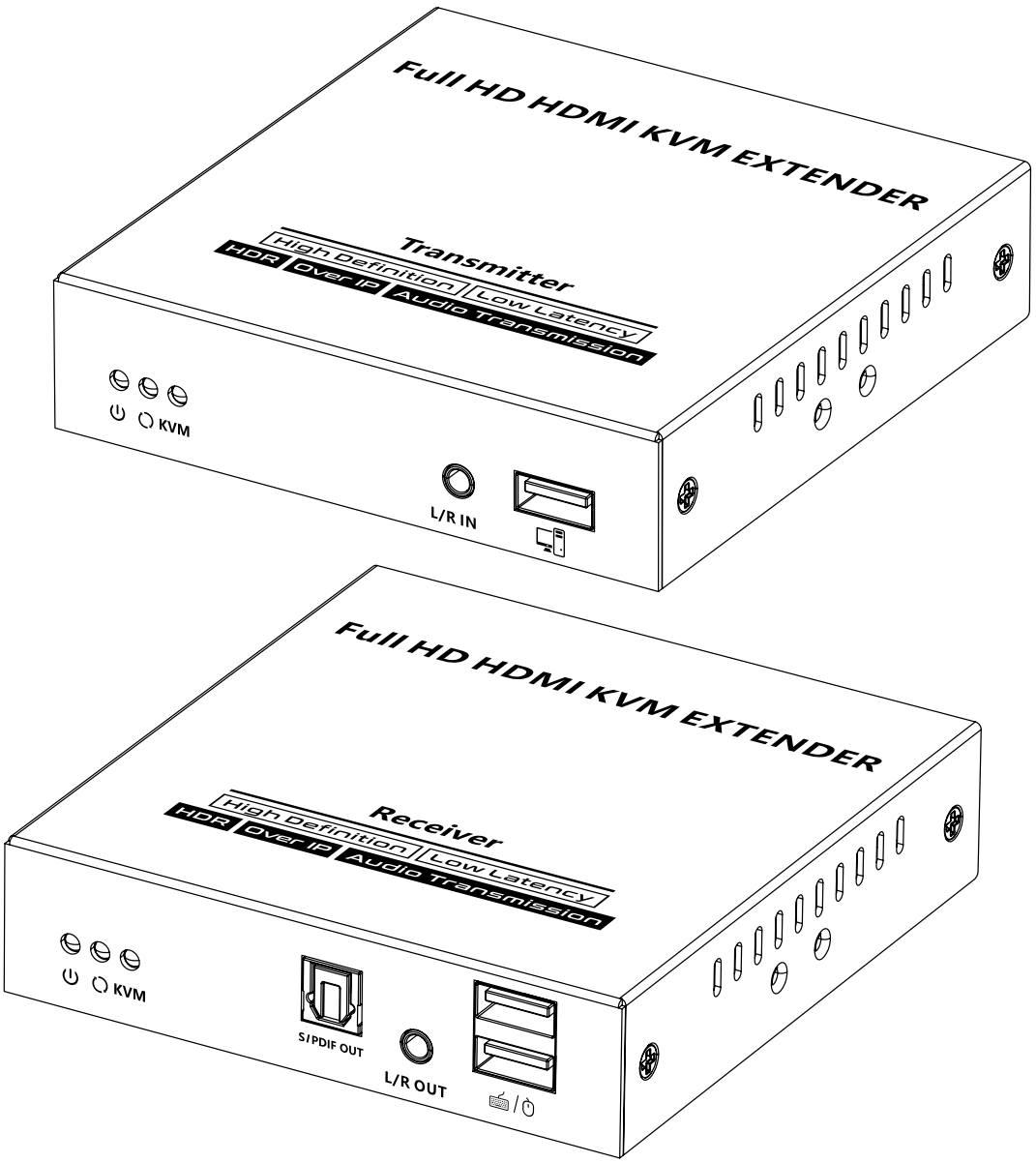
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Communication & Electronics LTD

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Model Number 18220
1080P@60Hz HDR Uncompressed 150M HDMI™ over IP KVM Extender

User Manual

Full HD HDMI KVM EXTENDER



HDMI™
HIGH-DEFINITION MULTIMEDIA INTERFACE

• 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, place the device in a well-ventilated area, do not block any ventilation openings.
3. 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.
4. Do not place the device on an uneven or unstable surface, the device may fall resulting in a malfunction.
5. Never insert anything metallic into the open parts of this device, this may cause a danger of electric shock.
6. If a third-party power supply is used, please ensure that the power supply specifications meet the product requirements.

• Introduction

This is an HDMI KVM over IP extender kit, including a transmitter and a receiver. With this device, HDMI signals can be transmitted uncompressed and low-latency over Cat6/6A/7 cable at 1080p@60Hz resolution. The transmission distance is up to 150 meters. This HDMI extender kit has features including HDMI loop out, KVM, and audio extraction through S/PDIF output on the receiver. It supports point-to-point connection or one-to-many connection through gigabit switch, and cascading of switches is also supported. This extender kit is a reliable video transmission and distribution solution which can be widely used in security monitoring, rail transit, broadcasting, smart cities, home theatre and other fields.

- **Features**

1. Adopting ipcolor PIXEL technology can realize uncompressed and low-latency transmission.
2. Support up to 1080p@60Hz resolution, including 1920x1200/1920x1080, backward compatible.
3. Video signals can travel up to 150 meters over CAT6 or higher network cable.
4. Support one-to-many connection through the gigabit switch, or switch Cascading.
5. Support HDR10.
6. Support EDID passback.
7. Support KVM control signal passback.
8. With HDMI loop out on the trnasmitter.
9. The transmitter has a 3.5 mm audio input for sound embedding, the receiver has an independent 3.5 mm and S/PDIF audio output.
10. Lightning protection, surge protection, ESD protection.
11. Support steady 24-hour operation.

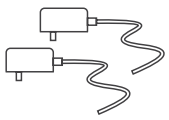
- **Package Contents**

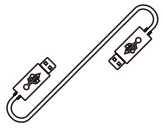


Transmitter x1

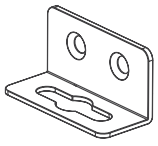


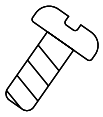
Receiver x1


DC5V/2A x2


USB cable x1


Terminal screw x2


Mounting ear x4



Screw x10



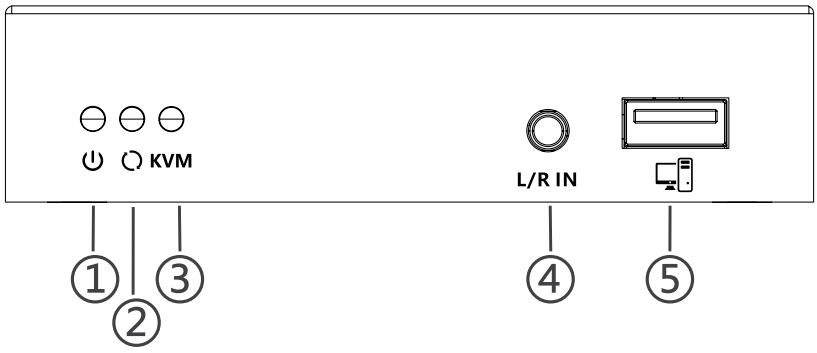
User manual x1

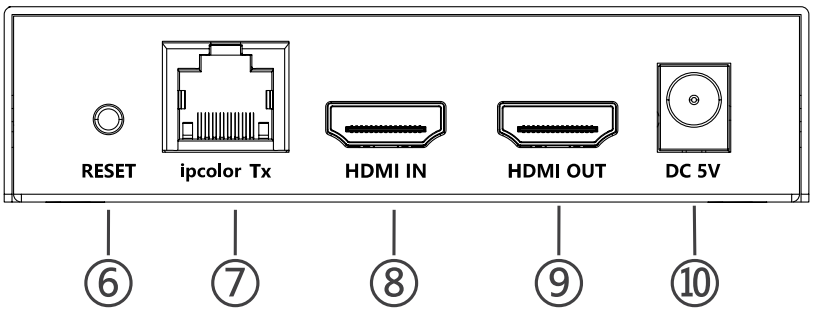
• Installation Requirements

Item	Description	Requirement
Signal source device	PC, DVD, NVR, etc. with HDMI port	HDMI cable≤5m
Cable	CAT6/6A/7, following standard IEEE-568B	CAT6/6A/7≤150m
Display device	TV, projector, LED screen, etc. with HDMI port	HDMI cable≤5m
Network switch	The switch(es) is(are) required for one-to-many and switch cascading connections	Gigabit switch

• Panel Description

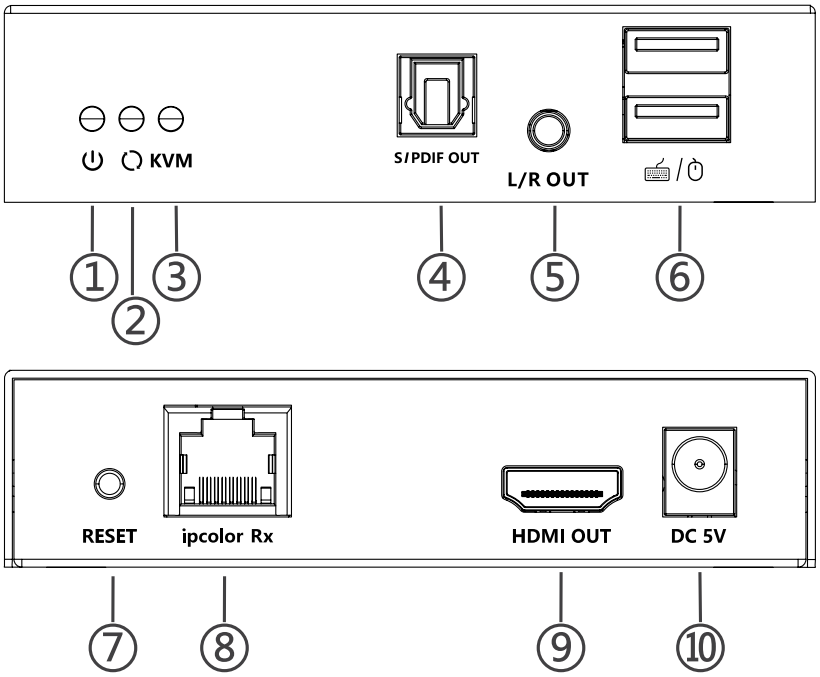
1. Transmitter





①	Power indicator (blue)	1) **Light off**: No power supply 2) **Steady on**: The power is on 3) **Flash**: The factory settings have been restored
②	Data transmission indicator (orange)	1) **Light off**: The transmitter and the receiver have not established a connection 2) **Slow flash** (every 1 second): The transmitter and the receiver are connected but no video data transmission 3) **Quick flash** (every 200ms): The video signal is connecting 4) **Steady on**: The video data is transmitting
③	KVM indicator	1) **Light flashing**: The KVM data is transmitting 2) **Steady on**: The computer and the USB port are connected
④	L/R IN	Connect to the audio source device with 3.5mm stereo audio cable
⑤	USB-A port	Connect to the computer with USB cable
⑥	RESET	1) Press to restart 2) Press and hold for 5 seconds to restore the factory settings, and then let go when the power indicator flashes
⑦	Ipcolor Tx (RJ45 port)	Connect with the network cable
⑧	HDMI IN	Connect with HDMI source device
⑨	HDMI OUT	Connect with local HDMI display device
⑩	DC5V	Connect with DC 5V/2A power adapter

2. Receiver



①	Power indicator (blue)	1) **Light off**: No power supply 2) **Steady on**: The power is on 3) **Flash**: The factory settings have been restored
②	Data transmission indicator (orange)	1) **Light off**: The transmitter and the receiver have not established a connection 2) **Slow flash** (every 1 second): The transmitter and the receiver are connected but no video data transmission 3) **Steady on**: The video data is transmitting
③	KVM indicator	1) **Light flashing**: The KVM data is transmitting 2) **Steady on**: The mouse and the keyboard are connected
④	S/PDIF OUT	Connect to the audio device with digital optical audio cable
⑤	L/R OUT	Connect to the audio device with 3.5mm stereo audio cable
⑥	USB-A port	Connect the mouse and the keyboard

⑦	RESET	1) Press to restart 2) Press and hold for 5 seconds to restore the factory settings, and then let go when the power indicator flashes
⑧	ipcolor Rx (RJ45 port)	Connect with the network cable
⑨	HDMI OUT	Connect with HDMI display device
⑩	DC5V	Connect with DC 5V/2A power adapter

- # Installation Procedures

1. How to make a network cable



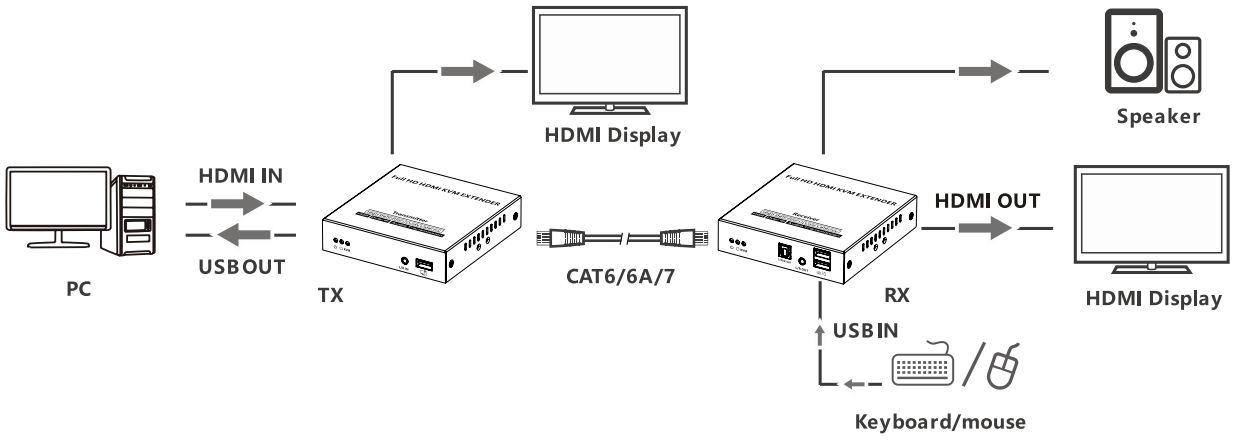
Follow the standard of IEEE-568B:

1-white and orange 2-orange 3-white and green 4-blue

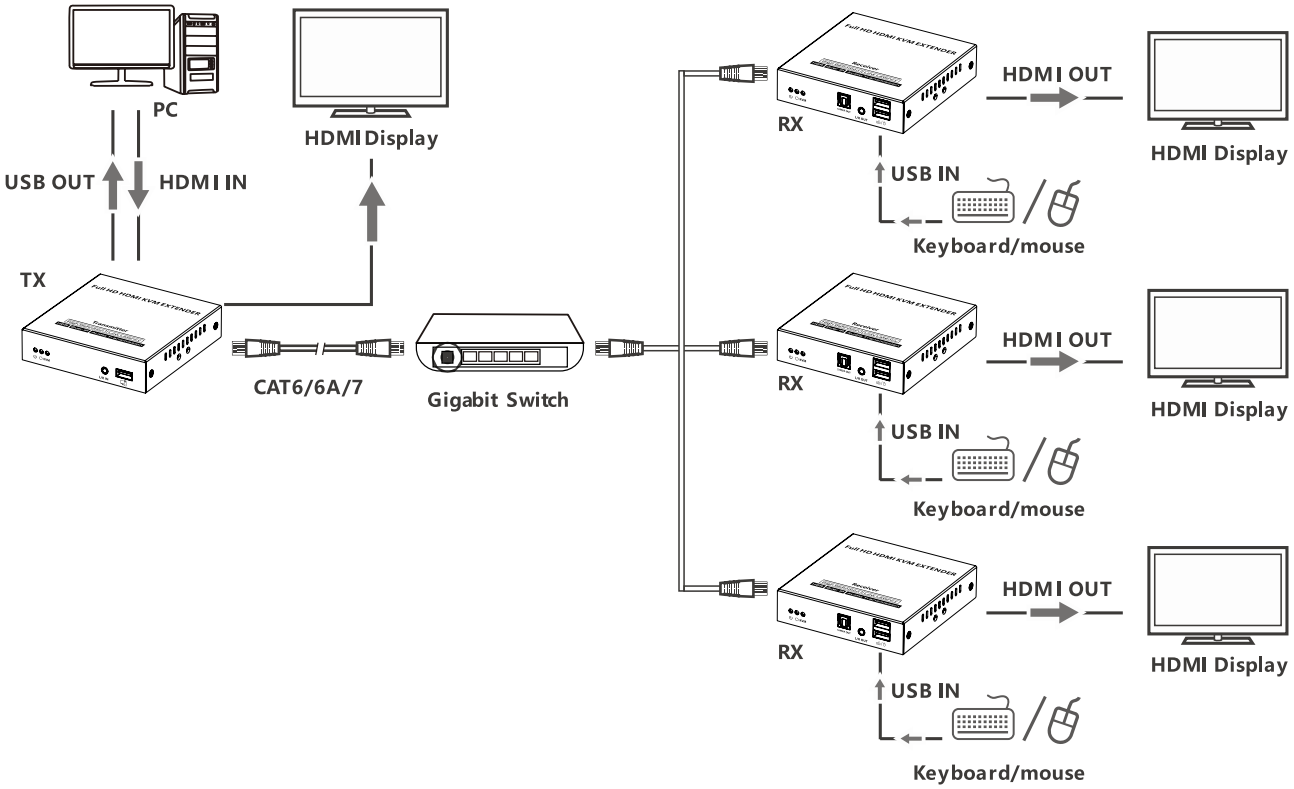
5-white and blue 6-green 7-white and brown 8-brown

2. Connection Diagrams

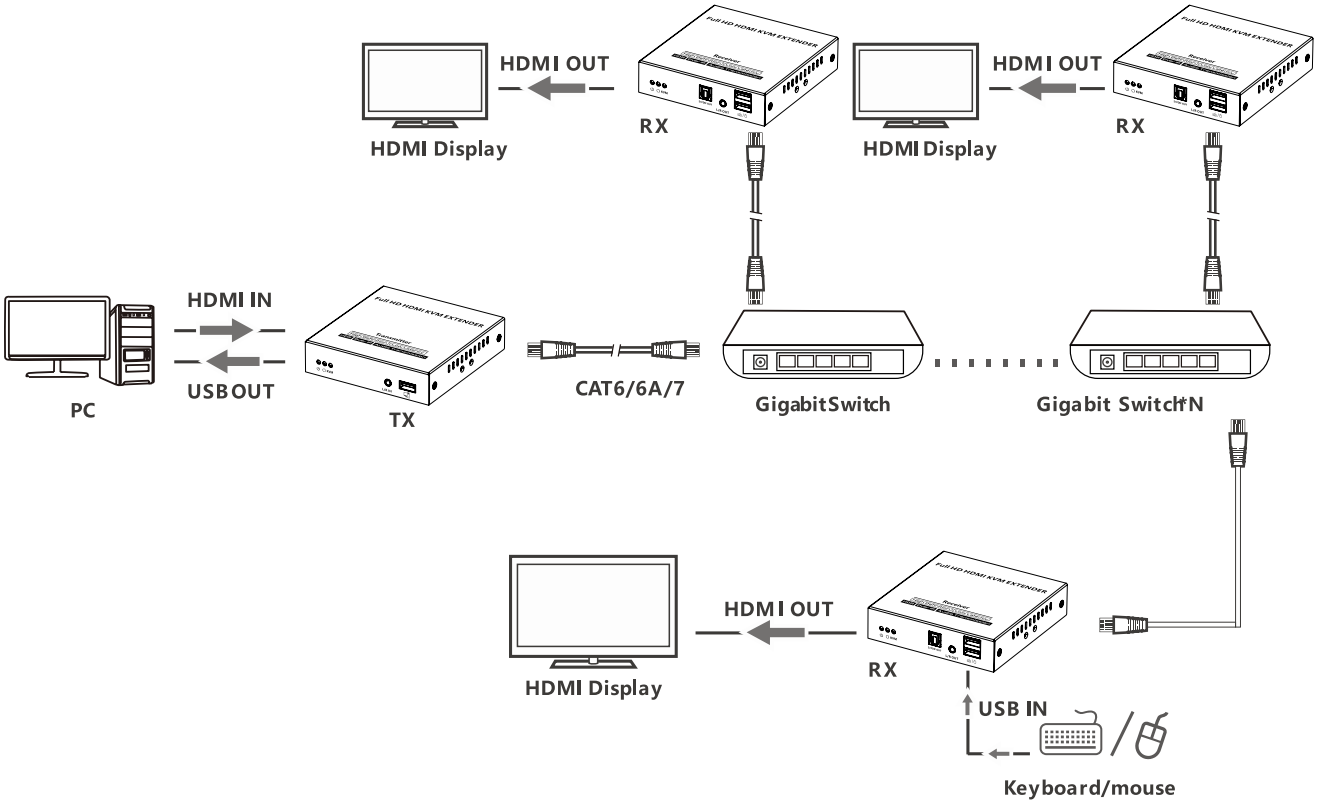
2.1 One-to-one connection



2.2 One-to-many connection (through gigabit switch):



2.3 One-to-many connection (gigabit 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 network 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 network cables respectively.
3) If using HDMI loop out, connect the display device to the HDMI OUT port of the transmitter.
4) If using the KVM function, connect the keyboard/mouse to the USB port of the receiver and connect the computer to the USB port of the transmitter via the USB cable
5) If you need to output additional audio sources from the receiver or extend the L/R stereo audio only, connect the S/PDIF OUT port of the receiver to the audio device with a digital optical audio cable and/or connect the L/R OUT port of the receiver to the audio device with 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, S/PDIF 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, S/PDIF 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.

• FAQ

Q: Why the data transmission 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 data transmission 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 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 network cable connected from TX to RX 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 to restart and reconnect.

Technical Parameters

Item	Transmitter	Receiver
Video Signal		
Input interface	1x HDMI	1x RJ45
Output interface	1x HDMI 1x RJ45	1x HDMI
HDMI cable	≤5m	≤5m
Compatibility	HDMI 1.4 (HDR10)	
	HDCP 1.4	

Resolutions	1080p@24/25/30/50/60Hz, 720p@50/60Hz, 1024x768@60Hz, 1280x800@60Hz, 1280x960@60Hz, 1280x1024@60H, 1440x900@60Hz, 1600x900@60Hz, 1600x1200@60Hz, 1680x1050@60Hz, 1920x1200@60Hz, 480P@60Hz, 576P@50Hz, 1400x1050@60Hz, 1366x768@60Hz, 1360x768@60Hz, 1280x768@60Hz	
Connection types	One-to-one connection One-to-many connection Switch cascading	
Transmission distance	CAT6/6A/7≤150m	
Transmission latency	16ms-33ms	
Audio Signal		
Input interface	1x HDMI 1x 3.5mm L/R	1x RJ45
Output interface	1x RJ45	1x HDMI 1x S/PDIF 1x 3.5mm L/R
HDMI out	LPCM 2.0/DTS-Audio5.1/Dolby Digital 5.1	
S/PDIF out	LPCM 2.0/DTS-Audio5.1/Dolby Digital 5.1	
3.5mm L/R output	PCM2.0	
Audio sampling rate	32kHz, 44.1kHz, 48kHz, 88kHz, 96kHz, 176kHz, 192kHz	
Audio bit depth	16bit, 24bit	
Power		
Power supply	DC5V/2A	DC5V/2A
Power consumption	< 5W	< 4W
Operating Environment		
Working temperature	-20℃~60℃	
Storage temperature	-30℃~70℃	

Humidity	0~90%RH (no condensation)	
Physical Properties		
Housing	Iron	
Weight	TX: 312g	RX: 312g
Color	Black	
Dimensions	106(L)*103(W)*25(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	

DISCLAIMER

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