



## • 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. Do not place the device on an uneven or unstable surface, the device may fall resulting in a malfunction.
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. If a third-party power supply is used, please ensure that the power supply specifications meet the product requirements.

## • Introduction

This 4K@60Hz HDMI extender kit, building on ipcolor PIXEL™ technology to deliver zero compression AV signals across long distances with ultra-low latency. The 4K@60Hz HDMI signal can be extended up to 80 meters via Category 6 or higher-level networking cables, supporting one-to-one connection, one-to-many connection or switches cascading via 10G switch. Equipped with HDMI loop out, IR passthrough, HDMI ARC, CEC, RS-232 command control. Widely used in security monitoring, rail transition, radio and television, smart cities and other fields.

## • Features

1. Supports resolution up to 4K@60Hz, backwards compatible.
2. Built on ipcolor PIXEL™ technology to deliver zero compression AV signals across long distances with ultra-low latency.
3. Supports EDID Pass-back.
4. Compatible with HDMI2.0, also compatible with HDCP1.4/HDCP2.2.

5. Compatible with Cat6/6a/7 network cables, transmission distance up to 80 meters over Cat6 cable.
6. Supports one-to-one, one-to-many connection and 10G switch cascading.
7. Supports cascading of multiple receivers.
8. Supports bi-directional IR passthrough(20~60KHz).
9. Supports RS-232 passthrough and command control.
10. Supports HDMI ARC and HDMI CEC.
11. With audio embedding and extraction, and the Receiver supports S/PDIF audio output.
12. The Transmitter supports HDMI loop out.
13. Firmware upgrading via Micro USB port.
14. Lightning protection, surge protection, ESD protection.
15. Supports dolby vision.

## • Package Contents



Transmitter x1



Receiver x1



DC5V/3A x2



User manual x1



IR receiver extension cable x1



IR blaster extension cable x1



Mounting ear x4



Screw x10



Grounding screw x2



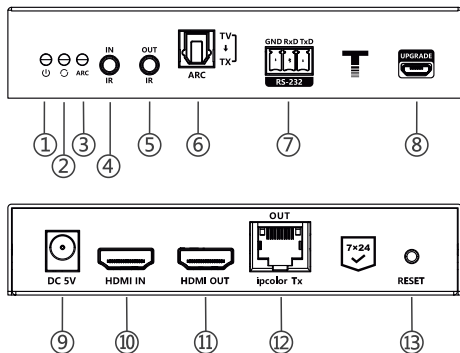
Terminal block (RS-232) x2

## • Installation Requirements

| Item                 | Description                                    | Requirement     |
|----------------------|--|-----------------|
| Signal source device | PC, DVD, PS4, NVR, etc. with HDMI port.        | HDMI cable ≤ 5m |
| Cable                | CAT6/6A/7, following standard IEEE-568B        | Cat6/6A/7 ≤80m  |
| Display device       | TV, indicator, projector, etc. with HDMI port. | HDMI cable ≤ 5m |
| Network switch       | One-to-many or switch cascading                | 10G switch      |

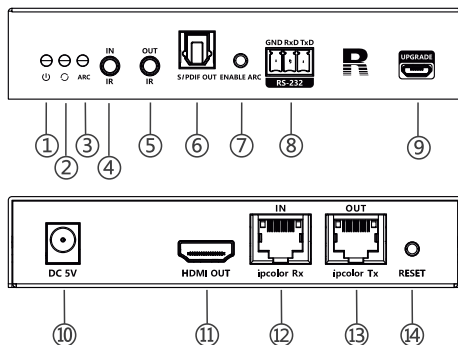
## • Panel Description

### 1. Transmitter



|   |                        |  |
|---|------------------------|--|
| ① | Power indicator (blue) | The indicator will turn on when the power is on  |
| ② | Status indicator       | <p><b>Light off:</b> No connection between the transmitter and the receiver</p> <p><b>Slow flash</b>(every 1 second): The transmitter and the receiver are connected but no video data transmission</p> <p><b>Quick flash</b>(every 200ms): The transmitter and the receiver are connected and video data transmission in progress</p> <p><b>Steady on:</b> The video data is transmitting</p> |
| ③ | ARC indicator          | <p><b>Light off:</b> ARC is off</p> <p><b>Slow flash</b> (every 1 second): The ARC between the TX and the RX are connected</p> <p><b>Quick flash</b> (every 200ms): The ARC between the TV and the extender kit are connected</p> <p><b>Steady on:</b> 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 | ARC port               | Output the audio from the TV HDMI ARC signal passback  |
| ⑦ | RS-232                 | RS-232 passthrough and command control   |
| ⑧ | Micro-USB port         | Firmware upgrading   |
| ⑨ | Power                  | Connect with DC5V/3A adapter   |
| ⑩ | HDMI input             | Connect with HDMI source device  |
| ⑪ | HDMI output            | Connect with HDMI display device   |
| ⑫ | RJ45 output port       | Connect with the CAT6/6A/7 networking cable  |
| ⑬ | Reset                  | Press to restart the device  |

## 2. Receiver



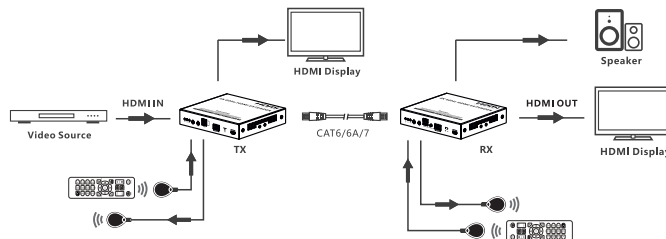
|   |                        |  |
|---|------------------------|--|
| ① | Power indicator (blue) | The indicator will turn on when the power is on  |
| ② | Status indicator       | <p><b>Light off:</b> No connection between the transmitter and the receiver</p> <p><b>Slow flash</b>(every 1 second): The transmitter and the receiver are connected but no video data transmission</p> <p><b>Quick flash</b>(every 200ms): The transmitter and the receiver are connected and video data transmission in progress</p> <p><b>Steady on:</b> The video data is transmitting</p> |
| ③ | ARC indicator          | <p><b>Light off:</b> ARC is off.</p> <p><b>Slow flash</b> (every 1 second): The ARC between the TX and the RX are connected</p> <p><b>Quick flash</b> (every 200ms): The ARC between the TV and the extender kit are connected</p> <p><b>Steady on:</b> 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      | For audio embedding and extraction   |
| ⑦ | ARC button       | Turned on/off ARC  |
| ⑧ | RS-232 port      | RS-232 passthrough and command control   |
| ⑨ | Micro USB port   | Firmware upgrading   |
| ⑩ | Power            | Connect with DC5V/3A adapter   |
| ⑪ | HDMI output      | Connect with HDMI display device   |
| ⑫ | RJ45 input port  | Connect with the CAT6/6A/7 networking cable                                    |
| ⑬ | RJ45 output port | Connect with the CAT6/6A/7 networking cable<br>Cascading of multiple receivers |
| ⑭ | Reset            | Press to restart the device  |

## • Installation Procedures

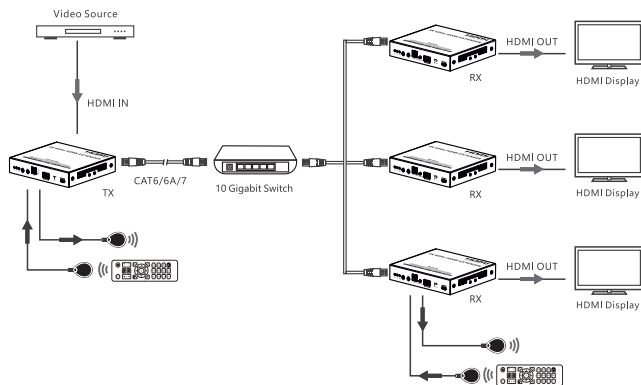
### 1. Connection Diagrams

#### 1.1 One-to-one connection

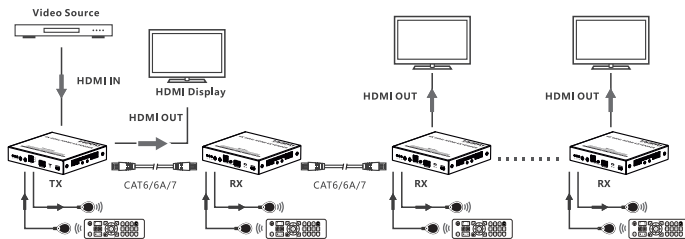


## 1.2 One-to-many connection :

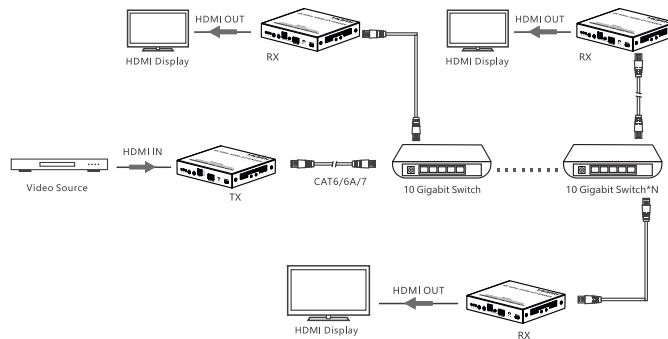
### 1.2.1 through 10 gigabit switch



### 1.2.2 Cascading of multiple receivers



## 1.3 Switches cascading :

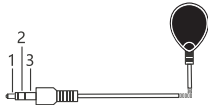


## 2. Connection Instructions

- 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 the connection is one-to-one, connect the RJ45 port of the transmitter and receiver with a Cat6/6A/7 cable. If the connection is one-to-many, utilize the 10 gigabit switch as a bridge to connect the transmitter and receivers via Cat6/6A/7 cables, or Transmitter and multiple receivers are cascaded via Cat6/6A/7 cables.
- 3) If using HDMI loop out, connect the display device to the HDMI OUT port of the transmitter.
- 4) If using IR pass-back, insert the IR blaster extension cable into IR OUT and the IR receiver extension cable into IR IN.

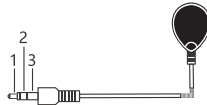
- 5) If using HDMI ARC, press the ARC button first, then connect the S/ PDIF port (ARC) of the transmitter to the speaker with digital optical audio cable; If you need additional source audio from the receiver, connect the S/PDIF OUT port of the receiver to the audio device with digital optical audio cable.
- 6) If using RS-232 control, insert the terminal block in the RS-232 port of the transmitter or receiver, and then connect it to the computer.
- 7) Plug the power supply into the devices to get started.

### 3. IR Control



IR blaster

1. Power
2. IR Signal
3. Null



IR receiver

1. Power
2. IR Signal
3. Grounding

- 1) The IR blaster extension cable should be plugged into the IR OUT port of the transmitter or receiver, while the IR receiver extension cable should be plugged into 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 signal input area of the source device.
- 3) Point the remote control at the receiving head of the IR receiver extension cable to operate.

### 4. RS-232 Control

If using the RS-232 control, 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

Date bits: 8

Stop bits: 1

Parity: None

| Function                       | Control instruction code  |
|--------------------------------|---|
| Restore device factory setting | BAA51100001133  |
| Device restart                 | BAA51000001030  |
| CEC on                         | BAA5150100011758  |
| CEC off                        | BAA5150100001657  |
| ARC on                         | BA A5 16 01 00 01 18 5C   |
| ARC off                        | BA A5 16 01 00 00 17 5B   |
| Check CEC status               | BAA5150000153F<br>Recv:(CEC_ON)<br>BAA5150100011758<br>Recv:(CEC_OFF)<br>BAA5150100001657 |
| Set device baud rate           | Set the baud rate to 2400<br>BAA513040000000960800F                                       |
|                                | Set the baud rate to 4800<br>BAA5130400000012C0E981                                       |
|                                | Set the baud rate to 9600<br>BAA513040000002580BC67                                       |
|                                | Set the baud rate to 19200<br>BAA513040000004B006233                                      |
|                                | Set the baud rate to 38400<br>BAA513040000009600ADC9                                      |

|                      |   |
|----------------------|---|
| Set device baud rate | Set the baud rate to 57600<br>BAA51304000000E100F85F  |
|                      | Set the baud rate to 115200<br>BAA51304000001C200DA24 |
|                      | Set the baud rate to 230400<br>BAA5130400000384009EAE |

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 equipments are powered on and the networking cable is connected properly.
- 2) Replace an alternative networking cable for connection.

Q: Why 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 is "Search ipcolor Tx..." always displayed on the screen?

A: The Transmitter and receiver are not connected or connected but there is no data transmission. For solution, please refer to the answers to the above two questions.

Q: Why is the output image unstable?

A:

- 1) Check that the length of the networking cable is within 80 meters from TX to RX.

- 2) The length of HDMI cable is recommended to be  $\leq 5$  meters.
- 3) Press the "reset" button on TX and RX 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.
- 2) Please make sure that the HDMI ARC of the TV is turned on.
- 3) Press the ARC button on the receiver to activate ARC.

## • Technical Parameters

| Item                         | Transmitter  | Receiver             |
|------------------------------|--|----------------------|
| <b>Video</b>                 |  |                      |
| <b>Input interface</b>       | 1x HDMI  | 1x RJ45              |
| <b>Output interface</b>      | 1x HDMI<br>1x RJ45   | 1x HDMI<br>1x RJ45   |
| <b>HDMI length</b>           | ≤5m  | ≤5m                  |
| <b>Maximum transfer rate</b> | 18Gbps   |                      |
| <b>Compatibility</b>         | HDMI 2.0 (Deep color, 4K, HDR10, YUV444)   |                      |
|                              | HDCP1.4/HDCP 2.2   |                      |
| <b>Transmission distance</b> | CAT6/6A/7 ≤80m   |                      |
| <b>Connection types</b>      | One-to-one connection<br>One-to-many connection<br>Switch cascading  |                      |
| <b>Transmission latency</b>  | ≤8ms   |                      |
| <b>Resolutions</b>           | 4096x2160@24/25/30/50Hz,<br>3840x2160@24/25/30/50/60Hz,<br>1080p@24/25/50/60Hz, 720p@50/60Hz, 1024x768,<br>1280x768, 1280x800, 1280x960, 1280x1024, 1440x900,<br>1600x900, 1600x1200, 1680x1050, 1920x1080, 1920x1200,<br>2560x1080@60Hz, 2560x1440@60Hz, 3440x1440@60Hz |                      |
| <b>Audio Signal</b>          |  |                      |
| <b>Input interface</b>       | 1xHDMI   | N/A                  |
| <b>Output interface</b>      | 1x HDMI ARC<br>1x S/PDIF ARC   | 1x HDMI<br>1x S/PDIF |
| <b>HDMI output</b>           | LPCM7.1CH/ DTS - HD/ DTS -Audio/Dolby Digital plus/<br>Dolby True HD 7.1CH/ Dolby Digital 7.1CH/ Dolby Atmos   |                      |
| <b>S/PDIF output (ARC)</b>   | LPCM 2.1CH/DTS-Audio/Dolby Digital 5.1CH   |                      |
| <b>Audio sampling rate</b>   | 32KHz, 44.1KHz, 48KHz, 88KHz, 96KHz, 176KHz, 192KHz  |                      |
| <b>Audio bit depth</b>       | 16bit, 24bit   |                      |

| <b>Command Signal</b>        |  |                                   |
|------------------------------|--|-----------------------------------|
| <b>IR interface</b>          | 1x 3.5mm IR IN<br>1x 3.5mm IR OUT  | 1x 3.5mm IR IN<br>1x 3.5mm IR OUT |
| <b>Receiving range</b>       | ≤5m  |                                   |
| <b>Infrared frequency</b>    | 20kHz~60kHz  |                                   |
| <b>CEC</b>                   | Supported  |                                   |
| <b>RS-232 (GND/RxD/TxD)</b>  | Default baud rate: 115200<br>Supported: 2400, 4800, 9600, 19200, 38400, 57600,<br>115200, 230400   |                                   |
| <b>Power</b>                 |  |                                   |
| <b>Power Port</b>            | 1x DCSV  |                                   |
| <b>Power Supply</b>          | DC5V/3A  | DC5V/3A                           |
| <b>Power Consumption</b>     | < 7.5W   | < 12W                             |
| <b>Operating Environment</b> |  |                                   |
| <b>Working temperature</b>   | -20°C~50°C   |                                   |
| <b>Storage temperature</b>   | -30°C~70°C   |                                   |
| <b>Humidity</b>              | 0~90%RH (no condensation)  |                                   |
| <b>Physical Properties</b>   |  |                                   |
| <b>Housing</b>               | Iron   |                                   |
| <b>Weight</b>                | TX: 476g   | RX: 481g                          |
| <b>Color</b>                 | Black  |                                   |
| <b>Dimensions</b>            | 125.00(L)*115.00(W)*25.00(H)mm   |                                   |
| <b>Protection</b>            | ESD protection<br>1a Contact discharge level 2 (±4KV)<br>1b Air discharge level 3 (±8KV)<br>Implementation of the standard: IEC61000-4-2 |                                   |
|                              | Lightning protection   |                                   |
|                              | Surge protection   |                                   |