

## PRODUCT MODEL NUMBER: TL-9228S-16 MULTI-CHANNEL ENCODER



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# CHAPTER 1

## INTRODUCTION

### 1.1 PRODUCT OVERVIEW

TL-9228S multi-channel encoder is a professional HD/SD audio & video encoding device. It has 8/16/24 HDMI inputs for option. Every 8 HDMI ports share one encoder module with each module supporting 1MPTS and 8SPTS output. Its high integration and cost-effective design make the device widely used in varieties of digital distribution systems such as cable TV digital head-end, digital TV broadcasting etc.

### 1.2 KEY FEATURES

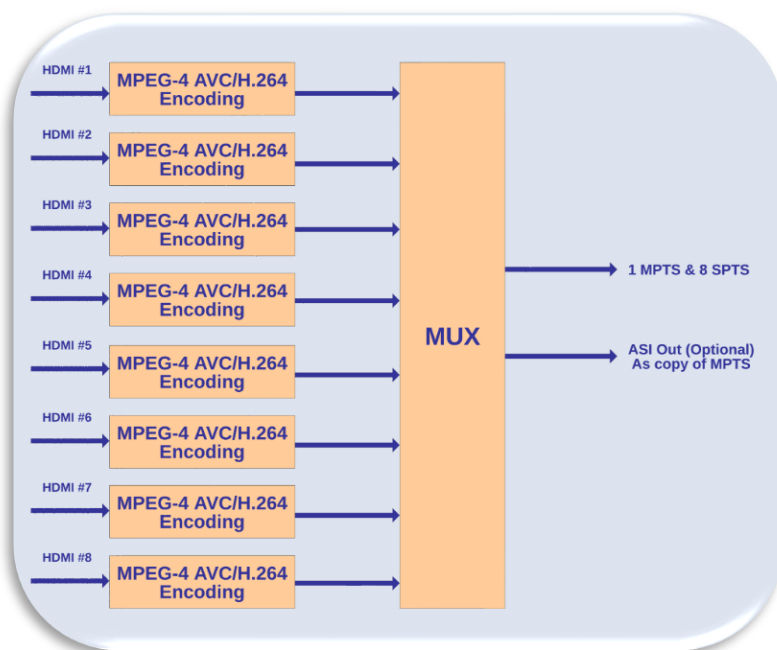
- 8 HDMI inputs with 8 SPTS and 1 MPTS output (each encoder module), max 24 HDMI inputs
- MPEG4 AVC/H.264 video encoding format
- MPEG1 Layer II, LC-AAC, HE-AAC audio encoding format and AC3 Pass Through, and audio gain adjustment
- IP output over UDP and RTP/RTSP protocol; 1 ASI out as mirror of MPTS (Optional)
- Support QR code, LOGO, caption insertion (Language Supported: 中文, English, العربية, ไทย, हिन्दी, русский, اردو for more languages please consult us...)
- Support “Null PKT Filter” function
- Control via web management, and easy updates via web

## 1.3 SPECIFICATIONS

Input	
8/16/24 HDMI inputs	
Video	
<b>Input Resolution</b>	1920×1080_60P, 1920×1080_60i, 1920×1080_50P, 1920×1080_50i, 1280×720_60P, 1280×720_50P, 720 x 576_50i, 720 x 480_60i
<b>Output Resolution</b>	1920×1080_30P, 1920×1080_25P, 1280×720_30P, 1280×720_25P, 720 x 576_25P, 720 x 480_30P
<b>Encoding</b>	MPEG-4 AVC/H.264
<b>Bit-rate</b>	1~13Mbps each channel
<b>Rate Control</b>	CBR/VBR
<b>GOP Structure</b>	IP...P (P Frame adjustment, without B Frame)
Audio	
<b>Encoding</b>	MPEG-1 Layer 2, LC-AAC, HE-AAC and AC3 Pass through
<b>Sampling rate</b>	48KHz
<b>Resolution</b>	24-bit
<b>Audio Gain</b>	0-255 Adjustable
<b>MPEG-1 Layer 2 Bit-rate</b>	48/56/64/80/96/112/128/160/192/224/256/320/384 kbps
<b>LC-AAC Bit-rate</b>	48/56/64/80/96/112/128/160/192/224/256/320/384 kbps
<b>HE-AAC Bit-rate</b>	48/56/64/80/96/112/128 kbps

Stream Output	
IP output through DATA (GE) over UDP and RTP/RTSP protocol (8 HDMI inputs with 8 SPTS and 1MPTS output for each encoder board) 1 ASI out as mirror of MPTS (Optional as order)	
System Function	
Network management (WEB)	
Chinese and English language	
Ethernet software upgrade	
General	
Power supply	AC 110V± 10%, 50/60Hz, AC 220 ± 10%, 50/60Hz
Dimensions	482*400*44mm
Operation temperature	0~45°C; -20~80°C (Storage)

## 1.4 PRINCIPLE CHART



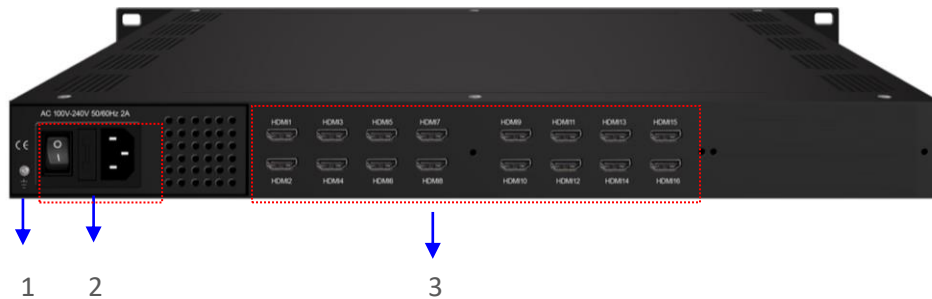
## 1.5 APPEARANCE AND DESCRIPTION

### Front Panel Illustration



1	NMS (Network Management Port)
2	Data Port (for IP Signal Output)
3	Power Indicator

### Rear Panel Illustration



1	Grounding Pole
2	Power Switch and socket
3	Module 1: HDMI 1-8 Module 2: HDMI 9-16

## CHAPTER 2

# INSTALLATION GUIDE

This section is to explain the cautions the users must know in some case that possibly 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.

## 2.1 ACQUISITION CHECK

When users open the package of the device, it is necessary to check items according to packing list. Normally it should include the following items:

- TL-9228S Multi-Channel Encoder
- User's Manual
- Power Cord
- HDMI cables

If any item is missing or mismatching with the list above, please contact local dealer.

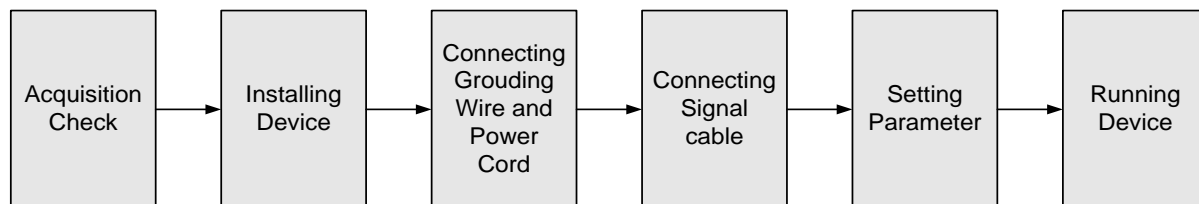
## 2.2 INSTALLATION PREPARATION

When users install device, please follow the below steps. The details of installation will be described at the rest part of this chapter. Users can also refer rear panel chart during the installation.

The main content of this chapter including:

- Checking the possible device missing or damage during the transportation
- Preparing relevant environment for installation
- Installing Encoder
- Connecting signal cables
- Connecting communication port (if it is necessary)

## 2.3 DEVICE'S INSTALLATION FLOW CHART ILLUSTRATED AS FOLLOWING





## 2.4 ENVIRONMENT REQUIREMENT

Item	Requirement
Machine Hall Space	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.
Machine Hall Floor	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 $450 \text{ Kg/m}^2$ )
Environment Temperature	$5 \sim 40^\circ\text{C}$ (sustainable), $0 \sim 45^\circ\text{C}$ (short time) installing air-conditioning is recommended
Relative Humidity	20%~80% sustainable 10%~90% short time
Pressure	86~105KPa
Door & Window	Installing rubber strip for sealing door-gaps and dual level glasses for window
Wall	It can be covered with wallpaper, or brightness less paint.
Fire Protection	Fire alarm system and extinguisher
Power	Requiring device power, air-conditioning power and lighting power are independent to each other. Device power requires AC $110\text{V} \pm 10\%$ , 50/60Hz or AC $220\text{V} \pm 10\%$ , 50/60Hz. Please carefully check before running.

## 2.5 GROUNDING REQUIREMENT

- All function modules' good grounding is the basis of reliability and stability of devices. Also, they are the most important guarantee of lightning arresting and interference rejection. Therefore, the system must follow this rule.
- Coaxial cable's outer conductor and isolation layer should keep proper electric conducting with the metal housing of device.

- Grounding conductor must adopt copper conductor in order to reduce high frequency impedance, and the grounding wire must be as thick and short as possible.
- Users should make sure the 2 ends of grounding wire well electric conducted and be antirust.
- It is prohibited 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 25mm<sup>2</sup>.

### 2.5.1 FRAME GROUNDING

All the machine frames should be connected with protective copper strip. The grounding wire should be as short as possible and avoid circling. The area of the conduction between grounding wire and grounding strip should be no less than 25mm<sup>2</sup>.

### 2.5.2 DEVICE GROUNDING

Connecting the device's grounding rod to frame's grounding pole with copper wire.

## 2.6 WIRE'S CONNECTION

The grounding wire conductive screw is located at the right end of rear panel, and the power switch, fuse, power supply socket is just besides, whose order goes like this, power switch is on the left, power supply socket is on the right and the fuse is just between them.

- Connecting Power Cord
- User can insert one end into power supply socket, while insert the other end to AC power.
- Connecting Grounding Wire
- When the device solely connects to protective ground, it should adopt independent way, say, share the same ground with other devices. When the device adopts united way, the grounding resistance should be smaller than  $1\Omega$ .

**⚠ Caution:**

Before connecting power cord to TL-9228S Multi-Channel Encoder, user should set the power switch to “OFF”.

## 2.7 SIGNAL CABLE CONNECTION

The signal connections include the connection of input signal cable and the connection of output signal cable. The details are as follows:

### 2.7.1 HDMI INPUT CABLE ILLUSTRATION



## 2.7.2 NETWORK CABLE ILLUSTRATION (CAT5)



## CHAPTER 3

### WEB NMS OPERATION

#### 3.1 LOGIN

The default IP address of this device is 192.168.0.136.

Connect the PC (Personal Computer) and the device with net cable, and use ping command to confirm they are on the same network segment.

I.G. the PC IP address is 192.168.99.252, we then change the device IP to 192.168.99.xxx (xxx can be 0 to 255 except 252 to avoid IP conflict).

Use web browser to connect the device with PC by inputting the Encoder'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.

#### 3.2 OPERATION

## Welcome

When we confirm the login, it displays the WELCOME interface as Figure-2.

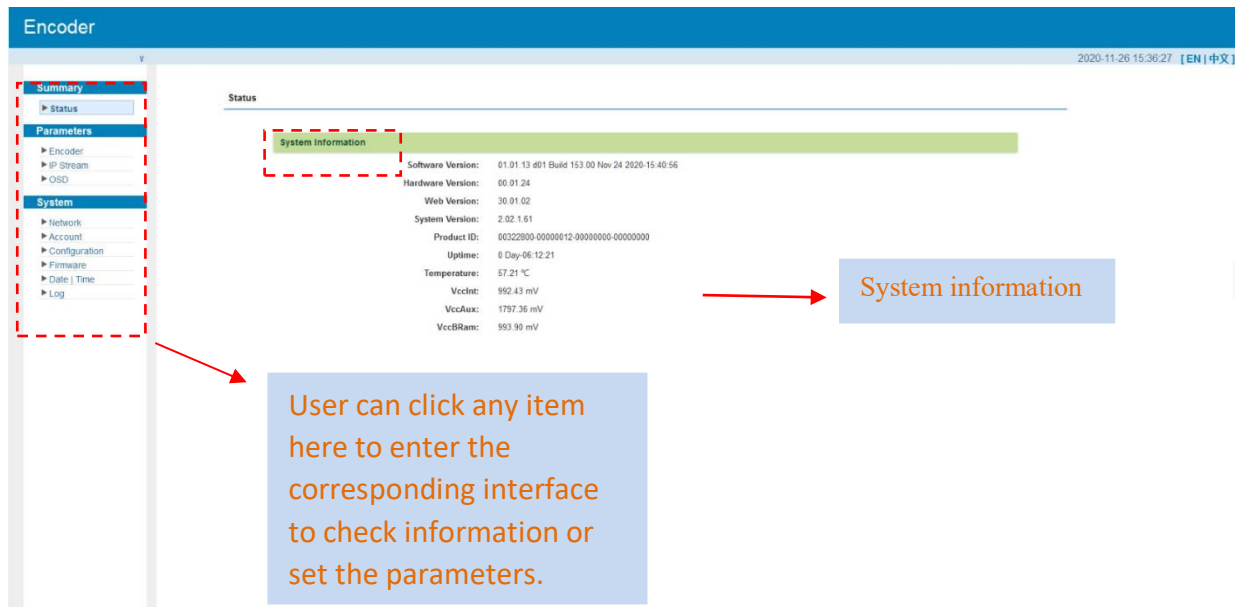


Figure-2

## Parameters →Encoder

### Encode Channel 1-8:

From the menu on upper side of the web page, clicking “Enc CH 1-8”, it will display the each encode channel information of the program from the HDMI input port as Figure-3.

Encoder

se Web Management

Summary

Status

Parameters

Encoder

IP Stream

OSD

System

Network

Account

Configuration

Firmware

Date | Time

Log

Encoder

Enc CH 1

Enc CH 2

Enc CH 3

Enc CH 4

Enc CH 5

Enc CH 6

Enc CH 7

Enc CH 8

Video

Rate Mode: CBR

H.264 Profile: Baseline Profile

Bitrate: 4.00 (1 ~ 20 Mbps)

Gop Size: 25 (25-50)

Audio

Format: MPEG1 Layer2

Audio Gain: 128 (0 ~ 255)

Bitrate: 128 kbps

Audio Delay Mode: Mode 1

Program

Program Output: ☒

Service Provider: TV-Provider

PMT PID: 0x0064

Video PID: 0x0065

Character Encoding: GBK

Service Name: TV-101

Program Number: 101

PCR PID: 0x0067

Audio PID: 0x0068

Share PCR PID: ☐

Status

Encoder Chip Version: 11.07.12

Input Lock: ●

Input Information: 1280x720 59.94P

Bitrate: 4.00 Mbps

Bitrate: 0.000Mbps

6.000Mbps
5.400Mbps
4.800Mbps
4.200Mbps
3.600Mbps
3.000Mbps
2.400Mbps
1.800Mbps
1.200Mbps
0.600Mbps
0.000Mbps

Apply

Video and Audio Settings for program: User can edit any item listed as needed.

Figure-3

Apply

 Click this button to apply the modified parameters.

## Parameters →IP Stream

TL-9228S supports TS to output in IP (1MPTS and 8 SPTS) format through the DATA port.

When users click “IP Stream”, it will display the interface as Figure-4 where to set IP out parameters. (For Data 1000M GE port)

Encoder

use Web Management

Summary

► Status

► Parameters

► System

IP Stream

#	IP Address	Port	Protocol	Pkt Length	Null PKT Filter	Status	Bit(Act/Max)	
MPTS 1	224.2.2.2	2000	UDP	7	<input type="checkbox"/>	<span style="color: green;">●</span>	37.9/55.9 M	
SPTS 1	224.2.2.2	3000	UDP	7	<input type="checkbox"/>	<span style="color: grey;">●</span>	5.1/20.0 M	
SPTS 2	224.2.2.2	3002	UDP	7	<input type="checkbox"/>	<span style="color: grey;">●</span>	4.5/20.0 M	
SPTS 3	224.2.2.2	3004	UDP	7	<input type="checkbox"/>	<span style="color: grey;">●</span>	5.1/20.0 M	
SPTS 4	224.2.2.2	3006	UDP	7	<input type="checkbox"/>	<span style="color: grey;">●</span>	4.4/20.0 M	
SPTS 5	224.2.2.2	3008	UDP	7	<input type="checkbox"/>	<span style="color: grey;">●</span>	4.3/20.0 M	
SPTS 6	224.2.2.2	3010	UDP	7	<input type="checkbox"/>	<span style="color: grey;">●</span>	4.6/20.0 M	
SPTS 7	224.2.2.2	3012	UDP	7	<input type="checkbox"/>	<span style="color: grey;">●</span>	4.4/20.0 M	
SPTS 8	224.2.2.2	3014	UDP	7	<input type="checkbox"/>	<span style="color: grey;">●</span>	4.4/20.0 M	

Channel 1 Config.

[ close ]

Enable:

☒

IP Address:

224.2.2.2

Port:

2000

(0~65535)

Bitrate(Mbps):

50

(0~300Mbps)

Protocol:

UDP

Pkt Length:

7

Null PKT Filter:

☐

Apply

Close

Click pen icon to edit IP output parameters

Figure-4

## Parameters → OSD

Clicking “OSD”, it will display the interface where to configuration the OSD parameters as Figure-5/6/7.

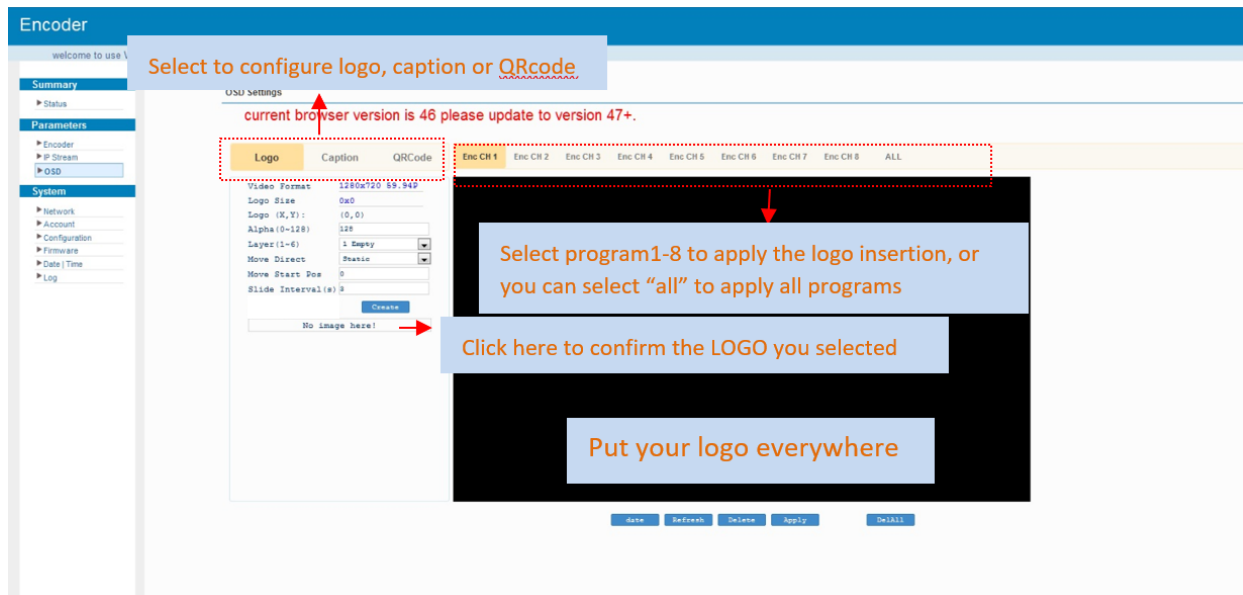


Figure-5

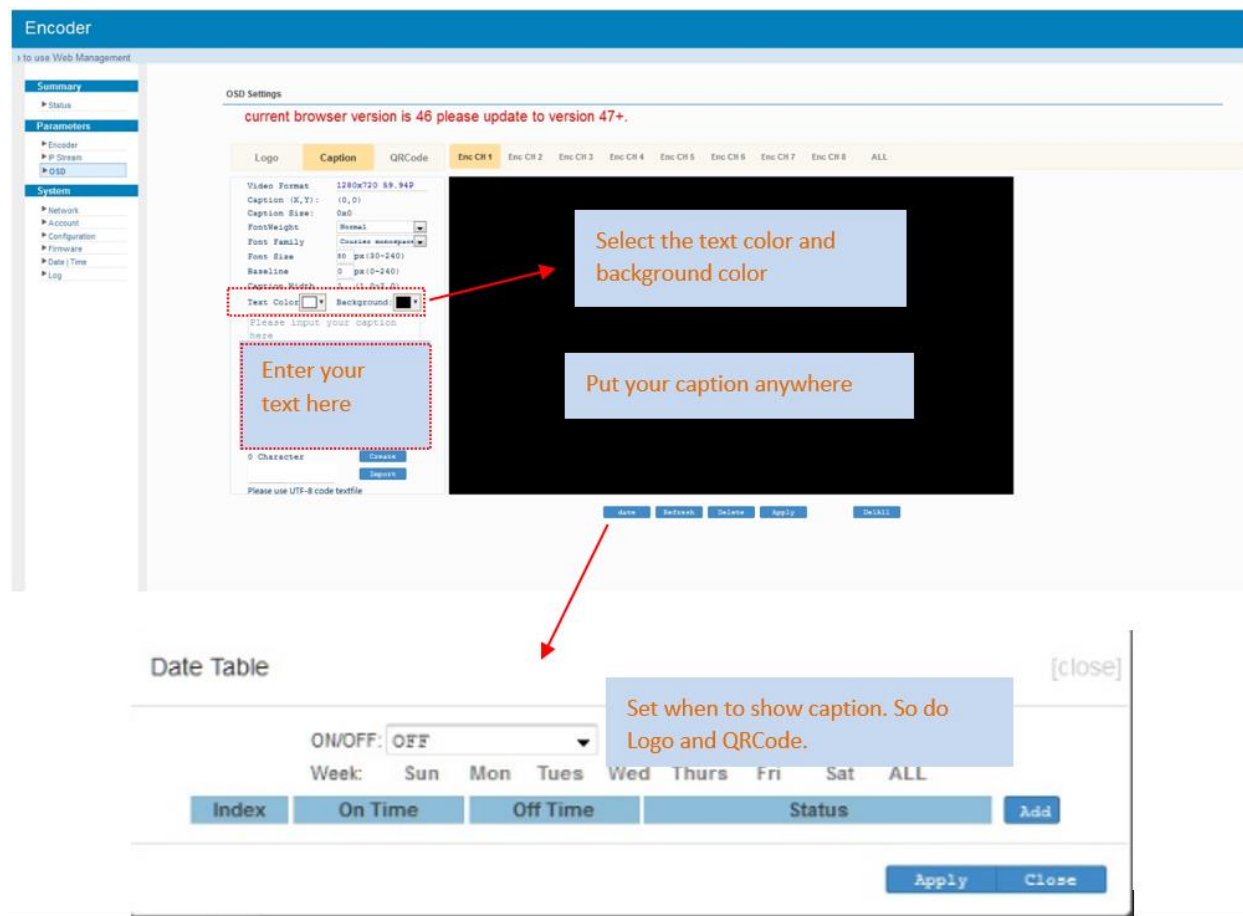


Figure-6



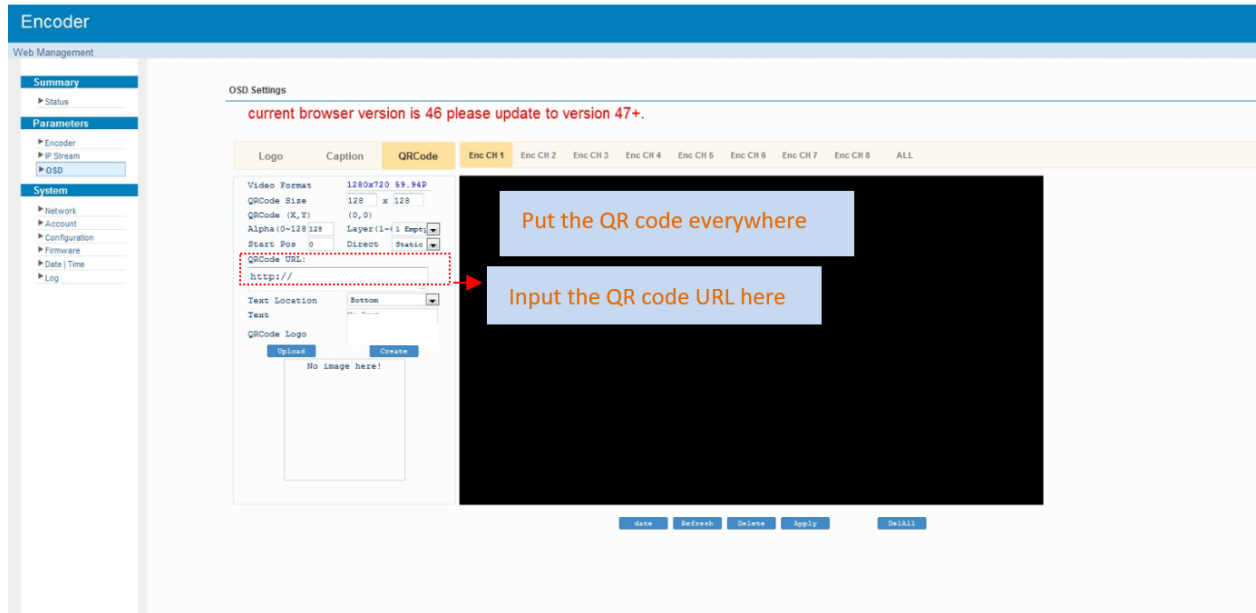


Figure-7

### System → Network:

Clicking “Network”, it will display the interface as Figure-8 where to set NMS and DATA parameters.

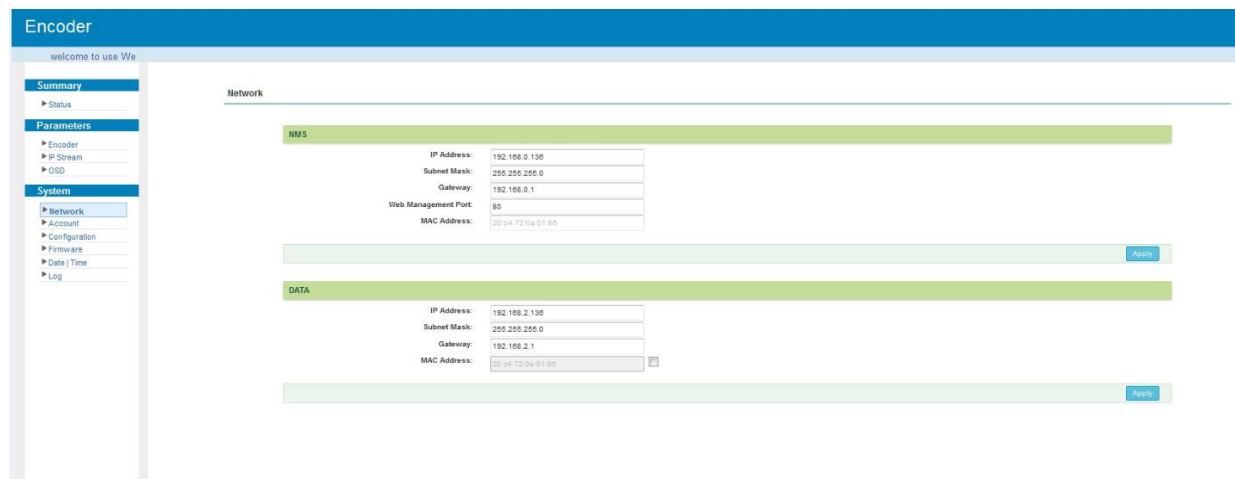


Figure-8

### System → Account:

Clicking “Account”, it will display the screen as Figure-9 where to set the login account and password for the web NMS. Both the current username and password are “admin”.

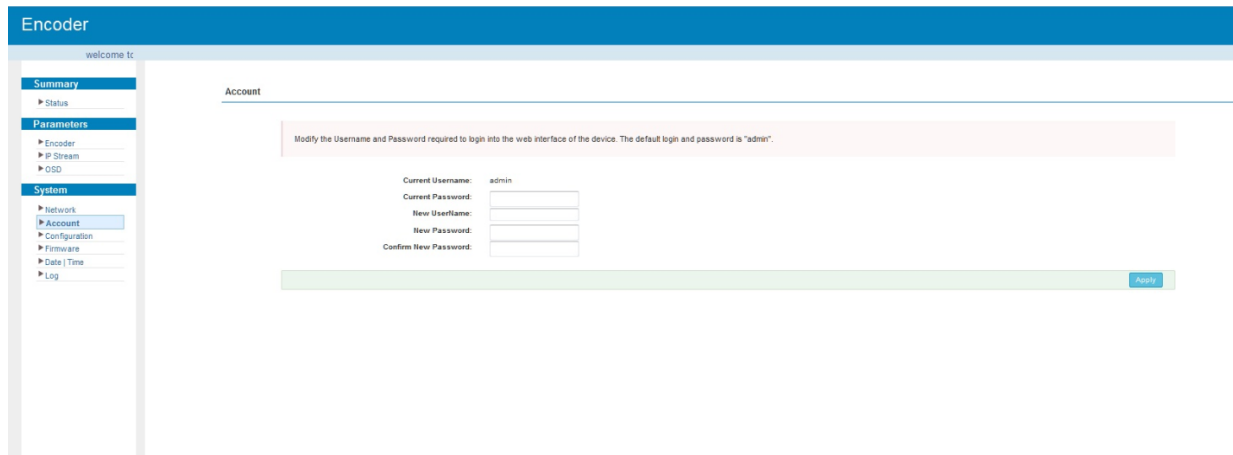


Figure-9

### System → Configuration:

Clicking “Configuration”, it will display the screen as Figure-10 where to save/ restore/factory set/ backup/ load your configurations.

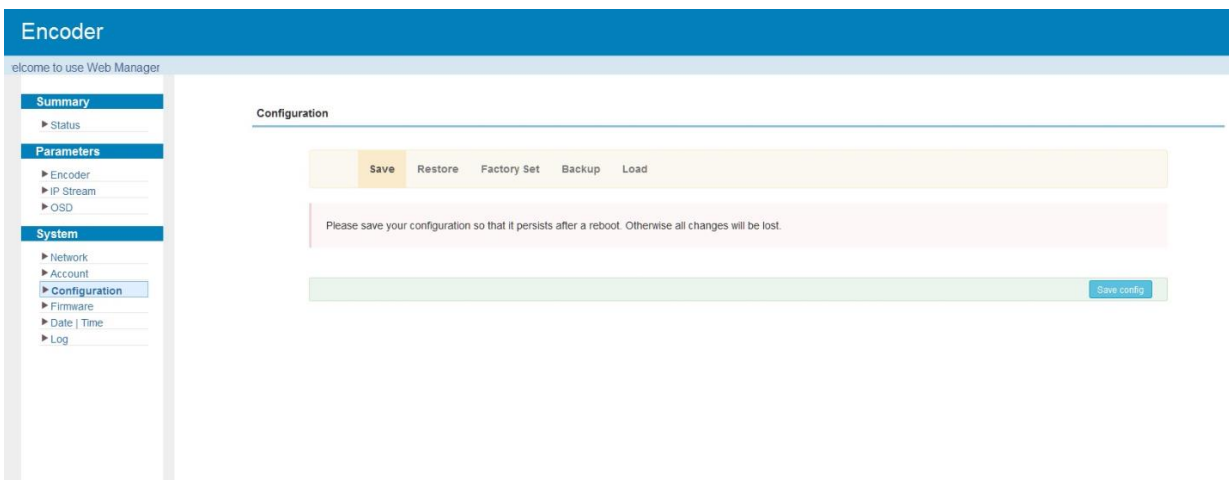


Figure-10

### System → Firmware:

Clicking “Firmware”, it will display the screen as Figure-11 where to update firmware for the encoder.

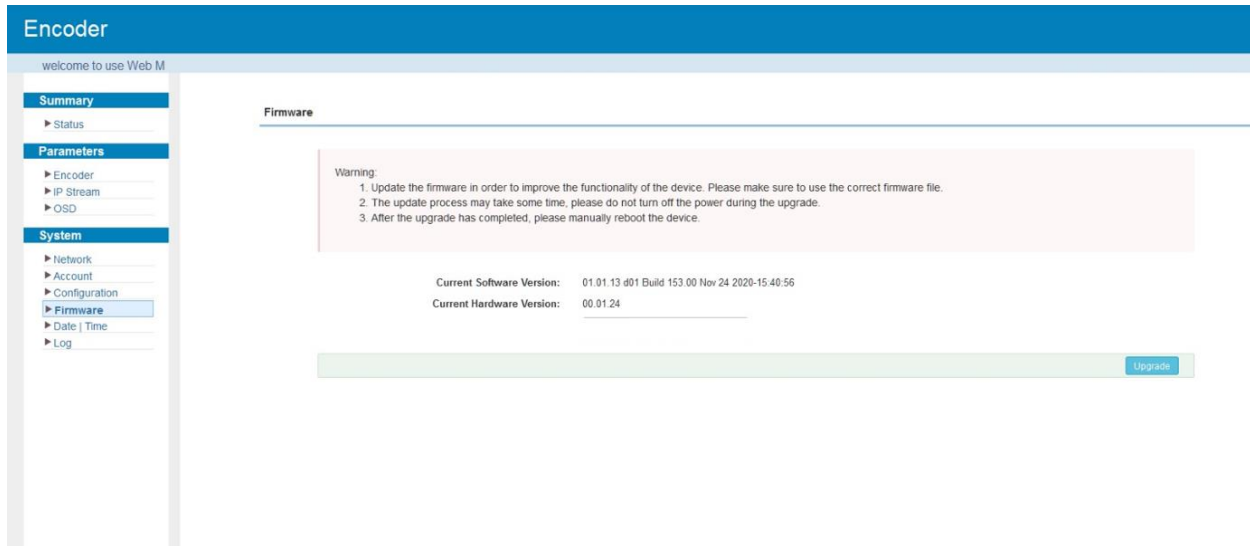


Figure-11

### System → Date/Time:

Clicking “Date/Time”, it will display the screen as Figure-12 where to set date and time for the device.

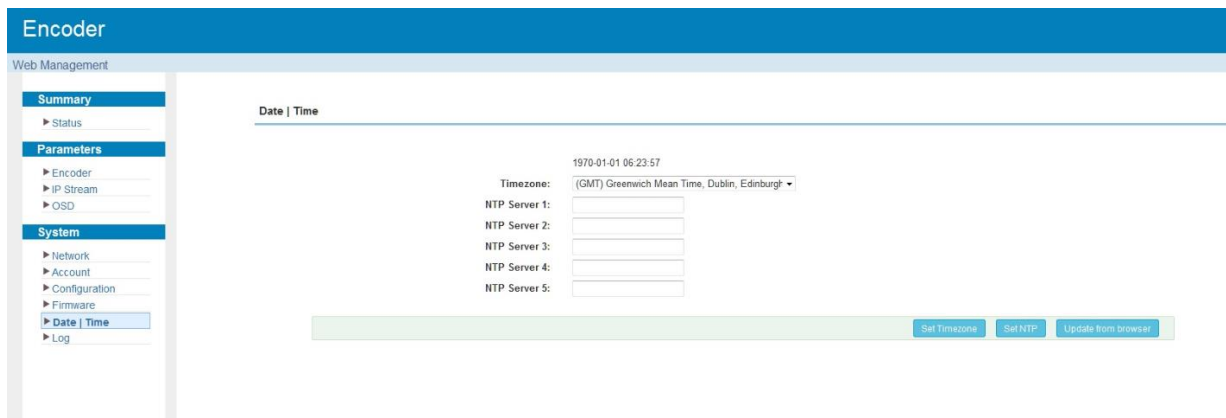


Figure-12

### System → Log:

Clicking “Log”, it will display the log interface as Figure-13 where to check or export the Kernel/System log.

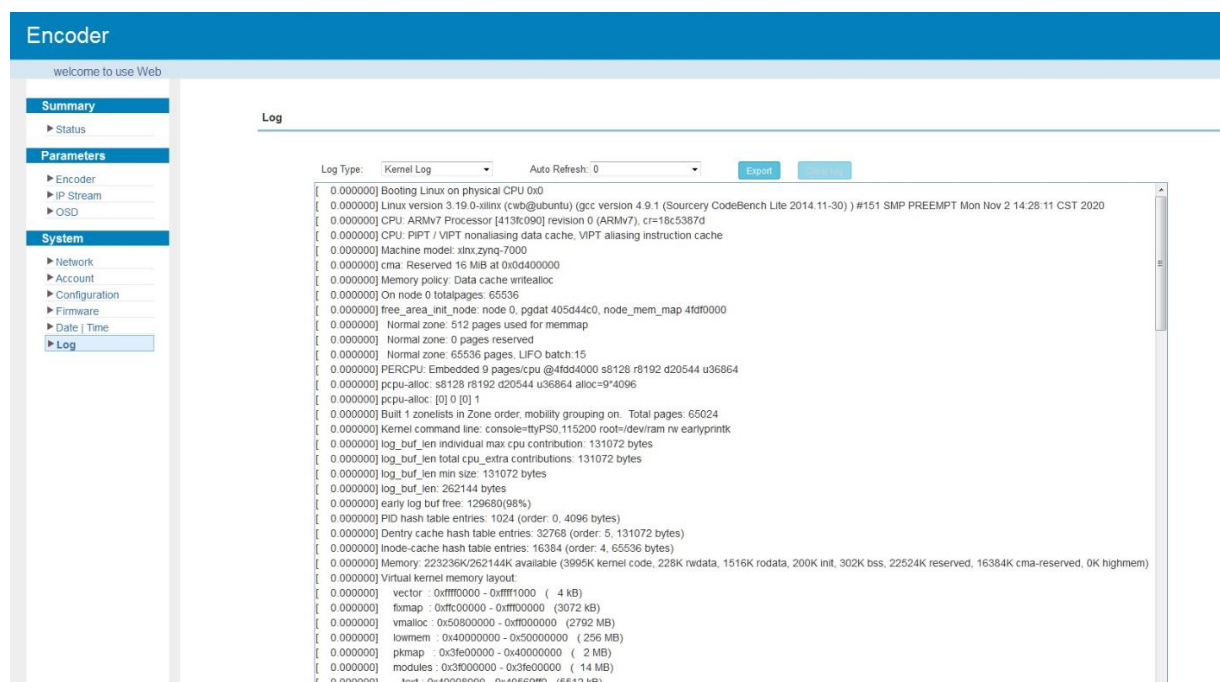


Figure-13

## CHAPTER 4

# TROUBLESHOOTING

All TRANSLITE products have been passed the testing and inspection before shipping out from factory. The testing and inspection scheme already covers all the Optical, Electronic and Mechanical criteria which have been published by TRANSLITE. 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

## CHAPTER 5

### PACKING LIST

TL-9228S Multi-Channel Encoder	1PC
HDMI Cables	8/16/24 pcs as per number of HDMI interfaces
Power Cord	1PC

	TL-9228S-8	TL-9228S-16	TL-9228S-24
8 HDMI Inputs with 8 SPTS and 1 MPTS out (1 encoder board+1NMS port+1 DATA Port)	✓		
16 HDMI Inputs with 16 SPTS or 2 MPTS out (2 encoder boards+2 NMS ports+2 DATA Ports)		✓	
24 HDMI Inputs with 24 SPTS or 3 MPTS out (3 encoder boards+3 NMS ports+ 3 DATA Ports)			✓

### **For Sales**

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