

MODEL IDH2-3800

DVB T2 S2 C HDMI SDI H.265 HEVC

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 Function

IDH2-3800 is Multi-channel H.264/H.265 high-definition encoder, supporting 2/4/6/8/10/12 channels HEVC high definition and low bit rate audio and video coding function. Each sub-board supports 2 channels of audio and video coding. The encoded audio and video ES is packetized into TS streams and output as UDP through 1 IP channel. In device management, it supports Web network management and supports online upgrade of control programs.

Main Features:

- Supports 2/4/6/8/10/12 channels of H.264/H.265 high-definition encoding, which could be customized according to the user's needs.
- High quality HEVC H.264 /H.265 high definition video compression coding can be realized
- H.265 encoded video output bitrate range is 500Kbps ~ 10Mbps
- Supports fixed bitrate (CBR) and variable bitrate coding (VBR).
- input resolutions: Automatic, AUTO, 1080P60, 1080P59.94, 1080P50, 720P60, 720P59.94 and 720P50
- Audio encoding supports: MPEG-1 L2, MODE-AA (audio coding) and AC-3 Bypass
- Audio bitrate supports: 64 Kbps, 96Kbps, 128Kbps, 192Kbps, 256Kbps and 384Kbps
- Audio sampling rate supports: automatic, 32KHz, 44.1KHz, 48KHz input and 48KHz output
- Volume control is from -30 to 30db
- Video encoding output supports: AUTO、1080P60、1080P59.94、1080P50、1080P30、1080P25、720P60、720P59.94、720P50、720P30、720P25、576P25、480P29.97
- The scope of the GOP packet is from 1dB to 30dB
- Each sub-board supports up to 2 sets of program output
- Using OLED LCD to query card types and management network port information of each card
- Support configuring and updating device via WEB browser
- It has fault alarm display.
- Power failure memory recovery

For detailed specifications of the product, please check Annex A.

[Remark]: If input video and output video format is the AUTO mode, when input 1080P60, the output is 1080P60 too, and the rest is the same, that is, the output resolution and the input resolution are consistent.

§ 1.2 Front Panel

As shown in figure 1, there are INFO. button, FUNC. button, power indicator, alarm indicator, board indicator light (position 1, 2, 3, 4, 5, 6), IP data output port and board management port on the front panel of IDH2-3800

- INFO button is for inf. inquiry
- FUNC button is for board selection
- Alarm indicator is for warning light.
- Board indicator indicates the insertion status and working state of the boards.
- power indicator is bright after device has powered

- IP network data port and management port: Each group consists of two RJ45 interfaces, which should connect the data input and output ports of the device with the ultra 5 or 6 types of cable, and it connects to the management workstation through a hundred megabit or Gigabit Ethernet.

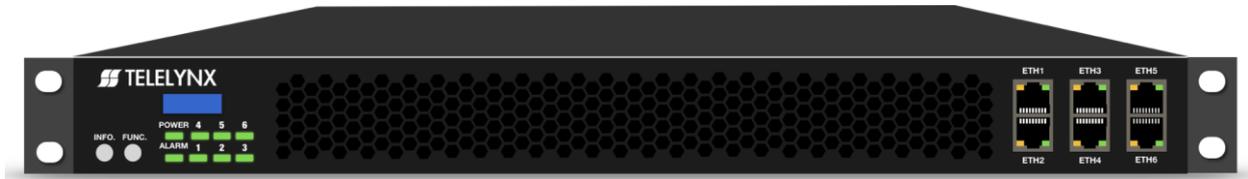


Fig.1 Front Panel View of IDH2-3800

【Remark】

1. Info. Inquiry: It queries each sub-board inf. that indicates the light flicker position; within 15 seconds of the light flashing time of the indicator, the continuous operation of the INFO. button can display the related information of the sub-board.
2. Board Selection: With each click, light flicker will be circulated between all the boards. For example, there are boards in the 1, 3, 6 board position. For the first time, press FUNC. button, position 1 will flicker for 15 seconds, and within 15 seconds, you can query the device name and network parameter info through pressing INFO. button. After inquiring the board of 1 position, you continue to press the FUNC. button within less than 15 seconds, you will query the board of 3 position via pressing INFO. button again, and so on.
3. Alarm and board indicator lights are often red which indicates alarm. Green indicates normal.

§ 1.3 Rear Panel

As shown in figure 2, the rear panel of the device is composed of a power input interface, a power switch, a HDMI(SDI option) interface and a grounding terminal.

1. The power input interface is used to connect 110~240 volt AC power input.
2. The ship type power switch is used for opening and closing the power supply of the equipment.
3. The ground terminal is used to connect the device housing to the earth. For the safety of the equipment and operator, please ensure the safe grounding operation before using this equipment.



Fig.2 Rear Panel View of IDH2-3800 (SDI option and HDMI option)

【Remark】

ETH1 port at the front panel corresponds to the board 1 at the rear panel. ETH2 corresponds to the board 2, and so on.

§ 2 Before Use of the Device

§ 2.1 Requirements for Devices

In order to ensure the normal operation of IDH2-3800, other digital TV equipment and network devices connected with IDH2-3800 need to meet some technical requirements. Please see below for details:

§ 2.1.1 Requirements for Digital TV Equipment

The preceding device of IDH2-3800 needs to provide Standard Definition HDMI(SDI) signal source, and the HDMI(SDI) output of the device's digital audio and video signals should be connected to the HDMI(SDI) input port of IDH2-3800.

§ 2.1.2 Requirements for Network Device

The IDH2-3800 uses common one RJ45 port for both TS IP stream and device management, the Ethernet switch for the IDH2-3800 and the managing workstation should be a 100M or gigabit **L3 switch**, and the maximum data exchange speed of each port must be higher than 60Mbps.

§ 2.2 Remark

Managing workstation/PC should with network adapter which support TCP/IP protocol and please install Web browser. Windows 2000/XP or higher level of Windows operation system are recommended, and also Internet Explorer 6.0 to 8.0 version of Web browser, please also remember to open JavaScript supporting option.◦

§ 3 Operating the Device

§ 3.1 Quick Start

If you are building the digital TV headend system for the first time by using IDH2-3800, it is recommended to operate according to the following steps.

- 1、 Construct the hardware environment, including chassis installation, power supply system deployment, and connecting switches, IDH2-3800, the preceding devices (e.g. High-definition source from HDMI(SDI) output interface, receiver and HDMI(SDI) distributor), the succeeding devices (e.g. IP MUX/SCR/modulator and STB) and management workstation (e.g. PC). Please ensure that all devices are safely grounded when connecting.
- 2、 Plan for the IP addresses of management port, encoding mode of digital TV TS, audio and video bitrate, and PID etc. It is strongly recommended that take note of IP addresses and other configurations and keep it safely for checking purposes in future.
- 3、 Boot up each preceding device of IDH2-3800 and configure the operating parameters to ensure the proper signal source. Please use high quality HDMI(SDI) cable for the connection, and use a TV set to check the HDMI(SDI) signal source. Please refer to the user manuals of preceding devices provided by their suppliers for detailed configuration.
- 4、 Boot up IDH2-3800 encoder. If you have known the management port IP address of the IDH2-3800 you are currently using, and it is in the same subnet with the management workstation/PC, you may also start configuring IDH2-3800 by using the management PC directly. Or otherwise you will need to configure the IP address of management port by operating front panel.
- 5、 Login to IDH2-3800 from the web management PC.
- 6、 Configure the input/output and device management of IDH2-3800 encoder.
- 7、 Configure the parameter of receiving data of IDH2-3800's succeeding devices (e.g. IP MUX/SCR modulator) according to the user manuals provided by their suppliers.
- 8、 Make use of TV set, TS analyzer, QAM analyzer, spectrum analyzer and STB to test the transport streams in the head-end equipment room, if normal, then the signal is ready for transmission in the real network.

§ 3.2 Web Management Operation

The monitoring and management of this encoder can be done through Web browser. It is recommended that you use Microsoft Internet Explorer 6.0/7.0/8.0 version or above of the browser and set the resolution of the monitor to 1024*768 or above.

There are two languages in the web management page, shown in the figure 3. In default, the operation language of Web management page is English.

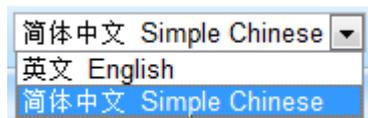


Fig.3 Operation Language Pull-down Menu of Web Interface

§ 3.2.1 User Login

After you start the browser, enter the IP address of the device management port in the URL bar, and then enter the Web management page. For device security, the built-in Web server will require you to enter your username and password, as shown below.



Fig 4 Web Login Dialog Box

There is a factory default administrator account “**admin**” with password of “**000000**”. Please use this account and password to login to the system for the first time operation of IDH2-3800. But changing of password for this account is strongly recommended, and the new password should be kept safely. When you choose "save this password in your password list" option, you will no longer need to input your user name and password when you log in to the device next time. For security reasons, please do not choose this option on the public server. After login is successful, the browser will display the home page of the device, as shown below

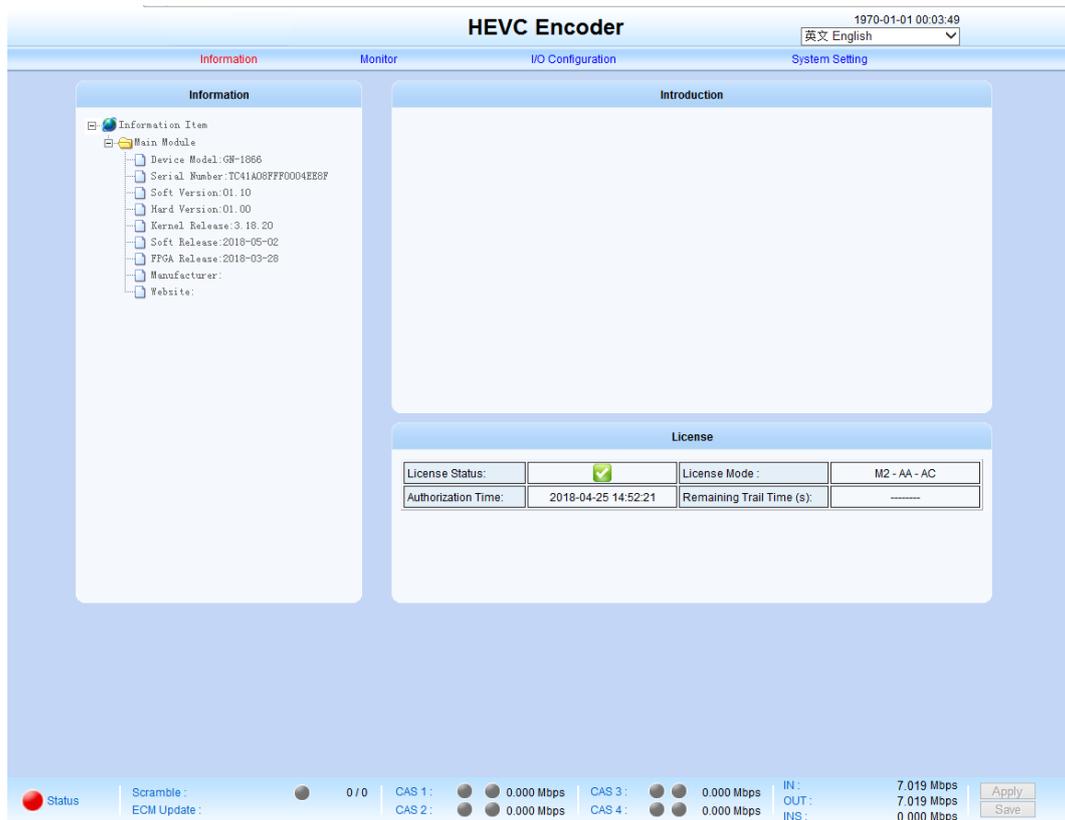
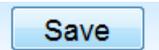


Fig 5 Web Default Home Page

The default home page is the device information page which displays the device information (model, sequence number, etc.), the state of the device authorization, and the working state of the important parameters of the device in real time. In the navigation menu of the page, clicking on different hyperlink tags can be allocated to the device for device information, device monitoring, input and output, and device settings pages respectively.

! User Instructions:

1. **The device will not automatically save the parameter settings of the current user.** If the device is rebooted, all the parameters of the device will be restored to the last saved settings. If the parameter settings are not saved, the default parameter settings are restored. Therefore, **users need to save their own settings**
2. The operation is as follows: as shown above(Fig 5), after setting all the parameters of the device, click the button at the lower right  to save all the current parameters.

§ 3.2.2 User Management

For security reasons, when you first log in with the default user name and password of the device, we suggest that you change the user name and password immediately. User account information editing is completed on user management page.

Click the “System Setting” link in the home navigation area to enter the device settings page, as shown below.

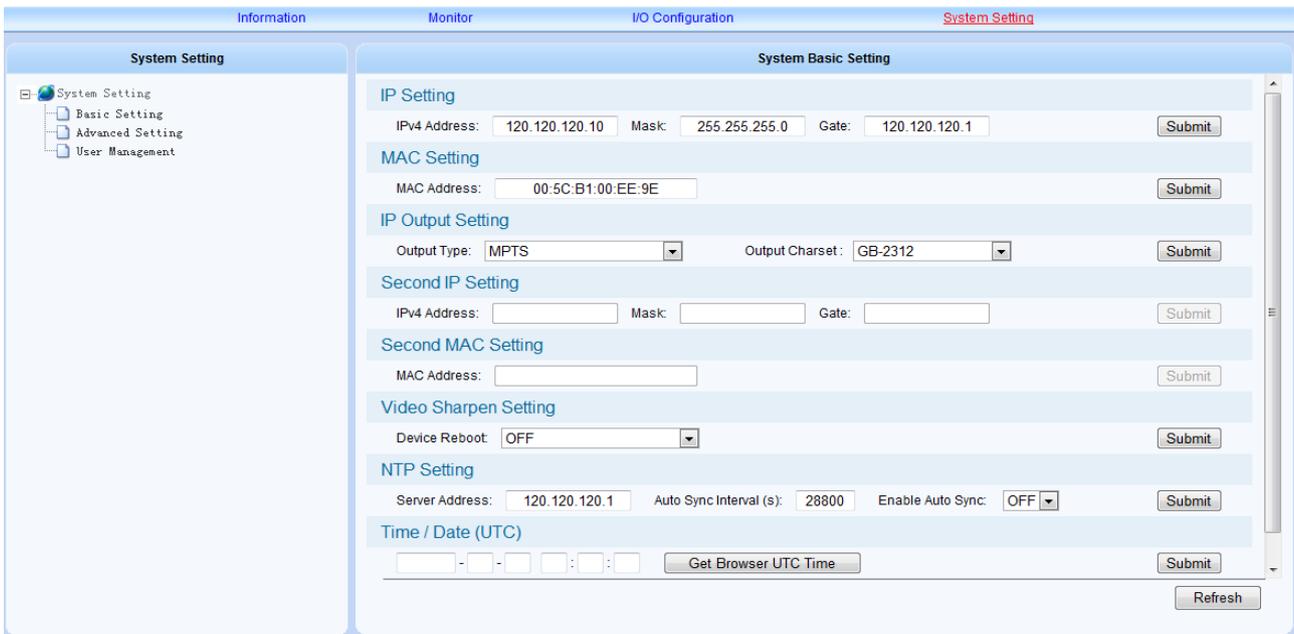
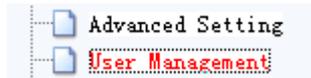


Fig 6 System Basic Setting Page

Select the “User Management page” link



on the left side of the page to enter

the User Management page, as shown below.

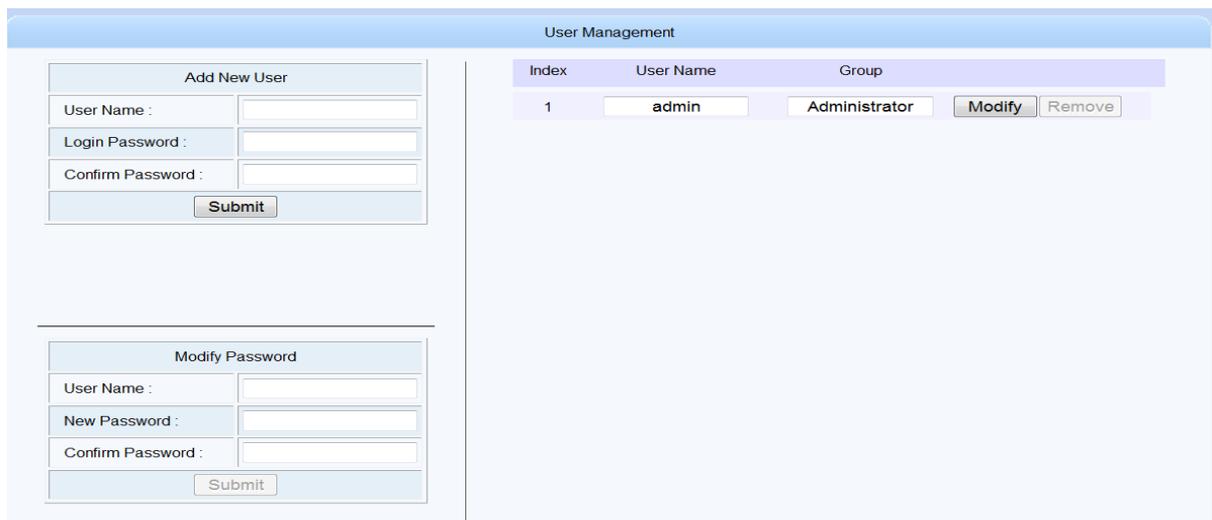


Fig 7 User Management Page

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

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

§ 3.2.2.1 Create New Users

On “User Management page” page, please input the right user name, login password and confirm password in the “add new user” dialog, as shown below.



After completing the input, click the **Submit** button to create a new user account. After successful creation, the new created user is displayed in the user list on the right, as shown below

Index	User Name	Group		
1	admin	Administrator	Modify	Remove
→ 2	go	Operator	Modify	Remove

- 【Remark】
1. The username and password must be 1-16 characters in English letters or numbers.
 2. All the accounts created are common users;
 3. Common user can do system configuration, but is not allowed to perform task such as user management and system upgrade.

§ 3.2.2.2 Edit Existing Users

In “User Management page”, please click the “**Modify**” button of an account.

Index	User Name	Group		
1	admin	Administrator	Modify	Remove
2	g	Operator	Modify	Remove

You can modify account information in the “modify password” bar,



After modification, please click the **Submit** button.

【Remark】 *Admin account can not be deleted, but can be modified its password; When you use this device for the first time, you should modify Admin account's password and save it.*

§ 3.2.2.3 Delete Existing Users

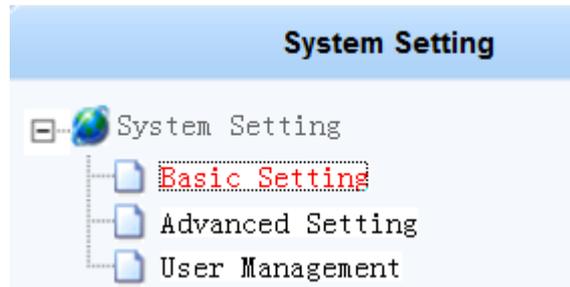
In “User Management” page, please click the "Remove" button of an account to remove this account.

Index	User Name	Group		
1	<input type="text" value="admin"/>	<input type="text" value="Administrator"/>	<input type="button" value="Modify"/>	<input type="button" value="Remove"/>
2	<input type="text" value="go"/>	<input type="text" value="Operator"/>	<input type="button" value="Modify"/>	<input type="button" value="Remove"/>

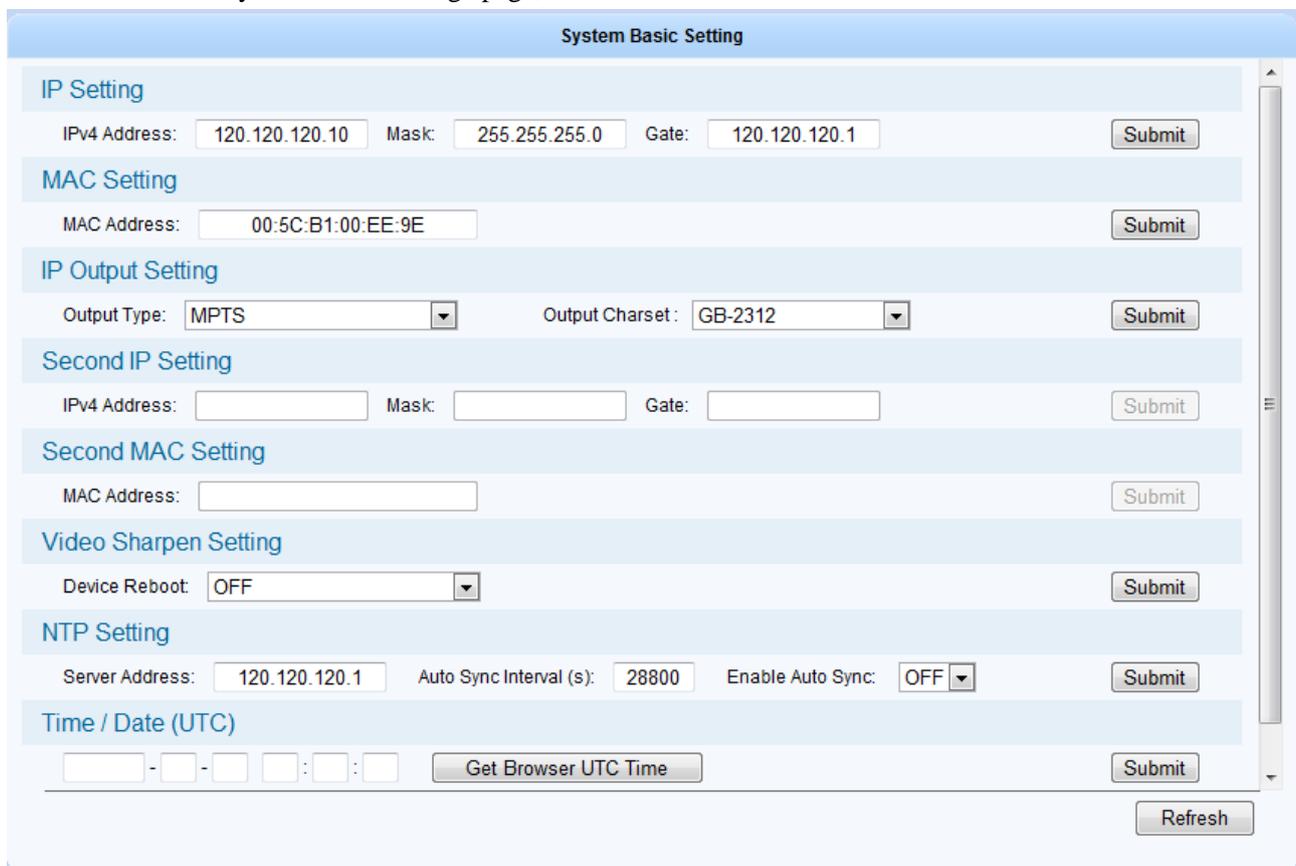
【Remark】 This device does not allow to delete the "Admin" account, but you can delete the common account.

§ 3.2.3 Device Basic Parameter Setting

In the “System Setting” page, please click the "Basic Setting" link in the project selection area.



You can enter the “System Basic Setting” page, as shown below.



The screenshot shows the 'System Basic Setting' page with several configuration sections:

- IP Setting:** IPv4 Address: 120.120.120.10, Mask: 255.255.255.0, Gate: 120.120.120.1, Submit button.
- MAC Setting:** MAC Address: 00:5C:B1:00:EE:9E, Submit button.
- IP Output Setting:** Output Type: MPTS, Output Charset: GB-2312, Submit button.
- Second IP Setting:** IPv4 Address, Mask, Gate fields, Submit button.
- Second MAC Setting:** MAC Address field, Submit button.
- Video Sharpen Setting:** Device Reboot: OFF, Submit button.
- NTP Setting:** Server Address: 120.120.120.1, Auto Sync Interval (s): 28800, Enable Auto Sync: OFF, Submit button.
- Time / Date (UTC):** Time fields, Get Browser UTC Time button, Submit button.

A Refresh button is located at the bottom right of the page.

Fig 8 System Basic Setting Page

In this page, you can configure the IP setting, MAC setting, IP output setting(MPTS/STPS) output settings, video sharpen, NTP setting and browser UTC time synchronization setting and other operations

§ 3.2.3.1 IP Setting for management

In the page shown below, please input correct and legitimate IP address in the IP Setting (IPV4 address) column and click the "Submit" button to set the network parameters.



The image shows a close-up of the 'IP Setting' section with the following values: IPv4 Address: 120.120.120.111, Mask: 255.255.255.0, Gate: 120.120.120.1, and a Submit button.

【Remark】 In order to ensure the normal operation of the system, we should ensure that the IP address of the

management port should be in the same network segment as the IP address of the management station of the device. Meanwhile, the device supports 6 boards at most, and the IP address of the management port of each sub-board can not be the same.

§ 3.2.3.2 MAC Add. Setting

In the page shown below, in the MAC Setting, input the legitimate MAC address and click the **Submit** button to set up the MAC address of the device.



MAC Setting

MAC Address:

【Remark】

Once the MAC address is set up, it will take effect once the IP address is set up again. Meanwhile, the network may not be accessible for a period of time because of the change of MAC address.

§ 3.2.3.3 IP Output Setting

In the page shown below, MPTS or SPTS can be selected in the output type of the "IP output setting" column. The output character set can select the corresponding character set by the drop-down menu, and "submit" button.



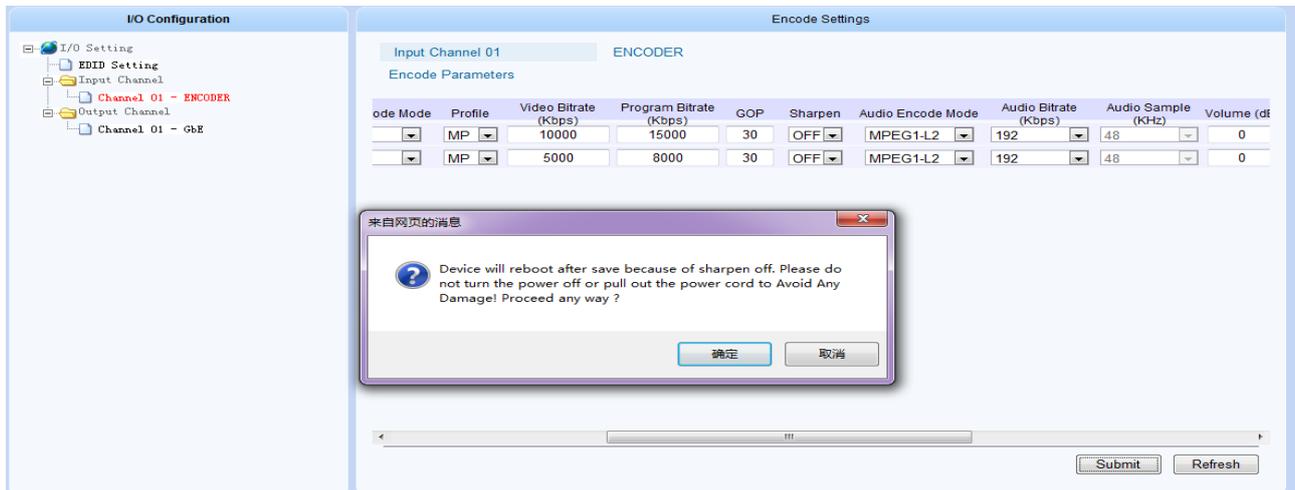
IP Output Setting

Output Type: Output Charset:

§ 3.2.3.4 Video Sharpen Setting

In the page shown below, please choose ON or OFF in “Device Reboot” of the video sharpen setting.

If you choose ON in the “Device Reboot” and submit, and then device will reboot after user’s input channel selection sharpening is changed from other options to OFF in the input and output settings and submitting it, as shown below.



The screenshot shows the 'Encode Settings' page for 'Input Channel 01'. A table lists encode parameters:

ode Mode	Profile	Video Bitrate (Kbps)	Program Bitrate (Kbps)	GOP	Sharpen	Audio Encode Mode	Audio Bitrate (Kbps)	Audio Sample (KHz)	Volume (dB)
<input type="text" value="MP"/>	<input type="text" value="MP"/>	10000	15000	30	<input type="text" value="OFF"/>	<input type="text" value="MPEG1-L2"/>	192	48	0
<input type="text" value="MP"/>	<input type="text" value="MP"/>	5000	8000	30	<input type="text" value="OFF"/>	<input type="text" value="MPEG1-L2"/>	192	48	0

A dialog box titled '来自网页的消息' (Message from the website) is displayed, containing the text: 'Device will reboot after save because of sharpen off. Please do not turn the power off or pull out the power cord to Avoid Any Damage! Proceed any way?'. It has '确定' (OK) and '取消' (Cancel) buttons.

Fig 9 Shapen Setting Page

If you choose OFF in the “Device Reboot” and submit it, and then there is no need to reboot device, as shown below.



Video Sharpen Setting

Device Reboot:

§ 3.2.3.5 NTP Setting

1.Setting NTP Server: You can set the IP address of the network time server in “NTP setting” column, auto-sync. interval, enable auto-sync., and click the "Submit" button, as shown below.



The screenshot shows the 'NTP Setting' configuration page. It includes a title bar 'NTP Setting' and three input fields: 'Server Address' with the value '120.120.120.1', 'Auto Sync Interval (s)' with the value '28800', and 'Enable Auto Sync' with a dropdown menu set to 'OFF'. A 'Submit' button is located to the right of these fields.

【Remark】 After the NTP setting, this device updates its system time from the NTP server according to the time period set by users, provided that the NTP server has started and started the SNTP service

2.Manually Setting System Time: You can set the system time manually on the “time / date (UTC)” column, and you could also get browser UTC standard time by clicking "get browser UTC time", and click “Submit” button, as shown below.



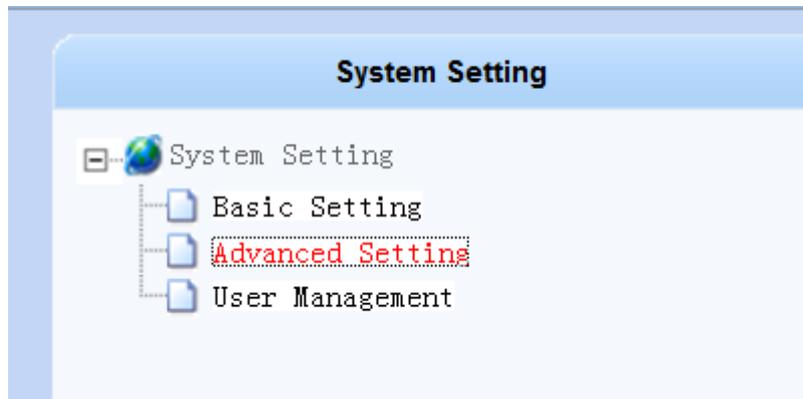
The screenshot shows the 'Time / Date (UTC)' configuration page. It features a title bar 'Time / Date (UTC)' and a time selection interface with fields for year (2016), month (8), day (22), hour (14), minute (45), and second (7). A 'Get Browser UTC Time' button is positioned between the time fields and a 'Submit' button is on the right.

【Remark】

- 1、 If the NTP server's address has been set and the network time synchronization is enabled, and the NTP server's SNTP service is working properly, the device will get its system time from the network time server, when the manually set system time will be invalid.
- 2、 The time to select the time synchronization with the browser UTC is the standard UTC (0 zone) time on the browser's server, which may be different from the time shown on the server. For example, when the server is on the East 8 zone time (UTC+8:00), the time obtained will be 8 hours different from the time.

§ 3.2.4 System Advanced Parameter Setting

Please click “Advanced Setting” in the system setting page.



You can enter the System Advance Settings page, as shown in the following figure 10.

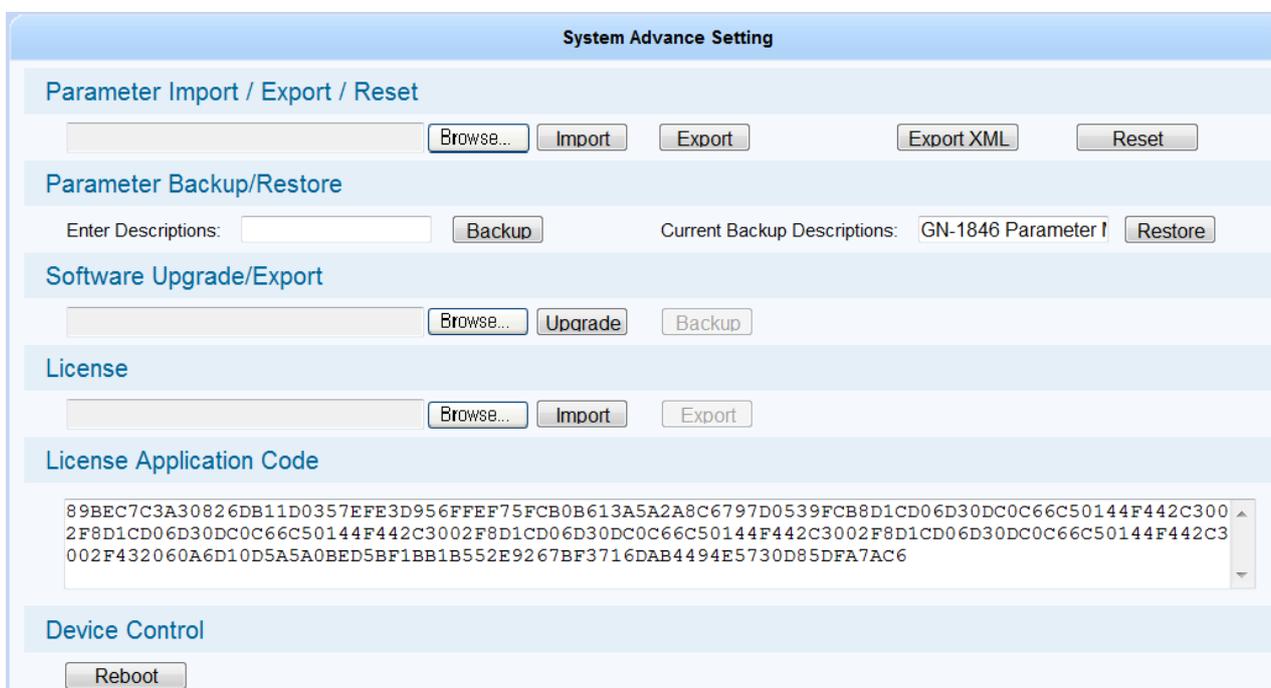


Fig 10 System Advance Setting

In this page, you can operate the import, export and reset of the device parameters, parameter backup and recovery, software upgrade and backup, authorization file import, device reboot and so on.

§ 3.2.4.1 Parameter Import/Export and Reset Setting

1. **Parameter Import:** In the following parameter import / export / reset column below, please click the “Browse” button to select the device parameter file.



After selecting the parameter file, please click the "open" button. Then please return to the parameter import interface and click "import" button, and then the system will be automatically turn to the file upload management page as shown in the following fig 11 and 12.

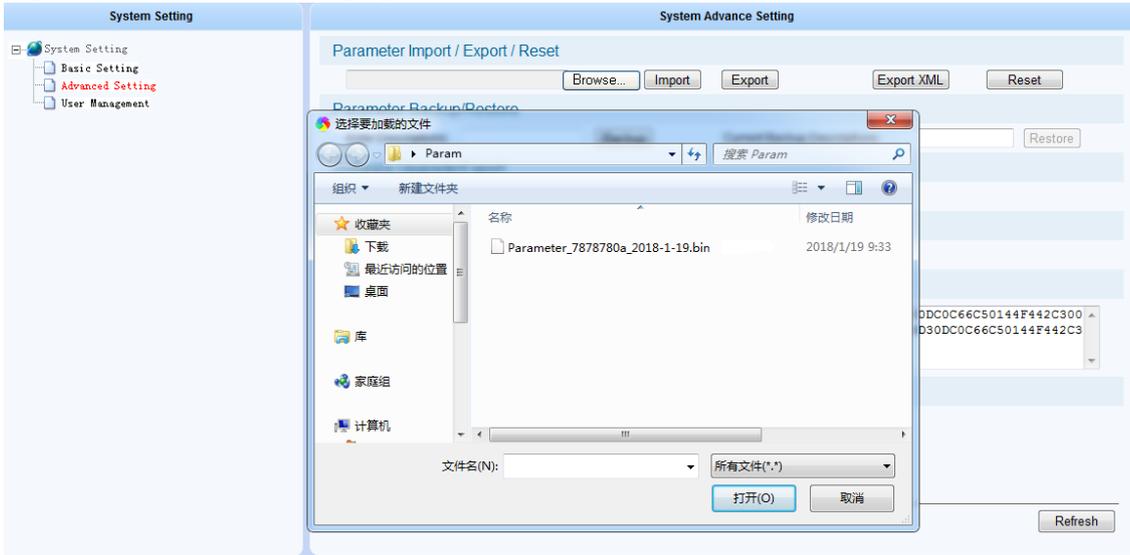


Fig 11 Parameter Import Page

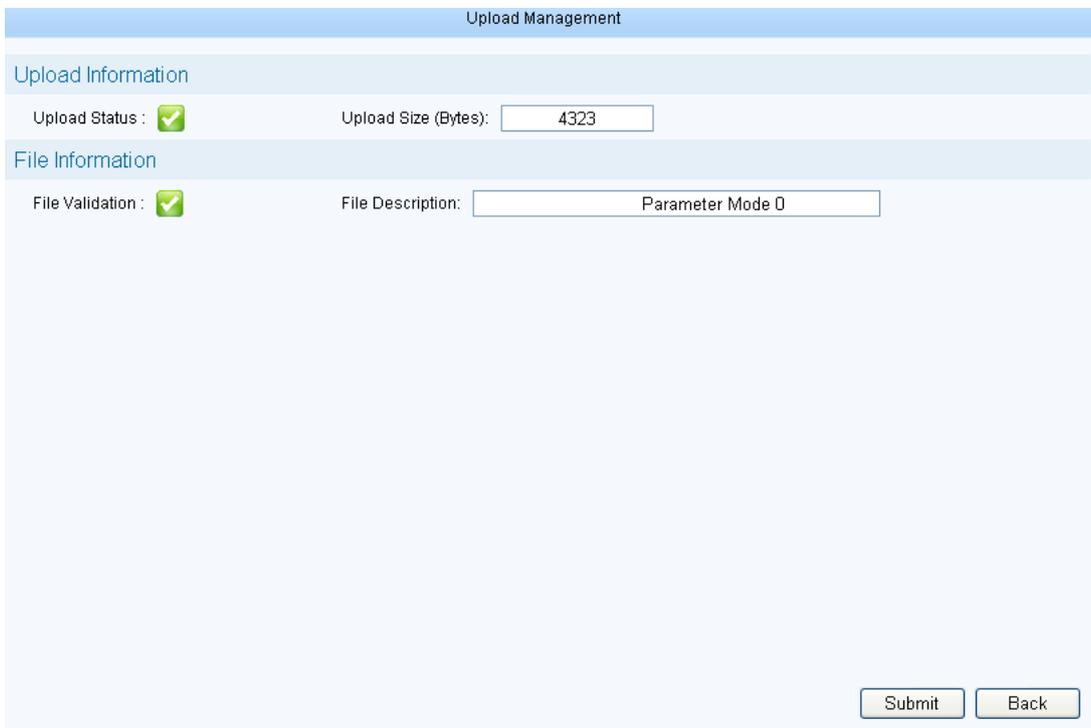


Fig 12 File Upload Management page

The system will verify the uploaded parameter files. If the file is uploaded correctly, and the file format is correct, the "Upload Status" column and the "File Validation" column will all display . Then, please click "Submit" button and pop up the dialog, as shown below.



Please click "OK", so that parameters are imported into the device.

【Remark】

1. During the importing parameters, please do not turn off the device power or unplug the power cord.
2. The device will reboot automatically after importing the parameters.

2. **Parameter Export:** In the page shown below, click the **Export** button, and the system will pop up the following dialog box.

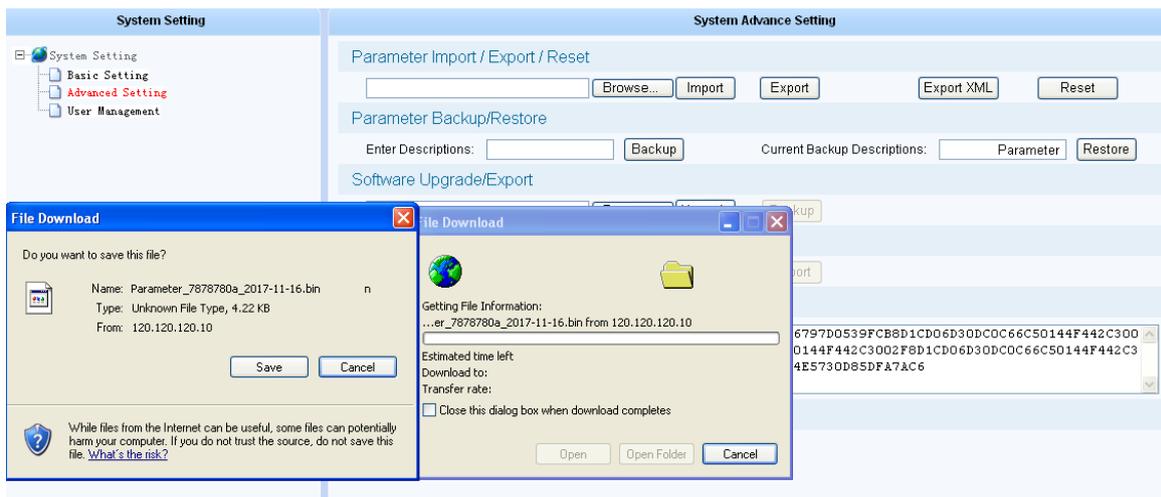


Fig 13 File Export Management Page

Click the "Save" button to export the device parameters to the user specified path.

3. **Parameter Reset:** In the page shown above, click the **reset** button, and the system will pop up the following dialog box.



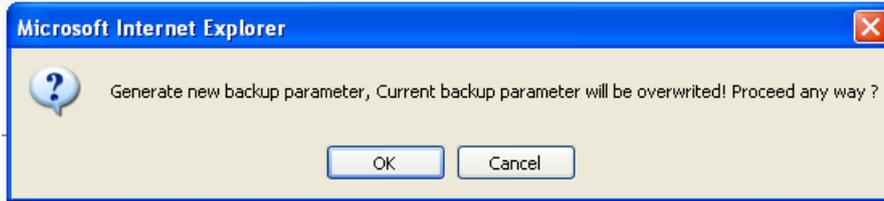
§ 3.2.4.2 Parameter Backup and Restore

1. **Parameter Backup:** The parameter backup / recovery column is as shown in the following figure.

Parameter Backup/Restore

Enter Descriptions: Current Backup Descriptions:

In the import parameter description information, please fill in the identification of the backup file (such as 2012-08-22), click the “**Backup**” button, and the system will pop up the following dialog box.



Click the “**OK**”, and the system will generate a new backup file. At this point, the newly generated backup files will be seen in the current backup description column.

【Remark】 The system can store only one parameter backup file each time, and the newly generated backup file will automatically cover the previous backup files.

2. Parameter Backup: When there is a parameter backup file in the device, click the “**Restore**” button, and the system will pop up like the following dialog box.



Click the “**OK**” to import the backup parameters into the device. After the device is automatically rebooted, it will run according to the restored parameters.

§ 3.2.4.3 SW Upgrade and Backup

As shown below, in the software upgrade / backup column, you can choose to upgrade files and import devices to upgrade them.

Software Upgrade/Export

Click the “**Browse**” button, the system will pop up the dialog box to select the file(SW):

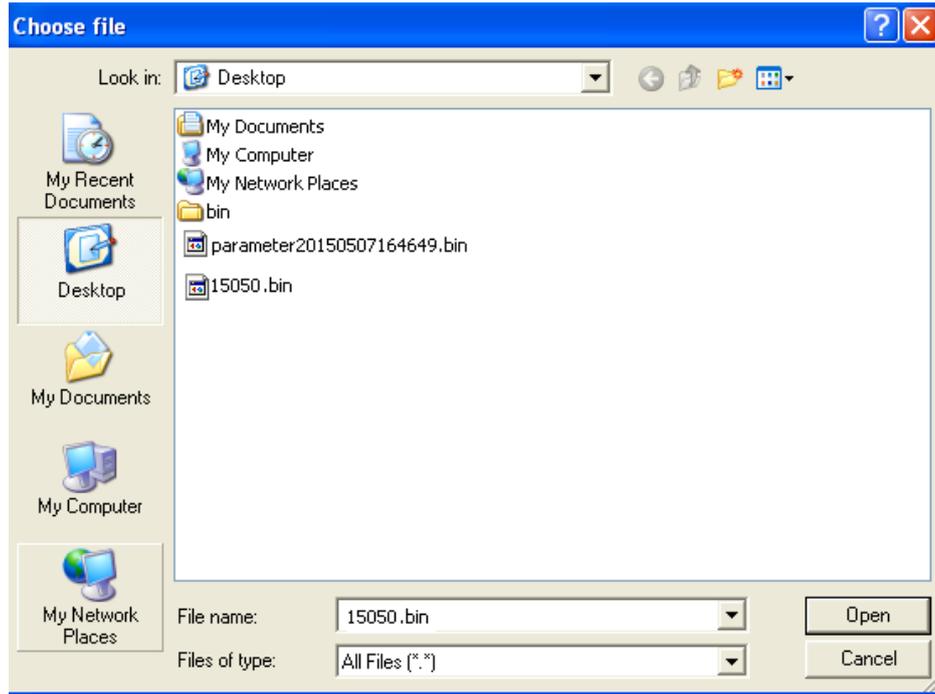


Fig 14 Choose Upgrade File(SW) Page

Select the upgrade file and click the "**open**" button.

Click "upgrade" button, the system will automatically turn to the file(SW) upload management page, shown as in the following figure.

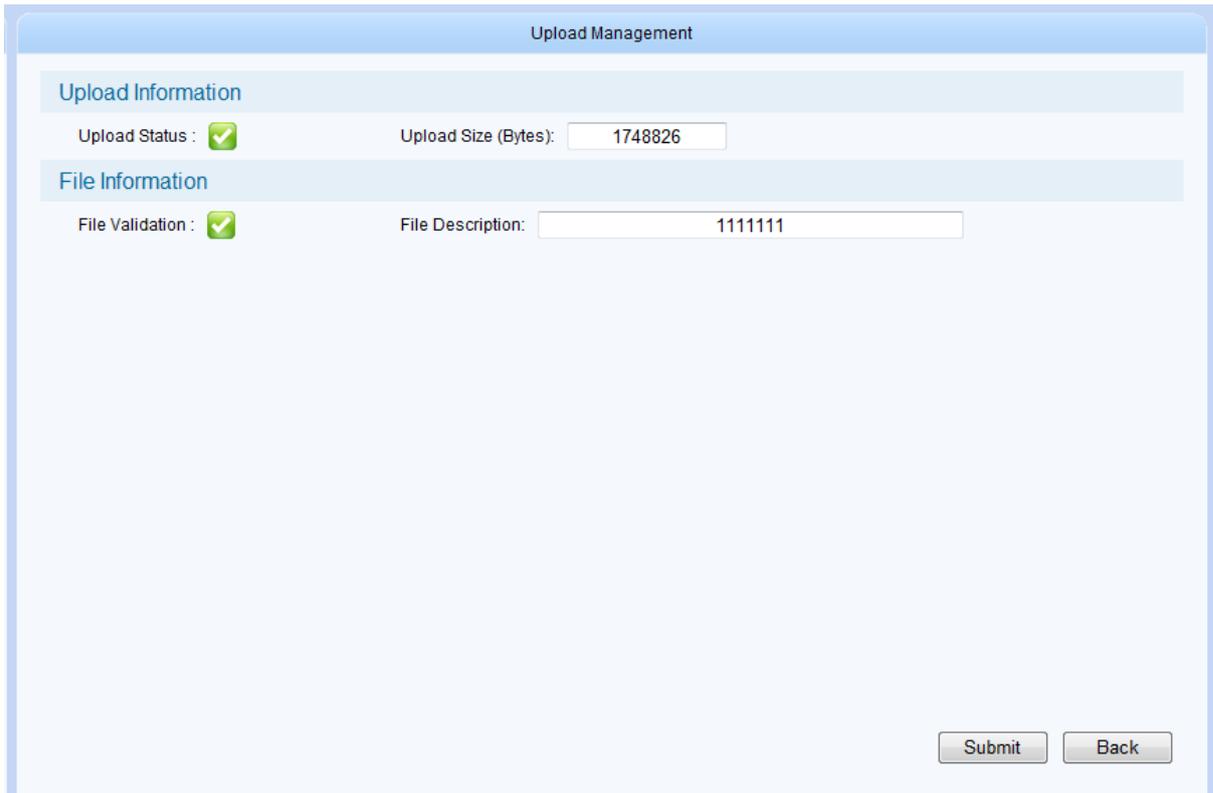
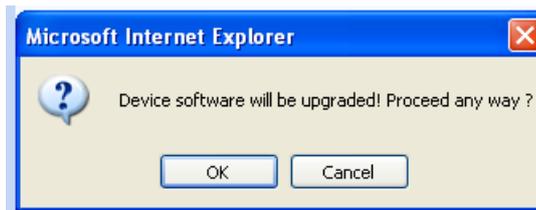


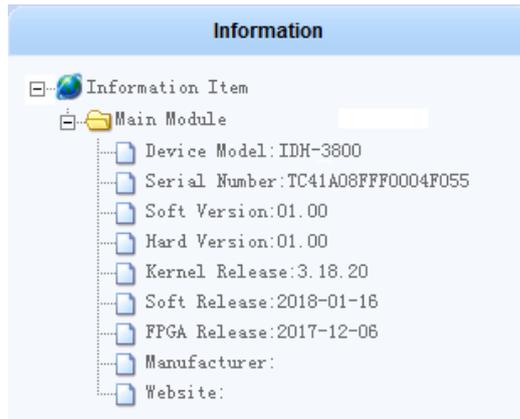
Fig 15 File(SW) Upload Management Page

The system will verify the uploaded parameter file(SW). If the file is uploaded correctly, and the file format is correct, the "Upload Status" column and the "File Validation" column will all display . Then, please click "Submit" button and pop up the dialog as shown below.



Click on the "OK" to start upgrading the device.

After upgrading, you can view the device version information on the device information bar in the front page of Web network management.



【Remark】

1. During the upgrade, please do not turn off the device power or unplug the power cord.
2. After the upgrade, the device will reboot automatically.

§ 3.2.4.4 Device Authorization

This device is built with TELELYNX’s latest module management function, and many devices can be upgraded via software authorization. As shown below, you can input authorization files to authorize the device in the license column.



As shown in Annex C, this device has multiple authorization(license) types. Please confirm the authorization type of the equipment you purchased. If you want to get a higher level configuration after purchasing the equipment, please contact the sales person to purchase license. In order to manage the license, we will ask you for your license application code.



After obtaining the application code, we will send the authorized documents to you immediately.

§ 3.2.4.5 Device Control

As shown below, the reboot device option is provided in the device control column.



Click the “**reboot**” button, and the system will pop up the following dialog box:



Please click "OK" to reboot the device.

§ 3.2.5 Input and Output Configuration

Please click "I/O Setting" in the navigation bar to enter the device input / output configuration interface, as shown in the Fig 16.

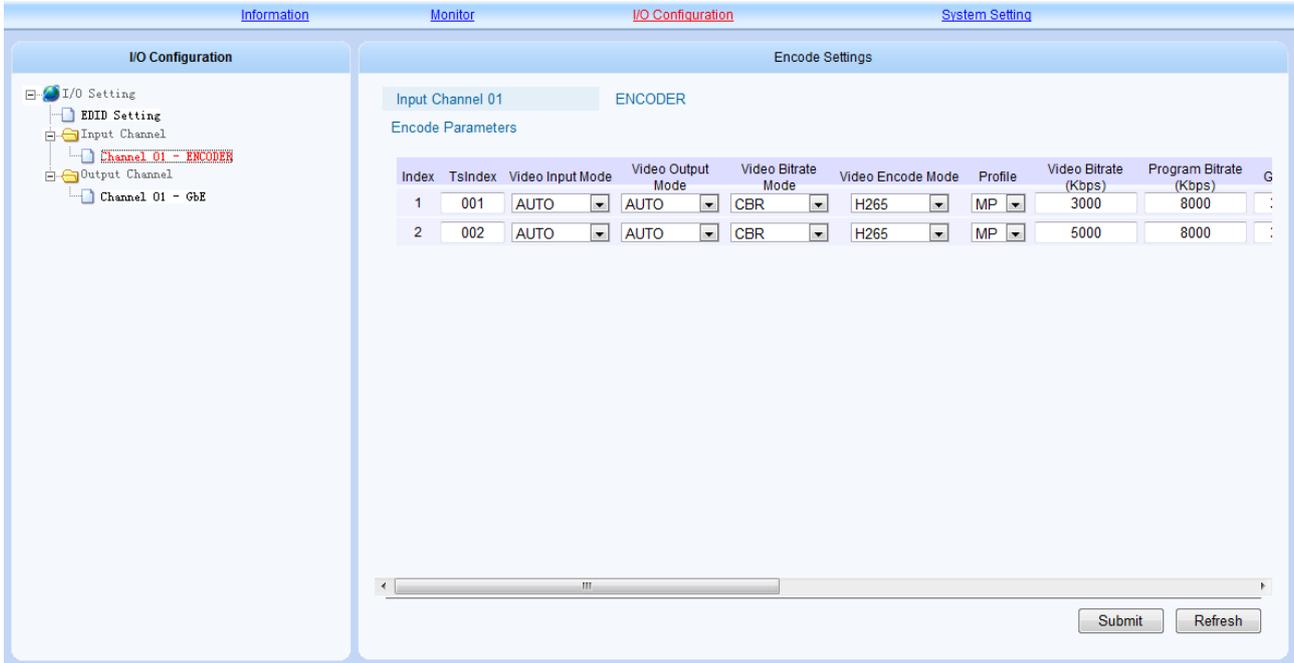


Fig 16 Input and Output Setting Page

In the selection item column on the left side of the page, there are EDID setting, input channel and output channel respectively, as shown below.

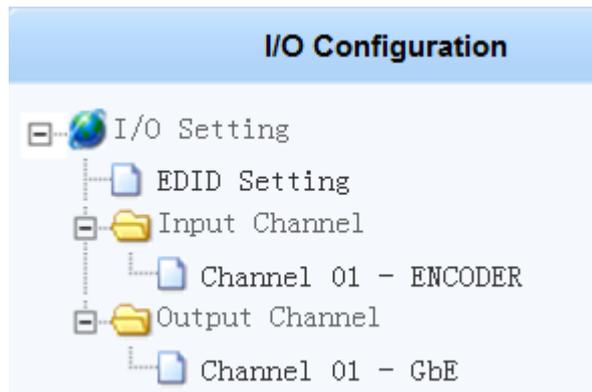


Fig 17 Input and Output Channels List

§ 3.2.5.1 EDID Setting

Please click "EDID Setting" and there will be parameters which could be set in the "EDID settings" column, as shown below.

EDID Setting	
Index	EDID Type
1	DownMix
2	DownMix
3	AC3
	NONE
	DownMix
4	DownMix

Fig 18 EDID Setting Page

【Remark】

- 1、 The HDMI(SDI) connection of all channels must be pulled out when configuring
- 2、 After the EDID configuration is successful, you need to plug in the HDMI(SDI) connection and manually reboot the device.

§ 3.2.5.2 Input Channel Configuration

Please click the "input channel 01- encoder module" link, and there will display the encoding parameters interface, as shown in the following Fig 19.

Encode Settings

Input Channel 01 ENCODER

Encode Parameters

Index	TsIndex	Video Input Mode	Video Output Mode	Video Bitrate Mode	Video Encode Mode	Profile	Video Bitrate (Kbps)	Program Bitrate (Kbps)	G
1	001	AUTO	AUTO	CBR	H265	MP	3000	8000	:
2	002	AUTO	AUTO	CBR	H265	MP	5000	8000	:

Encode Settings

Input Channel 01 ENCODER

Encode Parameters

GOP	Audio Encode Mode	Audio Bitrate (Kbps)	Audio Sample (KHz)	Volume (dB)	Program Name	Program Number	Video PID	Audio PID	PCR PID
30	MPEG1-L2	192	48	0	prog1	1	128	144	160
30	MPEG1-L2	192	48	0	prog2	2	129	145	161

Encode Settings

Input Channel 01 ENCODER

Encode Parameters

Video Bitrate (Kbps)	Audio Sample (KHz)	Volume (dB)	Program Name	Program Number	Video PID	Audio PID	PCR PID	PMT PID	Work Status
	48	0	prog1	1	128	144	160	176	ON
	48	0	prog2	2	129	145	161	177	ON

Fig 19 Input Channel Parameters Page

Parameter Description:

TS Indexes: 1, 2

Video Input Mode: AUTO, 1080P60, 1080P59.94, 1080P50, 720P60, 720P59.94, 720P50

Video Output Mode: AUTO, 1080P30, 1080P25, 720P30, 720P25, 576P25, 480P29.97

Video Bitrate Mode: CBR/VBR

Video Encode Mode: H265/ H264

Profile: BASE (Basic picture quality, most for the field of real-time communication) , MP (Mainstream image quality, most for the field of streaming media) , HP (High quality, most for the field of broadcasting and TV and storage)

Video Bitrate(output): It can be configured within 500-10000Kbps range according to the requirements.

Program Bitrate: It can be configured within the video output bitrate -15000Kbps range, which is only for SPTS mode only. As for the output bitrate of MPTS , it needs to be set in network parameters.

GOP:1-30。

Audio Encode Mode: MPEG1-L2/MODE-AA/AC3/E-AC3。

Audio Bitrate: 64 Kbps, 96Kbps, 128Kbps, 192Kbps, 256Kbps, 384Kbps(It's null and void when AC3/E-AC3)。

Audio Sample:48KHz(It's null and void when AC3/E-AC3)。

Volume: -30—30dB(It's null and void when AC3/E-AC3)。

Program Name: 1-63pcs characters

Program Number: 1-65535

Video PID: 32-8190

Audio PID: 32-8190

PCR PID: 32-8190

PMT PID: 32-8190

Work Status: ON/OFF

§ 3.2.5.3 Output Channel Configuration

As shown below, please click the "Output Channel 01-Gigabit Ethernet " link, and there displays the encoding parameter interface in the "Channel Setting".

Channel Setting

Output Channel 01 GbE

ETH Setting: - - -

Index	TsIndex	Protocol	DES Address	Status
1	<input type="text" value="001"/>	UDP ▾	<input type="text" value="224.120.120.36"/> : <input type="text" value="5000"/>	<input type="text" value="ON"/> ▾
2	<input type="text" value="002"/>	UDP ▾	<input type="text" value="224.120.120.36"/> : <input type="text" value="5001"/>	<input type="text" value="ON"/> ▾

Batch Set: - -

Channel Setting

Output Channel 01
GbE

ETH Setting:

Index	TsIndex	Protocol	DES Address	Output Bitrate (Kbps)	Status
1	001	UDP ▾	224.120.120.50 : 5000	30000	ON ▾

Batch Set :

Fig 20 Schematic Diagram of SPTS/MPTS Output Channel Setting

【Remark】 When configuring MPTS, you need to set the total output bitrate on the page, whose range is 2-60Mbps. Please note that the value of modification must be larger than that of all coding channels.
 Reference settings: **The total coding bitrate of all coding channels = (audio plus video) * 1.5**

§ 3.2.6 Device Monitoring

You can enter the device monitor items and setting interface by clicking the “Monitor” link in the navigation bar as shown below(Fig 21).



Fig 21 Device Monitor Page

On the front page of the device monitoring page, users can query the temperature of each module, all kinds of bit rate inf. and related alarm inf. The list of monitoring options is displayed in the select item column on the left side of the page, including main module, sub -module alarm inf. and bitrate monitor,as shown below(Fig 22).

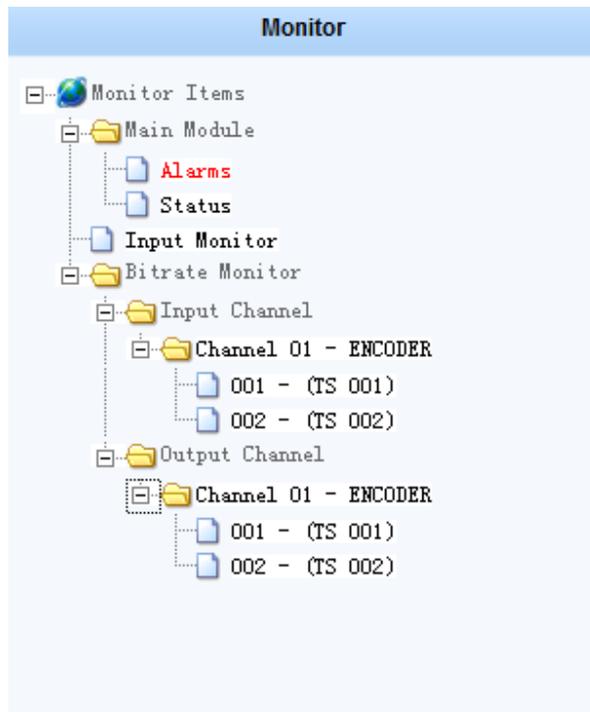


Fig 22 List of Monitoring Options

§ 3.2.6.1 Main Module - Alarms and Status

Please click “Monitor Items-**Main Module**” and you could check and configure the alarms and status information as shown below.

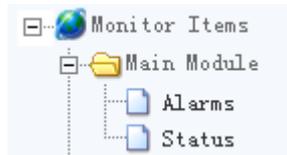


Fig 23 Main Module- Alarms and Status Menu

§ 3.2.6.1.1 Main Module-Alarms

Please click on the "Main Module -**Alarms**" link, you can enter the main module’s alarm monitoring page as shown below.

Alarms						13
Index	Description	Status	Counter	Reset	Details	
1	Temperature Critical	●	0	<input type="button" value="Reset"/>	<input type="button" value="Detail"/>	
2	Hardware Error	●	0	<input type="button" value="Reset"/>	<input type="button" value="Detail"/>	
3	NTP Service Error	●	0	<input type="button" value="Reset"/>	<input type="button" value="Detail"/>	
4	Input Error	●	0	<input type="button" value="Reset"/>	<input type="button" value="Detail"/>	
5	Output Error	●	0	<input type="button" value="Reset"/>	<input type="button" value="Detail"/>	

Index	Description	Trap Panel	Log Level
1	Temperature Critical	<input checked="" type="checkbox"/> <input checked="" type="checkbox"/>	Critical
2	Hardware Error	<input checked="" type="checkbox"/> <input checked="" type="checkbox"/>	Critical
3	NTP Service Error	<input checked="" type="checkbox"/> <input checked="" type="checkbox"/>	Critical
4	Input Error	<input checked="" type="checkbox"/> <input checked="" type="checkbox"/>	Critical
5	Output Error	<input checked="" type="checkbox"/> <input checked="" type="checkbox"/>	Critical

Fig 24 Main Module-Alarms Page

As shown above, a number of alarm messages are displayed on the left side of the page. When the alarm is not in alarm, the status lamp of the alarm is ●; when the alarm is given, the status light becomes ●, and the counter

will record the number of errors, for example

1	Hardware Error	●	0	<input type="button" value="Reset"/>	<input type="button" value="Detail"/>
---	----------------	--------------------------------------	---	--------------------------------------	---------------------------------------

As shown above, the Trap switch, front panel switch and log level can be set on the right side of the page.

Trap: When open, if there is an alarm, the device will transmit the trap alarm information to the server through SNMP network management.

Front Panel: If the alarm is activated, the alarm lights on the front panel of the equipment will be flashing and display the alarm information.

Log Level: Optional grades (from low to high) include critical, information, warnings, and errors.

After the above settings are completed, click the **Submit** button to take effect.

【Remark】 1. Trap functionality is temporarily unsupported

2. If the alarm is cleared, the counter will not be automatically restored. At this point, users need to click the **Reset** button manually to clear the counter.

【Remark】 Even if there is no alarm at any time, when the number of counters is not 0, the web page status corresponds to the "Device Status" lamp of the module and it will be red.

§ 3.2.6.1.2 Main Module-Status

Click on the "main module- status " link to enter the main module status information page.

Status		03	
Simulcrypt Synchroniser			
Crypto Period Duration(ms) :	0		
Crypto Period Number :	0		
● /			
CAS 01			
ECM / EMM Status :	● / ●		
EMM Bitrate (Mbps) :	----		
CAS 02			
ECM / EMM Status :	● / ●		
EMM Bitrate (Mbps) :	----		
CAS 03			
ECM / EMM Status :	● / ●		
EMM Bitrate (Mbps) :	----		
CAS 04			
ECM / EMM Status :	● / ●		
EMM Bitrate (Mbps) :	----		
Alarms General Switch:		ON ▾	
Critical Temperature (°C):		65	
Temperature(°C/°F) :		35/95	
CPU Usage:		26%	
Mem Usage:		33%	
Inserter Bitrate (Mbps) :		0.000	
Update Data		Submit Refresh	

Fig 25 Main Module-Status

As shown above, the page is mainly set up for module temperature alarm, including alarm general switch and critical temperature.

The left side of the page shows the communication and working status of the CAS and scrambling system corresponding to the current module.

The upper half of the right side of the page:

Alarm General Switch: You can select the monitor system to turn on / off the module through the drop-down menu, then click the **submit** button to take effect.

Critical Temperature (°C) :Set the upper limit of the temperature alarm of the module and click the **submit** button to take effect.

The lower half of the right side of the page:

Temperature (°C/° F) : Current module temperature detector value (centigrade / Fahrenheit)

CPU Usage: Percentage of current module CPU usage.

Memory Usage: The percentage of current module memory usage.

Inserter Bitrate (Mbps) : The real-time data flow of each sub-module currently provided by the core system.

Main Module Input and Output(Mbps): The total input / output bitrate is displayed.

Internal Communication (Mbps): Real-time traffic in module internal communication

§ 3.2.6.2 Bitrate Monitor

Please click  of  Bitrate Monitor , the bitrate monitor menu could be expanded so that users can choose to query and set the alarm inf. of input and output bitrate, as shown below.

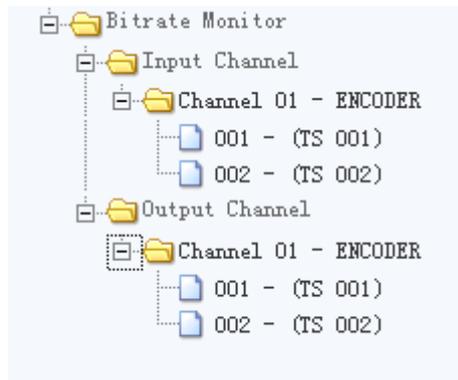


Fig 26 Bitrate Monitor Menu

§ 3.2.6.2.1 Bitrate of Input Channel

Please expand the menu of input channel, you could check the bitrate of each input channel and configure the bitrate of each input channel, as shown below.

Total Bitrate: 15.581 Mbps
Bitrate Monitor / Bitrate Alarm Setting
InputChannel 01 07

Index	TsIndex	Bitrate (Mbps)		Index	TsIndex	Low (Mbps)	High (Mbps)	Enable
1	001	7.804		1	01	0.000	0.000	OFF <input type="button" value="v"/>
2	002	7.777		2	02	0.000	0.000	OFF <input type="button" value="v"/>

Fig 27 Input Channel Bitrate Monitor Page

As shown above, the left side of the page shows the real-time bitrate of each channel, and the alarm inf. of each channel can be set on the right side, including the alarm low limit, the alarm high limit, and the alarm switch.

Low Limit: When the input bitrate is lower than the set value, the device will alarm.

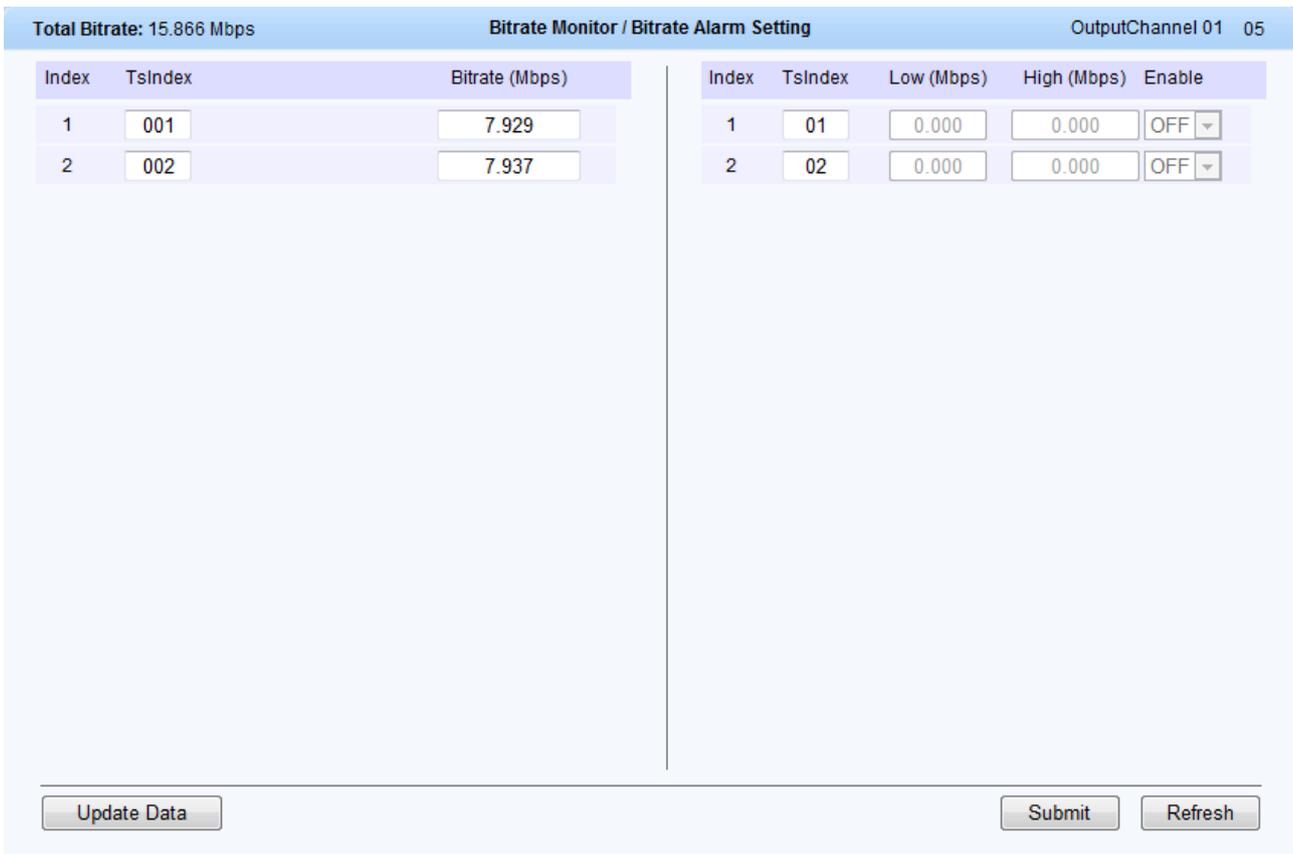
High Limit: When the input bitrate is higher than the set value, the device will alarm.

Enable: Open or close the bitrate alarm.

After the above settings are completed, please click the **submit** button to take effect.

§ 3.2.6.2.2 Bitrate of Output Channel

Please expand the menu of output channel, you could check the bitrate of each channel and set alarm inf., as shown below.



Total Bitrate: 15.866 Mbps			Bitrate Monitor / Bitrate Alarm Setting				OutputChannel 01 05	
Index	TsIndex	Bitrate (Mbps)	Index	TsIndex	Low (Mbps)	High (Mbps)	Enable	
1	001	7.929	1	01	0.000	0.000	OFF	
2	002	7.937	2	02	0.000	0.000	OFF	

Fig 27 Output Channel Bitrate Monitor Page

As shown above, the left side of the page shows the real-time bitrate of each channel, and the alarm inf. of each channel can be set on the right side, including the alarm low limit, the alarm high limit, and the alarm switch.

Low Limit: When the input bit rate is lower than the set value, the device will alarm.

High Limit: When the input bit rate is higher than the set value, the device will alarm.

Enable: Open or close the bit rate alarm.

After the above settings are completed, please click the **submit** button to take effect.

§ 3.2.6.3 System Bitrate

You can query real-time display of total bitrate of input and output of each module, the total output rate, card status is as follows.



Fig 27 System Bitrate Monitor Page

§ 3.3 Parameter Reset

Parameter Type	Value	Remark
Operating Mode	Coding	Channel 1~1
Video Input Interface	HDMI(SDI option)	Channel 1~2
Video Input Signal Mode	Auto	Channel 1~2
Video Output Signal Mode	Auto	Channel 1~2
Video Bitrate Mode	CBR	Channel 1~2
Video Encoding Mode	H.265	Channel 1~2
Video Type	MP	Channel 1~2
Video Bitrate (Kbps)	5000Kbps	Channel 1~2
GOP	30	Channel 1~2
Audio Encode Mode	MPEG-1 L2	Channel 1~2
Audio Bitrate (Kbps)	128 Kbps	Channel 1~2
Audio Sample Rate	Auto	Channel 1~2
Channel 1 Video PID	128	
Channel 2 Video PID	129	
Channel 1 Audio PID	144	
Channel 2 Audio PID	145	
Channel 1 PCR_PID	160	
Channel 2 PCR_PID	161	
Channel 1 PMT_PID	176	
Channel 2 PMT_PID	177	
Protocol	UDP	
Objective IP Address	224.10.10.1	
UDP Port No	5000	

Annex A: Technical Specifications of IDH2-3800

A.1 Common Technical Specifications

Characteristic	Properties	Specifications
Power Supply and Consumption	Input Voltage Range	110~240VDC
	Rated Power Consumption	≤75W
Working/Storage Environment	Working Temperature Range	+5°C~45°C
	Working Humidity Range	10%~90%
	Working Air Pressure	86~106KPa
	Storage Temperature Range	-30~70°C 0.4 meters in front of the equipment
	Storage Humidity Range	10%~90% (above floor 2m~0.4 meters in front of the device)
	Storage Air Pressure	86~106KPa

A.2 Interface

NO	Interface Name	Interface Quantity	Object	Interface Definition	Interface Purpose	Remark
1	IP data output port	1	Gigabit Ethernet 10/100/1000 Base-T	UDP/RTP	TS stream data output port	Single board support 1 channel; Management / data shares a RJ45 port
2	HDMI input (SDI option)	2	HDMI Port TYPE A (SDI Port Type BNC)	Meet HDMI 1.3, compatible with S/PDIF(IEC90658)	Providing audio and video data required for coding	Single board support 2 channels
3	Network management port	1	Gigabit Ethernet 10/100/1000 Base-T	TCP/IP	Network Management	Single board support 1 channel; Management / data shares a RJ45 port
4	Power input port	1	3-hole power plug	06BEEG3G	220V power input	

A.3 Technical Indicators

NO	Indicator Name	Test Condition	Unit	Index Value	Maturity	Priority
1	Video Input Signal	Auto、1920*1080P50、1920*1080P60、1280*720P50、1280*720P60	-	-	B	High
2	Video Output BitratH.265/ H.264	500Kbps~10Mbps (single program)	-	-	B	High
3	Video Sample Rate	32KHz/44.1KHz/48KHz Input	-	-	B	High
4	Video Output Rate	64 /96/128/192/256/384Kbps	-	-	B	High

NO	Indicator Name	Test Condition	Unit	Index Value	Maturity	Priority
5	PID Value	32~8190	-	-	B	High
6	Maximum number of coded output programs	-	pcs	4(single board)	B	High
7	PCR Maximum interval	1000Kbps ~ 60000Kbps	ms	≤40	B	High
8	PAT/PMT/SDT maximum interval	1000Kbps ~ 60000Kbps	ms	≤500	B	High
9	Video coding type	Main Profile	-	-	B	Medium
10	Maximum number of programs	-	pcs	4(single)	B	High

Annex B Frequently Asked Questions

Symptoms	Possible Causes	Recommended Resolution
No display at boot up	Improper connection of power cord.	Check power input
Device is not accessible from the NMS, Cannot connect.	Network connection problems	Check whether the device is connected to the same physical network with the management workstation.
	Incorrect IP address	Enter in correct IP address in the URL field
	Device is not in the same subnet as management workstation	Modify Management port IP address of the device via front panel.
Alarm prompt that input signal loss, input format error and encoding error.	Improper connection of HDMI cable	Check HDMI cable connectors
	Signal format of input video error	Check if the signal format of input video meet the signal requirements of IDH2-3800
	Signal format of input video error	Check if the signal format of input video meet the signal requirements of IDH2-3800
	ASI input signal error	Check input signal source and make sure there is normal signal input
Fail to scan any input programs	Improper connection of HDMI (SDI) cable at data input.	Check if the cable is properly connected.
	HDMI (SDI) cable problem.	Check if the cable is properly worked, or change the cable.
Fail to scan programs in specific input	Source device is not working properly	Check malfunction in the source device
IP output succeeding device cannot receive program	Wrong connection of IP data output network cable or The receiving end's IP address and port address is different with IDH2-3800's	Connect the data output network cable. Check if the device data output port is connected with succeeding device on the same LAN.
Some specific program data with serious error	Did the Superior equipment is working properly?	Check the superior device which handle this specific program is with right setting? Or is that device is working properly?
Alarm prompts that system error	Hardware components of device damaged	Return to factory for hardware maintenance.

<p>When one of the HDMI inputs is disconnected, the corresponding output channel plays the contents of the adjacent channel, but the image is incomplete or striped.</p>	<p>This is the normal phenomenon under the coding scheme of the device</p>	<p>Normal, not a problem</p>
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Annex C Authorization Type

Authorization Type	Note
MODE-AA(audio encoding)	The device can support MPEG 1- L2 and MODE-AA (audio coding)'s audio encoding output, AC3/EAC3 audio transmissions.

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.

When encountering malfunction of the device, please contact us in time for maintenance and repairing.