

4K@60Hz HDMI over IP Extender



DISCLAIMER

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• Important Safety Instructions:

1. To prevent electric shock, please ensure that all devices are properly grounded.
2. Do not place this device near or over a radiator or heat register, or where it is exposed to direct sunlight.
3. Place the device in a well-ventilated area, do not block any ventilation openings.
4. Do not expose this device to rain or place it near water. Any liquid that goes into the device may cause a failure, fire, or electric shock.
5. Do not place the device on an uneven or unstable surface. The device may fall resulting in a malfunction.
6. Never insert anything metallic into the open parts of this device. This may cause a danger of electric shock.
7. The device should be repaired only by a qualified technician.
8. If a third-party power supply is used, please ensure that the power supply specifications meet the product requirements.

• Introduction

This is an HDMI over IP extender kit. With this device, UHD HDMI signals can be transmitted at ultra-near zero latency and visually lossless over 100 meters of Cat6/6A/7 cable at 4K@60Hz 4:4:4 HDR resolution. It supports point-to-point connection or one-to-many connection through gigabit switch, and cascading of switches is also supported. This HDMI extender kit has features including HDMI loop out, bi-directional IR passthrough, ARC, RS-232 passthrough, and audio extraction through S/PDIF output on the receiver. This extender kit is a reliable UHD video transmission and distribution solution which can be widely used in security monitoring, rail transit, broadcasting, smart cities, conference and other fields.

• Features

1. Ultra-near zero latency and visually lossless transmission.
2. Extend 4K@60Hz HDR HDMI signal up to 100m/328ft over Cat6/6A/7 cable.
3. Support one-to-many connection through the gigabit switch.
4. Support HDMI ARC and HDMI CEC.
5. Support RS-232 passthrough and command control.
6. The transmitter supports HDMI loop out.
7. Support bi-directional IR passthrough.
8. The receiver can output the source audio additionally through the S/PDIF port.
9. Support firmware upgrade via micro USB.
10. Lightning protection, surge protection, ESD protection.

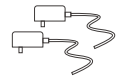
• Package Contents



Transmitter x1



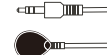
Receiver x1



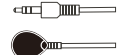
DC5V/2A x2



User manual x1



IR receiver extension
cable x1



IR blaster extension
cable x1



Mounting ear x4



Screw x10

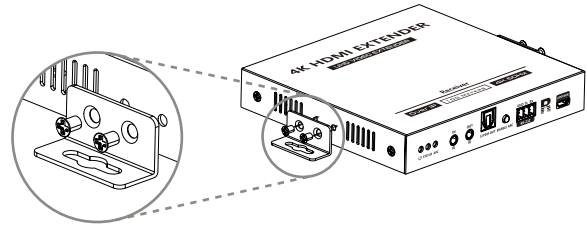


Terminal block
(RS-232) x2

• Installation Requirements

Item	Description	Requirement
Signal source device	PC, DVD, NVR, etc. with HDMI port	HDMI cable $\leq 5m$
Cable	CAT6/6A/7, following standard IEEE-568B	CAT6/6A/7 $\leq 100m$
Display device	TV, projector, LED screen, etc. with HDMI port	HDMI cable $\leq 5m$
Network switch	The switch(es) is required for one-to-many and switch cascading connections	Gigabit switch

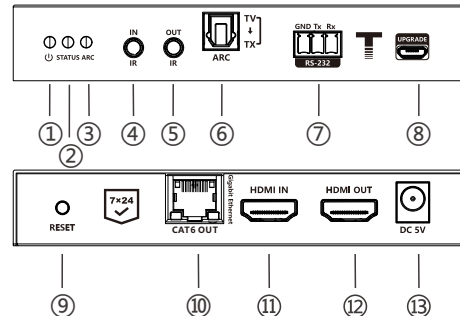
• Wall Mounting



Choose the wall mounting position and attach the mounting ears to the unit according to the diagram.

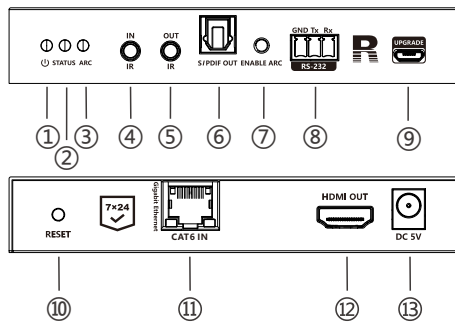
• Panel Description

1. Transmitter



①	Power indicator	The indicator will turn blue when the power is turned on
②	Status indicator	<p>Light off: The transmitter and the receiver have not established a connection</p> <p>Slow flash (every 1 second): The transmitter and the receiver are connected but no video data transmission</p> <p>Quick flash (every 200ms): The video signal is connecting</p> <p>Steady on: The video data is transmitting</p>
③	ARC indicator	<p>Light off: ARC is off</p> <p>Slow flash (every 1 second): The ARC between the TX and the RX is connected</p> <p>Quick flash (every 200ms): The ARC between the TV and the extender kit is connected</p> <p>Steady on: The ARC data is transmitting</p>
④	IR IN	Connect with IR receiver extension cable
⑤	IR OUT	Connect with IR blaster extension cable
⑥	S/PDIF port (ARC)	Output the audio returned from the TV
⑦	RS-232 serial port	Used for RS-232 passthrough and command control
⑧	Micro-USB port	Used for device firmware upgrade
⑨	Reset button	Press to restart, long press to restore factory settings
⑩	RJ45 port	Connect with CAT6/6A/7 network cable
⑪	HDMI input	Connect with HDMI source device with HDMI cable
⑫	HDMI loop out	Connect with local HDMI display device with HDMI cable
⑬	Power input	Connect with DC 5V/2A power adapter

2. Receiver



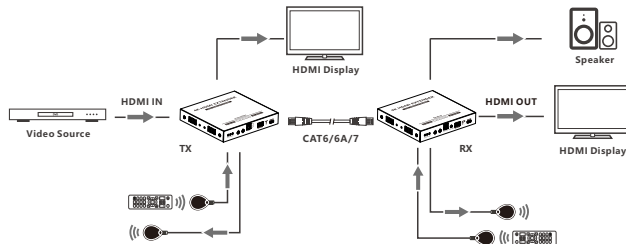
①	Power indicator	The indicator will turn blue when the power is turned on
②	Status indicator	<p>Light off: The transmitter and the receiver have not established a connection</p> <p>Slow flash (every 1 second): The transmitter and the receiver are connected but no video data transmission</p> <p>Quick flash (every 200ms): The video signal is connecting</p> <p>Steady on: The video data is transmitting</p>
③	ARC indicator	<p>Light off: ARC is off</p> <p>Slow flash (every 1 second): The ARC between the TX and the RX is connected</p> <p>Quick flash (every 200ms): The ARC between the TV and the extender kit is connected</p> <p>Steady on: The ARC data is transmitting</p>
④	IR IN	Connect with IR receiver extension cable
⑤	IR OUT	Connect with IR blaster extension cable
⑥	S/PDIF port	Output the digital audio

⑦	ARC button	Turn on/off HDMI ARC; In the case of multiple RXs, it will switch to the RX where the ARC button was last pressed
⑧	RS-232 serial port	Used for RS-232 passthrough and command control
⑨	Micro-USB port	Used for device firmware upgrade
⑩	Reset button	Press to restart, long press to restore factory settings
⑪	RJ45 port	Connect with CAT6/6A/7 network cable
⑫	HDMI output	Connect with HDMI display device
⑬	Power input	Connect with DC 5V/2A power adapter

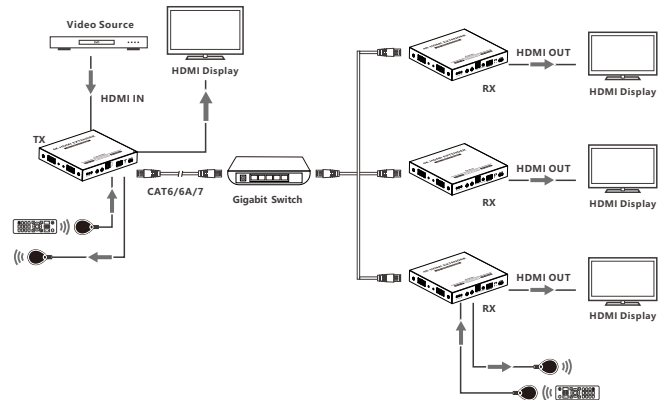
• Installation Procedures

1. Connection Diagrams

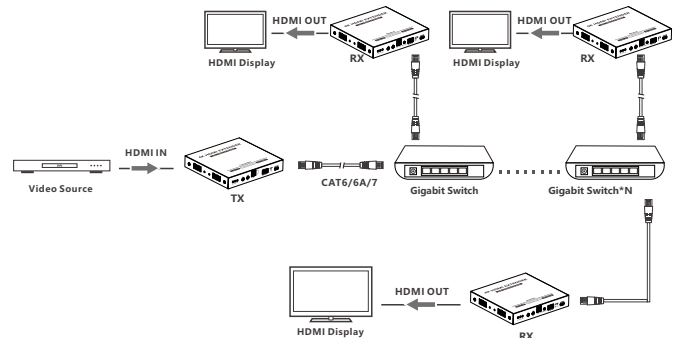
1.1 One-to-one connection



1.2 One-to-many connection



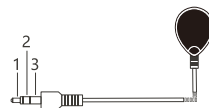
1.3 Switch cascading



2. Connection Instructions

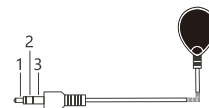
- 1) Connect the source device to the HDMI IN port of the transmitter with an HDMI cable, and connect the HDMI OUT port of the receiver to the display device with another HDMI cable.
- 2) If it's one-to-one connection, then use a Cat6/6A/7 cable to connect the RJ45 port of the transmitter and receiver. If it is one-to-many connection, then use the gigabit switch as a bridge to connect the transmitter and the receivers with the Cat6/6A/7 cables respectively.
- 3) If using HDMI loop out, connect the display device to the HDMI OUT port of the transmitter.
- 4) If using HDMI ARC, press the ARC button first, then connect the S/PDIF port (ARC) of the transmitter to the speaker with digital optical audio cable; If you need additional source audio from the receiver, connect the S/PDIF OUT port of the receiver to the audio device with digital optical audio cable.
- 5) Plug the power supply into the devices to get started.

3. IR User Guide



IR blaster

1. Power
2. IR Signal
3. Null



IR receiver

1. Power
2. IR Signal
3. Grounding

- 1) IR blaster extension cable should plug in the IR OUT port of the transmitter or receiver, IR receiver extension cable should plug in the IR IN port of the transmitter or receiver.
- 2) The emitter of the IR blaster extension cable should be as close as possible to the IR receiving window of the source device.
- 3) Point the remote control at the receiving head of the IR receiver extension cable to operate.

4. RS-232 User Guide

If using the RS-232 function, insert the terminal block(s) into the serial port(s) and connect it to an external device. The three pins are GND, TXD, RXD. It can passthrough RS-232 commands and use commands to control the transmitter or receiver. The default configuration is as follows:

Baud rate: 115200

Date bits: 8

Stop bits: 1

Parity: None

Function	Control instruction code
Restore device factory setting	BA A5 11 00 00 11 33
Device restart	BA A5 10 00 00 10 30
Set baud rate of the device	Set the baud rate to 2400 Send: BA A5 13 04 00 00 09 60 80 0F
	Set the baud rate to 4800 Send: BA A5 13 04 00 00 00 12 C0 E9 81
	Set the baud rate to 9600 Send: BA A5 13 04 00 00 00 25 80 BC 67
	Set the baud rate to 19200 Send: BA A5 13 04 00 00 00 4B 00 62 33
	Set the baud rate to 38400 Send: BA A5 13 04 00 00 00 96 00 AD C9
	Set the baud rate to 57600 Send: BA A5 13 04 00 00 00 E1 00 F8 5F
	Set the baud rate to 115200 Send: BA A5 13 04 00 00 01 C2 00 DA 24
	Set the baud rate to 230400 Send: BA A5 13 04 00 00 03 84 00 9E AE
	Set the baud rate to 460800 Send: BA A5 13 04 00 00 07 08 00 26 C2
	Set the baud rate to 921600 Send: BA A5 13 04 00 00 0E 10 00 35 E7
CEC control	CEC ON Send: BA A5 15 01 00 01 17 58
	CEC OFF Send: BA A5 15 01 00 00 16 57
	CEC Status Send: BA A5 15 00 00 15 3F Recv:(CEC ON) BA A5 15 01 00 01 17 58 Recv:(CEC OFF) BA A5 15 01 00 00 16 57

Note:

If the RS-232 control instruction succeeds, it will return the control instruction code; If it fails, it will return the error code: BA A5 02 01 00 01 04 0C

• **FAQ**

Q: Why the status indicator is off?

A:

- 1) Please check whether all equipment is powered on and the network cable is connected properly.
- 2) Try to change a network cable to connect.

Q: Why is the status indicator has been flashing slowly?

A:

- 1) Please check whether there is HDMI signal input for the TX.
- 2) Try to connect the signal source directly to the display device, or try to change the signal source and HDMI cable and test again.

Q: Why it keeps showing "Search Tx..." on the screen?

- A: The transmitter and the receiver are not connected or they are connected but there is no data transmission. Please refer to the above two questions for the solution.

Q: Why is the output image unstable?

A:

- 1) Check whether the length of the network cable connected from TX to RX is within 100 meters.
- 2) The length of HDMI cable is recommended to be ≤ 5 meters.
- 3) Press the "reset" button on TX and RX panels to restart and reconnect.

Q: Why the HDMI ARC is not working?

A:

- 1) Please check whether the HDMI port connected to the receiver supports ARC function.
- 2) Please make sure that the HDMI ARC of the TV is turned on.
- 3) Press the ARC button on the receiver to enable ARC.

• Technical Parameters

Item	Transmitter	Receiver
Video		
Input interface	1x HDMI	1x RJ45
Output interface	1x HDMI 1x RJ45	1x HDMI
HDMI length	≤5m	≤5m
Maximum transfer rate	18Gbps	
Compatibility	HDMI 2.0 (Deep color, 4K, HDR10, YUV444)	
	HDCP 2.2	
Resolutions	4096x2160@24/25/30/50/60Hz, 3840x2160@24/25/30/50/60Hz, 1080p@24/25/50/60Hz, 720p@50/60Hz, 1024x768, 1280x768, 1280x800, 1280x960, 1280x1024, 1440x900, 1400x1050, 1600x900, 1600x1200, 1680x1050, 1920x1080, 1920x1200	
Connection types	One-to-one connection One-to-many connection Switch cascading	
Transmission distance	CAT5≤80m CAT5e/6/6A/7≤100m	
Audio		
Input interface	1x HDMI	N/A
Output interface	1x HDMI 1x TOSLINK	1x HDMI 1x TOSLINK
HDMI, S/PDIF on TX	LPCM 7.1CH/DTS-HD/DTS-Audio/Dolby Digital plus/Dolby TrueHD 7.1CH/Dolby Digital 7.1CH/Dolby Atmos	
S/PDIF on RX	LPCM 5.1CH/DTS-Audio/Dolby Digital 5.1CH	
Audio sampling rate	32kHz, 44.1kHz, 48kHz, 88kHz, 96kHz, 176kHz, 192kHz	
Audio bit depth	16bit, 24bit	

ARC	Supported	
Command Signal		
IR interface	1x 3.5mm IR IN 1x 3.5mm IR OUT	1x 3.5mm IR IN 1x 3.5mm IR OUT
Receiving range	≤5m	
Infrared frequency	20kHz~60kHz	
CEC	supported	
RS-232	Baud rate: 115200	
Power		
Power Supply	DC5V/2A	DC5V/2A
Power Consumption	< 7W	< 7W
Operating Environment		
Working temperature	-20°C~50°C	
Storage temperature	-30°C~70°C	
Humidity	0~90%RH (no condensation)	
Physical Properties		
Housing	Iron	
Weight	370.5g	365.0g
Color	Black	
Dimensions	124.0 (L) x115.5 (W) x20.5 (H) mm	
Protection	ESD protection 1a Contact discharge level 2 (±4KV) 1b Air discharge level 3 (±8KV) Implementation of the standard: IEC61000-4-2	
	Lightning protection, Surge protection	