

DATA-TRONIX®

USER GUIDE & INSTALLATION MANUAL

DT-ATSC-QAM-8

Transmodulator



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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:

- One DT-ATSC-QAM-8 Encoder / Modulator
- One power cable
- One installation / configuration manual (An eManual will be supplied)

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 right away.

Product Description

The DataTronix DT-ATSC-QAM-8 allows the operator to create a custom QAM distribution system output from ATSC off-air and/or QAM input sources. This unit accepts eight 8VSB Off-Air or clear QAM sources and outputs these in QAM. The outputs can be mapped to a desired TV channel. The DT-ATSC-QAM-8 unit will also process most major local networks broadcast that have a ,second or third local channel which can contain important weather related content, local sports, and secondary programming. Integrators who are concerned with reliability will find this unit to be the perfect solution for adding external Off-Air or clear QAM content to their coaxial distribution system. Additionally it's flexibility provides a convenient, reliable, inexpensive secondary source for local broadcast sources when the primary source (satellite, CATV etc.) is not available.

Features

- 8 Independent ATSC (8VSB) / J.83B (QAM-B) Inputs
- Up to 8 Independent QAM-B Outputs
- Graphical User Interface for configuration
- Sources can be mapped to output QAM TV channels.
- Rack mountable 1RU height

Images of Front and Rear Panels of DT-ATSC-QAM-8



SPECIFICATIONS:

Terrestrial/ Cable	Input	F connector	Number	8	
	Loop Through			8	
	Channel Type			ATSC:8VSB, J.83B: STD/HRC/IRC	
	Frequency	MHz		ATSC: 177-803, J.83B: 177~861 (STD)/ 175.7587 to 859.7929 (HRC)/ 177.0125 to 861.0125 (IRC)	
	Constellation			ATSC: 8VSB, J.83B: 64-QAM/256-QAM	
QAM-B	Output Connector	"F" Female	Number	1	
	Modulation			64-QAM/256-QAM	
	Standard			J.83B	
	Frequency	MHz		J.83B: 177~861 (STD)/ 175.7587 to 859.7929 (HRC)/ 177.0125 to 861.0125 (IRC)	
	Channel's Bandwidth	MHz		6	
	Output Level	dBmV		33 ± 1dBmV	
	Output Impedance	ohm Ω		75	
	Level Adjustment	dB		0 to 20	
	Virtual Channel Number (VCN)			Configurable	
	Carrier Suppression	dB		40	
	Return Loss	dB		12	
	MER	dB		40 dB Typical @ 663.0000 MHz	
LED	Power LED			1x Green (ON)	
	Indicator LEDs			8x Green (Input Signal Locked) OFF (Input Signal Unlocked)	
General	Configuration	RJ45 100Base-T Ethernet		Web GUI	
	Control Protocols			HTTP/Restful API	
	Power	Watt		35	
	Input Line Voltage	VAC/Hz		95 - 264 / 50 - 60	
	Dimensions	Inches/mm W x D x H		19.00" x 9.37" x 1.70" 482.7mm X 238mm X 43.2mm (Excluding Connectors)	
	Weight	lbs./kg		8 lbs 13.01 oz, 4 kg	

*Subject to change without notifications

*Manufactured under License of Dolby Laboratories

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.

Hardware Installations and Connections

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

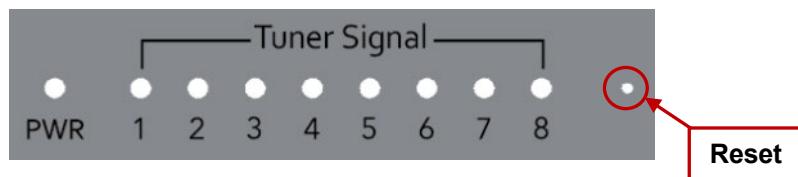
1. The unit is designed to be rack mounted in a standard EIA 19" rack.
2. Connect the video source to the unit's Tuner Input jack. Use a quality 75Ω coaxial cable with "F" connectors to ensure the quality.
Repeat this step for each video source connection required.
Be sure the connections for each source are consistent with the unit's inputs (Input 1...Input 8).
3. 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.

Note: note to make sure signal attenuation is applied when connecting directly to a TV.

4. Connect an ethernet cable from UTILITY Port on the DT-ATSC-QAM-8 to a PC/MAC for setting.
5. Connect the included power cord to the unit's **POWER** plug.
6. Connect the power cord to an appropriately rated AC power outlet.

Reset to Default

- **With the unit's power cord disconnected, press and hold reset button.**
- **Reconnect power to the unit while holding the reset button, the PWR LED will automatically flash on and off once, then release the reset button to reset to default.**



Warning!

"Reset to Default" will automatically reset all saved settings back to factory default settings. All saved settings will be lost!

Device Programming and Setup via GUI Interface

Connecting to the GUI Interface

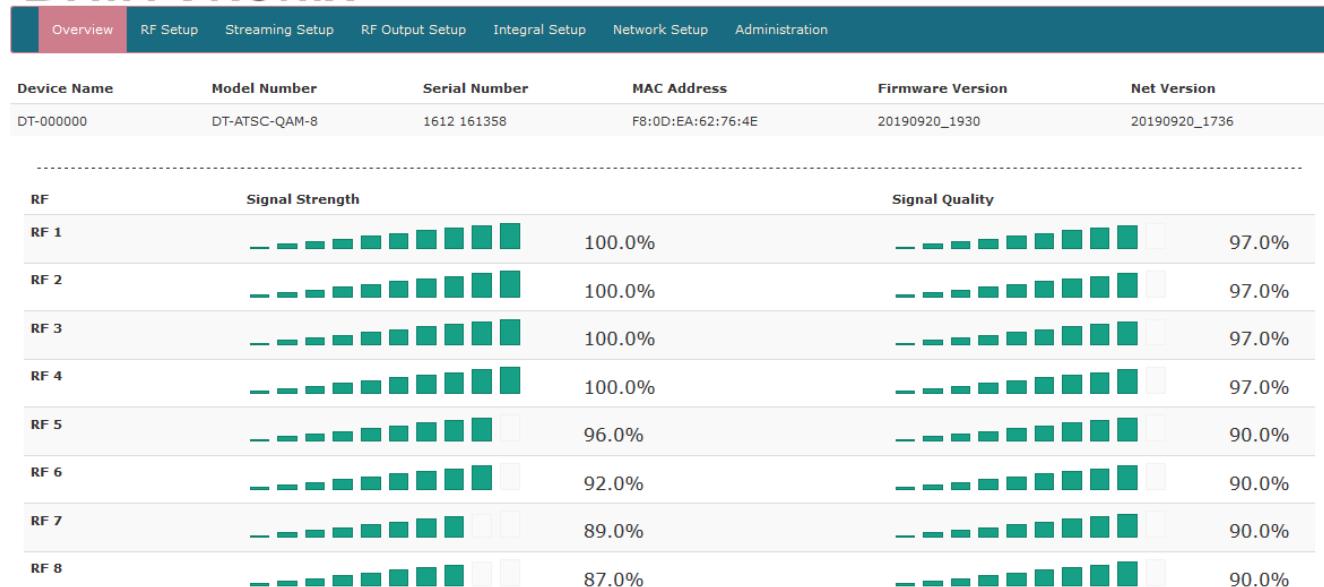
Factory Default IP: 192.168.1.9

- ◊ Connect an Ethernet cable directly (**no Cross Over cable required**) to the UTILITY 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.
- ◊ Modify your PC/Laptop IP address to 192.168.1.11.
- ◊ Enter '192.168.1.9' into your web browser.
- ◊ Enter GUI and make required device changes.
- ◊ Save all changes as required, upload and reboot changes.
- ◊ Verify parameters then end web session.

1. Overview Page of Encoder

Enter Device's IP address in web browser

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System Parsing / Response Time:

The initial System Parsing time will range from 4-6 minutes on average 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.

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Welcome page showing overview status of the Encoder when fully functioning.

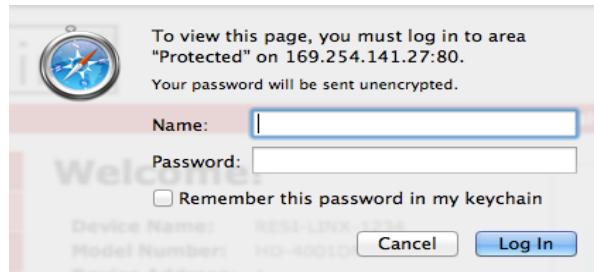
Login

Once the Encoder Setup Tab is selected you will be prompted to enter the user name and password for device.

GUI Login Credentials

Default User Name: **admin**

Default Password: **Admin123**



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

2. RF Setup

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Overview
RF Setup
Streaming Setup
RF Output Setup
Integral Setup
Network Setup
Administration

RF Setup

This page allows the user to configure the parameters of each rf. After changes are made, use the **Save and confirm** button. The demodulators will apply the new settings.

Mode	Standard	Constellation	Channel Type	Frequency(MHz)	
1	Manual	J.83B (QAM-B)	256-QAM	STD	7 (177.000 MHz)
2	Manual	J.83B (QAM-B)	256-QAM	STD	8 (183.000 MHz)
3	Manual	J.83B (QAM-B)	256-QAM	STD	9 (189.000 MHz)
4	Manual	J.83B (QAM-B)	256-QAM	STD	10 (195.000 MHz)
5	Manual	ATSC	8VSB	N/A	66 (785.000 MHz)
6	Manual	ATSC	8VSB	N/A	67 (791.000 MHz)
7	Manual	ATSC	8VSB	N/A	68 (797.000 MHz)
8	Manual	ATSC	8VSB	N/A	69 (803.000 MHz)

Save and Confirm
Cancel

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1. **Select RF Setup Tab.**
2. **Enter the appropriate RF parameters for each RF signal.**
 - ◊ **Mode:** Manual/Disabled (Default Setting: Manual).
 - ◊ **Standard:** Select ATSC / J.83B (QAM-B).
 - ◊ **Constellation:** Select and Set the appropriate Constellation.
(256-QAM/64-QAM for J.83B (QAM-B) & 8VSB for ATSC)
 - ◊ **Channel Type:** Select and Set the appropriate Channel Type, STD/HRC/IRC.
 - ◊ **Frequency (MHz):** Select and Set the desire Frequency (MHz) from the drop down list.
3. **Save and Confirm** all parameters set.

3. Streaming Setup

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Streaming Setup

This page allows the user to configure the streaming settings. Enter>Select the required settings for each Stream. Use the **Save and confirm** button to save any changes made. The Streaming engine will apply the new settings.

RF 1	RF 2	RF 3	RF 4	RF 5	RF 6	RF 7	RF 8												
Input								Output											
Enable	PMT PID	Video PID	Audio PID	TS ID	SID	Short Name	Long Name	Bit Rate	CA	PMT PID	Video PID	Audio PID	Short Name	Long Name	VCN	VCN Mode	Source ID	RF #	
<input type="checkbox"/>	1011	1012	1013	1	1	MY-DTV1	ATSC-Digital-TV1	15.476	N	101	1011	1012	1013	MY-DTV1	ATSC-Digital-TV1	102.1	Auto(two-part)	101	1
<input checked="" type="checkbox"/>	2011	2012	2013	1	2	MY-DTV2	ATSC-Digital-TV2	15.515	N	102	2011	2012	2013	MY-DTV2	ATSC-Digital-TV2	102.2	Auto(two-part)	102	1

Save and Confirm **Cancel**

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The Streaming Setup page allows the user to configure up to 8 Independent Output Streams. The user can select which columns will display on the Streaming Setup page for a better analysis of the configured parameters. Move the cursor to the “Select Columns” icon and press the icon to set. After selecting the columns, press the “Apply” button at the bottom to apply the changes.

Streaming Setup

This page allows the user to configure the streaming settings. Enter>Select ! apply the new settings.

RF 1	RF 2	RF 3	RF 4	RF 5	RF 6	RF 7	RF 8
Input							
Enable	PMT PID	Video PID	Audio PID	TS ID	SID	Short Name	Long Name
<input checked="" type="checkbox"/>	1011	1012	1013	1	1	MY-DTV1	ATSC-Digital-TV1
<input checked="" type="checkbox"/>	2011	2012	2013	1	2	MY-DTV2	ATSC-Digital-TV2

PMT PID

Video PID

Audio PID

TS ID

SID

Short Name

Long Name

Bitrate

CA

Apply **Cancel**

Once the Streaming Setup is completed the system will parse and populate the Streaming Setup page.

1. Enable each channel/stream as required by checking the check box.
- To Disable the stream- uncheck the check box.
2. Revise the required parameters, SID, Short Name, Long Name, VCN, VCN Mode, Source ID, RF#.
3. Save and confirm all changes on each Streaming Setup tab.

Save and Confirm: Once all parameters are set remember to Save and Confirm all changes. Then, apply the changes.

We highly recommend you save your encoder configuration files.

See Administration tab for how to backup your device settings.

4. RF Output Setup

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Overview RF Setup Streaming Setup **RF Output Setup** Integral Setup Network Setup Administration

RF Output Setup

This page allows the user to configure the RF settings. Enter>Select the required settings for each RF Channel. Use the **Save and Confirm** button to save any changes made.

<input type="checkbox"/> Enable	TSID	Regional Name	RF	Channel Type	CH/freq.	BW MHz	Atten.	Constellation	Interleaver	Bit Rate Mbps
<input checked="" type="checkbox"/>	1	USA	Normal	STD	102 (663.000 MHz)	6	0	256 QAM	I=128,J=1	30.990 / 38.810
<input checked="" type="checkbox"/>	2	USA	Normal	STD	103 (669.000 MHz)	6	0	256 QAM	I=128,J=1	31.029 / 38.810
<input checked="" type="checkbox"/>	3	USA	Normal	STD	104 (675.000 MHz)	6	0	256 QAM	I=128,J=1	30.990 / 38.810
<input checked="" type="checkbox"/>	4	USA	Normal	STD	105 (681.000 MHz)	6	0	256 QAM	I=128,J=1	30.990 / 38.810
<input checked="" type="checkbox"/>	5	USA	Normal	STD	106 (687.000 MHz)	6	0	256 QAM	I=128,J=1	16.396 / 38.810
<input checked="" type="checkbox"/>	6	USA	Normal	STD	107 (693.000 MHz)	6	0	256 QAM	I=128,J=1	16.415 / 38.810
<input checked="" type="checkbox"/>	7	USA	Normal	STD	108 (699.000 MHz)	6	0	256 QAM	I=128,J=1	16.396 / 38.810
<input checked="" type="checkbox"/>	8	USA	Normal	STD	109 (705.000 MHz)	6	0	256 QAM	I=128,J=1	16.415 / 38.810

Save and Confirm **Cancel**

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RF Output

Use the RF Output Setup Page to setup each RF Output
Select and set the required parameters for your installation

The DT-ATSC-QAM-8 offers the integrator the ability to disable a RF QAM.
To disable the RF Output, uncheck 'Enable' on the appropriate RF Output tab.

Application Note:

When installing more than 1 device into a system, each device must have an unused RF TS ID.

Example: Setting up Multiple devices within the same system.

Device Address	(RF TS ID) RF1 / RF2 / RF3 / RF4 / RF5 / RF6 / RF7 / RF8
1	1 / 2 / 3 / 4 / 5 / 6 / 7 / 8
2	9 / 10 / 11 / 12 / 13 / 14 / 15 / 16
3	17 / 18 / 19 / 20 / 21 / 22 / 23 / 24
4	25 / 26 / 27 / 28 / 29 / 30 / 31 / 32

5. Integral Setup



Overview RF Setup Streaming Setup RF Output Setup **Integral Setup** Network Setup Administration

Integral Setup

This page allows the user to configure the integral settings. Enter/Select the required settings for each RF Channel. Use the **Save and Confirm** button to save any changes made.

Enable	TSID	Regional Name				RF	Channel Type	CH/freq.		BW MHz	Atten.	Constellation	Interleaver	Bit Rate Mbps			
<input checked="" type="checkbox"/>	1	USA				Normal	STL			6	0	256 QAM	I=128,J=1	30.990 / 38.810			
Input																	
PMT PID	Video PID	Audio PID	TS ID	SID	Short Name	Long Name	Bit Rate	CA	SID	PMT PID	Video PID	Audio PID	Short Name	Long Name	VCN	VCN Mode	Source ID
1011	1012	1013	1	1	MY-DTV1	ATSC-Digital-TV1	15.515	N	101	1011	1012	1013	MY-DTV1	ATSC-Digital-TV1	102.1	Auto(two-part)	101
2011	2012	2013	1	2	MY-DTV2	ATSC-Digital-TV2	15.476	N	102	2011	2012	2013	MY-DTV2	ATSC-Digital-TV2	102.2	Auto(two-part)	102
<input checked="" type="checkbox"/>	2	USA				Normal	STL			6	0	256 QAM	I=128,J=1	30.952 / 38.810			
Input																	
PMT PID	Video PID	Audio PID	TS ID	SID	Short Name	Long Name	Bit Rate	CA	SID	PMT PID	Video PID	Audio PID	Short Name	Long Name	VCN	VCN Mode	Source ID
3011	3012	3013	2	3	MY-DTV3	ATSC-Digital-TV3	15.476	N	201	3011	3012	3013	MY-DTV3	ATSC-Digital-TV3	103.1	Auto(two-part)	201
4011	4012	4013	2	4	MY-DTV4	ATSC-Digital-TV4	15.476	N	202	4011	4012	4013	MY-DTV4	ATSC-Digital-TV4	103.2	Auto(two-part)	202
<input checked="" type="checkbox"/>	3	USA				Normal	STL			6	0	256 QAM	I=128,J=1	30.990 / 38.810			
Input																	
PMT PID	Video PID	Audio PID	TS ID	SID	Short Name	Long Name	Bit Rate	CA	SID	PMT PID	Video PID	Audio PID	Short Name	Long Name	VCN	VCN Mode	Source ID
1511	1512	1513	3	5	MY-DTV5	ATSC-Digital-TV5	15.476	N	301	1511	1512	1513	MY-DTV5	ATSC-Digital-TV5	104.1	Auto(two-part)	301
2511	2512	2513	3	6	MY-DTV6	ATSC-Digital-TV6	15.515	N	302	2511	2512	2513	MY-DTV6	ATSC-Digital-TV6	104.2	Auto(two-part)	302
<input checked="" type="checkbox"/>	4	USA				Normal	STL			6	0	256 QAM	I=128,J=1	30.913 / 38.810			
Input																	
PMT PID	Video PID	Audio PID	TS ID	SID	Short Name	Long Name	Bit Rate	CA	SID	PMT PID	Video PID	Audio PID	Short Name	Long Name	VCN	VCN Mode	Source ID
3511	3512	3513	4	7	MY-DTV7	ATSC-Digital-TV7	15.476	N	401	3511	3512	3513	MY-DTV7	ATSC-Digital-TV7	105.1	Auto(two-part)	401
4511	4512	4513	4	8	MY-DTV8	ATSC-Digital-TV8	15.476	N	402	4511	4512	4513	MY-DTV8	ATSC-Digital-TV8	105.2	Auto(two-part)	402
<input checked="" type="checkbox"/>	5	USA				Normal	STL			6	0	256 QAM	I=128,J=1	16.415 / 38.810			
Input																	
PMT PID	Video PID	Audio PID	TS ID	SID	Short Name	Long Name	Bit Rate	CA	SID	PMT PID	Video PID	Audio PID	Short Name	Long Name	VCN	VCN Mode	Source ID
1011	1012	1013	1	1	MY-DTV1	ATSC-Digital-TV1	16.415	N	501	1014	1015	1016	MY-DTV1	ATSC-Digital-TV1	106.1	Auto(two-part)	501
<input checked="" type="checkbox"/>	6	USA				Normal	STL			6	0	256 QAM	I=128,J=1	16.415 / 38.810			
Input																	
PMT PID	Video PID	Audio PID	TS ID	SID	Short Name	Long Name	Bit Rate	CA	SID	PMT PID	Video PID	Audio PID	Short Name	Long Name	VCN	VCN Mode	Source ID
2011	2012	2013	2	2	MY-DTV2	ATSC-Digital-TV2	16.396	N	601	2014	2015	2016	MY-DTV2	ATSC-Digital-TV2	107.1	Auto(two-part)	601
<input checked="" type="checkbox"/>	7	USA				Normal	STL			6	0	256 QAM	I=128,J=1	16.415 / 38.810			
Input																	
PMT PID	Video PID	Audio PID	TS ID	SID	Short Name	Long Name	Bit Rate	CA	SID	PMT PID	Video PID	Audio PID	Short Name	Long Name	VCN	VCN Mode	Source ID
3011	3012	3013	3	3	MY-DTV3	ATSC-Digital-TV3	16.415	N	701	3014	3015	3016	MY-DTV3	ATSC-Digital-TV3	108.1	Auto(two-part)	701
<input checked="" type="checkbox"/>	8	USA				Normal	STL			6	0	256 QAM	I=128,J=1	16.415 / 38.810			
Input																	
PMT PID	Video PID	Audio PID	TS ID	SID	Short Name	Long Name	Bit Rate	CA	SID	PMT PID	Video PID	Audio PID	Short Name	Long Name	VCN	VCN Mode	Source ID
4011	4012	4013	4	4	MY-DTV4	ATSC-Digital-TV4	16.396	N	801	4014	4015	4016	MY-DTV4	ATSC-Digital-TV4	109.1	Auto(two-part)	801

Buttons: Save and Confirm | Cancel

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The Integral Setup page combines the Streaming Setup & RF Output Setup to allow the user to make changes conveniently and efficiently.

6. Network Configuration

The screenshot shows the 'Management IP' configuration page. It includes fields for Hostname (DT-000000), MAC Address (F8:0D:EA:62:76:4E), IP Address Mode (set to Static IP), IP Address (192.168.8.60), Subnet Mask (255.255.255.0), and Default Gateway (192.168.8.254). Buttons for 'Save and Confirm' and 'Cancel' are at the bottom.

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Use the Network Setup Tab to configure the device's IP address, Subnet Mask, Gateway, Enable/Disable DHCP, and set Host Name. Once all parameters have been set you are **required** to select **Save and Confirm**. This function will reboot and save the changes setting for the Network Configuration.

Note: Only the Network Configuration (GUI IP address) changes will be saved.

When setting the Subnet Mask ensure the Subnet Mask of the device and the PC have the same Subnet Mask.

7. Administration

The screenshot shows the DATA-TRONIX Administration interface. At the top, there is a navigation bar with tabs: Overview, RF Setup, Streaming Setup, RF Output Setup, Integral Setup, Network Setup, and Administration. The Administration tab is currently selected.

Administration

Reboot Device

Reset to default

Backup and Restore Configuration

Configurations: **Backup** (selected) Backup and download current configuration settings to a local file.

Restore: **Choose file**

Upload settings Upload the pre-saved configuration settings to device.

Firmware Upgrade

Model Number: DT-ATSC-QAM-8

Serial No.: 1612 161358

Firmware Ver.: 20190920_1930

Firmware Image: **Choose file** To upgrade the device's firmware, select the required firmware image file then upload it to the device.

Upload image

Reboot

Use the Reboot command button to reboot the device.

Reset to Default

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

****Caution****

Selecting “Reset to Default” will automatically reset all saved settings back to factory default settings. All saved settings will be lost.

Backup

We highly recommend saving your device’s setting.

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

Restore

1. Select Administration tab.
2. Select “Choose file” menu.
3. Locate the required file to be imported.
4. Select “Upload settings” to import the selected file into the device.

Note: backup can be imported to assist in setting up new or multiple devices onsite.

Remember to save and backup any and all changes.

Firmware Update

Use the Firmware upgrade section to import new FW versions.

1. Select Administration tab.
2. Select “Choose file” menu.
3. Locate the required image file to be imported.
4. Select “Upload image” to import the selected file into the device.

Note: backup can be imported to assist in setting up new or multiple devices onsite.

Remember to save and backup any and all changes.

Change Password

CAUTION: The new password must contain:

- 6~8 characters
- At least one digit
- At least one uppercase character
- At least one lowercase character

Old Password:	<input type="text"/>
---------------	----------------------

New Password:	<input type="text"/>
---------------	----------------------

Retype New Password:	<input type="text"/>
----------------------	----------------------

Save and Confirm

After changing the password use the Save and Confirm button. The browser will redirect to the Overview page allowing the user to use the new password.

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Change Password

If required- change GUI Password and Submit

Note: When setting a new password, you must use the **Submit** button.

This password is for access to the GUI only. The LCD front Panel Password will not be changed and is set to prevent unauthorized users access to your device.

Product Notes

Item	Value
Password	
Device IP Address	
Serial Number	
Installation Date	
Purchase Date	
Input 1 / Output 1	/
Input 2 / Output 2	/
Input 3 / Output 3	/
Input 4 / Output 4	/
Input 5 / Output 5	/
Input 6 / Output 6	/
Input 7 / Output 7	/
Input 8 / Output 8	/