

## BG-IPGEAR-ULTRA

4K UHD HDMI 2.0 OVER IP MULTICAST TRANSCEIVER WITH SEAMLESS MATRIX SWITCHING/VIDEO WALL/MULTIVIEW/KVM/USB 2.0/POE SUPPORT

Introducing the BG-IPGEAR-ULTRA 4K60Hz advanced AVoIP kit. Key features of the BG-IPGEAR-ULTRA series include HDMI 2.0b and HDCP 2.2 compliance, support for video resolutions up to 4K60Hz (4:4:4), and a video bandwidth of 18Gbps. Audio formats support LPCM 2.0CH at 48kHz. The integrated design of the encoder and decoder supports both fiber and copper connections, with a window roaming function that allows a decoder unit to process up to 16 signals for arbitrary windowing, roaming, overlaying, and splicing. The system supports KVM seat management, universal H.264/265 protocol, high-definition background images, multi-screen splicing, scrolling subtitles, character overlay, point-to-point signal extension, signal distribution, multicast mode, matrix, and video wall functions over a 1G Network Switch.

It also features integrated central control over RS-232, APP control on portable devices, user rights management, flexible control via KVM, APP, and Control Server, and standard POE support (802.3af Class 3, PD mode). The encoder supports HDMI local loop-out and audio embedding and de-embedding functions, along with comprehensive visual interaction modes, signal source, large screen status, scene preview, and environmental visualization control.



## FEATURES



### TRUE ALL-IN-ONE MULTICAST TRANSCEIVER

Set as both encoder and decoder, simplifying inventory and enabling dynamic source/destination roles



### 4K@60HZ VIDEO

Native 4K @ 60 Hz HDMI Input with 4:4:4 Color (HDMI 2.0b / HDCP 2.2) — up to 18 Gbps bandwidth ensures uncompressed, full-color fidelity for high-end applications



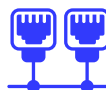
### BUILT-IN SCALER / VIDEO WALL PROCESSOR

Supports window roaming: a unit set as an encoder can process up to 16 signals, enabling arbitrary splicing, overlay, scrolling text, background images, multi-screen splicing, and multiview layouts



### KVM FUNCTIONALITY VIA USB TYPE C PORTS

Full KVM functionality with USB seat-management (one-to-one or one-to-many) over IP (up to USB 2.0)



### POINT TO MANY EXTENSION VIA CAT-5E/6 COPPER OR FIBER FOR SEAMLESS MATRIX SWITCHING & MULTICAST

Extend UHD video up to 100 m (328 ft) via 1G switches; supports PoE 802.3af Class 3 for single-cable deployment flexible for live routing, video walls, and multiview distribution



### CUSTOM MULTIVIEW CAPABILITIES

Design powerful custom multiview layouts on independent outputs, supporting up to 16 input signals with the ability to crop, stretch, and layer sources individually



The BG-IPGEAR-ULTRA transceiver is a versatile AV over IP solution that offers exceptional audio and video quality with ultra-low latency. It supports both fiber and copper connections, automatically prioritizing copper for seamless switching. Capable of extending audio and video signals over a standard 1G network switch, it reaches distances up to 328 ft/100 m. The transceiver enhances its functionality with seamless switching, video wall capabilities, multiview options, and KVM seat management. Its flexible design allows it to function as either an encoder or a decoder, simplifying installation and inventory management.

When configured as an encoder, the BG-IPGEAR-ULTRA supports one HDMI 2.0 input and one HDMI loop-out, along with analog audio embedding and de-embedding. In decoder mode, it provides one HDMI 2.0 output with analog audio de-embedding. Additionally, the encoder supports an H.264 video preview stream, making it a comprehensive solution for various AV needs.



## Universal H.264/265 protocol

Supporting IPC access and seamless integration with various video preview streams

## Web GUI / App-Based Control

Web UI plus BZBGear Switcher-Control App (Windows, macOS, iOS, Android) with drag-and-drop matrix, rights management, and scene preview

## Ultra-Low Latency Transmission

Under 1 frame (<33 ms) latency ensures real-time control for live switching and KVM management

## Audio Embedding / De-Embedding

Supports LPCM stereo analog in/out and surround audio through HDMI for clean soundtrack integration

## Additional Control Channels

IR pass-through, RS-232 control, EDID management, system updates — ideal for integration with AV control systems

## Reliable & Secure Design

TAA compliant, HDCP 2.2 support, password-protected interfaces, and ESD-rated metal enclosure with wall/rack mounting options

## HDMI Local Loop-Out

The encoder supports HDMI local loop-out for additional display needs

## User & Installer Benefits:

- Auto-discovery via controller simplifies configuration
- Supports up to 1,023 multicast groups



## TECH SPECIFICATIONS

### Technical

HDMI Compliance	HDMI 2.0b
HDCP Compliance	HDCP 2.2
Video Compression Standard	H.264/H.265
Video Bandwidth	18Gbps
Network Port	1000M Base-T (supporting POE)
Video Resolution	1024x768 ~ 3840x2160@60Hz (Note: The decoder supports custom resolution output.)
Color Space	RGB 4:4:4, YCbCr 4:4:4/4:2:2/4:2:0
Color Depth	8/10/12-bit
Encoding Sampling Rate	48KHz
HDMI Audio Formats	LPCM 2.0CH, 16-bit, 48k
Analog Audio Formats	Left and right stereo analog audio
ESD Protection	Human-body Model: ±8kV (Air-gap discharge), ±4kV (Contact discharge)

### Connection

Input	1x HDMI IN [Type A, 19-pin female] 2x AUDIO IN [3-pin phoenix connector, stereo balanced linear interface]
Output	1x HDMI OUT [Type A, 19-pin female] 2x AUDIO OUT [3-pin phoenix connector, stereo balanced linear interface]
Control	1x LAN (POE) [RJ45, supporting POE] 1x RS-232 [3-pin phoenix connector] 1x USB HOST [Type B, 4-pin female] 2x USB DEVICE [Type A, 4-pin female] 1 x SFP [Fiber slot]

### Mechanical

Housing	Metal Enclosure
Color	Black
Dimensions (WxDxH)	8in x 5.2in x 1.2in [204mm x 131.5mm x 30mm]
Weight	1.7 lbs [760g]
Power Supply	Input: AC 100 - 240V 50/60Hz; Output: DC 12V/2.5A (US/EU standards, CE/FCC/UL certified)
Power Consumption	Encoder: 10.22W; Decoder: 7.04W
Operating Temperature	32° - 104°F / 0° - 40°C
Storage Temperature	-4° - 140°F / -20° - 60°C
Relative Humidity	20 - 90% RH (no condensation)

## 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](http://bzbgear.com/warranty).

For questions, please call 1.888.499.9906 or email [support@bzbgear.com](mailto:support@bzbgear.com).

Pro Line Products  
**5-YEAR WARRANTY**

Essential Line Products  
**3-YEAR WARRANTY**

Cables Products  
**LIFETIME WARRANTY**





## FRONT PANEL



1	OLED display screen	The name and IP address of the device will be displayed after the device is turned on. The screen will go off after 90 seconds.
2	ENCODER LED	When the device is in Encoder mode, the green ENC LED is on.
3	DECODER LED	When the device is in Decoder mode, the green DEC LED is on.
4	NETWORK LED	When the network is connected normally, the green LINK LED flashes.
5	SPEED	Network connection rate indicator: When the device is connected to a 100M network, the yellow the indicator is on. When the device is connected to a 1000M network, the green the indicator is on.
6	STATUS LED	When the system is running normally and no fault occurs, the green LED is on. When the device is in standby mode, the green LED is on. When a fault occurs while the system is running, the green LED flashes at a frequency of 1Hz.
7	POWER LED	When the device is working normally, the green POWER LED is on. When the device is in standby mode or powered off, the green POWER LED is off.
8	POWER button	The power button supports power-off memory function. When the device is working normally, power off and power on the device again, it will enter the system directly and work normally. When the device is in standby mode, power off and power on the device again, it will enter the standby mode automatically. Then short press the power button to turn on the device. When the device is working normally, short press the power button to view the current encoder/decoder mode and IP address on the OLED display screen; press and hold the power button for more than 2 seconds to turn off the device.

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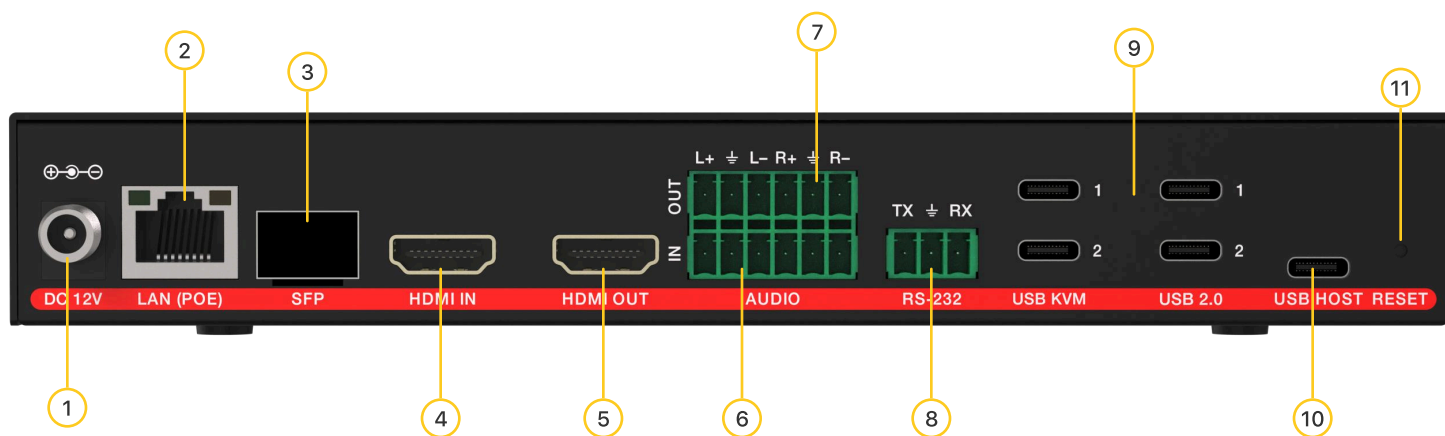
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# INTERFACES



1	DC 12V	DC 12V/2.5A power input port. <b>Note:</b> The device can be powered via two methods: 1. Local DC 12V power supply 2. POE from Network Switch. Device acts as PD mode. When the two power supply modes are used at the same time, the local DC 12V power supply is preferred.
2	LAN (POE) port	G copper port, supporting POE power supply.
3	SFP port	1G fiber port, connected to Switch for video transmission.
4	HDMI IN port	HDMI signal input port, connected to HDMI signal source device such as PC or PS4 with HDMI cable.
5	HDMI OUT port	HDMI signal output port, connected to HDMI display device such as TV or monitor with HDMI cable.
6	AUDIO IN port	Stereo balanced line input port, connected to audio source device through 6pin-3.81mm Phoenix connector.
7	AUDIO OUT port	Stereo balanced line output port, connected to audio amplifier device through 6pin-3.81mm phoenix connector.
8	RS-232 port	RS-232 serial port, relay RS-232 command transmission from the Control Server.
9	USB DEVICE	USB device ports, connected to keyboard and mouse in DEC mode.
10	USB HOST	USB Host port, connected to computer in ENC mode.
11	RESET button	System reset button. <ul style="list-style-type: none"> <li>Long press this button for 5 seconds and reboot the device manually, the system will be restored to the factory default setting.</li> <li>Long press this button for 15 seconds, the software will be restored to the factory default version.</li> </ul>

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