BZB GEAR®
Solutions to Amplify Your World™

BG-BSHAN

1080P Full HD 20X/30X Zoom HDMI/SDI/IP/NDI|HX

Box 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.
- To prevent the risk of electric shock, do not open the case. Installation and maintenance should only be carried out by qualified technicians.
- Installation and use of this product must strictly comply with local electrical safety standards.
- 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.

Introduction

The BG-B20SHAN/BG-B30SHAN 20X/30X optical zoom IP-streaming camera utilizes a high-quality CMOS sensor to deliver crisp HD video signals. Its compact design provides versatile placement options and ease-of-use 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, education, room monitoring, studios, and more.

With a 1/2.8" Sony CMOS sensor, the BG-BSHAN series provides crystal clear imaging at resolutions up to 1080p@60Hz. The 20X/30X optical zoom lens allows the camera to capture tight close-ups, even at a distance.

The BG-BSHAN series features simultaneous 3G-SDI, HDMI, NDI|HX, and IP streaming outputs. By utilizing the 3.5mm audio input, audio can be embedded into your livestreams and recordings with ease.

The BG-BSHAN series supports multiple streaming protocols and compression formats including ONVIF, RTSP, RTMP, and SRT. This enables users to stream the output directly to sites like Facebook and YouTube. The combination of outputs provides a high degree of versatility, allowing the BG-BSHAN series to be easily integrated into most workflows.

Designed for installation in remote locations, the BG-BSHAN series can be operated via RS232/485 and the web interface provides a full suite of image adjustment options. It supports PELCO-D, PELCO-P, VISCA, and IP-VISCA protocols, providing support for compatible joystick controllers.

Features

- **Camera Control**: RS232 or RS485 protocols allow a PTZ controller or PC to manage the camera.
- **Image Optimization**: Improve the image quality of real-time images by using the newly developed digital signal processor (DSP).
- **Brightness Optimization**: Built-in attenuation filter that physically removes IR (infrared). This filter can be turned on or off automatically, providing high quality images for shooting environments of different brightness.
- **Simple Operation**: The five-directional buttons at the back of the camera can easily and quickly change any parameters of the camera.
- **Simultaneous Audio and Video Streams**: The camera supports 3G-SDI/HDMI/IP-Streaming/ ND|HX outputs simultaneously.
- **Miniaturized Design**: Unique industrial design reduces the size and complexity of the camera ensuring reliability.
- **2D/3D Noise Reduction**: The camera features several different levels of noise reduction to ensure the clearest image for your environment.

Packing List

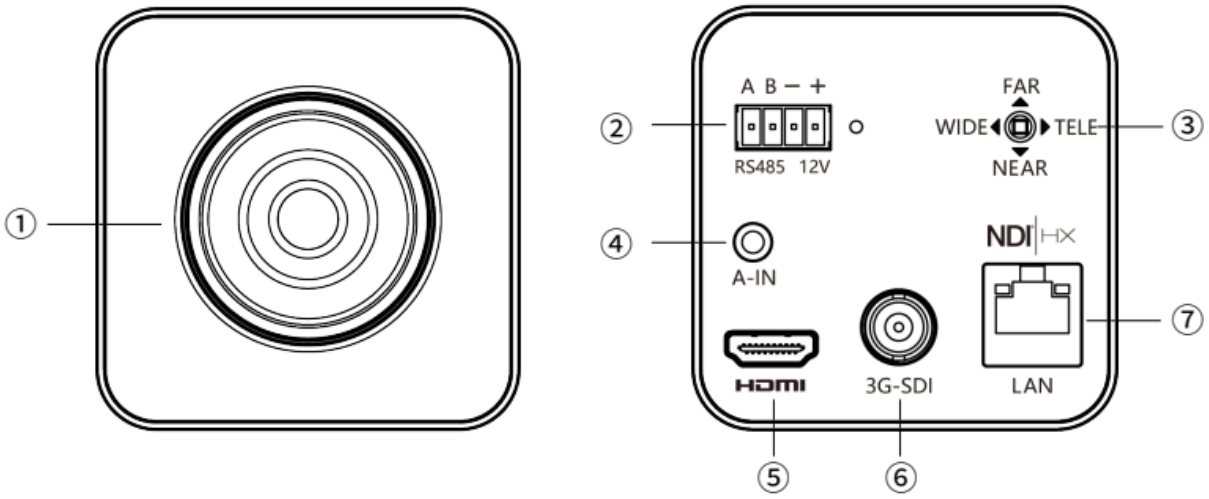
- 1x BG-BSHAN Camera
- 1x User Manual
- 1x 12V/ 2.0 A DC Power Adapter
- 1x Power Cable

Specifications

Zoom	**20X Optical**	**30X Optical**
Image Sensor	1/2.8" Exmor CMOS Sensor	
Effect Pixel	3.27 Megapixel	3.70 Megapixel
Lens	f=4.7mm - 94mm	f=5.2mm - 148.4mm
Iris	F=1.6(W) - 3.5(T)	F=1.3(W) - 4.8(T)
HOV	60.2°	65°
Shutter Speed	1/25(1/30)s ~ 1/30000s	
Gain	Manual / Auto	
Focus	Manual / Auto	
S/N Radio	>50 dB	
Digital Noise Reduction	2D & 3D Digital Noise Reduction	
Min Illumination	0.5Lux (Day) 0.1Lux (Night) 0.005Lux (DSS)	
Min Distance	30cm	
Video Format	1080P60/59.94/50/30/29.97/25, 1080I60/59.94/50/; 720P60/59.94/50/30/25	
Power On	JEITA type (DC IN 12V)	
Video Output	3G-SDI / HDMI / IP Streaming (RTSP/RTMP/RTMPS) / NDIIHX	
Audio I/O	3.5mm Audio Input; HDMI+SDI+IP (Audio Output)	
Communication	RS485 / Rj45	
Zoom Control	Visca, Pelco P/D, ONVIF	
Dimensions (LxWxH)	20X Optical: 2.8 x 2.8 x 4.6in [70mm x 70mm x 116mm] 30X Optical: 2.8 x 2.8 x 4.9in [70mm X 70mm X 124mm]	
Gross Weight	0.44 lbs [0.2kg]	
Max Consumption	12W DC12V @1A	
Operating Temperature /Humidity	-10°C ~ 60°C / 20% ~ 95%	
Storing Temperature /Humidity	-10°C ~ 50°C/ 20%~80%	
Use Environment	Indoor	
Installation	Ceiling /Wall Mount / Tripod/ Desk	

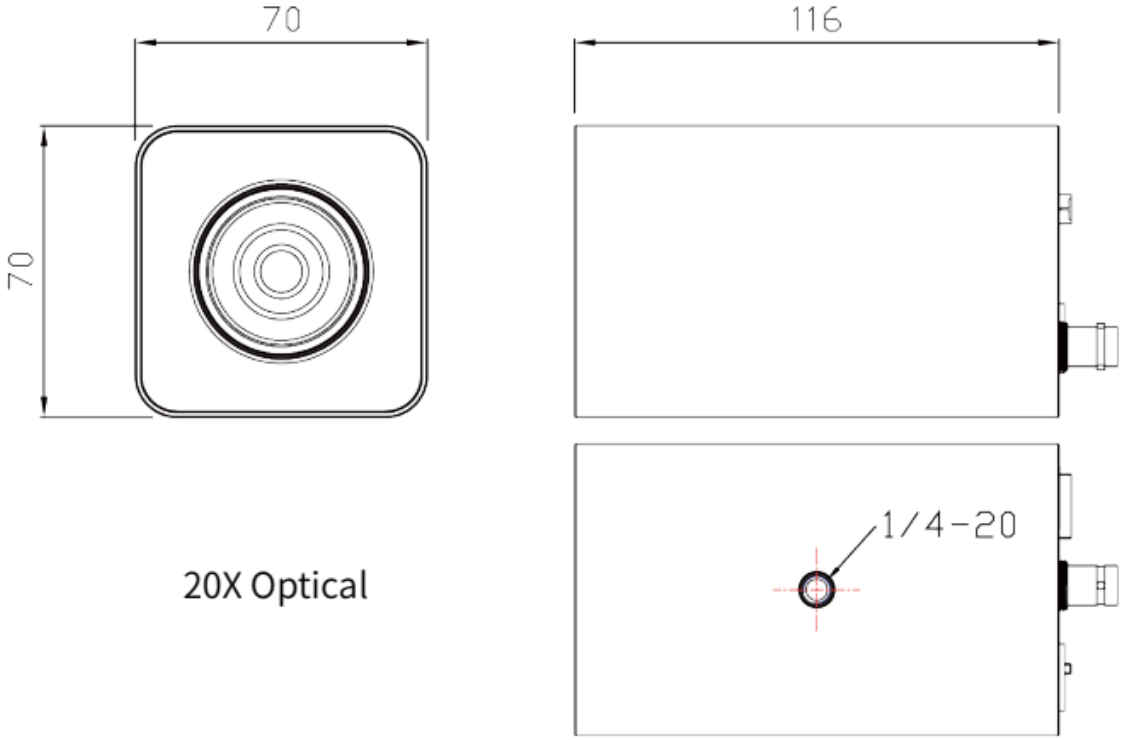
Product Interface & Dimensions

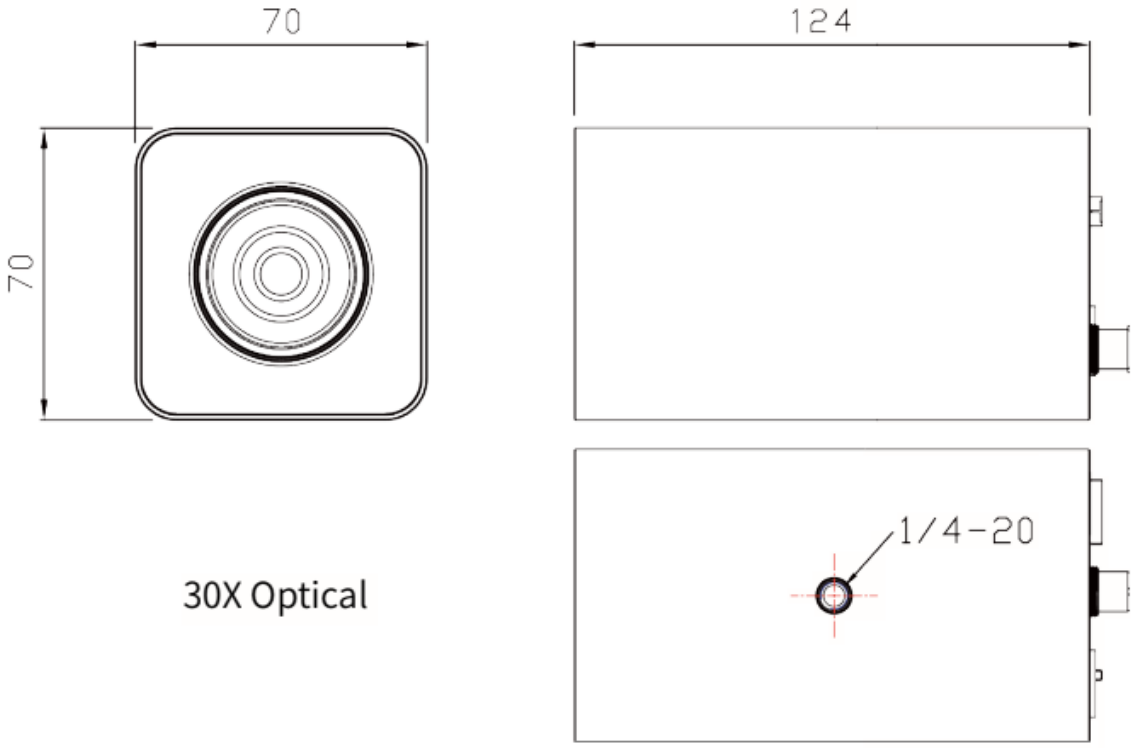
Interface



No.	Explain	No.	Explain
1	Lens	3	Five-direction Button
2	Terminal Pin Interface A:RS485+ B:RS485- -+:DC12V Power Interface	4	Audio-IN
		5	HDMI
		6	3G-SDI
		7	LAN

Dimensions





Menu Setting

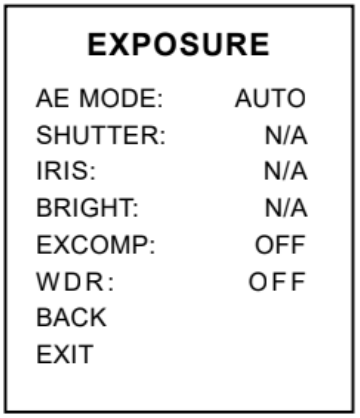
1. Press and hold the center button for 3 seconds to enter the Main Menu
2. Press Up/Down to navigate the Menu and press the L/R direction buttons to enter/exit sub-settings menus.

EXPOSURE

Enter the Main Menu, and press Up/Down to select **[EXPOSURE]**. Press the Right Button to enter the Sub-menu:

- **[AE MODE]**

Optional: AUTO / SHUTTER / IRIS / BRIGHT / MANUAL



- **[SHUTTER/IRIS/BRIGHT]**

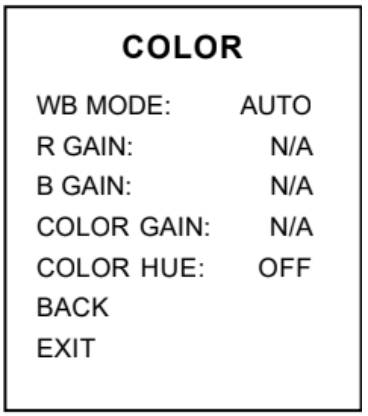
Different auto exposure parameters can be modified depending on the selected mode. The range of settings are as follows:

Shutter: 1/1-1/10000 IRIS: F1.6-F14
Bright: F14/0DB-F1.6/28DB

- **[EXCOMP]** It can setting to ON/OFF
- **[WDR]** It can setting to ON/OFF

COLOR

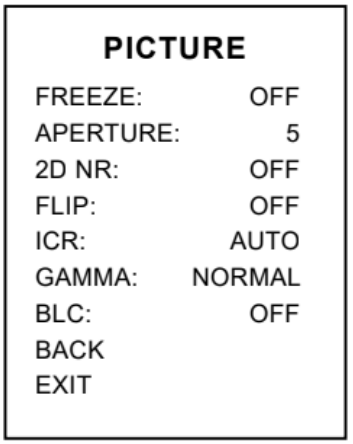
Enter Main Menu, navigate to **[COLOR]** , Press Right to enter Sub-menu:



- **[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]** Value range: 60 - 200
- **[COLOR HUE]** Value range: -14 - 14

PICTURE

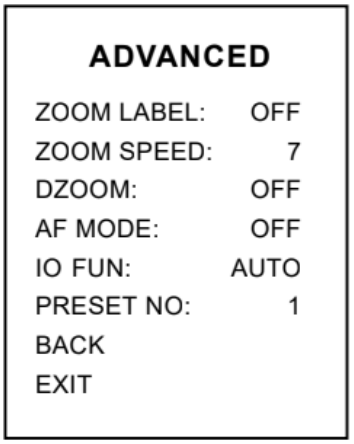
Enter Main Menu, navigate to【PICTURE】, press the Right Button to enter the sub-menu.



- **[FREEZE]** Setting: ON/OFF
- **[APERTURE]** Value range: 0-15
- **[2D NR]** Value range: 0-5
- **[FLIP]** Setting: ON/OFF
- **[ICR]** Setting: Auto, B&W, Color
- **[GAMMA]** Value range: 0-4
- **[BLC]** Setting: ON/OFF

ADVANCED

Enter Main Menu, navigate to **[ADVANCED]**, Press Right to enter the Sub-menu:

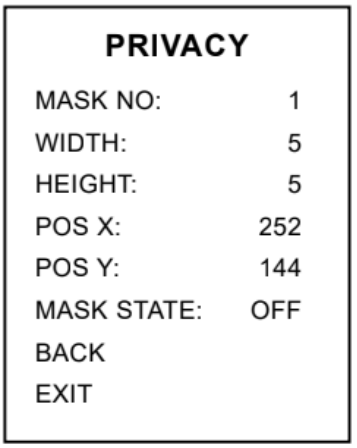


- **[ZOOM LABEL]** Setting: ON/OFF
- **[ZOOM SPEED]** Value range: 0-7
- **[DZOOM]** Setting: ON/OFF
- **[AF MODE]** Setting: Auto/Manual/One Push AF
- **[IO FUN]** Setting: OFF/ICR/PERSET
- **[PRESET NO]** If the external interface is selected as the preset, when the external interface generates a trigger (the interface is shorted to GND), the system will automatically call the preset number of the selected (preset can 1-7).
- **[ICR BLACK & COLOR CONVERTER]** If the external interface function is selected as black color conversion, when the external interface generates a trigger (the interface is shorted to GND), the system will automatically convert the black color mode of the camera to the currently set black color mode. For example, if the ICR is selected as the B&W mode, the camera outputs a color picture when the external interface does not trigger the condition and outputs a black and white picture when the trigger is generated.

PRIVACY

Enter Main Menu, navigate to **[PRIVACY]**, Press Right to enter the Sub-menu:

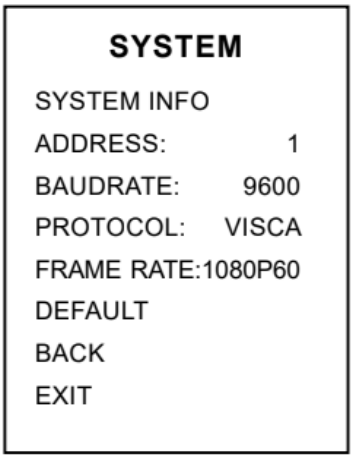
- **[MASK NO]** Value range: 1-8
- **[WIDTH]** Value range: 1-255
- **[HEIGHT]** Value range: 1-255
- **[POS X]** Value range: 1-255
- **[POS Y]** Value range: 0-200
- **[MASK STATE]** Setting: ON/OFF



SYSTEM

Enter Main Menu, navigate to **[SYSTEM]**, Press Right to enter the Sub-menu:

- **[SYSTEM INFO]** Press Right to view information
- **[ADDRESS]** Value range: 1-255
- **[BAUDRATE]** Value range: 9600/19200/38400
- **[PROTOCOL]** Settings: VISCA/PELCO-D/ PELCO-P
- **[FRAME RATE]** Settings: 720P50/60; 1080I50/60; 1080P25/30/50/60
- **[DEFAULT]** Press Right to restore factory default.



Network Connection

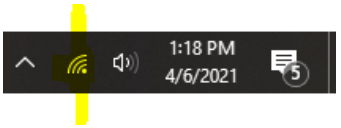
To successfully complete this process, you will need several pieces of information. The first is the IP address of your computer. You will also need to select an unused IP address on your local network (This is the address you will set the camera to). The third piece is the default IP address of your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

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

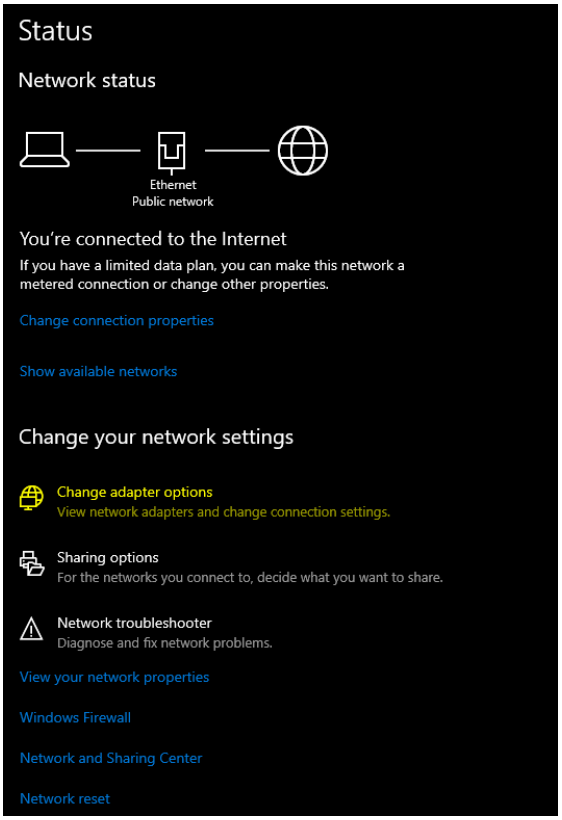
192.168.1.162

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.

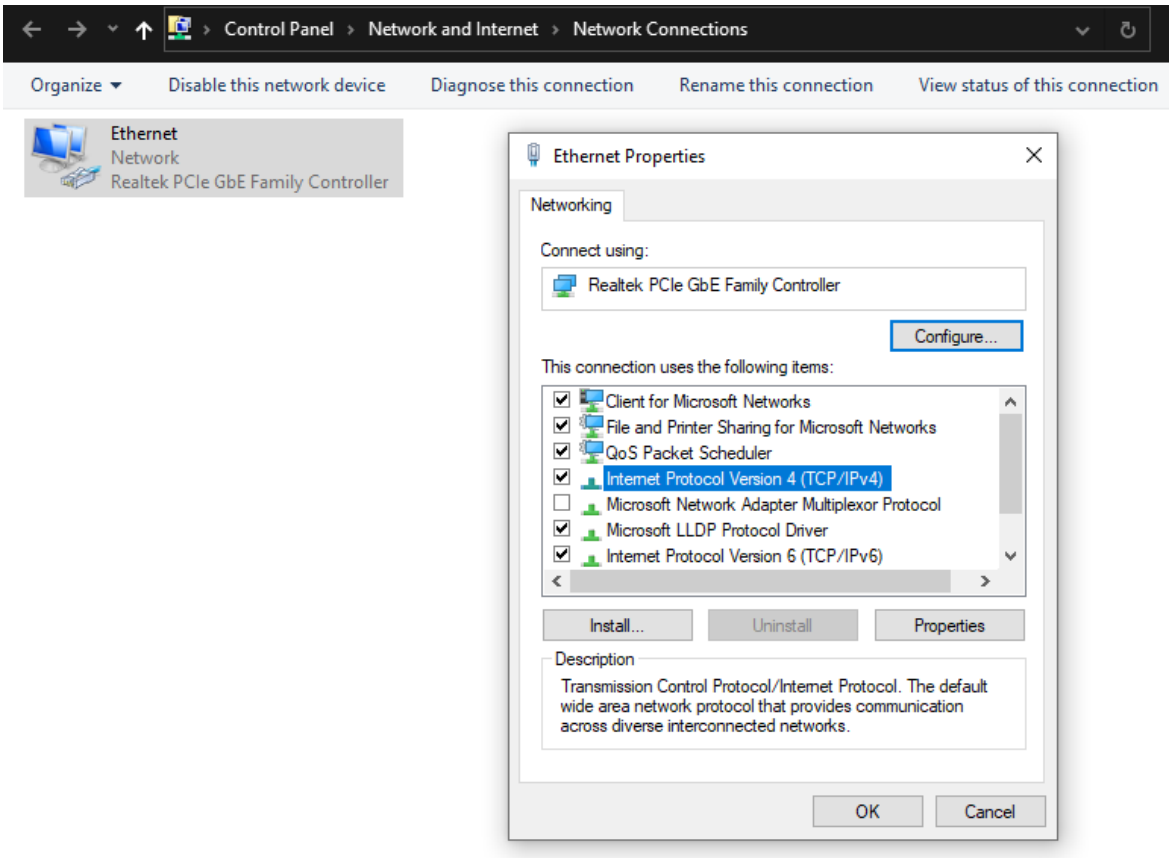
- Right-click on the internet connection in the lower right corner of the desktop and select "Open Network & Internet Settings".



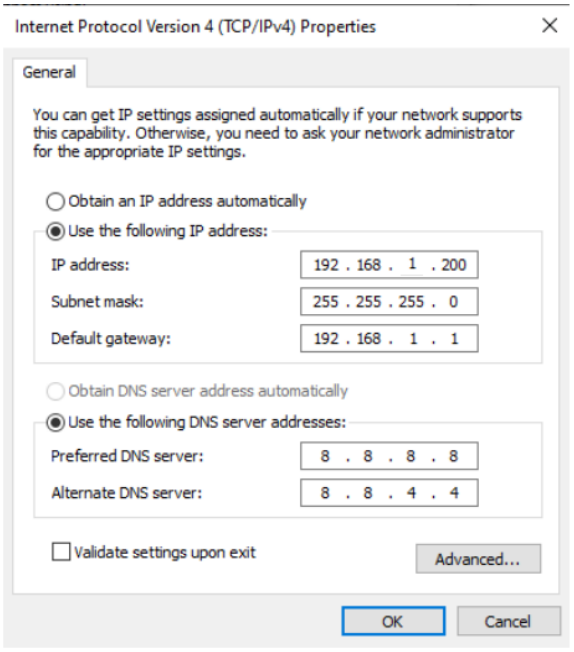
- Select “Change Adapter Options".



- 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."

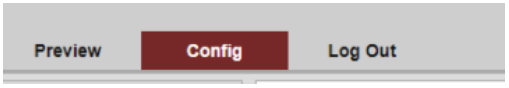


- For the following, refer to the diagram below. Select “Use the following IP address."
- In the IP address field enter a non-conflicting IP address on the same subnet as the camera. If there is another device with the same IP address you will not be able to connect. In the example below we are using 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.

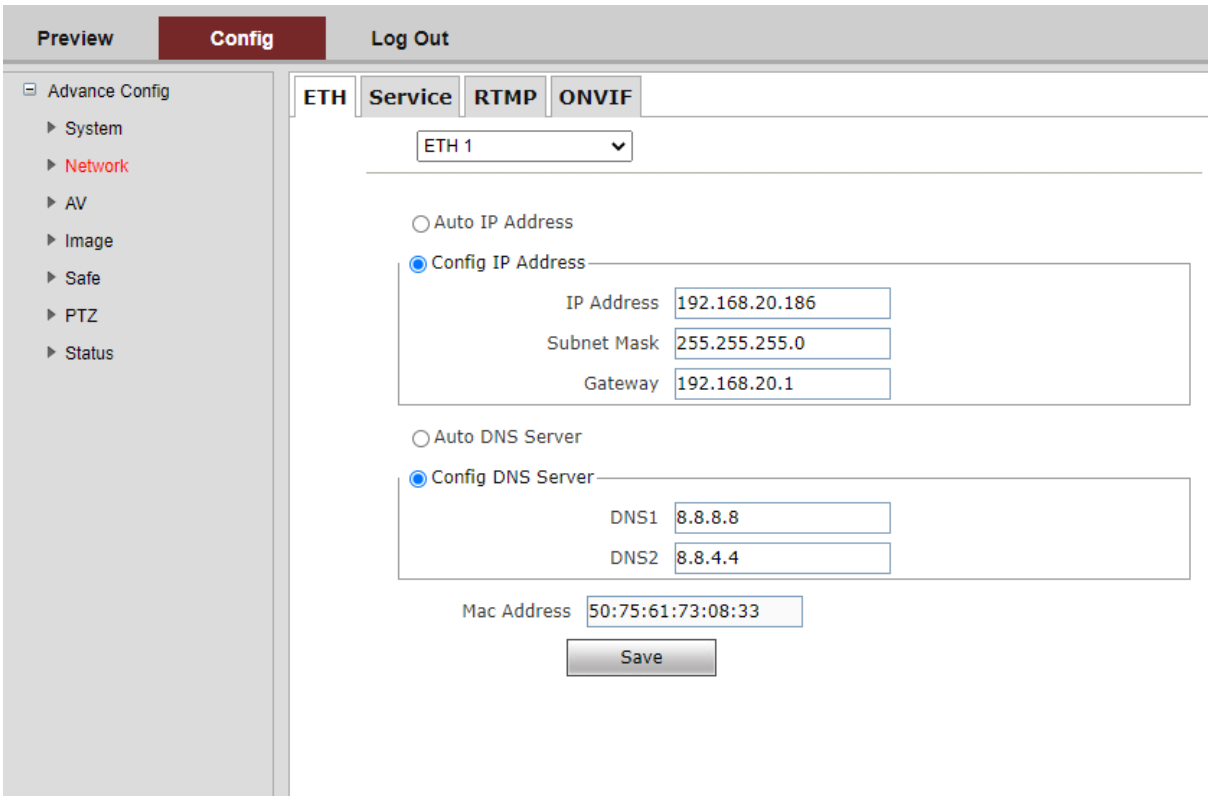
- Click OK to apply your settings.
- Click OK to close the network properties screen.
- Once you have applied your settings open your web browser and enter the IP address of your camera.
- Enter the login information to access the interface.
    - The username and password should both be ‘admin’ for a default camera.
- You will now be looking at the camera preview window. At the top left of your screen select Config.



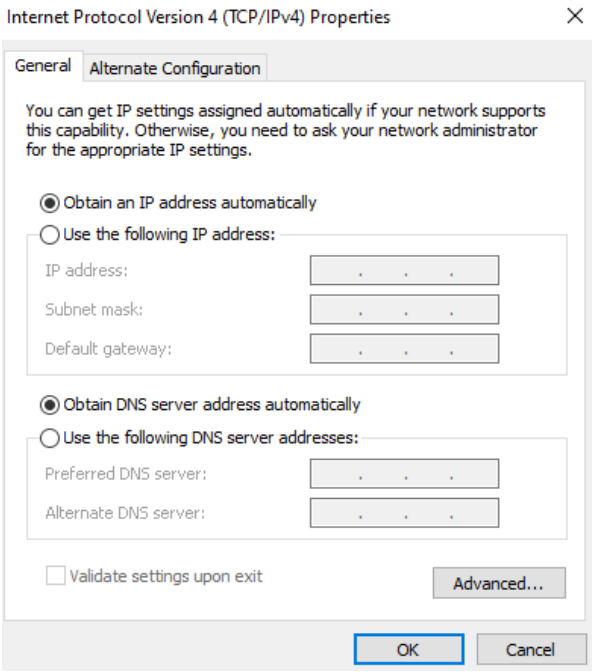
- On the left side of your screen select Network. In the IP address field, you will enter the unused IP address you selected at the beginning. Our example will use an address of 192.168.20.186.

  ***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 validate. 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.

NDI Tab

NDI Enable: NDI enable, default disable.

NDI Name: Used to edit the name of the NDI stream.

NDI Group: public

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

Covered by one or more claims of the HEVC patents listed at patentlist.accessadvance.com

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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