



BG-HAVS

H.265/ H.264 HDMI STREAMING ENCODER

USER MANUAL

USING THE UNIT SAFELY

Before using this unit, please read below warning and precautions which provide important information concerning the proper operation of the unit. Besides, to assure that you have gained a good grasp of every feature of your new unit, read below manual. This manual should be saved and kept on hand for further convenient reference.



Warning and Cautions

- ※ To avoid falling or damage, please do not place this unit on an unstable cart, stand, or table.
- ※ Operate unit only on the specified supply voltage.
- ※ 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.
- ※ Do not use this unit in or near water.
- ※ Do not allow liquids, metal pieces, or other foreign materials to enter the unit.
- ※ 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.
- ※ Do not remove covers, panels, casing, or access circuitry with power applied to the unit! Turn power off and disconnect power cord prior to removal. Internal servicing / adjustment of unit should only be performed by qualified personnel.
- ※ Turn off the unit if an abnormality or malfunction occurs. Disconnect everything before moving the unit.

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

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1. BRIEF INTRODUCTION

1.1. Overview

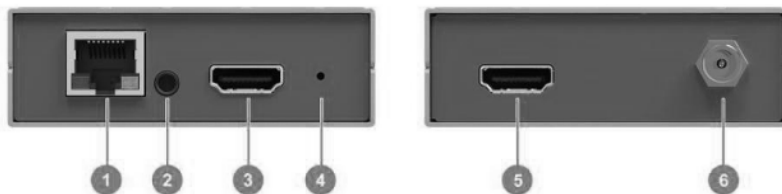
BG-HAVS is an HD audio and video encoder which can encode and compress HDMI video and audio source into IP stream, and then transmit it to streaming media server via network IP address to live broadcast on platforms like Facebook, YouTube, Ustream, Twitch, Wowza, etc.



1.2. Main Features

- 1×HDMI input, 1×HDMI 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

1.3. Interfaces



1	LAN Port for Streaming
2	AUDIO Input
3	HDMI Input
4	LED Indicator/ RESET hole (Long press 5s)
5	DC 12V In
6	HDMI Loopout

2. SPECIFICATIONS

CONNECTIONS	
Video	Input: HDMI Type A ×1; Loop Out: HDMI Type A ×1
Analog Audio	3.5mm line in ×1
Network	RJ-45×1(100/1000Mbps self-adaptive Ethernet)
STANDARDS	
HDMI 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 ~ 12MKbps
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: -10°C~60°C, Storage temp: -20°C~70°C
Dimension (LWD)	104×75.5×24.5mm
Weight	Net weight: 310g, Gross weight: 690g
Accessories	12V 2A power supply; Mounting bracket for optional

3. OPERATIONS GUIDE

3.1. Network Configuration and Login

Connect the encoder to network via a network cable. The default IP address of the encoder is 192.168.1.168. 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 address as below.

IP Address: **192.168.1.168**

Subnet Mask: **255.255.255.0**

Default Gateway: **192.168.1.1**

Visit encoder's IP address **192.168.1.168** through an Internet browser to login the WEB

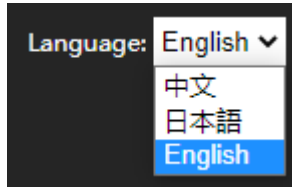
page for setting up. The default Username is **admin**, and password is **admin**.

3.2. Management Web Page

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

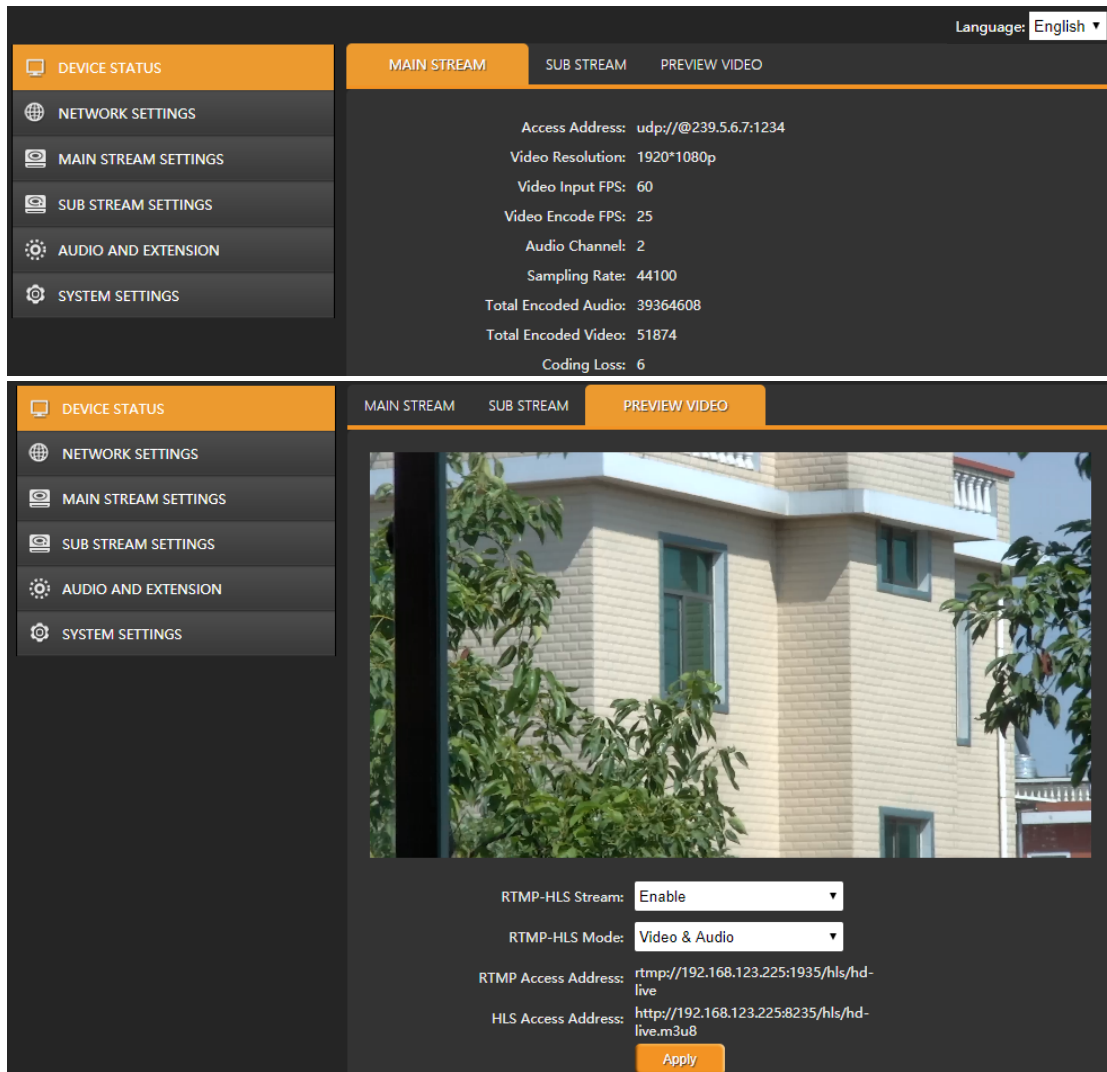
3.2.1. Language Settings

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



3.2.2. Device Status

The status of MAIN STREAM and SUB STREAM can be checked on the webpage. And we also can have a preview on the streaming video from PREVIEW VIDEO.

A screenshot of the encoder management web page. The page is divided into two main sections. The top section shows the 'MAIN STREAM' status, with a sidebar on the left containing navigation options: 'DEVICE STATUS', 'NETWORK SETTINGS', 'MAIN STREAM SETTINGS', 'SUB STREAM SETTINGS', 'AUDIO AND EXTENSION', and 'SYSTEM SETTINGS'. The 'MAIN STREAM' status is displayed in a table-like format with the following information: Access Address: udp://@239.5.6.7:1234, Video Resolution: 1920*1080p, Video Input FPS: 60, Video Encode FPS: 25, Audio Channel: 2, Sampling Rate: 44100, Total Encoded Audio: 39364608, Total Encoded Video: 51874, and Coding Loss: 6. The bottom section shows the 'PREVIEW VIDEO' status, featuring a video preview window displaying a live stream of a building. Below the preview window, there are settings for RTMP-HLS Streams (set to 'Enable'), RTMP-HLS Mode (set to 'Video & Audio'), RTMP Access Address (rtmp://192.168.123.225:1935/hls/hd-live), and HLS Access Address (http://192.168.123.225:8235/hls/hd-live.m3u8). An 'Apply' button is located at the bottom right of the settings area.

3.2.3. Network Settings

The network can be set to dynamic IP (DHCP Enable) or static IP (DHCP Disable). The default IP information can be checked in Part 3.1.

DEVICE STATUS

NETWORK SETTINGS

MAIN STREAM SETTINGS

SUB STREAM SETTINGS

AUDIO AND EXTENSION

SYSTEM SETTINGS

NETWORK

DHCP: Enable

IP Address: 192.168.123.225

Netmask: 255.255.255.0

Gateway: 192.168.123.1

DNS1: 223.5.5.5

DNS2: 114.114.114.114

MAC: 50:10:2C:B3:00:AB

Apply

3.2.4. Main Stream Settings

The main stream can be set to mirror image and upside-down image from 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 enable at same time.

DEVICE STATUS

NETWORK SETTINGS

MAIN STREAM SETTINGS

SUB STREAM SETTINGS

AUDIO AND EXTENSION

SYSTEM SETTINGS

MAIN PARAMETER

RTMP

HTTP

RTSP

UNICAST

MULTICAST

RTP

SRT

Stream Protocol: H.264

Mirror Image: Disable

Upside-down Image: Disable

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

Apply

DEVICE STATUS

NETWORK SETTINGS

MAIN STREAM SETTINGS

SUB STREAM SETTINGS

AUDIO AND EXTENSION

SYSTEM SETTINGS

MAIN PARAMETER

RTMP

HTTP

RTSP

UNICAST

MULTICAST

RTP

SRT

RTMP Mode: Disable

RTMP Method: URL Mode

RTMP Content: Video & Audio

RTMP URL: rtmp://

Apply

DEVICE STATUS NETWORK SETTINGS MAIN STREAM SETTINGS SUB STREAM SETTINGS AUDIO AND EXTENSION SYSTEM SETTINGS	MAIN PARAMETER RTMP HTTP RTSP UNICAST MULTICAST RTP SRT
	HTTP: <input type="text" value="Disable"/>
	HTTP Path: <input type="text" value="/hdmr"/> <small>Start with "/"</small>
	HTTP Port: <input type="text" value="80"/> <small>[1-65535]</small>
	<input type="button" value="Apply"/>

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: <input type="text" value="Disable"/>
	RTSP Path: <input type="text" value="/hdmr"/> <small>Start with "/"</small>
	RTSP Port: <input type="text" value="554"/> <small>[1-65535]</small>
	RTSP Authentication: <input type="text" value="Disable"/>
	RTSP Content: <input type="text" value="Video & Audio"/>
RTSP TCP: <input type="text" value="UDP"/>	
TTL: <input type="text" value="16"/> <small>[0-255]</small>	
<input type="button" value="Apply"/>	

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: <input type="text" value="Disable"/>
	Unicast IP: <input type="text" value="192.168.123.220"/> <small>[Support domain or IP format]</small>
	Unicast Port: <input type="text" value="1234"/> <small>[1-65535]</small>
	<input type="button" value="Apply"/>

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: <input type="text" value="Enable"/>
	Multicast IP: <input type="text" value="239.5.6.7"/>
	Multicast Port: <input type="text" value="1234"/> <small>[1-65535]</small>
	<input type="button" value="Apply"/>

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: <input type="text" value="Disable"/>
	RTP Server IP: <input type="text" value="192.168.123.220"/>
	RTP Port: <input type="text" value="6666"/> <small>[1-65535]</small>
	<input type="button" value="Apply"/>

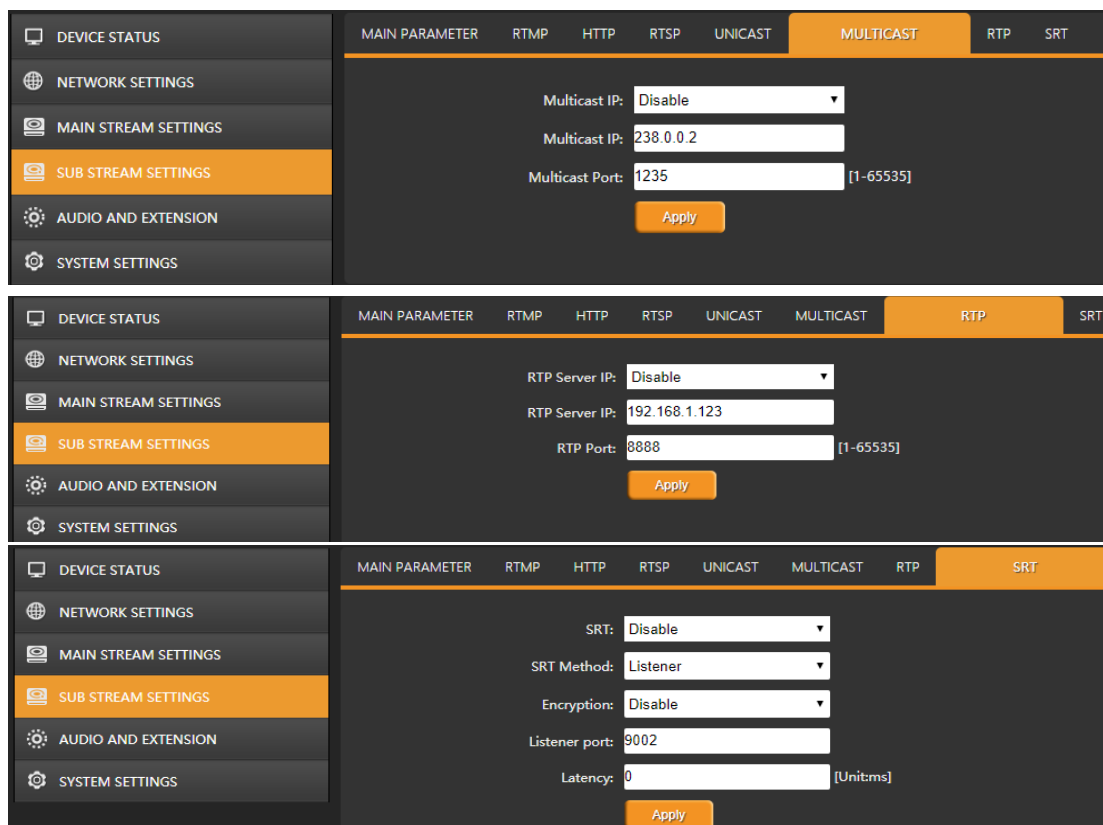
DEVICE STATUS NETWORK SETTINGS MAIN STREAM SETTINGS SUB STREAM SETTINGS AUDIO AND EXTENSION SYSTEM SETTINGS	MAIN PARAMETER RTMP HTTP RTSP UNICAST MULTICAST RTP SRT
	SRT: <input type="text" value="Enable"/>
	SRT Method: <input type="text" value="Listener"/>
	Encryption: <input type="text" value="Disable"/>
	Listener Port: <input type="text" value="2000"/>
	Latency: <input type="text" value="200"/> <small>[Unit:ms]</small>
<input type="button" value="Apply"/>	

3.2.5. 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 enable at same time.

The image displays five sequential screenshots of the 'SUB STREAM SETTINGS' configuration page, each showing a different network protocol selected in the top navigation bar. The left sidebar contains menu items: DEVICE STATUS, NETWORK SETTINGS, MAIN STREAM SETTINGS, SUB STREAM SETTINGS (highlighted), AUDIO AND EXTENSION, and SYSTEM SETTINGS.

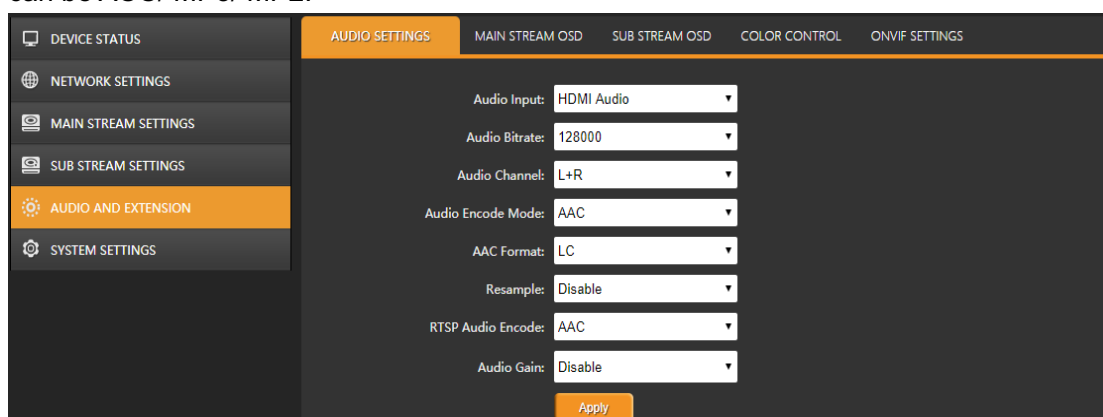
- MAIN PARAMETER:** Shows general encoding settings: Stream Protocol (H.264), Aspect Ratio (Auto), Bitrate Control (CBR), Encode Resolution (704x576), Bitrate (3200 [16-12000]), Fluctuate Level (Auto), H.264 Profile (Main Profile), Encoding Frame Rate (25 [5-60]), and Buffer Mode (188x7). An 'Apply' button is at the bottom.
- RTMP:** Shows RTMP settings: RTMP (Disable), RTMP Method (URL Mode), RTMP Content (Video & Audio), and RTMP URL (rtmp://). An 'Apply' button is at the bottom.
- HTTP:** Shows HTTP settings: HTTP (Enable), HTTP Path (/hdm_ext Start with "/>, and HTTP Port (80 [1-65535]). An 'Apply' button is at the bottom.
- RTSP:** Shows RTSP settings: RTSP (Disable), RTSP Path (/hdm_ext Start with "/>, RTSP Authentication (Disable), RTSP Content (Video & Audio), and RTSP Port (554 [1-65535]). An 'Apply' button is at the bottom.
- UNICAST:** Shows Unicast settings: Unicast (Disable), Unicast IP (192.168.1.201 [Support domain or IP format]), and Unicast Port (1235 [1-65535]). An 'Apply' button is at the bottom.



3.2.6. Audio and Extension

3.2.6.1. Audio Settings

The encoder support audio embedding from external analog input. Therefore, the audio can be from HDMI embedded audio or analog Line in audio. Besides, Audio Encode Mode can be ACC/ MP3/ MP2.



3.2.6.2. OSD Overlay

The encoder can insert logo and text to the Main Stream / Sub Stream video at same time. The logo file should be named logo.bmp and resolution below 1920×1080 as well as less than 1MB. Text content overlay support up to 255 characters. The size and color of the text can be set on the web page. And user also can set the position and transparency of the logo and text overlay.

The screenshot shows the 'MAIN STREAM OSD' configuration page. On the left is a sidebar with menu items: DEVICE STATUS, NETWORK SETTINGS, MAIN STREAM SETTINGS, SUB STREAM SETTINGS, AUDIO AND EXTENSION (highlighted), and SYSTEM SETTINGS. The main content area has tabs for AUDIO SETTINGS, MAIN STREAM OSD, SUB STREAM OSD, COLOR CONTROL, and ONVIF SETTINGS. The 'MAIN STREAM OSD' tab is active. It contains the following settings: 'Upload LOGO:' with an 'Upload' button and a note 'Main stream OSD LOGO file must be named (logo.bmp)'; 'LOGO:' dropdown set to 'Disable'; 'LOGO X:' input field with value '100' and range '[0-1920]'; 'LOGO Y:' input field with value '170' and range '[0-1080]'; 'Text X:' input field with value '100' and range '[0-1920]'; 'Text Y:' input field with value '100' and range '[0-1080]'; 'Text Size:' input field with value '32' and range '[8-72]'; 'Transparency:' input field with value '100' and range '[0-128]'; 'Text Color:' input field with value '0xFFFFFFFF' and range '[0-0xFFFFFFFF] example: R: 0xFFFF0000 G: 0xFF00FF00 B: 0xFF0000FF'; and 'Text Content:' input field with a note 'Up to 255 characters'. An 'Apply' button is at the bottom.

The screenshot shows the 'SUB STREAM OSD' configuration page. The sidebar is identical to the previous screenshot. The main content area has tabs for AUDIO SETTINGS, MAIN STREAM OSD, SUB STREAM OSD, COLOR CONTROL, and ONVIF SETTINGS. The 'SUB STREAM OSD' tab is active. It contains the following settings: 'Upload LOGO:' with an 'Upload' button and a note 'SUB stream OSD LOGO file must be named (logo_ext.bmp)'; 'LOGO:' dropdown set to 'Disable'; 'LOGO X:' input field with value '100' and range '[0-1920]'; 'LOGO Y:' input field with value '170' and range '[0-1080]'; 'Text X:' input field with value '100' and range '[0-1920]'; 'Text Y:' input field with value '100' and range '[0-1080]'; 'Text Size:' input field with value '32' and range '[8-72]'; 'Transparency:' input field with value '100' and range '[0-128]'; 'Text Color:' input field with value '0xFFFFFFFF' and range '[0-0xFFFFFFFF] example: R: 0xFFFF0000 G: 0xFF00FF00 B: 0xFF0000FF'; and 'Text Content:' input field with a note 'Up to 255 characters'. An 'Apply' button is at the bottom.

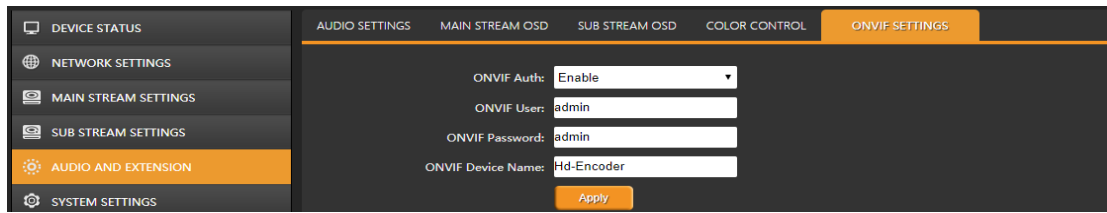
3.2.6.3. Color Control

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

The screenshot shows the 'COLOR CONTROL' configuration page. The sidebar is identical to the previous screenshots. The main content area has tabs for AUDIO SETTINGS, MAIN STREAM OSD, SUB STREAM OSD, COLOR CONTROL, and ONVIF SETTINGS. The 'COLOR CONTROL' tab is active. It contains the following settings: 'Brightness:' input field with value '50' and range '[0-100] Default Value:50'; 'Contrast:' input field with value '50' and range '[0-100] Default Value:50'; 'Hue:' input field with value '50' and range '[0-100] Default Value:50'; and 'Saturation:' input field with value '50' and range '[0-100] Default Value:50'. An 'Apply' button is at the bottom.

3.2.6.4. ONVIF Settings

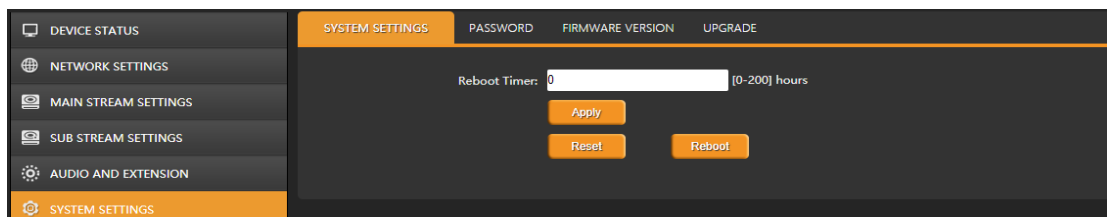
The settings of ONVIF as below:



The screenshot shows the ONVIF Settings page. On the left is a navigation menu with options: DEVICE STATUS, NETWORK SETTINGS, MAIN STREAM SETTINGS, SUB STREAM SETTINGS, AUDIO AND EXTENSION (highlighted), and SYSTEM SETTINGS. The main content area has tabs: AUDIO SETTINGS, MAIN STREAM OSD, SUB STREAM OSD, COLOR CONTROL, and ONVIF SETTINGS (highlighted). The settings include: ONVIF Auth: Enable (dropdown), ONVIF User: admin (text input), ONVIF Password: admin (text input), and ONVIF Device Name: Hd-Encoder (text input). An Apply button is at the bottom right.

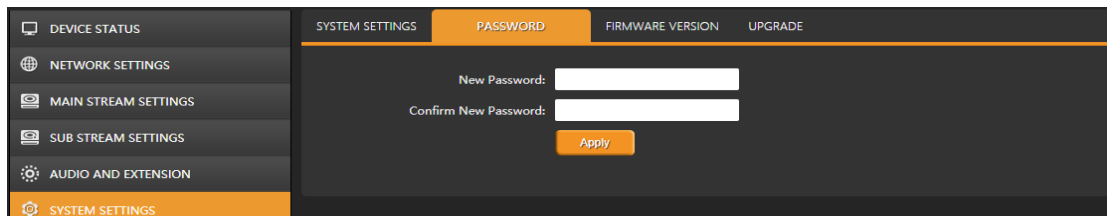
3.2.6.5. System Settings

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



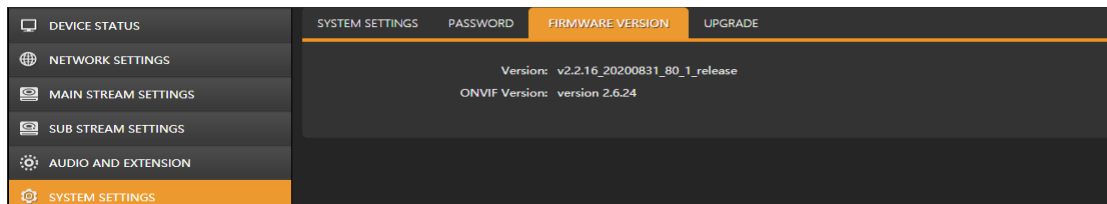
The screenshot shows the System Settings page with the Reboot Timer section. The left navigation menu is the same as in the previous screenshot, with SYSTEM SETTINGS highlighted. The main content area has tabs: SYSTEM SETTINGS (highlighted), PASSWORD, FIRMWARE VERSION, and UPGRADE. The Reboot Timer is set to 0 hours, with a range of [0-200] hours. There are Apply, Reset, and Reboot buttons.

The default password is admin. User can set new password through below web page.



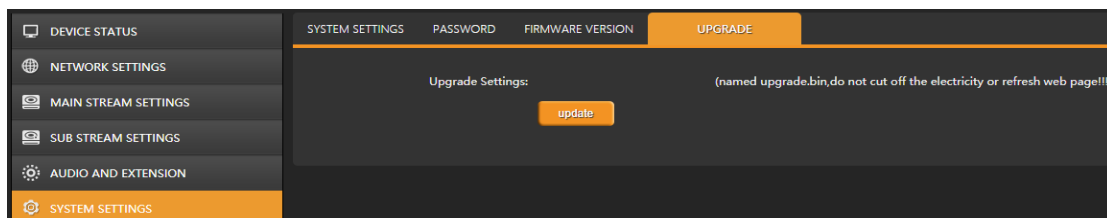
The screenshot shows the System Settings page with the Password section. The left navigation menu is the same, with SYSTEM SETTINGS highlighted. The main content area has tabs: SYSTEM SETTINGS, PASSWORD (highlighted), FIRMWARE VERSION, and UPGRADE. It contains fields for New Password and Confirm New Password, with an Apply button.

The firmware version information can be checked the web page as below.



The screenshot shows the System Settings page with the Firmware Version section. The left navigation menu is the same, with SYSTEM SETTINGS highlighted. The main content area has tabs: SYSTEM SETTINGS, PASSWORD, FIRMWARE VERSION (highlighted), and UPGRADE. It displays the Version: v2.2.16_20200831_80_1_release and ONVIF Version: version 2.6.24.

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



The screenshot shows the System Settings page with the Upgrade section. The left navigation menu is the same, with SYSTEM SETTINGS highlighted. The main content area has tabs: SYSTEM SETTINGS, PASSWORD, FIRMWARE VERSION, and UPGRADE (highlighted). It shows Upgrade Settings: (named upgrade.bin, do not cut off the electricity or refresh web page!!!) and an update button.

4. TECH SUPPORT

Before contacting tech support, we may have answered your question already! Visit our BZBGear support page at bzbgear.com/support for valuable information on our products.

Here you will find our Knowledge Base (bzbgear.com/knowledge-base) consisting of tutorials, quick start guides, and step-by-step troubleshooting instructions. Also visit our YouTube channel BZB TV at youtube.com/c/BZBTVchannel for help setting up, connecting, and other how-to videos regarding our products.

If you still need answers, please call 1.888.499.9906, email support@bzbgear.com, or chat at bzbgear.com.

5. 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 an extended two-year warranty on our Cameras, follow these steps:

1. Register your Camera 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 complete warranty information, please visit bzbgear.com/warranty or scan the QR code below.



6. MISSION STATEMENT

BZBGear manifests from the competitive nature of the audiovisual and live streaming 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 your answer for applications requiring the latest pro AV and live streaming solutions.

You'll notice comparably lower prices with BZBGear while the performance and quality are on par with the top brands in the industry. Our team offers system design consultation and expert tech support seven days a week for all BZBGear products. Our unparalleled support 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 solutions allowing you to focus on your project and not your budget.

