# **User Guide and Installation Manual**

HDME-804 Eight Input QAM Encoder / Modulator



# MPEG-2 / H.264 HD ENCODER with QAM /IP/ & ASI Outputs

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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:

- HDME-804 Encoder / Modulator
- One power cable
- > One installation / configuration manual

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

# **Product Description**

The HDME-804 Encoder/Modulator simultaneously provides QAM, IP, and ASI output streams making it ideal for any Commercial RF or IP Network integration. The high quality HD design allows for watching action packed movies and sports channels on any HDTV. The HDME-804 Encoder/Modulator supports a variety of DTV standards. The Dolby® Digital Encoding capabilities rounds out this feature rich product. This space saving design delivers up to 8 High Quality HD/SD QAM/IP/ASI channels in a single 1RU space.

\*Dolby is a trademark of Dolby Laboratories.

- ✓ High Resolution up to 1080i/1080p
- ✓ 3 VCN Modes available
- ✓ HDMI (unencrypted), Component / Composite via DIN cable.
- ✓ MPEG2 or H.264 (AVC) Video (Selectable) Output
- ✓ Individual IP Stream Enable / Disable Control
- $\checkmark$  >+40dB MER
- ✓ Closed Captioning Support
- ✓ +45dBmV Output
- ✓ EAS Functionality
- ✓ Rack mountable 1RU height



# Specifications

INPUTS	
HDMI	1.4v (x8)
DIN	Component / Composite via DIN cable
AUDIO Inputs	
Audio Input	via DIN or HDMI embedded
VIDEO Encoder	
Video Codecs	MPEG-2, MPEG-4(AVC) Selectable
Video Resolutions	1080p (MPEG-4 Only), 1080i, 720p, 576p, 576i, 480p, 480i
AUDIO Encoder	
Audio Compression	MPEG-1 Layer II, AAC, Dolby Stereo AC-3
RF QAM SUPPORT	
Frequency	57-861 MHz (CH 2-CH 135)
RF Channel Output (programs/QAM)	2 programs / QAM
QAM	J.83 Annex B
Constellation	256 QAM
Bandwidth	6 MHz
RF Level Output	+45dBmV Typical
MER	>42dB (43 dB Typical)
Interleaver	Supported (12 presets)
Channel Type	STD, HRC, IRC
VCN	VCN Auto, VCN Manual, VCN 1-Part
Attenuation	1 – 20dB (1 db Steps)
RF Output	"F"- Female 75 $\Omega$
Closed Captioning Control	Supported
IP Output	
Туре	1RJ-45, GbE
Stream Type	UDP/RTP Unicast, Multicast
TS Format	SPTS
Stream Control	Enable / Disable Control per Stream
ASI Output	
Connection	BNC 75 $\Omega$ (front-end mounted)
Output	MPTS Multiplexed
EAS Support	
Connection	Dry Contact
Audio/Video Input	DIN
Management / Control	
GUI Supported	IE9, FireFox, Chrome, Safari
GUI Control	RJ45 10/100
Password Protected	GUI
General	
Rack mountable (1RU)	482.7mm x 240mm x 44.4mm (19" x 9.45" x 1.75"), 19" EIA
Fan Cooled	Internal
Front Panel	LED System Indicators (Power, up to 8 Encoder Status LEDs)

\*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.

### 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 EIA 19" rack.
- 2. The unit comes standard with HDMI and DIN inputs (Component and Composite video inputs). The HDME-804 encoder / modulator is intelligently designed to detect the video input from the video source. **HDMI Connection:** Connect the HDMI cable(s) from the video source(s) into the HDMI input(s). Or, Connect the DIN Cable to the back of the encoder as required using the DIN to DIN or DIN to breakout cable.

Repeat this step for each video source connection required.

Be sure the connections for each source are consistent with the unit's inputs (IN1...IN8).

- 3. Use a quality  $75\Omega$  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.
- 4. If connecting to an IP network- connect the Ethernet cable to the IP output RJ45 connector.

(IGMP capable and enabled switch is required)

- 5. If connecting the ASI output- connect the BNC cable to the ASI output.
- 6. If connecting to an EAS Receiver make the proper connections (connect relay and Video /Audio Inputs) to the EAS receiver.
- 7. Connect the included power cord to the unit's POWER plug.
- 8. Connect the power cord to an appropriately rated AC power outlet.



Encoder Status Lights: Solid Green Encoder connected to Input source Flashing Green: No connection / free run Flashing Red: EAS Event

### **DEVICE Programming and Setup:**

# 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.

# Encoder Programming and Setup via GUI Interface:

After connecting the device to the "Web Management" port located on the rear of the device and connecting to a PC / Laptop.

## Step 1: Enter Device's IP address in web browser.

Overview Page of Encoder

rview	Welcom	e!				
mon Setup	Device Name		ME 004		16,502	
etup	Model Number:	HDI	GB-8604		Z	
ler Setup	Device Address	<b>;;</b> 1			20	1.100
, coup	System: Net Version:	DVI 201	3-C J.83B			
reaming p	Firmware Version	ion: 201	50720_15	27		
Management						
P	RF Output 1	RF Outp	ut 2 R	F Output 3	RF Output 4	
nistration	Channel	3 (63.0	000 MHz)			
inistration	Channel Constellation	3 (63.0 256	000 MHz) SQAM			
ninistration	Channel Constellation Output Bitrate	3 (63.0 256 38	000 MHz) 5QAM .811			
inistration	Channel Constellation Output Bitrate	3 (63.0 256 38 Input 1	000 MHz) SQAM .811 Input 2			
ninistration	Channel Constellation Output Bitrate Channel Name	3 (63.0 256 38 Input 1 TV1	000 MHz) 5QAM .811 Input 2 ZyCast2	-		
inistration	Channel Constellation Output Bitrate Channel Name Video Source	3 (63.0 256 38 Input 1 TV1 Auto	000 MHz) SQAM .811 Input 2 ZyCast2 Auto	-		
inistration	Channel Constellation Output Bitrate Channel Name Video Source Video Output	3 (63.0 256 38 Input 1 TV1 Auto MPEG2	000 MHz) SQAM .811 Input 2 ZyCast2 Auto H.264	-		
ninistration	Channel Constellation Output Bitrate Channel Name Video Source Video Output Audio Output	3 (63.0 256 38 Input 1 TV1 Auto MPEG2 AC-3	000 MHz) 5QAM .811 Input 2 ZyCast2 Auto H.264 AC-3	-		

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Welcome page showing overview status of the HDME-804 when fully functioning.

Alternate between viewing status of **RF Output 1**, **RF Output 2**, **RF Output 3**, **RF Output 4** by selecting the RF Output tab of the device you want to monitor.

# Step 2: Login Select Common Setup

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

# **GUI Login Password:**

Default User Name: admin Default Password: Admin123

To view this "Protected" Your password	page, you must log in to area on 192.168.1.9:80. d will be sent unencrypted.
Name:	admin
Password:	••••••
Rememb	er this password in my keychain
	Cancel Log In

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

# Common Setup

Overview	Common Setup
Common Setup	This page allows the user to setup common configurations. Here you may save
RF Setup	the changed values into browser's session storage. After you review all your updates for common, RF, and encoders' setup, you can use the upload and
Encoder Setup	reboot function to store the new parameters for the device.
IP Streaming Setup	Output Channel:         102 (663.0000 MHz) ÷           Attenuation:         0 dB ÷
Web Management Setup	VCN Mode: VCN(MAJOR & MINOR) Auto +
Administration	Regional Name: USA
	Device Address: 1 ÷
	Local Save Upload and Reboot Reset local changes
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Use the Common Setup Page to set the Output channel, Select VCN Mode, and Device Address.

Step 4: Local Save Perform a Local Save once all parameters are set.

### Application Note:

When installing more than 1 device in a headend, the integrator must select a unique Device Address for each Encoder being installed in the system.

If outputting directly into a HDTV, you must first attenuate the output (+45dBmV typical).

### **Notes on Changes:**

Changes made to an individual setup tab may require the installer to perform a Local Save AND Upload and Reboot if only making changes to one parameter of the encoder.

*Example:* Installer is required to change only the output channel for the device (No other changes to the device are required). Once the channel has been changed, the installer is required to perform 1) Local Save *AND* 2) Upload and Reboot.

### VCN Modes Available:

# **Common Setup**

This page allows the user to setup common configurations. Here you may save the changed values into browser's session storage. After you review all your updates for common, RF, and encoders' setup, you can use the upload and reboot function to store the new parameters for the device.

Attenuation: VCN(MAJOR & MINOR) Auto VCN(MAJOR & MINOR) MANU VCN Mode: VCN(Ope Part) MANUAL
VCN Mode: VCN(MAJOR & MINOR) MANU
Channel Type: STD ᅌ
Regional Name: USA

### VCN (Major & Minor) Auto: Factory Default

When selecting this VCN, unit will automatically set the output channels.

### **Example:**

Output Channel (2)

2.1 & 2.2 (QAM 1), 3.1 & 3.2 (QAM 2), 4.1 & 4.2 (QAM 3), and 5.1 & 5.2 (QAM 4)

### VCN (Major & Minor) Manual

Using the VCN Major & Minor Manual setting offers the integrator the ability to set the channel manually. Although the Output Channel is set to 102 (663.0000MHz) the Major & Minor Channels do not have to follow or correspond to the output channel.

### Example:

Output Channel (102).

5.1 & 5.2 (QAM 1), 6.1 & 6.2 (QAM 2), 7.1 & 8.1 (QAM 3), 11.1 & 12.1 (QAM 4)

### VCN (One Part) Manual

Using the VCN (One Part) Manual setting offers the integrator the ability to set the channel manually. Although the Output Channel is set to 102 (663.0000MHz) the Channels do not have to follow or correspond to the output channel.

### **Example:**

Output Channel (102). 102, 103 (QAM 1), 104, 105 (QAM 2),106, 107 (QAM 3), 108, 109 (QAM 4)

### Application Note:

Regardless of the VCN channel set using VCN Major & Minor (Manual) or VCN 1-Part Method, the RF Carrier Frequency of the Output Channel will still be occupied for all (4) four QAM channels of the HDME-804.

The HDME-804 will automatically set the RF QAM frequency for the device once the Output Channel has been selected and saved. (RF QAM channel 1, RF QAM channel 2, RF QAM channel 3, and RF QAM channel 4).

Go to Encoder Page to Set/Modify the VCN Channel (if VCN Manual or VCN One-Part selected).

### Notes on Channel Selection: The image below shows the Output Channel is set to CH # 102.

Overview	Common Setup
Common Setup	This page allows the user to setup common configurations. Here you may save
RF Setup	the changed values into browser's session storage. After you review all your updates for common, RF, and encoders' setup, you can use the upload and
Encoder Setup	reboot function to store the new parameters for the device.
IP Streaming Setup	Output Channel: 102 (663.0000 MHz) +
Web Management	Attenuation: 0 dB ÷
Setup	VCN Mode: VCN(MAJOR & MINOR) Auto ÷
Administration	Regional Name: USA
	Device Address: 1 ÷
	Local Save Upload and Reboot Reset local changes
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The examples below show how each input on the Encoder is placed in RF1, RF2, RF3, and RF 4 output QAMs. **Note:** The RF2, RF3, and RF4 Physical Channel Output is determined by the selection of output channel RF1.

#### HDME-804 example 1: RF1 (QAM 1) RF2 (QAM2) **RF3 (QAM 3)** RF4 (QAM 4) IN-7 IN-1 IN-3 IN-5 IN-8 IN-2 IN-4 IN-6 CH # 104.1 CH # 102.1 CH # 103.1 CH # 105.1 CH # 102.2 CH # 103.2 CH # 104.2 CH # 105.2

### HDME-804 example 2:

Setting the Output Channel to CH# 2 would result in the following RF1/RF2/RF3/RF4 configuration below.

<b>RF1 (QAM 1)</b>	RF2 (QAM2)	<b>RF3 (QAM 3)</b>	<b>RF4 (QAM 4)</b>
IN-1	IN-3	IN-5	IN-7
IN-2	IN-4	IN-6	IN-8
CH # 2.1	CH # 3.1	CH # 4.1	CH # 5.1
CH # 2.2	CH # 3.2	CH # 4.2	CH # 5.2

# Step 5:RF Setup

**RF** Setup

	ZyCast HD Encodulat
Overview	RF Setup
Common Setup	This page allows the user to configure RF parameters for the encoder. Here you
RF Setup	may save the changed values into browser's session storage. After you review all your undates for common, BE and encoders' setup, you can use the unload
Encoder Setup	and reboot function to store the new parameters for the device.
IP Streaming Setup	RF Output 1 RF Output 2 RF Output 3 RF Output 4
Web Management Setup	Constellation:         256QAM ÷           Interleaver:         I=128, J=1 ÷
Administration	RF Output: Normal +
	RF TS ID: 1 🔅
	Enable:

Use the RF Setup Page to setup each RF Output Select **RF Output 1**, **RF Output 2**, **RF Output 3**, **or RF Output 4 Select** and set the required parameters you require for your installation.

The HDME-804 offers the integrator the ability to disable a RF QAM. To Disable the a RF Output (QAM) simply "uncheck"

the "enable" checkbox on any RF Output tab.

### Application Note:

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

# **Step 6: Local Save**

Perform a Local Save for each RF Output tab.

Setting up Multiple devices within the same system.

Device Address		RF TS	ID	
	RF1	RF2	RF3	RF4
1	1	2	3	4
2	5	6	7	8
3	9	10	11	12
4	13	14	15	16

# **Step 7: Encoder Setup**

Encoder	Setup	

	-		-						
VCN:				2	٢				
Video	Input			Auto	detect	٥			
Progr	am Nu	mber:		1	٢				
Short	Short Name: TV1 local								
Long	Channe	el Nan	ne:	ATSC	-Digital	-TV1			
Sourc	e ID:			1	٢				
Aspec	t Ratio	:		16:9	٥				
Video	Outpu	t:		MPE	G2 CBR	oca	1		
Audio	Input	:		Auto detect 🗘					
Audio	Outpu	t:		AC-3					
Close	d Capti	on:							
Bright	tness:			128	0				
Contr	ast:			128	٢				
Satur	ation:			128	0				
Hue:				128	0				

Select Encoder 1, 2, 3, 4.... 8 tabs to program any individual encoder. Select and change all desired parameters.

VCN Channels can be set if VCN Mode was set to Major & Minor Manual or VCN 1-Part on the Common Setup page.

### **Step 8: Local Save for each Encoder tab**

Performa a 'Local Save' on Each Encoder Tab where changes were made.

# **Step 9: IP Streaming**

# **IP** Streaming Setup

							ZyO	Cast H	D Encod
Overview	<b>IP Stre</b>	ami	ng						
Common Setup	This page allows the user to setup th				e IP Str	eamino	setting	as. Her	e vou ma
RF Setup	save the changed values into browser's session storage. After you re your updates for common. RE, encoders' setup, and IP Streaming, you						u review a		
Encoder Setup	the upload and n	eboot fu	nction	to sto	re the r	iew par	rameter	s for t	he device
IP Streaming Setup	Netwo	ork S	etup	)	🗌 Ena	ble DH	СР		
Web Management	IP Add	IP Address: Subnet Mask:			192.168.1.10 255.255.255.0				
Setup	Subnet								
Administration	Gateway:				0.0.0.0				
	Streaming 1	2	3	4	5	6	7	8	
	Stream	Metho	d:		RTP U	nicast	\$		
	Destina	Destination IP: Destination Port: TTL:			192.168.1.20 10000 0 63 0				
	Destina								
	TTL:								
	Enable	Enable:							

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Use the IP Streaming setup page to set your device's IP streaming IP Address, and select your streaming method protocol and Destination IP, Port, and TTL settings.

### Network Setup:

IP address for IP Output Port. Default: 192.168.1.10

### **Streaming Methods Available:**

RTP / UDP Unicast and RTP / UDP Multicast

### **Disabling IP Streams**

The HDME-804 offers the user a SPTS output stream. Each Stream can be disabled as required.

To disable an IP Stream uncheck 'Enable' on the appropriate IP Stream tab.

Stroom Motho				
Stream Metho	d:	UDP M	ulticast	\$ 
Destination IF	P:	224.1.1	.1	
Destination Pe	ort:	1234	÷)	
TTL:		<b>4</b> 🗘		
Enable:		local		

Select Streaming 1, Streaming 2, Streaming 3, Streaming 4.... Streaming 8 tabs as required.

### **Step 10: Local Save**

Perform a Local Save one each Stream tab once all parameters are set.

\*\*\* Ensure all Encoder changes have been locally saved before performing Step 11 \*\*\*

## **Step 11: Upload and Reboot**

Once all the encoder's settings are changed and a **Local Save** was performed for each Setup tab **Select** "**Upload and Reboot**" on the IP Streaming page. This function will upload and save all parameters set in the Common, RF, Encoder, and IP Streaming sections of the device. Your device will reboot.

**Reminder:** If changing only a setting on a specific setup page- remember to **perform** a **Local Save** and **Upload and Reboot**.

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

See Administration tab for how to backup your device settings.

# Step 12: Network Configuration Tab

Network Configuration

Overview	<b>Network Conf</b>	iguration						
Common Setup	This page allows user to configu	ire the encoder's network settings.						
RF Setup	CAUTION: Incorrect setting	s may cause the encoder to lose network						
Encoder Setup	connectivity. Recovery options will be provided on the next page.							
IP Streaming Setup	Enter the new settings for the e	ncoder below:						
Web Management	Host Name:	ZYCAST-### ZYCAST-001						
Setup								
Administration		Enable DHCP						
	IP Address:	169.254.189.115						
	Subnet Mask:	255.255.0.0						
	Gateway:	0.0.0.0						
		Save Config						
	Å							

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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.

# **Step 13: Save Network Configuration**

Save Config: Once all parameters are set you are required to select Save Config. 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.

# **Step 14: Administration**

### Administration

Overv Comn RF Se Encod IP Str Setup

ZyCast HD encoder/modul
Administration
Rehear
Reboot the device. All unsaved settings will be lost.
Reset to Default
Reset configuration to factory default.
- ·
Backup
Backup and download current configuration settings to a local file.
Config File: Choose File no file selected Upload
Upload the pre-saved configuration settings to device.
CAUTION: The new password must contain:
<ul> <li>6~8 characters</li> <li>At least one digit</li> </ul>
<ul> <li>At least one uppercase character</li> <li>At least one lowercase character</li> </ul>
Old Password:
New Password:
Retyne New Password:
hetpe new rassworu.

Administration Page Functions	Actions
Reboot	Reboot device. All unsaved settings will be lost.
Reset to Default	Reset all settings back to original factory settings
Backup	Download all settings of device
Upload	Upload a saved config file
New Password	Create and save new password for GUI

### \*\*\*\*Caution\*\*\*\*

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

Step 15: 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.

# Saving your configuration files

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

To upload a configuration file- simply click **"Choose File"** then locate the file you want to upload. Click **"Upload"** to install the configuration files. This function is helpful when installing a large number of encoders in a single system.

# ASI Output

This device is equipped with an ASI combined (MPTS) output. Connect a BNC cable to the ASI output connector (75  $\Omega$ ) and to your Broadcast capable device.

# EAS

This device is equipped with EAS Terminals/connections and 1 Video/Audio input (DIN Audio / Video Input).

Connect your EAS Alert Device System output to the Encoder using the DIN to breakout cable. Connect the devices as recommended by your EAS System,

Operation:

If the encoder receives the proper Event signal from your EAS device, the normal input audio/video will 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 Integrator/System Operator /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 Integrator/System Operator /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 Integrator/System Operator /Installer/User to replace this device as required by the FCC or your specific Government Agency.

Product Notes:

Distributed by: