

Installation and Operating Guide | Warranty

Model Number | HCS5610 | HD Integrator Box System



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For Customer Support/Service please call:

1-888-865-3026

www.zenith.com
www.lgcommercial.com

RECORD THE MODEL NUMBER

The model and serial number of this HD Integrator Box System are located on the side of the cabinet. For future reference, we suggest that you record the serial number here:

MODEL NO. **HCS5610**

SERIAL NO. _____



CAUTION:

TO REDUCE THE RISK OF ELECTRIC SHOCK DO NOT REMOVE COVER (OR BACK). NO USER SERVICEABLE PARTS INSIDE. REFER TO QUALIFIED SERVICE PERSONNEL.



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 PREVENT FIRE OR SHOCK HAZARDS, DO NOT EXPOSE THIS PRODUCT TO RAIN OR MOISTURE.



IT IS FORBIDDEN TO CONNECT THIS TV TO ANY TELECOMMUNICATION NETWORK / TELEPHONE.

NOTE TO CABLE TV INSTALLER:

This reminder is provided to call the CATV system installer's attention to Article 820-40 of the National Electric Code (U.S.A.). The code provides guidelines for proper grounding and, in particular, specifies that the cable ground shall be connected to the grounding system of the building, as close to the point of the cable entry as practical.

REGULATORY INFORMATION:

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 when the equipment is operated in a residential installation. This equipment generates, uses and can radiate radio frequency energy and, if not installed and used in accordance with the instruction manual, 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 turning 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.

CAUTION:

Changes or modifications not expressly approved by the manufacturer responsible for compliance could void the user's authority to operate the equipment

Marketed and Distributed in the United States by LG Electronics U.S.A., Inc.
2000 Millbrook Drive, Lincolnshire, IL 60069.

CAUTION:

Do not attempt to modify this product in any way without written authorization from Zenith Electronics Corporation. Unauthorized modification could void the user's authority to operate this product.

COMPLIANCE:

The responsible party for this product's compliance is:

LG Electronics U.S.A., Inc.,
2000 Millbrook Drive
Lincolnshire, IL 60069, USA.
Phone: 1-847-941-8000

WARNING:

Apparatus shall not be exposed to dripping or splashing and that no objects filled with liquids, such as vases, shall be placed on the apparatus.

CAUTION:

THESE SERVICING INSTRUCTIONS ARE FOR USE BY QUALIFIED SERVICE PERSONNEL ONLY. TO REDUCE THE RISK OF ELECTRIC SHOCK, DO NOT PERFORM ANY SERVICING OTHER THAN THAT CONTAINED IN THE OPERATING INSTRUCTIONS UNLESS YOU ARE QUALIFIED TO DO SO.

CAUTION:

When used outside of the U.S., it may be used HAR cord with fitting of an approved agency is employed. (When used outside of U.S., other power supply cords may be used if the cord is approved by the local regulating agency.)

DISCONNECTING DEVICE FROM MAINS:

Main plug is the disconnecting device. The plug must remain readily operable.

An apparatus with CLASS I construction shall be connected to a Mains socket outlet with a protective earthing connection.

IMPORTANT SAFEGUARDS FOR YOU AND YOUR NEW PRODUCT

YOUR PRODUCT HAS BEEN MANUFACTURED AND TESTED WITH YOUR SAFETY IN MIND. HOWEVER, IMPROPER USE CAN RESULT IN POTENTIAL ELECTRICAL SHOCK OR FIRE HAZARDS. TO AVOID DEFEATING THE SAFEGUARDS THAT HAVE BEEN BUILT INTO YOUR NEW PRODUCT, PLEASE READ AND OBSERVE THE FOLLOWING SAFETY POINTS WHEN INSTALLING AND USING YOUR NEW PRODUCT, AND SAVE THEM FOR FUTURE REFERENCE. OBSERVING THE SIMPLE PRECAUTIONS DISCUSSED IN THIS MANUAL CAN HELP YOU GET MANY YEARS OF ENJOYMENT AND SAFE OPERATION THAT ARE BUILT INTO YOUR NEW PRODUCT.

IMPORTANT SAFETY INSTRUCTIONS

1. Read these instructions.
2. Keep these instructions.
3. Heed all warnings.
4. Follow all instructions.
5. Do not use this apparatus near water.
6. Clean only with dry cloth.
7. Do not block any ventilation openings. Install in accordance with the manufacturer's instructions.
8. Do not install near any heat sources such as radiators, heat registers, stoves, or other apparatus (including amplifiers) that produce heat.
9. Do not defeat the safety purpose of the polarized or grounding-type plug. A polarized plug has two blades with one wider than the other. A grounding type plug has two blades and a third grounding prong. The wide blade or the third prong is provided for your safety. If the provided plug does not fit into your outlet, consult an electrician for replacement of the obsolete outlet.
10. Protect the power cord from being walked on or pinched particularly at plugs, convenience receptacles, and the point where they exit from the apparatus.
11. Only use attachments/accessories specified by the manufacturer.
12. Use only with the cart, stand, tripod, bracket, or table specified by the manufacturer, or sold with the apparatus. When a cart is used, use caution when moving the cart/apparatus combination to avoid injury from tip-over.



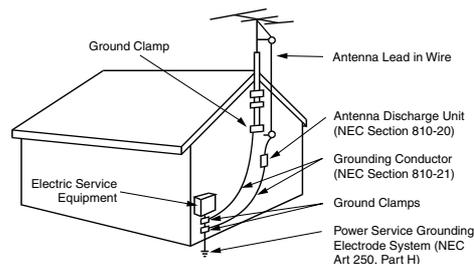
PORTABLE CART WARNING

13. Unplug this apparatus during lightning storms or when unused for long periods of time.
14. Refer all servicing to qualified service personnel. Servicing is required when the apparatus has been damaged in any way, such as power-supply cord or plug is damaged, liquid has been spilled or object have fallen into the apparatus, the apparatus has been exposed to rain or moisture, does not operate normally, or has been dropped.

Outdoor Antenna Grounding

If an outside antenna or cable system is connected to the product, be sure the antenna or cable system is grounded so as to provide some protection against voltage surges and built-up static charges. Article 810 of the National Electrical Code (U.S.A.), ANSI/NFPA 70 provides information with regard 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.

Example of Grounding According to National Electrical Code Instructions



NEC - National Electrical Code

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Optional Installer Remote Control for Model No. Series HCS5610

The Installer remote control is NOT included with the HD Integrator Box System.

- However, the user's remote is included with the HCS5610.

Purchase the Optional Installer's Remote and Clone Programmer

To perform a normal installation set up, you need an installer's remote and the LT2002 Quickset II Clone Programmer – both are shown and described in later sections. See your Zenith/LG dealer if you wish to purchase the Installer remote and LT2002. The installer remote allows access to the Installer menus, User menus in the Manual Channel Set options on the Setup menu. The installer remote has Menu, Select, and Adjust Keys. The LT2002 Quickset II Clone Programmer is used to duplicate a TV/STB setup and install it on another identical TV/STB.

**Note: Design and specifications are subject to change without prior notice.*

Setup Checklist

Installation Overview

- Unpack the HD Integrator Box System and all accessories.
- Determine installation location for the HD Integrator Box System, TV stand or mount.
- Determine mounting and installation requirements. If used, AC Power source outlet, Antenna/Cable service connectors, any external equipment required for system or TV operation, all necessary cables, wires, connectors and any other additional required hardware, etc.

Installation Overview & System Setup: Questions to Consider Before Installation

VESA Bracket

Does the VESA Bracket have to be mounted to the TV? Y: Install VESA Bracket on TV following the instructions supplied with the bracket.

Yes___ No___

TV Stand

Does the TV have to be mounted on the stand? Y: Mount the TV on the stand following the instructions provided with the TV stand.

Yes___ No___

Installer's Remote Control

Does the Installer have the optional Installer's remote control available to use to set up the TV (This is a must for TV setup.)?

Yes___ No___

Master TV Setup

Will the Master TV's features setup be cloned and copied to other identical HD Integrator Box Systems?

Yes___ No___

LT2002 Quickset II Clone Programmer

To copy the TV's setup, the installer will need a clone programmer. Is there a Zenith LT2002 Clone Programmer available?

Yes___ No___

End-User Remote Control

Will a remote control be provided to the end user to operate the TV? (The remote is included with the TV.)

Yes___ No___

End-User Menu Access

Will the end-user have access to all the menus on the TVs from the front panel?

Yes___ No___

HD Integrator Box System Setup Checklist

1. Install the HD Integrator Box System where it will be used.

Prior to Operation

The HD Integrator Box System must be connected to all external antenna/cable, video, and audio source equipment. See page 5, Table of Contents.

2. Make all external source equipment connections. See pages 10 - 17.

3. Connect the HD Integrator Box System to a standard 120V, 60 Hertz, AC power source. See page 14.

4. Turn on the TV and all source equipment.

Review TV Setup Options in the Installer's Menu Section

The Installer's menu includes a number of options for the master TV's setup that enable the installer or system administrator to devise a unique system using the many different options and variables available. See Installer's menus section.

*Note:

If using the HCS5610 with a TV that has Commercial Lite, Public Display Mode, select 'No' for the Public Display Mode menu option to disable Public Display Mode.

Master TV Features Setup for Cloning Overview

- Set up Installer's remote control, see page 21.
- Do a Channel Search, see page 22.
- Channel List.
- Channel Label.
- Video/picture appearance options setup, see Picture menu.
- Audio/sound options setup, see Sound menu.
- Set up all other features. See page 5, Table of Contents, for a list of features available on this HD Integrator Box System.

Clone Master TV's Setup

See Clone Programmer section.

*Note:

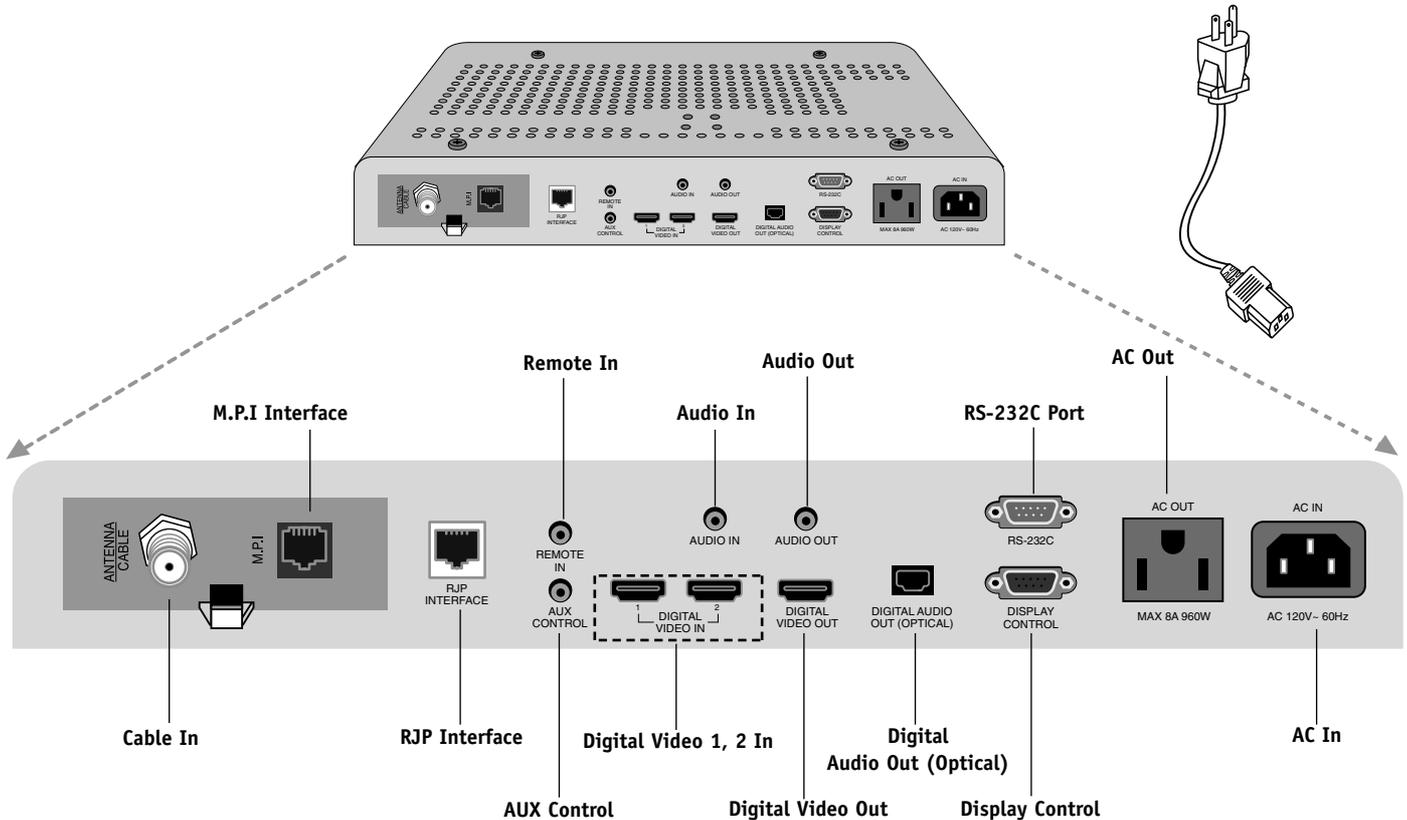
After installing a PPV card in the HCS5610 be sure to disconnect the AC power cord for 5 seconds and reconnect it.

Supplied Accessories List

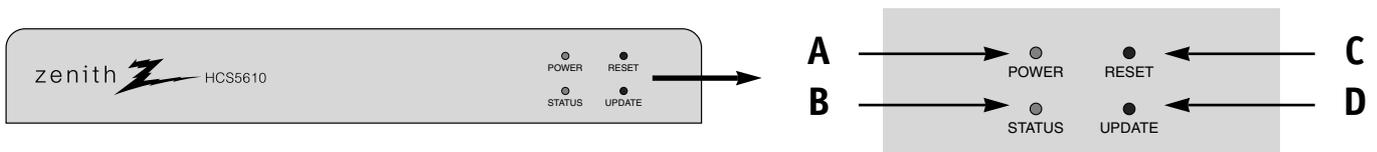
- 5 ft. HDMI to DVI-M Cable
- 1 ft. HDMI to DVI-F Cable
- 5 ft. RS-232 Control Cable
- 6 ft. AC Power Cord
- 3 ft. IR Receiver Cable
- Screws & Wall Mount Bracket (5-Required)
- 1 ft. RCA Jack to Stereo Plug Cable(3.5mm)
- 5 ft. Stereo Plug to RCA Plug to Stereo Plug(3.5mm)
- Installation Guide
- User Remote Control & Batteries (Included)
- Installer Remote Control & Batteries (Optional)

Installation/Connections Overview

To hook up source equipment, see below and also refer to the Table of Contents on page 5; shows pages to go to for equipment hookup options.



HCS5610 front panel controls and LED functions



A POWER LED

The POWER LED illuminates while the display panel is on. The LED is off when the display panel is off.

B STATUS LED

The STATUS LED flashes while the program is running.

C RESET

Press RESET to start the program that re-initializes the HCS5610.

D UPDATE

Press UPDATE to allow software to be updated. To start the download program, press and release the RESET button while holding down the UPDATE button.

Ventilation

The HCS5610 Integrator Box as well as Plasma monitors generate heat during operation and need to be provided with adequate ventilation to assure continued reliable operation. See recommendations below.

Ventilation Clearance



Proper clearance for air to flow around the HCS5610 Integrator Box must be provided.

Monitor Ventilation

Be sure proper ventilation is provided for the monitor, see monitor installation guide for specified ventilation requirements.

1

- There are ventilation holes on four sides of the the HCS5610 box provided for ventilation cooling.
- If the box is mounted vertically, the vents on the sides should be located on the top and bottom for free vertical air movement.
 - If the box is mounted horizontally, the vents should be located at the sides and top of the enclosure (never mount the box with vents facing down). See drawings to the right for reference.

2

The vent holes should never be blocked or obstructed to airflow but have an unimpeded path through any enclosure back to room temperature air.

3

The unit and its venting, should not be installed near heat sources such as radiators or heating ducts.

4

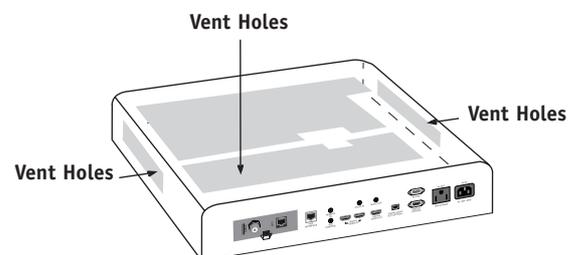
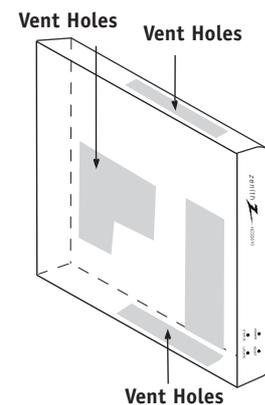
If the unit is placed in an enclosure, tests should be run to confirm that the ambient temperature around the unit under normal expected operating conditions is stable and does not exceed 40 degrees Celsius (104F). This can be determined by placing a thermometer near the air intake vents in the proposed enclosure and measuring the temperature every hour, under normal operating conditions, until two successive readings repeat. If temperature does not stabilize but keeps increasing above 104F, ventilation is inadequate and needs to be improved.

5

Always provide adequate air space between the ventilation areas and adjacent structures.

***Note:**

In addition to the ventilation requirements shown, be sure to allow enough clearance (4" - 5") for wiring clusters attached to the Integrator Box.



Ventilation / Installation Overview

Vertical Installation (Wall Mount) Using Supplied Angled L-Brackets

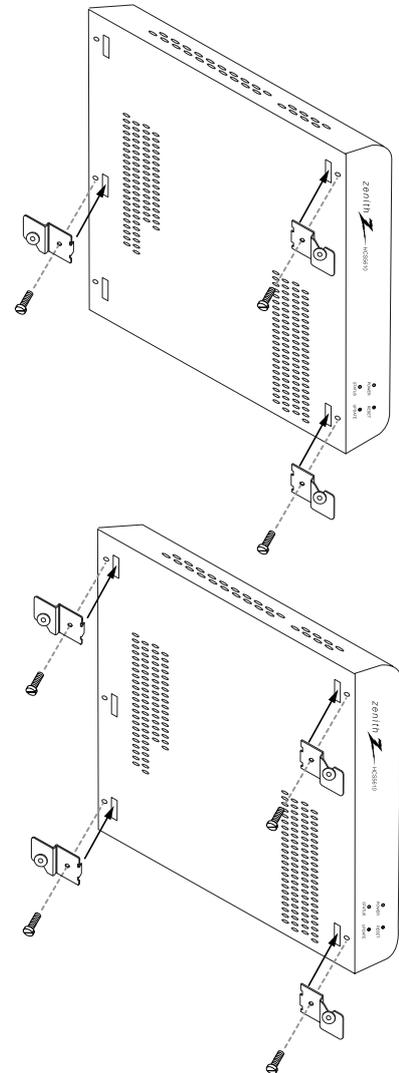
Angled brackets are provided so that the Integrator Box can be mounted on a flat vertical surface, like a wall. Install the angled brackets with the screws provided. Mount Integrator Box on the wall using appropriate screws.

***Note:**

The brackets are designed to be mounted to typical 16" spaced wall studs. Do not mount the Integrator Box to a weak wall surface. If wall studs are not available, use some other appropriate fastening system.

Monitor/Integrator Box Wall Mounting System

The plasma and LCD monitor and Integrator Box can be mounted to a wall using an optional Monitor/Integrator Box wall mounting system. For further information on the mounting system, see your LG dealer.



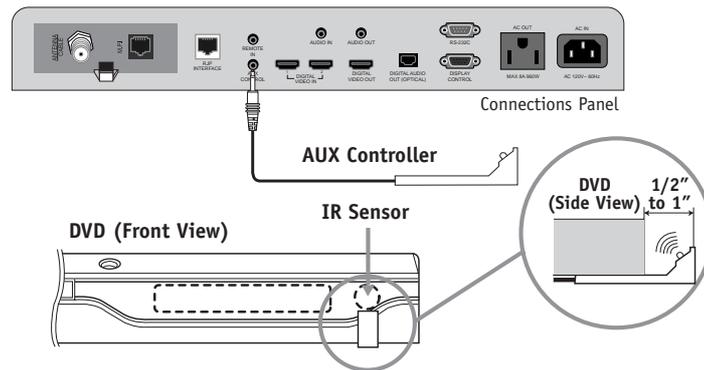
AUX Controller: Connection and Placement

Connect the AUX Controller to allow the Integrator Box to operate your AUX device.

- 1 Connect the AUX Controller to the AUX CONTROL cord on the TV/STB.
- 2 Place the AUX Controller under and in front of the AUX device.
The AUX Controller must extend just out in front of the infrared sensor on the AUX device.

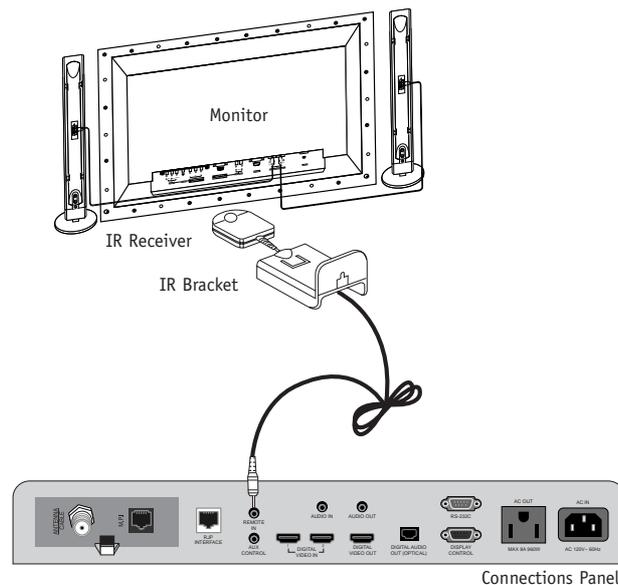
***Note:**

If the infrared sensor is not marked on your AUX device, shine a flashlight into the front panel of the AUX device to locate the sensor.



IR Receiver & IR Bracket Installation

Install the IR Receiver and Bracket Assembly to the back of the monitor using the method described below. The IR Receiver should be installed in the IR Bracket. When the IR Bracket assembly is attached to the TV, it should be mounted with two-sided tape on the bottom-back side of the TV. The IR receiver should be aimed toward the TV viewer and be visible at the bottom front of the TV, in order that it be able to receive IR signals from the user remote.



IR Receiver & Bracket Installation

THE IR RECEIVER UNIT IS PROVIDED. THIS WILL NEED TO BE MOUNTED ON THE MONITOR BACK WITH TWO-SIDED TAPE.

Antenna Hookup

Connect an off-air antenna to the HD Integrator Box System.

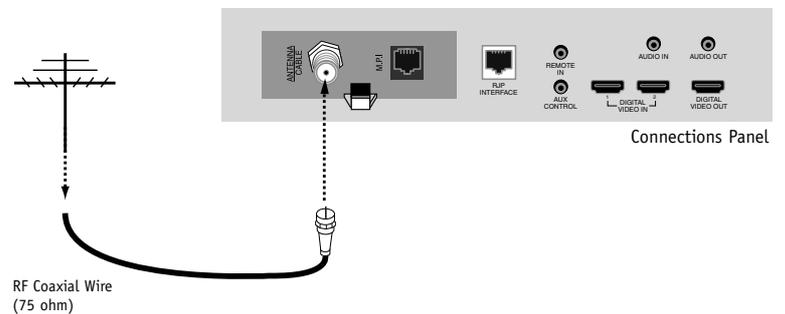
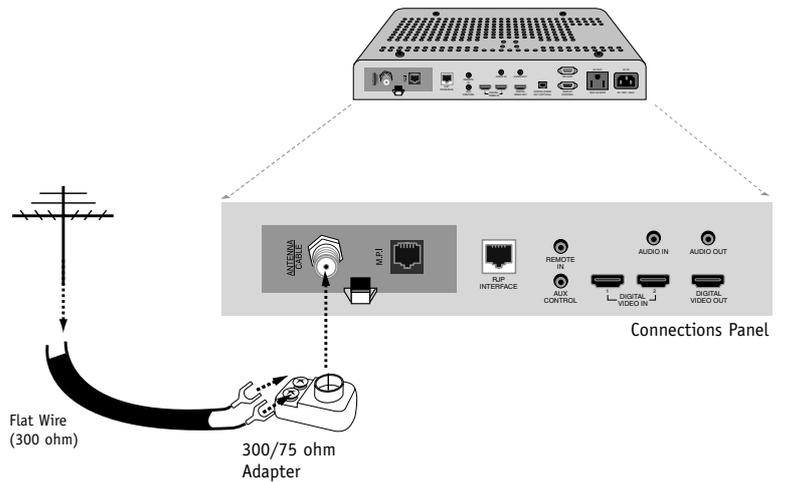
- 1** Locate the Antenna/Cable jack on the back of the HD Integrator Box System.
- 2** Connect the antenna wire (Flat or Round) that runs from the wall to this jack, according to one of the diagrams shown to the right.
- 3** After all connections are complete, plug in the TV. The HD Integrator Box System is designed to operate on AC power.



If the antenna is a 75 ohm RF cable, then no adapters are required.



A 300 to 75 ohm adapter is not included with the Zenith HD Integrator Box System.



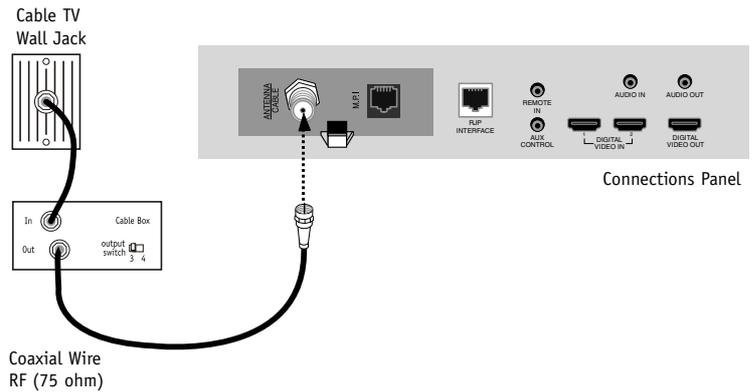
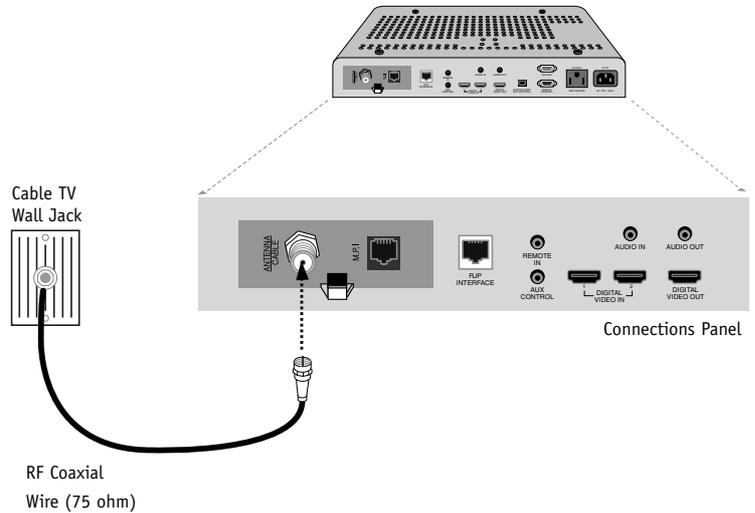
Mini glossary

75 OHM RF CABLE	The wire that comes from an off-air antenna or cable service provider. Each end looks like a hex shaped nut with a wire sticking through the middle, and it screws onto the threaded jack on the back of the TV.
300 TO 75 OHM ADAPTER	A small device that connects a two-wire 300 ohm antenna to a 75 ohm RF jack. They are usually about an inch long with two screws on one end and a round opening with a wire sticking out on the other end.

Cable Service Hookup

Connect cable service to the HD Integrator Box System.

- 1 Locate the Antenna/Cable jack on the back of the TV/STB.
- 2 Connect the cable wire to the Antenna/Cable jack according to one of the diagrams to the right.
- 3 After all connections are complete, plug in the TV. The HD Integrator Box System is designed to operate on AC power.

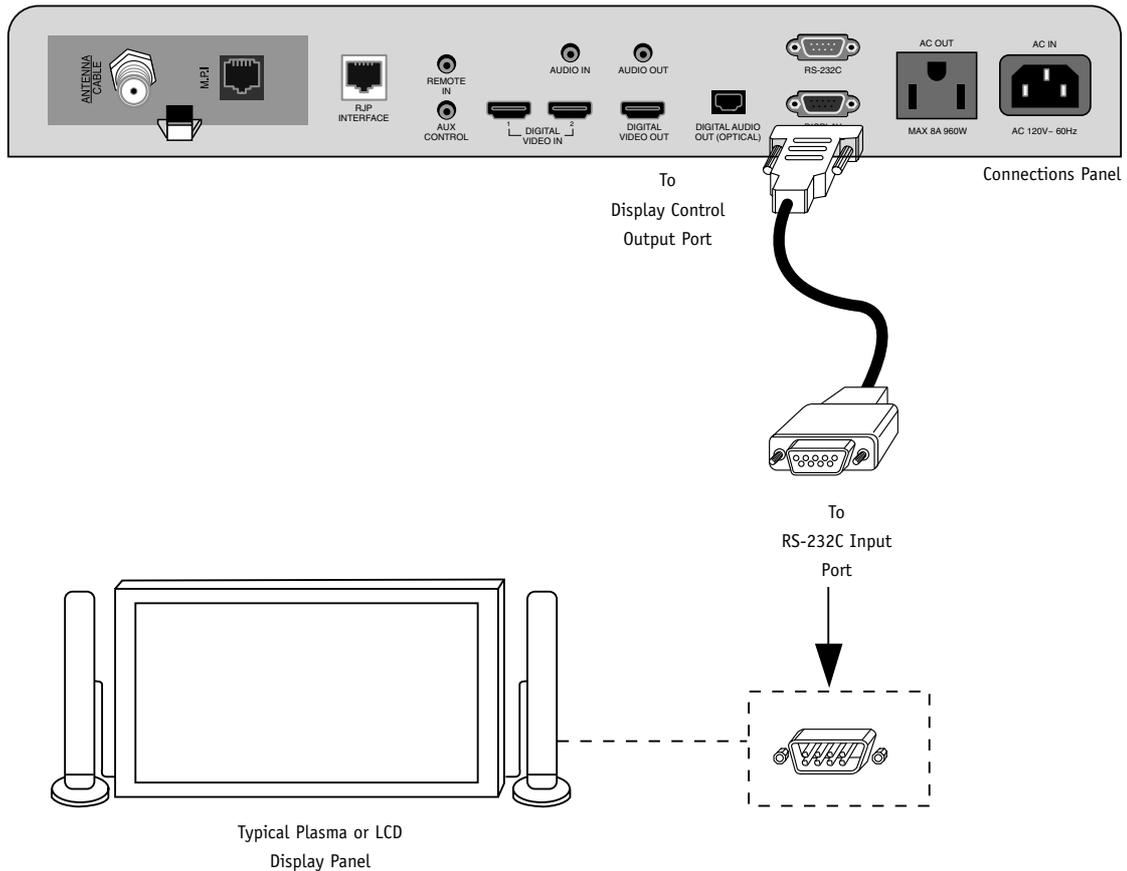


Mini glossary

- 75 OHM RF CABLE** The wire that comes from an off-air antenna or cable service provider. Each end looks like a hex shaped nut with a wire sticking through the middle, and it screws onto the threaded jack on the back of the TV.
- 300 TO 75 OHM ADAPTER** A small device that connects a two-wire 300 ohm antenna to a 75 ohm RF jack. They are usually about an inch long with two screws on one end and a round opening with a wire sticking out on the other end.

RS-232C Control Connections

Connect the Display Control (RS-232C) port from the TV/STB to the display panel to control TV functions with RS-232C commands



ONCE THE RS-232C CONNECTION IS MADE BETWEEN THE TV/STB AND THE DISPLAY PANEL, THE DISPLAY PANEL CAN ONLY BE CONTROLLED BY THE TV/STB.

***Note:** Some TV/Monitor installations will require RS-232 Null modem cable(s) with gender changers.

Viewing Equipment Setup

Connect the TV/STB to the display device that will be used to view the signal.
An unswitched AC power outlet is specifically provided on the TV/STB to plug the display panel into.

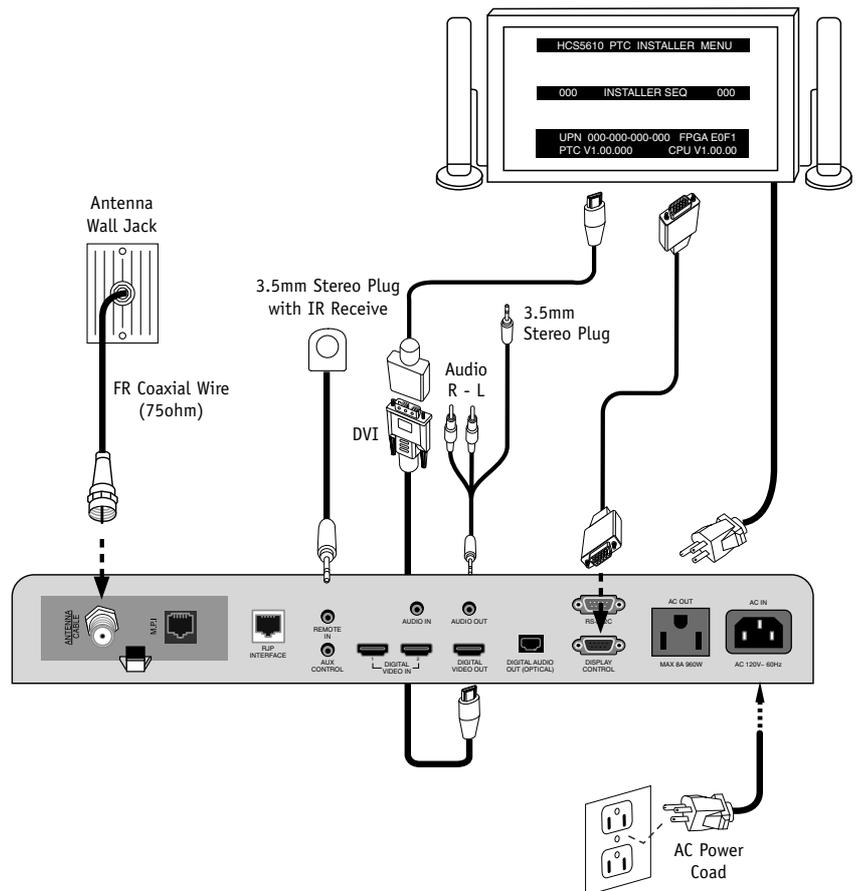
Plasma or LCD Display Panel Setup for use with the TV/STB Commercial Interface Control Box

Connect RS-232C cable. (See previous page.)
Connect IR Receiver cable to Remote In port.
Connect the Cable Out jack to the display panel, typically the Antenna (In) jack.

Plug the display panel AC power cord into the convenience AC power outlet provided on the TV/STB.
Plug the TV/STB AC power cord into a standard 120V 60 Hz power outlet.
Once power is applied to the TV/STB, the AC power outlet is active. The LED on the display panel will turn red, indicating that the panel is in standby mode.

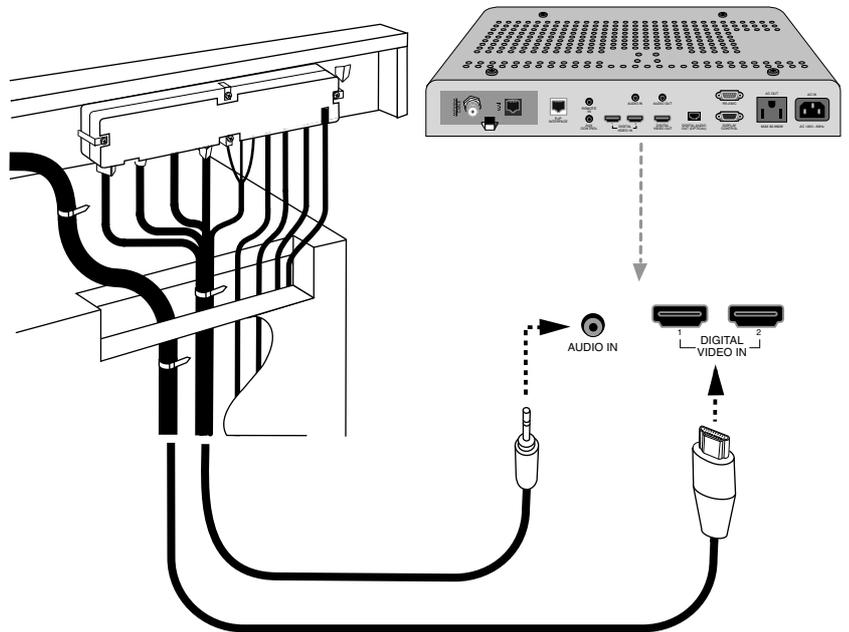
Use the user-supplied remote control to turn on the TV/STB.

Connect Aux Control IR Output as required of your system.



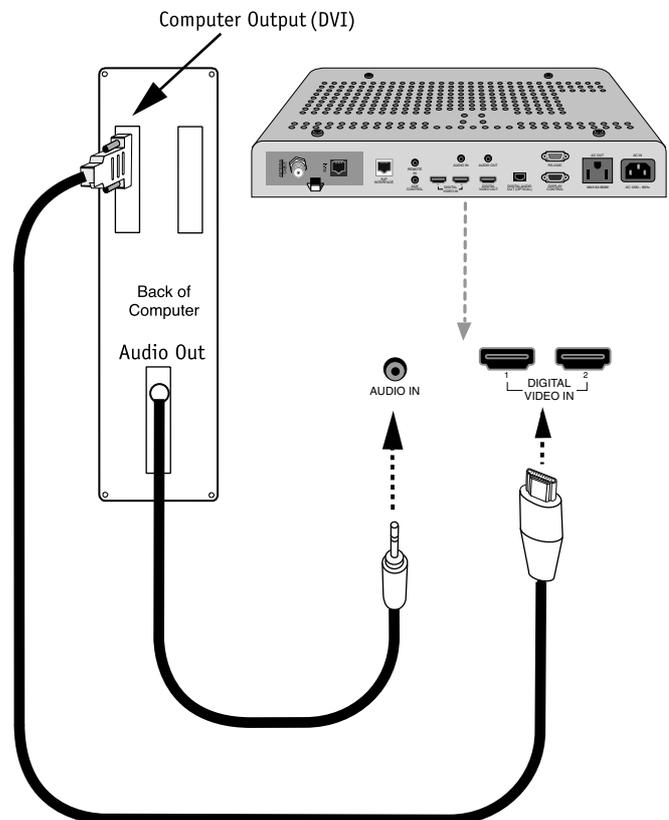
DVI Hookup to RJP or DVD Player

- 1 Locate the DVI out port on the RJP (Remote Jack Pack) or DVI device.
 - 2 Connect a DVI cable between the RJP and DVI in port on the TV/STB.
 - 3 If required, make Audio connections as indicated to the right.
- After all connections have been made, select the DVI source to display the DVI image on the TV.

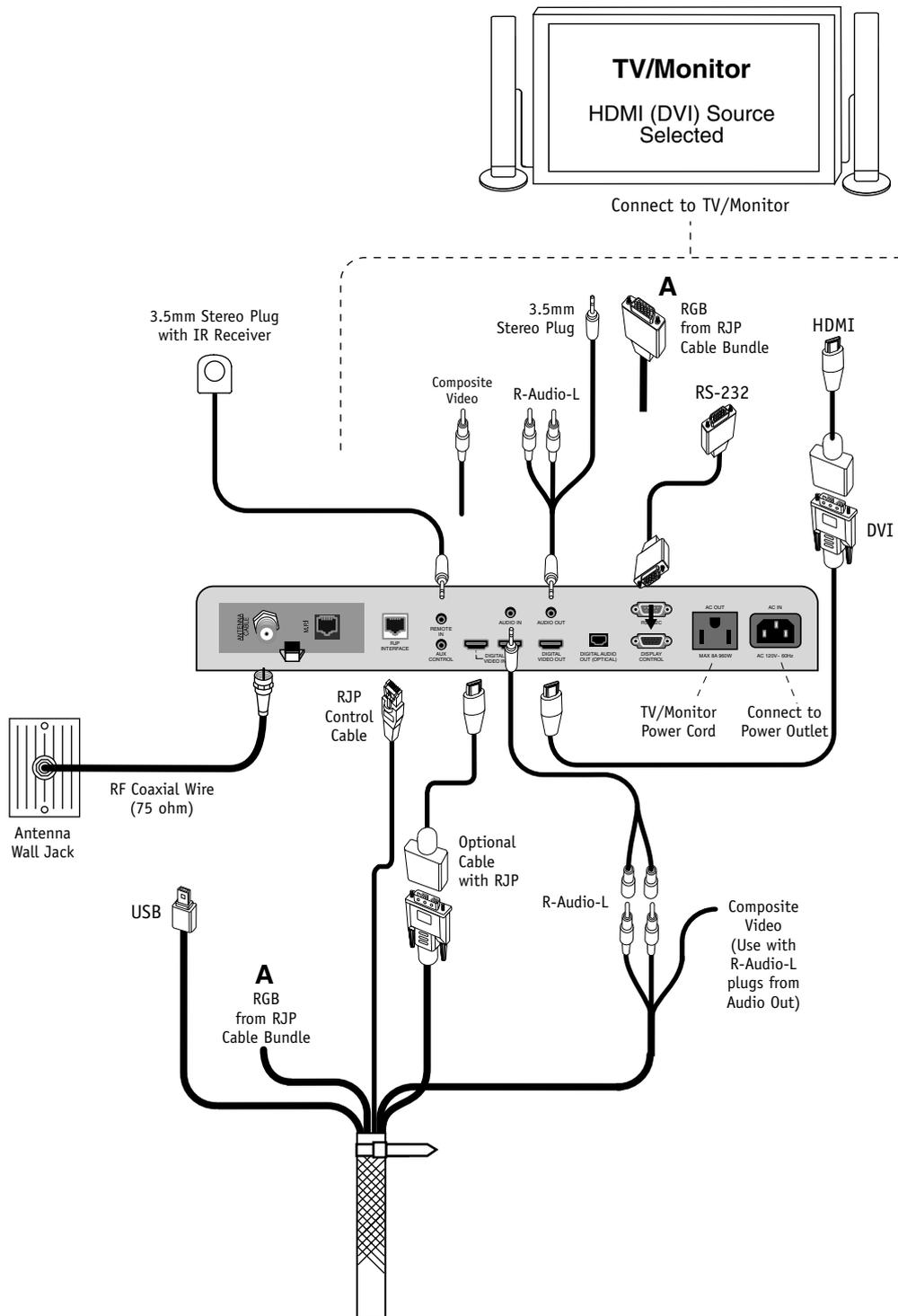


Computer PC Hookup (DVI)

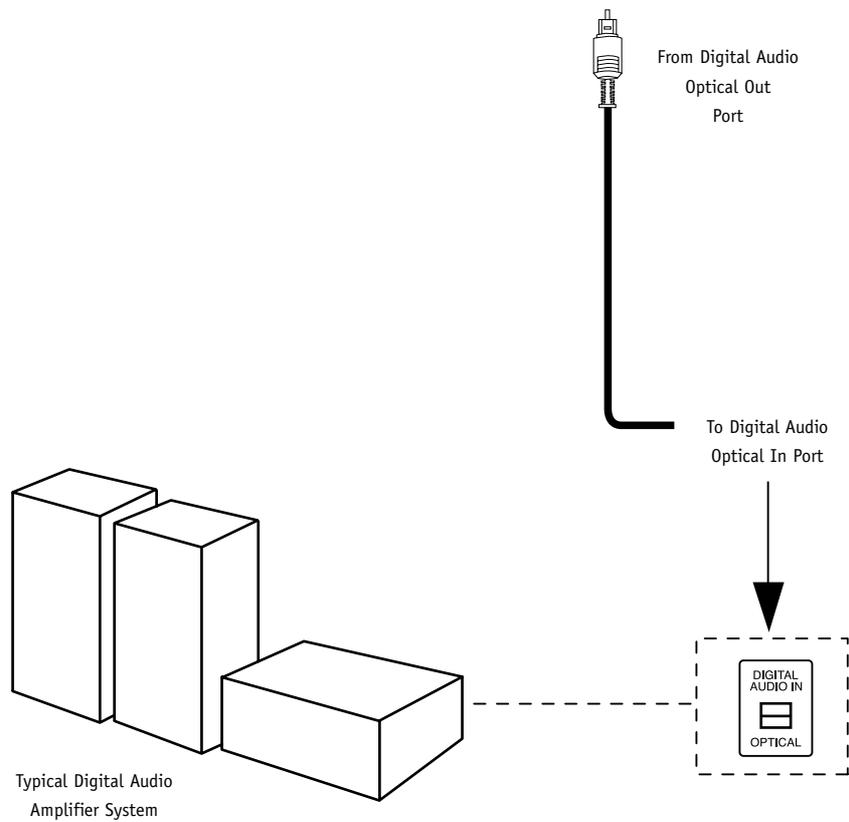
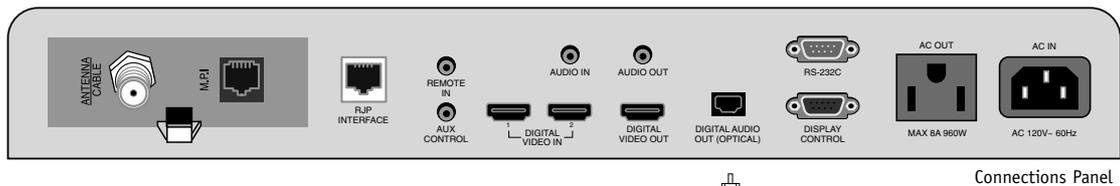
- 1 Locate the computer DVI out port on the computer.
 - 2 Connect a computer cable between the computer and DIGITAL VIDEO In on the TV/STB.
 - 3 Make PC Audio connections as indicated to the up.
- After all connections have been made, select the DIGITAL VIDEO 1 or 2 source to display the PC image on the TV.



TV/Monitor - RJP Connections



Audio Connection – Digital Audio Optical Connections



Digital Audio Optical Output Connections to External Amplifier

Hook up a Digital Audio Amplifier System using the Digital Audio Optical Out port, according to the diagram above.
Select the Digital Audio Optical input source on the Amplifier.

On-Screen Menus Overview

Descriptions of the menus and on-screen displays.

Menu Name	Page	Description
ON-SCREEN MENUS		
CHANNEL MENU		Adjusts the basic operational features of the TV.
Auto Program	22	Automatically finds and stores active channels to scroll through using Channel Up/Down.
Channel List	23	Manually picks and chooses which active channels will appear when using Channel Up/Down.
Channel Label	24	Labels the channels with their network names (ABC, CBS, HBO, etc.).
Fine Tune	25	Automatically adjusts the picture for optimum appearance.
Signal Strength	25	Reveals the strength of the incoming digital signal.
SETUP MENU		
Time	26	Sets the time.
V-Chip	31	Sets up restrictions or changes the password for Parental Control.
PC		With computer connected, sets up PC image appearance.
Menu Language	43	Picks the language the on-screen menus will appear in.
Menu Transparency	43	Selects the degree of menu opacity.
Set ID	44	Specifies the TV's identity.
CAPTION MENU		
SOUND MENU	41	Sets up the sound. Options are: Mode, Balance, Digital Output, Auto Volume, Multi-Track, Internal Speaker.
PICTURE MENU		
	45	Sets up the picture appearance. Options are: Mode, Color Temperature, Screen Format, Noise Reduction, Film Mode.
19 OTHER MENUS AND ON-SCREEN DISPLAYS		
Volume		Shows current sound level.
Sleep Timer		Sets a time the TV will turn off.
SAP		Selects MTS sound: Mono, Stereo, and SAP in analog mode. Change the audio language in DTV mode.
Captions		Selects Caption/Text options.
Alarm		Set a time for the TV to turn itself on.
Guide		View DTV program information. With Guide displayed, press Info for additional program information.
Channel Preview -> V-Chip		Displays the available TV channels and guest's Parental Control menu.
Info		Shows program details: Title, Broadcast Time, Signal Format, Signal Strength CC, V-Chip, Language, Sound Format, Time, Date, Channel Icon, Channel Label.
INSTALLER MENUS		
Installer Menus	53	Makes adjustments to the TV's operational features.
RS-232C Control		
RS-232C Control	65	Control TV through TV/STB.

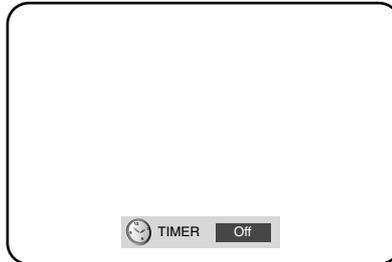
Other Menus & On-Screen Displays

Use the remote keys indicated below to access these menus and displays.
 In this manual, the OSD (On Screen Displays shown) may be different than those on the actual TV.
 The following are generic examples to familiarize you with the TV's options.



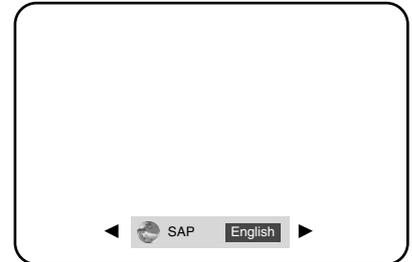
Volume Display

Press VOLUME.
 Shows currently selected sound setting.



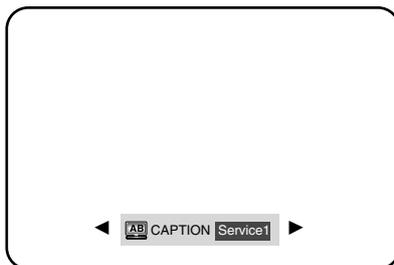
Sleep Timer Menu

Press TIMER.
 Sets a time to automatically turn the TV off and shows remaining time before TV shutoff.



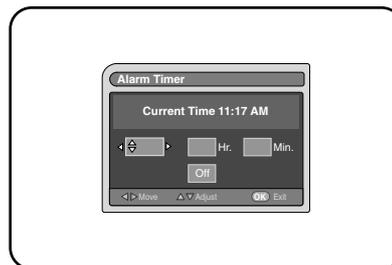
SAP Display

Selects MTS sound: Mono, Stereo, and SAP in analog mode. Change the audio language in DTV mode.



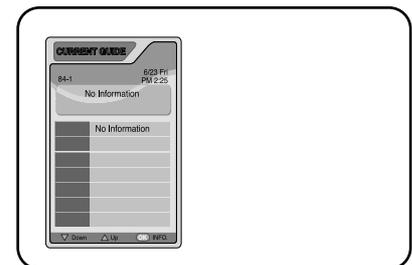
Caption Display

Press CC.
 Turns selected option on or off. See Closed Captions page to select options.



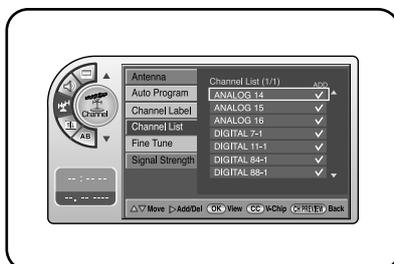
Alarm Display

Press ALARM.
 Set a time for the TV to turn itself on.



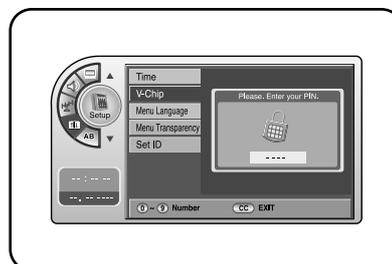
Guide Display

Press GUIDE to view DTV program information. Press Info for more program information.



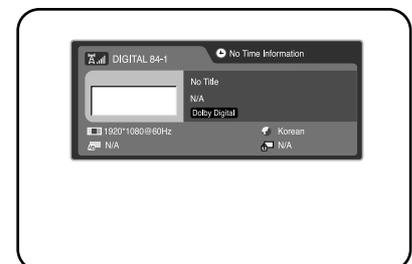
Channel Preview

Press CH PREVIEW.
 Displays available TV channels.



V-Chip

Press CC.
 Move to the V-Chip menu.



INFO

Press INFO.
 Check the current program information.

User Remote Control Key Functions

A list of the keys and their functions on the user remote control supplied with the HD Integrator Box System.

MUTE
Turns sound Off and On, while the picture remains.

TV/AV
Displays a menu of all available input sources.

SAP
Selects MTS sound: Mono, Stereo, and SAP in analog mode. Change the audio language in DTV mode.

CHANNEL PREVIEW
Displays available TV channels, and (if active) the Guest Parental Control menu: set V-Chip blocks to restrict both analog and digital programming.

- Aux Channel allows the guest to select the Audio / Video inputs. (Use the A/V jacks on the back of the TV as a source).

INFO
Check the current program information, screen status, multi-sound status and time. Press with Guide onscreen for more Program information.

[-] BUTTON
When selecting a digital broadcast channel, key in the Main channel number followed by the-> [-] -> then the sub channel number. Analog channels do not contain a sub channel number.

POWER
Turns TV On or Off.

GUIDE
Use to view DTV program information. Press INFO for additional information.

CC
Press to activate English subtitles.

VOLUME / CHANNEL / OK (Enter)
Increase or decrease the volume / Change channels. Select on-screen menu items and change menu values.

NUMBER BUTTONS
Use for direct channel entry.

FLASHBK (FLASHBACK)
Use to return to the last channel viewed.

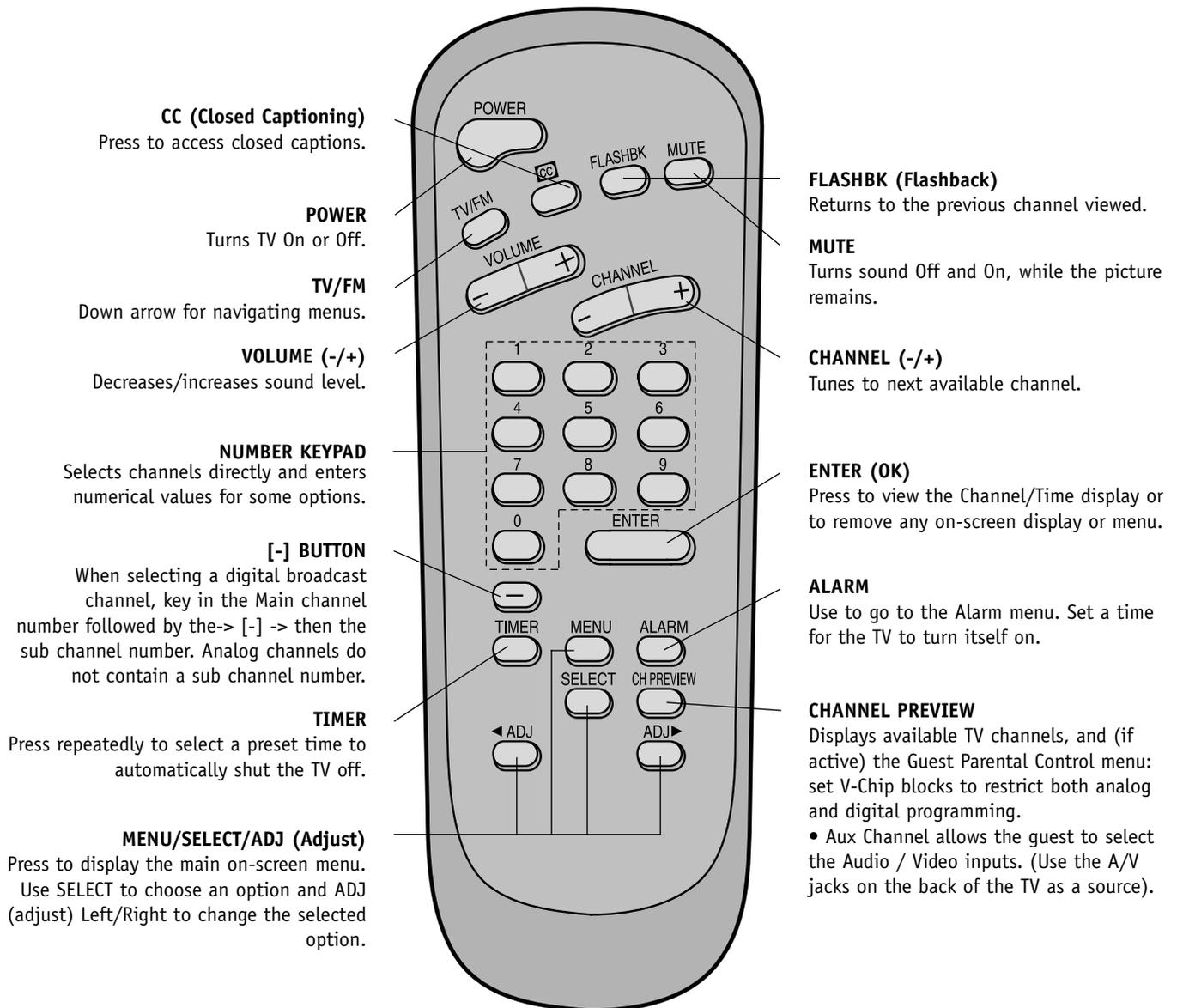
ALARM
Use to go to the Alarm menu. Set a time for the TV to turn itself on.

TIMER
Press repeatedly to select a preset time to automatically shut the TV off.

User
Remote Control

Installer Remote Control Key Functions

A brief list of the keys on the optional installer's remote and what they do.



Optional Installer Remote Control

Auto Program (Channel Search)

Use Auto Program to automatically find and store all of the channels available in the selected Tuning Band.

**Notes: Tuning Band must be set before doing the channel search. See Installer menu item 003 Band/AFC. Default setting is 1, for CATV. When Auto Program is run, any assigned channel labels are automatically removed.*

1 With the optional Installer remote control in hand and press the **POWER** button to turn the TV on.

2 Press the **MENU** button and then use the **ADJ ▲** or **▼** button to highlight the **Channel** menu and press the **OK (Enter)** button.

3 Press the **OK (Enter)** button to highlight **Auto program**.

4 Press the **OK (Enter)** button to start the channel search. After finding all available channels, a display appears briefly showing the number of analog and digital channels found.

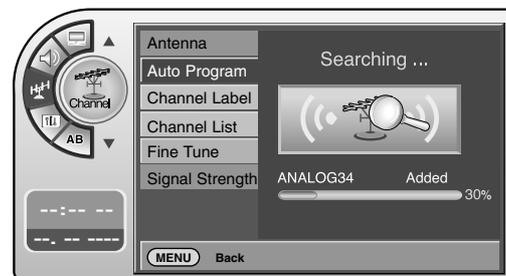
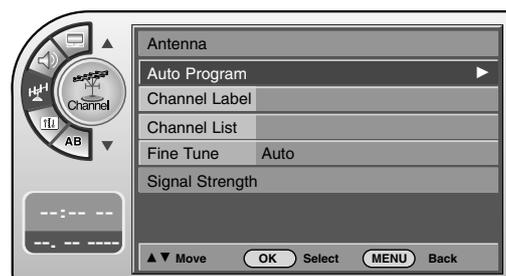
5 When finished, press **MENU** repeatedly to remove the menus.



Auto Program finds channels being received by the TV's analog and digital tuners.



Cable will not work unless you subscribe to a cable service.



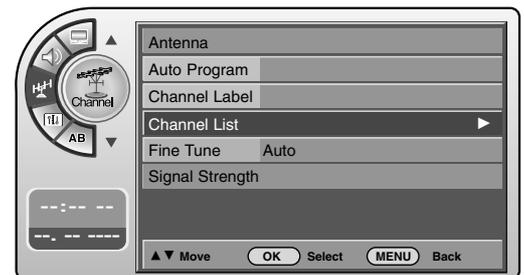
Channel List

After the channel search, remove unwanted channels.

- 1 Press the **MENU** button and then use the **ADJ ▲** or **▼** button to highlight the **Channel** menu and press the **OK (Enter)** button.
- 2 Use the **ADJ ▲** or **▼** button to highlight **Channel List** and press the **OK (Enter)** button.
- 3 Use the **ADJ ▲** or **▼** button to highlight the channel you wish to delete and press the **ADJ ►** button. The **ADJ ►** button toggles the check mark on and off. If the check mark appears next to the channel number, the channel appears in the channel scan.
- 4 When finished, press **MENU** repeatedly to remove the menus.



If you delete a found channel, it isn't gone forever. Simply re-enter the Channel List menu and re-add the channel to show the check mark.



Adding Active Channels (Before 2-5-5+Menu)

- 1 Key in active channel number.
 - 2 Go to the Channel List.
 - 3 Click on the right arrow to add the checkmark next to the channel number.
 - 4 Press **MENU** to exit all menus.
- When 2-5-5+Menu is run, the channel number will be added to the channel scan.

**Note: For broadcast channel numbers, key in the Physical channel number and add it to the channel list.*

Channel Control (Continued)

Channel Labels Setup

- Channel Labels help the user identify the channel or network being viewed.

In the Setup menu with the Channel Labels option highlighted, use the **ADJ ▲ ▼ ◀ ▶** buttons to scroll through the available channel labels, such as, A&E, AMC, ESPN, HBO, etc. These are a series of preset labels from which you can choose the more common networks. Use any of these to label the channels in the TV's memory.

1 Press the **MENU** button and then use the **ADJ ▲** or **▼** button to highlight the **Channel** menu and press the **OK (Enter)** button.

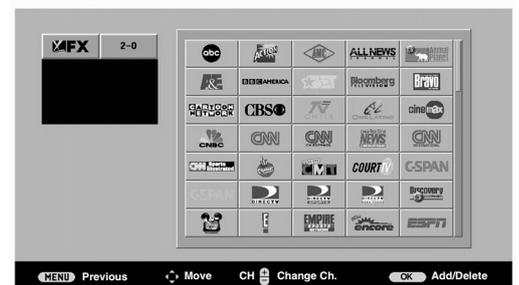
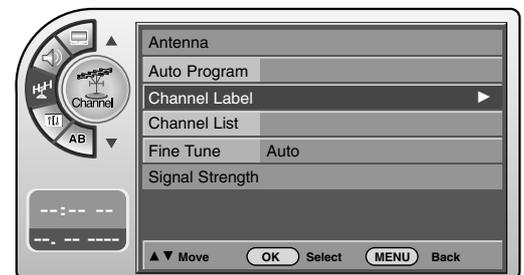
2 Use the **ADJ ▲** or **▼** button to highlight **Channel Label** and press the **OK (Enter)** button. This action displays the **Channel Label** menu.

3 Use **Channel ▲** or **▼ (+ / -)** button to select channels and the **ADJ ▲ ▼ ◀ ▶** buttons to navigate the labels menu.

4 When the label is highlighted you want for the channel shown in the screen and press **OK (Enter)** button to add the label to the channel.

5 Select the next channel to label with **Channel ▲** or **▼ (+ / -)** button to or if finished channel labeling.

6 When finished, press **MENU** repeatedly to remove the menus.

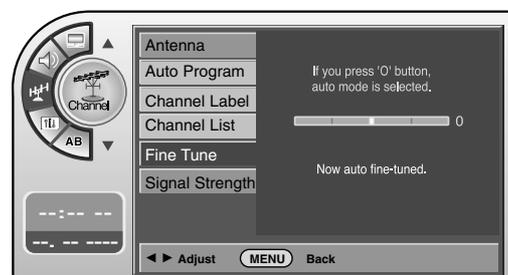


Channel Control

Unstable Screen

- If a dashed line or no color appears, the screen is unstable, therefore try channel adjustments.
(This is only available for analog broadcasting.)

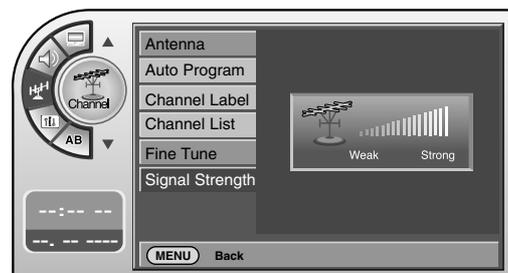
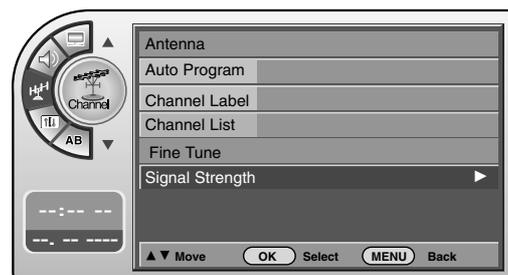
- 1 Press the **MENU** button and then use the **ADJ ▲** or **▼** button to highlight the **Channel** menu and press the **OK (Enter)** button.
- 2 Use the **ADJ ▲** or **▼** button to highlight **Fine Tune** and press the **OK (Enter)** button.
- 3 Press the **ADJ ◀** or **▶** button to adjust.
- 4 When finished, press **MENU** repeatedly to remove the menus.



Checking the Strength of the Digital Signal

- This shows the current digital signal strength as a picture.
(This is only available for digital broadcasting.)

- 1 Press the **MENU** button and then use the **ADJ ▲** or **▼** button to highlight the **Channel** menu and press the **OK (Enter)** button.
- 2 Use the **ADJ ▲** or **▼** button to highlight **Signal Strength** and press the **OK (Enter)** button.
- 3 View the on-screen signal strength monitor to see the quality of the signal being received.
- 4 When finished, press **MENU** repeatedly to remove the menus.



Clock Setup (Continued)

Manual Time Settings

- Use the **ADJ** ▲ ▼ ◀ ▶ buttons to set the year, month, day, hours and minutes.

1 Press the **MENU** button and then use the **ADJ** ▲ or ▼ button to highlight the **Setup** menu and press the **OK (Enter)** button.

2 Use the **ADJ** ▲ or ▼ button to the **Time**.

3 Press the **OK (Enter)** button to highlight **Clock**. Manual or Auto will appear on the menu next to clock. If manual is selected, on the menu use the **ADJ** ▲ or ▼ button to highlight **Manual** and press the **OK (Enter)** button.

4 Use the **ADJ** ▲ or ▼ button to highlight **Manual Clock** and press the **OK (Enter)** button.

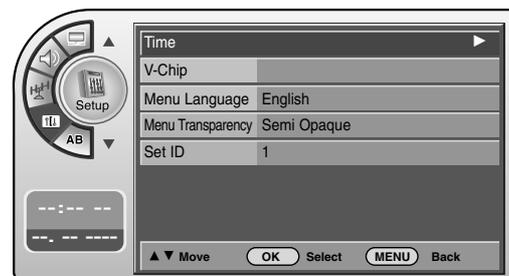
5 Use the **ADJ** ▲ ▼ ◀ ▶ buttons to set the year, month, day, AM/PM, hours and minutes.

6 When finished, press **MENU** repeatedly to remove the menus.

On-Off Timers Setup

Set the On-Off Timers using the procedures described above.

***Notes:** If you intend to use the On-Off Timers, it is best to set the clock manually.



Clock Setup (Continued)

Automatic Time Settings

- If you select auto time setting, time will be set from the digital broadcast information.

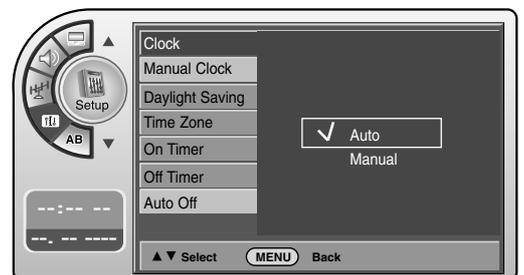
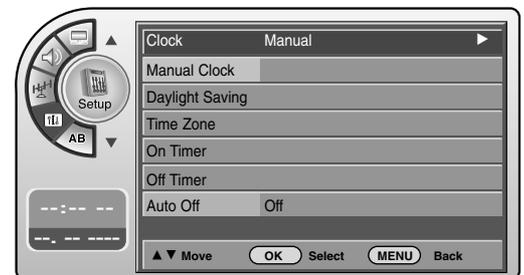
- 1 Press the **MENU** button and then use the **ADJ ▲** or **▼** button to highlight the **Setup** menu and press the **OK (Enter)** button.
- 2 Use the **ADJ ▲** or **▼** button to the **Time**.
- 3 Press the **OK (Enter)** button to highlight **Clock**. Manual or Auto will appear on the menu next to clock. Select Auto on the sub-menu with the **ADJ ▲** or **▼** button and press the **OK (Enter)** button.
- 4 Use the **ADJ ▲ ▼ ◀ ▶** buttons to set the Daylight Savings and Time Zone options for your local area. See the next page.
- 5 When finished, press **MENU** repeatedly to remove the menus.



Caution: Some digital channels may change the time incorrectly using the Automatic Clock Set feature.

In this event, the Alarm may not function as intended and the TV may not turn on at the expected time.

If the end user will have access to the Alarm, it may be best to use the Manual Clock Set mode and set the clock to local time manually.



Mini glossary

TIME	A four-digit figure broken down into hours and minutes, used to enter the current time when setting the clock or wake-up alarm.
HOURS	First two digits that are entered when setting the clock or the wake-up alarm.
MINUTES	The last two digits that are entered when setting the clock, or the wake-up alarm.

Clock Setup (Continued)

Daylight Saving

- Installer can select to use Daylight Savings to adjust the clock time. This is operated from the Automatic Time Settings.

- 1 Press the **MENU** button and then use the **ADJ ▲** or **▼** button to highlight the **Setup** menu and press the **OK (Enter)** button.
- 2 Use the **ADJ ▲** or **▼** button to the **Time**.
- 3 Press the **OK (Enter)** button to highlight **Clock**.
- 4 Use the **ADJ ▲** or **▼** button to highlight the **Daylight Saving** and press the **OK (Enter)** button.
- 5 Use the **ADJ ▲** or **▼** button to choose **Yes** or **No**.
- 6 When finished, press **MENU** repeatedly to remove the menus.



Time Zone Settings

- Installer can set the Time Zone. This is operated from the Automatic Time Settings.

- 1 Press the **MENU** button and then use the **ADJ ▲** or **▼** button to highlight the **Setup** menu and press the **OK (Enter)** button.
- 2 Use the **ADJ ▲** or **▼** button to the **Time**.
- 3 Press the **OK (Enter)** button to highlight **Clock**.
- 4 Use the **ADJ ▲** or **▼** button to highlight **Time Zone** and press the **OK (Enter)** button.
- 5 Use the **ADJ ◀** or **▶** button to select the **Time Zone** and press the **OK (Enter)** button.
- 6 When finished, press **MENU** repeatedly to remove the menus.

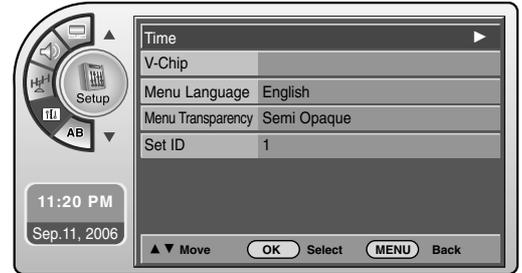


Clock Setup (Continued)

TV Activation Time Settings

- You can set a time for the TV to automatically turn-on.

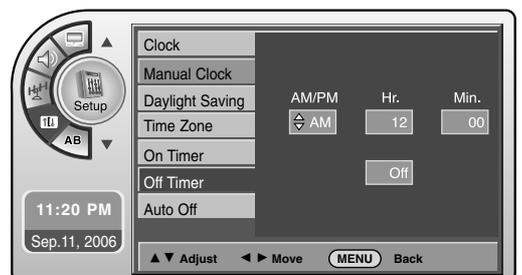
- 1 Press the **MENU** button and then use the **ADJ ▲** or **▼** button to highlight the **Setup** menu and press the **OK (Enter)** button.
- 2 Use the **ADJ ▲** or **▼** button to the **Time**.
- 3 Press the **OK (Enter)** button to highlight **Clock**.
- 4 Use the **ADJ ▲** or **▼** button to highlight **On Timer** and press the **OK (Enter)** button.
- 5 Use the **ADJ ▲ ▼ ◀ ▶** buttons to choose AM / PM, Hours, Minutes and time period to turn-on.
- 6 When finished, press **MENU** repeatedly to remove the menus.



TV Deactivation Time Settings

- You can set a time for the TV to automatically turn-off.

- 1 Press the **MENU** button and then use the **ADJ ▲** or **▼** button to highlight the **Setup** menu and press the **OK (Enter)** button.
- 2 Use the **ADJ ▲** or **▼** button to the **Time**.
- 3 Press the **OK (Enter)** button to highlight **Clock**.
- 4 Use the **ADJ ▲** or **▼** button to highlight **Off Timer** and press the **OK (Enter)** button.
- 5 Use the **ADJ ▲ ▼ ◀ ▶** buttons to choose AM / PM, Hours, Minutes and time period to turn-off.
- 6 When finished, press **MENU** repeatedly to remove the menus.



Clock Setup

Auto Off

- If there is no signal on the TV for 15 minutes or more, or if no button is pressed for more than 3 hours, this function turns off the TV automatically.

- 1 Press the **MENU** button and then use the **ADJ ▲** or **▼** button to highlight the **Setup** menu and press the **OK (Enter)** button.
- 2 Use the **ADJ ▲** or **▼** button to the **Time**.
- 3 Press the **OK (Enter)** button to highlight **Clock**.
- 4 Use the **ADJ ▲** or **▼** button to highlight **Auto Off** and press the **OK (Enter)** button.
- 5 Use the **ADJ ▲** or **▼** button to choose **On** or **Off**.
- 6 When finished, press **MENU** repeatedly to remove the menus.



V-Chip (Continued)

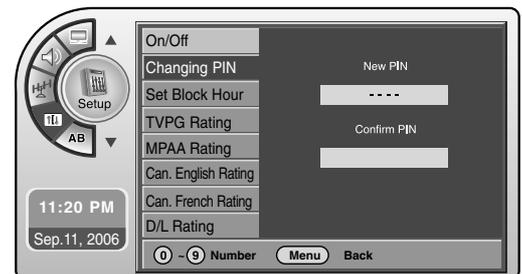
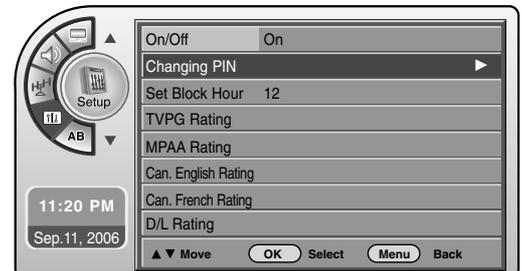
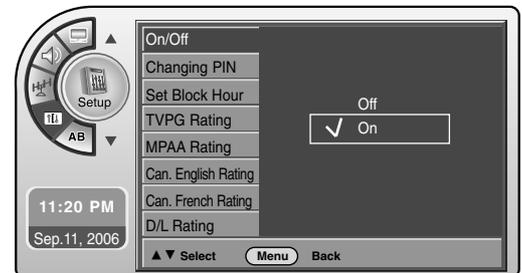
Entering a PIN (Password)

- This option sets up or changes the password for blocking program ratings.

- 1 Press the **MENU** button and then use the **ADJ ▲** or **▼** button to highlight the **Setup** menu and press the **OK (Enter)** button.
- 2 Use the **ADJ ▲** or **▼** button to highlight **V-Chip** and press the **OK (Enter)** button.
- 3 Use the **ADJ ▲** or **▼** button to highlight **On/Off** and press the **OK (Enter)** button.
- 4 Use the **ADJ ▲** or **▼** button to highlight **On** and press the **OK (Enter)** button.
- 5 If a password has been entered, key it in using the number keypad. If no password has been set, enter the 4 digits password (0-9) using the remote control. This is the **PIN**. Each time the menu is entered, the password will be required until the block time expires. The TV is set up with the default password "0-0-0-0".
- 6 Use the **ADJ ▲** or **▼** button to highlight **Changing PIN** and press the **OK (Enter)** button.
- 7 Enter the digits password.
As soon as the 4 digits are entered, re-enter the same 4 digits on the **Confirm PIN**.
- 8 When finished, press **MENU** repeatedly to remove the menus.



If you ever forget your password, key in '7', '7', '7', '7' on the remote control.

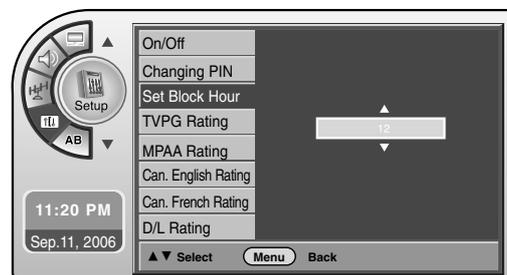
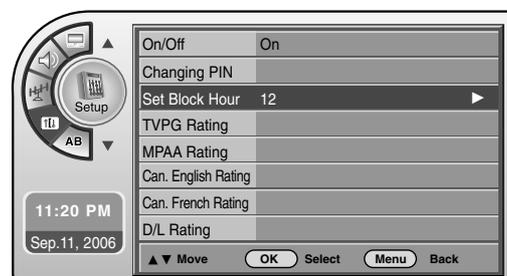
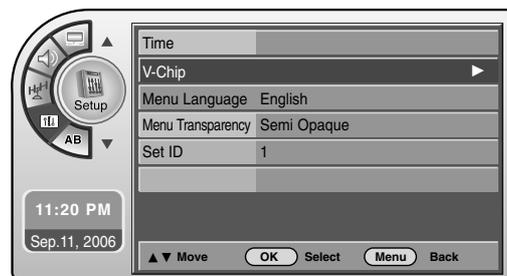


V-Chip (Continued)

Set Block Hour.

- This option sets up hour that you wish to block.

- 1 Press the **MENU** button and then use the **ADJ ▲** or **▼** button to highlight the **Setup** menu and press the **OK (Enter)** button.
- 2 Use the **ADJ ▲** or **▼** button to highlight **V-Chip** and press the **OK (Enter)** button.
- 3 Enter the 4 digits password.
- 4 Use the **ADJ ▲** or **▼** button to highlight **Set Block Hour** and press the **OK (Enter)** button.
- 5 Use the **ADJ ▲** or **▼** button to choose **1~12** hours and press the **OK (Enter)** button.
- 6 When finished, press **MENU** repeatedly to remove the menus.



V-Chip (Continued)

TVPG Ratings

- You can block programs based on the TV program rating.

- 1 Press the **MENU** button and then use the **ADJ ▲** or **▼** button to highlight the **Setup** menu and press the **OK (Enter)** button.
- 2 Use the **ADJ ▲** or **▼** button to highlight **V-Chip** and press the **OK (Enter)** button.
- 3 Enter the 4 digits password.
- 4 Use the **ADJ ▲** or **▼** button to highlight the **TVPG Rating** and press the **OK (Enter)** button.
- 5 Use the **ADJ ▲ ▼ ◀ ▶** buttons to choose and set up the menu options for **TVPG Rating**.
- 6 When finished, press **MENU** repeatedly to remove the menus.

Description of the TV (FCC) Rating Codes:

TV (FCC) Age Categories

TV-MA

Mature audiences only. This program may contain mature themes, profane language, graphic violence and explicit sexual content.

TV-14

Parents strongly cautioned. This program may contain sophisticated themes, sexual content, strong language and more intense violence.

TV-PG

Parental guidance suggested. The program may contain infrequent coarse language, limited violence, some suggestive sexual dialog and situations.

TV-G

General audience. This contains little or no violence, no strong language, and little or no sexual dialog or situations.

TV-Y7

Directed for older children. Themes and elements in this program may include mild physical or comedic violence, or may frighten children under the age of seven.

TV-Y

All children. The themes and elements in this program are specifically designed for a very young audience, including children from ages two – six.

TV (FCC) Content Sub-Categories:

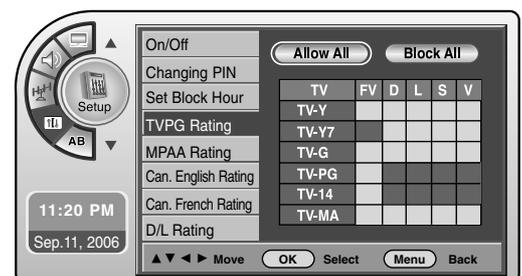
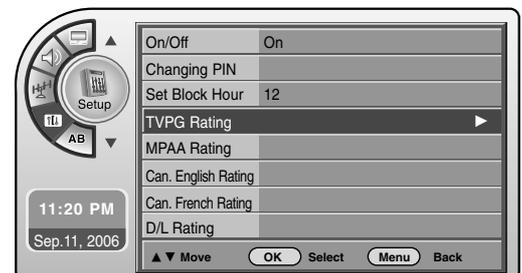
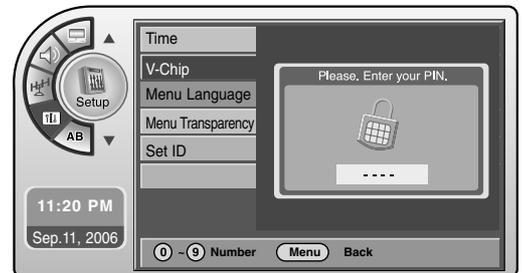
V Violence.

S Sexual content.

L Offensive language.

D Dialog...sexual innuendo.

FV Fantasy or cartoon violence.



V-Chip (Continued)

MPAA Ratings

- Restricting movies by their rating.

- 1 Press the **MENU** button and then use the **ADJ ▲** or **▼** button to highlight the **Setup** menu and press the **OK (Enter)** button.
- 2 Use the **ADJ ▲** or **▼** button to highlight **V-Chip** and press the **OK (Enter)** button.
- 3 Enter the 4 digits password.
- 4 Use the **ADJ ▲** or **▼** button to highlight the **MPAA Rating** and press the **OK (Enter)** button.
- 5 Use the **ADJ ▲ ▼ ◀ ▶** buttons to choose and set up the menu options for **MPAA Rating**.
- 6 When finished, press **MENU** repeatedly to remove the menus.

Description of the MPAA and TV (FCC) Rating Codes:

The MPAA Rating System (Movies)

G General Audience. No restrictions.

PG Children under 13 should be accompanied by an adult.

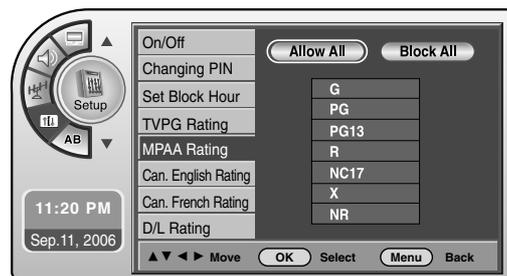
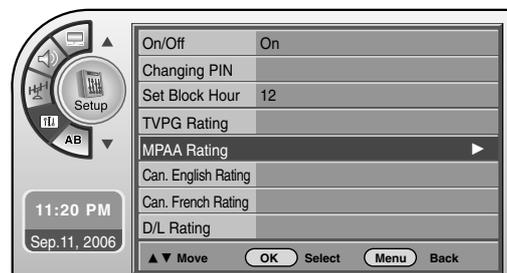
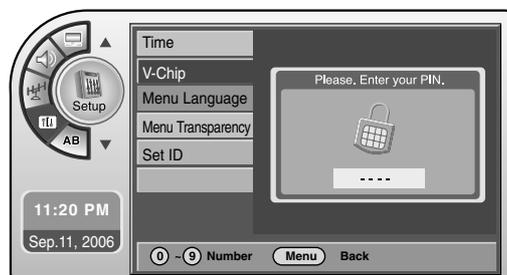
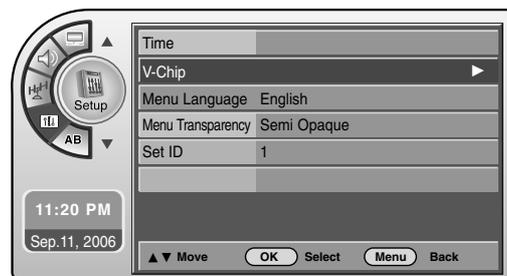
PG-13 Parental guidance suggested. Children under 13 should be accompanied by an adult.

R Restricted. Viewers should be 17 or older.

NC-17 Not classified. Viewers should be 17 or older.

X Adults only.

- MPAA ratings: The selected rating will be locked. In addition, any ratings that are more restrictive will also be blocked.



V-Chip (Continued)

Canadian English Ratings

- 1 Press the **MENU** button and then use the **ADJ ▲** or **▼** button to highlight the **Setup** menu and press the **OK (Enter)** button.
- 2 Use the **ADJ ▲** or **▼** button to highlight **V-Chip** and press the **OK (Enter)** button.
- 3 Enter the 4digit password.
- 4 Use the **ADJ ▲** or **▼** button to highlight the **Can. English Rating** and press the **OK (Enter)** button.
- 5 Use the **ADJ ▲ ▼ ◀ ▶** buttons to choose and set up the menu options for **Can. English Rating**.
- 6 When finished, press **MENU** repeatedly to remove the menus.

Canadian English Ratings

E Expect No restriction.

C Children

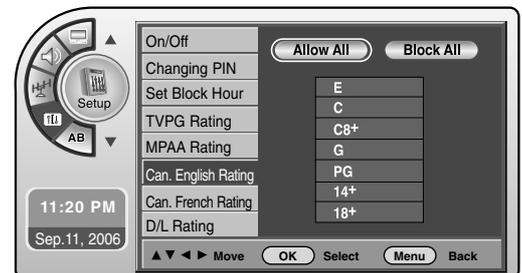
C8+ Viewers should be 8 or older.

G General Audience.

PG Parental guidance suggested. Children under 14 should be accompanied by an adult.

14+ Restricted. Viewers should be 14 or older.

18+ Restricted. Viewers should be 18 or older.



V-Chip (Continued)

Canadian French Ratings

- 1 Press the **MENU** button and then use the **ADJ ▲** or **▼** button to highlight the **Setup** menu and press the **OK (Enter)** button.
- 2 Use the **ADJ ▲** or **▼** button to highlight **V-Chip** and press the **OK (Enter)** button.
- 3 Enter the 4 digits password.
- 4 Use the **ADJ ▲** or **▼** button to highlight the **Can. French Rating** and press the **OK (Enter)** button.
- 5 Use the **ADJ ▲ ▼ ◀ ▶** buttons to choose and set up the menu options for **Can. French Rating**.
- 6 When finished, press **MENU** repeatedly to remove the menus.

Canadian French Ratings

E Expect No restriction.

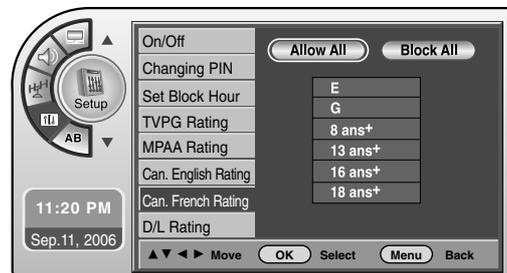
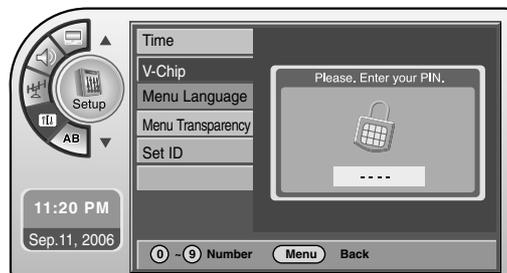
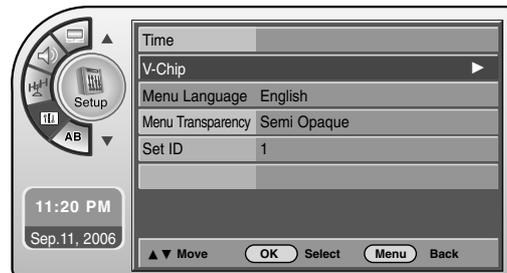
G For all

8+ Restricted. Viewers should be 8 or older.

13+ Restricted. Viewers should be 13 or older.

16+ Restricted. Viewers should be 16 or older.

18+ Restricted. Viewers should be 18 or older.



V-Chip

Your TV's OSD (On Screen Display) may differ slightly from what is shown in this manual.

Downloadable Rating

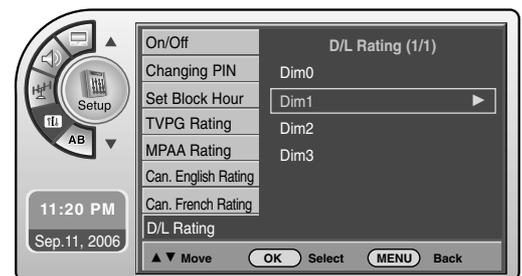
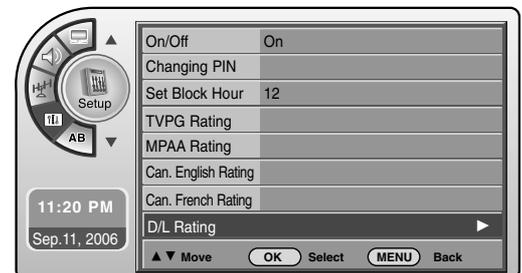
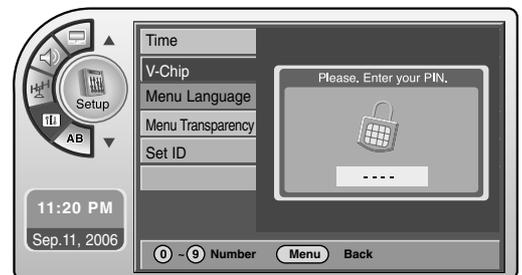
- 1 Press the **MENU** button and then use the **ADJ ▲** or **▼** button to highlight the **Setup** menu and press the **OK (Enter)** button.
- 2 Use the **ADJ ▲** or **▼** button to highlight **V-Chip** and press the **OK (Enter)** button.
- 3 Enter the 4digits password.
- 4 Use the **ADJ ▲** or **▼** button to highlight the **D/L Rating** and press the **OK (Enter)** button.
- 5 Use the **ADJ ▲** or **▼** buttons to choose **Dim0**, **Dim1**, **Dim2** or **Dim3** and press the **OK (Enter)** button.
- 6 Use the **▲** or **▼** buttons to choose **D1L1**, **D1L2** or **D1L3**.
- 7 When finished, press **MENU** repeatedly to remove the menus.



This function may become available in the future and will be available only for digital channel signal.



This function operates only when TV has received Region5 Rating data.

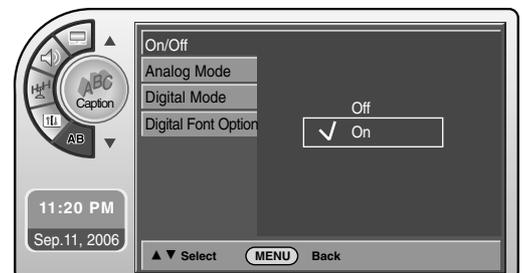
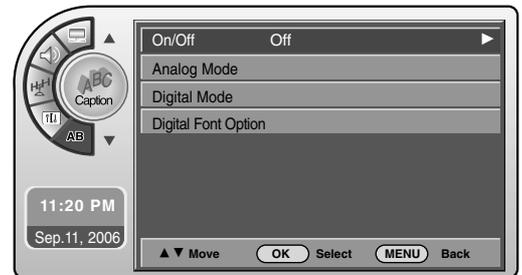


Caption Menu (Continued)

Turn Captions On/Off

***Note:** Pressing CC on the remote to select a captions option will also turn closed captions on.

- 1 Press the **MENU** button and then use the **ADJ ▲** or **▼** button to highlight the **Caption** menu and press the **OK (Enter)** button.
- 2 Use the **ADJ ▲** or **▼** button to highlight **On/Off** and press the **OK (Enter)** button.
- 3 Use the **ADJ ▲** or **▼** button to choose **On** or **Off**.
- 4 When finished, press **MENU** repeatedly to remove the menus.

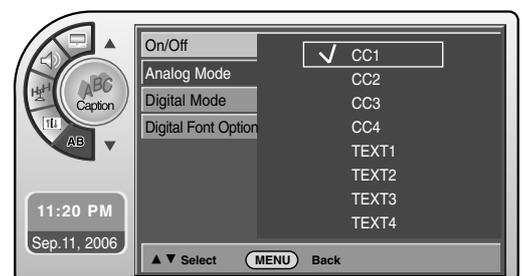
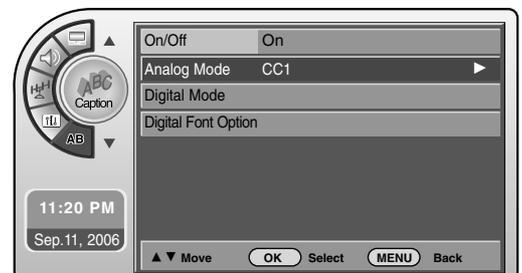


Analog Mode

- Analog Captions will display on the screen whether the signal is from an RF channel or external equipment input.

***Note:** Pressing CC on the remote selects a captions option.

- 1 Press the **MENU** button and then use the **ADJ ▲** or **▼** button to highlight the **Caption** menu and press the **OK (Enter)** button.
- 2 Use the **ADJ ▲** or **▼** button to highlight **Analog Mode** and press **OK (Enter)** button.
- 3 Use the **ADJ ▲** or **▼** button to choose **CC1-TEXT4** and press the **OK (Enter)** button.
- 4 When finished, press **MENU** repeatedly to remove the menus.



Mini glossary

CAPTIONS	The term for the words that scroll across the bottom of the TV screen; usually the audio portion of the program provided for the hearing impaired.
TEXT	The term for the words that appear in a large black frame and almost cover the entire screen; usually messages provided by the broadcaster.

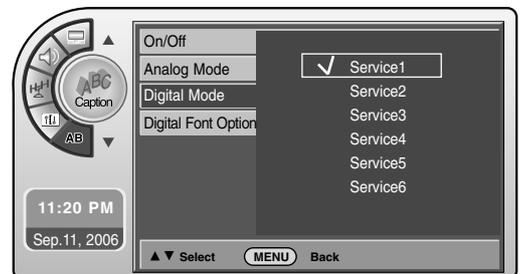
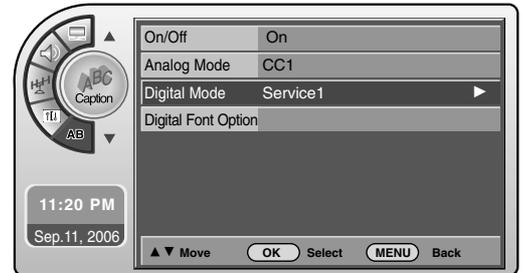
Caption Menu

Digital Captions Mode

- Digital Captions only appear on digital channels, tune in a digital channel that is actually broadcasting digital captions.

**Note: Pressing CC on the remote selects a captions option.*

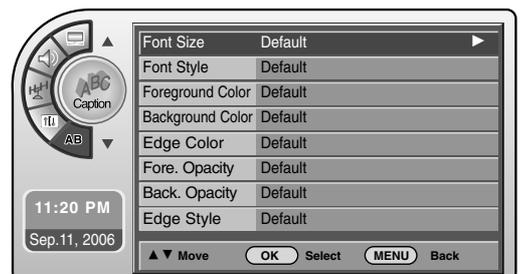
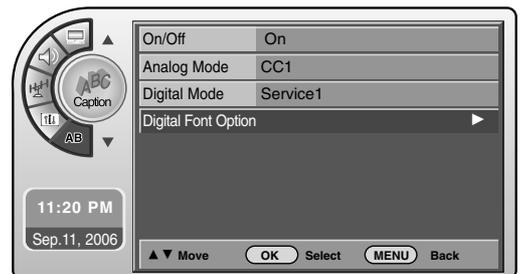
- 1 Press the **MENU** button and then use the **ADJ ▲** or **▼** button to highlight the **Caption** menu and press the **OK (Enter)** button.
- 2 Use the **ADJ ▲** or **▼** button to highlight **Digital Mode** and press the **OK (Enter)** button.
- 3 Use the **ADJ ▲** or **▼** button to choose **Service 1-Service 6** and press the **OK (Enter)** button.
- 4 When finished, press **MENU** repeatedly to remove the menus.



Digital Font Options

- Customize the digital captions that appear on your screen.

- 1 Press the **MENU** button and then use the **ADJ ▲** or **▼** button to highlight the **Caption** menu and press the **OK (Enter)** button.
- 2 Use the **ADJ ▲** or **▼** button to highlight **Digital Font Options** and press the **OK (Enter)** button.
- 3 Use the **ADJ ▲ ▼ ◀ ▶** buttons to customize each option: Font Size, Font Style, Foreground Color etc.
- 4 When finished, press **MENU** repeatedly to remove the menus.



**Note: If the digital options custom settings are to be cloned, all menu options should be set to any option other than Default. If Default is left set for any one option, then all the options will be reset to default after cloning.*

Sound Menu (Continued)

Digital Audio Output Settings

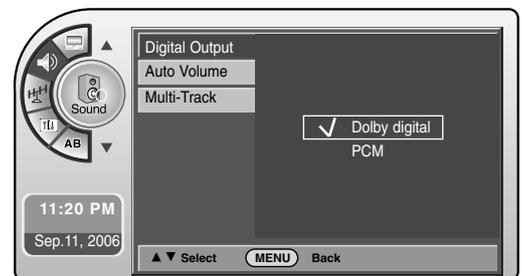
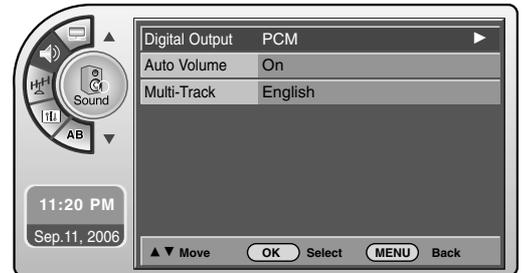
- Set the digital audio output as Dolby Digital or PCM.

- 1 Press the **MENU** button and then use the **ADJ ▲** or **▼** button to highlight the **Sound** menu and press the **OK (Enter)** button.
- 2 Use the **ADJ ▲** or **▼** button to highlight **Digital Output** and press the **OK (Enter)** button.
- 3 Use the **ADJ ▲ / ▼** buttons to choose Dolby Digital or PCM and press the **OK (Enter)** button.
- 4 When finished, press **MENU** repeatedly to remove the menus.

<Dolby Digital>



This product is under license of Dolby Laboratories.
The "Dolby" or D symbol is a trademark of Dolby Laboratories.

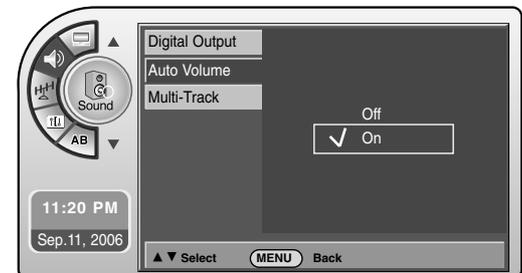
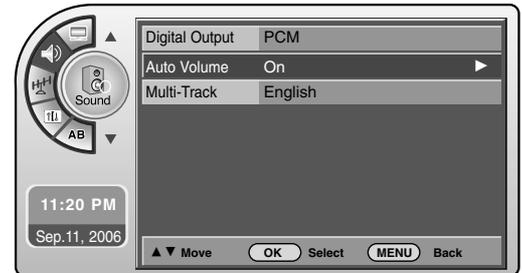


Sound Menu (Continued)

Automatic Volume Control Settings

- Have the TV automatically maintain the same sound level between different channels.

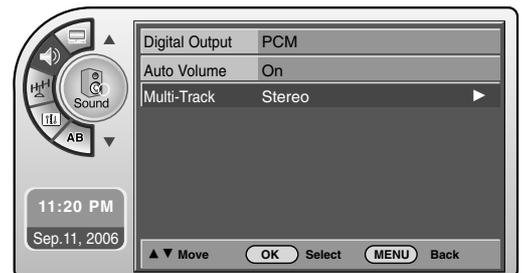
- 1 Press the **MENU** button and then use the **ADJ ▲** or **▼** button to highlight the **Sound** menu and press the **OK (Enter)** button.
- 2 Use the **ADJ ▲** or **▼** button to highlight **Auto Volume** and press the **OK (Enter)** button.
- 3 Use the **ADJ ▲** or **▼** button to choose **On** or **Off**.
- 4 When finished, press **MENU** repeatedly to remove the menus.



Analog Audio Settings

- You can set analog audio settings.

- 1 Press the **MENU** button and then use the **ADJ ▲** or **▼** button to highlight the **Sound** menu and press the **OK (Enter)** button.
- 2 Use the **ADJ ▲** or **▼** button to highlight **Multi-Track** and press the **OK (Enter)** button.
- 3 Use the **ADJ ▲** or **▼** button to choose Mono, Stereo or SAP and press the **OK (Enter)** button.
- 4 When finished, press **MENU** repeatedly to remove the menus.



Sound Menu

Digital Audio Settings

- You can set digital audio language.
(This is only available for digital broadcasting.)

- 1 Press the **MENU** button and then use the **ADJ ▲** or **▼** button to highlight the **Sound** menu and press the **OK (Enter)** button.
- 2 Use the **ADJ ▲** or **▼** button to highlight **Multi-Track** and press the **OK (Enter)** button.
- 3 Use the **ADJ ▲** or **▼** button to choose English, Spanish or French and press the **OK (Enter)** button.
- 4 When finished, press **MENU** repeatedly to remove the menus.

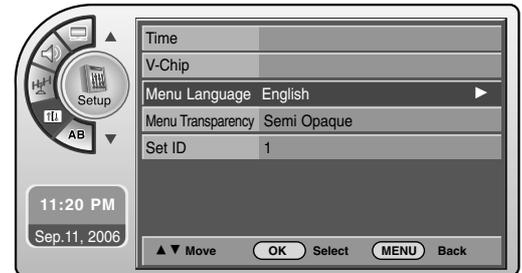


Language Control

Menu Language

- The menus can be shown on the screen inter selected language.
First select your language.

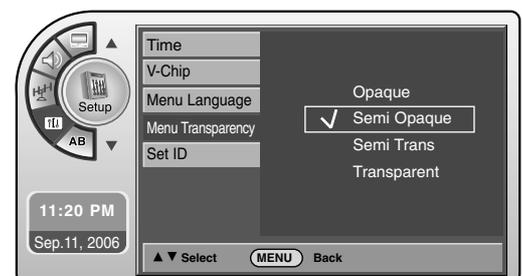
- 1 Press the **MENU** button and then use the **ADJ ▲** or **▼** button to highlight the **Setup** menu and press the **OK (Enter)** button.
- 2 Use the **ADJ ▲** or **▼** button to highlight **Menu Language** and press the **OK (Enter)** button.
- 3 Use the **ADJ ▲** or **▼** button to highlight and set the Menu Language: English, Español or Français.
- 4 When finished, press **MENU** repeatedly to remove the menus.



Menu Transparency Settings

- Menu Transparency sets the background transparency of the menu.

- 1 Press the **MENU** button and then use the **ADJ ▲** or **▼** button to highlight the **Setup** menu and press the **OK (Enter)** button.
- 2 Use the **ADJ ▲** or **▼** button to highlight **Menu Transparency** and press the **OK (Enter)** button.
- 3 Use the **ADJ ▲** or **▼** button to highlight and set the Menu Transparency: Opaque, Semi Opaque, Semi Trans, Transparent.
- 4 When finished, press **MENU** repeatedly to remove the menus.

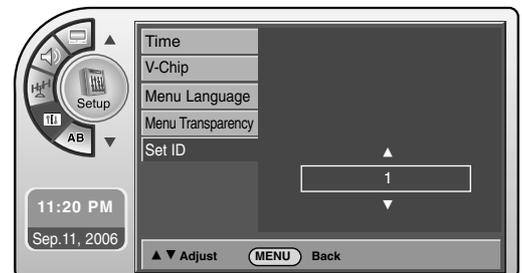


Set ID

Set ID

- Use this function to specify a set ID number.

- 1 Press the **MENU** button and then use the **ADJ ▲** or **▼** button to highlight the **Setup** menu and press the **OK (Enter)** button.
- 2 Use the **ADJ ▲** or **▼** button to highlight **Set ID** and press the **OK (Enter)** button.
- 3 Use the **ADJ ▲** or **▼** button to choose **1-99** numbers and press the **OK (Enter)** button.
- 4 When finished, press **MENU** repeatedly to remove the menus.

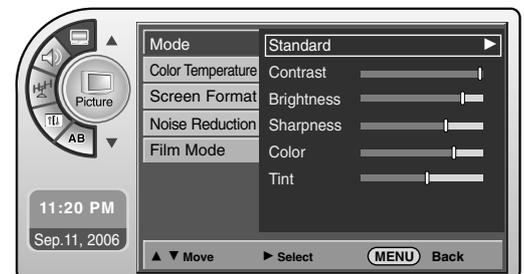
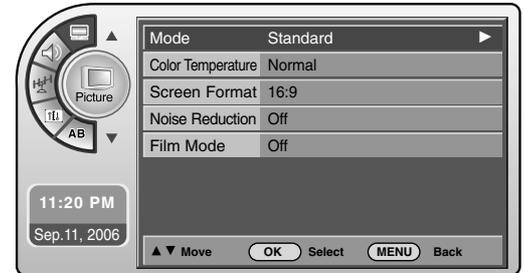


Picture Menu (Continued)

Picture - Preset

- Set the picture mode to the program content, e.g. Dynamic or Mild etc.
(This is only available for analog broadcasting.)

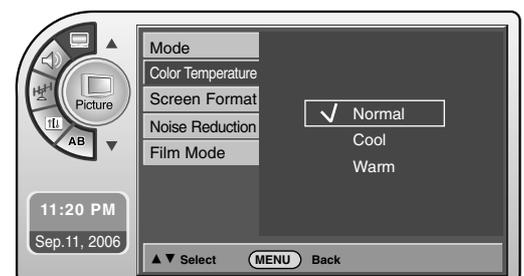
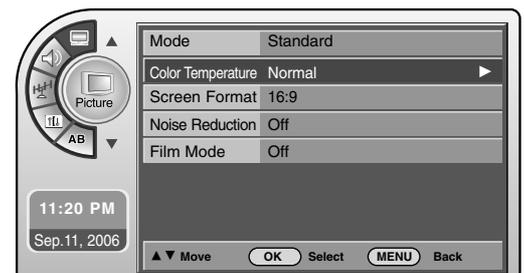
- 1 Press the **MENU** button and then use the **ADJ ▲** or **▼** button to highlight the **Picture** menu and press the **OK (Enter)** button.
- 2 Use the **ADJ ▲** or **▼** button to highlight **Mode** and press the **OK (Enter)** button.
- 3 Use the **ADJ ►** button to choose a preset picture setup. When finished, press the **OK (Enter)** button.
- 4 When finished, press **MENU** repeatedly to remove the menus.



Color Temperature Settings

(This is only available for analog broadcasting.)

- 1 Press the **MENU** button and then use the **ADJ ▲** or **▼** button to highlight the **Picture** menu and press the **OK (Enter)** button.
- 2 Use the **ADJ ▲** or **▼** button to choose **Color Temperature** and press the **OK (Enter)** button.
- 3 Use the **ADJ ▲** or **▼** button to choose Normal, Cool or Warm. When finished, press the **OK (Enter)** button.
- 4 When finished, press **MENU** repeatedly to remove the menus.

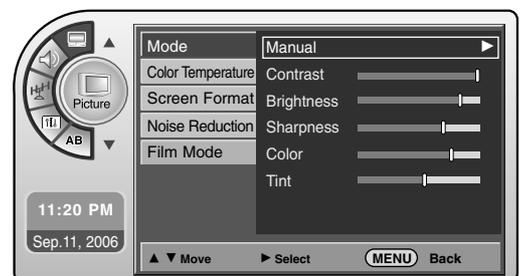
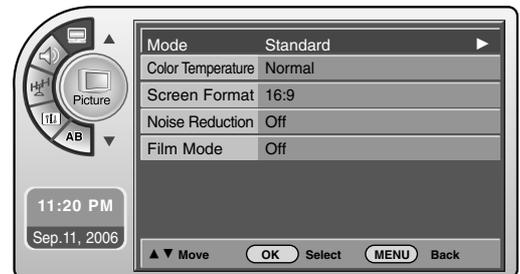


Picture Menu (Continued)

Manual Picture Adjustment

To make custom picture settings, set the Mode to Manual on the menu. Use the Manual settings for the best presentation of movies. The patient will then be able to view movies with more realism.

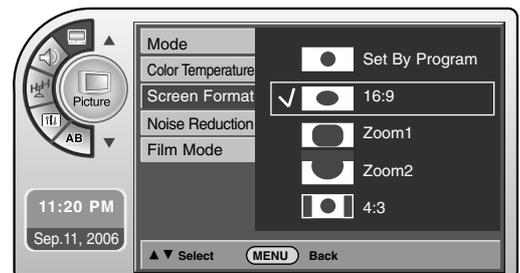
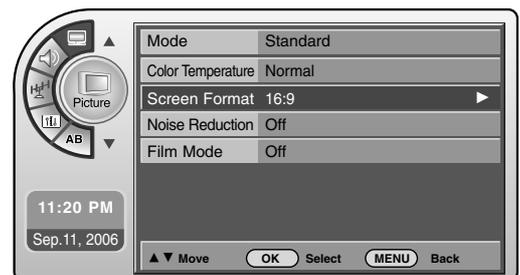
- 1 Press the **MENU** button and then use the **ADJ ▲** or **▼** button to highlight the **Picture** menu and press the **OK (Enter)** button.
- 2 Use the **ADJ ▲** or **▼** button to highlight **Mode** and press the **OK (Enter)** button.
- 3 Use the **ADJ ►** button to choose **Manual** and use **ADJ ▲ ▼ ◀ ▶** buttons to set your own settings for the options. When finished, press the **MENU** button.
- 4 When finished, press **MENU** repeatedly to remove the menus.



Screen Format Adjustments

The user can choose preset formats for the picture on analog channels on analog channels.

- 1 Press the **MENU** button and then use the **ADJ ▲** or **▼** button to highlight the **Picture** menu and press the **OK (Enter)** button.
- 2 Use the **ADJ ▲** or **▼** button to choose **Screen Format** and press the **OK (Enter)** button.
- 3 Use the **ADJ ▲** or **▼** button to choose a preset screen format: Set By Program or 4:3. When finished, press the **OK (Enter)** button.
- 4 When finished, press **MENU** repeatedly to remove the menus.

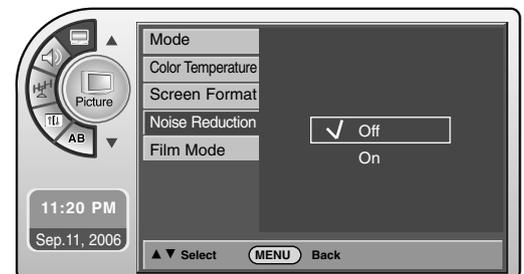
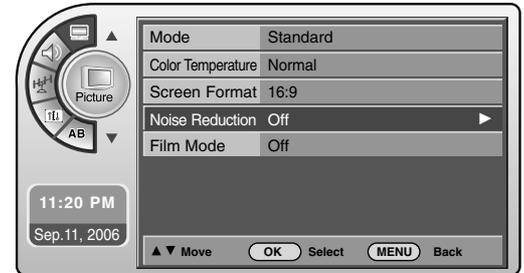


Picture Menu

Noise Reduction

- The user can watch movies with a more realistic picture on analog channels.

- 1 Press the **MENU** button and then use the **ADJ ▲** or **▼** button to highlight the **Picture** menu and press the **OK (Enter)** button.
- 2 Use the **ADJ ▲** or **▼** button to choose **Noise Reduction** and press the **OK (Enter)** button.
- 3 Use the **ADJ ▲** or **▼** button to choose **On** or **Off**. When finished, press the **OK (Enter)** button.
- 4 When finished, press **MENU** repeatedly to remove the menus.

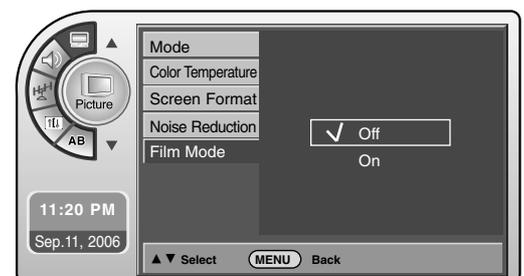
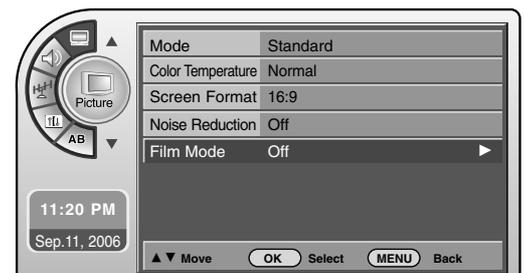


Film Mode Options

The user can watch movies with a more realistic picture on analog channels.

- Turn Film Mode On to view movies with optimum preset picture settings.

- 1 Press the **MENU** button and then use the **ADJ ▲** or **▼** button to highlight the **Picture** menu and press the **OK (Enter)** button.
- 2 Use the **ADJ ▲** or **▼** button to choose **Film Mode** and press the **OK (Enter)** button.
- 3 Use the **ADJ ▲** or **▼** button to choose **On** or **Off**. When finished, press the **OK (Enter)** button.
- 4 When finished, press **MENU** repeatedly to remove the menus.



Installer Overview

Following is the Commercial Mode Operation Setup.

Operating Installer Menu

To set up the controls for the TV you will need to know how to enter the TV/STB Installer menu and make changes to the default values as required. If necessary, familiarize yourself with the TV/STB Installer menu and how to make and save changes in the menu.

Optional Installer Remote

You will need an Installer remote control similar to the one shown to the right.

The TV's clonable features need to be set up before 2-5-5 + Menu is done. This is a critical step.

If the Master TV display panel's clonable features like: Clock Set, adding channel icons and channel labels, etc. are not done properly, then the cloned TV/STB will all have problems. For example, do not do 2-5-5 + Menu more than once or the TV setup will become corrupted. If you need to start the procedure over, then begin by setting installer item 117 to 001, and pressing Enter to reset the TV to default values in the installer menu. You can do 2-5-4 + Menu mode more than once but this mode is limited to only editing channel icons and channel labels.

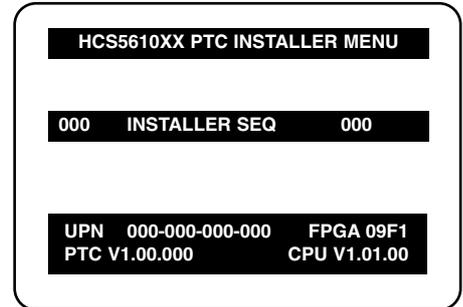
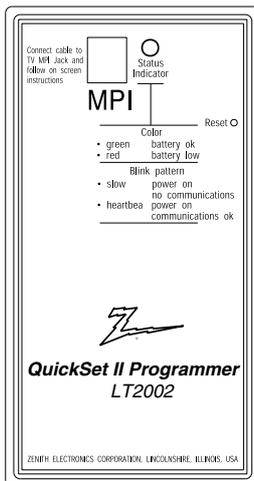
Refer to the appropriate section in the Manual for other TV features: Picture, Sound etc.

***Note:** Digital Font options are available only after a channel search has been run and when the TV is tuned to an active digital channel with digital captions.

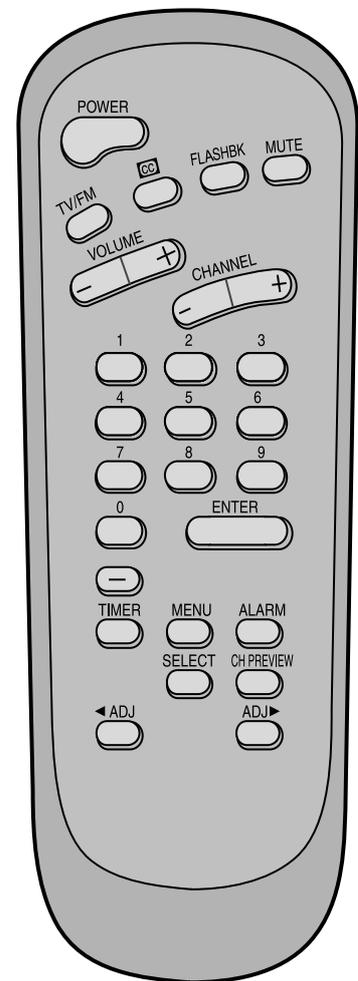
LT2002 Clone Programmer

As the cloning procedure is being performed, specific steps need to

be done at the indicated times to achieve the desired result. Be sure to do each cloning task as indicated. If a procedure or step is left out or not performed correctly, then the TV setup will be wrong and cloning may not work. At each step, pay attention to assure the TV screen shows the proper message(s) when cloning. If the message indicated does not appear, there is a problem with that step and cloning may not be successful. Cloning is only possible when the signal source is an Analog channel, not a digital channel.



Typical Installer Menu



Commercial Mode Setup

This page provides an overview of the TV configuration. See the pages listed below for more specific, detailed instructions at each step; how to access and use the Installer menu etc.

***Note1:** Disconnect all Aux inputs. Under certain conditions, Auto Program (Channel search) is disabled if there is an Aux input active.

***Note2:** Under certain conditions, changes to the input mode of the RGB inputs will not take effect until the power is cycled (TV is turned Off and On). To avoid confusion, disconnect all RGB inputs before entering the Installer menu.

Overview: Commercial Mode Setup Procedure

1. Set Installer Menu Items

(Enter Installer Menu, see page 53 for detailed instructions.)

- Set Installer menu item **117 FACT DEFAULT**, to **001** and press **ENTER**.
(This clears all installer menu items, custom settings, channel labels/icons and reloads the factory default settings.)
- Set Item **003 BAND/AFC**.
 - **Broadcast:** set to **000**. - **HRC:** set to **002**
 - **CATV:** set to **001**. - **IRC:** set to **003**
- Set item **028 CH OVERRIDE** to **001**. This allows access to Auto Program, Channel Labels and Channel List options in the Channel Menu.
- Set other particular installer items that affect your TV programming network. See pages 53 - 58.
- After all required installer menu item settings have been adjusted, press **ENTER** on the remote to remove Installer Menu.

2. Set Up TV Features

(See Picture, Sound, Setup menus etc. See TV Clonable options list on page 59.)

***Note:** Digital Font options are only available after a channel search has been run and when the TV is tuned to an active digital channel with digital captions.

3. Run Auto Program

(Search for all available channels.) Go to the Channel menu and access the Auto Program option, follow on-screen instructions.

- Edit Channel Scan. In the Channel Menu, access the Channel List menu.
- Delete channels per your system requirements: do you want to delete any free channels so the guest cannot access them?
- Add familiar Channel Icons like ABC, CBS, NBC etc. to the channel onscreen display. Add identifiable labels for the end user to readily know what common networks are available. In the Channel menu, select the Channel Label option, follow instructions on the bottom of the screen.

Verify TV Setup

At this point, verify that the channel lineup, channel icons and custom labels are correct. Make sure the TV features are set per your requirements.

4. Transfer TV Setup to Controller Box: 2-5-5 + Menu

After the TV channel scan has been edited and channel label icons added, enter the Installer menu. Once in the Installer menu, press 2-5-5 and **MENU** on the remote. This transfers the TV setup to the internal controller box.

***Note:** Only do 2-5-5 + **MENU** once or TV setup may be corrupted.
TV scans available channels and exits menu when transfer to controller is complete.

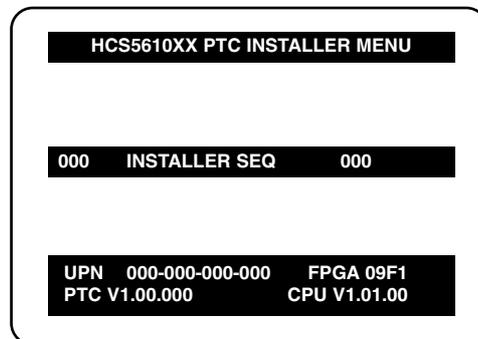
5. Perform Adding Custom Channel Labels: 2-5-4 + Menu Mode

Enter Installer menu, press 2-5-4 and **Menu**. Add your own custom labels to the channel on-screen displays. (See page 60.) To remove menu press **MENU**.

***Note:** 2-5-4 + **MENU** can be performed more than once.

Lock Channel Scan

Set item **028 CH OVERRIDE** to **000** to lock the channel scan. After the preceding has been completed, the Master TV setup is ready to be copied to the LT2002 Clone Programmer, see next page.



TV/STB Installer Menu

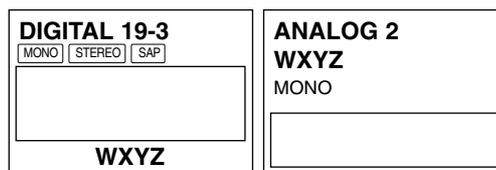


TV/STB Installer Menu Items

RJP (Remote Jack Pack) TV/STB Setup



- RJP Available? If you will use an RJP in your system set Installer item 093 to 001.



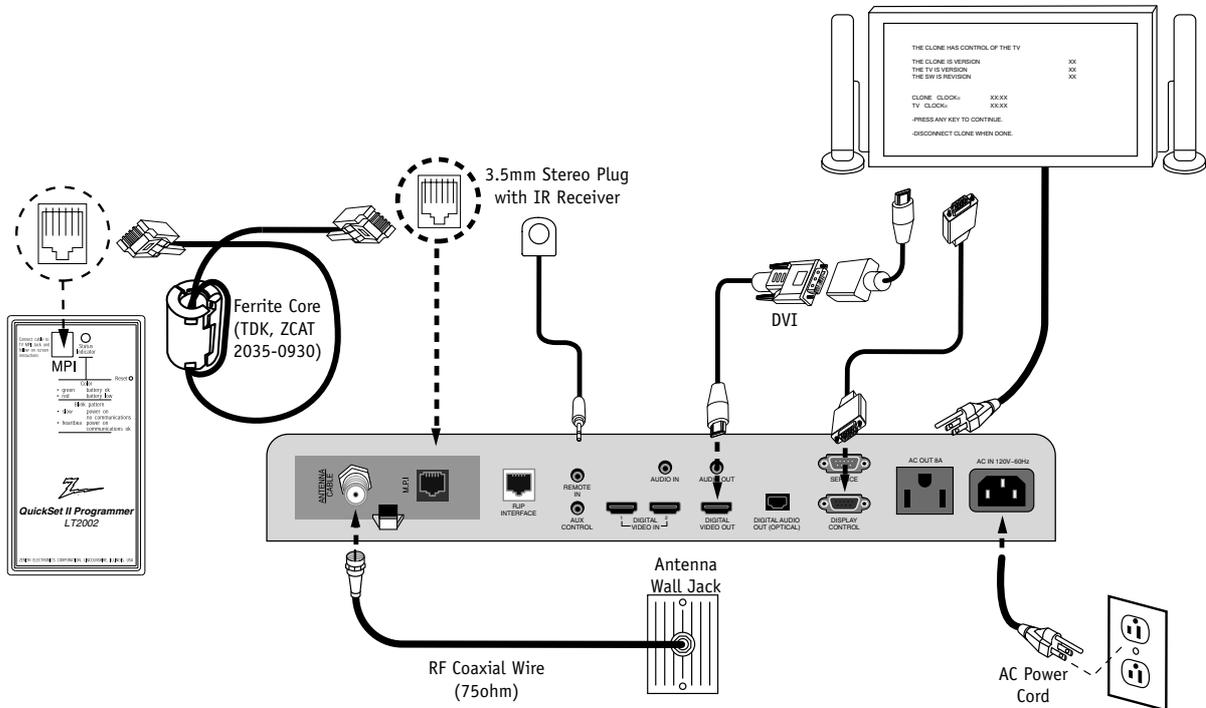
Custom Channel Label 'WXYZ' created in 2-5-4 + Menu Add Channel Label Mode



After TV setup has been verified, set item 028 Ch Override back to 000.

Cloning Connections/Learning Setup

Connections for the LT2002 Clone Programmer to Learn the TV/STB Master TV Setup.



***Notes:** It is assumed that the TV/STB is connected to a signal source, the source selected is Antenna (RF) In, the signal is from an Analog channel, not a digital channel, all equipment is connected to power and turned on and the LT2002 Clone Programmer main menu (THE CLONE HAS CONTROL OF THE TV) menu is displayed on the TV screen, the clone programmer LED is blinking the required heart beat pattern, see above and next page.

***Notes:** Once the clone is connected, do not touch the unit or otherwise disturb it or the MPI connections. Any disturbance while the clone is operating may disrupt the master setup transfer or copying etc.

Before you begin cloning...

- The Master TV/STB should be connected to a good, stable signal from an over-the-air antenna or cable service Analog channel and connected to power. (See above.)
- Teaching and Learning is only possible between identical model devices. (However, the LT2002 Clone programmer can store up to 3 different 'master' setups.)

WARNING: Copying a blank or incorrect memory into a TV, STB or other device will cause the TV, STB or other device to operate erratically or become inoperable.

- Use an Installer's remote to operate Learning and Teaching menus.
- Make sure that the batteries in the Clone programmer are fresh.
- If batteries are removed, the Clone Clock time will be lost.
- Decide if you want to set the time from the Clone programmer TV which has the clock set to the current time.

- Setting the time and transferring it to the Clone or other device is a separate procedure.
- Follow the connection diagram above to connect the Clone to a Master TV/STB display panel. After learning is complete, to another identical TV/STB display panel to "teach" it the master setup.
- After the TV/STB setup has been copied to another identical TV/STB, that identical unit with the copied setup, needs to be disconnected from power for about 15 seconds to activate the newly-copied setup.
- See the Clone Troubleshooting section to resolve problems.

Turn to the next page to continue Cloning Setup.

Clone Programmer Learning Setup

Learning the Master TV Setup

Instructions for the Clone Programmer to Learn the Master TV/STB Setup.

Use MPI Cable to Connect LT2002 Clone Programmer to Master TV/STB MPI Port

If there is a good connection, "THE CLONE HAS CONTROL OF TV" message will appear. Press any key on the Installer remote.

Learn Setup from Master TV/STB

Press 1 to select the "LEARN FROM TV" option, then press ON/OFF, POWER, or ENTER to go to the Memory Bank Selection Menu. Pick the Memory "Bank" you want to store the master TV/STB's setup in by pressing either Channel key repeatedly to choose Memory 1, 2 or 3. (If you choose a Memory "Bank" that has a master device's setup programmed into it, that setup will be overwritten by the new master TV/STB's setup.) Once the Clone memory bank is selected, press ON/OFF, POWER, or ENTER. The Clone memory bank you have selected will be shown. Press ON/OFF or POWER to begin copying the master TV/STB's setup.

Set the Clock (Optional)

Set the time on a Master TV's Clock. (If the time has already been copied from a TV into the Clone programmer, you can set a master TV's clock by copying the time from the Clone programmer.) The Clone Programmer can copy the current time to both a master TV and to the Clone's internal clock; accurate to within one minute. (Another reason that the Clone programmer should be equipped with fresh, high-quality alkaline batteries, is for it to keep the time as accurately as possible.)

Since the Clone Programmer's time cannot be set directly, the current time needs to be copied from a Zenith/LG TV equipped with M.P.I. input capability.

After the time is copied to the Clone programmer, the current time can then be transferred to another TV. (This can be a master TV, or another TV which has already had the features set up.)

***Notes:** When using the clone programmer for teaching or learning, be sure that the heartbeat pattern is shown on the LEDs. Both learning and teaching should take about 45 or more seconds depending on the complexity of the master setup. While the clone is functioning, do not move it or otherwise disturb the clone or wiring connections. If the clone finishes the function in less than 45 seconds, redo the function again. Press the reset button if the clone does not act normally.

THE CLONE HAS CONTROL OF THE TV

THE CLONE IS VERSION XX
THE TV IS VERSION XX
THE SW IS REVISION XX

CLONE CLOCK= XX:XX
TV CLOCK= XX:XX

-PRESS ANY KEY TO CONTINUE.

-DISCONNECT CLONE WHEN DONE.

This menu should appear by itself after the LT2002 is connected to the TV/STB MPI port.

CLONE SELECTION MENU

- (1) LEARN FROM TV
- (2) TEACH TO TV
- (3) SET CLONE CLOCK FROM TV
- (4) SET TV CLOCK FROM CLONE
- (5) DISPLAY TV SETUP
- (6) DISPLAY CLONE SETUP

- TO CHANGE MENU ITEMS, PRESS CHANNEL KEYS OR DIGITS.
- TO EXECUTE ITEM, PRESS ON/OFF, POWER, OR ENTER

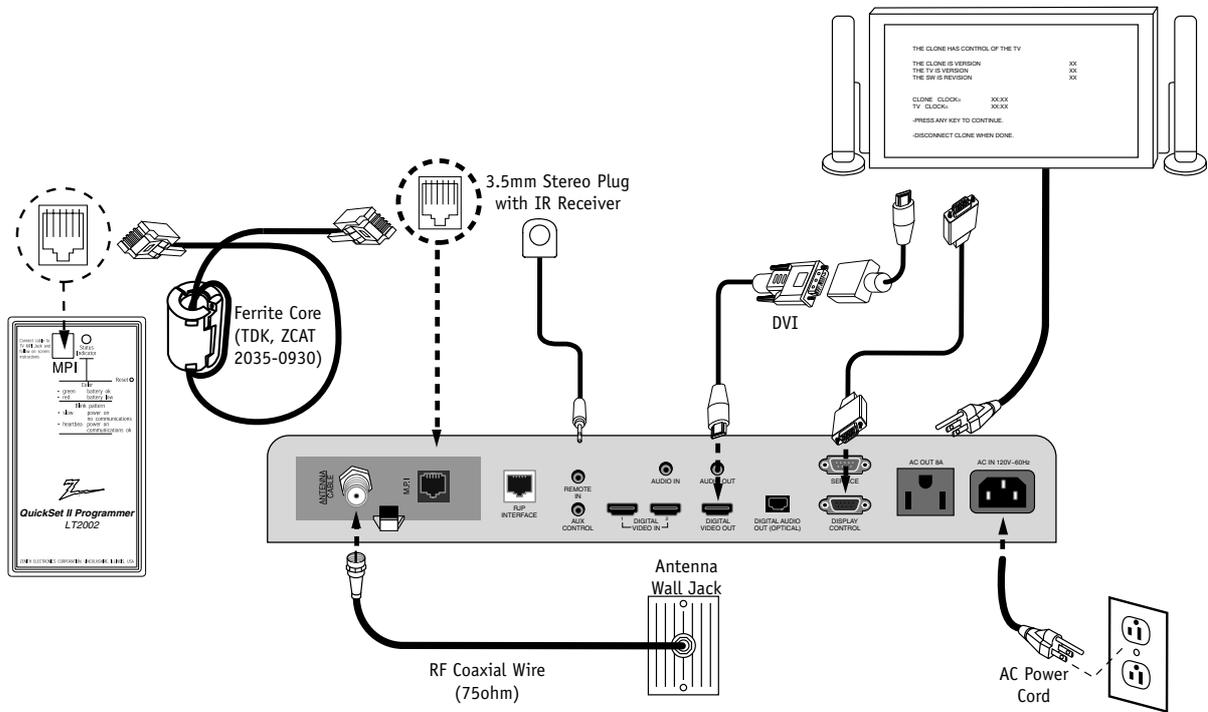
LT2002 Clone Programmer Communication Problems

- A slow flashing green light indicates there are communication problems between the TV/STB and the LT2002 clone programmer. If this is the case, check for a damaged cable, poor contacts, or other connection troubles.
- If the status indicator is red, the programmer batteries are low and should be replaced. Install 4 high-quality alkaline AA batteries.

Cloning Connections / Teaching Setup

Teaching the Master Setup to Another TV/STB

Connections for the LT2002 to Teach another TV/STB the Master Setup



Teach Master TV/STB's Setup to the target TV/STB

After learning is complete, remove the M.P.I. cable from the master TV/STB and connect it to the target TV/STB that you want to copy the master TV/STB's setup into. With "THE CLONE HAS CONTROL OF TV" message displayed, press 2 to go to the "TEACH TO TV" option, press ON/OFF, POWER, or ENTER.

Select the LT2002 memory that the new setup is in. Press On/Off to transfer the new setup and other information to the new TV/STB. Teaching usually takes 2-3 minutes.

After the "TEACHING COMPLETE" message is displayed, press any key to return to the Clone menu, then press ON/OFF, POWER, or ENTER. If finished, detach M.P.I. cable from the target, newly cloned TV/STB.

Disconnect TV/STB Power for 15 Seconds

Unplug the AC power cord of the newly cloned TV/STB from the power outlet for about 15 seconds to activate the newly-copied setup.

CLONE SELECTION MENU

- (1) LEARN FROM TV
- (2) TEACH TO TV
- (3) SET CLONE CLOCK FROM TV
- (4) SET TV CLOCK FROM CLONE
- (5) DISPLAY TV SETUP
- (6) DISPLAY CLONE SETUP

- TO CHANGE MENU ITEMS, PRESS CHANNEL KEYS OR DIGITS.
- TO EXECUTE ITEM, PRESS ON/OFF, POWER, OR ENTER

This menu should appear after any key is pressed on the Installer remote.

TEACHING IN PROGRESS,

PLEASE WAIT

This display will appear during Teaching function.

TEACHING COMPLETE

This display will appear after Teaching is complete.

Installer Menu (Continued)

Use the Installer's Menu to set up or change operational settings.
See more detailed descriptions of the Installer menu items on the following pages...

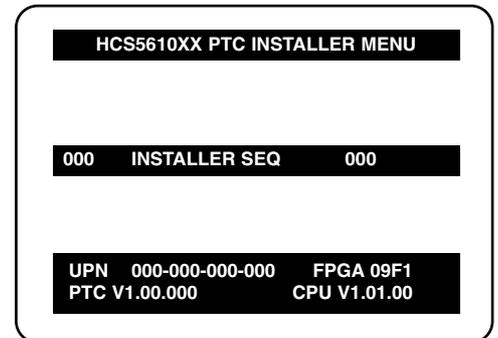
Accessing the Installer's Menu

Make sure TV is on. Installer's menu items can be accessed by using an installer's remote control. Just press MENU repeatedly (at least 10 times) until the TV seems to stop responding, then press 9, 8, 7, 6, then ENTER to access the Installer's menu. To remove the Installer's menu, press ENTER again. *Any changes you make will be stored in non-volatile memory. (The menu also disappears automatically.)*

The Installer's menu opens with item 000 INSTALLER SEQ 000. Use the Up/Down arrow keys to sequence through the available menu items. Or, access an item directly by keying in the line number, then pressing MENU. For example, to access the Sleep Timer option which is item 015, press 0-1-5, then MENU. To change a setting, use the Left/Right arrow keys. Or, enter a value directly.

Using the Installer's Menu

Items 000 ~ 117 are immediately accessible only upon entering the Installer's Menu. Their numbers, descriptions, ranges, factory default settings, and a place for listing any changes made on-site are given below and on the following pages.



Typical Installer Menu

***Notes:** For operation with RJP series, set item 040 AUTO CAMPORT to 000. Set item 093 RJP AVAILABLE to 001. Installer menu items 004, 040, 093, affect RJP series operation.

Installer Menu Items 000 through 117

Menu Item	Function	Value Range	Default Value	Brief Description of Function and Comments
000	INSTALLER SEQ	0 ~ 3	0	Leave default set to 0.
001	POWER MANAGE	0 ~ 7	0	Sets number of hours of no activity before auto shut Off.
002	AC ON	0 / 1	0	Set to 1 to enable auto turn On at power up.
003	BAND/AFC	0 ~ 3	1	Selects Tuning Band: 0=Broadcast, 1=CATV, 2=HRC, 3=IRC
004	STRT CHANNEL	0~125, 126, 127, 255	255	Channel at turn-on (Set 255 to return to last channel before power Off).
005	CHAN LOCK	0 / 1	0	If set to 1, cannot tune from current channel.
007	STRT VOLUME	0 ~ 63, 255	255	Sets Volume level at TV turn-on (Set 255 to retain last volume level).
008	MIN VOLUME	0 ~ 63	0	Sets minimum allowable volume setting.
009	MAX VOLUME	0 ~ 63	63	Sets maximum allowable volume setting.
010	MUTE DISABLE	0 / 1	0	Set to 1 to disable mute function.
015	SLEEP TIMER	0 / 1	1	Set to 1 to enable Sleep Timer.
016	EN TIMER	0 / 1	0	Set to 1 to enable On/Off Timers.
017	ALARM	0 / 1	1	Set to 1 to enable Alarm.
021	V-CHIP	0 / 1	1	Set to 1 to enable V-Chip functions.
022	MAX BLK HRS	0 ~ 99	12	Sets number of V-Chip (Parental Control) blocking hours.
023	CAPTION LOCK	0 / 1	0	Set to 1 to retain caption setting at power Off.
028	CH. OVERRIDE	0 / 1	1	If set to 0, limits direct access to favorite channels.
029	OLD OCV	0 / 1	0	Set to 1 to change M.P.I. operation to OCV.
030	ACK MASK	0 / 1	0	If set to 1, changes M.P.I. for some OCV boxes.
031	POLL RATE	20 ~ 169	94	Selects poll rate for M.P.I.
032	TIMING PULSE	186 ~ 227	207	Sets baud rate for M.P.I.
034	CAMPORT EN	0 / 1	1	Set to 1 to enable Video 2 input.

Installer Menu (Continued)

Installer Menu Items 035 through 117

Menu Item	Function	Value Range	Default Value	Brief Description of Function and Comments
035	COMPPORT EN.	0 / 1	1	Set to 1 to enable HDMI. Set to 0 to disable.
036	FRONT Y/C EN.	0 / 1	1	Set to 1 to enable panel HDMI 2 input.
038	YPrPb EN.	0 / 1	1	Set to 1 to enable display panel Component 1 input jacks.
039	REAR AUX EN	0 / 1	1	Set to 1 to enable display panel Video 1 input jack.
046	STRT AUX SRCE	1 ~ 8, 255	255	Sets the starting AUX source.
047	AUX STATUS	0 / 1	0	Set to 1 for M.P.I. AUX source to be reported as a channel number instead of Channel 0.
053	DIS. CH-TIME	0 / 1	0	Set to 1 to disable Channel-Time display.
069	EN. CH-T COL.	0 / 1	1	Set to 1 to enable custom color for the Text display.
070	FOR. CH-TIME	0 ~ 7	2	Chooses custom foreground color for the Text display.
071	BCK. CH-TIME	0 ~ 7	2	Chooses custom background color for the Text display.
073	CH NOT AVBLE	0 / 1	0	If set to 1 and channel override is 0, "NOT AVAILABLE" message is displayed when directly accessing a channel not in the favorite channel list.
075	REVERT CH	0 / 1	0	If set to 1 and loss of M.P.I. communication occurs, TV tunes to Start Channel.
078	UPN MSB	0 ~ 255	0	User programmable number, most significant byte.
079	UPN MSB-1	0 ~ 255	0	User programmable number, most significant byte - 1.
080	UPN MSB-2	0 ~ 255	0	User programmable number, most significant byte - 2.
081	UPN LSB	0 ~ 255	0	User programmable number, least significant byte.
082	CHKSM ERROR	0 / 1	1	Enforces rigid M.P.I. checksum.
083	HANDSHK TIME	0 ~ 5	5	Relaxes M.P.I. timing to be compatible with PC based Windows-controlled systems.
084	PERMANENT BLK	0 / 1	0	Removes block hours setting for Parental Control and makes block permanent.
087	REAR RGB EN.	0 ~ 2	1	Set to 1 for DTV. Set to 2 for PC. Set to 0 to disable.
088	EN NOISE MUTE	0 / 1	1	If set to 1, mutes audio if no signal is present.
091	YPrPb2 EN.	0 / 1	1	Set to 1 to enable Component 2 input jacks.
092	RGB2 ENABLE	0 ~ 2	2	Set to 1 for DTV. Set to 2 for PC. Set to 0 to disable.
093	RJP AVAILABLE	0 / 1	0	Set to 1 to enable.
094	SAP MENU EN	0 / 1	1	Set to 0 to disable feature on Function menu. Set to 1 to enable feature on Function menu.
096	DEF. ASP. RATIO	0, 1, 2, 4, 5	2	Sets default aspect ratio at power up. See detailed descriptions and item 106.
102	ATSC BAND	0 ~ 4	4	Selects ATSC band.
103	ATSC TUNE MODE	0 / 1	1	Sets ATSC tuning mode. Set to 0 for virtual channels, set to 1 for physical channels.
104	START MINOR CH	0 ~ 255	0	Selects Minor start channel. Set 0 for NTSC. Not 0, sets Minor channel number.
105	VID OUT FORMAT	0 ~ 2	1	0=1080i, 1=720p, 2=480p
106	ASP RATIO LOCK	0 / 1	0	To retain set aspect ratio on power cycle, set to 1. Set to 0 for default ratio on power cycle.
107	BANNER SELECT	N/A	N/A	Not applicable.
108	PANEL COM	0 ~ 3	2	0=1200, 1=2400, 2=9600, 3=115200
110	PANEL DELAY	0 ~ 15	8	Sets panel delay time.
111	PANEL VOL PRE	0 ~ 100	20	Panel preset volume to achieve the same volume levels as other systems.
112	PANEL STRT VOL	0 ~ 100	20	Panel start volume when on Aux. input.
113	PANEL TYPE	0 ~ 4	2	Selects panel type.
114	PANEL MIN VOL	0 ~ 100	0	Sets panel minimum volume level.
115	PANEL MAX VOL	0 ~ 100	100	Sets panel maximum volume level.
116	VIDEO MUTE EN	0 / 1	0	Set to 0 for normal, set to 1 for Blank.
117	FACT DEFAULT	0 / 1	0	0=Normal. 1=Loads factory default presets of all above settings.

Installer Menu (Continued)

Detailed Descriptions of Installer Menu Items

000 - INSTALLER SEQUENCE

Specifies entry sequence to the Installer Menu.

0 = 9876	1 = 4321
2 = 1478	3 = 3698

001 - POWER MANAGE (Power Management)

Determines hours of no activity before automatic shutoff. The POWER MANAGE function is for saving energy. If set to 0, Power Manage is Off. Settings range from 0 ~ 7, with 1 ~ 7 representing the hours that the TV will remain On, unless there has been activity from either the control panel or remote control.

002 - AC ON (AC Power Switchable)

If set to 1, allows the TV/STB to turn On just by applying AC power. Pressing the On button is not necessary. This is desirable if the TV/STB is plugged into a cable box or a power outlet controlled by a wall switch. Use ADJ Left/Right arrow to choose 0 or 1 where 0 is the default is Off, and 1 is On.

***Note:** If set to 1 (On), the TV/STB does not respond to On/Off commands from either the remote or the display control panel, and the SLEEP TIMER is also nonfunctional.

003 - BAND/AFC (Band/Automatic Frequency Control)

Selects the tuning band. There are 4 possible settings for this option:

0 = Broadcast	1 = CATV
2 = HRC	3 = IRC

If some channels were not found by Auto Program, select the appropriate Band setting here and add the channels using the Channel List option in the Channel Menu.

004 - STRT CHANNEL (Start Channel)

If active, this function allows you to determine the initial channel number when the TV/STB is turned On. This feature is useful for an in-house information channel, since the TV/STB would always select that channel when it is turned On. Setting this to 255 causes the last channel viewed when the TV/STB was turned Off, to be the tuned to channel when the TV/STB is turned On again.

255 = Last channel	1 ~ 125 = Ch X	0 = Aux
126 Map to Channel 3.	127 Map to Channel 4.	

***Note:** Item 004 STRT CHANNEL cannot be set to 0 if item 093 RJP AVAILABLE is set to "1".

005 - CHAN LOCK (Channel Lock)

CHAN LOCK is ideal if the system must always be on the same channel. Changing channels with Channel Up/Down or keypad numbers is impossible. Channel Lock is inactive if set to 0 (default).

Generally, this feature is used in connection with START CHANNEL (Installer item 004) where the start channel may, for example, be set to 3 or 4. If the start channel is 3, then the TV/STB will remain locked on Channel 3.

***Note: For Items 007, 008 and 009**

For legacy reasons, the scale used is 0 - 63. The PTC software will translate this to the 0 - 100 scale used by the TV.

To translate a TV volume level to the installer menu value, use the following formula:

$$\text{Installer Value} = \frac{\text{TV Value} \times 63}{100}$$

Enter only the whole number (disregard fractions).

007 - STRT VOLUME (Start Volume)

This function allows the Installer to determine the initial volume level setting when the TV/STB is turned On. This feature is useful for an in-house information channel, since the TV/STB would always select that volume level when it is turned On. The range of values are 0 - 63, 255. If 255 is selected, the current volume level will be retained in memory when the TV/STB is turned Off; at turn On, the volume level will be automatically set at the previous or last level.

008 - MIN VOLUME (Minimum Volume)

This function determines the minimum volume level allowable with the VOLUME (VOL) Up/Down control. In this way, for example, someone cannot set the volume too low to hear. The value range is from 0 to 63 — change values with ADJ Left/Right arrow. The factory default is 0, which provides the full range of volume control, if item 009 MAX VOLUME is also set to 63. It may be best to set the same value on every TV/STB.

***Note:** The minimum volume level cannot have a value setting higher than the MAX VOLUME level (described below).

009 - MAX VOLUME (Maximum Volume)

This function determines the maximum volume level allowable with the VOLUME (VOL) Up/Down controls. In this way, for example, someone can not set the volume level high enough to disturb others.

(Continued on next page)

Installer Menu (Continued)

(Continued from previous page)

The value range is 0 to 63, with 63 as the default, which gives the user the full range of volume control, if item 008 MIN VOLUME is also set at 0. Change values with ADJ Left/Right arrow keys. It may be best to set the same value on every TV/STB.

***Note:** *The maximum volume level cannot have a value setting lower than the MIN VOLUME level (described previously).*

010 - MUTE DISABLE

Enables or disables sound mute function. If set to 1, sound cannot be muted, mute is disabled. If set to 0, sound can be muted.

015 - SLEEP TIMER

If set to 1, the SLEEP TIMER feature may be used. If set to 0, the Sleep Timer is not available.

016 - EN TIMER (Enable On/Off Timers)

If set to 1, Timer function is available to user. Set to 0 to disable On/Off Timer functions. (Clock must be set in order to use Timers.)

017 - ALARM

Gives the installer the option of making the Alarm function available to the end user. If set to 1, Alarm function is available to end user. Set to 0 to disable the Alarm function.

***Note:** *Clock must be set before the Alarm function will work.*

021 - V-CHIP (Parental Control)

Set to 1 to activate V-Chip (Parental Control); have it available to end user to filter and control or otherwise restrict programming content that can appear. Set to 0 to turn V-Chip feature Off, not available to user; no programming restrictions can be set.

022 - MAX BLK HRS (Maximum Block Hours)

Sets hours from 0 to 99 for the maximum V-Chip (Parental Control) block hours. Default setting is for 12 blocking hours.

023 - CAPTION LOCK

Set to 1 to restore previous caption On/Off state after turn Off. If set to 0, captions are always Off at turn On.

028 - CH. OVERRIDE (Channel Override)

If set to 1, the user can select channels with either Channel up/down or by direct keypad entry. If set to 0, only those channels that are added on the channel list can be selected.

029 - OLD OCV (On Command Video™)

Set to 1 for operation with systems from On Command Corporation.

030 - ACK MASK

M.P.I. Communication Parameter. Leave at default setting unless changed by Pay-Per-View provider. When set to 1, changes M.P.I. for some OCV boxes.

031 - POLL RATE

M.P.I. Communication Parameter. Selects Poll Rate for M.P.I. Leave at default setting unless changed by Pay-Per-View provider. Step size of 16 ms.

032 - TIMING PULSE

M.P.I. Communication Parameter. Leave at default setting unless changed by Pay-Per-View provider. Sets baud rate. Step size of 4.3 uS.

034 - CAMPORT EN. (Camera Port Enable)

Set to 1 to enable Video 2 input on display panel. If set to 0, Video 2 input on display panel is not functional.

035 - COMPPORT EN. (Computer Port Enable)

Enable/disables display panel HDMI input jack. Set to 0 to disable, set to 1 to enable.

***Note:** *The setting above is ignored if Installer item 093 RJP AVAILABLE, is set to 1.*

036 - FRONT Y/C EN. (HDMI 2 Enable)

Set to 1 to enable display panel HDMI 2 input.

Set to 0 to disable display panel HDMI 2 input.

***Note:** *The setting above is ignored if Installer item 093 RJP AVAILABLE, is set to 1.*

038 - YPrPb EN. (Rear Component Video Enable)

Set to 1 to enable display panel rear Component Video 1 input.

Set to 0 to disable display panel rear Component Video 1 input.

039 - REAR AUX EN. (Rear Aux Enable)

Set to 1 to enable display panel rear AUX (Video 1) input.

Set to 0 to disable display panel rear AUX (Video 1) input.

046 - STRT AUX SRCE (Start Aux Source)

Sets the starting AUX source.

Start source if start channel =0

1 = Video 1 5 = Component 2

2 = Video 2 6 = Component 1

3 = HDMI 1 7 = RGB 2

4 = RGB 1 8 = HDMI 2

(Continued on next page)

Installer Menu (Continued)

(Continued from previous page)

047 - AUX STATUS

Set to 1 for M.P.I. AUX source to be reported as a channel number instead of channel 0. Set to 0 to disable AUX identification change. Controls M.P.I. status channel response for AUX inputs.

053 - DIS. CH-TIME (Disable Channel-Time)

Set to 1 to disable the Channel-Time display, Channel-Time display will not appear.
Set to 0 to enable the Channel-Time display.

069 - EN. CH-T COL. (Enable Text OSD Color)

Set to 1 to enable custom color for the Channel-Time display.
Set to 0 to disable custom color for the Channel-Time display.

070 - FOR. CH-TIME (Display Text Foreground Color)

Set according to Color Chart.

0 = Black	3 = Cyan	6 = Yellow
1 = Blue	4 = Red	7 = White
2 = Green	5 = Violet	

**Note: If foreground and background color are the same, menu background is transparent.*

071 - BCK. CH-TIME (Display Text Background Color)

Set according to Color Chart.

0 = Black	3 = Cyan	6 = Yellow
1 = Blue	4 = Red	7 = White
2 = Green	5 = Violet	

**Note: If foreground and background color are the same, menu background is transparent.*

073 - CH NOT AVBLE (Channel Not Available)

If set to 1 and item 028 CHANNEL OVERRIDE is set to 0, "NOT AVAILABLE" message is displayed when directly accessing a channel not in the channel scan list available in memory.

075 - REVERT CH (Revert to Start Channel)

If set to 1 and loss of M.P.I. communication occurs, TV automatically tunes to the specified Start Channel.

078 - UPN MSB (UPN Most Significant Byte)

User programmable number, most significant byte readable by M.P.I. command. Note: Not linked to serial number.

079 - UPN MSB-1 (UPN Most Significant Byte-1)

User programmable number, most significant byte-1 readable by M.P.I. command. Not linked to serial number.

080 - UPN MSB-2 (UPN Most Significant Byte-2)

User programmable number, most significant byte-2 readable by M.P.I. command. Not linked to serial number.

081 - UPN LSB (UPN Least Significant Byte)

User programmable number, least significant byte readable by M.P.I. command. Not linked to serial number.

082 - CHKSM ERROR (Checksum Error)

Enforces rigid M.P.I. checksum validation.

Set to 1 for validation.

Set to 0 to disable (does not check checksum on M.P.I. async port). SPI is always checked.

083 - HANDSHK TIME (Handshake Time)

Adds an additional delay to the handshake time which is 64 msec, thus relaxing M.P.I. timing requirements to be compatible with PC based Windows controlled systems, range is 0 - 5.
(Timeout = 25.5MS + [25.5 MS* Handshake time]).

084 - PERMANENT BLK (Permanent Block)

Allows Lock (Parental Control) blocking schemes to be permanent by disabling the blocking hours function.

Set to 1 to install Parental Control restrictions permanently.

Set to 0 for user-specified hours control of blocking schemes.

087 - REAR RGB EN. (Rear RGB1 Enable)

Controls access to rear RGB1 input on display panel.

Set to 1 to enable RGB1 input for DTV. Set to 2 for PC.

Set to 0 to disable RGB1 input.

088 - EN NOISE MUTE (Enable Noise Mute)

If set to 1, audio mutes if no signal is present.

091 - YPrPb2 EN. (Rear Component Video 2 Enable)

Set to 1 to enable display panel Component 2 input.

Set to 0 to disable display panel Component 2 input.

092 - RGB2 ENABLE (Red-Green-Blue 2 Enable)

Controls access to rear RGB2 input on display panel.

Set to 1 to enable RGB2 input for DTV. Set to 2 for PC.

Set to 0 to disable RGB2 input.

093 - RJP AVAILABLE

Set to 1, remote jack pack is available.

Set to 0, remote jack pack is not available.

**Note: This item can not be set to 1 if item 040 AUTO CAMPORT is set to 1.*

(Continued on next page)

Installer Menu

(Continued from previous page)

094 - SAP MENU EN (2nd Audio Program)

Set to 1 to enable SAP feature, if available.
Set to 0 to disable SAP feature.

096 - DEF. ASP. RATIO (Default Aspect Ratio)

Selects default aspect ratio at power up, see settings below.

Set to 0 for set by program.
Set to 1 for 4:3.
Set to 2 for 16:9 (Factory Default).
Set to 4 for Zoom 1
Set to 5 for Zoom 2

102 - ATSC BAND

Sets up TV to receive different types of incoming signals:
0=Broadcast, 1=CATV, 2=HRC, 3=IRC, 4=Same as NTSC.

103 - ATSC TUNE MODE

Selects ATSC tuning mode: 0=Virtual, 1=Physical.
Note: The setting above is ignored if Installer item 102 ATSC BAND, is set to 1=CATV, 2=HRC, or 3=IRC. Then **103 - ATSC TUNE MODE** above always resets itself to Physical (1), regardless of what value appears for item 103 on the Installer menu.

104 - START MINOR CHANNEL

Sets XX-XX minor starting channel at power up: 0=NTSC. If not 0, number selected is the Minor start channel number.

105 - VID OUT FORMAT

0=1080i 1=720p 2=480p

106 - ASP RATIO LOCK (Aspect Ratio Lock)

Set to 1 to retain previous aspect ratio with power Off.
Set to 0 to retain default aspect ratio with power Off. See item 96 Default Aspect Ratio above.

107 - BANNER SELECT

Not applicable.

108 - PANEL COM (Newer display panels set at 2)

Sets the panel baud rate.

110 - PANEL DELAY (Newer display panels set at 8)

Sets the panel delay time.

111 - PANEL VOL PRE

Preset panel volume to achieve the same volume levels as other systems.

112 - PANEL STRT VOL

Panel start volume when on Aux. input.

113 - PANEL TYPE (Newer display panels set at 2)

Select the Panel Type according to the table which is part of a quick setup guide that keeps on changing as new displays become available.

114 - PANEL MIN VOL

115 - PANEL MAX VOL

Both items above sets the min/max volume of the display panel when using other panel aux inputs aside from the one that the STB uses. It is similar to the Min/Max Volume for the STB (items 8 & 9). Item 8 & 9 limits the volume coming out of the STB while items 114 & 115 limits the Panel Volume.

116 - VIDEO MUTE EN (Video Mute Enable)

Set to 0 for normal.
Set to 1 for blank.

117 - FACT DEFAULT (Factory Default)

Set to 0 for normal.
Set to 1 to load default settings for all installer menu items.
 **WARNING:** Setting this to 1 will reload the factory defaults and clear the channel list including erasing any assigned Channel Icons and Labels.

Reference: TV Features / Menus that can be Cloned

Clonable Menu Features

Channel	Picture	Sound	Setup	Caption
Auto Program (Active channels found with the channel search)	Mode	Mode	Time	On/Off
Channel Labels	Contrast	Treble	Clock	Analog Mode
Channel List	Brightness	Bass	Auto Off	Digital Mode
Fine Tune	Color	Balance	V-Chip	Digital Font Option
	Sharpness	Auto Volume	TVPG Rating	
	Tint	Multi-Track	MPAA Rating	
	Color Temperature	Internal Speaker	Menu Language	
	Screen Format		SET ID	
	Film Mode			

***Note:** For Digital Font Options, if any default setting is left unchanged prior to cloning, then all the digital font options will be set to default settings. If you want custom digital font options to be clonable, set all digital font options to settings other than Default.

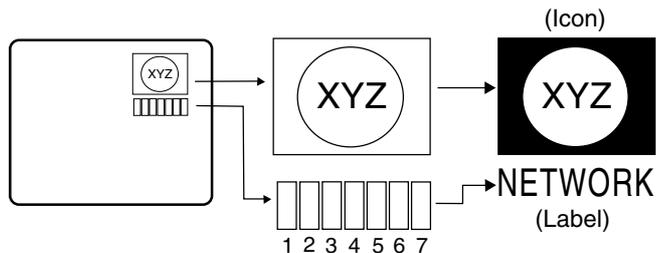
Reference: Procedures for adding Channel Label Icons/Custom Channel Labels (2-5-4 + MENU Mode)

Adding Channel Icons and Labels in the 2-5-4 + Menu Mode

Editing/Adding Channel ICONs and/or Labels

If there is no pre-assigned ICON, you can make a channel label of up to 7 characters to help in identifying the channel or network.

At your option, channel labels can also be added in addition to a pre-assigned ICON. You may also add labels for the Aux input sources to clearly identify the devices that are connected to the Aux inputs.



Editing and adding the labels can only be done if there are channels entered into the TV/STB's channel map either by using the method described in item 6 (page 52), by cloning or by the use of the master remote control from the PPV provider.

To Do Channel Editing/Labeling, proceed as follows

1. Enter TV/STB Installer menu.
2. After the installer menu appears, press '2', '5', '4', 'MENU'. This enters the channel label edit mode. Add your channel icons and channel labels in this menu, see below. (You can do this more than once.)
3. To exit the menu when done press "MENU".

Changing a Channel's ICON on Master TV

1. With Channel Up/Down, select the channel you want to change the Icon for.
2. With the Right or Left ADJ arrow, select the letter 'I' on the channel ID display.
3. With the Up or Down arrow, select the desired ICON you want to appear to identify the channel. (If you know the ICON number, enter the number followed by Enter / Select.)
Note: If no Icon is available, leave at or select the default blank icon display.
4. Proceed with Changing/Adding Labels or go to the next channel.

Changing/Adding Channel Labels on Master TV

1. Channel Up/Down to select the desired channel.
2. Press the Right or Left ADJ arrow repeatedly until the numbers 1 to 7 show up. The number shows the position of the character that can be changed. Number 1 is the first character, number 2 the second character and so on.
3. With the Up or Down arrow, select the desired character.
4. Proceed to the next number position or use Channel Up/Down to go to the next channel.

Changing Source Labels on Master TV

1. Press "TV/AV" to select the desired Aux input source; Video 1, Component, S-Video etc.
2. Press the Right or Left arrow repeatedly until the numbers 0 to 9 show up. The number shows the position of the character that can be changed.
3. Use the Up or Down arrows to select the desired character.
4. Press "TV/AV" for the next Aux source or proceed with Changing Icon or Changing/Adding Labels.

Installer Remote Control Key Functions for Master TV Channel Editing/Labeling Menu

- **CHANNEL Up/Down** - Tunes in the next channel in scan.
- **Left/Right Arrows** - Select the item to change. If "I" is shown, the ICON can be changed. If a number is shown, it indicates the position of the character that can be changed.
- **Up/Down Arrows** - Select the ICON or the character to be displayed.
- **0 - 9** - Use to enter the index number of the ICON, if known.
- **OK (Enter/Select)** - Changes the ICON after the number has been entered.
- **TV/AV** - Changes the Aux input source for labeling. This key is located on the side of the TV front and on Installer remote control.
- **MENU** - Exits the labeling/editing menu.

IMPORTANT INSTALLER SETUP INFORMATION! PLEASE READ THE FOLLOWING...



To set up a master TV you will need to know how to enter the TV/STB Installer menu and make changes to the default values as required. If necessary, familiarize yourself with the TV/STB Installer menu and how to make and save changes in the menu, before attempting to clone the TV/STB Master TV setup.

You will also need an **Installer remote control** similar to the one shown in the front of this manual.

Finally, the TV's clonable features need to be set up. This is a critical step. If the Master TV display panel's clonable features like

adding channel icons or channel labels are not correctly added, then the cloned TV/STB will all have problems.

As the cloning procedure is being performed, specific steps need to be done at the indicated times to achieve the desired result. Be sure to do each task as indicated. If a procedure or step is left out or not performed completely, cloning may not work. At each step, pay attention to assure the TV screen shows the proper message when cloning. If the message indicated does not appear, there is a problem with that step and cloning may not be successful. Cloning is only possible when the signal source is an Analog channel, not a digital channel.

Making a Master TV

Detailed Instructions

The following describes the procedure for preparing a Master TV/STB for cloning and the procedure for adding Channel Icons and/or Labels.

Note 1: Disconnect all Aux inputs. Under certain conditions, Auto Program Scan is disabled if there is an Aux input active.

Note 2: Under certain conditions, changes to the input mode of the RGB inputs will not take effect until the power is cycled (TV is turned Off and On). To avoid confusion, disconnect all RGB inputs before entering the Installer menu.

1. Enter the TV/STB installer menu.
 - a. Reset the internal controller to factory default by accessing installer menu item 117 FACT DEFAULT, set it to 1 and press "ENTER". The value will change back to 0 after the TV's internal controller has been restored to factory default condition.
 - b. Within the Installer menu, set the Installer menu items to the configuration required of your institution.
 - c. It is important to set the tuning band at this time, see Installer menu item 03 BAND/AFC.
 - d. Set Installer menu item 28 – CH OVERRIDE to 001 to allow access to the Auto Program and Channel List/Channel Label features in the Channel Menu. Exit the Installer menu.
2. Access the Master TV menus and set the clonable options on the menus to the desired configuration. Refer to the **Clonable Menu Features Chart**.

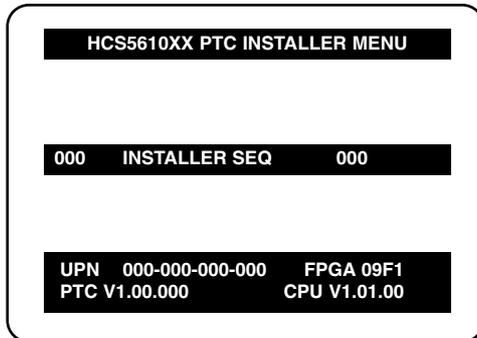
3. Run Auto Program.
4. Enter the Channel List/Channel Label menu and edit the channel line-up to include the Free-To-Guest Channels only.
5. Assign ICONS to the channels using the Channel Label Menu.
Note: You can add Channel ICONS typically network logos like ABC, NBC, PBS etc. in this step. Or, in Step 7, add Channel ICONS or labels for channels without Icons.
6. Transfer the TV setup: Enter the TV/STB installer menu. Press '2', '5', '5', 'MENU' to start the transfer of the TV's setup to the TV/STB. Once the transfer is complete, the system will exit the Installer menu.
Note: Only do 2-5-5 + MENU once. The TV setup may be corrupted if 255 + Menu is done more than one time.
7. Edit/Add Channel ICONs and Channel Labels as needed. Enter Installer menu. With menu displayed, press 2-5-4 + MENU. See page 51 for detailed instructions:
 - **Editing/Adding Channel ICON and Labels on Master TV**
 - **Changing a Channel's ICON on Master TV**
 - **Changing/Adding Channel Labels on Master TV**
 - **Changing Source Labels on Master TV**
8. Verify Master TV setup and feature configuration:
 - Did you add Channel ICONS?
 - Did you add Channel Labels?
 - Did you add Aux Source Labels?
 - Did you adjust all TV menu options as required?The TV master setup is now ready to be cloned. Go to the master TV cloning section or continue on to page 51.

After verifying master setup, enter the TV/STB Installer menu and set Installer menu item 028 Ch Override to 000.

Reference: Software Version Check

Procedure to Check Software Version

The software version of the TV/STB may be checked by accessing the INSTALLER MENU. To do this, press the MENU button at least 10 times until the menu display ceases to respond to MENU key presses. Then, press "9", "8", "7", "6", "OK (Enter/Select)".



Typical Installer Menu

TV/STB Aux Input Configuration

TV/STB Aux Input Configuration

DIRECT ACCESS Tuning		TV/STB		ENABLE				MPI DATA			STATUS AUX SOURCE ASSIGNMENT
				Installer Menu		MPI DATA STATUS TYPE 0x41 SOURCES ENABLED (R/W)		DATA STATUS TYPE 0xD2 CURRENT AV SOURCE (R)		DATA STATUS TYPE 0X0D AUX SOURCE (R)	
OLD_OCV =0	OLD_OCV =1	Source Input	Source Mode	Number	Labeling	Value	Labeling	Value	Labeling		
130	90	Video2 (Front)	CV ONLY	34	CAMPORT_EN	0x01	Video Front (Camport)	0	Video Front (Camport)	0(VIDEO)	2
131	91	Video1(Rear)	CV ONLY	39	REAR_AUX_EN	0x02	Rear Video (Aux)	1	Rear Video (Aux)	0(VIDEO)	1
132	92	Component2		91	YPrPb2_EN	0x04	S-Video Rear	2	S-Video Rear	0(VIDEO)	5
133	93	DVI/HDMI1	DTV/PC Auto	35	COMPPORT EN	0x08	Front Computer	3	Front Computer	0(VIDEO)	3
134	94	RGB1	DTV	87	REAR RGB EN=1	0x10	SVGA Rear Computer	4	SVGA Rear Computer	0(VIDEO)	4
			PC		REAR RGB EN=2					2(PC)	
135	95	RGB2	DTV	92	RGB2 ENABLE	0x20	NTSC Rear Computer	5	NTSC Rear Computer	0(VIDEO)	7
			PC							2(PC)	
136	96	Component1		38	YPrPb EN	0x40	Y/UV Component	6	Rear YPrPb component video	0(VIDEO)	6
137	97	HDMI2	DTV/PC Auto	36	FRNT Y C_EN	0x80	Y-C Front Video	7	Front S-Video	0(VIDEO)	8

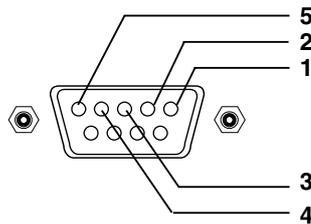
TV/STB RS-232 Monitor Requirements / RS-232 Troubleshooting

RS-232 Communication Requirements

RS-232 Pin Configuration Wiring Diagram of the TV/STB Display Control Connector

Type of Connector; D-Sub 9-Pin Female

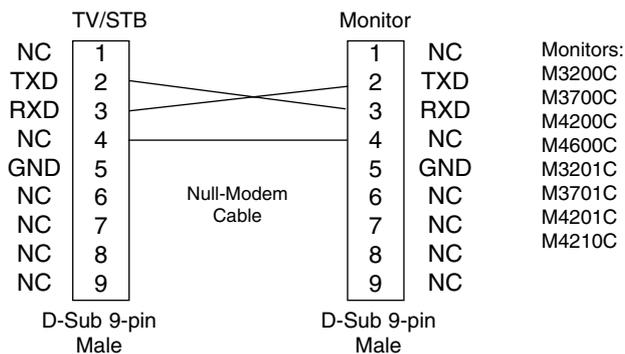
No.	Pin Name
1	No Connection
2	TXD (Transmit data)
3	RXD (Receive data)
4	No Connection
5	GND
6	No Connection
7	No Connection
8	No Connection
9	No Connection



Monitors listed below require RS-232 Null Modem DB9 Cable with male connectors at each end. Depending on the type of Null modem cable, one or two gender changers may be required.

RS-232C Null Configuration

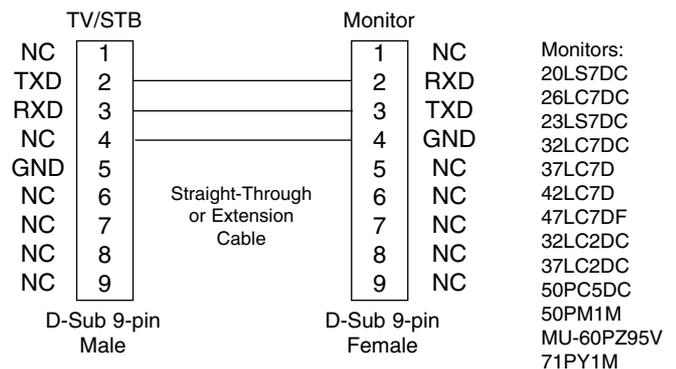
3-Wire Configuration
(Serial male-male NULL modem cable)



Monitors listed below require RS-232 straight-through (extension) DB9 cable with male connector on one end and female connector on the other end. Refer to monitor installation guide for more specifics.

RS-232C Straight Configuration

3-Wire Configuration
(Straight-through male-female cable)



RS-232 Troubleshooting

Improper RS-232 Communications Setup

- **Selects Incorrect Source at Power Up**
TV/STB powers On TV. Flashes selected HDMI/DVI source but selects incorrect Aux source.
- Check settings for Installer menu items 108, 109, 110 and 113.

- **Displays 'No Signal' message at Power Off**
TV/STB does not power Off TV and displays 'No Signal' message.
- Check settings for Installer menu items 108, 109, 110 and 113.

RS-232C Control

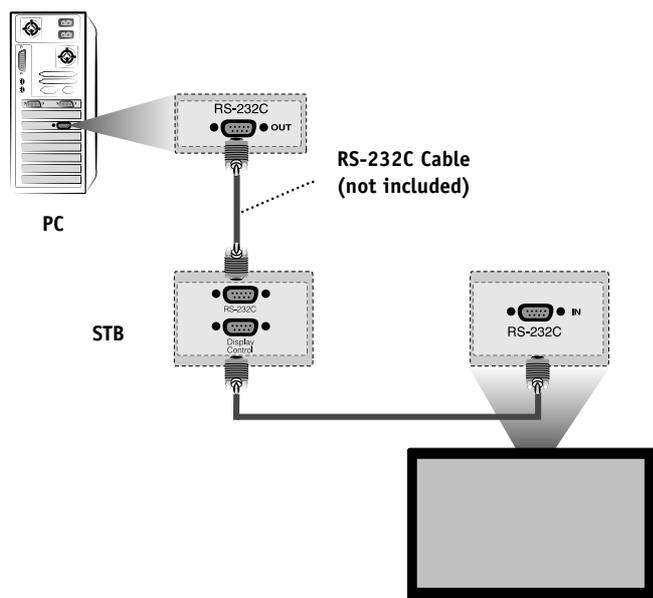
Use this method to connect several products to a single PC.

You can control several products at a time by connecting them to a single PC.

Connecting the cable

Connect the RS-232C cable as shown in the picture.

- The RS-232C protocol is used for communication between the PC and product. You can turn the product on/off, select an input source or adjust the OSD menu from your PC.



Communication Parameter

Baud Rate : 9600bps (UART)
 Data Length : 8bits
 Parity Bit : None
 Stop Bit : 1bit
 Flow Control : None
 Communication Code : ASCII code

	COMMAND1	COMMAND2	DATA(Hexa)
Key	M	C	Key Code

Transmission / Receiving Protocol

Transmission

[Command1][Command2][][Set ID][][Data][Cr]

- * [Command 1]: First command.
- * [Command 2]: Second command.
- * [Set ID]: You can adjust the set ID to choose desired product ID number in Special menu. Adjustment range is 0 ~99
 When selecting Set ID '0', every connected TV set is controlled. Set ID is indicated as decimal (0~99) on menu and as Hexa decimal (0x0~0x64) on transmission/receiving protocol.
- * [DATA]: To transmit command data.
 Transmit 'FF' data to read status of command.
- * [Cr]: Carriage Return
 ASCII code '0x0D'
- * []: ASCII code Space (0x20)

OK Acknowledgement

[Command2][][Set ID][][OK][Data][x]

- * The Product transmits ACK (acknowledgement) based on this format when receiving normal data. At this time, if the data is data read mode, it indicates present status data. If the data is data write mode, it returns the data of the PC computer.

Error Acknowledgement

[Command2][][Set ID][][NG][Data][x]

- * The Product transmits ACK (acknowledgement) based on this format when receiving abnormal data from non-viable functions or communication errors.

Data 1: Illegal Code
 2 : Not supported function
 3 : Wait more time

1. Key(Command : m c)

► To send IR remote key code.

Transmission

[m][c][][Set ID][][Data][Cr]

Data Key code : Refer to page A18.

Acknowledgement

[c][][Set ID][][OK][Data][x]

Code(Hexa)	Function	Note
00	Channel Up	Button
01	Channel Down	Button
02	VOL(+)	R/C Button
03	VOL(-)	R/C Button
C4	POWER ON	Discrete IR Code(Only Power On)
C5	POWER OFF	Discrete IR Code(Only Power Off)
09	MUTE	R/C Button
10	Number Key 0	R/C Button
11	Number Key 1	R/C Button
12	Number Key 2	R/C Button
13	Number Key 3	R/C Button
14	Number Key 4	R/C Button
15	Number Key 5	R/C Button
16	Number Key 6	R/C Button
17	Number Key 7	R/C Button
18	Number Key 8	R/C Button
19	Number Key 9	R/C Button
5A	AV1	Discrete IR Code(Input AV1 Selection)
D0	Video2	Discrete IR Code(Input Video2 Selection)
D3	S-Video2	Discrete IR Code(Input S-Video2 Selection)
D8	S-Video1	Discrete IR Code(Input S-Video1 Selection)
BF	Component1	Discrete IR Code(Input Component1 Selection)
D4	Component2	Discrete IR Code(Input Component2 Selection)
D5	RGB-PC	Discrete IR Code(Input RGB-PC Selection)
D7	RGB-DTV	Discrete IR Code(Input RGB-DVD Selection)
CE	HDMI1	Discrete IR Code(Input HDMI1 Selection)
CC	HDMI2	Discrete IR Code(Input HDMI2 Selection)
0E	SLEEP	R/C Button
44	Enter (OK)	R/C Button
79	ARC	R/C Button
76	ARC(4:3)	Discrete IR Code(Only 4:3 mode)
77	ARC(Full)	Discrete IR Code(Only Full mode)
AF	ARC(ZOOM)	Discrete IR Code(Only Zoom mode)
4C	Dash(-)	R/C Button
1A	Flash back	R/C Button
39	closed captions	R/C Button

Troubleshooting

Troubleshooting

Some quick and easy tips to resolving problems

Symptoms	Possible Cause(s)	Possible Solution(s)	See Page(s)
Software Problems			
Software Corrupted.	2-5-5 + MENU performed more than once.	Start all over with item 117 and Enter then redo Auto Program, Channel List, etc. *Note: 2-5-4 + MENU can be done more than once.	48
Virtual and Physical channels appear in channel scan w/Channel Up/Down.	2-5-5 + MENU not performed.	After Auto Program and Channel List, etc. press 2-5-5 + MENU to transfer channels and TV setup to internal TV controller. Afterward, only Physical or only Virtual channels will appear in digital channel scan, analog channel scan will be normal.	48
Can not direct enter channel number	Channel not included in channel scan in TV controller. Ch Override set to 000	After 2-5-5 + MENU, only channels included in TV controller will appear. If channel is available it cannot be added to channel scan. Rerun Auto Program. Only channels in memory can be tuned in.	48
Power			
No Power.	See troubleshooting flow chart.		69
Display Panel Picture			
No Picture.	<ul style="list-style-type: none"> • Display panel is turned off. • Antenna/Cable not connected. • Connections incorrect. • M.P.I. not connected. • Encrypted program. • Wrong tuning band. 	<ul style="list-style-type: none"> -Turn TV on. -Power failure? -Connect Antenna/Cable signal source to TV/STB. -Check connections on TV/STB. -If applicable, connect M.P.I. cable to M.P.I. device. -Try another channel. -Adjust Installer menu settings. 	11~12 10~17 53~58
Erratic Operation			
Installer menu setup.	<ul style="list-style-type: none"> • Wrong Installer menu settings. • Software problem. 	<ul style="list-style-type: none"> -Adjust Installer menu settings as required. -Remove TV power cord for 15 seconds. 	53~58
Remote Control			
Remote doesn't work.	<ul style="list-style-type: none"> • Remote not in TV mode. • Not aimed at IR remote sensor. • Remote too far from IR sensor. • IR path to TV's receiver obstructed. • Weak batteries. • Wrong battery polarity. • Too much light in room. • Wrong Installer remote control. • Incorrect Bed 1-2 setting. 	<ul style="list-style-type: none"> -Use Mode key to select TV; puts remote into TV/STB mode. -Point remote at TV's IR receiver on TV. -Move remote closer to TV's IR receiver or darken room. -Remove obstructions. -Replace batteries. -Check that "+" and "-" match in battery compartment. -Dim room light. -Requires compatible Installer remote, contact your LG dealer. -Set correct Bed 1-2 setting. 	20~21 48 20
Picture Reception			
Normal picture, poor or no sound.	<ul style="list-style-type: none"> • Audio muted. • Broadcast problem. 	<ul style="list-style-type: none"> -Press MUTE or use Volume Up key to increase sound level. -Try a different channel. 	20~21 20~21
Broadcast Tuning Mode Digital Channel OSD			
No Information available display.	<ul style="list-style-type: none"> • Item 103 set to 1 physical channels tuning. 	<ul style="list-style-type: none"> -Set Item 103 to 0 for information to be added to virtual channel tuning digital OSD. 	55~58

***Note:** For other problems not caused by the TV/STB, refer to other devices' operating guide.

Reference: Cloning Procedure Troubleshooting



Warning: Do not use LT2002 while a LodgeNet PPV card is installed in TV or clone programmer will be damaged.

Reset Clone After Static Shock

After replacing exhausted batteries, or if the programmer behaves strangely after a static shock, activate the internal reset switch and restore normal operation. After a reset, check the real-time clock setting. It may be necessary to reset the Clone Programmer clock from a TV containing the correct time.

Note

The LT2002 programmer is designed to be used with TVs containing the 221-01006 and later processors. Use with earlier TV sets may give unpredictable results. Processors used before the 221-01006-04 have a limited screen display capability. They cannot display entire screens as shown in the quick setup instructions accompanying the LT2002 clone programmer. Use the printed menu illustrations on the quick setup sheet supplied with the Clone as an aid to making your programming choices. (Although the menus are not all displayed, the clone functions all operate normally.)

Clone Programmer Troubleshooting

Clone Programmer

Cloning Notes: While clone is copying or transferring a master setup, do not touch or otherwise disturb clone or connections between clone and TV. Cloning a master TV setup should take at least 45 seconds. Transferring the master TV setup to the target TV should take at least 45 seconds. Monitor LED on clone to assure that the blinking heartbeat pattern is present throughout clone operations. After cloning, be sure to disconnect power from the target TV for about 15 seconds.

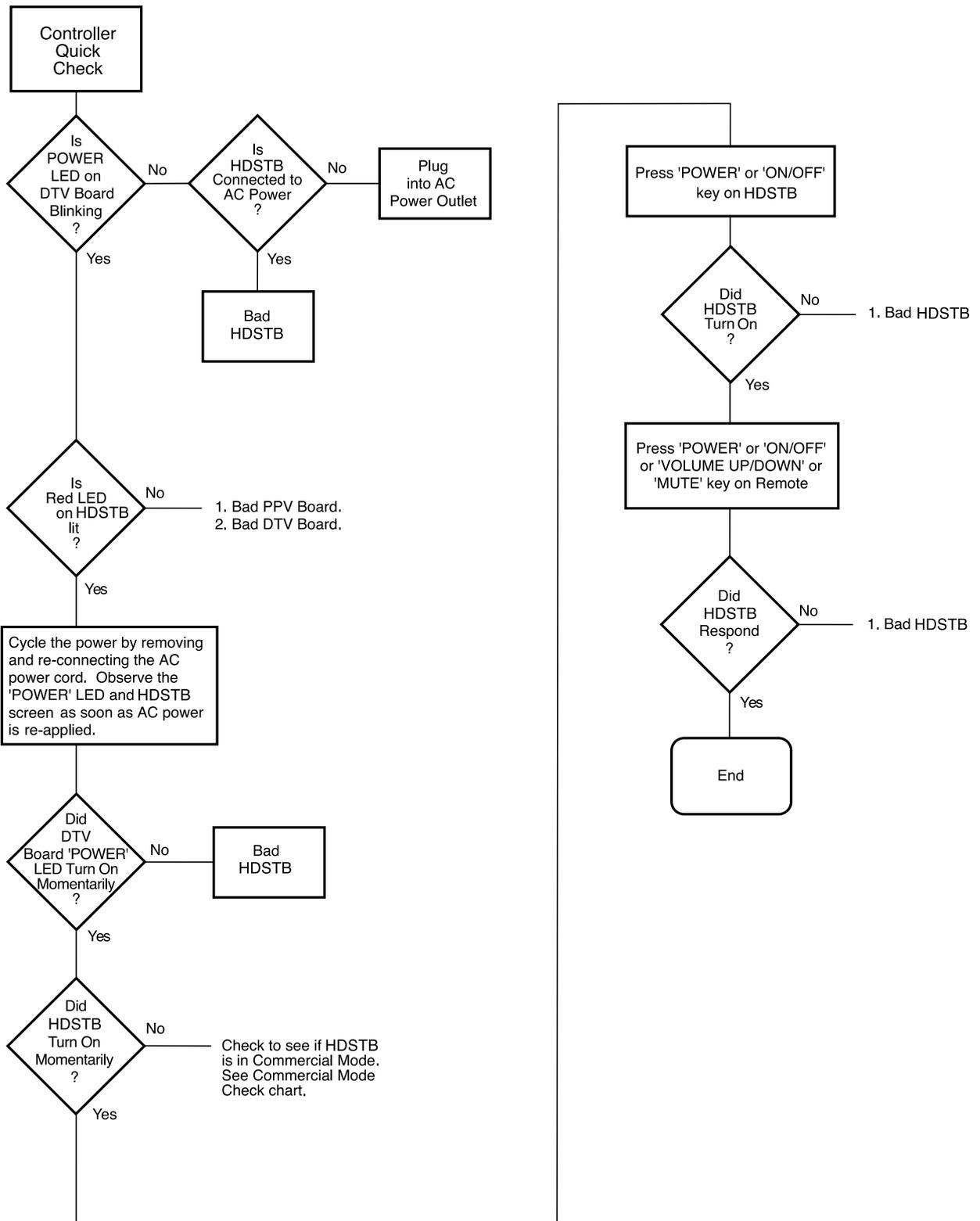
Problem	Possible Cause(s)	Possible Solution(s)
Remote does not operate clone.	<ul style="list-style-type: none">• Wrong Installer remote.	<ul style="list-style-type: none">- Only use an appropriate Installer remote to operate clone programmer with TV/STB.
LED does not blink.	<ul style="list-style-type: none">• M.P.I. cord not connected.• TV/STB not turned on.• Weak batteries.	<ul style="list-style-type: none">- Connect M.P.I. cord.- TV/STB must be powered On for clone to work.- Install 4 fresh AA high-quality alkaline batteries.
Clone menu hard to read.	<ul style="list-style-type: none">• Weak signal.	<ul style="list-style-type: none">- Connect TV/STB to a reliable Analog channel signal source.
No time set.	<ul style="list-style-type: none">• Time not available.	<ul style="list-style-type: none">- Set time on a TV, copy time to Clone Programmer.
Clone not working.	<ul style="list-style-type: none">• Clone programmer problem.	<ul style="list-style-type: none">- Try a different LT2002 Clone programmer.- Reset Clone Programmer.
Clone Scans Channels more than once.	<ul style="list-style-type: none">• Clone should only scan channels once.	<ul style="list-style-type: none">- Retry cloning again.

Master and Other TV/STB

Cloning did not work.	<ul style="list-style-type: none">• Procedure interrupted.• Different TV models.• Step(s) omitted or not performed.• Insufficient cloning time. • Cloning erratic.	<ul style="list-style-type: none">- Wait until procedure complete message is displayed.- Cloning is only possible with identical model TVs.- Reread 50 - 51 - 52 pages to be sure all tasks were performed.- Redo cloning and be sure learning/teaching time is about 1 min. and 5 to 15 seconds (75 seconds).- Reset Clone Programmer.
Clone time disappeared.	<ul style="list-style-type: none">• Batteries were removed.	<ul style="list-style-type: none">- Batteries must remain installed to retain time settings.
New Setup not present.	<ul style="list-style-type: none">• TV/STB not reset.	<ul style="list-style-type: none">- Disconnect newly cloned unit from power for 5 seconds.

- After cloning operations are complete, just unplug the LT2002 from the TV/STB.
- If the TV/STB does not display a picture on the TV (blank screen) after a few seconds, just change channels.

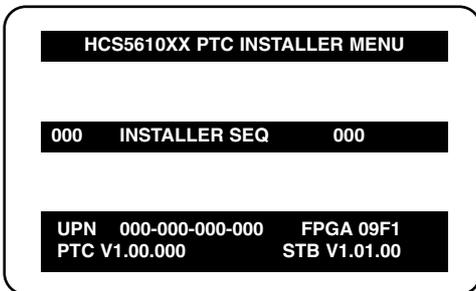
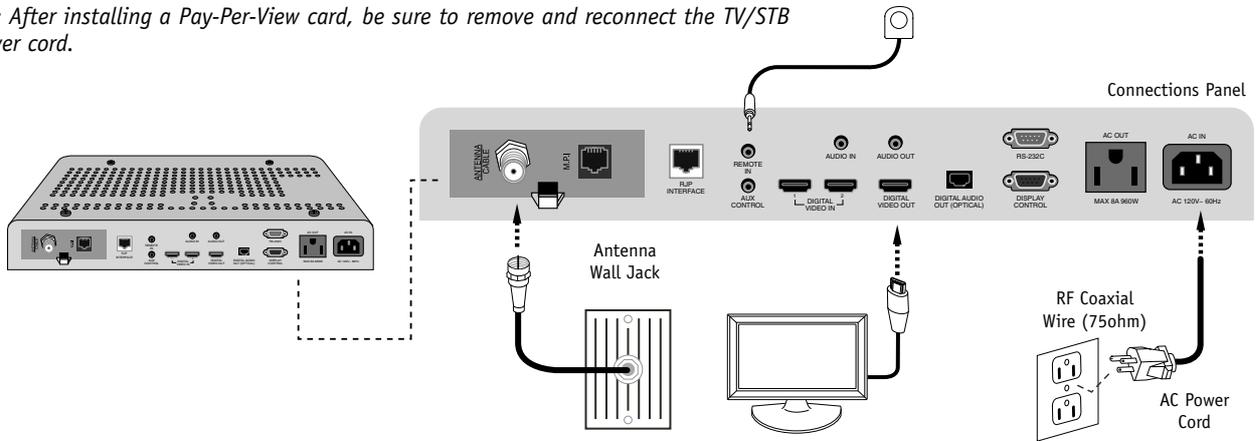
Troubleshooting Flow Chart



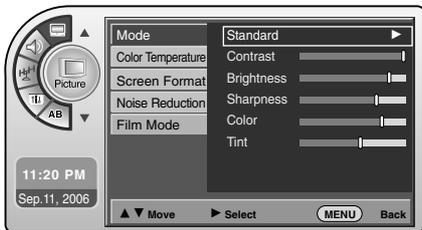
Installer Quick Setup Guide

See the installation and setup guide of the particular TV for more information.

***Note:** After installing a Pay-Per-View card, be sure to remove and reconnect the TV/STB AC power cord.



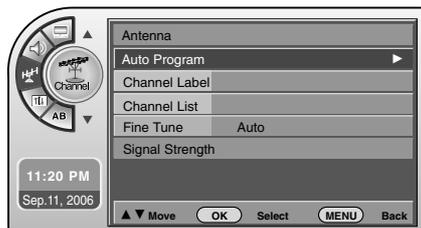
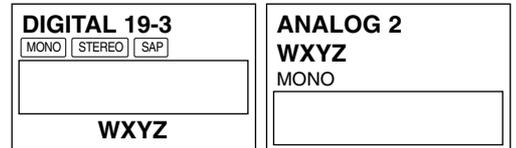
- 117 FACT DEFAULT 00X
- 003 BAND/AFC 00X
- 028 CH.OVERRIDE 001



Instructions for Making a Master TV/STB Setup

1. Connect TV/STB to signal source, connect power cords and turn on.
2. Enter the TV/STB installer menu.
 - *Note:** If this is not a new setup, set Installer item 117 to 001 and press Enter to reset TV to default condition.
 - Set Tuning Band.
 - Set Installer menu item **003 BAND/AFC** to CATV: 001, Broadcast: 000 etc.
 - If necessary, set Installer menu item **028 CH OVERRIDE** to **001**.
 - In addition, set any other installer items as required of your system.
 - Exit Installer menu.
3. Access the Master TV menus and set the clonable options on the menus to the desired configurations. Refer to the **Clonable Menu Features** Chart for the TV. (Picture, Sound, Time etc.)
4. Do a Channel Search; run Auto Program. (aka EZ Scan.)
5. Enter the Channel Edit menu and delete channels per your requirements.
6. Enter the Channel Label menu and assign ICONS to the channels.
 - *Note:** You can add Channel ICONs typically network logos like ABC, NBC, PBS etc. in this step. Or, in Step 8, add Channel ICONS or custom text labels for channels which Icons are available for.
7. Transfer the TV setup. After all menu options and features are set to your requirements, enter the installer menu. Press '2', '5', '5', 'MENU' to start the transfer of the TV's setup to the PTC.
 - After the transfer is complete, the system will exit the Installer menu.
8. Set any Channel Labels as needed.
 - a. Enter Installer menu.
 - b. Press '2', '5', '4', 'MENU' to enter the menu. In this menu edit the assigned channel Icons, assign custom text labels for channels and assign labels for active Aux sources. Press 'Menu' to exit.
9. Enter the Installer menu. Set item 028 Ch Override to 000 and exit menu.

028 CH. OVERRIDE 000



Glossary of Terms

A list of definitions for some of the words found in this guide

75 OHM RF CABLE

The wire that comes from an off-air antenna or cable service provider. The end looks like a hex-shaped nut with a wire sticking through the middle. It screws onto the Antenna/Cable threaded jack on the back of the TV/STB.

300 TO 75 OHM ADAPTER

A small device that connects a two-wire 300 ohm antenna to a 75 ohm RF jack. They are usually about an inch long with two screws on one end and a round opening with a wire sticking out on the other end.

ANALOG TELEVISION

Standard television broadcasting format in 4:3 picture aspect ratio.

A/V CABLES

Audio/Video cables. Three cables bunched together—right audio (red), left audio (white), and video (yellow). A/V cables are used for stereo playback of videocassettes and for higher quality picture and sound from other A/V devices.

A/V DEVICE

Any device that produces video or sound (VCR, DVD, cable box, or television).

AMPLIFIER

An electronic device that amplifies sound from a television, CD player, VCR, DVD, or other Audio/Video device.

ANTENNA

The physical receiver of television signals sent over the air. A large metal piece of equipment does not always have to be visible to be using an antenna.

CABLE

Cable service box. Refers to the descrambler box cable subscribers use to receive cable programming signals.

CATV

Programming provided by a cable service.

DIGITAL TELEVISION

High-resolution, cinema-quality television signals transmitted digitally.

DVI

Digital Video Interface
Accommodates analog and digital interfaces with a single connector.

COMPOSITE VIDEO

Typical video jack, uses one wire for transporting three-color video signals.

COMPONENT VIDEO

Uses three wires for transporting three-color video signals. The end result is usually better video quality.

DELETED

Lets you remove channels from the list that the end user can scroll through using CH (Channel) Up/Down.

HDMI

High-definition multimedia interface.

HDTV

High-definition television. Refers to television signals that have higher resolution than ordinary analog TV signals.

HDSTB

High-definition set top box. Refers to a tuner device that receives high-definition television signals which have higher resolution than ordinary analog TV signals.

INPUT

Refers to the input jack that receives a signal from a TV, VCR, DVD Player or other Audio/Video device.

JACK

An input or output connector on the back of a TV, VCR, DVD Player or other Audio/Video device.

MONO SOUND

Mono (monaural) sound is one channel of sound. On more than one speaker, all the speakers play the same audio.

OUTPUT

Refers to the output jack that sends a signal out of a VCR, DVD, or other A/V device.

PHYSICAL CHANNEL NUMBER

Actual digital major, dashed minor channel number that a station is broadcasting on.

RGB (Red, Green, Blue)

Connection input or output port available for producing a video image using three separate colors: Red, Green, and Blue.

2ND AUDIO PROGRAMMING/SAP

Second Audio Programming (SAP) is another, separate audio channel available with some programming. Choosing SAP often refers to listening to audio in another language, such as Spanish or French.

SIGNAL

Picture and sound traveling through a cable, or over the air, to the TV.

STEREO SOUND

Stereo (Stereophonic) sound refers to audio that's divided into right and left sides.

TUNER

Device that picks up the broadcast signal and turns it into picture and sound.

VIRTUAL CHANNEL NUMBER

The arbitrarily assigned digital dashed minor channel number that a station is broadcasting on.

Zenith HD Commercial Interface STB Warranty



HD Commercial Interface STB Welcome to the LG family! We believe that you will be pleased with your HD Commercial Interface STB. Please read this warranty carefully, it is a "LIMITED WARRANTY" as defined under Federal Law. This warranty gives you specific legal rights, and you may also have other rights that vary from state-to-state within the U.S.A.

LG'S RESPONSIBILITY

- Warranty Term** One year parts and labor from date of purchase or delivery date.
- Parts** New or remanufactured replacements for factory-defective parts may be used. Such replacement parts are warranted for the remaining portion of the original warranty period.
- Warranty Service** Warranty service is provided at LG. Customer pays for shipping charges to LG, LG pays for return shipping charges to return HD Commercial Interface STB to customer. Call **1-888-865-3026** for further information.
- Not Covered** This warranty covers manufacturing defects and does not cover installation, adjustment of customer controls, installation or repair of antenna systems, cable converters or cable company-supplied equipment; it also does not cover damage due to misuse, abuse, negligence, acts of God or other causes beyond the control of LG. Any alteration of the product after manufacture voids this warranty in its entirety.

THIS WARRANTY IS IN LIEU OF ANY OTHER WARRANTY, EXPRESS OR IMPLIED, INCLUDING WITHOUT LIMITATION, ANY WARRANTY OF MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE, AND LG SHALL NOT BE LIABLE FOR ANY CONSEQUENTIAL, INDIRECT, OR INCIDENTAL DAMAGES OF ANY KIND, INCLUDING LOST REVENUES OR PROFITS IN CONNECTION WITH THIS PRODUCT. SOME STATES DO NOT ALLOW LIMITATIONS ON HOW LONG AN IMPLIED WARRANTY LASTS OR THE EXCLUSION OR LIMITATION OF INCIDENTAL OR CONSEQUENTIAL DAMAGES, SO THE ABOVE LIMITATIONS OR EXCLUSIONS MAY NOT APPLY TO YOU.

OWNER'S RESPONSIBILITY

- Effective Warranty Date** Warranty begins on the date of delivery of the HD Commercial Interface STB.
For your convenience, keep the dealer's dated bill of sale or delivery ticket as evidence of the purchase date.
- Installation Guide** Read the Installation and Setup Guide carefully so that you will understand the operation of the HD Commercial Interface STB and how to adjust the controls.
- Antenna** Reception problems caused by inadequate antenna or faulty antenna connections are the owner's responsibility.
- Warranty Service** **For warranty service information, Call 1-888-865-3026.** Parts and service labor that are LG's responsibility (see above) will be provided without charge. Other service is at the owner's expense. If you have any problem in obtaining satisfactory warranty service, call **1-888-865-3026**.
You must provide the model number, serial number and date of purchase or date of original installation.

For Customer Support/Service
Please call:

1-888-865-3026

www.zenith.com
www.lgcommercial.com

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