# 18Gbps HDMI over HD-BaseT Extender with Bi-directional IR (40M)

## USER MANUAL

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# Table of Contents

## Thank you for purchasing this product

Thank you for purchasing this product. For optimum performance and safety, please read these instructions carefully before connecting, operating or adjusting this product. Please keep this manual for future reference.

## Surge protection device recommended

This product contains sensitive electrical components that may be damaged by electrical spikes, surges, electric shock, lightning strikes, etc. Use of surge protection systems is highly recommended in order to protect and extend the service life of your equipment.

Please Activate your warranty by registering our product through the link below - **www.orei.com/register**

**Technical Support**

***Need Help?***

Our experienced Technical Support Team is here for you to answer your questions, give technical advice or help troubleshoot your project to get you installed on time and on budget. Call, email or chat with us now.

**OREI Live Technical Support Hours**

US team (US/Canada/Mexico): Monday-Friday, 9 a.m. - 6 p.m. Central Time

**Support Email** - info@orei.com |**Support Number** - 877-290-5530

Or

**Chat Live on www.orei.com**

Send us an instant message now. Our Technical Support Team will respond momentarily. Available during live support hours.

**Scan the QR code to watch a Video of How to Use the product.**

# Introduction

This 18Gbps HDMI Extender can extend high definition video / audio signal, RS-232, bi-directional IR, and the distance is up to 230ft / 70 meters between transmitter and receiver via a single CAT cable. It supports resolution up to 4K2K@60Hz 4:4:4, 18Gbps and HDCP 2.2. One HDMI loop port is available for output. The extender also supports de-embeded audio for L/R audio output. In addition, the extender is equipped with two-way IR pass-through which allows for source and display control.

This HDMI extender includes two units: transmitter unit and receiver unit. The transmitter unit is responsible for capturing HDMI input signal and carrying the signal via one cost effective Cat5e/6 cable, and transmitting / emitting IR control signals. The receiver unit is responsible for receiving the HDMI signal and transmitting / emitting IR control signal.

The extender offers the most convenient solution for HDMI extension via a single Cat5e/6 with long distance capability, and is the perfect solution for any application.

1. HDMI 2.0b, HDCP 2.2/HDCP 1.4 and DVI 1.0 compliant
2. Support 18Gbps video bandwidth
3. The maximum extended transmission distance via a single Cat5e/6 cable: 115ft / 40 meters for 4K2K signal; 230ft / 70 meters for 1080P signal
4. Support one HDMI loop output on the transmitter
5. De-embeded audio to analog stereo output on receiver
6. With bi-directional IR, RS-232 and CEC pass-through
7. HDR, HDR10+, Dolby Vision and HLG function supported
8. Support PoC (Power over Cable) function
9. Compact design for easy and flexible installation

## Package Contents

| 1. | 18Gbps HDMI over HDBaseT Extender (Transmitter) | 1pcs |
|----|------------------------------------------------|------|
| 2. | 18Gbps HDMI over HDBaseT Extender (Receiver) | 1pcs |
| 3. | IR Blaster cable (1.5 meters) | 1pcs |
| 4. | 20~60KHz IR Receiver cable (1.5 meters) | 1pcs |
| 5. | Mounting Ear | 4pcs |
| 6. | 3-pin Phoenix connector | 2pcs |
| 7. | 24V/1A Locking Power adapter | 1pcs |
| 8. | User Manual | 1pcs |

# Specifications

| Technical | |
|---|---|
| HDMI Compliance | HDMI 2.0b |
| HDCP Compliance | HDCP 2.2/1.4 |
| Video Bandwidth | 594MHz/18Gbps |
| Video Resolution | 4K2K 50/60Hz 4:4:4<br>4K2K 50/60Hz 4:2:2<br>4K2K 50/60Hz 4:2:0<br>4K2K 30Hz 4:4:4<br>1080p, 1080i, 720p, 720i, 480p, 480i<br>All HDMI 3D TV formats<br>All PC resolutions including 1920 x 1200 |
| Color Depth | 8/10/12-bit (1080P60Hz, 4K30Hz, 4K60Hz YCbCr 4:2:2/4:2:0)<br>8-bit (4K60Hz 4:4:4 ) |
| Color Space | RGB / YCbCr 4:4:4, YCbCr 4:2:2, YCbCr 4:2:0 |
| HDMI Audio Formats | LPCM 2.0/2.1/5.1/6.1/7.1, Dolby Digital, Dolby TrueHD, Dolby Digital Plus(DD+), DTS-ES, DTS HD Master, DTS HD-HRA, DTS-X |
| L/R Audio Formats | PCM 2.0 |
| ESD Protection | Human body model — ±8kV (air-gap discharge) & ±4kV (contact discharge) |

| Connection | |
|---|---|
| Transmitter | Inputs: 1x HDMI Type A [19-pin female]<br>Outputs: 1x HDMI Type A [19-pin female]<br>　　　　　1x HDBT OUT [RJ45, 8-pin female]<br>Control: 1x IR IN [3.5mm Stereo Mini-jack]<br>　　　　　1x IR OUT [3.5mm Stereo Mini-jack]<br>　　　　　1x RS-232 [Phoenix jack]<br>　　　　　1x SERVICE [Mini-USB, Update port] |
| Receiver | Inputs: 1x HDBT IN [RJ45, 8-pin female]<br>Outputs: 1x HDMI Type A [19-pin female]<br>　　　　　1x AUDIO OUT [3.5mm Stereo Mini-jack]<br>Control: 1x IR IN [3.5mm Stereo Mini-jack]<br>　　　　　1x IR OUT [3.5mm Stereo Mini-jack]<br>　　　　　1x RS-232 [Phoenix jack]<br>　　　　　1x SERVICE [Mini-USB, Update port] |
| **Mechanical** | |
| Housing | Metal Enclosure |
| Color | Black |
| Dimensions | 140mm [W] x 65mm [D] x 18mm [H] |
| Weight | Transmitter: 160g | Receiver: 155g |
| Operating Temperature | 0℃ ~ 40℃ / 32℉ ~ 104℉ |
| Storage Temperature | -20℃ ~ 60℃ / -4℉ ~ 140℉ |
| Relative Humidity | 20~90% RH (Non-condensing) |
| Power Consumption (Max) | 9.36W |
| Power Supply | Input: AC100 - 240V 50/60Hz,<br>Output: DC 24V/1A (Locking connector) |

# Operation Controls and Functions

## Extender
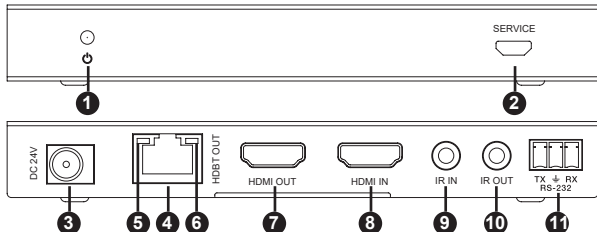


| No. | Name | Function Description |
|-----|------|----------------------|
| 1. | Power LED | Red LED indicates that the transmitter is powered on. |
| 2. | SERVICE port | Firmware update port. |
| 3. | DC 24V | DC 24V/1A power supply input port. Note that the extender supports PoC function, it means that either transmitter or receiver is powered on by 24V/1A power adapter, the other one doesn't need power supply. |
| 4. | HDBT OUT | RJ45 connector for connecting the HDBT IN port of receiver with a CAT 5e/6 cable. |
| 5. | Connection Signal Indicator lamp | **Illuminating:** Transmitter and Receiver are in good connection status. **Flashing:** Transmitter and Receiver are in poor connection status. **Dark:** Transmitter and Receiver are not connected. |
| 6. | Data Signal Indicator lamp | **Illuminating:** HDMI signal with HDCP. **Flashing:** HDMI signal without HDCP. **Dark:** No HDMI signal. |

| No. | Name | Function Description |
|-----|------|----------------------|
| 7. | HDMI OUT | HDMI loop output for display. |
| 8. | HDMI IN | HDMI source input. |
| 9. | IR IN | IR input port for receiving the signal of IR remote. |
| 10. | IR OUT | IR output port for control of source device. This IR output signal is from the IR IN port of receiver. |
| 11. | RS-232 | 3-pin Phoenix connector for RS-232 command transmission.The RS-232 command will pass-through from transmitter to receiver or from receiver to transmitter. |

## Receiver
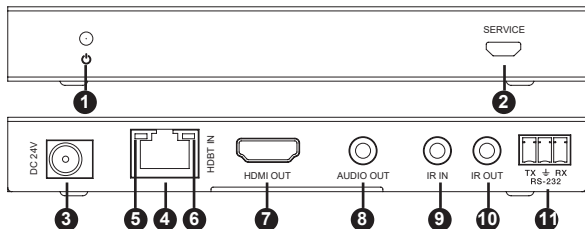


| No. | Name | Function Description |
|-----|------|----------------------|
| 1. | Power LED | Red LED indicates that the receiver is powered on. |
| 2. | SERVICE port | Firmware update port. |

# Operation Controls and Functions

| No. | Name | Function Description |
|-----|------|----------------------|
| 3. | DC 24V | DC 24V/1A power supply input port. |
| | | Note that the extender supports PoC function, it means that either transmitter or receiver is powered on by 24V/1A power adapter, the other one doesn't need power supply. |
| 4. | HDBT IN | RJ45 connector for connecting the HDBT OUT port of transmitter with a CAT 5e/6 cable. |
| 5. | Connection Signal Indicator lamp | **Illuminating:** Transmitter and Receiver are in good connection status. **Flashing:** Transmitter and Receiver are in poor connection status. **Dark:** Transmitter and Receiver are not connected. |
| 6. | Data Signal Indicator lamp | **Illuminating:** HDMI signal with HDCP. **Flashing:** HDMI signal without HDCP. **Dark:** No HDMI signal. |
| 7. | HDMI OUT | HDMI output for display. |
| 8. | AUDIO OUT | 3.5mm stereo connector for analog audio output. |
| 9. | IR IN | IR input port for receiving the signal of IR remote. |
| 10. | IR OUT | IR output port for control of display device. This IR output signal is from the IR IN port of transmitter. |
| 11. | RS-232 | 3-pin Phoenix connector for RS-232 command transmission. The RS-232 command will pass-through from transmitter to receiver or from receiver to transmitter. |

## Wideband IR (20KHz---60KHz) introduction

**IR RECEIVER**

**IR BLASTER**

## IR Cable Pin Assignment

**IR Blaster**

1. IR Blaster Signal
2. Power
3. NC

**IR Receiver**

1. IR Signal
2. Power
3. Grounding
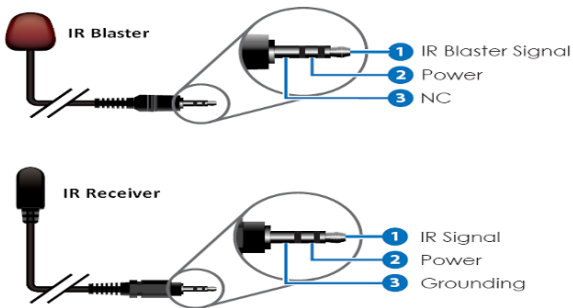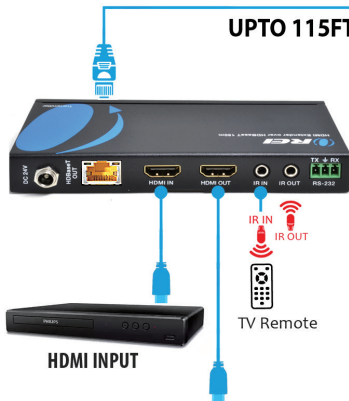
Control local device (Blu-ray player or DVD player, etc) from remote: The IR Receiver is connected to the receiver IR in port. The CAT output connector on the HDMI Extender is connected via CAT6 cable to an HDMI receiver. The IR Transmitter is connected to the HDMI Extender IR OUT port. **IR remote can be used to control local source device from remote.**
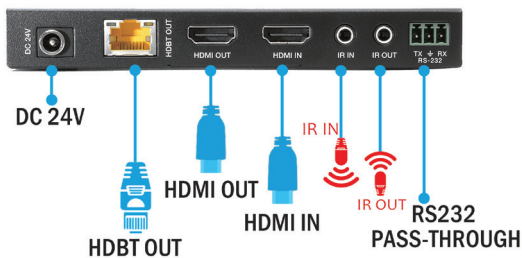
# Application Example
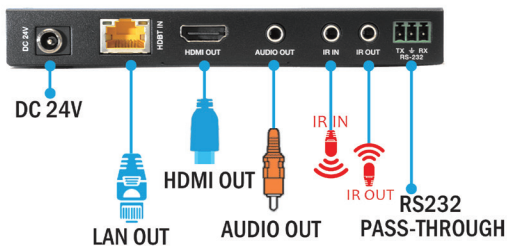
CAT 6/7

UPTO 115FT

4K ULTRA HD

IR IN
IR OUT

TV Remote

HDMI INPUT

IR IN
IR OUT

Blu-Ray
Remote

HDMI OUTPUT

HDMI OUTPUT

# SENDER



**DC 24V**

**HDBT OUT**

**HDMI OUT**

**HDMI IN**

**IR IN**

**IR OUT**

**RS232 PASS-THROUGH**

# RECEIVER



DC 24V

LAN OUT

HDMI OUT

AUDIO OUT

IR IN

IR OUT

RS232 PASS-THROUGH

# OREI

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**with Bi-directional IR (40M)**

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