DeviceWell®
中帝威科技

Users' Manual

SDI 16-Screen Multiview

MVP9116

VAR 2.0

www.devicewell.com

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.

Contents

1. Product introduction

1.1. Product overview

This is a professional-grade SDI multiview that supports 16-channel SDI signal input and 16-channel SDI output and 1-channel HDMI output. You can use the front panel keyboard to change the display resolution to 1080i50 / 60, 1080p25 / 30 or more. The device is a multi-screen splitter with 16 matrix switching functions. The device can connect 16 SDI signals and has 16 loop-out functions. When performing multi-picture synthesis, there are 2 identical SDI outputs (the two left SDI interfaces) and 1 HDMI output. The display mode of the screen can pass through the network port. Flexible configuration using PC-side software allows configuration options for 1 to 16 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.

1.2. Main Functions

- ◆ Art design style
- ◆ 16 channel signal input, 16 channel signal loop out, 3-channel multi picture output
- ◆ Support single picture amplification, 4 screens, 6 screens, 8 screens, 9 screens, 10 screens, 11 screens, 12 screens and 16 screens modes
- ◆ Support input screen switching
- ◆ Audio column display and character overlay are enabled or disabled
- ◆ Input port: SDI × 16
- ◆ Output port:SDI×16（loop）; SDI×2 ; HDMI × 1
- ◆ SDI input HD / SD adaptation
- ◆ Support network, RS422, menu and key control
- ◆ Support network upgrade system function
- ◆ Support REF input extension
- ◆ Support TALLY extension
- ◇ Special functions can be customized

1.3. Product Parameters

Product name	**SDI 16-Screen Multiview**	
SDI Input	Input signal	SDI HD serial digital video signal
	Bit rate	143Mbps~2.97Gbps
	Connector	BNC complies with IEC169-8 standard
	Reflection loss	>15dB 5MHz~3GHz
	Signal amplitude	800mV±10%
	impedance	75Ω
	equilibrium	100m Belden 1694A HD
		200m Belden 8281A HD
SDI Output	Output signal	SDI HD serial digital video signal
	Connector	BNC complies with IEC169-8 standard
	Reflection loss	>15dB 5MHz~3GHz
	Signal amplitude	800mV±10%
	impedance	75Ω
	Rise / fall time	0.6ns±100ps
	DC offset	0V±0.5V
	Clock recovery	Auto output optional
	Overshoot	<5%
	shake	<0.2UI
HDMI Output	output signal	HDTV HD digital video signal
	Bit rate	270Mbps~2.97Gbps
	Signal amplitude	800mV±10%(100R)
	impedance	100Ω
Control parameters	Local control	Key (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	25W-150W， Depending on the host type
	Host size	1U(Standard power supply)
	control panel	YES
	weight	2.1KG
	working temperature	0℃~50℃ non-condensing
	Storage temperature	-20℃~75℃
	Working humidity	20%~70%RH
	Storage humidity	0%~90%RH， No condensation

1.4. Standard list

- Multiview main part
- AC power cord x1
- 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 equipment may not work or work normally。

(1) Connect the signal output port of the signal source to the input port of the equipment.

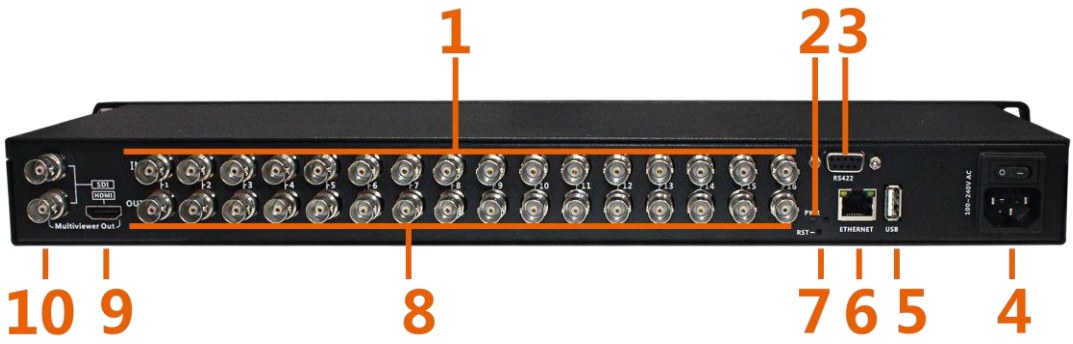
(2) Configure the corresponding I / O card according to the I / O on site.

(3) Connect the signal output port of the equipment to the signal input port of the display equipment.

(4) Turn on the power of the equipment and turn on the power key switch.

(5) Use the manual button to select the input and output ports

(6) Rear panel interface description:



1. SDI×16 Input
2. Power light
3. RS422 Interface
4. power supply（AC 100 – 240V）
5.USB interface
6. network interface
7. RST
8. 16xSDI loop
9. 1xHDMI（Multiview output）
10. 2xSDI (Multiview output)

2.2. Multiview mode description

2.2.1. 1-screen mode

2.2.2. 4-screen mode

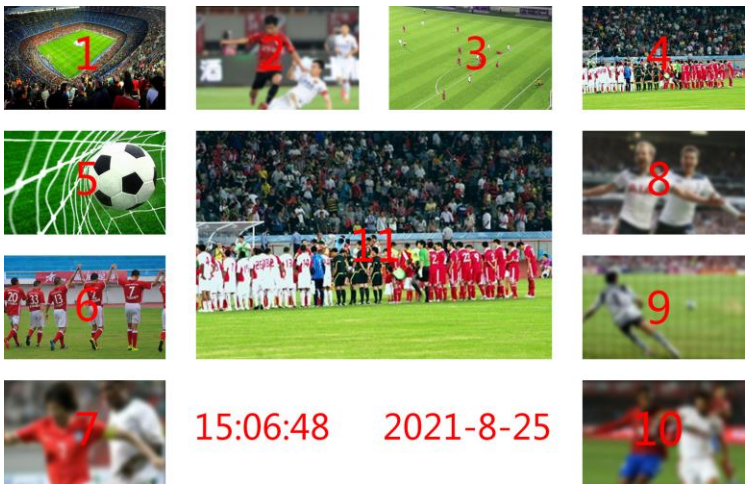
2.2.3. 6-screen mode

2.2.4. 8-screen mode

2.2.5. 9 -screen mode

2.2.6. 10-screen mode

2.2.7. 11-screen mode



2.2.8. 12-screen mode

2.2.9. 16-screen mode

2.3. Key board operating instructions

2.3.1. Channel switching operation

The switching operation can be carried out according to the connected input signal and the window number of multiple pictures. In X out y (such as switching the second channel signal to the fifth channel display, in + 2 + out + 5), or one channel can be switched to multi-channel display at the same time, in 2 out 1, 2, 3, 4... If the channel number to be switched is greater than 9, first press 10 +, then press 0, 1, 2, 3, 4, 5, 6 to input 10, 11, 12…

2.3.2. Full Panel

During multi screen switching, you can select one channel for full screen display. Press the full panel to enter the full screen, and then press the channel to be selected (for example, press the fifth input in the 16 channels to display in full screen, press the full panel to enter the full screen, press in, and then press 5), and press the full panel key again to return to the multi screen state.

2.3.3. Mode switching

Multi-screen mode switching, a total of 1, 4, 6, 8, 9, 10, 11, 12 seven modes to select, you can press the Mode button to cycle.

2.3.4. Lock key board

After pressing the lock key, the key light will always be on. At this time, the key board is locked and the functions of other keys have failed. After pressing the lock key again, the key light goes out, the equipment is unlocked, and the key board returns to normal function.

2.3.5. Audio column switch

Press Audio ON/OFF to toggle the audio column display or hide of all channels.

2.3.6. Character switch

Press char on / off to switch the display or hiding of characters in all channels.

2.3.7. Time code switch

Press the SET key to switch the time code display or hide of all channels.

2.3.8. Knob

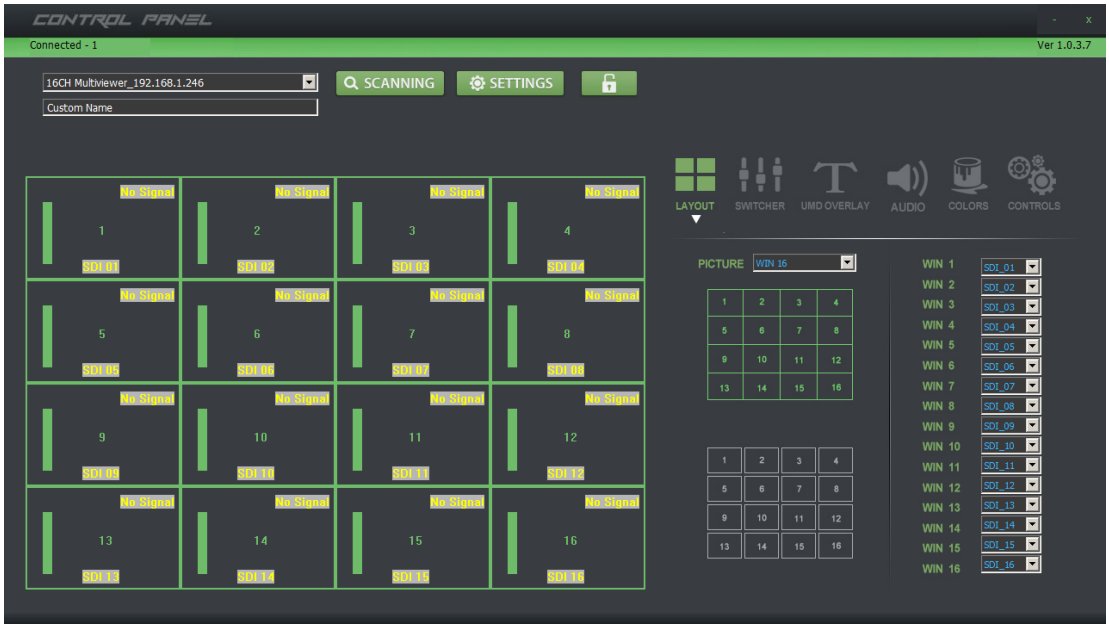
Control the LCD menu of the front panel.

2.4. Description of screen character setting control software

Run the EXE file to set whether serial port communication or network port communication can be set in sanning. After selection, 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 six modules.

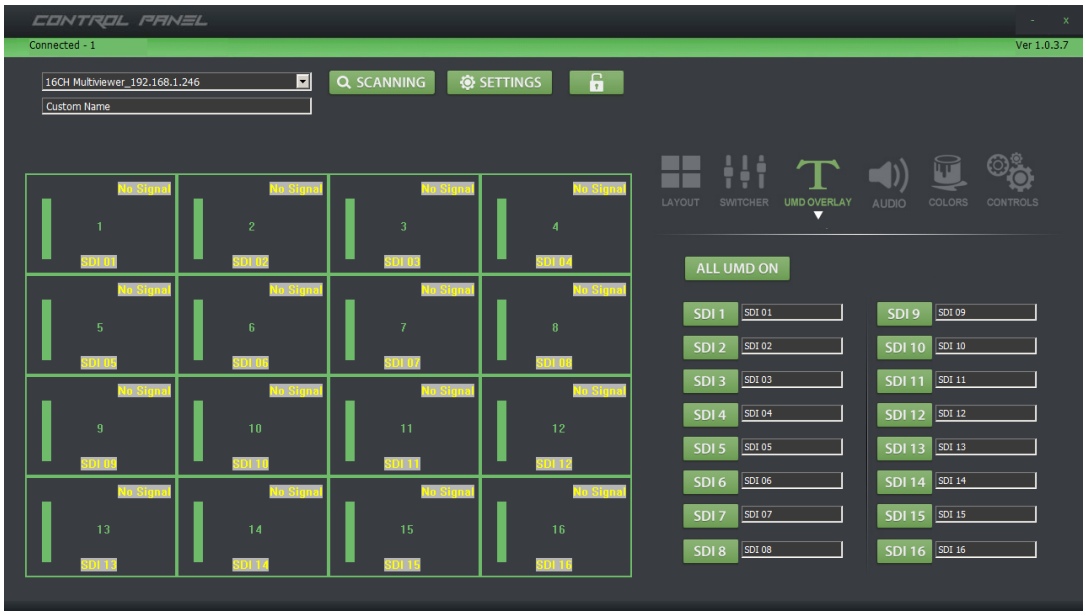
2.4.1. LAYOUT module

Click the LAYOUT 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.



2.4.2. 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.

2.4.3. AUDIO module

Click the AUDIO icon to enter the module. Under this module, you can change the audio column status of each window. You can also change the audio source channel. You can select the audio of any one of the 16 input channels as the output audio, or you can select the audio channel of this channel of audio.

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. CONTROLS module

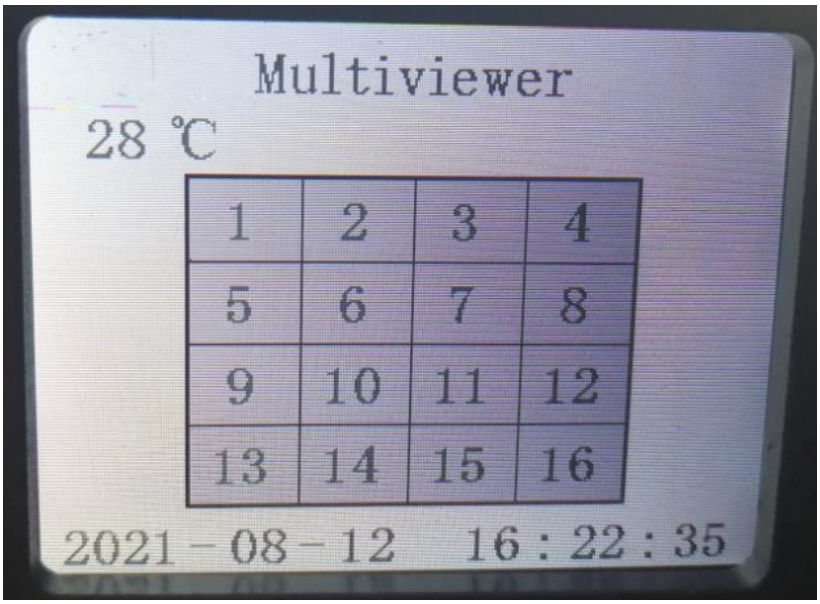
Click the CONTROLS icon to enter the module, which has the following functions:

1) Output resolution, switching output resolution;
2) Frame status, open and close the frame of the screen;
3) Audio column status, open and close the audio column;
4) Time code status, open and close time code;
5) Saving and calling of scenes, this device can save 2 groups of scenes;
6) Restore exit settings;

2.5. Menu usage and LCD display instructions

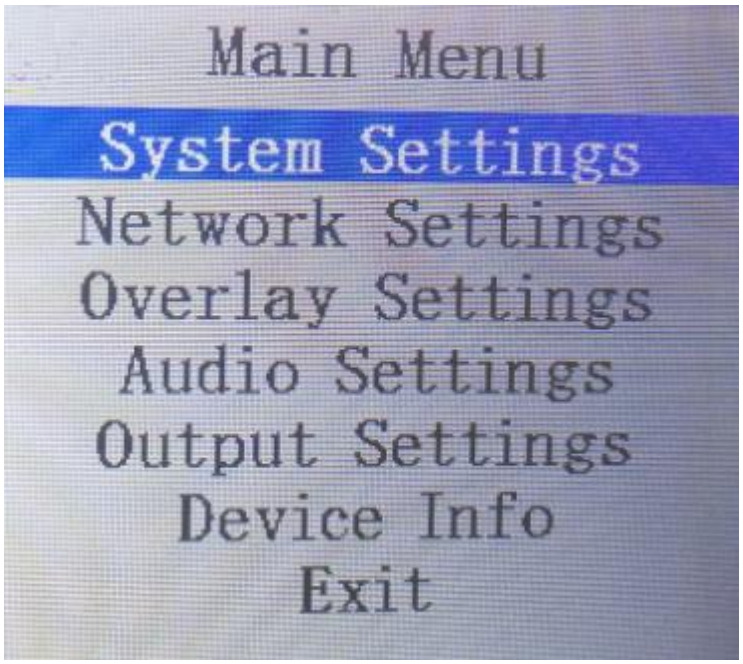
2.5.1. Startup LCD status display

After power on, you can see the internal temperature, channel status and time of the chassis on the LCD panel. As shown below



2.5.2. Menu interface

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

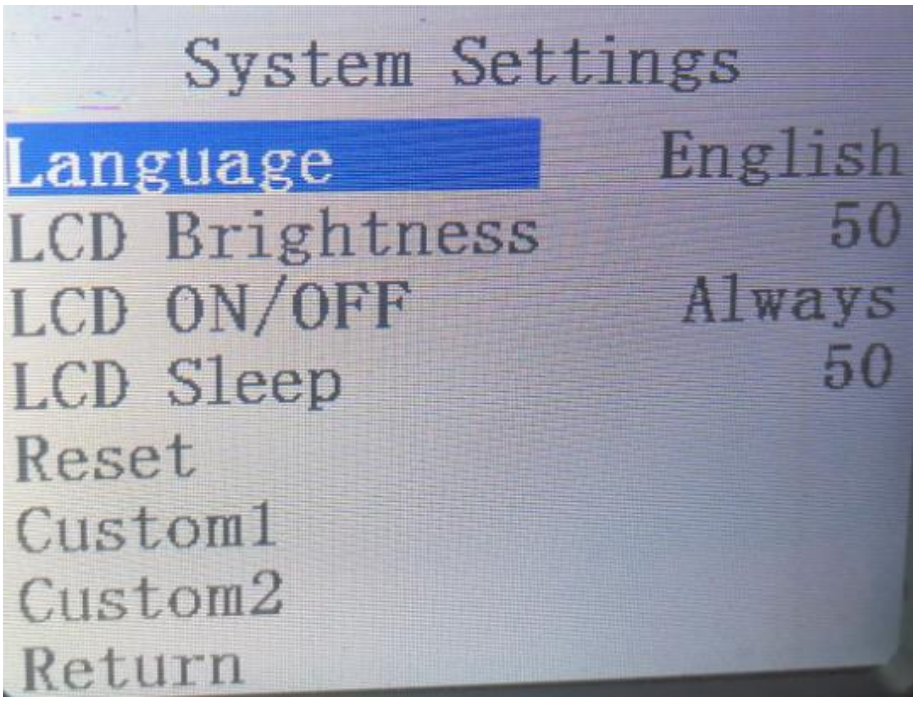


2.5.2.1. How to use the knob

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 interface, as shown in the following figure



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

1) Language setting supports two languages, simplified Chinese 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

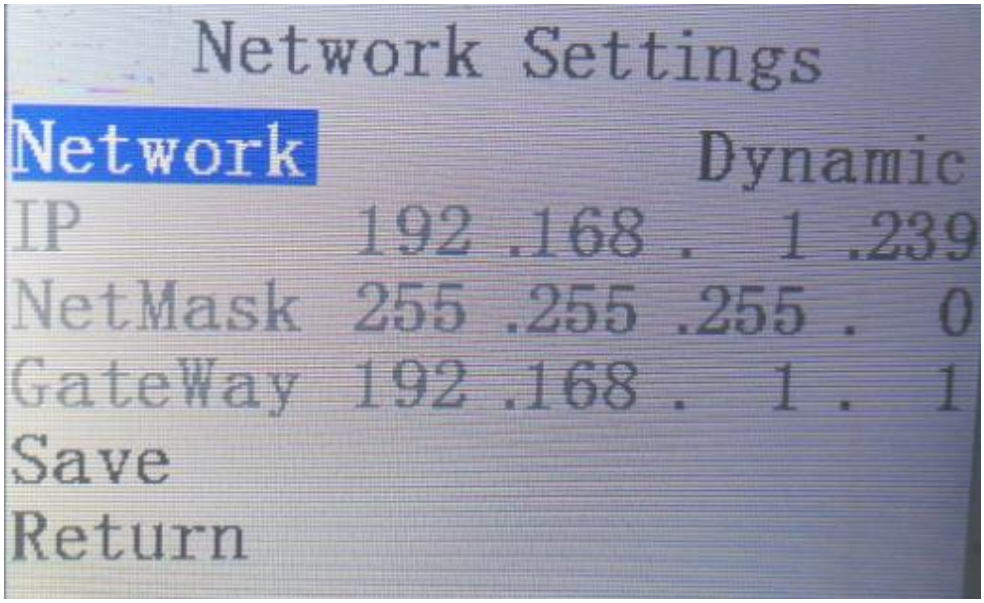
your own use.

4) Reset setting: this option returns to the factory setting. After setting, all previous settings will be cleared.

5) Call scenario: two groups of scenarios saved by customs clearance software settings can be called here.

2.5.2.3. Network settings

Select the network and press the knob to enter the network setting interface. As shown below



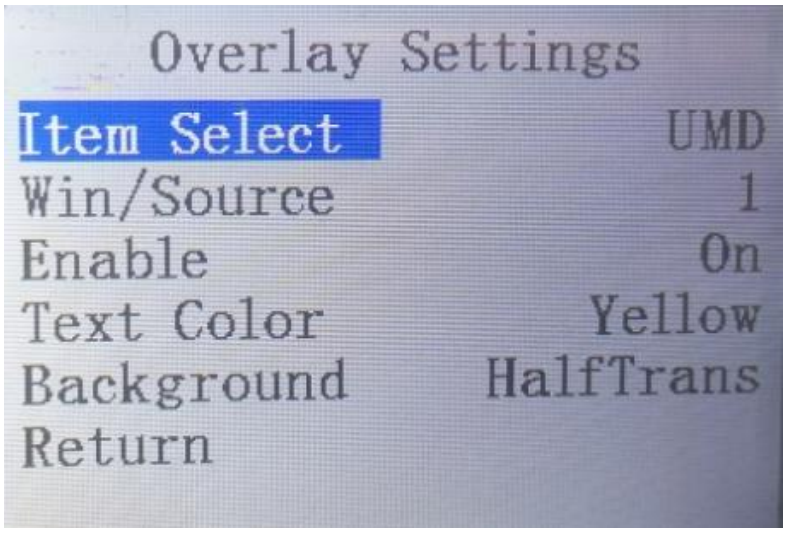
There are 2 modes in the network settings, dynamic or static. Dynamic IP address refers to the IP address automatically assigned to the device by the router after the device is connected to the router. Static IP address refers to the IP, subnet mask and network management settings of the device.

Set the IP address: press the knob after selecting the IP address → you can set the first segment of the IP. Figure 192 above can be adjusted up and down by rotating the knob → enter the second segment to set figure 168 above, press the knob after setting → press the knob after setting the third segment → set the last segment. Figure 216 above. After setting, press the knob, 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 interface, as

shown in the following figure



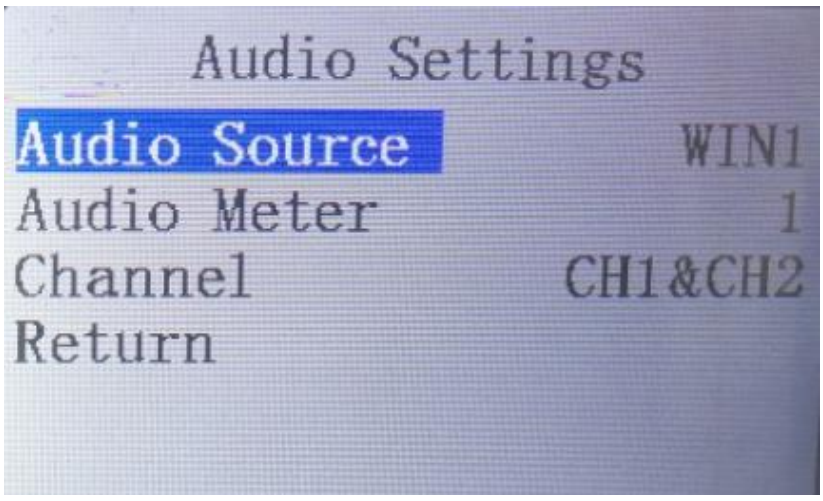
Display settings:

1) Item selection can operate the settings of corresponding functions
2) Under UMD, you can set the opening or closing of the window, font color and background color
3) 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.

2.5.2.5. Audio setup

Select the display setting and press the knob to enter the display setting interface, as shown in the following figure



The audio setting option can select which input signal audio is currently output, or select the audio channel of each window.

Setting steps:

① Turn the knob to output audio selection and select the window to output audio.

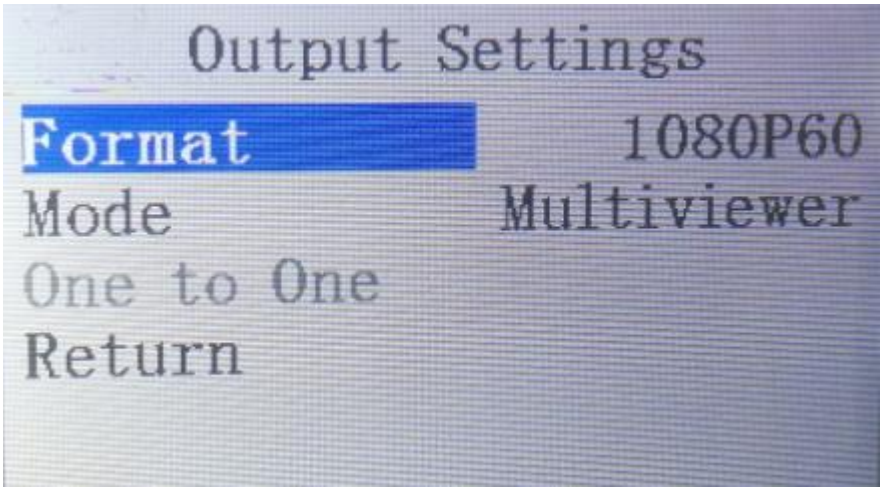
② Turn the knob to the sound column setting and select the window to be set.

③ Rotate the knob to the sound column channel to select the audio receiving channel of the current sound column.

Note: there are 16 audio channels in SDI signal format

2.5.2.6. Output setting

Select the output setting and press the knob to enter the output setting interface, as shown in the following figure



① Output format, SDI and HDMI resolution of multi picture output can be selected.

② Mode, which can be set into picture segmentation mode and matrix mode. The picture segmentation mode is factory default and includes all the above functions. After the matrix mode is selected, the function of picture segmentation is turned off, and the device will become a 16x16 SDI matrix.

③ The SDI loopout function can only be operated in the picture segmentation mode.

Note: the matrix operation mode is to press in first, the light is on, and then press the number key of the corresponding input channel; Then press out. When the light is on, press the number key of the corresponding output channel.

3. Fault and maintenance

3.1. Common faults and Solutions

（1） The output image will flicker when disturbed. It may be that the quality of the wire used is poor and the shielding layer of the wire is not done well. When there is a strong radio near the use environment, the radio wave will interfere with the signal transmission, resulting in unstable signal flicker. Please use wires produced by regular manufacturers,such as BELDEN，CANARE.

（2） When unplugging the audio and video interface, if you feel obvious static electricity, it is possible that the equipment power ground wire is not well grounded. Please grounding according to the correct method, otherwise it is easy to damage the host and shorten the service life of the host.

（3） When RJ45 (generally refers to computer network port) cannot control the picture splitter, check whether the communication port set by the control software corresponds to the serial port of the connected equipment; Check whether the communication port of the computer is in good condition.

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

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	Apr,10, 2023