User Manual

PS42UCH

4K Presentation Switcher with Soft Codec & Matrix Outputs

Version: PS42UCH_2021V1.0

Preface

Read this user manual carefully before using the product. Pictures are shown in this manual for reference only. Different models and specifications are subject to real product.

This manual is only for operation instruction, please contact the local distributor for maintenance assistance. The functions described in this version were updated till April, 2021. In the constant effort to improve the product, we reserve the right to make functions or parameters changes without notice or obligation. Please refer to the dealers for the latest details.

FCC Statement

This equipment generates, uses and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. It has been tested and found to comply with the limits for a Class B digital device, pursuant to part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a commercial installation.

Operation of this equipment in a residential area is likely to cause interference, in which case the user at their own expense will be required to take whatever measures may be necessary to correct the interference.

Any changes or modifications not expressly approved by the manufacture would void the user's authority to operate the equipment.

SAFETY PRECAUTIONS

To ensure the best from the product, please read all instructions carefully before using the device. Save this manual for further reference.

- Unpack the equipment carefully and save the original box and packing material for possible future shipment.
- Follow basic safety precautions to reduce the risk of fire, electrical shock and injury to persons.
- Do not dismantle the housing or modify the module. It may result in electrical shock or burn.
- Using supplies or parts not meeting the specifications of product may cause damage, deterioration or malfunction.
- Refer all servicing to qualified service personnel.
- To prevent fire or shock hazard, do not expose the unit to rain, moisture or install this product near water.
- Do not put any heavy items on the extension cable in case of extrusion.
- Do not remove the housing of the device as opening or removing housing may expose you to dangerous voltage or other hazards.
- Install the device in a place with fine ventilation to avoid damage caused by overheat.
- Keep the module away from liquids.
- Spillage into the housing may result in fire, electrical shock, or equipment damage. If an object or liquid falls or spills on to the housing, unplug the module immediately.
- Do not twist or pull by force ends of the optical cable. It can cause malfunction.
- Do not use liquid or aerosol cleaners to clean this unit. Always unplug the power to the device before cleaning.
- Unplug the power cord when left unused for a long period of time.
- Information on disposal for scrapped devices: do not burn or mix with general household waste, and please treat them as normal electrical wastes.

Table of Contents

1. Product Introduction

The PS42UCH is a conferencing system codec supporting resolutions up to 4K@60Hz 4:4:4 8bit and HDCP 2.2. It provides AV switching, audio de-embedded, and USB extension (with Stoltzen RX-1), plus system control. All video, audio, control, USB and Ethernet signals can be transmitted over a single CATx cable up to 70m.

The solution provides four video inputs such as HDMI, DP and USB-C. To simplify meeting room device management, the kit offers USB ports for devices extension, two on the transmitter and two on the receiver. It supports a variety of USB 2.0 devices like camera, microphone and keyboard as well as other devices.

It also allows users to control system functionality via WEB GUI, and RS232. Additionally, users can control the rise and fall of projector screen over relay port.

This is an ideal solution for meeting spaces using PC-based conferencing system codecs such as Skype@, WebEx@ and GoToMeeting@, etc.

1.1 Features

- 4K Presentation Switcher with Soft Codec & Matrix Outputs.
- Teleconference system – transmitter connect to laptop and USB MIC or speaker, while a RX-1 connect to display and USB camera.
- Automatic display control.
- HDMI 2.0b, 4K/60Hz/4:4:4 8bit, HDR 10, HDCP 2.2.
- Audio de-embedding on the receiver.
- EDID management for individual input.
- RS232, CEC, Relay and TCP/IP control.

1.2 Package List

Transmitter	▪ 1x PS42UCH ▪ 2x Mounting Ears with 4 Screws ▪ 4 x Plastic Cushions ▪ 1x 3-pin Terminal Blocks ▪ 1x Power Adapter (24VDC,5A)(Optional for charging USB-C devices up to 40W)
	▪ 1x User Manual

Note: *Please contact your supplier immediately if any damage or defect in the components is found.*

2. Specification

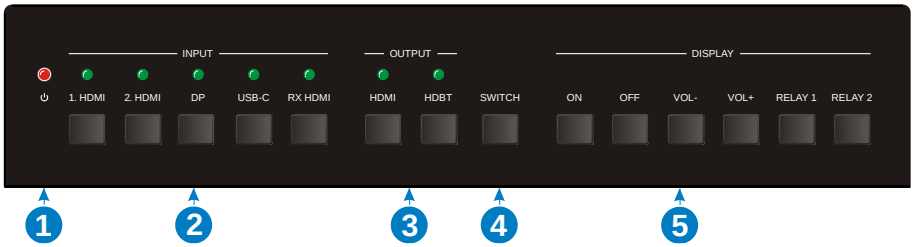
2.1 Transmitter

Video	
Video Input	(2) HDMI IN (1) DP IN; (1) USB-C IN
Video Input Connector	(2) HDMI Type A; (1) DP-A; (1) USB-C
Input Resolution	HDMI: Up to 4K@60Hz 4:4:4 8bit DP: Up to 4K@60Hz 4:4:4 USB-C: Up to 4K@30Hz 4:4:4
Video Output	(1) HDMI; (1) HDBaseT
Video Output Connector	(1) Female HDMI Type A; (1) RJ45
Output Resolution	HDMI: Up to 4K@60Hz 4:4:4 HDBaseT: Up to 4K@60Hz 4:2:0
Standards	Compliant with HDMI 2.0b & up to HDCP2.2
Control Part	
Control port	(2)USB HOST(2) USB DEVICE; (1)RS232;(1)TCP/IP;(1) FIRMWARE
Control Connector	(2) USB Type-B; (2) USB Type-A 3.0; (1)3-pin terminal connector; (1) RJ45, (1) USB Type-A
General	
Transmission Distance	1080P@70m /4K@40m
Operation Temperature	--5 ~ +55℃
Storage Temperature	-25 ~ +70℃
Relative Humidity	10% ~ 90%
External Power Supply	Powered via Receiver(PoC Tech)
Type-C Power Consumption	40w
System Power Consumption	32w (Transmitter & Receiver)
Dimension (W*H*D)	220 mm x 44 mm x 130mm
Net Weight	605g

3. Panel Description

3.1 Transmitter

3.1.1 Front Panel



① **POWER LED:** The LED illuminates red when power is applied.

② **SOURCE SELECTOR and INPUT LED:**

- **1. HDMI:** Press the button to select HDMI input 1, and then its LED illuminates green.
- **2. HDMI:** Press the button to select HDMI input 2, and then its LED illuminates green.
- **DP:** Press the button to select DP input, and then its LED illuminates green.
- **USB-C:** Press the button to select DP input, and then its LED illuminates green.
- **RX HDMI:** Press the button to select RX HDMI input, and then its LED illuminates green.

③ **OUTPUT SELECTOR and OUTPUT LED:**

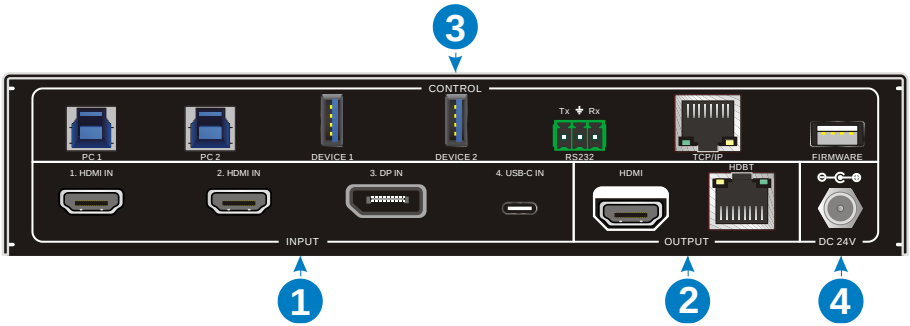
- **HDMI:** Press the button to select HDMI output, and then its LED illuminates green.
- **HDBT:** Press the button to select HDBT output, and then its LED illuminates green.

④ **SWITCH:** Press the button to finish the video switching.

⑤ **DISPLAY SELECTOR:**

- **ON:** Press the button to turn on the display.
- **OFF:** Press this button to turn off the display.
- **VOL-:** Press this button to turn down the audio output volume.
- **VOL+:** Press this button to turn up the audio output volume.
- **RELAY1:** Press the button to trigger Relay1.
- **RELAY2:** Press the button to trigger Relay2.

3.1.2 Rear Panel



① **INPUT:**

- **VIDEO:** 2x HDMI IN, 1x DP IN and 1x USB-C IN port.

② **OUTPUT**

- **HDMI:** HDMI video output port.
- **HDBT:** Support to be powered by 24V PoC by the receiver.

  Connect with HDBaseT Receiver to transmit AV signal, RS232 control signal.

③ **CONTROL**

- **PC1&PC2:** Two Type-B USB ports, provides three different USB modes: Follow Video, Follow USB, and Manual.
- **DEVICE 1& DEVICE 2:** Two Type-A USB ports, connect with USB devices.
- **RS232:** Serial port, 3-pin terminal connector, connect with a control device (such as PC).
- **TCP/IP:** RJ45 connector, provides built-in Web-GUI and TCP/IP control.
- **FIRMWARE:** Type-A USB port for updating system firmware.

④ **DC 24V:** DC barrel connector for connecting the included power adapter.

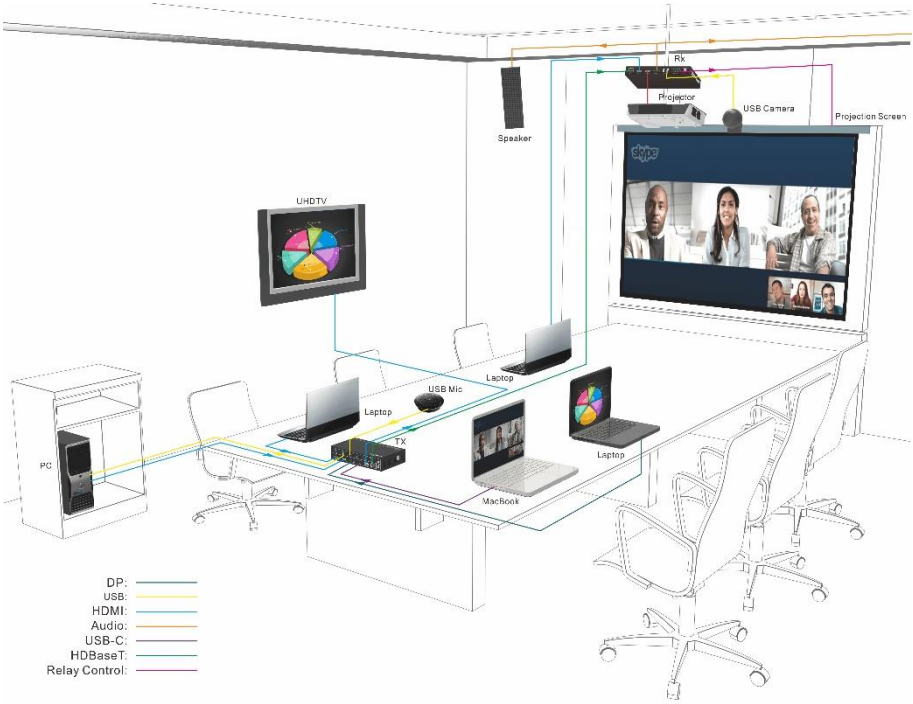
Note 1: *Only when Transmitter is powered by local, it can provide power 40W with Type-C. If Transmitter powered by the far-end, it cannot provide power with USB-C.*

4. System Connection

4.1 Usage Precaution

- Verify all components and accessories included before installation.
- System should be installed in a clean environment with proper temperature and humidity.
- All the power switches, plugs, sockets and power cords should be insulated and safe.
- All devices should be connected before power on.

4.2 System Diagram



5. Display Control

5.1 Button Control

Transmitter front panel buttons can be used for signal switching, display control.

5.1.1 Manual Switching

Press any one of input sources and the corresponding input LED illuminates green, then press HDMI or HDBT output and the corresponding output LED illuminates green, after that, press **SWITCH** button to finish and confirm video switching, and input and output LED go out.

5.1.2 Auto Switching

- Default Auto-Switching mode.
- Four input sources priority: 1 HDMI>2 HDMI>3.DP>4.USB-C.
- Once detecting a new input signal, the Transmitter will switch to this new signal automatically.
- Manual switching is enabled in the auto switching mode and does not exit it.

5.1.3 Rebooting device

The PS42UCH can save the last configuration before losing power. If the last switching mode is auto-switching, the Transmitter will automatically enter auto-switching mode once rebooted, then detect all inputs and memorize their connection status for future rebooting using. If the last selected input source is still available, the Transmitter will switch to the input. Otherwise, it will switch to the first available active input source starting at 1-HDMI.

5.1.4 Signal removing

Once removing the current display signal, the PS42UCH will detect all input signals with priority from 1-HDMI to 4- USB-C. It will transfer the signal firstly detected to be available to output devices.

5.1.5 Front Panel button Control

- The Receiver features video output port for connecting third-party display device, press the **ON** or **OFF** button on Transmitter to turn on or turn off the third-party display device.
- The Receiver features audio output ports for connecting speaker or AV amplifier, press the **VOL-** or **VOL+** button on Transmitter to turn down or turn up the volume.
- The Receiver features Relay ports for connecting relay device (such as projector screen), press the **RELAY1** or **RELAY2** button on Transmitter to close the contact closure.

5.2 Third-party display Devices Control

Note: *If the input source devices, HDMI output display devices support CEC, they can be controlled via the following CEC operation.*

This Auto operation control includes Transmitter HDMI OUT and Receiver HDMI OUT, and the CEC function can be disabled or abled.

5.2.1 System On

When Switcher detects the TMDS or 5V input signal (default: 5V signal), it will perform the following operation steps:

1) Send **CEC ON** command to third-party display devices;

2) Send **RS232 ON** + **Delay time** (default: 3s) +**RS232 Display Input selection** command to third-party display devices;

3) Perform and control **Relay1**.

5.2.2 System OFF

When Switcher detects all the input source devices were disconnected for XX time long (default: 10 minutes), or receives the standby command, it will perform the following operation steps:

1) Send **CEC ON** command to third-party display devices;

2) Send **RS232 OFF** command to third-party display devices, this command can be set to send twice (default: 1 time), delay time default is 1s;

3) Perform and control **Relay2**.

6. RS232 Control

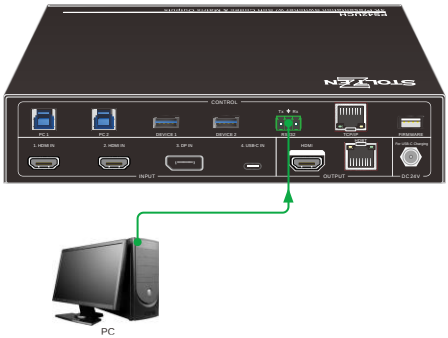
As RS232 commands can be transmitted to Receiver from the Transmitter, so it is able to control the Transmitter or the third-party device (such as projector) on the Receiver from local RS232 port on the transmitter.

The baud rate supports 2400, 4800, 9600(default), 19200, 38400, 57600 or 115200.

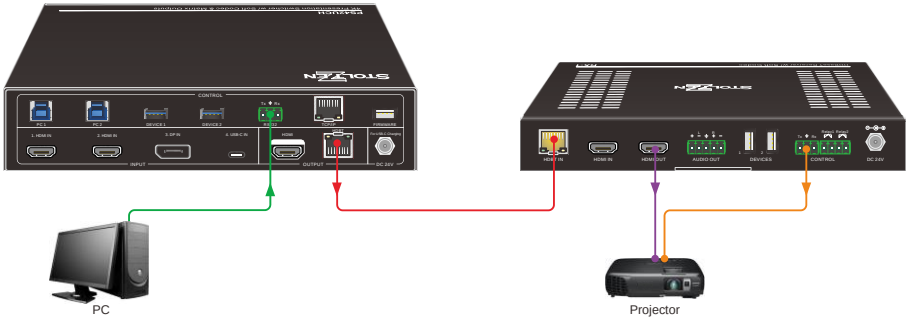
6.1 RS232 Connection

There are two RS232 control modes.

- **Control Transmitter**



- **Control Display**

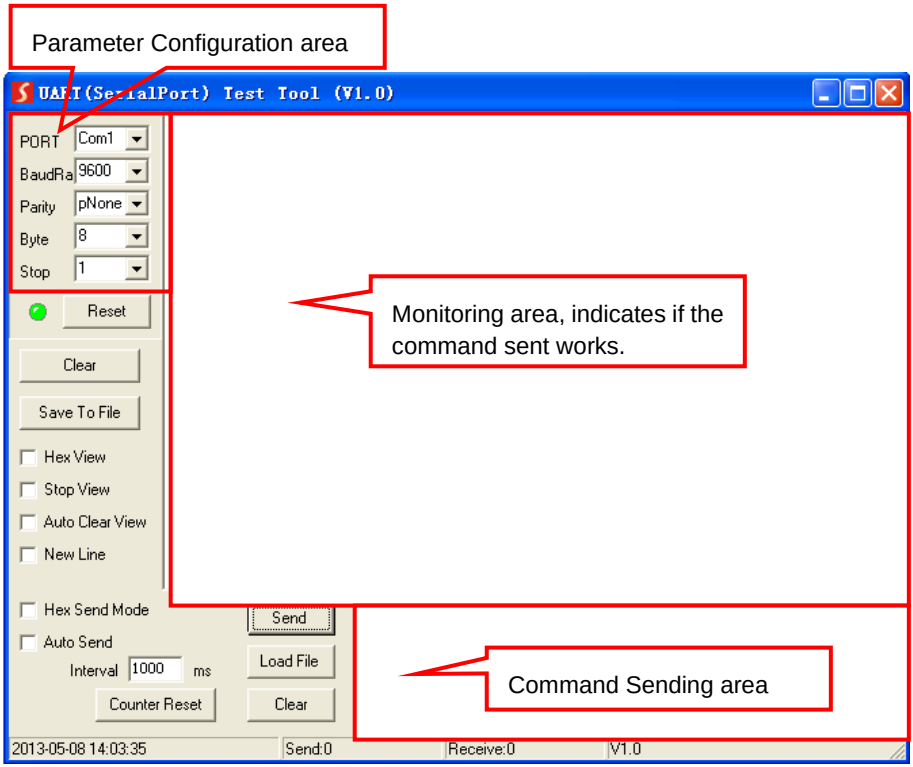


6.2 RS232 Control Software

- **Installation/uninstallation**
  - ✓ **Installation** Copy the control software file to the computer connected with the Transmitter.
  - ✓ **Uninstallation** Delete all the control software files in corresponding file path.
- **Basic Settings**

First to connect the Transmitter with all input devices and output devices needed, then to connect it with a PC which is installed with RS232 control software. Double-click the software icon to run this software. Here we take the software **CommWatch.exe** as example. The icon is showed as below:

The interface of the control software is showed as below:



Please set the parameters of COM number, bound rate, data bit, stop bit and the parity bit correctly, and then you are able to send command in Command Sending Area.

6.3 RS232 Command

Communication protocol: RS232 Communication Protocol

Baud rate: 9600 Data bit: 8 Stop bit: 1 Parity bit: none

The end mark of command is “<CR><LF>”.

6.3.1 System Setting

Command	Function	Command & Feedback Example
#HELP	Get the list of all commands	#HELP all commands
#SET_POWER (param1)	Set device to standby mode or normal mode. param1 = 0, 1 0 - STANDBY MODE 1 - NORMAL MODE	#SET_POWER 0 @POWER 0 #SET_POWER 1 @POWER 1
#GET_POWER	Get device power status.	#GET_POWER @POWER 0 @POWER 1
#GET_FIRMWARE_VERSION	Get firmware version	#GET_FIRMWARE_VERSION @V1.x.x
#GET_RXFW_VERSION	Get RX firmware version	@RX_FW V1.x.x
#FACTORY_RESET	Factory default	#FACTORY_RESET @FACTORY_RESET
#REBOOT	System reboot	#REBOOT @REBOOT
#GET_STATUS	Get device status	#GET_STATUS
#SET_GUI_IP_ADDR (param1).(param2).(param3).(param4)	Set GUI IP address param1 = (0~255) param2 = (0~255) param3 = (0~255) param4 = (0~255)	#SET_GUI_IP_ADDR x.x.x.x @SET_IP (param1).(param2).(param3).(param4)
#GET_GUI_IP_ADDR	Get GUI IP address	#GET_GUI_IP_ADDR @GUI_IP x.x.x.x
#SET_RS232_BAUD	Set the communication baud rate of	#SET_RS232_BAUD 0

Command	Function	Command & Feedback Example
(param1)	RS232 port. param1 = 0, 1, 2, 3, 4, 5, 6 0 - BAUD 115200 1 - BAUD 57600 2 - BAUD 38400 3 - BAUD 19200 4 - BAUD 9600 5 - BAUD 4800 6 - BAUD 2400	#SET_RS232_BAUD 1 #SET_RS232_BAUD 2 #SET_RS232_BAUD 3 #SET_RS232_BAUD 4 #SET_RS232_BAUD 5 #SET_RS232_BAUD 6 @RS232_BAUD 0 @RS232_BAUD 1 @RS232_BAUD 2 @RS232_BAUD 3 @RS232_BAUD 4 @RS232_BAUD 5 @RS232_BAUD 6
#GET_RS232_BAUD	Get the communication baud rate of Rs232 port.	#GET_RS232_BAUD @RS232_BAUD 0 @RS232_BAUD 1 @RS232_BAUD 2 @RS232_BAUD 3 @RS232_BAUD 4 @RS232_BAUD 5 @RS232_BAUD 6
#SET_SIGNAL_DET (param1)	Set signal detecting mode to TMDS detecting or 5V detecting param1 = TMDS, 5V TMDS - SIGNAL EXIST IF DETECTED TMDS 5V - SIGNAL EXIST IF DETECTED 5V	#SET_SIGNAL_DET 5V @SIGNAL_DET_MODE TMDS @SIGNAL_DET_MODE 5V
#GET_SIGNAL_DET	Get signal detecting mode	#GET_SIGNAL_DET @SIGNAL_DET_MODE TMDS @SIGNAL_DET_MODE 5V
#SET_KEYPAD_LOCK (param1)	Lock/unlock keypad param1 = 0,1 0 - KEYPAD UNLOCK 1 - KEYPAD LOCKED	#SET_KEYPAD_LOCK 0 @KEYPAD_LOCK 0 #SET_KEYPAD_LOCK 1 @KEYPAD_LOCK 1
#GET_KKEYPAD_LOCK	Get lock/unlock keypad status	#GET_KKEYPAD_LOCK @KEYPAD_LOCK 0 @KEYPAD_LOCK 1

Note: *Devices will reboot when finishing the command* ***#FACTORY_RESET****.*

6.3.2 Signal Switching

Command	Function	Command & Feedback Example
#SET_AV(param1) (param2)	Set Rx channel param1 = HDMI, HDBT. This param could be omitted. HDMI - HDMI OUTPUT HDBT - HDBT OUTPUT (If this param is omitted, which means input source to both HDMI and HDBT outputs.) param2 = H1 , H2, DP, C, RXH H1 - HDMI1 INPUT H2 - HDMI2 INPUT DP - DP INPUT C - TYPEC INPUT RXH - RXHDMI INPUT	#SET_AV H1 #SET_AV H2 #SET_AV DP #SET_AV C #SET_AV RXH #SET_AV HDBT H1 #SET_AV HDBT H2 #SET_AV HDBT DP #SET_AV HDBT C #SET_AV HDBT RXH #SET_AV HDMI H1 #SET_AV HDMI H2 #SET_AV HDMI DP #SET_AV HDMI C @HDBT_AV H1 @HDBT_AV H2 @HDBT_AV DP @HDBT_AV C @HDBT_AV RXH @HDMI_AV H1 @HDMI_AV H2 @HDMI_AV DP @HDMI_AV C
#GET_AV (param1)	Get current Rx channel param1 = HDMI, HDBT. This param could be omitted. HDMI - HDMI OUTPUT HDBT - HDBT OUTPUT (If this param is omitted, which means getting the output ports of both HDMI and HDBT.)	#GET_AV #GET_AV HDBT #GET_AV HDMI @HDBT_AV H1 @HDBT_AV H2 @HDBT_AV DP @HDBT_AV C @HDBT_AV RXH @HDMI_AV H1 @HDMI_AV H2 @HDMI_AV DP @HDMI_AV C
#SET_AUTO_SWITCH (param1) (param2)	Set to AUTO/MANUAL switch mode param1 = HDMI, HDBT. This param could be omitted.	#SET_AUTO_SWITCH 1 #SET_AUTO_SWITCH 0 #SET_AUTO_SWITCH HDMI

Command	Function	Command & Feedback Example
	HDMI - HDMI OUTPUT HDBT - HDBT OUTPUT (If this param is omitted, which means setting the switch mode to both HDMI and HDBT output ports.) param2 = 0,1 0 - MANUAL MODE 1 - AUTO MODE	1 #SET_AUTO_SWITCH HDMI 0 #SET_AUTO_SWITCH HDBT 1 #SET_AUTO_SWITCH HDBT 0 @HDMI_AUTO_SWITCH 0 @HDMI_AUTO_SWITCH 1 @HDBT_AUTO_SWITCH 0 @HDBT_AUTO_SWITCH 1
#GET_AUTO_SWITCH (param1)	Get AUTO/MANAL switch mode param1 = HDMI, HDBT. This param could be omitted. HDMI - HDMI OUTPUT HDBT - HDBT OUTPUT (If this param is omitted, which means getting the switch mode from both HDMI and HDBT output ports.)	#GET_AUTO_SWITCH #GET_AUTO_SWITCH HDMI #GET_AUTO_SWITCH HDBT @HDMI_AUTO_SWITCH 0 @HDMI_AUTO_SWITCH 1 @HDBT_AUTO_SWITCH 0 @HDBT_AUTO_SWITCH 1
#SET_USB_SWITCH_MODE (param1)	Set USB switching to AUTO/MANUAL switch mode param1 = 0, 1, 2 0 - AUTO MODE 1 - MANUAL MODE 2 - FOLLOW VIDEO SOURCE MODE	#SET_USB_SWITCH_MODE 0 #SET_USB_SWITCH_MODE 1 #SET_USB_SWITCH_MODE 2 @USB_SWITCH_MODE 0 @USB_SWITCH_MODE 1 @USB_SWITCH_MODE 2
#GET_USB_SWITCH_MODE	Get USB switching mode	#GET_USB_SWITCH_MODE @USB_SWITCH_MODE 0 @USB_SWITCH_MODE 1 @USB_SWITCH_MODE 2
#SET_USB_MANUAL (param1)	Set USB switching channel manually. param1 = PC1, PC2,USBC PC1 - PC1 USB PORT PC2 - PC2 USB PORT USBC - USBC USB PORT	#SET_USB_MANUAL PC1 #SET_USB_MANUAL PC2 #SET_USB_MANUAL USBC @USB_CH PC1 @USB_CH PC2 @USB_CH USBC
#GET_USB_SWITCH	Get USB switching channel	#GET_USB_SWITCH

Command	Function	Command & Feedback Example
		@USB_CH PC1 @USB_CH PC2 @USB_CH USBC
#SET_USB_MAP (param1) (param2)	Set the mapping relation of USB and video input channel. param1 = H1, H2, DP H1 - HDMI1 INPUT H2 - HDMI2 INPUT DP - DP INPUT param2 = PC1, PC2 PC1 - PC1 USB PORT PC2 - PC2 USB PORT	#SET_USB_MAP H1 PC1 #SET_USB_MAP H1 PC2 #SET_USB_MAP H2 PC1 #SET_USB_MAP H2 PC2 #SET_USB_MAP DP PC1 #SET_USB_MAP DP PC2 @H1_USB_MAP PC1 @H1_USB_MAP PC2 @H2_USB_MAP PC1 @H2_USB_MAP PC2 @DP_USB_MAP PC1 @DP_USB_MAP PC2
#GET_USB_MAP (param1)	Get the mapping relation of USB and video input channel. param1 = H1, H2, DP. This param could be omitted. H1 - HDMI1 VIDEO INPUT CHANNEL H2 - HDMI2 VIDEO INPUT CHANNEL DP - DP VIDEO INPUT CHANNEL (If this param is omitted, which means USB to H1, H2 and DP video input channel simultaneously.)	#GET_USB_MAP #GET_USB_MAP H1 #GET_USB_MAP H2 #GET_USB_MAP DP @H1_USB_MAP PC1 @H1_USB_MAP PC2 @H2_USB_MAP PC1 @H2_USB_MAP PC2 @DP_USB_MAP PC1 @DP_USB_MAP PC2

6.3.3 CEC Control

Command	Function	Command & Feedback Example
#SET_DISPLAY (param1) (param2)	Set CEC or RS232 command to control display devices power on and off. param1 = HDMI, HDBT. This param could be omitted. HDMI - HDMI output HDBT - HDBT output (If this param is omitted, which means HDMI and HDBT output simultaneously.) param2 = ON , OFF ON – DISPLAY devices on OFF – DISPLAY device off	#SET_DISPLAY ON #SET_DISPLAY OFF #SET_DISPLAY HDBT ON #SET_DISPLAY HDBT OFF #SET_DISPLAY HDMI ON #SET_DISPLAY HDMI OFF @SET_HDBT_DISPLAY ON @SET_HDBT_DISPLAY OFF @SET_HDMI_DISPLAY ON @SET_HDMI_DISPLAY OFF
#SET_VOL (param1) (param2)	Set CEC or RS232 command to control display devices VOL +, VOL -, MUTE or UNMUTE. param1 = HDMI, HDBT. This param could be omitted. HDMI - HDMI output HDBT - HDBT output (If this param is omitted, which means HDMI and HDBT output simultaneously.) param2 = + , - , MUTE + - VOL + - - VOL – MUTE - MUTE (UNMUTE)	#SET_VOL + #SET_VOL - #SET_VOL MUTE #SET_VOL HDBT + #SET_VOL HDBT - #SET_VOL HDBT MUTE #SET_VOL HDMI + #SET_VOL HDMI - #SET_VOL HDMI MUTE @HDBT_VOL + @HDBT_VOL - @HDBT_VOL MUTE @HDMI_VOL + @HDMI_VOL - @HDMI_VOL MUTE

6.3.4 EDID Management

Command	Function	Command & Feedback Example
#SET_EDID_MODE (param1) (param2)	Set EDID mode of Input port. param1 = H1, H2, DP, C, RXH. This param could be omitted. H1 - HDMI1 INPUT H2 - HDMI2 INPUT DP - DP INPUT C - USBC INPUT RXH - RXHDMI INPUT (If this “param1” is omitted, which means setting the EDID mode for H1, H2, DP, USBC and RXH input port simultaneously.) param2 = 0~16 0 - EDID BYPASS(HDBT OUT) 1 - EDID BYPASS(HDMI OUT) 2 - 1280x720@60Hz Stereo Audio 3 - 1920x1080@60Hz 8bit Stereo Audio 4 -1920x1080@60Hz 8bit High Definition Audio 5 - 1920x1080@60Hz 3D Stereo Audio 6 - 1920x1200@60Hz 8bit Stereo Audio 7 - 3840x2160@30Hz 8bit Stereo Audio 8 - 3840x2160@30Hz 8bit High Definition Audio 9 - 3840x2160@30Hz Deep Color LPCM 6CH 10 - 3840x2160@60Hz 4:2:0 Deep Color Stereo Audio 11 - 3840x2160@60Hz 4:2:0 Deep Color High Definition Audio 12 - 3840x2160@60Hz Deep Color Stereo Audio 13 - 3840x2160@60Hz Deep Color HDR Stereo Audio 14 - 3840x2160@60Hz Deep Color HDR High Definition Audio 15 - User-defined 16 -.User-defined	#SET_EDID_MODE x #SET_EDID_MODE H1 x #SET_EDID_MODE H2 x #SET_EDID_MODE DP x #SET_EDID_MODE C x #SET_EDID_MODE RXH x @H1_EDID_MODE x @H2_EDID_MODE x @DP_EDID_MODE x @C_EDID_MODE x @RXH_EDID_MODE x

Command	Function	Command & Feedback Example
#GET_EDID_MODE (param1)	Get EDID mode of Input port. param1 = H1, H2, DP, C, RXH. This param could be omitted. H1 - HDMI1 INPUT H2 - HDMI2 INPUT DP - DP INPUT C - USBC INPUT RXH - RXHDMI INPUT (If this param is omitted, which means getting the EDID mode for H1, H2, DP, USBC and RXH input port simultaneously.)	#GET_EDID_MODE #GET_EDID_MODE H1 #GET_EDID_MODE H2 #GET_EDID_MODE DP #GET_EDID_MODE C #GET_EDID_MODE RXH @H1_EDID_MODE x @H2_EDID_MODE x @DP_EDID_MODE x @C_EDID_MODE x @RXH_EDID_MODE x
#UPLOAD_USER_EDID (param1)	Upload User-defined EDID param1 = 1,2 1 - UPLOAD USER-DEFINED 1 EDID 2 - UPLOAD USER-DEFINED 2 EDID	#UPLOAD_USER_EDID 1 #UPLOAD_USER_EDID 2 @USER_EDID_READY 1 @USER_EDID_READY 2

Note: *Please send the EDID file of 256 or 128 bytes in 10s after sending the command* ***#UPLOAD_USER_EDID (param1),*** *it will show the feedback when uploading successfully.*

6.3.5 Key Setting

Command	Function	Command & Feedback Example
#SET_REPEAT_VOL (param1)	Set the repeat time of pressing vol increase or vol decrease key. The unit is 10ms. param1 = (0, 10 ~ 10000) THE REPEAT TIME OF PRESSING VOL INC OR VOL DEC KEY. The unit is 10 milliseconds. The repeat function will be disabled when set to 0.	#SET_REPEAT_VOL 100 @VOL_REPEAT_TIME 1000 MILLISECONDS
#GET_REPEAT_VOL	Get the repeat time of pressing vol increase or vol decrease key.	#GET_REPEAT_VOL @VOL_REPEAT_TIME DISABLE @VOL_REPEAT_TIME x MILLISECONDS
#SET_KEY_RS232	Enable/Disable send RS232 command	#SET_KEY_RS232 ON

Command	Function	Command & Feedback Example
(param1)	when press display button. param1 = ON, OFF ON - ENABLE RS232 SENDING OFF - DISABLE RS232 SENDING	@KEY_RS232_SENDING ON
#GET_KEY_RS232	Get the status of Enable/Disable send rs232 command when pressing display button	#GET_KEY_RS232 @KEY_CEC_SENDING ON @KEY_CEC_SENDING OFF
#SET_KEY_CEC (param1)	Enable/Disable send CEC command when pressing display button. param1 = ON, OFF ON - ENABLE CEC SENDING OFF - DISABLE CEC SENDING	#SET_KEY_CEC ON @KEY_CEC_SENDING ON
#GET_KEY_CEC	Get the status of Enable/Disable send CEC command when press display button.	#GET_KEY_CEC @KEY_CEC_SENDING ON @KEY_CEC_SENDING OFF

6.3.6 RS232 Setting

Note: *Except for the commands* ***#SET_INTERVAL_OFF_RS232_REPEAT (param1), #GET_INTERVAL_OFF_RS232_REPEAT, #SET_DIS_INPUT_DELAY (param1) and #GET_DIS_INPUT_DELAY,*** *the rest of* ***RS232 Setting*** *commands do not need with the end mark of "<CR><LF>" and the param settings are no more than 48 characters.*

Command	Function	Command & Feedback Example
#SEND_A_(param1):(param2)	Send ascll string to the third-party devices. param1 = 1, 2, 3, 4, 5, 6, 7 1 - BAUD 115200 2 - BAUD 57600 3 - BAUD 38400 4 - BAUD 19200 5 - BAUD 9600 6 - BAUD 4800 7 - BAUD 2400 param2 = ASCII string Param settings are no more than 48 characters.	#SEND_A_1:ABCD123 @SEND_ASCII_STRING xxx
#SEND_H_ (param1):(param2)	Send hex string to the third-party devices. param1 = 1, 2, 3, 4, 5, 6, 7	#SEND_H_1:11 22 33 @SEND_HEX_STRING

Command	Function	Command & Feedback Example
	1 - BAUD 115200 2 - BAUD 57600 3 - BAUD 38400 4 - BAUD 19200 5 - BAUD 9600 6 - BAUD 4800 7 - BAUD 2400 param2 = HEX string Param settings are no more than 48 characters.	0xY1,0xY2,…
#SET_ON_ (param1)_(param2):(param3)	Set Display ON Key RS232 sending command param1 = A, H A - ASCII STRING H - HEX STRING param2 = 1, 2, 3, 4, 5, 6, 7 1 - BAUD 115200 2 - BAUD 57600 3 - BAUD 38400 4 - BAUD 19200 5 - BAUD 9600 6 - BAUD 4800 7 - BAUD 2400 param2 = ASCII or HEX string Param settings are no more than 48 characters.	#SET_ON_A_1:ABCDEFG @SET_ON_ASCII (BAUD)x1 x2 @SET_ON_HEX (BAUD)x1 0xY1,0xY2,...
#SET_OF_(param1)_(param2)_(param3):(param4)	Set Display OFF Key RS232 sending command param1 = A, H A - ASCII STRING H - HEX STRING param2 = 1, 2, 3, 4, 5, 6, 7 1 - BAUD 115200 2 - BAUD 57600 3 - BAUD 38400 4 - BAUD 19200 5 - BAUD 9600 6 - BAUD 4800 7 - BAUD 2400 param3 = (1 ~ 100)	#SET_OF_A_1_1:ABCDEFG @SET_OF_ASCII (BAUD)x1 (REPEAT)x2 x3 @SET_OF_HEX (BAUD)x1 (REPEAT)x2 0xY1,0xY2,…

Command	Function	Command & Feedback Example
	Repeat times of sending the RS232 command of display off range 1 to 100. Param4 = ASCII or HEX string Param settings are no more than 48 characters.	
#SET_INTERVAL_OFF_RS232_REPEAT (param1)	Set the interval of repeat sending DISPLAY OFF RS232 command. param1 = (300 ~ 10000) and the unit is 1 millisecond.	#SET_INTERVAL_OFF_RS232_REPEAT 300 @INTERVAL_OFF_RS232_REPEAT x MILLISECONDS
#GET_INTERVAL_OFF_RS232_REPEAT	Set the interval of repeat sending DISPLAY OFF RS232 command.	#GET_INTERVAL_OFF_RS232_REPEAT @INTERVAL_OFF_RS232_REPEAT x MILLISECONDS
#SET_I_VOL_(param1)_(param2):(param3)	Set Display Vol Plus Key Rs232 sending command param1 = A, H A - ASCII STRING H - HEX STRING param2 = 1, 2, 3, 4, 5, 6, 7 1 - BAUD 115200 2 - BAUD 57600 3 - BAUD 38400 4 - BAUD 19200 5 - BAUD 9600 6 - BAUD 4800 7 - BAUD 2400 Param3 = ASCII or HEX string Param settings are no more than 48 characters.	#SET_I_VOL_A_1:ABCDEFG @SET_I_VOL_ASCII (BAUD)x1 x2 @SET_I_VOL_HEX (BAUD)x1 0xY1,0xY2,...
#SET_D_VOL_(param1)_(param2)	Set Display Vol Minus Key RS232 sending command param1 = A, H A - ASCII STRING H - HEX STRING param2 = 1, 2, 3, 4, 5, 6, 7 1 - BAUD 115200 2 - BAUD 57600 3 - BAUD 38400 4 - BAUD 19200	#SET_D_VOL_A_1:ABCDEFG @SET_D_VOL_ASCII (BAUD)x1 x2 @SET_D_VOL_HEX (BAUD)x1 0xY1,0xY2,...

Command	Function	Command & Feedback Example
	5 - BAUD 9600 6 - BAUD 4800 7 - BAUD 2400 Param3 = ASCII or HEX string Param settings are no more than 48 characters.	
#SET_M_VOL_(param1)_(param2)	Set Display Vol Mute/Unmute Key RS232 sending command param1 = A, H A - ASCII STRING H - HEX STRING param2 = 1, 2, 3, 4, 5, 6, 7 1 - BAUD 115200 2 - BAUD 57600 3 - BAUD 38400 4 - BAUD 19200 5 - BAUD 9600 6 - BAUD 4800 7 - BAUD 2400 Param3 = ASCII or HEX string Param settings are no more than 48 characters.	#SET_M_VOL_A_1:ABCDEFG @SET_M_VOL_ASCII (BAUD)x1 x2 @SET_M_VOL_HEX (BAUD)x1 0xY1,0xY2,...
#SET_DIS_SEL_(param1)_(param2)	RS232 sending command when Display input select. param1 = A, H A - ASCII STRING H - HEX STRING param2 = 1, 2, 3, 4, 5, 6, 7 1 - BAUD 115200 2 - BAUD 57600 3 - BAUD 38400 4 - BAUD 19200 5 - BAUD 9600 6 - BAUD 4800 7 - BAUD 2400 Param3 = ASCII or HEX string Param settings are no more than 48 characters.	#SET_DIS_SEL_A_1:ABCDEFG @SET_DIS_INPUT_SEL_ASCII (BAUD)x1 x2 @SET_DIS_INPUT_SEL_HEX (BAUD)x1 0xY1,0xY2,...
#SET_DIS_INPUT_DELAY (param1)	Set the delay time of sending RS232 command to DISPLAY ON and DISPLAY	#SET_DIS_INPUT_DELAY 10 @DISPLAY_INPUT_DELAY x

Command	Function	Command & Feedback Example
	INPUT SELECT when auto operation. param1 = (1 ~ 100) and the unit is second.	SECONDS
#GET_DIS_INPUT_DELAY	Get the delay time of sending RS232 command to DISPLAY ON and DISPLAY INPUT SELECT when auto operation.	#GET_DIS_INPUT_DELAY @DISPLAY_INPUT_DELAY x SECONDS

6.3.7 Trigger Setting Command

Command	Function	Command & Feedback Example
#AUTO_CEC_SET_PANEL_OPEN	Enable the system auto function.	#AUTO_CEC_SET_PANEL_OPEN @OPEN CEC DISPLAY ON/OFF WHEN SIGNAL/NOSIGNAL
#AUTO_CEC_SET_PANEL_CLOSE	Disable the system auto function.	#AUTO_CEC_SET_PANEL_CLOSE @CLOSE CEC DISPLAY ON/OFF WHEN SIGNAL/NOSIGNAL
#GET_AUTO_CEC_SET_PANEL	Get the status of system auto function.	#GET_AUTO_CEC_SET_PANEL @OPEN CEC DISPLAY ON/OFF WHEN SIGNAL/NOSIGNAL @CLOSE CEC DISPLAY ON/OFF WHEN SIGNAL/NOSIGNAL
#AUTO_CEC_PANEL_TIME (param1)	Set the delay time of auto operation when detecting all input sources were moved. param1 = (0 ~10000), and the unit is minute.	#AUTO_CEC_PANEL_TIME @DELAY TIME TO %d MINUTES,TO TURN OFF THE DISPLAY IF NO SOURCE DETECTED
#GET_AUTO_CEC_PANEL_TIME	Get the delay time of auto operation when detecting all input sources were moved.	#GET_AUTO_CEC_PANEL_TIME @DELAY TIME TO %d MINUTES,TO TURN OFF THE DISPLAY IF NO SOURCE DETECTED

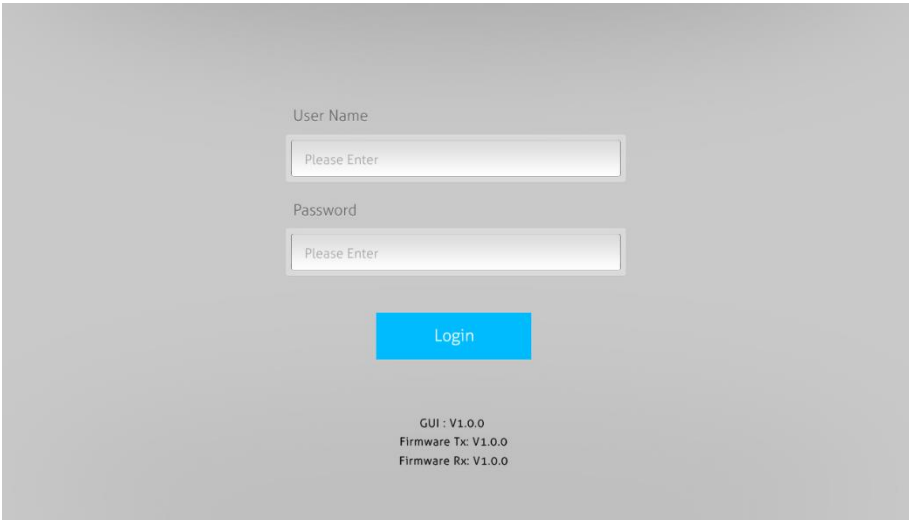
6.3.8 Relay setting command

Command	Function	Command & Feedback Example
#SET_RELAY_CONTROL_MODE (param1) (param2)	Set relay control mode. param1 = RELAY1, RELAY2. RELAY1 - RELAY1 CONTROL RELAY2 - RELAY2 CONTROL param2 = 0, 1 1 - RELAY CLOSE 0 - RELAY BREAK	#SET_RELAY_CONTROL_MODE RELAY1 0 #SET_RELAY_CONTROL_MODE RELAY1 1 #SET_RELAY_CONTROL_MODE RELAY2 0 #SET_RELAY_CONTROL_MODE RELAY2 1 @RELAY1_CONTROL_MODE 0 @RELAY2_CONTROL_MODE 0 @RELAY1_CONTROL_MODE 1 @RELAY2_CONTROL_MODE 1
#SET_RELAY_AUTO_TIME (param1) (param2)	Set duration of relay when automatic closing. param1 = RELAY1, RELAY2. RELAY1 - RELAY1 CONTROL RELAY2 - RELAY2 CONTROL param1 = (1 ~ 180) Duration of automatic closing and the unit is second.	#SET_RELAY_AUTO_TIME RELAY1 10 #SET_RELAY_AUTO_TIME RELAY2 10 @RELAY1_AUTO_TIME x SECONDS @RELAY2_AUTO_TIME x SECONDS
#GET_RELAY_AUTO_TIME (param1)	Get duration of relay when automatic closing. param1 = RELAY1, RELAY2. This param could be omitted. RELAY1 - RELAY1 CONTROL RELAY2 - RELAY2 CONTROL (If this param is omitted, which means getting duration of automatic closing from both RELAY1 and RELAY2 simultaneously.)	#GET_RELAY_AUTO_TIME #GET_RELAY_AUTO_TIME RELAY1 #GET_RELAY_AUTO_TIME RELAY2 @RELAY1_AUTO_TIME x SECONDS @RELAY2_AUTO_TIME x SECONDS

7. GUI Control

In addition to control the system via front panel button and RS232 control software. The system can be controlled via web-based GUI. It allows users to interact with the system through graphical icons and visual indicators.

Type ***192.168.0.178*** in your browser, it will enter the log-in interface shown as below:



This system divides into administrator and user mode.

- **Administrator mode:** User name: admin; Password: admin (default setting)

Note: *Log in as admin can access more configuration interfaces than user. Here is a brief introduction to the interfaces.*

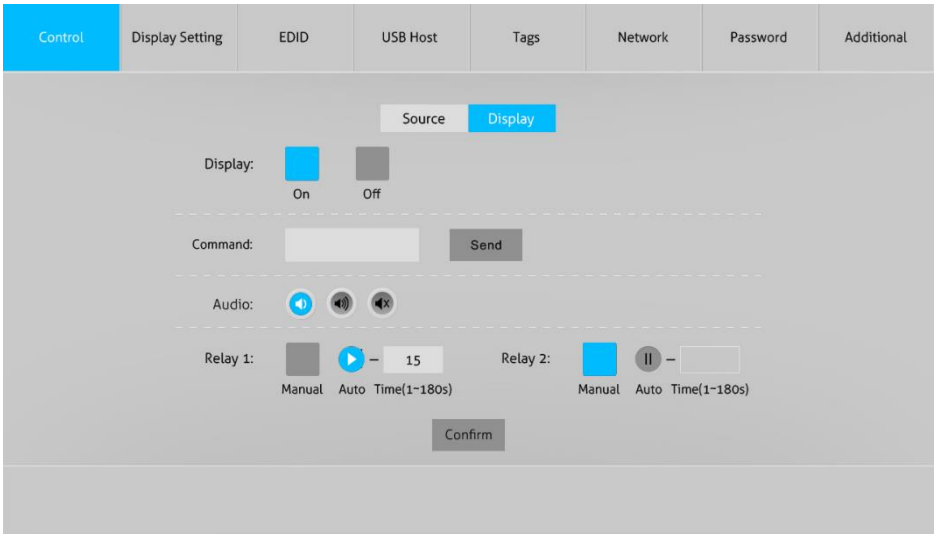
7.1 Control Tab

Type the default user name and password, and then click **Login** to enter the control Tab shown as below:

① **Sources**

- ✓ **TX HDMI OUT:** Click the corresponding button (**HDMI 1**, **HDMI 2**, **DP** and **USB-C**) to select input source for HDMI output on transmitter. Click **Auto** to enable auto switching mode.
- ✓ **RX HDMI OUT:** Click the corresponding button (**HDMI 1**, **HDMI 2**, **DP**, **USB-C** and **RX HDMI**) to select input source for HDMI output on the receiver. Click **Auto** to enable auto switching mode.
- ✓ **Power On:** Click **Power On** to let the device to exit standby mode.

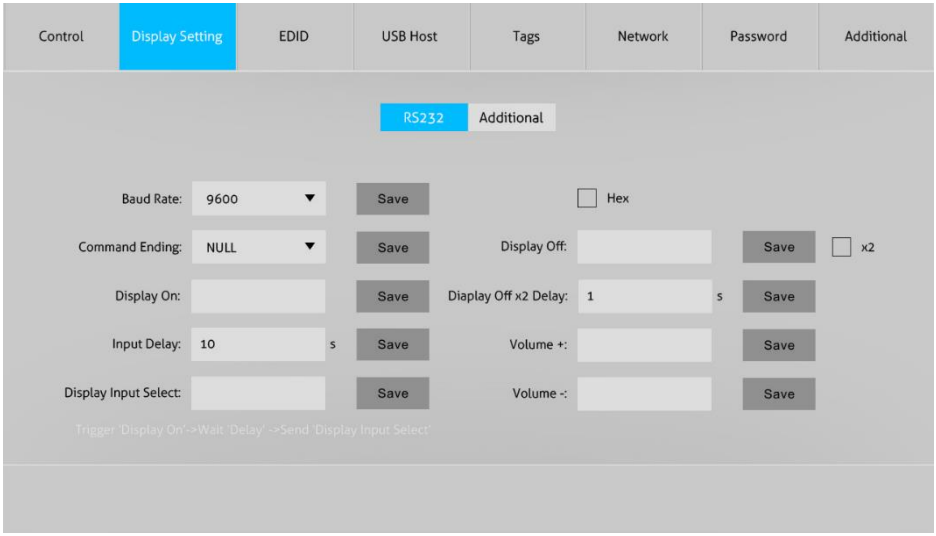
② Display



- ✓ Click **On** or **Off** to turn on or turn off the display.
- ✓ Click **Send** button to send the edited RS232 command to control display devices.
- ✓ **Audio**: The three buttons to turn down, turn up and mute/unmute the display.
- ✓ Click **Manual** button to control the relay device manually, and then click again to stop process.
- ✓ Click **Auto** button, the relay control will automatically stop within the setting time (1~180s).

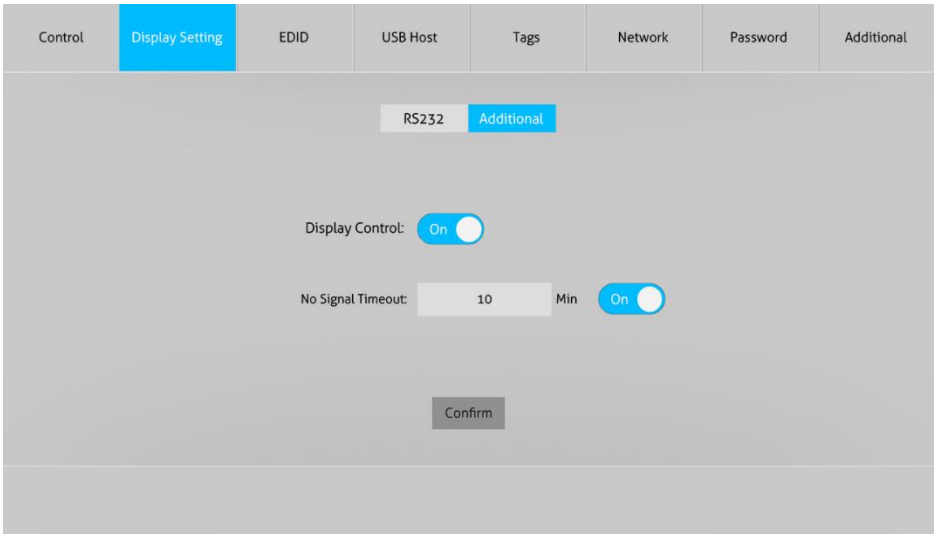
7.2 Display Setting Tab

① RS232



- ✓ **Baud Rate:** Supports 2400, 4800, 9600, 19200, 38400, 57600, 115200.
- ✓ **Command Ending:** NULL, CR, LF and CR+LF are selectable.
- ✓ **Display On:** Enter the RS232 command to turn on the display, and then click Save.
- ✓ **Input Delay:** Enter the delay time in seconds between the display on and display input select commands. This delay may be between 1 and 100 seconds.
- ✓ **Display Input Select:** Enter the RS232 command to switch to the input which is connected to the receiver.
- ✓ **Display Off:** Enter the RS232 command to turn off the display devices, and then click Save. Click ☐ x2 to turn off the display devices twice.
- ✓ **Display Offx2 Delay:** Enter the RS232 command to set the interval between the two Display Off commands.
- ✓ **Volume+:** Enter the RS232 command to turn up the display volume, and then click Save.
- ✓ **Volume-:** Enter the RS232 command to turn down the display volume, and then click Save.

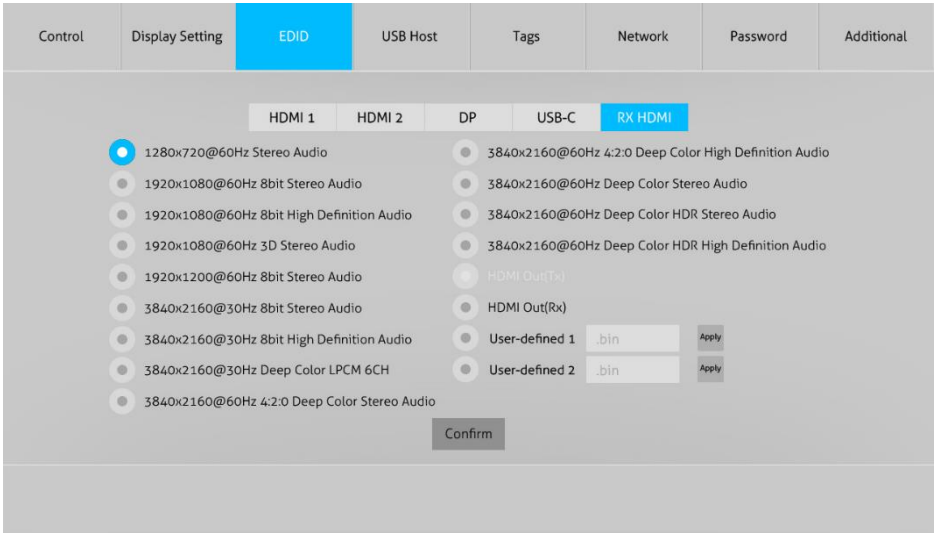
② Additional



✓ Click **On** button to enable Display Control of CEC and RS232.

✓ **No Signal Timeout**: Set the interval time before power off when where is no signals.

7.3 EDID Tab



- ✓ Click **HDMI 1**, **HDMI 2**, **DP**, **USB-C** or **RX HDMI** to select the input source device.
- ✓ Click any one of built-in EDIDs for the selected input source device.
- ✓ **User-defined EDID** 1/2: There are two EDID values can be customized by the below steps:

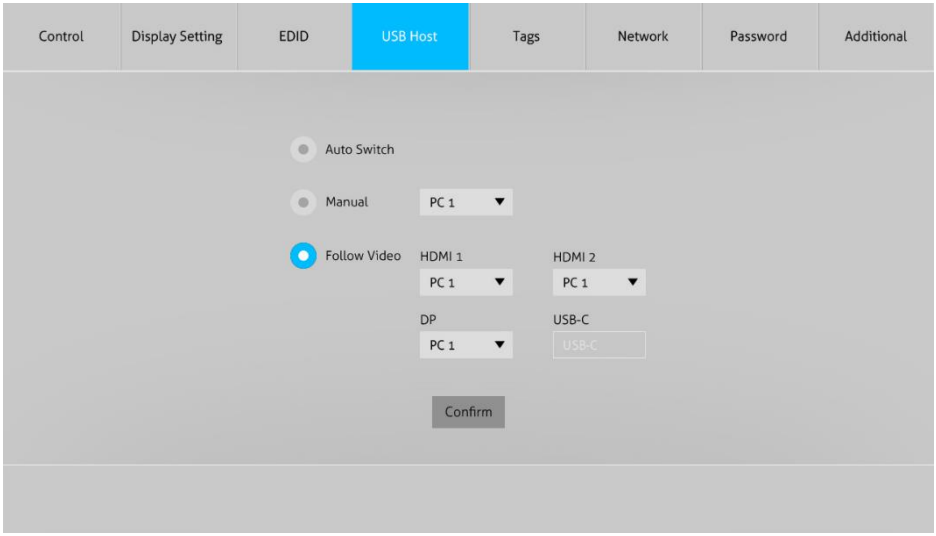
  Step 1: Prepare the EDID file (.bin) on the control PC.

  Step 2: Select the user-defined 1 or user-defined 2.

  Step 3: Select the EDID file (.bin) according the tooltip.

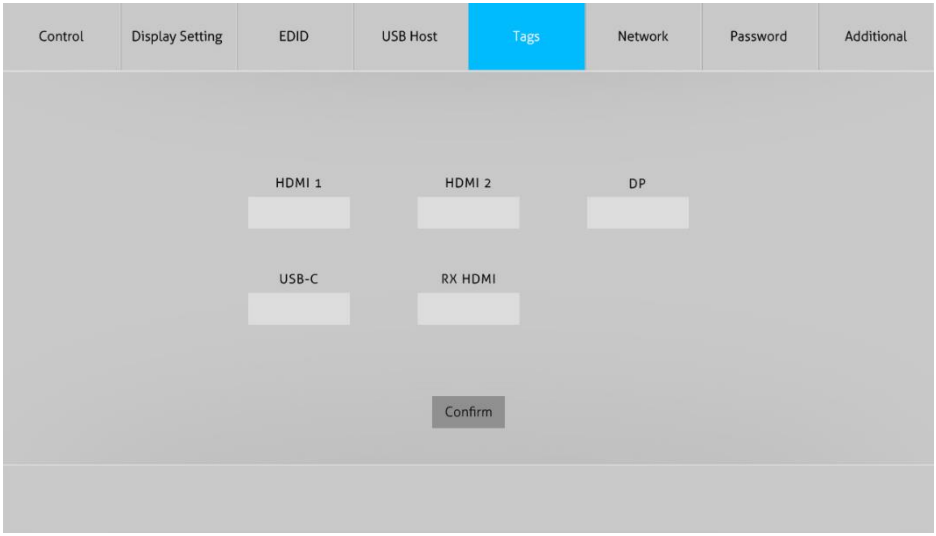
  Step 4: Click **Apply** to upload the user-defined EDID.

7.4 USB Host Tab



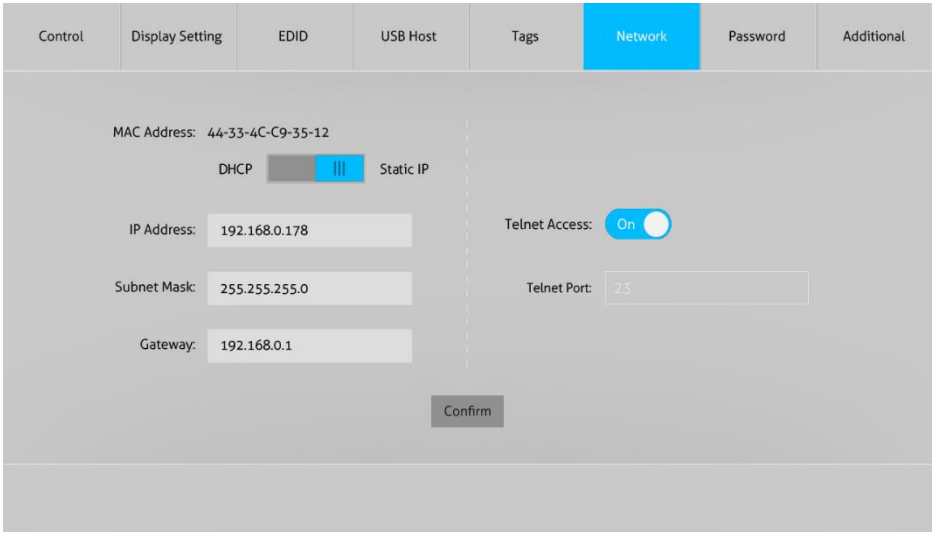
- ✓ Click **Auto Switch** button to auto-switching for video with the priority PC 1 to USB-C.
- ✓ Click **Manual** button to enable Manual-switching mode, and then manually select PC1, PC2 or USB-C as the Host PC to be controlled.
- ✓ **Follow Video:** In Follow Video mode, each video input can be assigned to PC1, PC 2, or USB-C host ports. This mode locks the USB host device to the desired video port.

7.5 Tags Tab



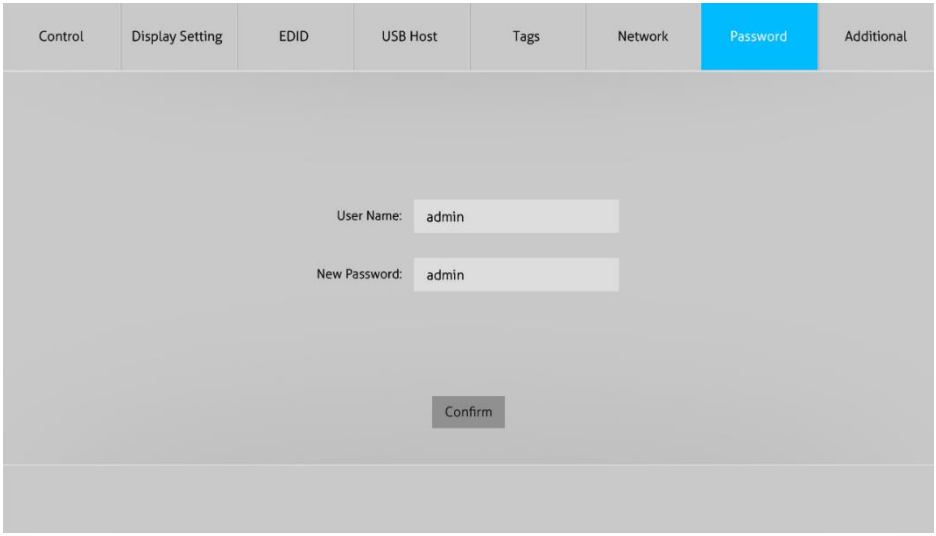
✓ Modify the input button labels.

7.6 Network Tab



- ✓ Click **Network** to enter the above menu to select the dynamic or static mode. Under static mode, then IP address, subnet mask and gateway can be reset.
- ✓ **Telnet Access:** Click On button to enter Telnet Access, click On button again to exit Telnet Access.
- ✓ **Telnet Port:** 23.

7.7 Password Tab



✓ Reset the username and password.

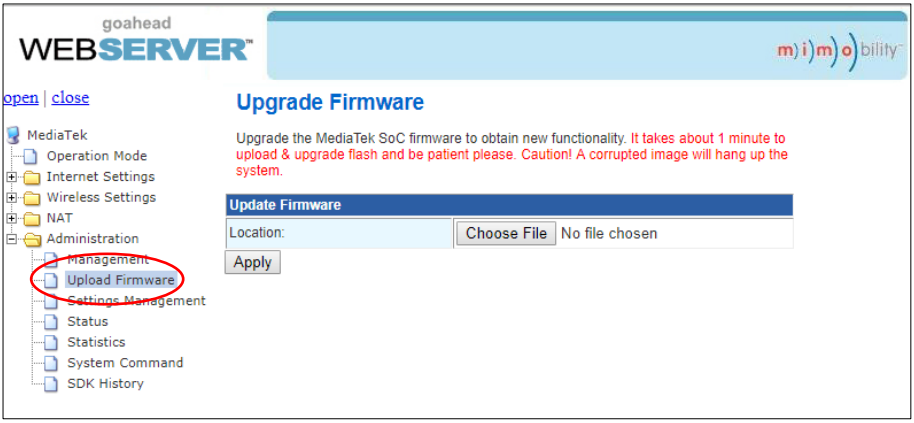
7.8 Additional Tab

- ✓ Reset the device baud rate.
- ✓ Click **Factory Default** to restore the factory settings.
- ✓ Click **Power Off** to let the system to enter standby mode.

7.9 GUI Update

Please visit at http://192.168.0.178:100 for GUI online upgrade.

Type the username and password (the same as the GUI log-in setting, modified password will be available only after rebooting) to login the configuration interface. After that, click **Administration** in the source Tab to get to **Upload Firmware** as shown below:



Select the update file and click **Apply** button, and then it will start upgrade process.

Note: *Please don't do anything during the upgrade process to avoid upgrade failure.*

8. Firmware Upgrade

***Note**: When upgrade Transmitter firmware, it need to be powered via Receiver, so Receiver should be powered well and provide power via HDBT port to Transmitter.*

Transmitter:

1) Prepare the latest upgrade file (.bin) and rename it as “FW_MERG. bin” on PC.
2) Power off the switcher and connect the **FIRMWARE** port of switcher to the PC with Type-A USB cable.
3) Power on the switcher and then the PC will automatically detect a U-disk named of “BOOTDISK”.
4) Double-click the U-disk, a file named of “READY.TXT” would be showed.
5) Directly copy the latest upgrade file (.bin) to the “BOOTDISK” U-disk.
6) Reopen the U-disk to check the filename “READY.TXT” whether automatically becomes “SUCCESS.TXT”, if yes, the firmware was updated successfully, otherwise, the firmware updating is fail, the name of upgrade file (.bin) should be confirm again, and then follow the above steps to update again.
7) Remove the Type-A USB cable after firmware upgrade.
8) After firmware upgrade, the switcher should be restored to factory default by sending command.

Receiver:

1) Prepare the latest upgrade file (.bin) and rename it as “FW_MERG. bin” on PC.
2) Power off the switcher, and connect the **FIRMWARE** port of switcher to the PC with Micro USB cable.
3) Power on the switcher, and then the PC will automatically detect a U-disk named of “BOOTDISK”.
4) Double-click the U-disk, a file named of “READY.TXT” would be showed.
5) Directly copy the latest upgrade file (.bin) to the “BOOTDISK” U-disk.
6) Reopen the U-disk to check the filename “READY.TXT” whether automatically becomes “SUCCESS.TXT”, if yes, the firmware was updated successfully, otherwise, the firmware updating is fail, the name of upgrade file (.bin) should be confirm again, and then follow the above steps to update again.
7) Remove the Micro USB cable after firmware upgrade.
8) After firmware upgrade, the switcher should be restored to factory default by sending command.

9. Troubleshooting and Maintenance

Problems	Potential Causes	Solutions
Output image with snowflake	Bad quality of the connecting cable	Try another high quality cable.
	Fail or loose connection	Make sure the connection is good
No output image when switching	No signal at the input / output end	Check with oscilloscope or multimeter, if there is any signal at the input/ output end.
	Fail or loose connection	Make sure the connection is good
	The switcher is broken	Send it to authorized dealer for repairing.
POWER indicator doesn't work or no respond to any operation	Fail connection of power cord.	Make sure the power cord connection is good.
Cannot control the device by control device (e.g. a PC) through RS232 port	Wrong RS232 communication parameters	Type in correct RS232 communication parameters.
	Broken RS232 port	Send it to authorized dealer for checking.

If your problem still remaining after following the above troubleshooting steps, please find further assistance.

10. Customer Service

The return of a product to our Customer Service implies the full agreement of the terms and conditions hereinafter. There terms and conditions may be changed without prior notice.

1) Warranty

The limited warranty period of the product is three years.

2) Scope

These terms and conditions of Customer Service apply to the customer service provided for the products or any other items sold by authorized distributor only.

3) Warranty Exclusions:

- Warranty expiration.
- Factory applied serial number has been altered or removed from the product.
- Damage, deterioration or malfunction caused by:
  - ✓ Normal wear and tear.
  - ✓ Use of supplies or parts not meeting our specifications.
  - ✓ No certificate or invoice as the proof of warranty.
  - ✓ The product model showed on the warranty card does not match with the model of the product for repairing or had been altered.
  - ✓ Damage caused by force majeure.
  - ✓ Servicing not authorized by distributor.
  - ✓ Any other causes which do not relate to a product defect.
- Shipping fees, installation or labor charges for installation or setup of the product.

4) Documentation:

Customer Service will accept defective product(s) in the scope of warranty coverage at the sole condition that the defeat has been clearly defined, and upon reception of the documents or copy of invoice, indicating the date of purchase, the type of product, the serial number, and the name of distributor.

Remarks: For further assistance or solutions, please contact your local distributor.