

User Manual



SCA41-MV

4K 4X1 Seamless Switcher with Multi-view



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Version: SCA41-MV_2019V1.0

Preface

Read this user manual carefully before using the product. Pictures shown in this manual are 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 June, 2019. 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.

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1. Product Introduction

Thanks for choosing the 4K 4x1 Seamless Switcher with Multi-view. The switcher is designed with four HDMI inputs and one HDMI output. One LINE audio input, one MIX audio input and one digital SPDIF audio output and one analog stereo audio output. It supports HDMI 1.4b, 4K@30Hz 4:4:4, and HDCP 2.2. In addition, there is smart built-in EDID and User-defined EDID selected by GUI control.

The switcher features multiple methods of control. When at the AUTO mode, the switcher will automatically switch to the first detected source device. The switcher can be manually controlled by the front panel buttons, IR, GUI control and RS232 command. CEC allows the display device can be controlled by RS232 and CEC commands.

1.1 Features

- 4K 4x1 Seamless Switcher with Multi-view.
- 4 HDMI inputs, 1 HDMI output.
- Supports 4K@30Hz 4:4:4, HDCP 2.2.
- 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.
- Front buttons, IR, RS232 and GUI control.

4K 4x1 Seamless Switcher with Multi-view

1.2 Package List

- 1x SCA41-MV 4k 4x1 Seamless Switcher.
- 1x IR Remote
- 4x Plastic Cushions
- 2x Mounting Ears
- 4x Mounting Screws
- 1x 3-pin Terminal Block
- 1x RS232 Cable (3-pin terminal block to DB9)
- 1x Power Adapter (24V DC 1.25A)
- 1x User Manual

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

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 4:4:4
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, ± 3 dB
Max Input Level	2.0 Vrms \pm 0.5 dB. \square 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
SPDIF OUT	
SPDIF Out	(1) SPDIF
Audio Out Connector	(1) Toslink
Max Output level	± 0.05 dBFS
Frequency Response	20 Hz to 20 kHz, ± 1 dB
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 OUT	
Audio Out	(1) AUDIO
Audio Out Connector	(1) 3.5mm mini jack
Frequency Response	20 Hz to 20 kHz, ± 1 dB

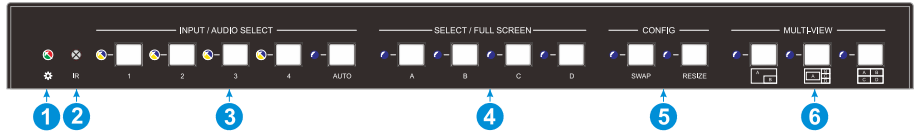
4K 4x1 Seamless Switcher with Multi-view

Max Output Level	2.0 Vrms \pm 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°C ~ +55°C
Storage Temperature	-25°C ~ +70°C
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

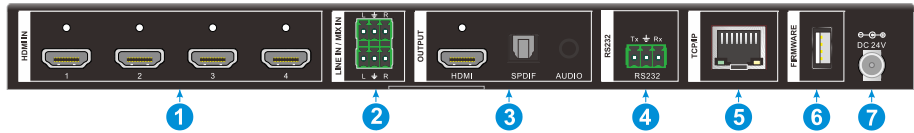
3. Panel Description

3.1 Front Panel



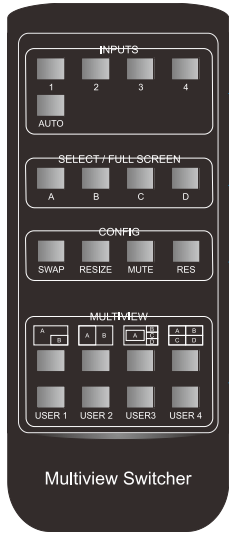
- ① **POWER LED:** The LED illuminates green when it is working, and the LED illuminates red when it is standby.
- ② **IR LED:** The LED does not illuminate any colors.
- ③ **FOUR INPUT LEDS/AUDIO SELECTS:** Press the buttons to selected corresponding HDMI input, its LED illuminates yellow when there 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 selected corresponding input source as Full Screen, its LED illuminates blue when it is selected.
- ⑤ **CONFIG:** Press the SWAP button to cycle through the windows from A to D. its LED illuminates blue when it is selected. Press the Resize button to readjust the windows size, its LED illuminates blue when it is resized.
- 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 XXX to instead of HDMI audio sources.
MIX IN: 3-pin terminal block to connect XXX 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. IR Remote



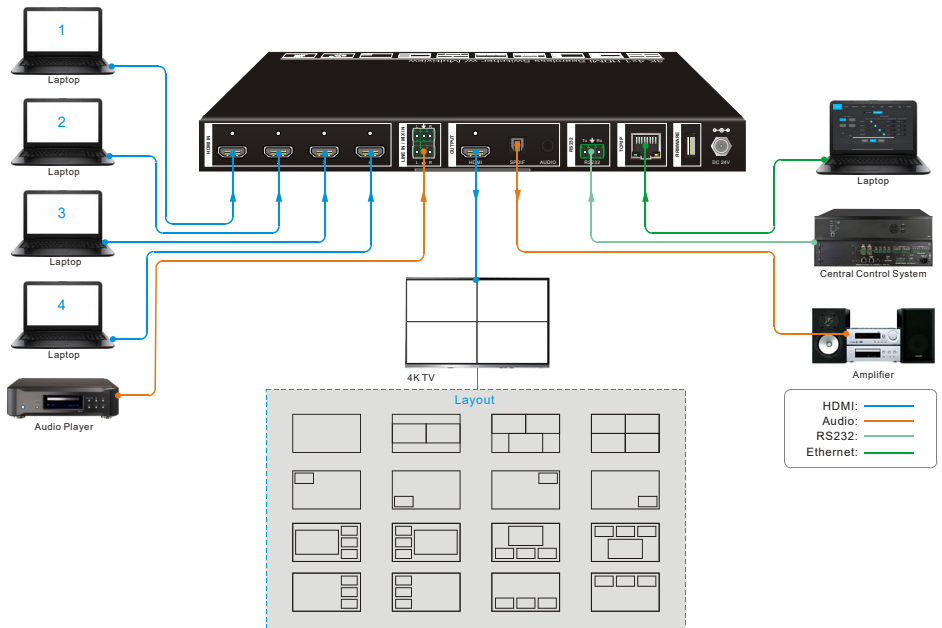
- ① **INPUTS:** Press 1-4 button to choose the input sources. Press AUTO button to automatically detect the input sources.
- ② **SELECT/FULL SCREEN:** Press A-D button as full-screen mode to display.
- ③ **CONFIG:** Press the SWAP button to input source chosen as loop play. Press the RESIZE button to adjust the windows size. Press MUTE button to control the basic function, such as adjust 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.

5. System Connection

5.1 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.

5.2 System Diagram



6. Front Panel Control

6.1 Video-Switching

6.1.1 Windows in the four equal parts mode.

If want IN1 to windows B output, first, press button IN1 and its corresponding LED keeps on, but the LED of A,B,C and D keep blinking, and then press button B and its LED always is on and LED of A,C and D are off. At this time, the IN1 LED and B LED blink 3 times to finish video-switching. Lastly, the IN1 LED is not blue and LED of A, B, C and D keep on.

6.1.2 Windows in full screen mode.

Manual-Switching

For example, if the full screen is A and its LED keeps on, and then want IN2 to windows A output, firstly, press IN2 button once, the corresponding IN2 LED turns blue immediately. Secondly, press the AUTO button once, and the IN2 input can be displayed in the full screen A successfully.

Auto-Switching

Press AUTO button once to change the mode to auto-switching, and the AUTO LED turns blue.

When in the AUTO mode, the switcher will switch according to the following rules:

- The switcher will automatically identify the input signal and confirm which channel to output in order. At the same time, its LED corresponding turns blue.
- New input: The switcher will automatically select the new input once detecting a new input.
- Reboot: If power is restored to the switcher, the switcher will memorize last input source.
- In auto mode, the input source also can be switched by the manual switching steps, but it will not exit auto mode.
- When full screen mode changes into multi-view mode, the AUTO mode will not exit.

6.2 Inquire windows played

Windows in the four equal parts mode, the A, B, C and D LED keep blue, at this time, for example, press the button B and its LED is on and its corresponding input LED turns blue. However, the LED of A, B, and C are off. No operation within 3S restores the original state.

6.3 SELECT/FULL SCREEN button control

Windows in Multi-view mode, press button A, B, C or D to select the corresponding full screen mode to display.

Windows in the four equal parts mode, the LED of MULTI-VIEW and A, B, C and D keep on. For example, Press the button A and its LED keeps on, and the corresponding input source LED also keeps on, the MULTI-VIEW LED puts out at the same time. In this way, the full screen is windows A.

6.4 SWAP button control

Press the SWAP button to cycle the input sources to display. The SWAP LED lights once when press its button once.

6.5 RESIZE button control

Press the Resize button to readjust the windows size. About the more detailed rules of it, please reference the Multi-view Tab on GUI control.

6.6 MULTI-VIEW button control

Press the button to choose the available Multi-view mode.

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

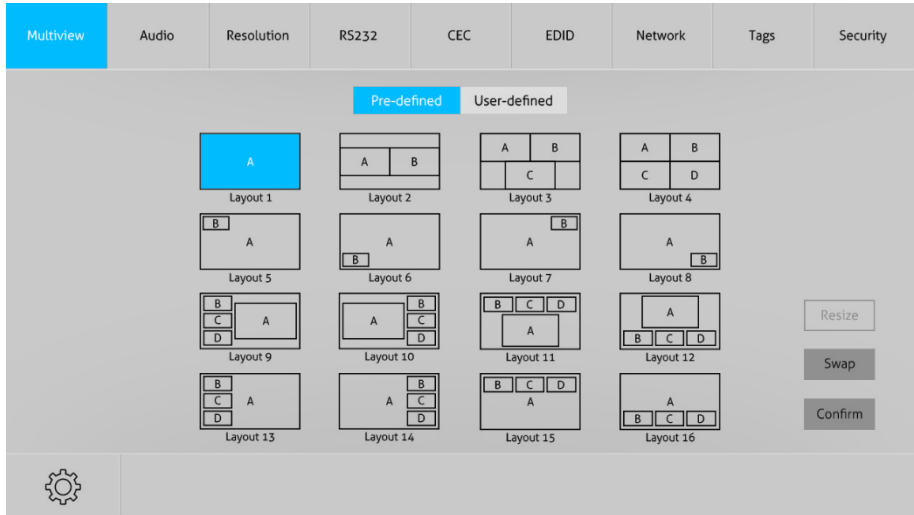
Note: Log in as admin can access more configuration interfaces than user. Here is a brief introduction to the interfaces.

4K 4x1 Seamless Switcher with Multi-view

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.
- ✓ Click **Swap** button to enter playback mode
- ✓ Click **Confirm** button when the selection is completed.
- ✓ Click **Setting** button to enter Window Select, and select any one of input sources and corresponding output shown windows.

Note: Rules of **Resize** function shown as below carefully.

First, when windows in the two equal parts mode, for instance, **Layout2**, window **A** and window **B** are in the two equal parts. When press **Resize** button once, window **A** is $\frac{5}{8} * \frac{5}{8}$, window **B** is $\frac{3}{8} * \frac{3}{8}$, press **Resize** button again, window **A** is $\frac{6}{8} * \frac{6}{8}$, window **B** is $\frac{2}{8} * \frac{2}{8}$. And then follow the above steps to resize another window again. No operation within 3S exits **Resize** mode.

Second, when windows in the **PIP** mode, for instance, **Layout5~8**, window **A** and

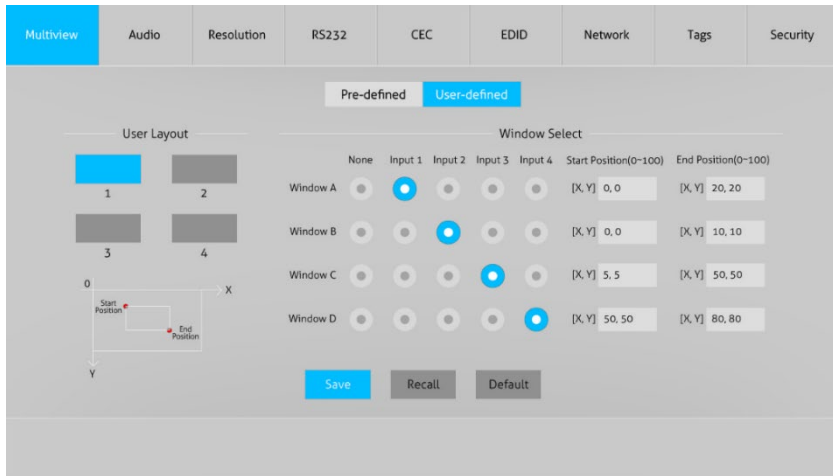
4K 4x1 Seamless Switcher with Multi-view

*window B are in one common window. When press Resize button once, window A is $11/16 * 11/16$, window B is $5/16 * 5/16$, press Resize button again, window A is $10/16 * 10/16$, window B is $6/16 * 6/16$. And then follow the above steps to resize another window again. No operation within 3S exits Resize mode.*

*Third, when windows in the one larger and three same smaller window mode, for instance, Layout9~12, window A is one larger mode, and window B,C and D are is three same smaller mode. When press Resize button once, window A is $10/16 * 10/16$, window B, C and D are $4/16 * 4/16$, press Resize button again, window A is $11/16 * 11/16$, window B, C and D are $3/16 * 3/16$. And then follow the above steps to resize another window again. No operation within 3S exits Resize mode.*

4K 4x1 Seamless Switcher with Multi-view

② User-defined



User Layout

1 2

3 4

0 X

Start Position

End Position

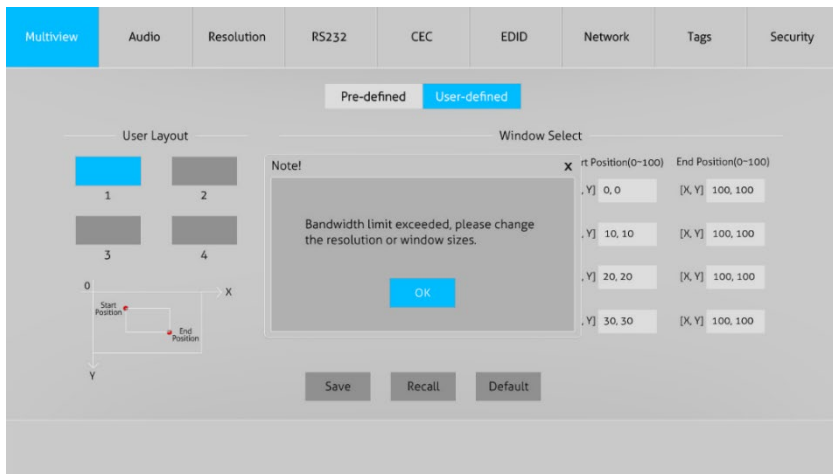
Y

Window Select

	None	Input 1	Input 2	Input 3	Input 4	Start Position(0~100)	End Position(0~100)
Window A	<input type="radio"/>	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	[X, Y] 0, 0	[X, Y] 20, 20
Window B	<input type="radio"/>	<input type="radio"/>	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>	[X, Y] 0, 0	[X, Y] 10, 10
Window C	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input checked="" type="radio"/>	<input type="radio"/>	[X, Y] 5, 5	[X, Y] 50, 50
Window D	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input checked="" type="radio"/>	[X, Y] 50, 50	[X, Y] 80, 80

Save Recall Default

- ✓ Click **1, 2, 3, or 4** button to choose User Layout.
- ✓ Click corresponding input sources and ways of window presentations in Window Select.
- ✓ Click **Save** button to present the results above selected.



User Layout

1 2

3 4

0 X

Start Position

End Position

Y

Window Select

	None	Input 1	Input 2	Input 3	Input 4	Start Position(0~100)	End Position(0~100)
Window A	<input type="radio"/>	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	[X, Y] 0, 0	[X, Y] 100, 100
Window B	<input type="radio"/>	<input type="radio"/>	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>	[X, Y] 10, 10	[X, Y] 100, 100
Window C	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input checked="" type="radio"/>	<input type="radio"/>	[X, Y] 20, 20	[X, Y] 100, 100
Window D	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input checked="" type="radio"/>	[X, Y] 30, 30	[X, Y] 100, 100

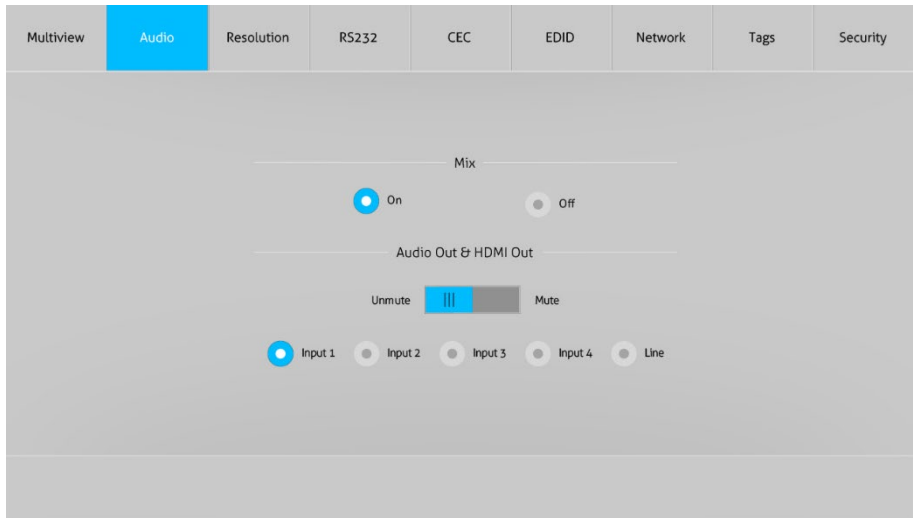
Save Recall Default

Note! Bandwidth limit exceeded, please change the resolution or window sizes.

OK

- ✓ 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.
- ✓ Click **Input1-4** button to select which HDMI input source.
- ✓ Click **Line** button to select which input Audio source will be replaced.

7.3 Resolution Tab

Multiview	Audio	Resolution	RS232	CEC	EDID	Network	Tags	Security
<div> <input checked="" type="radio"/> 4K@30Hz <input type="radio"/> 1360 x 768 </div> <div> <input type="radio"/> 1920 x 1200 <input type="radio"/> 1024 x 768 </div> <div> <input type="radio"/> 1080P <input type="radio"/> 720P </div> <div> <input type="radio"/> 1600 x 1200 <input type="radio"/> Auto </div> <div>Confirm</div>								

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

7.4 RS232 Tab

Multiview	Audio	Resolution	RS232	CEC	EDID	Network	Tags	Security
<div> <div> <div>ASCII <input checked="" type="radio"/></div> <div>HEX <input type="radio"/></div> </div> <div> <div> <div>Baud Rate: 9600 ▼</div> <div>Command Ending: NULL ▼</div> <div>Command: xxxxxx</div> <div>Send</div> </div> <div> <div>Display On: <input type="text"/> Send</div> <div>Display Off: <input type="text"/> Send</div> </div> </div> </div>								

- ✓ 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** button to control the function of HDMI input source

③ User-defined

Multiview	Audio	Resolution	RS232	CEC	EDID	Network	Tags	Security
-----------	-------	------------	-------	------------	------	---------	------	----------

Source		Display		User-defined
--------	--	---------	--	---------------------

Source

☒ HDMI 1 Trigger 1:

☐ HDMI 2 Trigger 2:

☐ HDMI 3 Trigger 2:

☐ HDMI 4

Display

Trigger 1:

Trigger 2:

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

7.6 EDID Tab

① Upload

Multiview	Audio	Resolution	RS232	CEC	EDID	Network	Tags	Security
<div> <input checked="" type="radio"/> Upload <input type="radio"/> Setting </div> <hr/> <div> User-defined: <input type="text" value=".bin"/> </div> <div> <input type="button" value="Apply"/> </div>								

✓ 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

Multiview Audio Resolution RS232 CEC **EDID** Network Tags Security

☐ Upload ☒ Setting

HDMI 1 HDMI 2 HDMI 3 HDMI 4

☒ EDID Pass-through

☐ 1920x1080@60Hz 8bit Stereo Audio

☐ 3840x2160@30Hz 8bit Stereo Audio

☐ User-defined

Confirm

- ✓ 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

Multiview	Audio	Resolution	RS232	CEC	EDID	Network	Tags	Security
<p>MAC Address: 44-33-4C-C9-35-12</p> <p> <input checked="" type="radio"/> DHCP <input type="radio"/> Static IP </p> <p>IP Address: <input type="text" value="192.168.0.178"/></p> <p>Subnet Mask: <input type="text" value="255.255.255.0"/></p> <p>Gateway: <input type="text" value="192.168.0.1"/></p> <p><input type="button" value="Confirm"/></p>								

- ✓ 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.

7.8 Tags Tab

Multiview	Audio	Resolution	RS232	CEC	EDID	Network	Tags	Security
Layout 1		Layout 2		Layout 3		Layout 4		
Layout 5		Layout 6		Layout 7		Layout 8		
Layout 9		Layout 10		Layout 11		Layout 12		
Layout 13		Layout 14		Layout 15		Layout 16		
User Layout 1		User Layout 2		User Layout 3		User Layout 4		
<input type="button" value="Confirm"/>								

- ✓ Modify the input button labels.

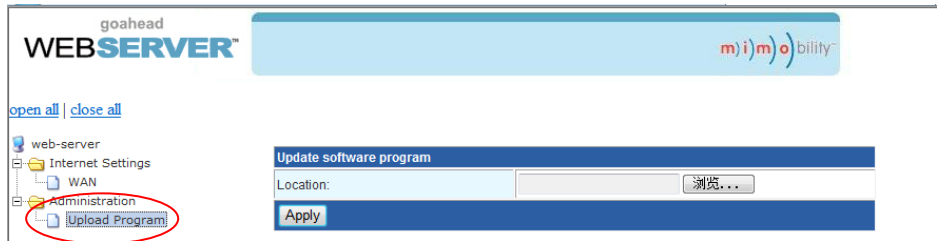
7.9 Security Tab

Multiview	Audio	Resolution	RS232	CEC	EDID	Network	Tags	Security
<div>Credentials</div> <div> Password: <input type="text" value="admin"/> <input type="button" value="Confirm"/> </div> <div>Front Panel Lock</div> <div> ON <input checked="" type="checkbox"/> OFF <input type="checkbox"/> </div>								

- ✓ Security menu to reset the username and password.
- ✓ Click **ON** or **OFF** button to control Front Panel Lock or unlock.

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 there 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.

8.1 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.

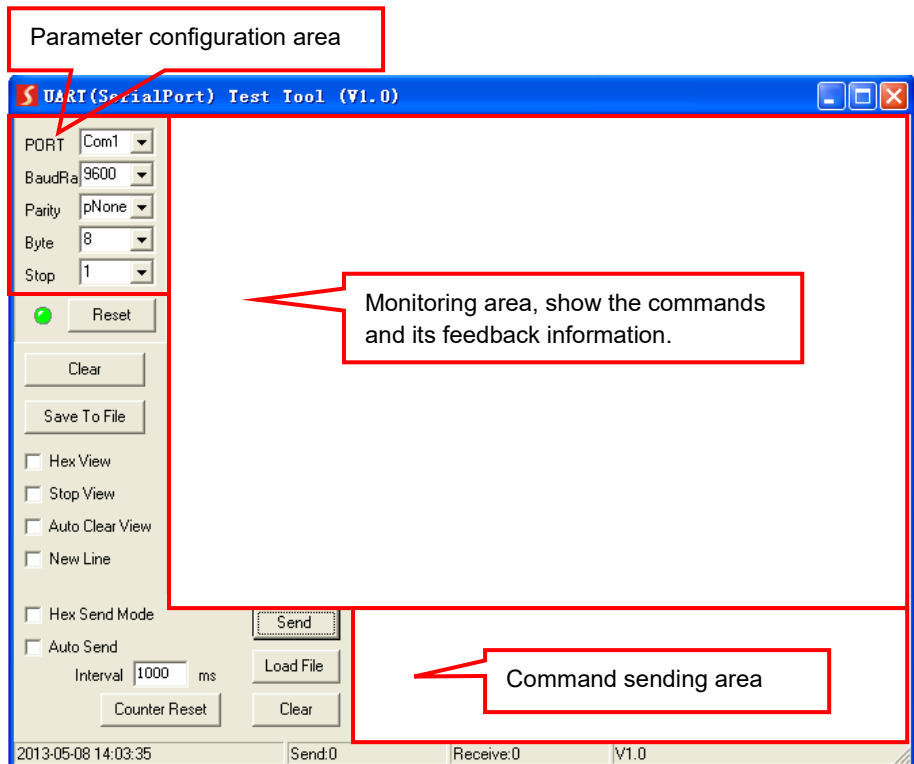
Here take the software **CommWatch.exe** as example:



CommWatch.exe

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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.

8.2 RS232 Command

Communication protocol: RS232 Communication Protocol

Baud rate: 9600

Data bit: 8

Stop bit: 1

Parity bit: none

8.2.1 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 @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
#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

8.2.2 Signal Switching

Command	Description	Command & Feedback Example
#SET_AV	<p>Switch an input AV signal to one or more outputs</p> <p>#SET_AV INPARAM TO OUTPARAM</p> <p>INPARAM = 1 ~ 4</p> <p>1 - HDMI 1</p> <p>2 - HDMI 2</p> <p>3 - HDMI 3</p> <p>4 - HDMI 4</p> <p>OUTPARAM = A ~ D(NO THIS PARAMETER TO SET TO A)</p>	<p>#SET_AV 3</p> <p>#SET_AV 1 TO A</p> <p>@AV 3 TO A</p> <p>@AV 1 TO A</p>
#GET_AV	<p>Get the current AV switching status of input or output channel</p> <p>#GET_AV PARAM1</p> <p>NO PARAMETER = GET ALL WINDOWS SELECTED INPUT STATUS</p> <p>PARAM1 = A ~ D</p>	<p>#GET_AV</p> <p>#GET_AV A</p> <p>@VIDEO</p> <p>OUT A B C D</p> <p>IN 1 2 3 4</p> <p>@AUDIO_SRC 1</p> <p>@VIDEO 1 TO A</p>
#SET_AUTO_SWITCH	<p>Enable/disable auto switching mode</p> <p>#SET_AUTO_SWITCH PARAM</p> <p>PARAM = 0 ~ 1</p> <p>0 - DISABLED</p> <p>1 - ENABLED</p>	<p>#SET_AUTO_SWITCH 1</p> <p>@AUTO_SWITCH 1</p>
#GET_AUTO_SWITCH	<p>Get the auto switching status</p>	<p>#GET_AUTO_SWITCH</p> <p>@AUTO_SWITCH 1</p>

8.2.3 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

8.2.4 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 0
#GET_RS232_BAUD	Get the RS232 baud rate	#GET_RS232_BAUD @RS232_BAUD 0
#SET_OUTPUT_RES	Set the output resolution #SET_OUTPUT_RES PARAM PARAM = 1 ~ 7 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	#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	@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
#GET_OUTPUT_HDCP	Get the HDCP mode of output port	#GET_OUTPUT_HDCP P @OUTPUT_HDCP 1

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Command	Function	Command & Feedback Example
#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 D @USER_EDID READY PLEASE SEND EDID DATA IN 10S OK
#SET_KEYPAD_LOCK	Lock/unlock the keypad #SET_KEYPAD_LOCK PARAM PARAM = 0 ~ 1 0 - DISABLED 1 - ENABLED	#SET_KEYPAD_LOCK 1 @KEYPAD_LOCK 1
#GET_KEYPAD_LOCK	Get the keypad locking status	#GET_KEYPAD_LOCK @KEYPAD_LOCK 1

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Command	Function	Command & Feedback Example
#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 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	#GET_MV_MODE @MV_MODE 1

Command	Function	Command & Feedback Example
#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 @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

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Command	Function	Command & Feedback Example
#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 C @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 32 @SYNCACT_RS232 1
#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 @DISOFF_TIME 1M 10S
#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

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Command	Function	Command & Feedback Example
#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
#SET_OFF_DELAY	Set the DISPLAY OFF message loop delay time #SET_OFF_DELAY PARAM PARAM = 5 ~ 100 (1=100ms)	#SET_OFF_DELAY 5 @OFF_DELAY 5
#GET_OFF_DELAY	Get the DISPLAY OFF message loop delay time	#GET_OFF_DELAY 5 @OFF_DELAY 5

8.2.5 CEC Command

Command	Function	Command & Feedback Example
#SET_SRC_MENU	Send CEC MENU command to source #SET_SRC_MENU PARAM PARAM1 = 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 PARAM1 = 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 PARAM1 = 1 ~ 4 1 - HDMI 1 2 - HDMI 2 3 - HDMI 3 4 - HDMI 4	#SET_SRC_DOWN 1 @SRC_DOWN 1
#SET_SRC_LEFT	Send CEC LEFT command to source #SET_SRC_LEFT PARAM PARAM1 = 1 ~ 4 1 - HDMI 1 2 - HDMI 2 3 - HDMI 3 4 - HDMI 4	#SET_SRC_LEFT 1 @SRC_LEFT 1

Command	Function	Command & Feedback Example
#SET_SRC_RIGHT	Send CEC RIGHT command to source #SET_SRC_RIGHT PARAM PARAM1 = 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 PARAM1 = 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 PARAM PARAM1 = 1 ~ 4 1 - HDMI 1 2 - HDMI 2 3 - HDMI 3 4 - HDMI 4	#SET_SRC_ENTER 1 @SRC_ENTER 1
#SET_SRC_ON	Send CEC ON command to source #SET_SRC_ON PARAM PARAM1 = 1 ~ 4 1 - HDMI 1 2 - HDMI 2 3 - HDMI 3 4 - HDMI 4	#SET_SRC_ON 1 @SRC_ON 1

Command	Function	Command & Feedback Example
#SET_SRC_OFF	Send CEC OFF command to source #SET_SRC_OFF PARAM PARAM1 = 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 PARAM1 = 1 ~ 4 1 - HDMI 1 2 - HDMI 2 3 - HDMI 3 4 - HDMI 4	#SET_SRC_STOP 1 @SRC_STOP 1
#SET_SRC_PLAY	Send CEC PLAY command to source #SET_SRC_PLAY PARAM PARAM1 = 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 PARAM1 = 1 ~ 4 1 - HDMI 1 2 - HDMI 2 3 - HDMI 3 4 - HDMI 4	#SET_SRC_PAUSE 1 @SRC_PAUSE 1

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Command	Function	Command & Feedback Example
#SET_SRC_PREV	Send CEC PREV command to source #SET_SRC_PREV PARAM PARAM1 = 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 PARAM1 = 1 ~ 4 1 - HDMI 1 2 - HDMI 2 3 - HDMI 3 4 - HDMI 4	#SET_SRC_NEXT 1 @SRC_NEXT 1
#SET_SRC_REW	Send CEC rewind command to source #SET_SRC_REW PARAM PARAM1 = 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 PARAM1 = 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

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Command	Function	Command & Feedback Example
#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
#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-

8.2.6 Special Commands

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

Command	Description	Command & Feedback Example
#SET_ON_(PARAM):XXXX	<p>Send the command "XXXX" to the 3th device while the system enter power on mode.</p> <p>#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)</p>	<p>#SET_ON_05:1234567 @BAUDRATE: 9600 @DISPLAY ON TO SEND:1234567 (When the power is connected successfully, the serial port directly sends: 1234567)</p>
#SET_H_ON_(PARAM):XXXX	<p>Send the HEX command "XXXX" to the 3th device while the system enter power on mode.</p> <p>#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.)</p>	<p>#SET_H_ON_05:30 31 32 33 34 @BAUDRATE: 9600 @DISPLAY ON HEX TO SEND:30 31 32 33 34 (When the power is connected successfully, the remote party port1 directly sends HEX: 30 31 32 33 34)</p>

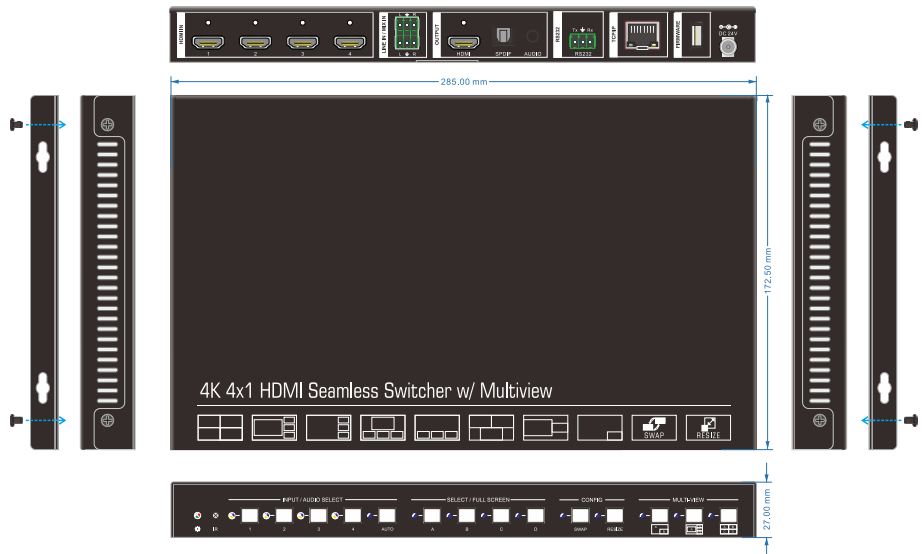
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Command	Description	Command & Feedback Example
#SET_OF_(PARAM):XXXX	<p>Send the command "XXXX" to the 3th device while the system enter power off or standby mode.</p> <p>#SET_OF_(PARAM):XXXX</p> <p>PARAM = 01~07</p> <p>01 - 115200</p> <p>02 - 57600</p> <p>03 - 38400</p> <p>04 - 19200</p> <p>05 - 9600</p> <p>06 - 4800</p> <p>07 - 2400</p> <p>XXXX = the data to send (Maximum is 48 characters)</p>	<p>#SET_OF_05:ABCD EFG</p> <p>@BAUDRATE: 9600</p> <p>@DISPLAY OFF TO SEND:ABCDEFGG</p> <p>(When the power is connected successfully, the serial port directly sends: ABCDEFG)</p>
#SET_H_OF_(PARAM):XX XX	<p>Send the HEX command "XX XX" to the 3th device while the system enter power off or standby mode</p> <p>#SET_H_OF_(PARAM):XXXX</p> <p>PARAM = 01~07</p> <p>01 - 115200</p> <p>02 - 57600</p> <p>03 - 38400</p> <p>04 - 19200</p> <p>05 - 9600</p> <p>06 - 4800</p> <p>07 - 2400</p> <p>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.)</p>	<p>#SET_OF_05:41 42 43 44 45 46</p> <p>@BAUDRATE: 9600</p> <p>@DISPLAY OFF HEX TO SEND:41 42 43 44 45 46</p> <p>(When the power is connected successfully, the serial port directly sends HEX: 41 42 43 44 45 46)</p>

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 there 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.

10. Panel Drawing



11. 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.

12. Customer Service

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

1) Warranty

The limited warranty period of the product is fixed 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 Exclusion

- 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 does 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 defect 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: Please contact your local distributor for further assistance or solutions.



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