

# Users' Manual

## SDI 10-Screen Multiview

**Model: MVP9110**

VAR 2.0

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## Precautions

To ensure the reliability, use and safety of the equipment, please observe the following when installing, using and maintaining.

Before the device is powered on, it is necessary to check to ensure that the chassis is well grounded to prevent electrostatic discharge from the chassis and endanger the equipment and personal safety, and to provide good shielding effect.

- ◆ Do not place system equipment in a location that is too cold or too hot.
- ◆ The power supply of the device will generate heat during operation, so keep the working environment well ventilated to avoid damage to the device due to excessive temperature.
- ◆ Turn off the main power switch when it is rainy or wet or when it is not used for a long time.
- ◆ Non-professionals, please do not try to open the equipment case without permission, and do not repair it yourself to avoid accidents or damage to the equipment.
- ◆ Do not spill any chemicals or liquids on or near the equipment.

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# 1. Product Introduction

## 1.1. Product Overview

This is a professional-grade SDI picture splitter that supports 10-CH SDI inputs, 2-CH HDMI inputs, and 2-CH AV inputs. 2-CH SDI+3-CH HDMI output. You can change the display resolution to 1080i50 / 60, 1080p25 / 30 or even more using the front panel keyboard. The device is a multi-screen splitter with 10-way matrix switching. The device can connect 10 SDI signals. When performing multi-picture synthesis, there are 2 identical SDI outputs (the two left SDI interfaces) and 3 HDMI outputs. The display mode of the screen can be flexibly configured through the network port using PC software. , can be configured for 1~10 screens. And the device supports SDI audio column display and character overlay function. The device integrates SDI input/output interface and control interface, which can conveniently process SDI signals for picture segmentation, signal delay, frequency conversion processing, and frame synchronization. The device supports network, RS422 and button control, and supports network interface to update internal software, which can realize more functions and simple operation.

### Main Functions

- ◆ Art design style
- ◆ Up to 10 signal inputs, up to 5 signal outputs
- ◆ Support single screen enlargement, 4 screens, 6 screens, 9 screens, 10 screen modes
- ◆ Support input screen switching
- ◆ Support audio column display, optional any input audio plus embedded output
- ◆ Chinese and English character overlay (character color can be changed)
- ◆ Input port: SDI × 10;
- ◆ Output port: SDI × 2; HDMI × 3
- ◆ Input support matrix switching function
- ◆ SDI HD/SD Adaptive
- ◆ Support network, RS422 and button control
- ◆ Support network upgrade system function
- ◆ Support for later extension
- ◆ Support TALLY function
- ◇ Special features can be customized

## 1.2. Product parameters

Name	SDI HD 10-Screen Multiview	
SDI Input	Input Signal	SDI HD serial digital video signal
	Rate	143Mbps~2.97Gbps
	Connector	BNC complies with IEC169-8
	Reflection loss	>15dB 5MHz~3GHz
	Signal amplitude	800mV ± 10%
	Impedance	75Ω
	Balance	100m Belden 1694A HD 200m Belden 8281A HD
SDI Output	Output Signal	SDI HD serial digital video signal
	Connector	BNC complies with IEC169-8
	Reflection loss	>15dB 5MHz~3GHz
	Signal amplitude	800mV ± 10%
	Impedance	75Ω
	Up/Down time	0.6ns ± 100ps
	DC offset	0V ± 0.5V
	Clock recovery	Auto output optional
	Overshoot	<5%
	Jitter	<0.2UI
HDMI Output	Output Signal	Standard HDMI signal
	Rate	270Mbps~2.97Gbps
	Signal amplitude	800mV ±10%(100R)
	Impedance	100Ω
Control Parameter	Local control	button (front panel)
	Serial control	RS422
	Connection port	RJ45 standard network interface (UDP/HTTP)
	Control software	WINDOWS (customizable IOS/Android)
	Optional components	Central control keyboard
General Parameters	Power supply	100-240V/AC 50/60Hz
	Power Rating	25W-150W, According to host type
	Size	1U(standard power supply )
	Control Panel	YES
	Weight	2.1KG
	Operating Temperature	0°C~50°C without condensation
	Storage Temperature	-20°C~75°C
	Working Humidity	20%~70%RH
Storage Humidity	0%~90%RH, No condensation	

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### 1.3. Standard configuration list

- ◆ Matrix Master x1
- ◆ AC power cord x 1
- ◆ Control software x1
- ◆ User Manual x1

## 2. Operation and Function Description

### 2.1. Equipment operation

Note: Please use the following installation sequence. If the installation sequence is not followed correctly, the device may not work or work abnormally.

- (1) Connect the signal output of the signal source to the input of the unit.
- (2) Configure the corresponding I/O card according to the input and output of the site.
- (3) Connect the signal output of this unit to the signal input of the display unit.
- (4) Turn on the power of the device and turn on the power button switch.
- (5) Use the manual button to select the input and output ports.
- (6) Rear panel interface description:



- |                              |                               |                  |
|------------------------------|-------------------------------|------------------|
| ① SDI×2(Multi-screen output) | ② HDMI×3(Multi-screen output) | ③SDI×10 input    |
| ④RS422 interface             | ⑤RST Reset                    | ⑥Power Indicator |
| ⑦Network and USB interface   | ⑧AC 100 – 240V                |                  |

## 2.2. Multi-screen Mode Description

### 2.2.1. 1-screen mode



### 2.2.2. 4-screen mode



### 2.2.3. 6-screen mode



### 2.2.4. 8-screen mode



### 2.2.5. 9-screen mode



### 2.2.6. 10-screen mode





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## 2.3. Keypad Operation Instructions



### 2.3.1. Channel switching operation

Switching operation can be performed according to the input signal and the multi-screen window number. IN x OUT y (such as switching the 2nd signal to the 5th display, IN + 2 + OUT + 5), you can also switch all the way at the same time. To multi-channel display, IN 2 OUT 1, 2, 3, 4.... If you want to switch 10 channels, press 10+ first, then press 0.

### 2.3.2. Full Panel

In the multi-screen switching, you can select a certain way to display in full screen, press the full screen window number + Full Panel (such as the full screen display of 5 screens in the 16 screen: 5 + Full Panel), press the Full Panel button again to return In the multi-picture state, if the channel switching operation has just been performed, the OUT is in the light-on state, and it is necessary to first press OUT to turn off the light and then perform full-screen operation. ◦

### 2.3.3. Mode

Multi-screen mode switching, there are six modes of 1, 4, 6, 8, 9, 10 to select, you can press the Mode button to cycle.

### 2.3.4. Reso

Output resolution setting, press the Reso button to switch between different output resolutions, a total of 1080p60, 1080p50, 1080p30, 1080p25, 1080i50, 1080i60, 720p60, 720p50 eight resolution options.

### 2.3.5. Audio

Switch the display or hide of the audio columns of all channels.

### 2.3.6. Char

Switch between displaying or hiding the characters of all channels.

## 2.4. LCD function

When Mode is switched, the LCD will display the current multi-picture status, and the number in the small grid represents the current input channel number.

When you perform a software upgrade, the status of the upgrade and the version information of the program are displayed. 10 description of screen character setting control software

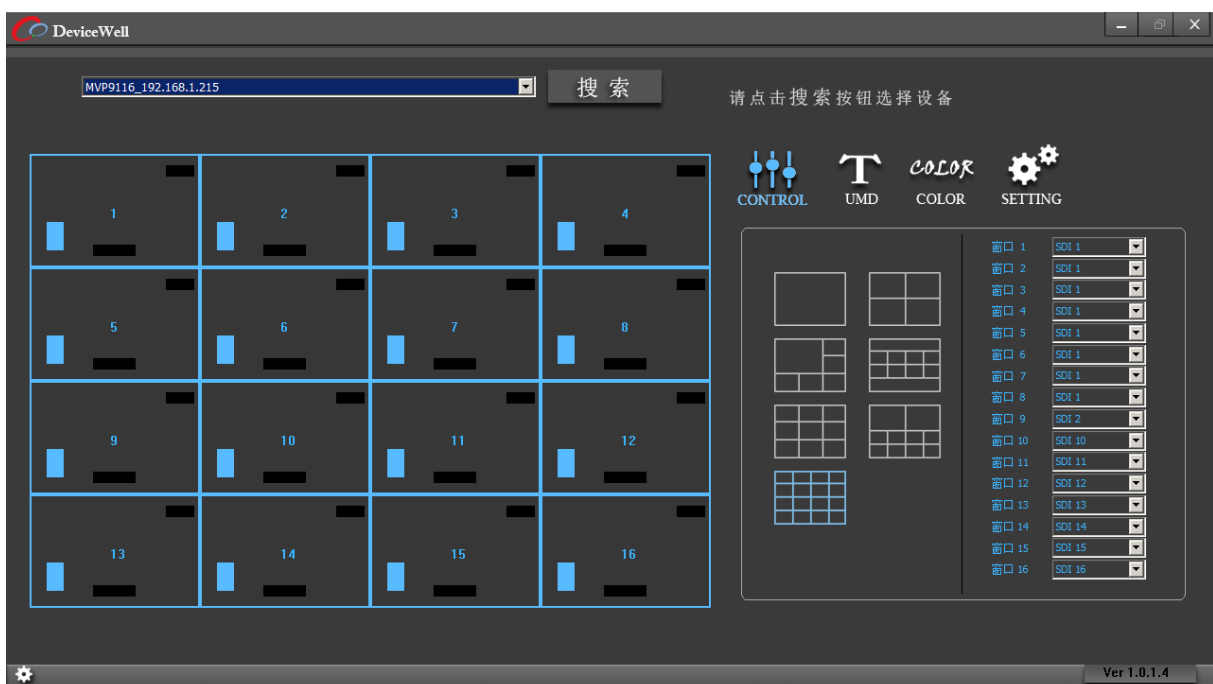
## 10 description of screen character setting control software

### 2.4.1. Open the software

Run the EXE file and click the "search" button to list the devices. Select the corresponding device with the left mouse button to read the display mode, characters and audio column status of the current device. The software function is divided into four modules:

### 2.4.2. CONTROL module

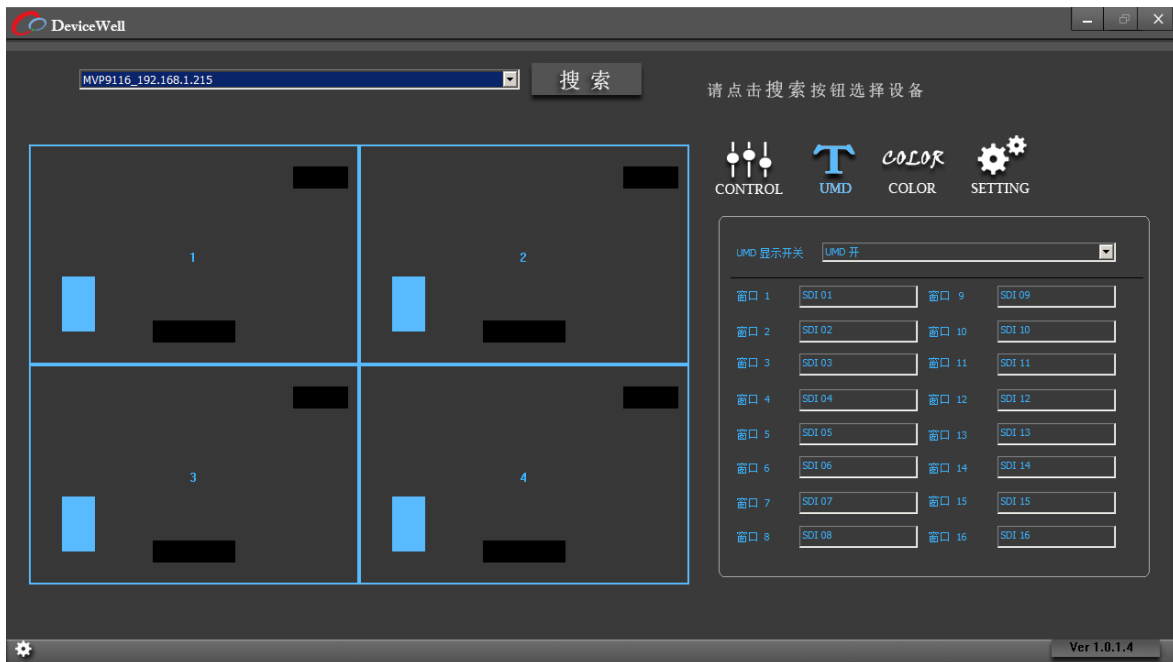
Click the CONTROL icon to enter the module. Under this module, you can control the device output screen mode and select the input signal source of each window.



Note: the device IP address and the computer local IP address should be in the same network segment. This software will be updated continuously. If you need the latest software, please contact us. The software in this example is AVMATRIX\_UI\_r\_v1.0.1.4\_20170627.exe.

### 2.4.3. UMD module

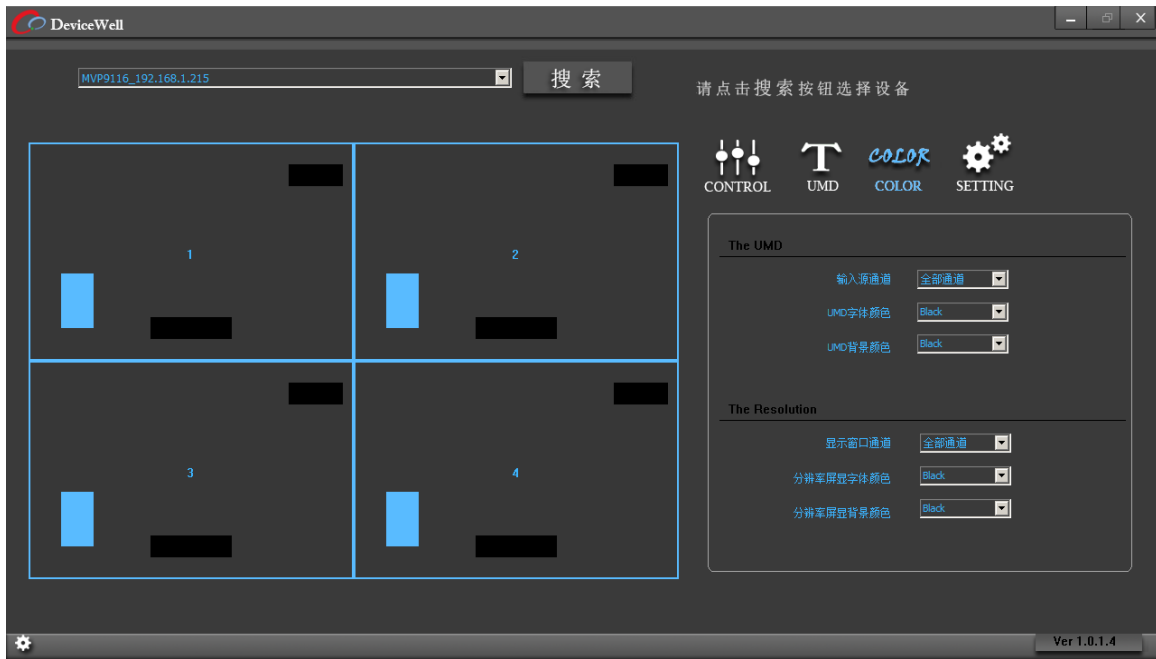
Click the UMD icon to enter the module. The UMD module can open and close the screen characters, and can customize the characters of each window. After entering in the corresponding window bar, press ENTER to save.



Note: the input field supports a maximum of 10 characters.

### 2.4.4. COLOR module

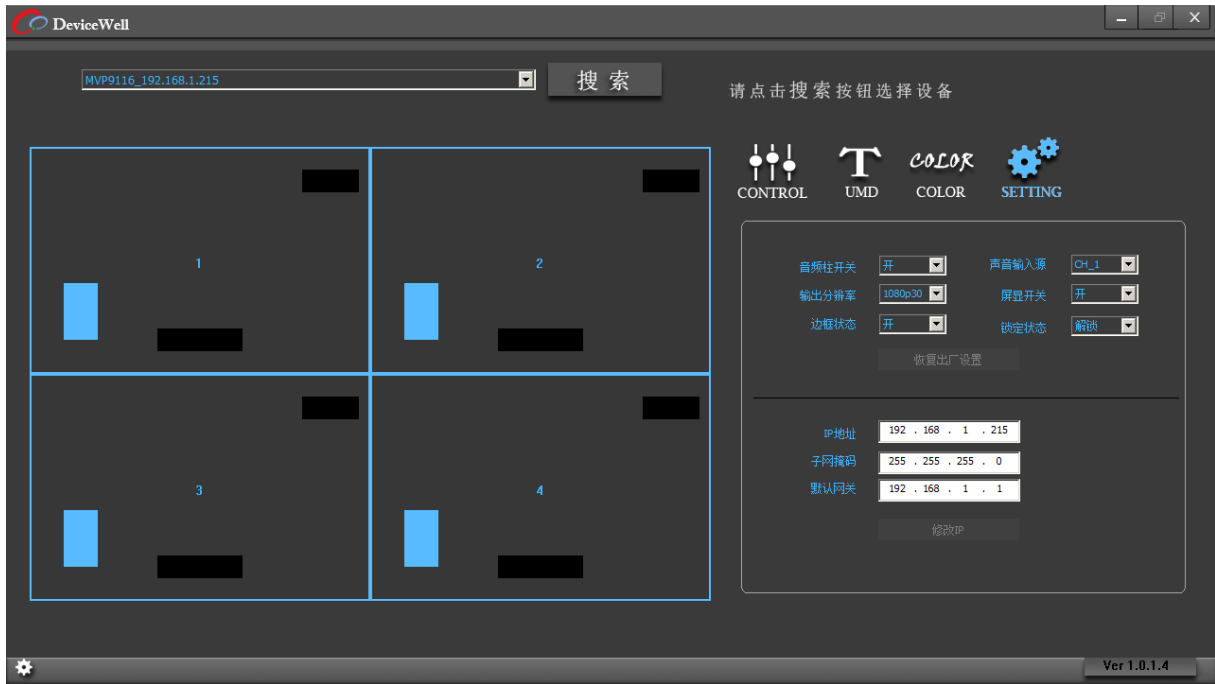
Click the COLOR icon to enter the module. Under this module, you can change the color of UMD (character) and input resolution. Click the drop-down selection window to change the font color and background color in turn.



### 2.4.5. SETTING Module

Click the SETTING icon to enter the module, which has the following functions:

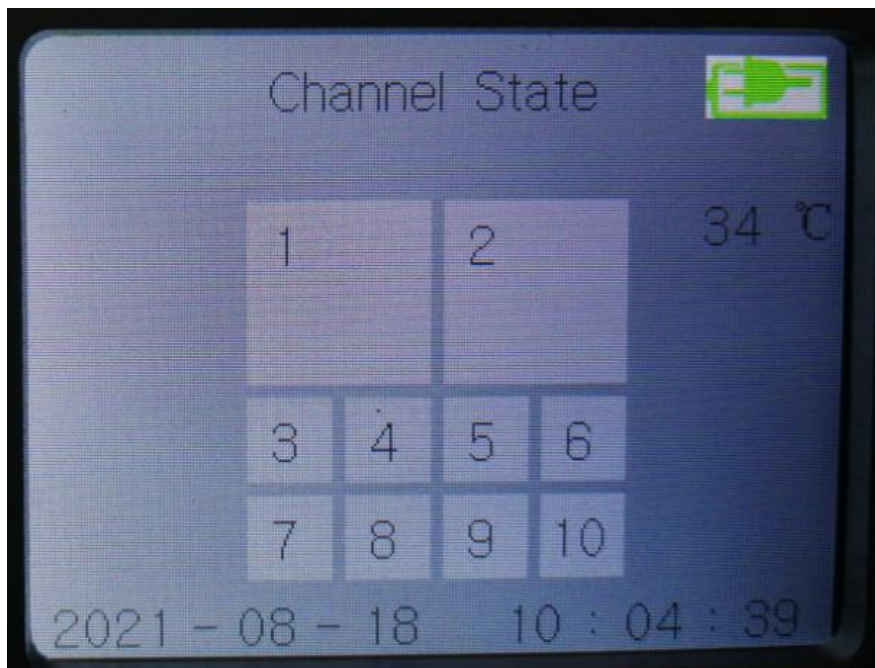
- 1) Audio main switch, turn on and off the audio main switch;
- 2) Sound input source, select the channel to input the sound source;
- 3) Output resolution, switching output resolution;
- 4) Screen display switch, turn on and off, input resolution characters;
- 5) Frame status, open and close the frame of the screen;
- 6) Lock status, lock and unlock the equipment. When locking the equipment, the equipment keys and software have no function, and the equipment can be controlled only after unlocking;
- 7) Restore factory settings; After clicking this button, the device will clear the user settings and restore the default settings;
- 8) Modify IP: after changing the IP address, click modify IP to save the settings;



## 2.5. Menu usage and LCD display instructions

### 2.5.1. Startup LCD status display

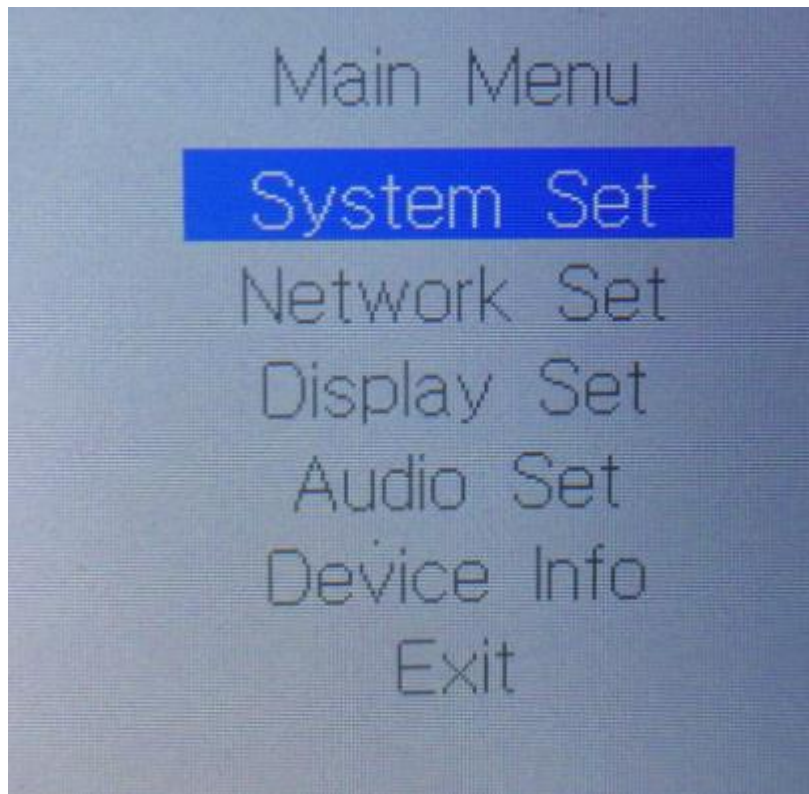
After power on, you can see the status of power supply, internal temperature of chassis, channel status and time on the LCD panel. If the dual power supply fails, a power supply icon in the figure above will turn red.



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## 2.5.2. MENU

Press the knob on the front panel to enter the main menu, as shown in the following figure.

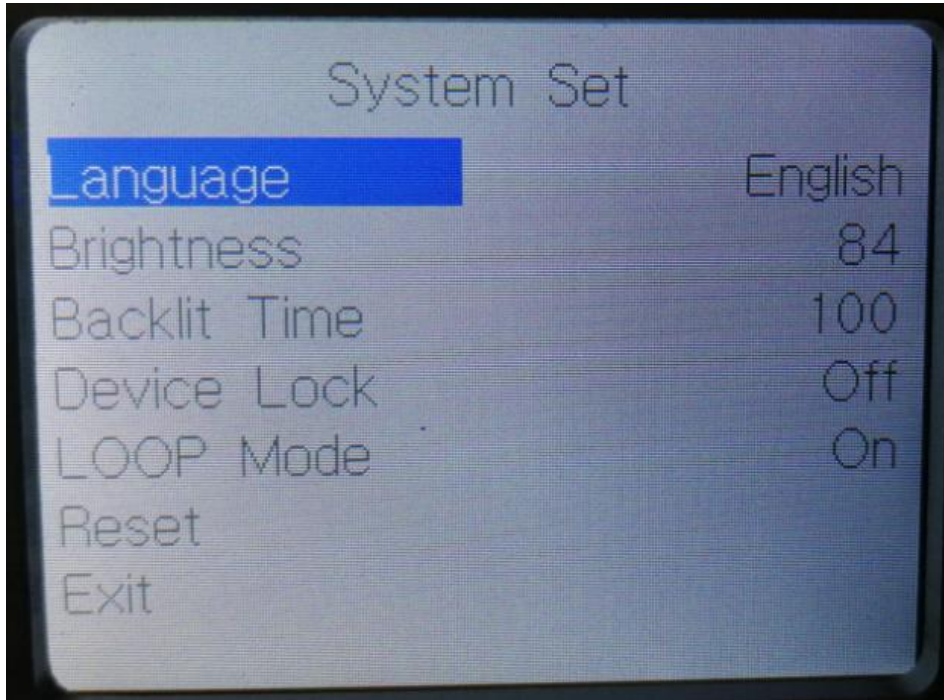


### 2.5.2.1. How to use the knob

- 1) Rotate clockwise to select downward.
- 2) Counterclockwise is the up selection.
- 3) When selected, the font background is blue.
- 4) Press to confirm.

### 2.5.2.2. System settings

Select the system menu and press the knob to enter the system setting screen, as shown in the following figure.



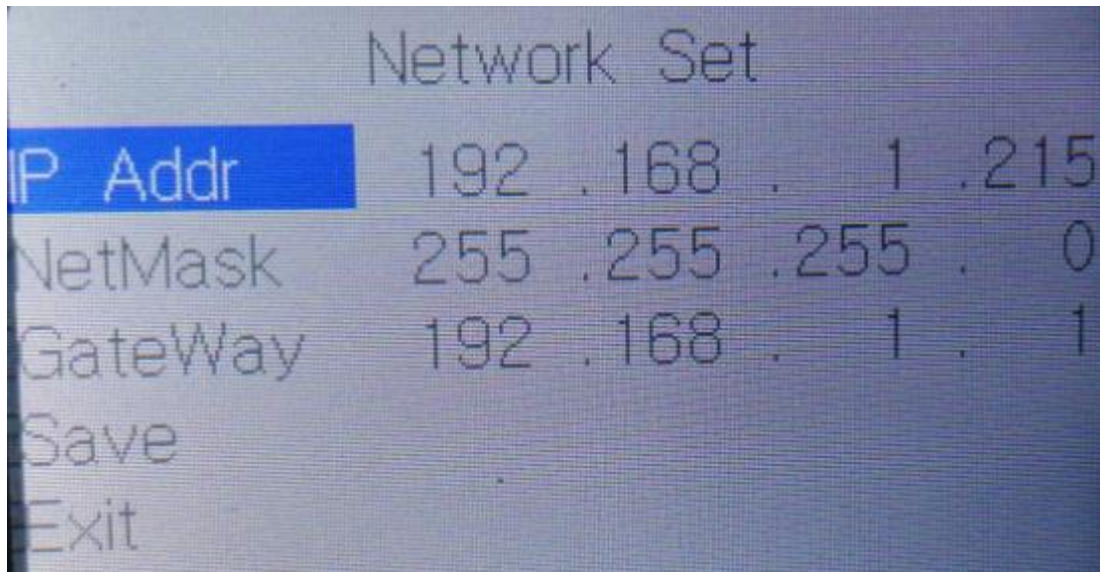
System settings include language settings, LCD screen brightness settings, backlight time and reset settings.

- 1) Language setting supports two languages, simplified Chinese(简体) and English. Setting method: turn the knob to language selection → press the knob → turn the knob to select the language to be set → press the knob.
- 2) Screen brightness setting: the brightness of the LCD panel can be adjusted through the knob. The setting method is the same as above.
- 3) Backlight time: you can freely adjust the time of backlight constant according to your own use.
- 4) Reset settings: this option will restore the factory settings. After setting, all settings will be cleared, including all settings on the PC and device IP.

### **2.5.2.3. Network settings**

Select the network and press the knob to enter the network setting screen, as shown in the following figure.





In the network settings, you can set the IP, subnet mask and network management of the device.

Set the IP address: press the knob after selecting the IP address → you can set the first segment PICTURE 192 of the IP. You can turn the knob to increase and decrease the number → enter the second segment to set the PICTURE 168, press the knob after setting → press the knob after setting the third segment → set the last segment PICTURE 216, press the knob after setting, and then set the subnet mask and gateway, The setting method is consistent with the above. Remember to save after the setting is completed. If it is not saved, exit. The setting is invalid.

#### **2.5.2.4. Display settings**

Select the display setting and press the knob to enter the display setting screen, as shown below.





Display settings:

- 1) Sets the font color and background of the selected channel UMD.
- 2) Sets the font color and background for the selected channel resolution.
- 3) Turns on or off the screen output of the selected channel.

Setting method:

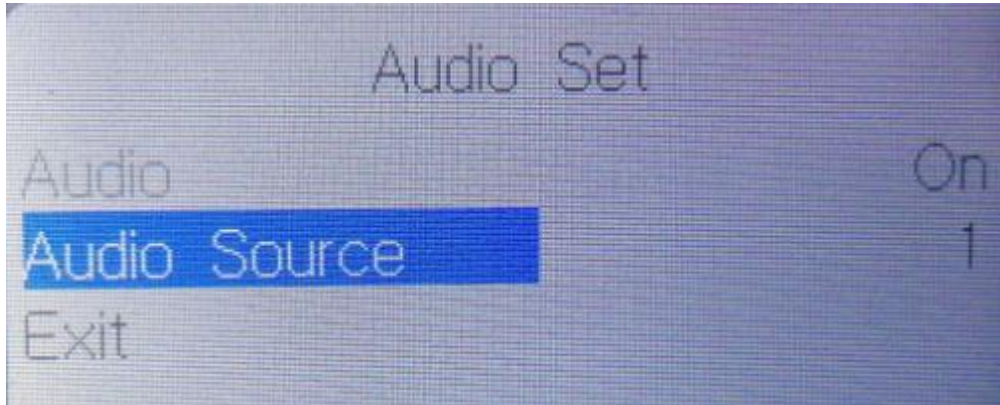
Custom font color and background color: rotate the knob to select the channel and press the knob → rotate the knob to select the channel to be controlled and press the knob → rotate the knob to select the item and press the knob → rotate the knob to select UMD or resolution and press the knob → rotate the knob to text color or background color to adjust the background color and font of UMD and resolution of the channel Change the color.

Turn on or off the screen output of the selected channel: select the knob to channel selection and press the knob → select the lower knob of the channel to be controlled → select display enable and press the knob → you can select whether or not; Yes to turn on the channel screen display, no to turn off the channel screen display.

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### 2.5.2.5. audio setup

Select the display setting and press the knob to enter the display setting screen, as shown below.



The audio setting option can turn on or off the specified channel audio

Setting steps:

- ① Turn the knob to the audio source channel and select the channel to be controlled.
- ② Turn the knob to audio enable to turn on or off the audio of the channel.

### 2.5.2.6. Equipment information

Select the equipment information and press the knob to enter the equipment information screen. Some system information of the equipment can be seen on the page.

## 2.6. Tally function

This device supports tally display.

## 2.7. RST reset

The equipment supports hardware reset. In order to prevent accidental touch, it is designed as a built-in button. If it is necessary to restore the factory setting, long press for 1 second to realize reset, and the system will restart automatically after reset.

# 3. Fault and maintenance

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## 3.1. Common faults and Solutions

The output image may be flickered by interference. The quality of the wire used may be poor, and the shielding layer of the wire is not well prepared. When there is a strong radio near the use environment, radio waves may interfere with the transmission of the signal, resulting in unstable signal flicker. Please use the wire produced by regular manufacturers, such as Belden, Canare.

- (1) When plugging in the audio and video interface, if there is obvious static electricity, the device power ground wire may not be good grounding, please ground in the correct way; otherwise it will easily damage the host and shorten the life of the mainframe.
- (2) When RJ45 or RS232 cannot control the picture splitter, check whether the network port indicator is normal, and determine whether the IP address of LAN or computer is in the same network segment as the device IP address. RS232 check whether the communication port set by the control software corresponds to the serial port of the connected equipment, and check whether the communication port of the computer is good.

## 3.2. maintain

Please clean the equipment with a soft, dry cloth. Do not use alcohol, paint thinner or gasoline for cleaning. Ensure that the equipment is stored and operated in an environment away from liquids and stains. There are no parts handled by the user. For all service and maintenance matters, please contact our company or other authorized distributors.

## 3.3. Warranty description

### 3.3.1. Guarantee information

Devicewell provides a 12-month warranty for this product from the date of purchase. If the product fails during the warranty period, devicewell can provide free repair or replacement of parts for the product, and replace the defective product if necessary. In order to ensure that users have the right to enjoy the services in the warranty terms, in case of product failure, you must contact devicewell after-sales service department within the warranty period, and properly arrange the warranty after confirmation. For defective products, the user shall be responsible for packaging and sending the products to the designated service center of devicewell for repair, and the freight shall be borne by the user and paid in advance. If the user returns the goods for any reason, all the freight, insurance premium, customs duty and other taxes and other expenses incurred shall be borne by the user.

### 3.3.2. Warranty limitations and exceptions

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In addition to the above limited warranty, this warranty does not apply to any defect, failure or damage caused by improper use, maintenance or poor maintenance. If the product is damaged due to abuse, misuse, negligence, accident, abnormal physical pressure or voltage, unauthorized modification, tampering, change, or services provided by others other than the company or its authorized agent, the company will not bear additional obligations. Except for faults caused by normal use or correct use of the product in the application applicable to the product. According to this warranty service, the warranty service scope of devicewell during the warranty period does not include the following contents: 1. Repair the damage caused by installation, repair or maintenance performed by non devicewell professionals; 2. Repair the damage caused by improper use or connection to incompatible equipment; 3. Repair the damage or failure caused by the use of parts not produced or provided by devicewell; 4. Carry out maintenance and repair for products modified or assembled with other products (the time required for maintenance and repair or maintenance difficulty will be increased after product modification or assembly). This warranty is provided by devicewell and supersedes all other warranties, express or implied. Devicewell and its suppliers disclaim any implied warranties of merchantability and fitness for a particular purpose. Devicewell is responsible for providing users with repair or replacement services for defective products, which is a complete and exclusive remedy, regardless of whether devicewell or its suppliers are aware of the possibility of indirect, special, accidental or inevitable damage in advance. Devicewell is not responsible for the illegal use of this device by the user. Devicewell is not responsible for any loss caused by the use of this product. The operation risk of this product is borne by the user. Devicewell reserves all rights and has the final right to interpret all the above contents.

## 4. Appendix

### 4.1. Version and production information

Version number	Producer	Production time
V2.0	Engineering department	November 21, 2022