Manual

DataTronix
Managed Data Solutions

DT-QAM-ENC-2-MPG2
User Manual





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Introduction

The **DT-QAM-ENC-2-MPG2** is a professional digital QAM encoder/modulator featuring two HDMI inputs. It encodes and multiplexes HDMI sources, then modulates them into DVB-C (QAM) RF output for reliable distribution across coaxial networks.

In addition to the RF output, the front-panel Gigabit IP output provides IPTV streaming over an Ethernet network, allowing the encoded content to be distributed simultaneously over both coaxial and IP-based infrastructures. This dual-output capability offers a flexible solution for commercial AV, hospitality, healthcare, and digital signage applications.

Specifications

Input	
Input Connector	2 x HDMI 1.4
Video Encoding	MPEG2
Video Input Resolution	1920 x 1080_60P/_50P, 1920 x 1080_60i/_50i, 1280 x 720_60P/_50P, 576_50P/50i, 480_50P/50i
Audio Encoding	MPEG 1 Lay II, AAC_ADTS,AAC_LATM, AC3
Audio Sample Rate	32 / 44.1 / 48 KHz

Output	
Output connector	1 x RF female @75Ω
RF Channel Range	54 - 886MHz
Output Carriers	2 channels
Output Level	≥40dBmV
MER	Typical 38dB
QAM	
Bandwidth	6M, 7M, 8M
Constellation	64QAM, 256QAM
Symbol Rate	Auto-tuning
IP	
Output Connector	1 x 1000Mbps port
Transport Protocol	UDP
Output Transport Stream	SPTS
Broadcasting Mode	Unicast or Multicast

TS Processing	
Advanced PSI/SI Regeneration	Yes

General	
Input voltage	120VAC, DC12V 5A
Power Consumption	600mA
Rack Space	1RU
Dimensions (WxHxD)	18.97 x 1.73 x 10.23” (482 x 44 x 260 mm)
Net Weight	5.64 lbs. (2.56 kg)
Language	English
Warranty	1-Year Limited Warranty

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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 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:
    - The power supply cord or plug is damaged
    - Liquid has been spilled into or objects have fallen into modulator
    - The modulator has been exposed to rain or water
    - The modulator has been dropped or the chassis has been damaged
    - The modulator exhibits a distinct change in performance

When replacement parts are required, ensure that the service technician uses replacement parts specified by us.

Unpacking and Handling

A full DT-QAM-ENC-2-MPG2 is shipped with all equipment assembled, wired, factory tested, and then packaged in an appropriate shipping container.

- DT-QAM-ENC-2-MPG2 (QTY 1)
- Power supply and power cord (QTY 1)
- Brackets for modulator to be installed in rack (QTY 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.

Precautions

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

Damage in Shipment

Should any damage be discovered after unpacking the unit, immediately contact DataTronix at 800-688-9282.

Installation

The DT-QAM-ENC-2-MPG2 is designed to be installed in a rack shelf or a standard rack. Please follow the instructions below to install the DT-QAM-ENC-2-MPG2 digital modulator:

1. Connect the power plug to the jack
2. Connect the video source to the DT-QAM-ENC-2-MPG2 modulator
3. Connect the DT-QAM-ENC-2-MPG2 to your laptop or computer
4. Power up the modulator

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DT-QAM-ENC-2-MPG2 Front Panel View



1. **PWR** Power LED. Illuminates when the unit is powered on.
2. **CH1-CH2** Channel status LEDs. Indicate the operating status of each channel.
3. **DATA 10/100/1000 Mbps Ethernet port for IP stream output.**
4. **NMS** Network Management System (Ethernet) port for web configuration.
   Default IP: 192.168.1.30 **Username:** user **Password:** user
5. **DEFAULT** Press and hold for 10 seconds to restore the factory default settings, including network and PID configurations.

DT-QAM-ENC-2-MPG2 Rear Panel View



6. **HD INPUT PORTS** Connect HDMI source devices to these input ports.
7. **RF OUT** RF output connector. Maximum output level: **40 dBmV.**
8. **RF TEST** RF test port. Output level is approximately **20 dBmV lower** than the RF OUT port.
9. **QR CODE:** Scan the QR code to visit the DataTronix website.
10. **POWER SWITCH** Turns the unit on or off.
11. **POWER INPUT** Connect only the supplied power adapter. **Input:** 120 VAC, 60 Hz, 1.5 A Max.
12. **GND** Grounding terminal for proper chassis grounding.

WARNING:
For the protection of your equipment and its proper working, it is necessary to connect the DT-QAM-ENC-2-MPG2 to a ground connection.

Programming Via Web Interface

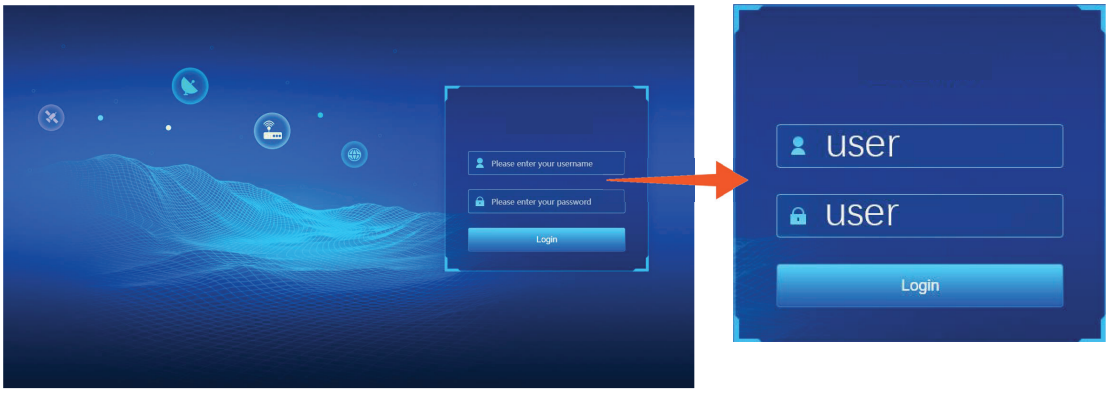
Login:

The DT-QAM-ENC-2-MPG2 has a user friendly interface for programming and monitoring the device. The user can access to the built-in web UI by logging into Google Chrome, Firefox or Microsoft Edge accounts. (The best browsers)

DT-QAM-ENC-2-MPG2 Setup Instructions

1. Connect the **DT-QAM-ENC-4-MPG2** or **DT-QAM-ENC-8-MPG2** to your computer or laptop using an Ethernet cable via the **NMS** port.
2. Power on the modulator and wait approximately 2 minutes
3. Open your web browser and log in to the modulator using the default IP address: **192.168.1.30.**

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

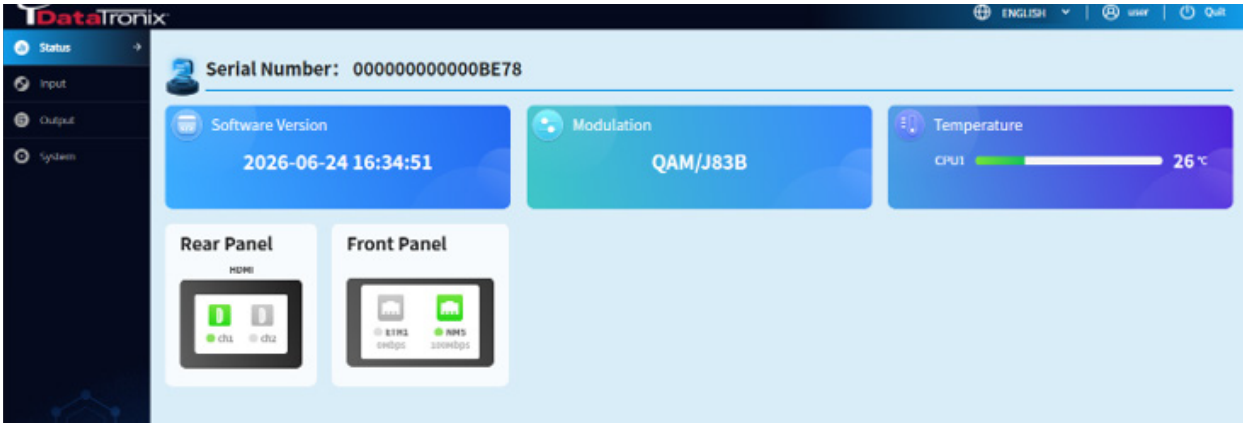


NOTE:

Please make sure your computers IP address is in the same subnet as the modulator.
Reminders:

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 character and a maximum of 32 characters in length.

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



Status: Displays the current operating status of the modulator.

Serial Number: Displays the unique serial number assigned to the modulator.

Software Version: Displays the current firmware version. If technical support is required, please provide this information.

Modulation: Displays the current RF output modulation format.

Temperature: Indicates the CPU working temperature in real-time.

Rear Panel: Indicates the input connector status. The green color means the HDMI cable is well connected while the gray means disconnected.

Front Panel: Displays the status of the IP Input (1000 Mbps) and NMS (100 Mbps) Ethernet ports.

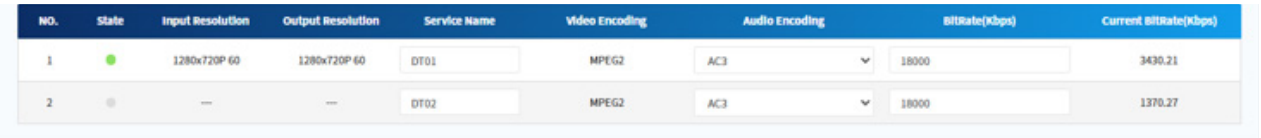
Input: Configure HDMI and IP input settings.

Route: Select the output channels/services.

Output: View output channels and configure RF modulation parameters.

System: Configure system settings, including Network, User Account, System, Date & Time, and Cloud settings.

Input



Status: Indicates the operating status of the input. A green indicator means the input is active and operating normally. A gray indicator means the input is inactive, not connected, or has encountered an error.

Input Resolution: Displays the detected input video resolution. Unknown indicates the input resolution is not supported or no valid signal is present.

Output Resolution: Displays the configured output video resolution.

Service Name: Enter a custom name for the service or channel.

Video Format: Displays the video encoding format. This device supports MPEG-2 video encoding only.

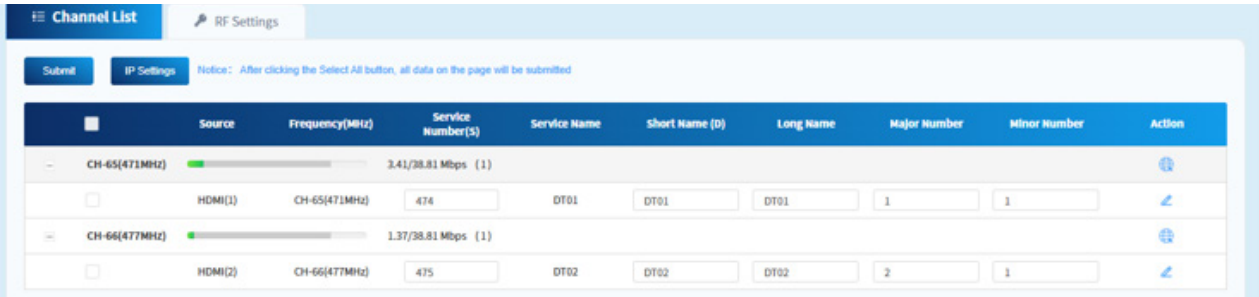
Audio Format: Select the audio encoding format: MPEG-1 Layer II, AAC-ADTS, AAC-LATM, or AC-3.

Set Bit Rate: Sets the output video bit rate. The maximum supported bit rate is 18,000 Kbps (18 Mbps)

Real Bit Rate: Displays the actual output bit rate in real time.

Output

Channel List In the OUTPUT page, we can setup the channels/services and PID to your liking.



Submit: Saves all changes made to the current settings.

IP Setting: Configure the IP output settings for the selected stream.

Select: Use this checkbox to quickly select one or more streams for editing or saving.

Source: Displays the input source type. For this device, the source is HDMI.

Frequency: DDisplays the assigned RF output channel for the selected service. To change the RF channel, navigate to **Output > RF Setting > Frequency.**

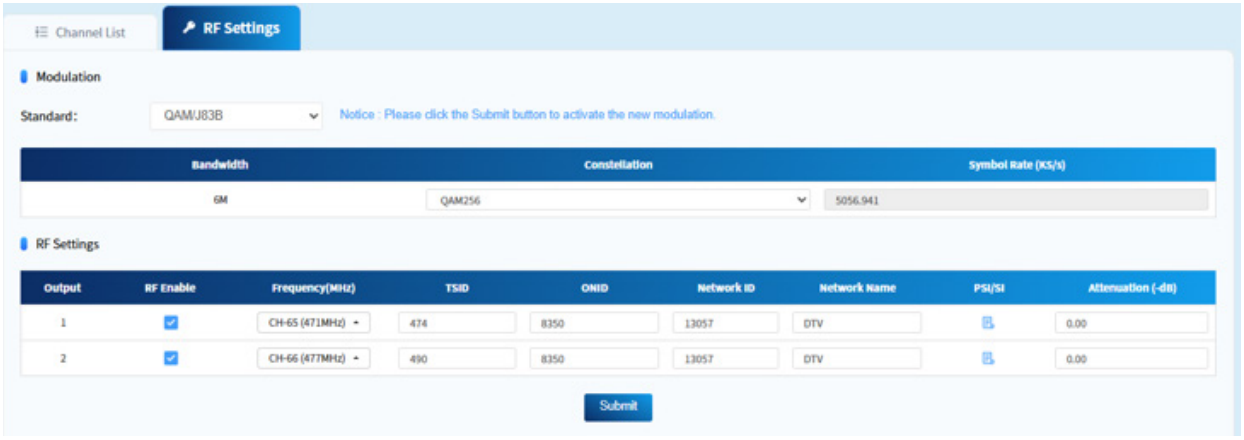
Service Number: Assigns the service number used to create the channel list. Support for this feature depends on the connected TV or set-top box.

Service Name: Enter the name of the service. Changing the service name automatically updates the Short Name field.

Short Name: Enter the abbreviated name for the service.

Long Name: Enter the full descriptive name for the service.

RF Setting Use this page to configure the RF output settings, including the modulation format, output frequency, and other RF transmission parameters.



Modulation

J.83B / QAM	
Bandwidth	Displays the channel bandwidth. For J.83B modulation, the bandwidth is fixed at 6 MHz.
Constellation	Select the QAM modulation type: 64-QAM or 256-QAM.
Symbol Rate	Displays the symbol rate, which is automatically configured for J.83B / QAM modulation.

RF Enable: Enables or disables the selected RF output channel.

Frequency: Select the desired RF output channel or frequency from the drop-down list.

TSID: Transport Stream ID. Assign a unique ID to identify each transport stream.

ONID: Original Network ID. Identifies the originating network or service provider.

Network ID: Assigns the Network ID. In a local cable TV system, this field is optional and can be set to any desired value.

Network Name: Input the network name.

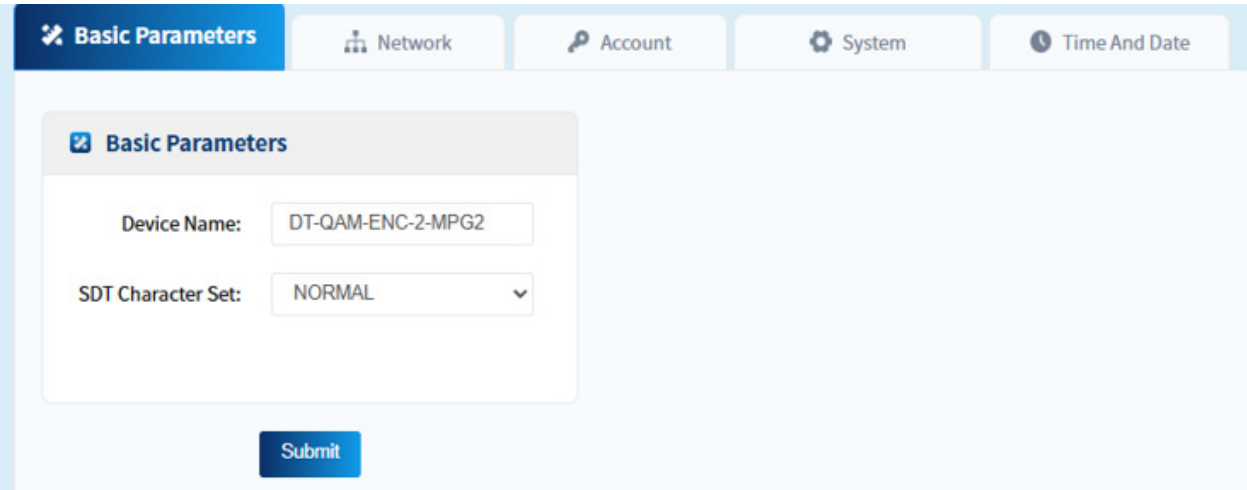
Attenuation: Reduce the RF output level.

View the PAT/PMT/SDT/NIT/CAT/EIT/TDT/TOT table

Submit Any changes must be saved by selecting the **SUBMIT** before navigating away from this page.

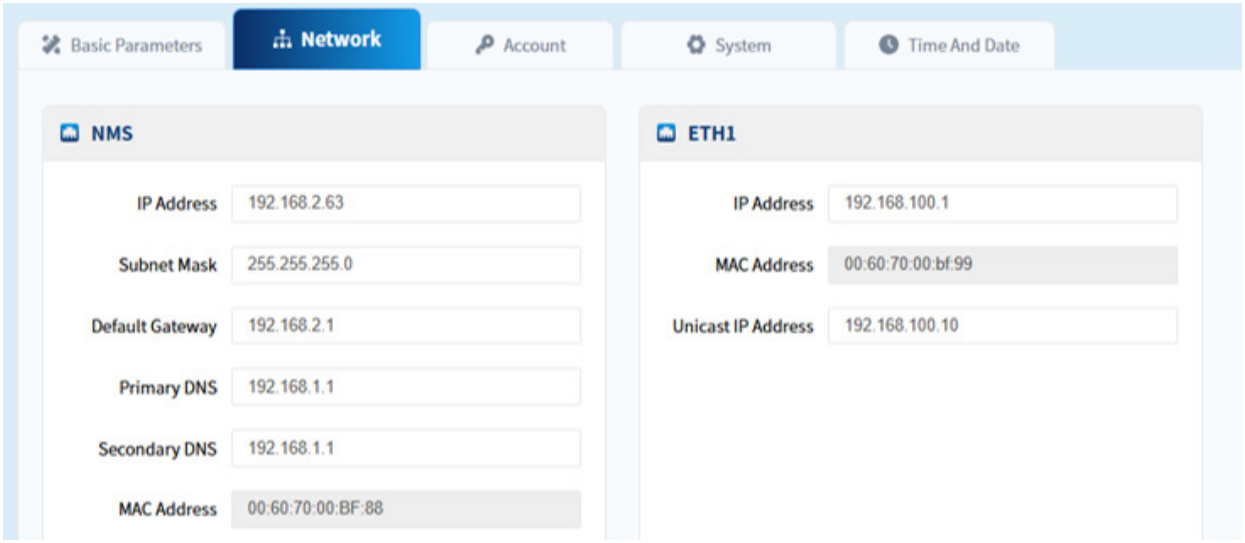
System

Basic Setting



Basic Setting	
Device Name	Enter a name to identify the device on your network.
SDT Character Set	Select the appropriate character encoding for your set-top boxes (STBs).
Normal	No additional character encoding is applied.
ISO-8859-5	Character encoding designed to support Latin and Cyrillic languages.
ISO-8859-6	Character encoding designed to support the Arabic language.
GBK	Extended GB 2312 character encoding for Simplified Chinese characters.
UCS-2	Universal Coded Character Set (2-byte Unicode character encoding).
UTF-8	Unicode Transformation Format (8-bit). Widely used for electronic communication and multilingual text.
ISO-2022-JP	Character encoding designed for the Japanese language.

Network Setting



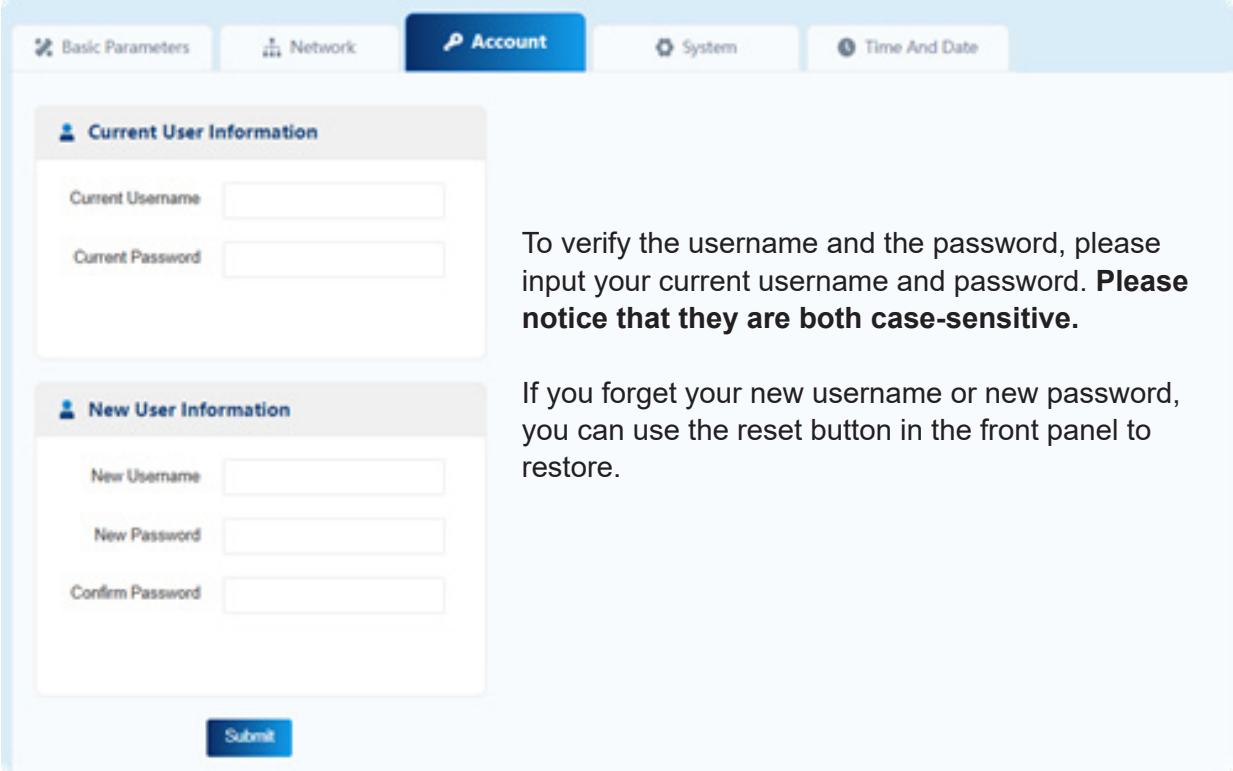
NMS	
IP address, Subnet mask, Gateway, Primary and Secondary DNS	These are network parameters of the management network interface of the DT-QAM-ENC-2-MPG2 device, which can be changed as required.
MAC Address	MAC address of the management network interface of the DT-QAM-ENC-2-MPG2 device.
ETH1 (Data Out)	
IP Address	The IP address for this port which is related when it is used under Unicast mode.
MAC Address	MAC address of the output network interface of the DT-QAM-ENC-2-MPG2 device.
IGMP Version	If your input IP stream contains IGMP, please select the right version to match the input stream.

Important:

Changes to these settings can affect system communication and network connectivity. Modify these settings only if you understand their impact.

The Management IP Address should only be changed if the system must be managed from a different network subnet. In most installations, it is recommended to leave the default settings unchanged.

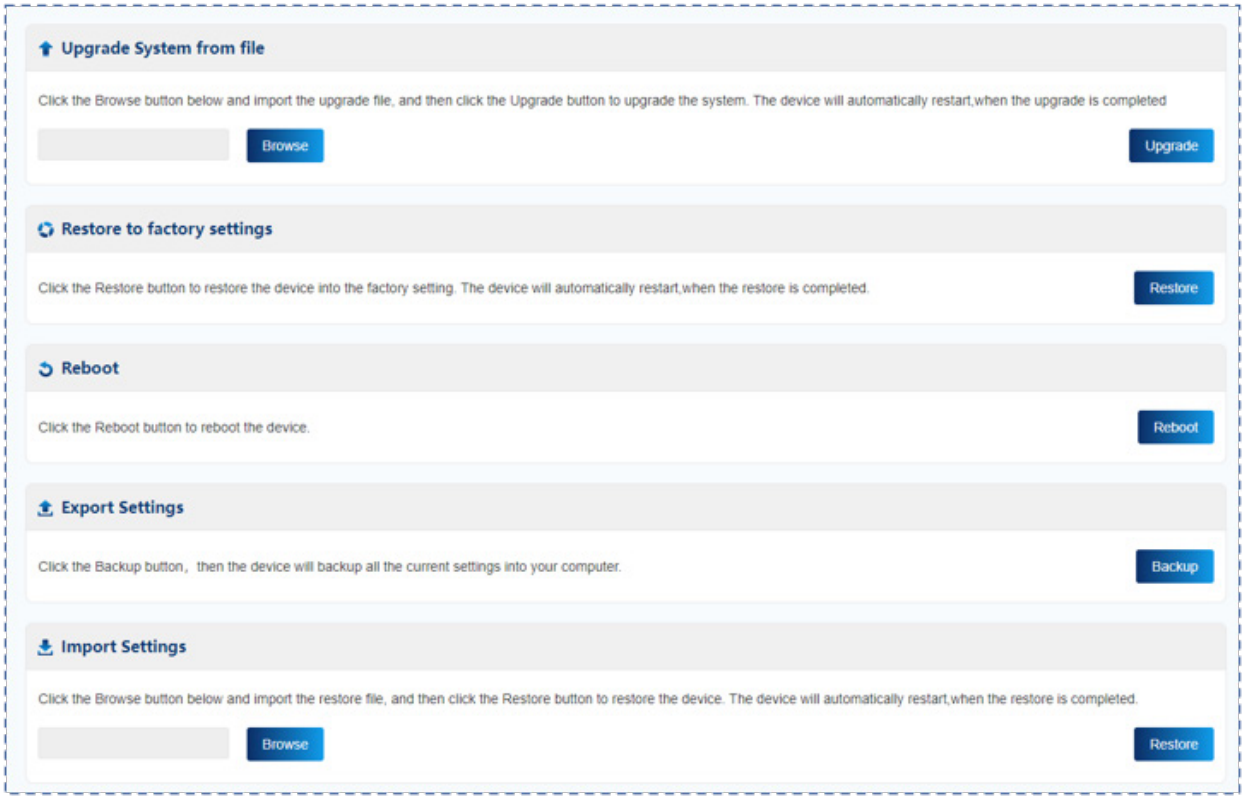
Account



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

If you forget your new username or new password, you can use the reset button in the front panel to restore.

System



Upgrade System from File: Update the modulator with the latest firmware by selecting a software file from your computer.

Restore Factory Settings: Restores the modulator to its factory default configuration, including all input, output, and network settings.

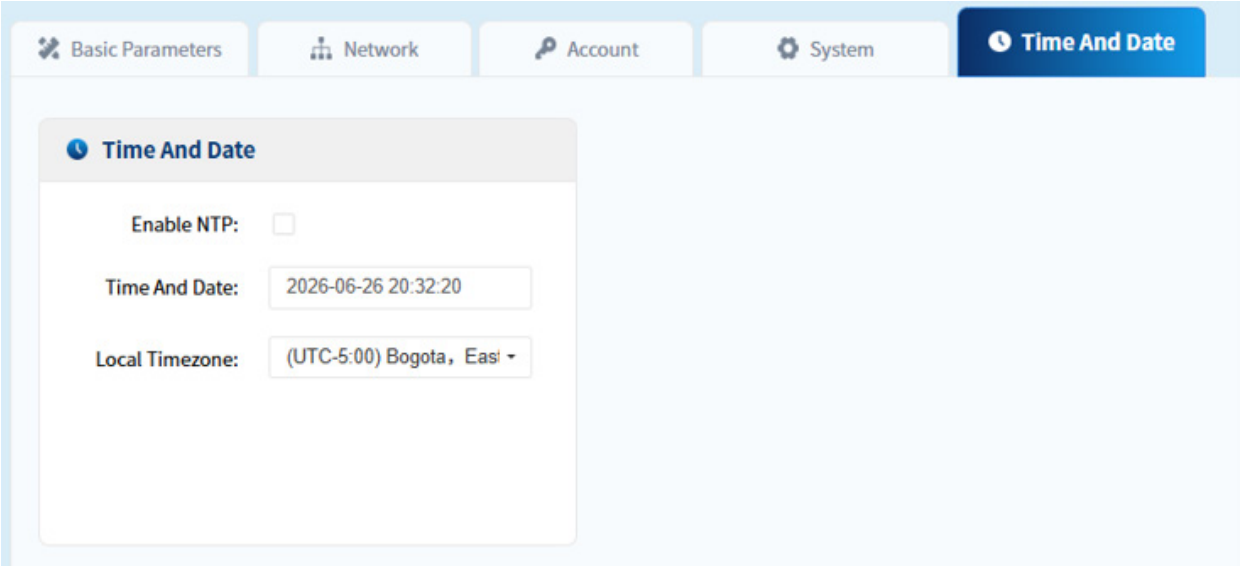
Reboot: Restarts the modulator without changing the current configuration

Export Settings: Saves the current configuration (input, output, and system settings) to your computer for backup purposes.

Import Settings: Restores a previously saved configuration from your computer to the modulator.

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

Time and Date



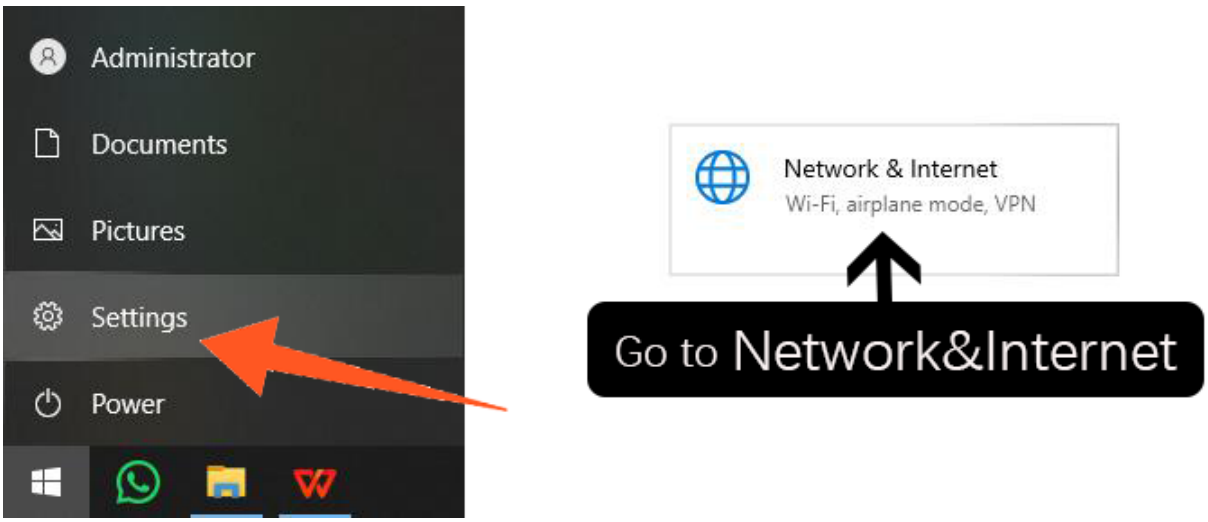
Enable NTP ☑	
NTP Server	Input the NTP server address which is best for you. Make sure the NMS port is connected with the Internet.
Local Timezone	Select a timezone
Enable NTP ☐	
Time And Date	Press the TODAY button, and the modulator will read the time and date from your computer.
Local Timezone	Select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

Quick IP Ethernet Connection Guide

NOTE:

Make sure you login your operation system as the administrator.

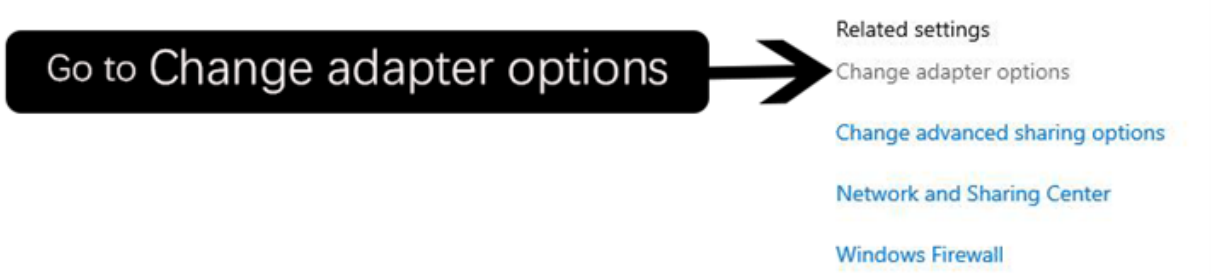
1. Go to " Windows Start"



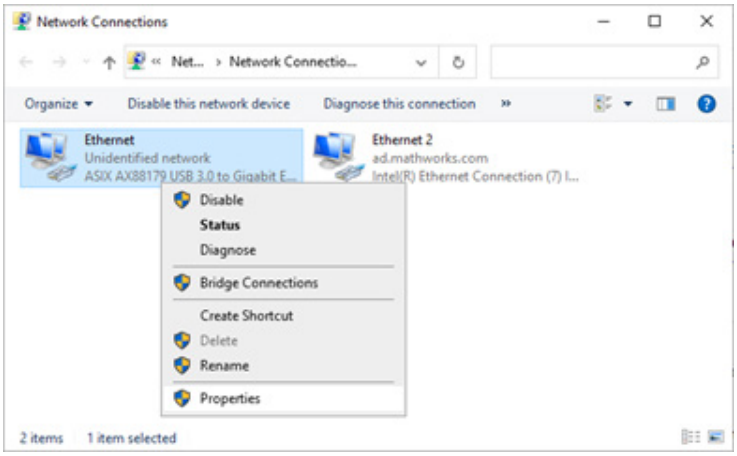
2. Go to Windows Settings
3. Go to " Network & Internet"
4. Go to "Ethernet" on the left side of the menu



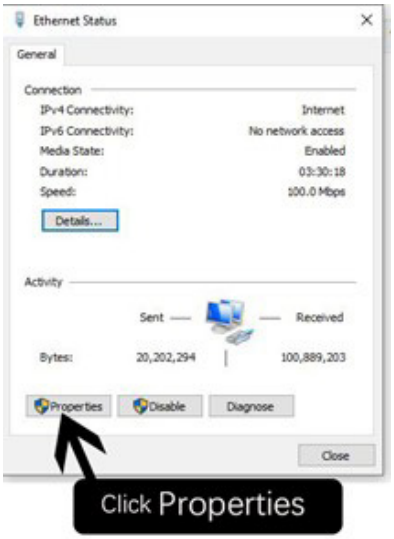
5. Go to " Change adapter options"



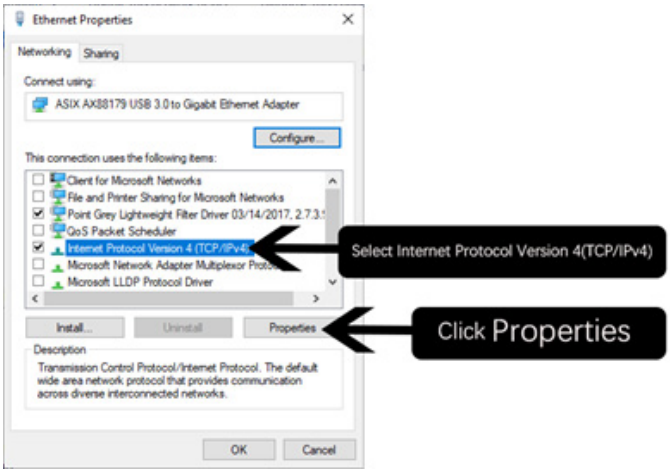
6. Double click on the Ethernet Source or Right Click and select “Properties”



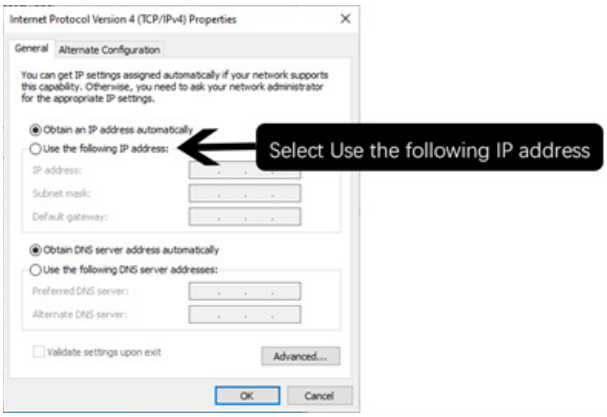
7. Open Properties



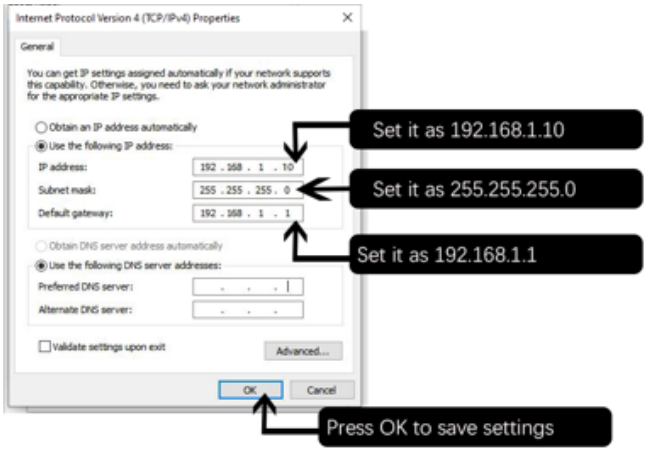
8. Go to “Internet Protocol Version 4 (TCP/IPv4)
9. Go to “Properties”



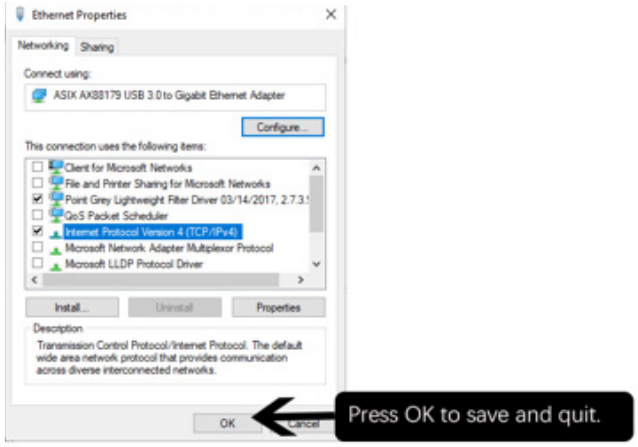
10.Go to “Use the following IP address”



11. Set IP address
Set IP address: 192.168.1.10
Set Subnet mask: 255.255.255.0
Set Default gateway: 192.168.1.1



12.Save all the settings.



Common Troubleshooting

Symptom	Recommended Action
Power LED is not lit.	Verify the power cord is securely connected.
Unable to log in to the NMS	Refer to Page 12 for login instructions.
The Web UI is displayed incorrectly or settings cannot be saved.	Clear your web browser's cache and browsing data, then reload the page.
CH1 to CH2 LEDs are not lit	Verify the input video source is powered on. Check that the HDMI cable is securely connected. Verify the input video resolution is supported.
Input Resolution displays "Unknown."	Verify a video source is connected. Confirm the input video resolution is supported.
For any issues not resolved by the troubleshooting steps above	Please contact technical support. 610-429-1821

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Warranty

DATATRONIX 1-Year Limited Warranty

DATATRONIX. (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.