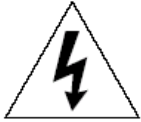
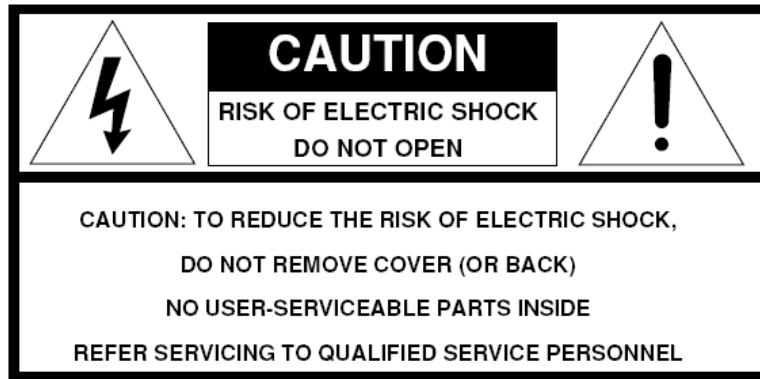


# Model QCR2221 User Guide

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## DOCSIS Digital Cable Receiver



The lightning flash with arrowhead symbol, within an equilateral triangle, is intended to alert the user to the presence of uninsulated “dangerous voltage” within the product’s enclosure that may be of sufficient magnitude to constitute a risk of electric shock to persons.



The exclamation point within an equilateral triangle is intended to alert the user to the presence of important operating and maintenance (servicing) instructions in the literature accompanying the appliance.

## WARNING

**TO REDUCE THE RISK OF FIRE OR ELECTRIC SHOCK,  
DO NOT EXPOSE THIS APPLIANCE TO RAIN OR MOISTURE.**

**CAUTION: TO PREVENT ELECTRIC SHOCK, MATCH WIDE  
BLADE OF PLUG TO WIDE SLOT, FULLY INSERT.**

### NOTE TO CATV SYSTEM INSTALLER:

This reminder is provided to call the CATV (Cable-TV) system installer’s attention to Article 820-40 of the NEC, that provides guidelines for proper grounding and, in particular, specified that the cable ground shall be connected to the grounding system of the building, as close to the point of cable entry as practical.

### NOTE:

This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by tuning the equipment off and on, the user is encouraged to try to

correct the interference by one or more of the following measures:

- Reorient or relocate the receiving antenna.
- Increase the separation between the equipment and receiver.
- Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.
- Consult the dealer or an experienced radio/TV technician for help.

### NOTE:

Changes or modifications may cause this unit to fail to comply with Part 15 of the FCC Rules and may void the user’s authority to operate the equipment.

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Dolby Digital is manufactured under license from Dolby Laboratories. “Dolby” and the double-D symbol are trademarks of Dolby Laboratories. Copyright © 2004 Dolby Laboratories. All rights reserved.

# IMPORTANT SAFETY INSTRUCTIONS

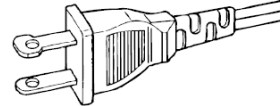
## READ BEFORE OPERATING EQUIPMENT

This product was designed and manufactured to meet strict quality and safety standards. There are, however, some installation and operation precautions which you should be particularly aware of.

1. Read Instructions - All the safety and operating instructions should be read before the appliance is operated.
2. Retain Instructions-The safety and operating instructions should be retained for future reference.
3. Heed Warnings-All warnings on the appliance and in the operating instructions should be adhered to.
4. Follow Instructions-All operating and use instructions should be followed.
5. Cleaning-Unplug this video product from the wall outlet before cleaning. Do not use liquid cleaners or aerosol cleaners. Use a damp cloth for cleaning.
6. Attachments-Do not use attachments not recommended by the video product manufacturer as they may cause hazards.
7. Water and Moisture-Do not use this video product near water-for example, near a bath tub, wash bowl, kitchen sink, or laundry tub, in a wet basement, or near a swimming pool, and the like.
8. Accessories-Do not place this video product on an unstable cart, stand, tripod, bracket, or table. The video product may fall, causing serious injury to a child or adult, and serious damage to the appliance. Use only with a cart, stand, tripod, bracket, or table recommended by the manufacturer, or sold with the video product. Any mounting of the appliance should follow the manufacturer's instructions, and should use a mounting accessory recommended by the manufacturer.
9. Ventilation-Slots and openings in the cabinet are provided for ventilation and to ensure reliable operation of the video product and to protect it from overheating, and these openings must not be blocked or covered. The openings should never be blocked by placing the video product on a bed, sofa, rug, or other similar surface. This video product should never be placed near or over a radiator or heat register. This video product should not be placed in a built-in installation such as a bookcase or rack unless proper ventilation is provided or the manufacturer's instructions have been adhered to.
10. Power Sources-This video product should be operated only from the type of power source indicated on the marking label. If you are not sure of the type of power supply to your home, consult your appliance dealer or local power company. For video products intended to operate from battery power, or other sources, refer to

the operating instructions.

11. Grounding or Polarization-This video product is equipped with a polarized alternating-current line plug (a plug having one blade wider than the other). This plug will fit into the power outlet only one way. This is a safety feature. If you are unable to insert the plug fully into the outlet, try reversing the plug. If the plug should still fail to fit, contact your electrician to replace your obsolete outlet. Do not defeat the safety purpose of the polarized plug.



AC POLARIZED PLUG

12. Power-Cord Protection-Power-supply cords should be routed so that they are not likely to be walked on or pinched by items placed upon or against them, paying particular attention to cords at plugs, convenience receptacles, and the point where they exit from the appliance.
13. Protective Attachment Plug - The appliance is equipped with an attachment plug having overload protection. This is a safety feature. See Instruction Manual for replacement or resetting of protective device. If replacement of the plug is required, be sure the service technician has used a replacement plug specified by the manufacturer that has the same overload protection as the original plug.
14. Outdoor Antenna Grounding-If an outside antenna or cable system is connected to the video product, be sure the antenna or cable system is grounded so as to provide some protection against voltage surges and built up static charges. Section 810 of the National Electrical Code, ANSI/NFPA No. 70-1984, provides information with respect to proper grounding of the mast and supporting structure, grounding of the lead-in wire to an antenna discharge unit, size of grounding conductors, location of antenna discharge unit, connection to grounding electrodes, and requirements for the grounding electrode. See Figure 1.
15. Lightning-For added protection for this video product receiver during a lightning storm, or when it is left un-attended and unused for long periods of time, unplug it from the wall outlet and disconnect the antenna or cable system. This will prevent damage to the video product due to lightning and power-line surges.
16. Power Lines-An outside antenna system should not be located in the vicinity of overhead power lines or other electric light or power circuits, or where it can fall into such power lines or circuits. When installing an outside antenna system, extreme care should be taken to keep from touching such power lines or circuits as contact with them might be fatal.
17. Overloading-Do not overload wall outlets and extension cords as

# IMPORTANT SAFETY INSTRUCTIONS (CONT'D)

this can result in a risk of fire or electric shock.

18. Object and Liquid Entry-Never push objects of any kind into this video product through openings as they may touch dangerous voltage points or short-out parts that could result in a fire or electric shock. Never spill liquid of any kind on the video product.

19. Servicing-Do not attempt to service this video product yourself as opening or removing covers may expose you to dangerous voltage or other hazards. Refer all servicing to qualified service personnel.

20. Damage Requiring Service-Unplug this video product from the wall outlet and refer servicing to qualified service personnel under the following conditions:

- a. When the power-supply cord or plug is damaged.
- b. If liquid has been spilled, or objects have fallen into the video product.
- c. If the video product has been exposed to rain or water.
- d. If the video product does not operate normally by following the operating instructions. Adjust only those controls that are covered by the operating instructions as an improper adjustment of other controls may result in damage and will often require extensive work by a qualified technician to restore the video product to its normal operation.
- e. If the video product has been dropped or the cabinet has been damaged.
- f. When the video product exhibits a distinct change in performance-this indicates a need for service.

21. Replacement Parts-When replacement parts are required, be sure the service technician has used replacement parts specified by the manufacturer or have the same characteristics as the

original part. Unauthorized substitutions may result in fire, electric shock or other hazards.

22. Safety Check-Upon completion of any service or repairs to this video product, ask the service technician to perform safety checks to determine that the video product is in proper operating condition.

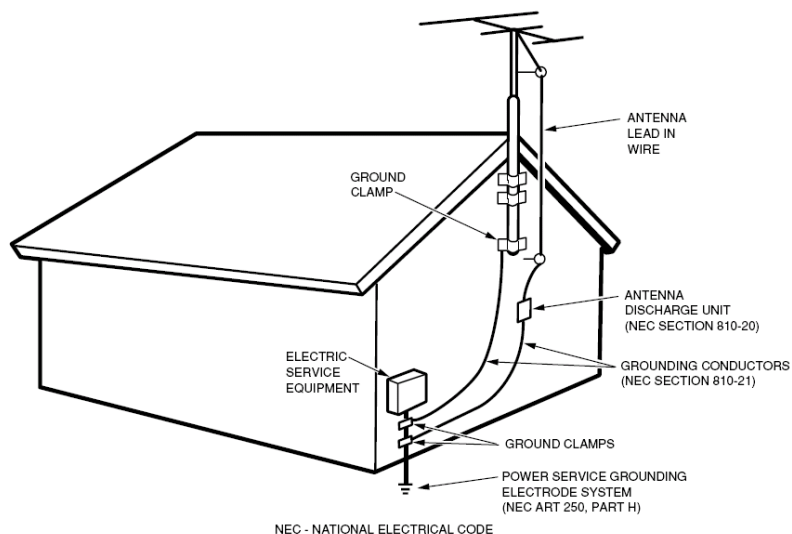
23. Carts and Stands-The appliance should be used only with a cart or stand that is recommended by the manufacturer.

24. An appliance and cart combination should be moved with care. Quick stops, excessive force, and uneven surfaces may cause the appliance and cart combination to overturn.



**FIGURE 1**

EXAMPLE OF ANTENNA GROUNDING ACCORDING TO NATIONAL ELECTRICAL CODE INSTRUCTIONS CONTAINED IN ARTICLE 810 - "RADIO AND TELEVISION EQUIPMENT"



NEC - NATIONAL ELECTRICAL CODE

# Cable TV Troubleshooting Guide

## WHAT IF...

### **You have no picture:**

- > Make sure the TV, VCR, and Converter Box (if applicable) are plugged in and the wall switch is on.
- > Check house circuit breaker/test the outlet with a lamp.
- > Check/replace remote control batteries.

### **You have no (or low) sound:**

- > Turn up the volume on the TV.
- > Check the remote control mute function on both the converter and TV.
- > Make sure you have the volume on your TV set high enough; then adjust the volume using the cable remote control.

### **Your TV displays a herringbone pattern or faint lines:**

- > Adjust fine tuning on the TV.
- > Check and tighten cable fittings to the TV, VCR, and wallplate.
- > A service call may be necessary—1.800.RING.RCN.

### **Picture rolls, jumps, or flashes on/off:**

- > Adjust TV's vertical hold until picture is clear.
- > Adjust TV's fine tuning.
- > Check and tighten cable fittings to the TV, VCR,

and wallplate.

### **Picture shows double/multiple images or faint ghosts:**

- > Check and tighten cable fittings to the TV, VCR, and wallplate.
- > Remove the antenna from the VHF terminals when cable is in use.
- > A service call may be necessary—1.800.RING.RCN.

### **The audio has a distinct buzz or hum:**

- > Turn the volume control on your TV set to low or mid range.
- > Adjust volume to desired level with the converter remote control.
- > Adjust the fine tuning on your TV.

### **TV set remote control won't turn TV off:**

- > Plug TV set's power cord into the wall, not the converter box.

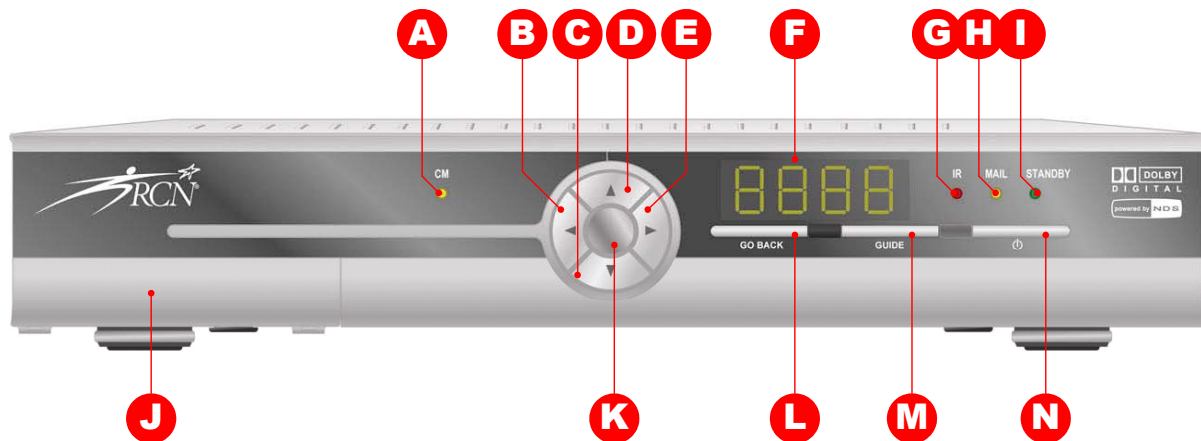
### **Images on all channels fuzzy/snowy:**

- > If using a converter box, tune the TV or VCR to channel 3 or 4 (depending on your equipment).
- > A service call may be necessary—1.800.RING.RCN.

### **Remote not responding:**

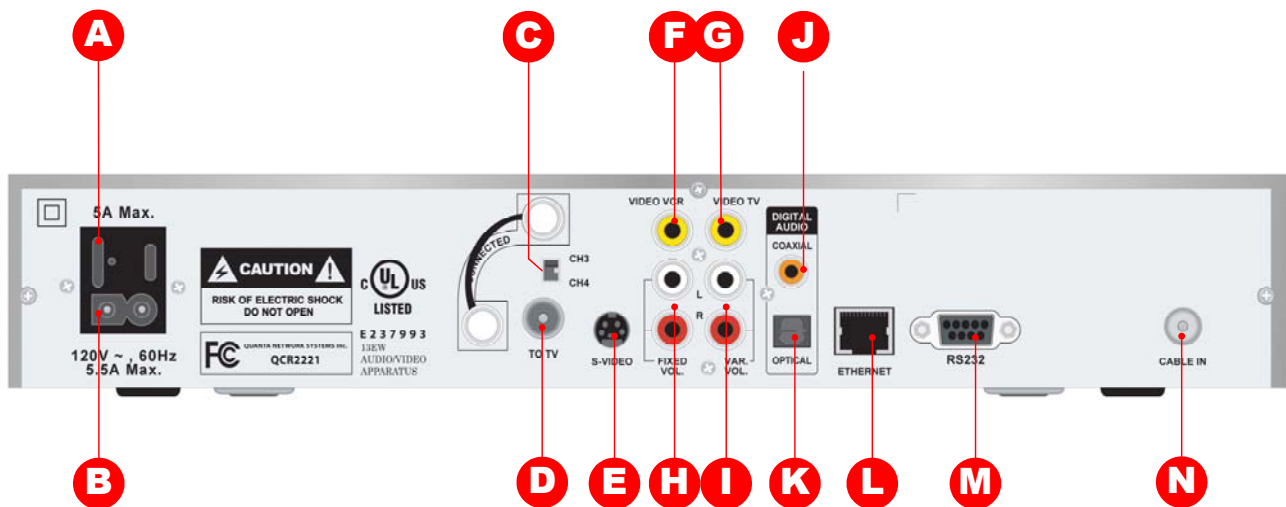
- > Check that batteries are installed correctly and have not expired.

## QCR2221 Front Panel



- A** Indicates yellow when there is a DOCSIS connection
- B** Adjusts volume down or moves left in EPG Navigation
- C** **CHANGES CHANNEL DOWN OR MOVES DOWN IN EPG NAVIGATION**
- D** Changes channel up or moves up in EPG Navigation
- E** Adjusts volume up or moves right in EPG Navigation
- F** The LED display shows the channel number when changing channels, and the local time at all other times (including when the STB is in standby mode).
- G** Indicates red in response to an RCU or front panel key press
- H** Indicates when the STB has received a e-mail. The EPG can be customized so that this indicator lights when any message is received, or only when an urgent message is received.
- I** Stand By(Red): Indicates when the STB is receiving power but is not outputting a signal to the TV. On(Green): Indicates when the STB is outputting a signal to the TV.
- J** Smart card slot, Allows smart card use
- K** Selects the choice currently in focus
- L** Returns to the previous screen
- M** Enters the EPG Guide function
- N** Toggles the STB between on and standby modes.

# QCR2221 Rear Panel

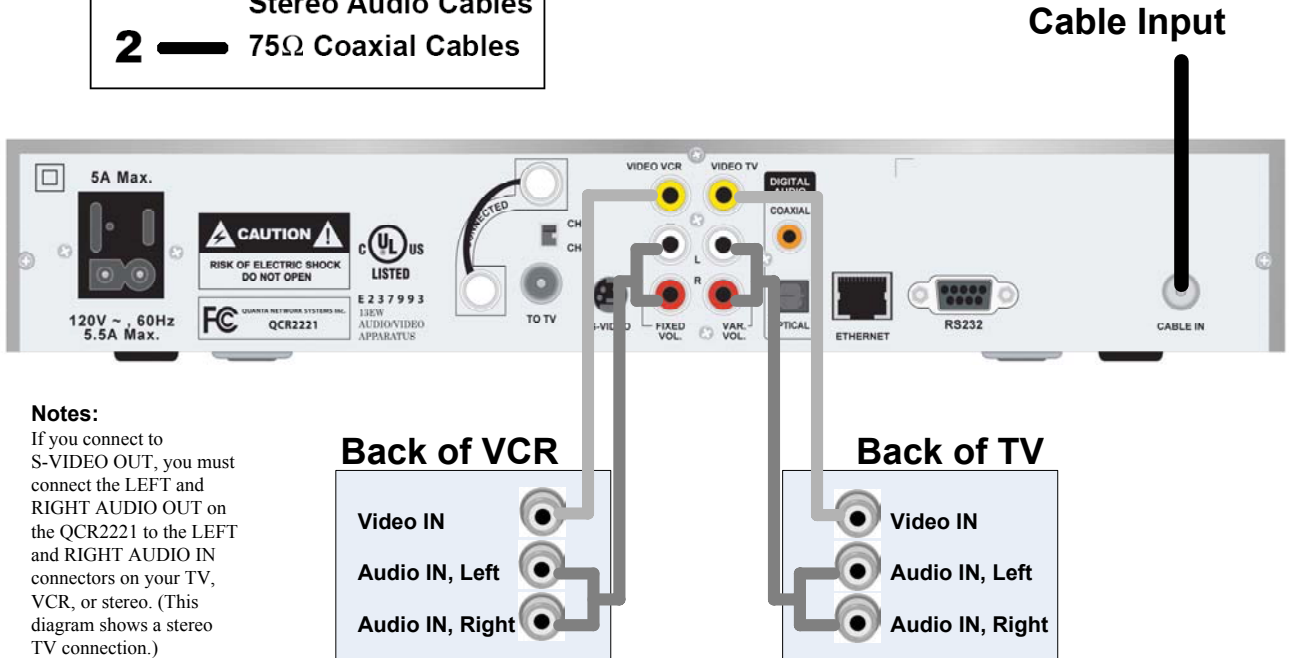


- A** AC Outlet, Connect the AC power cord from another device, such as a TV
- B** AC Power Input, Connect the QCR2221 to an AC electrical outlet
- C** CH3/CH4, Select Channel 3 or Channel 4
- D** TO TV, A coaxial output to connect the QCR2221 to the TV
- E** S-Video Out, An S-Video connector sending high quality video to external devices (high-end VCR or TV) that accept S-Video.
- F** Video Out, Connect to video input of VCR
- G** Video Out, Connect to video input of TV
- H** Audio Out(L/R), Connect to left/right audio channels of a stereo receiver or a VCR with stereo sound
- I** Audio Out(L/R), Connect to left/right audio channels of a stereo receiver or a TV with stereo sound
- J** SPDIF, A SPDIF RCA connector that provides Dolby Digital® audio or PCM audio (digital audio recording).
- K** SPDIF, A SPDIF Optical connector that provides Dolby Digital® audio or PCM audio (digital audio recording).
- L** Ethernet, Connect an Ethernet-equipped computer
- M** RS232, for Engineering debugging only (**not activated for TiVo, or other PVRs**)
- N** Cable In, Connect to cable signal from cable service provider

# Connection Diagrams

## Connecting a Stereo TV and Stereo VCR

- Required Cables**
- 1** — Set of Video/ Stereo Audio Cables
  - 2** — 75Ω Coaxial Cables



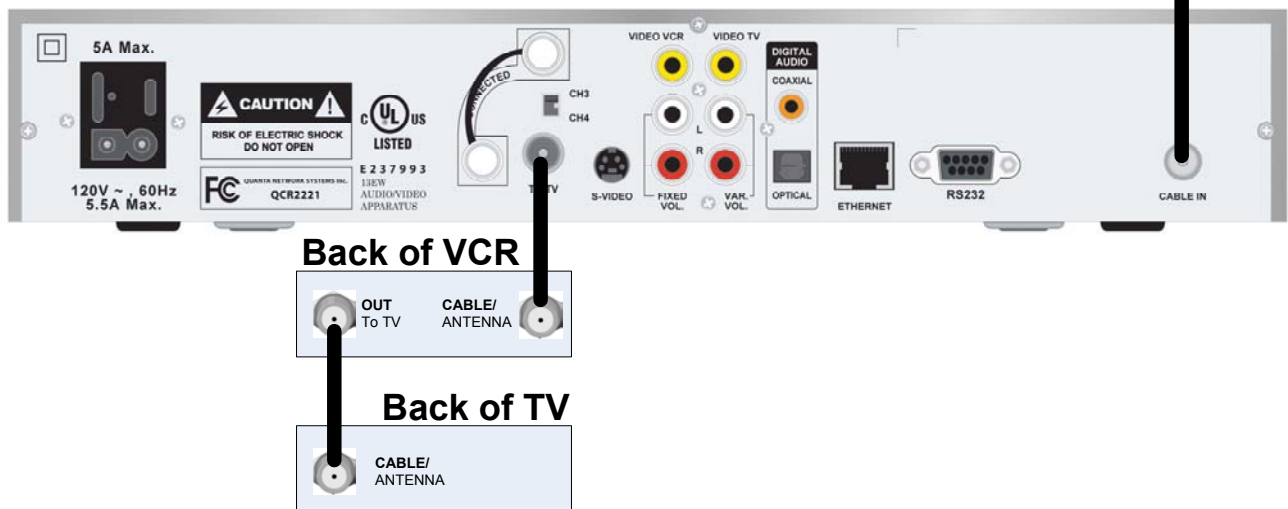
# Connection Diagrams, continued

## Connecting a Non-Stereo TV and a Non-Stereo VCR

### Required Cables

— 75Ω Coaxial Cables

Cable Input



# INTERACTIVE PROGRAMMING GUIDE



The Interactive Program Guide (IPG) is an on-screen, user-friendly, multi-functional guide that is designed to help you locate the programming you want to watch, and set up the functions of the set-top box to your preferences; **the IPG allows you to view programs transmitted by RCN, navigate to programs, purchase and set reminders for programs, view information, define preferences, etc.**

**NOTE:** The IPG is set to display time based on the 24-hour clock; you must set it for U.S. time.

## MAIN MENU DIRECTORY OF SERVICES

The main control for the IPG is the **Main Menu**. To access the Main Menu, press **Select** while viewing a program. The following screen is displayed:

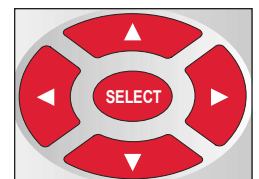


Main Menu  
(Figure 1)

The **Main Menu** gives access to screens where you can view information and select options.

The **Main Menu** screen is divided into 3 areas (see Figure 1 above):

- **Service Menu** This menu, located horizontally across the screen, has a text button naming each menu item. One button is always selected and highlighted. Use the ◀ or ▶ arrow buttons on the remote control to scroll through the menu icons.
- **Menu Options** This menu, located horizontally across the screen, lists the options available for the menu items selected in the Service Menu. Use the ▲ or ▼ arrow buttons on the remote control to scroll up and down the menu options. To select an option, highlight the option you want, and press **Select** on the remote control. When an option is selected, a new screen is displayed.
- **Video Window** The video window displays the channel currently being viewed, with the accompanying audio for that channel or program. If a different channel or program is selected through the Main Menu, press **Select** to display the newly selected channel or program.



Use the arrows and **SELECT** on the remote to navigate onscreen.

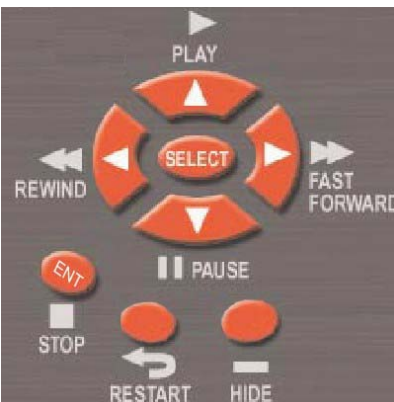
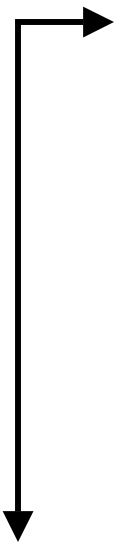


# RT-U50 11-s vs. RT-U50 25-s

## Interactive button chart comparison



LAST	GO BACK
MENU	STARVIEW
GUIDE	GUIDE
INFO	?
LOCK	x
ENT	
MUSIC	
*HELP	
FAV	
EXIT	
A	TV GUIDE
B	i
C	EXIT



VOD Function buttons



The **Service Menu** gives options for access to:

## CHANNELS

The **CHANNELS** option in the Main Menu displays the titles of all the channels you subscribe to.

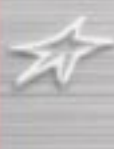
To access the **CHANNELS** option do the following:

- 1 While in normal viewing mode, press **Select** on the remote control.  
The following screen is displayed:



**CHANNELS**  
(Figure 2)

- 2 Use the ◀ or ▶ arrow buttons to highlight the **CHANNELS** button in the Service menu. When **CHANNELS** is highlighted, the **Menu Options** (the left part of the screen) displays channel selections. *See Figure 2 above.*
- 3 The titles of all the channels will be displayed in the **Menu Options** area of the IPG. Press **Select** to see the currently highlighted channel in the video window.
- 4 Use the ▲ or ▼ arrow keys to scroll through channel titles. To view the video of any channel in the video window, highlight the title of the channel and press **Select** on the remote control.
- 5 To exit the IPG and return to normal viewing, press **Select** on the remote control.



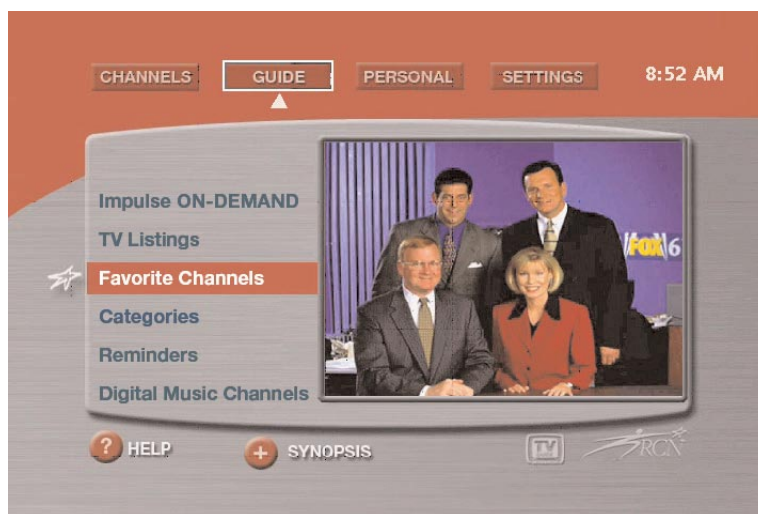
## GUIDE

The **GUIDE** option in the Main Menu gives you access to these options:

- **Impulse ON-DEMAND**
- **TV Listings**
- **Favorite Channels**
- **Categories**
- **Reminders**
- **Digital Music Channels**

To access the **GUIDE** option, do the following:

- 1 While in normal viewing mode, press **Select** on the remote control. The Interactive Program Guide (IPG) is displayed.



**GUIDE**  
(Figure 3)

- 2 Use the ◀ or ▶ arrow buttons to highlight the **GUIDE** button in the Service Menu. When **GUIDE** is highlighted, the Menu Options (the left part of the screen) changes. *See Figure 3 above.*
- 3 Use the ▲ or ▼ arrow keys to scroll through the options in the **GUIDE**. Highlight and press **Select** to access an option in the **GUIDE**.

## TV LISTINGS

**TV Listings** gives you the daily programming schedule for all the channels. This includes channel numbers, channel names, titles of programs, start time of programs and an option to view the synopsis of the highlighted program.

To access **TV Listings**, do the following:

- 1 While in the **GUIDE** use the ▲ or ▼ arrow key and highlight **TV Listings**. Press **Select**. The following screen is displayed. See *Figure 4*.



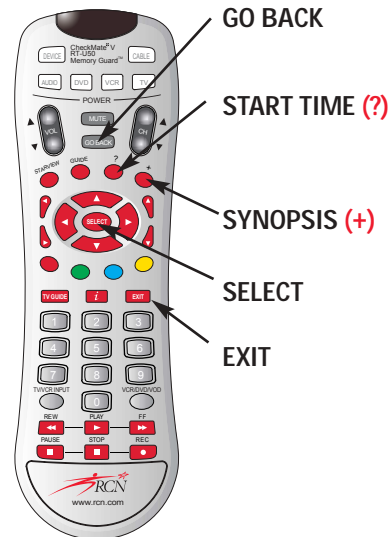
**GUIDE**  
The **TV Listings** can also be accessed by pressing **GUIDE** on the remote control while in normal viewing.

Today	8:30	9:00	9:30	8:49 AM
430 US Comedy	Fr Friends		Frazier	
440 US Comedy Gold	C Bilko		Bilko	
900 NDS News	Local Roundup	The world this Week		
919 NDS News	Local Roundup	The world this Week		
920 Sky Movies Gold	T Birds		Vertig o	

At the bottom of the screen are buttons for BACK, SYNOPSIS, and a TV icon with the RCN logo.

**TV LISTINGS**  
(Figure 4)

- 2 Use the ▲ or ▼ arrow keys to scroll through the channels, and use the ◀ or ▶ arrow keys to scroll through the start times of programs. Use the channel ▲ or ▼ buttons to page up and down through the channel listing. See *Figure 4* above.
- 3 To view the **SYNOPSIS** of a program, highlight the program, and press + on the remote control.
- 4 Press **GO BACK** on the remote control to return to TV Listings or press **EXIT** to return to normal viewing.
- 5 To view the **START TIME** and the day a specific program is shown, press ? on the remote control.
- 6 Press ? or **GO BACK** to remove the banner that displays day and start time of program.
- 7 Press **GO BACK** to return to **IPG** (if TV Listings selected through the **IPG**), or press **Select** to return to normal viewing.





## FAVORITE CHANNELS

The **Favorite Channels** option allows you to place your favorite channels in one list so that they will be easily available to you. Your **Favorite Channels** will be duplicated/located on channels 900 through 919.

To access **Favorite Channels** do the following:

- 1** Press **GUIDE** on the remote control. Use the ▲ or ▼ arrow key and highlight **Favorite Channels**. Press **Select**.
- 2** On the right half of the **Favorite Channels** screen are the titles of all the available channels (without their number). The left half is where your favorite channels will be listed.
- 3** To place your favorite channels in one list, first ensure that you are able to scroll through the **MY FAVORITES** list of the screen using the ▲ and ▼ arrow keys. You will only be able to scroll through the **MY FAVORITES** list of the screen when the white arrow (▶) points to the right. If it is not pointing to the right, press ▶ (right arrow) on the remote control.
- 4** Use the ▲ or ▼ key to highlight **\*none\***. Press **Select**. The white arrow in the middle will now face left. This would mean that you can now scroll through the **CHOICES** list on the right half of the screen using the and arrow keys ▲ and ▼.
- 5** Scroll through the **CHOICES** list and choose a channel that you would like placed in your favorites list. Press **Select**. The channel will move to the **MY FAVORITES** half of the screen.
- 6** Repeat steps 3 to 5 until all of your favorite channels are placed in the **MY FAVORITES** list.
- 7** Press **GO BACK** to return to the **GUIDE**, or press **EXIT** to return to normal viewing.



## CATEGORY

The **Category** option enables you to view the titles of movies and programs in their specific categories or genre.

To access the **Category** option do the following:

- 1** While in the **GUIDE** use the ▲ or ▼ arrow key and highlight **Category**. Press **SELECT**.
- 2** There are 2 lists displayed in the **Select Category** screen. The list on the left displays the category or genre of movies or programs. The list on the right displays the types of movies in a specific category or genre, e.g., on the screen above, the category that is highlighted on the left is **Children's**. The list on the right displays the types of programs or movies in the children's category, such as **Animated Comedy, Cartoons & Animations** etc.
- 3** To scroll through the list on the left using the ▲ or ▼ arrow keys, first ensure that the white arrow (▶) in the middle of the screen is pointing to the right. If it is pointing to the left, press the ◀ (left) arrow key on the remote control. The arrow on the screen will now point right.
- 4** Use the ▲ and ▼ arrow keys to scroll through the list on the left. You will notice that as you scroll through the list on the left, the list on the right also changes, giving you the types of movies or programs in that highlighted category or genre.
- 5** To scroll through the list on the right, first press the ▶ (right) arrow key so that the white arrow in the middle of the screen points to the left. Now use the ▲ or ▼ arrow key to highlight a type of program or movie in the highlighted category or genre. To view the titles of the movies or programs, press **Select**.
- 6** Press **GO BACK** to return to the **Category** screen, press **EXIT** to return to the last channel viewed, or press **Select** to view the currently highlighted channel in the **Select Program** screen.



## REMINDERS

The **Reminders** option allows you to view a list of all the programs you would like to be reminded of for future viewing. Programs with **Reminders** cannot be watched before their start times.

To view all the programs you have set **Reminders** for, do the following:

- 1** While in the GUIDE use the ▲ or ▼ arrow key and highlight **Reminders**. Press **Select**.
- 2** You will see a screen that displays the **Reminders**, the day they are being broadcast and their start times.
- 3** Highlight a program using the ▲ or ▼ arrow. Press **Select** to set or unset the highlighted program as a reminder.
- 4** Highlight a program and press + to view a **Synopsis**.
- 5** Press **GO BACK** to return to the IPG , or press **EXIT** to return to normal viewing.

To set reminders through TV listings:

- 1** Press **Select** to access the Interactive Program Guide.
- 2** Highlight **Select** in the Service Menu at the top of the screen.
- 3** To select the desired channel use the ► (right) arrow key to highlight the desired program.
- 4** Press **Select**.
- 5** In the **Reminders** screen, press **Select** so that a check mark appears in the black box next to the name of the program.
- 6** Press **Go Back** to return to the **TV Listings** screen.
- 7** **TV Listings** screen highlights program in light red.

## DIGITAL MUSIC CHANNELS

The **Digital Music Channels** option displays the music channels menu, which provides a way to access commercial-free, digital music by category.

To access **Digital Music Channels**:

- 1 While in normal viewing mode, press **Select** on the remote control. The main IPG screen is displayed.
- 2 Press the ▲ or ▼ arrow button to highlight Digital Music Channels. Press **Select**. The Digital Music Channels screen is displayed.
- 3 The **Digital Music Channels** menu lists the individual music channels available. Use the ▲ or ▼ arrow buttons to highlight the channel you want to listen to. Press **Select** and tune to the channel highlighted.
- 4 Press **GO BACK** on the remote control to return to the **GUIDE**, or press **EXIT** to return to normal viewing.

## PERSONAL

The **PERSONAL** option in the **Main Menu** enables you to set up some features of the RCN Digital Cable Service to your preference.

To access the **PERSONAL** option, do the following:

- 1 While in normal viewing mode, press **Select** on the remote control.
- 2 Use the ◀ or ▶ arrow key to highlight the **PERSONAL** button in the **Main Menu**. When **PERSONAL** is highlighted, the **Menu Options** (the left part of the screen) changes.
- 3 The options that you are able to set your personal preferences for are:
  - Parental Lock
  - Guide to Content Icons
  - Select Four-Digit Code
  - Account Status
  - Pay-Per-View Account
  - Pay-Per-View PIN
  - Set Pay-Per-View Limit
  - SAP Preference
  - SAP Preference 2
  - Stereo Settings
  - Reminder Settings
  - Banner Duration
  - Customer Service

\*Some options listed above may not yet be available.



## PARENTAL LOCK

**Parental Lock** allows you to prevent viewing of programming based on rating.

To access **Parental Lock**:

- 1 While in normal viewing mode, press **Select** on the remote control. The main IPG screen is displayed.
- 2 Use the ◀ or ▶ arrow key to highlight the **PERSONAL** button in the **Service** menu.
- 3 Press the ▲ or ▼ arrow key to highlight **Parental Lock**. Press **Select**. The **Parental Lock** screen (Figure 5) is displayed.



**PARENTAL LOCK**  
(Figure 5)

*Note: NR, Not Rated, could contain adult content.*

- 4 A 4-digit PIN is required to access the parental ratings. **The default 4 digit PIN is 0000.** Once the **Parental Lock** screen is displayed, enter the 4 digit PIN and press **Select**. You will now have access to the parental ratings.
- 5 Ratings are listed in order of least offensive (Y) to most offensive (X). Highlight the maximum rating you would like to allow to be viewed and press **Select**. Programming that is rated above the selected rating will be blocked and unviewable. While viewing TV, you will be asked to enter the 4-digit PIN to view blocked programs.
- 6 Enter the 4-digit PIN and press **Select**. The program will now be unblocked.
- 7 Please note that if you enter in the wrong PIN to gain access to the parental ratings or the blocked programs, a screen informing you that the incorrect PIN was entered will be displayed.
- 8 Press **GO BACK** on the remote control, enter the correct PIN and press **Select**.



## GUIDE TO CONTENT ICONS

The **Guide to Content Icons** option displays the content icons and what they represent.

To access **Guide to Content Icons**:

- 1 While in normal viewing mode, press **Select** on the remote control. The main IPG screen is displayed.
- 2 Use the ◀ or ▶ arrow key to highlight the **PERSONAL** button in the **Service** menu.
- 3 Press the ▲ or ▼ arrow key to highlight **Guide to Content Icons**. Press **Select**. The **Guide to Content Icons** screen is displayed.
- 4 Press **GO BACK** to return to **IPG**, or press **Exit** to return to normal viewing.

## SELECT 4-DIGIT CODE

The **Select 4-Digit Code** option allows you to set your personal 4-digit code for features such as **Parental Lock** etc.

To access **Select 4-Digit Code**:

- 1 While in normal viewing mode, press **Select** on the remote control. The main IPG screen is displayed.
- 2 Use the ◀ or ▶ arrow key to highlight the **PERSONAL** button in the **Service** menu.
- 3 Press the ▲ or ▼ arrow key to highlight **Select 4-Digit Code**. Press **Select**.  
The screen requiring you to enter your current code will be displayed.
- 4 Enter the current code. If it is still the default code, then it will be 0000. Press **Select**.  
The screen requiring you to enter a new 4-digit code (of your choice) will be displayed.
- 5 Enter your new 4-digit code. Press **Select**. The screen requiring you to confirm your new code will be displayed.
- 6 Re-enter your new code and press **Select**. The main IPG will then be displayed.  
Press **Exit** to return to normal viewing.

NOTE: If you enter the wrong code in the confirmation screen, the **ENTER NEW 4-DIGIT CODE** screen will again be displayed. Re-enter and re-confirm your new code.



## **ACCOUNT STATUS** *(Not yet available.)*

The **Account Status** option enables you to view the status of your account.

To access **Account Status**:

- 1** While in normal viewing mode, press **Select** on the remote control. The main IPG screen is displayed.
- 2** Use the ◀ or ▶ arrow key to highlight the **PERSONAL** button in the **Service** menu.
- 3** Press the ▲ or ▼ arrow key to highlight **Account Status**. Press **Select**. The screen requiring you to enter your 4-digit code is displayed.
- 4** Enter the 4-digit code and press **Select**. The **Account Status** screen is displayed.

## **PAY-PER-VIEW ACCOUNT** *(Not yet available.)*

The **Pay-Per-View Account** option enables you to view the status of your Pay-Per-View Account.

To access **Pay-Per-View Account**:

- 1** While in normal viewing mode, press **Select** on the remote control. The main IPG screen is displayed.
- 2** Use the ◀ or ▶ arrow key to highlight the **PERSONAL** button in the **Service** menu.
- 3** Press the ▲ or ▼ arrow key to highlight **Pay-Per-View Account**. Press **Select**. The screen requiring you to enter your 4-digit code is displayed.
- 4** Enter the 4-digit code and press **Select**. **Pay-Per-View Account** screen is displayed.

## PAY-PER-VIEW PIN

The **Pay-Per-View PIN** option enables you to set your Pay-Per-View PIN so that access to the Pay-Per-View Account is limited to those who know the PIN.

To access **Pay-Per-View PIN**:

- 1 While in normal viewing mode, press **Select** on the remote control. The main IPG screen is displayed.
- 2 Use the ◀ or ▶ arrow key to highlight the **PERSONAL** button in the **Service** menu. Press the ▲ or ▼ arrow key to highlight **Pay-Per-View PIN**. Press **Select**. The screen requiring you to enter your 4-digit code is displayed.
- 3 Enter the 4-digit code and press **Select**. The **Pay-Per-View PIN** screen is displayed.
- 4 Highlight On or Off using the ▲ or ▼ arrow keys, then press **Select** to set your **Pay-Per-View PIN** to on or off.
- 5 Press **Exit** to return to normal viewing.

## SET PAY-PER-VIEW LIMIT *(Not yet available.)*

The **Set Pay-Per-View Limit** option enables you to set your **Pay-Per-View Limit**. This limit controls the individual Pay-Per-View movie or event purchase maximum price. Beyond the set maximum requires the use of your 4-digit PIN.

To access **Pay-Per-View Limit**:

- 1 While in normal viewing mode, press **Select** on the remote control. The main IPG screen is displayed.
- 2 Use the ◀ or ▶ arrow key to highlight the **PERSONAL** button in the **Service** menu.
- 3 Press the ▲ or ▼ arrow key to highlight **Pay-Per-View Limit**. Press **Select**. The screen displaying the current pay-per-view-limit, and requiring you to enter your 4-Digit code is displayed.
- 4 Enter the 4-digit code and press **Select**. The screen requiring you to enter your **Pay-Per-View Limit** is displayed.
- 5 Please note that the **Pay-Per-View Limit** is entered in cents, eg., if you want to set your limit to \$40, then just enter 4000. If you enter in a wrong amount, or if you would like to change the amount you have entered, press the ◀ (left) arrow key to delete the incorrect amount, and re-enter the correct amount. Press **Select**. You will be returned to the Main Menu.
- 6 Press **Exit** to return to normal viewing.



## SELECT SAP PREFERENCE

The **Select SAP Preference** option allows you to select your first audio language choice.

To access **Select SAP Preference**:

- 1 While in normal viewing mode, press **Select** on the remote control. The main IPG screen is displayed.
- 2 Use the ◀ or ▶ arrow key to highlight the **PERSONAL** button in the **Service** menu.
- 3 Press the ▲ or ▼ arrow key to highlight **Select SAP Preference**. Press **Select**.
- 4 Highlight the language of your choice using the ▲ or ▼ arrow key. Press **Select**.
- 5 Press **Exit** to return to normal viewing.

## STEREO SETTINGS

The **Stereo Settings** option allows you to select your first AC3 Downmixing and SPDIF Output Settings.

To access **Stereo Settings**:

- 1 While in normal viewing mode, press **Select** on the remote control. The main IPG screen is displayed.
- 2 Use the ◀ or ▶ arrow key to highlight the **PERSONAL** button in the **Service** menu.
- 3 Press the ▲ or ▼ arrow key to highlight **Stereo Settings**. Press **Select**. Press **Select**.
- 4 The settings for **AC3 Downmixing** will be highlighted in the left menu. Press the ▲ or ▼ arrow keys to select **Normal Stereo** or **Dolby Stereo**. Press **Select**.
- 5 Press the ▶ (right) arrow key to select **SPDIF Output**, and press the ▲ or ▼ arrow keys to select **Decoded PCM** or **Undecoded AC3**. Press **Select**.
- 6 Press **Exit** to return to normal viewing or **GO BACK** to return to main IPG.



## REMINDER SETTINGS

The **Reminder Settings** option allows you to automatically tune to programs with set reminders.

To access **Reminder Settings**:

- 1 While in normal viewing mode, press **Select** on the remote control. The main IPG screen is displayed.
- 2 Use the ◀ or ▶ arrow key to highlight the **PERSONAL** button in the **Service** menu.
- 3 Press the ▲ or ▼ arrow key to highlight **Reminder Settings**. Press **Select**.
- 4 Highlight **Auto Retune** or **No, Don't Retune** using the ▲ or ▼ arrow key. Press **Select**.
- 5 Press **Exit** to return to normal viewing.

## BANNER DURATION

The **Banner Duration** option allows you to set the length of time the banner will be displayed.

To access **Banner Duration**:

- 1 While in normal viewing mode, press **Select** on the remote control. The main IPG screen is displayed.
- 2 Use the ◀ or ▶ arrow key to highlight the **PERSONAL** button in the **Service** menu.
- 3 Press the ▲ or ▼ arrow key to highlight **Banner Duration**. Press **Select**.
- 4 Using the ▲ or ▼ arrow key, highlight the preferred amount of time you desire the banner to be displayed. Press **Select**.
- 5 The screen requiring you to set the time for **Program Reminders** will be displayed.
- 6 Press the ▲ or ▼ arrow keys and highlight the amount of time you want a reminder banner to be displayed before a reserved program starts. Press **Select**.
- 7 Press **Exit** to return to normal viewing.



## SETTINGS

The **SETTINGS** option in the Service Menu gives you access to technical information about the CONVERTER BOX. You will not use these menus for normal operation of the CONVERTER BOX. However, the technical information listed under the **SETTINGS** option is important when calling a service center or your service provider.

### FOR RCN TECHNICAL TEAMS ONLY.

**Do not access SETTINGS unless requested by Customer Care.**

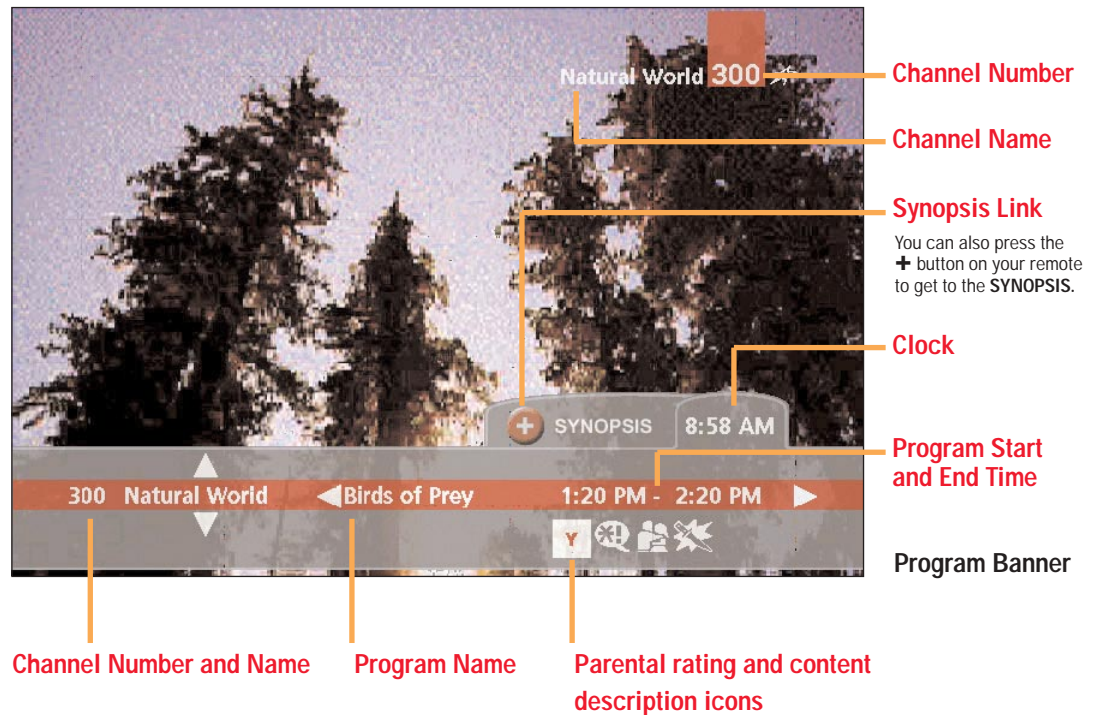
### CUSTOMER WARNING!!!

DO NOT ATTEMPT TO MAKE ANY CHANGES IN THE SETTINGS OPTION MENUS. DOING SO COULD CAUSE YOUR RCN DIGITAL CABLE BOX TO BECOME INOPERABLE. ALWAYS CALL YOUR SERVICE PROVIDER, OR AN ACCREDITED SERVICE CENTER IF YOU NEED TO MAKE ANY CHANGES IN THE SETTINGS OPTION MENUS.

To access the **SETTINGS** option do the following:

- 1 While in normal viewing mode, press **Select** on the remote control.
- 2 Use the ◀ or ▶ arrow buttons to highlight the **SETTINGS** button in the Service menu. When **SETTINGS** is highlighted, the Menu Options (the left part of the screen) changes.
- 3 The relevant technical subjects will be displayed in the Menu Options area of the IPG.
- 4 Use the ▲ and ▼ arrow keys to scroll through the technical subjects. If you press the ? key, **Exclusive application for engineers** will be displayed over the IPG.
- 5 To exit the IPG and return to normal viewing, press **Select** on the remote control.

## BANNERS/FLIP BAR



In addition to the Main Menu and IPG screens, the viewer can also control the RCN Digital Cable Service through Banners. All the banners are displayed towards the bottom of the screen, and occupy most of the screen width. All the banners overlay the video.

## PROGRAM BANNER

The **Program Banner** gives access to information on the current and subsequent programs on the current channel, and current and forthcoming programs on other channels. The **Program Banner** can access programs scheduled for broadcast between the current local time and 24 hours in the future.

To access the **Program Banner**:

- 1 Press ? on the remote control while viewing a program. The program banner will be displayed.
- 2 The program banner will also be automatically displayed when the channel is changed. The banner will remain on screen for the duration that is set in the IPG. See **Banner Duration** on [page 33](#).
- 3 Press the ▲ and ▼ arrow keys to scroll through the titles of channels, and press the ◀ and ▶ arrow keys to scroll through titles of programs.
- 4 Press ? to remove the **Program Banner**.



## SYNOPSIS TEXT BANNER

The **Synopsis Text Banner** shows a textual description of the program currently selected on the **Program Banner**.

To access the **Synopsis Text Banner**:

- 1 Press **+** while the **Program Banner** is displayed. The **Synopsis Text Banner** will be displayed over the video.
- 2 Press **?** to remove the **Synopsis Text Banner**.
- 3 Press **?** to remove the **Program Banner**.

## LANGUAGE BANNER

The **Language Banner** shows the currently selected audio and subtitle language, and also allows you to change the language for the program audio and subtitles.

To access the **Language Banner**:

- 1 Press **+** while viewing a program. The **Language Banner** will be displayed over the video.
- 2 Press the **▲** and **▼** arrow keys to scroll through the other audio languages, and press the **◀** and **▶** arrow keys to scroll through other subtitle languages.
- 3 Press **+** to remove the **Language Banner**.

## SETTING A REMINDER WITHIN THE PROGRAM BANNER

Programs that start in the future can also be set as reminders via the **Program Banner**.

To set a reminder via the **Program Banner**:

- 1 Press **?** on the remote control. When the **Program Banner** is displayed, press the **▲** or **▼** arrow key until the title of the desired channel is displayed.
- 2 Then press the **▶** arrow key until the title of the program you want to book is displayed. Press **Select**.
- 3 Press **Select** to book the program. Ensure that a check mark appears in the black box next to the program name after you push **Select**.
- 4 Press **Exit** twice to return to normal viewing.

## SETTING REMINDERS FOR A PAY-PER-VIEW PROGRAM VIA THE PROGRAM BANNER

Pay-Per-View Programs that start in the future can also be booked via the **Program Banner**.

To set a reminder via the **Program Banner**:

- 1 Press **?** on the remote control. When the Program Banner is displayed, press the **▲** or **▼** arrow key until the title of the desired channel/Pay-Per-View movie/event is displayed.
- 2 Then press the **◀** or **▶** arrow key until the title of the Pay-Per-View program you want to set up a reminder for is displayed.
- 3 Press **Select**.
- 4 Press **Select** to set a Reminder for the Pay-Per-View program.
- 5 Press **Select** to confirm order. In some instances your 4-digit code will be required when purchasing a Pay-Per-View program. Enter your 4-Digit code and press **Select**. The screen listing all the reminder Pay-Per-View programs will be displayed. Ensure that a check mark appears in the black box next to the program name after you push **Select**.
- 6 Press **Exit** twice to return to normal viewing.

## REMINDER NOTIFICATION BANNER

The Reminder Notification Banner is displayed on screen just before a program with a set reminder starts. The number of minutes that the banner appears before the start of the program is selected in the **Banner Duration** menu in the IPG.

- 1 The following screen is displayed before the start of a booked program.



Reminder Notification Banner

- 2 Press **Select** to confirm the booking, or press **GO BACK** to cancel the booking. If the booking is confirmed, the converter box will automatically switch to the correct channel when the program starts. If the booking is neither cancelled nor confirmed, the IPG will automatically tune to the channel showing the program for which the reminder was set.
- 3 Follow the on-screen prompts and confirm or cancel the booking.



## STARVIEW<sup>SM</sup>

RCN Digital Cable supports Starview which provides a flexible way to navigate to other programming channels. Each Starview channel is a matrix of channels which is transmitted as a single video image. There are seven Starview channels beginning on channel 100.

### STARVIEW GENRE CATEGORIES:

<b>Local</b>	<b>Movies</b>	<b>Entertainment</b>	<b>Lifestyles</b>
<b>News</b>	<b>Kids</b>	<b>Sports</b>	

To access **Starview**:

- 1 While in normal viewing mode, press **Starview** on the remote control. Your television will automatically tune to the local Starview channel.



Starview



### STARVIEW

Press the **Starview** button on the remote control while in normal viewing mode.

- 2 The remote control enables you to move a cursor around the Starview guide using the arrow keys. Move the cursor onto a channel you would like to watch and press **Select**. The converter box will tune to that channel.
- 3 The above figure shows a promotional mosaic. This mosaic contains a large, central promotional cell with single cells all around it. The single cells contain live video from a number of channels, while the promotional cell is used to run live video promotional features and instructional videos.

# INTERACTIVE APPLICATIONS

## WHAT ARE INTERACTIVE APPLICATIONS?

Interactive applications are new services that can be accessed through RCN's digital set top box. Many of these services, called virtual channels, function similarly to Internet sites where the users can access and navigate through specific information. In addition, interactive applications also include simple games, where the customer uses the remote control to play a game through the set top box.



## iPORTAL

**What is iPortal?** iPortal serves as a main menu for RCN's interactive applications by providing links to all of the applications from one convenient location. Customers use the arrow keys on the remote control to select the interactive application that they would like to access.

### Accessing iPortal

RCN's interactive applications are accessed through iPortal.

There are two ways to access iPortal:

**1)** Press the **i** button on the remote control

OR

**2)** Tune to **channel 500**

Press **EXIT** on the remote control to return to live television.



## **RCN IMPULSE ON-DEMAND**

### **3 WAYS TO ACCESS THE VOD MAIN MENU**

#### **– THROUGH iPORTAL**

1. Press the **i** button on your remote control
2. The iPortal main page will appear on your screen
3. Using the arrow keys on your remote control, highlight the "**Impulse ON-DEMAND**" button
4. Press **Select** on the remote control

#### **– TUNE TO CHANNEL 1**

1. On your remote control, press "001"

#### **– THROUGH THE INTERACTIVE PROGRAMMING GUIDE**

1. Press **Select** on your remote control to access the IPG
2. Using the ◀ and ▶ arrow keys on the remote control, highlight **Guide** at the top of the screen
3. Using the ▲ and ▼ arrow keys, highlight **Impulse ON-DEMAND** in the menu on the left side of the screen
4. Press **Select** on the remote control

OR

1. Press **Select** on your remote control to access the IPG
2. Using the ◀ and ▶ arrow keys on the remote control, highlight **Channels** at the top of the screen
3. Using the ▲ and ▼ arrow keys or the **Channel Up/Down** (which also functions as page up/down), highlight channel number 1 "**Impulse ON-DEMAND**" in the channel line up menu
4. Press **Select** on the remote control

# Technical Specifications

Tuner (FAT for both Analog and Digital)	Frequency range	54 ~ 860 MHz	
	Channel Bandwidth	6MHz	
	Input level for digital QAM signal	-15 dBmV ~ 15 dBmV for 64-QAM -12 dBmV ~ 15 dBmV for 256-QAM	
	Input level for analog NTSC visual carrier	-6dBmV ~ 15 dBmV	
	Input level for analog NTSC audio carrier	-17 dBc ~ -10 dBc	
Demodulator	Digital Demodulator type	QAM 64, 256	
	Input symbol rate	1 ~ 5.2 Msps	
	FEC	ITU-T J.83 Annex B Trellis Decoder / RS Decoder	
	Analog Demodulator type	NTSC Video BTSC Stereo Audio	
Cable Modem	Standard	DOCSIS 1.1 (with BPI+ code)	
	Chipset	BCM3345	
	Flash	2MB	
	SDRAM	8MB	
DOCSIS Downstream	Modulation	64 or 256 QAM	
	Symbol rate	5.0569 or 5.3605 Msym/sec	
DOCSIS Upstream	Input Level	-15 ~ 15 dBmV	
	Modulation	QPSK or 16 QAM	
	Output frequency range	5~42 MHz	
	Symbol rate	160, 320, 640, 1280 and 2560 Ksym/sec	
	Output level	8 to 55 dBmV	
Conditional Access System	Control Step of Output level	1 dB	
	CAS	NDS VideoGuard	
	Descrambler	ICAM / DES	
	Smart Card interface	ISO 7816 compliant TDA8004T One slot smart card	
Middleware	NDS CORE		
Video decoder	Bitstream accepted for Digital Video	MPEG-1 Video (ISO / IEC 11172-2) MPEG-2 Video (ISO / IEC 13818-2)	
	MPEG-2 profiles / levels Supported	MP@ML, SP@ML, MP@LL	
	Video data rate supported	1 ~ 15 Mbps	
	Aspect ratio	4:3 and 16:9 with Pan & Scan, Support Letter Box mode	
	Video output	NTSC One RCA for composite video CVBS One RCA of composite video CVBS for VCR S video Y/C	
	Macrovision Copy Protection	7.01	
	Teletext Re-insertion	VBI	
	Close-Captioning	EIA-608 captions should be supported to RF and baseband outputs as well	
	DVB-Subtitling		
	Graphic / OSD	Resolution	720 pixels x 480 lines
		Number of colors	256 colors
Grahpic overlay		Both analog channel video and Digital channel video	

# Technical Specifications, continued

Audio decoder	Digital Audio	Compliant with ISO11172-3 layer I and layer II (Musicam) Dolby Digital
	Sampling rate	32, 44.1 and 48KHz
	Bit rates	Layer I 32-448KHz Layer II 32-384KHz
	Audio output	One pair of RCAs of Stereo Audio AL, AR for TV One pair of RCAs of Stereo Audio AL, AR for VCR with fixed volume One RCA for Digital Audio (Electrical SPDIF) One Toslink for Digital Audio (Optical SPDIF)
System and Memory Configurations	Analog Channel	BTSC Stereo Decoder
	Chipset / CPU	BCM7115, 198MHz
	Flash ROM	4Mbytes (equivalent to 12bytes with code compression technology)
	SDRAM	32Mbytes
RF modulator	NVM	32Kbytes
	System	NTSC-M
	Output channel	CH3/4 (Manual Switch)
Serial data port	RS232 (DCE)	Up to 115200 bps
Connection to PC	Ethernet	For PC connection
Front panel	Functions keys	8 keys (Up, Down, Left, Right, Select, GoBack, Guide and Power)
	Smart Card Slot	1
	LEDs	4 (Power ON: GREEN / Standby: RED, Mail Indicator: Yellow, IR indicator: RED and CM status indicator: Yellow)
	Remote Sensor	
	7-Segment display	4-digit (GREEN) Displays time when in standby mode (this is driven by the CORE middleware)
Rear panel	Cable IN	F-type, Female
	TV OUT	F-type, Female
	Stereo (left & right) Audio output	RCA 1x2 (Red/White) RCA 1x2 (Red/White) for VCR
	SPDIF output	RCA 1x1 (Orange) Toslink
	CVBS video output	RCA 1x1 (Yellow) RCA 1x1 (Yellow) for VCR
	S-Video (Y/C)	S-VHS
	Serial data port	D-Sub 9, Female
	PC connectivity	
	Ethernet	RJ-45
	Power Plug and Outlet	Detachable
Power	Main input	100 - 250 VAC~, 50/60 Hz
	Power Consumption	Typical: 15W, Max.: 34W Max. 5A@120VAC for additional AC power outlet
	Power Plug and outlet	One detachable power plug and one additional power outlet for TV
General Information	Dimensions	365 x 250 x 60 (mm)
	Weight (Net)	2.5 Kg
	Color	Silver

THIS PRODUCT IS MADE FOR RCN BY QNS, FOR PLEASE CONTACT RCN FOR SERVICE.

## How to Contact RCN

### Mail

RCN Corporation  
105 Carnegie Center  
Princeton, NJ 08540

### Phone

1.800.RING.RCN (1.800.746.4726)

### Email

**Cable TV:** cabletv@rcn.com

**Phone:** phone@rcn.com

**Internet:** cablemodemhelp@rcn.com

**ResiLink:** support@rcn.com

To find us online, go to: [www.rcn.com](http://www.rcn.com)