User Manual

HD-IRD-V3-ATSC-DVBS2

Universal Satellite and ATSC IRD

Revision 5.22.2018

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A Note from Thor Broadcast about this Manual

Intended Audience

This user manual has been written to help people who have to use, 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. Thor 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 Outline

1.1 Overview

Universal Satellite and ATSC IRD is our all-in-one device which integrates demodulation, de-scrambler, re-mux and decoding in one case to convert RF signals into audio/video (CVBS/YPbPr/HDMI/SDI) output.
It is a 1-U case which supports 2 tuner inputs to receive signal from satellite. The two CAMs/CIs accompanied can descramble the programs input from encrypted RF, ASI and IP. The CAM requires NO unsightly external power cords, cables, or additional remote control device.
Its design facilitates the change of modules (demodulator or decoder) as needed.
To meet various requirements, Universal Satellite and ATSC IRD is also equipped with ASI and IP input for re-mux, and output with 2 ASI ports and IP port.

1.2 Features

- Demodulation + descrambler +re-mux+decoder modules in one box
- 1 DVB-S/S2 + 1 ATSC Tuner inputs
- 1 ASI & 1 IP (UDP) input for re-mux
- One CAM can decrypt multiple programs from Tuners/ASI/IP
- One channel video output with various interface option (MPEG2/H.264)
- Dual stereo audio output, or one Dolby Digital/Dolby Digital Plus (5.1) channel output
- Support Dolby Digital/Dolby Digital Plus Decoding and passthrough
- IP (1 MPTS & 8 SPTS) over UDP and RTP/RTSP output; ASI out
- Supports CC and Subtitle
- Supports maximum 128 PID mapping per input
- Pluggable and changeable demodulator and decoder modules
- LCD display, Remote control and Firmware, web NMS management
- Updates via web

1.3 Specifications

Input
2 x DVB-S/S2RF, F type
1×ASI input for re-mux, BNC interface
1xIP input for re-mux (UDP)

Demodulating Section	
ATSC	
Input Frequency	54MHz~858MHz
Bandwidth	6M bandwidth
DVB-S2 (Version 1)	
Input Frequency	950-2150MHz
Symbol rate	QPSK 1~45Mbauds; 8PSK 2~30Mbauds
Code rate	1/2, 3/5, 2/3, 3/4, 4/5, 5/6, 8/9, 9/10
Constellation	QPSK, 8PSK

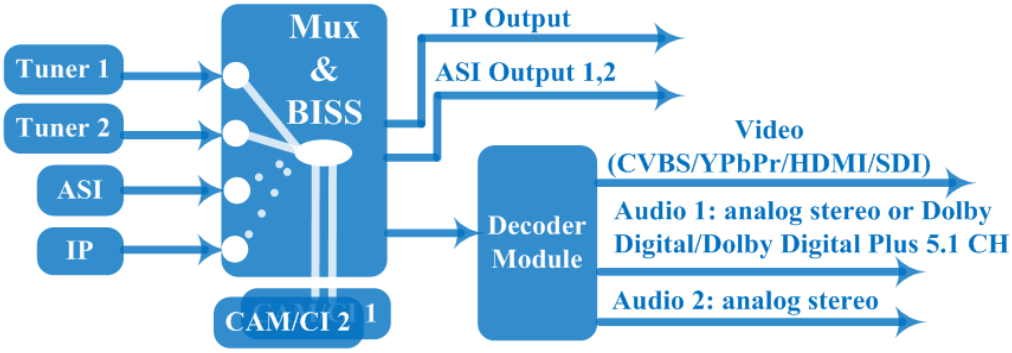
DVB-S2 (Version 1)	
Input Frequency	950-2150MHz
Symbol rate	QPSK 1~45Mbauds; 8PSK 2~30Mbauds
Code rate	1/2, 3/5, 2/3, 3/4, 4/5, 5/6, 8/9, 9/10
Constellation	QPSK, 8PSK

Descrambling	
CAM/CI Quantity	2
BISS Mode	Mode 1, Mode E (up to 120Mbps)
Output	
IP Output	1*MPTS & 8*SPTS over UDP, RTP/RTSP. 100 Base-T Ethernet interface (unicast / multicast)
2×ASI	BNC interface, mirrored out
Decode Output	Video Interface: 1xCVBS/YPbPr/HDMI/SDI Video Decode: MPEG-2; MPEG4 AVC/H.264 Resolution: 480i, 480p, 576i, 576p, 720p@50/59.94/60, 1080i@50/59.94/60 Chroma: 4:2:0 Audio Interface: 2 x Stereo/4xmono, HDMI, SDI Audio Decode: MPEG 1 Layer II, LC-AAC, HE-AAC, Dolby Digital/ Dolby Digital Plus Audio Output Mode: Left, Right, Stereo, 5.1 CH (for HDMI/SDI out only)

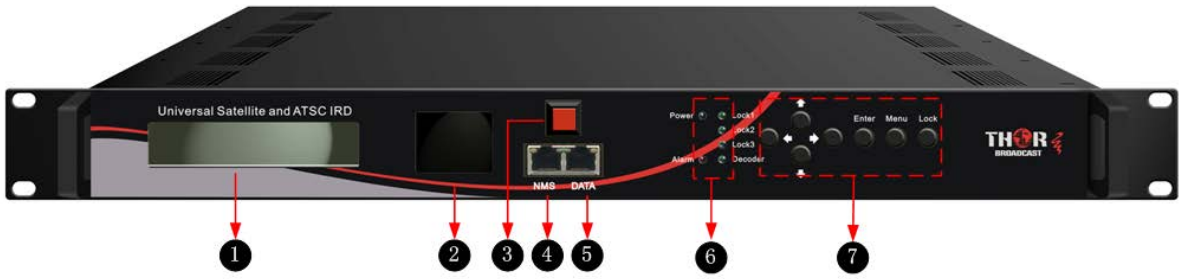
System	
Local interface	LCD + control buttons
Remote management	Web-server Management
Language	English
Upgrade	USB, web management

General	
Power supply	AC 100V~240V
Dimensions	482*300*44.5mm
Weight	3 kgs
Operation temperature	0~45℃

1.4 Principle Chart



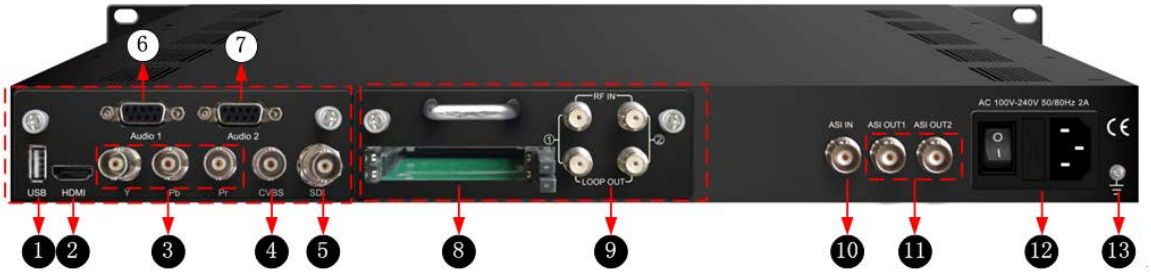
1.5 Appearance and Description



1	Monitor LCD display for device control and configuration
2	Mini LCD TV for decoding
3	Mini LCD TV power switch
4	NMS Port (for PC connection)
5	DATA Port (for IP stream input & output)
6	Indicators Area (Lock 1&2: to indicate RF input signal lock

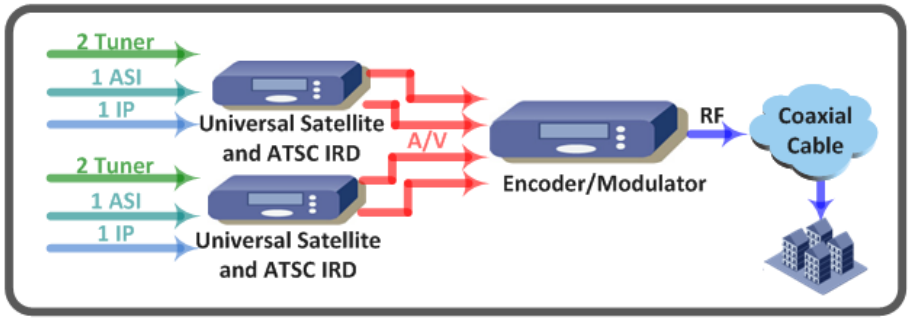
	status; Lock 3:to indicate the IP or ASI signal Lock status; Decoder: to indicate the decoding status)
7	Up/Down/Left/Right Buttons
	Enter Key
	Menu Key
	Lock Key

Rear Panel Illustration



Decoder Board	1	USB upgrade port
	2	HDMI video/audio output
	3	Component video output (YPbPr)
	4	Composite video output (CVBS)
	5	SDI video/audio output
	6	Analog stereo audio out 1 (R/L)
	7	Analog stereo audio out 2 (R/L)
Tuner Receiving Board	8	CAMs /Smart card slots A & B
	9	RF signal input and loop-through 1 & 2
	10	ASI input Port for re-mux
	11	ASI mirrored output ports
	12	Power switch/Fuse/Socket
	13	Grounding Wire

1.6 System Connection Sample



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:

- Universal Satellite and ATSC IRD
- User's Manual
- HDMI Cable
- YPbPr Cable
- CVBS Cable
- SDI Cable
- Audio adapt cables
- Power Cord

If any item is missing or mismatching with the list above, please contact our company.

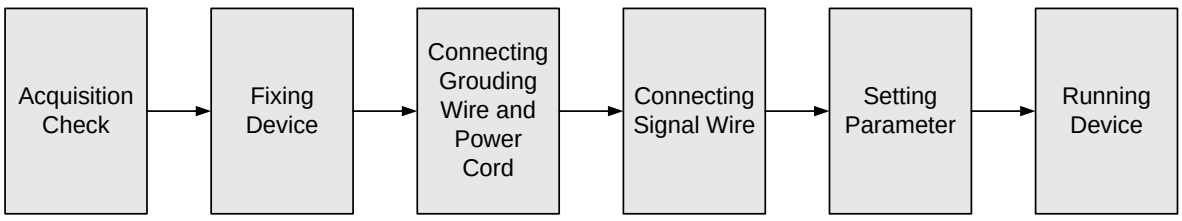
2.2 Installation Preparation

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
- Connecting signal cables
- Connecting communication port with PC

2.2.1 Device's Installation Flow Chart 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 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 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 100-240V 50-60Hz. Please carefully check before running.

2.2.3 Grounding Requirement

- Good grounding is the basis of reliability and stability of devices. Also, they are the most important guarantee of lightning protection 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 are properly connected.

- 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

- 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 not share the same ground with other devices. If the device shares grounding, the resistance should be smaller than 1Ω.

☞**Caution:**

Before connecting power cord to Universal Satellite and ATSC IRD, 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:

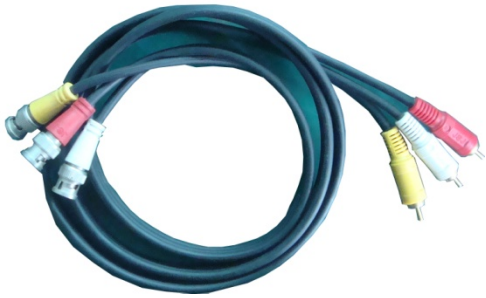
2.4.1 Universal Satellite and ATSC IRD Cables Illustration:

- **IP Input/output Cable Illustration:**

- **Tuner Cable Illustration:**

- **ASI Input/output Cable Illustration:**

- **Video & Audio output Cable Illustration: (for connection between the IRD and TV set or home theater)**



CVBS Cable

YPbPr Cable

HDMI Cable

SDI Cable

- **Audio adapt cables Illustration: (for connection between the IRD and TV set)**

Chapter 3 Operation

The front panel of Universal Satellite and ATSC IRD is the user-operating interface and the equipment can be conveniently operated and managed according to the procedures displayed on the LCD:

Keyboard Function Description:

MENU: Cancel current entered value, resume previous setting; Return to previous menu.

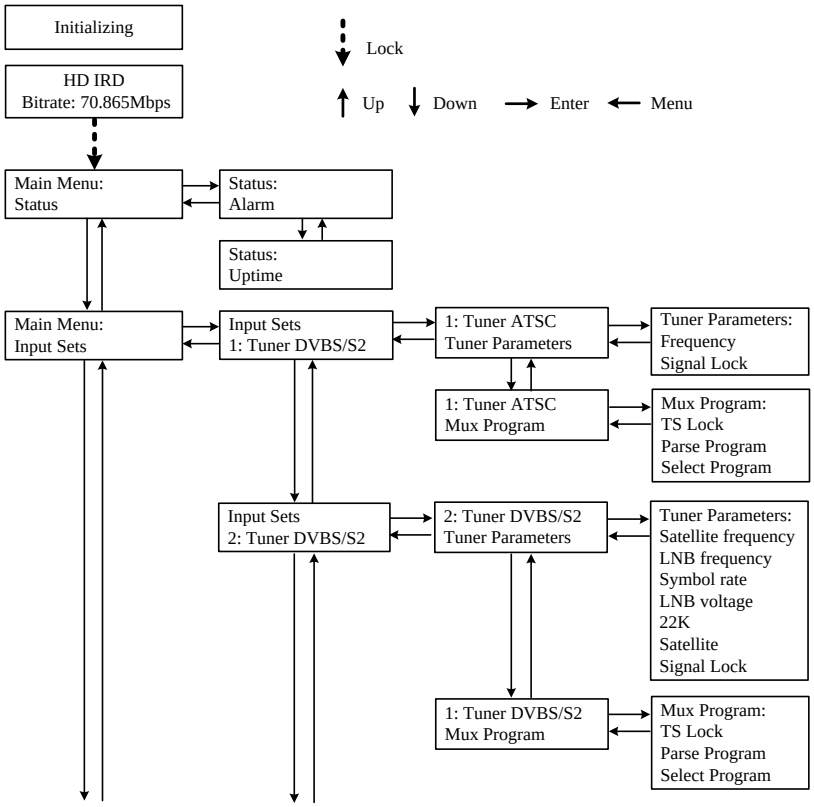
ENTER: Activate the parameters which need modifications, or confirm the change after modification.

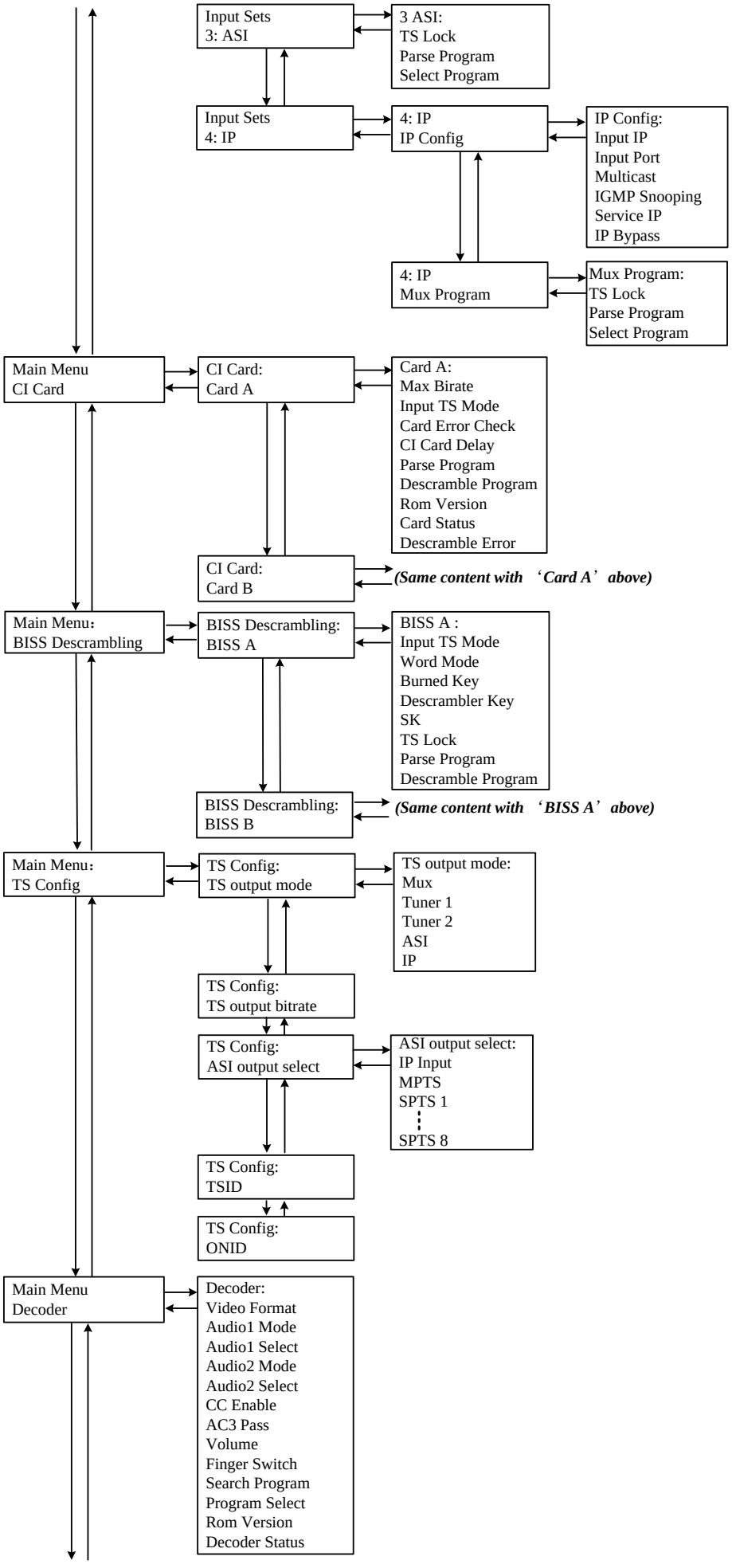
LEFT/RIGHT: Choose and set the parameters.

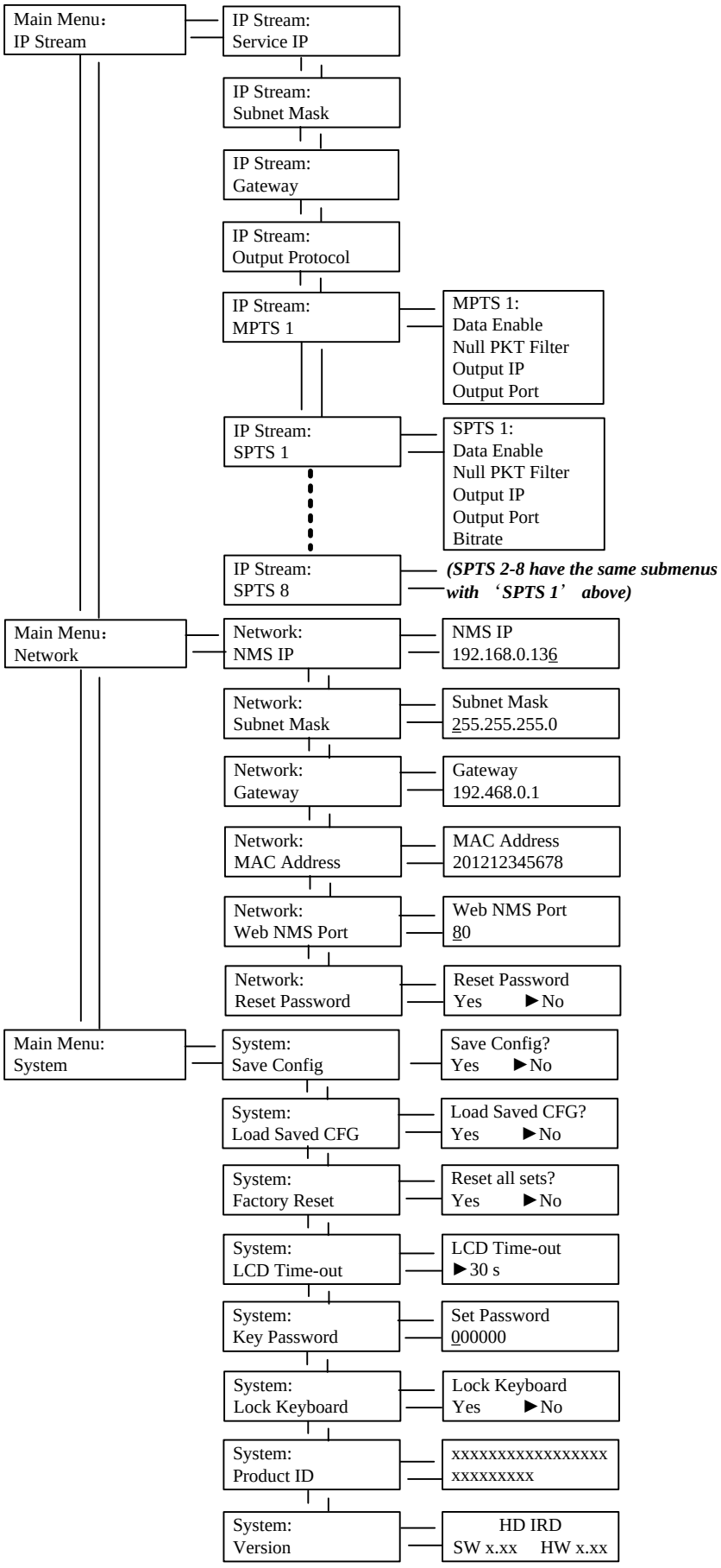
UP/DOWN: Modify activated parameter or paging up/down when parameter is inactivated.

LOCK: Lock the screen/cancel the lock state. After pressing the lock key, the LCD will display the current configuring state.

3.1 LCD Menu Class Tree

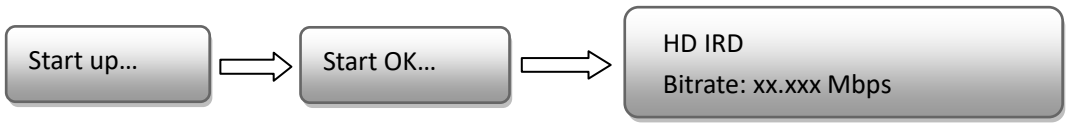



Input Sets
3: ASI
3 ASI:
TS Lock
Parse Program
Select Program
Input Sets
4: IP
4: IP
IP Config
IP Config:
Input IP
Input Port
Multicast
IGMP Snooping
Service IP
IP Bypass
4: IP
Mux Program
Mux Program:
TS Lock
Parse Program
Select Program
Main Menu
CI Card
CI Card:
Card A
Card A:
Max Birate
Input TS Mode
Card Error Check
CI Card Delay
Parse Program
Descramble Program
Rom Version
Card Status
Descramble Error
CI Card:
Card B
(Same content with 'Card A' above)
Main Menu:
BISS Descrambling
BISS Descrambling:
BISS A
BISS A :
Input TS Mode
Word Mode
Burned Key
Descrambler Key
SK
TS Lock
Parse Program
Descramble Program
BISS Descrambling:
BISS B
(Same content with 'BISS A' above)
Main Menu:
TS Config
TS Config:
TS output mode
TS output mode:
Mux
Tuner 1
Tuner 2
ASI
IP
TS Config:
TS output bitrate
TS Config:
ASI output select
ASI output select:
IP Input
MPTS
SPTS 1
SPTS 8
TS Config:
TSID
TS Config:
ONID
Main Menu
Decoder
Decoder:
Video Format
Audio1 Mode
Audio1 Select
Audio2 Mode
Audio2 Select
CC Enable
AC3 Pass
Volume
Finger Switch
Search Program
Program Select
Rom Version
Decoder Status


Main Menu:
IP Stream
IP Stream:
Service IP
IP Stream:
Subnet Mask
IP Stream:
Gateway
IP Stream:
Output Protocol
IP Stream:
MPTS 1
MPTS 1:
Data Enable
Null PKT Filter
Output IP
Output Port
IP Stream:
SPTS 1
SPTS 1:
Data Enable
Null PKT Filter
Output IP
Output Port
Bitrate
IP Stream:
SPTS 8
(SPTS 2-8 have the same submenus with 'SPTS 1' above)
Main Menu:
Network
Network:
NMS IP
NMS IP
192.168.0.136
Network:
Subnet Mask
Subnet Mask
255.255.255.0
Network:
Gateway
Gateway
192.468.0.1
Network:
MAC Address
MAC Address
201212345678
Network:
Web NMS Port
Web NMS Port
80
Network:
Reset Password
Reset Password
Yes ►No
Main Menu:
System
System:
Save Config
Save Config?
Yes ►No
System:
Load Saved CFG
Load Saved CFG?
Yes ►No
System:
Factory Reset
Reset all sets?
Yes ►No
System:
LCD Time-out
LCD Time-out
►30 s
System:
Key Password
Set Password
000000
System:
Lock Keyboard
Lock Keyboard
Yes ►No
System:
Product ID
xxxxxxxxxxxxxxxxx
xxxxxxxxx
System:
Version
HD IRD
SW x.xx HW x.xx

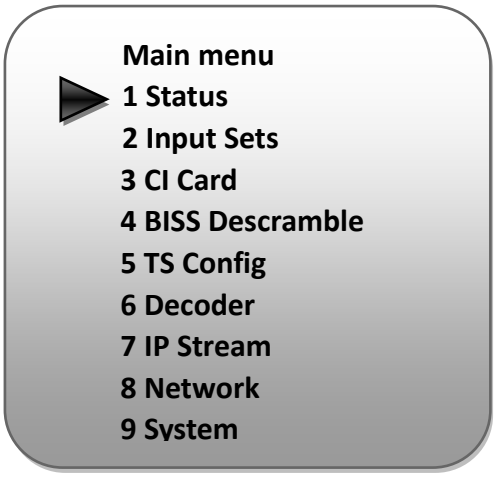
3.2 General Setting

Switch on the device and after a few seconds of initialization, it will show start-up pictures as below:



- **HD IRD**: Device's name
- **Bitrate: xx.xxx MHz** indicates the current effective bitrate multiplexed output.

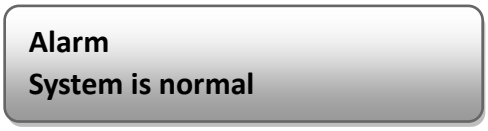
Press LOCK key on the front panel to enter the main menu. The LCD will display the following pages where user can configure the parameters for the device:



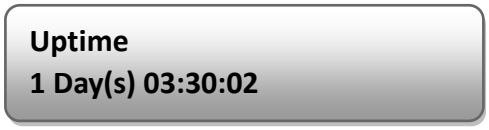
User can do all the settings according to the 8 directions displayed on the LCD. User can press UP/DOWN buttons to specify menu item, and then press ENTER to enter the submenus as below:

3.2.1 Status

Alarm: The alarm indicator will turn on if there is no A/V signals inputting or outputting bit rate overflows. User then can enter this menu to check the error type. Otherwise it shows the 'system is normal'.

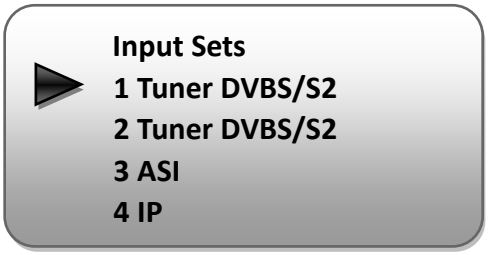


Uptime: It displays the working time duration of the device. It times upon power on.



3.2.2 Input Sets

This IRD supports 2 tuners input, 1 ASI input and 1 IP stream input. Users can enter 'Input Sets' to configure the tuner/IP parameters to receive the transport streams and select programs to mux out. It displays as below:

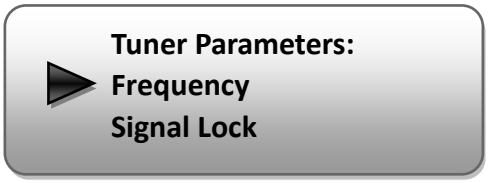


- **Tuner ATSC:**

Press ENTER key to enter '1 Tuner ATSC', it displays as below:

Tuner Parameters:

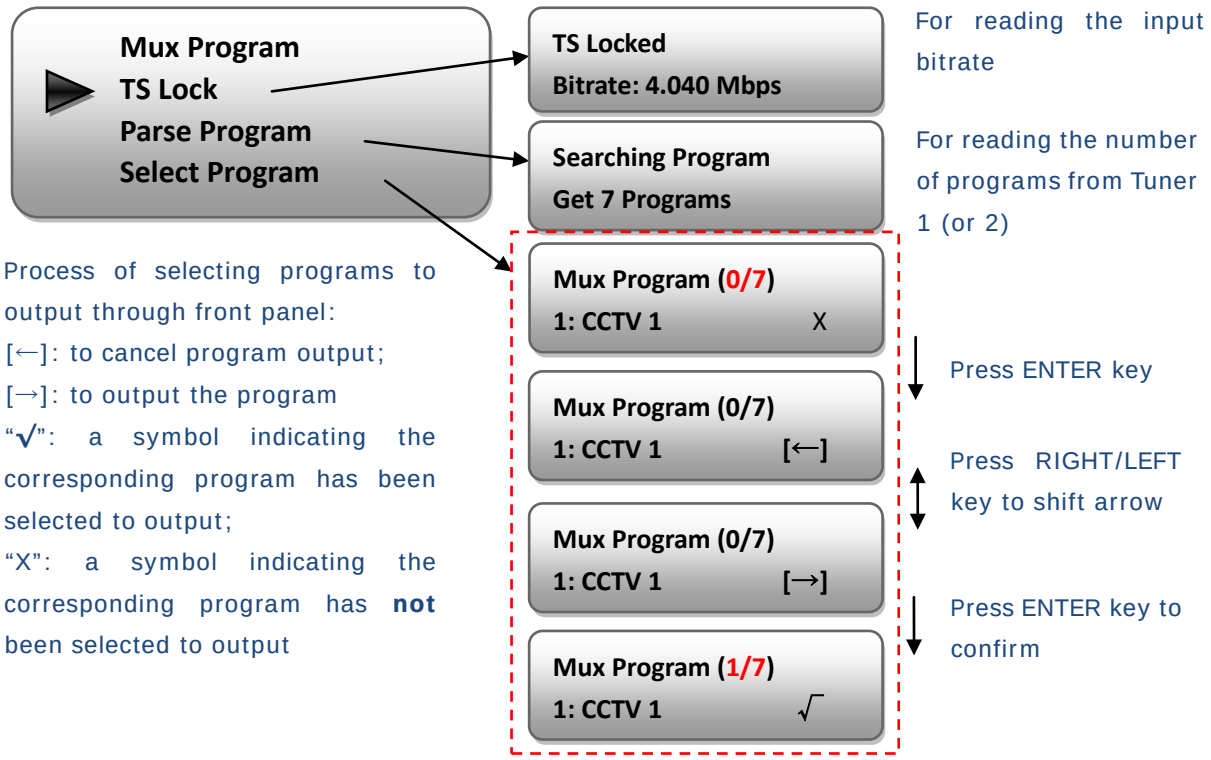
Users can enter this menu to configure the tuner parameters separately to receive the tuner programs.



Mux Program:

Users can parse the Tuner input program list and select program(s) to mux out in this menu.

NOTE: Multiplexing operation can only take effect on condition that the "TS output mode" is set to "Mux" under 'TS Config'. (i.e.: *TS Config→TS output mode→Mux*)



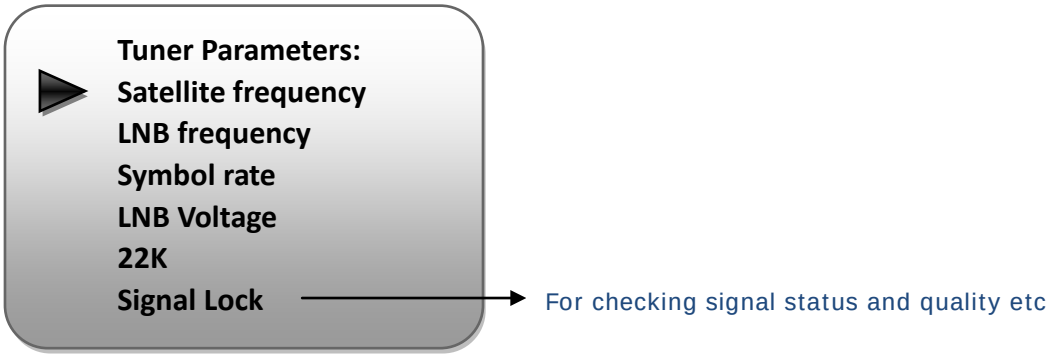
'1/7' represents there are all 7 programs in the list and 1 program has been selected to mux out through ASI.

- **Tuner DVBS/S2:**

Press ENTER key to enter '2 Tuner DVBS/S2', it displays as below:

Tuner Parameters:

Users can enter this menu to configure the tuner parameters separately to receive the tuner programs.



Mux Program:

Users can parse the DVB-S2 Tuner input program list and select program(s) to mux out in this menu. The operating method is same with ATSC Tuner.

- **ASI:**

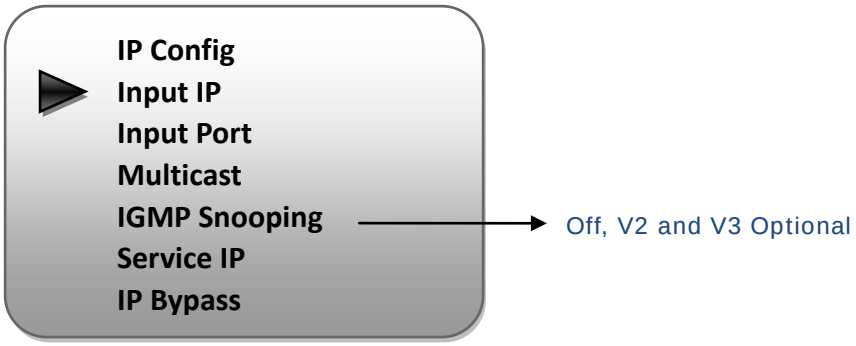
Users can parse ASI input programs and select program(s) to mux out under this menu. The operating method is same with what explained above.

- **IP:**

Press ENTER key to enter '4 IP', it displays as below:

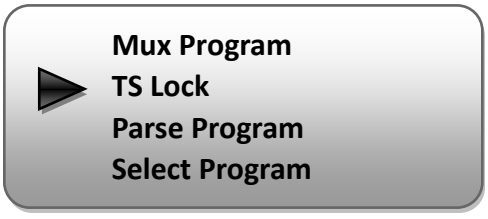
IP Config:

Users can enter this menu to configure IP parameters according to the IP source to receive the IP programs.



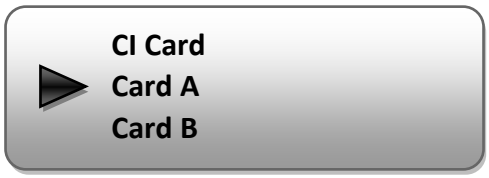
Mux Program:

Users can parse the IP input program list and select programs to mux out in this menu. The operating method is same with what explained above.

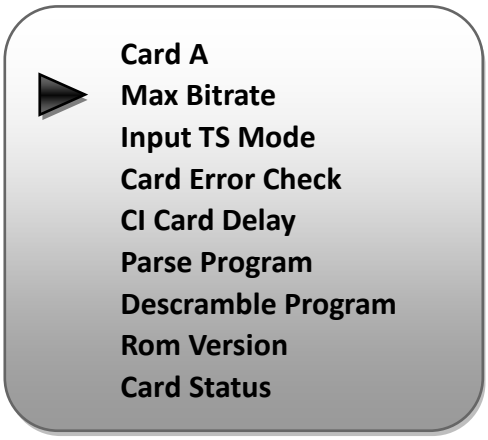


3.2.3 CI Card

This IRD supports 2 CI cards (Card A & Card B) to descramble programs from either encrypted RF, ASI or IP. Users can press ENTER key to enter 'CI Card' to configure the 2 cards respectively.



Press ENTER key to enter Card A (or Card B)

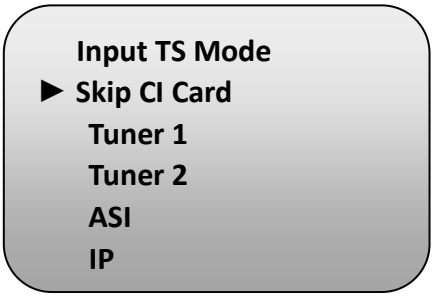


- **Max Bit rate**

CI Max Bitrate options range from 48-108Mbps. Move the triangle to select a value as principle: Actual Input Bitrate≤ Max Bitrate≤CI Max decrypting capacity

- **Input TS Mode**

This IRD has 4 signal sources: Tuner 1, Tuner 2, ASI, and IP. One CI card can be applied to descramble one channel input signal from the 4 signal sources. 'Skip CI card' means to skip the card which is used for FTA stream.

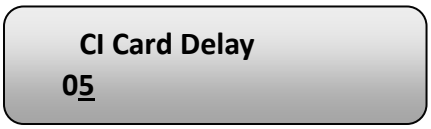


- **Card Error Check**

Users can decide whether to enable or disable the card error check function in this menu.

- **CI Card Delay**

Users can set the CI Card delay in this menu.

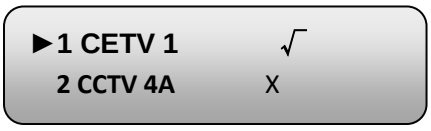


- **Parse Program**

Users can read the quantity of programs parsed from the de-scrambled channel.

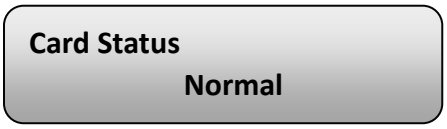
- **Descramble Program**

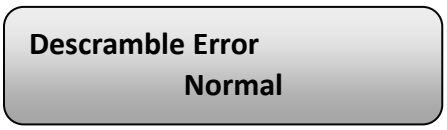
Users can select program(s) to descramble. The quantity to be descrambled will depend on the CAM/CI performance you apply to.



- **Rom Version/Card Status/Descramble Error**

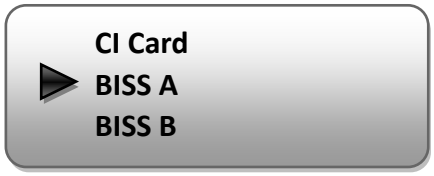
Users can read the other info about the CI card in the following menus.



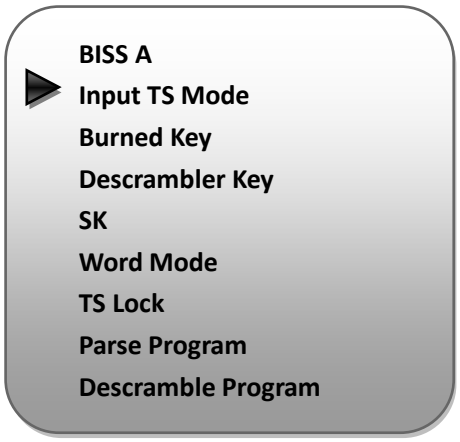


3.2.4 BISS Descrambling

NDS356X IRD also supports BISS to descramble encrypted programs from RF, ASI or IP. Users can enter 2 BISS descrambling to configure the 2 BISS respectively.

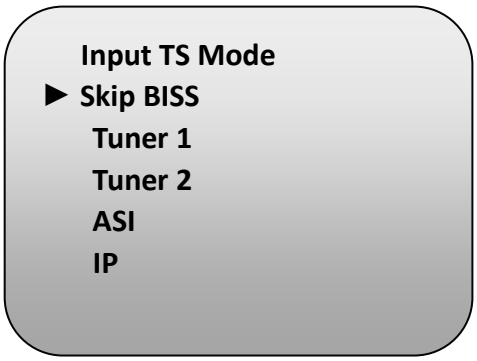


Press ENTER key to enter BISS A (or BISS B):



- **Input TS Mode**

NDS356X has 4 signal sources: Tuner 1-2, ASI, and IP. One BISS can be applied to descramble one channel input signal from the 4 signal sources. ‘Skip BISS’ means to skip the card which is used for FTA stream.



- **Burned Key/Descrambler Key/SK/Word Mode**

Users need to input keys to descramble programs as per the BISS scrambling side which usually is DVB-S/S2 modulator.

The descrambling format is in the following chart:

Modulating Side (BISS SCR)	Receiving Side (BISS DESCR)	Digit (0x----)
Mode 1+SW Data	Mode 1+Descrambler Key	12
Mode E+ESW Data + Device	Mode E + Descrambler Key + Burned Key	16
Mode E+ESW Data + Input ID	Mode E + Descrambler Key + SK	14

- **TS Lock**

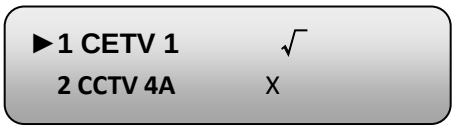
Users can read the real-time bit rate of the corresponding channel.

- **Parse Program**

Users can read the quantity of programs parsed from the de-scrambled channel.

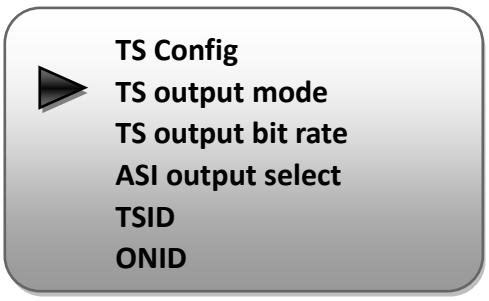
- **Descramble Program**

Users can select program(s) from the searched out programs to descramble.

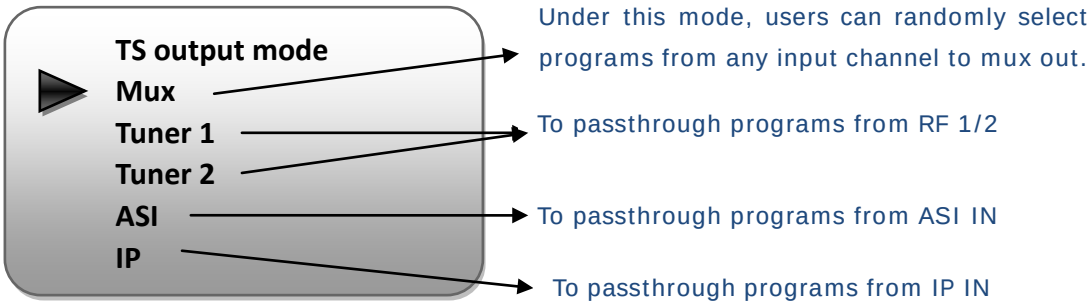


3.2.5 TS Config

Users can press ENTER key to enter 'TS Config' to configure the parameters of TS output through ASI.



TS output mode: Enter this menu to select a TS output mode.



TS Out Bit rate: Users can set TS output bit rate in this menu.

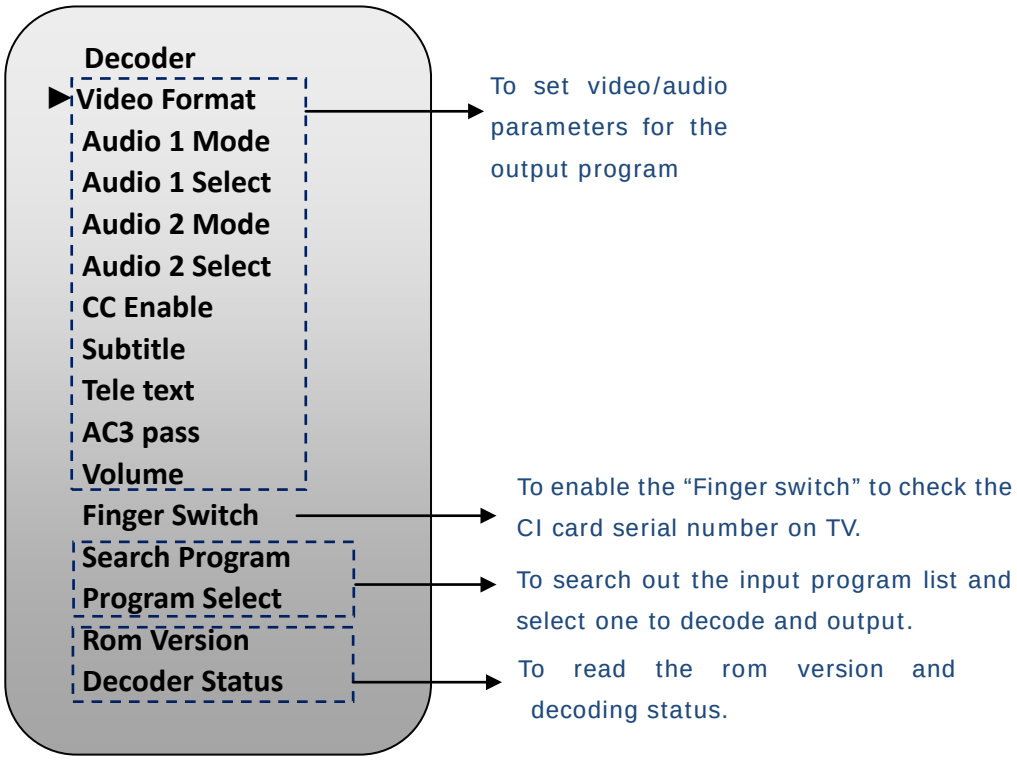
ASI Output Select: The ASI output is copied from the one of the IP streams (IP Input, MPTS and SPTS 1-8).

TS ID: Users can set TS ID in this menu.

ON ID: Users can set ON ID (original network ID) in this menu.

3.2.6 Decoder

Users can press ENTER key to enter ‘Decoder’ to set the video to be decoded. This IRD supports one channel program to output at various interfaces at the same time (HDMI/SDI/CVBS/YPbPr).



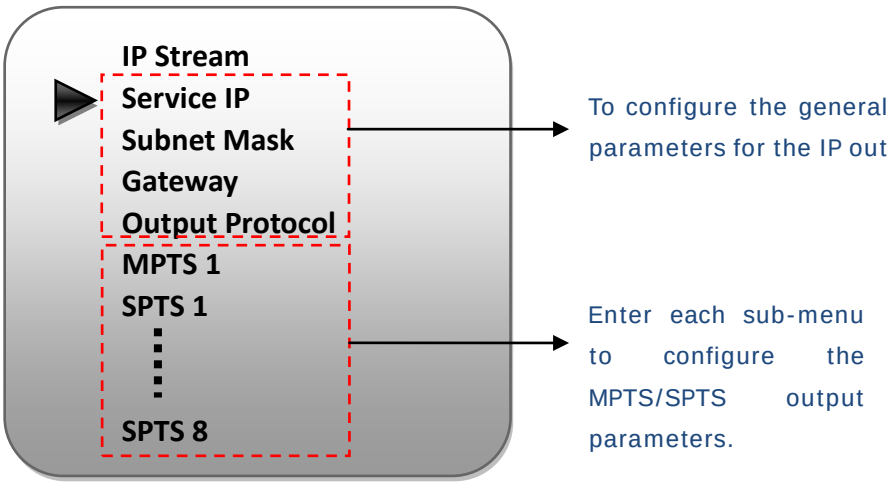
NOTE:

Audio 1: Primary Audio Chanel; **Audio 2**: Secondary Audio Channel

- Universal Satellite and ATSC IRD supports maximum 2 channels of analog stereo audios output simultaneously.
- When the program users choose to decode and output has only one audio channel, users need to configure Primary Audio Chanel (‘Audio 1 Mode’ and ‘Audio 1 Select’) only.
- 5.1 channel audio can only be resume via HDMI and SDI interfaces. When users choose HDMI ro SDI as the output interface and output 5.1 channel audio, users need to select ‘5.1 Channels’ under ‘Audio 1 Mode’ and set ‘Audio 2 Select’ off.

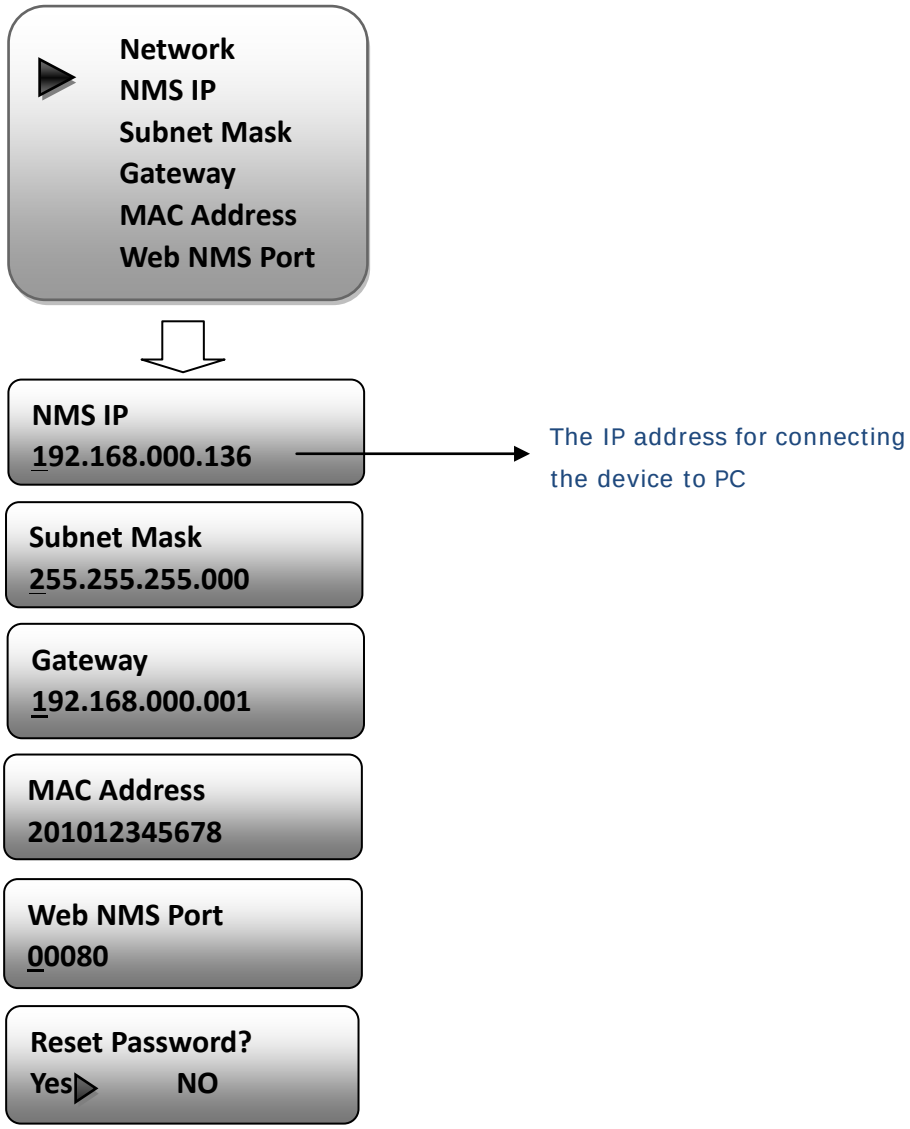
3.2.7 IP Stream

This IRD supports 1MPTS and 8 SPTS over IP (UDP, RTP/RTSP) output. Users can set the IP out parameters in this menu.



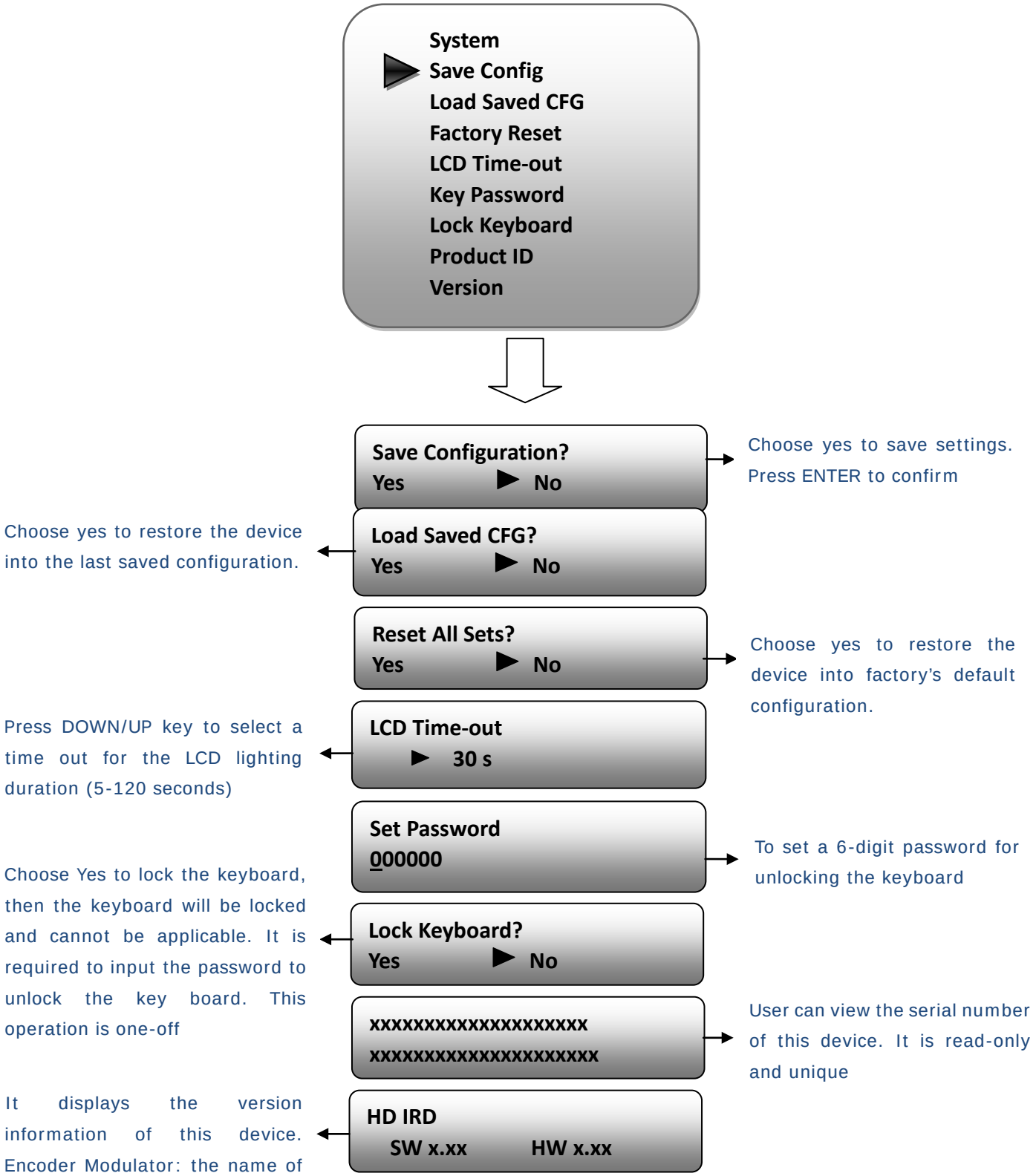
3.2.8 Network

Users can set network parameters in this menu. Select the 'Network' submenu to separately set corresponding parameters.



3.2.9 System

Users can set the system parameters in this menu. Enter ‘System’ submenu to separately set corresponding parameters.



Chapter 4 Web-based NMS Management

User not only can use front buttons for setting 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 this device IP address; otherwise, it would cause IP conflict.

4.1 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 device'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 click "LOGIN" to start the device setting.

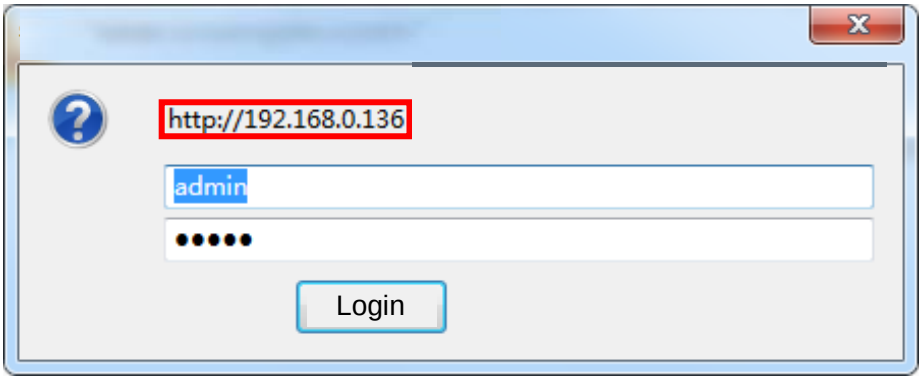


Figure-1

4.2 Operation

Summary:

When we confirm the login, it displays the WELCOME interface as Figure-2 where users can have an overview of the device's system information and working status.

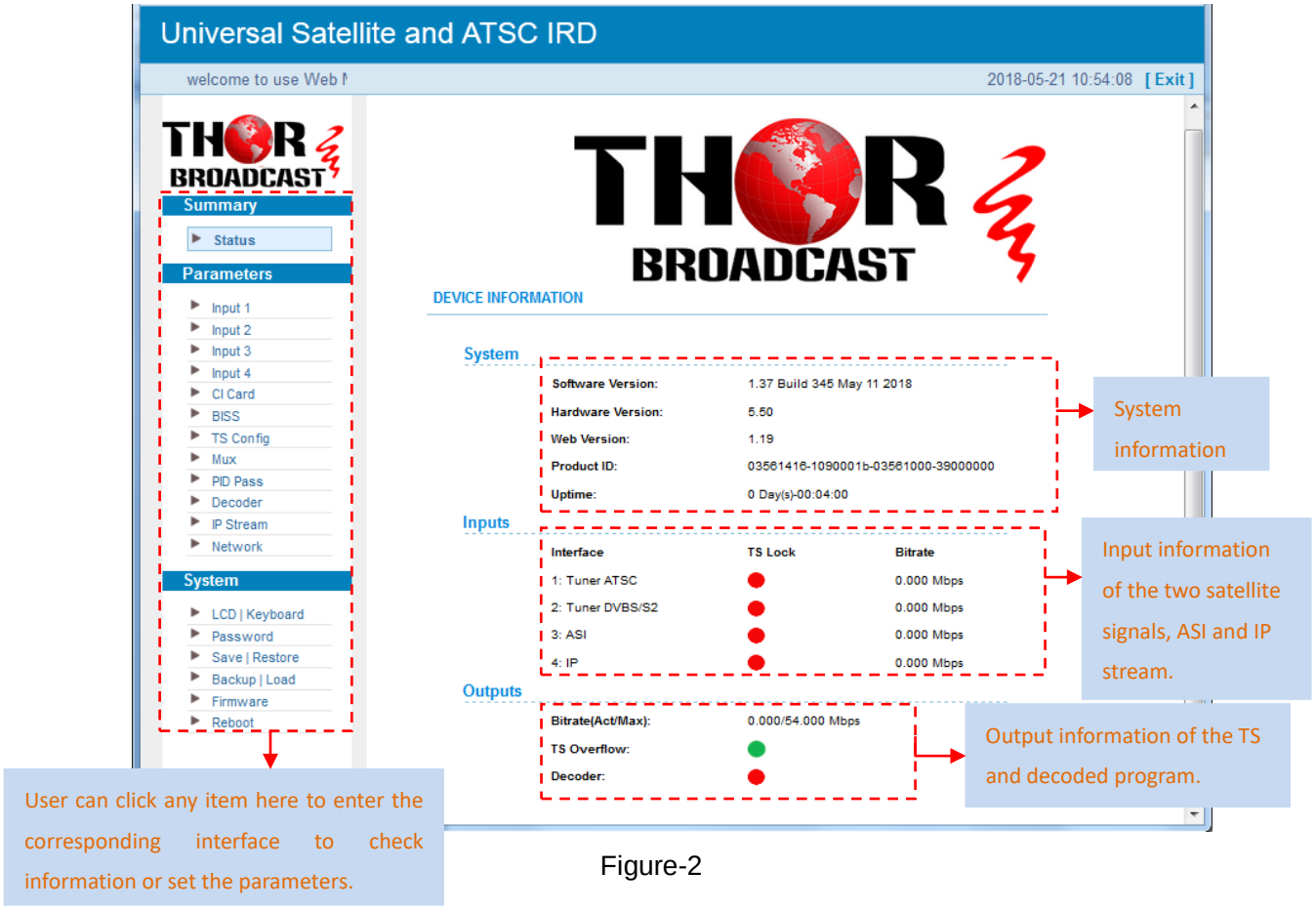


Figure-2

Parameters → Input 1 (Tuner 1:ATSC):

From the menu on left side of the webpage, clicking “Input 1 ATSC”, displays the interface where users can configure the first RF input parameters. (Figure-3)

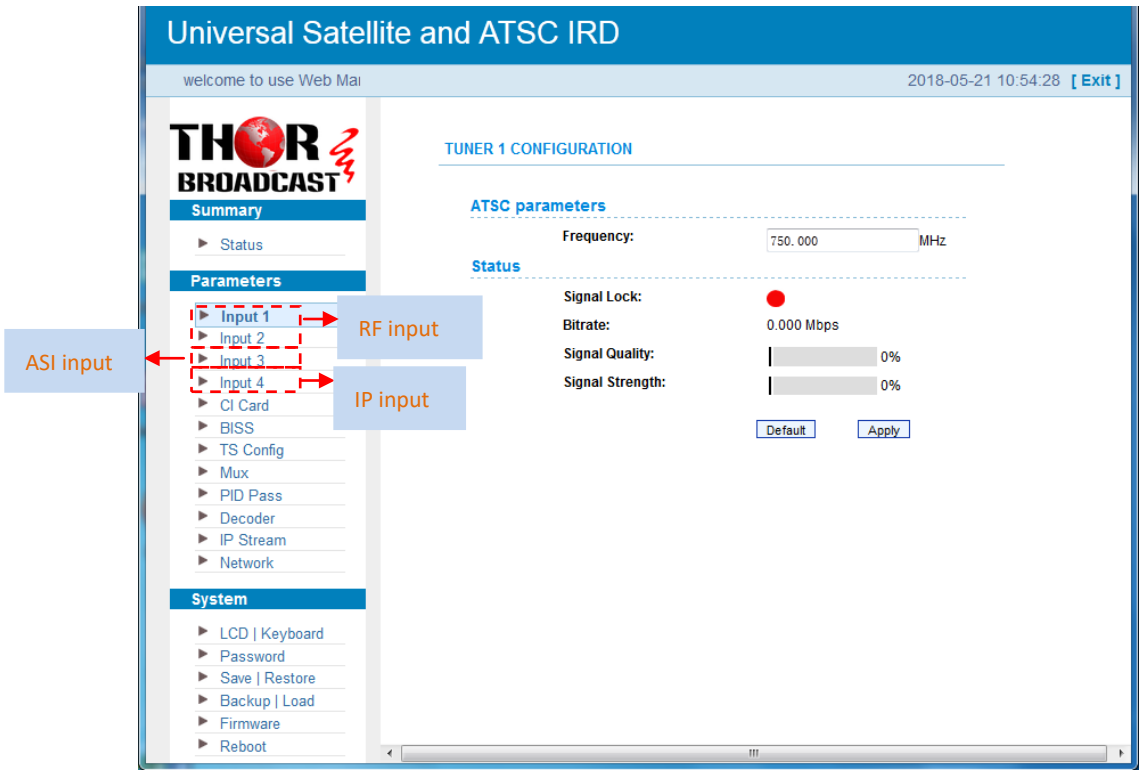


Figure-3

Parameters → Input 2 (Tuner 1:DVB-S2):

From the menu on left side of the webpage, clicking “Input 2 DVB-S2”, displays the interface where users can configure the first RF input parameters. (Figure-4)

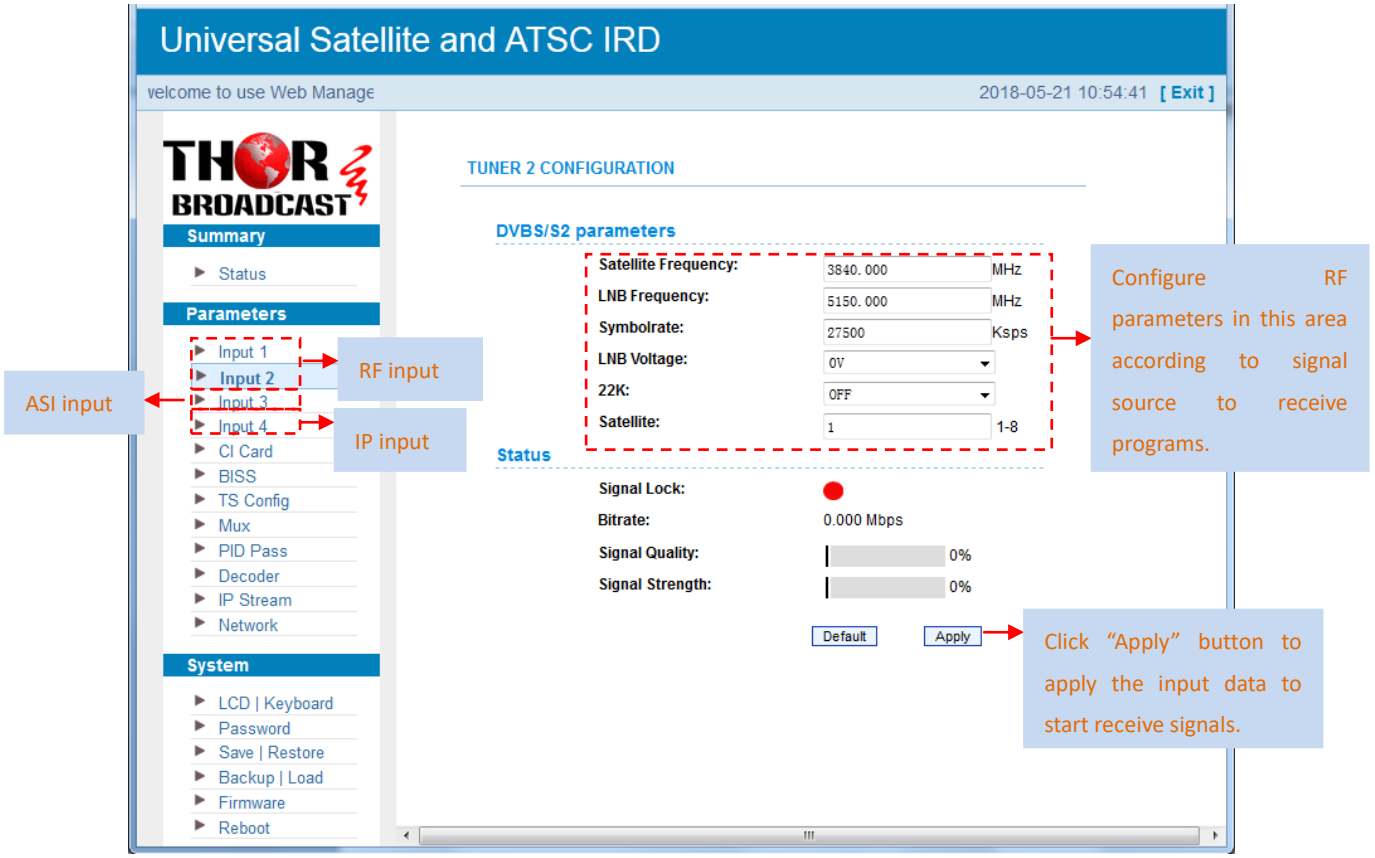


Figure-4

Parameters → Input 3 (ASI Input):

“Input 3” refers to the ASI source which does not need to be configured. Users can only read the signal lock status and input bit rate. (Figure-5)

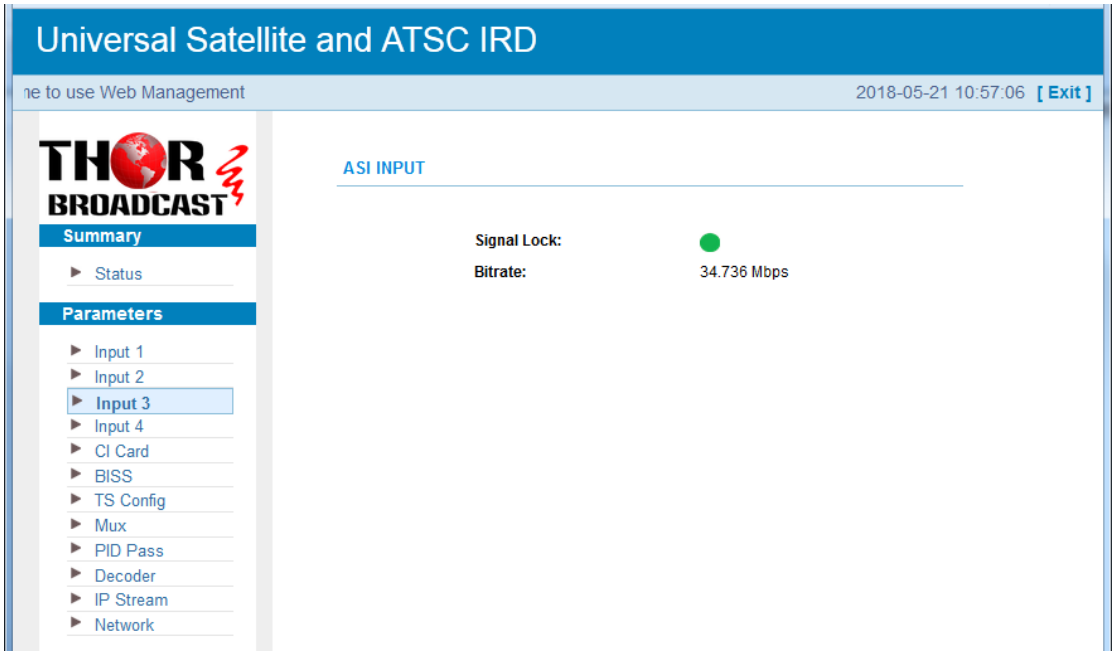


Figure-5

Parameters → Input 4 (IP Input):

On left side of the webpage, clicking “Input 4”, displays the interface where users can configure the IP input parameters. (Figure-6)

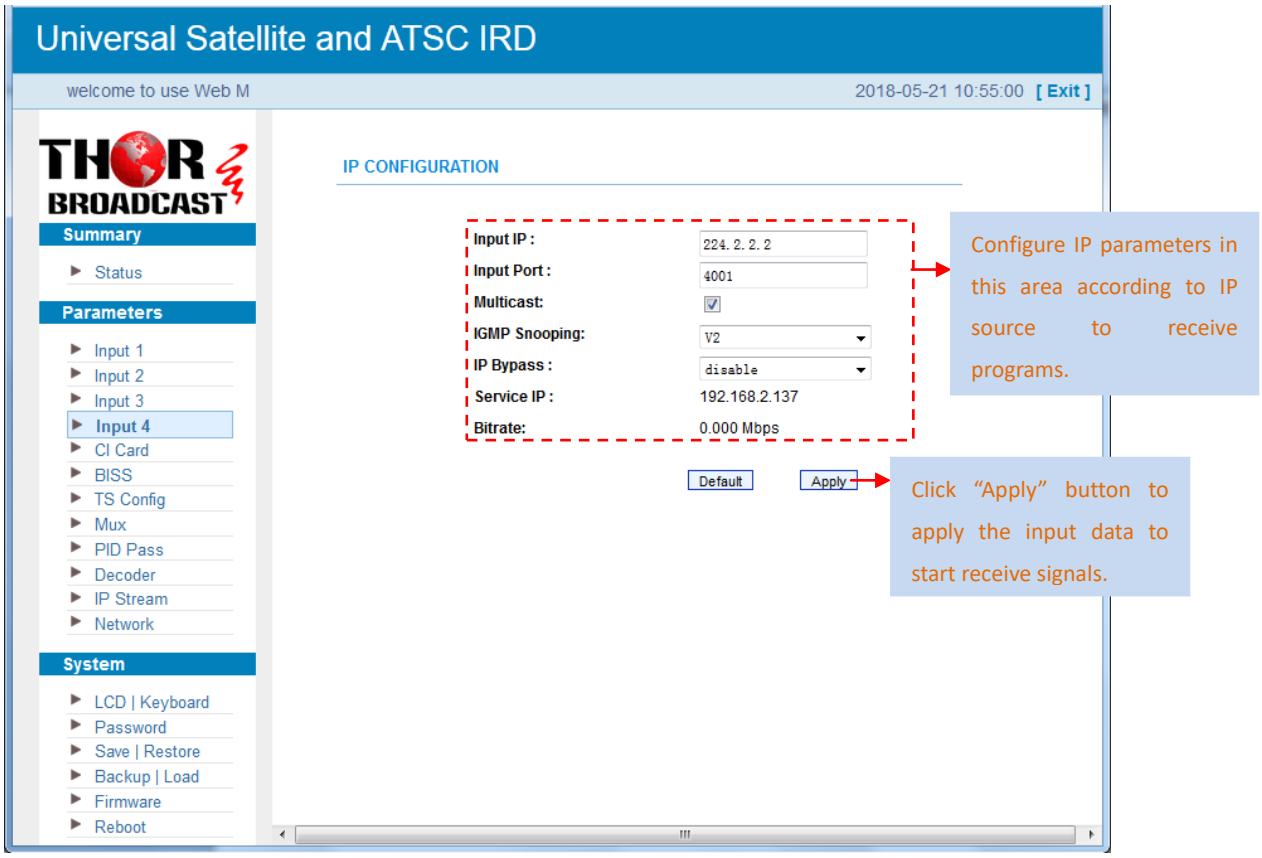


Figure-6

Parameters → CI Card:

This IRD supports 2 CI cards (Card A & Card B) to descramble programs from either encrypted RF, ASI or IP. Users can click and enter ‘CI Card’ to configure the 2 cards respectively. (Figure-7)

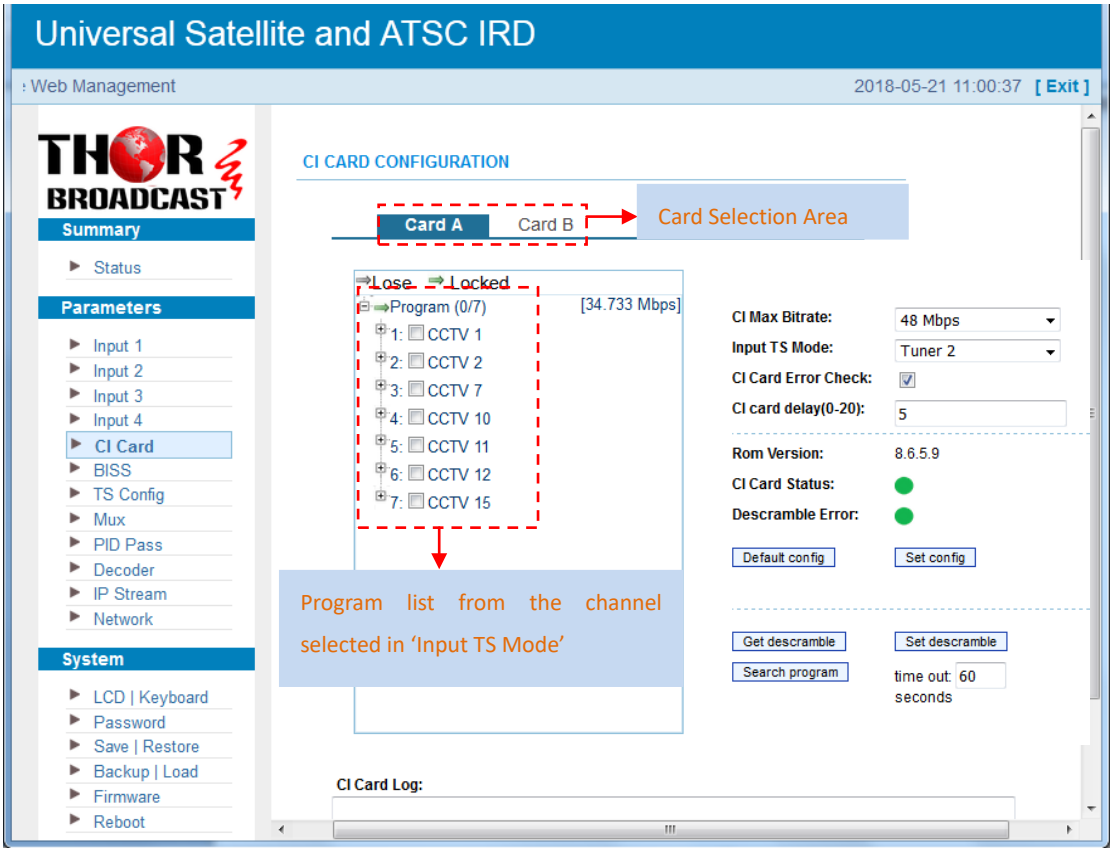
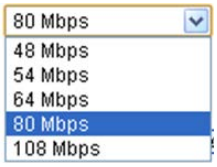


Figure-7

- **CI Max Bit rate**

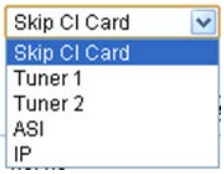
CI Max Bitrate options range from 48-108Mbps. Select a value in the pull-down list as principle: Actual Input Bitrate≤ Max Bitrate≤CI Max decrypting capacity.

NOTE!



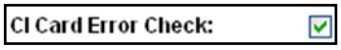
- **Input TS Mode**

This IRD has 4 signal sources: Tuner 1, Tuner 2, ASI, and IP. One CI card can be applied to descramble one channel input signal from the 4 signal sources. 'Skip CI card' means to skip the card which is used for FTA stream.



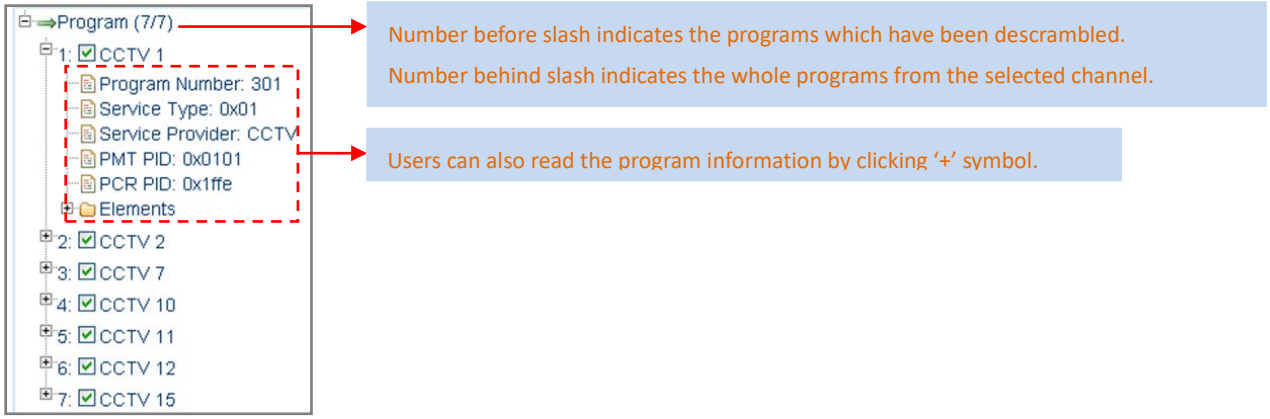
- **Card Error Check**

Users can decide whether to enable the card error check function by checking the box.



After configuring CI card parameters, click Apply button to apply the input data and then click Search program button to parse programs from the channel selected in 'Input TS Mode'.

Check the program(s) to be descrambled and click Set descramble button to start descrambling the checked program(s). The program quantity to be descrambled will depend on the CAM/CI performance you apply to.



Parameters → BISS:

From the menu on left side of the webpage, clicking "BISS", it displays the interface where users can configure BISS A and BISS B and descramble the input channels. (Figure-8)

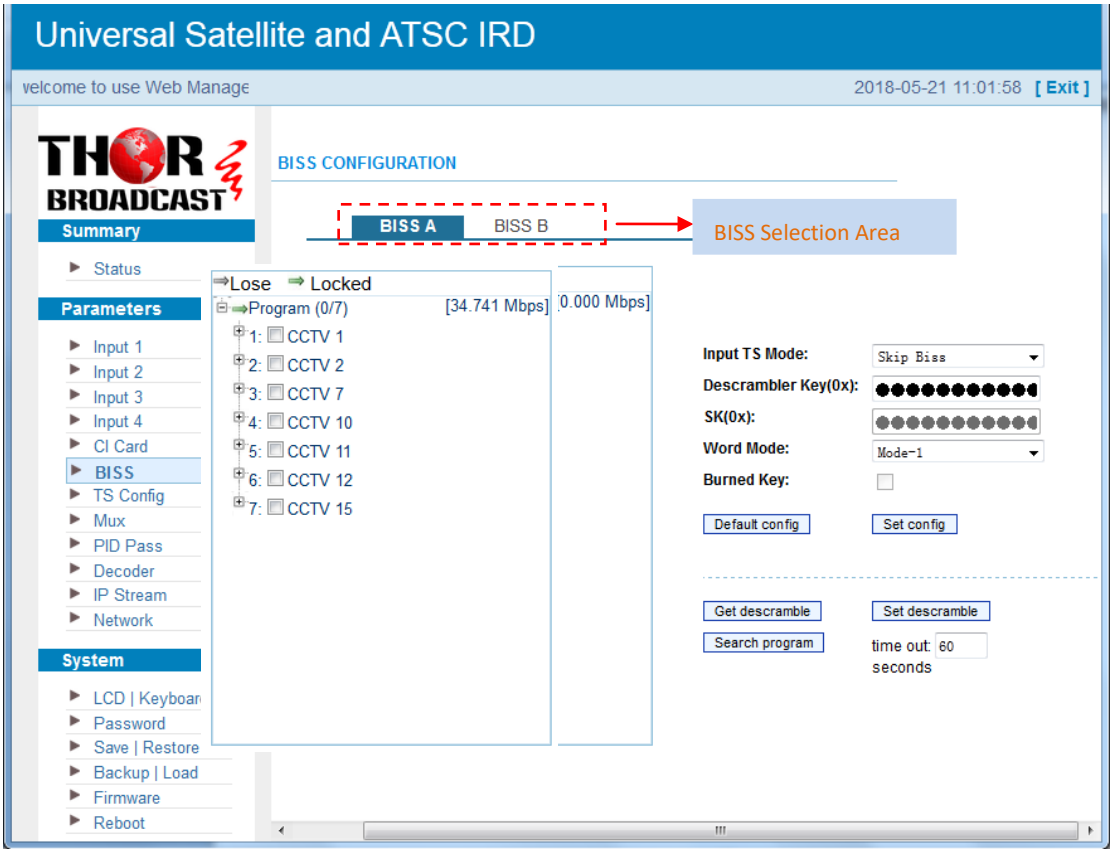
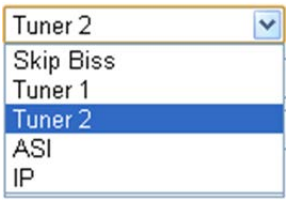


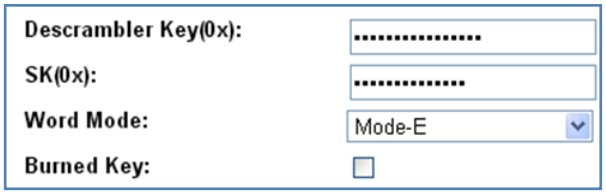
Figure-8

Input TS Mode：



This IRD has 4 signal sources: Tuner 1-2, ASI, and IP. One BISS tag can be applied to descramble one channel input signal from the 4 signal sources. 'Skip BISS' means not to involve BISS function and it is used for FTA stream.

Items showing below are working as per the keys or codes set in the BISS scrambling side (DVB-S/S2 modulators).



Input corresponding items and data to activate the BISS descrambling as principles be

Modulating Side (BISS SCR)	Receiving Side (BISS DESCR)	Digit (0x----)
Mode 1+SW Data	Mode 1+Descrambler Key	12
Mode E+ESW Data + Device	Mode E + Descrambler Key + Burned Key	16
Mode E+ESW Data + Input ID	Mode E + Descrambler Key + SK	14

After configuring the above BISS parameters, click Set config button to apply the input data and then click Search program button to parse programs from the channel selected in 'Input TS Mode'.

The searched out programs will be listed in the 'Descramble' box below: (Figure 9)

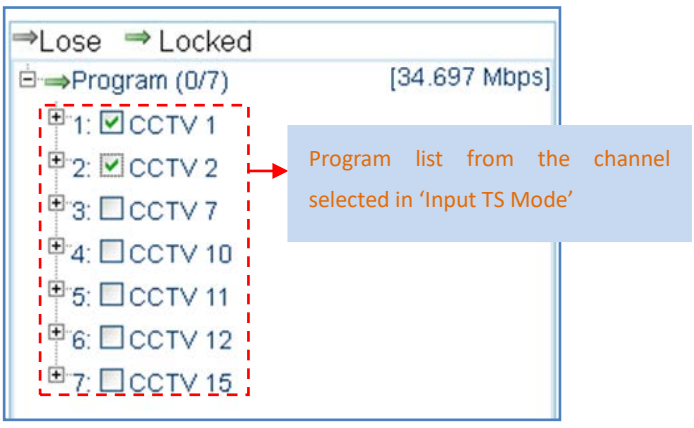
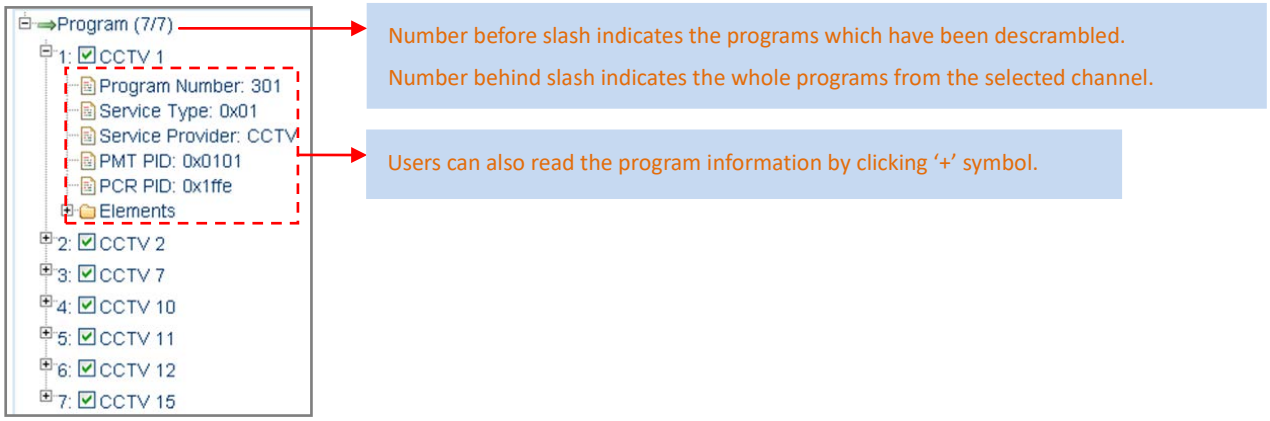


Figure-9

Check the program(s) to be descrambled with "√" and click Set descramble button to start descrambling the checked program(s). The program quantity to be descrambled will depend on the CAM/CI performance you apply to.



Parameters → TS Config:

From the menu on left side of the webpage, clicking "TS Config", it displays the interface where users can configure the ASI output parameters. (Figure-10)

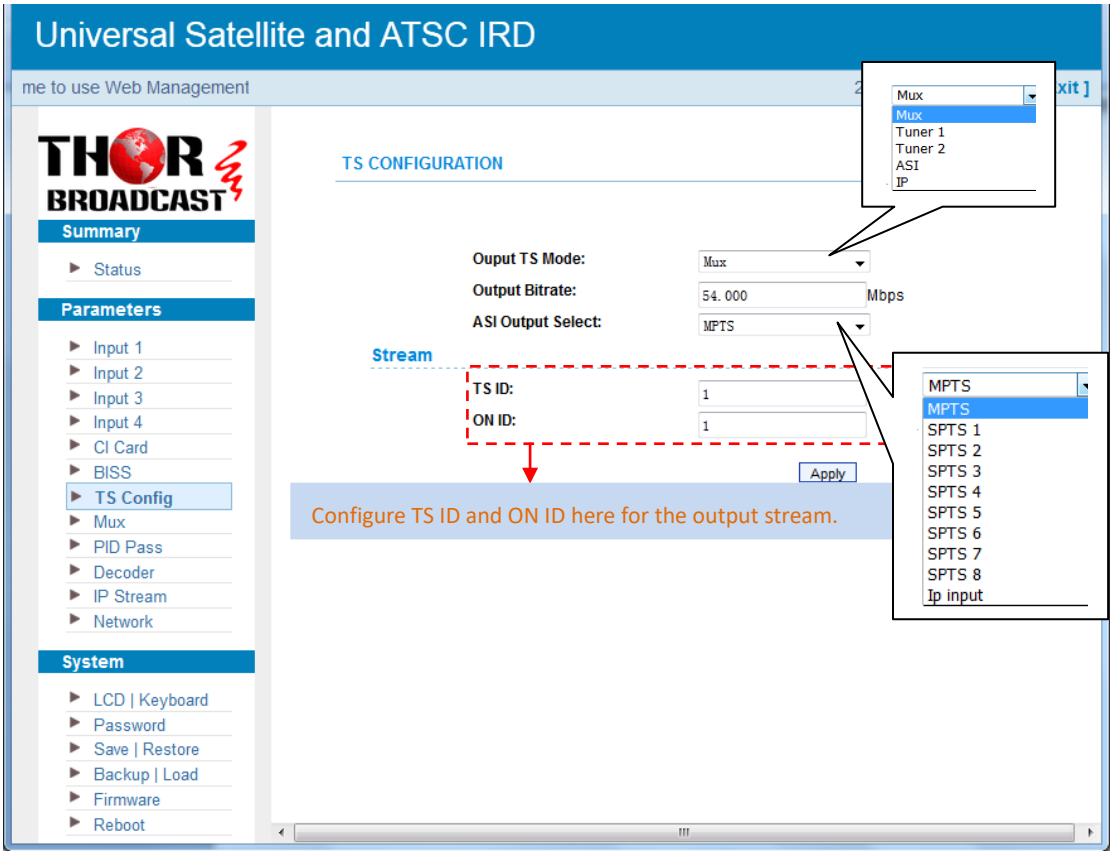
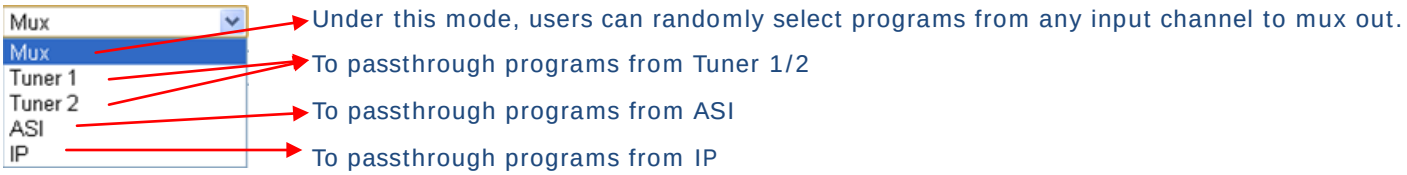


Figure-10

Output TS Mode:



ASI Output Select: The TS content output through ASI is copied from the one of the IP streams (MPTS and SPTS 1-8). Users can select one stream from the pull-down list.

After finishing the configuration, click Apply to confirm.

Parameters → Mux:

Click “Mux” and it displays the interface where users can multiplex programs and modify program info. The selected programs will output in TS form through IP and ASI ports. (Figure-11)

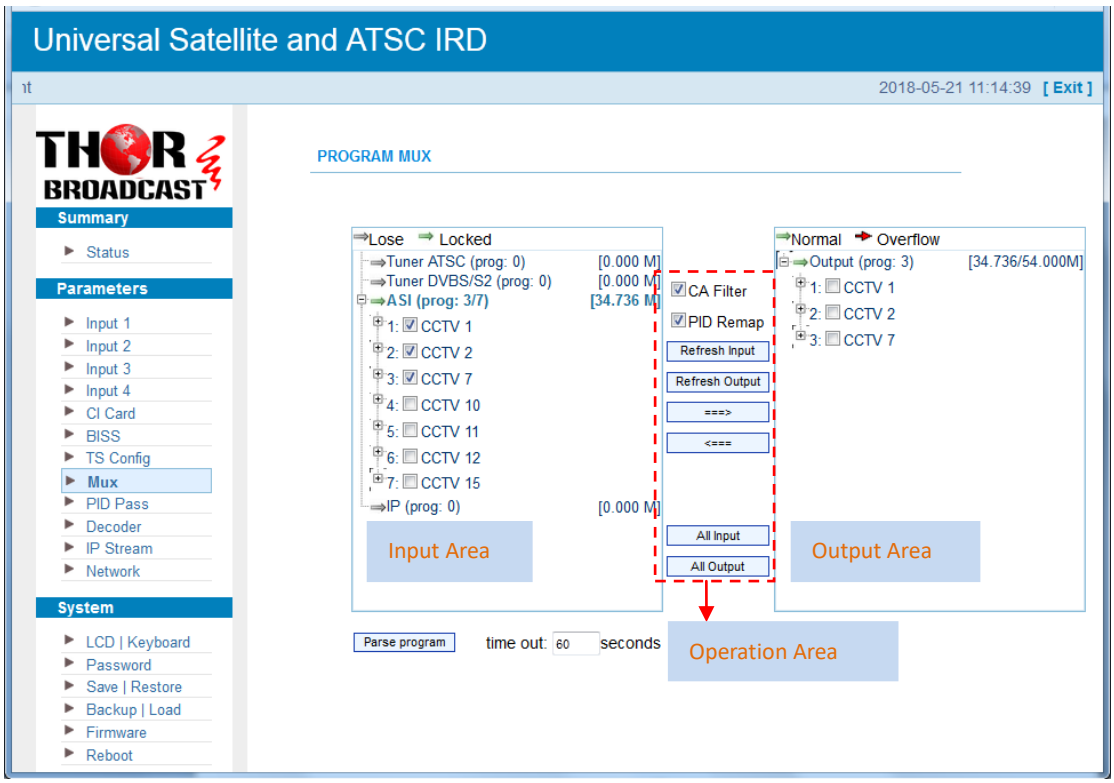


Figure-11

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

CA Filter: To enable/disable the CA filter

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 1: CCTV-4 , it triggers a dialog box (Figure 12) where users can input new information.

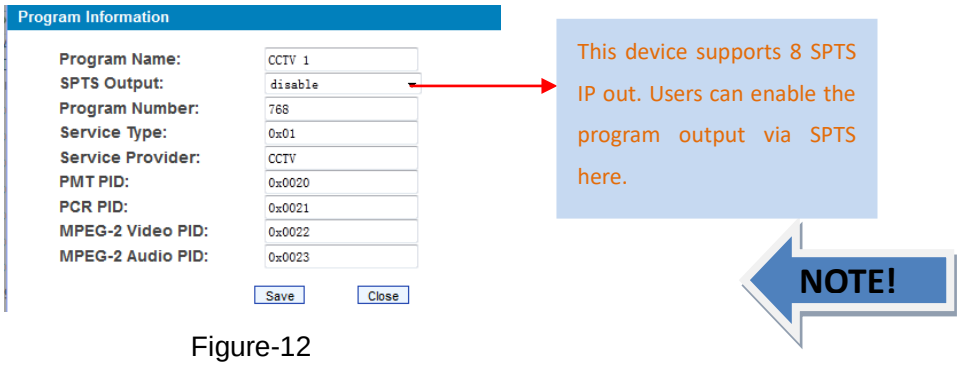


Figure-12

Input new data and click 'Save' button at last to confirm the modification.

Parameters → PID Pass:

Click "PID Pass", it displays the interface where to add the PIDs which need to pass through. (Figure-13)

In some occasions, there are some PIDs which won't belong to any program, such as EPG, NIT tables and so on which user just wants to pass them through the multiplexing module without changing anything. This is the main purpose of this function.

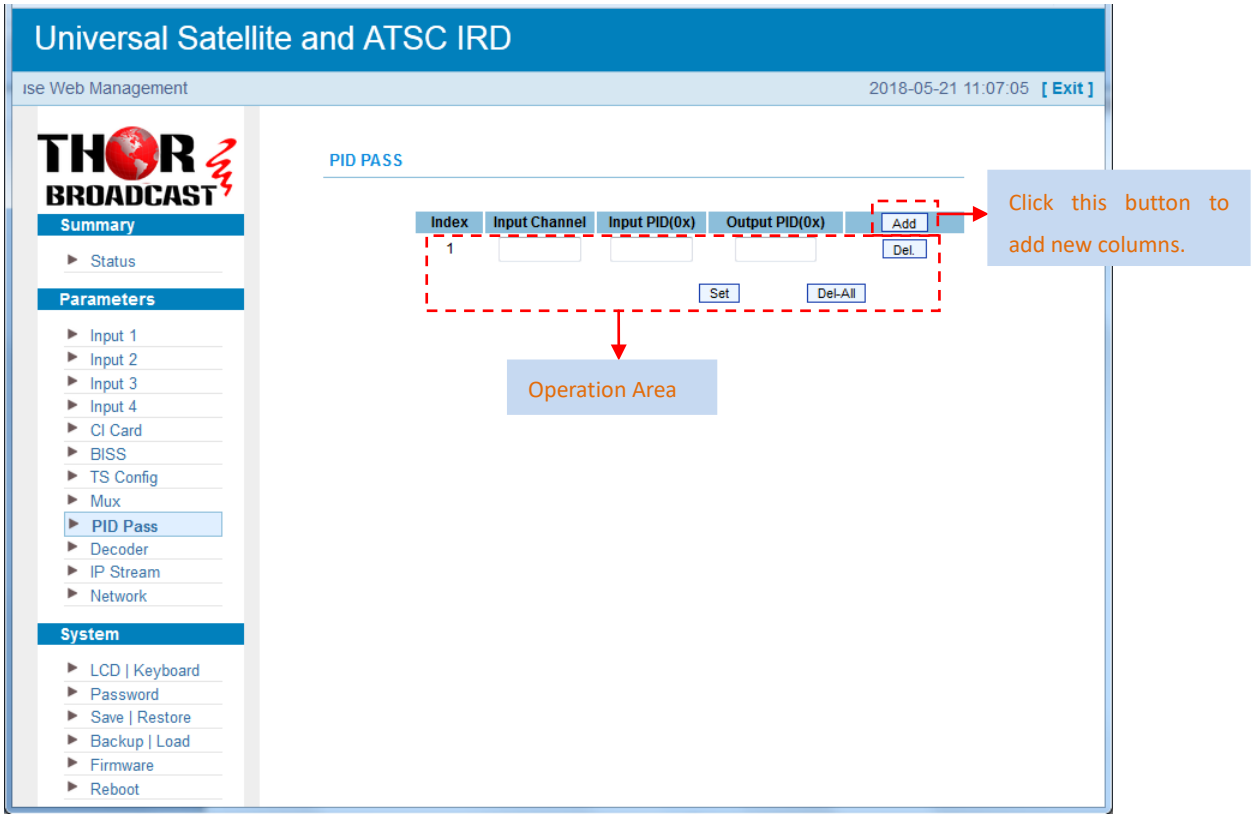


Figure-13

After finishing the configuration, click Set to confirm.

Parameters → Decoder:

This IRD supports decode program to output at HDMI/SDI/CVBS/YPbPr. Users can configure the Video/Audio output parameters in this tag. (Figure-14)

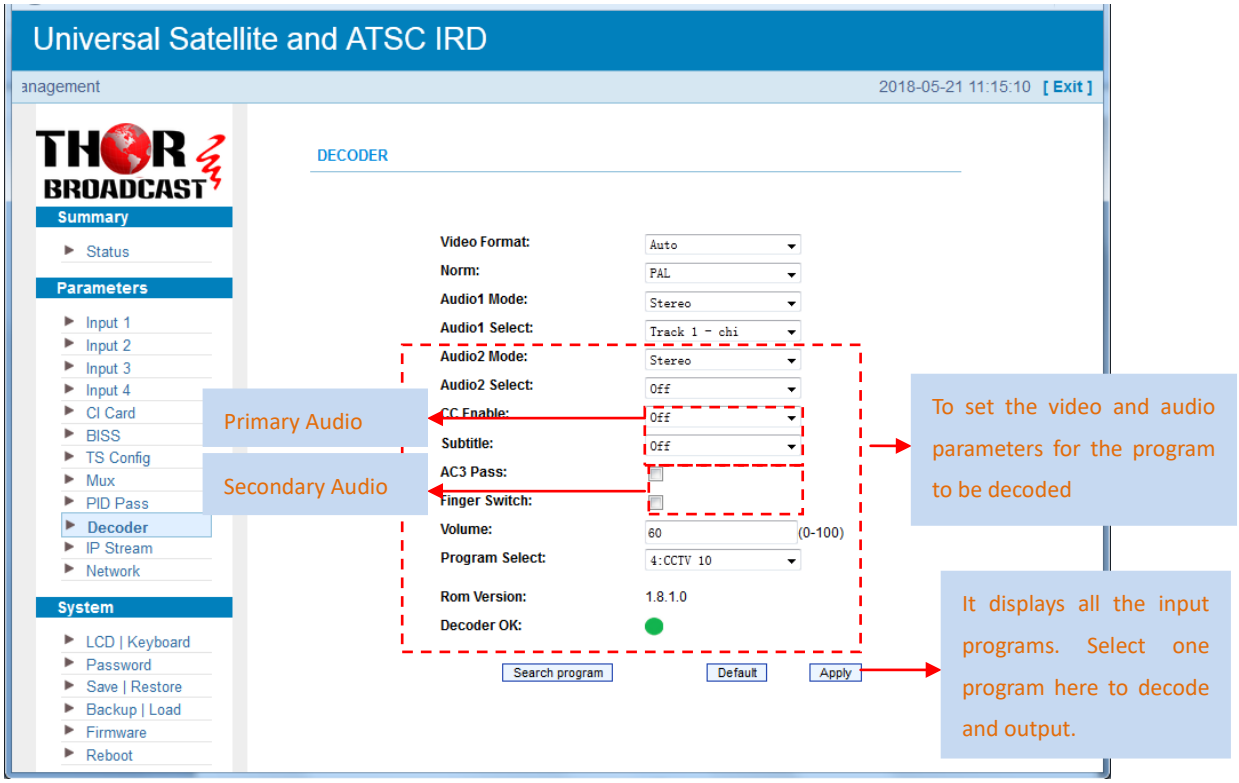


Figure-14

NOTE:

- This IRD supports maximum 2 channels of analog stereo audios output simultaneously.
- When the output has only one audio channel, users need to configure Primary Audio Chanel ('Audio 1 Mode' and 'Audio 1 Select') only.
- 5.1 channel audio can only be resume via HDMI and SDI interfaces. When users choose HDMI to SDI as the output interface and output 5.1 channel audio, users need to select '5.1 Channels' under 'Audio 1 Mode' and set 'Audio 2 Select' off.

After finishing the configuration, click Apply to confirm.

Parameters → IP Stream:

This unit supports TS output in IP (1 MPTS & 8 SPTS). Click "IP Stream" and it displays the interface where users can configure the MPTS & SPTS out parameters. (Figure-15)

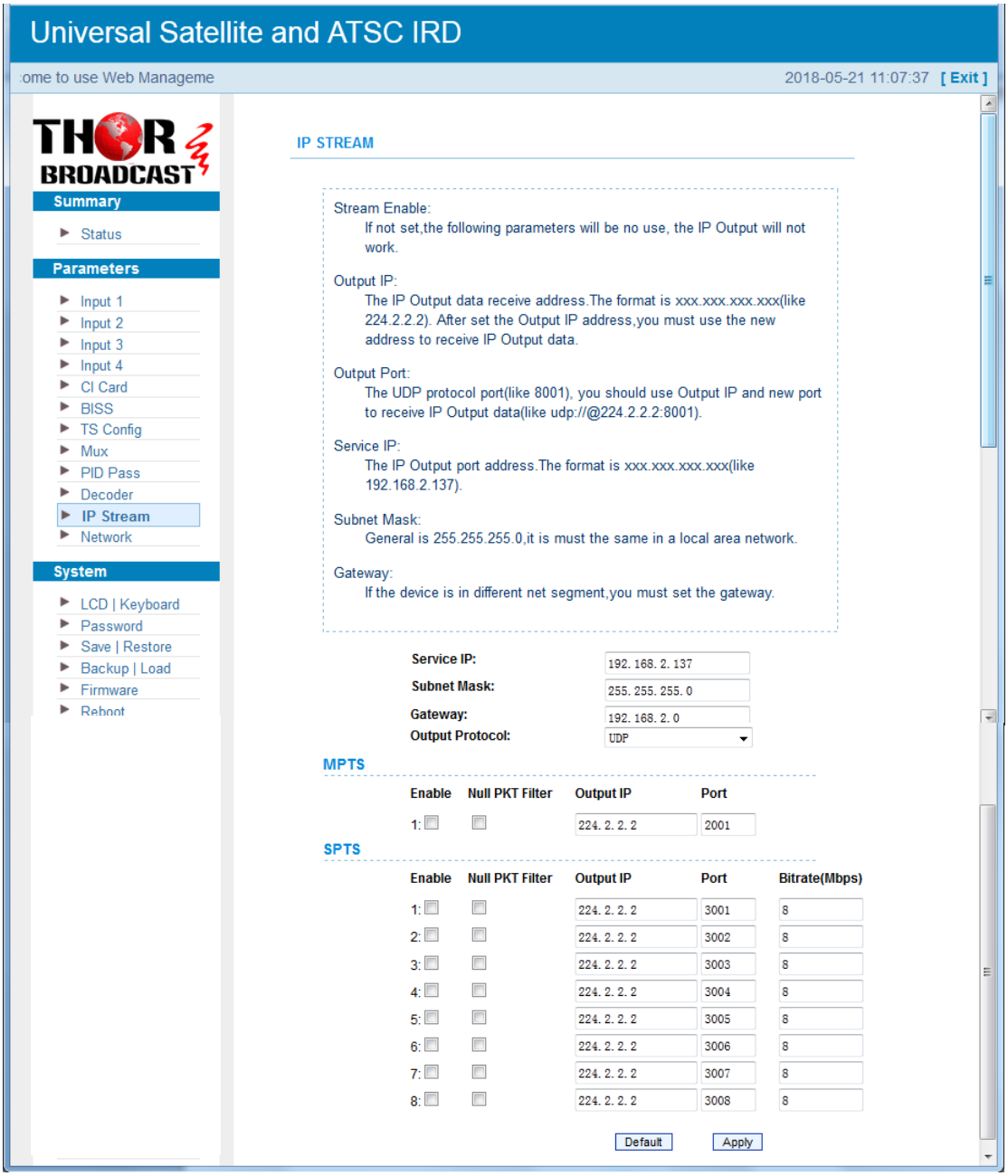


Figure-15

Parameters → Network:

From the menu on left side of the webpage, clicking “Network”, it will display the screen as Figure-16 where to configure the network parameters for the device.

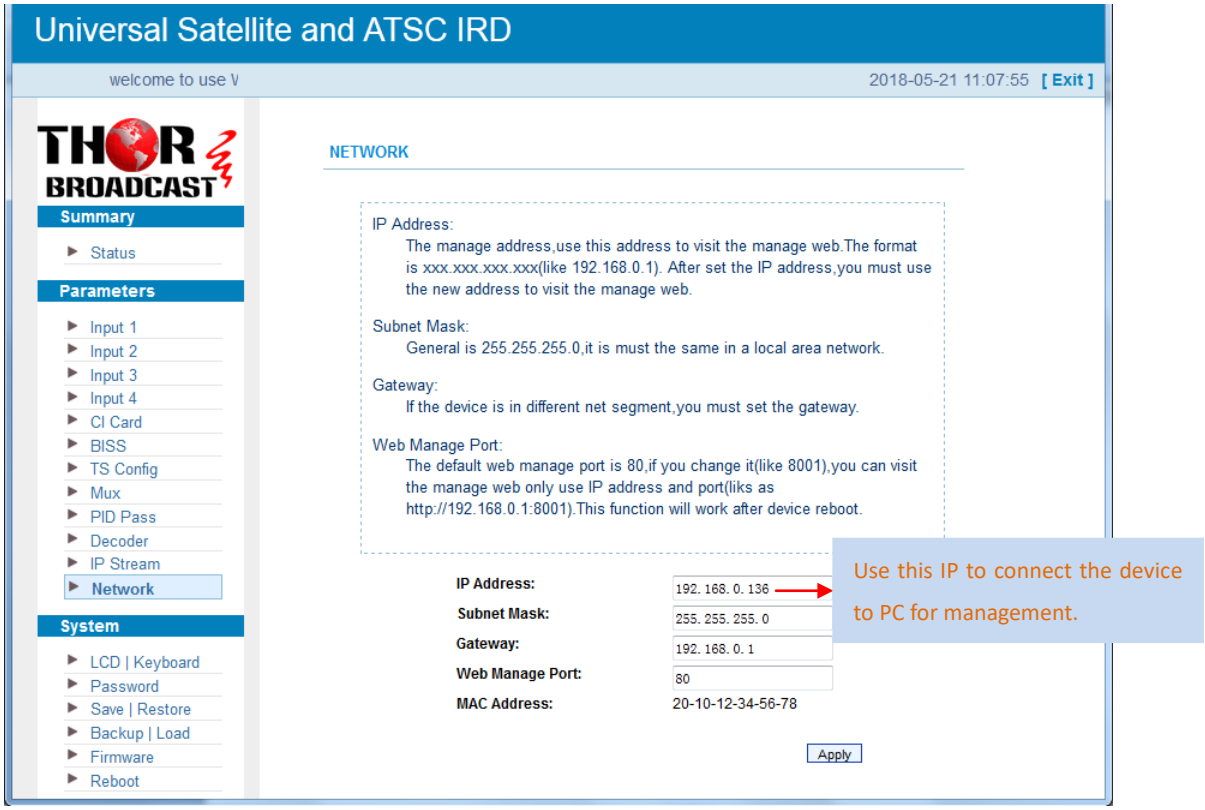


Figure-16

System → LCD/Keyboard:

From the menu on left side of the webpage, clicking “LCD/Keyboard”, it will display the screen as Figure-17 where to control the device’s front panel.

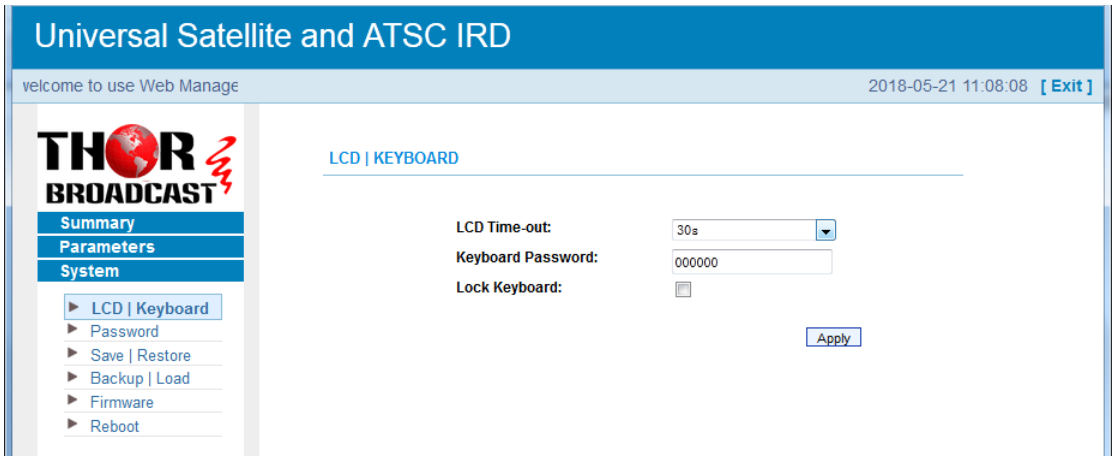


Figure-17

System → Password:

From the menu on left side of the webpage, clicking “Password”, it will display the screen as Figure-18 where to set the login account and password for the web NMS.

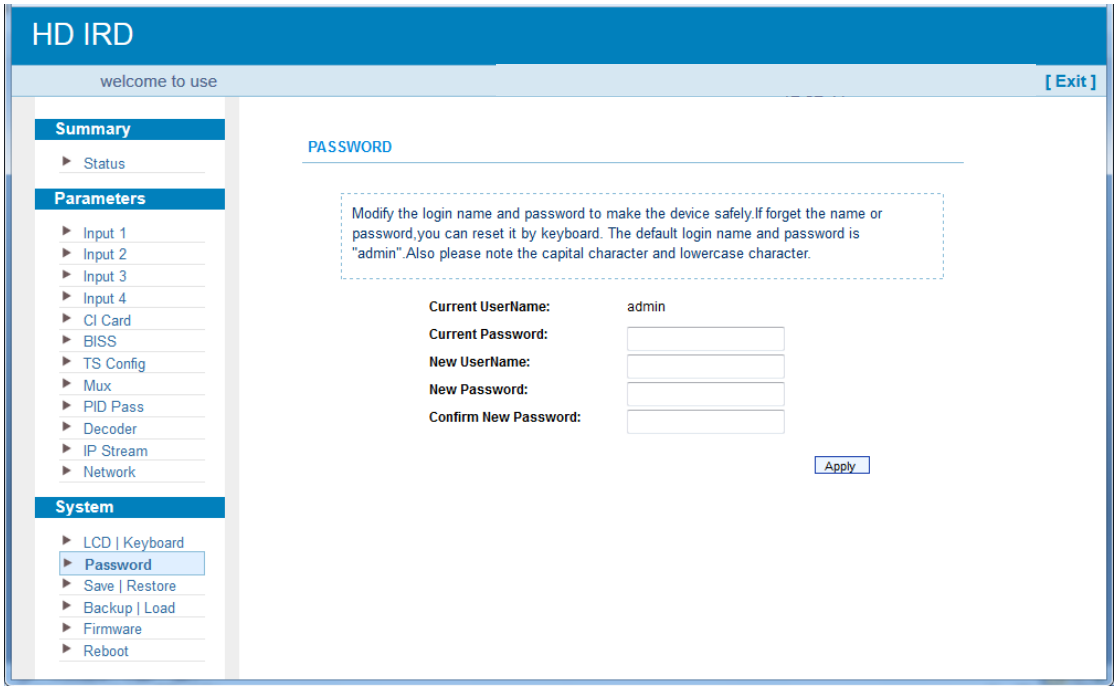


Figure-18

System → Save/Restore:

From the menu on left side of the webpage, clicking “Save/Restore”, it will display the screen as Figure-19 where to save or restore your configurations.

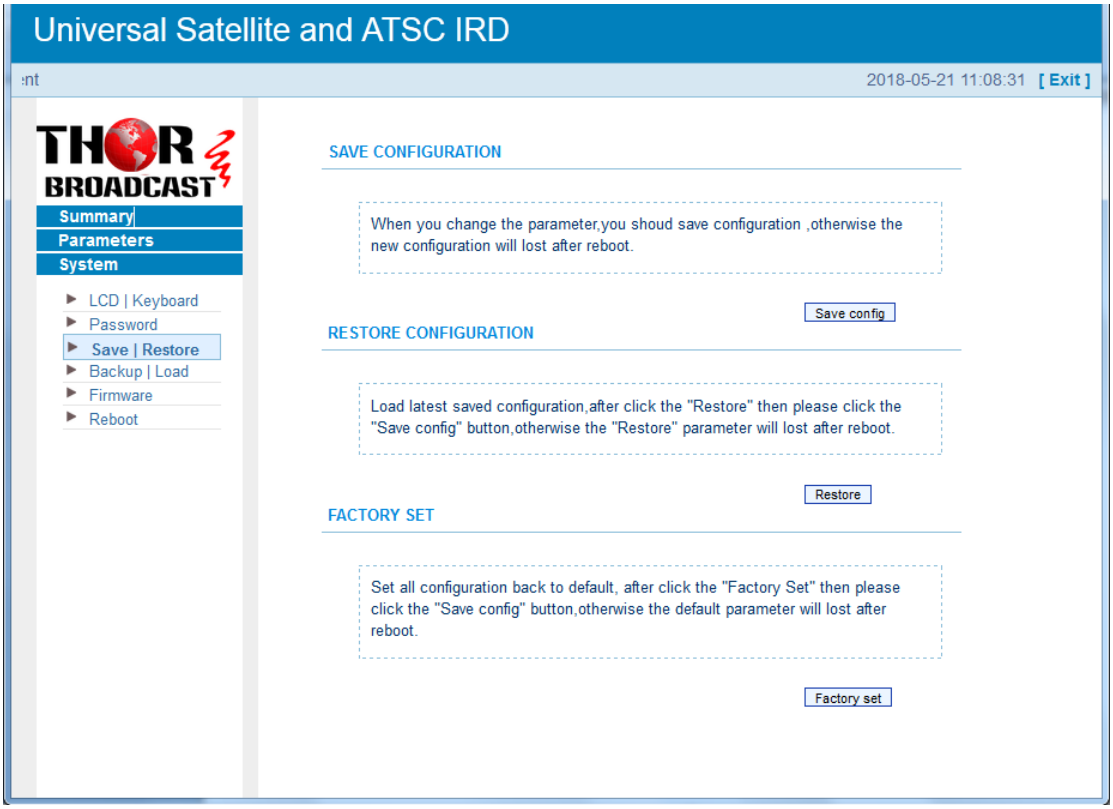


Figure-19

System → Backup/Load:

From the menu on left side of the webpage, clicking “Backup/Load”, it will display the screen as

Figure-18 where to backup or load your configurations.

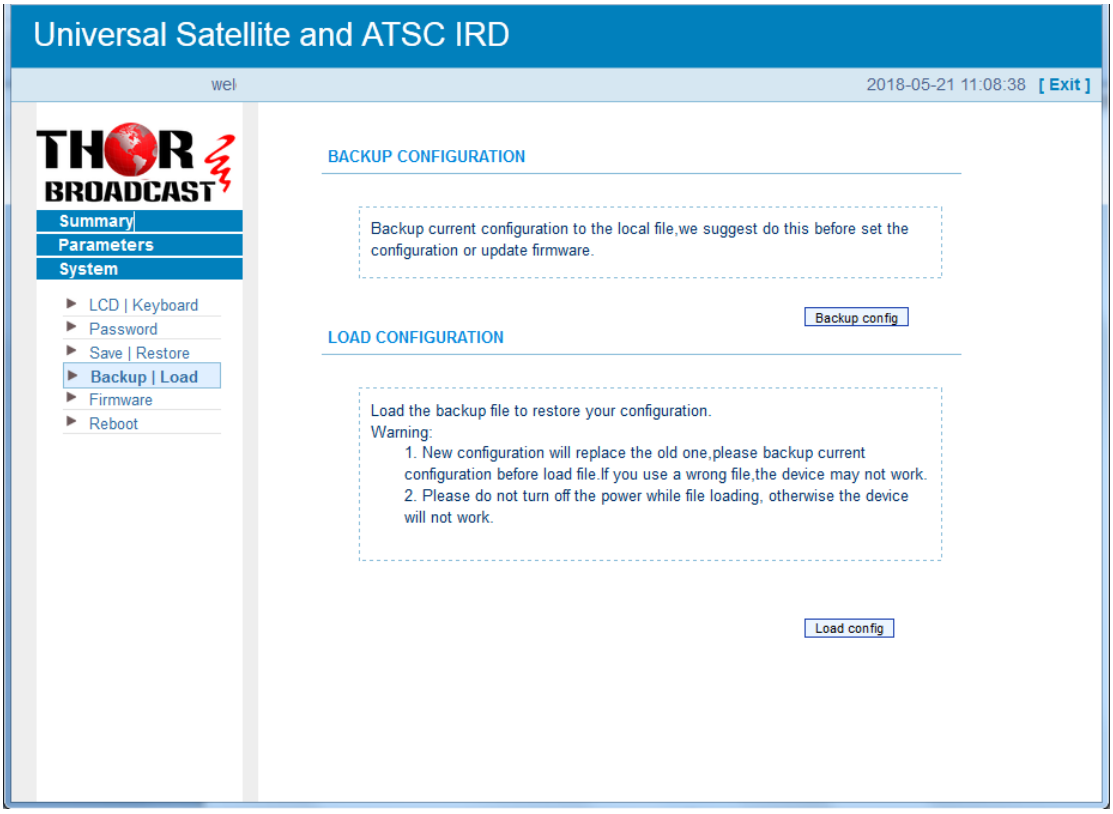


Figure-20

System → Firmware:

From the menu on left side of the webpage, clicking “Firmware”, it will display the screen as Figure-19 where to update firmware for the device.

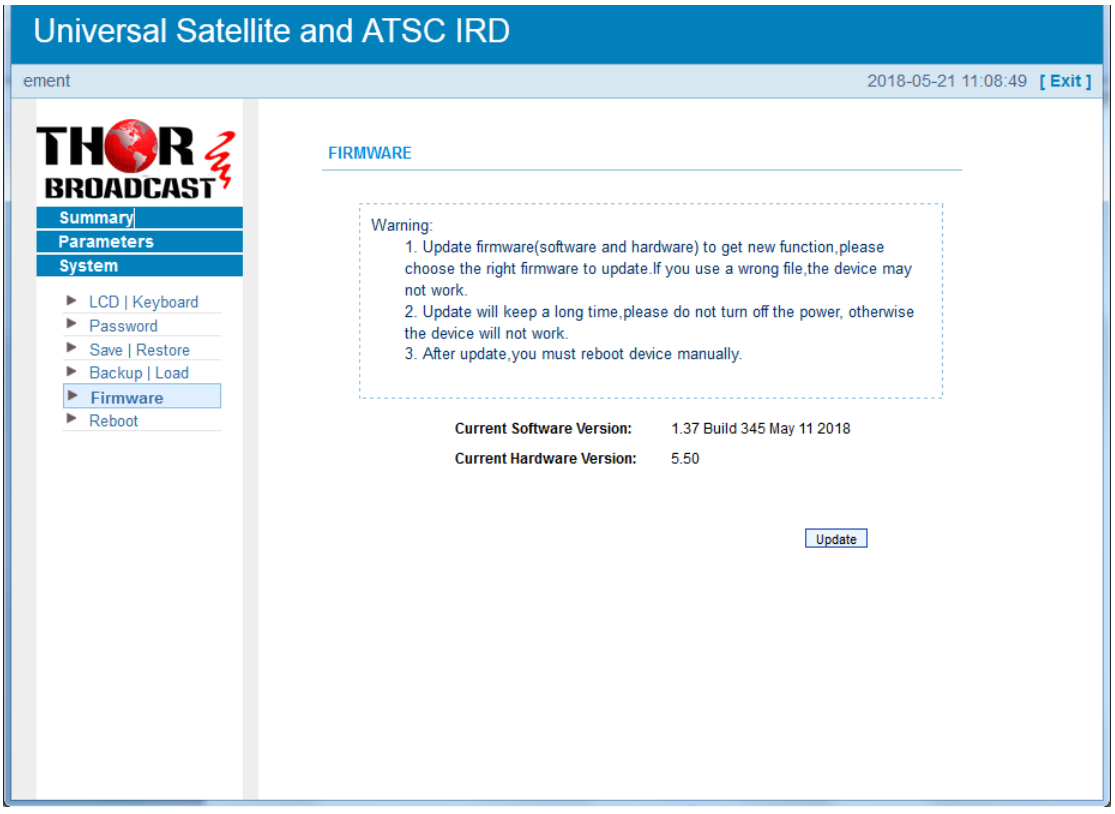


Figure-21

System → Reboot:

From the menu on left side of the webpage, clicking “Reboot”, it will display the screen as Figure-22 where to restart the device manually.

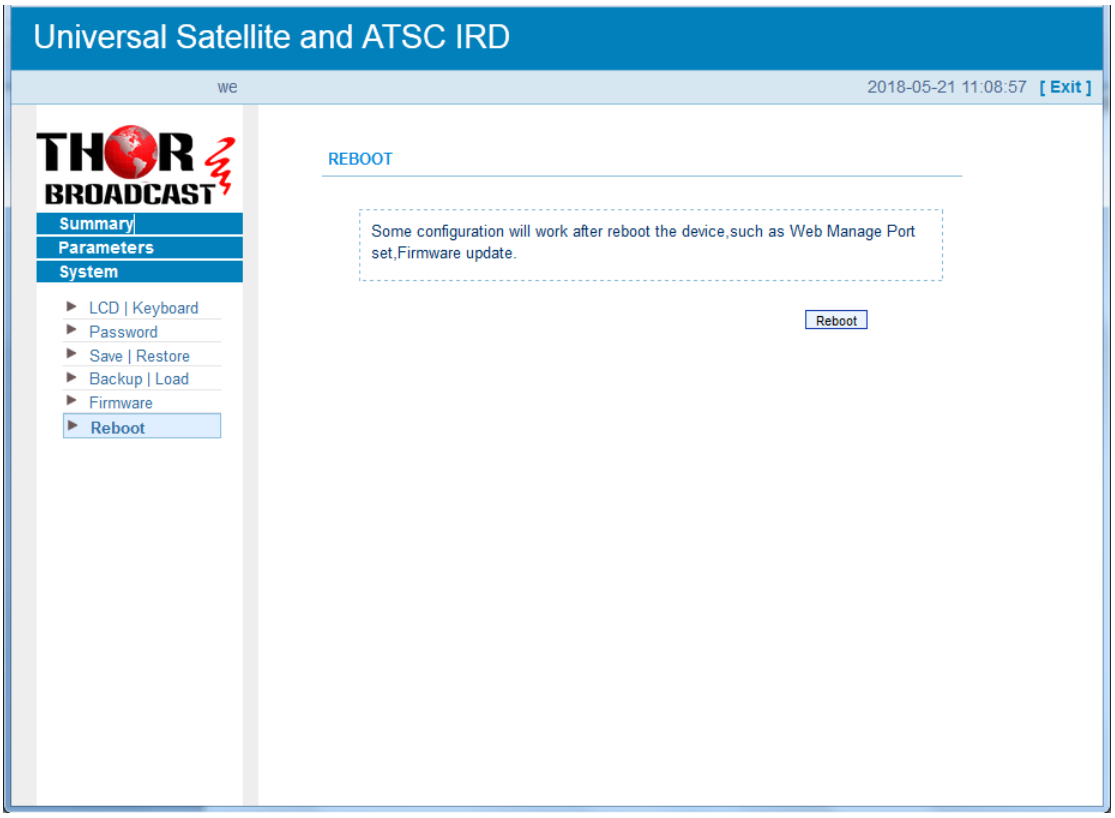


Figure-22

Chapter 5 Troubleshooting

Our ISO9001 quality assurance system has been approved by the CQC organization. To guarantee the products' quality, reliability and stability. All of our 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 us. To prevent potential hazard, please strictly follow the operation conditions.

Prevention Measure

- Install the device at a place in which environment temperature between 0 to 45 °C
- Ensure good ventilation for the heat-sink on the rear panel and other heat-sink bores if necessary
- Ensure AC input voltage is correct before switching on device
- Check the RF output level to make sure it varies within tolerant range if it is necessary
- Ensure all signal cables have been properly connected
- Wait 10 seconds before turning device on or off

Conditions where you need to unplug the power cord

- Power cord or socket damaged.
- Any liquid flowed into device.
- Any short circuit
- Device in damp environment
- Device suffered from physical damage
- Longtime idle.
- After switching on and restoring to factory setting, device still cannot work properly.
- Maintenance needed

Warranty Term

HD-IRD-V3-ATSC-DVBS2 is covered by **TWO YEARS LIMITED WARRANTY**, which starts from the initial date of your purchase. We provide its customer whole-life technical supports. If warranty is expired, repair service only charges parts (if required). In the event that a unit must be returned for service, before returning the unit, please be advised that:

1. Warranty mark pasted on the housing of unit must be in good conditions.
2. A clear and readable material describes model number, serial number and troubles should be offered.
3. Please pack the unit in its original container. If the original container is no longer available, please pack the unit in at least 3 inches of shock absorbing material.
4. Returned unit(s) must be prepaid and insured. COD and freight collect cannot be acceptable.

NOTE: We **do not** assume responsibility for damage caused by improper packing of returned unit(s).

The following situation is not covered by warranty:

1. The unit fails to perform because of operators' faults.
2. Warranty mark is modified, damaged and/or removed.
3. Damage caused by Force.
4. The unit has been unauthorized alteration and/or repaired.
5. Other troubles caused by operators' faults.

For Further Tech Support

1-800-521-Thor (8467)

support@thorfiber.com