

KR356H DVB-S2 HD IRD User Manual





About This Manual

Intended Audience

This user manual has been written to help people who have to use, to integrate and to install the product. Some chapters require some prerequisite knowledge in electronics and especially in broadcast technologies and standards.

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Chapter 1 Product Outline

1.1 Outline

KR356H DVB-S2 HD IRD is DEXIN's 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 pluggable structure design greatly facilitates the change of modules (demodulator or decoder) as needed.

To meet customers' various requirements, KR356H 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
- 2 DVB- S/S2Tuner 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
- Support CC and Subtitle
- Support 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

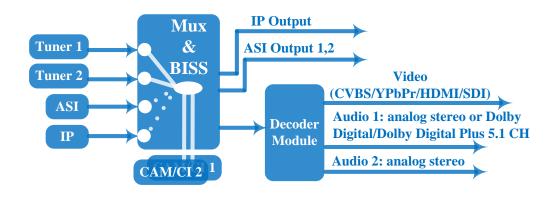
Input
2 x DVB-S/S2RF, F type
1×ASI input for re-mux, BNC interface
1xIP input for re-mux (UDP)

Demodulating Sectio	n
DVB-S	
Input Frequency	950-2150MHz
Symbol rate	2-45Msps
Signal Strength	- 6525dBm
Constellation	1/2, 2/3, 3/4, 5/6, 7/8 QPSK
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 2)	
Input Frequency	950-2150MHz
Code rate	1/2, 3/5, 2/3, 3/4, 4/5, 5/6, 8/9, 9/10
Constellation	QPSK, 8PSK, 16APSK, 32APSK
Symbol rate	QPSK 1~45 Msps; 8PSK1~45 Msps; 16APSK 1~45 Msps; 32APSK 1-32 Msps
Descrambling	
CAM/CI Quantity	2
BISS Mode	Mode 1, Mode E (up to 120Mbps)
Output	
ID Output	1*MPTS & 8*SPTS over UDP, RTP/RTSP.
IP Output	100 Base-T Ethernet interface (unicast / multicast)
2×ASI	BNC interface, mirrored out
	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
Decode Output	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°C

1.4 Principle Chart



1.5 Appearance and Description

Front Panel Illustration:



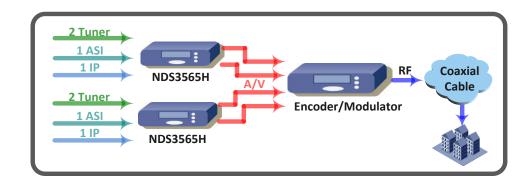
1	Mini LCD TV for decoding
2	monitor LCD display for device control and configuration
3	Mini LCD TV power switch
4	NMS Port (for PC connection)
5	DATA Port (for IP stream input & output)
6	Indicators Area (Lock 1&2: to indicate RF input signal lock
	status; Lock 3:to indicate the IP or ASI signal Lock status;
	Decoder: to indicate the decoding status)
	Up/Down/Left/Right Buttons
7	Enter Key
/	Menu Key
	Lock Key

Rear Panel Illustration



		USB upgrade port
	2	HDMI video/audio output
	3	Component video output (YPbPr)
Decoder Board 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	8	CAMs /Smart card slots A & B
Board	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:

- KR356H DVB-S2 HD 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.

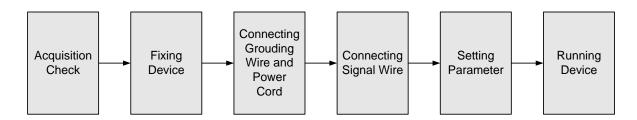
2.2 Installation Preparation

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: $1X10^7 \sim 1X10^{10\Omega}$, Grounding current limiting resistance: 1M (Floor bearing should be greater than 450Kg/m^2)
Environment Temperature	5~40°C(sustainable), 0~45°C(short time), installing air-conditioning is recommended
Relative Humidity	20%~80% sustainable 10%~90% short time
Pressure	86~105KPa
Door & Window	Installing rubber strip for sealing door-gaps and dual level glasses for window
Wall	It can be covered with wallpaper, or brightness less paint.
Fire Protection	Fire alarm system and extinguisher
Power	Requiring device power, air-conditioning power and lighting power are independent to each other. Device power requires AC power 100-240V 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 25mm².

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 25mm².

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 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 KR356H, 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 KR356H DVB-S2 HD 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)





YPbPr Cable



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



Chapter 3 Operation

The front panel of KR356H DVB-S2 HD 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.

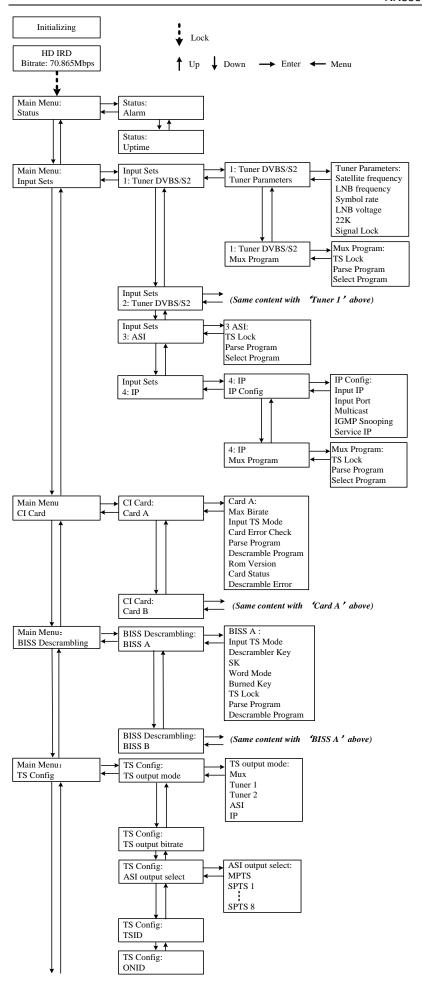
LEFT/RIGHT: Choose and set the parameters.

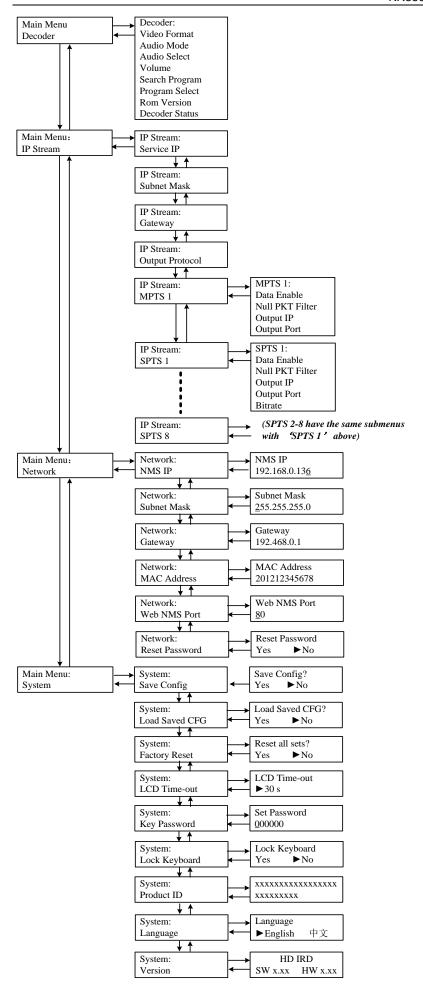
UP/DOWN: Modify activated parameter or paging up/down when parameter is inactivated.

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

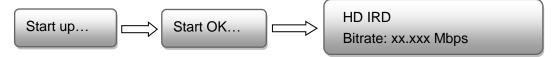
(See next page :)





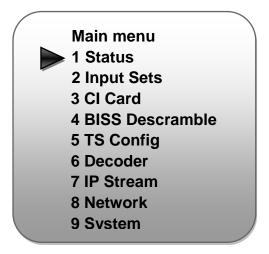
3.2 General Setting

Switch on the device and after a few seconds' initialization, it presents 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 could 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'.

Alarm System is normal

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

Uptime 1 Day(s) 03:30:02

3.2.2 Input Sets

KR356H 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:



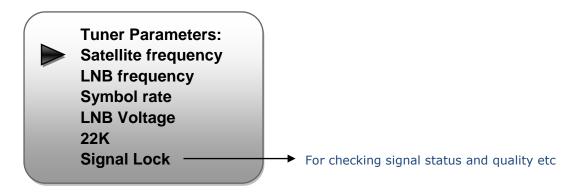
> Tuner DVBS/S2:

Press ENTER key to enter '1 Tuner DVBS/S2' (or '2 Tuner DVBS/S2'), it displays as below:



Tuner Parameters:

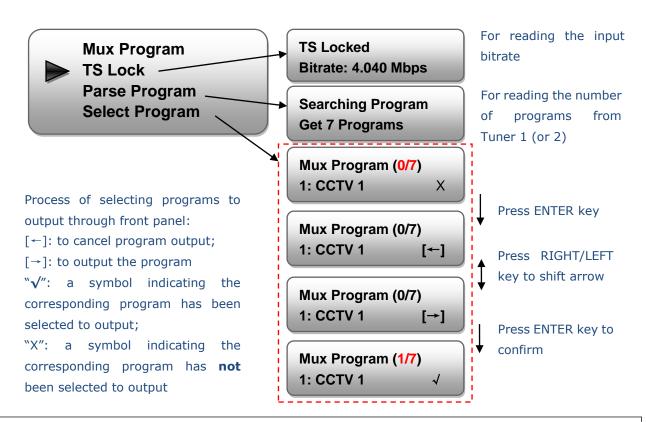
Users can enter this menu to configure the tuner parameters separately to receive the tuner programs.



Mux Program:

Users can parse the 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.: $TS Config \rightarrow TS output mode \rightarrow Mux$)



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

> 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.



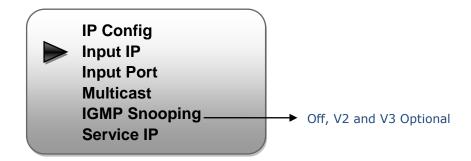
> IP:

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.



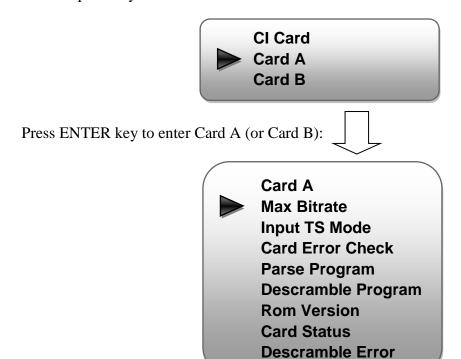
Mux Program:

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

KR356H 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.



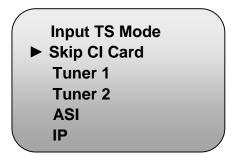
> Max Bit rate

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

Max Bitrate
► 48 Mbps

Input TS Mode

KR356H 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.



Parse Program

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

Searching Program
Get 8 Programs

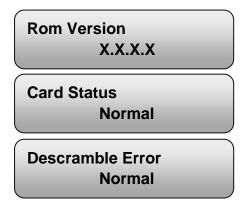
Descramble Program

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

KR356H 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.

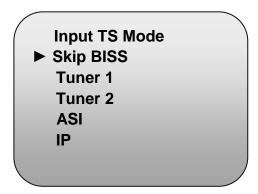


Press ENTER key to enter BISS A (or BISS B):



> Input TS Mode

KR356H 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.



Descrambler Key/SK/Word Mode/Burned Key

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

The descrambling principle is as 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 bitrate of the corresponding channel.

TS Locked Bitrate: 34.662 Mbps

> Parse Program

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

Searching Program
Get 7 Programs

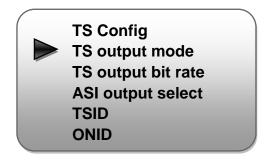
> Descramble Program

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

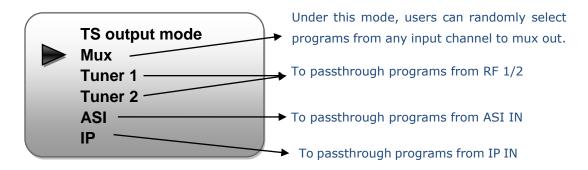


3.2.5 TS Config

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 (MPTS and SPTS 1-8).



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

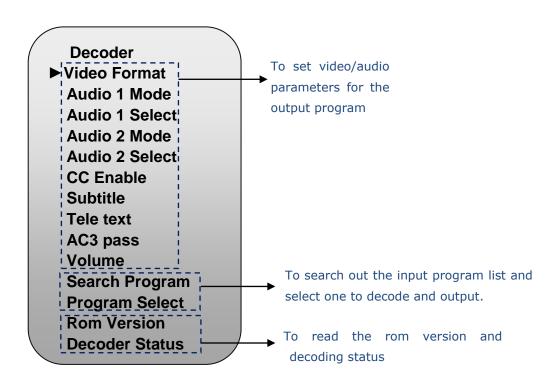


ON ID: Users can set ON ID (original network ID) in this menu.



3.2.6 Decoder

Users can press ENTER key to enter 'Decoder' to set the video to be decoded. KR356H IRD supports one channel program to output at various interfaces at the same time (HDMI/SDI/CVBS/YPbPr).



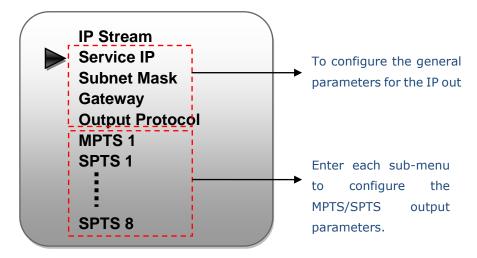
NOTE:

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

- KR356H 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.

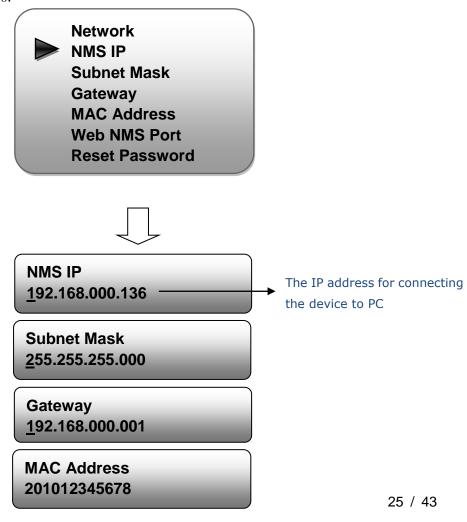
3.2.7 IP Stream

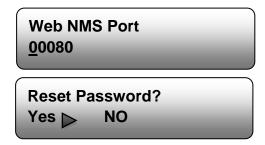
KR356H supports 1MPTS and 8 SPTS over IP (UDP, RTP/RTSP) output. Users can set the IP out parameters in this menu.



3.2.8 Network

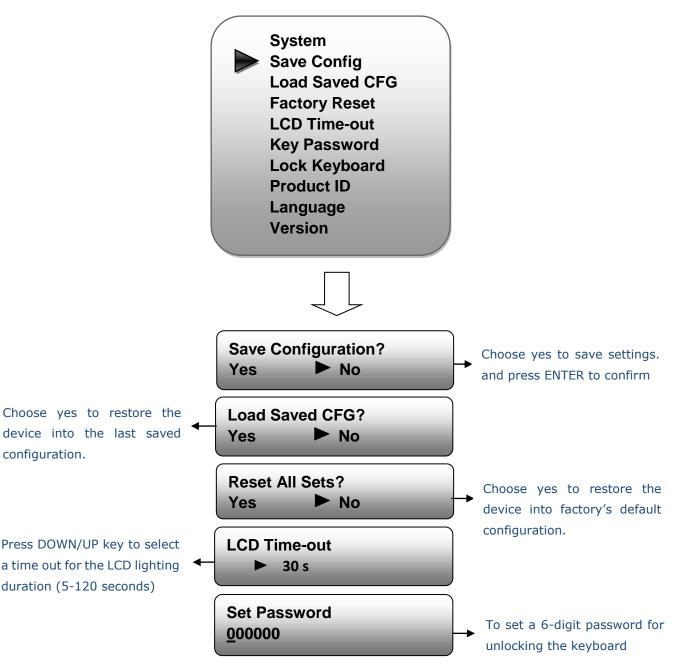
Users can set network parameters in this menu. Enter 'Network' submenus to separately set corresponding parameters.





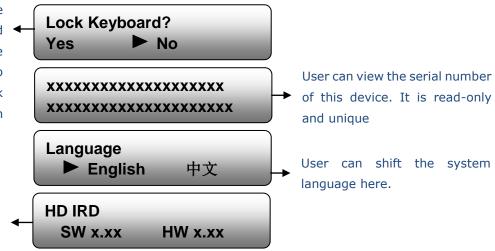
3.2.9 System

Users can set the system parameters in this menu. Enter 'System' submenus to separately set corresponding parameters.



Choose Yes to lock the keyboard, then the keyboard will be locked and cannot be applicable. It is required to input the password to unlock the key board. This operation is one-off

It displays the version information of this device. Encoder Modulator: the name of the device; SW: software version number; HW: hardware version number.



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.

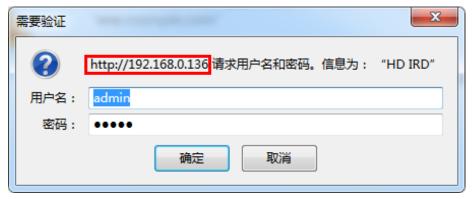
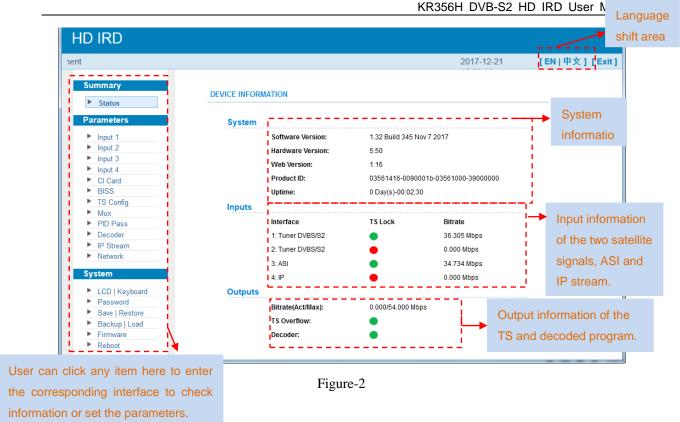


Figure-1

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.



Parameters \rightarrow Input 1/2 (Tuner 1/Tuner 2 Input):

From the menu on left side of the webpage, clicking "Input 1" or "Input 2", it displays the interface where users can configure the 2 RF input parameters separately. (Figure-3)

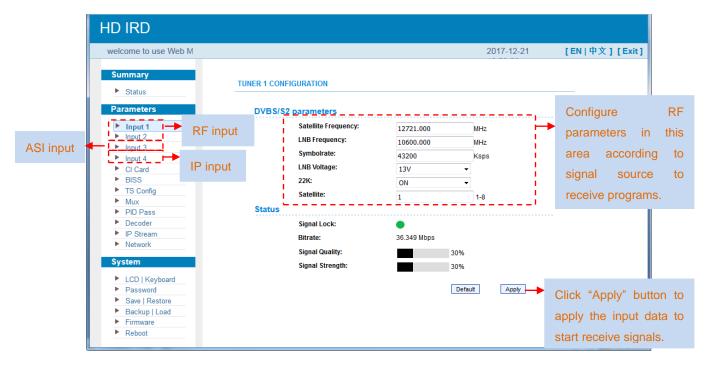


Figure-3

Parameters → **Input** 3 (ASI Input):

"Input 3" refers to the ASI source which does not need to configure. Users can only read the signal lock status and input bitrate. (Figure-4)

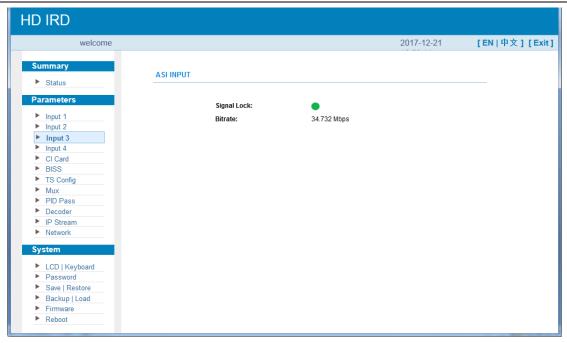


Figure-4

Parameters → **Input** 4 (**IP Input**):

From the menu on left side of the webpage, clicking "Input 4", it displays the interface where users can configure the IP input parameters. (Figure-5)



Figure-5

Parameters → CI Card:

KR356H 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-6)

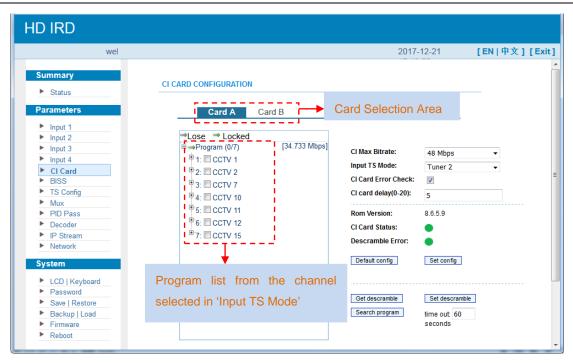
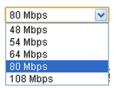


Figure-6

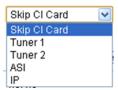
> CI Max Bit rate

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.



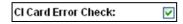
Input TS Mode

KR356H 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

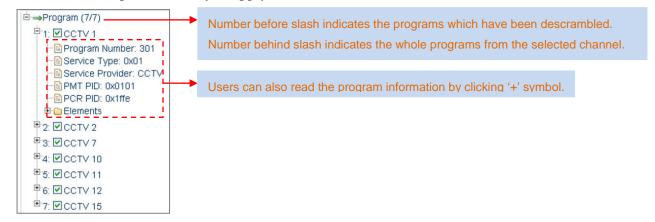
Users can decide whether to enable the card error check function by checking the box.



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 2 BISS and descramble the input channels. (Figure-8)

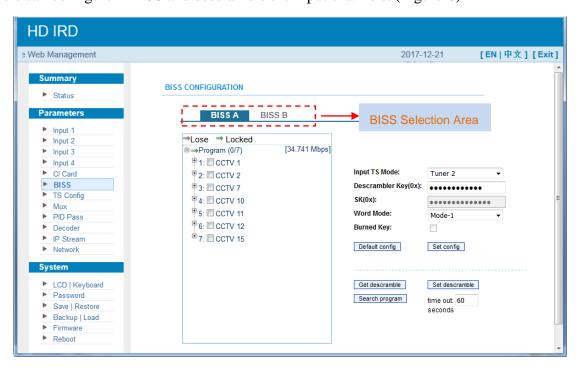
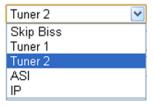


Figure-8

Input TS Mode:



KR356H 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).

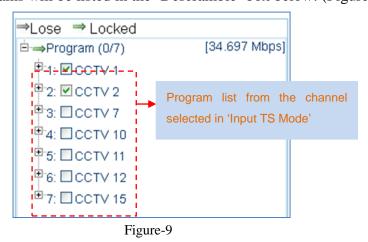
Descrambler Key(0x):			
SK(0x):			
Word Mode:	Mode-E		
Burned Key:			

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

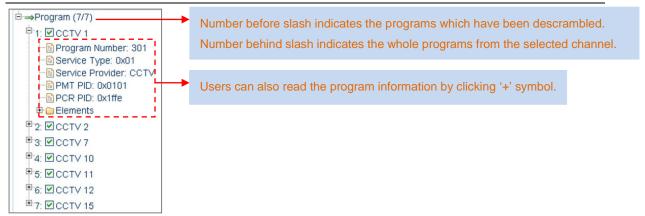
Modulating Side (BISS SCR)	Receiving Side (BISS DESCR)	Digit (0x)
Mode 1+SW Data	Mode 1+Descrambler Key	12
Mode E+ESW Data + Device	Mode E + Descrambler Key + Burned Key	16
Mode E+ESW Data + Input ID	Mode E + Descrambler Key + SK	14

After configuring the above BISS parameters, click Set configuration 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)



Check the program(s) to be descrambled with " \checkmark " 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)

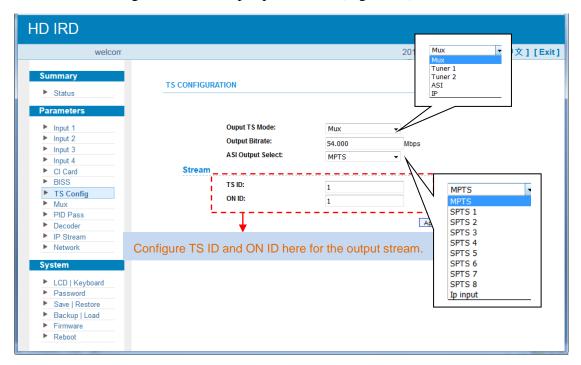
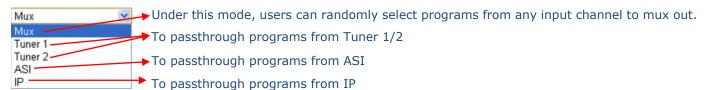


Figure-10

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 \rightarrow 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)

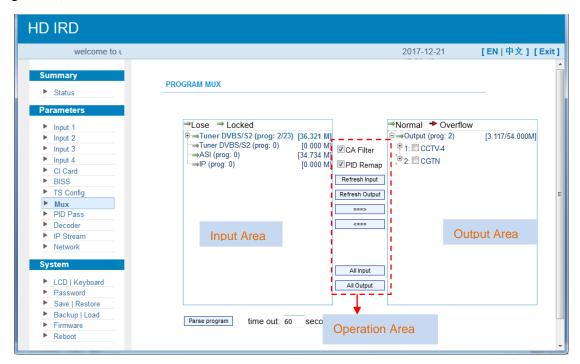
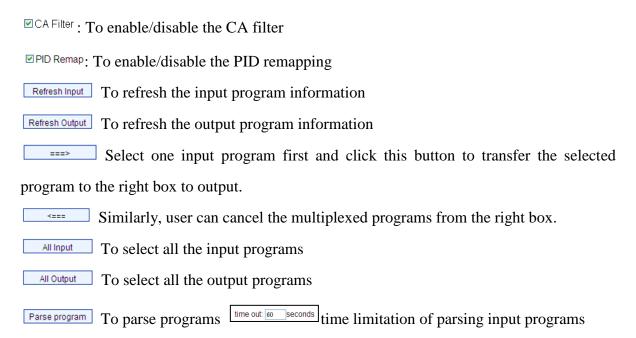


Figure-11

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



♦ Program Modification:

The multiplexed program information can be modified by clicking the program in the

'output' area. For example, when clicking \$\frac{1}{2} \cdots \cd

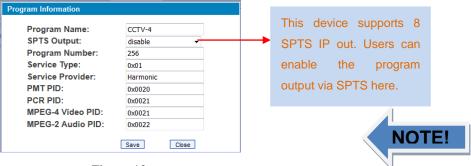


Figure-12

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.

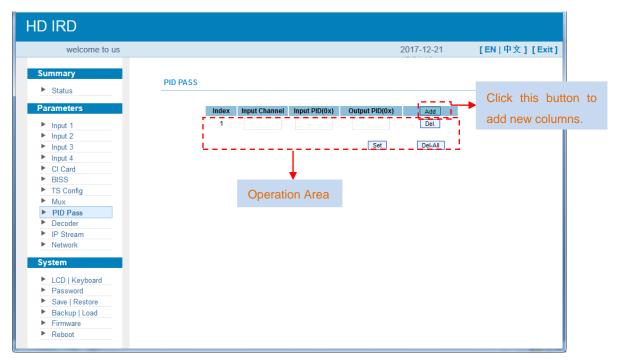


Figure-13

After finishing the configuration, click Set to confirm.

Parameters → **Decoder**:

KR356H supports decode program to output at HDMI/SDI/CVBS/YPbPr. Users can configure the Video/Audio output parameters in this tag. (Figure-14)

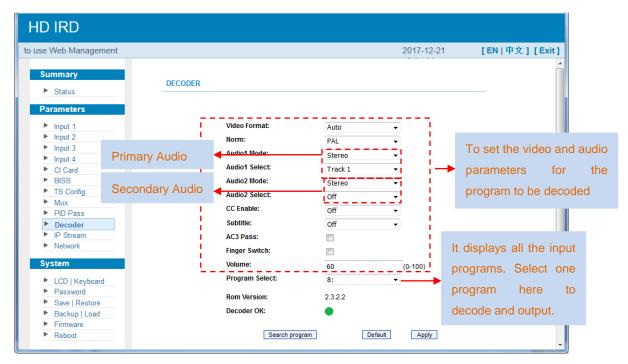


Figure-14

NOTE:

- KR356H 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.

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)

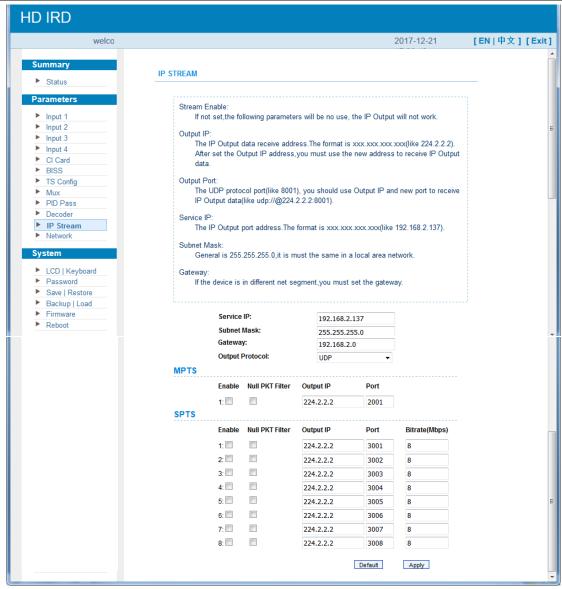


Figure-15

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.

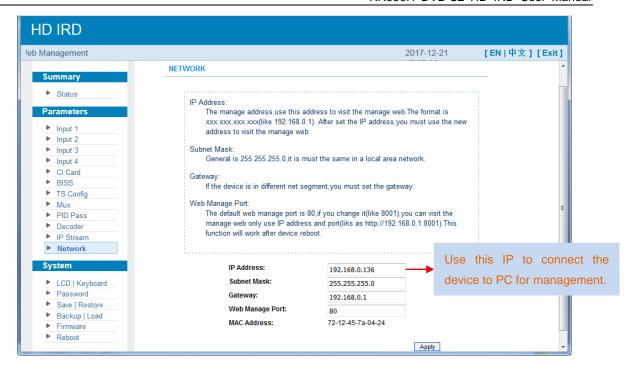


Figure-16

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.

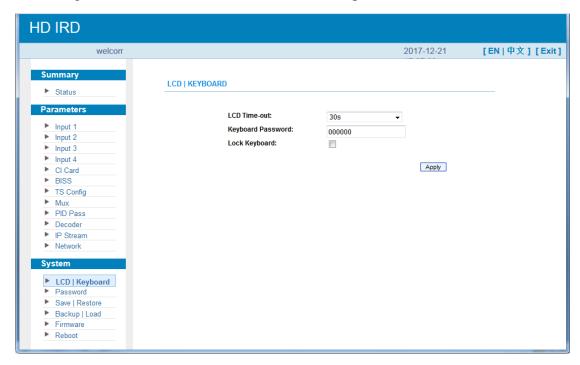


Figure-17

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.

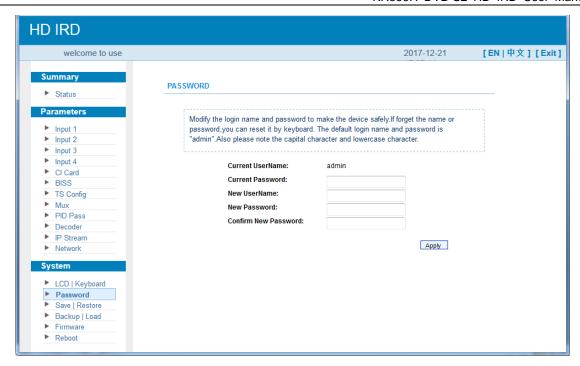


Figure-18

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.

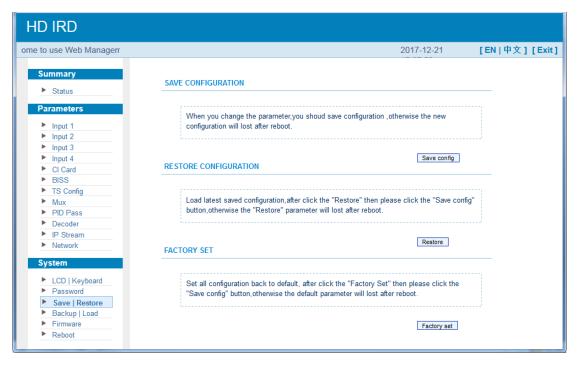


Figure-19

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.

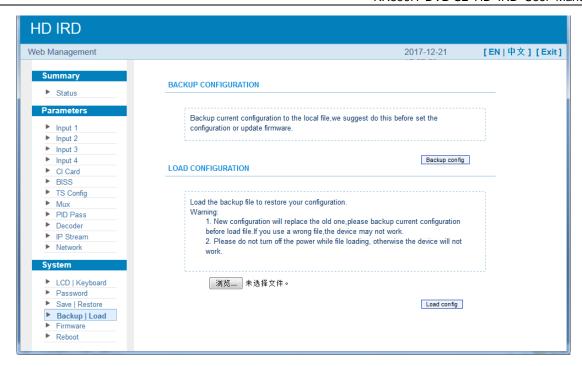


Figure-20

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.

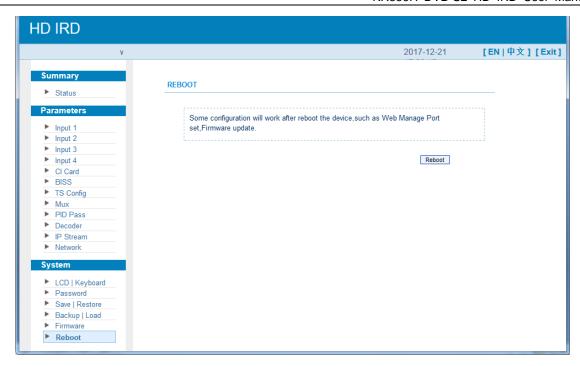


Figure-22

Chapter 5 Troubleshooting

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 °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