

# BG-SAVS

1080P Full HD H.264/265 Streaming SDI Video and Audio Encoder

## User Manual







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## Statement

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

## Safety Precaution

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- 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.
- 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.
- Disconnect power cord by connector only. Do not pull on cable portion.
- Do not place or drop heavy or sharp-edged objects on power cord. A damaged cord can cause fire or electrical shock hazards. Regularly check power cord for excessive wear or damage to avoid possible fire / electrical hazards.
- Ensure unit is always properly grounded to prevent electrical shock hazard.
- Do not operate unit in hazardous or potentially explosive atmospheres. Doing so could result in fire, explosion, or other dangerous results.
- Handle with care to avoid shocks in transit. Shocks may cause malfunction. When you need to transport the unit, use the original packing materials, or alternate adequate packing.
- Turn off the unit if an abnormality or malfunction occurs. Disconnect everything before moving the unit.

**Note:** due to constant efforts to improve products and product features, specifications may change without notice.



## Introduction

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BG-SAVS is an HD audio and video encoder that encodes and compresses SDI video and audio sources into IP stream, and then transmits it to streaming media servers via network IP address to broadcast live on platforms like Facebook, YouTube, Ustream, Twitch, and Wowza.

## Features

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- 1× SDI input, 1× SDI loop out, 1× Analog audio input
- Supports H.265/ H.264 stream encode protocol, up to 1080p60Hz
- Dual-stream (main stream and sub stream)
- RTSP, RTP, RTMPS, RTMP, HTTP, UDP, SRT, unicast and multicast
- Video and audio streaming or single audio streaming
- Image and text overlay
- Mirror image & upside-down image
- Live stream with no need for connecting a computer

## Packing List

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- 1x BG-SAVS Streaming Encoder
- 1x User Manual
- 1x 12V power supply unit
- 1x Quick Start Guide



## Technical Specifications

CONNECTIONS	
Video Input	SDI Type A x 1
Video Loop Out	SDI Type A x 1
Analog Audio	3.5mm (line in) x 1
Network	RJ-45 x 1 (100/1000Mbps self-adaptive Ethernet)
STANDARDS	
SDI In Format Support	1080p@60/59.94/50/30/29.97/25/24/23.98/23.976, 1080i@50/59.94/60, 720p@60/59.94/50/30/29.97/25/24/23.98, 576i@50, 576p@50, 480p@59.94/60, 480i@59.94/60
Video Coding	H.265/ H.264
Video Bitrate	16Kbps ~ 12Mbps
Audio Coding	ACC/ MP3/ MP2/ G711
Audio Bitrate	24Kbps ~ 320Kbps
Encoding Resolution	1920×1080, 1680×1056, 1280×720, 1024×576, 960×540, 850×480, 720×576, 720×540, 720×480, 720×404, 720×400, 704×576, 640×480, 640×360
Encoding Frame Rate	5-60fps
SYSTEMS	
Network Protocols	HTTP, RTSP, RTMP, RTP, UDP, Multicast, Unicast, SRT
Configuration Management	Web configuration, Remote upgrade
OTHERS	
Consumption	5W
Temperature	Working temp: 14°F~140°F / -10°C~60°C , Storage temp: -4°F~158°F / -20°C~70°C
Dimension (LxWxD)	4.1 x 3 x 1in [104 x 76 x 25mm]
Weight	Net weight: 0.7 lbs [310g], Gross weight: 1.5 lbs [690g]



## Operation Controls and Functions



1. **LAN:** Streaming interface
2. **Audio In:** Stereo audio input for connecting mics or local audio sources
3. **SDI IN:** Crystal clear image with resolutions up to 1080p@60Hz
4. **SDI Loop Out:** Crystal clear image with resolutions up to 1080p@60Hz
5. **Power:** Use supplied Power Adapter

## Network Configuration

Connect the encoder to network via a network cable. The encoder can auto obtain a new IP address when it is using DHCP on the network, or disable DHCP and configure the encoder and computer's network in the same network segment. The default IP information is below:

IP Address: **192.168.1.168**

Subnet Mask: **255.255.255.0**

Default Gateway: **192.168.1.1**

**Note:** Your computer's IP address cannot be the same as the encoders.

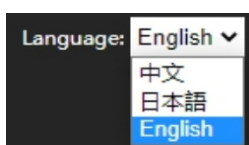
Visit encoder's IP address **192.168.1.168** through an Internet browser to login the WEB page for setting up. The default Username is admin, and password is admin.

## Management Web Page

The encoding settings can be set on the encoder management web page.

### Language Settings

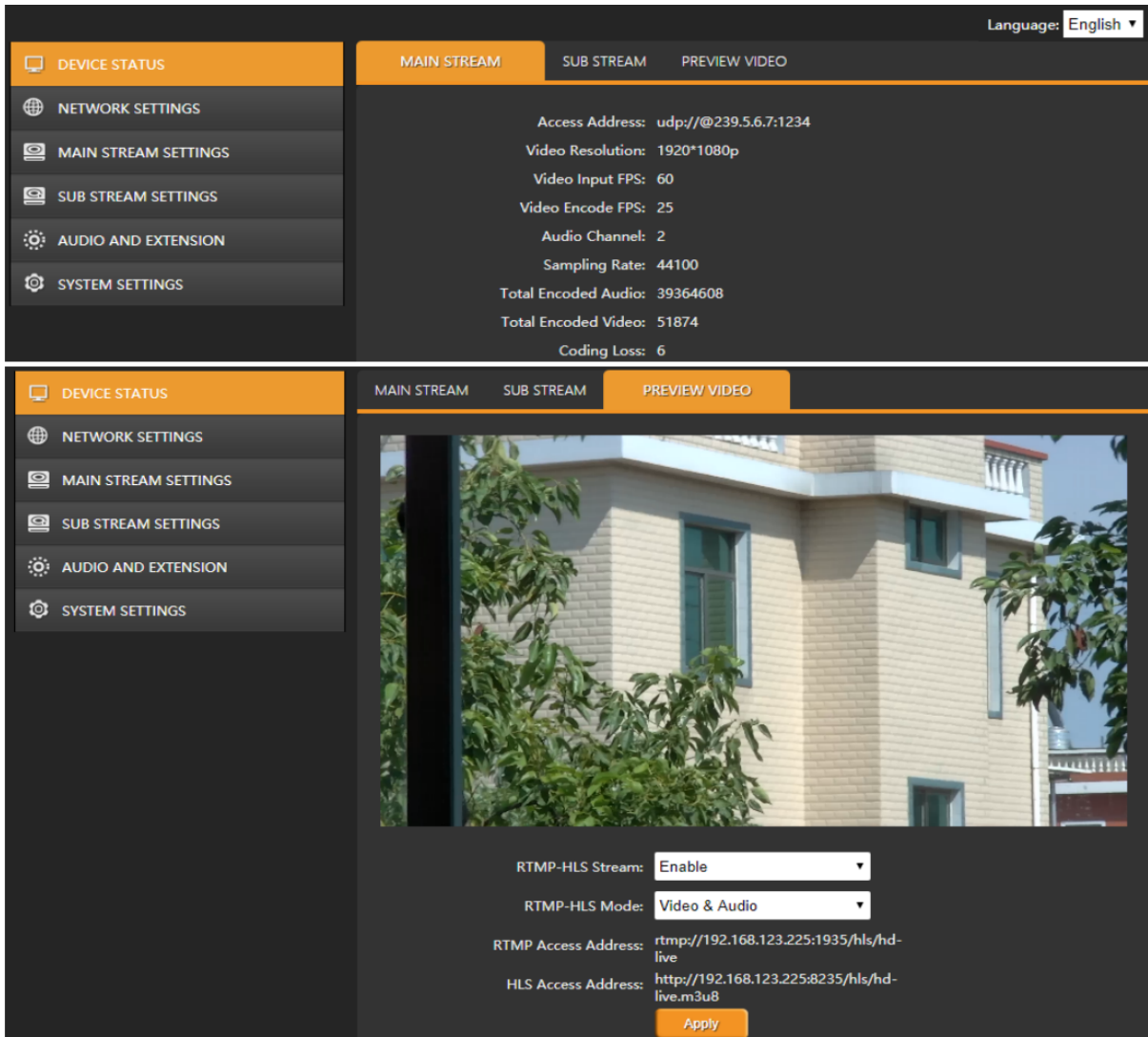
English, Chinese (中文), and Japanese (日本語) languages are available as options on the top-right corner of the encoder management web page.





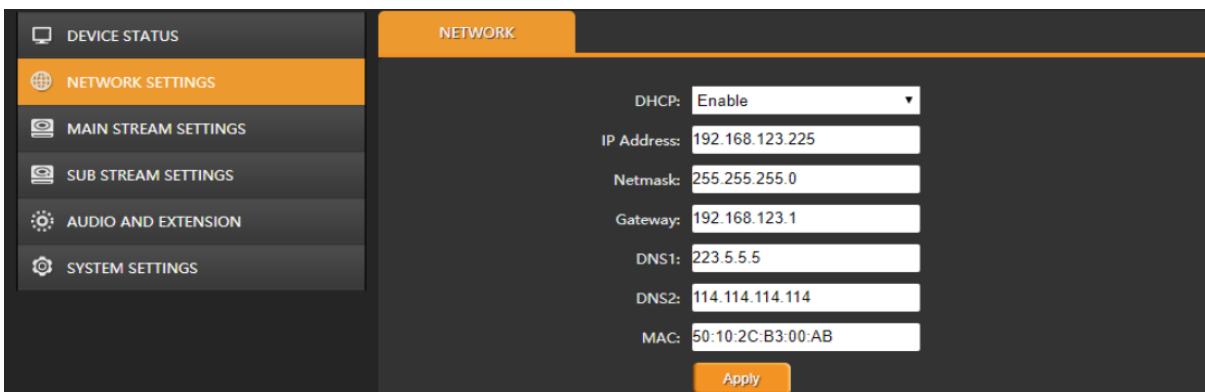
### Device Status

The status of MAIN STREAM and SUB STREAM can be viewed on the webpage as well as a preview on the streaming video on the PREVIEW VIDEO tab.



### Network Settings

The network can be set to dynamic IP (DHCP Enable) or static IP (DHCP Disable). The default IP information is listed above under Network Configuration.







## Main Stream Settings

The main stream can be set to “mirror image” and “upside-down image” from the MAIN PARAMETER tab. Configure main stream network protocol RTMP/ HTTP/ RTSP/ UNICAST /MULTICAST/ RTP/ SRT accordingly. Please note that only one of HTTP/ RTSP/ UNICAST /MULTICAST/ RTP can be enabled at a time.

The screenshot shows the 'MAIN PARAMETER' tab selected in the settings menu. The left sidebar contains navigation options: DEVICE STATUS, NETWORK SETTINGS, MAIN STREAM SETTINGS (highlighted), SUB STREAM SETTINGS, AUDIO AND EXTENSION, and SYSTEM SETTINGS. The main content area displays the following configuration options:

- Stream Protocol: H.264
- Mirror Image: Enable
- Upside-down Image: Enable
- Aspect Ratio: Auto
- Bitrate Control: CBR
- Keyframe Interval: 30 [5-200]
- Encode Resolution: Auto
- Bitrate: 3200 [16-12000]
- Fluctuate Level: Auto
- H.264 Profile: Main profile
- Encoding Frame Rate: 25 [5-60]
- Package: FFmpeg
- Buffer Mode: 188x7

An 'Apply' button is located at the bottom right of the configuration area.

The screenshot shows the 'RTMP' tab selected in the settings menu. The left sidebar is the same as in the previous screenshot. The main content area displays the following configuration options:

- RTMP Mode: Enable
- RTMP Method: URL Mode
- RTMP Content: Video & Audio
- RTMP URL:

An 'Apply' button is located at the bottom right of the configuration area.

The screenshot shows the 'HTTP' tab selected in the settings menu. The left sidebar is the same as in the previous screenshots. The main content area displays the following configuration options:

- HTTP: Enable
- HTTP Path: /sdi Start with "/"
- HTTP Port: 80 [1-65535]

An 'Apply' button is located at the bottom right of the configuration area.



DEVICE STATUS  
 NETWORK SETTINGS  
 MAIN STREAM SETTINGS  
 SUB STREAM SETTINGS  
 AUDIO AND EXTENSION  
 SYSTEM SETTINGS

MAIN PARAMETER RTMP HTTP **RTSP** UNICAST MULTICAST RTP SRT

RTSP:    
 RTSP Path:  Start with "/"  
 RTSP Port:  [1-65535]  
 RTSP Authentication:    
 RTSP Content:    
 RTSP TCP:    
 TTL:  [0-255]

DEVICE STATUS  
 NETWORK SETTINGS  
 MAIN STREAM SETTINGS  
 SUB STREAM SETTINGS  
 AUDIO AND EXTENSION  
 SYSTEM SETTINGS

MAIN PARAMETER RTMP HTTP RTSP **UNICAST** MULTICAST RTP SRT

Unicast:    
 Unicast IP:  [Support domain or IP format]  
 Unicast Port:  [1-65535]

DEVICE STATUS  
 NETWORK SETTINGS  
 MAIN STREAM SETTINGS  
 SUB STREAM SETTINGS  
 AUDIO AND EXTENSION  
 SYSTEM SETTINGS

MAIN PARAMETER RTMP HTTP RTSP UNICAST **MULTICAST** RTP SRT

Multicast:    
 Multicast IP:   
 Multicast Port:  [1-65535]

DEVICE STATUS  
 NETWORK SETTINGS  
 MAIN STREAM SETTINGS  
 SUB STREAM SETTINGS  
 AUDIO AND EXTENSION  
 SYSTEM SETTINGS

MAIN PARAMETER RTMP HTTP RTSP UNICAST MULTICAST **RTP** SRT

RTP:    
 RTP Server IP:   
 RTP Port:  [1-65535]

DEVICE STATUS  
 NETWORK SETTINGS  
 MAIN STREAM SETTINGS  
 SUB STREAM SETTINGS  
 AUDIO AND EXTENSION  
 SYSTEM SETTINGS

MAIN PARAMETER RTMP HTTP RTSP UNICAST MULTICAST RTP **SRT**

SRT:    
 SRT Method:    
 Encryption:    
 Password:  [Password length:10-16]  
 Listener Port:   
 Latency:  [Unit:ms]



## Sub Stream Settings

Configure sub stream network protocol RTMP/ HTTP/ RTSP/ UNICAST/ MULTICAST/ RTP/ SRT accordingly. Please note that only one of HTTP/ RTSP/ UNICAST/ MULTICAST/ RTP can be enabled at a time.

Covered by one or more claims of the HEVC patents listed at [patentlist.accessadvance.com](http://patentlist.accessadvance.com)

<ul style="list-style-type: none"> <li>DEVICE STATUS</li> <li>NETWORK SETTINGS</li> <li>MAIN STREAM SETTINGS</li> <li style="background-color: #f96;">SUB STREAM SETTINGS</li> <li>AUDIO AND EXTENSION</li> <li>SYSTEM SETTINGS</li> </ul>	MAIN PARAMETER	RTMP	HTTP	RTSP	UNICAST	MULTICAST	RTP	SRT	
	Stream Protocol: <input type="text" value="H.264"/>								
	Aspect Ratio: <input type="text" value="Auto"/>								
	Bitrate Control: <input type="text" value="CBR"/>								
	Encode Resolution: <input type="text" value="704x576"/>								
	Bitrate: <input type="text" value="3200"/> [16-12000]								
	Fluctuate Level: <input type="text" value="Auto"/>								
	H.264 Profile: <input type="text" value="Main Profile"/>								
	Encoding Frame Rate: <input type="text" value="25"/> [5-60]								
	Buffer Mode: <input type="text" value="188x7"/>								
<input type="button" value="Apply"/>									

<ul style="list-style-type: none"> <li>DEVICE STATUS</li> <li>NETWORK SETTINGS</li> <li>MAIN STREAM SETTINGS</li> <li style="background-color: #f96;">SUB STREAM SETTINGS</li> <li>AUDIO AND EXTENSION</li> <li>SYSTEM SETTINGS</li> </ul>	MAIN PARAMETER	RTMP	HTTP	RTSP	UNICAST	MULTICAST	RTP	SRT	
	RTMP: <input type="text" value="Enable"/>								
	RTMP Method: <input type="text" value="URL Mode"/>								
	RTMP Content: <input type="text" value="Video &amp; Audio"/>								
	RTMP URL: <input type="text" value="rtmp://"/>								
	<input type="button" value="Apply"/>								

<ul style="list-style-type: none"> <li>DEVICE STATUS</li> <li>NETWORK SETTINGS</li> <li>MAIN STREAM SETTINGS</li> <li style="background-color: #f96;">SUB STREAM SETTINGS</li> <li>AUDIO AND EXTENSION</li> <li>SYSTEM SETTINGS</li> </ul>	MAIN PARAMETER	RTMP	HTTP	RTSP	UNICAST	MULTICAST	RTP	SRT	
	HTTP: <input type="text" value="Enable"/>								
	HTTP Path: <input type="text" value="/hdm_ext"/> Start with "/"								
	HTTP Port: <input type="text" value="80"/> [1-65535]								
	<input type="button" value="Apply"/>								



Navigation: DEVICE STATUS, NETWORK SETTINGS, MAIN STREAM SETTINGS, **SUB STREAM SETTINGS**, AUDIO AND EXTENSION, SYSTEM SETTINGS

Tabs: MAIN PARAMETER, RTMP, HTTP, **RTSP**, UNICAST, MULTICAST, RTP, SRT

RTSP: Enable

RTSP Path: /sdi\_ext Start with "/"

RTSP Authentication: Enable

User Name: subuse [length:six,letter,num]

Password: subpsw [length:six,letter,num]

RTSP Content: Video & Audio

RTSP Port: 554 [1-65535]

Apply

Navigation: DEVICE STATUS, NETWORK SETTINGS, MAIN STREAM SETTINGS, **SUB STREAM SETTINGS**, AUDIO AND EXTENSION, SYSTEM SETTINGS

Tabs: MAIN PARAMETER, RTMP, HTTP, RTSP, **UNICAST**, MULTICAST, RTP, SRT

Unicast: Enable

Unicast IP: 192.168.1.201 [Support domain or IP format]

Unicast Port: 1235 [1-65535]

Apply

Navigation: DEVICE STATUS, NETWORK SETTINGS, MAIN STREAM SETTINGS, **SUB STREAM SETTINGS**, AUDIO AND EXTENSION, SYSTEM SETTINGS

Tabs: MAIN PARAMETER, RTMP, HTTP, RTSP, UNICAST, **MULTICAST**, RTP, SRT

Multicast IP: Enable

Multicast IP: 238.0.0.2

Multicast Port: 1235 [1-65535]

Apply

Navigation: DEVICE STATUS, NETWORK SETTINGS, MAIN STREAM SETTINGS, **SUB STREAM SETTINGS**, AUDIO AND EXTENSION, SYSTEM SETTINGS

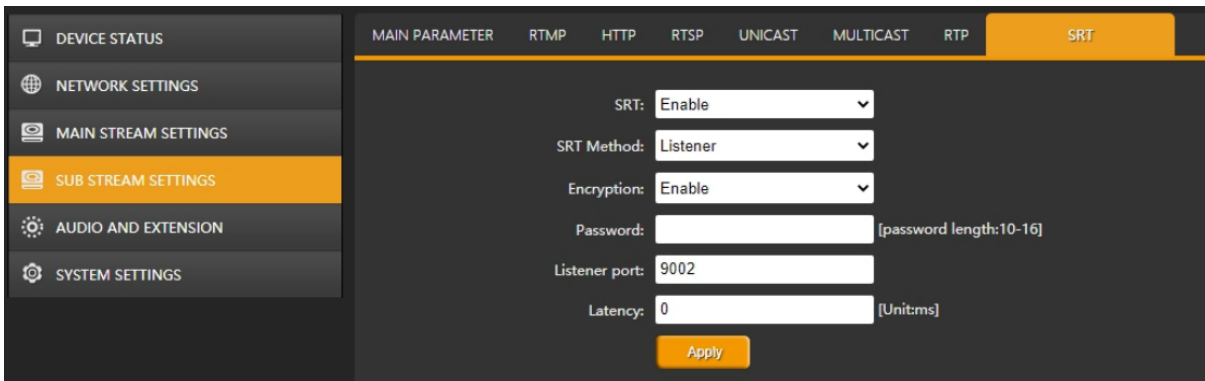
Tabs: MAIN PARAMETER, RTMP, HTTP, RTSP, UNICAST, MULTICAST, **RTP**, SRT

RTP Server IP: Enable

RTP Server IP: 192.168.1.123

RTP Port: 8888 [1-65535]

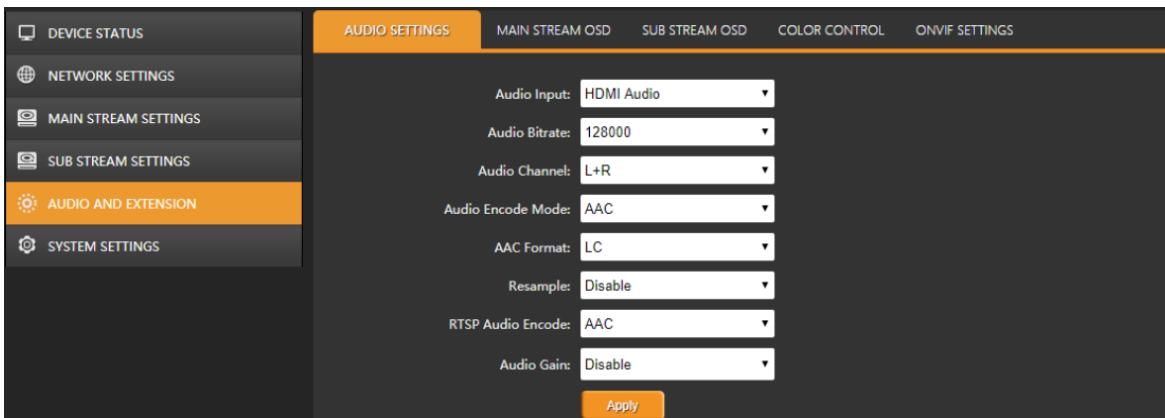
Apply



## Audio and Extension

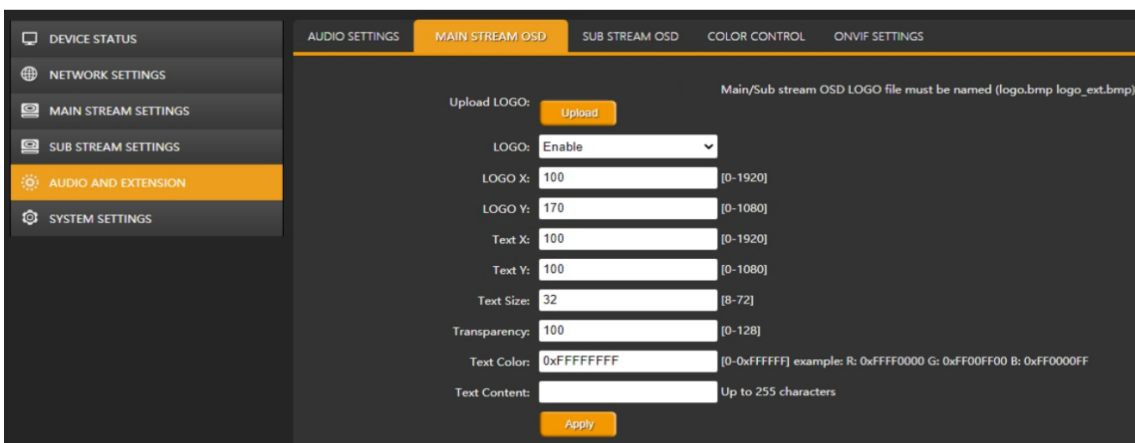
- **Audio Settings**

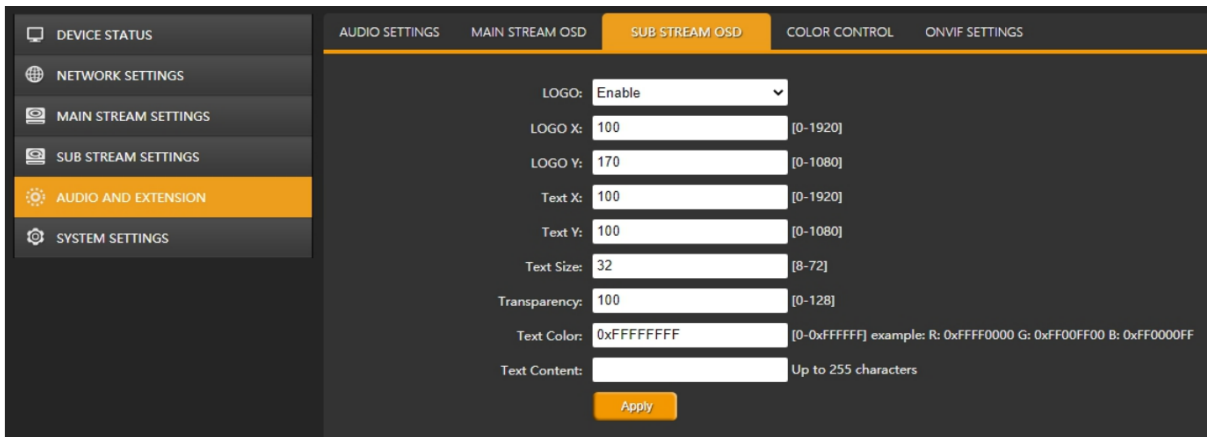
The encoder supports audio embedding from the external analog input. The audio can be from SDI embedded audio or analog Line in audio. Audio Encode Mode can be ACC/ MP3/ MP2.



- **OSD Overlay**

The encoder can insert a logo and text to the Main Stream / Sub Stream videos at same time. The logo file should be named *logo.bmp* and its resolution needs to be 1920x1080 or below and less than 1MB in file size. Text content overlay supports up to 255 characters. The size and color of the text can be set on the web page and users also can set the position and transparency of the logo and text overlay.





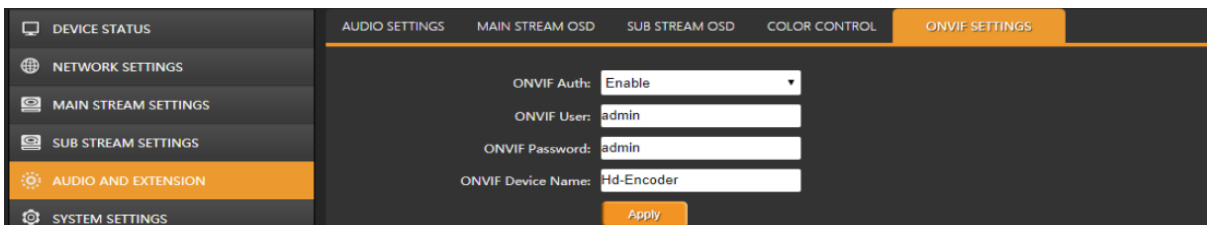
- **Color Control**

Users can adjust the brightness, contrast, hue, and saturation of streaming video through the web page.



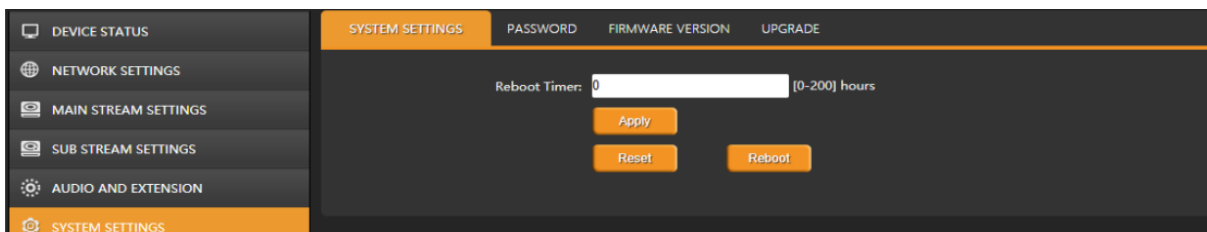
- **ONVIF Settings**

The settings of ONVIF as below:

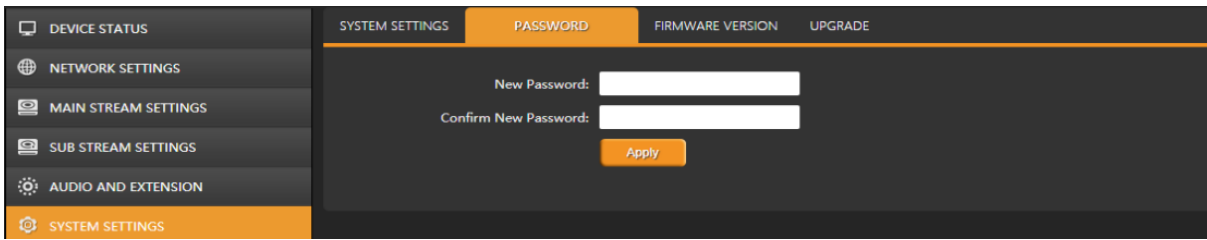


- **System Settings**

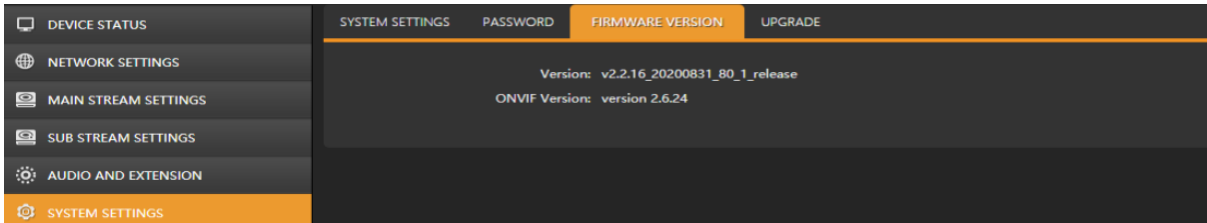
Users can set the encoder reboot after 0-200 hours for some applications.



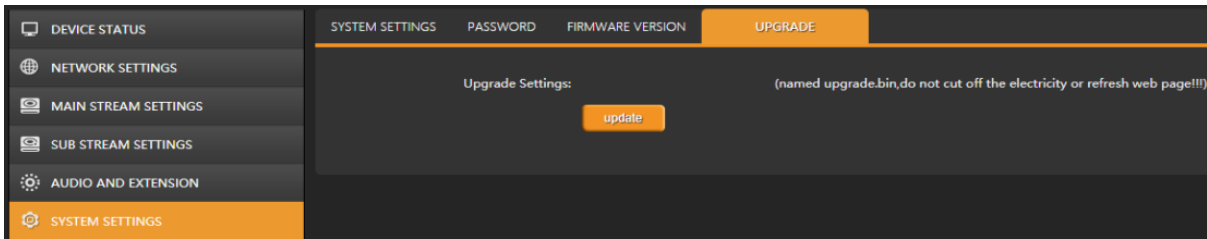
The **default password is admin**. Users can set a new password through the page below.



The firmware version information can be checked on the page below.



Upgrade new firmware through the web page as below. Please note: do not turn off the power or refresh the web page when upgrading.





## Tech Support

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Have technical questions? We may have answered them already!

Please visit BZBGear's support page ([bzbgear.com/support](http://bzbgear.com/support)) for helpful information and tips regarding our products. Here you will find our Knowledge Base ([bzbgear.com/knowledge-base](http://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](http://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:

<u>Phone</u>	<u>Email</u>	<u>Live Chat</u>
1.888.499.9906	<a href="mailto:support@bzbgear.com">support@bzbgear.com</a>	<a href="http://bzbgear.com">bzbgear.com</a>

## Warranty

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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](http://bzbgear.com/warranty).

For questions, please call 1.888.499.9906 or email [support@bzbgear.com](mailto:support@bzbgear.com).

## Mission Statement

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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.

## Copyright

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