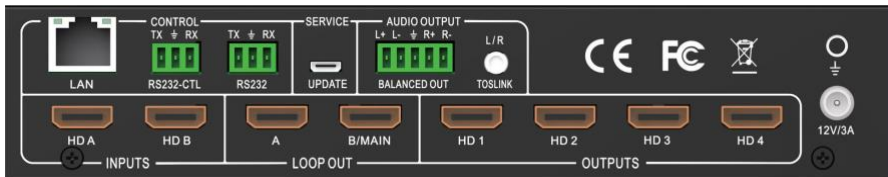# BG-UHD-VW24
Ultra HD Video Wall Processor

User Manual

Thank you for purchasing the BG-UHD-VW24

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

Surge Protection Recommendation

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

Table of Contents

1. Introduction

The BG-UHD-VW24 is a HDMI 2.0 Video Wall controller with 2 HDMI inputs, 2 HDMI loop outs and 4 HDMI scaling outputs for video wall processing. The 5-pin phoenix connector provides balanced L/R audio output. The product also features PC Tool or RS232 commands to control the product for different wall displays.

2. Features

☆ HDMI 2.0 and HDCP 2.2 compliant
☆ Supports resolutions up to 3840x2160@60Hz video output for video wall
☆ 2 channels HDMI loop out
☆ Bezel Compensation with two modes
☆ 180° display rotation
☆ PIP on video wall
☆ RS-232 and TCP/IP control
☆ CEC control of displays via PC Tool or commands

3. Package Contents

① 1 x Ultra HD Video Wall Processor
② 1 x 12V/3A Power Adapter
③ 1 x 5-pin Phoenix Connector
④ 2 x 3-pin Phoenix Connector
⑤ 1x RS232 to Phoenix Cable
⑥ 1x CAT6 cable
⑦ 1x USB to RS232 Cable
⑧ 1x User Manual

4. Specifications

| Technical	
HDMI Compliance	HDMI 2.0
HDCP Compliance	HDCP 2.2/1.4
RS-232	Baud rate: 57600, data bit: 8, Stop bit: 1, no parity
Input Video Formats	4096x2160p 24/25/30/50/60Hz 3840x2160p 24/25/30/50/60Hz 1080p 24/25/30/50/60Hz 1080i 50/60Hz 1920x1200 60Hz 1680x1050 60Hz 1600x1200 60Hz 1440x900 60Hz
	1400x1050 60Hz 1366x768 60Hz 1360x768 60Hz 1280x1024 60Hz 1280x960 60Hz 1280x800 60Hz 1024x768 60Hz 1280x720p50/60Hz
Audio Format	2.0 channel, 5.1 channel, LPCM, Dolby, AC3, DTS
ESD Protection	Human-body Model: ±8kV (Air-gap discharge) , ±4kV (Contact discharge)
Mechanical	
Housing	Metal Enclosure
Color	Black
Dimensions	218mm (W)×146mm (D)×43mm (H)
Weight	2Kg
Supply Voltage	+12V/3A
Power Consumption	25W (Max)
Operating Temperature	0°C ~ 40°C / 32°F ~ 104°F
Storage Temperature	-20°C ~ 70°C / -4°F ~ 158°F
Relative Humidity	10%~50% RH (non-condensing)

5. Operation Controls and Functions

Front Panel
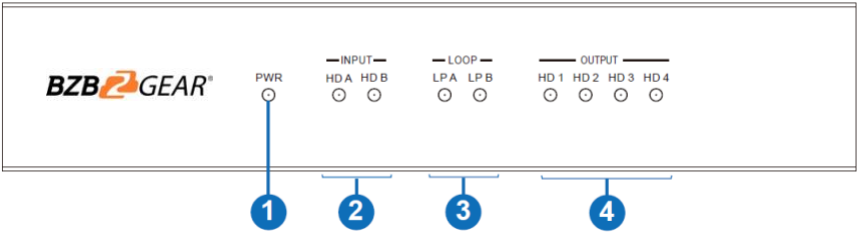
| No.	Name	Function Description
1	Power LED	The power LED will illuminate when the unit is powered on.
2	INPUT LED	The LED will illuminate when the corresponding HDMI input port is connected to an active HDMI source device.
3	LOOP LED	The LED will illuminate when the corresponding LOOP OUT port is connected to an HDMI display device.
4	OUTPUT LED	The LED will illuminate when the corresponding HDMI output port is connected to an HDMI display device.

Rear Panel
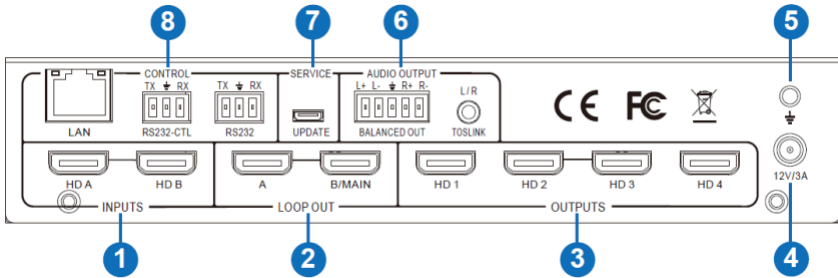
No.	Name	Function Description
1	INPUTS	Connect HDMI source devices such as a DVD player or gaming console with an HDMI cable.
2	LOOP OUT	HDMI loop out ports. Loop out the HDMI A/B signal for devices connected to each output.
3	OUTPUTS	HDMI output for video walls.
4	12V/3A	DC 12V/3A power supply port.
5	GND	Ground the product housing.

6	AUDIO OUTPUT	• Analog L/R audio output 3.5mm Stereo Jack. 20Hz ~ 20kHz, 1.5Vrms max
		BALANCED OUT: Balanced audio output port. 5-pin phoenix connector, 20Hz ~ 20kHz, 1.5Vrms max.
7	SERVICE	Firmware update port.
8	CONTROL	RS232: Loop out RS232-CTL control command.
		RS232-CTL: External RS232 control, Baud Rate: 57600 Data Bits:8, Parity: None Stop Bits:1
		LAN: Network port for TCP/IP control. Connect to an active Ethernet link with an RJ45 cable.

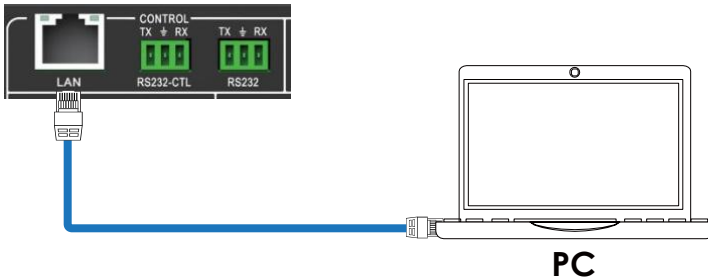# 6. RS232/LAN Control Connection

6.1 RS232 Control Connection

The product supports RS232 control. Connect the RS232-CTL port of the product to a PC via a USB serial cable as shown in the following figure:
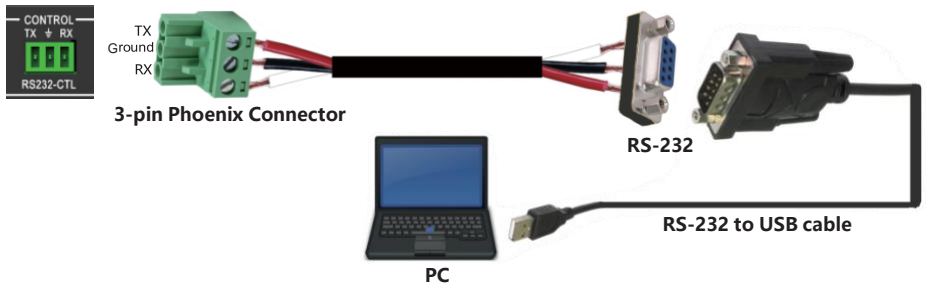

6.2 Network Control Connection

The product also supports network control. Connect from the LAN port of the product to a PC using a UTP cable as shown in image below:

7. PC Tool User Guide

The PC Tool control software supports both UART and networkcontrol. PC Tool consists of five parts: Matrix Switch, Signal Setting, Fine Tune: PQ, Video Wall and CEC Control. The UI is as follows:
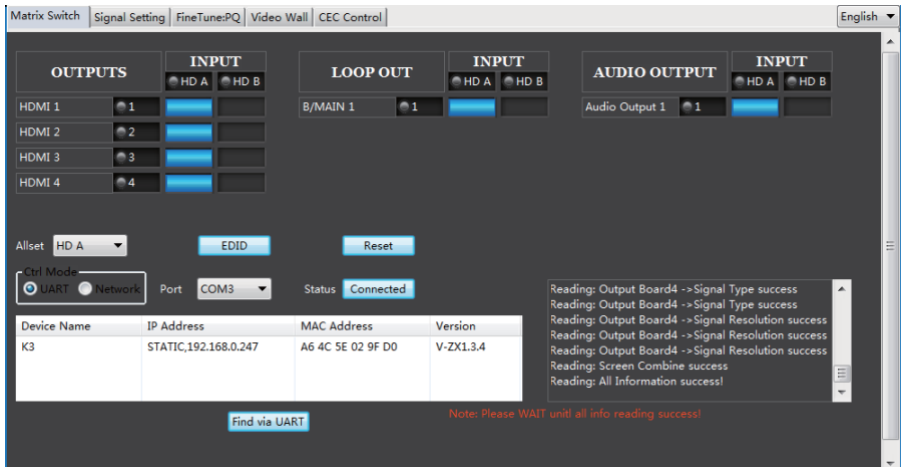
■ Matrix Switch Tab

1. Select **UART** (with RS232 cable) or **Network** to connect to the device. Baud rate is 57600 bps.
1. Select an input source for each output.
2. "AllSet" function: Apply input HD A or B to all outputs.
3. Select the input source for B/MAIN output.
4. Select the audio source for balanced audio output and 3.5mm output.
5. Reset: Resets the device to factory settings.
6. EDID Control: Clicking the 'EDID' button will open the below EDID control window:
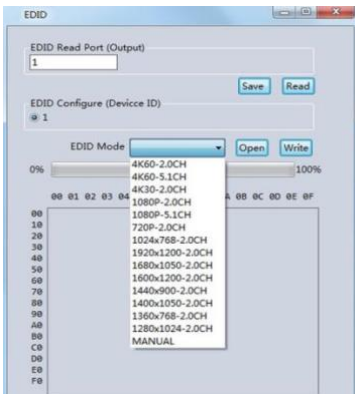
a) Read the EDID information for devices connected to each output and save as a BIN file.

b) Open an existing EDID file and write to the HDMI A and B input port as Manual EDID.

c) Select the predefined EDID file and write to the HDMI A and B input

The available predefined EDID options:

4K60-2.0CH	1920x1200-2.0CH
4K60-5.1CH	1680x1050-2.0CH
4K30-2.0CH	1600x1200-2.0CH
4K30-5.1CH	1440x900-2.0CH
1080P-2.0CH	1400x1050-2.0CH
1080P-5.1CH	1360x768-2.0CH
720P-2.0CH	1280x1024-2.0CH
1024x768-2.0CH	Manual

■ Signal Setting Tab

The resolution of each input can be read to configure the resolution of each output.

Available output resolutions:

No.	Output Resolution Setting	No.	Output Resolution Setting
1	3840x2160p 60Hz	9	1440x1050 60Hz
2	3840x2160p 50Hz	10	1366x768 60Hz
3	3840x2160p 30Hz	11	1360x768 60Hz
4	3840x2160p 25Hz	12	1280x1024 60Hz
5	1920x1200 60Hz	13	1280x768 60Hz
6	1920x1080p 60Hz	14	1280x720p 60Hz
7	1920x1080p 50Hz	15	1280x720p 50Hz
8	1600x1200 60Hz	16	1024x768 60Hz

Note: 3840x2160 25/30Hz may only be used for standalone display and not for video walls.
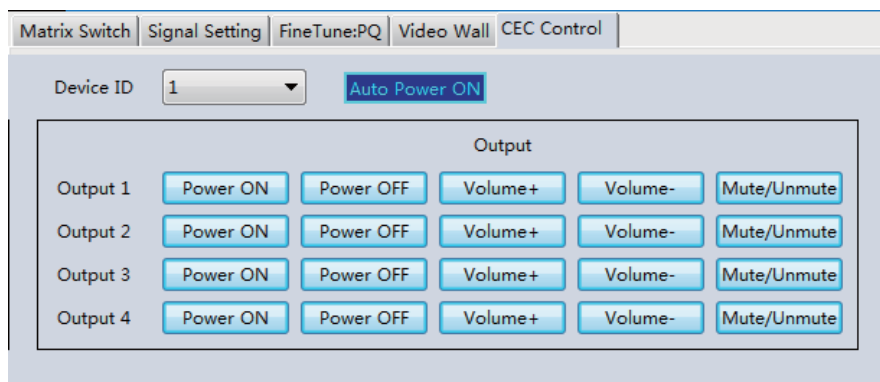
■ FineTune:PQ Tab

Configure the brightness, contrast, saturation, and sharpness of each output.
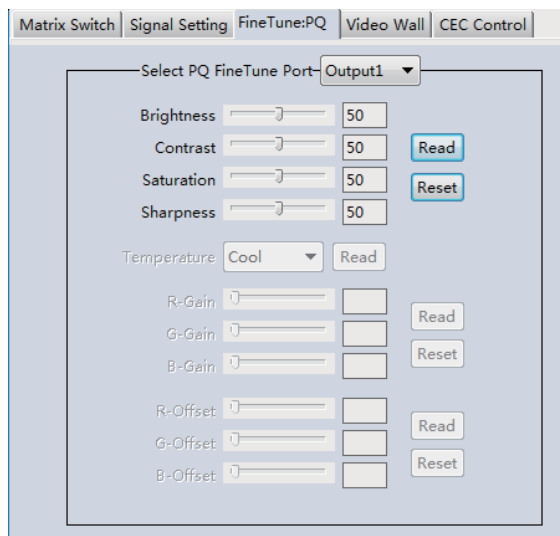
Note: The recommended settings are the default 50/50/50/50. Please do not change the default settings unless under special circumstances. If problems arise after reconfiguration, click 'Reset' to return to default settings.
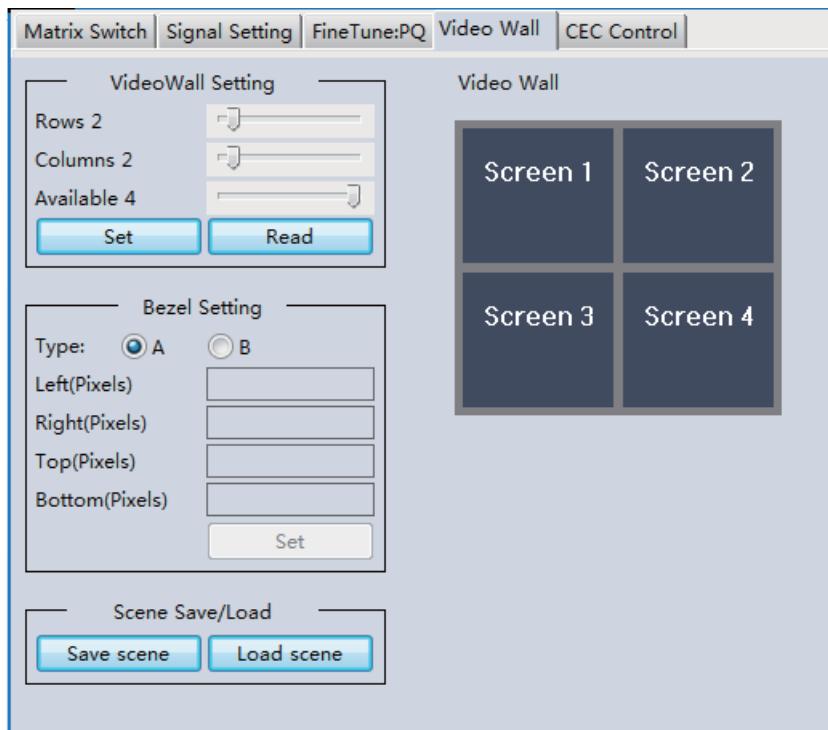
■ CEC Control Tab

When '**Auto Power On'** is enabled, all displays connected to the device will turn on when the device is powered on.

The product supports CEC function, including Power on/off, Volume+/-, Mute/Unmute.

■ Video Wall Tab

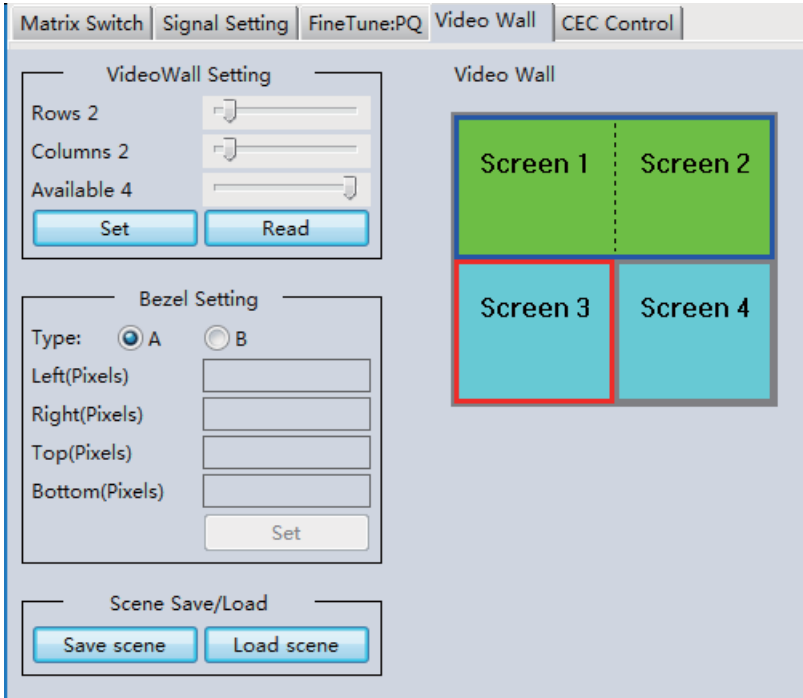Configure a group of outputs to function together as a video wall.

The Video Wall Setting controls manage how the displays are arranged:

1. Adjust the "Rows" and "Columns" sliders to adjust the displayed screens arrangement.
    o   The "Available" slider sets the number screens that will be used for the Video Wall.
    o   The "Set" button sets changes made to the screen configuration.
2. Using the left mouse button, drag-select the screens that are intended for use in the video wall. The screens selected will be shown as bright blue.
3. Open the pop-up menu by right clicking the mouse.
4. Select "Screen Stitching" from the menu to configure the video wall. The screens selected will be shown as bright green.
5. To change the image displayed, right-click to open the pop-up menu and select the desired input under "Input Select". Optionally, the image may also be changed manually following the instructions under the "Operation Controls and Functions" section of this manual.

Creating a second video wall:

Repeat steps 2-5 above using a different set out outputs. Please note that changing the "Rows", "Columns" and "Available" sliders will automatically delete the current video wall configuration once the "Set" button is clicked. The following example shows an unusual video wall configuration for demonstrative purposes. The video wall configuration is of two 2x1 set-ups:

Video Wall Context Menu

Right click on any icon to display the following menu:

Screen Splicing	This option connects the selected screens into a video wall configuration.
Cancel Splicing	Return the Video Wall configuration to normal outputs.
Screen 2 – Cancel Splicing	Remove a single screen from the unified video wall to display a separate image. See the example below: Video Wall display with bezel compensation and different full frame image on display 3
Input Select	Follow the sub-menu to change the input for the video wall display. This function may also be used to change the input for the secondary image as shown in the above example.
Output Select	This option is only available for a display that is not already assigned to the video wall.
Output Type	This option is only available for a display that is not already assigned to the video wall.
Output Format	This option is only available to a display that is not already assigned to the video wall. This setting is for configuring the output resolution of the unassigned display.
Mirror	Two sub-options: OFF (default), ON (H+V Mirror) "ON" will rotate the selected display 180º.
Test Pattern	When enabled, the output will display a color bar pattern.

Bezel Setting

The Bezel Setting allows for the adjustment of the images displayed on the video wall to compensate for the thickness of the TV's bezel. The displays on the video wall should create a cohesive, unified image. To achieve this, the edge of each display's image must be removed from the sides of displays that meet. The bezel correction may be accomplished using either Type A Bezel Setting, or Type B Bezel Setting.

Type A Bezel Setting:

Manually remove pixels from each display's image edge until a cohesive image is achieved. Enter the number of pixels that need to be removed from the edges of the displays that meet. Click "Set" to view the effects of the change and adjust if needed.

Type B Bezel Setting:

Measure the display from top to bottom *outside* the bezel. Next, measure in display from top to bottom *inside* the bezel. Enter both measurement values into the entry boxes, click "Set" and the bezel will be correct for automatically.

Bezel Compensation

The images below demonstrate a video wall set-up without bezel compensation and a video wall set-up with correctly configured bezel compensation:

No Bezel Compensation
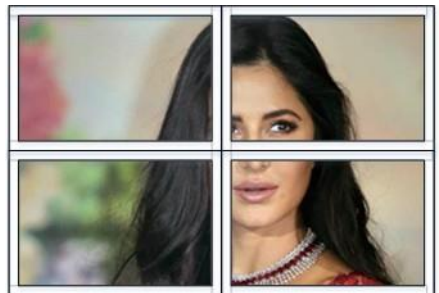
Correct Bezel Compensation

Layout Save/Load

The Save Scene/Layout and Load Scene/Layout buttons allow video wall configurations to be saved and used at any time. The system stores up to 10 saved configurations. Each saved configuration can optionally be given a personalized name for easier identification.

8. Safety Instructions

To ensure reliable operation of this product as well as protecting the safety of any person using or handling this device while powered, please observe the following instructions.

1. Do not operate this product outside the specified temperature and humidity range given in the above specifications.
2. Ensure adequate ventilation is allow for this product to operate efficiently.
3. Repair of the equipment should only be carried out by qualified professionals. This product contains sensitive devices that may become damaged by mishandling.
4. Only use this product in dry environments. Do not allow this product to come in contact with liquids or harmful chemicals.

9. Connection Diagram
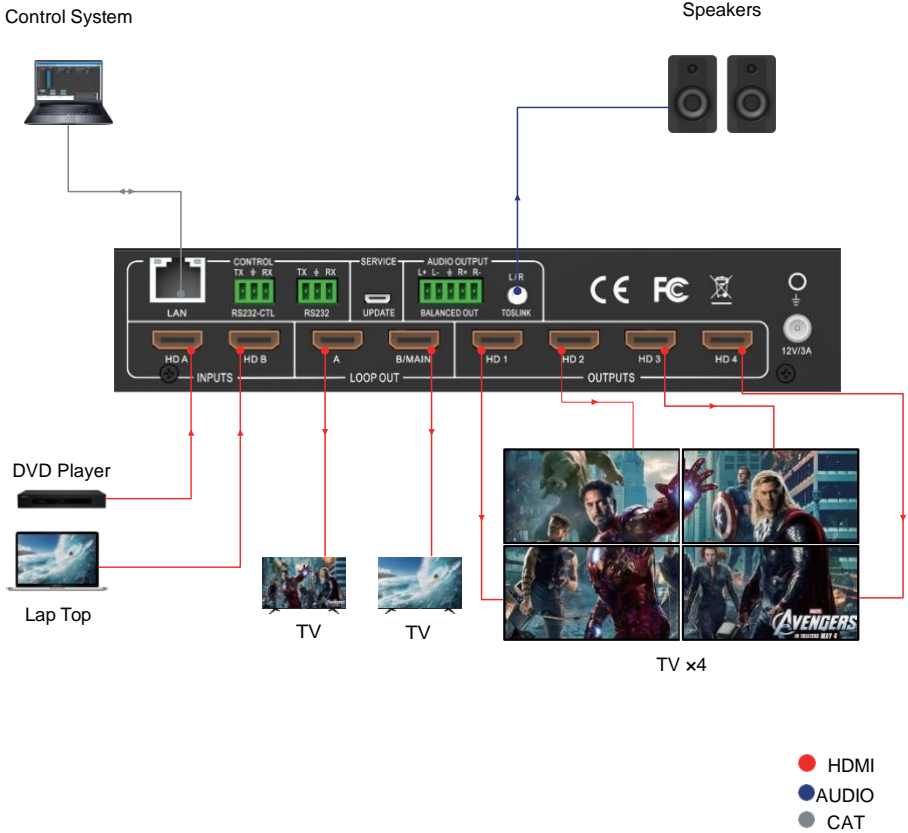
10. Tech Support

Before contacting tech support, we may have answered your question already! Visit our BZBGEAR support page at bzbgear.com/support for valuable information on our products.

Here you will find our Knowledge Base (bzbgear.com/knowledge-base) consisting of tutorials, quick start guides, and step-by-step troubleshooting instructions. Also visit our YouTube channel BZB TV at youtube.com/c/BZBTVchannel for help setting up, connecting, and other how-to videos regarding our products.

If you still need answers, please call 1.888.499.9906, email support@bzbgear.com, or chat at bzbgear.com.

11. Warranty

BZBGEAR Pro AV products and Cameras come with a **three-year warranty**. An extended two-year warranty is available for our Cameras upon registration for a total of five years.

For an extended two-year warranty on our Cameras, follow these steps:

1. Register your Camera within 90 days of purchase by visiting bzbgear.com/warranty.
2. Complete the registration form. Provide all necessary proof of purchase details, including serial number and a copy of your sales receipt.

For complete warranty information, please visit bzbgear.com/warranty or scan the QR code below.

12. Mission Statement

BZBGEAR manifests from the competitive nature of the audiovisual and live streaming industry to innovate while keeping the customer in mind. AV solutions can cost a pretty penny, and new technology only adds to it. We believe everyone deserves to see, hear, and feel the advancements made in today's AV world without having to break the bank. BZBGEAR is your answer for applications requiring the latest pro AV and live streaming solutions.

You'll notice comparably lower prices with BZBGEAR while the performance and quality are on par with the top brands in the industry. Our team offers system design consultation and expert tech support seven days a week for all BZBGEAR products. Our unparalleled support is our way of showing we care for every one of our customers. Whether you're an integrator, home theater enthusiast, or a do-it-yourselfer, BZBGEAR offers solutions allowing you to focus on your project and not your budget.