User Manual

Full HD HDMI 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.

• Important Safety Instructions:

1) 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.
2) Never insert anything metallic into the open parts of this device. This may cause a danger of electric shock.
3) Do not place this device near or over a radiator or heat register, or where it is exposed to direct sunlight.
4) The device should be repaired only by a qualified technician.
5) If a third-party power supply is used, please ensure that the power supply specifications meet the product requirements.

• Introduction

This product is a Full HD HDMI optical extender kit consisting of a transmitter and a receiver, using ipcolor STREAM technology for high-definition, low-latency transmission. The 1080P@60Hz HDMI signal can be extended up to 40km by LC single-mode fiber cable, supporting one-to-one connection, or gigabit switch cascading. It also supports HDMI loop out, IR passback, and RS-232 pass-through functions, and can be widely used in meetings, home entertainment, educational presentations, and other fields.

• Features

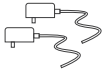
1. Adopting ipcolor STREAM technology can realize high-definition and low-latency transmission.
2. Support up to 1920x1200@60Hz/1920x1080@60Hz resolution, backward compatible.
3. Support optical fiber transmission, the maximum transmission distance of 40 kilometers.
4. Support one-to-one or gigabit switch cascading.

5. Support RS-232 pass-through.
6. The transmitter supports HDMI loop out.
7. Support IR passback (20~60kHz).
8. Firmware can be upgraded through Micro USB.
9. The transmitter has a 3.5mm audio input for sound embedding, the receiver has an independent 3.5mm audio output.
10. Lightning protection, surge protection, ESD protection.
11. Working 24/7.

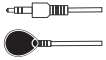
• Package Contents

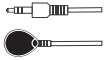

Transmitter x1


Receiver x1


DC5V/2A
Power adapter x 2


User manual x1


IR receiver extension cable x1


IR blaster extension cable x1


Mounting ear x4


Screw x10


Grounding Screw x2


Terminal block (RS-232) x2

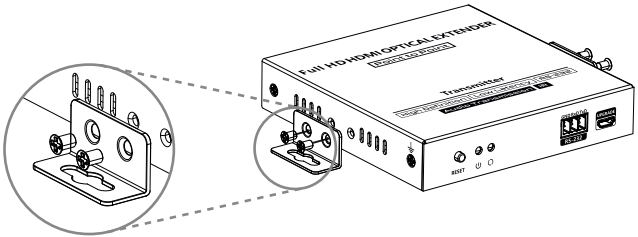

SFP optical module (T1310nm/R1550nm) x1


SFP optical module (T1550nm/R1310nm) x1

• Installation Requirements

Item	Description	Requirement
Signal source device	PC, DVD, NVR, etc. with HDMI port	HDMI cable ≤ 5m
Optical fiber cable	LC single-mode (default Config) LC multimode fiber optic cable	≤40km ≤300m
Display device	TV, projector, LED screen, etc. with HDMI port	HDMI cable ≤ 5m
optical fiber switch	One-to-one or switch cascading	Gigabit optical fiber switch

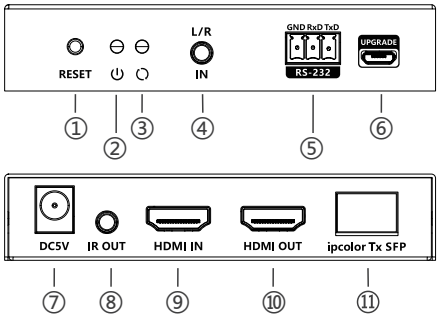
• Wall Mounting



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

- **Panel Description**

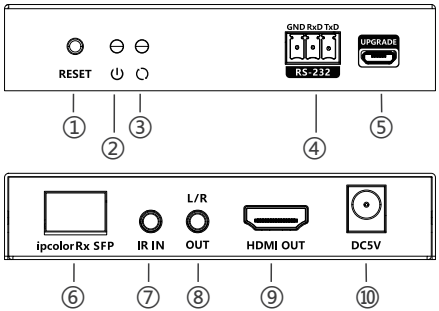
1. Transmitter



①	Reset	Press to restart the device
②	Power indicator (blue)	The indicator will turn on when the power is turned on
③	Status indicator (orange)	1) **Light off**: The transmitter and the receiver have not established a connection 2) **Slow flash**: The transmitter and the receiver are connected but no video data transmission (gigabit Ethernet) 3) **Quick flash**The transmitter and the receiver are connected but no video data transmission (100M Ethernet) 4) **Steady on**: The video data is transmitting
④	L/R IN	Connect to the audio source device with 3.5mm stereo audio cable
⑤	RS-232 (GND/RXD/TXD)	Used for RS-232 passthrough
⑥	Micro USB interface	Used for firmware upgrade

⑦	Power	Connect with DC5V/2A power adapter
⑧	IR output	Connect with IR blaster extension cable
⑨	HDMI input	Connect with HDMI source device
⑩	HDMI out	Connect with local HDMI display device
⑪	SFP signal out	Insert the SFP optical module (T1310nm/R1550nm)

2. Receiver



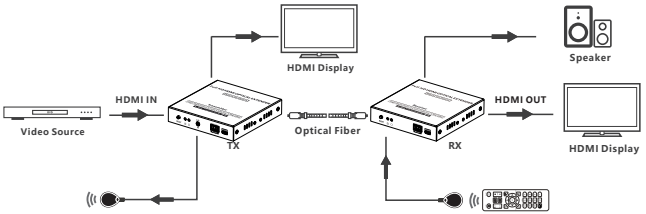
①	Reset	Press to restart the device
②	Power indicator (blue)	The indicator will turn on when the power is turned on
③	Status indicator (orange)	1) **Light off**: The transmitter and the receiver have not established a connection 2) **Slow flash**: The transmitter and the receiver are connected but no video data transmission (gigabit Ethernet) 3) **Quick flash**: The transmitter and the receiver are connected but no video data transmission (100M Ethernet) 4) **Steady on**: The video data is transmitting

④	RS-232 (GND/RXD/TXD)	Used for RS-232 passthrough
⑤	Micro USB interface	Used for firmware upgrade
⑥	SFP signal input	Insert the SFP optical module (T1550nm/R1310nm)
⑦	IR input	Connect with IR receiver extension cable
⑧	L/R OUT	Connect to the audio device with 3.5mm stereo audio cable
⑨	HDMI output	Connect with HDMI display device
⑩	Power	Connect with DC5V/2A power adapter

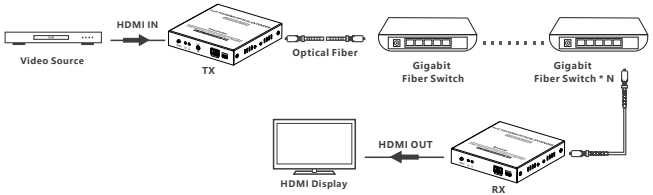
• Installation Procedures

1. Connection Diagrams

1.1 One-to-one connection



1.2 One-to-one connection (gigabit switches cascading)



Note: It is suggested to use gigabit (1000 Mbps) switches in LAN transmission, and 100Mbps switches should not be mixed with gigabit switches when 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 LC fiber optic cable to connect the SFP port of the transmitter and receiver. If it is one-to-one connection (gigabit switches cascading), 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 HDMI OUT port of the transmitter.
4) If you need another audio source instead of the HDMI audio source, connect the audio source to the L/R IN port of the transmitter with a 3.5mm stereo audio cable.
5) If you need to output additional audio sources from the receiver or extend only L/R stereo audio, connect the receiver's L/R OUT port to the audio device using a 3.5mm stereo audio cable.*
6) Plug the power supply into the devices to get started.

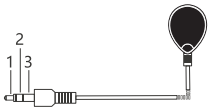
*

a. When the HDMI IN port of the transmitter is connected and the L/R IN port is not connected, the HDMI audio source can output from the HDMI OUT and L/R OUT ports of the receiver simultaneously.

b. When the HDMI IN port and the L/R IN port of the transmitter is both connected, the L/R stereo audio source can output from the HDMI OUT and L/R OUT ports of the receiver simultaneously.

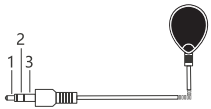
c. When the L/R IN port of the transmitter is connected and the HDMI IN is not connected, it can be used as an audio extender, the L/R stereo audio source can only output from the L/R OUT port of the receiver.

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 transmitter, and the IR receiver extension cable should plug in the IR IN port of the 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.

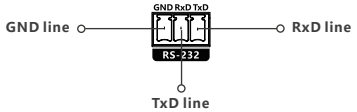
4. RS-232 pass-through function:

4.1 Baud rate

Different encoding mechanisms cannot be mixed, the baud rate of the RS-232 port of this transmitter and receiver is 2400, 4800, 9600, 19200, 38400, 57600, 115200.

4.2 Line order

Make sure the RS-232 serial line is firmly connected and that the serial data line is connected correctly as follows:



If the RS-232 serial does not work by following the above connection, please try to change the order of the TXD line and RXD line.

4.3 Check baud rate

If you need to check the baud rate, set the baud rate value of the serial port test tool to the default value of 115200, connect the serial port test tool to the product, and then power on the product. The baud rate printed at this time is the current baud rate. For example: "Baudrate:9600", that is, the baud rate value is 9600.

4.4 Set baud rate

For example: the baud rate of the product is 9600, and the baud rate of the serial port test tool is 115200. At this time, the baud rate of the serial port test tool must be set to 9600, which is consistent with the product, and then input the command you want to set "Bset:19200", if "Succeed" is displayed after sending data, the baud rate 19200 is set successfully.

• FAQ

Q: Why the status indicator is off?
A: Please check whether all equipment is powered on and the LC fiber optic cable is connected properly.

Q: Why is the status indicator has been flashing?
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 is the output image unstable?
A: 1) Check whether the length of the LC fiber optic cable is within the specified range.
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.

• Technical Parameters

Item	Transmitter	Receiver
Video		
Input interface	1x HDMI	1x SFP to LC
Output interface	1x HDMI 1x SFP to LC	1x HDMI
HDMI length	≤ 5m	≤ 5m
Compatibility	HDMI 1.3	
	HDCP 1.4	
Resolutions	1080p@50/60Hz, 720p@50/60Hz, 1920x1200@60Hz	
Input and output TMDS signal	0.7~1.2Vp-p（TMDS）	
Input and output DDC signal	5Vp-p（TTL）	
Connection types	One-to-one connection Switch cascading	
Transmission distance	Single-mode Optical Fiber≤40km	
Transmission latency	80~140ms	
Audio Signal		
Input interface	1x HDMI 1x 3.5mm L/R	1x SFP to LC
Output interface	1x SFP to LC	1x HDMI 1x 3.5mm L/R
HDMI out	LPCM 2.0	
3.5mm L/R output	PCM	
Command Signal		
IR interface	1x 3.5mm IR out	1x 3.5mm IR in
IR receiving range	≤ 5m	
IR frequency	20kHz~60kHz	

RS-232 (GND/RXD/TXD)	Default baud rate: 115200 Supported: 2400, 4800, 9600, 19200, 38400, 57600, 115200	
Power		
Power Supply	DC 5V/2A	DC 5V/2A
Power Consumption	TX ≤ 7.5W	RX ≤ 7.5W
Operating Environment		
Working temperature	- 10℃~50℃	
Storage temperature	- 30℃~70℃	
Humidity	0~90%RH (no condensation)	
Physical Properties		
Housing	Iron	
Weight	TX: 290g	RX: 286g
Color	Black	
Dimensions	106.0(L)*103.0(W)*20.6(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	