

# Genesis™ 500 AV-over-IP Streaming G501EH/G501ES/G501DH



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## 1. Overview

G501EH/G501ES are the new Genesis AV-over-IP streaming encoders. They can encode 1 HDMI input for up to 1080P using H264/H65 video codecs. Both units support multiple streaming protocols such as RTMP and RTSP, giving user the chance of easy streaming on live platforms like YouTube or decoding using any 3rd party device that supports the corresponding protocol.

G501DH is the Genesis AV-over-IP streaming decoder. It can decode up to 4 live streams and output them in up to 2x2 multiview with a resolution up to 4k.

All the units are powerful and easy to carry, which makes them a perfect solution for live streaming of training courses and lectures.

### Key Features

- Support encoding or decoding depending on the model
- Flexible option of models for HDMI and SDI input
- Support multiple streaming protocols, including RTMP, HTTP, HLS, SRT, RTP, ONVIF, UDP Unicast/Multicast and RTSP over UDP/TCP
- Support encoding 1 HDMI or SDI input in two stream channels with a resolution up to 1080P
- Support codec configuration for parameters such as resolution, bitrate and key interval
- Support decoding up to 4 streams and output via HDMI or SDI at a single screen, 1x2 or 2x2 multiview.
- Support selectable audio input or output between 3.5mm mini jack and embedded HDMI
- RS485 port for PTZ camera control
- User-friendly WebUI for configuration

### Package Content

Unit x1	Power Adapter x1
Audio Cable x1	Download Card x1

## 2. Specification

Model Name	G501EH	G501ES	G501DH
Video Port Interface	Input: HDMI x1 Output: HDMI x1	Input: SDI x1 Output: SDI x1	Output 1: HDMI x1 Output 2: SDI x1
HDMI Input Resolution	Up to 1920x1080	Up to 1920x1080	-
HDMI Output Resolution	Loop out of Input	Loop out of Input	Up to 3840x2160
Encoding Resolution	Up to 1920x1080	Up to 1920x1080	-
Encoding Format	H264/H265	H264/H265	-
Encoding Bitrate	16-20000	16-20000	-
Key Frame Interval	5-200	5-200	
Simultaneous Streaming	Up to 2	Up to 2	-
Simultaneous Decoding	-	-	Up to 4
Support Operation Mode	Encoding	Encoding	Decoding
Support Protocol	RTMP, HTTP, HLS, SRT, RTP, ONVIF, UDP Unicast/Multicast and RTSP over UDP/TCP	RTMP, HTTP, HLS, SRT, RTP, ONVIF, UDP Unicast/Multicast and RTSP over UDP/TCP	RTMP, HTTP, HLS, SRT, RTP, UDP Unicast/Multicast and RTSP over UDP/TCP
Audio Input	Embedded HDMI or 3.5mm Jack	Embedded HDMI or 3.5mm Jack	-
Audio Output	-	-	Embedded HDMI or 3.5mm Jack
Audio Codec	AAC/MP3/MP2	AAC/MP3/MP2	-
User Interface	WebUI	WebUI	WebUI
IP Configuration	DHCP, Static (Default)	DHCP, Static (Default)	DHCP, Static (Default)
Dimension (W x D x H)	150x105x40mm	150x120x40mm	150x120x40mm
Weight	0.32kg	0.32kg	0.32kg
Operating Temperature	-4° ~ +140° F (-20° ~ +60° C)	-4° ~ +140° F (-20° ~ +60° C)	-4° ~ +140° F (-20° ~ +60° C)
Power Supply	12V3A	12V3A	12V3A
Power Consumption	2.8W	3.1W	2.8W

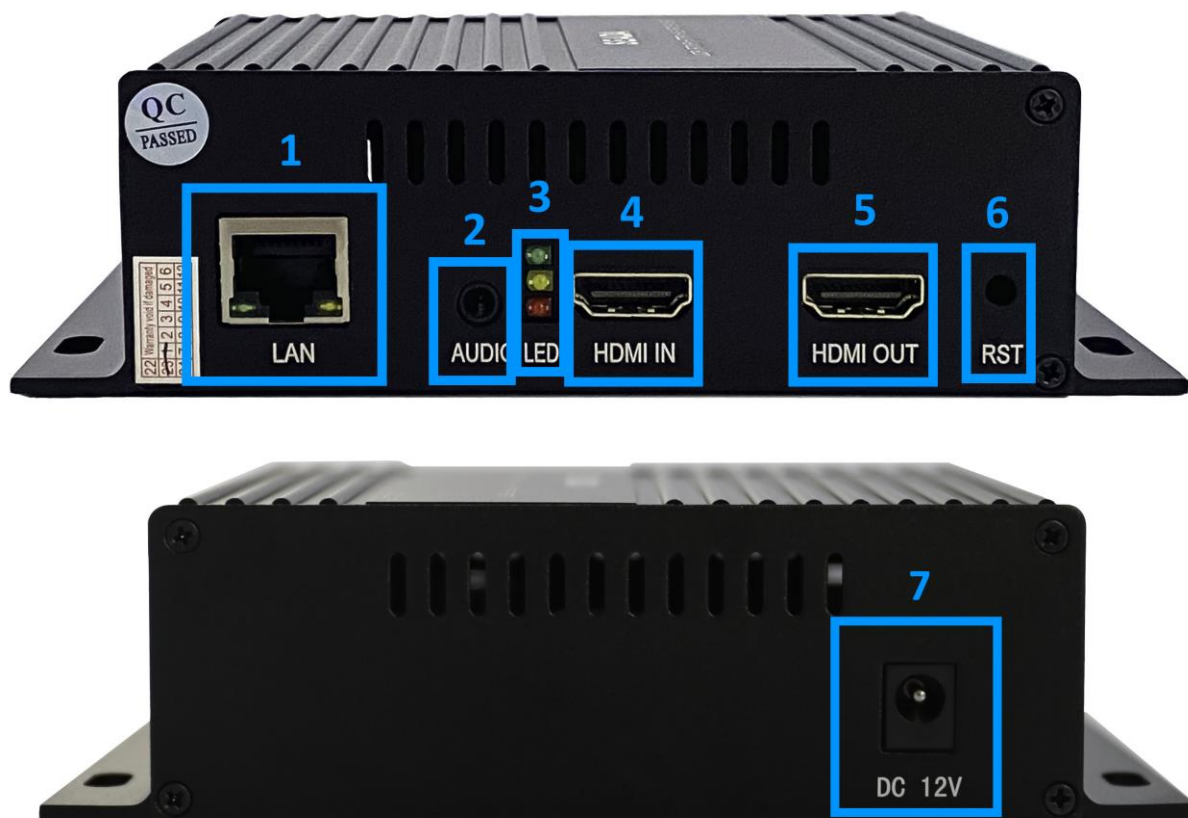
### 3. Panel Layout

#### 3.1 Hardware Interface – G501ES



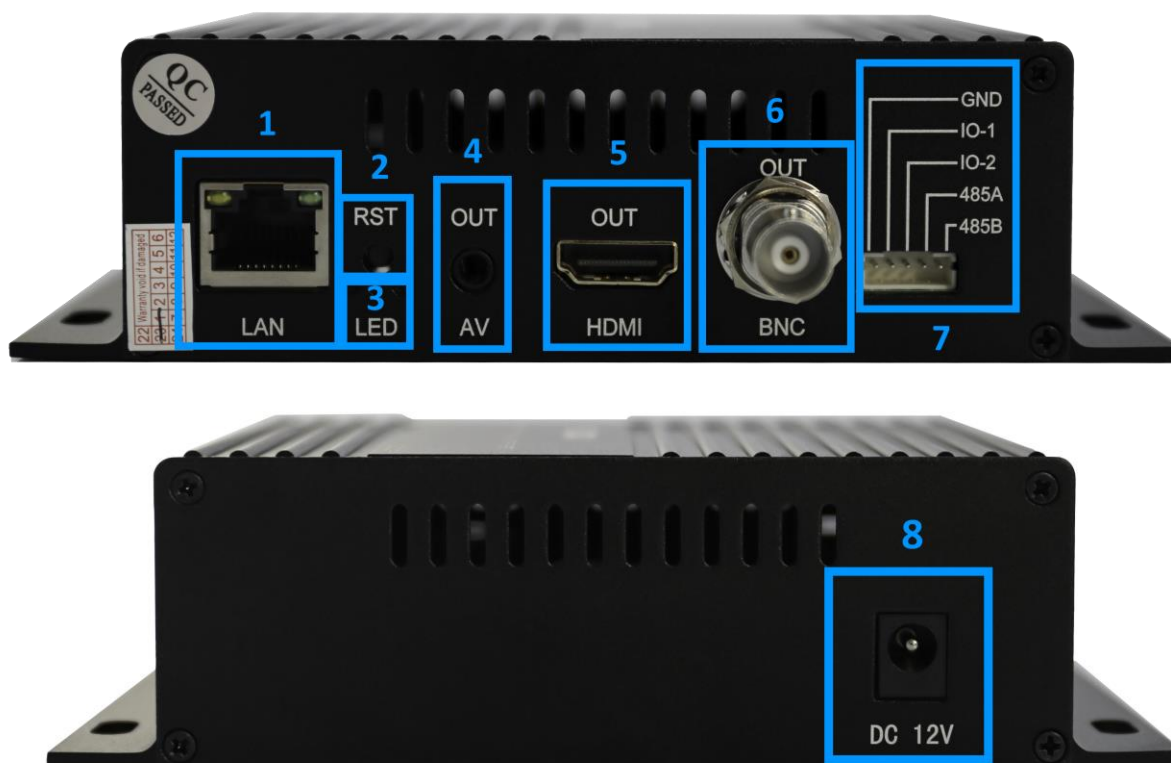
ID	Name	Description
Front Panel		
1	LAN Ethernet port	1000Mbps Ethernet Port
2	Line Audio Input	3.5mm Jack Analog Audio Input
3	LED	Indicate work status of the unit
4	SDI Input	Connect an SDI cable from this port to an HD or 4K video source
5	SDI Output	Connect an SDI cable from this port to an HD display
6	Reset	Reset button to restore to the factory default setting
Back Panel		
7	DC Power socket	12V3A Power Socket

## 3.2 Hardware Interface – G501EH



ID	Name	Description
Front Panel		
1	LAN Ethernet port	1000Mbps Ethernet Port
2	Line Audio Input	3.5mm Jack Analog Audio Input
3	LED	Indicate work status of the unit
4	HDMI Input	Connect an HDMI cable from this port to an HD or 4K video source
5	HDMI Output	Connect an HDMI cable from this port to an HD display
6	Reset	Reset button to restore to the factory default setting
Back Panel		
7	DC Power socket	12V3A Power Socket

### 3.3 Hardware Interface – G501DH

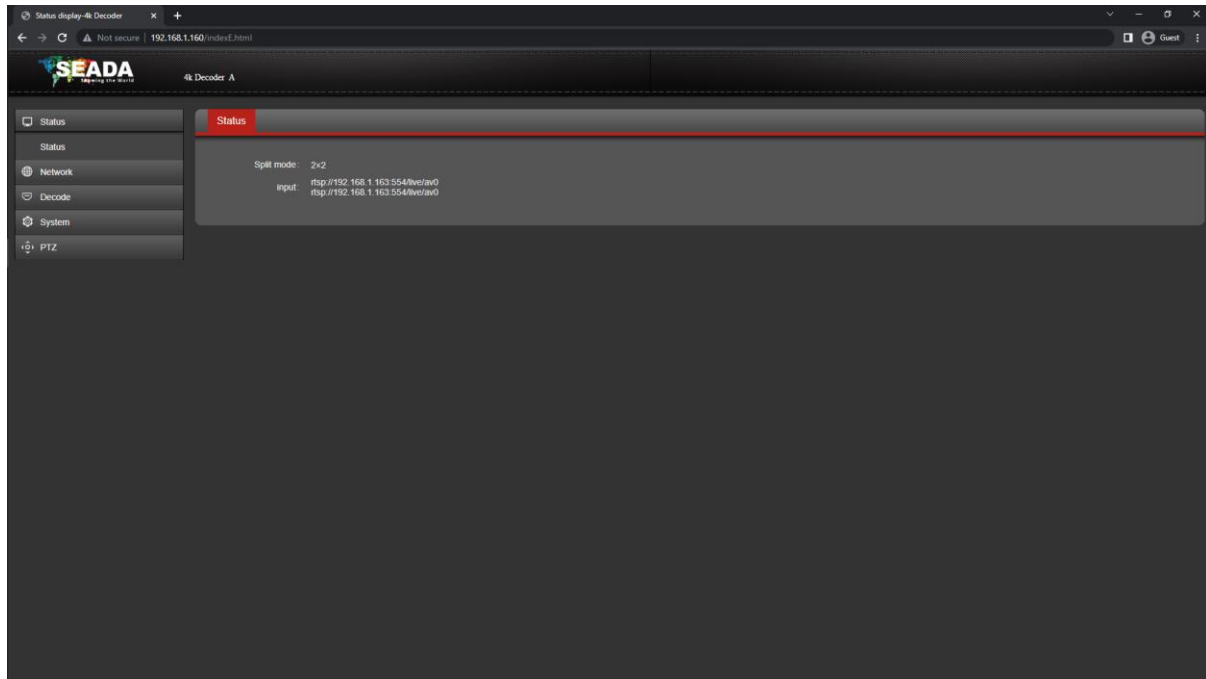


ID	Name	Description
Front Panel		
1	LAN Ethernet port	1000Mbps Ethernet Port
3	Reset	Reset button to restore to the factory default setting
3	LED	Indicate work status of the unit
4	Line Audio Output	3.5mm Jack Analog Audio Output
5	HDMI Output	Connect an HDMI cable from this port to an HD display
6	SDI Output	Connect an SDI cable from this port to an HD display
7	RS485 Port	RS485 port for PTZ camera control
Back Panel		
8	DC Power socket	12V3A Power Socket

## 4. Software Interface – G501DH

By default, the IP address for G501DH is 192.168.1.160. Enter the IP address in any browser to enter the WebUI.

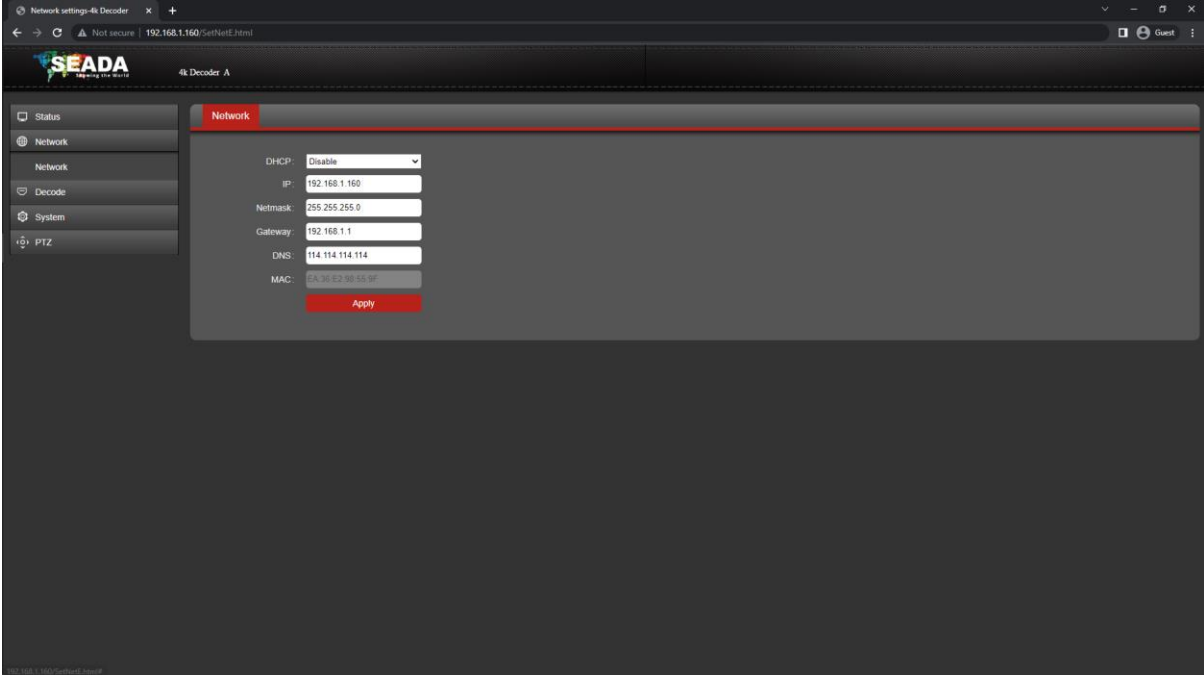
### 4.1 Home Page



In the '**Status**' tab, user can view the split mode for the output display and the address for the streams that are currently being decoded.



## 4.2 Network

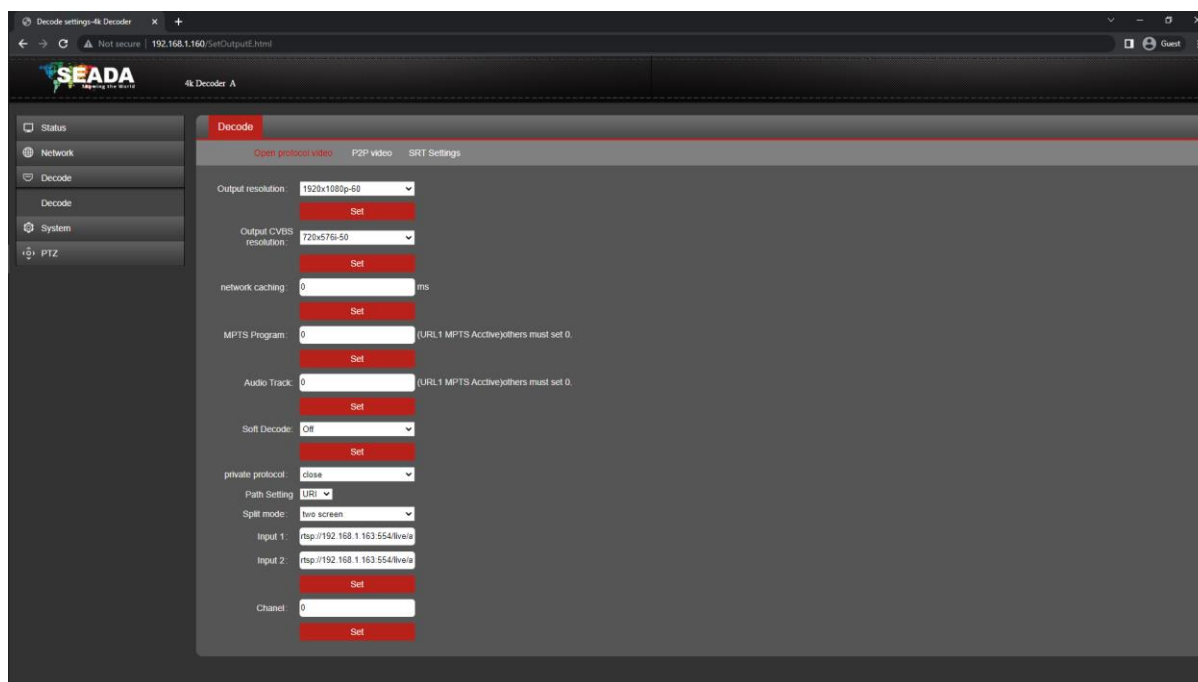


The screenshot shows a web browser window with the address bar displaying "192.168.1.160/SetNetE.html". The page title is "4k Decoder A". On the left, there is a sidebar menu with options: Status, Network, Network, Decode, System, and PTZ. The "Network" option is selected, and the main content area displays the network configuration settings for "4k Decoder A".

Network	
DHCP:	Disable
IP:	192.168.1.160
Netmask:	255.255.255.0
Gateway:	192.168.1.1
DNS:	114.114.114.114
MAC:	EA:30:82:30:55:9F
<input type="button" value="Apply"/>	

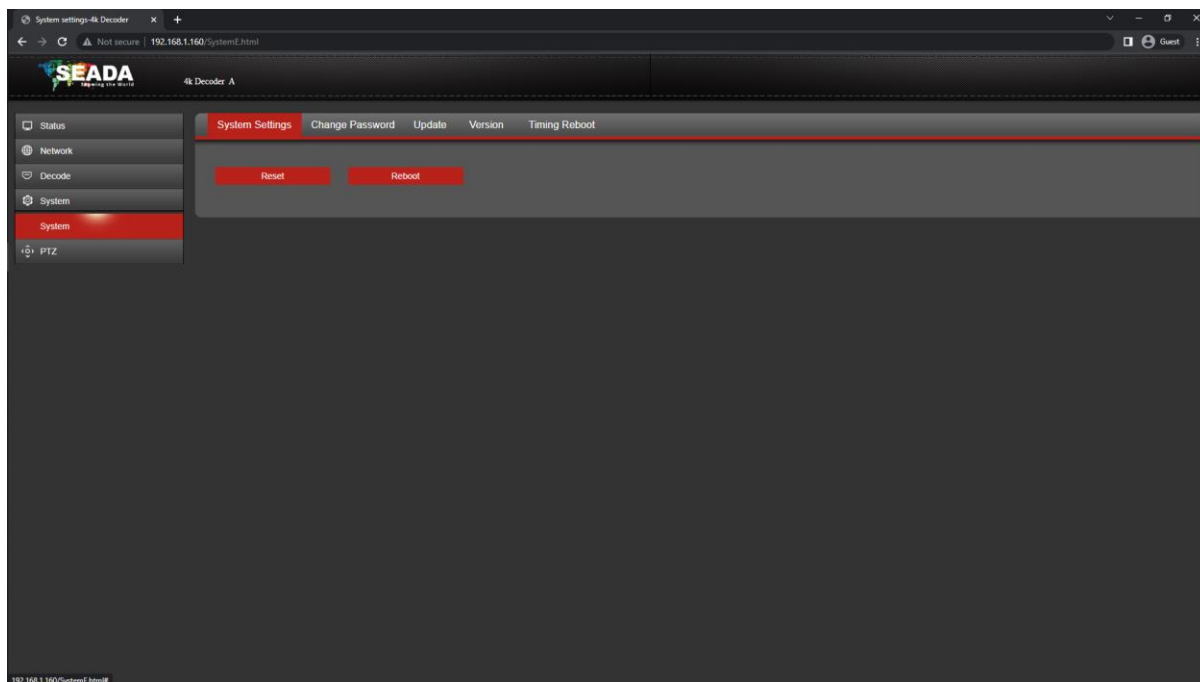
User can set up the network configuration of G501EH in this page.

## 4.3 Decode



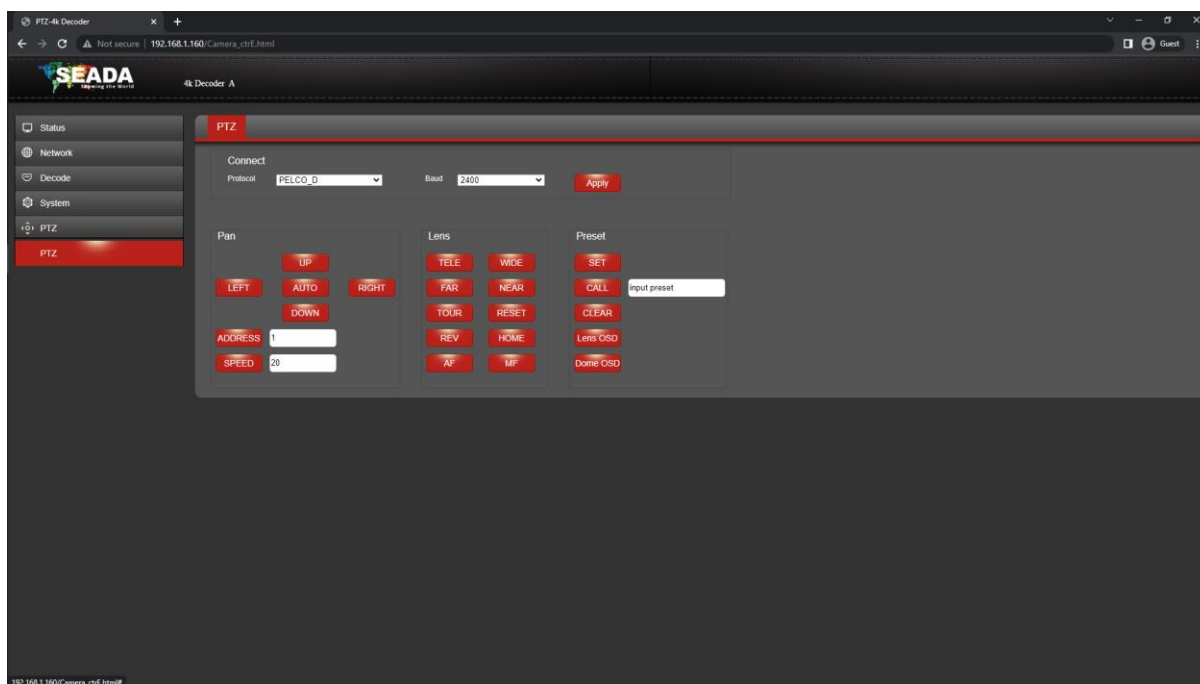
Open Protocol Video	
Output Resolution	Specify the output resolution for display on the screen
Output CVBS Resolution	Specify the output resolution for display on the CVBS screen
Network caching	Set up cache when decoding and this function can improve the performance of G501DH when the video output is cranky (normally between 0 and 200)
MPTS Program	Specify the stream ID when MPTS stream is in use
Audio Track	Specify the audio track ID when MPTS stream is in use
Soft Decode	Software decoding (if the video cannot be decoded, user can use this option to retry)
Private protocol	Enable private protocol to decode directly G500 series units
Path Setting	Specify the path of the decoded stream
Split mode	Specify the split mode of the decoder <ul style="list-style-type: none"> <li>One screen</li> <li>Two screen</li> <li>Four screen</li> </ul>
Input	Enter the stream addresses
Chanel	Specify the number of channels

## 4.4 System



System Setting	
Reset	Reset the unit
Reboot	Reboot the unit
Change Password	
New Password	Enter the new password
Confirm	Confirm the new password
Update	
Firmware version of the unit	
Version	
Upgrade the firmware of the unit	
Timing Reboot	
Specify reboot timing for the unit	

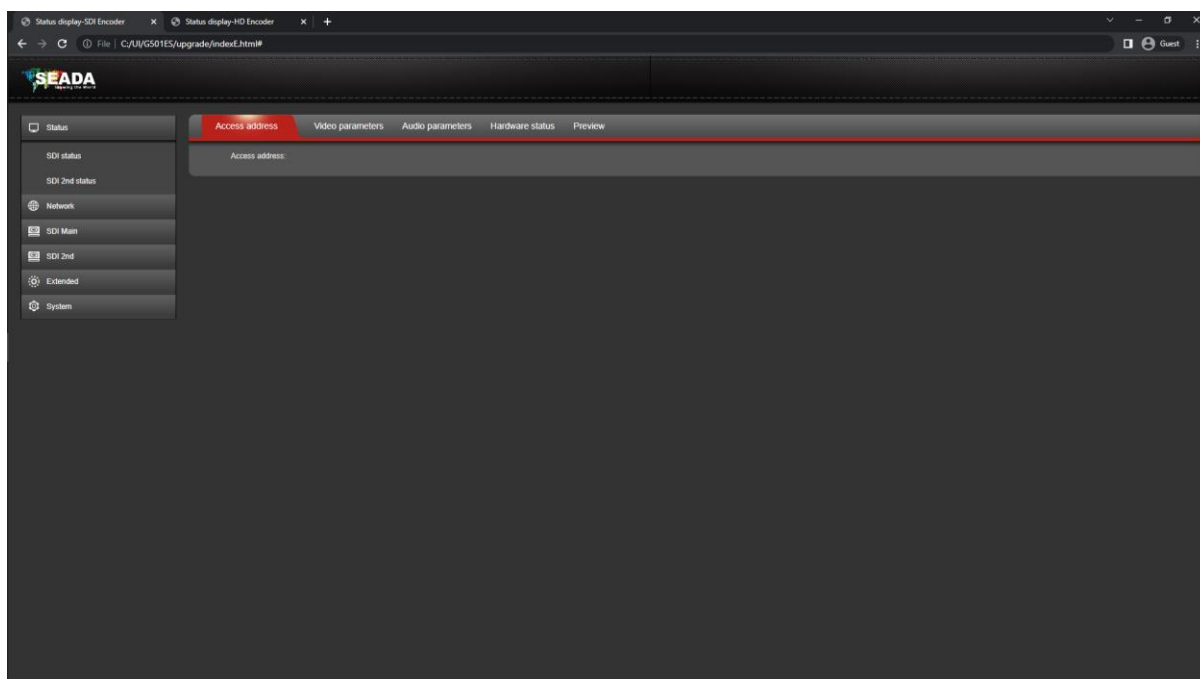
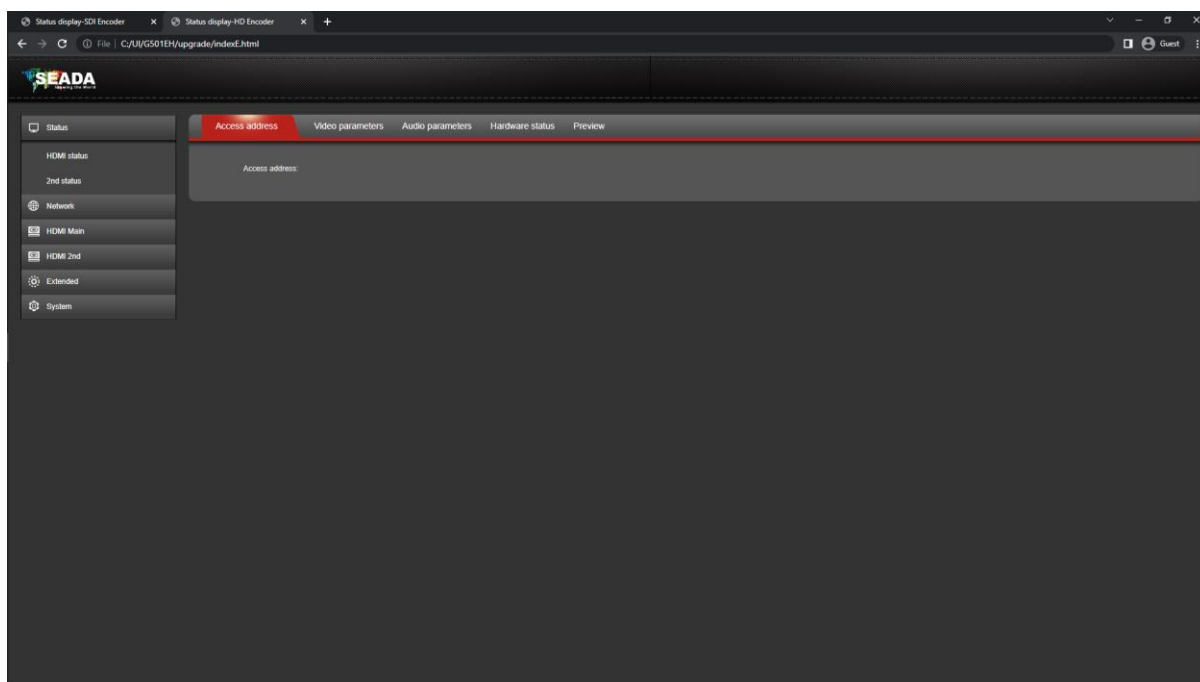
## 4.5 PTZ



This function can be used to have a basic control over the RS485 port for a PTZ camera via VISCA or PELCO-D/P.

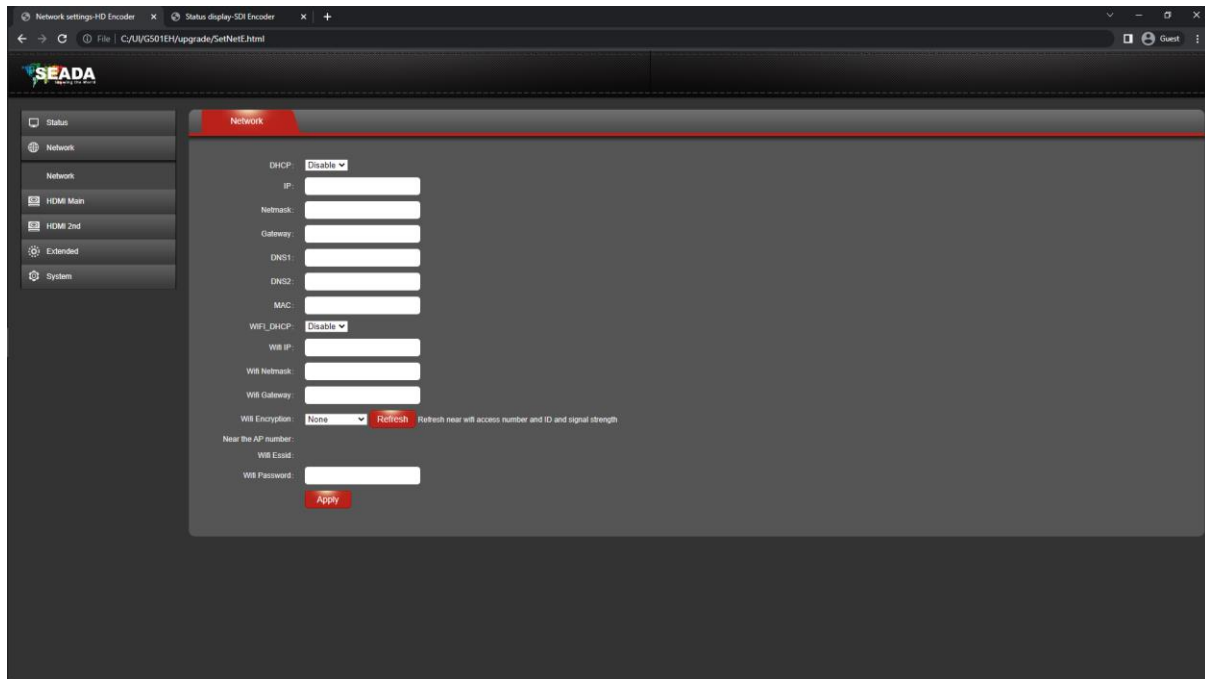
## 5. Software Interface – G501EH/G501ES

### 5.1 Status



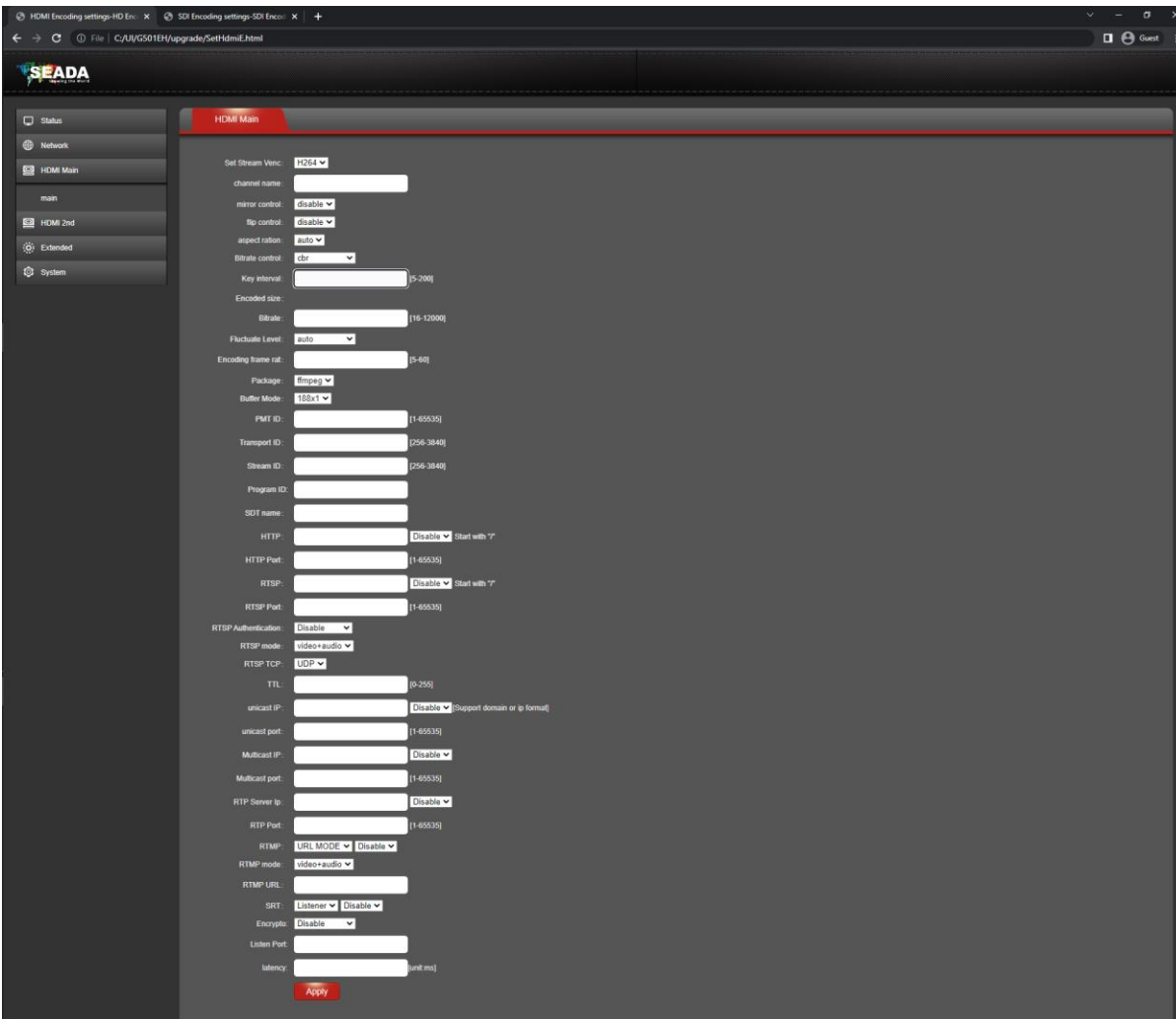
HDMI/SDI status	
Access address	Display the address of the encoded signal
Video parameters	Display the video parameter for the encoded signal
Audio parameters	Display the audio parameter for the encoded signal
Hardware status	Display the hardware encoding status
Preview	Preview the encoded signal (need HLS enabled)
HDMI/SDI 2 <sup>nd</sup> status	
Same as above	

## 5.2 Network



User can set up the network configuration of G501EH/G501ES in this page.

## 5.3 HDMI Main



HDMI Main	
Set Stream Venc	Specify video encoding <ul style="list-style-type: none"> <li>• H264 (AVC)</li> <li>• H265 (HEVC)</li> </ul>
Channel Name	Specify the name of the stream
mirror control	Specify whether to mirror the signal
flip control	Specify whether to flip the signal
aspect ratio	Specify the aspect ratio of the encoded signal
Bitrate Control	Specify the video encoding control <ul style="list-style-type: none"> <li>• VBR (variable bitrate)</li> <li>• CBR (constant bitrate)</li> </ul>
Key Interval	Specify the interval of intra frames (I-frames)
Bitrate	Specify the average video bitrate
Fluctuate Level	Specify the CBR fluctuate level from level 1 to level 5
Encoding frame rate	Specify the encoded frame rate
Smart Encoding	Enable smart encoding in the case if the encoded signal is blur and this will improve the performance of encoding



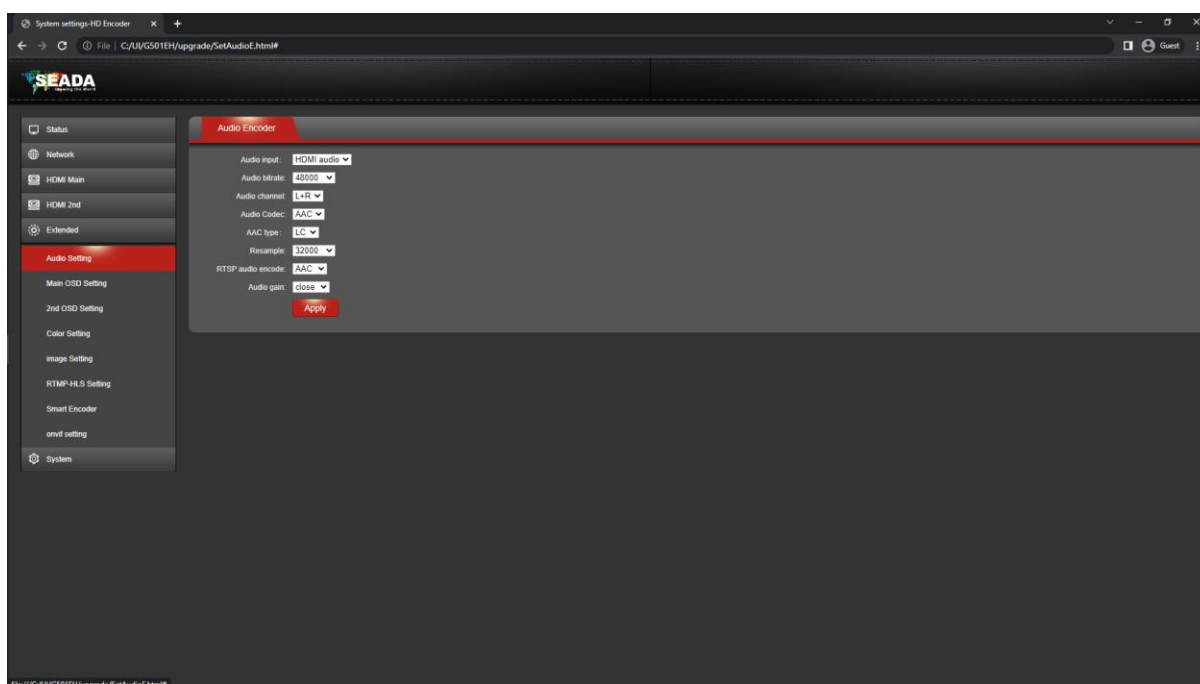
Package	Specify different multiplexer mode for decoder compatibility
Buffer Mode	Specify the Ethernet packet size
TS_PID	Edit PID for the current stream
HTTP	Set up HTTP encoding
RTSP	Set up RTSP encoding
RTP	Set up RTP encoding
RTMP	Set up RTMP encoding
RTMP	<p>Choose the RTMP mode: (for example for YouTube streaming)</p> <p>IP: Manually enter information for RTMP streaming</p> <ul style="list-style-type: none"> <li>• RTMP mode: Choose the encoding video only, audio only or video and audio at the same time</li> <li>• RTMP server ip: a.rtmp.youtube.com (beginning of Server URL before '/')</li> <li>• RTMP server port: 1935</li> <li>• RTMP user name: leave empty</li> <li>• RTMP password: leave empty</li> <li>• RTMP app name: live2 (end of Server URL after '/')</li> <li>• RTMP stream name: stream name/key on YouTube homepage</li> </ul> <p>URL: Enter the stream URL, followed by the stream key with a symbol '/'</p>
SRT	Set up SRT encoding

## 5.4 HDMI 2nd

Most settings in this page is the same as for HDMI main.

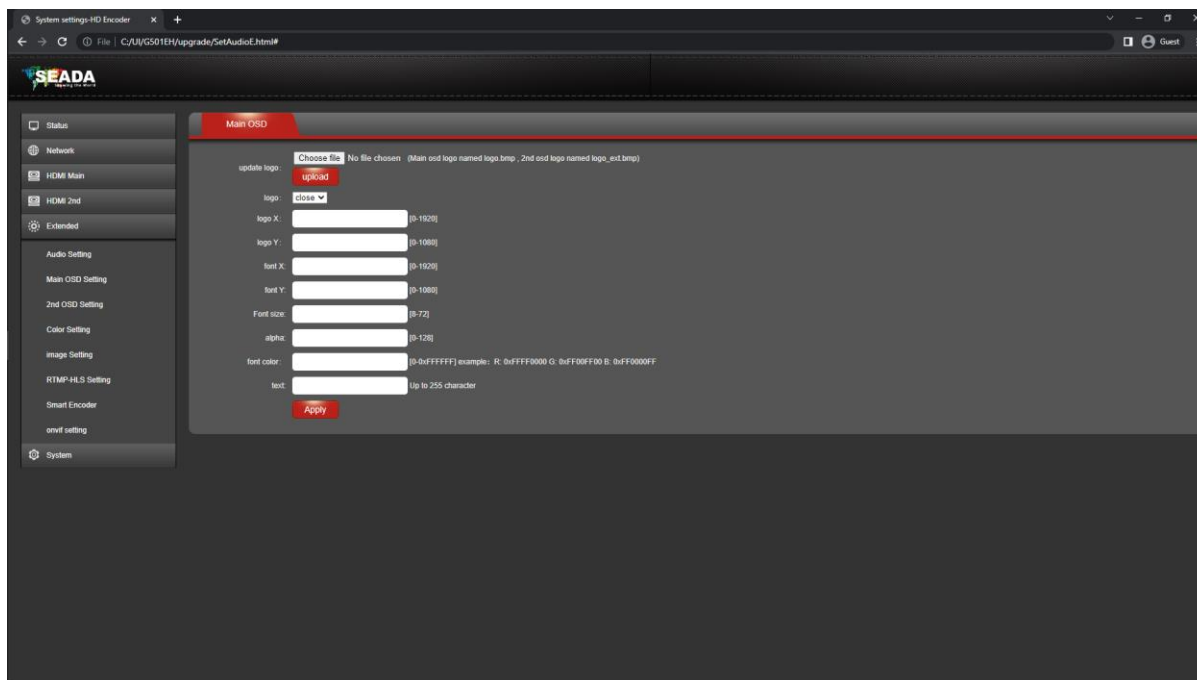
## 5.5 Extended

### 5.5.1 Audio Setting



Audio Setting	
Audio input	Specify the audio input between 3.5mm Jack and HDMI embedded
Audio bitrate	Specify the audio bitrate
Audio channel	Specify channel for the audio <ul style="list-style-type: none"> <li>• L+R</li> <li>• L</li> <li>• R</li> </ul>
Audio Codec	Specify the audio encoding <ul style="list-style-type: none"> <li>• AAC</li> <li>• MP3</li> </ul>
AAC type	Specify AAC profile <ul style="list-style-type: none"> <li>• LC-AAC (Low Complexity AAC) (Good for high (<math>\geq 80</math> kbps) bitrates)</li> <li>• HE-AAC (High Efficiency AAC) (Good for lower (<math>\leq 80</math> kbps) bitrates)</li> </ul>
Resample	Specify the audio resampling
RTSP audio encode	Specify the RTSP audio codec <ul style="list-style-type: none"> <li>• AAC</li> <li>• G711</li> </ul>
Auto gain	Specify the audio gain <ul style="list-style-type: none"> <li>• -20db</li> <li>• -10db</li> <li>• Close</li> <li>• 5db</li> <li>• 10db</li> </ul>

## 5.5.2 Main OSD Setting

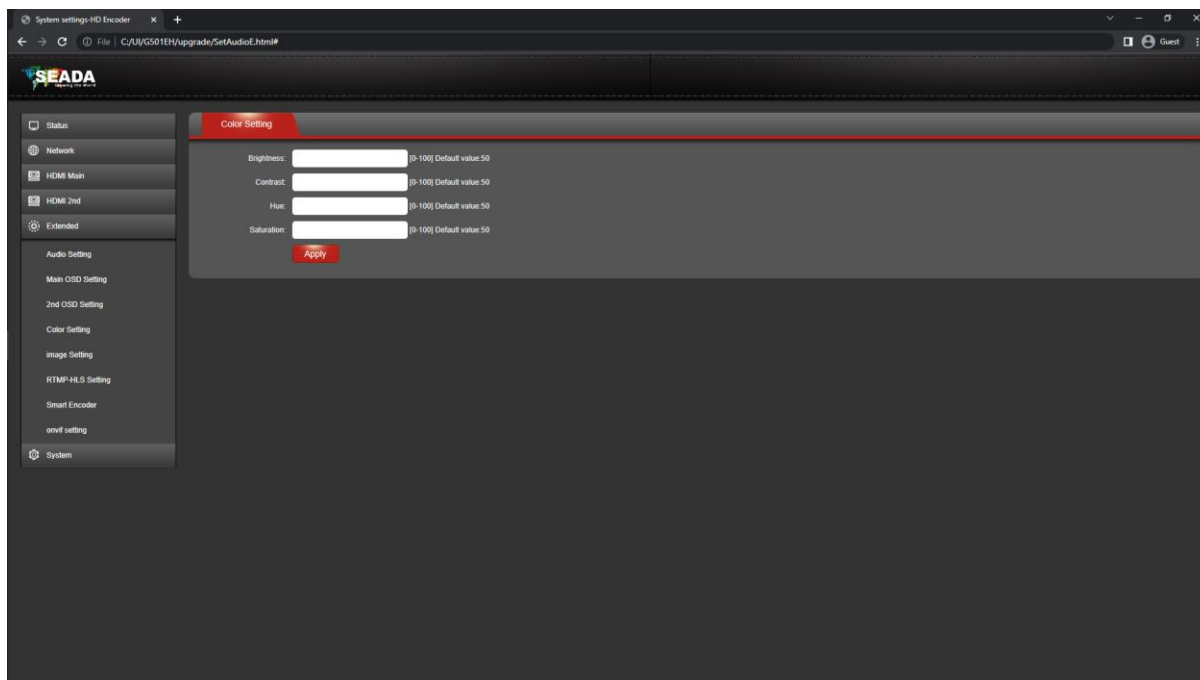


Main OSD	
Update logo	Select the logo file to upload (Only support BMP and black color will be transparent)
logo	Choose whether to display the logo
logo X	Specify the X axis of the logo
logo Y	Specify the Y axis of the logo
font X	Specify the X axis of the OSD
font Y	Specify the Y axis of the OSD
Font size	Specify the font size of the OSD
alpha	Specify the transparency of the logo
font color	Specify the color of the OSD
text	Specify the content of the OSD

## 5.5.3 2nd OSD Setting

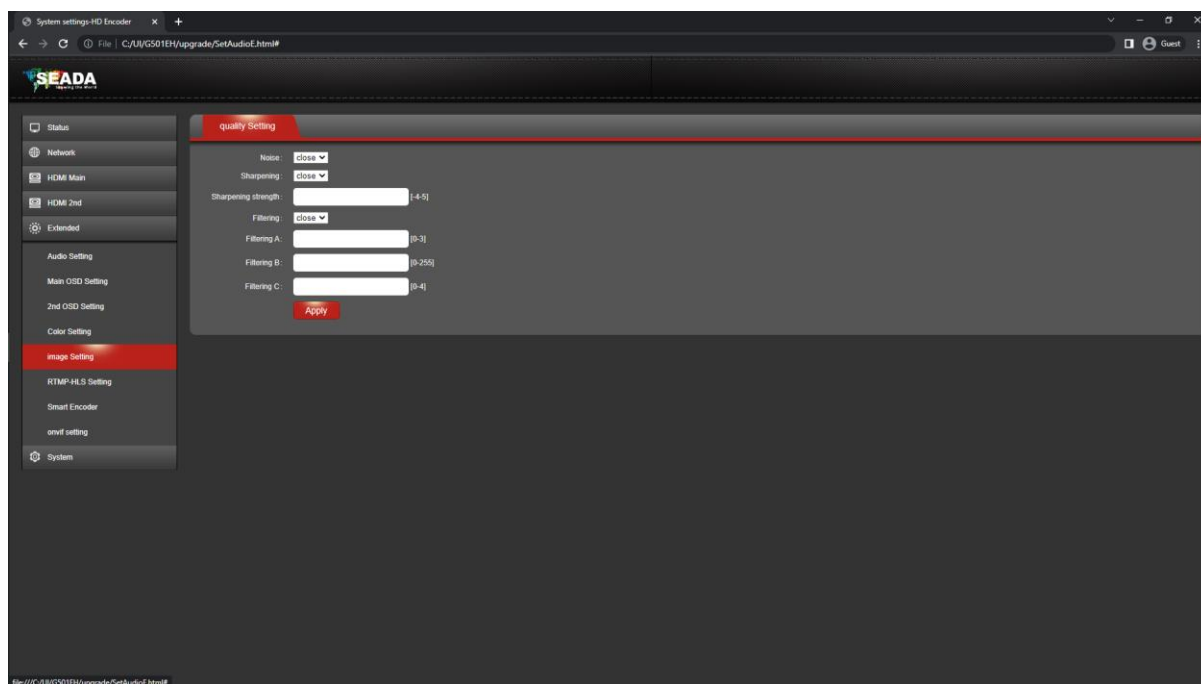
The setting is the same as the main OSD setting but user cannot upload another image for the logo. The OSD text can be different.

## 5.5.4 Color Setting



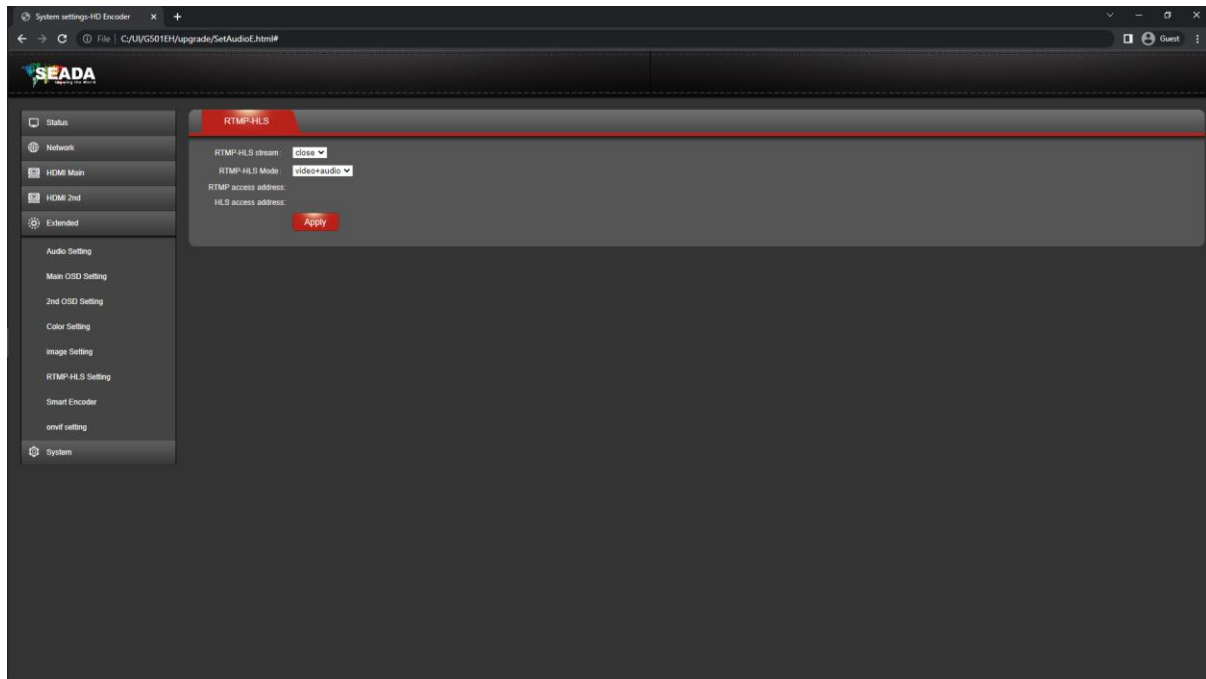
Color Setting	
Brightness	Specify the brightness
Contrast	Specify the contrast
Hue	Specify the hue
Saturation	Specify the saturation

## 5.5.5 Image Setting



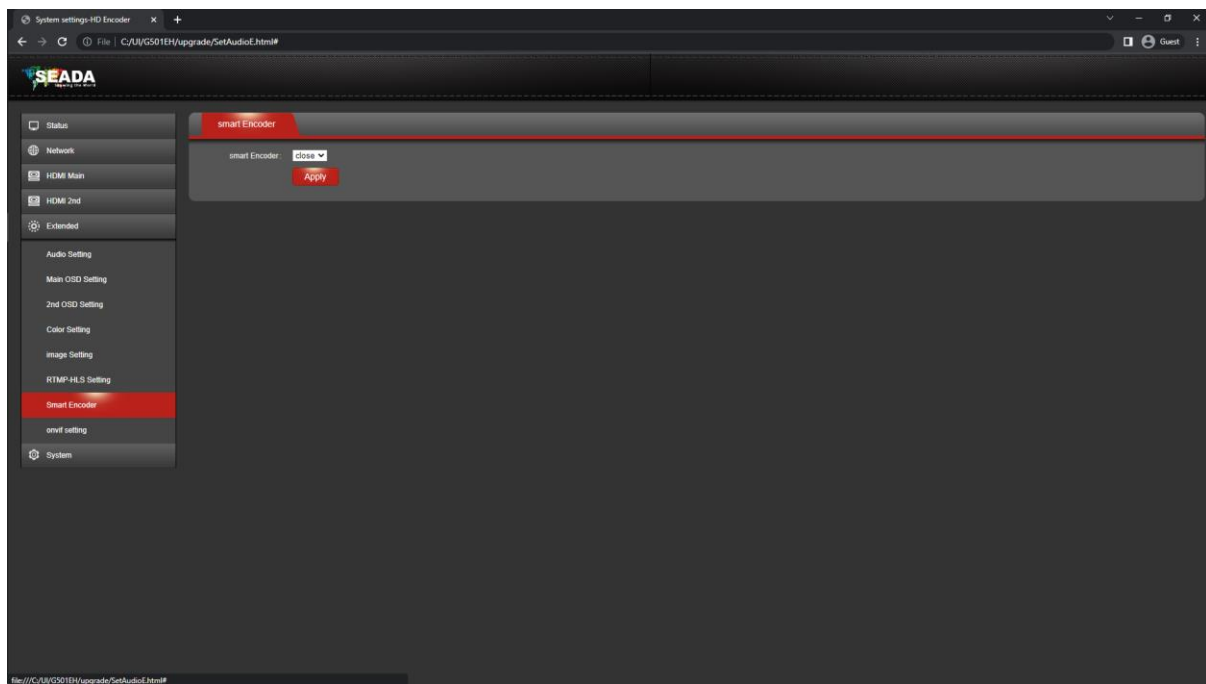
The image setting is based on chip internal filtering setting and should only be used with specific HDMI sources.

## 5.5.6 RTMP-HLS



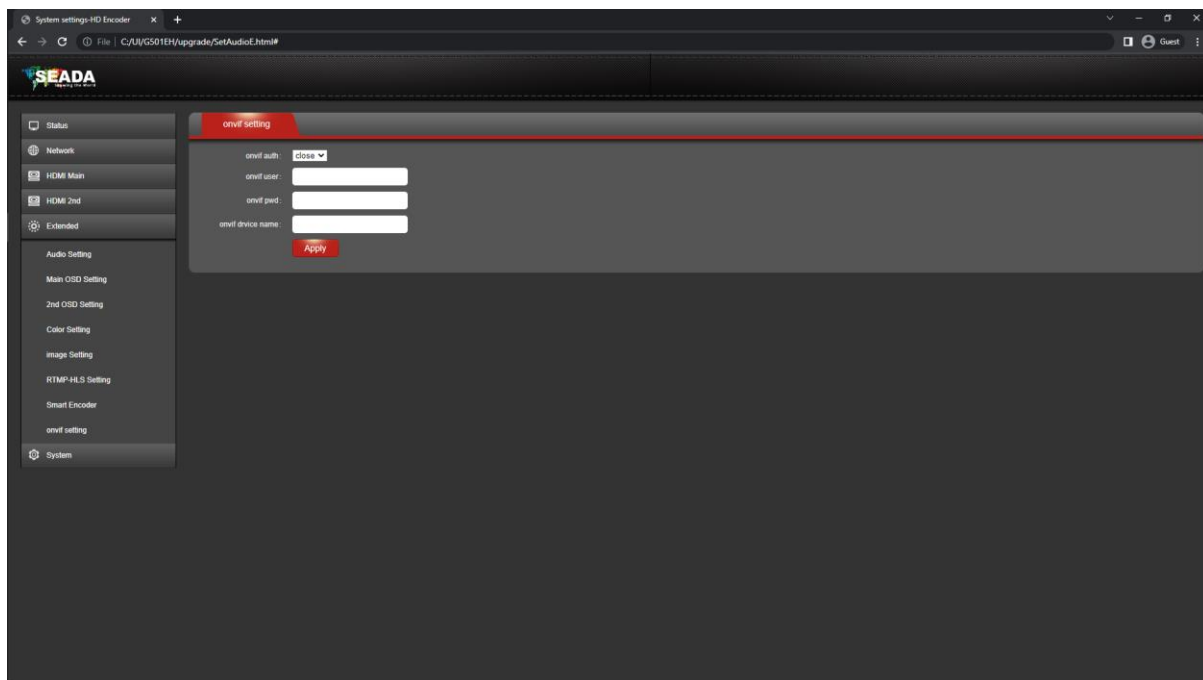
Set up the HLS streaming.

## 5.5.7 Smart Encoder



This function can be enabled to smooth the bitrate of the video when encoding.

## 5.5.8 Onvif Setting



Onvif Setting	
Onvif auth	Enable Onvif
Onvif user	Specify the Onvif username
Onvif pwd	Specify the Onvif password
Onvif device name	Specify the Onvif device name

## 5.6 System

System	
Reboot span	Specify reboot timing for the unit
Reset	Reset the unit
Reboot	Reboot the unit
Change Password	
New Password	Enter the new password
Confirm	Confirm the new password
Firmware version of the unit	
Upgrade the firmware of the unit	