itc

HD MIX Switcher

User manual

TS-9111UHT

Before using this system, please read this manual carefully

Notification

⚠️ **WARNING**

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

● If any of the following conditions are found, please immediately turn off the power, plug out and quickly contact your nearest dealer. Do not continue using this unit, which may cause a fire or electric shock.

- ● If you find smoke or have a strange taste from the machine.
- ● If water or metal falls into the machine.
- ● If the unit is dropped or the case is damaged.
- ● If the wire is damaged (wire core exposure, broken wire, etc.).

● If the machine contains high-pressure parts, in order to avoid the fire or electric shock, absolutely don't open the case, if any questions please inform your nearest dealer.

● Do not place cups, bowls, vases or metal and other water-filled substances on the unit. Serious spilled liquid may cause a fire or electric shock.

● Never expose the unit to rain and any moisture or water, which may cause electric shock or fire.

● Do not place metal objects or flammable materials from the vents on the machine cover, nor place coins, which may cause fire or electric shock.

● Do not place heavy objects on the unit to avoid personal injury or property damage when the unit is slipping.

● Make sure that the volume is turned on at the beginning of the boot, and the high volume of the boot may cause hearing problems.

● Make sure that the volume is turned on at the beginning of the boot, and the high volume of the boot may cause hearing problems.

● For long-term accumulation of dust to be cleaned, please inform your dealer to regularly clean the machine, so as to avoid damage to the machine or cause a fire.

● The battery must be replaced with the same type of product and the correct installation should be made in order to avoid electrical damage and explosion hazard.

● The product is a Class I device. The device must be well connected to ground. The power plug must be connected to a power outlet with a grounding device to ensure that the equipment is fully grounded.

● This product uses a power plug or appliance input socket as a disconnecting device with the power supply, and must be disconnected if necessary for safety reasons.

● This equipment is only suitable for safe use at altitudes above 2000 meters.

Precautions

1. The installation environment

When installing the unit, in order to ensure the normal cooling of the host, should avoid the poor ventilation of the place or high temperature environment, to avoid direct sunlight.

Recommend to install cabinet or other well-ventilated place indoor. If you use the machine in the outdoors, please pay attention to waterproof, moisture, lightning protection measures.

Avoid installing in a violent place of vibration; do not place other equipment on the machine.

Working temperature : -20℃~70℃.

Humidity is limited to 10% to 90% (non-condensing).

2. To avoid electric shock and fire

Do not touch the hands and the source with wet hands

Do not spill liquid on the machine, so as to avoid short-circuit or fire inside the machine.

Do not place other equipment directly on the top of the unit.

Non-professional service personnel Do not disassemble the unit yourself to avoid damage and electric shock.

3. Transport and handling

The packaging of the machine is designed and tested to ensure that the host will not be accidentally damaged during transport. It is best to use the original packaging when handling the unit.

Do not move the host device between the place or cold or over hot to avoid condensation inside the machine, affecting equipment life.

4. Please follow the warning instructions on this product, the warning signs on behalf of:

	Applicable to 2000 meters above sea level and below safe use
	Safe use only in non-tropical climates

5. Agreement

Please strictly follow the instructions in this manual. The software, hardware and appearance of this product will be upgraded and updated continually. The above changes will be made without notice.

Non-professional maintenance personnel,   do not remove the product, to avoid damage and electric shock.

Contents

1. Introduction of System

TS-9111UHT is a high-performance switcher that can convert / switch different types of audio and video input signal to HDMI/HDBaseT signal. With the built-in resolution manager, users can convert all input signals into output with actual required resolution, supporting a maximum resolution of 1920 * 1200 @ 60Hz. Through ITC's innovative audio configuration/switching technology, the sonic boom and stuck phenomenon can be avoided.

2. Functional characteristics

1. Multiple audio and video interface type:
① Provide total 11 channels video signal input including 2 VGA, 4 HDMI, 2 DVI, 1 YPbPr, 1 SVIDEO and 1 CVBS.
② Provide 8 channels 3.5 unbalanced analog stereo audio input, 1 channel RCA unbalanced analog stereo audio input (YPbPr, SVIDEO, CVBS share the audio input channel) and 1 channel microphone audio input;
③ Provide 1 channel HDMI and 1 channel HDBaseT video signal output (HDBaseT can support up to 70 meters transmission)
④ Provide 1 channel unbalanced analog stereo audio output and 1 two-channel 28W unbalanced analog stereo audio amplifier output.
2. The analog audio signal is automatically mixed with the microphone audio signal, both of which can be mute individually.
3. Each audio output is all with 80-level fine-tuning control.
4. HDMI input signal source can choose analog audio input or digital audio input.
5. Audio signal in the start, mute, switching process comes with fade function.
6. HDMI and HDBaseT video signal output have 10-level adjustable resolution.
7. Host has built-in OSD menu, which can be used to adjust output screen parameters.
8. Perfect support audio and video separation technology, audio and video transmissions are independent.
9. Support serial and Ethernet remote control methods, also can directly adjust the body button to control output.
10. Support HDMI 1.4 (compatible with DVI1.0), HDCP1.3.

3. Features of each component
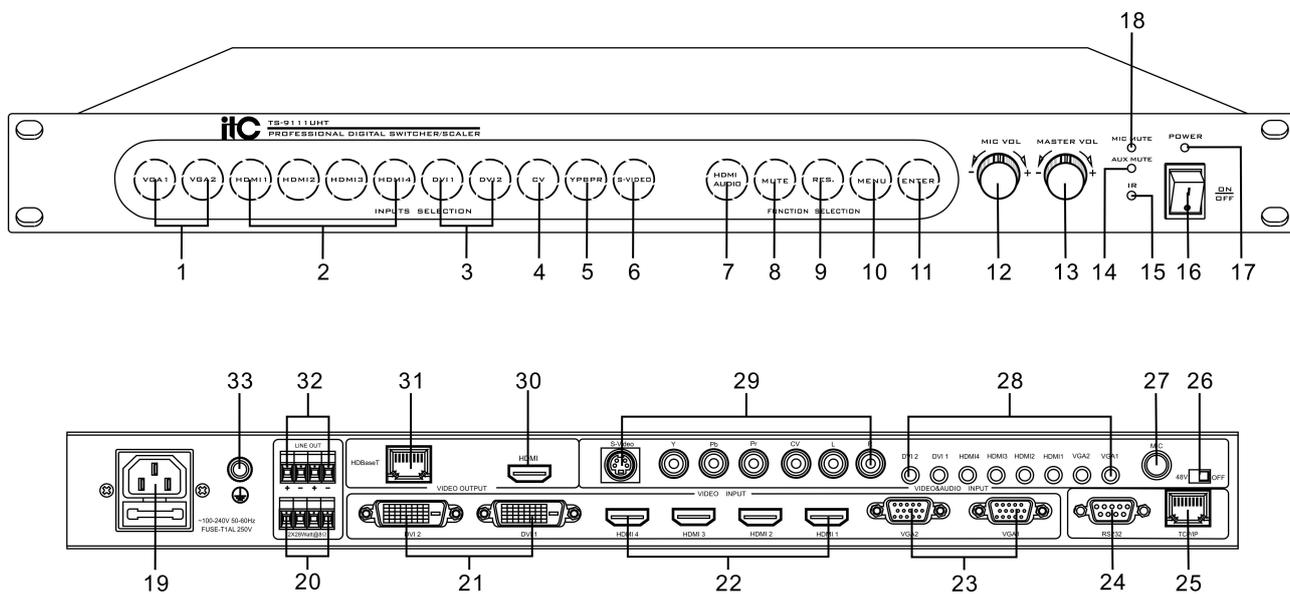
1. 2-channel VGA video signal input key.

2. 4-channel HDMI video signal input key.

3. 2-channel DVI video signal input key.

4. 1-channel CV video signal input key.

5. 1-channel YPBPR video signal input key.

6. 1-channel S-VIDEO video signal input key.

7. HDMI AUDIO key: HDMI input audio source selection. When the key light is on, it means selecting HDMI digital audio, light off means selecting 3.5 unbalanced analog stereo audio input (this key is only valid for 4 HDMI input channels).

8. MUTE key: all mute, mute video, audio and microphone audio at the same time.

9. RES key: resolution adjustment, each time you press the key, HDMI and HDBaseT output resolution will increase cyclically (with total 10-level adjustable resolution).

10. MENU key: OSD menu enter / exit, the key will keep synchronous lighting with OSD menu display, the default continuous display time of OSD menu is 5s.

11. ENTER key: confirm for OSD menu. This key is only valid when the OSD menu is open, it is used to enter the OSD submenu and save the changes; at other time, this key has no effect.

12. MIC VOL knob: This knob is used for left and right adjustment of menu during the OSD menu is open. During the OSD menu is off, the knob is used for the microphone output

volume adjustment. At any time, the key assigned to the knob is used to mute the microphone.

13. MASTER VOL knob: During the OSD menu is open, the knob is used for up and down adjustment of menu. During the OSD menu is off, the knob is used for the video output volume adjustment. At any time, the key assigned to the knob is used for video mute

14. AUX MUTE light: video sound state. Light means video mute.

15. Infrared receiving window.

16. Power switch.

17. Power indicator.

18. MIC MUTE indicator: microphone sound state, the indicator light means microphone mute.

19. AC power input socket.

20. Dual-channel unbalanced analog stereo audio output interface, connect speakers.

21. 2 channel DVI video signal input.

22. 4 channel HDMI video signal input.

23. 2 channel VGA video signal input.

24. RS232 serial port control.

25. TCP/IP network control.

26. Phantom 48V switcher.

27. 1 channel microphone audio input.

28. 8 channel 3.5 unbalanced analog stereo audio input.

29. 1 channel S-VIDEO, 1 channel YPbPr, 1 channel CVBS video signal input，three share RCA unbalanced stereo audio input.

30. 1 channel HD BaseT video signal output.

31. 1 channel HDMI video signal output.

32. 2 channel unbalanced analog stereo audio output, connect external amplifiers.

33. Ground pole.

4. Performance parameters

Specifications / Model	TS-9111UHT
Input signal quantity/input number	11
Output display port quantity/output number	2
Support input signal	HDMI,DVI,VGA,YPbPr,CVBS,SVideo
Support output signal	HDMI
Interface bandwidth	2.25 Gbps, Fully digital (6.75 Gbps in total, 2.25Gbps per color)
Serial port control	
Serial Control Interface	RS-232, 9- pin master D interface
Baud rate and agreement	Baud rate: 115200bps, data level: 8 bits, stop position: 1, None parity bit
Serial control port structure	2=TX，3=RX，5=GND
Ethernet control	
Ethernet control interface	RJ-45 Female connector
Ethernet control protocol	TCP/IP
Ethernet control speed rate	Adaptive 10M/ 100M, full duplex or half duplex
Specification	
Power supply	100VAC~240VAC，50/60Hz，International adaptive power supply
Storage and operation temperature	-20°～+70°C
Storage and operation humidity	10%～90%
Chassis size	1U，440(L)×295(W)×42(H)mm
Product weight	2Kg
Maximum power consumption (amplifier full load output)	96W
Mean time between failures	30,000 hours

5. Instructions for use

①**Equipments:**

    Signal source: HDMI, DVI, VGA, YPbPr, CVBS, SVideo;

    Cables: HDMI cable, DVI cable, VGA cable, YPbPr cable;

    Monitor: Monitor with HDMI interface;

    Passive or active speakers

②**Connect the audio and video source and monitor as shown below:**
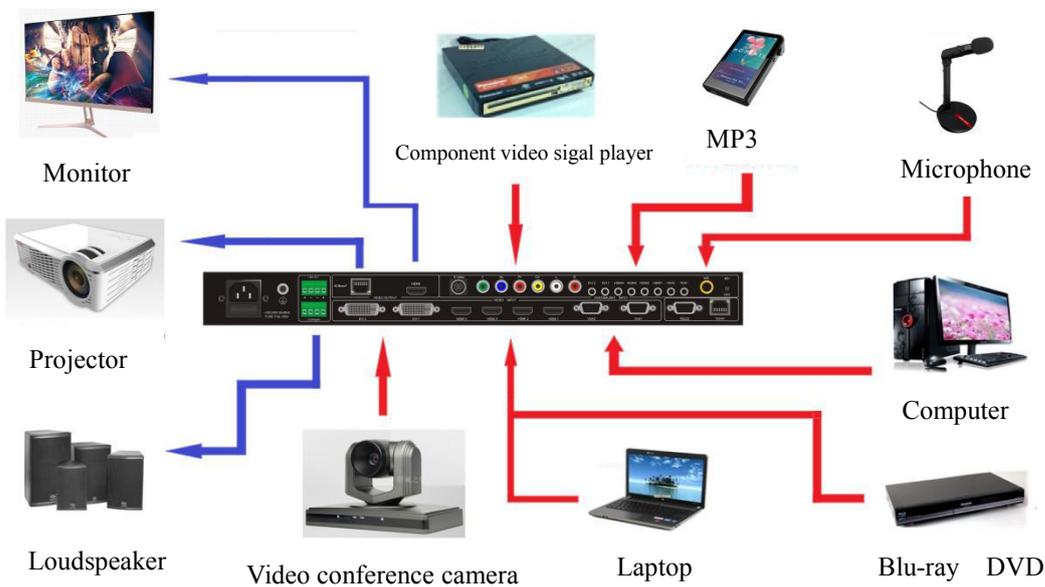
③**Front and rear panel operation description:**

（1）Input video source configuration

Method 1: configure the required input signal source through the keys in the INPUTS SELECTION area on the left side of main panel; after selecting, the appropriate indicator light will be on;

Method 2 Send the [X1] V1 command to the host via the RS232 serial port assistant or the TCP / IP debug assistant (refer to Section 6 "Command Parameters" for details of the instructions).

（2）HDMI input audio source configuration

Method 1: Configure through the HDMI AUDIO key in the FUNCTION SELECTION area on the right side of the main panel. The corresponding LED of the button is on to indicate that the current input audio source is HDMI digital audio data stream; and indicator off means that the current input audio source is the 3.5-channel unbalanced analog audio data stream corresponding to the input video source;
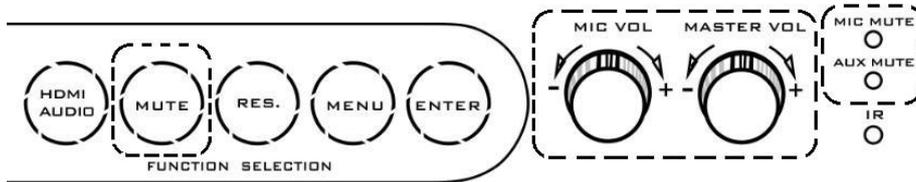

Method 2: Send [X0] A [X1] command via RS232 serial port assistant or TCP / IP debug assistant to the host (refer to Section 6 "Command Parameters" for details of the instructions).

Note: This configuration item is only valid for the 4 input channels of HDMI1, HDMI2, HDMI3 and HDMI4, other input channels can not be configured (no digital audio data stream is available for VGA, DVI, etc.)

（3）Configuration of mute, unmute

Method 1: Configure through MUTE key, MIC VOL key and MASTER VOL key in the FUNCTION SELECTION area on the right of main panel. MUTE button can be configured to simultaneously mute the microphone and video; MIC VOL key can only be configured to mute microphone; MASTER VOL can be only configured to mute the video.

Method 2: Send [X3] C81. Command to the host via RS232 serial port assistant or TCP / IP debug assistant (refer to Section 6 "Command Parameters" for details of the instructions).

（4）Output resolution configuration

Method 1: Configure through the RES. Key in the FUNCTION SELECTION area on the right side of the main panel. The output resolution will be increased by one level (the host have built-in 10-level resolution) for every pressing.

Method 2: Send the [X2] C08. Command to the host via the RS232 serial port assistant or the TCP / IP debug assistant (refer to Section 6 "Command Parameters" for details of the instructions).

（5）Output Volume Configuration

Method 1:   Mic output volume can be adjusted through the main panel knob MIC VOL; Video output volume can be adjusted through MASTER VOL knob; the buzzer beeps when the volume level reaches its maximum or minimum level.
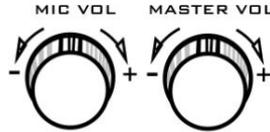
Method 2: Send [X4] C82. Or [X5] C83. Command to the host via the RS232 serial port assistant or the TCP / IP debug assistant (refer to Section 6 "Command Parameters" for details of the instructions).

（6）output video screen parameter configuration

The output screen parameters can be controlled by operating OSD menu via the main panel MENU and ENTER key, with the use of MIC VOL and MASTER VOL two knob. MENU is responsible for opening or step by step exit OSD menu; ENTER is responsible for entering the second submenu or save the current configuration parameters. While the OSD menu is open, the MIC VOL knob is used to move the menu left and right or change the value, and the MASTER VOL knob is used to move up and down.
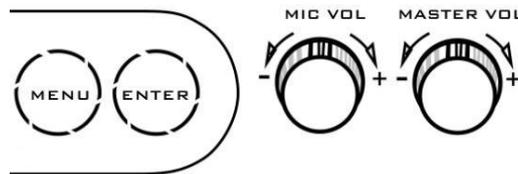

（7）The collocation between video interface and audio interface

Please carefully observe silkscreen of interface on rear panel, eight 3.5 unbalanced analog audio input interfaces correspond to each video input interface; when video is input from a video interface, audio must be input from the 3.5 unbalanced analog audio interface with the same silkscreen as the video interface, the sound will be played normally.
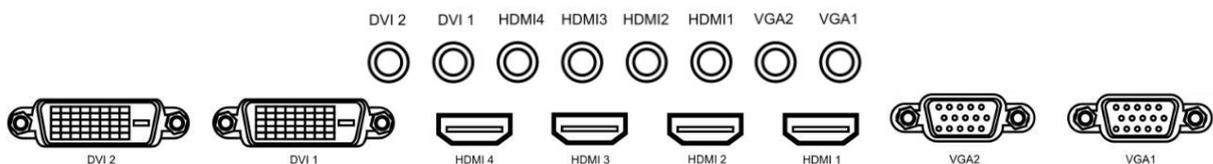

Note: S-VIDEO, YPbPr and CVBS share the RCA stereo audio input channel.
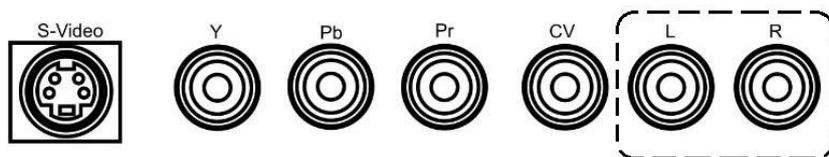
（8）Output audio interface description

It is configured with two rows of audio output interface on the left side of the host rear panel. Due to built-in dual-channel 28W amplifier board, the below row of audio interface can be directly connected to the speaker. The top row of audio interfaces outputs standard audio signals, if users need to configure their own amplifier and audio equipment, users can connect the interface. Two rows of audio interface output audio information is exactly same.
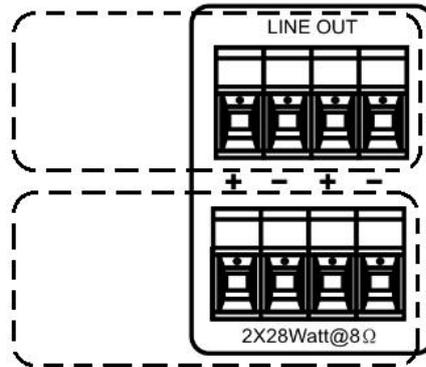
6. The command parameters

①RS232 control

Baud rate: 115200bps;

Data bit: 8bits;

Stop bit: 1bit;

Parity bit: None;

Flow Control: None

②TCP / IP control

The machine address: 192.168.15.212

Subnet mask: 255.255.255.0

Gateway: 192.168.15.1

Port: 4001

MAC address: 0x00,0x08,0xDC, 0x01,0x02,0x22

Command	Features	Return value	Example
[X1]V1.	Select the X1 channel interface as the current video source X1 Value range: 1 to 11 1：VGA1 2：VGA2 3：HDMI1 4：HDMI2 5：HDMI3 6：HDMI4 7：DVI1 8：DVI2 9：CVBS 10：YPBPR 11：SVIDEO	success ： VideoSource = [X1]. failure：Command Error!	Send：3V1. (HDMI1 as a video input source) Return ： VideoSource = HDMI1.
[X0]A[X1].	Select the X1 channel audio source for digital audio or analog audio X0 Range of values: 1 or 2 1：ANALOG_AUDIO 2：DIGITAL_AUDIO X1 Value range: 3 to 6 3：HDMI1 4：HDMI2 5：HDMI3 6：HDMI4	Success ： [X1] Audio = [X0]. Failure：Command Error!	Send：2A3. (HDMI4 audio source is set to digital audio) Return：HDMI1 Audio = DIGITAL_AUDIO.

[X2]C08.	Modify the output resolution X2 Value range: 1 to 10 1： 1024x768_60P　　2：1280x720_60P 3： 1280x1024_60P　　4：1366x768_60P 5： 1400x1050_60P　　6：1440x900_60P 7： 1600x1200_60P　　8：1680x1050_60P 9： 1920x1080_60P　　10：1920x1200_60P	Success： Resolution = [x2]. Failure：Command Error!	Send：09C08. (Set the output resolution to 1920x1080_60P) Return： Resolution = 1920x1080_60P.
[X3]C81.	Mute or unmute X3 Value range: 1 to 6 1：Global Audio Unmute 2：Global Audio Mute 3：Mic Audio Unmute 4：Mic Audio Mute 5：Master Audio Unmute 6：Master Audio Mute	Success： Global Audio Unmute! Global Audio Mute! Mic Audio Unmute! Mic Audio Mute! Master Audio Unmute! Master Audio Mute! Failure：Command Error!	Ssend：05C81. Master Audio Unmute Return： Master Audio Unmute!
[X4]C82.	Set the Mic volume X4 Range of values: 0 to 79	Success：MICVOL:[X4]. Failure：Command Error!	Send：56C82. Return：MICVOL:56.
[X5]C83.	Set the host volume X5 Range of values: 0 to 79	Success： MASTERVOL:[X5]. Failure：Command Error!	Send：56C83. Return： MASTERVOL:56.
[X6]C84.	Set the maximum output volume of the host Used for self-protection of audio equipment X6 Range of values: 0 to 79	Success： Limit max volume:[X6]. Failure：Command Error!	Send：56C84. Return： Limit max volume:56.
CHKVOL[X7].	Check the volume value X7 range of values: 1 to 2 1：Check Mic volume 2：Check the host volume	Success：MICVOL:xx！ MASTERVOL:xx！ Falure：Command Error!	Send：CHKVOL1. Return：MICVOL:56!
BellOff.	Turn off the beeper tone	Success：Close beep! Failure：Command Error!	Send：BellOff. Return：Close beep!
BellOn.	Turn on the beeper tone	Success：Open beep! Failure：Command Error!	Send：BellOn. Return：Close beep!
<#SIPR[A1].[A2].[A3].[A4]>	Set the IP address A1-A4 Range of values: 0 to 255	Success： Modify: IP - [A1].[A2].[A3].[A4] Failure：Command Error!	Send：<#SIPR192.168.0.2> Return： Modify: IP - 192.168.0.2
<#GAR[G1].[G2].[G3].[G4]>	Set the network gateway number	Success：Modify: Gateway - [G1].[G2].[G3].[G4]	Send：<#GAR192.168.0.2>

	G1-G4 range of values: 0 to 255	Failure：Command Error!	Return：Modify: Gateway - 192.168.0.2
<#SUBR[M1].[M2].[M3].[M4]>	Set the network subnet mask M1-M4 Range of values: 0 to 255	Success：Modify: Mask - [M1].[M2].[M3].[M4] Failure：Command Error!	Send ： <#SUBR255.255.255.0> Return：Modify: Mask - 255.255.255.0
<#SHAR[D1].[D2].[D3].[D4].[D5].[D6]>	Set network hardware address (network hardware address is hexadecimal) D1-D6 range of values:0x00 to 0xFF	Success：Modify: Shar - [D1].[D2].[D3].[D4].[D5].[D6] Failure：Command Error!	Send ： <#SHAR0x00.0x01.0x02.0x03.0x04.0x05> Return：Modify: Shar - 0x00.0x01.0x02.0x03.0x04.0x05
<#SPORT[P1]>	Set the network port number	Success：Modify: Port - [P1] Failure：Command Error!	Send：<#SPORT[5000]> Return：Modify: Port - 5000
<#NETDEFAULT>	Network configuration restore factory value	Success：Restore NetWork Defaults:" IP - 192.168.15.212 Mask - 255.255.255.0 Gateway - 192.168.15.1 Mac-0x00,0x08,0xDC,0x01,0x02,0x22 Port - 4001 Failure：Command Error!	Send：<#NETDEFAULT> Return：Restore NetWork Defaults:" IP - 192.168.15.212 Mask - 255.255.255.0 Gateway - 192.168.15.1 Mac-0x00,0x08,0xDC,0x01,0x02,0x22 Port - 4001

Note: After modifying the IP address, you must reboot the controller to make the new address effective.

7. Precautions

1. Microphone input comes with 48V power supply for condenser microphone power supply, please select according to the microphone instructions to avoid damage to the microphone

2. This unit provides the speaker protection instruction [XX] C84. This instruction can be used only when the output amplitude of the audio signal exceeds the normal level. Under normal circumstances, please do not use this instruction arbitrarily, otherwise the video output volume may be too small.

HD MIX Switcher