TESmart

User Manual

8x2 HDMI+DP KVM Switch

HDK802 Master 24

English

TESmart

English

Preface

It's our great honor that you have chosen the KVM Switch produced by our company, TESmart Tech 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.

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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 a TESmart Authorized Reseller.

www.tesmart.com

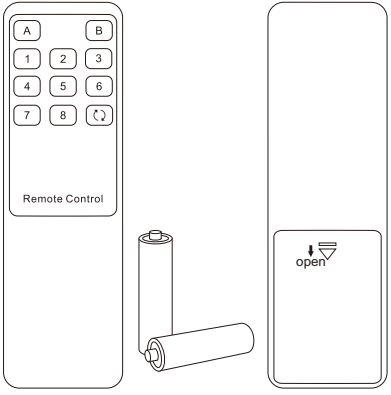
Contents

1. Safety Tips and Warnings

Tips: Please read the safety tips and warnings for the 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, stovepipe 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,

The 8×2 HDMI+DP KVM Switch allows for efficient streamlining of cross-platform computer systems while simplifying multi-device management. It supports control of a dual-display multimedia workstation. By connecting all two video outputs from a single PC to one of the KVM's input groups, you can achieve an extended or mirrored desktop across two monitors, replicating the experience of a direct connection. Additionally, the KVM allows you to view multiple PCs across the two monitors simultaneously.

Equipped with USB 3.2 Gen 1 (5 Gbps) SuperSpeed technology for SuperSpeed data transfer and support for resolutions up to 8K@60Hz, this KVM switch delivers ultra-clear visuals with vibrant, true-to-life colors and high-fidelity audio. You can switch between input ports using the front-panel buttons, IR remote, mouse scroll wheel, keyboard hotkeys, as well as LAN and RS232 port connections for adaptable operation in various work environments.

Tips: If you need to control more devices 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

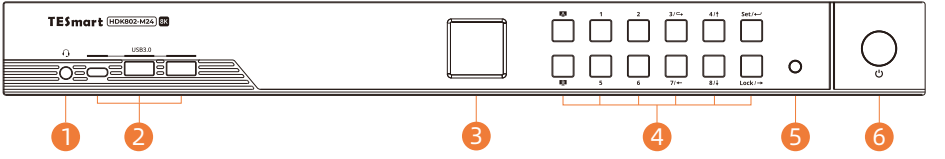
- Using only 1 set of keyboard and mouse to control 2 display and 8 PCs at the same time
- Support resolution up to 8K(4320p)@60Hz 4:4:4 and is backward compatible with 4K(2160p)@60Hz/120Hz/144Hz
- HDMI 2.1 compliant,has 48Gbps bandwidth,and also support VRR,FVA and ALLM
- HDCP2.3 compliant,and DSC 1.2a compliant
- With EDID emulators in each input ports, keep PCs always have correct display information
- Support auto detect mode
- Support auto scan mode
- Support hot plug, connect or disconnect devices to the KVM at any time without turning off devices
- Easy to control KVM via IR receiver, front panel key, keyboard hot keys ,LAN port and RS232 port
- Support charging the devices like mobile phones and tablets connected to panel USB-A and USB-C ports

6. Packing List

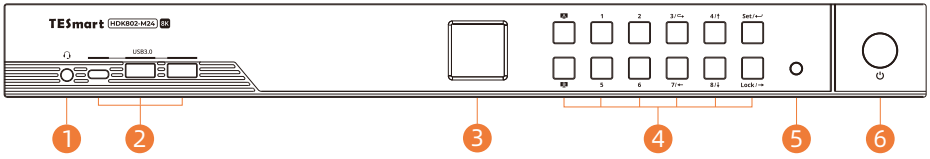
- 1 * 8X2 HDMI+DP KVM Switch
- 8 * KVM Cables (HDMI+USB)
- 8 * DP Cables
- 1 * IR Remote Control
- 1 * IR Receiver Cable
- 1 * DC 12V 4A Power Adapter
- 1 * 3 Pins connector (For RS232)
- 2 * Rack-ears
- 1 * User Manual

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.

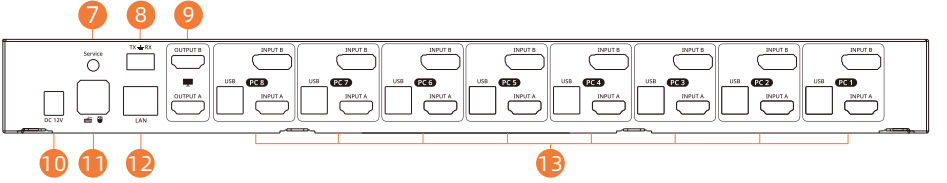
7. Panel Description



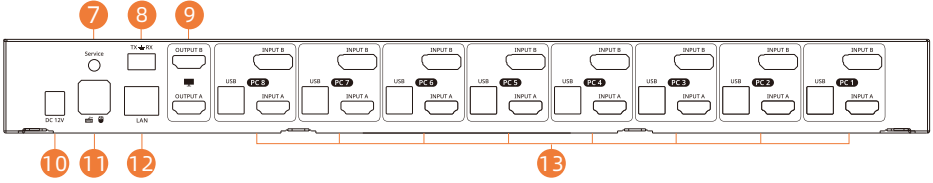
ID	Name	Function
1	3.5mm Audio/Mic	Integrated microphone and L/R audio output.
2	USB 3.2 Gen 1 ports	Can be used to transfer data and charge your mobile devices.
3	LCD	Display current status and function settings.



ID	Name	Function
4	Keypad	Press to control the KVM. Please refer to Chapter 10.1 for the detail.
5	IR receiver	Receive IR remote signal.
6	Power switch	Turn on or turn off power supply.



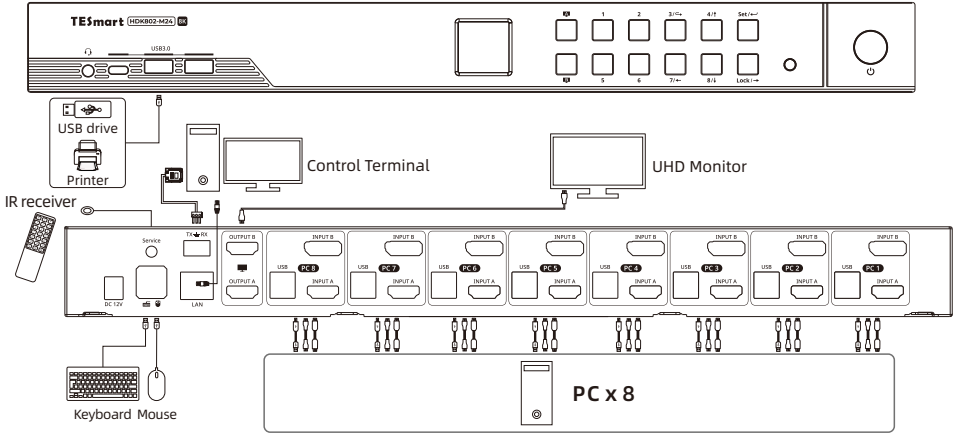
ID	Name	Description
7	UART command interface or IR receiver cable in	Support external UART commands for channel switch and functionality control or connect IR extension cable to this port to receive IR signal.
8	RS232 port	Connect RS232 cable to use RS232 commands to control the KVM.
9	HDMI Output ports	Connect to HDMI displays.
10	DC 12V	12V DC power supply.



ID	Name	Description
11	Keyboard and mouse input	For USB keyboard and mouse input.
12	LAN port	Connect network cable to use TCP/IP commands to control the KVM.
13	KVM input ports group	8 PCs can be connected to the KVM at the same time. Each group contains 1 HDMI port and 1 DP port(marked as Input A/B) and 1 USB port. Connect the ports to corresponding input devices for signal input.

8. Connection Description

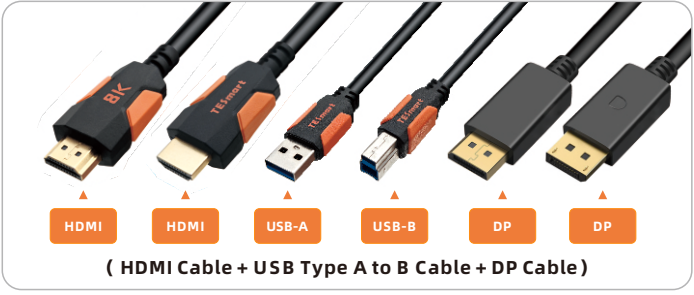
8.1 Connection Diagram



Tips: Please refer to Chapter 10 for how to use the KVM.

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 Cable + USB Type A to B Cable + DP Cable)

8.3 Connection Steps

1. Connect it using one DisplayPort cable, one HDMI cable and one USB-A-to-B cable. Connect both the HDMI and DisplayPort cables from the PC to a single port group on the KVM switch.Then, connect the USB-B end of the USB cable to the corresponding USB-B port within the same port group on the KVM, and the USB-A end to the PC. Repeat this process in the same way for PCs 2 to 8, ensuring each PC is connected to its own dedicated port group.

2. Connect KVM's HDMI output ports to 2 HDMI displays with 2 HDMI cables.

3. Connect external mouse and keyboard to KVM's keyboard and mouse input port.

4. Connect USB 3.0 devices to KVM's standard USB 3.0 ports.

5. Connect external audio device to KVM's L/R out port.

6. Connect the power cable to KVM's DC 12V port and plug it to a power socket.

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

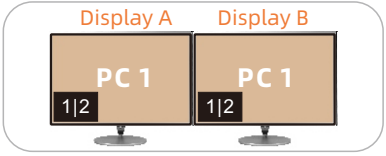
9. Function Description

9.1 Display Mode Description

The 8x2 HDMI+DP KVM Switch supports 2 display modes. You can choose to implement 2-screen extended display or duplicate display or display different PCs on 2 monitors.

Display Mode 1: Display the same PC

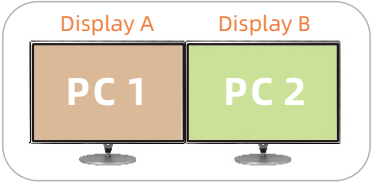
Duplicate displays



Extend displays

Tips: 1. You can set the duplicate or extend displays in the Display Settings of the current selected PC.
2. Only when 2 video ports of the same PC are connected to Input A and Input B of a group of input ports at the same time, can duplication or expansion of two screens be realized.

Display Mode 2: Display the different PCs



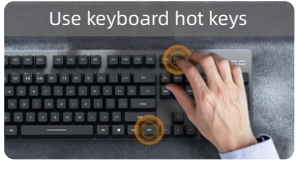
In this mode, you can show one PC on any of two monitors connected to the KVM and the other PC on the remaining monitor. Use the front panel, keyboard hotkeys, or IR control to switch between PCs and monitors.

Tips: When different PCs are displayed on different monitors, you can double-click the **Right-[Alt]** on the keyboard connected to the KVM to switch the keyboard and mouse focus between different PCs.

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 mouses. Legacy Emulation Mode ensures the normal functioning of the keyboard, mouse, and hotkey features.

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

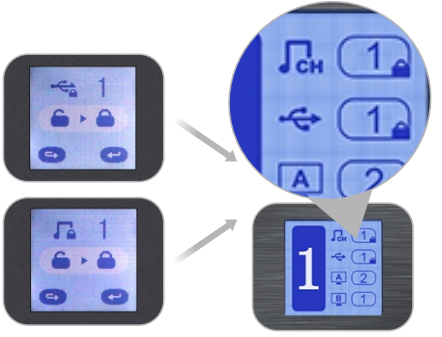


If you encounter issues with the keyboard and mouse in Passthrough Mode, we recommend switching to Legacy Emulation Mode.

Tips: 1. To toggle between two modes, please refer to Page 33. After toggled, please restart the KVM.
2. In Legacy Emulation Mode, the keyboard and mouse control software will no longer be available.

9.3 Lock L/R Audio and USB Focus Function

The 8x2 HDMI+DP KVM Switch supports locking L/R audio and USB 3.0 focus. After the lock is turned on, the current audio or USB focus can be maintained and only the screen can be switched when switching; the audio focus lock and USB 3.0 focus lock are independent of each other, you can lock the audio or lock the USB separately. Only need to press the front panel keys to operate audio or USB focus lock.



Tips: 1. The keyboard & mouse focus and USB focus are independent of each other, and the keyboard and mouse focus cannot be locked. When switching between different input sources in display mode 2, the keyboard and mouse focus will not change with the switch.
2. The lock state is maintained after the KVM is powered off.
3. Please refer to Chapter 10.1 for detailed information about how to lock/unlock audio or USB.

9.4 Auto Scan Mode

The Auto Scan feature can automatically switch the display at regular intervals between the input devices that are powered on and connected to the KVM. As a result, any input devices connected to each port can be monitored without user intervention. Auto scan mode is off by default. You can turn on the auto scan mode through the front panel keypad and keyboard hot key.

After the auto scan mode is turned on, the lower left corner in the main menu interface of the LCD will appear a white 'SCAN'.

Tips: 1.When auto scan mode is turned on, the KVM will automatically switch the display among powered-on and connected input sources, starting from the current PC and proceeding in order from PC1 to PC8.

2. Please refer to Chapter 10 for detailed information about how to turn on/off the auto scan mode.

9.5 Auto Detect Mode

The auto detect mode means the KVM will automatically select the input source when:

1. When attaching a new active input device to the KVM, the KVM will switch to this just plugged in source automatically.
2. When removing a connected input source, the KVM will switch to the next active input source automatically.

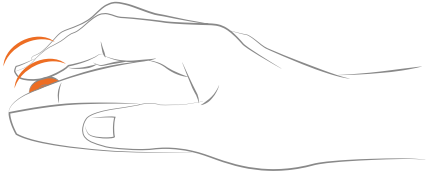
Turn on/off auto detect mode

Auto detect mode is off by default. You can use keyboard hotkey command [Right-Ctrl] + [Right-Ctrl] + [F7] to turn on auto detect mode.

Tips: The auto detect mode is only supported through the HDMI ports via full EDID emulation. The DisplayPort ports do not provide this functionality.

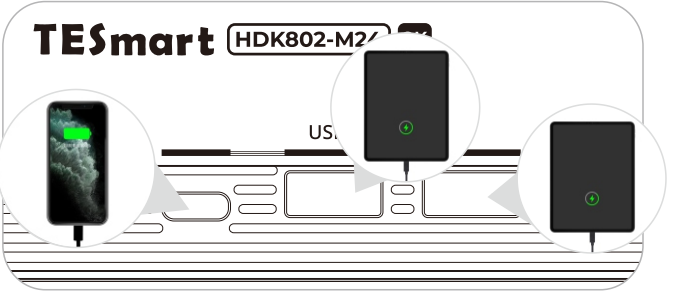
9.6 Mouse Wheel Switching

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 34.



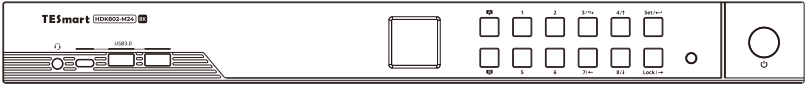
9.7 Built-in Charging Module

The 8x2 HDMI+DP KVM switch has a built-in charging module, allowing you to safely charge your phone, tablet and other devices. With three front-panel USB ports (including two USB-A ports and an USB-C port) , it supports data transmission while charging.



10. Operation Method

10.1 Front Panel Button Switching Method



When you use the front panel button or IR remote to control the KVM, the LCD display will inquiry your target action, then execute the command according to your operation. The LCD interface in the figure above is the main interface.

Schematic table of LCD interface and panel icons:

Icons	Meaning and function
	Monitor A、B.
	Audio focus icon, indicating the PC where the external audio focus is currently located.
	USB focus icon, indicating the PC where the external USB 3.0 device focus is currently located.
	Keyboard and mouse focus icon, indicating the PC where the keyboard and mouse focus is currently located.
	Audio lock icon, indicating that the current audio is locked on the PC corresponding to the number behind the  icon on the main interface.
	USB lock icon, indicating that the current USB 3.0 devices are locked on the PC corresponding to the number behind the  icon on the main interface.
	Return button.
	Enter button.

Display selection button:

Directly press the button, then press the **[1~8]** buttons according to the prompt of the LCD screen to make the selected monitor display the selected PC. i.e. display mode 2.

Tips: For example, if you press the combo like 'A-1', 'B-4', the image of channel 'Input A' of PC 1 will be displayed on the Output A, the image of channel 'Input B' of PC 4 will be displayed on the Output B. The operation on the IR remote control are the same.

1~8 button:

1. Press directly to switch among 8 PCs. After switching, 2 displays will display the selected PC at the same time, i.e. display mode 1.
2. In the settings interface, press **[3/↵]** to return to the main interface.
3. In the settings menu, Press **[4/↑]** button to select up.
4. In the menu and setting interface, press **[7/←]** button to page forward or select to the left.
5. In the settings menu, Press **[8/↓]** button to select down.

Set/↩ 

Settings button:

1. Press the button, according to the LCD screen prompts, you can set up **auto scan mode and auto scan time, enable or disable buzzer, set hotkey trigger key, set Audio Lock , set USB Lock, set screen brightness, change password**, **Factory reset** in the menu. Use the **[←][→]** key to select among different options under each setting.
2. In the menu and setting interface, press **[Set/↩]** button to confirm.

Tips: 1. Only numbers 1~8 on the front panel of the KVM are available when changing PIN. You can also set a PIN to null to unlock without a password.
2. Under the PIN modification interface, the button **[⎋]** is used as the return button.

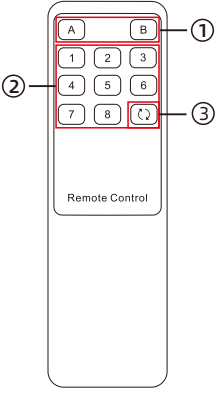
Lock button:

1. Press **[Lock /→]** button to lock the KVM. After locking, all displays will be off, audio output will be paused, and LCD screen brightness will be reduced to a minimum, all buttons will be invalid. Press **[Lock /→]** button again to light up the LCD screen, then enter the PIN to unlock.
2. In the menu and setting interface, press **[Lock /→]** button to page backward or select to the right.

Tips: 1. You can reset your PIN in settings menu.
2. If you forget your PIN, you can restore the factory default settings to unlock. The default PIN is 1234. Press and hold the **[Lock /→]** for about 10 seconds to restore the factory default settings.
3. IR remote control and keyboard hot keys are invalid when KVM is locked.

Tips: The setting status in the interface is automatically synchronized with the current settings, and the selected option is indicated by the dark color.

10.2 IR Remote Control



① —— Press the key, and then press the **[1~8]** key to make the selected monitor display the selected PC. (i.e. display mode 2)

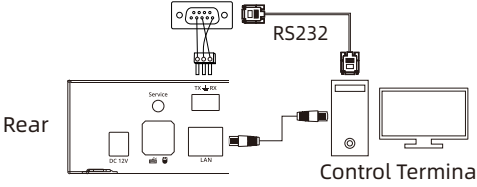
② —— Press directly to select among 8 PCs, and 2 displays will display the selected PC at the same time. (i.e. display mode 1)

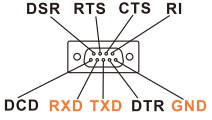
③ —— Switch to the next input port

10.3 RS232 Port and LAN Port Control

A. Connect RS232 port and LAN port

Follow the below diagram to connect the standard 9 pin RS232 port to the 3 pins connector which is included in package, then plug the connector to the ' **TX ⏚ RX** ' port of the KVM. Connect the LAN port to local area network router or directly to PC with Cat5e/6 UTP/FTP cable.





Female RS232 connector pin assignment

B. Communication protocol

RS232 port configuration:

Baud rate: 9600 bps
Stop bit: 1 bit
Data length: 8 bits
Parity bit: None

LAN port configuration:

IP address: 192.168.1.10
Port: 5000
Gate way: 192.168.1.1
Mask address: 255.255.255.0

The commands are as the following form:

Index	Command strings	Parameter description	Remark
1	0xAA 0xBB 0x03 0x01 0xXX 0xEE	XX: Input port number (01-08) 01-PC1,...,08-PC08	Switch input source.
2	0xAA 0xBB 0x03 0x03 0xXX 0xEE	XX: Digital display time out value (0A, 1E, 00) 0A-10s, 1E-30s, 00-Never	Set the digital display out after 10s/30s, or never out.
3	0xAA 0xBB 0x03 0x02 0xXX 0xEE	XX: Buzzer status (00, 01) 00-Mute, 01-Unmute	Mute or unmute buzzer.
4	0xAA 0xBB 0x03 0x81 0xXX 0xEE	XX: Auto detect mode setting (00, 01) 00-Turn off, 01-Turn on	Turn on or turn off auto detect mode.

The controller on the Windows OS and additional commands are still under development. They will be available on the website in the future, You can visit our official website to download it: **www.tesmart.com**.

You can also develop dedicated controllers for each platform by referring to the control protocol above.

10.4 Keyboard Hot Keys

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

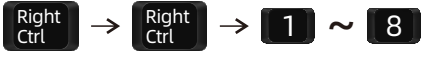
Tips: The keyboard hot keys can only work with external keyboard correctly connected to the keyboard and mouse input port of the KVM. The default hot key trigger key is **[Right-Ctrl]**.

After press **[Right-Ctrl]** key twice within 2 seconds and you will hear the buzzer beep once, please enter the commands within 3 seconds and the KVM will execute the corresponding commands.

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

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

Select port by port number:
[Right-Ctrl]→[Right-Ctrl]→[1]~[8]



Switch PCs on different monitors separately(i.e. display mode 2):

Monitor A: **[Right-Ctrl] → [Right-Ctrl] → [←] → [1]~[8]**

Monitor B: **[Right-Ctrl] → [Right-Ctrl] → [→] → [1]~[8]**

Switch keyboard and mouse focus in display mode 2: **[Right-Alt] → [Right-Alt]**

Turn on auto scan mode:
[Right-Ctrl] →[Right-Ctrl] →[Space]

Tips: The default auto scan time interval is 15 seconds. You can change the time interval by following the step presented below.

Increase or decrease auto scan time interval:
[Right-Ctrl] →[Right-Ctrl] →[+]/[-]

Tips: This hot key command can only work while the auto scan mode is activated. Press [Right-Ctrl] twice and keep pressing [+]/[-] key to adjust the time interval continuously. Increase or decrease 1 second at one time.

Press **[Esc]** to exit auto scan mode.

Tips: Enabling the auto scan mode will trigger the buzzer to beep twice and disable it will trigger the buzzer to beep once.

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

Tips: The default keyboard and mouse mode is Pass Through mode. After toggled, please restart the KVM. 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]

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: Chip temperature ≥ 55°C: Fan starts automatically at low speed. Chip temperature ≥ 60°C: Fan automatically switches to high speed. Chip temperature ≤ 50°C: Fan automatically steps down to low speed. Chip temperature ≤ 45°C: Fan automatically shuts down. 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.

Turn on/off mouse wheel switching mode:
[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.

Turn on/off auto detect mode:
[Right-Ctrl] →[Right-Ctrl] →[F7]

Tips: The default setting of auto detect mode is disabled. Disable buzzer sound will trigger the buzzer to beep once and enable it will trigger the buzzer to beep twice.

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

Tips: The buzzer has 4 adjustable volume levels, distinguishable by the number of beeps when switching. The default volume level is 2 (Medium Volume).

Volume Level 1:The buzzer is disabled (OFF). When adjusting to this level, the buzzer will beep once to indicate the OFF state.

Volume Level 2:Low volume. When adjusting to this level, the buzzer will beep twice.

Volume Level 3:Medium volume. This is the default setting. When adjusting to this level, the buzzer will beep twice.

Volume Level 4:High volume. When adjusting to this level, the buzzer will beep twice.

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:

→ Change the hot key through the settings in the LCD menu, press the **[Set /↵]** key and find the "Hot key" option to set. 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.

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