SFT2500C 32 in 1 IP to Analog 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.

Disclaimer

The contents of this document are subject to revision without notice due to continued progress in methodology, design and manufacturing. SOFTEL shall have no liability for any error or damage of any kind resulting from the use of this document.

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Chapter 1 Product Overview

1.1 Key Features

- 2 GE ports (max 64 IP input over MPTS/SPTS), Max 840Mbps for each GE input
- Support HEVC/H.265, H.264/AVC, MPEG-2 TS Decapsulation
- Processing of up to 32 IP multicast groups of a Gigabit Ethernet MPEG TS into up to 32 standard PAL or NTSC or SECAM TV programs (SECAM is under development)
- 32 non-adjacent and adjacent carriers output within 400MHz
- high density
- Support Web-based Network management

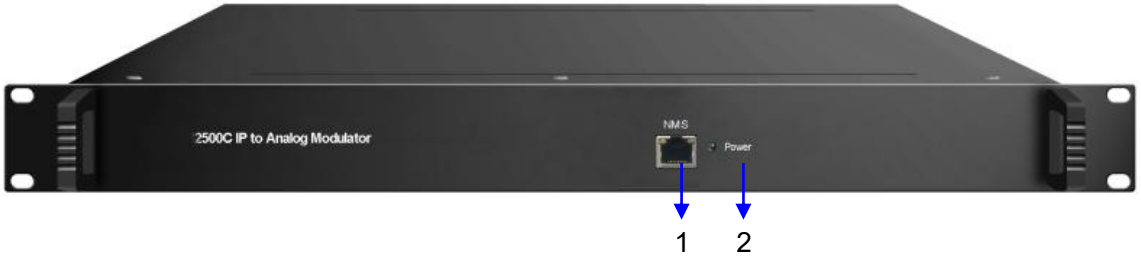
1.2 Specifications

Input	Interface/rate	2 GE ports (max 64 IP input) Max 840Mbps for each GE input
	Stream	UDP, UDP / RTP, 1-7 packets, FEC, SPTS, MPTS
	Transport Protocol	UDP/RTP, unicast and multicast, IGMP V2/V3
	Packet Length	188 / 204 Bytes
Decoding Parameters	Video	HEVC/H.265, H.264/AVC Level 4.1 HP, MPEG-2 MP@HL
	Audio	MPEG-1/2 Layer 1/2, (HE-)AAC,AC3
	Data	Teletext, Teletext subtitles, DVB Subtitling
	Resolutions	**HEVC/H.265:** 1080@60P ,1080@60I,1080@50P,1080@50I,720@60P,720@50P **H.264/AVC:** 1080@60I,1080@50P,1080@50I,1080@30P,1080@25P , 720@60P,720@50P,576@50I,480@60I **MPEG2:** 1080@60I,1080@50I, 720@60P,720@50P,576@50I,480@60I
	Aspect ratio	4:3/16:9

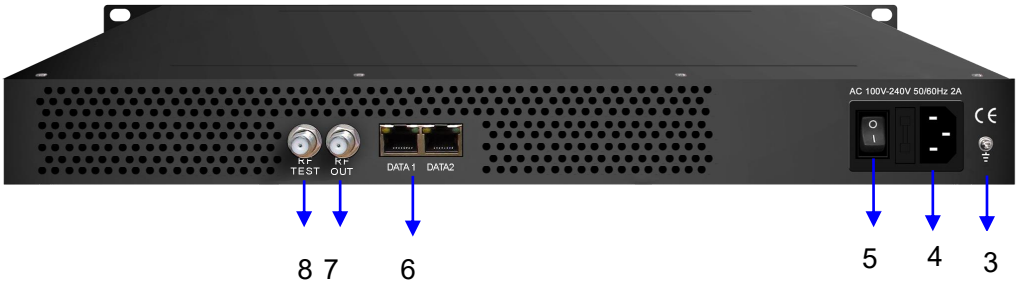
Modulation Parameters	Number of channels	up to 32
	Connectors	75 Ω , F-jack
	Frequency range	47 – 862MHz, digital modulation process
	Output Bandwidth	400MHz
	Output level	maximum 112dB μ V
	Return loss	≥ 14dB
	Spurious frequency dist.	≥ 60dB
	Stereo cross talk	> 55dB
	Residual carrier accuracy	1%
	TV standard	PAL B/G/D/K/M/N, NTSC M/J/4.43, SECAM (under development)
	Video-signal to noise ratio	≥ 60dB
Network Interface	Management	1 x 100 Base-T Ethernet (RJ 45)
	Data	2 x 1000 Base-T Ethernet (RJ 45)
	Protocol	IEEE802.3 Ethernet, RTP, ARP, IPv4, TCP/UDP, HTTP, IGMPv2/v3
Others	Image resolution	up to 1080i
	CNR	60 dB (after internal combining)
	SNR	> 53 dB (after internal combining)
	Sampling frequency	48, 44.1, 32
	Output volume adjustment	0 - 100 %
General	Demission	420mm×440mm×44.5mm (WxLxH)
	Temperature	0~45℃(operation), -20~80℃(storage)
	Power Supply	AC100V±10%, 50/60Hz or AC 220V±10%,50/60Hz

1.3 Appearance and Illustration

Front panel Illustration



Rear Panel Illustration:



1	NMS: network management port
2	Power Indicator
3	Grounding
4	AC Power Socket
5	Power switch
6	Data Input
7	RF output port
8	RF test port

Chapter 2 Installation Guide

2.1 Acquisition Check

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

- SFT2500C 32 in 1 IP to Analog Modulator
- User's Manual
- Power Cord

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

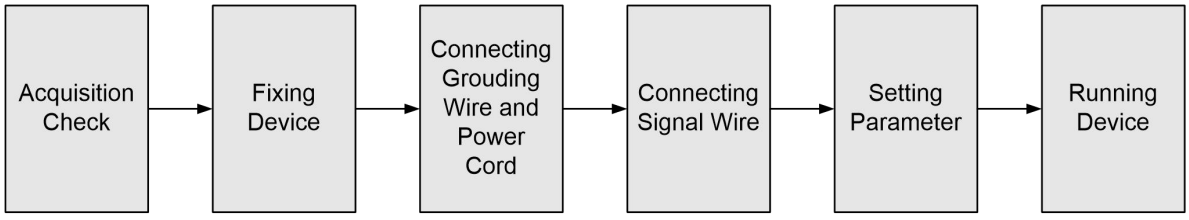
2.2 Installation Preparation

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 steps of the installation include:

- Checking the possible device missing or damage during the transportation
- Preparing relevant environment for installation
- Installing SFT2500C 32 in 1 IP to Analog Modulator
- Connecting signal cables
- Connecting communication port (if it is necessary)

2.2.1 Device's Installation Flow Chart Illustrated as follows:



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: $1X10^7$~$1X10^{10}$ Ω, 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 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 power 220V ±10% 50/60Hz or 110V ±10% 50/60Hz. Please carefully check before running.

2.2.3 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 cables' 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

2.3.1 Power cord connection

The power socket is located on the right of rear panel, and the power switch is on the left of front panel. User can plug one end of the power cord to the socket and insert the other end to AC power. 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 SFT2500C 32 in 1 IP to Analog Modulator

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, user should set the power switch to "OFF".

2.3.2 Signal and NMS Cable Connection

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

- SFT2500C 32 in 1 IP to Analog Modulator Cable Illustration:

- **RF Input/Loop Cable Illustration:**

- **NMS Cable illustration (CAT5):**

Chapter 3 Web NMS Management

This device does not support the LCD operation, and the modification can only be operated under Web NMS.

3.1 Login

The factory default IP address is 192.168.0.136 and users can connect the device and web NMS through this IP address.

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

Launch the web browser an input the device IP address in the browser's address bar and press Enter.

It displays 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.

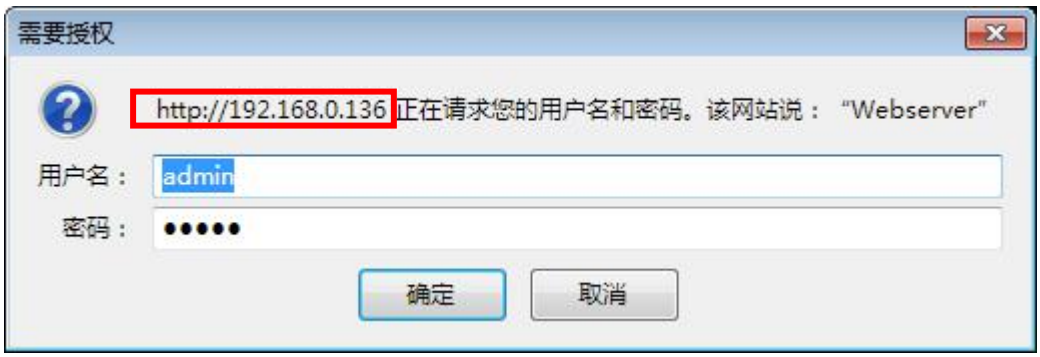

Figure-1

3.2 Operation

3.2.1 Summary

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

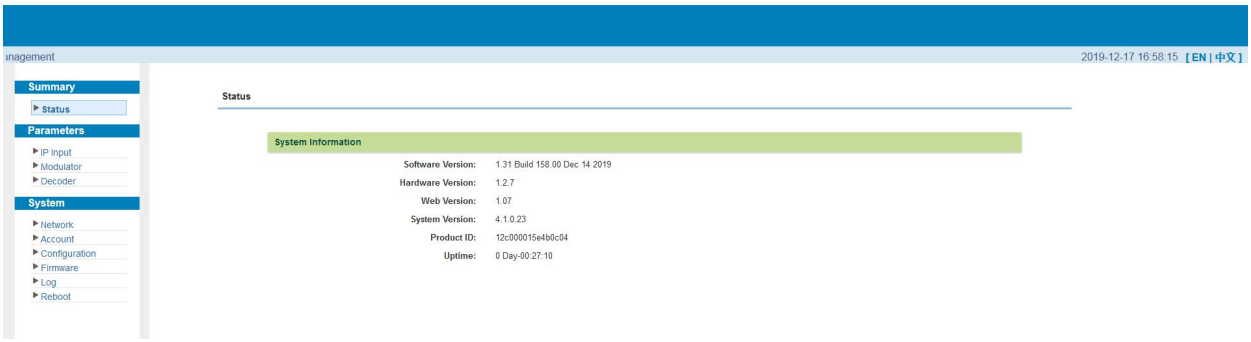

Figure-2

3.2.2 Parameters

Parameters → IP Input:

Click “IP Input”, it displays the interface as Figure-3. Users can select the output TS channels. Click “+” to add IP input, and then select one channel to parse. It will display the interface where users can choose the programs to output.

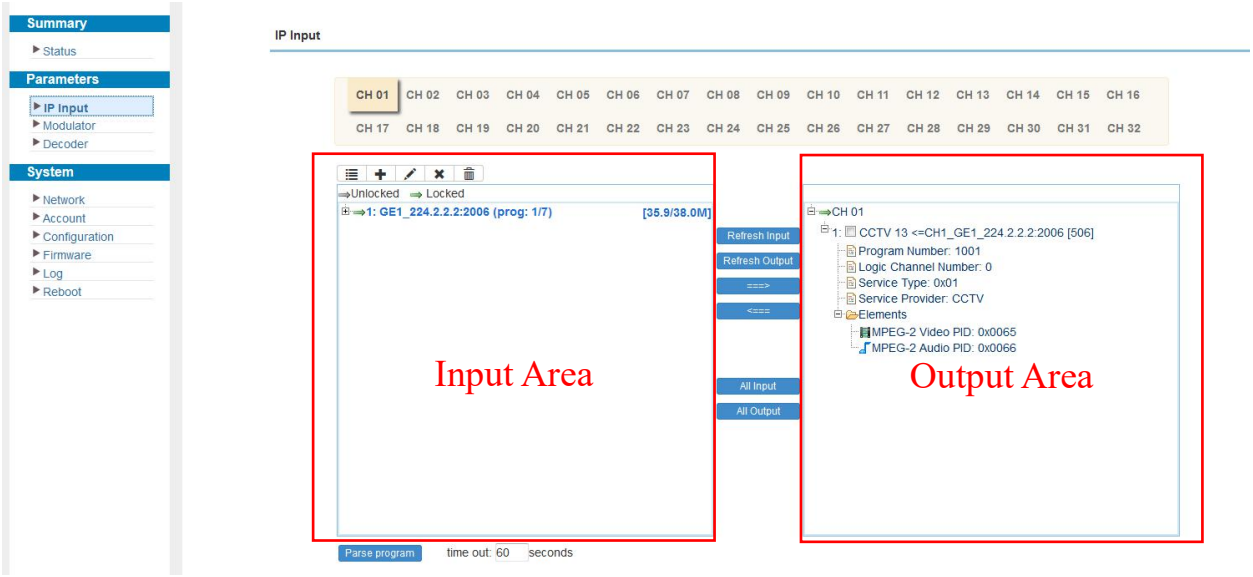

Figure-3

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

: To add input channel which come from Data1 or Data 2 or Data Module (front panel)

: To edit the input channel

: To delete the input channel

: To delete all inputs channel

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

Parameters → Modulator:

Clicking "Modulator", it will display the interface as Figure-4 where to set RF output parameters. The output bandwidth capacity is 400MHz. Make sure the difference between the starting frequency and end frequency will not exceed 400MHz.

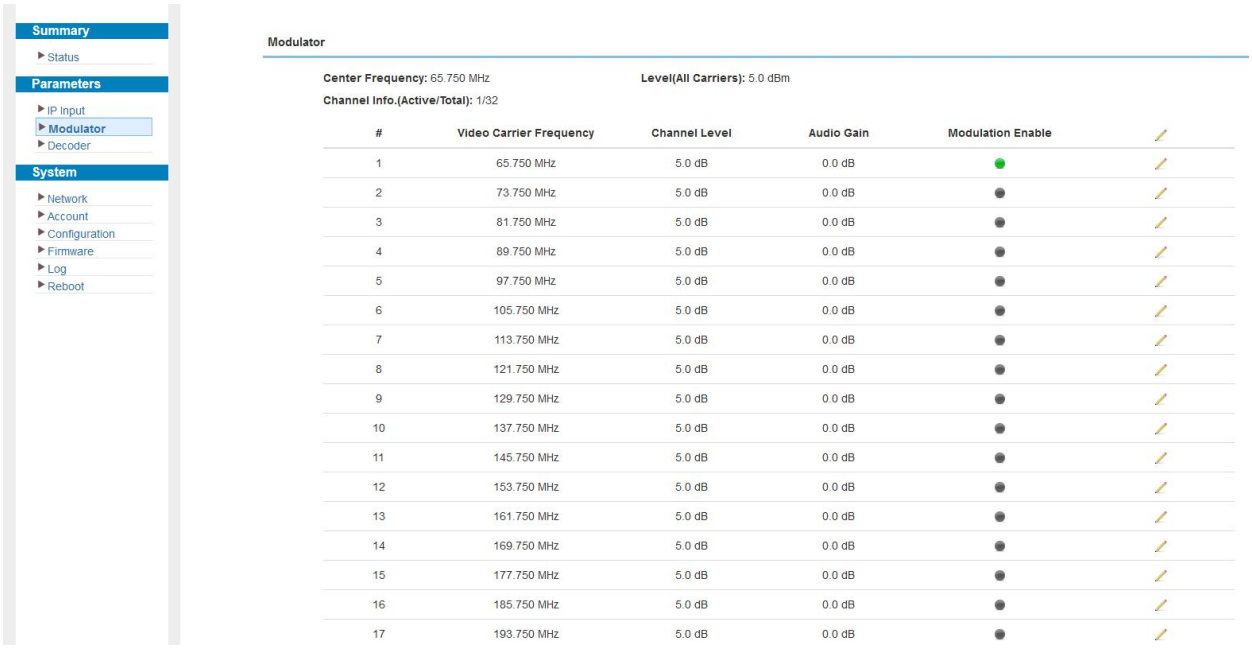

Figure-4

Parameters → Decoder:

This function is to monitor status of decoding. It displays the interface as Figure-5.

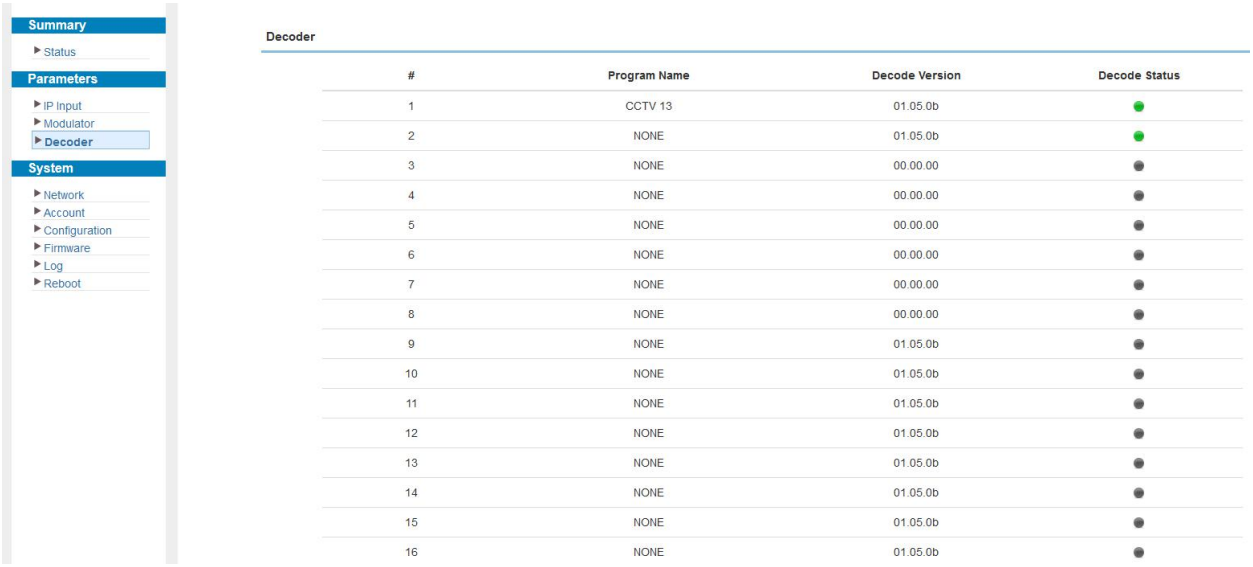

Figure-5

3.2.3 System

System → Network:

Click 'Network', it displays the interface as Figure-6 where to set network parameters.

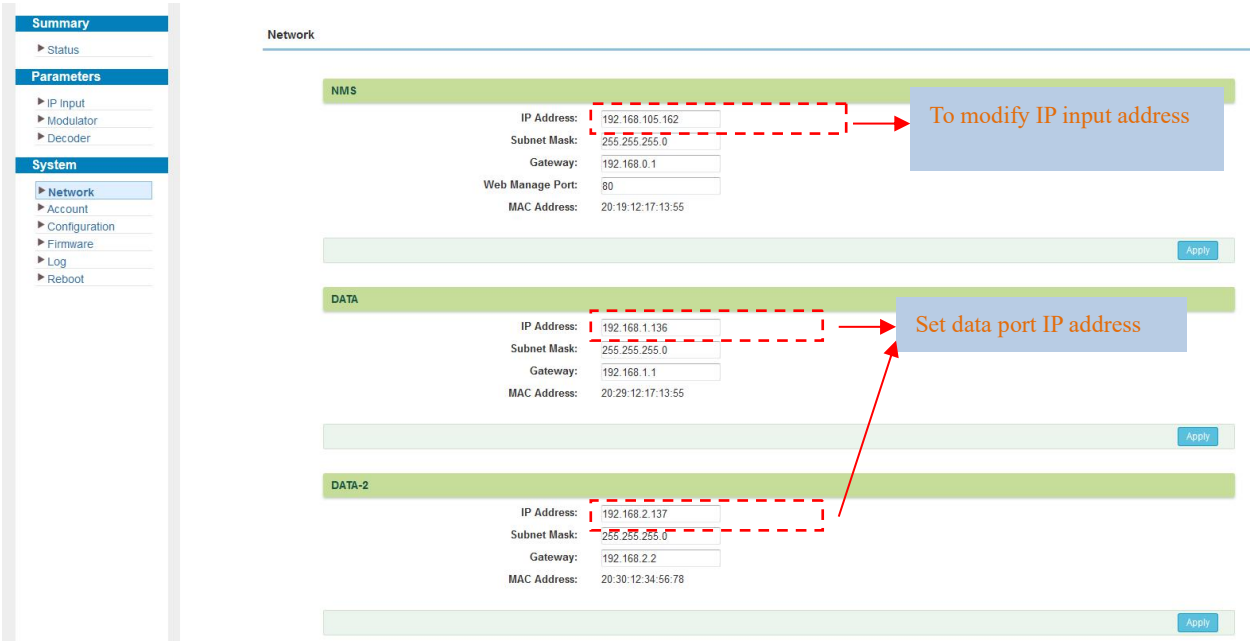

Figure-6

System → Account:

Click "Account", it displays the screen as Figure-7 where to set the login Username and password for the web NMS.

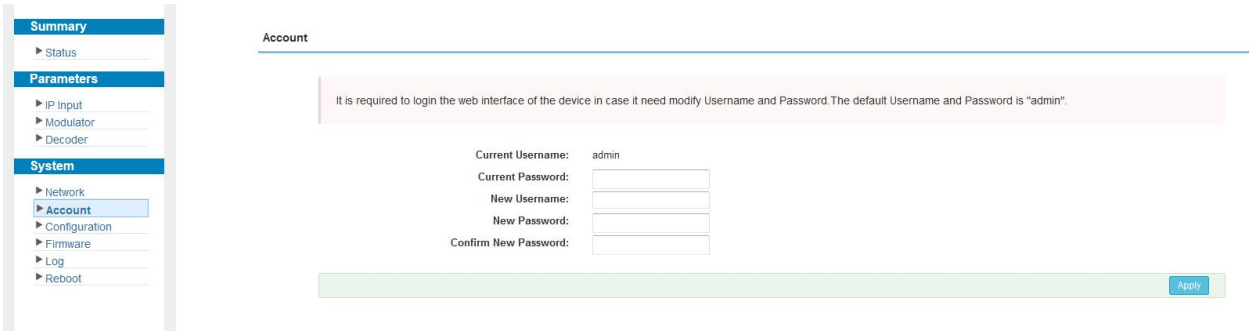

Figure-7

System → Configuration:

Click "Configuration", it displays the screen as Figure-8 where to set your configurations for the device.

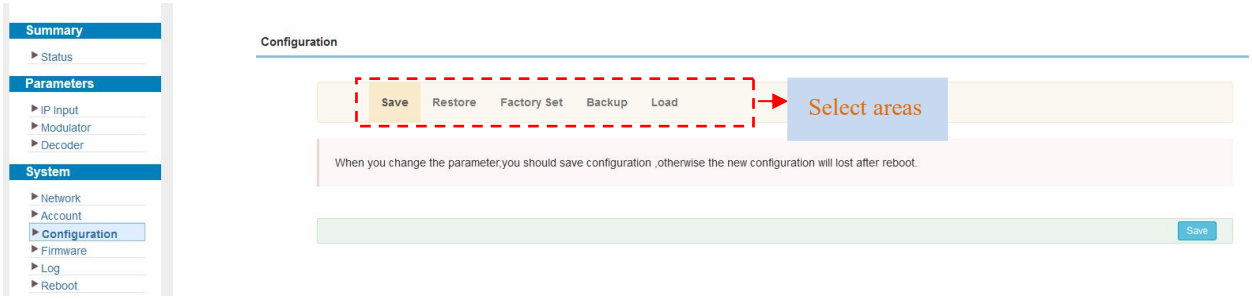

Figure-8

System → Firmware:

Click "Firmware", it displays the screen as Figure-9 where to update firmware for the device.

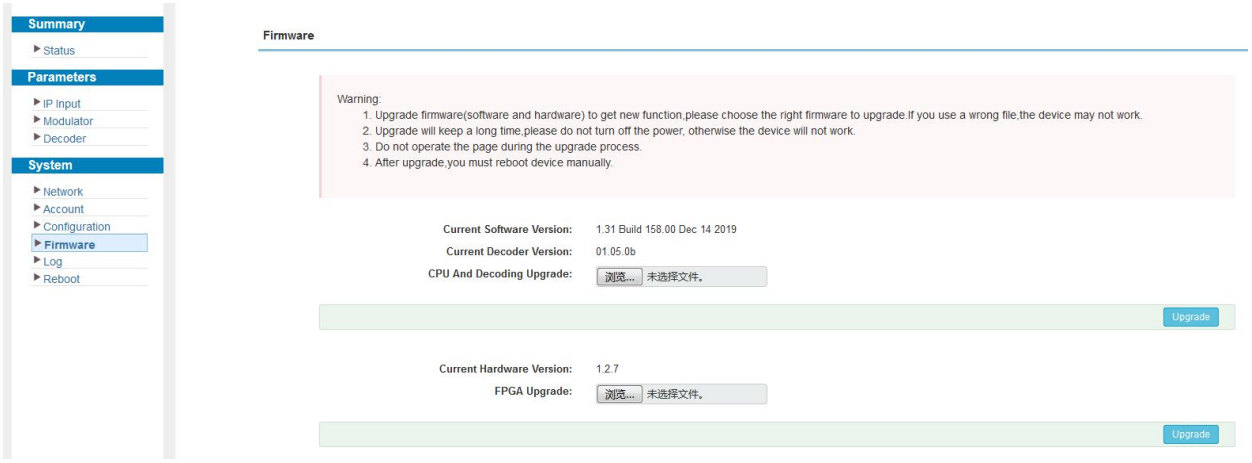

Figure-9

System → Log:

Click "Log", it displays the screen as Figure-10 where to check the "Log".

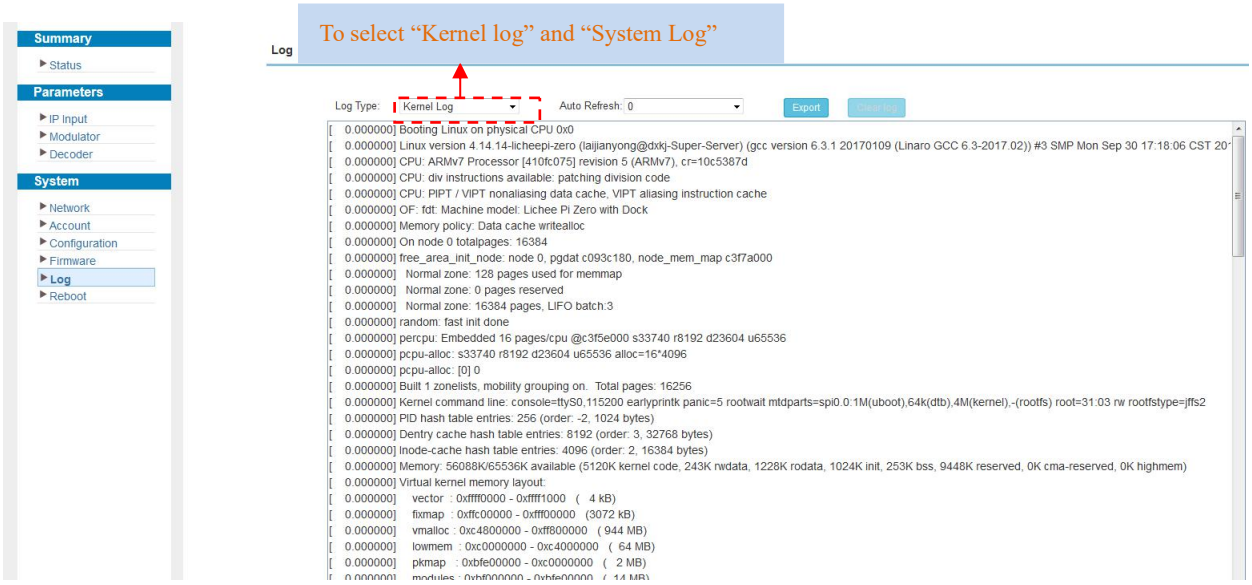

Figure-10

System → Reboot:

Click “Reboot”, it displays the screen as Figure-11 where to check the “Reboot”.

Figure-11

Chapter 4 Troubleshooting

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

- SFT2500C 32 in 1 IP to Analog Modulator 1 pc
- Power Cord 1 pc
- Grounding Cable 1 pc