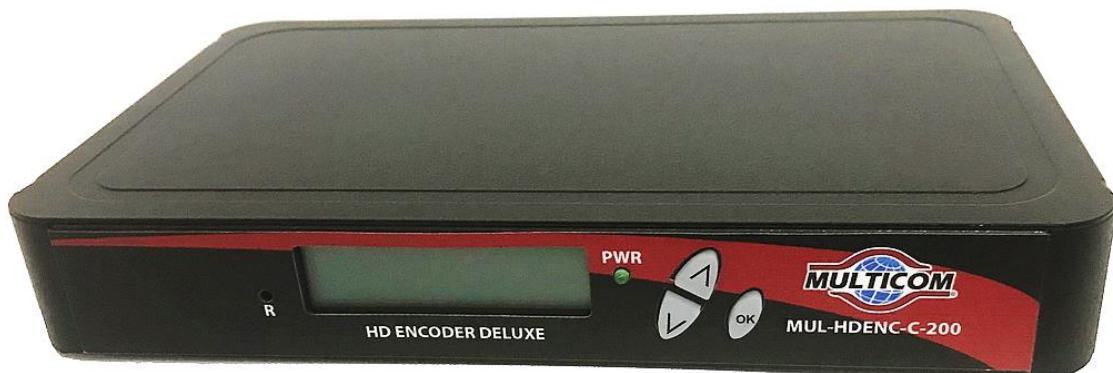




**MUL-HDENC-C-200 (-NA, -MX, -CO, -LA)  
With AC-3  
High Definition Digital Encoder – Deluxe, Kit  
User Manual**



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August 2020 (Version 2a)

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## i. Safety Precautions

The presence of this symbol is to alert the installer and user to the presence of uninsulated potentially 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 AUTHORIZED PERSONNEL ONLY.**

- 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 or unit 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.
- 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.



### **IMPORTANT**

- ALWAYS remove any network/ethernet connection from the HD Encoder after configuring it to insure its security and highest performance
- Use high quality cables and connectors and insure all connections are tight
- Test the coaxial cable RF output at the TV to insure the levels are well within the TV input range
- Use Google Chrome, Microsoft Edge, or Mozilla Firefox as the web browser when configuring the HD Encoder. Google Chrome is preferred.
- During the web browser Admin Reboot process, use a new Google Chrome "Incognito Window" to eliminate caching-related confusion and issues.
- **The factory Default is shown on the outside of the shipping box for RF output. Any unit can be setup as J.83, or ATSC, or DVB-T, or ISDB-Tb. Example, if DVB-T output is desired (example: for Colombia installation) then the RF Setup Menu > Channel Type must be changed to DVB-T. The factory DEFAULT is set on a country by country basis for ease of each country's customer.**
- The hardware and software product trademarks are the property of their respective owners, including Google Chrome, Microsoft Edge, and Mozilla Firefox.



## ii. EAS Support Statement

This equipment is equipped with EAS terminals / connections and CVBS (Composite Video Input) and L/R audio input connections on the rear panel.

If applicable, connect your EAS Alert Device System outputs to the Encoder. If the encoder receives the proper Event signal from your EAS device, the normal input audio/video program will be replaced by the audio and video from the EAS system device. Once the encoder has received the proper signal from your EAS device the normal input video and audio will return to a normal operating mode.

**\*\*\*\*THIS DEVICE IS NOT AN EAS RECEIVER\*\*\*\***

**Note: It is the responsibility of the Installer/User to properly connect, verify, and test the EAS functionality of this device with the EAS receiver.**

**Note: It is the responsibility of the Installer/User to properly perform the required EAS tests as required by the FCC or your specific Government Agency.**

**If the EAS functions on this device fail for any reason it is the responsibility of the Installer/User to replace this device as required by the FCC or your specific Government Agency.**

## iii. Kit Contents

- MUL-HDENC-C-200 HD Encoder Deluxe
- AC Adapter, US Plug, 12VDC 1.5A, 100-240VAC, 50/60Hz
- 6' HDMI cable
- 4' RCA L/R to Mini-Jack Audio cable (qty 2)
- Wall/shelf mounting angles, small (qty 4)
- 19", 1 RU Rack Mounting brackets (qty 2)
- Bracket/angles mounting screws





### iv. English and Spanish Menus

The web interface/GUI supports both English and Spanish. Select the desired language at the bottom of any admin page after logging in (see below). **Note that the LCD display does NOT display Spanish.**

HD ENCODER

Deluxe HD Encoder-Modulator | Overview | Encoder Setup | RF Output Setup | Network Setup | Administration

Device Name	Model Name	ID Number	MAC Address	Firmware Version	Net Version
HDENC-290726	HD Encoder	1927 290726	F8:0D:EA:94:6F:A6	20200731_1630	1.2.13

RF Output 1

RF Output	Modulation	Channel	Constellation	Output Bitrate	Channel Name	Video Source	Video Output	Audio Output	Video Bitrate	Status
1	J.83B	2 (57.0000 MHz)	256 QAM	38.810 Mbps	DTV1	HDMI	MPEG-2 VBR	AC-3	13.417 Mbps	HD

© 2020 HD Encoder ALL RIGHTS RESERVED | English

HD ENCODER

Deluxe HD Encoder-Modulator | Resumen General | Configuración: Encoder | Configuración: Salida RF | Configuración: Red | Administración

Nombre: Dispositivo	Nombre: Modelo	Número: Identificación	Dirección: MAC	Versión: Firmware	Versión
HDENC-290726	HD Encoder	1927 290726	F8:0D:EA:94:6F:A6	20200731_1630	1.2.13

Salida RF 1

Salida RF	Modulación	Canal	Constelación	Bitrate Total	Nombre de Canal	Fuente de Video	Salida de Video	Salida de Audio	Bitrate de Video	Salida
1	J.83B	2 (57.0000 MHz)	256 QAM	38.810 Mbps	DTV1	HDMI	MPEG-2 VBR	AC-3	22.954 Mbps	HD

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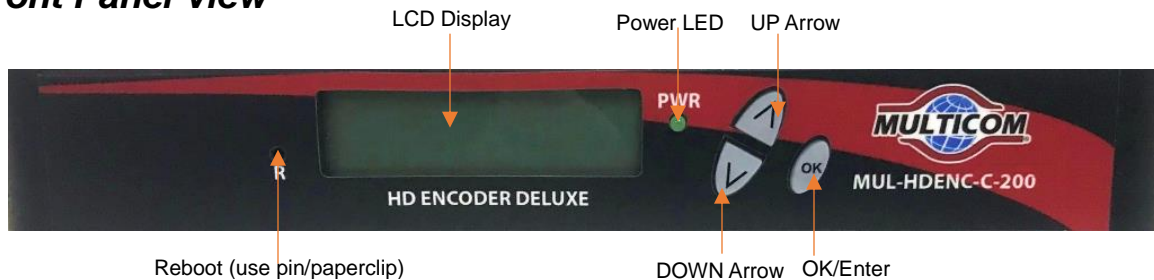
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## 1.0 HD Encoder Introduction

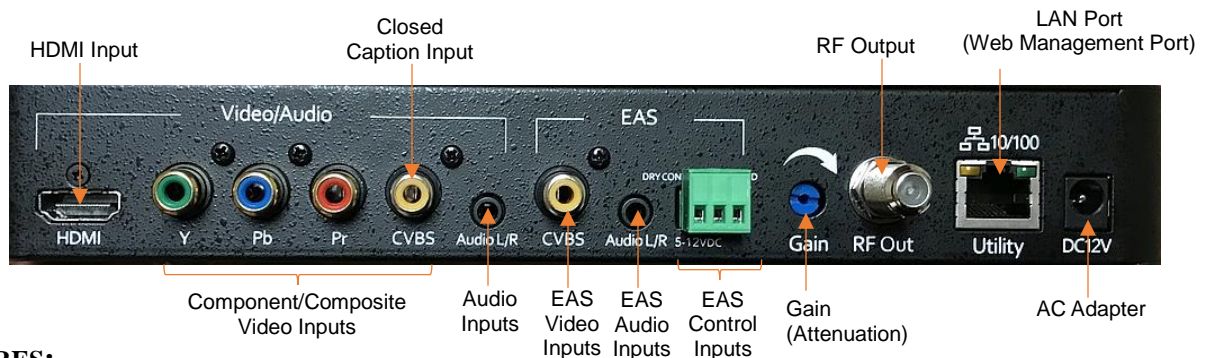
The Multicom MUL-HDENC-C-200 is a Multi-Standard Format, single input, High Definition Agile Digital Encoder/Modulator used to convert a single HDMI, component, or composite video-audio input of up to 1080i/1080p into a J.83B QAM 64/QAM 256 RF, ATSC (8VSB), DVB-T QAM64 or ISDB-Tb QAM 64 coaxial output. Its feature rich, high quality, multi-standard format makes it suitable for Commercial and Residential use in a wide variety of countries.

The Multicom MUL-HDENC-C-200 supports Closed Captions in the J.83 and ATSC output formats, only. It also supports EAS input with local and remote control. It is feature rich, very flexible and powerful, while being user friendly and easy to use for both Residential and Commercial applications. The high quality HD performance allows action packed movies and sports channels on any number of connected HDTVs and now includes AC-3 audio as default.

### 1.1 Front Panel View



### 1.2 Rear View



#### **FEATURES:**

- QAM 64 /256 / ATSC (8VSB) / DVB-T / ISDB-Tb output (user selectable, only one at a time)
- High Resolution up to 1080i/1080p
- 3 VCN Modes for QAM output
- GUI for easy setup and control: English or Spanish (user selectable)
- HDMI, Component, or Composite input
- MPEG-2 VBR for Video Output & AC-3 / MPEG-1 / MPEG-4 for Audio Output
- Supports Closed Captioning (QAM/ATSC)
- EAS Supported (QAM)
- > +40dB MER (QAM) output
- Rack, shelf, wall mounting – brackets included





## 2.0 Specifications

General	
Local Monitoring	LCD
Web GUI Supported	Firefox, Chrome, Safari, Edge
Password Protected	GUI: User Settable
Power Supply	12 VDC 1.5A, 100-240VAC 50/60Hz, US Plug
Consumption	5 Watts
Operational Temperature	0c - +55c
Storage Temperature	-20c - +70c
Dimensions	236mm x 145mm x 34mm
Weight	0.92 kg, 1.88kg packaged
Language	English
Firmware Version	20190925, or later
Net Version	1.2.6, or later

Video / Audio Input	
<b>HDMI 1.4</b>	
Connectors	Single
Audio	Embedded PCM
<b>Component/Composite</b>	
Connector	RCA x 1 Set for Each
Audio	Analog 3.5mm
<b>EAS</b>	
Connector	RCA x 1 Set
Audio	Analog 3.5mm
Trigger Mechanism	5-12VDC and Dry Contact Closure (Terminal Strip)

Video / Audio Encoding Profile	
<b>Video</b>	
Video Codecs	MPEG-2 VBR
Bitrate (Adjustable)	<b>J.83 Annex B:</b> HD: 12.0 – 24.0 Mbps SD: 4.0 – 9.0 Mbps <b>ATSC-8VSB:</b> HD: 12.0 - 18.0 Mbps SD: 4.0 – 9.0 Mbps <b>DVB-T:</b> HD: 12.0 – 24.0 Mbps SD: 4.0 – 9.0 Mbps <b>ISDB-Tb:</b> HD: 12.0 – 18.0 Mbps SD: 4.0 – 9.0 Mbps
Resolution Output	Same as input except: 1080p30 in, 1080p25 out 1080i60 in, 1080i50 out 720p60 in, 720p50 out 576p in, 480p out 576i in, 480i out
<b>Audio</b>	
Audio Codecs	AC-3 / MPEG1 Layer II / MPEG4 AAC
<b>Closed Captioning</b>	
Composite	EIA-608; 1 x RCA (CC)



<b>Output</b>	
Standard	<b>J.83 Annex B / ATSC-8VSB / DVB-T / ISDB-Tb</b>
Connector	1 x "F" Female
Output Level	35 dBmV Typical (With 20dB Range Manually Adjustable)
Flatness Across Full Band	± 2dB Typical
MER	38 dB Typical@ 663.0000 MHz under J.83 Annex B STD Mode
Output Impedance	75 ohm
RF Output Return Loss	10 dB Typical

<b>Modulator STD I / II</b>	<b>J.83 Annex B</b>	<b>ATSC-8VSB</b>
RF Mode	Normal/Inverted	
Channel Type	J.83: STD / HRC / IRC	ATSC-8VSB
Frequency Range (Under STD Mode)	57.000 MHz to 861.000MHz (Channel 2 to Channel 135)	57.000 MHz to 803.000 MHz (Channel 2 to Channel 69)
Interleaver	I=128, J=1	N/A
Constellation (Output Bitrate, Max)	64-QAM (26.970Mbps) / 256-QAM (38.810Mbps)	8VSB (19.393Mbps)
VCN	Auto (Major & Minor) / Manual (Major & Minor) / Manual (One Part)	Auto (Major & Minor) / Manual (Major & Minor)

<b>Modulator STD III / IV</b>	<b>DVB-T</b>	<b>ISDB-Tb</b>
RF Mode	Normal/Inverted	
Frequency Range	50.500 MHz to 858.000 MHz (Channel 2 to Channel 69 for 6MHz) (Channel 6 to Channel 69 for 7MHz) (Channel E2 to Channel E69 for 8MHz)	177.143 MHz to 803.143 MHz (Channel 7 to Channel 69)
Constellation (Output Bitrate, Max)	16-QAM (15.834Mbps) / 64-QAM (23.751Mbps)	16-QAM (15.490Mbps) / 64-QAM (23.235Mbps)
FEC	1/2, 2/3, 3/4, 5/6, 7/8	
LCN Mode (Default)	Colombia	N/A
OFDM Mode	2k, 8k	2k, 4k, 8k
Guard Interval	1/32, 1/16, 1/8, 1/4	

Information in this document is subject to change without notice.





Multicom MUL-HDENC-C-200 User Manual

Factory Defaults for MUL-HDENC-C-200 (-NA, -MX, -CO, -LA)				
Image	USA/CA (-NA)	Mexico (-MX)	Colombia (-CO)	LATAM (-LA)
Language	English	Spanish (GUI)	Spanish (GUI)	Spanish (GUI)
RF Output Setup				
Modulation	J.83B	ATSC-8VSB	DVB-T	ISDB-Tb
Country / Bandwidth	6	6	6	6
Original Network ID	n/a	n/a	8362	1860
Network ID	n/a	n/a	12289	1860
TS ID	1	1	1	1
Regional Name	USA	Mexico	n/a	n/a
Network Name	n/a	n/a	Colombia	LATAM
RF Output	Normal	Normal	Normal	Normal
Channel Type	J.83B: STD	ATSC: 8VSB	n/a	n/a
Channel	2	2	14	14
Area Code	n/a	n/a	n/a	4080
Remote Key ID	n/a	n/a	n/a	7
Constellation	256 QAM	8VSB	64 QAM	64 QAM
FEC	n/a	n/a	7/8	7/8
Guard Interval	n/a	n/a	1/32	1/32
OFDM Mode	n/a	n/a	8K	8K
Time Interleaved Mode	n/a	n/a	n/a	4
Encoder Setup				
VCN	2.1	2.1	n/a	n/a
VCN Mode	Auto(two-part)		n/a	n/a
LCN(Channel Number)	n/a	n/a	101	n/a
LCN Mode	n/a	n/a	Colombia	n/a
Short Name	DTV1	DTV1	n/a	n/a
Long Name	J83-DTV1	ATSC-DTV1	n/a	n/a
Channel Name	n/a	n/a	CHANNEL-1	CHANNEL-1
Provider Name	n/a	n/a	Multicom	Multicom
Source ID	101	101	n/a	n/a
HD Bitrate	24	17	18	18
SD Bitrate	4	4	4	4
Program Number	101	101	101	59520
Test Mode	Disabled	Enabled	Enabled	Enabled
Closed Caption	Enabled	Enabled	Enabled	Enabled
Network Setup				
Default IP	192.168.1.9			
DHCP	Disabled	Disabled	Disabled	Disabled



### 3.0 **STEP A: HARDWARE INSTALL & CONNECTIONS**

#### **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.

#### **Making the Connections Overview**

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

1. Ensure the video Source has output.
2. Connect the HDMI cable/Component cables/Composite cables to the HD Encoder from the Source.
3. Connect the included Audio cable from the source to the 3.5mm Audio L/R connector on the HD Encoder if analog audio is needed
4. Connect the composite cable to the CVBS input for Closed Caption
5. Connect the included AC power adapter cord to the HD Encoder's 12VDC Power receptacle at the rear.
6. Connect the AC adapter to an appropriately rated AC power outlet.
7. Test the RF output with a CATV meter to ensure that it is within the input range of the connected TV's
8. Connect to the coaxial distribution using the "F" connector at the rear of the HD Encoder. Use a high quality 75Ω coaxial cable with compression-type "F" connectors from the HD Encoder's RF Output. Ensure that all connections are tight.
9. When the HD Encoder configuration is complete – disconnect the HD Encoder from the network/Ethernet to insure its security and highest performance

### 4.0 HD Encoder Programming/Setup

To setup and program the MULTICOM HD ENCODER DELUXE you can use either the device's LCD Front Panel and buttons or the Web/GUI Interface. The programming of the settings is easiest by using the Web Interface in Section 4.3.

#### 4.1 HD Encoder Front Panel Display

Press UP/DOWN ARROW buttons to scroll through the display information.

- Main Menu: **Input information and Output Name** >> Short name, and Bitrate
- Main Menu: **VCN information** >> VCN, Channel, and Frequency
- Main Menu: **Management IP** >> IP Address



## 4.2 Using the HD Encoder Front Panel for Setup

When the unit is powered up it will first go through an internal booting and short self-test and then be ready for operation or initial setup. **The USA factory default is for J.83B RF output. If a different video output is desired (example: for Mexico installation) then the RF Setup Menu > Channel Type must be changed to ATSC. The FACTORY DEFAULT is shown on the label.**

**NOTE: Factory default for Colombia is DVB-T. Factory default for Mexico is ATSC. The rest of Latin America factory default is ISDB-Tb. ALL VERSIONS ARE USER-SELECTABLE: J.83 QAM, ATSC, DVB-T, or ISDB-Tb – just the factory defaults change depending on the “ship to” country.**

Press “OK” Button to enter the setup MAIN MENU system.  
**The front panel LCD password is: 0000**

Enter the password by adjusting each digit by using the UP/DOWN ARROW buttons – then press “OK” when the digit is correct. Press “OK” to enter Main Menu. For security purposes the HD Encoder will timeout and return to a password protected mode if no buttons are pressed for about 10 seconds.

### FRONT PANEL:

Login:

- Press “OK” button

Enter Password

- Use UP/DOWN arrows to change digit, Press OK to set it and go to next until all 4 digits are entered – the unit will now be in setup MAIN MENU. Pressing the UP/DOWN ARROWS will scroll through the menus/settings. Pressing the OK will select/execute the Menu Item or Setting.

## 4.2.1 LCD Setup Menu Map

### Main Menu – J.83B/ATSC-8VSB

RF Setup	Encoder Setup	Network Setup	Change Password	Reset to Default	Exit
Channel	VCN	Host Name			
Mod Mode	VCN Mode	IP Setup			
Country BW	Short Name	Exit			
TSID	Long Name				
Regional Name	Source ID				
RF	Video Input				
Channel Type	HD Bitrate				
Constellation	SD Bitrate				
Exit	Program Number				
	Test Mode				
	Closed Caption				
	Audio Input				
	Audio Output				
	Exit				



**Main Menu – DVB-T**

<b>RF Setup</b>	<b>Encoder Setup</b>	<b>Network Setup</b>	<b>Change Password</b>	<b>Reset to Default</b>	<b>Exit</b>
Channel	LCN	Host Name			
Mod Mode	VCN Mode	IP Setup			
Country BW	Channel Name	Exit			
ONID	Provider Name				
NID	Video Input				
TSID	HD Bitrate				
Network Name	SD Bitrate				
RF	Program Number				
Constellation	Test Mode				
FEC	Closed Caption				
GI	Audio Input				
OFDM Mode	Audio Output				
CELL ID	Exit				
Exit					

**Main Menu – ISDB-Tb**

<b>RF Setup</b>	<b>Encoder Setup</b>	<b>Network Setup</b>	<b>Change Password</b>	<b>Reset to Default</b>	<b>Exit</b>
Channel	Channel Name	Host Name			
Mod Mode	Provider Name	IP Setup			
Country BW	Video Input	Exit			
ONID	HD Bitrate				
NID	SD Bitrate				
TSID	Program Number				
Network Name	Test Mode				
RF	Closed Caption				
Area Code	Audio Input				
Remote Key ID	Audio Output				
Constellation	Exit				
FEC					
GI					
OFDM Mode					
Time IL Mode					
Exit					



Press UP/DOWN ARROW to scroll through MAIN MENU and use OK to select a Menu:

- Main Menu: **RF Setup**
- Main Menu: **Encoder Setup**
- Main Menu: **Network Setup**
- Main Menu: **Change Password**
- Main Menu: **Reset to Default**
- Main Menu: **Exit**

#1. Press UP ARROW to scroll through RF SETUP MENU:

- RF Setup Menu: **Channel** Factory Default: CH 2 ➔ Range 2 – 135
- RF Setup Menu: **Mod Mode** Factory Default: J.83B/ATSC ➔ DVB-T or ISDB-Tb
- RF Setup Menu: **Country BW** Factory Default: 6M
- RF Setup Menu: **TSID** Factory Default: 1
- RF Setup Menu: **Regional Name** Factory Default: USA
- RF Setup Menu: **RF** Factory Default: Normal ➔ Inverted
- RF Setup Menu: **Channel Type** Factory Default: J.83B:STD ➔ ATSC or J.83B
- RF Setup Menu: **Constellation** Factory Default: 256 QAM ➔ 64 QAM
- RF Setup Menu: **Exit**

#2. Press UP ARROW to scroll through ENCODER SETUP MENU:

- Encoder Setup Menu: **VCN** Factory Default: 2.1
- Encoder Setup Menu: **VCN Mode** Factory Default: Auto(two-part) ➔ VCN Notes below
- Encoder Setup Menu: **Short Name** Factory Default: DTV1 ➔ Up to 7 Char
- Encoder Setup Menu: **Long Name** Factory Default: J83-DTV1 ➔ Up to 16 Char
- Encoder Setup Menu: **Source ID** Factory Default: 00101 ➔ Up to 5 Char
- Encoder Setup Menu: **Video Input** Factory Default: Auto Detect ➔ HDMI/Component/Composite
- Encoder Setup Menu: **HD Bitrate** Factory Default: 24Mbps ➔ Range 12 – 24 Mbps
- Encoder Setup Menu: **SD Bitrate** Factory Default: 4Mbps ➔ Range 1 – 9 Mbps
- Encoder Setup Menu: **ProgramNumber** Factory Default: 101 ➔ Range 1 – 65534
- Encoder Setup Menu: **Test Mode** Factory Default: Disable ➔ Enable
- Encoder Setup Menu: **Closed Caption** Factory Default: Enable ➔ Disable
- CLOSED CAPTION ONLY AVAILABLE IN J.83 or ATSC MODES
- Encoder Setup Menu: **Audio Input** Factory Default: Auto Detect ➔ Or Analog
- Encoder Setup Menu: **Audio Output** Factory Default: AC-3 ➔ MPEG1 Layer 2, or MPEG4 AAC
- Encoder Setup Menu: **Exit**

#3. Press UP ARROW to scroll through NETWORK SETUP MENU:

- Network Setup Menu: **Host Name** Factory Default (Based on the S/N): HDENC-xyzXYZ
- Network Setup Menu: **IP Setup** Factory Default: DHCP Disable ➔ Enable
- Factory Default: IP Address: 192.168.1.9
- Factory Default: Subnet Mask: 255.255.255.0
- Factory Default: Default Gateway: 000.000.000.000
- Network Setup Menu: **Exit**

Note that the HD Encoder will reboot after using the NETWORK SETUP MENU.



#4. Press UP ARROW to **MAIN MENU: CHANGE PASSWORD**

#5. Press UP ARROW to **MAIN MENU: RESET TO DEFAULT**

Note that the HD Encoder will reboot after using the **RESET TO DEFAULT MENU**.

#6. Press UP ARROW to **MAIN MENU: EXIT**

Note that the HD Encoder will lock after selecting the **EXIT** option

**After Selecting the desired Menu – Change Parameter Settings**

➤ Use UP/DOWN arrows to move and select the desired parameter, Press OK to start editing the parameter using the UP/DOWN arrows. After changing the setting, pressing the OK will set the parameter.

**4.2.2 VCN Related Notes: J.83B, ATSC**

VCN is the Channel number to be shown by the TV. The VCN Modes which will be available depend on whether the output is selected as J.83B or as ATSC.

**VCN Mode: Auto (two-part)** - VCN will be set based on the Channel output selected in “RF Output Menu: RF”.

**Example:** Output Channel set to 2. VCN for device will be set at 2.1  
This is automatically set by the CH output set in the RF Setup section.

**VCN Mode (Manual two-part)** - VCN Manual 2-part- will allow the installer to control VCN channel regardless of the CH/freq. selected on the RF Output Setup page of the device.

**Examples:**

RF CH	VCN Channel
57	55.1
101	101.2

**VCN Mode: Manual (one-part)** - Use ‘VCN (one part) Menu’ to set VCN channel.

**Example:** VCN can be set to a range 1-999.

**VCN Mode (Manual one-part)** -VCN Manual 1-part- will allow the installer to control VCN channel regardless of the CH/freq. selected on the Output Setup page of the device.

**Examples:**

RF CH	VCN Channel
57	2
101	105
134	133



## 4.3 Using the HD Encoder Web Interface

### 4.3.1 Overview of the Process

#### Product Factory Default IP: 192.168.1.9 and with DHCP - Disabled

1. Connect an Ethernet cable directly (**no Cross Over cable required**) to the Web Management Port on the rear panel of the HD Digital Encoder or connect the device's Ethernet cable to an Ethernet switch. Connect Ethernet Cable to your PC/Laptop.
2. Modify your PC/Laptop IP address to static address 192.168.1.10
3. Turn off the WIFI on your PC/Laptop if applicable
4. Enter '192.168.1.9' into your web browser to access the Web Interface of the HD Encoder.
5. Enter the Web Interface and make any required device changes.
6. Save all changes as required and then reboot the device.
7. Verify parameters have changed and then end your web session.

As an alternative, the HD ENCODER static IP Address may be configured (or DHCP enabled) on the front panel and then the Web Browser can be used for all other configuration changes by using the IP Address which will be displayed on the LCD. **BE VERY CAREFUL WHEN USING THE DEFAULT IP ADDRESS AND CONNECTING TO AN EXISTING NETWORK – THERE MAY BE CONFLICT WITH EXISTING INSTALLED HARDWARE – THIS MUST ALWAYS BE AVOIDED.**

### 4.3.2 Login

- Use Google Chrome, Microsoft Edge, or Mozilla Firefox as the web browser when configuring the HD Encoder. Google Chrome is preferred.
- During the web browser Admin Reboot process, use a new Google Chrome “Incognito Window” to eliminate caching-related confusion and issues.

#### Open Your Internet Browser:

Use the PC web browser - type in the HD Encoder Deluxe's IP Address. The current IP Address can be viewed on the front panel LCD by pressing the UP ARROW twice to see “Management IP”.

#### Web Interface Login and Password:

Default User Name: **admin**

Default Password: **Admin123**

Sign in  
http://192.168.1.9  
Your connection to this site is not private

Username

Password





**IMPORTANT NOTE: Save all changes before leaving each setup page**

**Review the Overview Tab**

View the current settings, MAC address, Firmware version, etc.

The other tabs (Encoder Setup, RF Output Setup, Network Setup, and Administration) are used to change the HD Encoder settings and operating parameters.

**It is HIGHLY recommended that after all other tabs have been configured that the HD Encoder be rebooted using the REBOOT button on the ADMINISTRATION tab.**

HD ENCODER

Deluxe HD Encoder-Modulator Overview Encoder Setup RF Output Setup Network Setup Administration

Device Name	Model Name	ID Number	MAC Address	Firmware Version	Net Version
HDENC-290726	HD Encoder	1927 290726	F8:0D:EA:94:6F:A6	20200731_1630	1.2.13

---

RF Output 1

RF Output	Modulation	Channel	Constellation	Output Bitrate	Channel Name	Video Source	Video Output	Audio Output	Video Bitrate	Status
1	J.83B	2 (57.0000 MHz)	256 QAM	38.810 Mbps	DTV1	HDMI	MPEG-2 VBR	AC-3	22.953 Mbps	HD

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**Above: Overview Tab – QAM**

HD ENCODER

Deluxe HD Encoder-Modulator Overview Encoder Setup RF Output Setup Network Setup Administration

Device Name	Model Name	ID Number	MAC Address	Firmware Version	Net Version
HDENC-290726	HD Encoder	1927 290726	F8:0D:EA:94:6F:A6	20200731_1630	1.2.13

---

RF Output 1

RF Output	Modulation	Channel	Constellation	Output Bitrate	Channel Name	Video Source	Video Output	Audio Output	Video Bitrate	Status
1	ATSC	2 (57.0000 MHz)	8 VSB	19.393 Mbps	DTV1	HDMI	MPEG-2 VBR	AC-3	13.417 Mbps	HD

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**Above: Overview Tab – ATSC**



# Multicom MUL-HDENC-C-200 User Manual

HD ENCODER

Deluxe HD Encoder-Modulator Overview Encoder Setup RF Output Setup Network Setup Administration

Device Name	Model Name	ID Number	MAC Address	Firmware Version	Net Version
HDENC-290726	HD Encoder	1927 290726	F8:0D:EA:94:6F:A6	20200731_1630	1.2.13

---

RF Output 1

RF Output	Modulation	Channel	Constellation	Output Bitrate	Channel Name	Video Source	Video Output	Audio Output	Video Bitrate	Status
1	DVB-T	14 (473.0000 MHz)	64 QAM	23.751 Mbps	CHANNEL-1	HDMI	MPEG-2 VBR	AC-3	17.881 Mbps	HD

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## Above: Overview Tab – DVB-T

HD ENCODER

Deluxe HD Encoder-Modulator Overview Encoder Setup RF Output Setup Network Setup Administration

Device Name	Model Name	ID Number	MAC Address	Firmware Version	Net Version
HDENC-290726	HD Encoder	1927 290726	F8:0D:EA:94:6F:A6	20200731_1630	1.2.13

---

RF Output 1

RF Output	Modulation	Channel	Constellation	Output Bitrate	Channel Name	Video Source	Video Output	Audio Output	Video Bitrate	Status
1	ISDB-Tb	14 (473.1429 MHz)	64 QAM	23.235 Mbps	CHANNEL-1	HDMI	MPEG-2 VBR	AC-3	18.096 Mbps	HD

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## Above: Overview Tab – ISDB-Tb



## 5.0 STEP B: RF OUTPUT SETUP

The MUL-HDENC-C-200 is a Multi-Standard Output HD encoder allowing the installer to select from QAM, ATSC, DVB-T, or ISDB-Tb standards. Select any desired changes, including type of RF output. This needs to be done before making changes on the “**Encoder Setup**” tab.

1. Select the “**RF Output Setup**” tab from the top menu.
2. Use the drop down to select the proper RF standard required for your installation.
3. Modify all parameters as needed.
4. Click on the “**Save and Confirm**” button at the bottom of the “**RF Output Setup**” tab

### 5.1 RF Output Setup – QAM / ATSC

Use the RF Output Setup page to set the RF output type, RF Output CH/frequency, and Constellation.

1. **Select and set** the Modulation → **MUST also make selection in Channel Type**  
Modulation: J.83B / ATSC-8VSB  
Note: Country / Bandwidth will automatically be changed to 6MHz and that is the only option
2. **Modify and set** TS ID & Regional Name  
TS ID: (Factory Default is 1)  
Regional Name: (Factory Default is USA)

\* If installing multiple units in the same system – ensure each device has a unique TS ID.

3. **Select and set** the RF Type.  
RF: Normal, Inverted (Factory Default is Normal)
4. **Select and set** Channel Type.  
Channel Type: J.83B STD, J.83B HRC, J.83B IRC, ATSC (Factory Default is J.83B STD)
5. **Select and set** the required CH/Freq.  
CH/Freq QAM.: Factory Default is 2 (CH range 2-135, Freq. range: 57 ~ 861MHz)  
CH/Freq ATSC.: Factory Default is 2. (CH range: 2-69, Freq. range: 57 ~ 803MHz)
6. **Select and set** the required Constellation.  
Constellation (QAM TYPE): 256 QAM, 64 QAM (Factory Default is 256 QAM)  
Constellation (8VSB): (Factory Set: 8VSB)

**Save and Confirm** all changes settings on RF Output Setup page.

#### **Application Note:**

When installing more than 1 device into a system, each device must have a unique RF TS\_ID.

**We highly recommend you save your encoder configuration files.**

*See Administration tab for how to backup device settings.*



## HD ENCODER

Deluxe HD Encoder-Modulator Overview Encoder Setup **RF Output 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.

**Modulation**  
J.83B / ATSC-8VSB

**Country / Bandwidth**  
6 MHz

**RF Settings**

RF 1	
TS ID	1
Regional Name	USA
RF Output	Normal
Channel Type	J.83B : STD
Channel / Frequency	2 (57.0000 MHz)
Bandwidth (MHz)	6
Constellation	256 QAM
Interleaver	I = 128, J = 1
Maximum Allowable Bit Rate (Mbps)	22.844/ 38.810

**Save and Confirm**

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### Above: RF Output Setup Tab – J.83B / ATSC-8VSB



## 5.2 RF Output Setup - DVB-T

1- **Select and set** the Modulation

Modulation: DVB-T

2- **Select** the required Bandwidth for the country for your installation.

Options: 6, 7, or 8 MHz. (Factory Default is 6 MHz)

3- **Set / Enter** 'Original Network ID'. (Factory Default is 8362)

4- **Set / Enter** 'Network ID'. (Factory Default is 12289)

5- **Set / Enter** 'TS ID'. (Factory Default is 1)

\* If installing multiple units in the same system – ensure each device has a unique TS ID.

6- **Modify** 'Network Name' as required. (Factory Default is Colombia)

7- **Select and set** the RF Output.

RF: Normal, Inverted (Factory Default is Normal)

8- **Select and set** the required CH/Freq.

6MHz: Factory Default is 14 (CH range 2-69, Freq. range: 57 ~ 803MHz)

7MHz: Factory Default is 6 (CH range 6-9, 9A, 10-12, S11-S45, 21-69)

8MHz: Factory Default is E2 (CH range E2-E4, X-Z, Z1, Z2, S1-S10, E5-E12, S11-S41, E21-E69)

9- **Select and set** the required Constellation.

Constellation: 16 QAM, 64 QAM (Factory Default is 64)

10- **Select and set** the required FEC.

FEC Options: 7/8, 5/6, 3/4, 2/3, 1/2. (Factory Default is 7/8)

11- **Select and set** the required Guard Interval.

Guard Interval Options: 1/4, 1/8, 1/16, 1/32. (Factory Default is 1/32)

12- **Select and set** OFDM Mode.

OFDM Options: 2K, 8K. (Factory Default is 8K).

**Save and Confirm** all/any changes settings on RF Output Setup page.

**Once finished setting up the RF Output Setup parameters move to the Encoder Setup steps.**

**We highly recommend you save your encoder configuration files.**

*See Administration tab for how to backup device settings.*



## HD ENCODER

Deluxe HD Encoder-Modulator Overview Encoder Setup **RF Output 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.

#### Modulation

DVB-T

#### Country / Bandwidth

6 MHz

#### RF Settings

	RF 1
Original Network ID	8362
Network ID	12289
TS ID	1
Network Name	Colombia
RF Output	Normal
Channel / Frequency	14 (473.0000 MHz)
Bandwidth (MHz)	6
Constellation	64 QAM
FEC	7/8
Guard Interval	1/32
OFDM Mode	8k
CELL ID	0
Maximum Allowable Bit Rate (Mbps)	23.062/ 23.751

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### Above: RF Output Setup Tab – DVB-T



### 5.3 RF Output Setup - ISDB-Tb

1- **Select and set** the Modulation

Modulation: ISDB-Tb

Note: Country / Bandwidth will automatically be changed to 6MHz and that is the only option

2- **Enter** 'Original Network ID'. (Factory Default is 1860)

3- **Enter** 'Network ID'. (Factory Default is 1860)

4- Enter 'TS ID'. (Factory Default is 1)

\* If installing multiple units in the same system – ensure each device has a unique TS ID.

5-Modify 'Network Name' as required. (Factory Default is LATAM)

5- Select and set the RF Type.

RF: Normal, Inverted (Factory Default is Normal)

6- **Select and set** the required CH/Freq.

Factory Default is 14. (CH range 7-69, Freq. range: 177.1429 ~ 803.1429MHz)

7- **Select and set** the required 'Area Code'. (Factory Default is 4080)

8- Select and set 'Remote Key ID'.

Remote Key ID Range: 1-7 (Factory Default is 7).

9- **Select and set** the required Constellation.

Constellation: 16 QAM, 64 QAM (Factory Default is 64)

10- **Select and set** the required FEC.

FEC Options: 7/8, 5/6, 3/4, 2/3, 1/2. (Factory Default is 7/8)

9- **Select and set** the required Guard Interval.

Guard Interval Options: 1/4, 1/8, 1/16, 1/32. (Factory Default is 1/32)

10- **Select and set** OFDM Mode.

OFDM Options: 2K, 4K, 8K. (Factory Default is 8K).

11-Select and set Time Interleaved Mode.

Time Interleaved Mode Options: TI = 0 / 1 / 2 / 4. (Factory Default is TI=4).

**Save and Confirm** all/any changes settings on RF Output Setup page.





## 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.

### Modulation

ISDB-Tb

### Country / Bandwidth

6 MHz

### RF Settings

	RF 1
Original Network ID	1860
Network ID	1860
TS ID	1
Network Name	LATAM
RF Output	Normal
Channel / Frequency	14 (473.1429 MHz)
Bandwidth (MHz)	6
Segment Layer A	13
Area Code	4080
Remote Key ID	7
Constellation	64 QAM
FEC	7/8
Guard Interval	1/32
OFDM Mode	8k
Time Interleaved Mode	T1 = 4
Maximum Allowable Bit Rate (Mbps)	22.581/23.235

Save and Confirm Reset

### Above: RF Output Setup Tab – ISDB-Tb



***After finishing setting up the RF Output Setup parameters move to the Encoder Setup steps.***

**Application Note:**

When installing more than 1 device into a system, each device must have a unique RF TS\_ID.

**We highly recommend you save your encoder configuration files.**

*See Administration tab for how to backup device settings.*

**Note:** To reset all changes made or saved go to the Administration Page and select '**Reset to Default**'.

**\*Leaving the RF Output Setup page without saving changes will cause the previous settings to be used.**

- If the unit is outputting video to the system there will be a brief delay in the video while the parameters are saved.

## 6.0 **STEP C: ENCODER SETUP**

### 6.1 *Encoder Setup – QAM / ATSC*

**Set Encoder Settings:**

Select and set the specific parameters settings as required for your application.

**VCN (Channel Number):**

Enter VCN CHANNEL NUMBER: Enter the VCN Channel Number as required.

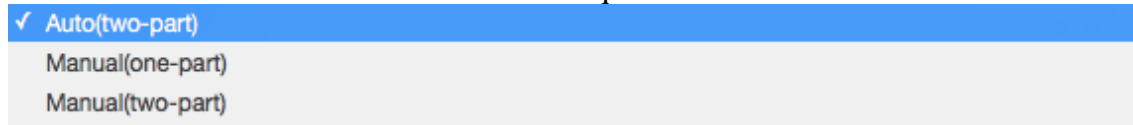
**Factory Default: 2.1**

The MUL-HDENC-C-200 offers 3 VCN (Virtual Channel Number) Modes.

- 1- **Select and set** VCN Mode.

**VCN Mode Options:**

Enter VCN Mode: Enter the VCN Mode as required.



**Factory Default: Auto (two-part)**

**VCN Mode (Auto two-part)-**VCN Auto 2-part- will force the VCN channels to be based on the CH/freq. selected on the RF Output Setup page of the device.



**Examples:**

CH	VCN Channel
57	57.1
101	101.1
134	134.1

- **This mode automatically sets the VCN based on the RF CH/freq. set in the RF Output Setup section.**

**VCN Mode (Manual two-part)-** VCN Manual 2-part- will allow the installer to control VCN channels regardless of the CH/freq. selected on the Output Setup page of the device.

**Examples:**

CH	VCN Channel
57	55.1
101	101.2
134	134.2

**Selecting this option requires the user to enter a VCN channel #.**

**VCN (Channel Number):**

Enter VCN CHANNEL NUMBER: Enter the VCN Channel Number as required.

**Factory Default: 2.1 (located in the RF Output Section)**

**VCN Mode (Manual one-part)-**VCN Manual 1-part- will allow the installer to control VCN channel regardless of the CH/freq. selected on the Output Setup page of the device.

**Examples:**

CH	VCN Channel
57	2
101	105
134	133

**Selecting this option requires the user to enter a VCN channel #.**

**VCN (Channel Number):**

Enter VCN CHANNEL NUMBER: Enter the VCN Channel Number as required.

**Factory Default: 101 (located in the RF Output Section)**

**Short Name: Set Short Name.**

Short Name will appear on the TV.

**Factory Default: DTV-1**

**Long Name: Enter Long Short Name.**

**Factory Default: J83-DTV1 / ATSC-DTV1 (according to the Channel Type)**



**Source ID: Set as required**  
**Factory Default: 101.**

**Video Input: Select and Set Video Input Source.**  
**Options:** Auto Detect (Factory Default, HDMI, Component, Composite)

**HD Bitrate (Mbps): Set HD BitRate**  
HD range (Mbps): 12 ~24 Mbps  
**Factory Default: 24 Mbps on J.83 / 17 Mbps on ATSC**

**SD Bitrate (Mbps): Set SD BitRate**  
SD range (Mbps): 1 ~ 9 Mbps  
**Factory Default: 4 Mbps**

**Program Number: Program Number**  
**Factory Default: 101**

**Test Mode: Enable / Disable**  
**Factory Default: Disabled**

### 6.1.1 Closed Captioning: Enable/Disable

To enable Closed Captioning for the HD Encoder, check the check box to enable the Closed Captioning function.

**IMPORTANT: Closed Captioning is only available in QAM or ATSC RF Output settings.**

#### ***Application Note:***

Closed Captioning requires ***an active Closed Captioning source from the CVBS input.***

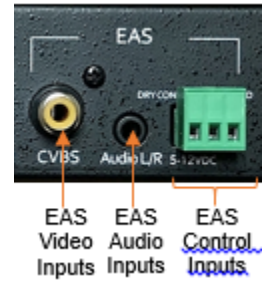
If the Source input does not supply the encoder with the Closed Captioning content no Closed Captioning will be displayed.

**- IMPORTANT: The Composite Input labeled “CVBS” under the “Video Input” must be used (connected to the CC source) to supply the CC source content for HDMI, Component, or Composite video input.**

**- IMPORTANT: If you enable captioning on the input source, you WILL NOT be able to turn it off on the encoder since it will go through as a video and not as a separate SRT file.**

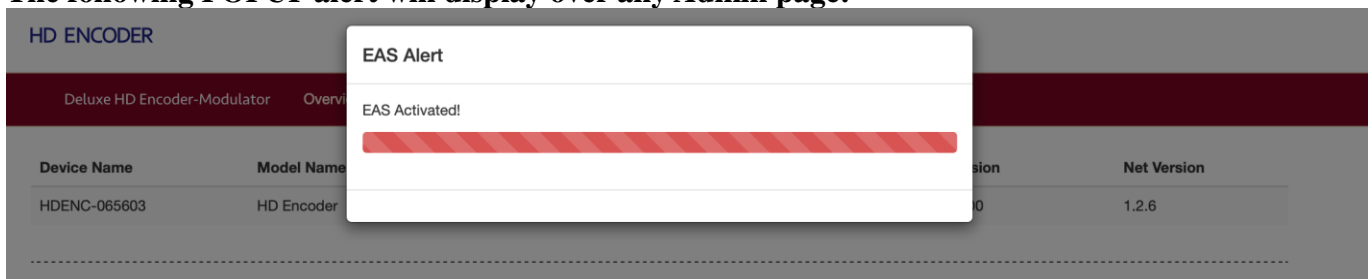
## 6.1.2 EAS Connections

EAS does not require any software setting. Refer to the picture as shown to the right for connections. CVBS is for the composite video input. Audio L/R is for the analog audio input. GREEN CONNECTOR (for activating EAS): The left-most connection is EAS positive 5-12VDC and the right-most connection is GROUND. A local switch or dry contact connection can be made from the center connection and the right-most connection.



**IMPORTANT:** EAS is only available in QAM/J.83B RF Output settings. All other countries/regions should NOT connect to the EAS inputs.

**During an EAS event (activation of EAS) the LCD screen will blink and indicate EAS is activated. The following POPUP alert will display over any Admin page:**



### Audio Settings

#### Audio Input:

**Audio Input Options:** Auto detect, Analog

#### Audio Output: Select Audio Output Type

Use the Drop Down tool to Select the Audio Format required.

- MPEG1 Layer2 (MP2)
- MPEG4 AAC
- AC-3

**Factory Default: AC-3**

**SAVE AND CONFIRM ALL CHANGES MADE ON THE ENCODER PAGE**

Save and Confirm

Cancel

**NOTE:** All Changes made will be show in the popup applet window (see below example) and **MUST** be confirmed/submitted or the changes will **NOT** be saved.



Apply changes x

---

**CAUTION:** Incorrect settings may cause the device to lose network connectivity. Recovery options will be provided on the next page.

Apply the following changes to this device?

- Encoder 1, Long Name: ATSC-Digital-TV1 => ATSC-Digital-TV2
- Encoder 1, Short Name: MY-DTV1 => MY-DTV2
- Encoder 1, VCN Mode: Auto(two-part) => Manual(one-part)
- Encoder 1, SD BitRate(Mbps): 4 => 8
- Encoder 1, Audio Output: MPEG1 Layer2 (MP2) => MPEG4 AAC
- Encoder 1, HD BitRate(Mbps): 24 => 15.5
- Encoder 1, VCN (Channel Number): 102.1 => 102

---

**Select 'Submit'**

**Note:** To reset all changes made or saved, go to the Administration Page and select '**Reset to Default**'.  
**\*Leaving the encoder page without saving changes will cause the previous settings to be used.**  
- If the unit is outputting video to the system there will be a brief delay in the video while the parameters are saved.

## 6.2 Encoder Setup – DVB-T

### Set Encoder Settings:

Select and set the specific parameters settings as required for your application.

#### LCN (Channel Number):

Enter LCN CHANNEL NUMBER: Enter the LCN Channel Number as required.

**Factory Default: 101**

#### Channel Name: Set Channel Name.

**Factory Default: Channel-1**

#### Provider Name: Set Provider Name.

**Factory Default: Multicom**

#### Video Input: Select and Set Video Input Source.

**Options:** Auto Detect (Factory Default, HDMI, Component, Composite)



**HD Bitrate (Mbps): Set HD BitRate**  
HD range (Mbps): 12 ~24 Mbps  
**Factory Default: 18 Mbps**

**SD Bitrate (Mbps): Set SD BitRate**  
SD range (Mbps): 1 ~ 9 Mbps  
**Factory Default: 4 Mbps**

**Program Number: Program Number**  
**Factory Default: 59518**

**Test Mode: Enable / Disable**  
**Factory Default: Disabled**

**Audio Input:**  
**Audio Input Options:** Auto detect, Analog

**Audio Output: Select Audio Output Type**  
Use the Drop Down tool to Select the Audio Format required.

A dropdown menu with a white background and a blue border. The menu is open, showing four options: 'AC-3', 'MPEG1 Layer2 (MP2)', 'MPEG4 AAC', and 'AC-3'. The bottom 'AC-3' option is highlighted with a blue background. A small downward-pointing arrow is visible on the right side of the menu box.

**Factory Default: AC-3**

***SAVE AND CONFIRM ALL CHANGES MADE ON THE ENCODER PAGE***

Two blue buttons with white text. The first button is labeled 'Save and Confirm' and the second button is labeled 'Cancel'.





### 6.3 Encoder Setup – ISDB-Tb

**Channel Name: Set Channel Name.**  
**Factory Default: Channel-1**

**Provider Name: Set Provider Name.**  
**Factory Default: Multicom**

**Video Input: Select and Set Video Input Source.**  
**Options:** Auto Detect (Factory Default, HDMI, Component, Composite)

**HD Bitrate (Mbps): Set HD BitRate**  
HD range (Mbps): 12 ~24 Mbps  
**Factory Default: 18 Mbps**

**SD Bitrate (Mbps): Set SD BitRate**  
SD range (Mbps): 1 ~ 9 Mbps  
**Factory Default: 4 Mbps**

**Program Number: Program Number**  
**Factory Default: 59520**

**HDCP (Test Mode): Enable / Disable**  
**Factory Default: Disabled**

**Audio Input:**  
**Audio Input Options:** Auto detect, Analog

**Audio Output: Select Audio Output Type**  
Use the Drop Down tool to Select the Audio Format required.

AC-3  
MPEG1 Layer2 (MP2)  
MPEG4 AAC  
AC-3

**Factory Default: AC-3**

***SAVE AND CONFIRM ALL CHANGES MADE ON THE ENCODER PAGE***

Save and Confirm Cancel



## 7.0 STEP D: USE TV AUTOSCAN

Use each TV’s AutoScan menu function to add the new HD Encoder channel(s) to the available TV channels list on each TV in the distribution network.

1. Make sure the correct input type is selected from the TV menu: Example: J.83B requires the TV to be set to “Cable”. ATSC requires the TV to be set to “Antenna” or “Air”.
2. Perform a full channel scan from the on-screen TV menu to detect all HD Encoders

## 8.0 Network Setup Tab

Management IP Setup:

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

HD ENCODER

**Factory Default GUI IP is 192.168.1.9**

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

Note: It is highly recommended that the GUI / Remote Setup IP address be recorded locally for remote access after the equipment is deployed.

The **NETWORK SETUP** MENU:

- Network Setup Menu: **Host Name**      Factory Default (Based on the S/N): HDENC-xyzXYZ
- Network Setup Menu: **IP Setup**      Factory Default: DHCP Disable      ➔ Enable
- Factory Default: IP Address: 192.168.1.9
- Factory Default: Subnet Mask: 255.255.255.0
- Factory Default: Default Gateway: 000.000.000.000



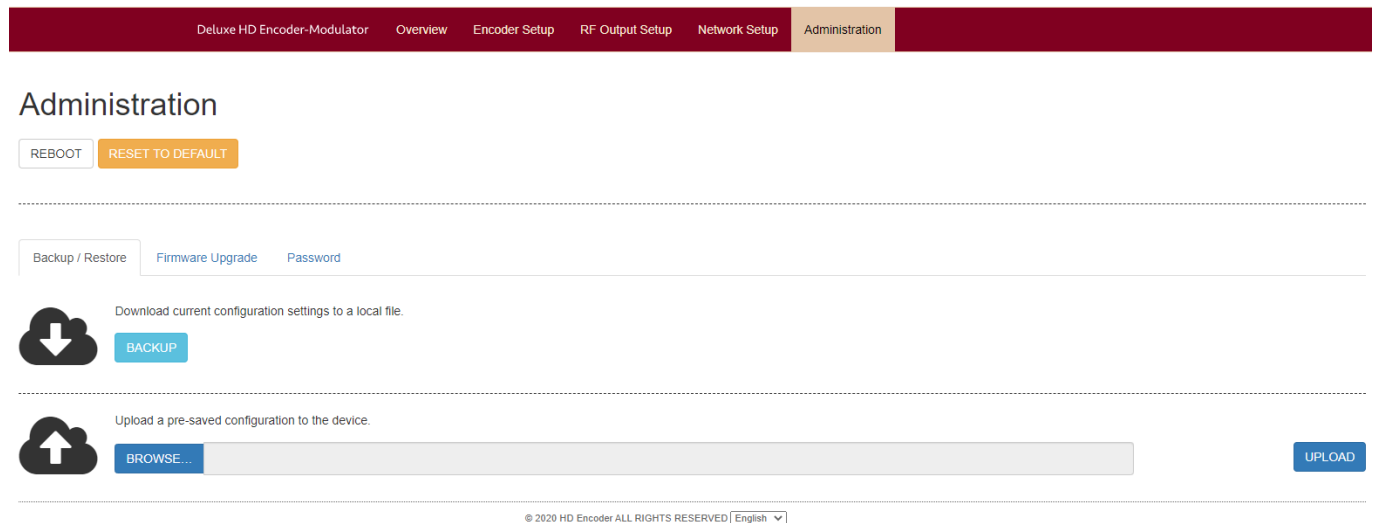
## 9.0 Administration Tab

**It is HIGHLY recommended that after all other tabs have been configured that the HD Encoder be rebooted using the REBOOT button on the ADMINISTRATION tab.**

The HD Encoder can be reset to factory default using this menu.

The BACKUP function will save the HD Encoder’s current parameter configuration in a file for backup purposes or so that it may be used to easily configure another HD Encoder (or restore this HD Encoder) using the UPLOAD button.

HD ENCODER



### 9.1 Reboot

Use the Reboot command button to reboot the device. The Reboot can also be done from the front panel by using a paper clip to push the Reboot button in the hole labeled “R” at the left side of the LCD display.

Note: Any unsaved changes will be lost.

### 9.2 Reset to Default

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

### 9.3 Saving your configuration files

**We highly recommend you save your configuration files. Simply Click the “Backup” button On the Administration tab and the config file will be saved to your computer.**



## 9.4 Restore/Upload saved file configurations

1. Select Administration tab.
2. Select BROWSE in the “Upload a pre-saved configuration to the device” section
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.

## 9.5 Change Password

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

HD ENCODER

The screenshot shows the Multicom web interface. At the top, there is a navigation bar with the following tabs: Deluxe HD Encoder-Modulator, Overview, Encoder Setup, RF Output Setup, Network Setup, and Administration. The Administration tab is selected. Below the navigation bar, the page title is "Administration". There are two buttons: "REBOOT" and "RESET TO DEFAULT". Below this, there are three tabs: "Backup / Restore", "Firmware Upgrade", and "Password". The "Password" tab is selected. The main content area is titled "Change Password". A yellow caution box contains the following text: "CAUTION: The new password must contain:" followed by a bulleted list: "6~8 characters", "At least one digit", "At least one uppercase character", and "At least one lowercase character". Below the caution box, there are three input fields: "Old Password:", "New Password:", and "New Password:". A blue "Save and Confirm" button is located below the input fields. At the bottom of the page, there is a copyright notice: "© 2020 HD Encoder ALL RIGHTS RESERVED" and a language dropdown menu set to "English".

**Save and Confirm new password.**



# 10.0 Frequencies/Channels provided

## 10.1 J.83B

Lowband	
CH.	Freq.
2	57.0000
3	63.0000
4	69.0000
5	79.0000
6	85.0000

Highband	
CH.	Freq.
7	177.0000
8	183.0000
9	189.0000
10	195.0000
11	201.0000
12	207.0000
13	213.0000

Midband	
CH.	Freq.
14	123.0125
15	129.0125
16	135.0125
17	141.0000
18	147.0000
19	153.0000
20	159.0000
21	165.0000
22	171.0000

Superband	
CH.	Freq.
23	219.0000
24	225.0000
25	231.0125
26	237.0125

Superband	
CH	Freq.
27	243.0125
28	249.0125
29	255.0125
30	261.0125
31	267.0125
32	273.0125
33	279.0125
34	285.0125
35	291.0125
36	297.0125

Hyperband	
CH	Freq.
37	303.0125
38	309.0125
39	315.0125
40	321.0125
41	327.0125
42	333.0250
43	339.0125
44	345.0125
45	351.0125
46	357.0125
47	363.0125
48	369.0125
49	375.0125
50	381.0125
51	387.0125
52	393.0125
53	399.0125
54	405.0000
55	411.0000

Hyperband	
CH.	Freq.
56	417.0000
57	423.0000
58	429.0000
59	435.0000
60	441.0000
61	447.0000
62	453.0000
63	459.0000
64	465.0000

Ultraband	
CH.	Freq.
65	471.0000
66	477.0000
67	483.0000
68	489.0000
69	495.0000
70	501.0000
71	507.0000
72	513.0000
73	519.0000
74	525.0000
75	531.0000
76	537.0000
77	543.0000
78	549.0000
79	555.0000
80	561.0000
81	567.0000
82	573.0000
83	579.0000
84	585.0000
85	591.0000

Ultraband	
CH.	Freq.
86	597.0000
87	603.0000
88	609.0000
89	615.0000
90	621.0000
91	627.0000
92	633.0000
93	639.0000
94	645.0000

Midband	
CH.	Freq.
95	93.0000
96	99.0000
97	105.0000
98	111.0250
99	117.0250

Jumboband	
CH.	Freq.
100	651.0000
101	657.0000
102	663.0000
103	669.0000
104	675.0000
105	681.0000
106	687.0000
107	693.0000
108	699.0000
109	705.0000
110	711.0000
111	717.0000
112	723.0000
113	729.0000

Jumboband	
CH.	Freq.
114	735.0000
115	741.0000
116	747.0000
117	753.0000
118	759.0000
119	765.0000
120	771.0000
121	777.0000
122	783.0000
123	789.0000
124	795.0000
125	801.0000
126	807.0000
127	813.0000
128	819.0000
129	825.0000
130	831.0000
131	837.0000
132	843.0000
133	849.0000
134	855.0000
135	861.0000



### 10.2 ATSC

Channel	Frequency
2	57.0000
3	63.0000
4	69.0000
5	79.0000
6	85.0000
7	177.0000
8	183.0000
9	189.0000
10	195.0000
11	201.0000
12	207.0000
13	213.0000
14	473.0000
15	479.0000
16	485.0000
17	491.0000
18	497.0000
19	503.0000
20	509.0000
21	515.0000
22	521.0000
23	527.0000
24	533.0000
25	539.0000
26	545.0000
27	551.0000
28	557.0000
29	563.0000
30	569.0000
31	575.0000
32	581.0000
33	587.0000
34	593.0000
35	599.0000

Channel	Frequency
36	605.0000
37	611.0000
38	617.0000
39	623.0000
40	629.0000
41	635.0000
42	641.0000
43	647.0000
44	653.0000
45	659.0000
46	665.0000
47	671.0000
48	677.0000
49	683.0000
50	689.0000
51	695.0000
52	701.0000
53	707.0000
54	713.0000
55	719.0000
56	725.0000
57	731.0000
58	737.0000
59	743.0000
60	749.0000
61	755.0000
62	761.0000
63	767.0000
64	773.0000
65	779.0000
66	785.0000
67	791.0000
68	797.0000
69	803.0000



### 10.3 DVB-T

#### 6 MHz

Channel	Frequency
2	57.0000
3	63.0000
4	69.0000
5	79.0000
6	85.0000
7	177.0000
8	183.0000
9	189.0000
10	195.0000
11	201.0000
12	207.0000
13	213.0000
14	473.0000
15	479.0000
16	485.0000
17	491.0000
18	497.0000
19	503.0000
20	509.0000
21	515.0000
22	521.0000
23	527.0000
24	533.0000
25	539.0000
26	545.0000
27	551.0000
28	557.0000
29	563.0000
30	569.0000
31	575.0000
32	581.0000
33	587.0000
34	593.0000
35	599.0000

Channel	Frequency
36	605.0000
37	611.0000
38	617.0000
39	623.0000
40	629.0000
41	635.0000
42	641.0000
43	647.0000
44	653.0000
45	659.0000
46	665.0000
47	671.0000
48	677.0000
49	683.0000
50	689.0000
51	695.0000
52	701.0000
53	707.0000
54	713.0000
55	719.0000
56	725.0000
57	731.0000
58	737.0000
59	743.0000
60	749.0000
61	755.0000
62	761.0000
63	767.0000
64	773.0000
65	779.0000
66	785.0000
67	791.0000
68	797.0000
69	803.0000





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7 MHz

Channel	Frequency
6	177.5000
7	184.5000
8	191.5000
9	198.5000
9A	205.5000
10	212.5000
11	219.5000
12	226.5000
S11	233.5000
S12	240.5000
S13	247.5000
S14	254.5000
S15	261.5000
S16	268.5000
S17	275.5000
S18	282.5000
S19	289.5000
S20	296.5000
S21	303.5000
S22	310.5000
S23	317.5000
S24	324.5000
S25	331.5000
S26	338.5000
S27	345.5000
S28	352.5000
S29	359.5000
S30	366.5000
S31	373.5000
S32	380.5000
S33	387.5000
S34	394.5000
S35	401.5000
S36	408.5000
S37	415.5000
S38	422.5000
S39	429.5000

Channel	Frequency
S39	429.5000
S40	436.5000
S41	443.5000
S42	450.5000
S43	457.5000
S44	464.5000
S45	471.5000
21	480.5000
22	487.5000
23	494.5000
24	501.5000
25	508.5000
26	515.5000
27	522.5000
28	529.5000
29	536.5000
30	543.5000
31	550.5000
32	557.5000
33	564.5000
34	571.5000
35	578.5000
36	585.5000
37	592.5000
38	599.5000
39	606.5000
40	613.5000
41	620.5000
42	627.5000
43	634.5000
44	641.5000
45	648.5000
46	655.5000
47	662.5000
48	669.5000
49	676.5000

Channel	Frequency
50	683.5000
51	690.5000
52	697.5000
53	704.5000
54	711.5000
55	718.5000
56	725.5000
57	732.5000
58	739.5000
59	746.5000
60	753.5000
61	760.5000
62	767.5000
63	774.5000
64	781.5000
65	788.5000
66	795.5000
67	802.5000
68	809.5000
69	816.5000



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8 MHz

Channel	Frequency
E2	50.5000
E3	57.5000
E4	64.5000
X	71.5000
Y	78.5000
Z	85.5000
Z1	92.5000
Z2	99.5000
S1	107.5000
S2	114.5000
S3	121.5000
S4	128.5000
S5	135.5000
S6	142.5000
S7	149.5000
S8	156.5000
S9	163.5000
S10	170.5000
E5	177.5000
E6	184.5000
E7	191.5000
E8	198.5000
E9	205.5000
E10	212.5000
E11	219.5000
E12	226.5000
S11	233.5000
S12	240.5000
S13	247.5000
S14	254.5000
S15	261.5000
S16	268.5000
S17	275.5000
S18	282.5000
S19	289.5000
S20	296.5000
S21	306.0000

Channel	Frequency
S21	306.0000
S22	314.0000
S23	322.0000
S24	330.0000
S25	338.0000
S26	346.0000
S27	354.0000
S28	362.0000
S29	370.0000
S30	378.0000
S31	386.0000
S32	394.0000
S33	402.0000
S34	410.0000
S35	418.0000
S36	426.0000
S37	434.0000
S38	442.0000
S39	450.0000
S40	458.0000
S41	466.0000
E21	474.0000
E22	482.0000
E23	490.0000
E24	498.0000
E25	506.0000
E26	514.0000
E27	522.0000
E28	530.0000
E29	538.0000
E30	546.0000
E31	554.0000
E32	562.0000
E33	570.0000
E34	578.0000
E35	586.0000
E36	594.0000

Channel	Frequency
E36	594.0000
E37	602.0000
E38	610.0000
E39	618.0000
E40	626.0000
E41	634.0000
E42	642.0000
E43	650.0000
E44	658.0000
E45	666.0000
E46	674.0000
E47	682.0000
E48	690.0000
E49	698.0000
E50	706.0000
E51	714.0000
E52	722.0000
E53	730.0000
E54	738.0000
E55	746.0000
E56	754.0000
E57	762.0000
E58	770.0000
E59	778.0000
E60	786.0000
E61	794.0000
E62	802.0000
E63	810.0000
E64	818.0000
E65	826.0000
E66	834.0000
E67	842.0000
E68	850.0000
E69	858.0000



10.4 ISDB-Tb

Channel	Frequency
7	177.1429
8	183.1429
9	189.1429
10	195.1429
11	201.1429
12	207.1429
13	213.1429
14	473.1429
15	479.1429
16	485.1429
17	491.1429
18	497.1429
19	503.1429
20	509.1429
21	515.1429
22	521.1429
23	527.1429
24	533.1429
25	539.1429
26	545.1429
27	551.1429
28	557.1429
29	563.1429
30	569.1429
31	575.1429
32	581.1429
33	587.1429
34	593.1429
35	599.1429
36	605.1429
37	611.1429
38	617.1429

Channel	Frequency
39	623.1429
40	629.1429
41	635.1429
42	641.1429
43	647.1429
44	653.1429
45	659.1429
46	665.1429
47	671.1429
48	677.1429
49	683.1429
50	689.1429
51	695.1429
52	701.1429
53	707.1429
54	713.1429
55	719.1429
56	725.1429
57	731.1429
58	737.1429
59	743.1429
60	749.1429
61	755.1429
62	761.1429
63	767.1429
64	773.1429
65	779.1429
66	785.1429
67	791.1429
68	797.1429
69	803.1429



## 11.0 Frequently Asked Questions (FAQ)/Troubleshooting

Most issues can be resolved by ensuring the cabling is correctly and tightly connected and that the correct parameter settings are selected in the HD Encoder and the TVs.

No Display on TV	HD Encoder or TV not setup completely or not correctly	<ol style="list-style-type: none"> <li>1. Ensure the source and the HD Encoder are powered on</li> <li>2. Ensure that there is output from the video source (direct connect the source with a HDMI to a TV)</li> <li>3. Ensure that there is output from the HD Encoder – output bit rate should be shown on LCD</li> <li>4. Ensure that the correct HD Encoder output is selected in RF OUTPUT SETUP, i.e. J.83B,ATSC,DVB-T,ISDB-Tb.</li> <li>5. Ensure that the TV is set on the correct input type: J.83B QAM requires “CABLE”. ATSC requires “ANTENNA” or “AIR”.</li> <li>6. Ensure that the RF level at the coax cable is within the TV input range</li> <li>7. Ensure that the TV has performed the full Channel scan to detect and setup the new HD Encoder channels.</li> <li>8. Ensure the TV has been tuned to the correct channel detected from HD Encoder</li> <li>9. Ensure that the ENCODER SETUP specifies a valid Program Number.</li> </ol>
Color Bars on Screen	No video input is detected	<ol style="list-style-type: none"> <li>1. Check the source, make sure the HDMI output from the source is working (plug into a TV to check).</li> <li>2. Ensure the source is high</li> </ol>



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		<p>quality. Many Chinese MEDIA PLAYERS are low quality and/or low stability AND may also delay playing between media files causing issues/color bars on screen for periods of time. It is recommended to use high quality DIGITAL SIGNAGE PLAYERS.</p>
Pink Screen	<p>Encrypted HDMI is being input from encrypted DVD/Blu-Ray/Satellite Receiver/Etc.</p>	<ol style="list-style-type: none"> <li>1. The HD Encoder can only accept unencrypted HDMI input, i.e. user generated video files which do not have restricted content with HDCP protection. The content can be provided via the component video and audio connectors instead.</li> </ol>
No Display/Error Message on TV with DVD/ Blu-Ray Player	<p>Occasionally “No Input” message will appear on TV. HD Encoder output will stop output if no Player input is available</p>	<ol style="list-style-type: none"> <li>1. See note above about HDCP content restrictions</li> <li>2. Player output will stop when it is overly slow to read data (old/dirty player)</li> <li>3. Make sure the DVD/Blu-Ray media is clean, no scratches, no fingerprints, etc</li> </ol>
Video Dots/Noise on TV	<p>Dots appearing over the video screen</p>	<ol style="list-style-type: none"> <li>1. Previous content/modulators existed for this TV channel. Power cycle the TV and the HD Modulator. Use the Channel Scan function on the TV to detect the new installed HD modulator(s).</li> <li>2. Ensure the source is high quality. Many Chinese MEDIA PLAYERS are low quality and/or low stability AND may also delay between media causing issues. It is recommended to use high quality DIGITAL SIGNAGE PLAYERS.</li> </ol>



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Video Blocks/Noise on TV	Occasionally compression artifacts appear	<ol style="list-style-type: none"><li>1. Ensure that the source is without noise and compression artifacts</li><li>2. Ensure that the RF input levels to the TV are within range</li></ol>
No audio	No audio output from TV	<ol style="list-style-type: none"><li>1. Ensure the output of the HD Encoder is the same as the TV. Some models of older HDTVs may only accept AC-3 audio.</li><li>2. Do reboot/factory reset of the HD Encoder. Default audio output is AC-3.</li></ol>
Rebooting	Occasionally HD Encoder reboots	<ol style="list-style-type: none"><li>1. Ensure that the HD encoder is disconnected from the ethernet cable to insure it is secure from the internet, hackers, viruses, DoS/DDoS attacks, traffic, etc.</li></ol>

## 12.0 After-Sales Service

1. If the equipment malfunctions, immediately contact your local in-country dealer or distributor or directly call our MULTICOM Technical Support Hotline 1 800-423-2594.
2. The onsite installation, maintenance, and operation of equipment must be performed by trained professional technicians to avoid damage.  
**Special notice:** If the equipment has been installed, maintained, and/or changed by end users, and is damaged, MULTICOM will not be responsible for free maintenance or free replacements.

## 13.0 Disclaimer

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