

CT-AAM16-RCAIN

User Manual



NMS IP: 192.168.1.30

User Name: user

Password: user



Content

1. Introduction	3
2. Features	3
3. Specification	3
4. System Map	4
5. Safety Introductions.....	4-5
6. Installation	6
7. Front Panel View	7
8. Rear Panel View.....	7
9. Fine Tunning.....	8
10. The Front Panel System.....	8-9
11. Web Management	10-15
12.Quick IP Ethernet Connection Guide.....	15-18
13. Troubleshooting.....	19
14. Warranty	20-21

Intended Audience

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

Disclaimer

No part of this document may be reproduced in any form without the written permission of CableTronix. The contents of this document are subject to revision without notice due to continued advances in methodology, design and manufacturing. CableTronix shall have no liability for any errors or damage of any kind resulting from the use of this document.

Copy Warning

This document includes some confidential information. Its usage is limited to the owners of the product that it is relevant to. It cannot be copied, modified, or translated in another language without prior written authorization from CableTronix.



1. Introduction

In a landscape where NTSC video remains supported by numerous legacy TVs, the demand for cost-effective analog modulation solutions persists. The CT-AAM-16RCAIN addresses this need by providing users with effortless installation and configuration of 16 independent channels.

Equipped with composite (CVBS) RCA baseband audio/video inputs, the unit accepts signals from various sources, including Set-Top Boxes and DVD players. This versatility makes it ideal for applications such as video surveillance monitoring on standard TVs, as well as TV distribution in hospitality settings like hotels, motels, and retirement homes, among other coaxial cable systems.

Engineered with SAW filtering and microprocessor control, the unit ensures optimal performance, with an output frequency capability of up to 860MHz. Setup is user-friendly, facilitated either via the front panel or the RJ45 port for seamless connection to the management system, enabling remote system management.

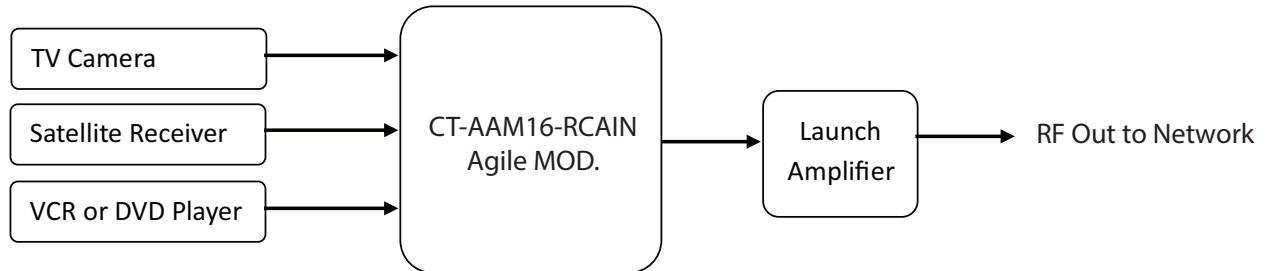
2. Features

- SAW filtering for adjacent channel configuration
- Rack mountable 1RU space saving
- Web user interface for easy set-up and adjustment
- Closed Captioning

3. Specifications

Input		
Input Connector	RCA - 16	
Video	Input Connector	Yellow RCA Jack
Audio	Input Connector	White RCA Jack
Output		
RF	Output Connector	F-Female @ 75ohms
	Output Frequency	45 - 870 MHz
	Output Level	110 dB μ V
	Adjust Range	0 - 20dB
	Output-band Rejection	\geq 60dB
General		
Power Supply	AC 90 - 264V @ 47 - 63Hz	
Power Consumption	< 100W	
Cooling Fan	4	
Dimensions	19" x 12.9" x 1.74" (48.4 x 32.9 x 4.44 cm)	
Weight	14.3 lbs. (6.5kg)	
Warranty	2-Year Limited	

4. System Map



WARNING:



TO REDUCE THE RISK OF FIRE OR ELECTRIC SHOCK. DO NOT EXPOSE THIS APPLIANCE TO RAIN OR MOISTURE. DO NOT REMOVE COVER FROM THIS UNIT. NO USER-SERVICEABLE PARTS INSIDE, REFER SERVICING TO QUALIFIED PERSONNEL ONLY.

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. Usage of accessories or attachments not recommended by the manufacturer may void warranty.
7. Do not operate the modulator in areas exposed to high humidity, 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 CableTronix. Unauthorized substitutions may damage the modulator or cause electrical shock or fire and will void the warranty.

5.1 Unpacking and Handling

A full CT-AAM16-RCAIN agile analog 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.

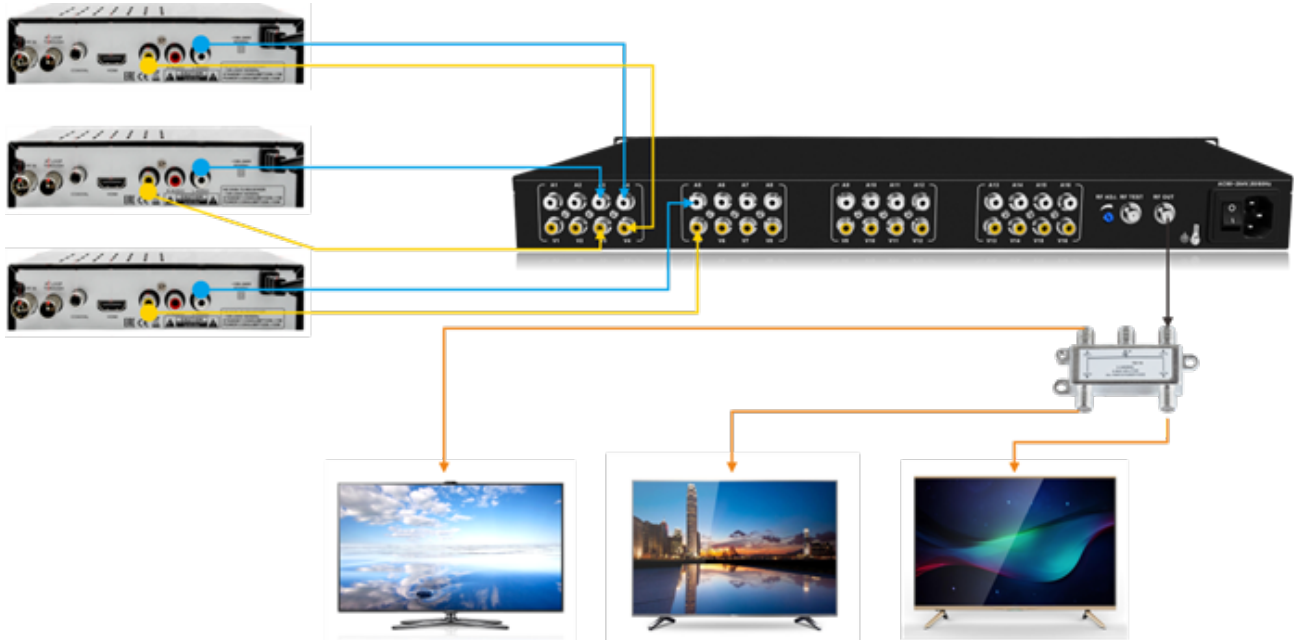
5.3 Precautions

- Avoid heat buildup
- Ensure easy access to rack wiring
- Facilitate servicing and maintenance
- Avoid direct heating or air conditioning
- Make sure rack supports are sufficiently installed to support racks
- Beware of dripping water onto equipment from leaky roofs, waveguide roof entries and cold-water pipe condensation

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 CT-AAM16-RCAIN

1. Connect the power plug to the power jack
2. Connect the video source to the CT-AAM16-RCAIN
3. Connect the CT-AAM16-RCAIN to the TV
4. Power up the modulator and wait for 2 minutes to set it up

7. Front Panel Controls



1. **NMS:** Network 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:** Displays current settings. 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. **VIDEO & AUDIO INPUT:** Feed the video and audio signals into the modulator. The A1~A16 stands for the audio input with white RCA connectors while the V1~V16 stands for the video input with yellow RCA connector.
6. **RF ADJUST:** Adjust the output level at the RF OUTPUT
7. **RF TEST:** Output level read at this point will be attenuated -20dB from the actual RF output
8. **RF OUTPUT:** 16 modulated RF channels at 110dB μ V output is provided at this port
9. **GND:** For the modulator grounding.
10. **POWER CORD SOCKET AND CORD:** 110V-220V power source and the switch



WARNING:

For the protection of your equipment and its proper function it is necessary to connect the CT-AAM16-RCAIN to a ground connection.

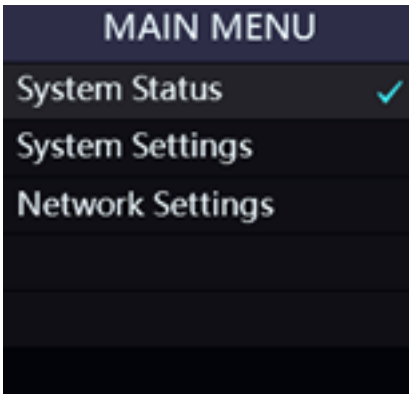


9. Fine Tuning

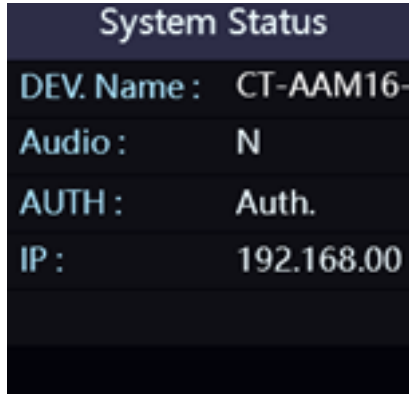
All CableTronix modulators are heat cycled at the factory and final adjustments are made with the units hot. Please allow a 5 minute warmup before attempting any adjustments. You will need a signal level meter and a TV set.

1. Connect the video and audio cable from your source to its respective connector on the modulator. If you have several CT-AAM16-RCAIN, please connect the RF OUTPUT to the proper combiner. Levels can be read at the test point output of the combiner output 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 adjustment can be made utilizing a TV set. Connect the TV set to the final output test point so that its 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, turn modulation control down slowly counterclockwise until the audio is clean.

10. The Front Panel View



MAIN MENU
There are three menus on the first page, which the operators may choose to view and/or configure The 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 CableTronix
4. IP: The current IP address

System Settings	
Language :	English
Restore :	No ✓
Reboot :	No

System Settings

1. Language: Press ENTER to edit, and press LEFT and RIGHT to switch the language.
2. Restore: Restore to the factory setting--the IP address.
3. Reboot: Reboot the modulator

Network Settings	
DHCP:	OFF
IP:	192.168.0
Mask:	255.255.2
GateWay:	192.168.0
DNS:	92.168.00
MAC:	:60:70:00:

Network Settings

You can activate the DHCP and set up the IP here

11. Web Management

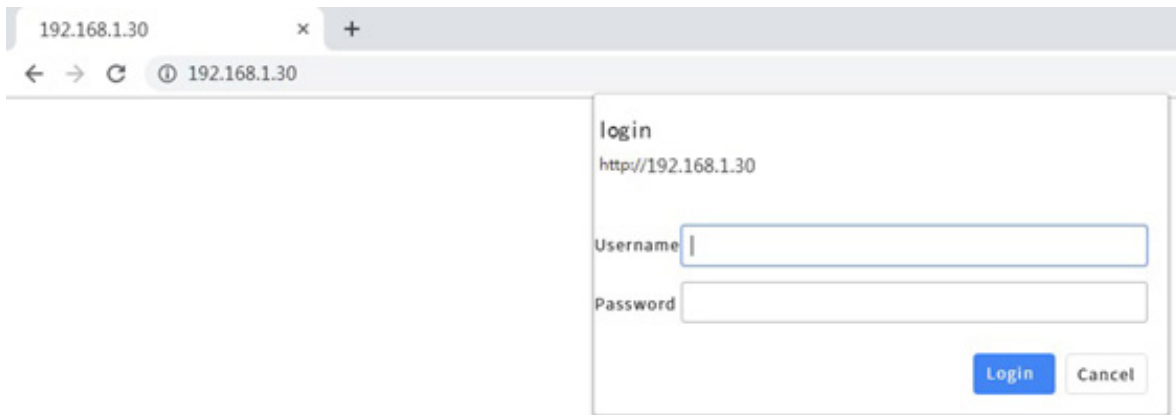
11.1 Login

The CT-AAM16-RCAIN has a user friendly interface for programming and monitoring purposes. The user can get access to the built-in web UI by using 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 address is in the same IP segment as the modulator's.

Remind:

1. Please change the user name and password if needed.
2. Username/password are case-sensitive and may contain letters or numbers.
3. Username/password must be a minimum of 1 byte and a maximum of 32 bytes in length.

11.2 System Status

This page is a read-only one which display the Serial number and software version. The information is provided as a quick way to assist with troubleshooting issue.



11.3 Basic Parameters

Device Name

11.4 Output Parameters

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

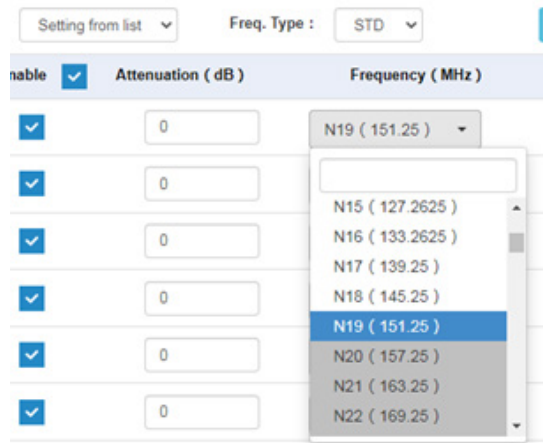
Output Param

Freq. Adjust Mode :
Freq. Type :

Channel NO.	Enable	Attenuation (dB)	Frequency (MHz)	Audio Adjustment	Video Adjustment
1	<input checked="" type="checkbox"/>	<input type="text" value="0"/>	N61 (440.25)	<input type="range" value="0"/>	<input type="range" value="100"/>
2	<input checked="" type="checkbox"/>	<input type="text" value="0"/>	N62 (451.25)	<input type="range" value="100"/>	<input type="range" value="100"/>
3	<input checked="" type="checkbox"/>	<input type="text" value="0"/>	N63 (457.25)	<input type="range" value="100"/>	<input type="range" value="100"/>
4	<input checked="" type="checkbox"/>	<input type="text" value="0"/>	N64 (463.25)	<input type="range" value="100"/>	<input type="range" value="100"/>
5	<input checked="" type="checkbox"/>	<input type="text" value="0"/>	N65 (469.25)	<input type="range" value="100"/>	<input type="range" value="100"/>
6	<input checked="" type="checkbox"/>	<input type="text" value="0"/>	N66 (475.25)	<input type="range" value="100"/>	<input type="range" value="100"/>
7	<input checked="" type="checkbox"/>	<input type="text" value="0"/>	N67 (481.25)	<input type="range" value="100"/>	<input type="range" value="100"/>
8	<input checked="" type="checkbox"/>	<input type="text" value="0"/>	N68 (487.25)	<input type="range" value="100"/>	<input type="range" value="100"/>
9	<input checked="" type="checkbox"/>	<input type="text" value="0"/>	N69 (493.25)	<input type="range" value="100"/>	<input type="range" value="100"/>
10	<input checked="" type="checkbox"/>	<input type="text" value="0"/>	N70 (499.25)	<input type="range" value="100"/>	<input type="range" value="100"/>
11	<input checked="" type="checkbox"/>	<input type="text" value="0"/>	N71 (505.25)	<input type="range" value="100"/>	<input type="range" value="100"/>
12	<input checked="" type="checkbox"/>	<input type="text" value="0"/>	N72 (511.25)	<input type="range" value="100"/>	<input type="range" value="100"/>
13	<input checked="" type="checkbox"/>	<input type="text" value="0"/>	N73 (517.25)	<input type="range" value="100"/>	<input type="range" value="100"/>
14	<input checked="" type="checkbox"/>	<input type="text" value="0"/>	N74 (523.25)	<input type="range" value="100"/>	<input type="range" value="100"/>
15	<input checked="" type="checkbox"/>	<input type="text" value="0"/>	N75 (529.25)	<input type="range" value="100"/>	<input type="range" value="100"/>

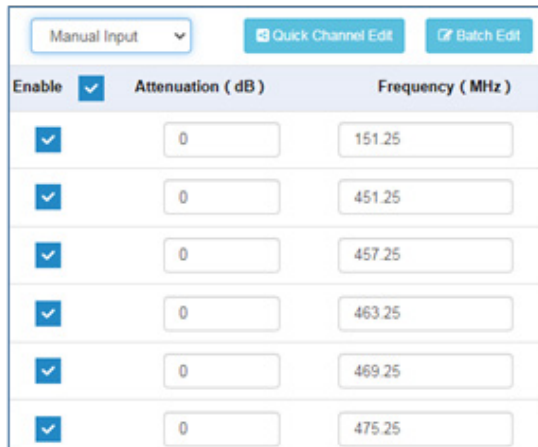
There are two input modes for setting up the output frequency: **Setting from list** and **Manual Input**. We recommend using the **Setting from list** option to save time.

Setting from list: Select the channels from the drop box



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

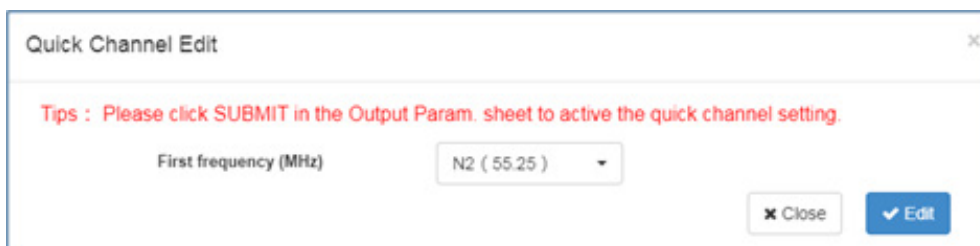
(Fig 1) Manual Input: Set the channels by inputting the frequencies



In the **Manual Input**, you can input the frequency as required.

Quick Channel Edit: Quickly generate 16 channels by plan

In the Setting from list mode



In the Manual input mode

Quick Channel Edit

Tips : Please click SUBMIT in the Output Param. sheet to active the quick channel setting.

First frequency (MHz)

Bandwidth (MHz)

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

Batch Edit

Tips : Please click SUBMIT in the Output Param. sheet to active the setting.

Attenuation (dB)

Audio Adjustment

Video Adjustment

NOTICE: The Bulk Edit will set all the channels with the same settings. Please process with caution with the Audio and Video settings.

Other settings in the OUTPUT SETTING

Freq. Adjust Mode : Manual Input Quick Channel Edit Batch Edit

Channel NO.	Enable	Attenuation (dB)	Frequency (MHz)	Audio Adjustment	Video Adjustment
1	<input checked="" type="checkbox"/>	<input style="width: 50px;" type="text" value="0"/>	<input style="width: 100px;" type="text" value="151.25"/>	<input style="width: 100%; height: 20px;" type="range" value="23"/>	<input style="width: 100%; height: 20px;" type="range" value="100"/>
2	<input checked="" type="checkbox"/>	<input style="width: 50px;" type="text" value="0"/>	<input style="width: 100px;" type="text" value="451.25"/>	<input style="width: 100%; height: 20px;" type="range" value="100"/>	<input style="width: 100%; height: 20px;" type="range" value="100"/>
3	<input checked="" type="checkbox"/>	<input style="width: 50px;" type="text" value="0"/>	<input style="width: 100px;" type="text" value="457.25"/>	<input style="width: 100%; height: 20px;" type="range" value="100"/>	<input style="width: 100%; height: 20px;" type="range" value="100"/>

- Enable:** To enable or disable the RF output. When one channel is disable, its settings will be frozen.
- Attenuation:** The current channel output level adjustment. The range is 20 dB max and the step is 1dB.
- Frequency:** Input the frequency or select from the list. All frequencies and channels are flexible 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

Network Info

DHCP

IP Address

Subnet Mask

Default Gateway

Primary DNS

Secondary DNS

Mac Address

[✔ Submit](#)

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

1. DHCP:

If you want to put the modulator on a network with DHCP, please check the DHCP box. The DHCP ensures that the modulator will receive a unique IP address from the router. To find out this IP address, please log into your router and check 'attached devices'. Our unit will be listed as CT-AAM16-RCAIN.

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.

11.6 System Parameters

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.

11.7 Account

Current User Info

Current UserName

Current Password

New User Info

New Username

New Password

Confirm Password

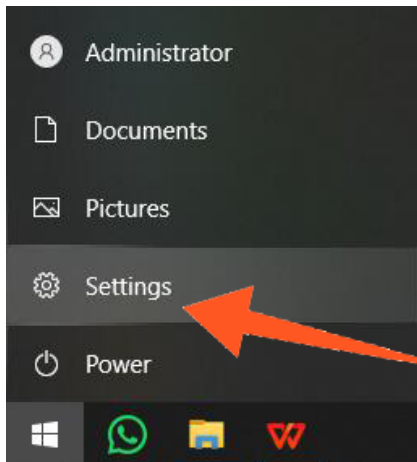
To verify the user name and the password, please input your current user name and password. **Please notice that they are both case-sensitive.**

If you forget your new user name or new password, you can use the reset button in the front panel to restore to factory settings.

12. Quick IP Ethernet Connection Guide

NOTICE: Make sure you login into your operation system as the **ADMINISTRATOR**.

12.1 Go to “ Windows Start”



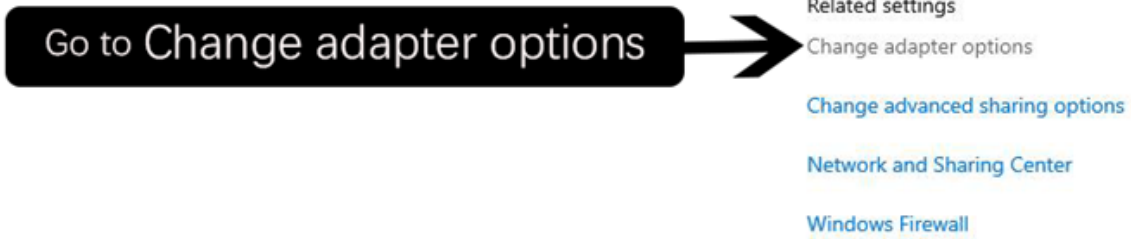
12.2 Go to Windows Settings

12.3 Go to “Network& Internet”

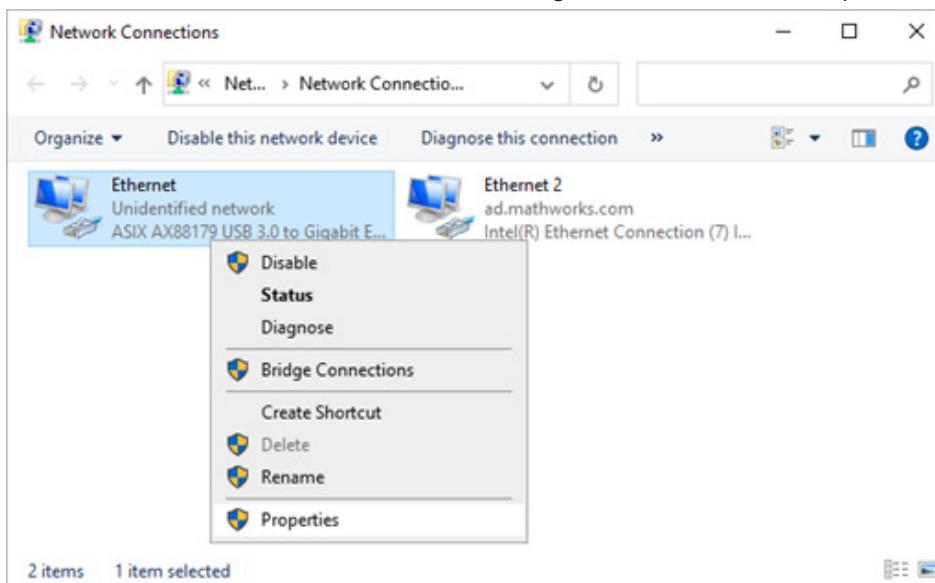
12.4 Go to “Ethernet” on the left side of the menu



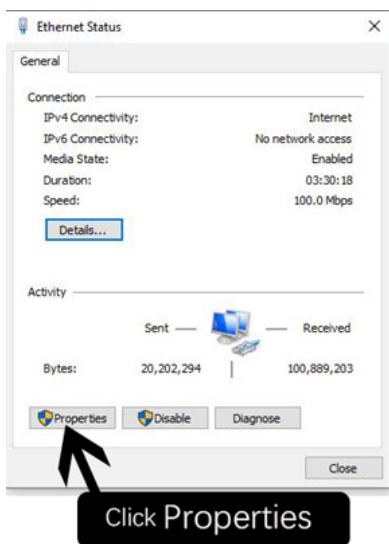
12.5 Go to “Change adapter options”



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

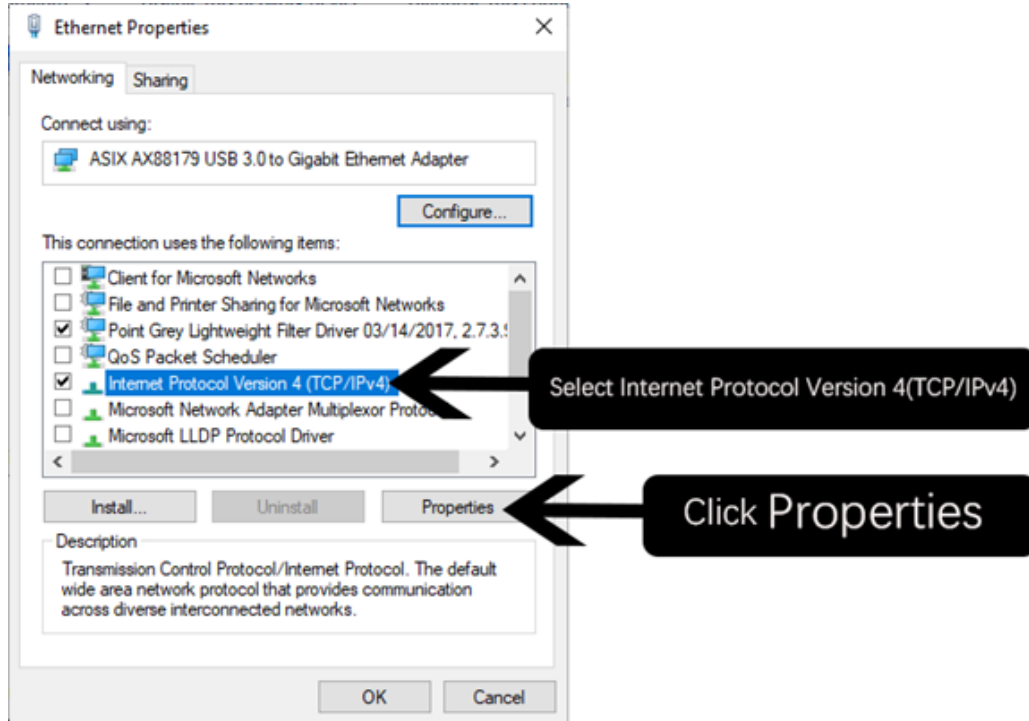


12.7 Open Properties

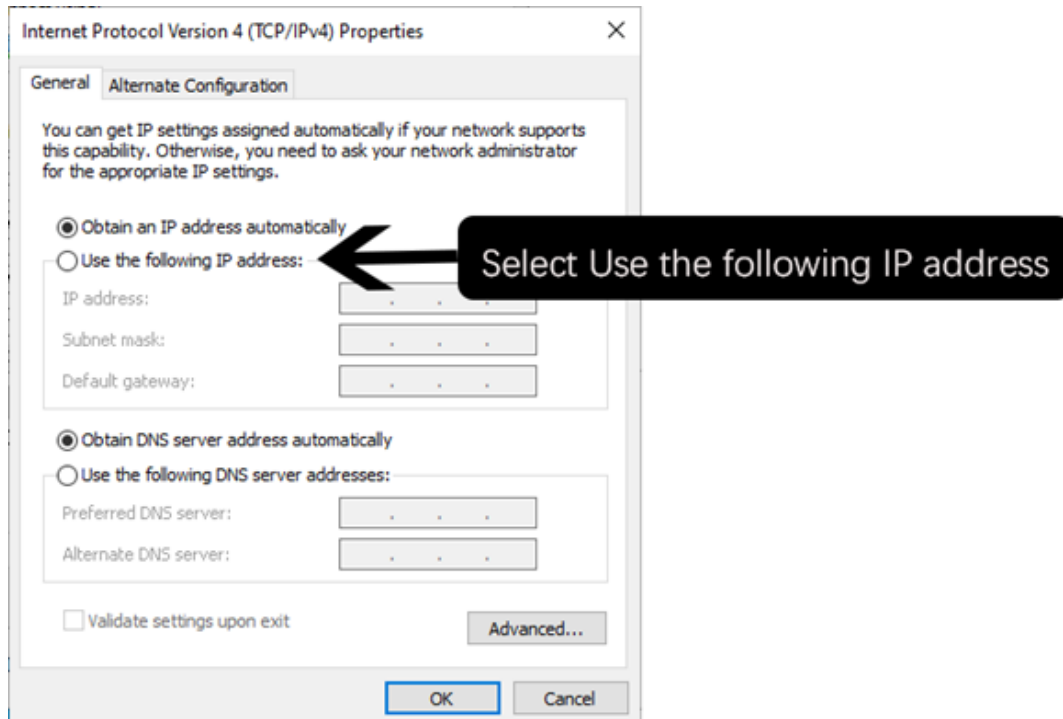


12.8 Go to “Internet Protocol Version 4 (TCP/IPv4)”

12.9 Go to “Properties”



12.10 Go to “Use the following IP address”



12.11 Set IP address

Set IP address: 192.168.1.10

Set Subnet mask: 255.255.255.0

Set Default gateway: 192.168.1.1

The screenshot shows the 'Internet Protocol Version 4 (TCP/IPv4) Properties' dialog box. The 'General' tab is active. Under 'Use the following IP address:', the IP address is set to 192.168.1.30, the Subnet mask is 255.255.255.0, and the Default gateway is 192.168.1.1. Callouts with arrows point to these fields with the following text: 'Set it as 192.168.1.30', 'Set it as 255.255.255.0', and 'Set it as 192.168.1.1'. At the bottom, a callout points to the 'OK' button with the text 'Press OK to save settings'.

12.12 Save all the settings.

The screenshot shows the 'Ethernet Properties' dialog box. The 'Networking' tab is active. Under 'Connect using:', 'ASIX AX88179 USB 3.0 to Gigabit Ethernet Adapter' is selected. Below, a list of items includes 'Internet Protocol Version 4 (TCP/IPv4)' which is checked and highlighted. At the bottom, a callout points to the 'OK' button with the text 'Press OK to save and quit.'.

13. Troubleshooting

Symptom	Recommended Action
LED is not lit	Check the power cord connection
Can't login to the NMS	Check Pages 10-15
The WEB UI is not in order and can't save the settings	Clear your browsing data
No RF output	Check the output setting
	Check the output modulation
	Check the cable connection
No video and audio in TV	Check the video and audio in another TV
	Check the input video resolution
	Check the output frequency
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
Other issue	Please contact us for technical support



CABLETRONIX - 2-Year Limited Warranty

CABLETRONIX. (the “Company”) warrants to the Original Purchaser that the item purchased is free from defects in workmanship or material under normal use. This warranty starts on the date of shipment of the hardware to the Original Purchaser.

During the warranty period, the Company agrees to repair or replace, at its sole option, without charge to Original Purchaser, any defective component. To obtain service, the Original Purchaser must return the item to the Company properly packaged for shipping. All defective products must be returned to the Company within thirty (30) days of failure. Products must be returned with a description of the failure and Return Merchandise Authorization (RMA) number supplied by the Company. To receive a RMA number and a return shipping address on where to deliver the hardware, call 610-429-1821. The shipping, and insurance charges incurred in shipping to the Company will be paid by Original Purchaser, and all risk for the hardware shall remain with the Original Purchaser until such time as Company takes receipt of the hardware. Upon receipt, the Company will promptly repair or replace the defective unit, and then return said unit to Original Purchaser, shipping prepaid. The Company may use reconditioned or like-new parts or units, at its sole option, when repairing any hardware. Repaired products shall carry the same amount of outstanding warranty as from original purchase. Any claim under the warranty must include dated proof of purchase or invoice. In any event, the Company’s liability for defective hardware is limited to repairing or replacing the hardware.

This warranty is contingent upon proper use of the hardware by Original Purchaser and does not cover: if damage is due to Acts of God (including fire, flood, earthquake, storm, hurricane or other natural disaster), accident, unusual physical, electrical, or electromechanical stress, modifications, neglect, misuse, operation with media not approved by the Company, tampering with or altering of the hardware, riot, war, invasion, act of foreign enemies, hostilities (regardless of whether war is declared), civil war, rebellion, revolution, insurrection, military or usurped power or confiscation, terrorist activities, nationalization, government sanction, blockage, embargo, labor dispute, strike, lockout or interruption or failure of electricity, air conditioning, or humidity control, Internet, network, or telephone service.

The warranties given herein, together with any implied warranties covering the hardware, including any warranties of merchantability or fitness for a particular purpose, are limited in duration to one year from the date of shipment to the Original Purchaser. Jurisdictions vary with regard to the enforceability of warranty limitations, and you should check the laws of your local jurisdiction to find out whether the above limitation applies to you.

The Company shall not be liable to your for loss of data, loss of profits, lost savings, special, incidental, consequential, indirect, or other similar damages arising from breach of warranty, breach of contract, negligence, or other legal action even if the Company or its agent has been advised of



the possibility of such damages, or for any claim brought against your by another party. Jurisdictions vary with regard to the enforceability of provisions excluding or limiting liability for incidental or consequential damages. You should check the laws of your local jurisdiction to find out whether the above exclusion applies to you.

This warranty allocates risks of product failure between Original Purchaser and the Company. The Company's hardware pricing reflects this allocation of risk and the limitations of liability contained in this warranty. The warranty set forth above is in lieu of all other express warranties, whether oral or written. The agents, employees, distributors, and dealers of the Company are not authorized to make modification to this warranty, or additional warranties binding on the Company. Accordingly, additional statements such as dealer advertising or presentations, whether oral or written, do not constitute warranties by the Company and should not be relied upon.

This warranty gives you specific legal rights. You may also have other rights which vary from one jurisdiction to another.