



BG-USX-WP150HC

**4K UHD 18Gbps HDMI/USB-C Switcher & HDBaseT 3.0 Extender Kit
with Auto Switching/Bi-Directional PoC/IR/RS-232
and Audio De-Embedding up to 492ft**

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

BG-USX-WP150HC is a professional-grade 2×1 HDBaseT extension system designed to transmit high-bandwidth HDMI and USB-C video signals over long distances using a single CAT6/6A cable. The wall-plate transmitter supports dual inputs—1× HDMI and 1× USB-C—with resolutions up to 4K2K@60Hz (4:4:4) and full 18Gbps bandwidth, ensuring compatibility with modern high-resolution video sources, including HDR formats such as HDR10, HDR10+, Dolby Vision, and HLG. The system is compliant with HDMI 2.0b and HDCP 2.2 standards, providing secure and reliable signal transmission for commercial and residential AV environments.

The extender supports transmission distances of up to 120m (394ft) for 4K60 signals and up to 150m (492ft) for 1080p over HDBaseT, making it suitable for large-scale installations such as classrooms, conference rooms, and control centers. It features bi-directional PoC (Power over Cable), allowing either the transmitter or receiver to power the entire system, as well as bi-directional IR and RS-232 pass-through for flexible remote control integration. Additional functionality includes auto and manual input switching, CEC control support, and analog audio de-embedding at the receiver, ensuring seamless integration into complex AV distribution systems.

Features

- **HDMI 2.0b & HDCP 2.2 Compliance:** Ensures secure, high-quality transmission of modern protected HDMI content with full compatibility for professional AV systems.
- **4K60 4:4:4 Video Support:** Delivers ultra-high-definition video up to 4K2K@60Hz with full 4:4:4 chroma sampling for maximum image clarity and color accuracy.
- **Dual Input Wall Plate Transmitter:** Provides 1× HDMI and 1× USB-C inputs in a 1-gang wall plate design for flexible source connectivity.
- **18Gbps High Bandwidth Processing:** Supports full HDMI 2.0 bandwidth for uncompressed video performance and high-fidelity signal transmission.
- **Long-Distance HDBaseT Transmission:** Extends signals up to 120m for 4K or 150m for 1080p over a single CAT6/6A cable.
- **Auto & Manual Input Switching:** Enables seamless switching between HDMI and USB-C sources via button control or automatic signal detection.
- **Bi-directional PoC Support:** Allows power to be supplied from either transmitter or receiver, reducing installation complexity and cabling requirements.
- **Bi-directional IR Pass-through:** Supports remote control of source and display devices using IR signal extension in both directions.
- **RS-232 Control Extension:** Enables full serial command pass-through for integration with third-party control systems.
- **CEC Control Support:** Allows connected HDMI devices to communicate and be controlled through HDMI CEC commands.
- **HDR Format Support:** Compatible with HDR10, HDR10+, Dolby Vision, and HLG for enhanced dynamic range and color performance.



- **Audio De-embedding Output:** Provides analog audio extraction via 3.5mm output on the receiver for integration with external audio systems.
- **Wide Audio Format Compatibility:** Supports LPCM up to 7.1 channels and advanced formats including Dolby TrueHD and DTS-HD Master Audio.
- **Low Power & Efficient Design:** Optimized power consumption with compact hardware suitable for continuous professional operation.

Packing List

- 1× 4K60 2x1 HDBaseT Extender (Transmitter, Wall Plate Unit)
- 1× 18Gbps HDBaseT Extender (Receiver Unit) (included in full kit version)
- 1× 24V/1A Multinational Power Supply
- 1× IR Blaster Cable (1.5m) (Receiver kit only)
- 1× IR Wideband Receiver Cable (1.5m) (Receiver kit only)
- 1× 2-pin 3.5mm Phoenix Connector (Male)
- 2× 3-pin 3.5mm Phoenix Connector (Male)
- 1× 3-pin 3.81mm Phoenix Connector (Male) (Receiver kit only)
- 2× Mounting Ears (Receiver kit only)
- 4× Machine Screws (KM3×4) (Receiver kit only)
- 1× User Manual



Specifications

TECHNICAL SPECIFICATIONS	
HDMI Compliance	HDMI 2.0b
HDCP Compliance	HDCP 2.2
Video Bandwidth	18Gbps
Maximum Video Resolution	Up to 4K2K@60Hz (4:4:4), supports 1080p and PC resolutions up to 1920×1200
Color Depth	8-bit / 10-bit / 12-bit
Color Space	RGB, YCbCr 4:4:4 / 4:2:2 / 4:2:0
HDR Support	HDR, HDR10, HDR10+, Dolby Vision, HLG
HDMI Audio Formats	LPCM 2.0–7.1, Dolby Digital, Dolby Digital Plus, Dolby TrueHD, DTS-ES, DTS-HD HRA, DTS-HD Master Audio, DTS-X
Analog Audio Output	LPCM 2.0CH (via receiver 3.5mm output)
IR Frequency Range	20–60kHz (wideband)
IR Level	5Vp-p
Transmission Distance	Up to 120m (4K@60Hz), up to 150m (1080p) over CAT6/6A
ESD Protection	IEC 61000-4-2: ±8kV air discharge, ±4kV contact discharge
INTERFACES (TRANSMITTER)	
HDMI Input	1× HDMI Type-A (Female), up to 4K60
USB-C Input	1× USB-C (video input support up to 4K60)
HDBaseT Output	1× RJ45 port
RS-232	1× 3-pin Phoenix connector
IR Input	1× 3-pin Phoenix connector
IR Output	1× 2-pin Phoenix connector
DC Power Input	24V/1A
PoC Switch	ON/OFF selectable bi-directional PoC

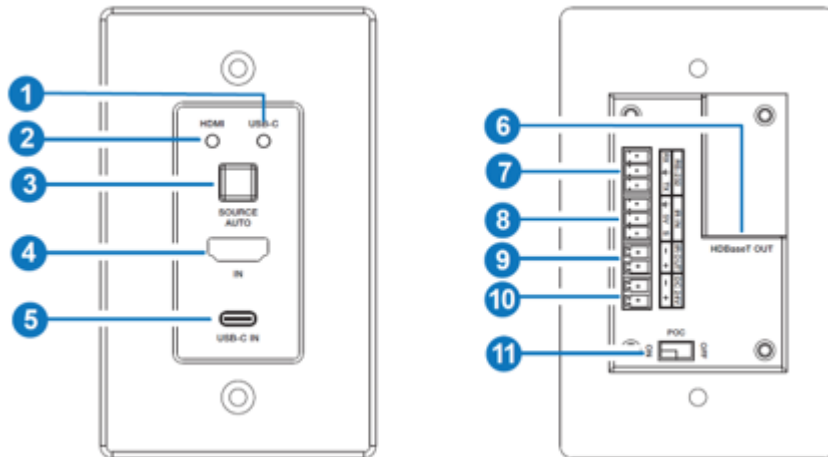


INTERFACES (RECEIVER)	
HDBaseT Input	1× RJ45 port
HDMI Output	1× HDMI Type-A (Female)
Audio Output	1× 3.5mm stereo jack (analog de-embedded audio)
IR Input	1× 3.5mm stereo jack
IR Output	1× 3.5mm stereo jack
RS-232	1× 3-pin Phoenix connector
Service Port	1× Mini-USB (firmware update)
DC Power Input	24V/1A
HARDWARE SPECIFICATIONS	
Housing	Metal enclosure
Transmitter Dimensions	69.8 × 39 × 114 mm
Receiver Dimensions	140 × 65 × 18 mm
Transmitter Weight	203 g
Receiver Weight	155 g
Color	Transmitter: White + Black / Receiver: Black
POWER SPECIFICATIONS	
Power Supply	AC 100–240V, 50/60Hz to DC 24V/1A
Power Consumption (TX)	Max 4.5W
Power Consumption (RX)	Max 4.7W
PoC Support	Bi-directional Power over Cable
ENVIRONMENTAL SPECIFICATIONS	
Operating Temperature	0°C to 40°C (32°F to 104°F)
Storage Temperature	-20°C to 60°C (-4°F to 140°F)
Operating Humidity	20%–80% RH non-condensing
Storage Humidity	10%–90% RH non-condensing



Operation Controls and Functions

Transmitter Panel (Wall Plate Unit)



1. USB-C LED

Indicates USB-C input is currently selected as the active source (green LED ON).

2. HDMI LED

Indicates HDMI input is currently selected as the active source (green LED ON).

3. SOURCE / AUTO Button & Indicator

Used to switch between HDMI and USB-C inputs manually. Long press (3 seconds) toggles Auto Switching mode. Blue indicator ON confirms Auto mode is active.

4. HDMI IN

HDMI Type-A input port supporting video signals up to 4K@60Hz (4:4:4).

5. USB-C IN

USB-C input port supporting video input up to 4K@60Hz (Alt Mode compatible sources).

6. HDBaseT OUT

RJ45 output port that connects to the receiver via CAT6/6A cable for AV extension.

7. RS-232 Port

3-pin Phoenix connector for RS-232 pass-through control signals between transmitter and receiver.

8. IR IN

3-pin Phoenix connector for receiving IR control signals from an external IR receiver.



9. IR OUT

2-pin Phoenix connector used to send IR control signals to source devices.

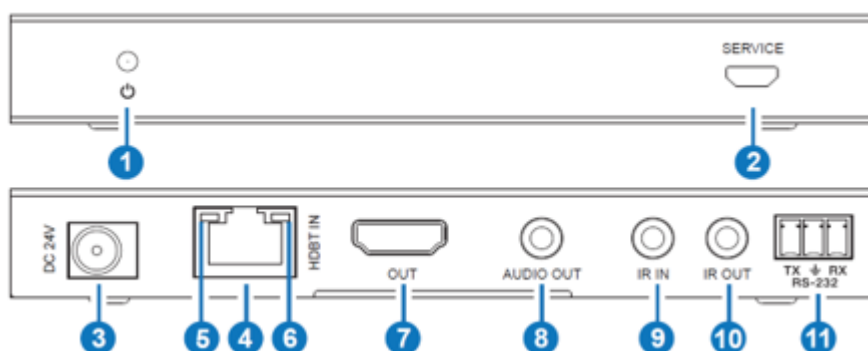
10. DC 24V Power Input

Connects the 24V/1A power supply. Supports PoC operation so only one side requires power.

11. PoC ON/OFF Switch

Enables or disables Power over Cable functionality. When OFF, local power must be supplied directly to the transmitter.

Receiver Panel



1. Power LED

Red LED indicates the receiver is powered on.

2. SERVICE Port (Mini-USB)

Used for firmware updates and service maintenance.

3. DC 24V Power Input

Connects to the 24V/1A power supply. Required if PoC is not enabled.

4. HDBaseT IN (RJ45)

Receives AV, control, and power signals from the transmitter over CAT6/6A cable.

5. Link Status LED

- Solid ON: Stable connection between transmitter and receiver
- Flashing: Weak or unstable link
- OFF: No HDBaseT connection detected

6. Video Signal LED

- Solid ON: HDMI signal with HDCP detected
- Flashing: HDMI signal without HDCP
- OFF: No HDMI signal detected

**7. HDMI OUT**

HDMI Type-A output port for connecting to display devices (supports up to 4K60).

8. AUDIO OUT

3.5mm stereo analog output for de-embedded audio from HDMI source.

9. IR IN

3.5mm jack for receiving IR signals from external IR receiver.

10. IR OUT

3.5mm jack for sending IR control signals to display devices.

11. RS-232 Port

3-pin Phoenix connector for serial control pass-through between transmitter and receiver.



IR Pin Definition – BG-USX-WP150HC

The IR system of this extender uses **3.5mm and Phoenix connectors** for IR signal transmission and control. It supports both IR receiver (input) and IR blaster (output) operation with wideband compatibility.

IR Receiver (IR IN) Pin Definition

Used for receiving IR signals from a remote control via an external IR receiver cable.

Pin	Signal
Tip	IR Signal
Ring	+5V DC
Sleeve	Ground (GND)

IR Blaster (IR OUT) Pin Definition

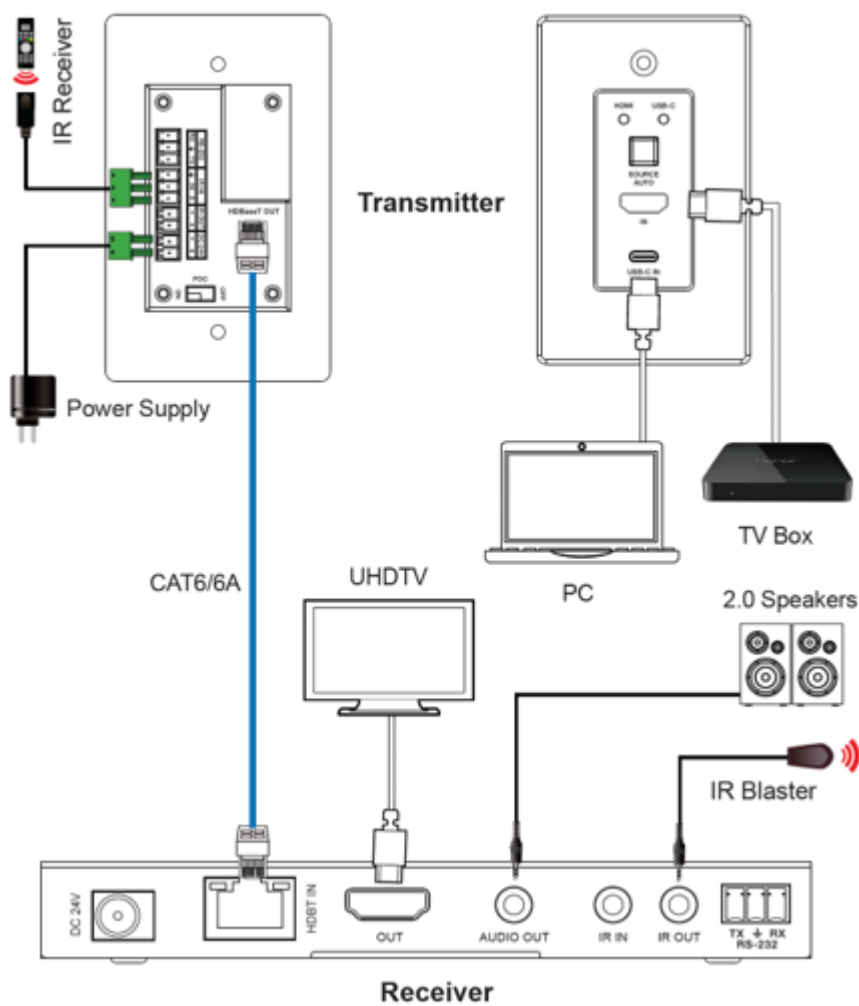
Used for transmitting IR signals to control source or display devices via an IR emitter cable.

Pin	Signal
Tip	IR Signal
Sleeve	Ground (GND)

Notes

- IR frequency range: **20–60kHz (wideband support)**
- Effective IR range depends on environment and alignment:
 - Up to **5m at ±45° angle**
 - Up to **8m at ±90° angle**
- Ensure correct orientation of IR emitter when attaching to controlled devices for optimal performance.

Connection Diagram





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	Email	Live Chat
1.888.499.9906	support@bzbgear.com	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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