



SE1217

H.265/ H.264 HDMI STREAMING ENCODER

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

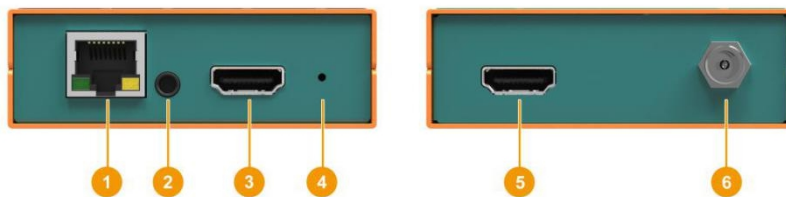
SE1217 is a HD audio and video encoder which can encode and compress HDMI video and audio source into IP stream, and then transmit it to streaming media server via network IP address to live broadcast on platforms like Facebook, YouTube, Ustream, Twitch, Wowza etc.



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℃~60℃, Storage temp: -20℃~70℃
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

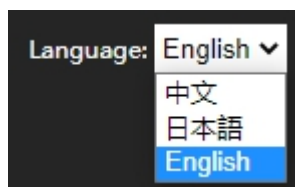
page for setting up. The default Username is **admin**, and password is **admin**.

3.2. Management Web Page

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

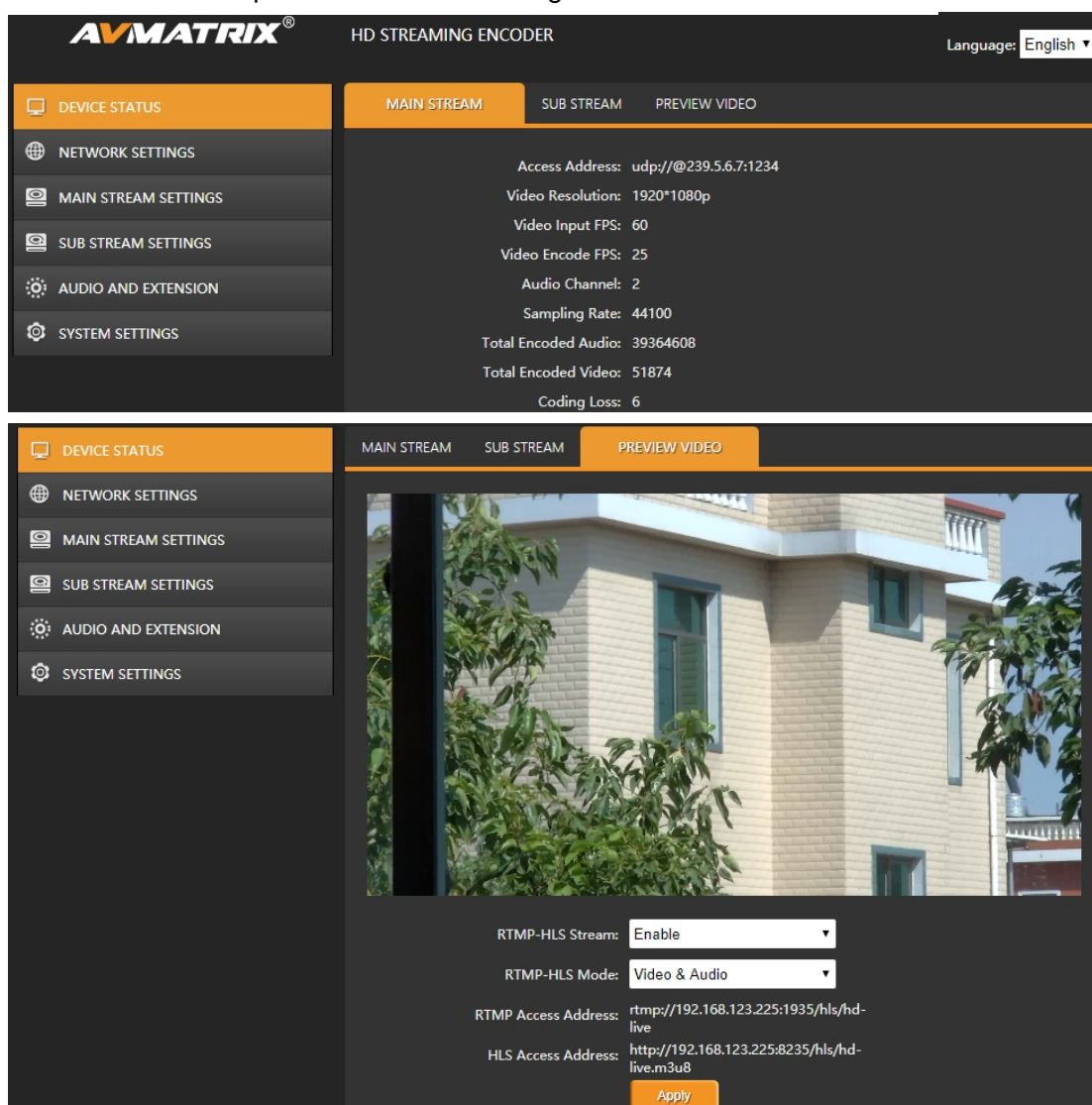
3.2.1. Language Settings

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 web page. And we also can have a preview on the streaming video from PREVIEW VIDEO.

A screenshot of the AVMATRIX HD Streaming Encoder web interface. The interface is dark-themed with orange accents. At the top, it says "AVMATRIX® HD STREAMING ENCODER" and "Language: English". On the left is a navigation menu with options: DEVICE STATUS, NETWORK SETTINGS, MAIN STREAM SETTINGS, SUB STREAM SETTINGS, AUDIO AND EXTENSION, and SYSTEM SETTINGS. The main content area has three tabs: MAIN STREAM, SUB STREAM, and PREVIEW VIDEO. The "MAIN STREAM" tab is active, showing technical details: 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 "PREVIEW VIDEO" tab is also visible, showing a live video feed of a yellow brick building with green foliage in the foreground. Below the video feed are settings for RTMP-HLS Stream (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), with an "Apply" button at the bottom.

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
NETWORK SETTINGS	DHCP: Enable
MAIN STREAM SETTINGS	IP Address: 192.168.123.225
SUB STREAM SETTINGS	Netmask: 255.255.255.0
AUDIO AND EXTENSION	Gateway: 192.168.123.1
SYSTEM SETTINGS	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	MAIN PARAMETER	RTMP	HTTP	RTSP	UNICAST	MULTICAST	RTP	SRT
NETWORK SETTINGS	Stream Protocol: H.264							
MAIN STREAM SETTINGS	Mirror Image: Enable							
SUB STREAM SETTINGS	Upside-down Image: Enable							
AUDIO AND EXTENSION	Aspect Ratio: Auto							
SYSTEM SETTINGS	Bitrate Control: VBR							
	Keyframe Interval: 30	[5-200]						
	Encode Resolution: Auto							
	H.264 Profile: Main profile							
	Encoding Frame Rate: 25	[5-60]						
	MinQp: 5	[1-51]						
	MaxQp: 32	[MinQp-51]						
	MaxBitrate: 3200	[16-12000]						
	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:
 RTMP Method:
 RTMP Content:
 RTMP URL:

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:
 HTTP Path: Start with "/"
 HTTP 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

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

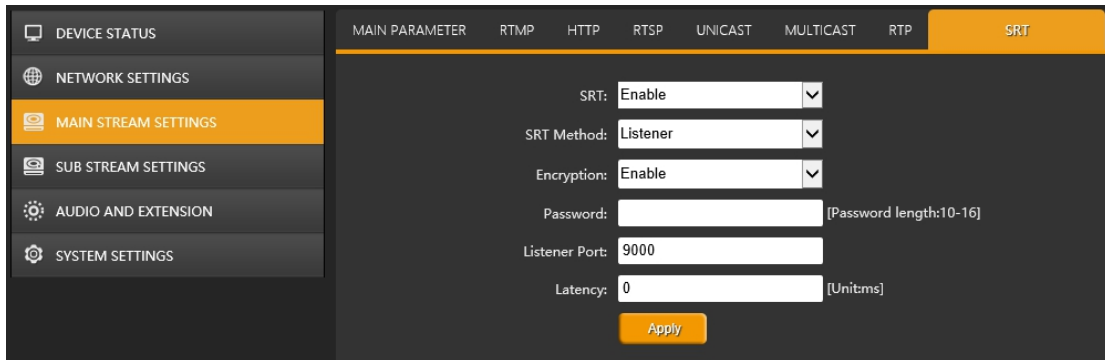
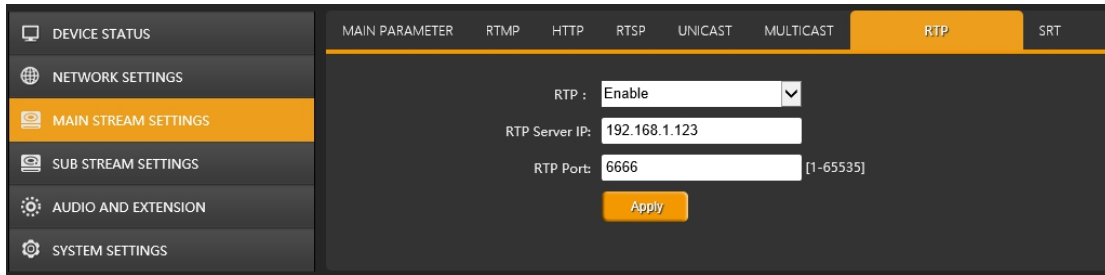
MAIN PARAMETER RTMP HTTP RTSP **UNICAST** MULTICAST RTP SRT

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

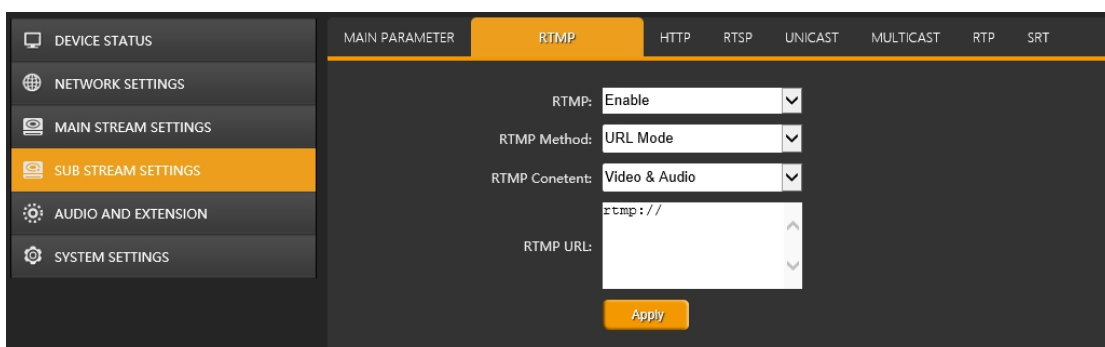
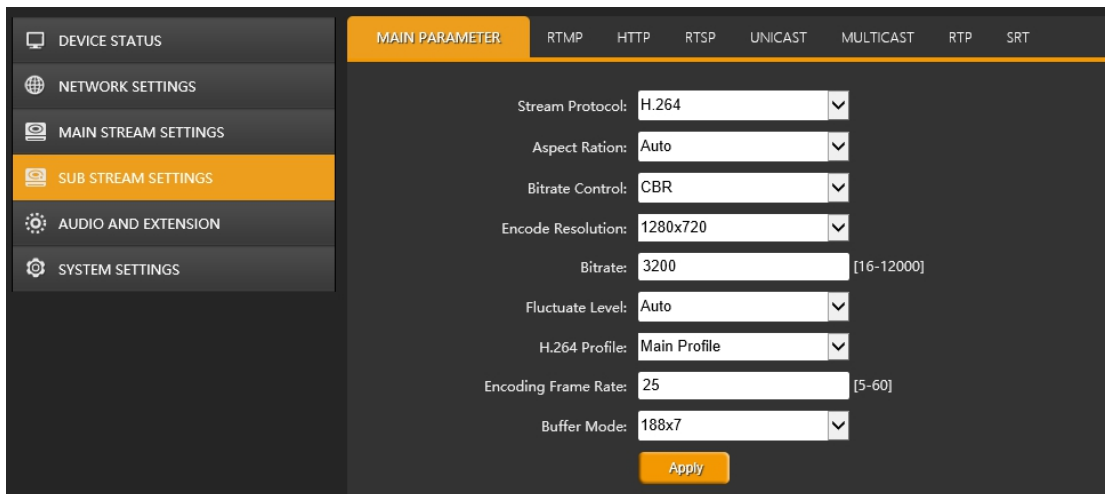
MAIN PARAMETER RTMP HTTP RTSP UNICAST **MULTICAST** RTP SRT

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



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.



DEVICE STATUS

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

NETWORK SETTINGS

MAIN STREAM SETTINGS

SUB STREAM SETTINGS

AUDIO AND EXTENSION

SYSTEM SETTINGS

HTTP:

HTTP Path: Start with "/"

HTTP Port: [1-65535]

Apply

DEVICE STATUS

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

NETWORK SETTINGS

MAIN STREAM SETTINGS

SUB STREAM SETTINGS

AUDIO AND EXTENSION

SYSTEM SETTINGS

RTSP:

RTSP Path: Start with "/"

RTSP Authentication:

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

Password: [length:six,letter,num]

RTSP Content:

RTSP Port: [1-65535]

Apply

DEVICE STATUS

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

NETWORK SETTINGS

MAIN STREAM SETTINGS

SUB STREAM SETTINGS

AUDIO AND EXTENSION

SYSTEM SETTINGS

Unicast:

Unicast IP: [Support domain or IP format]

Unicast Port: [1-65535]

Apply

DEVICE STATUS

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

NETWORK SETTINGS

MAIN STREAM SETTINGS

SUB STREAM SETTINGS

AUDIO AND EXTENSION

SYSTEM SETTINGS

Multicast IP:

Multicast IP:

Multicast Port: [1-65535]

Apply

DEVICE STATUS

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

NETWORK SETTINGS

MAIN STREAM SETTINGS

SUB STREAM SETTINGS

AUDIO AND EXTENSION

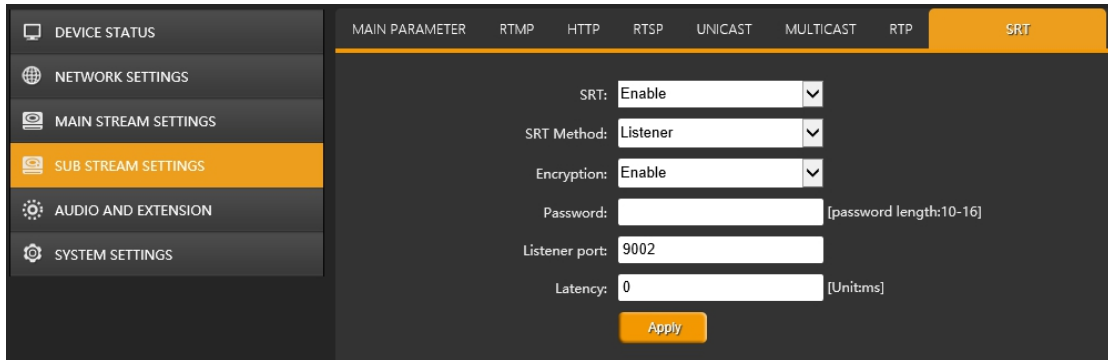
SYSTEM SETTINGS

RTP Server IP:

RTP Server IP:

RTP Port: [1-65535]

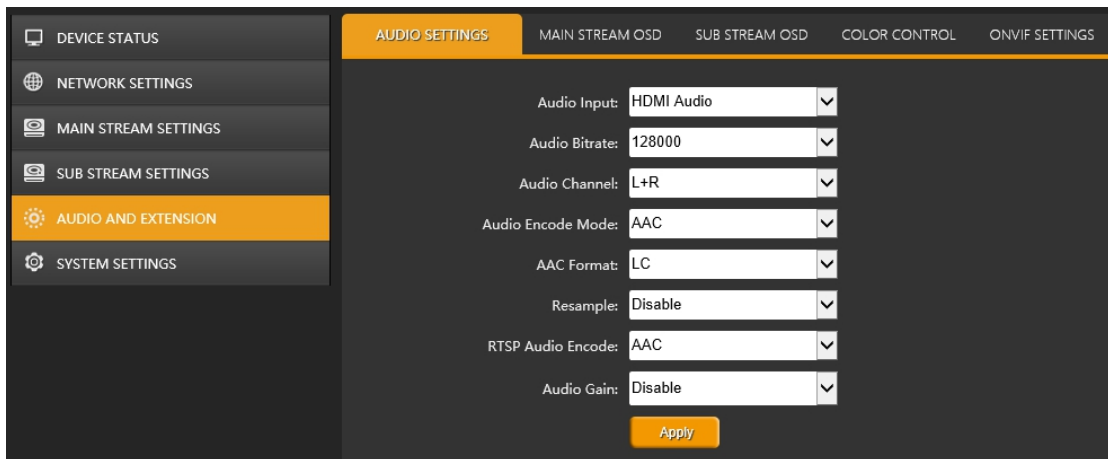
Apply



3.2.6. Audio and Extension

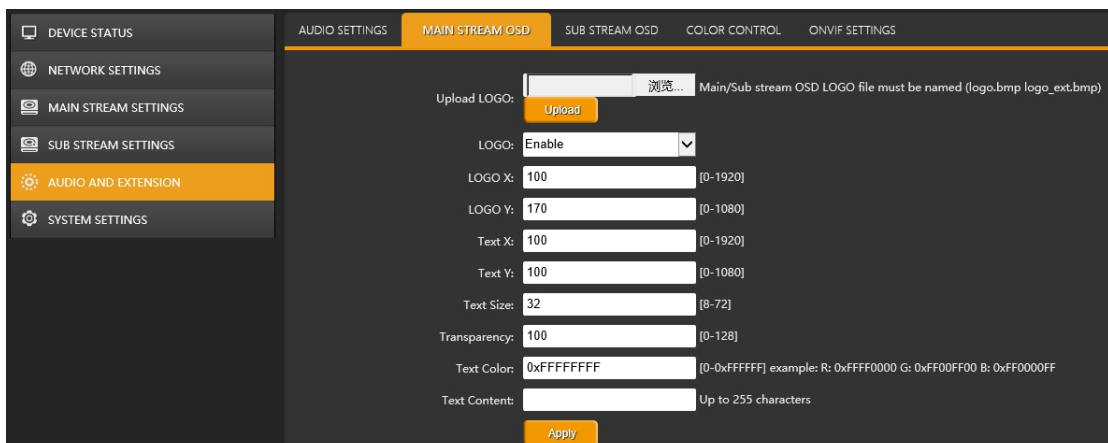
3.2.6.1. Audio Settings

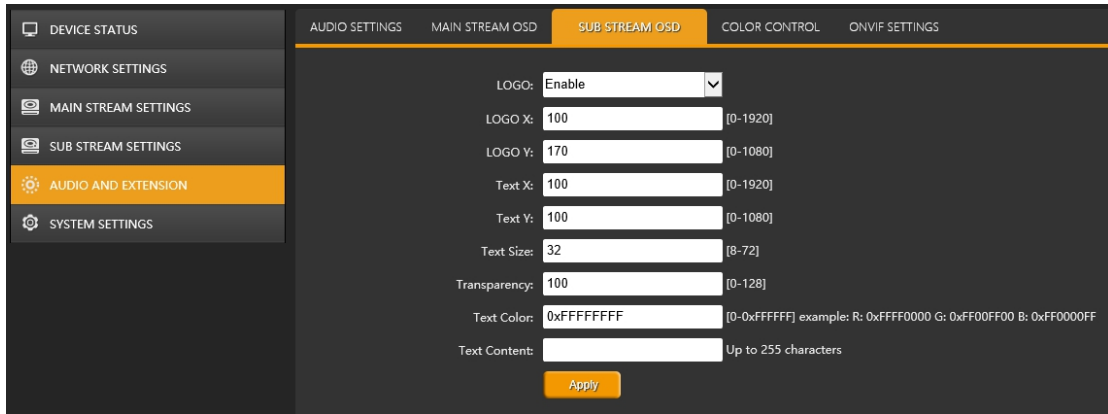
The encoder support audio embedding from external analog input. Therefore, the audio can be from HDMI embedded audio or analog Line in audio. Besides, Audio Encode Mode can be ACC/ MP3/ MP2.



3.2.6.2. OSD Overlay

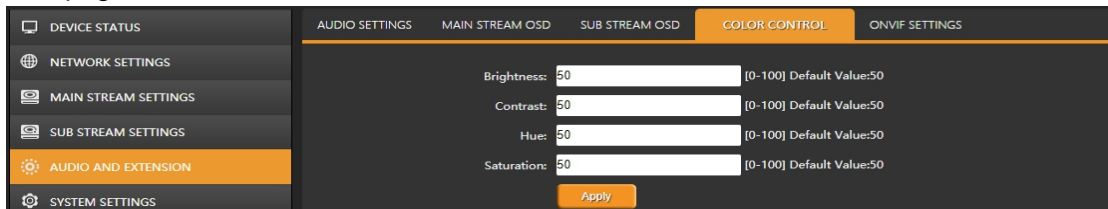
The encoder can insert logo and text to the Main Stream / Sub Stream video at same time. The logo file should be named logo.bmp and resolution below 1920×1080 as well as less than 1MB. Text content overlay support up to 255 characters. The size and color of the text can be set on the web page. And user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





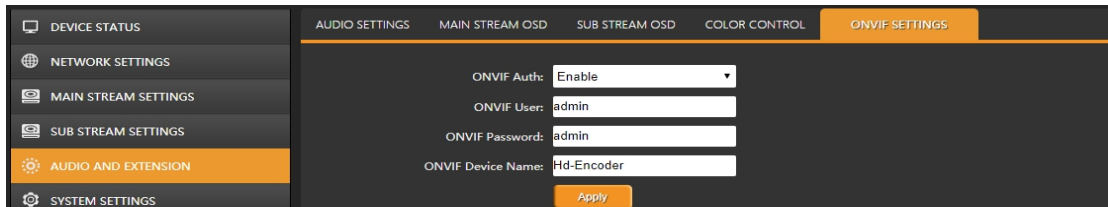
3.2.6.3. Color Control

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



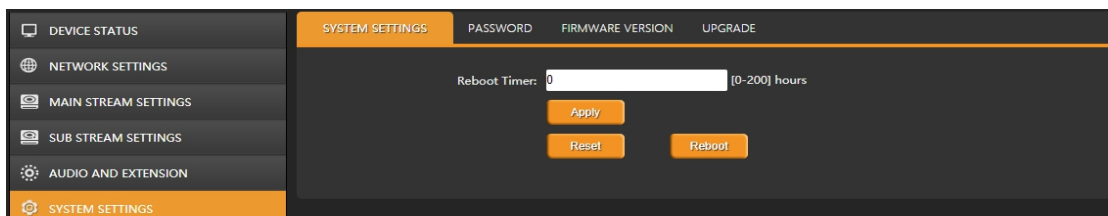
3.2.6.4. ONVIF Settings

The settings of ONVIF as below:

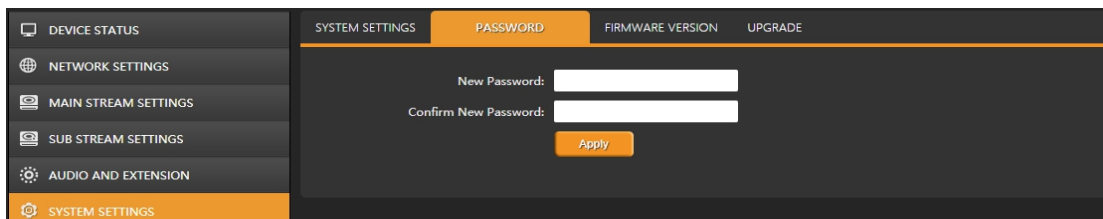


3.2.6.5. System Settings

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



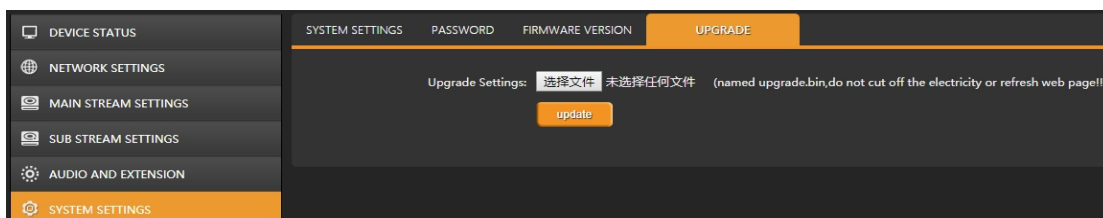
The default password is admin. User can set new password through below web page.



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



Upgrade new firmware through the web page as below. Please note that don't turn off the power and refresh web page when upgrading.

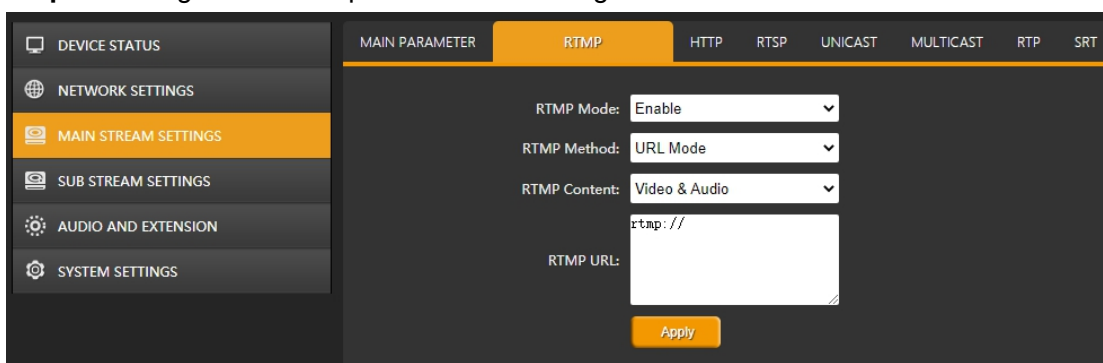


4. LIVE STREAM CONFIGURATION

Configure the encoder to live stream on platforms like YouTube, facebook, twitch, Periscope, etc. Following is an example to show how to configure the encoder to live stream on YouTube.

Step 1. Set the main parameters of Stream Protocol to the H.264 mode, and other options are recommended to be the default configuration. In some occasion, they can be adjusted according to the actual situation. For example, if the network speed is slow, the Bitrate Control can be switched from CBR to VBR and adjust the Bitrate from 16 to 12000.

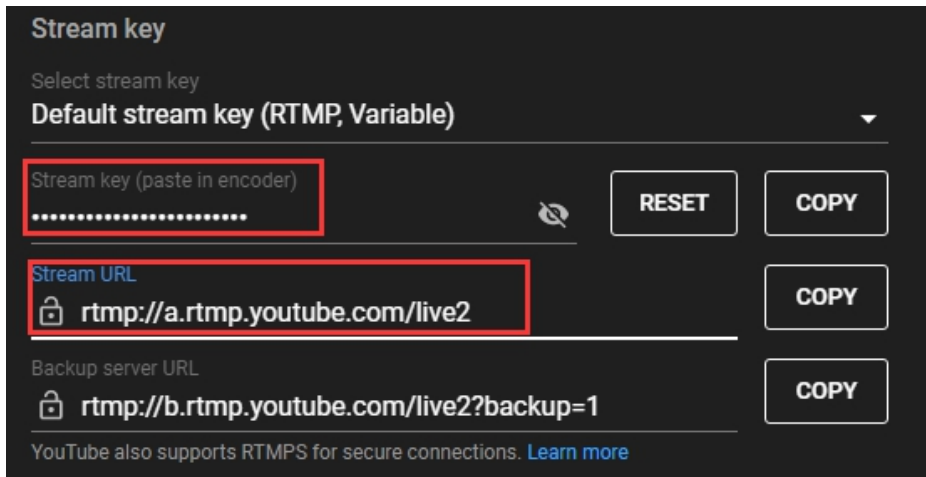
Step 2. Setting the RTMP options as follow image:



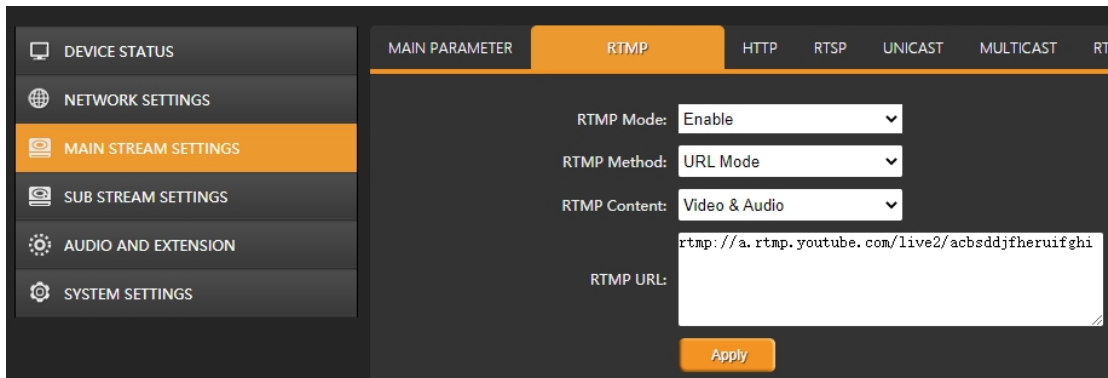
Step 3. Enter the stream URL and stream key in the RTMP URL, and connect them with"/".

For example, the stream URL is "rtmp://a.rtmp.youtube.com/live2".

The Stream key is "acbsddjfhruifghi".



Then the RTMP URL will be “Stream URL”+ “/” + “Stream Key”:
“rtmp://a.rtmp.youtube.com/live2/acbsddjferuifghi”. See below image.



Step 4. Click “Apply” to live stream on YouTube.