

THOR

BROADCAST

User Manual



Petit HDMI RF MODULATOR

H-HDMI-RF-PETIT

A Note from Thor Broadcast 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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INTRODUCTION

The H-HDMI-RF-PETIT is the most cost-effective and smallest form factor solution in the market. With a second HDMI output port and a RF loop port, user can easily install the system with different requirement. Extremely compact and wall mountable, the H-HDMI-RF-PETIT fits into any space with quick installment in less than a minute or two. Utilize the exterior buttons to control the unit, or an NMS RJ45 jack to control via IP. This inexpensive and HD quality unit can stand the test of time and will allow you to expand your RF system quickly and easily.

BUTTON LAYOUT

Quickly setup the unit using the LCD display, 3 button layout, and LED's



Using those 3 buttons you can setup the following:

- 1) Change the channel number
- 2) Press HOME 1 time: changes the CABLE QAM (J83b) to AIR ATSC modulation (vice versa)
- 3) Press HOME 2 times: changes DHCP ON or OFF
- 4) Press HOME 3 times: Reset to default configuration (factory reset)

The unit is also equipped with a network connection (RJ45/Ethernet) where other changes can be made such as Audio Codec format or other modulation standards not used in USA like DVB-T & ISDB-T. Easy to use layout to control and setup your device as well.

QUICK INSTALLATION GUIDE

1) Please connect the 12 Volt DC power adaptor.

- "POWER" LED will turn GREEN
- "Encoding" LED will turn GREEN, indicating that the unit is ready for HDMI Input
- The unit will go through the boot-up sequence and the front digital display will show default **C002** indicating modulation on channel #2 on RF output to your TV

2) Connect HDMI cable from your HDMI source, when our unit recognizes the correct video resolution, the second LED "LINK LOCK" will turn GREEN.

This is a very important indicator, it MUST turn GREEN, if it doesn't turn GREEN please check our troubleshooting steps.

PLEASE NOTE: The Petit unit supports 480i, 720p, 1080i and 1080p 59.94 and 60Hz incoming video resolution, it is important to make sure your video source is set to **STATIC VIDEO RESOLUTION** for any of those formats. Do not leave your video source resolution "Auto"

3) Optionally you can connect HDMI OUT to your local TV, this is just a pass through port

4) When ALL 3 LED's are green and LCD display shows C002 , the unit is working correctly and outputs Default CABLE QAM CHANNEL #2 (57Mhz)

- *Scan your TV on CABLE and the TV should find channel # 2.1*

5) If you want to change the channel number or modulated channel, you can use UP / DOWN buttons to set the desired channel number, it will save automatically. (or you can do this through the web interface)

Each time you change the modulated channel, scanning your TV might be necessary based on the make and model of your television set (some models like Samsung, don't require a scan)

6) If you want to change modulation type from Cable Qam to Off Air ATSC press the middle button (MENU BUTTON), located in between the Up/Down buttons one time.

Next - The unit should show J83b which means CABLE, press the UP button once, LED will change to a blinking ATSC, press the DOWN button once to save.

If you change the modulation standard from CABLE to ATSC, you need to scan the TV for Off-AIR channels.

7) If you want to the device to go back to the default configuration, please press the middle button 3x's to see ASR, press UP button once, the ASR will appear on the LCD and start blinking, to save press DOWN once

7) The Thor Broadcast PETIT's static IP address is 192.168.1.10

It can be set up for HDCP. Press middle button 2x to see dHOF which means HDCP OFF, press UP button, the led will change to dHON, to save it press the DOWN button, the IP address will change, to find out the IP address, log into your router, the unit will be listed with the new IP address as a PETIT under your connected devices.

TROUBLESHOOTING

NO LINK LIGHT

If you connect an HDMI source and the LINK LOCK is not ON, it means that our device is not recognizing Video resolution from the incoming source.

The TV will still show our Thor Broadcast LOGO, but not the incoming Video.

In this case please connect your HDMI source directly to the TV and try to select the input source from the options as an HDMI video source, confirm it works. *Some TV models offer different supported video resolutions.*

The Petite is a broadcast device that can only see broadcast resolutions (PC resolutions may vary)

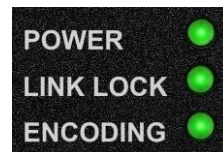
The best results are from **720p/59.94 or 60 Hz, 1080i/59.94 or 60 Hz and 1080p/59.94 or 60 Hz**

Do not leave your video source from any HDMI device: DVD player, Cable STB or Roku device on AUTO resolution, please select a resolution that will remain CONSTANT, again 720p or 1080I/P are best.

Please note that our unit only supports 480i, 720p, 1080i and 1080p in 59.94Hz and 60Hz incoming video resolution, it is important to make sure your video source is set to a STATIC VIDEO RESOLUTION for any of those formats. **Do not leave your source set to Auto the unit will not operate correctly.**

****Go into the settings menu of your HDMI source device and select a resolution for consistent output, every device from DVD, BluRay, and CATV Set Top Box, from any company, has this included in the SETTINGS*

THE TV CANNOT FIND MY CHANNEL!



Please connect Pettit modulator directly into the TV RF input via Coaxial Cable

Check if the 3 LEDs are GREEN, if all the lights are green including the LINK LOCK, go to **A**, if not go to **B**

A) Press middle HOME button 1x, if J836 shows on the LCD display please scan CABLE on your TV, if ATSC is showing on the LCD display then scan your TV for AIR channels; now check your TV for the channel.

B) If all three Green LED's are not on, verify which light is not lit, and proceed:

- 1) Power LED not lit; check your power supply and connections
- 2) Link Lock not lit; the resolution of your HDMI is source is not in the scope of what the unit can see, please go back to first troubleshooting step above NO LINK LIGHT
- 3) Encoding LED not lit; press the MENU button 3x to restore factory default, and try setting up the unit again
If you continue to not see the Encoding light, contact Thor Broadcast Support 1-800-521-8467 ext 2

FEATURES

- Extremely compact with less than 1.18" height
- Supports MPEG 2 video HD encoding
- MER greater than 35dB
- Integrated HDMI output for HD content quick display
- Output level - 30dBmV
- Built-in Web GUI allow for easy set-up and control via the web browser

SPECIFICATIONS

ENCODING

Input Connector	HDMI 1.4	
VIDEO	Encoding	MPEG 2
	Input Resolution	1920*1080_60P; 1920*1080_50P; 1920*1080_60i; 1920*1080_50i;1280*720_60P; 1280*720_50P
	Bitrate	2 ~ 18 Mbps
AUDIO	Encoding	MPEG 1 Layer II, AC3
	Sample Rate	32/44.1/48KHz
	Bitrate	384kbps

MODULATION

ATSC	Standard	ATSC A/53 (6M)
	Constellation	8VSB
	MER	≥36 dB
DVB-C J.83A	Standard	Annex A (8M)
	Constellation	16QAM, 32QAM, 64QAM, 128QAM, 256QAM
	MER	≥36 dB
	Symbol Rate	3 ~ 6.952 Ms/s
	Coderate	1/2, 2/3, 3/4, 5/6, 7/8
	Guard Interval	1/32, 1/16, 1/8, 1/4
DVB-C J.83B	Standard	Annex B (6M)
	Constellation	64QAM, 256QAM
	MER	≥36 dB
DVB-T	Standard	DVB-T COFDM (6M, 7M, 8M)
	Constellation	4QAM, 16QAM, 64QAM
	MER	≥32 dB
	Transmission Mode	2K, 8K
	Coderate	1/2, 2/3, 3/4, 5/6, 7/8
	Guard Interval	1/32, 1/16, 1/8, 1/4
ISDB-T	Standard	ARIB STB-B31 (6M)
	Constellation	QPSK, 16QAM, 64QAM
	MER	≥42 dB
	Coderate	1/2, 2/3, 3/4, 5/6, 7/8
	Guard Interval	1/32, 1/16, 1/8, 1/4
	Transmission Mode / Interleave	2K, 4K, 8K / 0,1,2,3

OUTPUT

RF	Output Level	≥30dBmV
	Output Frequency Range	50 ~ 999.999MHz
	Out-band Rejection	≥60dB

SYSTEM

Management	Control Keys; NMS; APP	LCN Insertion	YES
Language	English	Upgrade	NMS

GENERAL

Power Supply	DC12V 1A	Power Consumption	< 10W
Net Weight	0.36KG	Dimension	136*165*25 (mm)

**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

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 from 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:
 - 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
14. 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.

UNPACKING and HANDLING

The H-HDMI-RF-PETIT is shipped with all equipment assembled, wires, factory tested, and then packaged in an appropriate shipping container.

Unit 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.

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 from leaky roofs, waveguide roof entries and pipe condensation
- ✓ 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.

INSTALLATION

Please follow the instructions below to install the H-HDMI-RF-PETIT

1. Connect the power plug to the jack.
2. Connect the video source to the H-HDMI-RF-PETIT like DVD or STB
3. Connect the H-HDMI-RF-PETIT to a set-top box or a digital TV
4. Power up the modulator



Tel: (800) 521-8467

Email: sales@thorfiber.com

<http://www.thorbroadcast.com>

DISPLAY AND BUTTONS



2 1 3

1. LED DISPLAY

To display all the setting information

2. INDICATORS

POWER: Indicate power on

LINK LOCK: Indicate that HDMI incoming signal is recognized

ENCODING: Indicate the modulator is working

3. CONTROL KEYS

▲ Number up and confirm restore

▼ Enter and Save; Next option;

☰ Switch the MENU
(HOME BUTTON)



4 5 6 7 8 9 10

4. GND

For grounding the modulator

5. POWER SOCKET

Feed the DC 12V 1A

6. RJ45

Network management system

(Default IP 192.168.1.10

Login : user / user)

7. HDMI INPUT

Feed the HD signal into the modulator

8. HDMI OUT (LOOP)

For HD signal quick display to TV

9. RF OUTPUT

40dBmV maximum output is provided at this port

10. RF INPUT

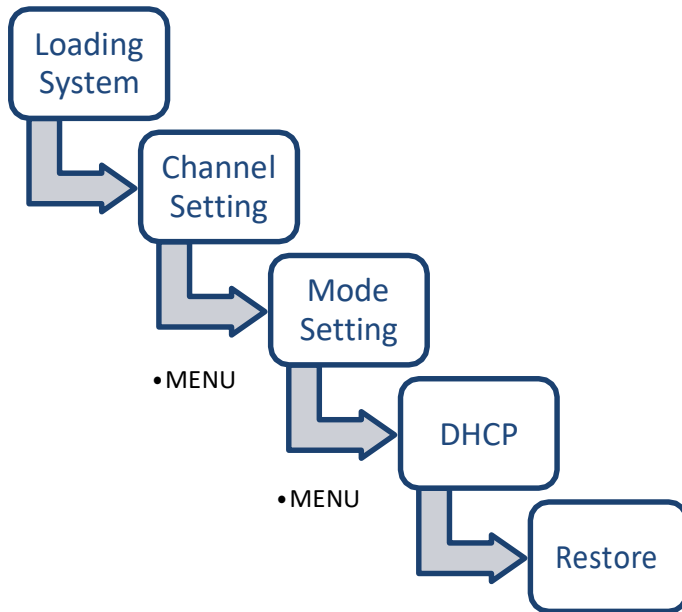
To combiner another external RF signal

WARNING:

For the protection of your equipment and its proper working is necessary to connect the H-HDMI-RF-PETIT to a ground connection.

SETTING UP THE SYSTEM

THE SYSTEM MAP



DETAILS

Loading System



Software Version



CHANNEL SELECTION



Use ▼ and ▲ to change the channel.

QUICK SWITCH



QUICK SWITCH: Press ▲ to switch the mode from ATSC and QAM. Press ▼ to save.

DHCP SWITCH



DHCP SWITCH: Press ▲ to enable and disable the DHCP. Press ▼ to save.

RESTORE MODE



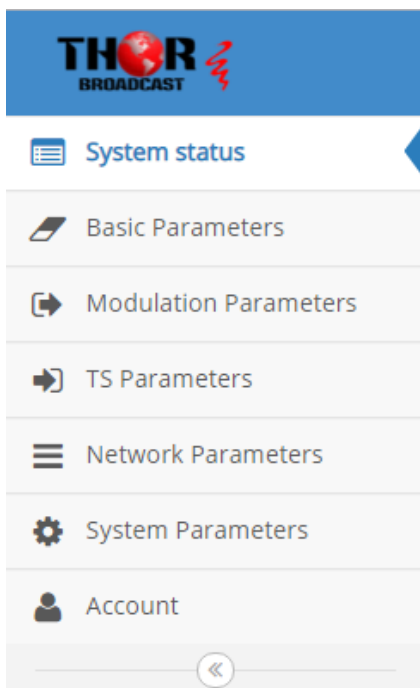
Press ▲ to active the restore function. When the numbers are flashing, press ▼ to confirm.

WEB MANAGEMENT

Notice: 1. Please turn off the DHCP in the modulator, if you connect your laptop to the modulator directly
2. Please use Google Chrome or Microsoft Edge to login the system (best browsers)

1. Connect the modulator and the computer by the RJ45 port.
2. Open your Google Chrome and input default IP address **192.168.1.10**, and press enter.
3. The default user name is **user** and the default password is **user**

Notice: Please make sure your computer is in the same IP segment as the modulator is.





The Settings MENU

SYSTEM STATUS

You can quickly check out the modulator working status here.

System Status

Device Type H-HDMI-RF-PETIT	Device ID 0000000000002172	Device Name THOR FIBER	Transport Stream Way Air
Signal Source HDMI	Input Resolution UNKNOWN	RF Level 92.0 dBuV	Hard Version SKD2017X_V1_0 2018_11_19
Run Time 5days 17:48:13	Date Time 2019/07/08 23:44:09	Time Zone Eastern Standard Time (UTC-5)	Soft Version 2019-06-13 17:08:47
Link Lock 	Encoding 		

BASIC PARAMETERS

Device ID:

Device Name:

Server Address:

Signal Source:

Input Resolution:

System Time Source: OFF

Manual Daylight Saving: OFF

Local Timezone:

Date Time:

HDCP: OFF

Advanced Settings

1. **Device ID:** The unique ID for this modulator
2. **Device Name:** Input name for the device (The unique name)
3. **Server Address:** For online management
4. **Signal Source:** Indicate the input signal type
5. **Input Resolution:** Please check SPECIFICATIONS for supported resolutions

Input Resolution	UNKNOWN
------------------	---------

No Video Input or Unsupported Resolution

6. **System Time Source:** When the System Time Source is ON, the NTS Server is active. If your modulator has access to the internet, it will adjust the time with the NTS Server

7. **Manual Daylight Saving:** Turn on daylight saving

8. **Local Timezone:** 6 time zone here

9. **Date Time:** Click the time box and the time table will come out.

Changing the time zone will change the time.

You can set the time manually by the time box.

Clear: Reset the time display

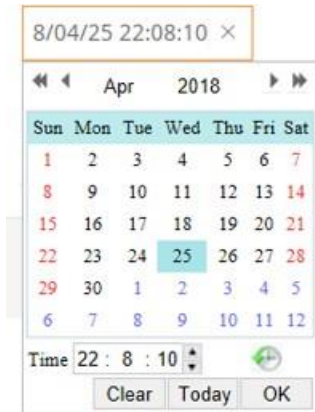
Today: The modulator will read the time from your computer

OK: Save and EXIT

Clock: Time Quick Selection

10. **Submit:** Save the settings

Please adjust the time according to your local time zone. This time information will be displayed in the channel information in the TV



MODULATION PARAMETERS

Transport Stream Way	Air ▼
Major num.	1
Minor num.	1
RF Config	select from list ▼
Frequency(MHz)	CH-02 57MHz ▼
Bandwidth(M)	6 ▼
Attenuation(dB)	0
Constellation	8VSB ▼
Audio Encoder	AC3 ▼

1 Modulation: Air is for ATSC standard and Cable is for QAM.

When it is Air, the constellation will be 8VSB.

While it is Cable, the constellation will be QAM64 or QAM256.

2 Major number and Minor number will help you to sort out the channel order.

3 RF Config. : In Select from list mode, you can quickly select the channel from the list. Please notice that the Major number will change to match the Channel. For example: you choose CH-02 57MHz, then the major number is automatically change into 2. Of course, you can edit the major number as you want after that.

4 Attenuation: the number input here is a negative value. For example, input number 5, the output level will minus 5 dB.

5 Constellation: In Air mode, it is 8VSB while in Cable mode, it is QAM64 or QAM256

6 Audio Encoder: AC3 or MPEG 2. Please choose one to go with your TV

In Cable mode, there will be three channel plans: STD, HRC and IRC.

Transport Stream Way

Cable



Cable Plan

STD



TS PARAMETERS – (this setting is set automatically and does not need to be changed)

These settings are sometimes needed to work with Cable TV STB's only

TSID	<input type="text" value="128"/>	<input type="text" value="Input Range : 1 ~ 65535"/>
PMT PID	<input type="text" value="4096"/>	<input type="text" value="Input Range : 32 ~ 8190"/>
Pcr PID	<input type="text" value="2003"/>	<input type="text" value="Input Range : 32 ~ 8190"/>
Video PID	<input type="text" value="2001"/>	<input type="text" value="Input Range : 32 ~ 8190"/>
Audio PID	<input type="text" value="2002"/>	<input type="text" value="Input Range : 0 ~ 65535"/>
Source ID	<input type="text" value="128"/>	<input type="text" value="Input Range : 1 ~ 65535"/>
Program Num	<input type="text" value="2"/>	<input type="text" value="Input Range : 1 ~ 65535"/>
Long Name	<input type="text" value="THOR FIBER"/>	<input type="text" value="Input name you want up to 6 characters
It will be displayed in the TV."/>
Short Name	<input type="text" value="THOR FIBER"/>	
Service Type	<input type="text" value="ATSC Digital Televisior"/>	
RRT Source	<input type="text" value="OFF"/>	

TSID: Transport Stream ID number

PMT PID: Program map table packet ID

Video PID: Video packet ID

Audio PID: Audio packet ID

PCR PID: Program Clock Reference Packet ID

Source ID: The input source ID

Program Num: Program number

Service Type: Choose the service type from the box

Short Name: Short name for the channel

Long Name: Full name for the channel

RRT Source: TV Parental Guidelines System

There are 4 standards of RRT ranges. Please select according to the program.

The PMT PID, Video PID and Audio PID should be three different numbers, otherwise the system won't save it.

RRT Source

RRT Range

Age Rating

NETWORK PARAMETERS

LAN Setting

DHCP	<input type="checkbox"/> OFF
IP Address	<input type="text" value="192.168.3.99"/>
Subnet Mask	<input type="text" value="255.255.255.0"/>
Default Gateway	<input type="text" value="192.168.3.1"/>
Primary DNS	<input type="text" value="8.8.8.8"/>
Secondary DNS	<input type="text" value="202.96.134.133"/>
MAC	<input type="text" value="00:60:70:00:01:39"/>

1. DHCP:

If you need to put the modulator under a router with DHCP on, you might switch it to ON.

THE MODULATOR WILL RECEIVE A UNIQUE IP ADDRESS FROM THE ROUTER, to find out this IP Address; log into your router and check "attached devices" our unit will be listed as "PETIT"

2. IP Address:

The default IP is 192.168.1.10. And it is adaptable.

3. Subnet Mask:

The default one is 255.255.255.0. And it is adaptable.

4. Default Gateway:

Set the gateway address.

5. Primary DNS:

The default one is 8.8.8.8 And it is adaptable.

6. Secondary DNS:

The default one is 202.96.134.133 And it is adaptable.

7. MAC:

You can use the MAC to find the modulator in the router. The MAC is labeled in the modulator case.

It is not recommended to change it.

NOTICE:

The modulator will reboot automatically if any changes on the network settings are applied.

SYSTEM PARAMETERS

Export Settings

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

Backup

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.

Browse

Restore

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

Browse

Upgrade

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.

Restore

Reboot

Click the Reboot button to reboot the device.

Reboot

Modulation Settings

Click the "Settings" button to modify the modulation mode.ISDB-T,DVB-T,DVB-C,DTMB supported

Settings

1 Backup settings

You can backup your settings and import to another modulator. Or if the modulator isn't working well, you can send the backup file to us for modification.

2 Restore settings from file

From here you can import the setting file to save time or import the right one to recover.

3 Upgrade system from file

Upgrade the modulator

5 Restore to factory settings

All settings will go back to factory settings

6 Reboot

Restart the modulator

7 Modulation Settings

Input the password and you can change the modulation.

Please contact **THOR** for the password.

ACCOUNT

Current User Info

Current User Name

Current Password

New User Info

New User Name

New Password

Confirm Password

The default user name is **user** and the default password is **user**.

- If you forget your new user name or new password, you can use the reset button in the front panel to restore.
- If you want to change the password only, the user name is required to be input as well.

Quick IP Ethernet Connection Guide

We appreciate your recent order for our Petit Modulator!

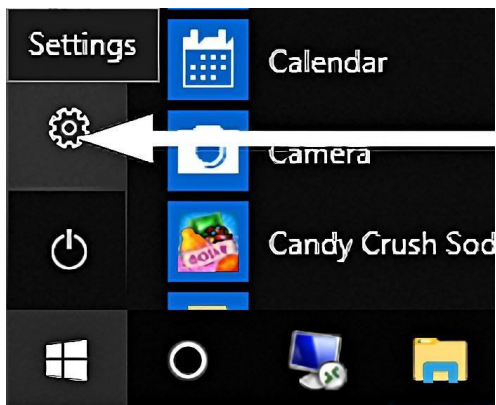
We value your trust in our company, and we will do our best to meet your service expectations.

You will need to change your subnet on your PC in order for the petit to work. All the instructions are in the manual.

We offer free tech support Monday – Friday 9AM-3PM (Pacific Time)

If you need help installing your modulator please call us at 1(800)521-THOR (8467) Ext 2

1) Go to “Windows Start”



Go to Network & Internet

3) Go to “Network & Internet”

2) Go to Windows Settings

4) Go to “Ethernet” on the Left side of the Menu



Go to Ethernet

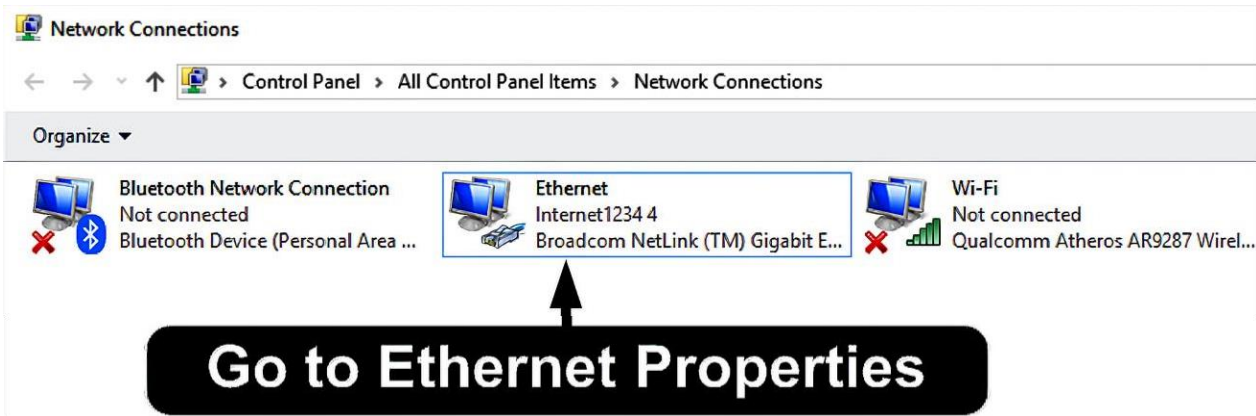
5) Go to “Change adapter options”

Go to Adapter Options

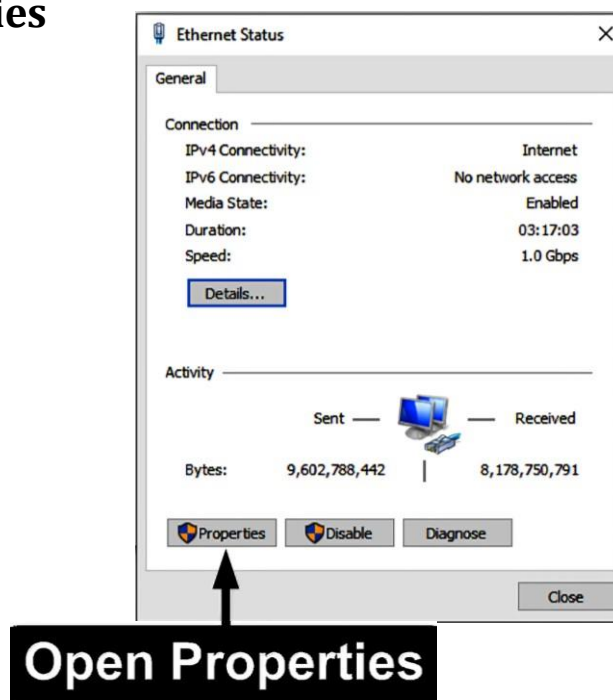
Related settings

[Change adapter options](#)

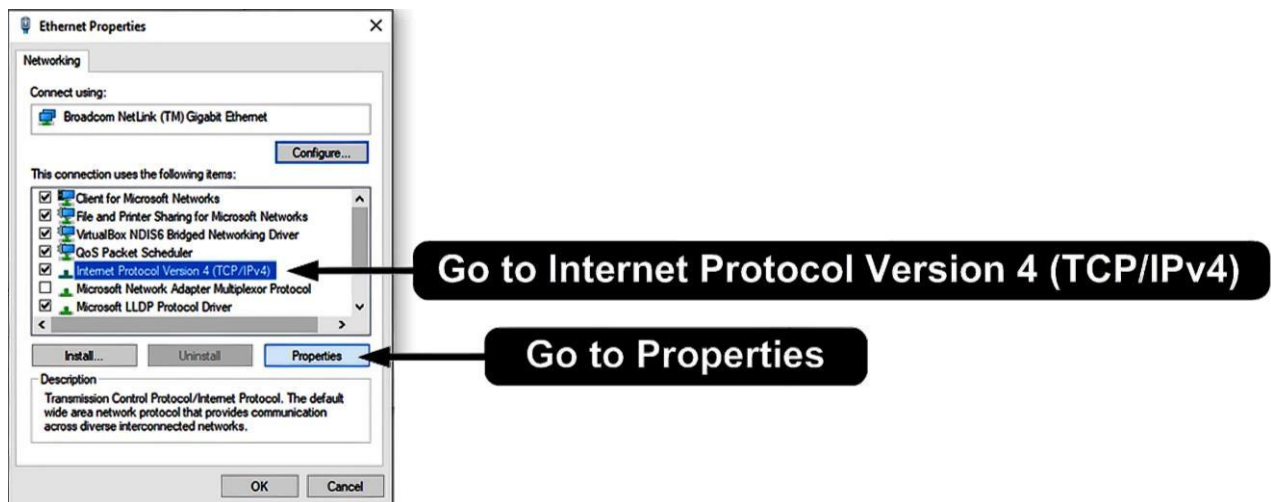
6) Double click on the Ethernet Source or Right Click and Select “Properties”



7) Open Properties

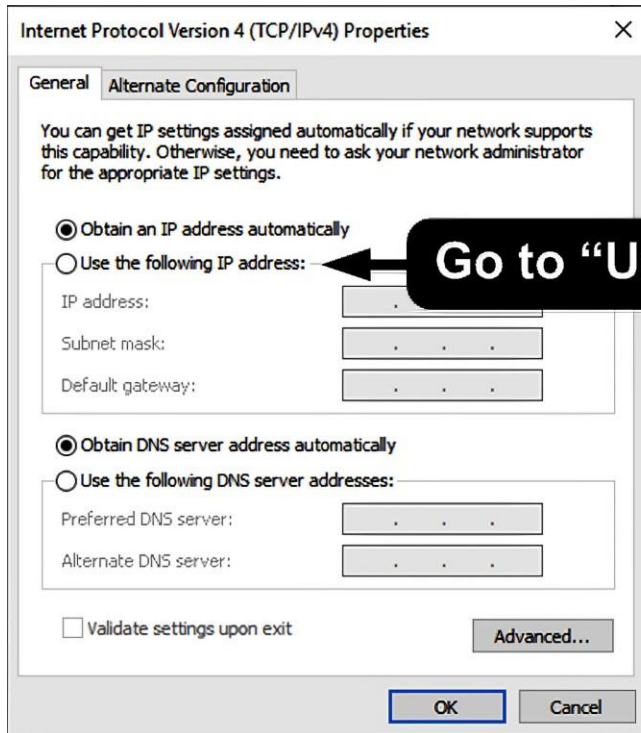


8) Go to “Internet Protocol Version 4 (TCP/IPv4)”

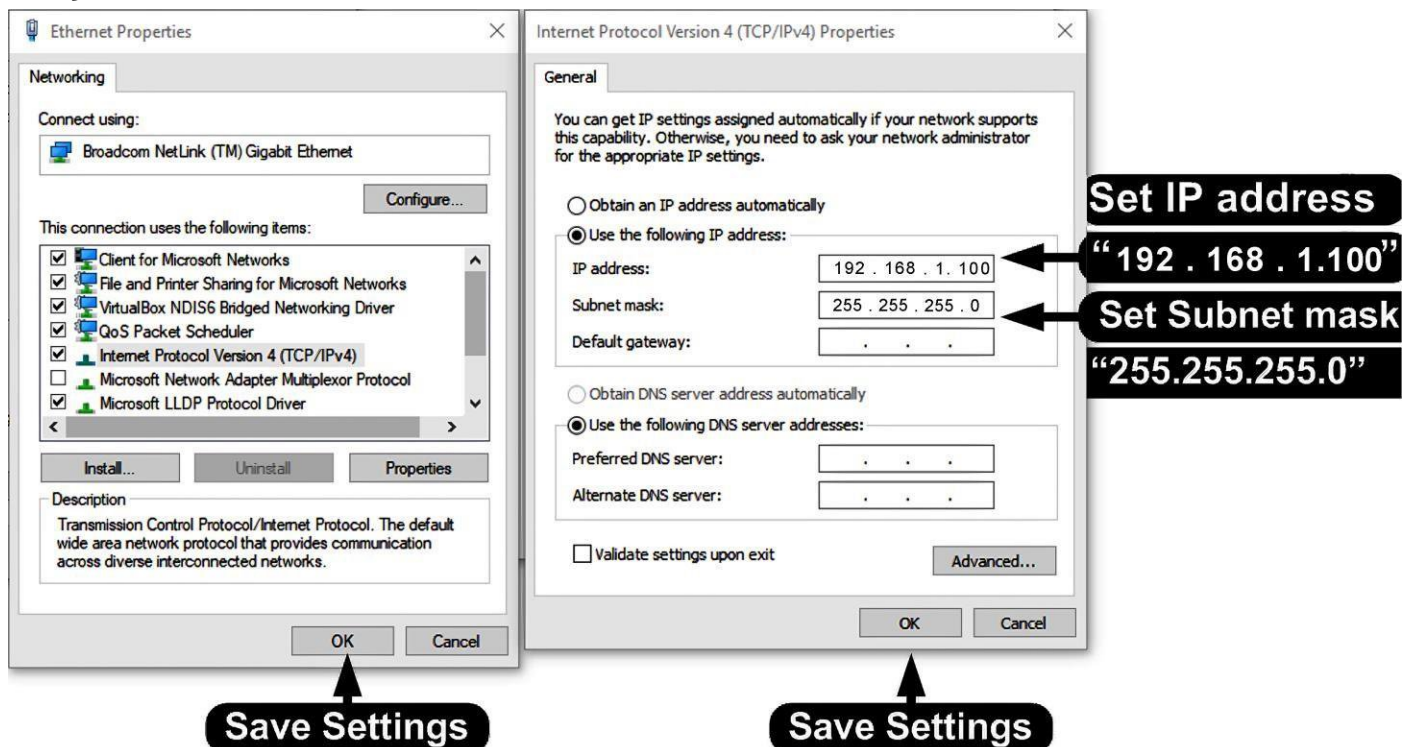


9) Go to "Properties"

10) Go to "Use the following IP address"

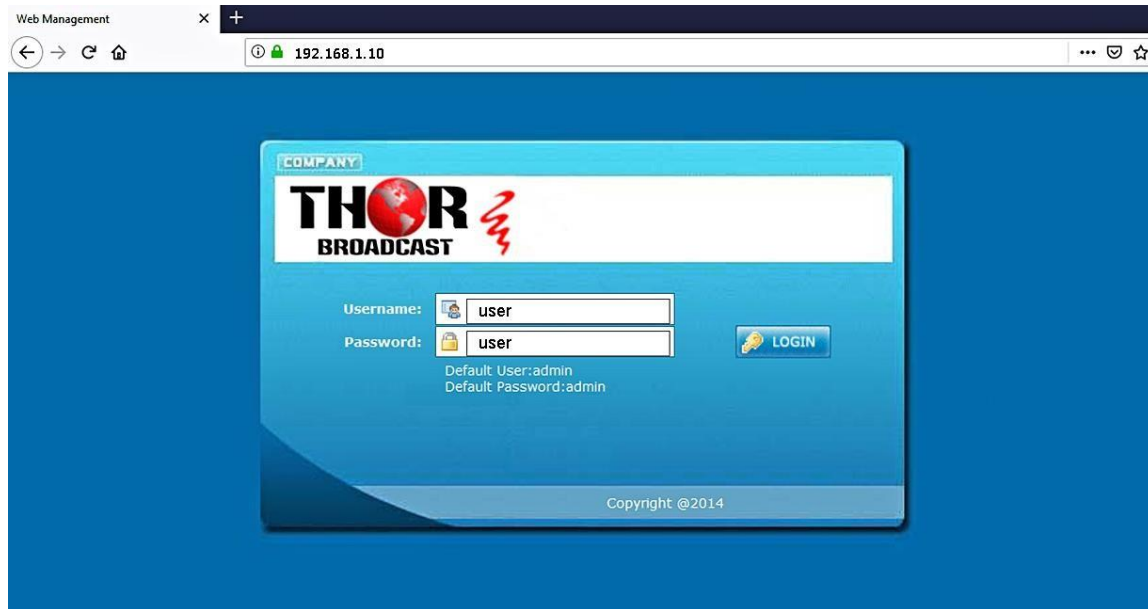


11) Set IP address



12) Save all the Settings

13) Open internet browser, Enter the IP address - 192.168.1.10



192.168.1.10

Username: user

Password: user