HDMI over IP Extender with Loop Out (150m)

User Manual

VER 1.1

Thank you for purchasing this product

For optimum performance and safety, please read these instructions carefully before connecting, operating or adjusting this product. Please keep this manual for future reference.

Surge protection device recommended

This product contains sensitive electrical components that may be damaged by electrical spikes, surges, electric shock, lighting strikes, etc. Use of surge protection systems is highly recommended in order to protect and extend the life of your equipment.

Table of Contents

1. Introduction

HDMI over IP Extender is based on AV over IP solution for distribution of one HD content to one HD display device or to multiple HD display devices over a standard network switcher, and extends distance up to 492ft / 150m between encoder and decoder via a CAT5e/6 cable. It offers configurable high quality, low-bandwidth H.265 compression video. The resolution is up to 1920x1200@60Hz. It also supports HDMI loop output on transmitter.

HDMI over IP Extender includes two units: Encoder and Decoder. Encoder is responsible for obtaining HDMI signals for encoding, transmitting via CAT5e/6 cables. It supports HDMI loop output; Decoder is responsible for signal decoding and outputting HDMI signals to HD displays. The product supports one-way IR control signal transmission. It offers the most convenient solution for HDMI extension over a single CAT5e/6 cable and is the perfect solution for any application. The built-in web interface to both Encoder and Decoder allows to configure network parameters of the devices.

2. Features

☆ HDMI 1.3 and HDCP 1.4 compliant

☆ Support 6.75Gbps video bandwidth

☆ Video resolution is up to 1920×1200@60Hz

☆ Extend distance up to 492ft / 150m between encoder and decoder via a single CAT5e/6 cable

☆ Adopt standard H.265 encoding / decoding

☆ Support standard IP swtich / router / hub

☆ Support one-way IR control signal transmission

☆ Compact design for easy and flexible installation

3. Package Contents

① 1× HDMI over IP Extender (Encoder)
② 1× HDMI over IP Extender (Decoder)
③ 1× IR Blaster cable (1.5 meters)
④ 1× 20~60KHz IR Receiver cable (1.5 meters)
⑤ 2× 5V/1A Power Adapters
⑥ 1× User Manual

4. Specifications

Technical	
HDMI Compliance	HDMI 1.3
HDCP Compliance	HDCP 1.4
Video Bandwidth	6.75Gbps
Video Resolution	640x480@60Hz~1920x1200@60Hz
HDMI Audio Formats	LPCM 2.0CH, 32KHz, 44.1KHz, 48KHz
IR Frequency	20Hz ~ 60KHz
Compression Technology	H.265
Request for Switcher /Router	Support IGMP, Support DHCP
Color Space	RGB, YCbCr 4:4:4, YCbCr 4:2:2
Color Depth	8-bit, 10-bit, 12-bit
ESD Protection	Human body model—±8kV (Air-gap discharge) & ±4kV (Contact discharge)
Connection	
Encoder	Input: 1×HDMI IN [Type A 19-pin female] Output: 1×HDMI OUT [Type A 19-pin female] 1×CAT OUT [RJ45 connector] Control:1×IR OUT [3.5mm Stereo Mini-jack]
Decoder	Input: 1×CAT IN [RJ45 connector] Output: 1×HDMI OUT [Type A 19-pin female] Control:1×IR IN [3.5mm Stereo Mini-jack]
Mechanical	
Housing	Metal Enclosure
Color	Black
Dimensions	88mm (W) × 61.2mm (D) × 16.5mm (H)
Weight	Encoder: 158g, Decoder: 155g
Power Supply	Input: AC100 - 240V 50/60Hz, Output: DC 5V/1A (US/EU standard, CE/FCC/UL certified)
Power Consumption	Encoder: 2.55W, Decoder: 3.7W
Operation Temperature	-10°C ~ 50°C / 14°F ~ 122°F

Storage Temperature	-20°C ~ 60°C / -4°F ~ 140°F
Relative Humidity	20~90% RH (non-condensing)
Resolution / Distance	**1920x1200@60Hz - Feet / Meter**
CAT 5e/6 cable	492ft / 150 meters
Resolution / Cable length	**1920x1200@60Hz - Feet / Meter**
HDMI IN / OUT	50ft / 15 meters

5. Operation Controls and Functions

5.1 Encoder Panel
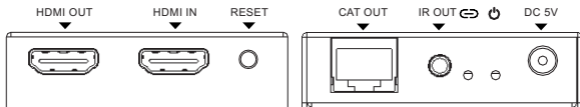
Name	Function Description
HDMI OUT	HDMI Loopout port for connecting the HDMI display device.
HDMI IN	HDMI source input port for connecting the HDMI source device.
RESET button	Press and hold the button for 3 seconds to reset the product. The EDID will restore default status: 1920*1080@60Hz
CAT OUT	The CAT OUT port is connected to the CAT IN port on Decoder or connected to switch / router / hub with CAT cable for sending signal to receiver.
IR OUT	Connect to the IR blaster cable. The IR blaster signal is from IR IN on the Decoder.

|	
LINK LED	The LED will flash blue when encoder is connected to decoder or connected to switcher / router / hub.
POWER LED	The LED will illuminate blue when the encoder is powered on.
DC 5V	Plug the DC 5V/1A power supply into the unit and connect the adapter to an AC outlet.

5.2 Decoder Panel

HDMI OUT   RESET   CAT IN   IR IN ⊖ ⏻   DC 5V

Name	Function Description
HDMI OUT	HDMI output port for connecting the HDMI display device.
RESET button	■ Press and hold the button for 3 seconds to reset the product to the factory default status ■ Short press the button to copy EDID from decoder display device to encoder's HDMI source device.
CAT IN	The CAT IN port is connected to the CAT OUT port on Encoder or connected switcher / router / hub with CAT cable for receiving encoder signal.
IR IN	Connect to wideband IR receiver cable. The IR signal is sent to IR OUT port on the Encoder.
LINK LED	The LED will flash blue when decoder is connected encoder or connected switcher / router / hub.
POWER LED	The LED will illuminate blue when the Decoder is powered on.
DC 5V	Plug the DC 5V/1A power supply into the unit and connect the adapter to an AC outlet.

6. Application Example
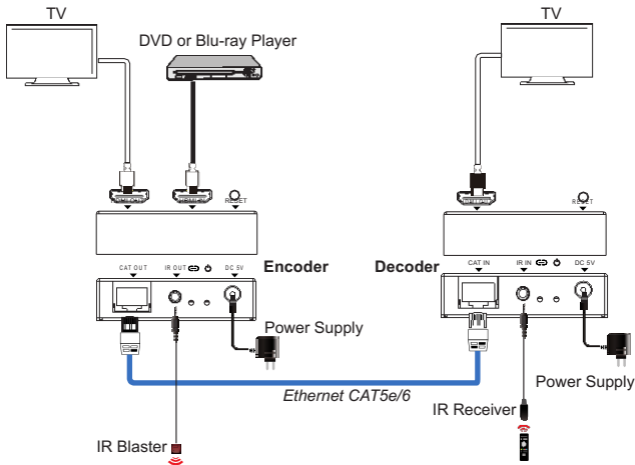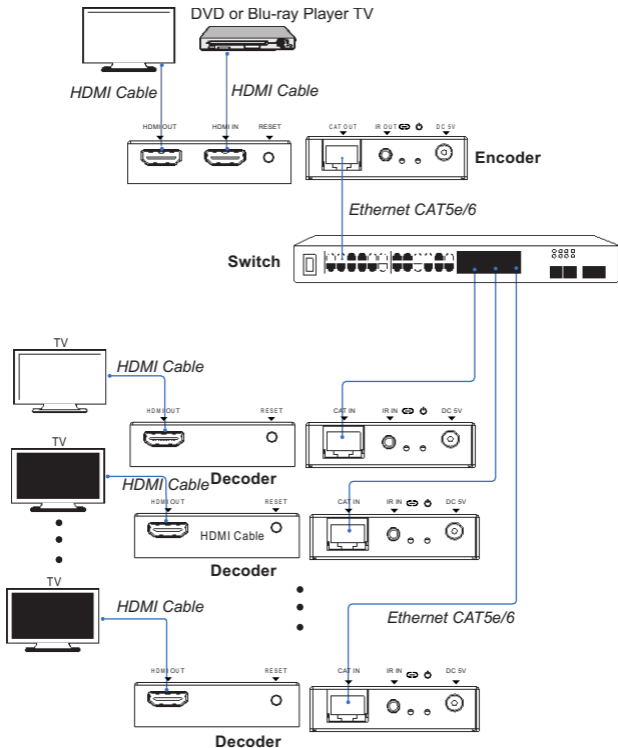

Figure 1: Encoder connects directly Decoder

Figure 2: Encoder connects Decoder via switcher (one Encoder to multiple Decoders)

7. The Computer plays Video Stream

7.1 Web GUI introduction

The Encoder supports play video stream on computer through the corresponding on-demand software such as **VLC media player**, and you can connect the Web GUI of the product to control your on-demand software on the computer. The default IP address is 192.168.10.10. The operation method is shown as below:

Step 1: The CAT OUT port of the Encoder is connected directly the Ethernet port of a Computer with an UTP cable. The HDMI IN port of the Encoder is connected a source device such as DVD player with an HDMI cable. You can also connect an HDMI display device in HDMI loop-out port such as TV. The Encoder is connected power supply. The connection diagram is shown as below.
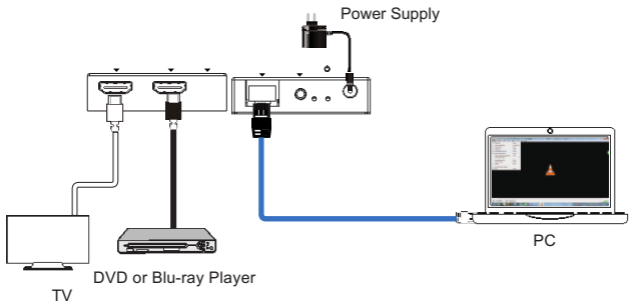
Figure 3: Video Stream connection diagram

Step 2: On the PC, go to **Control Panel** --> **Network and Internet** --> **Network Connections** --> **Local Area Connections**, right click on it, choose **Properties.**
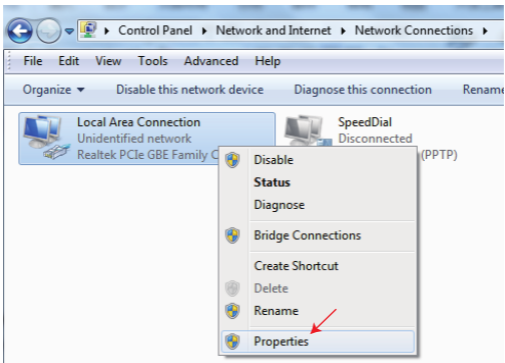
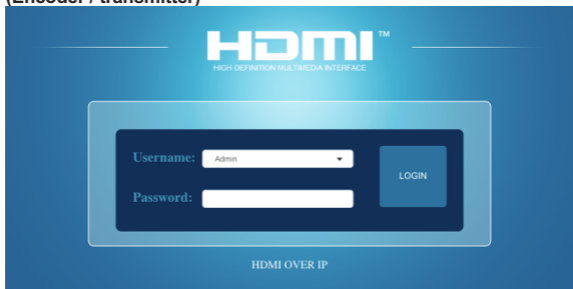Double click Internet Protocol Version 4 (TCP/IPv4).
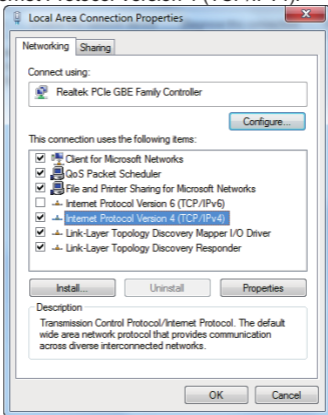
Choose "Use the following IP address", input 192.168.10.200 as IP address, 255.255.255.0 as Subnet mask, and then click on OK, click on OK again.
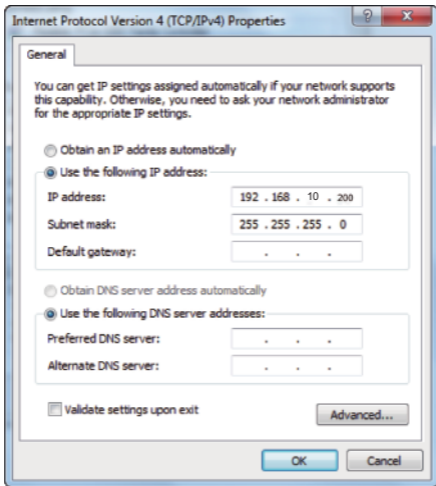
Notice: The IP address of the computer and Encoder should be in the same network segment. As the Encoder's IP address is 192.168.10.10, the computer's IP should be 192.168.10.X (X contains 1~255 except 10).

Step 3: Input the Encoder's IP address into your browser on the PC to enter Web GUI page, These pages are shown as below.

Web's GUI
(Encoder / transmitter)

Status page:

Video page:

Dectype: There is a drop-down frame when you click the arrow area. You can choose H.264 or H265 code at MainStream or SubStream.

Resolution: There is a drop-down frame when you click the blue arrow area. You can choose an output resolution. The MainStream resolution includes 1280×720 and 1920×1080, and the SubStream resolution includes 352×288, 640×480, 720×576.

Bitrate: You can set bitrate at MainStream or SubStream. The MainStream range is from 1024 kb/s to 20480 kb/s and the SubStream range is from 256 kb/s to 2048 kb/s.

Note: You can only use either MainStream or SubStream in VLC media player. The MainStream has larger resolution and bitrate than the SubStream. So, the MainStream picture is clearer than the SubStream.

Network page

Network Configuration

◆ In <u>DHCP</u> mode:

Obtain automatically the network configuration information, including IP address, Subnet, Gateway.

◆ In <u>Static</u> mode:

You can set IP, Subnet Gate address. You must pay attention to the Gate address and the IP address in the same network segment. IP address and Gate address can not the same in the last address. You don't need to change the Subnet address. In this moment, click the "Save" button to save current status information.

Note: If you have changed the Network Configuration and clicked the "Save" button. You have changed the IP address, and you can continue use current Web GUI function. But next time you connect Web GUI, you need to use the IP address that you set before. The IP address will recover default 192.168.10.10 when the product is set factory reset.

Web port: Set port value of the current IP address. The default value is 80.

Note: When you use the product alone, we suggest that you use the default IP setting. If you can not obtain the IP information as DHCP setting, you can press the "RESET" button of the Encoder to recover default IP address. The default IP address is 192.168.10.10.

Update page
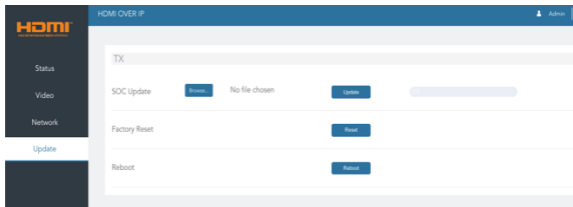
Firmware update port, open a bin. file and then click "Update" button to update firmware.

Note: When the update file is too large, the upgrade progress could stay a long time in 99%. This is a normal phenomenon. Please do not turn off the power or press the "RESET" button until the upgrade progress up to 100%.
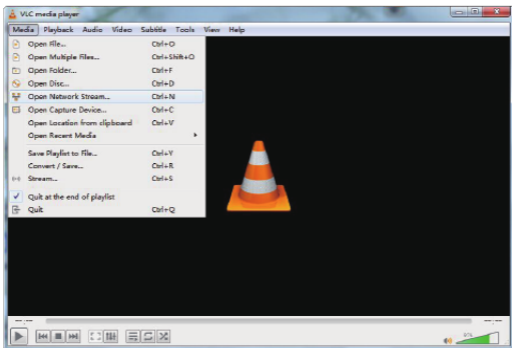
Decoder (receiver) – the Web GUI is the same, except Video page where the type of transmission can be set:
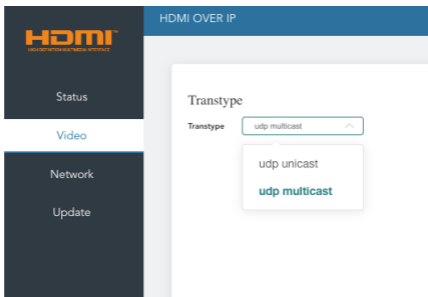
7.2 VLC Media Player instruction

When you have connected the Web GUI, then you need to open the VLC Media Player software on the computer.

Step 1: Click "Media > Open Network Stream"

Step 2: At this time, you will see the following page. You need to enter a network URL. If you want to enter MainStream, please input a MainStream network URL. The MainStream is **"rtsp://192.168.10.10/live/main/av_stream".** If you want to enter SubStream, please input a SubStream network URL. The SubStream is **"rtsp://192.168.10.10/live/sub/av_stream".** Then click the "Play" button. Please see the following page.
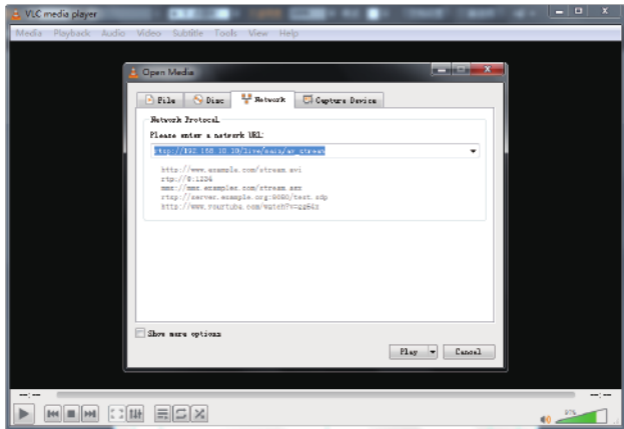
Note: ① If you enter a MainStream network URL, you can use the MainStream to control the VLC Media Player on the Video page of Web GUI. If you enter a SubStream network URL, you can use the SubStream to control the VLC Media Player on the Video page of Web GUI.

② If the VLC Media Player is not work well, please check the IP address (the IP address of the computer and product should be in the same network segment.) and network connection status.

③ If everything is OK, the product boot static IP need to a little time to communication for router. Please try it more times.

Step 3: If you enter a MainStream network URL, you can use the MainStream of the Web GUI to setting the Dectype, Resolution and Bitrate value of the VLC.

At the same time, you can check the setting on VLC Media Player. Choose "Tools>Codec information" to check current codec and resolution. Please see the following picture.
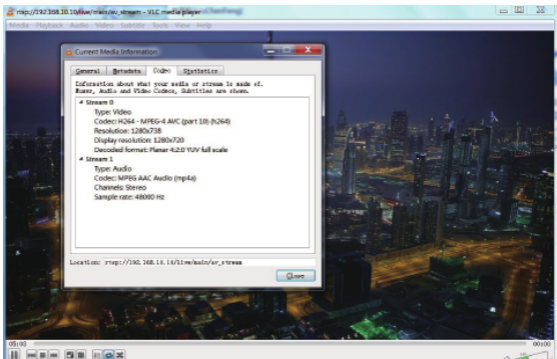
Choose "Tools>Codec information>Statistics" to check current bitrate.

Note: The bitrate is floating up and down when you check it. This is a normal phenomenon.

8. FAQ

Q: What is the limit for a connection interface?
A: According to HDMI line length test, 1920×1200@60Hz YCbCr 4:4:4 is the longest line length up to 15m/49.2ft. According to CAT line length test, using CAT 5e/6 cable extends distance up to 150m (492ft) between Encode and Decode.

The use of "Premium High Speed HDMI" cable is highly recommended.

Q: Is it possible to use more than one Decoder / Encoder?
A: According to our test, it is possible, but there is no guarantee that Decoder (receiver) get the signal from Encoder (transmitter) that you need. Using DHCP settings, devices connected in the network get the addresses next to each other (if possible).