



VECOAX ULTRA RF SERIES USER MANUAL

NOTE: BEFORE INSTALLATION

STOP



Please test each unit UNMOUNTED ON A TEST BENCH with your Test TV before installing your units to ensure you are receiving the Test Pattern signal. Then Program your unit.

This makes troubleshooting easier.

This can be done simply by connecting your TV with a short piece of Coax cable to the RF out of the Unit. **No HDMI needs to be connected for this test.**

This will display our test pattern on your TV once you scan for digital. By default, our unit is set to QAM (J.83B Cable) mode.

This can be changed by referring to our **QUICK GUIDE** below.

Depending on your supported TV standards, scan for digital channels.

Please refer below for our **QUICK GUIDE** to setting up your device for your application and needs.

NOTE: DEFAULT IP ADDRESS

The Default IP of this unit is 192.168.0.136

This is entirely optional, and you can configure the entire unit without the web interface if you wish.

To configure the unit using the web interface, go to Page 19 (Connecting to a PC).

If no IP address shows please use the preset menu to default the IP address, see Page 8.

PRODUCT SPECS

Power - 120v/AC. Environment Ambient Temp Max/Min 0 to 70°C 30-65% humidity

All Major TV Encoder standards built-in. No need to reprogram or flash the unit to a different Format.

QAM (J.83B Digital Cable), ATSC (Digital Over the Air Channels), ISDB-T, DVB-T, DVB-C, DMBT Set via Color Display

Modulator Design allows for Future upgrades

Universal HDMI inputs work with any TV Standard HDMI video sources and closed caption 608

Injects directly on the existing TV Cables with other channels (This depends on the Available Frequencies for your Coax Network as well as existing cable providers)

Customize channel names & numbers

Delivers perfect Full HD up to Signal at any distance (depend on video source quality)

Ultra-Low latency provides the ability to use menus on your HDMI source with ease.

Works with many different Digital tuner TV brands including Samsung, Sony, Vizio, LG, and More.

Easy Plug and Play Setup with customization options available in the easy to use menu via a Color Display.

Works With any HD Video **HDMI EDID compatible source**. *(720P or 1080P/I Fixed Resolution 59.94 Frames)

Can be mixed with other HDTV signals such as Digital Cable or Over the Air Channels* (depending on Frequencies available for you to use)

Modular – Expandable – Reliable - 5 Year Warranty - Affordable

POWERING THE DEVICE. – QUICK GUIDE – USA/CANADA

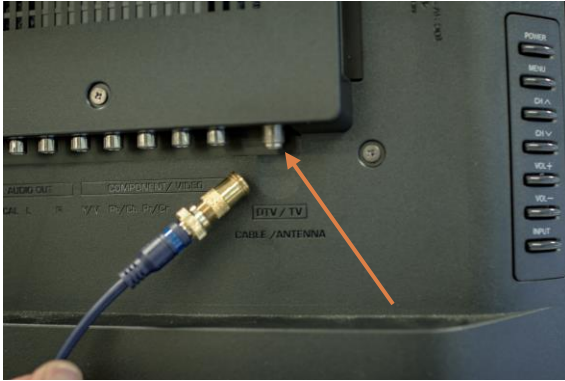
1. It is recommended to **test the device first on a test bench** for your application before making it a permanent installation to your system so troubleshooting is easier.
2. Connect your included Power Cord to the unit.



3. Once the unit is powered on you will see the main menu.



4. First, Connect a short piece of coax cable to your TV's tuner and the other end to the unit's TV out RF connector.



- On the unit press the enter button to enter the menu of that Channel Highlighted. Once you press enter you be on the main screen of the channel you have selected. Press enter again to go into the menu system for that channel to change the options. In the menu system of your selected channel, the second option would be TV Standard.



Channel Selection Menu



Selected Channel Main Menu



Selected Channel Settings Menu



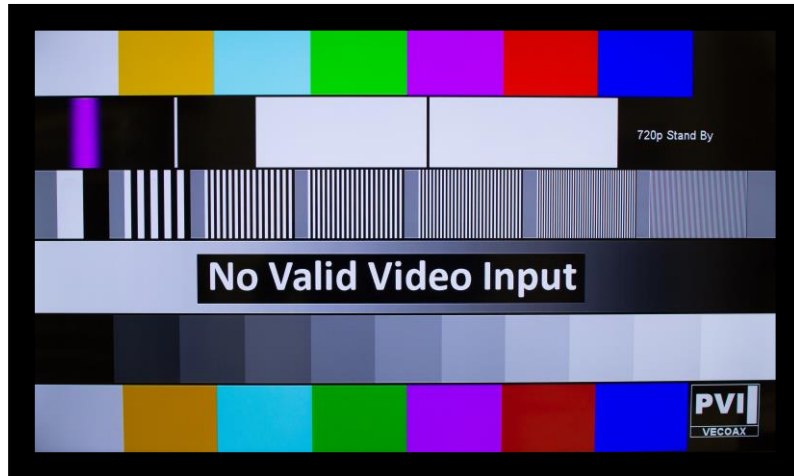
Selected Channel Advanced Menu

Set your standard you require to use. If you are unsure most newer TV's 3 years and above accept both ATSC (over the air channel) and QAM(J.83B Digital Cable). Please Refer to your TV owner's manual

6. By default, the unit is set to QAM (J.83B Digital Cable) Mode | Preset 1 | with a Frequency of 303.000 MHz which is Channel 37 for the first channel input. The TV will Scan for the Frequency and pick up the channels on Cable. Depend on your model will determine the channels picked up.
7. Auto Scan for Channels on your TV. Depending on your Location and Supported TV standards for your TV such as QAM (J.83B Digital Cable) or ATSC (Digital over the Air) will determine the Standard you need to set on the unit. Please Refer to **CUSTOMIZATION** below to change these settings.



8. Once the channel is found it will display our Test Pattern when no HDMI is connected to the unit.



9. We can use the Major/Minor channels on the unit's settings to force change the channel number that is displayed & stored/referred to on your TV. By default, this is 1.1: Major 1, Minor 1. You may change this if you like to 38.1: Major 38, Minor 1. This will display and be stored as channel 38.1 on your TV.
10. Once we see our Test Pattern on the Channel found on your TV, you may insert your HDMI source. Please ensure that your HDMI source such as a DVD player or DirecTV STB is set to a Fixed Resolution of 1080P/I or 720P.



11. Once you have inserted a valid HDMI Video Signal into the HDMI port > The Blue On-air LED on the front will Stay steady lit.
12. You should now see the video playing on your Channel.
13. If you wish to change the name of the channel that is displayed, you may do so under the Short name settings of the unit. 4-6 Characters max is allowed depending on your TV.
14. More detail information can be found below if more customization is required.

NOTE: If the above is not working, please check the following

1. All connections are correct
2. Unit's settings are correct for your application
3. Correct TV standard is set for your TV such as ATSC, QAM, DVB-T
4. Ensure your video source is valid or set to a correct fixed resolution. Please refer to your HDMI source owner's manual on how to set a fixed resolution.
5. Try with another TV with no HDMI connected to ensure you are getting a signal.
6. Try lowering the RF level of the channels which can be found under the Advanced Menu > RF Level (digital attenuation)

To reset the unit's settings to default, please go to the in the advanced menu of the unit called "RESET." Press enter to reset that channel to default.

You may Also Recall the default **PRESETS** by hitting ESC until you are on the Main Page of the unit's screen with the Word PRESET. Press enter on the selected Preset to make the unit automatically adjust the settings of all the channels to its defined settings.

If the "ON-AIR," LED does not stay steady, please ensure your HDMI source is set to a fixed resolution of 1080P or 720P 59.94 Frames and connected directly to the Unit.

Ensure your Device is passing EDID correctly If you are using a Splitter, some splitters don't support EDID pass-through (Extended Display Identification Data used to tell the source or TV what video resolution is supported) Test your HDMI source without the Splitter connected. For SDI to HDMI EDID is a **MUST!** SDI does not carry EDID information so a converter with EDID injection is a **MUST!**

CUSTOMIZATION AND PARAMETERS

Each unit is ready to work plug n play by default. After connecting the unit using our **QUICK GUIDE** above you may customize the unit’s settings, such as Frequency, Major and Minor channel numbers, Short name, or TV standard. You can also use our **Presets** built into the unit which will set the unit up for you.

These units come with **Presets** to make Plug and Play setup a Breeze. Simply Select the Preset number you wish and hit Enter. The unit will default it to the set Settings programmed into the unit. This is useful for multiple units on the same Coax Network. Further Tweaking can be made afterward.



PRESET MENU

The preset menu can be found by pressing the Esc button when at the Channel selection menu as shown below



QAM (J.83B DIGITAL CABLE)

Setting	
Source	HDMI
Standard	J83B
Freq	783000K
Vid Quality	LowLatency
MOD	QAM64
Major Ch	1
Minor Ch	1
Short Name	PVIHD1
Aud Format	AC3
Advanced	...

These are the Defaults and Good starting point for PLUG N PLAY setup.

If you have more than one unit please ensure you change the FREQUENCY, MAJOR/MINOR, and SHORT NAME so they don't overlap and create issues.

With the above default, the unit outputs on 783 MHz as channel 1.1.

- **SOURCE** – Set your Video Source HDMI, CVBS, or SDI depending on your model
- **STANDARD** – Set your TV standard depending on your needs, location, and support format of your TV.
- **FREQ** – Set your Frequency using our QAM Frequency chart on page 39. TVs will scan for the Frequency, then store the channel as the Major/Minor channel number you have set on the Unit.
- **VID QUALITY** – Set the Latency Mode of your Video.
- **MOD** – Modulation Mode you wish to use. QAM64 is the default and works with 99% of TVs QAM256 is used in applications that require it such as with other coax systems that use QAM256 or only support QAM256 mode
- **MAJOR CHANNEL** – This is the Major channel number that will be displayed and stored in the TV's Virtual Channel Table (VCT). (For example, for channel "10.1", "10" is the Major channel number.)
- **MINOR CHANNEL** – This is the Major channel number that will be displayed and stored in the TV's Virtual Channel Table (VCT). (For example, for channel "10.2", "2" is the Minor channel number.) If you wish to have many channels with the same Major number, use the Minor number to differentiate.
- **SHORT NAME** – Name of the Channel you wish to use. 4-6 Characters max depending on TV.
- **AUDIO FORMAT** – Set your desired Audio Format. AC3 is the Default Standard for ATSC and QAM mode.
- **ADVANCED** – Advanced options for users who require Specific PIDs or Fixed EDID information. **Please don't change these** unless you understand your required PIDs or EDID per Cable Provider instructions or PVI Tech Support request.

ATSC (OVER THE AIR CHANNEL)

Setting	
Source	HDMI
Standard	ATSC
Freq	473000K
Vid Quality	LowLatency
Major Ch	1
Minor Ch	1
Short Name	PVIHD1
Aud Format	AC3
Advanced	...
Theme	1

These are the Defaults and Good starting point for PLUG N PLAY setup.

If you have more than one unit please ensure you change the FREQUENCY, MAJOR/MINOR, and SHORT NAME so they don't overlap and create issues.

With the above default, the unit outputs on 473 MHz as channel 1.1.

- **SOURCE** – Set your Video Source HDMI, CVBS, or SDI depending on your model
- **STANDARD** – Set your TV standard depending on your needs, location, and support format of your TV.
- **FREQ** – Set your Frequency using our ATSC Frequency chart on page 49. TVs will scan for the Frequency, then store the channel as the Major/Minor channel number you have set on the Unit.
- **VID QUALITY** – Set the Latency Mode of your Video.
- **MAJOR CHANNEL** – This is the Major channel number that will be displayed and stored in the TV's Virtual Channel Table (VCT). (For example, for channel "10.1", "10" is the Major channel number.)
- **MINOR CHANNEL** – This is the Major channel number that will be displayed and stored in the TV's Virtual Channel Table (VCT). (For example, for channel "10.2", "2" is the Minor channel number.) If you wish to have many channels with the same Major number, use the Minor number to differentiate.
- **SHORT NAME** – Name of the Channel you wish to use. 4-6 Characters max depending on TV.
- **AUDIO FORMAT** – Set your desired Audio Format. AC3 is the Default Standard for ATSC and QAM mode.
- **ADVANCED** – Advanced options for users who require Specific PID's or Fixed EDID information. **Please don't change these** unless you understand your required PIDs or EDID per Cable Provider instructions or PVI Tech Support request.

DVB-T GENERIC

Setting	
Source	HDMI
Standard	DVB-T
Freq	474000K
BW	8M
Vid Quality	LowLatency
MOD	QAM64
FFT	8K
GI	1/16
CR	5/6
LCN	1

These are the Defaults and Good starting point for PLUG N PLAY setup.

If you have more than one unit please ensure you change the FREQUENCY, LCN, and SHORT NAME so they don't overlap and create issues.

- **SOURCE** – Set your Video Source HDMI, CVBS, or SDI depending on your model
- **STANDARD** – Set your TV standard depending on your needs, location, and support format of your TV.
- **FREQ** – Set your Frequency using our Frequency chart at www.pvisupport.com. TVs will scan for the Frequency and the Frequency Channel it relates to.
- **VID QUALITY** – Set the Latency Mode of your Video.
- **MOD** – Modulation Mode you wish to use. QAM64 is the default and works with 99% of TVs QAM256 is used in applications that require it such as with other coax systems that use QAM256 or only support QAM256 mode
- **LCN** – Logical channel number can be set here. This is the channel number that will be stored and displayed on the TV
- **SERVICE NAME** – Name of the Channel you wish to use. 4-6 Characters max depending on TV.
- **AUDIO FORMAT** – Set your desired Audio Format. MPEG is the default for DVB-T.
- **ADVANCED** – Advanced options for users who require Specific PID's or Fixed EDID information. **Please don't change these** unless you understand your required PIDs or EDID per Cable Provider instructions or PVI Tech Support request.

DVB-C

Setting	
Source	HDMI
Standard	DVB-C
Freq	474000K
Sym. Rate	6875K
Vid Quality	LowLatency
MOD	QAM256
LCN	1
Service	PVIHD1
Aud Format	MPEG
Advanced	...

These are the Defaults and Good starting point for PLUG N PLAY setup.

If you have more than one unit please ensure you change the FREQUENCY, LCN, and SHORT NAME so they don't overlap and create issues.

- **SOURCE** – Set your Video Source HDMI, CVBS, or SDI depending on your model
- **STANDARD** – Set your TV standard depending on your needs, location, and support format of your TV.
- **FREQ** – Set your Frequency using our Frequency chart at www.pvisupport.com. TVs will scan for the Frequency and the Frequency Channel it relates to.
- **SYM. RATE** – Set the Symbol Rate appropriate for your region.
- **VID QUALITY** – Set the Latency Mode of your Video.
- **MOD** – Modulation Mode you wish to use. QAM256 is the default for DVB-C
- **LCN** – Logical channel number can be set here. This is the channel number that will be stored and displayed on the TV.
- **SERVICE NAME** – Name of the Channel you wish to use. 4-6 Characters max depending on TV.
- **AUDIO FORMAT** – Set your desired Audio Format. MPEG is the default format for DVB-C.
- **ADVANCED** – Advanced options for users who require Specific PID's or Fixed EDID information. **Please don't change these** unless you understand your required PID's or EDID per Cable Provider instructions or PVI Tech Support request.

ISDBT

Setting	
Source	HDMI
Standard	ISDB
Freq	473143K
Vid Quality	LowLatency
Key ID	1
Service	PVIHD1
Aud Format	AAC
Advanced	...
Theme	1

These are the Defaults and Good starting point for PLUG N PLAY setup.

If you have more than one unit please ensure you change the FREQUENCY, KEY ID, and SHORT NAME so they don't overlap and create issues.

- SOURCE – Set your Video Source HDMI, CVBS, or SDI depending on your model
- STANDARD – Set your TV standard depending on your needs, location, and support format of your TV.
- FREQ – Set your Frequency using our Frequency chart on page 53. TVs will scan for the Frequency and the Frequency Channel it relates to.
- VID QUALITY – Set the Latency Mode of your Video.
- KEY ID – Set your Key ID channel number.
- SERVICE NAME – Name of the Channel you wish to use. 4-6 Characters max depending on TV.
- AUDIO FORMAT – Set your desired Audio Format. AAC is the default standard for ISDBT.
- ADVANCED – Advanced options for users who require Specific PIDs or Fixed EDID information. **Please don't change these** unless you understand your required PIDs or EDID per Cable Provider instructions or PVI Tech Support request.

DTMB

Setting	
Source	HDMI
Standard	DTMB
Freq	474000K
Vid Quality	LowLatency
Mode	10
LCN	1
Service	PVIHD1
Aud Format	MPEG
Advanced	...
Theme	1

These are the Defaults and Good starting point for PLUG N PLAY setup.

If you have more than one unit please ensure you change the FREQUENCY, LCN, and SERVICE NAME so they don't overlap and create issues.

- **SOURCE** – Set your Video Source HDMI, CVBS, or SDI depending on your model
- **STANDARD** – Set your TV standard depending on your needs, location, and support format of your TV.
- **FREQ** – Set your Frequency here. Because of the wide range that DTMB covers, please search for these online to determine the Frequencies available for your region.
- **VID QUALITY** – Set the Latency Mode of your Video.
- **MODE** – Modulation mode can be set here depending on your needs for your region
- **LCN** – Logical channel number can be set here. This is the channel number that will be stored and displayed on the TV
- **SERVICE NAME** – Name of the Channel you wish to use. 4-6 Characters max depending on TV.
- **AUDIO FORMAT** – Set your desired Audio Format. MPEG is the default for DTMB.
- **ADVANCED** – Advanced options for users who require Specific PID's or Fixed EDID information. **Please don't change these** unless you understand your required PID's or EDID per Cable Provider instructions or PVI Tech Support request.

ADVANCED MENU – PSIP, MIXER MODE, RF LEVEL

Advanced	
TSID	1
Service ID	1
CVCT Mode	Auto
PMT PID	32
Video PID	48
PCR PID	48
Audio PID	49
1080P Conv	Auto
RF Atten	0 dB
Mixer Mode	Normal

These are the Defaults and Good starting point for PLUG N PLAY setup.

Please do not modify these settings unless instructed or you understand these settings.

If you require a specific PID set by your Service provider for Coax STB injection, then please change as per their requirements.

Changing these numbers can create unwanted effects on your channel if not careful.

- **TS ID** – Transport ID Number. Used for Identification of the Mpeg Transport Stream. Default 1
- **SERVICE ID** – Also known as the Program ID
- **CVCT MODE** – Allows the changing of the VCT Mode for TV tuners that have trouble registering the assigned Major Minor channel and short name. By default, this is Auto mode for QAM. This option only shows in J.83B standard
- **PMT** – Program Mapping Table Identification Number. Metadata of the MPEG transport stream. Contains the PIDS. Default 32
- **VIDEO PID** – Identification number for the Mpeg Video transport stream. Default is 48
- **PCR PID** – Program Clock rate PID. Required to be the same number as Video PID to ensure the Video and Encoder PID's are synced correctly and Identified in the Transport stream
- **AUDIO PID** – Identification number for the Mpeg Audio in the transport stream. Default is 49
- **1080P CONV**– This option will downscale 1080P video to 1080i automatically when in interlace mode. If you switch to Auto mode, the unit will not downscale any 1080P video and pass through the resolution to your tv. We keep this in interlace by default for any tuner compatibility issues that don't support 1080P video through the tuner.
- **RF ATTEN** – We have a built-in Digital Atten
- **MIXER MODE** – mixer mode allows the changing of the phase rotation of the Mpeg Modulation stream. In simple terms, it's a compatibility mode for older tuners that still use DVB ATSC 1.0. If you are having issues with certain TVs not picking up the channel, please try the Alternate mode. By default, we have it set to normal which is max ATSC compatibility for all digital tuners

Terms:

PID = (Packet Identifier)

CVCT = (Cable Virtual Channel Table)

INSTALLING MULTIPLE UNITS

To install multiple units on the same coax network, make sure to **CHANGE** the Frequencies, Major/Minor, and Short Name of each Channel **BEFORE** you connect them to the same coax network, so there will be no Channel Conflicts. By default, each unit will be set the same. This can easily be done using the **Preset** Menu option on the Main Menu of the unit or changing them manually.

Please Test each unit directly connected to a Test TV first with a short piece of coax **BEFORE** making it a permanent installation such as a rack mount to make troubleshooting easier. Once you have all your units' setup test again with a test TV first before combining the units with your coax network.

If you have other modulators or Digital signals you must find a harmony between the RF levels and Frequencies that are available such as ATSC (Over the Air Antenna) signal. Please refer to your other modulators settings to find the frequencies the populated and set your unit to a different set. Please see combining ATSC/QAM signals in our manual below for more information about combining with other Digital Signals from Providers

To change the Frequencies of each module, press enter button the unit to enter the menu. Navigate using the keys to **FREQ**. Press enter and use the navigation keys to change the numbers. The frequency is in kHz. So 783MHz would be 783000 kHz on the unit. Once you have set the Frequency, press Enter and then move on to changing the Major/Minor channel as well as the short name if you wish. Once you have set all your settings press **ESCAPE**. This will prompt you to save your changes. Use the navigation keys to Highlight **Yes** and press Enter. The unit will now go back to the main screen and restart the encoder. Once the unit saves the settings you will see "transmitting," and a Solid Blue LED on the "ON-AIR."

Write down these values or put a sticker on each unit with the newly assigned frequency and channel number, so it will be easy to troubleshoot the unit in future without the need to reset it or dismantle everything. Depending on your setup it's **suggested** to use an active splitter or combiner with more than 6 units, 40+ TV's or using multiple splitters (each splitter will lower the DB level 5-10dbs depending on the quality) to ensure you get a clear signal to all your TV's no matter the distance. If your system works without one then it is not necessary. **Again, this is a suggestion and not required for the operation of your devices.**

COMBINING SERVICE PROVIDERS SIGNALS OR ATSC WITH YOUR DEVICE

For Combining ATSC (Over the Air channels) you must find the frequencies that are used by your local stations. This information can usually be found online by searching for, “(insert your local area) ATSC frequency chart.” This will give you a nice table that shows all the Frequencies used in your area. Find the ones that are not used and write those down. Set your device(s) to those unused frequencies. Test using your Test TV.

Note: For installers, it is recommended but not required to use a Spectrum analyzer to see the spectrum available to you to make the installation easier. This does not require an expensive unit to do this. Any Spectrum tester to view the available frequencies will help you in the process.

For combining with a cable service provider, the same rules apply. You can contact the local service provider of your basic cable to find the frequencies that they use and find the ones that are available for you to use. If you wish to inject into a Digital Cable Converter box or STB (set-top box) most of the time the service provider will include a channel you may broadcast onto or some providers require a specific PID's to be set which can be set in the **ADVANCED MENU** in order for the set top box to be able to read the channel.

AUDIO ENCODING SETTINGS

The unit has three standards of Audio Encoding. Depending on your local and supported format per TV you can set the following:

- **AC3** – 2.1 Dolby Digital Audio US/Canada Standard for Broadcasting
- **MPEG** – MPEG 2 Layer II used in DVB-T EU Standard.
- **ACC** - Advanced *Audio* Coding or MPEG-4. Used in some ATSC broadcasts and ISDBT format. Supported by Most TV's worldwide.

If your HDMI source has Compressed Audio or Dolby Digital Enabled, it is recommended to set your HDMI source to Stereo PCM or Uncompressed Audio to ensure you get a clean audio signal to your TV. Double compression can cause a lot of audio skipping issues.

VID QUALITY MODES

The Vid Quality modes on the unit determine the speed and size of information sent to your TV's tuner decoder. **The default is LOW LATENCY.** DO NOT change this setting unless you are experiencing issues with video quality. Using the other options available such as HIGH or Average will only change the speed the information is given to the TV to be able to decode the picture properly (For slower Television tuners and models)

LOW LATENCY - This mode is the fastest in terms of information sent to the TV. It sends frame by frame which will give you the best picture and ultra-low delay for applications that require constant use of the HDMI Source menu system such as Cable provider boxes or DVD players.

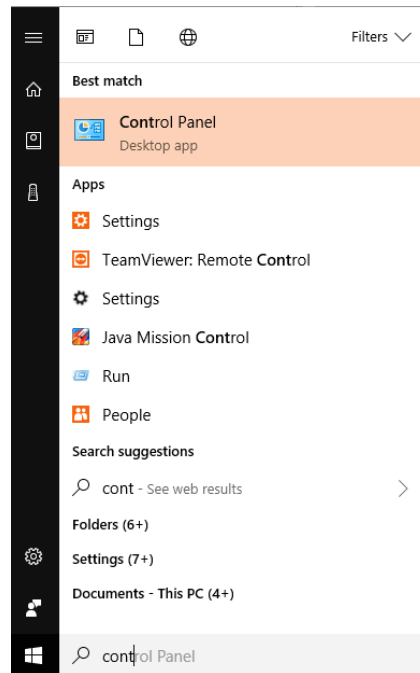
AVERAGE – This is a good balance between lower latency and speed of information sent to your TV's tuner. This mode sends the Information in smaller chunks rather than instant refresh rate which helps with slower TV tuners that have slower/smaller decoder memory. This form of chunks can help give a very slight increase in image quality due to the Tuner having time to decode each picture at its own pace.

HIGH - This mode sends the Information in Lager chunks than Average mode which again can help with slower TV tuners that have slower/smaller decoder memory. This form of chunks can help give a very slight increase in image quality due to the Tuner having more time to decode each picture at its own pace before the next set of chunks are received.

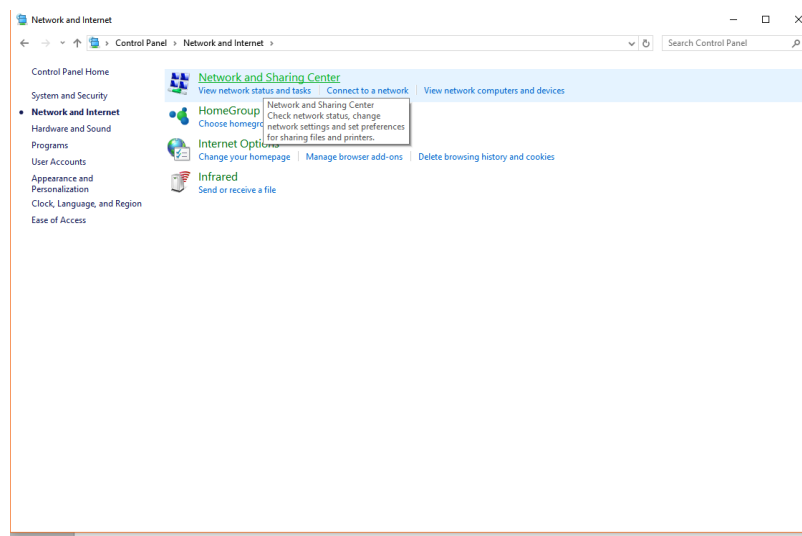
Note: A higher delay will occur with these modes due to the delivery of the information to the tuner in form of chunks rather than picture by picture.

CONNECTING TO A PC

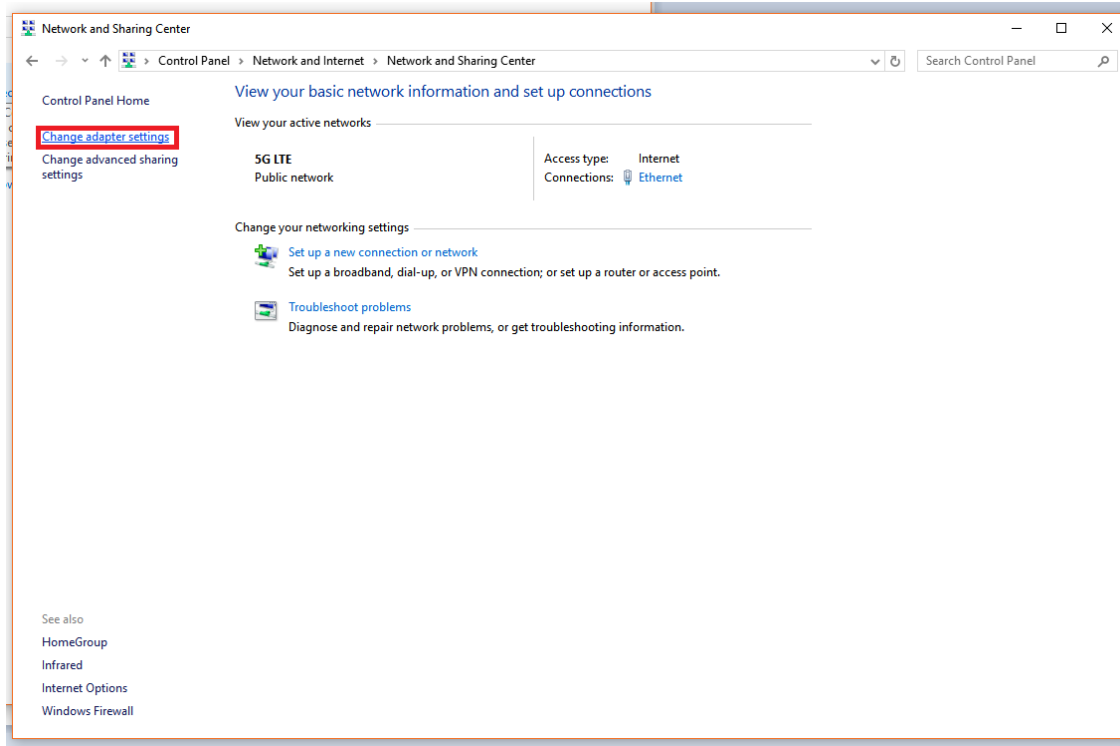
On Windows open your control panel



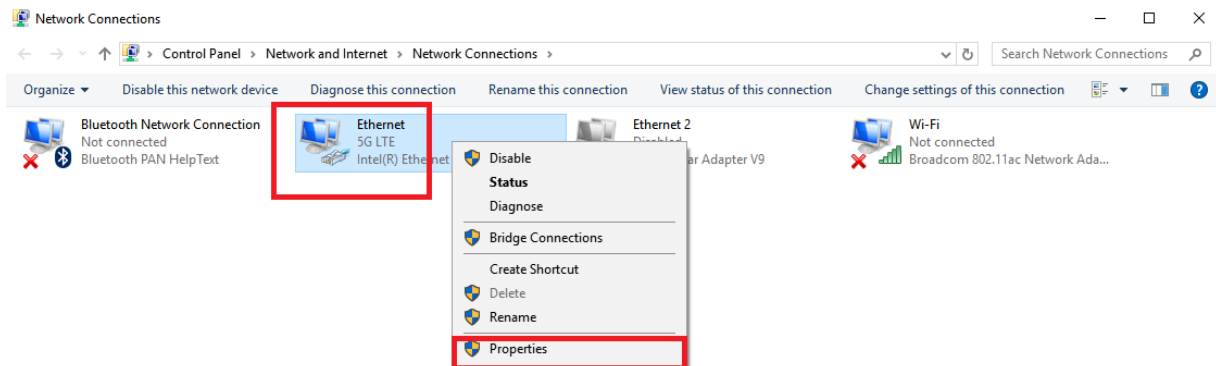
In the Control Panel, open Network and Sharing Center (Network and Internet for Windows 8 and above)



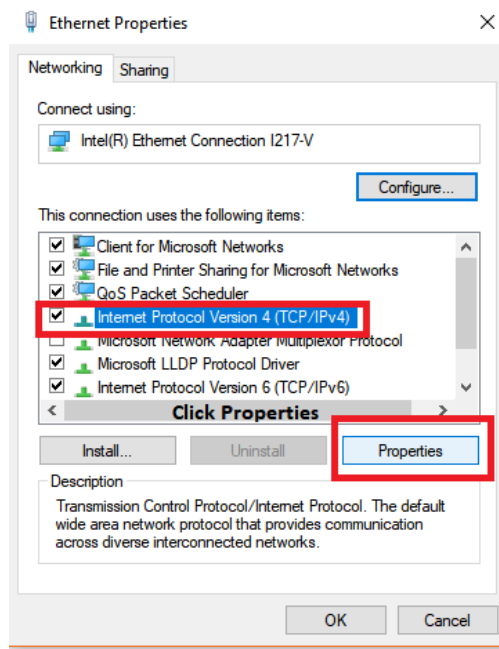
Once you have Network and Sharing Center open, Click on “Change adapter settings.”



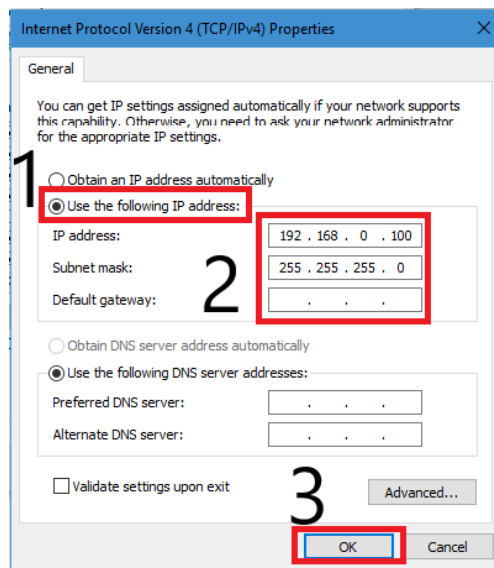
Right Click on your Local Ethernet connection and click on “properties.”



Once the Ethernet Properties are open click on, “Internet Protocol Version 4(TCP/IPv4),” and click on, “Properties.”



In the Properties, select “Use the following IP address” and set the static IP: 192.168.0.100.

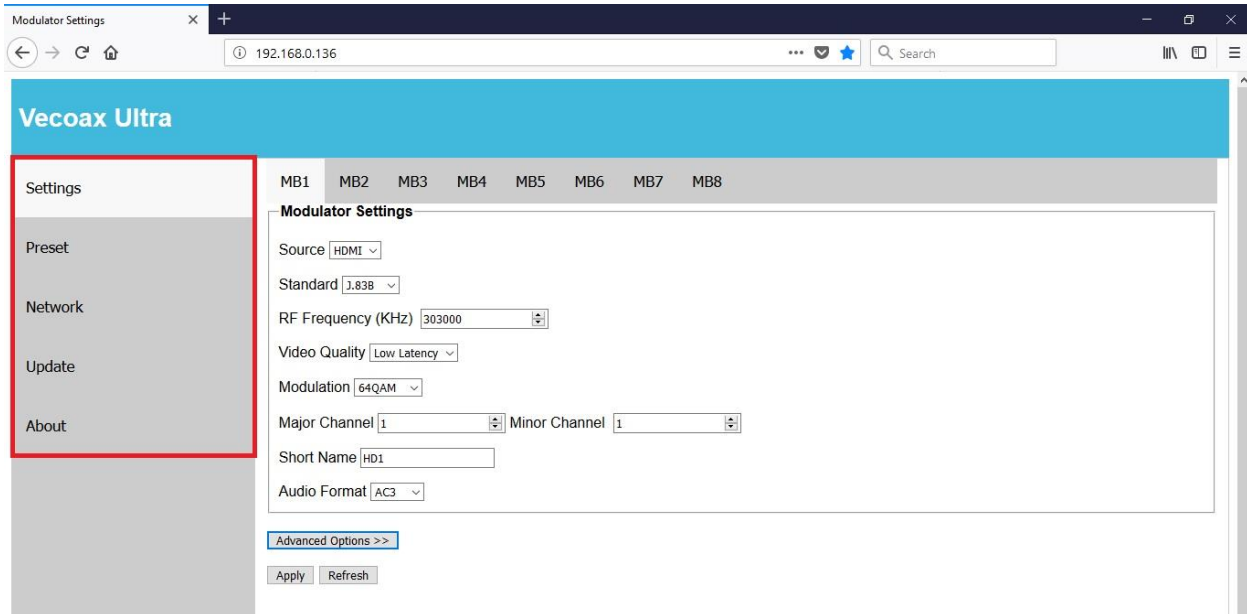


You are now ready to connect to the Web interface of your Unit.

WEB INTERFACE

To log in: Open an internet browser window on your connected PC and navigate to the IP address of the unit. **DEFAULT IP ADDRESS: 192.168.0.136**

Once you have logged into the unit, you will see the SETTINGS page. This will display all your inputs, as well as your video standard, frequency, and other settings.



On the left-hand side, there is a navigation bar, where you can select different menus for further configuration.

SETTINGS: Here you can change your broadcast settings for each channel of your unit, including the broadcast standard and frequency.

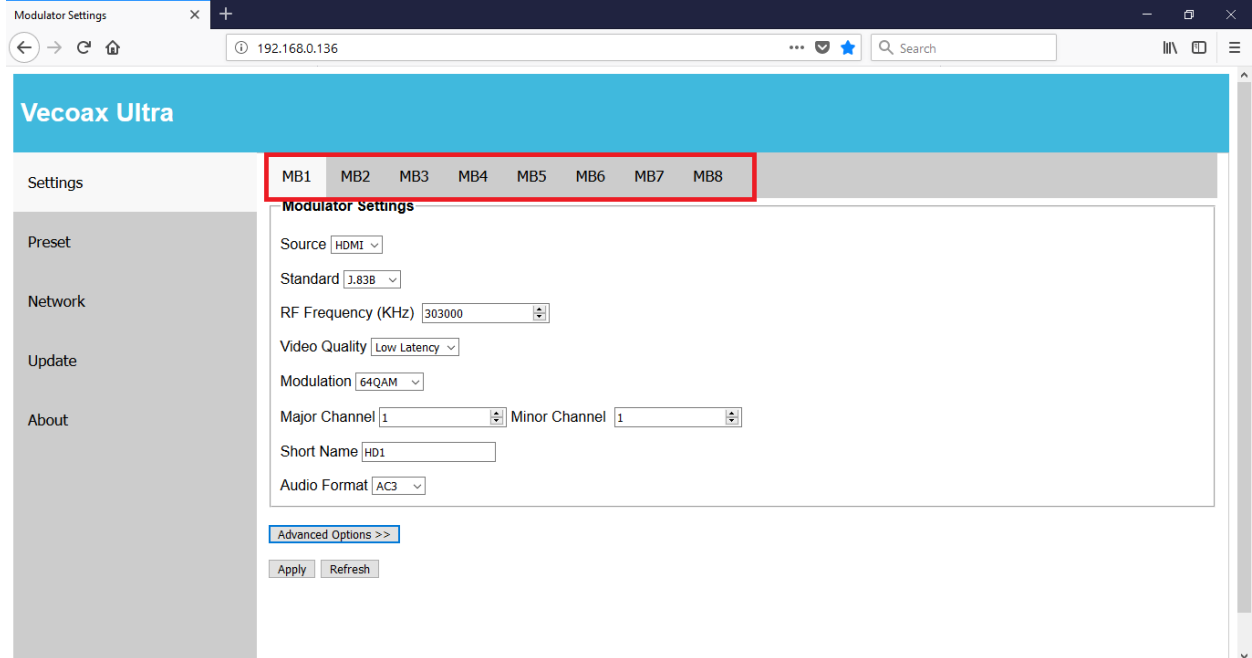
PRESET: Here you can save multiple presets and come back to load them for future use. Up to 10 presets can be saved on a single device.

NETWORK: Here you can change the IP address, subnet mask, and gateway for accessing the web interface, as well as whether the unit uses DHCP.

UPDATE: Here you can apply firmware updates to your unit, which will be distributed over our support site, pvisupport.com.

ABOUT: Here you can find the unit's firmware version.

WEB INTERFACE – SETTINGS



SETTINGS: Under the settings menu you can modify the settings of each channel 1-8 just as you would on the front panel of the unit. (Labelled MB1 – MB8) You can modify the following:

Source: Currently only HDMI is selectable

Standard: select the TV standard format you wish this channel to broadcast on. J.83B Cable, ATSC, DVB-T, ISDB-T, etc.

RF Frequency: Enter the broadcast frequency that corresponds to your physical channel. (See the Channels Appendices for more info.)

Video Quality: Change the video latency mode which is explained on Page 18.

Modulation Mode: Change between the modulation modes for certain formats such as J.83B, DVB-T, and ISDB-T

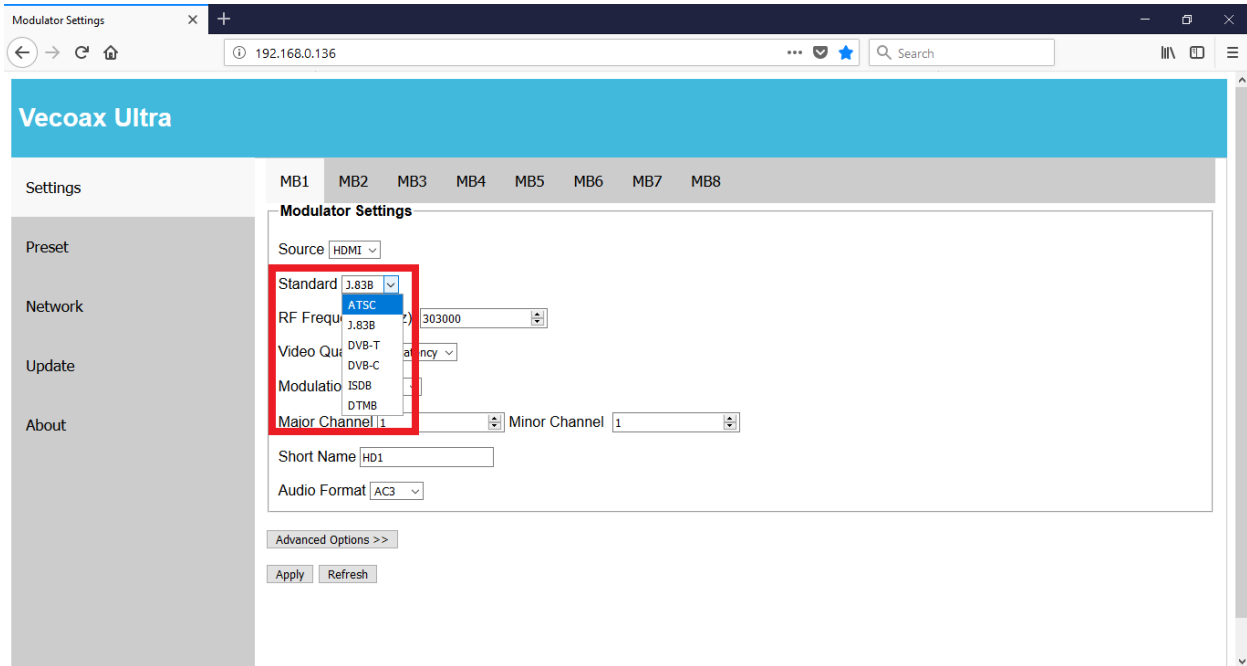
Major: First Number displayed on the TV as a reference 1.

Minor: Second number used to ID the channel as a subcategory such as 1.2 or 1.3. Normally used for setting multiple channels to the same channel number such as 10.1, 10.2, etc.

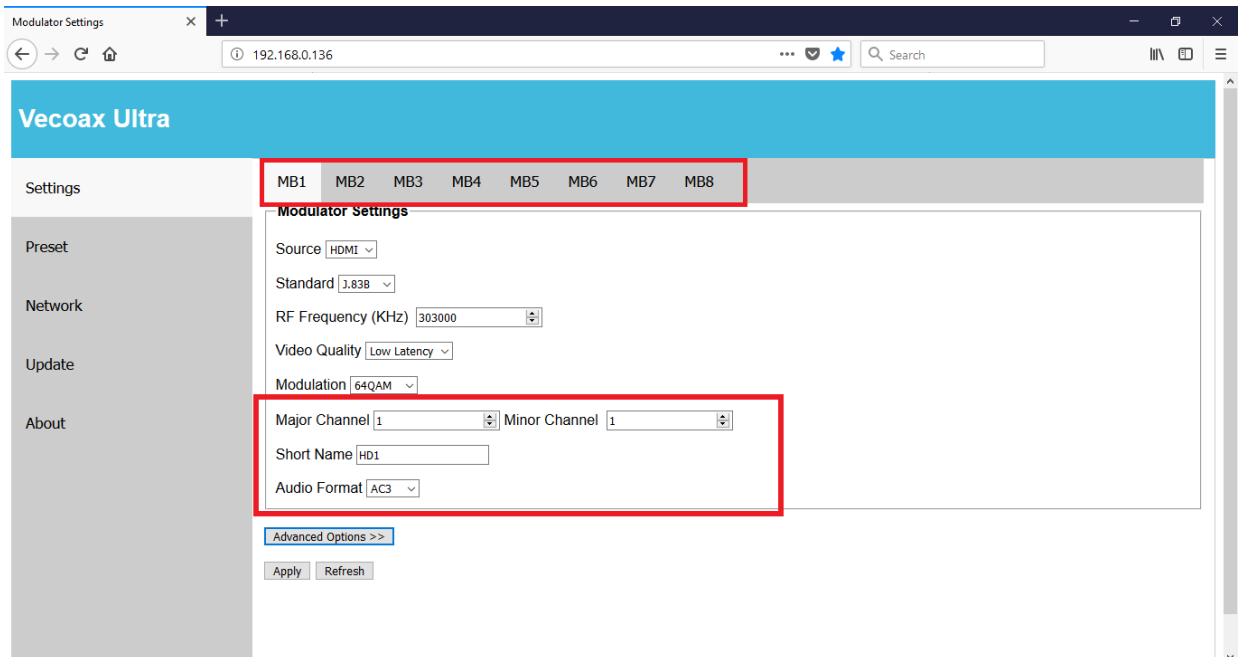
Short Name: Name of the channel (e.g. ESPN, DVD, FOX, etc).

Audio Format: Change the audio format of the channel. AC3 is recommended for USA, Canada, Mexico. Please ensure your HDMI source is set to Stereo PCM audio

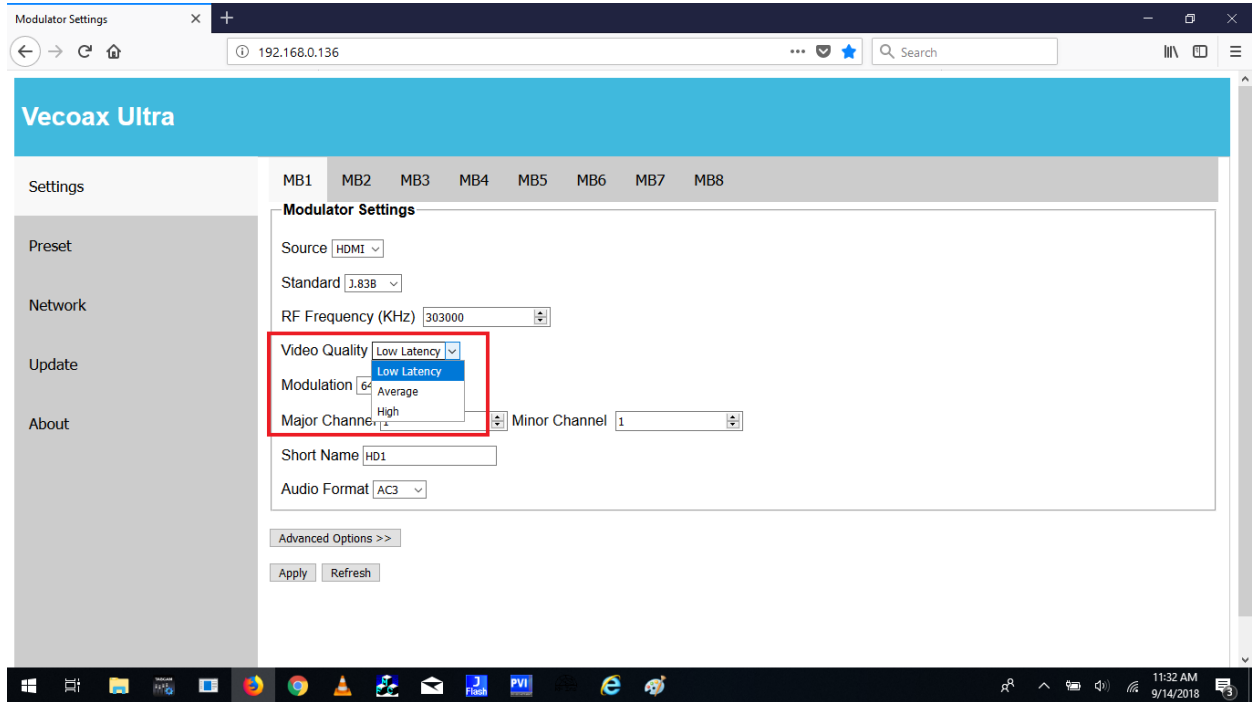
Standards Selection: You can select the RF standard format you wish to broadcast on such as ATSC, J.83B, DVB-T, DVB-C, ISDB-T, DTMB



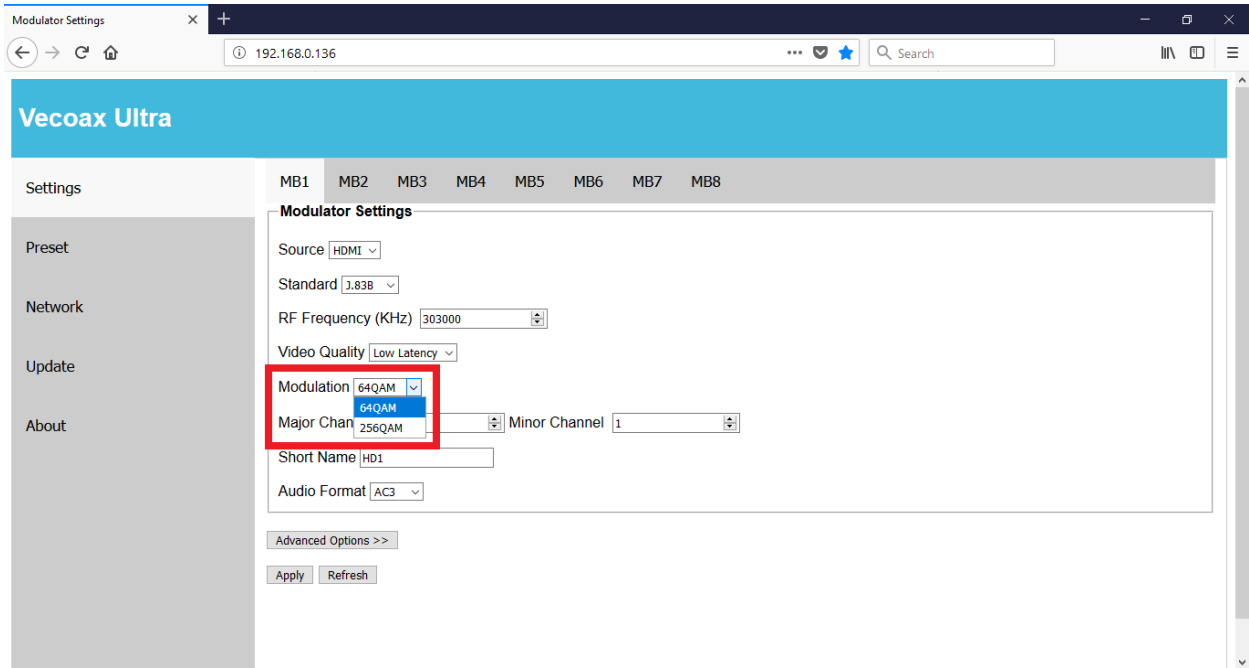
VCT Selection: Major, Minor, and Short Name can be adjusted here



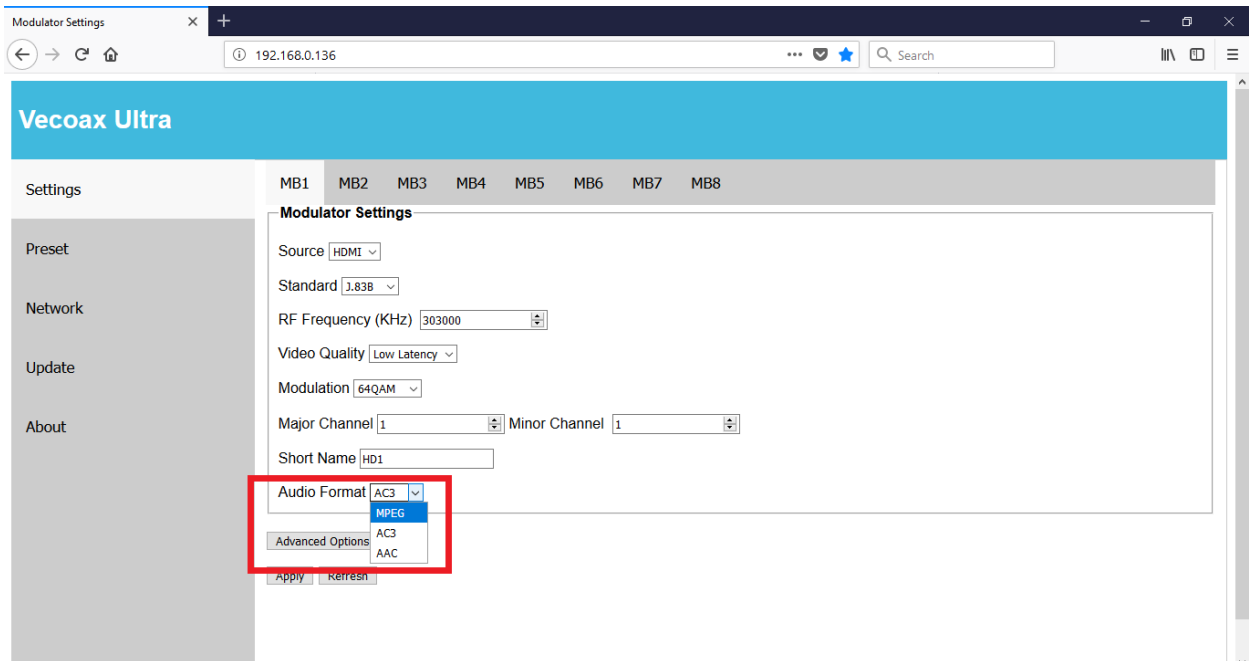
Video Quality Selection: You can select the modulation video setting here for Low delay mode or Average/High GOP framing. This setting can help with older slower TV Tuners.



Modulation Selection: Under QAM, DVB-T, etc you can change the Constellation mode here.



Audio Selection: Select between MPEG, AC3 (Dolby Digital 2 Channel) and ACC (Mpeg 4 audio)



WEB INTERFACE - ADVANCE MENU

The Advanced menu option allows adjustments of PSIP and other features of the unit.

These features include:

CVCT MODE: This option allows you to adjust the VCT broadcast mode. Sometimes TVs prefer a certain VCT mode to display the Major/Minor channel info correctly. If you run into this issue change the mode and try rescanning again.

1080P Conversion: If your TV Tuner is older and only supports 1080i video this will automatically downgrade any 1080P video to 1080i for compatibility. Auto is the default mode.

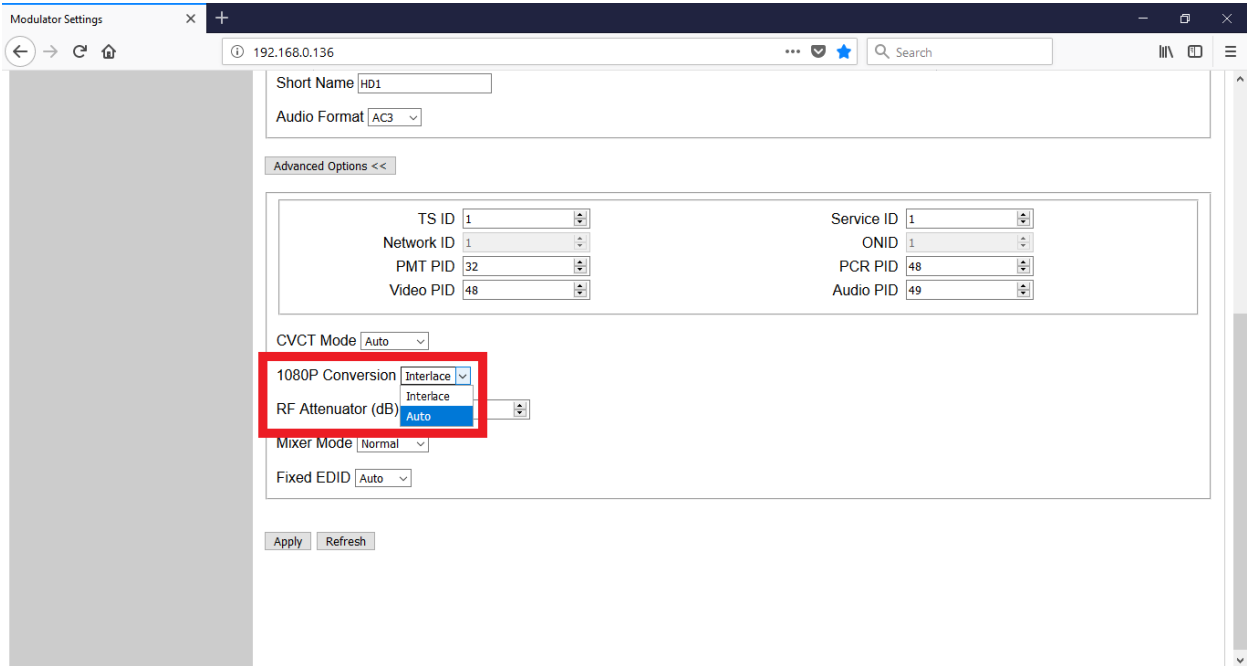
RF Attenuation: Built-in digital Attenuator to lower the RF output level. The default is 0 which is full strength.

Mixer Mode: This option will adjust the Modulation clock mode for compatibility with very old tuners that still use the ATSC 1.0 standard. If you run into issues where your older TV will not detect the signal, please try this option.

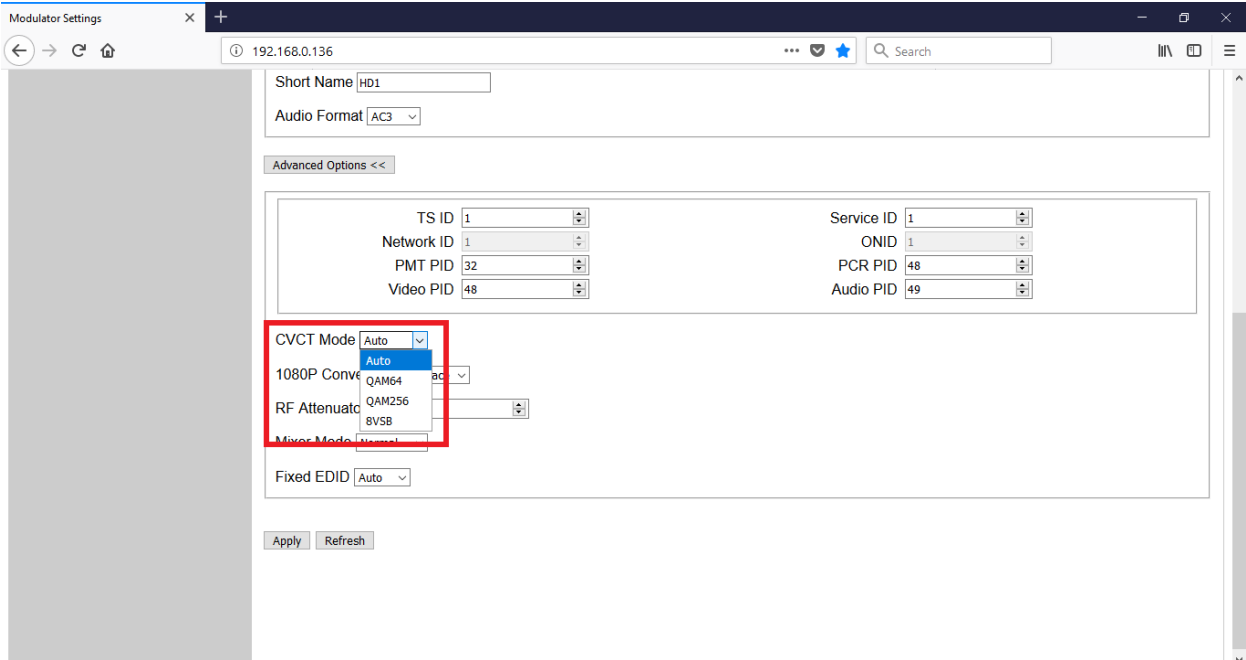
Fixed EDID: Auto is the default mode which allows any HDMI source to feed into the unit to pass its set resolution. If you have issues where your HDMI source is not being detected by the unit then set this option to the desired resolution supported by your HDMI source. 1080P, 1080i, 720P

This sends a command to the HDMI source that the only support resolution is the value set in this option. This forces the resolution to be stuck in the set value and may not change.

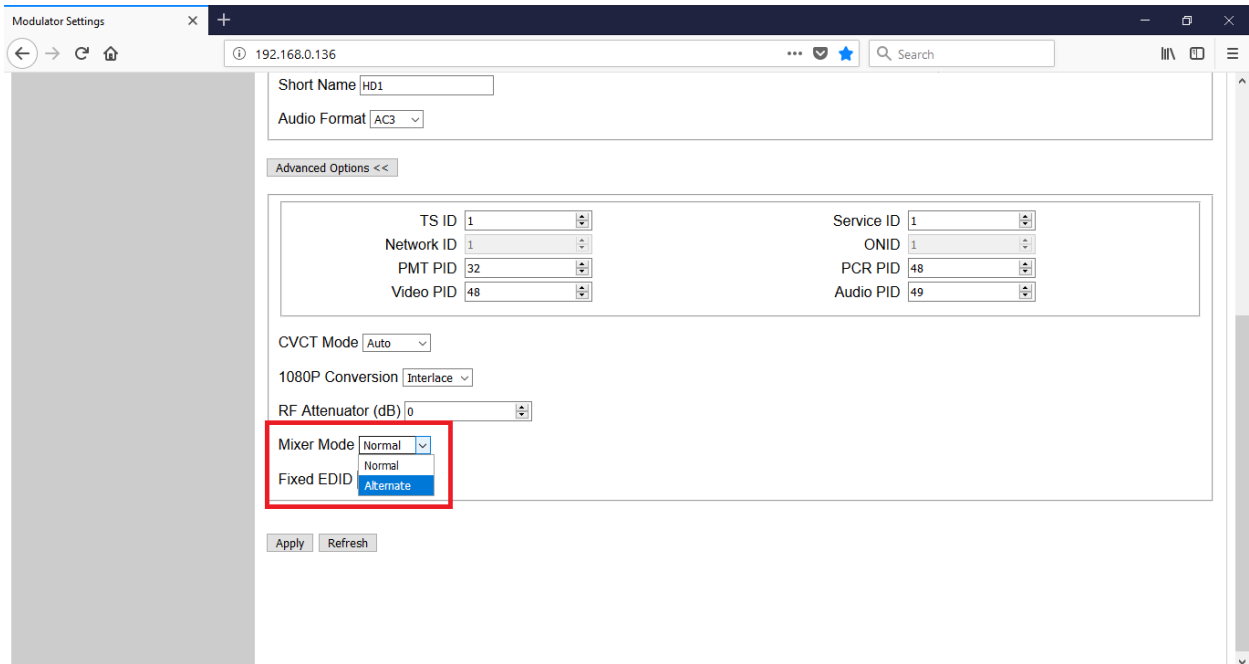
1080P Conversion Mode: Interlace will automatic downscale 1080P video to 1080I for combability between tuners that don't support 1080p Video. Auto mode will allow 1080P to pass and no downscaling will occur.



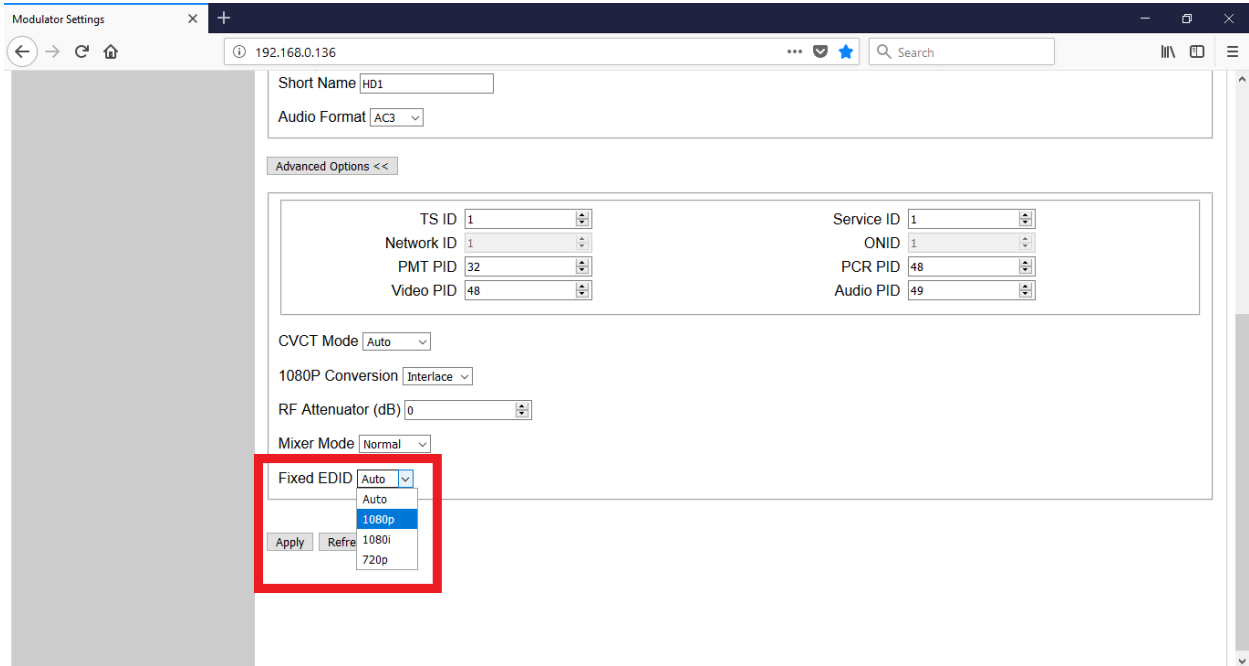
CVCT MODE: Change between the CVCT mode (Virtual Channel Table Number) for QAM J.83B mode. By default, auto works and will adjust accordingly to the Constellation mode you have set in the main settings. This setting is for the Major/Minor table version used for the TV to understand channel numbering



Mixer Mode: Used for compatibility in QAM for older TV's that still use ATSC 1.0 format. By default, we are in the max compatibility mode for all TV's. if you have issues finding the TV or the channel is found but the screen is black and only audio plays switch to Alternate mode.



FIXED EDID: Auto is the default mode which allows any HDMI source to feed into the unit to pass its set resolution. If you have issues where your HDMI source is not being detected by the unit then set this option to the desired resolution supported by your HDMI source. 1080P, 1080i, 720P

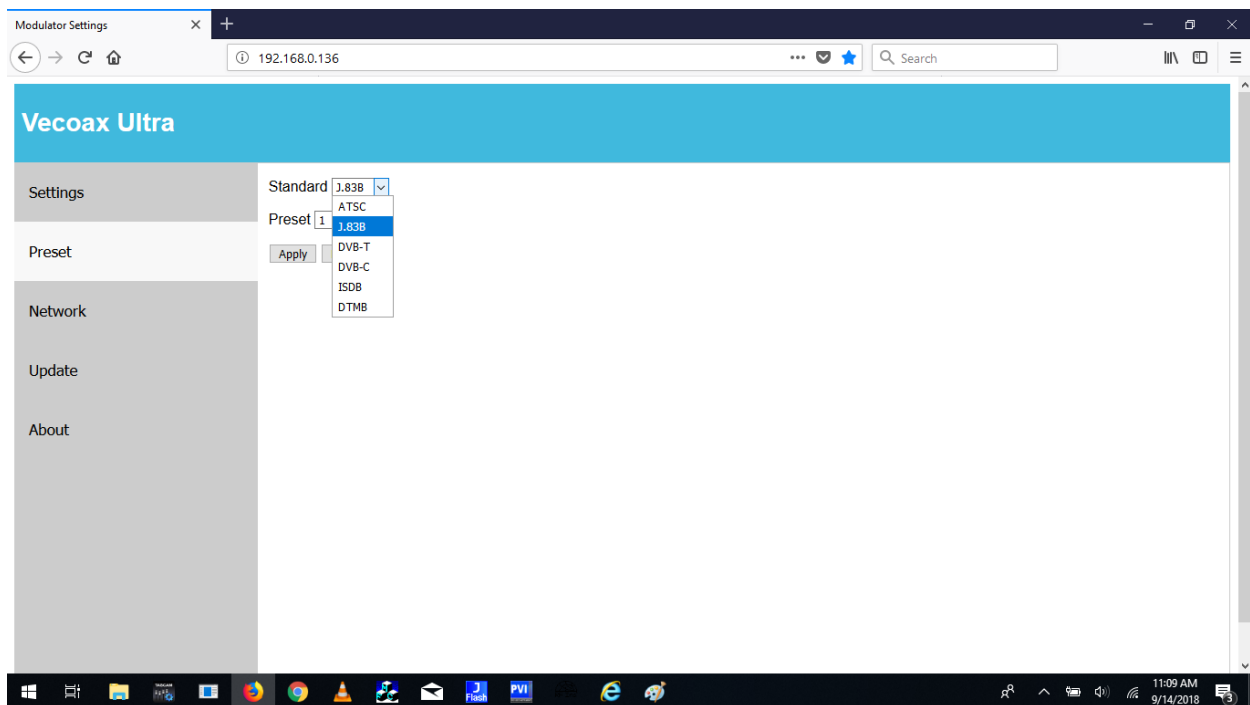


WEB INTERFACE – PRESET

To use the Preset menu, select the Standard you wish to use for all the Channels using the drop-down menu as shown below.

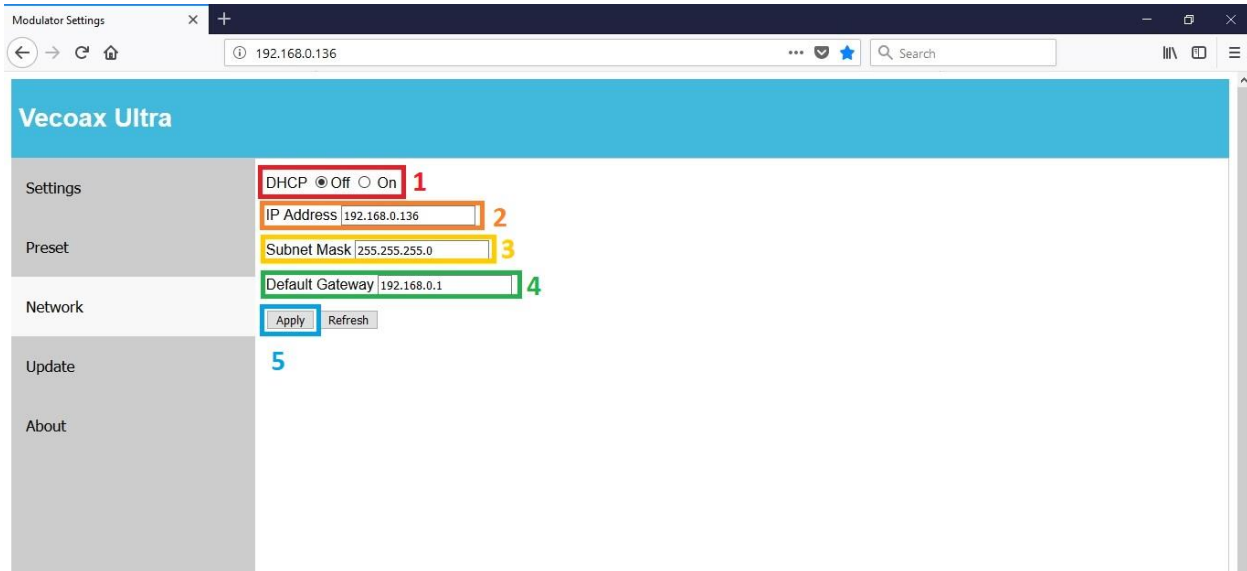
Select the preset number or Unit number you wish to assign this unit. If you have more than one unit this helps configuration becomes a breeze. For example, for Unit 1 select Preset 1, for Unit 2 select Preset 2, etc.

This will automatically name the channels in order and set the frequencies up so all you need to do is scan for digital channels and the TV will pick up all your channels.



WEB INTERFACE – NETWORK

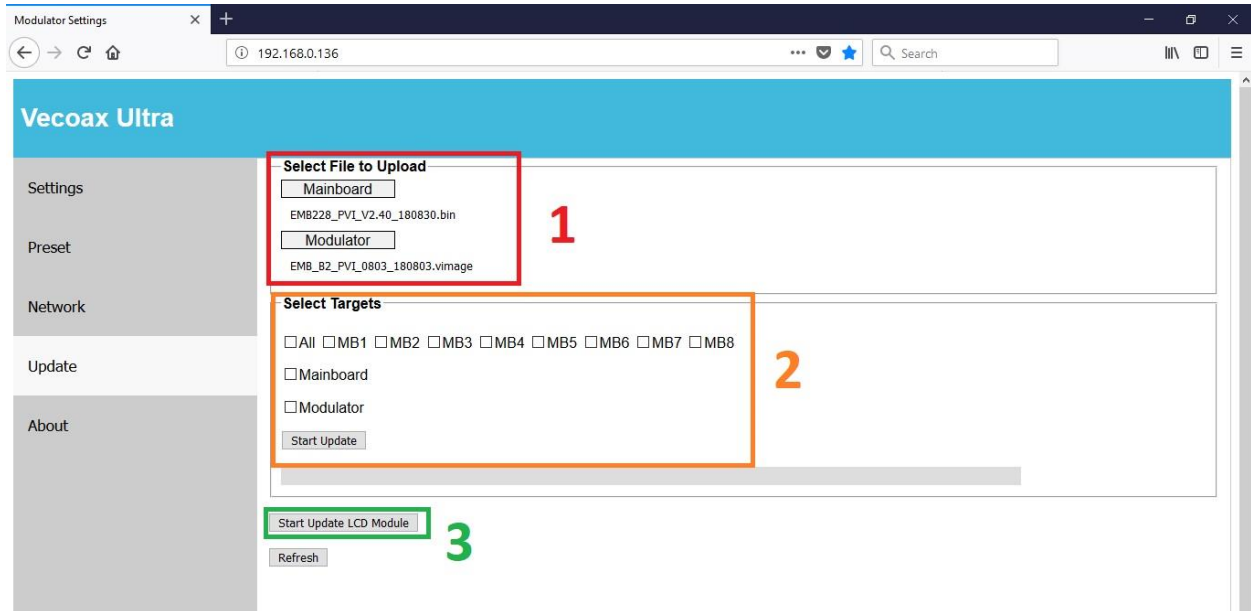
This menu will allow you to change your device’s IP Address and other network settings. Generally, you will only need to change these once, when you configure your unit.



1. **DHCP Toggle:** You can decide here whether you want your VeCOAX Ultra to operate on DHCP (On) or a Static IP (Off).
2. **IP Address:** You will likely want to change it to be within the scope of your network (Match the first 2 octets with your network’s settings) but if you are using an unmanaged network you can leave it as the default.
3. **Subnet Mask:** You may need to change this one if your network is heavily managed, or if you are going through a switch. Otherwise, the default should work fine.
4. **Gateway:** Like your IP address, you will need to configure this to match your current network settings.
5. **Apply Button:** You will need to click this to save any changes. The ‘refresh’ button next to it can be used to refresh the current page.

WEB INTERFACE – UPDATE

This menu will allow you to update your unit's firmware. If an update is required, we will provide you with the latest files, which will include a .bin and .vimage file.

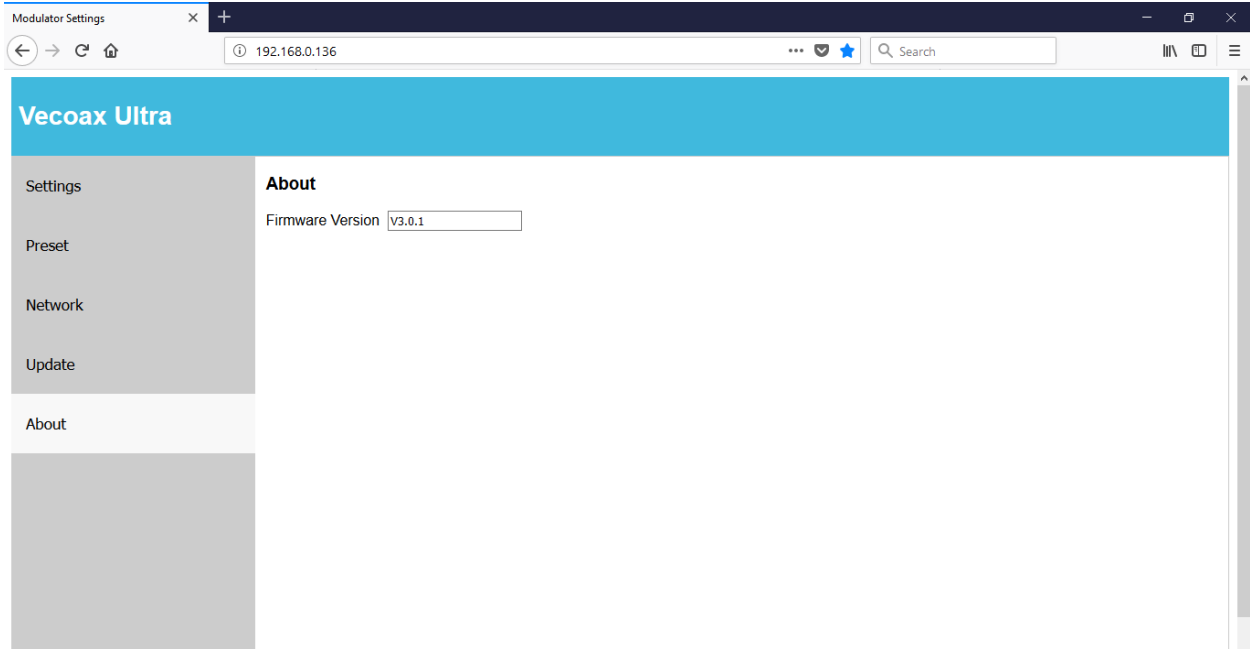


To apply an update, you will have to perform these steps in order:

1. Select the updates you wish to apply. To do this, click either 'Mainboard' or 'Modulator' and select the files we have distributed to you. Once they have been selected, verify that the filename below the selection button is correct.
2. Select which update you would like to apply, as well as which boards you would like to update. For a modulator update, you will only need to select the MODULATOR option. For a mainboard update, you will need to select the MAINBOARD option, as well as the inputs you have on your device. For example, on an Ultra-4 Channel device, you would only need to select MB1-MB4, as well as the MAINBOARD option. Once you are ready to apply the update, select START UPDATE, and wait for the process to finish.
3. Apply the LCD Update. This is a separate .bin file that will allow you to update the LCD display on your device. Unlike the prior updates, you do not need to select a target to apply this update.

WEB INTERFACE – ABOUT

This shows you your mainboard firmware version. This is useful when you are trying to troubleshoot the unit and determine whether there is a firmware upgrade available.



TROUBLESHOOTING AND F.A.Q.

NOT RECEIVING SIGNAL TO MY TV

Please check your settings of the unit and ensure the correct standard is set. Check all your connections and scan for the standard you have set on the unit. Example QAM – Scan for Digital Cable on your TV

I plugged my unit up and it's not working? – Please follow our Quick Guide for setting up the unit. Double check your connections as well. Ensure the Signal is not too Strong for your TV tuner.

“ON-AIR” LED IS BLINKING

Check the HDMI source Resolution and please ensure you have a FIXED resolution set. Please refer to your HDMI source Owner's Manual on setting a Fixed Resolution and not auto. The unit sees your video but cannot accept the resolution to encode it for coax usage your TV tuner can understand.

UNIT WON'T POWER ON?

Check your included power adapter. Ensure that you have a solid connection and the DC jack is screwed on correctly.

I SEE THE TEST PATTERN, BUT NO VIDEO IS PLAYING

Check your HDMI connection. Check the HDMI source Resolution and please ensure you have a FIXED resolution set. Please refer to your HDMI source Owner's Manual on setting a Fixed Resolution and not auto. Test with a different video source such as a DVD player or Fire TV stick.

I HAVE 2+ UNITS HOW DO I SET THEM UP TO WORK TOGETHER?

Please refer to our “Installing Multiple Units,” guide above or use the Preset Menu

WHAT ARE THE BEST SETTINGS FOR THE BEST QUALITY VIDEO?

Depending on your Region will determine your settings that need to be set. The unit already outputs a great quality video.

For best performance in USA/Canada, we recommend using QAM (J.83B) when available as this will give you the highest bitrate possible as well as using MOD - QAM256 set on your unit which will increase the bandwidth of the signal allowing more information to flow.

Set your HDMI source to 1080p

Set your Unit to 1080P Mode -> Advanced options -> 1080P Conversion -> Auto

This will allow the 1080P signal to pass. If your TV tuner does not support 1080P through the tuner you will not receive any signal or video. If this happens, switch it back to “Interlacing.”

Depending on if you care about the low latency mode or not you can change the Vid Quality to “HIGH.” A very slight change in image quality will happen as well as an increase in delay between menus GUI’s due to the information handling sent to your TV. Please refer to Vid Quality settings in the manual above for more information.

MY PICTURE LOOKS GREAT UNTIL THERE IS FAST MOTION

This could be an “interlacing,” issue with 1080i mode. This happens a lot with sports. Some TV’s don’t like Interlacing through the tuner causing “Ghosting.” Change your HDMI source to 1080P (progressive) or 720P as well as on the unit 1080P Mode -> Advanced options -> 1080P Conversion -> Auto

This will allow the 1080P signal to pass. If your TV tuner does not support 1080P through the tuner you will not receive any signal or video. If this happens, switch it back to “Interlacing,” and use 720P

Try changing the VID QUALITY settings as well to help with slower Tuners or if using QAM (J.83B) switch your MOD from QAM64 to QAM256 if supported by your TV.

HOW DO I MIX MY UNIT WITH OTHER DIGITAL SIGNALS?

Please refer to the “MIXING SIGNALS WITH OTHERS,” in our manual above

MY VIDEO IS STRETCHED OUT ON THE TV

Our unit has a passive HDMI meaning it only encodes what the video is being sent to the unit. It does not change the color or Aspect ratio of the video to your TV. Please check your HDMI source or TV aspect Settings.

HOW DO I REPLACE AN OLD MODULATOR WITH THIS ONE?

Depending on how your old modulator was set up will determine how you will set your new unit up. Please refer to your settings of the modulator you are replacing and copy the settings as best as possible such as Frequencies, Channel Number, Name, etc. Please refer to the “CUSTOMIZATION SETTINGS,” above.

I AM LOSING OTHER CHANNELS IN MY COAX NETWORK WHEN I TURN ON THE PVI UNIT

Check to ensure you are not broadcasting on the same frequency as other signals. Please refer to our, “MIXING SIGNALS WITH OTHERS,” guide above. It could be that our unit is oversaturating the other signals as well because of the strength of the signal. Try lowering the RF level under the “ADVANCED MENU.” Using attenuators works as well or amplification of the other signal such as antenna signal coming in before combining it in your coax network.

WHAT ARE ALL THE STANDARDS ON THE UNIT AND WHAT DO THEY MEAN?

Each region in the world uses its own Standard that they have adopted. You can check the standards that are used in your area online. You can refer to each Standard and how to set your unit to these standards above.

USA TV CABLE = J83B mode

USA TV AIR = ATSC mode

EU/CO/NZ/AU = DVBT

LATIN AMERICA = ISDB

CHINA = DTMB

EU = DVB-C

I AM FEEDING A 1080P SIGNAL BUT MY TV SAYS ITS 1080I

Set your Unit to 1080P Mode -> Advanced options -> 1080P Conversion -> Auto

This will allow the 1080P signal to pass. If your TV tuner does not support 1080P through the tuner you will not receive any signal or video. If this happens, switch it back to "Interlacing."

TECH SUPPORT – CONTACT US

Before contacting us, please read this manual carefully, as it covers ALL and EVERY aspect to set this product as per your needs, using pictures and examples.

Should you need any additional support, to submit a support ticket, please go to www.pvisupport.com and click "Submit a Ticket". Our support staff will address your questions very quickly right after you post the ticket.

We strongly suggest that you open a ticket first before calling, so we can best support you. **If PC remote access is required, please open a ticket FIRST to schedule a remote session.**

Our tech support department is active MON-FRI 9:30 AM – 5 PM US EST TIME. Tickets posted outside of this time window or on weekends and holidays are responded to ASAP the following business day.

Free phone tech support is available by calling +1 407 720 6101 ext #2, MON-FRI 9:30 AM – 5 PM US EST TIME.

CHANNEL FREQUENCY APPENDICES

USA J83B CABLE CHANNELS APPENDIX

NORTH AMERICAN DIGITAL QAM CABLE TELEVISION CHANNELS / FREQUENCIES

SUGGESTED DEFAULT = 783000kHz (783 MHz) = frequency channel 122

6 MHz Apart

Note: this is just the frequency the VeCOAX will use on the coax cable spectrum

IT IS NOT the memory position number on the TV

You can set ANY memory position number on the TV by setting the Major/Minor Number as you prefer. EXAMPLE 1.1 so it will go to button number 1 on the TV remote

Channel Number	QAM / CDSREF Carrier (MHz)
Subband "T" Channels	6 MHz Apart
Lowband	
2	57.00
3	63.00
4	69.00
1	75.00
5	79.00 or 81.00
6	85.00 or 87.00
Midband	
95	93.00

96	99.00
97	105.00
98	111.00
99	117.00
Midband	
14	123.00
15	129.00
16	135.00
17	141.00
18	147.00
19	153.00
20	159.00
21	165.00
22	171.00
Highband	
7	177.00
8	183.00
9	189.00

10	195.00
11	201.00
12	207.00
13	213.00
Superband	
23	219.00
24	225.00
25	231.00
26	237.00
27	243.00
28	249.00
29	255.00
30	261.00
31	267.00
32	273.00
33	279.00
34	285.00
35	291.00

36	297.00
Hyperband	
37	303.00
38	309.00
39	315.00
40	321.00
41	327.00
42	333.00
43	339.00
44	345.00
45	351.00
46	357.00
47	363.00
48	369.00
49	375.00
50	381.00
51	387.00
52	393.00

53	399.00
54	405.00
55	411.00
56	417.00
57	423.00
58	429.00
59	435.00
60	441.00
61	447.00
62	453.00
63	459.00
64	465.00
Ultraband	
65	471.00
66	477.00
67	483.00
68	489.00
69	495.00

70	501.00
71	507.00
72	513.00
73	519.00
74	525.00
75	531.00
76	537.00
77	543.00
78	549.00
79	555.00
80	561.00
81	567.00
82	573.00
83	579.00
84	585.00
85	591.00
86	597.00
87	603.00

88	609.00
89	615.00
90	621.00
91	627.00
92	633.00
93	639.00
94	645.00
Jumboband	
100	651.00
101	657.00
102	663.00
103	669.00
104	675.00
105	681.00
106	687.00
107	693.00
108	699.00
109	705.00

110	711.00
111	717.00
112	723.00
113	729.00
114	735.00
115	741.00
116	747.00
117	753.00
118	759.00
119	765.00
120	771.00
121	777.00
122	783.00
123	789.00
124	795.00
125	801.00
126	807.00
127	813.00

128	819.00
129	825.00
130	831.00
131	837.00
132	843.00
133	849.00
134	855.00
135	861.00
136	867.00
137	873.00
138	879.00
139	885.00
140	891.00
141	897.00
142	903.00
143	909.00
144	915.00
145	921.00

146	927.00
147	933.00
148	939.00
149	945.00
150	951.00
151	957.00
152	963.00
153	969.00
154	975.00
155	981.00
156	987.00
157	993.00
158	999.00

USA ATSC AIR CHANNELS APPENDIX

NORTH AMERICAN DIGITAL ATSC OFF AIR TELEVISION CHANNELS / FREQUENCIES

SUGGESTED DEFAULT = 473000kHz (473 MHz) = frequency channel 14

6 MHz Apart

Note: this is just the frequency the VeCOAX will use on the coax cable

IT IS NOT the memory position number on the TV

You can set ANY memory position number on the TV by setting the Major/Minor Number as you prefer. EXAMPLE 1.1 so it will go to button number 1 on the TV remote

(frequencies in MHz)

6 MHz Apart

Channel	ATSC FREQUENCY
2	57
3	63
4	69
5	79
6	85

VHF high-band (band III)

Channel	ATSC FREQUENCY
7	177
8	183
9	189
10	195
11	201
12	207

13	213
UHF band	
Channel	ATSC FREQUENCY
14	473
15	479
16	485
17	491
18	497
19	503
20	509
21	515
22	521
23	527
24	533
25	539
26	545
27	551
28	557
29	563
30	569
31	575
32	581
33	587
34	593
35	599

36	605
37	611
38	617
39	623
40	629
41	635
42	641
43	647
44	653
45	659
46	665
47	671
48	677
49	683
50	689
51	692
Channel	ATSC FREQUENCY
52	701
53	707
54	713
55	719
56	725
57	731
58	737
59	743

60	749
61	755
62	761
63	767
64	773
65	779
66	785
67	791
68	797
69	803
Channel	ATSC FREQUENCY
70	809
71	815
72	821
73	827
74	833
75	839
76	845
77	851
78	857
79	863
80	869
81	875
82	881
83	887

LATIN AMERICA ISDBT CHANNELS APPENDIX

SUGGESTED DEFAULT = 473142kHz (473.142 MHz) = freq channel 14

(frequencies in kHz) 6 MHz Apart	
Channel	ISDBT FREQUENCY
14	473142
15	479142
16	485142
17	491142
18	497142
19	503142
20	509142
21	515142
22	521142
23	527142
24	533142
25	539142
26	545142
27	551142
28	557142
29	563142
30	569142
31	575142
32	581142

33	587142
34	593142
35	599142
36	605142
37	***NOT USED***
38	617142
39	623142
40	629142
41	635142
42	641142
43	647142
44	653142
45	659142
46	665142
47	671142
48	677142
49	683142
50	689142
51	695142
52	701142
53	707142
54	713142
55	719142
56	725142
57	731142

58	737142
59	743142
60	749142
61	755142
62	761142
63	767142
64	773142
65	779142
66	785142
67	791142
68	797142
69	803142

DVB-T CHANNELS APPENDIX

Please download the DVB-T additional PDF for your country available on our Tech Support Website – pvisupport.com

EUROPE/NEW ZEALAND = 8 MHz band

AUSTRALIA = 7 MHz Band

COLOMBIA = 6 MHz Band

END