LED-FW16-B

Video Control Server

User Manual V1.0

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

MAGNIMAGE

Document Version：V1.0　Document Release Date：2023/10/20

Statement

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Revision History

Version	Revise Date	Revised Content
V1.0	2023-10-20	First release

Directory

Statement 1

Introduction 2

Trademark Credit 2

About the software 2

Product Features 3

Port Extension 4

Safety Notice 5

Features 6

Overview 6

Technical Specifications 10

Use Menu 12

How to use the buttons 12

MENU Area: 12

LAYER Area: 13

INPUT Area: 14

FUNCTION Area: 14

Introduction to Default State 15

Main Menu Introduction 16

Main Menu 17

LED SCREEN CFG 17

INPUT 21

LAYERS 25

PICTURE 27

BACKUP 28

PRESETS 31

MISC 33

LANGUAGE/语言 38

Warranty 39

Machine Warranty Period 39

Non Warranty 39

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.
- 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、DP1.2×1 、DVI×2、12G SDI×1；Support for expansion：DVI×2 or HDMI2.0+DP1.2
- Support HDMI loop
- Support for zoom and image capture functions
- Support quick light-up screen, no need computer software connection
- Support single input port 4K×2K/60Hz(HDMI2.0) or 8K×1K/60Hz(DP1.2) resolution
- Support window size & position adjustment and image crop
- Support four-layer full screen
- Support seamless switching between input signals and presets
- Support for input/output resolution
- Single network port standard load 0.98 million pixels，a single machine can carry maximum width 16380 pixels and maximum height 7680 pixels
- Support template save and load
- Support connection to MAGNIMAGE C-Link series receiver cards
- Support quick layer layout templet
- Support local USB flash drive for reading and loading configuration files
- Support monitor output
- Support free cable connecting
- Support multi-machine grouping backup, enabling the entire main system to synchronously switch to the backup system
- Support single machine network port backup and multi-machine network port backup
- Support receiving card serial number calibration, switch on the intelligent serial number to visually check the position of the box
- Support the debug network port comes with its own ring out, which eliminates the need for routers to form a local area network, make it convenient for multi machine cascading debug
- Support single machine multi input splicing and multi machine splicing

- Support RS232 central control
- Support fiber input and fiber backup
- Support scrolling subtitle function
- Support time task function
- Support for output freezing
- Support button lock

Port Extension

LED-FW16-Bis basic model number，we can extend Input Source on the basis of basic model. Extension model are as follows:

Available Expansion Modules		Product Model
Input module	Expand 2 external DVI input module	LED-FW16-BD
	Expand 1 external HDMI2.0 and 1 external DP1.2 input module	LED-FW16-BH

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 Function off the power switch immediately and contact the dealer.

Features

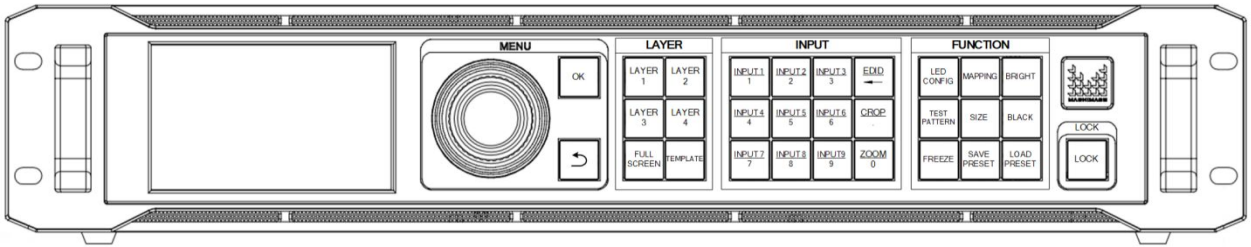
Overview

The video control server 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 or 8K×1K/60Hz, LED-FW16-B single machine can load 10.40 million pixels, with bandwidth expansion enabled, a single machine can load up to 15.68 million pixels, and support 16 Gigabit Ethernet ports for 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 16380 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、DP1.2×1、HDMI2.0×1、12G SDI×1、HDMI loop-out×1，and can also extend DVI×2 or HDMI2.0+DP1.2. 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

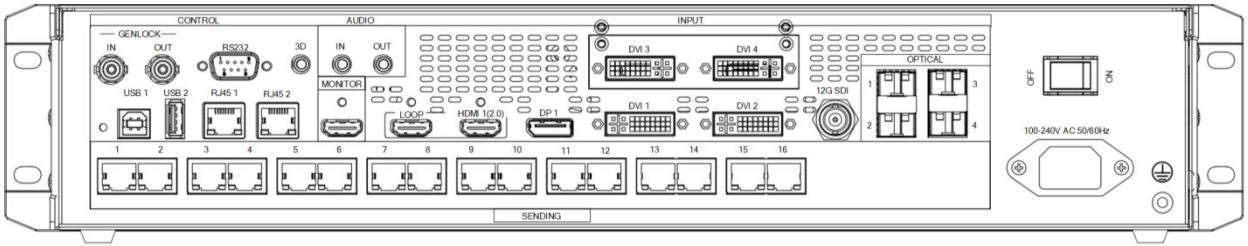


Button Description			
Rotary knob	select menu items and adjust parameters	INPUT 1/1	DVI1/Number button 1
OK	In the default state, the menu is called out, and the menu status is the confirm button	INPUT 2/2	DVI2/Number button 2
⮌	Return button, return to the previous menu	INPUT 3/3	DVI3/Number button 3
LAYER 1	Layer1	INPUT 4/4	DVI4/Number button 4
LAYER 2	Layer2	INPUT 5/5	HDMI1/Number button 5
LAYER 3	Layer3	INPUT 6/6	DP1/Number button 6
LAYER 4	Layer4	INPUT 7/7	SDI-12G/Number button 7
FULL SCREEN	One click full screen button	INPUT 8/8	OPTICAL/Number button 8
TEMPLATE	Quickly call up the template button	INPUT 9/9	View input signal source/number button 9

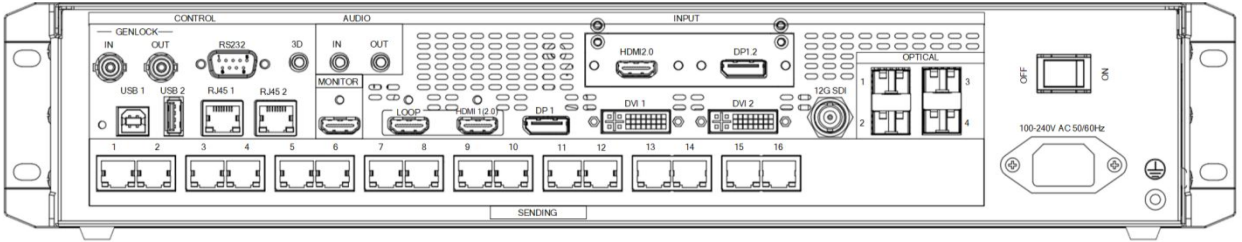
ZOOM/0	Layer zoom button/number button 0	BRIGHT	Brightness adjust button
EDID	EDID edit button	BLACK	One click black screen button
CROP	Signal crop button	LOAD PRESET	Preset load button
LED CONFIG	LED screen configuration button	LOCK	buttonboard lock button
TEST PATERN	Test chart card button		
FREEZE	Freeze button		
MAPPING	Smart sequence button		
SIZE	Layer size button		
SAVE PRESET	Save preset shortcut button		

Back Panel

LED-FW16-BD



LED-FW16-BH



Video Input Port	
DVI1-DVI2	2 x DVI input ports
DP1.2	1 x DP input ports
HDMI2.0	1 x HDMI2.0 input ports
12G SDI	1 x 12G SDI input ports
OPT3~OPT4	1 x 10G fiber optic inputs

Model	Video Output Port	
LED-FW16-B	Gigabit Ethernet Port	16 port , single port load 0.98 million pixels, whole unit load 15.68 million pixels
	HDMI Loop Out	Can loop out HDMI2.0 input source
	HDMI Monitor	Output monitoring
	OPT1~OPT2	10G fiber backup signal or replication signal

Technical Specifications

Input Information		
Port	Quantity Of	Resolution Specification
DVI	2	3840×1080/60Hz and customized
DP1.2	1	7680×1080/60Hz、3840×2160/60Hz and customized
HDMI2.0	1	3840×2160/60Hz and customized
12G SDI	1	12-SDI backward compatible with 3G -SDI、HD-SDI
OPT3~OPT4	2	10G fiber input

Output Information		
Port	Quantity Of	Resolution Specification
Gigabit Ethernet Port	16	16 port，single port load 0.98 million pixels, whole unit load 15.68 million pixels,a single machine can carry maximum width 16380 pixels and maximum height 7680 pixels
HDMI2.0 LOOP	1	Can loop out HDMI2.0 input source
HDMI Monitor	1	Output monitoring，1920x1080/60Hz
OPT1~OPT2	2	10G fiber optic interface, supporting replication or hot backup mode

Control Port	
Ethernet Communication Port	Two-way RJ45 control port, used to connect to the host computer or multi-machine cascade communication
Square USB 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	0-45℃
Dimensions	482.6×421.3×88 mm (L × W × H)
Net Weight	7.6KG
Power	80W

Use 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

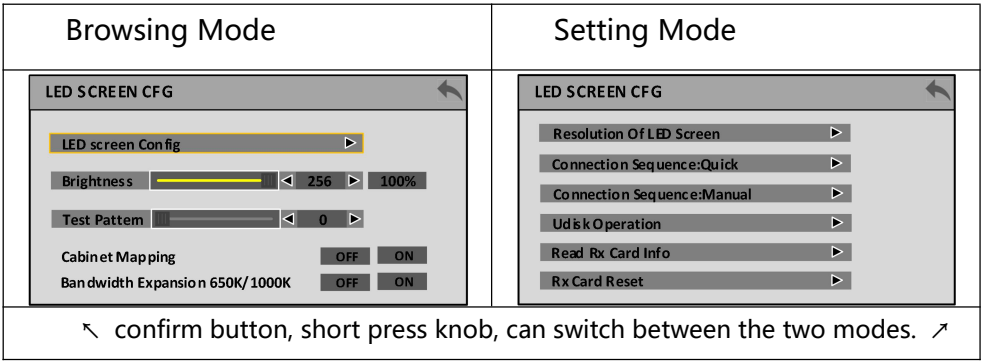
The front panel button of controller divide to 4 areas, MENU、LAYER、INPUT、FUNCTION

MENU Area:

This area contains 1 buttons and a knob that can be pressed; OK, ⮌ button and knob.

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

In the main menu, the enter button 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 button 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 four buttons: LAYER1, LAYER2, LAYER3, LAYER4, FULL SCREEN, TEMPLATE; Corresponding to the four active screens, one click full screen button, and layer template button inside the machine.

Long press the button to turn the corresponding screen on or off. The one that has been used is white, and the one currently selected is red.

Short press to select the screen.

Selecting a layer and pressing the FULL SCREEN button can quickly achieve full screen display.

Short press TEMPLATE to quickly access the layer template

INPUT Area:

This area contains 12 buttons: Input1-8 button, EDID button, CROP button, Zoom button, INFO button

The method of selecting signals is to first select the screen in the LAYER area, and then select the corresponding signal.

The input has a signal, and the button light is white; The current selection is red.

FUNCTION Area:

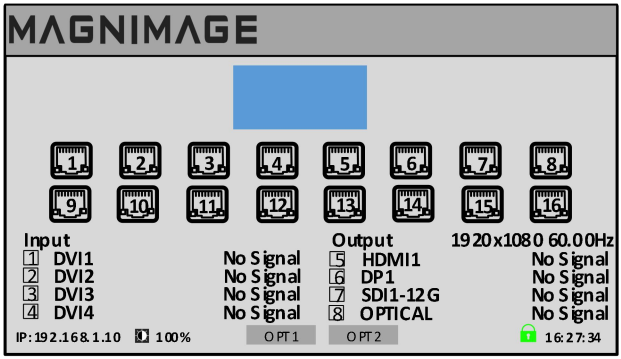
This area contains 8 buttons: LED CONFIG、TEST PATTERN、FREEZE、MAPPING、SIZE、SAVE PRESET、BRIGHT、BLACK、LOAD PRESET、LOCK。

Button	Default operation of button system
LED CONFIG	LED screen configuration button
TEST PATTERN	Test chart card button
FREEZE	Freeze button
MAPPING	Smart sequence button
SIZE	Call out the adjust layer size menu interface
SAVE PRESET	Quickly call up the preset template save interface
BRIGHT	Shortcut button for adjusting the brightness of the large screen
BLACK	One click black screen button
LOAD PRESET	Quickly call up the preset template calling interface
LOCK	Button 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-FW16-B:



The information in the above figure is explained as follows:

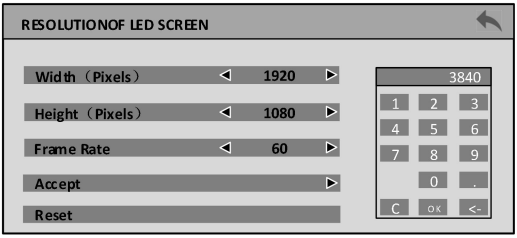
Symbol	Description
Resolution	Current output resolution
	Current screen brightness
IP	Machine IP address
	The serial number of the network port. If the current network port is connected to the network cable, the network port will become highlighted.
OPT1~OPT2	10g optical port, if connected with optical fiber cable, it is highlighted here
Input	All input signal sources and input resolution can be clearly seen
	button lock status
16:27:34	Machine current time

Main Menu Introduction

In the main menu, users use the "OK", "⮌" buttons, and knobs to select and adjust each item. The operating modes are shown in the table below:

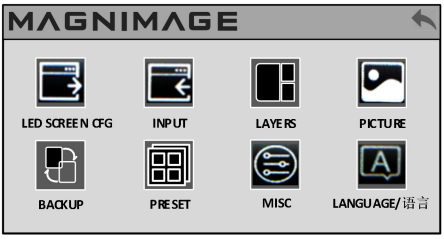
Operate	Introduction
Open Main Menu	In the default state, press the rotary knob or slide the "magnimage" in the upper left corner
Select each Item	Rotate the knob to select each item
Adjust Parameter	parameter When the right item is a number or option parameter, rotate the knob
Enter Next Level Menu	When the project has a highlighted box, press the knob or click on the screen
Operate Function	Use knob to select the item to be operated,and press the knob or click on the screen
Return To Previous Menu	press "⮌" button
Confirm Operation	When resetting and other operations, in order to avoid wrong operation,You need to press the knob or click on the screen to confirm the operation

Description of the numeric button pad: For any parameter that needs to be modified, in addition to pressing the knob and rotating it, and touching the left and right direction buttons, you can also touch and click the corresponding parameter to pop up the numeric button pad on the screen for operation. Where 0 to 9 represent numbers . Represents a decimal point, C represents exiting the numeric button pad mode, OK represents confirming the parameter modification, and <- represents backspacing to delete the entered number. The numeric button pad is shown in the following figure.



Main Menu

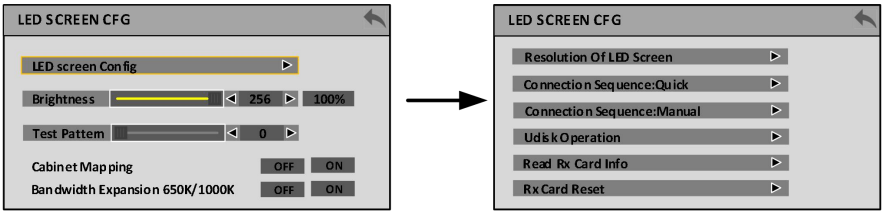
In the default state, press the "OK" button or swipe the "magic" button in the upper left corner to enter the main menu state.and the LCD screen will display as shown in the figure below:



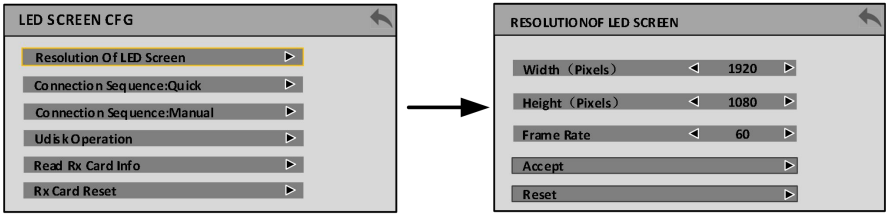
There are 8 menu items in the main menu. Use the knob to select the 8 menu titles listed above. After selecting, press the knob to enter the selected item, and press the "⮌" button to return to the previous menu

LED SCREEN CFG

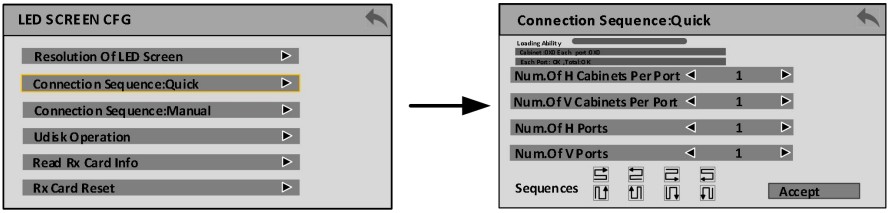
LED SCREEN CFG:



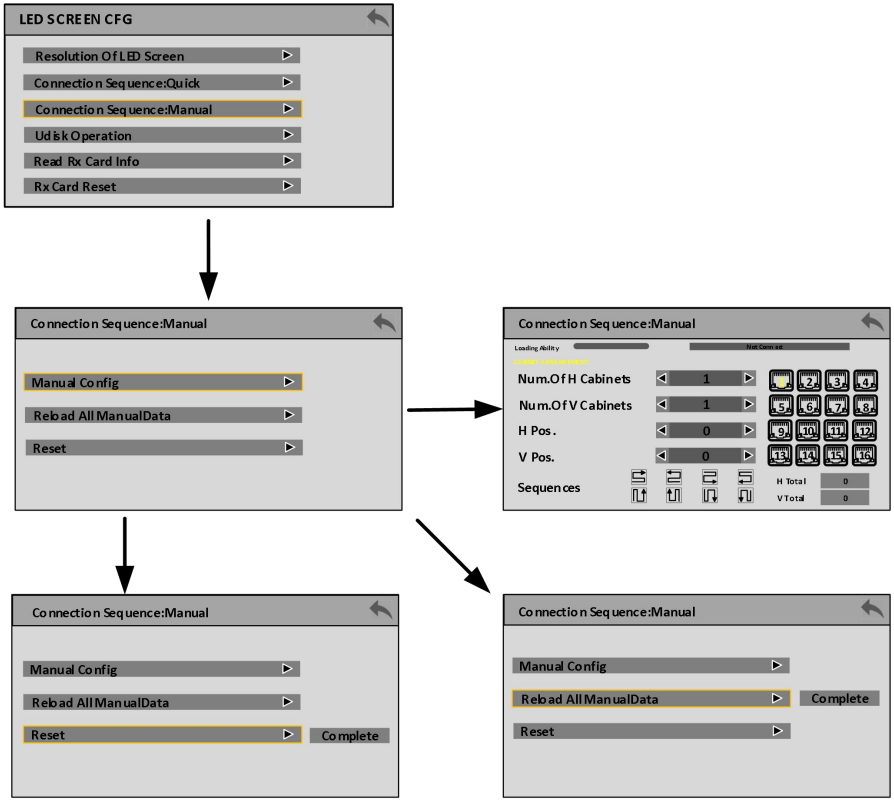
Resolution Of LED Screen:



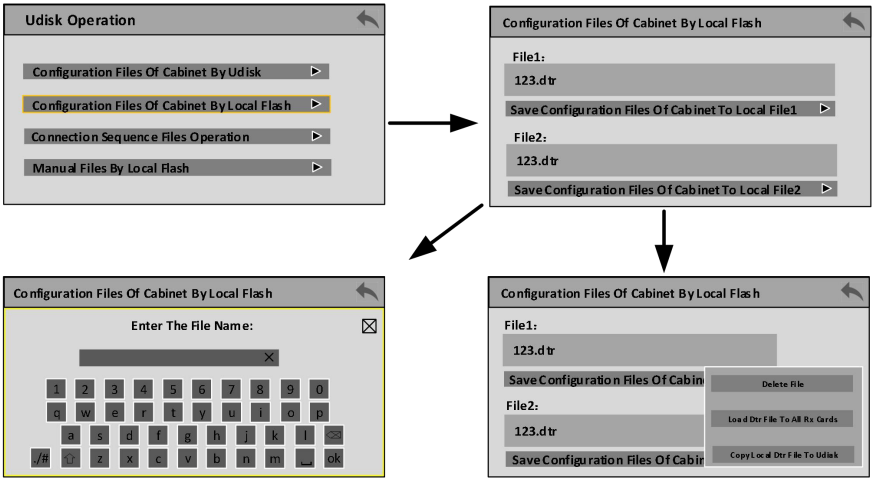
Connection Sequence:Quick



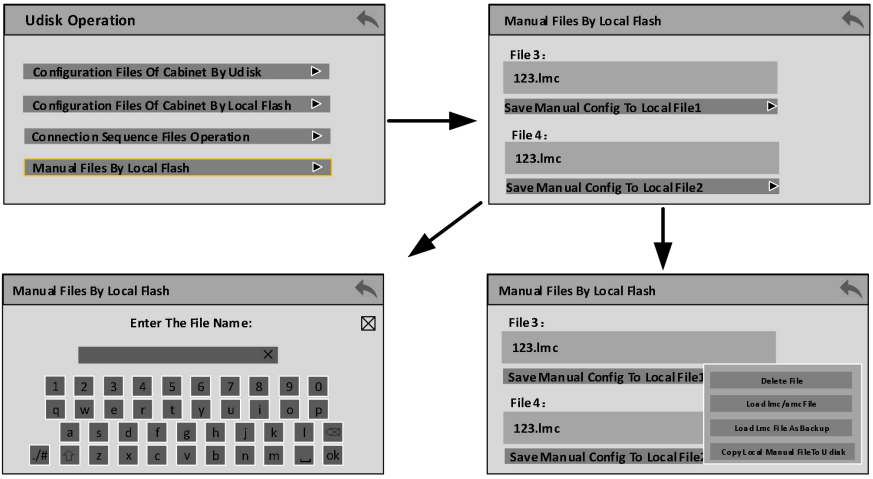
Connection Sequence:Manual



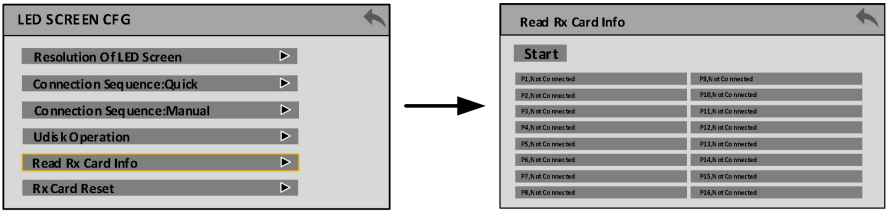
Udisk Operation:



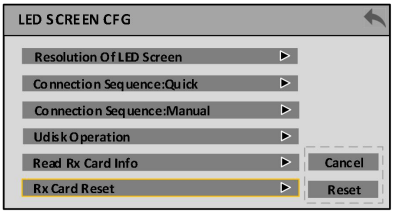
Manual Files By Local Flash:



Read Rx Card Info:



Rx Card Reset:



LED SCREEN CFG	Resolution Of LED Screen	supports EDID management and customize output resolution, single controller output max width can be 16380 pixel，output max height can be 7680 pixel
	Connection Sequence:Quick	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
	Connection Sequence:Manual	When the wiring method of each network port is inconsistent with the width and height quantity of a single network loaded box, it is necessary to set the corresponding wiring method, box width and height quantity, and network line offset value for each network port
	UDisk Operation	can import the screen configuration parameters and screen files into the machine through a USB flash drive, or save the configuration parameters and screen files from the machine to a USB flash drive
	Read Rx Card Info	Can read back the receiving card box information in the machine
	Rx Card Reset	Reset parameters such as brightness and color

	temperature of the receiving card
Screen Brightness	Large screen brightness (default value is 256) 100%
Test Patten	Range 1-10
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
Bandwidth Expansion Of 0.65/1.0 Million Pixels	Collaborate with a receiving card that can enable bandwidth expansion to increase network port load

INPUT

INPUT PORTS LIST ：

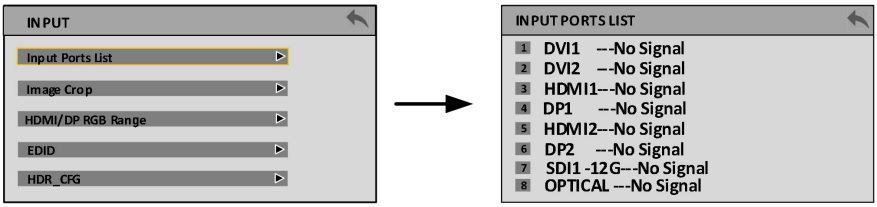
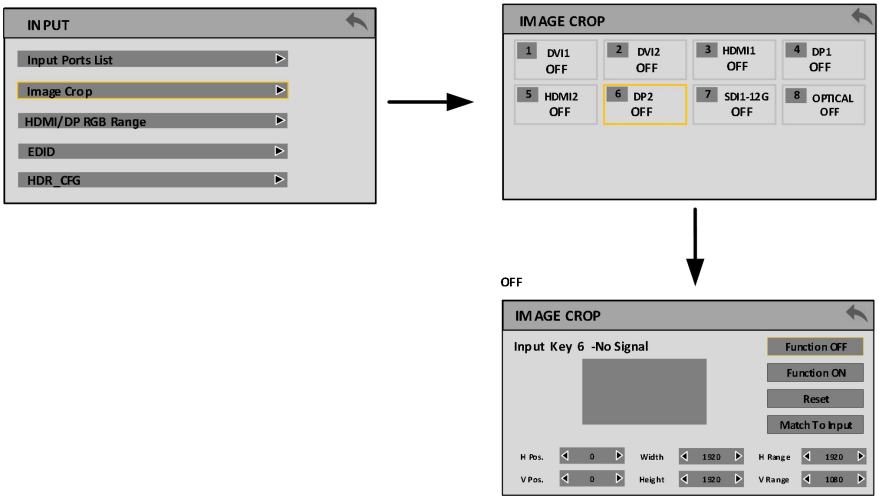
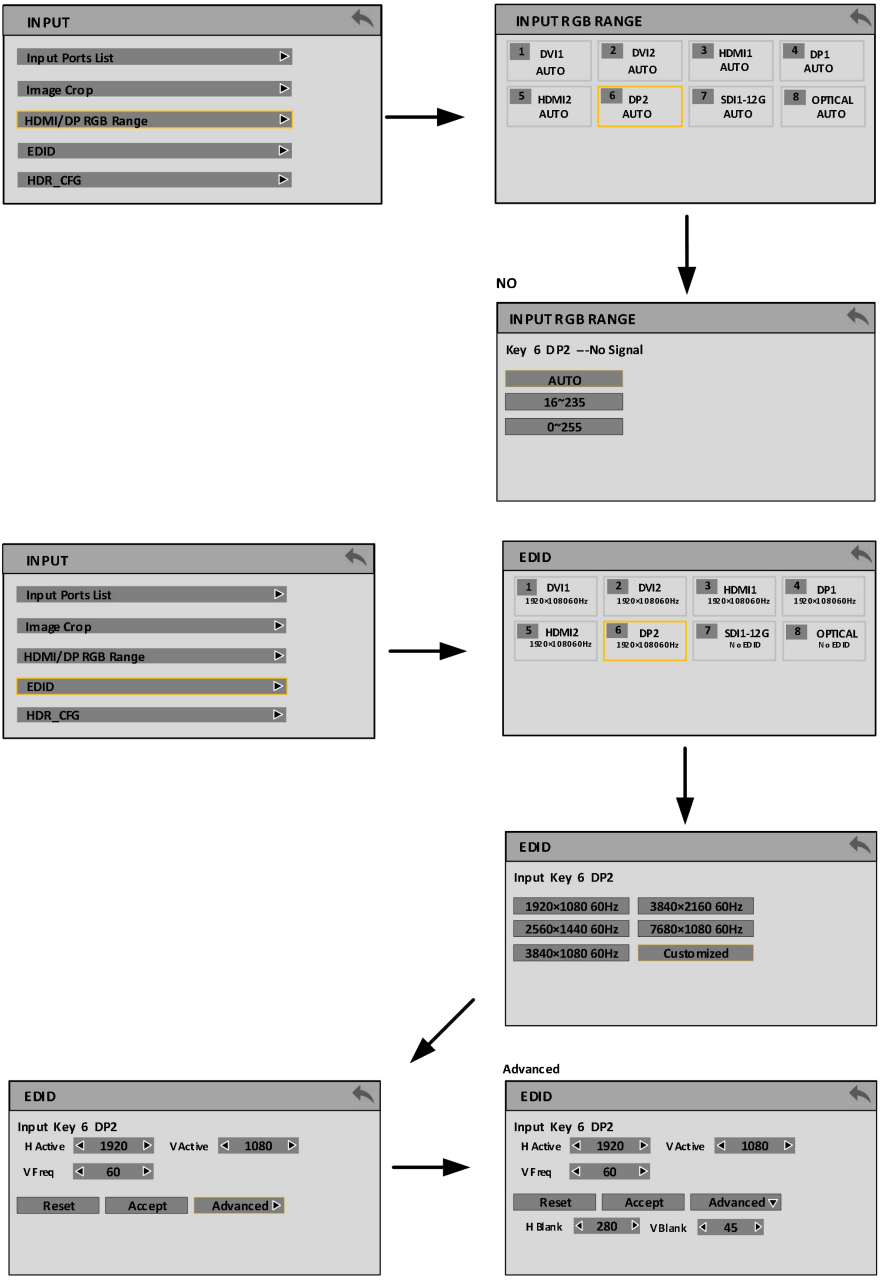


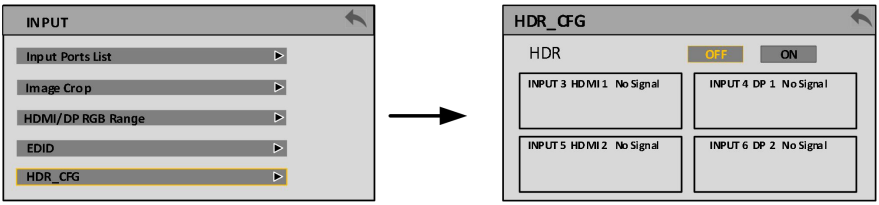
IMAGE CROP：



HDMI/DP RGB Range:



HDR_CFG:



Input Ports List	Display the input information of all input ports on this device, with the displayed content being input resolution or no signal		
Image Crop	All input signals from input 1 to input 7 can be intercepted at will. By selecting the input number and input signal that need to be intercepted through the knob or touch, you can enter the detailed operation menu for image capture.		
	DVI	Indicates the input signal currently be intercept	
	Function Off	Function off Image crop	
	Function On	Function on Image crop	
	Reset	Reset Image crop	
	Matching Input Signal	Match the image capture parameters below with the image parameters of the input signal	
	Image Crop Setting	Horizontal Position	Modify the horizontal position of image crop
		Horizontal width	Modify the horizontal width of image crop
		Horizontal Base	Modify the horizontal base of image crop
		Vertical Position	Modify the vertical position of image crop
		Vertical Height	Modify the vertical height of image crop
		Vertical Base	Modify the vertical base of image crop
RGB Range	Adjust RGB range for any input, set AUTO/ “0-255” / “16-235”		

EDID Setting	Input signals from Input 1 to Input 6 can be set by selecting the knob Select the ring touch and click on the input number and signal that requires EDID to enter the detailed operation menu for EDID configuration		
	DVI 1	Indicates the input sequence number and input signal currently being configured for EDID	
	Horizontal Resolution	Modify the horizontal resolution of EDID	
	Vertical Resolution	Modify the vertical resolution of EDID	
	Reset	Reset all parameters of EDID	
	Application	Write EDID parameters to the computer graphics card	
	Advanced	Do not adjust or modify any parameters in the advanced submenu without the support of our company's technical personnel. If you accidentally modify the menu, you can click the reset button.	
		H Blank	Modify the horizontal blank of EDID
		V Blank	Modify the vertical blank of EDID
HDR_CFG			

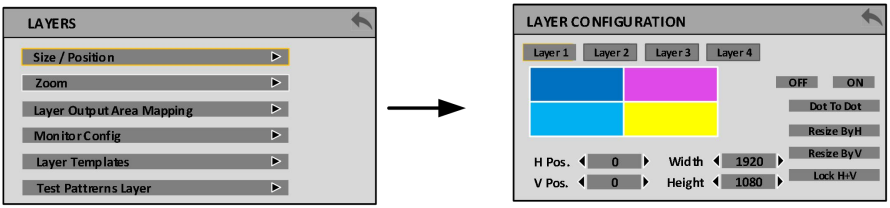
Advert 1: After setting up the EDID, for different computers and graphics card outputs, it may be necessary to restart the computer or unplug the signal cable. In the display settings menu of the computer, select the corresponding resolution.

Advert 2: To crop an image, first select input 1 to input 8, and then select the signal to be crop in the corresponding area below.

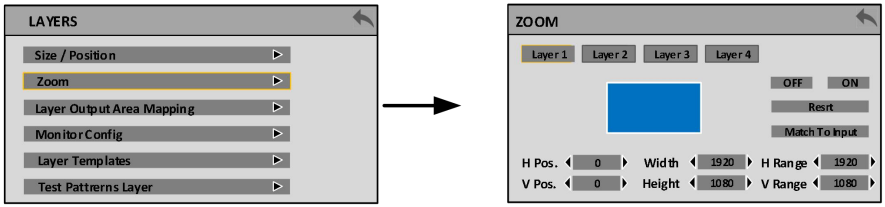
Advert 3: The image crop function is the function of selecting a portion of the input signal and outputting it to the LED display screen according to the layer size. Therefore, the size and position of image crop are limited to the resolution of the input signal. The various setting parameters in the above table are mutually restrictive.

LAYERS

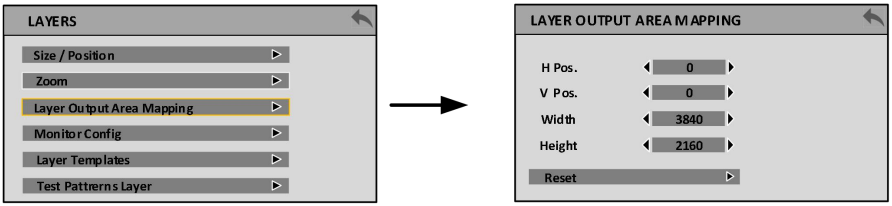
LAYERS:



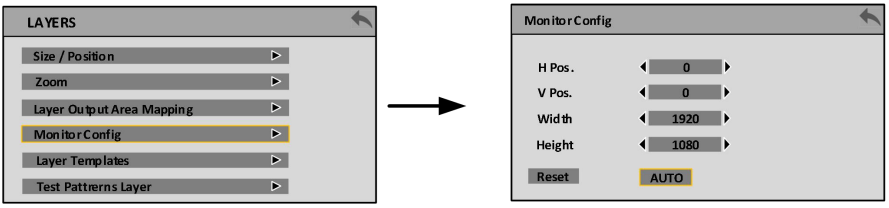
ZOOM:



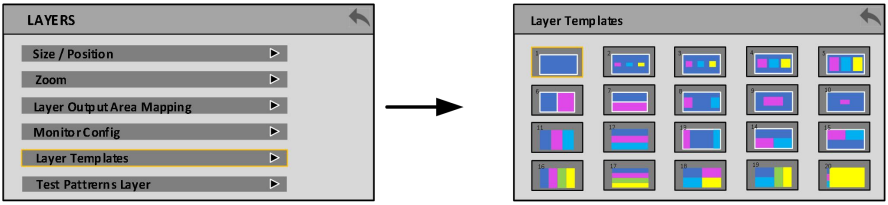
LAYER OUTPUT AREA MAPPING:



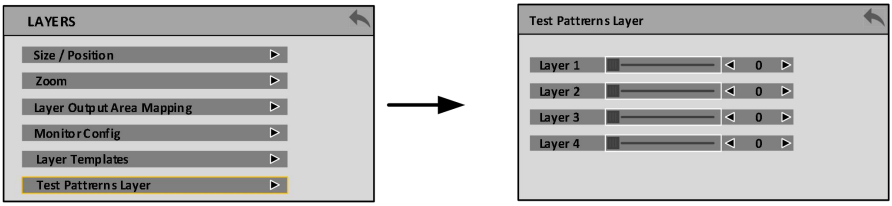
Monitor Config:



Layer Templates:



Test Pattrerns Layer:



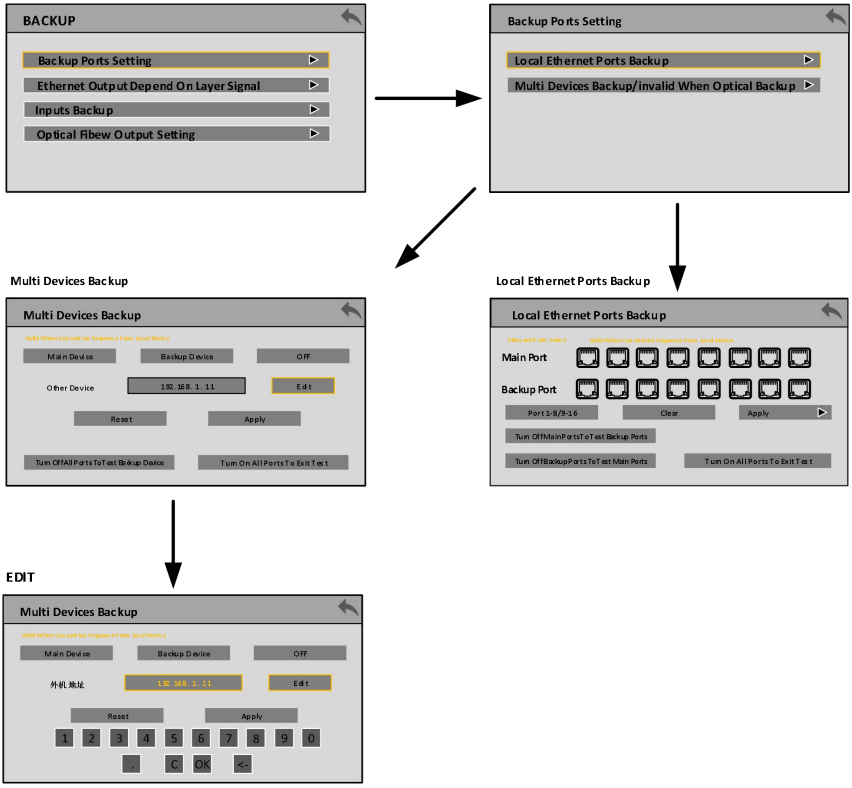
Size/Position	Can change the horizontal position, vertical position, horizontal width, vertical position of each layer	
ZOOM	Layer1~4	Select the layer that needs to be zoom
	Function Off/On	Function off or Function on layer zoom
	Reset	Reset layer zoom
	Matching Input Signal	Match the corresponding horizontal/vertical reference based on the input signal resolution
	Layer Zoom Setting	Adjusting the size, position, and datum of layer zoom
Layer Output Area Mapping	Consistent with output resolution, this feature is a virtual window	
Monitor Config	Pre monitoring screen size	
Layer Templates	Quick templates for layers	
Layer Test Chart Card	Each layer can independently open a test chart card, with a total of 16 test chart card styles	

PICTURE

Layers Pictures Setting	Brightness: Range 0-100, default number is 50	
	Contrast: Range 0-100, default number is 50	
	Saturation: Range 0-100, default number is 50	
	Layer Color Temperature	4000K/5000K/6500K/7500K/8200K/9300K/10000K/11500 K/user 9 modes
		Red range 0-255, default 128
		Green range 0-255, default 128
		Blue range 0-255, default 128
Reset	Reset to factory defaults	

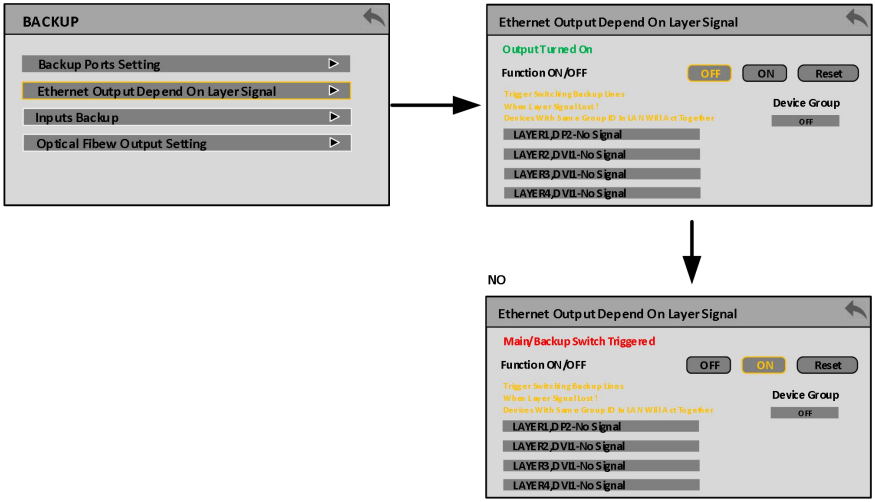
BACKUP

Backup Ports Setting:



Local Backup	Single machine can specify any network port for backup.	
Multi-Machine Backup	Host Machine	When multiple machines are in the same LAN, you can choose another machine as backup or master, and set the IP address of another machine to achieve fast backup.
	Backup Machine	Set the IP address of the host on the backup machine

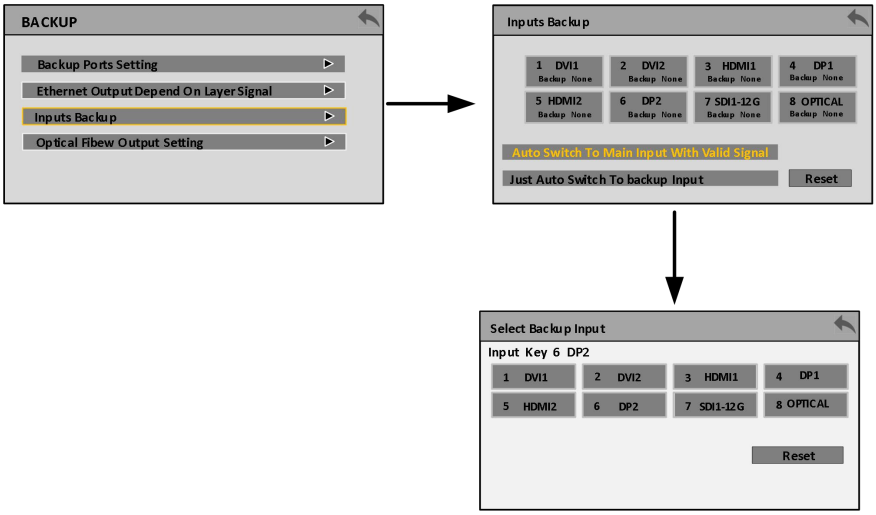
Ethernet Output Depend On Layer Signal:



Ethernet Output Depend On Layer Signal	After being used as a multi machine backup, this function can be used. When the layer signal is lost, a backup line switch is triggered, and devices with the same group in the local area network will trigger simultaneously

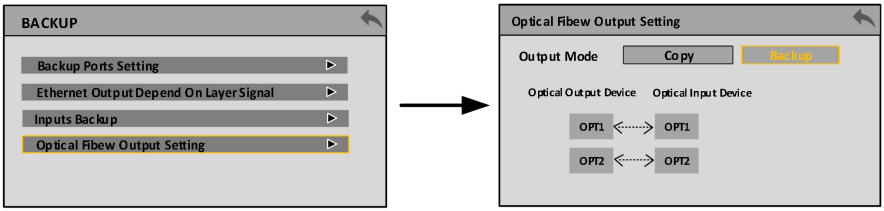
Advert: The host is in one group when grouping, and the backup machine is in another group, and they are in the same local area network.

Inputs Backup:



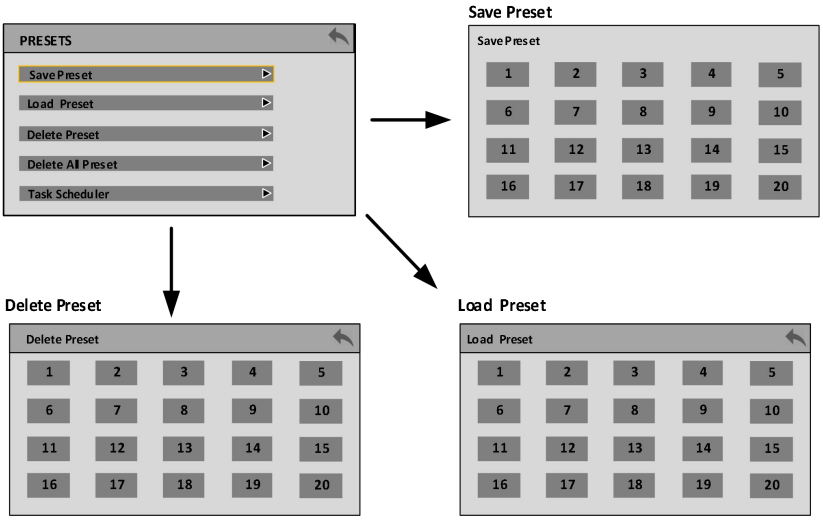
Inputs Backup	Used for signal hot backup, after setting up the backup, if the current input signal is lost, it will switch to the backup preset according to priority to prevent situations such as screen blackout after signal loss.

Optical Fibew Output Setting:

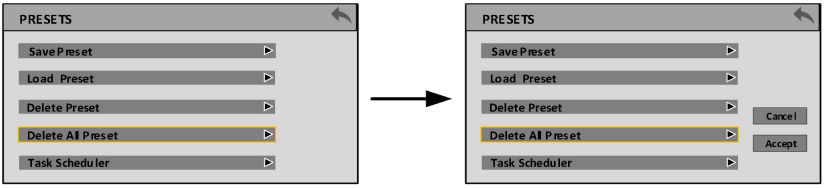


Optical Copy	Port	Long-distance transmission for devices
Optical Backup	Port	Used for ring out backup between two devices (network port backup)

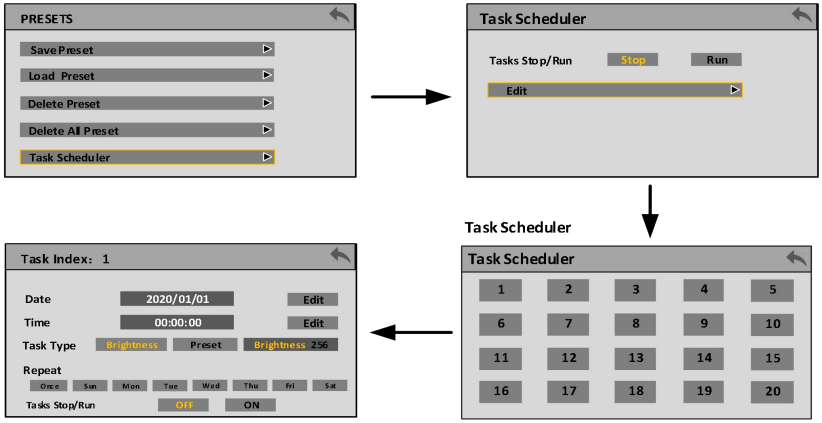
PRESETS



Delete All Preset:



Task Schduler:



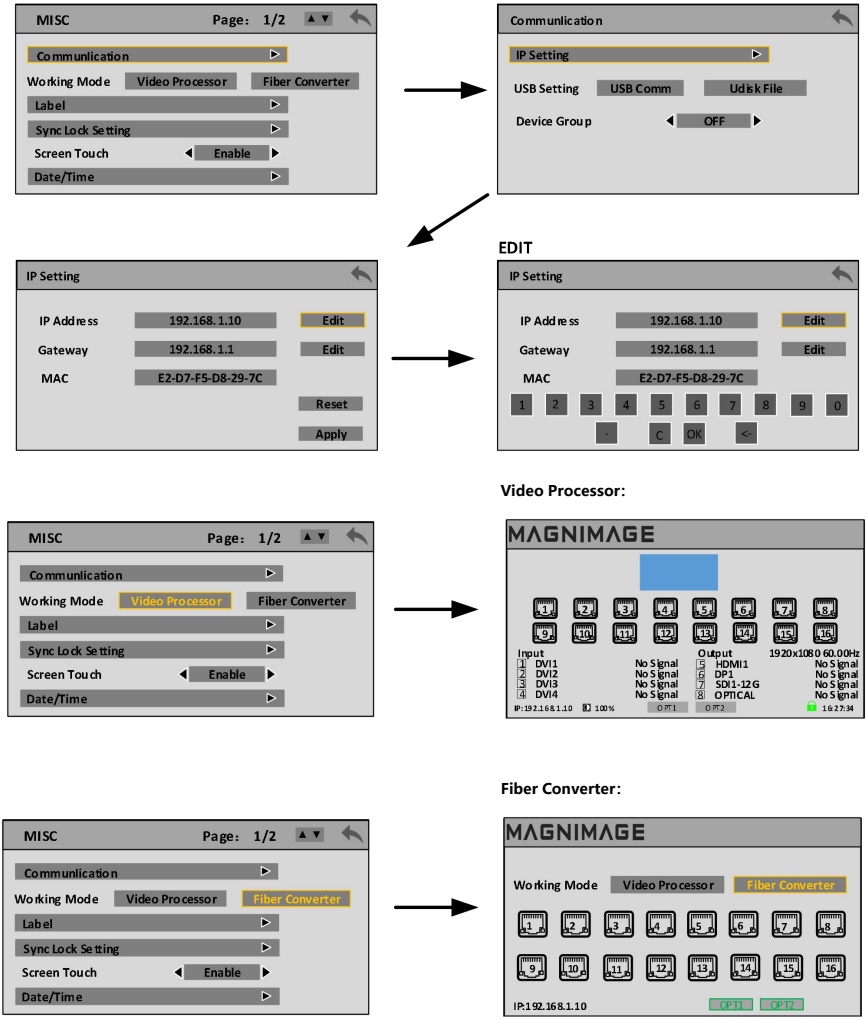
Save Preset	This machine can save 20 presets,Enter the loading interface, press the number button or rotate the knob to load the preset	
Load Preset	This machine can save 20 presets,Enter the save interface, press the number button or press the rotary knob to load the preset	
Delete Preset	Enter the deletion interface, click the number buttons on the screen or press the rotary knob to delete the preset that has been saved	
Delete All Preset	Delete all saved presets	
Time Task	Edit	Display the 20 tasks in the current working mode of this machine, click on the tasks numbered 1-20 that need to be operated to enter the task setting menu
	Date	Select the date on which the current task will execute the action
	Time	Select the time when the current task will execute the operation
	Task Type	Brightness or preset
	Repeat	elect the frequency of current task execution: single, Monday to Sunday
	Stop/Run	Stop or run the current task setting operation

Advert 1：The font of the saved preset number buttons on this machine is highlighted, while the font of the unsaved preset number buttons is gray.

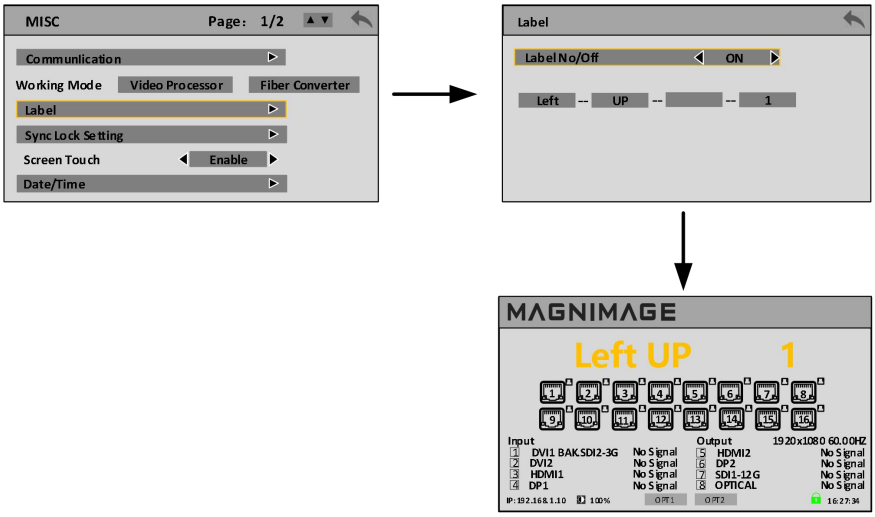
Advert 2：delete presets will clear all presets on the machine, so please use this function with caution.

Advert 3：Brightness tasks and preset tasks can only be used for one time task at the same time.

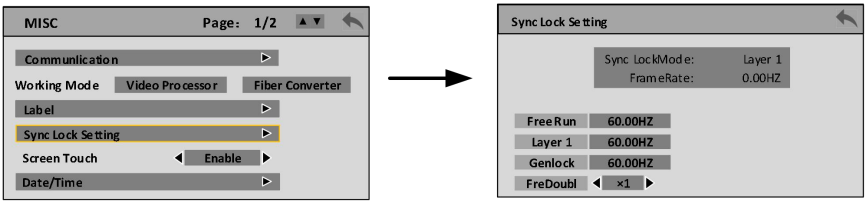
MISC


MISC
Page: 1/2
Communication
Working Mode
Video Processor
Fiber Converter
Label
Sync Lock Setting
Screen Touch
Enable
Date/Time
Communication
IP Setting
USB Setting
USB Comm
Udisk File
Device Group
OFF
EDIT
IP Setting
IP Address
192.168.1.10
Edit
Gateway
192.168.1.1
Edit
MAC
E2-D7-F5-D8-29-7C
Reset
Apply
1 2 3 4 5 6 7 8 9 0
. C OK <-
Video Processor:
MAGNIMAGE
Input
Output
1920x1080 60.00Hz
1 DVI1 No Signal
2 DVI2 No Signal
3 DVI3 No Signal
4 DVI4 No Signal
5 HDMI1 No Signal
6 DP1 No Signal
7 SDI1-12G No Signal
8 OPTICAL No Signal
IP:192.168.1.10
100%
OPT1
OPT2
16:27:34
Fiber Converter:
Working Mode
Video Processor
Fiber Converter
IP:192.168.1.10
OPT1
OPT2

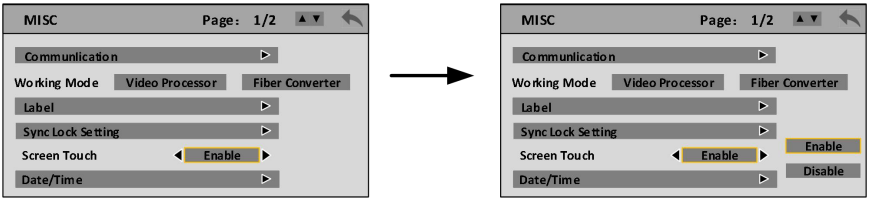
Label:



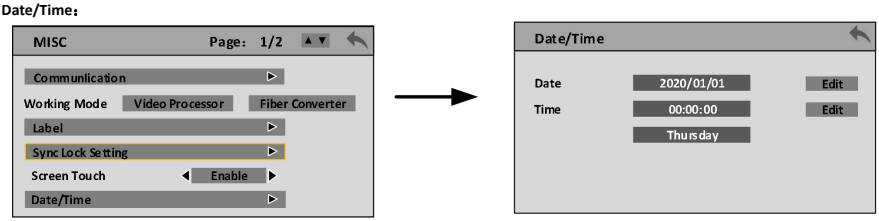
Sync Lock Setting :



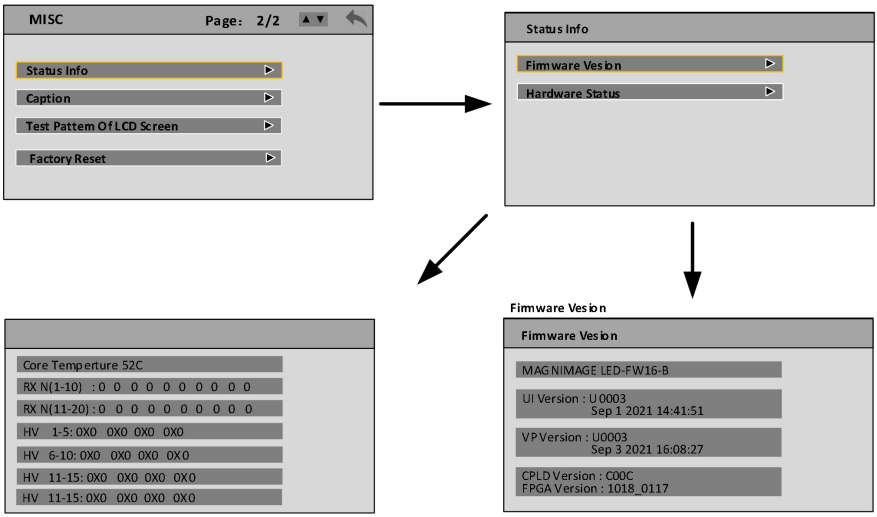
Screen Touch :



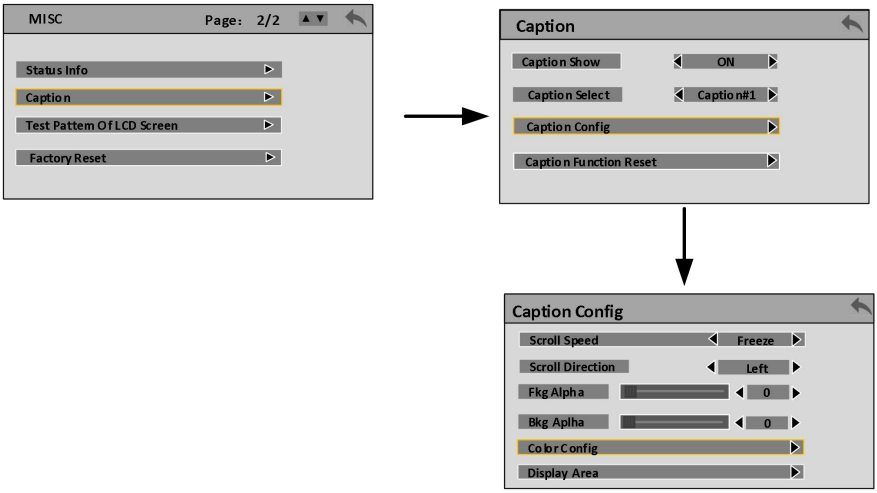
Date/Time：

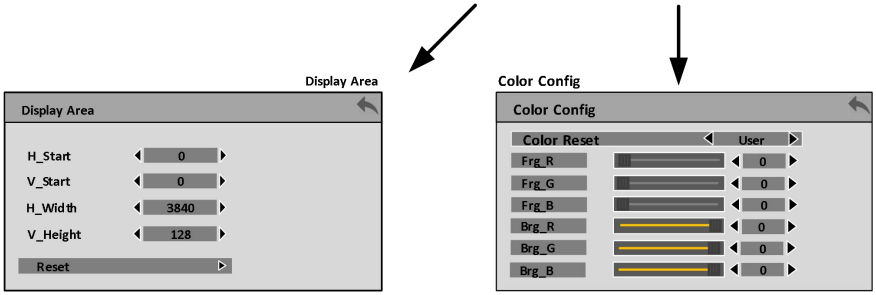


Status Info:

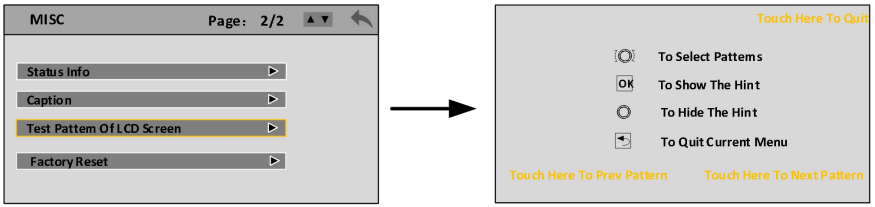


Caption:

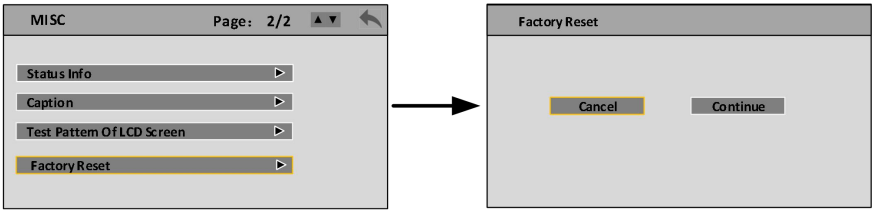




Test Pattern Of LCD Screen:



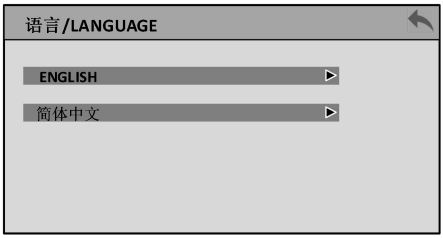
Factory Reset:



Communication Setting	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
Working Mode	Video Processor	Normal usage mode	
	Fiber Converter	When two machines use optical ports for backup, this working mode should be selected for backup	
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.		
Sync Lock Setting	"Free Scroll", "Layer 1", "Genlock" defaults to "Layer 1" octave: × 1 × 2 × 3 × 4. Four options, with input and output frame rates in multiples		
Screen Touch	When turned on, the screen is touchable, but when turned off, the screen is not touchable		
Time/Date	Modify and display local date and time		
	Edit	Click the edit button to edit the local date and time	
Version Information	Firmware Version	Display the local name and firmware version	
	Hardware Status	Display the hardware status of various parts of the machine	
Subtitle Function	Subtitle Display	"On", "Off"	
	Subtitle Selection	Three subtitles can be selected	
	Subtitle Adjust	Scrolling Speed	Including "stationary", "speed 1", "speed 2", "speed 3"
		Scrolling	Including 'Left' and 'Right'

		Direction	
		Foreground Transparency	0-100
		Background Transparency	0-100
		Subtitle Color	Color preset: black background green text, black background red text, black background white text, white background green text, white background red text, white background black text, and user options, users can customize it
		Display Area	Set the horizontal and vertical starting positions of subtitles; Width and height of subtitle display
	Reset	Delete saved subtitles	
LCD Panel Test Chart Card	Test the LCD screen of the machine		
Button Lock	Machine button lock function, set lock button function, password: 1234		

LANGUAGE/语言



English	Set the display language of the menu system to English
Simplified Chinese	Set the display language of the menu system to Simplified Chinese

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.

Non Warranty

- Faults or damages caused by abnormal use reasons such as stains or surface scratches caused by machine immersion, collision, or use;
- Dismantling or modification without our company's consent;
- Failure or damage caused by use in a working environment other than that specified by the product (such as excessive temperature, low temperature, or unstable voltage);
- Faults or damages caused by force majeure (such as fires, earthquakes, etc.) or natural disasters (such as lightning strikes, etc.);
- The product has exceeded the warranty period.