

HPR8401SM series

SD Encoder + Modulator

User's Manual

V1.21



HPR8401SM-4 AV input



HPR8401SM-8 AV input

1 Product Overview

The HPR8401SM series is the latest cost-effective SD encoder modulator. It supports 4 / 8 CVBS inputs, 1 channel Gigabit IP input / output; 4 channel(ATSC、ISDBT、DTMBT、DVB-C/-T) output, MPTS and SPTS output. With high integration, great performance and low cost, Integrating a complete front-end system functions, this device is highly welcomed in small digital TV transmission systems such as hotels, clubs, hospitals,etc.

2 Key Features

- 4 / 8 channels CVBS input
- 1 Gigabit IP input/output, 128 SPTS and 1 MPTS output, UDP/RTP protocol (multicast)
- All standard modulation (ATSC、ISDBT、DTMBT、DVB-C/-T) output optional.
- Support 2* ASI input/output (optional)
- Web network management
- Support online software upgrading

3 Specifications

Input	4/8 CVBS		
	ASI input (optional)		
	128 IP address input		
Output	RF output 4 frequencies (DVB-C/DVB-T/ATSC/ISDBT/DMBT)		
	ASI output (optional)		
	IP output (128 SPTS/1 MPTS) IP output over UDP and RTP protocol		
Modulation Mode	DTMBT		4 DTMB
		Standard	DTMB GB20600-2006
		Constellation	4QAM、16QAM、32QAM、64QAM
		MER	≥40dB
		RF frequency	96~864MHz, 1kHz step
		RF output level	-35dBm~-5dBm, 0.1dB step
	DVB-T		4 DVB-T
		Standard	EN300744
		FFT	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	≥42 dB
		RF frequency	96~864MHz, 1KHz step
		RF output level	-35~ -5dBm, 0.1db step
	DVB-C		4 DVB-C
		Standard	EN300 429/ITU-T J.83A/B/C
		MER	≥40db
		RF frequency	96~864MHz, 1KHz step
		RF output level	-35~-5dBm , 0.1dBm step
		SR	5.0Msps~7.0Msps, 1ksps step
		Constellation	16/32/64/128/256QAM
		Bandwidth	8M
	ATSC	Standard	ATSC A/53
		MER	≥40dB
		RF frequency	96~864MHz, 1KHz step
		Constellation	8VSB
	ISDBT	Standard	ARIB STD-B31
		FFT	2K
		Constellation	DQPSK, QPSK, 16QAM, 64QAM

		FEC	1/2, 2/3, 3/4, 5/6, 7/8
		Hierarchical mode	A
		Bandwidth	6M
Video Encoding	Encode Format	MPEG-2	
	Code Rate	1Mbps~13Mbps (each channel)	
	Input port	CVBS	
	Resolution	Input : 720x576i/720x480i (PAL/NTSC)	
		Output : 720×576 / 720×480 (PAL/NTSC) 544×576 / 544×480 (PAL/NTSC) 480×576 / 480×480 (PAL/NTSC) 352×576 / 352×480 (PAL/NTSC) 352×288 / 352×240 (PAL/NTSC) 176×144 / 176×112 (PAL/NTSC)	
Video Encoding	Rate Mode	CBR	
	Encode Format	MPEG1 Layer2	
	Sample Rate	48KHz	
	Bit Rate	64kbps ,128Kbps,192kbps,224kbps,256kbps,320kbps, 384kbps	
System	Web/NMS		
	中文/English		
Miscellaneous	Dimensions		440mm×270mm×40mm
	Weight		3-5 kg
	Temperature		0~45℃(Operation); -20~80℃(Storage)
	Voltage range		AC100~240V, 50/60Hz
	Power consumption		<30W

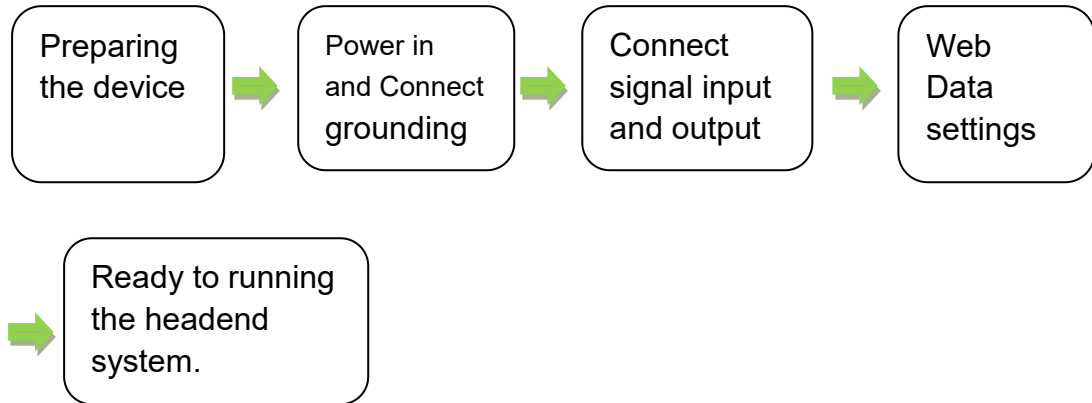
4 Front / Rear Panel



1.	LCD Display
2.	RF Out
3.	Buttons and Indicator lights
4	Reset(Press and hold for 3 seconds until the red light flashes)
5.	ASI
6.	NMS、DATA Input/ output
7.	CVBS input
8.	Power

5 Installation

5.1 Installation process:



5.2 Grounding

The headend encoder modulator and chassis for headend equipment both have to make grounding well, to protect the equipment from Lightning strikes or electricity instability.

5.5.2.1Web setting connection

Connect the encoder modulator from port “DATA 1/2” to computer by network cable.

6 Web Management

6.1 Description

Web Management is for the control, managing and settings of the digital headend equipment. The Browser to running the software we suggest is for IE8 or higher version or Firefox.

6.2 Log on the equipment

Open the browser, input IP: 192.168.0.136



Then input the user name and password:

User name: admin.

Password: admin

■ Caution:

1.If fail to connect the computer and headend equipment, please check if the computer and headend equipment are in same IP range.

For example: The computer IP is 192.168.99.252,then we may need to set the headend equipment IP to be 192.168.99.xxx (from equipment front panel LCD screen), or to set the computer IP to be

same IP range as the equipment. (xxx can be any of 1-254 except“252”).

2. From front panel LCD SCREEN you can check the IP address of the headend equipment. The original IP : 192.168.0.136.

6.3.1 Basic instructions

After log on, you will get the following interface,

The screenshot shows the STATUS page of the HPR8401SM SD Encoder modulator. The interface includes a left menu with options like Device, Status, Band, Program Mux, Output, and Advance. The main content area displays various system status tables. Red arrows point to specific sections: 'Input/output status information' points to the ASI IN and RF Output tables; 'Network Settings Information' points to the ETH table; and 'Software and hardware versions, etc' points to the bottom table containing software, hardware, OS, web, and SN information.

Band	Slot	Name	Input Rate	Output Rate	Input Status	Output Status	ID	Version
L1		ENC-HD 264 4CH	0.0 Mbps				0x25	0x0012
L2		ENC-HD 264 4CH	0.0 Mbps				0x25	0x0012

ASI IN	Prog Counts	Bit(Act)	Lock
ASI-1	0	0.0 Mbps	
ASI-2	0	0.0 Mbps	

RF Output	Type	Freq	Prog Counts	Bit(Act/Max)	Overflow
1RF	ISDBT	474.000MHz	2	0.1/23.2 Mbps	
2RF	ISDBT	480.000MHz	2	0.1/23.2 Mbps	
3RF	ISDBT	486.000MHz	2	0.1/23.2 Mbps	
4RF	ISDBT	492.000MHz	2	0.1/23.2 Mbps	

MPTS	Prog Counts	Bit(Act/Max)	Overflow
1	0	0.0/120.0 Mbps	

ETH	IP	Subnet Mask	Gateway	Mac
NMS	192.168.0.136	255.255.255.0	192.168.0.1	02:20:17:04:02:13
GE1	192.168.2.136	255.255.255.0	192.168.2.1	02:20:17:04:02:13

Software	Hardware	OS	Web	SN	Running Time
730.1165 FE	6.10.0.14	1.26.1.62E	2.113	202007151430	0 Day-02:10:32

Tune to English version

Status: shows the basic information like the version of the system.

Input/ output status: shows the signal input and output status.

Software version: the version of the running software

Hardware version: the version of the running hardware

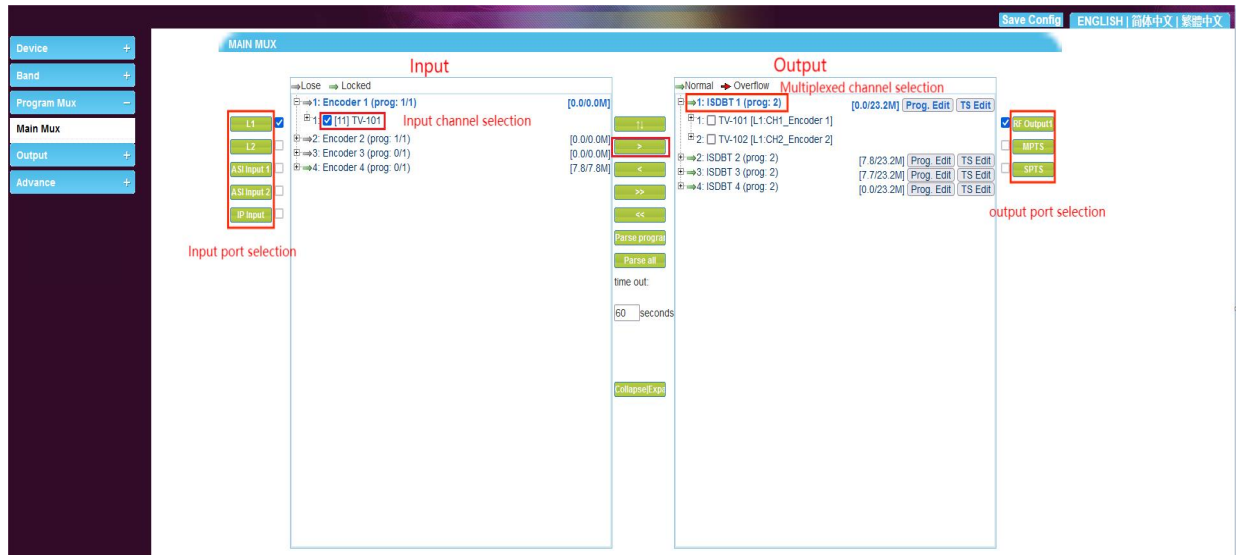
Web version: the running web page version

The System: the running system version

Time: the running time

6.3.2.2 Program stream settings

1.Main Mux



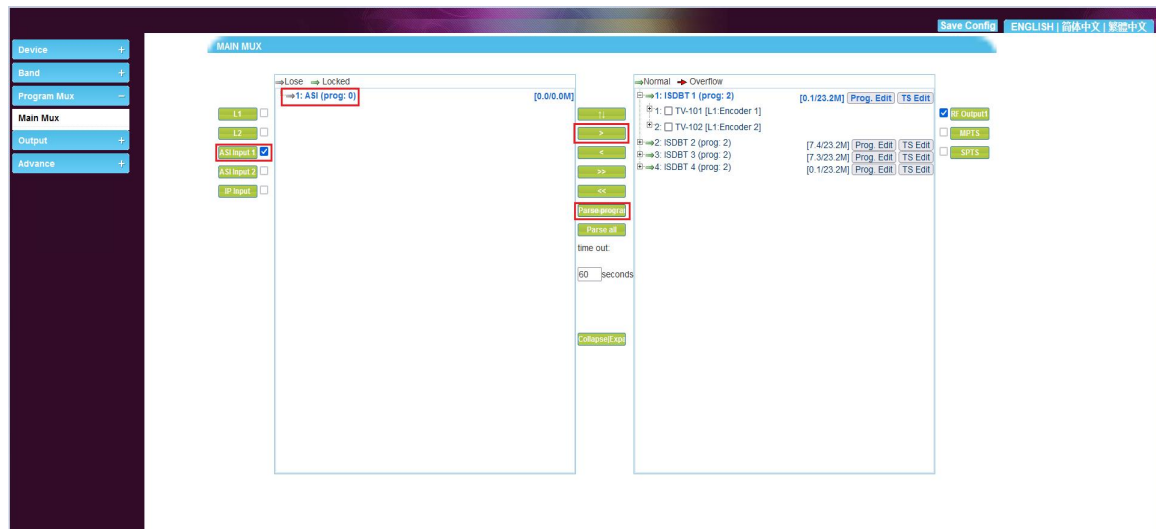
A、Program Edit: First choose the program, tick it ☒ [11], click“>”, to connect this program to the chosen frequency.

B、Program delete: : First choose the program, tick it ☒ [11], click “<”,to delete this program from this frequency.

Function description:



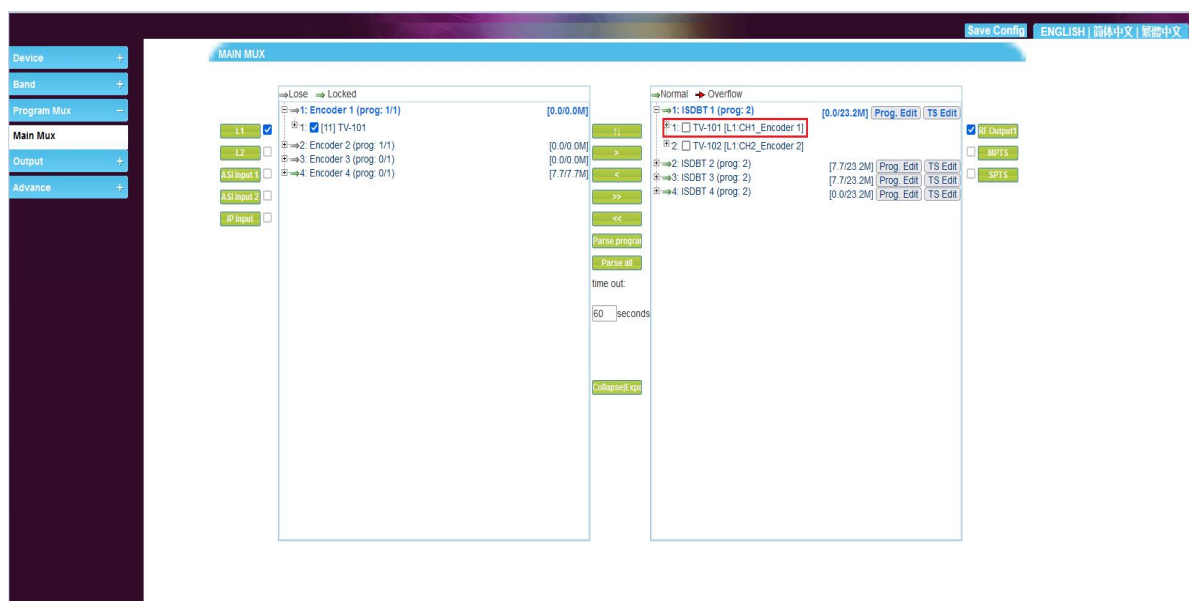
2. ASI input Mux



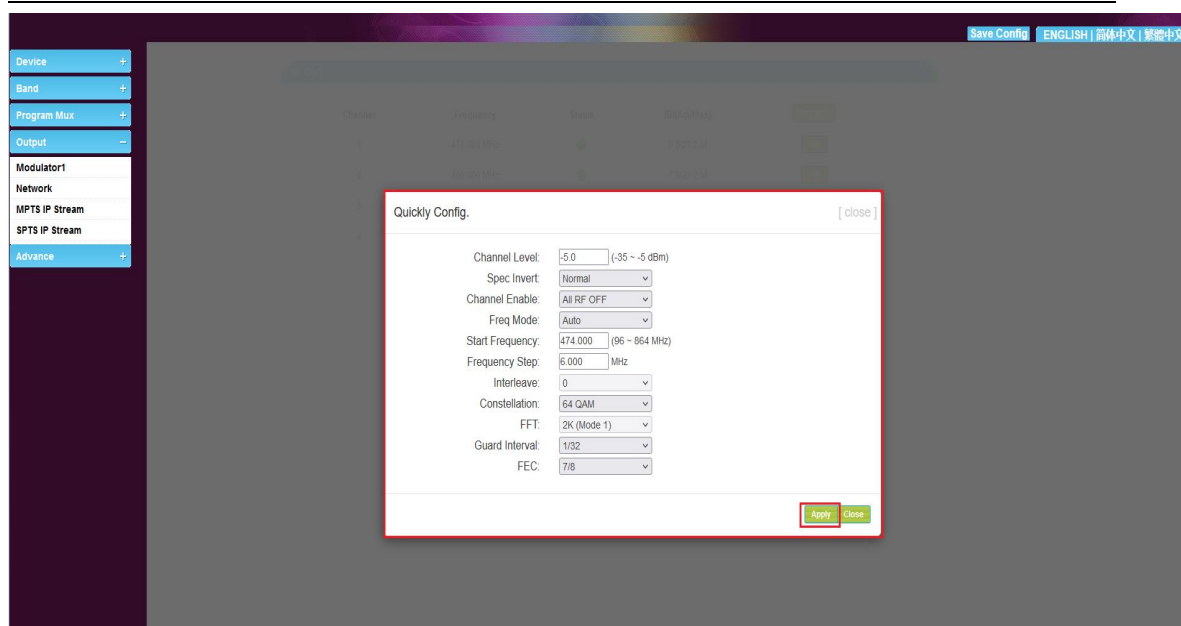
Click “ASI input 1”, choose “1: ASI(prog: 0)” then click decoding the program and then to choose program to the related frequencies.

3. How to Modify the program data setting

Click the frequency and choose the program you want to edit, as follows:



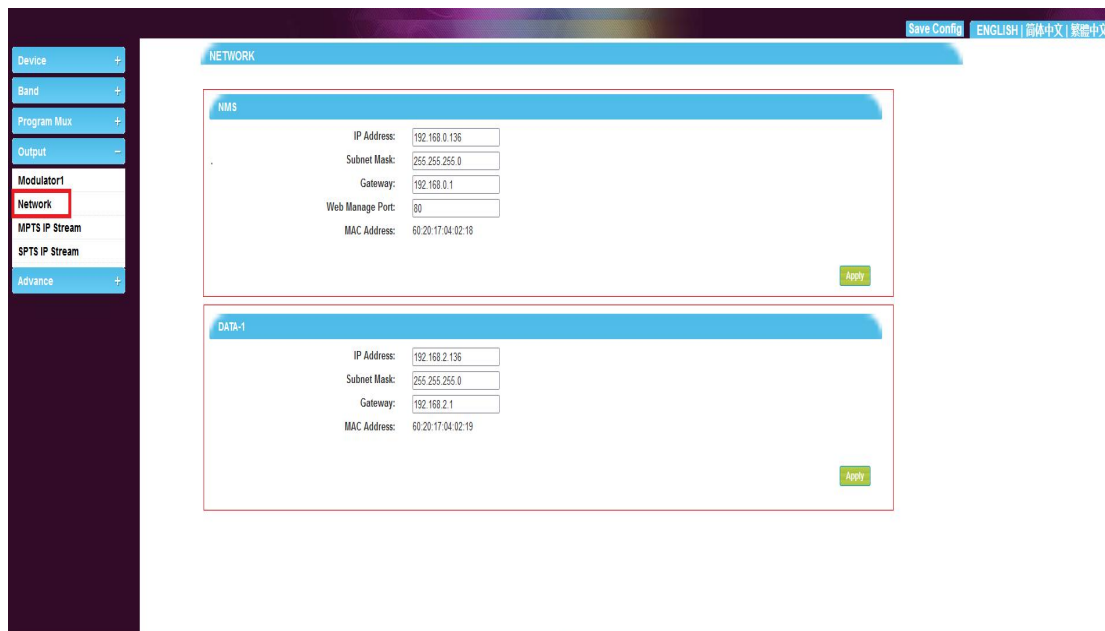
You will get the information of the programs:



Click “Apply” to save the settings .

6.3.2.4 Network settings

To set or change the IP address of the equipment:



Click “Apply”to save the settings.

6.3.2.5 MPTS IP stream settings

MPTS IP setting as follows :

Save Config | ENGLISH | 简体中文 | 繁體中文

MPTS IP STREAM

Tips:

1. RTSP can be supported by choosing RTP as the output protocol
2. RTSP Output format for MPTS1 is as follows rtsp://192.168.2.136:6666/mpts1
3. RTSP Output format for SPTS1 is as follows rtsp://192.168.2.136:6666/spts1
4. 192.168.2.136 in RTSP output format is the IP address of DATA-1
5. RTSP Output Protocol must have two channel ports spaced at or greater than 2

General:

Protocol:

ASI OUT:

ASI OUT2:

Channel Info.(Alarm/Active/Total): 0/0/1

Channel	Address	Port	TTL	Enable	Null PKT Filter	Source TS	Out ETH	Bit(Act/Max)	<input type="button" value="Edit ALL"/>
1	239.2.2.2	2000	128	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	MPTS 1	DATA	0.0/120.0 M	

Click

Save Config | ENGLISH | 简体中文 | 繁體中文

MPTS IP STREAM

Tips:

1. RTSP can be supported by choosing RTP as the output protocol
2. RTSP Output format for MPTS1 is as follows rtsp://192.168.2.136:6666/mpts1
3. RTSP Output format for SPTS1 is as follows rtsp://192.168.2.136:6666/spts1
4. 192.168.2.136 in RTSP output format is the IP address of DATA-1
5. RTSP Output Protocol must have two channel ports spaced at or greater than 2

General:

Protocol:

ASI OUT:

ASI OUT2:

Channel Info.(Alarm/Active/Total): 0/0/1

Channel	Address	Port	TTL	Enable	Null PKT Filter	Source TS	Out ETH	Bit(Act/Max)	<input type="button" value="Edit ALL"/>
1	239.2.2.2	2000	128	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	MPTS 1	DATA	0.0/120.0 M	

Edit ALL [close]

Tips:

Use this page to edit all ip streams.

All IP Enable Open/Close all ip streams.

All IP Address all ip streams use the same address.

Start Port the port of the first ip stream.

Step the step of port if you do not want to modify the Address and Port set 0.

All IP Null PKT Filter: Open/Close Null Pkt of all ip streams.

All IP Enable: ☒

All IP Address:

Start Port:

Step:

TTL:

All IP Null PKT Filter: ☐

Click “Apply”to save the settings.

6.3.2.6 SPTS IP stream setting

SPTS IP setting as follows :

1 RTSP can be supported by choosing RTP as the output protocol
 2 RTSP Output format for MPTS1 is as follows rtsp://192.168.2.136:6666/mpts1
 3 RTSP Output format for SPTS1 is as follows rtsp://192.168.2.136:6666/spts1
 4 192.168.2.136 in RTSP output format is the IP address of DATA-1
 5 RTSP Output Protocol must have two channel ports spaced at or greater than 2

Rate Monitor:
 1.ON:Turn off the output when the code rate is lower than 200kbps, and turn on the output when the code rate is higher than 1Mbps
 2.OFF:Turn off rate monitoring function

General:
 Protocol: UDP
 Rate Monitor: OFF
 Set

Channel Info.(Alarm/Active/Total): 0/4/4

SPTS 1-128

Channel	Address	Port	TTL	Enable	Monitor Status	Source TS	Bit(Act)
1	239.2.2.2	3000	128	✓	●	Digital 1(Tuner 1)	0.0 M
2	239.2.2.2	3002	128	✓	●	Digital 1(Tuner 2)	0.0 M
3	239.2.2.2	3004	128	✓	●	Digital 1(Tuner 3)	0.0 M
4	239.2.2.2	3006	128	✓	●	Digital 1(Tuner 4)	0.0 M

Quick setting Edit All

Channel switch

Click “Edit All”

SPTS IP STREAM

RTSP Tips:
 1.RTSP can be supported by choosing RTP as the output protocol
 2.RTSP Output format for MPTS1 is as follows rtsp://192.168.2.136:6666/mpts1
 3.RTSP Output format for SPTS1 is as follows rtsp://192.168.2.136:6666/spts1
 4.192.168.2.136 in RTSP output format is the IP address of DATA-1
 5.RTSP Output Protocol must have two channel ports spaced at or greater than 2

Rate Monitor:
 1.ON:Turn off the output when the code rate is lower than 200kbps, and turn on the output when the code rate is higher than 1Mbps
 2.OFF:Turn off rate monitoring function

General:
 Protocol:
 Rate Monitor:

Channel Info.(Alarm/Active/Total): 0/4/4

SPTS 1-128

Channel

Bit(Act) Edit All

Edit ALL

Tips:
 Use this page to edit all ip streams.
 All IP Enable Open/Close all ip streams.
 All Out Bitrate set all ip out total bitrate.
 All IP Address all ip streams use the same address.
 Start Port the port of the first ip stream.
 Step the step of port if you do not want to modify the Address and Port set 0.

All IP Enable: ☒
 All IP Address: 239.2.2.2
 Start Port: 3000
 Step: 2
 TTL: 128

Apply Close

Click Apply save to save the settings.

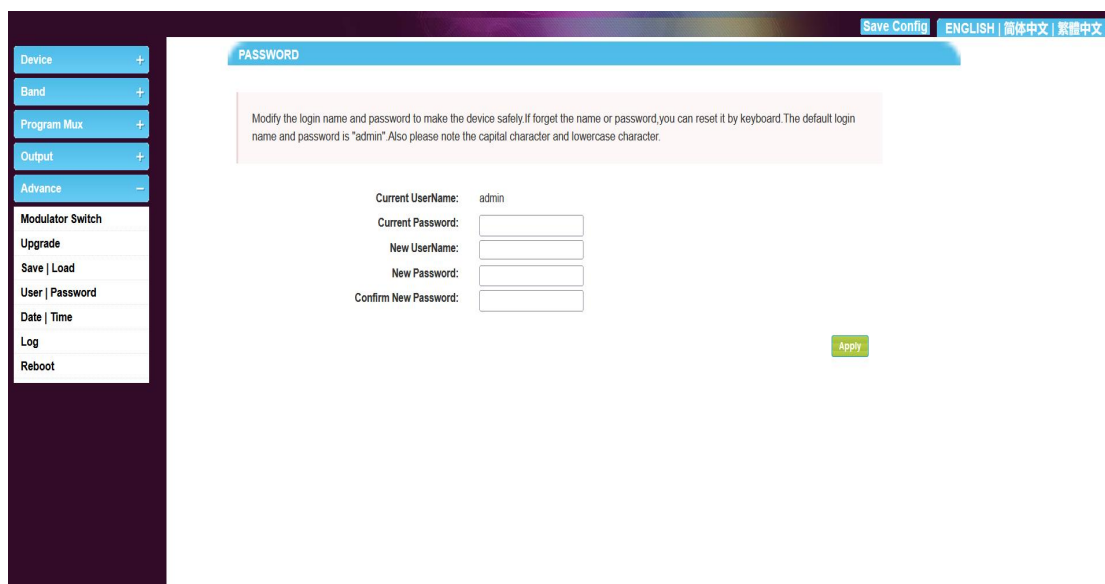
6.3.3 Advanced settings

This is for advanced settings to the encoder modulator, including the modulation format switching, software updating, uploading .

6.3.3.1 Upgrade

We generally suggest users do not do modulation format switching without our online supporting. If you need to switch the modulation into other format, or upgrade the software, please contact us to make online supporting.

6.3.3.2 User/password settings



Save Config ENGLISH | 简体中文 | 繁體中文

PASSWORD

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.

Current UserName: admin

Current Password:

New UserName:

New Password:

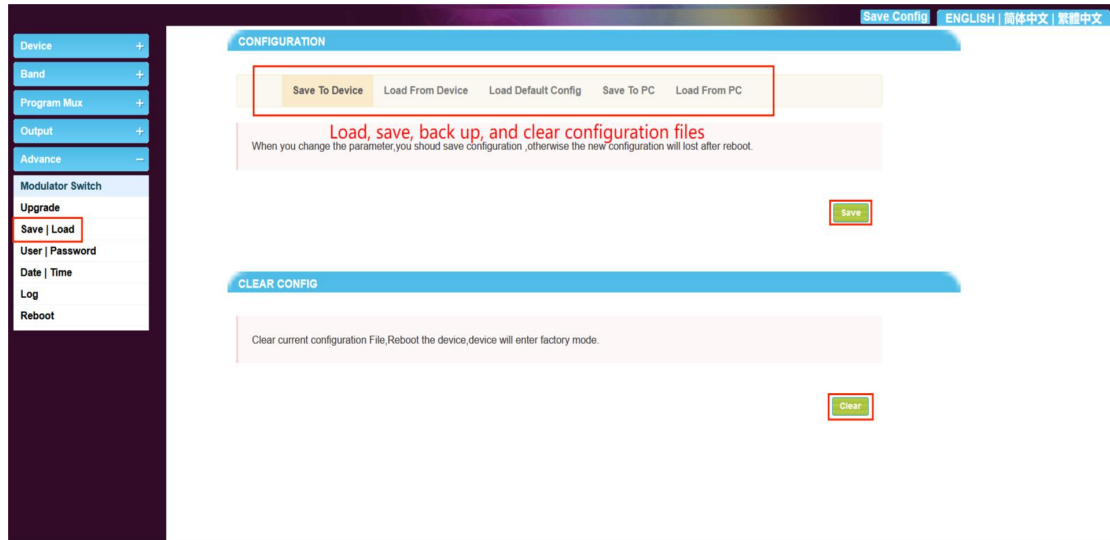
Confirm New Password:

Apply

Default username and password: admin

If you have changed your account and password, keep them securely.

6.3.3.3 Save / load the settings



- 1、 Save to device: After change any of the data or settings, please click “save to device”to match the settings between the software and the device.
- 2、 Load from device: This is to download the recent settings from the device. Please save the settings when finish the downloading.
- 3、 Load the default config: This is to reset the device to the factory settings.
- 4、 Save to PC: This is to save the current configuration to local files in PC. Users are suggested saving the settings before upgrading the device.
- 5、 Load from PC: Users can replace the current settings with the backup settings from local files (PC).Note: Do not turn off the computer on the process of downloading, otherwise the device will not work.
- 6、 Clear configuration: Click “Clear”to delete all the current setting to reset the data settings.

6.3.3.4 Date/ Time

DATE | TIME

1970-01-01 01:05:26

Timezone: (GMT) Greenwich Mean Time, Dublin, Edinburgh v

NTP Server 1:

NTP Server 2:

NTP Server 3:

NTP Server 4:

NTP Server 5:

Set Timezone
 Set NTP
 Update from browser

To set the date and time.

6.3.3.5 Blog

The configuration information of the equipment.

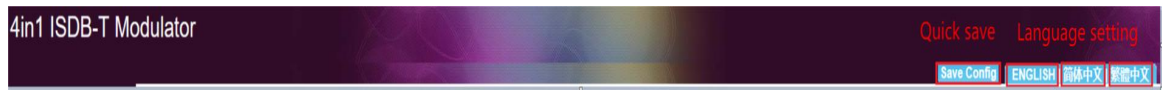
LOG

Log Type: Kernel Log
 Auto Refresh: 0
 Export
 Clear log

```
[ 0.000000] Booting Linux on physical CPU 0x0
[ 0.000000] Linux version 3.19.0-xilinx (root@localhost.localdomain) (gcc version 4.9.1 (Sourcery CodeBench Lite 2014.11-30)) #28 SMP PREEMPT Wed Dec 29
[ 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 405aee00, node_mem_map 4fd0000
[ 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 @4fdd2000 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
[ 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: 129692(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: 224304K/262144K available (3864K kernel code, 222K rwdara, 1504K rodata, 196K init, 291K bss, 21456K reserved, 16384K cma-reserved,
[ 0.000000] Virtual kernel memory layout:
[ 0.000000] vector : 0xffff0000 - 0xffff1000 ( 4 kB)
[ 0.000000] fixmap : 0xffc00000 - 0xffff0000 (3072 kB)
[ 0.000000] vmalloc : 0x50800000 - 0xff000000 (2792 MB)
[ 0.000000] lowmem : 0x40000000 - 0x500000000 ( 256 MB)
```

When the device is abnormal, the device work log can provide some useful information.

6.3.4 Language exchange



Click "English" to change the web interface and LCD display into English version.

Click " **Save Config** " to quickly save your Settings. Please save the changes after all operations.

7 Cautions

Please follow the following tips to set running the equipment to make sure safety and performance.

7.1 Precaution

- ◆ Place the equipment in an suitable place with a temperature range of 0-45℃
- ◆ Make sure that heat sink on the rear panel is well ventilated, and all jacks smooth opening;
- ◆ Check the power voltage, and all power connections;
- ◆ Check the RF output level to make sure it is in the working range;
- ◆ Recheck all connections;
- ◆ Don't switch OFF/ON the equipment frequently (each

switch on and off should be Min. 10 seconds later)

7.2 When do you need to unplug the power

- The power cord or socket is damaged.
- If any liquid get into the equipment.
- Short circuit caused by anything getting into the chassis.
- Rainfall or soaking to the equipment.
- Any damage to the equipment.
- Long idleness of the equipment.
- Equipment does not work after preset recovery.
- Equipment maintenance

Warranty description:

1. The product warranty period is one year, calculated from the time of shipment from the factory;
2. The warranty covers the problems that occur under normal use of the product.

The warranty does not apply to the following conditions:

- 1) Beyond the warranty period;
- 2) Damage caused by transportation, loading and unloading during return or repair;
- 3) Disassemble, modify or maintain the equipment without authorization;
- 4) Equipment failure or damage caused by accidental factors or humans (such as extrusion scratches, bump deformation, liquid intake, foreign matter falling into, network virus, incorrect insertion and removal, etc.);
- 5) Malfunctions or damages caused by equipment not being installed in the correct working conditions or environment (such as: bad working environment, high temperature, low temperature, high salt and high humidity, low voltage, high voltage or unstable power supply, not correctly grounded , abnormal physical pressure, corrosion, etc.);
- 6) Equipment failure or damage caused by not following the installation, use, maintenance, and storage requirements of the user manual;
- 7) The equipment nameplate, QR code does not match the product model, or the factory label cannot be recognized or is altered;
- 8) Failure or damage caused by the use of other products or parts other than our company;
- 9) Failure or damage caused by force majeure factors (including natural disasters such as flood, fire, lightning, earthquake, etc., and social events such as war, unrest, etc.);
- 10) If the equipment fails or is damaged due to the above reasons, we will charge the corresponding fee after repair.