



BLACK BOX H.264 Hdmi Over IP Encoder and Decoder User Manual

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BLACK BOX[®]

USER MANUAL

VS-2101X H.264/H.265

HDMI OVER IP

ENCODER/DECODER

24/7 TECHNICAL SUPPORT AT 1.877.877.2269 OR VISIT BLACKBOX.COM



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SAFETY PRECAUTIONS

To ensure the best performance from the product, please read all directions carefully before using the device. Save this manual for future reference.

- Unpack the equipment carefully and save the original box and packing material for possible future shipment.
- Follow basic safety precautions to reduce the risk of fire, electrical shock, and personal injury.
- Do not dismantle the housing or modify the module. It may result in electrical shock or burn.
- Using supplies or parts not meeting the product’s specifications may cause damage, deterioration, or malfunction.
- Refer all servicing to qualified service personnel.
- To prevent fire or shock hazards, do not expose the unit to rain or moisture. Do not install this product near water.
- Do not put any heavy items on the extension cable in case of extrusion.
- Do not remove the housing of the device as opening or removing the housing may expose you to dangerous voltage or other hazards.
- Install the device in a location with sufficient ventilation to avoid damage caused by overheating.
- Keep the module away from liquids.
- Spillage into the housing may result in fire, electrical shock, or equipment damage. If an object or liquid falls or spills on the housing, unplug the module immediately.
- Do not twist or pull the cable ends by force. Doing so can cause a malfunction.
- Do not use liquid or aerosol cleaners to clean this unit. Always unplug the power to the device before cleaning.
- Unplug the power cord when left unused for an extended period of time.
- Information on disposal for scrapped devices: do not burn or mix with general household waste. Treat as normal electrical waste.
- Use #4-40 x 5/8 Phillips pan head self-tapping screws for optional wall mounting of the unit.

	TABLE 1-1 VS-2101X SPECIFICATIONS
SPECIFICATION	DESCRIPTION

Video Input	
Input Video Connector	(1) HDMI Type A
Input Video Type	(1) HDMI 2.0
Supported Input Resolutions	1920 x 1200 at 60 Hz 4:4:4
Input Video Signal	0.5 –1.2 V p-p
Input DDC Signal	5 V p-p (TTL)
Video Impedance	100 Ohms
Streaming	
Video Encoding Bit Rate	Configurable
Streaming Port	(1) LAN (PoE), 10/100/1000BASE-T
Stream Video Type	H.264/MPEG–4 AVC/HEVC/H.265
Streaming Video Resolutions	<p>Timing:</p> <p>H.264: Up to 1920 x 1200 at 60 Hz 4:2:0</p> <p>H.265: Up to 1920 x 1200 at 60 Hz 4:2:0</p> <p>Audio:</p> <p>Encoding: AAC Sampling Rate: 48 kHz</p> <p>Bitrate: < or = 240 kbps (AAC) Delivery: Multiple streams supported</p> <p>Transmission Method: unicast, multicast, RTP over RTSP, RTP over UDP/TCP Session</p>

Latency	Low latency 180ms for 1080P@60
Network Switch	Multicast, IGMP V2
Video Output	
Output Video Port	(1) HDMI Type A
Output Video Type	HDMI 2.0
Supported Video Resolutions	HDMI: up to 1920 x 1200 at 60 Hz 4:4:4 Audio: LPCM, 48 kHz
Sampling Rate	48 kHz
Analog Audio Output	
Max. Audio Level	2 Vrms
THD+N	<0.1% at 1 kHz
SNR	> 70 dB at 1 kHz
Frequency Response	± 3 dB 20 Hz to 20 kHz
Crosstalk	<-60 dB at 1 kHz
Impedance	470 ohms

Type	Unbalanced
Control	
Control Connectors	(1) RJ-45, 10/100/1000BASE-T Ethernet port
Control Method	Web UI

CHAPTER 1: SPECIFICATIONS

	TABLE 1-1 VS-2101X SPECIFICATIONS CONTINUED
SPECIFICATION	DESCRIPTION
IP Address	DHCP/Static/Auto IP
Mechanical	
Indicators	(4) LEDs: (1) Power, (1) Status, (2) RJ-45
User Control	(1) ID Mode button
Enclosure	Chassis Material: Metal (Steel); Chassis Color Black
Material	Anodized aluminum
Dimensions	Case only: 0.98" H x 9.1" W x 4.3" D (2.5 x 23.1 x 10.8 cm); All inclusive: 0.98" H x 9.1" W x 4.6" D (2.5 x 23.1 x 11.7 cm)
Power	(1) 5V/3A DC (Locking) (Level 6; EN62368-1) power connector POE AF mode (48V, 0.25A)

CHAPTER 2: OVERVIEW

2.1 INTRODUCTION

The H.264/H.265 HDMI over IP Encoder/Decoder delivers live-stream, visually lossless quality video and high-quality audio over IP. This VS-2101X is an HDMI over H.264/H.265 transceiver. This means it can be used as an encoder or a decoder based on the mode selected. It features one HDMI input, one HDMI output, and one Ethernet port for simplified integration into your AV system. In encoder mode, the HDMI input will be encoded to H.264/H.265 and sent out to the Ethernet port. In decoder mode, the H.264/H.265 data will be decoded from the Ethernet port and sent out to the HDMI output.

2.2 FEATURES

- Uses one HDMI input, one HDMI output, and one Ethernet port

- Works in encoder or decoder mode
- Control via web UI
- Consumes low bandwidth
- Delivers content with visually lossless quality
- Supports AAC audio encoding to transmit high-quality audio

2.3 WHAT’S INCLUDED

- (1) Transceiver
- (1) 5V-DC, 3A power adapter (with changeable plug for US, UK, EU, and AU)

2.4.1 FRONT PANEL



FIGURE 2-1: FRONT PANEL

TABLE 2-1 FRONT PANEL COMPONENTS

NUMBER IN FIGURE 2 -1	COMPONENT	DESCRIPTION
1	Power	Blue: Unit ON. OFF: Unit OFF.
2	Status	Green: Encoder mode Amber: Decoder mode OFF: Unit is not in the normal working state.
3	ID (Mode)	Press to display information, such as device IP address or ID, OSD. Press for five seconds to change encoder/decoder mode.

2.4.2 REAR PANEL

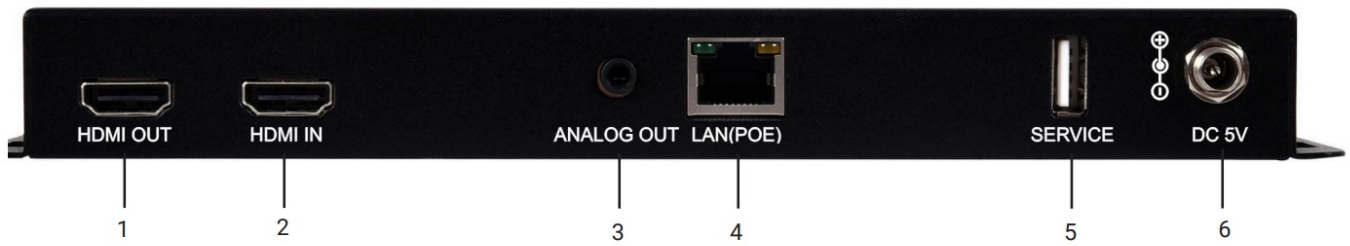


FIGURE 2-2: REAR PANEL

TABLE 2-2 REAR PANEL COMPONENTS

NUMBER IN FIGURE 2 -2	COMPONENT	DESCRIPTION
1	HDMI OUT	1920×1200 @60Hz 4:4:4 Supports HDMI bypass out on encoder mode
2	HDMI IN	1920×1200 @60Hz 4:4:4
3	Analog Out	3.5mm phone jack Extracting audio from the video at decoder mode.
4	1G LAN	Control and streaming; 1920×1200 @60Hz 4:2:0
5	Service	Offline firmware update
6	Power	5V/3A DC (Locking) POE (Power Over Ethernet) Level 6; EN62368-1

CHAPTER 3: OPERATION

3.1 LOGIN SCREEN

The transceiver's default mode is an encoder, and the default IP address is 192.168.1.51. When the mode is changed to decoder, the default IP address is 192.168.1.50.

After entering your Username and password on the login screen, click on the Submit button.

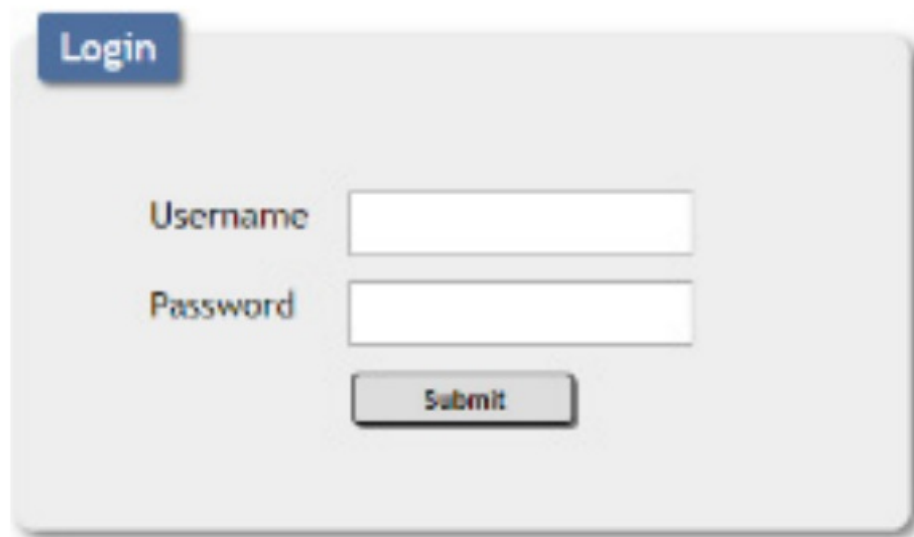
A login screen with a light gray background and rounded corners. In the top-left corner, there is a blue rectangular button with the word "Login" in white text. Below this, the labels "Username" and "Password" are positioned to the left of two white rectangular input fields. The "Username" label is above the first input field, and the "Password" label is above the second input field. Below the second input field, there is a gray rectangular button with the word "Submit" in black text.

FIGURE 3-1: LOGIN SCREEN

Default username: admin

Default password: admin

3.2 SYSTEM TAB

This section provides information and control over the unit's operational mode, device name, and network configuration. Options for updating the firmware, saving/restoring the unit's configuration, and performing a factory reset are also provided.

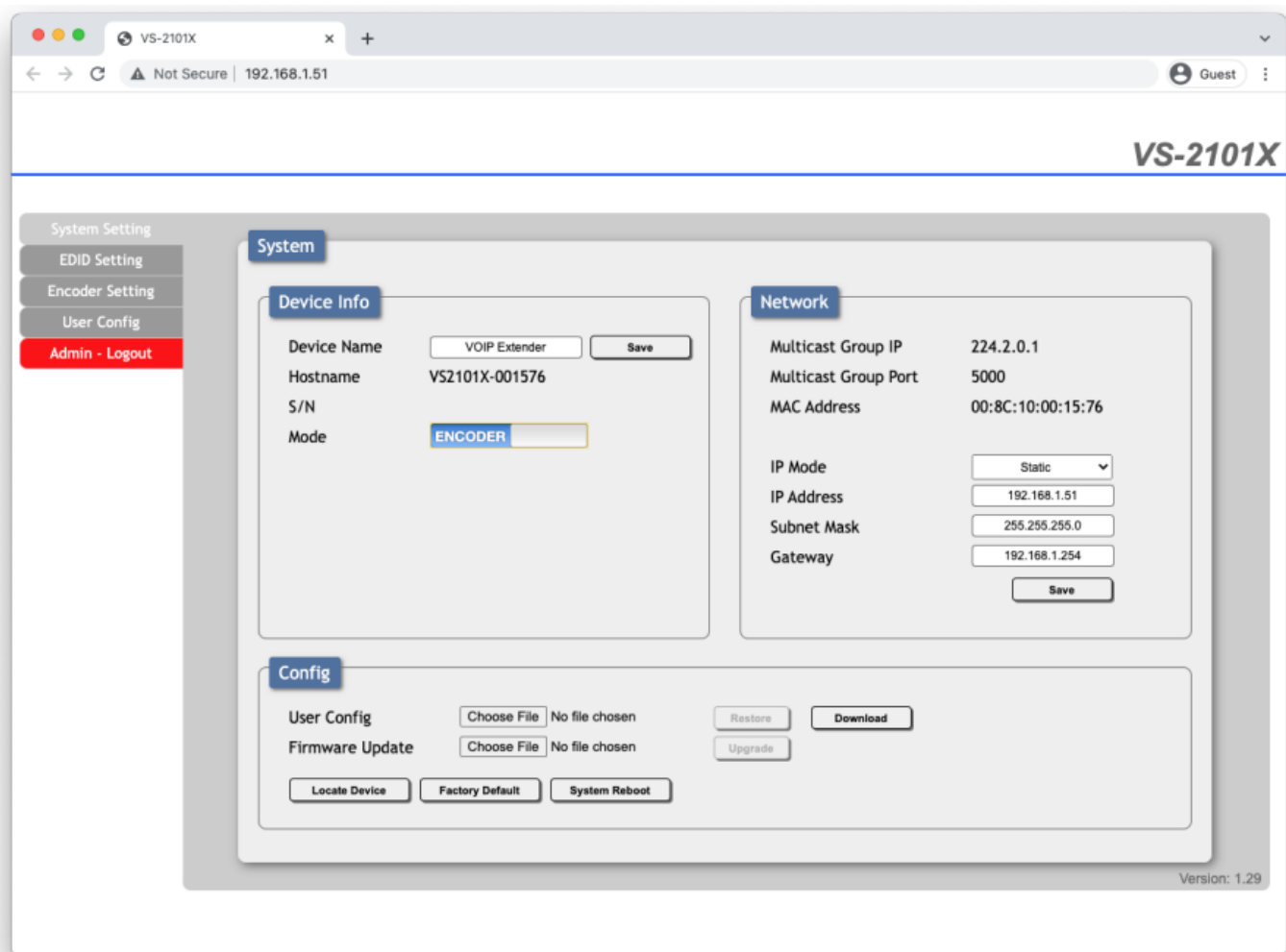


FIGURE 3-2: ENCODER SYSTEM TAB

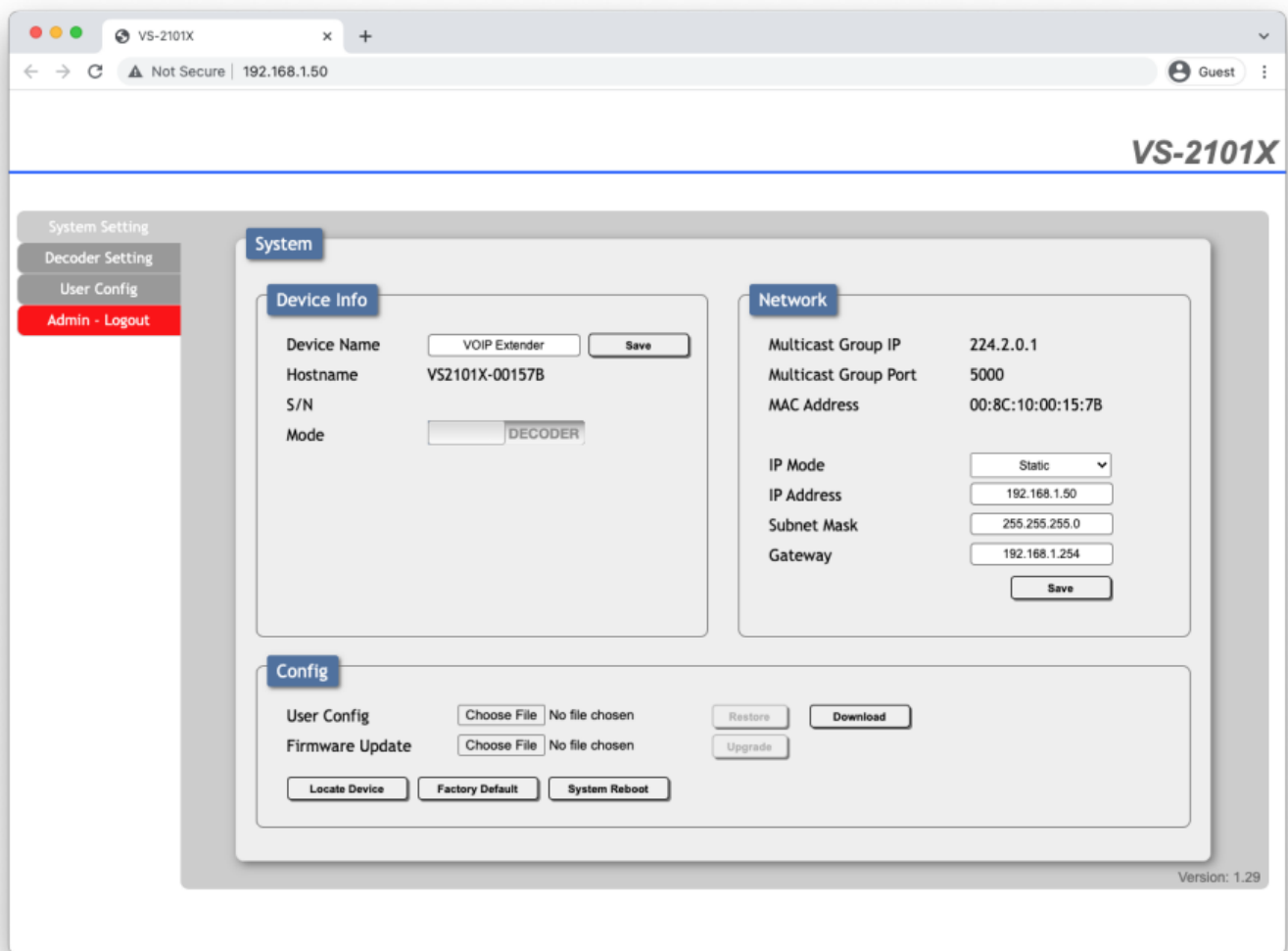


FIGURE 3-3: DECODER SYSTEM TAB

TABLE 3-1 SYSTEM TAB INFORMATION/OPTIONS

ITEM	DESCRIPTION
Device Info	Section that allows the user to rename the device for easy identification
Network	Section that describes the Multicast IP, Group Port, and MAC address.
IP Mode	Allows the user to set the network to either Static, DHCP, or Auto
Config	This section allows the user to download the XML Edit file and save it to a PC. The user can also restore the config by selecting the file from the Choose File option.
Locate Device	By Pressing this button, the Status Light on the front of the device will begin to flash. Press it a second time to exit flashing mode.
Factory Default	Restores the device to all factory defaults
System Reboot	Allows the user to Reboot a device via the User Interface

3.3 EDID TAB

This tab provides the option of Internal EDIDs, one sink-sourced EDID, and customer-uploaded EDIDs that can be assigned to the HDMI input port. The names of the customer-uploaded EDIDs can be changed if desired. There are six standard EDIDs, one sink-sourced EDID, and four customer-uploaded EDIDs.

NOTE: The “EDID” tab is only available in encoder mode.

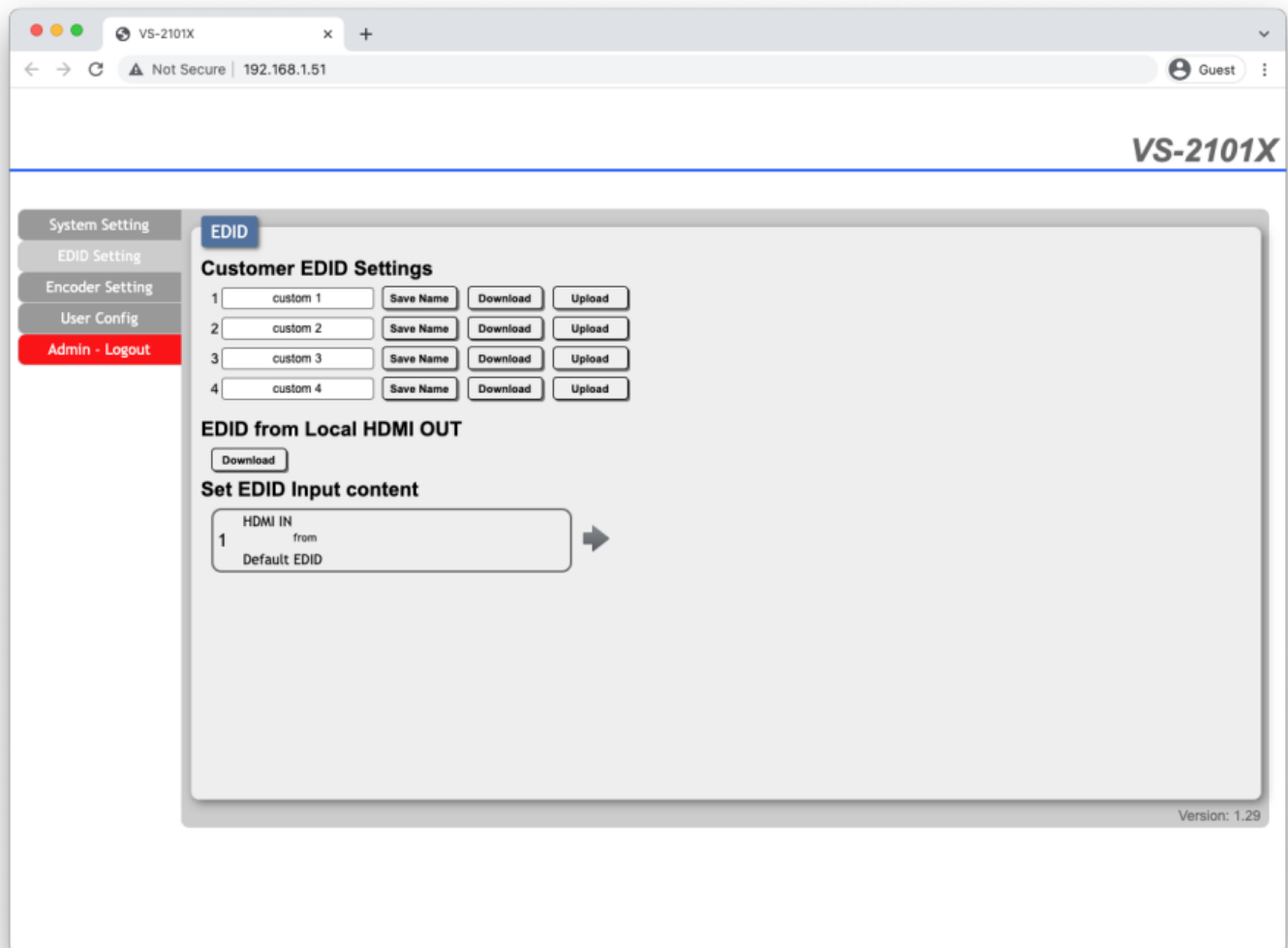


FIGURE 3-4: EDID TAB

3.4 ENCODER SETTING TAB

This tab provides options for encoder settings.

NOTE: The “Encoder Setting” tab is only available in encoder mode.

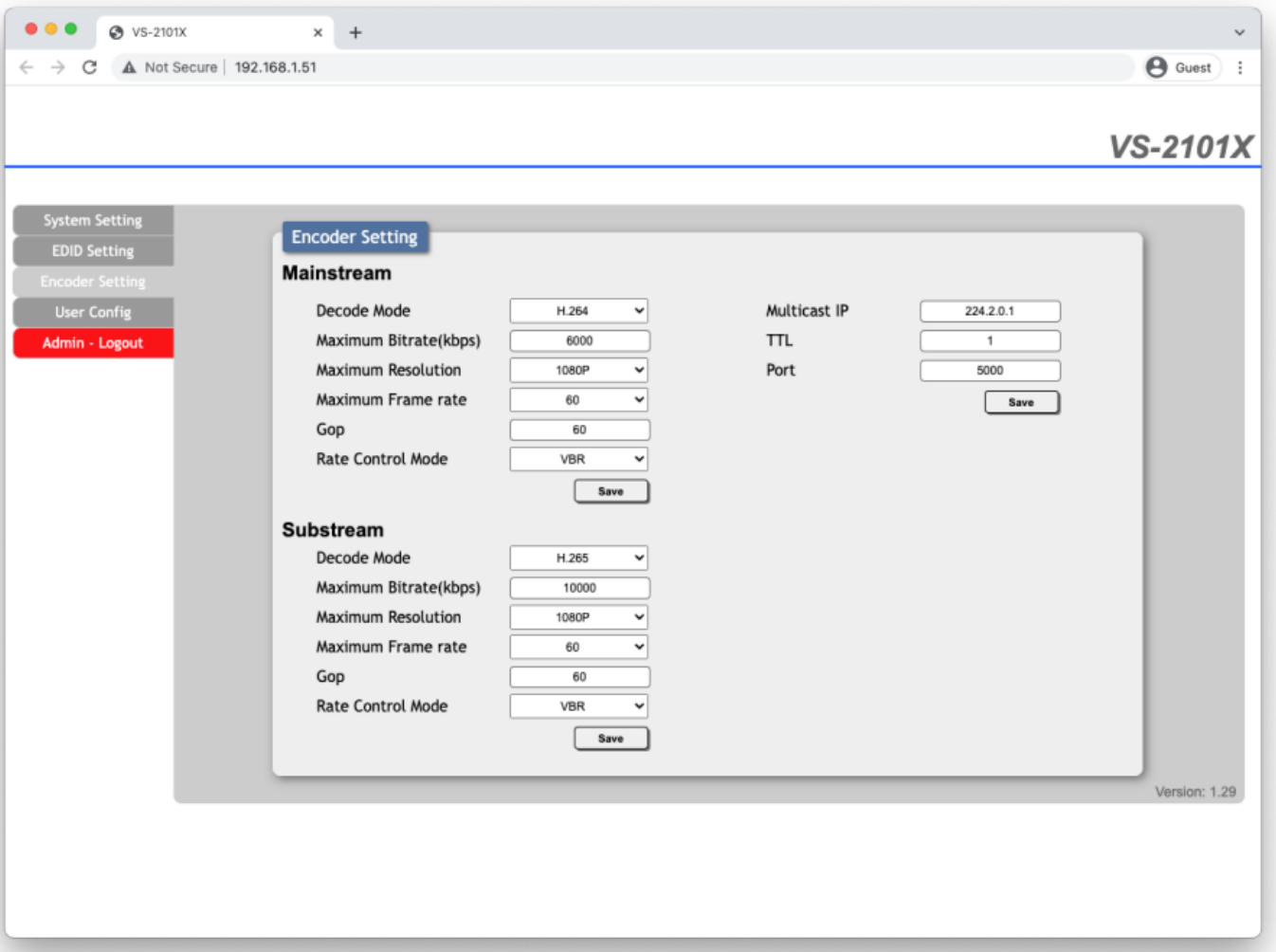


	TABLE 3-2 ENCODER SETTING TAB INFORMATION/OPTIONS
ITEM	DESCRIPTION
Mainstream	Allows the user to define the encoder settings
Decode Mode	H.264 or H.265
Maximum Resolution	1080P
Maximum Frame Rate	1 to 60
GOP	Default 60
Rate Control Mode	VBR (Variable Bit Rate) or CBR (Constant Bit Rate)
Substream	
Decode Mode	H.264 or H.265
Maximum Bit Rate	Default 10000Kbps
Maximum Resolution	1080P, 720P, 480P
Maximum Frame Rate	1 to 60
GOP	Default 60
Rate Control Mode	VBR (Variable Bit Rate) or CBR (Constant Bit Rate)

3.5 DECODER SETTING TAB

This tab provides controls over the HDMI output mode, output resolution, and video source settings.

NOTE: The “Decoder Setting” tab is only available in decoder mode.

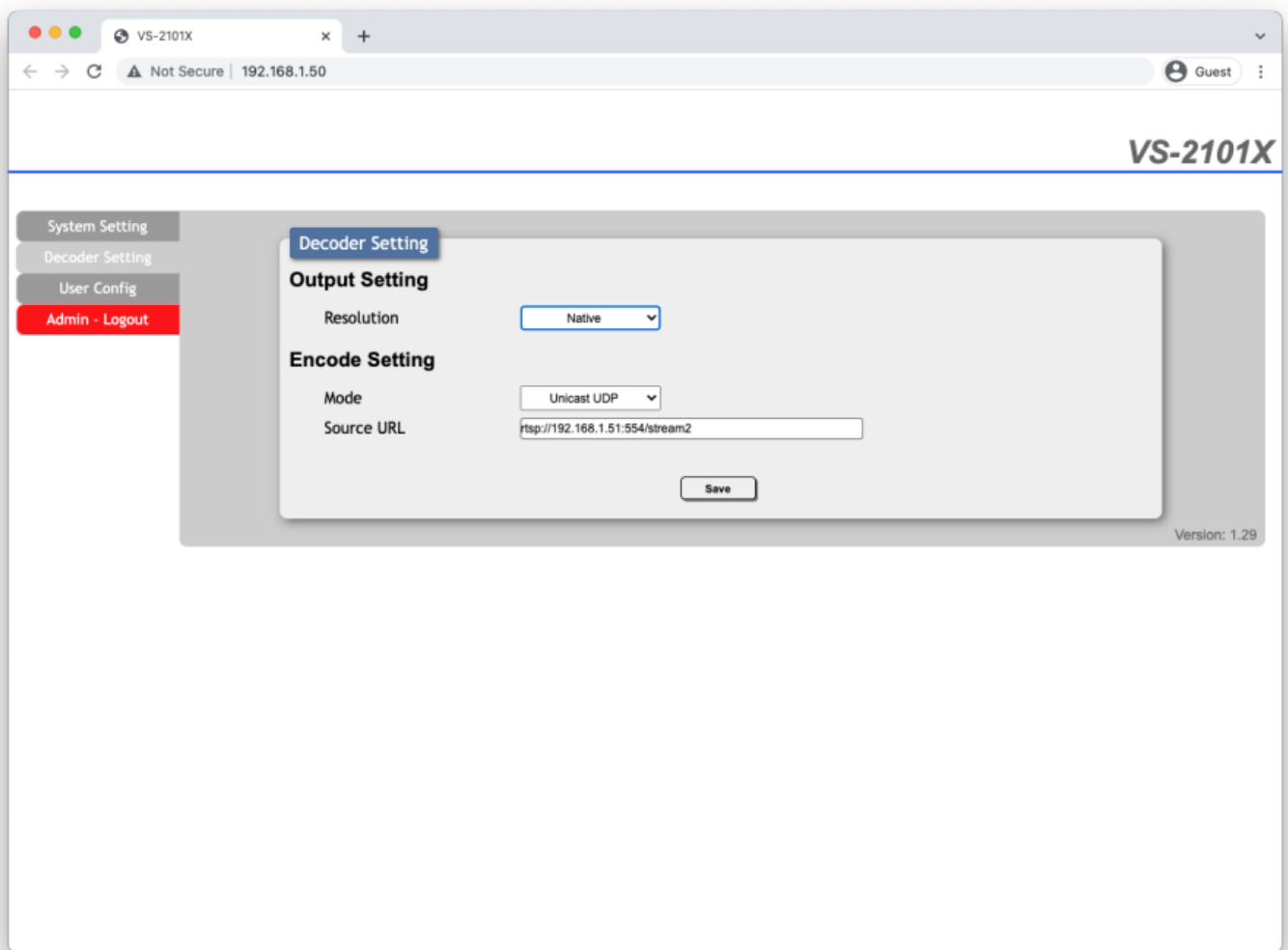


FIGURE 3-6: DECODER SETTINGS TAB

	TABLE 3-3 DECODER SETTINGS TAB INFORMATION/OPTIONS
ITEM	DESCRIPTION
Output Setting	
Resolution	Native, 1920X1080P60, 1920X1080P50, or 1280X720P60
Encode Setting	
Mode	Unicast TCP, Unicast UDP, or Multicast
Source URL	This is the RTSP URI that can be used to stream the encoded content. EXAMPLE: rtsp://192.168.1.51:554/stream2

3.6 USER CONFIGURATION TAB

This tab provides control over login authentication.

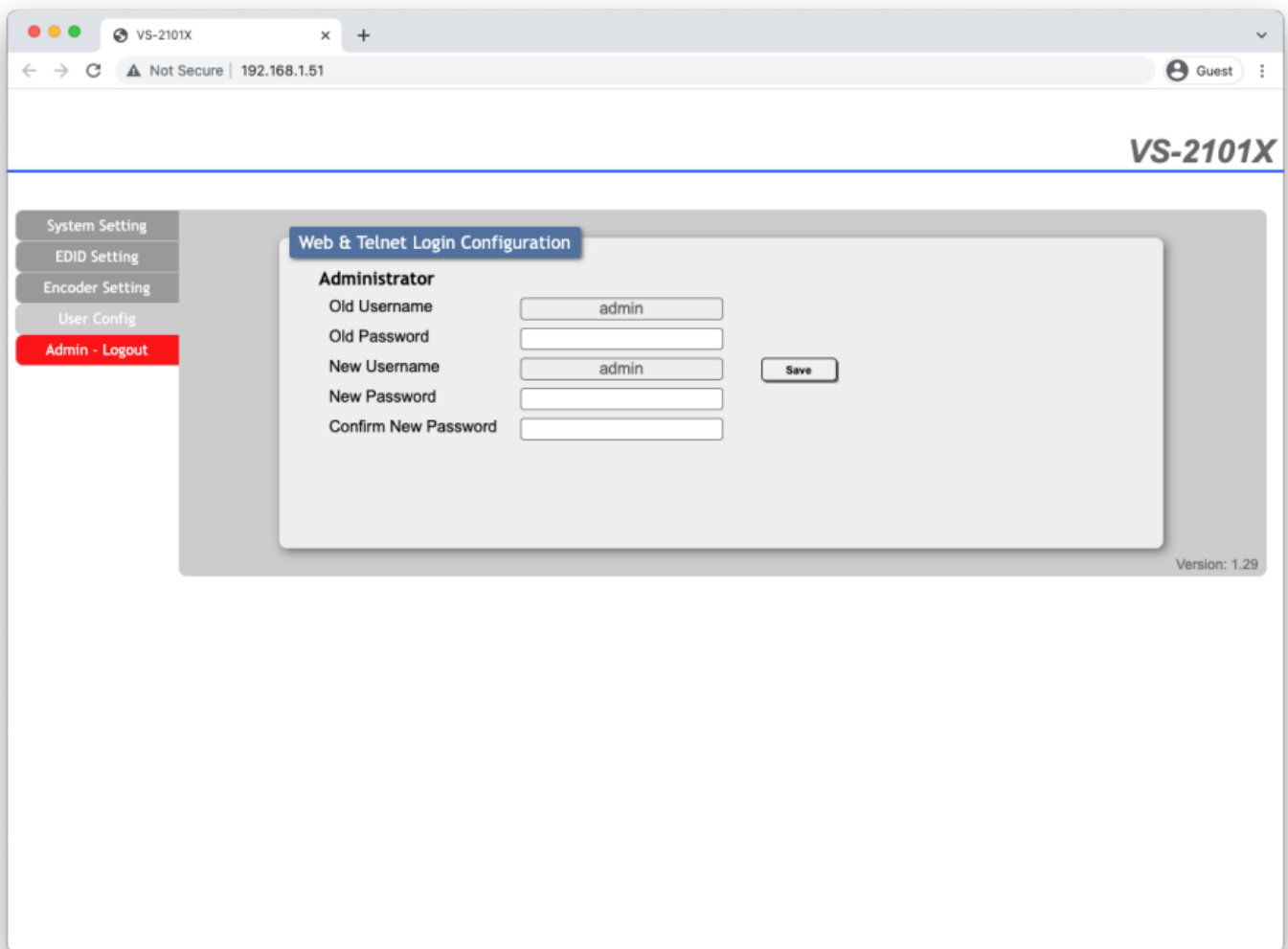


FIGURE 3-7: ENCODER USER CONFIGURATION TAB

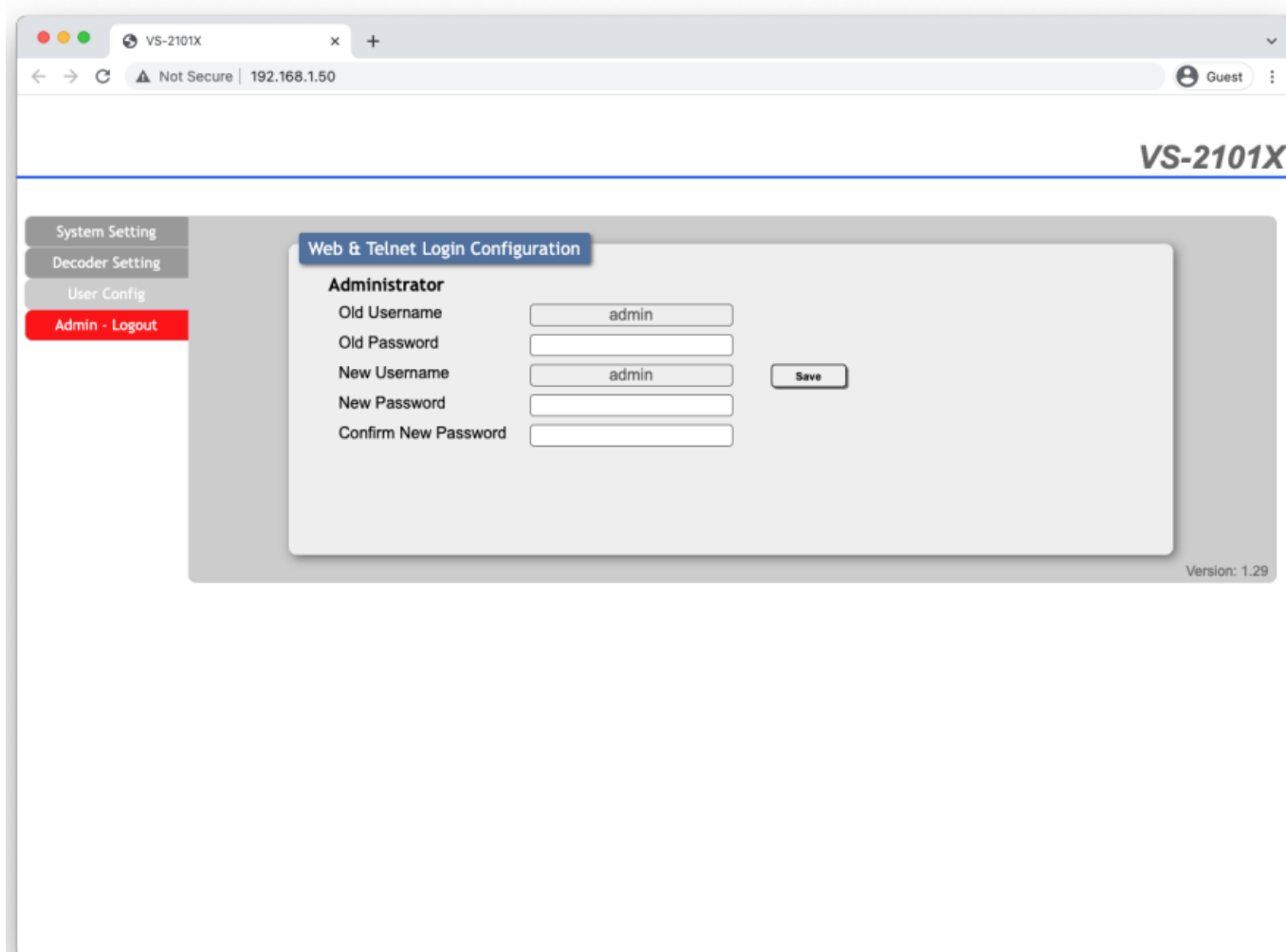


FIGURE 3-8: DECODER USER CONFIGURATION TAB

3.7 FIRMWARE UPDATES

Firmware updates are available through Web UI/USB updates. For the latest Firmware package, please contact techsupport@blackbox.com.

APPENDIX A: REGULATORY INFORMATION

A.1 FCC STATEMENT

This equipment has been tested and found to comply with the regulations for a Class B digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a commercial environment. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with this Quick Installation Guide, may cause harmful interference to radio communications. Operation of this equipment in a residential area is likely to cause harmful interference in which case, the user will be required to correct the interference at his/her own expense.

A.2 CE STATEMENT

This is a Class B product in a domestic environment, this product may cause radio interference, in which case the user may be required to take adequate measures.

A.3 ROHS

This product is RoHS compliant.

A.4 NOM STATEMENT

APPENDIX B: DISCLAIMER/TRADEMARKS

B.1 DISCLAIMER

Black Box Corporation shall not be liable for damages of any kind, including, but not limited to, punitive, consequential, or cost of cover damages, resulting from any errors in the product information or specifications set forth in this document, and Black Box Corporation may revise this document at any time without notice.

B.2 TRADEMARKS USED IN THIS MANUAL

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AVS-HDMI2-8X8-R2_USER_REV2.PDF



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[BLACKBOX.COM](https://www.blackbox.com)

Documents / Resources

The image shows the cover of a user manual for a Black Box H.264/H.265 HDMI Over IP Encoder/Decoder. The cover is black with white text and a small image of the device.	<p>BLACK BOX H.264 Hdmi Over IP Encoder and Decoder [pdf] User Manual H.264, H.265, Hdmi Over IP Encoder and Decoder</p>
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References

- [Global IT Products & Network Solutions Provider | Black Box](#)