Waveshare Luckfox PicoKVM

Waveshare Luckfox PicoKVM Remote Management Tool Instruction Manual

Model: Luckfox PicoKVM

1. OVERVIEW

The Waveshare Luckfox PicoKVM is a compact IP KVM remote management tool designed for efficient control of various devices such as personal computers, laptops, desktops, and servers. It offers seamless integration with 1920×1080@60fps HDMI input and HID output, featuring a 1.54-inch touch display for real-time status monitoring. Its hardware-independent architecture enhances security and reliability for remote operations.

Image: Front view of the Luckfox PicoKVM device, showcasing its 1.54-inch touch display and compact design.

2. PACKAGE CONTENT

The package includes the following items:

- Luckfox PicoKVM device x1

Image: The package content showing the Luckfox PicoKVM device.

3. KEY FEATURES

The Luckfox PicoKVM offers a robust set of features for comprehensive remote management:

- **HDMI Input Interface:** Recognized by PC as a display for video capture, offering seamless integration.
- **USB Port:** Simulates mouse, keyboard, and USB storage devices for versatile control.
- **100Mbps Ethernet Port:** Enables efficient video and control signal transmission over the network.
- **1.54-inch Touch Display:** Displays IP address, connection status, and system operating status for easy monitoring.
- **TF Card Slot & I/O Expansion:** Supports storage expansion and host power ON/OFF control via I/O interface.

Features

The Luckfox PicoKVM is a lightweight IP KVM management tool, supports real-time video capture and HID input simulation over the network, enabling touch-free operation of development boards, PCs, and servers. This product offers stable, low-latency video capture and remote control capabilities, widely suitable for scenarios such as remote PC control and server maintenance.

Key Features:

- Onboard HDMI input interface: recognized by PC as a display for video capture
- Onboard USB port: Supports simulation of mouse, keyboard, and USB storage devices
- Onboard 100Mbps Ethernet port: for video and control signal transmission
- 1.54inch touch display: for displaying IP address, connection status, and system operating status
- TF card slot: supports storage expansion
- I/O expansion interface: for host power ON/OFF control

Product	Luckfox PicoKVM	USB Storage Emulation	√
Processor	RV1106G3	UEFI / BIOS Scope	√
Core	1 × A7 at 1.2G	Wake-on-LAN (WOL)	√
Memory	256M DDR3	Web Terminal	√
Storage	8G eMMC	Custom Script	√
System	PicoKVM	Serial Terminal	1-Ch
Resolution	1080P@60fps	Storage Expansion	TF card
Video Encoding	H264	Power Control	GPIO control
Video Latency	80ms ~ 200ms	Ethernet	100Mbps
Audio Transmission	√	LCD Display	1.54inch 240 × 240 touch display (Only included in the Luckfox PicoKVM full version)
UEFI / BIOS Support	√		
USB Keyboard & Mouse Emulation	√	Power Input	Type-C
		Outline Dimension	Luckfox PicoKVM: 48.50 × 48.50 × 29.00 (mm)
			Luckfox PicoKVM Base: 44.00 × 42.00 × 23.60 (mm)

Image: Visual representation of the key features of the Luckfox PicoKVM, including keyboard/mouse simulation, HDMI input, remote OS installation, I/O power control, web access, and TF card storage expansion.

4. SETUP

Follow these steps to set up your Luckfox PicoKVM device:

1. **Connect HDMI Input:** Use an HDMI cable to connect the HDMI output of your target device (PC, server, etc.) to the HDMI IN port on the PicoKVM.

2. **Connect USB for HID:** Connect a USB cable from your target device to the USB port on the PicoKVM. This simulates mouse, keyboard, and USB storage devices for control.

3. **Connect Ethernet:** Plug an Ethernet cable from your local area network (router/switch) into the ETH port on the PicoKVM for network communication.

4. **Power On:** Connect a USB Type-C cable to the USB Type-C port on the PicoKVM for power supply. The device will power on automatically.

5. **Initial Configuration:** The 1.54-inch touch display will show the device's IP address and connection status. Note this IP address for web access.

What's On Board

1. **HDMI IN interface**
   for connecting to the HDMI output interface of the controlled host
2. **I/O expansion interface**
3. **USB Type-C port**
   for power supply, simulating HID/UMS devices, and programming
4. **10/100Mbps RJ45 Ethernet port with indicator**
5. **1.54inch touch LCD**
6. **BOOT button**
   press it when powering on or resetting to enter download mode
7. **RESET button**
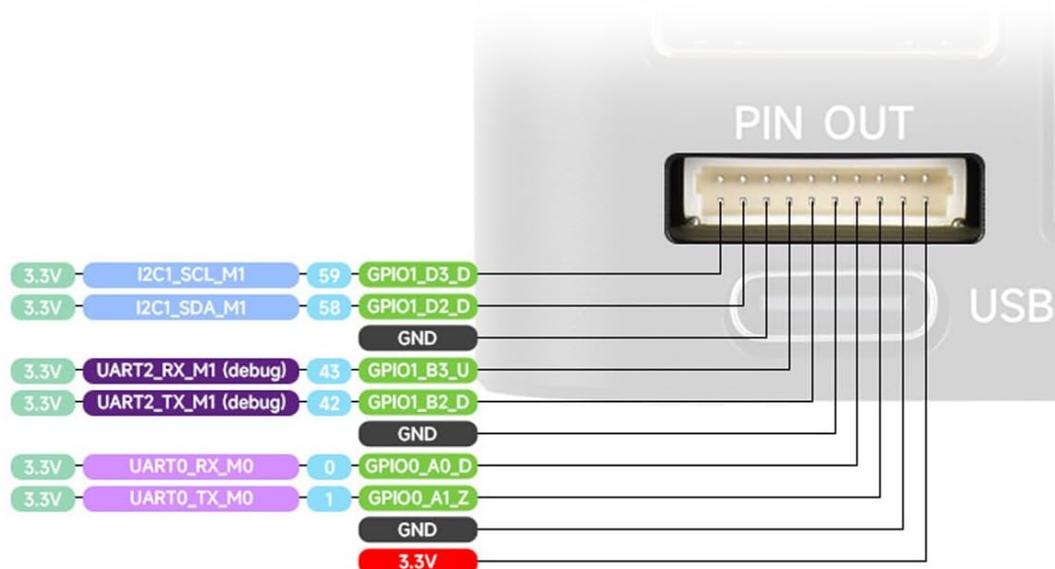8. **TF card slot**

Pin Definition

Image: Detailed view of the Luckfox PicoKVM's ports and buttons, including HDMI IN, PIN OUT, USB, ETH, Reset, Boot, and TF card slot.

Setup Demonstration Video

Your browser does not support the video tag.

Video: An official Waveshare video demonstrating the setup and features of the Luckfox PicoKVM series, including port connections and basic operation.

5. OPERATING INSTRUCTIONS

Once the PicoKVM is set up, you can begin remote operations:

1. **Access Web Interface:** Open a web browser on any device connected to the same network as the PicoKVM. Enter the IP address displayed on the PicoKVM's touch screen into the browser's address bar.
2. **Remote Control:** The web interface will display the screen of your connected target device. You can control the mouse and keyboard remotely through this interface.
3. **Virtual Media:** Utilize the TF card slot for storage expansion. The web interface allows you to mount images for remote OS installation or booting.
4. **I/O Power Control:** If using the optional PicoKVM Ext Expansion Board, you can achieve physical-level remote power ON/OFF and restart control for the host device via the I/O interface.
5. **Wake-on-LAN (WOL):** The device supports Wake-on-LAN functionality, allowing you to power on compatible target devices remotely via the network.
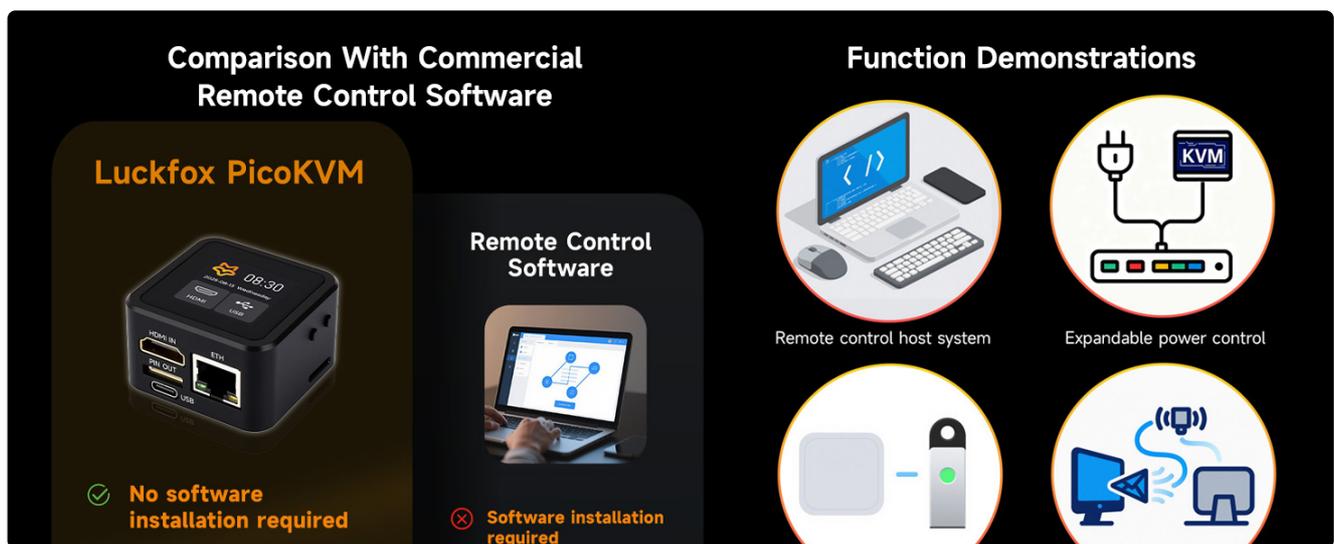

Image: The Luckfox PicoKVM connected to an external expansion board for remote power control, demonstrating its advanced capabilities.

6. MAINTENANCE

To ensure optimal performance and security of your Luckfox PicoKVM, regular maintenance is recommended:

- **Firmware Updates:** Periodically check for and install firmware updates via the web interface. Updates often include enhancements to security, reliability, and performance.
- **TF Card Management:** Ensure the TF card used for storage expansion is in good condition and has sufficient space for virtual media operations.

7. TROUBLESHOOTING

If you encounter issues with your Luckfox PicoKVM, consider the following troubleshooting steps:

- **No HDMI Signal:** Verify all HDMI connections are secure. Ensure the target device is powered on and outputting a signal. Check for firmware updates, as initial firmware versions may have HDMI detection issues.
- **Keyboard Input Issues:** Ensure the USB connection to the target device is secure. Check for firmware updates, as some users reported random character typing or no input with older firmware.
- **Video Output Color/Quality:** If the video output appears discolored (e.g., yellowish) or of poor quality, check

for available firmware updates. Adjust display settings within the PicoKVM web interface if options are available.

- **Firmware Update Failure:** If the update function via the web interface fails, consult the Waveshare wiki page for manual firmware flashing instructions.

- **Slow ISO Uploads:** For faster virtual media uploads, consider using SCP (Secure Copy Protocol) instead of the web interface, or write directly to the SD card.

- **Incorrect Time Zone:** Adjust the time zone setting within the PicoKVM's web interface.

- **General Connection Issues:** Ensure all cables (HDMI, USB, Ethernet) are properly connected and undamaged. Verify your network connection is stable and active. Try restarting both the PicoKVM device and your target computer.

8. SPECIFICATIONS

Feature	Detail
Brand	Waveshare
Model Name	Luckfox PicoKVM
Model Number	Luck-fox PicoKVM
Compatible Devices	Personal Computer, Laptop, Desktop, Server
HDMI Input	1920x1080@60fps
HID Output	USB (simulates mouse, keyboard, storage)
Ethernet Port	100Mbps
Touch Display	1.54-inch
Storage Expansion	TF Card Slot
I/O Interface	Supports host power ON/OFF control

Features

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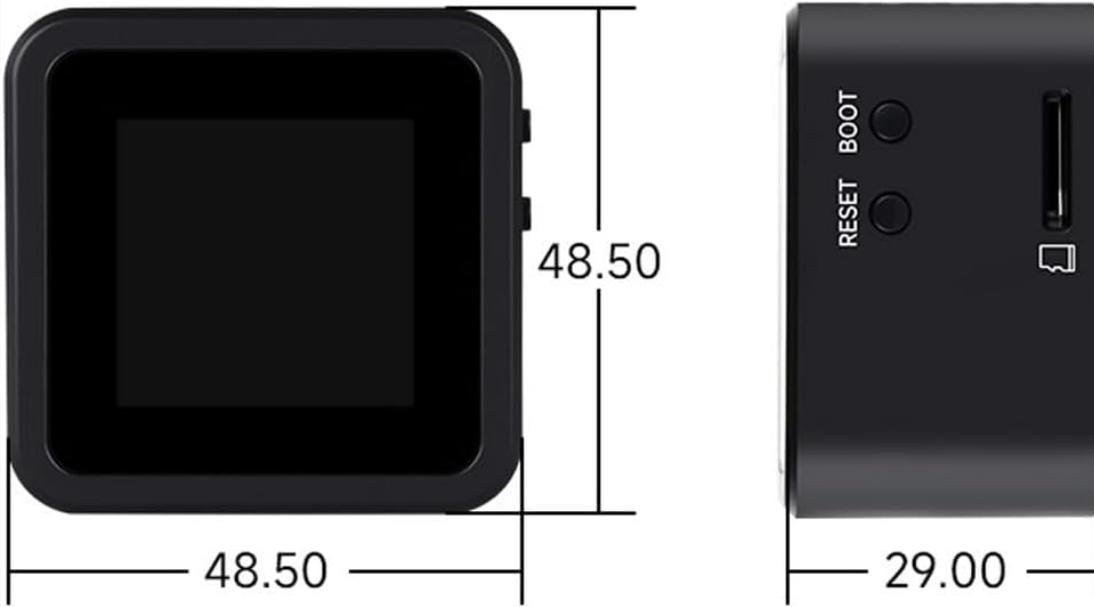
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Specifications

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Video Encoding	H264	LCD Display	1.54inch 240 × 240 touch display (Only included in the Luckfox PicoKVM full version)
Video Latency	80ms ~ 200ms		
Audio Transmission	√		
UEFI / BIOS Support	√	Power Input	Type-C
USB Keyboard & Mouse Emulation	√	Outline Dimension	Luckfox PicoKVM: 48.50 × 48.50 × 29.00 (mm)
USB Storage Emulation	√		Luckfox PicoKVM Base: 44.00 × 42.00 × 23.60 (mm)
UEFI / BIOS Scope	√		

Image: A detailed table outlining the technical specifications and features of the Luckfox PicoKVM.
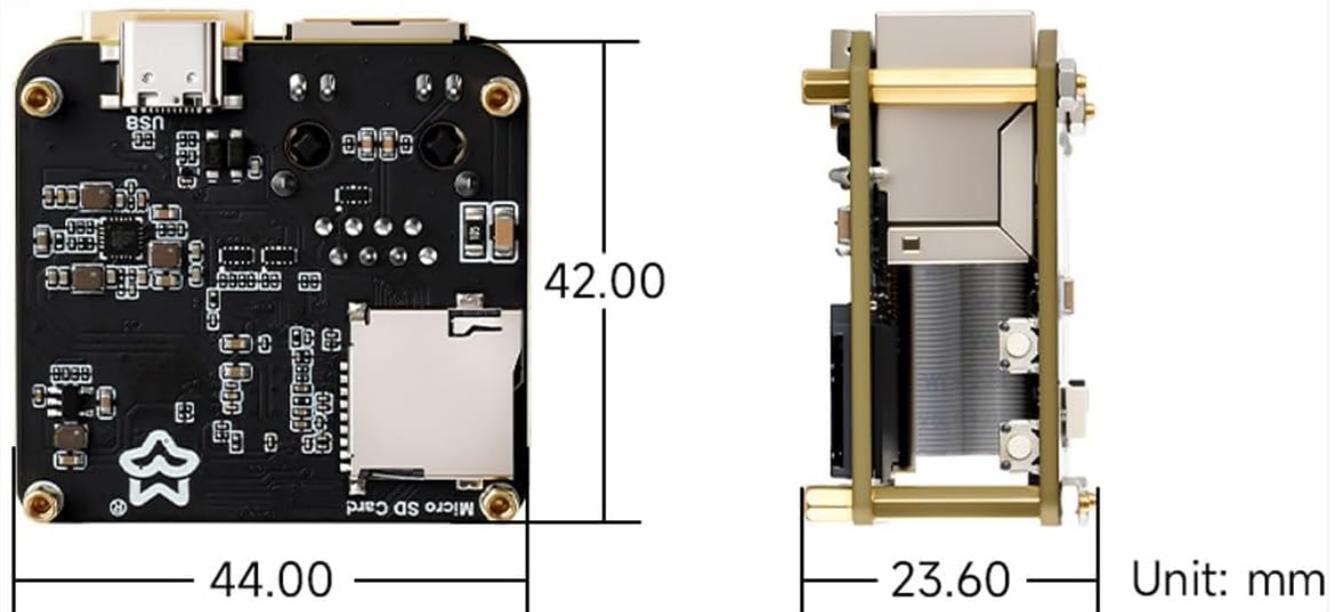
Image: Diagram showing the outline dimensions of the Luckfox PicoKVM and its base version in millimeters.

9. WARRANTY & SUPPORT

The Waveshare Luckfox PicoKVM comes with a **1-year warranty** from the date of purchase.

For further technical support, detailed documentation, and community resources, please visit the official Waveshare website or contact their customer support channels.