TESmart

User Manual

2x1 HDMI KVM Switch

8K

HKS201 Master 24

To Enjoy Smart

HKS201 Master 24

English

English

TESmart

Preface

It's our great honor that you have chosen the KVM Switch produced by our company, Tesla Ele Technology Co.,Ltd. In this user manual, you will learn how to operate and use this product. Please read this user manual comprehensively before use. If you have any questions, comments or suggestions, please contact us via the following email:

support@tesmart.com.

Copyright Notice

The user manual, compiled by Tesla Elec Technology Co.,Ltd, shall not be duplicated or translated by any person or organizations without written permission. This user manual shall not be used for commodity transaction in any form or by any means (electronically, mechanically, photocopying or recording, etc.) or be used for any business practices or profitable activities. The ownership of the trade names and brand names adopted in this user manual belongs to their companies.

Product Information

For more information about TESmart products and how they can help you to enjoy your job, please visit the following TESmart website or contact an TESmart Authorized Reseller.

www.tesmart.com

Contents

1. Safety Tips and Warnings

Tips: Please read the safety tips and warnings for HDMI KVM Switch comprehensively before use. Use this produce in accordance with its instructions, safety tips and warnings to prevent unnecessary damage to the product and potential dangers to users.

⚠ Keep the product away from water.

⚠ Clean the product with dry cloth.

⚠ Use the product in accordance with its instructions and do not block its vents.

⚠ Keep the product away from ignition sources, such as heat sinks, heat accumulators, stovepipes and other heat production settings (including audio amplifiers).

⚠ Do not touch the product and the power cord with wet hands so as to lower the risk of electric shock and damage to the product. Do not let the product get wet or become damp.

⚠ Unplug the power supply of this product in thunderstorm days or when it has been not used for a long time.

⚠ Do not expose this product and its battery to open fire or overheating environment. Dispose the waste battery in accordance with instructions.

⚠ Users shall not remove and repair the product without authorization.

2. Battery Description
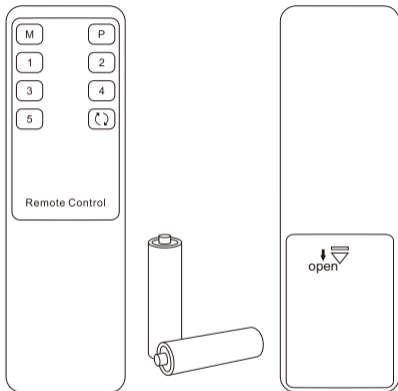
Tips: By default, the remote control is not equipped with batteries, due to the safety requirements of some express companies. Install AAA dry cells before use.

Caution: Improper disposal of the lithium battery may cause an explosion. Do not throw the battery into fire. Keep the battery away from children. Dispose the waste battery in accordance with local regulations.

3. Warranty Information

We warrant this product as free of defects in material and workmanship for a period of one (1) year from the date of shipment. If during the period of warranty this product proves defective under normal use, we will repair or replace this product, provided that this product has not been subjected to mechanical, electrical, or other abuse or modifications. If it fails under conditions other than those covered will be repaired at the current price of parts and labor in effect at the time of repair. Such repairs are warranted for six (6) months from the day of reshipment to the buyer.

4. Preface

Dear Users,

2×1 HDMI KVM Switch can easily integrate cross-platform computer devices and greatly simplify the devices management. HDMI KVM Switch can control 2 PCs with only 1 HDMI display.

This KVM support USB 3.2 Gen 1 with superspeed data transfer rate. With a high-power supply that allows you to charge your laptops that are connected to the KVM directly and securely.The KVM provides up to 8K@60Hz resolution that displays the most vivid high-definition images available while producing premium sounds.This product also supports several other switching modes. You can switch input ports with front panel button, IR signals, keyboard hot keys and mouse gestures (fast switching mode). At the same time, the keyboard and mouse modes can greatly improve the KM compatibility.

Tips: If you need to control more computers or conduct more complex and professional switching, you can also choose other products of our company. For more details, please visit our official website: www.tesmart.com.

5. Features

- Control 2 PCs with only 1 set of keyboard, mouse and monitor
- Support resolution up to 8K(4320p)@60Hz 4:4:4 and is backward compatible with 4K(2160p)@60Hz/120Hz/144Hz
- HDMI 2.1 compliant,has 48Gbps bandwidth,and also support VRR,FVA and ALLM
- HDCP2.3 compliant,and DSC 1.2a compliant
- Support USB 3.2 Gen 1 with super-speed data transfer rate
- Support wired network connection, 2 PCs connected to KVM can access to the network with only one network cable
- With EDID emulators in each input port, it can keep PCs always having correct display information
- Support hot-plug and the devices connected to the KVM can be added or removed at any time without turning off the devices
- Support fast channel switching through panel keys, IR, mouse wheel and keyboard hotkeys
- Support passthrough mode and legacy emulation mode, significantly improving compatibility for keyboards and mouses
- Support charging the devices like mobile phones and tablets connected to front panel USB ports experience

6. Packing List

- 1 * 2x1 KVM Switch
- 2 * KVM Cables
- 1 * IR Remote Control
- 1 * DC 12V Power Adapter
- 1 * User Manual

Tips: After receipt of the product, please check the packing list carefully to make sure that no components have been lost and no damage to the product has been caused during transportation. If you have any problem, please contact us at any time.

7. Panel Description
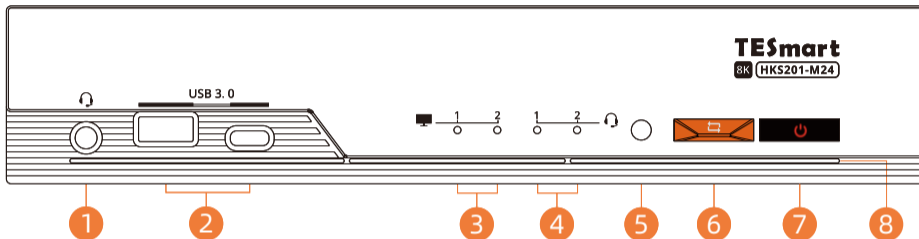
ID	Name	Function
1	Audio integration port	Integrated microphone and L/R audio output.
2	Data transfer and charging port	Can be used to transfer data and charge your mobile devices.
3	Input selection status indicators	Indicate the current selected computer device.
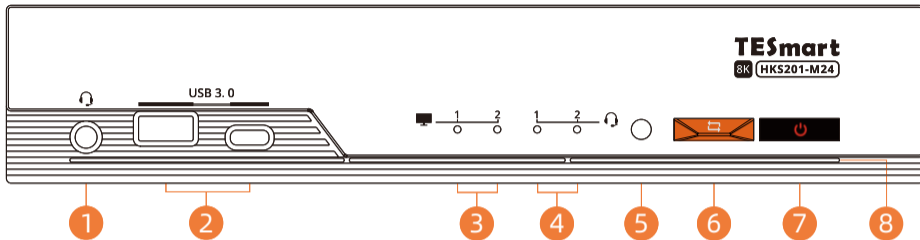
ID	Name	Function
4	USB 3.0 and audio status indicator	Indicate the current USB 3.0 and audio status.
5	IR receiver	Receive IR remote signal.
6	Input selection button	Select input sources.
7	Power switch	Turn on or turn off power supply.
8	RGB LED stirp	Features 4 lighting modes to match your atmosphere.
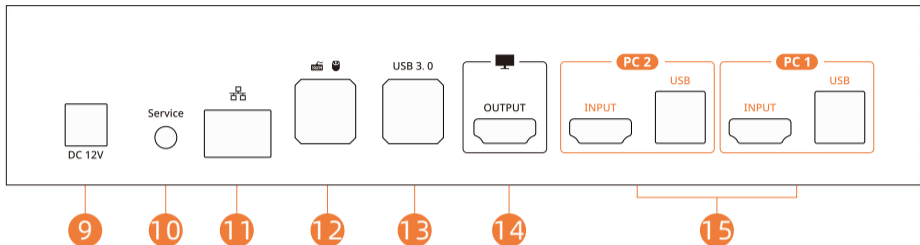
ID	Name	Function
9	DC 12V	12V DC power supply.
10	UART command interface	Support external UART commands for channel switch and functionality control.
11	LAN port	Insert the network cable into this port to let the 2 input PCs to connect to the local network area.
12	Keyboard and mouse input	For USB keyboard and mouse input.
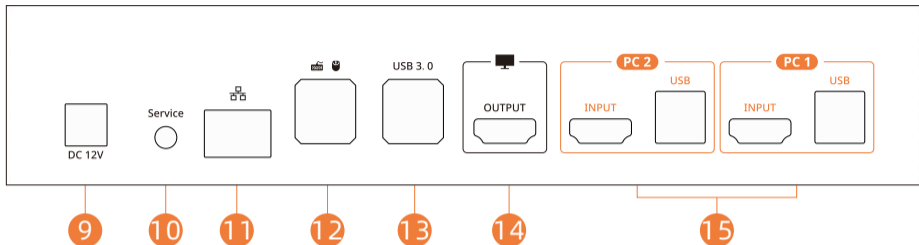
ID	Name	Function
13	USB 3.0 ports	Connect to USB 3.0 devices.
14	HDMI output	Connect to 1 HDMI display for video output.
15	KVM input port group	Each group contains 1 HDMI port (left) and 1 USB port (right). Connect the ports to corresponding input devices for signal input.

8. Connection Description

8.1 Connection Diagram

UHD Monitor

Headset

USB 3.0

HDMI Cable

USB 3.0

OUTPUT

PC 2
USB
INPUT

PC 1
USB
INPUT

Service

DC 12V

Router

CAT5e/6 cable

Ethernet Switch

Keyboard   Mouse

USB Driver

Hard disk drive

PC 2

PC 1
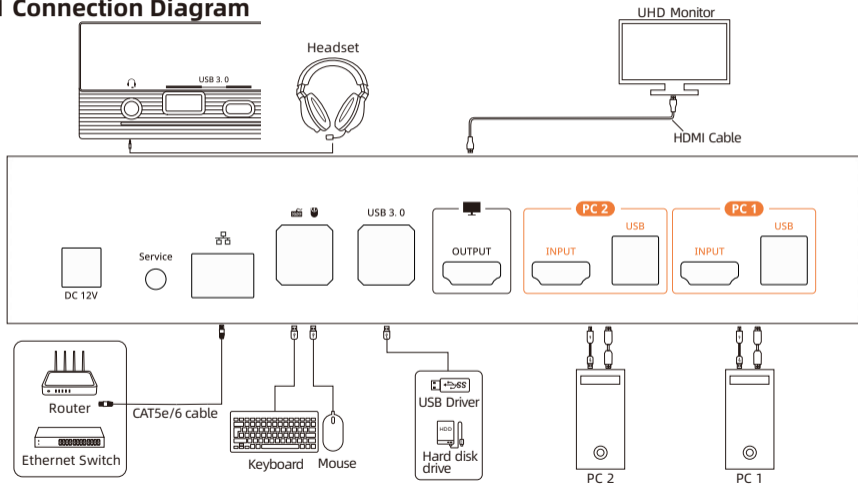
8.2 Connection Preparation

- Take into consideration all devices required to be connected and prepare a workbench large enough before the connection.
- Lay out the cables properly to facilitate the layout of power supply as a lot of power sockets and plug boards will be adopted in connection.
- Prepare different sticker labels to mark cables as a lot of cables will be adopted in connection.

| HDMI | HDMI | USB Type-A | USB Type-B |

(HDMI Cable + USB Type A to B Cable)
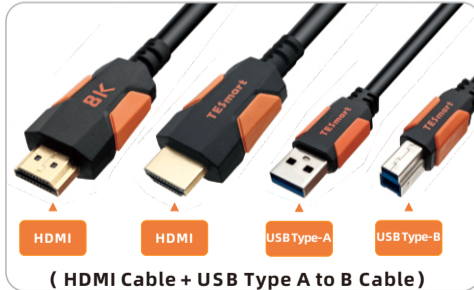
8.3 Connection Steps

1. Connect PC1 with 1 KVM cable, use HDMI end to connect PC1 to the HDMI port on the KVM, use USB Type-A end to connect PC1 and Type-B end to connect the KVM. Connect PC2 in the same way.

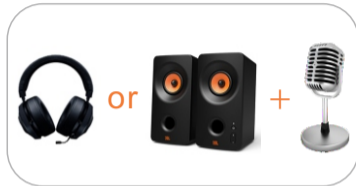2. Connect the HDMI output port of the KVM to 1 HDMI display with 1 HDMI cable.

3. Connect external mouse and keyboard to the keyboard and mouse input port of the KVM.

4. Connect USB 3.0 devices to the standard USB 3.0 ports of the KVM.

5. Connect external audio device to the L/R out port of the KVM.

6. Use 1 network cable, one end is connected to the RJ45 port, the other end is connected to a switch or a router.

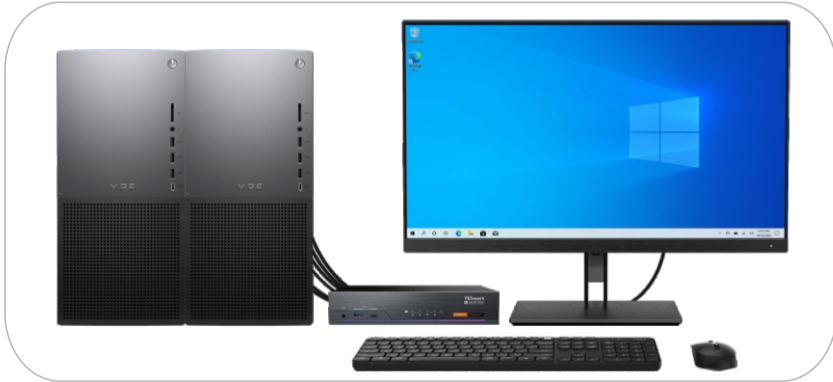7. Connect the power cable to the DC 12V port of the KVM and plug it to a power socket.

8. By now, the connection has been completed. Turn on the power supply and the KVM Switch will begin to work.

Tips: By default, the network cable is not included in the package.

8.4 KVM Workbench

A workbench with 2x1 HDMI KVM Switch successfully connected is shown as below:

9. Function Description

9.1 Built-in Charging Module

The HDMI KVM Switch has built-in charging module which can charge your phone, tablet and other devices. Use the USB ports on the front panel of the KVM (including an USB-A port and an USB-C port) can support data transmission while charging. The USB ports support BC 1.2 protocol, and are able to match voltage and current automatically based on the specifications of charging devices. It makes your charging safe and avoids damage.

USB 3. 0
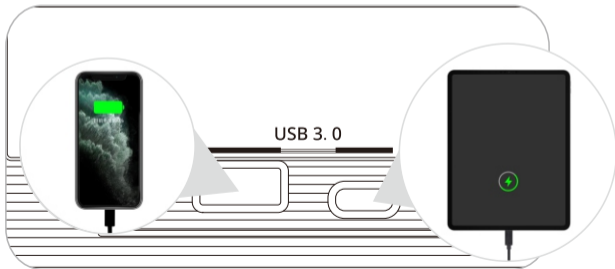
9.2 Keyboard and Mouse Emulation Mode

We provide two keyboard and mouse modes: Pass Through Mode and Legacy Emulation Mode. Pass Through mode supports most keyboard and mouse drivers and multifunction keyboards and mice. Legacy Emulation Mode ensures the normal function of the keyboard, mouse, and hotkey features.

• Typically, we recommend using Passthrough Mode for an optimal user experience, allowing you to:

Use KM control software

Use KM multifunction keys

Use keyboard hot keys
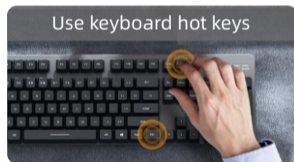
If you encounter issues with the keyboard and mouse in Passthrough Mode, we recommend switching to Legacy Emulation Mode.

Tips: 1. To toggle between two modes, please refer to Page 25. After toggled, please restart the KVM.
2. In Legacy Emulation Mode, the keyboard and mouse control software will no longer be available.

9.3 Built-in Network Switch

The 2x1 KVM Switch have a built-in USB Ethernet Adapter, which adds a standard RJ45 port to all the PC that is connected to the KVM and allows you to connect your computers to a router or network switch for gigabit wired network connection. Full 1000Mbps Ethernet for fast, stable data transfer, more reliable than most wireless connections. This feature has been added with a switch, allowing you to freely choose to enable or disable it.
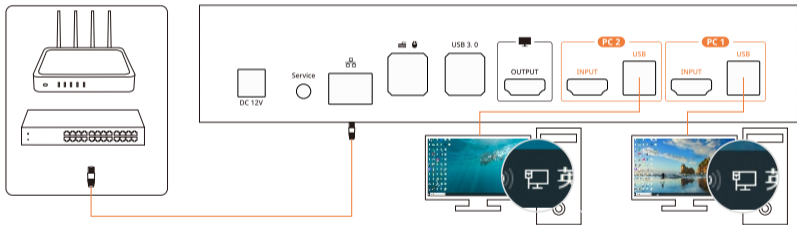
Tips: 1. It is recommended to connect the USB cable to a USB 3.0 or higher port on the PC to achieve a Gigabit bandwidth network connection.

2. The built-in network switch can be disabled separately. Please refer to Page 26 for the operating instructions.

9.4 Mouse Wheel Switching

Mouse wheel switching method can quickly switch input sources by mouse operation, double-click the mouse wheel to switch to the next input port. Mouse wheel switching mode is off by default. You can use keyboard hotkey command to turn on mouse wheel switching mode. Please refer to Page 27.

10. Operation Method

10.1 Front Panel Button Switching Method

The 2x1 HDMI KVM Switch can switch to any input devices at any time with front panel button, IR remote control, keyboard hot keys and mouse wheel switching mode. You can choose your favorite switching method according to your personal needs and habits.

→ Switch the input devices by pressing the button [ ] on the front panel of the KVM Switch. For example, press [ ] until you see the ② LED is lit. That means you have selected PC2 as input.

10.2 IR Remote Control
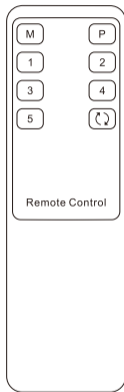
M	—— Disable or enable buzzer sound
1	—— Switch to PC 1
2	—— Switch to PC 2

Tips: Unspecified buttons at above are non-functional.

10.3 Keyboard Hot Keys

→ Use external keyboard hot keys to switch the input source or set up some other functions.

Tips: The keyboard hot keys can only work with external keyboard correctly connected to the keyboard and mouse input ports of the KVM.

After press **[Right-Ctrl]** key twice within 2 seconds then please enter the commands within 3 seconds and the KVM will execute the corresponding commands.

Select previous input port:
[Right-Ctrl]→[Right-Ctrl]→[PgUp]

Right Ctrl → Right Ctrl → PgUp

Select next input port:
[Right-Ctrl]→[Right-Ctrl]→[PgDn]

Right Ctrl → Right Ctrl → PgDn

Select port by port number：
[Right-Ctrl]→[Right-Ctrl]→[1]~[2]

Right Ctrl → Right Ctrl → 1 ~ 2

Disable/enable follow mode:

Tips: "Follow Mode" refers to whether the audio devices and USB 3.0 devices connected to the front panel will switch synchronously with the keyboard and mouse focus when switching.

[Right-Ctrl] →[Right-Ctrl] →[~]

| Right Ctrl | → | Right Ctrl | → | ~ ` |

Tips: The default setting of follow mode is enabled. When you disable it, the buzzer will emit only 1 short beep; when enable it, the buzzer will emit 2 short beeps.

When follow Mode is disabled, you can use the following hotkey to switch audio and USB 3.0 channels between PCs:
[Right-Ctrl] →[Right-Ctrl] →[0]

| Right Ctrl | → | Right Ctrl | → | 0 |

Toggle between keyboard and mouse modes:
[Right-Ctrl] →[Right-Ctrl] →[F2]

| Right Ctrl | → | Right Ctrl | → | F2 |

Tips: The default keyboard and mouse mode is Pass Through mode. When switching to Compatibility Mode, the buzzer will emit 2 short beeps; when switching to Pass Through Mode, the buzzer will emit only 1 short beep.

Disable/enable fan:
[Right-Ctrl] →[Right-Ctrl] →[F3]

Right Ctrl → Right Ctrl → F3

Tips: The fan has 4 adjustable modes, distinguishable by the number of beeps from the buzzer.   The default fan mode is 2.

Fan mode 1: The fan is disabled. Adjust to this mode, the buzzer will beep once.

Fan mode 2: The fan operates based on the actual temperature: it automatically turns on when the detected chip temperature exceeds 50℃ and turns off when the temperature drops below 48℃. Adjust to this mode, the buzzer will beep twice.

Fan mode 3: The fan operates at low speed continuously. Adjust to this mode, the buzzer will beep three times.

Fan mode 4: The fan operates at high speed continuously. Adjust to this mode, the buzzer will beep four times.

Disable/enable the current displayed PC's
built-in network card:
[Right-Ctrl] →[Right-Ctrl] →[F4]

Right Ctrl → Right Ctrl → F4

Tips: The built-in network card is enabled by default. Enable it will trigger the buzzer to beep twice and disable it will trigger the buzzer to beep once.

Turn on/off mouse wheel switching mode:

[Right-Ctrl] →[Right-Ctrl] →[F6]

Right Ctrl → Right Ctrl → F6

Tips: Turning on the mouse wheel switching mode will trigger the buzzer to beep twice and turning it off will trigger the buzzer to beep once.

Disable or enable buzzer sound:
[Right-Ctrl] →[Right-Ctrl] →[F11]

Right Ctrl → Right Ctrl → F11

Tips: The default setting of buzzer sound is enabled. Repeat this step to disable or enable buzzer sound.

Switch lighting modes:

Turn off lighting:
[Right-Ctrl] → [Right-Ctrl] → [L] → [0]

Right Ctrl → Right Ctrl → L → 0

Light effects vary with KVM indicators:
[Right-Ctrl] → [Right-Ctrl] → [L] → [1]

Right Ctrl → Right Ctrl → L → 1

Marquee lighting effect:
[Right-Ctrl] → [Right-Ctrl] → [L] → [2]

Right Ctrl → Right Ctrl → L → 2

Orange breathing light:
[Right-Ctrl] → [Right-Ctrl] → [L] → [3]

Right Ctrl → Right Ctrl → L → 3

11. Change Hot Key Combinations

For your convenience, we have built-in a custom hotkey function. By setting, you can use any key on the keyboard connected to the KVM as the trigger key for the hot key command. The default hotkey trigger key is the **[Right-CTRL]**. The custom hotkey function can be set in the following ways:

Method 1:
→ After powering on the KVM, press and keep holding the **[ ]** button on the front panel for 10 seconds until you hear the buzzer is long beeping. When starting to set the trigger key, the buzzer will have a 5 seconds tone. Please press the key you want to use as the hot key trigger key on the keyboard within 5 seconds. After pressing the button, the prompt tone ends and the setting is complete.

Method 2:
→ Press [Right-Ctrl]→[Right-Ctrl]→[F1], then the buzzer will have a 5 seconds tone. Please press the key you want to use as the hot key trigger key on the keyboard within 5 seconds. After pressing the button, the prompt tone ends and the setting is complete.

12. UART Command Description

The 2x1 HDMI KVM Switch is equipped with an UART command interface, allowing users to communicate with the KVM using UART (Universal Asynchronous Receiver-Transmitter) commands.

ID	Command	Function	configuration
1	AA BB 03 00 00 68	Switch to PC1.	Baud rate: 9600 bps Stop bit: 1 bit Data length: 8 bits Parity bit: None
2	AA BB 03 00 01 69	Switch to PC2.	
3	AA BB 03 FF 00 67	Switch output to the next PC	
4	AA BB 04 00 01 6A	enable buzzer sound.	
5	AA BB 04 00 00 69	Disable buzzer sound.	
6	AA BB 05 02 00 6C	Disable RGB LED strip.	

ID	Command	Function
7	AA BB 05 02 01 6D	Switch the RGB LED strip lighting effect to vary with KVM indicators.
8	AA BB 05 02 02 6E	Switch the RGB LED strip lighting effect to marquee.
9	AA BB 05 02 03 6F	Switch the RGB LED strip lighting effect to orange breathing light.
10	AA BB 08 00 01 6E	Turn on Legacy Emulation mode.
11	AA BB 08 00 00 6D	Turn off Legacy Emulation mode.
12	AA BB 09 00 03 71	Turn on the network of the PC1.
13	AA BB 09 00 02 70	Turn off the network of the PC1.
14	AA BB 09 00 03 71	Turn on the network of the PC2.

ID	Command	Function
15	AA BB 09 00 01 6F	Turn off the network of the PC2.
16	AA BB 0A 00 01 70	Turn on mouse wheel switching mode.
17	AA BB 0A 00 00 6F	Turn off mouse wheel switching mode.
18	AA BB 0B 00 00 70	Turn off the fan.
19	AA BB 0B 00 01 71	Turn on automatic mode of the fan.
20	AA BB 0B 00 02 72	Turn on low-speed mode of the fan.
21	AA BB 0B 00 03 73	Turn on high-speed mode of the fan.
22	AA BB 0C 00 01 72	Enable follow mode.

ID	Command	Function
23	AA BB 0C 00 00 71	Disable follow mode.
24	AA BB 0D 00 00 72	Switch the audio channel to PC1.
25	AA BB 0D 00 01 73	Switch the audio channel to PC2.
26	AA BB 0D FF 00 71	Switch the audio channel to the next port.
27	AA BB 81 00 00 E6	Query the number of PCs and monitors.
28	AA BB 82 00 00 E7	Query the keyboard and mouse focus.
29	AA BB 83 00 FF E7	Query the correspondence between monitors and PCs.
30	AA BB 84 00 FF E8	Query the status of the buzzer.

ID	Command	Function
31	AA BB 85 00 FF E9	Query the lighting status.
32	AA BB 88 00 FF EC	Query the status of Legacy Emulation mode.
33	AA BB 89 00 FF ED	Query the status of the network.
34	AA BB 8A 00 FF EE	Query the status of the mouse wheel switching.
35	AA BB 8B 00 FF EF	Query the mode of the fan.
36	AA BB 8C 00 FF F0	Query the status of the audio follow mode.
37	AA BB 8D 00 FF F1	Query the status of the audio channel.

TESmart

To Enjoy Smart

HKS201 Master 24