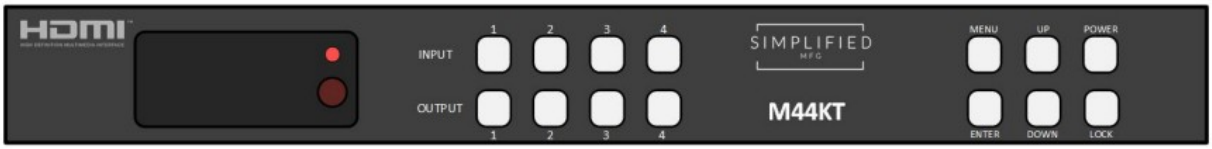
Simplified MFG M44kt Hdmi Over Cat 6 Audio Video Scaling Matrix 4 In 4 Out with 4 Receivers User Manual

M44KT
HDMI 2.0b (18Gbps) Scaling
4×4 Matrix Kit



Thank you for purchasing the M44KT Scaling Matrix Kit

The Simplified Manufacturing M44KT is designed to provide years of reliable service. At Simplified MFG, we want the experience with this device to be the best possible and are committed to helping achieve that experience. Please keep this manual for future reference.

Surge protection device recommended

This product contains sensitive electrical components that may be damaged by electrical spikes, surges, electric shock, lighting strikes, etc. Use of surge protection systems is highly recommended to protect and extend the life of your equipment. Cable and satellite boxes can send surges through the HDMI port as will the Simplified MFG HDSURGE can help prevent damage from these occurrences.

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Introduction

The M44KT is a Scaling HDMI 2.0b (18Gbps) 4 x 4 HDMI and HDBaseT matrix kit. There are four HDMI inputs for 4 sources and there are 4 outputs that feature parallel HDMI and HDBaseT outputs. 4 HDBaseT receivers are included with the kit. Each output can individually scale. The HDMI output can be set to a different resolution than the HDBaseT output on the same output channel. The HDBaseT output will transmit 1080p up to 70m and 4K content up to 40m.
In addition to AV the M44KT also can switch IR and audio in a matrix as well. The audio can be routed independently of the video including ARC to coaxial audio and analog audio output via the Web GUI or ASCII code control. It can also extract the audio signal from HDMI source device to analog audio and coaxial audio output as well. The M44KT also supports individual bi-directional 12V IR and RS232 by output via the HDBaseT/RX.
The M44KT can be controlled via the LED front panel and buttons manually, with thesupplied IR remote control, via the web GUI, or from a third party control system via IR, RS232, or LAN connection.

Features

- HDMI 2.0b (18Gbps) and HDCP 2.2 compliant
- Each output can scale independently from each other including the HDMI and HDBaseT on the same channel
- DolbyVision™ and all HDR formats are supported
- 4 HDMI output ports support 18Gbps lossless uncompressed video
- The 4 HDBaseT Outputs are 18Gbps lossless (DSC) signal transmission
- Audio can be routed independently of the video
- ARC Audio can be returned from the display to the matrix via HDBaseT and/or HDMI
- IR can be routed through the matrix independently as well
- Supports video resolution up to 4K@60Hz 4:4:4
- HDBaseT outputs can extend video transmission distance up to 230ft / 70 meters for 1080p or 131ft / 40 meters for 4K60 via a single CAT5e/6/7 cable.
- The M44KT supports HDMI audio formats: LPCM, Dolby Digital/Plus/EX, Dolby True HD, DTS, DTS-EX, DTS-96/24, DTS High Res, DTS-HD Master Audio, DSD
- Intelligent EDID management combined with scaling makes the M44KT easy to use with multiple displays with different resolutions
- The supplied HDBaseT receivers are powered via 24V POC from the matrix

- Control options include via the front panel, IR remote, web GUI, or control with a third party control device via IR, RS232, or LAN

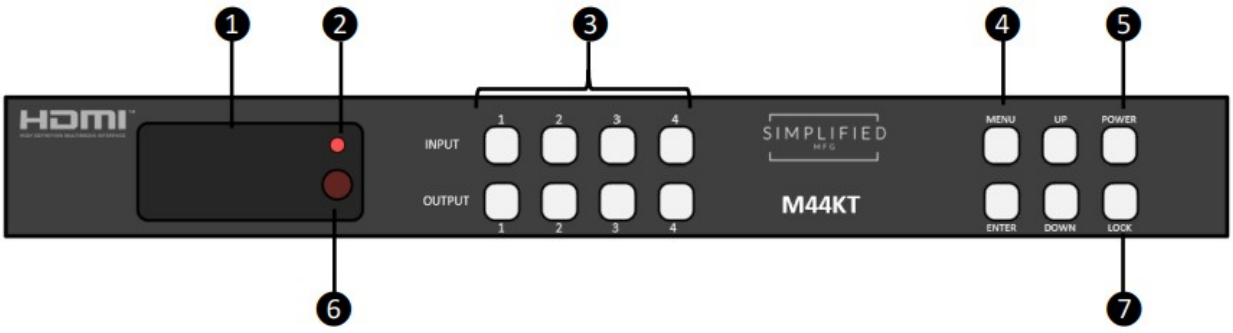
Package Contents

- 1x 18Gbps 4 by 4 HDMI and HDBaseT(70M) Matrix
- 4x HDBaseT Receivers
- 1x Matrix IR Remote
- 1x 100~240V AC 50/60Hz Power cable
- 1x RS-232 serial cable (1.5 meters, male to female head)
- 8x 3-pin Phoenix Connectors
- 5x IR Blaster cables (1.5 meters)
- 6x 20~60KHz IR Receiver cables (1.5 meters)
- 10x Mounting Ears (Matrix and Receiver)
- 1x User Manual

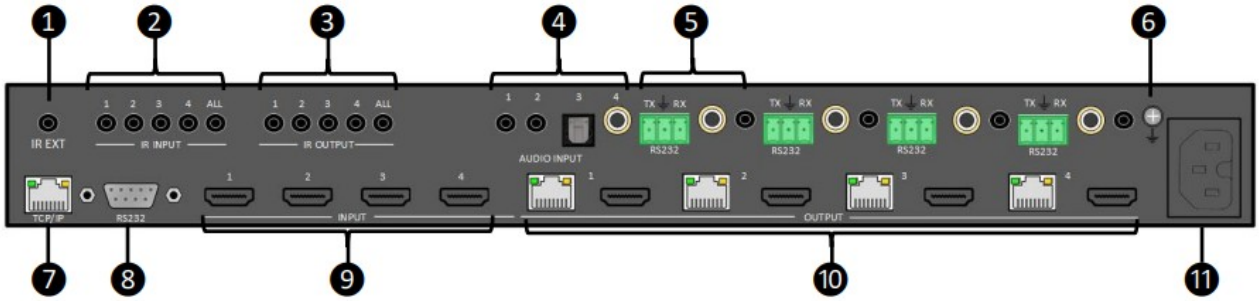
Specifications

Technical	
HDMI Compliance	HDMI 2.0b
HDCP Compliance	HDCP 2.2
Video Bandwidth	18Gbps
Video Resolution	Up to 4K2K@50/60Hz (4:4:4)
Color Space	RGB, YCbCr 4:4:4/4:2:2/4:2:0
Color Depth	8/10/12bit
HDMI Audio Formats	LPCM, Dolby Digital/Plus/EX, Dolby True HD, DTS, DTS-EX, DTS-96/24, DTS High Res, DTS-HD Master Audio, DSD
Coax Audio Formats	PCM 2.0, Dolby Digital / Plus, DTS,
L/R Audio Formats	PCM2.0
HDR formats	HDR, HDR10, HDR10+, Dolby Vision, HLG
Transmission Distance	70M (CAT6/6a/7)
IR Level	12Vp-p
IR Frequency	Wideband 20KHz ~ 60KHz
ESD Protection	Human-body Model: ±8kV (Air-gap discharge) , ±4kV (Contact discharge)
Connection	
Matrix	
Input Ports	4×INPUT [HDMI Type A, 19-pin female] 6×IR INPUT [3.5mm Stereo Mini-jack] 2×Stereo Audio [3.5mm Stereo Mini-jack B] 1×SPDIF(OPTICAL) 1×SPDIF(COAX)

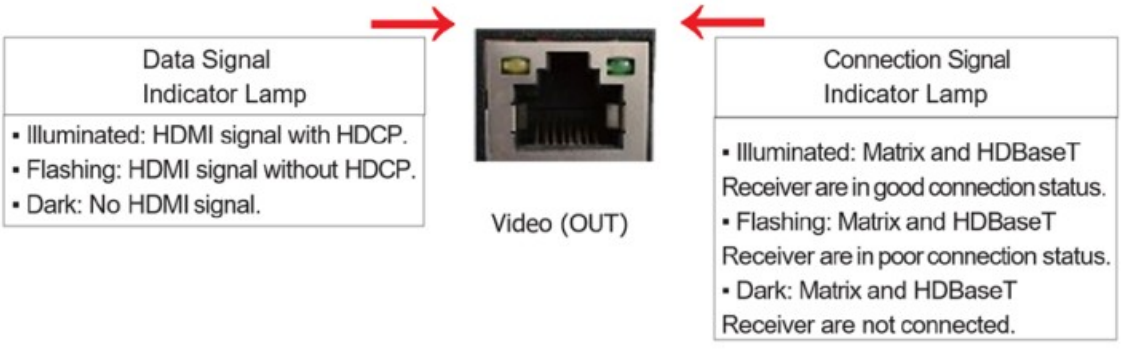
Output Ports	4×HDMI OUTPUT [HDMI Type A, 19-pin female] 4×HDBaseT port [RJ45] 5×IR OUTPUT [3.5 mm Stereo Mini-jack] 4×RS-232 [3-pin Phoenix connector] 4×SPDIF(COAX) 4×Stereo Audio[3.5mm Stereo Mini-jack]		
Control Ports	1×TCP/IP [RJ45] 1×RS-232 [D-Sub 9]		
HDBaseT Receiver			
Input Ports	1×HDBaseT IN [RJ45] 1×IR IN [3.5mm Stereo Mini-jack]		
Output Ports	1×HDMI OUT [HDMI Type A, 19-pin female] 1×IR OUT [3.5mm Stereo Mini-jack]		
Control Ports	1×SERVICE [Micro USB, Update port] 1×RS-232 [Phoenix jack]		
Mechanical			
Housing	Metal Enclosure		
Color	Black		
Dimensions	TX: 440mm (W)×274mm (D)×45mm (H) RX: 163mm (W)×90mm (D)×18mm (H)		
Weight	TX: 3977g, RX: 392g		
Power Supply	AC 100 – 240V 50/60Hz		
Power Consumption	68W (Max)		
Operating Temperature	0°C ~ 40°C / 32°F ~ 104°F		
Storage Temperature	-20°C ~ 60°C / -4°F ~ 140°F		
Relative Humidity	20~90% RH (non-condensing)		
Resolution / Distance	**1080P – Feet / Meters**	**4K60 – Feet / Meters**	
CAT5e/6/7	230ft / 70M	131ft / 40M	
Resolution / Cable length	**4K60 – Feet / Meters**	**4K30 – Feet / Meters**	**1080P60 – Feet / Meters**
HDMI IN / OUT	16ft / 5M	32ft / 10M	50ft / 15M
The use of “Premium High-Speed HDMI” cable is highly recommended.			



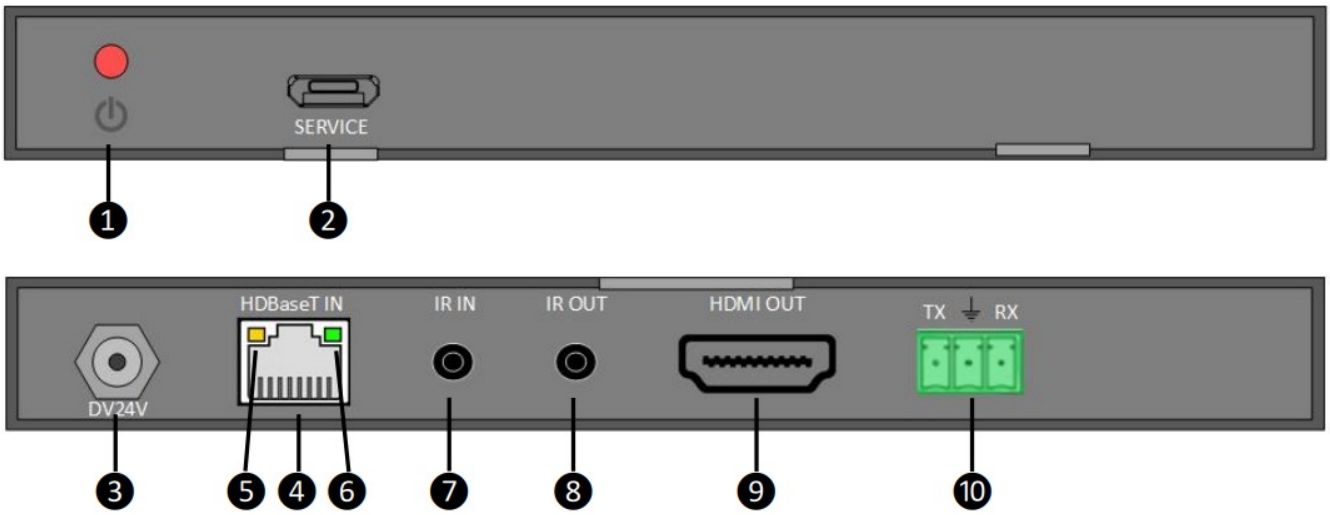
No.	Name	Function Description
1	OLED Screen	Display matrix switching status, input / output port, EDID, Baud rate, IP Address
2	Power LED	The LED will illuminate in green when the product is connected to power supply, and red when the product is on standby
3	Input/Output Buttons	You need to press an output button (1~4) first and then press an input button (1~4) to select the corresponding input source for the output port
4	MENU/ ENTER/ UP/ DOWN	① **EDID Check:** On the initial OLED display screen, press “MENU” button to enter the Matrix switching state interface, then press “UP/DOWN” button to check the current EDID information of each HDMI input port. ② **EDID setting:** On the initial OLED display screen, press “MENU” button to enter the EDID setting interface, press “UP/DOWN” button to select the required EDID ,and press the “ENTER” button. A prompt “copy to input:” will appear. Then press “UP/DOWN” button to select the input port you need to set, and press “ENTER” button again to confirm. ③ **Baud rate setting:** On the initial OLED display screen, press “MENU” button to enter the Baud rate interface, and press “UP/DOWN” button to select the required Baud rate, finally press the “ENTER” button to confirm the setting. ④ **IP Address Check:** On the initial OLED display screen, press “MENU” button to enter the IP interface, then press “UP/DOWN” button to check the current IP address. Pressing the “MENU” button again will return to the initial OLED display status.
5	Power Button	Long press the POWER button for 3 seconds to enter the standby mode, then short press it to wake up the device
6	IR Window	IR receiver window. Receives IR signals from supplied remote
7	LOCK Button	Short press will lock all front panel buttons with exception of the power button. Second press will unlock.



No.	Name	Function Description
1	IR EXT.	If the IR receiver window of the unit is blocked or the unit is installed in a closed area out of infrared line of sight, the IR receiver cable can be inserted to the “IR EXT” port to receive the IR remote signal
2	IR Input Ports	Connect to IR receiver cable, the IR receive signal will emit to “IR OUT” port of t he HDBaseT Receiver
3	IR OUTPUT ports	Connect to IR blaster cable, the IR emit signal is from “IR IN” port of the HDBas eT Receiver
4	Audio IN Ports	L/R, optical and coaxial audio input ports, connect to external audio source devi ce such as PC or BRP
5	RS-232 port	Connect to a PC or control system by 3-pin phoenix connector serial cable to tr ansmit command between the Matrix and HDBaseT Receiver
	DIGITAL port	Coaxial audio output port, connect to audio output device such as audio amplifi er via a coaxial cable
	STEREO port	Stereo audio output port, connect to an amplifier or speaker via a 3.5mm audio cable
6	GND	Grounding connection
7	TCP/IP Port	This port is the link port for TCP/IP control and connect to an active Ethernet lin k via an RJ45 cable
8	RS-232 port	Connect to a PC or control system via D-Sub 9-pin cable to control the matrix
9	INPUT ports (1- 4)	HDMI input ports, connect to HDMI source device with HDMI cable
10	OUTPUT ports (1-4)	HDBaseT ports, connect to HDBaseT Receiver via CAT cable
		HDMI output ports, connect to HDMI display device such as TV or monitor with HDMI cable
11	POWER port	Connect to 100~240V AC 50/60Hz power cable

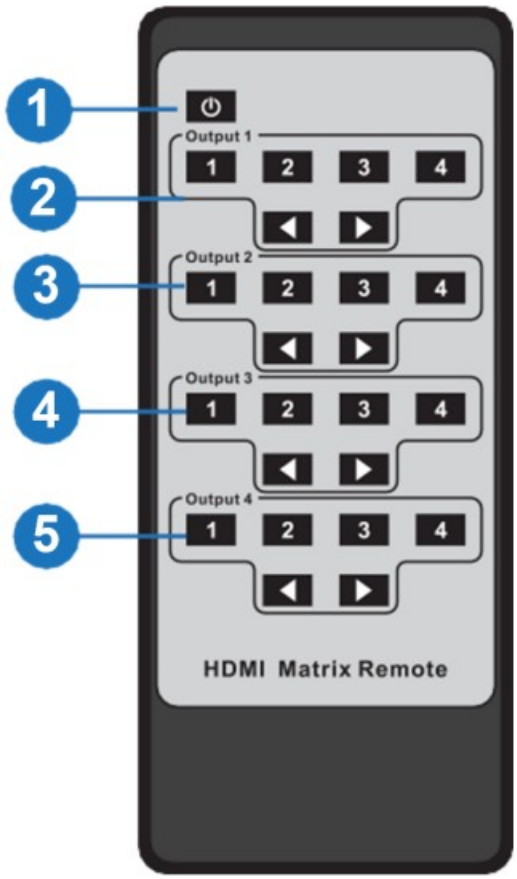


4.1 HDBaseT Receiver Panel



No.	Name	Function Description
1	Power LED	Power LED indicator, LED will illuminate when the RX device is connecte d to power via the PoC from matrix
2	SERVICE Port	Micro USB for firmware updates
3	DC 24V	This connection is not used with this matrix kit (M44KT) as this receiver d evice is powered via the PoC over the category cable from the matrix unit
4	HDBaseT In port	Connects to the HDBaseT Out port on the matrix unit via Cat 6/6A/7 cate gory cable
5	Connection Indicator LE D (Green)	▪ Illuminated: Matrix and Receiver are in good connection status ▪ Flashing: Matrix and Receiver are in poorconnection status ▪ Dark: Matrix and Receiver are not connected
6	Data Signal Indicator LE D (Amber)	▪ Illuminated: HDMI signal with HDCP ▪ Flashing: HDMI signal without HDCP ▪ Dark: No HDMI signal
	IR IN	The IR Receiver is connected here. Signals sent through this connection flash at the designated IR output port on the matrix unit
8	IR OUT	The IR blaster is connected here and signals from the designated IR input at the matrix are output here
9	HDMI Output port	Connect display here via HDMI cable for AV signals from matrix unit
10	RS232 port	RS232 communication from the corresponding input at the matrix unit ar e passed through this connection

IR Remote



1. Power on or Standby: Power on the Matrix or set it to standby mode.
2. Output 1: Press 1\2\3\4 button to select input source to HDMI OUTPUT 1.
3. Output 2: Press 1\2\3\4 button to select input source to HDMI OUTPUT 2.
4. Output 3: Press 1\2\3\4 button to select input source to HDMI OUTPUT 3.
5. Output 4: Press 1\2\3\4 button to select input source to HDMI OUTPUT 4.

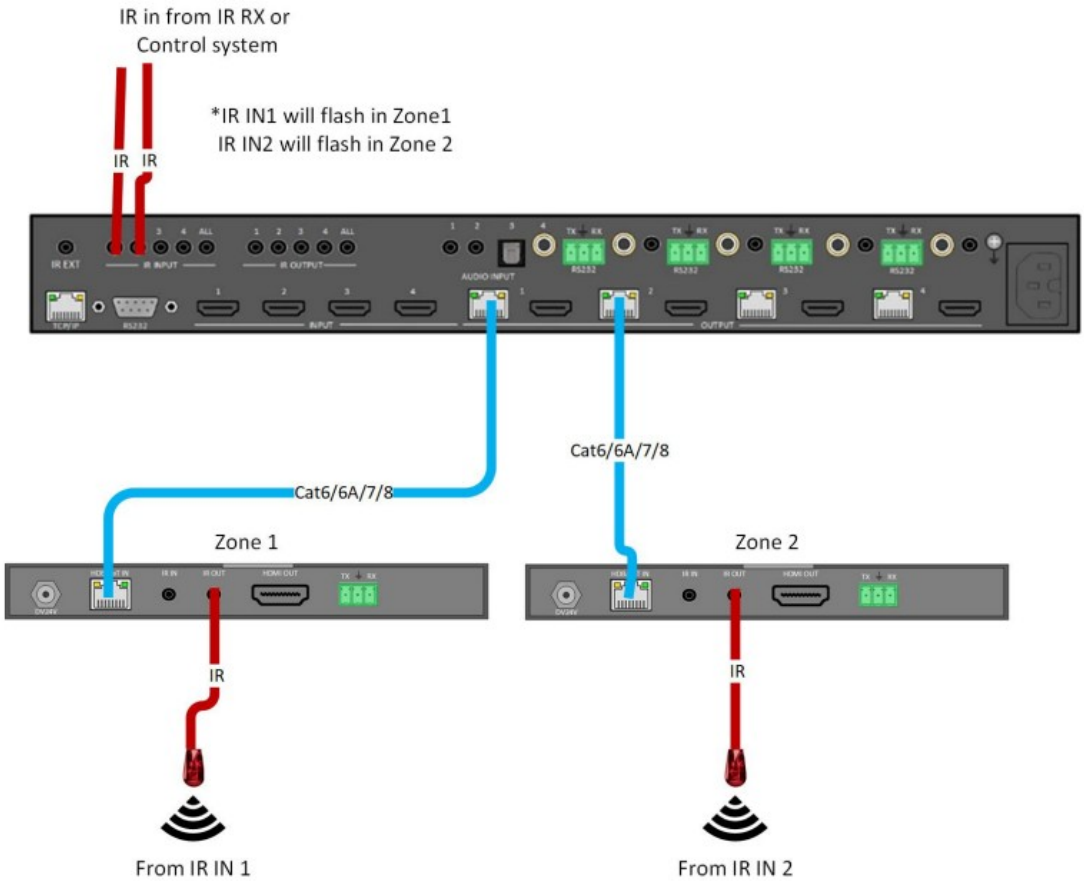
◀ ▶ : Select the last or next input source button.

The matrix can be controlled via this remote by aiming it at the IR window on the front of the matrix unit. If the matrix is in a rack or other place where IR signals are not able to be “seen” by the matrix, there is a IR Ext. port on the back of the matrix unit. There is an IR RX device supplied with this kit so that the IR RX device can be placed in a position where the IR remote signals can be received by the IR RX and sent into the matrix unit.

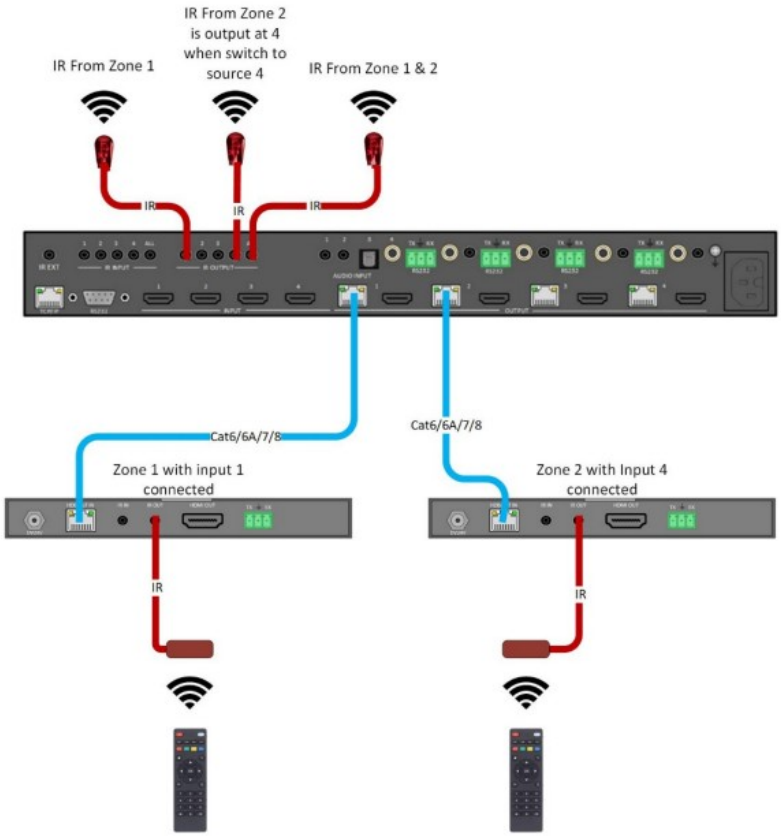
IR Control System

The M44KT is designed to allow IR to be sent to the RX devices from the matrix end and to receive IR signals from the RX devices and output them at the matrix. The design of the IR routing is so that IR can be switched or output to all IR blasters. The design is different at the matrix end than it is at the RX end.
At the matrix: The IR sent to the RX devices is “one to one”, meaning input one will flash on the RX in zone 1, input 2 to RX 2, etc. There is an input marked “All” when IR signals are input here, all four of the RX devices will flash

the input signal at the same time.
IR connection diagram:



**Note if the “All” input is used the IR signals input here will flash in all four zones simultaneously.
At the RX end: The IR follows the AV switch in this case so that the sources can be controlled at the proper zone. For an example if you areon input 2 in zone 1 the IR from the RX in zone one will flash on output 2 as it follows the switch. This is so you are controlling the source on input 2.



** Again note that IR return from RX devices follows the input selection unless you are using the “All” output.

IR Cable Pin Assignment

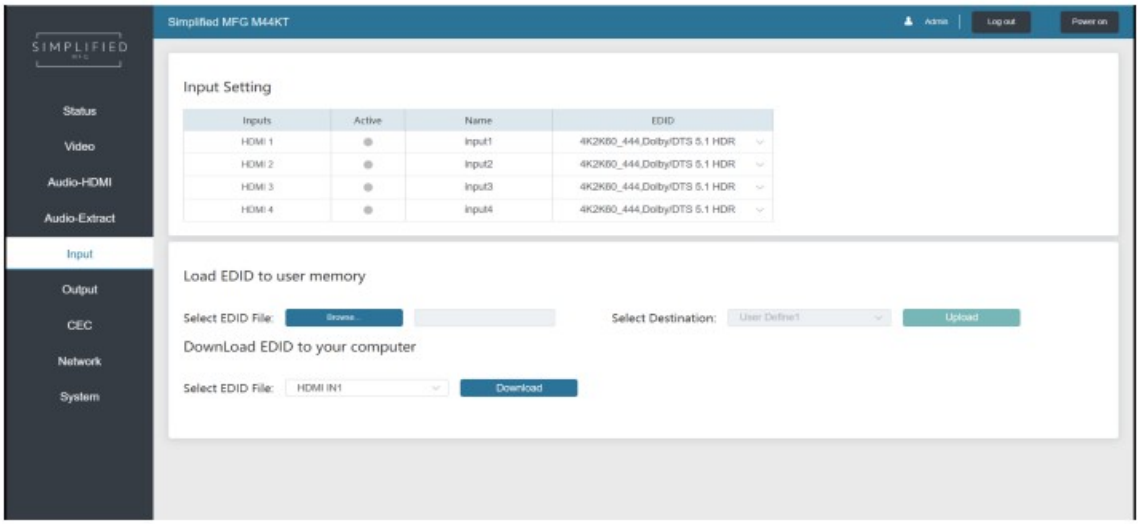
EDID Management

This M44KT has 21 EDID definitions in the internal library, two user defined EDID modes and 8 copy EDID modes. You can select defined EDID mode or copy EDID mode to input port through on-panel button, ASCII control or Web GUI.

On-panel button operation: On the initial OLED display screen, press “MENU” button to enter the EDID setting interface, press “UP/DOWN” button to select the required EDID and press the “ENTER” button. A prompt “copy to input:” will appear. Then press “UP/DOWN” button to select the input port you need to set, and press “ENTER” button again to confirm this operation.

RS-232 control operation: Connect the Matrix to PC with a USB to serial cable, then open a Serial Command tool such as Hercules or Docklight on a PC to send ASCII command “s edid in x from z!” to set EDID. For details, please refer to “EDID Setting” in the ASCII command list of “12. RS-232 Control command”.

Web GUI Operation: Please check the EDID management in the “Input page” of “11. Web GUI User Guide”.



The EDID Library is shown below:

EDID Mode	EDID Description
1	1080p – Stereo Audio
2	1080p – Dolby/DTS 5.1
3	1080p – HD Audio 7.1
4	1080i – Stereo Audio
5	1080i – Dolby/DTS 5.1
6	1080i – HD Audio 7.1
7	3D – Stereo Audio
8	3D – Dolby/DTS 5.1
9	3D – HD Audio 7.1
10	4K x 2K @ 30Hz. YUV 4:4:4 Stereo Audio
11	4K x 2K @ 30Hz. YUV 4:4:4 Dolby/DTS 5.1
12	4K x 2K @ 30Hz. YUV 4:4:4 HD Audio 7.1
13	4K x 2K @ 60Hz. YUV 4:2:0 Stereo Audio
14	4K x 2K @ 60Hz. YUV 4:2:0 Dolby/DTS5.1
15	4K x 2K @ 60Hz. YUV 4:2:0 HD Audio 7.1
16	4K x 2K @ 60Hz. YUV 4:4:4 Stereo Audio
17	4K x 2K @ 60Hz. YUV 4:4:4 Dolby/DTS 5.1
18	4K x 2K @ 60Hz. YUV 4:4:4 HD Audio 7.1
19	4K x 2K @ 60Hz. YUV 4:4:4 Stereo Audio HDR
20	4K x 2K @ 60Hz. YUV 4:4:4 Dolby/DTS 5.1 HDR
21	4K x 2K @ 60Hz. YUV 4:4:4 HD Audio 7.1 HDR
22	User 1
23	User 2
24~27	Copy from HDMI OUT 1~4
28~31	Copy from HDBaseT OUT 1~4

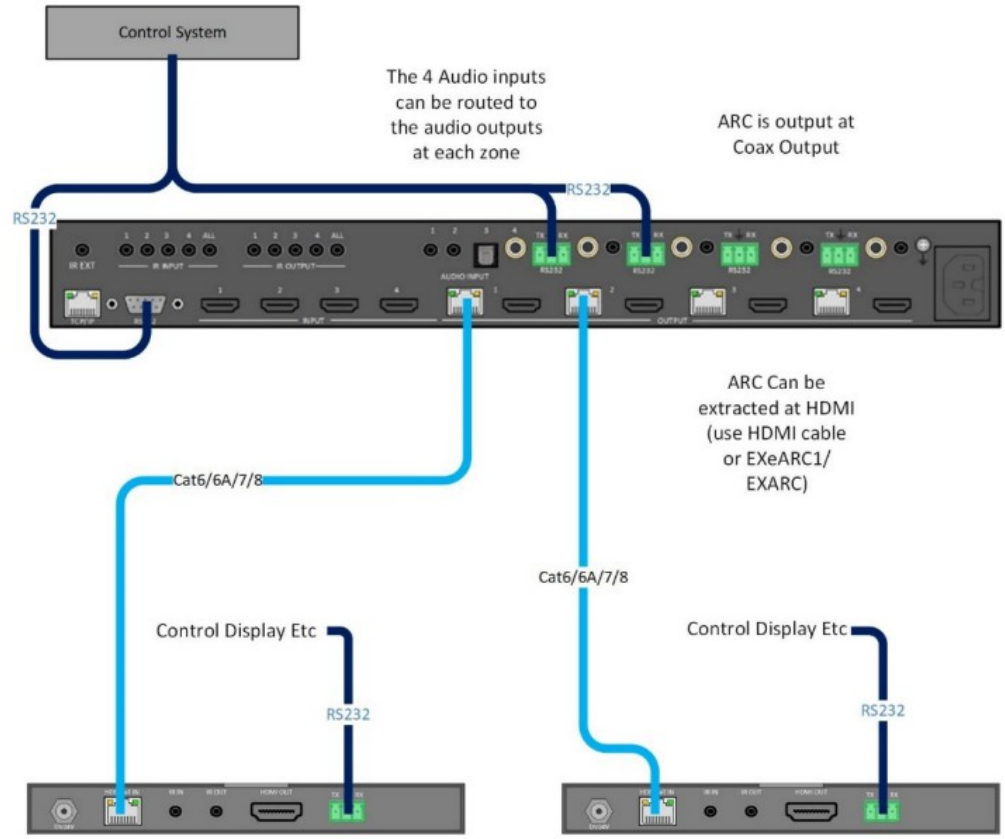
Matrix Audio and RS-232 Introduction

The M44KT supports coaxial and analog audio output. The audio signal follows HDBaseT and HDMI output port. It supports one-to-one transmission. For example, the OUTPUT 1 port audio signal follows HDBaseT and HDMI 1 port, the OUTPUT 2 port audio signal follows HDBaseT and HDMI 2 port etc. This can be changed via commands and thus the M44KT can route audio independently of the video as well including ARC (only supported on HDMI output)

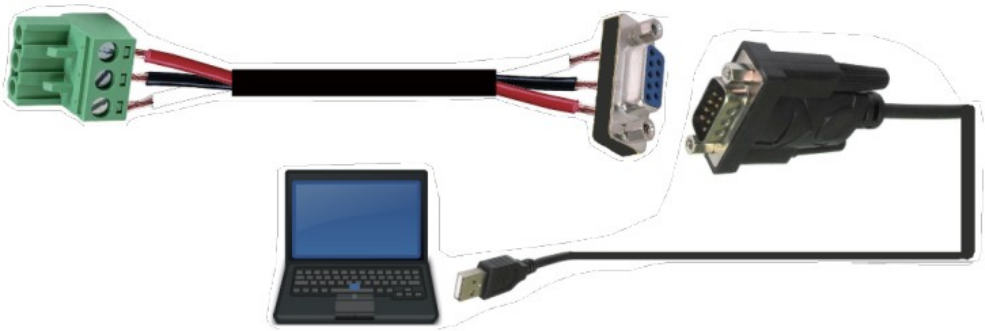
If HDMI ARC switch and HDBaseT ARC switch are turned on by ASCII command, the coaxial and analog audio output signal can be the returned HDMI or HDBaseT display device's audio, the external audio source, or the extracted HDMI source device audio.

Note: During multi-channel audio, 3.5 audio has no audio output.

The RS-232 channel is also one-to-one transmission. For example, the RS-232 port of the OUTPUT 1 at Matrix end follows the RS-232 port at HDBaseT Receiver 1, The RS-232 port of the OUTPUT 3 at Matrix end follows the RS-232 port at HDBaseT Receiver 3 etc. Please see the following connection diagram:



RS-232 Connection



The M44KT uses a 3-PIN Phoenix connector for RS-232 communication.
Many devices use a DB-9 connection. An adapter needs to be purchased or created. The TX and RX are reversed depending which end you are connecting to.

DB-9 Female DB-9 Male

Web GUI User Guide

The Matrix can be set up and controlled by its internal web GUI. The operation method is shown as below:
Step 1: Get the current IP Address. The default IP address is set by DHCP. You canget the current Matrix IP address in two ways:
The first way: You can get the IP address via panel buttons. On the initial OLED display, press “MENU” button to

enter the Matrix switching state interface, then press “UP/DOWN” button to check the current IP address.
The second way: You can get the IP address via RS-232 control. Send the ASCII command “ r ipconfig!” through a Serial Command tool, then you’ll get the feedback information as shown below:

```
IP Mode: DHCP
IP:192.168.62.109
Subnet Mask:255.255.255.0
Gateway:192.168.62.1
TCP/IP port:8000
Telnet port:23
Mac address:6c-df-fb-0c-b3-8e
```

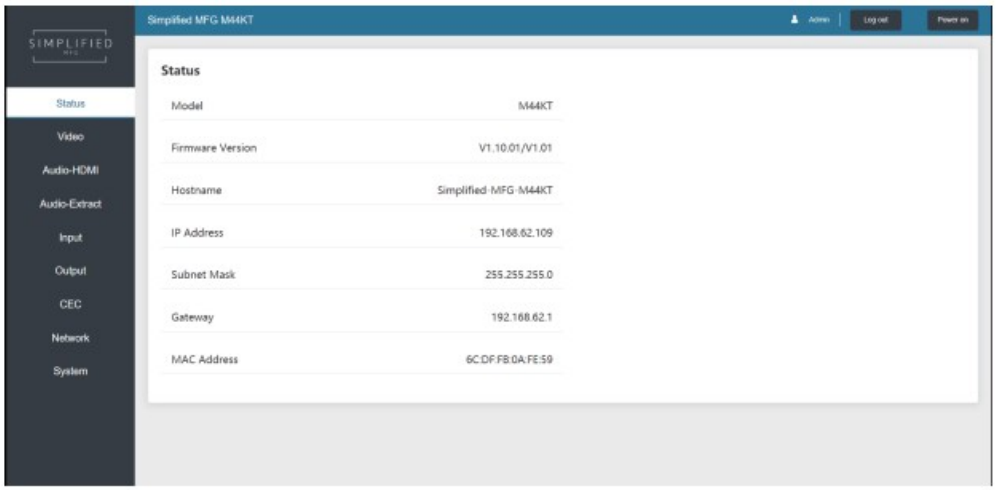
Using the IP information gained by the display or command response, you can login to the matrix to access its internal web GUI.
For RS-232 Control please refer to section “12. RS-232 Control Command”
Step 2: Connect the matrix to a network or directly connect to a PC via a UTP cable. The PC will need to be in the same network segment as the matrix.
Step 3: Input the M44KT’s IP address into the address bar on your browser.

When the matrix responds, you will get the main Login page that looks like this:

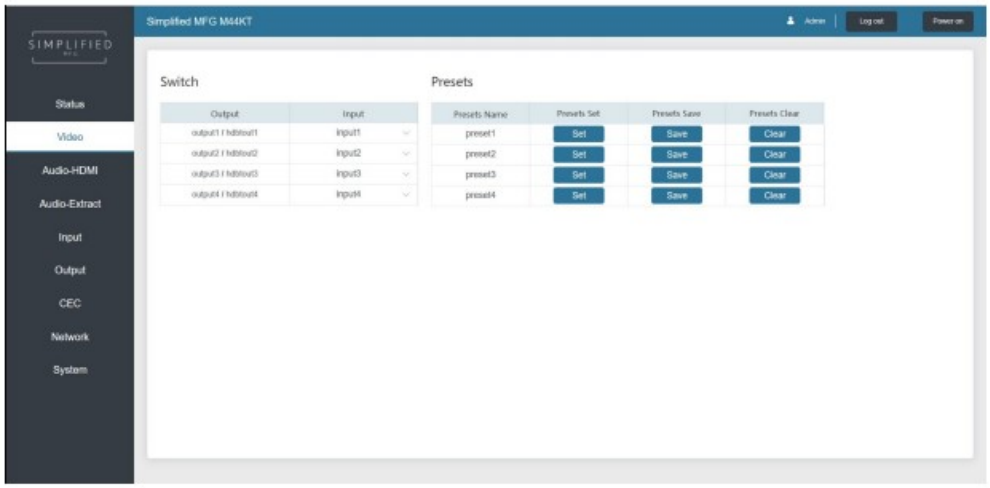
There are two available login names. One is Admin and the other is User. You will want to use the Admin login. The passwords are the same as the login names just all lower case. An example is that the password for Admin is “admin”. Once populated with the username and password, click the LOGIN button. This will take you to the status page.

Status Page

The status page provides the basic information about the M44KT including IP address, mac address, and firmware version. To the left of the page is a menu that takes you to other pages in the web GUI.



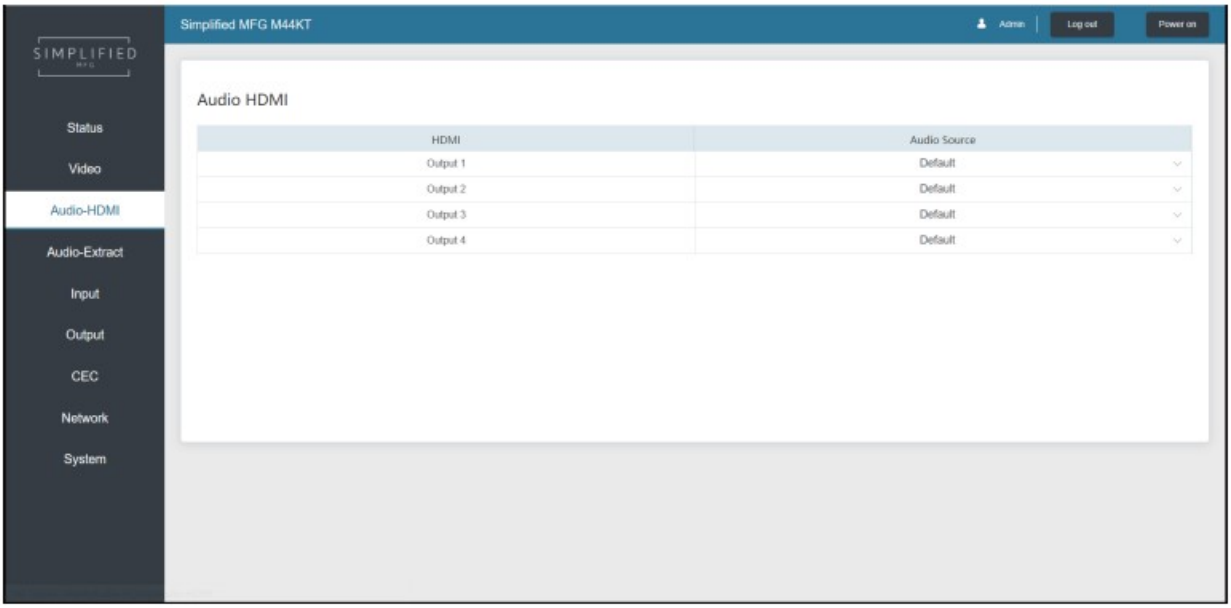
- **Video Page**



The following operations are available on the Video Page:

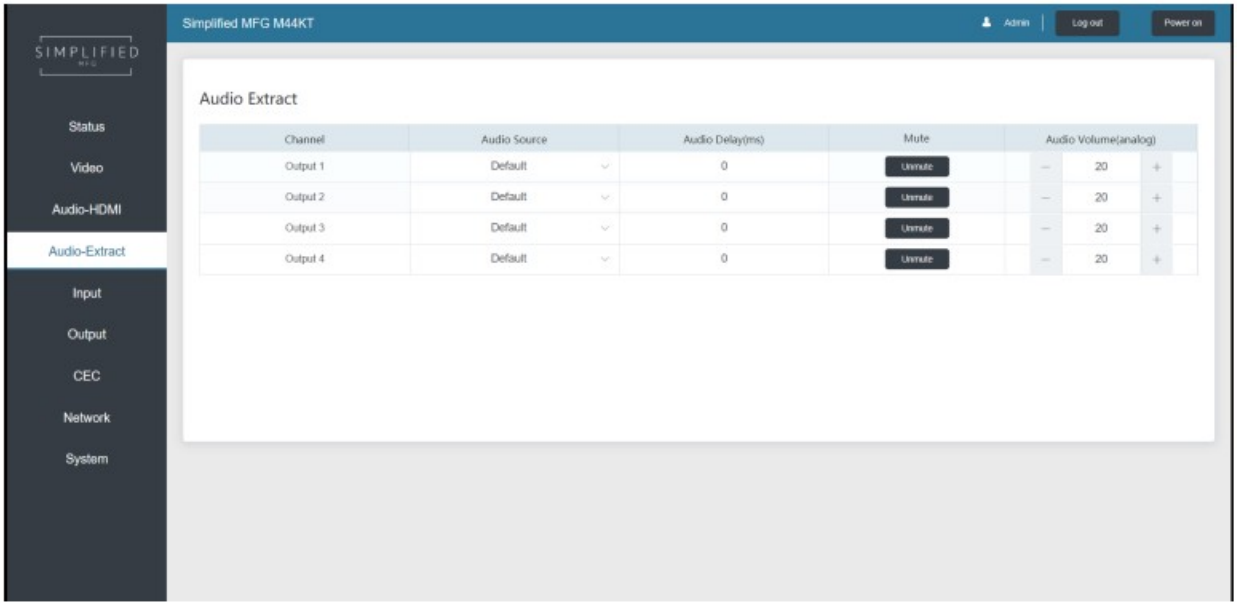
1. Output: You can see each output's selected source.
2. Input: You can select the source via a dropdown menu.
3. Preset Name: By clicking in this window, you can rename the preset.
4. Preset Set: Clicking this button recalls a previously set switching configuration.
5. Preset Save: Clicking this button saves the current switching configuration.
6. Preset Clear: Clicking this clears the preset configuration.

Audio HDMI Page



This page allows you to select the audio that is on the HDMI output. There is a dropdown box that gives you the selection choices.

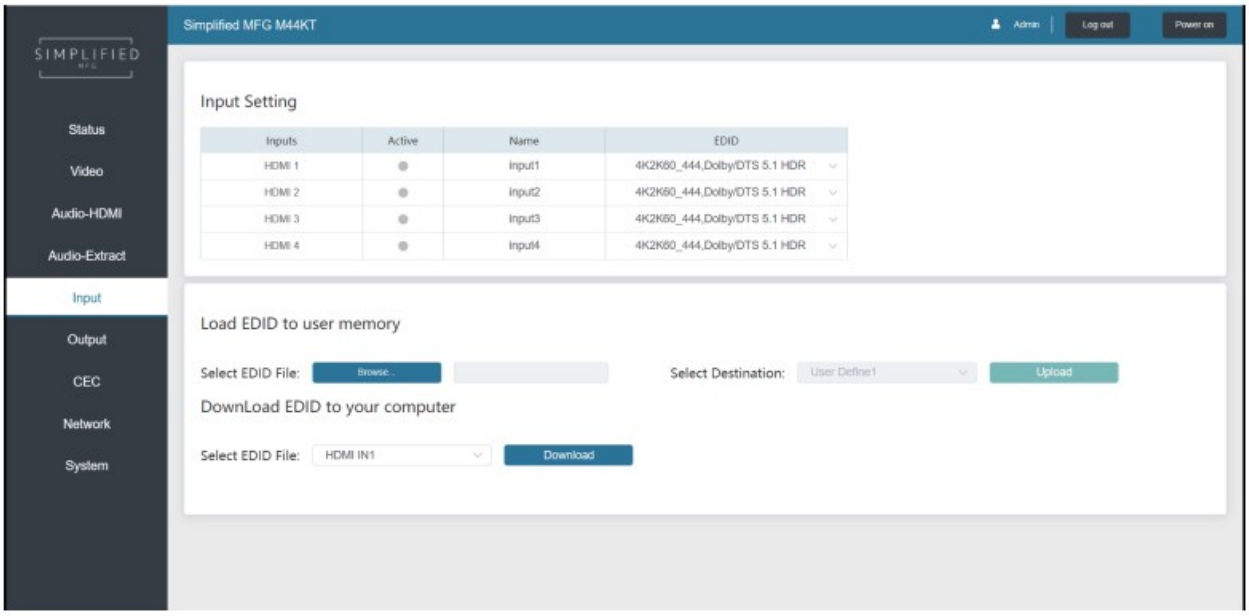
Audio Extract Page



This page allows you to change the audio functions of the audio breakouts

1. Channel: Indicates the output zone of the M44KT.
2. Audio Source: Selects what audio is sent to the Coax and 3.5mm outputs via a dropdown menu.
3. Audio delay: Changes the delay of the stereo output of the selected channel.
4. Mute: Clicking this button mutes the output.
5. Audio Volume: Allows you to input a volume or change it with the +/- buttons

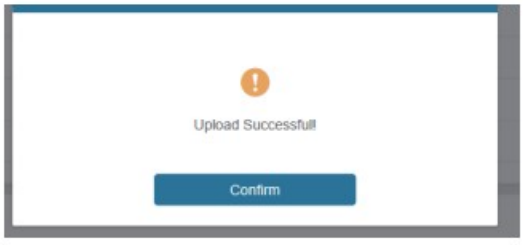
Input Page



This page does the following:

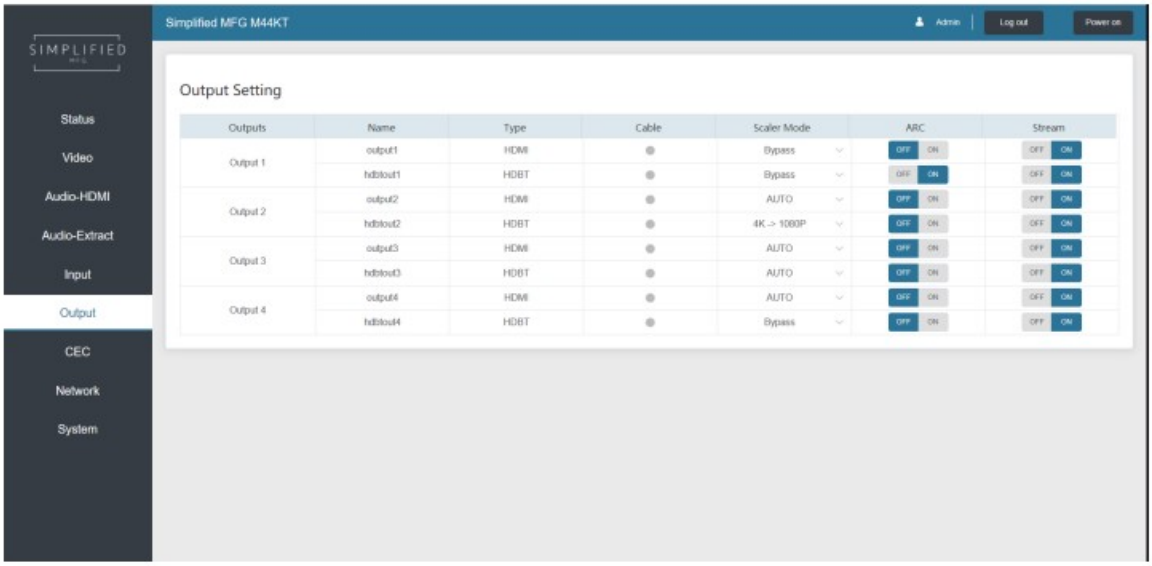
1. Inputs: Displays the input you are adjusting
2. Active: Dot is gray when there is no active connection, green when there is.
3. Name: This displays the name of the input and can be changed by clicking it.
4. EDID: This is a dropdown menu that allows you to select which EDID the corresponding input is presented.
5. Setting User EDID: By clicking the “Browse” button, you can search your PC for a saved EDID file. If it is not a valid EDID you will see this prompt:

If you have loaded a correct EDID file, you will see this prompt:



Once loaded it will be in the EDID library and can be selected.

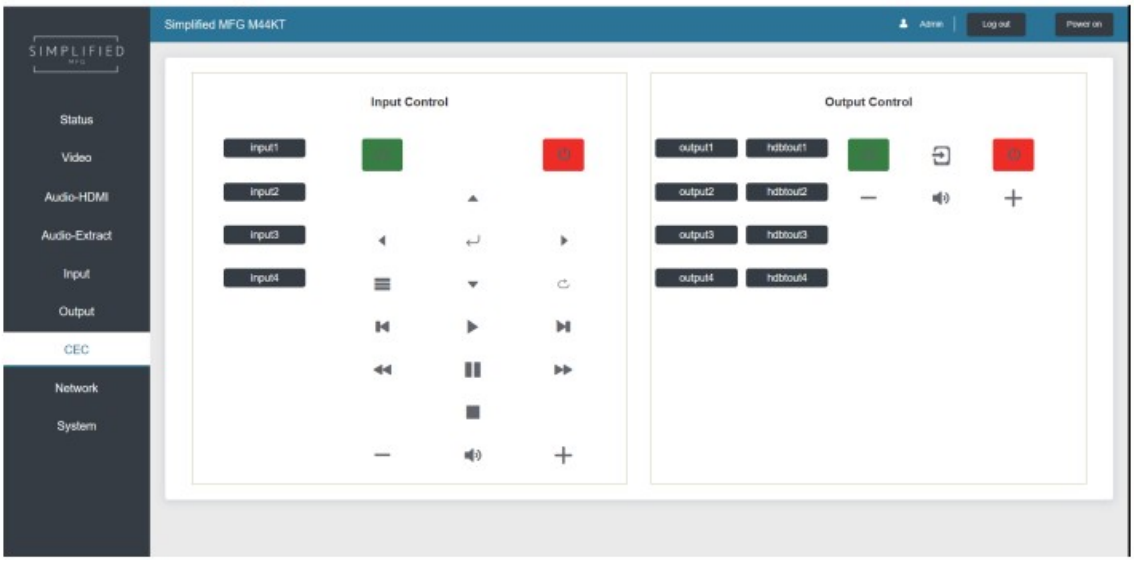
Output Page



This page does the following:

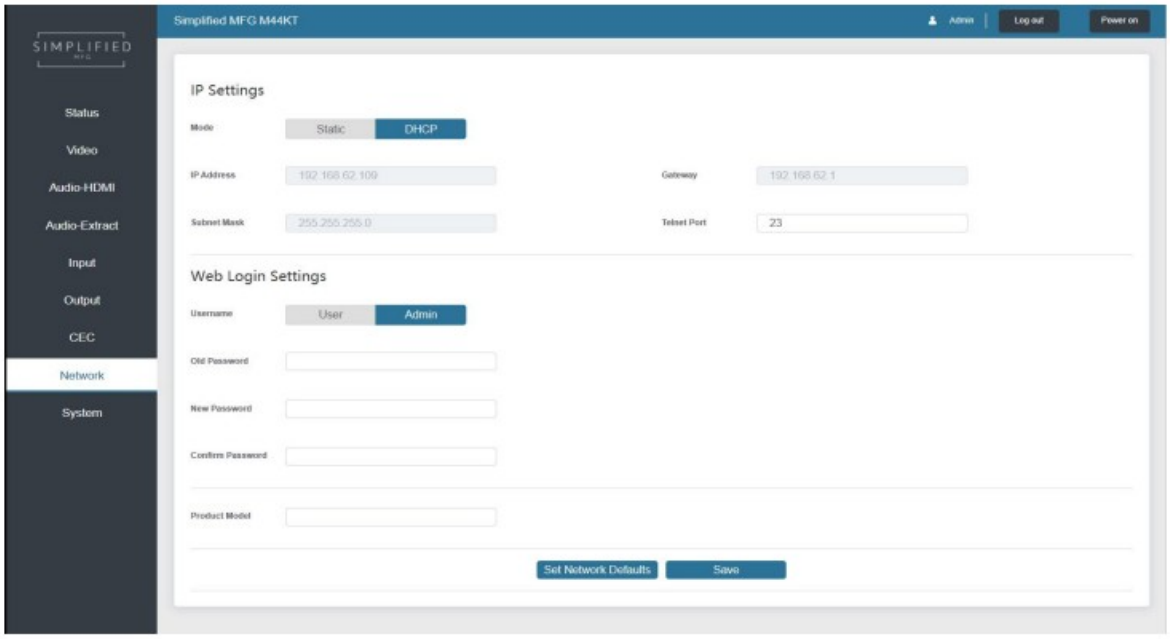
1. Shows the output zones
2. Name of the output: Can be changed by clicking it the window. Note that the HDMI can be named differently then the HDBaseT on the same channel.
3. Type: Shows the connection type HDMI or HDBaseT
4. Cable: Indicates a connection. Gray indicates no connection; Green indicates a valid connection to a display.
5. Scaler Mode: Allows the output to scale to the display connected on this output. HDBaseT and HDMI can be set separately.
6. ARC: Allows ARC to be routed from HDMI output to Coax audio output. An extender with ARC function can be used here as well to get ARC back from display.
7. Stream: Allows the AV to be instantly shut off and reinstated.

CEC Page



This page allows for CEC control of sources and displays. CEC is Consumer Electronic Control and can be troublesome. However, it is getting better and if compatible, you can use this page to control the sources and displays in your AV system.

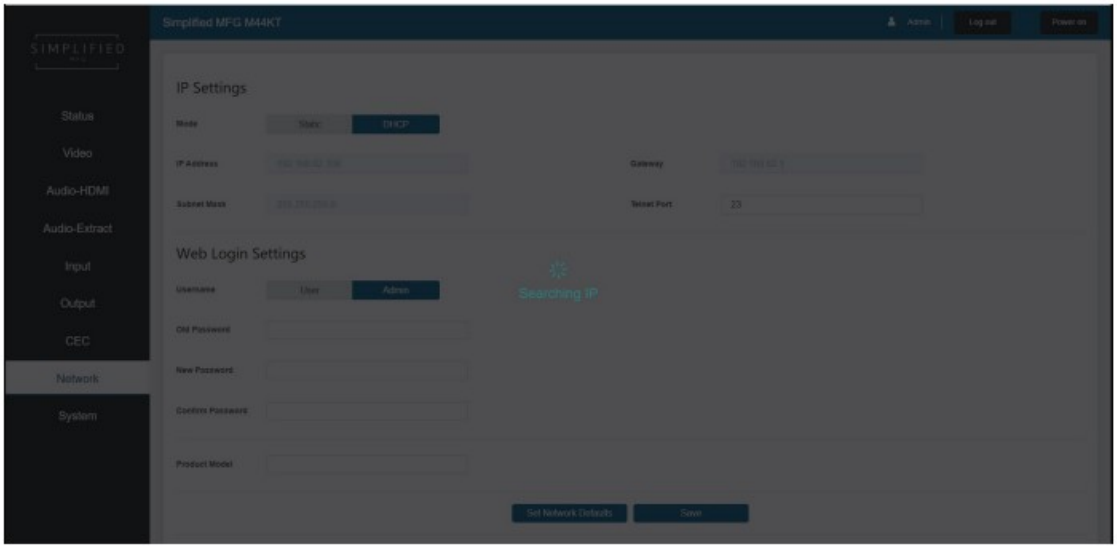
Network Page



Set the Default Network

Click “Set Network Defaults” button, there will be a prompt, as shown in the following figure:

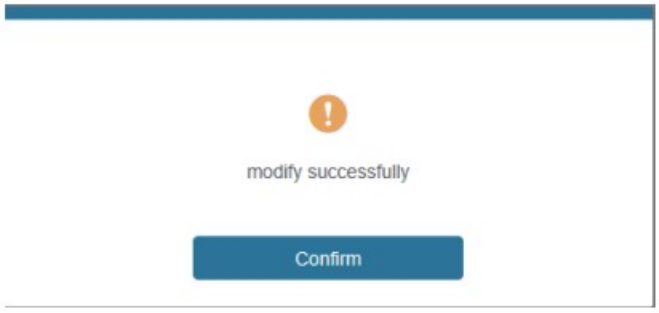
Click “OK” to search the IP Address again, as shown in the following figure:



After searching is completed, it will switch to the login page, the default network setting is completed.

Modify User Password

Click the “User” button, enter the correct Old Password, New Password, and Confirm Password, then click “Save”. After successful modification, there will be a prompt, as shown in the following figure:

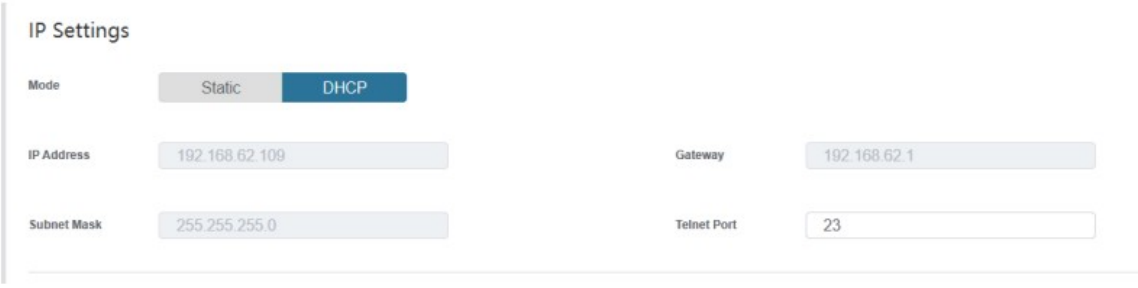


Note: Input rules for changing passwords:

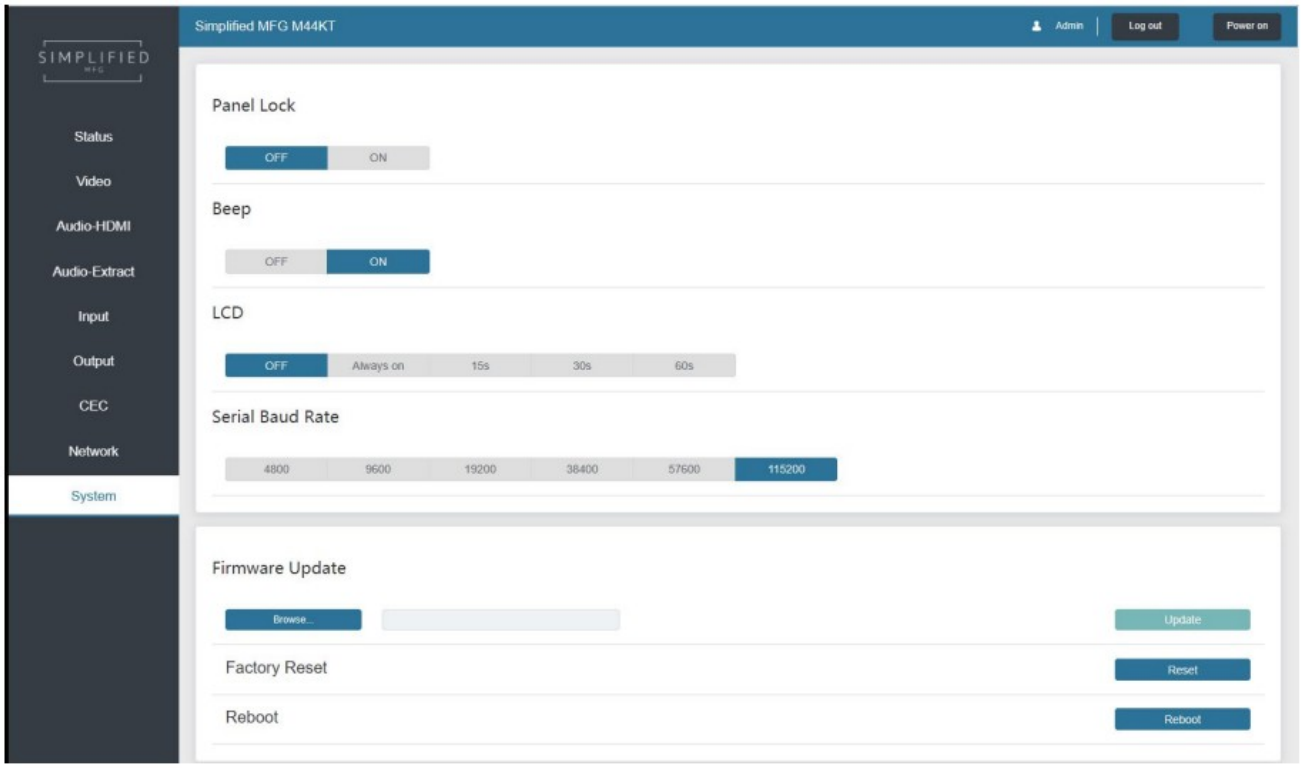
1. The password can't be empty.
2. New Password can't be the same as Old Password.
3. New Password and Confirm Password must be the same.

Modify Network Setting

Modify the Mode/IP Address/Gateway/Subnet Mask/Telnet Port as required, click "Save" to save the settings, then it will come into effect. After modification, if the Mode is "Static", it will switch to the corresponding IP Address; if the Mode is "DHCP", it will automatically search and switch to the IP Address assigned by the router.



System Page



1. Panel Lock: Click to Lock/Unlock front panel buttons. "On" means the buttons are available, "Off" means that they are not available.
2. Beep: Click to turn off and on the Beep sound.
3. LCD: This turns off and on the front display and sets a time for it to remain on.
4. Serial Baud Rate: Sets the Baud Rate value.
5. Firmware Update: By clicking the "Browse" button, you can search your PC for an update file update the M44KT's firmware.
6. Factory Reset: Clicking this button returns the M44KT to factory default settings.
7. Reboot: This reboots the M44KT and keeps the current settings. Once you click the reboot button, the M44KT will return to the Login page.

RS-232 Control Command

The product also supports RS-232 control. You need a serial cable with RS-232 male head and DB9 transfer USB male head. The RS-232 head of the serial cable is connected to the RS-232 control port with DB 9 at the rear of the Matrix, and the USB head of the serial cable is connected to a PC. Use a USB to DB-9 interface cable to connect your PC to the M44KT. This is the API used to create a control system driver as well.
Then, open a Serial Command tool on PC to send ASCII command to control the Matrix.
The ASCII command list about the product is shown as below:

ASCII Command				
Serial port protocol. Baud rate: 115200, Data bits: 8bit, Stop bits:1, Check bit: 0				
x – Parameter 1 y – Parameter 2 ! – Delimiter				
ASCII Command	**Function Description**	**Example**	**Feedback**	**Default Setting**
Power				
s power z!	Power on/off the device,z=0~1 (z=0 power off, z=1 power on)	s power 1!	Power on System Initializing … Initialization Finished! power off POWER 0	power on
r power!	Get current power state	r power!	power on/power off	
s reboot!	Reboot the device	s reboot!	Reboot… System Initializing … Initialization Finished! FW version 1.00.01	
System Setup				
help!	List all commands	help!		
r type!	Get device model	r type!	M44KT	
r status!	Get device current status	r status!	Get the unit all status: power, beep, lock, in/ out connection, video/ audio crosspoint, edid, scaler, hdcp, network status	

ASCII Command	**Function Description**	**Example**	**Feedback**	**Default Setting**
r fw version!	Get Firmware version	r fw version!	MCU BOOT: V1.00.02 MCU APP: V1.00.01 WEB GUI: V1.01	
r link in x!	Get the connection status of the x input port x=0~4(0=all)	r link in 1!	hdmi input 1: connect	

r link out y!	Get the connection status of the y output port y=0~40=all)	r link out 1!	hdmi output 1: connect hdbt output 1: connect	
s reset!	Reset to factory defaults	s reset!	Reset to factory defaults System Initializing… Initialization Finished! FW version 1.00.01	
s beep z!	Enable/Disable buzzer function, z=0~1(z=0 beep off, z=1 beep on)	s beep 1!	beep on beep off	beep on
r beep!	Get buzzer state	r beep!	beep on / beep off	
s lock z!	Lock/Unlock front panel button, z=0~1 (z=0 lock off,z=1 lock on)	s lock 1!	panel button lock on panel button lock off	panel button lock off
r lock!	Get panel button lock state	r lock!	panel button lock on/off	
s lcd on time z!	Set LCD screen remain on time, z=0~4 (0:off, 1:always on, 2:15s, 3:30s, 4:60s)	s lcd on time 1!	lcd on always	lcd on 30 seconds
r lcd mode!	Get the backlight status of lcd screen	r lcd mode!	lcd on always	
s save preset z!	Save switch state between all output port and the input port to preset z, z=1~4	s save preset 1!	save to preset 1	
s recall preset z!	Call saved preset z scenarios, z=1~4	s recall preset 1!	recall from preset 1	
s clear preset z!	Clear stored preset z scenarios, z=1~4	s clear preset 1!	clear preset 1	
r preset z!	Get preset z information, z=1~4	r preset 1!	video/audio crosspoint	
s ptp!		s ptp!	ptp	ptp
Output Setting				
s in x av out y!	Set input x to output y x=1~4 y=0~4(0=all)	s in 1 av out 2!	input 1 -> output 2	input 1 -> output 1 input 2 -> output 2 input 3 -> output 3 input 4 -> output 4

r av out y!	Get output y signal status y=0~4(0=all)	r av out 0!	input 1 -> output 1 input 2 -> output 2 input 3 -> output 3 input 4 -> output 4	
s hdmi y stream z!	Set hdmi output y stream on/off, y=0~4(0=all) z=0~1(0:disable,1:enable)	s hdmi 1 stream 1! s hdmi 0 stream 1!	Enable hdmi output 1 stream Disable hdmi output 1 stream Enable hdmi all outputs stream Disable hdmi all outputs stream	Enable hdmi all outputs stream
r hdmi y stream!	Get hdmi output y stream status, y=0~4(0=all)	r hdmi 1 stream !	Enable hdmi output 1 stream Disable hdmi output 1 stream	

ASCII Command	**Function Description**	**Example**	**Feedback**	**Default Setting**
s hdbt y stream z!	Set hdbt output y stream on/off, y=0~4(0=all) z=0~1(0:disable,1:enable)	s hdbt 1 stream 1! s hdbt 0 stream 1!	Enable hdbt output 1 stream Disable hdbt output 1 stream Enable hdbt all outputs stream Disable hdbt all outputs stream	Enable hdbt all outputs stream
r hdbt y stream!	Get hdbt output y stream status, y=0~4(0=all)	r hdbt 1 stream!	Enable hdbt output 1 stream Disable hdbt output 1 stream	
s hdmi y scaler z!	Set hdmi output y port output scaler mode y=0~4(0=all), z=1~3(1=bypass,2=4k->1080p, 3=Auto)	s hdmi 1 scaler 1! s hdmi 0 scaler 1!	hdmi output 1 set to bypass mode hdmi all outputs set to bypass mode	hdmi all outputs set to bypass
r hdmi y scaler!	Get hdmi output y port output mode y=0~4(0=all)	r hdmi 1 scaler!	hdmi output 1 set to bypass mode	
s hdbt y scaler z !	Set hdbt output x port output scaler mode y=0~4(0=all), z=1~3(1=bypass,2=4k->1080p, 3=Auto)	s hdbt 1 scaler 2 ! s hdbt 0 scaler 2 !	hdbt output 1 set to 4k->1080p mode hdbt all outputs set to 4k->1080p mode	hdbt all outputs set to bypass
r hdbt y scaler !	Get hdbt output y port output scaler mode y=0~4(0=all)	r hdbt 1 scaler !	hdbt output 1 set to 4k->1080p mode	
EDID Setting				

s edid in x from z!	Set input x EDID from default EDID z, x=0~4(0=all),z=1~31 1=1080p,Stereo Audio 2.0 2=1080p,Dolby/DTS 5.1 3=1080p,HD Audio 7.1 4=1080i,Stereo Audio 2.0 5=1080i,Dolby/DTS 5.1 6=1080i,HD Audio 7.1 7=3D,Stereo Audio 2.0 8=3D,Dolby/DTS 5.1 9=3D,HD Audio 7.1 10=4K2K30_444,Stereo Audio 2.0 11=4K2K30_444,Dolby/DTS 5.1 12=4K2K30_444,HD Audio 7.1 13=4K2K60_420,Stereo Audio 2.0 14=4K2K60_420,Dolby/DTS 5.1 15=4K2K60_420,HD Audio 7.1 16=4K2K60_444,Stereo Audio 2.0 17=4K2K60_444,Dolby/DTS 5.1 18=4K2K60_444,HD Audio 7.1 19=4K2K60_444,Stereo Audio 2.0 HDR 20=4K2K60_444,Dolby/DTS 5.1 HDR 21=4K2K60_444,HD Audio 7.1 HDR 22=User1 23=User2 24~27=copy from hdmi output 1~4 28~31=copy from hdbt output 1~4	s edid in 1 from 1!	IN 1 EDID:1080p, Stereo Audio 2.0	IIN1: 1080p, Stereo Audio 2.0 IN2: 080p, Stereo Audio 2.0 IN3: 080p, Stereo Audio 2.0 IN4: 080p, Stereo Audio 2.0
r edid in x!	Get EDID status of the input x x=0~4(0=all input)	r edid in 0!	IN1 EDID: 4K2K60_444,Stereo Audio 2.0 IN2 EDID: 4K2K60_444,Stereo Audio 2.0 IN3 EDID: 4K2K60_444,Stereo Audio 2.0 IN4 EDID: 4K2K60_444,Stereo Audio 2.0	

ASCII Command	**Function Description**	**Example**	**Feedback**	**Default Setting**
r edid data hdmi y!	Get the EDID data of the hdmi output y port y=1~4	r edid data hdmi 1!	EDID: 00 FF FF FF FF FF FF 00 ……	
r edid data hdbt y!	Get the EDID data of the hdbt output y port y=1~4	r edid data hdbt 1!	EDID: 00 FF FF FF FF FF FF 00 ……	

r internal edid!	Get all built-in EDID informati on for unit support	r internal edid!	1,1080p,Stereo Audio 2.0 2,1080p,Dolby/DTS 5. 1 3,1080p,HD Audio 7.1 4,1080i,Stereo Audio 2.0……. 20,4K2K60,D olby/ DTS 5.1 HDR 21 ,4K2K60,HD Audio 7.1 HDR	
Audio Setting				
s hdmi y arc z!	Turn on/off ARC of HDMI output y, y=0~4(0=all) z=0~1(z=0,off,z=1 on)	s hdmi 1 arc 1! s hdmi 0 arc 1!	hdmi output 1 arc on h dmi output 1 arc off hd mi all outputs arc on h dmi all outputs arc off	hdmi all outputs arc off
r hdmi y arc!	Get the ARC state of HDMI o utput y y=0~4(0=all)	r hdmi 1 arc!	hdmi output 1 arc on	
s hdbt y arc z!	Turn on/off ARC of HDBT out put y, y=0~4(0=all) z=0~1(z=0,off,z=1 on)	s hdbt 1 arc 1! s hdbt 0 arc 1!	hdbt output 1 arc on h dbt output 1 arc off hd bt all outputs arc on h dbt all outputs arc off	hdbt all outputs a rc off
r hdbt y arc!	Get the ARC state of HDMI o utput y y=0~4(0=all)	r hdbt 1 arc!	hdbt output 1 arc on	
s out y audio fro m z!	Set HDMI/HDBT output audio y=0~4(0=all),z=0~16 z=0, Default z=1~4 from HDMI input 1~4 z =5~8 from HDMI out 1~4 AR C z=9~12 from HDBT out 1~4 ARC z=13~16 from embed audio 1~4 Attention: when z= 0,HDMI/HDBT audio can't set audio delay.	s out 1 audio fro m 1! s out 0 aud io from 1!	HDMI/HDBT output 1 audio: from HDMI input 1 HDMI/HDBT all output s audio: from HDMI in put 1	HDMI/HDBT all outputs from def ault
r out y audio!	Get HDMI/HDBT output audio status y=0~4(0=all)	r out 1 audio!	HDMI/HDBT output 1 from HDMI input 1	
s coax_analog o ut y audio from z !	Set coaxial output audio y=0~ 4 (0=all),z=1~1 z=1~4 from HDMI input 1~4 z =5~8 from HDMI out 1~4 AR C z=9~12 from HDBT out 1~4 ARC z=13~16 from embed audio 1~4	s coax_analog out 1 audio from 1! s coax_analog out 0 audio from 1!	Coaxial_Analog outpu t 1 audio: from HDMI i nput 1 Coaxial_Analog a ll outputs audio: from HDMI input 1	Coaxial_Analog all outputs audio: from HDMI input 1
s coax_analog o ut y audio delay z!	Set coax_analog output audio delay y=0~4(0=all), z=0~300 ms	s coax_analog out 1 audio dela y 100! s coax_a nalog out 0 audi o delay 100!	Coaxial_Analog outpu t 1 audio delay 100ms Coaxial_Analog all out puts audio delay 100 ms	Coaxial_Analog all outputs audio delay 100ms

s coax_analog out y audio mute z!	Mute on/off coax_analog output audio y=0~4(0=all), z=0~1(z=0 off,z=1 on)	s coax_analog out 1 audio mute 1!	Mute coax_analog output 1 audio	Mute off all coax_analog out audio

ASCII Command	**Function Description**	**Example**	**Feedback**	**Default Setting**
s coax_analog out y audio vol z!	Set analog output audio volume y=0~4(0=all), z=0~30,+,-;	s analog out 1 audio vol 30! s analog out 1 audio vol +! s analog out 0 audio vol 30! sanalog out 0 audio vol +!	Analog output 1 audio volume 30 Analog all outputs audio volume 30	all Analog output audio volume 20
r coax_analog out y audio!	Get coax_analog output audio status y=0~4(0=all)	r coax_analog out 1 audio!	Coaxial_Analog output 1 audio from HDMI input 1 Coaxial_Analog output 1 audio delay 0ms Analog output 1 audio volume 20 Mute off coax_analog output 1 audio	
CEC Setting				
s cec in x on!	set input x power on by CEC, x=0~4(0=all input)	s cec in 1 on!	input 1 power on	
s cec in x off!	set input x power off by CEC, x=0~4(0=all input)	s cec in 1 off!	input 1 power off	
s cec in x menu!	set input x open menu by CEC, x=0~4(0=all input)	s cec in 1 menu!	input 1 open menu	
s cec in x back!	set input x back operation by CEC, x=0~4(0=all input)	s cec in 1 back!	input 1 back operation	
s cec in x up!	set input x menu up operation by CEC, x=0~4(0=all input)	s cec in 1 up!	input 1 menu up operation	
s cec in x down!	set input x menu down operation by CEC, x=0~4(0=all input)	s cec in 1 down!	input 1 menu down operation	
s cec in x left!	set input x menu left operation by CEC, x=0~4(0=all input)	s cec in 1 left!	input 1 menu left operation	
s cec in x right!	set input x menu right operation by CEC, x=0~4(0=all input)	s cec in 1 right!	input 1 menu right operation	
s cec in x enter!	set input x menu enter by CEC, x=0~4(0=all input)	s cec in 1 enter!	iInput 1 menu enter operation	
s cec in x play!	set input x play by CEC, x=0~4(0=all input)	s cec in 1 play!	input 1 play operation	

s cec in x pause!	set input x pause by CEC, x=0~4(0=all input)	s cec in 1 pause!	iInput 1 pause operation	
s cec in x stop!	set input x stop by CEC, x=0~4(0=all input)	s cec in 1 stop!	input 1 stop operation	
s cec in x rew!	set input x rewind by CEC, x=0~4(0=all input)	s cec in 1 rew!	input 1 rewind operation	
s cec in x mute!	set input x volume mute by CEC, x=0~4(0=all input)	s cec in 1 mute!	input 1 volume mute	
s cec in x vol-!	set input x volume down by CEC, x=0~4(0=all input)	s cec in 1 vol-!	input 1 volume down	
s cec in x vol+!	set input x volume up by CEC, x=0~4(0=all input)	s cec in 1 vol+!	input 1 volume up	
s cec in x ff!	set input x fast forward by CEC, x=0~4(0=all input)	s cec in 1 ff!	input 1 fast forward operation	
s cec in x previous!	set input x previous by CEC, x=0~4(0=all input)	s cec in 1 previous!	input 1 previous operation	

ASCII Command	**Function Description**	**Example**	**Feedback**	**Default Setting**
s cec in x next!	set input x next by CEC, x=0~4(0=all input)	s cec in 1 next!	input 1 next operation	
s cec hdmi out y on!	set hdmi output y power on by CEC, y=0~4(0=all hdmi output)	s cec hdmi out 1 on!	hdmi output 1 power on	
s cec hdbt out y on!	set hdbt output y power on by CEC, y=0~4(0=all hdbt output)	s cec hdbt out 1 on!	hdbt output 1 power on	
s cec hdmi out y off!	set hdmi output y power off by CEC, y=0~4(0=all hdmi output)	s cec hdmi out 1 off!	hdmi output 1 power off	
s cec hdbt out y off!	set hdbt output y power off by CEC, y=0~4(0=all hdbt output)	s cec hdbt out 1 off!	hdbt output 1 power off	
s cec hdmi out y mute!	set hdmi output y volume mute by CEC, y=0~4(0=all hdmi output)	s cec hdmi out 1 mute!	hdmi output 1 volume mute	
s cec hdbt out y mute!	set hdbt output y volume mute by CEC, y=0~4(0=all hdbt output)	s cec hdbt out 1 mute!	hdbt output 1 volume mute	
s cec hdmi out y vol-!	set hdmi output y volume down by CEC, y=0~4(0=all hdmi output)	s cec hdmi out 1 vol-!	hdmi output 1 volume down	

s cec hdbt out y vol-!	set hdbt output y volume down by CEC, y=0~4(0=all hdbt output)	s cec hdbt out 1 vol-!	hdbt output 1 volume down	
s cec hdmi out y vol+!	set hdmi output y volume up by CEC, y=0~4(0=all hdmi output)	s cec hdmi out 1 vol+!	hdmi output 1 volume up	
s cec hdbt out y vol+!	set hdbt output y volume up by CEC, y=0~4(0=all hdbt output)	s cec hdbt out 1 vol+!	hdbt output 1 volume up	
s cec hdmi out y active!	set hdmi output y active source by CEC, y=0~4(0=all hdmi output)	s cec hdmi out 1 active!	hdmi output 1 active source	
s cec hdbt out y active!	set hdbt output y active source by CEC, y=0~4(0=all hdbt output)	s cec hdbt out 1 active!	hdbt output 1 active source	
Network Setting				
r ipconfig!	Get the Current IP Configuration	r ipconfig!	IP Mode: DHCP IP:192.168.62.106 Subnet Mask: 255.255.255.0 Gateway:192.168.62.1 TCP/IP port:8000 Telnet port:23 Mac address: 6C:DF:FB:0C:B3:8E	
r mac addr!	Get network MAC address	r mac addr!	Mac address: 6C:DF:FB:0C:B3:8E	
s ip mode z!	Set network IP mode to static IP or DHCP, z=0~1 (z=0 Static, z=1 DHCP)	s ip mode 0!	Set IP mode:Static (Please use “s net reboot!” command or repower device to apply new config!)	DHCP ON

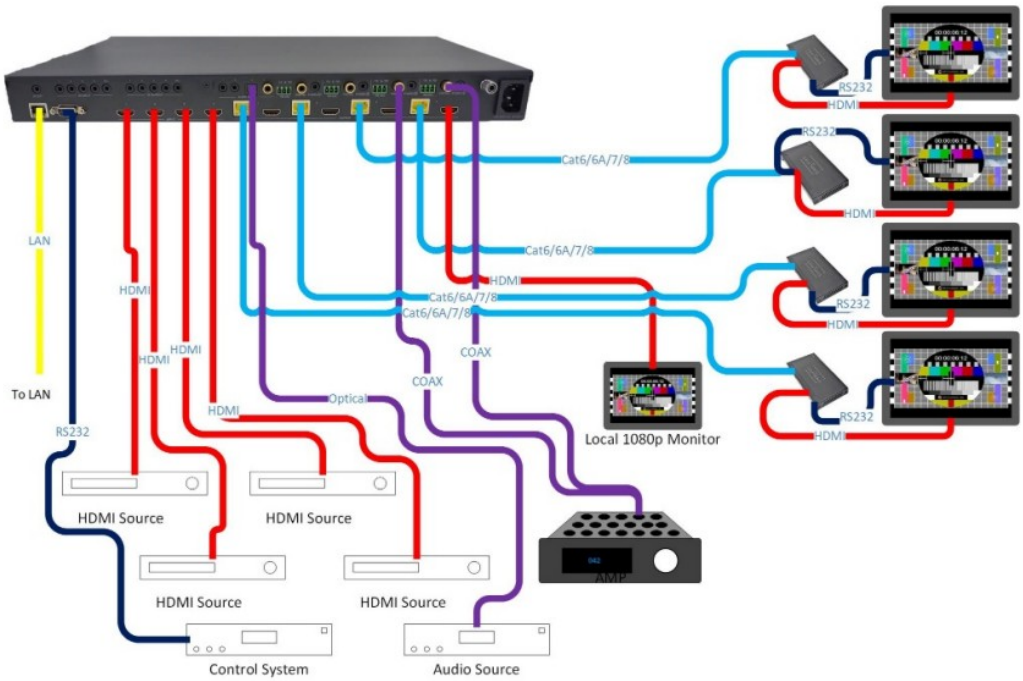
r ip mode!	Get network IP mode	r ip mode!	IP Mode: DHCP	
s ip addr xxx.xxx.xxx.xxx!	Set network IP address	s ip addr 192.168.1.100!	Set IP address: 192.168.1.100 (Please use “s net reboot!” command or repower device to apply new config!) DHCP on, Device can’t config static address, set DHCP off first.	
r ip addr!	Get network IP address	r ip addr!	IP:192.168.62.106	

ASCII Command	Function Description	Example	Feedback	Default Setting
s subnet xxx.xxx.xxx.xxx!	Set network subnet mask	s subnet 255.255.255.0!	Set subnet Mask address:255.255.255.0 (Please use “s net reboot!” command or repower device to apply new config!) DHCP on, Device can’t config subnet mask, set DHCP off first.	
r subnet!	Get network subnet mask	r subnet!	Subnet Mask: 255.255.255.0	
s gateway xxx.xxx.xxx.xxx!	Set network gateway	s gateway 192.168.1.1!	Set gateway: 192.168.1.1 Please use “s net reboot!” command or repower device to apply new config! DHCP on, Device can’t config gateway, set DHCP off first.	
r gateway!	Get network gateway	r gateway!	Gateway:192.168.1.1	
s tcp/ip port x!	Set network TCP/IP port (x=1~65535)	s tcp/ip port 8000!	Set TCP/IP port:8000	Set tcp/ip port:8000
r tcp/ip port!	Get network TCP/IP port	r tcp/ip port!	TCP/IP port:8000	
s telnet port x!	Set network telnet port (x=1~65535)	s telnet port 23!	Set Telnet port:23	Set telnet port:23
r telnet port!	Get network telnet port	r telnet port!	Telnet port:23	
s net reboot!	Reboot network modules	s net reboot!	Search for IP,Please wait …! IP Mode: DHCP IP: 192.168.62.111 Subnet Mask: 255.255.255.0 Gateway:192.168.62.1 TCP/IP port:8000 Telnet port:23 Mac address: 6C:DF:FB:0C:B3:8E	
s uart x mode y!	Set the mode of x local and hdbt uart , x=0-4 ,y=0-1, 0:bypass mode, 1:user control mode	s uart 1 mode 1 !	Local And Far Uart1 Control Mode	

s uart x datalen y!	Set the data length of x local and hdbt uart , x=0-8, y=1-2, 1:8bit 2:7bit	s uart 1 datalen 1!	LocalUart1 DataLen is 8bit	

s uart x baudrate y!	Set the baudrate of x local a nd hdbt uart , x=0- 8(0=all,1 ~4=local uart,5~8=hdbt uart) , y=1-8, 1: 115200(Default) 2 : 57600 3: 56000 4:38400 5:19200 6:14400 7:9600 8:4800	s uart 1 baudrate 1!	LocalUart%d Baudr ate is 115200	
s uart x parity y!	Set the Parity of x local and hdbt uart, x=0-8, y=1-3, 1:no ne 2:odd 3:even	s uart x parity 1 !	LocalUart1 Parity is None	
s uart x type z se nddata y end!	Send data y from x local and hdbt uart, z=0 ascii, z=1 hex ,x=0-4	s uart 1 type 0 senddata abcd efg end!	LocalUart1 data: ab cdefg	
r uart status x!	Get the Status of x local and hdbt uart , x=0-4	r uart status 1!		

Application Example



**Please Note: IR is not illustrated here and can be found in the IR section of this manual (section 6).

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Warranty Information

Should you feel that this product does not function adequately due to defects4 in materials or workmanship, we (referred to as “the warrantor”) will, for the length of the period indicated below (starting from the original date of

the purchase) either a) repair the product with new or refurbished parts. Or b) Replace the product with new or refurbished product. All Simplified MFG products are covered by a 3-year PARTS and LABOR warranty. During this period there will be no charge for unit repair, replacement of unit components or replacement of the product if deemed necessary. The decision to repair or replace is made by the warrantor. The purchaser must mail in the product during the warranty period. This limited warranty only covers the product purchased as new and is extended to the original purchaser only. It is nontransferrable to subsequent owners, even during the warranty period. A urchase receipt or other proof of purchase date is required for the limited warranty service.

Contact Information

Sales and Tech Support
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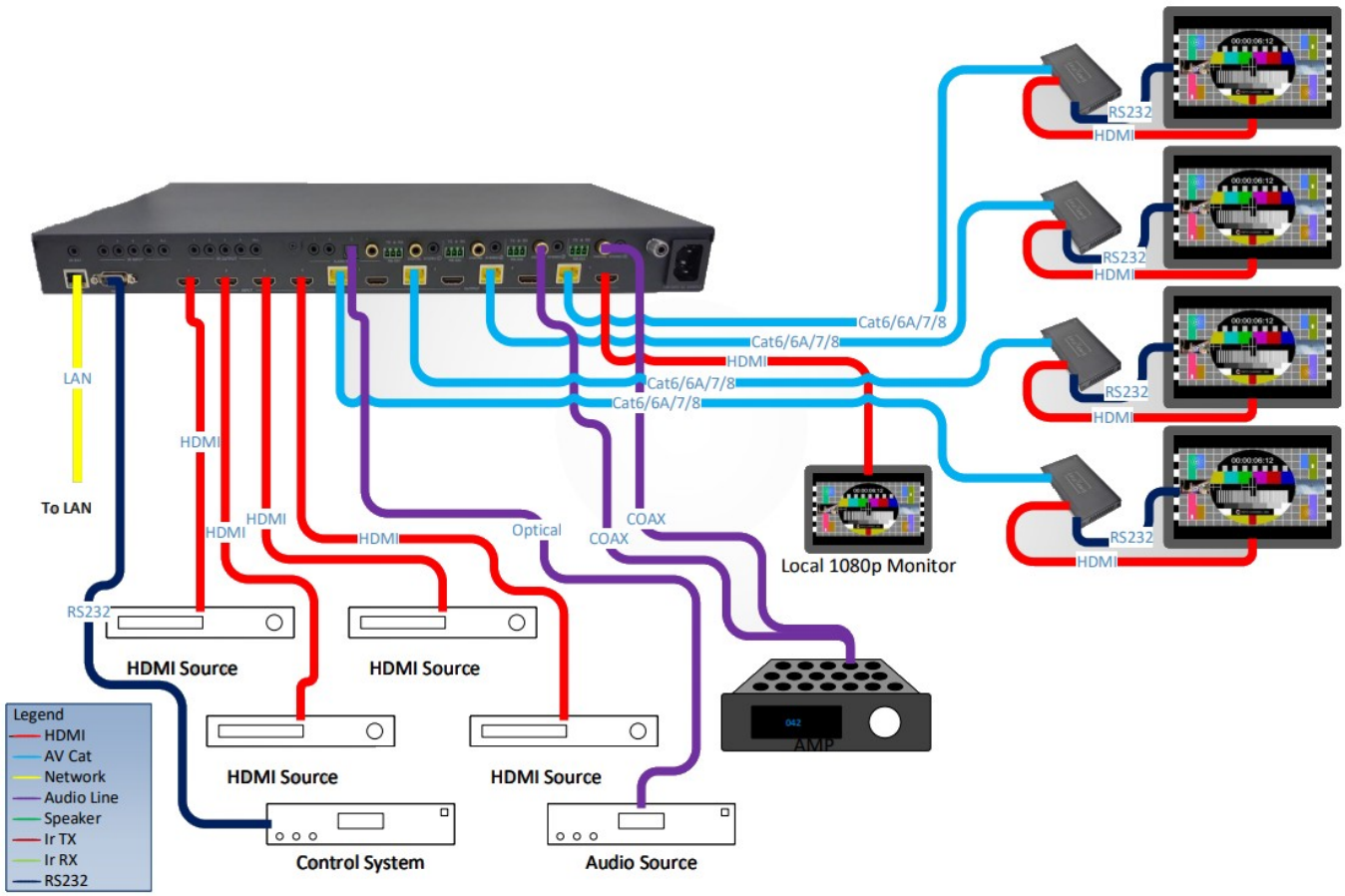
M44KT Quick Start Guide



- The M44KT is a HDMI 2.0b (18Gbps) 4K matrix kit with 4 RX devices
- The M44KT features audio routing 4 independent inputs), scaling on every output (HDMI can scale independent of Cat output on same channel), and intuitive Web GUI
- The M44KT can be controlled via IP, RS232, IR, web GUI, and buttons on the front of the matrix.
- The M44KT can route RS232 and IR commands (RS232 shown)

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Documents / Resources

	Simplified MFG M44kt Hdmi Over Cat 6 Audio Video Scaling Matrix 4 In 4 Out with 4 Receivers [pdf] User Manual M44kt Hdmi Over Cat 6 Audio Video Scaling Matrix 4 In 4 Out with 4 Receivers, M44kt, Hdmi Over Cat 6 Audio Video Scaling Matrix 4 In 4 Out with 4 Receivers, Video Scaling Matrix 4 In 4 Out with 4 Receivers, 4 In 4 Out with 4 Receivers

References

- Simplified MFG Cutting Edge HDMI Solutions
- User Manual