

BG-CSA

USB 3.1 Gen 1 3G-SDI Capture Device with Scaler and Audio

User Manual



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INTRODUCTION

The **BG-CSA USB 3.1 Gen 1 3G-SDI Capture Device with Scaler and Audio** provides a professional way to capture 3G/HD/SD-SDI signals. It utilizes the USB 3.1 Gen 1 (USB 3.0) interface to achieve high-speed transmission. With this device users can capture 3G/HD/SD-SDI signals. Additionally, BG-CSA can capture and display original uncompressed 3G/HD/SD-SDI with realistic color rendition. BG-CSA also uses large volume image buffer technology which effectively avoids video tearing. The high sampling rate and high sampling accuracy assure images with high sharpness, rich details, and fewer color edges.

FEATURES

- SDI output resolution scaler with audio embedding
- SDI video and audio streams over USB 3.1 Gen 1
- Supports UVC1.0
- Supports input and output video resolution up to 1080p 60Hz
- Supports SDI loop through
- Auto-detection on 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 3.1 (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 3.1 cable in the box to protect the device and avoid further compatible issues.

PACKAGE CONTENTS

- 1x BG-CSA
- 1x USB 3.1 Gen 1 A to A Cable (host to device)
- 1x User Manual

SPECIFICATIONS

| Model | Name | BG-CSA | | | | | | | |
|---|----------------------------|---|--|--|--|--|--|--|--|
| Technical | | | | | | | | | |
| Role of usage | | Video Capture Device | | | | | | | |
| Input Video b Output Video | andwidth bandwidth | 2.970 Gbit/s, 2.970/1.001 Gbit/s Up to 350MBps (USB) | | | | | | | |
| Video suppor | t | Up to 1080p60 | | | | | | | |
| Audio Input | | SDI Embedded Audio & Stereo audio Input | | | | | | | |
| Audio Format | | 2 Channel, 44.1 and 48KHz sample rate, up to 16bit PCM | | | | | | | |
| Recording Mc | de | Software Compression | | | | | | | |
| Recording Vid | eo Format | YUY2 (USB3.1 Gen 1), MJPG (USB2.0/3.1 Gen 1) | | | | | | | |
| ESD protectio | n | 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 upd Input | late | Via USB Port 1x SDI + 1x 3.5mm | | | | | | | |
| Output | | 1x USB + 1x SDI (Loopout) | | | | | | | |
| BNC connector | | 3G 75 Ω inter-locked socket | | | | | | | |
| USB connecto Software com (not complete | r patibility e list) | USB 3.1 Type A (SuperSpeed USB) OBS Studio (Windows, Linux), AMCap (Windows), Potplayer (Windows), Skype (Windows, OS X), Hangout (Windows), TeamViewer (Windows) | | | | | | | |
| OS Support | , | Windows 7 /8.1 /10, Mac and Linux OS | | | | | | | |
| Mechanical | | | | | | | | | |
| Housing | | Metal enclosure | | | | | | | |
| Dimonsions | Model | 102 x 57 x 21mm [4" x 2.2" x 0.8"] | | | | | | | |
| | Package | 165 x 111 x 42mm [6.4" x 4.4" x 1.7"] | | | | | | | |
| | Carton | 490 x 426 x 352mm [1'6" x 1'4" x 13.8"] | | | | | | | |
| Woight | Model | | | | | | | | |
| vveigni | Package | | | | | | | | |
| Fixedness | | Wall-mounting case with screws | | | | | | | |
| Power supply | | Via USB | | | | | | | |
| Power consur | nption | 4 Watts [max] | | | | | | | |
| Operation ter | nperature | 0~40°C [32~104°F] | | | | | | | |
| Storage temp | erature | -20~60°C [-4~140°F] | | | | | | | |
| Relative humi | dity | 20~90% RH [no condensation] | | | | | | | |

PANEL DESCRIPTIONS



- 1. USB OUT: Connect to a USB host (PC, NB, MAC...)
- 2. STEREO AUDIO IN: Connect to analog stereo audio source
- 3. AUDIO SWITCH: [left] Audio from stereo audio in, [right] Audio from SDI
- 4. SDI IN: Connect to a 3G/HD/SD-SDI source
- 5. LED INDICATOR: Input signal indicator LED
- 6. SDI LOOPOUT: Connect to a 3G/HD/SD-SDI display

CONNECTION DIAGRAM



VIDEO STREAMING

Create a Video Stream

Users can create video streams on their 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.

| 🕎 Log in to Twitch | | <u>.</u> | 🗘 📮 🔷 Get Bits [|
|----------------------------|---|--|-------------------|
| Log In Sign Up Username | | MCanning StarCraft II 292 viewers | Online |
| 1 | | English | Share My Activity |
| Password | o | ly name is Chris 'MCanning' anning and I am a grandmaster :arcraft two player! I pride myself n being one of the select few | A- Channel |
| Trouble logging in? | | tarcraft streamers who can play the game at a high level and talk retty much constantly throughout | Creator Dashboard |
| | | reay much constantly anoughous | R Friends |
| or | | | ✿ Subscriptions |
| Connect with Facebook | | | P Inventory |
| | | | 🗂 Wallet |

 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.

| | Channel | | | Ċ | \$ | 0 | ₽ | 8 | | | | | |
|--------|------------------|----|-----------------------|---|---------|-----|----|---|--|--|--|--|--|
| ୍ ଜ | REATOR DASHBOARD | ←I | Stream Key & Preferen | ces | | | | | | | | | |
| (11) | Stream Manager | | Primary Stream key | | Сору | Res | et | | | | | | |
| J | Insights | * | | Show | | | | | | | | | |
| iði | Community | * | Disconnect Protection | | | | | | | | | | |
| Ð | Content | ~ | | Improve the viewing experience for your stream by enabling a backup in the event your stream is | | | | | | | | | |
| ٥ | Preferences | ^ | | seconds while you troubleshoot and reconnect. *Note: This requires the use of a major encoder to work | | | | | | | | | |
| | Channel | | | proporty. | | | | | | | | | |
| | Moderation | | Store past broadcasts | | | | | | | | | | |
| ä | Drops | | | Automatically save broadcasts for up to 14 days (60 days for Partners, Turbo and Pri | me user | s) | | | | | | | |
| | Streaming Tools | | Mature Content | | | | | | | | | | |

* 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.

| ≡ c | hannel | | | | Ŷ | \$* | 0 | Q | 8 |
|----------|--------------|----|-----------------------|---|--------------|--------------------|----------|---|---|
| CREATO | DR DASHBOARD | ←I | Stream Key & Preferen | ces | 8 | User Creat | r tor | | |
| (1) Stre | eam Manager | | Primary Stream key | | 60.8 A≁ c | ack to 1 hannel | ſwitch | | |
| 🔝 Insig | ghts | ~ | | Show | A • | ccount | Setting | | |
| iåi Con | nmunity | ~ | Disconnect Protection | | С С Ф | anguag | e | | > |
| 🖸 Con | ntent | ~ | | Improve the viewing experience for your stream by enabling a backup in the ϵ | & □ | ark The | me | < | |
| Pref | ferences | ^ | | seconds while you troubleshoot and reconnect. *Note: This requires the use c property. | €] ⊔ | og Out | | | |
| Cha | annel | | | | | | | | |
| Mod | deration | | Store past broadcasts | | | | | | |
| 🛱 Droj | ps | | | Automatically save broadcasts for up to 14 days (60 days for Partners, Turbo a | nd Prime | e users) | | | |
| De Stre | eaming Tools | | Mature Content | | | | | | |

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

| P | Following Browse | Esports | Music | | | Search | | | | (| a | | | 39 | ¢Ç | \$ G | et Bits | 2 |
|-----|------------------|--|------------------------------------|---------------------------------|----------------------|---|--|-----------|---------------------------|----------|----|------|----------|-----------|-----------|-------------|---------|------------|
| ∣→ | 🙎 User | | | | Home | Videos | Clips | Followers | | | | | I→ | | STREAM | CHAT | | A t |
| | | | | | | | | | | | | LIVE | Welcome | to the cl | hat room! | | | |
| MUS | | | | | | | | | | | | | | | | | | |
| | | 0BS 25.0.8 (6 File Edst Vare | H. hit, windowy Inclus Sense Co |) Peolider Mil Jectica Toolo | UN Server: N Help | e i stan | _ | _ | _ | | | | | | | | | |
| | | | | | | | | | | | | | | | | | | |
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| | | | | | 0 14 0 | ann a saine. Cir +1 para | an ing ang ang ang ang ang ang ang ang ang ang ang ang | | Conte S | | | | | | | | | |
| | II • | Sourie Scour I | ÷ | Sources Display Capture | e a Dolog | Aulo | to Moren | | Some Transform R. Fide | Controls | 0 | □ 0 | Send a m | iessage | | | | o |
| | | | | | | | | | | ⊙ 3 | 0. | 1. : | | | TRY MOD | | 0 | Chat |

YouTube

Create account

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.

Q Google Sign in Upload video to continue to YouTube ((.)) Go live Email or phone ing Tools Electronic Music Machines > Forgot email? Not your computer? Use Guest mode to sign in privately. Learn more

* 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.

7:16

Full TimeLaps

Next

| ≡ | ▶ Studio | | | 9 |
|-------|--------------------|-----------------|---|----------|
| ((•)) | Stream | | New stream | |
| ٥ | Webcam | | Create a title | |
| | Manage | | Public 🗸 | |
| 2 | Stream Now Classic | | Add a description | |
| | | | Science & Technology | |
| | | | Schedule for later | |
| | | STREAM SETTINGS | UPLOAD CUSTOM THUMBNAIL | |
| | | | Audience | |
| | | | Is this video made for kids? (required) | |
| | Send feedback | | Regardless of your location, you're legally required to compty with the Children's Online Privacy Protection Act (COPPA) and/or other laws. You're required to tell us whether your videos are made for kids. What's content made for kids? | → EVENTS |

- 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.

| = (| Studio | | 🔶 🌣 🛛 GO LIVE 🤮 |
|-------------|---|--|--|
| ((=)) | | | Live chat |
| Ø | No data | | Welcome to live chat! Remember to guard your privacy and abide by our community |
| • | STREAM SETTINGS ANALYTICS STREAM HEALTH | | guidelines. LEARN MORE |
| R | Stream key Select stream key Auto-generated key Stream key (paste in encoder) Stream URL rtmp://a.rtmp.youtube.com/live2 | Additional settings Enable Auto-start Enable Auto-stop Enable DVR 360° video | |
| j en | rtmp://b.rtmp.youtube.com/live2?backu | Added delay None - | Operation User Say something 0/200 ► |

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.

| = [| Studio | | | | | * | GO LIV | | 2 |
|---|--|-----------|---------------|--|----------------|--|--|---------------------|---|
|) () () () () () () () () () () () () () | PREVIEW Good connection | | | Title Category Science & Technology Concurrent viewers D D D | Live | chat Welcome lo your privacy guidelines. LEARN M | vive chat! Remember and abide by our corr | lo guard xmunity | |
| | STREAM SETTINGS | ANALYTICS | STREAM HEALTH | Additional settings | | | | | |
| pu - | Select stream key Auto-generated key Stream key (paste in encoder) | \$ | СОРУ | Enable Auto-start Enable Auto-stop | () () () | User Say somethin | g | 0/200 | > |

5. The player on YouTube will start live streaming.

| = (| Studio | | | | 111 | • • | END STREAM | 9 |
|---|---|-----------|---------------|--|------------|---|--|----------------|
|) () () () () () () () () () () () () () | Excellent connect | | | Title TEST Category Science & Technology Concurrent viewers Likes 1 0 | | Welcome to I your privacy - guidelines. LEARN MO | ive chatt Remember to and abide by our comm | guard unity |
| | STREAM SETTINGS | ANALYTICS | STREAM HEALTH | | | | | |
| | Stream key | | | Additional settings | | | | |
| | Select stream key Auto-generated key | | | Enable Auto-start | | Say something | | |
| E | Stream key (paste in encoder) | | <u> </u> | Enable Auto-stop | Θ | | 0, | 200 ≽ |

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 (<u>https://obsproject.com/download</u>), then select the suitable computer operating system and start downloading.

| OBS Open Broadcaster Software® | Home | Download | Blog | Help Forum | | | | | | |
|---|------------------------------|----------|------|------------|--|--|--|--|--|--|
| Download OBS Studio Select Your Operating System | | | | | | | | | | |
| | Select Your Operating System | | | | | | | | | |

Start the software control program

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

| File Edit Alem Floint | a posite conscitoit | TOOR LIND | | | | | | | |
|-----------------------|---------------------|--|---|---|--------|---|-----|---|----|
| | | | | | | | | | |
| Step | | Step2-3 | | | | 4 | | Step4-7 | |
| Scenes Scene 1 | 5 | Sources You don't have any sources. Click the + button below, or right click here to add one. Contemportation (Contemportation) (Contempo | Ŀ | Audio Mixer Desitop Audio 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 | D | Scene Transitions 7 Fade urstion 300 ms | | Controls Start Streaming Start Recording Studio Mode Settings Exit | Ę. |
| + - ^ ~ | + | - \$ ^ ~ | | | | | | | |
| | | | | (•) LIV | /E : (| 0:00:00 • REC: 00:00:00 | CPI | I: 1.4%, 30.00 fps | |

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.

| | y Audio Input Capture | | |
|---------------------------------|------------------------------------|-----------------------|--------|
| | ◀) Audio Output Capture | | |
| | 🚱 Browser | Create/Select Source | × |
| | 🖌 Color Source | | |
| | 🖵 Display Capture | Create new | |
| | 😎 Game Capture | Video Capture Device | |
| | 📉 Image | Add Existing | |
| | 🕣 Image Slide Show | | |
| Sources 🖷 | 🕨 🕨 Media Source | | |
| | □ i≣ Scene " | | |
| You don't have any sources. | Text (GDI+) | | |
| Click the + button below, | CO Video Capture Device | | |
| or right click here to add one. | Window Capture | | |
| | E com | | |
| | Group | 🗹 Make source visible | |
| | Deprecated > | OK | Cancel |
| $+ - \diamond \wedge \lor$ | $+ - \mathbf{v} \wedge \mathbf{v}$ | | |

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**".

| Properties for 'Display Capture' | Properties for 'Video Capture Device' | × |
|--|---|-------------|
| Conception of the second secon | C-BC-BC-BC-BC-BC-BC-BC-BC-BC-BC-BC-BC-BC | |
| | Device Ever USB Viedo Device ASUS USB2 O Webcam Configure Viedo Configure Viedo Configure Crossbar Dexcitvate when not showing Resolution/FFS Type Device Default | 0 0 0 |
| Display Display 1: 1366x768 @ 0,0 (Primary Monitor) C Multi-adapter Compatibility I Capture Cursor Defaults OK Cancel | FFS Match Output FFS Viewo Foreau Any Color Space Default Color Color Space Default Buffering ⑦ Auto-Detect Defaults Image: Match Output of Match O | |

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.

| Service | YouTube / YouTube Gaming | | |
|------------|-------------------------------|------|----------------|
| Server | Primary YouTube ingest server | | |
| Stream Key | •••••• | Show | Get Stream Key |

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 current method of live streaming should be similar to the above procedures but is subject to change by the website interface update by the social media platform.

(!)

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 | \longleftrightarrow | 6 |
| GND | 7 | ← → | 7 |
| SSTX- | 8 | ← → | 8 |
| SSRX+ | 9 | ← → | 9 |
| Shield | SHELL | \longleftrightarrow | 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.