TESmart

User Manual

4x1 Thunderbolt KVM Switch

40 Gbps

THK401 Xtreme 4

English

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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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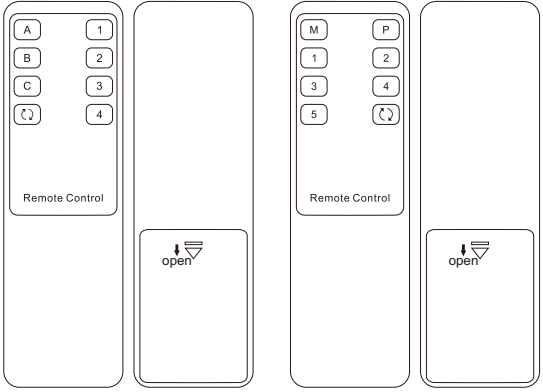
1. Safety Tips and Warnings

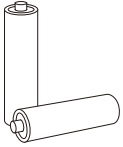
Tips: Please read the safety tips and warnings for the Thunderbolt KVM Switch comprehensively before use. Use this produce in accordance with its instructions, safety tips and warnings to prevent unnecessary damage to the product and potential dangers to users.

- 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



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.



Tips: 1.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.
2.You will receive one of the remote controllers, all of which function normally.

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 4X1 Thunderbolt KVM Switch is purpose-built for the Apple Studio Display, 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 6K@60Hz/5K@120Hz, delivering stunning clarity and stable image quality for your content.

The extra HDMI inputs support up to 4K@60Hz uncompressed resolution and display audio control via Thunderbolt display. enabling easy connection to gaming consoles such as Xbox and PS5 for smooth switching between work and entertainment.

This KVM switch supports high-speed data transfer up to 40Gbps, and provides reliable 60W USB-C charging. Additionally, it is equipped with dedicated L/R audio and microphone port for clear, stable audio I/O,while display volume can be adjusted via keyboard hotkey.

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

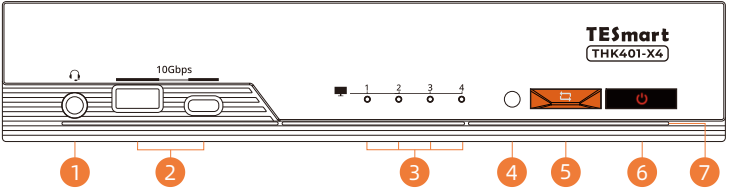
- Using 1 monitor, 1 set of keyboard and mouse to control 2 computers and 2 game consoles
- When connected to the Apple Studio Display, Input 1 supports 6K@60Hz/5K@120Hz. Inputs 2~4 support 4K (3840×2160) @60Hz in 4:4:4
- The USB-C port on Input 1 integrates PCI Express data transfer technology and DisplayPort display technology, and it can provide up to 60W of charging power to devices connected to Input 1
- Support MacOS X/Windows/ Debian/ Ubuntu/Fedora/ Unix/ Raspbian/ Ubuntu for Raspberry Pi and other Linux based systems
- Support 4K video output and display audio control via Thunderbolt display
- Support display volume adjustment via keyboard hotkey
- Support Gigabit wired network connection, devices connected to Inputs 1~2 can access to the network with only one network cable
- EDID emulators on Inputs 2-4 ensure correct display information at all times.
- 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 mouses
- Support connecting mobile device to the front panel USB ports to charge

6. Packing List

- 1 * 4X1 Thunderbolt KVM Switch
- 1 * KVM Cable (HDMI + USB)
- 1 * Thunderbolt 4 Cable
- 2 * HDMI Cables
- 1 * IR Remote Control
- 1 * IR Extension Cable
- 1 * DC 20V Power Adapter
- 1 * User Manual

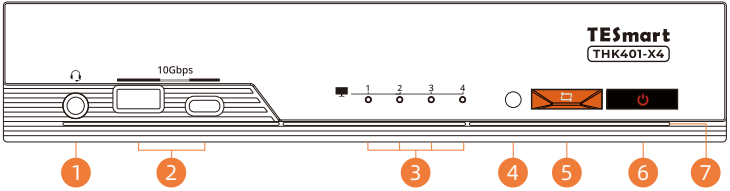
Tips: After receipt of the product, please check the packing list carefully to make sure that no components have been lost and no damage to the product has been caused during transportation. If you have any problem, please contact us at any time.

7. Panel Description



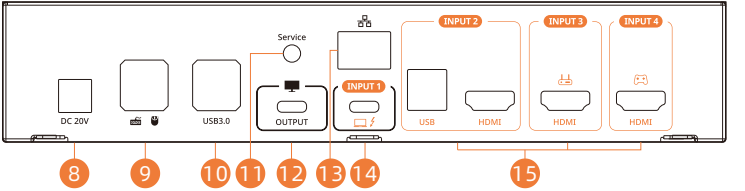
ID	Name	Function
1	3.5mm Audio/Mic	Integrated microphone and L/R audio output.
2	USB 3.2 Gen 2 ports	The Thunderbolt port supports up to 10 Gbps data transfer, while the non-Thunderbolt port delivers up to 5 Gbps, with up to 7.5 W fast charging.
3	Input selection status indicators	Indicate the current selected computer device.

7. Panel Description

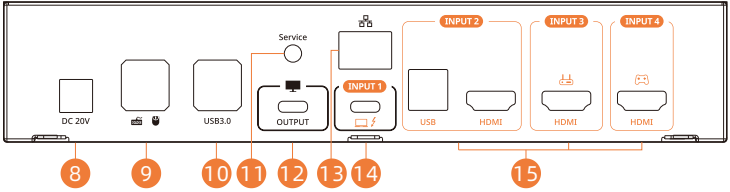


ID	Name	Function
4	IR receiver	Receive IR remote signal.
5	Input selection button	Press to switch input sources.
6	Power switch	Turn on or turn off power supply.
7	RGB LED stirp	Features 4 lighting modes to match your atmosphere.

7. Panel Description

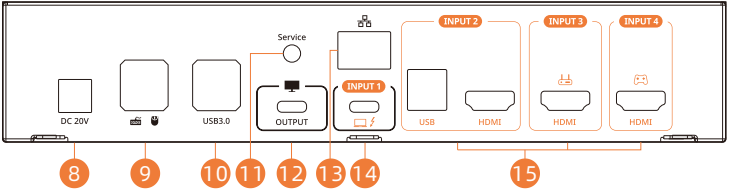


ID	Name	Function
8	DC 20V	20V DC power supply.
9	Keyboard and mouse input	For USB keyboard and mouse input.
10	USB 3.2 Gen 1 port	Can be used to transfer data and charge your mobile devices.



ID	Name	Function
11	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.
12	Thunderbolt output	Connect to a Thunderbolt display for video output.
13	LAN port	Insert the network cable into this port to let the inputs 1~2 to connect to the local network area.

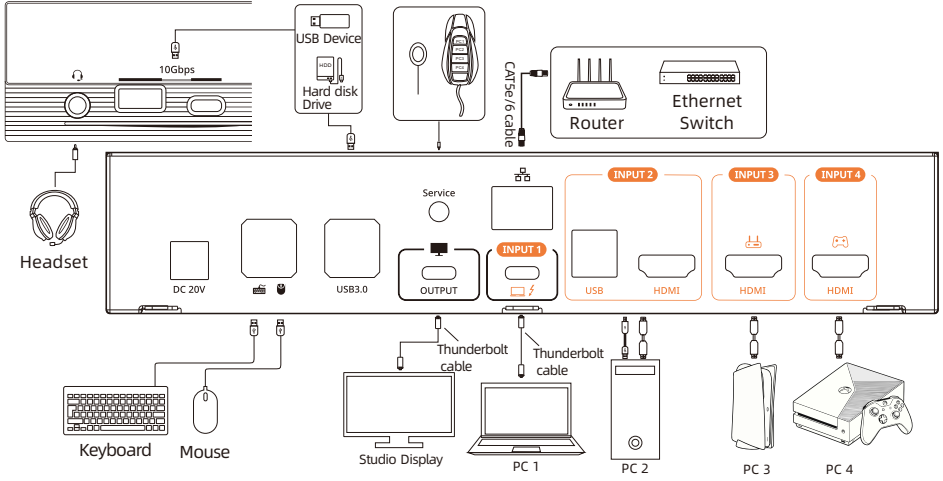
7. Panel Description



ID	Name	Function
14	Input 1 connection port (For Thunderbolt device)	Includes one PC connection port. supports 6K@60Hz/5K@120Hz output without installing any drivers, with a maximum charging power of 60W.
15	Input 2~4 connection ports (For general devices)	Input 2 contains 1 USB port (left) and 1 HDMI port (right). Input 3~4 contains 1 HDMI port. Connect the ports to corresponding input devices for signal input.

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.
- Prepare different sticker labels to mark cables as a lot of cables will be adopted in connection.

(HDMI Cable + USB-A to USB-B Cable+Thunderbolt 4 Cable)

8.3 Connection Steps

1. Connect PC 1 to the port labeled " ⊟ ⚡ " on the KVM using a single Thunderbolt 4 cable.

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

2. Connect Input 2 with 1 KVM cable.
3. Connect Inputs 3~4 with 1 HDMI cable.
4. Connect KVM's output port to 1 Thunderbolt display with 1 Thunderbolt 4 Cable.
5. Connect external mouse and keyboard to KVM's keyboard and mouse input port.
6. Connect USB 3.0 devices to KVM's standard USB 3.0 ports.
7. Connect external audio device to KVM's L/R out port.
8. Connect the power cable to KVM's DC 20V port and plug it to a power socket.
9. By now, the connection has been completed. Turn on the power supply and the KVM Switch will begin to work.

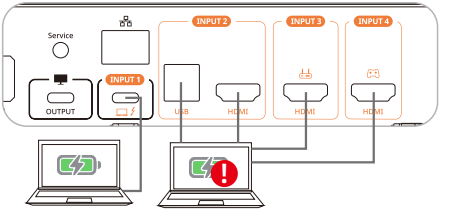
9. Function Description

9.1 Built-in Charging Module

The 4X1 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.

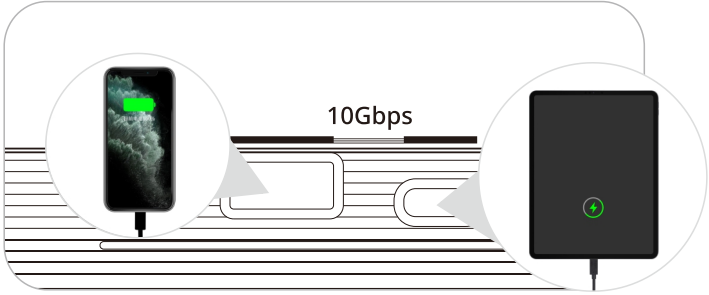
- Connect the laptop to the rear Type-C port marked " ⊟ϟ " of the KVM and it will be charged via the PD protocol. Up to 60W power output for faster charging.

Tips: Computer that connected to the PC2~4 port cannot be charged.



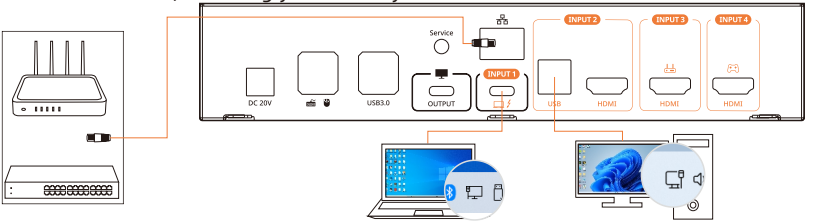
Tips: The USB-C port on the laptop needs to support the charging protocol to be able to charge.

- With two front-panel USB ports (including an USB-A port and an USB-C port) , it supports data transmission while charging.



9.2 Built-in Network Switch

The 4x1 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 23 for the operating instructions.

3. Only inputs 1 and 2 can connect to the network.

9.3 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.

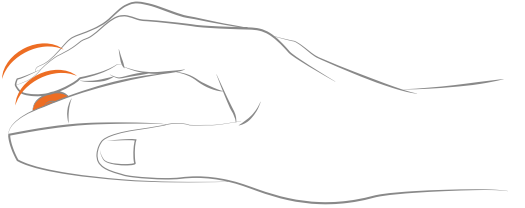
- Typically, we recommend using Passthrough Mode for an optimal user experience, allowing you to:

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 23. After toggled, please restart the KVM.
2. In Legacy Emulation Mode, the keyboard and mouse control software will no longer be available.

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 23.

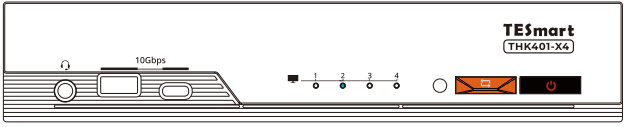


10. Operation Method

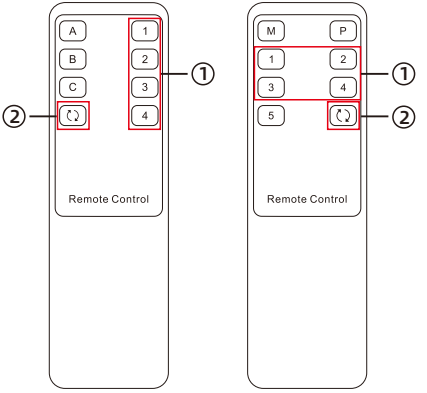
10.1 Front Panel Button Switching Method

The 4X1 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.

→ 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



① —— Press directly to select among 4 PCs

② —— Switch to the next input port

Tips:

1.Unspecified buttons at above are non-functional.

2.You will receive one of the remote controllers, all of which function normally.

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]~[4]

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.

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.

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

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

Increase the monitor volume:
[Right-Ctrl]→[Right-Ctrl]→[I]

Decrease the monitor volume:
[Right-Ctrl]→[Right-Ctrl]→[D]

Tips: When PC1 is displayed, the monitor volume cannot be adjusted.

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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To Enjoy Smart

THK401 Xtreme 4

TESmart Tech Co.,Ltd

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