

# Operating Instructions

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Thanks for purchasing our product.

Please be sure to read this instruction manual carefully before using our product.



**Model: HKTM0404MH4**

## Notice:

HANK Inc. reserves the right to make changes in the hardware, packaging and any accompanying documentation without prior written notice.

### **Warning**

#### To reduce the risk of fire, electric shock or product damage:



1. Do not expose this apparatus to rain, moisture, dripping or splashing and that no objects filled with liquids, such as vases, shall be placed on the apparatus.



6. Clean this apparatus only with dry cloth.



2. Do not install or place this unit in a bookcase, built-in cabinet or in another confined space. Ensure the unit is well ventilated.



7. Unplug this apparatus during lightning storms or when unused for long periods of time.



3. To prevent risk of electric shock or fire hazard due to overheating, do not obstruct the unit's ventilation openings with newspapers, tablecloths, curtains, and similar items.



8. Protect the power cord from being walked on or pinched particularly at plugs.



4. Do not install near any heat sources such as radiators, heat registers, stoves, or other apparatus (including amplifiers) that produce heat.



9. Only use attachments / accessories specified by the manufacturer.



5. Do not place sources of naked flames, such as lighted candles, on the unit.



10. Refer all servicing to qualified service personnel.

# Contents

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## ■ Product Overview

HKTM0404MH4 is a matrix with 4K x 2K@30Hz - 4 input and 4 output, which has 4 HDMI Input, 4 HDMI Output. It can be switched between the input and output channels whether HDMI Input source is encrypted or not. It supports Local IR Extension, IP control,RS232 control,EDID Management. For easy operation, it is widely applied in home, theatre, shopping mall, school, conference, hotel installation industry.



## ■ Features

- Support 4K x 2K@30Hz, 1080P, 720P and all video output formats
- Support local IR extension
- Support RS232 & IP Control
- Support HDCP 1.3 version 3D and EDID Management
- 4 HDMI Input, 4 HDMI Output
- Support 12V power supply
- Easy installation and operation

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## ■ Package Contents

- ① Main unit:HKTM0404MH4
- ② Operating instructions
- ③ 1x 12V/5A power supply
- ④ 1x AC Power Cord
- ⑤ 1x IR Receiver (38KHz for IR local control)
- ⑥ 1x IR Remote(with Button Cell)
- ⑦ 1X USB to UART Cable

## ■ Specifications

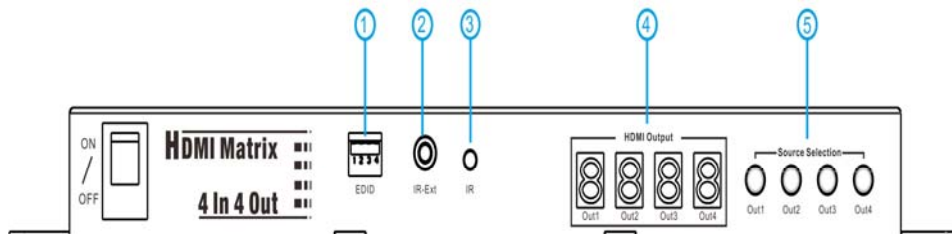
Operating Temperature Range	-5 to +35°C (-41 to +95 °F)
Operating Humidity Range	5 to 90 % RH (no condensation)
Input Video Signal	0.5-1.0 volts p-p
Input DDC Signal	5 volts p-p (TTL)
Video Format Supported	4K x 2K /1080p/1080i/720p/576p/480p/576i/480i
Output Video	HDMI 1.4
Output Audio	Support DTS-HD, Dolby-HD
Transmission Distance	4K x 2K ≤8m, 1080P≤15m
Power Supply	12V DC
Power Consumption	20Watts
Dimensions	317mmL×156mmW×28mmH
Net Weight (Main unit)	1.5Kg

## ■ Panel Descriptions

### TOP Panel

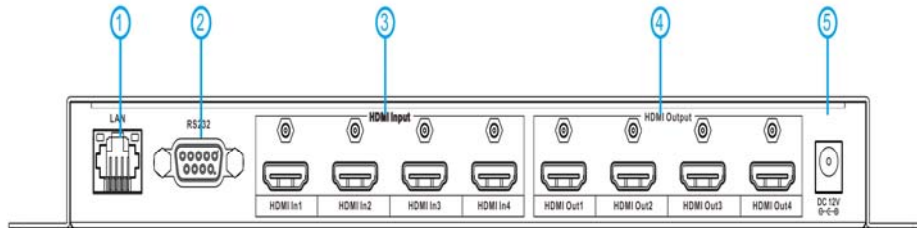


### Front Panel



- ①: EDID Management
- ②: Local IR Extension Port
- ③: Local IR Control
- ④: LED Digital Display
- ⑤: Source Selection

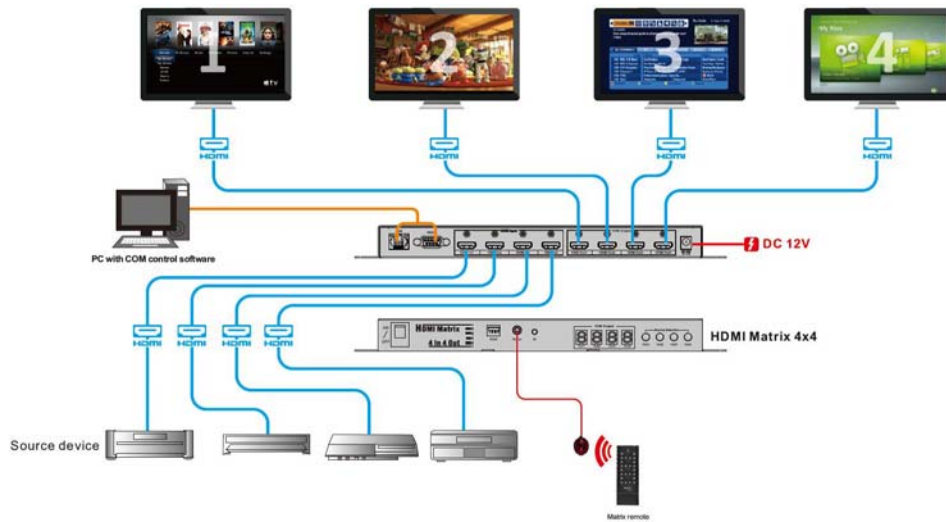
## Back Panel



- ①: LAN Port
- ②: RS232 Port
- ③: HDMI Input
- ④: HDMI Output
- ⑤: Power Input Port (DC12V/5A)

## ■ Connections and Operations

### 1. Connection diagram:



## 2. Installation:

- ①. Connect the Matrix's HDMI Input to signal source (eg. DVD, STB) with HDMI cable.
- ②. Connect the Matrix's HDMI Output to display device (eg. TV set) with HDMI cable.
- ③. Turn on DVD, TV set and HKTM0404MH4 matrix.
- ④. Switch and select the Input source by button or IR remote, or by RS232 control, IP control.

## 3. Operation:

### 1). Front Panel Button Control:

- ①. Press the Out1 button in front panel, number in the digital display will be changed correspond to each time press. For example, if Out1 LED digital displays "1", it stands Out1 is connecting to HDMI Input1 source. If press the Out1 button for another second, Out1 displays "2", it stands Out1 is connecting to HDMI Input2 source. When Out1 switch from 1 to 4, the Out1 will cycle back and forth correspondingly.
- ②. Other button operations and display refer to ①.

### 2). Front Panel IR Control:



#### The Matrix can be operated by IR remote.

1) There are two switch methods for OUT1

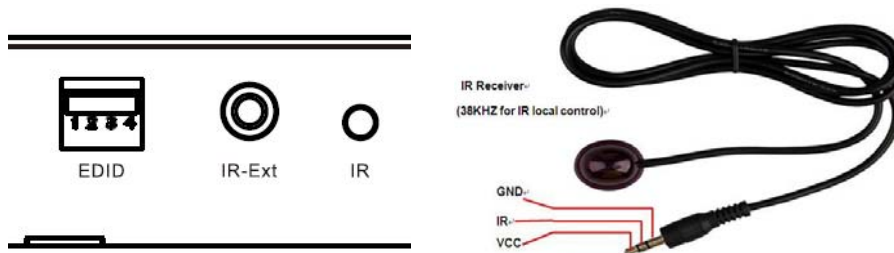
① Each time press the left arrow, digital tube digital decline, the corresponding input signal source will be switch to OUT1. Each time press the right arrow, digital tube digital increase, the corresponding input signal source will be switch to OUT1.

② 1,2,3,4, show that four signal sources, if press each of these number 1,2,3,4, the corresponding input signal source will be switch to OUT1.

2) The same switch operating principle for OUT2, OUT3, OUT4.



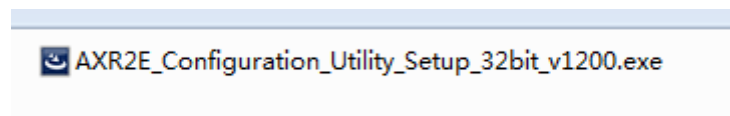
### 3).Local IR control:



Access to the IR Ext port with IR receiver (IR RX), and Matrix is operated by IR remote.

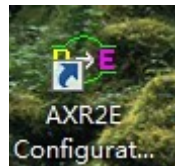
### 4).IP Control:

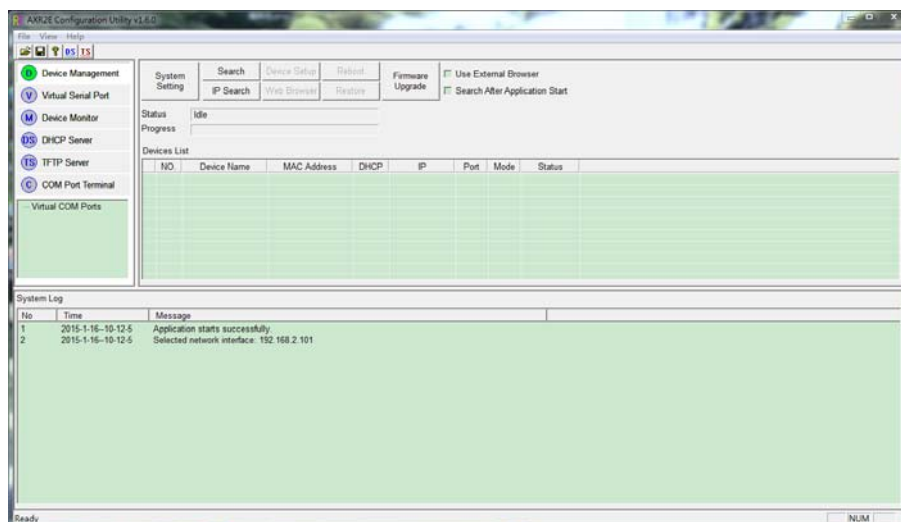
①. Install



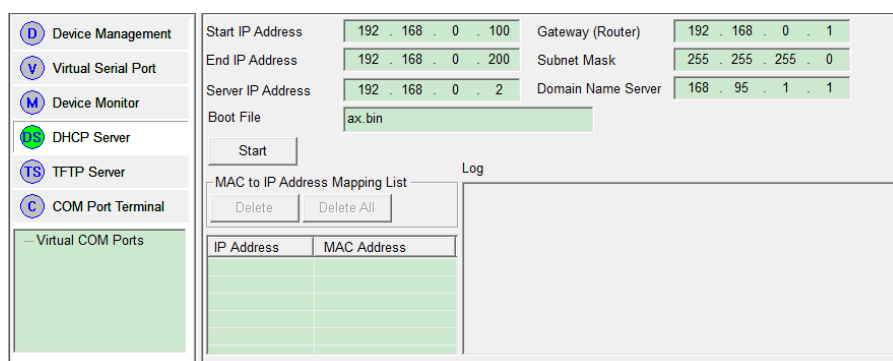
②. Connect the computer to the matrix's LAN interface with Cat5e/6 cable, then power the matrix on.

③. Open





④. HDPC should be opened if matrix connects directly to the computer. Click DHCP Server.



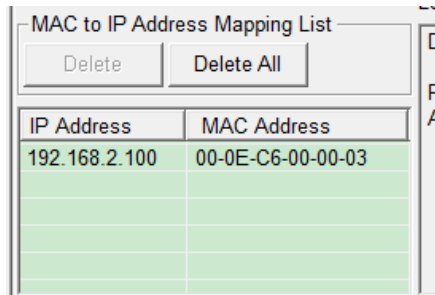
Start / End IP address: fill in the distributed IP in HDPC.

Server IP address: current IP address. Note that the computer IP can not be obtained automatically if connect directly to matrix.

gateway/subnet/domain name server: default values or user-defined are available

Press *Start* button to start HDCP

⑤. Restart the matrix power supply. And below IP address of matrix will be shown.

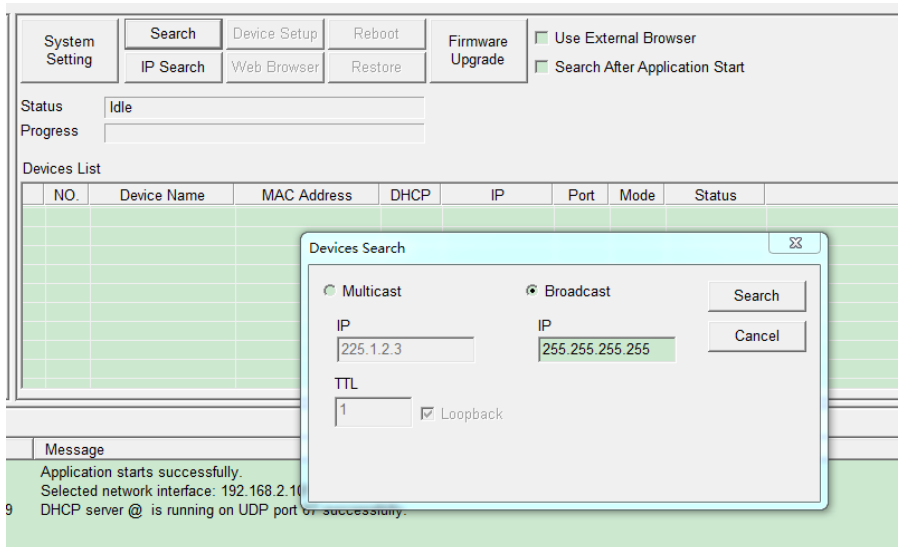


The screenshot shows a web interface titled "MAC to IP Address Mapping List". It features two buttons at the top: "Delete" and "Delete All". Below these is a table with two columns: "IP Address" and "MAC Address". The first row of the table contains the values "192.168.2.100" and "00-0E-C6-00-00-03". The remaining rows in the table are empty and have a light green background.

IP Address	MAC Address
192.168.2.100	00-0E-C6-00-00-03

⑥. If the matrix is connected by router repeater device, such as router, which open the HDCP, please ignore Step 3 and Step 4.

⑦. Switch to *Device Management*, press the *Search* button to find the device.



The screenshot displays the "Device Management" section of a web interface. At the top, there are several buttons: "Search", "Device Setup", "Reboot", "Firmware Upgrade", "IP Search", "Web Browser", and "Restore". There are also two checkboxes: "Use External Browser" and "Search After Application Start". Below these buttons, the "Status" is shown as "Idle" and "Progress" is empty. A "Devices List" table is visible, with columns for "NO.", "Device Name", "MAC Address", "DHCP", "IP", "Port", "Mode", and "Status". A "Devices Search" dialog box is open in the foreground, showing options for "Multicast" and "Broadcast" search. The "Broadcast" option is selected. The dialog includes input fields for "IP" (with the value "225.1.2.3" and "255.255.255.255"), "TTL" (with the value "1"), and a "Loopback" checkbox which is checked. "Search" and "Cancel" buttons are also present in the dialog. At the bottom of the page, a "Message" box displays the text: "Application starts successfully. Selected network interface: 192.168.2.100. DHCP server @ is running on UDP port @ successfully."

⑧. It will be shown in the list if the device has been founded.

The screenshot shows a control panel with several tabs: System Setting, Search, Device Setup, Reboot, and Firmware Upgrade. Under the Search tab, there are sub-tabs for IP Search and Web Browser. To the right, there are two checkboxes: 'Use External Browser' and 'Search After Application Start'. Below these is a 'Status' field set to 'Idle' and a 'Progress' bar with 15 blue segments. At the bottom, a 'Devices List' table is displayed.

	NO.	Device Name	MAC Address	DHCP	IP	Port	Mode	Status	
<input checked="" type="checkbox"/>	1	DSM1	00-0E-C6-00-00-03	Enable	192.168.2.100	5000	Server	Idle	

⑨. After device selected, pressing the *Web Browser* button to start build-in browser. Or select the *Use External Browser* button to open from external browser.

⑩. Enter username and password, the default are both admin.

The screenshot shows a 'Login' screen with a dotted line separator. It contains two input fields: 'Username' with the text 'admin' and 'Password' with five dots. A 'Login' button is centered below the fields.

⑪. After entering the browser interface, the function introductions are as below: (logout: exit browser, Reboot: restart matrix)

**Switch: channel change**

Logout Reboot

Switch **EDID** Basic Setting Security

**Switch Settings**

Output	Current Input	Input	Operation
• Output 1	1	Select Input ▾	Apply
• Output 2	2	Select Input ▾	Apply
• Output 3	3	Select Input ▾	Apply
• Output 4	4	Select Input ▾	Apply
• Output 5	5	Select Input ▾	Apply
• Output 6	6	Select Input ▾	Apply
• Output 7	7	Select Input ▾	Apply
• Output 8	8	Select Input ▾	Apply

**Switch Setting Information**

**EDID: EDID settings**

Logout Reboot

Switch **EDID** Basic Setting Security

**EDID Settings**

Source	Current Mode	EDID Mode	Display	Operation
• SOURCE 1:	Fixed Mode 1	Fixed Mode 3 ▾	Fixed EDID Mode ▾	Apply
• SOURCE 2:	Fixed Mode 1	Fixed Mode 4 ▾	Fixed EDID Mode ▾	Apply
• SOURCE 3:	Fixed Mode 1	Fixed Mode 6 ▾	Fixed EDID Mode ▾	Apply
• SOURCE 4:	Fixed Mode 1	Fixed Mode 3 ▾	Fixed EDID Mode ▾	Apply
• SOURCE 5:	Fixed Mode 1	Fixed Mode 3 ▾	Fixed EDID Mode ▾	Apply
• SOURCE 6:	Fixed Mode 1	Fixed Mode 4 ▾	Fixed EDID Mode ▾	Apply
• SOURCE 7:	Fixed Mode 1	Fixed Mode 1 ▾	Fixed EDID Mode ▾	Apply
• SOURCE 8:	Fixed Mode 1	Fixed Mode 2 ▾	Fixed EDID Mode ▾	Apply

**EDID Mode Information**

Fixed Mode 1:reserve  
 Fixed Mode 2:EDID Full-HD(1080p@60) 24bit -2D video & 2.1ch audio  
 Fixed Mode 3:EDID Full-HD(1080p@60) 24bit -2D video & 7.1ch audio  
 Fixed Mode 4:EDID Full-HD(1080p@60) 36bit -2D video & 7.1ch audio  
 Fixed Mode 5:EDID Full-HD(1080p@30)(1080i@60)(720p@60) 36bit -2D video & 2.1ch audio  
 Fixed Mode 6:4Kx2K  
 Fixed Mode 7:EDID Full-HD(1080p@30)(1080i@60)(720p@60) 24bit -2D video & 2.1ch audio  
 Learning Mode:Copy the EDID from HDMI Display to HDMI Source

## Basic Setting: Network settings

Switch	EDID	Basic Setting	Security
<b>Network Settings</b>			
DHCP Client		Enable	
Static IP Address		192.168.0.3	
Static Subnet Mask		255.255.255.0	
Static Default Gateway		192.168.0.1	
Static DNS Server		168.95.1.1	
Connection Type		TCP	
Transmit Timer		100	
		Please enter an integer between 10~65535 ms	
Server/Client Mode		Server	
Server Listening Port		5000	
		Please enter an integer between 1024~65535	
Client Destination Host Name/IP			
		Please enter host name or IP address(e.g. hank-tech.com or 10.4.1.100)	
Client Destination Port		5000	

## Security: Change Username/Password settings

Switch	EDID	Basic Setting	Security	Logout	Reboot
<b>Change Username Setting</b>					
New Username		<input type="text"/>			
		<input type="button" value="Apply"/> <input type="button" value="Cancel"/>			
<b>Change Password Setting</b>					
Old Password		<input type="text"/>			
New Password		<input type="text"/>			
Confirm Password		<input type="text"/>			
		<input type="button" value="Apply"/> <input type="button" value="Cancel"/>			

### 5).RS232 Control:

Operate matrix by RS232 Port, and switch to *Com Port Terminal*. After serial parameter set, click *Open Port*.

RS232 instruction (help: inquiry all instructions description):

- ①. Enter Username and Password (Username: admin) (Password: admin)
- ②. Channel switching instruction: swo-x-y-end, x stands for output, starting from 0. y stands for input, starting from 0.
- ③. EDID changing instruction: edo-x-y:z-end, x stands for output, starting from 0. y stands for EDID selection mode, the range is from 0 to 7, when x is from 0 to 6, no need to consider what z is.

The screenshot displays the 'COM Port Terminal' application window. On the left, there is a sidebar with a yellow 'C' icon and the text 'COM Port Terminal' and 'Virtual COM Ports'. The main area is divided into two sections. The top section is a large grid. The bottom section is a control panel for 'COM Terminal 1'. It includes settings for Port (COM20), Baud Rate (9600), Data Bits (8), Parity Check (None), Stop Bits (1), and Flow Control (None). There are also 'Test' options: 'Auto Test' and 'Echo' (both unchecked), 'TX Interval (ms)' (100), and 'TX Data Length' (10). Buttons for 'Open Port', 'Close Port', 'Purge Buffer', and 'Clear Log' are present. The terminal output on the right shows the following text: 'Authentication failed!', 'username: admin', 'password:', 'uart> swo-1-1', 'CMD\_SWITCH\_ONE', 'after channelStatus = channel\_status-0-xx-2-3-4-5-6-7-end', 'uart> swo-1-1channel\_status-0-1-2-3-4-5-6-7-endCMD\_CHANNEL\_STATUS', and 'swo-1-2-end'.

## ■ EDID Management

EDID Information:

DIP switch4	DIP switch3	DIP switch2	DIP switch1	EDID Information
X	0	0	0	reserve
X	0	0	1	1080p/60hz 24bit 2d 2.1ch
X	0	1	0	1080p/60hz 24bit 2d 7.1ch
X	0	1	1	1080p/60hz 36bit 2d 7.1ch
X	1	0	0	1080p/60hz 36bit 2d 2.1ch
X	1	0	1	4K*2K
X	1	1	0	1080p/30hz 1080i/60hz 720p/60hz 24bit 2d 2.1ch
X	1	1	1	Network Board Control

## ■ Troubleshooting and Maintenance

- 1) If the connected display devices around have noise, it should be the wire quality issue, please use Cat6.
- 2) If colour distorted or no video signal output: a) check the corresponding input signal, if there is no input signal, please check the wire connection. B) check the output interface is consistent with the right controlled one.
- 3) If the front panel digital light is with no shine and operating unresponsive, please ensure the power input is in well-connected.
- 4) Clean this unit with a soft, dry cloth. Never use alcohol, paint thinner or benzene to clean this unit.

## ■ Warning and Precautions

- 1) Away from the heat source and avoid direct sunlight.
- 2) To ensure proper heat dissipation, avoid poorly ventilated spaces and do not block the vents.
- 3) To prevent electrical shock and fire, do not keep the machine in rain or wet



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places.

- 4) Do not connected to power supplies when installation or moving the device.
- 5) Do not touch the power adapter plug with wet hands.
- 6) Do not spill liquid on the machine, as it may cause internal short circuit or fire.
- 7) Do not attempt to open the cabinet. Please contact qualified service personnel for maintenance.