



BG-EXH-8K150C

**8K UHD HDMI HDBaseT Long Range Extender with
Bi-directional IR/RS-232/CEC up to 490ft**

User Manual

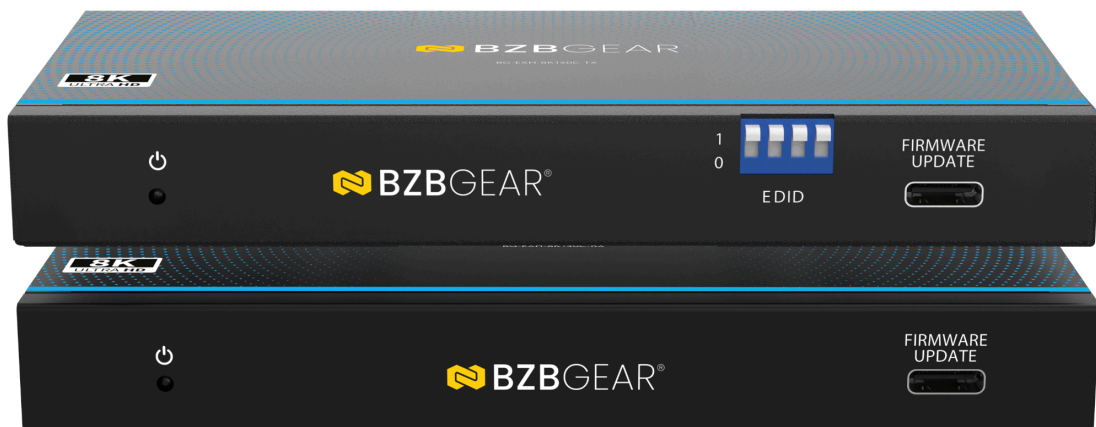






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Statement

Please read these instructions carefully before connecting, operating, or configuring this product. Please save this manual for future reference.

Safety Precaution

- To prevent damaging this product, avoid heavy pressure, strong vibration, or immersion during transportation, storage, and installation.
- The housing of this product is made of organic materials. Do not expose to any liquid, gas, or solids which may corrode the shell.
- Do not expose the product to rain or moisture.
- To prevent the risk of electric shock, do not open the case. Installation and maintenance should only be carried out by qualified technicians.
- Do not use the product beyond the specified temperature, humidity, or power supply specifications.
- This product does not contain parts that can be maintained or repaired by users. Damage caused by dismantling the product without authorization from BZBGear is not covered under the warranty policy.
- Installation and use of this product must strictly comply with local electrical safety standards.



Introduction

This high-performance HDBaseT extender delivers long-distance transmission of HDMI, RS-232, and IR signals over a single twisted pair cable. The transmitter converts HDMI and control signals into an HDBaseT signal for efficient transmission, while the receiver restores them to their original formats with uncompromised quality.

Supporting transmission distances of up to 90m (295ft) for 8K@30Hz (4:4:4) and 4K@120Hz (4:4:4), 120m (394ft) for 4K@60Hz (4:4:4), and 150m (492ft) for 1080p resolutions via CAT cable, this extender ensures exceptional signal integrity across all formats. Designed for professional AV applications, it combines superior performance, flexible control options, and user-friendly operation.

Features

- **HDCP 2.3 Compliance:** Ensures secure transmission of protected content across all connected devices.
- **High Bandwidth Support:** Delivers up to 40Gbps FRL and 18Gbps TMDS for seamless 8K and 4K video performance.
- **Long-Distance Transmission:** Extends HDMI signals up to 90m (8K@30Hz/4K@120Hz), 120m (4K@60Hz), or 150m (1080p) via CAT cable.
- **Broad Resolution Compatibility:** Supports industry-standard video formats from VGA–WUXGA and 480i–8K@30Hz.
- **HDMI Re-clocking:** Improves signal integrity and resolves HDCP, compatibility, and handshaking issues.
- **Comprehensive Audio Support:** Compatible with LPCM 2.0/5.1/7.1, Dolby Atmos, TrueHD, Digital Plus, and DTS-HD Master Audio.
- **Control Signal Pass-through:** Enables bi-directional IR, RS-232, and CEC communication between devices.
- **Gaming Features:** Supports VRR, FVA, and ALLM for smoother, tear-free gameplay.
- **Advanced HDR Formats:** Passes through HDR10, HDR10+, Dolby Vision, and HLG for enhanced dynamic range.
- **Audio De-embedding:** Both transmitter and receiver support analog audio output.
- **Bi-directional PoC:** Provides Power over Cable functionality between TX and RX units for simplified installation.



Packing List

- 1× 8K HDMI over HDBaseT Extender (Transmitter)
- 1× 8K HDMI over HDBaseT Extender (Receiver)
- 1× IR Blaster Cable (1.5m)
- 1× IR Wideband Receiver Cable (1.5m)
- 4× 3pin-3.5mm Phoenix Connector
- 1× 24V/1A Locking Power Supply
- 4× Mounting Ear
- 8× Machine Screw (KM3*4)
- 1× User Manual



Specifications

Technical Specifications	
HDMI Compliance	HDMI 2.1
HDCP Compliance	HDCP 2.3
Video Bandwidth	40Gbps FRL and 18Gbps TMDS
Video Resolution (Input & Output)	Up to 8K@30Hz (4:4:4) All available resolutions are shown as follow
IR Level	5Vp-p
IR Frequency	Wideband 20K–60KHz
Color Space	RGB, YCbCr 4:4:4, YCbCr 4:2:2, YCbCr 4:2:0
Color Depth	8/10/12-bit
HDR Formats	HDR, HDR10, HDR10+, Dolby Vision, HLG
HDMI Audio Formats	LPCM 2.0 / 5.1 / 7.1 (32K–192KHz, 16/20/24-bit); Dolby Digital, Dolby Digital Plus, Dolby TrueHD, Dolby Atmos; DTS Surround, 96/24, ES, DTS Express, DTS-HD HRA, DTS HD Master, DTS:X
Transmission Distance	150m/492ft for 1080p; 120m/394ft for 4K@60Hz; 90m/295ft for 8K@30Hz over CAT6 cable
ESD Protection	IEC 61000-4-2: ±8kV (Air-gap) & ±4kV (Contact)
Connections (Transmitter)	1× HDMI IN (Type A, 19-pin), 1× HDBT OUT (RJ45, 8-pin), 1× IR IN, 1× IR OUT (3.5mm stereo), 1× RS-232 (3-pin phoenix), 1× SERVICE (USB Type C)
Connections (Receiver)	1× HDBT IN (RJ45, 8-pin), 1× HDMI OUT (Type A, 19-pin), 1× IR IN, 1× IR OUT (3.5mm stereo), 1× RS-232 (3-pin phoenix), 1× SERVICE (USB Type C)
Mechanical	
Housing	Metal enclosure
Color	Black
Dimensions (L×W×H)	5.5in × 2.6in × 0.71in / 140mm × 65mm × 18mm
Weight	0.53 lbs [240g] (Transmitter/Receiver)
Power Supply	DC 24V/1A; Supports bi-directional PoC
Power Consumption	Transmitter: 11.28W; Receiver: 10.8W



Operating Temperature	32°F ~ 104°F / 0°C ~ 40°C
Storage Temperature	-4°F ~ 140°F / -20°C ~ 60°C
Operating Humidity	20%~80% (non-condensing)
Storage Humidity	10%~90% (non-condensing)

Supported Resolutions

Resolution	Resolution	Resolution
480i60Hz	1280x800p60/75/85/120Hz	3840x2160p24/25/30/50/60/100/120Hz
480p60Hz	1280x960p60/85Hz	3840x2160p24/25/30/50/60Hz
576i50Hz	1280x1024p60/75/85/96Hz	4096x2160p24/25/30/50/60/100/120Hz
576p50Hz	1360x768p60Hz	4096x2160p23.976/24/25/30/50/59.94/60Hz
720x480p60Hz	1366x768p60/24/25/30Hz	5120x2160p30/59/60Hz
720x576p50Hz	1400x788p60Hz	5120x2160p75/100Hz
720p50/60/24/25/30Hz	1400x1050p60Hz	7680x4320p24/25/30Hz
720x720p24/25/30/50/60/100/120Hz	1440x900p60/75/85Hz	1920x2160p60Hz
1080i50/60Hz	1440x960p50/60(RB)	2560x1080p24/25/30/50/60Hz
1080p24/25/30/50/60/100/120Hz	1600x900p60/24/25/30Hz	2560x1440p60(RB)
1920x1080p120/100/60/50/24/25/30Hz	1600x1024p60/24/25/30Hz	2560x1600p60/75/85/60(RB)
1920x1200p50/60Hz	1600x1200p50/60/65/70/75/85/24/25/30Hz	2560x2048p60Hz
1920x1440p60/75Hz	1680x720p24/25/30/50/60/100/120Hz	3440x1440p60Hz
1680x1050p50/60/24/25/30Hz	1680x1050p50/60/24/25/30Hz	1856x1392p60/75Hz

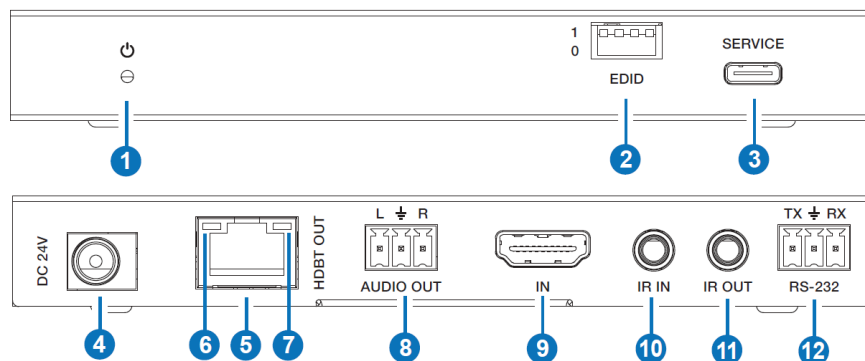


1792x1344p60/75Hz	1920x1080i60/50/i30Hz	1920x1200p50/60Hz
1152x864p75Hz	1152x870p75Hz	1024x768p60/70/75/85Hz
852x480p60Hz	848x480p60Hz	1024x576p60Hz
832x624p75Hz	720x400p70/85Hz	640x480p59.94/60/67/72/75/85Hz
640x350p85Hz	640x400p85Hz	-



Operation Controls and Functions

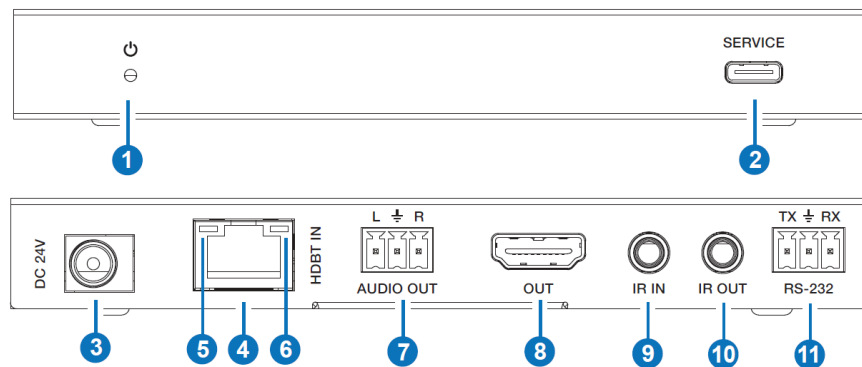
Transmitter Panel



No.	Name	Function Description
1	PWR LED	The green LED is on when the Transmitter is powered on.
2	EDID DIP switch	Used for EDID setting. EDID setting list is shown as follow.
3	SERVICE	USB-C port, used to debug serial and update firmware.
4	DC 24V	DC 24V/1A power input port. Note: the extender supports POC function, meaning that either the Transmitter or Receiver is connected to 24V/1A power supply, the other doesn't need power.
5	HDBT OUT	HDBT output port, connected to the HDBT IN port of the Receiver with CAT6 cable.
6	Link Signal Indicator (Green)	On: Transmitter and Receiver are connected and linked. Off: Transmitter and Receiver are not connected.
7	Data Signal Indicator (Yellow)	On: HDMI signal with HDCP. Flashing: HDMI signal without HDCP. Off: No HDMI signal.
8	AUDIO OUT (L/R)	Analog audio output port, supporting unbalanced audio output with a maximum of 1Vrms. Unbalanced connection method: L+, R+.
9	HDMI IN	HDMI signal input port, connected to source device with HDMI cable.
10	IR IN	Connects to IR receiver cable. The IR signal will be emitted to the IR OUT port of the Receiver.
11	IR OUT	Connects to IR blaster cable. The IR signal is from the IR IN port of the Receiver.
12	RS-232	3-pin phoenix connector, connected to a PC or control system for RS-232 command transmission.



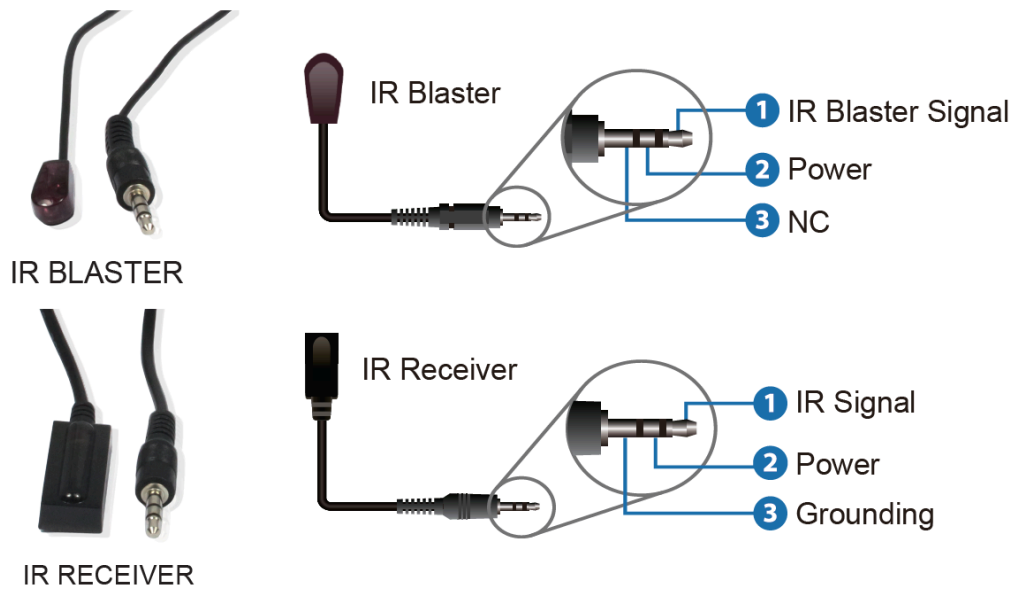
Receiver Panel



No.	Name	Function Description
1	PWR LED	The green LED is on when the Receiver is powered on.
2	SERVICE	USB-C port, used to debug serial and update firmware.
3	DC 24V	DC 24V/1A power input port. Note: the extender supports POC function, meaning that either the Transmitter or Receiver is connected to 24V/1A power supply, the other doesn't need power.
4	HDBT IN	HDBT input port, connected to the HDBT OUT port of the Transmitter with CAT6 cable.
5	Link Signal Indicator (Green)	On: Transmitter and Receiver are connected and linked. Off: Transmitter and Receiver are not connected.
6	Data Signal Indicator (Yellow)	On: HDMI signal with HDCP. Flashing: HDMI signal without HDCP. Off: No HDMI signal.
7	AUDIO OUT (L/R)	Analog audio output port, supporting unbalanced audio output with a maximum of 1Vrms. Unbalanced connection method: L+, R+.
8	HDMI OUT	HDMI signal output port, connected to display device such as TV or monitor with HDMI cable.
9	IR IN	Connects to IR receiver cable. The IR signal will be emitted to the IR OUT port of the Transmitter.
10	IR OUT	Connects to IR blaster cable. The IR signal is from the IR IN port of the Transmitter.
11	RS-232	3-pin phoenix connector, connected to a PC or control system for RS-232 command transmission.



IR Pin Definition



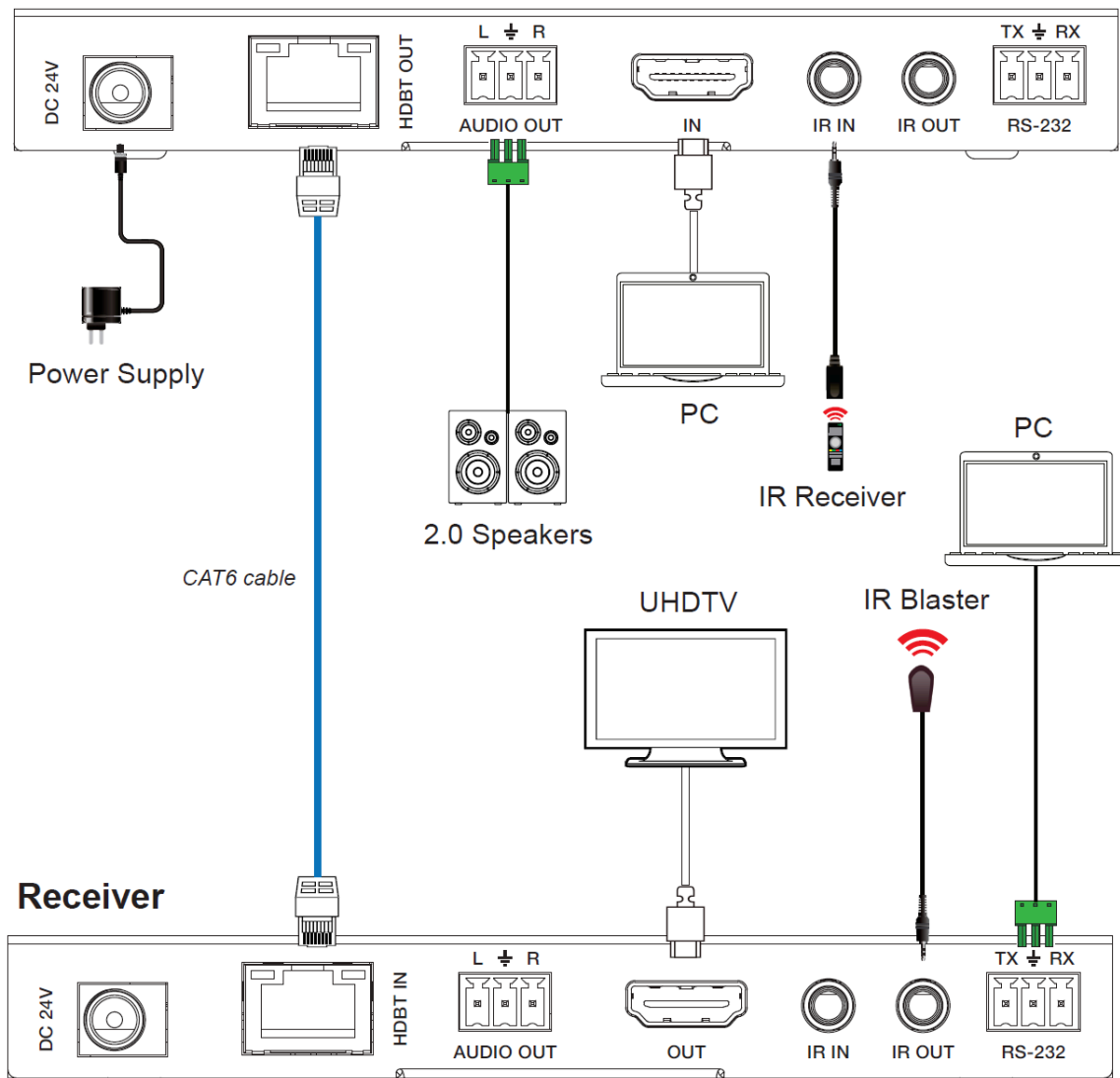
Note:

- When the angle between the IR receiver and the remote control is within $\pm 45^\circ$, the effective transmission distance is 0–5 meters.
- When the angle is within $\pm 90^\circ$, the effective transmission distance is 0–8 meters



Connection Diagram

Transmitter





Troubleshooting

Problems	Causes	Solutions
No Power / All LED off	Power supply not connected, connected fully, or wrong power supply.	Check if the power supply is connected correctly and the output voltage value is within recommended specifications.
No sound or sound issues	The HDMI connection is faulty, the audio format is not supported by the displays, or the source player is set to another port for audio output	Check if the HDMI cables are connected correctly. Check if the audio format is supported by the display and that a user has not changed the supported audio format on the player's audio output. Ensure output settings from the HDMI source device as set correctly.
No picture or picture flickers	The HDMI cable may be faulty or the category cable quality is faulty.	Check if the HDMI and category cable connections are correct and undamaged. Change to another good working HDMI cable or category cable (CAT6 or better cable is recommended).



Tech Support

Have technical questions? We may have answered them already!

Please visit BZBGear's support page (bzbgear.com/support) for helpful information and tips regarding our products. Here you will find our Knowledge Base (bzbgear.com/knowledge-base) with detailed tutorials, quick start guides, and step-by-step troubleshooting instructions. Or explore our YouTube channel, BZB TV (youtube.com/c/BZBTVchannel), for help setting up, configuring, and other helpful how-to videos about our gear.

Need more in-depth support? Connect with one of our technical specialists directly:

Phone

1.888.499.9906

Email

support@bzbgear.com

Live Chat

bzbgear.com

Limited Product Warranty Terms

Pro Line: 5-year warranty from the date of purchase for AV/Broadcasting products bought on or after August 1, 2024.

Essential Line: 3-year warranty from the date of purchase for AV/Broadcasting products bought on or after August 1, 2024.

Cables: Lifetime Limited Product Warranty.

For complete warranty information, please visit bzbgear.com/warranty.

For questions, please call 1.888.499.9906 or email support@bzbgear.com.



Mission Statement

BZBGear is a breakthrough manufacturer of high-quality, innovative audiovisual equipment ranging from AVoIP, professional broadcasting, conferencing, home theater, to live streaming solutions. We pride ourselves on unparalleled customer support and services. Our team offers system design consultation, and highly reviewed technical support for all the products in our catalog. BZBGear delivers quality products designed with users in mind.

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