HP824LU

24 in 1 H.265/H.264 HD Encoder

About This Manual

Intended Audience

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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Chapter 1 Introduction

1.1 Product Overview

HP824LU Multi-Channel encoder is a professional HD audio & video encoding and multiplexing device. It has 8/12/16/20/24 HDMI video input interfaces, and supports HEVC/H.265, MPEG-4 AVC/H.264 video encoding, with H.265's high compression ratio, it helps to save bandwidth up to 75%. In conclusion, its high integrated and cost effective design makes the device widely used in varieties of digital distribution systems such as cable TV digital head-end, digital TV broadcasting etc.

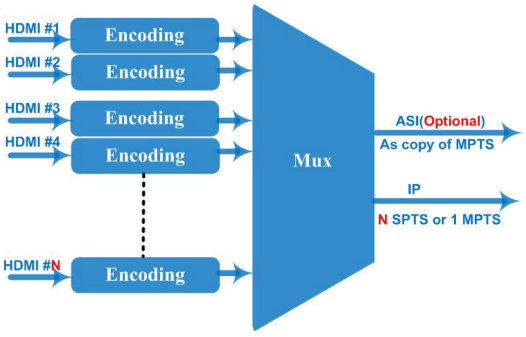
1.2 Key Features

- **8/12/16 /20/24× HDMI input with 8/12/16 /20/24 SPTS and 1 MPTS output through Data 1 and Data 2**
- **HEVC/H.265, MPEG4 AVC/H.264 video encoding format**
- **Support B frame GOP, high video compression ratio and stable bit-rate**
- **MPEG-1 Layer 2, LC-AAC, HE-AAC, HE-AAC V2, AC3 Pass-through audio encoding format.**
- **1 ASI output (optional) as copy of MPTS**
- **IP output over UDP and RTP/RTSP protocol**
- **Support QR code, LOGO, closed caption insertion.**
- **Support "Null PKT Filter" function**
- **Support PID Remapping/ PCR accurate adjusting**
- **Control via web management, and easy updates via web**

1.3 Specifications

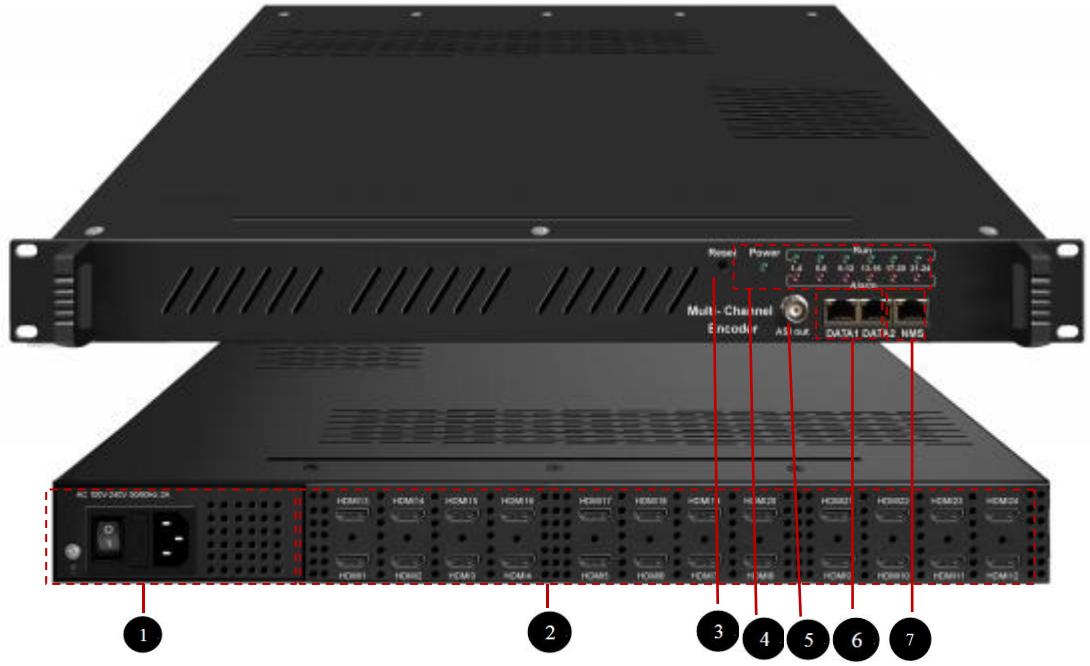
Input	8/12/16/20/24 HDMI inputs		
Video	Resolution	input	1920×1080_60P,1920×1080_50P, 1920×1080_59.94P,1920×1080_60i, 1920×1080_50i,1920×1080_59.94i, 1280×720_60P,1280×720_59.94P, 1280×720_50P
		Output	1920×1080_60P,1920×1080_50P, 1920×1080_30P,1920×1080_25P, 1280×720_60P，1280×720_50P
	Encoding		MPEG-4 AVC/H.264, HEVC/H.265
	Bit-rate		1~15Mbps for each channel
	Rate Control		CBR/VBR
	GOP Structure		IP, IBBP, IBBBP
Audio	Encoding		MPEG-1 Layer 2, LC-AAC, HE-AAC, HE-AAC V2, AC3 Pass-Through
	Sampling rate		48KHz
	Bit-rate		48Kbps~384Kbps (MPEG-1 Layer 2 & LC-AAC) 24 Kbps~128 Kbps (HE-AAC) 18 Kbps~56 Kbps (HE-AAC V2)
Multiplexing	Maximum PID Remapping		180 output PIDs per channel
	Function		PID remapping (automatically or manually)
			Accurate PCR adjusting
Stream output	IP output thru Data1 (GE) and Data2 (FE) over UDP and RTP/RTSP protocol 8/12/16/20/24 SPTS and 1MPTS output (unicast/multicast) ASI output as copy of MPTS (optional)		
System function	Network management(WEB)		
	Chinese and English language		
	Ethernet software upgrade		
Miscellaneous	Dimension(W×L×H)		482mm×410mm×44mm
	Environment		0~45℃(work)；-20~80℃（Storage）
	Power requirements		AC 110V± 10%, 50/60Hz, AC 220 ± 10%, 50/60Hz

1.4 Principle Chart



1.5 Appearance and Description

Front and Rear Panel Illustration



1	Grounding Pole/ Power Switch and socket
2	24 HDMI input interfaces
3	Reset Key
4	Indicators
5	ASI output port (Optional)
6	DATA Port (One GE port and one FE for IP stream output)
7	NMS ((Network Management Port)

Chapter 2 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.

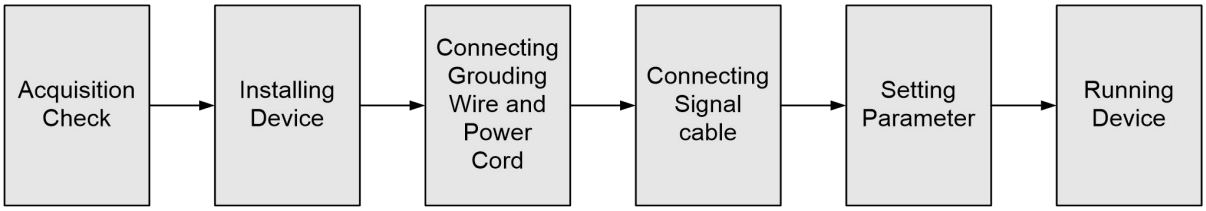
2.1 General Precautions

- ✓ 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.

2.2 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

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: $1X10^{7}$~$1X10^{10}\Omega$, Grounding current limiting resistance: 1MΩ (Floor bearing should be greater than 450Kg/㎡)
Environment Temperature	5~40℃(sustainable), 0~45℃(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 110V±10%, 50/60Hz or AC 220V±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.

- ✓ 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 25 mm^2.

Chapter 3 WEB NMS Operation

User can only control and set the configuration in computer by connecting the device to web NMS Port. User should ensure that the computer's IP address is different from the HP824LU's IP address; otherwise, it would cause IP conflict.

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 1 to 254 except 252 to avoid IP conflict).

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

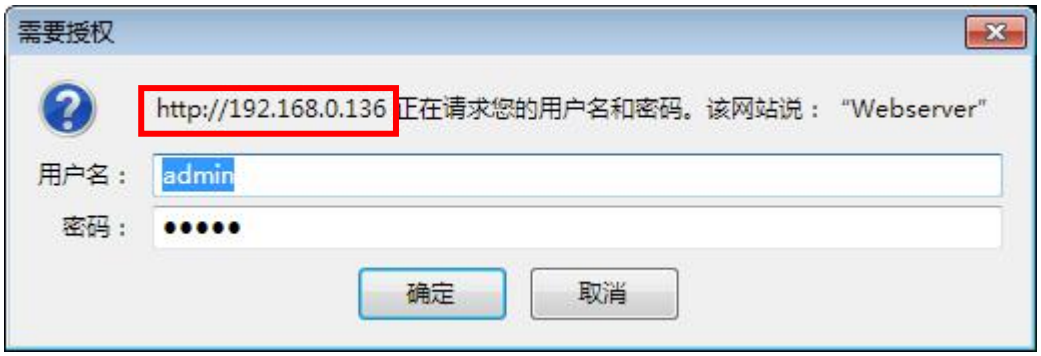


Figure-1

3.2 Operation

Summary→Status

When we login into encoder module, it displays the status interface as Figure-2.

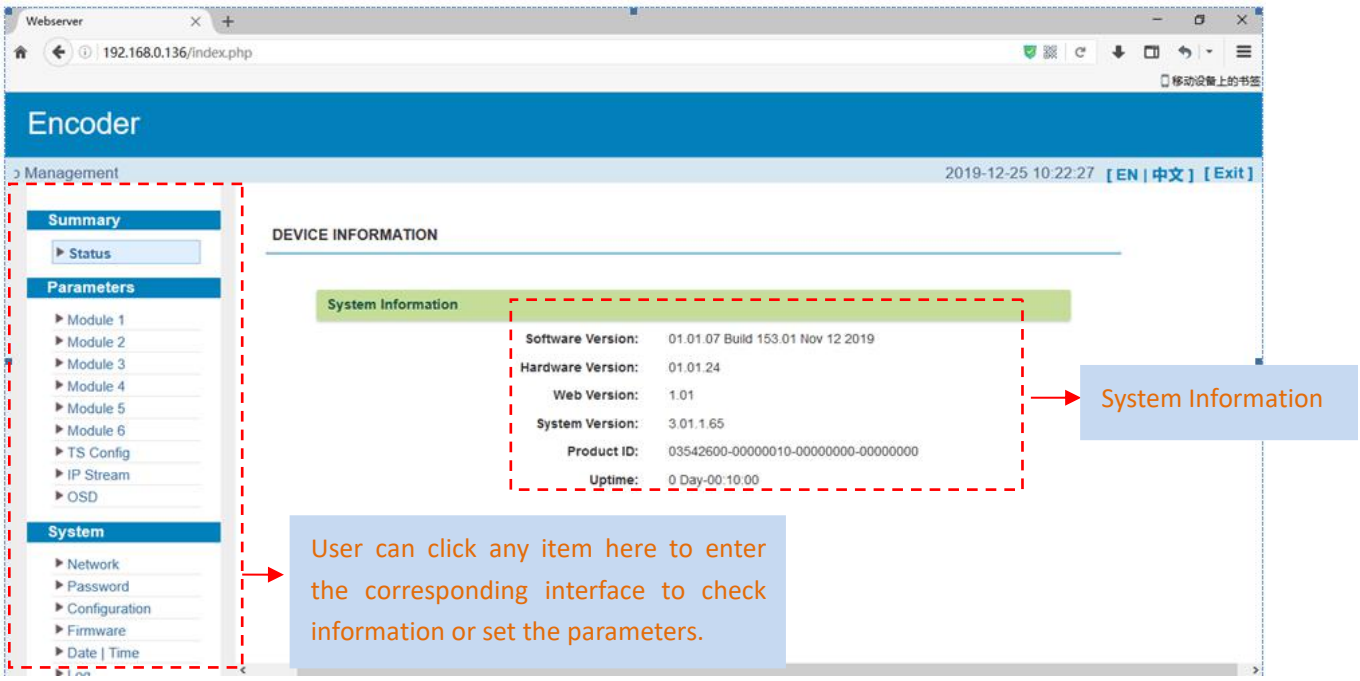


Figure-2

Parameters → Module 1-6

HP824LU supports up to 6 modules with 24 HDMI input. From the menu on left side of the webpage, clicking "Module1-6", it displays the information of each encoding channel as Figure-3. Figure-4 and Figure-5.

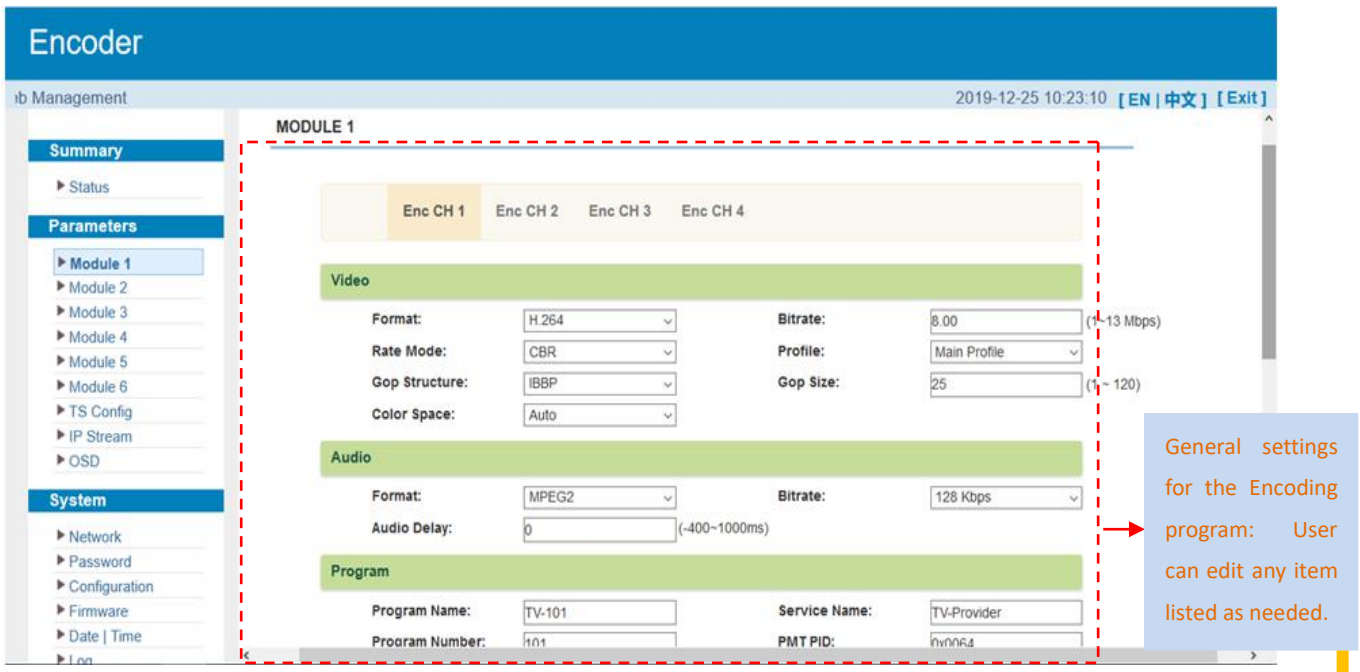


Figure-3

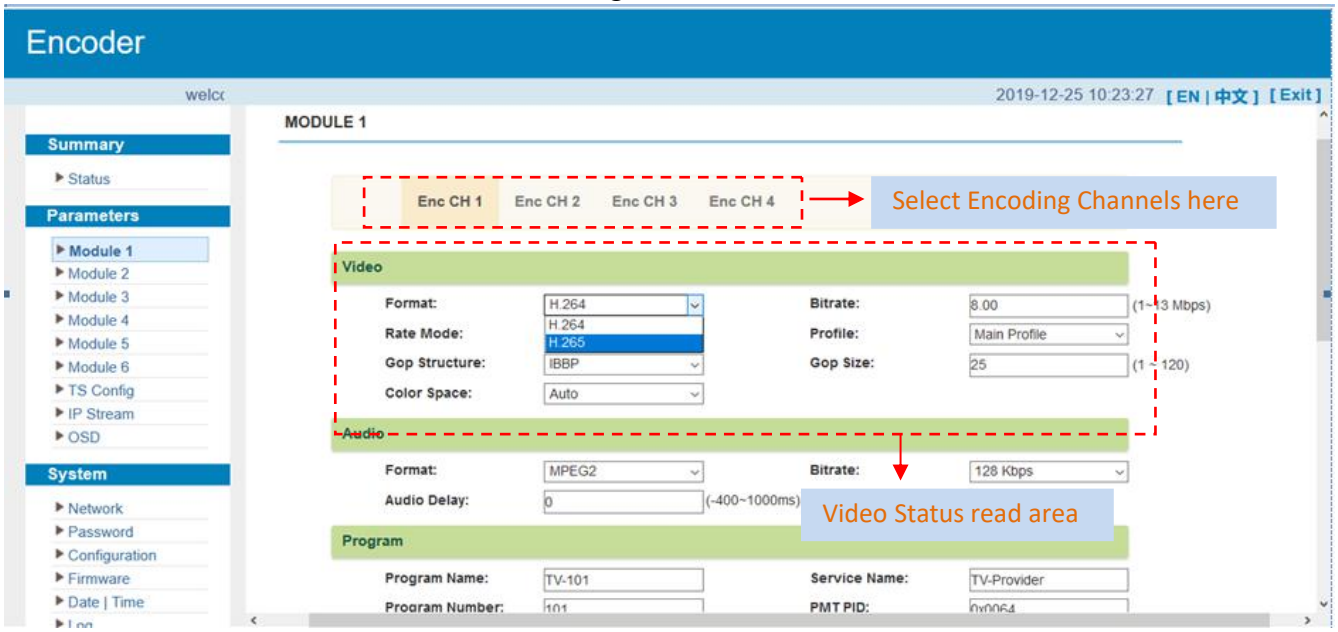


Figure-4

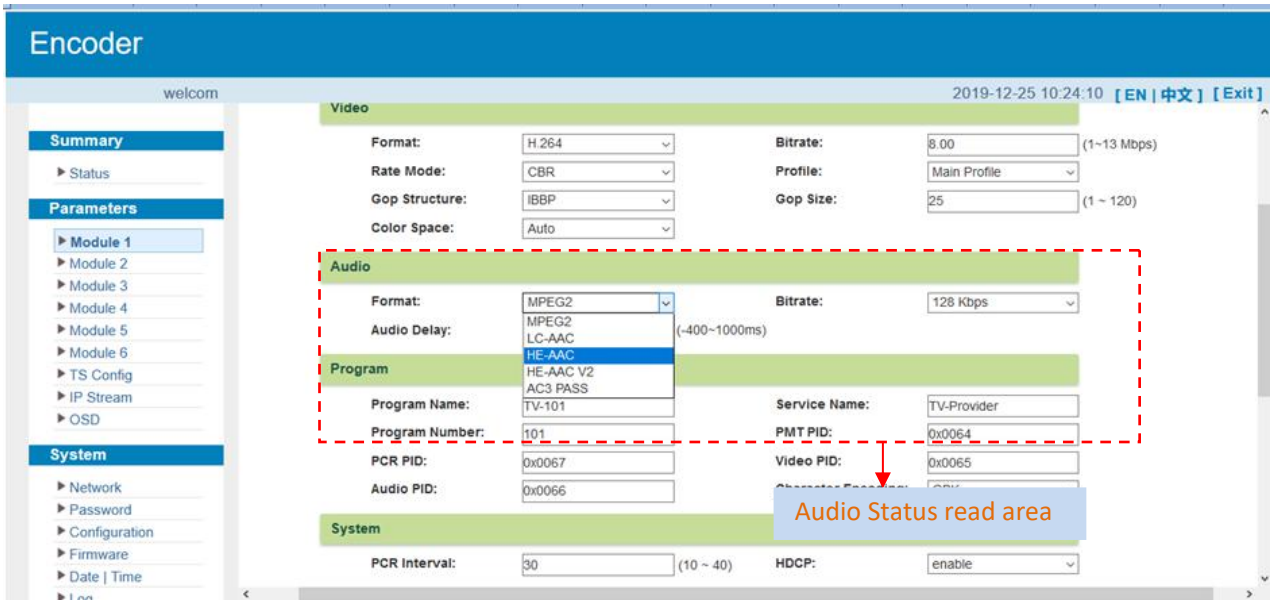


Figure-5

Parameters → TS Config:

From the menu on left side of the webpage, clicking “TS Config”, it displays the interface where users can configure the TS output parameters.

- **TS Config→Stream select:**

From the menu on up side of the webpage, clicking “Stream select”, it displays the interface where users can select program(s) to multiplex out and modify program info. (Figure-6)

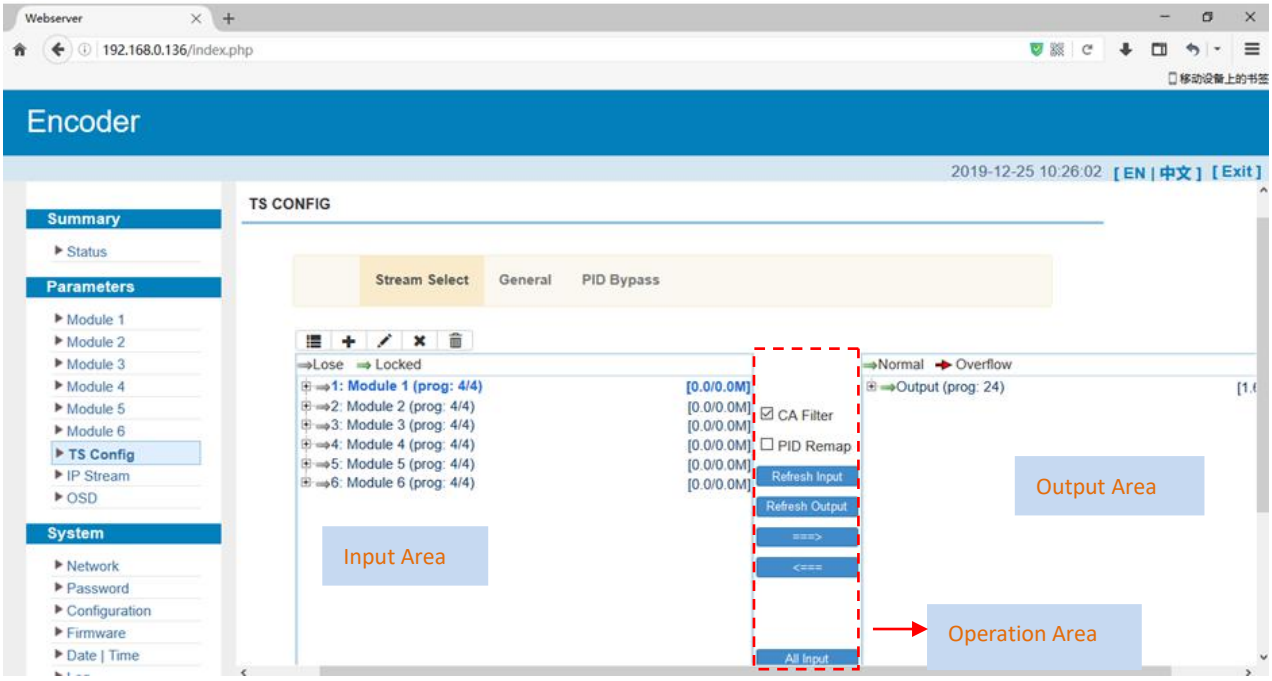


Figure-6

Configure ‘Input Area’ and ‘Output Area’ with buttons in ‘Operation Area’. Instructions are as below:

Lose Locked : To check input IP lock or not, green means current IP locked

Normal Overflow : To check current TS overflow or not, red color means current TS overflow, need reduce program

PID Remap : To enable/disable the PID remapping

Refresh Input To refresh the input program information

Refresh Output To refresh the output program information

===> Select one input program first and click this button to transfer the selected program to the right box to output.

<=== Similarly, user can cancel the multiplexed programs from the right box.

All Input To select all the input programs

All Output To select all the output programs

Parse program To parse programs time out: 60 seconds time limitation of parsing input programs

➢ **Program Modification:**

The multiplexed program information can be modified by clicking the program in the 'output' area. For example, when clicking 2: TV-102 <=CH1_Module 1 [102] , it triggers a dialog box (Figure 7) where users can input new information.

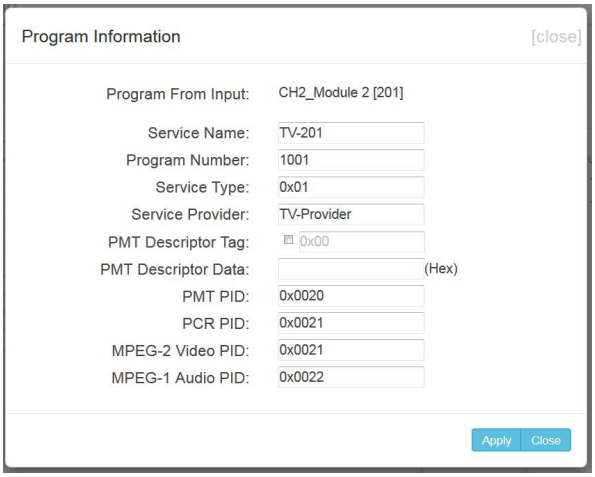


Figure-7

➢ **TS Config→General:**

From the TS Config menu on up side of the webpage, clicking "General", it displays the interface where users can set TS stream configuration. (Figure-8)

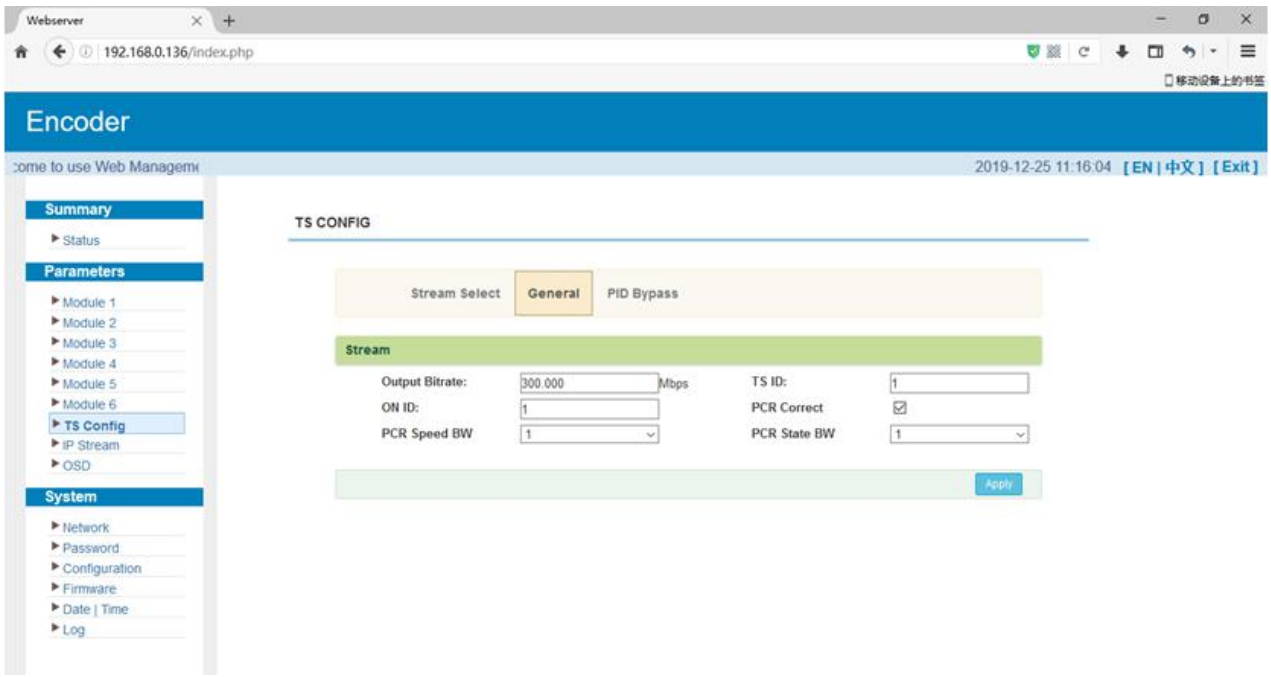


Figure-8

➢ **TS Config→PID Bypass:**

From the TS Config menu on up side of the webpage, clicking "PID Bypass", it displays the interface as Figure-9 where user can add PIDs to be passed, click the "+" symbol, input current IP channel number, then input current IP source Pid and output Pid which customer needed , then click "set".

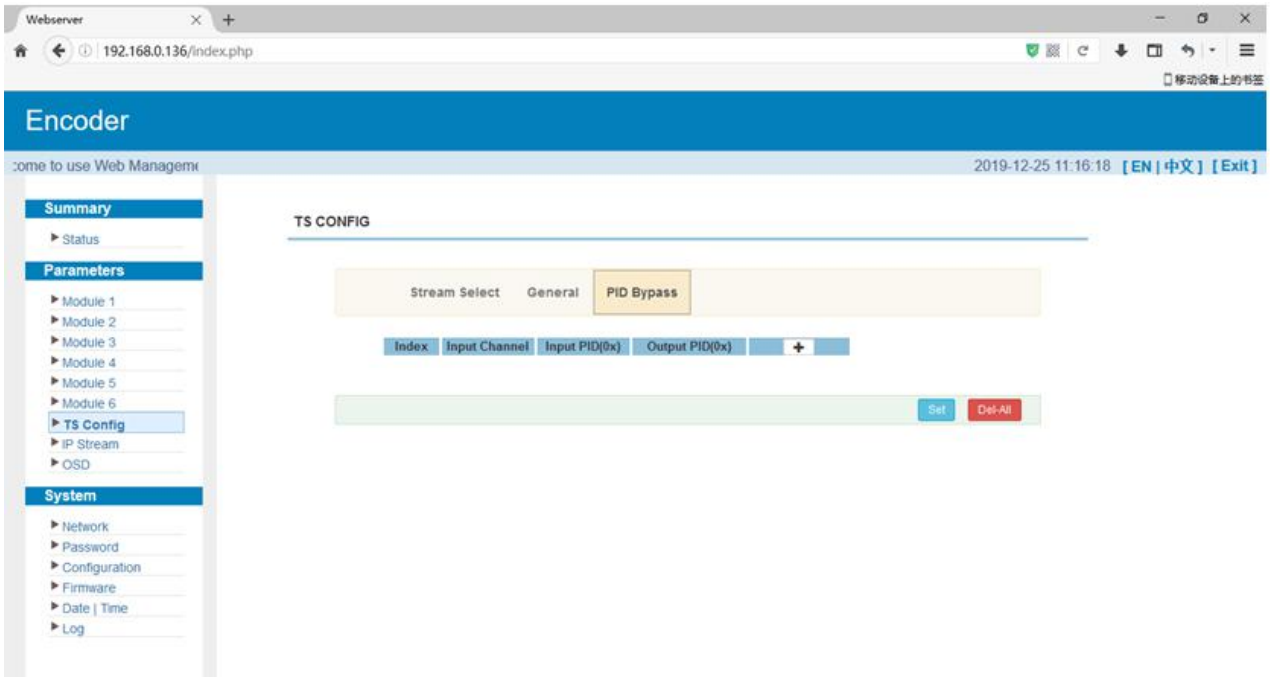


Figure-9

Parameters → IP Stream:

HP824LU supports TS to output in IP (8/12*SPTS and 1*MPTS) or (16/20/24*SPTS or 1*MPTS) format through the DATA1 or DATA2 port. Users need to upgrade process to select output with MPTS or SPTS when 16/20/24 HDMI input.

Clicking "IP Stream", it displays the interface where to set IP out parameters (Figure-10).

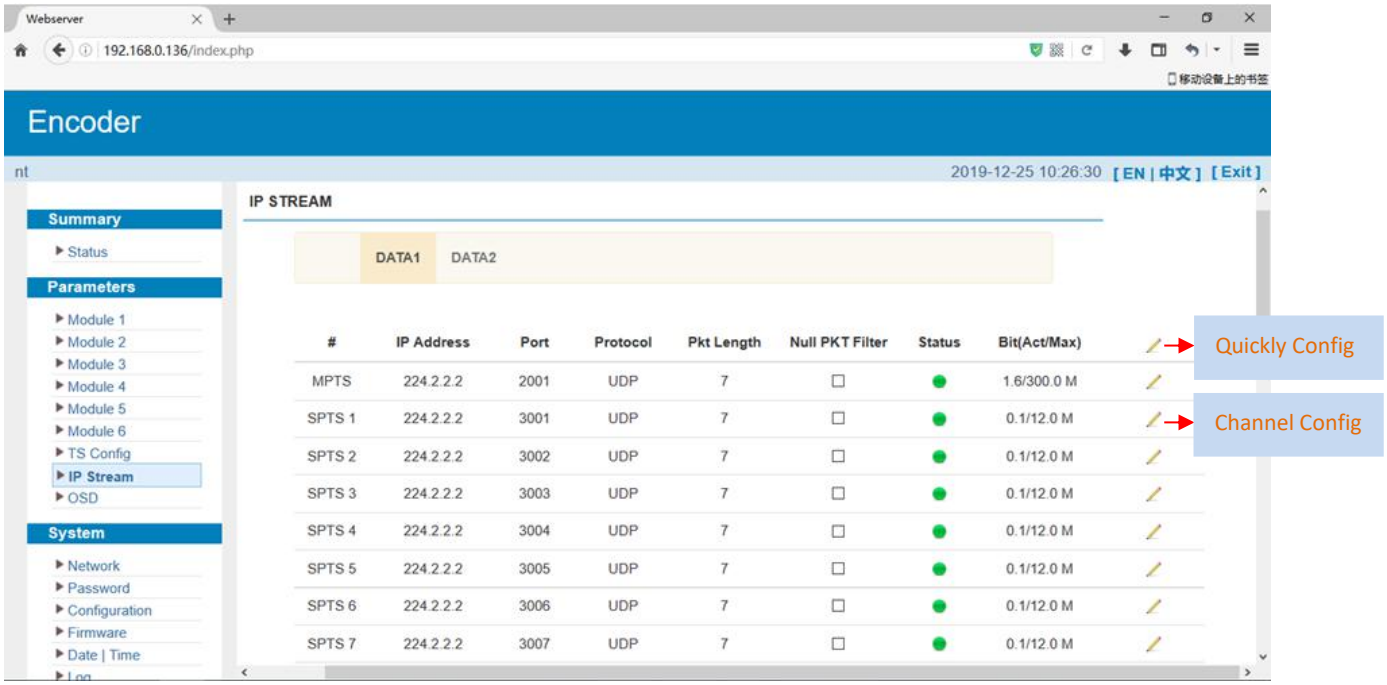


Figure-10

When users click “quickly config” button, it triggers a dialog box (Figure -11) where users can set all channels configration.

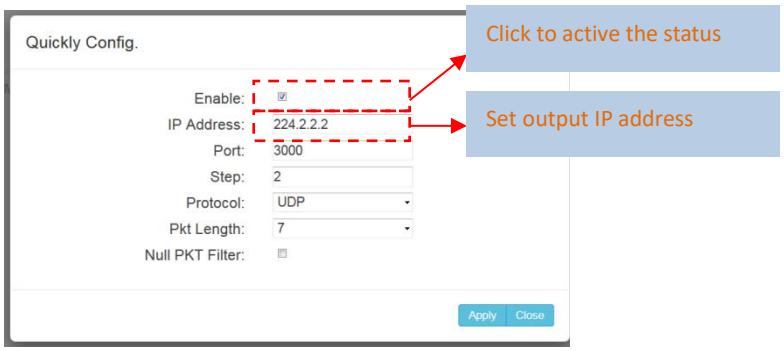


Figure-11

When users click “Channel config” button, it triggers a dialog box (Figure -12) where users can set the corresponding channel configration.

Figure-12

Parameters→ OSD:

Clicking "OSD", it displays the interface where to configuration the OSD parameters (Figure-13.14.15)

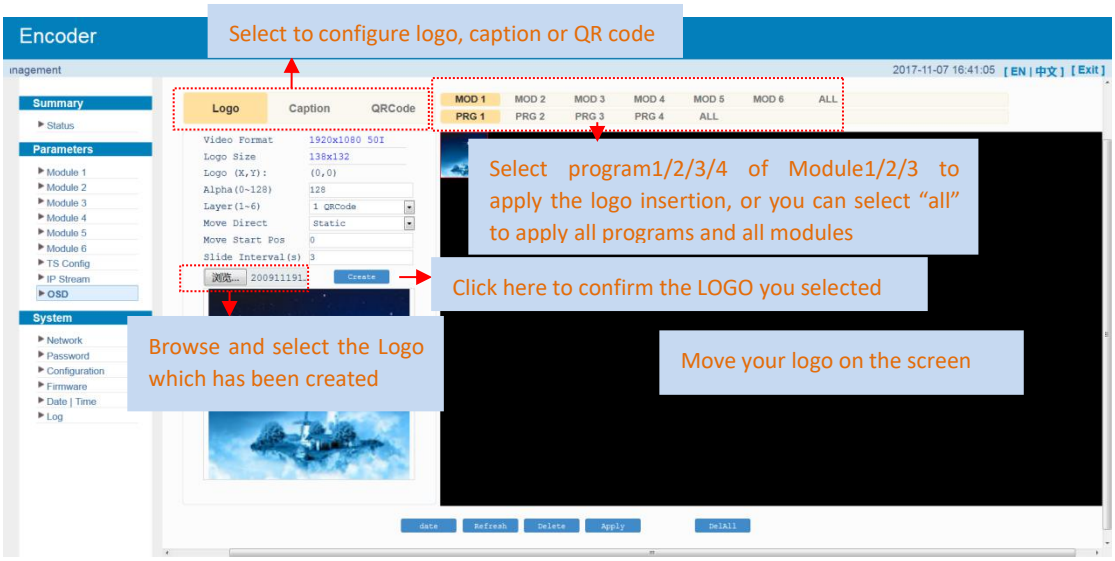


Figure-13

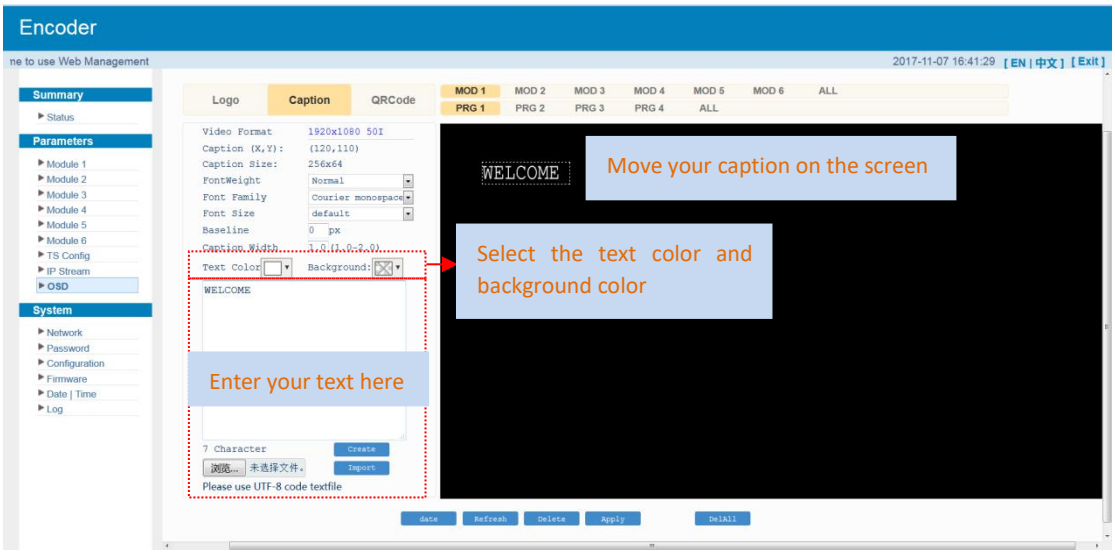


Figure-14

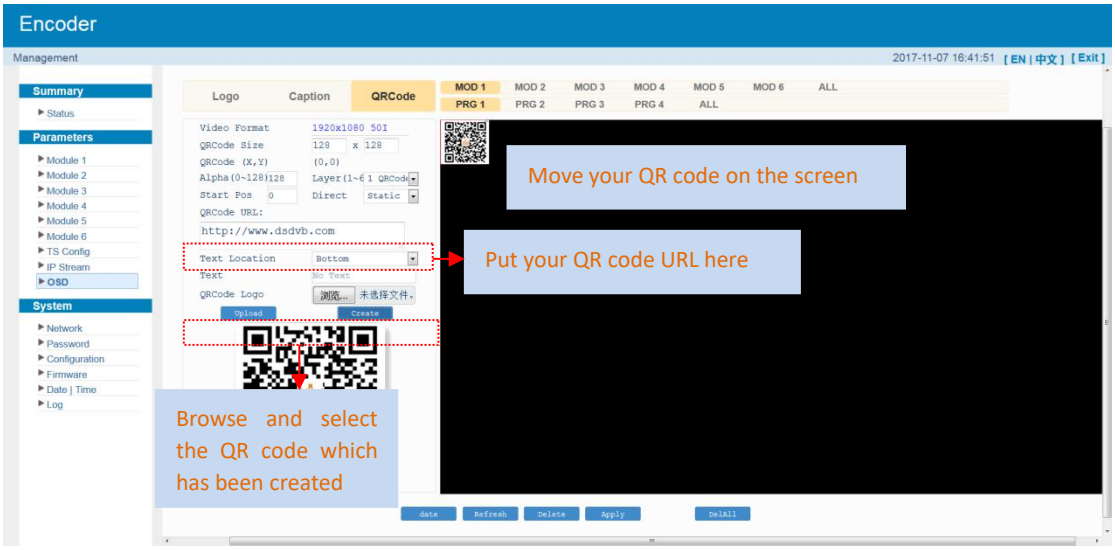


Figure-15

System → Network:

Clicking "Network", it displays the interface as Figure-16 where to set network parameters.

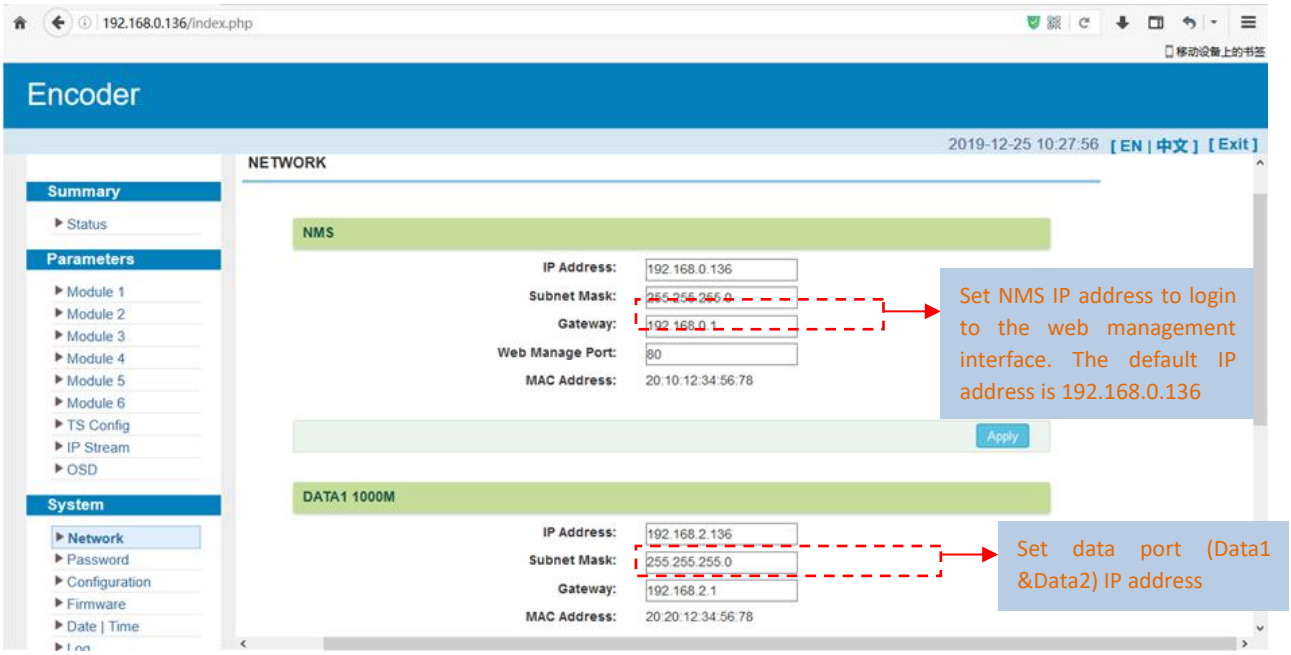


Figure-16

System → password

Clicking "Password", it displays the screen as Figure-17 where to set the login account and password for the web NMS.

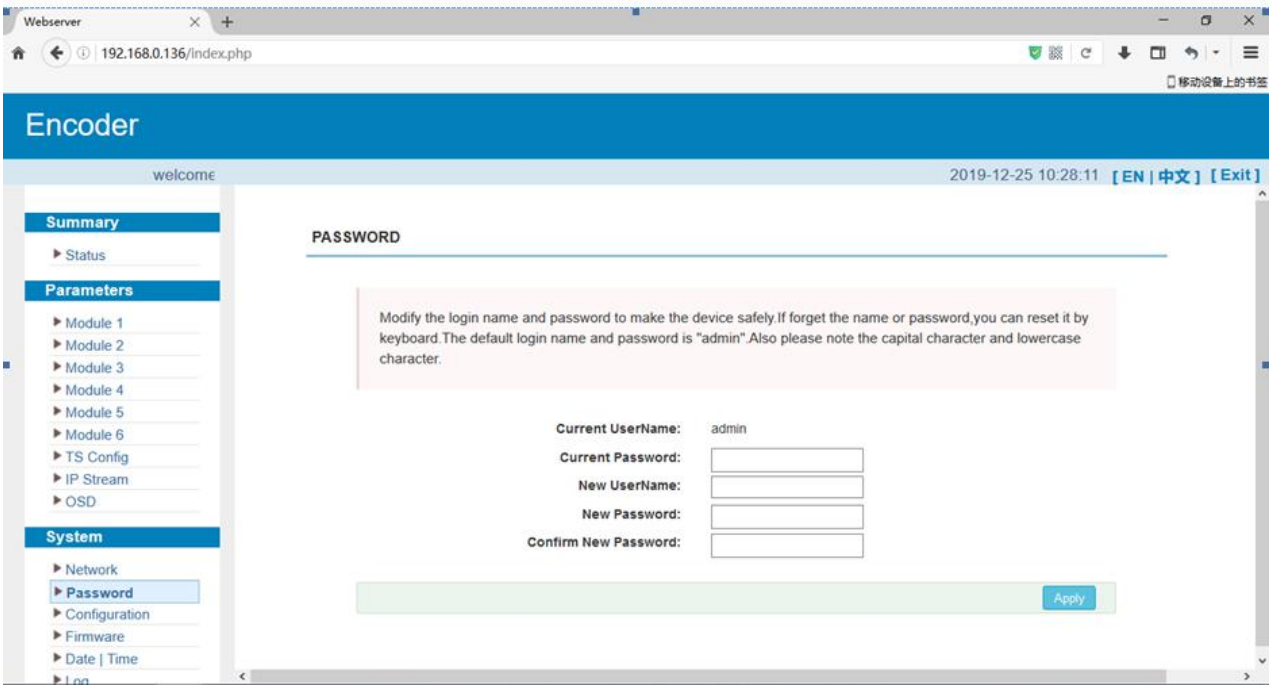


Figure-17

System → Configuration:

Clicking "Configuration", it displays the screen as Figure-18 where to save/ restore/factory setting/ backup/ load your configurations.

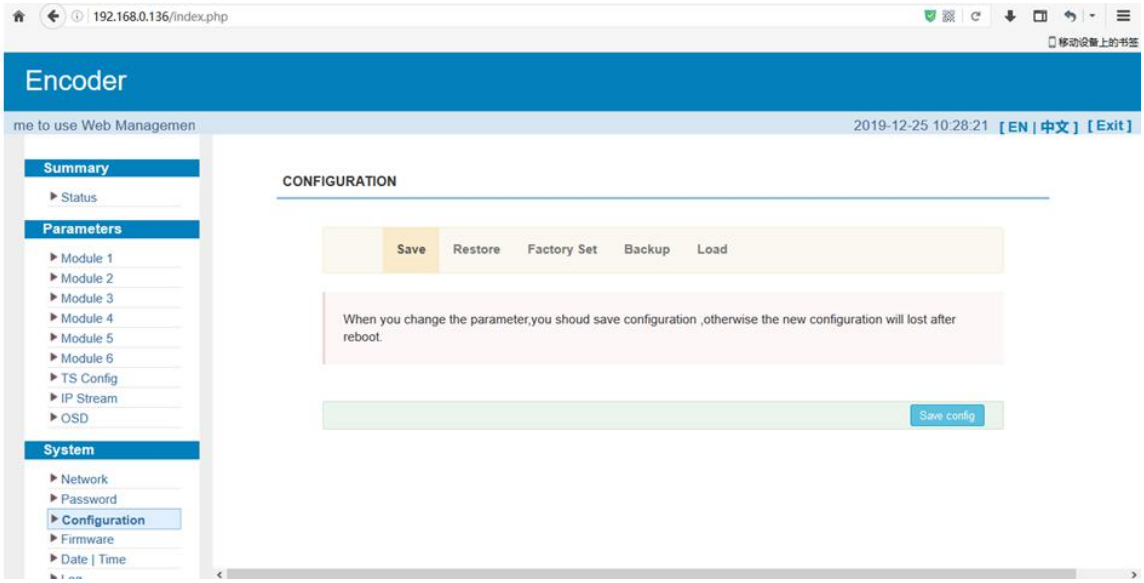


Figure-18

System → Firmware:

Clicking "Firmware", it displays the screen as Figure-19 where to update firmware for the encoder.

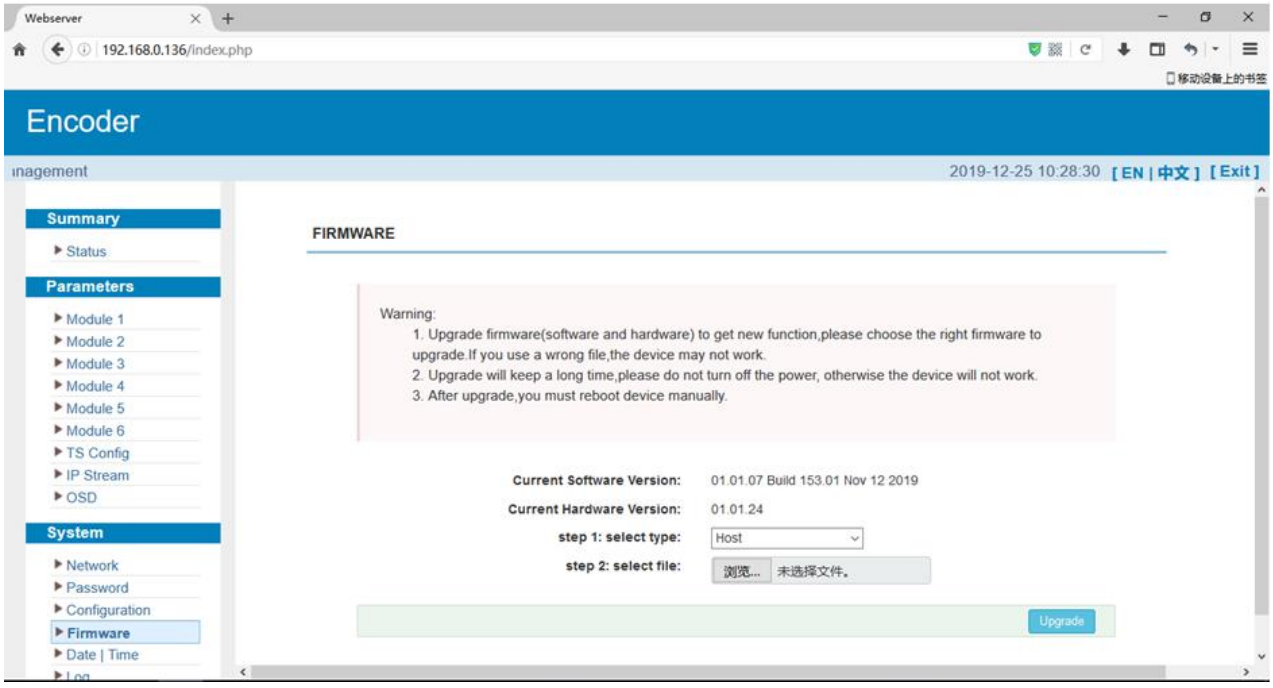


Figure-19

System→ Date/Time:

Clicking "Date/Time", it displays the screen as Figure-20 where to set date and time for the device.

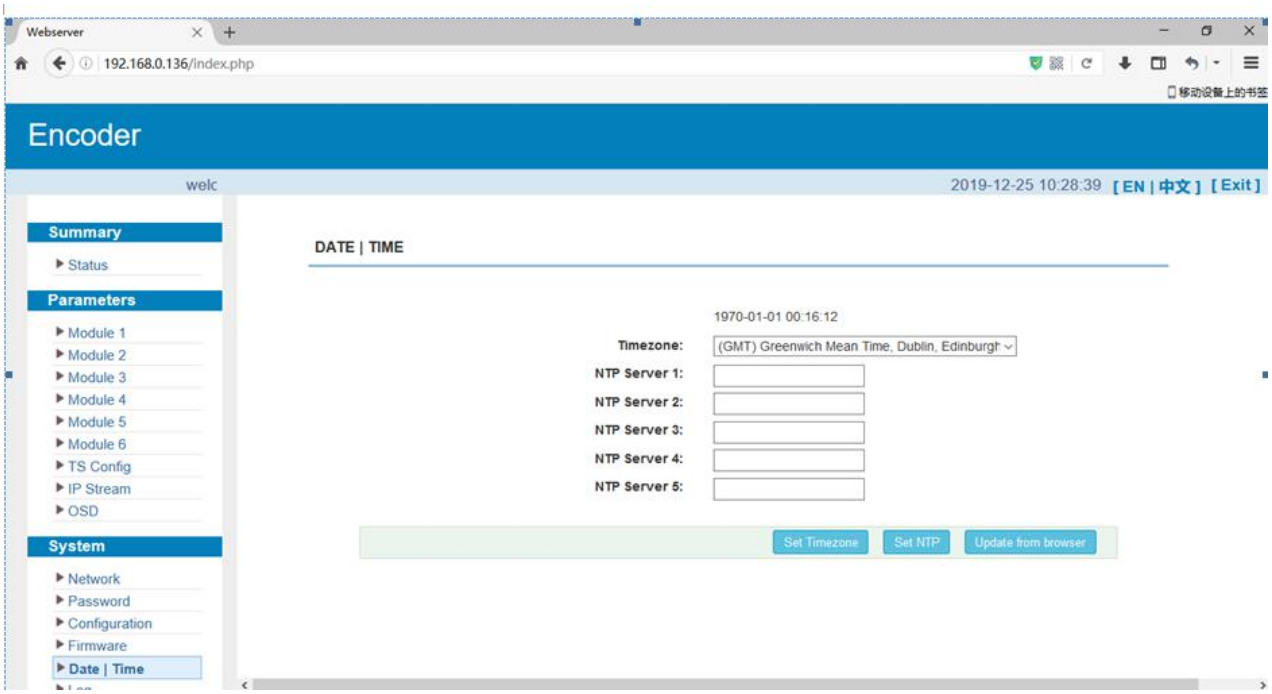


Figure-20

System→ Log:

Clicking “Log”, it displays the log interface as Figure-21 where to check or export the Kernel/System log.

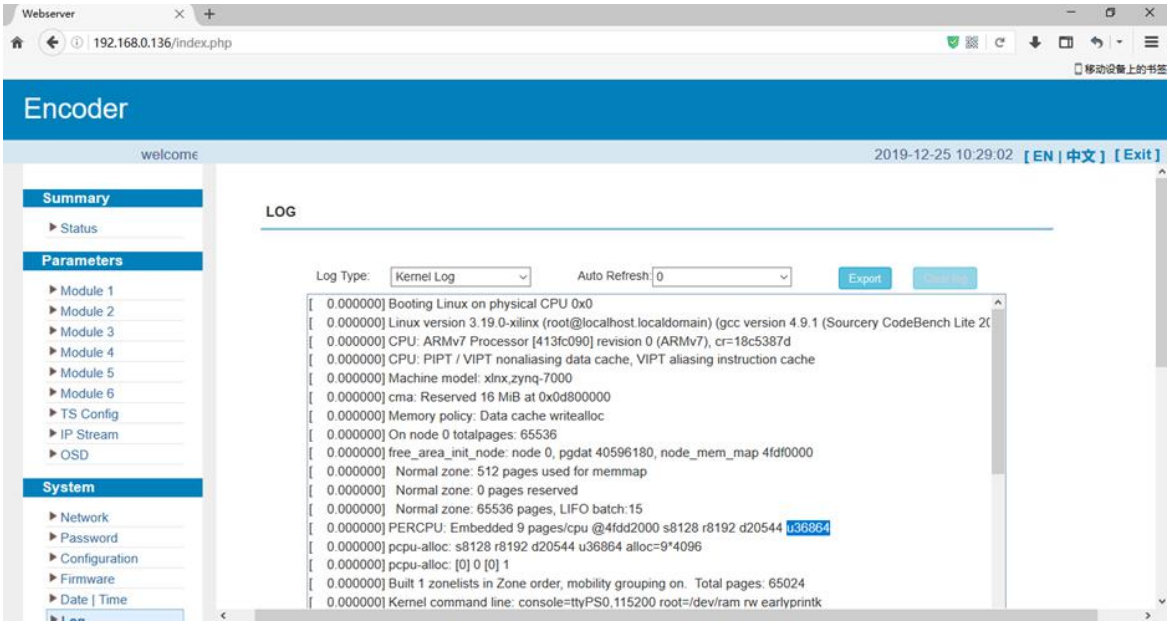


Figure-21

Chapter 4 Trouble shooting

CATCAST's ISO9001 quality assurance system has been approved by CQC organization. For guarantee the products' quality, reliability and stability. All CATCAST 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 CATCAST. 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