

MODEL LAVISION 860HD-IP

DVB-S2 HDMI H.264 MPEG-4/AVC IP



Safety Instructions

- **Read this manual carefully before start operating the device.**
- **Removal of device cover without permission may cause harm to human body and the maintenance bond will be invalidated.**
- **Connect the grounding connector on the rear panel to protect earth contact properly while in operation.**
- **Choose proper type of cable connectors for connecting network interfaces of the device.**
- **Avoid rapid and frequent power on/off, or it may cause damages to the semiconductor chipsets.**
- **Ensure good ventilation when the device is in operation, or otherwise it may cause damages to the device due to overheating.**
- **It is recommended to unplug the power cord from the socket if the device will not be used for a long period of time.**
- **Handle the device with care to avoid crashing and falling, or otherwise it may cause hazards to the internal hardware components.**
- **Keep all inflammable, metal and liquid materials from dropping into the device casing, or otherwise it may cause damages to the device.**
- **Avoid dusty places and places with heating resources nearby, direct projection of sunlight or instant mechanical vibrations for installation of the device.**
- **Do not touch the power socket with wet hands to avoid electric shocks.**
- **Take off all jewelry or ornaments, such as ring, necklaces, watches, bracelets, etc., before operating the device, or otherwise the metal contact may possibly cause short circuit and result in components damage.**

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§ 1 Introduction

§ 1.1 Functionality

Professional CI Receiver LaVision 860HD-IP is one of the high-end TS conversion devices in our company. It receives signal which complies with DVB standard from RF inputs, ASI inputs and IP inputs, and convert the signal to standard TS after demodulation and/or de-embedding; it then descrambles the TS through descrambling module and output transparent TS to its ASI or IP output ports. Meanwhile, the TS will also be de-multiplexed and decoded and output audio/video signals to multiple interfaces.

Our product has plenty of I/O interfaces. It supports simple multiplexing functionality, and makes use of CI decrypt module, has the ability to support most of major CA systems. Meanwhile, by choosing optional module, it can support SD/HD decoder, DVB-C, DVB-S/S2, DVB-T, DTMB demodulations. It also supports Web/ SNMP-based management.

§ 1.2 Key Features

This product has the following main features:

- ✚ Support SD and HD decode (MP@HL/ML、H.264/AVC) , and MPEG-4 decode
- ✚ Dual CI interface, based on EN 50221 standard, support most of major CA
- ✚ Optional RF input: DVB-C、DVB-S/S2、DVB-T and DTMB
- ✚ Support ASI , RF and IP input signal pass through mode, SPTS or MPTS output
- ✚ PCR correction
- ✚ Support simultaneous descrambling for 16~24 programs
- ✚ Dual ASI output
- ✚ Maximum descrambling output could reach 140Mbps

- ✚ RCA, balanced audio, HDMI, YPbPr output
- ✚ User configuration auto-save
- ✚ Support device configuration import/export
- ✚ Support WEB/ SNMP-based management
- ✚ Support online remote update
- ✚ Power failure memory recovery

* Please refer to Annex A for detailed technical specifications

§ 1.3 Front Panel

As shown in figure 1, there are 1 LCD display、a 7-key keypad and 3 LED indicators on the front panel of LaVision 860HD-IP.

The model type and logo notification information will be displayed on the LCD screen during the initialization stage of the device.

User can check part of the key working status and set some of the parameters of LaVision 860HD-IP by exploring menu displayed on the LCD screen by using keypad after system initialization.

The POWER LED will be lighted if the power is supplied successfully.

The STATUS LED can show some working status of the device.

The ALERT LED can show some warning messages, if exists, of the device



Fig.1 Front Panel View of LaVision 860HD-IP

As show in figure 2:

The rear panel of LaVision 860HD-IP includes power input socket, on/off switch, management port, ASI inputs, data outputs, and 1 grounding point.

Power Input Socket: To connect to 110~240V 50/60Hz AC input;

On/Off Switch: To turn LaVision 860HD-IP on or off;

Management Port: RJ45 interface, to connect to management workstation via 100BaseT or Gigabit Ethernet;

ASI Inputs: BNC connector, to connect to the data outputs of LaVision 860HD-IP's preceding devices via coaxial cables;

Data outputs: RJ45 connector, to connect to the data inputs of LaVision 860HD-IP's succeeding devices via coaxial cables;

Grounding point: To connect the device to conductive earth. Please make sure of proper grounding of the device before start operating it for the safety of the operators and the device itself!



Fig.2 Rear Panel View of LaVision 860HD-IP

§ 1.3.1 Balanced Audio Connection Definitions

The balanced audio output is male, the three-pins definition complies with national standard, as shown in the figure below:



Fig.3 Balanced Audio Output Interface of LaVision 860HD-IP

§ 1.3.2 Serial Port Definition

1、Decode module serial port RS-232-1:



Connector: DB9-Male;

Baud rate: 11520bps;

Protocol: 10 bits nonsynchronous, even parity check

DB9-M Pin	Directional of Signal Source	Abbr.	Description
1	NC	—	—
2	PC	RXD	Receive Data
3	LaVision 860HD-IP decode module	TXD	Transmit Data
4	NC	—	—
5		GND	Signal Ground
6-9	NC	—	—

2、ARM operation status monitoring serial port RS-232-2:



Connector: DB9-Male;

Baud rate: 11520bps;

Protocol: 10 bits nonsynchronous, no parity.

DB9-M Pin	Directional of Signal Source	Abbr.	Description
1	NC	—	—
2	PC	RXD	Receive Data
3	LaVision 860HD-IP panel	TXD	Transmit Data
4	NC	—	—
5		GND	Signal Ground
6-9	NC	—	—

§ 2 Before Use the Device

§ 2.1 Operation Requirements

In order to make sure the proper operation of LaVision 860HD-IP, there are some requirements for other digital TV and network devices which will be connected with LaVision 860HD-IP. Please see below for details.

§ 2.1.1 Requirements for Digital TV Devices

The output or input transport streams of the devices, which will provide signal source to or receive signal from LaVision 860HD-IP should comply with the following standards:

Transport Stream (TS): This means that the TS stream with one or more channels of digital TV, digital audio broadcasting or any other digital TV services should comply with DVB standard; it must contain PAT and PMT tables, which can completely describe the services.

For IP output interface, the TS packets must be encapsulated into UDP datagram. Each TS should have unique destination IP address (unicast or multicast) and port number. The length of the UDP payload must be 7*188Byte (TS packets), and the payload must be synchronized by sync byte 0x47.

For ASI input interface, each TS should comply with the integrality of PSI form which adaptive to 188/204 byte; for ASI output interface, each TS also should comply with the integrality of PSI form which adaptive to 188 byte.

LaVision 860HD-IP may be able to receive/feed multiple transport streams from/into any devices with the TS format complies with the above-mentioned format.

§ 2.1.2 Requirements for Network Devices

The switch used for the LaVision 860HD-IP data input and its preceding devices must be a Layer 3 Gigabit switch, indispensability to support IGMP2.0. The backboard exchange speed must be higher than 10Gbps; the maximum data exchange speed of each port must be higher than 1Gbps.

The switch used to connect LaVision 860HD-IP's management port and the management workstation should be a 100BaseT or Gigabit switch, the maximum data exchange speed of each port must be higher than 40Mbps. For simplified installation, it can be the same switch of data inputs as well, but the two ports need to be configured in different VLANs.

Any hosts that may worsen the network traffic, such as workstations or servers installed real-time communication tools, streaming media server or WEB server, must not be located at the LAN switch of the input of LaVision 860HD-IP. These additional signals may cause packet loss, network jitter worsening, and hence due to audio/video distortion at the audiences.

§ 2.2 System Requirements

A CAS server must be equipped with network peripherals and TCP/IP protocol suite. Other system requirements by a specified CAS must be satisfied also.

Management workstation must have network connection and support TCP/IP protocol. Microsoft Windows 2000/XP or higher versions are the recommended operating systems of the management

workstation, and JavaScript must be supported by the web browser.

§ 3 Operating the Device

§ 3.1 Quick Start

Please follow the procedures below if it is the first time for you to use LaVision 860HD-IP for constructing digital TV head-end system:

- 1、Construct your hardware environment, including chassis installation, power supply system deployment, and connecting switches, LaVision 860HD-IP, the preceding device(s)(e.g. TS converter), input signals (e.g. RF signals from satellite, cable, and terrestrial mobile network), the succeeding device(s)(e.g. multiplexer, scrambler, and modulator), and management workstation properly.
- 2、Plan for the IP addresses of data output ports, the IP address of each succeeding devices; the port No. of output DTV TS; as well as number of digital TV transport streams, modulating frequency of each stream, symbol rates and modulation methods. It is strongly recommended to take note of device addresses, port numbers and other configurations and keep it safely for checking purposes in future.
- 3、Boot up each preceding devices of LaVision 860HD-IP and configure the operating parameters, in order to ensure the proper signal output of encoded digital TV transport streams. Please refer to the user manuals of preceding devices provided by their suppliers for detailed configuration. Configure the signal receiving antenna and connect the cable properly, in order to ensure the necessary supply to cable.
- 4、Boot up LaVision 860HD-IP. If you have known the management port IP address of the LaVision 860HD-IP you are currently using, and it is in the same subnet with the management workstation, you may also start configuring LaVision 860HD-IP from the management workstation directly. Or otherwise you will need to configure the IP address of management port using front panel control.
- 5、Configure the network address of data outputs for LaVision 860HD-IP.
- 6、For RF input, configure the TUNER parameters and lock the input signals to search the program information
- 7、Search the input program information.
- 8、Configure the descrambling module for LaVision 860HD-IP, to choose the descrambling program for CAM card.
- 9、Configure the output TS parameters for LaVision 860HD-IP: select input program for output TS; configure the output mode options for IP outputs; as well as configure the output TS.
- 10、Configure the demodulation settings. Select the program which needed to be monitored to send to descrambler for descrambling, as well as configure the settings of audio track, volume, audio/video output mode, video standard and format.
- 11、Configure the network parameters, multiplex parameters, and modulation parameters of LaVision 860HD-IP's succeeding devices; Please refer to the user manuals of preceding devices provided by their suppliers for detailed configuration.
- 12、Make use of RF analyzer, set-top box testing system, etc. to test the RF output and transport streams in the head-end equipment room, if normal, then the signal is ready for transmission in the real network.

【Remark】: The startup and configuration may take a minute or two, please be patient.

§ 3.2 Web Management Operation of LaVision 860HD-IP

The management and control of LaVision 860HD-IP can be done via a web browser. We recommend you to use Internet Explorer 8.0 or higher version, and configure the display resolution to be (or higher than) 1024*768.

The default display language of the web UI of LaVision 860HD-IP is “English”. To change the display language into Chinese, you can select “Simplified Chinese” in the language dropdown menu in the homepage and click “go” button after login. Unrecognizable codes may appear on your screen if there is no Chinese font installed in your computer.

§ 3.2.1 Web User Login

After launching the Web browser, key in the IP address of LaVision 860HD-IP’s management port into the Address bar of Web browser. Embedded Web server of LaVision 860HD-IP will prompt with username and password for authentication, as shown in the figure below:

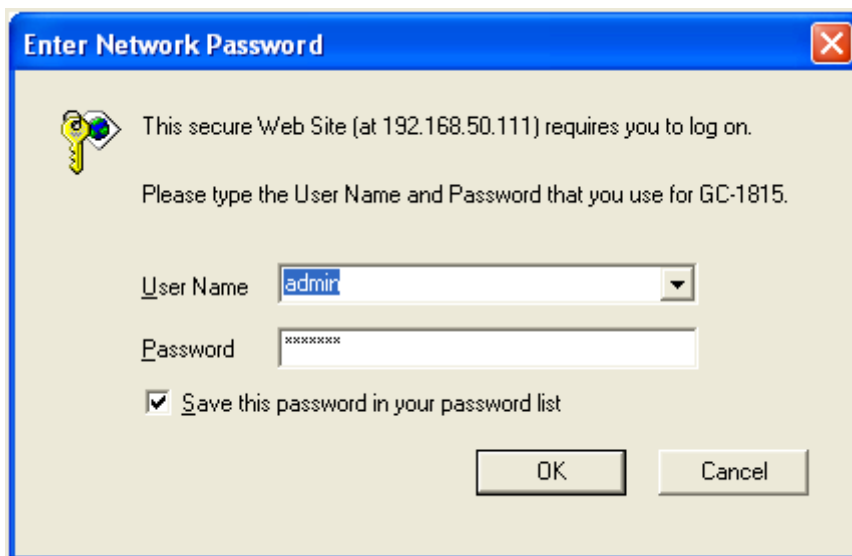


Fig.4 Web Login

There is only one default administrator account “**admin**” in LaVision 860HD-IP with default password of “**000000**”. Please use this account and password to login to the system for the first time operation of LaVision 860HD-IP. However, we strongly recommend you to change the password for this account immediately after first login, and the new password should be kept safely. After successfully logging into the system, the Web browser will display the default page of LaVision 860HD-IP, as shown in the figure below:

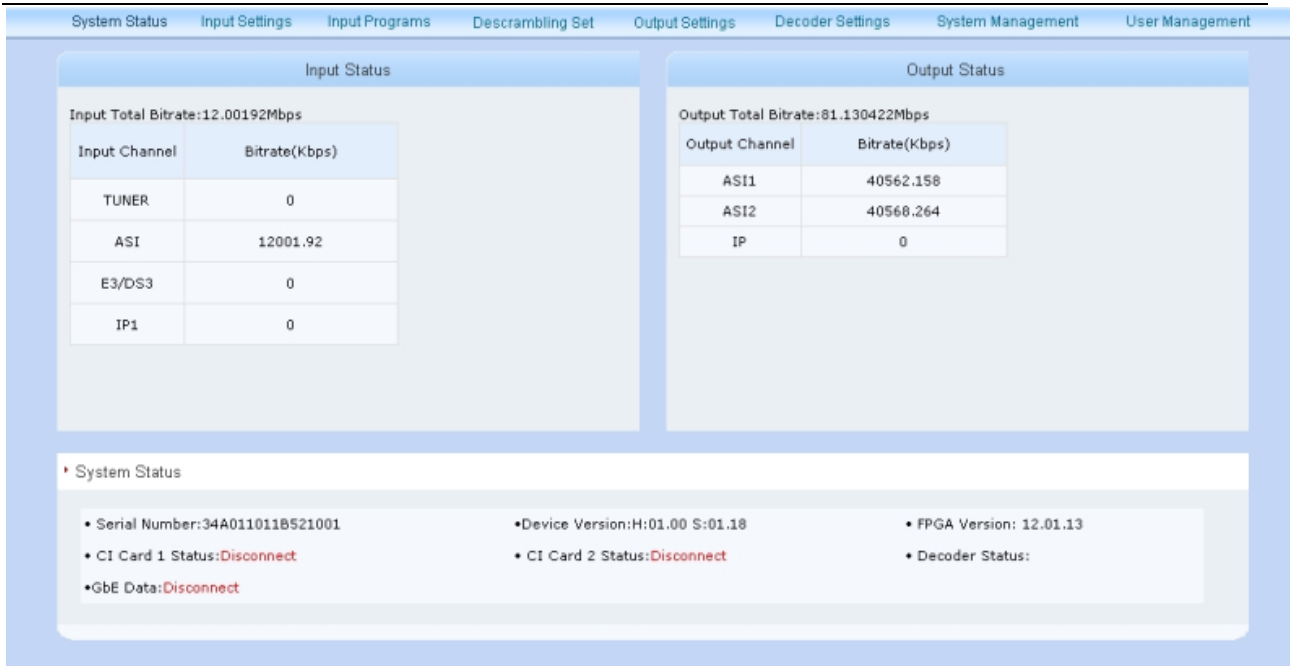


Fig.5 Default Page

Default page will display some key working status of the device with real time refreshing. There is a navigation area of LaVision 860HD-IP's configuration at the upper part of the page. Clicking of hyperlinks listed in the navigation area will redirect you to System Status, Input Settings, Input Programs, Demodulating Settings, Output Settings, Decoder Settings, System Management, and User Management pages.

【Remark】: The validation of E3/DS3, IP inputs is subject to our available products.

§ 3.2.2 User Management

Clicking of the hyperlink "User Management" will redirect you to User Management page, as shown in the figure below:

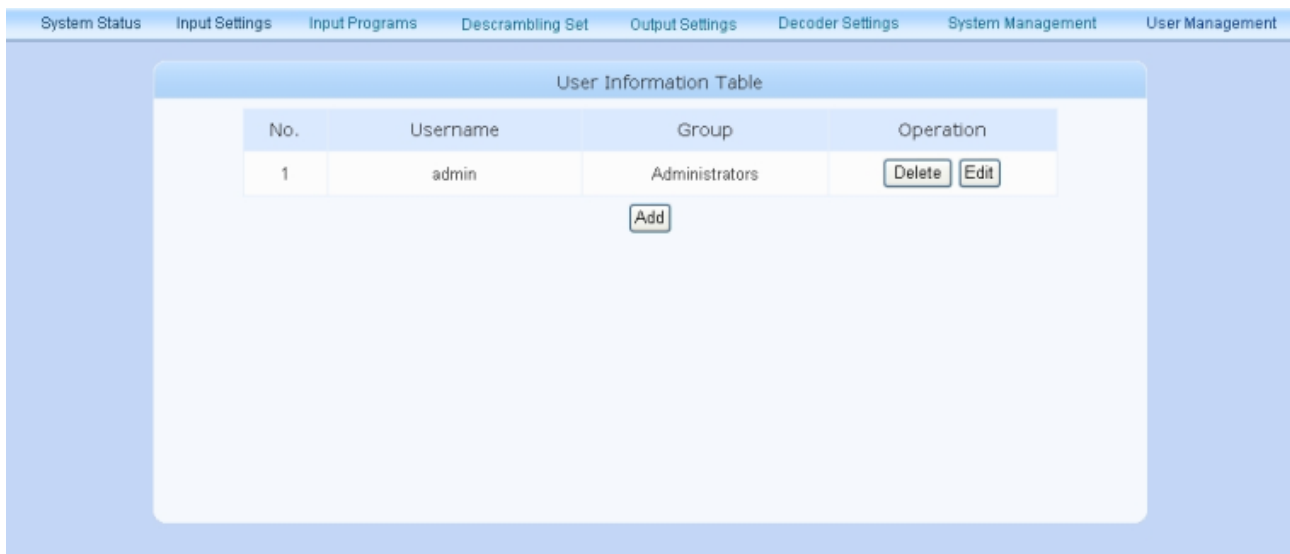


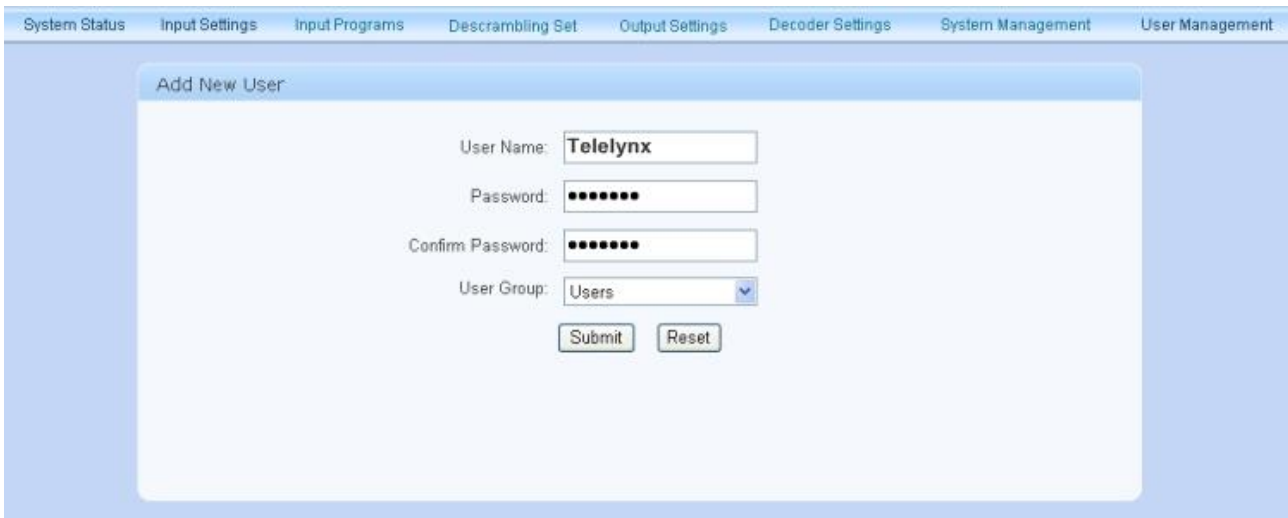
Fig.6 User Management

User Management allows creating of new users, editing information of existing users, and deleting of existing users.

【Remark】 User Management page is accessible only when logging in as Admin.

§ 3.2.2.1 Add New User

Clicking of “Add” button in the “User Management” page will enter the page of “Add New User”, as shown in the figure below:



The screenshot shows the 'Add New User' form within the 'User Management' section of the system. The form has a light blue header with the title 'Add New User'. Below the header, there are four input fields: 'User Name' (containing 'Telelynx'), 'Password' (masked with dots), 'Confirm Password' (masked with dots), and 'User Group' (a dropdown menu set to 'Users'). At the bottom of the form, there are two buttons: 'Submit' and 'Reset'.

Fig.7 Add New User

In this page, clicking “**Submit**” after properly key in the new username and password, which will add a new user account to the system. After successfully adding a new user, it will automatically redirect to the page with user information table (homepage of User Management), as shown in the figure below:



The screenshot shows the 'User Information Table' within the 'User Management' section. The table has a light blue header with the title 'User Information Table'. Below the header, there is a table with four columns: 'No.', 'Username', 'Group', and 'Operation'. The table contains two rows of user information. Below the table, there is an 'Add' button.

No.	Username	Group	Operation
1	admin	Administrators	Delete Edit
2	Telelynx	Users	Delete Edit

Fig.8 Add New User - Complete

【Remark】

- 1、 All the accounts created in the “User Management” page are common users;
- 2、 Common users can do system configuration, but is not allowed to perform task such as user management and system upgrade.

§ 3.2.2.2 Edit User Data

When logging in as Administrator, clicking “**Edit**” button of any user account in the user information table of the “User Management” page will redirect to user information editing page, as shown in the figure below:



Fig.9 Edit User Data

In this page, password of any user account can be modified. Please click “Submit” button when you finish the modification.

【Remark】

- 1、 Admin account cannot be deleted, but its password can be modified.
- 2、 When using LaVision 860HD-IP for the first time, password of Admin account should be modified first and kept safely.
- 3、 User group could not be modified.

§ 3.2.2.3 Deleting of Existing Users

In the user information table of the “User Management” page, click “Delete” button on the row of any user will delete this user account from the system.

【Remark】 Deleting of “Admin” account in LaVision 860HD-IP is not allowed, but deleting of other common users is allowed.

§ 3.2.3 Check System Operation Status

The default page of LaVision 860HD-IP is the system working status page.

When other pages are activated, user may click the hyperlink “system status” in the page navigation area to turn back to the system working status page. As shown in the figure below:

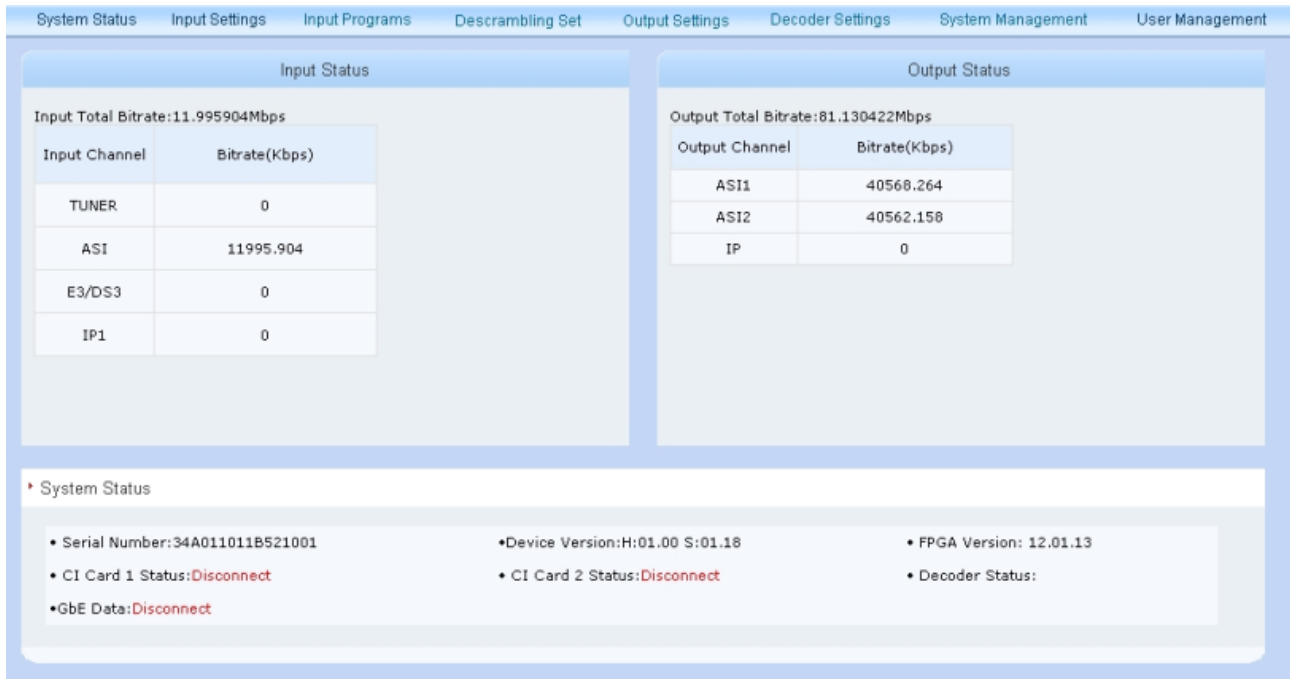


Fig.10 Current Working Status

This page consists of three parts: input status, output status, and system status.

§ 3.2.3.1 Check Input Channel Status

The page will periodically read the current input status from the system, information including:

- Input total bit rate
- Bit rate of each input channel

§ 3.2.3.2 Check Output Channel Status

The page will periodically read the current output status from the system, information including:

- Output total bit rate
- Bit rate of each output channel

§ 3.2.3.3 Check System Status

The system status includes Serial Number, Device Version, FPGA Version, GbE Data Status, Decoder Status, CI Card Status.

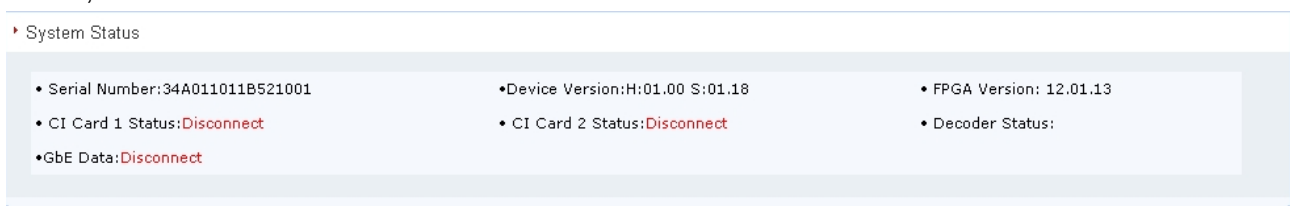


Fig.11 System Status

Serial Number: The serial number is a factory default setting and will not be modified during software upgrading, which contains 16 Arabic numbers or capital English Letters.

Device Version: The software version or FPGA version may be changed after software upgrading, which is convenient for maintenance.

GbE Data Status: Connect/Disconnect

Decoder Status: It shows the currently output program name.

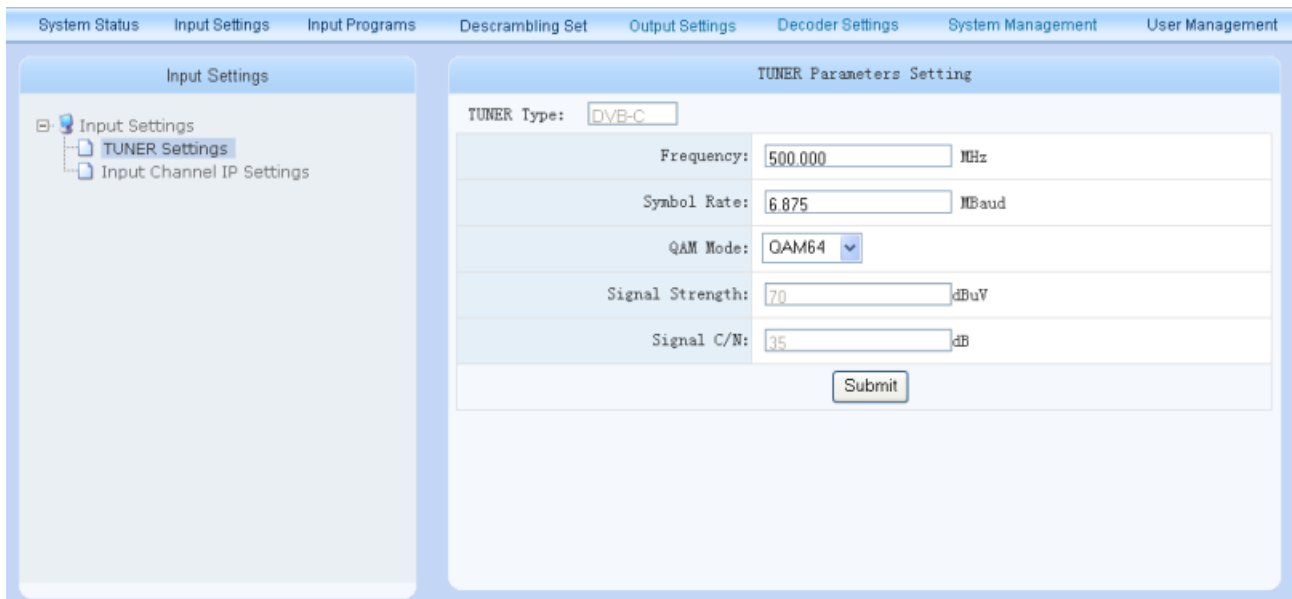
CI Card Status: It shows the connection status of CAM card. "Disconnect" means no CAM card in or improper connection of CAM card.

【Remark】 If the GbE data port disconnected, the "buffer overflow" alarm may appear, and the IP output bit rate in status page does not mean the actual IP output bit rate.

§ 3.2.4 Input Settings

§ 3.2.4.1 Tuner Settings

LaVision 860HD-IP supports 4 types of standard tuner: DVB-S/S2, DVB-C, DVB-T, DTMB, the settings of DVB-C module is shown as follows:



TUNER Parameters Setting	
TUNER Type:	DVB-C
Frequency:	500.000 MHz
Symbol Rate:	6.875 MBaud
QAM Mode:	QAM64
Signal Strength:	70 dBuV
Signal C/N:	35 dB
<input type="button" value="Submit"/>	

Fig.12 DVB-C TUNER Settings

TUNER Type: It appears grey and couldn't be modified, the device can auto-detect the configured module;

Frequency: 51.000~858.000, keep three decimal fraction, in MHz, default as 363.000;

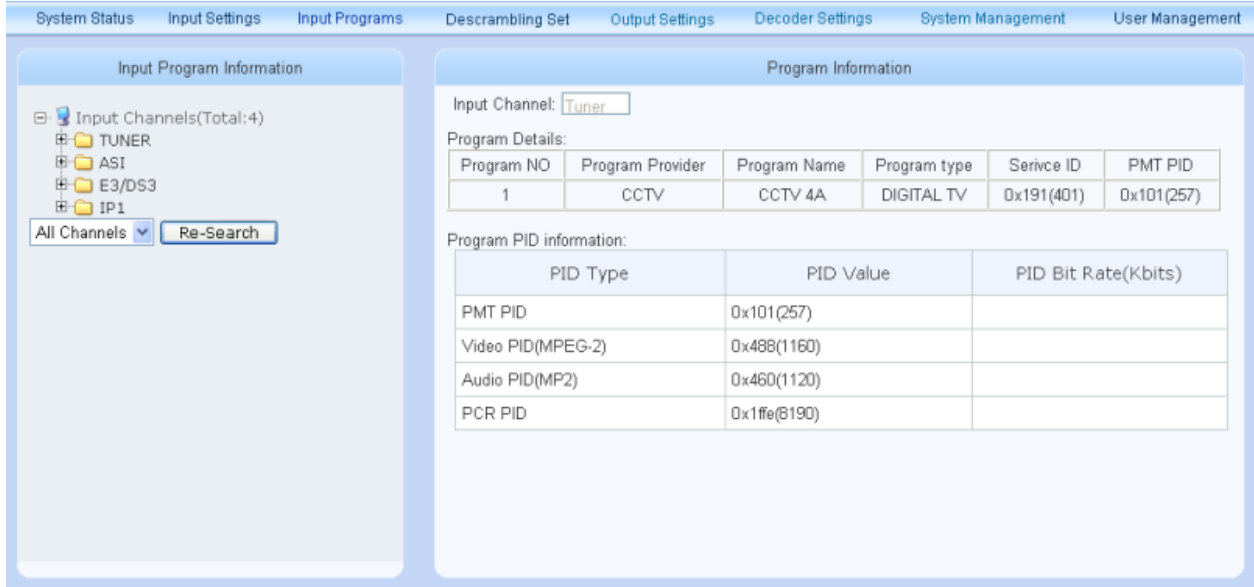
Symbol Rate: 2.000~7.000, keep three decimal fraction, in Mbaud;

QAM Mode:options of "16、 32、 64、 128、 256";

Signal Strength& Signal C/N: Accurate to integers.

§ 3.2.5 Search and Check Input Program Information

User may enter the input program information page by clicking hyperlink “Input Programs” in the navigator, as shown in the figure below.



System Status Input Settings Input Programs Descrambling Set Output Settings Decoder Settings System Management User Management

Input Program Information

Input Channels(Total:4)

- TUNER
- ASI
- E3/DS3
- IP1

All Channels Re-Search

Program Information

Input Channel: Tuner

Program Details:

Program NO	Program Provider	Program Name	Program type	Service ID	PMT PID
1	CCTV	CCTV 4A	DIGITAL TV	0x191(401)	0x101(257)

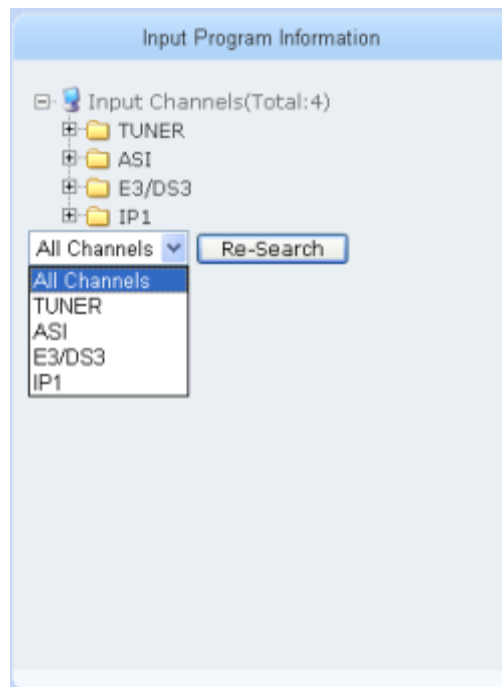
Program PID information:

PID Type	PID Value	PID Bit Rate(Kbits)
PMT PID	0x101(257)	
Video PID(MPEG-2)	0x488(1160)	
Audio PID(MP2)	0x460(1120)	
PCR PID	0x1ffe(8190)	

Fig.13 Input programs

§ 3.2.5.1 Input Program Search

To start an input programs search operation, you should click the “Re-search” button at the “Input Channels” area of this page. You may optionally search a single channel or fully search all of the input channels.



Input Program Information

Input Channels(Total:4)

- TUNER
- ASI
- E3/DS3
- IP1

All Channels Re-Search

All Channels

TUNER

ASI

E3/DS3

IP1

Fig.14 Input Programs Search

【Remark】 You must wait for the completion of the search process. The operation may take a few seconds, depending on the number of input TS and the actual programs contained in each input TS. If there is no input data in a certain input TS, it will take a little longer, because the process must wait for the request to be timeout. In normal condition, the search process will be less than 40 seconds.

The page will be refreshed when the search process is completed. Then you can check the searching result, i.e., consult the transport stream and program's information in the input channels.

§ 3.2.5.2 Check Input Channels

The page of input program checking is as shown in the figure below.

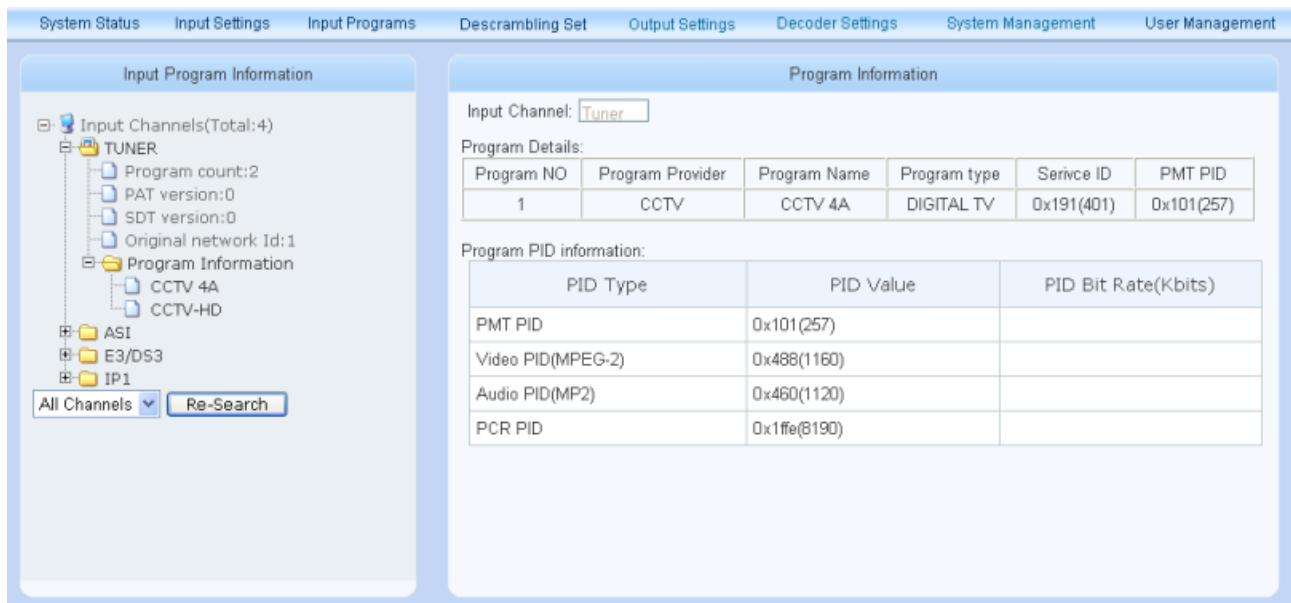


Fig.15 Check Input channels

Please expand input channels for detailed elements of a certain input TS. Such as total programs number, TS ID, original network ID, PAT version number, and SDT version number etc.

Further expanding the services tree of a certain program service in a certain input TS, you may be able to see the detailed information of this specific program service, including program name, program type, service identify, PMT PID.

Program PID information: PMT PID, Video PID, Audio PID, PCR PID.

By clicking on a certain ES (elementary stream), you may find detailed information of this ES, such as ES type and its PIDs.

【Remark】

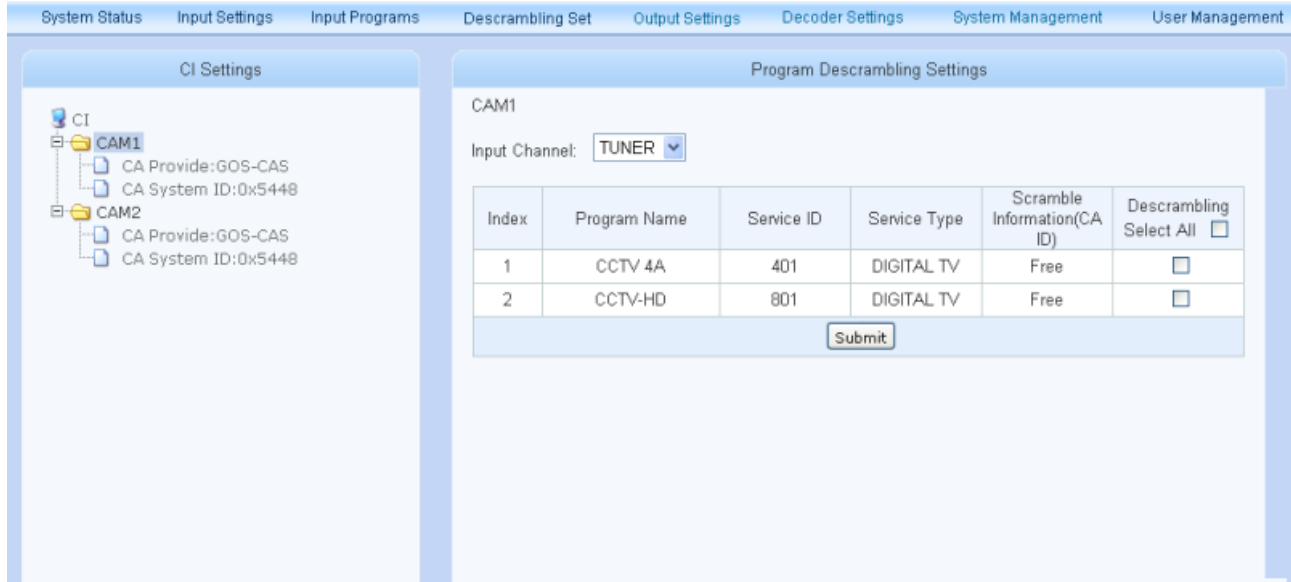
1. If the programs count of an input TS is 0, please check if there are some malfunctions of the corresponding source-end equipment, such as data output interruption or PAT loss.
2. If the name of a certain program of an input TS is NULL, please check if the corresponding source-end equipment is sending SDT as usual.

§ 3.2.6 Descrambling Settings

Clicking of hyperlink “Descrambling Settings” will redirect you to the page of descrambling settings, as shown in the figure below.

Edit rights: all users.

A maximum of 2 CI card were allowed to edit in this page.



Index	Program Name	Service ID	Service Type	Scramble Information(CA ID)	Descrambling Select All
1	CCTV 4A	401	DIGITAL TV	Free	<input type="checkbox"/>
2	CCTV-HD	801	DIGITAL TV	Free	<input type="checkbox"/>

Fig.16 Descrambling Settings

Input channel options include TUNER, ASI, E3/DS3, and IP1~IPn. Each CI card can select one input channel, and also can select the same input channel for cascade descrambling, to make sure if a service needed to be descrambled by selecting of Descrambling check box.

If a service has multiple CA simul-crypt, the “Scramble Information” bar will list the CA ID.

【Remark】

1. If no CAM card insertion, or no configuration for the module, LaVision 860HD-IP will default output the streams form tuner to ASI1 port, and output the streams form ASI to ASI2 port.
2. The maximum input bit rate of single module is 72Mbps.

§ 3.2.7 Output Settings

Clicking of hyperlink “Output Settings” will redirect you to the page of output program settings, as shown in the figure below.

Edit rights: all users.

The left window is output channels, and the right window is output program parameters which can select the output source and set the IP output parameters.

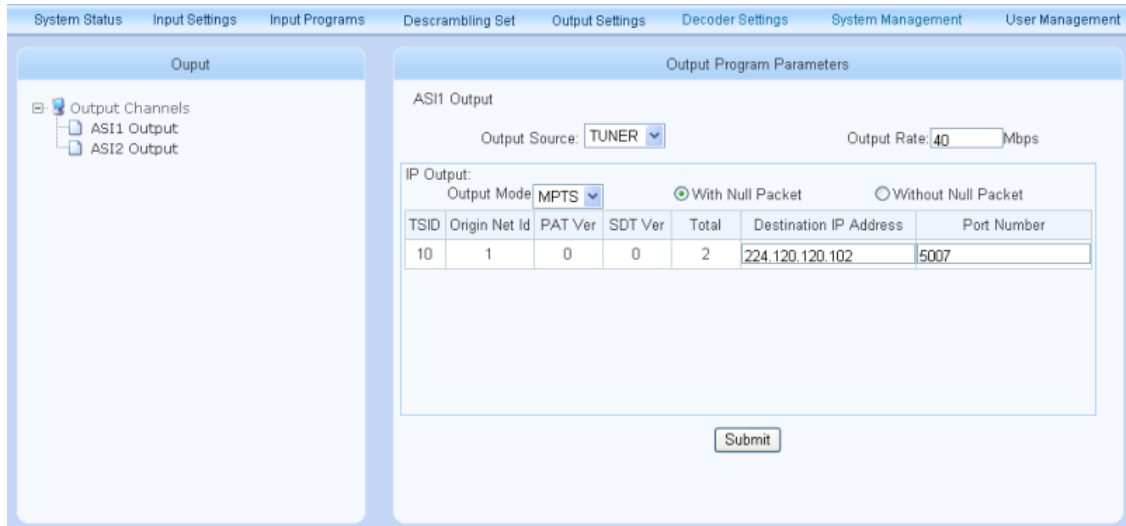


Fig.17 Output Settings

The same one input source can be output to 2 of outputs, and also can be output to one ASI output; the information can be output to IP outputs by setting of IP output parameters, totally or partly. The output source includes two modes of MPTS and SPTS, while MPTS includes “with null packet” and “without null packet”.

§ 3.2.7.1 Selection of Output Source

The output source contains all the input channels, the output stream could both be scrambling stream and de-scrambling stream, which determined by the options in “Descrambling Settings”. Click the input channel name in drop list of output source and “Submit” button, the setting will be valid, as shown in the figure below:

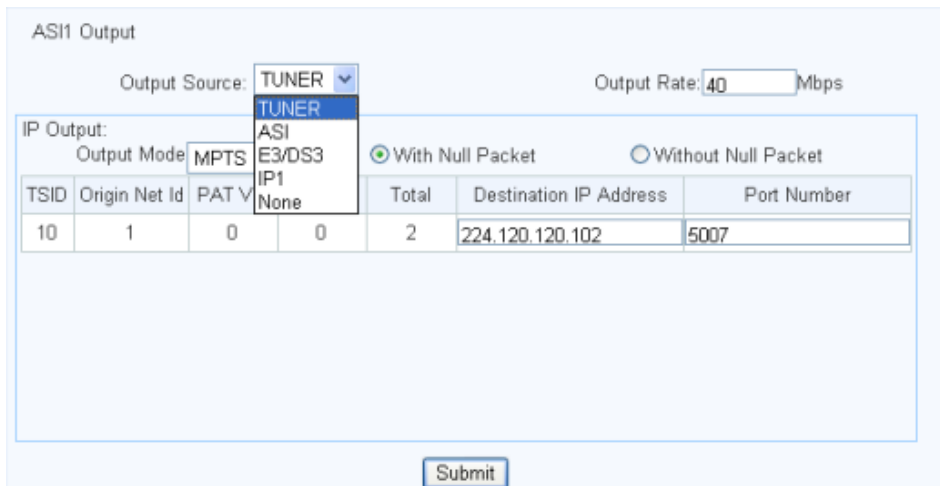
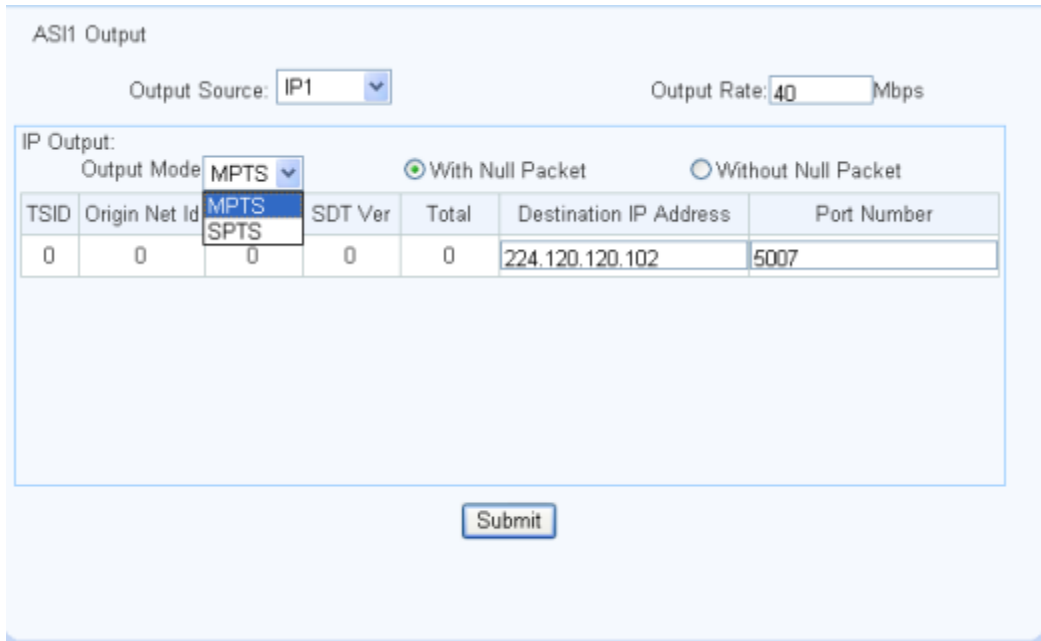


Fig.18 Selection of Output Source

§ 3.2.7.2 Selection of IP output Mode

The output mode is only valid for IP output, and the IP output service would be the total or partial of ASI output. The IP output mode includes MPTS and SPTS, which can be selected through the drop list of output mode. As shown in the figure below:



ASI1 Output

Output Source: IP1 Output Rate: 40 Mbps

IP Output:

Output Mode: MPTS ☒ With Null Packet ☐ Without Null Packet

TSID	Origin Net Id	MPTS SPTS	SDT Ver	Total	Destination IP Address	Port Number
0	0	0	0	0	224.120.120.102	5007

Submit

Fig.19 Selection of IP Output Mode

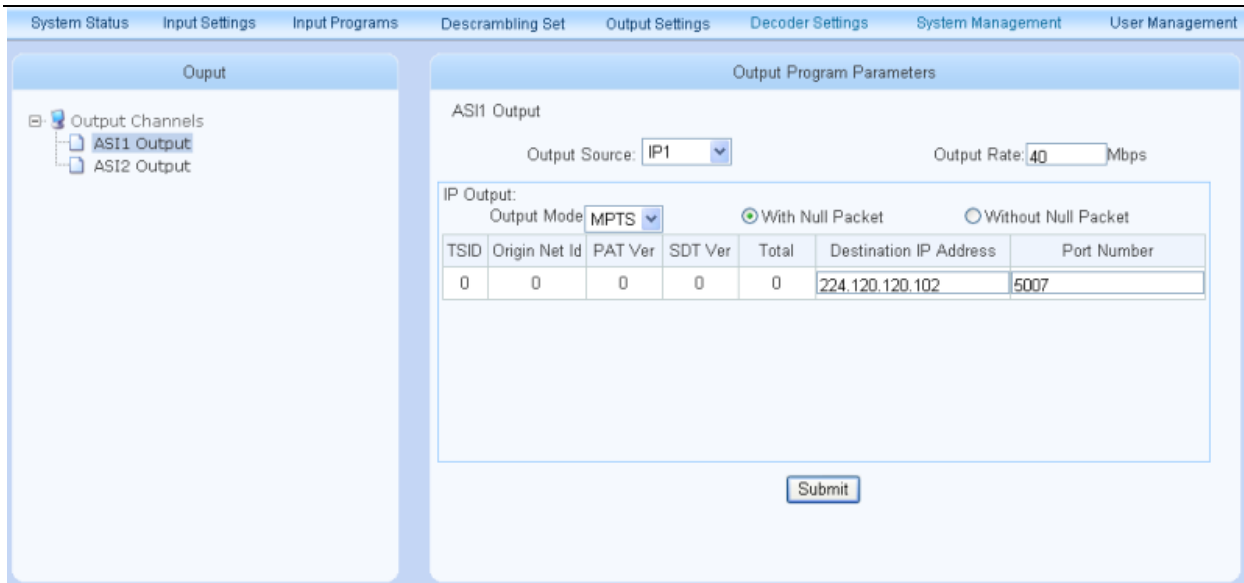
【Remark】

SPTS Mode: send out each service (descrambled or un-descrambled) in a input TS as an independent encapsulated UDP TS, the network parameter of each output TS can be configured separately. SI/PSI table will be re-constructed in each TS when output;

MPTS Mode: send out the single/multiple TS in input TS as an encapsulated UDP TS, take up one port, and without re-construct of SI/PSI table (may remove or keep the null packet as needed)

§ 3.2.7.3 IP Output Parameter Settings

In MPTS Mode, the parameters of output channel include TSID, Origin Net ID, PAT Version, SDT Version, Total Service, Destination IP Address, Port Number, as shown in the figure below:



System Status Input Settings Input Programs Descrambling Set Output Settings Decoder Settings System Management User Management

Output

Output Channels

- ASI1 Output
- ASI2 Output

Output Program Parameters

ASI1 Output

Output Source: IP1 Output Rate: 40 Mbps

IP Output:

Output Mode: MPTS With Null Packet Without Null Packet

TSID	Origin Net Id	PAT Ver	SDT Ver	Total	Destination IP Address	Port Number
0	0	0	0	0	224.120.120.102	5007

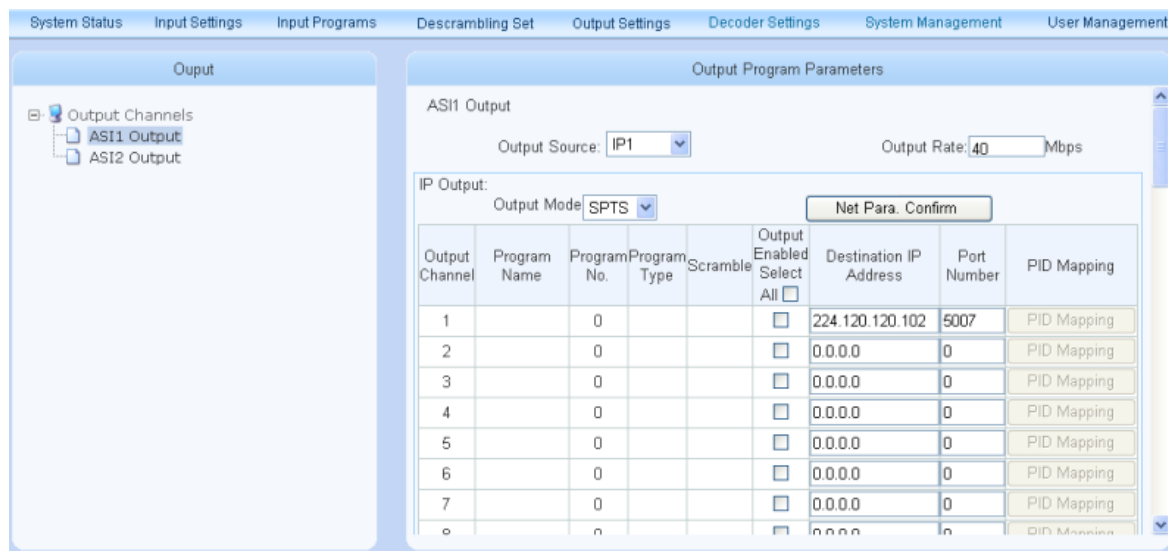
Submit

Fig.20 IP Output Settings in MPTS Mode

The destination IP address and port Number are configurable, while the other parameters are kept in the input end and un-configurable. Select the related option button to decide whether the output TS has valid null packet; clicking of “Submit” button after modifying the IP port Number or IP address.

【Remark】 The difference of “with null packet” and “without null packet” is whether the output TS have kept the origin null packet.

In **SPTS Mode**, the parameters of output channel include Program Name, Program No, Program Type, Scrambling mark, Destination IP Address, Port Number, PID Mapping, as shown in the figure below:



System Status Input Settings Input Programs Descrambling Set Output Settings Decoder Settings System Management User Management

Output

Output Channels

- ASI1 Output
- ASI2 Output

Output Program Parameters

ASI1 Output

Output Source: IP1 Output Rate: 40 Mbps

IP Output:

Output Mode: SPTS Net Para. Confirm

Output Channel	Program Name	Program No.	Program Type	Scramble	Output Enabled Select	Destination IP Address	Port Number	PID Mapping
1		0			<input type="checkbox"/>	224.120.120.102	5007	PID Mapping
2		0			<input type="checkbox"/>	0.0.0.0	0	PID Mapping
3		0			<input type="checkbox"/>	0.0.0.0	0	PID Mapping
4		0			<input type="checkbox"/>	0.0.0.0	0	PID Mapping
5		0			<input type="checkbox"/>	0.0.0.0	0	PID Mapping
6		0			<input type="checkbox"/>	0.0.0.0	0	PID Mapping
7		0			<input type="checkbox"/>	0.0.0.0	0	PID Mapping
8		0			<input type="checkbox"/>	0.0.0.0	0	PID Mapping

Fig.21 IP Output Settings in SPTS Mode

【Remark】 Only the output switch, destination IP address and port Number are configurable, while the other parameters are kept in the input end and un-configurable.

§ 3.2.7.4 Automatically Configure the Network Parameter of the Stream (SPTS)

The network parameter settings in SPTS mode are as shown in the figure below:

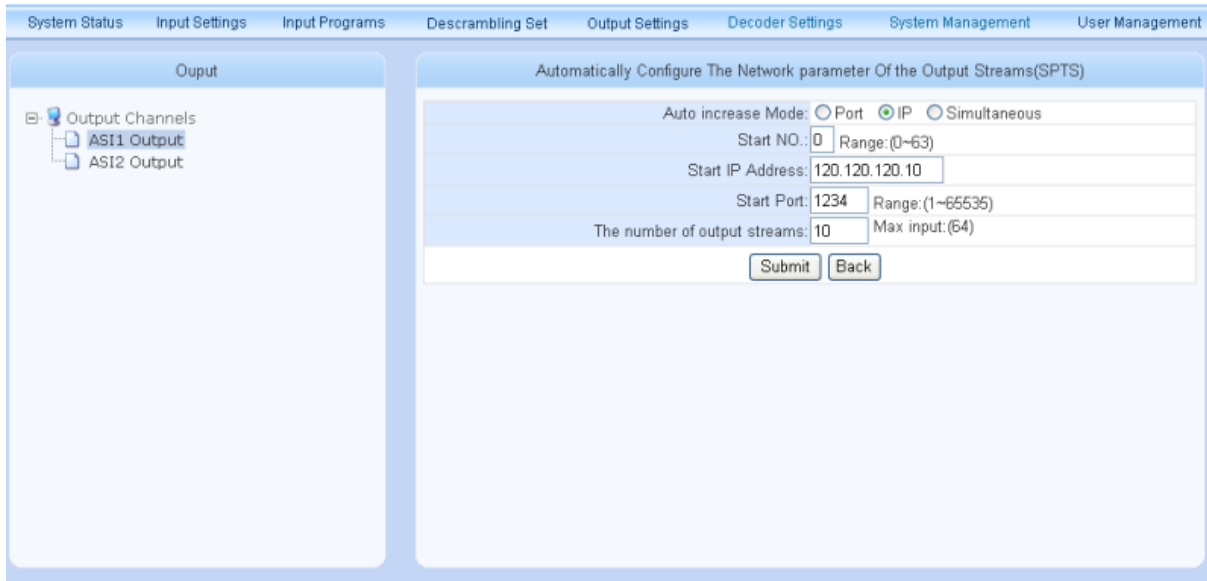


Fig.22 IP Output Network Parameter Settings

There are two modes of network parameter setting:

Manual setup: The users can directly enter the needed IP address and port Number, and then click “Submit” button to complete the modification.

Automatic configuration: clicking of hyperlink “automatically configure the network parameter” will redirect you to the setting page as below. The users can configure the Auto Increase Mode, Start No., Start IP Address, Start Port, and the number of output stream, and then the network parameters will be auto-generated. When “IP Increase Mode” selected, the IP address would increase by 1 in sequence; when “Port” selected, the port Number would increase by 1 in sequence; when “Simultaneous” selected, the IP address and port Number would increase by 1 in sequence. Clicking of “Submit” button after modification will redirect you to the fig.24. when click “Back” button, the parameters can be re-configured.

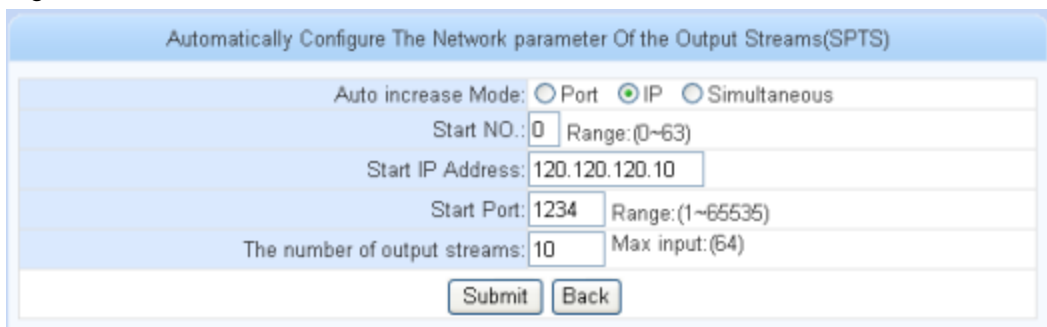


Fig.23 Automatically Configure

【 Remark 】 : The auto-generated output streams should be equal to the numbers of output streams(output programs).

§ 3.2.7.5 PID Mapping for IP Output Stream

Only applied in the SPTS mode, and it is used to select some dedicated PID information for the output

streams.

In the output settings page, click on the hyperlink button “PID mapping”, it will prompt with PID mapping page, as shown in the figure below:

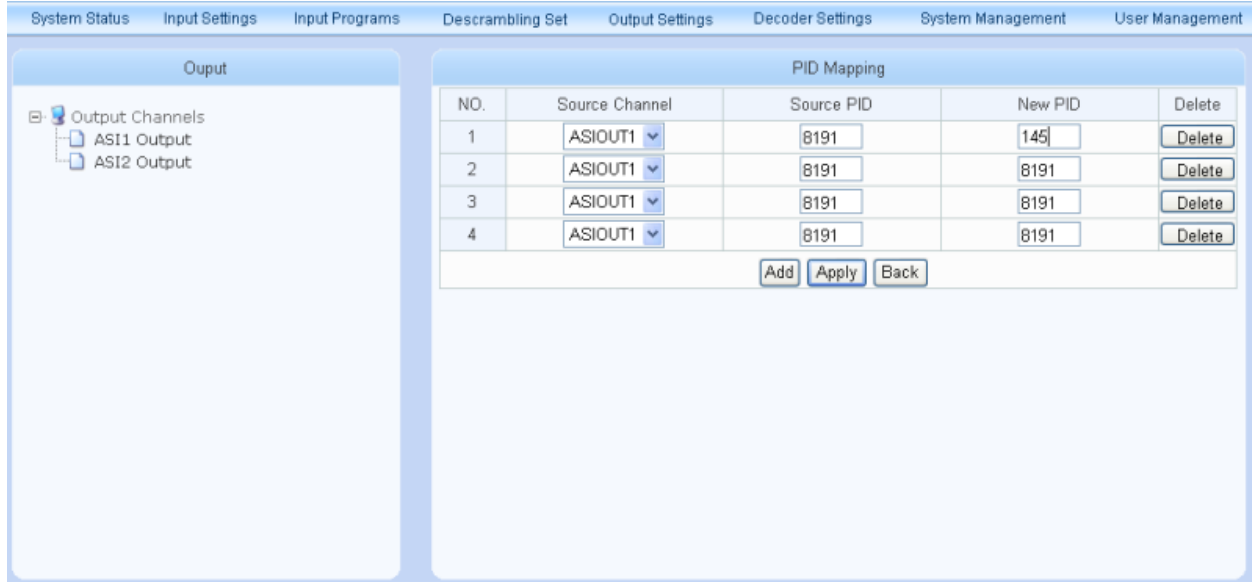


Fig.24 PID Mapping

Available operations in this page:

Add PID mapping: click the "Add" button" to create multiple PIDs.

Edit PID mapping: you can choose any TS from the dropdown list of input channels, type the input PID number and output PID number respectively (decimal)

Delete PID mapping: After complete the PID mapping settings, you should click the “apply” button to make the changes effective, or you could also click the “back” button to get back to the output program settings page without saving changes.

【Remark】

1. Before editing the PID mapping, please make plan for the needed source PID and its input channel, as well as the new PID, for avoiding PID conflicting.
2. The PID mapping of each source channel could from different channels, but the numbers must not exceed 8.

§ 3.2.7.6 Enable/disable Outputs

Only applied in the SPTS mode.

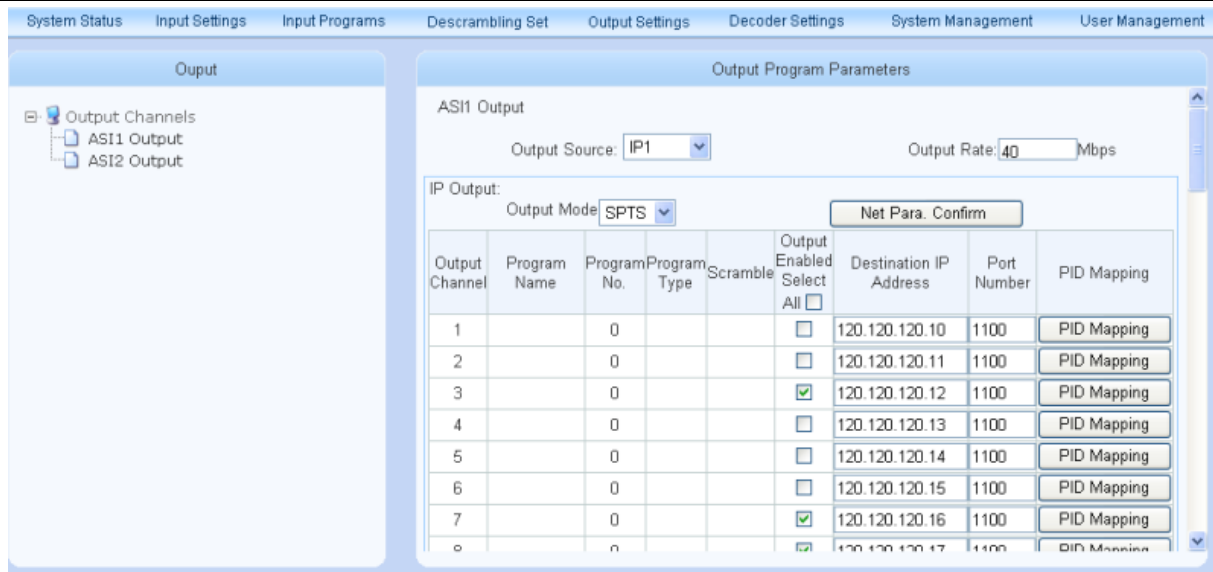


Fig.25 Checkbox for Output Enabled

There are 2 modes of output switch settings:

Select All: click the check box of "Select All", all the programs in the given input channel will be output enabled;

Select Single Program: click the check box of "Output Enable" in each channel, you can choose to enable each valid program output.

【Remark】

1. Maximum number of enabled single-program outputs:512;
2. Before selecting, please make the matching confirmation for receiving network parameters of succeeding TS device and the output network parameter of this program, in order to avoid unnecessary network congestion.

§ 3.2.8 Descrambling Settings

Clicking of hyperlink “Descrambling Settings” will redirect you to the page of descrambling settings, as shown in the figure below.

Edit rights: all users.

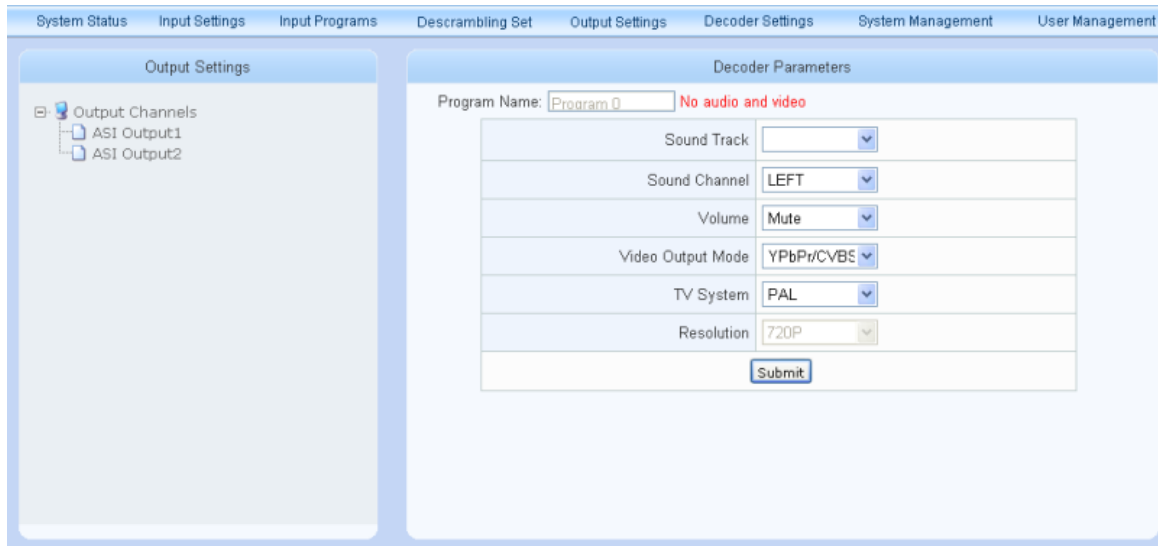


Fig.26 Descrambling Settings

Program Selection: Select one channel from the left page of “ASI Output1” and “ASI Output2” to decode. The audio/video signals can be connected to TV and other devices;

Sound Track: when the program has multiple sound flows, select one of sound track options to decode;

Sound Channel: left/right/stereo;

Volume: level 1-9;

Video Output Mode: CVBS/HDMI/YPbPr; (CVBS & YPbPr can be output simultaneously) ;

TV System: PAL/NTSC/AUTO

Resolution: 720P/1080I

§ 3.2.9 System Management

Clicking of hyperlink “system management” in the navigator of home page will redirect you to the system management page, as shown in the figure below:

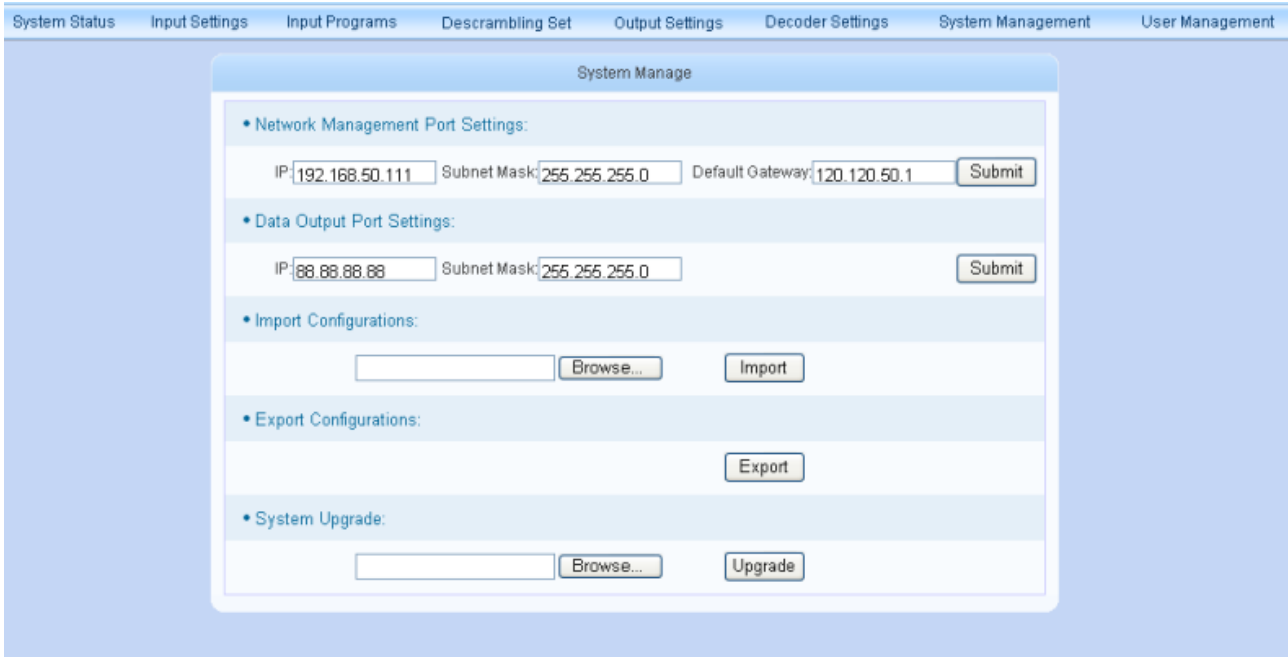


Fig.27 System Management

In this page, users can perform the operations such as “Network Management Port Settings”, “Data Output Port Settings”, “Import Configuration”, “Export Configuration”, and “System Upgrade”.

§ 3.2.9.1 Network Management Port Settings

Configure the IP address, subnet mask and Default Gateway in the “Network Management Port Settings” bar:refer to the fig.28

【Remark】

The configuration of IP address must comply with IPv4 standard, and be with the segment of management PC, and then re-enter the newly configured IP address in the browser after clicking of “Submit”.

§ 3.2.9.2 Data Output Port Settings

Configure the IP address and subnet mask in the “Data Output Port Settings” bar:refer to the fig.28

【Remark】

1. The configuration of IP address must be agreed with IPV4 standard
2. IP address range: 001.000.000.001~126.255.255.254 and 128.000.000.001~223.255.255.254;

§ 3.2.9.3 Import Configuration

Click the “Browse” button to choose the import file path and “backPara.tar” file, and then click “Import” button, as shown in the figure below:

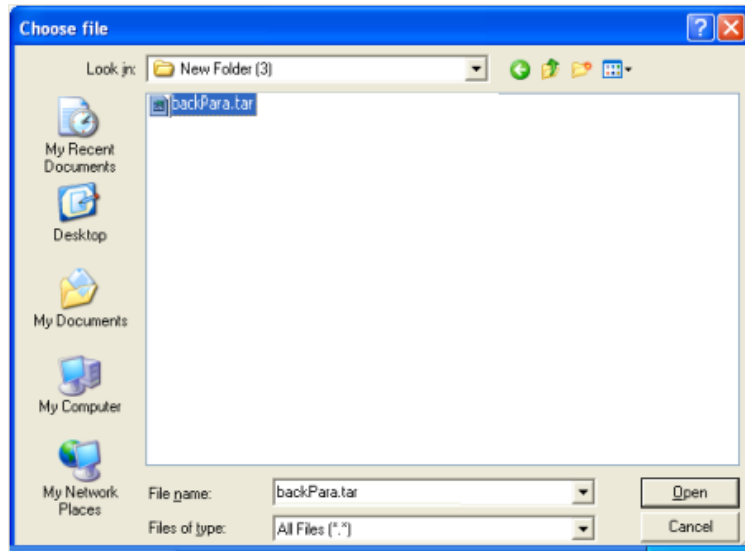


Fig.28 Import Configuration

§ 3.2.9.4 Export Configuration

Click the “Export” button and save the file as format of “backPara.tar” for future import, as shown in the figure below:

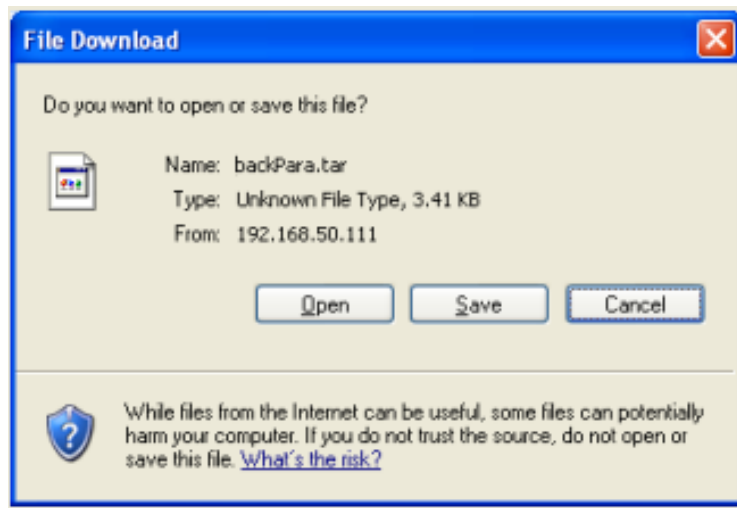


Fig.29 Export Configuration

【Remark】

1. The import/export configuration is easy to save and configure the device parameters. We recommend that export and save the configuration after each modification.
2. Please configure the “upload files to server with local directory” to “Enable”, the Internet Explorer of Windows7 could be worked properly.

§ 3.2.9.5 System Upgrade

Click the “browse” button to choose the path of “updata.tar” , and then click “Upgrade” button to upload the upgrade file, the device will be auto-reset after completion of upgrade, as shown in the figure below:

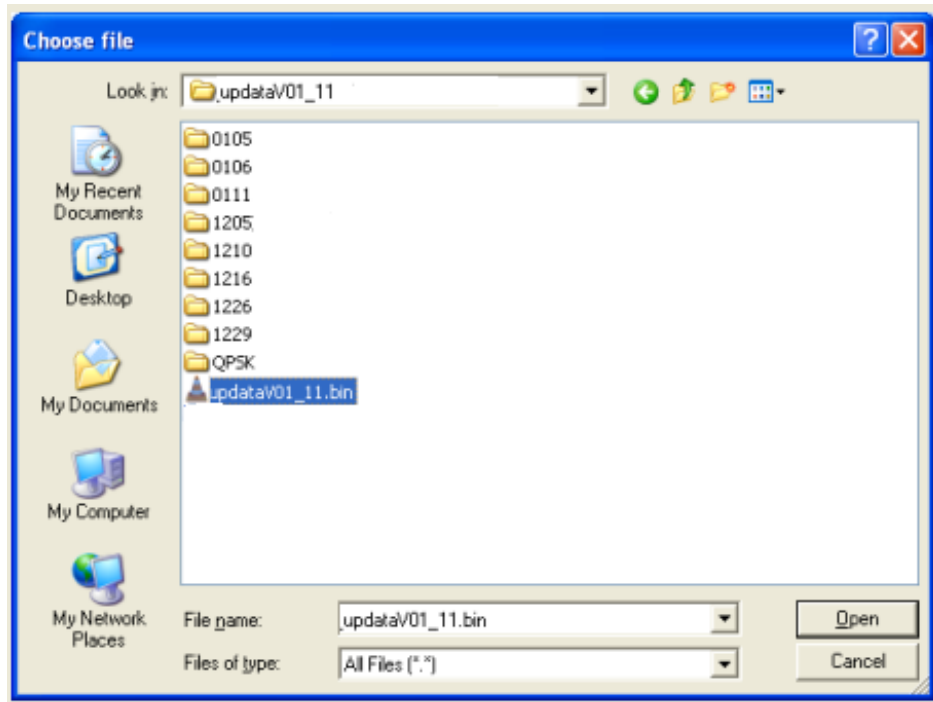


Fig.30 System Upgrade

【Remark】

1. Only an administrator is permitted to perform software upgrade
2. The upgrade file name is defined as: updata_Vxx.xx.bin
3. Please configure the “upload files to server with local directory” to “Enable”, the Internet Explorer of Windows7 could be worked properly.

§ 3.3 Front Panel Operation of LaVision 860HD-IP

Front panel LCD display of LaVision 860HD-IP will show some initializing messages of the device. If there is an error during boot up, then it will display the error message.

The front panel display will be locked if there is no key pressed within 60 seconds after device booting. System configuration and menu browsing cannot be performed through the front panel keypad while it is in LOCK status, and the LCD display will show current working status and alert messages (if available) alternately.

User may unlock the LCD display by pressing “LOCK” key continuously while it is locked, in order to activate the front panel menu. After activating the menu, the LCD display will show the first sub-menu of

the main menu (Alarms), as shown in the figure below:



Fig.31 Front Panel Menu

When entering operating menu, user may switch between different sub-menus by pressing “LEFT” and “RIGHT” keys.

The front panel sub-menu items of LaVision 860HD-IP are shown in the below table:

Menu ID	Function	Operating Description	Remarks
1.0	Alarms	Display the system alarm information if available. Use “↑” and “↓” keys to switch between alarms if there are more than one alarms.	Read-only
1.1	Local IP	Set the management port IP address of LaVision 860HD-IP. Use “↑” and “↓” keys to change the value at that digit of IP address. Use “←” and “→” keys to switching between different digits of the IP address. Press “ENTER” key to apply changes.	The IP address should be within the same subnet with the management workstation. Rebooting of device is required upon completion of settings
1.2	Subnet Mask	Set the management port subnet mask of LaVision 860HD-IP. Use “↑” and “↓” keys to change the value at that digit of subnet mask. Use “←” and “→” keys to switching between different digits of the subnet mask. Press “ENTER” key to apply changes.	
1.3	Default Gateway	Set the management port default gateway IP address of LaVision 860HD-IP. Use “↑” and “↓” keys to change the value at that digit of IP address. Use “←” and “→” keys to switching between different digits of the IP address. Press “ENTER” key to apply changes.	
1.4	Serial No.	Display serial number of the device	Read-only
1.5	Software/Hardware Version	Display Software/Hardware version information. Hardware Version:	Read-only

		Software Version:	
1.6	Factory Defaults	Press “ENTER” key to reset factory defaults.	Clear configurations of inputs and outputs.
1.7	Language	Use “↑” and “↓” keys to switch between “English” and “Chinese”. Press “ENTER” key to apply changes.	Modify front panel and NMS display language.
1.8	FPGA Version	Display FPGA software version information of the device.	Read-only

After complete menu operation, the menu will delay about 60 seconds to be locked.

Annex A: Technical Specifications of LaVision 860HD-IP

A.1 Common Technical Specifications

Characteristic	Properties	Specifications
Power Supply & Consumption	AC Input Voltage	110~240VAC
	AC Input Frequency	50~60Hz
	Power Consumption	50W
	No. of Power Supply Modules	1
Operating/Storage Environment	Operating Temperature	0°C~55°C
	Storage Temperature	-20~70°C
	Air Pressure	86~106KPa
	Humidity	10%~90%

A.2 Interface Specifications

Characteristic	Properties	Specifications
ASI Interface	Interface Number	1output, 1loop-out, 2 output
	Physical Connector	BNC
	Impedance	75Ω
	EPL	800mv±5%
	Physical bandwidth	270 Mbps
RF Interface	Interface Number	DVB-S/S2 & DVB-C have 1 input & 1loop-out; DVB-T & DTMB have 1input only
	Physical Connector	F-Female
	Impedance	75Ω
Network IP Interface	Interface Number	1
	Electrical Specification	IEEE 802.3 10/100BASE self-adaptive
	Physical Connector	RJ45
	Physical bandwidth	1250Mbps
	Maximum signal transmission distance	100 M
	Cable Requirement	Cat5e cable or 6e cable
Data IP Interface	Interface Number	1
	Electrical Specification	IEEE 802.3 10/100BASE self-adaptive
	Physical Connector	RJ45
	Interface Number	1
	Physical bandwidth	1250Mbps
	Maximum signal transmission distance	100 M
	Cable Requirement	Cat5e cable or 6e cable
CAM Module Interface	Interface Number	2
	Maximum input bit rate for each	72Mbps

	module	
CVBS Video Output Interface	Interface Number	1
	Physical Connector	BNC
Unbalance Audio Output Interface	Interface Number	1 left channel, 1 right channel
	Physical Connector	BNC
Balance Audio Output Interface	Interface Number	1 left channel, 1 right channel
	Physical Connector	Caron
HDMI Output Interface	Interface Number	1
	Physical Connector	HDMI HD Interface
YPbPr Output Interface	Interface Number	1 Y、1 Pb、1 Pr
	Physical Connector	BNC

A.3 ASI Input/Output Performance

Characteristic	Properties	Specifications
ASI Input/Output	Input Level	800±80mVpp
	Rise Time	≤1200ps
	Fall Time	≤1200ps
	Deterministic Jitter	≤10%
	Packet Format	188/204 byte
	Maximum Data Rate for Single Channel	100Mbps(Descrambled without CAM card) 72Mbps (Descrambled by CAM card)

A.4 IP Data Output Performance

Characteristic	Properties	Specifications
IP Data Output	Output mode	SPTS,MPTS(with null packet or without null packet)
	Payload of UDP	7 times of 188 bytes TS packet
	Output data bit rate	Up to 800Mbps (total bit rate)
	Output stream number	0~8 (pass-through mode), 0~512 (SPTS mode)
	PID mapping number	AS many as 8 for a single output channel in the case of SPTS mode; with total numbers of up to 512.

A.5 DVB-S/S2 Demodulation Performance

Characteristic	Properties	Specifications
RF Input	Input Frequency	950 ~ 2150MHz
	Signal Level	-65~-25dBm
DVB-S/S2 Demodulation	Symbol Rate	5.0 ~ 45Msym/s (QPSK) 10.0 ~ 31Msym/s (8PSK)
	Demodulation Mode	DVB-S: QPSK DVB-S2: QPSK /8PSK
	Standard	DVB-S: EN300 421 DVB-S2: EN302 307
	LNB Power Supply	0V/+DC13V/18V I _{max} =400mA LNB Short Circuit Protection

A.6 DVB-C Demodulation Performance

Characteristic	Properties	Specifications
RF Input	Input Frequency	51 ~ 858MHz VLF: 51~ 147MHz VHF: 155~ 427MHz UHF: 435~ 858MHz
	Signal Level	-69~+29dBm (64QAM)
DVB-C Demodulation	Symbol Rate	2~7 Msym/s
	Demodulation Mode	16/32/64/128/256QAM
	Standard	EN300 429

A.7 DVB-T Demodulation Performance

Characteristic	Properties	Specifications
RF Input	Input Frequency	51 ~ 858MHz VLF: 50.5~ 142.5MHz (Center frequency) VHF: 149.5~ 426MHz (Center frequency) UHF: 434~ 858MHz (Center frequency)
	Signal Level	-87~-20dBm
DVB-T Demodulation	Bandwidth Mode	6MHz、7MHz、8MHz
	Demodulation Mode	QPSK、16QAM、64QAM
	FEC LDPC rate	0.4、0.6、0.8
	Time Domain Interlacing Depth	240/720
	Guard Interval PNMode	PN420、PN595、PN945
	Standard	EN300 744

A.8 Audio/Vedio Output Performance

Characteristic	Properties	Specifications
CVBS	Output Formats	NTSC(525/60)、PAL(625/50)
	VAD	700±30 mVp_p
	Video SNR (Weight)	≥ 56 dB
Unbalance Audio	Output Level 0±3dBu	0±3dBu
	Amplitude-frequency Characteristics +1/-2 (60Hz-18kHz)	+1/-2 (60Hz-18kHz)
	Amplitude-frequency Characteristics +1/-3 (20Hz-20kHz)	+1/-3 (20Hz-20kHz)
	SNR (No weight)≥70 dB	≥70 dB
HDMI HD Interface	Support Protocol	Comply with HDMI 1.3, S/DPDIF(IEC90658) compatibility
	Video Format	Support 1080I, 720P
	Transmission Distance	1 M

A.9 ARM Working Status Detection Serial Performance

Characteristic	Properties	Specifications
Monitoring Serial	Physical Connector	DB9- Male

	Electrical Specification	RS-232
	Interface Number	1
	Transport Protocol	115200bps, 8 bytes, no parity
	Signal Transmission Distance	0.2~2M
	Application	Detection of CPU working status

A.10 Demodulation Module Upgrade Serial Performance

Characteristic	Properties	Specifications
Serial Upgrade	Physical Connector	DB9-Male
	Electrical Specification	RS-232
	Interface Number	1
	Transport Protocol	115200bps, 8 bytes, even parity check
	Signal Transmission Distance	0.2~2M
	Application	Upgrade for demodulation module software

Annex B: Frequent Asked Questions

Symptoms	Possible Causes	Recommended Resolution
No display at boot up	Improper connection of power cord.	Check power input
Fail to scan any input programs	Improper connection of BNC cable at data input.	Connect the data input BNC cable properly
	Improper connection of BNC cable at data input port.	Check whether the device is properly connected to the preceding device.
	TUNER signal unlocked.	Check that the strength and quality of signal source are achieved the TUNER receiving condition; Check that the RF signal cable is properly connected, and then check the satellite signal feed.
Fail to scan programs in specific input	Source device is not working properly	Check malfunction in the source device
Succeeding device fails to receive any program	Improper connection of data output cable	Connect the data output cable properly
	Improper network connection of data output port	Check that the data output port and succeeding device are connected to the same switch.
Succeeding device fails to receive data in specific output	The succeeding device is not working properly.	Check the succeeding device
	Improper setting of stream IP parameters	<ol style="list-style-type: none"> 1. Modify the destination IP address and port No. of succeeding device, to match the IP parameter of this output; 2. Modify the IP parameter settings of this output, to match the IP address and port No. of this output in succeeding device.

Serious mis-decoding occurs in specific program.	Preceding device of this program is not working properly.	Check the configuration errors and malfunction in the preceding device.
CAM module not detected	No CAM card plugged, card is broken or connect it unstably.	Plug in the correct CAM module, or re-plug the CAM module.
Cannot view the scrambled program	Descrambling settings not correct	Check the descrambling settings.
	Viewing authority not correct (remark: LaVision 860HD-IP not to provide the judgment for this information)	Please use the viewing authority of other slave card.
	Slave card unmatched (remark: LaVision 860HD-IP not to provide the judgment for this information)	Replace the correct authorized slave card.
LCD alarm signals on front panel lost	The preceding device which this program belongs has no TS output; Improper BNC connection of ASI inputs.	Check the output of program source and then check that the ASI input connection is stable.
LCD alarm data on front panel overflowed	Input signal bit rate out of the range; output data ports not connected or connected improperly.	Check the input bit rate; check that the output data ports are correctly connected to the preceding device, or check that the network cable is connected properly.

Postscript

Thank you for purchasing products of TELELYNX INC.

For ensuring long-term stability of product operation, please strictly follow the methods, procedures and constraints introduced by this manual while operating the device, while the manual is for reference only, the functionality and UI shall be subject to the real products.

After purchasing of our devices, please leave your contact details to our customer service staff. We will track the usage of the device randomly, and inform you while there is a new version of software available for your device upgrading.

When encountering malfunction of the device, please contact our customer service staff in time for maintenance and repairing.