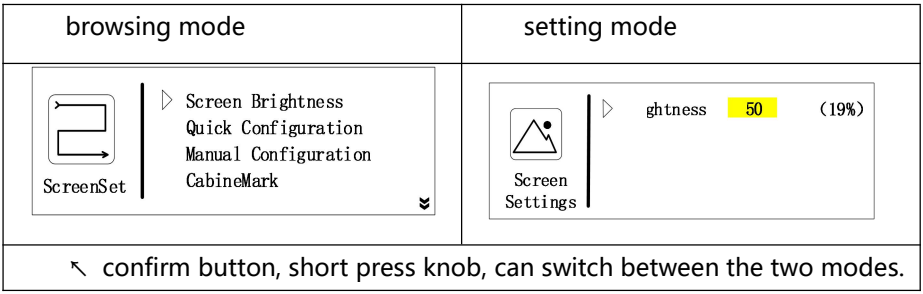
The front panel button of controller divide to 4 areas, MENU, LAYER, INPUT, FUNCTION

MENU Area:

This area contains 2 buttons and a knob that can be pressed; OK, ⮌ button and a knob.

Short press the "knob", its function is the same as the confirmation key (OK); when press the return key (⮌), the menu system will return to the previous menu in turn, until it returns to the default state.

In the main menu, the enter key can also used for switch between browsing mode and setting mode, for example:



Under browse mode, Anticlockwise rotate the "knob", the cursor moves up or left; rotate the "knob" clockwise, the cursor moves down or right. When moving the cursor to the item to be adjusted, press the "knob" or the confirm key to enter the setting mode, then turn the "knob" anticlockwise to decrease the current parameter value; turn the "knob" clockwise, Then the current parameter value can be increased. To continue setting other items on this page, please switch back to browse mode. If you want to return to the previous menu, please use the return button; if the adjustment is completed, press the return button to return to the previous menu until the default state.

LAYER Area:

This area contains 4 button; LAYER1, LAYER2, LAYER3, LAYER4 ; Corresponding to the four active screens inside the machine.

Long press the button to turn on or off the corresponding screen. The one that has been used is green, and the current selection is red.

Short press to select the layer.

INPUT Area:

This area contains 6 buttons; DVI1, DVI2, HDMI1, HDMI2, DP, SDI. SDI corresponds to one extended input of the processor.

The way of selecting a signal is to first select the LAYER in LAYER area, then select the corresponding signal.

When there is a signal in the input, the button light is green; the currently selected one is red.

FUNCTION Area:

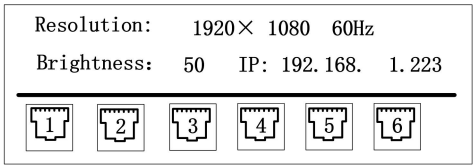
This area contains 4 buttons: PRESET, SIZE, BRIGHT, LOCK.

BUTTON	Button system default operation
PREST	Quick call out menu of load PRESET/TEMPLATE
SIZE	Call out menu for layer size adjustment
BRIGHT	Quick button to adjust screen brightness
LOCK	LOCK

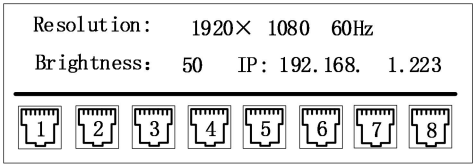
Introduction to Default State

After turning on the power of the all-in-one video controller, during the system boot process, the boot interface will be displayed on the LCD screen of the front panel. After the startup is completed, the default state of the current machine will be displayed on the screen, as shown in the figure below.:

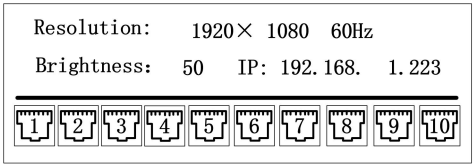
LED-F706S:



LED-F708S:



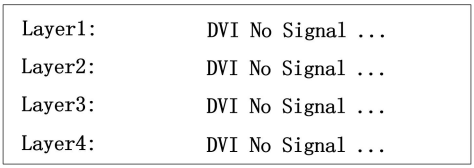
LED-F710S:



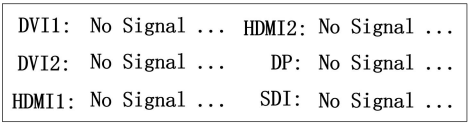
The information in the above figure is explained as follows;

	Direction
Resolution	Current output resolution
Brightness	Current screen brightness
IP	Machine IP address
	The serial number of the network port. If the current network port is connected to the network cable, the network port will become highlighted.

Rotate the button in the default state, you can see the following picture



You can clearly see the selected signal source and resolution of the layer
Continue to rotate the knob, you can see the following picture



You can clearly see the input resolution

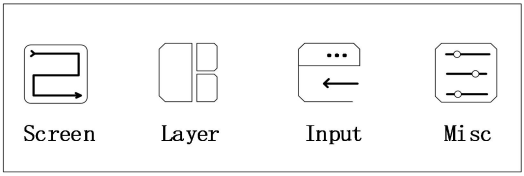
Main Menu Introduction

In the main menu, the user uses the "OK", "⮌" keys and the knob to select and adjust each item. The operation mode is as follows:

mark	introduction
Open main menu	In the default state, press the "OK" key or press the rotary knob
Select each item	Rotate the knob to select each item
Adjust parameter	When the right item is a number or option parameter, rotate the knob
Enter next level menu	When the right item is "▸", press "OK" button
Operate function	Use knob to select the item to be operated, and press the "OK" button
Return to previous menu	Press "⮌" button
Confirm operation	When resetting and other operations, in order to avoid wrong operation, you need to confirm the operation with the "OK" button.

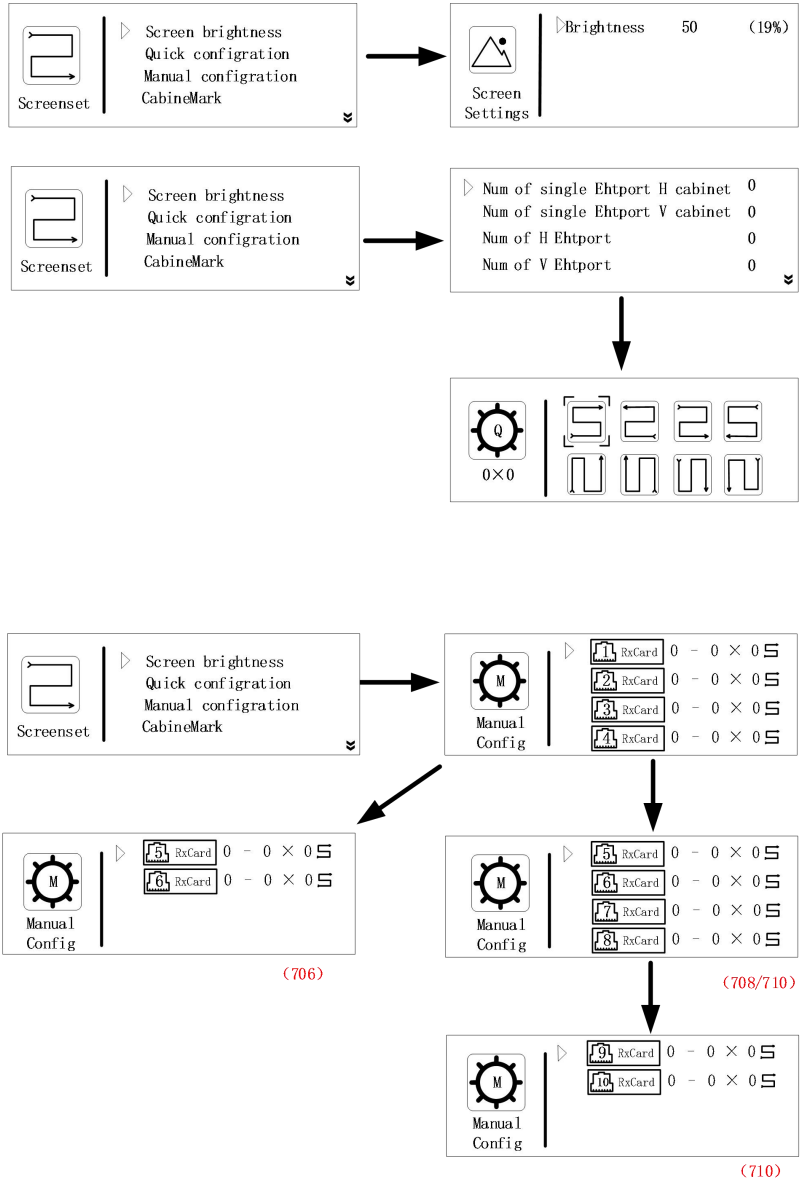
Main Menu

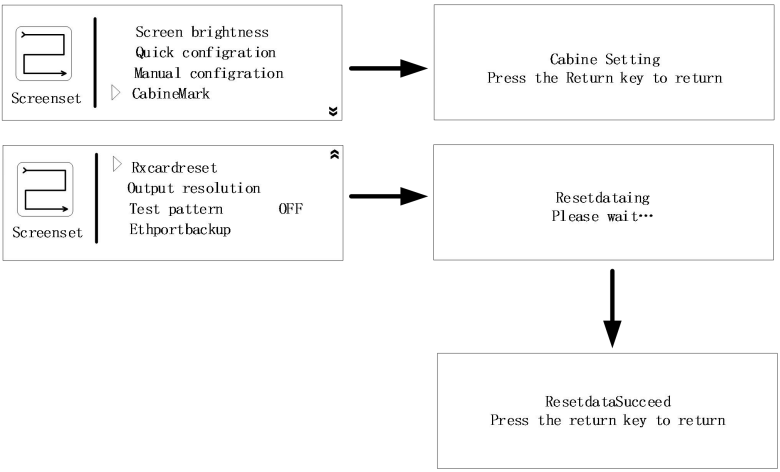
In the default state, press "OK" button or press the knob, the menu system will enter the main menu state, and the LCD screen will display as shown in the figure below

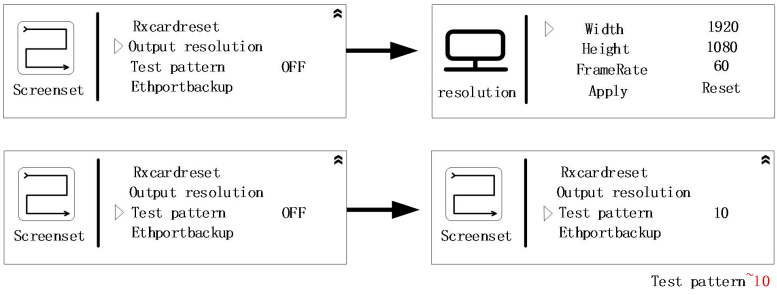


There are 4 menu items in the main menu. Use the knob to select the 4 menu titles listed above. After selecting, press the "OK" button to enter the selected item, and press the "⮌" key to return to the previous menu.。

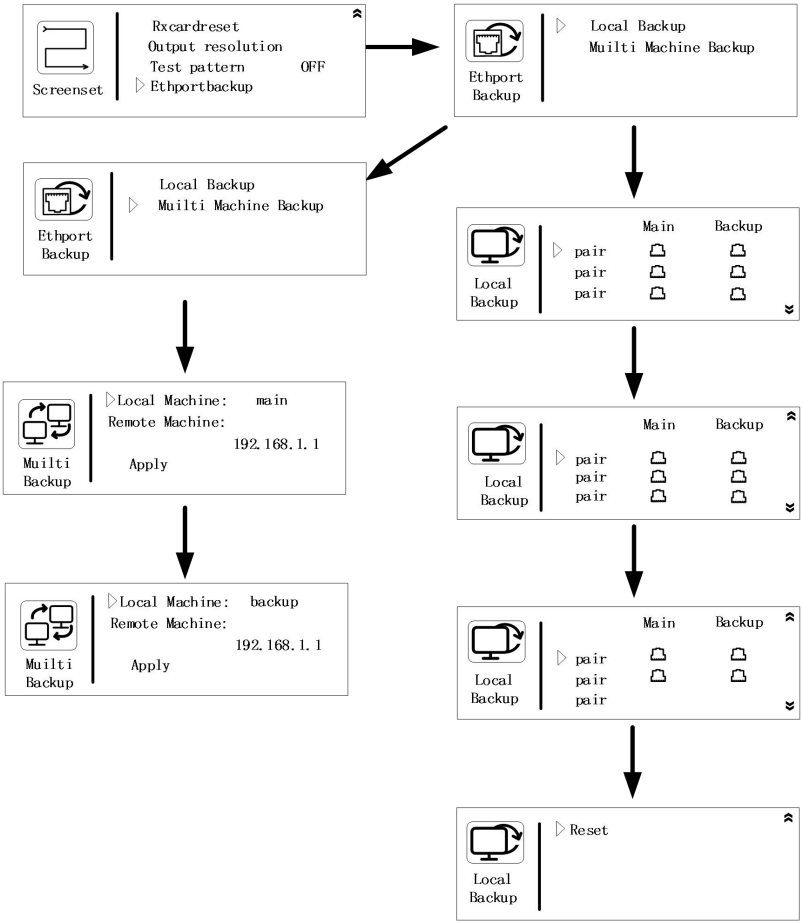
Screen configuration submenu







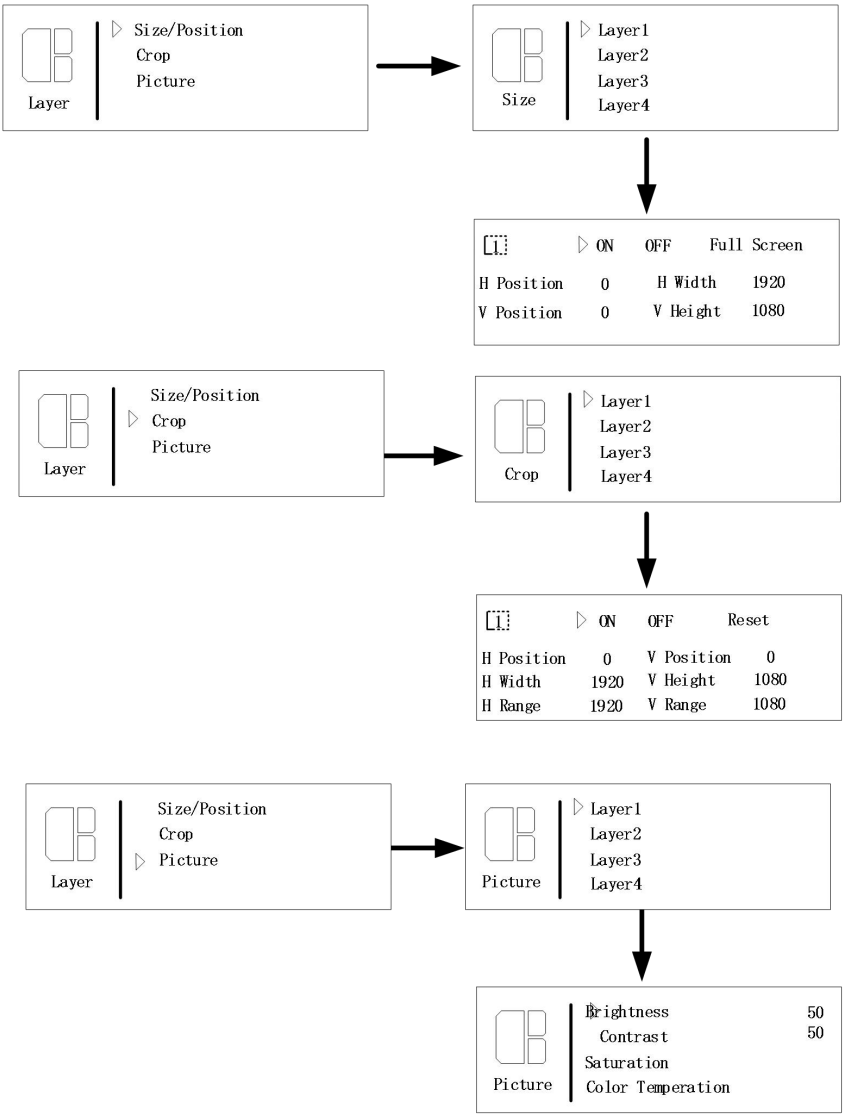
Test pattern~10



Screen Brightness	Can adjust LED screen brightness（Default level 50）
Quick configuration	When all the network ports are routed in the same way, light the screen quickly according to the number of cabinets, the connection of the network cable, the arrangement and other information. Through the built-in quick splicing function of the machine, copy and light up multiple sending card screens

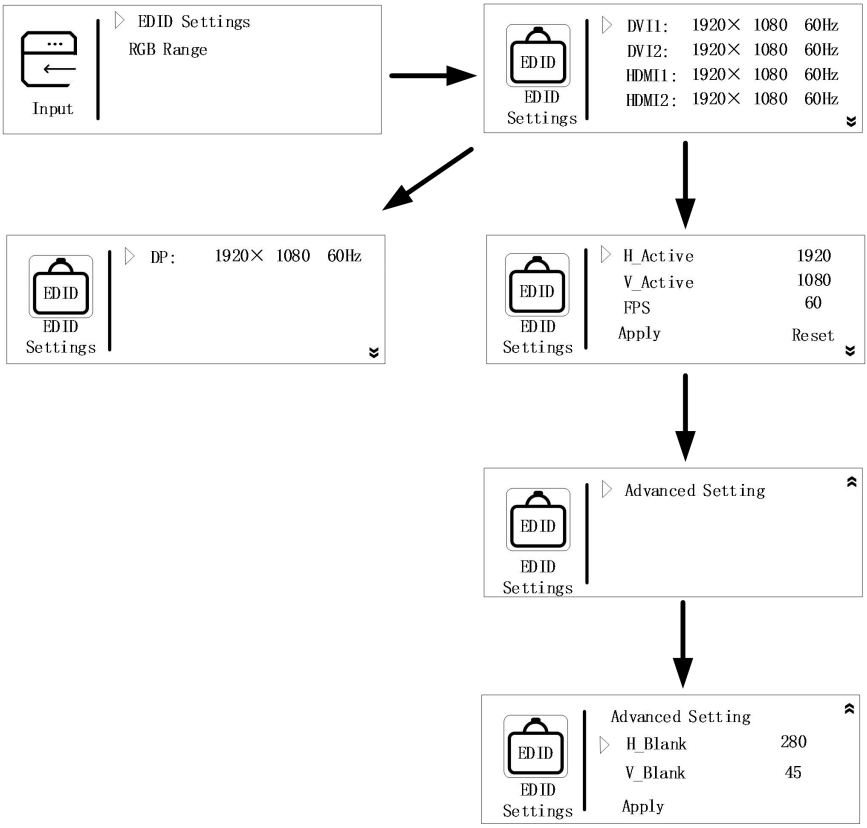
Manual configuration	When the cable connection way of each network port is different, you need to enter each network port to set the corresponding cable connection way.	
Cabinet label	When the cabinet label function is on, the led screen will display the serial number of the network port and the serial number of the receiving card of each cabinet, so that the connection diagram can be made intuitively.	
Save to hardware	When the quick configuration or manual configuration is done, the configuration is saved to the hardware, so that the screen will not be mess when switch on /off the machine.	
Output resolution	Can customize output resolution	
Test pattern	Range 1-10	
Network port backup	Single machine backup	Single machine can specify any network port for backup.
	Multi-machine backup	When multiple machines are in the same LAN, you can choose another device as backup or master, and set the IP address of another device to achieve fast backup.

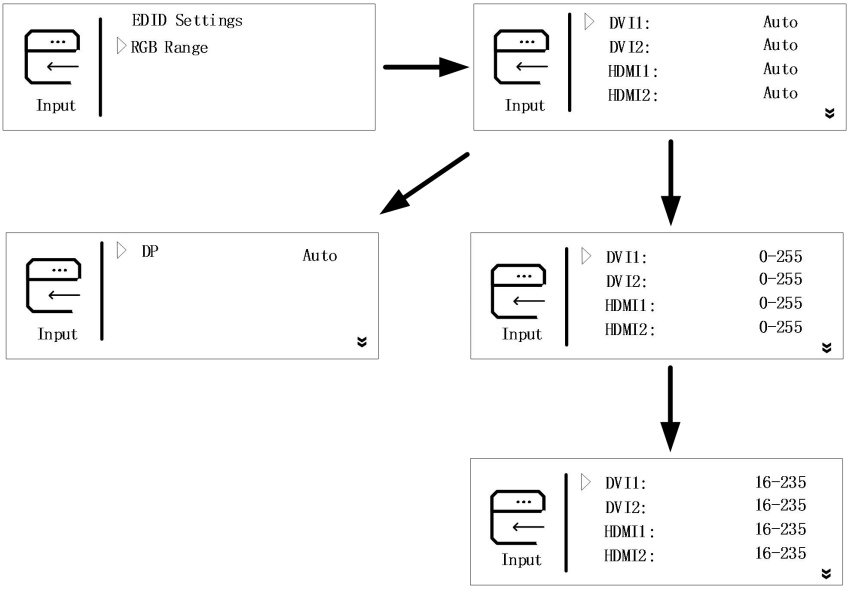
Layer Setting Submenu



Size/Position	Can change the horizontal position, vertical position, horizontal width, vertical position of each layer	
Crop	Each layer can be cropped independently, this crop is for input signal of layer.	
	H position	The maximum value is the difference between the width of the horizontal base and the width of the horizontal
	V position	The minimum value is 0, and the maximum value is the difference between "Vertical Base Height" minus "Vertical Width".
	H width	The maximum value is the width of the "horizontal base"
	V width	The maximum value is "the height of the vertical base"
	H base	Configure the width of the input resolution
	V base	Configure the height of the input resolution
Image	brightness	Range 0-100, default number is 50
	Contrast	Range 0-100, default number is 50
	Color temperature	6500K/7500K/8200K/9300K/10000K/11500K/user 7 modes
	Reset	Reset to factory defaults

Input Setting Submenu

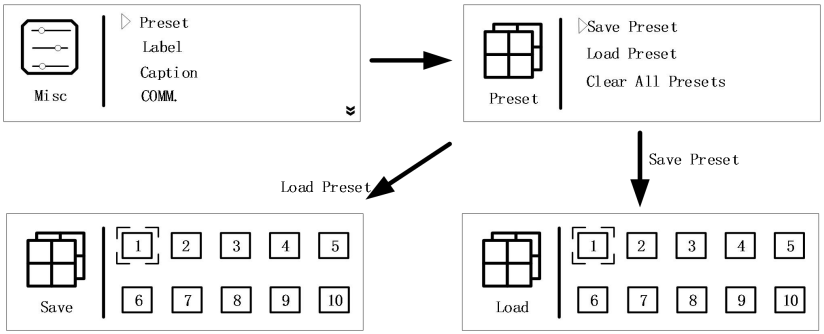




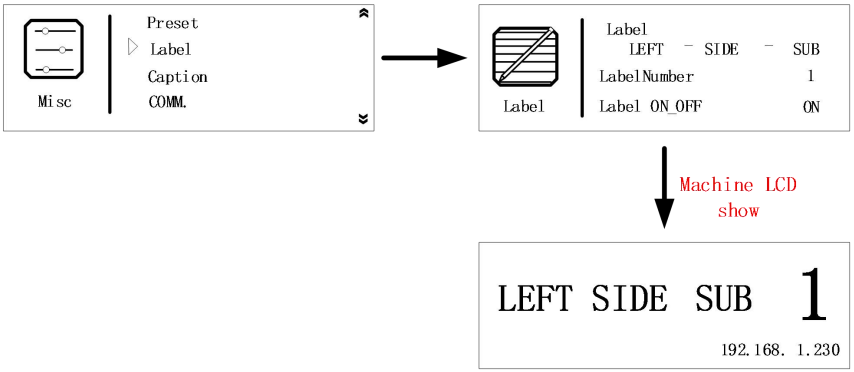
EDID setting	Select one input to set EDID.
H Active	horizontal width
V Active	Vertical height
FPS	refreshment
advanced setting	Adjust bandwidth
RGB range	Adjust RGB range for any input, set AUTO/ “0-255” / “16-235”

After setting the EDID, for different computers and different graphics cards output, you may need to restart the computer or unplug the signal cable. In the output resolution of the computer, select the corresponding resolution.

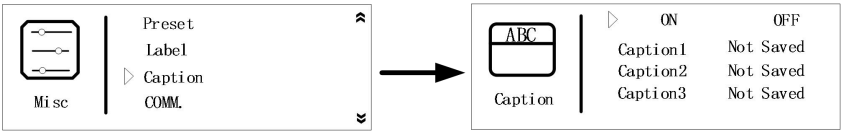
Function Settings Submenu



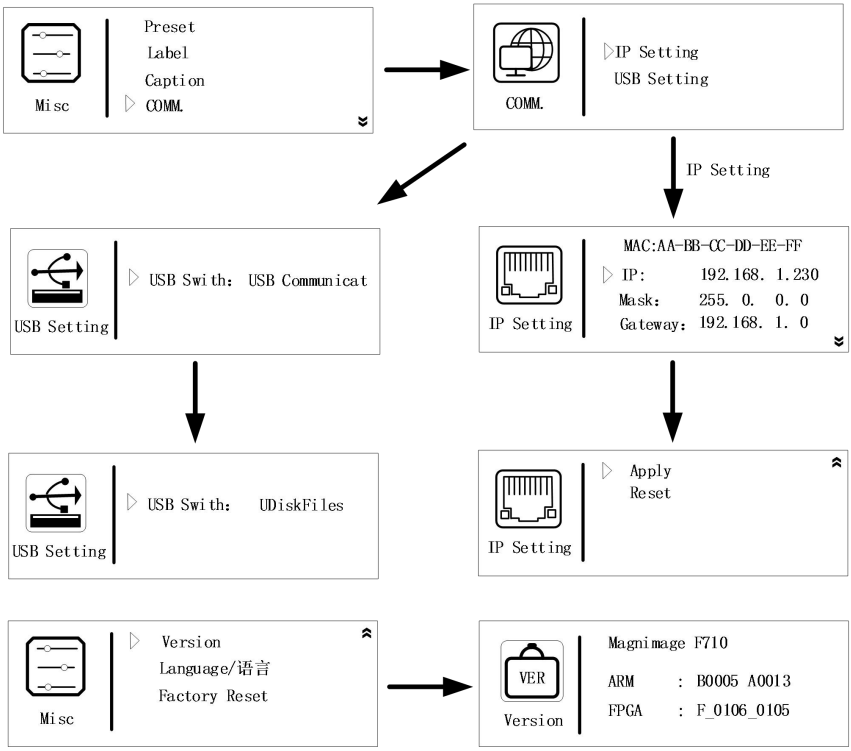
Save preset	Enter the save interface, press the number button or rotate the knob to save the preset
Load preset	Enter the loading interface, press the number button or press the rotary knob to load the preset; use the PRESET button on the front panel to enter the loading interface.
Delete all preset	Delete all saved presets

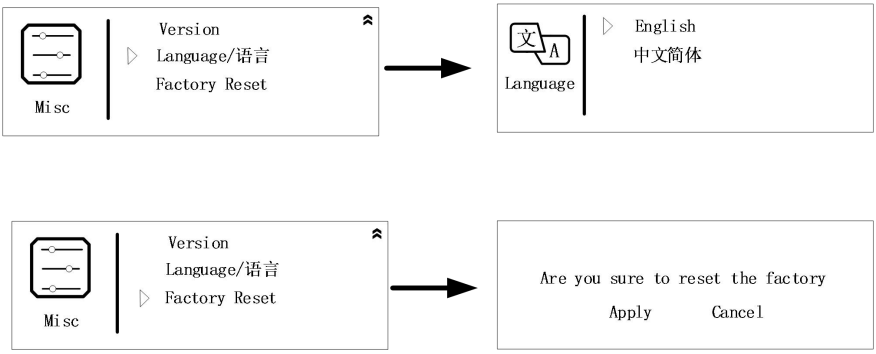


Label	It is convenient to label the areas that the machine is loaded with. You can define a serial number for the machine. When this function is turned on, it can be displayed on the LCD screen of the machine. The default interface becomes this label, as shown in the figure above.



Subtitle function	Can save 3 subtitles





Communication settings	IP address	Can change machine IP address	
	USB setting	USB communication	Switch this mode, you can use the square port USB communication
		USB disk file	Switch this mode, you can use the flat port USB to upgrade the machine
Version Information	You can view the version of the machine's ARM and FPGA programs		
Language	Can switch between English or Simplified Chinese		
Factory reset	Factory reset		

Warranty

Machine Warranty Period

- 24 months from the date of the user's purchase invoice;
- If the user's purchase invoice is lost, the 60th day after the production date of this product is the start date of the warranty for this product.