BZB2GEAR®

BG-C2HA

USB 3.0 Full HD Video Capture Device with HDMI 2.0a Loop Out & Audio

User Manual

TABLE OF CONTENTS

INTRODUCTION

The **BG-C2HA USB 3.0 Full HD Video Capture Device with HDMI 2.0a Loop Out & Audio** provides a professional way to capture HDMI video signals. It utilizes the USB 3.0 interface to achieve high-speed transmission. Additionally, the HDMI input and Loop Out can support up to 4K2K@60. With this device, users can connect to a 4K2K@60 source and capture Full HD (1080p60) video. BG-C2HA also uses large volume image buffer technology which effectively avoids the video tearing. The high sampling rate and high sampling accuracy assure images with high sharpness, rich details, and less color edges.

FEATURES

- HDMI video and audio streams over USB 3.0
- Supports UVC1.0
- Supports video resolutions up to 1080p 60Hz (Video stream over USB 3.0)
- Supports HDMI input & Loop Out from 640x480 to 4K2K@60 (YUV 4:4:4), interlaced or progressive
- Supports resolution downscaling from 4K2K to 1080P**3**
- Supports line-in mix with HDMI audio
- Supports HDMI audio extraction
- Auto-detection of video format to ensure plug-play operations
- Recording Video Format: H.264 (Software Compression)
- Works on multiple operating system platforms (Windows 7/8.1/10, Mac and Linux OS)
- Compatible with most 3rd party software such as OBS Studio and AMCap
- Supports USB 3.0 (MJPG/YUY2) and USB 2.0 (MJPG)
- Low Latency
- System Requirements (Recommanded)
  - Windows® 7(SP1) / Windows 8.1 / Windows 10
  - PC: Intel® CoreTM i5-4440 3.10GHz + NVIDIA® GeForce® GTX 660 or higher
  - Laptop: Intel® Core i7-4810MQ + NVIDIA GeForce GTX 870M or higher
  - 4GB RAM or higher

> ⚠ 1. Video quality is affected by the capability of computer and software settings.
> 2. Please use the included USB 3.0 cable in the box to protect the device and avoid further compatibility issues.
> 3. NOT SUPPORTED
>   (1) Resolution downscaling from 4K2K@60 4:2:2 to 1080P
>   (2) 4K2K@60 4:2:2 to 4K2K@60 4:2:0

PACKAGE CONTENTS

- 1x BG-C2HA
- 1x USB 3.0 to A Cable (host to device)
- 1x DC 5V wall wart
- 1x User Manual

SPECIFICATIONS

Model Name	BG-C2HA
Technical	
Role of usage	Video Capture Device
Input Video bandwidth	Single-link 600MHz [18Gbps]
Output Video bandwidth	Up to 350MBps (USB)
Video support(USB)	Up to 1080p60
Video support(Loopout)	Up to 4K2K60
Audio Input	HDMI Embedded Audio & Stereo audio Input
Audio Format	2CH 16bit PCM
Recording Mode	Software Compression
Recording Video Format	YUY2 (USB3.0), MJPG (USB2.0/3.0)
ESD protection	Human body model — ±15kV [air-gap discharge] & ±8kV [contact discharge]
PCB stack-up	6-layer board [impedance control — differential 100$_\Omega$; single 50$_\Omega$]
Firmware update	Feasible via USB Port
Input	1x HDMI + 1x 3.5mm
Output	1x USB + 1x HDMI +1x 3.5mm
HDMI connector	Type A [19-pin female]
USB connector	USB 3.0 Type A (SuperSpeed USB)
Software compatibility (not complete list)	OBS Studio (Windows, Linux), AMCap (Windows), Potplayer (Windows), VLC (OS X, Linux), XSplit Boardcast (Windows), Skype (Windows, OS X), Zoom (Windows), Hangout (Windows), TeamViewer (Windows)
OS Support	Windows 7 /8.1 /10, Mac and Linux OS
Mechanical		
Housing		Metal enclosure
Dimensions [L x W x H]	Model	105 x 68 x 24mmmm [4.1" x 2.7" x 0.9"]
	Package	198 x 137 x 74mm [7.8" x 5.4" x 2.9"]
	Carton	420 x 400 x 300mm [1'4"x 1'3" x 11.8"]
Weight	Model	132g [4.6 oz]
	Package	404g [14.2 oz]
Fixedness		Wall-mounting case with screws
Power supply		5V 2A DC
Power consumption		3 Watts [max]
Operation temperature		0~40°C [32~104°F]
Storage temperature		-20~60°C [-4~140°F]
Relative humidity		20~90% RH [no condensation]

PANEL DESCRIPTIONS

1. **HDMI IN:** Connect to a HDMI source

2. **LED INDICATOR:** Input signal indicator LED

3. **STEREO AUDIO IN:** Connect to analog stereo audio source

4. **Micro-USB Port:** Connect to the +5V DC power supply unit

5. **STEREO AUDIO OUT:** Audio extracts from HDMI input

6. **USB OUT:** Connect to a USB host (PC, NB, MAC…)

7. **HDMI LOOPOUT:** Connect to a HDMI display

CONNECTION DIAGRAM
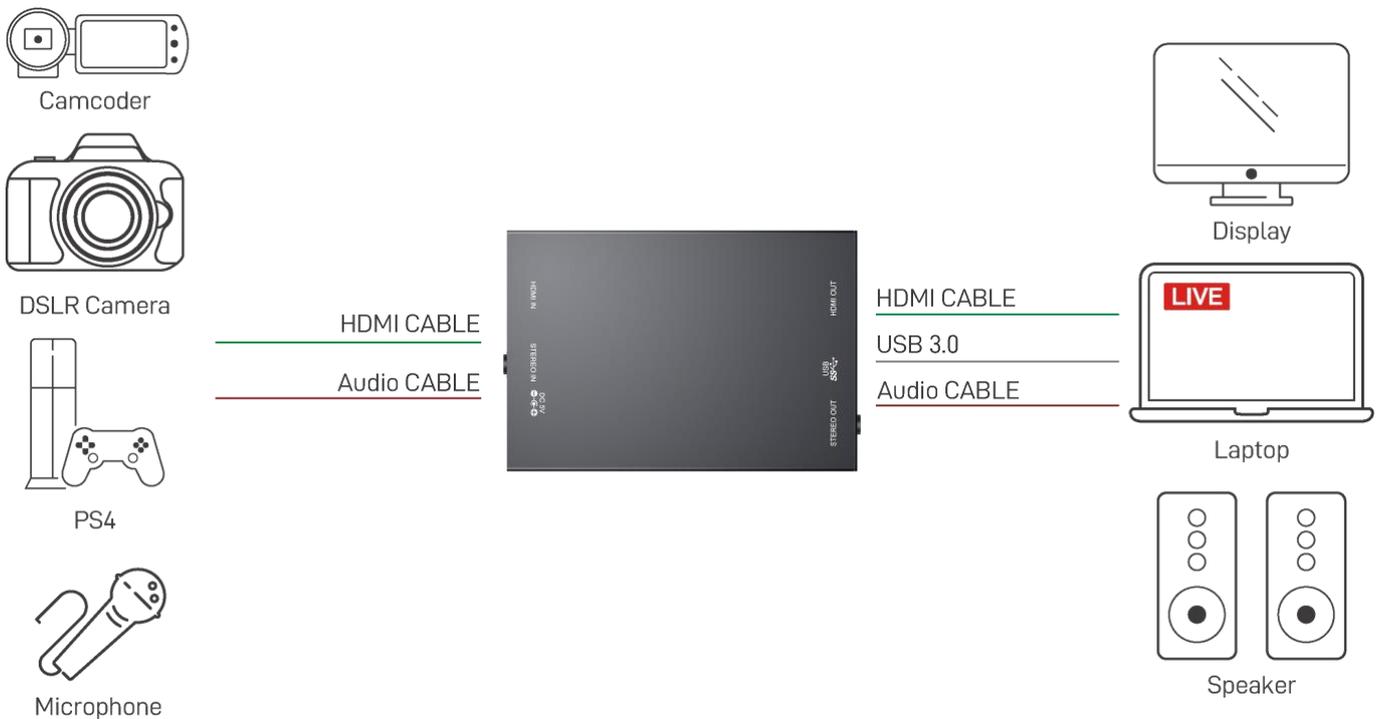
VIDEO STREAMING

Create a Video Stream

Users can create video streams on the streaming service platform of choice. The below steps show how to complete the video streaming settings from Twitch and YouTube.
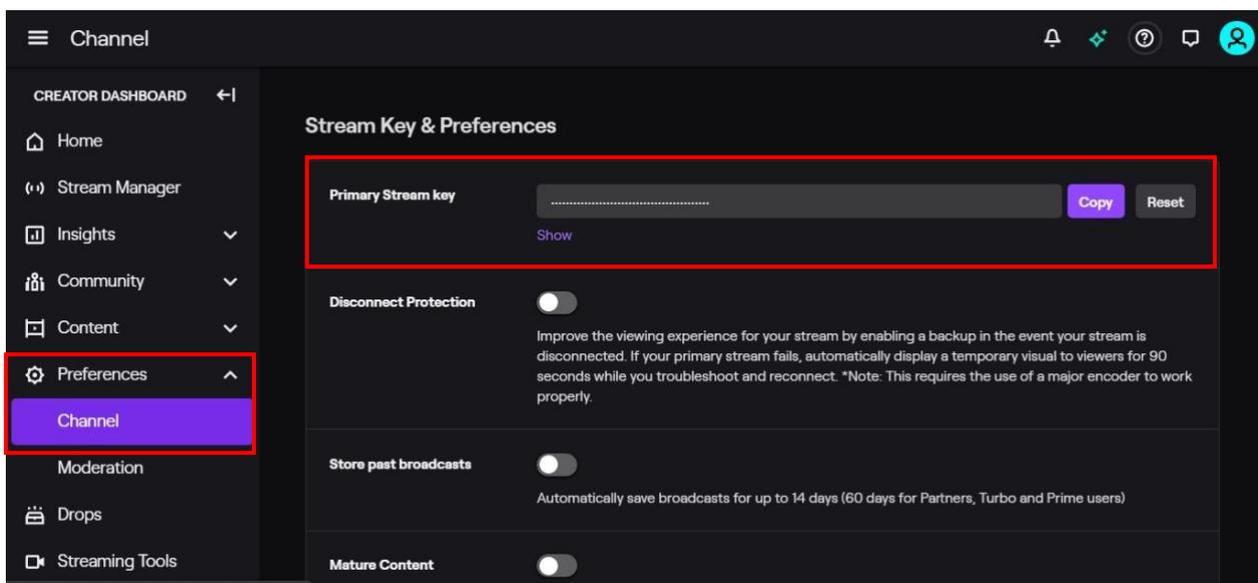
Twitch

1. Browse the Twitch website (https://www.twitch.tv/) and log in, then select **"Creator Dashboard"** from your account drop-down menu at the top right of the screen.
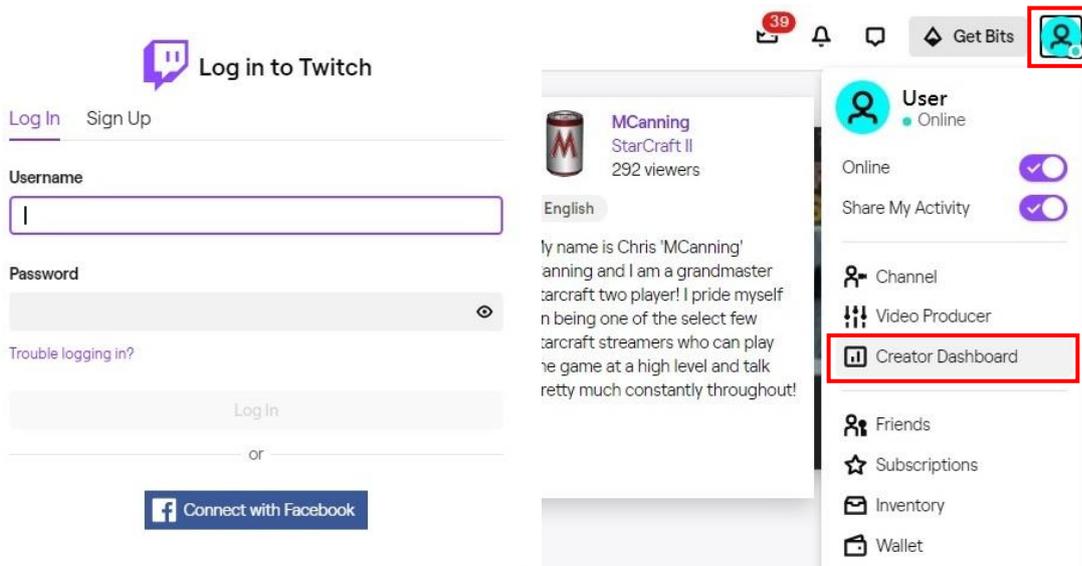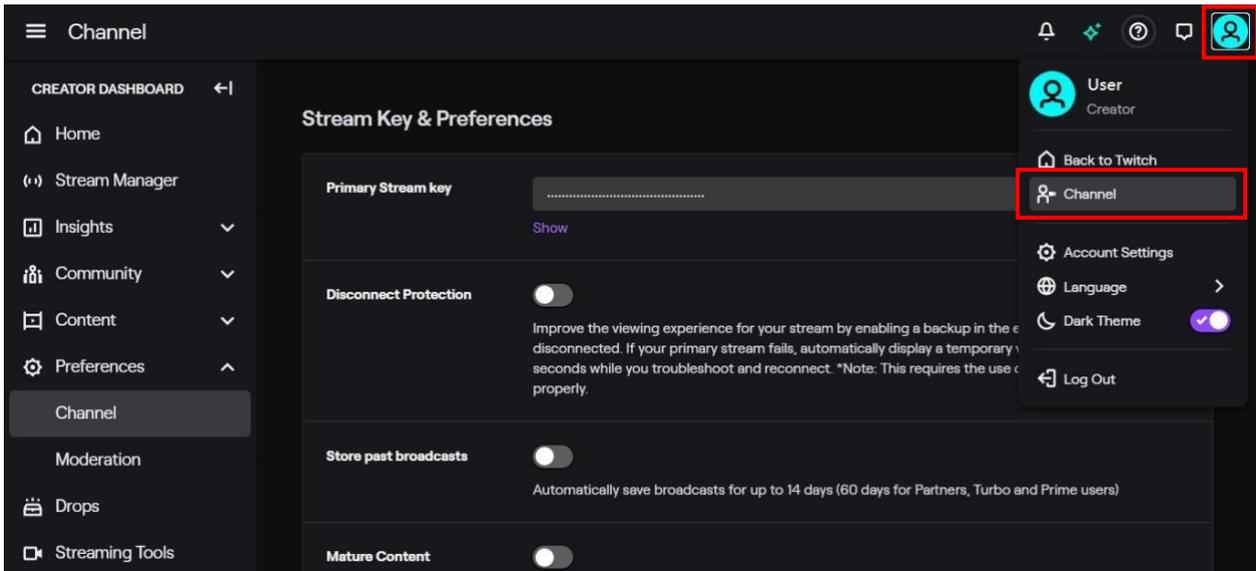

2. Find **"Preferences"** in the left menu, and click **"Channel"**, then you will see **"Primary Steam key"** on the screen. Copy the **"Primary Steam key"** and paste it into the **"Stream Key"** field in the OBS, then click **"Start Streaming"** in the software.
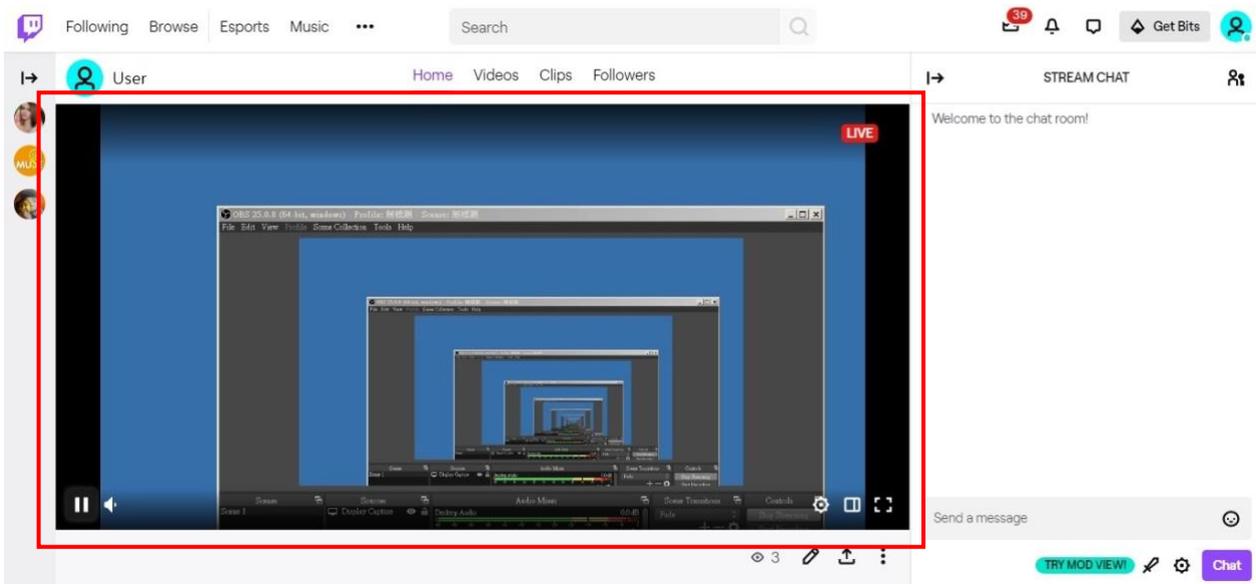
   * Please refer to steps 4-6 of the OBS software control program.

3. Go back to Twitch and select **"Channel"** from your account drop-down menu.

4. At this point, you will see the player start live streaming.

YouTube

1. Browse the YouTube website (https://www.youtube.com/) and log in, then lick **"Go live"** from the **"Create"** icon menu at the top right of the screen.

   * If your account is using YouTube for the first time to create a video stream, you need to wait 24 hours to enable the function.
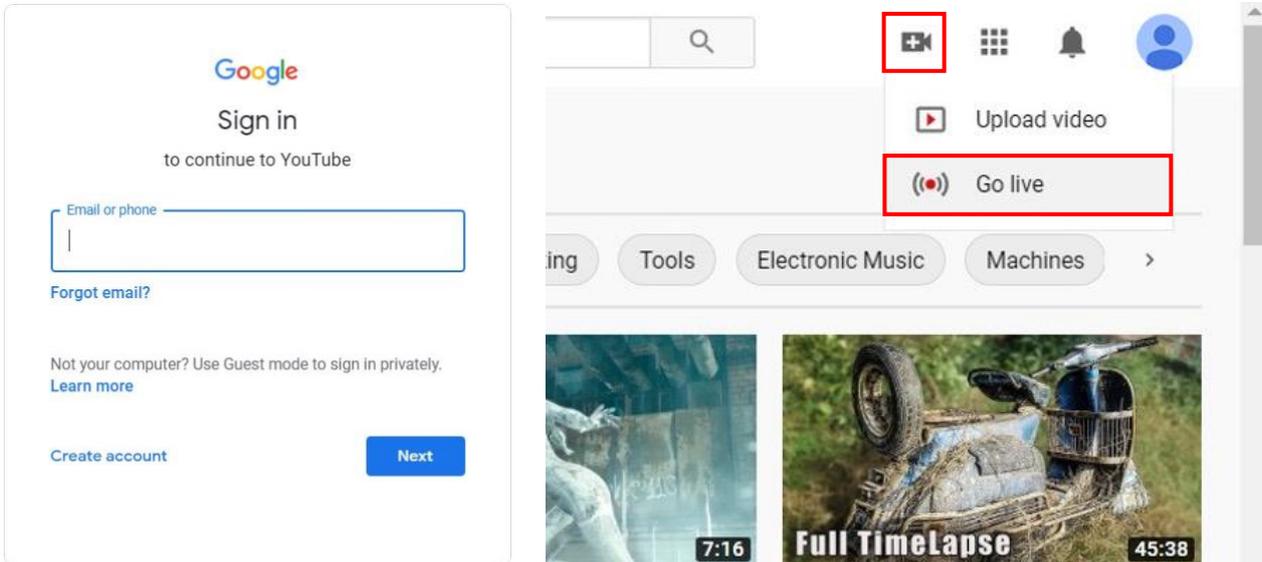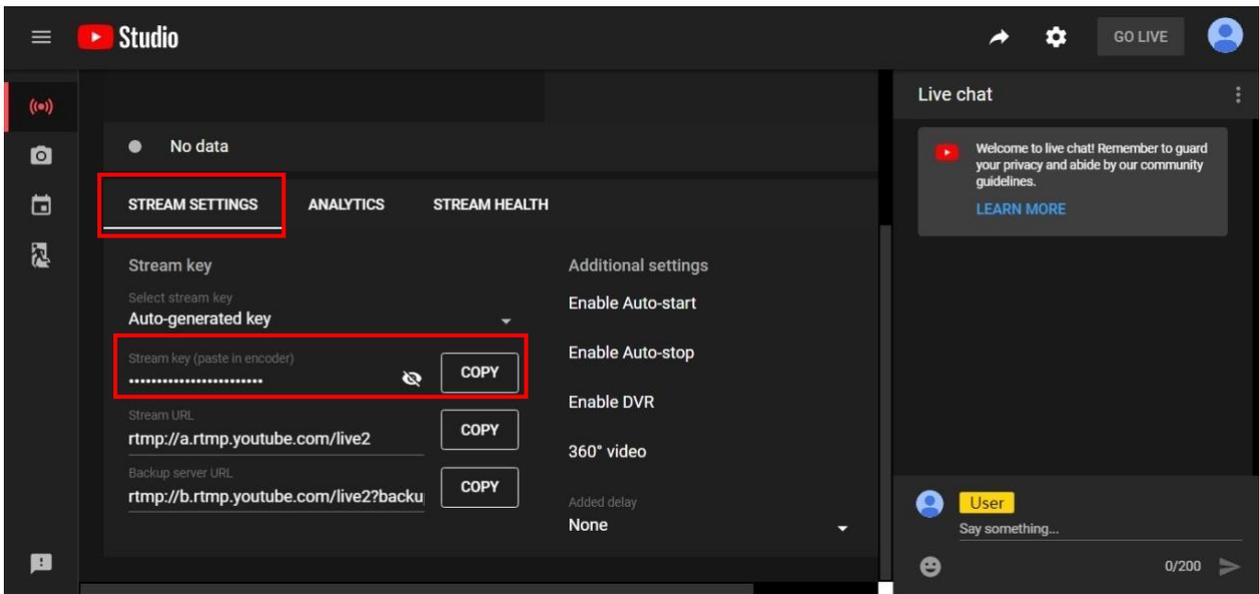

2. Click **"Stream"** in the left menu, and fill in the relevant information of the live video to create a new stream.
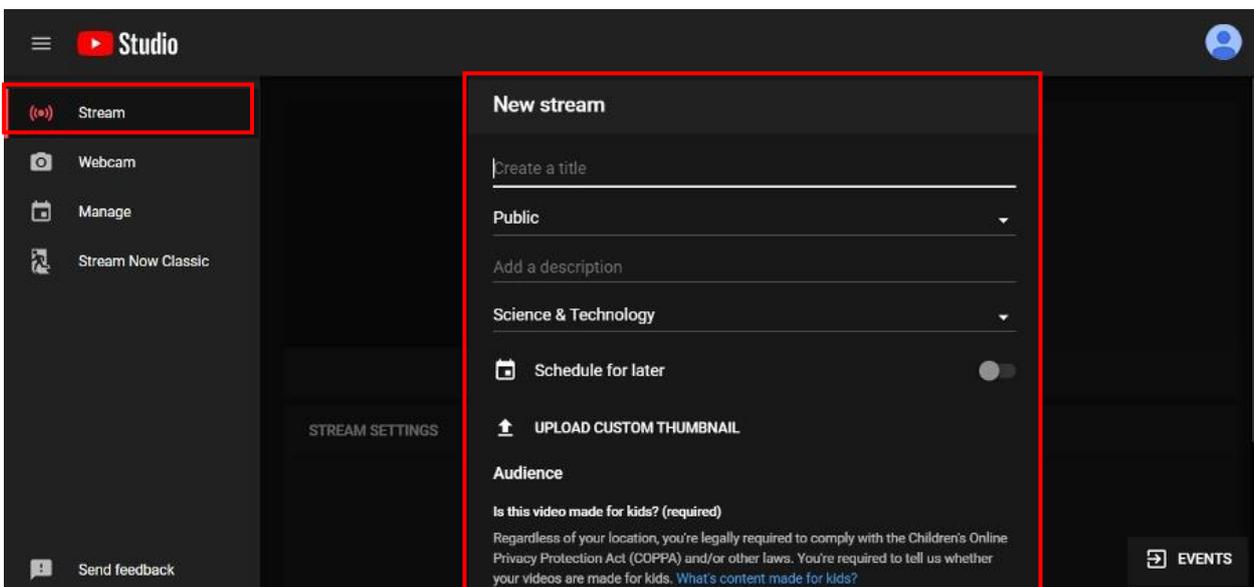
3. You will see **"Stream key"** from the **"STREAM SETTINGS"** below. Copy the **"Stream key"** and paste it into the **"Stream Key"** field in the OBS, then click **"Start Streaming"** in the software.
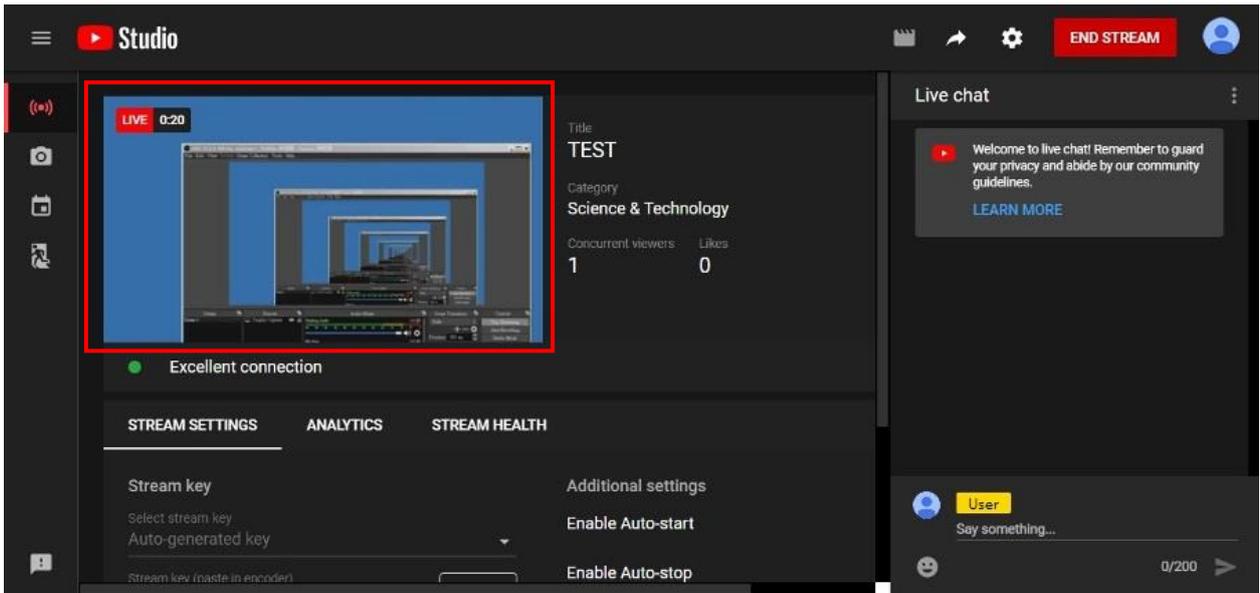
   * Please refer to steps 4-6 of the OBS software control program.

4. Next, go back to YouTube, and then wait for 30-60 seconds, the player will display the live preview. At the same time, the "GO LIVE" button at the top right will turn blue, please press this button.
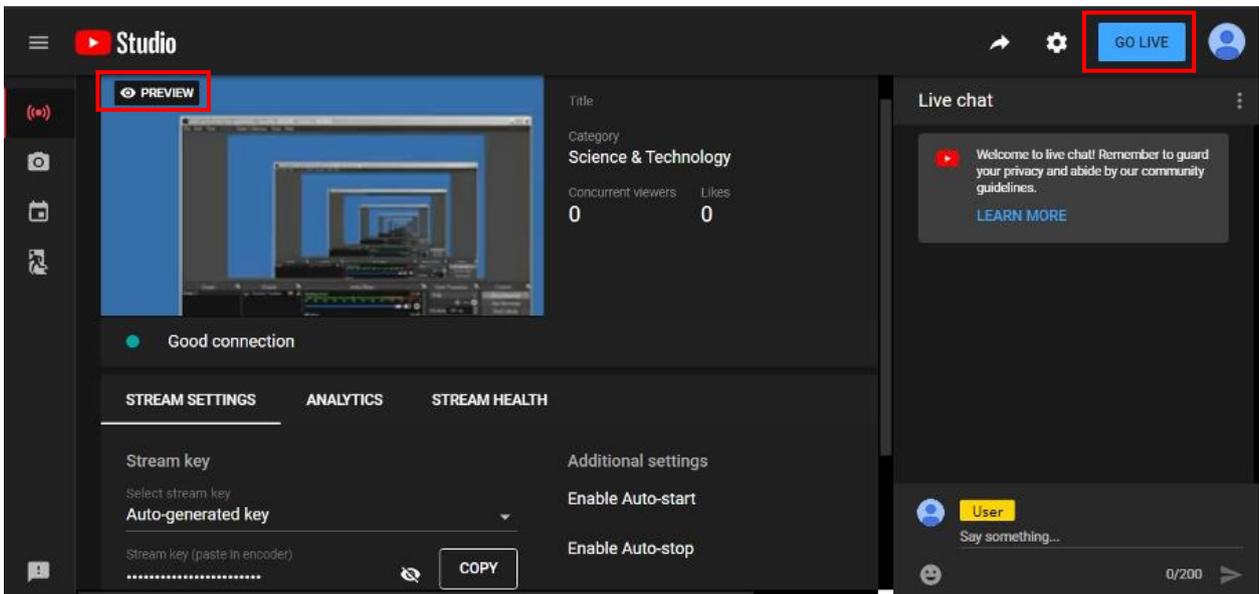
5. The player on YouTube will start live streaming.

Stream and record videos with OBS

OBS is a popular USB capture freeware and has excellent compatibility. Please start with OBS if users are not familiar with USB capture devices.
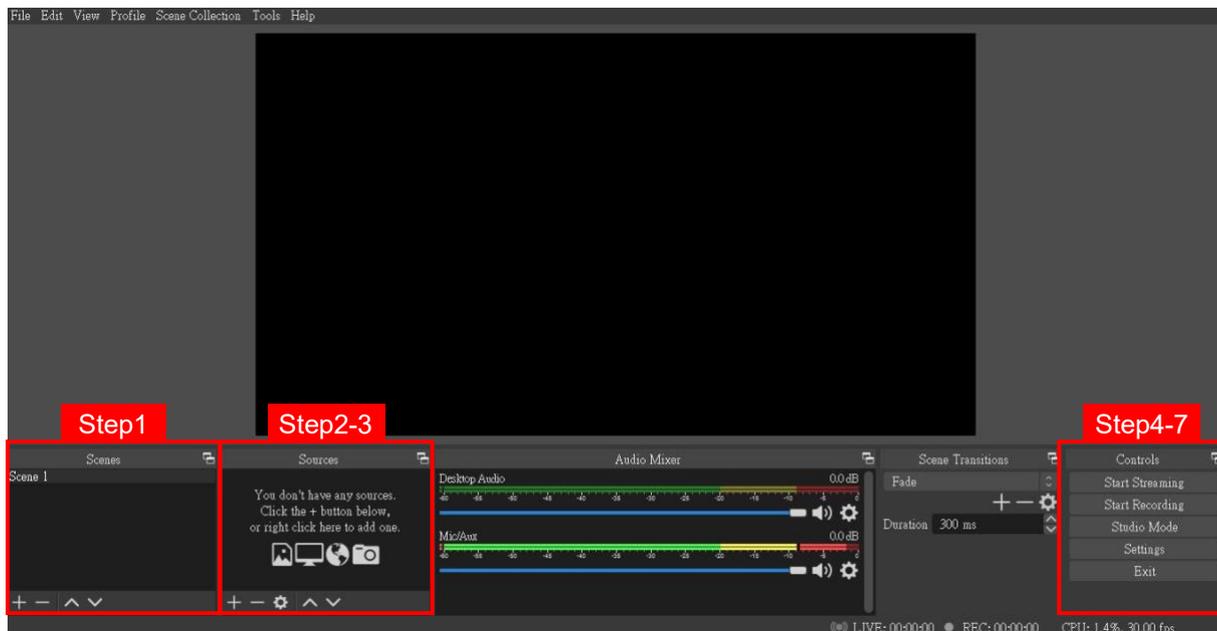
Download the software

Browse the download page of the OBS official website (https://obsproject.com/download), then select the suitable computer operating system and start downloading.
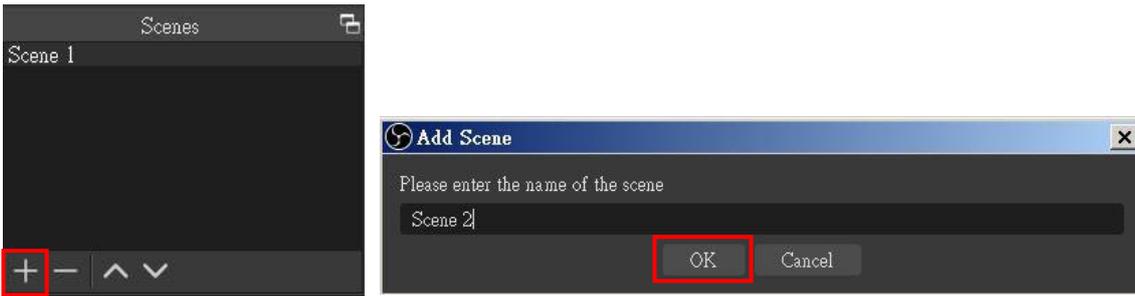

Start the software control program

After downloading the software, please open it and follow the below steps to complete the video streaming settings.

1. First, find the **"Scenes"** window, click **"+"** in the lower left corner, and then enter the name of the scene to create a new scene.

2. Find the **"Source"** window, click **"+"** in the lower left corner, and then select **"Display Capture"** or **"Video Capture Device"** to create a new source.
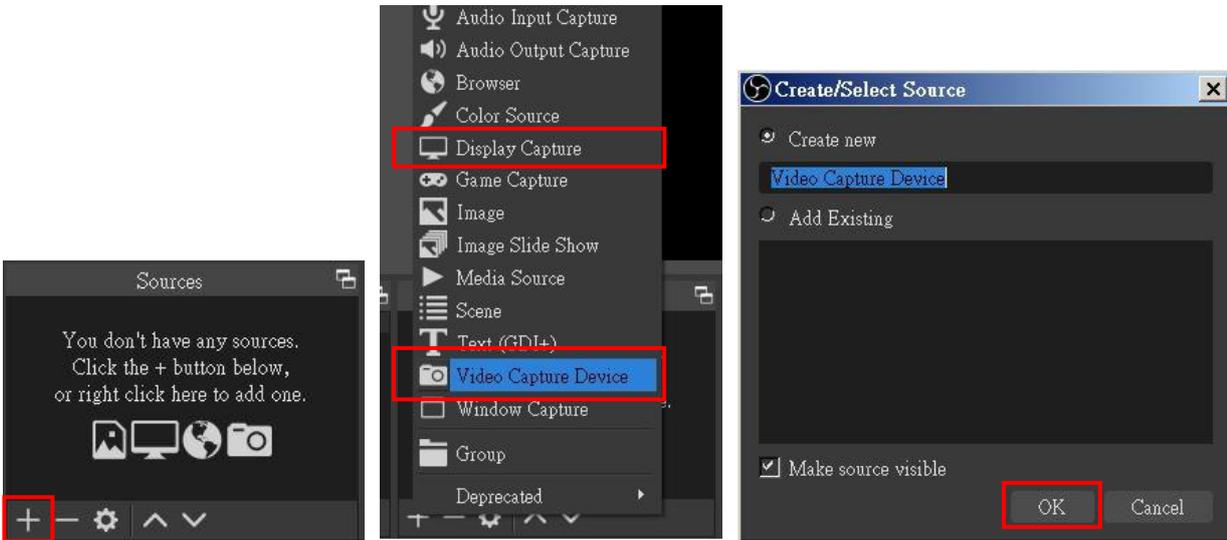
3. Next, you can set display capture properties. If you select **"Display Capture"** in step 2, you can select the primary monitor or other extended monitor as the display source. If you select **"Video Capture Device"** in step 2, you can select USB video device as the display source. After all settings are completed, click **"OK"**.
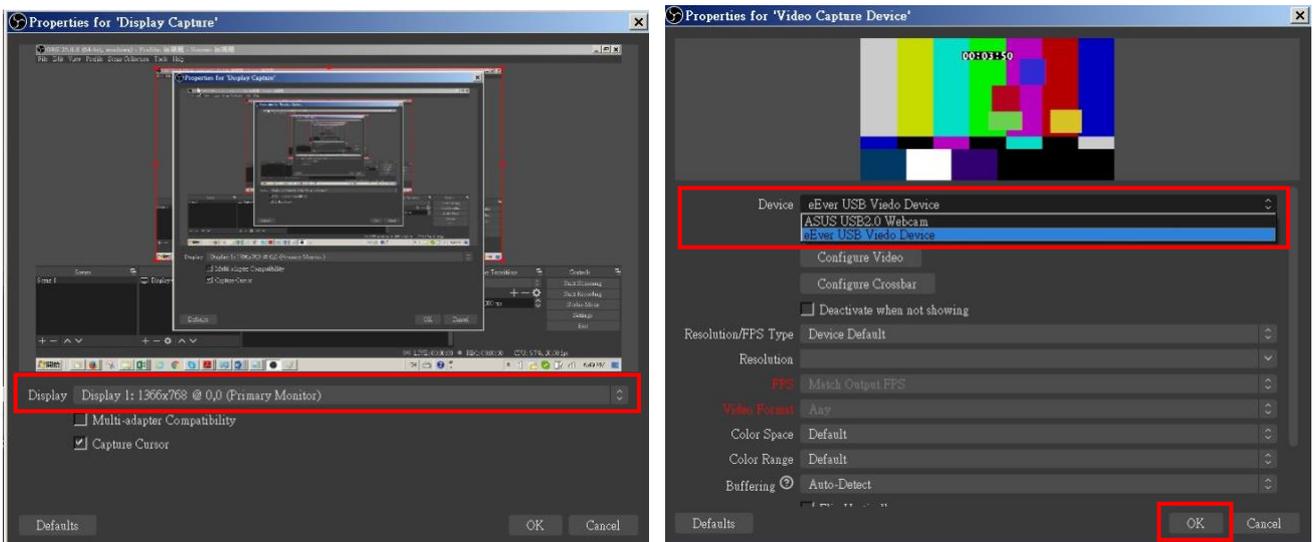
4. Click **"Settings"** and then select **"Stream"** to perform streaming settings. Users can choose service providers, including Twitch, YouTube, etc.
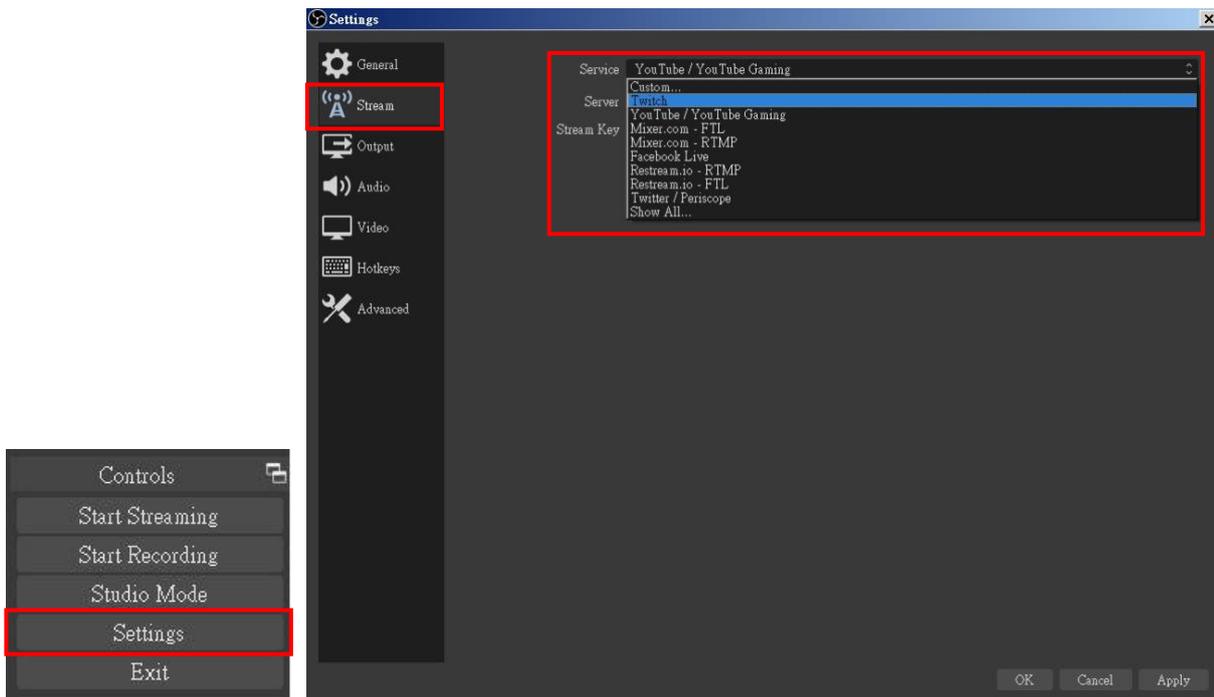
5. Paste the stream key provided by the service provider into the **"Stream Key"** field, then click **"Apply"** and **"OK"** after setting. In addition, users can lick **"Get Stream Key"** at this step to open the service provider website.

6. Please click **"Start Streaming"**. At this time, the screen after clicking **"Start Streaming"** will be displayed in the live video.

7. On the other hand, users can also click **"Start Recording"** to record videos with OBS. Besides, you can click **"Settings"** and then select **"Output"** to set **"Recording Path"** and **"Recording Format".**
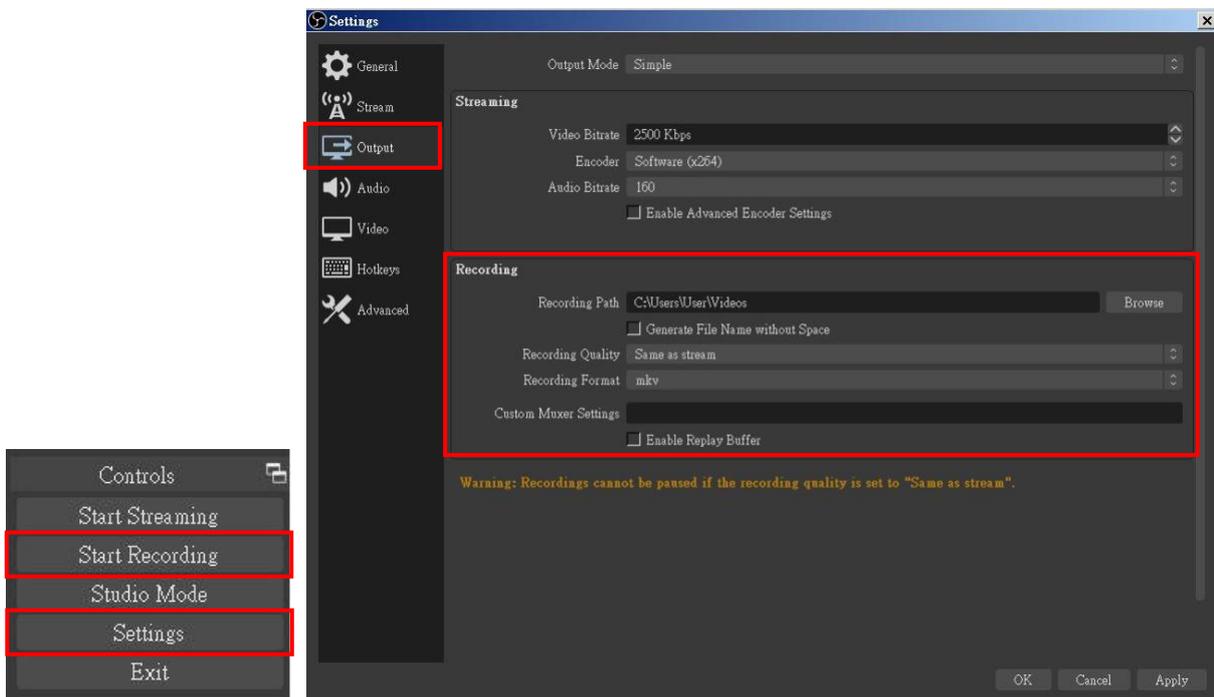
The procedures the manual demonstrates are based on the interface that each website provides at the time when the manual is written. The most recent method of live streaming should be similar to the above procedures but is subject to change by the website interface update from the social media platforms.

TROUBLESHOOTING

Our USB device has been subjected to rigorous tests before shipping. Most of the incompatibilities we have experienced are not from the USB capture device itself, but from the sophisticated software and hardware combinations of PCs or laptops. Please try the following suggestions-

1. OBS is a popular USB capture freeware and has excellent compatibility with most devices. Please download it and start with OBS if users are not familiar with USB capture devices.

   https://obsproject.com/download

2. Due to the complexities of OS and computer hardware, different USB ports on PCs or laptops may have different performance or limitations. Please try all USB ports to see if there are any differences.

3. Please use the included USB cable. We do not guarantee the overall performance when the USB capture box is connected with other USB cables.

4. SDI cable quality may also play an essential role when capturing. Please be sure the SDI cable is capable of 1080P@60 SDI signal transmission or better. Try different cables when the device is not able to work as expected.

5. If audio has noise, please adjust sampling frequency setting on PC or laptop. If the default sampling rate is 48000 Hz, please select 44100 Hz and vice versa. The path of setting sampling frequency on windows 10 is:

   Start $\rightarrow$ Setting $\rightarrow$ System $\rightarrow$ Sound $\rightarrow$ Device properties $\rightarrow$ Additional device properties $\rightarrow$ Advanced

USB PIN DEFINITION

	P1		P2
VBUS	1	⟷	1
D-	2	⟷	2
D+	3	⟷	3
GND	4	⟷	4
SSRX-	5	⟷	5
SSRX+	6	⟷	6
GND	7	⟷	7
SSTX-	8	⟷	8
SSRX+	9	⟷	9
Shield	SHELL	⟷	SHELL

WARRANTY

BZBGEAR wants to assure you peace of mind. We're so confident in the quality of our products that along with the manufacturer's one-year limited warranty, we are offering free second-year warranty coverage upon registration*.

Taking advantage of this program is simple, just follow the steps below:

1. Register your product 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 questions, please call 1.888.499.9906 or email support@bzbgear.com.

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

*Terms and conditions apply. Registration is required.

MISSION STATEMENT

BZBGEAR manifests from the competitive nature of the audiovisual 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 the solution for small to medium-sized applications requiring the latest professional products in AV.

We live in a DIY era where resources are abundant on the internet. With that in mind, our team offers system design consultation and expert tech support seven days a week for the products in our BZBGEAR catalog. You'll notice comparably lower prices with BZBGEAR solutions, but the quality of the products is on par with the top brands in the industry. The unparalleled support from our team 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 the solutions to allow you to focus on your project and not your budget.