SCT-SWKVM41-H2U3
Switcher KVM HDMI2.0/ USB3.0 4x1

User Manual

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Version: SCT-SWKVM41-H2U3_2026V1.1

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 May, 2021. 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 products' specifications 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 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, please treat them as normal electrical wastes.

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1. Product Introduction

Thanks for choosing the professional SCT-SWKVM41-H2U3 HDMI 2.0 4x1 Switcher. The switcher features four HDMI video inputs and one HDMI output. It supports HDMI video resolution up to 4Kx2K@60Hz 4:4:4 HDR 10 and Dolby Vision. The switcher provides one stereo audio output for audio de-embedding, and provides four type-B USB ports and three type-A USB ports for KVM management, the four HDMI computers can be controlled via one keyboard, one mouse and one monitor. In addition, the switcher features four GR ports to connect SC-GRHU table grommets for source selection and black screen setting. The switcher can also be controlled via RS232 and front panel buttons.

1.1 Features

- 4x1 HDMI 2.0 Switcher with KVM.
- Supports video resolution up to 4Kx2K@60Hz 4:4:4, HDR 10 and Dolby Vision.
- HDCP 2.2 compliant.
- Compatible with Windows, Linux and Mac OS.
- 3.5mm stereo audio output for audio de-embedding.
- Convenient and cost-effective USB 3.0 peripheral sharing.
- Controls four HDMI computers via one keyboard, one mouse and one monitor.
- KVM auto-switching based on TMDS/5V detection.
- Controllable by buttons, RS232 commands and SC-GRHU table grommets.
- Simplifies wiring for easy installation.

1.2 Package List

- 1x SCT-SWKVM41-H2U3 HDMI 2.0 4x1 Switcher
- 2x Mounting Ears with 4 Screws
- 4x Plastic Cushions
- 4x 3-pin Terminal Blocks
- 1x RS232 Cable (3-pin to DB9)
- 1x Power Adapter (12V DC 2A)
- 1x User Manual

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

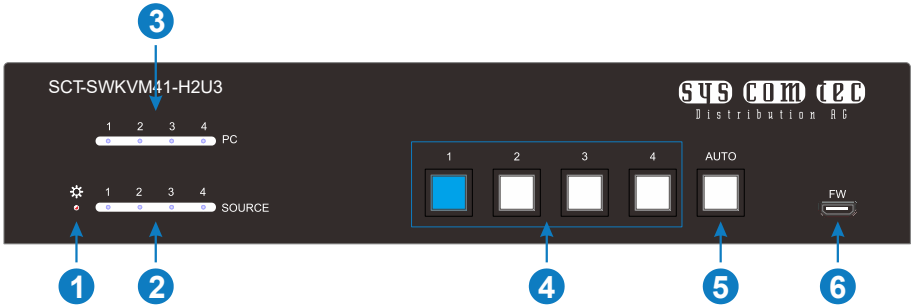
2. Specification

Video Input	
Input	(4) SOURCE 1~4
Input Connector	(4) Female type-A HDMI
HDMI Input Resolution	Up to 4Kx2K@60Hz 4:4:4, HDR10, Dolby Vision
HDMI Standard	2.0
HDCP Version	2.2
Video Output	
Output	(1) DISPLAY
Output Connector	(1) Female type-A HDMI
HDMI Output Resolution	Up to 4Kx2K@60Hz 4:4:4, HDR10, Dolby Vision
HDMI Standard	2.0
HDCP Version	2.2
Audio	
Output	(1) AUDIO OUT
Output Connector	(1) 3.5mm mini stereo audio jack
Audio Format	PCM 2CH
Frequency Response	20Hz to 20KHz, ±1dB
Max Output Level	2.0Vrms ± 0.5dB. 2V = 16dB headroom above -10dBV (316 mV) nominal consumer line level signal.
THD+N	< 0.05%, 20Hz - 20KHz bandwidth, 1KHz sine at 0dBFS level (or max level).
SNR	> 80dB, 20Hz - 20KHz bandwidth.
Crosstalk Isolation	< -80 dB, 10 kHz sine at 0dBFS level (or max level before clipping).
L-R Level Deviation	< 0.05 dB, 1 kHz sine at 0dBFS level (or max level before clipping).
Output Load Capability	1Kohm and higher (supports 10x paralleled 10k ohm loads).
Noise Level	-80dB
Control	
Control	(1) FW, (4) PC 1~4, (3) DEVICES 1~3, (4) GR 1~4, (1) RS232

Control Connector	(1) Micro-USB, (4) Type-B USB, (3) Type-A USB, (5) 3-pin Terminal Blocks
General	
Bandwidth	18Gbps
Operation Temperature	-10℃ ~ +55℃
Storage Temperature	-25℃ ~ +70℃
Relative Humility	10%-90%
Type-A USB Power Supply	1A
System Power Supply	Input:100V~240V AC; Output: 12V DC 2A
System Power Consumption	14W(Max)
Dimension (W*H*D)	200mm x 40mm x 100mm
Net Weight	685g

3. Panel Description

3.1 Front Panel



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

② **PC LEDs:** Total four LEDs, any one of which illuminates blue to indicate its corresponding type-B USB port is connected to an active PC.

③ **SOURCE LEDs:** Total four LEDs, any one of which illuminates blue to indicate its corresponding HDMI port is connected to an active source device.

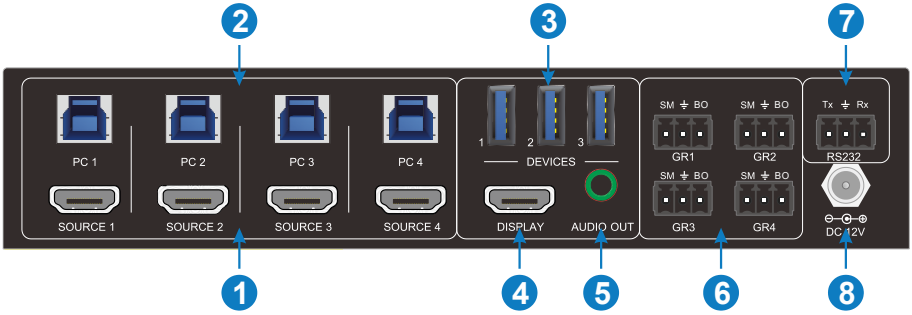
④ **SOURCE BUTTONs:** Four buttons for input source selection, one of which illuminates blue to indicate which source device is selected.

⑤ **AUTO:** Press it to enable auto switching mode, and it will illuminate blue. Press again can exit auto switching mode.

⑥ **FW:** Micro-USB port for firmware upgrade.

Note: *All the input source LEDs will go out when pressing Black Output button on the HUG Table Grommet*

3.2 Rear Panel



① **SOURCE1~SOURCE4:** Four type-A female HDMI input ports to connect HDMI source devices (PC, Blu-ray Disc™ or DVD player, etc.).

② **PC1~PC4:** Four type-B USB ports to connect PCs. The PC can be a source device connected to the corresponding HDMI input port.

③ **DEVICES (1~3):** Three type-A USB ports to connect USB devices (Keyboard, Mouse or camera, etc.). These USB devices are used to control the PC which is connected to the selected HDMI input port and the corresponding type-B USB port. These type-A USB ports can power these USB devices with 1A.

④ **DISPLAY:** Type-A female HDMI output port to connect display device (e.g. Projector).

⑤ **AUDIO OUT:** 3.5mm audio jack to connect speakers or amplifiers for audio output.

⑥ **GR1~GR4:** Four 3-pin terminal blocks to connect four SC-GRHU table grommets for source selection and black screen setting.

⑦ **RS232:** 3-pin terminal blocks to a control device (e.g. PC) to control the switcher.

⑧ **DC 12V:** Power port for power adapter connection.

4. System Connection

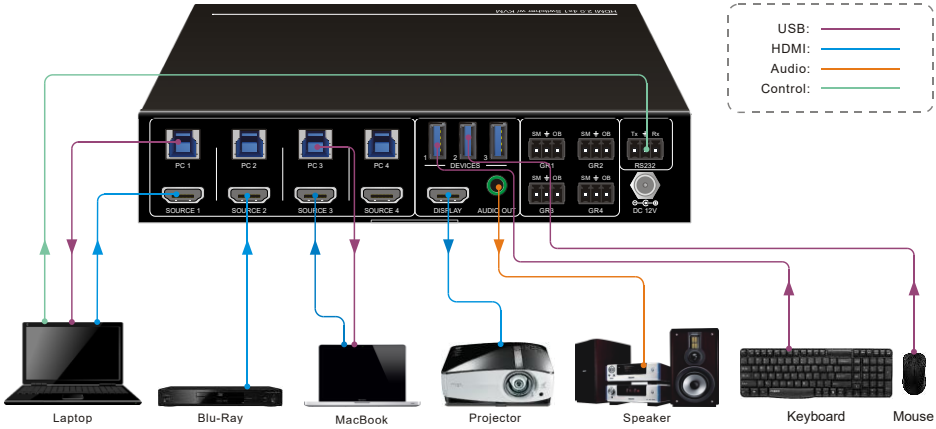
4.1 Usage Precaution

- 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

The following diagrams illustrate typical input and output connections that can be utilized with this switcher:

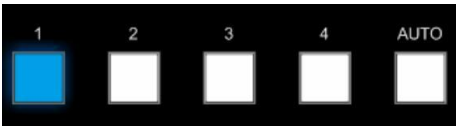
The switcher is used alone:



5. Button Control

- **Manual Switching**

Press button **1~4** to the corresponding HDMI input source.



- **Auto Switching**

Press **AUTO** to enable auto switch mode, and then the button LED will illuminate blue.

When in auto mode, the switcher follows the rules in the certain circumstances:

- ✓ *The switcher will automatically switch to the first available active input starting at input 1 to 4.*
- ✓ *Press the source button (**1**, **2**, **3** or **4**) can directly change the input source.*
- ✓ *New Input: Upon detecting a new input, the switcher will automatically select the new source.*
- ✓ *Detection input signal source: 5V(Default) or TMDS.*
- ✓ *Reboot: Once power is restored to the switcher, if the last selected source is still available, the switcher will still output this signal, otherwise, the switcher will switch to the first available active input starting at input 1.*
- ✓ *Source Removed: When an active source is removed, the switcher will switch to the first available active input starting at input 1.*
- ✓ *Press **AUTO** again can exit auto switch mode, but the input source will remain the current setting.*

Note: *The factory default is auto switching mode.*

6. RS232 Control

Connect the switcher to the control device (e.g. PC) with RS232 cable and set the parameters in the right manner, the control device is capable to control this switcher by RS232 commands.

6.1 RS232 Control Software

Installation: Copy the control software file to the computer connected with this switcher.

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

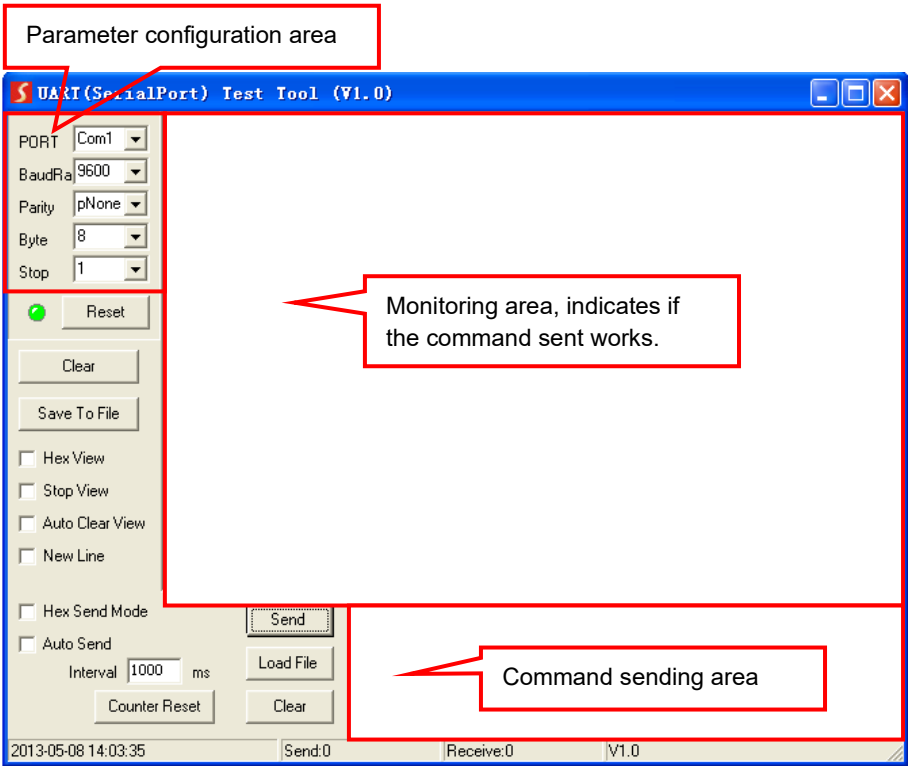
Basic Settings

First of all, please connect all needed input devices and output devices, then to connect it with a computer which is installed with RS232 control software.

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

Double-click the following icon:

The interface of the control software is shown as below:



Please set the parameters of COM number, bound rate, data bit, stop bit and the parity bit correctly, then the RS232 commands can be sent in Command Sending Area.

Baud rate: 9600;

Data bit: 8;

Stop bit: 1;

Parity bit: none.

6.2 RS232 Command

Note: *All commands need to be ended with "<CR><LF>".*

6.2.1 Device Control

Command	Description	Command Example and Feedback
#GET_FIRMWARE_VERSION	Get the software version.	@V1.0.0
#SET_KEYPAD_LOCK 0	Unlock the front panel buttons (Factory default).	@FRONT PANEL UNLOCK!
#SET_KEYPAD_LOCK 1	Lock the front panel buttons.	@FRONT PANEL LOCK!
#GET_KEYPAD_LOCK	Get the locking status of front panel buttons.	@FRONT PANEL UNLOCK! @FRONT PANEL LOCK!
#SET_AUTO_KEY_LOCK 0	Unlock the AUTO button.	@AUTO PANEL UNLOCK!
#SET_AUTO_KEY_LOCK 1	Lock the AUTO button.	@AUTO PANEL LOCK!
#GET_AUTO_KEY_LOCK	Get the locking status of AUTO button.	@AUTO PANEL UNLOCK! @AUTO PANEL LOCK!
#SET_HDMI_DETECTION_MODE 0	Set the detection method of HDMI source input to 5V.	@INPUT_SIGNAL_DETECTION 0!
#SET_HDMI_DETECTION_MODE 1	Set the detection method of HDMI source input to TMDS.	@INPUT_SIGNAL_DETECTION 1!
#GET_HDMI_DETECTION_MODE	Get the detection method of HDMI source input.	@INPUT_SIGNAL_DETECTION 0! @INPUT_SIGNAL_DETECTION 1!
#GET_STATUS	Get the system status.	@RS232 QUERY STATUS! @WUH4-HUB @V1.0.0 @FRONT PANEL UNLOCK! @HDMI OUT SWITCH TO AUTO MODE! @HDMI IN SWITCH TO 1! @OUTPUT_HDCP 0! @INPUT_SIGNAL_DETECTION 0!

Command	Description	Command Example and Feedback
		@IIS OUT ON! @SWITCHMODE 0! @USB SWITCH MODE TO 0! @USB SWITCH TO 1! @AUTO PANEL UNLOCKED! @RS232 BAUDRATE IS 1!
#FACTORY_RESET	Restore factory default	@FACTORY DEFAULT! @WUH4-HUB @V1.0.0 @HDMI OUT SWITCH TO AUTO MODE! @OUTPUT_HDCP 0! @IIS OUT ON! @INPUT_SIGNAL_DETECTION 0! @HDMI IN SWITCH TO 1! @USB SWITCH MODE TO 0! @RS232 BAUDRATE IS 1!
#REBOOT	Reboot the device.	@REBOOT
#HELP	Get all commands and its usage.	…

6.2.2 Signal Switching

Command	Description	Command Example and Feedback
#SET_AV H1	Switch to HDMI source 1.	@HDMI IN SWITCH TO 1!
#SET_AV H2	Switch to HDMI source 2.	@HDMI IN SWITCH TO 2!
#SET_AV H3	Switch to HDMI source 3.	@HDMI IN SWITCH TO 3!
#SET_AV H4	Switch to HDMI source 4.	@HDMI IN SWITCH TO 4!
#GET_AV	Get the current HDMI source.	@HDMI IN SWITCH TO 1!
#SET_AUTO_SWITCH 1	Enable auto switching (Factory default).	@HDMI OUT SWITCH TO AUTO MODE!
#SET_AUTO_SWITCH 0	Disable auto switching	@HDMI OUT SWITCH TO MANUAL MODE!

Command	Description	Command Example and Feedback
#GET_AUTO_SWITCH	Get the auto switching status.	@HDMI OUT SWITCH TO AUTO MODE! @HDMI OUT SWITCH TO MANUAL MODE!
#SWITCH_MODE 1	Switching mode 1. Quick switching.	@SWITCHMODE 1!
#SWITCH_MODE 0	Switching mode 2. Normal switching.	@SWITCHMODE 0!
#GET_SWITCH_MODE	Get the switching mode.	@SWITCHMODE 0!
#SET_SWITCH_USB [PARAM]	Switch USB to [PARAM]. [PARAM] = 1~4. 1 - PC1 2 - PC2 3 - PC3 4 - PC4	#SET_SWITCH_USB 1 @SET SWITCH MODE 1! @SET USB SWITCH TO 1!
#GET_SWITCH_USB	Get the PC which switching USB to.	@USB SWITCH TO 1!
#SET_USB_SWITCH_MODE 0	Set USB switching mode to follows the video switching.	#SET_USB_SWITCH_MODE 0
#SET_USB_SWITCH_MODE 1	Set USB switching mode to command control by “#SET_SWITCH_USB”.	@SET USB SWITCH MODE 1!
#GET_USB_SWITCH_MODE	Get USB switching mode.	@USB SWITCH MODE TO 0!

6.2.3 Audio Setting

Command	Description	Command Example and Feedback
#SET_IIS 1	Turn on stereo audio output.	@IIS OUT ON!
#SET_IIS 0	Turn off stereo audio output.	@IIS OUT OFF!
#GET_IIS	Get the stereo audio output status.	@IIS OUT ON! @IIS OUT OFF!

6.2.4 EDID Management

Command	Description	Command Example and Feedback
#SET_EDID_MODE [PARAM]	[PARAM]= 0000~0011 [PARAM]=0000, set the EDID mode to Pass-through (Factory default). If the source device can't read EDID from display device, it will use the built-in EDID: 3840x2160@60Hz Deep Color Stereo Audio. [PARAM]=0001/0010/0011, set the EDID of source device to user-defined EDID 0001/0010/0011.	#SET_EDID_MODE 0000 @EDID_MODE 0000!
#GET_EDID_MODE	Get the EDID mode.	@EDID_MODE 0000!
#EDIDR [PARAM]	Get the EDID value. [PARAM]= 0000~0011.	@EDID HEX STRING OF '0000': 00 FF FF FF FF FF FF 00 41 0C F2 08 50 12 00 00 … …
#UPLOAD_USER_EDID [PARAM]	[PARAM]=0001/0010/0011, upload user-defined EDID. When the command applied, system prompts to upload the EDID file (.bin). Operation will be cancelled in 10 seconds.	#UPLOAD_USER_EDID 0001 @PLEASE SEND THE EDID FILE! … … @RECEIVED THE FILE, LENGTH=256! @EDID0001 UPDATE SUCCESSFULLY!

6.2.5 HDCP Setting

Command	Description	Command Example and Feedback
#SET_OUTPUT_HDCP 0	Set the HDCP mode of HDMI output to PASSIVE mode (Factory default). The HDCP of HDMI output automatically follows the HDCP version of source device.	@OUTPUT_HDCP 0!

Command	Description	Command Example and Feedback
#SET_OUTPUT_HDCP 1	Set the of HDMI output to ACTIVE mode. If the input video has HDCP content, the HDCP version of HDMI output is HDCP 1.4 for broader video solution. If the input video has no HDCP content, the HDMI output has no HDCP too.	@OUTPUT_HDCP 1
#GET_OUTPUT_HDCP	Get the HDCP mode of HDMI output.	@OUTPUT_HDCP 0!

6.2.6 Baud Rate Setting

Command	Description	Command Example and Feedback
#SET_RS232_BAUD 1	Set RS232 baud rate to 9600.	@RS232 BAUDRATE IS 1!
#SET_RS232_BAUD 2	Set RS232 baud rate to 19200	@RS232 BAUDRATE IS 2!
#SET_RS232_BAUD 3	Set RS232 baud rate to 38400	@RS232 BAUDRATE IS 3!
#SET_RS232_BAUD 4	Set RS232 baud rate to 57600	@RS232 BAUDRATE IS 4!
#SET_RS232_BAUD 5	Set RS232 baud rate to 115200	@RS232 BAUDRATE IS 5!
#GET_RS232_BAUD	Get the RS232 baud rate.	@RS232 BAUDRATE IS 1!

6.2.7 Display Control

Command	Description	Command Example and Feedback
#SET_THE_DISPLAY_TO 0	Set the display to output black screen.	@THE DISPLAY SIDE SCREEN IS BLACK! @THE DISPLAY IS ALREADY OFF!
#SET_THE_DISPLAY_TO 1	Wake up the display screen.	@WAKE UP THE SCREEN! @THE DISPLAY IS ALREADY ON!
#GET_THE_DISPLAY	Get the status of display device.	@THE DISPLAY IS OFF! @THE DISPLAY IS ON!

7. Firmware Upgrade

Please follow the steps as below to upgrade firmware by the **FW** port on the front 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. 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.

If your problem persists after following the above troubleshooting steps, seek further help from authorized dealer or our technical support.

9. 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.

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