

USER MANUAL

VS-2001-DEC

HDMI OVER IP H.264 DECODER

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

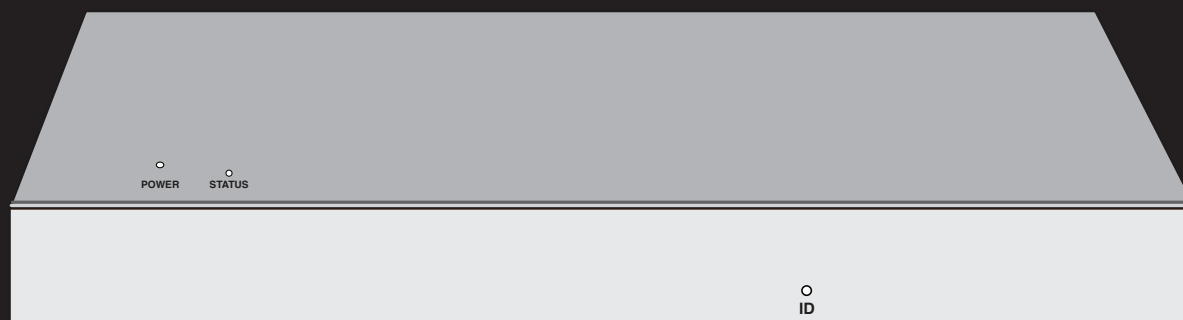


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SAFETY PRECAUTIONS

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

- ◆ Do not expose this unit to rain, moisture, dripping or splashing liquids. Do not place objects filled with liquids, such as vases, on the unit.
- ◆ Do not install or place this unit in a bookcase, built-in cabinet, or in another confined space. Make sure the unit is well ventilated.
- ◆ To prevent the risk of electric shock or fire hazard caused by overheating, do not obstruct the unit's ventilation openings with newspapers, tablecloths, curtains, and similar items.
- ◆ Do not install near any heat sources, such as radiators, heat registers, stoves, or other apparatus (including amplifiers) that may produce heat.
- ◆ Do not place sources of naked flames, such as candles, on the unit.
- ◆ Clean this unit only with a dry cloth.
- ◆ Unplug the unit during lightning storms, or when unused for long periods of time.
- ◆ Protect the power cord from being walked on or pinched, particularly at plugs.
- ◆ Only use attachments/accessories specified by the manufacturer.
- ◆ Refer all servicing to qualified personnel.

CHAPTER 1: SPECIFICATIONS**TABLE 1-1. SPECIFICATIONS**

SPECIFICATION	DESCRIPTION
Video	
Input Video Port	(1) LAN (PoE), 10/100/1000BASE-T
Input Video Type	H.264/MPEG-4 AVC
Supported Input Video Resolutions	<p>Video: Encoding: H.264/MPEG-4 AVC; Bitrate: < or = 30 Mbps</p> <p>Resolution: 640 x 480⁸, 800 x 600⁸, 1024 x 768⁸, 1280 x 768⁸, 1280 x 800⁸, 1280 x 1024⁸, 1360 x 768⁸, 1366 x 768⁸, 1440 x 900⁸, 1400 x 1050⁸, 1600 x 1200⁸, 1680 x 1050⁸, 1920 x 1200⁸, 720 x 480⁸ (480 p), 720 x 576⁸ (576p), 1280 x 720⁵ (720p30), 1280 x 720⁶ (720p50), 1280 x 720⁸ (720p60), 1920 x 1080² (1080p24), 1920 x 1080³ (1080p25), 1920 x 1080⁵ (1080p30), 1920 x 1080⁶ (1080p50), 1920 x 1080⁸ (1080p60), 1920 x 1200⁸, 3840 x 2160⁵</p> <p>1 = at 23.98 Hz, 2 = at 24 Hz, 3 = at 25 Hz, 4 = at 29.97 Hz, 5 = at 30 Hz, 6 = at 50 Hz, 7 = at 59.94 Hz, 8 = at 60 Hz, 9 = at 75 Hz</p> <p>Audio: Encoding: LPCM, AAC; Sampling Rate: 48 kHz; Bitrate: 1.6 Mbps (LPCM), < or = 240 kbps (AAC)</p> <p>Delivery: Encapsulation Format: MPEG-2 transport stream Transmission Format: TS over UDP, TS over RTP Transmission Method: unicast, multicast, RTP over RTSP Session Control: RTSP (SETUP, TEARDOWN, OPTIONS, PLAY, DESCRIBE)</p>
Output Video Port	(1) HDMI
Output Video Type	HDMI 1.4 with HDCP 2.2
Output Video Resolutions	<p>HDMI: 640 x 480⁸, 800 x 600⁸, 1024 x 768⁸, 1280 x 768⁸, 1280 x 800⁸, 1280 x 1024⁸, 1360 x 768⁸, 1366 x 768⁸, 1440 x 900⁸, 1400 x 1050⁸, 1600 x 1200⁸, 1680 x 1050⁸, 1920 x 1200⁸, 720 x 480⁸ (480 p), 720 x 576⁸ (576p), 1280 x 720⁵ (720p30), 1280 x 720⁶ (720p50), 1280 x 720⁸ (720p60), 1920 x 1080² (1080p24), 1920 x 1080³ (1080p25), 1920 x 1080⁵ (1080p30), 1920 x 1080⁶ (1080p50), 1920 x 1080⁸ (1080p60), 1920 x 1200⁸, 3840 x 2160⁵</p> <p>1 = at 23.98 Hz, 2 = at 24 Hz, 3 = at 25 Hz, 4 = at 29.97 Hz, 5 = at 30 Hz, 6 = at 50 Hz, 7 = at 59.94 Hz, 8 = at 60 Hz, 9 = at 75 Hz</p> <p>Audio output: Unbalanced stereo</p>
Video Impedance	100 ohms
Audio	
Input Audio Port	(1) LAN
Input Audio Format	Encoding: LPCM, AAC; Sampling Rate: 48 kHz; Bitrate: 1.6 Mbps (LPCM), < or = 240 kbps (AAC)
Output Audio	(1) HDMI Out, stereo, (1) 3.5-mm 3-pin Phoenix connector
Control	
Control Connectors	(1) RJ-45, 10/100/1000BASE-T Ethernet port; (1) 3.5-mm, 3-pin Phoenix connector for RS-232 communication
Control Method	RS-232: The third system: CLI for controlling the device itself; CEC: Display: Power ON/OFF; Ethernet: Web UI, Telnet CLI



CHAPTER 1: SPECIFICATIONS**TABLE 1-1 (CONTINUED). SPECIFICATIONS**

SPECIFICATION	DESCRIPTION
General	
Operating Temperature	32 to 113° F (0 to 45° C)
Storage Temperature	-4 to +140° F (-20 to +70° C)
Operating Humidity	10 to 90%, noncondensing
Storage Humidity	10 to 90%, noncondensing
Power	12 VDC, 1 A or PoE
Power Consumption	5.6 W (DC adapter) NOTE: Powered by PoE: 10 W (min.) for safe operation
ESD Protection	Human body model: ±8 kV (air-gap discharge) ±4 kV (contact discharge)
Case Dimensions	3" H x 12.2" W x 7.1" D (7.6 x 31 x 18 cm)
Product Dimensions	1" H x 9" W x 4.4" D (2.5 x 22.8 x 11.1 cm)
Weight	1.8 lb. (0.8 kg)
Certification	CE, FCC
Networking	
IP Address	DHCP/Static/Auto IP
Network Switch	Multicast, IGMP V2
Latency	About 90 ms in low delay mode or 350 ms in high quality mode, in average, end to end from Encoder to Decoder
Other	
Video Wall	Up to 16 x 16

CHAPTER 2: OVERVIEW

2.1 INTRODUCTION

VS-2001-DEC works with a live streaming media encoder (VS-2001-ENC) that interfaces with HDMI signals for delivering media over IP networks. With this decoder and matching encoder, the user can build a system to deliver an A/V signal over a LAN or WAN.

Advanced media codec technology

The decoder uses H.264 video compressing technology to decode video content with visual lossless quality at the link that provides limited bandwidth. The decoder also supports AAC audio encoding technology so the audio signal can be delivered with low bandwidth but high quality.

Compatible with diversified networks

The decoder can receive media data by multiple approaches to work in many different network environments. Multicast mode saves bandwidth and unicast mode is suitable for common unmanaged switches. Even in a network protected by a firewall, the decoder can activate RTP over RTSP mode to receive media data without the need for a new UDP port.

Optimized controlling methods

To achieve pairing, the user needs to configure the IP address of the encoder. The decoder will negotiate with the encoder and try to obtain the media stream by the most suitable approach. You can control the decoder in two ways: via web UI and Telnet API. The web UI enables the user to control it through a common web browser. The Telnet API enables the devices to be controlled by a third-party system.

2.2 FEATURES

- ◆ Equipped with H.264 and AAC codec technology, to support high video/audio quality with low bandwidth
- ◆ Receives TS data via unicast or multicast method, UDP and RTP payload are both supported, RTP over RTSP is supported
- ◆ Supports RTSP protocol to negotiate with the encoder to get the address of the media data
- ◆ Handles resolutions up to 1920 x 1200 @ 60 Hz and 3840 x 2160 @ 30 Hz
- ◆ Supports static IP, DHCP and Auto IP
- ◆ Bonjour protocol supported, can be discovered by Bonjour browser
- ◆ Controls the display through RS-232 or CEC
- ◆ "Where am I" feature supported, once it receives a "locate device" command, the device can twinkle the status indicator with a special mode to indicate its physical position
- ◆ Features one Ethernet input, one HDMI output, one analog audio output, one RS-232 output and 12-VDC power
- ◆ Two controlling approaches: Telnet API and web UI
- ◆ Two power modes: 12 VDC and PoE



CHAPTER 2: OVERVIEW

2.3 WHAT'S INCLUDED

Your package should contain the following items. If anything is missing or damaged, contact Black Box Technical Support at 877-877-2269 or info@blackbox.com

- ♦ (1) HDMI over IP H.264 Decoder (VS-2001-DEC)
- ♦ (1) Power Adapter (12 VDC, 1 A)
- ♦ (2) Phoenix connectors (male, 3.5-mm, 3-pin)
- ♦ (2) Rackmounting ears

2.4 HARDWARE DESCRIPTION

2.4.1 FRONT PANEL

Figure 2-1 shows the front panel of the decoder. Table 2-1 describes its components.



FIGURE 2-1. FRONT PANEL

TABLE 2-1. FRONT-PANEL COMPONENTS

NUMBER IN FIGURE 2-1	COMPONENT	DESCRIPTION
1	ID button	Press to display the encoder and decoder information (such as device IP address or ID) on the screen

CHAPTER 2: OVERVIEW

2.4.2 TOP PANEL

Figure 2-2 shows the top panel of the decoder. Table 2-2 describes its components.

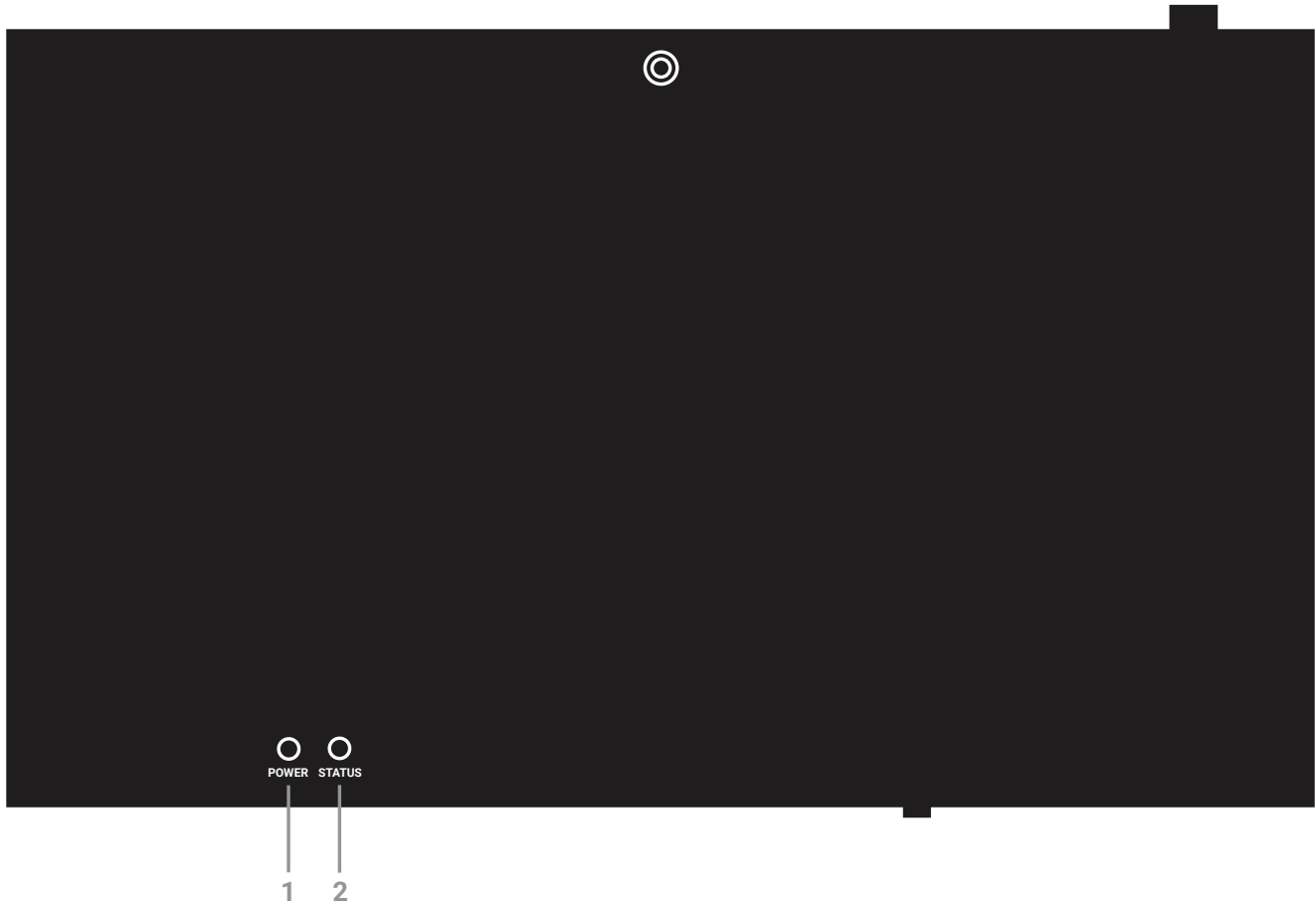


FIGURE 2-2. TOP PANEL

TABLE 2-2. TOP-PANEL COMPONENTS

NUMBER IN FIGURE 2-2	COMPONENT	STATUS	DESCRIPTION
1	Power Indicator	ON	Decoder is powered ON.
		OFF	Decoder is powered OFF.
2	Status Indicator	ON	Decoder is linked to Encoder and active video is output
		Flashing	Decoder is not linked to Encoder

CHAPTER 2: OVERVIEW

2.4.3 BACK PANEL

Figure 2-3 shows the back panel of the decoder. Table 2-3 describes its components.



FIGURE 2-3. BACK PANEL

TABLE 2-3. BACK-PANEL COMPONENTS

NUMBER IN FIGURE 2-3	COMPONENT	DESCRIPTION
1	Barrel connector	Connects to a 12-V, 1-A power supply. NOTE: We recommend that you power encoders/decoders using either power adapters or a PoE switch instead of using power supplies and PoE at the same time. For example, if you want to use power adapters, ensure that the PoE function of the connected LAN ports in the switch is disabled or a non-PoE switch is used.
2	RJ-45 connector	Video Input: (1) LAN (PoE): Connects to an Ethernet switch for streaming media output NOTE: If you use a PoE Ethernet switch, the decoder can be powered by this switch, eliminating the need for a nearby power outlet.
3	(1) 3.5-mm Phoenix connector, 3-pin, female	Audio Output: (1) AUDIO OUT: Connects to an audio output device such as an amplifier or a speaker.
4	HDMI connector	Video Output: (1) HDMI OUT: connects to an HDMI video output such as an HDMI display
5	(1) 3.5-mm Phoenix connector, 3-pin, female	RS-232 passthrough control: (1) RS-232: connects to a third-party device such as a projector, which can be controlled by IP configurator and IP controller on your computer.
6	Reset button	RESET: Reset the device to its factory defaults. When the device is powered on, use a pointed stylus to hold down the RESET button for five or more seconds, and then release it, it will reboot and restore to its factory defaults. NOTE: When the settings are restored, your custom data is lost. Therefore, exercise caution when using the RESET button.
7	Grounding screw	Connects to the ground for preventing electric shock and device damage.

CHAPTER 3: HARDWARE INSTALLATION

WARNINGS:

Before the installation, disconnect the power supplies from all the devices.

During the installation, do not connect the VS-2001-DEC to a PoE power source equipment and its power adapter at the same time.

The following illustration describes a common application, which is for your reference only. You may connect them as required. After connection is complete, use a VS-2001-ENC or third-party encoder to view the intended application.

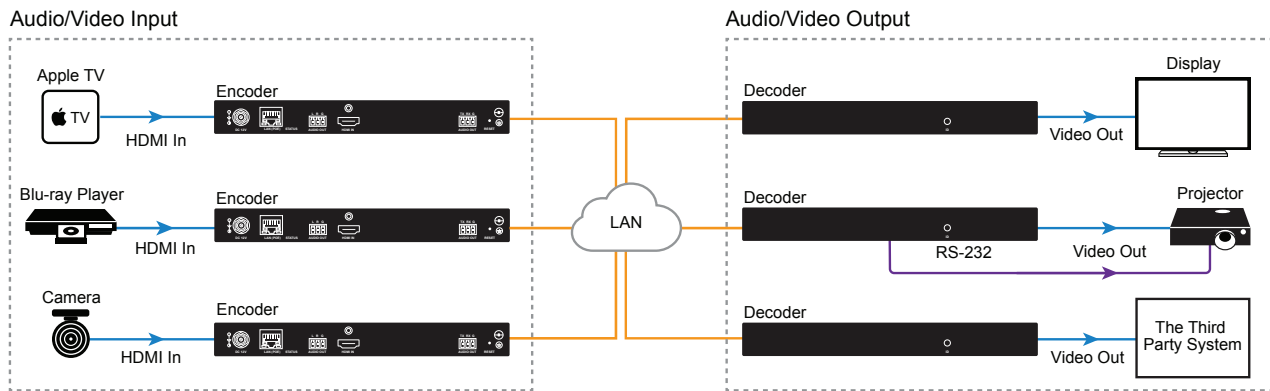


FIGURE 3-1. TYPICAL INSTALLATION USING VS-2001-ENC

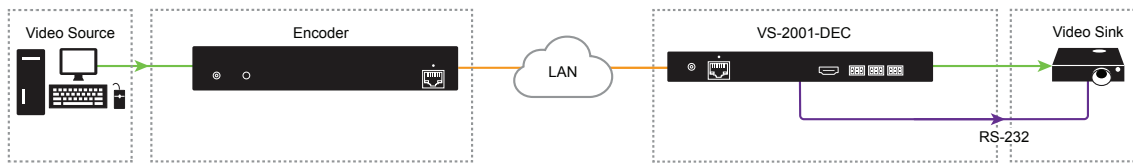


FIGURE 3-2. POINT-TO-POINT EXTENSION

2. Point to multi point extension

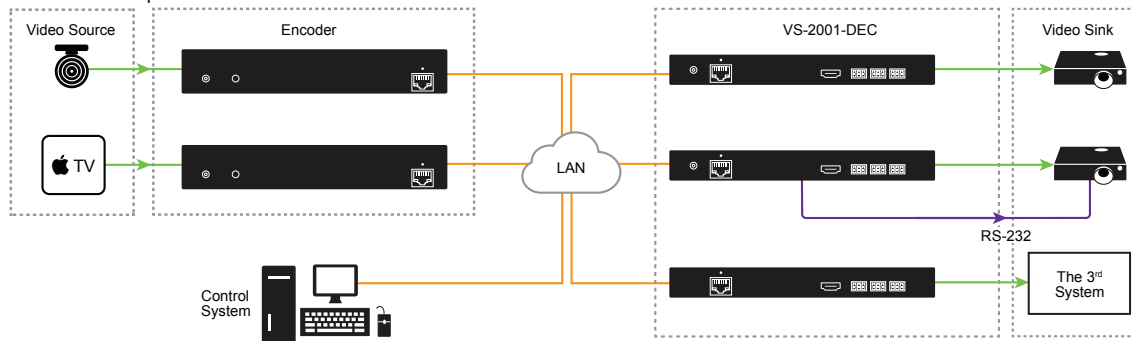


FIGURE 3-3. POINT-TO-MULTIPOINT EXTENSION

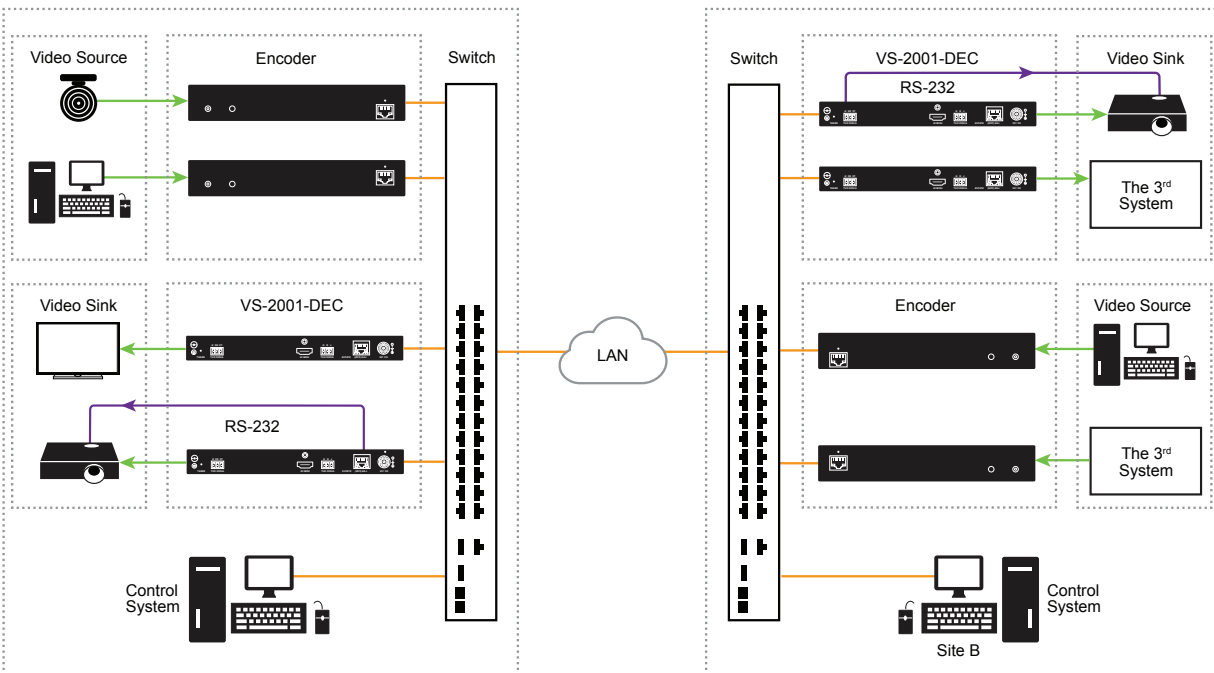


FIGURE 3-4. A/V DELIVERY OVER WAN

CHAPTER 4: OPERATION VIA WEB-BASED CONFIG PAGE

The Web UI designed for the VS-2001-DEC allows basic controls and advanced settings of the device. The web UI presented in this chapter is for reference only and subject to actual software change without notice.

4.1 LOGGING IN TO THE WEB-BASED CONFIGURATION PAGE

1. Make sure that your encoder, such as a VS-2001-ENC, computer, and VS-2001-DEC are on the same subnet.
2. Start a browser.
3. In the address bar, enter the device's IP address (default is 192.168.10.253.)
4. In the displayed login dialog box, enter the default password admin.
5. Click Login. The following page will display.

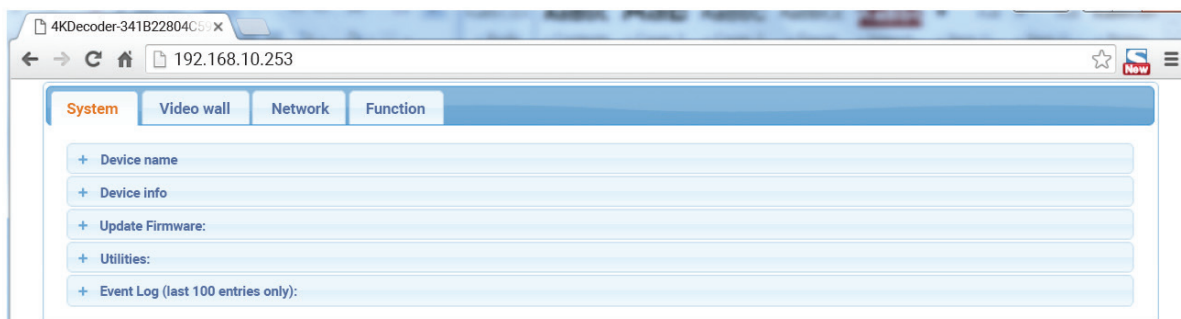


FIGURE 4-1. SYSTEM PAGE

NOTE: If you want your browser to remember your login password, select the check box next to Remember Password before login. If you forgot your login IP address and password, restore the VS-2001-DEC to its factory defaults, and then use the default settings. For more information, see the "Network" page and "Password" sections.

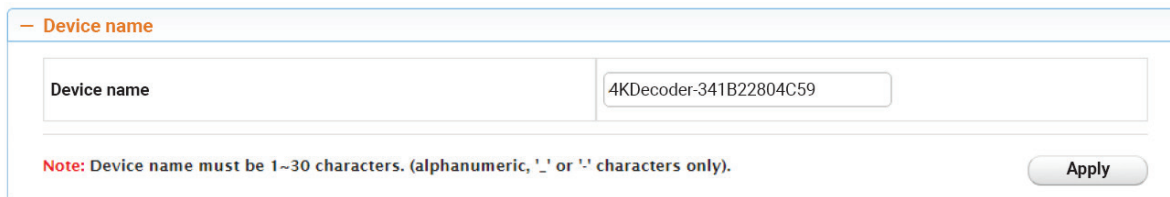
4.2 INTRODUCTION TO THE SYSTEM PAGE

The System Page includes five submenus:

- ◆ Device name
- ◆ Device info
- ◆ Update Firmware
- ◆ Utilities
- ◆ Event Log (last 100 entries only)

CHAPTER 4: OPERATION VIA WEB-BASED CONFIG PAGE

4.2.1 DEVICE NAME



— Device name

Device name 4KDecoder-341B22804C59

Note: Device name must be 1~30 characters. (alphanumeric, '-' or '_' characters only).

Apply

FIGURE 4-2. DEVICE NAME PAGE

TABLE 4-1. DEVICE NAME PAGE COMPONENTS

GUI ELEMENT	DESCRIPTION
Device Name	Indicates the Device Name page, where you can change the device name.
Device Name field	Input a new device name. This name can be: <ul style="list-style-type: none">• Displayed on the browser tab.• Displayed and used after bonjour automatic discovery of VS-2001-DEC. NOTE: The name must contain 1–30 characters, numbers, hyphen (-) or underscore (_), or their combinations.
Apply	Saves the current settings and applies them to the VS-2001-DEC.

CHAPTER 4: OPERATION VIA WEB-BASED CONFIG PAGE

4.2.2 DEVICE INFO

Version info

Version: v6.0.1 2018/01/09 17:01:14

Network

Gateway: 0.0.0.0

Ip addr: 192.168.10.253

Ip Mode: static

Netmask: 255.255.0.0

Stream info

Encoder IP or Media URL: 192.168.10.254

Force Output: 1080_60

HDCP: disable

Sink EDID:
not attached

System info

Meminfo: 59792k/122508K

OSInfo: 04:07:23 up 4:07, 4 users, load average: 4.31, 4.38, 4.41

StorageInfo: 73.7M/176.0M

FIGURE 4-3. DEVICE INFO PAGE

TABLE 4-2. DEVICE INFO PAGE COMPONENTS

GUI ELEMENT	DESCRIPTION
Version Info	Indicates the device version and when the device software was built.
Network	Indicates the network page where you can set the network parameters: IP mode (static or DHCP), gateway, device IP address, subnet mask, and gateway.
Stream Info	Indicates the stream parameters about the encoder: IP/media URL, output resolution, HDCP capability, and EDID of the sink.
System Info	Indicates the memory and storage information of the device, and its inner operation system information.

CHAPTER 4: OPERATION VIA WEB-BASED CONFIG PAGE

4.2.3 UPDATE FIRMWARE

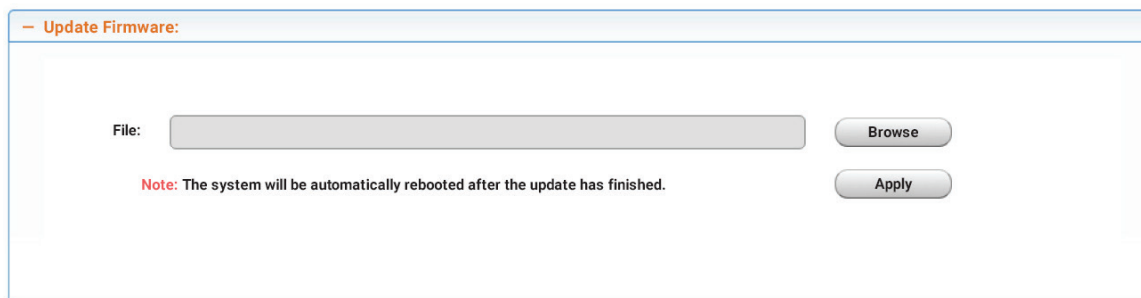


FIGURE 4-4. UPDATE FIRMWARE PAGE

TABLE 4-3. UPDATE FIRMWARE PAGE COMPONENTS

GUI ELEMENT	DESCRIPTION
Update firmware	Indicates the update firmware section where you can upgrade the VS-2001-DEC to another version.
File	Shows the upgrade file location on your local computer.
Browse	Browses for an upgrade file on your local computer.
Apply	Saves the current settings and applies them to the VS-2001-DEC. NOTE: The VS-2001-DEC will reboot automatically to make the settings take effect after upgrade process has completed.

CHAPTER 4: OPERATION VIA WEB-BASED CONFIG PAGE

4.2.4 UTILITIES

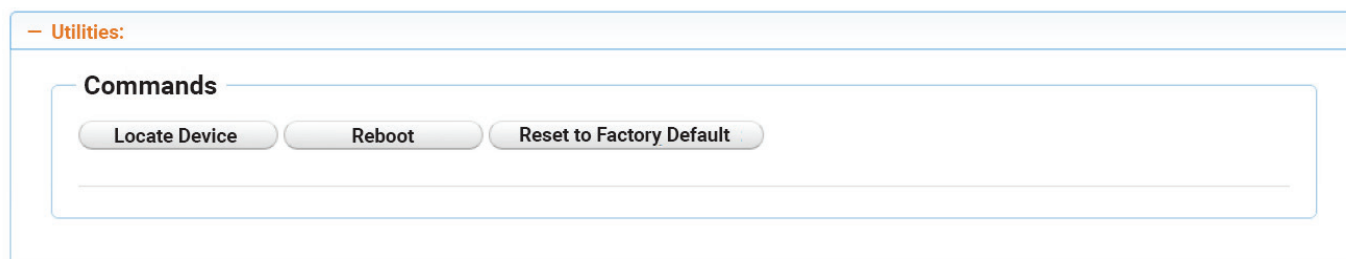


FIGURE 4-5. UTILITIES PAGE

TABLE 4-4. UTILITIES PAGE COMPONENTS

GUI ELEMENT	DESCRIPTION
Commands	Indicates the commands where you can reboot and restore the VS-2001-DEC to its factory defaults.
Locate Device	Locates the device. When you can't locate the device, click the "Locate Device" button to find which one will be shown when the Status indicator blinks for 10 seconds.
Reboot	Reboots the VS-2001-DEC.
Reset to Factory Default	Restores the VS-2001-DEC to its factory defaults.

4.2.5 EVENT LOG



FIGURE 4-6. EVENT LOG PAGE

TABLE 4-5. EVENT LOG PAGE COMPONENTS

GUI ELEMENT	DESCRIPTION
Event Log	Indicates a log area for recording the information about device operations and communication. This can be used by technical engineers for troubleshooting.
Last 100 entries only	Indicates this log area can record up to 100 new events or messages.

CHAPTER 4: OPERATION VIA WEB-BASED CONFIG PAGE

4.2.6 VIDEO WALL

— Basic Setup

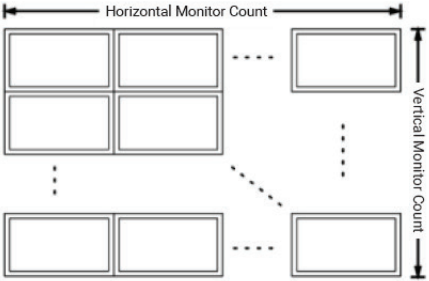
Wall Size and Position Layout

Vertical Monitor Count:

Horizontal Monitor Count:

Row Position:

Column Position:



UNIT: Panel

Apply

FIGURE 4-7. VIDEO WALL PAGE

TABLE 4-6. VIDEO WALL PAGE COMPONENTS

GUI ELEMENT	DESCRIPTION
Video Wall	Indicates the Video Wall section where you can set the video wall size and position layout.
Vertical Monitor Count	Count and input the quantity (range from 1 to 16) of the monitor(s) in vertical layout.
Horizontal Monitor Count	Count and input the quantity (range from 1 to 16) of the monitor(s) in horizontal layout.
Row Position	Determine and input which row the device is located within. (The number of rows ranges from 1 to 16.)
Column Position	Determine and input which column the device is located within. (The number of columns ranges from 1 to 16.)
Apply	Saves the current settings and applies them to the VS-2001-DEC.

4.3 INTRODUCTION TO THE NETWORK PAGE

The Network page includes the following three submenus:

- ◆ IP Setup
- ◆ Password
- ◆ Casting Setup

CHAPTER 4: OPERATION VIA WEB-BASED CONFIG PAGE

4.3.1 IP SETUP PAGE

— IP Setup

IP Mode: Auto IP DHCP Static

IP Address:

Subnet Mast:

Default Gateway:

Note: After pressing Apply, please reboot the device for settings to take effect.

Apply

FIGURE 4-8. IP SETUP PAGE

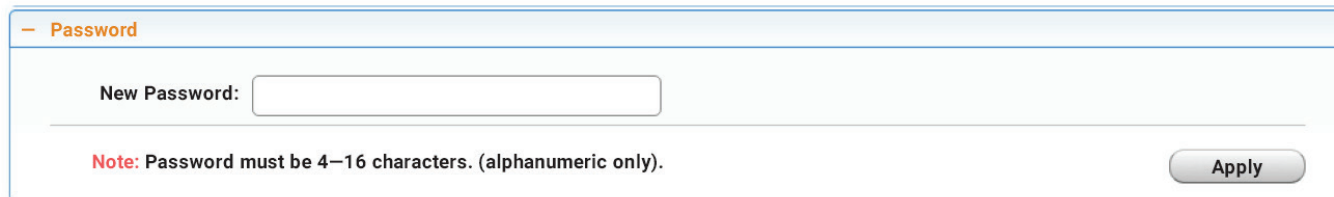
TABLE 4-7. IP SETUP PAGE COMPONENTS

GUI ELEMENT	DESCRIPTION
IP Setup	Set up the IP mode (Static/DHCP/Auto IP), IP address, subnet mask and gateway. The default protocol is shown below. IP mode: Static IP address: 192.168.10.253 Subnet mask: 255.255.0.0 Gateway: 0.0.0.0
Apply	Saves the current settings and applies them to the VS-2001-DEC.

NOTE: If the network parameters are changed, reboot the VS-2001-DEC decoder for the changes to take effect.

CHAPTER 4: OPERATION VIA WEB-BASED CONFIG PAGE

4.3.2 PASSWORD



— Password

New Password:

Note: Password must be 4–16 characters. (alphanumeric only).

Apply

FIGURE 4-9. PASSWORD SCREEN

TABLE 4-8. PASSWORD SCREEN COMPONENTS

GUI ELEMENT	DESCRIPTION
Password	Indicates the Password section where you can set a new password.
New Password	Input a new password. The default is admin. NOTE: The password must contain 4–16 letters, numbers or their combinations.
Apply	Click to save the current settings and apply them to the VS-2001-DEC.

4.4 INTRODUCTION TO THE FUNCTION PAGE

The Function page includes the following four submenus:

- ◆ Output
- ◆ Stream
- ◆ Idle image
- ◆ Serial over IP

CHAPTER 4: OPERATION VIA WEB-BASED CONFIG PAGE

4.4.1 OUTPUT

The screenshot shows a web-based configuration page for the 'Output' section. It features a single dropdown menu labeled 'Output HDCP support' with the value 'Disable' selected. An 'Apply' button is located at the bottom right of the configuration area.

FIGURE 4-10. OUTPUT SCREEN

TABLE 4-9. OUTPUT SCREEN COMPONENTS

GUI ELEMENT	DESCRIPTION
Output HDCP support	Sets HDCP in the HDMI output port to meet different applications. <ul style="list-style-type: none"> • Enable: Output HDCP encrypted signals. • Disable: Output non-HDCP encrypted signals.
Apply	Saves the current settings and applies them to the VS-2001-DEC.

4.4.2 STREAM

The screenshot shows a web-based configuration page for the 'Stream' section. It is divided into two main sections: 'Source' and 'Settings'.
Source Section: Contains two input fields. The first is 'Encoder IP or Media URL' with the value '192.168.10.254'. The second is 'Encoder Video Frame Rate (For IPC)' with the value '60'. An 'Apply' button is at the bottom right.
Settings Section: Contains one dropdown menu labeled 'Preferred Transport Mode' with the value 'udp' selected. An 'Apply' button is at the bottom right.

FIGURE 4-11. STREAM SCREEN

CHAPTER 4: OPERATION VIA WEB-BASED CONFIG PAGE

TABLE 4-10. STREAM SCREEN COMPONENTS

GUI ELEMENT	DESCRIPTION
Encoder IP or Media URL	Indicates the encoder IP address or multicast address.
Encoder Video Frame Rate (For IPC)	Set the encoder video frame rate (for IPC).
Preferred Transport Mode	Select preferred transport mode to UDP or TCP. The default mode is UDP. When stream media can't be received, change to TCP.
Apply	Saves the current settings and applies them to VS-2001-DEC.

4.4.3 IDLE IMAGE

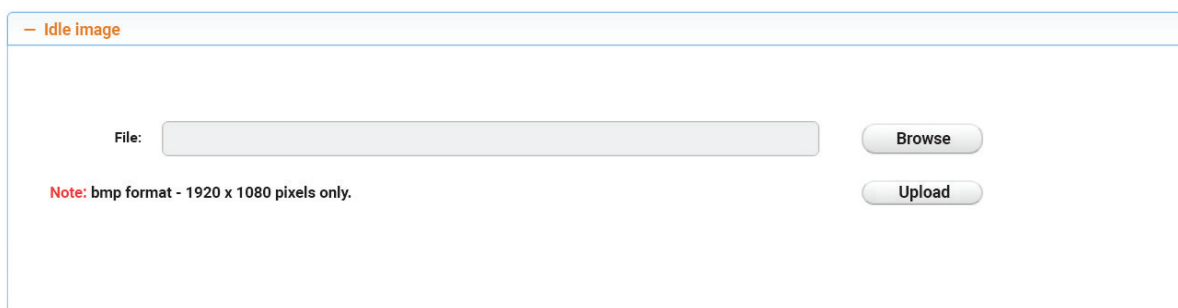


FIGURE 4-12. IDLE IMAGE SCREEN

TABLE 4-11. IDLE IMAGE SCREEN COMPONENTS

GUI ELEMENT	DESCRIPTION
Idle Image	Indicates the Idle Image section where you can set the image as default and output to the display when no active source is available.
File	Shows the uploaded image location on your local computer.
Browse	Browses for an image on your local computer. NOTE: You must upload an image in bmp format that has 1920 x 1080 pixels.
Upload	Uploads the local image to the VS-2001-DEC.

CHAPTER 4: OPERATION VIA WEB-BASED CONFIG PAGE

4.4.4 SERIAL OVER IP SETTINGS

— Serial over IP

Baudrate Setting:

Baudrate: 115200

Data Bits: 8

Parity: NONE

Stop Bits: 1

Apply

FIGURE 4-13. SERIAL OVER IP SETTINGS SCREEN

TABLE 4-12. SERIAL OVER IP SETTINGS SCREEN COMPONENTS

GUI ELEMENT	DESCRIPTION
Serial over IP	Indicates the Serial over IP section where you can set serial port parameters.
Baudrate	Set the serial port baudrate for VS-2001-DEC to 9600/57600/115200. Default setting is 115200.
Data Bits	Set the serial port data bit for VS-2001-DEC to 8/7/6/5.
Parity	Set the serial port parity to none/odd/even.
Stop bits	Set the serial port stop bits to 1 or 2.
Apply	Saves the current settings and applies them to VS-2001-DEC.

APPENDIX A: REGULATORY INFORMATION

A.1 FCC STATEMENT

Class B Digital Device. This equipment has been tested and found to comply with the limits for a Class B computing device pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. However, there is no guarantee that interference will not occur in a particular installation. This equipment generates, uses, and can radiate radio frequency energy, and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. If this equipment does cause harmful interference to radio or telephone reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one of the following measures:

- ♦ Reorient or relocate the receiving antenna.
- ♦ Increase the separation between the equipment and receiver.
- ♦ Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.
- ♦ Consult an experienced radio/TV technician for help.

CAUTION: Changes or modifications not expressly approved by the party responsible for compliance could void the user's authority to operate the equipment.

To meet FCC requirements, shielded cables and power cords are required to connect this device to a personal computer or other Class B certified device.

This digital apparatus does not exceed the Class B limits for radio noise emission from digital apparatus set out in the Radio Interference Regulation of Industry Canada.

Le présent appareil numérique n'émet pas de bruits radioélectriques dépassant les limites applicables aux appareils numériques de classe B prescrites dans le Règlement sur le brouillage radioélectrique publié par Industrie Canada.

A.2 CE AND ROHS2

This product complies with CE and ROHS2 certifications.

APPENDIX A: REGULATORY INFORMATION

A.3 NOM STATEMENT

1. Todas las instrucciones de seguridad y operación deberán ser leídas antes de que el aparato eléctrico sea operado.
2. Las instrucciones de seguridad y operación deberán ser guardadas para referencia futura.
3. Todas las advertencias en el aparato eléctrico y en sus instrucciones de operación deben ser respetadas.
4. Todas las instrucciones de operación y uso deben ser seguidas.
5. El aparato eléctrico no deberá ser usado cerca del agua—por ejemplo, cerca de la tina de baño, lavabo, sótano mojado o cerca de una alberca, etc.
6. El aparato eléctrico debe ser usado únicamente con carritos o pedestales que sean recomendados por el fabricante.
7. El aparato eléctrico debe ser montado a la pared o al techo sólo como sea recomendado por el fabricante.
8. Servicio—El usuario no debe intentar dar servicio al equipo eléctrico más allá a lo descrito en las instrucciones de operación. Todo otro servicio deberá ser referido a personal de servicio calificado.
9. El aparato eléctrico debe ser situado de tal manera que su posición no interfiera su uso. La colocación del aparato eléctrico sobre una cama, sofá, alfombra o superficie similar puede bloquea la ventilación, no se debe colocar en librerías o gabinetes que impidan el flujo de aire por los orificios de ventilación.
10. El equipo eléctrico debe ser situado fuera del alcance de fuentes de calor como radiadores, registros de calor, estufas u otros aparatos (incluyendo amplificadores) que producen calor.
11. El aparato eléctrico deberá ser conectado a una fuente de poder sólo del tipo descrito en el instructivo de operación, o como se indique en el aparato.
12. Precaución debe ser tomada de tal manera que la tierra física y la polarización del equipo no sea eliminada.
13. Los cables de la fuente de poder deben ser guiados de tal manera que no sean pisados ni pellizcados por objetos colocados sobre o contra ellos, poniendo particular atención a los contactos y receptáculos donde salen del aparato.
14. El equipo eléctrico debe ser limpiado únicamente de acuerdo a las recomendaciones del fabricante.
15. En caso de existir, una antena externa deberá ser localizada lejos de las líneas de energía.
16. El cable de corriente deberá ser desconectado del cuando el equipo no sea usado por un largo periodo de tiempo.
17. Cuidado debe ser tomado de tal manera que objetos líquidos no sean derramados sobre la cubierta u orificios de ventilación.
18. Servicio por personal calificado deberá ser provisto cuando:
 - A: El cable de poder o el contacto ha sido dañado; u
 - B: Objetos han caído o líquido ha sido derramado dentro del aparato; o
 - C: El aparato ha sido expuesto a la lluvia; o
 - D: El aparato parece no operar normalmente o muestra un cambio en su desempeño; o
 - E: El aparato ha sido tirado o su cubierta ha sido dañada.



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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Any other trademarks mentioned in this manual are acknowledged to be the property of the trademark owners.



NOTES

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