BZB GEAR®

Solutions to Amplify Your World™

BG-BSHA

Full HD Integrated HDMI/SDI/IP 20X/30X Zoom Camera with Audio Input

User Manual

TABLE OF CONTENTS

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.

- The product has no power switch. Remove power immediately if the camera is not in proper working condition to avoid electrical shock.

- 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.

- Please refer to the user installation manual carefully during installation. Handle the camera components gently to avoid damage to the camera. The camera lens is an advanced optical product - protect the lens from contact to avoid scratching and affecting image quality.

- Do not aim the camera at a bright object. Whether powered on or not, never aim at the sun or other bright objects as this can damage the sensors and cause blurred or haloed images.

Introduction

The BG-B20SHA/BG-B30SHA 20X/30X optical zoom IP-streaming camera utilizes a high-quality CMOS sensor to deliver crisp HD video signals. Its compact design provides ease-of-use and versatile placement options in a sleek low-profile housing. This camera is well-suited for a wide variety of broadcast and professional A/V applications including lecture streaming, room monitoring, studios, and more.

Features

- Video Output: 3G-SDI / HDMI / IP Streaming

- Audio Input: 3.5mm Audio Input

- Input/Output Control Interface: 2 PIN Terminal, 3.50mm

- Power Interface: 2 PIN Terminal, 3.50mm or POE+

- RS232C or RS485 protocols allow a PTZ controller or PC to control the camera.

- Improved image quality from a newly developed digital signal processor.

- Built-in attenuation filter that physically removes IR (infrared). This filter can be turned on or off automatically, providing high quality images in environments with different brightness levels. The five-direction button on the back of the camera allows users to quickly and easily change any parameters of the camera.

- Built-in Audio Input, Audio encode standard support G.711,G.722,G.722.1, G.728,G.722.1C, ACC

- SDI/HDMI/IP stream simultaneously

- Power over Ethernet (PoE) functionality

Packing List

- 1x BG-BSHA Camera
- 1x Power Cable
- 1x 12V/ 2.0 A DC Power Adapter
- 1x User Manual

Specifications

Camera Specs	
Sensor	1/2.8" Exmor CMOS Sensor, 2.38MP
Frame Rate	1080p@60Hz/50/30/25, 1080i@60Hz/50/30/25, 720p@60Hz/50
Zoom	20X/30X Optical, 12X Digital Zoom
Focus	f=4.7mm-94.0mm
Aperture	F=1.6(W)-3.5(T)
Horizontal Field of View	2.9°(T)-65°(W)
Zoom Control	VISCA, PELCO D/P
Input/Output Interface	
Video Output	3G-SDI / HDMI / IP Streaming
Audio Input	N/A
Power On	JEITA type (DC IN 12V)
Communication interface	RS485 / RS232
Generic	
Dimensions (W x H x L)	70 x 70 x 122mm
Weight	0.44 lbs [0.2kg]
Operating Temperature	-10°C ~ 50°C
Max Consumption	12W DC12V @1A

Operation Controls and Functions

1. Lens

2. Terminal Pin Interface

A: RS485+

B: RS485-

-/+: DC12V Power Interface

3. Five-direction Button

4. Audio-IN

5. HDMI

6. 3G-SDI

7. LAN

Dimensions

Camera Menu Settings

Menu Settings

1. Press and hold the center button for 3 seconds to enter the Main Menu

2. Use the directional keys to navigate the menu and settings.

MAIN MENU
EXPOSURE
COLOR
PICTURE
ADVANCED
PRIVACY
SYSTEM
EXIT

Exposure

Enter the main menu and navigate to【EXPOSURE】. Press right to enter the sub-menu.

MAIN MENU
EXPOSURE
COLOR
PICTURE
ADVANCED
PRIVACY
SYSTEM
EXIT

- 【AE MODE】

Options: AUTO/SHUTTER/IRIS/BRIGHT

- 【SHUTTER/IRIS/BRIGHT】

Different auto exposure parameters can be modified depending on the selected mode. The range of settings are as follows:

    Shutter: 1/1-1/10000

    IRIS：F1.6-F14

    Bright：F14/0DB-F1.6/28DB

- 【EXCOMP】ON/OFF
- 【BACKLIGHT】Backlight Compensation ON/OFF
- 【HLC】Highlight Compensation 0 - 15
- 【FLICKER】Anti-Flicker 50Hz/60Hz/OFF
- 【GAMMA】Gamma Adjustment 0 – 9

Color

Enter Main Menu, navigate to【COLOR】, press right to enter sub-menu.

COLOR	
WB MODE：	AUTO
R GAIN：	N/A
B GAIN：	N/A
COLOR GAIN	100
COLOR HUE	0
BACK	
EXIT	

- 【WB MODE】

    Options: AUTO, INDOOR, OUTDOOR, ATW, OPW, MANUAL

- 【R GAIN/B GAIN】

    When the WB MODE is set to MANUAL the R Gain\B

    Gain values can be independently adjusted.

- 【COLOR GAIN】

    Setting Valued range：60 - 200

- 【COLOR HUE】

    Setting Valued range：-14 - 14

Picture

Enter Main Menu, navigate to【PICTURE】, press the Right Button

to enter the sub-menu.

- 【FREEZE】Setting: ON/OFF
- 【APERTURE】Setting Value range：0-15
- 【2D NR】Setting Value range：0-5
- 【FLIP 】Setting: ON/OFF
- 【ICR 】Setting: AUTO, B&W, COLOR
- 【GAMMA 】Setting Value range：0-4
- 【BLC 】Setting: ON/OFF

PICTURE	
FREEZE：	OFF
APERTURE：	5
2D NR：	OFF
FLIP：	OFF
ICR:	AUTO
GAMMA:	NORMAL
BLC:	OFF
BACK	
EXIT	

P/T/Z

Press the【MENU】button to display the OSD menu, then

press the arrow keys to highlight【P/T/Z】and press right to

enter the submenu.

- 【FILP】: ON/OFF
- 【L/R DIRECTION】: ON/OF
- 【AF MODE】: AUTO/MANUAL/ZOOM
- 【AF SENS】: HIGH/NORMAL/LOW
- 【PRESET FREEZE】: ON/OFF
- 【D ZOOM】: ON/OFF

P / T / Z	
FLIP:	OFF
L/R DIRECTION:	OFF
AF MODE:	AUTO
AF SENS:	NORMAL
PRESET FREEZE:	OFF
D ZOOM:	ON
BACK	
EXIT	

Noise Reduction

Press the【MENU】button to display the OSD menu, press the

arrow keys to highlight【NOISE REDUCTION】, then press right

to enter the sub-menu.

- 【2D NR】: 0-5 / OFF
- 【3D NR】: 0-5 / OFF
- 【DYN HOT PIXEL】: ON/OFF

NOISE REDUCE	
2D NR:	2
3D NR:	3
DYN HOT PIXEL:	OFF
BACK	
EXIT	

Video Format

Press the【MENU】button to display the OSD menu, press the arrow keys to highlight【VIDEO OUT】, then press right to enter the sub-menu.

- 【VIDEO OUT】:

    1080P60/59.9 4/50/30/29.97/25

    1080I60/59.94/50/30/25

    720P/60/50

VIDEO OUT
VIDEO OUT: 720P50
720P60
1080I25
1080I30
1080I50
1080I59.94
1080I60
1080P25
1080P29.97
1080P30
1080P50
1080P59.94
1080P60
BACK

System Settings

Press the【MENU】button to display the OSD menu, press the arrow keys to highlight【SYSTEM SETTING】, then press right to enter the sub-menu.

- 【SYSTEM INFO】: press right button to enter the submenu
- 【LANGUAGE】: CHINESE/ENGLISH
- 【ZOOM LEVEL】: ON/OFF
- 【PROTOCOL】: VISCA/PELCO-D/PELCO-P

- 【ADDRESS】: 1-255
- 【BAUDRATE】: 2400/4800/9600/19200/38400

SYSTEM SETUP	
SYSTEM INFO	
LANGUAGE:	CHINESE
ZOOM LEVEL:	ON
PROTOCOL:	VISCA
ADDRESS:	AUTO
BAUDRATE:	9600
BACK	
EXIT	

Restore Default

Press the【MENU】button to display the OSD menu, press the arrow keys to move to【DEFAULT】, press the right button to make the OSDparameters return to default.

DEFAULT SETUP
FACTORY
DEFAULT

Network Connection

To successfully complete this process, you will need several pieces of information. The first is the IP address of your computer. You will also need to select an unused IP address on your local network (This is the address you will set the camera to). The third piece is the default IP address of your camera. Finally, you will need the IP address of your Default Gateway/Router.

All versions of the BZBGEAR BG-BSHA series cameras have the following default IP address:

192.168.1.162

The computer must be on the same subnet as the camera to connect successfully, therefore the computer must be connected to the 192.168.1.x subnet. If your network is already using this IP address pool, simply enter the camera's IP address to connect. If it is not,you will need to change the adapter settings in the Local Area Network Properties on the computer.

- Right-click on the internet connection in the lower right corner of the desktop and select "Open Network & Internet Settings".
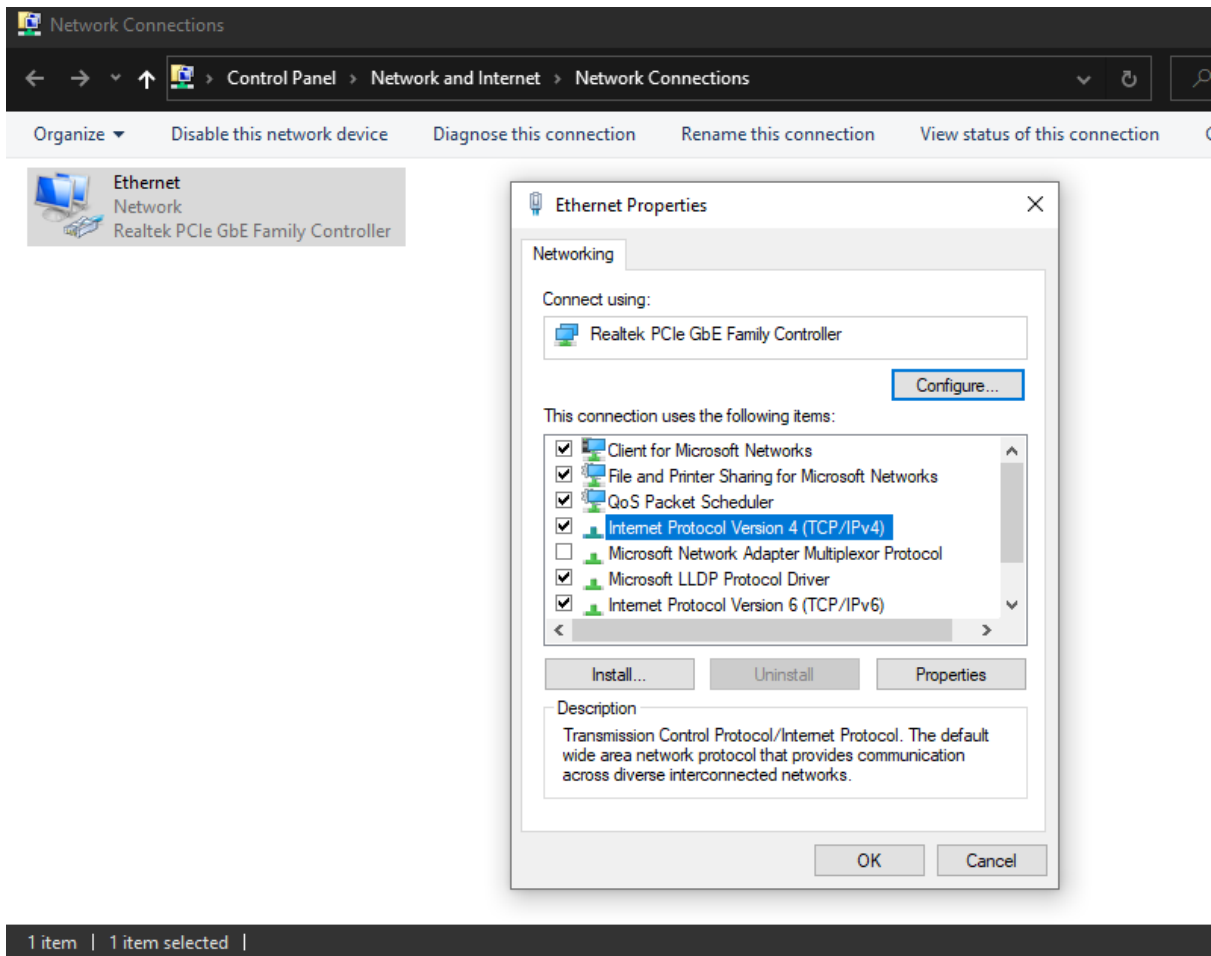

- Select "Change Adapter Options".
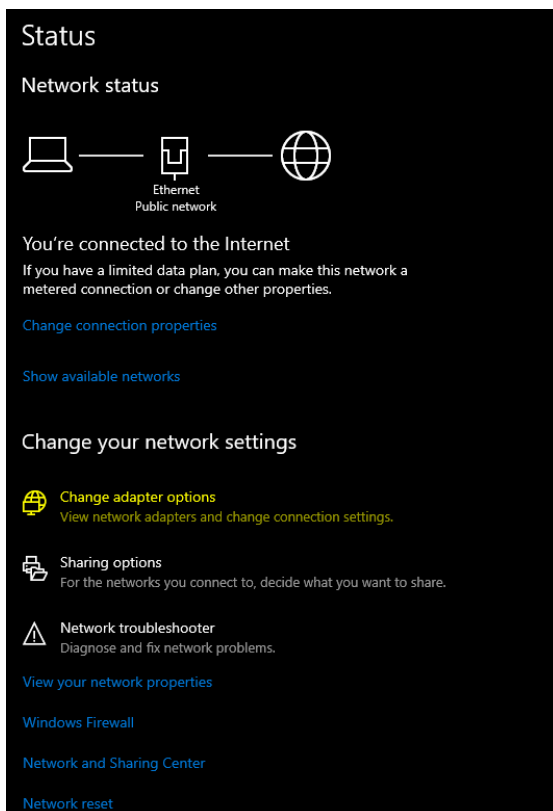
- Right-click on your connection (Wi-Fi or Ethernet) and select "Properties."
- Select "Internet protocol version 4 (TCP/IPv4)" as shown below and click "Properties."

- For the following steps refer to the diagram below. Select "Use the following IP address."
- In the IP address field enter a non-conflicting IP address on the same subnet as the camera. If there is another device with the same IP address you will not be able to connect. In the example below we are using 192.168.1.200
- In the Subnet mask field enter 255.255.255.0 In the Default gateway field type 192.168.1.1 You can leave the DNS fields blank.

NOTE: When you are finished configuring the camera you will need to return to this screen and select "Obtain an IP address automatically" and "Obtain DNS server automatically" to restore internet connectivity to your computer. Also make sure to reconnect any ethernet cables you may have unplugged.

- Click OK to apply your settings.

- Click OK to close the network properties screen.

- Once you have applied your settings open your web browser and enter the IP address of your camera.

- Enter the login information to access the interface.
  - o   The username and password should both be 'admin' for a default camera.

- You will now be looking at the camera preview window. At the top left of your screen select Config.
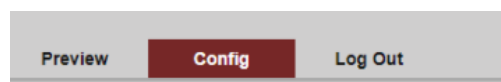

- On the left side of your screen select Network. In the IP address field, you will enter the unused IP address you selected at the beginning. Our example will use an address of 192.168.20.186.

     *This address MUST NOT be in use by any other device on your network or you will create an IP conflict and be unable to access your camera. *

- In the Subnet Mask field enter 255.255.255.0 then enter the IP address of your Default Gateway in the field below. Double-check your values and click the Save Button.

- Unless you are given different information by your network administrator you should enter 8.8.8.8 for DNS1 and 8.8.4.4 for DNS2. Click Save.
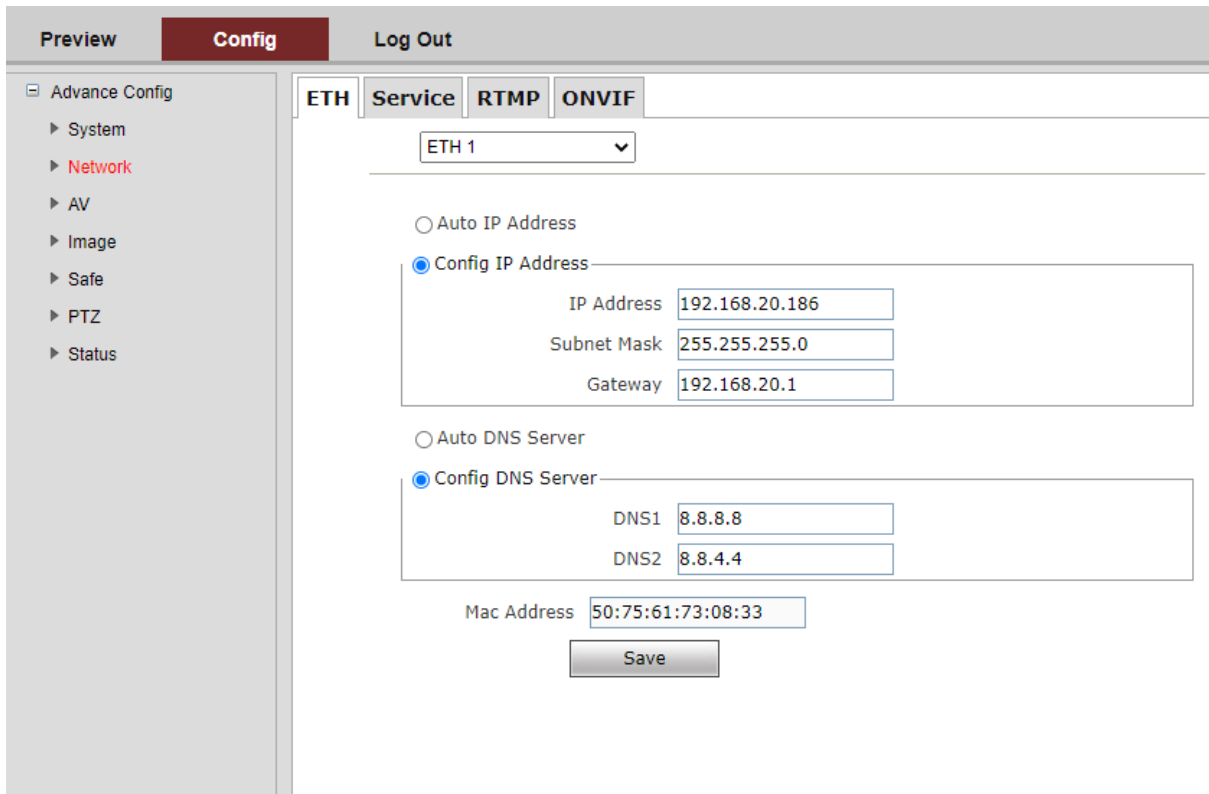
- Once you complete the camera setup, repeat the steps on your computer to adjust "Internet Protocol Version 4 (TCP/IPV4) Properties" and select "Obtain IP address automatically" and "Obtain DNS server address automatically." Click OK to close all network-related screens.
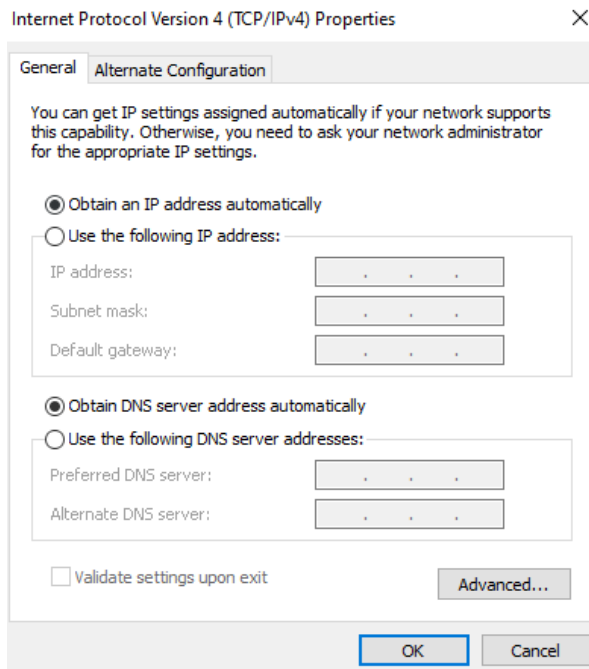
- Your computer and camera should now be on your network. Open your web browser and enter the IP address you assigned to your camera and your setup is complete.

Camera Web Interface

From the Web Interface you can control the camera, view the video feed, and adjust various camera settings and functions.

Preview Screen

From the preview screen you can view the live video feed, preview the embedded audio, and adjust PTZ, Focus, and Iris controls.

Directional Arrows: Use the Up/Down/Left/Right/Diagonal buttons to rotate the camera.

Home Button: Use the Home button to return the camera to the Home position.

Zoom In/Out: Use the Zoom buttons to adjust the zoom level of the camera.

Focus In/Out: Use the Focus buttons to manually adjust the camera's focus.

Speed Control: Use the slider to adjust the PTZ speed of the camera.

Preset Tab: Use the Preset tabs to Set, Recall, and Delete Preset positions. To record a preset, adjust the camera to the desired location and zoom level. Highlight the preset number you wish to record and click the "Set" button. To recall a preset, highlight the preset number you wish to recall and click the "Call" button. To delete a preset, highlight the preset number you wish to delete and click "Delete".

Configuration Screen

From the configuration screen you can set and adjust all the functions and parameters of the camera.

System Page

The system page contains information regarding the camera, time settings, firmware, and main video output resolution.

Version Tab: The version tab contains camera information including model number, serial number, firmware and hardware versions, and MAC address.

Time Tab: The time tab allows you to adjust time, date, and time zone settings.

Maintain Tab: This tab allows you to reboot, restore factory default settings, and update the firmware.

Config Tab: Name the camera, select menu language, select Video Standard (not used), set output resolution, and enable/disable UVC (USB) video output.

Network Page

The network page includes network settings, port settings, and streaming settings.

ETH Tab: Select static (Config IP Address) or DHCP (Auto IP Address), select Auto or Manual DNS settings.

Service Tab

MSG Port: default 8080

RTSP Port: default 554

HTTP Port: default 80

VISCA Port: default 52381

WebSocket Port: default 8880

Note: Changing the port number requires restarting the camera to valid. In order to avoid port conflicts, please be careful to modify.

RTMP Tab

Enable RTMP: (Check box)

Server: Enter the server URL and Stream Key of your streaming platform in the format of : rtmp://serverURL/StreamKey.

(Ex. rtmp://a.rtmp.youtube.com/live2/du36-z46c-1p31-4kxw-29yx)

Port: Set according to your streaming platform (YouTube=1935, Facebook=443)

Stream Type: Select desired stream

ONVIF Configuration Tab

ONVIF Authentication: Authentication enable, default disable.

ONVIF Server Port: default 8554.

ONVIF RTSP Authentication: Authentication enable, default disable.

RTSP Port: ONVIF RTSP Port, default 8554.

AV Page

The AV page is where you will find all the audio and video settings for stream encoding.

Stream Type: Use the pull-down to select which of the 3 streams you wish to adjust. When you select a stream, all options and settings on the page affect the selected stream.

Stream Key: This shows the address information for your streaming output. This is not adjustable and should be added to the end of your camera's IP address as shown below:

Default Main Stream: rtsp://192.168.1.162:554/0/0/0

Default Sub-Stream: rtsp://192.168.1.162:554/0/0/1

Frame Rate: Specify frame rate (1-30). Frame Rate Priority prioritizes frame rate over image quality when VBR mode is enabled.

GOP: Frame interval (1-60). Default is 30.

Bitrate: Video Bit Rate (1-10240). Default is 4096

Resolution: Set streaming video resolution

Stream Mix Type: Select Complex or Video Stream. Complex Stream includes audio.

Encode Type: Select video encoding format.

Bitrate Type: CBR (Coded Bit Rate), VBR (Variable Bit Rate), Fix QP (Fixed Bit Rate).

- _ When CBR is selected stream quality, IFrame, and PFrame settings are unavailable.

- _ When VBR is selected IFrame and PFrame settings are unavailable.

- _ When Fix QP is selected stream quality setting is unavailable.

Audio Encode Type: Select audio encoding format. AAC is recommended for most streaming platforms.

Audio Input Mode: Select Mic Level or Line Level

Audio Input Gain: Set the audio input gain level (1-10, mute)

Audio Quality: Select High or Low

Image Page

On the image page you will find all the image, iris, and focus settings for adjusting the camera's picture.

Display Tab-

Brightness: Brightness adjustment slider

Contrast: Contrast adjustment slider

Hue: Hue adjustment slider

Saturation: Color saturations adjustment slider

Sharpness: Video sharpness adjustment slider

Mirror: Horizontal image reverse

Flip: Vertical image reverse

Flicker: Lighting flicker compensation

AWB Mode: Auto White Balance Mode settings

BLC: Backlight Compensation adjustment

DNR(3D): 3D Digital Noise Reduction Control

Camera Tab-

Focus Mode: Change camera focusing mode

Near Limit: Set the distance from the lens for auto focusing. The camera will not focus on anything closer than the set value.

Sensitivity: Auto focus sensitivity level

ICR Mode: Infrared Cut Filter Removal Mode

AE Mode: Auto Exposure Mode

AE Level: Auto Exposure Level adjustment

HLC: Highlight Compensation Level

DNR(2D): 2D Digital Noise Reduction adjustment

Gamma: Gamma adjustment

Safety Page

From this screen you can modify the login information

PTZ Page

From this screen you can view and modify the PTZ control settings of the camera.

PTZ Address: Set the PTZ control address of the camera

Protocol: Set the serial control protocol

Baud Rate: Set the serial control baud rate

LR-Direction: Reverse the left and right controls

Vertical Axis: Reverse the up and down controls

Display Mag: Display current magnification (zoom) level

Status Page

On this screen you can view the current bit rates of the 3 IP streams.

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

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 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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