

LED-F816-3D Video Control Server

User Manual V1.0

A 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

Without the written permission of the company, no unit or individual may copy, transcribe or translate part or all of the contents of this manual. This manual shall not be distributed in any form or by any means (electronic, mechanical, photocopying, recording or other possible means) for commercial or commercial purposes.

The product specifications and information mentioned in this manual are for reference only and are subject to update without notice. Unless otherwise agreed, this manual is only used as a guide, and all statements, information, etc. in this manual do not constitute any form of guarantee.

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

Directory

Statement	2
Introduction	3
Trademark Credit	
About the software	
Product Features	
Port Extension	6
Safety Notice	6
Features	8
Overview	
Technical Specifications	12
Use Menu	12
How to use the buttons	14
MENU Area:	14
LAYER Area:	15
INPUT Area:	15
Introduction to Default State	16
Main Menu Introduction	17
Main Menu	18
LED SCREEN CFG	18
INPUT	22
LAYERS	26
PICTURE	28
BACKUP	29
PRESETS	32
MISC	35
LANGUAGE/语言	41
Warranty	42
Machine Warranty Period	42
Non Warranty	42

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, Audio
 ×1; Support for expansion: 3G SDI×1, DVI×2 or HDMI2.0+DP1.2
- Support HDMI loop out
- Support zoom and image crop
- 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
- Support four layers display, and full-screen roaming, and quick layer layout templet
- Support seamless switching between input signals and presets.
- Support customized 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 with C-Link series receiving card
- Support the read and load of configuration files from native U disks
- Support monitoring output function
- Support free wiring function
- Support for single machine input backup
- 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 external independent audio input and output
- Support scrolling caption
- Support time task function, timed brightness
- Support for fiber optic backup
- Support button lock
- Support 120Hz continuous 3D and around 60Hz/up and down 3D display
- Support 10bit/12bit high color and deep video input

Port Extension

LED-F816-3Dis basic model number, we can extend Input Source on the basis of basic model. Extension model are as follows:

Available Expansion Modules		Product Model
	Expand 2 external DVI input module	LED-F816D-3D
Input	Expand 1 external HDMI2.0 and 1 external DP1.2 input module	LED-F816H-3D
module	Expand 1 external 3G SDI input module	LED-F816S-3D
	Expand 2 external DVI and 1 external 3G SDI input module	LED-F816DS-3D

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

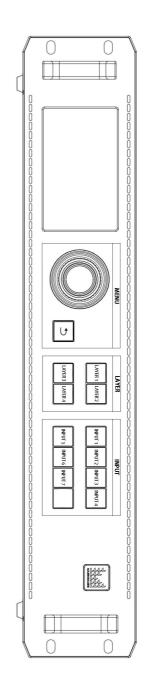
Overview

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-F816-3D 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.

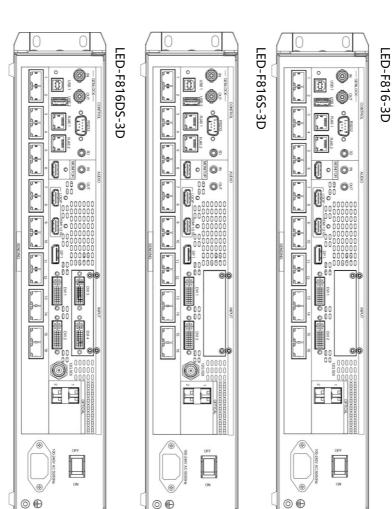
The load capacity of all-in-one video controller is twice of the ordinary all-in-one video controller, and supports EDID management and customize output resolution, single controller output max width can be 16380 pixel, up to 120HZ refresh rate. Greatly improved the utilization of output bandwidth. The 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 (support 8K × 1K/60Hz), HDMI2.0 × 1 (support 4K × 2K/60Hz), AUDIO×1 , HDMI loop-out (only supports HDMI2.0 loop-out) × 1 , and can also extend 12G SDI×1 ,DVI ×2 or HDMI2.0×1 and DP1.2×1 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



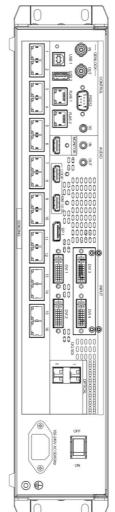
Button Description	iption		
Rotary knob	select menu items and adjust parameters	INPUT3	HDMI1
U	Return button, return to the previous menu	INPUT4	DP1
LAYER 1	Layer1	INPUT5	Extend input port
LAYER 2	Layer2	INPUT6	Extend input port
LAYER 3	Layer3	INPUT7	Extend input port
LAYER 4	Layer4		
INPUT1	DVI1		
INPUT2	DVI2		

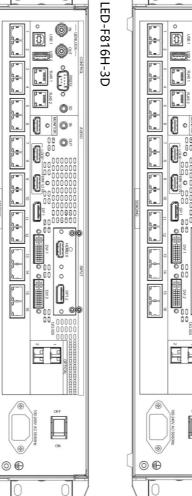


10

Back Panel

LED-F816D-3D





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
3G SDI(extend)	1 x SDI input ports
Audio (IN)	1 x Audio input ports
DVI3-DVI4 (extend)	2 x DVI input ports
HDMI2.0+DP1.2	1 x HDMI2.0 and 1 x DP input ports
(extend)	TATIBINIE. Guild TABI Input ports

Model	Video Output Port		
LED-F816-3D	Gigabit Ethernet	16 port, single port load 0.98 million pixels,	
LED-F010-3D	Port	whole unit load 15.68 million pixels	
	HDMI Loop Out	Can loop out HDMI2.0 input source	
	HDMI Monitor	Output monitoring	
	OPT1~OPT2	10G Optical Fiber Interface	

Technical Specifications

Input Information		
Port	Quantity Of	Resolution Specification
DVI	2	3840X1080/60Hz and customized
DP1.2	1	7680×1080/60Hz、3840x2160/60Hz and customized
HDMI2.0	1	3840×2160/60Hz and customized
3G SDI(extend)	1	3G-SDI(Only layer3 and layer4 supports SDI interlacing)
DVI3-DVI4(extend)	2	3840X1080/60Hz and customized
HDMI2.0+DP1.2	2	7680×1080/60Hz、3840x2160/60Hz and customized
(extend)	2	7000×1000/00Hz, 3040X2100/00Hz and customized
Audio (IN)	1	Can external audio and output audio signal with multi-function card

Output Information		
Port	Quantity Of	Resolution Specification
Gigabit Ethernet	16	16 port, single port load 0.98 million pixels, whole unit
Port	16	load 15.68 million pixels
HDMI2.0 LOOP	1	Can loop out HDMI2.0 input source
HDMI Monitor	1	Output monitoring
OPT1~OPT2	2	10G Optical Fiber Interface

Control Port	
Ethernet	Two-way RJ45 control port, used to connect to the host
Communication Port	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°C
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 3 areas, MENU、LAYER、INPUT

MENU Area:

This area contains 1 buttons and a knob that can be pressed; \Longrightarrow button and a knob.

Short press the "knob", its function is the same as the confirmation button(OK); when press the return button($\stackrel{\frown}{\Longrightarrow}$), 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:

Browsing Mode	Setting Mode
LED SCREEN CFG LED screen Config Brightness ✓ 256 ▶ 100% Test Pattem ✓ 0 ▶ Cabin et Mapping Ban dwidth Expansion 650K/1000K OFF ON	LED SCREEN CFG Resolution Of LED Screen Connection Sequence:Quick Connection Sequence:Manual Ud sk Operation Read Rx Card Info Rx Card Reset ▶

▼ confirm button, short press knob, can switch between the two modes.
▼

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 4 buttons; LAYER1, LAYER2, LAYER3, LAYER4;

Corresponding to the 4 active screens inside the machine. Long press the button to Function on or off the corresponding screen. The one that has been used is white, and the current selection is red.

Short press to select the layer.

INPUT Area:

This area contains 8 buttons: DVI1, DVI2, HDMI1, DP1, 5 to 7 are extended input buttons

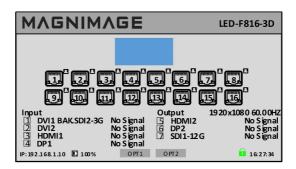
The way of selecting a signal is to first select the LAYER in LAYER area, then select the corresponding signal.

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

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-F816-3D:



The information in the above figure is explained as follows:

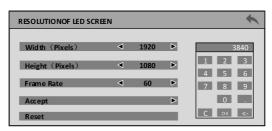
Symbol	Description
Resolution	Current output resolution
①	Current screen brightness
IP	Machine IP address
ŢŢ	The serial number of the network port. If the current network port is connected to the network cable, the network port will become highlighted.
OPT1~OPT2	10g optical port, if connected with optical 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, the user uses the " \Rightarrow " buttons, and the knob to select and adjust each item. The operation mode is as follows:

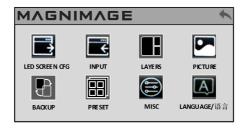
Operate	Introduction	
Open Main Menu	In the default state, press the rotary knob or slide the "magnimage" in the upper left corner	
Select each Item	Rotate the knob to select each item	
Adjust Parameter	parameter When the right item is a number or option parameter, rotate the knob	
Enter Next Level	When the project has a highlighted box, press the knob or click on the	
Menu	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 buttonpad: 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 buttonpad on the screen for operation. Where 0 to 9 represent numbers Represents a decimal point, represents exiting the numeric buttonpad mode, represents confirming the parameter modification, and represents backspacing to delete the entered number. The numeric buttonpad is shown in the following figure.



Main Menu

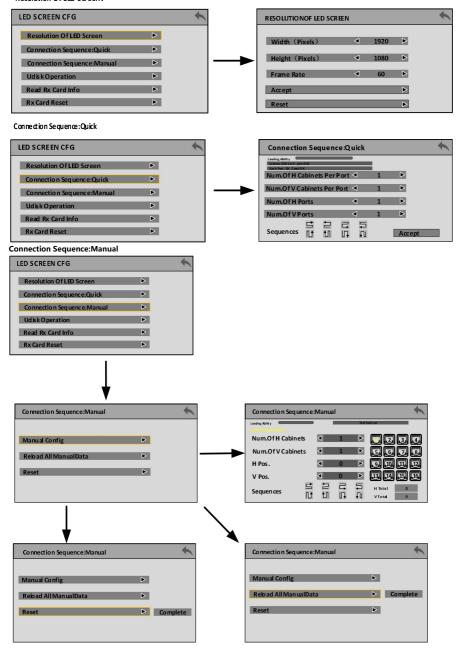
In the default state, press the rotary knob or swipe the "MAGNIMAGE" button in the upper left corner, and the menu system will enter the main menu state.and the LCD screen will display as shown in the figure below:



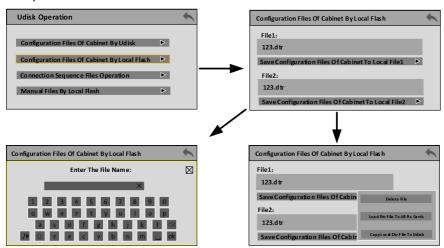
There are 8 menu items in the main menu. Use the knob to select the 8 menu titles listed above. After selecting, press the knob to enter the selected item, and press the " " button to return to the previous menu

LED SCREEN CFG: LED SCREEN CFG LED SCREEN CFG LED SCREEN CFG Resolution Of LED Screen Connection Sequence:Quick Connection Sequence:Wanual Udisk Operation Read Rx Card Info Rx Card Info Rx Card Reset

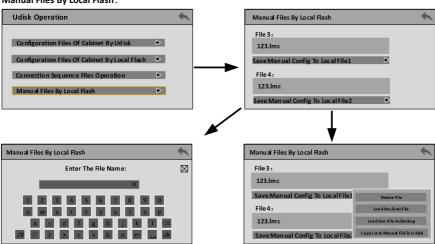
Resolution Of LED Screen:



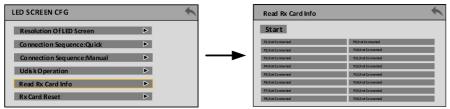
Udisk Operation:



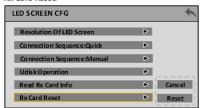
Manual Files By Local Flash:



Read Rx Card Info:



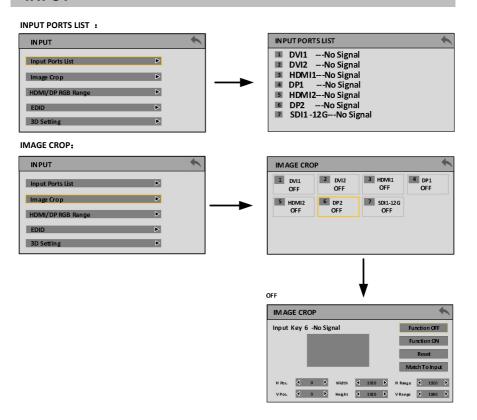
Rx Card Reset:



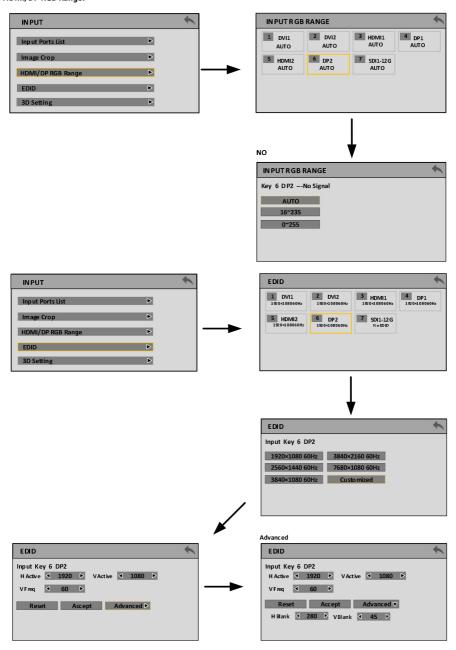
	Resolution Of LED Screen	supports EDID management and customize output resolution, single controller output max width can be 16380 pixel, output max height can be 7680 pixel
LED SCREEN CFG	Connection Sequence:Quic k	When all the network ports are routed in the same way, light the screen quickly according 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:Man ual	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 Read Rx Card Info	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 Can read back the receiving card box information in the machine

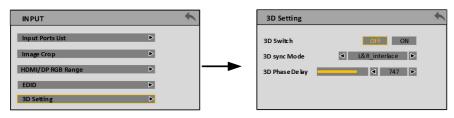
	Rx Card Reset Reset parameters such as brightness and color temperature of the receiving card			
Screen Brightness	Large screen brightness (default value is 256) 100%			
Test Patten	Range 1-10			
Cabinet Label	When the cabinet label function is on, the led screen will display the serial number of the 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	Collaborate with a receiving card that can enable bandwidth expansion to			
0.65/1.0 Million Pixels	increase network port load			

INPUT



HDMI/DP RGB Range:





Input Ports	Display the input information of all input ports on this device, with the				
List	displayed content being input resolution or no signal				
	All input s selecting t through th	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	•			
	DVI	Indicates the	e input signal currently be intercept		
	Function Off	Function off	Function off Image crop		
	Function On	Function on	Function on Image crop		
	Reset	Reset Image	Reset Image crop		
Image Crop	Matching Input Signal	Match the image capture parameters below with the image parameters of the input signal			
		Horizontal Position	Modify the horizontal position of image crop		
		Horizontal width	Modify the horizontal width of image crop		
	Image	Horizontal Base	Modify the horizontal base of image crop		
	Crop Setting	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				

DVI 1	Indicates the input sequence number and input signal	
	currently being configured for EDID	
Horizontal	Madify the havizantal resolution of EDID	
Resolution	Modify the horizontal resolution of EDID	
Vertical	Modify the vertical resolution of EDID	
Resolution		
Reset	Reset all parameters of EDID	
Application	Write EDID parameters to the computer graphics card	
	Do not adjust or modify any parameters in the advanced	
Advanced	submenu without the support of our company's technical	
	personnel. If you accidentally modify the menu, you can	

configuration

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

3D switch option, 3D synchronization mode divided into L&R_ Interlace

click the reset button.

Modify the horizontal blank of EDID

Modify the vertical blank of EDID

H Blank

V Blank

and Side By Side modes;

corresponding resolution.

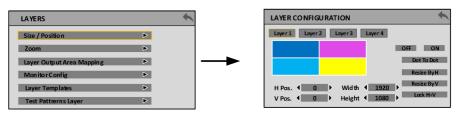
3D Setting

Advert 2: To crop an image, first select input 1 to input 7, and then select the signal to be crop in the corresponding area below.

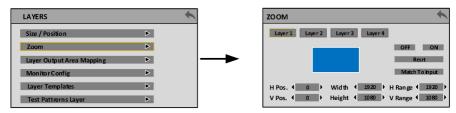
Advert 3: The image crop function is the function of selecting a portion of the input signal and outputting it to the LED display screen according to the layer size. Therefore, the size and position of image crop are limited to the resolution of the input signal. The various setting parameters in the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

LAYERS

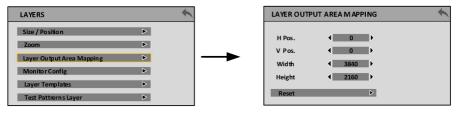
LAYERS:



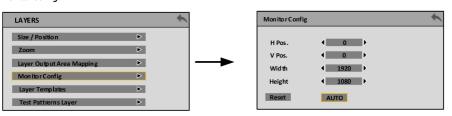
ZOOM:



LAYER OUTPUT AREA MAPPING:

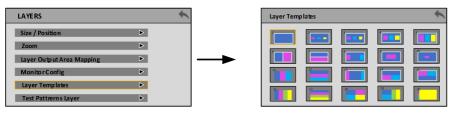


Monitor Config:



26

Layer Templates:

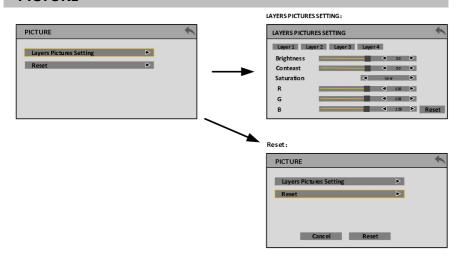


Test Pattrerns Layer:



Size/Position	Can change the horizontal position, vertical position, horizontal width, vertical position of each layer		
	Layer1~4	Select the layer that needs to be zoom	
	Function Off/On	Function off or Function on layer zoom	
ZOOM	Reset	Reset layer zoom	
	Matching	Match the corresponding horizontal/vertical reference	
	Input Signal	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		

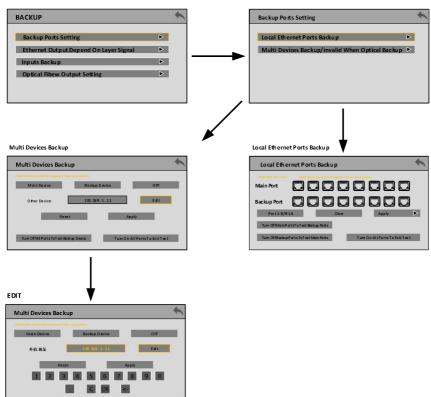
PICTURE



Layers . Pictures Setting	Brightness: Range 0-100, default number is 50			
	Contrast: 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			

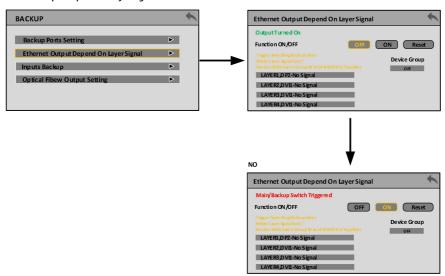
BACKUP

Backup Ports Setting:



Local Backup	Single machine can specify any network port for backup.		
Multi-Machin	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.	
e Backup	Backup Machine	Set the IP address of the host on the backup machine	

Ethernet Output Depend On Layer Signal:

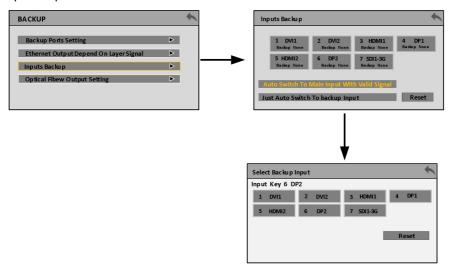


Ethernet Output
Depend On Layer
Signal

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.

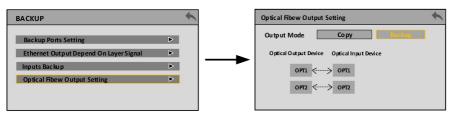
Inputs Backup:



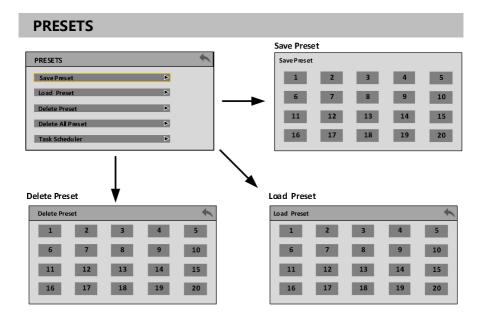
Inputs Backup

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.

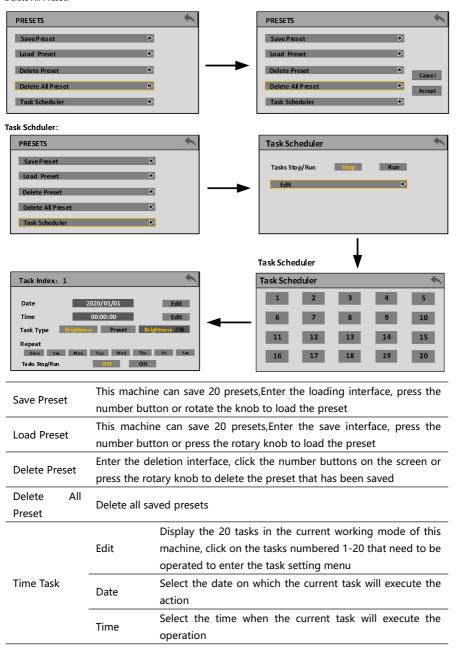
Optical Fibew Output Setting:



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



Delete All Preset:



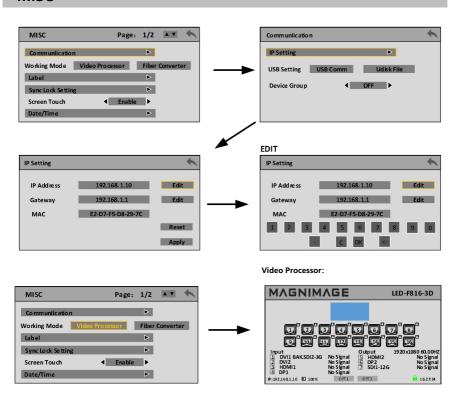
	Task Type	Brightness or preset	
	Donost	elect the frequency of current task execution: single,	
'	Repeat	Monday to Sunday	
_	Stop/Run	Stop or run the current task setting operation	

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.

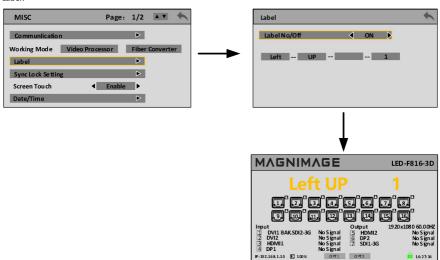
MISC



Fiber Converter:



Label:



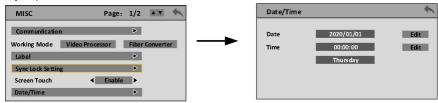
Sync Lock Setting:



Screen Touch :

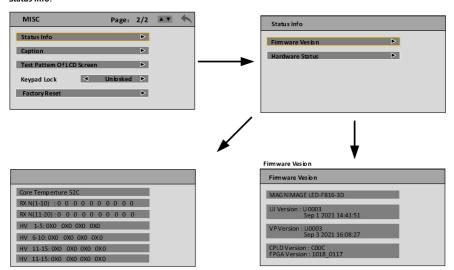


Date/Time:

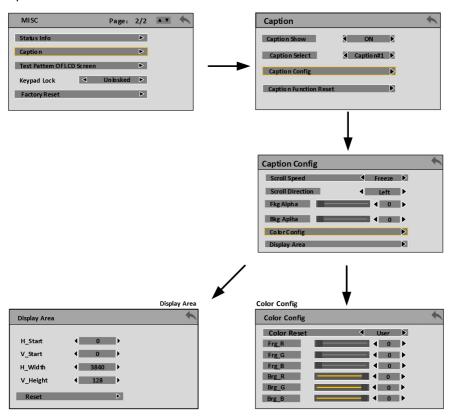


	IP Address	Can change mac	Can change machine IP address		
Communicat ion Setting	USB Setting	USB Communicatio n	Switch this mode, you can use the square port USB communication		
		USB Disk File	Switch this mode, you can use the flat port USB to upgrade the machine		
Working	Video Processor	Normal usage mode			
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: \times 1 \times 2 \times 3 \times 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	ate Modify and display local date and time Edit				

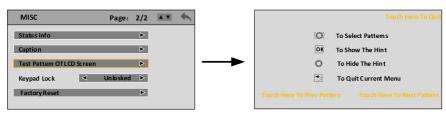
Status Info:



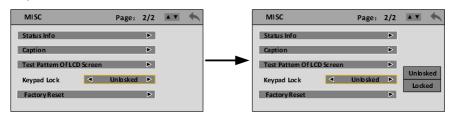
Caption:



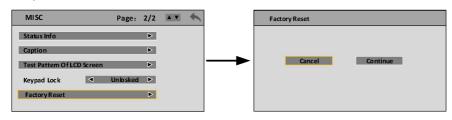
Test Pattern Of LCD Screen:



buttonpad Lock:



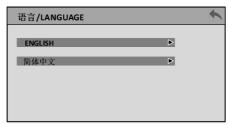
Factory Reset:



Version	Firmware Version	Display the loca	al name and firmware version		
Information	Hardwar	Display the ha	ardware status of various parts of the		
	e Status	machine			
	Subtitle Display	"On" , "Off"	"On" , "Off"		
	Subtitle Selection	Three subtitles can	n be selected		
		Scrolling	Including "stationary", "speed 1",		
		Speed	"speed 2", "speed 3"		
		Scrolling	Including 'Left' and 'Right'		
	Subtitle Adjust	Direction	including Left and Right		
		Foreground	0-100		
C bell E and a		Transparency	0-100		
Subtitle Function		Background	0-100		
		Transparency	0-100		
			Color preset: black background green		
			text, black background red text, black		
			background white text, white		
		Subtitle Color	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	
Restore Factory Settings	Restore this machine to its factory settings, and after confirming to continue, prompt A.C. Restart!!! Power off and restart	

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		
Simplified Chinese	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.