NewHank HS4x1

4K 4x1 Seamless Switcher with Multi-view

www.newhank.com

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1. Product Introduction

The NewHank HS4x1 is seamless video scaler designed to enable a true 4K display. The switcher features four HDMI inputs and one HDMI output which allows you to display four video sources on one display. It also provides a line input, 1 mix input, 1 SPDIF output and 1 analog output for audio processing.

Control is quick and comprehensive, whether you are using the front panel, the remote control, RS232 commands, or the fully featured web GUI.

1.1 Features

- 4 HDMI inputs, 1 HDMI output.
- Supports 4K@30Hz 4:4:4, HDCP 2.2.
- Seamless switch between 4 input ports.
- Auto Scaler in each source input.
- Supports audio embedding and mixing.
- Supports audio de-embedding.
- Auto-switching at single window.
- Cycles through the windows from A to D by swap button.
- Base on FPGA Technology, layout and size of the windows can be customized.
- Resizes the windows in 3 different sizes.
- 16 pre-defined layouts for multi-view.
- Multiple control methods, including an assignable front panel, IR remote, web GUI and RS232 port.

1.2 Package List

- 1x NewHank HS4x1
- 4x Plastic Cushions
- 4x Mounting Screws
- 1x RS232 Cable (3-pin to DB9)
- 1x User Manual
- 1x IR Remote
- 2x Mounting Ears
- 2x 3-pin Terminal Block
- 1x Power Adapter (24V DC 1.25A)

2. Specification

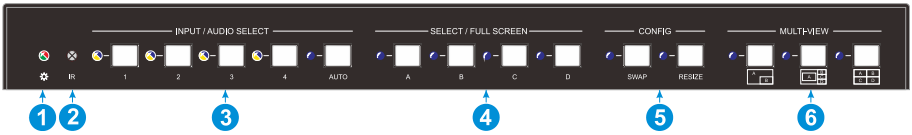
Video	
Video Input	(4) HDMI IN (1~4)
Video Input Connector	(4) Type-A female HDMI
HDMI Input Resolution	Up to 4K@30Hz 4:4:4
Video Output	(1) HDMI
Video Output Connector	(1) Type-A female HDMI
HDMI Output Resolution	Up to 4K@30Hz RGB
HDMI Standard	HDMI 1.4
HDCP Version	Up to HDCP 2.2
Audio IN	
Audio In	(1) LINE IN, (1) MIX IN.
Audio In Connector	(2) 3-pin terminal connectors
Frequency Response	20Hz to 20kHz, ±3dB
Max Input Level	2.0Vrms ± 0.5 dB. 2V=16 B headroom above -10dBV (316 mV) nominal consumer line level signal.
L-R level deviation	< 0.3dB, 1kHz sine at 0dBFS level (or max level before clipping)
Input Impedance	> 10kohm
Audio Format	PCM 2CH
SPDIF OUT	
SPDIF Out	(1) SPDIF
Audio Out Connector	(1) Toslink
Max Output level	±0.05dBFS
Frequency Response	20Hz ~ 20kHz, ±1dB
THD+N	< 0.05%, 20Hz ~ 20kHz bandwidth, 1kHz sine at 0 dBFS level (or max level)
Signal-to-Noise Ratio	> 90dB, 20Hz-20 kHz bandwidth
Crosstalk isolation	< -70dB, 10kHz sine at 0dBFS level (or max level before clipping)
Noise	-90dB
Audio Format	PCM 2CH
AUDIO OUT	
Audio Out	(1) AUDIO
Audio Out Connector	(1) 3.5mm mini jack
Frequency Response	20Hz ~ 20kHz, ±1dB

Max Output Level	2.0Vrms ± 0.5dB. 2V=16dB headroom above -10dBV (316 mV) nominal consumer line level signal
THD+N	< 0.05%, 20Hz ~ 20kHz bandwidth, 1kHz sine at 0dBFS level (or max level)
Signal-to-Noise Ratio	> 80dB, 20Hz ~ 20kHz bandwidth
Crosstalk Isolation	< -80dB, 10kHz sine at 0dBFS level (or max level before clipping)
L-R Level Deviation	< 0.05dB, 1kHz sine at 0dBFS level (or max level before clipping)
Output Load Capability	1kohm and higher (supports 10x paralleled 10kohm loads)
Noise	-80dB
Control	
Control port	(1)RS232, (1)TCP/IP
Control Connector	(1) 3-pin terminal connector, (1) RJ45.
General	
Operation Temperature	-5℃ ~ +55℃
Storage Temperature	-25℃ ~ +70℃
Relative Humidity	10% ~ 90%
External Power Supply	Input: AC 100~240V, 50/60Hz; Output: 24V DC 1.25A.
Power Consumption	13w(Max)
Dimension (W*H*D)	285mm x 27mm x 172.5mm
Net Weight	1.24Kg

Note: *The resolution 1080 60Hz and HDR are not supported.*

3. Panel Description

3.1 Front Panel



① **POWER LED:** The LED illuminates green when it is working, and the LED illuminates red when it is standby.

② **IR LED:** Built-in IR sensor, receive IR signal sent from IR remote.

③ **INPUT/AUDIO SELECT:**

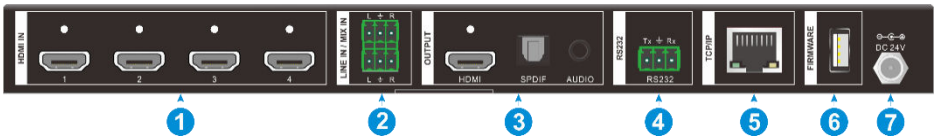
- Press **1~4** button to select corresponding HDMI input, its LED illuminates yellow when there is a video signal, it will illuminate blue when the video signal is chosen as input source.
- In multi-view mode, press and hold **1~4** button at least 3 seconds to select the corresponding HDMI audio source for output, and its LED will illuminate blue, and then it will go out when no operation within 3 seconds.
- Press **AUTO** button to enable auto switching mode, its LED will illuminate blue.
- In multi-view mode, press and hold **AUTO** button at least 3 seconds to select LINE audio for output.

④ **FOUR SELECT/FULL SCREENS:** Press the buttons to select corresponding input source as Full Screen, its LED illuminates blue when it is selected.

⑤ **CONFIG:** Press **SWAP** button to select window display screen anti-clockwise direction. its LED illuminates blue when it is selected. Press the **RESIZE** button to readjust the windows size, its LED illuminates blue when it is pressed.

⑥ **THREE MULTI-VIEWS:** Press the buttons to choose different available Multi-view modes, its LED illuminates blue when it is selected.

3.2 Rear Panel



① **HDMI IN:** Four type-A female HDMI input ports to connect HDMI source devices.

② **LINE IN**: 3-pin terminal block to connect audio source device like mobile phone or computer to embed in HDMI audio sources.

MIX IN: 3-pin terminal block to connect audio source device like mobile phone or computer to mix HDMI audio sources.

③ **HDMI OUTPUT:** Type-A female HDMI output port to connect display device.

SPDIF OUTPUT: Toslink for audio de-embedding from HDMI output.

AUDIO OUTPUT: 3.5mm mini jack for audio de-embedding from HDMI output.

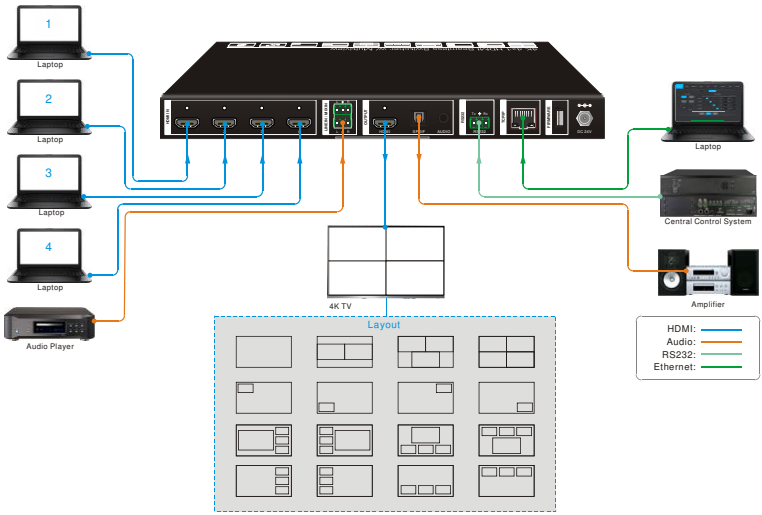
④ **RS232:** 3-pin terminal block to connect the RS232 control device (e.g. PC) or a third-party device to be controlled by RS232 commands.

⑤ **TCP/IP:** RJ45 port to connect the control device (e.g. PC) to control the switcher by GUI.

⑥ **FIREWARE:** Type-A USB port for firmware upgrade.

⑦ **DC 24V:** DC connector for power adapter connection.

4. System Connection



Cascade Connection:

5. Front Panel Control

5.1 Multi-views Selection

Factory default is four quarter views, and factory default input and output corresponding relation is input1 -> window A, input2 -> window B, input3 -> window C, input 4-> window D. Press one of the other two multi-view buttons to change layout. And its multi-view mode and corresponding windows LEDs illuminate blue.

Full Screen mode: Press **Windows A~D** button to select the corresponding window to display in full-screen. Meanwhile, the corresponding input source button LED and window button A LED illuminate blue, other window buttons and previous multi-view mode button LED goes out.

5.2 Video Signal Switching

- **In the Multi-view mode**

Operation: Inputs# + Windows#

Example: Switch Input 1 to Windows B:

Press **INPUT 1**(The input 1 LED illuminates blue, the windows A-D LEDs flash.) ⟶ Press **Windows B** (The windows A, C and D LEDs go out, then input 1 and windows B LED flash three times, last, input 1 LED goes out and windows A-D LEDs illuminate blue.)

- **In the Full Screen mode**

1) Manual Switching

Operation: Inputs# + Windows#

Example: Switch Input 2 to Windows A:

Press **INPUT 2** (The input 2 LED illuminates blue.) ⟶ Press **Windows A** (The input 2 and windows A LEDs illuminate blue).

2) Auto Switching

Press **AUTO** button to enter auto-switching mode, and the corresponding LED illuminate blue.

When in the AUTO mode, signal switching complies with the following principles:

- ✓ Four input sources priority: HDMI 1 > HDMI 2 > HDMI 3 > HDMI 4. When input source and output window are connected, the corresponding LEDs illuminate blue.
- ✓ Once detecting a new input signal, the switcher will switch to this new signal automatically.
- ✓ The switcher will memorize last input source when power off

✓ Manual switching is enabled in the auto switching mode and does not exit it.

✓ When full screen mode changes into multi-view mode, the AUTO mode will not exit.

5.3 Video Switching Status Inquiry

In the Multi-view mode (Window A, B, C or D LED illuminate blue).

Operation: Windows#

Example: Long press **Windows B** button for more than 3s (Window A, C and D LEDs go out, and then corresponding input source LED will illuminate blue). After 3 seconds, Window A, B, C and D LEDs illuminate blue.

5.4 Audio Select

Factory default is HDMI IN1 audio source. In the Multi-view mode, long press any **INPUT** buttons for more than 3s to replace all output audios with corresponding input audio source, meanwhile, the input LED illuminates blue. No operation within 3s, the input LED will go out.

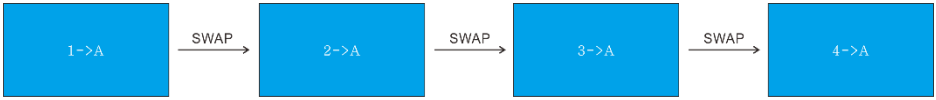
Long press **AUTO** button for 3s to replace all output audios with **LINE IN** audio source.

5.5 Config Button

SWAP: Press **Swap** button to select window display screen anti-clockwise direction, the SWAP LED lights once when press its button once.

Example**: In the Multi-view mode**

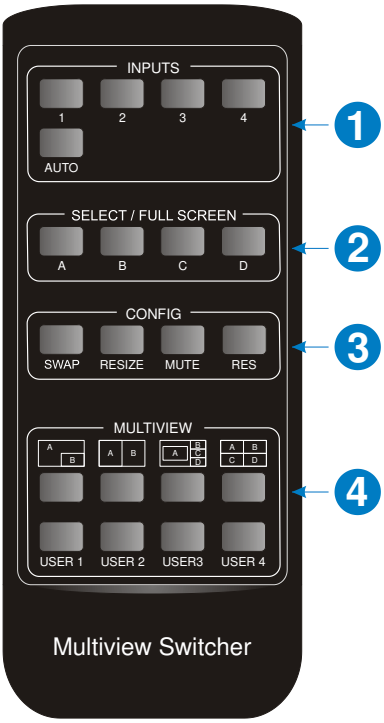
Example**: In the Full Screen mode**



RESIZE: Press **RESIZE** button to readjust the windows size. Please refer the GUI Multi-view Tab on page 12 for more details.

Example: **In the PIP mode**

6. IR Remote



① **INPUTS:** Press 1-4 button to select the input sources. Press **AUTO** button to automatically detect the input sources.

② **SELECT/FULL SCREEN:** Press A-D button to display corresponding input as full-screen mode.

③ **CONFIG:** Press **SWAP** button to select window display screen anti-clockwise direction. Press the **RESIZE** button to adjust the windows size. Press **MUTE** button to control the basic function, such as adjusting volume, pause, play and switch and so on. Press **RES** button to adjust the output resolution.

④ **MULTIVIEW:** The MULTIVIEW includes eight buttons, the first four buttons to choose different multi-views mode, and **USER1-4** button to enter user-defined multi-views mode via GUI control.

Note: *There is no long pressing function on this IR remote, and its button functions are the same as the front panel buttons.*

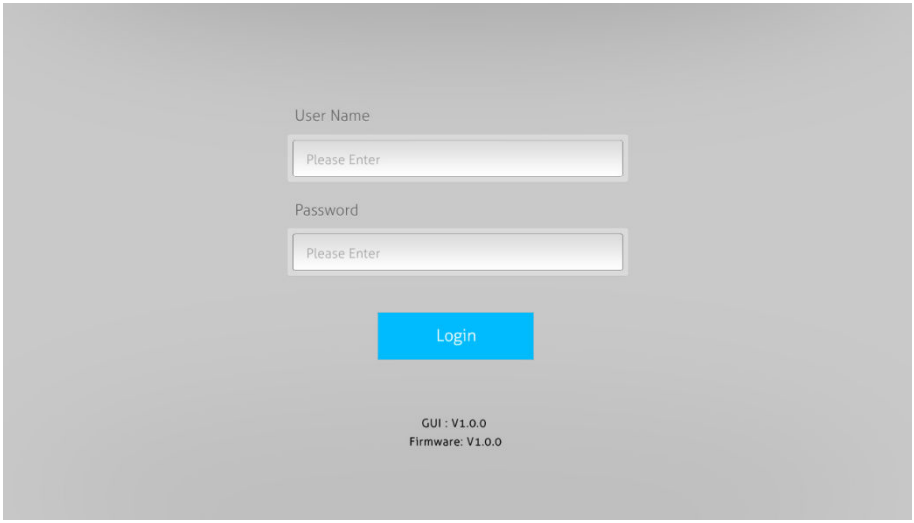
7. GUI Control

The switcher can be controlled via TCP/IP. The default IP settings are:

IP Address: 192.168.0.178

Subnet Mask: 255.255.255.0

Type ***192.168.0.178*** in the internet browser, it will enter the below log-in webpage:



Username: admin

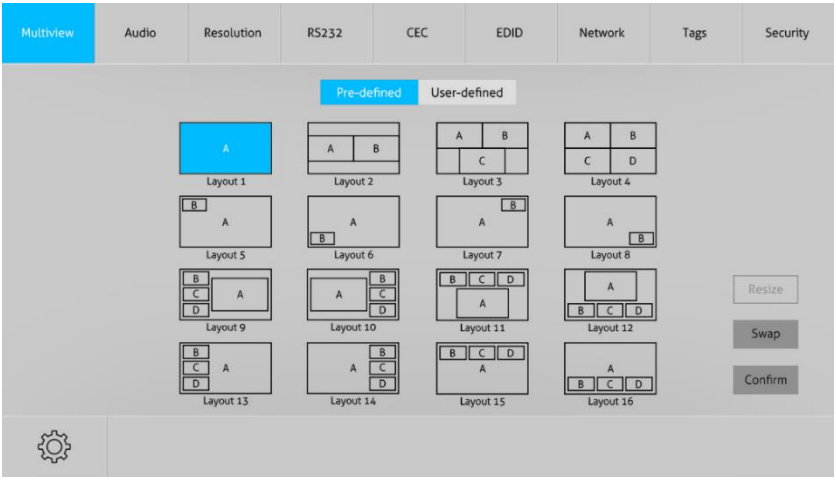
Password: admin

Type the user name and password, and then click **Login** to enter the section for video switching.

7.1 Multiview Tab

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

① **Pre-defined**

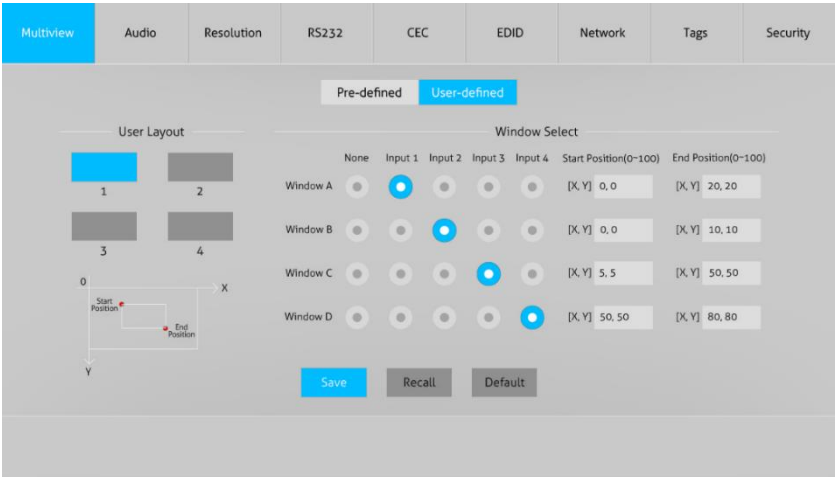


- **Pre-defined:**
  - ✓ Click the corresponding button (**Layout1~16**) to select video input view and mode.
  - ✓ Click the Layout2, Layout5~Layout8, Layout9~Layout12 buttons to enable the Resize function.
  - ✓ Press **SWAP** button to select window display screen anti-clockwise direction.
  - ✓ Click **Confirm** button complete the selection.

Note: *Only layout2, layout5~8 and layout9~12, 9 layouts in total, can be resized.*

✓ Click **Setting** button to enter Window Select, and select any one of input sources and corresponding output shown windows.

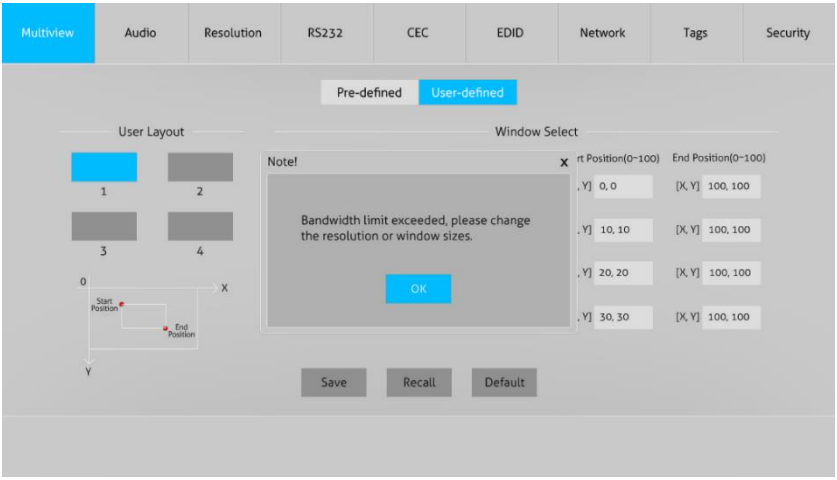
② User-defined



✓ Click **1, 2, 3, or 4** button to choose User Layout.

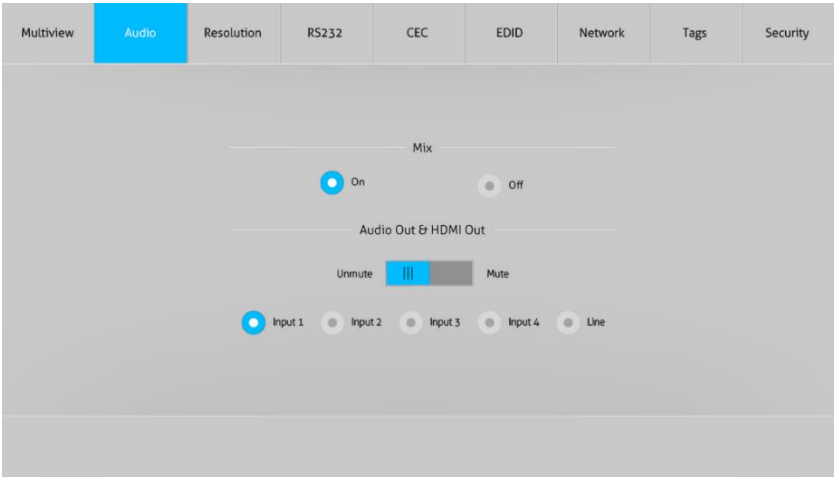
✓ Select the corresponding input, set the size and position for each window that you want to display on the layout.

✓ Click **Save** button to present the results above selected.



✓ Click **OK** button to exit the current interface and reselect User-defined if the Bandwidth limit exceeded.

7.2 Audio Tab

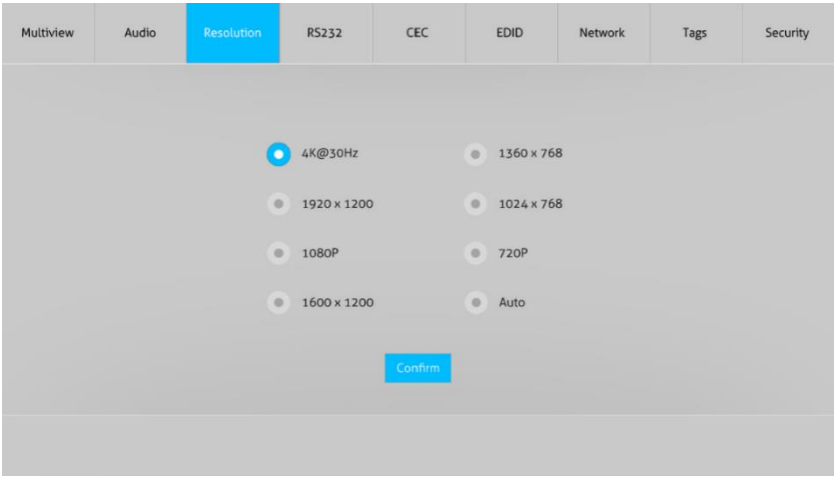


✓ Click **On** button to enter Mix mode, Click **Off** button to exit Mix mode.

✓ Click **Unmute** or **Mute** button to control Audio Output.

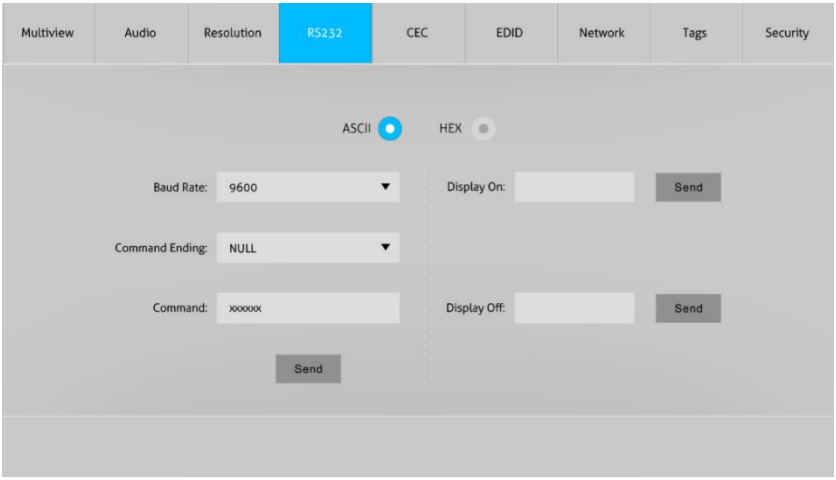
✓ Select one audio input among input 1-4 and line audio to set as output audio.

7.3 Resolution Tab



- ✓ Click any one of built-in resolutions for the selected input source device, click **Auto** button to show the resolution from third-party display device automatically.
- ✓ Click **Confirm** button when the selection is completed.

7.4 RS232 Tab

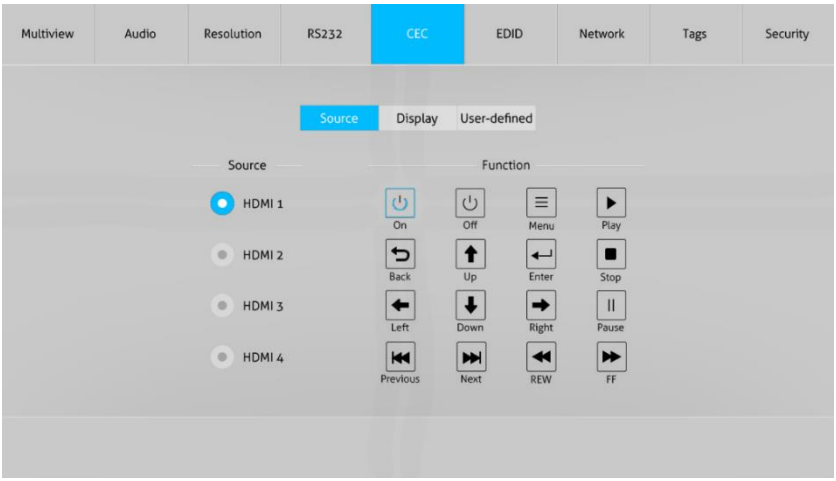


- ✓ ASCII or HEX command format can be selected.
- ✓ **Baud Rate:** Supports 2400, 4800, 9600, 19200, 38400, 57600 or 115200.

- ✓ **Command Ending:** NULL, CR, LF or CR+LF can be chosen.
- ✓ **Command:** Type the command in this box to control the third-party device which is connected to the RS232 port of the switcher.
- ✓ **Display On:** Send the Display ON via RS232 command.
- ✓ **Display Off:** Send the Display OFF via RS232 command.

7.5 CEC Tab

① Source



- ✓ Click **Source** button to select HDMI input source, and click Function to enter the basic control.

② Display

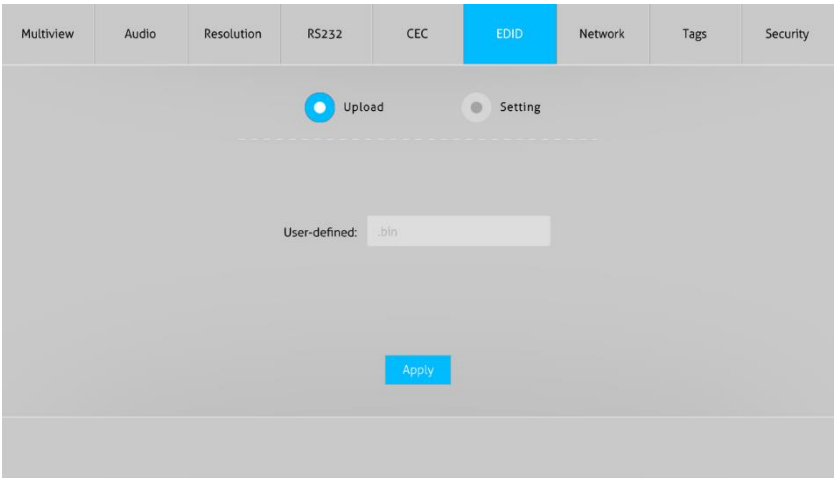
✓ Click **Display** buttons to control the third-party display devices.

③ User-defined

✓ Select corresponding input source devices and display devices to control via CEC commands.

7.6 EDID Tab

① Upload



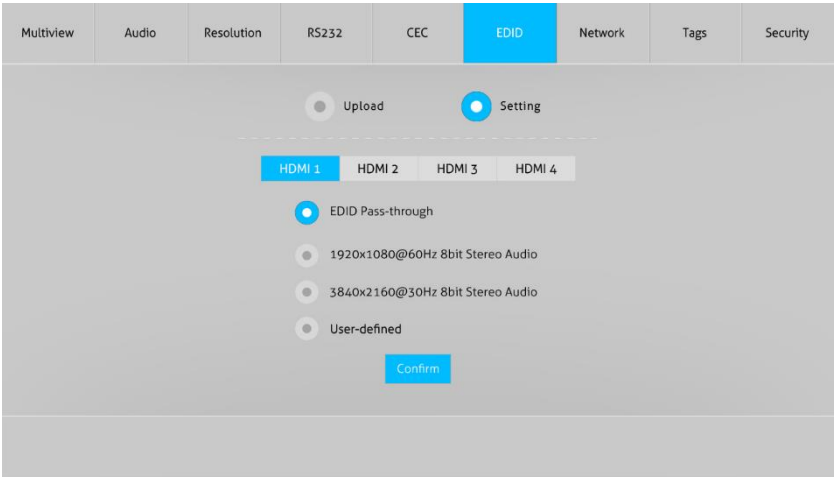
✓ User-defined EDID can be customized by the below steps:

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

Step 2: Select the EDID file (.bin) according the tooltip.

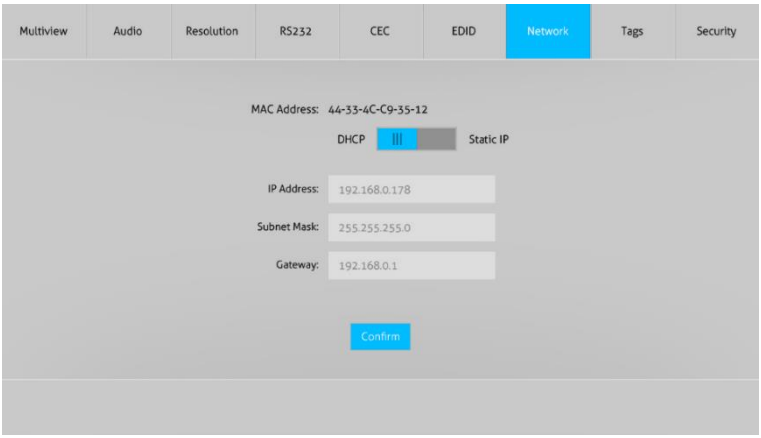
Step 3: Click **Apply** to upload the user-defined EDID.

② Setting



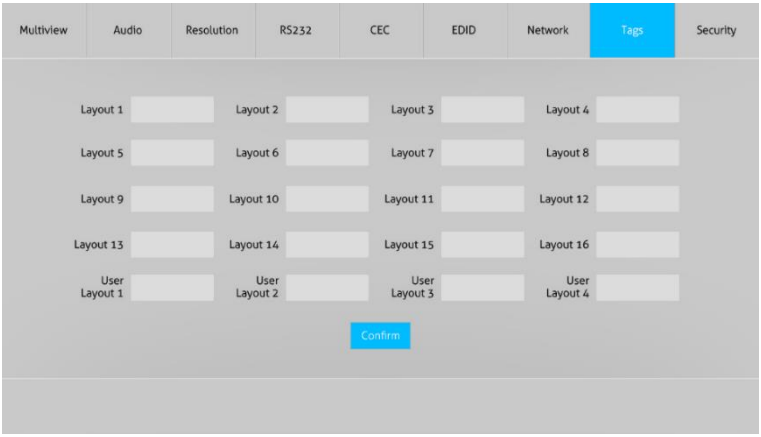
- ✓ Click **Setting** button to set built-in EDID.
- ✓ Click **HDMI 1-4** button to select input source.
- ✓ Click any one of built-in EDIDs for the selected input source device.

7.7 Network Tab



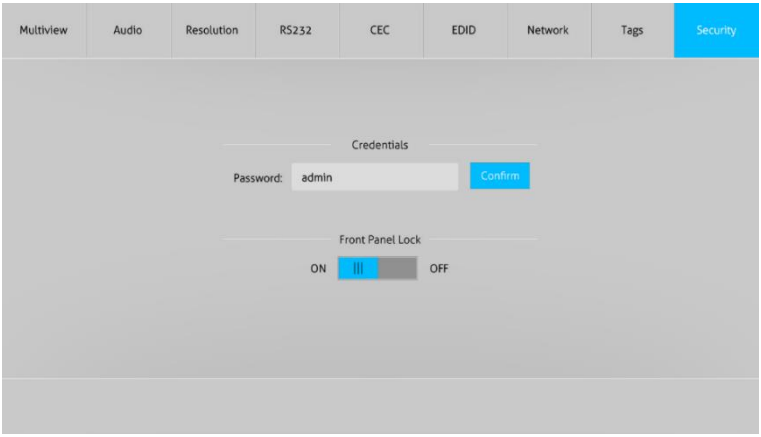
- ✓ Static IP or Dynamic Host Configuration Protocol (DHCP).
- ✓ Modify the static IP Address, Subnet Mask, and Gateway.

7.8 Tags Tab



- ✓ Modify the input button labels.

7.9 Security Tab

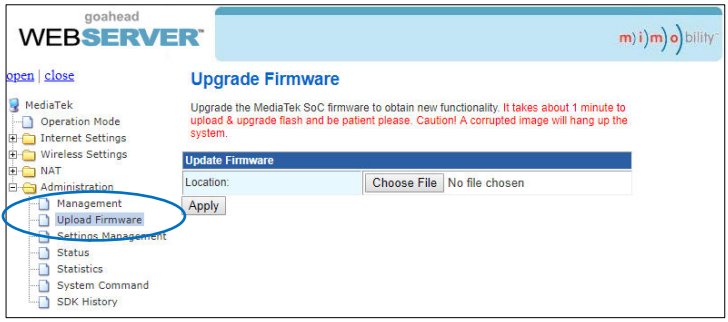


✓ Modify the login password.

✓ Lock or unlock the front panel buttons.

7.10 GUI Update

Web-based GUI for the Seamless Switcher supports online update in http://192.168.0.178:100. First, the Switcher is running. Type the username and password (the same as the GUI log-in settings, modified password will be available only after rebooting) to log in the configuration interface. After that, click **Administration** at the source Tab to get to **Upload Program** as shown below:



Select the desired update file and press “Apply”, it will start upgrading then. Last, check whether where is a reminder named check ok, if yes, the GUI was updated successfully, otherwise, the GUI updating is fail, and then follow the above steps to update again.

8. RS232 Control

Connect the RS232 port to control device (e.g. PC) with RS232 cable. The switcher can be controlled by sending RS232 commands. It's also possible to send these commands via a TCP connections on port 4001.

The below command lists are used to control the switcher. The RS232 control software (e.g. docklight) needs to be installed on the control PC to send RS232 commands.

After installing the RS232 control software, 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.

Baud rate: 9600

Data bit: 8

Stop bit: 1

Parity bit: none

Note:

- *In the commands, "["and "]" are symbols for easy reading and do not need to be typed in actual operation.*
- *Type the command carefully, it is case-sensitive.*

8.1 System Control

The ending mark of command is "<CR><LF>".

Command	Description	Command & Feedback Example
#GET_FIRMWARE_VERSION	Get the firmware version	@V1.0.0
#FACTORY_RESET	Factory Default	@FACTORY_RESET
#REBOOT	System reboot	@REBOOT

#HELP [PARAM]	Get the command details
	[PARAM]=Any command (Random commands and without symbol "#", it means the feedback command is described its usage).
	[PARAM]=Null (Report all commands).
		#HELP SET_AV
		@Select the input source.
		#SET_AV INPARAM TO OUTPARAM
		INPARAM = 1 ~ 4
		1 - HDMI 1
		2 - HDMI 2
		3 - HDMI 3
		4 - HDMI 4

Command	Description	Command & Feedback Example
		OUTPARAM = A ~ D
#GET_IP_ADDR	Get the IP to access GUI.	@IP_ADDR: 192.168.0.178 @SUBNET_MASK: 255.255.255.0 @GATEWAY: 192.168.0.1

8.2 Signal Switching

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

Command	Description	Command & Feedback Example
#SET_AV [INPARAM] TO [OUTPARAM]	Switch an input AV signal to one or more outputs. [INPARAM]=1 ~ 4 1 - HDMI 1 2 - HDMI 2 3 - HDMI 3 4 - HDMI 4 [OUTPARAM]=A ~ D. [OUTPARAM]=Null. Switch any input to window A.	#SET_AV 1 #SET_AV 1 TO @AV 1 TO A
#GET_AV [PARAM]	Get the current AV switching status of input or output channel. [PARAM]=A ~ D. [PARAM]=Null. Get all switching status.	#GET_AV @VIDEO OUT A B C D IN 1 2 3 4 @AUDIO_SRC 1
#SET_AUTO_SWITCH [PARAM]	Enable/disable auto switching mode. [PARAM]=0~1. 0 - Disable 1 - Enable	#SET_AUTO_SWITCH 1 @AUTO_SWITCH 1
#GET_AUTO_SWITCH	Get the auto switching status.	@AUTO_SWITCH 1

8.3 Audio Switching

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

Command	Description	Command & Feedback Example
#SET_AUDIO_MUTE [PARAM]	Mute/Unmute audio. [PARAM]=0~1. 0 - Disable 1 - Enable	#SET_AUDIO_MUTE 1 @AUDIO_MUTE 1
#GET_AUDIO_MUTE	Get the audio mute status.	@AUDIO_MUTE 1
#SET_AUDIO_SRC [PARAM]	Set the audio output source. [PARAM]=1 ~ 5 1 - HDMI 1 2 - HDMI 2 3 - HDMI 3 4 - HDMI 4 5 - LINE IN	#SET_AUDIO_SRC 1 @AUDIO_SRC 1
#GET_AUDIO_SRC	Get the audio output source.	@AUDIO_SRC 1
#SET_AUDIO_MIX [PARAM]	Enable/Disable audio mix. [PARAM]=0~1. 0 - Disable 1 - Enable	#SET_AUDIO_MIX 1 @AUDIO_MIX 1
#GET_AUDIO_MIX	Get audio mix status.	@AUDIO_MIX 1
#SET_FULL_SWAUD [PARAM]	Enable/disable whether the audio follows the video switching when full-screen mode is selected. [PARAM]=0~1. 0 - Disable 1 - Enable	#SET_FULL_SWAUD 1 @FULL_SWAUD 1
#GET_FULL_SWAUD	Get whether the audio follows the video switching when full-screen mode is selected.	@FULL_SWAUD 1

8.4 Function Setting

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

Command	Function	Command & Feedback Example
#SET_RS232_BAUD [PARAM]	Set the RS232 baud rate. [PARAM]=1 ~ 7 1 - 115200 2 - 57600 3 - 38400 4 - 19200 5 - 9600 6 - 4800 7 - 2400	#SET_RS232_BAUD 0 @RS232_BAUD 5
#GET_RS232_BAUD	Get the RS232 baud rate	#GET_RS232_BAUD @RS232_BAUD 5
#SET_OUTPUT_RES [PARAM]	Set the output resolution. [PARAM]= 1 ~ 8 1 - 1024x768 60 HZ 2 - 1280x720 60 HZ 3 - 1360x768 60 HZ 4 - 1600x1200 60 Hz 5 - 1920x1080 60 HZ 6 - 1920x1200 60 HZ 7 - 3840x2160 30 HZ 8 - Auto	#SET_OUTPUT_RES 7 @OUTPUT_RES 7
#GET_OUTPUT_RES	Get the output resolution	@OUTPUT_RES 4
#GET_INPUT_RES [PARAM]	Get the input resolution. [PARAM]=1 ~ 4 1 - HDMI 1 2 - HDMI 2 3 - HDMI 3 4 - HDMI 4	@INPUT_RES: 1920x1080 60HZ
#SET_OUTPUT_HDCP [PARAM]	Set the HDCP mode for output port. [PARAM]=1 ~ 3 1 - HDCP1.4 2 - HDCP2.2 3 - OFF	#SET_OUTPUT_HDCP 1 @OUTPUT_HDCP 1
#GET_OUTPUT_HDCP	Get the HDCP mode of output port.	@OUTPUT_HDCP 1

Command	Function	Command & Feedback Example
#SET_EDID_MODE [PARAM1] [PARAM2]	Set the EDID of HDMI input. [PARAM1]=1 ~ 4 1 - HDMI 1 2 - HDMI 2 3 - HDMI 3 4 - HDMI 4 [PARAM2]=1 ~ 4 1 - 1920x1080 60HZ PCM 2CH 2 - 3840x2160 30HZ PCM 2CH 3 - BYPASS 4 - USER	#SET_EDID_MODE 1 1 @EDID_MODE 1 1
#GET_EDID_MODE [PARAM]	Get the EDID of input. [PARAM]=1 ~ 4 1 - HDMI 1 2 - HDMI 2 3 - HDMI 3 4 - HDMI 4	#GET_EDID_MODE 1 @EDID_MODE 1 1
#UPLOAD_USER_EDID	Upload the user defined EDID.	@USER_EDID READY PLEASE SEND EDID DATA IN 10S OK
#SET_KEYPAD_LOCK [PARAM]	Lock/unlock the keypad. [PARAM]=0~1. 0 - Unlock. 1 - Lock.	#SET_KEYPAD_LOCK 1 @KEYPAD_LOCK 1
#GET_KEYPAD_LOCK	Get the keypad locking status	#GET_KEYPAD_LOCK
#SET_POWER [PARAM]	Enter/exit standby mode [PARAM]=0 ~ 1 0 - Standby mode. 1 - Power on mode.	#SET_POWER 1 @POWER 1
#GET_POWER	Get the standby status	@POWER 1

Command	Function	Command & Feedback Example
#SET_MV_MODE [PARAM]	Set multiview mode. [PARAM]=1 ~ 20 1 - 1 WINDOWS Full 2 - 2 WINDOWS PBP 3 - 3 WINDOWS 2U1D 4 - 4 WINDOWS SAME SIZE 5 - 2 WINDOWS PIP LU 6 - 2 WINDOWS PIP LD 7 - 2 WINDOWS PIP RU 8 - 2 WINDOWS PIP RD 9 - 4 WINDOWS PBP 3L1R 10 - 4 WINDOWS PBP 1L3R 11 - 4 WINDOWS PBP 3U1D 12 - 4 WINDOWS PBP 1U3D 13 - 4 WINDOWS PIP 1F3L 14 - 4 WINDOWS PIP 1F3R 15 - 4 WINDOWS PIP 1F3U 16 - 4 WINDOWS PIP 1F3D 17 - USER CONFIG 1 18 - USER CONFIG 2 19 - USER CONFIG 3 20 - USER CONFIG 4	#SET_MV_MODE 1 @MV_MODE 1
#GET_MV_MODE	Get multiview mode	@MV_MODE 1
#GET_STATUS	Get the system status	@V1.0.0 @VIDEO OUT A B C D IN 1 2 3 4 @AUDIO_SRC 1 @OUTPUT_RES 7 @AUTO_SWITCH 1 @EDID_MODE 1 2 …
#SET_SWAP_SRC	Swap input source	@SWAP_SRC @VIDEO OUT A B C D IN 1 2 3 4 @AUDIO_SRC 1
#SET_RESIZE_WIM	Resize display windows.	@RESIZE_WIM

Command	Function	Command & Feedback Example
#SET_SYNCACT_CEC [PARAM]	Enable/Disable whether automatically send corresponding CEC command when detecting Power on/off signal. [PARAM]= 0 ~ 1 0 - Disable 1 - Enable	#SET_SYNCACT_CEC 1 @SYNCACT_CEC 1
#GET_SYNCACT_CEC	Get whether automatically send corresponding CEC command when detecting Power on/off signal.	#GET_SYNCACT_CEC @SYNCACT_CEC 1
#SET_SYNCACT_RS232 [PARAM]	Enable/Disable whether automatically send corresponding RS232 command when detecting Power on/off signal. [PARAM]= 0 ~ 1 0 - Disable 1 - Enable	#SET_SYNCACT_RS232 1 @SYNCACT_RS232 1
#GET_SYNCACT_RS232	Get whether automatically send corresponding RS232 command when detecting Power on/off signal.	#GET_SYNCACT_RS232 @SYNCACT_RS232 1
#SET_DTIME [PARAM1]:[PARAM2]	Set the delay time of auto sending Display OFF command when no signal is detected. [PARAM1]=0 ~ 30 minus [PARAM2]=0 ~ 1800 seconds (PS: All the time in 0s ~ 30m)	#SET_DTIME 1:30 @DTIME 1:30
#GET_DTIME	Get the delay time of auto sending Display OFF command when no signal is detected.	@DTIME 1:30
#SET_AUTO_POWER [PARAM]	Enable/Disable auto standby function. [PARAM]=0 ~ 1 0 - Disable 1 - Enable	#SET_AUTO_POWER 1 @AUTO_POWER 1
#GET_AUTO_POWER	Get the auto stadby function status.	@AUTO_POWER 1
#SET_OFF_CNT [PARAM]	Set the number of times to send the DISPLAY OFF command. [PARAM]=1 ~ 2	#SET_OFF_CNT 1 @OFF_CNT 1

Command	Function	Command & Feedback Example
#GET_OFF_CNT	Get the number of times to send the DISPLAY OFF command.	@OFF_CNT 1
#SET_OFF_DELAY [PARAM]	Set the sending interval between two Display OFF commands. [PARAM]=5 ~ 100 (1=100ms)	#SET_OFF_DELAY 5
		@OFF_DELAY 5
#GET_OFF_DELAY	Get the the sending interval between two Display OFF commands.	@OFF_DELAY 5

8.5 CEC Command

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

Command	Function	Command & Feedback Example
#SET_SRC_MENU [PARAM]	Send CEC MENU command to source device. [PARAM]=1 ~ 4 1 - HDMI 1 2 - HDMI 2 3 - HDMI 3 4 - HDMI 4	#SET_SRC_MENU 1
		@SRC_MENU 1
#SET_SRC_UP [PARAM]	Send CEC UP command to source device. [PARAM]=1 ~ 4 1 - HDMI 1 2 - HDMI 2 3 - HDMI 3 4 - HDMI 4	#SET_SRC_UP 1
		@SRC_UP 1
#SET_SRC_DOWN [PARAM]	Send CEC DOWN command to source device. [PARAM]=1 ~ 4 1 - HDMI 1 2 - HDMI 2 3 - HDMI 3 4 - HDMI 4	#SET_SRC_DOWN 1
		@SRC_DOWN 1
#SET_SRC_LEFT [PARAM]	Send CEC LEFT command to source device. [PARAM]=1 ~ 4	#SET_SRC_LEFT 1

Command	Function	Command & Feedback Example
	1 - HDMI 1 2 - HDMI 2 3 - HDMI 3 4 - HDMI 4	@SRC_LEFT 1
#SET_SRC_RIGHT [PARAM]	Send CEC RIGHT command to source device. [PARAM]=1 ~ 4 1 - HDMI 1 2 - HDMI 2 3 - HDMI 3 4 - HDMI 4	#SET_SRC_RIGHT 1
		@SRC_RIGHT 1
#SET_SRC_BACK [PARAM]	Send CEC BACK command to source device. [PARAM]=1 ~ 4 1 - HDMI 1 2 - HDMI 2 3 - HDMI 3 4 - HDMI 4	#SET_SRC_BACK 1
		@SRC_BACK 1
#SET_SRC_ENTER [PARAM]	Send CEC ENTER command to source device. [PARAM]=1 ~ 4 1 - HDMI 1 2 - HDMI 2 3 - HDMI 3 4 - HDMI 4	#SET_SRC_ENTER 1
		@SRC_ENTER 1
#SET_SRC_ON [PARAM]	Send CEC ON command to source device. [PARAM]=1 ~ 4 1 - HDMI 1 2 - HDMI 2 3 - HDMI 3 4 - HDMI 4	#SET_SRC_ON 1
		@SRC_ON 1
#SET_SRC_OFF [PARAM]	Send CEC OFF command to source device. [PARAM]=1 ~ 4	#SET_SRC_OFF 1

Command	Function	Command & Feedback Example
	1 - HDMI 1 2 - HDMI 2 3 - HDMI 3 4 - HDMI 4	@SRC_OFF 1
#SET_SRC_STOP [PARAM]	Send CEC STOP command to source device. [PARAM]=1 ~ 4 1 - HDMI 1 2 - HDMI 2 3 - HDMI 3 4 - HDMI 4	#SET_SRC_STOP 1
		@SRC_STOP 1
#SET_SRC_PLAY [PARAM]	Send CEC PLAY command to source device. [PARAM]=1 ~ 4 1 - HDMI 1 2 - HDMI 2 3 - HDMI 3 4 - HDMI 4	#SET_SRC_PLAY 1
		@SRC_PLAY 1
#SET_SRC_PAUSE [PARAM]	Send CEC PAUSE command to source device. [PARAM]=1 ~ 4 1 - HDMI 1 2 - HDMI 2 3 - HDMI 3 4 - HDMI 4	#SET_SRC_PAUSE 1
		@SRC_PAUSE 1
#SET_SRC_PREV [PARAM]	Send CEC PREV command to source device. [PARAM]=1 ~ 4 1 - HDMI 1 2 - HDMI 2 3 - HDMI 3 4 - HDMI 4	#SET_SRC_PREV 1
		@SRC_PREV 1
#SET_SRC_NEXT [PARAM]	Send CEC NEXT command to source device. [PARAM]=1 ~ 4	#SET_SRC_NEXT 1

Command	Function	Command & Feedback Example
	1 - HDMI 1 2 - HDMI 2 3 - HDMI 3 4 - HDMI 4	@SRC_NEXT 1
#SET_SRC_REW [PARAM]	Send CEC rewind command to source device. [PARAM]=1 ~ 4 1 - HDMI 1 2 - HDMI 2 3 - HDMI 3 4 - HDMI 4	#SET_SRC_REW 1 @SRC_REW 1
#SET_SRC_FF [PARAM]	Send CEC fast-forward command to source device. [PARAM]=1 ~ 4 1 - HDMI 1 2 - HDMI 2 3 - HDMI 3 4 - HDMI 4	#SET_SRC_FF 1 @SRC_MENU 1
#SET_DIS_ON	Send CEC ON command to display device.	@DIS_ON
#SET_DIS_OFF	Send CEC OFF command to display device.	@DIS_OFF
#SET_DIS_SOURCE	Send CEC SOURCE command to display device.	@DIS_SOURCE
#SET_DIS_MUTE	Send CEC MUTE command to display device.	@DIS_MUTE/UNMUTE
#SET_DIS_VOL+	Send CEC volume plus command to display device.	@DIS_VOL+
#SET_DIS_VOL-	Send CEC volume minus command to display device.	@DIS_VOL-

8.6 Special Command

Note: *The below commands don't need ending mark.*

Command	Description	Command & Feedback Example
#SET_ON_[PARAM]:XXXX	Set the ASCII command to be sent to display device when power on the switcher. [PARAM]= 01~07 01 - 115200 02 - 57600 03 - 38400 04 - 19200 05 - 9600 06 - 4800 07 - 2400 XXXX= ASCII data to be sent (Up to 48 characters).	#SET_ON_05:1234567 @@BAUDRATE: 9600 @DISPLAY ON TO SEND:1234567
#SET_H_ON_[PARAM]:XX XX	Set the HEX command to be sent to display device when power on the switcher. [PARAM]= 01~07 01 - 115200 02 - 57600 03 - 38400 04 - 19200 05 - 9600 06 - 4800 07 - 2400 XX XX= HEX data to be sent (X = 0~9, A~F and up to 20 XX).	#SET_H_ON_05:30 31 32 33 34 @BAUDRATE: 9600 @DISPLAY ON HEX TO SEND:30 31 32 33 34
#SET_OF_[PARAM]:XXXX	Set the ASCII command to be sent to display device when the switcher enter power off or standby mode. [PARAM]= 01~07 01 - 115200 02 - 57600 03 - 38400 04 - 19200 05 - 9600 06 - 4800 07 - 2400	#SET_OF_05:ABCDEFG @BAUDRATE: 9600 @DISPLAY OFF TO SEND:ABCDEFG

Command	Description	Command & Feedback Example
	XXXX= ASCII data to be sent (Up to 48 characters).	
#SET_H_OF_[PARAM]:XX XX	Set the HEX command to be sent to display device when the switcher enter power off or standby mode. [PARAM]= 01~07 01 - 115200 02 - 57600 03 - 38400 04 - 19200 05 - 9600 06 - 4800 07 - 2400 XX XX= HEX data to be sent (X = 0~9, A~F and up to 20 XX).	#SET_OF_05:41 42 43 44 45 46 @BAUDRATE: 9600 @DISPLAY OFF HEX TO SEND:41 42 43 44 45 46

9. Firmware Upgrade

1) Prepare the latest upgrade file (.bin) and rename it as “FW_MV 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) Directly copy the latest upgrade file (.bin) to the “BOOTDISK” U-disk.
5) Reopen the U-disk to check whether where is a filename “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.
6) Remove the Type-A USB cable after firmware upgrade.
7) After firmware upgrade, the switcher should be restored to factory default by sending command.