



USER MANUAL V1.0

H-IPRF-4QAM

IP TO QAM MODULATOR

NMS IP: 192.168.1.30
User Name: user
Password: user

A Note from THOR about this Manual

Intended Audience

This user manual is written to assist individuals who use, integrate, and install the product. Some chapters require prior knowledge of electronics, particularly in broadcast technologies and standards.

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1.INTRODUCTION

The Thor H-IPRF-4QAM is designed to convert IP streams over UDP/RTP protocols into digital RF signals. It is ideal for applications that require a cost-effective and straightforward solution for IP-to-cable conversion in local TV systems. The unit features an ultra-compact 34 mm height design and is rack-mountable, making it perfect for space-constrained installations.

2.SPECIFICATION

INPUT	
Input connector (Front panel)	RJ45*1 GbE
Transport protocol	UDP, RTP
MAX input IP address	63
Input transport stream	SPTS
OUTPUT	
Output connector	1 x RF female @75Ω
Output range	50 ~ 999.999MHz
Output frequency	4 channels
Output level	≥45dBmV
MER	Typical 38dB
DVB-C J.83B /ATSC (8VSB)	
Bandwidth	6M,7M,8M
Constellation	64QAM,256QAM
Symbol rate	5057KS/s (64QAM) ; 5360 KS/s (256QAM)
TS PROCESSING	
Advanced PSI/SI regeneration	Yes
GENERAL	
Input voltage	90~264VAC, DC12V 2A
Dimensions(WxHxD)	178*32*124mm
Net weight	0.68KG
Language	English

3. PRODUCT OVERVIEW



CH1-CH8	Indicate the channel working state.
POWER	Indicate power on.
RUN	The light will keep flashing when system is on.
NMS	Net management system port [IP:192.168.1.30; USER NAME: user ; PASSWORD: user]
DEFAULT	Press it for 10 seconds to restore to the factory setting (the network setting and PID settings).
ETH	IP signal input port at 1000M.



GND	For modulator grounding.
Power input	12V 2A power source.
RF IN	This port is provided for another device for RF loop.
RF OUT	40dBmV maximum output is provided at this port.



WARNING:
For the protection of your equipment and its proper working, it is necessary to connect the H-IPRF-4QAM to a ground connection.

**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.**



SAFETY INSTRUCTIONS

1. Read all safety and operating instructions before operating the modulator.
2. Retain all safety and operating instructions for future reference.
3. Heed all warnings on the modulator and in this manual.
4. Follow all installation, operating, and usage instructions carefully.
5. Unplug the modulator from the AC power outlet before cleaning. Use only a damp cloth to clean the exterior of the modulator.
6. Do not use accessories or attachments not recommended by THOR, as they may present 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 injury and equipment damage. Install the modulator only in a standard **19-inch rack** designed for rack-mounted equipment.
9. Do not block or cover the slots and openings in the modulator. These provide ventilation and prevent overheating. Never place the modulator near or over a radiator or heat register.
10. We strongly recommend using an outlet equipped with **surge suppression** or **ground fault protection**. For added safety during lightning storms, or when the modulator will be left unattended for extended periods, unplug it from the wall outlet or PDU and disconnect all connected lines. This helps prevent damage caused by lightning or power surges.
11. Do not overload wall outlets or extension cords, as this can cause fire or electric shock hazards.
12. Never insert objects of any kind into the modulator through openings, as they may contact dangerous voltages 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 if any of the following occur:
 - The power cord or plug is damaged.
 - Liquid has been spilled onto the modulator.
 - The modulator has been exposed to rain or moisture.
 - The modulator does not operate normally after following the operating instructions.
 - The modulator has been dropped or damaged.
14. When replacement parts are required, ensure that the service technician uses only parts specified by THOR. Unauthorized substitutions may cause electrical shock, fire, or damage to the equipment, and will void the warranty.

5. UNPACKING AND HANDLING

A complete **H-IPRF-4QAM** unit is shipped fully assembled, wired, factory-tested, and securely packaged in a suitable shipping container.

Package Contents:

- **H-IPRF-4QAM Digital Modulator** (Qty: 1)
- **Power Adapter** (Qty: 1)

5.1 Mechanical Inspection

Inspect both the front and rear panels of the equipment for any signs of shipping damage. Ensure that the unit is clean and that no wires, cables, or connectors are broken, damaged, or loose.

5.2 Precautions

To ensure safe and reliable operation, please observe the following precautions:

- Avoid heat buildup around the unit.
- Ensure adequate space for easy access to rack wiring.
- Maintain sufficient clearance for servicing and maintenance.
- Avoid direct exposure to heating or air-conditioning vents.
- Confirm that the rack structure is rigid and capable of supporting the equipment weight.
- Prevent dripping water from leaky roofs, waveguide entries, or condensation on cold water pipes.
- Never operate the device without its protective cover or lid in place.
- Do not perform any work on the antenna system during a thunderstorm.

5.3 Damage During Shipment

If any damage is discovered after unpacking the unit, immediately file a claim with the carrier. Provide a full written report of the damage and forward a copy to **THOR** or your authorized reseller.

6. INSTALLATION

The **H-IPRF-4QAM** modulator is designed for installation in a rack shelf or standard 19-inch rack. Please follow the steps below to install the unit properly:

1. Connect the **power adapter** to the power jack on the rear panel.
2. Connect your **video source** to the input port of the **H-IPRF-4QAM** modulator.
3. Connect your **laptop or computer** to the **H-IPRF-4QAM** via the Ethernet port for configuration and management.

7. PROGRAMMING VIA WEB INTERFACE

7.1 Login

1. Connect the **H-IPRF-4QAM** to your computer or laptop using an **Ethernet cable** through the **NMS port**.
2. **Power on** the modulator and wait approximately **2 minutes** until the **RUN** indicator remains steady.
3. Open your **web browser** and enter the default IP address **192.168.1.30** in the address bar to access the modulator's web interface.

Recommended Browsers:

For best performance and compatibility, use **Google Chrome**, **Mozilla Firefox**, or **Microsoft Edge**.

Google Chrome



Firefox



Microsoft Edge



The default user name and the default password are:

Username: ***user***

Password: ***user***



- 1 Ensure that your **computer's IP address** is in the **same subnet** as the modulator.
- 2 Change the **username** and **password** if necessary.
- 3 The **username** and **password** are **case-sensitive** and may include both letters and numbers.
- 4 The **username** and **password** must be between **1 and 32 characters** in length.

7.2 System Status Page

This page is **read-only** and displays the general operational status of the unit, including parameters such as **temperature, input and output ports, and serial number**.

It provides a quick and convenient overview of the system's health and can assist in **monitoring performance or troubleshooting issues**.

The screenshot shows the THOR BROADCAST System Status page. The sidebar on the left contains a menu with 'System Status' selected. The main content area displays various system parameters in a grid format. Below this is a table of RF Channel parameters and a message section.

Serial Number	Device Name	Hardware Version	Software Version
0000000000078C2	H-IPRF-4QAM	Thor210X_V3_0_20230113	4B-2025-10-30 09:52:18

Modulation	Run Time	Voltage	Fan
J83B	1 days 17:52:45	9.79 V	0 rpm

G-Link	G-Speed(Mbsp)	Duplex
Link Up	1000	Full

RF Channel	Frequency(MHz)	RF Level(dBuv)	Bitrate(Mbsp)
1	471.000	100.0	8.2
2	477.000	100.0	0.0
3	483.000	100.0	0.0
4	489.000	100.0	0.0

Message

FPGAAuth ok!

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.
Device Name	This device's part number
Hardware Version	If there's something wrong with this device, please send this information to us.
Software Version	If there's something wrong with this device, please send this information to us.
Modulation	Indicate the RF output modulation.
Run Time	Indicate the total amount of time the device has been running
Voltage	Indicate the current voltage
Modulation Parameters	Set up the RF output frequencies.
TS Parameter	Input the IP address and pick up the services
System Parameter	System settings : Network/ Account/ System/ Time and Date

7.3 Modulation Parameters

RF Channel	RF Enable	Frequency(MHz)	TSID	Attenuation(dB)
1-1	☒	471.000	1	0.0
1-2	☒	477.000	1	
1-3	☒	483.000	1	
1-4	☒	489.000	1	

Bandwidth	Constellation	Symbol Rate(KS/s)
6M	QAM64	5057

MGT: ☐ VCT: ☐ STT: ☐

Submit

RF Enable	Enable and disable the RF output channel
Frequency	Input the output frequency
TSID	Transport Stream Identifier.The TS' ID number.
Attenuation	To reduce the output level
Bandwidth	Please set it as 6M
Constellation	Select the constellation 64QAM/256QAM
Symbol Rate	The symbol rate will be changed automatically according to the selected constellation.
MGT	Master Guide Table. Insert the MGT.
VCT	Virtual Channel Table. Insert the VCT.
STT	System Time Table. Insert the STT.

7.4 TS Parameters >NETWORK

Network Src-IP Source Channel

Network

Mac Address

00:60:70:00:79:00

IP Address

192.168.1.50

IGMP-EN

ON

IGMP-Version

V3

Submit

This page is to set up the MAC address and IP address for the ETH 1 port. Please leave it what it is.

IGMP-EN : enable the IGMP snooping.
IGMP Version: If your input IP stream contains IGMP, please select the right version to match the input stream.

7.5 TS Parameters >Src-IP

Network

Src-IP

Source

Channel

+ New

✕ Remove

✓ Submit

All		NO.	IP Address	Port
☐		1	239.0.0.2	50000
☐		2	239.0.0.2	1234
☐		3	239.0.0.3	1234

>>>Click the **+New** 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.

New

✕

Unicast

Multicast

IP Address

192.168.1.50

Port

50000

Step

1

Count

1

Unicast

Multicast

IP Address

239.100.1.10

Port

50000

Step

1

Count

1

✕ Close

✓ Submit

Network

Mac Address

00:60:70:00:79:00

IP Address

192.168.1.50

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.
IP Address	Input the IP address. When you select unicast, please change the IP in Network page.
Port	Input the port number.
Step	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.

7.6 TS Parameters >Source

Network	Src-IP	Source	Channel		
RF 1(471.000 MHz)	8.22/26.97 Mbps	RF 2(477.000 MHz)	3.33/26.97 Mbps		
RF 3(483.000 MHz)	0.00/26.97 Mbps	RF 4(489.000 MHz)	0.00/26.97 Mbps		
NO.	IP Address	Service Name	Bitrate(Mbps)	Channel Assignment	Action
1	239.0.0.2:50000	CCTV-5	8.003	RF 1 (471.000 MHz)	Cancel
2	239.0.0.2:1234	08 КАРУСЕЛЬ	3.135	RF 2 (477.000 MHz)	Cancel
3	239.0.0.3:1234	FX 209	6.523	RF 1 (471.000 MHz)	Forward

In this list, you can view all **input streams** and assign selected programs to preset frequencies using the **Forward** button.

Please pay close attention to the **Progress Bar** — do not exceed **80% usage**, as higher loads may cause picture instability or signal degradation.

Main operations:

1. Locate your desired **services**.
2. Select the **RF channel** to which you want to assign the services.
3. Click **Forward** to send the selected services to the chosen RF channel.

7.7 TS Parameters >Channel

Network

Src-IP

Source

Channel

✖ Remove

✔ Submit

All	Channel Assignment	IP Address(S)	Service Name(S)	Major Num.(D)	Minor Num.(D)	Short Name	Long Name	Bitrate(Mbps)	Action
☐	1-1 (471.000 MHz)	239.0.0.2:50000	CCTV-5	1	1	THOR	THOR TV	7.983	✎ Edit
☐	1-2 (471.000 MHz)	239.0.0.2:1234	08 КАРУСЕЛЬ	1	2	08 КАРУСЕЛЬ	PTPC	3.138	✎ Edit
☐	1-3 (471.000 MHz)	239.0.0.3:1234	FX 209	1	3	FX 209	---	6.742	✎ Edit

Remove Remove the selected channels/services

Submit Save the settings

Major Number Input the major number here.

Minor Number Input the minor number here.

Short Name Input the short name here.

Long Name Input the long name here.

Action Click it for more PID edit

Channel 1_1

PRGNUM(S)2048PRGNUM(D)1

SRC PSI INFO

NO.	SRC PID	Type	DST PID	Stream Type	Enable
1	75	PMT PID	32		
2	76	PCR PID	33		
3	77	MPEG-2 Video	35	2hex	☒
4	78	Mpeg-2 Audio	34	4hex	☒

Close

Submit

8.1 System Parameters > Basic Parameters

Local Timezone

Auto☐

Date Time2000-01-02 12:44:08

Local Timezone(UTC-5:00) Bogota, East

Submit

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

8.2 System Parameters > Network Parameters

Wired Info

DHCP

OFF

IP Address

192.168.2.29

Subnet Mask

255.255.255.0

Default Gateway

192.168.2.1

Primary DNS

192.168.1.1

Secondary DNS

192.168.1.1

Mac Address

00:60:70:00:79:5E

WIRED INFO (NMS)

IP address, Subnet mask, Gateway, Primary and Secondary DNS These are network parameters of the management network interface of the H-IPRF-4QAM device, which can be changed as required.

MAC Address MAC address of the management network interface of the H-IPRF-4QAM device.



- Making changes in this section can affect **system communication**.

⚠ PROCEED WITH CAUTION!

- The **management IP address** should only be modified when it is necessary to manage the system from a **different subnet**. Otherwise, it is recommended to **leave the default settings unchanged**.

8.3 Account

Current User Info

Current Username

Current Password

New User Info

New Username

New Password

Confirm Password

✓ Submit

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.

8.4 System Parameter

⚙️ Upgrade System from file

Click the «Browse» button below and import the upgrade file, and then click the «Upgrade» button to upgrade the system. The device will automatically restart,when the upgrade is completed

⚙️ Restore to factory settings

Click the «Restore» button to restore the device into the factory setting. The device will automatically restart,when the restore is completed.

⚙️ Reboot

Click the Reboot button to reboot the device.

⚙️ Export Settings

Click the «Backup» button , then the device will backup all the current settings into your computer.

⚙️ Import Settings

Click the «Browse» button below and import the restore file, and then click the «Restore» button to restore the device. The device will automatically restart,when the restore is completed.

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.

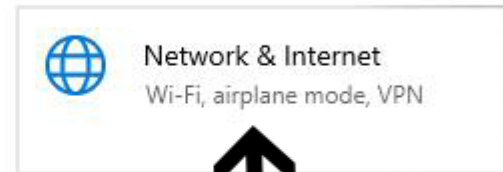
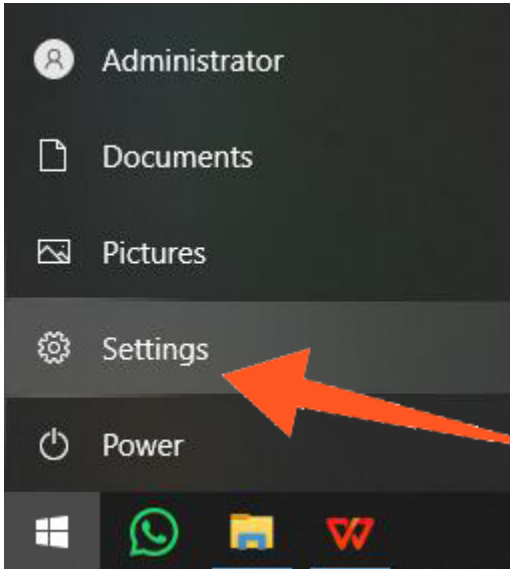
Import Settings: Recover the settings to the modulator from your computer.

9. QUICK IP ETHERNET CONNECTION GUIDE



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

>9.1 Go to "Windows Start"



Go to Network&Internet

>9.2 Go to Windows Settings

>9.3 Go to "Network & Internet"

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



Go to Ethernet

>9.5 Go to "Change adapter options"

Go to Change adapter options

Related settings

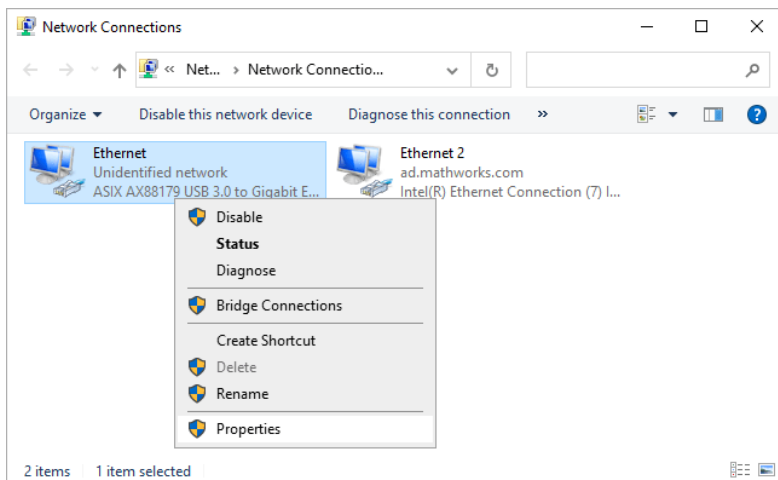
[Change adapter options](#)

[Change advanced sharing options](#)

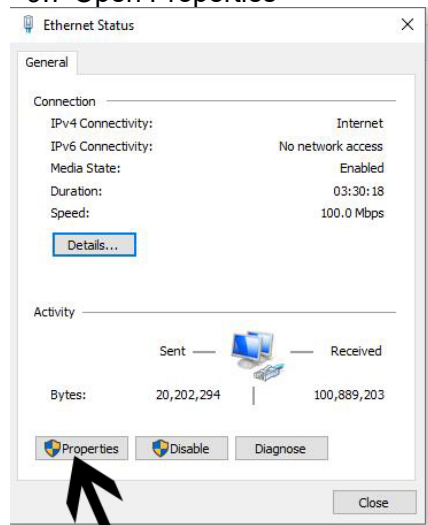
[Network and Sharing Center](#)

[Windows Firewall](#)

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



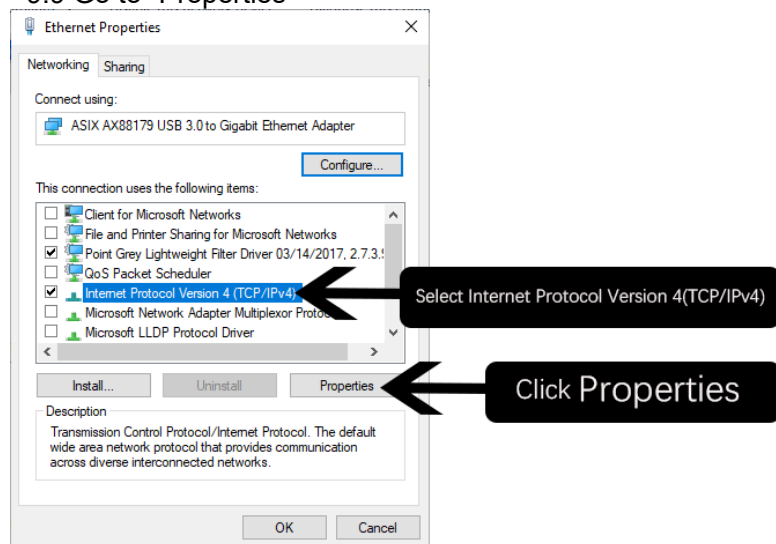
>9.7 Open Properties



click Properties

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

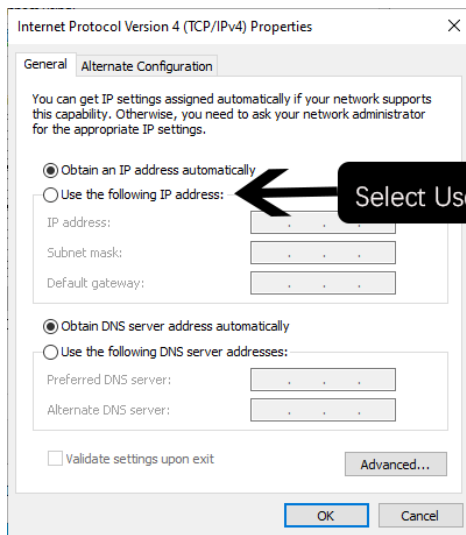
>9.9 Go to "Properties"



Select Internet Protocol Version 4(TCP/IPv4)

click Properties

>9.10 Go to "Use the following IP address"

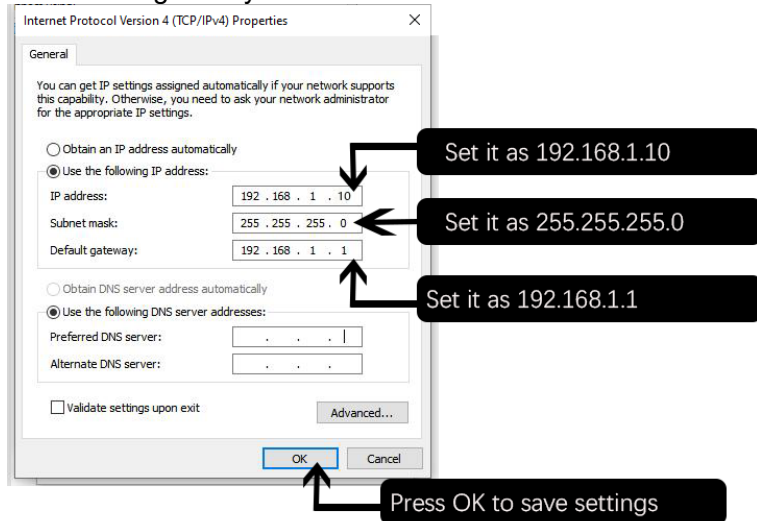


>9.11 Set IP address

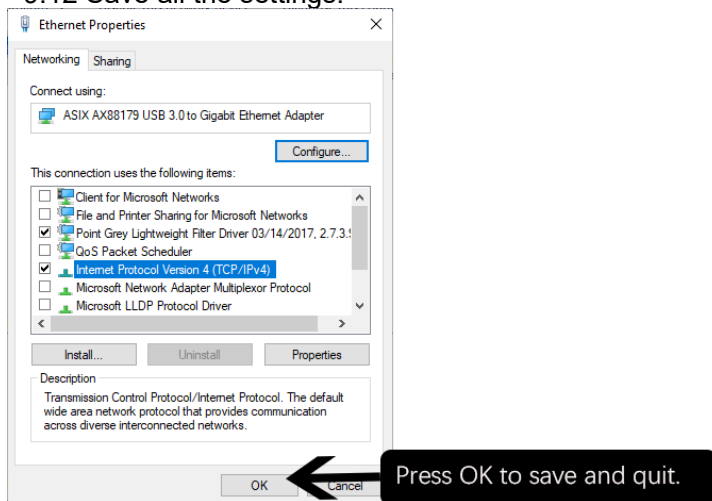
Set IP address: 192.168.1.10

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 10
3	The WEB UI is not in order and can't save the settings	Clear your browsing data
4	Other issue	Please contact us for technical support

11. WARRANTY

All **Thor Broadcast** equipment is thoroughly tested and verified to be in proper working condition before leaving the factory. THOR warrants this product to be **free from defects in materials and workmanship for a period of one (1) year** from the original date of purchase.

If a defect is discovered within the warranty period, THOR agrees to **repair, replace, or provide a new part or unit**—at THOR's discretion—provided that the defective item is returned to **THOR or an authorized THOR service facility** in accordance with the terms listed below.

Warranty Terms:

- Prior authorization and a **Return Material Authorization (RMA) number** issued by THOR or its authorized representative are required for all returns.
- The purchaser is responsible for **freight charges** when shipping the unit to THOR unless otherwise authorized.
- THOR will cover the **return shipping cost** after repair or replacement.
- Claims for shipping damage must be filed directly by the purchaser with the carrier, in accordance with carrier regulations.
- If a returned unit is found to be free of defects, the customer may be responsible for shipping and handling charges.

Return Procedure:

An **RMA number** is required for all product returns to THOR, whether for repair, replacement, or credit. Before returning any product, please contact the **THOR sales or technical support department** to obtain the RMA authorization and return instructions.

www.thorbroadcast.com

800-521-8467

sales@thorfiber.com