

# EX2-2200

## MPEG-2/H.264 HD Encoder

(Rev. 1.2 ENG)



SW Version: 1.05  
HW Version: 1.13  
Web NMS Version: 3.05

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# 1 ABOUT THIS MANUAL

## Intended User

This user manual has been written to help people who have to use, to integrate and to install the product. Some chapters require some prerequisite knowledge in electronics and especially in broadcast technologies and standards.

## Disclaimer

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# 2 INTRODUCTION

## 2.1 PRODUCT OVERVIEW

EX2-2200 MPEG-2/H.264 HD Encoder is the new broadcasting audio & video encoding device with powerful functionality. It is equipped with multiple video input interfaces (SDI, CVBS, YPbPr and HDMI) and audio input interfaces (AES, RCA and XLR) to make it possible to compatible with different signal sources.

Multiple audio and video encoding formats are available to meet customers' various requirements. It supports 4 stereo (8 mono) or one DD 5.1 (AC3) audios embedded to mix with the video to form a stream output. The encoded program will finally output in TS through ASI/IP port.

**NDS3221B has QR code, LOGO and OSD inserted function. It will show 3 function at same time. Operator can insert advertisement picture, own LOGO, special QR code, OSD content on encoding process independent of STB. It will bring more profit for product user.**

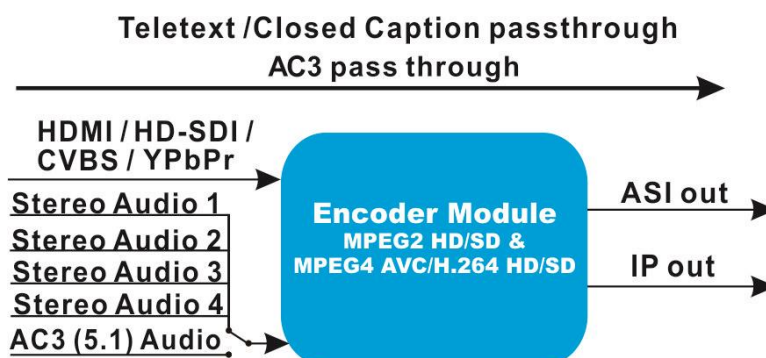
## 2.2 KEY FEATURES

- Support QR code, LOGO, OSD inserted
- MPEG-2 HD/SD and MPEG-4 AVC/H.264 HD/SD video encoding
- Support 1080I, 720P, 480I, 576I video resolution and downscale transform
- Support low latency
- MPEG1 Layer II, HE-AAC (v1&v2), LC-AAC and DD AC3 audio encoding
- Support DD AC3 audio passthrough (for SDI in)
- Support 4 stereo or 8 mono audio encoding
- Support video buffer, free to switch video sources (all video interface available)
- Support CC (closed caption), EIA 608 and EIA 708 (for CVBS and SDI in)
- Support ASI output and IP over UDP and RTP output
- LCD / keyboard control and web management

## 2.3 SPECIFICATIONS

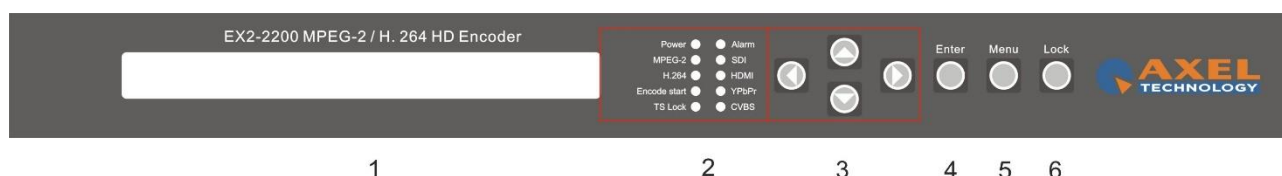
Video	Interface	1×SDI, 1×CVBS, 1×YPbPr and 1×HDMI		
	Resolution	Input	Output	Interface Applicable
		1920×1080i@60	1920×1080, 1440×1080, 1280×1080i, 960×1080i	HDMI, SDI, YPbPr
		1920×1080i @59.94		
		1920×1080i @50		
		1280×720p@60	1280×720, 960×720p, 640×720p	HDMI, SDI, YPbPr
		1280×720p@59.94		
		1280×720p@50		
		720×576i@50	720×576, 704×576, 640×576, 544×576, 528×576, 480×576, 352×576	SDI, CVBS
	720×480i@59.94	720×480, 704×480, 640×480, 544×480, 528×480, 352×480	SDI, CVBS	
	Encoding	MPEG-2 HD/SD; MPEG-4 AVC/H.264 HD/SD		
	Bitrate Range	0.52 – 60.00 Mbps		
	Rate Control	CBR		
	GOP Structure	Auto, IP, IPB, IPBB, IPBBB		
	Aspect Ratio	4:3, 14:9 (for SD video), 16:9 (for HD video)		
Chroma	4:2:0, 4:2:2			
Advanced Pretreatment	De-interlacing, noise reduction, sharpening			
Audio	Interface	4×XLR, 4×RCA, 1×AES, 1×HDMI, 1×SDI (support maximum 4 stereos synchronous processing or one DD 5.1 CH processing)		
	Encoding	MPEG-1 Layer II, HE-AAC (v1&v2), LC-AAC, DD AC3 (2.0, 5.1 available); DD AC3 passthrough (for SDI in)		
	Sampling rate	48KHz		
	Resolution	24-bit		
	Bit-rate	32Kbps~384Kbps		
Low Delay options		150ms, 200ms, 350ms, 650ms		
Stream output		2×ASI output ports, BNC interface		
		IP over UDP and RTP, 100 Base-T Ethernet interface (UDP multicast/unicast)		
System function		LCD/keyboard and web management		
		Language: English		
		Ethernet software upgrade		
General	Dimensions	482mm×405mm×44.5mm (W × D × H)		
	Weight	Approx 4.0Kg		
	Temperature	0~45℃(Operation), -20~80℃(Storage)		
	Power	AC110V±10%, 50/60Hz; AC 220V±10%,50/60Hz		
	Consumption	21W		

## 2.4 PRINCIPLE CHART



## 2.5 APPEARANCE AND DESCRIPTION

Front Panel Illustration



1. LCD window
2. Indicators
3. Up and down, left and right navigation buttons
4. Enter button: for confirm
5. Menu button: for back step
6. Lock button: press to lock set

Rear Panel Illustration



1. XLR input connectors (for stereo audio 1-2 input)
2. XLR input connectors (for stereo audio 3-4 input) [FOR 5.1 surround input]
3. RCA input connectors (for stereo audio 1-4 input or 5.1 surround input)
4. AES input connector (for only one channel digital stereo)
5. YPbPr & CVBS video input connectors
6. HDMI input connector (Audio input embedded)
7. SDI input connector (Audio input embedded)
8. NMS connector for connecting Web management on PC
9. DATA Port for IP stream output
10. ASI output connectors
11. Power supply/Fuse



- L/R: For Mono or Stereo input (Analog)
- L/R/LS/RS/C/Sub: For 5.1 surround input (Analog)
- AES: For single digital stereo audio input

### 3 INSTALLATION GUIDE

This section is to explain the cautions the users must know in some case that possible injure may bring to users when it's used or installed. For this reason, please read all details here and make in mind before installing or using the product.

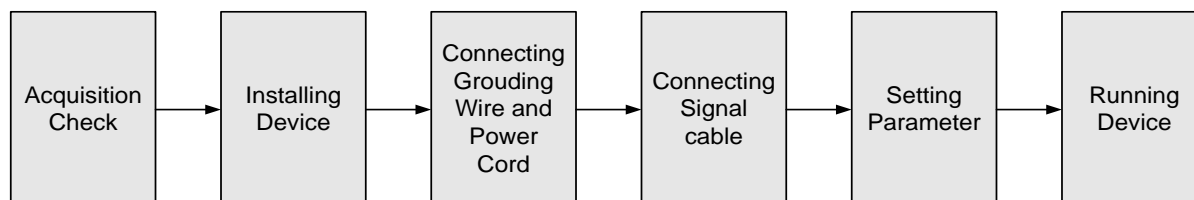
#### 3.1 GENERAL PRECAUTIONS

- EX-220 Must be operated and maintained free of dust or dirty.
- The cover should be securely fastened, do not open the cover of the products when the power is on.
- After use, securely stow away all loose cables, external antenna, and others.

#### 3.2 POWER PRECAUTIONS

- When you connect the power source, make sure if it may cause overload.
- Avoid operating on a wet floor in the open. Make sure the extension cable is in good condition
- Make sure the power switch is off before you start to install the device

#### 3.3 INSTALLATION SCHEME



### 3.4 ENVIROMENTAL REQUIREMENTS

Item	Requirement
<i>Machine Hall Space</i>	When user installs machine frame array in one machine hall, the distance between 2 rows of machine frames should be 1.2~1.5m and the distance against wall should be no less than 0.8m.
<i>Machine Hall Floor</i>	Electric Isolation, Dust Free Volume resistivity of ground anti-static material: $1 \times 10^7 \sim 1 \times 10^{10} \Omega$ , Grounding current limiting resistance: $1 M\Omega$ (Floor bearing should be greater than 450Kg/m <sup>2</sup> )
<i>Environment Temperature</i>	5~40°C(sustainable), 0~45°C(short time), installing air-conditioning is recommended
<i>Relative Humidity</i>	20%~80% sustainable 10%~90% short time
<i>Pressure</i>	86~105KPa
<i>Door &amp; Window</i>	Installing rubber strip for sealing door-gaps and dual level glasses for window
<i>Wall</i>	It can be covered with wallpaper, or brightness less paint.
<i>Fire Protection</i>	Fire alarm system and extinguisher
<i>Power</i>	Requiring device power, air-conditioning power and lighting power are independent to each other. Device power requires AC 110V $\pm$ 10%, 50/60Hz or AC 220V $\pm$ 10%, 50/60Hz. Please carefully check before running.

### 3.5 GROUNDING REQUIREMENTS

- the grounding of all the modules is the basis of the reliability and stability of the device. It is also a guarantee against lightning and interference. Precisely for this reason the system must follow the following rules.
- Grounding conductor must adopt copper conductor in order to reduce high frequency impedance. The grounding wire must be as thick and short as possible.
- Users should make sure that the 2 ends of the grounding wire are well conducted and antirusted.
- It is forbidden to use any other device as part of grounding electric circuit
- The area of the conduction between grounding wire and device's frame should be no less than 25 mm.

## 4 FRONT PANEL OPERATION

EX2-2200 front panel is the user operation interface. Through that the user can configure the device manually.

The LCD is a 2-line \* 40-characters, back-lit, dot-matrix.

UP, DOWN, LEFT, RIGHT, ENTER, MENU, and LOCK buttons in the front panel control.

The user can decide to directly use the factory settings, or he can customize the parameters.

#### DESCRIPTION OF BUTTONS FUNCTIONS

**LEFT/RIGHT:** chooses and sets the parameters

**UP/DOWN:** modifies activated parameters or page up/down scrolling when parameter is inactivated.

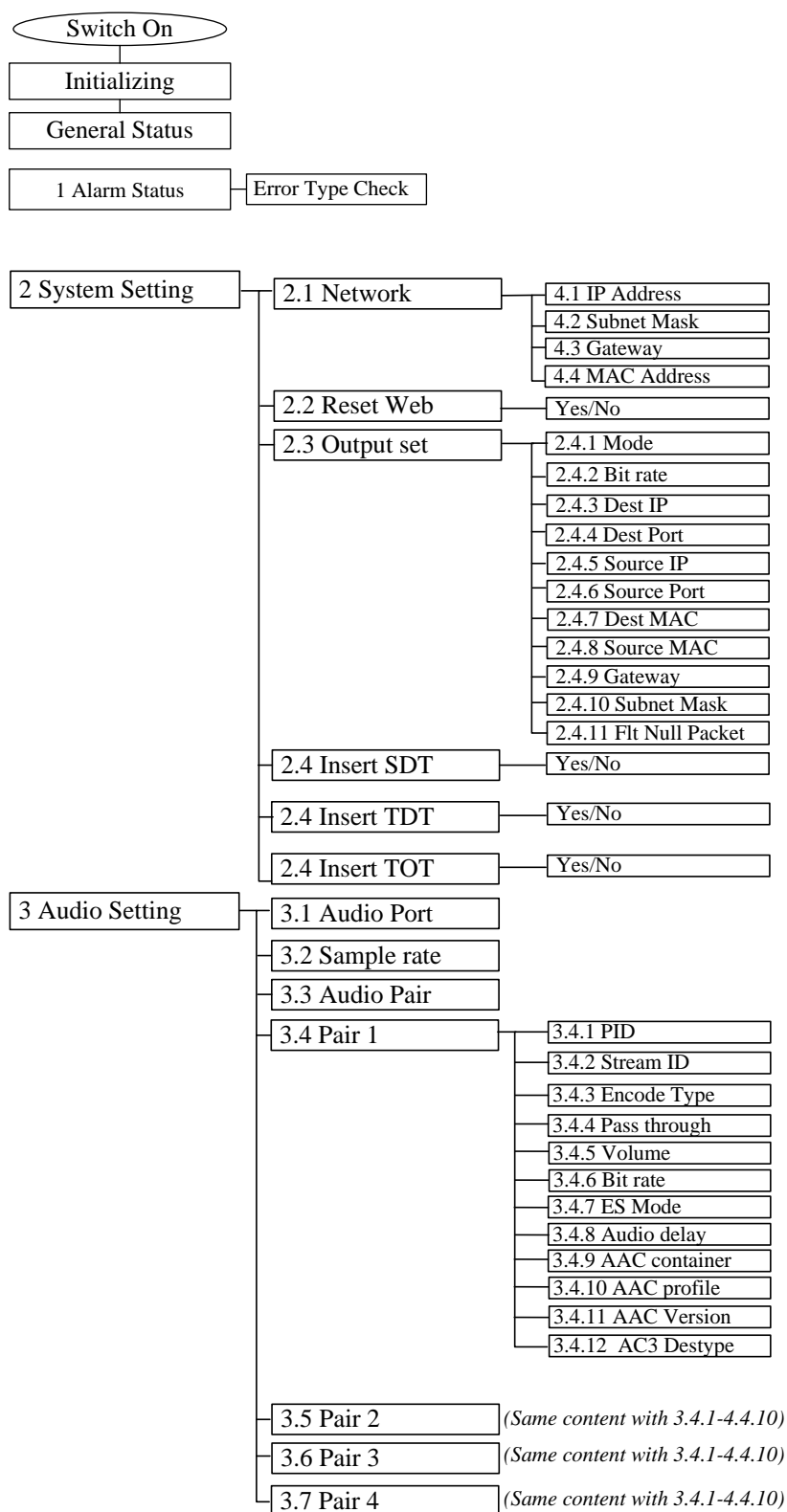
**MENU:** cancels entered value, resumes previous setting;

**ENTER:** activates the parameters which need modification, and confirm the changes after modification

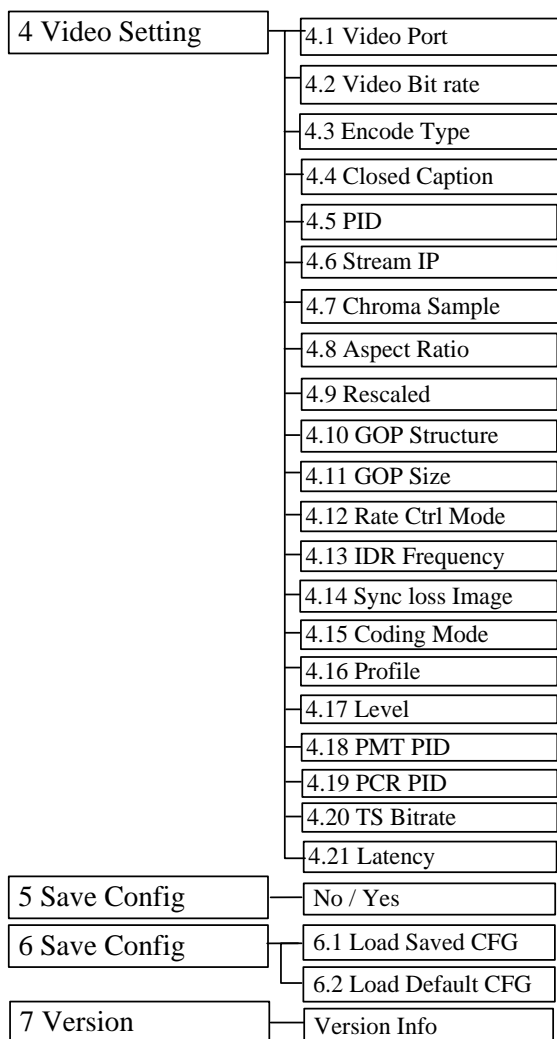
**LOCK:** Lock the screen / cancel the lock state. After pressing lock key, the system will question the users to save or not. If not, the LCD will display the current configuration state

### 4.1 LCD MENUS

## AN OVERVIEW OF THE LCD MENUS

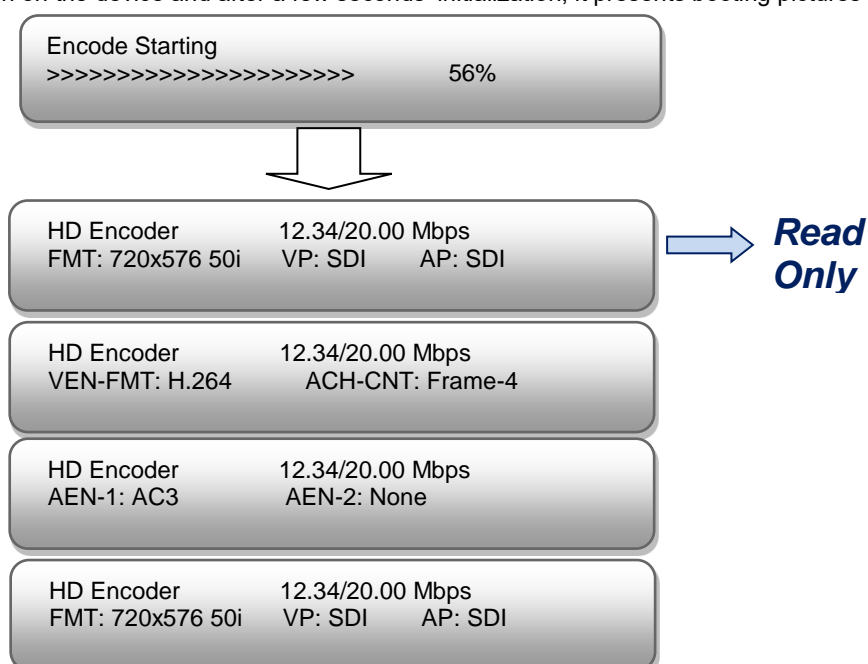






## 4.2 INITIAL STATUS

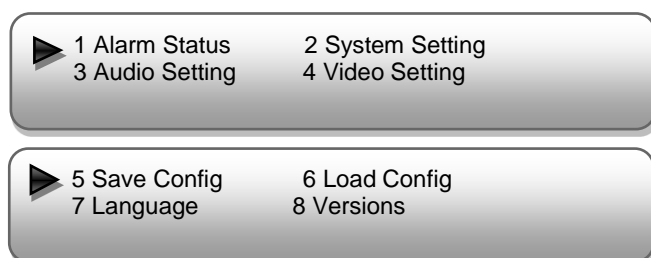
Switch on the device and after a few seconds' initialization, it presents booting pictures as below:



- **HD Encoder:** to indicate the device name.
- **XX.XX/XX.XX Mbps:** to indicate the current encoding Bit Rate and total Output Bit Rate
- **FMT:** to indicate source signal resolution format
- **VP/AP:** to indicate the Video and Audio Signal source port.
- **VEN-FMT:** to indicate the video encode format.
- **ACH-CMT:** to indicate the audio Capture Mode.
- **AEN-1 to AEN-4:** to indicate the 4 channel audio encode format.

### 4.3 GENERAL SETTINGS FOR MAIN MENU

Press "**LOCK**" key on the front panel to enter the main menu. The LCD will display the following pages where user can configure the parameters for the device:

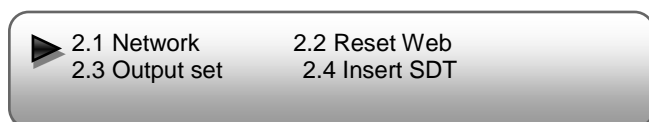


User can press UP/DOWN/LEFT/RIGHT buttons to specify menu item, and then press ENTER to enter the submenus as below:

#### 4.3.1 ALARM STATUS

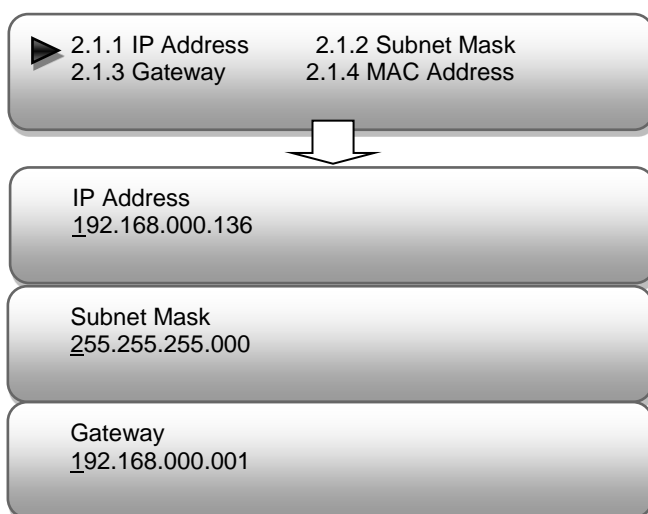
The alarm indicator will turn on if signal source loses or encoding errors occur. User can then enter this menu to check the error type.

#### 4.3.2 SYSTEM SETTING



##### 4.3.2.1 NETWORK SETTINGS

Enter "Network" to set the network. Submenus go as below:



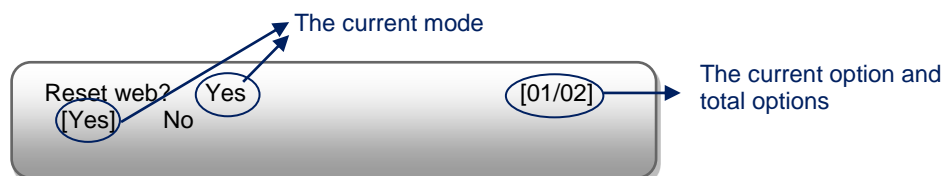
→ This is the IP address used for connecting to Web management.



The MAC is read only on the front panel. It is can be modified in the Web management interface.

#### 4.3.2.2 RESET WEB

At this interface, by pressing ENTER again, users can select to reset web or not. The operation interface will turn up as following page:

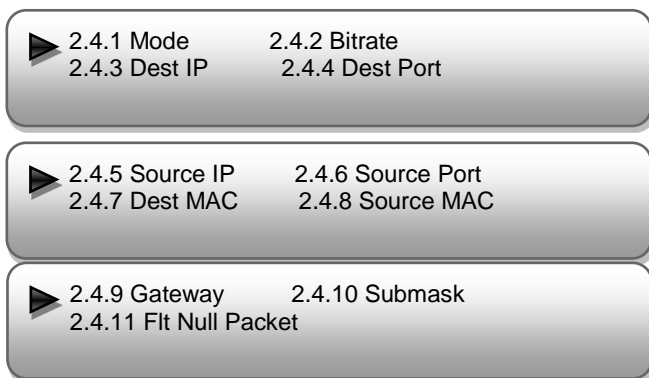


**NOTE:** Below explanations are applied in this entire manual.

- 1) When user enter this submenu, the LCD displays only one option which is the device's current option which is marked with square bracket when user presses ENTER **again** to enter the operation interface.
- 2) "01/02" in the up-right corner indicates there are all together 2 options and the LCD is displaying the 1<sup>st</sup> option currently.

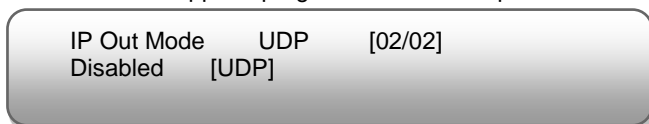
#### 4.3.2.3 OUTPUT SET

Enter "Output Set" to set the output parameters. Submenus go as below:



##### ➤ IP Out Mode

EX2-220 HD encoder supports program stream to output over UDP through the DATA port.



Disable: Program stream will not output from IP port, just output from ASI Port.

##### ➤ Output Bit rate

User can set the total output Bit rate (include video and audio Bit rate, PID Bit rate, etc) under this menu.



- User can enter **2.4.3 – 2.4.10** respectively to check or modify out IP parameters.

Dest IP 224.002.002.002	
Dest Port 1234	
Source IP 192.168.002.137	
Source Port 2007	
Dest MAC 01:00:5E:02:02:02	
Source MAC 11:22:33:44:55:22	➔ Source MAC is read only on the front panel. It is can only be modified in the Web management interface.
Gateway 192.168.002.001	
Subnet Mask 255.255.255.000	

➤ **Flt Null Packet**

User can decide whether to filter IP null packet at this menu.

Filter IP Null Packet? NO [01/02]
[No] Yes

**4.3.2.4 INSERT SDT**

At this interface, by pressing ENTER again, users can choose to insert SDT (Service Description Table) or not.

Insert SDT? Yes [01/02]
[Yes] No

**4.3.2.5 INSERT TDT**

At this interface, by pressing ENTER again, users can choose to insert TDT (Service Description Table) or not.

Insert TDT? Yes [01/02]
[Yes] No

#### 4.3.2.6 INSERT TOT

At this interface, by pressing ENTER again, users can choose to insert TOT (Service Description Table) or not.

Insert TOT? Yes [01/02]  
[Yes] No

### 4.3.3 AUDIO SETTING

Enter "Audio setting" to configure the Audio parameters for the input program (HDMI/SDI/YPbPr/CVBS input program).

Submenus go as below:

▶ 3.1 Audio Port 3.2 Sample Rate  
3.3 Audio Pair 3.4 Pair 1

▶ 3.5 Pair 2 3.6 Pair 3  
3.7 Pair 4

#### 4.3.3.1 AUDIO PORT

Press ENTER to enter menu *Audio Port*. It displays the current mode of audio Port. Press ENTER again to enter the setting interface, move the square bracket with LEFT/RIGHT keys to select the target mode and press ENTER to confirm. At last, press MENU to step back to the upper menus.

Audio Port Select SDI [01/05]  
[SDI] HDMI AES RCA XLR

#### REMARKS:

If the audio source is from **HDMI** or **SDI**, the system will automatically identify and match the interface. It is not necessary to set this menu. If the audio source is from **XLR**, **RCA** or **AES**, it needs to match the interface manually.

#### 4.3.3.2 SAMPLE RATE

The audio sample rate is 48 KHz without other options.

Audio Sample Rate 48 KHz  
[48 KHz]

#### 4.3.3.3 AUDIO PAIR

EX2-2200 supports 4 stereo (8 mono) or one DD 5.1 (AC3) audios embedded to mix with the video to form a stream output.

Audio pair Pair2 [02/06]  
Pair1 [Pair1,2] Pair1,2,3 Pair1,2,3,4

Audio pair Pair2 [02/06]  
Mute Surround5.1

Drop: Audio data is captured.

Pair-1: A single (channel 1) audio stream is captured.

Pair-2: 2 audio (channel 1&2) streams are captured.

Pair-3: 3 audio (channel 1 to 3) streams are captured.

Pair-4: 4 audio (channel 1 to 4) streams are captured.

5.1CH: Surround (5.1) for Dobby/AC3 5.1 channel.

#### 4.3.3.4 Pair1-4

As the EX2-220 is with 4 audio encode channel, "3.4"-"3.7". User can enter "3.4"/"3.5"/"3.5"/"3.7" to set the corresponding audio parameters. Submenus (taking "3.4" as an example) are as below:

▶ 3.4.1 PID	3.4.2 Stream ID
3.4.3 Encode Type	3.4.4 Pass through
▶ 3.4.5 Volume	3.4.6 Bit Rate
3.4.7 ES Mode	3.4.8 Audio Delay
▶ 3.4.9 AAC Container	3.4.10 AAC Profile
3.4.11 AAC Version	3.4.12 AC3 Destype

##### ➤ PID

User can set the PID for first channel under this menu.

PID 0512
-------------

##### ➤ Stream ID

User can set the audio stream ID under this menu.

Stream ID 192
------------------

##### ➤ Encode Type

Select audio encode format among items listed in the interface.

Encode Type	MPEG-L2	[02/04]
None	[MPEG-L2]	AC3 AAC

#### REMARKS:

- If "None" is chosen the audio format, the system will not choose any audio to process and there will be no audio in the output data stream.

### ➤ Pass Through

EX2-220 supports AC3 audio to passthrough from SDI input.

User can decide to switch on AC3 Pass through function or not under this menu.

Pass Through Yes [01/02]  
[Yes] No

### ➤ Volume

User can set the Audio Volume Level under this menu.

Audio Volume Level Level 1 [01/04]  
[Level 1] Level 2 Level 3 Level 4

### ➤ Audio Bit rate

Select audio bit rate among 32Kbps – 384Kbps.

Audio Bit rate 192 Kbps [01/17]  
[32 Kbps] 48 Kbps 64 Kbps 80 Kbps

EX2-220 support MPEG-L2, AC3, AAC (LC/HE-AAC) audio encoding. Different audio encode type have different Audio Bit rate.

64Kbps, 96-384Kbps for MPEG-L2

32-384Kbps for AAC

128Kbps, 192Kbps, 156Kbps, 384Kbps for AC3

### ➤ ES Mode

Select Stereo mode among stereo, Dual Mono, L-Mono, and R-Mono.

Stereo Mode Stereo [01/04]  
[Stereo] Dual Mono L-Mono R-Mono

### ➤ Audio Delay

User can set the audio delay under this menu.

Audio delay  
0

### ➤ AAC Container

User can choose the AAC container mode under this menu.

AAC Container ADTS [01/02]  
[ADTS] LATM

➤ **AAC Profile**

Select AAC profile among LC, HE and HEV2.

AAC Profile	LC	[01/03]
[LC]	HE	HEV2

➤ **AAC Version**

User can set the AAC encoder version under this menu.

AAC Version	MPEG-2	[01/02]
[MPEG-2]	MPEG-4	

➤ **AC3 Destype**

User can set the AC3 Destype under this menu.

AC3 Destype	DVB	[01/02]
[DVB]	ATSC	

#### 4.3.4 VIDEO SETTING

▶ 4.1 Video Port	4.2 Video Bit rate
4.3 Encode Type	4.4 Closed Caption
▶ 4.5 PID	4.6 Stream IP
4.7 Chroma Sample	4.8 Aspect Ratio
▶ 4.9 Rescaled	4.10 GOP Structure
4.11 GOP Size	4.12 Rate Ctrl Mode
▶ 4.13 IDR Frequency	4.14 Sync loss Image
4.15 Coding Mode	4.16 Profile
▶ 4.17 Level	4.18 PMT PID
4.19 PCR PID	4.20 TS Bitrate
▶ 4.21 Latency	4.22 PCR Interval
4.23 Video Buffer	4.24 Source error
▶ 4.25 Adj win format	



### ➤ Video Port

Press ENTER to enter menu *Video Port*. It displays the current mode of video input. Press ENTER again to enter the setting interface, move the square bracket with LEFT/RIGHT keys to select the target mode and press ENTER to confirm. At last, press MENU to step back to the upper menus.

Video Port YPbPr  
HDMI CVBS [YPbPr] SDI

There are 4 types of interface for video input. Select one type and the system will detect the single and process. Make sure the single cables are properly connected.

### ➤ Video Bit Rate

EX2-220 can encode video at range of 0.52 Mbps to 60.00 Mbps.

Video Bit rate  
12.00 Mbps

### ➤ Encode Type

EX2-220 supports two Encode Types: **H.264** (MPEG4 AVC/H.264) and **MPEG2**. User can choose to one mode as the video compression type at this menu.

Encode Type MPEG 2 [01/02]  
H.264 [MPEG 2]

### ➤ Closed Caption (CC)

(Note: EX2-220 supports CC from CVBS and SDI input.)

**None:** not to insert the CC into the output stream

**All:** The device will automatically identify the Closed Caption Standard among 608B 608FLD1 608FLD2 and 708B.

Closed Caption None [01/05]  
[None] All 608B 608FLD1 608FLD2 708B

### ➤ PID

Enter this menu to edit Video PID.

Video PID  
0258

### ➤ Stream ID

Enter this menu to set Video Stream ID.

Video PID  
0224

➤ **Chroma Sample**

Select one Chroma Sample mode from the 2 options listed. They are applicable for both MPEG2 and H.264 encoding mode.

Chroma Sample	[01/02]
[4:2:0]      4:2:2	

➤ **Aspect Ratio**

Select aspect ratio mode from option listed. SD Video can choose from 4x3 and 14:9. HD Video only can choose 16:9.

Aspect Ratio	16x9	[01/01]
[16x9]		

➤ **Rescaled**

Enter this menu to set the output Resolution. EX2-220 support 1080I, 720P, 480I, 576I video input resolution and downscale transform.

Disable: To out the same resolution as source resolution.

Rescale Resolution	Disable	[01/10]
[Disable]    1440x    1280x    960x		

➤ **GOP Structure**

Select GOP structure mode from the options listed.

GOP Structure	Auto	[01/02]
[Auto]		

➤ **GOP Size**

User can set the GOP Size under this menu.

GOP Size
30

➤ **Rate Control Mode**

EX2-220 supports CBR (Constant Bit Rate) control mode.

Rate Control Mode	CBR	[01/01]
	[CBR]	

➤ **IDR Frequency**

Specify the IDR frequency relative to I-Frames.

IDR Frequency	NO IDRS	[01/04]
[NO IDRS]    Every I    Second I    Third I		

### ➤ Sync Loss Image

User can choose the image type to encode during loss of video source sync.

Sync Loss Image    Color    [01/02]  
[Color]    Black

### ➤ Coding Mode

Choose the coding mode from the options listed.

Code Mode    Auto  
[Auto]    Frame    Field    MBAFF

### ➤ Profile

Select Profile from the options listed.

Profile    Baseline    [01/03]  
[B/S]    Up to high    Up to main

### ➤ Level

User can choose the level which is used for encoding.

Level    [Auo]  
Auto    Level 1.0    Level 1.1    Level1.2

### ➤ PCR/PMT PID

Enter each menu to edit the PIDs.

**REMARKS:** These values are based on decimal system.

PCR PID  
0256

PMT PID  
0257

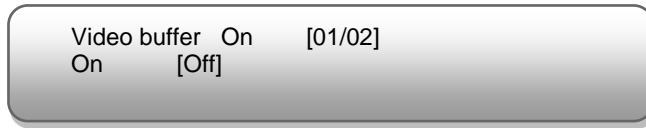
### ➤ TS Bitrate

User can check the TS bitrate which is used for encoding.

TS bitrate  
35

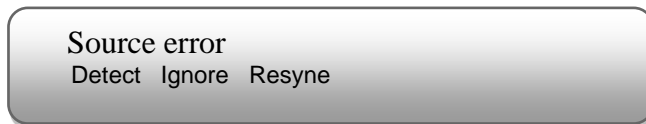
➤ **Video Buffer**

User can select to turn on/off the video buffer.



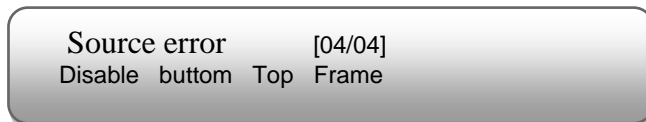
➤ **Source error**

User can check the source error which is used for encoding.



➤ **Adj Winforamt**

User can check the source error which is used for encoding.



➤ **TS Bitrate**

User can check the TS bitrate which is used for encoding.



### 4.3.5 **SAVE CONFIGURATION**

User can enter *Saving Configuration* for saving settings. Choose yes and press ENTER to confirm.



### 4.3.6 **LOAD CONFIGURATION**

At this menu, user can select a loading source and press ENTER to confirm. User can restore the device into the last saved configuration by choosing "6.1" and restore the device into factory configuration by choosing "6.2" the display will show as below:

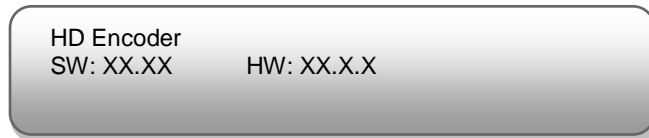


### 4.3.7 **LANGUAGE**



### 4.3.8 VERSION

User can check the software version and hardware version of this equipment under this submenu.



## 5 WEB NMS Operation

User can not only use front panel to set configuration, but also control and set the configuration with a PC (Personal Computer) by connecting the device to web NMS Port. User should ensure that the computer's IP address is different from the EX2-220's IP address; otherwise, it would cause IP conflict.

### 5.1 LOGIN

The default IP address of this device is 192.168.0.136. (We can modify the IP through the front panel – menu 4.1.) Connect the PC and the device with net cable, and use ping command to confirm they are on the same network segment.

Use web browser to connect the device with PC by inputting the device's IP address in the browser's address bar and press Enter.

It will display the Login interface as Figure-1. Input the Username and Password (Both the default Username and Password are "admin".) and then click "LOGIN" to start the device setting.

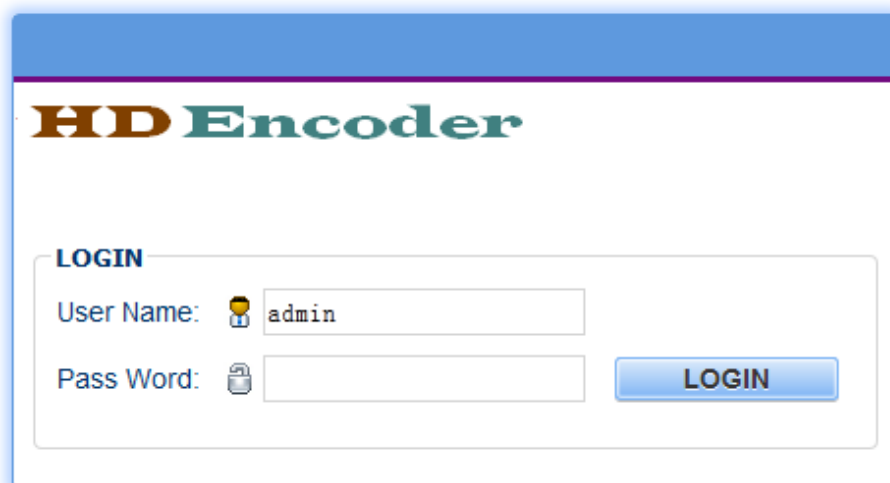


Figure-1

## 5.2 OPERATION

### ➤ System Information

When we confirm the login, it displays the SYSTEM INFORMATION interface as Figure-2 where user can view the system information.

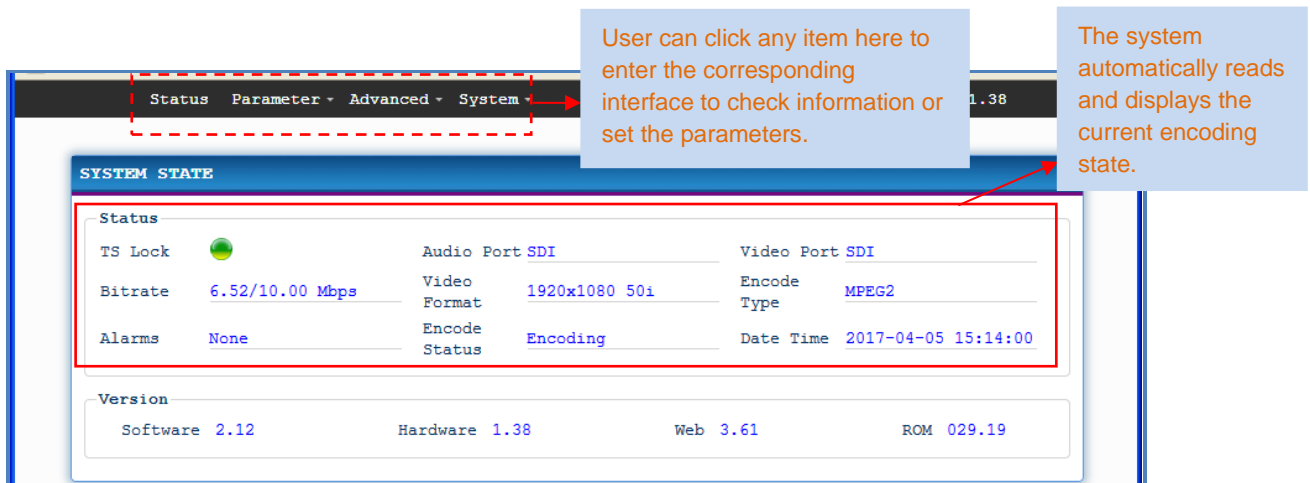


Figure-2

### ➤ Parameter -> Audio Setting

Click "Audio Setting" on the top column and it displays interface as Figure-3. User can set the Audio parameters.

Audio Port: HDMI, SDI, AES, RCA, XLR optional. If the audio source is from HDMI or SDI, the system will automatically identify and match the interface.

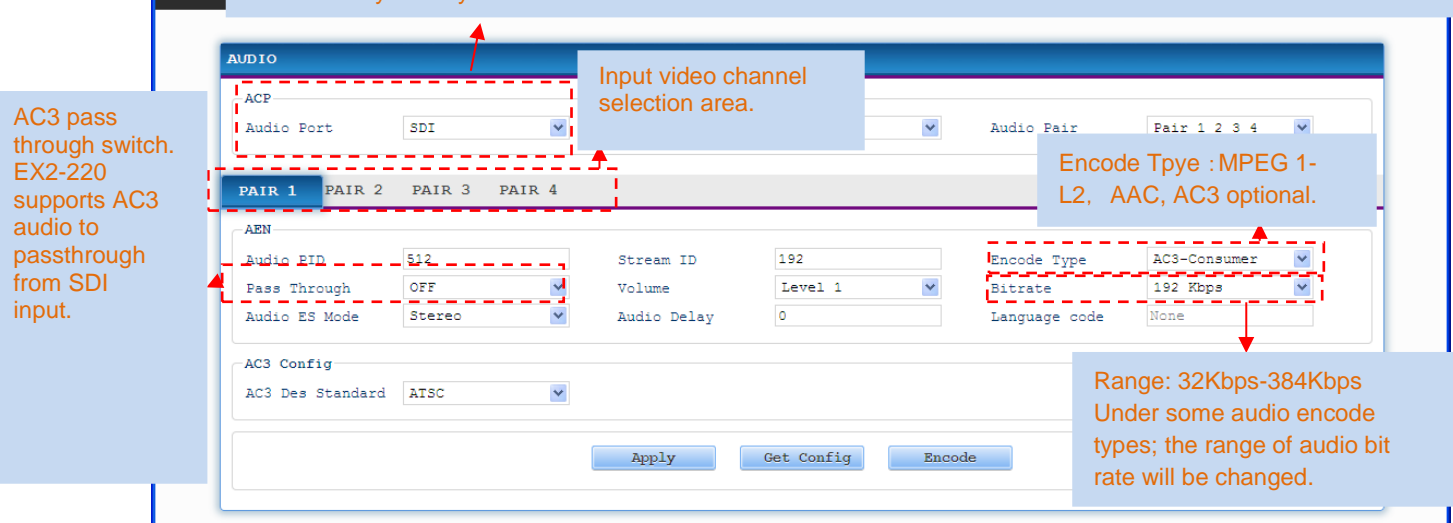


Figure-3

### Capture Mode:

EX2-220 supports 4 stereo (8 mono) or one DD 5.1 (AC3) audios embedded to mix with the video to form a stream output.

Drop: Audio data is captured.

Frame-1: A single (channel 1) audio stream is captured.

Frame-2: 2 audio (channel 1&2) streams are captured.

Frame-3: 3 audio (channel 1 to 3) streams are captured.

Frame-4: 4 audio (channel 1 to 4) streams are captured.

5.1CH: Surround (5.1) for Dobby/AC3 5.1 channel.

### “Help” Function

In “Encode Setting” Interface, whenever the mouse cursor is suspended on one item, a question mark appears by the cursor and the corresponding item comes to hyperlink state (Figure-4). Click the hyperlink item to trigger a text window to give instructions on properly setting the corresponding item. (Figure-4)

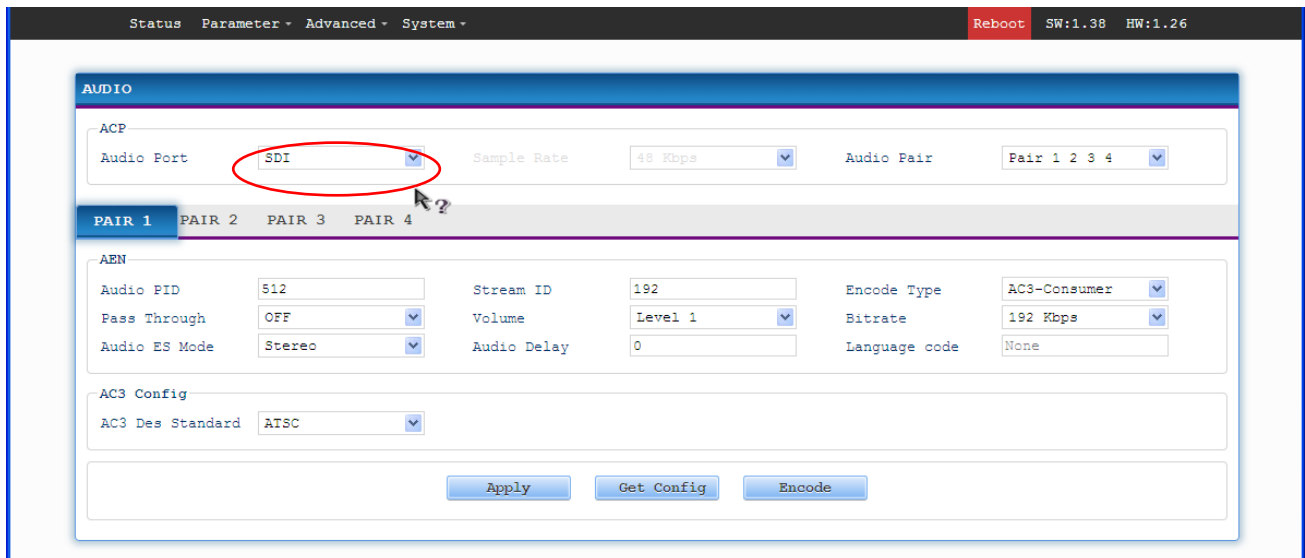


Figure-4

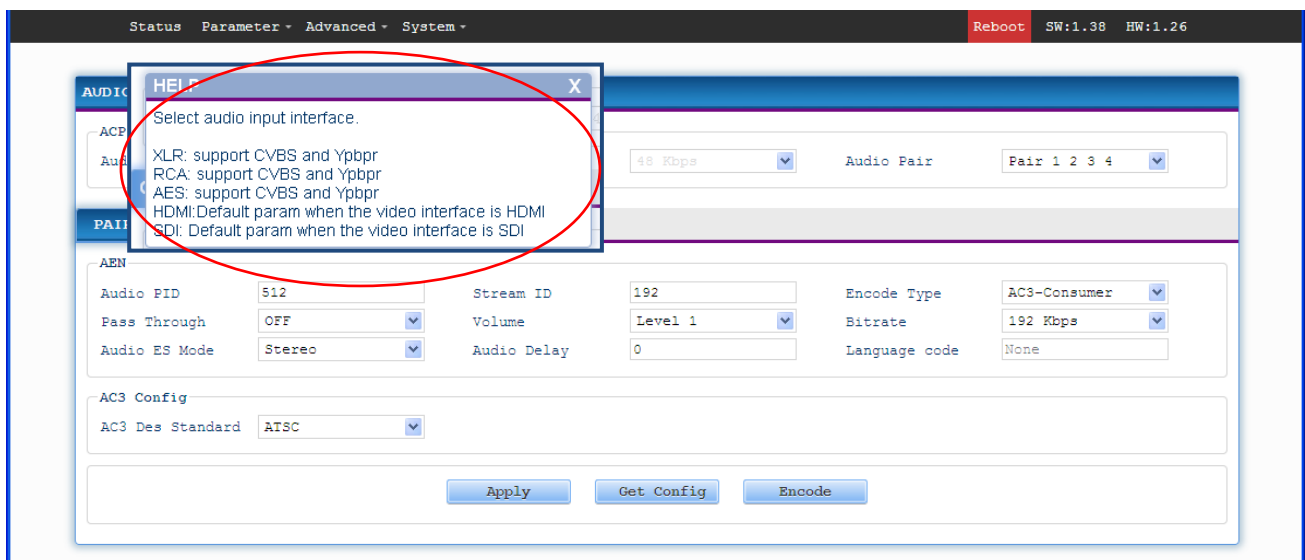


Figure-5

### ➤ Parameter -> Video Setting

Click "Video Setting" on the top column and it displays interface as Figure-6. User can set the Video parameters.

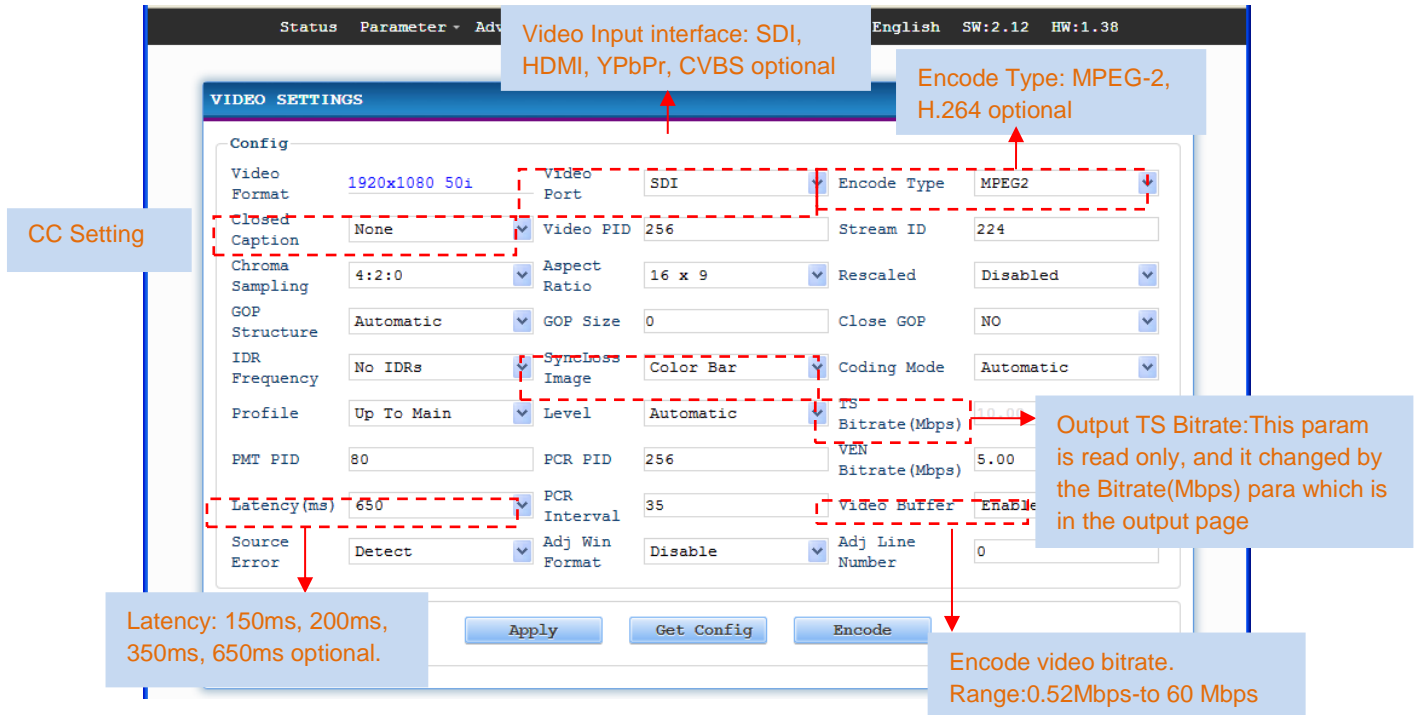


Figure-6

#### Closed Caption (CC):

Note: EX2-220 supports CC from CVBS and SDI input.

None: not to insert the CC into the output stream

All: The device will automatically identify the Closed Caption Standard among 608B 608FLD1 608FLD2 and 708B.

#### Chroma sampling:

Select one Chroma Sample mode from the 2 options listed. They are applicable for both MPEG2 and H.264 encoding mode..

#### Aspect Ratio:

SD Video input can choose Aspect Ratio from 4x3 and 14:9. HD Video input only can choose 16:9.

#### Rescaled:

Enter this menu to set the output Resolution. EX2-220 support 1080I, 720P, 480I, 576I video input resolution and downscale transform.

Disable: To out the same resolution as source resolution.

#### Video Buffer:

EX2-220 support video buffer which makes it free to switch video sources. If enable video buffer, the time of system latency will be raised about 200ms.



➤ **Parameter -> Output Setting.**

Click “Output Setting” on the top column and it displays interface as Figure-7. User can set the output parameters by inputting a value or selecting a mode in the pull-down list.

Figure-7

➤ **Parameter -> Datetime.**

Click “Datetime” on the top column and it displays interface as Figure-8. User can set the date and time by selecting the Timezone, and the timezone in the pull-down list.

Figure-8

➤ **Advanced->Dolby Metadata**

Click “Dolby Metadata” on the top column and it displays interface as Figure-9. User can set the dolby AC3 metadata by inputting a value or selecting a mode in the pull-down list.

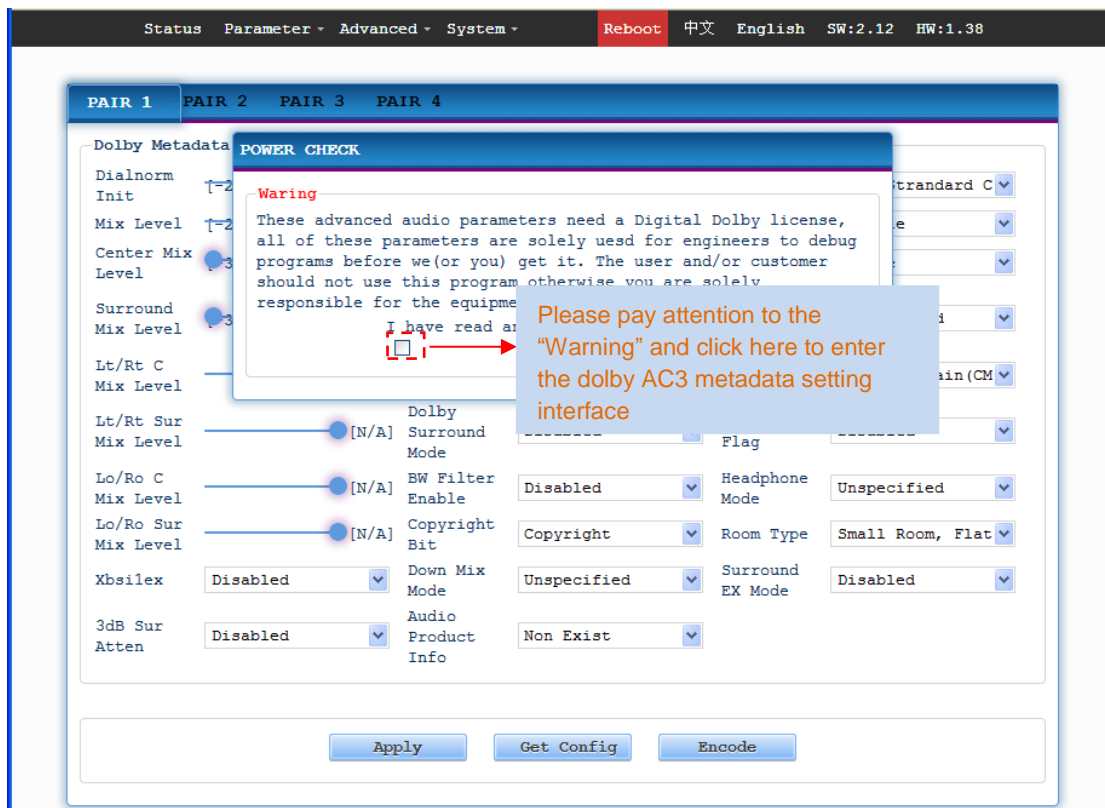


Figure-9

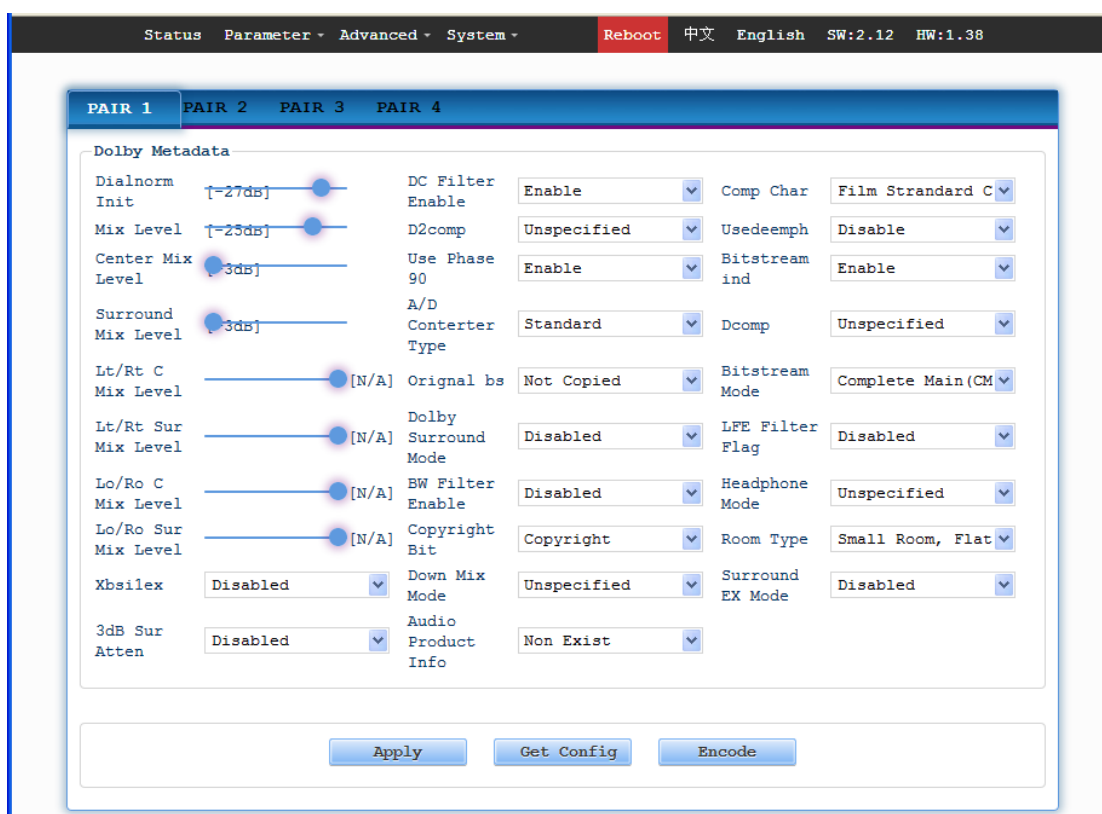


Figure-10

#### ➤ Advanced->SDI Channel Set

Click “SDI Channel Set” on the top column and it displays interface as Figure-11. User can set the SDI channel by selecting a value in the pull-down list.

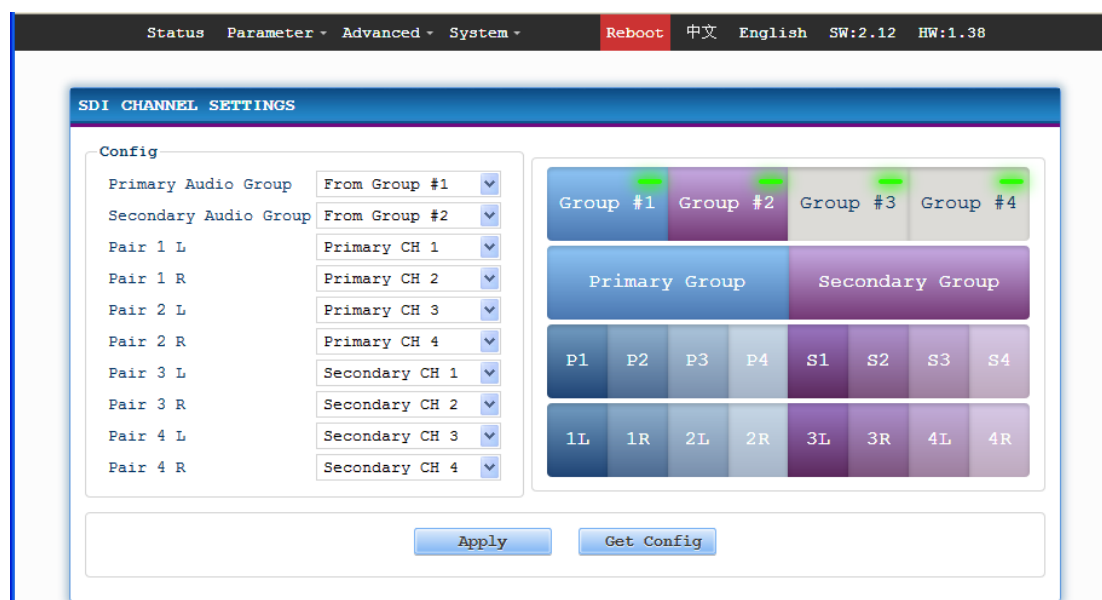


Figure-11

#### ➤ Advanced->OSD Settings

Click “OSD Settings” on the top column and it displays interface as Figure-12-14. User can insert the logo, caption and QRcode.

**Logo**—logo insert configuration

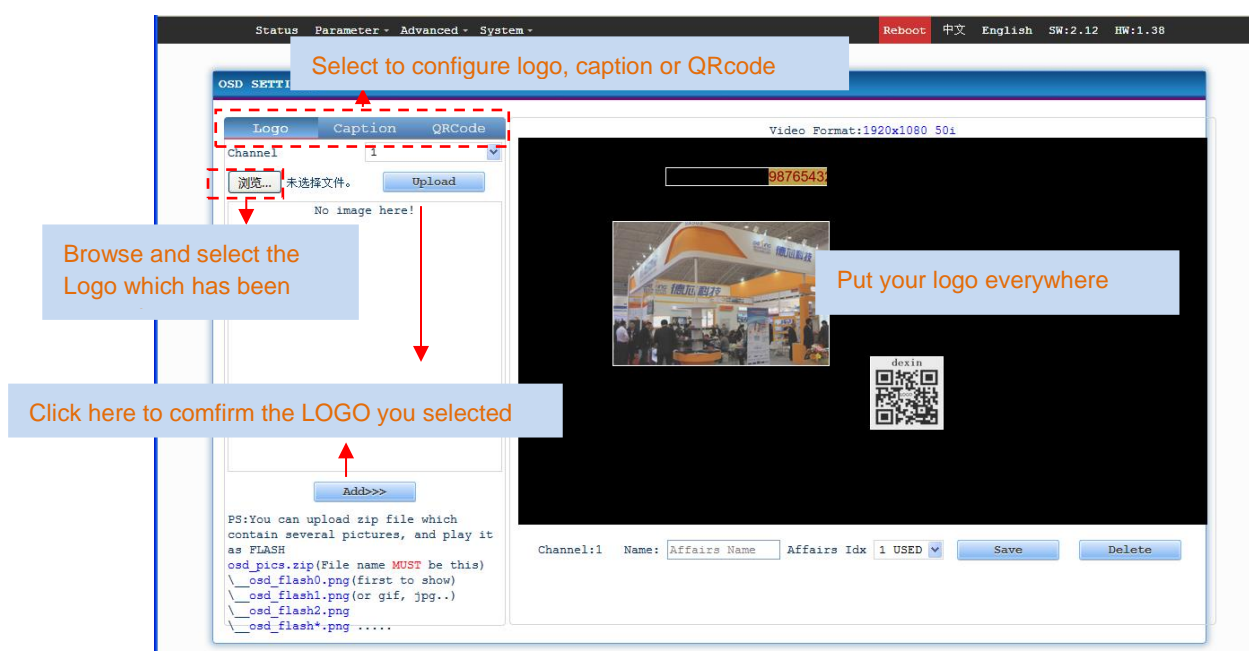


Figure-12

## Caption—Caption insert configuration

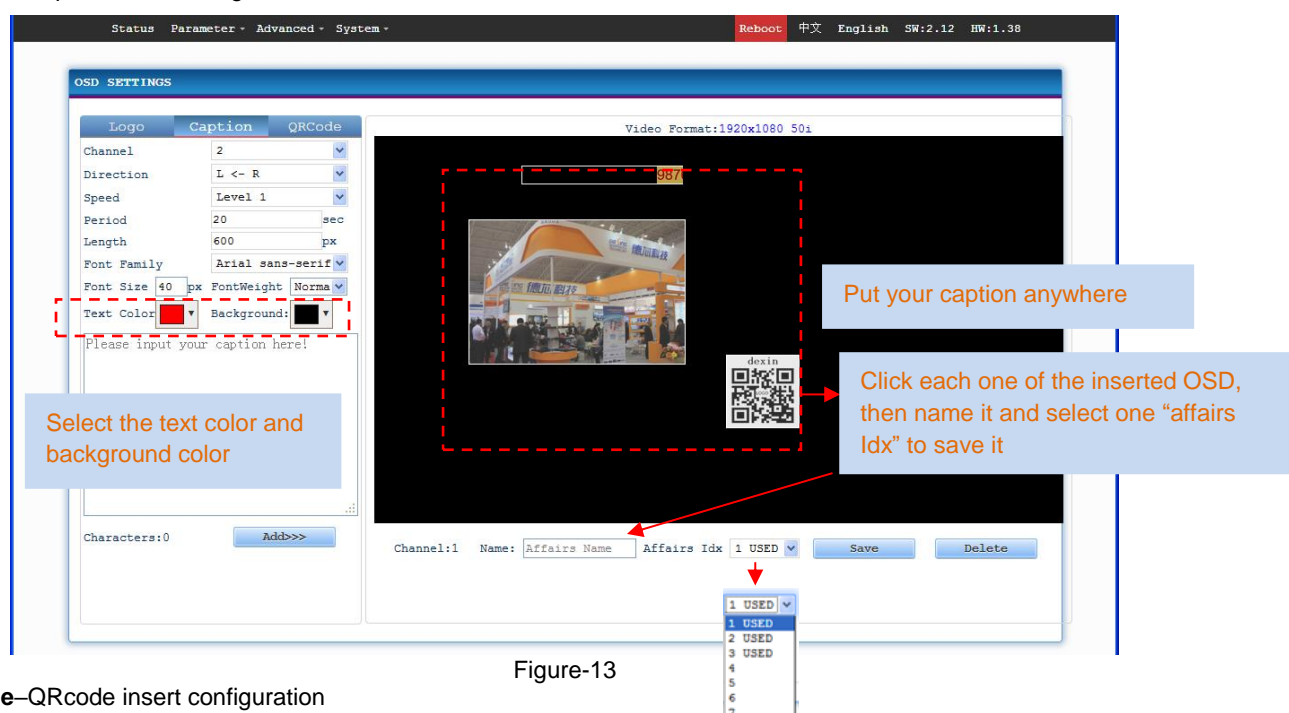


Figure-13

## QRcode—QRcode insert configuration

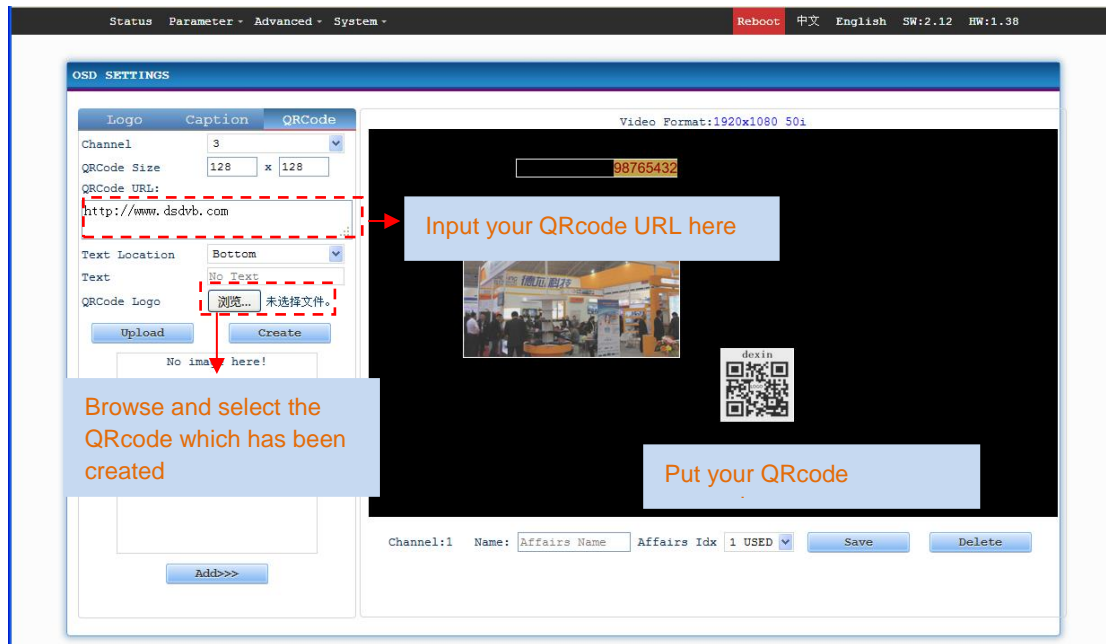
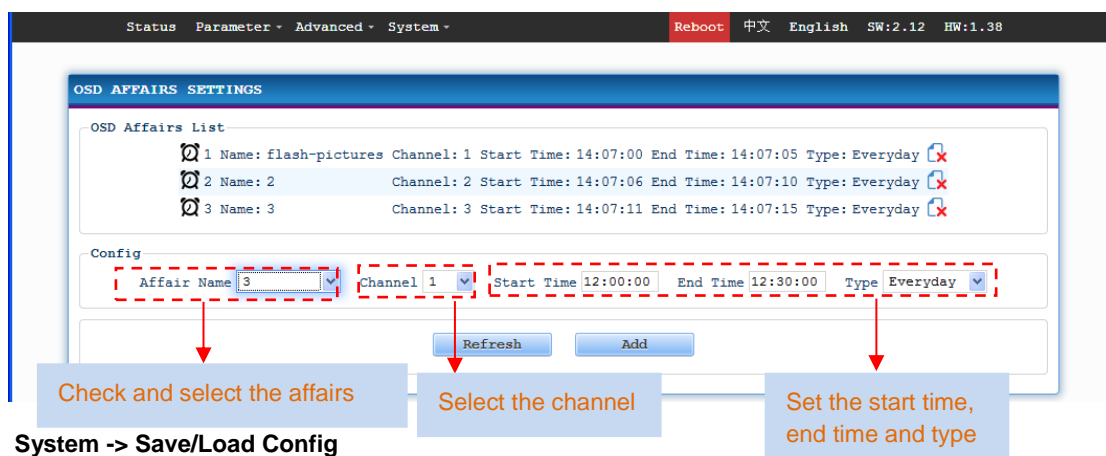


Figure-14

### ➤ Advanced -> OSD affairs settings

Click “OSD affairs settings” on the top column and it displays interface as Figure-15 where user can configure the osd affairs as per prompts.



### ➤ System -> Save/Load Config

Click “Save/Load Config” on the top column and it displays interface as Figure-16 where user can save new configuration or load existing configuration as per prompts.

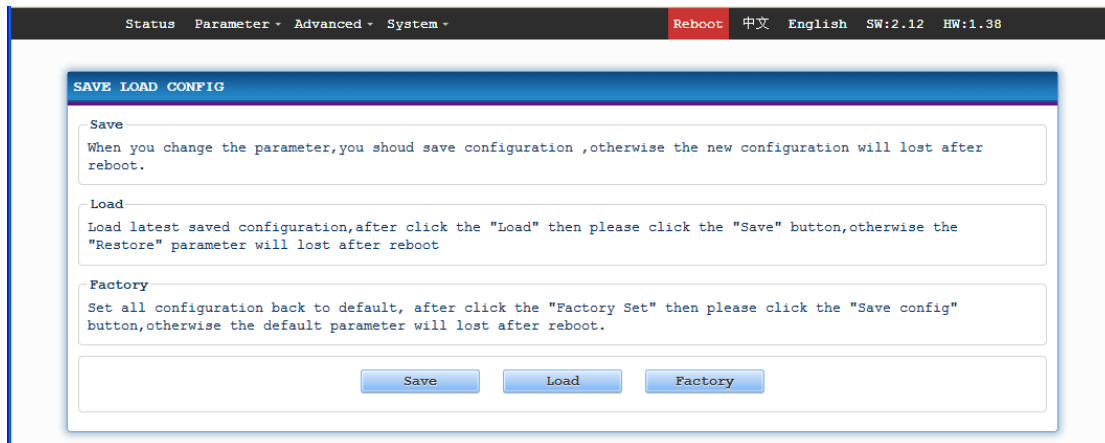


Figure-16

### ➤ System ->Update Software

Click “Update Software” on the top column and it displays interface as Figure-17 where user can update the software for the device. Click browse button to find the update file and click “Update” button to start updating.

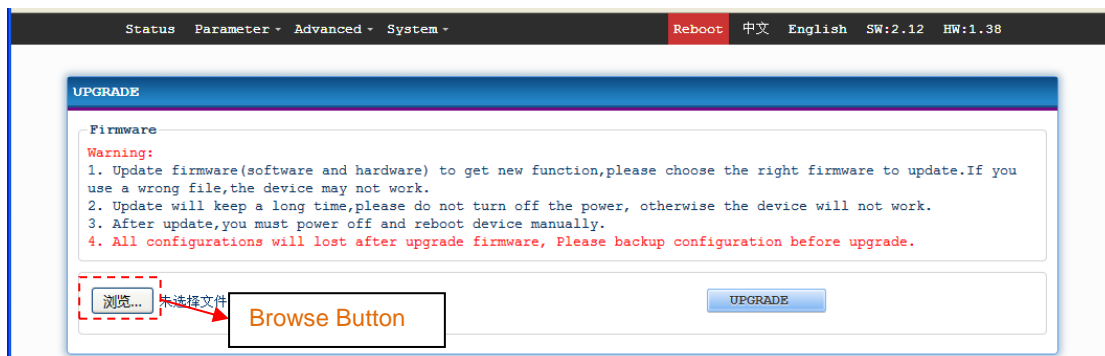


Figure-17

### ➤ System ->Backup

Click “Backup” from the menu, it will display the screen as Figure-18.

**Backup**– To back up the device configuration file to a folder

**Load Configuration** – If user needs to load the old configuration to the device, click “Browse” and find the backup configuration file path. After selecting the file, click “Load File” to load the backup file to the device.

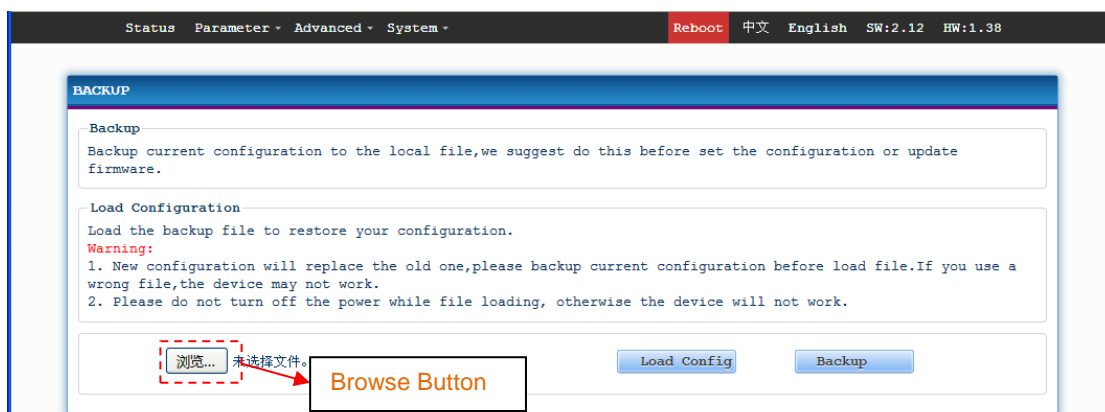


Figure-18

➤ **System ->Modify Password**

Click “*Modify Password*” on the top column and it displays interface as Figure-19 where user can reset the account information as needed.

**PASSWORD**

**Intro**  
Modify the login name and password to make the device safely.If forget the name or password,you can reset it by keyboard. The default login name and password is "admin".Also please note the capital character and lowercase character.

**Setting**

Current User Name	admin	Current Password	<input type="password"/>
New User Name	<input type="text"/>	New Password	<input type="password"/>
Confirm New Password	<input type="password"/>		

Figure-19

➤ **System ->Network Setting**

Click “*Network Setting*” on the top column and it displays interface as Figure-20 where user can check or reset the network.

**NETWORK**

**IP Address**  
The manage address,use this address to visit the manage web.The format is xxx.xxx.xxx.xxx(like 192.168.0.1). After set the IP address,you must use the new address to visit the manage web.

**Subnet Mask**  
General is 255.255.255.0,it is must the same in a local area network.

**Gateway**  
If the device is in different net segment,you must set the gateway.

**Setting**

IP Address	192.168.101.107	Subnet Mask	255.255.255.0
Gateway	192.168.0.1	MAC	00:22:33:44:55:22

Figure-20

## 6 TROUBLESHOOTING

DEXIN's ISO9001 quality assurance system has been approved by CQC organization. For guarantee the products' quality, reliability and stability. All DEXIN products have been passed the testing and inspection before ship out factory. The testing and inspection scheme already covers all the Optical, Electronic and Mechanical criteria which have been published by DEXIN. To prevent potential hazard, please strictly follow the operation conditions.

### Prevention Measure

- Installing the device at the place in which environment temperature between 0 to 45 °C
- Making sure good ventilation for the heat-sink on the rear panel and other heat-sink bores if necessary
- Checking the input AC within the power supply working range and the connection is correct before switching on device
- Checking the RF output level varies within tolerant range if it is necessary
- Checking all signal cables have been properly connected
- Frequently switching on/off device is prohibited; the interval between every switching on/off must greater than 10 seconds.

### Conditions need to unplug power cord

- Power cord or socket damaged.
- Any liquid flowed into device.
- Any stuff causes circuit short
- Device in damp environment
- Device was suffered from physical damage
- Longtime idle.
- After switching on and restoring to factory setting, device still cannot work properly.
- Maintenance needed

## 7 PACKING LIST

EX2-220 MPEG2/H.264 HD Encoder	1PC
<b>User Manual</b>	<b>1PC</b>
HDMI Cable	1PC
YPbPr Cable 3 BNC – 3 RCA	1PC
2 x XLR adapter Cables DB9M – 4XLRF	2Sets
<b>RCA adapter Cable DB9M – 8 BNC</b>	<b>1Set</b>
Power Cord	1PC
AES adapter cable DB9M – XLRF	1PC



## 8 FINAL CONSIDERATION AND AXEL TECHNOLOGY CONTACT

This image shows a single sheet of white paper with horizontal ruling lines. The lines are evenly spaced and run across the width of the page. There are no margins, text, or other markings on the paper.