Thank you for purchasing Professional Receiver Decoder.

This manual will help you to install, use and maintain the decoder. Please read this manual carefully before operating your unit and keep it for future reference.

Warning & Note

In this manual, pay special attention to the following marks that indicate hazardous situations.
- ❖ **Warning:** Alert user to the operation which could result in device damage or data loss, and the presence of a hazardous situation which could result in serious injury.
- ❖ **Note:** Remind user of presence of possible problems and information of any importance to help understand, use and maintain the installation.

Note: The information in this user's manual is subject to change without notice. The photos and function explanations in the manual are for reference. If any discrepancy exists, please refer to the entity.

Safety Instruction

Read following items carefully before operating this decoder.

Installation

- ❖ This decoder should be installed horizontally. Unbalanced installation may cause damage.
- ❖ Install the decoder in a place with:
  good ventilation (leave space not less than 10cm around this decoder)
  no heat source (burning candle, radiator, heater, fireplace, amplifier, etc)
  suitable temperature
  against humidity (especially bathroom, kitchen, etc)
  no direct sunlight
  low vibration

Maintenance

- ❖ Unplug this decoder from wall outlet before changing connections between this unit and other related equipments.
- ❖ Don't unplug or insert signal, audio and video cables when this decoder is turned on.
- ❖ To avoid the risk of lightning strike, unplug power cord of the decoder from wall outlet in lightning storm.
- ❖ Unplug power cord from wall outlet when the unit is not used for a long time or damaged accidentally.
- ❖ Turn off this unit first, after 1 to 2 hours turn it on when move this decoder from a cold environment to a hot environment, vice versa.
- ❖ To avoid the risk of fire or electric shock, don't expose this decoder to rain, splashing and don't put object with liquid on this unit.
- ❖ Do not cover vents of this decoder with newspaper, table cloth, curtain, etc.
- ❖ Don't put heavy objects on this decoder.
- ❖ Unplug power cord of this decoder from wall outlet before cleaning. To reduce damage, clean this unit with dry cloth. Do not let liquid and spray flow into this device to avoid serious damage.
- ❖ There is dangerous voltage in product enclosure. Do not remove the cover (or back) to avoid the risk of fire or electric shock.

Power Socket and Power Cord

- ❖ The power socket should be available near the decoder and well grounded.
- ❖ Do not insert or pull out the power cord with wet hands to avoid electric shock or fire.
- ❖ Do not use damaged power cord. If power cord is damaged, contact your local dealer for replacement to avoid risk of fire or electric shock.
- ❖ Do not excessively bend the power cord, and do not place heavy objects on it, which could cause damage, electric shock or fire.
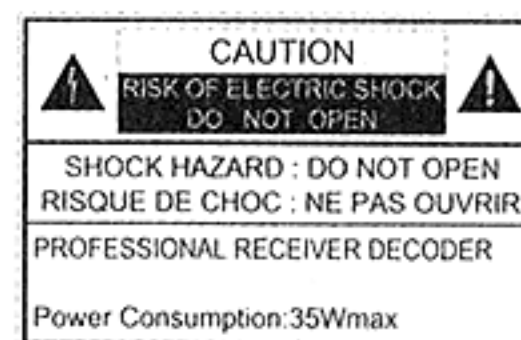
Others

- ❖ The all-pole power switch of this decoder is on rear panel. Switch it to "**I**", related equipment will connect with power supply. Switch it to "**o**", related equipment will disconnect with power supply completely.

❖ Connect Class I equipments with power socket which can protect grounding line.

❖ Only use accessories specified by the manufacturer, as other unsupported accessories may cause damage to the decoder.

Warning Mark

This mark appears on rear panel of this decoder, painted prominently in contrasting color to background. It consists of two graphical symbols and warning messages. The detailed specifications are as follows:

```
CAUTION
⚠ RISK OF ELECTRIC SHOCK ⚠
DO NOT OPEN
SHOCK HAZARD : DO NOT OPEN
RISQUE DE CHOC : NE PAS OUVRIR
PROFESSIONAL RECEIVER DECODER
Power Consumption:35Wmax
```

Warning: To reduce the risk of electric shock, don't remove the cover (or back). Equipment service and maintenance should be undertaken by qualified personnel.

This symbol alerts user to the presence of uninsulated "dangerous voltage" in product enclosure that sufficient magnitude will constitute risk to person.

This symbol reminds user of presence of important operation and maintenance instructions in literature accompanying this decoder.

Grounding Specification

⚠ **Warning: To secure user and device safety, all decoder and decoder cabinets must be connected with ground before turning them on.**

Grounding specifications are the following:

1. Grounding device consists of grounding lead-in cable and grounding body.

2. Grounding lead-in cable may be multiple copper wires or other zonal metal bar which section is more than 10mm. Grounding lead-in cable must be a whole cable without tie-in. Select the shortest distance to connect it with grounding body. Don't bend it and do anticorrosive disposal.

3. Grounding body is metal object buried underground which is usually made of steel tube, angle iron or flat steel. Specifications are:
   Steel tube: Φ50mm and tube thickness should be not less than 3.5mm
   Angle iron: Not less than 50mm x 50mm x 50mm
   Flat steel: Not less than 40mm x 4mm
   Length of grounding body should be 1.5m to 2.5m. The depth of under ground should be more than 2m and grounding body should be buried under frozen soil layer in cold area. Backfill grounding pit with soil or impedance-reducing material such as salt. Make sure there are not blocks or building rubbishes in pit soil and infill soil according to layers.

4. Connection between grounding lead-in cable and grounding body must be welded.

5. To make sure that all cabinets are connected with ground securely, each cabinet must be connected with ground separately. The following diagram shows grounding process:
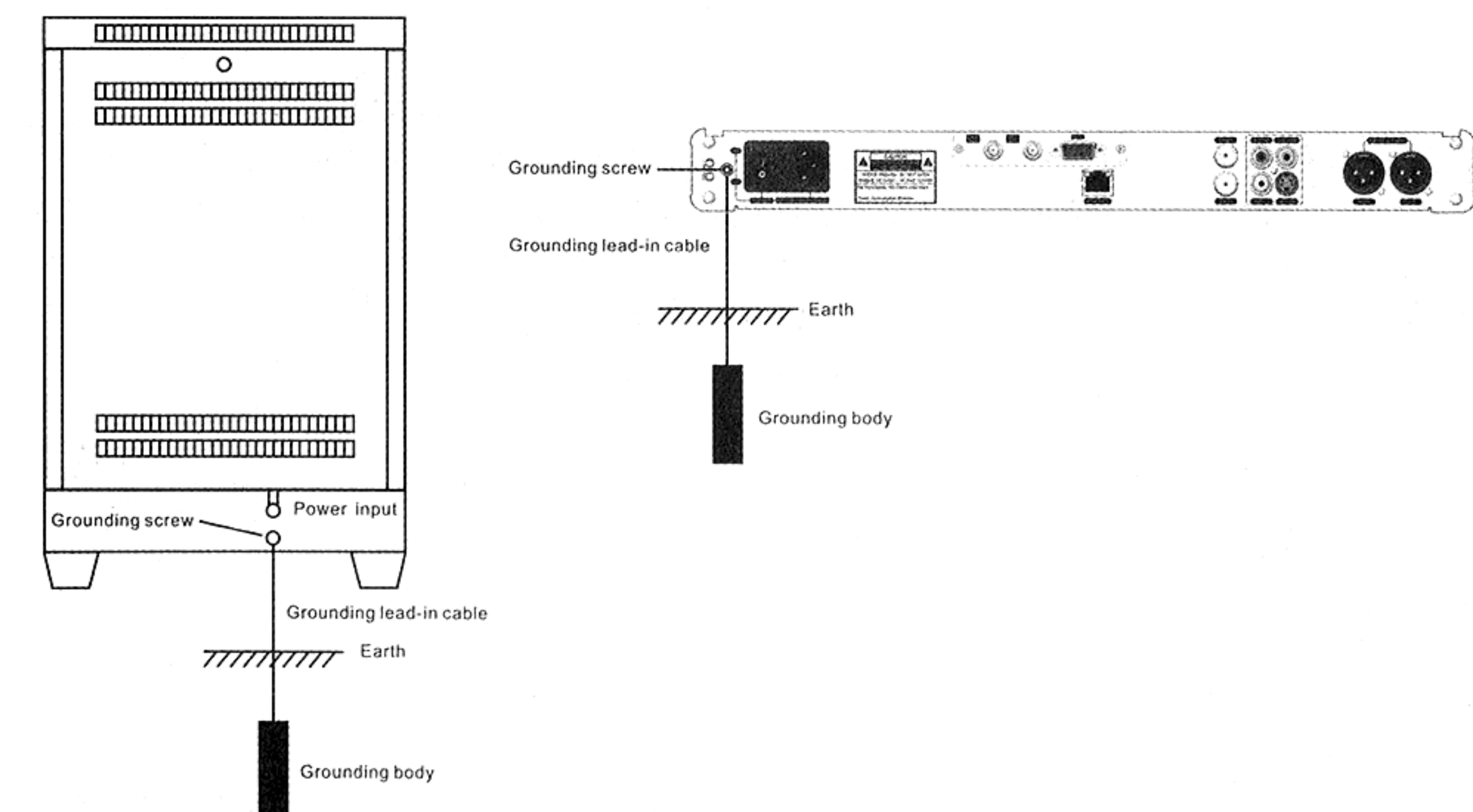
Schematic Diagram of Grounding

Lightning Protection for Satellite Receiving Antenna

Notes:
- *Satellite receiving antenna is usually installed at high place and is easily hit by lightning to cause damage. So lightning rod must be installed on the antenna.*
- *To prevent injury caused by pace voltage produced by lightning rod during lighting strike, do not install lightning rod over a passage or exit through which people often walk.*

1. Protected area of lightning rod

A lightning rod protects a pie slice area of 45° ~ 60° below it as shown in figure 1. A receiving antenna will be protected if it is in the pie slice area. The higher a lightning rod' place, the bigger the protected area. Make sure that the antenna is installed in the protected area. The distance between lightning rod and protected antenna should be more than 5m because lightning rod and its lead-in cable can penetrate 2m to 3m air when inducted by lightning.

2. Making and installing wooden lightning rod

Lightning rod consists of four parts: lightning receiving device (needle point of lightning rod), supporting pole, grounding lead-in cable and grounding body.
Figure 2 shows a wooden lightning rod. Needlepoint is made of a thicker copper wire, iron wire or better still a thick iron rod. The supporting pole can be wooden or metal. Grounding lead-in cable can be made of thicker iron wire or other banded metal bar with its upper end connected to needlepoint and its lower end buried under ground for connecting with grounding body. The connection must be welded. The grounding lead-in cable must be a whole cable and select the shortest distance to connect it with grounding body. Try your best not to bend it.
Grounding conduct is metal object buried under ground which is usually made of steel tube, angle iron or flat steel and its length should be 1m to 2m, buried not less than 2m under ground. Lightning rod and grounding body must be connected with ground separately.

3. Making and installing a metal lightning rod

Lightning rod with metal supporting pole can induct lightning through the metal supporting pole without additional grounding lead-in cable. The needlepoint of the lightning rod is welded with the metal supporting pole. Grounding body buried under ground can be made of steel tube, angle iron, or steel needle which length should be 1m to 2m. The grounding body should be buried not less than 2m in a pit, in which some salt can be spread.
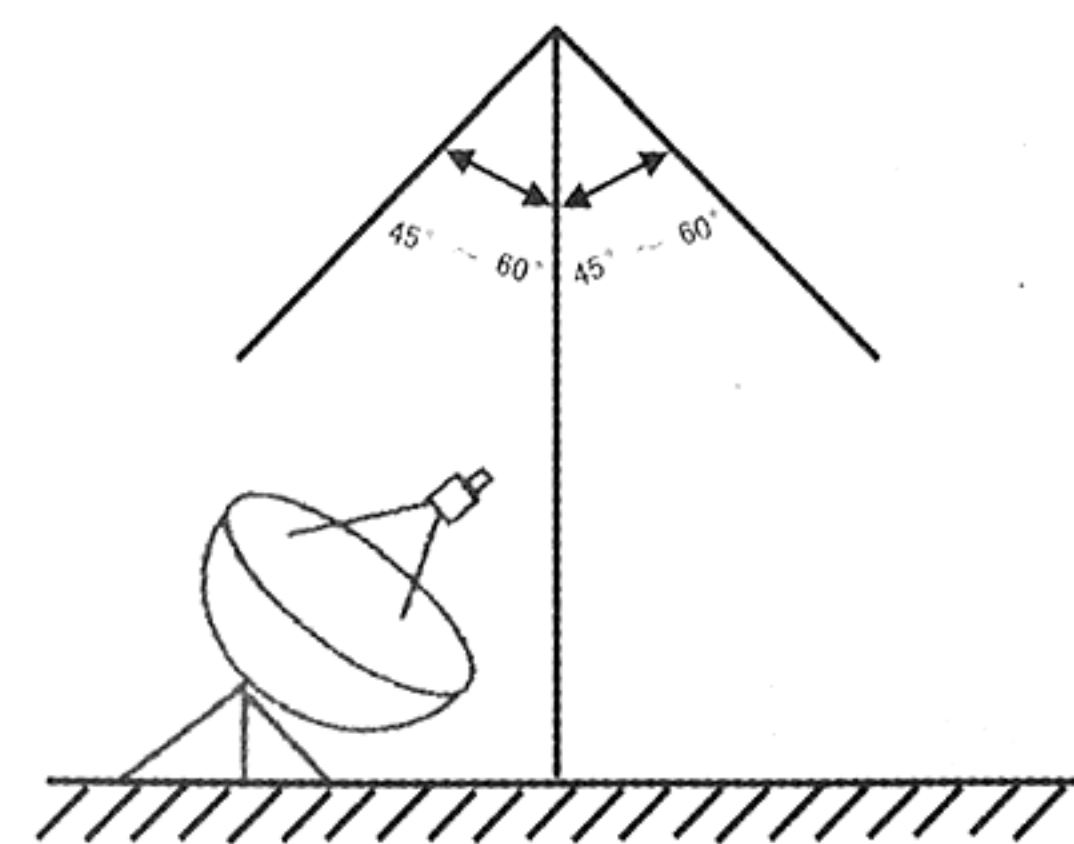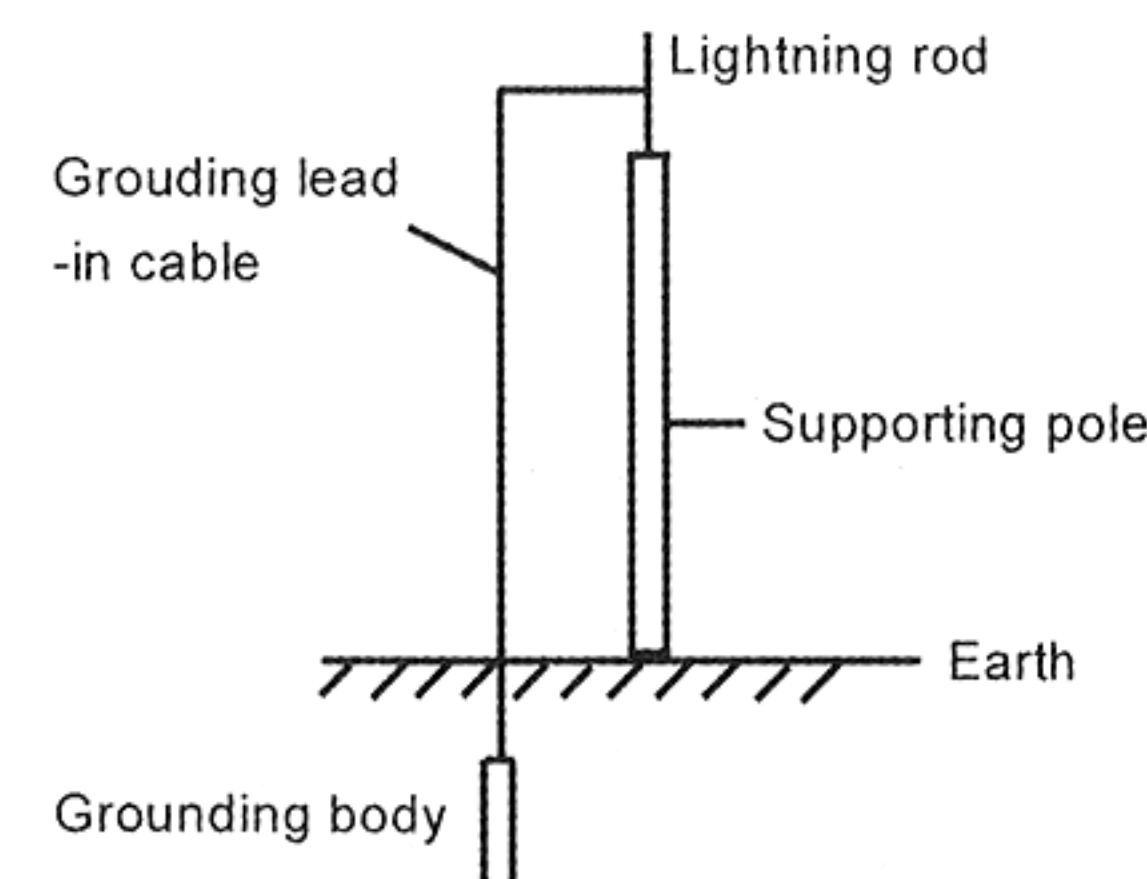

Fig.1 Protected Area of Lightning Rod

Fig.2 Lightning Rod with Supporting Pole

# Contents

1. Product Description

1.1 Introduction

This is a professional receiver decoder that offers a flexible solution that can be tailored to the needs of individual operators in a variety of applications. With configurable design, it supports SD video decoding for multi-signal input. It has professional transmission functions with CVBS, XLR and other ports. It is able to monitor the abnormal signals. User-friendly management style and programmable SNMP interface facilitate centralized management for multiple equipments.

1.2 Main Feature

- ➢ Professional transmission function
- ➢ Support multi-signal input and compliant with DVB-S/S2, DVB-C and ABS-S standards
- ➢ Support SD video decoding in multiple formats
- ➢ Support multiple video and audio output interfaces, such as CVBS, XLR, etc.
- ➢ Friendly user interface
- ➢ Support Web Server management and OSD management
- ➢ Support SNMP control by Ethernet
- ➢ Alarm monitor supported
- ➢ Automatic recovery for latest system configuration due to unexpected power off
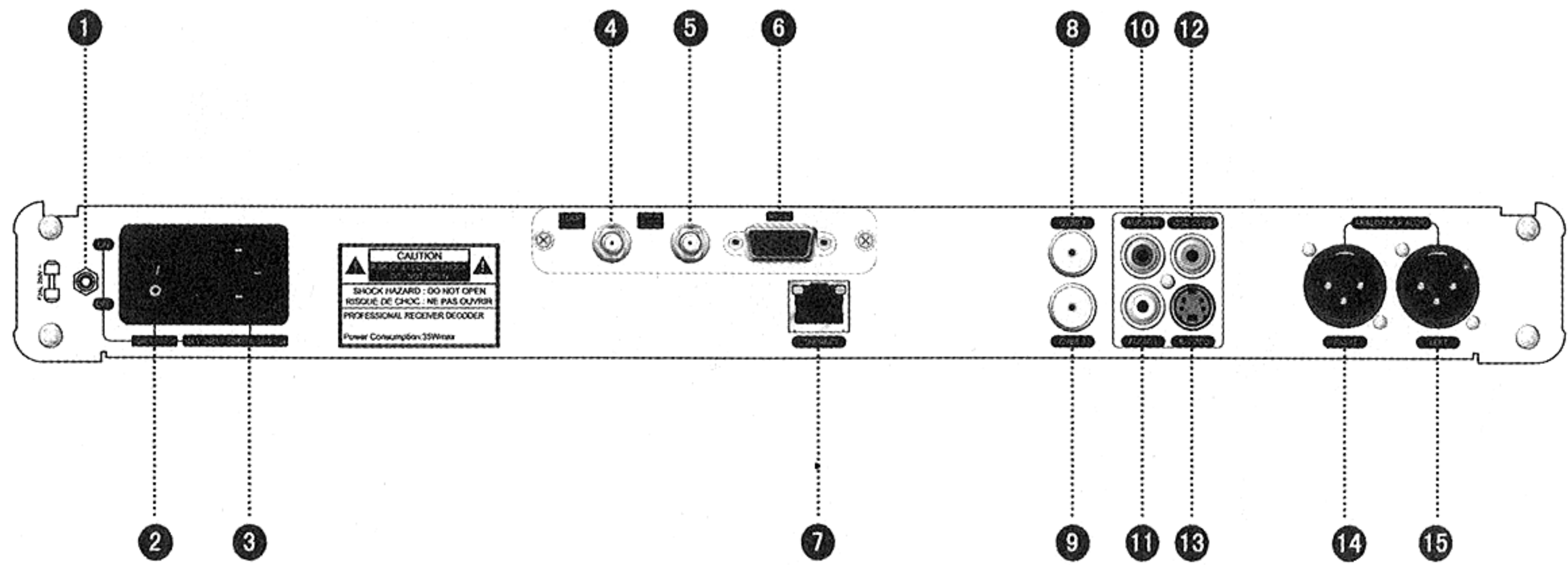- ➢ Software upgrade via RS232 serial port or RJ45

1.3 Front Panel
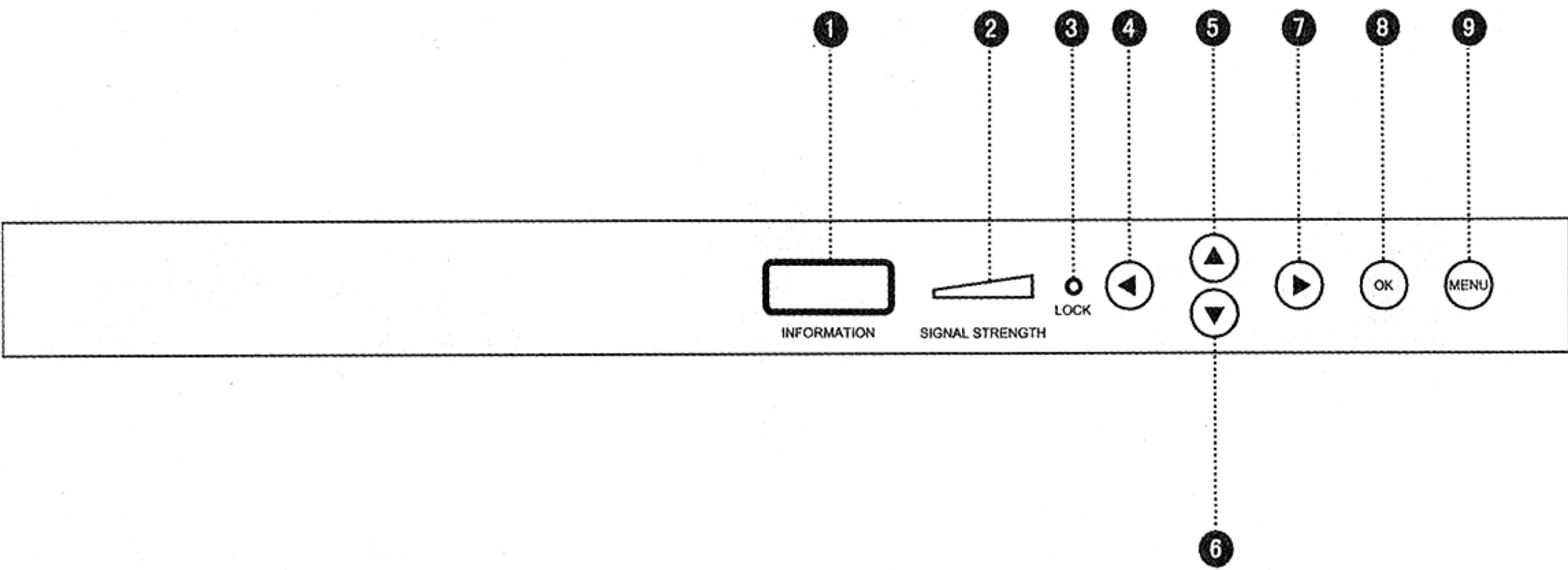
| Name	Function
1. INFORMATION	Display status
2. SIGNAL STRENGTH	Display signal strength
3. LOCK	Bright if signal is locked
4/7. ◄►	Move cursor left/right
5/6. ▲▼	Move cursor up/down
8. OK	Display service information or confirm operation
9. MENU	Display/exit from main menu or back to previous menu

1.4 Rear Panel

Name	Function
1. Grounding Screw	Used for grounding protection
2. ON/OFF	Power switch
3. 100-240V~	AC power supply
4. LOOP THROUGH	Loop output RF signal to another decoder
5. LNB IN	Connect to satellite dish
6. RS232	Serial port used for software upgrade, etc.
7. ETHERNET	Connect to Ethernet
8/9. CVBS1/2	Output CVBS video signal (VBI Teletext output port)
10/11. AUDIO-R/L	Output right/left audio signal for monitoring
12. OSD CVBS	Output CVBS video signal with OSD for monitoring
13. S-VIDEO	Output Y/C video signal to TV
14. RIGHT ANALOG XLR AUDIO	Output right analog XLR audio signal
15. LEFT ANALOG XLR AUDIO	Output left analog XLR audio signal

2. Installation

2.1 System Connection

Connect satellite dish, AV devices and other related devices referring to following diagram.
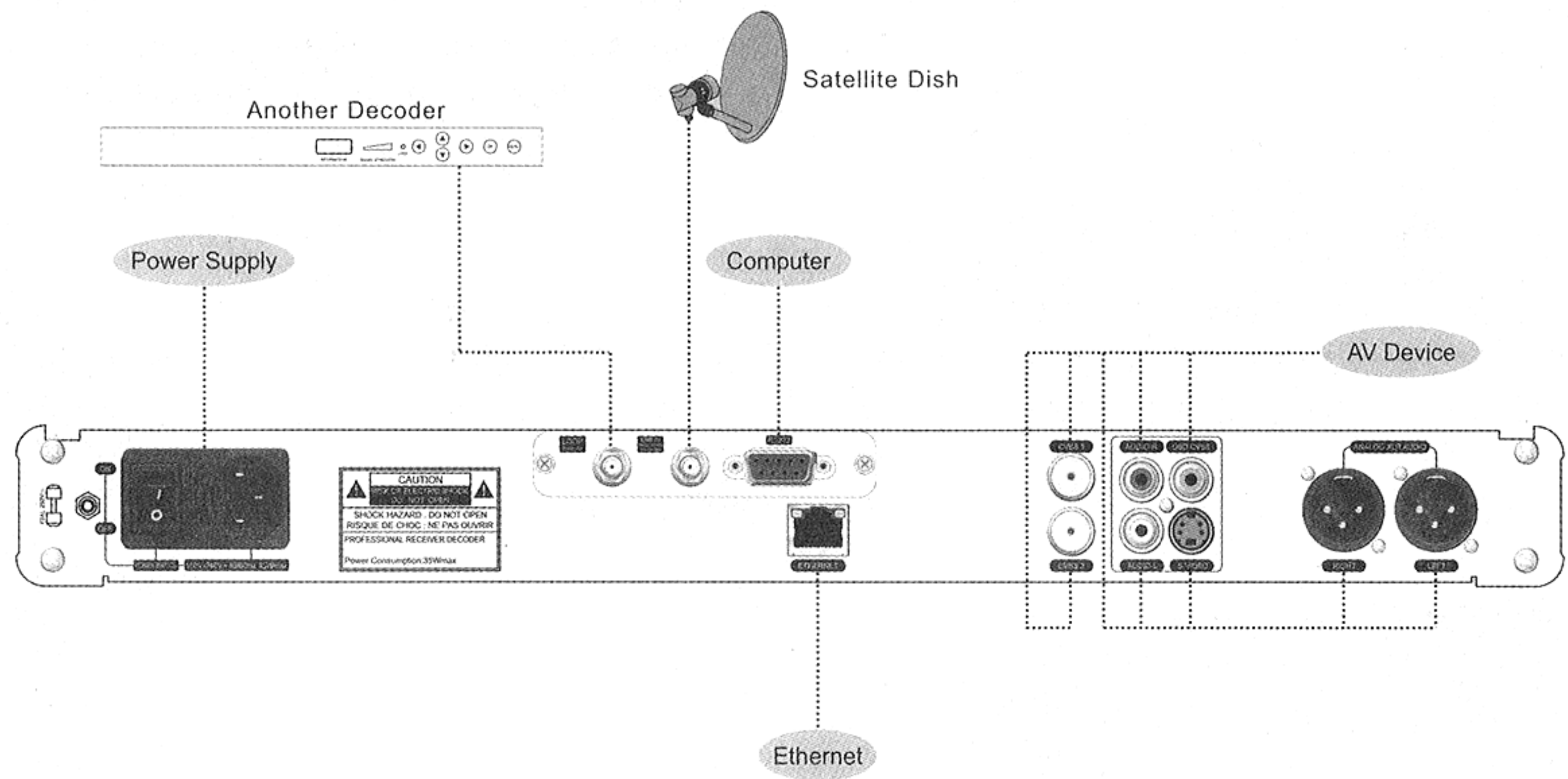
Notes:
- *Before connecting, please power off all connected devices.*
- *If some cables in above diagram are not included in the package, user can self-configure as needed.*
- *Please connect AV cables according to color.*
- *Used for monitoring and debugging, OSD CVBS output can not serve as main signal output for modulators or other AV devices.*
- *CVBS output is the main signal output for modulators or other AV devices.*
- *You can connect this decoder with modulators via XLR port or RCA port.*
- *You can select different tuner to receive appropriate signals, such as cable signal, terrestrial signal, etc.*
- *If you encounter any problem during the connections, please contact your local dealer.*

2.2 Power on

1. Connect the power cord of the decoder to wall outlet.
2. Turn on the decoder, system initializes and start-up OSD is shown on TV screen.
Note: Please turn on your TV and switch it to AV mode.

2.3 Search Program

After initialization, system will search programs automatically according to the set frequency parameters. After searching, program will be played automatically, and the channel number is shown on front panel.

Note: If frequency parameters are set wrongly, system will keep searching all along. You can select Main Menu → Input → Tuner Setting and press OK key to enter tuner setting window, and modify parameters in this window. For more details, please refer to 3.2.3 Tuner Setting.

2.4 Play Program

In the main menu, select "Service" or press **OK** key in non-menu mode to enter service window. You can select programs to play. If needed, you can set PID values directly to play program. For more details, please refer to *3.3 Service.*

3. Main Menu

In non-menu mode, press **MENU** key to display main menu that consists of following items:

- ❖ **Status**
- ❖ **Input**
- ❖ **Service**
- ❖ **Decrypt**
- ❖ **Output**
- ❖ **System**
- ❖ **Preset**
- ❖ **Identity**
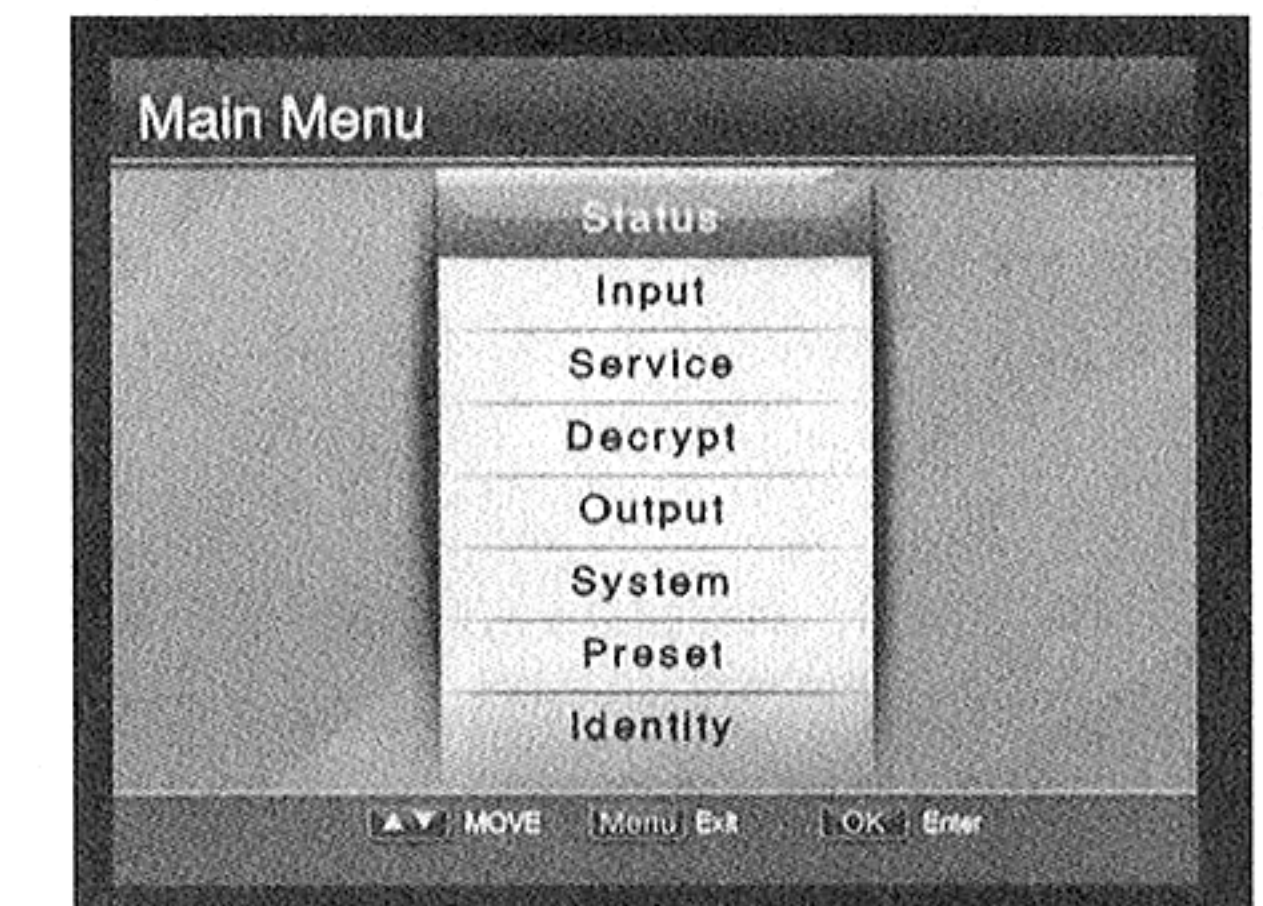
Select items with ▲▼ keys and press **OK** key to enter sub-menu.

Note: Please operate according to key instructions on screen.

3.1 Status

Status includes general information, stream information and AV information.
General Info: Status (Tuner) and Decoding Service information.
Stream Info: TS ID, Org_Network ID, etc.
AV Info: Resolution, Analog Mixer, VBI select, etc.

◄► keys: Select item
OK key: Display information
MENU key: Back to previous menu

3.2 Input

3.2.1 Input Source

The default input source is "Tuner".

3.2.2 LNB Setting

You can set LNB parameters.
LNB Type: Press ◄► keys to select Single or Universal according to your LNB.
LNB Power: Press ◄► keys to select 13V (vert), 18V (horiz) or OFF. The default is "OFF".
LNB 22k: Press ◄► keys to select ON or OFF according to connection of 22k switch. The default is "OFF". If "LNB Type" is set to "Universal", 22k switch will operate automatically.
Low Freq. (MHz): Press ◄► and ▲▼ keys to set low frequency of LNB and press **OK** key to confirm.
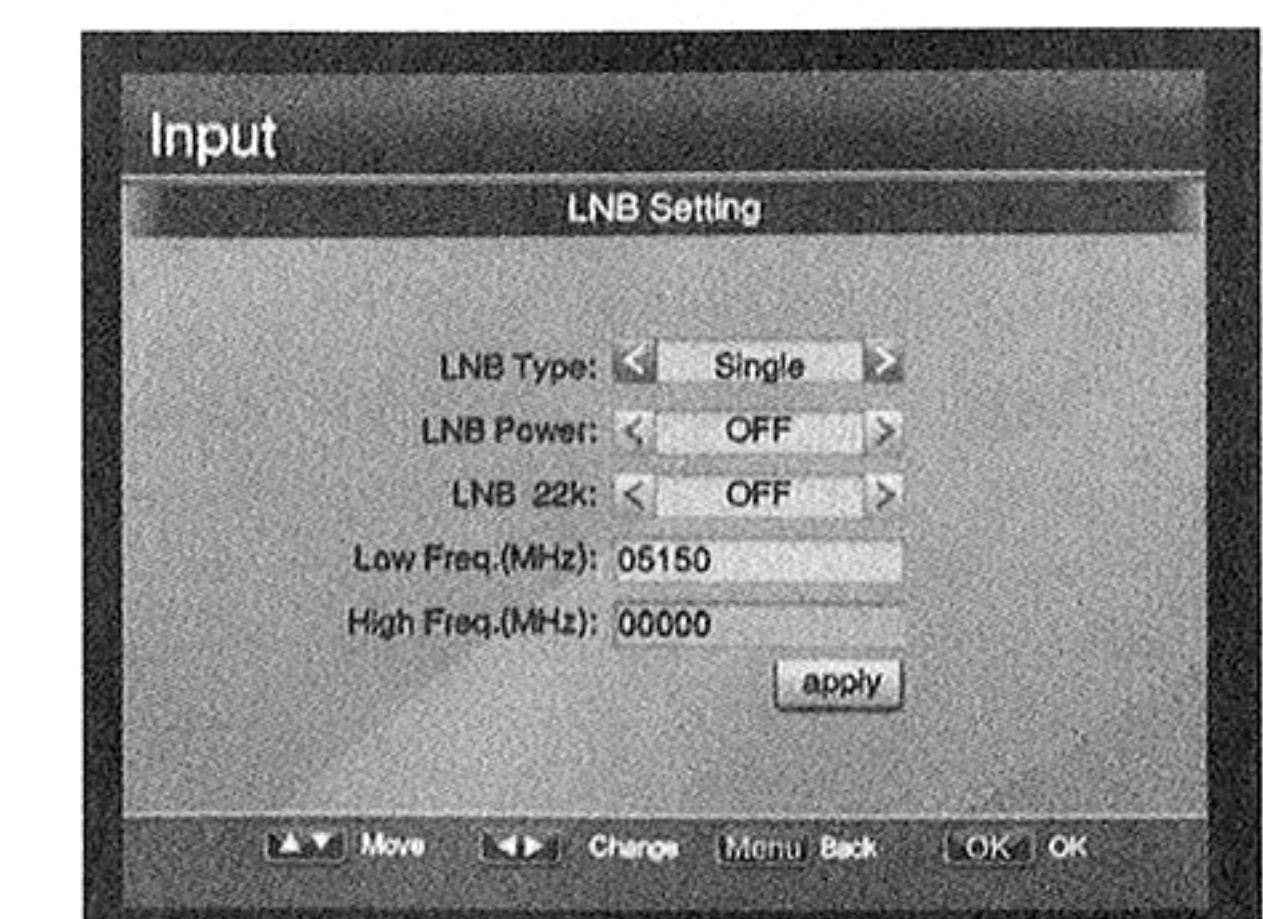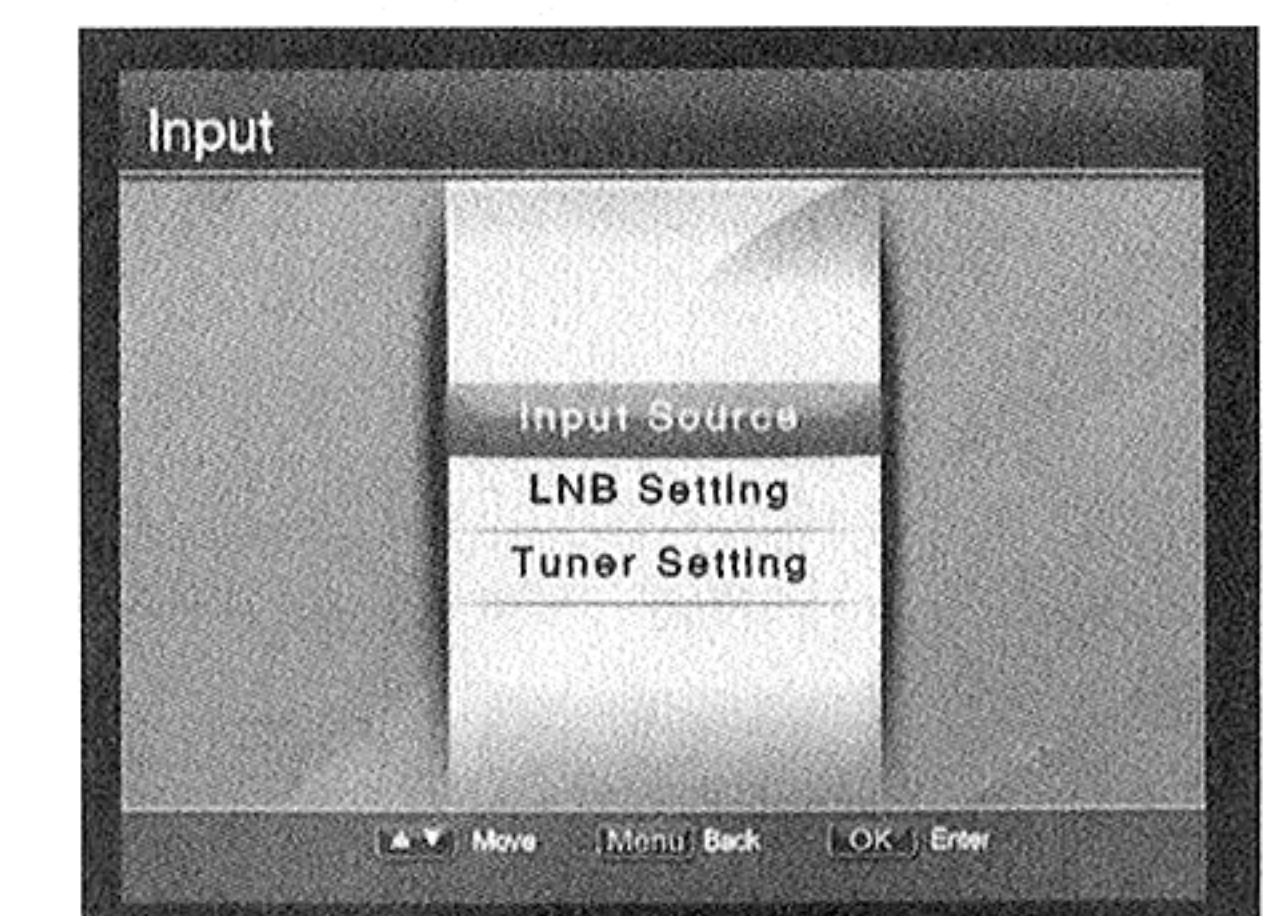
High Freq. (MHz): If "LNB Type" is set to "Universal", please set high frequency of LNB. Please refer to above operation.

After setting, move cursor to "apply" and press **OK** key to confirm.

3.2.3 Tuner Setting

You can modify frequency parameters, and view tuner status, including signal strength, signal quality and error rate.

Down Freq. (MHz): Press ◄► and ▲▼ keys to set down frequency and press **OK** key to confirm.

Symbol Rate (KS/s): Press ◄► and ▲▼ keys to set symbol rate and press **OK** key to confirm.

System will search programs automatically according to the set frequency parameters. After searching, program will be played automatically.
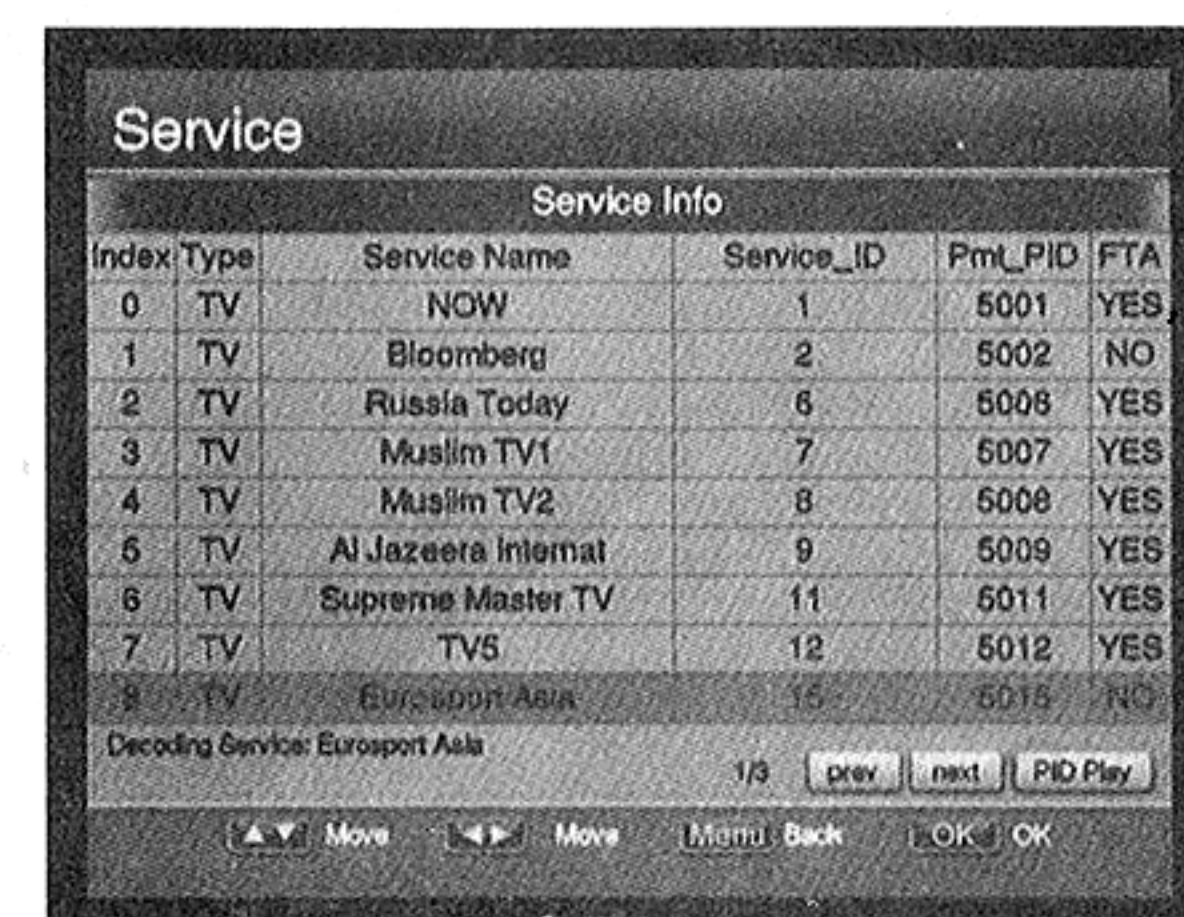
Note: Do not modify the frequency parameters arbitrarily, otherwise it will affect the search.
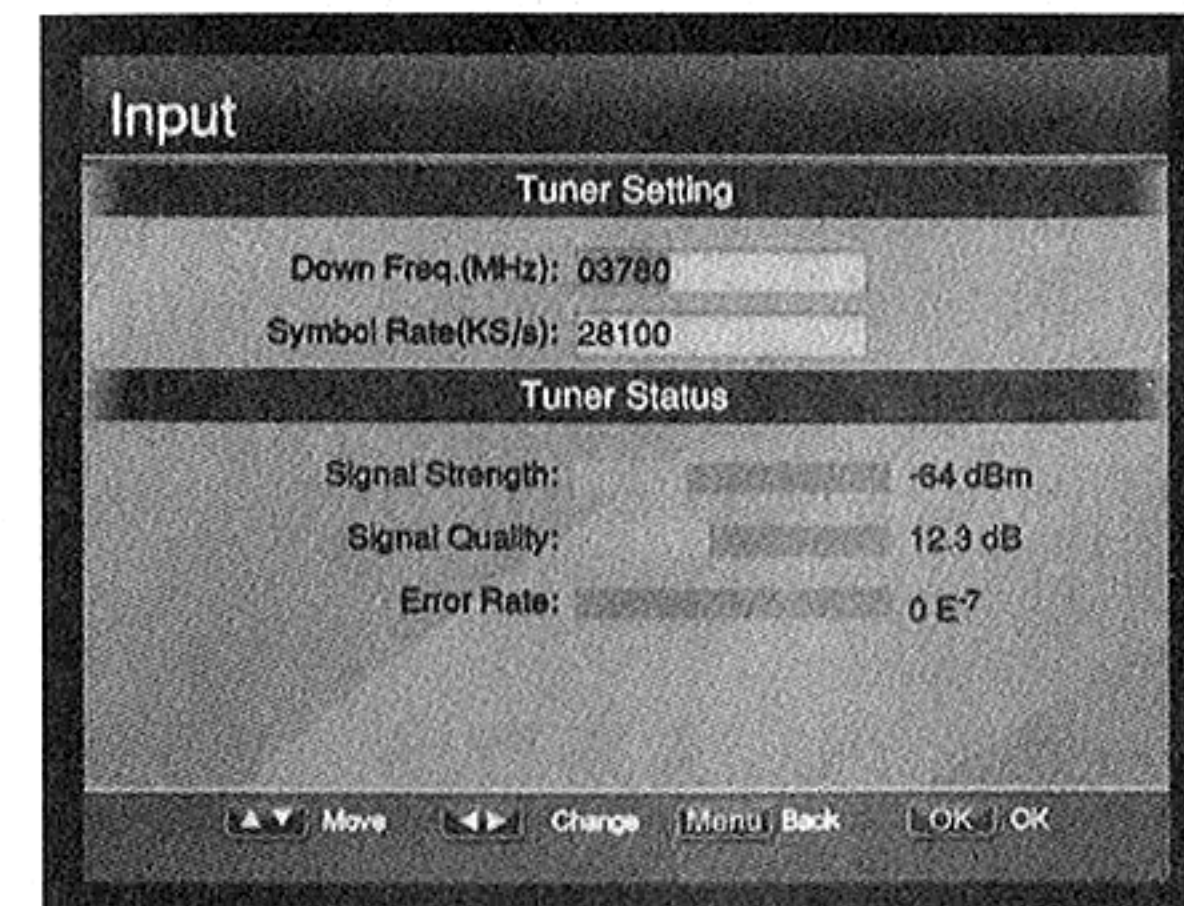
3.3 Service

In non-menu mode, you can press **OK** key to enter this window.

You can view program information, and select programs to play. If needed, you can set PID values directly to play program.

3.3.1 Play Program

▲▼ keys: Select program
OK key: Play program

3.3.2 PID Play

Move cursor to "PID Play" and press **OK** key to enter service PID window.

Video PID: Press ◄► and ▲▼ keys to set video PID value and press **OK** key to confirm.

Audio PID: Set audio PID value. Please refer to above operation.

PCR PID: Set PCR PID value. Please refer to above operation.

Teletext PID: Set Teletext PID value. Please refer to above operation.

After setting, move cursor to "apply" and press **OK** key to play program according to the set PID values.
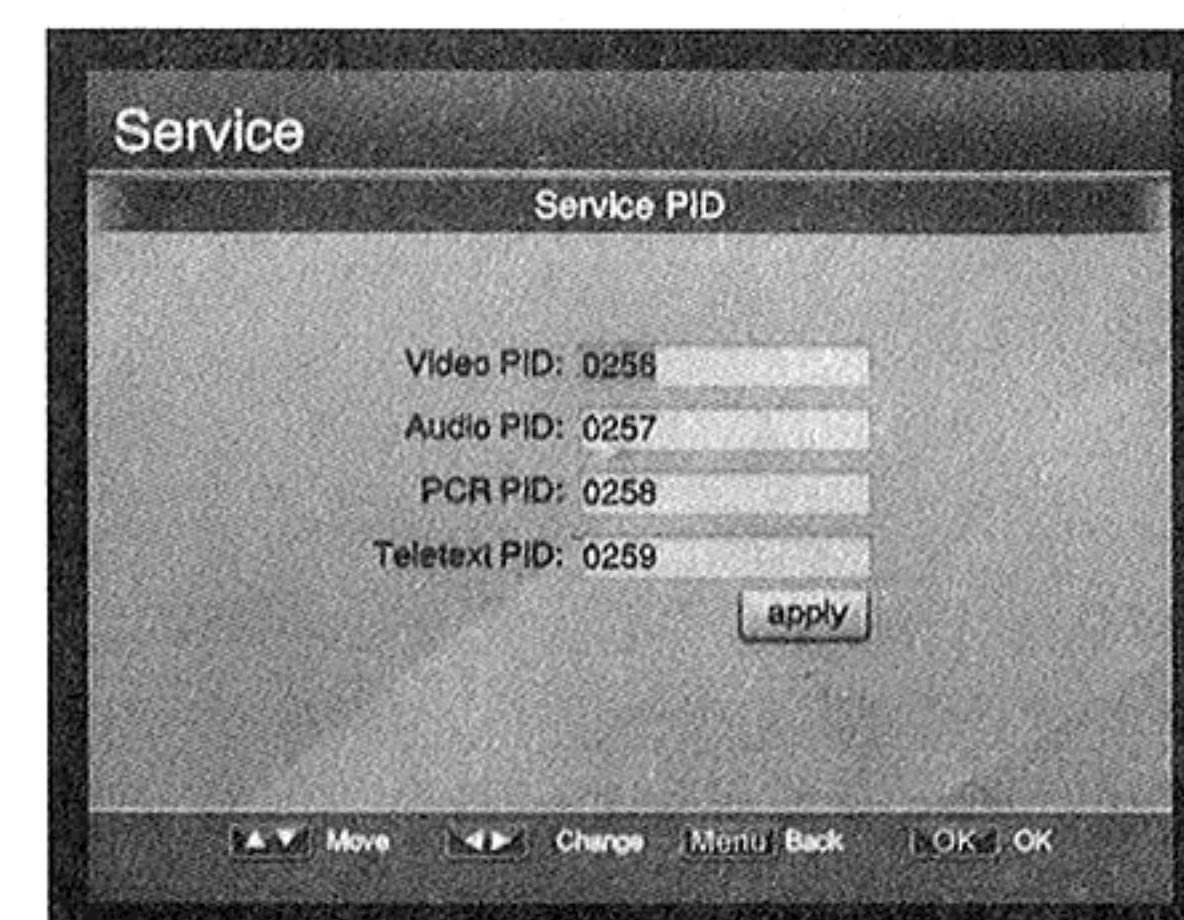
3.4 Decrypt

3.4.1 BISS Setting

You can select BISS-1 or BISS-E descrambling if needed.

BISS Type: Press ◄► keys to select NONE, BISS-1 or BISS-E. If BISS descrambling is not needed, please select "NONE".

SW (0x): If "BISS Type" is set to "BISS-1" or "BISS-E", press ◄► and ▲▼ keys to set SW (0x) value (hexadecimal) and press **OK** key to confirm.

Injected ID (0x): If "BISS Type" is set to "BISS-E", press ◄► and ▲▼ keys to set injected ID (0x) value (hexadecimal) and press **OK** key to confirm.

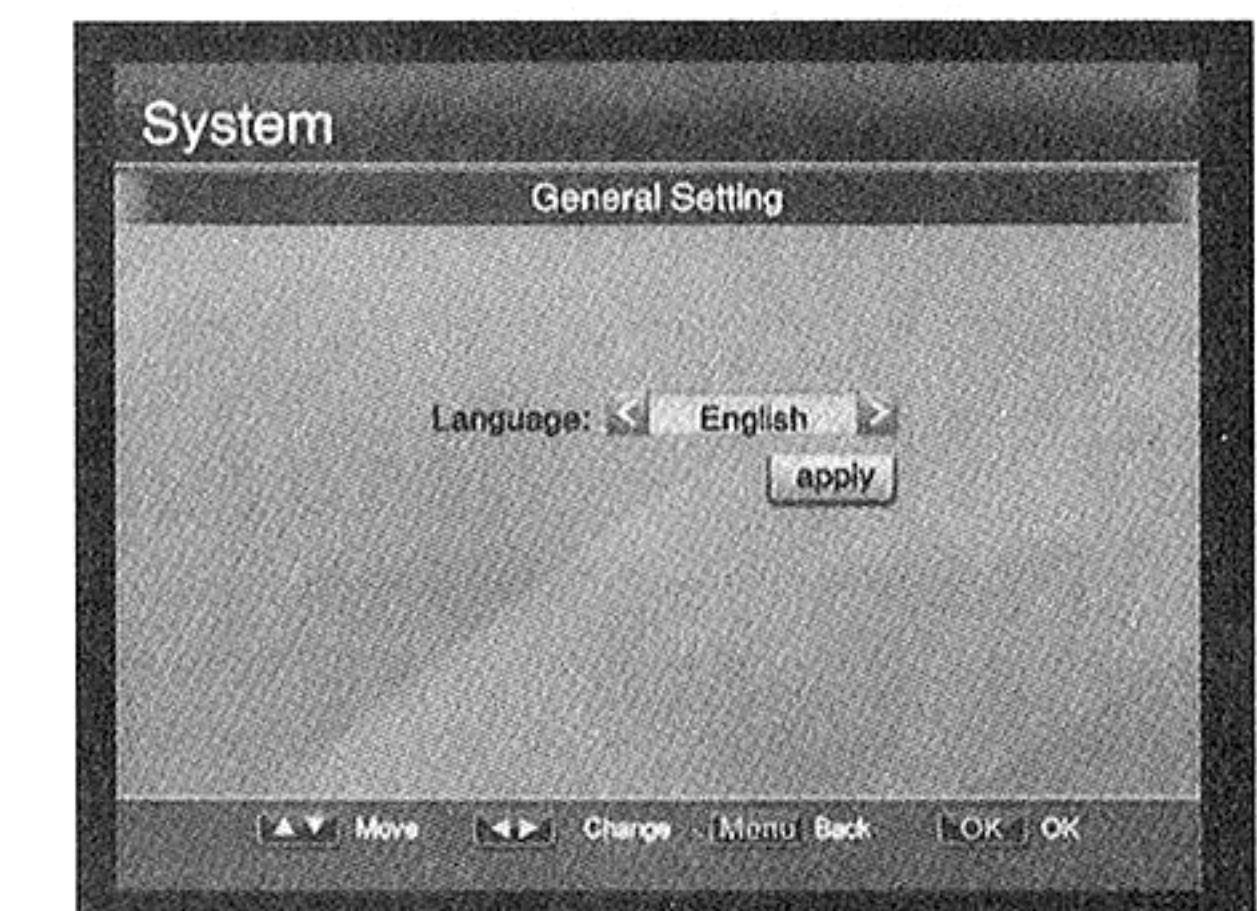After setting, move cursor to "apply" and press **OK** key to confirm.
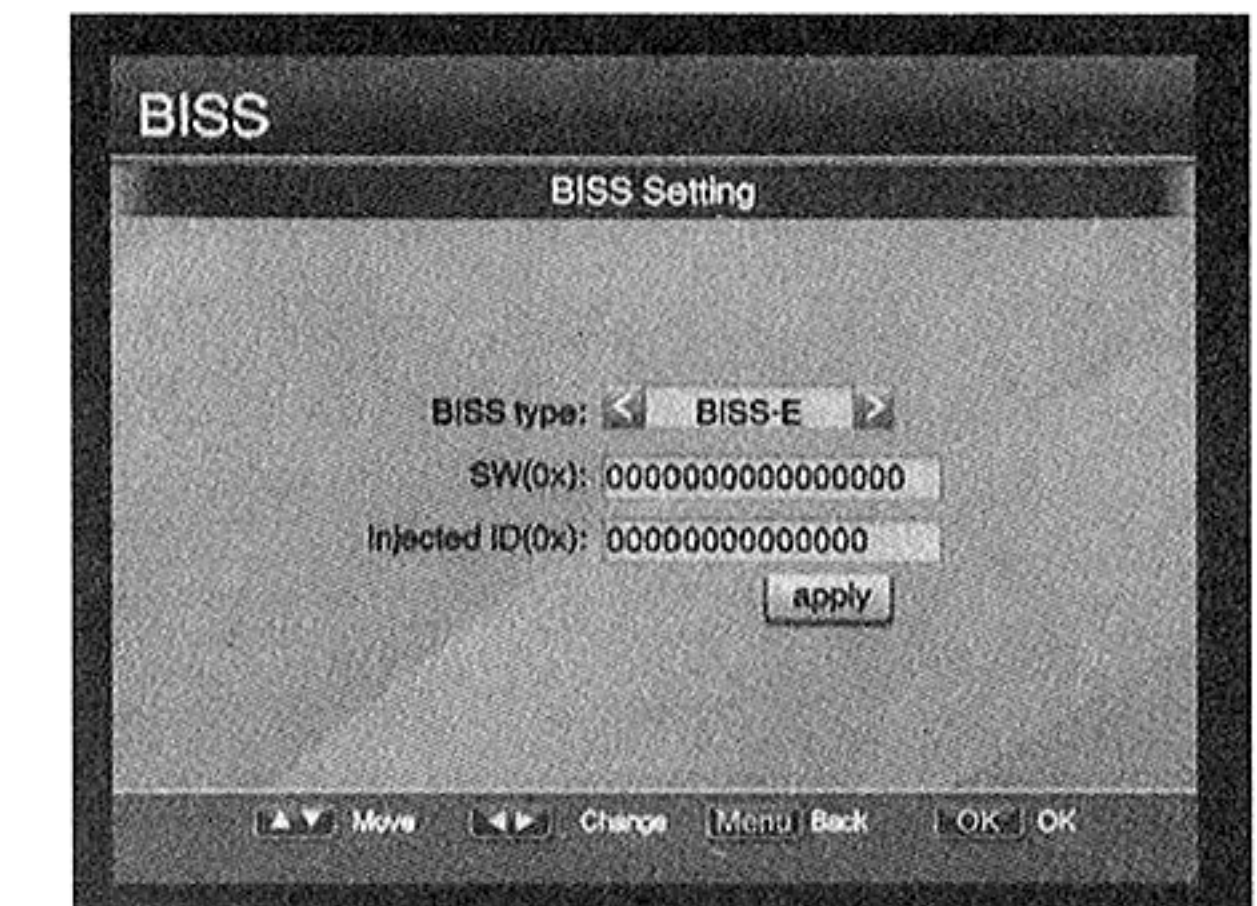
3.5 System

3.5.1 General Setting

You can set general parameters of system.

Language: Press ◄► keys to select a language for menu. The default is "English".

After setting, move cursor to "apply" and press **OK** key to confirm.

3.5.2 Network Setting

You can set network parameters.

NIC Select: The default is "Ethernet1".

MAC Address: Display MAC address automatically, and can not be set.

IP Address: Press ◄► and ▲▼ keys to set IP address and press **OK** key to confirm.

NetMask: Set mask. Please refer to above operation.

GateWay: Set gateway. Please refer to above operation.

After setting, move cursor to "apply" and press **OK** key to confirm.
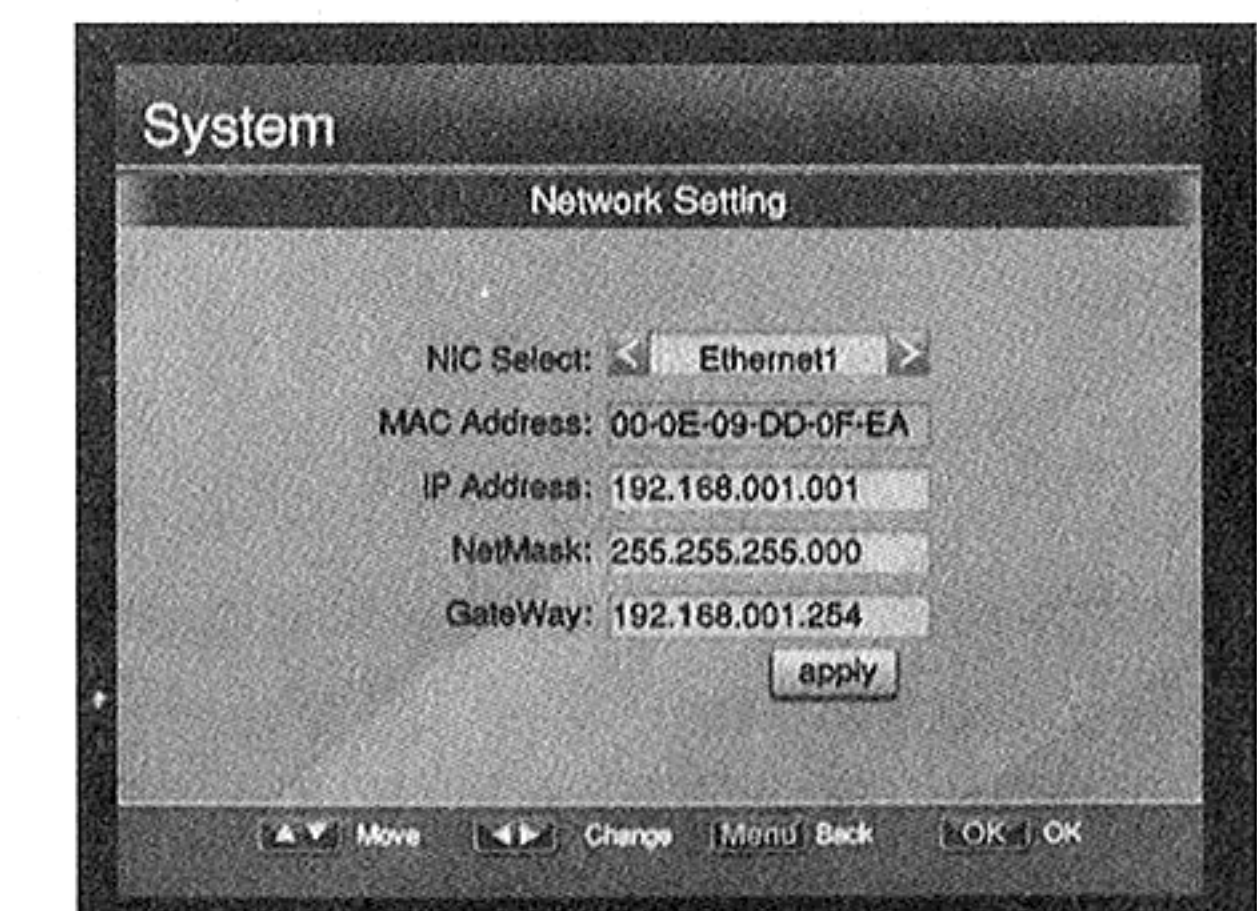
The default network parameters of Ethernet1:
IP Address: 192.168.1.1
NetMask: 255.255.255.0
GateWay: 192.168.1.254

3.5.3 AV Setting

You can set AV parameters.

Resolution: Press ◄► keys to select a proper resolution (Auto, NTSC, PAL-BDGHI or PAL-M).

Aspect Ratio: Press ◄► keys to select a proper aspect ratio (Auto, 4:3 or 16:9).

AR Conversion: Press ◄► keys to select Letter Box or Pan Scan.

Analog Mixer: Press ◄► keys to select Stereo, Left, Right or Mono.

Volume (0-31): Press ◄► keys to adjust volume.

After setting, move cursor to "apply" and press **OK** key to confirm.

3.5.4 VBI Setting
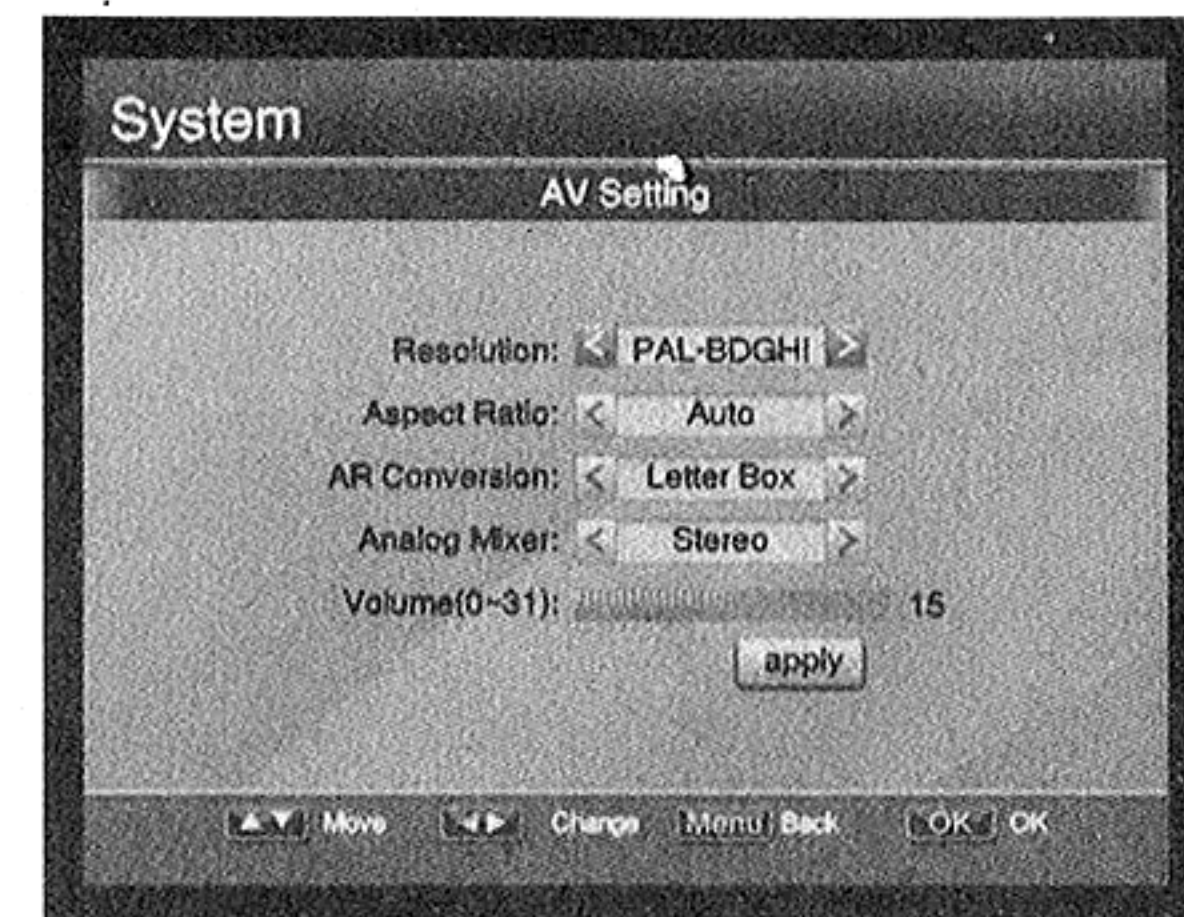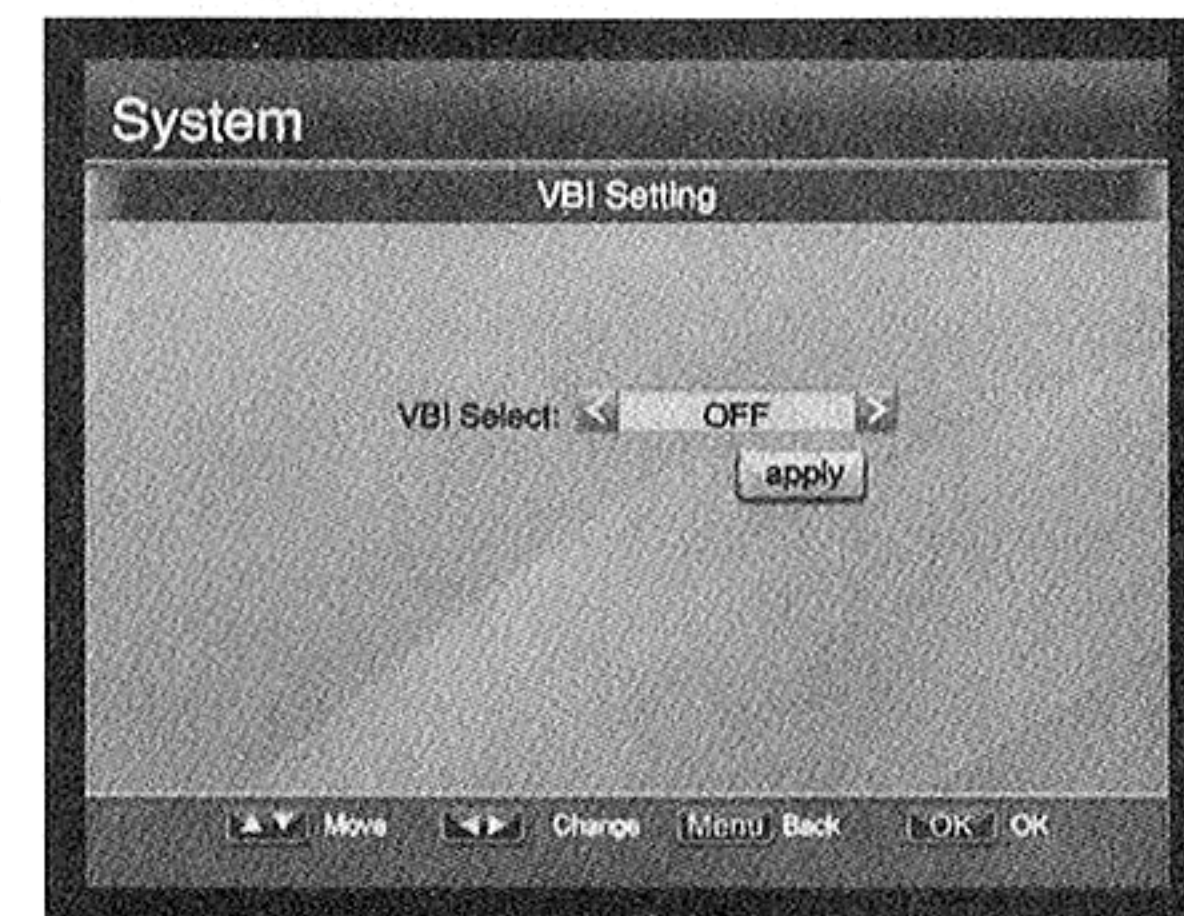
You can set VBI parameters.

VBI Select: Press ◄► keys to select TeleText, CloseCaption or OFF.

After setting, move cursor to "apply" and press **OK** key to confirm.

3.6 Preset

3.6.1 Restore

⚠ *Warning: This function will restore system settings to factory default and erase all channels.*

Move cursor to "Restore" and press **OK** key, a message box pops up for confirmation. Select "Confirm" and press **OK** key to confirm or select "Cancel" and press **OK** key to cancel the operation.
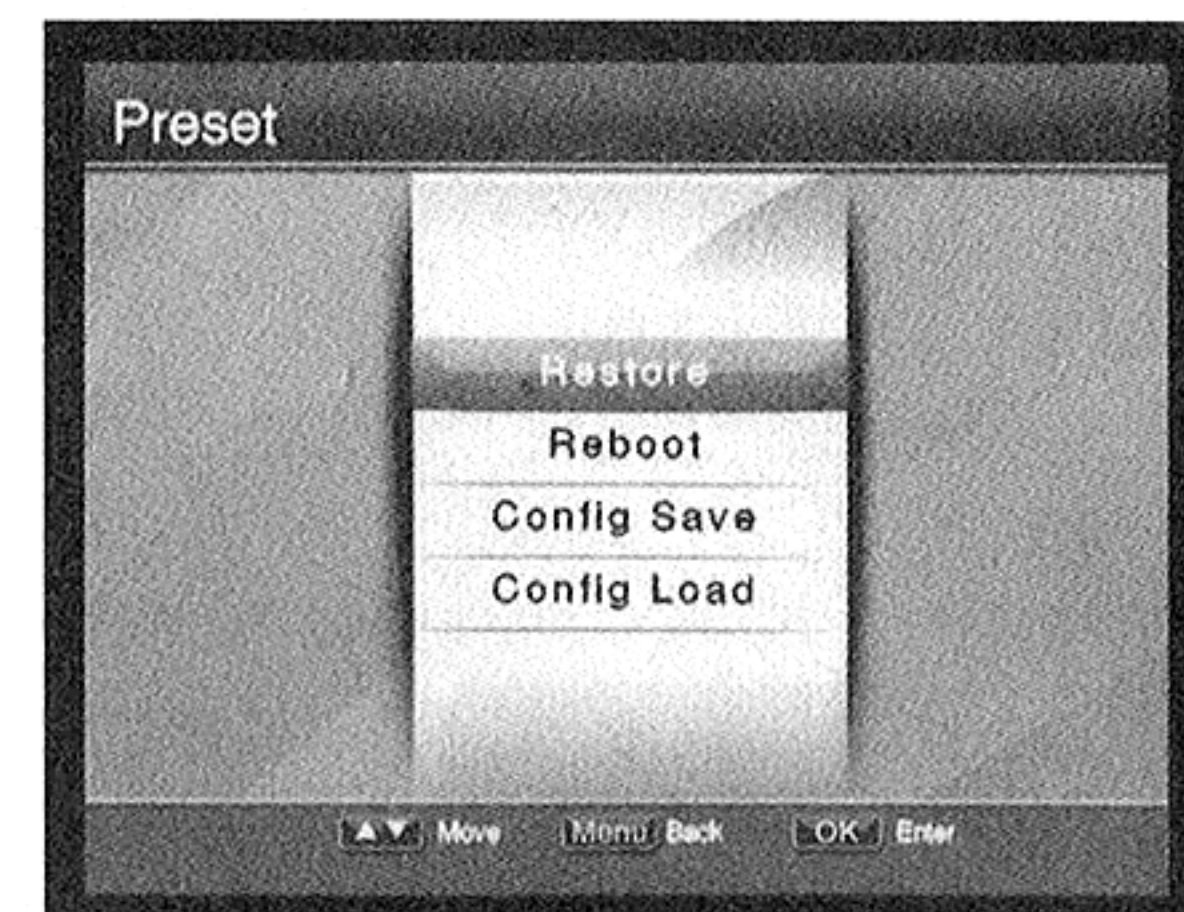
3.6.2 Reboot

You can reboot system by this operation.

Move cursor to "Reboot" and press **OK** key, a message box pops up for confirmation. Select "Confirm" and press **OK** key to confirm or select "Cancel" and press **OK** key to cancel the operation.

3.6.3 Configuration Save

You can save current configuration (e.g. LNB setting, AV setting, etc) by this operation.

Move cursor to "Config Save" and press **OK** key, a message box pops up for confirmation. Select "Confirm" and press **OK** key to confirm or select "Cancel" and press **OK** key to cancel the operation.

3.6.4 Configuration Load

You can load the last saved configuration by this operation.

Move cursor to "Config Load" and press **OK** key, a message box pops up for confirmation. Select "Confirm" and press **OK** key to confirm or select "Cancel" and press **OK** key to cancel the operation.
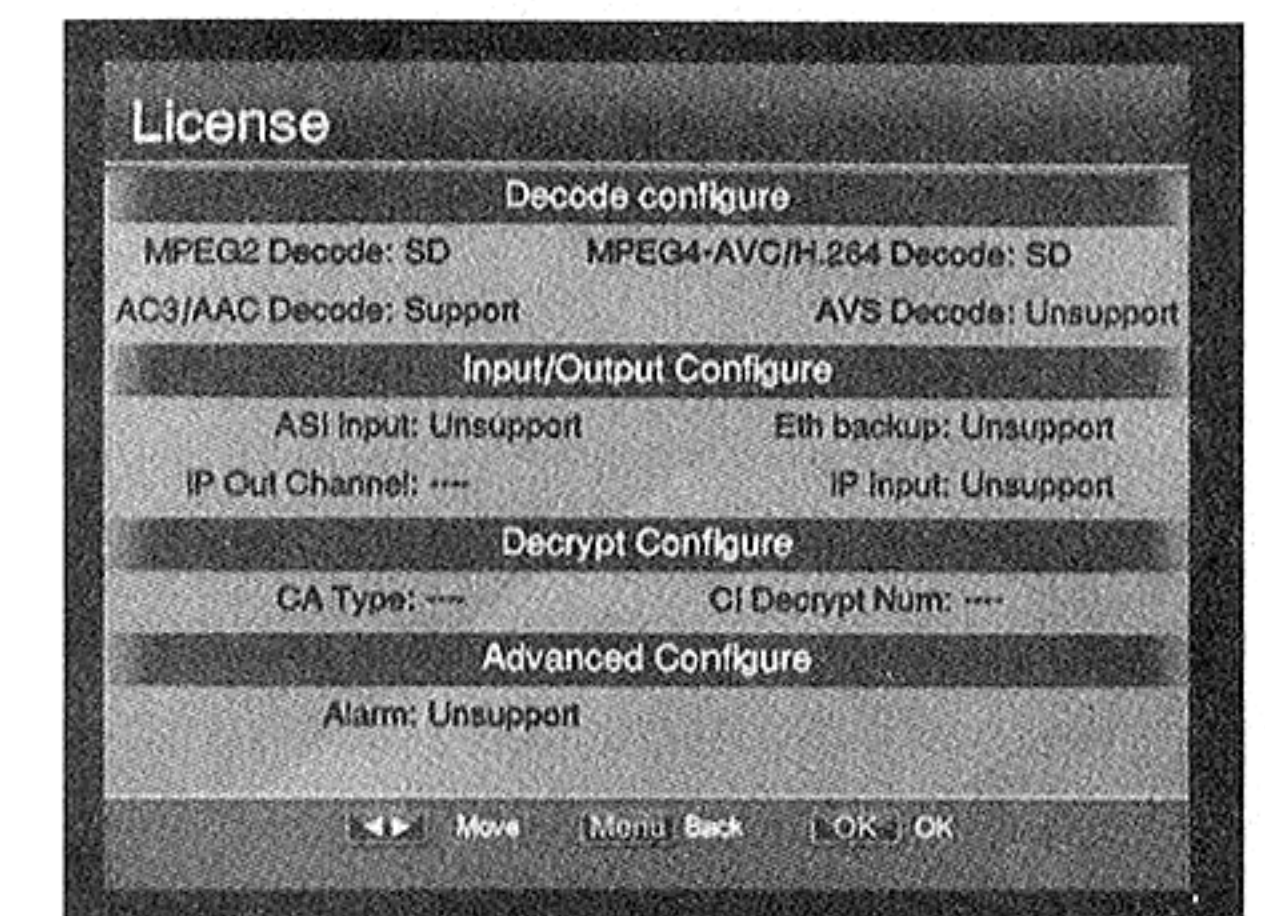
3.7 Identity

You can view product information, hardware information and software information.

OK key: Display license information

3.7.1 License

You can view all the functions supported by this decoder, such as MPEG2 decoding, etc.

4. Web Server Description

4.1 Introduction

With the embedded Web Server, user can realize remote monitoring and function setting for Professional Receiver Decoder.

User can access decoder from PC through network via a browser, and submit data through the interactive page to monitor the decoder. One PC can control more than one decoder simultaneously. This function greatly improves operability of decoder. and facilitates management.

Notes:

- ***Connect decoder to Ethernet with RJ45 data line.***
- ***Before operation, please set IP address of decoder (e.g. http://192.168.1.1) in "Main Menu → System → Network Setting" window according to network environment. The IP address of decoder and the computer should be set in the same network segment or IP sub-net.***
- ***Recommended browser version is "IE6.0" or above, and screen resolution of computer "1024 x 768".***

4.2 Web Page Description

Open the browser, and input the set IP address to enter web page.

Note: The default IP address of Ethernet1 is "http://192.168.1.1".

The page consists of function navigation area, information area and page title area.

Function navigation area provides quick navigation for Status, Identity, System, Decrypt, Input, Service and Preset.

Information area provides viewing or setting of actual features.

Page title area displays product description, etc.


4.2.1 Status

Status page displays input status, stream information, output status and decoding service. You can refresh status manually, or set automatic refreshing.

Input status includes current input source, lock status, etc.

Stream information includes input rate, TS ID, original network ID, etc.

Output status displays status of Ethernet1 port, such as MAC address, IP address, link state, etc.

Decoding service includes service name, service ID, service type, etc.
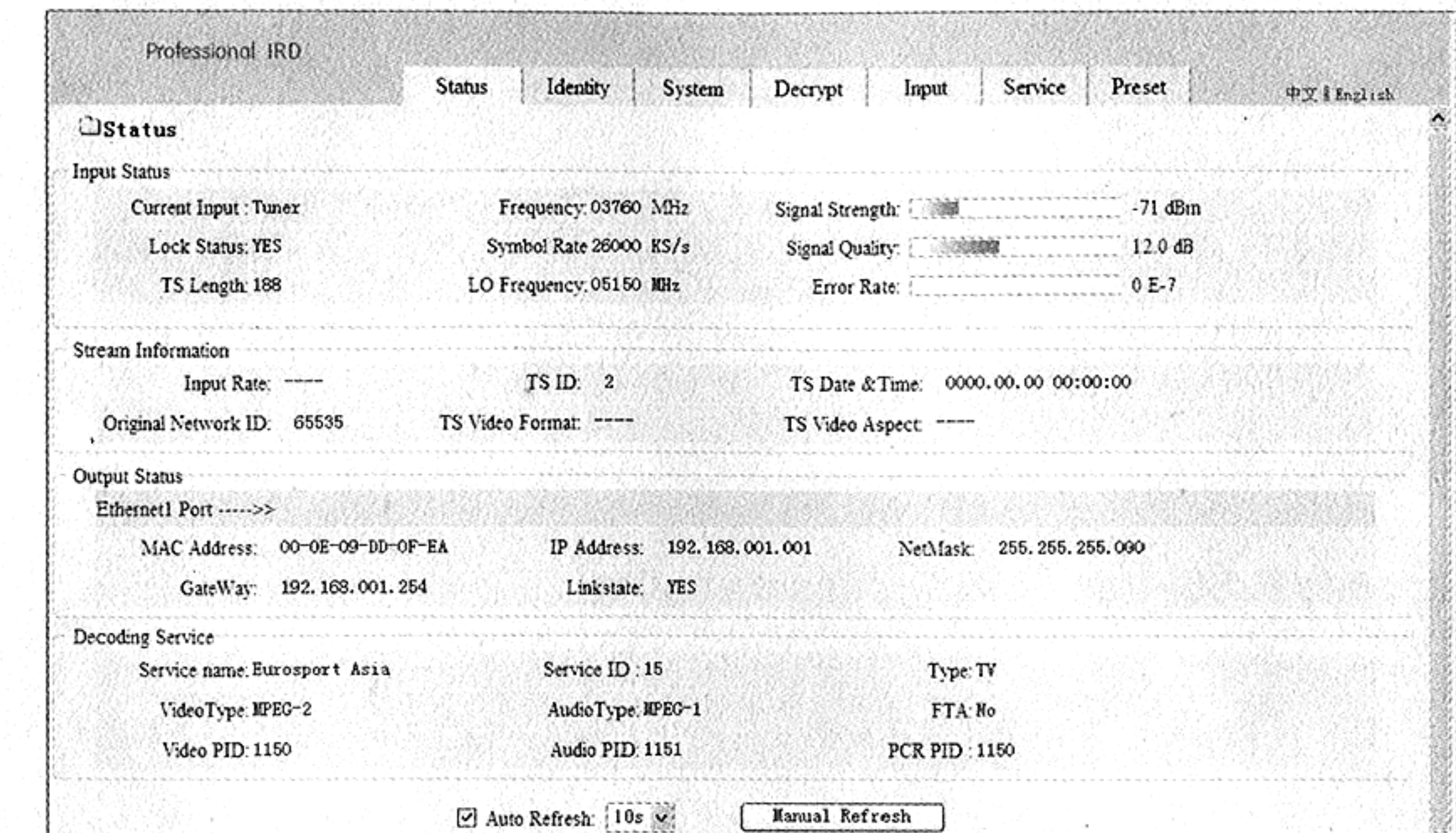
4.2.2 Identity

Identity page displays version information and license information.

Version information includes product information and software/hardware information, such as manufacturer, product name, etc.

License Information includes decoding configuration, input/output configuration, etc.
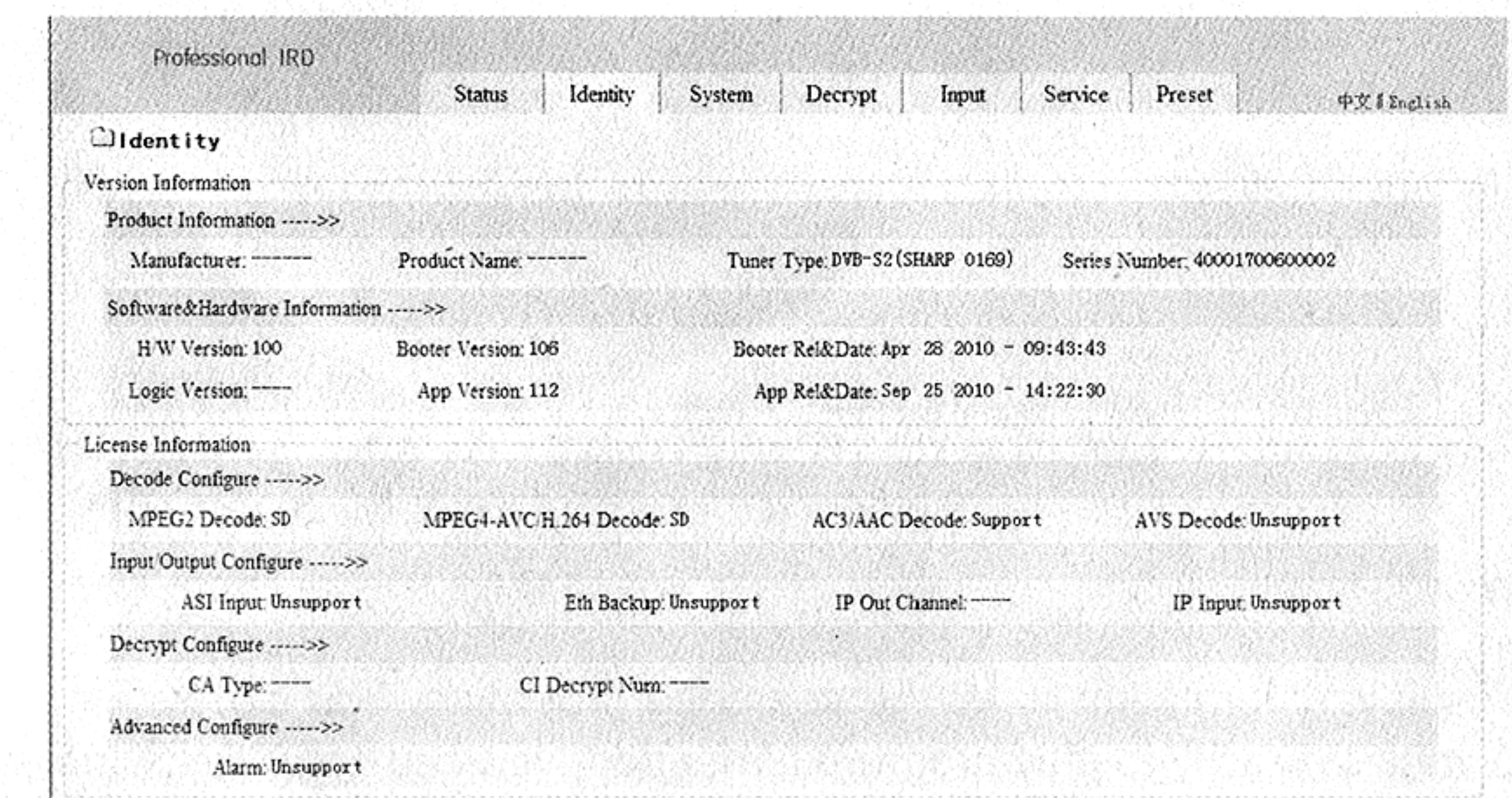
4.2.3 System

System page includes language setting and Ethernet parameter setting.

5.2.4 Decrypt

BISS setting supports BISS-1 and BISS-E descrambling.

4.2.5 Input

Input page displays input status. You can set RF input parameters.

4.2.6 Service

Service page displays information of all the searched programs. You can select programs to play or set PID values directly to play program. If needed, you can set AV parameters and VBI parameters.

4.2.7 Preset

In Preset page, you can restore default, reboot system, save current configuration, load the last saved configuration and update software.

❖ **Restore & Reboot**

Click "Restore" or "Reboot" button, a message box pops up for confirmation. Click "OK" button to confirm or click "Cancel" button to cancel the operation.


❖ **Configuration Save & Load**

Configuration Save: Click "Save" button, a message box pops up for confirmation. Click "Save" button and select a folder to save current configuration (e.g. RF setting, AV setting, etc).

Configuration Load: Click "Browse" button and select a configuration file, then click "upload" button, a message box pops up for confirmation. Click "OK" button to confirm or click "Cancel" button to cancel the operation.
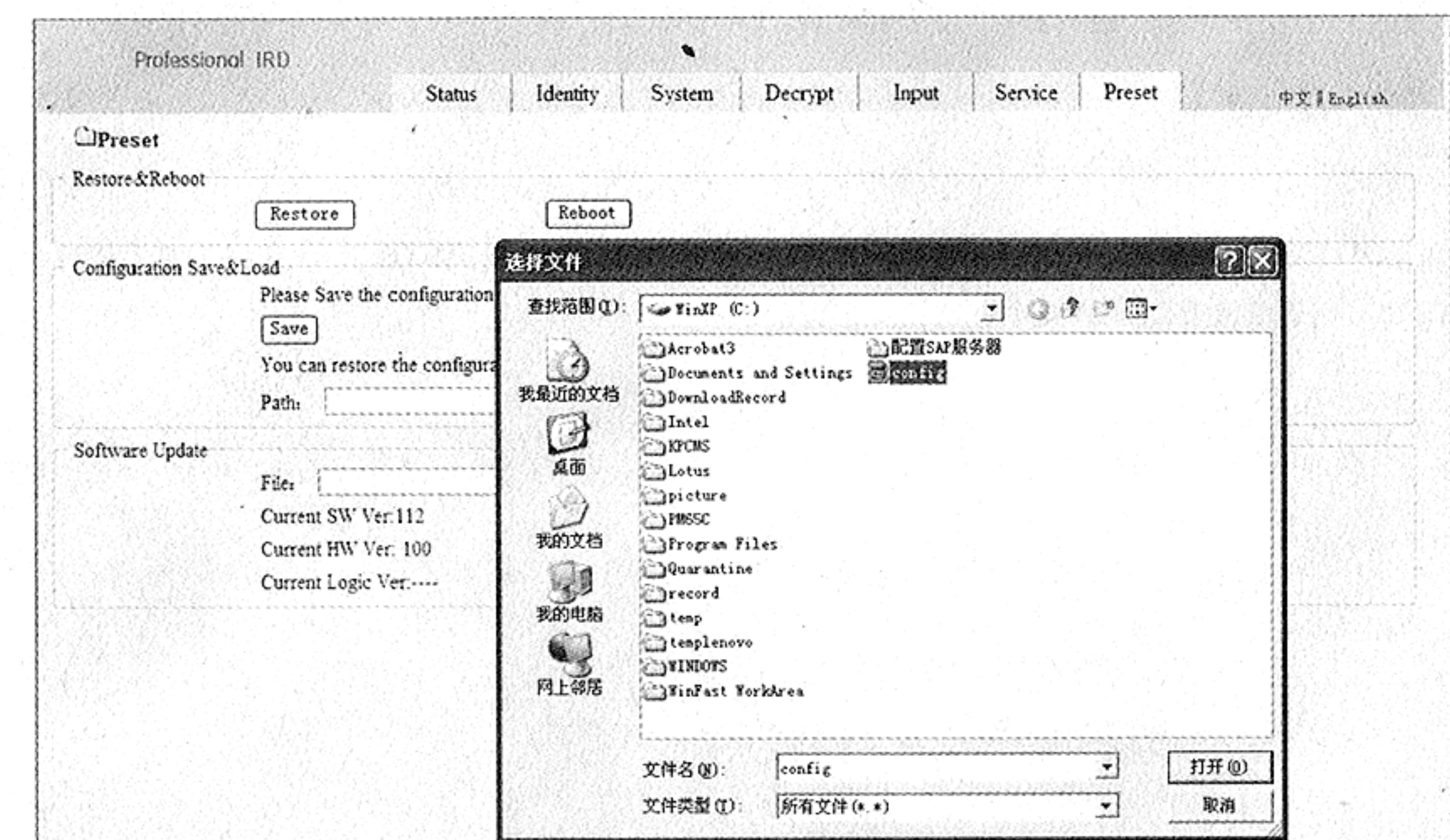

❖ **Software Update**

Click "Browse" button and select an update file, then click "update" button, a message box pops up for confirmation. Click "OK" button to confirm or click "Cancel" button to cancel the operation.

Notes:

- *Force update is supported. If "force update" is not selected, the version of the selected update software should be higher than the version of current software.*
- *The hardware version of the selected update software should be the same as the version of current hardware.*
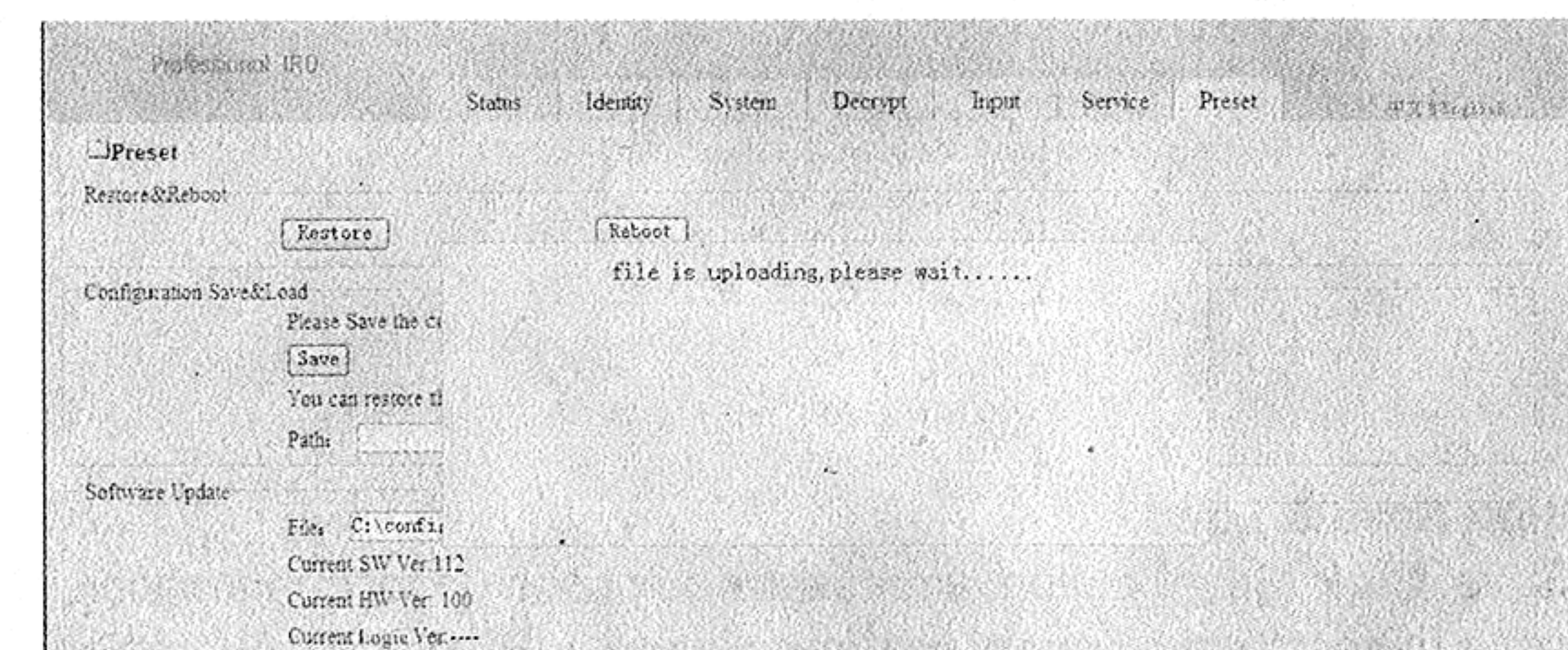
5. Specification

DVB-S	
Input Frequency	950 ~ 2150MHz
Symbol Rate	2.0 ~ 45MS/s
Input Impedance	75Ω
LNB Power	13V/18V, Imax=400mA (LNB automatic short circuit protection)
Control Switch	0/22k switch (support Universal LNB)
Standard	EN300 421
DVB-S2 (optional)	
Input Frequency	950 ~ 2150MHz
Symbol Rate	2.0 ~ 45MS/s (QPSK), 5.0 ~ 37MS/s (8PSK)
Modulation Mode	QPSK, 8PSK
Standard	EN302 307
DVB-C (optional)	
Input Frequency	47 ~ 862MHz
Symbol Rate	2.0 ~ 7.0MS/s
QAM Demodulation	16/32/64/128/256
Standard	EN300 429
Video Decoding	
Standard	MPEG-2 MP@ML, MPEG-4 ASP MPEG-4 AVC/H.264 MP@L3, MP@L4
Audio Decoding	
Standard	MPEG-1 Layer I & II, MPEG-2, AC3
Micro-Processor & Memory	
Working Frequency	450MHz
Flash	8MB
DDR SDRAM	2 x 128MB
Front Panel	
Display	4-segment LED displays channel number and status 10-level LED displays signal strength
Key	6 keys (Up, Down, Left, Right, MENU, OK)
Rear Panel	
LNB IN	F-type female x 1

LOOP THROUGHT	F-type female x 1
RCA Output	RCA x 3 (Audio-Left x 1, Audio-Right x1, OSD monitor video x 1)
Y/C Output	S-Video x 1
Main Video Output	BNC port x 2 (video without OSD)
RS232 Interface	DB-9 female x 1
Ethernet Interface	RJ45 x 1
Analog XLR Audio	XLR port x 2
Power Supply	
Input Voltage	100-240V∿ 50/60Hz
Power Consumption	35W max.
Physical	
Size	435mm (L) x 257mm (W) x 44mm (H)
Chassis	1RU (19″)
Weight	4kg
Operation Temperature	0℃ ~40℃
Storage Temperature	-40℃ ~ +60℃
Storage Humidity	≤93%

6. Trouble Shooting

DISPLAY on front panel is off
1. Power cord is disconnected. Make sure power cord is plugged into a proper power socket.
2. The receiver is turned off. Turn it on.

No signal
1. Satellite dish doesn't point at the satellite. Adjust dish and check signal level.
2. LNB frequency parameters are set wrongly. Set correct frequency parameters.
3. No power supply to LNB. Set "LNB Power" to "13V (vert)" or "18V (horiz)" in "Main Menu → Input → LNB Setting" window.
4. Signal cable is disconnected. Connect signal cable correctly.

No sound
1. Audio cable is disconnected or incorrectly connected. Connect audio cable correctly.
2. Volume is set to minimum. Increase volume to a proper level.
3. Audio parameter is set wrongly. Set a proper audio parameter.

No picture
1. Video cable is disconnected or incorrectly connected. Connect video cable correctly.
2. The receiver is in radio mode. Switch it to TV mode if you need.

Video and audio mismatch, or absonant sound
Audio parameter is set wrongly. Select a proper audio parameter.

Teletext information is not available
1. Video is not output from main video output port. Connect video cable to main video output port.
2. "VBI Select" is set to "OFF" or "CloseCaption". Set "VBI Select" to "TeleText" in "Main Menu → System → VBI Setting" window.

Poor quality picture
1. Weak signal. Connect signal cable securely.
2 Video is not output from main video output port. Connect video cable to main video output port.

Cannot play program
TS is changed. Restore default and search program again.

Abnormity occurs during operation, such as only menu background displayed on screen, and keys invalid.
Keep pressing **MENU** key for 2 to 3 seconds until system resumes to full screen display mode.

Decoder does not work
Decoder is installed in a place with heat source and bad ventilation. Move it to a well ventilated place.

Note: If you cannot solve the problems after referring to this trouble shooting, please contact your local dealer.

7. Acronym

ASI	Asynchronous Serial Interface
CA	Conditional Access
CI	Common Interface
CVBS	Composite Video Broadcast Signal
DVB	Digital Video Broadcasting
HDMI	High Definition Multimedia Interface
LED	Lighting Emitting Diode
LNB	Low Noise Block
OSD	On Screen Display
PID	Packet Identifier
QAM	Quadrature Amplitude Modulation
RCA	Radio Corporation of America
RF	Radio Frequency
SNMP	Simple Network Management Protocol
S-VIDEO	Separate Video
TS	Transport Stream
VBI	Vertical Blanking Interval