

User Manual

823209

4:1 HDBaseT Switcher with 4K 40m Extension



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Version: WUH4T_2019V1.2

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 performance 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 the 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, please treat them as normal electrical wastes.

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1. Product Introduction

Thanks for choosing the WUH4T 4x1 HDBaseT Switcher. It is an auto switcher with four HDBT inputs, one HDBT output and one HDMI output. This switcher supports HDMI 1.4 and video resolution up to 4Kx2K@60Hz 4:2:0.

In auto-switch mode, it switches to an HDBT input as soon as a new source is connected. When the active input is removed, the switcher will select the first source on the lowest numbered input. The switcher may also be controlled via RS232, IR with control system, or from the buttons on the front of the switcher.

1.1 Features

- Switches any one of four HDBT inputs to either HDBT output or HDMI output.
- Supports video resolution up to 4Kx2K@60Hz 4:2:0 and 1080P 3D.
- Compliant with the HDMI 1.4 and HDCP 2.2 specifications.
- Extends 4K signals to distances up to 131 feet (40 meters) and 1080P signals to distances up to 229 feet (70 meters) over a single CATx cable.
- HDBT output provides 48V PoC to power HDBT receiver.
- Controllable via RS232, IR or front panel buttons.
- Bidirectional IR pass-through.
- CEC pass-through.
- Firmware upgrade by type-A USB port.

1.2 Package List

- 1x 4x1 HDBaseT Switcher
- 2x Mounting Ears
- 4x Mounting Screws
- 4x Plastic Cushions
- 1x RS232 Cable (3-pin to DB9)
- 1x Power Adapter (24V DC 1.25A)
- 1x User Manual

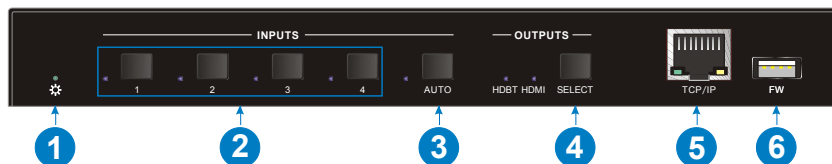
Note: Please contact your distributor immediately if any damage or defect in the components is found.

2. Technical Specification

Video Input	
Input	(4) HDBT
Input Connector	(4) RJ45
HDBT Input Resolution	Up to 4Kx2K@60Hz 4:2:0
Video Output	
Output	(1) HDBT, (1) HDMI
Output Connector	(1) RJ45, (1) Female type-A HDMI
HDBT Output Resolution	Up to 4Kx2K@60Hz 4:2:0
HDMI Output Resolution	Up to 4Kx2K@60Hz 4:2:0 8bit
Control	
Control	(1) FW, (1) RS232, (1) IR EYE, (1) IR IN, (1) IR OUT
Control Connector	(1) Type-A USB, (1) 3-pin terminal block, (3) 3.5mm mini jack
General	
HDMI Standard	1.4
HDCP Version	2.2
HDCP Pass-through	Supported
CEC Pass-through	Supported
Hot-plug	Supported
Bandwidth	10.2Gbps
Transmission Standard	HDBaseT
Transmission Distance	1080P@60Hz ≤ 229 feet (70 meters), 4K@60Hz ≤ 131 feet (40 meters)
Operation Temperature	-5°C ~ +55°C
Storage Temperature	-25°C ~ +70°C
Relative Humidity	10%-90%
Power Supply	Input:100V~240V AC; Output: 24V DC 1.25A
Power Consumption	12W(Max)
Dimension (W*H*D)	220mm x 26mm x 100mm
Net Weight	670g

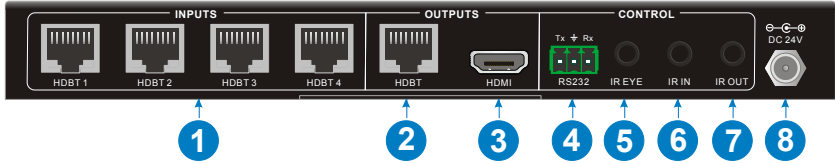
3. Panel Description

3.1 Front Panel



- ① Power LED: The LED illuminates green when power is applied.
- ② Source Buttons and LEDs: Press button (1~4) to select the input source. The left LED illuminates blue when there is HDBT input on the corresponding channel. If the LED blinks blue, the corresponding input channel is selected but no signal input.
- ③ AUTO Button and LED: Press the button to enable or disable auto switch mode. The left LED illuminates blue in auto switch mode.
- ④ SELECT button and LEDs: Press the button to switch the output channel between HDBT and HDMI output, and then the HDBT or HDMI LED will illuminate blue.
- ⑤ TCP/IP: RJ45 to connect control device (e.g. PC) to control the switcher via GUI.
- ⑥ FIRMWARE: Type-A USB port for firmware upgrade.

3.2 Rear Panel



- ① INPUTS: Four RJ45 input ports to connect compatible HDBaseT transmitters by CATx Ethernet cables. Note that the connected transmitters must be powered by their power adaptors due to these HDBT input ports don't supports PoC.
- ② HDBT OUTPUT: RJ45 output port to connect a compatible HDBaseT receiver by CATx Ethernet cable. The receiver can be powered from the switcher with 48V PoC output function.
- ③ HDMI OUTPUT: Type-A female HDMI output port to connect HDMI display.
- ④ RS232: 3-pin terminal block to connect control device (e.g. PC) to control the switcher via RS232 commands.
- ⑤ IR EYE: 3.5mm mini jack to connect IR center control device to receive IR signal.
- ⑥ IR IN: 3.5mm mini jack to connect the IR receiver for IR pass-through. When the HDMI output is selected, the IR IN port is used with the IR OUT port of transmitter to control the source device by IR.
- ⑦ IR OUT: 3.5mm mini jack to connect the IR emitter for IR pass-through. When the HDMI output is selected, the IR OUT port is used with the IR IN port of transmitter to control the local HDMI display by IR.
- ⑧ DC 24V: DC connector for the power adapter connection.

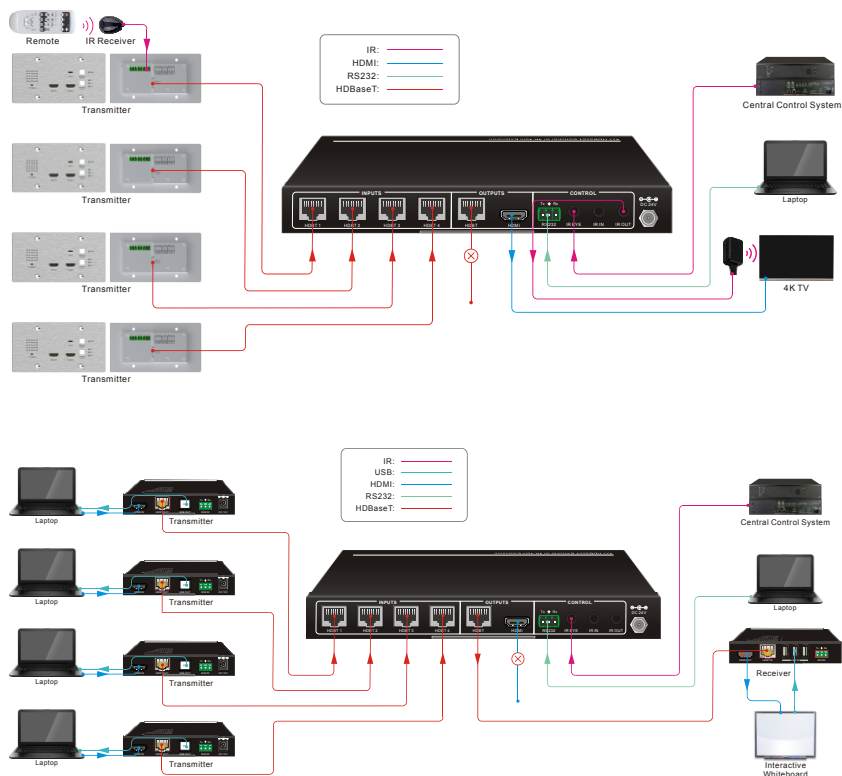
4. System Connection

4.1 Usage Precaution

- Make sure all components and accessories are 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 system diagrams illustrate typical input and output connections that can be utilized with this switcher:



5. Button Control

- **Manual Switch Mode**

Step1: Press **SELECT** to choose the HDBT or HDMI output channel,

Step2: Press button **1~4** to select the input source channel.

- **Auto Switch Mode**

Step1: Press **SELECT** to choose the HDBT or HDMI output channel,

Step2: Press **AUTO** to enable auto switch mode, and then the LED will illuminate blue.

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

- ✓ *The switcher will 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.*
- ✓ *Reboot: Once power is restored to the switcher, the last selected output will remain the previous setting. The switcher will switch to the first available active input starting at HDBT input 1.*
- ✓ *Source Removed: When an active source is removed, the switcher will switch to the first available active input starting at HDBT input 1.*
- ✓ *Press **AUTO** again can exit auto switch mode, but the input channel will remain the current setting.*
- ✓ *When change the input source of the wallplate transmitter, the input channel of the switcher will automatically switch to this input source.*

Note: The factory default is auto switch mode, and HDBT output channel is selected.

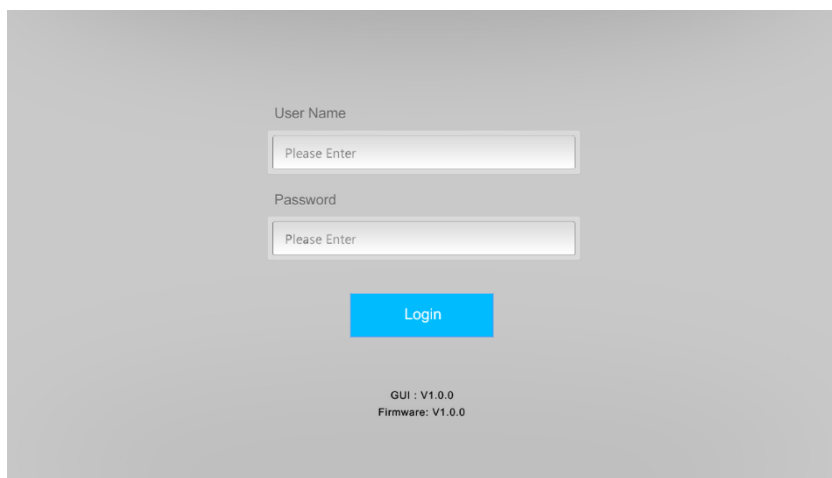
6. GUI Control

The switcher also be controlled via TCP/IP, and the default IP setting is:

IP Address: 192.168.0.178

Subnet Mask: 255.255.255.0

Please type **192.168.0.178** in the internet browser, and it will enter the below log-in webpage:



User Name

Please Enter

Password

Please Enter

Login

GUI : V1.0.0
Firmware: V1.0.0

Username: admin

Password: admin

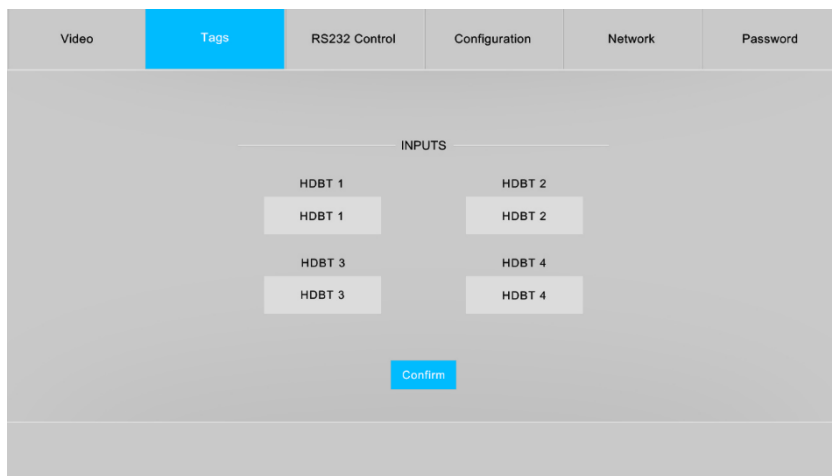
Please type the user name and password, and then click **Login** to enter the section for video switching.

6.1 Video Tab



- 1) Select the **HDBT** or **HDMI** output channel.
- 2) Click **HDBT 1~4** button to select input source respectively.
- 3) Click the **AUTO** button to enable or disable auto switch mode.

6.2 Tags Tab



- ✓ Modify the input button labels.

6.3 RS232 Tab

Video	Tags	RS232 Control	Configuration	Network	Password
-------	------	---------------	---------------	---------	----------

ASCII ☒ HEX ☐

Baud Rate: 9600 ▼

Command: xxxxxx

Confirm

- ✓ Baud Rate: Supports 2400, 4800, 9600, 19200, 38400, 57600 or 115200.
- ✓ Command: Type the command in this box to control the switcher.

6.4 Configuration

Video	Tags	RS232 Control	Configuration	Network	Password
-------	------	---------------	---------------	---------	----------

48V PoC

ON ☒ OFF

- ✓ Turn on or off 48V PoC power output.

6.5 Network Tab

Video	Tags	RS232 Control	Configuration	Network	Password
-------	------	---------------	---------------	---------	----------

MAC Address: 44-33-4C-C9-35-12

DHCP ☐ Static IP ☒

IP Address:

Subnet Mask:

Gateway:

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

6.6 Password Tab

Video	Tags	RS232 Control	Configuration	Network	Password
-------	------	---------------	---------------	---------	----------

Credentials

Password:

Front Panel Lock

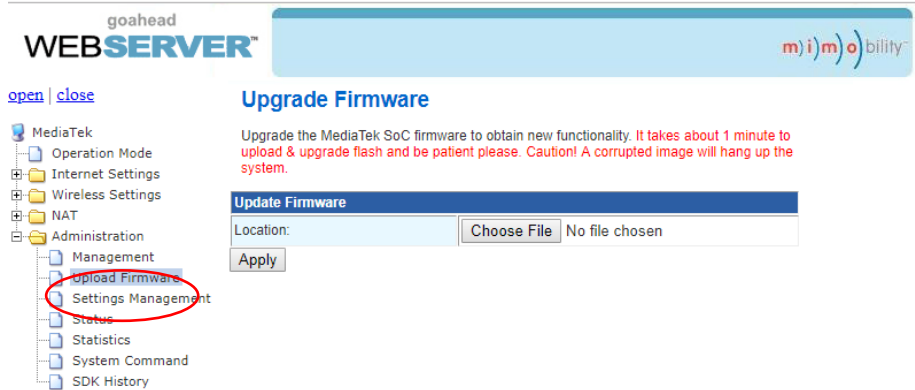
ON ☒ OFF ☐

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

6.7 GUI Upgrade

Please visit at <http://192.168.0.178:100> for GUI online upgrade.

Type the username and password (the same as the GUI log-in setting, modified password will be available only after rebooting) to login the configuration interface. After that, click **Administration** in the source menu to get to **Upload Firmware** as shown below:



Select the update file and click **Apply** button, and then it will start upgrade process.

7. 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.

7.1 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

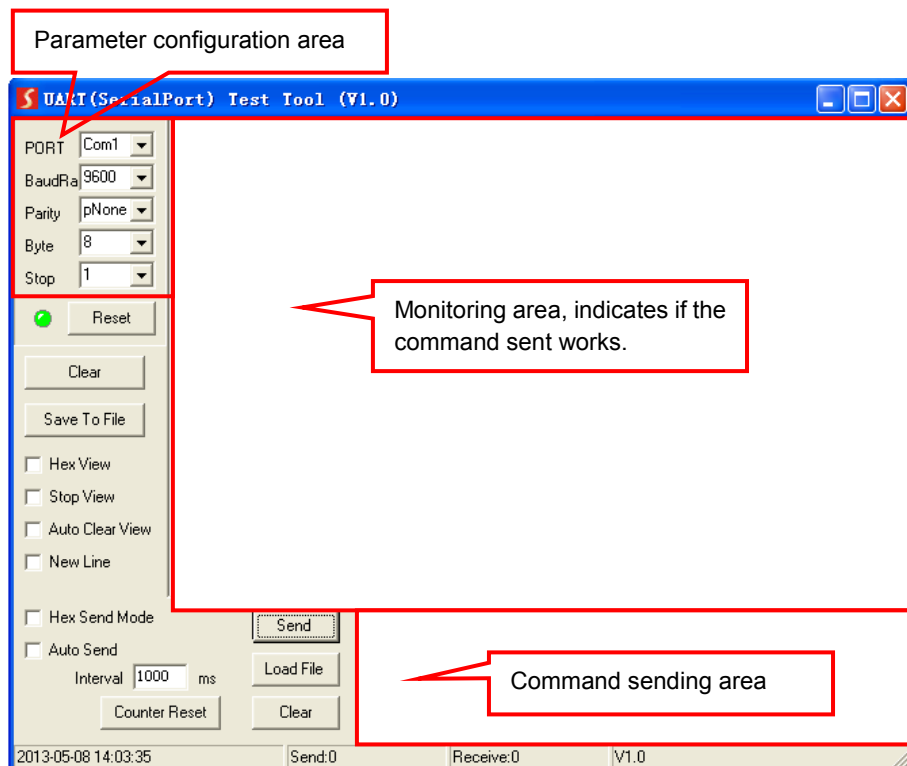
First of all, please connect all needed input devices and output devices, then to connect it with a computer which is installed with RS232 control software.

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.

7.2 RS232 Command

7.2.1 Device Control

Command	Function	Feedback Example
KEYLOCK.	Lock front panel buttons.	Key Lock
KEYUNLOCK.	Unlock front panel buttons.	Key Unlock
GETKEYS.	Report the button locking status.	Key Lock
		Key Unlock
RST.	Reset to factory default.	Factory Default
SETPOCON.	Turn on PoC of HDBT output.	Set POC 48V ON
SETPOCOFF.	Turn off PoC of HDBT output.	Set POC 48V OFF
SETIP <xxx.xxx.xxx.xxx>.	Set GUI IP to xxx.xxx.xxx.xxx.	SET GUI IP:192.168.0.177!
GETIP.	Report GUI IP.	GUI IP:192.168.0.177!
GETSTATE.	Report system status.	V1.0.0 Key Lock Set POC 48V ON HDBT1 IN TO HDMI OUT HDBT1 IN TO HDBT OUT HDMI Auto Switch Enable HDBT Auto Switch Enable

7.2.2 Signal Switching

Command	Function	Feedback Example																
SET x TO y.	Switch input x to output y. <table><tr><th>x (1~4)</th><th>Input Port</th></tr><tr><td>1</td><td>HDBT 1</td></tr><tr><td>2</td><td>HDBT 2</td></tr><tr><td>3</td><td>HDBT 3</td></tr><tr><td>4</td><td>HDBT 4</td></tr><tr><th>y (1~2)</th><th>Output Port</th></tr><tr><td>1</td><td>HDBT</td></tr><tr><td>2</td><td>HDMI</td></tr></table>	x (1~4)	Input Port	1	HDBT 1	2	HDBT 2	3	HDBT 3	4	HDBT 4	y (1~2)	Output Port	1	HDBT	2	HDMI	HDBTx IN TO HDBT OUT
		x (1~4)	Input Port															
		1	HDBT 1															
		2	HDBT 2															
		3	HDBT 3															
		4	HDBT 4															
		y (1~2)	Output Port															
		1	HDBT															
2	HDMI																	
HDBTx IN TO HDMI OUT																		
GETHDMIS.	Report the input channel of HDMI output.	HDBTx IN TO HDMI OUT																
GETHDBTS.	Report the input channel of HDBT output.	HDBTx IN TO HDBT OUT																
HDBTA.	Automatically switch input to the HDBT output.	HDBT Auto Switch Enable																
HDBTM.	Manually switch input to the HDBT output.	HDBT Auto Switch Disable																
GETHDBTM.	Report the switch mode of HDBT output.	HDBT Auto Switch Enable																
		HDBT Auto Switch Disable																
HDMIA.	Automatically switch input to the HDMI output.	HDMI Auto Switch Enable																
HDMIM.	Manually switch input to the HDMI output.	HDMI Auto Switch Disable																
GETHDMIM.	Report the switch mode of HDMI output.	HDMI Auto Switch Enable																
		HDMI Auto Switch Disable																

7.2.3 Baud Rate Setting

Command	Function	Feedback Example
BAUD:2400.	Set the baud rate of RS232 port to 2400.	Baud:2400
BAUD:4800.	Set the baud rate of RS232 port to 4800.	Baud:4800
BAUD:9600.	Set the baud rate of RS232 port to 9600.	Baud:9600
BAUD:19200.	Set the baud rate of RS232 port to 19200.	Baud:19200
BAUD:38400.	Set the baud rate of RS232 port to 38400.	Baud:38400
BAUD:57600.	Set the baud rate of RS232 port to 57600.	Baud:57600
BAUD:115200.	Set the baud rate of RS232 port to 115200.	Baud:115200

8. IR Control

If connect the **IR EYE** port to an IR center control device. The switcher can be controlled by receiving the IR signal from the IR center control device. The control buttons and their corresponding IR codes are shown as below:

Button Name	IR Code	HEX (NEC)	Function
HDBT 1	40FF00	0000 006C 0022 0002 015B 00AD 0016 0016 0016 0016 0016 0016 0016 0016 0016 0016 0016 0016 0016 0041 0016 0016 0016 0041 0016 0041 0016 0041 0016 0041 0016 0041 0016 0041 0016 0041 0016 0041 0016 0016 0016 0016 0016 0016 0016 0016 0016 0016 0016 0016 0016 0016 0016 0016 0016 0041 0016 0041 0016 0041 0016 0041 0016 0041 0016 0041 0016 0041 0016 0041 0016 05CB 015B 0057 0016 0E6C	Select the HDBT 1 input channel.
HDBT 2	40FF01	0000 006C 0022 0002 015B 00AD 0016 0016 0016 0016 0016 0016 0016 0016 0016 0016 0016 0016 0016 0041 0016 0016 0016 0041 0016 0041 0016 0041 0016 0041 0016 0041 0016 0041 0016 0041 0016 0041 0016 0041 0016 0016 0016 0016 0016 0016 0016 0016 0016 0016 0016 0016 0016 0016 0016 0016 0016 0041 0016 0041 0016 0041 0016 0041 0016 0041 0016 0041 0016 0041 0016 05CB 015B 0057 0016 0E6C	Select the HDBT 2 input channel.
HDBT 3	40FF42	0000 006C 0022 0002 015B 00AD 0016 0016 0016 0016 0016 0016 0016 0016 0016 0016 0016 0016 0016 0041 0016 0016 0016 0041 0016 0041 0016 0041 0016 0041 0016 0041 0016 0041 0016 0041 0016 0041 0016 0016 0016 0041 0016 0016 0016 0016 0016 0016	Select the HDBT 3 input channel.

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		0016 0016 0016 0041 0016 0016 0016 0041 0016 0016 0016 0041 0016 0041 0016 0041 0016 0041 0016 0016 0016 0041 0016 05CB 015B 0057 0016 0E6C	
HDBT 4	40FF03	0000 006C 0022 0002 015B 00AD 0016 0016 0016 0016 0016 0016 0016 0016 0016 0016 0016 0016 0016 0041 0016 0016 0016 0041 0016 0041 0016 0041 0016 0041 0016 0041 0016 0041 0016 0041 0016 0041 0016 0016 0016 0016 0016 0016 0016 0016 0016 0016 0016 0016 0016 0041 0016 0016 0016 0041 0016 0041 0016 0041 0016 0041 0016 0041 0016 0041 0016 0016 0016 0041 0016 05CB 015B 0057 0016 0E6C	Select the HDBT 4 input channel.
AUTO/Manual	40FF41	0000 006C 0022 0002 015B 00AD 0016 0016 0016 0016 0016 0016 0016 0016 0016 0016 0016 0016 0016 0041 0016 0016 0016 0041 0016 0041 0016 0041 0016 0041 0016 0041 0016 0041 0016 0041 0016 0041 0016 0041 0016 0016 0016 0016 0016 0016 0016 0016 0016 0016 0016 0041 0016 0016 0016 0016 0016 0041 0016 0041 0016 0041 0016 0041 0016 0041 0016 0016 0016 0041 0016 05CB 015B 0057 0016 0E6C	Enable AUTO or Manual switch mode.
HDMI OUT	40FF03	0000 006C 0022 0002 015B 00AD 0016 0016 0016 0016 0016 0016 0016 0016 0016 0016 0016 0016 0016 0041 0016 0016 0016 0041 0016 0041 0016 0041 0016 0041 0016 0041 0016 0041 0016 0041 0016 0041 0016 0041 0016 0041 0016 0016 0016 0016 0016 0016 0016 0016 0016 0016 0016 0016	Select the HDMI output channel.

4x1 HDBaseT Switcher with 4K 40m Extension

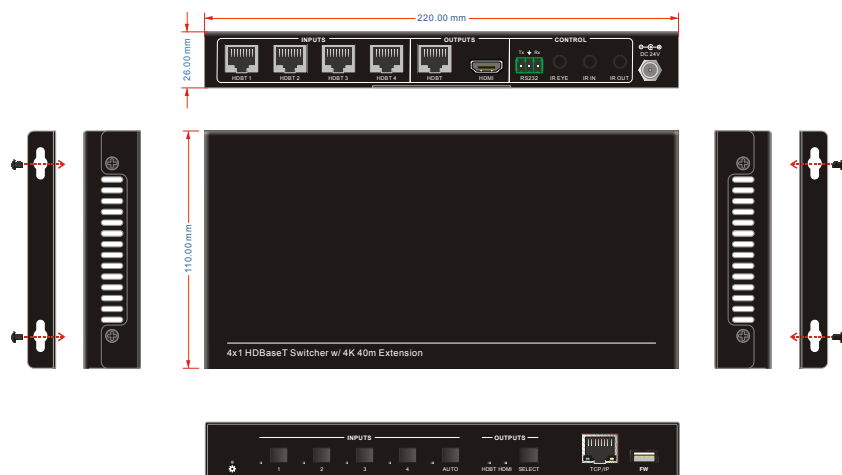
		0016 0016 0016 0016 0016 0041 0016 0041 0016 0041 0016 0041 0016 0041 0016 0041 0016 05CB 015B 0057 0016 0E6C	
HDBT OUT	40FF02	0000 006C 0022 0002 015B 00AD 0016 0016 0016 0016 0016 0016 0016 0016 0016 0016 0016 0016 0016 0041 0016 0016 0016 0041 0016 0041 0016 0041 0016 0041 0016 0041 0016 0041 0016 0041 0016 0041 0016 0016 0016 0041 0016 0016 0016 0016 0016 0016 0016 0016 0016 0016 0016 0016 0016 0041 0016 0016 0016 0041 0016 0041 0016 0041 0016 0041 0016 0041 0016 0041 0016 05CB 015B 0057 0016 0E6C	Select the HDBT output channel.

9. Firmware Upgrade

Please follow the steps as below to upgrade firmware by the type-A USB port on the rear panel:

- 1) Prepare the latest upgrade file (.bin) and rename it as "FW_MERG.bin".
- 2) Connect the switcher to the PC with USB cable, and then power on the switcher.
The PC will automatically detect a U-disk named of "BOOTDISK".
- 3) Double-click the U-disk, a file named of "READY.TXT" would be showed.
- 4) Directly copy the latest upgrade file (.bin) to the "BOOTDISK" U-disk.
- 5) 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.
- 6) Remove the USB cable after firmware upgrade.

10. Panel Drawing



11. Troubleshooting & Maintenance

Problems	Potential Causes	Solutions
Colour losing or no video signal output in HDMI display.	The connecting cables may not be connected correctly or it may be broken.	Check whether the cables are connected correctly and in working condition.
No signal output in this switcher while local input is in normal working state.		
Splash screen in output devices.	Poor quality of the connecting cable.	Change for another cable of good quality.
Cannot control this switcher by control device (e.g. a PC) through RS232 port.	Wrong RS232 communication parameters.	Make sure the RS232 communication parameters are correct.
	This switcher is broken.	Send it to authorized dealer for repairing.
Static becomes stronger when connecting the video connectors.	Bad grounding.	Check the grounding and make sure it is connected well.

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

12. Customer Service

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

1) Warranty

The limited warranty period of the product is fixed three years.

2) Scope

These terms and conditions of Customer Service apply to the customer service provided for the products or any other items sold by authorized distributor only.

3) Warranty Exclusion:

- Warranty expiration.
- Factory applied serial number has been altered or removed from the product.
- Damage, deterioration or malfunction caused by:
 - ✓ Normal wear and tear.
 - ✓ Use of supplies or parts not meeting our specifications.
 - ✓ No certificate or invoice as the proof of warranty.
 - ✓ The product model showed on the warranty card does not match with the model of the product for repairing or had been altered.
 - ✓ Damage caused by force majeure.
 - ✓ Servicing not authorized by distributor.
 - ✓ Any other causes which does not relate to a product defect.
- Shipping fees, installation or labor charges for installation or setup of the product.

4) Documentation:

Customer Service will accept defective product(s) in the scope of warranty coverage at the sole condition that the defect has been clearly defined, and upon reception of the documents or copy of invoice, indicating the date of purchase, the type of product, the serial number, and the name of distributor.

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