KanexPro™

HDSC51HDBT

Compact Scaler Switcher w/ HDBaseT™ & HDMI output

Version: Compact Scaler Switcher (with PoC) 2014V1.2

NOTICE:

1. Please read this user manual carefully before using this product.

2. The item PoC is short for Power over Cable.

3. The receiver works with the compact scaler switcher can only be the HDMI twisted pair PoC receiver.

4. The item "far-end" means the device (e.g. display device, 3rd party RS232 device etc.) connected with the HDMI twisted pair PoC receiver.

5. Take notice to 4.6 Instructions of VGA Converting Cable when using.

Update History

Version	Date	Updated Content
1.0	2013.11.19	First version.
1.1	2013.12.30	Update RS232 Communication Commands.
1.2	2014.03.28	Modify OSD menu descriptions.

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1. Introduction

1.1 Introduction to Compact Scaler Switcher

The scaler switcher is a compact mini scaler switcher with 5 video inputs (3 HDMI, 2 VGA) and 6 audio inputs (3 HDMI audio & 2 VGA audio: switched following the video; 1 MIC audio input). As the VGA input supports VGA, YPbPr and C-video, so the scaler switcher is compliant with multiple video signals.

This unit scales & switches any video signal to HDMI output and HDBaseT output (supports PoE, connects with HDMI twisted pair PoE receiver, max transmission distance is 230 Feet. - 70 meters).

And with 1 IR IN, 5 IR OUT & 1 RS232, IR & RS232 signal can be transmitted bi-directionally between the compact scaler switcher and the receiver.

1.2 Features

- Compliant with HDCP
- Supports CEC, with commands to enable/disable this function.
- Supports video source auto-switching function.
- Bi-directional IR & RS232 control.
- Output resolutions selectable to assure preferred output, and supports various output resolutions, such as 1920x1200, 1920x1080, 1600x1200, 1360x768, 1280x800, 1280x720, 1024x768.
- VGA video supports C-video, YPbPr and VGA.
- Supports online software upgrading.
- 48V phantom power to support condenser microphone.
- MIC port supports balance/unbalance signal, suppress the external noise effectively.
- 3-level MIC input, supports condenser microphone, dynamic microphone and wireless microphone.
- Controllable via button, IR & RS232.
- Powerful OSD function.

1.3 Package Contents

- ➢ 1 x Compact Scaler Switcher
- ➢ 2 x Mounting ears (separate from the compact scaler switcher)
- ➢ 1 x Power Adapter (DC 12V)
- ➢ 1 x IR remote (Cell battery is not included)
- ➢ 1 x IR receiver (with carrier wave)

➢ 5 x IR emitters

➢ 1 x RS232 cable

➢ 2 x VGA converting cables (male VGA to female YPbPr, length: 400 mm)

➢ 7 x Captive screw connectors

➢ 4 x Screws (black color)

➢ 6 x Plastic cushions

➢ 1 x User Manual

Notes： Please confirm that all products and accessories are included. If not, please contact your dealer.

2. Product Appearance of Compact Scaler Switcher

2.1 Front Panel
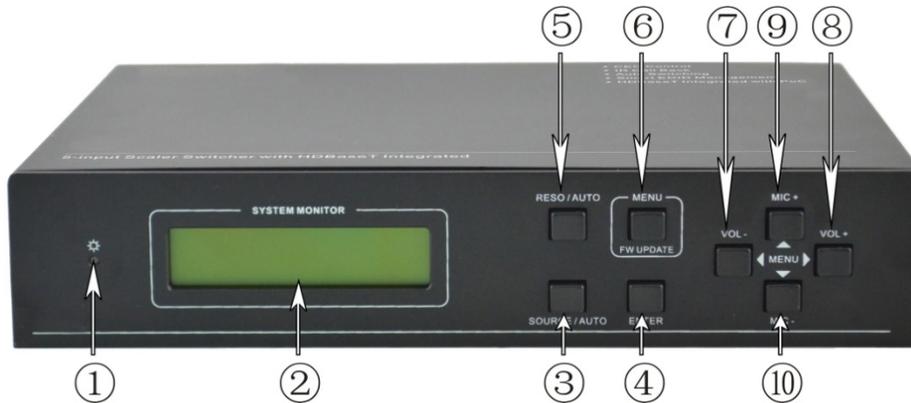
① Power indicator.
   Turns red when powered on, turns green when in standby mode.

② LCD screen
   Shows the system's working status in real-time.

③ SOURCE/AUTO
   ● Used as video source selection button, press to select one source, press again to select the next source, switching between HDMI1, HDMI2, HDMI3, VGA1 and VGA2 in a cycle. The LCD screen will show the name of selected source.

   ● Used as switching mode selection button, press and hold for **7 seconds or more** to enter Auto-switching mode, press and hold again for **7 seconds or more** to enter Manual-switching mode.

Note: Setting any VGA port to AV or YPbPr in Manual-switching mode, the system will not be able to enter in Auto-switching mode. While in Auto-switching mode, setting any

VGA port to AV or YPbPr will automatically enter in Manual-switching mode with LCD screen and RS232 control software prompting "Not supported!".

④ ENTER

Used to confirm the selection in the menu.

⑤ RESO/AUTO

- Used as a manual switching button for the output resolution. Select between 1360x768, 1280x800, 1280x720, 1024x768, 1920x1200, 1920x1080 and 1600x1200.

- Used as a selection button for output resolution switching mode. Press and hold for **7 seconds or more** to enter in Auto-switching mode, press and hold again for **7 seconds or more** to enter Manual-switching mode.

⑥ MENU/FWUPDATE

- Used as menu button, press it to enter in OSD menu.

- Used as software updating button, press and hold for **7 seconds or more** to enter the software updating procedure.

⑦ VOL-

- Used as volume down button.

- Used as the "NEXT" menu navigation button when in menus.

⑧ MIC+

- Used as MIC volume up button.

- Used as the "MOVE UP" menu navigation button in menus.

⑨ VOL+

- Used as volume up button.

- Used as the "PREVIOUS " menu navigation button when in menus.

⑩ MIC-

- Used as MIC volume down button.

- Used as the "MOVE DOWN " menu navigation button when in menus.

2.2 Rear Panel
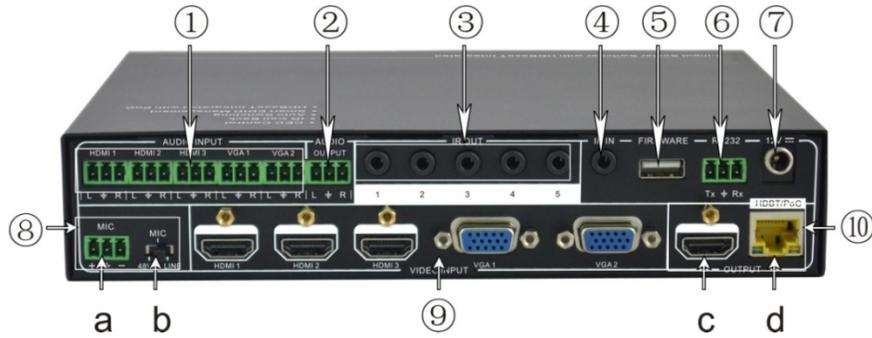
① AUDIO INPUT

3 HDMI audio & 2 VGA audio inputs. User can choose any one audio (embedded HDMI audio or external input audio) for HDMI audio input by using RS232 commands.

② AUDIO OUTPUT

Audio output port, the audio comes from the input audio corresponding to the selected video source and mixed with MIC audio.

③ IR OUT

A total of 5 ports. Connects with IR emitter used for controlling the local source device or the compact scaler switcher, switches based on the corresponding video source.

④ IR IN

Connects with IR receiver (with carrier wave only), to receive IR signals sent by the IR remote or remote controller of other input/output device.

⑤ FIRMWARE

USB port connects with USB flash disk or other storage that contains the software update file to update the system firmware.

⑥ RS232

Serial control port, 3p captive screw connector, connects with a control device (such as a computer) to control the compact scaler switcher or other device connected with the HDMI twisted pair PoC receiver.

⑦ 12V DC

Power port. Connects with the 12V DC power adapter.

⑧ MIC

a) MIC port connects with a microphone.

b) Dial switch, 3 levels: 48V phantom power mode (connects with condenser microphone), MIC mode (connects with dynamic microphone) and LINE mode (connects with wireless microphone or line audio).

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⑨ VIDEO INPUT

Video input ports include 3 HDMI inputs & 2 VGA inputs. VGA ports supports YPbPr, C-video and VGA format. Factory default is VGA format.

⑩ OUTPUT

c) HDMI local output

d) HDBaseT output supports PoE.

The audio portions of the two ports are the same and are mixed with MIC audio and HDMI embedded audio (output audio). If HDMI embedded audio output is disabled, then there will be no audio output through these ports.

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3. System Connection

3.1 Usage Precautions

1) The system should be installed in a clean environment that has the proper temperature and humidity.

2) All of the power switches, plugs, sockets and power cords should be insulated.

3) All devices should be connected before the scaler switcher is powered on.

3.2 System Diagram
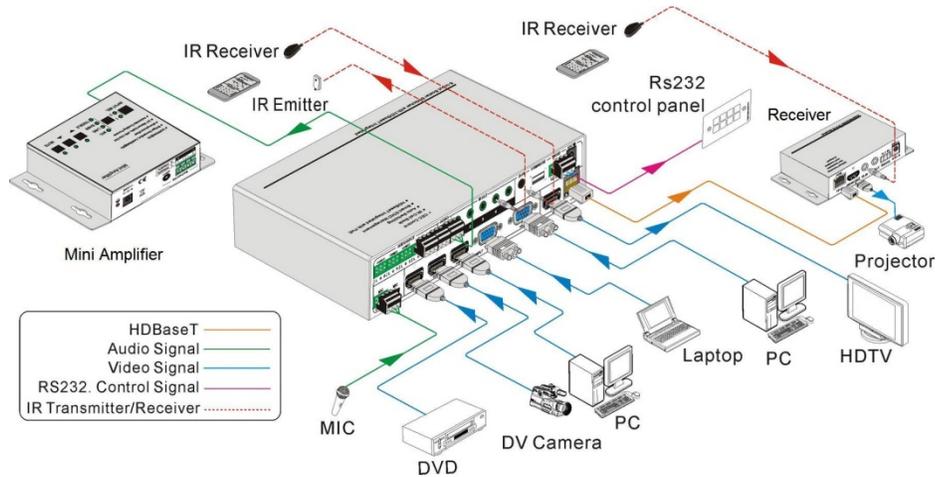
3.3 Connection Procedure

Step1. Connect HDMI source devices (e.g. Blu-ray DVD) to HDMI input ports of the compact scaler switcher with a HDMI cable. Connect VGA source device (e.g. PC) to VGA input ports of the compact scaler switcher with a VGA cable.

Step2. Connect the corresponding audio source to the corresponding AUDIO INPUT port of the compact scaler switcher with an audio cable. Audio from HDMI can be embedded or external by sending the proper command.

Step3. Connect HDMI display device to the HDMI output port of the compact scaler switcher with a HDMI cable.

Step4. Connect the HDMI twisted pair PoE receiver to HDBaseT output port of the scaler switcher with a twisted pair cable.

Step5. Connect speaker, headphone or specialized amplifier to AUDIO OUTPUT port of the compact scaler switcher.

Step6. Connect control device (e.g. PC) to RS232 port of the scaler switcher or the

receiver (bi-directional RS232 control, either is available).

Step7. Both the scaler switcher and the receiver have IR IN and OUT. When one model is used for IR signal receiver, the other model must send out the IR signal.

For example: When "IR IN" of the scaler switcher connects with an IR receiver, the IR transmitter must connect to IR OUT of the receiver.

The IR signal can be transmitted bi-directionally between the scaler switcher and the receiver.

Step8. Select MIC level and connect right microphone to MIC input port. MIC audio will be transmitted to AUDIO OUTPUT port and mixed with source audio.

Step9. Connect DC12V power adaptor to the power port (the receiver is able to get power from the scaler switcher).

3.4 Connection of Microphone

The compact scaler switcher provides one 3-level microphone input to accommodate different microphone input modes, including 48V phantom power mode, MIC mode & LINE mode.

➢ **48V phantom power input**

When switched to "48V" (It has a good frequency characteristic, high input impedance and high sensitivity in this mode), the MIC input will provide a 48V phantom power. This is only used for **condenser microphones**.

Connections: "+" connects to positive, "-" connects to negative and "⏚" to ground.
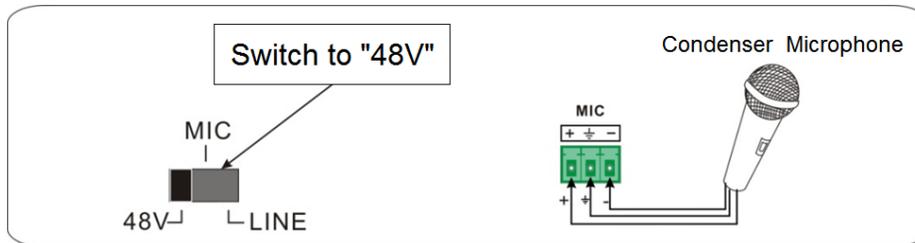
➢ **MIC input**

When switched to "MIC" (It has a low frequency characteristics, and wide frequency response in this mode), the microphone input is used for connecting **dynamic microphones**. There are two different connections:

1) Unbalanced connection:
"+" and "⏚" connect to ground, and "-" connects to signal.
"-" and "⏚" connect to ground, and "+" connects to signal.

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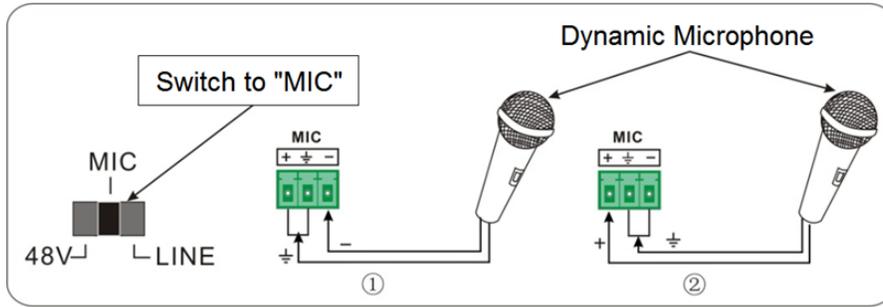
2) Balanced connection: "+" connects to positive, "-" connects to negative and "⏚" connects to ground.
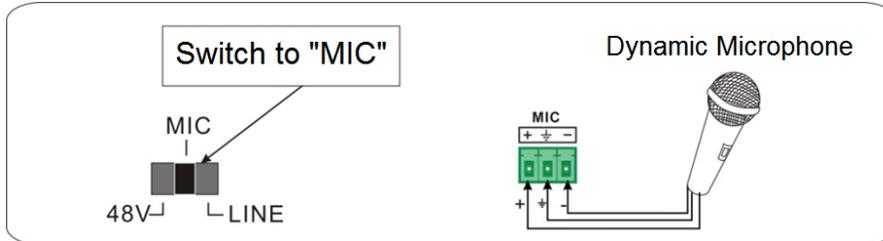
➢ **LINE input**

When switched to "LINE" (It has a low frequency characteristics, and wide frequency response in this mode), the microphone input is used for connecting line audio or wireless microphones. There are two different connections:

➢ Unbalanced connection:
"+" and "⏚" connect to ground, and "-" connects to signal.
"-" and "⏚" connect to ground, and "+" connects to signal.
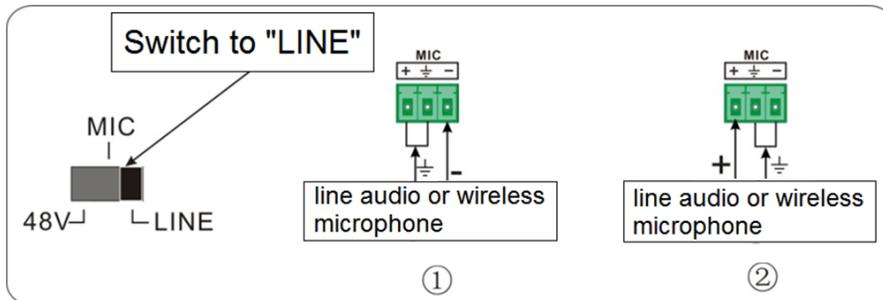
b) Balanced connection: "+" connects to positive, "-" connects to negative and "⏚" connects to ground.

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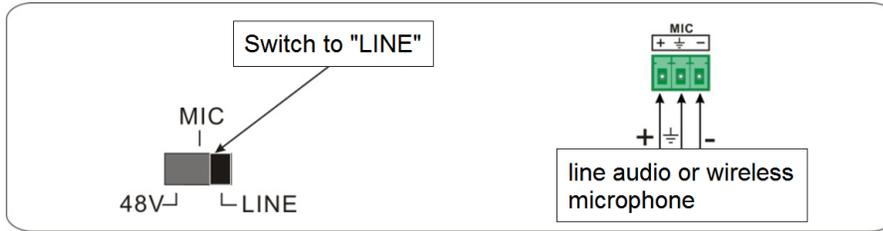
3.5 Applications

The compact scaler switcher is useful for many applications, such as boardrooms, live monitoring, conference rooms, home theater set ups, instructional technology, command & control centers, smart homes, and much more.

4. System Operations

4.1 Operations of Buttons

The buttons can be used for adjusting the output resolution of the scaler switcher as well as switching operations, software update procedures, and volume adjustment plus navigating the menus.

4.1.1 Adjusting the Resolution

Supports auto-adjustment and manual-adjustment. Press and hold the **RESO/AUTO** button for **7 seconds or more** to enter auto-adjustment/manual-adjustment mode.

Notice:

1. In auto-adjustment mode, the scaler will choose the resolution of the display device.

If you need to manually choose the resolution of the HDMI display device:
☆ Cut off the power of scaler and break the connection between scaler and HDBASE70R receiver.
☆ Turn on the power of HDSC51HDBT
☆ Get the resolution of local HDMI output device.
☆ Connect HDBASE70R to HDSC51HDBT.

2. In auto-switching mode, front panel button control is not available, but IR and RS232 control is able to switch modes.

Switching Operations

Supports auto-switching and manual-switching. Press and hold the **SOURCE/AUTO** button for **7 seconds or more** to enter in auto-switching/manual-switching mode.

The display will show the following:

IN: HDMI1 MANUAL
1280 X 720

IN: HDMI1 AUTO
1280 X 720

The display result will be showed for **2 seconds**

Auto-switching function

The auto-switching mode follows the following principles:

➢ **New input principle**
Once a new input signal is detected, the compact scaler switcher will switch to this new signal automatically.

➢ **Power rebooting principle**
The scaler switcher offers the function to remember the signal last used after rebooting. Once rebooted, it will automatically enter auto-switching mode, and then detect all inputs and memorize their connection status for future reboots. If the last used input signal is still available, then it will choose that signal. If not, there will be no output.

➢ **Signal removing principle**
Once the current signal is removed, the compact scaler switcher will detect all input signals with priority on INPUT 1 to INPUT 5. It will transfer the first signal detected to the outputs.

Notice: Auto-switching function works only when there is a new input signal or if an input signal is removed. With any VGA port set to AV or YPbPr, the system will be not able to enter Auto-switching mode.

Operation Examples:

● Connect the INPUT 2, INPUT 4, and INPUT 5 ports to the source devices, select INPUT 4 to outputs.

● Press and hold on the front key **SOURCE/AUTO** for **7 seconds or more** to enter auto-switching mode.

● If there is no signal removed or no new input, the compact scaler switcher just works in auto-switching mode. Take no action (Output from INPUT 4)

● Connect INPUT 3 with a source device, and then it will choose INPUT 3 to output.

● Remove the signal of INPUT 3, the compact scaler switcher will detect from INPUT 1 to INPUT 5. And when it detects that input 2 is available, it will choose INPUT 2 to output.

● Cut off the power of the compact scaler switcher, then reboot. As the compact scaler switcher is in auto-switching mode, and then it will choose INPUT 2 to output.

4.1.2 Software Updates

The compact scaler switcher supports software updates via USB flash disk. The procedure is as follows:

1) Copy the file "**MERGE_51T.bin**" to the root directory of a USB flash disk. (Make sure the file is copied to the root directory. The "**MERGE_51T.bin**" file is provided/authorized by our engineering department or from our website)

2) Plug the USB flash disk to the compact scaler switcher USB port on its front panel.

3) Press the "MENU" button for **7 seconds or more** to update the software automatically.

You can also press this button for **6 seconds** until you see an option to update OSD, then select "Option" → "Software Update" to enter to start the update.

4.1.3 Adjusting the Volume

*Note: You must not be in the OSD menu.

Press VOL -- to decrease line volume, VOL + to increase.

Press MIC – to decrease MIC volume, MIC + to increase.

4.1.4 OSD Menu

Press the **MENU** button to enter the OSD menu, and use the **UP**, **DOWN**, **LEFT**, **RIGHT** buttons to make a selection. Press the **ENTER** button to confirm the selection. The **MENU** button can also be used to exit a menu level by level until you are out of the OSD menu.

4.2 Operations of IR

4.2.1 IR Remote

As IR signal can be transmitted bi-directionally between the compact scaler switcher and the HDMI twisted pair PoE receiver, it is able to use the IR remote to control the compact scaler switcher or HDMI source devices (via CEC function buttons).

① **Standby button**

To enter in/exit standby mode.

② Input channel selection buttons

INPUT 1 is for HDMI1, INPUT 2 for HDMI2…INPUT 5 for VGA2. **AUTO** button: Enable/disable auto-switching mode.

③ **Volume adjusting buttons**

MIC-/+: decrease/increase MIC volume
LINE-/+: decrease/increase line volume
MIC MUTE: mute/unmute MIC audio
LINE MUTE: mute/unmute line audio

④ **Menu operation buttons**

MENU: press to enter in OSD menu or use to return to previous menu. **EXIT**: exit OSD menu. **OK**: confirm button. ▲,▼,◄, ►: UP/DWON/LEFT/ RIGHT button, for value setting or page-turn, Buttons in area **a** are also able to work in CEC mode to enter the menu of HDMI source device. **P.P, ZOOM, S.M**: shortcut button, to select display mode.

⑤ **Resolution selection buttons**

Select the resolution by pressing corresponding button. **AUTO** is for auto-selecting best resolution.

⑥ **CEC function buttons**

These are for HDMI input signal that supports CEC. Includes PLAY, PAUSE, STOP, MENU, REV (reverse) and FWD (forward).

Buttons in section a work when entered CEC too.

4.2.2 IR Operations

The 5 IR OUT ports are corresponding to the 5 video inputs and switch following the corresponding video source.

1) Control far-end device locally

Control the compact scaler switcher or far-end display device by using corresponding remote controller.
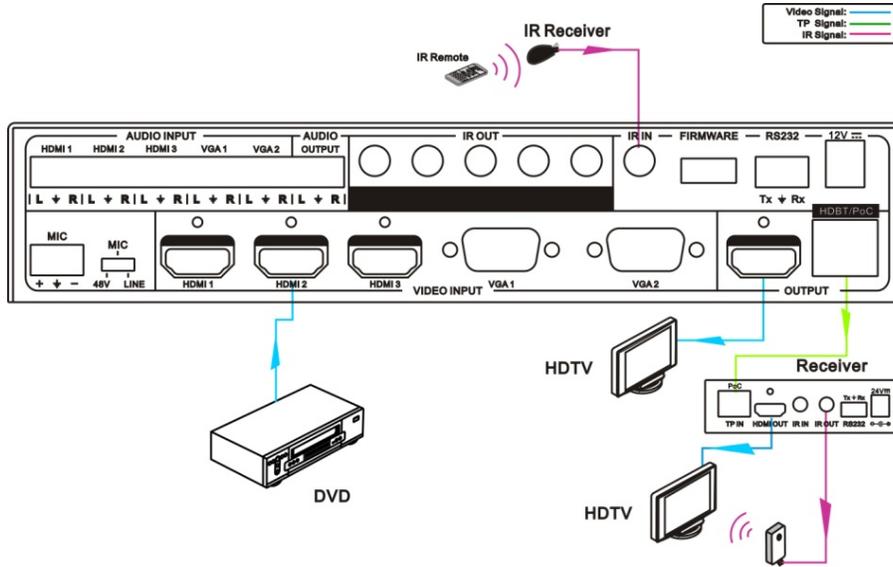
2) Control local device from remote

To control the compact scaler switcher or local source device by remote using the corresponding remote controller.
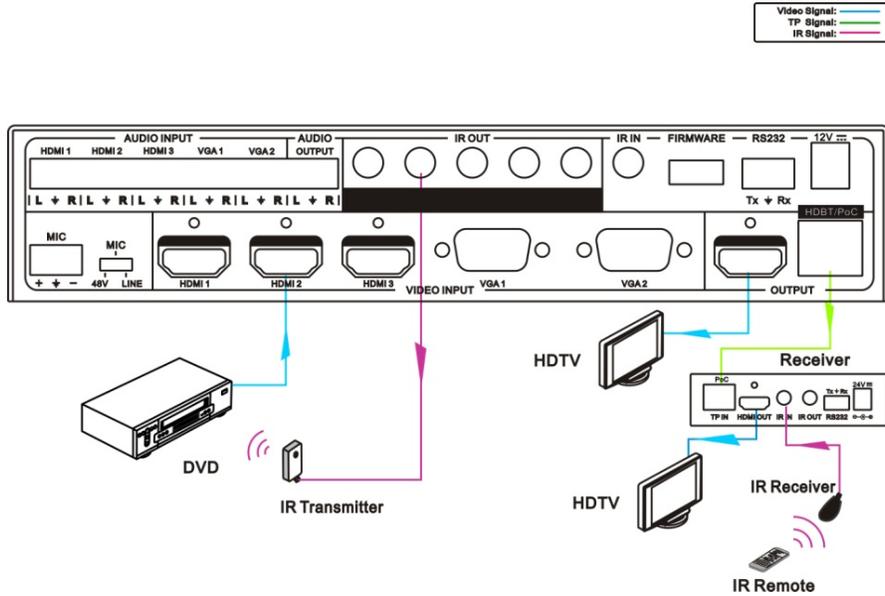
4.3 Operation of CEC Functions

Supports CEC and CEC standby functions and can be enabled/disabled through RS232 commands or OSD menu. If the HDMI source device supports CEC and its CEC is on, and when the compact scaler switcher is in standby/startup mode, then the source device will automatically enter standby/startup mode.

Due to CEC functions, you can control HDMI source devices with basic operations (play, pause, fast forward, fast reverse, menu etc.). So, you are able to control the compact scaler switcher and HDMI source device via the IR remote of the compact scaler switcher.

Commands for CEC function: "50686%" (enable CEC) and "50687%" (disable CEC).

The working status related to CEC and STANDBY is showed as below:

Situation	Working Status
CEC: on, Standby: on	Press STANDBY button on IR remote, the compact scaler switcher enters in standby mode, so do all HDMI source devices. Press STANDBY button again on IR remote, the compact scaler switcher exits standby mode, only the HDMI source device switched to starts working.
CEC: on, Standby: off	Press STANDBY button on IR remote, the compact scaler switcher enters in standby mode, HDMI 1~3 source devices keep on.
CEC: on	Use CEC function buttons, ▲,▼, ◀ , ▶ and **OK** buttons

	on IR remote to control HDMI source devices, include play, pause, fast forward, fast reverse and operations in menu.
CEC: off	Unable to control HDMI source devices through IR remote
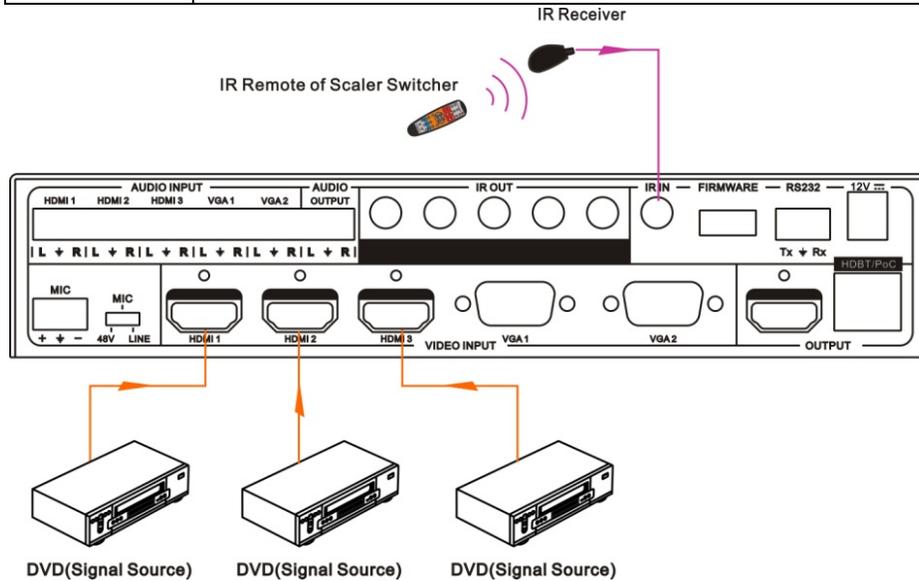
CEC: Control HDMI source devices by IR remote of the compact scaler switcher

4.4 Operations of RS232 Control

As RS232 can be transmitted bi-directionally between the compact scaler switcher and the HDMI twisted pair PoC receiver, it is able to control a third party RS232 device locally or control the compact scaler switcher from remote. When controlling a third party via RS232 device, the baud rate of this device should be 2400, 4800, 9600, 19200, 38400, 57600 or 115200.

4.4.1 Installation/uninstallation of RS232 Control Software

● **Installation:** Copy the control software file to the computer connected with the compact scaler switcher.

● **Uninstallation:** Delete all the control software files in the corresponding file path.

4.4.2 Basic Settings

First, connect the compact scaler switcher with all input devices and output devices needed, then connect it with a computer that is installed with RS232 control software. Double-click the software icon to run this software on your computer.

Here we take the software **CommWatch.exe** as example. The icon is showed as below:

CommWatch.exe

The interface of the control software is showed as below:

Parameter Configuration area

Monitoring area indicates if the command sent works.

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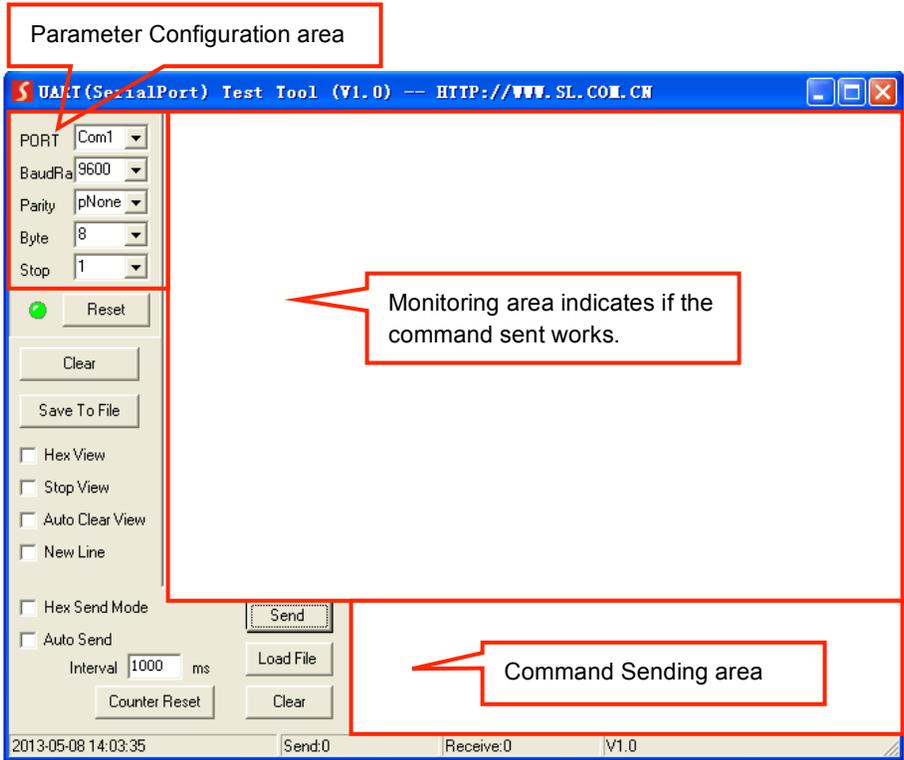
Please set the parameters of COM number, bound rate, data bit, stop bit and the parity bit correctly, and then you are able to send command in Command Sending Area.

4.4.3 RS232 Communication Commands

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

Command	Function	Feedback Example
Switch Commands		
50701%	Switch to HDMI 1 input	Switch to HDMI 1
50702%	Switch to HDMI 2 input	Switch to HDMI 2

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Command	Function	Feedback Example
50703%	Switch to HDMI 3 input	Switch to HDMI 3
50704%	Switch to VGA 1/YPbPr 1/AV 1 input	Switch to VGA 1/YPbPr 1/AV 1
50705%	Switch to VGA 2/YPbPr 2/AV 2 input	Switch to VGA 2/YPbPr 2/AV 2
50680%	Select VGA 1 for INPUT 4	Input 4 Set & Switch to VGA 1
50681%	Select YPbPr 1 for INPUT 4	Input 4 Set & Switch to AV 1
50682%	Select AV 1 for INPUT 4	Input 4 Set & Switch to AV 1
50683%	Select VGA 2 for INPUT 5	Input 5 Set & Switch to VGA 2
50684%	Select YPbPr 2 for INPUT 5	Input 5 Set & Switch to YPbPr 2
50685%	Select AV 2 for INPUT 5	Input 5 Set & Switch to AV 2
50785%	Enable auto-switching	Auto Switching
50786%	Disable auto-switching	Manual Switching
Audio Commands		
50600%	MUTE line audio	LINE Mute
50601%	UnMute line audio	LINE Unmute
50602%	Line audio volume up	LINE Volume: xx
50603%	Line audio volume down	LINE Volume: xx
50720%	Mute LINE audio & MIC audio	LINE Mute
		MIC Mute
50721%	Unmute LINE audio & MIC audio	LINE Unmute
		MIC Unmute
50722%	Mute MIC audio	MIC Mute
50723%	Unmute MIC audio	MIC Unmute
50724%	MIC volume up	MIC Volume: xx
50694%	Enable Mic precedence	Mic precedence: enable
50695%	Disable Mic precedence	Mic precedence: disable
50696%	Check Mic precedence status	Mic precedence: XXXX
50725%	MIC volume down	MIC Volume: xx
508xx%	Set MIC volume	MIC Volume: xx
50706%	Choose embedded audio as HDMI 1 audio input	HDMI 1 Audio from Embedded

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Command	Function	Feedback Example
50707%	Choose external audio as HDMI 1 audio input	HDMI 1 Audio from LINE
50708%	Choose embedded audio as HDMI 2 audio input	HDMI 2 Audio from Embedded
50709%	Choose external audio as HDMI 2 audio input	HDMI 2 Audio from LINE
50710%	Choose embedded audio as HDMI 3 audio input	HDMI 3 Audio from Embedded
50711%	Choose external audio as HDMI 3 audio input	HDMI 3 Audio from LINE
Resolution Commands		
50619%	Change the resolution to 1360X768 HD	Resolution: 1360x768
50626%	Change the resolution to 1024X768 XGA	Resolution: 1024x768
50627%	Change the resolution to 1280X720 720P	Resolution: 1280x720
50628%	Change the resolution to 1280X800 WXGA	Resolution: 1280x800
50629%	Change the resolution to 1920X1080 1080P	Resolution: 1920x1080
50620%	Change the resolution to1920X1200 WUXGA	Resolution: 1920x1200
50621%	Change the resolution to1600X1200 UXGA	Resolution: 1600x1200
Setup Commands		
50604%	Lock the front panel buttons	Front Panel lock
50605%	Unlock the front panel buttons	Front Panel Unlock
501xx%	Set the volume to xx. XX ranges from 0 to 60	LINE Volume: xx

Command	Function	Feedback Example
502xx%	Set the brightness to xx. XX ranges from 0 to 100	Brightness: xx
503xx%	Set the contrast to xx. XX ranges from 0 to 100	Contrast: xx
504xx%	Set the saturation to xx. XX ranges from 0 to 100	Saturation: xx
505xx%	Set the sharpness to xx. XX ranges from 0 to 100	Sharpness: xx
50607%	Auto-adjust the color temperature	Color Temperature: xx
50608%	Set the aspect ratio	Aspect Ratio: xx
50614%	Set the picture mode	Picture Mode: xx
50615%	Set SM audio mode	Sound Mode: xx
50655%	Freeze output image	Freeze: enable
50656%	Cancel the freezing of output image	Freeze: disable
50646%	Enable MIC Volume Icon display	Volume Icon: enable
50647%	Disable MIC Volume Icon display	Volume Icon: disable
50648%	Enable HDMI embedded audio output	Embedded Audio Output: enable
50649%	Disable HDMI embedded audio output	Embedded Audio Output: disable
50761%	Not display mute icon of LINE audio	LINE Mute Icon: disable
50762%	Display mute icon of LINE audio	LINE Mute Icon: enable
50763%	Not display mute icon of MIC audio	MIC Mute Icon: disable
50764%	Display mute icon of MIC audio	MIC Mute Icon: enable
50765%	Display freeze icon	Freeze Icon: enable
50766%	Not display freeze icon	Freeze Icon: disable
50644%	Display channel status	Input Icon: enable
50645%	Not display channel status	Input Icon: disable
50650%	Check the channel status	Input Icon: xx
50606%	Auto-adjust the input parameter (VGA only)	VGA Input Auto
50686%	Enable CEC	HDMI CEC ON

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Command	Function	Feedback Example
50687%	Disable CEC	HDMI CEC OFF
50699%	Check the system version	Version Vx.x.x
50688%	Enable MIC noise detecting	MIC detect: enable
50689%	Disable MIC noise detecting	MIC detect: disable
50690%	Check MIC noise detecting statue	MIC detect: XXXX
50791%	HDCP Active	HDCP Active
50792%	HDCP Manual	HDCP Manual
50793%	Enable HDCP output	HDCP ON
50794%	Disable HDCP output	HDCP OFF
50795%	Inquire HDCP/ Active HDCP	HDCP Active
	Inquire HDCP/ Manual HDCP	
		HDCP Manual
		HDCP OFF/ON
50782%	EDID management, copy the best resolution data of one output to HDMI input	Manage HDMI input with prefered timing
		timing table=[1]
		Resolution:1920x1080
50787%	Enable serial control mode 1: control Scaler & far-end from local RS232	RS232 Mode 1: RS232 Control Scaler & Remote
50788%	Enable serial control mode 2: control Scaler from local RS232 and far-end)	RS232 Mode 2: RS232 & Remote Control Scaler
50698%	Software update	
50617%	Reset to factory defaults	Factory Reset
Menu Commands		
50609%	OK for OSD selection	Key: ok
50610%	LEFT button	Key: left
50611%	RIGHT button	Key: right
50612%	UP button	Key: up
50613%	DOWN button	Key: down
50616%	MENU button (enter OSD)	OSD: Enter

Command	Function	Feedback Example
50618%	EXIT button (exit OSD)	OSD: Exit
Inquire Commands		
50630%	Check the volume level	LINE Volume: xx
		MIC Volume: xx
50631%	Check the input source	Input: xx
50632%	Check the output resolution	Resolution: xx
50633%	Check the image mode	Picture Mode: xx
50634%	Check the audio mode	Sound Mode:　xx
50635%	Check the image aspect ratio	Aspect Ratio: xx
50636%	Check the brightness	Brightness: xx
50637%	Check the contrast	Contrast: xx
50638%	Check the saturation	Saturation: xx
50639%	Check sharpness	Sharpness: xx
50640%	Check the color temperature	Color Temperature: xx
50651%	Check Volume Icon display status	Volume Icon: xxxx
50652%	Check Digital audio output status	Embedded Audio Output: enable/disable
50712%	Check the audio input sources for HDMI 1, 2, 3	HDMI1 Audio from　XXXX port
		HDMI2 Audio from　XXXX port
		HDMI3 Audio from　XXXX port
50751%	Check whether the LINE audio is mute or not	LINE Mute/Unmute
50752%	Check whether the MIC audio is mute or not	MIC Mute/Unmute
50753%	Check the freeze status	Freeze: enable/disable
50754%	Check the panel locked status	Front Panel Lock/UnLock
50783%	Display statues including MIC, LINE audio, Resolution, Output Audio on/off, Manual/ Auto-switching modes	Line Volume:XX
		Mic Volume:XX
		Source:XXXX
		Resolution:XXXX

Command	Function	Feedback Example
		Digital Sound Output: XXXX
		Switch status: XXXX
Adjustment Commands		
50678%	Enable screen output adjusting	Enter Output Position Adjust
50679%	Disable screen output adjusting	Exit Output Position Adjust
50670%	Move the image to right	Output Position Adjust X xx
50671%	Move the image to left	Output Position Adjust X xx
50672%	Move the image up	Output Position Adjust Y XX
50673%	Move the image down	Output Position Adjust Y xx
50674%	Stretch left from left side (increase image width)	Output Width Adjust xx
50675%	Pull right from left side (decrease image width)	Output Width Adjust xx
50676%	Stretch upwards from top side (increase image height)	Output Height Adjust xx
50677%	Stretch upwards from down side (decrease image height)	Output Height Adjust xx
CEC Commands		
50687%	Disable CEC	HDMI CEC OFF
50686%	Enable CEC	HDMI CEC ON
50901%	Play&pause	CEC cmd: play&pause
50902%	Stop	CEC cmd: stop
50903%	Menu	CEC cmd: menu
50904%	Retreat	CEC cmd: rev
50905%	Forward	CEC cmd: fwd
50906%	Up	CEC cmd: up
50907%	Down	CEC cmd: down
50908%	Left	CEC cmd: left
50909%	Right	CEC cmd: right
50910%	Conform command	CEC cmd: select

Command	Function	Feedback Example
50911%	Exit command	CEC cmd: exit

Note:

1. Turn on/ off HDCP auto-management by sending serial commands.
    a) When HDCP is set to "active," whether the output source has HDCP depends on the input source. If the input source has HDCP, so will the output and vice versa.
    b) When HDCP is set to Manual, whether the output has HDCP depends on the statue of HDCP. If you turn off HDCP, then the output will not have HDCP and vice versa.
2. Screen output adjustment avails only when the screen output adjusting is on. Send command 50678% to turn on.
3. CEC commands with grey background avails only when CEC is on.
4. MIC precedence: In Mute mode, if the MIC noise detecting is on, the device will unmute MIC automatically given the outer noise exceeds the limit of noise detecting. Send 50696% to enable MIC precedence, then the device will not be able to change the mute mode no matter how loud the noise is.

4.4.4 Control Compact Scaler Switcher or 3rd Party Device from Local

Firstly, connect the RS232 port of the compact scaler switcher to RS232 port of PC.

Secondly, send command **50787%** (serial control mode 1, factory default) via RS232 communication software.

Lastly, send the right command of the compact scaler switcher or other remote RS232 device connected in present system. Connect as shown below:
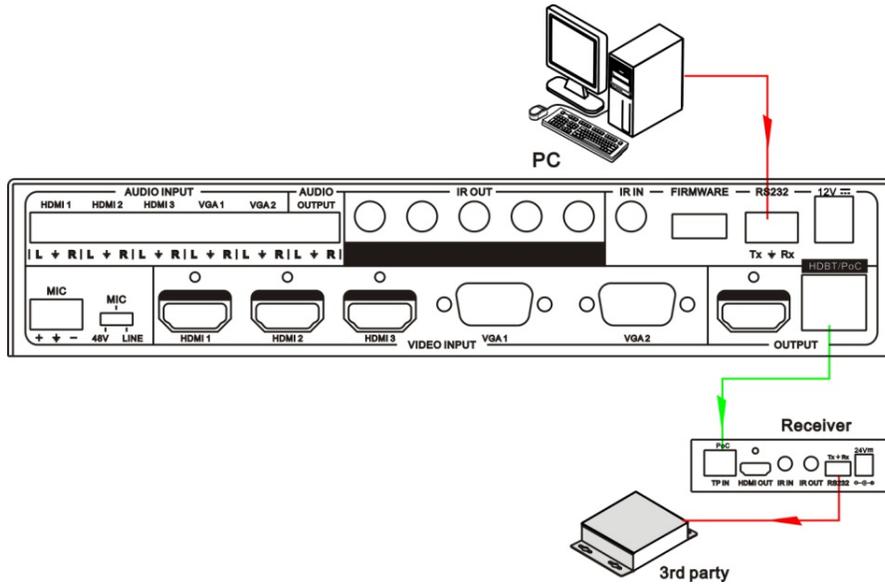
Control compact scaler switcher or 3rd party device from local

4.4.5 Control Compact Scaler Switcher from Local or Remote

● **Control compact scaler switcher locally**

Firstly, connect the RS232 port of the compact scaler switcher to RS232 port of PC.

Secondly, send command **50788%** via RS232 communication software.

Lastly, send the right command to control the compact scaler switcher. Connect as below:
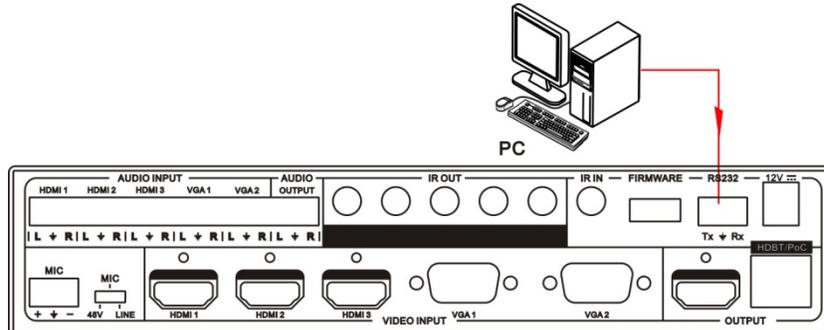
Control compact scaler switcher from local

● **Control compact scaler switcher from remote**

Firstly, connect the RS232 port of far-end RS232 device to RS232 port of PC.

Secondly, send command **50788%** via RS232 communication software.

Lastly, send the right command to control the compact scaler switcher. Connect as below:
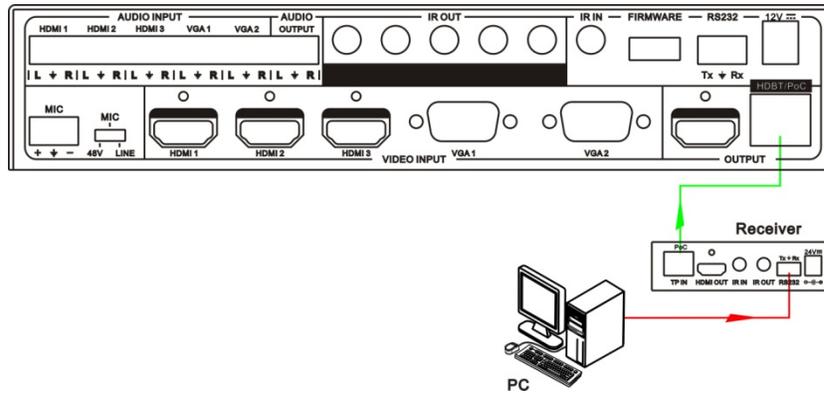
Control compact scaler switcher from remote

4.5 Operations in OSD Menu

SC51D provides a powerful OSD operation menu, contains 4 parts: optional settings, image settings, audio settings and system setting etc.

Press MENU button on front panel (or MENU button on IR remote/send command **50616%**) to enter in OSD menu, so it is able to change some settings through the OSD menu.

4.5.1 Option

Includes Output Adjust, Input4/5 Select, HDMI1/2/3 Audio select, and Software Update (USB)

25
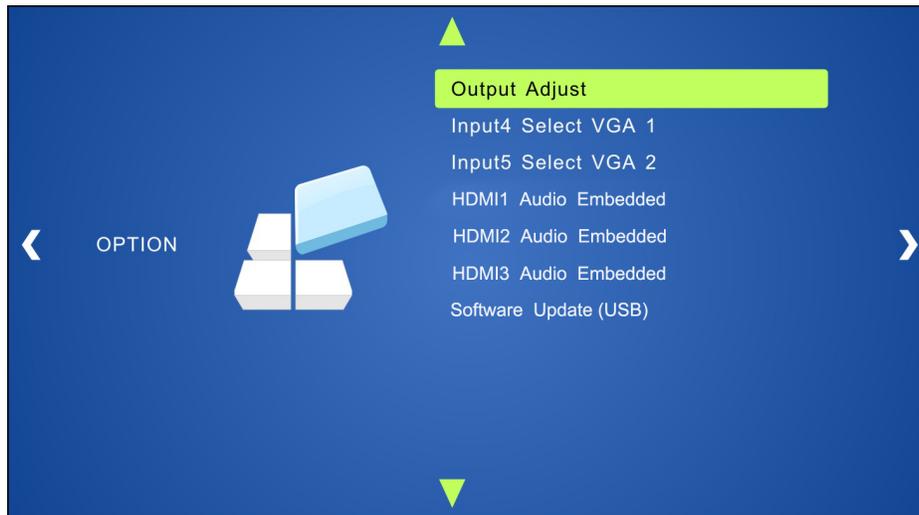
Output Adjust: Adjust output image position (X: horizontal direction and Y: vertical direction) and ratio aspect (width and height).

Input4 Select: Select the video source format for VGA input, includes AV 1 (C-video signal), VGA 1 (VGA signal) and YPbPr 1 (Component video signal). Use the ENTER button to select the desired source format.

Input5 Select: Select the video source for VGA input, includes AV 2 (C-video signal), VGA 2 (VGA signal) and YPbPr 2 (Component video signal). Use the ENTER button to select the desired source format.

For INPUT4 & INPUT5, when format signal has changed:

1. Firstly, select a format through this menu (the signal format changed while the video source is still the same).
2. Secondly, switch off the present signal channel (e.g. switch to another channel).
3. Thirdly, switch to channel INPUT4/INPUT5 again.

HDMI1 Audio Select: switch between Embedded and Line to choose the desired audio output port for HDMI1.

HDMI2 Audio Select: switch between Embedded and Line to choose the desired audio output port for HDMI2.

HDMI3 Audio Select: switch between Embedded and Line to choose the desired audio output port for HDMI3.

Software Update (USB): Insert the USB flash disk with updating file to USB port of SC51D, to update the software through this menu.

4.5.2 Picture

Including Picture Mode, Color Temperature, Aspect Ratio, Noise Reduction, Screen and Color Range.

Please check the picture below:
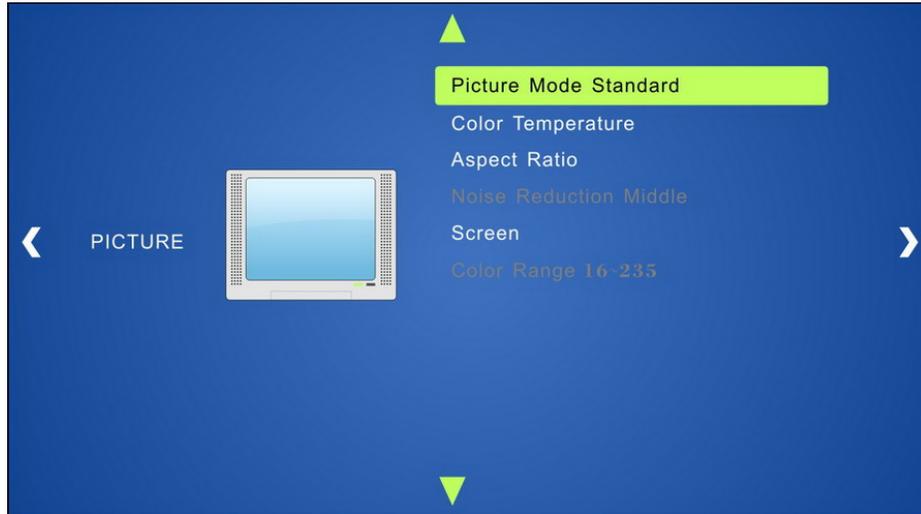
Picture mode: Includes Dynamic, Standard, Mild, and User. It is able to set the image contrast and brightness in User mode only.

Color Temperature: Includes Cool, Medium, Warm and User. And only in User mode, it is able to set values for Red, Green and Blue (RGB).

Aspect Ratio: Includes Native, 4:3, 16:9, Zoom1, Zoom2, Just Scan, Panorama, and Point To Point. VGA format only supports 4:3, 16:9 and Point to Point.

Noise Reduction (not for VGA format): Includes Off, Low, Middle, High and Default.

Screen: (not for HDMI source): Includes Auto Adjust, Horizontal, Vertical, Size, and Phase.

Color Range (not for VGA format): Includes 0~255 and 16~235, use ENTER button to select the color range.

4.5.3 Sound

Including Sound Mode, Surround Sound and EQ
Please check the picture below:
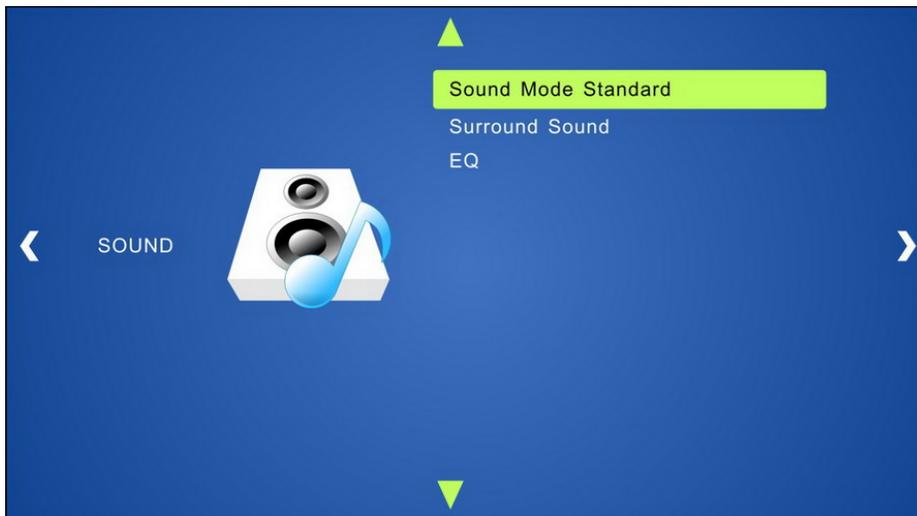
Sound mode: Includes Standard, Music, Movie, Sports and User. Treble and Bass can only be set in User Mode.

Surround Sound: Includes Off, Surround, and SRS Trusurround XT.

EQ: To adjust the sound balance.

4.5.4 Setup

Including OSD Language, Blending, HDMI CEC and OSD Duration
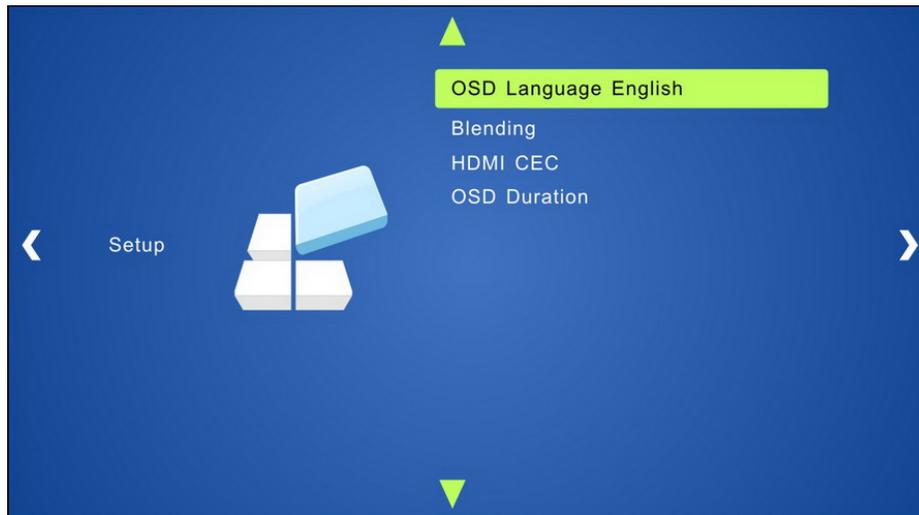
OSD Language: Supports 14 languages, including English (default), Chinese etc.

Blending: Includes Low, Middle, High and Off. Use ENTER button to select.

HDMI CEC: Enable/disable CEC and auto-standby function. Default: CEC on, STANDBY on.

OSD Duration: Includes 5 s, 10 s, 15 s and Off. "s" is for Second.

4.6 Instructions of VGA Conversion Cable

As VGA source supports YPbPr and C-video source, the compact scaler switcher provides 2 VGA conversion cables to comply with these signals.

When need to select these signals as the input source. Switch to channel INPUT 4 (or INPUT 5), and then set the signal type in OSD. After that, switch to other input channel and connect INPUT 4 (or INPUT 5) with the corresponding source device. Finally, switch to INPUT4 (or INPUT 5) again.

● **Connect with Component Video (YPbPr) Source**

A. **Operation Examples:**

1. **Via front panel buttons & OSD**

   Press the **MENU** button on the front panel to enter OSD. Then, enter the **OPTION** setting menu: set "INPUT 4 Select" to **YPbPr1**, and "INPUT 5 Select" to **YPbPr2**. After setting, press the **SOURCE/AUTO** button on the front panel to switch to YPbPr1 or YPbPr2 source.

2. **Via RS232 commands**

Send command **50681%** (or **50684%**) to switch to YPbPr1 (or YPbPr2) source.

3. **Via IR remote & OSD**

Press the **MENU** button on the IR remote to enter in OSD, and then enter the **OPTION** menu: set "INPUT 4 Select" to **YPbPr1**, and "INPUT 5 Select" to **YPbPr2**. After setting, press **INPUT 4** (or **INPUT 5**) button to switch to YPbPr1 (or YPbPr2) source.

B. **Connecting the VGA converting cable like this:**
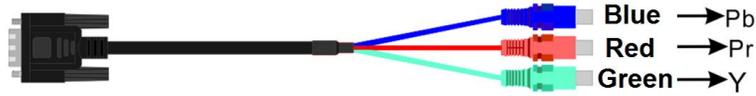
● **Connect with Composite Video (C-VIDEO) Source**

A. **Operation Examples:**

1. **Via front panel buttons & OSD**

Press the **MENU** button on the front panel to enter in OSD, and then enter the **OPTION** menu: set "INPUT 4 Select" to **AV1**, and "INPUT 5 Select" to **AV2**. After setting, press **SOURCE/AUTO** button on the front panel to switch to AV1 or AV2 source.

2. **Via RS232 commands**

Send command **50682%** (or **50685%**) to switch to YPbPr1 (or YPbPr2) source.

3. **Via IR remote & OSD**

Press the **MENU** button on the IR remote to enter in OSD, and then enter the **OPTION** setting menu: set "INPUT 4 Select" to **AV1**, and "INPUT 5 Select" to **AV2**. After setting, press **INPUT 4** (or **INPUT 5**) button to switch to AV1 (or AV2) source.

B. **Connecting the VGA converting cable like this:**
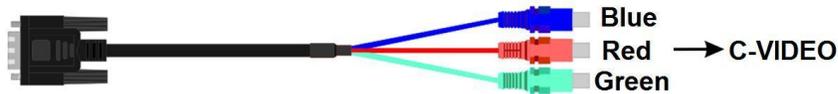
5. Specification

Video Input		Video Output	
Input	3 HDMI 2 VGA	Output	1 HDMI 1 HDBaseT
Input Connector	3 female HDMI 2 female VGA (15 pin)	Output Connector	1 female HDMI 1 RJ45
Video Signal	HDMI, YPbPr, C-video, VGA	Video Signal	1 HDMI 1 HDBaseT
IR Input		**IR Output**	
Input	1 IR IN	Output	5 IR OUT
Input Connector	3.5mm mini jack	Output Connector	3.5mm mini jack
Video General			
Resolution Range	1024x768, 1280x720, 1280x800, 1920x1080, 1600x1200, 1920x1200	Bandwidth	HDMI: 4.95Gbps(1.65Gbps per color) C-Video: 150MHz YPbPr: 170MHz VGA: 375MHz
Maximum Pixel Clock	165MHz	Video Impedance	75Ω
Gain	0dB	Input / Output Level	0.5V~2.0Vp-p
HDCP	Compliant with DVI & HDMI 1.3 standards		
Audio Input		**Audio output**	
Input	3 Dual-mono stereo audio for HDMI 2 Dual-mono stereo audio for VGA (Support C-VIDEO, YPbPr, VGA)	Output	1 stereo
Input Connector	3P captive (3.81mm)	Output Connector	3P captive (3.81mm)
Input Impedance	>10kΩ	Output Impedance	50KΩ
Audio General			
Frequency Response	20Hz~20K Hz	Stereo Channel Separation	>80dB @1KHz
CMRR	>90dB @20Hz to 20K Hz		

Control Parts			
Control/ Remote	IR remote, Buttons & RS232	Pin Configuration	2 = TX, 3 = RX, 5 = GND
General			
Temperature	-20 ~ +70℃	Humidity	10% ~ 90%
Power Supply	DC12V ± 0.5V	Power Consumption	**8W**, supply power to the compact scaler switcher and the receiver separately **16W**, the compact scaler switcher supplies power to the receiver
Case Dimension	W220x H44x D148mm	Product Weight	0.67Kg

6. Panel Drawing
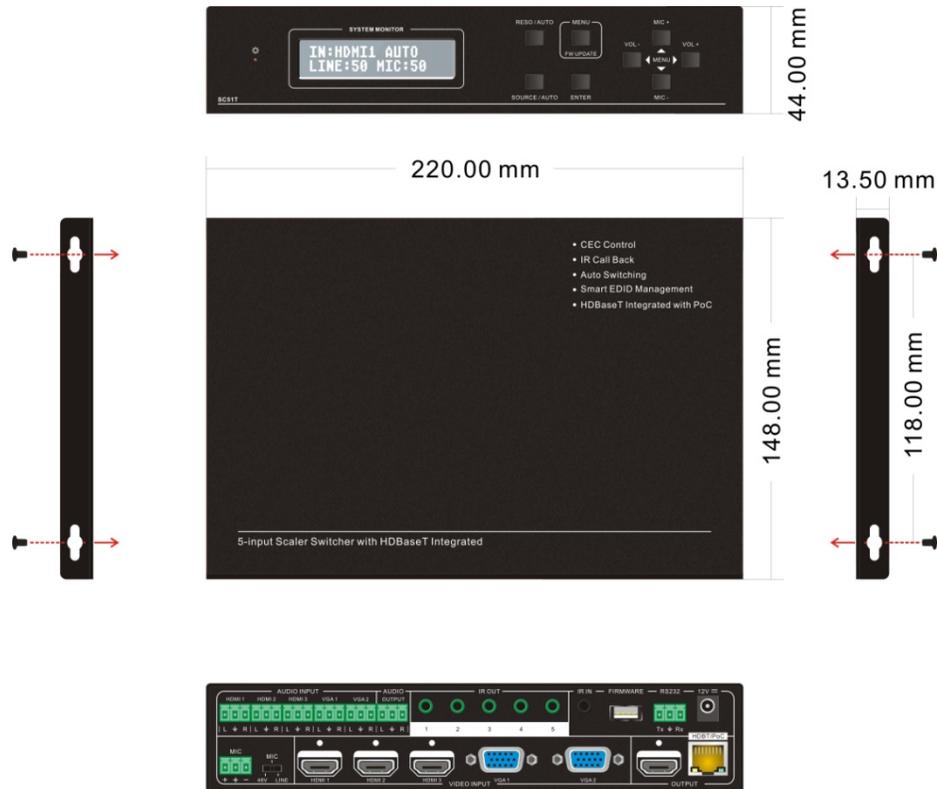
7. Troubleshooting & Maintenance

1) When the image displays static snow, this is not usually due to a faulty unit.

- Usually caused by bad quality cables. Please try another high quality cable.
- The video cables are loose, please check the connections.

2) When it is not able to detect EDID, the HDMI cable may be broken or loose.

3) When user cannot control the switcher by computer through its COM port, please check the COM port number in the software and make sure the COM port is in good condition.

4) If the **POWER** indicator doesn't work or does not respond, please make sure the power cord is securely connected.

5) When switching, there is no output image:

- Check with an oscilloscope or multimeter to see if there is any signal at the input/output end. If there is no signal input/output, the input/output connection cord may be broken or the connectors are loose. Please change the cable or connect again.

- If it is still the same after the above checking, maybe there is something wrong in the switcher. Please send it to the dealer for fixing.

6) If the static becomes stronger when connecting the video/audio connectors, it is probably due to incorrect grounding. Please check the grounding of the unit as it may permanently damage the device.

7) If you are not able to control the scaler switcher from the front panel buttons, but you can through RS232 commands, maybe the front panel buttons are locked. Please send command **50605%** to unlock the buttons.

8) If the buttons on the front panel, RS232 port, or IR remote cannot control the scaler switcher, the switcher may be defective. Please send it to your dealer for repair.

8. Safety Operation Guide

In order to guarantee the reliable operation of the equipment and your own safety, please abide by the following procedures for installation and maintenance:

1) The system must be grounded properly. Please do not use two blade plugs. The alternating power supply ranges from 100v to 240v and from 50Hz to 60Hz.

2) Do not put the device in a place of too hot or too cold.

3) As the unit generates heat when running, the unit should be kept an cool environment as overheating may damage the unit permanently.

4) Turn off the general power switch in humid weather or if the unit is left unused for along period of time.

5) Before operation, ensure that the alternating current wire is pull out of the power supply:
● Take off or reship any components of the equipment.
● Take off or rejoin any pin or other link of the equipment.

6) DO NOT repair it on your own. Send the unit to your dealer for all internal repairs.

7) DO NOT splash, spray, spill, or use any chemical substance or liquid in or around the unit.

9. After-sales Service

1) If there are any operational problems with the unit, please refer to this manual. Shipping costs for warranty repair are the responsibility of the end user.

2) You can contact us via email at Support@KanexPro.com. Please include the following information:
- Product version and name.
- Detailed failure situations.
- The formation of the cases.

3) We offer products with a **3-year warranty**, which starts from the first day of purchase date of the product (The original purchase date on your invoice).

4) Repair and replacement service is not provided if one or more of the following conditions is met:
- The unit is beyond the warranty.
- Damage due to incorrect usage.
- Damage due to assembly or maintenance by non-authorized personnel.
- No certificate or invoice as proof of warranty.
- The product model shown on the warranty card does not match the model of the product for repair.
- Damage caused by force or abuse
- International Shipping not covered, customer has to pay for shipping.

10. Warranty

KanexPro® warrants that (a) its products (the "Product") will perform greatly in agreement with the accompanying written materials for a period of 36 months from the date of receipt (3 years) and (b) that the product will be free from defects in materials and workmanship under normal use and service for a period of 3 years.

B. CUSTOMER REMEDIES

KanexPro's entire liability and Customer's exclusive remedy shall be, at KanexPro option, either return of the price paid for the product, or repair or replacement of the Product that does not meet this Limited Warranty and which is returned to KanexPro with a copy of customers' receipt. This Limited Warranty is void if failure of the Product has resulted from accident, abuse, or misapplication. Any replacement Product will be warranted for the remainder of the original warranty period of 3 years, whichever is longer.

C. NO OTHER WARRANTIES

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