

USER MANUAL V1.0

H-HERMES-64

IP TO QAM MODULATOR with video encoding selection

NMS IP: 192.168.1.30
User Name: user
Password: user

WWW.THORBROADCAST.COM
INFO@THORBROADCAST.COM
1-800-521-8467

A Note from THOR about this Manual

Intended Audience

This user manual has been written to help people who have to use, integrate and to install the product. Some chapters require some prerequisite knowledge in electronics and especially in broadcast technologies and standards.

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1.INTRODUCTION

The H-HERMES-64 is able to receive and convert 256 IP video streams into 32 RF signals that can be transmitted over coaxial cable systems. What makes this device special is that it can transcode the video encoding from H.264 to MPEG2 in order to be received on any television's tuner.

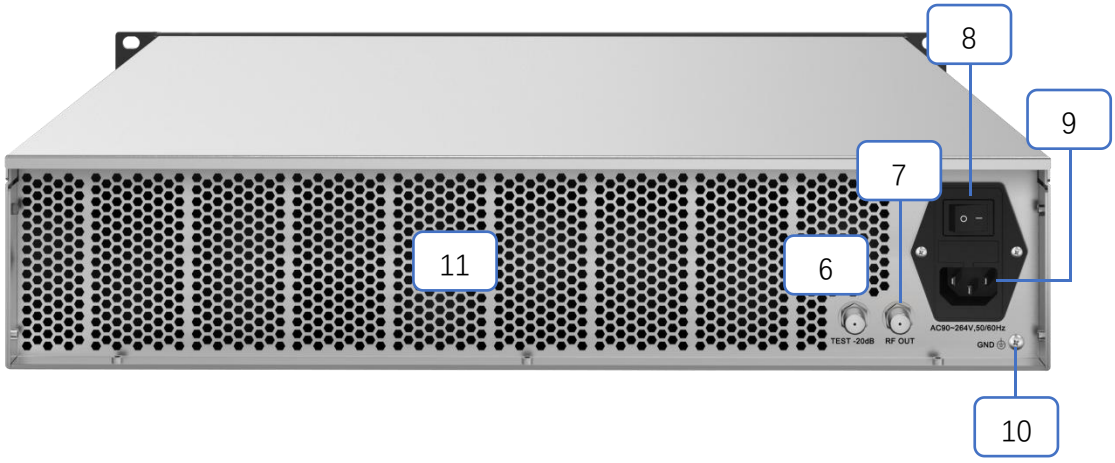
2.SPECIFICATION

INPUT	
Input connector (Front panel)	RJ45*1 GbE
Transport protocol	UDP, RTP
MAX input IP address	256
Input transport stream	MPTS and SPTS
OUTPUT	
Output connector	1 x RF female @75Ω
Output range	50 ~ 999.999MHz
Output frequency	32 channels (2 frequencies in a block)
Output level	⩾45dBmV
MER	Typical 38dB
DVB-C J.83B	
Bandwidth	6M,7M,8M
Constellation	64QAM,256QAM
Symbol rate	Automatically
TS PROCESSING	
Video Encoding	MPEG 2, H.264
Audio Encoding	MPEG 1, AAC-ADTS, AAC-LATM, AC3
Resolution Downscale	Yes
Aspect Ratio	4:3LB, 4:3 PS, 16:9, Full Screen
Advanced PSI/SI regeneration	Yes
GENERAL	
Input voltage	90~264VAC, **DC12V 5A**
Power consumption	Less than **49.1**W
Rack space	2RU
Dimensions(WxHxD)	**482*44*260mm**
Net weight	**2.56KG**
Language	中文/English

3. PRODUCT OVERVIEW



1	PWR	Indicate power on.
1	RUN	The light will keep flashing when system is on.
2	DATA IN	IP signal input port at 1000M.
3	NMS	Net management system port [IP:192.168.1.30; USER NAME: user ; PASSWORD: user]
4	DEFAULT	Press it for 10 seconds to restore to the factory setting.
5	Ventilation Holes	The heat-sink holes with dust-proof screen inside



6	TEST	Output level read at this point will be down 20dB from the actual output.
7	RF OUT	40dBmV maximum output is provided at this port.
8	Power switch	To turn on and off the device.
9	Power input	12V 5A power source.
10	GND	For modulator grounding.
11	Ventilation Holes	Air inlet holes.

WARNING:

1. For the protection of your equipment and its proper working, it is necessary to connect the H-HERMES-64 to a ground connection.
2. DO NOT block the unit's ventilation holes.

TO REDUCE THE RISK OF ELECTRICAL SHOCK,
DO NOT REMOVE COVER FROM THIS UNIT.
NO USER-SERVICEABLE PARTS INSIDE.
REFER SERVICING TO QUALIFIED SERVICE PERSONNEL.

WARNING: TO PREVENT SHOCK HAZARD, DO NOT EXPOSE THIS UNIT TO RAIN OR MOISTURE





CAUTION

RISK OF ELECTRIC SHOCK
DO NOT OPEN

4. SAFETY INSTRUCTIONS

1. Read all safety and operating instructions before you operate the modulator.
2. Retain all safety and operating instructions for future reference.
3. Heed all warnings on the modulator and in the safety and operating instructions.
4. Follow all installation, operating and use instructions.
5. Unplug the modulator from the AC power outlet before cleaning. Use only a damp cloth for cleaning the exterior of the modulator.
6. Do not use accessories or attachments not recommended by us, as they may cause hazards, and will void the warranty.
7. Do not operate the modulator in high-humidity areas, or expose it to water or moisture.
8. Do not place the modulator on an unstable cart, bracket or table. The modulator may fall, causing serious personal injury and damage to the modulator. Install the modulator only in a mounting rack designed for 19" rack-mounted equipment.
9. Do not block or cover slots and openings in the modulator. These are provided for ventilation and protection from overheating. Never place the modulator near or over a radiator or heat register.
10. We strongly recommend using an outlet that contains surge suppression or ground fault protection. For added protection during a lightning storm, or when the modulator is left unattended for long periods of time, unplug it form the wall outlet or PDU and disconnect the lines between the modulator and its source. This will prevent damage caused by lightning or power line surges.
11. Do not overload wall outlets or extension cords, as this can result in a risk of fire or electrical shock.
12. Never insert objects of any kind into the modulator through openings as the objects may touch dangerous voltage and will void the warranty. Refer all servicing to authorized service personnel.
13. Unplug the modulator from the wall outlet or PDU and refer servicing to authorized service personnel whenever the following occurs:
14.
    - The power supply cord or plug is damaged
    - Liquid has been spilled into or objects have fallen into modulator
    - The modulator has been exposed to rain or water
    - The modulator has been dropped or the chassis has been damaged
    - The modulator exhibits a distinct change in performance

When replacement parts are required, ensure that the service technician uses replacement parts specified by us. Unauthorized substitutions may damage the modulator or cause electrical shock or fire, and will void the warranty.

5. UNPACKING AND HANDLING

A full H-HERMES-64 is shipped with all equipment assembled, wired, factory tested, and then packaged in an appropriate shipping container.

- H-HERMES-64 digital modulator (QTY=1)
- Power supply and power cord (QTY=1)
- Internet cable (QTY=1)

5.1 Mechanical Inspection

Inspect the front and rear of the equipment for shipping damage. Make sure the equipment is clean, and no wire, cable, or connectors are broken, damaged or loose.

5.2 Precautions

-Avoid heat buildup.
-Ensure easy access to rack wiring.
-Facilitate servicing and maintenance.
-Avoid direct heating or air conditioning.
-Make sure rack supports are sufficiently rigid to support racks.
-Beware of dripping water onto equipment form leaky roofs, waveguide roof entries and cold water pipe condensations.
-Never operate the device without a lid/protective cover.
-No work may be carried out on the antenna system during a thunderstorm.

5.3 Damage in Shipment

Should any damage be discovered after unpacking the unit, immediately file a claim with the carrier. A full report of the damage shall be made and a copy forwarded to Seller.

6. INSTALLATION

This modulator is designed to be installed in a rack shelf or a standard rack. Please follow the instructions below to install the modulator :

1. Connect the power plug to the jack. Do not power up the modulator at this step.
2. Connect to the proper earthing wire
3. Connect the video source to the H-HERMES-64
4. Connect the H-HERMES-64 to your laptop or computer
5. Power up the modulator

***During installation, the device must be protected from dust.

7.PROGRAMMING VIA WEB INTERFACE

7.1 LOGIN

>>>Please connect H-HERMES-64 to your computer/laptop with internet cable through the NMS port.

>>>Power up the modulator and wait for 2 minutes until the RUN indicator stays still.

>>>Please use your browsers to log in the modulator with the default IP address (**192.168.1.30**).

--We would like to recommend you to use the Google Chrome, Firefox or Microsoft Edge browser.

Google Chrome

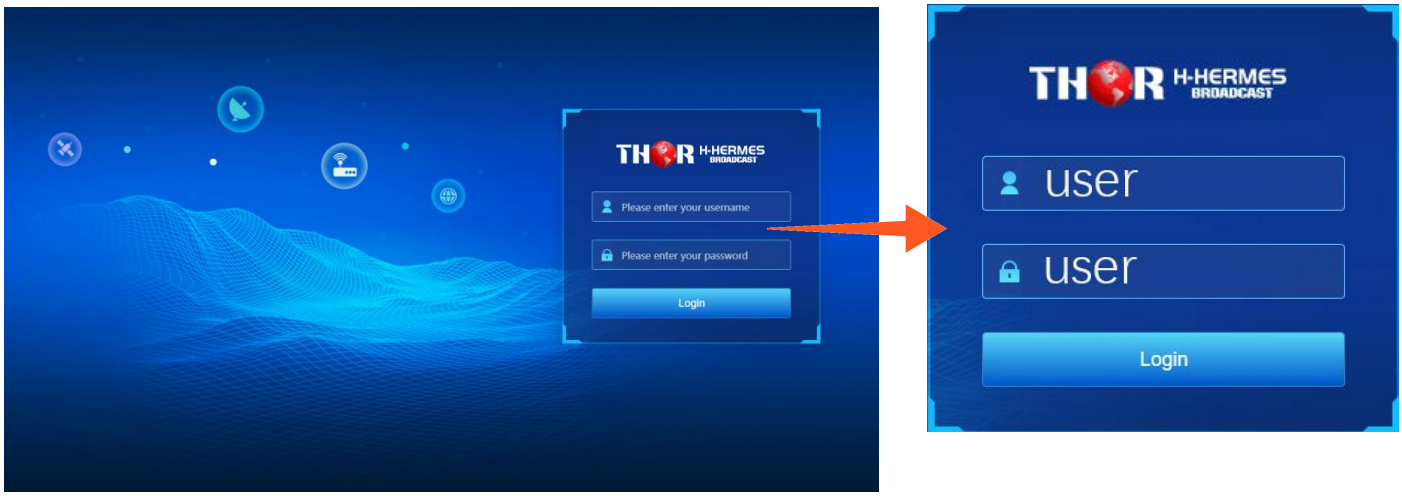
Firefox

Microsoft Edge

The default user name and the default password are :

Username: ***user***

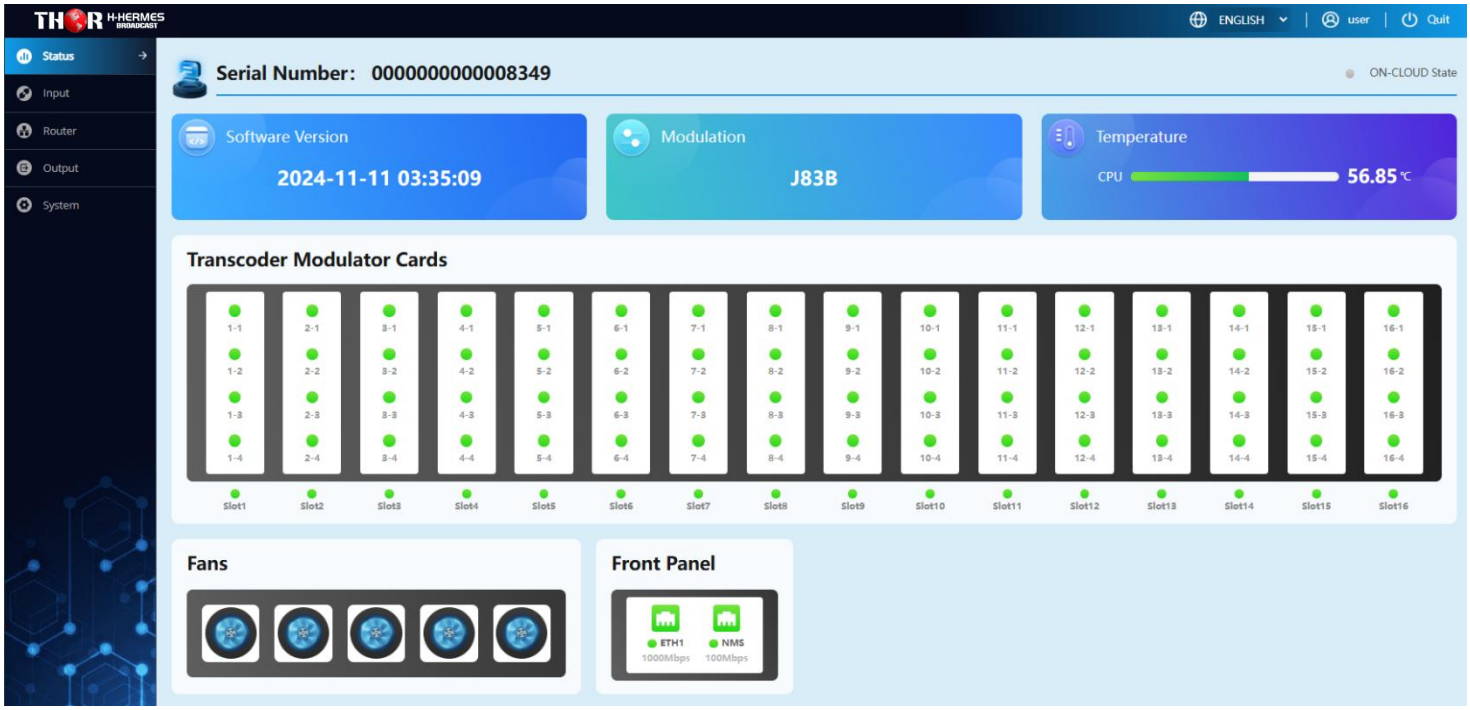
Password: ***user***



1. Please make sure your computer address is in the same IP segment as the modulator is.
2. Please change the user name and password if needed.
3. Username/password are case-sensitive and may contain letters or numbers.
4. Username/password must be a minimum of 1 byte and a maximum of 32 bytes in length.

7.2 SYSTEM PAGE

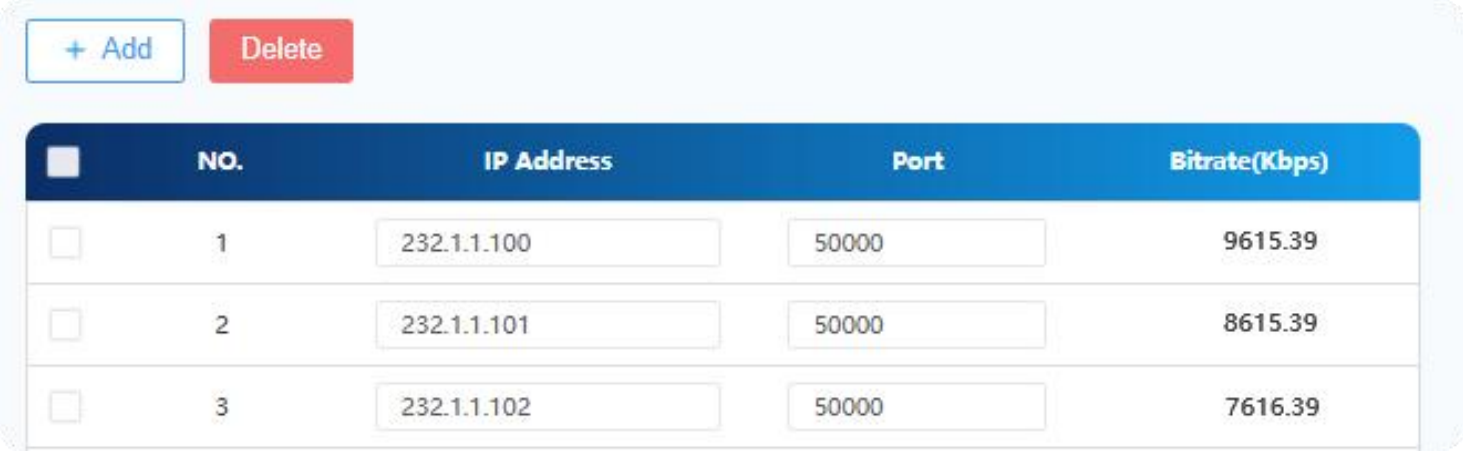
This page is a read-only one which displays the general health of the unit, such as temperature, Input and output ports and Serial number. The information is provided as a quick way to monitor the system or assist with troubleshooting issue.



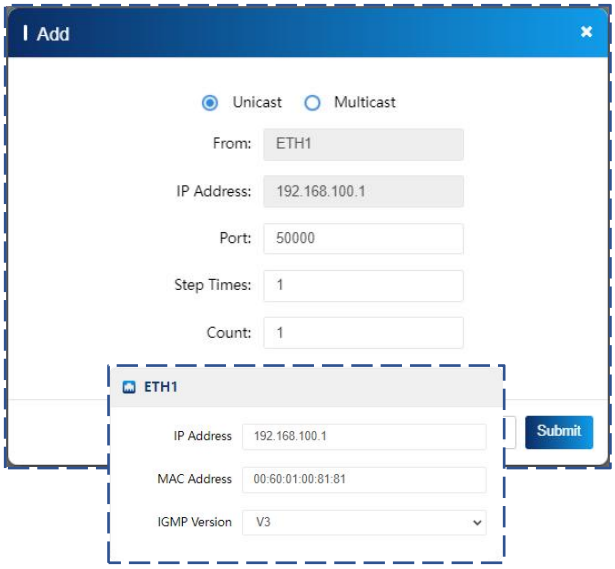
In the left side, it is the MENU while the settings are displayed in the right side.

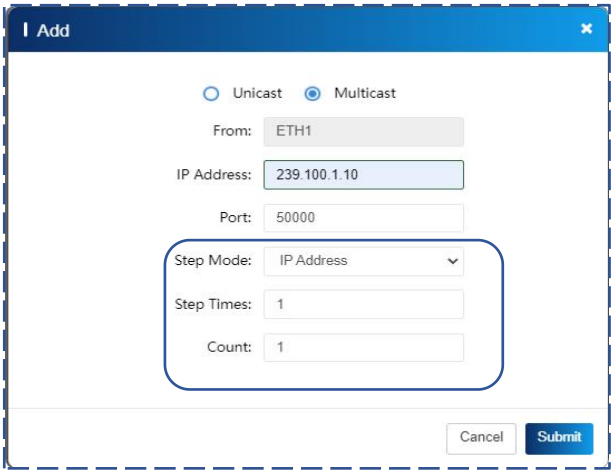
Status	
Serial Number	The unique ID for this modulator.
Software Version	If there's something wrong with this device, please send this information to us.
Modulation	Indicate the RF output modulation.
Temperature	Indicate the CPU working temperature in real-time.
Transcoder Modulator Card	🟢 : the transcoder channel is good. 🔴 : the transcoder channel is down(software). ⚪ : the transcoder card is not installed or the chip doesn't work.
Cooling Fans	There are five cooling fans installed in the left side of the case.  The fan is working in good condition.  The fan is down. Please replace it.
Front Panel	Indicates the IP input (1000M) and NMS status (100M).
ON-CLOUD State	Green for connecting with the Cloud server. Grey means disconnection.
Input	Set up the input parameters
Route	Select the output channels/services.
Output	View the output channels and set up the modulation parameters.
System	System settings : Network/ Account/ System/ Time and Date/ Cloud

7.3 INPUT SETTINGS --IP



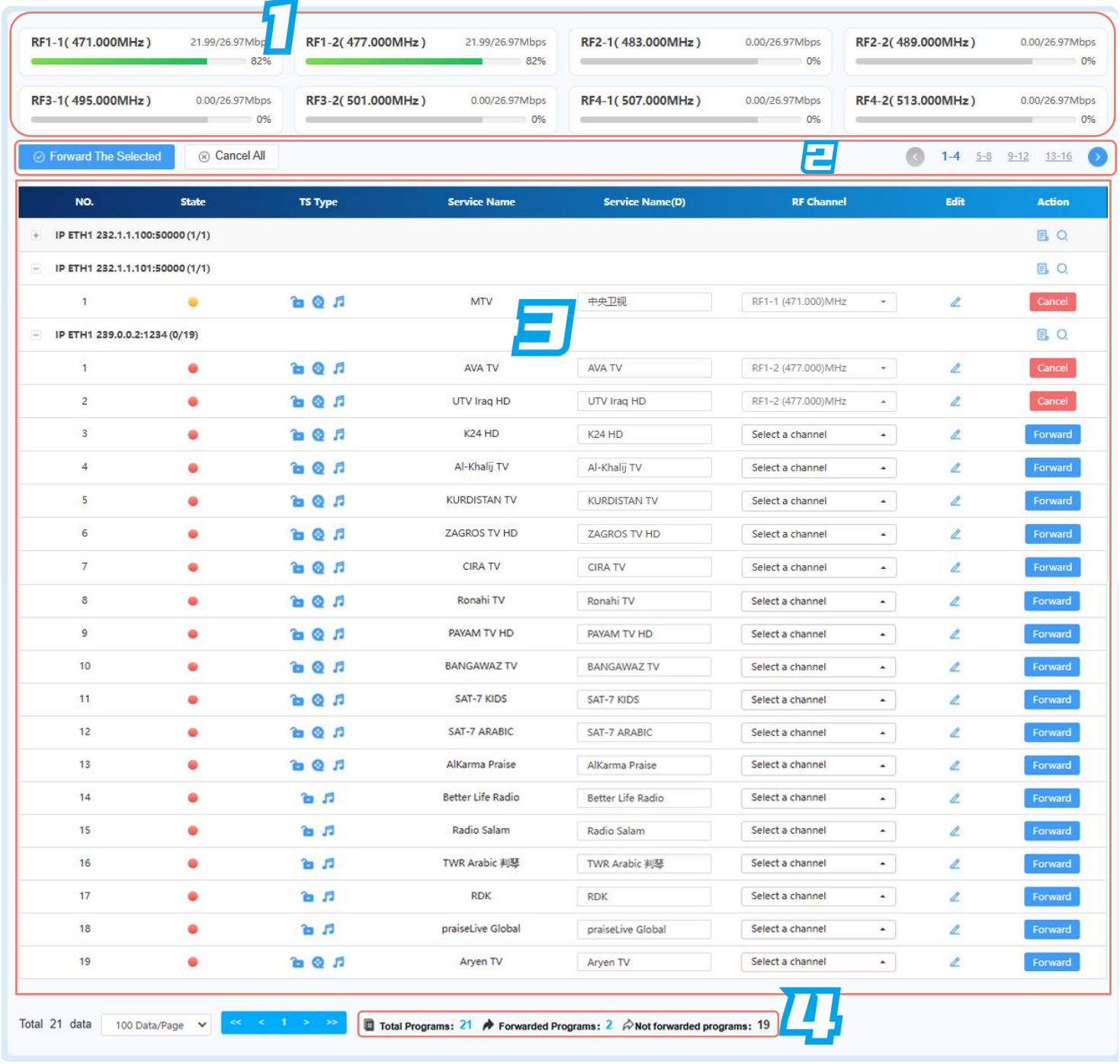
>>>Click the **+Add** button to add the IP address.
>>>Choose the Multicast in normal situation and input your IP address.
>>>Click Submit and the system will analysis the programs in IP address, which will be listed out in the Router.
Delete : To remove the IP address that you select. Please tick the checkbox in front of the IP address before you hit the delete.





Unicast	Select to input the unicast streams. Normally it is the same like the output port.	
Multicast	Select to input the multicast streams. Normally it starts with 239.	
From	A read-only information.	
IP Address	Input the IP address. When you select unicast, please change the IP in SYSTEM>NETWORK>ETH1.	
Port	Input the port number.	
Step Mode	**IP address**	Only change the IP address.
	Port	Only change the port.
	IP address +Port	Change the IP address and port.
Step Times	The system will add 1 to the IP address or port according to the Step mode. The max value is 10.	
Count	The system will generate the IP address according to the count value.The max value is 256.	

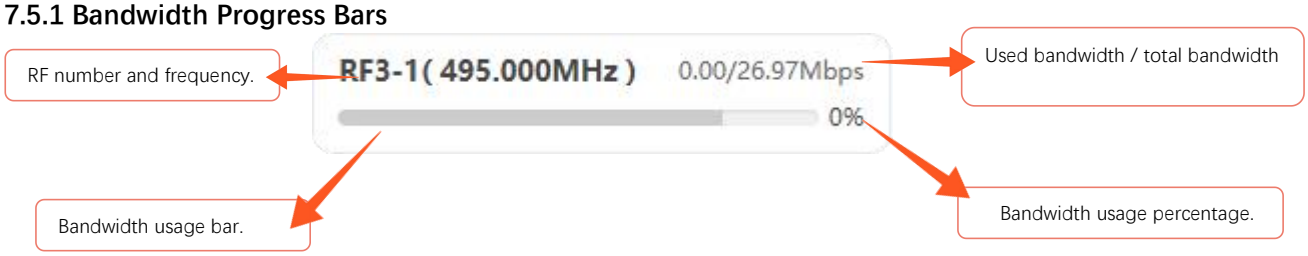
7.5 ROUTER SETTTINGS



The router setting is the most important in this modulator, which you can see all the input channels/services.

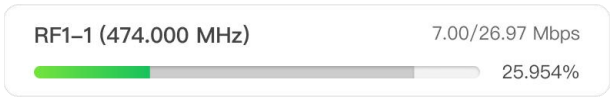
1	Bandwidth Progress Bar
2	Quick setting and List Filter
3	Service/Channel List
4	Service/Channel Information

7.5.1 Bandwidth Progress Bars



The bar will move while the user send the programs to the frequency.We will recommend to use 80% of the total bandwidth, where the gray zone is. Once the bar goes over 80%, the bar color will turn Red from Green as a warning signal.

RF Number	RF3-1 means the first output channel in the third slot.
Frequency	Change the frequency in the output settings.
Used bandwidth/Total Bandwidth	The total bit rate of your selected services/ Total bandwidth you can use.
Bandwidth usage percentage	Precisely express the used bandwidth in percentage.



Green bar :

More channels/services can be added to this frequency as the currently allocated data rate is low.



Grey bar covered :

The date rate has reached to the maximum recommended output peak. To ensure a stable operation, no further services should be forwarded to this frequency



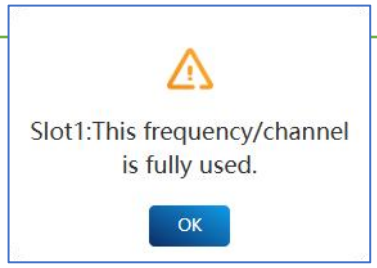
Red bar :

The recommended data rate is exceeded and a data overflow might happen, resulted in disordered picture or a complete blackout of the services in the dedicated channel.



WARNING:

Due to the bandwidth of QAM, there are only two services allowed to be in one channel/frequency .



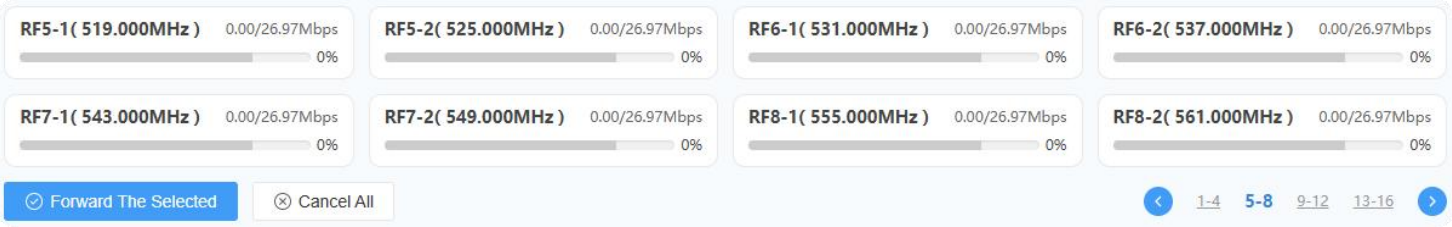
7.5.2 Quick Setting



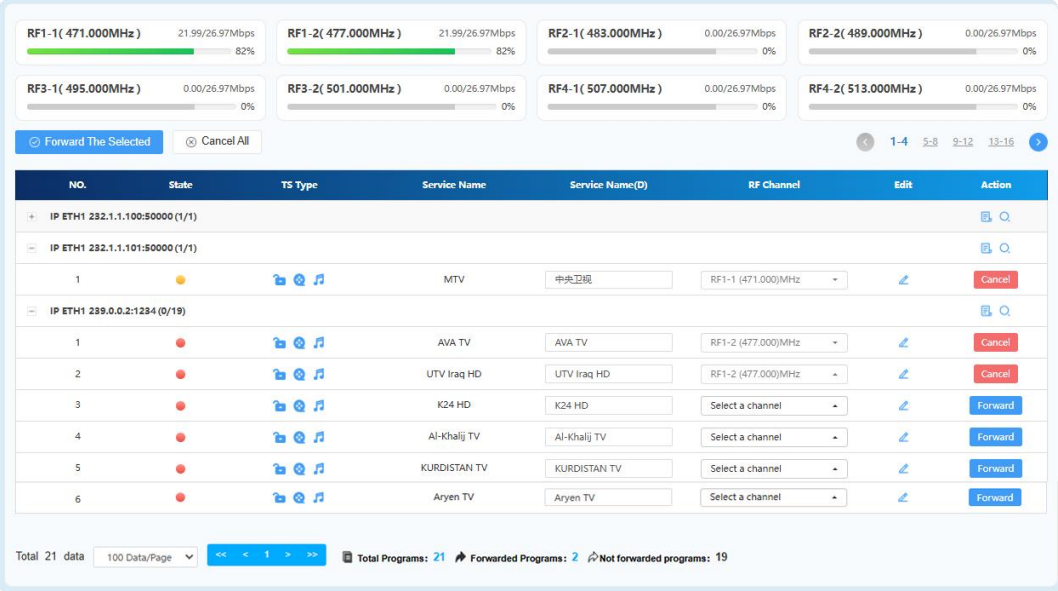
Forward The Selected	Forward the selected channels
Cancel All	Cancel all the forwarded channels/services in the router list.



RF switch button	To display the RF output progress bar
Slot Number	Press the slot number to display the RF output progress bar.



7.5.3 Router List



In this list, you can see all the input streams and send the programs to the preset frequencies with the Forward button. Please pay attention to the Progress Bar and do not exceed 80% of the usage, which might bring troubles to the picture. Main operation here:

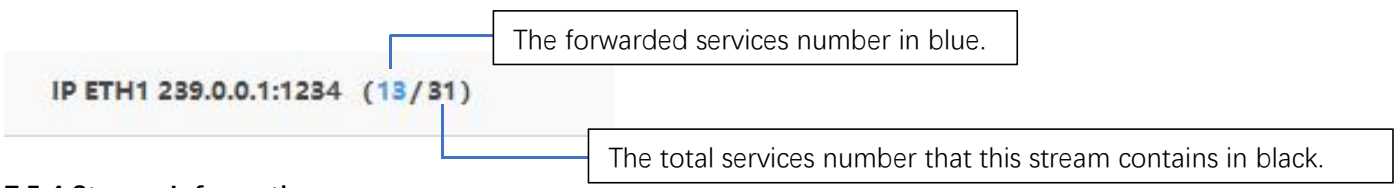
>>Find your desired services

>>Select a RF channel for your desired services

>>Press **Forward** to send the services to the RF channel.

State	Green :signal is locked; Orange : PSI is changed; Red : The stream is lost.
TS Type	: encrypted stream; :clear stream ; : video data; : audio data; :text data
Service Name	The service's original name.
Service Name(D)	Input the new service name(short name).
RF Channel	Select a output RF channel for the desired channel. To modify it, go with OUTPUT>RF SET>Frequency
Action	Forward : use this service; Cancel : No use this service
	: Unfold the stream details; : Fold the stream details.
	Common PID edit : Service number,Short name, Major number... *
	PSI/SI viewer. It will display the PSI/SI table here.*
	Refresh. The system will analysis the stream again.

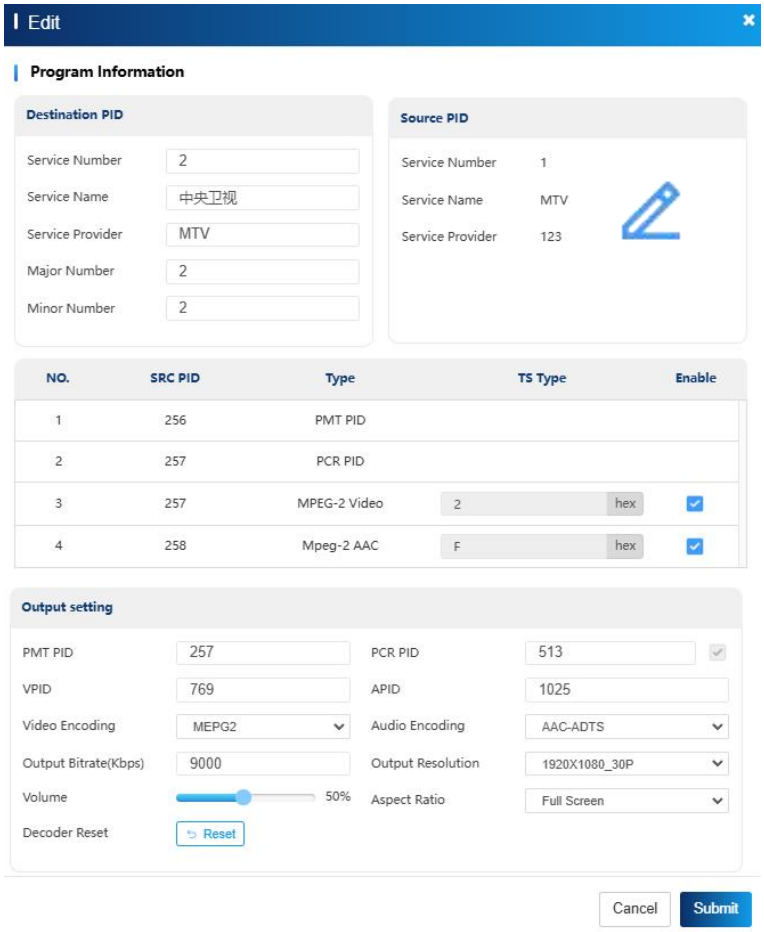
* View more information in next page.



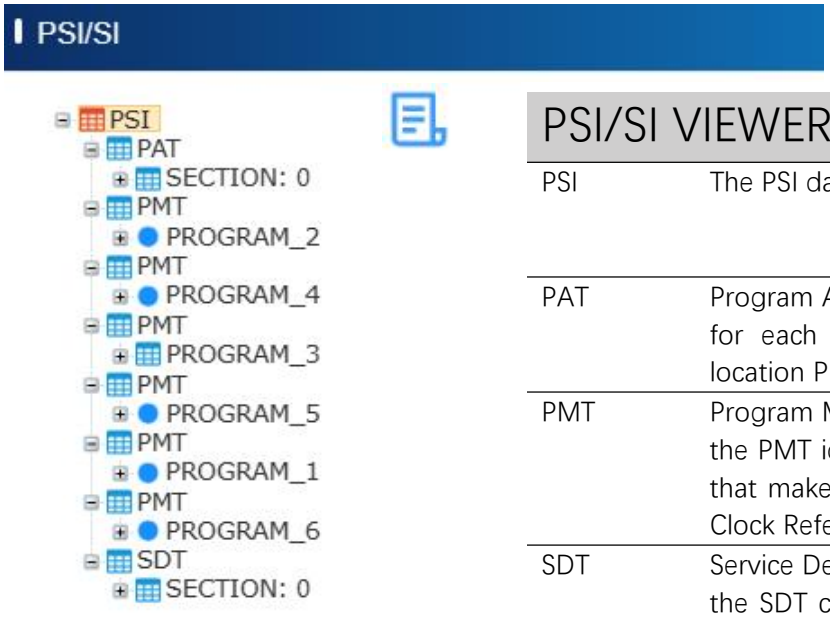
7.5.4 Stream Information



This information is a summary of the router list, which is very helpful to the operators.



Destination PID : Read from the source PID.
It is recommended to modify the PID in the OUTPUT>CHANNEL LIST.
Source PID : Analysis data from the source.
Enable : select the PID you need.
SRC : It is shorted for source.
OUTPUT SETTING : To set up the output parameter, which we would like to operate it in **OUTPUT>>CHANNEL LIST>> EDIT**.

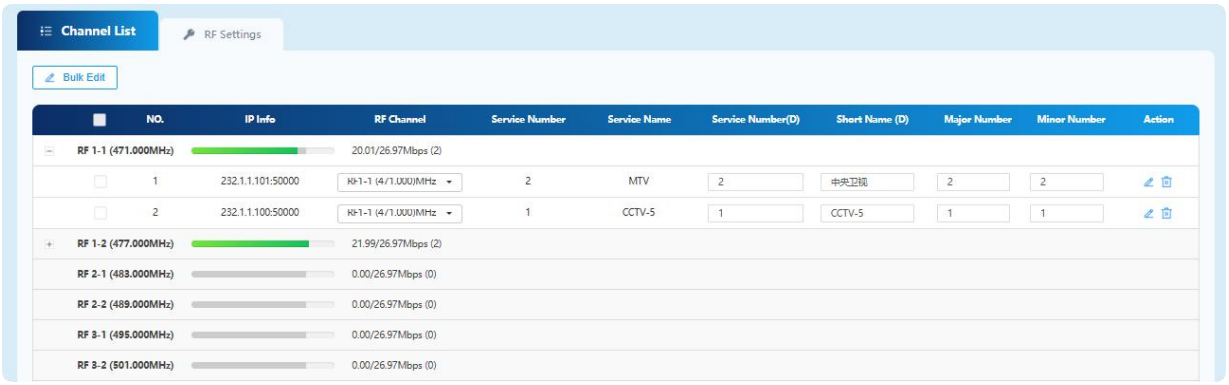


PSI/SI VIEWER

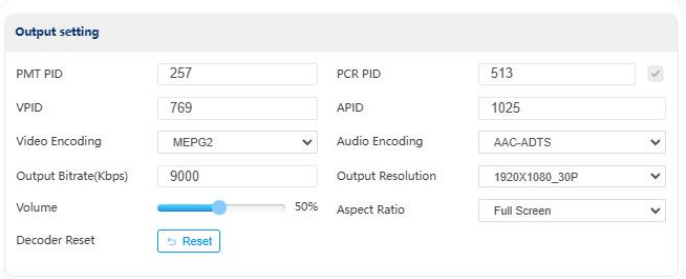
PSI	The PSI data is structured as PAT,PMT and SDT.
PAT	Program Association Table : for each service in the multiplex, the PAT indicates the location PID values of the TS of the corresponding PMT.
PMT	Program Map Table : the PMT identifies and indicates the locations of the streams that make up each service and the location of the Program Clock Reference fields for a service.
SDT	Service Description Table : the SDT contains data describing the services in the system e.g. names of services, the service provider, etc.

7.6 OUTPUT

7.6.1 Channel List : In the OUTPUT page, we can reschedule the channels/services and PID in a much easier way.

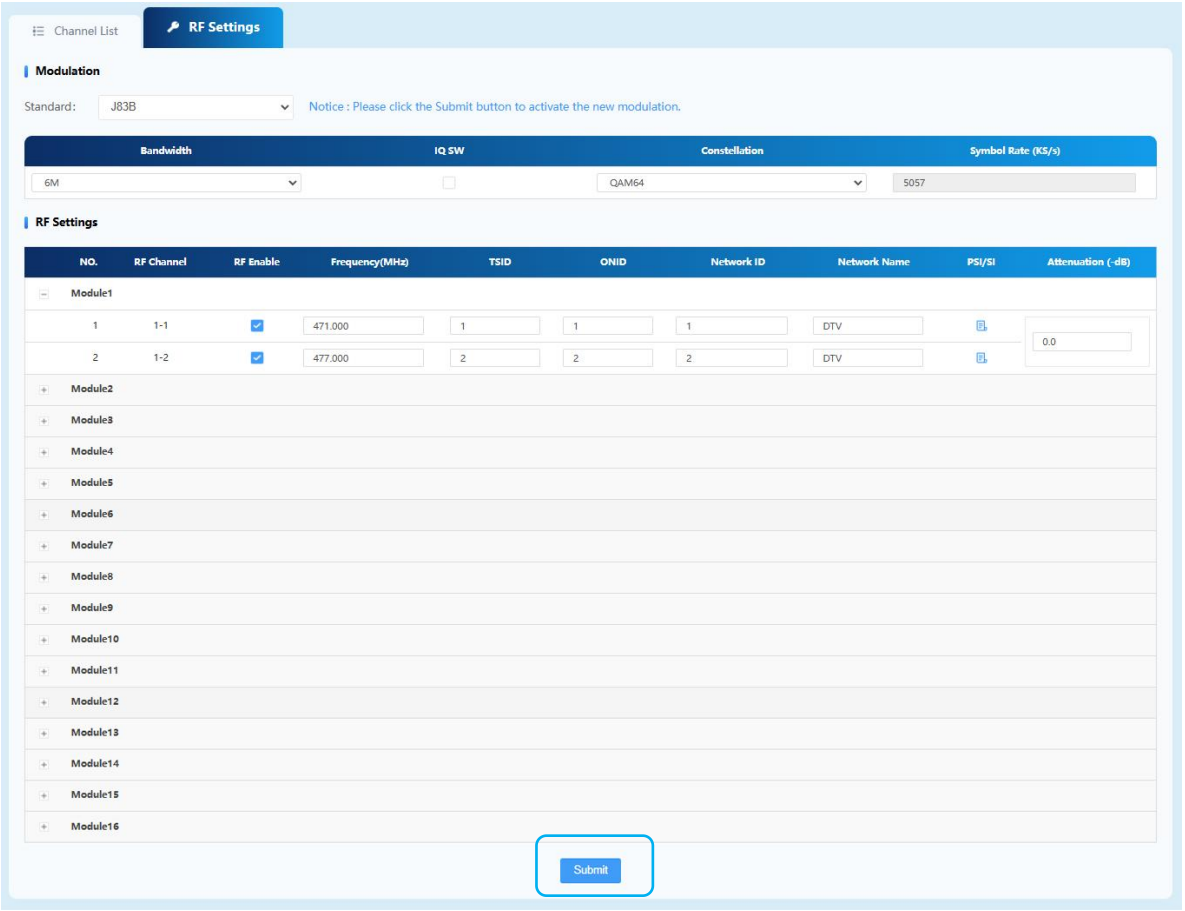


Bulk Edit	Adjust Volume and Aspect Ratio in bulk.
☐	This checkbox is used to quickly select the stream under unfolded stream title
IP Info	The IP address
RF Channel	Select a output RF channel for the desired service. To modify it, please go with OUTPUT>>RF SETTING>>Frequency
Service Number	The original service number.
Service Name	The original service name.
Service Number(D)	Input a new service number.
Short Name	Enter a short name for the channel. Up to 64 bytes are allowed.
Major Number	Enter a major channel number for the output program.The range is 1 to 1023 for ATSC and Cable.
Minor Number	Enter a minor channel number for the output program.The range is 1 to 1023 for ATSC and Cable.
⊞ ⊟	⊞ : Unfold the stream details; ⊟ : Fold the stream details.
✎	Common PID edit : Program number/Service name/Provider/LCN… *
🗑	Delete this service.



Video Encoding	Select the output video encoding between **MPEG 2**(Default setting) and H.264.
Audio Encoding	Select the output audio encoding among MPEG 1, AAC-ADTS, AAC-LATM and AC3
Output Bitrate	The output value is 9,000~20,000kbps
Output Resolution	This device supports resolution downscale.
Volume	Adjust the output volume
Aspect Ratio	Change the aspect ratio.
Decoder Reset	Reset the decoder function when the picture is bad. Process it with caution.

7.6.2 RF Setting : In this page, you can set up the output modulation with its parameters and the output frequencies.



MODULATION

J.83B (QAM)	
Bandwidth	Select QAM channel bandwidth from 6/7/8MHz. 6MHz is the standard one.
IQ SW	In-phase and Quadrature
Constellation	Select the signal modulation 64QAM/256QAM
Symbol Rate	The symbol rate will be changed automatically according to the constellation.

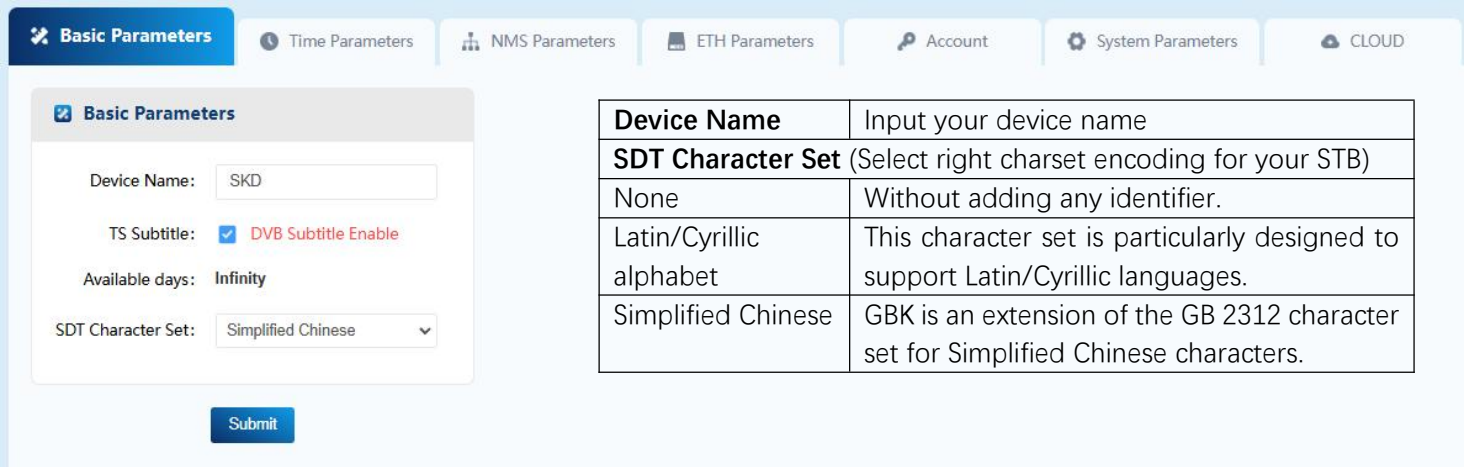
RF SETTINGS

NO.	The transcoder-modulator card number. There are 16 pieces of cards in this modulator.
RF Channel	1-1 : the first 1 means the first card while the second 1 means the first output frequency.
RF Enable	Enable or disable the channel (A gap of the selected bandwidth occurs)
Frequency	16 bonded output channel blocks 1-1,2-1 and so on. Set the start output frequency of block 1 by setting channel 1 and the follow channel will be set as the next channel. All further channels will be set automatically according to the bandwidth.
TSID	Transport Stream ID (Requires a unique number for each channel).
ONID	Allocating the Original Network ID (Identifier of the provider).
Network ID	In local Cable TV system, this is an optional ID. You can input any value as you like.
Network Name	Input the network name.
	PAT/PMT/SDT/NIT/CAT//TDT/TOT/MGT/CVCT table insertion
Attenuation	Reduce the RF output level

Submit Any changes applied here requests SUBMIT to save.***

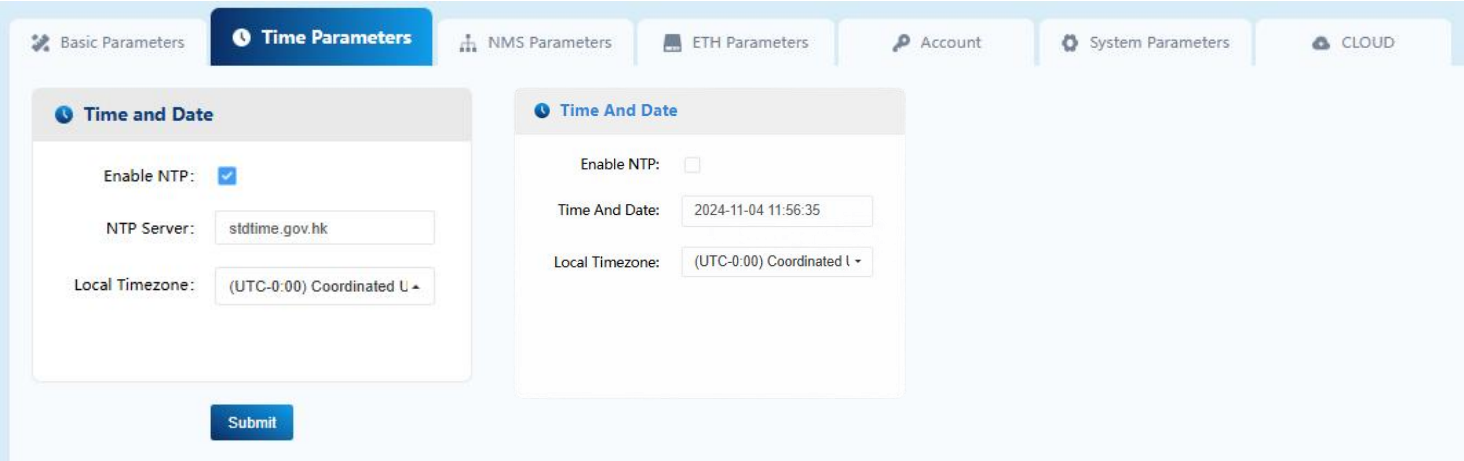
8.SYSTEM

8.1 Basic Parameters



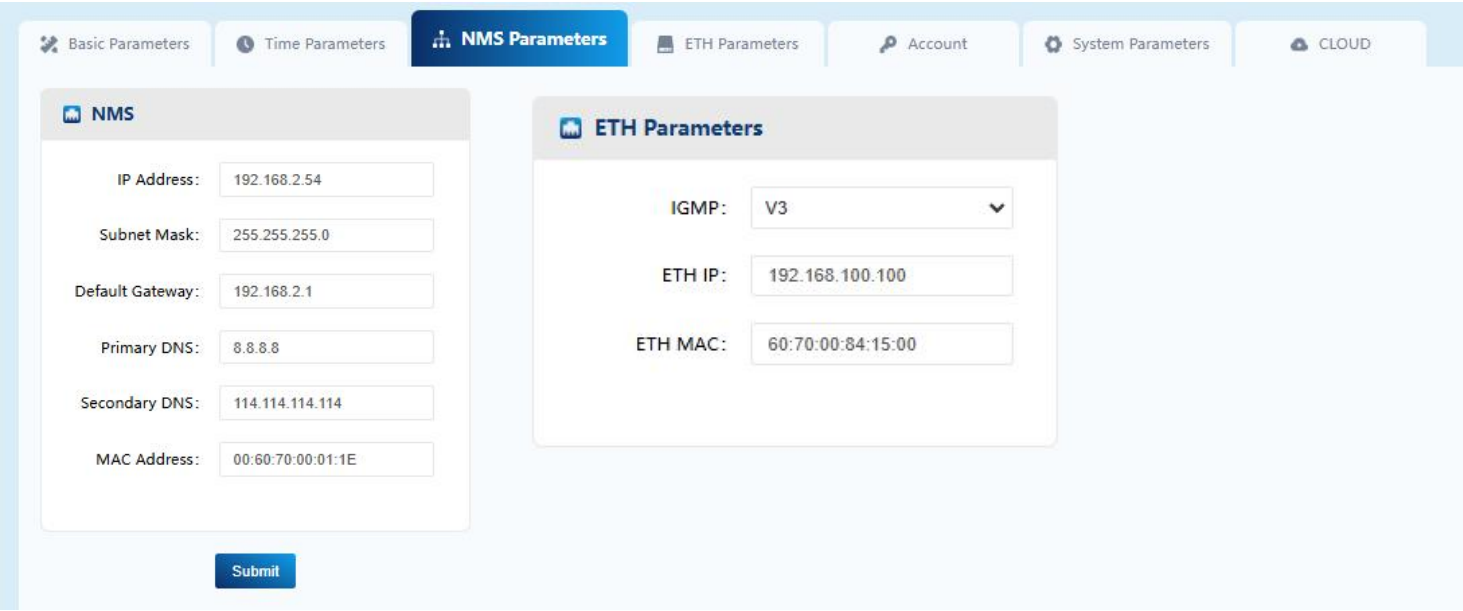
Device Name	Input your device name
SDT Character Set (Select right charset encoding for your STB)	
None	Without adding any identifier.
Latin/Cyrillic alphabet	This character set is particularly designed to support Latin/Cyrillic languages.
Simplified Chinese	GBK is an extension of the GB 2312 character set for Simplified Chinese characters.

8.2 Time Parameters



Enable NTP ☑		Enable NTP ☐	
NTP Server	Input the NTP server address which is best for you.Make sure the NMS port is connected with the Internet.	Time And Date	Press the TODAY button, and the modulator will read the time and date from your computer.
Local Timezone	Select a timezone	Local Timezone	Select a timezone

8.3 NMS and ETH Parameters

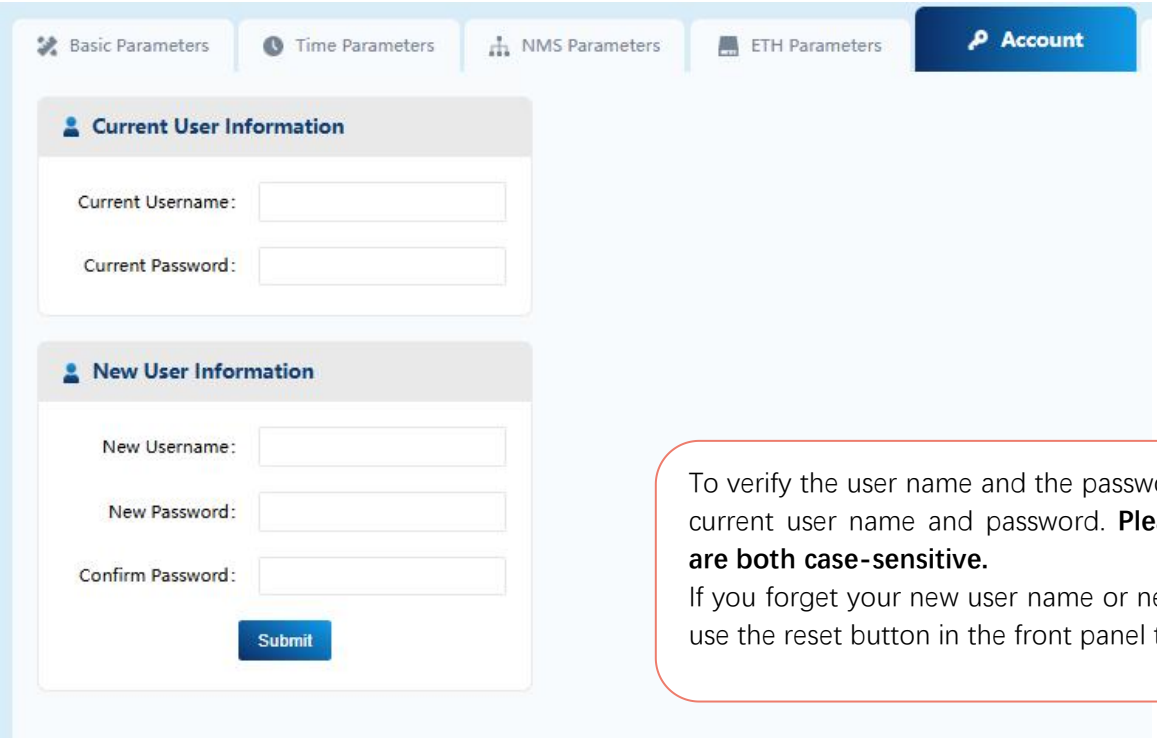


NMS	
IP address, Subnet mask, Gateway, Primary and Secondary DNS	These are network parameters of the management network interface of the H-HERMES-64 device, which can be changed as required.
MAC Address	MAC address of the management network interface of the H-HERMES-64 device.
ETH1 (Data In)	
IP Address	The IP address for this port,which is related when it is used under Unicast mode.
MAC Address	MAC address of the input network interface of the H-HERMES-64 device.
IGMP Version	If your input IP stream contains IGMP, please select the right version to match the input stream.



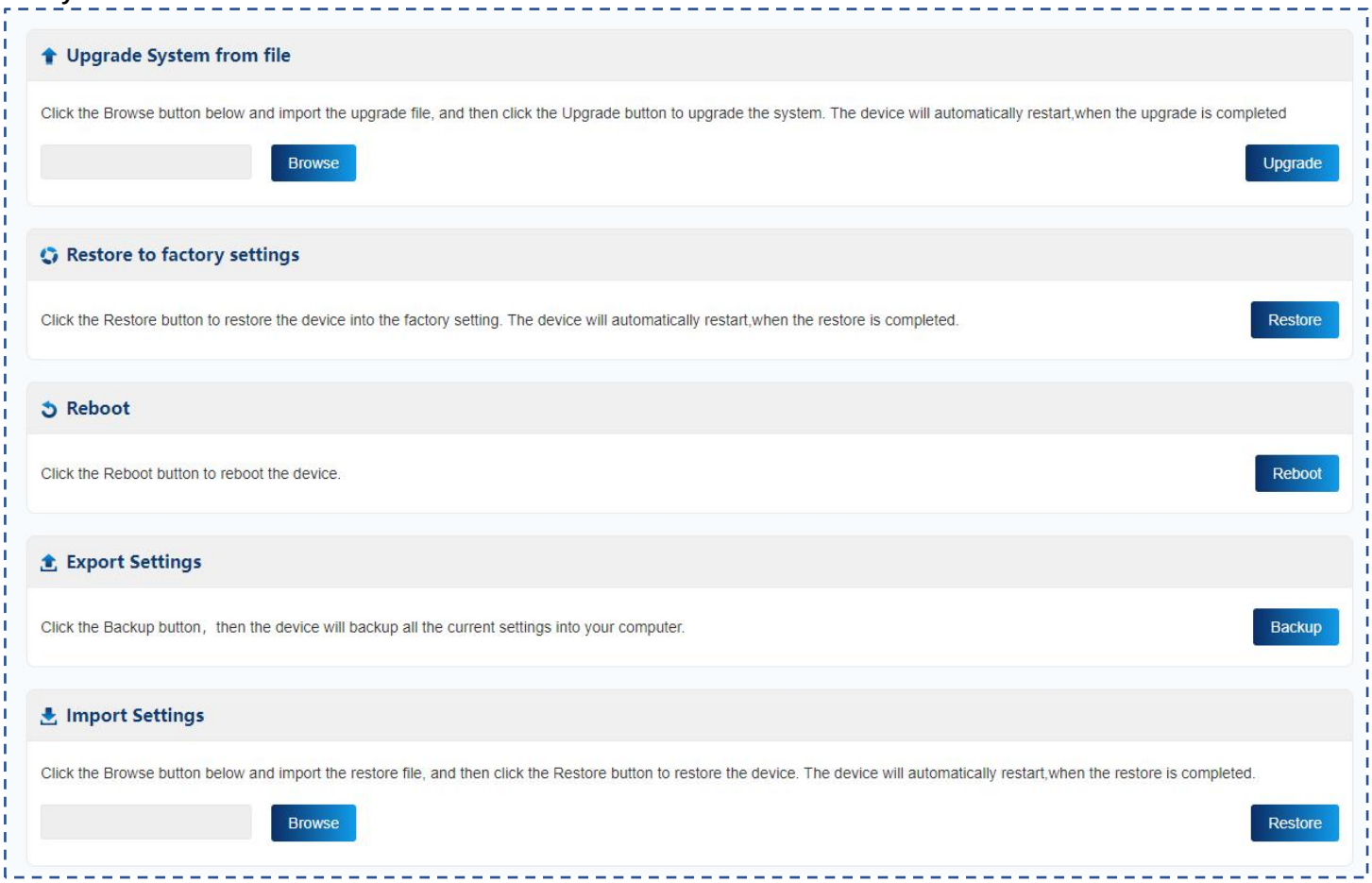
1. Making changes in this area can affect the system communication.
--PROCEED WITH CAUTION!!!
2. Management in IP address should only be changed when it is necessary to manage the entire system from a different subnet. Otherwise, please leave what it is.

8.4 Account



To verify the user name and the password, please input your current user name and password. **Please notice that they are both case-sensitive.**
If you forget your new user name or new password, you can use the reset button in the front panel to restore.

8.5 System Parameters

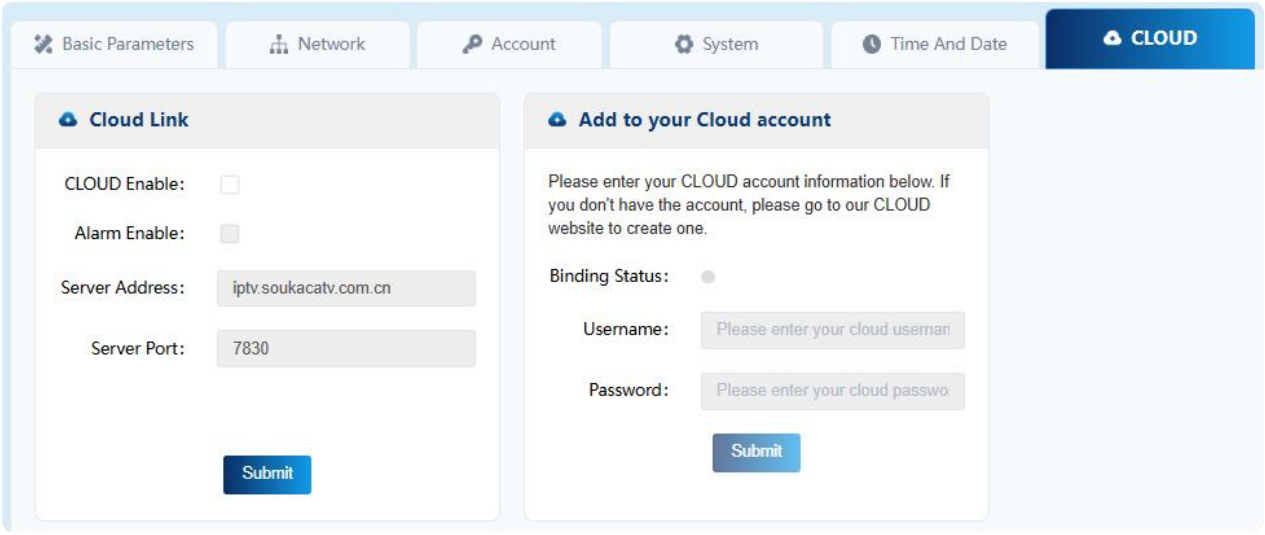


Upgrade system from file: Upgrade the modulator with the latest software.
Restore to factory settings: The restore function will recover the input and output settings and the IP address to the factory mode.
Reboot: To reboot the modulator.
Export Settings: Back up the input and output settings to your computer.
Import Settings: Recover the settings to the modulator from your computer.



NOTICE: Another way to restore the settings
Press the default button in the front panel for 10 seconds. If you see the running light is flashing, that means the restore is completed.

8.6 CLOUD

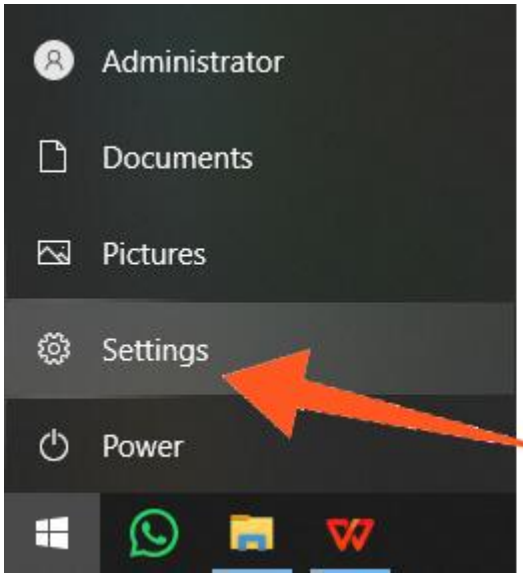


Cloud Link	
CLOUD Enable	Tick on the checkbox to activate the cloud service
Alarm Enable	Tick on the checkbox to activate the alarm service
Server Address	Input the CLOUD server address or the domain name
Server Port	Input the CLOUD server
Submit	Press submit to save the information
Add to your Cloud account	
Binding Status	Green for connecting with the Cloud server. Grey means disconnection.
Username	Your CLOUD account name.
Password	Your CLOUD password
Submit	Press submit to save. A manual reboot is requested to activate the settings.

9.QUICK IP ETHERNET CONNECTION GUIDE

NOTICE: Make sure you login your operation system as the administrator.

>9.1 Go to " Windows Start"





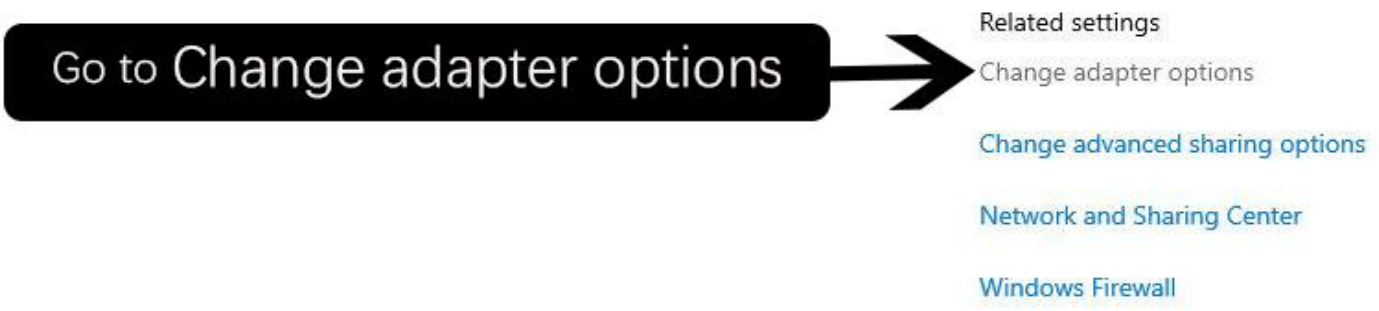
>9.2 Go to Windows Settings

>9.3 Go to " Network & Internet"

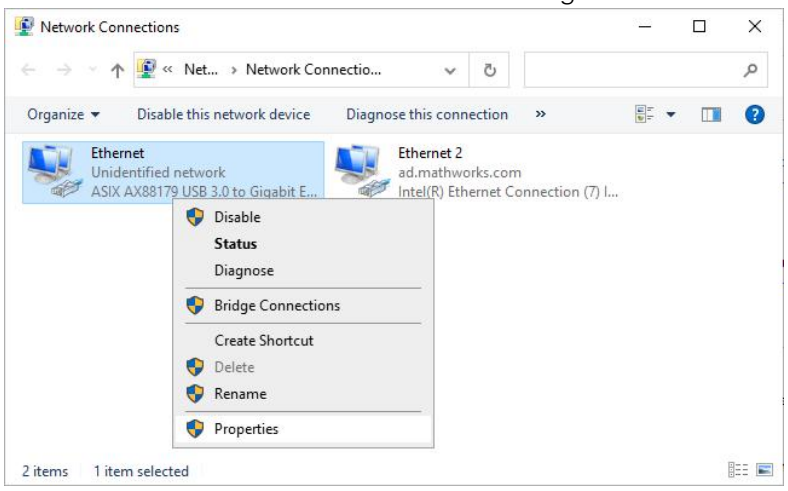
>9.4 Go to "Ethernet" on the left side of the menu



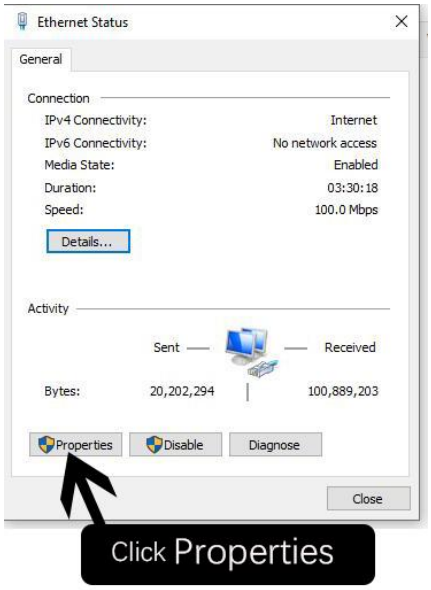
>9.5 Go to " Change adapter options"



>9.6 Double click on the Ethernet Source or Right Click and select “Properties”

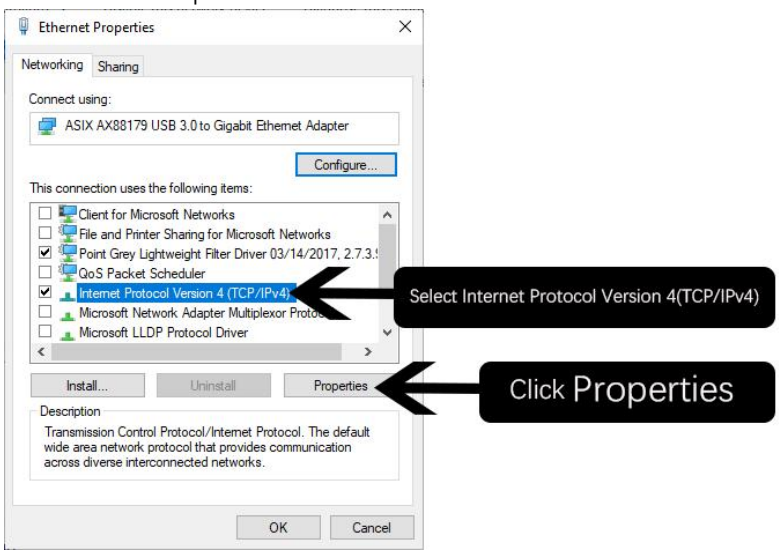


>9.7 Open Properties

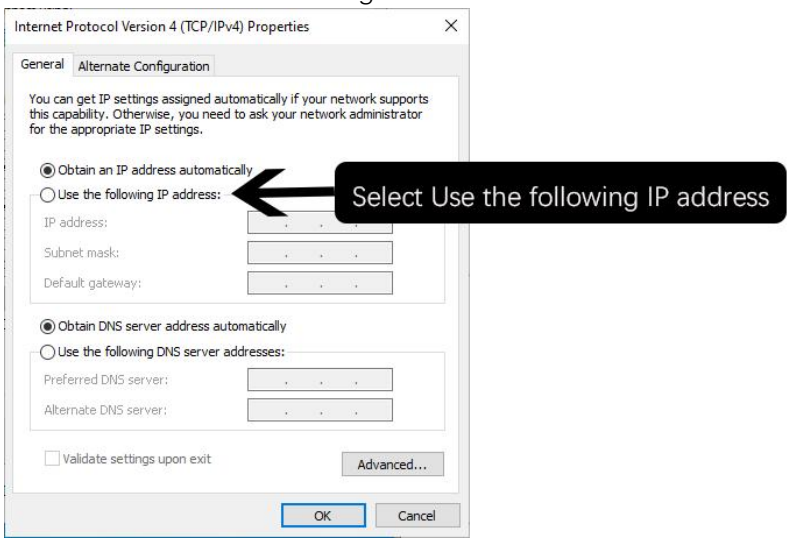


>9.8 Go to “Internet Protocol Version 4 (TCP/IPv4)

>9.9 Go to “Properties”



>9.10 Go to “Use the following IP address”

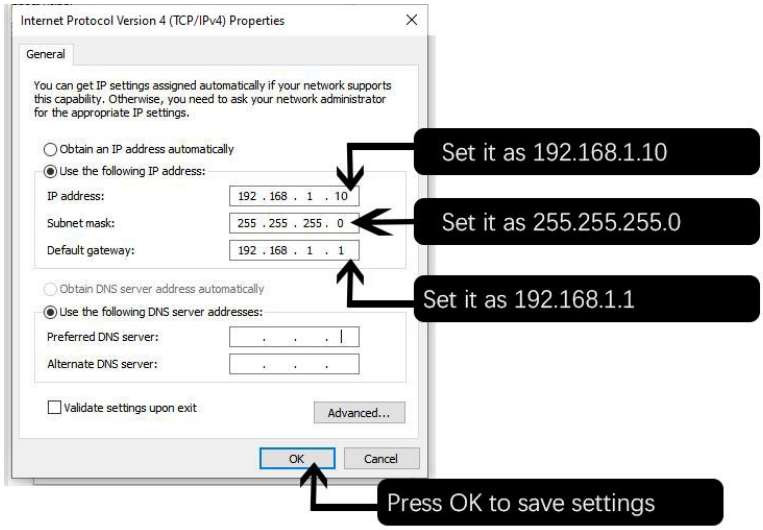


>9.11 Set IP address

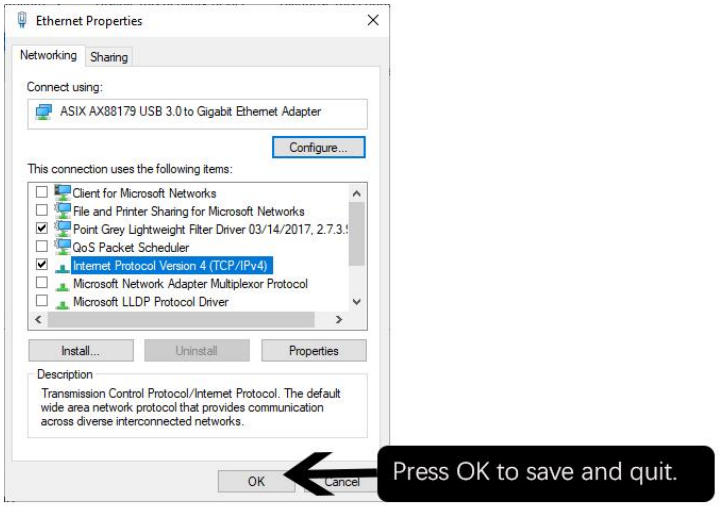
Set IP address: 192.168.1.10

Set Subnet mask: 255.255.255.0

Set Default gateway: 192.168.1.1



>9.12 Save all the settings.



10.COMMON TROUBLESHOOTING

SN	Symptom	Recommended Action
1	Power LED is not lit.	Check the power cord connection
2	Can't login to the NMS	Check Chapter 09
3	The WEB UI is not in order and can't save the settings	Clear your browsing data
4	No RF output	Check the output frequency setting
		Check the cable connection
5	No video and audio in TV	Check the video and audio in another TV
		Check the output frequency setting
6	Bad picture and on-off sound	Check the connection of the video source
		High output level: Add the attenuator to low the level
		Low output level: Add an amplifier to boost up the level
7	No service available	Check the internet cable
		Check the input IP stream address
		Check the IP streamer
8	Other issue	Please contact us for technical support

11.WARRANTY

THOR BROADCAST equipment has been thoroughly tested and found to be in proper operating condition when shipped from the factory and is warranted to be free from defects in materials or workmanship that may develop within one year of the date of purchase. THOR agrees to remedy such or furnish a new part, or at its option an entire unit, or any part of a unit that disclosed such defect, provided that the unit or part is returned to THOR or THOR authorized service facility according to the terms listed below.

Prior authorization with a return authorization number issued by THOR or its representative is required for all returns. The purchaser shall be responsible for all freight charges on shipment to THOR unless otherwise authorized. Charges to return a unit or part to purchaser will be paid by THOR. Claim for damage in shipment to the purchaser must be filed by the purchaser with the carrier in accordance with the carrier's regulations.

THOR shall not be responsible for the shipping charge if the returned unit turns out to be flawless.

A Return Material Authorization (RMA) Number is required on all products returned to THOR**.** Regardless if the product is being returned for repair or credit. Before returning product, please contact THOR sales.

Buyer :		RMA Number:
Model Number	Products ID Number	Problem

If there's not enough space in this form, please attach a separate sheet of paper.

Thanks for using our products.
For more products, please visit our website:
https://www.thorbroadcast.com