digi-MOD RL-DM8000 www.digi-modbyzycast.com

RL-DM8000 8 Input DVB-T Encoder / Modulator User Guide and Install Manual

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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 RL-DM8000 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. Contact your distributor or dealer should the device be damaged or package contents are incomplete.

Product Description

resi-linx digi-MOD Series Encoder/ Modulators provides a DVB-T output stream - making it ideal for any Commercial RF Network. The high quality design allows for watching action packed movies and sports channels on any TV. The space saving design delivers up to 8 High Quality DVB-T channels in a single 1RU space.

- · Front panel LCD Display for easy installation
- LCN MODE
- 8 Composite inputs
- · MPEG2 Video Output

- Selectable Constellation
- Closed Captioning Support
- 100dB Output
- Rack mountable 1RU height

Specification

VIDEO INPUTS (VIDEO BY PRIORITY)	
Composite	CVBS (RCA)
AUDIO INPUTS	
Audio Inputs	L/R (RCA)
VIDEO ENCODER	
Mode	MPEG-2
Video Resolutions	576p, 576i, 480p, 480i
AUDIO ENCODER	
Audio Compression	MPEG-1 Layer II
RF DVB-T SUPPORT	
Frequency	Channel Plan - Varies by Country
RF Channel Output	8 multiplexed on to 2 x RF Output Channels
Constellation	64QAM (16QAM)
Bandwidth	7 MHz
RF Level Output	100dB
MER	> 40dB Typical
FEC	1/2, 2/3, 3/4, 5/6, 7/8
Guard Interval	1/4, 1/8, 1/16, 1/32
OFDM	8K (2K)
Attenuation	1-20dB (1dB steps)
RF Output	"F" - Female 75 ohm
Closed Captioning Control	By Selection (use of CVBS Input)
MANAGEMENT / CONTROL	
Front Panel LCD Control	Full Support (Up/Doen/OK Buttons)
GUI	IE9, Firefox, Chrome, Safari
Password Protected	Front Panel, GUI
GENERAL	
Rack Mountable (1RU)	482.7mm x 240mm x 44.4mm - 19" EIA Standard
Internal Fan Cooled	Dual Internal
LCD Front Panel	Dual Line, Scrolling Display

^{**}Subject to change without notice

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 Composite video inputs. Use a 75Ω coaxial cable with RCA connectors to connect the **video source** (e.g., CATV, DVD, VCR, Camera) to the unit's CVBS port (IN1...IN2, IN3, IN4 etc depending on your model). Repeat this step for each video source connection.
- Composite Audio inputs: Connect A/V audio input (Left / Right Audio) use RCA cables to connect the audio source to the red
 / white AUDIO L and AUDIO R INPUT jacks (IN1...IN2, IN3, IN4 depending on your model). Repeat this step for each audio
 source connection.
- 4. Be sure the video and audio connections for each source are consistent with the unit's inputs (IN1...IN2, IN3, IN4 depending on your model).
- 5. 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.
- 6. Connect the included power cord to the unit's POWER plug.
- 7. Connect the power cord to an appropriately rated AC power outlet.

Device Programming and Setup

To setup and program the Encoder you can use the GUI interface or the LCD Front Panel.

Connecting to the GUI Interface

- 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.
- 2. Using a Windows-based PC Select Windows Icon
- 3. Go to My Computer
- 4. Select Network
- 5. Allow UPnP to locate and list the device(s) in the right panel
- 6. Right Click and Select "View device Webpage".

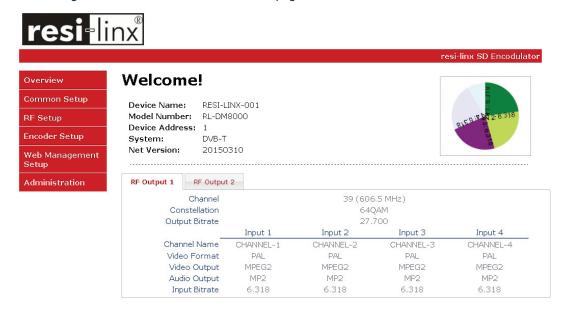
NOTE:

For Setup Using Front Panel LCD: Go to page 11 in this manual.

Encoder Programming and Setup via GUI Interface

After connecting the device to the "Web Management" port located on the rear of the device and locating the device via the 'Network' tool in 'My Computer'

STEP 1: Right Click and Select "View device Webpage".



Overview Page

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

Alternate between viewing status of **RF Output 1** and **RF Output 2** by selecting the RF Output section 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:



Default User Name: admin
Default Password: Admin123

NOTE: Local Save

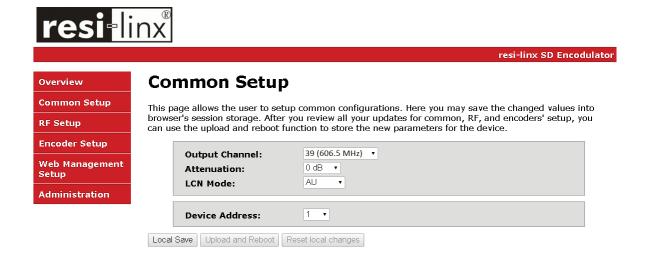
Once all parameters are set you are required to do a Local Save.

Notes on Changes: Changes made to an individual setup tab may require the installer to perform a Local Save AND Upload and Reboot to the device if you are only making changes to one parameter to the encoder.

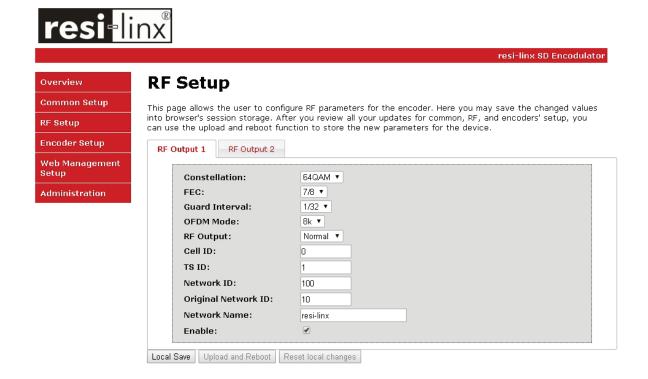
Example: Installer is required to change only the output channel for the device (No other changes to the device are not required). Once the channel has been changed, the installer is required to perform

- Local Save and
- 2. Upload and Reboot.

Common Setup: Use the Common Setup Page to set the Output channel, Attenuation, LCN Mode, and Device Address.



STEP 4: RF Setup



Use the RF Setup Page to setup each RF Output.

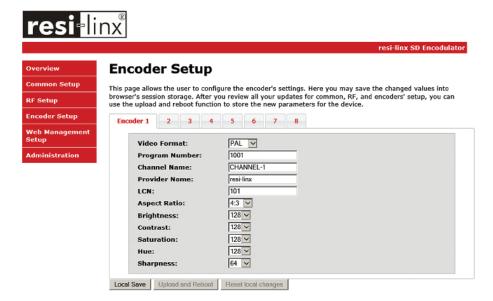
Select RF Output 1 or RF Output 2.

Select and set the required parameters you require for your installation.

STEP 5: Local Save

Once all parameters are set you are required to do a Local Save.

STEP 6: Encoder Setup



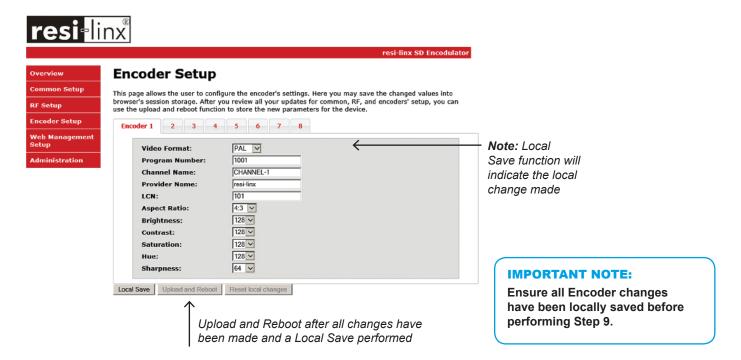
NOTE:

There is an Encoder tab present for each input on the device.

Select the Encoder 1, 2, 3, 4 tab to program an individual encoder. Select and change all desired parameters.

STEP 7: Local Save for each Encoder tab

Once all parameters are set you are required to do a Local Save on EACH Encoder Tab where changes were performed



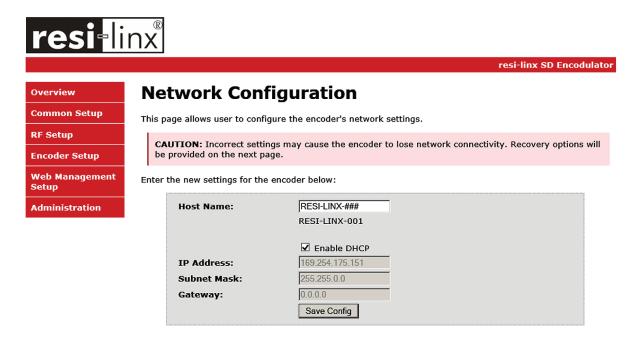
STEP 8: Upload and Reboot

Once you have set all the encoder settings and performed a Local Save for each encoder

Select "Upload and Reboot" after you have saved all your Local changes on each Tab. This function will upload and save all parameters set in the Common, RF, and Encoder sections of the device.

We highly recommend you save your encoder configuration files. See Administration tab for how to back you device settings.

STEP 9: Web Management Tab



Use the Network Setup Tab to configure the device's IP address, Subnet Mask, Gateway, Enable/Disable DHCP, and set Host Name.

STEP 10: 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 changes will be saved.



Overview

Common Setup

RF Setup

Encoder Setup

Web Management

Administration

	resi-linx SD Encodulator
Administration	
Reboot	
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: Browse Upload	
Upload the pre-saved configuration settings to device.	
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:	
New Password: Retype New Password:	
Save and Confirm	

After changing the password use the Save and Confirm buttom. The encoder will reopen to the Welcome page allowing the user to use the new password.

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

STEP 13: If required, change GUI Password and Submit.

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.

NOTE:

When setting a new password you must use the 'Submit' button.

Saving your configuration files

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 to the installer when installing a large number of encoders in a single system.

IMPORTANT NOTE:

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

Front Panel LCD Encoder Menu Map

COMMON SETUP		
	Output Channel	
	Attenuation	
	LCN Mode	
	Device Address	
	Default Configuration	
	Back	to Main
RF SETUP	0.1.105	
	Select RF	
	Enable RF	
	Constellation	
	FEC	
	Guard Interval	
	OFDM	
	RF Output	
	Cell ID	
	TS ID	
	Network ID	
	Org Network ID	
	Network Name	
	Back	to Main
ENCODER SETUP		
	Select Encoder	
	Video Format	
	Program Num	
	Channel Name	
	Provider Name	
	LCN	
	Aspect Ratio	
	Brightness	
	Contrast	
	Saturation	
	Hue	
	Sharpness	
		to Main
WEB MANAGEMEN		
	DHCP	
	IP Address	
	Subnet Mask	
	Gateway	
	Back	to Main

EXIT

Modulator Configuration via Front Panel LCD

Once the encoder is powered up it will go through its initial booting process. Once the unit has completed its initial "Booting" up process the LCD will display IN-1..., Bit Rate information, Channel-1...., and other information in the LCD Display Window. When visible the unit is ready for programming or operation.

The LCD will display data as it cycles through the available information.

SCREEN VIEWS

1. Inputs, Mbps, Channel Names, Video Output Type, Audio Output type

IN-2 6.796Mbps CHANNEL-2 MPEG2 MP2	IN-1	6.796Mbps	CHANNEL-1	MPEG2	MP2
	IN-2	6.796Mbps	CHANNEL-2	MPEG2	MP2

NOTE:

If your device is a Multi-Input version the below screen will display all input data as is cycles through the data available.

2. Use the Scroll Up/Down button to display IP address

RF-1 39 (606.5 MHz) QAM 64 7/8 1/32 8K RF-2 40 (613.5 MHz) QAM 64 7/8 1/32 8K

- Main Menu To access the Main Menu first enter the password by pressing the OK button. Use the Scroll Up/Down buttons
 to enter the password. Once the password is entered press the OK button again and the LCD Screen will display "Main Menu
 Common Setup".
- Password Use the Scroll Up/Down buttons to enter the password. Password is 0000. Press the OK button for each number
 to enter the password. Press OK again after the display shows HD Series.

PASSWORD=?

COMMON SETUP MENU

- Output Channel Use the Scroll Up/Down button to change the output channel.
 Use the Scroll Up/Down buttons to select the desired output channel. Once the
 desired output channel is selected press the OK button to set the channel. The
 LCD Display will show both the channel number and the frequency number of the
 output channel (example: 39 606.5000MHz).
- Note The RF2 Channel Physical output is determined by the selection of output channel of RF1. The Encoder prevents you from selecting the last channel in the device. **See Notes on Channel Selection for more information on this topic.
- Attenuation Use the Scroll Up/Down button to select Attenuation. Press the OK button to enter the Attenuation menu. Use the Scroll/Up down button to select the desired attenuation in 1dB increments from 0 to minus 20 dB. Once the desired attenuation level is found press the OK button to set.
- LCN Use the Scroll Up/Down button to select LCN MODE. Press the OK button
 to enter the LCN menu. Menu options are APN, NORDIG, ITC, and EACEM. Factory
 default: APN. Use the Scroll Up/Down button to select the desired LCN and press he OK button to set.
- **Device Address** Use the Scroll Up/Down button to select Device Address. Press the OK button to enter the Device Address menu. Use the Scroll Up/Down to select the Desired Address ranging from 1 to 255 then press OK to set. A unique device address is required if setting up more than 1 encoder per site. This allows the user to distinguish each device.
- Default Configuration —To reset the Encoder/Modulator back to the factory default select the Default Configuration Menu.
 Press OK to enter the Default Configuration Menu. Using the Up/Down button select YES to reset all programmed settings back to the factory default setting. Factory Default: NO.

Caution: Once the "YES" button is pressed the unit will automatically reset to the factory default settings. All settings or changes to the encoder/modulator will be lost.

• Back to Main – Select Back to Main to escape the Common Setup Menu.

NOTE:

The RF2 Channel Physical output is determined by the selection of output channel of RF1. The Encoder prevents you from selecting the last channel in the device. **See page 9 of this manual for more information on this topic.

RF SETUP MENU

- Constellation Use the Scroll Up/Down button to select Constellation. Press the OK button to enter the Constellation menu. Select the desired Constellation / QAM setting then press the OK button to set.
- FEC Use the Scroll Up/Down button to select the FEC menu. Press the OK button to enter the FEC menu. Use the Scroll Up/Down button to select the desired FEC setting and press the OK button to set.
- Guard Interval Use the Scroll Up/Down button to select Guard Interval. Press the OK button to enter the Guard Interval menu. Use the Scroll Up/Down button to select the desired Guard Interval and press the OK button to set.
- **OFDM** Use the Scroll Up/Down button to select the OFDM menu. Press the OK button to enter the OFDM menu. Use the Scroll Up/Down to select the OFDM 2K or 8K. Press OK to set.
- RF Output Use the Scroll Up/Down button to select RF Output. Press the OK button to enter the RF Output menu. Menu
 options are Normal, Inverted and C.W. The factory default is Normal. Use the Scroll Up/Down button to select the desired RF
 Output and press the OK button to set.
- CELL ID Use the Scroll Up/Down button to select CELL ID. Press the OK button to enter the CELL ID menu. Use the Scroll Up/Down button to select the desired CELL ID ranging from 0 to 65535 then press the OK button to set. Factory default is 0.
- TS ID Use the Scroll Up/Down button to select TS ID. Press the OK button to enter the TS ID menu. Use the Scroll Up/Down button to select the desired Stream ID ranging from 0 to 65535 then press the OK button to set.
- Network ID Use the Scroll Up/Down button to select Network ID. Press the OK button to enter the Network ID menu. Use the Scroll Up/Down button to select the desired Network ID ranging from 0 to 65535 then press the OK button to set.
- **ORG Network ID** Use the Scroll Up/Down button to select ORG Network ID. Press the OK button to enter the ORG Network ID menu. Use the Scroll Up/Down button to select the desired ID ranging from 0 to 65535 then press the OK button to set.
- **Network Name** Use the Scroll Up/Down button to select Network Name. Press the OK button to enter the Network Name menu. Use the Scroll Up/Down buttonto select the first character for the desired Network Name then press the OK button to set. Repeat the process for each character in the desired Network Name. A Network Name can consist up to 16 characters.
- Back to Main Select Back to Main to escape the RF Setup Menu.

ENCODER SETUP MENU

• Select Encoder – Use the OK button to enter the Select Encoder Menu. Using the Scroll Up/Down buttons select the encoder you wish to program. Use the OK button to set the Encoder. Select Encoder 1, 2, 3, or 4 based on your model number. Once Selected the Display will indicate which Encoder you are programming while in the setup function

ENCODER SETUP

SELECT ENCODER

- **Program Num** Use the Scroll Up/Down button to set 1 Program Num(Number). Press the OK button to enter the Program Num menu. Use the Scroll Up/Down to select the Program Num ranging from 1 to 65535 then press OK to set.
- Channel Name Use the Scroll Up/Down button to select Channel Name. Press the OK button to enter the Channel Name menu. Use the Scroll Up/Down menu to select the first character of the desired Channel Name then press the OK button to set. Repeat the process until the Channel Name is completed. The Channel Name can be 7 characters long. Factory Default: CHANNEL-1, CHANNEL-2, CHANNEL-3, CHANNEL-4 etc.
- **Provider Name** Use the Scroll Up/Down button to select Provider Name. Press the OK button to enter the Provider Name menu. Use the Scroll Up/Down menu to select the first character of the desired Provider Name then press the OK button to set. Repeat the process until the Provider Name is completed.. The Provider Name can be 16 characters long.
- LCN Use the Scroll Up/Down button to set LCN. Press the OK button to enter The Source ID menu. Use the Scroll Up/Down to set the Source ID. Range: 1 to 999. Press OK to set.
- Aspect Ratio Use the Scroll Up/Down button to select Aspect Ratio. Press the OK button to enter the Aspect Ratio menu.
 Use the Scroll Up/Down button to select the desired Aspect Ratio option of 4:3 or 16:9 then press the OK button to set. Factory default: 4:3.
- Video Output This Encoder / Modulator is MPEG-2 video output.

- Audio Input Use the Scroll Up/Down button to select. Press the OK button to enter the Audio Input menu. Use the Scroll Up/Down button to select the Audio Input option: Analog. Factory Set: Analog.
- Audio Output Use the Scroll Up/Down button to select Audio Output. Press the OK button to enter the Audio Output menu.
 Use the Scroll Up/Down button to select the Audio Output option: MP2 (MPEG2 Layer I Audio), AAC, or AC3. Factory default: MP2. Press the OK button to set.
- Closed Caption Use the Scroll Up/Down button to select the Closed Caption Menu. Press the OK button to enter the Closed Caption menu. Enable / Disable Closed Caption control. Each Encoder will require you to Enable the Closed Caption option if you require Closed Captioning Support on a particular video output.

NOTE:

When using closed captioning- user must connect from the content source the composite output or cc output source to the encoder's cvbs input connector.

- **Brightness** Use the Scroll Up/Down button to select Brightness. Press the OK button to enter the Brightness menu. Use the Scroll Up/Down button to select the desired Brightness value (0 to 255) and press the OK button to set. Factory default: 128.
- Contrast Use the Scroll Up/Down button to select Contrast. Press the OK button to enter the Contrast menu. Use the Scroll Up/Down button to select the desired Contrast value (0 to 255) and press the OK button to set. Factory default: 128.
- Saturation Use the Scroll Up/Down button to select Saturation. Press the OK button to enter the Saturation menu. Use the Scroll Up/Down button to select the desired Saturation value (0 to 255) and press the OK button to set. Factory default: 128.
- **Hue** Use the Scroll Up/Down button to select Hue. Press the OK button to enter the Hue menu. Use the Scroll Up/Down button to select the desired Hue value (0 to 255) and press the OK button to set. Factory default: 128.
- · Back to Mai Select Back to Main to escape the Encoder Setup Menu

WEB MANAGEMENT NETWORK SETUP

- DHCP Use the Scroll Up/Down button to select DHCP. Press the OK button to enter the DHCP menu. Use the Scroll Up/Down button to Enable/Disable. Press the OK button to set.
- IP Address Use the Scroll Up/Down button to select IP Address. Press the OK button to enter the IP Address menu. Use the Scroll Up/Down button to enter the IP Address. Use the Scroll Up/Down menu to select the desired IP Address then press the OK button to set. Repeat the process until the IP Address is completed. Press the OK button to set. Note: If DHCP is enabled you will not be able to set an IP address. Select DHCP disabled if Static IP Address required.
- Subnet Mask Use the Scroll Up/Down button to select Subnet Mask. Press the OK button to enter the Subnet Mask menu. Use the Scroll Up/Down button to enter the Subnet Mask. Use the Scroll Up/Down menu to select the first number of the desired Subnet Mask then press the OK button to set. Repeat the process until the Subnet Mask is completed. Press the OK button to set.
- Gateway Address Use the Scroll Up/Down button to select Gateway Address. Press the OK button to enter the Gateway Address menu. Use the Scroll Up/Down button to enter the Gateway Address. Use the Scroll Up/Down menu to select the first number of the desired Gateway Address then press the OK button to set. Repeat the process until the Gateway Address is completed. Press the OK button to set.
- Back to Main Select Back to Main to escape the Web Management Network Setup Menu.

Installing Multiple Encoders in the Same Installation (Stacking)

The following changes are required when using multiple modulators in the same installation (stacking) -

• Output channel - Default is 39 UHF (606.5 MHz). If the modulators are on the same output channel as another modulator or FTA channel the TV will not scan the channel in. Place all modulators on available channels between 6 to 12 VHF and 28 to 51 UHF (including adjacent channels - 38, 39, 40, etc.)

Note - if you plan on using channel 52 to 69 be aware of LTE transmissions as they may interfere with each other. We recommend installing a filter.

- LCN (Logic Channel Number) default 101. If TV tuner receives two or more LCN's on the same number, including FTA channels the TV will automatically place the LCN on a free range. In Australia this is 350 and up. Suggest to go 101, 102, 103, etc.
- Channel Name default "CHANNEL-1" this is necessary but recommended for clients to be able to identify channels. For example "APPLE-TV", "FOXTEL", "DVD", etc.
- TS ID (Transport Stream) Default can vary per product. You will need to adjust the TS ID # on each additional modulator up one number per modulator. For example if default is "TS ID #1" leave on "TS ID #1", place 2nd modulator on "TS ID #2", 3rd on "TS ID #3", etc. If the TS ID is the same number the TV tuner will not scan both channels in.
- **Program Number** Default can vary per product. You may need to adjust each additional modulator Program Number up one number per modulator. For example, if default is "Program Number 1" leave on "Program Number #1", place 2nd modulator on "Program Number #2", 3rd on "Program Number #3", etc. If the Program Number is the same number the TV tuner will not scan both channels in.

Note - most TVs do not have an issue with this setting but we recommend changing it just in case.

ITEM	VALUE
Password	
Serial Number	
Installation Date	
Purchase Date	
Video Input 1	
Video Input 2	
Video Input 3	
Video Input 4	
Video Input 5	
Video Input 6	
Video Input 7	
Video Input 8	



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WARRANTY

digi-MOD states that the warrant that the customer can rely on is that provided by the manufacturer. In the event of any warranty claim please contact your place of purchase and it will be forwarded it to the manufacturer. The manufacturer will then determine the extent of their liability.