ANTIK technology

User's Manual

Brighten Your Digital View!

EN9200 / EN9400

Quad H.264 HD/SD MPEG-2 SD Encoder & Transcoder

P/N. 85E19-H0101 Rev: A

Contents

Notices

WARRANTY

This warranty does not cover parts which may become defective due to misuse of the information contained in this manual.
Read this manual carefully and make sure you understand the instructions provided. For your safety, be aware of the following precautions.

WARNING! IMPORTATNT SAFETY INSTRUCTIONS
CAUTION: TO REDUCE THE RISK OF ELECTRIC SHOCK, DO NOT REMOVE COVER (OR BACK). NO USER SERVICEABLE PARTS INSIDE. REFER SERVICING TO QUALIFIED SERVICE PERSONNEL.

WARNING

- To reduce the risk of fire or electric shock, do not expose this apparatus to rain or moisture.
- To avoid explosion danger, do not dispose of batteries in an open fire.

CE MARK FOR EUROPEAN HARMONISED STANDARDS

The CE mark which is attached to these products means it conforms to EMC Directive (89/336/EEC) and Low Voltage Directive (73/23/EEC).

IMPORTANT INFORMATION

Please retain the original packaging, should it be necessary at some stage to return the unit.

Disposal of Old Electrical and Electronic Equipment (Applicable in the European Union and other European countries with separate collection systems)

This symbol on the product or on its packaging indicates that this product shall not be treated as household waste. Instead it shall be handed over to the applicable collection point for the recycling of electrical and electronic equipment. By ensuring this product is disposed of correctly, you will help prevent potential negative consequences for the environment and human health, which could otherwise be caused by inappropriate waste handling of this product. The recycling of materials will help to conserve natural resources. For more detailed information about recycling of this product, please contact your local Civic Office, your household waste disposal service, or the shop where you purchased the product.

COPYRIGHTS

Television programs, movies, video tapes, discs, and other materials may be copyrighted. Unauthorized recording of copyrighted material may be against the copyright laws in your region. Also, use of this product with cable television transmissions may require authorization from the cable television operator or transmitter/owner.

VENTILATION

- Do not expose the product to high temperatures, such as placing it on top of other product that produce heat or in places exposed to direct sunlight or spot lights.
- The ventilation slots on top of the product must be left uncovered to allow proper airflow into the unit.
- Do not stand the product on soft furnishings or carpets.
- Do not stack electronic equipment on top of the product.
- Do not place the product in a location subject to extreme changes in temperature. The temperature gradient should be less than 10 degrees C/hour.
- Place the product in a location with adequate ventilation to prevent the build-up of heat inside the product. The minimum ventilation space around the unit should be 7 cm. The ventilation should not be impeded by covering the ventilation openings with items, such as newspapers, table cloth, curtains, etc.

POWER SOURCES

- The product is not disconnected from the AC power source (mains) as long as it is connected to the power outlet or wall socket, even if the product is turned off.
- If the product will not be used for a long period of time, disconnect it from the AC power outlet or wall socket.

Before Using the Device

Thank you for purchasing the EN9200 / EN9400 Quad Encoder/Transcoder. This User Manual is written for operators/users of the EN9200/9400 to assist in installation and operation. Please read this user manual carefully before installation and use of the device.

FOR YOUR SAFETY

This equipment is provided with a protective earthing ground incorporated in the power cord. The main plug shall only be inserted in a socket outlet provided with a protective earth contact. Any interruption of the protective conductor, inside or outside the device, is likely to make the device dangerous. Do not remove the covers of this equipment. Hazardous voltages are present within this equipment and may be exposed if the covers are removed. Only ANTIK Technology trained and approved service engineers are permitted to service this equipment.

The supplied AC power cable must be used to power the device. If the power cord becomes damaged it must be replaced. No operator serviceable parts inside. Refer servicing to ANTIK Technology trained, approved service engineers. For the correct and safe use of the device, it is essential that both operating and servicing personnel follow generally accepted safety procedures in addition to the safety precautions specified in this manual. Whenever it is likely that safety protection is impaired, the device must be made in-operative and secured against unintended operation. The appropriate servicing authority must be informed. For example, safety is likely to be impaired if the device fails to perform the intended measurements or shows visible damage.

WARNINGS

- The mounting environment should be relatively dust free, free of excessive vibration and the ambient temperature between 0°C to 40°C. Relative humidity of 20% to 80% (non-condensed) is recommended.
- Avoid direct contact with water.
- Never place the equipment in direct sunlight.
- The outside of the equipment may be cleaned using a lightly dampened cloth. Do not use any cleaning liquids containing alcohol, methylated spirit or ammonia etc.
- For continued protection against fire hazard, replace line fused only with same type.
- Air intake for cooling is achieved via holes at the side of the device and the fans inside. The air flow should not be obstructed. Therefore, the device has to be placed on a flat surface, leaving some space at the sides of the device.
- When in operation, the internal temperature should not exceed the limit of 70°C.

Quad H.264 HD/SD MPEG-2 SD Encoder & Transcoder

1 Overview

EN9200 / EN9400 is a series of four-channel H.264 HD/SD & MPEG-2 SD real time encoder/Transcoder. This blade type design integrates 4 independent encoders/transcoders, 1 reMultiplexer, 1 ASI_in, 1 ASI_out, 1 Gigabit (GbE) TS/IP port, and 4x CVBS or 4x HD-SDI or 4x HDMI AV input ports as factory hardware options by order. New MPTS could be generated with the built-in reMultiplexer from any combination of services among ASI_in, TS/IP_in and the local encoders. All models support transcoding function (see below). They accept an MPTS and transcode up to 4 TS inside and the final output is formed as an MPTS and/or 4 un-stuffed SPTS. The device is operated locally, either via a EN9200/EN9400 programmer unit or with the implemented web server via a web browser. A SNMP agent with the corresponding MIB is built in for the integration in a network management system. The device is controlled via a separate LAN connection, which has a separate IP address; thus, the device can also be accessed from a distance.

EN 9200 / EN 9400 series modules can be fitted into programmer (19" x 4RU, 8 slots, and Dual power supplies or 19"x 1RU, 2 slots, single power supply) chassis.

2 Features

- Compliant with H.264/AVC Baseline, Main & High Profile @ L4.0 or less & MPEG-2 MP@ML
- 4 independent AV inputs (SDI, HDMI, CVBS. Note: see Chapter 4. Order Information)
- Independent Encoding/Transcoding mode control
- Internal reMultiplexer, new MPTS is made up from ASI_in, TS/IP_in & Local Encoders
- MPTS remultiplexed and 4 local un-stuffed SPTS available over IP
- Video Input Resolution: 1080i, 720p, 576i, 480i (note: CVBS models support SD only, see Chapter 4. Order Information)
- Minimum Video Bit Rate 500Kb/s (Standard PAL or NTSC SD video, while total bit rate ~ 700Kb/s)
- Independent Vertical & Horizontal pixel scale
- Transcoding from MPEG2 to H.264/AVC & vice versa
- VBR & CBR mode for encoding/transcoding
- Audio coding: MPEG1 Layer II, MPEG2/4 AAC-LC (note: see Chapter 4. Order Information)
- SNMP & HTTP WEB for monitoring & control
- Fit to EN9200 / EN9400 programmer chassis

3 Technical Specifications

Video Input & compression Coding	
Video Input Interfaces	4x HDMI, 4x SDI, or 4x CVBS (note: see Chapter 4 Order Information)
Coding Profile & Level	H.264/AVC BLP, MP, HP @ L4.0 or less, MPEG-2 MP@ML (note: see Chapter 4 Order Information)
Sampling Format	4:2:0, 10-bit, YCbCr
Compression Bit Rate	600K~20Mbps
Video Resolution & Recommend Compression Bit Rate H.264	1080i（1920×1080）@25Hz,29.97Hz,30Hz:SMPTE274M: 1~20Mb/s 720p（1280×720）@25Hz,29.97Hz,30Hz:SMPTE296M: 1~20Mb/s 480i（720×480）@29.97Hz:SMPTE656M: 600K~10Mb/s 576i（720×576）@25Hz: SMPTE656M:600K~10Mb/s
Video Resolution & Recommend Compression Bit Rate MPEG 2	480i（720×480）@29.97Hz:SMPTE656M: 3.5~10Mb/s 576i（720×576）@25Hz: SMPTE656M: 3.5~10Mb/s
Video Resolution Down Scaling	Vertical & Horizontal adjustable respectively (frame rate is not scalable)
Aspect Ratio	4:3, 16:9 Selectable
Audio Input & Compression Coding	
Audio Input Interfaces	HDMI/SDI Embedded or Analog (note: see Model List)
Audio Codec	MPEG1 Layer II
	MPEG2 AAC-LC, MPEG4 AAC-LC
Sampling Rate	48KHz
Recommend Compression Bit Rate	MPEG1 Layer II :32~192Kbps(mono), 64~384Kbps(stereo),
	MPEG2 AAC-LC, MPEG4 AAC-LC :56~256Kbps(mono), 112~512Kbps(stereo)
Transcoding	
Input Standard	MPTS, MPEG2 MP@ML MP@HL, MPTS, H.264/AVC Main/High/Baseline Profile @ L4.0 or less (but not FMO, ASO & RS of Baseline)
Output Standard	MPTS and/or un-stuffed TS, MPEG2 MP@ML MPTS and/or un-stuffed TS, H.264/AVC Main/High/Baseline Profile @ L4.0 or less (but not include FMO, ASO & RS of Baseline)
DVB-ASI Input	
Input Interface	BNC Female, 75Ω
Maximum Bit Rate	100 Mb/s
Data Type	Byte
Packet Length	188/204 Bytes
Signal Level	200 ~ 880mVp-p
DVB-ASI Output	

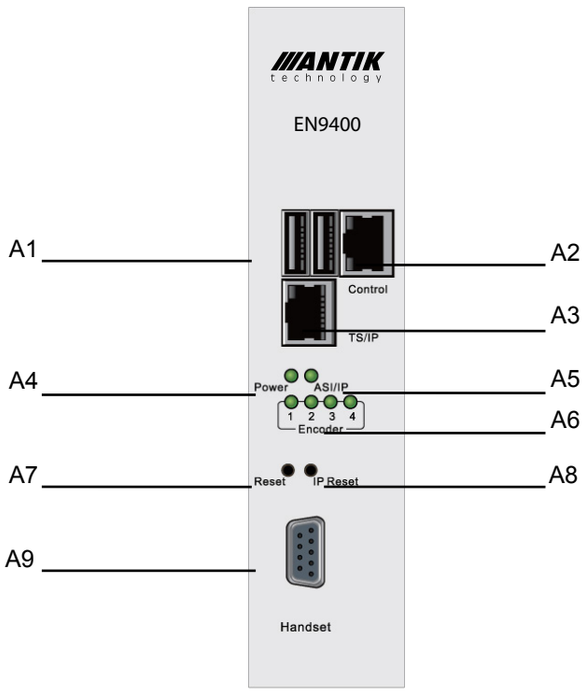
Input Interface	BNC Female, 75Ω
Effective Bit Rate	120Mb/s
Data Type	Byte
Packet Length	188/204 Bytes
Signal Level	800±80mV
TS/IP Gigabit Ethernet (note: see Model List)	
Standard	IEEE 802.3, 10/100/1000 Base-T
Maximum Effective Bit Rate	80Mb/s (note: Full Duplex mode) 200Mb/s (note: Multiple Output mode)
Encapsulation	SPTS or MPTS
Protocol	UDP, RTP, ICMP, ARP, IGMPv2
Rear Panel options	
ASI in	1 x BNC Female, 75Ω
SDI in	4 x BNC Female, 75Ω(EN9200 / EN9400, seee Model List)
HDMI In	4 x HDMI Socket, 75Ω (EN9200 / EN9400, see Model List)
CVBS In & Analog Audio In	2 x D-Sub15 (with D-Sub 15 to BNC female adapter cablings, total 4 sets of inputs, see Model List)
ASI out	2 x BNC Female, 75Ω (1 Backup)
Front Panel	
Control	1 x RJ-45, 10/100 Base-T
TS/IP	1 x RJ-45, 10/100/1000 Base-T
LED	1 x Power, 4 x Encoder Status, 1 x ASI/IP Status
IP Reset	Press for 5 second or more to return the default IP address of control port
Reset	Local reset
Others	
Power	DC 3.3V/5V/12V, from EN9200/EN9400
Operating Temperature	0 ~ 40˚C
Storage Temperature	-10 ~ 60˚C
Operating Humidity	10 ~ 90% (Non-condensed)

4 Order Information

Interface \ Mode		EN9200-S	EN9400-S	EN9200-H	EN9400-H	EN9200-C	EN9400-C
Input	HD/SD SDI with Embedded Audio	x4	x4				
	HDMI with Embedded Audio			x4	x4		
	CVBS& Analog Audio					x4	x4
TS Input	ASI	●	●	●	●	●	●
	TS/IP(GbE)	●	●	●	●	●	●
TS Output	ASI (1+1)	●	●	●	●	●	●
	TS/IP(GbE)	●	●	●	●	●	●
Audio AAC-LC Encoding		●		●		●	

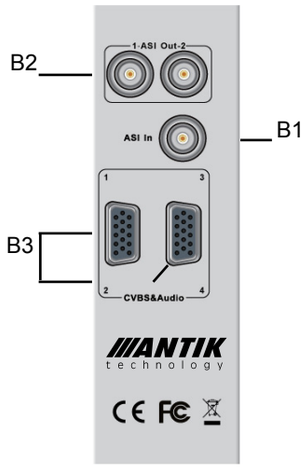
5 Front panel and rear panel instructions

5.1 Front panel

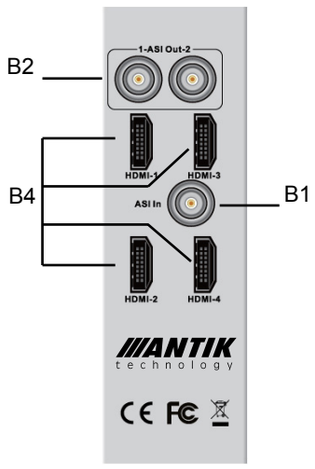


A1 USB	Used to upgrade software version of this device.
A2 Control	Network management interface for remote control.
A3 TS/IP	GbE Full Duplex interface for TS output and input.
A4 Power	Power LED indicator, green light means power supply is on.
A5 ASI/IP	ASI I/O and IP I/O Alarm indicator, green light means ASI I/O and IP I/O ports are running, red means either ASI I/O or IP I/O or both are malfunctioning.
A6 Encoder	4 LED indicators for 4 encoder/transcoder separately, in green means encoder/transcoder is running. Red means the corresponding encoder/transcoder(s) is (are) malfunctioning.
A7 Reset	Used to reset the device's settings.
A8 IP Reset	Used to reset the IP address to factory setting.
A9 Handset	Used to connect EN9200/EN9400 programmer handset unit for control.

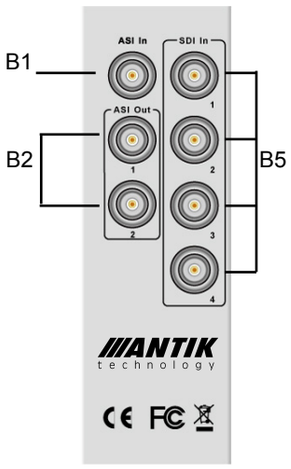
5.2 Rear panel of EN9200/EN9400



241xEC-C Rear Panel



241xEC-H Rear Panel



241xEC-S Rear Panel

B1 ASI IN	ASI input interface
B2 ASI OUT	2 ASI output interface (output in mirror)
B3 CVBS IN	4 SDI input interface
B4 HDMI	4 HDMI input interface
B5 HD-SDI IN	4 SDI input interface

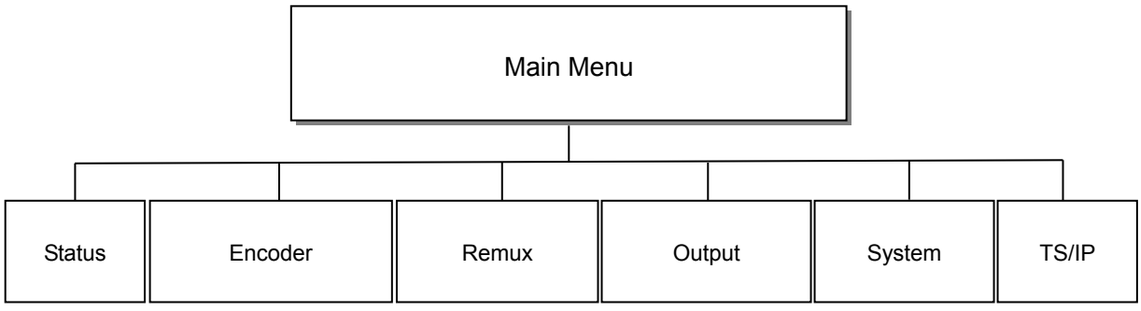
6 Operation instructions using EN9200/EN9400 programmer

NOTE: The EN9200/EN9400 Programmer is a universal programmer unit for ANTIK's EN product family. EN9200/EN9400 programmer is a standalone product and not included in the package of EN9200/9400, please contact your sales agency for more information.

6.1 Overview of the Menu

Users are advised to restore factory setting of the machine before the first time using it. Because of machine's too many functions, users are advised not to change those temporarily useless parameters in order to avoid unnecessary fault.

After power on, the Local IP address will be shown on the LCD of EN9200/EN9400 programmer. User can press〔ENTER〕to get into the main menu.



(1) Status: show the status of the device
(2) Encode: Configure and monitor parameters of encoding/transcoding
(3) Remux: Configure and monitor parameters of TS re-multiplexing procedure
(4) Output: Configure and monitor parameters of TS output
(5) System: Configure the local settings of the device
(6) TS/IP: Configure the settings for the TS/IP interface

6.2 Description of menu

Main Menu	Sub-Menu	Description	Factory Default Value
Status	ASI Input Bit rate	Display the input ASI signal bit rate	
	TS/IP Input Bit Rate	Display the TSoverIP input bit rate	
	Encoder 1 Bit Rate	Display encoder/transcoder 1 bit rate	
	Encoder 2 Bit Rate	Display encoder/transcoder 2 bit rate	
	Encoder 3 Bit Rate	Display encoder/transcoder 3 bit rate	
	Encoder 4 Bit Rate	Display encoder/transcoder 4 bit rate	

	ASI Out Bit Rate	Display ASI output bit rate	
	TS/IP Out Bit Rate	Display the TSoverIP output bit rate	
	Video 1 Input Format	Display the video format of input port 1	
	Video 2 Input Format	Display the video format of input port 2	
	Video 3 Input Format	Display the video format of input port 3	
	Video 4 Input Format	Display the video format of input port 4	
	Alarm	**En1 Work Error**: Encoder/Transcoder 1 function faulty **En2 Work Error**: Encoder/Transcoder 2 function faulty **En3 Work Error**: Encoder/Transcoder 3 function faulty **En4 Work Error**: Encoder/Transcoder 4 function faulty **TS/IP Input Unlock**: TSoverIP input invalid **ASI Input Unlock**: ASI input invalid	
Encoder	Encoder Select	**Encoder Select:** **Encoder 1:** the encoder/transcoder 1 is active for configuration **Encoder 2:** the encoder/transcoder 2 is active for configuration **Encoder 3:** the encoder/transcoder 3 is active for configuration **Encoder 4:** the encoder/transcoder 4 is active for configuration	
	Encode Start out	**Encode Start :** **Enter=Yes:** the settings will be applied to the selected encoder/transcoder, and start it to encode/transcode. **Exit=No:** cancel the settings to the selected encoder/transcoder, which will keep the previous status	
	Video Settings	**Video Rate Ctl:** **CBR:** set constant bit rate mode **VBR:** set variable bit rate mode **Input Video Format:** 1280x720p 50 / 1280x720p 29.97/1280x720p 25 / 720x480i 29.97 /720x576i 25/ 1920x1080i 29.97 / 1920x1080i 25 Z **Video Bit Rate:** **0~99699Kb/s:** set the video bit rate	Video Rate Ctl: VBR Input Video Format: 1280x720p 50 Video Bit Rate: 7000Kb/s

Aspect Ratio: **4:3:** set video aspect ratio to 4:3 **16:9:** set video aspect ratio to 16:9	Aspect Ratio: 4:3
Video Max Bit Rate: set the maximum video bit rate	Video Max Bit Rate:10000Kb/s
Video Min Bit Rate: set the minimum video bit rate	Video Min Bit Rate:0000Kb/s
GOP Size: **0-63:** set the GOP size, valid range from 0-63. Note the bigger the value, better the compression ratio (for video) but longer the latency of encoding.	GOP Size:61
GOP Structure: **IBBBP/IBBP/IPPP/IBP:** set the structure of GOP	GOP Structure: IBBBP
GOP Adaptive: **ON:** GOP structure and size is adaptive and may change according to different video scenes **OFF:** GOP structure and size is fixed as the settings	GOP Adaptive: ON
Output Video Format: **Auto Settings:** video resolution and frame rate will be same as input **Manual Settings:** **Horizontal:** set the resolution in horizon **Vertical:** set the resolution in vertical	Output Video Format: Auto Settings Horizontal:1280 Vertical:720
Frame Format: **Progressive:** set the progressive scanning to the output video **Interlaced:** set interlaced scanning to the output video	Frame Format: Progressive
Image Settings: (the menu is displayed on EN9200 / EN9400) **Saturation Control:** set the saturation of the picture, valid range -100~+100 **Hue Control:** set the hue of the picture, valid	Saturation Control: 0 Hue Control: 0

	range 0~255 **Brightness Control:** set the brightness of the picture, valid range -100~+100 **Contrast Control**: set the contrast of the picture, valid range -100~+100	Brightness Control: 0 Contrast Control: 0
Audio Settings	**Audio Format:** **MPEG1 Layer2:** set the audio compression format MPEG-1 Layer II **Audio Bit Rate:** 128k bps /160k bps /192k bps /224k bps /256k bps /320k bps /384k bps /32k bps /48k bps /56k bps /64k bps /80k bps /96k bps /112k bps **Audio Channel Mode:** **Stereo:** set stereo mode **Mono:** set mono mode. NOTE: only Left audio channel will be encoded **Audio Level:** **+16dB~-17dB:** set the gain of output volume **Mute:** mute the output audio **Audio SDI EMB:** (the menu is displayed on EN9200 / EN9400) **EMB1/EMB2/EMB3/EMB4:** select the group of embedded audio from input SDI signal	Audio Format: MPEG1 Layer2 Audio Bit Rate: 64 Kbps Audio Channel Mode: Stereo Audio1 Level: 0dB Audio SDI EMB:EMB1
Encoder Bit Rate	**Encoder Bit Rate:** set the output bit rate of the selected encoder/transcoder. Encoder bit rate must greater than the sum of video bit rate + audio bit rate + PSI (150Kbps) + buffering (100Kbps) + encoder error (150Kbps)	Encoder Bit Rate: 13700Kb/s
Advanced Settings	**Output PMT PID:** set PMT PID, valid range from 32 to 8190 decimal	Output PMT PID: 43
	Output Video PID: set Video PID, valid range from 32 to 8190 decimal	Output Video PID: 4001
	Output Audio PID: set audio PID, valid range from 32 to 8190 decimal	Output AudioPID:4002
	Output Service PID: set Service PID, valid from 32 to 8190 decimal	Output Service PID:4000
	Output PCR PID: set PCR PID, valid range from 32 to 8190 decimal	Output PCR PID:8004
	Output Service Name: set the service name	Output Service Name: H.264 HDTV Encoder

		Service Provider Name: set the service provider name. The service name should be less than 24 characters	
		Null Filter: **On:** filter away the null packages **Off:** the service is stuffed with null packages Note Null packet is essential for DVB applications, don't remove them.	Null Filter: On
	Encode Mode	**Encode Mode:** **H.264:** the selected encoder/ transcoder is set to H.264 SD/HD Encoder **MPEG-2:** the selected encoder/ transcoder is set to MPEG-2 SD Encoder **MPEG-2 to H264:** the selected encoder/ transcoder is set to MPEG-2 to H.264 Transcoder **H264 to H264:** the selected encoder/ transcoder is set to H.264 to H.264 Transcoder **H264 to MPEG-2:** the selected encoder/ transcoder is set to H.264 to MPEG-2 SD Transcoder **MPEG-2 to MPEG-2:** the selected encoder/ transcoder is set to MPEG-2 to MPEG-2 SD Transcoder	
	Input Program List	**Input: the menu is active only when Transcoder mode is selected** **ASI:** select one service from ASI input for transcoding **IP:** select one service from IP input for transcoding	
	Transcoder Audio PID	User has to key in manually the Audio PID that need to be paired with the transcoded video, the inputted audio can be independent from the video before transcoding.	
Remux	Program List	**Program List:** select the programs to remux. Click on Enter to select, double click to cancel. (The program(s) will be marked with an asterisk (*) once be selected) **ASI Input:** select the program(s) inputted via ASI input port. **IP Input:** select the program(s) inputted via IP input port. (Note: this sub-menu is displayed only when the IP I/O is configured as full-duplex mode.)	Encoder Video 1 > Service ID 1000 Encoder Video 2 > Service ID 2000 Encoder Video 3 > Service ID 3000 Encoder Video 4 >

		Encoder 1: select the SPTS from encoder/ transcoder 1 **Encoder 2:** select the SPTS from encoder/ transcoder 2 **Encoder 3:** select the SPTS from encoder/ transcoder 3 **Encoder 4:** select the SPTS from encoder/ transcoder 4	Service ID 4000
	TS ID	**TS ID:** key in the TSID of the newly generated MPTS, valid range from 0 to 65535 decimal	TS ID:00016
	Output Bit Rate	**Output Bit Rate:** key in the bit rate of the newly generated MPTS, valid range from 0~99999 Kb/s	Output Bit Rate:6000Kb/s
	Remux	**Remux:** **Enter=Yes:** press Enter to remux **Exit=No:** press Exit to cancel	
	Remux Source	**Remux Source:** configure the TS source for the built-in remux. **ASI:** set ASI input as the source of the built-in remux. **IP:** set IP input as the source of the built-in remux. (Note: this sub-menu is displayed only when the IP I/O is configured as full-duplex mode.)	
Output	ASI Out Source	**ASI Out Source:** configure the TS source for ASI output port. **Remux:** the TS generated by the built-in remux will be delivered to the ASI output port. **ASI Input:** the TS inputted via ASI input will be looped through via the ASI output port. **Encoder 1:** the SPTS generated by encoder/ transcoder 1 will delivered to the ASI output port. **Encoder 2:** the SPTS generated by encoder/ transcoder 2 will delivered to the ASI output port. **Encoder 3:** the SPTS generated by encoder/ transcoder 3 will delivered to the ASI output port. **Encoder 4:** the SPTS generated by encoder/ transcoder 4 will delivered to the ASI output port.	ASI Out Source: Remux

	TS/IP Out Source	**TS/IP Out Source:** configure the TS source for IP output port. **Remux:** the TS generated by the built-in remux will be delivered to the IP output port. **ASI Input:** the TS inputted via ASI input will be looped through via the IP output port. **Encoder 1:** the SPTS generated by encoder/ transcoder 1 will delivered to the IP output port. **Encoder 2:** the SPTS generated by encoder/ transcoder 2 will delivered to the IP output port. **Encoder 3:** the SPTS generated by encoder/ transcoder 3 will delivered to the IP output port. **Encoder 4:** the SPTS generated by encoder/ transcoder 4 will delivered to the IP output port.	TS/IP Out Source: ASI Input
System	Local Setting	**IP Address:** set the IP address of the 9200/9400, valid range from 0.0.0.0~255.255.255.255 **Subnet Mask:** set the net mask of the 9200/9400, valid range from 0.0.0.0~255.255.255.255 **Gateway:** set the gateway of the 9200/9400, valid range from 0.0.0.0~255.255.255.255 **MAC Address:** to display the MAC address of the 9200/9400.	IP Address: 10.10.70.48 Net Mask: 255.255.255.0 Gateway: 10.10.70.1
	Remote Setting	**Trap IP Address:** set the IP address of the SNMP Trap server, valid range from 0.0.0.0~255.255.255.255	Trap IP Address:10.10.70.25
	Product Name	**Edit Product name:** user allows to rename the unit, press Enter and key in the name of the unit, then press Enter to confirm the setting or press Exit to cancel.	
	Software Version	**Software Version display:** display the software version	
	Factory Default	**Factory Default:** **Enter: Yes:** press Enter to recall the factory default settings. **Exit: No:** press Exit to cancel	Note: the IP address of the device is not reset to the factory setting! While press the button “A8-IP Reset” via the front panel, the IP address is reset to the factory setting (10.10.70.48).
	SN	**SN display:** display the serial number of the unit	
	WEB Login ID	**Edit Login ID:** press Enter and key in the login	Edit Login ID: root

		ID for WEB management	
	WEB Login Password	**Edit Login Password:** press Enter and key in the password for WEB management	Edit Login Password: 12345
	LED Alarm Switch	**LED Alarm Switch:** **ASI Alarm:** switch on/off the alarm for ASI input **TS/IP Alarm:** switch on/off the alarm for TS/IP input **Encoder1 Alarm:** switch on/off the alarm for encoder/ transcoder 1 **Encoder2 Alarm:** switch on/off the alarm for encoder/ transcoder 2 **Encoder3 Alarm:** switch on/off the alarm for encoder/ transcoder 3 **Encoder4 Alarm:** switch on/off the alarm for encoder/ transcoder 4	ASI Alarm: OFF TS/IP Alarm: OFF Encoder1 Alarm: ON Encoder2 Alarm: ON Encoder3 Alarm: ON Encoder4 Alarm: ON
	Gigabit Mode	**Gigabit Mode:** **Multiple Output:** the IP I/O is configured as multiple uni/multicast output mode, which delivers up to five streams over IP. There are four stuffed or un-stuffed SPTS (lower bit rate but less PCR accurate than normal SPTS, from local encoders) and one MPTS (from internal reMultiplexer) over the IP with different Unicast or Multicast IP addresses. **Full Duplex:** the IP I/O is configured as full duplex mode, which allows only one MPTS or SPTS over IP input and output in uni/multicast at the same time.	Gigabit Mode: Multiple Output
TS/IP (Gigabit Mode: Multiple Output)	Gigabit Output: Encoder 1 Channel Encoder 2 Channel Encoder 3 Channel Encoder 4 Channel TS/IP Channel	**Uni/Multi IP Address:** set the destination IP address for the IP output	Uni/Multi IP Address: 238.069.070.001
		Uni/Multi UDP Port: set the destination port number, valid range from 1~65535	Uni/Multi UDP Port: 01234
		Gigabit Out Switch: **ON/OFF:** to switch on/off the uni/multicast output	Gigabit Out Switch: ON
	Gigabit Local	**Gigabit Address:** set the IP address of the IP port	IP Board IP Address:10.10.80.60
		Gigabit Subnet Mask: set the net mask of the IP port	IP Board Net Mask:255.255.255.0
		Gigabit Gateway: set the gateway of the IP port	IP Board Gateway:10.10.80.1
		Gigabit MAC Address: display the MAC address of the IP port	IP Board MAC Address:

		Protocol: **UDP:** set UDP protocol to IP output **RTP:** set RTP protocol to IP output	Protocol: UDP
		TS Pkts Per UDP: set the number of TS packets that can be carried by each UDP packet, valid range from 1~7	TS Pkts Per UDP: 7
		Time To Live: set TTL to the output IP packets, valid range from 1~255	Time To Live: 255
		Type Of Service: Min Delay/Max Reliability/Max Throughput/Min Monetary Cost/Normal	Type Of Service: Min Delay
		Gateway MAC Address: set the MAC address of the gateway under which the unit is connected	Gateway MAC Address: ff:ff:ff:ff:ff:ff
TS/IP (Gigabit Mode: Full Duplex)	Gigabit Status	**Link Status:** **Linked 1000M:** the IP interface is well linked **Disconnect:** the IP interface is disconnected	
	Gigabit Output	**Gigabit Out Switch: Enable/Disable**	Gigabit Out Switch: ON
		Gigabit Out Status: UDP Packets/s 3610/Column FEC Pkts/s/Row FEC Pakts/s	Gigabit Out Status: UDP Packets/s 3610/Column FEC Pkts/s/Row FEC Pakts/s
		Protocol: **UDP:** set UDP protocol to IP output **RTP:** set RTP protocol to IP output	Protocol: UDP
		TS Pkts Per UDP: set the number of TS packets that can be carried by each UDP packet, valid range from 1~7	TS Pkts Per UDP: 7
		Time To Live: set TTL to the output IP packets, valid range from 1~255	Time To Live: 1~255
		Type Of Service: Min Delay/Max Reliability/Max Throughput/Min Monetary Cost/Normal	Type Of Service: Min Delay
		Uni/Multi IP Address: set the destination IP address	Uni/Multi Addres:238.069.070.001
		Uni/Multi UDP Port: set the destination port number, valid range from 1~65535	Uni/Multi UDP Port: 01234
		ProMPEG FEC Switch: Enable/Disable	ProM PEGFEC Switch:Disable
	Gigabit Local	**Gigabit Address:** set the IP address of the IP port	Gigabit Adress: 010.010.080.060

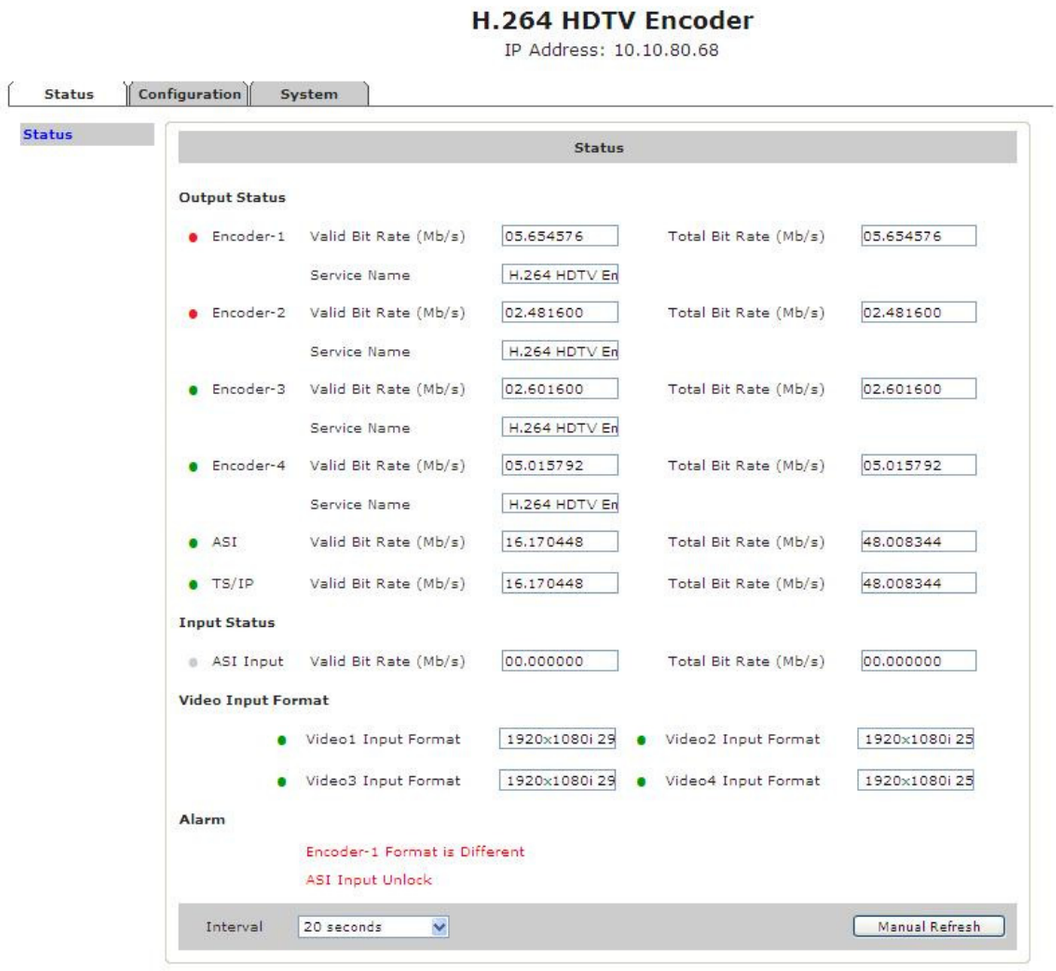
		Gigabit Subnet Mask: set the net mask of the IP port	Gigabit Subnet Mask: 255.255.255.000
		Gigabit MAC Address: display the MAC address of the IP port	
		Gigabit Gateway: set the gateway of the IP port	Gigabit IP Gateway: 010.010.080.001
		Gateway MAC Address: set the MAC address of the gateway under which the unit is connected	Gateway MAC Address: ff:ff:ff:ff:ff:ff
	Gigabit Input	**Gigabit Input Status:** **Lock:** the IP interface is well linked and there is valid IP input **Unlock:** the IP interface is linked but no valid IP input.	
		Uni/Multi Address: set the uni/multicast target address of the IP input	Uni/Multi Addres:238.069.070.002
		Uni/Multi UDP Port: set the target port number of the uni/multicast IP input, valid range from 1~65535	Uni/Multi UDP Port: 01234
		Column FEC UDP Port: set the port for Column FEC	Column FEC UDP Port: 01236
		Row FEC UDP Port: set the port for Row FEC	Row FEC UDP Port: 01238
		TS Clock Recovery: **Auto:** it is suggested to set Auto when there is accurate PCR carried by the inputted TS/IP **Fixed Rate:** when fixed rate is selected, user has to configure a bit rate to regenerate the TS clock. The configured fixed bit rate has to be a little bit higher than the bit rate of the inputted TS/IP.	TS Clock Recovery: Auto

7. Web Control

EN 9200 / EN 9400 has an integrated web server. This web server allows the configuration and status requests with a standard web browser. To operate a EN9200 / EN9400 unit, first make sure the IP Control (A2) port is well connected in the network and could be pinged by the host PC, and then enter the IP address of the EN9200 / EN9400 into the browser, there will be a pop-up showed asking for login user and password. After login the device can be operated. The default user name and password are respectively “root” and “12345”. The username and password can be changed by user via EN9200/9400 programmer unit or via submenu under the system page. If the username and password are forgotten, user have to use a EN9200/9400 to retrieve or set a new one.

7.1 Status

Via the status page, user can have an overview of the current status of the connected EN9200 / EN9400.



7.2 Configuration

All configuration for encoding/transcoding, TS/IP I/O, built-in Remux and output can be found under the Configuration tab on the webpage. Click the button "Apply" to submit your configuration or click the button "cancel" to undo your configuration, as it shown in figure below.

7.2.1 Encoder-1~4

There are four encoder/ transcoder functional blocks integrated on one EN9200 / EN9400 blade, each functional block can work independently. Click on the Encoder-1 to configure the block 1, and so on.

Work Mode: each encoder/ transcoder functional block can be configured as different operation mode

independently.

H.264*:* the current encoder/ transcoder is set to H.264 SD/HD Encoder

MPEG-2: the current encoder/ transcoder is set to MPEG-2 SD Encoder

MPEG-2 to H264: the current encoder/ transcoder is set to MPEG-2 to H.264 Transcoder

H264 to H264: the current encoder/ transcoder is set to H.264 to H.264 Transcoder

H264 to MPEG-2: the current encoder/ transcoder is set to H.264 to MPEG-2 SD Transcoder

MPEG-2 to MPEG-2: the current encoder/ transcoder is set to MPEG-2 to MPEG-2 SD Transcoder

Encoder Bit Rate: set the output bit rate of the current encoder/transcoder. Encoder bit rate must greater than the sum of video bit rate + audio bit rate + PSI (150Kbps) + buffering (100Kbps) + encoder error (150Kbps), valid range from 300 to 99999Kb/s

Video Bit Rate: set the video bit rate. The setting is valid only when the Video Rate Ctl is CBR.

Video Max Bit Rate: set the maximum video bit rate. The setting is valid only when the Video Rate Ctl is VBR.

Video Min Bit Rate: set the minimum video bit rate. The setting is valid only when the Video Rate Ctl is VBR.

GOP Size: set the GOP size, valid range from 0-63. Note the bigger the value, better the compression ratio (for video) but longer the latency of encoding.

GOP Structure: set the structure of GOP. Optional structure is listed in the drop-down list.

GOP Adaptive: switching on the GOP adaptive, the GOP size and structure may variable according to the dynamic video scenes.

Input Video Adaptive: the setting is valid only for encoding mode. ON: the encoder will detect the input video format automatically, when the input video format changes, the encoder will follow the change. OFF: the encoder must be assigned an input video format manually, when the input video format changes, the encoder will not follow the change, user has to re-assign the correct input video format manually.

Audio SDI EMB: select the group of embedded audio from input SDI signal.

Sound Mode: set the audio in stereo or mono. NOTE: only Left audio channel will be encoded when Mono mode is on.

Output PMT PID: set PMT PID, valid range from 32 to 8190 decimal

Output Video PID: set Video PID, valid range from 32 to 8190 decimal

Output Audio PID: set audio PID, valid range from 32 to 8190 decimal

Output Service PID: set Service PID, valid from 32 to 8190 decimal

Output Service Name: set the service name for the encoded/transcoded channel. The length should be less than 24 characters

Output PCR PID: set PCR PID, valid range from 32 to 8190 decimal

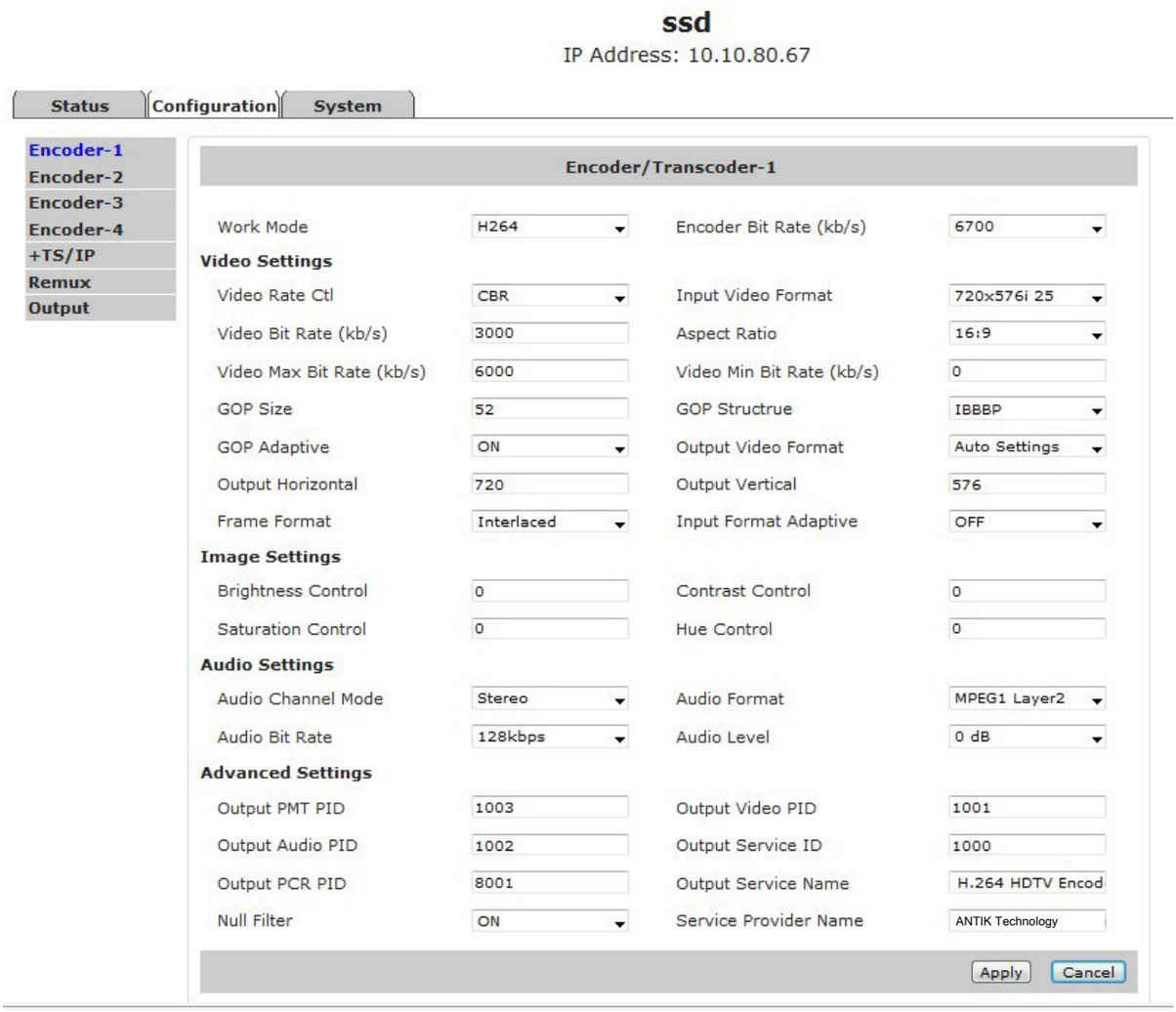
Null Filter: switch on to filter away the null packages, or so called “unstuffed” stream will be sent out via TS/IP or ASI output port. Switch off to keep the null packages within the stream, or so called “stuffed” stream will be sent out via TS/IP or ASI output port. By removing the null packets to have lower bit rate but less PCR accurate than normal SPTS. Note: the Null packet is essential for DVB

applications, don't remove them.

Transcoder Program: under transcoder operating mode, select the program that to be transcoded in the drop down list. Note the selection is valid to the video only, the paired audio should be selected in "Transcoder Audio PID".

Transcoder Audio PID: under transcoder operating mode, select the audio PID that to be transcoded in the drop down list, note the audio PID can be anyone from the ASI or IP input but not to be banded with the video.

Quick Guide: it is recommended to set CBR mode and switch off the GOP Adaptive to have a relative constant output bit rate in an allocated bandwidth to avoid potential overflow.



7.2.2 TS/IP

All models provide two TS/IP operation modes. The first is "Full Duplex", which allows one MPTS or

SPTS inputted to make up a new MPTS with local encoders, then sends the new one over IP & ASI_out. In the second mode “Multiple output” which delivers up to five streams over IP. There are four stuffed or un-stuffed SPTS and one MPTS (from internal reMultiplexer) over the IP with different Unicast or Multicast IP addresses. To change the TS/IP operation mode, please refer to chapter 7.3.1 System-Device. The management interface is different under two operation mode.

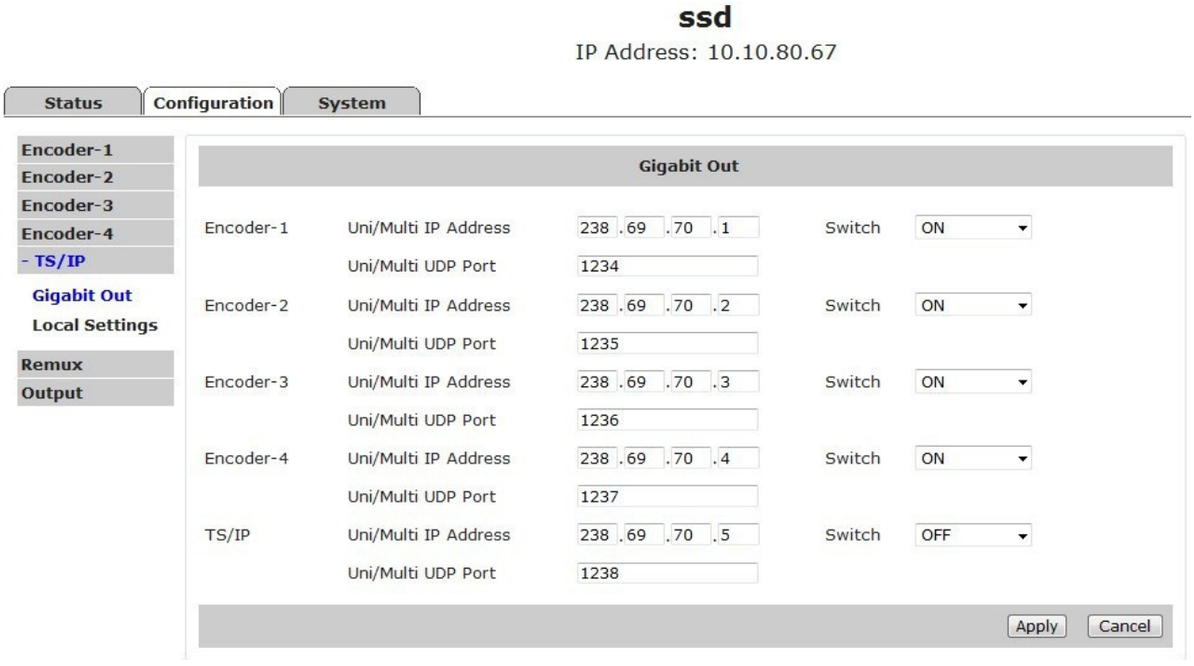
Multiple Output Mode

Gigabit Output

Under multiple output operation mode, user can give five different uni/multicast destination addresses and port number to each encoder/transcoder and the built-in remux, and each IP output can be switched ON/OFF independently. The source for TS/IP output 1-4 is corresponding to the encoder/ transcoder 1-4 respectively and cannot be changed.

The default source for TS/IP output (the 5th uni/multicast output) is the built-in remux. To change the source, please refer to ***chapter 7.2.4 Configuration-Output***.

(Note: the page below is displayed only when the TS/IP operation mode is Multiple Output mode. To change the TS/IP operation mode, please refer to ***chapter 8.3.1 System-Device***.)

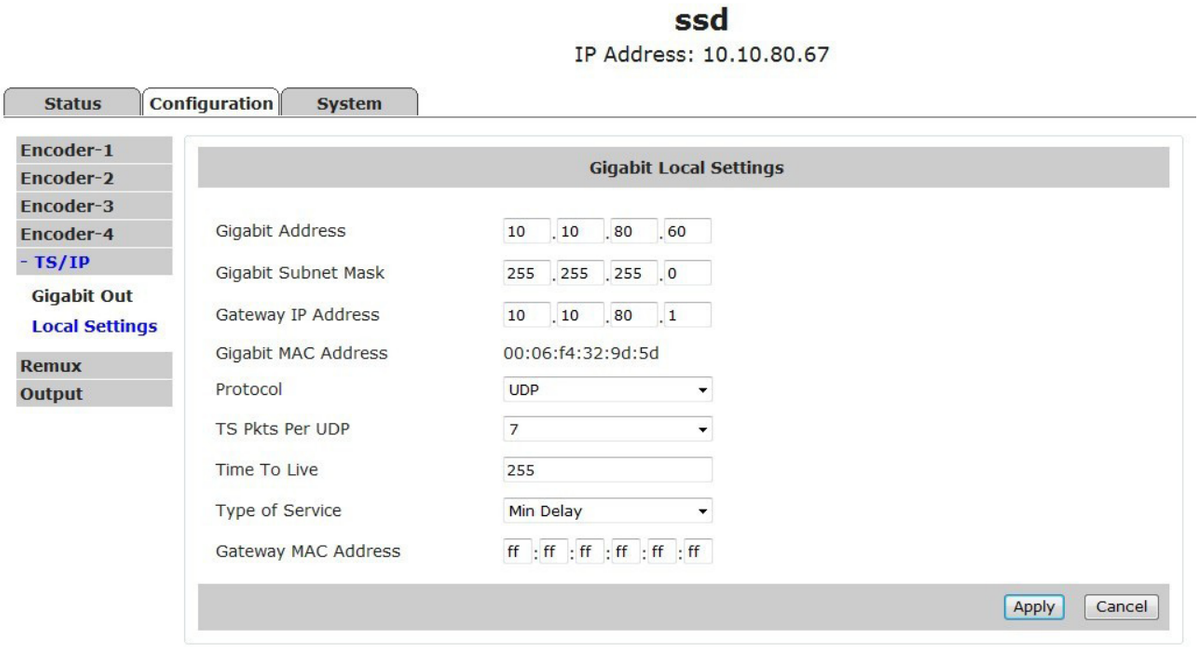


Local Settings

Set the parameters for the TS/IP output port.

Note: the Gateway MAC address means the MAC address of the gateway under which the device is connected. This parameter has to be configured when the TS/IP output is delivered to a destination

that is not located under the same subnet.

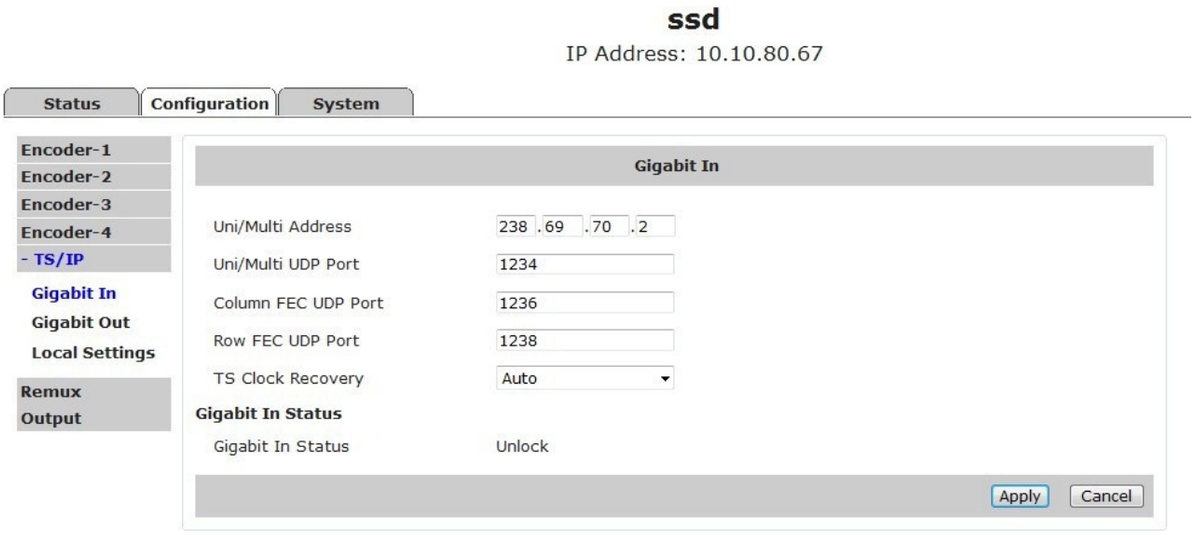


Full-duplex Output Mode

Gigabit Input

Under full-duplex operation mode, the device supports single uni/multicast reception. Set the uni/multicast targe IP address and port number in the page. The Column and Row FEC UDP ports have to be configured if Pro-MPEG protocol is used in the IP signal inputted.

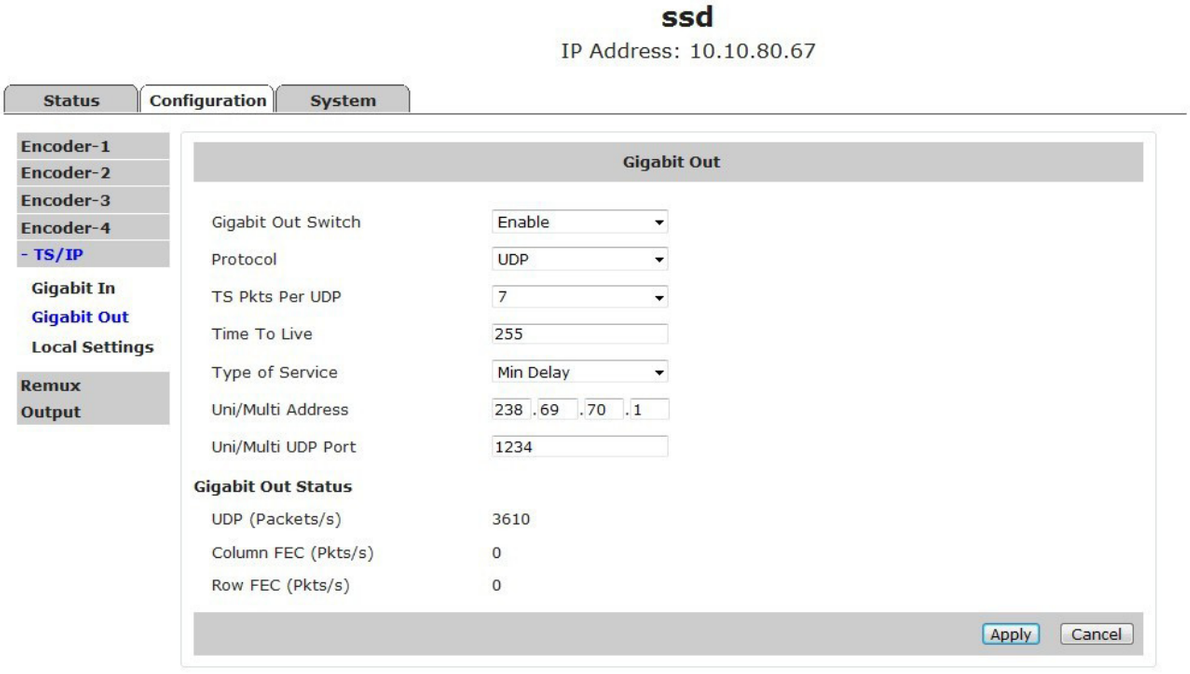
(Note: the page below is displayed only when the TS/IP operation mode is Full-duplex mode. To change the TS/IP operation mode, please refer to ***chapter 7.3.1 System-Device***.)



Gigabit Output

Under full-duplex operation mode, the device supports single uni/multicast output. The default source for TS/IP output is the built-in remux. To change the source, please refer to ***chapter 7.2.4 Configuration-Output***.

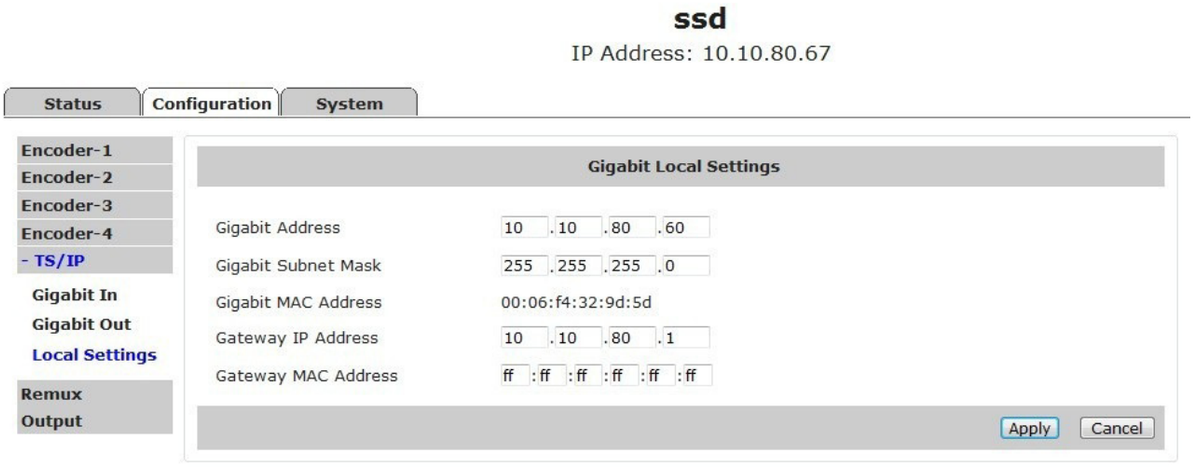
(Note: the page below is displayed only when the TS/IP operation mode is Full-duplex mode. To change the TS/IP operation mode, please refer to ***chapter 7.3.1 System-Device***.)



Local Settings

Set the parameters for the TS/IP output port.

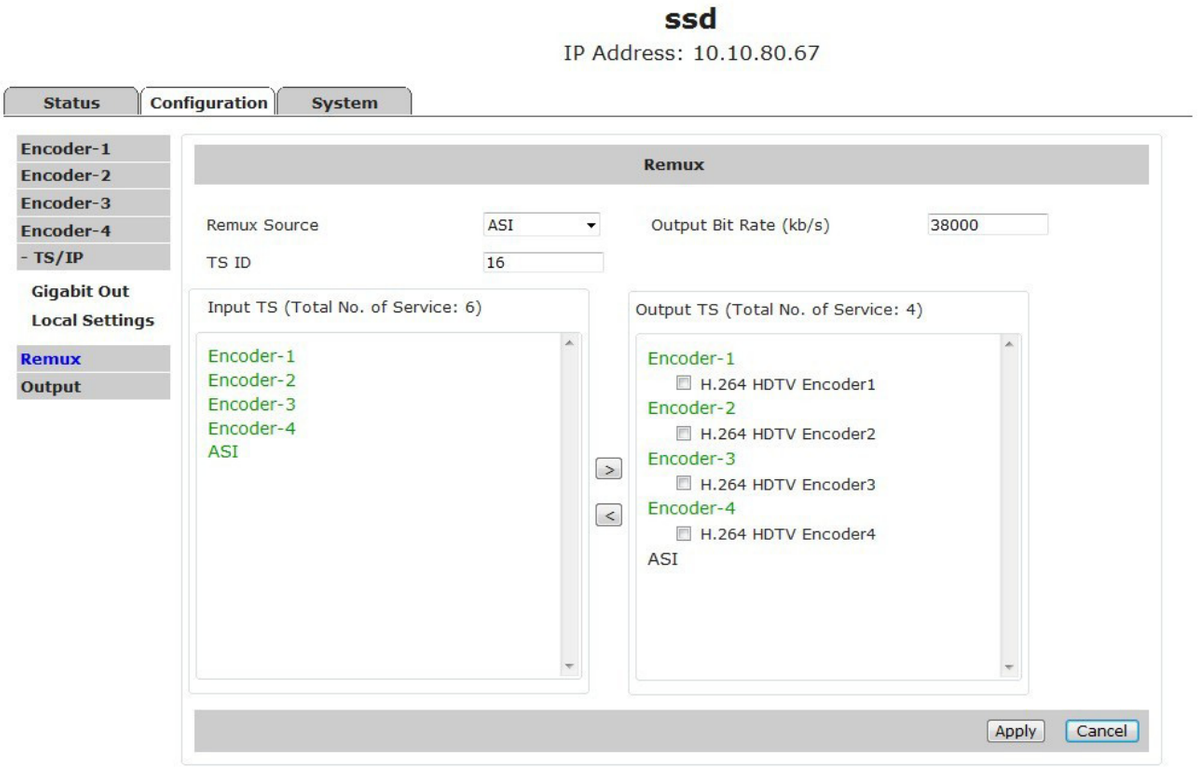
Note: the Gateway MAC address means the MAC address of the gateway under which the device is connected. This parameter has to be configured when the TS/IP output is delivered to a destination that is not located under the same subnet.



7.2.3 Remux

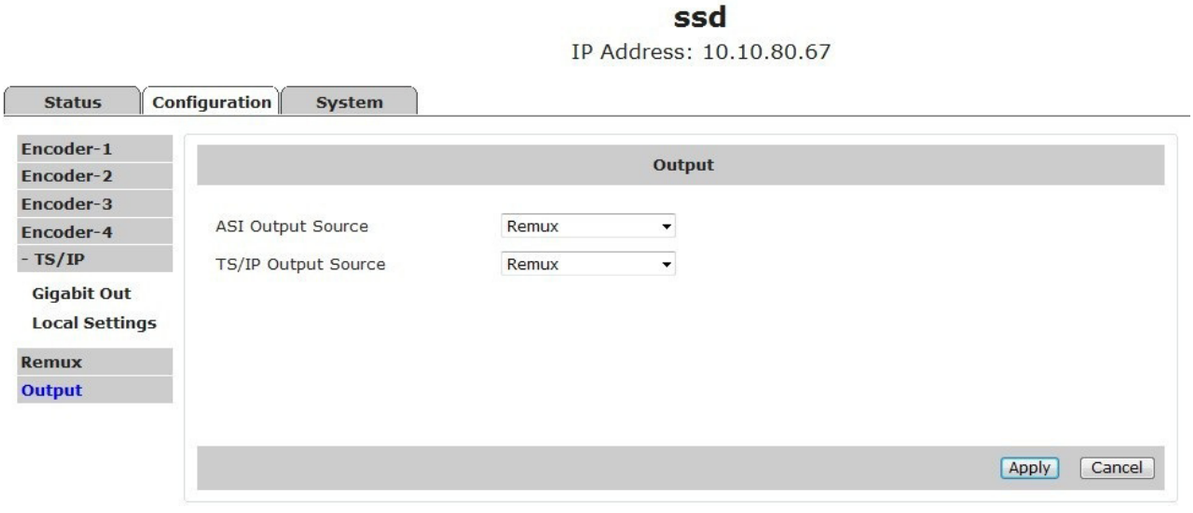
The device supports remux the 4 SPTS generated locally with the service(s) carried by the transport stream inputted via ASI In or TS/IP In (available only under full duplex mode).

The “Output Bit Rate” is the bit rate of the remux output, the value has to be equal or greater than the total bit rate of the selected services.



7.2.4 Output

The source for TS output via ASI and TS/IP output interface can be configured independently. User can select source among Encoder, Remux, ASI Input and TS/IP Input (available only under full duplex mode) for each.



7.3 System

The system page gives all information of this device including device name, serial number, software version, and so on. User can implement the alarm switch configuration, network settings, TS/IP operation mode and software upgrade under system page.

7.3.1 Device

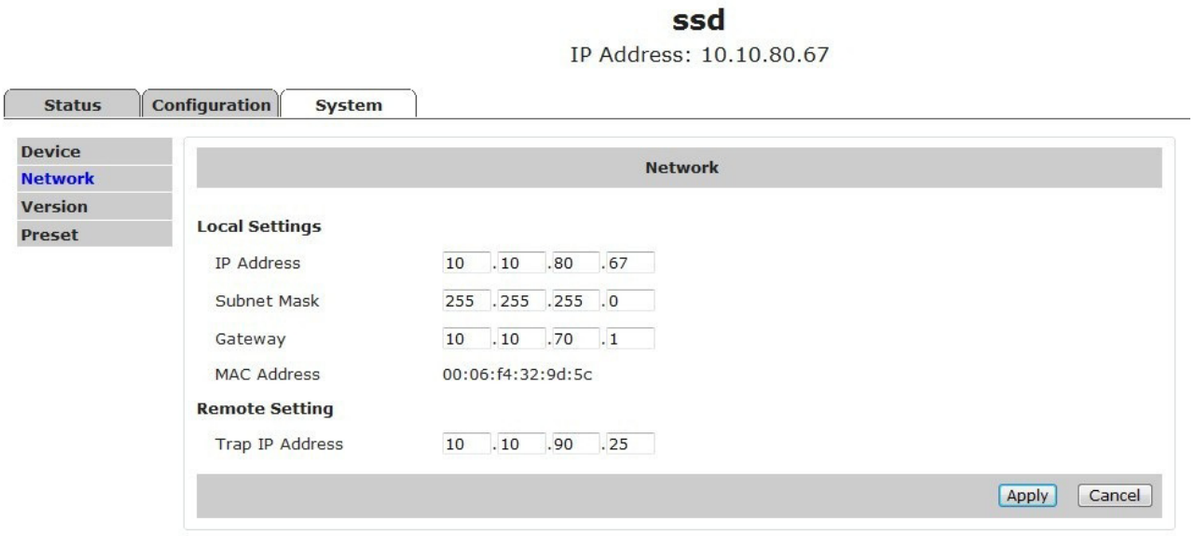
Device name: Check the name and the serial number of this device. User can resign this product name at will, the device name should be less than 24 characters. The serial number is read-only.
LED Alarm Switch: Enable or disable the corresponding alarms by choose “ON” or “OFF”.
Gigabit Mode: to switch the TS/IP operation mode between “Multiple Output” and “Full duplex”.
Login ID & Login Password: User can modify the login ID and password for web control.
Factory Default: click the button, the device is reset to the factory parameters.

Note: the IP address of the device is not reset to the factory setting! While press the button “A8-IP Reset” via the front panel, the IP address is reset to the factory setting (10.10.70.48).

Device Reboot: User can reboot this device by clicking the button “Device Reboot”.

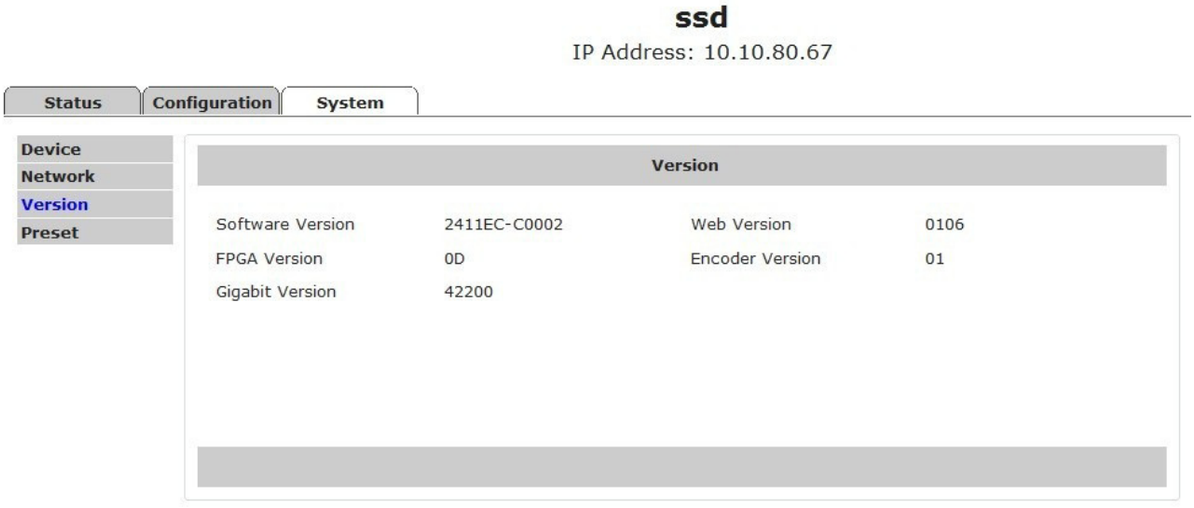
7.3.2 Network

The network settings for the device can be found and configured under the page below. The trap IP address (SNMP Server Address) should be set the IP address of the SNMP management server if used, to which the SNMP Trap information generated by the device will be sent.



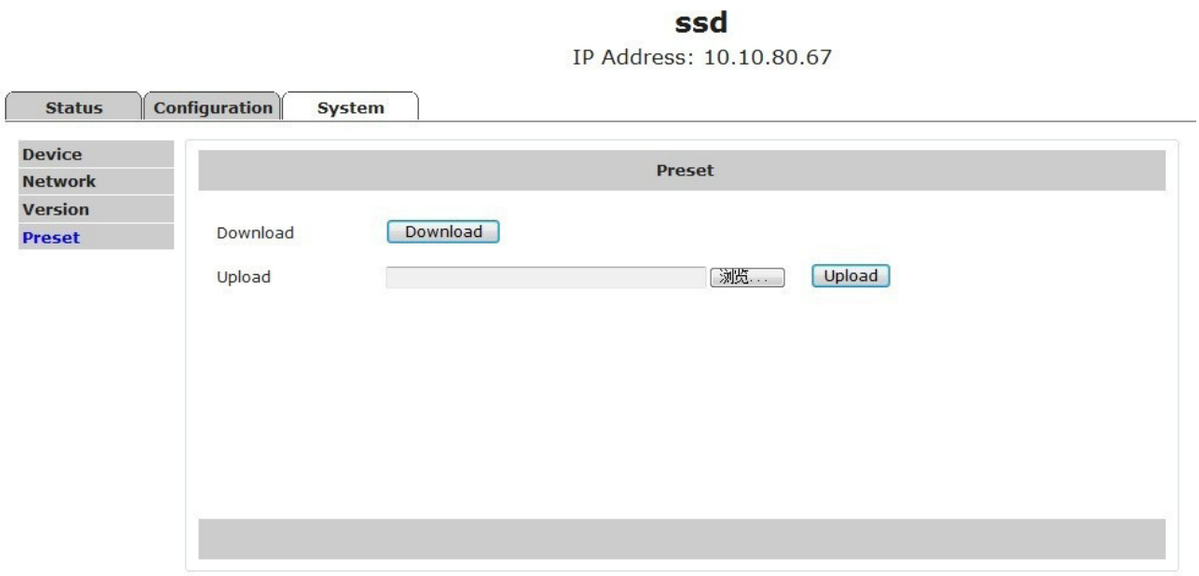
7.3.3 Version

User can check versions of various functional blocks of the device, as it shown in figure below.



7.3.4 Preset

Click on the “Download” to save the actual settings except the local IP address of the unit to a file and store into the connected PC. Click on the “Upload” to load the preset configuration to the connected unit, note the IP address will not be loaded.

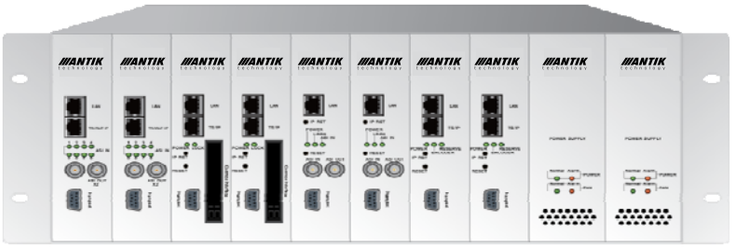


8. Recommended Configuration

Applications / Parameters	IPTV SD	IPTV 720P	IPTV 1080i	DVB SD	DVB 720P	DVB 1080i	Unit
Video Rate Ctl	VBR	VBR	VBR	CBR	CBR	CBR	-
Encoder Bit Rate	3300	6700	6700	3300	6700	6700	Kbps
Video Bit Rate	800	1500	2500	2000	6000	6000	Kbps
Video Max Bit Rate	2500	3000	4000	2500	6500	6500	Kbps
Video min Bit Rate	0	0	0	0	0	0	Kbps
GOP Size	61	61	61	24	24	24	frame
GOP Structure	IBBBP	IBBBP	IBBBP	IBBBP	IBBBP	IBBBP	-
GOP Adaptive	On	On	On	On	On	On	-
Null filter	On	On	On	Off	Off	Off	-
Output Mux	SPTS	SPTS	SPTS	MPTS	MPTS	MPTS	-
Audio Channel Mode	mono	Stereo	Stereo	Stereo	Stereo	Stereo	-
Audio Bit Rate	32	64	64	128	128	128	Kbps

9. Installation

- Fix the EN9200 or EN9400 chassis into the standard EIA 19" rack.
- Insert the device into the fixed EN9200 or EN9400 chassis.
  Caution: the EN 9200 / EN 9400 can be accommodated in the EN9200 or EN 9400 chassis only. Inserting the device into other chassis or equipment may break the device and cause serious accident.
- Fix the front and rear covers onto the EN9200 or EN9400.
- Connect all input output cables and Ethernet cables.
- Plug the power cable into EN9200 or EN9400. The POWER Indicator LED (A4) should be green and always light on during working. The EN9200 / EN9400 needs 1.5-2 minutes to boot up completely.
- Connect EN9200/9400 to configure locally or open a web browser on a connected PC and configure remotely.



EN9200/9400 , 8 slots, 2 power supplies

EN9200/9400, 2 slots, single power supply

10. Accessories

Accessories for EN9200/EN9400

Front panel	1 PC
Rear panel	1 PC
CD-ROM	1 PC
BNC Connector Cable	1 PC
Certificate of quality / Guarantee card	1 PC

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