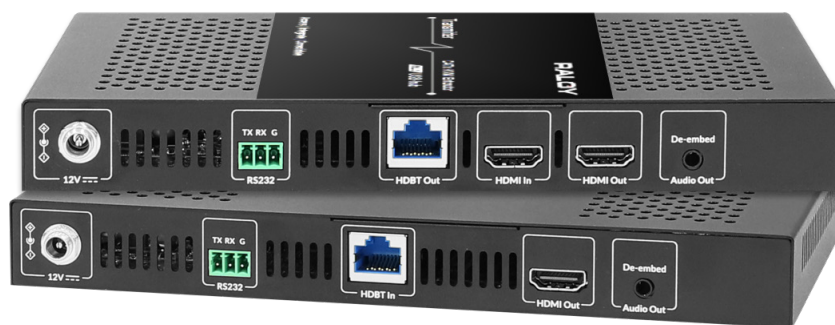




RKHE-CATx4KHDMI

HDMI CATx KVM Extender plus USB-hub

User Manual



Access | Integrate | Consolidate

Legal Information

First English printing, June 2026

Information in this document has been carefully checked for accuracy; however, no guarantee is given to the correctness of the contents. The information in this document is subject to change without notice. We are not liable for any injury or loss that results from the use of this equipment.

Safety Instructions

Please read all of these instructions carefully before you use the device. Save this manual for future reference.

- Unplug equipment before cleaning. Don't use liquid or spray detergent; use a moist cloth.
- Keep equipment away from excessive humidity and heat. Preferably, keep it in an air-conditioned environment with temperatures not exceeding 40° Celsius (104° Fahrenheit).
- When installing, place the equipment on a sturdy, level surface to prevent it from accidentally falling and causing damage to other equipment or injury to persons nearby.
- When the equipment is in an open position, do not cover, block or in any way obstruct the gap between it and the power supply. Proper air convection is necessary to keep it from overheating.
- Arrange the equipment's power cord in such a way that others won't trip or fall over it.
- If you are using a power cord that didn't ship with the equipment, ensure that it is rated for the voltage and current labelled on the equipment's electrical ratings label. The voltage rating on the cord should be higher than the one listed on the equipment's ratings label.
- Observe all precautions and warnings attached to the equipment.
- If you don't intend on using the equipment for a long time, disconnect it from the power outlet to prevent being damaged by transient over-voltage.
- Keep all liquids away from the equipment to minimize the risk of accidental spillage. Liquid spilled on to the power supply or on other hardware may cause damage, fire or electrical shock.
- Only qualified service personnel should open the chassis. Opening it yourself could damage the equipment and invalidate its warranty.
- If any part of the equipment becomes damaged or stops functioning, have it checked by qualified service personnel.

What the warranty does not cover

- Any product, on which the serial number has been defaced, modified or removed.
- Damage, deterioration or malfunction resulting from:
 - Accident, misuse, neglect, fire, water, lightning, or other acts of nature, unauthorized product modification, or failure to follow instructions supplied with the product.
 - Repair or attempted repair by anyone not authorized by us.
 - Any damage of the product due to shipment.
 - Removal or installation of the product.
 - Causes external to the product, such as electric power fluctuation or failure.
 - Use of supplies or parts not meeting our specifications.
 - Normal wear and tear.
 - Any other causes which does not relate to a product defect.
- Removal, installation, and set-up service charges.

Contents

< Part. 1 >

1.1	Package Content	P.3
1.2	Overview	P.4
1.3	Key Features	P.4
1.4	Component & Port Functions	P.5
1.5	LED Indicators	P.5
1.6	Technical Specification	P.6

< Part. 2 >

2.1	Connection Diagram	P.7
2.2	Installation	P.7

Before Installation

- It is very important to mount the equipment in a suitable cabinet or on a stable surface.
- Make sure the place has a good ventilation, is out of direct sunlight, away from sources of excessive dust, dirt, heat, water, moisture and vibration.

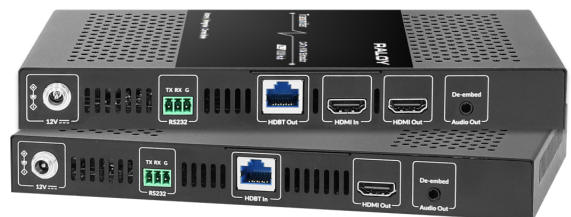
Unpacking

The equipment comes with the standard parts shown in package content. Check and make sure they are included and in good condition. If anything is missing, or damaged, contact the supplier immediately.

< Part 1 >

< 1.1 > Package Content

- Transmitter unit x 1
- Receiver unit x 1
- Power Adapter (DC 12V/3A) x 1
- USB 2.0 Type-A to Type-B Cable x 1
- Phoenix Male Connectors (3-pin, 3.5mm) x 2
- Mounting Brackets (with Screws) x 8



< 1.2 > Overview

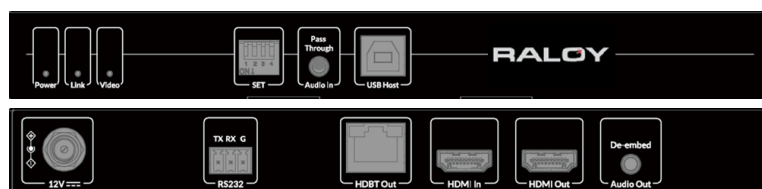
- The Raloy RKHE-CATx4K HDMI KVM Extender is built on the new-generation HDBaseT 3.0 platform. It can transmit uncompressed video signals up to 4K@60Hz 4:4:4 8-bit over a single 100m Cat 5/ 6/ 6A or U/FTP cable. An HDMI output port is included on the transmitter for local HDMI loop-out.
- It features a KVM function for remote USB control, supports audio pass-through from the transmitter to the receiver, and provides audio de-embedding on both sides. Both the transmitter and receiver include an RS232 port for bidirectional pass-through or firmware upgrades, which are selectable via an onboard DIP switch. Utilizing one-way PoH (Power over HDBaseT), only a single power adapter connected to the receiver is required to power both units.

< 1.3 > Key Features

- HDMI & HDCP Compliance: Fully compatible with HDMI 2.0 and HDCP 2.2.
- Uncompressed 4K Video: Supports uncompressed transmission of 4K@60Hz 4:4:4 8-bit signals, as well as all major HDR formats, including Dolby Vision and HDR10+.
- Long-Distance Transmission: Extends 4K@60Hz 4:4:4 signals up to 100m (330ft) via Cat 6A cabling.
- High-Speed USB Pass-Through: Supports USB 2.0 pass-through over HDBaseT with data transfer rates up to 350Mbps.
- High-Power USB Device Support: Features high-output USB Device ports on the receiver to handle power-demanding peripherals.
- Local Loop-Out & Audio Pass-Through: Supports local HDMI loop-out at the transmitter and audio pass-through from transmitter to receiver.
- Audio De-embedding: Provides dedicated ports for audio de-embedding at both the transmitter and receiver ends.
- One-Way PoH: The transmitter seamlessly draws power directly from the receiver.
- Versatile RS232 Interface: Supports bidirectional RS232 pass-through and serial firmware updates.

< 1.4 > Component & Port Functions

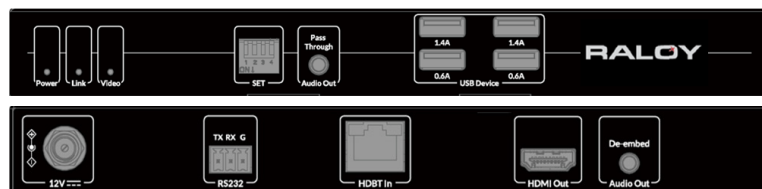
Transmitter



Front

Rear

Receiver



Front

Rear

	Port	Function
Transmitter	SET Switch	A 4-pin DIP switch used to configure the RS232 working modes (Pass-through, Valens firmware upgrade, or MCU firmware upgrade).
	Audio IN	VGA signal input to connect to the VGA host computer/ device.
	USB Host	A USB 2.0 Type-B port used to connect to a host computer or PC.
	DC 12V	Connects to the provided power adapter. Due to one-way PoH support, the power supply only needs to be connected to the receiver to power both units.
	RS232	Link an RS232 device for bidirectional pass-through or system firmware updates.
	HDBT OUT	Connects directly to the HDBT In port of the receiver unit.
	HDMI IN	Connects to your primary HDMI source device.
	HDMI OUT	Connects to a local HDMI display for signal loop-out.
	Audio OUT	Extracts audio output to connect directly to an external speaker.
Receiver	SET Switch	4-pin DIP switch to manage the receiver's RS232 operation mode.
	Audio OUT	Connects to an audio receiver to output the pass-through audio coming from the transmitter.
	USB-hub	USB 2.0 Type-A ports used to connect peripherals such as keyboards, mice, USB cameras, or flash drives. <i>** The top two USB ports support a maximum current of 1.4A, while the bottom 2 ports support up to 0.6A. Verify USB 2.0 backward compatibility before plugging in a USB 3.0 device.</i>
	DC 12V	Connects to the main power adapter to supply power to both the receiver and transmitter units via PoH.
	RS232	Connects to an RS232 device for pass-through communication or firmware maintenance.
	HDBT IN	Connects to the HDBT Out port of the transmitter.
	HDMI OUT	Connects directly to your remote display or monitor.
	Audio OUT	Extracts local audio output to connect to an audio receiver or external speaker.

< 1.5 > LED Indicators

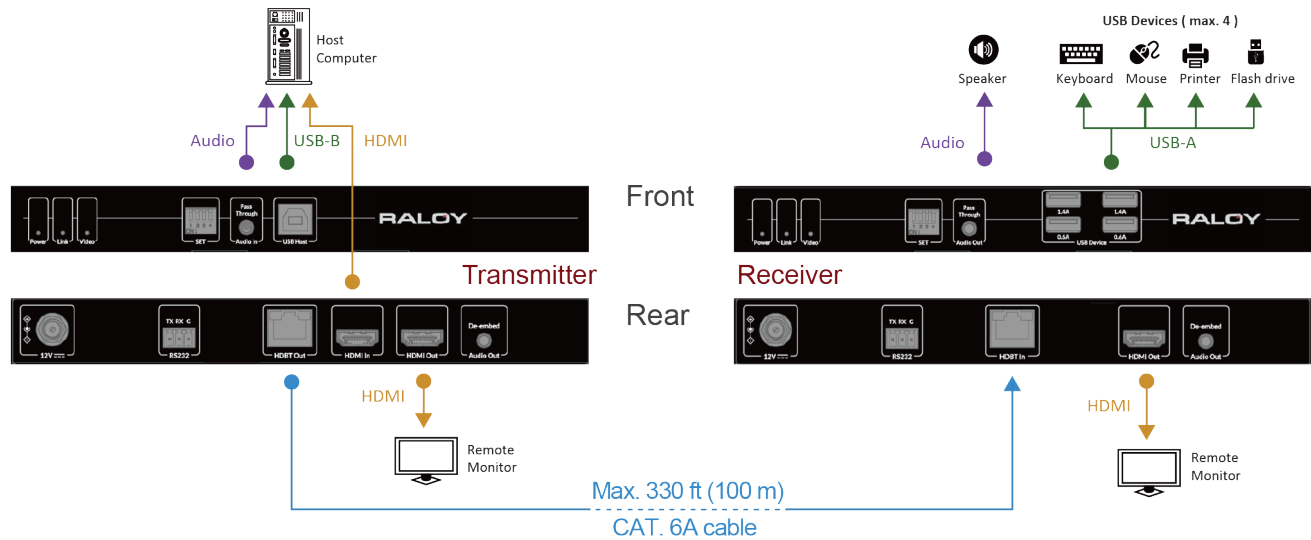
	Indicator	Description
Transmitter / Receiver	Power LED	Turns on when the device is powered on; turns off when powered off.
	Link LED	Status light is on when the HDBaseT link is normal, and off if there is a link error or no connection.
	Video LED	Illuminates when the HDMI input signal is active, and turns off when the input signal is missing or inactive.

< 1.6 > Technical Specification

	Specification				
Input/Output Video Signal	HDMI with 4K@60 YUV 4:4:4, HDCP 2.2				
Input/Output Resolutions	SMPTE: 4096x2160, 3840x2160, 3840x2160 (YUV 420), 2560x1080, 1920x1080P, 1920x1080i, 1280x720 VESA: 3840x1440, 3840x1080, 3440x1440, 2560x1600, 2560x1440, 2560x1080, 1920x1440, 1920x1200, 1680x1050, 1600x1200, 1600x900, 1440x900, 1366x768, 1360x768, 1280x1024, 1280x960, 1280x800, 1280x768, 1280x720, 1024x768, 800x600				
Audio Format	Audio In/Out (pass-through): Stereo HDMI In/Out: Fully supports audio formats in HDMI 2.0 specification, including PCM 2.0/5.1/7.1, Dolby TrueHD, Dolby Atmos, DTS-HD Master Audio and DTS:X Audio De-embedding: Stereo				
Maximum Pixel Clock	600MHz				
Maximum Data Rate	HDMI: 18Gbps USB: 350Mbps				
USB Specification	USB 2.0 and backward compatible with USB 1.1/1.0				
Operating Temperature	0°C to 45°C (32°F to 113°F)				
Storage Temperature	20°C to 70°C (-4°F to 158°F)				
Humidity	20% to 90%, non-condensing				
Power Supply	DC 12V 3A				
Power Consumption (Max)	19W				
Dimensions (W x H x D)	Transmitter/Receiver: 215 × 25 × 120 mm / 8.46" x 0.98" x 4.72"				
Weight	Transmitter: 0.56 kg / 1.23 lbs Receiver: 0.57 kg / 1.26 lbs				
Transmission Distance	<table> <tr> <td>Cat 6A</td><td>100m / 330ft (4K@60Hz / 4K@30Hz / 1080P@60Hz)</td></tr> <tr> <td>Cat 5e / 6</td><td>70m/230ft (4K@60Hz 4:2:0 36bpp / 4K@30Hz / 1080P@60Hz) 40m/131ft (4K@60Hz 4:4:4 24bpp / 4K@60Hz 4:2:2 36bpp)</td></tr> </table> **Note: Patches may be used in the installation but will obviously affect the transmission distance.	Cat 6A	100m / 330ft (4K@60Hz / 4K@30Hz / 1080P@60Hz)	Cat 5e / 6	70m/230ft (4K@60Hz 4:2:0 36bpp / 4K@30Hz / 1080P@60Hz) 40m/131ft (4K@60Hz 4:4:4 24bpp / 4K@60Hz 4:2:2 36bpp)
Cat 6A	100m / 330ft (4K@60Hz / 4K@30Hz / 1080P@60Hz)				
Cat 5e / 6	70m/230ft (4K@60Hz 4:2:0 36bpp / 4K@30Hz / 1080P@60Hz) 40m/131ft (4K@60Hz 4:4:4 24bpp / 4K@60Hz 4:2:2 36bpp)				

< Part 2 >

< 2.1 > Connection Diagram



< 2.2 > Installation

Brackets Installation

- Safety Note: Ensure the extender is completely disconnected from any active power source before starting the installation.
- Bracket Attachment: Secure the provided mounting brackets to the sides of the device enclosure using the separate assembly screws included in the package.
- Surface Mounting: Affix the brackets securely against your desired surface (wall, desk, or rack) using appropriate mounting screws (not included).

System Configuration

- Cabling Integrity: Ensure the network category cable does not exceed the transmission thresholds outlined in the specifications section.
- Single Power Input: Thanks to integrated one-way PoH support, you only need to attach the power supply adapter to the receiver unit.
- KVM Routing: All USB devices connected to the receiver will automatically route control back to the host computer connected to the transmitter's USB Host port.
- High-Power USB Devices: Peripherals requiring extra current (such as USB hard drives or external cameras) should be plugged into the two dedicated 1.4A USB ports on the receiver.
- Audio Extraction: If audio separation is required, connect sound systems or external speakers to the local "Audio Out (De-embed)" ports on either side of the system.

DIP Switch & RS232 Pass-Through Settings

- The transmitter and receiver are each equipped with a 4-pin DIP switch to set the serial port operating behavior. By default, all four pins are set to the Up position from the factory.

DIP Switch functions

DIP Position				Function
1	2	3	4	
x	x	up	up	RS232 pass through (default)
x	x	down	up	RS232 for MCU firmware update
x	x	up	down	RS232 for Valens firmware update
x	x	down	down	Reserved

Note: "X" indicates the position of the DIP switch pin doesn't affect the function.

Please ask for details of other products from Raloy. Every effort has been made to ensure that the information contained herein is correct. There is a possibility that the image(s) shown may not be exactly the same as the final product. The company reserves the right to modify product specifications without prior notice and assumes no responsibility for any error which may appear in this publication.

All brand names, logo and registered trademarks are properties of their respective owners.

Copyright 2026 Raloy, Inc. All rights reserved.