EMCEE

SR-200D

Professional HD

Integrated Receiver Decoder

User Manual

EMCEE COMMUNICATIONS

2546 West Birchwood Avenue, Mesa, Arizona 85281 USA

V1.02-N

Preface

About This Manual

This manual provides introduction to users about how to operate the device correctly. The content includes introduction to product installation, product characteristics and product settings, etc. It is highly suggested that users should read this document before actually operating the device.

Intended Readers

This manual is suggested to be studied by the following readers:

- Technical Service Engineer
- Maintenance Engineer
- Test Engineer
- Sales Engineer

Symbols Definition

For the symbols that might appear in this document, the meanings they represent are as the following:

Symbol	Meaning
DANGEROUS	There is highly potential danger. If it cannot be avoided, it will lead to the deaths or serious injury.
WARNING	There is medium or low potential danger. If it cannot be avoided, it will lead to medium or slight injury.
ATTENTION	There are potential risks. If ignore these texts, it may cause damage to the device, data loss, equipment performance reduce or unpredictable results.
TIPS	Tips that help you to solve problems or save your time.
REMARKS	Remarks. Additional information to the text, in order to emphasize something.

Contents

1 <u>About This Product</u>

1.1<u>Introduction</u>

This product is a new generation integrated receiver decoder to support the growing demands for multi-format, multi-standard video delivery and distribution. It can receive digital signals from several inputs (DVB-S/S2, DVB-C (optional), DVB-T/T2/ISDB-T (optional) and ASI), decrypt and process/select programs to various outputs including CVBS, HDMI, SD/HD SDI and ASI. It supports multi-channel descrambling, multiplexing, external table/data insertion, transcoding and transmodulating. It also supports video decoding with two audio channels. With remote web-based management interface, it is ideal to support advanced application such as content distribution, real-time signal conversion and transmission.

1.2 <u>Safety</u>

- To avoid electric-shock hazards, do not open the receiver; refer service to qualified personnel only.

- Do not expose the device in the sunlight, and keep it away from the heat source.

- Do not block ventilation holes of the device so that air can circulate freely.

- Switch the device off whenever it remains out of service for an extended period.

- Be sure to turn the device off and disconnect the AC power cord before cleaning the receiver surface.

- The apparatus shall be connected the mains socket outlet with a protective earthing connection

- The appliance coupler used as the disconnect device shall remain readily operable.

- This product has gone through regulated EMC test and meets with EMC safety requirement.

(REMARKS **Such tests are conducted in a controlled EMC environment. A controlled EMC environment exists in a building where the installation has been designed**
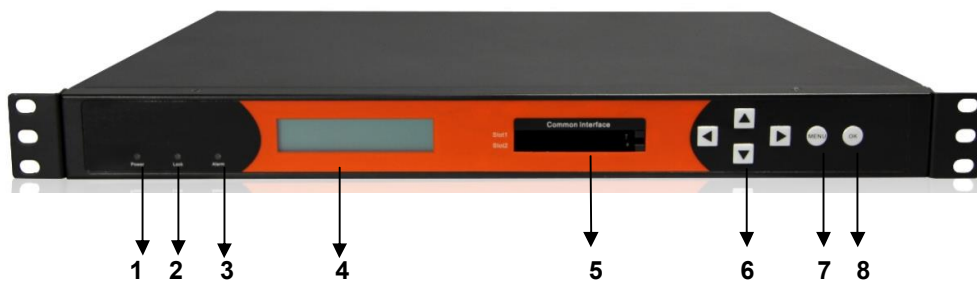
having special regards to EMC, and where technical personnel are present with experience of EMC technology.)

1.3 <u>Architecture</u>

REMARKS

The equipment of this section is shown in schematic diagram. It is subject to change for improvement on the real product without advanced notice.

Front Panel

PIC-1.3-1

1. Power status indicator: This LED light is turned on when the IRD is power on.

2. (Signal) Lock status indicator: This LED light is turned on when a channel is locked.

Otherwise there is no channel locked.

3. Alarm status indicator: This LED flickers when there is something abnormal. For

example, the strength of the input signal is too weak.

4. Display screen: This LCD screen can show the program and configuration information.

5. CI SLOTS: There are two CI slots for various CAS CAM (PCMCIA) modules.

6. KEY PADS:

- **Up/Down/Left/Right arrow keys**: To change channels, to adjust volumes and configure the IRD.
- **Menu**: To enter the menu and the quit function of the sub menus.
- **OK**: To confirm the operation in the setup.

Rear Panel
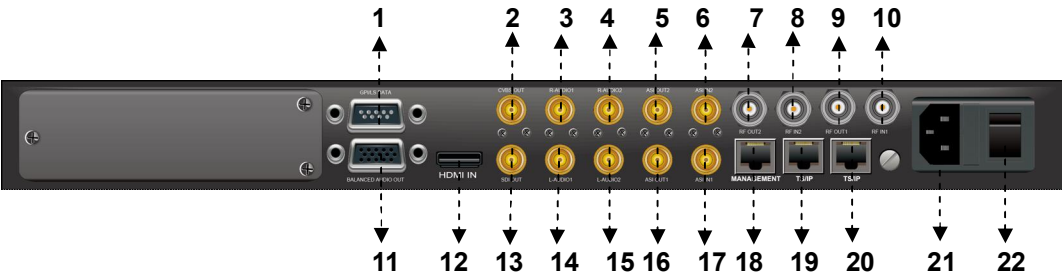
PIC-1.3-2

1	GPI/LS DATA Out	2	CVBS Out
3	R-AUDIO1	4	R-AUDIO2
5	ASI OUT2	6	ASI IN2
7	RF OUT2	8	RF IN2
9	RF Out1	10	RF IN1
11	BALANCED AUDIO OUT	12	HDMI
13	SDI OUT	14	L-AUDIO1
15	L-AUDIO2	16	ASI OUT1
17	ASI IN1	18	MANAGEMENT
19	TS/IP	20	TS/IP (Redundant)
21	POWER CORD IN	22	POWER SWITCH Redundant POWER (Optional)

1.4 Methods of Operation

1.4.1 Operation through WEB UI

Operate the IRD remotely through WEB UI. The WEB UI operation supports:

Functions	Description	Related Items
Parameters Setting	WEB UI allows users to conduct operations of parameters configuration, modification and setup.	Signal receive setup CI setup Decoder setup

Functions	Description	Related Items
Status Monitoring	Support real-time monitoring on running status of input signal, CI descrambling, etc.	RF signal strength indication CI slot/CAM information HW/SW version information
Upgrade	Support unit upgrade through WEB UI	

1.4.2 Operation through Front Panel Operation

Operation through front panel control buttons; users can configure all the parameters as the followings:

Functions	Description	Related Items
Parameters Setting	Allows users to conduct operations of parameters configuration, modification and setup.	Signal receive setup CI setup Decoder setup
Status Monitoring	Support real-time monitoring on running status of input signal, CI descrambling, etc.	RF signal strength indication CI slot/CAM information HW/SW version information

1.5 Technical Specifications

1.5.1 Physical Specifications

Items	Index
Power	AC100~240VAC
Max. Power Consumption	Approx 40W
Size	1RU
Dimension	480mm (W) × 44mm (H) × 440mm (D)
Net Weight	Approx 3.8Kg
Gross Weight	Approx 5Kg

1.5.2 Performance and Capacity

Items	Index
ASI Max. Input Bitrate	100Mbps
ASI Max. Output Bitrate	100Mbps
Decoder Max. Resolution	1920 X 1080i
CI Max. Output Bitrate	100Mbps

1.5.3 Interfaces and Protocols

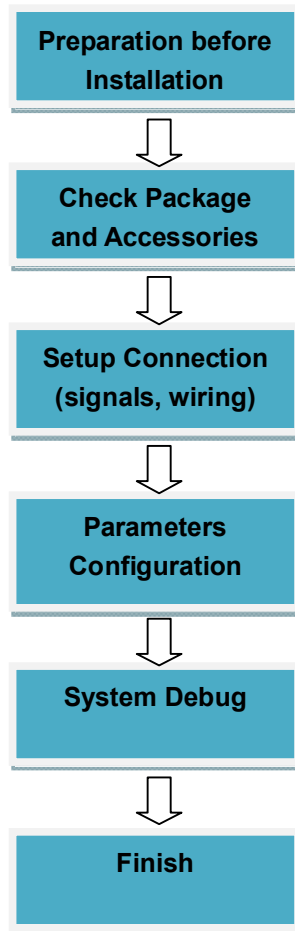|	**IP input**	**ASI input**
	Interface: 1 x 1000 Mbps	Interface: 2 ASI inputs, 75
	IP Encapsulation: UDP/RTP	MPEG Format: 188/204 Bytes per TS
	MPEG TS: MPTS and SPTS	Max bit rate: 100 Mbps
	Input processing: Up to 2 channels, max at 72 Mbps per channel.	Support input redundancy.
	DVB-T2 (Optional)	**DVB-T (Optional)**
	Constellation: 16/32/64/128/256 QAM	Constellation: QPSK/16/64QAM
	Bandwidth: 1.7Mhz, 5Mhz, 6Mhz, 7Mhz, 8Mhz, 10Mhz	Bandwidth: 6/7/8Mhz
	Input frequency: 48~862MHz	Input frequency: 48~862MHz
Inputs	Max. bitrate: 50Mbps	Max. bitrate: 31.67Mbps
	Transmission mode: 1K, 2K, 4K, 8K, 16K, 32K	Transmission mode: 2K, 8K
	DVB-S/S2	**DVB-C (Optional)**
	Input Frequency: 950~2150 MHz	Frequency: 48~862 MHz
	Constellation: QPSK, 8 PSK	Constellation: 16/32/64/128/256 QAM
	ISDB-T/Tb (Optional)	**ATSC (Optional)**
	Constellation: QPSK/16/64QAM DQPSK	Constellation: 8VSB
	Bandwidth: 1.7Mhz, 5Mhz, 6Mhz, 7Mhz, 8Mhz, 10Mhz	Bandwidth: 6Mhz
	Input frequency: 48~862MHz	Input frequency: 57~803MHz (fixed)
	Transmission mode: 1K, 2K, 4K,	Max bitrate: 19.39Mbps

	8K, 16K, 32K	
Outputs	**IP output**	**ASI output**
	Interface: RJ45	Interface: 2 ASI outputs, 75
	IP Encapsulation: UDP/RTP	MPEG Format: 188/204 Bytes per TS
	MPEG TS: MPTS and SPTS	Max bit rate: 100 Mbps
	Output processing: Up to 2 channels, max at 72 Mbps per channel, support TS/IP redundancy.	

REMARKS **The physical connector design is subject to change without advanced notice (either the connector type or specific connector location) according to user's specific order, performance improvement, or for better user experience.**

2 Installation

2.1 Installation Procedure

```
┌─────────────────────┐
│  Preparation before │
│     Installation    │
└─────────────────────┘
           ⇩
┌─────────────────────┐
│    Check Package    │
│   and Accessories   │
└─────────────────────┘
           ⇩
┌─────────────────────┐
│  Setup Connection   │
│  (signals, wiring)  │
└─────────────────────┘
           ⇩
┌─────────────────────┐
│     Parameters      │
│    Configuration    │
└─────────────────────┘
           ⇩
┌─────────────────────┐
│    System Debug     │
└─────────────────────┘
           ⇩
┌─────────────────────┐
│       Finish        │
└─────────────────────┘
```

2.2 Preparation before Installation

Before installation, the installation personnel should read through and confirm the followings:

- Go through this user manual.
- Has the knowledge of digital television system.
- Has defined the sources, racks allocation, and set-up plan system wiring.
- Knows how to operate this unit and parameters configuration.
- Go through related engineering design documents about the system.

2.3 Check Package and Accessories

The IRD package includes the following accessories:

- Base Unit x1

- Power cord x1

- Earth cord x1

- BNC cord x1

- BNC-RCA cord x2

- User Guide Disc x1

2.4 Equipment Wiring and Connection

ATTENTION**To avoid electric shock and damage to the equipment, before setting up the wiring connection, please power off the equipment and all other connected external devices. The equipment and external devices must be grounded. Powering on the equipment only after all the wiring connection is completed.**

Connection Diagram
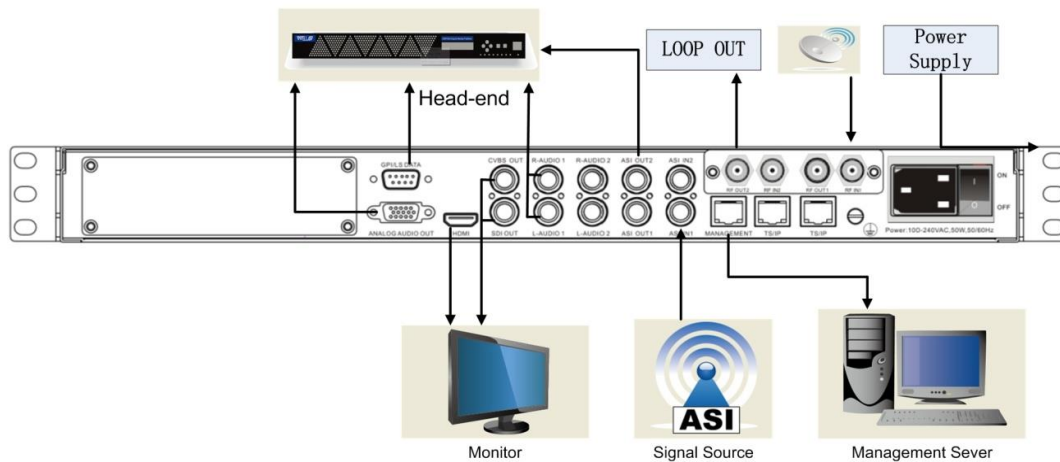
PIC-2.4-1

TIPS **In actual application, not all connection interfaces need to be connected with signal/external devices. Please connect according to actual application purpose.**

REMARKS **To ensure a smooth communication between the management PC and the IRD, please try to connect the IRD management port to a switch without large data processing.**

2.4.1 Connection Setup for RF Signal Input

- Connect signal to tuner input (either RF1 or RF2 input) with a RF cable.
- Connect the IRD "Management" port to a switch, set up a management network with the management PC.
- Connect the IRD with the monitor via HDMI, SDI or CVBS ports.

2.4.2 Connection Setup for ASI signal input

- Connect ASI signal to IRD "ASI IN" port with a BNC cable.
- Connect the IRD "Management" port to a switch, set up a management network with the management PC.
- Connect the IRD with the monitor via HDMI, SDI or CVBS ports.

2.4.3 Connection Setup for IP signal input

- Connect IP signal to IRD "TS/IP" port with a twisted cable.
- Connect the IRD "Management" port to a switch, set up a management network with the management PC.
- Connect the IRD with the monitor via HDMI, SDI or CVBS ports.

3 <u>Operation Guide</u>

3.1. Operation Overview

This chapter provides information on how to operate the IRD through front panel and WEB UI. User can select the most proper operation method to set up the unit.

3.2. Powering Up and Initialization

Switch on the equipment through the rear power switch, and the unit is powered up and starts the initialization.

The LCD screen is lighted up, and display information as following:

> **H.264 SD/HD IRD**
> **Setting System…**

The initialization takes about 20 seconds to complete, and then the IRD shows the IP address information as following:

> **H.264 SD/HD IRD**
> **IP: 192.168.001.098**

REMARKS **Before powering-up the device, make sure that all cabling is correctly connected (refer to chapter 3.4 of this manual). The device is correctly connected to the power inlet and grounded.**

TIPS **If the unit fails to initialize and hangs at the "booting" stage, switching off the device and then powering up again may help. If the device still fails to initialize, please contact your service representative for help.**

3.3. Front Panel Operation

Ways of operation: use the 6 navigation keys on front panel: Up / Down / Left / Right / Menu / Ok to configure the IRD parameters. The configuration and settings are displayed through front panel LCD.

3.3.1 Front Panel Menu Structure

Front Panel Menu Structure

1st Layer	2nd Layer	3rd Layer	
Status	Input Tuner 1/2	Lock Status	
		FEC	
		PER	
		Frequency Offset	
		Frequency Tune	
		TS Rate	
		RF Level	
		C/N	
		BER	
	Input ASI 1/2	Lock Status	
		TS Rate	
	Input IP 1/2	Lock Status	
		TS Rate	
	Decoder	TS Rate	
		PCR PID	
		Audio PID	
		Video PID	
		PMT PID	
		Program No.	
	CI	CI Slot 1/2	
	Output ASI	ASI 1 TS Rate	
		ASI 2 TS Rate	
	Output IP	IP 1 TS Rate	
		IP 2 TS Rate	

Inputs	Tuner 1/2	Tuner 1/2 Params	Enable
			TS Standard
			LNB Frequency
			Satellite Frequency
			Symbol Rate
			LNB Power Supply
			LNB 22KHz
			Scan TS
	ASI 1/2	Enable	
		TS Standard	
		Scan TS	
	IP	Local Setting	
		TSIP Channel 1/2	
Outputs	Decoder	Playing Program	TS Source
			Program List
		Video	Video Standard
			Aspect Ratio
			Video Format
		Audio	Audio Volume
			Audio Mixer
			Audio 1/2 Language
		Subtitle	Subtitle Standard
		Teletext	Teletext Standard
	ASI	ASI 1/2 TS Source	Tuner 1/2
			Mux 1/2
			ASI 1/2
	IP	TSIP Channel 1/2	Enable
			TS Source

			Dest IP Address
			Dest Port
			Protocol
			Time to Live
			TS Packet Number
			Enable Dest MAC
			Dest MAC
CA	Common Interface	CI 1/2	TS Source
			Descrambling
		CAM Max Bitrate	
	BISS Setting	BISS Setup	BISS Mode
			BISS-1 Setup
			BISS-E Setup
System	Local Setup	Local IP Address	
		Local Network Mask	
		Local Gateway	
		MAC Address	
		Version	
		Factory Setting	
		Reboot	

3.3.2 Front Panel Operation Guide

- **Enter "Menu":**
    - Press %*MENU*+button to enter main menu.

- **Exit Menu/Back to parent Menu**
    - Upon completion of configuration settings, press %*MENU*+ button until you go back to the Parent Menu.

- **Enter Sub-Menu**
  - Press _**MENU**_ button to enter main menu.
  - Select a sub-menu by pressing arrow _**UP**_ and arrow _**DOWN**_ button.
  - Press _**OK**_ button on the selected sub-menu.

- **To change parameter**
  - Step 1: Enter main menu by pressing _**MENU**_ button.
  - Step 2: Scroll sub-menu by pressing arrow _**UP**_ and arrow _**DOWN**_ button, and press _**OK**_ button to change the selected sub-menu.
  - Step 3: To change parameter settings, press arrow _**RIGHT**_ and arrow _**LEFT**_ button to move the cursor in which change must be made.
  - Press arrow _**UP**_ button and arrow _**DOWN**_ to input / select an appropriate setting, then press _**OK**_ button to save.

3.4. <u>WEB UI Operation (Recommended)</u>

Accessing the equipment via Web can be very convenient for remote configuration of the equipment. Relative to the front panel settings WEB operation can provide a friendlier man-machine interface, and with less limits in space. WEB Management is recommended.

3.4.1 WEB Management Connecting

Connection Instruction:
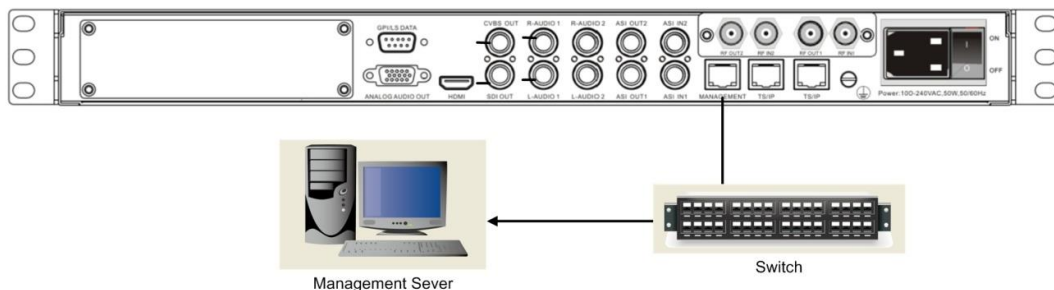
PIC-3.4-1

1. Connect the "MANAGEMENT" port of the IRD to a network switch and connect the management PC/server to the same network switch.

2. The IRD default IP address is 192.168.1.98. It is important to set the IP address of

the IRD and the monitoring severs in the same section to ensure a smoothly connection between them.

3. Open a web browser (e.g. Mozilla, internet explorer, safari and etc.), enter the equipment's IP address in format: **http://xxx.xxx.xxx.xxx** (xxx.xxx.xxx.xxx refers to IRD's IP address) and press ENTER button to confirm. The browser will attempt to connect to the device. If succeed, a login page will appear. *(see PIC-3.4.2)*

Note: Through WEB browser, you can manage several pieces of HD IRD at the same time, as long as those equipments are connected to the server via Network Switch. Make sure that the equipment and server's IP address should be in the same section. Nevertheless, Subnet Mask and Gateway should be the same for both the server and the equipment.

PIC-3.4-2

- To login, you need to enter the default username "admin" and password "admin". Then click "Submit".
- If the user name and password is correct, it will redirect to the main page.

3.4.2 Parameters Configuration

3.4.2.1 Main Page

PIC-3.4-3

The main page can be divided into two functional areas:

- Menu Area: you can switch between the menus to display the corresponding parameter setting and monitoring pages.

- Parameters Area: displays the corresponding parameters pages according to the menu selection.

The WEB management page allows you to monitor and/or configure: Status, Receiver, Program Setup, CA, Local Setup, Alarms Setup, User Management, Preset, Upgrade, Log and etc.

Menu Area:

This area shows the main menu items of the machine, you can click the item you want to configure or monitor, then the detailed information will appear in the right area.
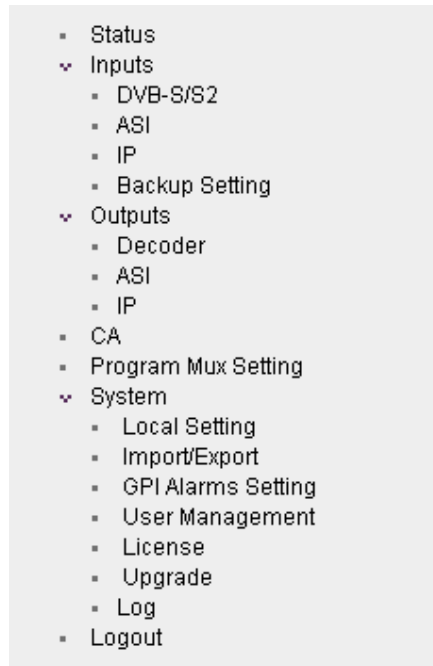
PIC-3.4-4

Parameters Area:

This section is the main section for monitoring and configuration of the machine. It shows the detailed information of the machine of each menu. Its detailed function will be introduced in to following chapters.

3.4.2.2 Status Page

This page allows you to monitor the status of input and output signal, and check the information of CI cards.

PIC-3.4-5

- **Input status (tuner/ ASI/ IP):** It shows the main information of input streams, such as lock status, RF BER, RF Level, Total RF Rate , ASI total rate, ASI effective rate etc.

- **Decoder status:** Here you can see the decoder information: video PID, Audio PID and PMT PID.

- **CI status:** You are able to monitor the status of CI cards.

- **Output status (ASI/ IP):** You can check the output TS rate and the TS status.

3.4.2.3 Programs Mux Setting

If you want to configure the parameters of multiplexed programs, just click the "Programs Mux Setting" button on the left bar. Then you will turn to the programs information interface, where you are able to check and modify the parameters of programs.

PIC-3.4-6

21
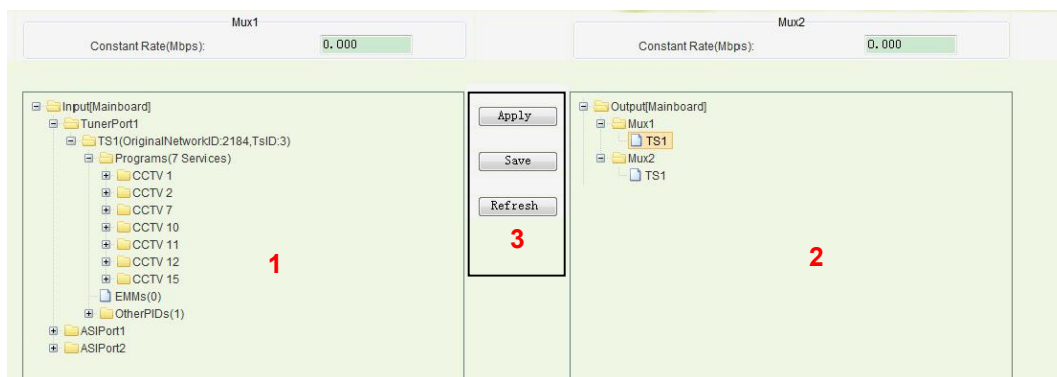
① **Input Program Configuration**: The "Input Program Configuration" is on the left side of the window. It displays the entire information of the received input streams

② **Output Program Configuration**: In the "Output Program Configuration" window, it shows the ports which can be set to transmit output stream. The programs set to be outputted are shown in the submenu of each port.

③ **Operation Buttons**: This area contains three functional buttons: Refresh, Apply and Save.

      Apply: to make the programs configuration take effect. Once the device is powered off, the programs configuration will lose and device will be restored to the last saved configuration.

      Save: to make the programs configuration take effect as well as save the configuration information.

      Refresh: by clicking this button to refresh the programs information.

How to dispose the Inputs:

To get the input programs, you should choose the sub-menu in the Inputs menu on the left. Then it will turn to the corresponding page where you are able to set the receiving parameters to lock the signals. (Referring to **chapter 3.4.2.4**) If the signal is locked then programs information will be listed on the frame as the following picture shows.
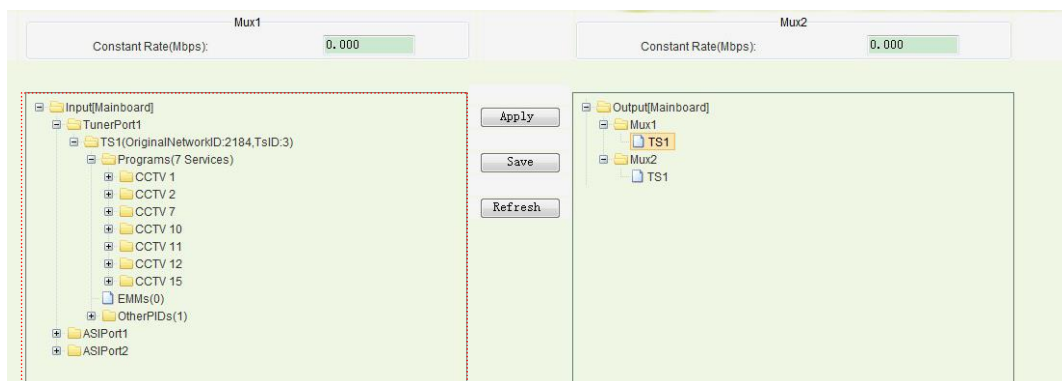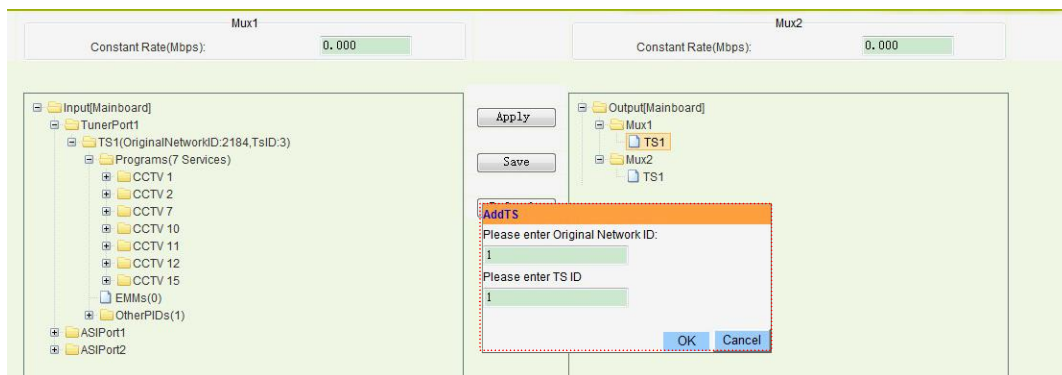

PIC-3.4-7

How to configure the Outputs (Mux1 and Mux2):

Firstly, select the port which you want to transmit the output stream. Right click the TS in that port and a pop-up menu will appear. Click "ADD TS" item and you will get the input box.
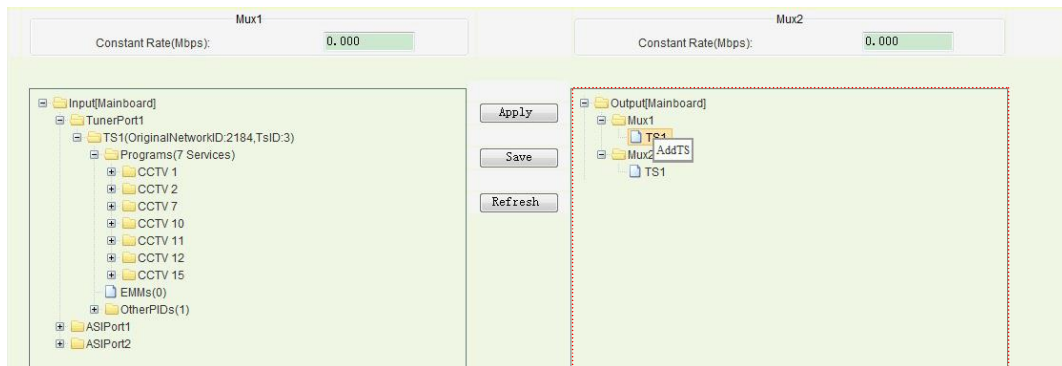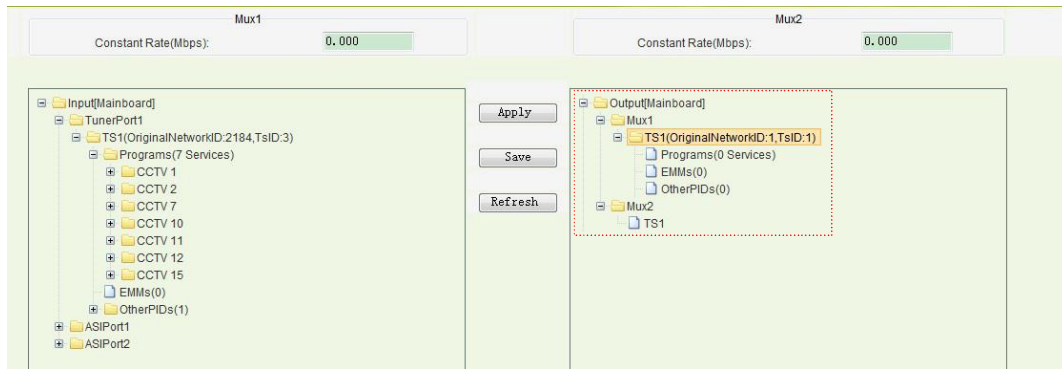

PIC-3.4-8

Secondly, Input the "Original Network ID" and "TS ID" for the channel, and click the "OK" button. Then new "Original Network ID" and "TS ID" will be assigned to the selected output TS (channel).
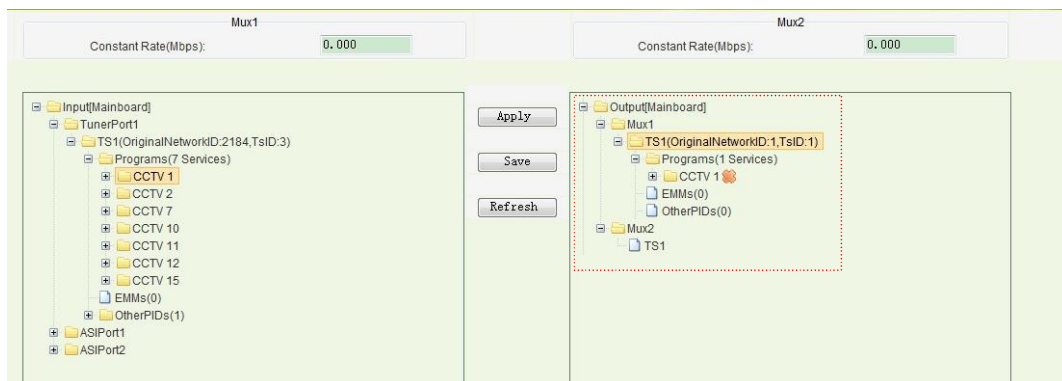

PIC-3.4-9

Additionally, by clicking the editing icon, you are able to modify the TS name, network ID and TS ID.

To delete existing TS, you can click the cross icon as follows:

PIC-3.4-10

And it is able to delete the TS or programs in the Mux menu by click the cross icon at the behind of the program or TS. Shown as the following picture:

PIC-3.4-11

 After completing the configuration, you should click "Apply" button to enforce it or "Save" button to enforce and save it.

 The outputs (Mux1 and Mux2) will be available for ASI/ IP inputs after configuration.

3.4.2.4 Inputs

● **DVB-S/S2**

PIC-3.4-12

Area 1/ Area 2: Additionally, in this section, you are able to set the dual RF receiver parameters including the Satellite Frequency, Symbol Rate, LNB Frequency, and LNB Voltage (Polarization) with accurate values. Then you can press the "Submit" button to save your settings or click "Refresh" button to refresh the screen.

Area 3: When the signal is locked, it is able to get the program list in by clicking the ScanTS (Tuner1/Tuner2).

● **Enable**: Enable or disable corresponding input channel

● **Satellite Frequency (MHz):** set the satellite down conversion frequency. You can get this parameter from the satellite program provider.

● **Symbol Rate (KBaud):** set the correct symbol rate. You can get this parameter from the satellite program provider.

● **LNB Frequency:** this is the LNB's local oscillation (LO) frequency, every LNB have one or two oscillation frequencies which can be obtained from the LNB provider, or you can check on the LNB label. The value is between 5000 and 6000.

25

- **LNB Power Supply:** LNB voltage is the power that supply to the LNB in order to receive satellite signal with different polarization. Generally 18V is for Horizontal while 13V is for Vertical.

- **LNB 22 KHz:** Generally this is used to control 22KHz switch, typically used for LNB with double L.O. in Ku band. ‰ON+is for high L.O and ‰OFF+is for low L.O.

- **TS Standard:** there are two options for TS standards: DVB and ATSC.

TIPS Sometimes the parameters may change; it is advisable to check through www.lyngsat.com for the updated satellite parameters.

- **DVB-T/T2 (Optional)**

If the tuner is for DVB-T/T2 receiving, it will turn to the above interface when clicking the inputs menu. This page is to configure the parameters of DVB-T/T2 receiving. There are three parameters as following:

- **Mode:** to set DVB-T or DVB-T2 receiving.

- **Frequency:** to input the frequency that the receiver is appointed to receiving..

- **Bandwidth:** There are three options: 6M/7M/8M. Set the corresponding parameter according to the operator requirement.

- **DVB-C (Optional)**

Regarding DVB-C parameters, user only needs to input the frequency, symbol rate and QAM mode to scan and receive the input signal.

- **ASI**

PIC-3.4-13

This page shows the Input ASI information. There are two channels available to receive ASI streams: ASI1 and ASI2.

Area1: set the ASI parameters, include Enable and TS Standard.

　　Enable: enable / disable the ASI channel to receive input stream.

　　TS Standard: select the correct TS standard: DVB or ATSC

Area2: displays the programs list of the input stream. You can get the programs list by clicking the ScanTS (ASI1) and ScanTS (ASI2).

- **IP**

PIC-3.4-14

From this page, you can setup the devices local IP parameters (Area1) as well as the TSIP ports output parameters (Area2 and Area3). There are two TSIP channels available for

27

receiving IP streams.

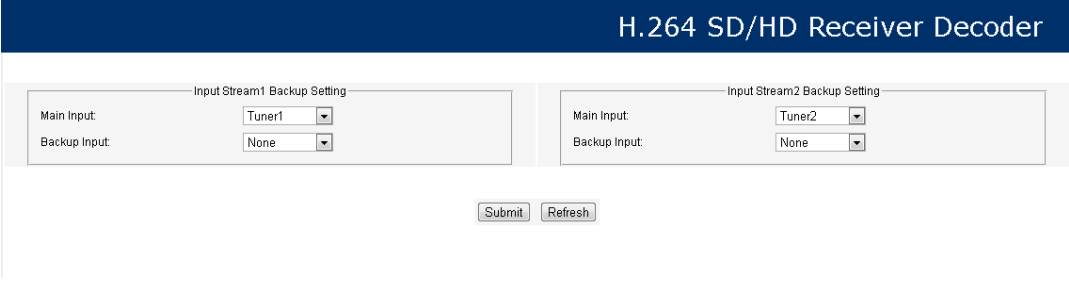**Area1**: Set the devices local IP parameters to enable it to be connected into the network:

- **IP Address:** Local IP setting for connecting to the server. This IP and the management servers IP should be in the same section.

- **SubnetMask:** Network Mask setting for connecting to the server. It should be the same as management server: 255.255.255.0

- **GateWay:** Gateway setting for connecting to the server. It should be the same as the management server.

- **IGMP Version:** The IP transmission supports IGMP V2 and IGMP V3, you can choose the one you need manually.

Area2: The parameter of channel 1 and channel 2. After finishing the configuration, click "Submit" to make it into effect.

- **Enable:** Enable or disable corresponding output channel

- **Source IP Address:** it is the IP address of the source IP streams.

- **Source Port:** It is the port of source IP streams.

- **Protocol:** You can choose UDP or RTP for multicast/unicast.

Area3: To get the program list of IP input by clicking ScanTS (Tuner1) / ScanTS (Tuner2).

- **Backup Setting**

PIC-3.4-15

In the Backup Setting page, user can set redundant sources for the main input signal. The main and backup input source can be selected from Tuner, ASI or IP.

In case there is any error for the main input signal, the IRD will automatically switch the input from main to the backup, to ensure the IRD output non-stop.

3.4.2.5 Outputs

● **Decoder**

In this page, user can view and configure the decoding output program parameters, including: Program, CAM, Video, Audio, Subtitle and Teletext.

PIC-3.4-16

REMARKS **The device can decode the input streams and output by CVBS or HDMI. For each time only one program can be decoded and output.**

TIPS **The parameters set in "Program Setup" interface work for all selected program.**

✧ **Playing Programs:**

This interface, all the programs received will be listed in "TS Source" region. By changing the program's operation, you can determine which program to decode.

PIC-3.4-17

If the input signal is not locked and searched, the "program" section shows empty. User

29

cannot do any setup at the moment.

❖ **Video:**

Here, you can configure the video parameter, as follows:

PIC-3.4-18

- o **Video Standard**: in this item, you can select video standard, available options include: Automatic, SECAM, NTSC, PAL-N, PAL-M and PAL.
- o **Aspect Ratio Conversion:** you can setup the aspect ratio for the decoded programs, available options include: Pillarbox (Side Bars), 16:9 Pan and Scan, 4:3 LetterBox, and 4:3 Pan and Scan.
- o **Video Output Resolution**, you can select the video format (resolution) for the decoded program, available options include:

    Auto / 480i / 576i / 720p50 / 720p59 / 720p60 / 1080i50 / 1080i59 / 1080i60.

TIPS **The decoder output video resolution should meet with the monitor resolution setting.**

❖ **Audio:**

In this section, you can configure the information of Audio, as follows:

PIC-3.4-19

- o **Audio Volume**: Set the output audio level from -63 to max. 0 in dB.
- o **Mixer**: set the format of audio, including Stereo, Left, Right, Mono and Dual.
- o **Audio1/2 Preferred Language**: Select audio language if there are multiple audios contained in the signal.

❖ **Subtitle:**

PIC-3.4-20

  ○ **Subtitle Standard**: You can set the subtitle to be EBU or DVB.

    EBU: The European Broadcasting Union is the world's foremost alliance of public service media entities

    DVB: It means Digital Video Broadcasting, a set of standards relating to digital television

  ○ **Subtitle Language**: Here you can set the language of subtitle from the existing selections.

✧ **Teletext**

PIC-3.4-21

  ○ **Teletext Standard**: choose disable to turn off the Teletext or enable to turn on the Teletext.

  ○ **Teletext Language**: You can set the teletext language here.

● **ASI**

In this page you are able to choose the input signal from Tuner, ASI, IP or Mux as singal source for the ASI output. After configuration you need to click submit button to make it taking effect immediately.

PIC-3.4-22

REMARKS **Only the Enabled Input will be listed on the TS source list.**

● **IP**

In this page, you can set up the parameter of IP output. There are two channels for output and you can set both of them.

PIC-3.4-23

- **Enable**: Enable or disable corresponding output channel
- **TS Source**: to choose the input signal as IP output.
- **Dest IP Address**: The IP address for the multicast/unicast.
- **Dest Port**: The port of the multicast/unicast, it must stay same with the value of the dest device.
- **Protocol**: You can choose UDP OR RTP for multicast/unicast.
- **Time to Live**: Range is 1-255. (Num 8 is recommended)
- **Enable Dest MAC**: You can decide whether to set the MAC of destination device.

3.4.2.6 CA

In this page, user can manage the configuration setting related to the device decryption and descrambling capability.

PIC-3.4-24

Area1: this area is for CAM bit-rate setting, where you can set the maximum bit rate

according to the CAM inserted.

Area2: This area is for the Biss setting.

- **BISS (Basic Interoperable Scrambling System):** is a satellite signal scrambling system developed by the European Broadcasting Union and a consortium of hardware manufacturers. There are two types:
    - o **BISS-1,** transmission are protected by a 12 digit hexadecimal "session key" that is agreed by the transmitting and receiving parties prior to transmission. The key is entered into both the encoder and decoder, this key then forms part of the encryption of the digital TV signal and any receiver with BISS-support with correct key will decrypt the signal.
    - o **BISS-E (E for encrypted),** is a variation where the decoder has stored one secret BISS-key entered by for example a rights holder. This is unknown to the user of the decoder. The user is then sent a 16-digit hexadecimal code, which is entered as a "session key". This session key is then mathematically combined internally to calculate a BISS-1 key that can decrypt the signal.
    - o **BISS-E ID,** an identification ID given prior to transmission and reception.

Area3: In this area, it is able to choose the programs that need to be descrambled and set the CAM info. All the received signals will be listed in the "TS Source" menu. Then you can choose the programs that you want to descramble on the program list and click the "Submit" button to make it into effect.

- **TS Source**: to choose the input signal as IP output.

REMARKS **Usually a standard CAM can support a certain data processing unless it has instruction for higher bit rate support. Selecting a wrong CAM output bit rate will cause video mosaic issue because the actual processed data exceeds the CAM Max handling capability.**

3.4.2.7 System

● **LocalSetup**

H.264 SD/HD Receiver Decoder

Local Setting

IP Address:	192	.168	.2	.98
Subnet Mask:	255	.255	.255	.0
Gateway:	192	.168	.1	.1
Trap IP Address1:	0	.0	.0	.0 □Enable
Trap IP Address2:	0	.0	.0	.0 □Enable
Language:	English ▼			
Mac Address:	A0-69-86-00-B2-1D			
Software Version(Main Board)	V2H.1.25			
Software Version(8QAM(A/C)[2])	V55.0.0			

Submit Refresh FactorySet Reboot

PIC-3.4-25

In this page, you are able to configure the following parameters:

- **IP Address:** Local IP setting for connecting to the server. This IP and the management server's IP should be in the same section.

- **Network Mask:** Network Mask setting for connecting to the server. It should be the same as management server: 255.255.255.0

- **Gateway:** Gateway setting for connecting to the server. It should be the same as the management server.

- **Trap IP Address:** This IP should be the same as the monitoring server's IP. After correct setup, the IRD will pass the alarming and running information to the monitoring server.

- **Language:** to configure the UI displaying language.

● **Import/Export**

This menu is for user to import/export the machine configuration file.

● **GPI Alarms**

PIC-3.4-26

In this section, user can set the alarm information to monitor the device and signal. After setting the "Alarm Mask" on, the "GPI" item will be available to be set as On or Off. If the GPI is set to on, when there are LNB Disconnect, Signal unlocked or CAM error, the alarm information will be sent out via GPI.

● **User Management**

PIC-3.4-27

● **Change Password**:

When user put a check on this button, user can change the password with a new one.

● **Change Username**:

Here, you can change the existed username to a new one.

● **Create a User**:

The device allows you to add up to 10 new users to operate the device. You can set the new username and password after select "Create a User" button.

● **Delete a User**:

35

By selecting this section, you are able to delete the user account from the existing account. If the user account is deleted, the user will have no right to access the device.

● **License**

H.264 SD/HD Receiver Decoder

Slot Chip ID   Board Type   HW Version   Tag Len   License Info   Last Update Time
6   0x339f919b04000057 MainBoard   1   82   bf010ca0698600b21da06986...   2014-4-9

PIC-3.4-28

This menu is for licensing control on the machine. User can purchase upgrade package from service provider to extend the machine function and capability. User shall check with service provider first whether the on-hand machine supports license upgrade or not.

● **Upgrade**

浏览…

Upgrade

PIC-3.4-29

Click Browse button, then user can select the upgrade file, and click %Upgrade+button to start the upgrade. If succeed, restart the device and it will load the new version

● **Log**

In this page user can export and review the log of the machine.

● **LogOut**

Logout

PIC-3.4-30

User can logout the management system by clicking this button.

3.5. <u>Preparation before Officially Operation</u>

This section advises what need to be performed on the IRD before formally starts operation.

It includes but not limited to the following:

- Clear test data
- Configure the equipment with working data.
- Routing inspection.

3.5.1 Clear all useless data

To do a factory default setting on the device in order to clean up all test data generated in the process of debugging and testing.

3.5.2 Configure the equipment with working data

According to the formal system plan to configure the IRD from signal input, descramble and decoding output.

3.5.3 Full checking before implementation

After completion of the test and configuration, users are recommended to give the equipment a final full-scale checking to ensure everything is on track for working with long-term stability. It shall contain (but not limited to) the following items :

- Check the strength and quality of all input signals.
- Check if there is any alarm lights up on front panel LED indicator.
- Check whether the cable connection is in good condition with each external device.

4 <u>FAQ</u>

Problem	Possible Reasons	What to do
The LCD display on the front panel does not light up.	No power.	Check whether the power cord is plugged into the power socket.
No Video output	Parameters are not properly configured.	Check the parameters configuration
	No signal	Check the source and other factors that affect the signal reception.
	The TV set is not tuned to the right TV mode.	Set TV in right mode, e.g. (Set TV to CVBS display mode for CVBS decoding input from IRD, and HDMI mode for IRD HDMI input, etc.)
No or bad signal.	No cable connection or the program does not exist in current satellite.	Check the cable connections, LNB and other equipment connected between the LNB and the STB, and /or adjust the dish.
	The satellite dish is not properly oriented to the satellite.	Align the dish. Check the signal level in the IRD menu.
Bad picture / Blocking error.	The satellite dish is not properly oriented to the satellite.	Align the dish.

Problem	Possible Reasons	What to do
	Signal is too strong.	Connect a signal attenuator to the LNB input.
	Signal is too weak.	Change to a larger dish.
	LNB noise figure is too high.	Change a LNB with lower noise figure.
	The LNB is defective	Change a LNB.
Signal is good. But No picture and no audio on decoding output	The picture and audio are scrambled.	Insert correct CAM and authorized smart card to descramble the programs.
Cannot have access to the IRD through WEB UI	IP setting	Check whether the management PC IP and the IRD IP have been set to be in same section.
	Network cable problem	Make sure the cable is good one and connect well to the IRD management port.
Cannot Decrypt Programs.	Haven't selected decrypted programs or select incorrectly.	Select decrypted programs to be correctly.
	CAM Modular Error.	Change for another CAM.
	Smart Card no authorization	Change for an authorized smart card
	Incorrect insertion of CAM or Smart card.	Correctly insert CAM and Smart card.

5 Terminology

A - Z	
Abbreviation	**Specific Meaning**
AES	Audio Engineering Society
ASI	Asynchronous Serial Interface
BISS	Basic Interoperable Scrambling System
BNC	Bayonet Nut Connector
CI	Common Interface
CVBS	Composite Video Broadcast Signal
DVB	Digital Video Broadcast
DVB-C	DVB-Cable
DVB-S/S2	DVB-Satellite
DVB-T	DVB-Terrestrial
EBU	European Broadcasting Union
ETSI	European Telecommunications Standards Institute
FEC	Forward Error Correction
HD	High Definition
HDMI	High Definition Multimedia Interface
ISO	International Standard Organization
ITU	International Telecommunications Union
LNB	Low Noise Block
MPEG	Moving Pictures Experts Group
PCMCIA	Personal Computer Memory Card International Association
RTP	Real-time Transport Protocol
SD	Standard Definition
SDI	Serial Digital Interface
TS	Transport Stream
UDP	User Datagram Protocol