13.Common Troubleshooting

SN	Symptom	Recommended Action
1	LED is not lit	Check the power cord connection
2	Can't login to the NMS	Check Chapter 12
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 setting
		Check the output modulation
		Check the cable connection
5	No video and audio in TV	Check the video and audio in another TV
		Check the input video resolution
		Check the output frequency
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	Other issue	Please contact us for technical support

WARRANTY (1 YEAR)

Thor 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.

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. Any claim for damage that occurs in transit 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 without defect.

A Return Material Authorization (RMA) Number is required on all products returned to Thor. Regardless of whether the product is being returned for repair or a credit. Before returning a product, please contact the Thor salesperson who you were in contact with.

Buyer:		RMA Number:
Mode 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:
http://www.thorbroadcast.com

User Manual

H-16HDMI-RF-AMOD
16 HDMI to Analog CATV RF Modulator

NMS IP: 192.168.1.30

REV.220704

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 prior knowledge in, especially in broadcast technologies and standards.

Disclaimer

Copy Warning

Table of Contents

H-16HDMI-RF-AMOD

1. INTRODUCTION

The H-16HDMI-RF-AMOD is developed specifically for the commercial AV distribution market. It takes in 16 HD signals and then modulates the HD signals into any analog channels, providing an easy way to distribute high-definition signals to the old TV systems. With the pre-programmed channel list and its flexibility, the operators can set up the modulator intuitively and easily.

2. FEATURES

1.Converts HD video and audio signals to analogy NTSC or PAL channel
2.Rack mountable 1RU rack space with less space and less shipping cost
3.High picture quality thanks to the 16 HDMI inputs
4.Internal fans cooling system for a longer life span
5.Support HDCP

3. SPECIFICATION

OUTPUT		
RF	Output Connector	F-Female @ 75ohms
	Output Frequency	45 ~ 870 MHZ
	Output Level	110 dBμV
	Out-band Rejection	≥60dB
	Adjust Range	0 ~ 20dB

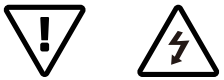
INPUT		
Input Connector	HDMI*16	
VIDEO	Input Resolution	1920*1080_60P; 1920*1080_50P; 1920*1080_60i
		1920*1080_50i;1280*720_60P; 1280*720_50P

GENERAL			
Power Supply	AC 90 ~ 264V @ 47~63Hz	Power Consumption	<100W
Cooling Fans	4	Dimension	48.4*32.9*4.44 (CM)
Shipping Weight	6.5 KG	Carton Size	55*39*13 (CM)

4. SYSTEM MAP

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

5. 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
15. 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.

5.1 Unpacking and Handling:

A full H-16RCA-RF-MOD agile modulator is shipped with all equipment assembled, wired, factory tested, and then packaged in an appropriate shipping container.

5.2 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.

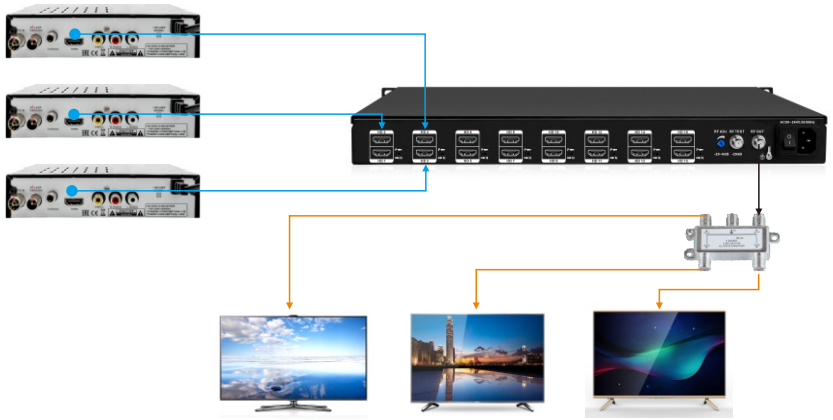
5.3 Precautions

Avoid heat build up
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

5.4 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 the Seller

6. INSTALLATION



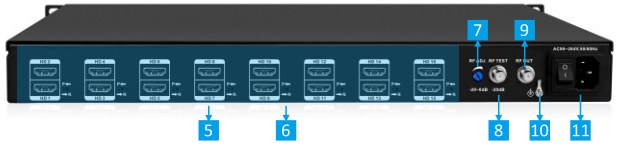
Please follow the instructions below to install the H-16HDMI-RF-AMOD

1. Connect the power plug to the power jack
2. Connect the video source to the H-16HDMI-RF-AMOD like DVB or STB
3. Connect the H-16HDMI-RF-AMOD to the TV
4. Power up the modulator and wait for 2 minutes to set it up

7. FRONT PANEL CONTROLS

1. **NMS:** Net management system port [IP:192.168.1.30; USER NAME: user; PASSWORD: user]
2. **INDICATORS:** Indicate power on, running and signal locked
3. **LCD DISPLAY:** To display all the setting information. The LCD will be locked without any action taken within 1 minute. Press any keys to activate the screen.
4. **CONTROL KEYS:** Use UP, DOWN, LEFT and RIGHT to move, ENTER to save and ESC to quite.

8. REAR PANEL VIEW



5. **HDMI INPUT PORT:** Feed the HDMI signals into the modulator
6. **COLOR STANDARD:** Slide the color standard between P and N. When the picture is black and white, please slide to the right side according to the TV's requirement
7. **RF ADJUST:** Adjust the output level at the RF OUTPUT
8. **RF TEST:** Feed the HDMI signals into the modulator
9. **RF OUTPUT:** 16 modulated signals at 110dBμV output is provided at this port
10. **GND:** For the modulator grounding.
11. **POWER CORD SOCKET AND CORD:** 110V~220V power source and the switch

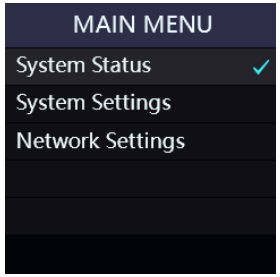
WARNING:
For the protection of your equipment and its proper functioning it is necessary to connect the H-16HDMI-RF-AMOD to a ground connection.

9. FINE TUNING

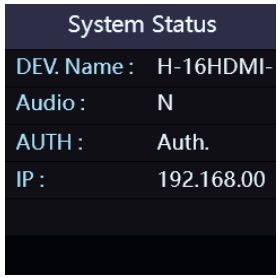
All Thor modulators are heat cycled at the factory and final adjustments are made with the units hot. Please allow a 5 minute warm-up before attempting any adjustments. You will need a signal level meter and a TV set.

1. Connect the video and audio cable from your source to its respective connector on the modulator. If you have several H-16RCA-RF-AMOD, please connect the RF OUTPUT to the proper combiner. Levels can be read at the test point output of the combiner output located on the rear panel.
2. AUDIO and VIDEO modulation levels are set at the factory for plus or minus 25KHz deviation and 87.5% depth of modulation respectively. Although proper test equipment should be used, minor adjustments can be made utilizing a TV set. Connect the TV set to the final output test point so that the signal level input from the modulator is about +69dBμV. If the colors look bright and there is sufficient sound without audio buzz, leave the modulation adjustment alone. If there is occasional audio buzz, sign into the modulator and adjust the attenuation until the audio is clean and clear of any buzz.

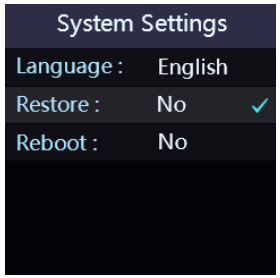
10. The Front Panel System



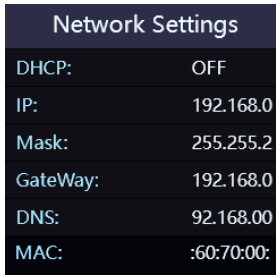
There are three menus on the first page, which the operator may choose to view and/or configure system settings.



System Status
1. DEV.Name: You can change it in the NMS.
2. Audio: N stands for NTSC with 4.5MHz
3. AUTH: The modulator is original from THOR
4. IP: The current IP address



System Settings
1. Language: Press ENTER to edit, and press LEFT or RIGHT to switch the language.
2. Restore: Restore to the factory settings.
3. Reboot: Reboot the modulator



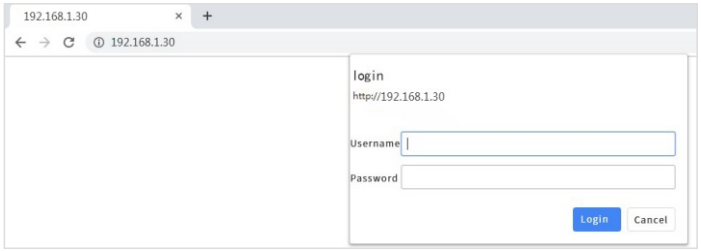
Network Settings
You can activate the DHCP and set up the IP here

11. WEB MANAGEMENT

11.1 LOGIN

The H-16HDMI-RF-AMOD has a user friendly interface for programming and monitoring purposes. The user can get access to the built-in web UI by logging into Google Chrome, Firefox or Microsoft Edge accounts. (recommended browsers)

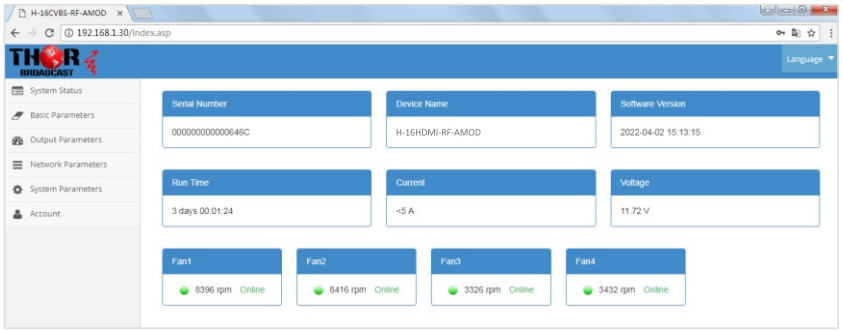
The default user name and the default password are the following:
Username: user
Password: user



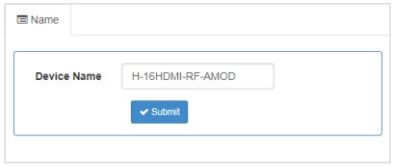
Please make sure your computer is in the same IP segment as the modulator is.

11.2 SYSTEM STATUS

You can quickly check out the modulator's working status here.

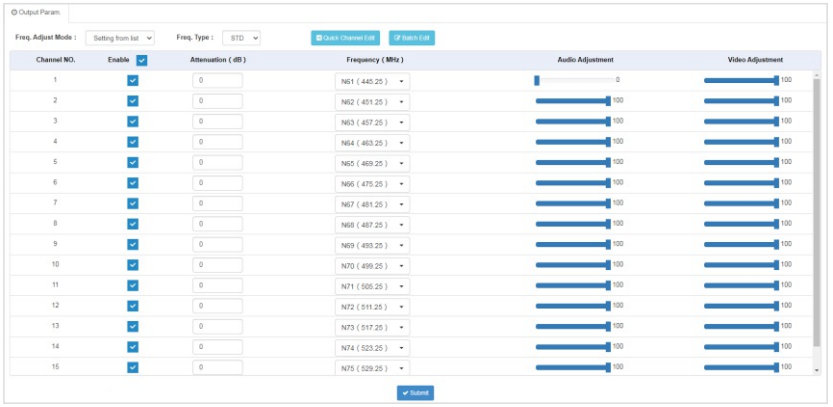


11.3 BASIC PARAMETERS



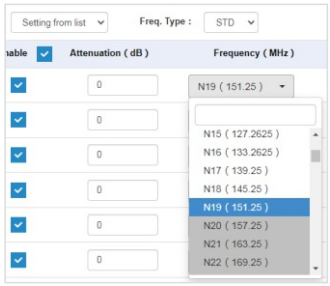
11.4 OUTPUT PARAMETERS

On this page, you can set up the output frequencies.



There are two input modes for setting up the output frequency: **Setting from list** and **Manual Input.** We suggest using the **Setting from list** option to save time.

★ **Setting from list: Select the channels from the drop box**



(Fig 1)

In the **Setting from list**, you can select the frequency in the drop box list. The used frequency will be in grey and the unused ones are in white as seen in the Fig 1.

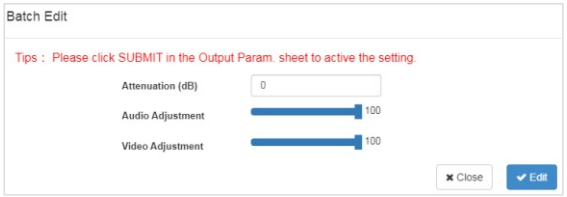
★ **Manual Input: Set the channels by inputting the frequencies**

The **Manual Input** option allows you to input the frequency as needed.

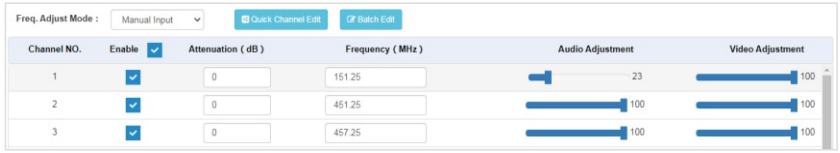
★**Quick Channel Edit: Quickly generate 16 channels by plan**
In the Setting from list mode

In the Manual input mode

★**Batch Edit: Quickly edit the attenuation, audio and video for all the channels.**



★**Other settings in the OUTPUT SETTING**



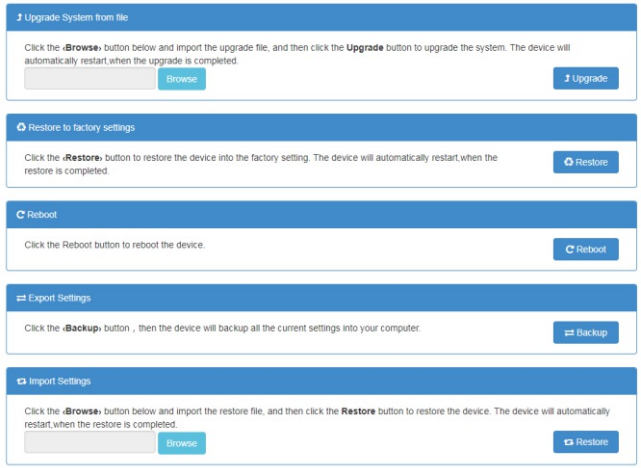
Enable: To enable or disable the RF output. When one channel is disabled, its settings will be frozen.
Attenuation: The current channel output level adjustment. The range is 20dB max and the step is 1dB.
Frequency: Input the frequency or select from the list. All frequencies and channels are agile and free from 48~860MHz.
Audio: Adjust the sound level by the slide bar
Video: Adjust the brightness for the picture

11.5 NETWORK PARAMETERS

1.DHCP:
If you need to utilize the modulator on a router with DHCP make sure you click the DHCP box. This ensures the modulator will receive a unique IP address from your router. To find out what IP address your router has issued, please log into the router and check 'attached devices'. Your unit will be listed as 'H-16HDMI-RF-AMOD'.
2. IP Address:
The default IP is 192.168.1.30. And it is editable.
3. Subnet Mask:
The default one is 255.255.255.0. And it is editable.
4. Default Gateway:
Set the gateway address.
5. Primary DNS:
The default one is 8.8.8.8 And it is editable.
6. Secondary DNS:
The default one is 202.96.134.133 And it is editable.
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.

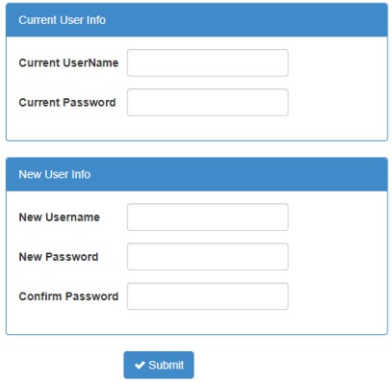
The modulator will reboot automatically if any changes on the network setting is applied.

11.6 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.

11.7 ACCOUNT



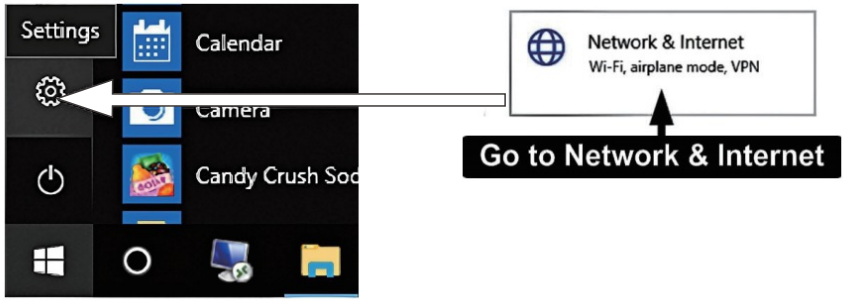
In order to change the User Name and password, you need to input the current user name and password.
If you forget your new User Name or new password, you can use the reset button in the front panel to restore.

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

12. Quick IP Ethernet Connection Guide

NOTICE: Make sure you login to your management system as the ADMINISTRATOR.

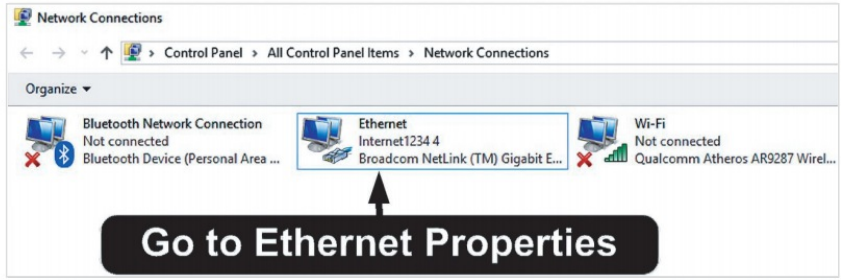
12.1 Go to " Windows Start"



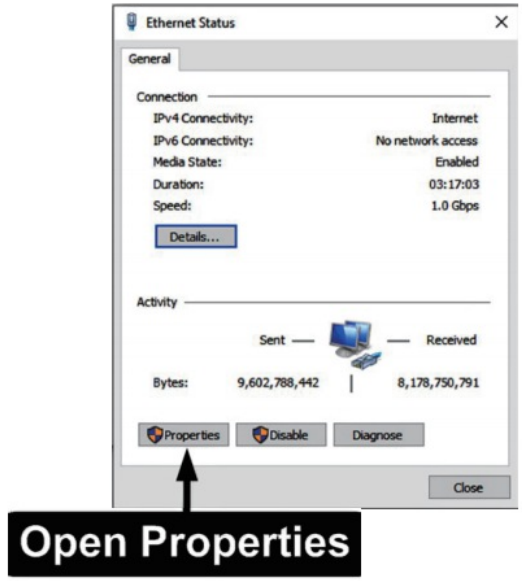
12.2 Go to Windows Settings
12.3 Go to " Network & Internet"
12.4 Go to "Ethernet" on the left side of the menu

12.5 Go to " Change adapter options"

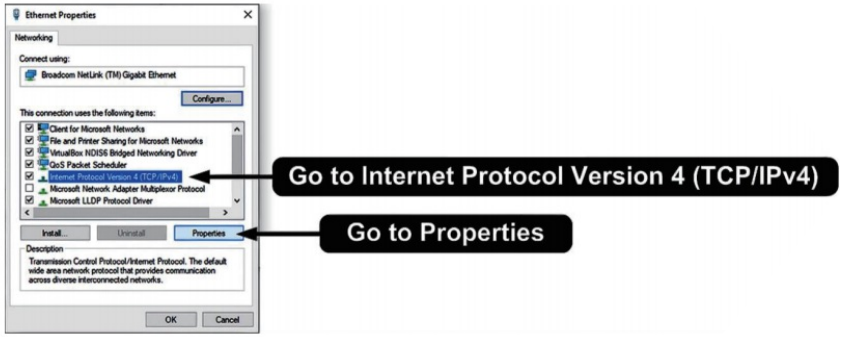
12.6 Double click on the Ethernet Source or Right Click and select "Properties"



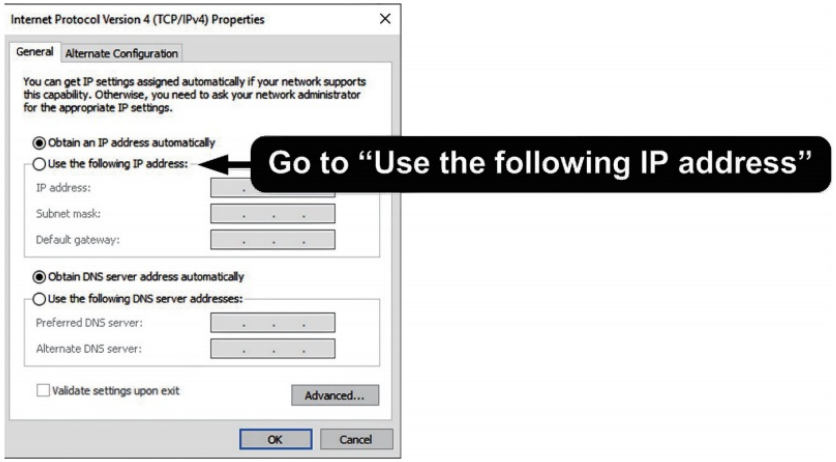
12.7 Open Properties



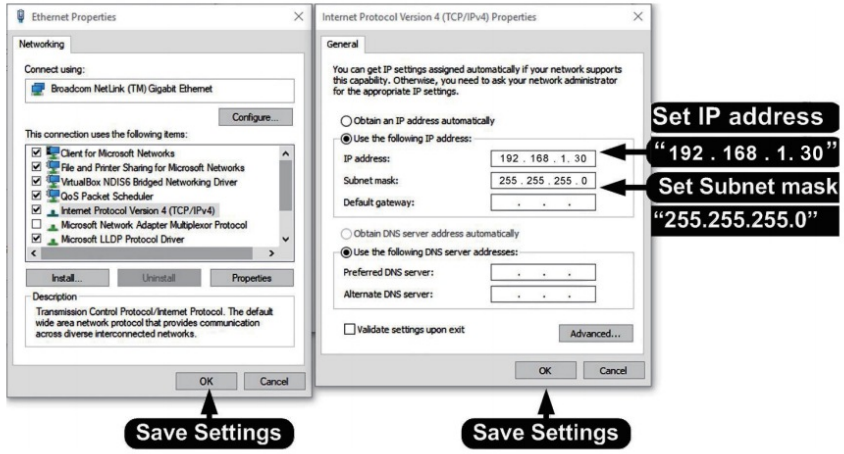
12.8 Go to “Internet Protocol Version 4 (TCP/IPv4)



12.9 Go to “Properties”
12.10 Go to “Use the following IP address”



12.11 Set IP address



Set IP address: 192.168.1.30
Set Subnet mask: 255.255.255.0
Set Default gateway: 192.168.1.1

12.12 Save all the settings.