

KH7000 Upgrade

4K30 AV over IP System and KVM Workstation Control

User Manual

Version: V24.10.30

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1. Product Introduction

The KH7000 Upgrade is an advanced 4K30 HDMI over IP system that integrates **both encoding and decoding functionalities** into a single unit. Each device can be flexibly configured as a transmitter (encoder) or receiver (decoder) via dedicated software, enabling high adaptability to diverse application scenarios.

Core Capabilities & Specifications

- **Audio & USB Support:**
 - 2× 3.5mm audio ports (1 input, 1 output) for enabling audio embedding and de-embedding.
 - 2× USB-A (female) ports for connecting keyboards, mice, or host devices.
- **Central Control Integration:**

Equipped with RS232, RS485, Relay, and I/O interfaces to seamlessly integrate with third-party central control systems.
- **Long-Distance Transmission:**
 - Up to 150 meters over standard CAT6 Ethernet cables.
 - Up to 2 km over optical fiber.
- **Power & Display:**

- Supports both PoE (Power over Ethernet) and DC power input to accommodate flexible installation scenarios.
 - Front-panel OLED display shows real-time device status (model, ID, IP address, system operation status) for simplified setup and maintenance.
- System Stability:**

Adopts server-free technology—a single device failure will not disrupt overall system operation, ensuring high reliability.

Ideal Applications

Command centers, control rooms, conference halls, smart campuses, and enterprise environments. It delivers low-latency 4K30 video, seamless source switching, and multicast transmission over standard 1Gbps network switches.

2. Product Features

- 4K AV-over-IP distributed input/output solution
- All-in-one design: Combines encoder and decoder functionalities in a single device
- Server-free architecture (no central server/control box required)
- Configuration and management via Windows-based management software
- Supports bidirectional resolution scaling (both upward and downward adjustment)
- Built-in video wall control (supports up to 16 windows per display)
- KVM workstation support with full keyboard/mouse control capabilities
- Real-time input/output signal preview function
- Seamless switching between video/audio sources
- Customizable user interface (UI)
- Audio embedding and de-embedding capabilities
- RS232, RS485, Relay, and I/O ports for external control integration
- On-Screen Display (OSD) and scrolling text functions
- Remote management for workstations and video walls

3. Technical Specifications

Parameter	Specification
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Video Input	1× HDMI (with 1× HDMI loop-out)
Video Output	1× HDMI
Input Resolution	Up to 3840×2160 @ 30Hz (4K30)
Output Resolution	Up to 3840×2160 @ 30Hz (4K30)
Audio Input	1× 3.5mm Line In
Audio Output	1× 3.5mm Line Out
Latency	80–120 ms
Control Ports	RS232, RS485, Relay, I/O (Phoenix connectors)
Network Interfaces	1× RJ45 LAN port (1Gbps), 1× Fiber port
PoE Support	Yes (standard PoE compatible)
USB Ports	2× USB-A (female)
Power Consumption	<10W
Dimensions (L×W×H)	193 × 100.5 × 25 mm
Weight	525 g

4. Package Contents

Item	Quantity
KH7000 Upgrade Transmitter/Receiver	1 Unit
DC Power Adapter (12V/1.5A Output)	1 Piece

5. Panel Overview

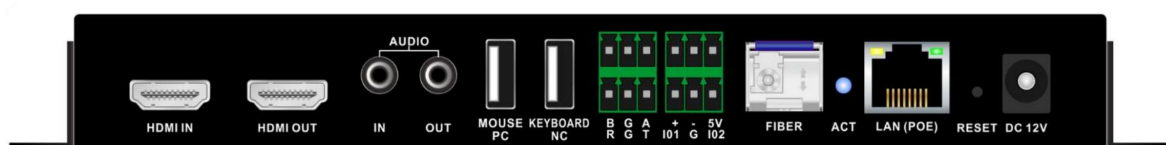
5.1 Front Panel



The front panel features intuitive indicators and a display for quick status verification:

- **PWR:** Power indicator (illuminates solid when the device is powered on).
- **SYS:** System status indicator (indicates normal or abnormal system operation).
- **LINK:** LAN connection indicator (illuminates when a network connection is established).
- **HDMI:** HDMI signal indicator (illuminates when an HDMI input signal is detected).
- **OLED Display:** Displays real-time device status information (model, ID, IP address, system status).

5.2 Rear Panel



The rear panel houses all functional ports, with clear labeling for easy connection:

Port/Label	Description
DC 12V IN	Power input port (compatible with the included 12V/1.5A power adapter).
RESET	Factory Reset Button: Press and hold for 5 seconds to restore factory default settings.
LAN (PoE Compatible)	RJ45 LAN port with standard PoE support (for data transmission and PoE power supply).
ACT	Network activity indicator (flashes to indicate network data transmission or reception).
FIBER	Optical fiber port for long-distance signal transmission (up to 2 km).
RS485, RS232,	Phoenix connectors for integrating with external central control

Relay, I/O	systems.
MOUSE/PC	Transmitter mode: Connect to a host device (e.g., a PC). Receiver mode: Connect to a mouse.
KEYBOARD/NC	- Receiver mode: Connect to a keyboard. - Inactive when in Transmitter mode.
AUDIO IN and OUT	3.5mm ports for audio input (embedding) and audio output (de-embedding).
HDMI IN and OUT	- HDMI IN: Connect to an HDMI source (e.g., a camera or PC). - HDMI OUT: Loop-out (when in Transmitter mode) or signal output (when in Receiver mode).

6. Equipment Connection Overview

The KH7000 Upgrade supports multiple network topologies to address diverse application requirements:

1. **Extender Mode:** One-to-one signal extension (e.g., extending a PC's 4K signal to a remote display).
2. **Distribution Mode:** One-to-many signal broadcast (e.g., sending a single presentation to multiple displays).
3. **Matrix Mode:** Many-to-many signal switching (e.g., switching between 5 signal sources and displaying on 3 screens).
4. **Video Wall & Multiviewer Mode:** Complex visual management (e.g., controlling a 4×4 video wall or displaying 16 windows on one screen).