YUKUAN

Live Streaming Decoder

YUK600-01HD

USER MANUAL

Content

Foreword

Thank you for using YUKUAN products!

This manual introduces the performance, installation and operation methods of the product in detail. Please read this manual carefully before use.
Reminding: YUKUAN is not responsible for any loss caused by violating safety matters.

Receipt Check
Open the equipment packing box to check the items, be sure to check the packing materials of the small parts, check the items in the packing box against the product packing list or according to the following items:

- 1 x YUK600-01HD decoder
- 2 x AC power cord
- 1 x Audio adapter cable

If these items do not match the list, please notify YUKUAN immediately.

Please read the user manual carefully and follow all operating and other instructions.

1. Power
The power supply of this machine must conform to the marked power supply and be grounded reliably. When the machine is not used for a long time, the power plug should be unplugged.
2. Working environment
Put the equipment in a ventilated and dry place to work, avoid overheating, humidity, dust accumulation, and keep away from heat sources to ensure that the equipment can work reliably.
3. Cleaning
Unplug the power plug before cleaning the machine, and do not use liquid cleaners and spray cleaners.
4. Power cord protection
The power cord should be placed on the ground where the human body cannot step on it, nor should it be placed on the power cord. Pay special attention to the safety of plug sockets and places where the power cord comes from the machine.
5. Overload
Be careful not to overload the power supply on the socket, use an extension cord, and be extra careful with the integrated socket, as this may cause electric shock and fire.
6. Lightning
In order to prevent damage caused by lightning, please use this equipment in the occasion of

lightning protection device, which can effectively prevent damage caused by lightning or power grid fluctuations.

7. Immersion of foreign objects or liquids

Do not insert foreign objects into the machine, and do not spill any kind of liquid into the machine.

8. Accessories

Do not use accessories not recommended by the manufacturer, as this may cause danger.

9. Transportation

When transporting the machine, the original packaging of the product should be used to avoid damage. Do not place heavy objects on the machine or step on the machine, otherwise it will cause personal injury and damage the machine.

10. Maintenance

Do not open the chassis for repairs by yourself, so as not to injure your body or cause serious damage to the machine.

During the warranty period, the company will not provide free maintenance for the damage caused by force majeure and the user's unauthorized disassembly.

1. Product Introduction

YUK600-01HD Live streaming decoder supports both IP and ASI input, decoding output single channel HDMI SD/HD-SDI AES/EBU and analog stereo. It supports IP protocol SRT RTMP RTSP HLS (M3U8) HTTP UDP RTP inputs.

2. Main Features

- Support IP ASI input
- Multiple output: HDMI, SD/HD-SDI, AES/EBU, analog stereo
- Support SRT, RTMP, RTSP, HLS (M3U8), HTTP, UDP, RTP input
- Support video decoding H.265 H.264 MPEG4 MPEG2 AVS+
- Support audio decoding DRA AC3 EAC3 AAC MPEG-1 Layer II
- Compatible with HD SD signals
- For IP UDP, support ASI IP mux function
- Resolution can be automatically identified or manually set
- Friendly user interface and easy-to-operate menu system
- Web network management based on B/S

3. Panel Introduction

3.1 Front panel

1 - LCD display 2 - Power indicator

3 - Status indicator 4 - Sub-card indicator

5 - 8 Buttons

↑ ↓ Add / reduce the number, or the menu moves up and down

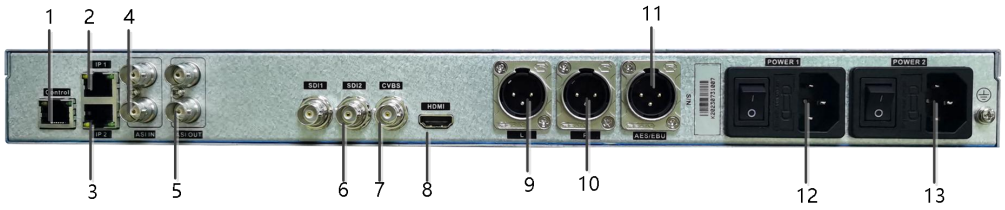
← → Move the cursor left and right, or the menu moves left and right

9 - OK Select the entry menu, or confirm this operation

10 - ESC Exit this level menu or cancel this operation

11 - Buzzer Cancel power buzzer alarm when abnormal power supply

3.2 Rear panel



1— NMS for IP UDP input 2— IP UDP input/output

3— NMS and IP input for IP SRT RTMP RTSP HTTP HLS(M3U8)

4— ASI input 5— ASI output

6— SDI output 7— CVBS output (donot support)

8—HDMI output 9 & 10— Analog audio output

11— AES/EBU output

12—Power 1

13—Power 2

Important Tips:

The network management port of the device is the control port, IP1 data port, ASI IN/ASI OUT, which can be used as input and output UDP/RTP/ASI signals for multiplexing and decoding.

IP2 is the external receiving interface of the decoding card, which is a 100M network port and can support UDP multicast/SRT/RTMP/HLS/HTTP/RTSP and other protocols for receiving and decoding.

4. Installation Guide

4.1 Installation preparation

When installing the device, follow these steps:

- Check for possible loss or damage to the equipment during transport.
- Prepare a suitable environment for installation.
- Install the equipment.
- Connection of signal lines.
- Communication port connection (optional).

Each detail of equipment installation will be described in the rest of this chapter, and the exact location can be found in the rear panel schematics.

4.2 Environmental condition requirements

Item	Requirement
Machine room space	When installing multi-row cabinets, the distance between the front and rear doors of the cabinet is 1.2~1.5m, and the distance from the wall is 0.8m.
Machine room floor	Non-conductive and dust-free.Ground antistatic material volume resistivity 1X107~1X1010,current limiting resistor to ground 1M. Floor bearing should be greater than 450Kg/m2.
Ambient temperature	Long-term work in the environment of 5~40ºC, short-term work in the environment of 0~45ºC, it is best to install air conditioners where conditions permit to facilitate heat dissipation.
Relative humidity	Long-term work in 20%~95% environment and short-term work in 10%~97% environment.
Ambient air pressure	86kPa~106kPa.
Doors and windows of machine room	Dust-proof rubber strips must be added to seal, and windows are recommended to be double-glazed and tightly sealed.
Machine room wall	It can be pasted with wallpaper or painted with matte paint, but it is not suitable to paint easily powdered paint.
Fire requirements	The machine room shall be equipped with an automatic fire

	alarm system and a portable fixed fire extinguishing system.
Power requirements	Three independent power supply systems are required for equipment power supply, air conditioning power supply, and lighting power supply. The power supply of the equipment is AC power supply, and the AC power supply adopts 220V±20% 50/60Hz setting. Before running the equipment, check and verify carefully.

4.3 Grounding requirements

- The good ground wire design of each functional module is the basis for the stable and reliable operation of the whole machine, and is the primary guarantee for lightning protection and anti-interference. Therefore, the system grounding must follow the above principles;
- Both ends of the outer conductor and shielding layer of the coaxial cable should maintain good electrical contact with the outer surface of the metal casing of the connected equipment;
- The ground conductor must be a copper conductor to reduce high frequency impedance, and the ground wire should be as thick and short as possible;
- The connection points at both ends of the ground wire should confirm that the electrical contact is good, and should be treated with anti-corrosion;
- It is strictly forbidden to use other equipment as part of the electrical connection of the ground wire;
- The cross-sectional area of the ground wire connecting the cabinet to the lightning protection unit must be greater than or equal to 25mm² .

4.3.1 Cabinet grounding

The ground terminals of each cabinet in the same equipment room should be respectively connected to the copper busbars provided by the bureau. The grounding wire is required to be as short as possible. If the wiring is too long during project installation, it should be cut off to avoid coiling of the grounding wire. The cross-sectional area of the conductor from the ground terminal to the ground bar must be greater than or equal to 25mm² .

4.3.2 Equipment grounding

When the equipment is grounded, connect the protective ground terminal to the protective ground wire terminal of the assembly cabinet with a wire.

4.4 Device connection

4.4.1 Connection of power cord

- The power jack is located on the left side of the rear panel, and to the left of the power jack is the power switch. On the lower left side of the power jack is the connection screw for the protective ground wire.
- To connect the power cord: Plug one end of the power cord into the AC power jack, and connect the other end to the AC power supply.
- Connect the ground wire: When it is connected to the protective ground in the equipment room alone, it adopts an independent grounding method, that is, it is grounded together with other equipment (such as transmission equipment), and the grounding resistance when connected to the ground is less than 1.

4.4.2 Connection of Signal Lines

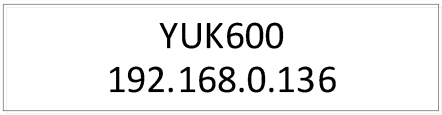
The connection of signal lines includes the connection of signal input and output lines.

5. Operation IP SRT RTMP RTSP HTTP HLS(M3U8)

If the IP input protocol is SRT RTMP RTSP HTTP HLS(M3U8), please connect network cable to "IP2" Ethernet port. "IP2"Ethernet port is NMS and IP input for SRT RTMP RTSP HTTP HLS(M3U8).

5.1 LCD Panel

After the device is started, the LCD will stay on the main interface, as shown below:



192.168.0.136 is local network management IP address of the device, it's also the IP of receving streams.

5.2 Login

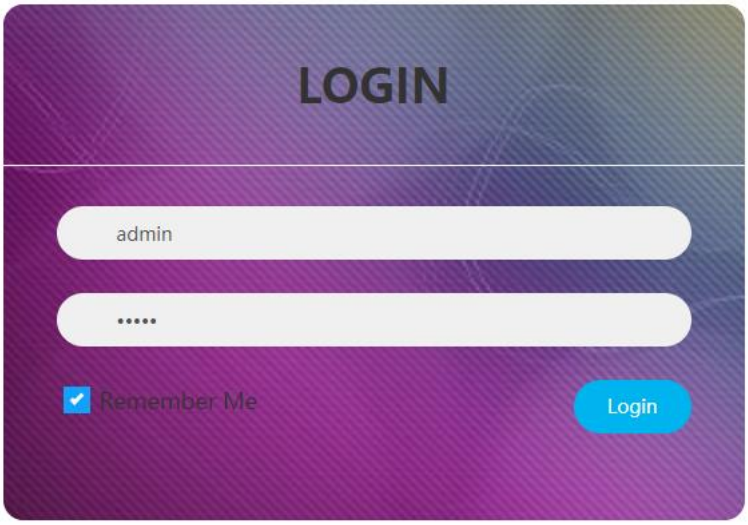
The default network management IP address is 192.168.0.136.
Connect the computer to the Control port and log in to the device WEB network management to

operate the decoder parameters. First, use a network cable to connect the decoder's network management port and the computer's network port, and modify the configuration computer's IP segment to be consistent with the encoder.

1. Open the browser (IE version 9.0 or above, Chrome, Firefox Browser recommended)

2. Enter the web network management IP address of the device and open the web network management interface.

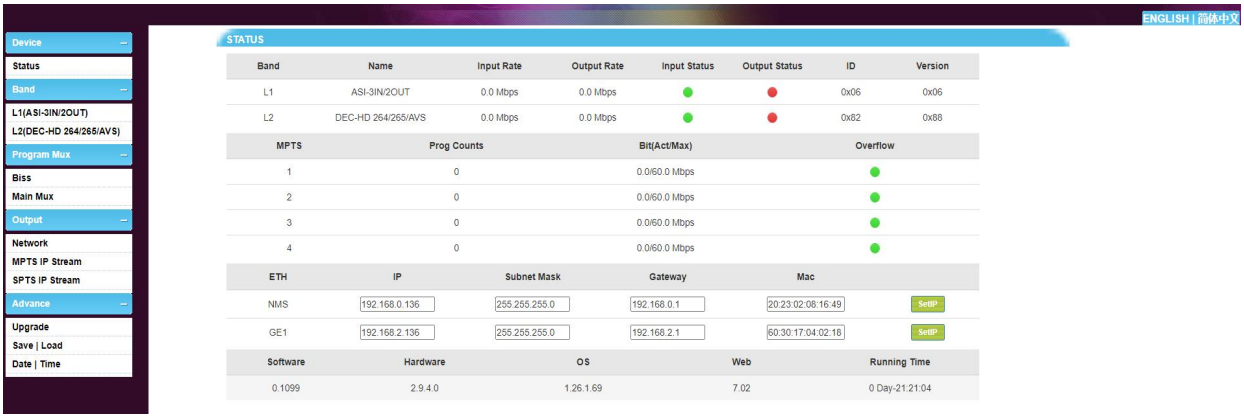
3. Log in: user name admin, password: admin.



5.3 Configuration

5.3.1 Device Status

After successful login, the display interface is as follows:



Choose English version.

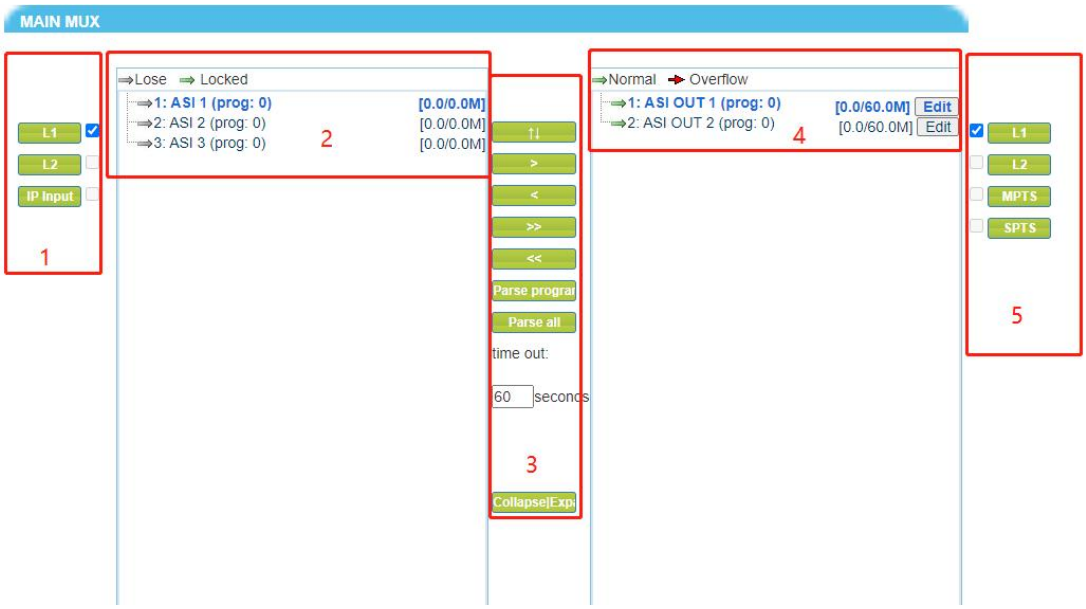
In the status interface, you can view the system sub-card information and operating status, as

well as signal input and output conditions. You can quickly modify the network port IP here.

The ETH1 of the device needs to be set with an IP address that can communicate with the target streaming IP, so as to communicate with the target address.

Menu List	Menu function description
Device Status	view the sub-card version information, operating status, IP flow status, device network port configuration, and platform software version.
Daughterboard/daughter card for each card slot	Click on the sub-card under the sub-board to configure the parameters of each sub-card. Note: Please refer to the sub-card parameter configuration for configuration.
Program multiplexing / main multiplexing	Demultiplex the audio and video signals of each sub-card and multiplex them to various output cards for signal output
Output / Network Settings	Modify the device network port parameters IP/mask/gateway/DNS.
Output / MPTS IP stream	After the multi-program stream (MPTS) is multiplexed in the main multiplex, specify the output destination address and port here
Output / SPTS IP stream	After the single program stream (SPTS) is multiplexed in the main multiplex, specify the output destination address and port here
Advanced / Upgrade	Update the device's firmware and system to optimize stability and implement the latest features.
Advanced / Save|Load	Save and load the configuration. The unsaved configuration will be lost after power off and restart.
Advanced / Date|Time	Update system time zone and time

5.3.2 Program multiplexing/main multiplexing



Introduction:

1. Select sub-card (1st frame on the left and 5 frames on the right)

2. Input channel (2nd frames on the left)

3. Output channel (3rd frames on the right)

4. Function buttons for operating input and output interfaces

"↑↓" Refresh button

">" Expand the list on the left and select the program to be reused. Click the ">" button to reuse the selected program to the output interface selected on the right.

"<" Select the program to be deleted from the right first, click "<" to delete

">>" Select the source interface of the input source on the left, click ">>" to reuse all programs to the output interface selected on the right.

"<<" Select the source interface of the input source on the right, click ">>" to reuse all programs to the output interface selected on the right.

"Analyze Program": Select the source interface of the input source on the left, click "Analyze Program" to analyze the included programs. (Only bit rate when not analyzing)

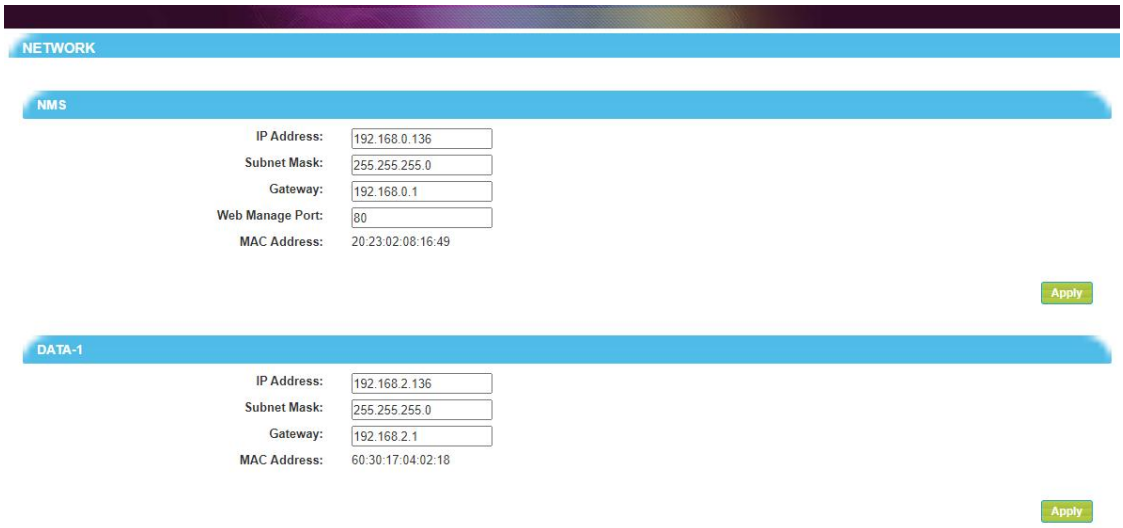
"Analyze All" :Click "Analyze All" to analyze all programs in the source interface column on the left. (Only show bit rate when not analyzing)

Note:

1.IP input requires you to add the multicast address yourself

2.Some interfaces in the sub-card source interface selection box need to parse out the program first, such as ASI and IP, before you can multiplex the program.

5.3.3 Network Configuration

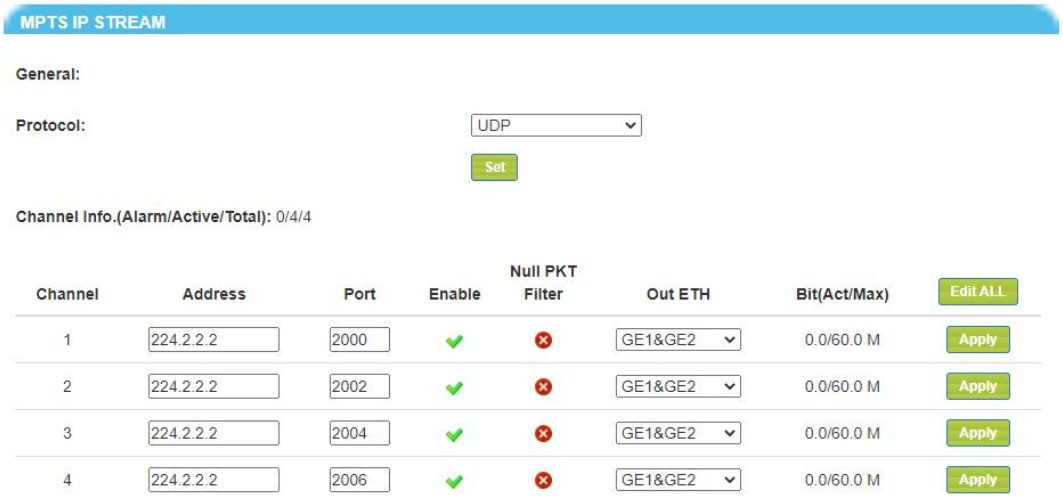


In the network configuration menu, you can configure the network parameters of the network

management port and data port. The configurable items include IP address, subnet mask, gateway, MAC address, and web management port.

5.3.4 MPTS/SPTS IP stream output

MPTS IP stream configuration interface:



Options		Functions Description
MPTS IP stream	Protocol	UDP and RTP protocols are optional. Click the "Set" button to submit.
	Address	The destination address to which the MPTS multi-program stream is to be sent
	Port	The destination port for sending MPTS multi-program streams
	Enable	MPTS multi-program stream switch. If it is turned off, no data will be sent.
	NULL packet filter	When it is X, empty packets are not filtered and sent at the maximum bit rate; when it is √, empty packets are filtered and only valid data is sent;
	Output network port	Select the network port to be used to output multiple MPTS program streams.
	Bitrate (effective/maximum)	Effective bit rate/maximum bit rate. The effective bit rate cannot exceed the maximum bit rate. If the bit rate exceeds the maximum bit rate, it will not be sent out, which will cause mosaic and other problems; The part of the maximum bit rate other than the effective bit rate will be filled with empty packets to make up the maximum bit rate for sending.

Note:

1. Click "Set" to submit. The settings here are only saved temporarily and will not be saved in Save|Load. The configuration will be lost when the device is restarted.

5.3.5 Advanced Configuration

1. Upgrade

①Please obtain the upgrade firmware (software.pkg / operating system.pkg / hardware.bin) from the manufacturer, do not make any changes, and select the firmware to upgrade.

②Do not turn off the power during the device upgrade. Otherwise, the device will be damaged.

③After the upgrade is successful, you need to turn the machine on and off again for the new firmware to work.

2. Save | Load

Save the parameters configured on the device. Parameters not saved will be lost after the device is restarted.

3. Date | Time

Set the system time and time zone of the device. There are two ways to obtain it: from the NTP server and from the browser.

5.4 Subcard parameter configuration

5.4.1 Decoder card

The display name of the decoder sub-card in the sub-card is (DEC-HD 264/265/AVS). Click it and the configuration interface will be displayed on the right, as shown in the figure:

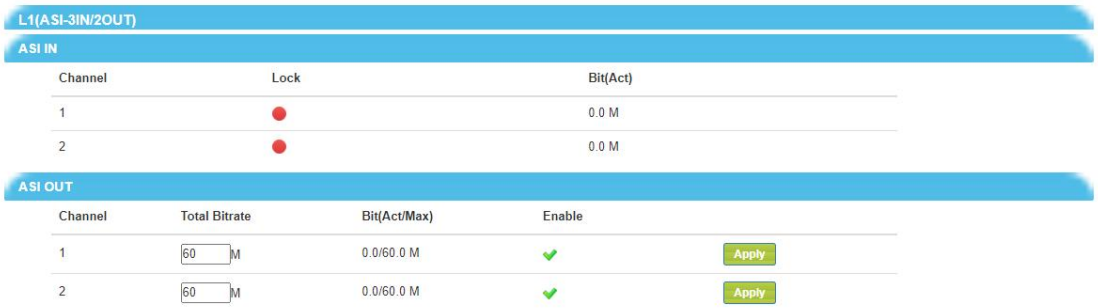
The Configurable parameters are as follows:

The sub-card parameters and configurable parameters are described in the following table:

Main parameters of daughter card		
Output Interface		2*SDI、1*HDMI
Input Interface		GENlock sync interface
Decoder card function		Multiplex one signal to the decoding card, the decoding card automatically decodes and outputs, and supports transcoding this signal into two different formats. The decoding parameters and transcoding parameters can be configured.
Options		**Functional Description**
Audio	Audio volume	Volume setting, default -6db
	Audio Mode	Adjust the audio mode：Stereo、mixed、left、right、AC3 pass through
Video	Video output resolution	Adjust the output resolution, support：525i、625i、720p59.94、720p50、1080i59.94、1080i50、1080p59.94、1080p50、1080p30、1080p25
	brightness	Range 0-100, default 50
	Chroma	Range 0-100, default 50
	Contrast	Range 0-100, default 50
Synchronous Mode		PCR sync、Audio sync
Genlock Mode		Internal synchronization、External synchronization
Genlock Offset		Set the genlock offset value, default is 0

5.4.2 ASI Mux Sub-card

The multiplexed daughter card is displayed as (ASI-3IN/2OUT) in the daughter card menu. After clicking it, the configuration interface is displayed on the right, as shown below:



Main parameters of daughter card		
Input Interface		2 ASI input (the number of this parameter varies depending on the device)
Output Interface		2 ASI output
Option		**Functions Description**
ASI input		The ASI input interface signal is green when locked and red when unlocked. The ASI signal bit rate is displayed after locking.
ASI output	Total bitrate	The maximum bit rate of the ASI output signal. Range: 0 to 100Mbps Click the "Set" button to submit.
	Switch	Enabled when √, no output when X

Note:

1. The settings here are only temporarily saved, and will not be saved in Save|Load. The configuration will be lost when the device is restarted.

2. The total bit rate of ASI output. The part exceeding the actual bit rate will be filled with empty packets. Please set this parameter appropriately.

6. Multi-protocol streaming

IP2 on the rear panel of the device is the 100M network port on the decoding board. It has built-in multi-protocol streaming and supports UDP multicast/RTMP/HLS/HTTP/SRT/RTSP streaming and decoding settings. When using this network port to receive and decode, the decoding board works alone.

6.1 WEBserver Login

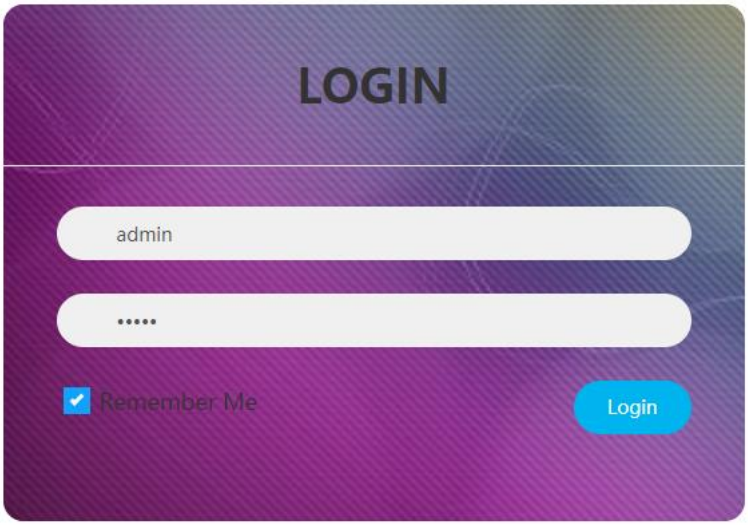
The default network management IP address is 192.168.1.191, which is also the receiving IP address.

It is recommended to use Chrome browser or Firefox browser, or other Chrome kernel browsers, which have relatively complete function support.

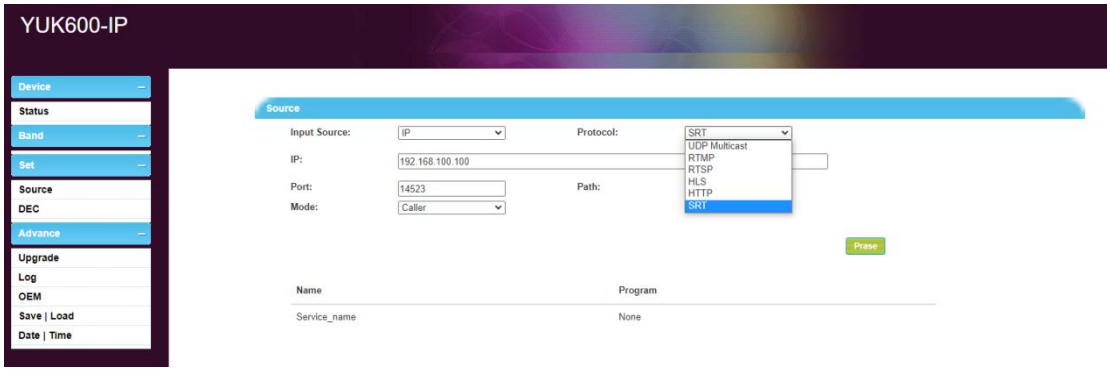
Open the browser at 192.168.1.191 to enter the network management

Account: admin

Password: admin



6.2 Signal Input



Note: IP supports UDP multicast/RTMP/RTSP/HLS/HTTP/SRT

6.2.1 Signal Input

ASI and IP are optional.

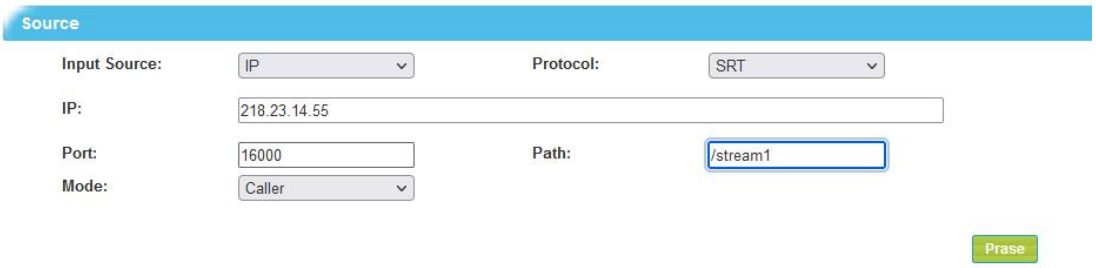
Click Prase on ASI to parse the programs.

After selecting the corresponding protocol, configure the relevant IP port path and click Prase to

parse the programs.

6.2.2 SRT settings

The SRT setting of the device requires you to fill in the IP, port and PART separately into three text boxes. If there is no data in part, please clear it.



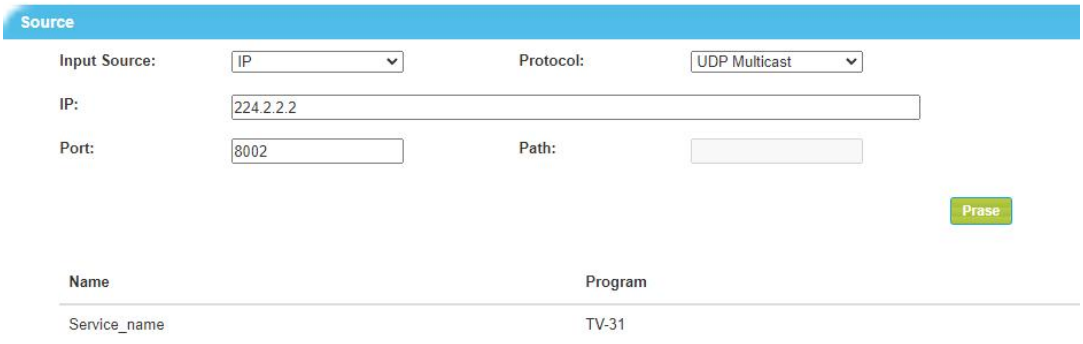
For SRT transmission, there are Listener mode and Caller mode. One end needs to use the Listener mode for service, and the other end uses the Caller to connect to the Listener end to get the signal back.

The decoder generally uses the Caller mode.

In Listener mode, you need to configure the encoder first, and then click prase of the decoder to generate the streaming list SRT.

6.2.3 UDP settings

For the UDP settings of the device, you need to fill in the IP and port separately in the two text boxes of IP and port.

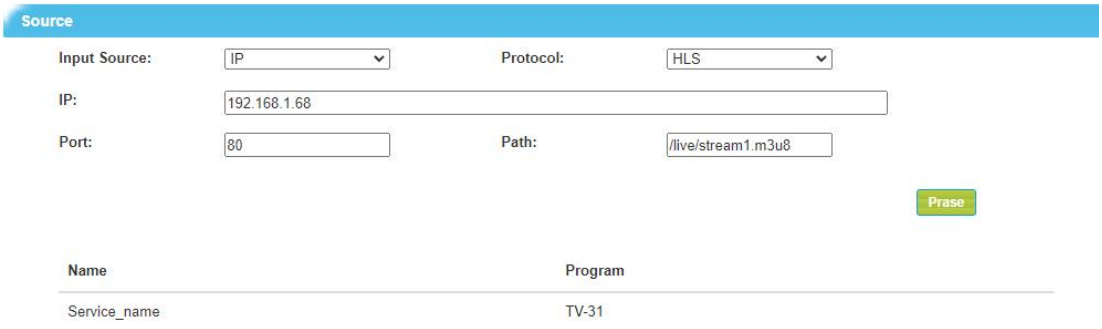


6.2.4 HLS settings

Fill in the IP, Port, and Path respectively. The default port of HLS is 80, if not, please modify it to the correct port used.

For example, http://192.168.1.68/live/stream1.m3u8 is split into 192.168.1.68 and 80 and

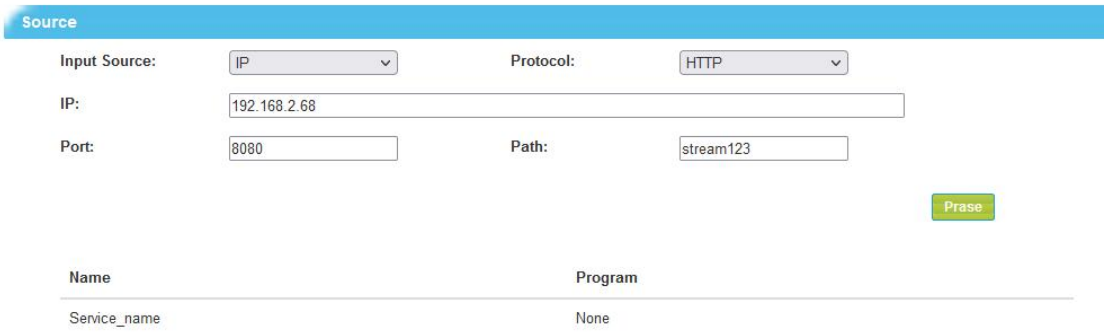
live/stream1. Fill in IP(192.168.1.68), Port(80) and Path(live/stream1.m3u8) respectively.



6.2.5 HTTP settings

Fill in the IP, Port, and Path respectively. The default port of HTTP is 80, if not, please modify it to the correct port used.

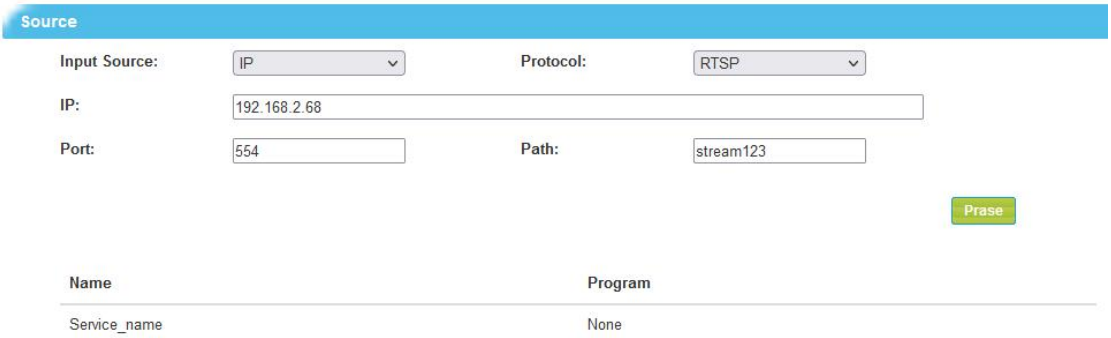
For example, http://192.168.2.68:8080/stream123 is split into 192.168.2.68 and 8080 and stream123. Fill in IP(192.168.2.68), Port(8080) and Path(stream123) respectively.



6.2.6 RTSP settings

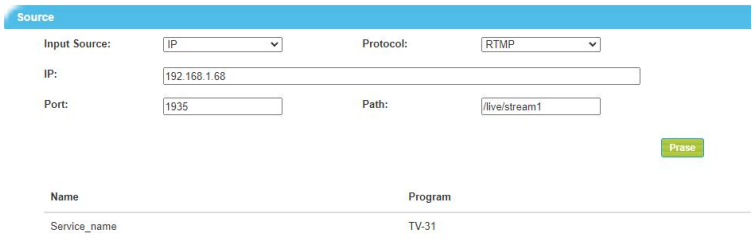
Fill in the IP, Port, and Path respectively. The default port of RTMP is 554, if not, please modify it to the correct port used.

For example, RTSP://192.168.2.68:554/stream123 is split into 192.168.2.68 and 554 and stream123. Fill in IP (192.168.2.68), Port(554) and Path(stream123) respectively.



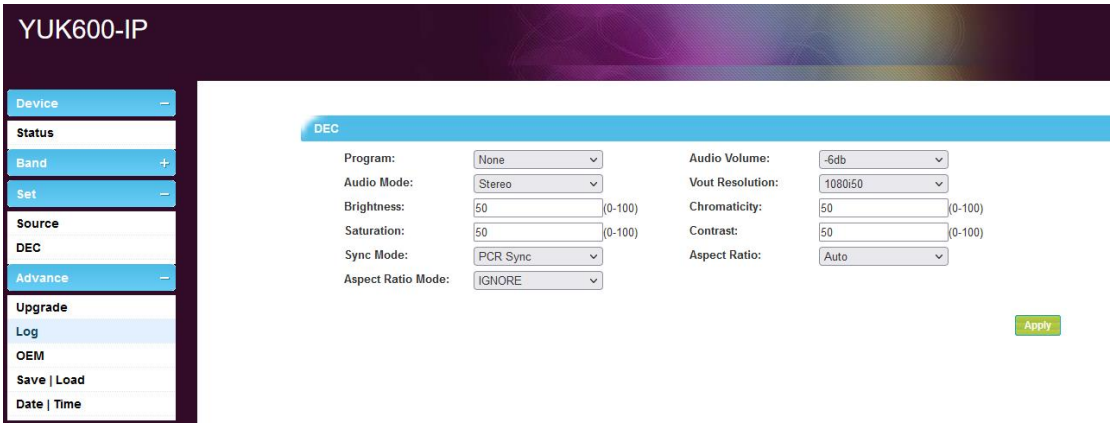
6.2.7 RTMP settings

Fill in the IP, Port, and Path respectively. The default port of RTMP is 1935, if not, please modify it to the correct port used.
For example, rtmp://192.168.1.68/live/stream1 is split into 192.168.1.68, 1935 and live/stream1. Fill in the three text boxes respectively.



7. Decoding Output

Configure decoding parameters， including decoded program, video output resolution, auidio volume, audio mode, brightness, chroma, contrast, sync mode, aspect ratio, aspect ratio mode etc.
Click “Apply” to use the set parameters to decode.

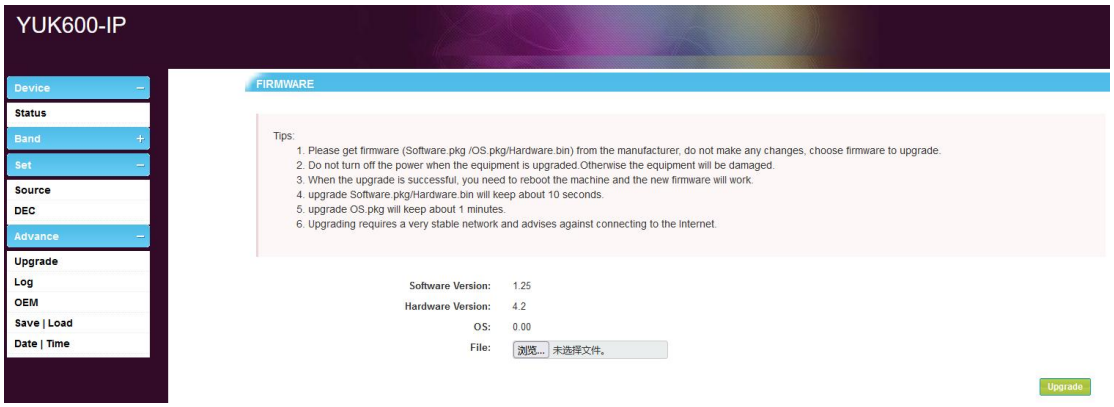


Note: Please save the configuration in “Advanced”>>“Save/Load”, otherwise the configuration will be lost after power failure.

8. Advanced option settings

8.1 Upgrade the device

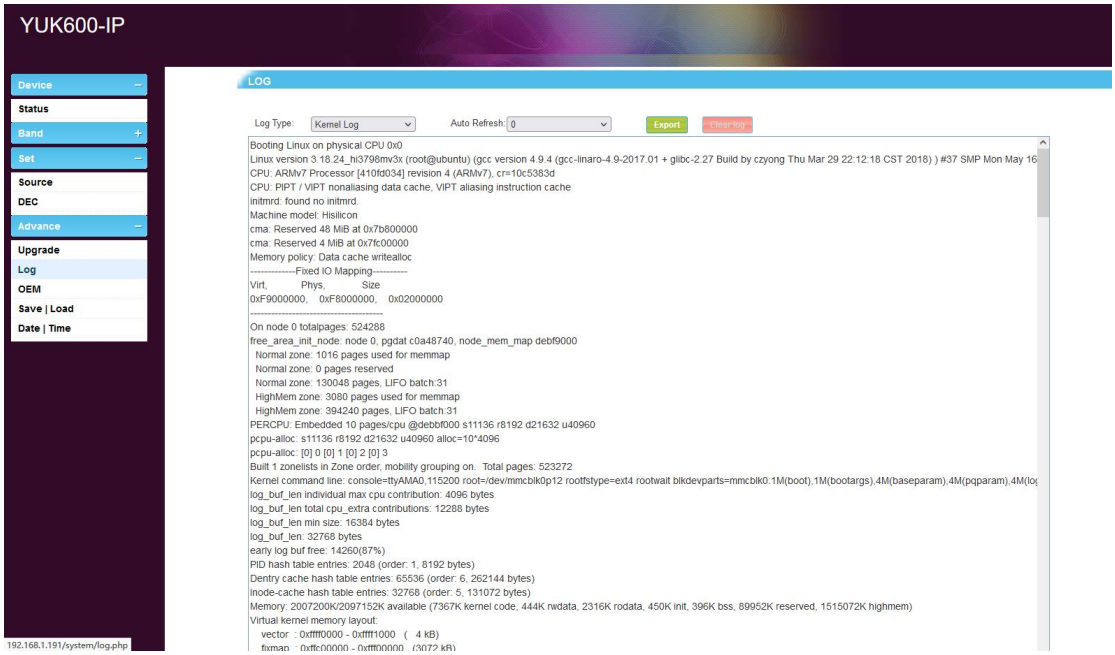
Upgrade: You can upgrade the equipment by software upgrade.



After selecting the loader, click " **Upgrade** ". After the upgrade is complete, restart the device to take effect.

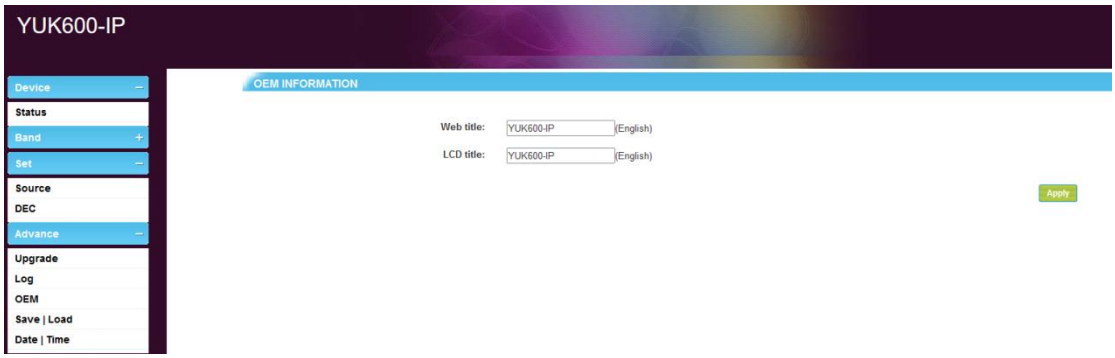
8.2 Log

View operation logs of the device.



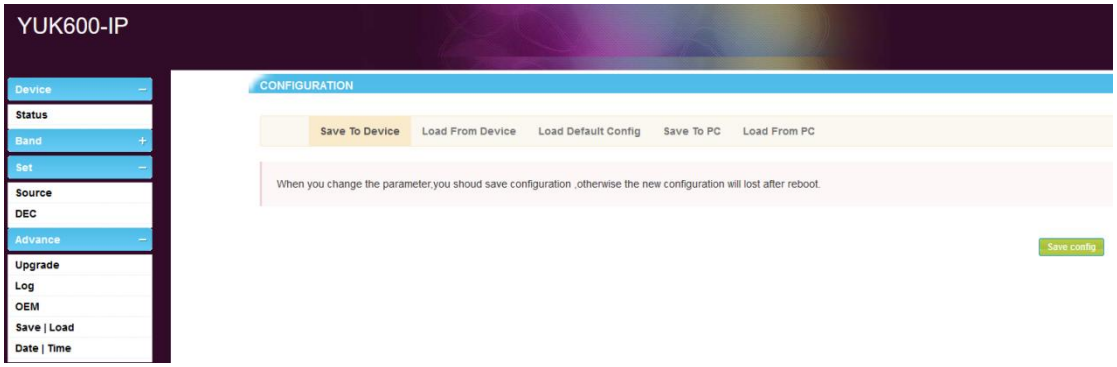
8.3 OEM

Users can change model number showing on the Web and LCD.



8.4 Save Load

Users can Save, Load and other operations.



(1) Save To Device: When the parameters are changed, please save the configuration, otherwise the new parameter configuration will be lost when the device is restarted.

(2) Load from Device: Load the last saved configuration. Please save the configuration after loading the configuration successfully, otherwise the loaded configuration will be lost when the device restarts.

(3) Load Default Config: restore the factory default configuration parameters, please save the configuration after restoration, otherwise the parameters will be lost after restarting.

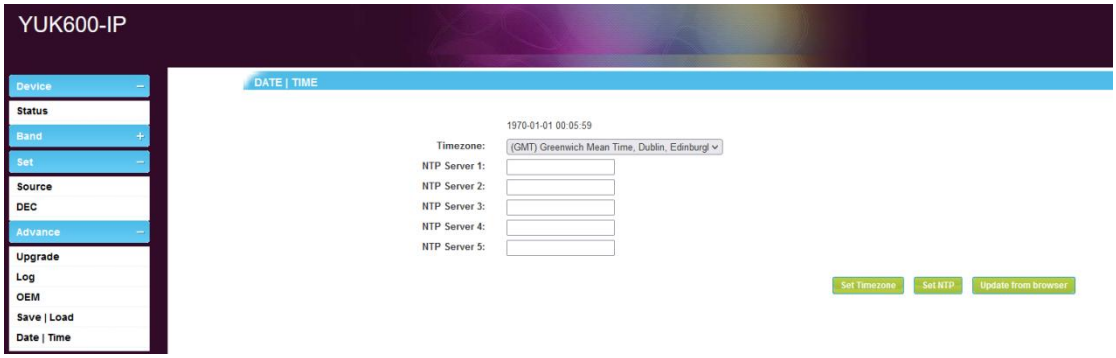
(4) Save to PC: Save the current configuration to a local file and computer. It is recommended to do this before upgrading.

(5) Load from PC: Click the "Browse" button and select the configuration file that is backed up to the local save. The new configuration will overwrite the current configuration, do not power off the device during the restore process. Otherwise, the device will fail to restore and cannot be turned on.

8.5 Date|Time

Mainly configure the time of different regions.

Synchronize the running time of the device, you can synchronize the computer time to the device through the browser.



9. Statement

- ✧ Because we have continuely adopted new technologies, will not notify if product parameters are changed.
- ✧ The final interpretation of this instructions belongs to Yukuan Technology Ltd.