

MODEL IDH-9001

DVB T2 S2 C HDMI H.264 MPEG-4/AVC

Single Channel H.264 HD Encoder

User's Guide

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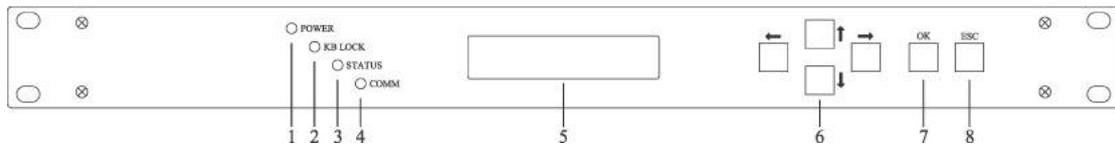
1. Introduction

The RichRight H.264 HD encoder is the newest HDTV product of Communicate which adopts H.264/MPEG4 - AVC high quality compression technology. It is applied to perform DVB DTV broadcast system, MMDS, DVB data broadcast system, Video on demand system, and so on. It supports HD SDI video and audio input, HDMI video and audio input. For channel 1, it also supports analog YPbPr, SD CVBS video input, stereo analog audio input. And it supports IP encoding output. It improves the encoding efficiency to satisfy the diverse needs of operators.

User can browse the basic information and modify all parameters via the front panel or the Head-end Manager.

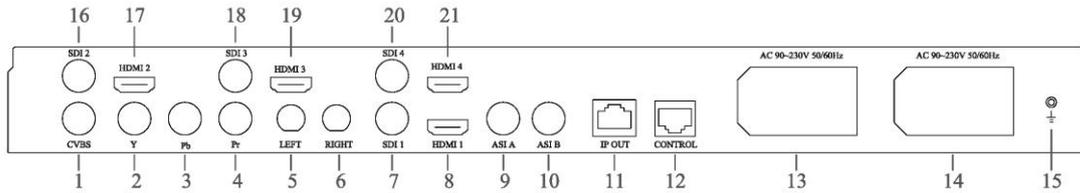
2. Products Illustration

2.1 The front panel:



- 1 — Indicator of Power
- 2 — Indicator of Keyboard Lock
- 3 — Indicator of Status
- 4 — Indicator of Network Communication
- 5 — LCD display
- 6 — Direction Key
 - ↑ Up or Increase
 - ↓ Down or Decrease
 - ← Left
 - Right
- 7 — Ok to confirm
- 8 — ESC to exit or cancel

2.2 The rear panel:



- 1 — CVBS input port
- 2 — Y input port
- 3 — Pb input port
- 4 — Pr input port
- 5 — Audio input port (Left)
- 6 — Audio input port (Right)
- 7 — SDI/HD-SDI/3G-SDI input port
- 8 — HDMI input port
- 9 — ASI OUT A
- 10 — ASI OUT B
- 11 — RJ45, 100 Base-T, TS output port
- 12 — RJ45, 100 Base-T, Ethernet connection port
- 13 — Power socket and switch, Optional.
- 14 — Power socket and switch
- 15 — Grounding point
- 16 — SDI/HD-SDI input port, Optional.
- 17 — HDMI input port, Optional.
- 18 — SDI/HD-SDI input port, Optional.
- 19 — HDMI input port, Optional.
- 20 — SDI/HD-SDI input port, Optional.
- 21 — HDMI input port, Optional.

2.3 Installation

1、 This product should be mounted horizontally, and grounding or earthing mounted devices should be maintained reliably.

2、 Exactly connect your power supply, signal source and other equipments to this product.

3、 If you want to use the Head-end Netmanager, Please connect RJ45 to your network.

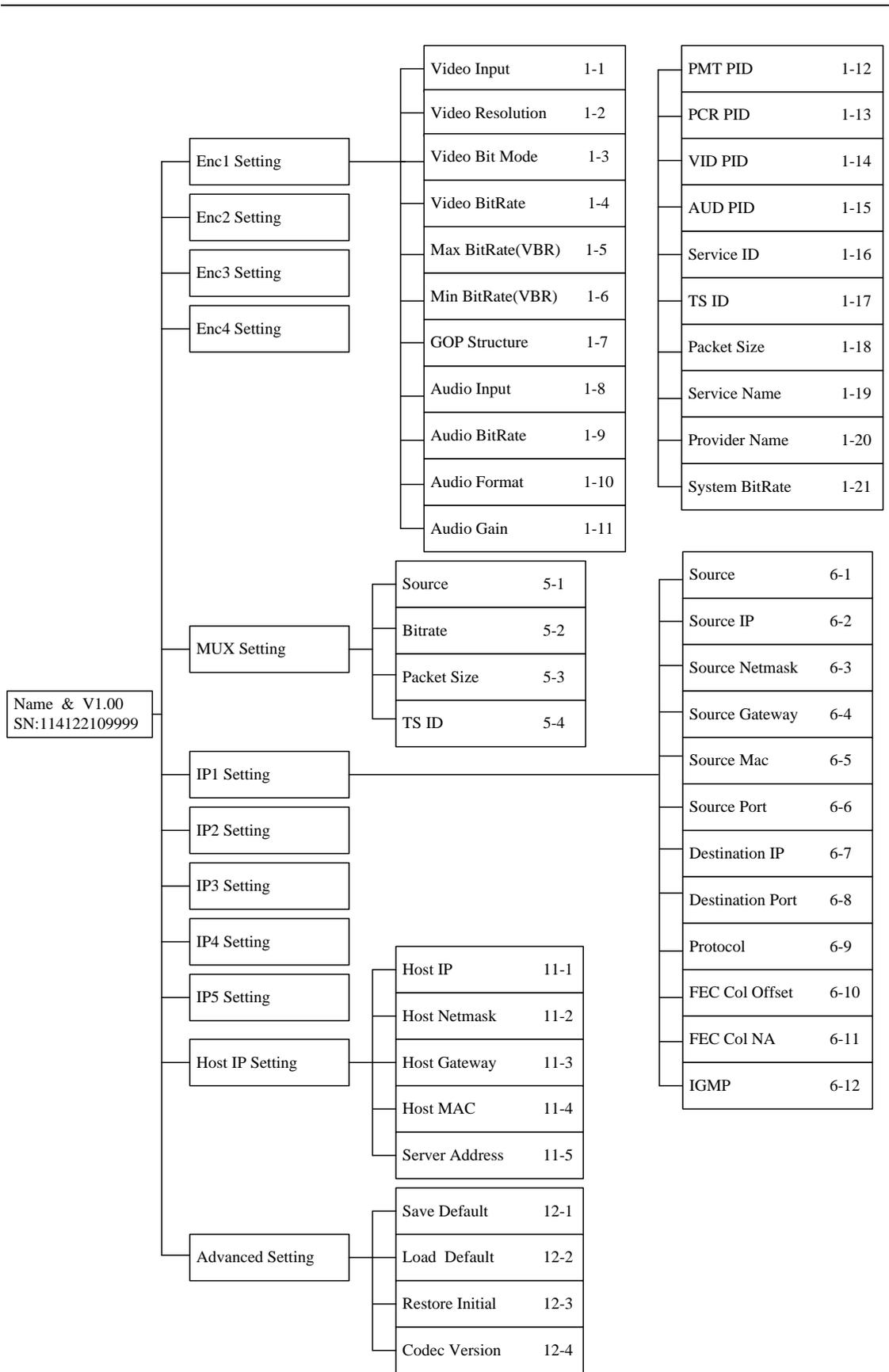
4、 Please check out the standard of power before you power on this product.

3. Operation Menu

3.1 Menu Structure

The under chart illustrates the device menu tree. You can browse and operate all of the parameters via keyboard of the front panel.

Note: Enc2-Enc4 Setting and IP2-IP4 Setting are optional.



3.2 Menu Definition

3.2.1 Enc1 Setting

“Video Input 1-1” : User can choose the video input port. There are 4 types of input ports: CVBS, SDI, YPbPr and HDMI.

Note: For Enc2-4, there are only 2 types of input ports: SDI and HDMI.

“Video Resolution 1-2” : User can only browse the video resolution. It supports 8 types: 1920x1080x60i/50i, 1440x1080x60i/50i, 1280x720x60p/50p, 720x480x60i, 720x576x50i.

“Video Bit Mode 1-3” : User can choose the video bit mode. There are 2 types of bit mode: CBR and VBR.

“Video BitRate 1-4” : User can configure the video average bitrate, from 1000Kbps to 25000Kbps.

“MAX BitRate(VBR) 1-5” : User can configure the video max bitrate, from 1500Kbps to 25000Kbps. It is valid only in VBR mode and it must more than the video average bitrate.

“MIN BitRate(VBR) 1-6” : User can configure the video min bitrate, from 500Kbps to 20000Kbps. It is valid only in VBR mode and it must less than the video average bitrate..

“GOP Structure 1-7” : User can choose the video GOP structure. There are 3 types of GOP structure:IBBP, IPPP and IBP.

“Audio Input 1-8” : User can choose the audio input port. There are 3 types of input ports: Analog, HDMI and SDI.

Note: For Enc2-4, there are only 2 types of input ports: HDMI and SDI.

“Audio Gain 1-9” : User can configure the audio gain. There are 5 types of audio gain: -12db, -6db, 0db, 6db and 12db.

“Audio BitRate 1-10” : User can choose the audio bitrate. There are 6 types of bitrate: 64Kbps, 128Kbps, 192Kbps, 256Kbps, 320Kbps and 384 Kbps.

“Audio Format 1-11” : User can choose the audio format. By now, there is only 2 type of audio format for normal version: MPEG-1 LayerII and SPDIF AC3. The option of SPDIF AC3 is only valid in digital mode. For AAC version, there is one more option: AAC-LC.

“PMT PID 1-12” : User can configure the output PMT PID. The range is from 50 to 8190.

“PCR PID 1-13” : User can configure the output PCR PID. The range is from 50 to 8190.

“VID PID 1-14” : User can configure the output video PID. The

range is from 50 to 8190.

“AUD PID 1-15” : User can configure the output audio PID. The range is from 50 to 8190.

“Service ID 1-16” : User can configure the output service id. The range is from 1 to 65535.

“TS ID 1-17” : User can configure the Transport Stream ID. The range is from 1 to 65535.

“Packet Size 1-18” : User can choose the output packet size. There are 3 types: 188, 204 FEC ON and 204 FEC OFF.

“Service Name 1-19” : User can only browse the service name. It only support English name via the front panel.

“Provider Name 1-20” : User can only browse the service provider name. It only support English name via the front panel.

“System Bitrate 1-21” : User can configure the system bitrate of this encoder channel. The range is from 2000 to 25000kbps.

3.2.2 Enc2 Setting (Optional)

The menu is similar to Enc1 Setting.

3.2.3 Enc3 Setting (Optional)

The menu is similar to Enc1 Setting.

3.2.4 Enc4 Setting (Optional)

The menu is similar to Enc1 Setting.

3.2.5 MUX Setting (Optional)

“Source 5-1” : User can select any encoder channel to output. If any channel is displayed in this menu, it means the channel would be multiplexed.

“Bitrate 5-2” : User can configure the system output bitrate. The range is from 2000 to 65000kbps.

“Packet Size 5-3” : User can choose the system output packet size. There are 3 types: 188, 204 FEC ON and 204 FEC OFF.

“TS ID 5-4” : User can configure the Transport Stream ID. The range is from 1 to 65535.

Note: For single channel encoder, there is no this menu.

3.2.6 IP1 Setting

“Source 6-1” : User can select the output source. There are 6 types of source: none, enc1, enc2, enc3, enc4 and mux. None means disable this ip output port.

“Source IP 6-2” : The local IP Address setting.

“Source Netmask 6-3” : Subnet Mask setting.

“Source Gateway 6-4” : Default Gateway setting.

“Source MAC 6-5” : Physical Address setting. It is a unique value in any network.

“Source Port 6-6” : The local IP port setting.

“Destination IP 6-7” : Destination IP Address setting. The device will auto send the TS data to this IP address.

“Destination Port 6-8” : Destination Port setting. The device will auto send the TS data to this port.

“Protocol 6-9” : There are 3 types of protocol: UDP, RTP and Pro-MPEG. If the protocol is Pro-MPEG, the next 2 menu would be valid.

“FEC Col Offset 6-10” : It is valid only the protocol is Pro-MPEG. By now, the range is from 4 to 16.

“FEC Col NA 6-11” : It is valid only the protocol is Pro-MPEG. By now, the range is from 4 to 16.

“IGMP 6-12” : Default is disabling. It’s useless in normal network.

3.2.7 IP2 Setting (Optional)

The menu is similar to IP1 Setting.

3.2.8 IP3 Setting (Optional)

The menu is similar to IP1 Setting.

3.2.9 IP4 Setting (Optional)

The menu is similar to IP1 Setting.

3.2.10 IP5 Setting (Optional)

The menu is similar to IP1 Setting.

3.2.11 Host IP Setting

“Host IP 11-1” : The host IP Address setting.

“Host Netmask 11-2” : Subnet Mask setting.

“Host Gateway 11-3” : Default Gateway setting. If your server which installed the head-end manager and the device are not in the same subnet, the device need transmit any data to server through the gateway.

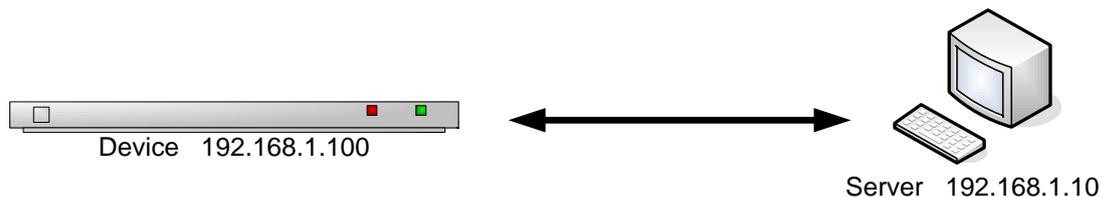
“Host MAC 11-4” : Physical Address setting. It is a unique value in any network.

“Server Address 11-5” : Server IP Address setting. The device will auto send the alarm info to this server.

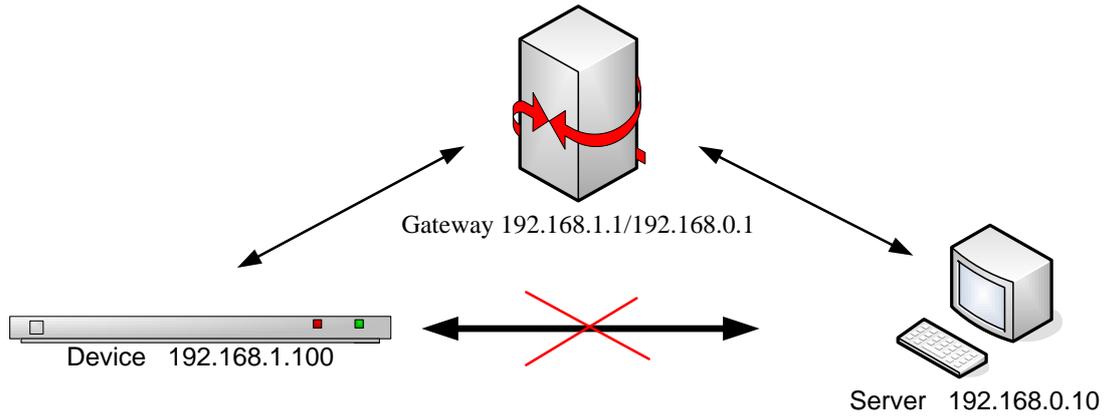
*Host IP means control port.

For examples:

1. The device and the server are in the same subnet:



2. The device and the server are not in the same subnet:



3.2.12 Advanced Setting

“Save Default 12-1” : Save the current configuration as default configuration.

“Load Default 12-2” : Recall the default configuration which has been saved.

“Restore initial 12-3” : Recall the original configuration which was configured by manufactory.

“Codec Version 12-4” : User can only browse the internal codec version.

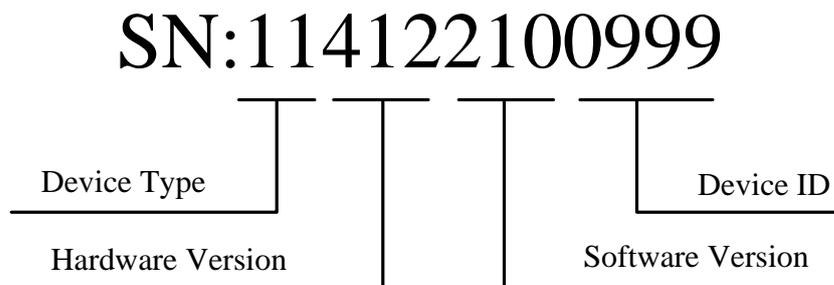
4. Operation

4.1 Operation via keyboard

Turn on the power switch after checking the system connections. The following information will be displayed on screen:

Model name & V2.10
SN:114122100999

The SN is the unique serial number of this product. The following chart displays the definition of SN.



The initial status of the keyboard is locked, and you have to unlock it before operation. To unlock it, please press "OK" key, "OK" key, "ESC" key and "ESC" key sequentially and promptly. The keyboard may also be locked after it has not been operated for a certain period of time.

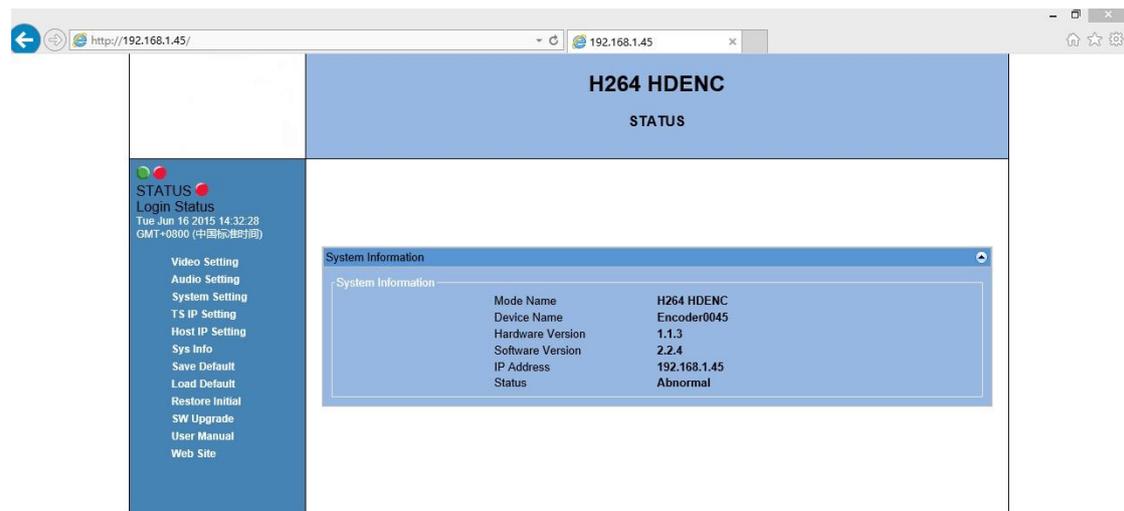
After unlocking, press "↑", "↓" keys to move around the main menu. Press "←", "→" keys to move around the sub-menu. Press "OK" key to enter the selected sub-menu. Press "OK" key to modify parameters of the selected item.

Available values of parameter will be flashing and can be selected by "←", "→" keys when you modify the item. In case of a continually changeable parameter, use "←", "→" keys to move the cursor and press "↑", "↓" keys to change the value. Press "ESC" key to give up the modification.

After modification, press "OK" key to confirm it.

4.2 Operation via Web Manager

Type the encoder's host IP address, the main frame will be showed in IE.

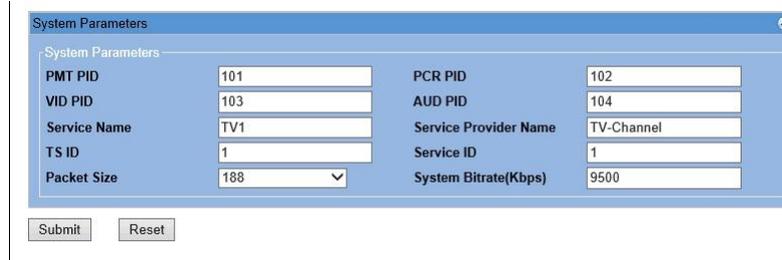


4.2.1 System Information

There is some basic system information in main frame, showed as Figure.

System Information	
Mode Name	H264 HDENC
Device Name	Encoder0045
Hardware Version	1.1.3
Software Version	2.2.4
IP Address	192.168.1.45
Status	Abnormal

4.2.2 System Setting

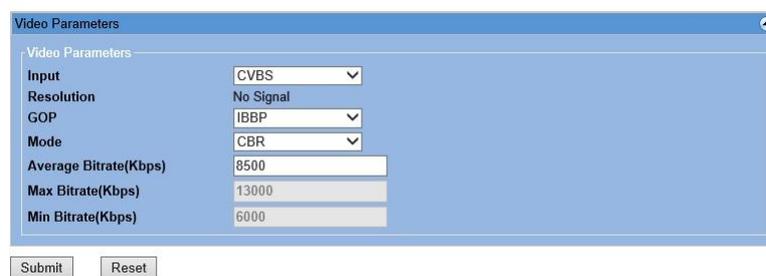


The screenshot shows a window titled "System Parameters" with a blue header. Below the header, there is a section labeled "System Parameters" containing several input fields and buttons. The fields are arranged in two columns. The left column includes: PMT PID (text input: 101), VID PID (text input: 103), Service Name (text input: TV1), TS ID (text input: 1), and Packet Size (dropdown menu: 188). The right column includes: PCR PID (text input: 102), AUD PID (text input: 104), Service Provider Name (text input: TV-Channel), Service ID (text input: 1), and System Bitrate(Kbps) (text input: 9500). At the bottom of the window, there are two buttons: "Submit" and "Reset".

System parameters include output system bitrate, packet length, basic PIDs, service name, service provider name, TS ID and service ID.

Service name and service provider name support up to 40 characters.

4.2.3 Video Setting



The screenshot shows a window titled "Video Parameters" with a blue header. Below the header, there is a section labeled "Video Parameters" containing several input fields and buttons. The fields are arranged in a single column. The fields are: Input (dropdown menu: CVBS), Resolution (text input: No Signal), GOP (dropdown menu: IBBP), Mode (dropdown menu: CBR), Average Bitrate(Kbps) (text input: 8500), Max Bitrate(Kbps) (text input: 13000), and Min Bitrate(Kbps) (text input: 6000). At the bottom of the window, there are two buttons: "Submit" and "Reset".

Video parameters include input port, resolution info, encode mode, GOP structure, and average bitrate. And resolution is only for display (up to 1080p), could not be edited.

There are 4 types of ports in video input list: CVBS, YPbPr, HDMI and SDI (also supports HD-SDI/3G-SDI)

There are 2 types of video mode: CBR and VBR. When user selects CBR, the video average bitrate means the real video bitrate. When user selects VBR, the video average bitrate means the average video bitrate. At the same time, max bitrate and min bitrate are enabling.

4.2.4 Audio Setting



The screenshot shows a window titled "Audio Parameters" with a blue header. Inside the window, there is a section labeled "Audio Parameters" containing four settings, each with a dropdown arrow:

Input	Analog
Format	MPEG-1 LayerII
Bitrate(Kbps)	384
Audio Gain	0dB

Below the settings are two buttons: "Submit" and "Reset".

Audio parameters include input port, bitrate, audio encode format, audio bitrate and audio gain.

There are 3 types audio input ports: Analog, HDMI and Embedded SDI.

Audio encode format only supports MPEG-1 Layer II and AC-3 pass-thru. For AAC version, it also supports AAC-LS

4.2.5 TS IP Setting



The screenshot shows a configuration window titled "TS IP Parameters". It contains the following fields and values:

Field	Value
Stream IP	192.168.1.194
Stream Gateway	192.168.1.1
Protocol	UDP
Destination Port	1233
Stream Netmask	255.255.255.0
Stream MAC Address	12-34-56-78-80-E3
Destination IP	192.168.1.238
IGMP	Disable

At the bottom of the window are "Submit" and "Reset" buttons.

This setting is only for TS IP output port.

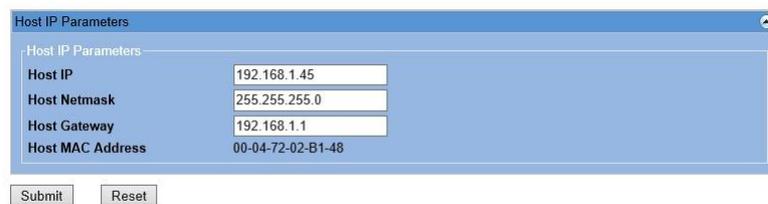
Stream IP: Local IP Address.

There are 2 types protocol: UDP and RTP.

Destination IP & Port: Destination IP address and IP port.

IGMP: The default parameter is Disable.

4.2.6 Host IP Setting



The screenshot shows a configuration window titled "Host IP Parameters". It contains the following fields and values:

Field	Value
Host IP	192.168.1.45
Host Netmask	255.255.255.0
Host Gateway	192.168.1.1
Host MAC Address	00-04-72-02-B1-48

At the bottom of the window are "Submit" and "Reset" buttons.

This setting is only for manager port.

Host IP: Local IP Address.

5. Technical specification

5.1 Surrounding specification

Surrounding specification	
Temperature Range	
Working Temperature	0°C~45°C
Storing Temperature	-20°C~70°C
Power Supply	100~240VAC, 47~63Hz
Power	<30W

5.2 Mechanical standard

Mechanical standard	
Height	44mm (IRU)
Width	482mm
Depth	330mm
Weight	About 3.5kg

5.3 Input interface

Input interface		
Channel 1	Video	CVBS, YPbPr, SDI/HD-SDI/3G-SDI, HDMI
	Audio	RCA, SDI, HDMI
Channel 2-4 (Optional)	Video	SDI/HD-SDI/3G-SDI, HDMI
	Audio	SDI, HDMI

5.4 Output interface

Output interface	
TS	2 ASI: 1 main port, 1 back-up port
IP	10/100/1000M Base-T, TS over IP

5.5 Video encoding

Video encoding	
Encoding technique	H.264/MPEG-4 – AVC HP@L4.2
Definition	1920x1080x60p/50p, 1920x1080x60i/50i, 1440x1080x60i/50i, 1280x720x60p/50p, 720x480x60i, 720x576x50i

5.6 Ethernet

Ethernet		
Control Port	Plug	RJ-45
	Type	100Base-T
TS Port	Plug	RJ-45
	Type	10/100/1000M Base-T