



HDMI Extender Series

User Manual

Model : HE02U-4K6G

4K 60Hz HDMI KVM Extender with USB 2.0



Overview

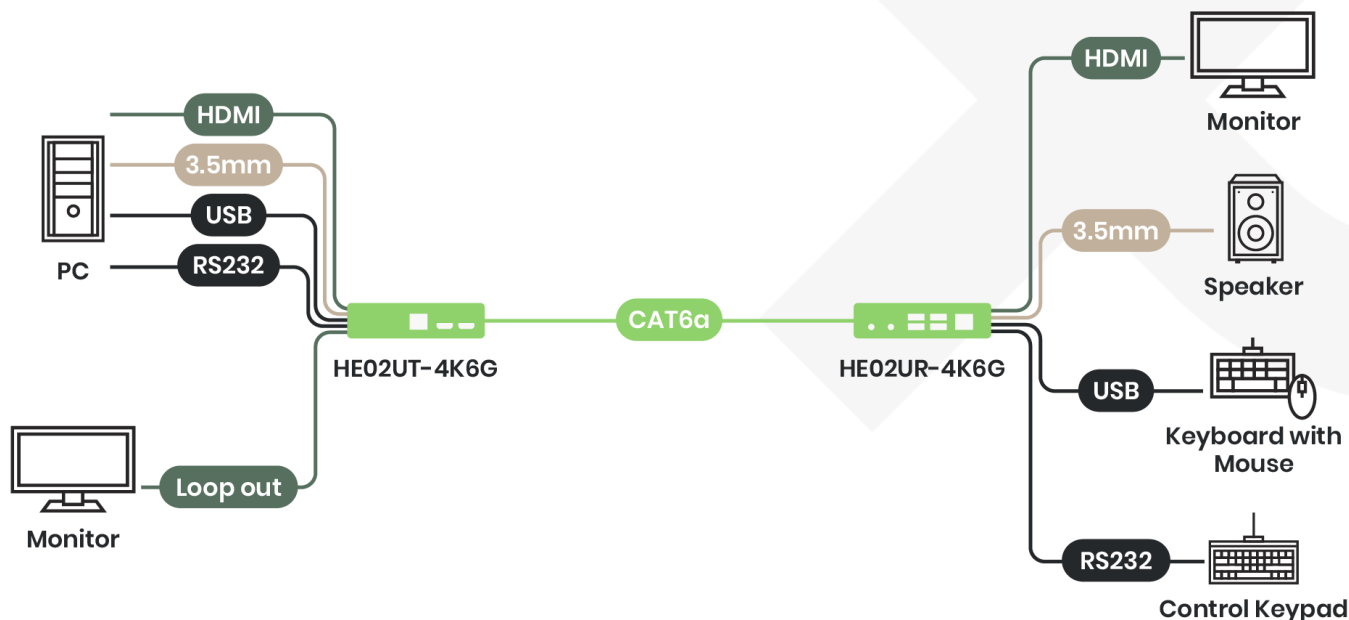
HE02U-4K6G is an HDMI over HDBaseT Extender which is able to send uncompressed video, digital & analog audio, RS232 signals, with resolution up to 4K@60Hz 4:4:4 and transmission distance up to 100M. It uses the Valens Stello VS3000 chipset, which is the only solution for long-range distribution of uncompressed video, with zero latency. The 4 built-in USB ports at RX unit can connect multiple USB devices, such as keyboards, mice, and touch panels.

Features

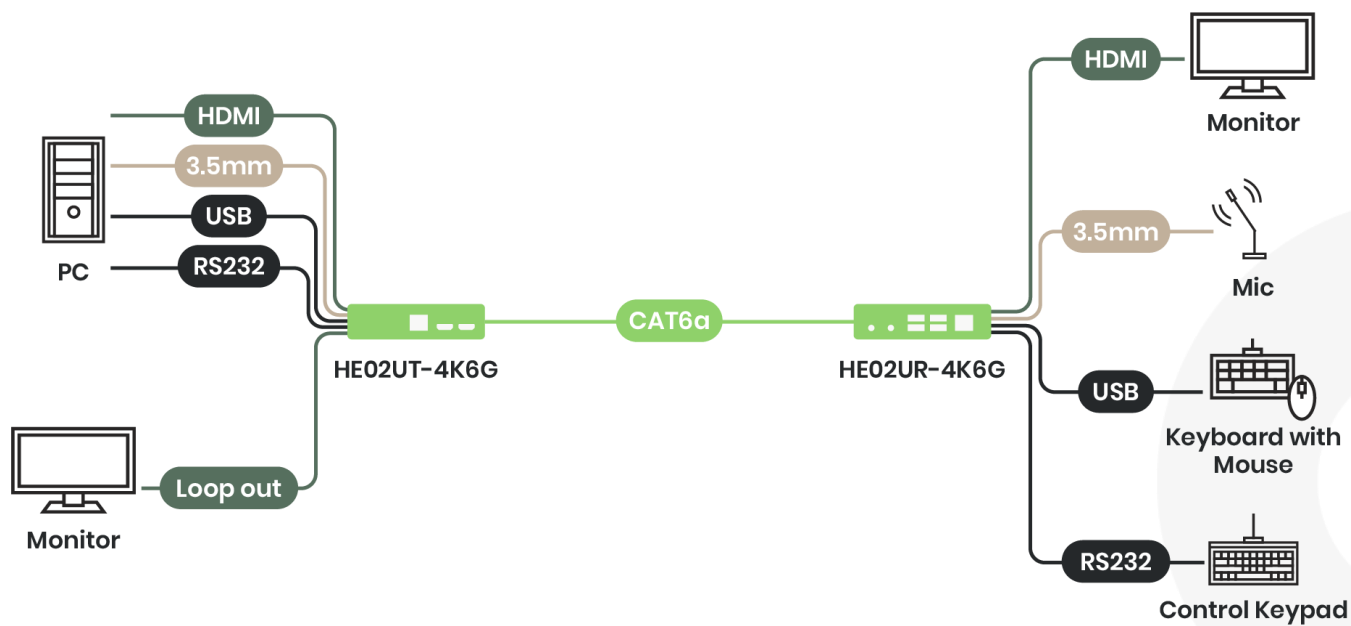
- Resolution up to 4096/ 3840 x2160@60Hz 4:4:4.
- HDBaseT for transmission of uncompressed UHD video at almost zero latency.
- Signal extension up to 100m for 4096 x 2160@60Hz.
- Built-in 4 ports USB2.0 at the RX unit for USB cameras, flash drives, keyboards/mouses, etc.
- Supports bi-directional RS232 transmission.
- Supports Ethernet transmission
- Supports HDMI loopout
- Supports CEC passthrough
- Supports HDMI audio and 3.5mm input/output at Tx or Rx. (For more information, see the Audio Transmission, P8.)
- HDCP compliant.

Installation View

HDMI KVM extension with Audio Output to Speaker in Rx unit from Audio Input in Tx unit

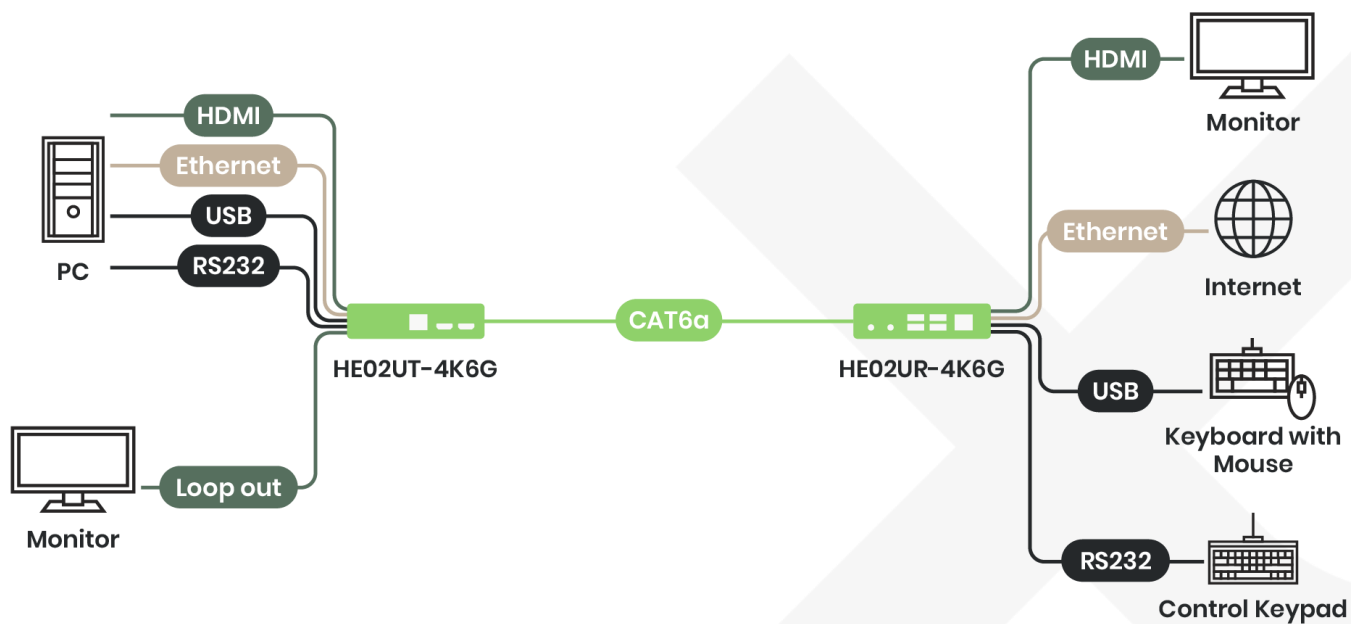


HDMI KVM extension with Audio Input from Rx unit to Audio Output in Tx unit

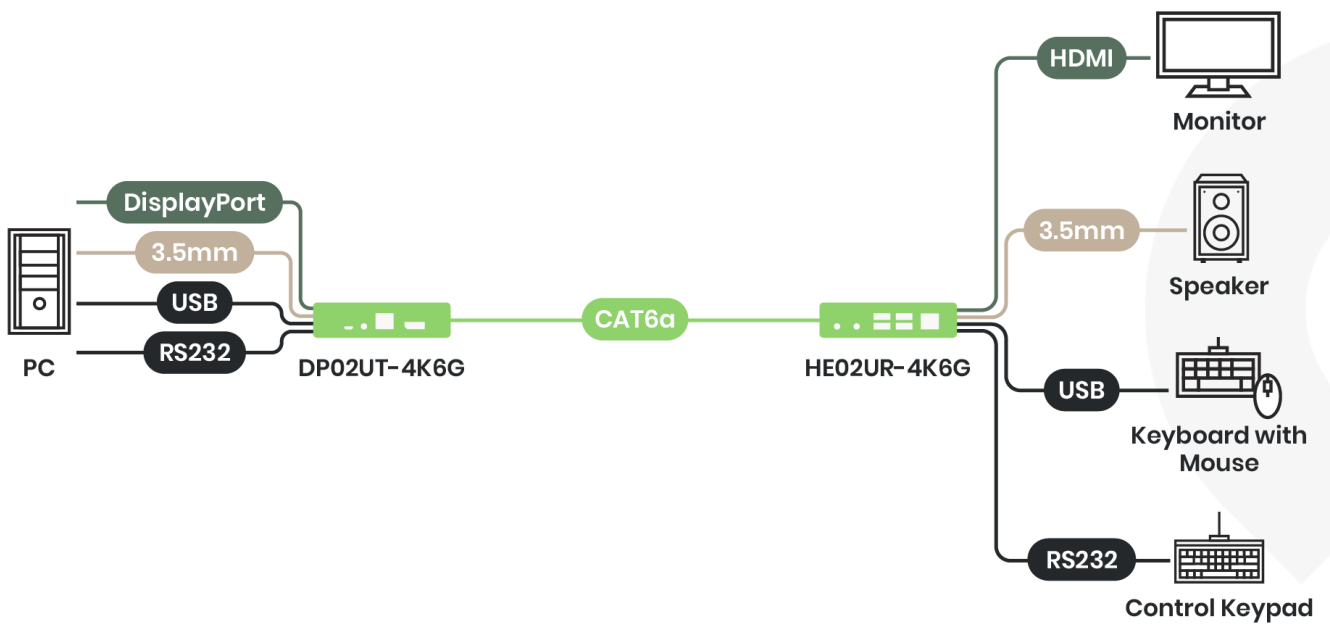


HDMI KVM extension with audio transmission from HDMI signal.

PS: Ethernet can be connected to PC, Router, Switch Hub, etc. and can be bidirectional

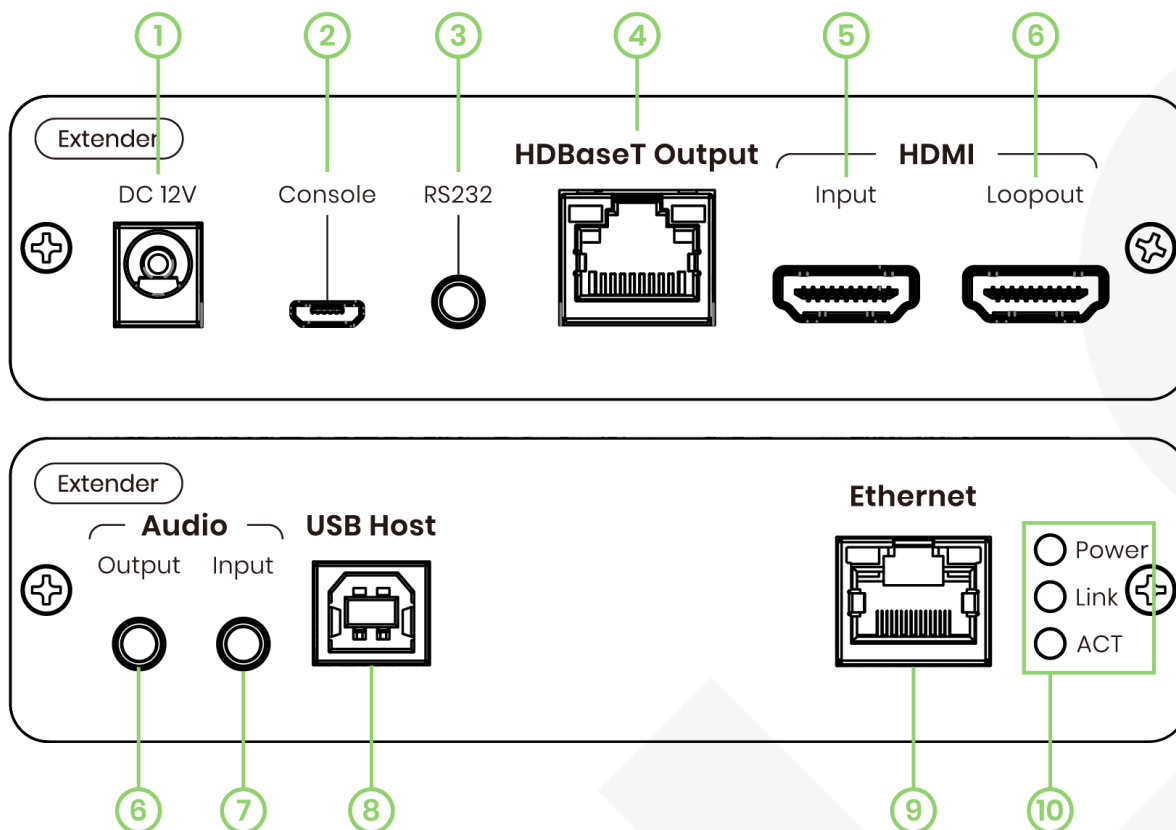


HE02UR-4K6G could also use with DP02UT-4K6G to extend DP source to HDMI display.



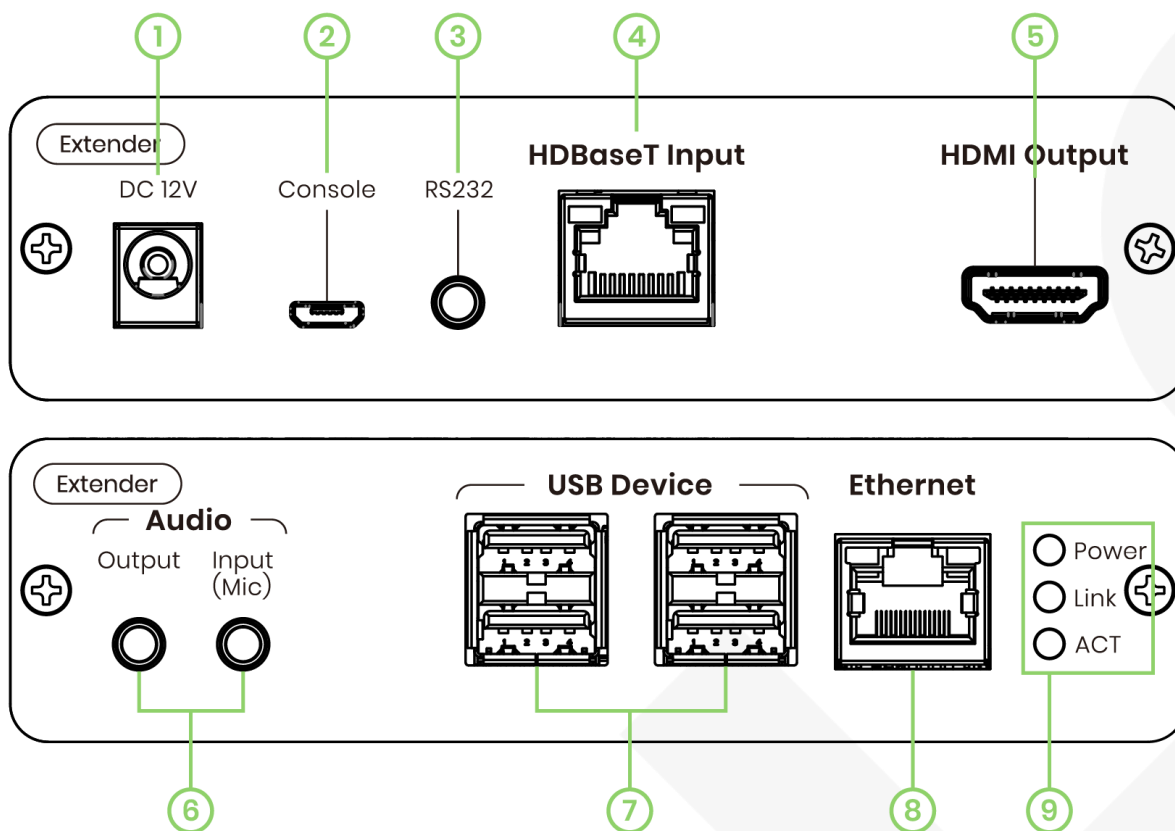
Panel View

HE02UT-4K6G



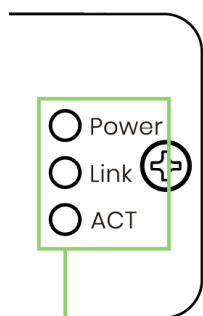
No	Interface	Description
1	Power Input	To input 12V 1.5A power
2	USB Micro-B	Firmware Upgrade
3	3.5mm Jack RS232	RS232 for control signals extension
4	HDBaseT Output	To connect a CAT6A for transmission up to 100M
5	HDMI Input	Video Input up to 4K@60Hz
6	HDMI Loopout	Video Output up to 4K@60Hz
7	3.5mm Jack Audio Output/Input	Analog audio line in/ line out
8	USB Type-B	USB2.0 for host connection
9	Ethernet	To connect to internet, router, switch hub, etc
10	LED Indicator	LED for visual link/video transfer/power indicator

HE02UR-4K6G



No	Interface	Description
1	Power Input	To input 12V 1.5A power
2	USB Micro-B	Firmware Upgrade
3	3.5mm Jack RS232	RS232 for control signals extension
4	HDBaseT Input	To connect a CAT6a for transmission up to 100M
5	HDMI Output	Video Output up to 4K@60Hz
6	3.5mm Jack Audio Output/Input	Analog audio Mic in/ Line out
7	USB Type-A	USB2.0 for device connection
8	Ethernet	To connect to internet, router, switch hub, etc
9	LED Indicator	LED for visual link/video transfer/power indicator

LED Indication



LED Indication	LED Color	Status
Power	Green ON/OFF	Power ON/OFF
Link	Blue ON/OFF	HDBaseT LINK/UNLINK
ACT	Blue ON or Blink/OFF	Video LINK(HDCP/non HDCP)/UNLINK

Resolution and Distance

Resolution

HE02U-4K6G transmits HDMI and USB2.0 signals, to achieve KVM transmission, at up to 4096/ 3840 x2160@60Hz resolution and can extend the distance for a maximum of 100m at a lower resolution. For the detailed transmission distances, see the next chapter.

Transmission Distance

Table of Distance

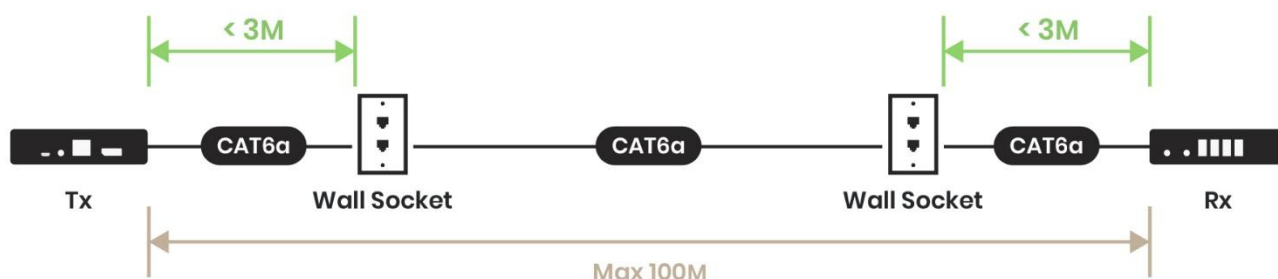
At 4096x2160@60Hz 4:4:4, using an HDBaseT 3 certified CAT6a cable can extend the signal for 100m and a COMMSCOPE CAT6a cable for 80m, after tests. See the table below for information about the transmission distance.

Cable Type	Maximum Distance	Resolution
CAT5e-24AWG-UTP (COMMSCOPE)	40m	3840x2160 60Hz 1080P60Hz
CAT6A-23AWG-UTP	100m	3840x2160 30Hz 1080P60Hz
CAT6A-23AWG-F/UTP (COMMSCOPE)	80m、90m	3840x2160 60Hz
CAT6A-22AWG-F/UTP (TELDOR-83G02HD105 HDBaseT3 Certified)	100m	3840x2160 60Hz
CAT6-23AWG/UTP (AMP)	70m	1080P60Hz

Setting up

Wall socket

If the Ethernet cable passes through the wall socket, the length of the cable between HE02U-4K6G and Wall Jack must be fewer than 3 meters as connection diagram shown below:



Cable used

We recommend using high-quality CAT6a, CAT7 UTP/STP, or FTP cables to connect HE02UT-4K6G and HE02UR-4K6G. Poor quality cables and any improper connection will cause video or audio disruptions and picture noise.

We **strongly recommend** using the following HDBaseT Alliance certified cables for optimal transmission. You can also click [here](#) for other certified cables.

	Item No.	Length (m)
Teldor Cables & System Ltd.	83G02HD105 CAT 6A 22AWG	100
	CAT 6A 83G0204139 23AWG	100
	83G0204139 23AWG	90
	83G02HD105 CAT 6A 22AWG	90
	83G0204139 23AWG	80
	83G0204139 23AWG	75
	83G0204139 23AWG/Tiger S/FTP 11801	70+5+5
	83G0204139 23AWG/TopX patch	70+5+5
	CAT_6A 83G0204139 23AWG / Panduit Patch	70+5+5
	CAT 6A 83G0204139 23AWG/ CAT 6A 83G0204139 23AWG	80+5+5
	CAT_6A 83G0204139 23AWG / Panduit Patch	80+5+5

	83G0204139 23AWG/Tiger S/FTP 11801	80+5+5
	83G02HD105 CAT 6A 22AWG/Panduit Patch	90+5+5
	83G02HD105 CAT 6A 22AWG/83G02HD105 CAT 6A 22AWG	90+5+5
	83G02HD105 CAT 6A 22AWG/TIGER CAT_6A S/STP PATCH CABLE	90+5+5
	CAT 6A 83G0204139 23AWG	90+5+5
	83G0204139 23AWG	100
Extron Electronics	S/FTP 23AWG E197502-12	100
	S/FTP 23AWG E197502-12	90
PADUIT CORP.	TX6A 10GIG PUFR6X04 CAT 6A 23AWG	90
	TX6A 10GIG PUFR6X04 CAT 6A 23AWG / Panduit Patch	80+5+5
MaXXam	MaXXam XX6A0001Z CAT 6A 23AWG	100
Nienyi	Nienyi A0120J231I CAT 6A 23AWG **Not in production	100
	Nienyi A0120J231I CAT 6A	90+5+5
	Nienyi A0120J231I CAT 6A 23AWG / Panduit Patch	90+5+5
Structured Cable Products	10GBASE-T 600MHZ U/FTP 23AWG EN50575	100

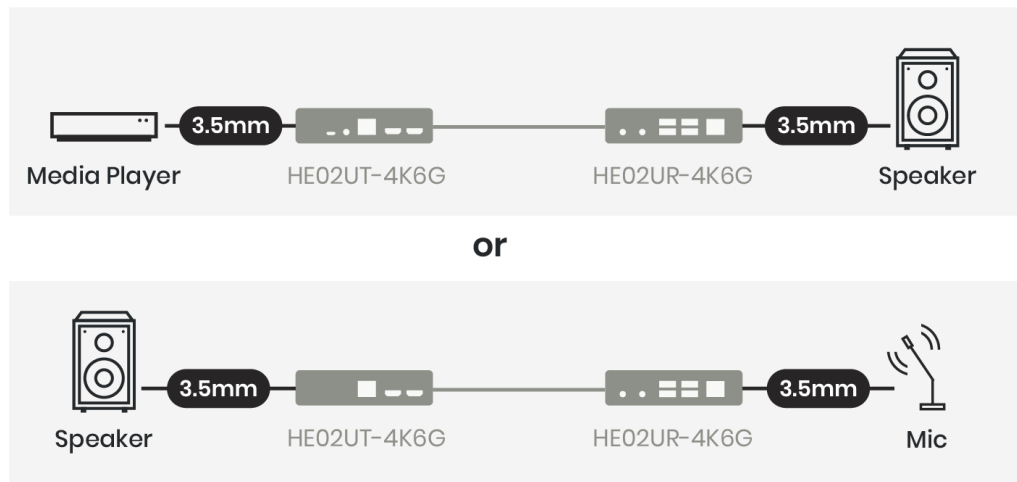
Audio Transmission

HDMI Audio

HE02U-4K6G transmits HDMI audio. HDMI audio input can only be played from HDMI output.

Sound Channel

HE02U-4K6G has an independent 3.5mm sound channel at the transmitter and receiver, which can be connected to a microphone or speaker. Tx 3.5mm audio input can only be played at Rx output. Rx 3.5mm audio input can only be played at Tx output.



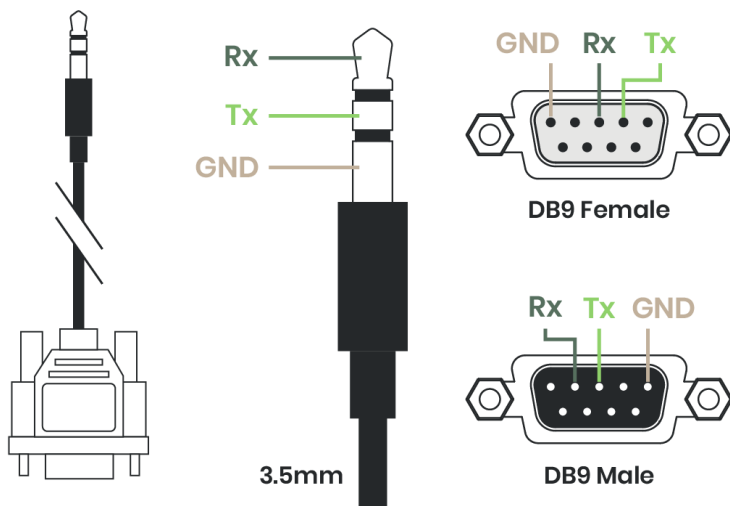
Independent 3.5mm sound channel which can be connected to a microphone or speaker at either Tx or Rx.

RS232 Transmission

HE02U-4K6G supports RS232 transmission via a 3.5mm connector. If your RS232 device uses a DB9 connector, you will need a DB9 to 3.5mm adapter cable to connect the device to Tx and Rx.

RS232 Definition

HE02U-4K6G has 3.5mm for RS232 transmission. See the pictures and tables below for detailed connections.



RS232(DB9 Female)		3.5 mm Phone Jack	
Pin	Definition	Pin	Definition
Pin 2	TX	Pin 1	RX
Pin 3	RX	Pin 2	TX
Pin 5	GND	Pin 3	GND

RS232(DB9 Male)		3.5 mm Phone Jack	
Pin	Definition	Pin	Definition
Pin 2	RX	Pin 1	RX
Pin 3	TX	Pin 2	TX
Pin 5	GND	Pin 3	GND

Caution

- Using a certified Premium HDMI cable to transfer high-resolution video is recommended.
- Using a certified HDBaseT3 CAT6a U/FTP cable to transmit up to 100m is needed.
- This product is designed for indoor applications. If it is desired for outdoor use, please install additional equipment for waterproof protection and surge protectors to prevent damage caused by lightning.
- Do not put anything on the power and system cables. Place them where they cannot be stepped on. Please be sure there is nothing resting on any cables.
- Avoid using this product close to water places, or near high-temperature devices such as radiators, stoves, etc.
- Shut down the power supply and unplug all equipment immediately if:
 - Water or any kind of liquid has been spilled into the product.

- The temperature is too high.
- The product has been damaged by an external force.
- The product does not operate normally as this manual indicates.
- Please contact us for further repair if the above conditions happen.



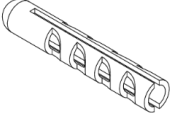
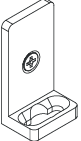

Package Includes

Item	Amount
HE02UT-4K6G (Transmitter Unit)	1 pc
HE02UR-4K6G (Receiver Unit)	1 pc
DC12V 1.5A Power Adapter	2 pcs
USB A/ B Cable	1 pc
3.5mm/DB9 cable	2 pc
Mounting Screw pack	1 bag

Specification

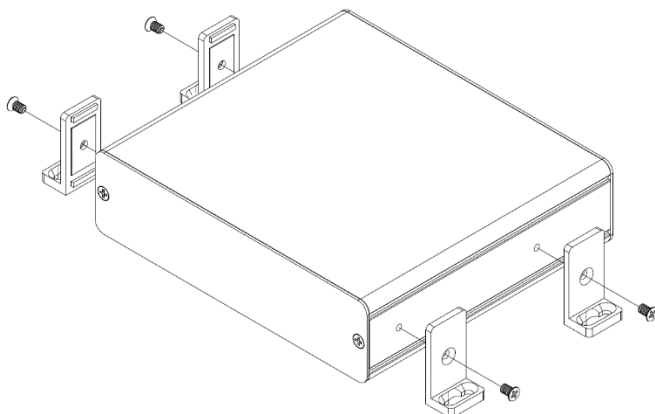
ITEM No.	HE02UT-4K6G	HE02UR-4K6G
Compliance	HDMI 2.0 HDCP 1.4/ 2.2 USB 2.0	
Video Resolution	4K@60Hz 4:4:4	
Max Transmission Distance	100M (HDBaseT3 certified CAT6a U/FTP cable)	
RS232 Baud Rate	115200 bps/Full Duplex	
Ports & Interfaces		
Video Input	1 x HDMI	1 x HDBaseT
Video Output	1 x HDBaseT 1 x HDMI (loopout)	1 x HDMI
Audio Input	1 x (3.5mm) Phone Jack	1 x (3.5mm) Phone Jack
Audio Output	1 x (3.5mm) Phone Jack	1 x (3.5mm) Phone Jack
USB Connector	1 x USB Type-B	4 x USB Type-A
RS232 Interface	1 x (3.5mm) Phone Jack	1 x (3.5mm) Phone Jack
Console (Firmware Upgrade)	1 x USB Micro-B	1 x USB Micro-B
LED Indicators	3-LED Status: Power / Link / ACT	3-LED Status: Power / Link / ACT
Power		
Power Supply	12V 1.5A	12V 1.5A
Power Consumption	<6W	<10W (USB keyboard&mouse)
Mounting	Rack-Mount / Wall-Mount	
Operation	0 to 45°C	
Storage	-40 to 80°C	
Operating Altitude (Max.)	2000m	
Humidity	Up to 95%	
Physical Characteristics		
Dimension	125 x 123 x 32mm	125 x 123 x 32mm
Weigh	363g	371g

Installation Guide

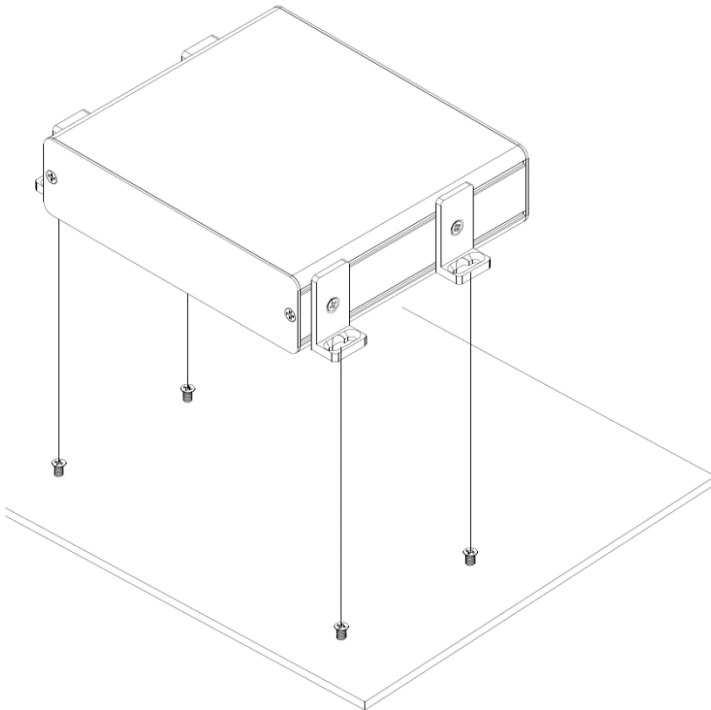
Accessory		
A	Machine Screw	
B	Self-drilling Screw	
C	Screw Plug	
D	Angle Bracket	
E	Accessory set 1U Rack	

Installed on a Platform

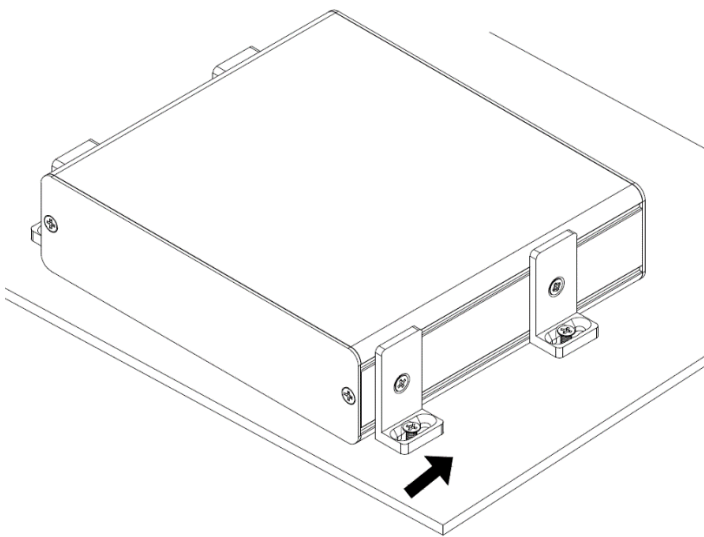
Step 1 Use machine screws to fix angle brackets on both sides of your product



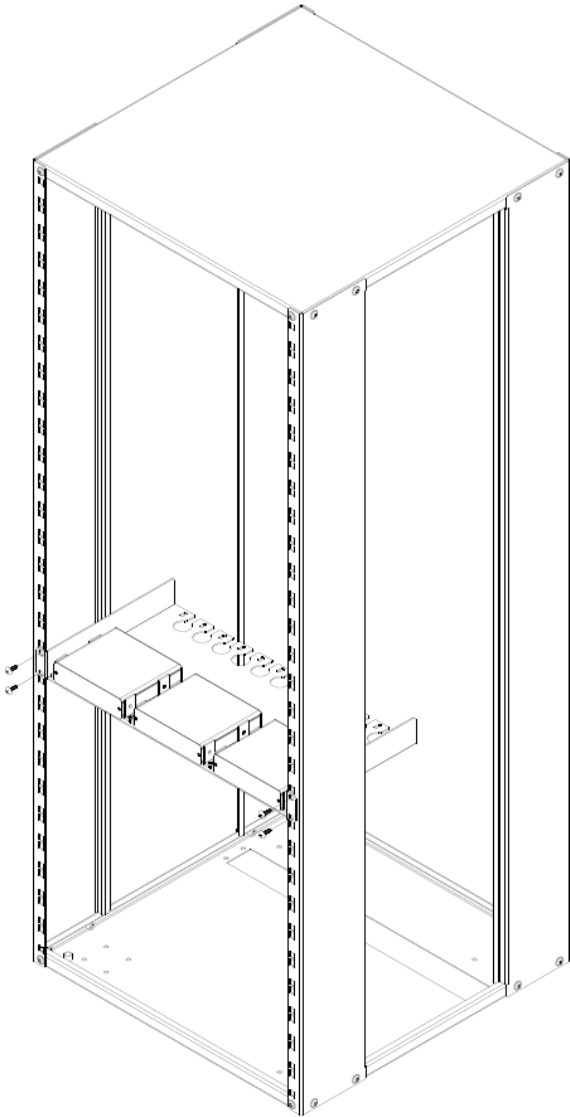
Step 2 Use self-drilling screws to fix the product on a platform



Step 3 Move the product to get fixed and then lock the screws

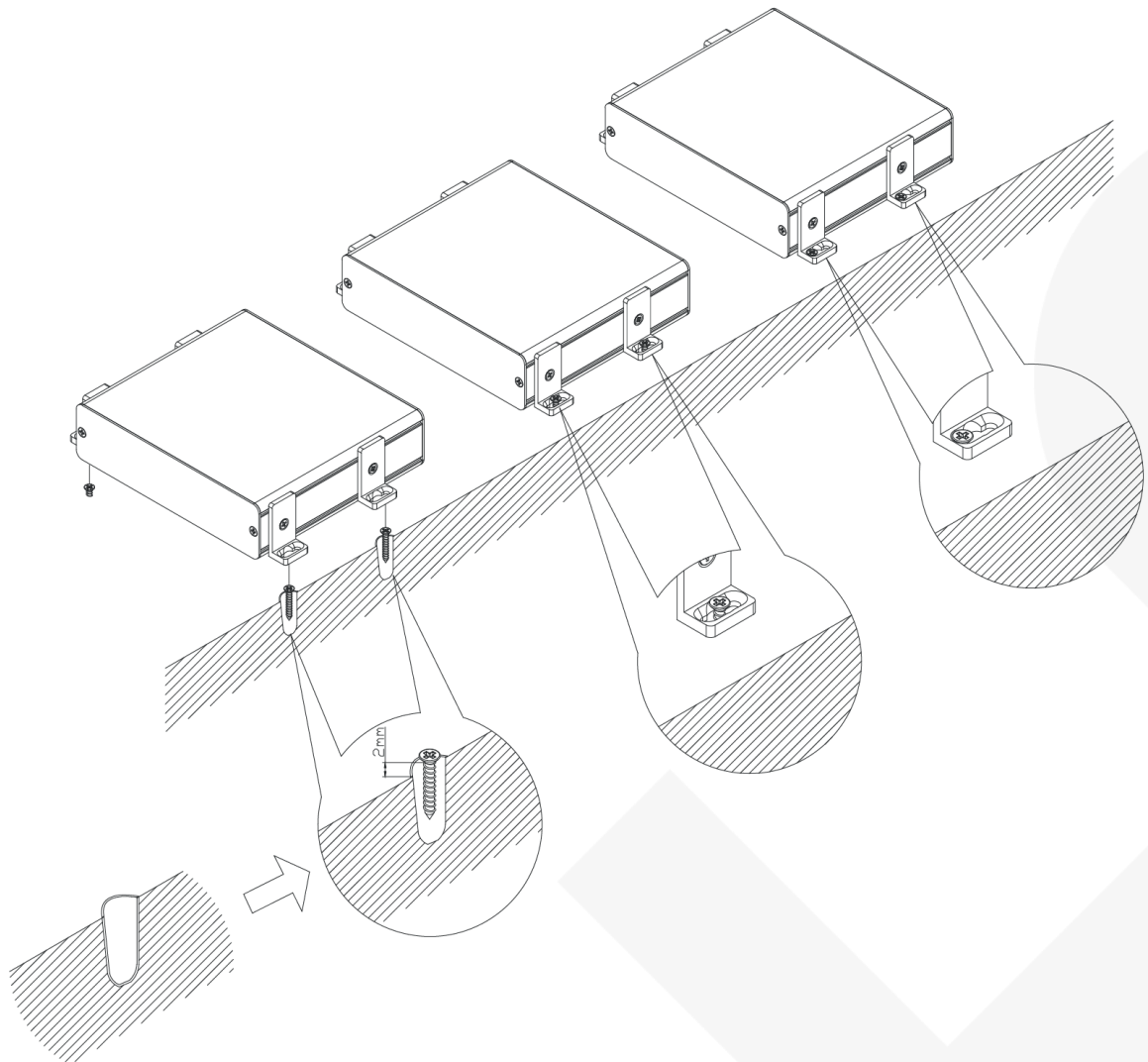


Step 4 Install the rack in the cabinet



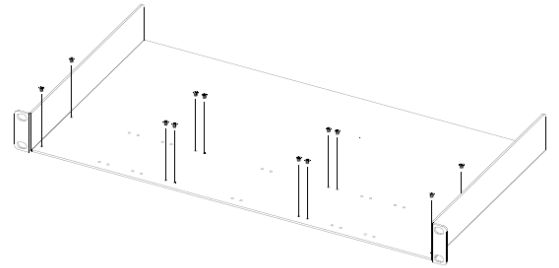
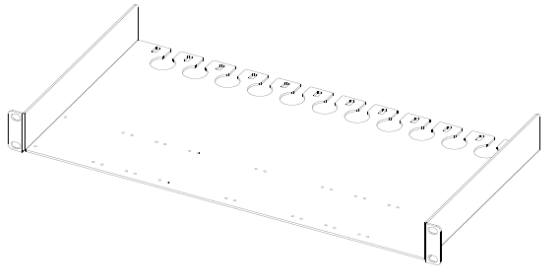
Installed on Wall

Same way as “**Installed on a Platform**”, but need to put screw plugs into the pilot hole before inserting the screws (leave 2mm space from the platform)

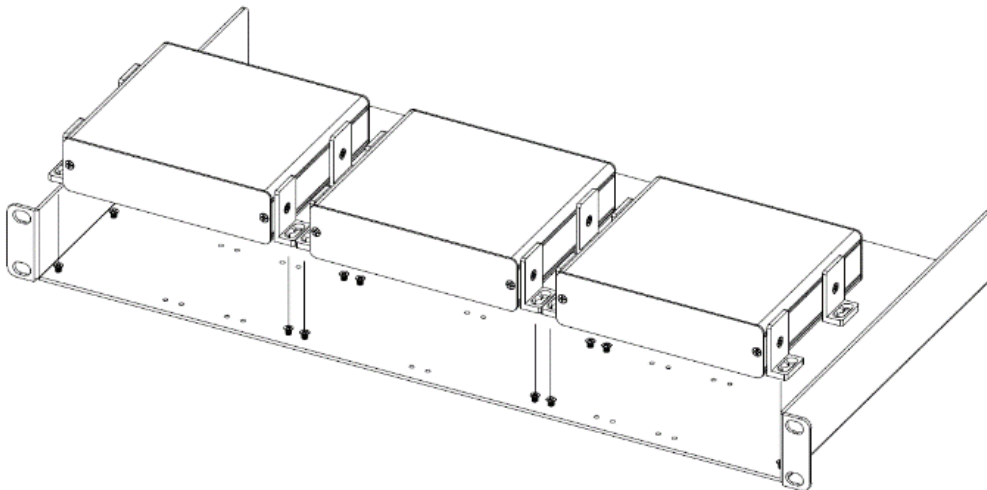


Installed on a Rack

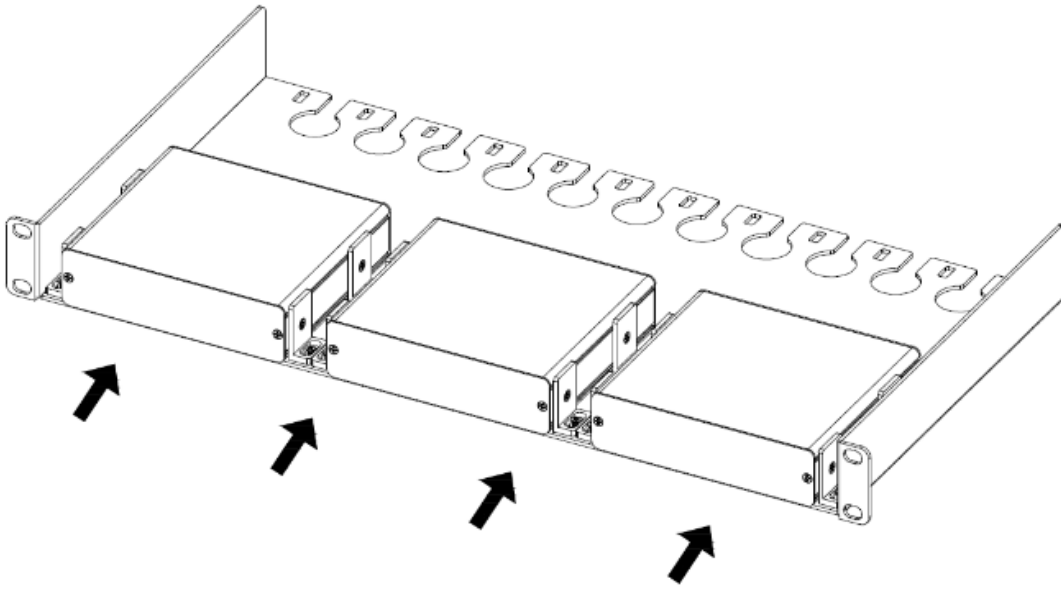
Step 1 Lock machine screws in the rack



Step 2 Put your products on the rack



Step 3 Push the products to the other side of the rack



Step 4 Install the rack in a cabinet

