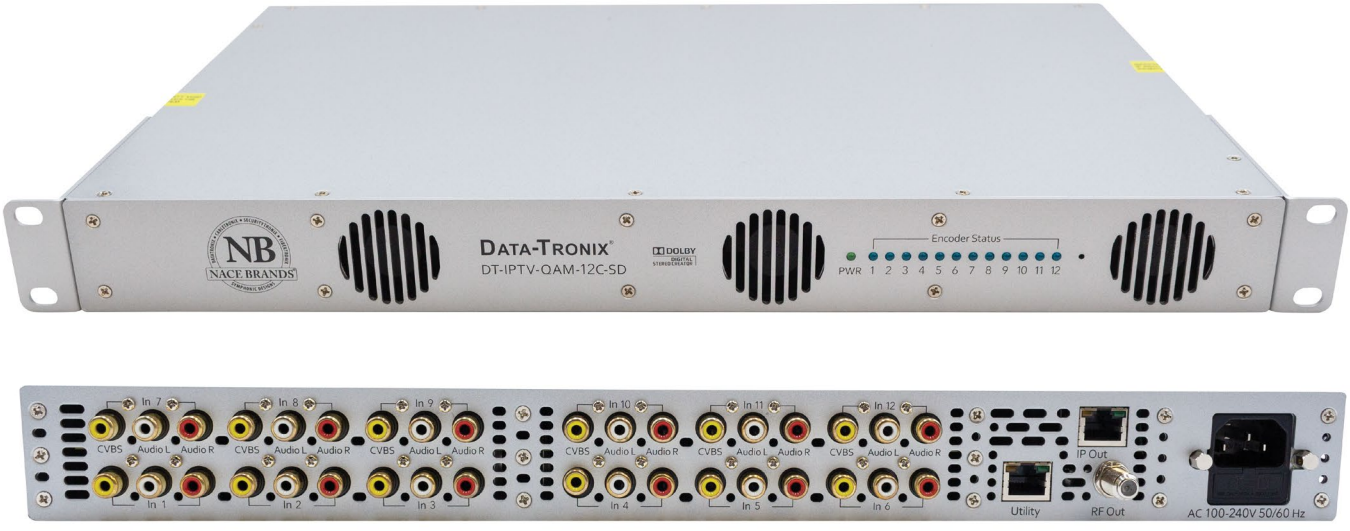
DATA-TRONIX®

USER GUIDE & INSTALLATION MANUAL

DT-IPTV-QAM-12C-SD

12-Input DVB-C ANNEX B SD Encoder / Modulator



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Safety Precautions

The presence of this symbol is to alert the installer and user to the presence of uninsulated dangerous voltages within the product's enclosure that may be of sufficient magnitude to produce a risk of electric shock.

TO REDUCE THE RISK OF FIRE OR ELECTRIC SHOCK, DO NOT EXPOSE THIS DEVICE TO RAIN OR MOISTURE. DO NOT OPEN THE UNIT. REFER SERVICING TO QUALIFIED PERSONNEL ONLY.

- DO NOT apply power to the unit until all connections have been made, all components have been installed and all wiring has been properly terminated.
- DO NOT terminate, change or uninstall any wiring without first disconnecting the unit's power adapter from the device.
- This device is supplied with the appropriately rated power supply. The use of any other power supply could cause damage and invalidate the manufacturer's warranty.
- DO NOT connect the power cord to the device if the power cord is damaged.
- DO NOT cut the power cord.
- DO NOT plug the power cord into an AC outlet until all cables and connections to the device have been properly connected.
- The device should be installed in an environment consistent with its operating temperature specifications. Placement next to heating devices and ducts is to be avoided as doing so may cause damage. The device should not be placed in areas of high humidity.
- DO NOT cover any of the device's ventilation openings.
- DO NOT cover or obstruct the device's fan or fan openings.
- If the device has been in a cold environment allow it to warm to room temperature for at least 2 hours before connecting to an AC outlet.

Package Contents

This package contains:

- DT-IPTV-QAM-12C-SD Encoder / Modulator
- One power cable
- One User Guide and installation manual (An eManual will be supplied)

Inspect the package before starting installation to ensure there is no damage and all supplied contents are present.

Product Description

The DT-IPTV-QAM-12C-SD Encoder/Modulator provides a dynamic independent DVB-C Annex B QAM output along with 12 IP streams making it ideal for any commercial RF system. The DT-IPTV-QAM-12C-SD Encoder/Modulator is a feature rich Digital Encoding platform allowing it to be deployed in a variety of installations. This space saving design delivers up to 12 Standard Quality SD QAM channels in a single 1RU space.

Features

- 4 Frequency Independent QAM outputs (3 video programs per QAM-Typical*)
- 3 VCN (Virtual Channel Number) modes
- GUI for easy setup and control
- MPEG-2 or H.264 (AVC) Video (selectable) output
- 40dB typical MER
- Closed captioning support
- +43 (+/- 1) dBmV RF output
- Rack mountable 1RU height

***Based on program Mbps requirements**

SPECIFICATION

Video / Audio Input	
Composite	
Numbers of Connector	RCA x 12 Sets
Audio	Analog (L & R) x 12 Sets
Video/ Audio Encoding Profile	
Video	
Video Codecs	MPEG-2 CBR / H.264 CBR
Bitrate(Adjustable)	SD: 1.0 to 8.0Mbps
Resolution Output	576i / 480i
Audio	
Audio Codecs	MPEG1 Layer II/ MPEG2 AAC/ MPEG4 AAC /AC-3 Encode
Closed Caption	
Composite	EIA-608
General	
Local Monitoring	13 LEDs
Web GUI Supported	Firefox, Chrome
Password Protected	GUI: With Default and User Settable
Power Supply	12VDC 5.42A
Consumption	32W
Operation Temperature	32°F to +131°C 0°C to +55°C
Storage Temperature	-4°F to +158°F -20°C to +70°C
Dimension	Housing: L x W x H 17.24" x 11.25" x 1.74" 438mm x 286mm x 44.4mm
Weight	9.7 lbs
Language	English

Output	
QAM	
Numbers of Connector	1x “F” Female
QAM	4 Independent QAM-B
Standard	J.83 Annex B
RF Mode	Normal/Inverted
Channel Type	J.83B: STD/HRC/IRC
Interleaver	I=128, J=1~8/I=64, J=2/I=32, J=4/I=16, J=8 / I=8, J=16
Frequency Range (Under STD Mode)	57.000 MHz to 861.000MHz (Ch. 2 to Ch.135)
Constellation (Output Bitrate, Max)	64-QAM (26.970Mbps)/ 256-QAM (38.810Mbps)
Virtual Channel Number (VCN)	Auto (Major & Minor)/ Manual (Major & Minor)/ Manual (One Part)
Level Adjustment	0 to 20 dB
Output Level	43 dBmV Typical
Flatness Across Full Band	± 2 dB Typical
MER	40 dB Typical @ 663.0000 MHz under J.83 Annex B STD Mode
Output Impedance	75 ohm
RF Output Return Loss	10 dB Typical
IP Streaming Protocol	
Numbers of Stream	12 SPTS
UDP/RTP	Unicast / Multicast
Standard	Web Management 100Base-T Ethernet , Full Duplex IP Streaming Output 1000Base-T Ethernet, Full Duplex

*Subject to change without notifications
*Manufactured under License of Dolby Laboratories

Device Programming and Setup

Installation

System Installer must adhere to Article 820-40 of the NEC that provides guidelines for proper grounding and specifies that the cable ground shall be connected to the grounding system of the building, as close to the point of cable entry as possible.

Unpacking and Inspection

Each unit is shipped factory tested. Ensure all items are removed from the container prior to discarding any packing material.

Thoroughly inspect the unit for shipping damage with particular attention to connectors and controls. If there is any sign of damage to the unit or damaged or loose connectors contact your distributor immediately. Do not put the equipment into service if there is any indication of defect or damage.

Hardware Installations and Connections

It is highly recommended that quality cables and connectors be used for all video and audio source connections.

1. The unit is designed to be rack mounted in a standard EIA19" rack.
2. The unit comes standard with CVBS inputs. Repeat this step for each video source connection required.

   Be sure the connections for each source are consistent with the unit's inputs (IN1…IN12).
3. When connecting to an IP network use an IGMP capable and enabled switch. (It is highly recommended an IT professional who is familiar with IGMP switches assists in setting up the IGMP Switch).
4. Use a quality 75Ω coaxial cable with "F" connectors from the unit's **RF OUT jack** to the **distribution system** (combiner or reverse splitter) or directly to a television.
5. Connect the included power cord to the unit's **POWER** plug.
6. Connect the power cord to an appropriately rated AC power outlet.

Connecting to the GUI Interface

Factory Default IP: 192.168.1.9

1. Connect an Ethernet cable directly (**no Cross Over cable required**) to the Web Management Port on the rear panel of the encoder or connect the Ethernet cable to an Ethernet switch. Connect an Ethernet Cable to your PC/Laptop.

2. Modify your PC/Laptop IP address to 192.168.1.11.

3. Enter '192.168.1.9' into your web browser.

4. Enter GUI and make required device changes.

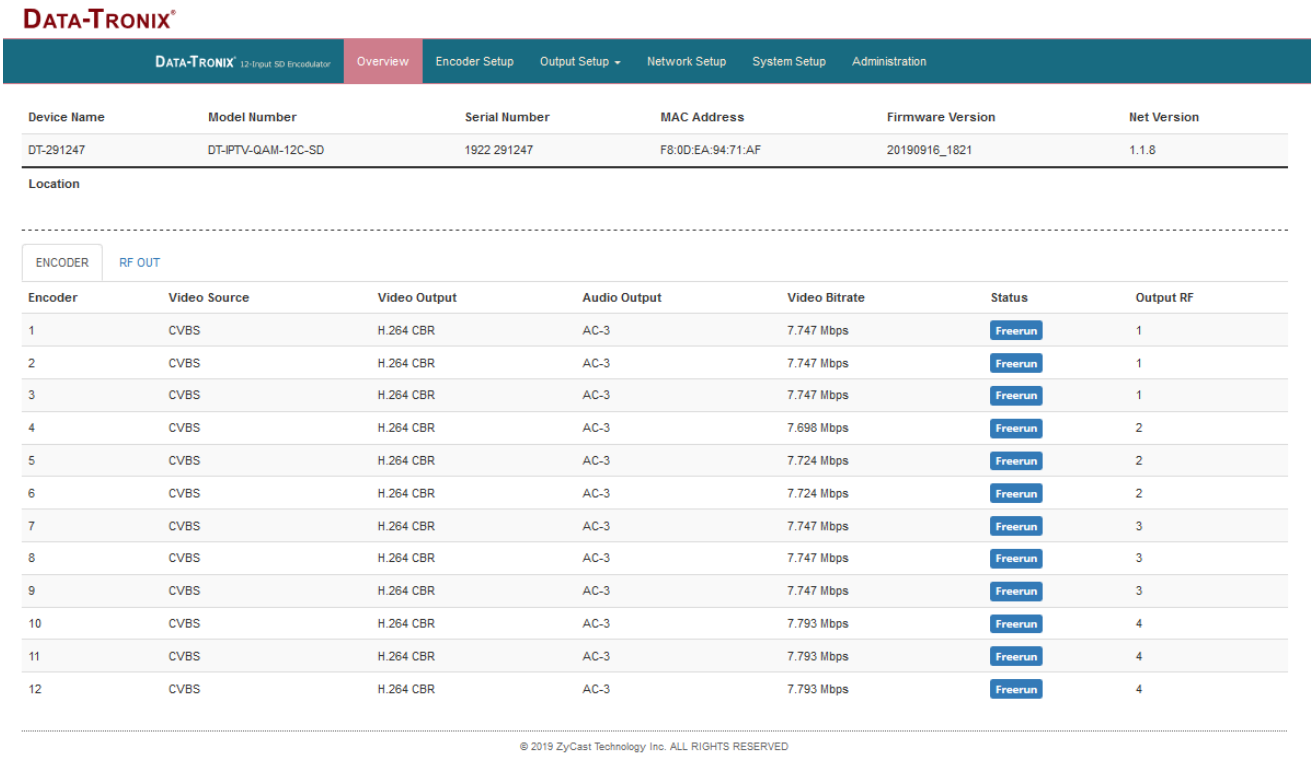
5. Save all changes as required, upload and reboot changes.

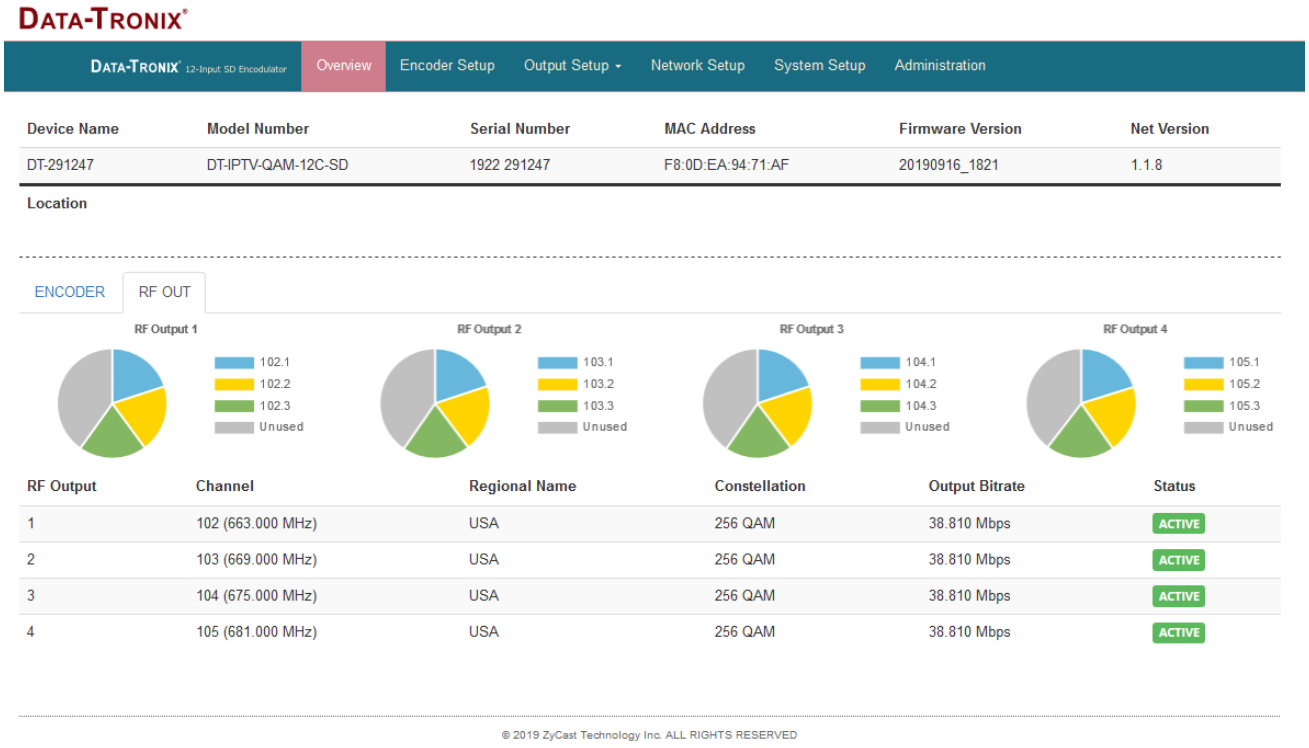
6. Verify parameters then end web session.

Overview

After connecting the device to the “Utility” port located on the rear of the device and connecting to a PC / Laptop.

Enter Device's IP address in web browser to access the Overview Pages (Encoder Overview and RF Out Overview)





The Overview page of DT-IPTV-QAM-12C-SD shows inputs 1-12 system status including: Video Source parameter, Video Output setting, Audio Output, Bitrate, and more.

The Overview page provides a quick snapshot of the DT-IPTV-QAM-12C-SD when fully functioning.

System Parsing / Response Time:

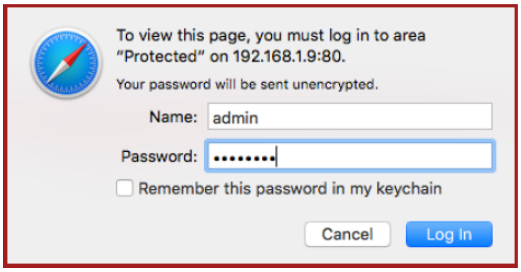
The initial System Parsing time will vary as the system identifies and populates the required parameters.
As the user navigates the device's menu note that a small delay may occur in populating the data on the screen as the system is constantly performing system parsing and system house-keeping functions.

Encoder Programming and Setup via GUI Interface:

Select the Encoder Setup Tab; you will then be prompted to enter the user name and password for device.

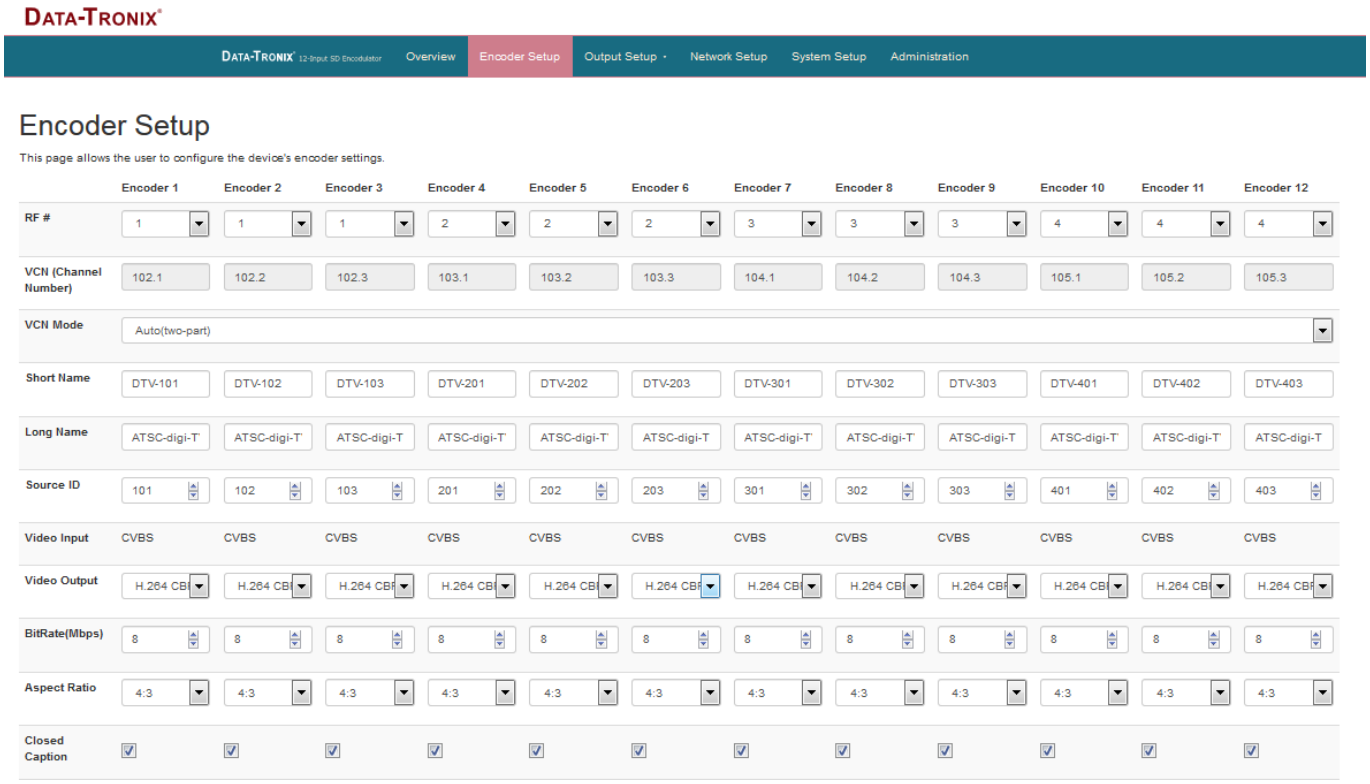
GUI Login Password:

Default User Name: **admin**
Default Password: **Admin123**



Note: To change the Password for the GUI go to the Administration Tab.

Encoder Setup



Encoder Setup Page of DT-IPTV-QAM-12C-SD

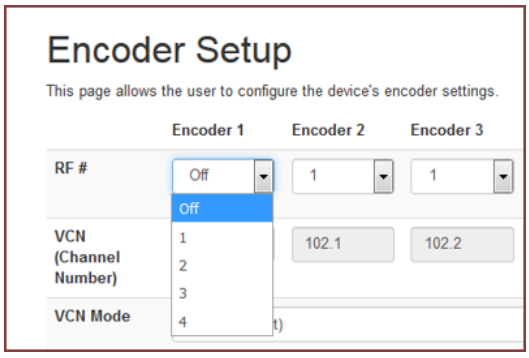
Encoder Setup page allows the integrator to select and set the parameters needed for each stream.

After setting all the required parameters-
Select "**Save and Confirm**" to save all changed parameters.
Select "Submit" in the pop-up "Apply Changes" window.

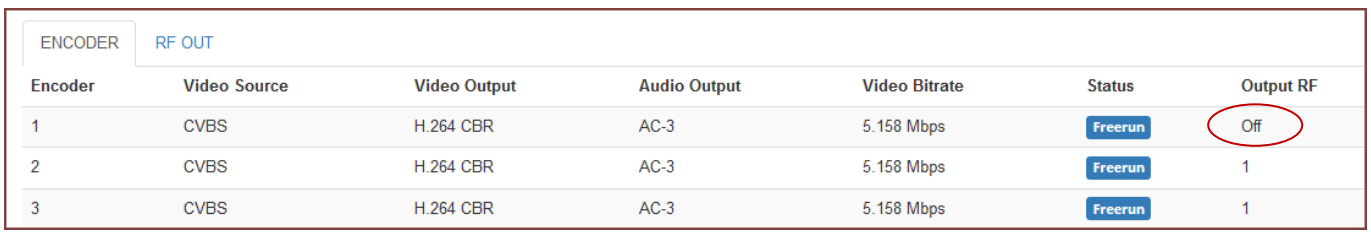
Note: Enable/Disable of the Encoder will show on Overview ENCODER page.

Example: Disable of Encoder 1

Select Encoder 1 RF# "Off", press Save and Confirm, then Apply the Changes.

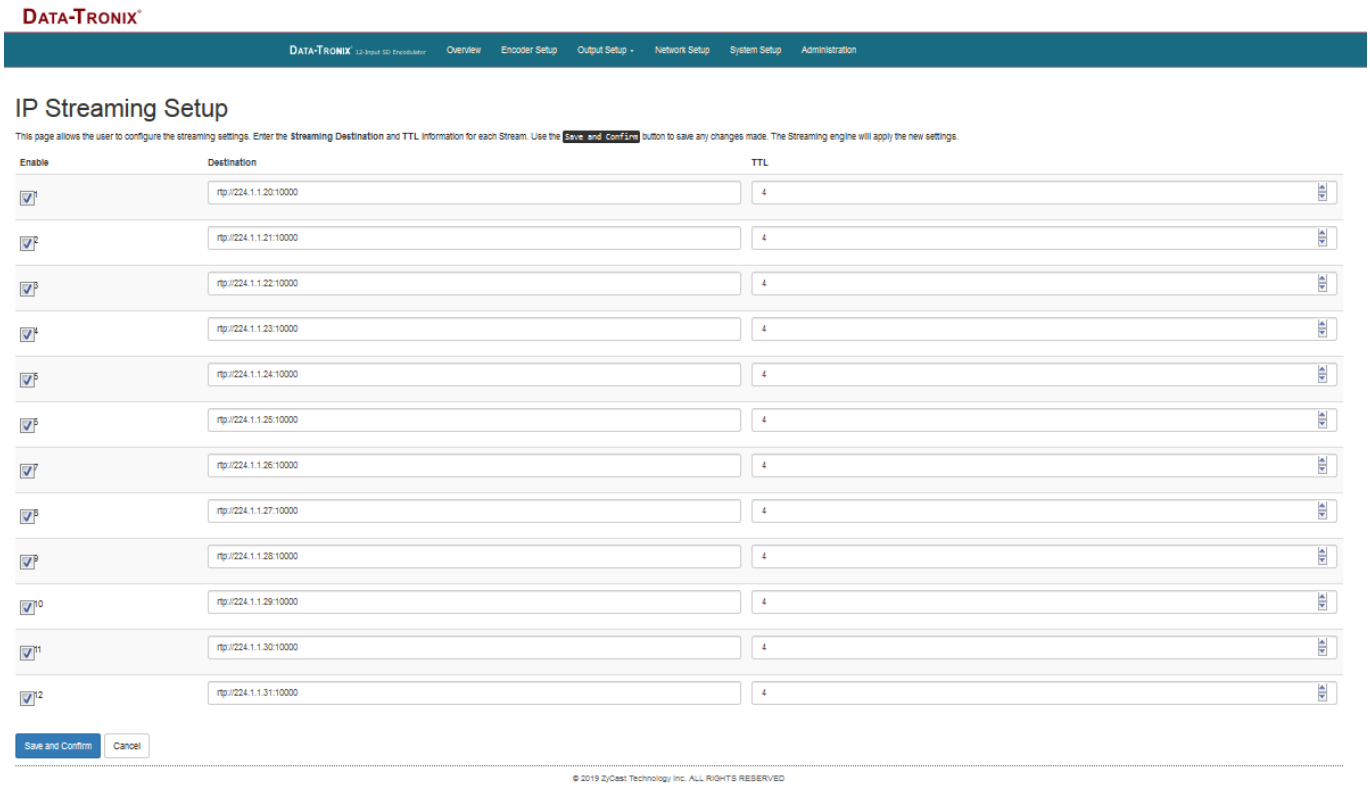


The overview page of the the ENCODER will show Output RF - Encoder 1 Off as the following image for your reference.



Output Setup

IP Streaming Setup



Enable IP Streams

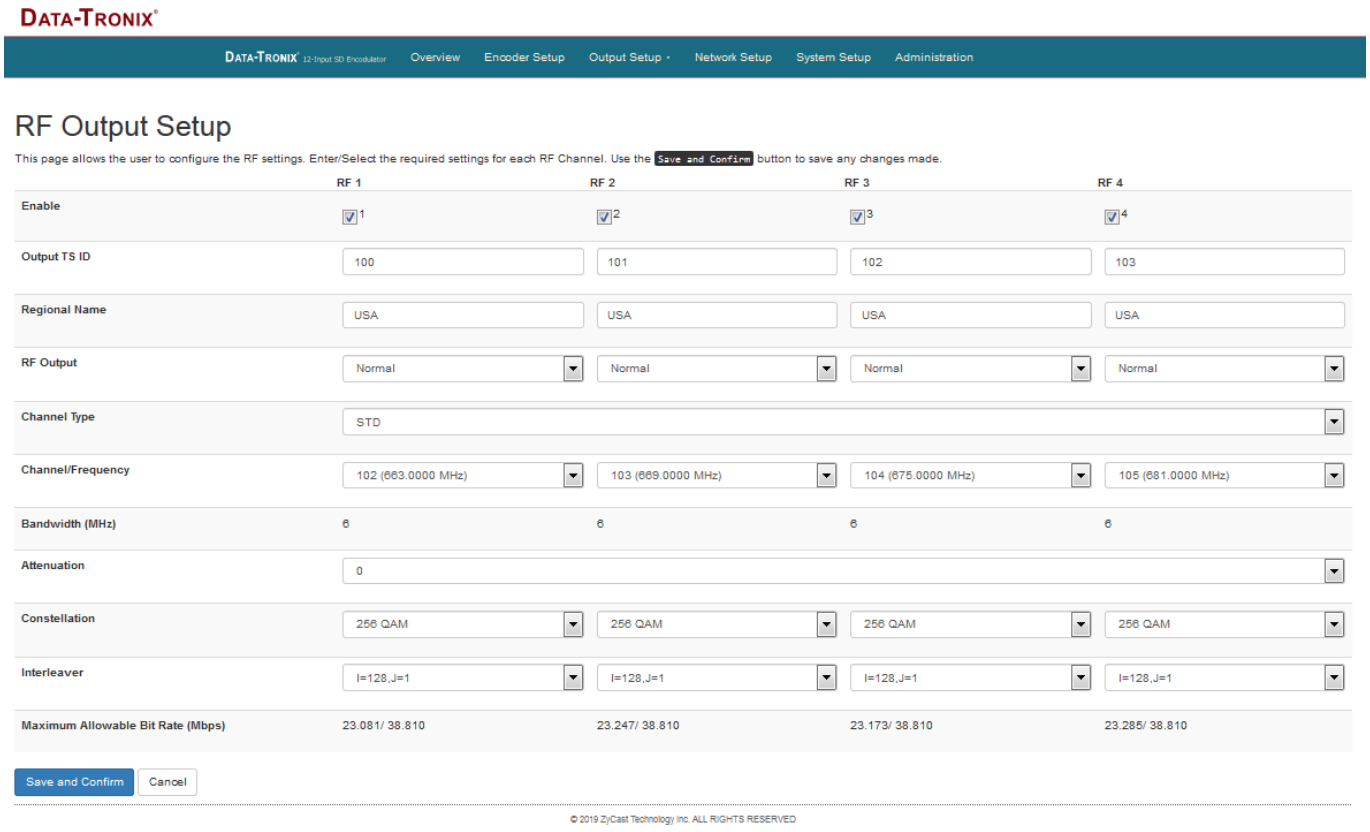
1. **Enable** the Stream by selecting the check box 1-12.
2. **Enter** the stream Destination IP [example: udp://224.1.1.20:10000].
3. **Set** the TTL value.
4. **Select** 'Save and Confirm' once all the streams are setup.

Disable IP Streams

The DT-IPTV-QAM-12C-SD offers the user a SPTS output stream. Each Stream can be disabled as required.

To disable an IP Stream "**uncheck"** the checkbox in front of the appropriate IP Stream ID (1-12).

RF Output Setup



Use the RF Output Setup Page to setup each RF Output.

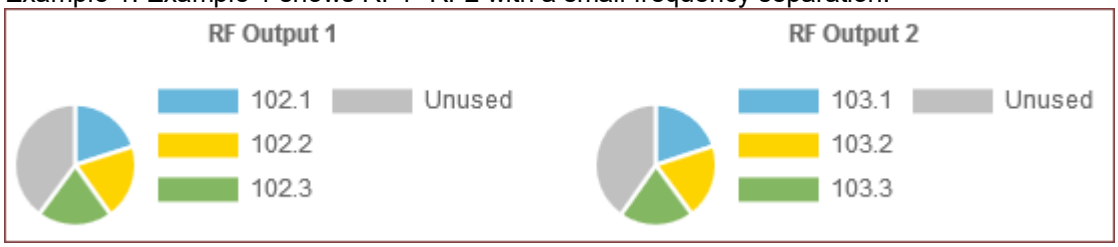
The DT-IPTV-QAM-12C-SD offers the integrator the ability to set the output channel independently of the other output channels of the DT-IPTV-QAM-12C-SD Encoder. This professional parameter allows the integrator greater flexibility for placing video streams within the system. Each RF/QAM (3 streams per RF by default) can be allocated independently.

RF Output Setup

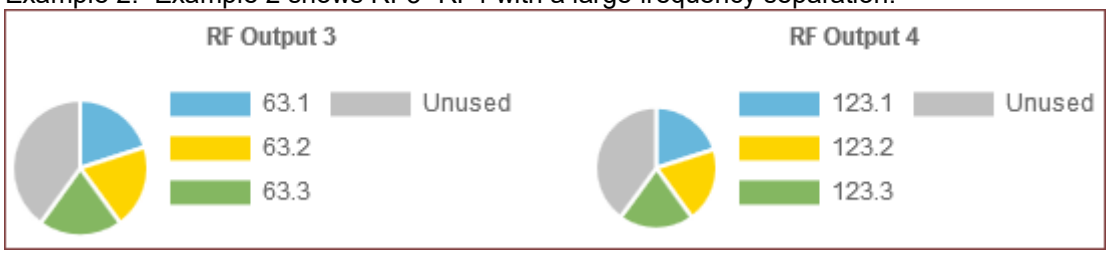
1. **Select** RF Output Setup from the menu.
2. **Enable/Disable** RF1-RF4 by checking or unchecking Checkbox (as required).
3. **Modify** the RF Output TS ID (as required).
4. **Select and Set** RF Type.
5. **Select and Set** Channel Type.
6. **Select and Set** Channel/Frequency required.
7. **Select and Set** Attenuation (if required).
8. **Select and Set** required Constellation.
9. **Modify** Interleaver (if required).
10. **Save and Confirm** all changes made.

Note: The DT-IPTV-QAM-12C-SD allows the integrator the ability to set the output channels independently of the other 11 output channels.

Example 1: Example 1 shows RF1- RF2 with a small frequency separation.



Example 2: Example 2 shows RF3- RF4 with a large frequency separation.



RF Output	Channel	Regional Name	Constellation	Output Bitrate	Status
1	102 (663.000 MHz)	USA	256 QAM	38.810 Mbps	ACTIVE
2	103 (669.000 MHz)	USA	256 QAM	38.810 Mbps	ACTIVE
3	63 (459.000 MHz)	USA	256 QAM	38.810 Mbps	ACTIVE
4	123 (789.000 MHz)	USA	256 QAM	38.810 Mbps	ACTIVE

Note: If the RF is disabled, the frequency will not be occupied.

- If a stream is disabled, the stream will occupy the channel frequency even if not present in the RF diagram.

- Enable/Disable of the RF Output will show on the Status (ACTIVE/OFF).

Disable RF/QAM: The DT-IPTV-QAM-12C-SD offers the integrator the ability to disable a RF QAM.

To disable a RF (QAM) output, “uncheck” the checkbox associated with the RF QAM.

Application Note:

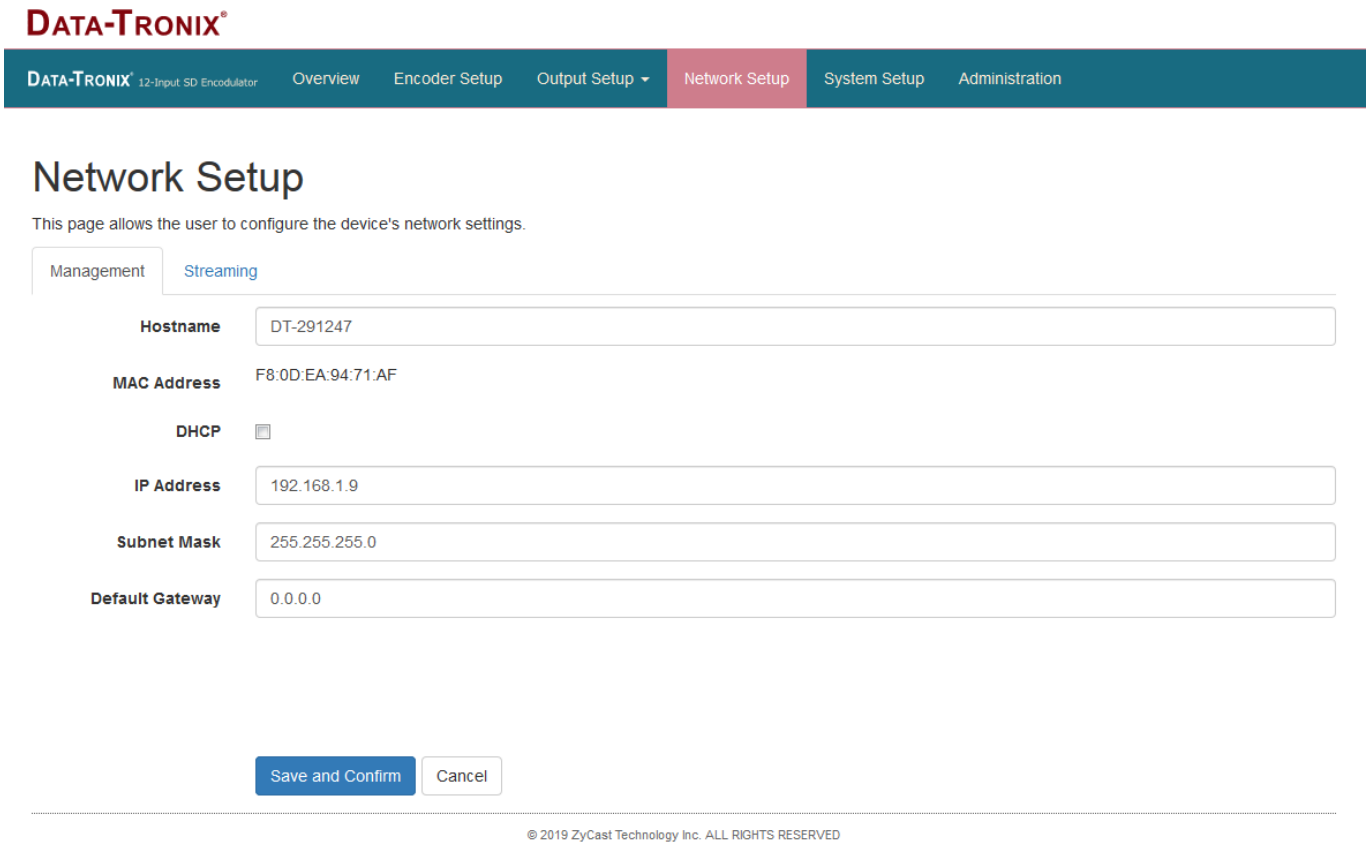
When installing, each RF Output must have a unique **RF Output TS ID.**

We highly recommend you save your encoder configuration files.

See Administration tab for how to backup device settings.

Network Setup

Management IP Setup



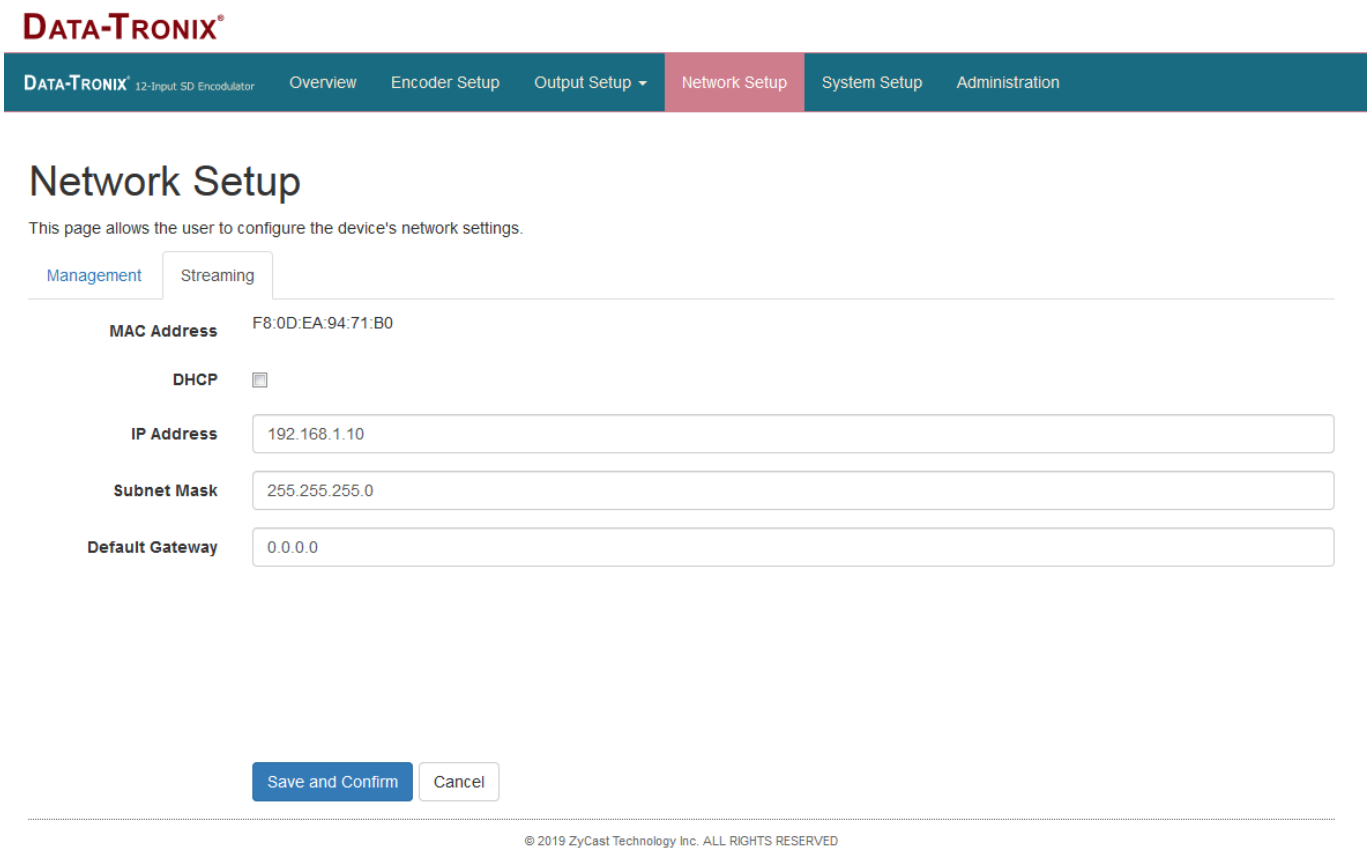
Network Setup Page of DT-IPTV-QAM-12C-SD

Use the Network Setup to configure the device's Management Port's IP address (GUI address) of the device, Subnet Mask, Gateway, Enable/Disable DHCP, and set Host Name.

Save and Confirm: Once all parameters are set remember to Save and Confirm all changes.

Factory Default Management port IP: 192.168.1.9

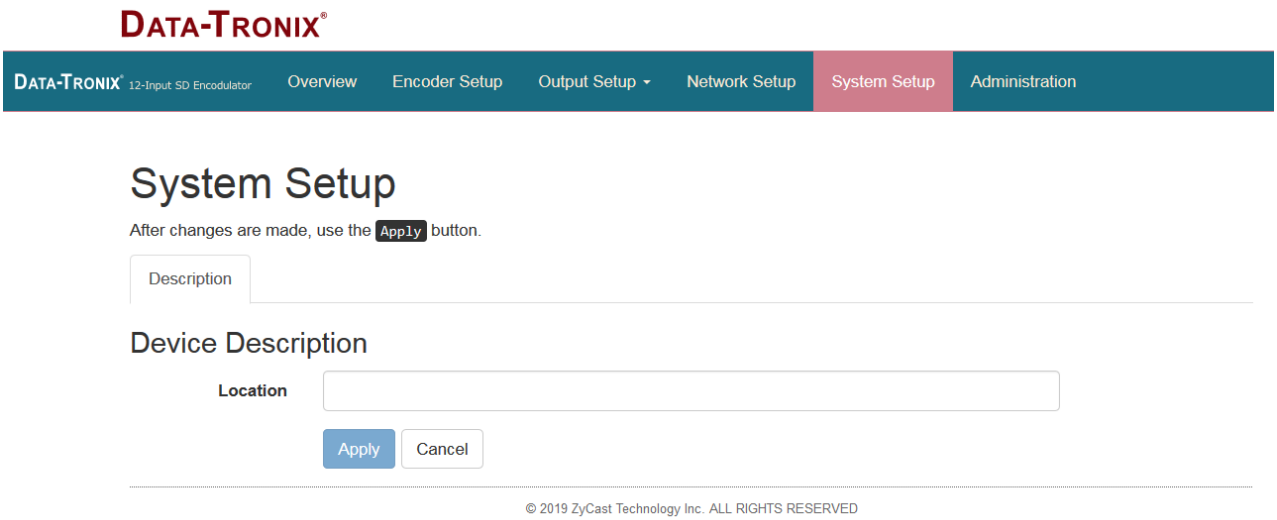
Streaming IP Setup



Use the Streaming IP tab to modify the Streaming IP port of the device as required.

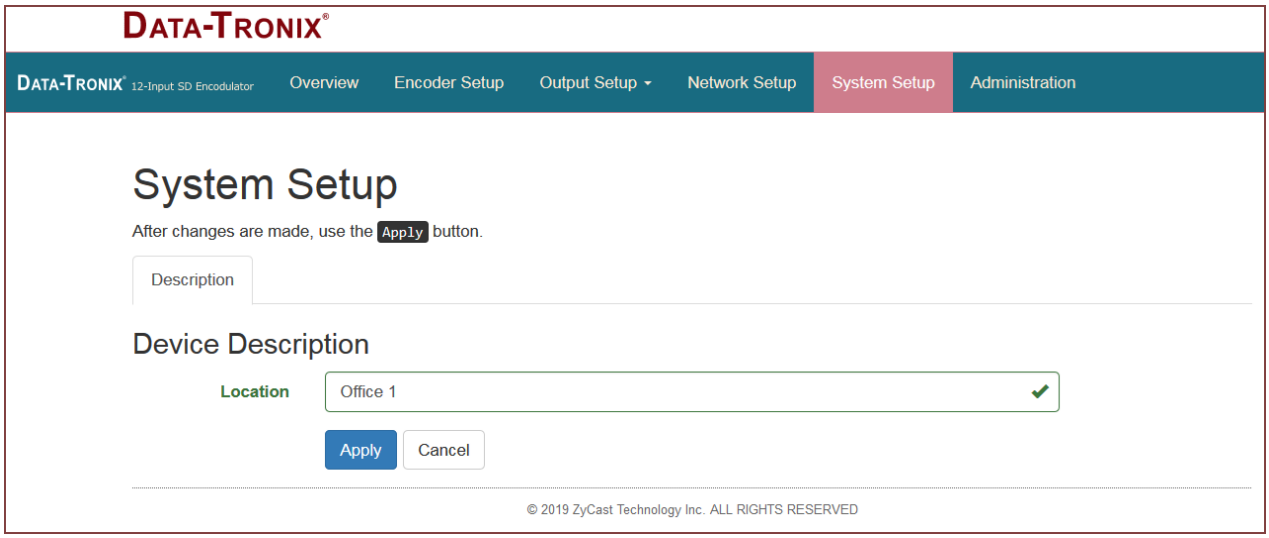
Save and Confirm: Once all parameters are set remember to Save and confirm all changes have been mad

System Setup

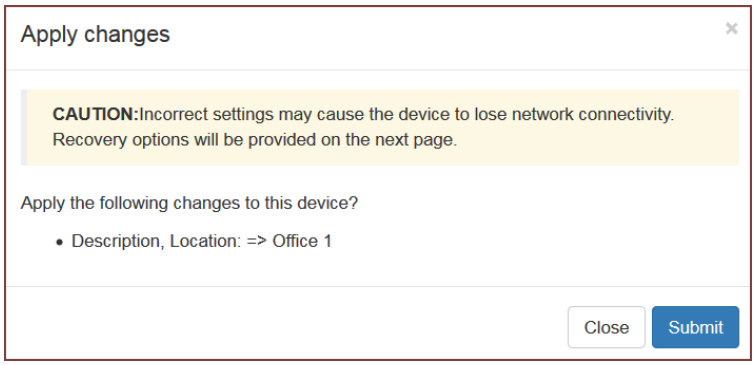


System Setup page allows the user to indicate the device's Location. After key in the desired Location and Apply the change, the Location will show up on the Overview Page.

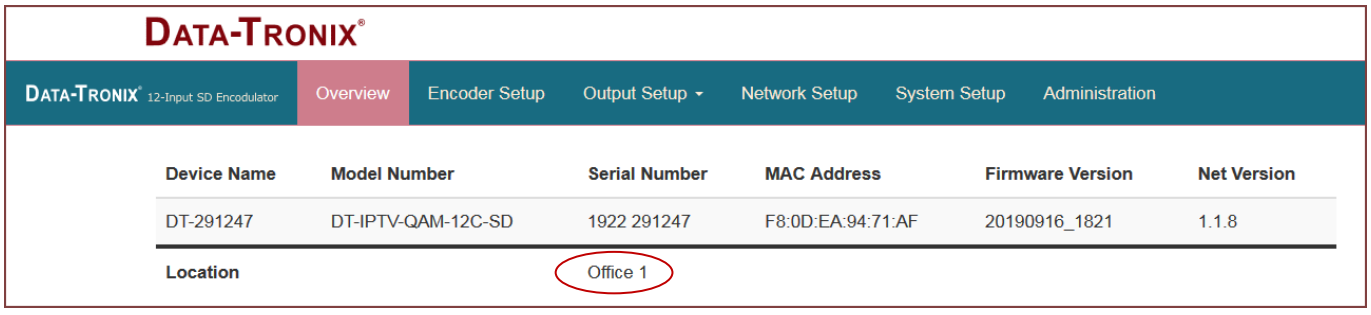
Example: The device Located in Office 1.
On the System Setup page, key in “Office 1” in the Location.



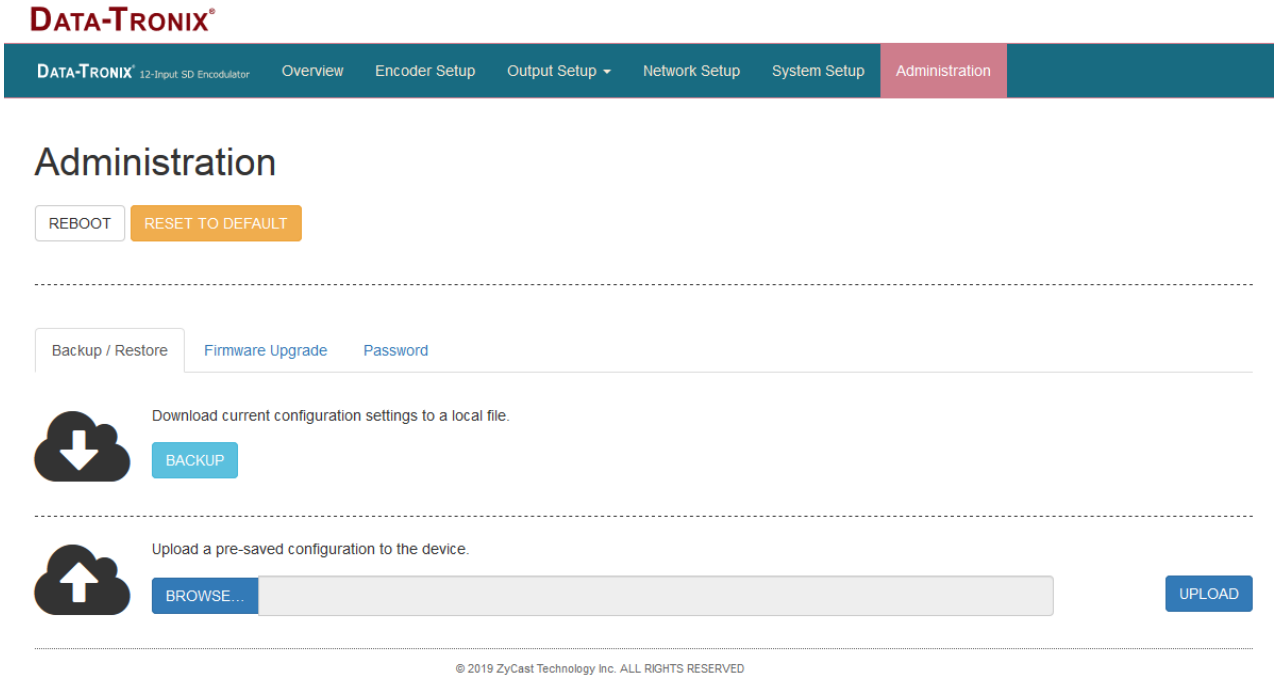
Apply the Change.



The “Office 1” Location will show up on the Overview page as follows for your reference.



Administration



Reboot

Use the Reboot command button to reboot the device.
Note: Any unsaved changes will be lost.

Reset to Default

Use the Reset to Default button to reset all parameters to original factory settings.

Saving your configuration files

We highly recommend you save your configuration files. Simply **Select** the **"Backup"** button and the config files will be saved to your computer.

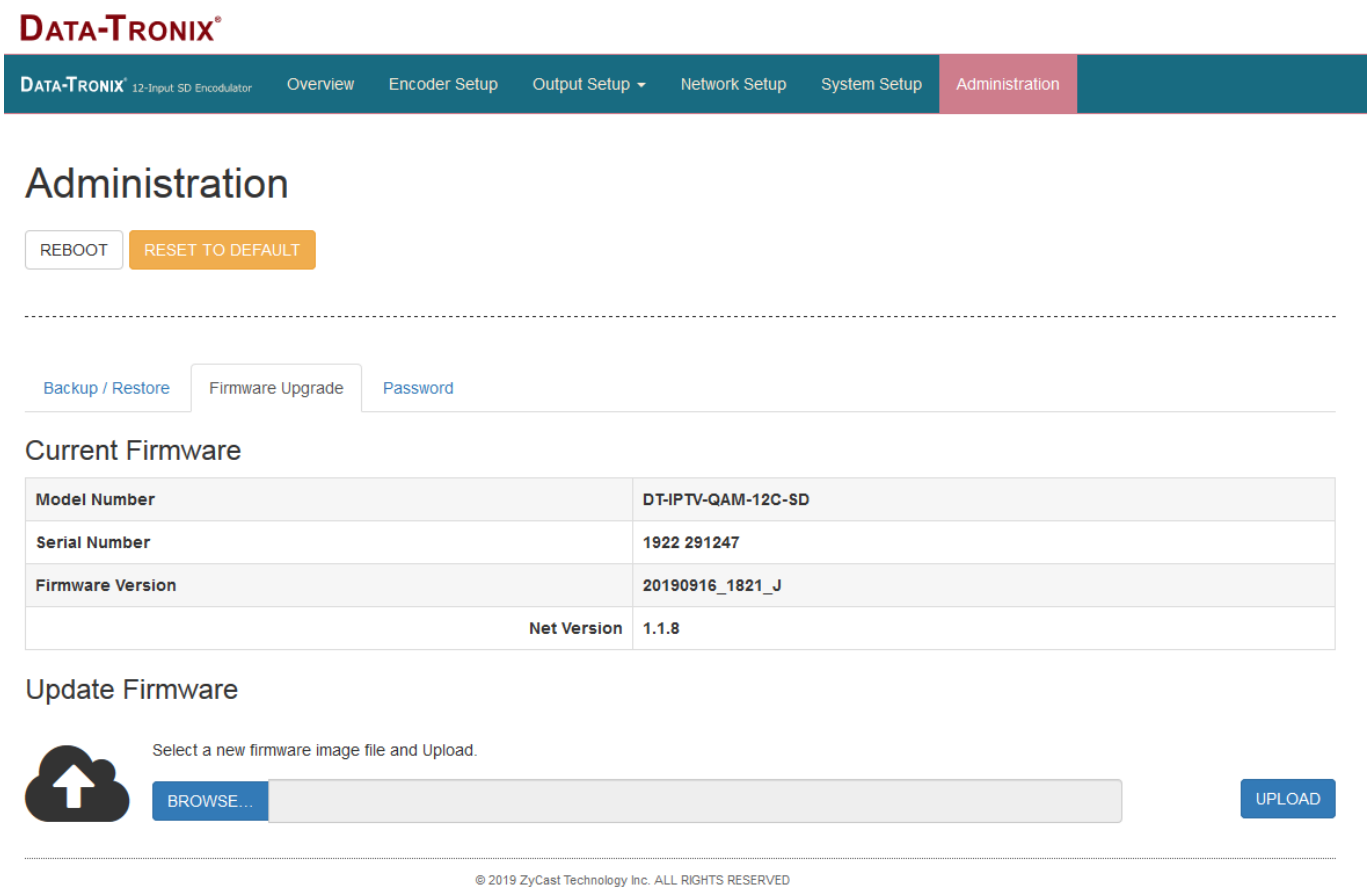
Backup

We highly recommend saving your device's setting.

1. **Select** Administration.
2. **Select** Backup from the menu.
3. **Locate and name** file for future use.

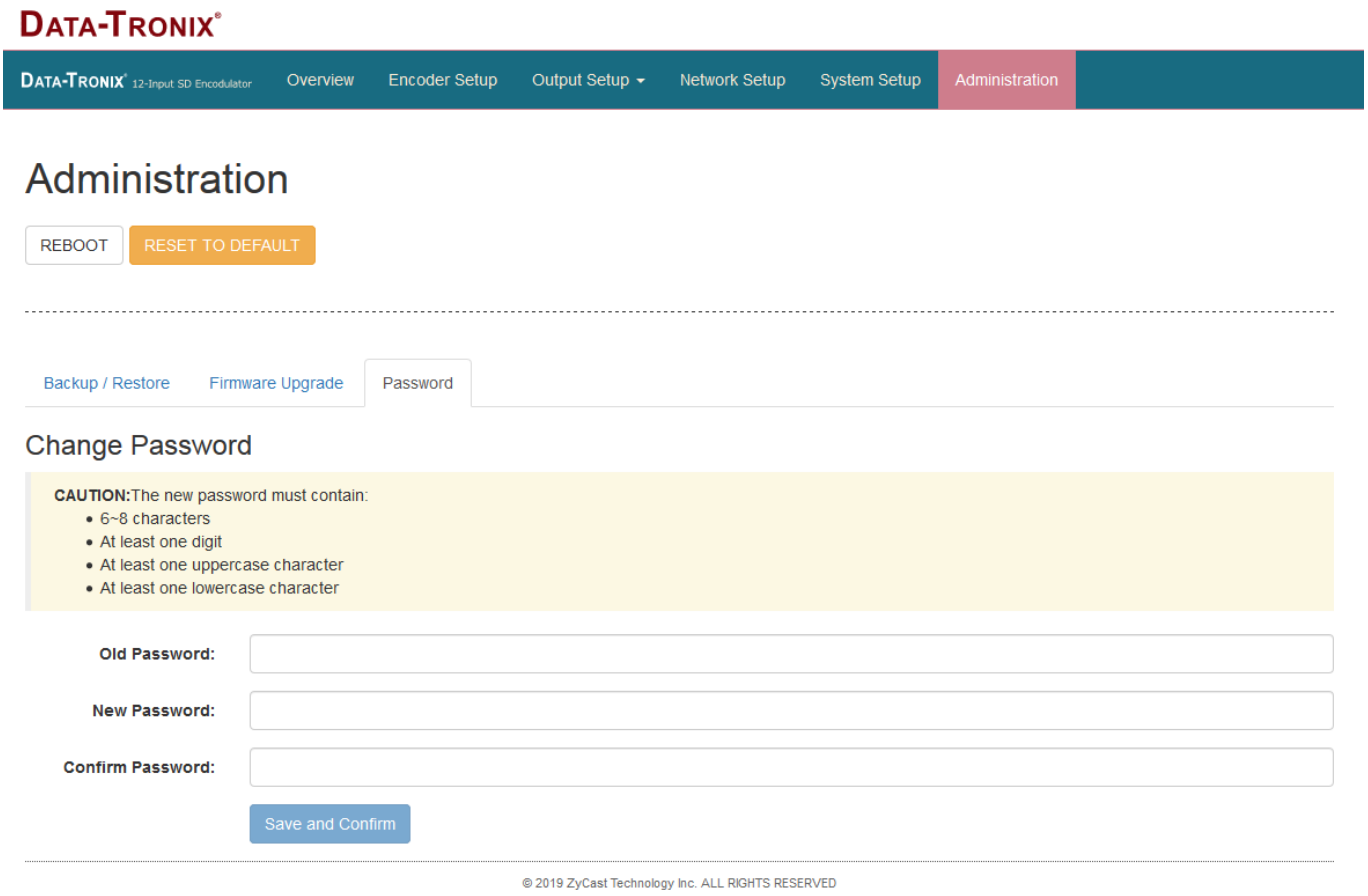
Restore/Upload saved file configurations

1. **Select** Administration.
2. **Select** "Choose file" menu.
3. **Locate** the required file to be imported.
4. **Select** "Upload" to import the selected file into the device.
5. Remember to save and backup any and all changes.



Firmware Upgrade

Select a new firmware image file and upload to upgrade the Firmware when needed.



Change Password

Use the Change Password section to change or modify the device's password as desired.

Save and Confirm new password.

Private Address Ranges, IPv4

Private IPv4 addresses are addresses set aside by the IANA (Internet Assigned Numbers Authority) for use within networks that will not directly communicate or not be seen by the internet. These private addresses cannot be used on the Internet or be used to communicate with the Internet. ISP's filter out and delete packets using private IP addresses.
Any organization that uses private IP addresses on devices that communicate with the internet must use a device that performs Network Address Translation.
Anyone can us private addresses and they are not required to seek permission to use them. Again, networks using private IP addresses cannot communicate directly with the internet.
There are three blocks of addresses that are set aside by IANA for use in private internets and are not publicly routable on the global internet:

Private Class A Range: 10.0.0.0 - 10.255.255.255
Private Class B Range: 172.16.0.0 - 172.31.255.255
Private Class C Range: 192.168.0.0 - 192.168.255.255

It is important to note that only *some* of the 172.xx.xx.xx and the 192.xx.xx.xx address ranges are designated for private use. The remaining addresses are public and can be routable via the global Internet.

More information regarding private addresses can be found at http://www.iana.org and https://www.arin.net

Product Notes