CLEAR VIEW

KR423I

Encoder Modulator User Manual

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.

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Directory

Chapter 1 Introduction

1.1 Product Overview

KR423I is a professional high integration device which includes encoding, multiplexing, scrambling and DVB-C/T modulation. It supports 12 HDMI (8 HDMI optional) input, one DVB-C tuner input and 128 IP input with Data1(GE) and Data2(FE) port. It also support DVB-C/T RF out with 4 adjacent carries (50MHz~960MHz), and support Data1(GE) output port to support 4 MPTS out. This full function device makes it ideal for small CATV head end system, and it's a smart choice for hotel TV system, entertainment system in sports bar, hospital, apartment…

1.2 Key Features

- **12 HDMI input, 1DVB-C tuner input**
- **128 IP input over UDP and RTP protocol**
- **MPEG-4 AVC/H.264 Video encoding**
- **MPEG1 Layer II Audio encoding and support audio gain adjustment**
- **4 groups multiplexing, 4 groups scrambling and 4 DVB-C RF carriers out**
- **4 groups multiplexing and 4 DVB-T RF carriers out**
- **Support IP(MPTS only, DATA1 port only) output over UDP and RTP**
- **Support QR code, LOGO, OSD insertion**
- **Support "Null PKT Filter" function**
- **Excellent RF output performance index, MER≥40dB**
- **Support PID remapping**
- **Support accurate PCR adjusting**
- **Support PSI/SI editing and inserting**
- **Control via web management, and easy updates via web**
- **Lowest cost per channel, breakthrough price**

1.3 Specifications

Input	12 HDMI inputs(8 HDMI optional) 1 DVB-C Tuner, F type interface DATA1 and DATA2,RJ45		
Video	Resolution	In-put	1920×1080_60P, 1920×1080_60i, 1920×1080_50P, 1920×1080_50i, 1280×720_60P, 1280×720_50P, 720×576_50i,720×480_60i,
		Out-put	1920×1080_30P, 1920×1080_25P, 1280×720_30P, 1280×720_25P, 720×576_25P,720×480_30P,
	Encoding	MPEG-4 AVC/H.264	
	Bit-rate	1Mbps~13Mbps each channel	
	Rate Control	CBR/VBR	
	GOP Structure	IP…P (P Frame adjustment, without B Frame)	
Audio	Encoding	MPEG-1 Layer 2	
	Sampling rate	48KHz	
	Resolution	24-bit	
	Bit-rate	64kbps,128Kbps,192kbps,224kbps,256kbps,320kbps,384 kbps	
Multiplexing	Maximum PID Remapping	180 input per channel	
	Function	PID remapping (automatically or manually)	
		Accurate PCR adjusting	
		Generate PSI/ SI table automatically	
Scrambling	Maximum simulcrypt CA	4	
	Standard	EN300 429/ITU-T J.83A/B	
	Connection	Local/remote connection	
Modulation	DVB-C	QAM Channel: 4 Standard: EN300 429/ITU-T J.83A/B MER: ≥40db RF frequency: 50~960MHz, 1KHz step RF output level: -26~-1dBm (81~106 dbμV), 0.1dBm Symbol Rate: 5.0Msps~7.0Msps, 1ksps stepping Constellation: 16/32/64/128/256QAM	

	J.83A	J.83B
Constellation	16/32/64/128/256QAM	64/256 QAM
Bandwidth	8M	6M

DVB-T	Standard	EN300744
	FFT mode	2K,

	Bandwidth	6M, 7M, 8M
	Constellation	QPSK, 16QAM, 64QAM
	Guard Interval	1/4, 1/8, 1/16, 1/32
	FEC	1/2, 2/3, 3/4, 5/6, 7/8
	MER	$\geq$42 dB
	RF frequency	50~960MHz, 1KHz step
	RF out	4*RF COFDM DVB-T out (4 carriers combined output)
	RF output level	-28~ -3 dBm (77~97 dbμV), 0.1db step
Stream output	RF output (F type interface)	
	4 IP output over UDP/RTP, 1*1000M Base-T Ethernet interface(Data1 only)	
System function	Network management(WEB)	
	Chinese and English language	
	Ethernet software upgrade	
Miscellaneo us	Dimension(W×L×H)	482mm×410mm×44mm
	Approx weight	8kg
	Environment	0~45℃(work)；-20~80℃（Storage）
	Power requirements	AC 110V± 10%, 50/60Hz, AC 220 ±10%,50/60Hz
	Power consumption	70W

1.4 Principle Chart
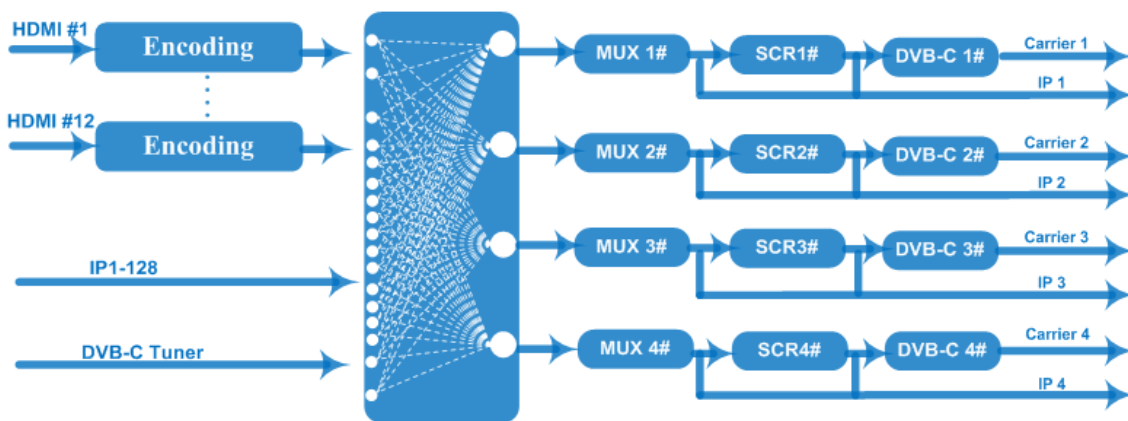
DVB-C RF out
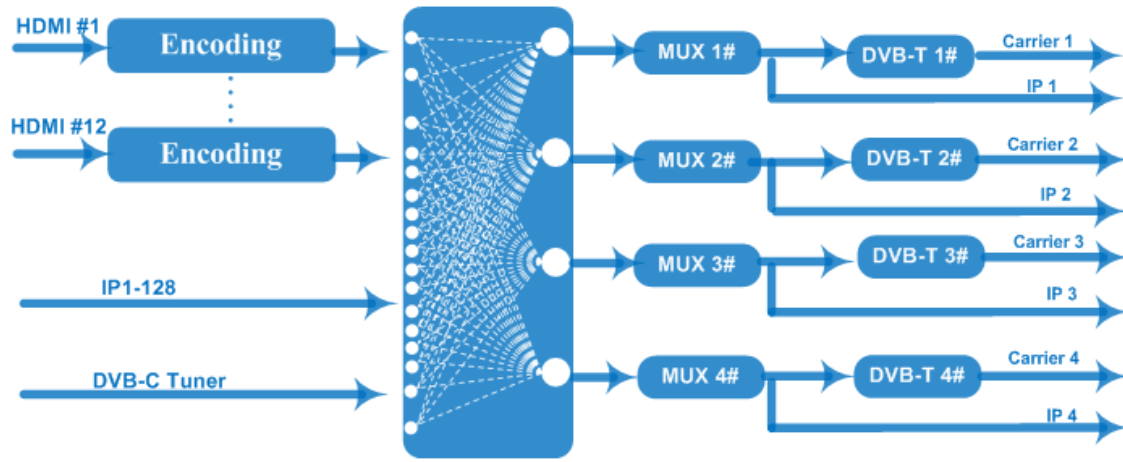
DVB-T RF out

1.5 Appearance and Description

Front and Rear Panel Illustration
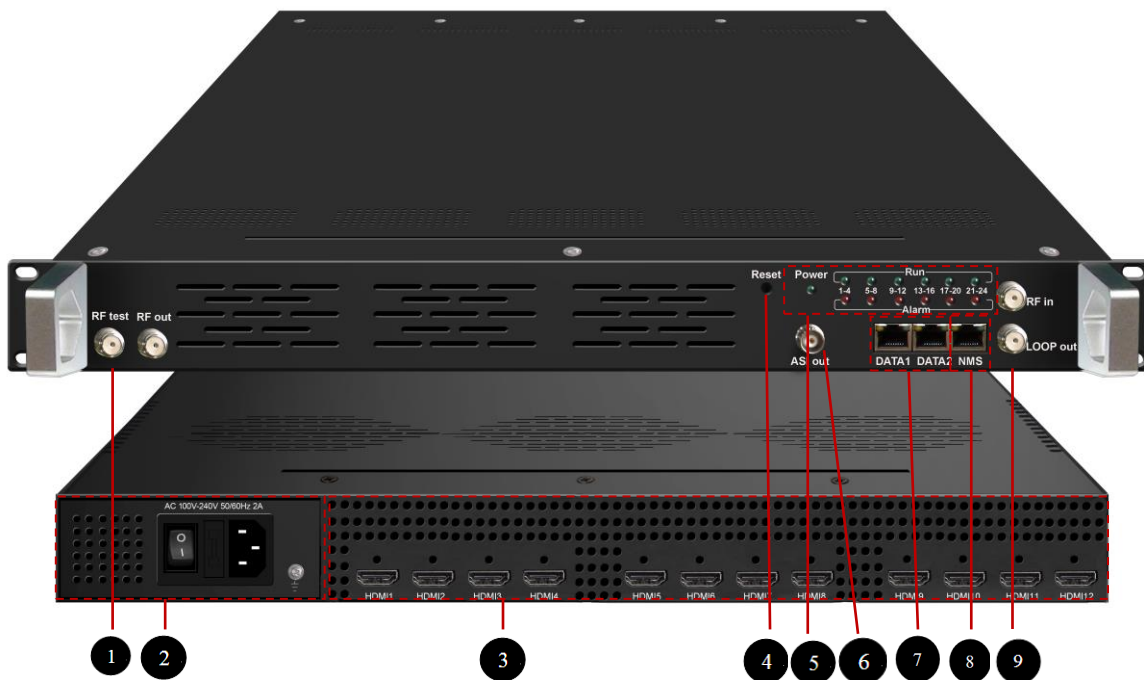
1	RF test and RF out port
2	Port Power supply and Grounding Pole
3	12HDMI input
4	Reset Key/Data Port Indicator
5	Indicator
6	ASI output port(optional)

7	DATA Port (for IP stream input/output)
8	NMS/CAS
9	RF in and Loop out

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

Acquisition Check → Installing Device → Connecting Grouding Wire and Power Cord → Connecting Signal cable → Setting Parameter → Running Device
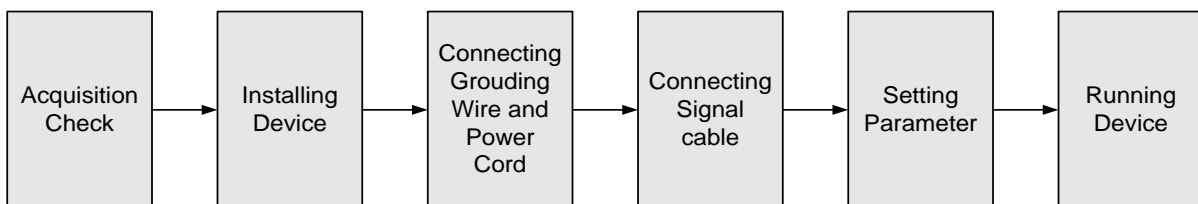
2.4 Environment Requirement

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: $1M\Omega$ (Floor bearing should be greater than 450Kg/㎡)
Environment Temperature	5~40°C(sustainable)，0~45°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 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 not only can use front buttons to set configuration, but also can 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 NDS3542's IP address; otherwise, it would cause IP conflict.

4.1 Encoder login

The default IP address of this device is 192.168.0.136. (We can modify the IP through the front panel.)

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 Encoder & Modulator'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.
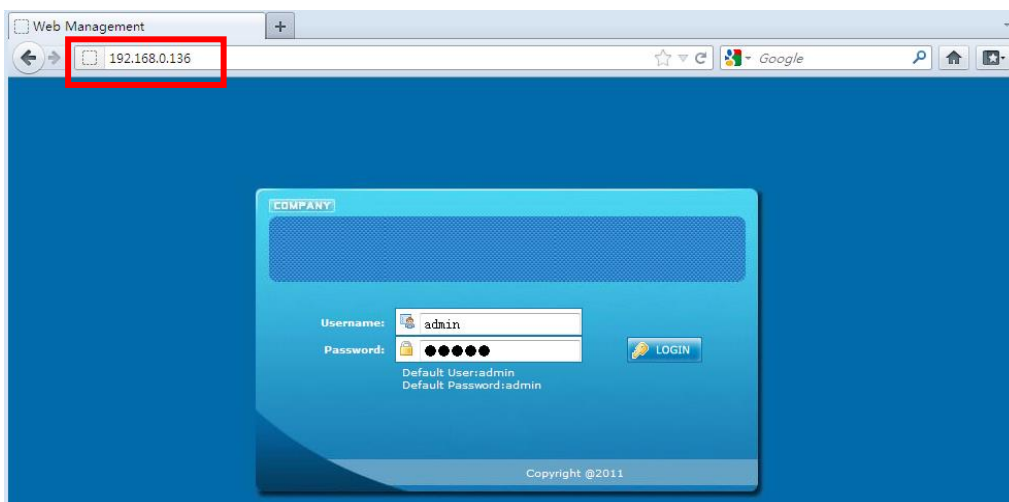
Figure-1

4.2 Encoder Operation

Status

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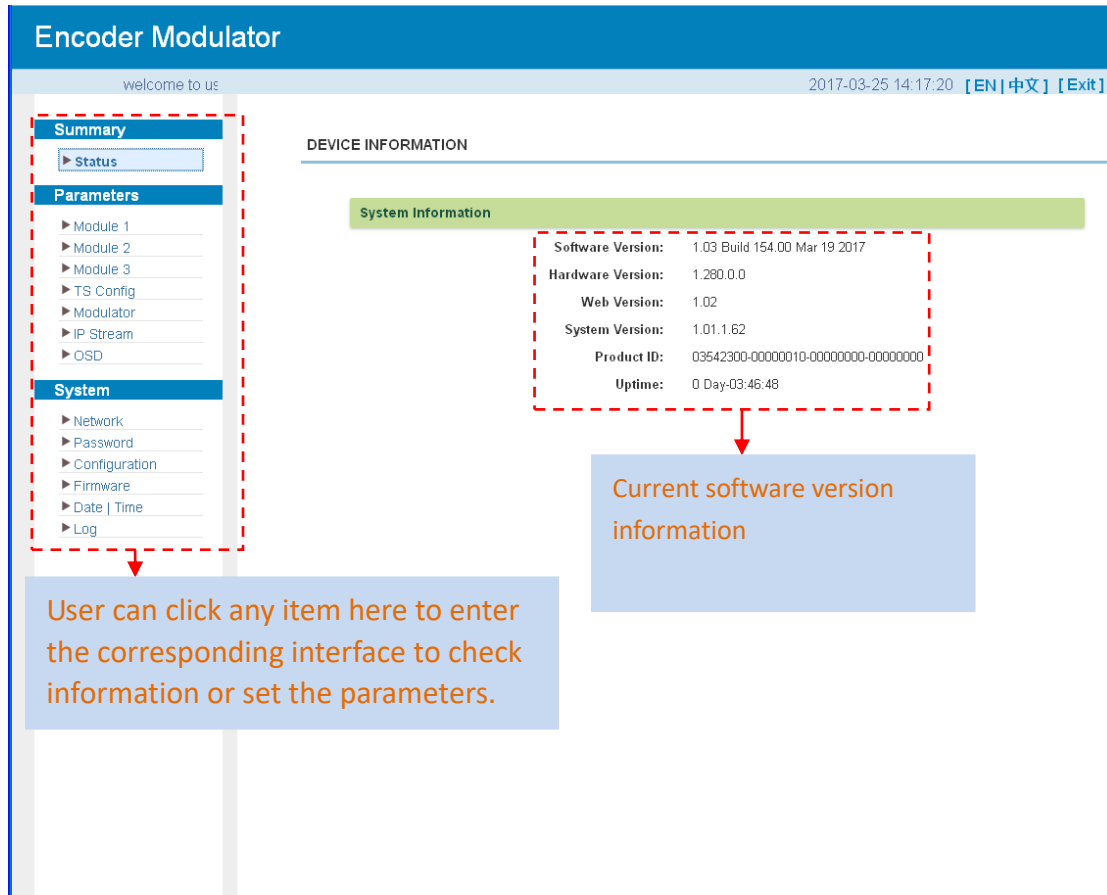
Figure-2

Parameters → Module 1-3

KR423Imaximum support up to 3 modules with 12 HDMI input. From the menu on left side of the webpage, clicking "Module1-3", it displays the information of each encoding channel as Figure-3.
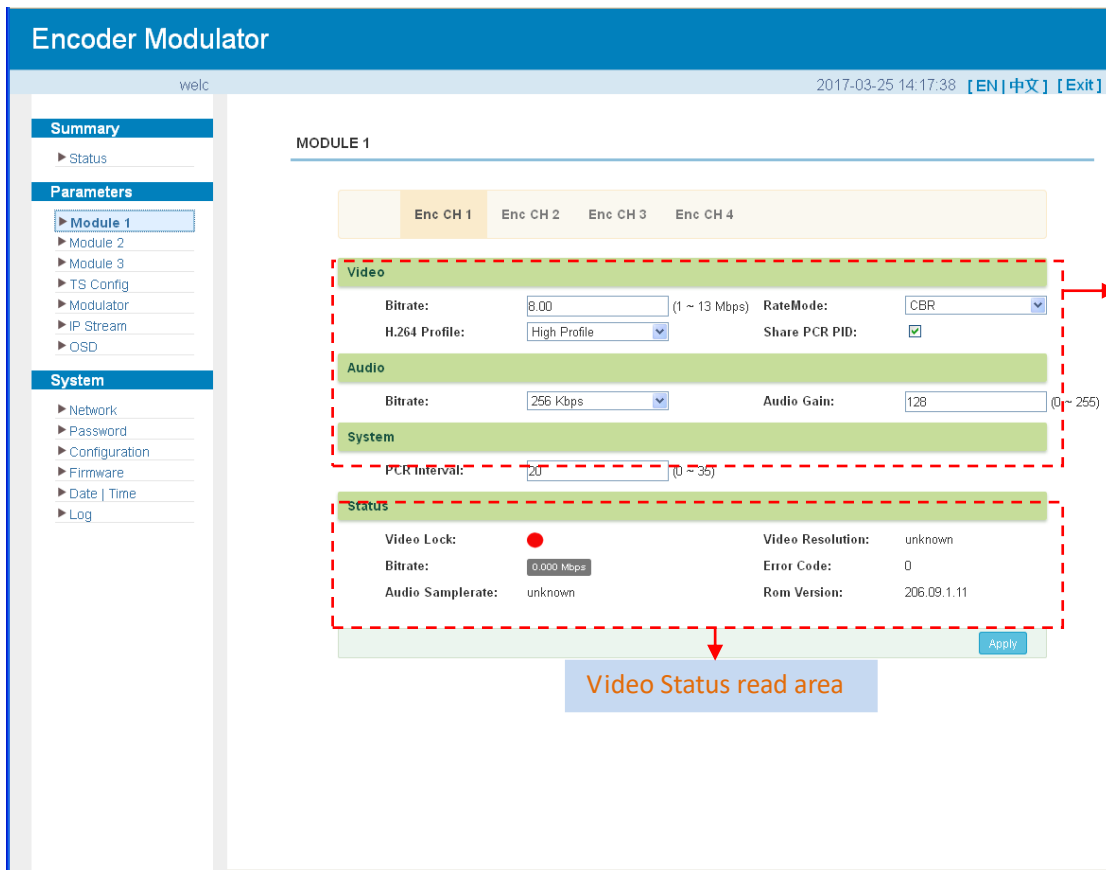
Figure-3

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-4)
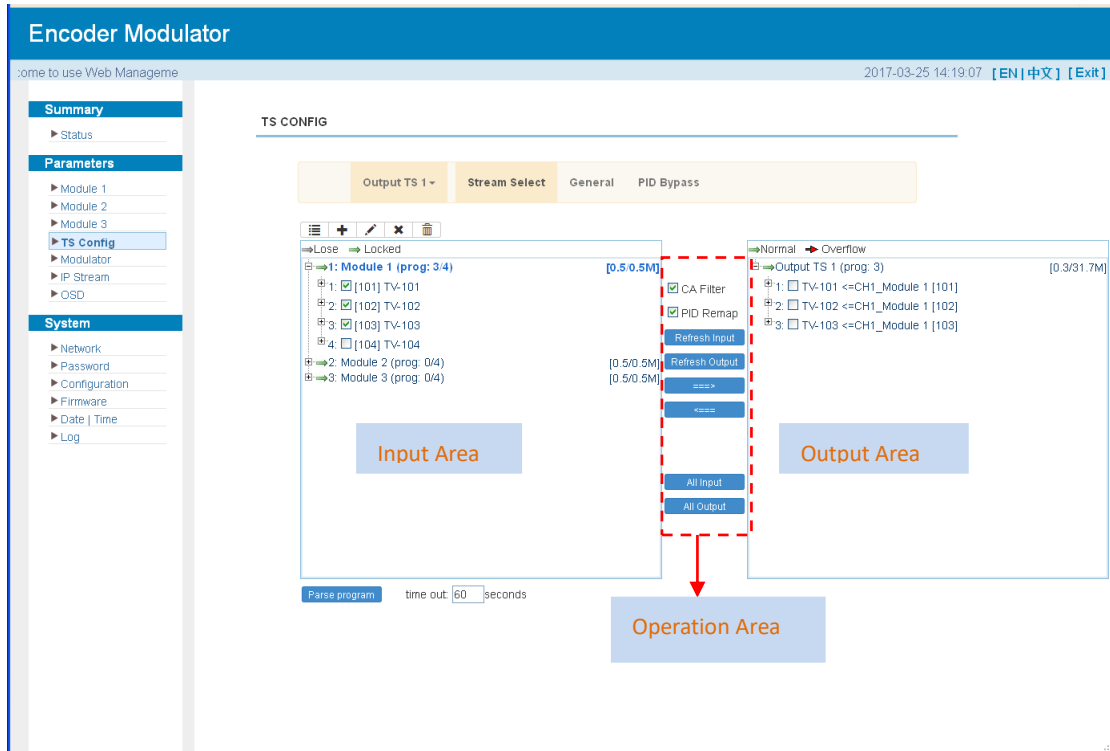
Figure-4

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

➕ : To add input channel which can from GE1/GE2/Connector

✏️ : To edit the input channel

✖️ : To delete the input channel

🗑️ : To delete all inputs channel

➡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

☑ CA Filter : To filter/not filter the source CA information

☑ PidRemap : 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 **1: ☐ CCTV-101=>239.93.0.1:5101** , it triggers a dialog box (Figure 5) where users can input new information.

Program Information		[close]
Program From Input:	CH1_Module 1 [101]	
Service Name:	TV-101	
Program Number:	1001	
Logic Channel Number:	1	
Service Type:	0x01	
Service Provider:	TV-Provider	
PMT Descriptor Tag:	☐ 0x00	
PMT Descriptor Data:		(Hex)
PMT PID:	0x0020	
PCR PID:	0x0021	
MPEG-4 Video PID:	0x0021	
MPEG-1 Audio PID:	0x0022	
		Apply Close

Figure-5

➢ **TS Config→General:**

From the TS Config menu on up side of the webpage, clicking "General", it displays the interface where users can set output mode, enable PSI/SI table out, NIT insert/VCT insert, PCR correction. (Figure-6)
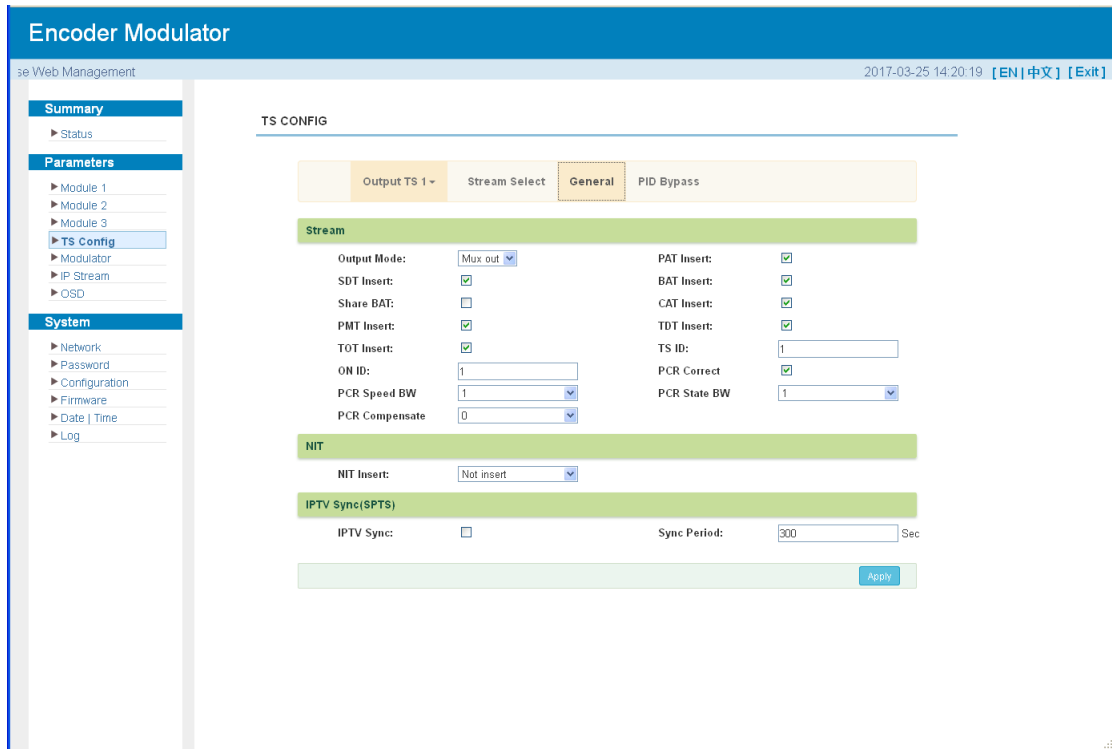
Figure-6

➢ **TS Config→PID Bypass:**

From the TS Config menu on up side of the webpage, clicking "PID Bypass", it displays the interface as Figure-7 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 is customer needed , then click "set"
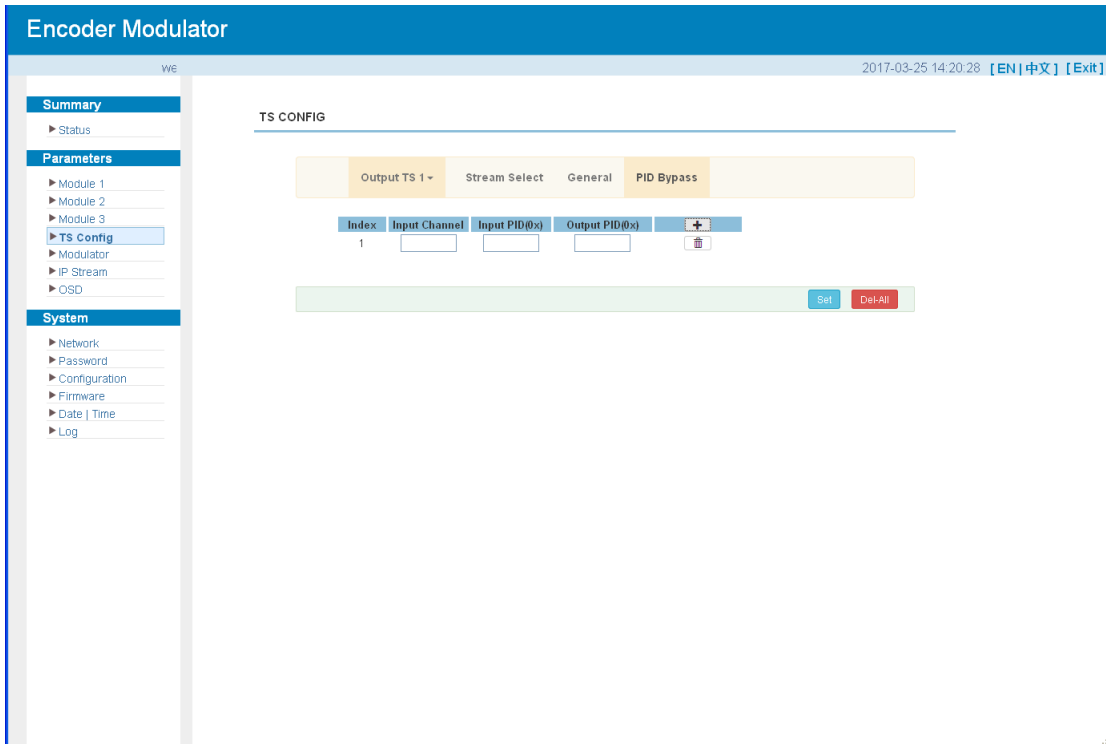
Figure-7

Parameters ➔ Modulator:

From the menu on left side of the webpage, clicking "Modulator", it will display the Modulator Configuration screen as Figure-8. Here user can set modulation parameters.
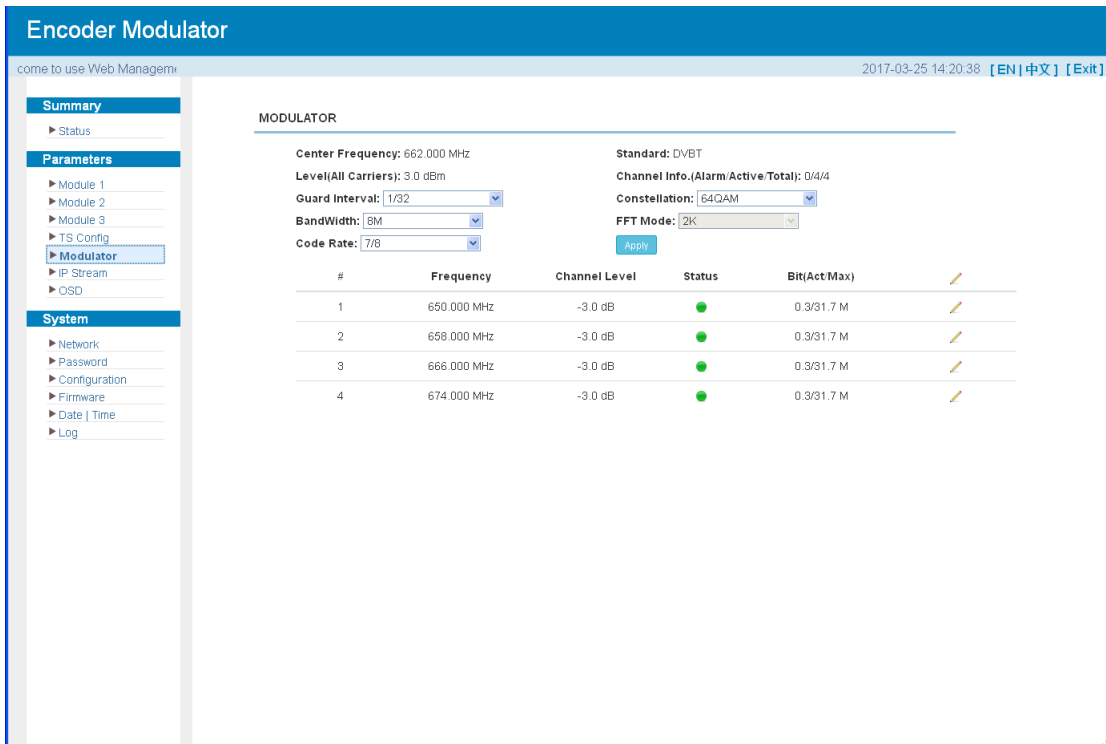
Figure-8

Parameters → IP Stream:

KR423Isupports TS to output in IP (4*MPTS) format through the DATA1 port.

Click 'IP Stream', it will display the interface where to set IP out parameters (Figure-9).

Figure-9

Parameters→ OSD:

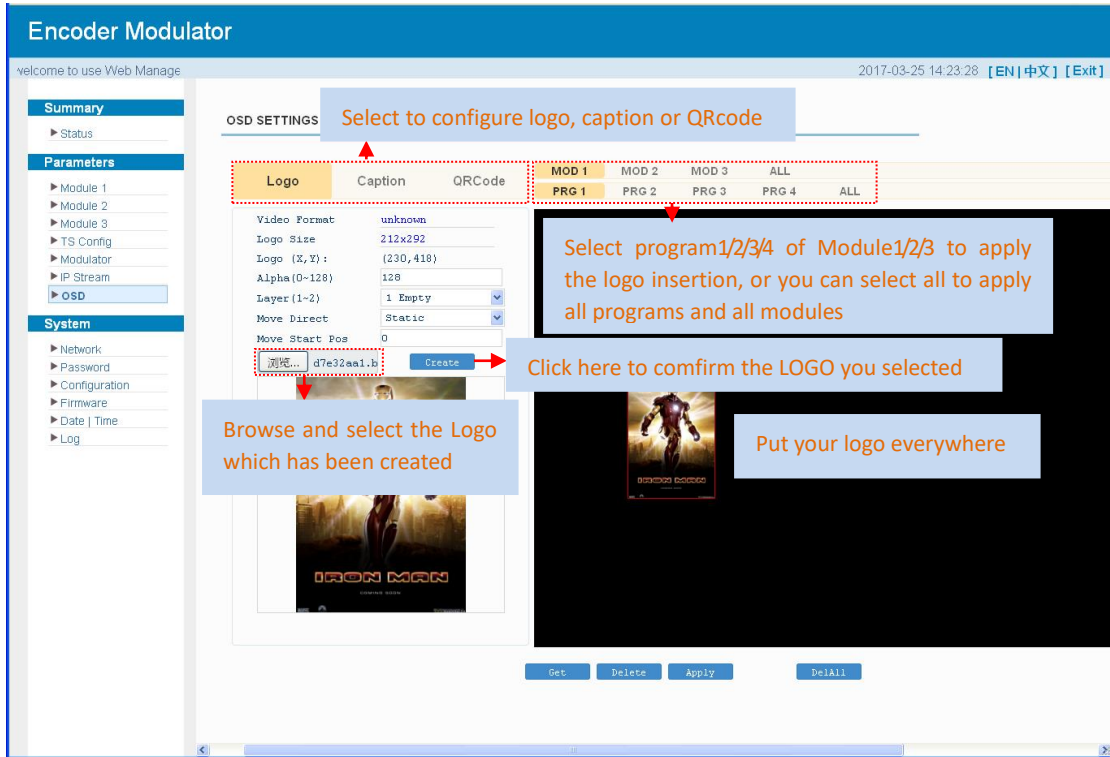Click 'OSD', it will display the interface where to configuration the OSD parameters (Figure-10)
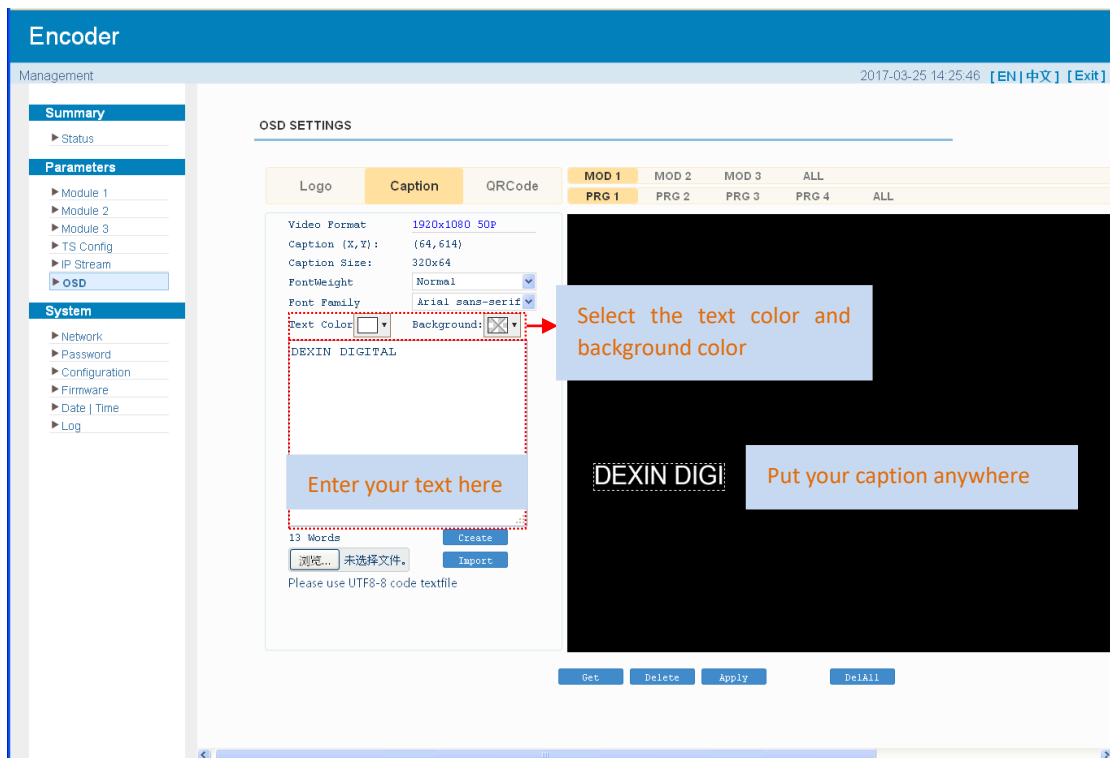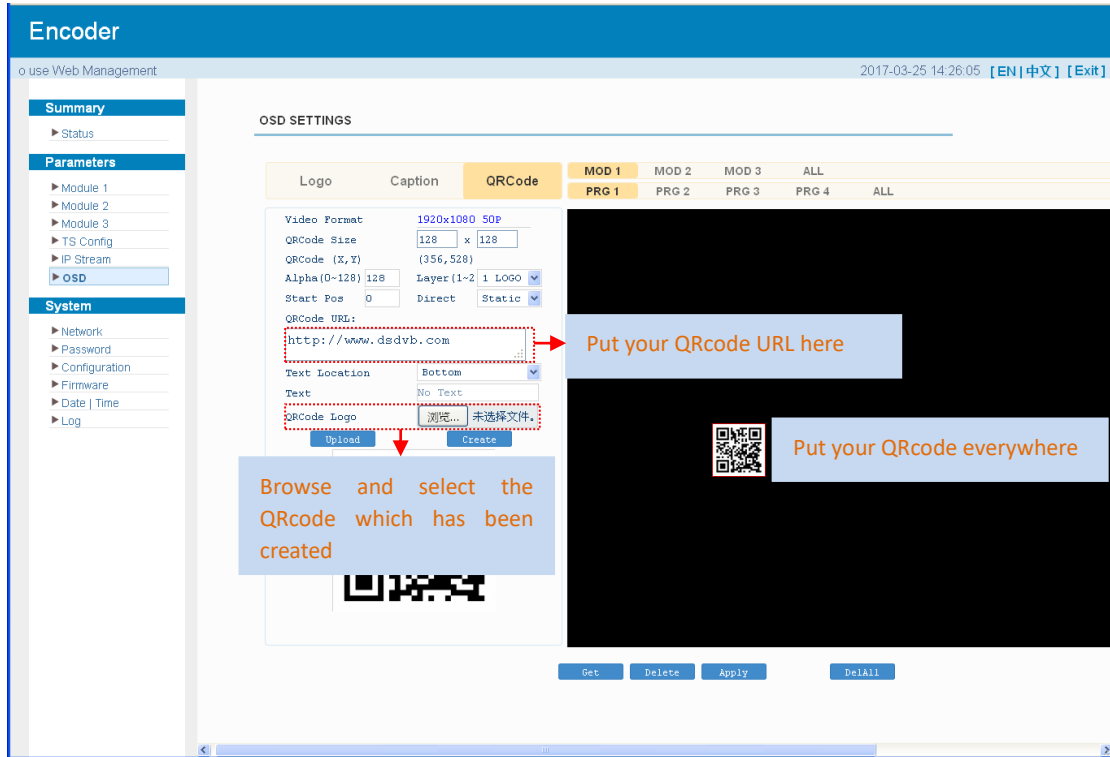
Figure-10

Figure-11

Figure-12

System → Network:

Click 'Network', it will display the interface as Figure-13 where to set network parameters.
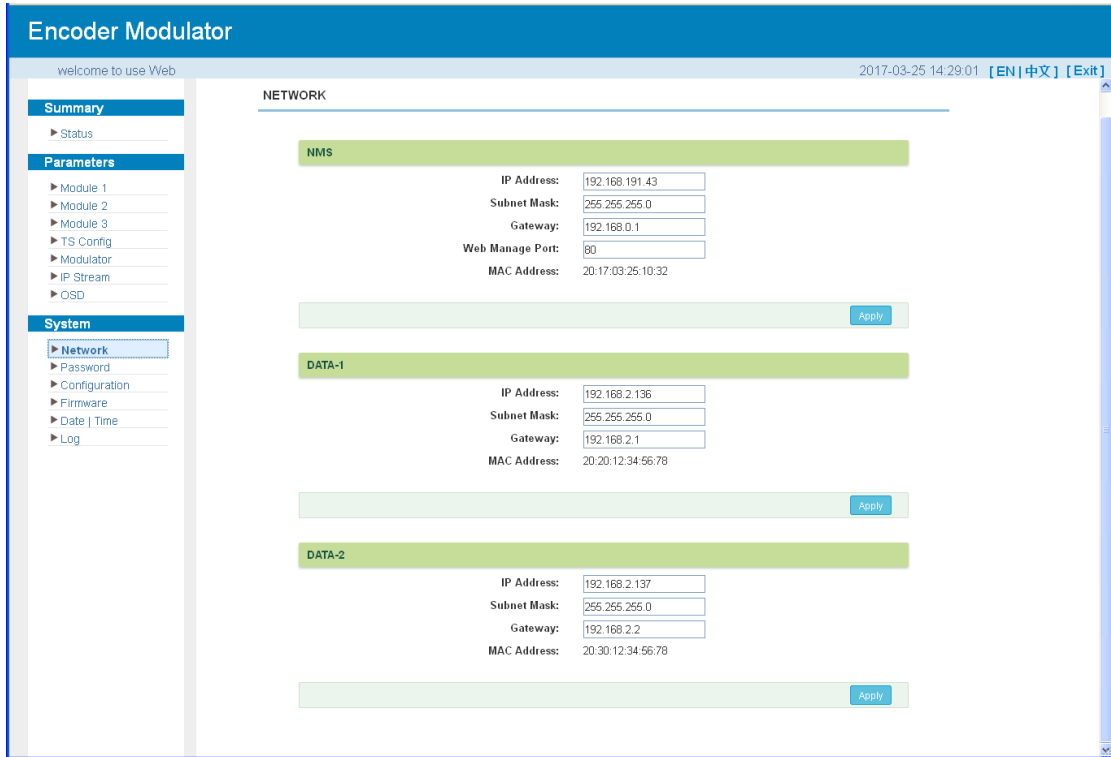
Figure-13

System → password

From the menu on left side of the webpage, clicking "Password", it will display the screen as Figure-14 where to set the login account and password for the web NMS.
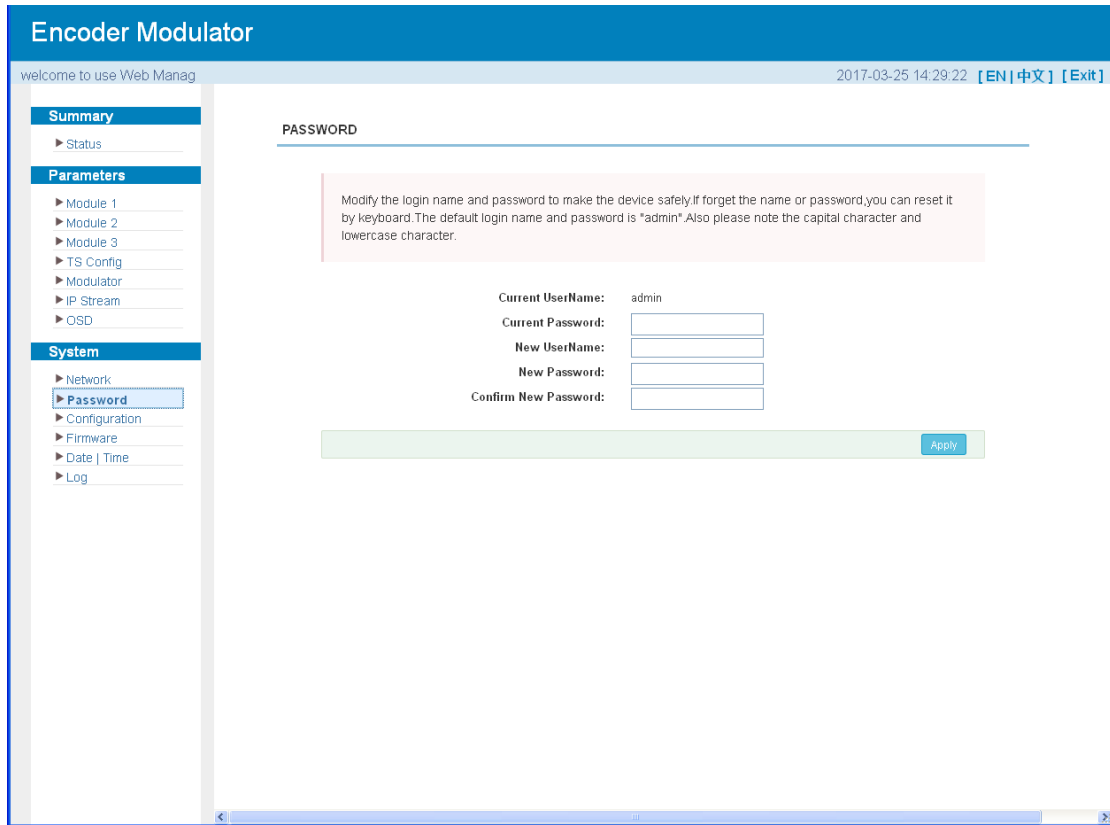
Figure-14

System → Configuration:

From the menu on left side of the webpage, clicking "Configuration", it will display the screen as Figure-15 where to save/ restore/factory setting/ backup/ load your configurations.
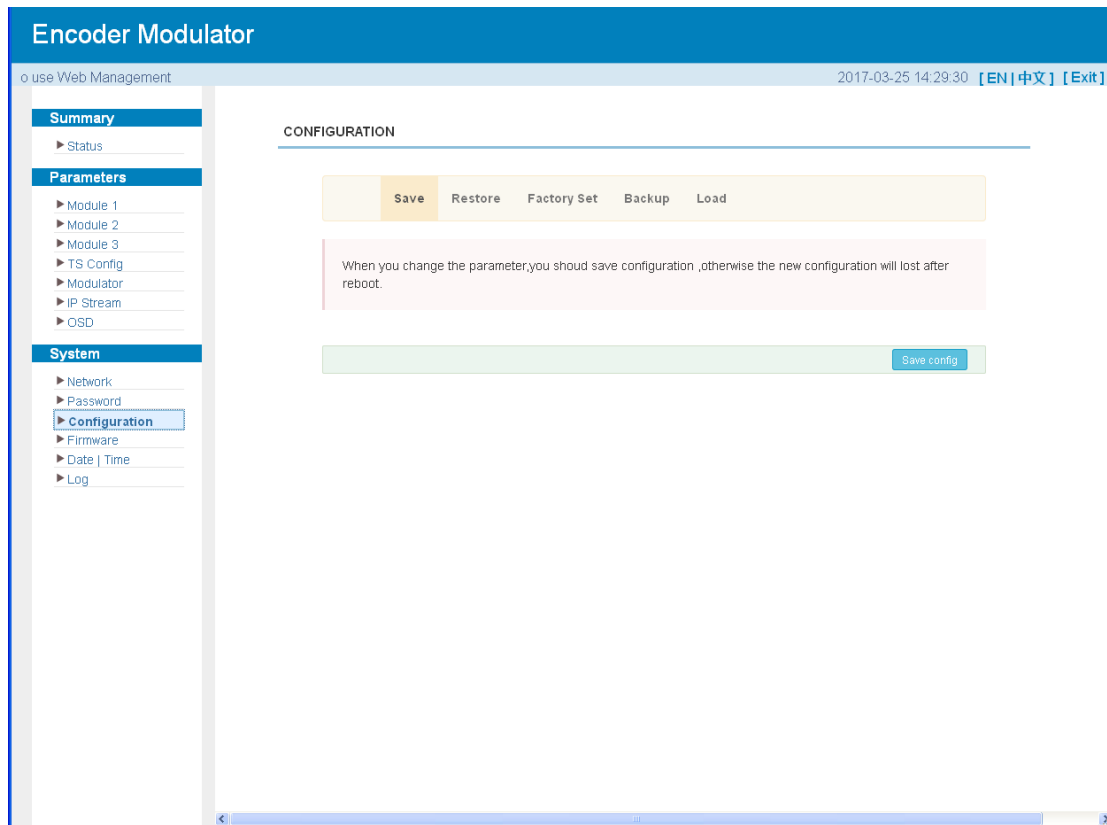
Figure-15

System ➔ Firmware:

From the menu on left side of the webpage, clicking "Firmware", it will display the screen as Figure-16 where to update firmware for the modulator.
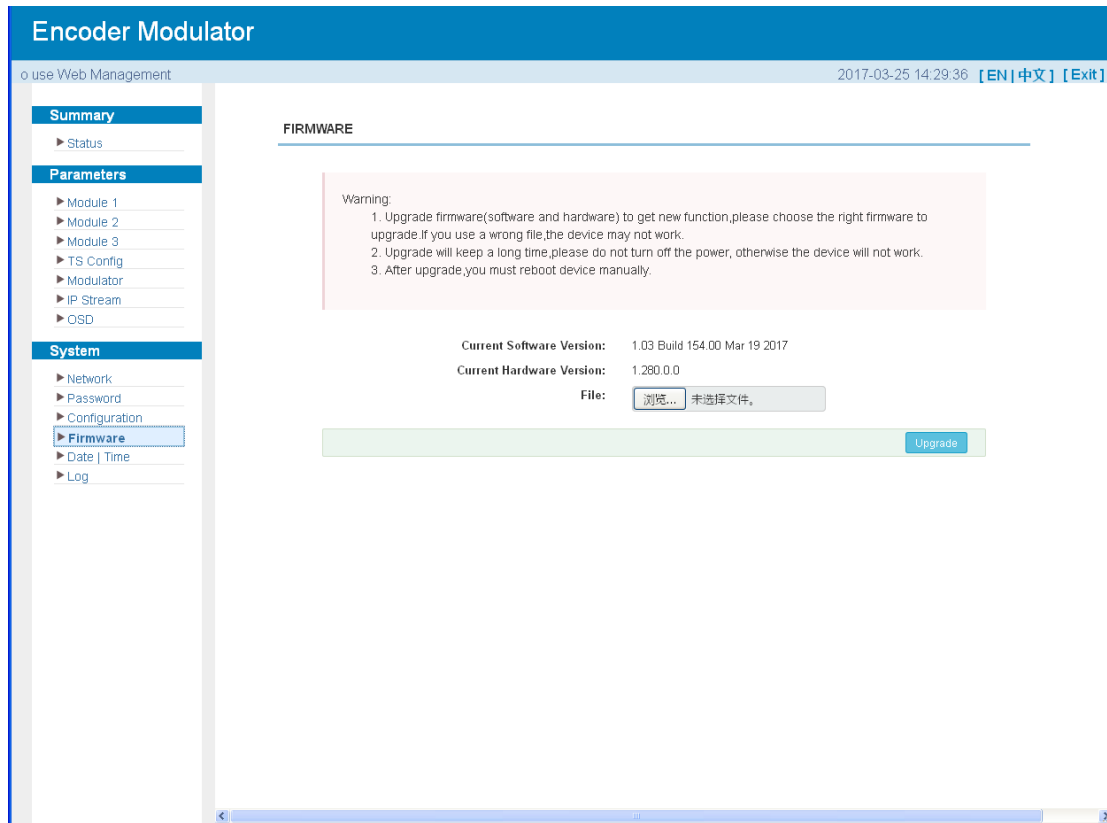
Figure-16

System→ Date/Time:

From the menu on left side of the webpage, clicking "Date/Time", it will display the screen as Figure-17 where to set date and time for the device.
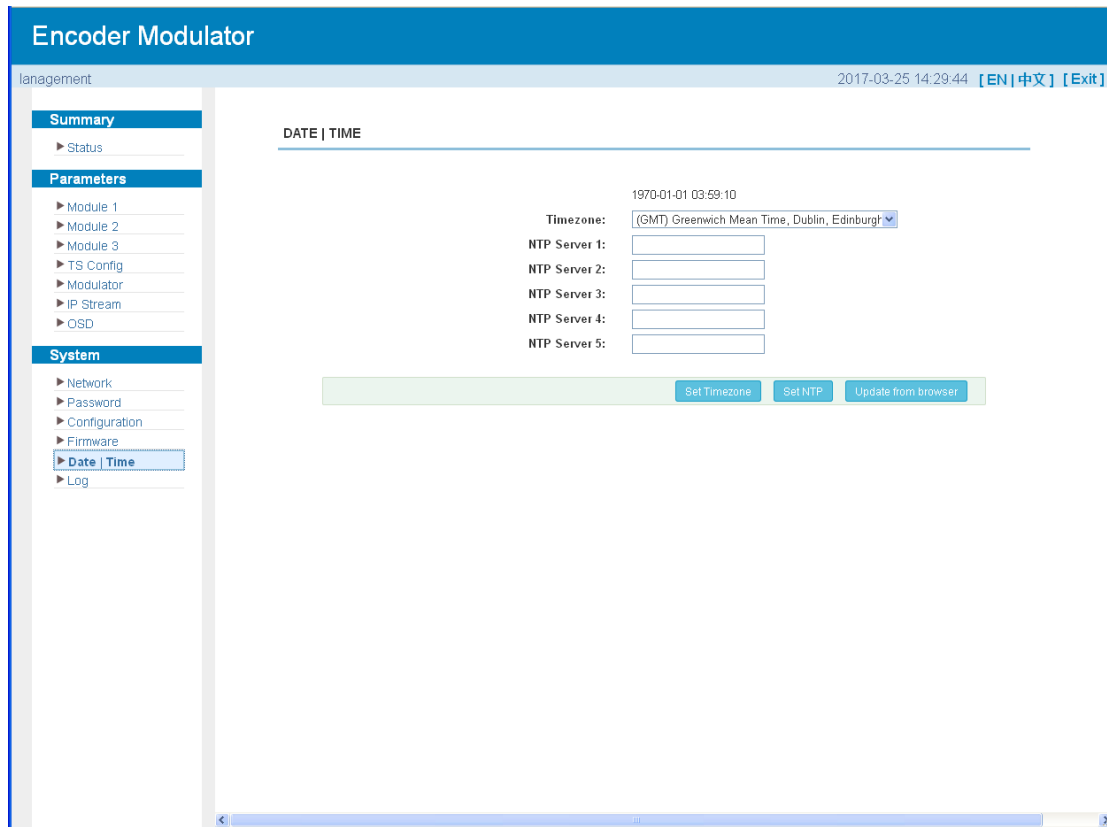
Figure-17

System→ Log:

From the menu on left side of the webpage, clicking "Log", it will display the log interface as Figure-18 where to check or export the Kernel/System log.
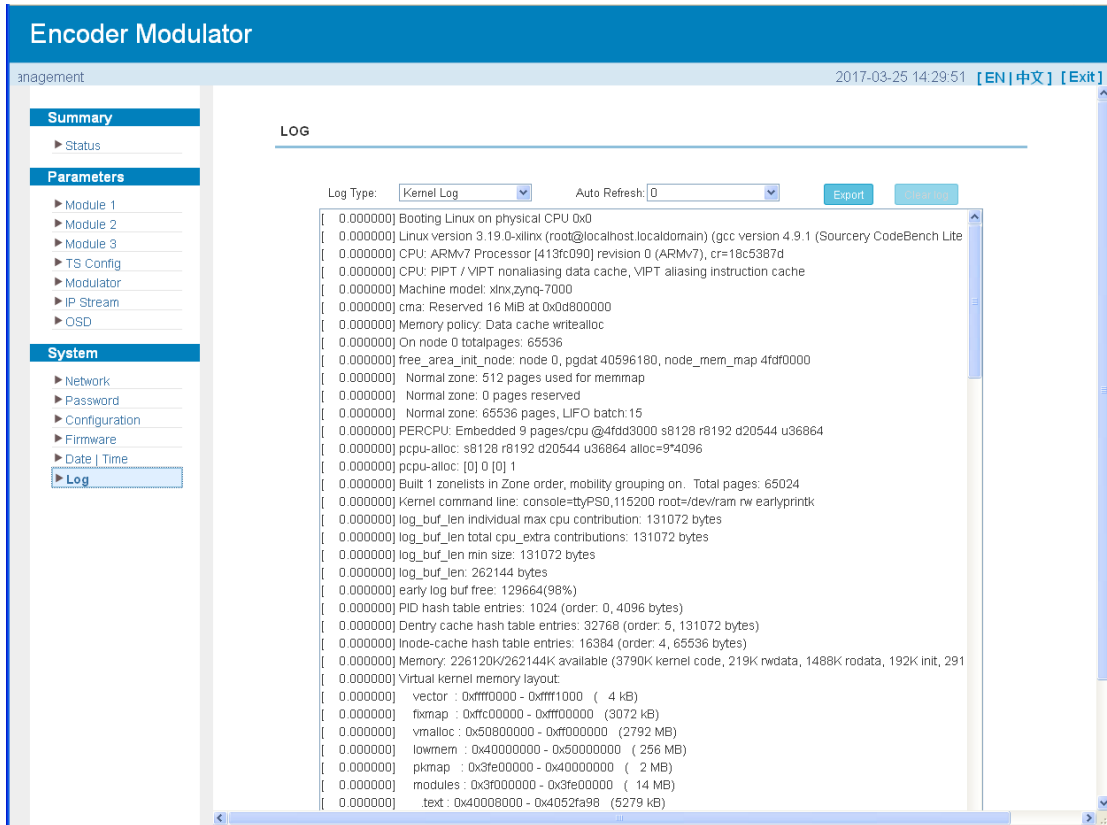
Figure-18

Chapter 4 Troubleshooting

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

KR423IEncoder Modulator	1 pcs
User Manual	1 pcs
HDMI Cables	4 pcs
Power Cord	1pcs