User Manual

SCU41-BYOD

18G 4x1 Presentation Switcher with Soft Codec & Wireless BYOD

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Version: SCU41-BYOD_2019V1.3

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 September, 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 18G 4x1 Presentation Switcher. The switcher is designed with one wireless Miracast/Airplay input, two HDMI inputs, one USB-C input and one HDMI output. It supports HDMI 2.0b, 4Kx2K@60Hz 4:4:4, HDR 10, Dolby Vision, and HDCP 2.2. In addition, there is smart built-in EDID setting can be selected by the 4-pin DIP switch on the front panel.

The switcher supports HDMI audio de-embedding. It also supports USB device extension by providing two type-B USB ports for host connection, and two type-A USB ports for USB devices such as camera, microphone, keyboard etc.

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 and RS232 command. CEC allows the display device can be controlled by the front panel buttons and RS232 and CEC commands.

1.1 Features

- 18G 4x1 presentation switcher with soft codec & wireless BYOD.
- Supports HDMI 2.0b, 4Kx2K@60Hz 4:4:4, HDR 10, Dolby Vision and HDCP 2.2.
- Wireless BYOD (Bring Your Own Device) capability via AirPlay and Miracast.
- Provide up to 60w charging, USB data (USB 3.0/2.0) and 4K video transmission on USB-C port.
- HDMI output audio can be de-embedded out via balanced analog audio port.
- Two type-B USB ports for host connection, and two type-A USB ports for USB devices like webcam, mic and keyboard.
- Supports video source auto-switching.
- Smart EDID management.
- Front panel buttons trigger both CEC and RS232 commands for display control.

1.2 Package List

- 1x SCU41-BYOD 18G 4x1 Presentation Switcher
- 2x Mounting Ears with 4 Mounting Screws
- 4x Plastic Cushions
- 1x 5-pin Terminal Block
- 1x RS232 Cable (3-pin terminal block to DB9)
- 1x External Antenna
- 1x Power Adapter (24V DC 5A)
- 1x User Manual

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

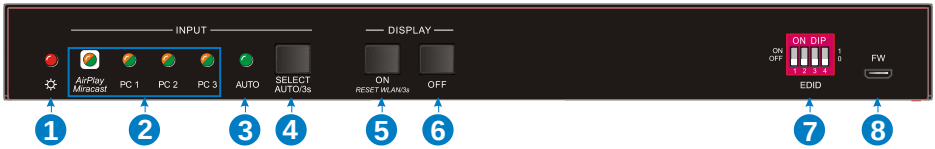
2. Specification

Video	
Video Input	(1) AirPlay/Miracast, (2) HDMI, (1) USB-C
Video Input Connector	(1) External antenna connector, (2) Type-A female HDMI, (1) Type-C USB 3.0
AirPlay/Miracast Input Resolution	Up to 4K@30Hz 4:4:4
HDMI Input Resolution	Up to 4Kx2K@60Hz 4:4:4 HDR10, Dolby Vision
USB-C 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 4Kx2K@60Hz 4:4:4 HDR10, Dolby Vision
HDMI Standard	Up to HDMI 2.0b
HDCP Version	Up to HDCP 2.2
Audio	
HDMI Embedded Audio Format	Supports Dolby Atmos, Dolby TrueHD, Dolby Digital Plus, Dolby Digital, DTS-X, DTS-HD Master Audio, DTS 5.1, 2 - 8Ch PCM 32-192kHz 16-24 bits; 2-8Ch PCM 32-192kHz 16-24 bits
Balanced Analog Audio Output	(1) AUDIO OUT
Balanced Analog Audio Output Connector	(1) 5-pin terminal block
Frequency Response	20Hz–20KHz, ±3dB
Max Output Level	2.0Vrms ± 0.5dB
THD+N	< 0.05%, 20Hz – 20KHz bandwidth, 1KHz sine at 0dBFS level (or max level)
SNR	>80dB, 20Hz - 20KHz bandwidth
Crosstalk Isolation	<-80dB, 10KHz sine at 0dBFS level (or max level before clipping)
L-R Level Deviation	<0.05dB, 1KHz sine at 0dBFS level (or max level before clipping)
Output Load Capability	1KΩ and higher (Supports 10x paralleled 10KΩ loads)
Noise Level	-80dB
Control	
Control port	(1) 4-pin DIP switch, (1) FW, (2) HOST (PC1&PC2), (2) DEVICES, (1) RS232
Control Connector	(1) Micro-USB, (2) Type-B USB 3.0, (2) Type-A USB 3.0,

	(1) 3-pin terminal block
Network Connectivity	
WLAN Standards	IEEE 802.11ac
Band	2.4 and 5GHz
Max. Wireless Coverage	≤5m, environment dependent, reduce disturbance to increase transmission distance up to 10m
Max. Output Resolution	4K/30Hz
Version	iOS 7 or above, MacOS, Android 4.0 or above,Windows8.1 or above.
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 5A.
Power Consumption	85w (Max)
USB-C Power Charging	60w (Max)
Dimension (W*H*D)	238mm x 24.5mm x 135mm
Net Weight	825g

3. Panel Description

3.1 Front Panel



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

② **Four Input LEDs:** The LED illuminates orange when there is video signal on its corresponding input channel and it will be off when there is no signal detected. It will illuminates green when the video signal is chosen as input source.

③ **AUTO LED:** The LED illuminates green when the switcher is in auto-switching mode, and it will be off when exit the auto-switching mode.

④ **SELECT AUTO/3s:** Press the button to select input source, or press and hold it at least 3 seconds to enable auto-switching mode. Please refer to the ***5. Button Control*** for more details about switch rules.

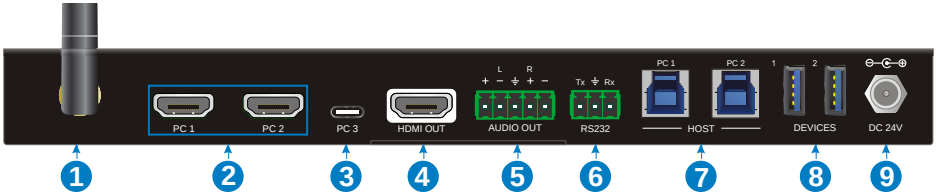
⑤ **DISPLAY ON:** Press the button to send Display On command to turn on the display. Note that the RS232 command needs to be set by user. If an exception occurs at the AirPlay/Miracast input, press and hold the button at least 3 seconds to reset it.

⑥ **DISPLAY OFF:** Press the button to send Display Off command to turn off the display. Note that the RS232 command needs to be set by user.

⑦ **EDID:** 4-pin DIP switch for EDID setting.

⑧ **FW:** Micro USB port for firmware upgrade.

3.2 Rear Panel



① **Miracast/Airplay Input:** Connect to the external antenna.

② **PC1~PC2:** Two type-A female HDMI input ports to connect HDMI source devices.

③ **PC3:** Type-C USB with charging capability to connect the Macbook or other device with SlimPort output.

Note: *The USB 3.0 cable is recommended to be used to ensure optimal machine performance.*

④ **HDMI OUT:** Type-A female HDMI output port to connect display device.

⑤ **AUDIO OUT:** 5-pin terminal block for audio de-embedding from HDMI output.

⑥ **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.

⑦ **HOST (PC1&PC2):** Two type-B USB ports to connect HDMI PC1 and PC2 source devices individually.

⑧ **DEVICE (1&2):** Two type-A USB ports to connect USB devices.

- When the HDMI PC1 is selected as video input source, the USB devices are switched to control the PC1 host.
- When the HDMI PC2 is selected as video input source, the USB devices are switched to control the PC2 host.
- When the USB-C PC3 is selected as video input source, the USB devices are switched to control the USB-C PC3.

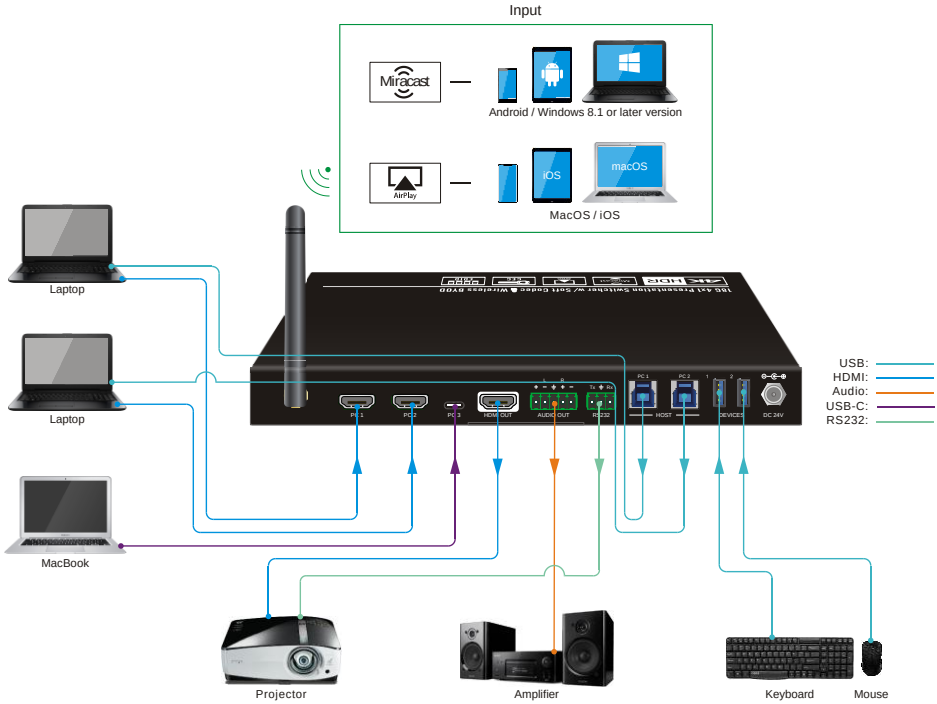
⑨ **DC 24V:** DC connector for power adapter connection.

4. System Connection

4.1 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.

4.2 System Diagram



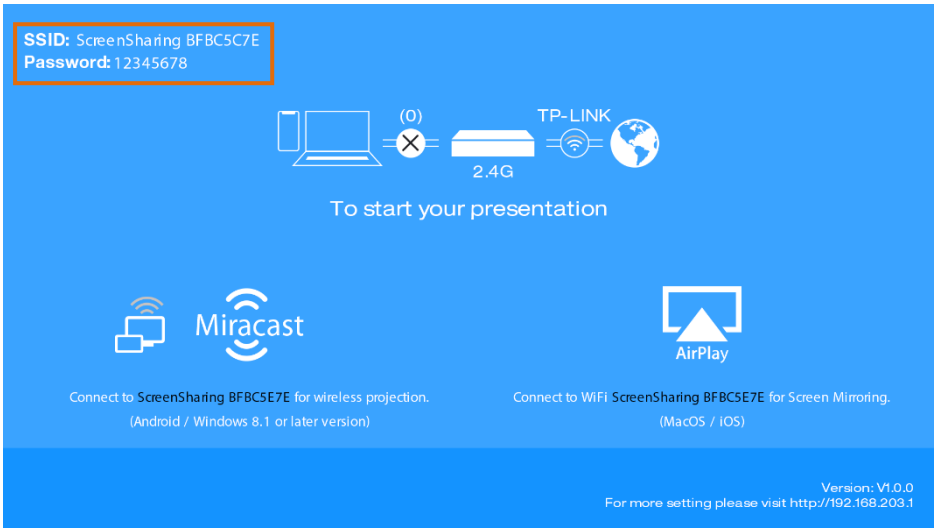
4.3 Miracast/Airplay Connection

The device (e.g. MacOS/iOS, Android, Windows 8.1 or later Version) that support AirPlay/Miracast can be used as input source.

Here take iPhone, Samsung Android and Win10 Notebook as examples to introduce the connection of wireless projection.

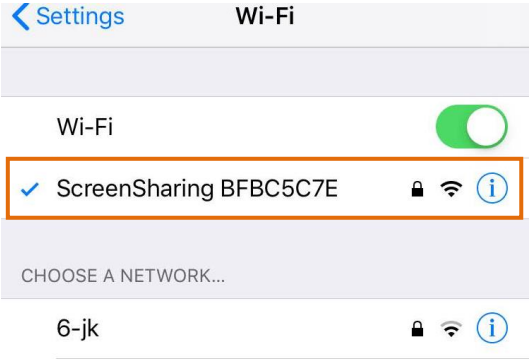
When switch to the Miracast/Airplay input by pressing the **SELECT AUTO/3s** button, the Wi-Fi SSID and password will be showed on the display device.

SSID:	ScreenSharing XXXXXX
Password:	12345678

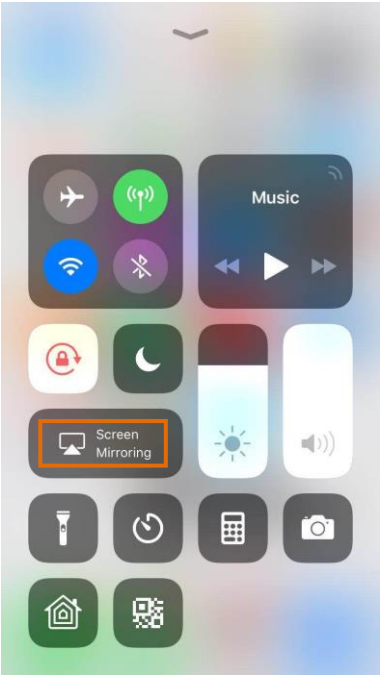


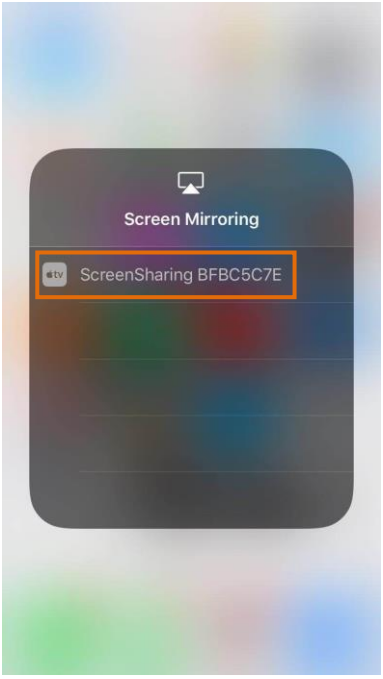
- **Take iPhone as an example:**

1) Connect the Apple iPhone to the Wi-Fi.



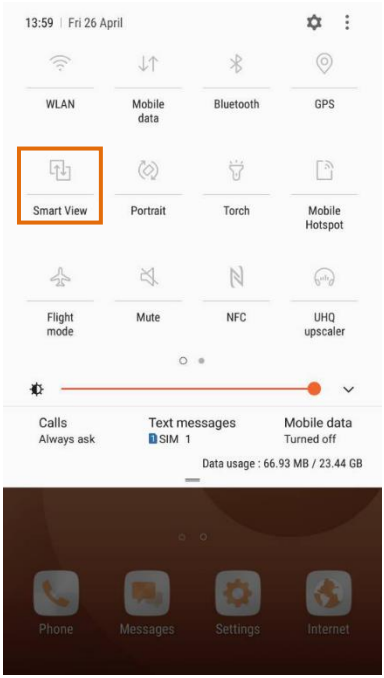
2) Slide the iPhone screen to enter Control Center, and click the **Screen Mirroring**, and then click the SSID for screen mirroring.

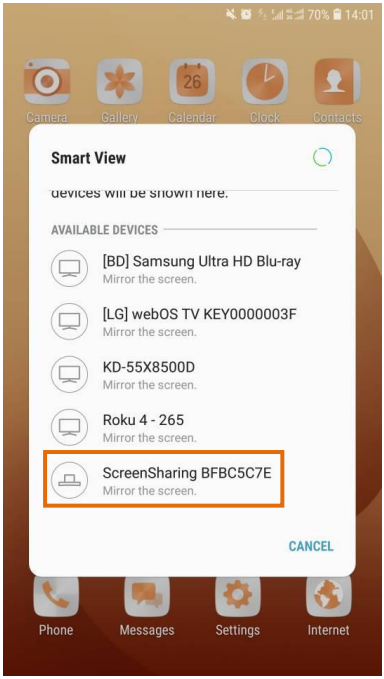




- **Take Samsung Android as an example:**

Slide down the Android screen and click **Smart View**, then click the SSID for screen mirroring.

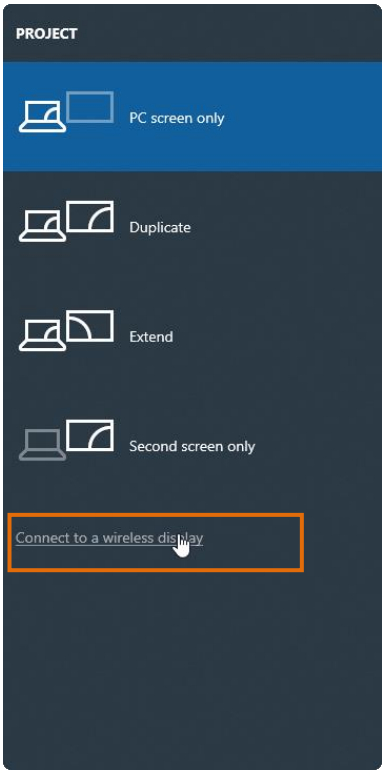


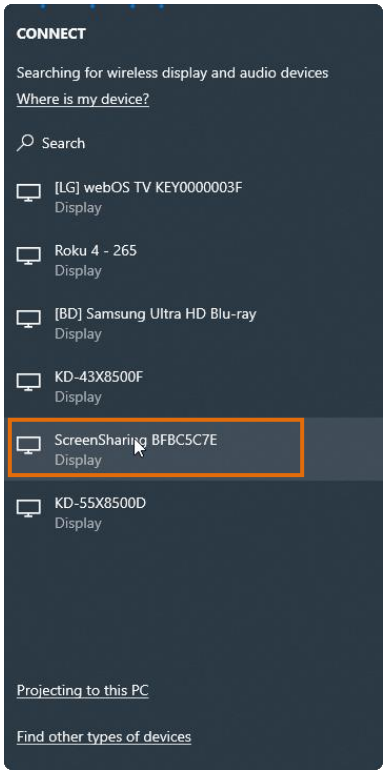


- **Take Win10 Notebook as an example:**

1) Press **Winkey** + **P** on keyboard, and then click **Connect to a wireless display** in the pop-up window.

2) Click the SSID for screen mirroring.





5. Front Panel Control

5.1 Manual-Switching

When the switcher is in the manual switching mode, press the **SELECT AUTO/3s** button repeatedly to cycle through the four video inputs, and the corresponding source LED illuminates green immediately.

5.2 Auto-Switching

Press and hold the **SELECT AUTO/3s** button at least three seconds to enable auto-switching, and the AUTO LED turns green.

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

- *The switcher will switch to the first active input starting at AirPlay/Miracast to PC3.*
- *New input: The switcher will automatically select the new input once detecting a new input.*
- *Reboot: If power is restored to the switcher, it will automatically reconnect the input before shutdown.*
- *Source removed: When an active source is removed, the switcher will switch to the first active input starting at AirPlay/Miracast input to PC3.*
- *In auto mode, the input source also can be switched by the manual switching steps.*
- *Press and hold the SELECT AUTO/3s button at least three seconds again can exit AUTO mode, but the input source will not be changed.*

Note that the AirPlay/Miracast is not an active input when there is no screen sharing device connection.

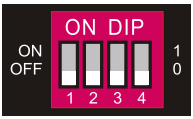
5.3 Display Control

- **Manual Control:** Press the **DISPLAY ON/OFF** buttons on the front panel to simultaneously send RS232 and CEC commands to turn on/off the display device.
- **Auto Control:** When detecting a video input signal (5V or TMDS), automatically send CEC and RS232 commands to turn on the display device. When not detecting any video signal within the setting time (default 10mins), automatically send RS232 and CEC commands to turn off the display device.

The RS232 command can be set by sending commands, please refer to the ***6.2.5 Special Comamnds*** for more details.

5.4 EDID Setting

The Extended Display Identification Data (EDID) is used by the source device to match its video resolution with the connected display. The DIP switch on the front panel can be used to set the EDID to a fixed value to ensure the compatibility in video resolution. The switch represents "**0**" when in the lower (**OFF**) position, and it represents "**1**" while putting the switch in the upper (**ON**) position.



Note: *The EDID DIP switch only used for setting the EDID of HDMI source device, and the USB-C source device will automatically gains the EDID of display device.*

Switch Status	Video Resolution	Audio Format
0000	EDID Pass-through	
0001	1280x720@60Hz	Stereo
0010	1920x1080@60Hz DVI	-
0011	1920x1080@60Hz 8bit	Stereo
0100	1920x1080@60Hz 8bit	High Definition
0101	1920x1200@60Hz 8bit	Stereo
0110	3840x2160@30Hz 8bit	Stereo
0111	3840x2160@30Hz 8bit	High Definition
1000	3840x2160@30Hz 8bit HDR	Stereo
1001	3840x2160@60Hz Deep Color	Stereo
1010	3840x2160@60Hz Deep Color HDR	High Definition
Switch Status	**EDID**	**Note**
1011	User-defined EDID 1	The five user-defined EDID can be uploaded by sending RS232 command "#UPLOAD_USER_EDID [PARAM]", please refer to the chapter ***6.2.4 Function Setting*** for more details.
1100	User-defined EDID 2	
1101	User-defined EDID 3	
1110	User-defined EDID 4	
1111	User-defined EDID 5	

- ***Stereo:*** *LPCM 2CH.*
- ***High Definition Audio:*** *LPCM 8Ch, AC-3 6Ch, DTS 5.1, Dolby Digital5.1, DTS-HD7.1, Dolby TrueHD 7.1*
- ***Deep Color:*** *8bit, 10bit, 12bit*

6. RS232 Control

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

6.1 RS232 Control Software

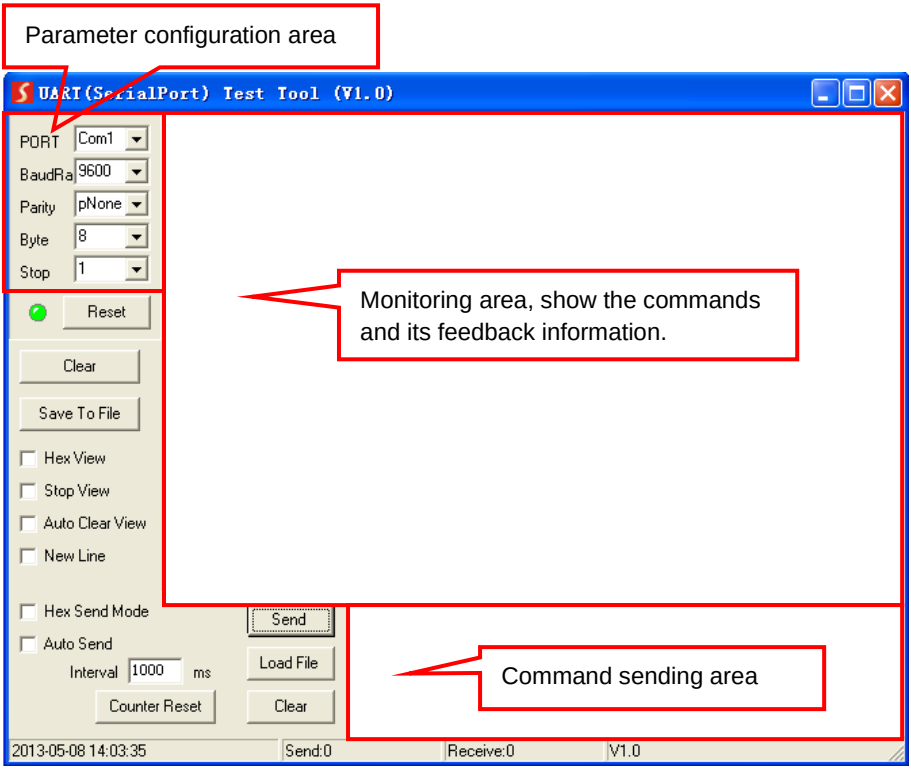
- **Installation:** Copy the control software file to the control PC**.**
- **Uninstallation:** Delete all the control software files in corresponding file path.

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.

6.2 RS232 Command

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

6.2.1 System Control

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

Command	Description	Command & Feedback Example
#GET_FIRMWARE_VERSION	Get the firmware version.	@V1.0.0
#FACTORY_RESET	Restore to factory defaults.	@FACTORY_RESET
#REBOOT	System reboot.	@REBOOT

#HELP [PARAM]	Get the command details.
	● [PARAM]=Null; Get all command list.
	● [PARAM]=Any command; Get the English description and usage of the command.
		#HELP SET_AV
		@SELECT VIDEO AND AUDIO INPUT PORT
		#SET_AV PARAM1
		PARAM=A,PC1,PC2,PC3
		A - Airplay/Miracast
		PC1 - HDMI1
		PC2 - HDMI2
		PC3 - TYPE-C

#SET_RST_WIRELESS	Reset Airplay/Miracast power	@RESET WIRELESS DEVICE
#SET_KEYPAD_LOCK 1	Lock front panel buttons.	#SET_KEYPAD_LOCK 1
#SET_KEYPAD_LOCK 0	Unlock front panel buttons (Default).	#SET_KEYPAD_LOCK 0
#GET_KEYPAD_LOCK	Get the locking status of the front panel buttons.	@KEYPAD_LOCK 1

6.2.2 Source Switching

Command	Description	Command & Feedback Example
#SET_AV A	Select the input source: Airplay/Miracast (Default).	@AV Airplay/Miracast
#SET_AV PC1	Select the input source: PC1.	@AV PC1
#SET_AV PC2	Select the input source: PC2.	@AV PC2
#SET_AV PC3	Select the input source: PC3.	@AV PC3

Command	Description	Command & Feedback Example
#GET_AV	Get the current input source.	@AV PC1
#SET_AUTO_SWITCH 0	Disable auto-switching mode.	@AUTO_SWITCH 0
#SET_AUTO_SWITCH 1	Enable auto-switching mode.	@AUTO_SWITCH 1
#GET_AUTO_SWITCH	Get the auto-switching status.	@AUTO_SWITCH 1

6.2.3 CEC/RS232 Function Setting

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

Command	Function	Command & Feedback Example
#SET_SYNCACT_CEC 1	Enable the function of automatically sending CEC commands. When detecting video input signal or not detecting any video signal, the switcher will automatically send the corresponding CEC command to control the display device.	@SYNCACT_CEC 1
#SET_SYNCACT_CEC 0	Disable the function of automatically sending CEC commands.	@SYNCACT_CEC 0
#GET_SYNCACT_CEC	Get the function setting status of automatically sending CEC commands.	@SYNCACT_CEC 1
#SET_SYNCACT_RS232 1	Enable the function of automatically sending RS232 commands. When detecting video input signal or not detecting any video signal, the switcher will automatically send the corresponding RS232 command to control the display device.	@SYNCACT_RS232 1
#SET_SYNCACT_RS232 0	Disable the function of automatically sending RS232 commands.	@SYNCACT_RS232 0
#GET_SYNCACT_RS232	Get the function setting status of automatically sending RS232 commands.	@SYNCACT_RS232 1
#SET_DISPLAY 1	Power on display device (Simultaneously sending CEC and RS232 commands to display device).	@DISPLAY 1
#SET_DISPLAY 0	Power off display device (Simultaneously sending CEC and RS232 commands to display device).	@DISPLAY 0

6.2.4 Function Setting

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

Command	Description	Command & Feedback Example
#SET_OFF_CNT 1	Set the number of sending DISPLAY OFF command to 1 time.	@OFF_CNT 1
#SET_OFF_CNT 2	Set the number of sending DISPLAY OFF command to 2 times.	@OFF_CNT 2
#GET_OFF_CNT	Get the number of sending DISPLAY OFF command.	@OFF_CNT 1
#SET_OFF_DELAY [PARAM]	Set the delay time of sending DISPLAY OFF command to [PARAM]. [PARAM]=5~100 (1=100ms).	#SET_OFF_DELAY 5 @OFF_DELAY 5
#GET_OFF_DELAY	Get the delay time of sending DISPLAY OFF command.	@OFF_DELAY 5
#SET_OUTPUT_HDCP [PARAM]	Set the HDCP mode of output port to [PARAM]. [PARAM]=1~3: 1 - ACTIVE 2 - ON 3 - OFF	#SET_OUTPUT_HDCP 1 @OUTPUT_HDCP 1
#GET_OUTPUT_HDCP	Get the HDCP mode of output port.	@OUTPUT_HDCP 1
#SET_SW_HDCP_MODE [PARAM]	Switch the input ports to support HDCP2.2 status. [PARAM]= 0/1. 0 - UNSUPPORT HDCP2.2 1 - SUPPORT HDCP2.2	#SET_SW_HDCP_MODE 1 @SW_HDCP_MODE 1
#GET_SW_HDCP_MODE	Get the HDCP2.2 status of input ports.	@SW_HDCP_MODE 1
#UPLOAD_USER_EDID [PARAM]	Upload the user-defined EDID [PARAM]. PARAM = 1 ~ 5 1 – User-defined EDID 1 2 - User-defined EDID 2 3 - User-defined EDID 3 4 - User-defined EDID 4 5 - User-defined EDID 5 When the command applied, system prompts to upload the EDID file (.bin). Operation will be cancelled in 10 seconds.	#UPLOAD_USER_EDID 1 @USER_EDID 1 READY PLEASE SEND EDID DATA IN 10S OK/ERROR

Command	Description	Command & Feedback Example
#SET_DTIME [PARAM1]: [PARAM2]	When not detecting video input signal, set the auto power-off time of display device to [PARAM1]: [PARAM2]. The default time is 10 minutes. [PARAM1]=0~30 minutes. [PARAM2]=0~1800 seconds.	**#SET_DTIME 1:30** @DTIME 1:30
#GET_DTIME	Get the auto power-off time of display device.	@DTIME 30:0

6.2.5 Special Commands

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

Command	Description	Command & Feedback Example
#SET_ON_[PARAM1]_ [PARAM2]:XXXX	Set the ASCII RS232 command **XXXX** to be sent to control the third-party device when the **DISPLAY ON** button is pressed. ● [PARAM1] = 00~06 (Baud Rate) 00 - 115200 01 - 57600 02 - 38400 03 - 19200 04 - 9600 05 - 4800 06 - 2400 ● [PARAM2] = 00~99. The delay time of sending command. ● XXXX: Any ASCII code (up to 48 bytes).	#SET_ON_05_30:1234567 @BAUDRATE: 4800 @DELAY TIME: 30 s @DISPLAY ON TO SEND:1234567

Command	Description	Command & Feedback Example
#SET_H_ON_[PARAM1]_[PARAM2]:XX XX	Set the HEX RS232 command **XX XX** to be sent to control the third-party device when the **DISPLAY ON** button is pressed. ● [PARAM1] = 00~06 (Baud Rate) 00 - 115200 01 - 57600 02 - 38400 03 - 19200 04 - 9600 05 - 4800 06 - 2400 ● [PARAM2] = 00~99. The delay time of sending command. ● XX XX: Any HEX code (0-9, A-F; up to 20 bytes. It must have a blank between 2 different XX).	#SET_H_ON_05_30:31 32 33 34 35 @BAUDRATE: 4800 @DELAY TIME: 30 s @DISPLAY ON HEX TO SEND:31 32 33 34 35
#SET_OF_[PARAM1]_[PARAM2]:XXXX	Set the ASCII RS232 command **XXXX** to be sent to control the third-party device when the **DISPLAY OFF** button is pressed. ● [PARAM1] = 00~06 (Baud Rate) 00 - 115200 01 - 57600 02 - 38400 03 - 19200 04 - 9600 05 - 4800 06 - 2400 ● [PARAM2] = 00~99. The delay time of sending command. ● XXXX: Any ASCII code (up to 48 bytes).	#SET_OF_05_30:ABCDEFG @BAUDRATE: 4800 @DELAY TIME: 30 s @DISPLAY OFF TO SEND:ABCDEFG

Command	Description	Command & Feedback Example
#SET_H_OF_[PARAM1]_[PARAM2]:XX XX	Set the HEX RS232 command **XX XX** to be sent to control the third-party device when the **DISPLAY OFF** button is pressed. ● [PARAM1] = 00~06 (Baud Rate) 00 - 115200 01 - 57600 02 - 38400 03 - 19200 04 - 9600 05 - 4800 06 - 2400 ● [PARAM2] = 00~99. The delay time of sending command. ● XX XX: Any HEX code (0-9, A-F; up to 20 bytes. It must have a blank between 2 different XX).	#SET_H_OF_05_30:41 42 43 44 45 @BAUDRATE: 4800 @DELAY TIME: 30 s @DISPLAY OFF HEX TO SEND:41 42 43 44 45

7. Firmware Upgrade

Please follow the steps as below to upgrade firmware by the **FW** port on the rear panel:

1) Prepare the latest upgrade file (.bin) and rename it as “FW_MERG.bin” on PC.

2) Power off the switcher, and connect the **FW** port of switcher to the PC with USB cable.

3) Power on the switcher, and then the PC will automatically detect a U-disk named of “BOOTDISK”.

4) Double-click the U-disk, a file named of “READY.TXT” would be showed.

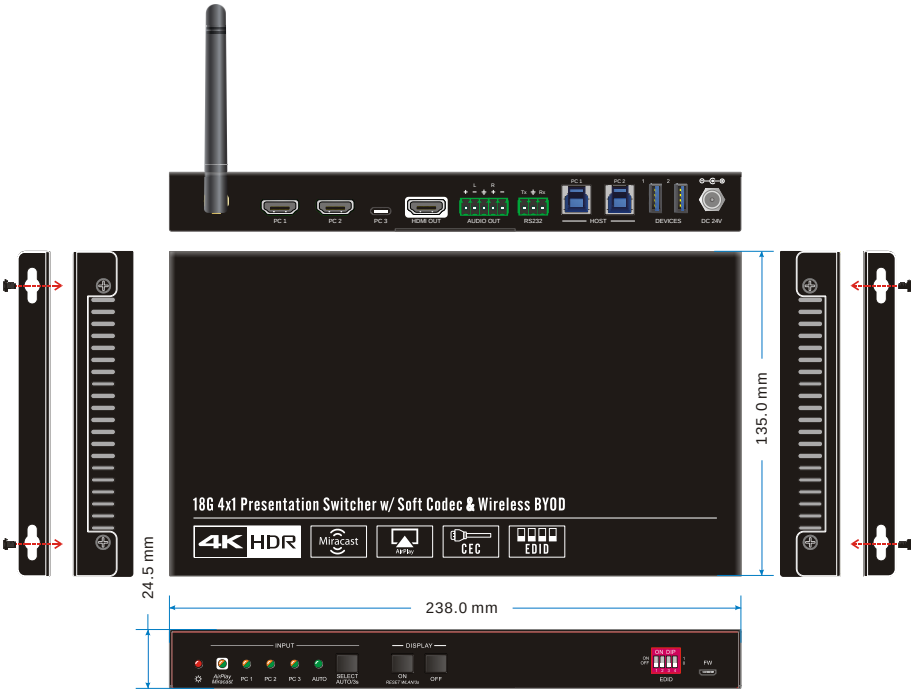
5) Directly copy the latest upgrade file (.bin) to the “BOOTDISK” U-disk.

6) Reopen the U-disk to check the filename “READY.TXT” whether automatically becomes “SUCCESS.TXT”, if yes, the firmware was updated successfully, otherwise, the firmware updating is fail, the name of upgrade file (.bin) should be confirm again, and then follow the above steps to update again.

7) Remove the USB cable after firmware upgrade.

8) After firmware upgrade, the switcher should be restored to factory default by sending command.

8. Panel Drawing



9. 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.*

10. Customer Service

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

1) Warranty

The limited warranty period of the product is 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 defeat has been clearly defined, and upon reception of the documents or copy of invoice, indicating the date of purchase, the type of product, the serial number, and the name of distributor.

Remarks: Please contact your local distributor for further assistance or solutions.

FCC Statement

This equipment 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 residential installation. 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. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

- Reorient or relocate the receiving antenna.
- Increase the separation between the equipment and receiver.
- Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.
- Consult the dealer or an experienced radio/TV technician for help.

Caution: Any changes or modifications to this device not explicitly approved by manufacturer could void your authority to operate this equipment.

This device complies with part 15 of the FCC Rules. Operation is subject to the following two conditions: (1) This device may not cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesired operation.

Radiation Exposure Statement

This equipment complies with FCC radiation exposure limits set forth for an uncontrolled environment. This equipment should be installed and operated with minimum distance 20cm between the radiator and your body.

This transmitter must not be co-located or operating in conjunction with any other antenna or transmitter.