VitBest®

SQ-04014K

4K 4X1 Seamless Switcher with Multi-view

Table of Contents

1. Specification

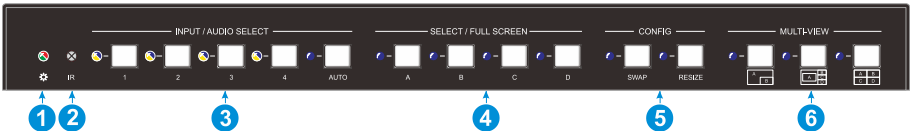
Video	
Video Input	(4) HDMI IN (1~4)
Video Input Connector	(4) Type-A female HDMI
HDMI Input Resolution	Up to 4K@30Hz 4:4:4
Video Output	(1) HDMI
Video Output Connector	(1) Type-A female HDMI
HDMI Output Resolution	Up to 4K@30Hz RGB
HDMI Standard	HDMI 1.4b
HDCP Version	Up to HDCP 2.2
Audio IN	
Audio In	(1) LINE IN, (1) MIX IN.
Audio In Connector	(2) 3-pin terminal connectors
Frequency Response	20Hz to 20KHz, ±3dB
Max Input Level	2.0 Vrms ± 0.5 dB. 2 V = 16 dB headroom above -10 dBV (316 mV) nominal consumer line level signal.
L-R level deviation	< 0.3 dB, 1 kHz sine at 0 dBFS 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	20 Hz to 20 kHz, ±1dB
THD+N	< 0.05%, 20 Hz – 20 kHz bandwidth, 1 kHz sine at 0 dBFS level (or max level)
Signal-to-Noise Ratio	> 90dB, 20Hz-20 kHz bandwidth
Crosstalk isolation	< -70 dB, 10 kHz sine at 0 dBFS 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	20 Hz to 20 kHz, ±1dB
Max Output Level	2.0 Vrms ± 0.5 dB. 2 V = 16 dB headroom above -10 dBV (316 mV) nominal consumer line level signal
THD+N	< 0.05%, 20 Hz – 20 kHz bandwidth, 1 kHz sine at 0 dBFS level (or max level)
Signal-to-Noise Ratio	> 80dB, 20Hz-20 kHz bandwidth
Crosstalk Isolation	< -80 dB, 10 kHz sine at 0 dBFS level (or max level before clipping)
L-R Level Deviation	< 0.05 dB, 1 kHz sine at 0 dBFS level (or max level before clipping)
Output Load Capability	1k ohm and higher (supports 10x paralleled 10k ohm 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 1080i 60Hz and HDR are not supported*

2. Panel Description

2.1 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 **FOUR INPUT LEDS/AUDIO SELECTS:** Press the buttons to selected corresponding HDMI input, its LED illuminates yellow when there is a video signal, it will illuminates blue when the video signal is chosen as input source.

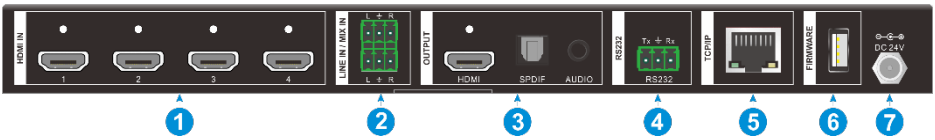
AUTO LED: Press the button to Auto Switching or Manual Switching exchange mode, its LED illuminates blue in auto-switching mode, and it will be off when exit the auto-switching mode.

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.

2.2 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.

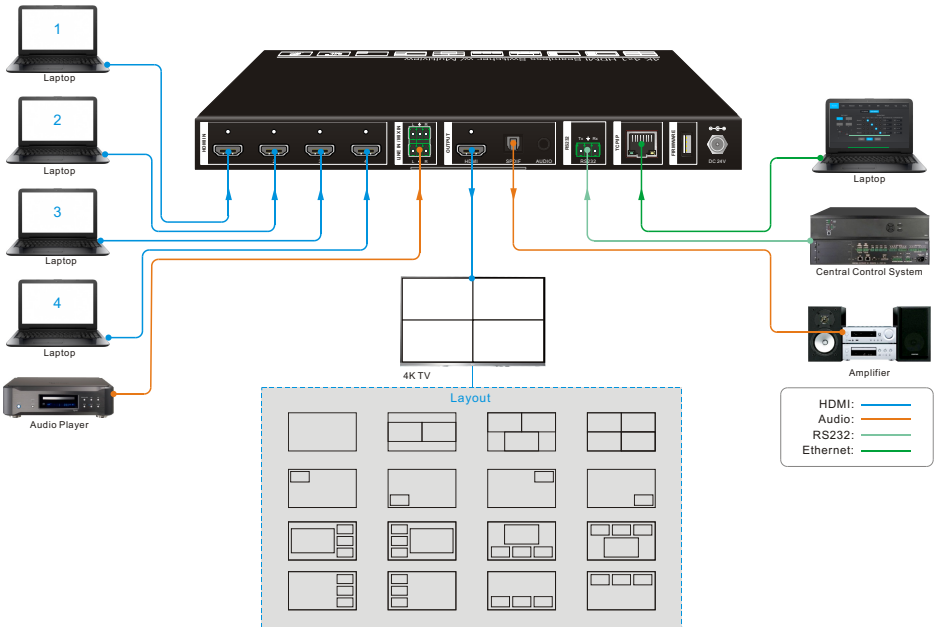
⑦ **DC 24V:** DC connector for power adapter connection.

3. System Connection

3.1 Usage Precaution

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

3.2 System Diagram



4. Front Panel Control

4.1 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.

4.2 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:

1) 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.
2) Once detecting a new input signal, the switcher will switch to this new signal automatically.
3) The switcher will memorize last input source when power off
4) Manual switching is enabled in the auto switching mode and does not exit it.

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

4.3 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.

4.4 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.

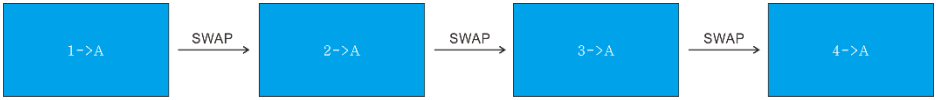
Long press **AUTO** button for 3s to replace all output audios with **LINE IN** audio source.

4.5 Config Button

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

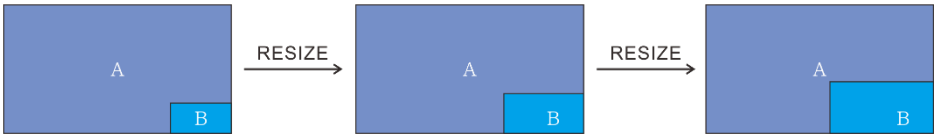
Example**: In the Multi-view mode**

Example**: In the Full Screen mode**

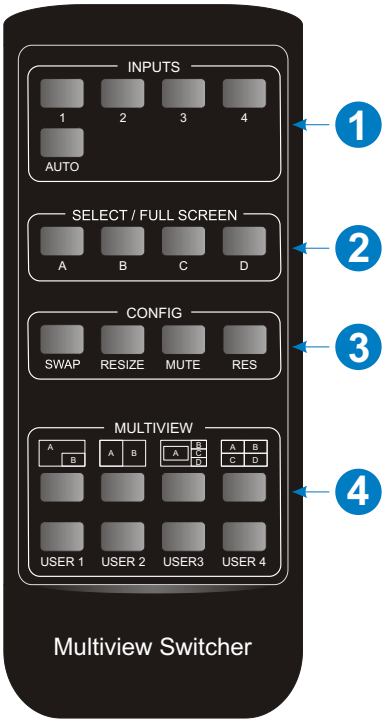


RESIZE: Press **RESIZE** button to readjust the windows size. Please refer the GUI Multi-view Tab on page 12 for more details.

Example: **In the PIP mode**



5. 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.*

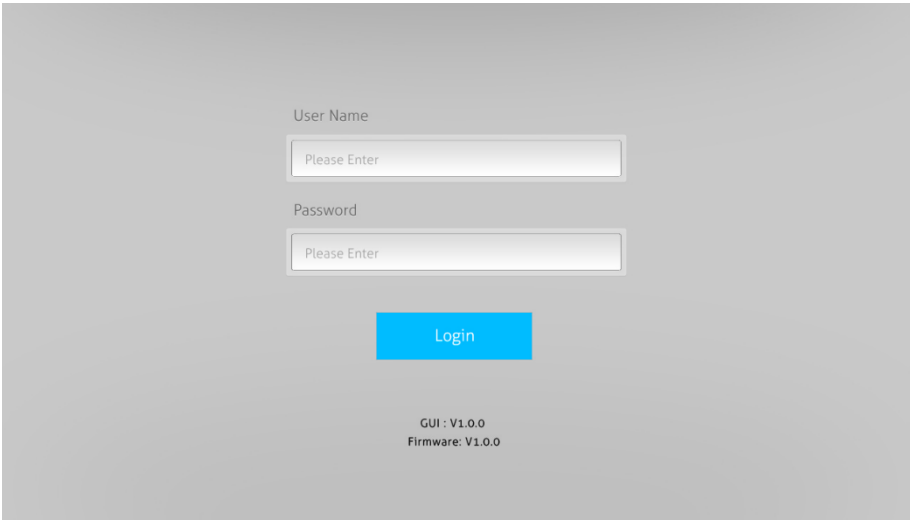
6. GUI Control

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

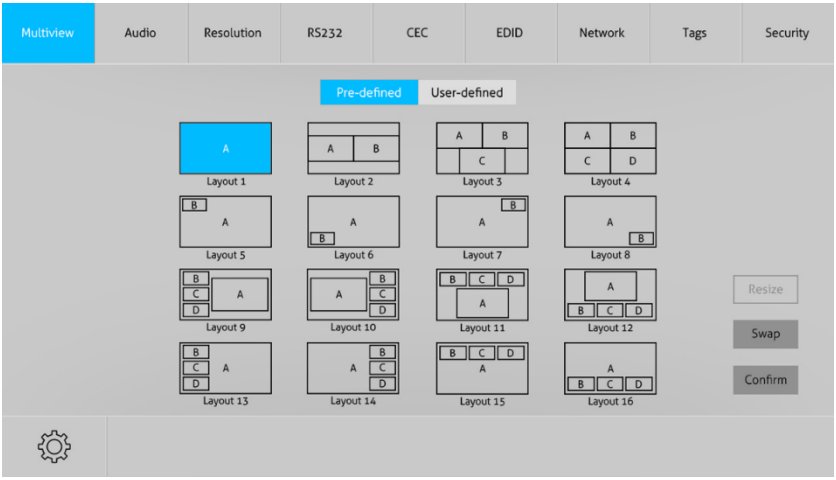
Password: admin

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

6.1 Multiview Tab

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

① **Pre-defined**

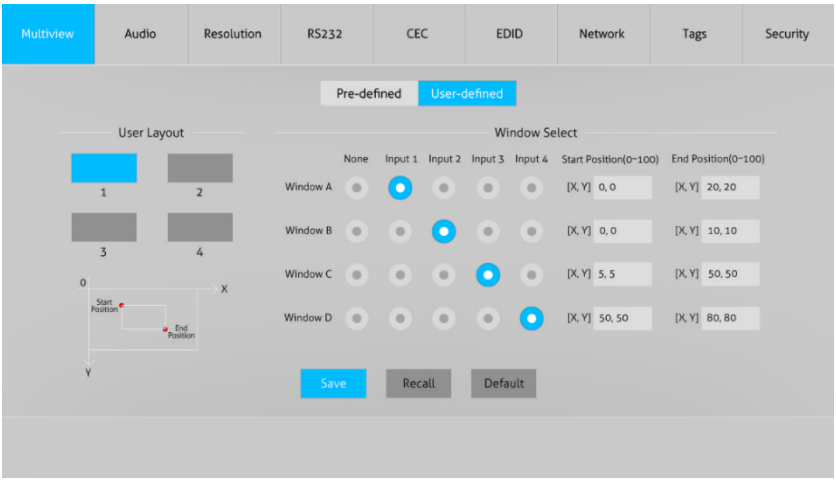


- **Pre-defined:**
  - ✓ Click the corresponding button (**Layout1~16**) to select video input view and mode.
  - ✓ Click the Layout2, Layout5~Layout8, Layout9~Layout12 buttons to enable the Resize function.
  - ✓ Press **SWAP** button to select window display screen anti-clockwise direction.
  - ✓ Click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

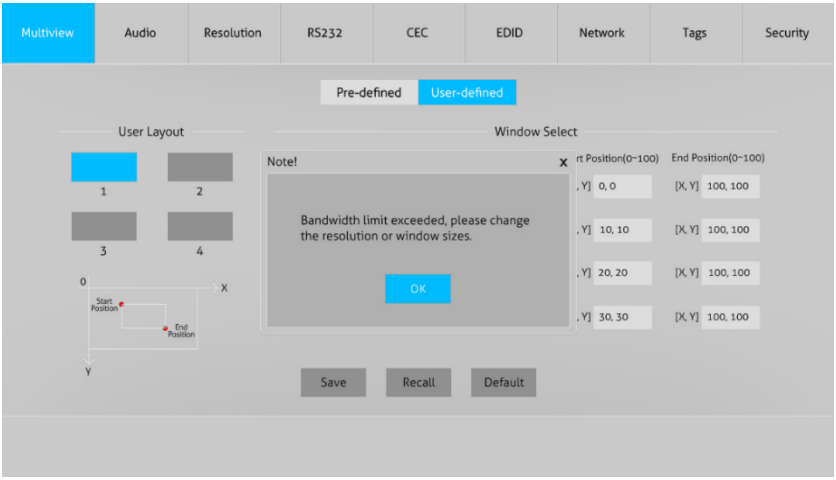
② User-defined



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

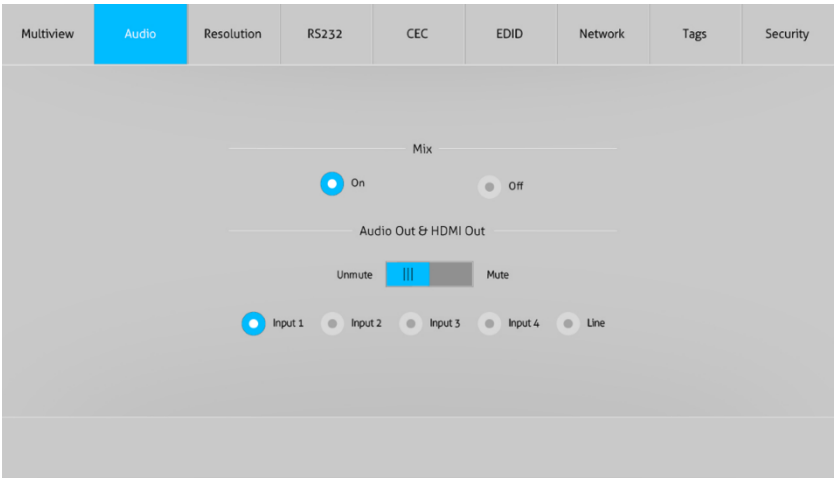
✓ Select the corresponding input, set the size and position for each window that you want to display on the layout.

✓ 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.

6.2 Audio Tab

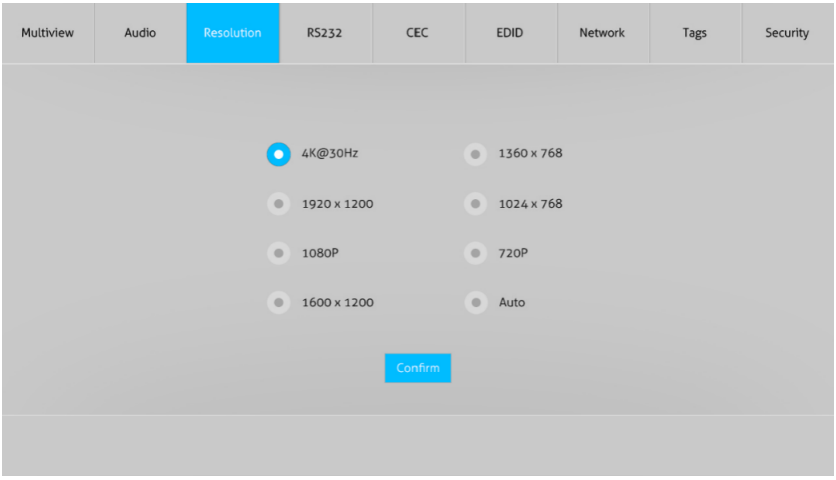


✓ Click **On** button to enter Mix mode, Click **Off** button to exit Mix mode.

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

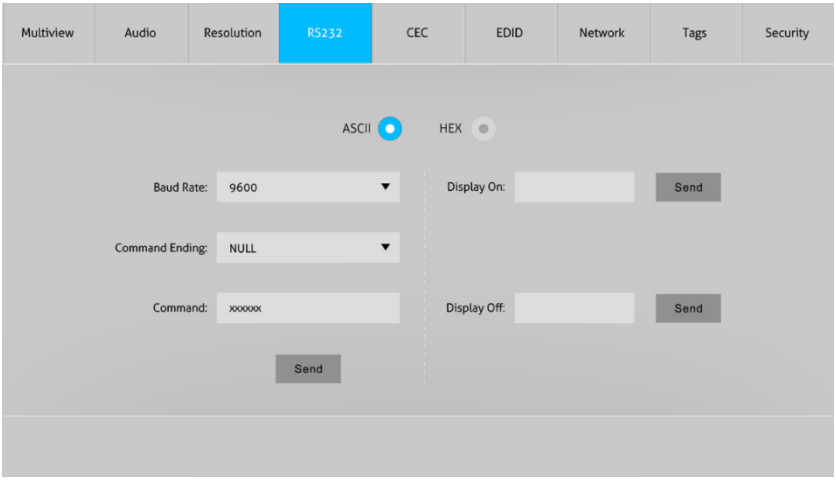
✓ Select one audio input among input 1-4 and line audio to set as output audio.

6.3 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.

6.4 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.

6.5 CEC Tab

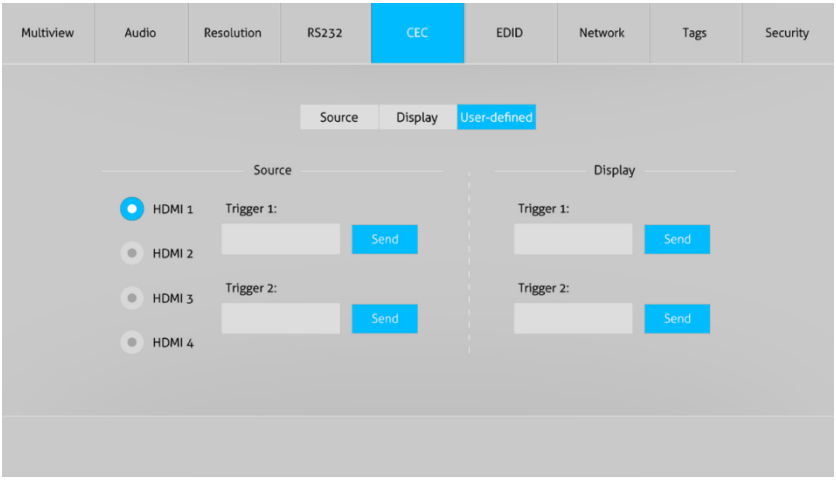
① Source

- ✓ 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.

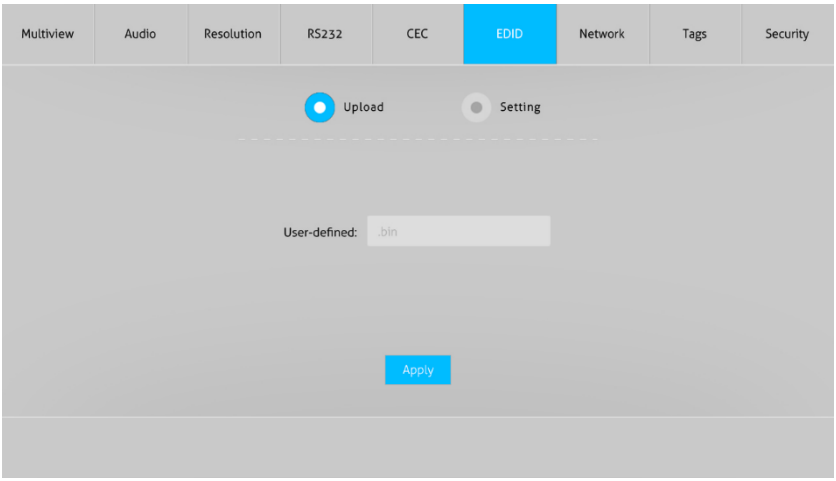
③ User-defined



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

6.6 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.

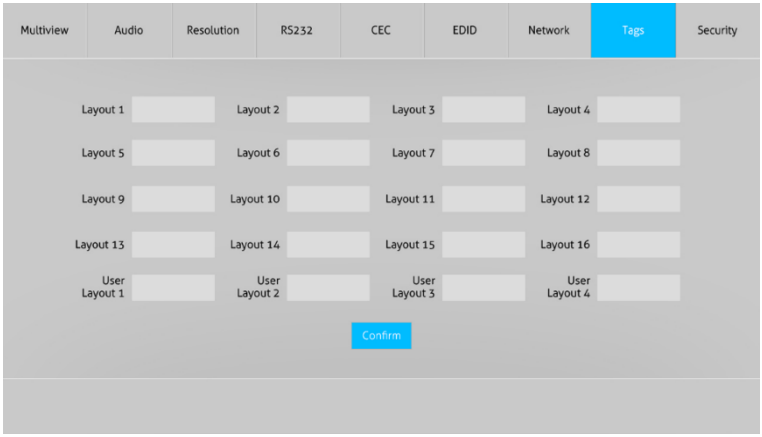
② Setting

- ✓ 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.

6.7 Network Tab

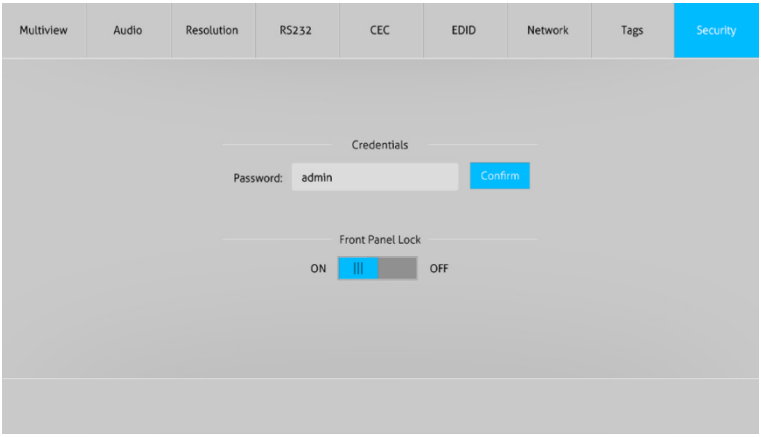
- ✓ Static IP or Dynamic Host Configuration Protocol (DHCP).
- ✓ Modify the static IP Address, Subnet Mask, and Gateway.

6.8 Tags Tab



- ✓ Modify the input button labels.

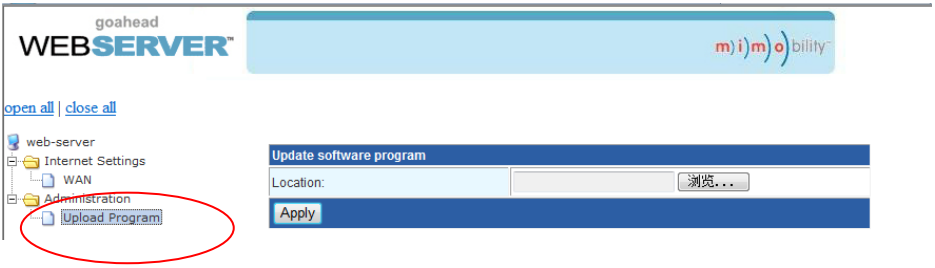
6.9 Security Tab



- ✓ Modify the login password.
- ✓ Lock or unlock the front panel buttons.

6.10 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.

7. RS232 Control

Connect the RS232 port to control device (e.g. PC) with RS232 cable. The switcher can be controlled by sending RS232 commands.

7.1 RS232 Control Software

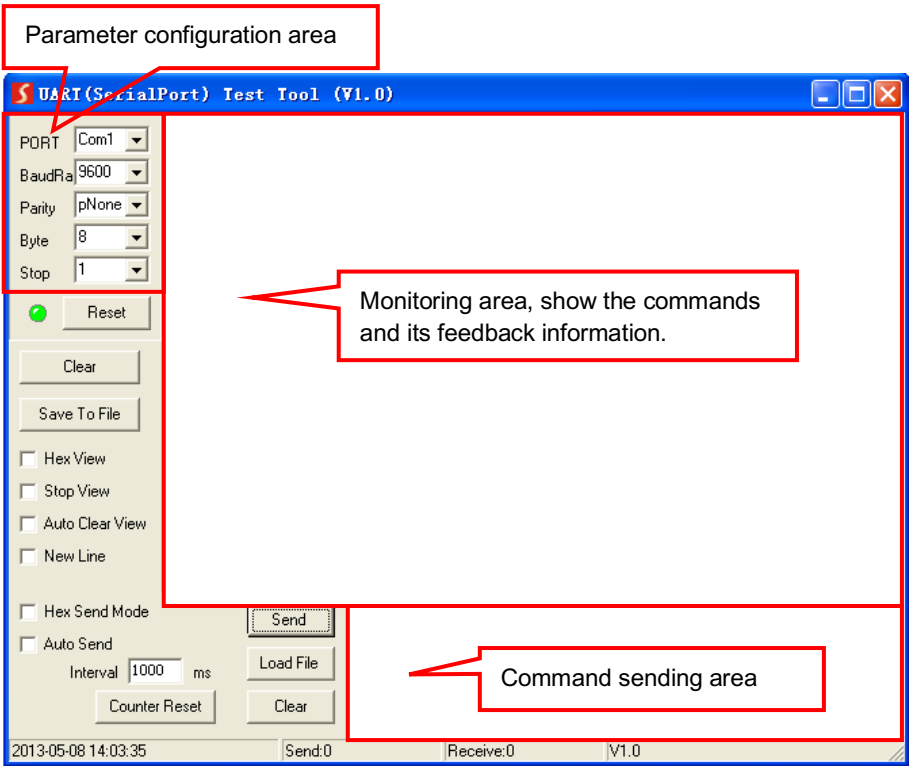
- **Installation:** Copy the control software file to the control PC**.**
- **Uninstallation:** Delete all the control software files in corresponding file path.

Basic Settings:

Connect the switcher 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 take the software **CommWatch.exe** as example:

The main view is shown 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.

7.2 RS232 Command

Communication protocol: RS232 Communication Protocol
Baud rate: 9600 Data bit: 8 Stop bit: 1 Parity bit: none

7.2.1 System Control

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

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

#HELP	Get the command details
	#HELP PARAM
	PARAM = NO PARAMETER
	(If it is without parameters, all the instructions will be got feedback.)
	PARAM = ANY COMMAND(Random commands and without symbol “#”, it means the feedback command is described its usage)
		#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
		OUTPARAM = A ~ D

#GET_IP_ADDR	Get the IP to access GUI	#GET_IP_ADDR @IP_ADDR: 192.168.0.178 @SUBNET_MASK: 255.255.255.0 @GATEWAY: 192.168.0.1

7.2.2 Signal Switching

Command	Description	Command & Feedback Example
#SET_AV	Switch an input AV signal to one or more outputs #SET_AV INPARAM TO OUTPARAM INPARAM = 1 ~ 4 1 - HDMI 1 2 - HDMI 2 3 - HDMI 3 4 - HDMI 4 OUTPARAM = A ~ D(NO THIS PARAMETER TO SET TO A)	#SET_AV 3 #SET_AV 1 TO A @AV 3 TO A @AV 1 TO A
#GET_AV	Get the current AV switching status of input or output channel #GET_AV PARAM1 NO PARAMETER = GET ALL WINDOWS SELECTED INPUT STATUS PARAM1 = A ~ D	#GET_AV #GET_AV A @VIDEO OUT A B C D IN 1 2 3 4 @AUDIO_SRC 1 @VIDEO 1 TO A

#SET_AUTO_SWITCH	Enable/disable auto switching mode
	
	#SET_AUTO_SWITCH PARAM
	PARAM = 0 ~ 1
	0 - DISABLED
	1 - ENABLED
		#SET_AUTO_SWITCH 1
		
		@AUTO_SWITCH 1

#GET_AUTO_SWITCH	Get the auto switching status	#GET_AUTO_SWITCH @AUTO_SWITCH 1

7.2.3 Audio Switching

Command	Description	Command & Feedback Example

#SET_AUDIO_MUTE	Mute/Unmute audio
	
	#SET_AUDIO_MUTE PARAM
	PARAM = 0 ~ 1
	0 - DISABLED
	1 - ENABLED
		#SET_AUDIO_MUTE 1
		@AUDIO_MUTE 1

#GET_AUDIO_MUTE	Get the audio mute status	#GET_AUDIO_MUTE @AUDIO_MUTE 1

#SET_AUDIO_SRC	Set the audio output source
	
	#SET_AUDIO_SRC PARAM
	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	#GET_AUDIO_SRC @AUDIO_SRC 1

#SET_AUDIO_MIX	Enable/Disable audio mix
	#SET_AUDIO_MIX PARAM
	PARAM = 0 ~ 1
	0 - DISABLED
	1 - ENABLED
		#SET_AUDIO_MIX 1
		@AUDIO_MIX 1

#GET_AUDIO_MIX	Get audio mix status	#GET_AUDIO_MIX @AUDIO_MIX 1

#SET_FULL_SWAUD	Set audio switch by input when full mode is select.
	#SET_FULL_SWAUD PARAM
	PARAM = 0 ~ 1
	0 - DISABLED
	1 - ENABLED
		#SET_FULL_SWAUD 1
		@FULL_SWAUD 1

#GET_FULL_SWAUD	Get audio switch by input when full mode is select	#GET_FULL_SWAUD @FULL_SWAUD 1

7.2.4 Function Setting

Command	Function	Command & Feedback Example

#SET_RS232_BAUD	Set the RS232 baud rate.
	#SET_RS232_BAUD PARAM
	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	Set the output resolution
	#SET_OUTPUT_RES PARAM
	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	#GET_OUTPUT_RES @OUTPUT_RES 4
#GET_INPUT_RES	Get the input resolution	#GET_INPUT_RES @INPUT_RES: 1920x1080 60HZ

#SET_OUTPUT_HDCP	Set the HDCP mode for output port
	#SET_OUTPUT_HDCP PARAM
	PARAM = 1 ~ 3
	1 - HDCP1.4
	2 - HDCP2.2
	3 - OFF
		#SET_OUTPUT_HDCP 1
		@OUTPUT_HDCP 1

Command	Function	Command & Feedback Example
#GET_OUTPUT_HDCP	Get the HDCP mode of output port	#GET_OUTPUT_HDCP @OUTPUT_HDCP 1
#SET_EDID_MODE	Set the EDID mode #SET_EDID_MODE PARAM1 PARAM2 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	Get the EDID mode
	#GET_EDID_MODE PARAM
	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	#UPLOAD_USER_EDID @USER_EDID READY PLEASE SEND EDID DATA IN 10S OK
#SET_KEYPAD_LOCK	Lock/unlock the keypad	#SET_KEYPAD_LOCK 1

Command	Function	Command & Feedback Example

	#SET_KEYPAD_LOCK PARAM
	PARAM = 0 ~ 1
	0 - DISABLED
	1 - ENABLED
		@KEYPAD_LOCK 1

#GET_KEYPAD_LOCK	Get the keypad locking status	#GET_KEYPAD_LOCK @KEYPAD_LOCK 1
#SET_POWER	Enter/exit standby mode #SET_POWER PARAM PARAM = 0 ~ 1 0 - STANDBY MODE 1 - POWER ON MODE	#SET_POWER 1 @POWER 1
#GET_POWER	Get the standby status	#GET_POWER @POWER 1

#SET_MV_MODE	Set multiview mode
	#SET_MV_MODE PARAM
	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
		#SET_MV_MODE 1
		@MV_MODE 1

Command	Function	Command & Feedback Example
	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	
#GET_MV_MODE	Get multiview mode	#GET_MV_MODE @MV_MODE 1
#GET_STATUS	Get the system status	#GET_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 @EDID_MODE 2 2 @EDID_MODE 3 2 @EDID_MODE 4 2 @KEYPAD_LOCK 0 @RS232_BAUD 5 @MV_MODE 4 @OUTPUT_HDCP 1 @AUDIO_MIX 1 @AUDIO_MUTE 0 @FULL_SWAUD 1 @SYNCACT_CEC 1 @SYNCACT_RS232 1 @AUTO_POWER 0 @DTIME 10:0 @IP_ADDR: 192.168.0.178

Command	Function	Command & Feedback Example
		@SUBNET_MASK: 255.255.255.0 @GATEWAY: 192.168.0.1
#SET_SWAP_SRC	Swap input source	#SET_SWAP_SRC @SWAP_SRC @VIDEO OUT A B C D IN 1 2 3 4 @AUDIO_SRC 1
#SET_RESIZE_WIM	Resize display windows	#SET_RESIZE_WIM @RESIZE_WIM

#SET_SYNCACT_CEC	Enable/Disable auto detect signal to do CEC action.
	#SET_SYNCACT_CEC PARAM
	PARAM = 0 ~ 1
	0 - DISABLED
	1 - ENABLED
		#SET_SYNCACT_CEC 1
		@SYNCACT_CEC 1

#GET_SYNCACT_CEC	Get the CEC action state by auto detect signal	#GET_SYNCACT_CEC @SYNCACT_CEC 1

#SET_SYNCACT_RS232	Enable/Disable auto detect signal to do RS232 action.
	#SET_SYNCACT_RS232 PARAM
	PARAM = 0 ~ 1
	0 - DISABLED
	1 - ENABLED
		#SET_SYNCACT_RS232 1
		@SYNCACT_RS232 1

#GET_SYNCACT_RS232	Get the RS232 action state by auto detect signal	#GET_SYNCACT_RS232 @SYNCACT_RS232 1

Command	Function	Command & Feedback Example

#SET_DTIME	Set the time while no signal to do CEC and RS232 action
	#SET_DTIME PARAM1:PARAM2
	PARAM1 = 0 ~ 30 minus
	PARAM2 = 0 ~ 1800 second
	(PS: All the time in 0s ~ 30m)
		#SET_DTIME 1:30
		#SET_DTIME 1
		#SET_DTIME 0:1800
		@DTIME 1:30
		@DTIME 1:0
		@DTIME 30:0

#GET_DTIME	Get the display off delay time	#GET_DTIME @DTIME 1:30 @DTIME 1:0 @DTIME 30

#SET_AUTO_POWER	Enable/Disable auto power function
	#SET_AUTO_POWER PARAM
	PARAM = 0 ~ 1
	0 - DISABLED
	1 - ENABLED
		#SET_AUTO_POWER 1
		@AUTO_POWER 1

#GET_AUTO_POWER	Get the auto power function state	#GET_AUTO_POWER @AUTO_POWER 1

#SET_OFF_CNT	Set the DISPLAY OFF message loop counter
	#SET_OFF_CNT PARAM
	PARAM = 1 ~ 2 (loop counter)
		#SET_OFF_CNT 1
		@OFF_CNT 1

#GET_OFF_CNT	Get the DISPLAY OFF message loop counter	#GET_OFF_CNT @OFF_CNT 1

Command	Function	Command & Feedback Example

#SET_OFF_DELAY	Set the DISPLAY OFF message loop delay time
	#SET_OFF_DELAY PARAM
	PARAM = 5 ~ 100 (1=100ms)
		#SET_OFF_DELAY @OFF_DELAY 5

#GET_OFF_DELAY	Get the DISPLAY OFF message loop delay time	#GET_OFF_DELAY 5 @OFF_DELAY 5

7.2.5 CEC Command

Command	Function	Command & Feedback Example

#SET_SRC_MENU	Send CEC MENU command to source
	
	#SET_SRC_MENU PARAM
	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	Send CEC UP command to source
	
	#SET_SRC_UP PARAM
	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	Send CEC DOWN command to source #SET_SRC_DOWN PARAM	#SET_SRC_DOWN 1 @SRC_DOWN 1

Command	Function	Command & Feedback Example
	PARAM = 1 ~ 4 1 - HDMI 1 2 - HDMI 2 3 - HDMI 3 4 - HDMI 4	

#SET_SRC_LEFT	Send CEC LEFT command to source
	
	#SET_SRC_LEFT PARAM
	PARAM = 1 ~ 4
	1 - HDMI 1
	2 - HDMI 2
	3 - HDMI 3
	4 - HDMI 4
		#SET_SRC_LEFT 1
		@SRC_LEFT 1

#SET_SRC_RIGHT	Send CEC RIGHT command to source
	
	#SET_SRC_RIGHT PARAM
	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	Send CEC BACK command to source
	
	#SET_SRC_BACK PARAM
	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	Send CEC ENTER command to source.	#SET_SRC_ENTER 1 @SRC_ENTER 1

Command	Function	Command & Feedback Example

	#SET_SRC_ENTER PARAM
	PARAM = 1 ~ 4
	1 - HDMI 1
	2 - HDMI 2
	3 - HDMI 3
	4 - HDMI 4	

#SET_SRC_ON	Send CEC ON command to source
	
	#SET_SRC_ON PARAM
	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	Send CEC OFF command to source
	
	#SET_SRC_OFF PARAM
	PARAM = 1 ~ 4
	1 - HDMI 1
	2 - HDMI 2
	3 - HDMI 3
	4 - HDMI 4
		#SET_SRC_OFF 1
		@SRC_OFF 1

#SET_SRC_STOP	Send CEC STOP command to source
	
	#SET_SRC_STOP PARAM
	PARAM = 1 ~ 4
	1 - HDMI 1
	2 - HDMI 2
	3 - HDMI 3
	4 - HDMI 4
		#SET_SRC_STOP 1
		@SRC_STOP 1

Command	Function	Command & Feedback Example

#SET_SRC_PLAY	Send CEC PLAY command to source
	
	#SET_SRC_PLAY PARAM
	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	Send CEC PAUSE command to source
	
	#SET_SRC_PAUSE PARAM
	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	Send CEC PREV command to source
	
	#SET_SRC_PREV PARAM
	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	Send CEC NEXT command to source
	
	#SET_SRC_NEXT PARAM
	PARAM = 1 ~ 4
	1 - HDMI 1
	2 - HDMI 2
		#SET_SRC_NEXT 1
		@SRC_NEXT 1

Command	Function	Command & Feedback Example
	3 - HDMI 3 4 - HDMI 4	

#SET_SRC_REW	Send CEC rewind command to source
	
	#SET_SRC_REW PARAM
	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	Send CEC fast-forward command to source
	
	#SET_SRC_FF PARAM
	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 displayer	#SET_DIS_ON @DIS_ON
#SET_DIS_OFF	Send CEC OFF command to displayer	#SET_DIS_OFF @DIS_OFF
#SET_DIS_SOURCE	Send CEC SOURCE command to displayer	#SET_DIS_SOURCE @DIS_SOURCE
#SET_DIS_MUTE	Send CEC MUTE command to displayer	#SET_DIS_MUTE @DIS_MUTE/UNMUTE
#SET_DIS_VOL+	Send CEC volume plus command to displayer	#SET_DIS_VOL+ @DIS_VOL+
#SET_DIS_VOL-	Send CEC volume minus command to displayer	#SET_DIS_VOL- @DIS_VOL-

7.2.6 Special Commands

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

Command	Description	Command & Feedback Example

#SET_ON_(PARAM): XXXX	Send the command "XXXX" to the 3th device while the system enter power on mode.
	
	#SET_ON_(PARAM):XXXX
	PARAM = 01~07
	01 - 115200
	02 - 57600
	03 - 38400
	04 - 19200
	05 - 9600
	06 - 4800
	07 - 2400
	XXXX =the data to send (Maximum is 48 characters)
		#SET_ON_05:1234567
		1234567
		(When the power is connected successfully, the serial port directly sends: 1234567)

#SET_H_ON_(PARAM):XXXX	Send the HEX command "XXXX" to the 3th device while the system enter power on mode. #SET_H_ON_(PARAM):XXXX PARAM = 01~07 01 - 115200 02 - 57600 03 - 38400 04 - 19200 05 - 9600 06 - 4800 07 - 2400 XX XX = ASCII characters of meeting HEX standard. (X is one of 0~9 or A~F，and maximum is 20 XX units. There is a space is required between each unit of XX.)	#SET_H_ON_05:30 31 32 33 34 30 31 32 33 34 (When the power is connected successfully, the remote party port1 directly sends HEX：30 31 32 33 34)

Command	Description	Command & Feedback Example
#SET_OF_(PARAM):XXXX	Send the command "XXXX" to the 3th device while the system enter power off or standby mode. #SET_OF_(PARAM):XXXX PARAM = 01~07 01 - 115200 02 - 57600 03 - 38400 04 - 19200 05 - 9600 06 - 4800 07 - 2400 XXXX = the data to send (Maximum is 48 characters)	#SET_OF_05:ABCDEFG ABCDEFG (When the power is connected successfully, the serial port directly sends: ABCDEFG)
#SET_H_OF_(PARAM):XXXX	Send the HEX command "XX XX" to the 3th device while the system enter power off or standby mode #SET_H_OF_(PARAM):XXXX PARAM = 01~07 01 - 115200 02 - 57600 03 - 38400 04 - 19200 05 - 9600 06 - 4800 07 - 2400 XX XX = ASCII characters of meeting HEX standard. (X is one of 0~9 or A~F，and maximum is 20 XX units. There is a space is required between each unit of XX.)	#SET_OF_05:41 42 43 44 45 46 41 42 43 44 45 46 (When the power is connected successfully, the serial port directly sends HEX：41 42 43 44 45 46)

8. 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”.

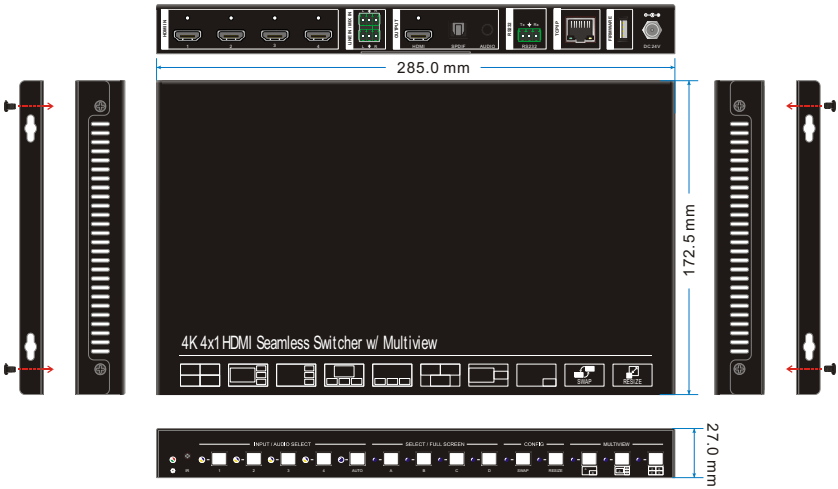
4) Directly copy the latest upgrade file (.bin) to the “BOOTDISK” U-disk.

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.

9. Panel Drawing



10. Troubleshooting & Maintenance

Problems	Potential Causes	Solutions
Output image with white noise.	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.

Note: *If your problem still remaining after following the above troubleshooting steps, please contact your local dealer or distributor for further assistance.*