

RL-DM1102M Single Input IR 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.
- 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-DM1102M Encoder / Modulator
- One power adaptor
- 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 RF Network.

- | | |
|---|----------------------------|
| • Front panel LCD Display for easy installation | • Selectable Constellation |
| • LCN MODE | • 85dB Output |
| • Composite, Component, and S-Video inputs | • Silent Operation |
| • MPEG2 Video Output | • Compact Design |
| • RJ45 for web management | • IR Return Path |

Specification

VIDEO INPUTS (VIDEO BY PRIORITY)

Component	YPrPb (RCA)
Composite	CVBS (RCA)
S-Video	S-Video

AUDIO INPUTS

Audio Inputs	L/R (RCA)
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VIDEO ENCODER

Mode	MPEG-2
Video Resolutions	576i, 480p, 480i

AUDIO ENCODER

Audio Compression	MPEG-1 Layer II
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RF DVB-T SUPPORT

Frequency	Channel Plan
RF Channel Output	1 RF Output
Constellation	64QAM (16QAM)
Bandwidth	7 MHz
RF Level Output	85dB
MER	>32dB 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

MANAGEMENT / CONTROL

Front Panel LCD Control	Full Support (Up/Down/OK Buttons)
GUI	IE9, Firefox, Chrome, Safari
Password Protected	Front Panel, GUI

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 comes with Component, Composite and S-Video inputs. **Component Video Cable**, connect the Y (Green), Pb (Blue), and Pr (Red) video source cable to the unit's Component input ports. If using a **Composite Video** source, use a cable with RCA connectors to connect the **video source** (e.g., CATV, DVD, VCR, Camera) to the unit's CVBS port. If using a S-Video source, use an S-Video cable to connect the video source to the unit's S-Video port.
2. **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**.
3. Be sure the video and audio connections for each source are consistent with the unit's inputs.
4. Use a quality 75Ω coaxial cable with "F" connectors from the unit's **RF OUT socket** to the **distribution system** (combiner or reverse splitter) or directly to a television.
5. Connect the included power adaptor to the unit's **POWER** socket.
6. Connect the power adaptor 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 10 in this manual.**

IR Return Path

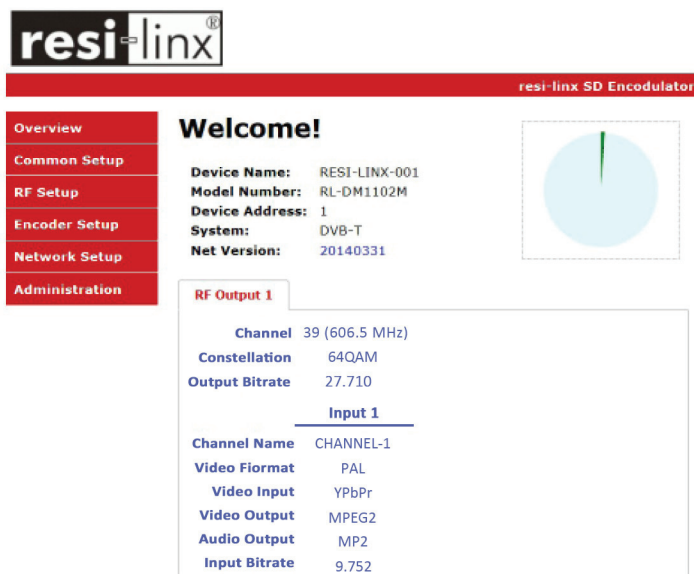
1. Connect IR emitters RL-IR700/800 to the output on the rear of the RL-DM1102M Modulator. Place the other end of the emitter on your AV device near the IR pick up.
2. Connect the RF Output from the RL-DM1102M to the Modulator Input on the RF Distribution Module RL-RF380. Alternatively connect the RF Output to an existing distribution system or directly to a television set.

NOTE: When Remote Power Switch is ON - the RL-RF380 should not have a Power Supply connected.

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 of resi-linx digi-MOD

Overview status of the Encoder when fully functioning.

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**

STEP 3: Common Setup Tab

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

STEP 4: 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

1. Local Save and
2. Upload and Reboot.

The screenshot shows the 'Common Setup' page of the 'resi-linx SD Encodulator'. On the left is a navigation menu with 'Overview', 'Common Setup', 'RF Setup', 'Encoder Setup', 'Network Setup', and 'Administration'. The 'Common Setup' page has a description: '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.' The form contains the following fields: 'Output Channel' (dropdown menu showing '39 (606.5 MHz)'), 'Attenuation' (dropdown menu showing '0 dB'), 'LCN Mode' (dropdown menu showing 'APN'), and 'Device Address' (dropdown menu showing '1'). At the bottom are three buttons: 'Local Save', 'Upload and Reboot', and 'Reset local changes'.

STEP 5: RF Setup

The screenshot shows the 'RF Setup' page of the 'resi-linx SD Encodulator'. On the left is a navigation menu with 'Overview', 'Common Setup', 'RF Setup', 'Encoder Setup', 'Network Setup', and 'Administration'. The 'RF Setup' page has a description: 'This page allows the user to configure RF parameters for the encoder. 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.' The form is titled 'RF Output 1' and contains the following fields: 'Constellation' (dropdown menu showing '64QAM'), 'FEC' (dropdown menu showing '3/4'), 'Guard Interval' (dropdown menu showing '1/16'), 'OFDM Mode' (dropdown menu showing '8k'), 'RF Output' (dropdown menu showing 'Normal'), 'Cell ID' (text input field showing '0'), 'TS ID' (text input field showing '1000'), 'Network ID' (text input field showing '100'), 'Original Network ID' (text input field showing '10'), and 'Network Name' (text input field showing 'resi-linx'). At the bottom are three buttons: 'Local Save', 'Upload and Reboot', and 'Reset local changes'.

Use the RF Setup Page to setup the RF Output.

STEP 6: Local Save

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

STEP 7: Encoder Setup

resi-linx SD Encodulator

Encoder Setup

This page allows the user to configure the encoder's settings. 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.

Encoder 1

Video Format: PAL
Video Input: YPbPr
Program Number: 1
Channel Name: CHANNEL-1
Provider Name: resi-linx
LCN: 101
Aspect Ratio: 16:9
Brightness: 128
Contrast: 128
Saturation: 128
Hue: 128
Sharpness: 100

Local Save Upload and Reboot Reset local changes

STEP 8: Local Save Encoder tab

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

resi-linx SD Encodulator

Encoder Setup

This page allows the user to configure the encoder's settings. 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.

Encoder 1

Video Format: PAL
Video Input: YPbPr
Program Number: 1
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Provider Name: resi-linx
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Aspect Ratio: 16:9
Brightness: 128
Contrast: 128
Saturation: 128
Hue: 128
Sharpness: 100

Local Save Upload and Reboot Reset local changes

Note: Local Save function will indicate the local change made

Upload and Reboot after all changes have been made and a Local Save performed

IMPORTANT NOTE:

Ensure all Encoder changes have been locally saved before performing Step 9.

STEP 9: 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 10: Network Configuration Tab

The screenshot shows the 'resi-linx' logo at the top left. Below it is a red navigation bar with the text 'resi-linx SD Encodulator'. On the left is a vertical menu with red buttons: 'Overview', 'Common Setup', 'RF Setup', 'Encoder Setup', 'Network Setup' (highlighted), and 'Administration'. The main content area is titled 'Network Setup' and contains the following text: 'This page allows user to configure the encoder's network settings.' Below this is a red-bordered box with the text: 'CAUTION: Incorrect settings may cause the encoder to lose network connectivity. Recovery options will be provided on the next page.' Further down, it says 'Enter the new settings for the encoder below:'. The settings form includes: 'Host Name:' with a text box containing 'RESI-LINX-###' and a dropdown showing 'RESI-LINX-001'; an unchecked checkbox for 'Enable DHCP'; 'IP Address:' with a text box containing '192.168.1.9'; 'Subnet Mask:' with a text box containing '255.255.255.0'; 'Gateway:' with a text box containing '0.0.0.0'; and a 'Save Config' button.

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

STEP 11: 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.

STEP 12: Administration

The screenshot shows the 'resi-linx' logo at the top left. Below it is a red navigation bar with the text 'resi-linx SD Encodulator'. On the left is a vertical menu with red buttons: 'Overview', 'Common Setup', 'RF Setup', 'Encoder Setup', 'Network Setup', and 'Administration' (highlighted). The main content area is titled 'Administration' and contains the following elements: a 'Reboot' button with the text 'Reboot the device. All unsaved settings will be lost.'; a 'Reset to Default' button with the text 'Reset all settings back to original factory settings.'; a 'Backup' button with the text 'Backup and save all settings of the device.'; a 'Config File:' section with a text box, a 'Browse...' button, and an 'Upload' button, with the text 'Upload a saved configuration file to the device.' below it; a red-bordered box with the text 'CAUTION: The new password must:' followed by a bulleted list: '• matches a string of 6~8 characters;', '• that contains at least one digit;', '• at least one uppercase character; and', '• at least one lowercase character:'. Below this is the text 'After changing the admin's password, it needs to close current web browser, and open a new browser to use new password.'; and a form with three text boxes labeled 'Old Password:', 'New Password:', and 'Retype New Password:', with a 'Submit' button.

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

Select RF
Constellation
FEC
Guard Interval
OFDM
Cell ID
TS ID
Network ID
Org Network ID
Network Name

Back to Main

ENCODER SETUP

Video Format
Video Input
Program Num
Channel Name
Provider Name
LCN
Aspect Ratio
Brightness
Contrast
Saturation
Hue

Back to Main

NETWORK SETUP

Reset Network 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.

- **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



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: 21 480.5000MHz).
- **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 the 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.

RF SETUP MENU

- **Select RF** – Press the OK button to enter the Select RF menu. Use the Scroll Up/Down button to Select the RF section of the Encoder.
- **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.
- **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 button to 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.
- **Video Format** – Use the Scroll Up/Down button to select Video Format. Press the OK button to enter the Video Format menu. Use the Scroll Up/Down button to select the Video Input option: Auto, Composite (CVBS), Component, S-Video. Factory default: CVBS. Press the OK button to set.
- **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.
- **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.
- **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 Main** – Select Back to Main to escape the Encoder Setup Menu

NETWORK SETUP: DHCP / IP Address / Subnet Mask / Gateway

- **Reset Network** – Select Reset Network from the Network Setup to Reset the Network settings.
- **Back to Main** – Select Back to Main to escape the Encoder Setup Menu.

ITEM	VALUE
Password	
Serial Number	
Installation Date	
Purchase Date	
Video Input 1	

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.

IR Distribution

Please refer to RL-RF380 & RL-RF210 for IR Distribution setup and configuration.



www.digi-modbyzycast.com

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.