

H24017英文说明书AH2: 0106010022273

材质:157g 铜版纸

尺寸: 100x138mm

装订方式: 骑马钉

4K@60Hz HDMI Over IP Optical Extender



Disclaimer

The product name and brand name may be registered trademark of related manufactures. ™ and ® may be omitted on the user manual. The pictures in this user manual are just for reference. We reserve the rights to make changes without further notice to a product or system described herein to improve reliability, function or design.



The terms HDMI, HDMI High-Definition Multimedia Interface, HDMI Trade dress and the HDMI Logos are trademarks or registered trademarks of HDMI Licensing Administrator, Inc.

• 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 optical extender kit. With this device, UHD HDMI signals can be transmitted at high definition and ultra low latency over 40km of single-mode fiber optic 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. Supports Ultra low latency and high definition transmission.
2. Extends 4K@60Hz HDR HDMI signal up to 40 kilometers over LC single-mode fiber optic cable.
3. Supports one-to-many connection through the gigabit switch.
4. Supports HDMI ARC and HDMI CEC.
5. Supports RS-232 passthrough and command control.
6. The transmitter supports HDMI loop out.
7. Supports bi-directional IR passthrough.
8. The receiver can output the source audio additionally through the S/PDIF port.
9. Supports firmware upgrade via micro USB.
10. Lightning protection, surge protection, ESD protection.

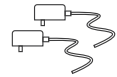
• Package Contents



Transmitter x1



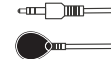
Receiver x1



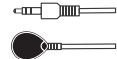
DC5V/2A x2



User manual x1



IR receiver extension
cable x1



IR blaster extension
cable x1



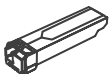
Mounting ear x4



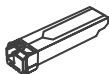
Screw x10



Terminal block
(RS-232) x2



SFP optical module
(T1310nm/R1550nm)
x1



SFP optical module
(T1550nm/R1310nm)
x1

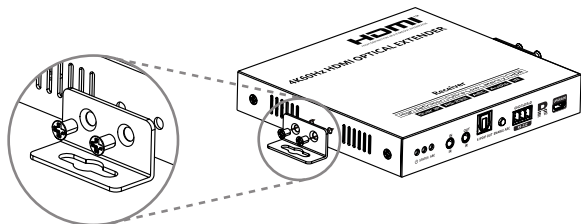


Grounding
Screw x2

• Installation Requirements

Item	Description	Requirement
Signal source	PC, NVR, PS4, etc. with HDMI port	HDMI cable ≤5m
Cable	LC single-mode (default Config)	fiber optic cable ≤40km
	LC multimode fiber optic cable	fiber optic cable ≤300m
Display device	TV, projector, LED screen, etc. with HDMI port	HDMI cable ≤5m
Fiber switch	Switch with SFP ports (only required for one-to-many and switch cascading connections)	Gigabit switch

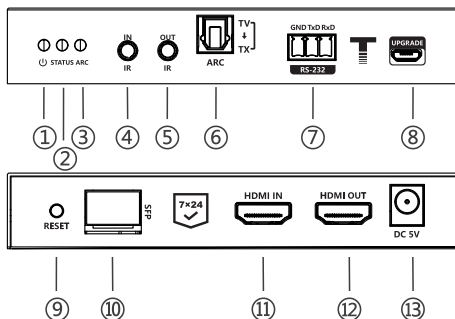
• Wall Mounting



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

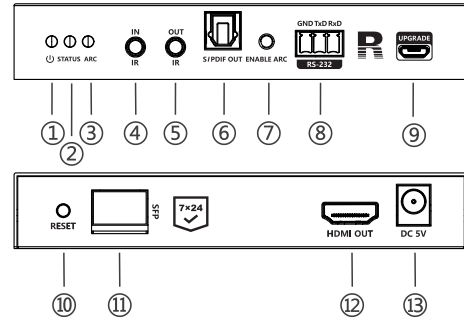
• Panel Description

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 upgrading
⑨	Reset button	Press to restart, long press to restore factory settings
⑩	SFP signal output	Insert the SFP optical module (T1310nm/R1550nm)
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



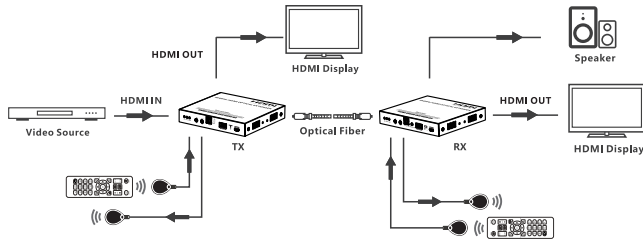
①	Power indicator	The indicator will turn blue when the power is turned on
②	Status indicator	<p>Light off: The transmitter and the receiver have not established a connection</p> <p>Slow flash (every 1 second): The transmitter and the receiver are connected but no video data transmission</p> <p>Quick 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 upgrading
⑩	Reset button	Press to restart, long press to restore factory settings
⑪	SFP signal input	Insert the SFP optical module (T1550nm/R1310nm)
⑫	HDMI output	Connect with HDMI display device
⑬	Power input	Connect with DC 5V/2A power adapter

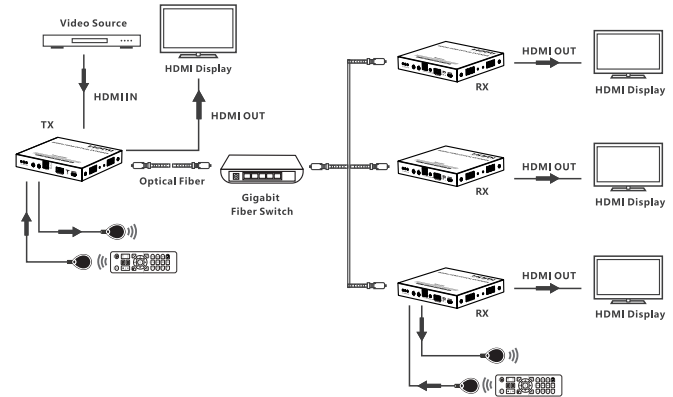
• Installation Procedures

1. Connection Diagrams

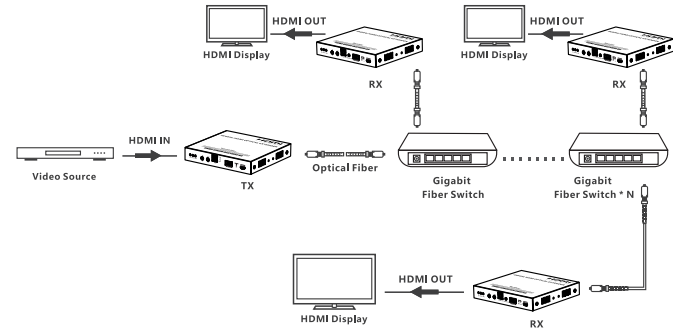
1.1 One-to-one connection



1.2 One-to-many connection



1.3 Switch cascading

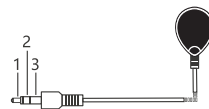


Note: Please use Gigabit network switches for one-to-many connections and switch cascading. If one-to-many connection needs to use the ARC function, the switch needs to enable IGMP V2 version.

2. Connection Instructions

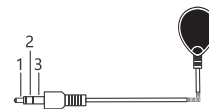
- 1) Connect the source device to the HDMI IN port of the transmitter with an HDMI cable, and connect the HDMI OUT port of the receiver to the display device with another HDMI cable.
- 2) If it's one-to-one connection, then use a LC fiber optic cable to connect the SFP port of the transmitter and receiver. If it is one-to-many connection, then use the gigabit switch as a bridge to connect the transmitter and the receivers with the LC fiber optic cables respectively.
- 3) If using HDMI loop out, connect the display device to the LOOP 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) Plug IR blaster extension cable in the IR OUT port of the transmitter or receiver, Plug IR receiver extension cable in the IR IN port of the transmitter or receiver.
- 2) The head 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 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

Data 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	
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 successful, 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 LC fiber optic cable is connected properly.
- 2) Try to change another fiber optic 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 ipcolor Tx..." on the screen?

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

Q: Why is the output image unstable?

A:

- 1) The length of HDMI cable is recommended to be ≤5 meters.
- 2) 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	1 x SFP to LC
Output interface	1x HDMI 1 x SFP to LC	1x HDMI
HDMI length	≤ 5m	≤ 5m
Maximum transfer rate	18Gbps	
Compatibility	HDMI 2.0 (Deep color, 4K, HDR10, YUV4:4:4)	
	HDCP 1.4/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, 1680x1050, 1920x1080, 1920x1200	
Optical module types	SFP single-mode (default configuration), SFP multimode	
Fiber connector type	LC	
Connection types	One-to-one connection One-to-many connection Switch cascading	
Transmission distance	≤40km (single-mode)	
Transmission latency	≤16ms	
Audio		
Input interface	1x HDMI	N/A
Output interface	1x HDMI 1x S/PDIF	1x HDMI 1x S/PDIF
HDMI Out	LPCM2.1CH//DTS-Audio/ Dolby Atmos DD+	
S/PDIF Out(ARC)	LPCM 2.1CH/DTS-Audio/Dolby Digital 5.1CH	
Audio sampling rate	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 (GND/RxD/TxD)	Default baud rate: 115200 Supported: 2400, 4800, 9600, 19200, 38400, 57600, 115200, 230400	
Power		
Power Supply	DC 5V/2A	DC 5V/2A
Power Consumption	< 7.5W	< 7.5W
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	369.0g	368.0g
Color	Black	
Dimensions	124.6 (L) x115.0 (W) x21.3 (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	