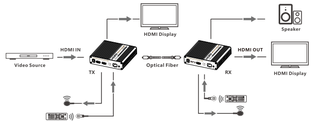
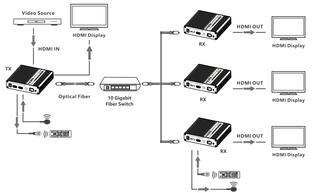
Disclaimer

2. Connection Diagrams

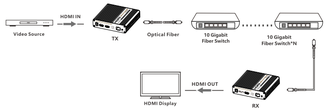
2.1 One-to-one connection:



2.2 One-to-many connection:



2.3 Switch cascading



3. 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 fiber optic cable to connect the SFP+ port of the transmitter and receiver. If it is one to many connection, then use the 10 Gigabit switch as a bridge to connect the transmitter and the receivers with the fiber optic cables respectively.
3) If using HDMI loop out, connect the display device to the HDMI OUT port of the transmitter.
4) If using IR passback, the IR blaster extension cable should plug in the IR OUT port of the transmitter and receiver, the IR receiver extension cable should plug in the IR IN port of the transmitter and receiver.
5) If using HDMI ARC, connect the ARC interface of the transmitter to the speaker with optical fiber cable. If you need additional source audio from the receiver, connect the S/PDIF OUT interface of the receiver to the audio device with optical fiber cable.
6) If using the RS-232 function, connect the RS-232 port of the transmitter or receiver to an external device.
7) Plug the power supply into the devices to get started.

4. IR User Guide

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.

5. RS-232 User Guide

This product 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

Control instruction

Function	Control instruction code
Restore device factory settings	BA A5 11 00 00 11 33
Device restart	BA A5 10 00 00 10 30
Open CEC	BA A5 15 01 00 01 17 58
Close CEC	BA A5 15 01 00 00 16 57
Get CEC status	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
Set baud rate of the device	Set the baud rate to 2400 BA A5 13 04 00 00 00 09 60 80 0F Set the baud rate to 4800 BA A5 13 04 00 00 00 12 C0 E9 81 Set the baud rate to 9600 BA A5 13 04 00 00 00 25 80 BC 67 et the baud rate to 19200 BA A5 13 04 00 00 00 4B 00 62 33 Set the baud rate to 38400 BA A5 13 04 00 00 00 96 00 AD C9 Set the baud rate to 57600 BA A5 13 04 00 00 00 E1 00 F8 5F Set the baud rate to 115200 BA A5 13 04 00 00 01 C2 00 DA 24 Set the baud rate to 230400 BA A5 13 04 00 00 03 84 00 9E AE

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 power indicator is on but the status indicator is off?
A: 1) Please check whether the fiber-optic cable is connected well.
2) Change a 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 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 fiber-optic cable connected from TX to RX is within 40 kilometers.
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

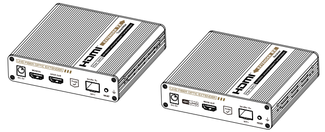
Item	Specification
Transmission protocol	ipcolor
Latency	Zero latency
Transmission type	Uncompressed transmission
HDMI signal	HDMI 2.0, HDCP 2.2
HDR	HDR10
Optical module type	SFP+
Fiber-optic cable type	Single mode fiber (Use with the default optical modules)
Optical fiber connector type	LC
SFP+ optical fiber module wavelength	1270nm/1330nm
Connection type	One-to-one connection One-to-many connection Switch cascading
Transmission distance	≤40km

HDMI Resolution	720P@50/60Hz, 1080P@24/25/50/60 Hz, 1080i@50/60Hz, 1024*768@60Hz, 1280*768@60Hz, 1280*800@60Hz, 1280*960@60Hz, 1280*1024@60Hz, 1440*900@60Hz, 1400*1050@60Hz, 1600*900@60Hz, 1600*1200@60Hz, 1680*1050@60Hz, 1920*1080@60Hz, 1920*1200@60Hz, 2560*1440@60Hz, 2560*1600@60Hz, 3840*2160@24/25/30/50/60/23.9/29.9/59.9Hz, 4096*2160@24/25/30/50/60/23.9/29.9/59.9Hz
Audio formats	LPCM 7.1/DTS-HD/DTS-Audio/Dolby Digital plus /Dolby TrueHD/Dolby Digital/Dolby Atmos
IR	Support bi-directional IR passback (20-60kHz)
RS-232	3 pin:GND-TxD-RxD, follows RS-232 levels
Working temperature	-20~60℃
Storage temperature	-30~70℃
Humidity (no condensation)	0~90% RH
Protection	ESD protection 1a Contact discharge level 3 1b Air discharge level 3 Implementation of the standard: IEC61000-4-2
	Lightning protection
	Surge protection
Power supply	DC 5V/2A
Power consumption	<7W
Material	Aluminum alloy material + crystal panel
Color	Black
Weight	TX: 420g RX: 420g
Dimension	123.95(L)*115.20(W)*30.00(H)mm

User Manual

HDMI OVER IP OPTICAL EXTENDER

4K@60Hz Uncompressed HDMI Extender
Over Fiber Optic Cable



HDMI™
HIGH-DEFINITION MULTIMEDIA INTERFACE

• Important safety notice:

1. Please distinguish the transmitter and receiver before installation.
2. Do not expose the device to rain, or be splashed or immersed in any liquid.
3. The power supply is DC 5V/2A. Make sure specification matched if using 3rd party adapters.
4. Do not unplug the SFP+ optical module when the device is working.

• Introduction

This is an HDMI optical fiber extender kit, which adopts a new transmission technology that supports zero latency and uncompressed transmission. The HDMI 4K@60Hz signal can be extended by 40 kilometers through single-mode fiber. This product supports HDMI loop out, bi-directional IR passback, HDMI ARC, CEC and other functions. It also supports one-to-one connection, one-to-many connection through the switch, and switch cascading. It is widely used in security monitoring, rail transit, broadcasting, smart cities and other fields.

• Features

1. Support 4K@60Hz, HDR10.
2. Support zero latency, uncompressed transmission.
3. The maximum transmission distance is 40 km.
4. Support one-to-one and one-to-many connection through the 10Gb switch.
5. Support switch cascading.
6. Support bi-directional IR passback.

7. Support HDMI ARC.
8. Support CEC.
9. Support RS-232 passthrough and command control.
10. The receiver can output the source audio additionally through the S/PDIF port.
11. The transmitter supports HDMI loop out.
12. 24/7 reliable.
13. Lightning Protection, Surge Protection, ESD Protection.

• Package Contents


Transmitter unit x1pcs


Receiver unit x1pcs


DC5V/2A x2pcs


IR blaster extension cable x1pcs


IR receiver extension cable x1pcs


Mounting brackets x8pcs


SFP+ optical module (T1270nm/R1330nm) x1pcs


SFP+ optical module (T1330nm/R1270nm) x1pcs


Screw x18pcs


User manual x1pcs


Earthing screw x2pcs

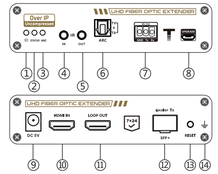

Terminal block (RS-232) x2pcs

• Installation Requirements

1. HDMI source device (PC, DVD, play station, etc.)
2. HDMI display device (TV, monitor, projector, etc.)
3. Single-mode fiber with LC connector.
4. 10 Gigabit switch with SFP+ ports (one-to-many connection & switch cascading).

• Panel Description

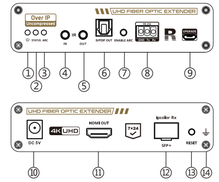
1. HDMI EXTENDER TX



①	Power indicator	The indicator will turn blue when the power is turned on
②	Status indicator	Light off: The transmitter and the receiver have not established a connection Slow flash (every 1 second): The transmitter and the receiver are connected but no video data transmission Quick flash (every 200ms): The video signal is connecting Steady on: The video data is transmitting
③	ARC indicator	Light off: ARC is off Slow flash (every 1 second): The ARC between the TX and the RX is connected Quick flash (every 200ms): The ARC between the TV and the extender kit is connected Steady on: The ARC data is transmitting
④	IR IN	Connect with IR receiver extension cable
⑤	IR OUT	Connect with IR blaster extension cable
⑥	ARC output	Output the audio signal from TV's HDMI ARC port
⑦	RS-232	Used for RS-232 passthrough and command control
⑧	Upgrade port	Used for device firmware upgrade
⑨	Power input	Connect with DC 5V/2A power adapter
⑩	HDMI input	Connect with HDMI source device with HDMI cable
⑪	HDMI output	Connect with local HDMI display device with HDMI cable
⑫	SFP+ signal output	Insert the SFP+ optical module (T1270nm/R1330nm)

⑬	Reset button	Press to restart the device, press for 5 seconds to restore device factory settings
⑭	Earthing port	Earthing screw and earthing lead can be installed here

2. HDMI EXTENDER RX



①	Power indicator	The indicator will turn blue when the power is turned on
②	Status indicator	Light off: The transmitter and the receiver have not established a connection Slow flash (every 1 second): The transmitter and the receiver are connected but no video data transmission Quick flash (every 200ms): The video signal is connecting Steady on: The video data is transmitting

③	ARC indicator	Light off: ARC is off Slow flash (every 1 second): The ARC between the TX and the RX is connected Quick flash (every 200ms): The ARC between the TV and the extender kit is connected Steady on: The ARC data is transmitting
④	IR IN	Connect with IR receiver extension cable
⑤	IR OUT	Connect with IR blaster extension cable
⑥	S/PDIF output	Output the digital audio
⑦	ARC switch	Turn on/off HDMI ARC
⑧	RS-232	Used for RS-232 passthrough and command control
⑨	Upgrade port	Used for device firmware upgrade
⑩	Power input	Connect with DC 5V/2A power adapter
⑪	HDMI output	Connect with HDMI display device
⑫	SFP+ signal input	Insert the SFP+ optical module (T1330nm/R1270nm)
⑬	Reset button	Press to restart the device, press for 5 seconds to restore device factory settings
⑭	Earthing port	Earthing screw and earthing lead can be installed here

• Installation Procedures

1. **Insert the SFP+ optical modules into the transmitter and receiver respectively.**