

User **2x2** Thunderbolt Manual KVM Switch



TKS202 Xtreme 4

English



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

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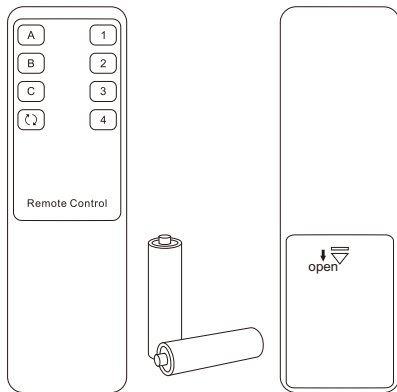
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1. Safety Tips and Warnings

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

The 2X2 Thunderbolt KVM Switch is purpose-built for Thunderbolt 4 workflows, including MacBook, Mac Studio, and Apple Studio Display environments, providing an optimized experience for your Apple ecosystem. Fully compliant with Thunderbolt 4/3 standards, this KVM switch guarantees outstanding visual performance. When used with the Apple Studio Display, it supports resolutions up to 5K@120Hz, delivering stunning clarity and stable image quality for your content.

This KVM switch supports high-speed data transfer up to 40Gbps, and provides reliable 60W USB-C charging. It is equipped with dedicated L/R audio and microphone port for clear, stable audio input and output. Input source switching can be conveniently achieved via front-panel buttons, IR remote control, mouse scroll wheel, or keyboard hotkeys. Additionally, this KVM incorporates dynamic RGB lighting effects for enhanced aesthetics.

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

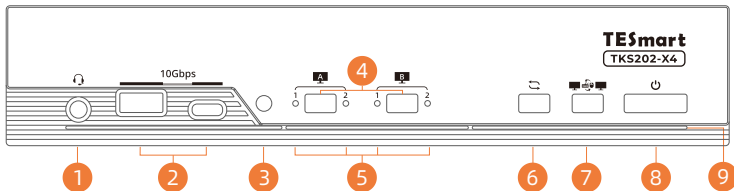
- Using 2 monitor, 1 set of keyboard and mouse to control 2 computers
- When connected to Apple Studio Display, it supports up to 5K@120Hz, with backward compatibility for other Mac Studio resolutions
- The USB-C ports on Inputs 1 and 2 integrate PCI Express data transfer technology and DisplayPort display technology, and can deliver up to 60W of charging power to devices connected to these two inputs
- Support 2 display modes
- Support MacOS X/Windows/ Ubuntu and other Linux based systems
- Support Gigabit wired network connection, devices connected to Inputs 1 and 2 can access to the network with only one network cable
- Support USB 3.2 Gen 2 with up to 10Gbps data transfer rate
- Keyboard and mouse support passthrough mode and legacy emulation mode, significantly improving compatibility for keyboards and mice
- Support connecting mobile device to the front panel USB ports to charge
- Built-in RGB lighting effects, you can switch different lighting effects using hotkeys for a personalized experience

6. Packing List

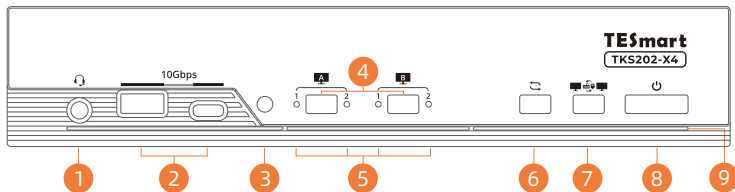
- 1 * 2×2 Thunderbolt KVM Switch
- 2 * Thunderbolt 4 Cables
- 1 * IR Remote Control
- 1 * DC 20V Power Adapter
- 1 * User Manual

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.

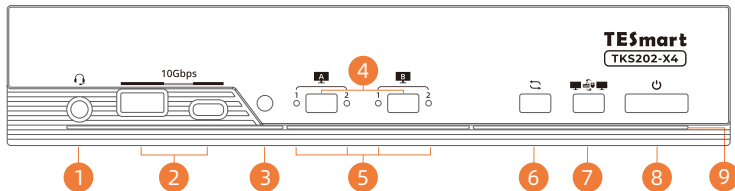
7. Panel Description



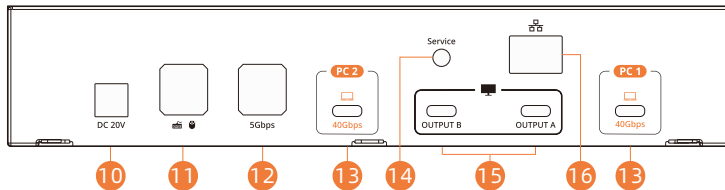
ID	Name	Function
1	3.5mm Audio/Mic	Integrated microphone and L/R audio output.
2	USB 3.2 Gen 2 ports	Support up to 10 Gbps data transfer, with up to 7.5 W fast charging.
3	IR receiver	Receive IR remote signal.



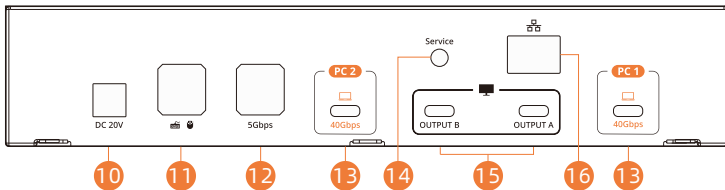
ID	Name	Function
4	Separate switch buttons	Switch images on each display separately (i.e. display mode 2).
5	Input selection status indicators	Indicate the current selected computer devices.
6	Input selection button	Press to switch input sources.



ID	Name	Function
7	Keyboard and mouse focus switch button	Press to switch keyboard and mouse focus between displayed PCs in display mode 2.
8	Power switch	Turn on or turn off power supply.
9	RGB LED stirp	Features 4 lighting modes to match your atmosphere.



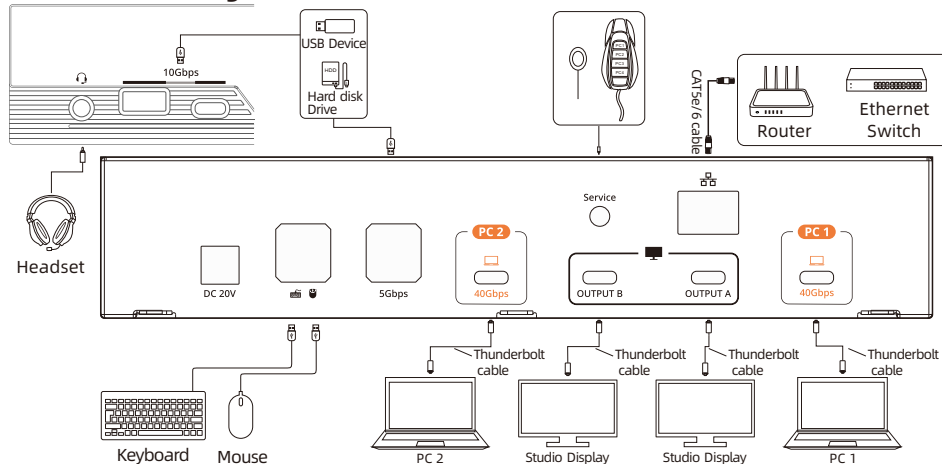
ID	Name	Function
10	DC 20V	20V DC power supply.
11	Keyboard and mouse input	For USB keyboard and mouse input.
12	USB 3.2 Gen 1 ports	Provide high-speed data transfer at up to 5 Gbps.
13	Thunderbolt input ports group	Dual Thunderbolt 4 host inputs with 40Gbps bandwidth, supporting video, data, and up to 60W power delivery over a single cable.



ID	Name	Function
14	IR extension in or UART command interface	Connect IR extension cable to receive remote IR signal, or connect external serial to use UART commands for channel switch and functionality control.
15	Thunderbolt outputs	Connect to Thunderbolt displays for video output.
16	LAN port	Insert the network cable into this port to let the 2 input PCs to connect to the local network area.

8. Connection Description

8.1 Connection Diagram



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.



Thunderbolt 4 Cable

8.3 Connection Steps

1. Connect Input 1~2 with 2 Thunderbolt 4 cables.

Tips: To ensure proper video transmission, please confirm that your laptop supports Thunderbolt 3 and above or DP Alt Mode protocols.

2. Connect Thunderbolt output ports to 2 Thunderbolt displays with 2 Thunderbolt 4 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 KVM's RJ45 port to a switch or router using a network cable.
7. Connect the power cable to KVM's DC 20V port 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.

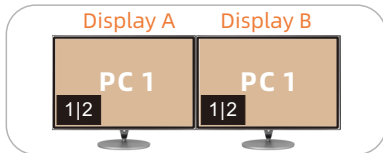
9. Function Description

9.1 Display Mode Description

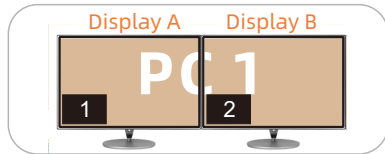
The 2X2 Thunderbolt KVM Switch supports 2 display modes. You can choose to implement 2-screen extended display or duplicate display or display different PCs on 2 monitors.

Display Mode 1: Display the same PC

Duplicate displays

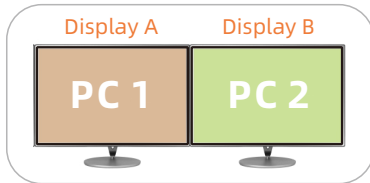


Extend displays



Tips: You can set the duplicate or extend displays in the Display Settings of the current selected PC.

Display Mode 2: Display the different PCs



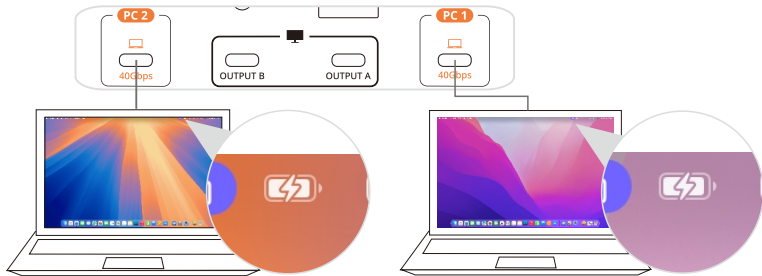
In this mode, you can show one PC on any of two monitors connected to the KVM and the other PC on the remaining monitor. Use the front panel, keyboard hotkeys, or IR control to switch between PCs and monitors.

Tips: 1. 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.
2. The KVM does not support EDID retention.

9.2 Built-in Charging Module

The 2X2 Thunderbolt KVM Switch comes with a powerful built-in charging module that allows you to charge your laptops, phone, tablet and other devices while you use it.

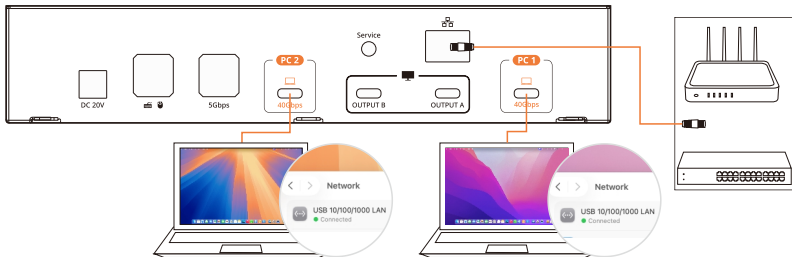
- Connect the laptop to the rear Type-C ports marked “” of the KVM and they will be charged via the PD protocol. Up to 60W power output for faster charging.



Tips: The USB-C port on the laptop needs to support the charging protocol to be able to charge.

9.3 Built-in Network Switch

The 2x2 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: The built-in network switch can be disabled separately. Please refer to Page 26 for the operating instructions.

9.4 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 functioning of the keyboard, mouse, and hotkey features.

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

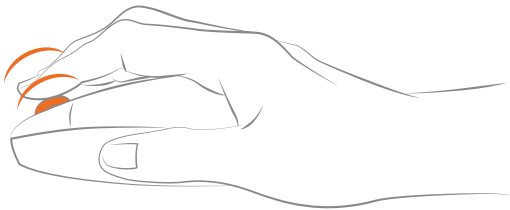


If you encounter issues with the keyboard and mouse in Passthrough Mode, we recommend switching to Legacy Emulation Mode.

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

9.5 Mouse Wheel Switching

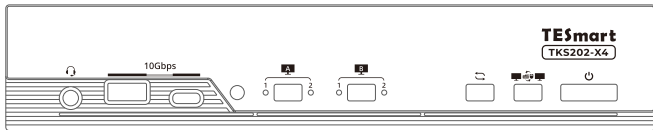
Mouse wheel switching method can quickly switch input sources by mouse operation, double-click the mouse wheel to switch to the next input port. Mouse wheel switching mode is off by default. You can use keyboard hotkey command to turn on mouse wheel switching mode. Please refer to Page 27.



10. Operation Method

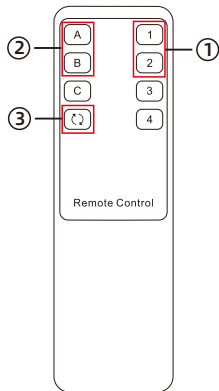
10.1 Front Panel Button Switching Method

The 2X2 Thunderbolt 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.



- Press [↔] button to switch between PCs on display mode 1.
- Press [A]/[B] button to switch between PCs on corresponding monitor on display mode 2.
- The LED1 below [A]/[B] lights up, indicating PC1 is displayed on Monitor A/B.
The LED2 below [A]/[B] lights up, indicating PC2 is displayed on Monitor A/B.

10.2 IR Remote Control



- ① — Press directly to select among 2 PCs, and 2 displays will display the selected PC at the same time. (i.e. display mode 1)
- ② — Press the key, and then press the **[1~2]** key to make the selected monitor display the selected PC. (i.e. display mode 2)
- ③ — Switch to the next input port

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 port 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]



Select next input port:

[Right-Ctrl]→[Right-Ctrl]→[PgDn]



Select port by port number(i.e. display mode 1):

[Right-Ctrl]→[Right-Ctrl]→[1]~[2]



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

Monitor A:

[Right-Ctrl] → [Right-Ctrl] → [←]



Monitor B:

[Right-Ctrl] → [Right-Ctrl] → [→]



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



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] → [~]



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]



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.

Switch fan modes:

[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 $\geq 65^{\circ}\text{C}$: Fan starts automatically at low speed. Chip temperature $\geq 70^{\circ}\text{C}$: Fan automatically switches to high speed. Chip temperature $\leq 60^{\circ}\text{C}$: Fan automatically steps down to low speed. Chip temperature $\leq 55^{\circ}\text{C}$: 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.

Toggle the on/off status of the currently displayed PC's integrated network adapter:

[Right-Ctrl] → [Right-Ctrl] → [F4]



Tips: The integrated network adapter is enabled by default. It can be disabled separately. 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]



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.

Adjust buzzer volume:

[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.

Switch lighting modes:

Turn off lighting:

[Right-Ctrl] → [Right-Ctrl] → [L] → [0]



Light effects vary with KVM indicators:

[Right-Ctrl] → [Right-Ctrl] → [L] → [1]



Marquee lighting effect:

[Right-Ctrl] → [Right-Ctrl] → [L] → [2]



Orange breathing light:

[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.



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TKS202 Xtreme 4

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