NDS3244S Multi-Channel Encoder

User Manual

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DIRECTORY

Chapter 1 Product Introduction

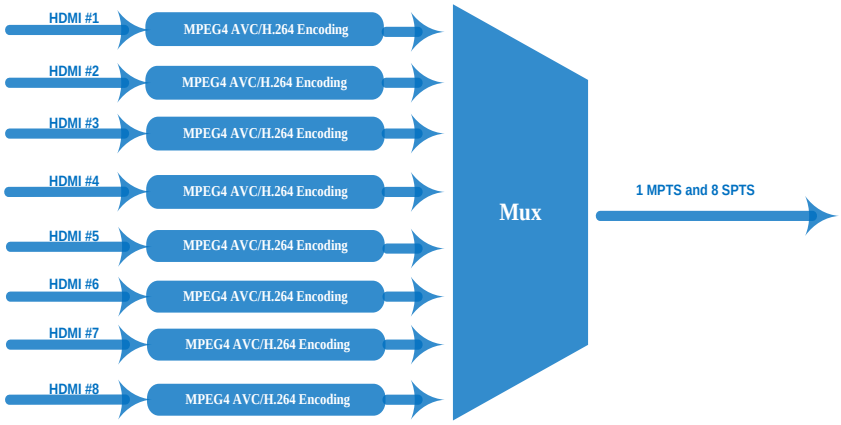
1.1 Outline

NDS3244S Multi-Channel encoder is a professional HD/SD audio & video encoding device. It has 24 HDMI inputs with very 8 HDMI ports share one encoder module with each module supporting 1MPTS and 8SPTS output. Its high integration 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 Main Features

- **24 HDMI inputs with SPTS and MPTS output (2 or 3 Encoder Modules share the same one NMS port and DATA port)**
- **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**
- **Support QR code, LOGO, caption insertion**
- **Support “Null PKT Filter” function**
- **Control via web management, and easy updates via web**

1.3 Principle Chart (Each Encoder Module)



1.4 Technical specification

Input	24 HDMI inputs (NDS3244S)		
Video	Resolution	input	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
		Output	1920×1080_30P, 1920×1080_25P, 1280×720_30P, 1280×720_25P, 720 x 576_25P, 720 x 480_30P
	Encoding		MPEG-4 AVC/H.264
	Bit-rate		1~20Mbps each channel
	Rate Control		CBR/VBR
	GOP Structure		IP…P (P Frame adjustment, without B Frame)
Audio	Encoding		MPEG-1 Layer 2, LC-AAC, HE-AAC and AC3 Pass through
	Sampling rate		48KHz
	Resolution		24-bit
	Audio Gain		0-255 Adjustable
	MPEG-1 Layer 2 Bit-rate		48/56/64/80/96/112/128/160/192/224/256/320/384 kbps
	LC-AAC Bit-rate		48/56/64/80/96/112/128/160/192/224/256/320/384 kbps
	HE-AAC Bit-rate		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 module)		
System function	Network management (WEB)		
	English language		
	Ethernet software upgrade		
Miscellaneous	Dimension(W×L×H)		440mm×324mm×44mm
	Environment		0~45℃(work)； -20~80℃（Storage）
	Power requirements		AC 110V± 10%, 50/60Hz, AC 220 ± 10%, 50/60Hz

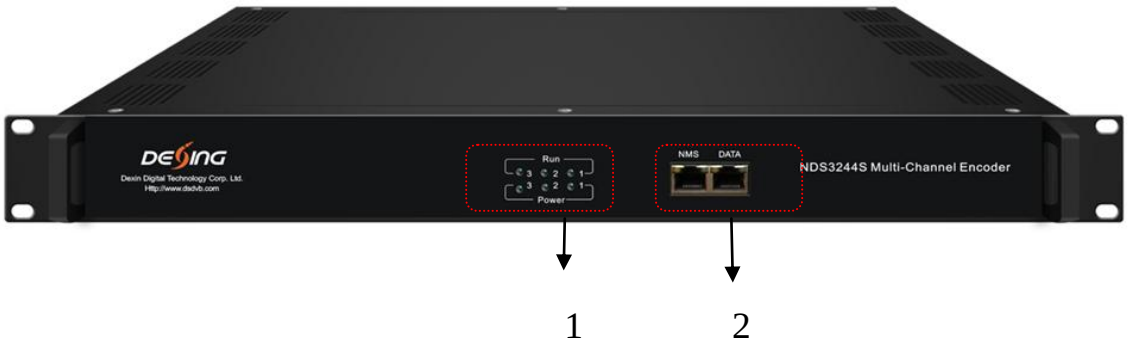
1.5 Order Information

P/N	Config
NDS3244S	24 HDMI inputs

1.6 Appearance and Illustration

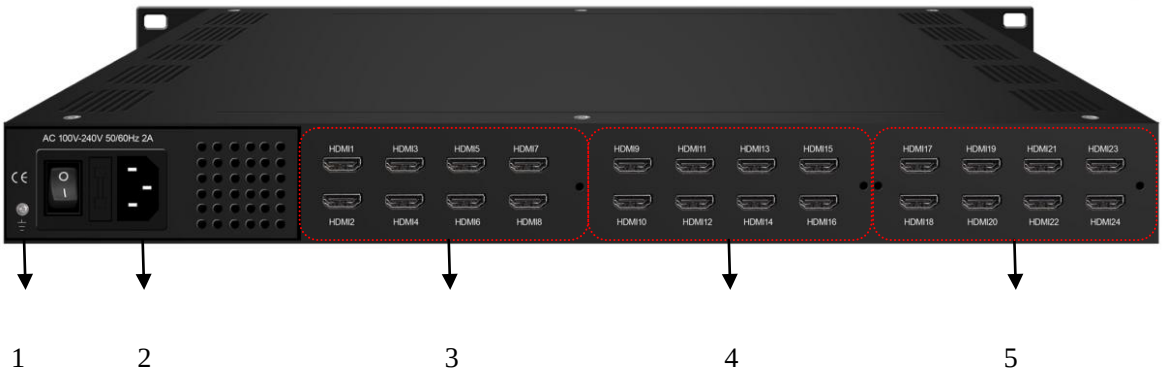
Front Panel Illustration:

1U chassis (three encoder modules) illustration：



1	Run and Power indicators for 3 modules
2	NMS (Network Management Port) Data Port (for IP Signal Output)

Rear Panel Illustration:



1	Grounding Pole
2	Power Switch and socket
3	Module 1: HDMI 1-8
4	Module 2: HDMI 9-16
5	Module 3: HDMI 17-24

Chapter 2 Installation Guide

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:

- NDS3244S 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.

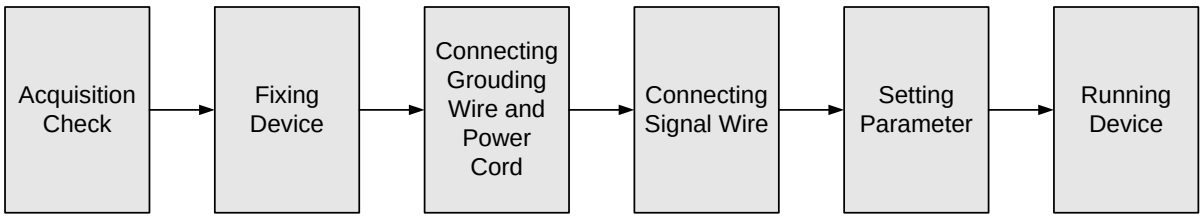
2.2 Installation Preparation

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)

2.2.1 Device's Installation Flow Chart is Illustrated as following：



2.2.2 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 (Floor bearing should be greater than 450Kg/㎡)
Environment Temperature	5~40℃(sustainable)，0~45℃(short time)， installing air-conditioning is recommended
Relative Temperature	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 power 220V 50Hz. Please carefully check before running.

2.2.3 Grounding Requirement

- All function modules' good grounding designs are 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 $25mm^2$.

2.2.4 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^2.

2.2.5 Device Grounding

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

2.3 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 beside ,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 1Ω.

☞**Caution:**

Before connecting power cord to NDS3244S Multi-Channel Encoder, user should set the power switch to "OFF".

2.4 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:

2.4.1 HDMI input cable illustration:

2.4.2 Network Cable illustration (CAT5):

Chapter 3 WEB NMS Operation

NDS3244S does not support front buttons and LCD, users 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 NDS3244S IP address; otherwise, it would cause IP conflict. This user manual will take module 1 as an example.

3.1 login

The default IP address of NDS3244S (3 NMS ip addresses for 3 modules respectively) is 10.0.0.101, 10.0.0.102 and 10.0.0.103.

The module which closes to power is 10.0.0.101

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.

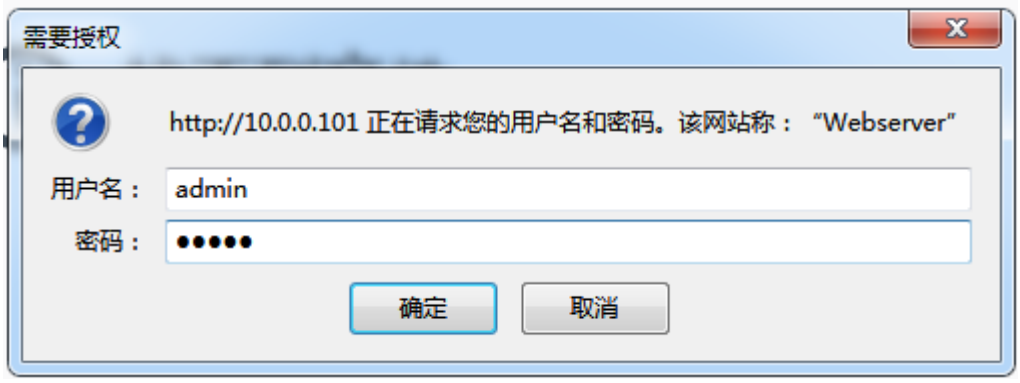


Figure-1

3.2 Operation

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

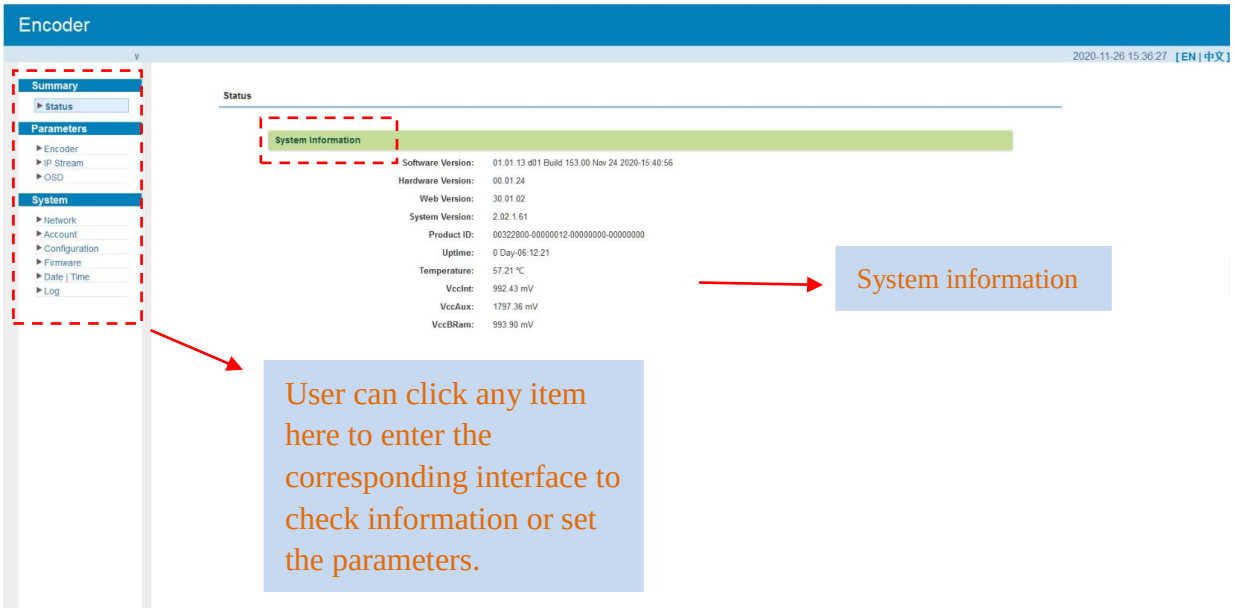


Figure-2

Parameters →Encoder

Encode Channel 1-8:

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

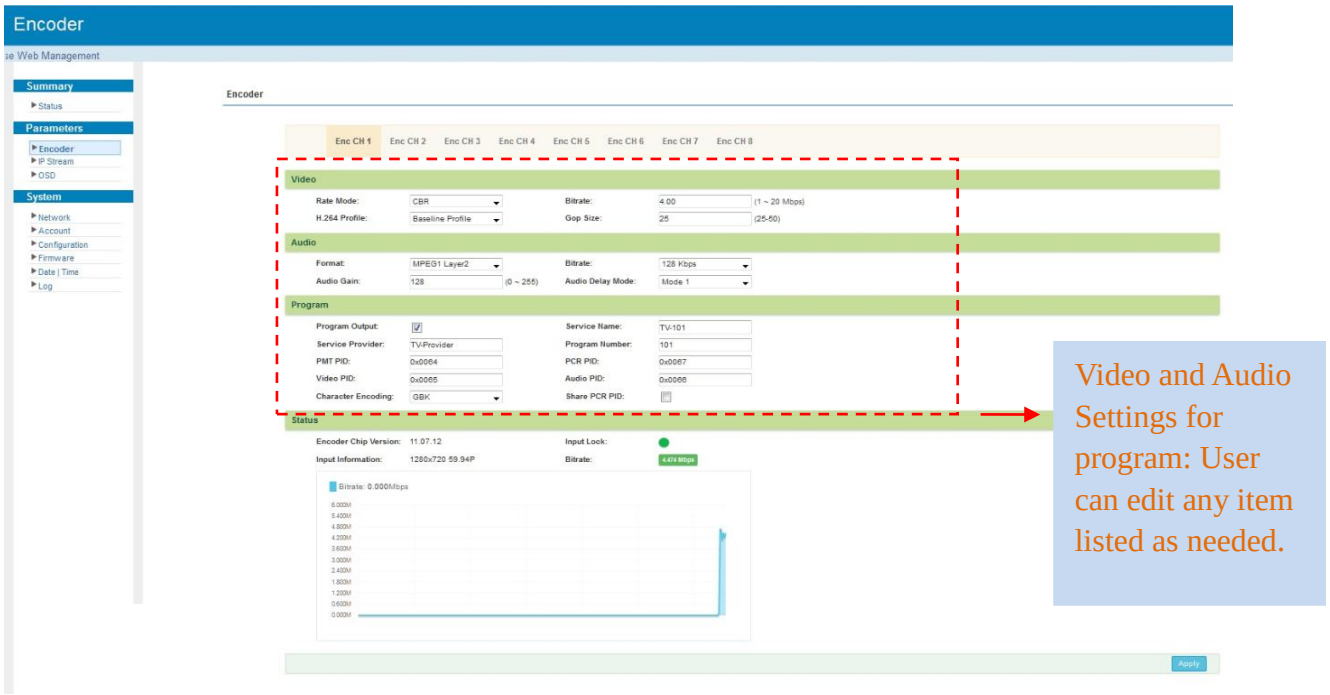


Figure-3

Apply Click this button to apply the modified parameters.

Parameters →IP Stream

NDS3244S supports TS to output in IP (1MPTS and 8 SPTS for each encoder module) 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)

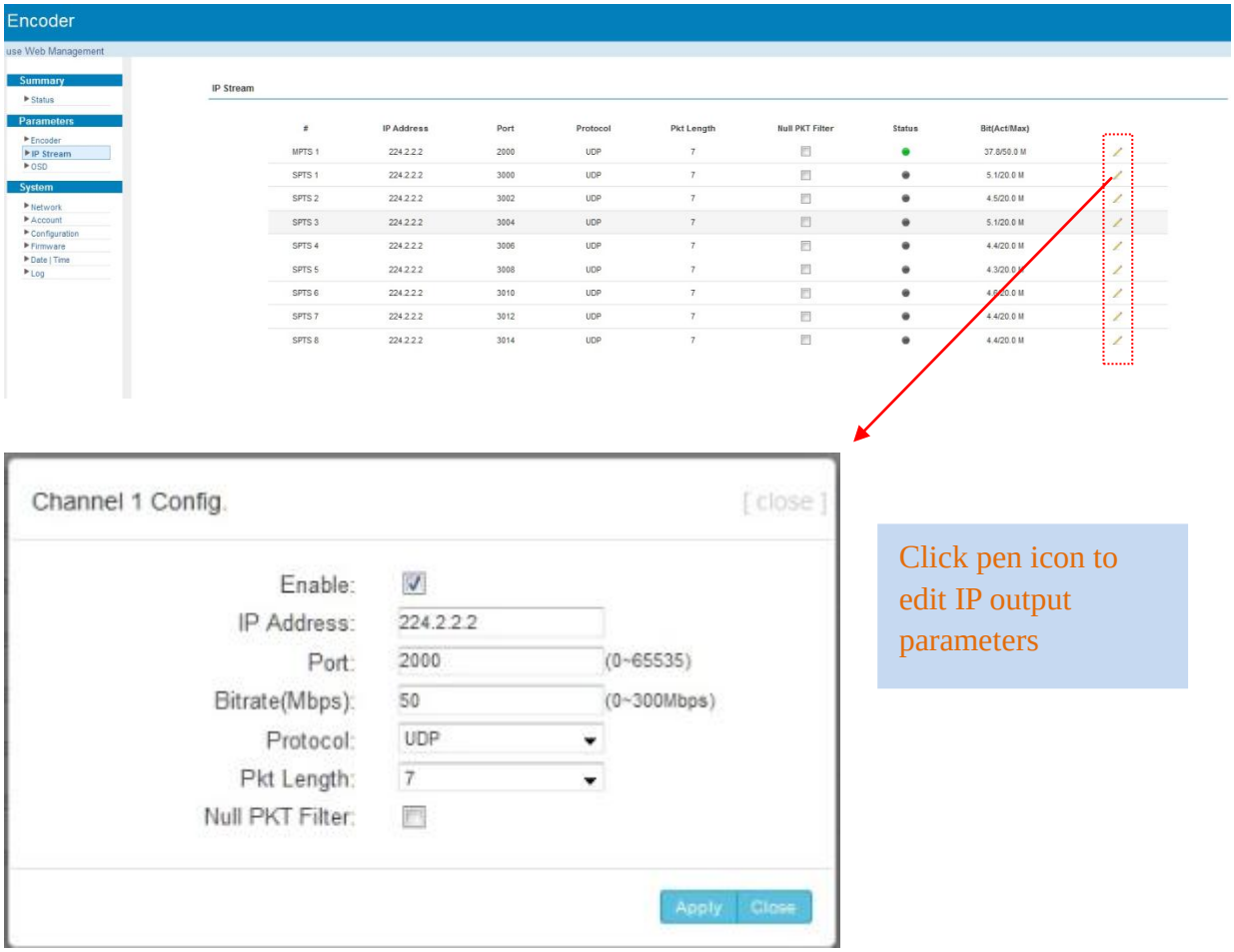


Figure-4

Parameters →OSD

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

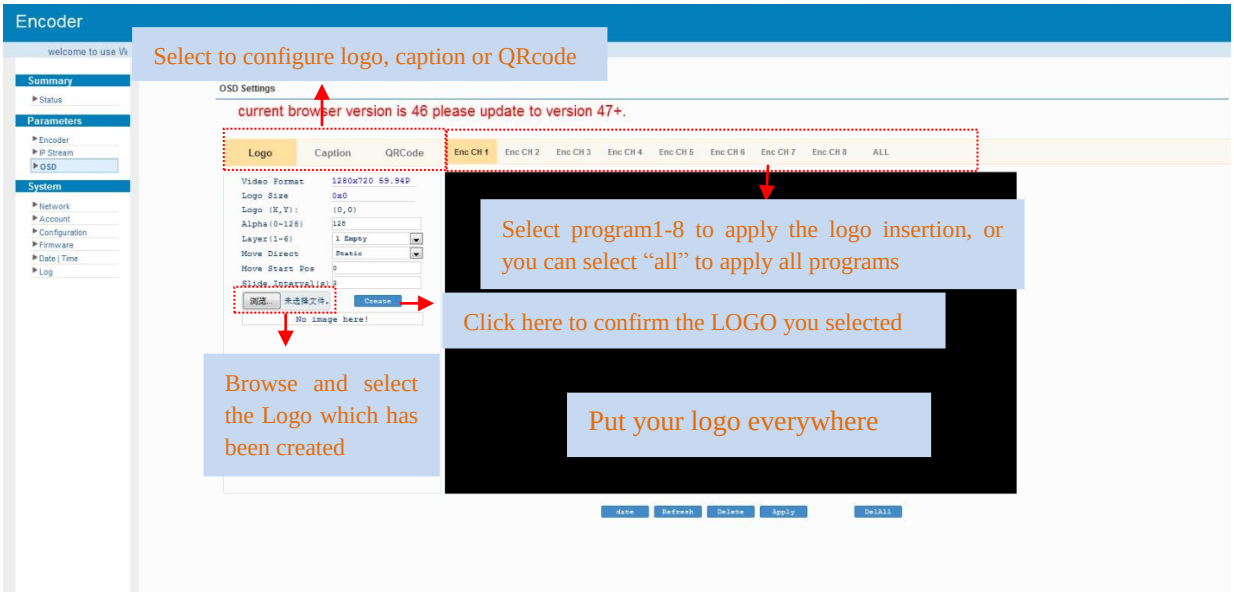


Figure-5

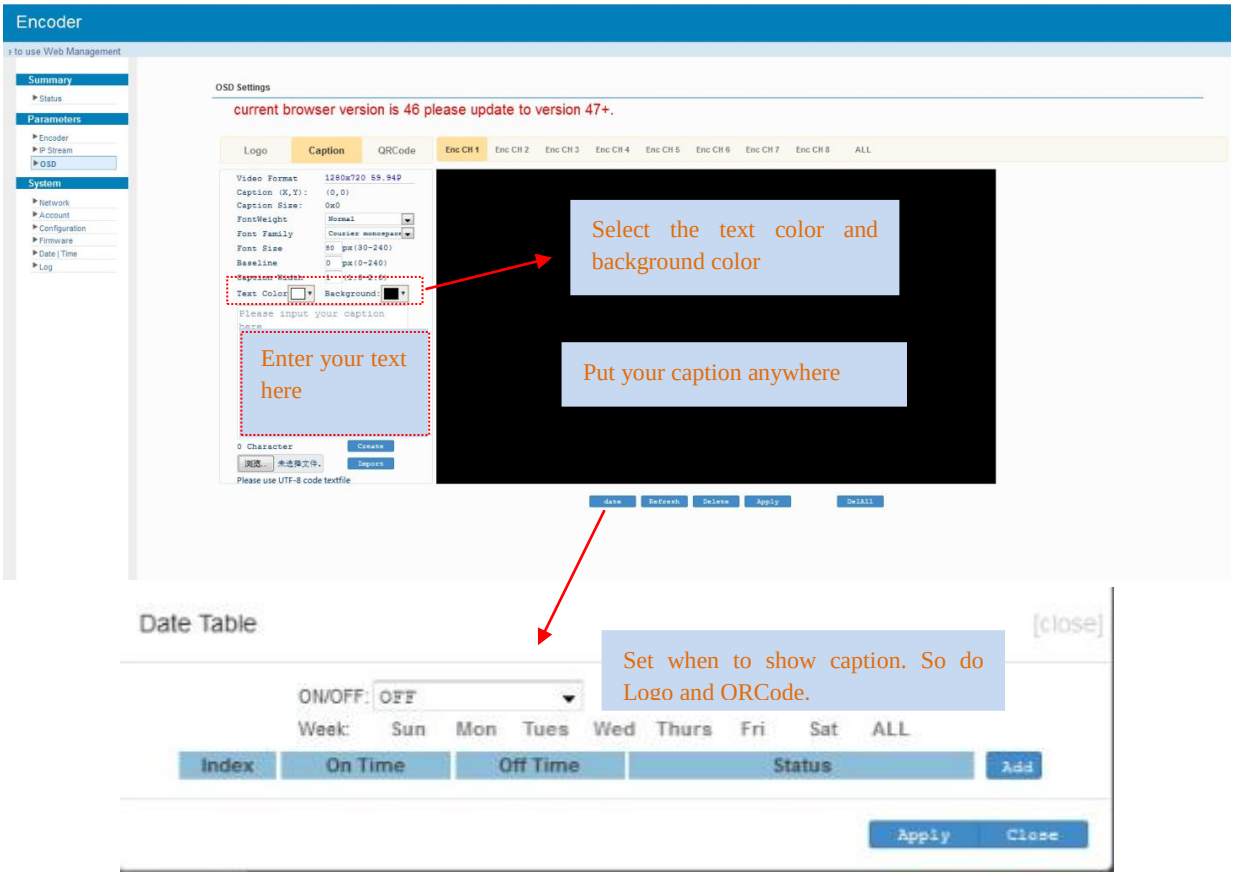


Figure-6

Figure-7

System→ Network:

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

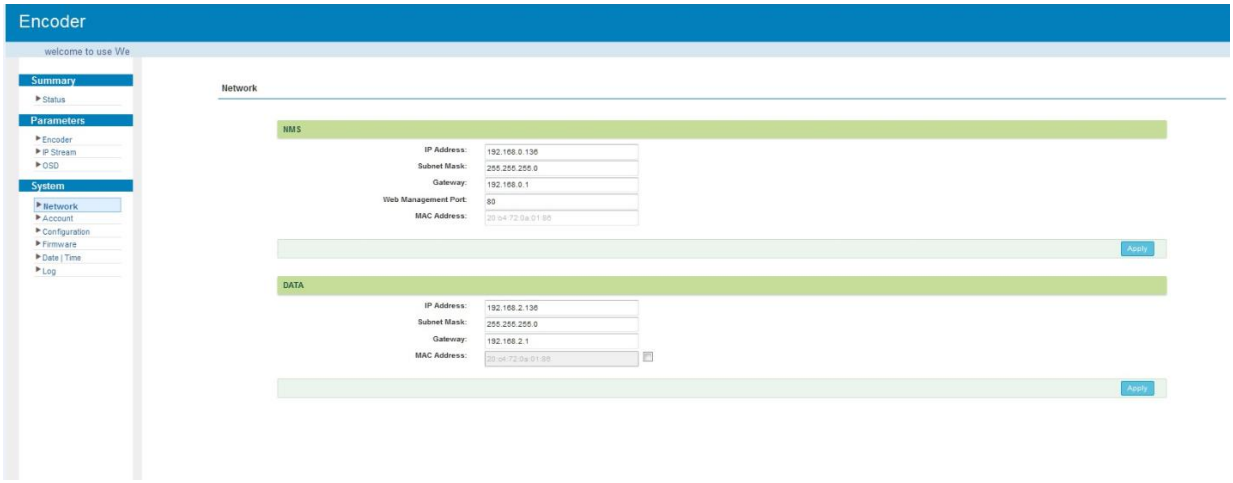


Figure-8

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".

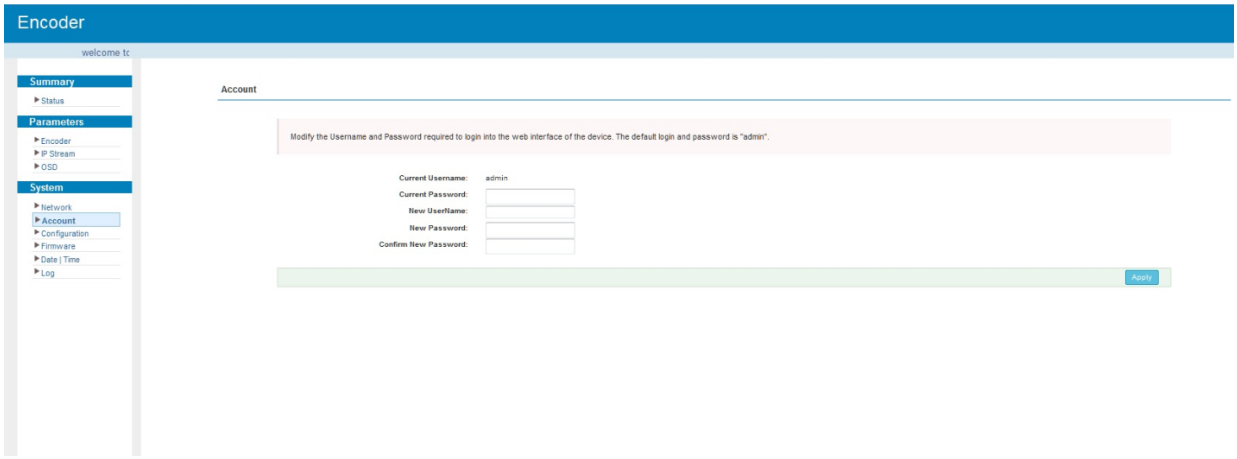


Figure-9

System → Configuration:

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

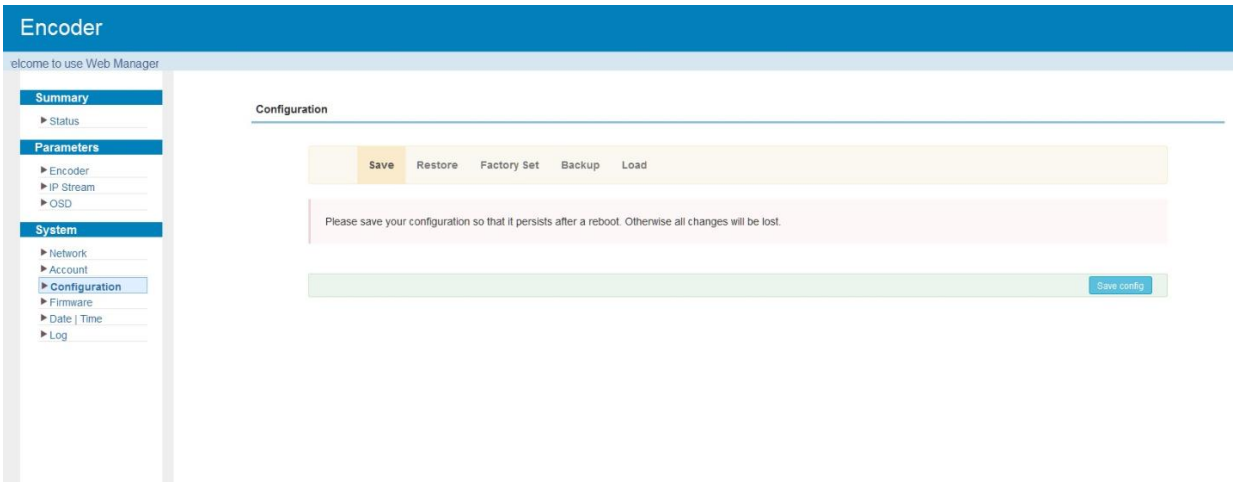


Figure-10

System → Firmware:

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

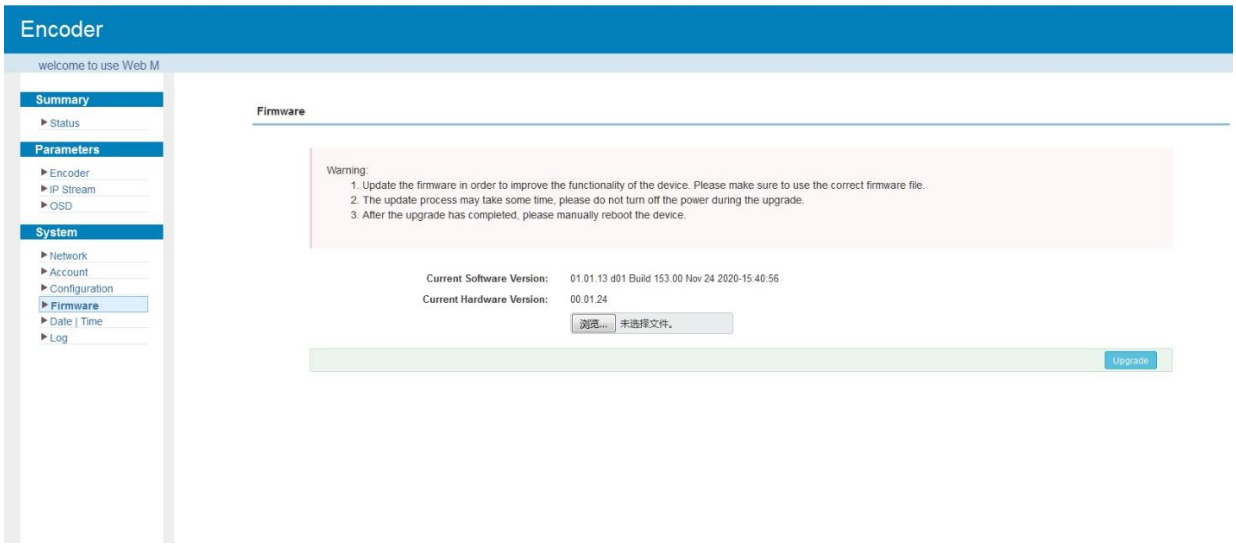


Figure-11

System → Date/Time:

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

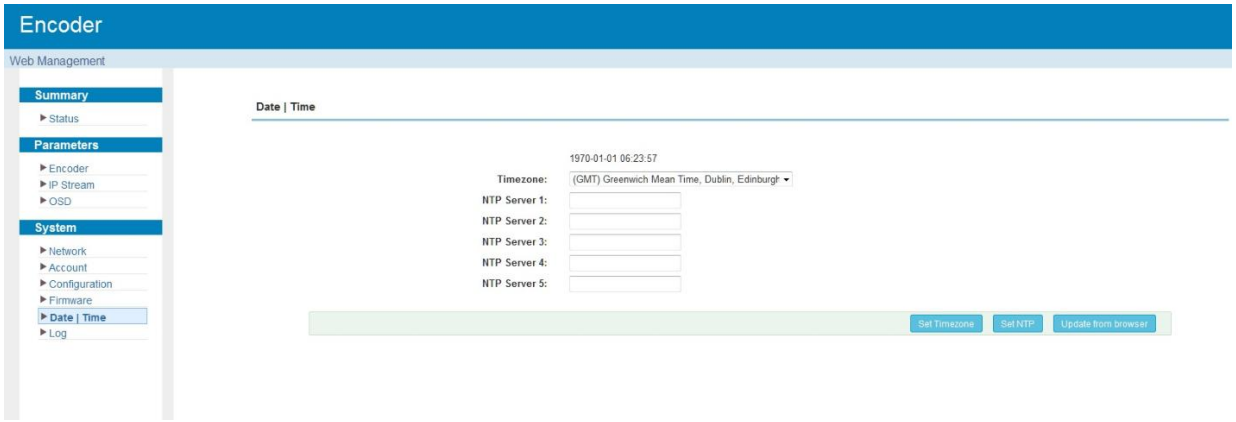


Figure-12

System → Log:

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

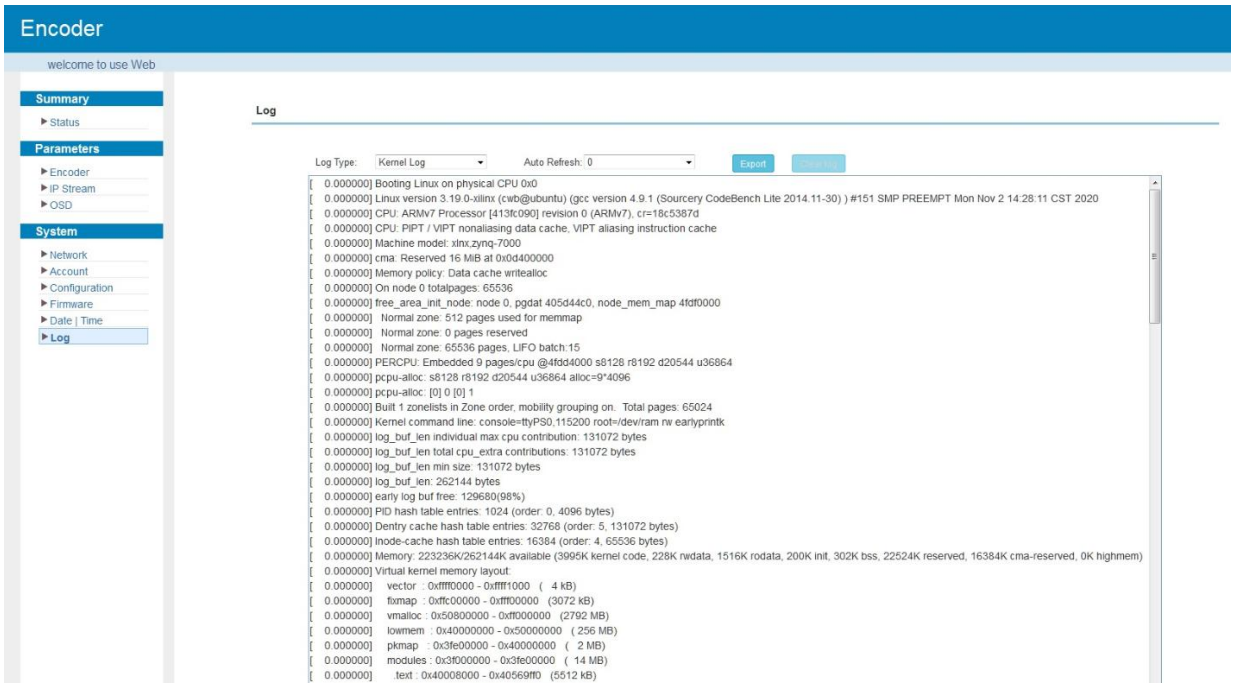

Encoder
welcome to use Web
Summary
Status
Parameters
Encoder
IP Stream
OSD
System
Network
Account
Configuration
Firmware
Date | Time
Log
Log
Log Type: Kernel Log
Auto Refresh: 0
Export
[0.000000] Booting Linux on physical CPU 0x0
[0.000000] Linux version 3.19.0-xilinx (cwb@ubuntu) (gcc version 4.9.1 (Sourcery CodeBench Lite 2014.11-30)) #151 SMP PREEMPT Mon Nov 2 14:28:11 CST 2020
[0.000000] CPU: ARMv7 Processor [413fc090] revision 0 (ARMv7), cr=18c5387d
[0.000000] CPU: PIPT / VIPT nonaliasing data cache, VIPT aliasing instruction cache
[0.000000] Machine model: xlnx,zynq-7000
[0.000000] cma: Reserved 16 MiB at 0x0d400000
[0.000000] Memory policy: Data cache writealloc
[0.000000] On node 0 totalpages: 65536
[0.000000] free_area_init_node: node 0, pgdat 405d44c0, node_mem_map 4fdf0000
[0.000000] Normal zone: 512 pages used for memmap
[0.000000] Normal zone: 0 pages reserved
[0.000000] Normal zone: 65536 pages, LIFO batch:15
[0.000000] PERCPU: Embedded 9 pages/cpu @4fdd4000 s8128 r8192 d20544 u36864
[0.000000] pcpu-alloc: s8128 r8192 d20544 u36864 alloc=9*4096
[0.000000] pcpu-alloc: [0] 0 [0] 1
[0.000000] Built 1 zonelists in Zone order, mobility grouping on. Total pages: 65024
[0.000000] Kernel command line: console=ttyPS0,115200 root=/dev/ram rw earlyprintk
[0.000000] log_buf_len individual max cpu contribution: 131072 bytes
[0.000000] log_buf_len total cpu_extra contributions: 131072 bytes
[0.000000] log_buf_len min size: 131072 bytes
[0.000000] log_buf_len: 262144 bytes
[0.000000] early log buf free: 129680(98%)
[0.000000] PID hash table entries: 1024 (order: 0, 4096 bytes)
[0.000000] Dentry cache hash table entries: 32768 (order: 5, 131072 bytes)
[0.000000] Inode-cache hash table entries: 16384 (order: 4, 65536 bytes)
[0.000000] Memory: 223236K/262144K available (3995K kernel code, 228K rwdata, 1516K rodata, 200K init, 302K bss, 22524K reserved, 16384K cma-reserved, 0K highmem)
[0.000000] Virtual kernel memory layout:
[0.000000] vector : 0xffff0000 - 0xffff1000 (4 kB)
[0.000000] fixmap : 0xffc00000 - 0xfff00000 (3072 kB)
[0.000000] vmalloc : 0x50800000 - 0xff000000 (2792 MB)
[0.000000] lowmem : 0x40000000 - 0x50000000 (256 MB)
[0.000000] pkmap : 0x3fe00000 - 0x40000000 (2 MB)
[0.000000] modules : 0x3f000000 - 0x3fe00000 (14 MB)
[0.000000] .text : 0x40008000 - 0x40569ff0 (5512 kB)

Figure-13

Chapter 4 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 ℃
- 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

- NDS3244S Multi-Channel Encoder 1pc
- HDMI cables 24 pcs
- Power cord 1pc