INNOVATION IN QUALITY & DESIGN

ESSONI

47” FULL HD LCD TV

Operating Instructions

ES470FHD

Please read this manual carefully before operating your set.
Retain it for future reference.
Record model number and serial number of the set.
See the label attached on the back cover and quote this information to your dealer when you require service.

Before Using This Product

BEFORE USING THIS PRODUCT

PLEASE READ AND OBSERVE ALL THE WARNINGS AND CAUTIONS IN THIS USER' S MANUAL AND RETAIN IT FOR FUTURE REFERENCE.

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.

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

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 / CAUTION

To prevent fire or shock hazards, do not expose this product to rain or moisture.

FCC NOTICE

Class B digital device

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

ANY CHANGES OR MODIFICATIONS NOT EXPRESSLY APPROVED BY THE PARTY RESPONSIBLE FOR COMPLIANCE COULD VOID THE USER'S AUTHORITY TO OPERATE THE EQUIPMENT.

IMPORTANT SAFETY INSTRUCTIONS

Important safety instructions shall be provided with each apparatus. This information shall be given in a separate booklet or sheet, or be located before any operating instructions in an instruction for installation for use and supplied with the apparatus.
This information shall be given in a language acceptable to the country where the apparatus is intended to be used.
The important safety instructions shall be entitled “Important Safety Instructions”. The following safety instructions shall be included where applicable, and, when used, shall be verbatim as follows. Additional safety information may be included by adding statements after the end of the following safety instruction list. At the manufacturer’s option, a picture or drawing that illustrates the intent of a specific safety instruction may be placed immediately adjacent to that safety instruction:

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 a dry cloth.
7. Do not block any of the ventilation openings. Install in accordance with the manufacturers 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 third grounding prong. The wide blade or third prong are provided for your safety. When 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 a 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.
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 objects have fallen into apparatus, the apparatus has been exposed to rain or moisture, does not operate normally, or has been dropped.
15. This product may contain lead or mercury. Disposal of these materials may be regulated due to environmental considerations. For disposal or recycling information, please contact your local authorities or the Electronic Industries Alliance: www.eiae.org.

16. Damage Requiring Service - The appliance should be serviced by qualified service personnel when:
    A. The power supply cord or the plug has been damaged; or
    B. Objects have fallen, or liquid has been spilled into the appliance; or
    C. The appliance has been exposed to rain; or
    D. The appliance does not appear to operate normally or exhibits a marked change in performance; or
    E. The appliance has been dropped, or the enclosure damaged.
17. Tilt/Stability - All televisions must comply with recommended international global safety standards for tilt and stability properties of its cabinets design.
    • Do not compromise these design standards by applying excessive pull force to the front, or top, of the cabinet which could ultimately overturn the product.
    • Also, do not endanger yourself, or children, by placing electronic equipment/toys on the top of the cabinet. Such items could unsuspectingly fall from the top of the set and cause product damage and/or personal injury.
18. Wall or Ceiling Mounting - The appliance should be mounted to a wall or ceiling only as recommended by the manufacturer.
19. Power Lines - An outdoor antenna should be located away from power lines.
20. Outdoor Antenna Grounding - If an outside antenna is connected to the receiver, be sure the antenna system is grounded so as to provide some protection against voltage surges and built up static charges.
    Section 810 of the National Electric Code, ANSI/NFPA No. 70-1984, provides information with respect to proper grounding of the mats and supporting structure grounding of the lead-in wire to an antenna-discharge unit, size of grounding connectors, location of antenna-discharge unit, connection to grounding electrodes and requirements for the grounding electrode. See Figure below.
21. Objects and Liquid Entry - Care should be taken so that objects do not fall and liquids are not spilled into the enclosure through openings.

a) Warning: To reduce the risk of fire or electric shock, this apparatus should not be exposed to rain or moisture and objects filled with liquids, such as vases should not be placed on this apparatus.

22. Battery Usage CAUTION - To prevent battery leakage that may result in bodily injury, property damage, or damage to the unit:

• Install all batteries correctly, with + and - alignment as marked on the unit.
• Do not mix batteries (old and new or carbon and alkaline, etc.)
• Remove batteries when the unit is not used for a long time.

FEATURES OF THIS TV

❑ **High Digital Broadcasting Support**

This TV is designs to receive and process High Definition TV (1920x1080p) with built-in digital tuner.
- Easy to use and convenient to connect to other digital devices.
- Better picture quality than conventional digital TVs.

❑ **Electronic Program Guide**

Electronic Program Guide (EPG) is the very convenient feature to display the channel information for the digital TV program, which enables you to check the programs with reference to Date, Time, and Channels.

❑ **Favorite Channel / Virtual Channel**

Favorite Channel helps you to create your own favorite channel list using Channel Editing Window and watch what you only want:
- Favorite Channel: After scanning all the available channels on broadcast, you can sort or manage the channels as your favorite ones. Once they are registered as favorite, you can easily change the channels among them.
- Virtual Channel: Without this feature, normally, HD Supported Channel are stored and assigned at high number of channel. For Example, some channel in Analog is Channel Number 6 while its HD Channel is 83. However, with this feature, HD Channel will be assigned virtually as 6-1 and easily recognized while analog channel is 6.

❑ **PiP (Picture in Picture) and Dual Screen**

This TV provides PIP (Picture-in-Picture) and dual screen modes.
- In PIP mode, you can change PIP source, PIP position, and PIP size. Additionally, you can swap main picture and PIP picture. If PIP source is TV mode, you can change channels, too.
- In dual screen mode, you can also change PIP source and swap main picture and sub picture. If either main picture is in TV mode or sub picture is in TV mode, you can change channels by CH + and CH - keys.

❑ **SuperSlim™ Technology**

The SuperSlim™ Technology makes it easy to install your TV display in a variety of locations where conventional TVs do not fit.

The TV is a high-tech product composed of over 2 millions of thin-film transistors. A few cell defects will normally occur in the LCD manufacturing process. Several tiny, minute colored dots visible on the screen should be acceptable, which means no adverse effect on the monitor's performance.

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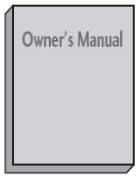
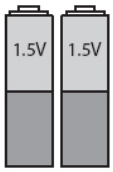
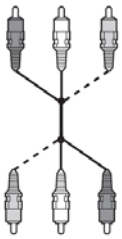
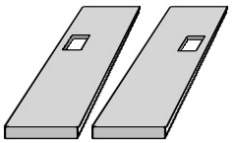
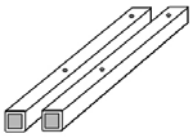
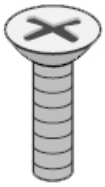
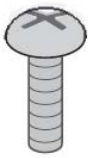
Getting Started

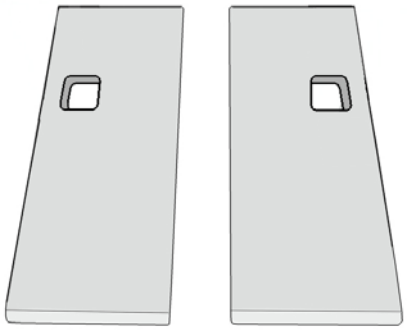
Preparation

❑ *Accessories*

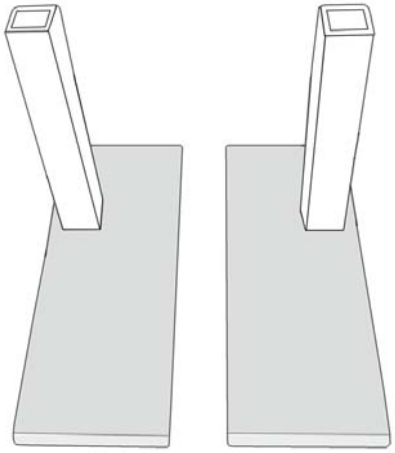
Ensure that the following accessories are included with your product. If an accessory is missing, please contact the dealer where you purchased the product.

				
User's Instruction	Remote Control	2 AA Batteries	Power Cable	AV cable
				
USB gender	2 Stands	2 Stand bars	2 M8*20 screws	4 M6*20 screws

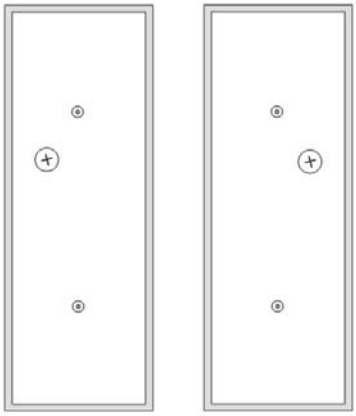
❑ *Stand Installation*



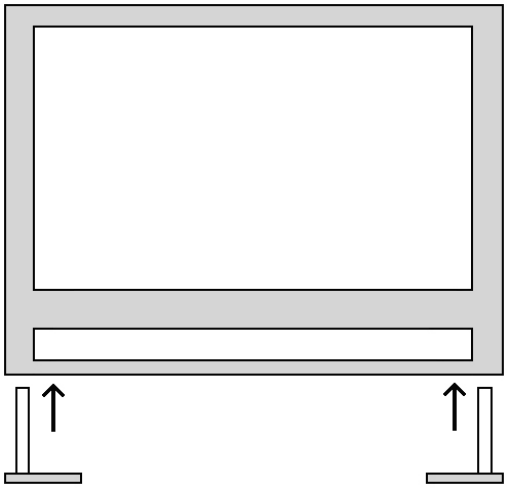
1. Place two stands on a stable surface.
   Make sure Left and right are properly placed.



2. Assemble the stand with the stand bars as shown.
   Make sure that the hole for bolt should be located at the back side of the stand bar.



3. Install the 2 bolts securely, on the bottom of the stands in the holes provided.

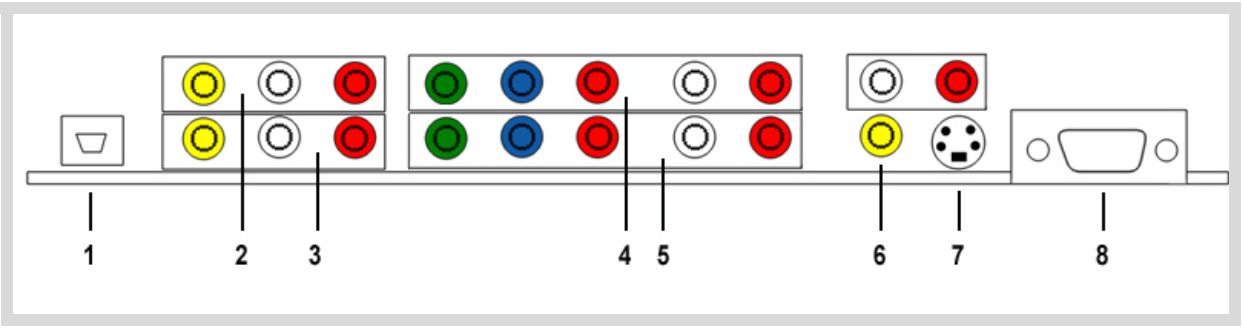


4. Insert stand set into the holes provided at the bottom of the TV carefully.

❑ *Side Panel*

Button	*Description*
MENU	Press to display MENU with TV functions
SOURCE	Change input sources. In MENU screen, this key is used for selecting to or toggling current settings
VOLUME	Adjust sound level or set the value while On Screen Menu is active
CHANNEL	Change channel or navigate while On Screen Menu is active
POWER	Press to turn on and off the TV

❑ *Rear Panel*

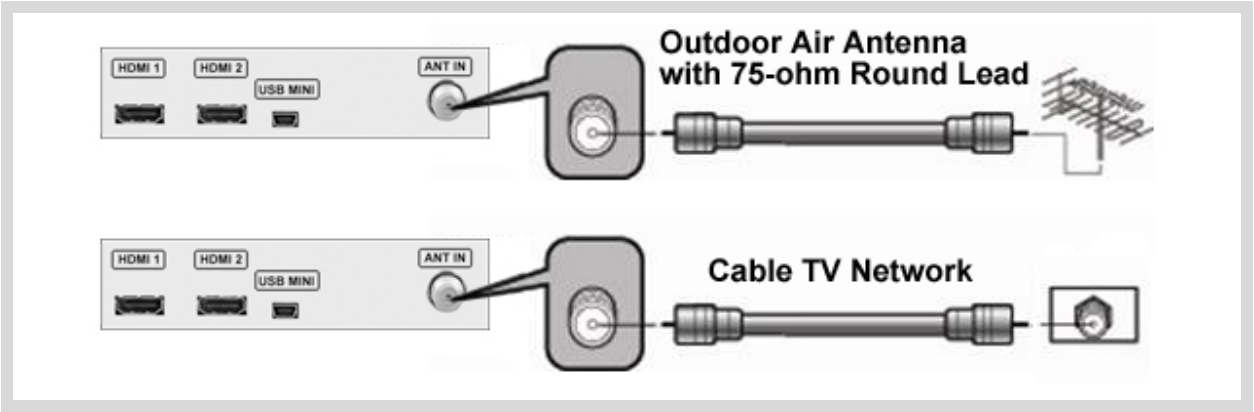


① Digital Audio Out
② Composite 1 (AV1) In
③ Composite Out
④ Component 1 (AV4) In
⑤ Component 2 (AV5) In
⑥ Composite 2 (AV2) In
⑦ S-Video (AV3) In
⑧ PC RGB (AV6) In

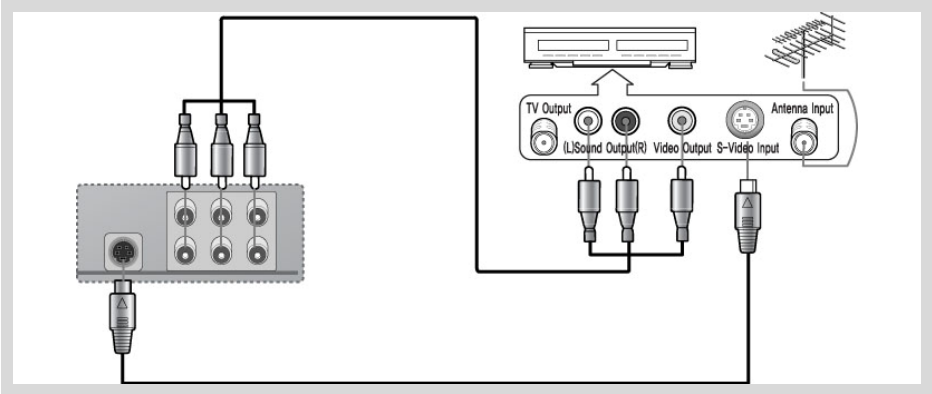
External Equipment Settings

❑ *Connecting an Antenna*

Connect an Outdoor Air Antenna / Cable Television Network with SPDIF (Optical) Output (refer rear panel information) without a Cable Box Connections. For optimum picture quality, adjust antenna direction if needed.



❑ *Connecting a VCR*



❶ When you connect Audio/Video composite cables using composite cable, please make sure of the colors of the jacks. (Video should be connected to yellow, audio to white and red).

❷ Using S-Video Cable: If the VCR, you have, supports S-Video Output, connect S-Video Input of the LCD to S-Video Output of the VCR and do the same in Sound cable (White and Red).

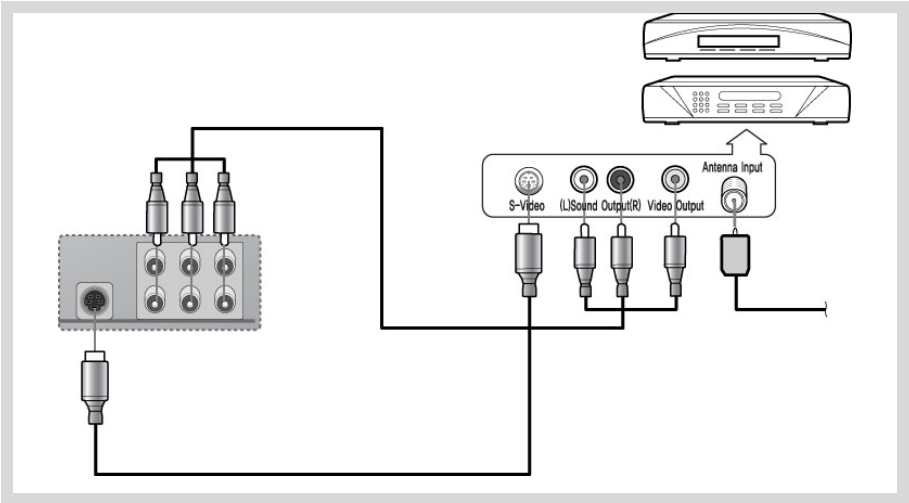
TIP

To Watch VCR

1. Turn on the TV and press “SOURCE” button on the remote control to select the connected input mode.
2. Turn on the VCR, insert a video cassette then press “Play” button.

❑ ***Connecting the cable TV or satellite with a set-top box***

Plug the Antenna cable with 75-Ohm Round Lead into the Antenna Input terminal of the Cable Box / Satellite Receiver.



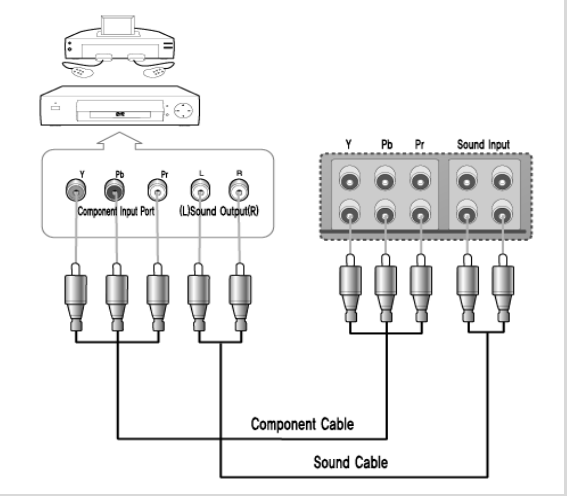
❶ Using Composite (A/V) Cable

- Video Connection: Connect the Video Input port of the LCD TV to the Video Output port of the Cable Box / Satellite Receiver with the Composite cable. The color of Video Cable and Output Port are in Yellow.
- Sound Connection: Connect the Sound Input port of the LCD TV to the Sound Output Port of the Cable Box / Satellite Receiver with Composite cable. The color of Sound Cable and Output Ports are in White and Red.

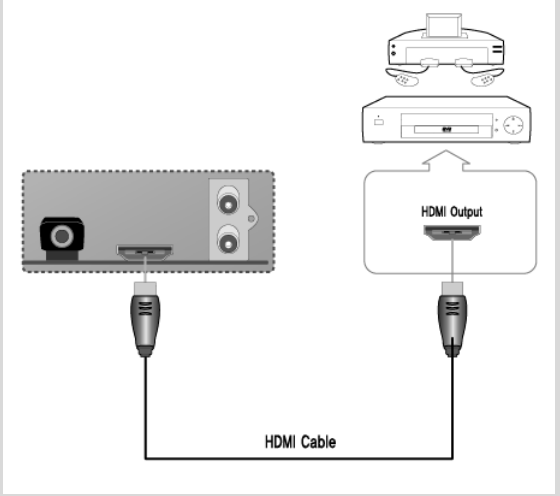
❷ Using S-Video Cable (While S-Video is supported)

- Video Connection: Connect the S-Video Input port of the LCD TV to the S-Video Output port of the Cable Box / Satellite Receiver by using S-Video cable.
- Sound Connection: Connect the Sound Input port of the LCD TV to the Sound Output Port of the Cable Box / Satellite Receiver with Sound Cable. The color of Sound Cable and Output Ports are in White and Red.

❑ C*onnecting a DVD player*



Component Connection



HDMI Connection

❶ Using Component Cable (Green, Blue & Red Color).

- Video Connection: Connect the Component Input port of the LCD TV to the Component Output port of the DVD Player / Video Game Machine with the Component cable. The color of the Cable and the In/Out Ports are in Green, Blue & Red Color accordingly.
- Sound Connection: Connect the Sound Input port of the LCD TV to the Sound Output Port of the DVD Player / Video Game Machine with Composite cable. The color of Sound Cable and Output Ports are in White and Red. In this case, the sound ports are generally located by the component ports.

* Component Connection is also required to connect sound L/R properly. If fails, there will be no sound.

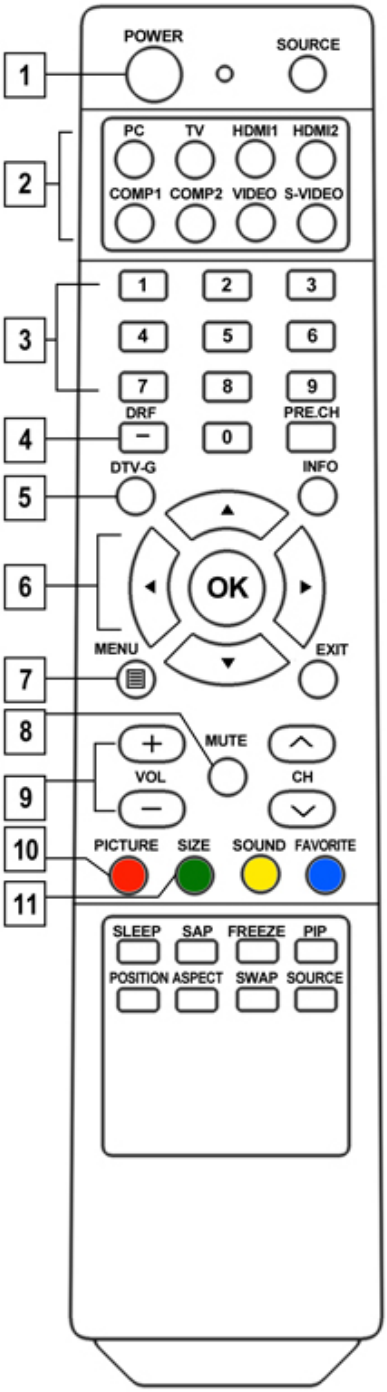
❷ Using HDMI (Source) to HDMI Cable:
This is only where both of devices have HDMI Port. Since HDMI deliver sound signal with its video signal, no additional connection requires for sound.

TIP

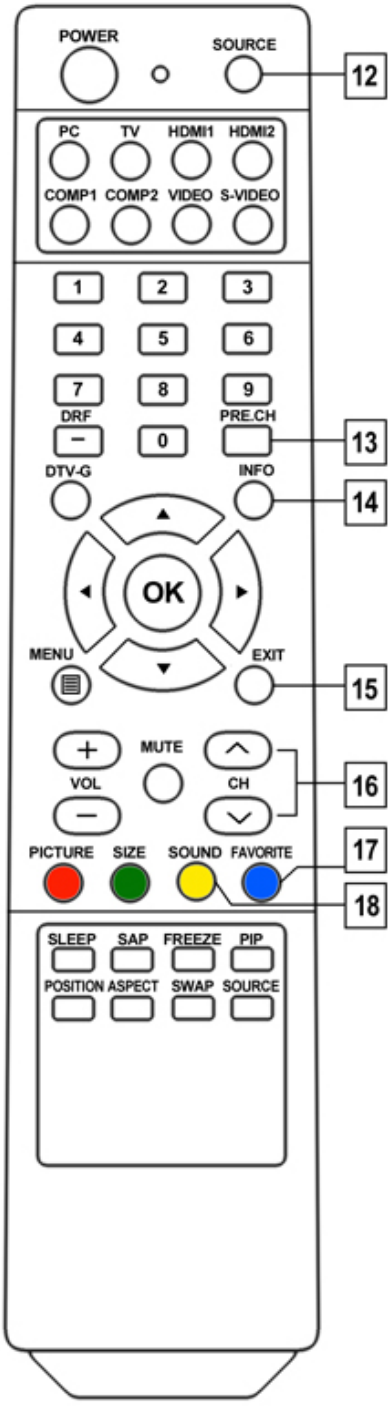
To watch DVD / Play Video Game Machine
1. Turn on the LCD TV and press [SOURCE] button on the remote control and select correct input source.
2. Turn on the DVD Player and press [Play] button

Remote Control

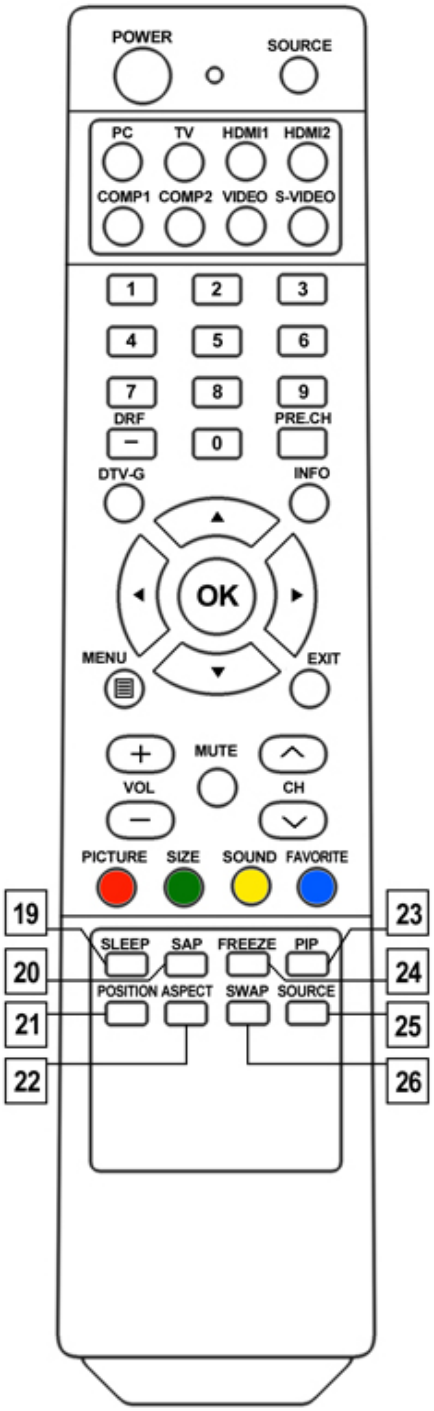
❑ *Remote Control Functions*



Button	*Description*
1. POWER	Power on/off.
2. INPUT SELECTION	Press to select the input source directly. PC / TV (Air, Cable) / HDMI1 / HDMI2 / COMPONENT 1 / COMPONENT 2 / VIDEO / S-VIDEO
3. NUMBER	Press 0 – 9 to select a channel. The channel changes after 2 seconds. Press OK to change channels immediately.
4. DRF	Virtual channel separator.
5. DTV-G	Single channel EPG (Electronic Program Guide).
6. ▲/▼/▶/◀ **OK**	Press to move OSD (Up /Down/ Right /Left). While using the on-screen menus, press to select or change a particular function.
7. MENU	Press to display the on-screen menus, or to exit the on-screen menus.
8. MUTE	Press to mute for speaker output. In mute status, if you press volume up key or tune off and turn on power, mute will be released.
9. VOL- **VOL+**	Volume up & down.
10. PICTURE	Press repeatedly to cycle through the available picture modes: Custom, Standard, Mild, Vivid, and Multimedia.
11. SIZE	Press to select the screen size. 16:9, 4:3, Zoom1, Zoom2, and Panorama are available.



Button	*Description*
12. SOURCE	The following input selection is available. TV(Air, Cable), AV1(CVBS), AV2(CVBS), AV3(S-Video), AV4(Component), AV5(Component), AV6(VGA), AV7(HDMI), AV8(HDMI)
13. PRE.CH	Press to alternate between the current channel and the last channel that was displayed.
14. INFO	Press to display the information of current channel.
15. EXIT	Press to exit from any on-screen display at a time.
16. CH- CH+	Channel up & down.
17. FAVORITE	Press to switch to your favorite channels.
18. SOUND	Press to change the pre-defined sound modes: Custom, Standard, Movie, Music, and Speech.



Button	*Description*
19. SLEEP	Press to set sleep timer.
20. SAP	Press to select available “SAP” or “audio languages”. ● In digital channel: Depending on the particular broadcast, one or more foreign language translation maybe available. In analog channel: It is available about Mono, Stereo and SAP.
21. POSITION	Press to change the position of PIP. Four positions are available. Left-top, right-top, right-bottom, left-bottom.
22. ASPECT	Press to toggle the size of PIP (large and small).
23. PIP	Press to change PIP/DW modes. Possible modes: Normal (no PIP/no DW), PIP, DW (DW: Double window or Picture-and-Picture).
24. FREEZE	Press to freeze the current picture. Press again to resume motion. If you change the channel, the frozen picture will be released.
25. SWAP	Press to swap the main/sub pictures.
26. SOURCE	Press to change the input source of PIP/DW for selecting sub picture.

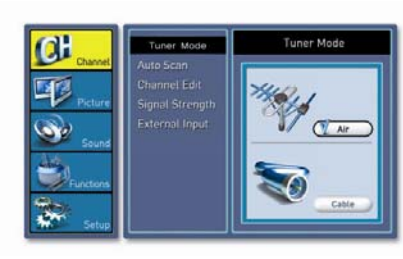
Using the Menu

Channel Settings

❑ *Selecting Tuner Mode*

You can choose the RF-input between off-air and cable.

1. Select “Channel” in the Menu



Press the MENU button.

Press the ▲ or ▼ on the remote control to highlight the “Channel” icon.

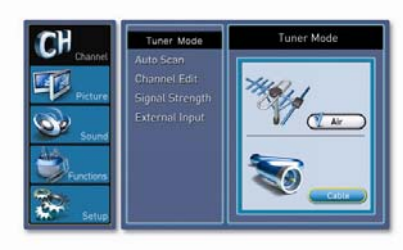
Press the ▶ or OK button.

2. Select “Tuner Mode”

Press the ▲ / ▼ button on the remote control to highlight the “Tuner Mode” icon.

Press the ▶ or OK button.

3. Tuner Mode



Press the ▲ / ▼ button to move to Air / Cable you want.

❑ *Storing Channels Automatically*

❶ Your TV can memorize and store all of the available analog/digital broadcast signals for both “off-air” (antenna) and cable channels.

❷ Before your television can begin memorizing the available channels, make sure to specify the type of the signal source (antenna or cable) connected to your TV.

1. Select “Channel” in the Menu

MENU ▪▪▶ Press the MENU button.

▪▪▶ Press the ▲ or ▼ button to highlight the “Channel” icon

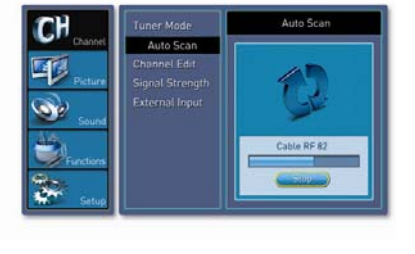
▪▪▶ Press the ▶ or OK button.

2. Select “Auto Scan”

▪▪▶ Press the MENU button.

Press the ▲ or ▼ button to highlight the “Auto Scan” icon and press the ▶ or OK button.

3. Auto Scan



OK

Press the OK button and Auto Scan is activated.

TIP

- If you want to stop the Auto Scan during scanning, press the OK button once more.
- As soon as Auto Scan is run, all previously stored channels are removed and newly scanned channels are stored.
- If you have changed the connection of an antenna or cable, perform Auto Scan again.
- If the scrambled channel is detected, it is not added in channel list.

Setting Channel Edit / Favorite Channels

Users can store frequently watched channels to quickly access a preferred channel.

1. Select “Channel” in the Menu

MENU ▪▪▶ Press the MENU button.

▲▼◀▶ ▪▪▶ Press the ▲ or ▼ on the remote control to highlight the “Channel” icon

▲▼◀▶ ▪▪▶ Press the ▶ or OK button.

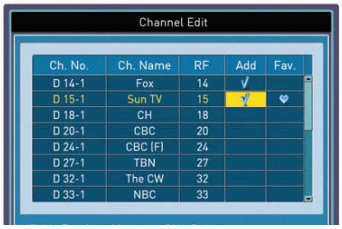
2. Select “Channel Edit”

▲▼◀▶ ▪▪▶ Press the ▲ or ▼ on the remote control to highlight the “Channel Edit” icon.

▲▼◀▶ ▪▪▶ Press the ▶ or OK button.

OK

3. Channel Edit



▲▼◀▶ ▪▪▶ Press the ▲ / ▼ / ◀ / ▶ button to move to desired channel and

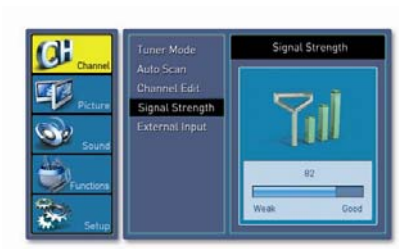
OK

Press the OK button to activate or deactivate the channel on your channel list or delete from your favorite list.

❑ *Displaying Signal Strength*

The function is only for Digital TV channels.

1. Select “Channel” in the Menu



Press the MENU button.

Press the ▲ or ▼ on the remote control to highlight the “Channel” icon

Press the ▶ or OK button.

2. Select “Signal Strength”

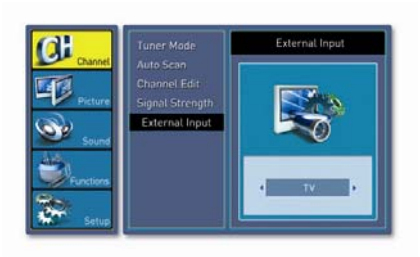
Press the ▲ or ▼ on the remote control to highlight the “Signal Strength” icon.

TIP

Digital channels will either have excellent reception or none at all. It is quite unlike analog reception, which can vary in reception quality from snowy to clear.

❑ *Setting the Input Mode*

1. Select “Channel” in the Menu



MENU ▪▪▶ Press the MENU button.

▪▪▶ Press the ▲ or ▼ on the remote control to highlight the “Channel” icon

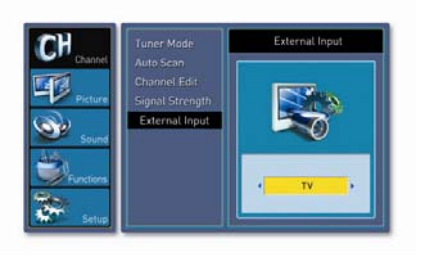
▪▪▶ Press the ▶ or OK button.

2. Select “External Input”

▪▪▶ Press the ▲ or ▼ on the remote control to highlight the “External Input” icon.

▪▪▶ Press the ▶ or OK button.

3. External Input



▪▪▶ Press the ◀ / ▶ button on remote control to adjust desired settings.

TIP

Press MENU button after the setting is done, and cursor goes to the previous Menu.

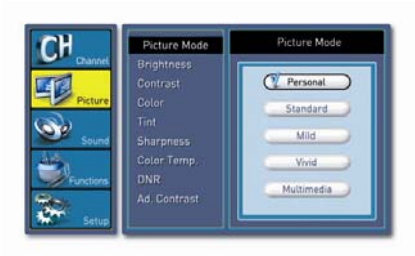
You can set the input mode quickly using SOURCE button on the remote control

Using the Menu

Picture Settings

❑ *Adjusting Picture Mode*

1. Select “Picture” in the Menu

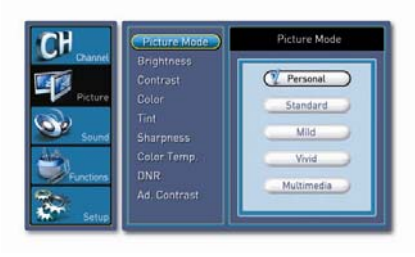


MENU ▪▪▶ Press the MENU button.

Press the ▲ or ▼ on the remote control to highlight the “Picture” icon.

Press the ▶ or OK button.

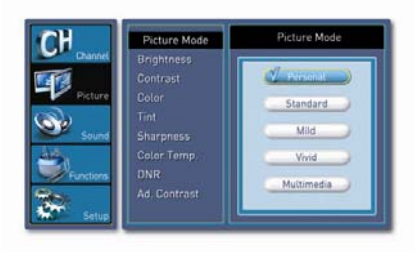
2. Select “Picture Mode”



Press the ▲ or ▼ on the remote control to highlight the “Picture Mode” icon

Press the ▶ or OK button.

3. Picture Mode



Press the ▲ / ▼ button on remote contro to adjust desired settings.

TIP

The adjustment of Contrast, Brightness, Sharpness, Saturation and Tint, Color Temp, DNR,Backlight Control and RGB is allowed only in the Personal mode.

Personal : When the user wants to directly set the values
Standard : Most video contents are appropriate to this mode.
Mild : Soft display.
Vivid : Clear and Vivid display.
Multimedia: Good for multimedia display.

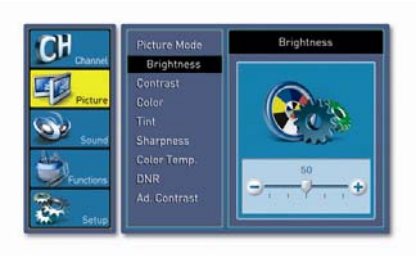
TIP

User enjoy picture mode by factory in the favor of user. In the other mode but personal mode, if user change, Brightness, Saturation, Contrast, Sharpness, Tint, Color Temp, RGB, DNR and Backlight control, the picture mode will go to the custom mode automatically.

❑ *Setting the Desired Picture / DNR*

Users can manually adjust their desired picture.

1. Select “Picture” in the Menu

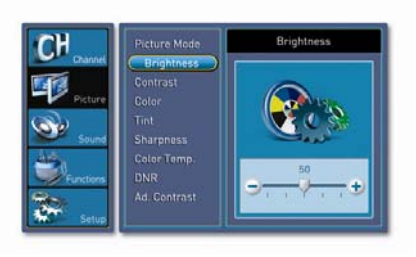


MENU ▪▪▶ Press the MENU button.

Press the ▲ or ▼ on the remote control to highlight the “Picture” icon

Press the ▶ or OK button.

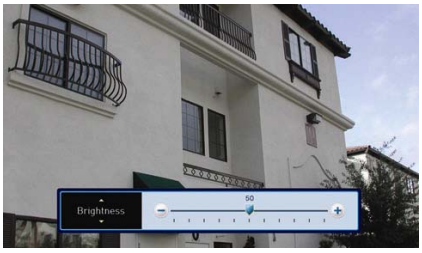
2. Select “Brightness”



Press the ▲ or ▼ on the remote control to highlight the “Brightness” icon

Press the ▶ or OK button.

3. Brightness



Press the ◀ / ▶ button on remote control to adjust desired settings.

OK

TIP

Brightness: Adjust the brightness of the entire picture.
Saturation: Adjust colors into deeper or lighter colors.
Contrast: Adjust the brightness and darkness of object and background.
Sharpness: Adjust clarity of outline of objects.
Tint: Adjust colors naturally.
Color Temp.: Whenever You Press left or right button, the mode changes in following order: NORMAL, WARM and COOL.
DNR (Digital Noise Reduction): Reduce the Digital Noise.

❑ *Selecting the Aspect Ratio*

Users can manually adjust size of the screen.

❶ When the broadcaster is transmitting a 4:3 feed.
>> 16:9, 4:3, Zoom1, Zoom2 and Panorama modes are available.

4:3 Source

16:9

4:3

If source is 4:3, side bar is added to make 16:9 picture.

Zoom1

If source is 4:3, picture is cropped by 16:9 region.

Zoom2

Panorama

Picture is cropped 4:3 region and nonlinearly stretched.

❷ When the broadcaster is transmitting a 16:9 feed.

>> 16:9, 4:3, Zoom1, Zoom2 and Panorama modes are available.

16:9 Source

16:9

Picture is linearly compressed to 75% on the horizontal.

4:3

Zoom1

If source is 16:9, picture is linearly stretched 133% on the vertical.

Zoom2

Panorama

Picture is cropped 4:3 region and nonlinearly stretched.

According to input sources, some picture modes are not supported. See below.

	16:9	4:3	Zoom1	Zoom2	Panorama
Analog TV	0	0	0	0	0
Digital TV	0	0	0	0	X
AV1~2(Composite)	0	0	0	0	0
AV3(S-Video)	0	0	0	0	0
AV4~5(Component)	0	0	0	0	0
AV6(PC)	0	0	X	X	X
AV7~8(HDMi)	0	0	0	0	X

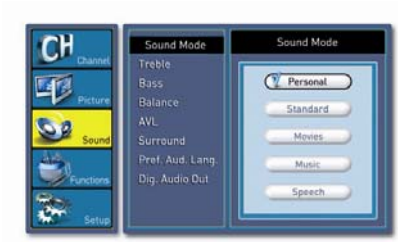
Using the Menu

Sound Settings

❑ *Selecting the Sound Mode*

Users can adjust sound mode automatically.

1. Select “Sound” in the Menu



Press the MENU button.

Press the ▲ or ▼ on the remote control to highlight the “Sound” icon.

Press the ▶ or OK button.

2. Select “Sound Mode”

Press the ▲ or ▼ on the remote control to highlight the “Sound Mode” icon.

Press the ▶ or OK button.

3. Sound Mode

Press the ▲ / ▼ button on remote contro to adjust desired settings.

TIP

Custom: When the user wants to set the sub menu item value.
Standard: General sound mode. This fits most audio contents.
Movie: Select Movies when watching movies.
Music: Select Music when watching music video.
Speech: Select Speech when watching news.

❑ *Adjusting the Desired Audio Mode*

Users can adjust sound mode manually.

1. Select “Sound” in the Menu

Press the MENU button.

Press the ▲ or ▼ on the remote control to highlight the “Sound” icon.

Press the ▶ or OK button.

2. Select “Treble”

Press the ▲ or ▼ on the remote control to highlight the “Treble” icon.

Press the ▶ or OK button.

3. Treble

Press the ◀ / ▶ button on remote control to adjust desired settings.

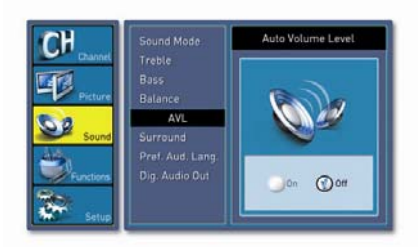
TIP

Treble: Adjusts the range size of high sound.
Bass: Adjusts the range size of low sound.
Balance: Adjusts the balance of left and right speakers.

❑ *Selecting the Automatic Volume Level (AVL)*

With this Automatic Volume Level, users can control the dynamic range for better listening environment such as night-time listening mode.

1. Select “Sound” in the Menu



MENU ▪▪▶ Press the MENU button.

Press the ▲ or ▼ on the remote control to highlight the “Sound” icon.

Press the ▶ or OK button.

2. Select “AVL”

Press the ▲ or ▼ on the remote control to highlight the “AVL” icon

Press the ▶ or OK button.

3. AVL

Press the ◀ / ▶ button button to set to the “On” or “Off.”

TIP The default is “Off”.

❑ *Setting Audio Language*

While watching a digital program, you can listen to foreign language if the program is supported with foreign language.

1. Select “Sound” in the Menu

MENU ▪▪▶ Press the MENU button.

Press the ▲ or ▼ on the remote control to highlight the “Sound” icon.

Press the ▶ or OK button.

2. Select “Audio Language”

Press the ▲ or ▼ on the remote control to highlight the “AVL” icon.

Press the ▶ or OK button.

3. Audio Language

Whenever you press ◀ / ▶ button, the mode shifts in following order: English, French, and Spanish.

TIP

How to Directly Select Audio Language: Press the SAP button.

- You can select MONO, STEREO or SAP when receiving analog signals.
- You can select one of the languages listed you prefer when receiving digital signals.
- Whenever you press button, the available audio languages are shifted and heard when receiving DTV signal.
- If selected default language is unavailable, the primary audio source will be heard only.
- If broadcaster does not transmit language identifier or broadcasts another language aside from English, Spanish or French, then available multiple tracks are shown as Audio1, Audio2, etc.

❑ *Setting the Digital Audio Output*

The digital audio output terminal allows you to enjoy digital sound.

1. Select “Sound” in the Menu

Press the MENU button.

Press the ▲ or ▼ on the remote control to highlight the “Sound” icon.

Press the ▶ or OK button.

2. Select “Digital Audio Out”

Press the ▲ or ▼ on the remote control to highlight the “Digital Audio Out” icon

Press the ▶ or OK button.

3. Digital Audio Out

Whenever you press ◀ / ▶ button, the mode shifts in following order: Dolby Digital and PCM.

TIP

- Manufactured under license from Dolby Laboratories.
  “Dolby Digital” and the double-D symbol are trademarks of Dolby Laboratories
- Dolby Digital is only available in Digital TV.

Using the Menu

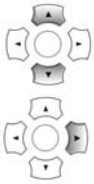
Functions

❑ *Setting the Auto Lock*

This function is used to prevent from using the control buttons on the front top of the TV or from connecting external devices to the TV. You make sure to set a PIN number to use this function.

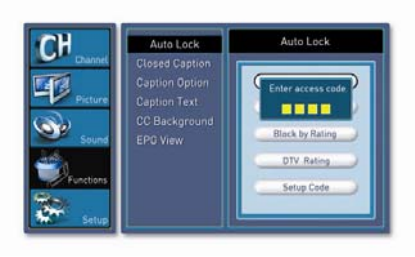
1. Select “Function” in the Menu

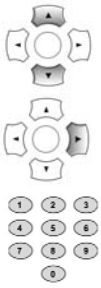
Press the MENU button.



Press the ▲ or ▼ on the remote control to highlight the “Function” icon and press the ▶ or OK button.

2. Select “Auto Lock”

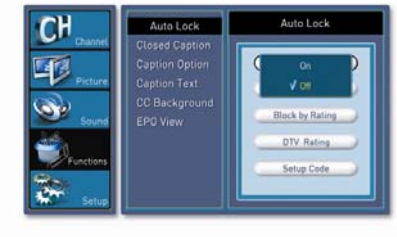




Press the ▲ or ▼ on the remote control to highlight the “Auto Lock” icon and press the ▶ or OK button.

Then the Enter PIN number window appears.
The default is 4 digits (0-0-0-0).

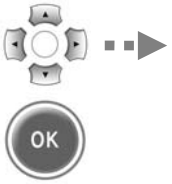
3. Set Blocking



Press the ▲ or ▼ on the remote control to highlight the “Set Blocking” icon and press the ▶ or OK button.

Press the ▲ or ▼ button on the remote control to highlight “ON” or “Off” and press the OK button to make a selection

4. Channel Blocking

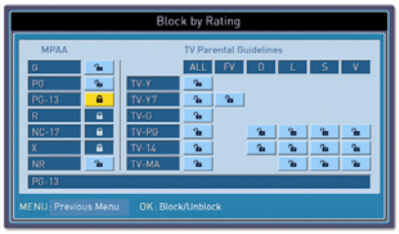


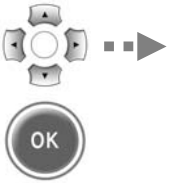
Press the ▲ or ▼ on the remote control to highlight the “Channel Blocking” icon and press the ▶ or OK button.

Press the ▲ or ▼ button to move to the item you want.

Press the OK button to lock or to unlock the channel on cursor. If the item is unlocked, such channel of the item is blocked.

5. Block by Rating

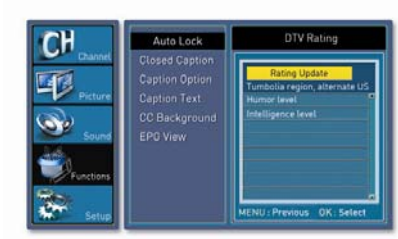


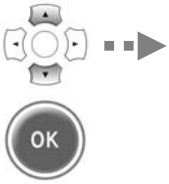


Press the ▲ or ▼ on the remote control to highlight the “Block by Rating” icon and press the ▶ or OK button.

Press the ▲ / ▼ / ◀ / ▶ buttons on the remote control to highlight the item that you want to lock or unlock and press the OK button.

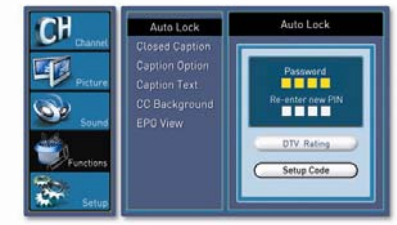
6. DTV Rating





Press the ▲ or ▼ on the remote control to highlight the “DTV Rating” icon and press the ▶ or OK button.

7. Setup Code



Enter and re-enter your new PIN by pressing the NUMBER buttons on the remote control.

TIP

If you input correctly PIN in rating or channel blocking message box, blocking message box is not shown until power off and on.

❑ ***Setting Block by Rating***

This (V-Chip) is used to block program viewing based on the ratings sent by the broadcasting station. The default setting is to allow all programs to be viewed. Viewing can be blocked by the type of program and by the categories chosen to be blocked.

V-Chip rating and categories
Rating guidelines are provided by broadcasting stations. Most television programs and television movies can be blocked by TV Rating and/or Individual Categories. Movies that have been shown at the theaters or direct-to-video movies use the Movie Rating System (MPAA) only.

Ratings for Movies previously shown in theaters

Movie Ratings:	- Blocking Off	(Permits all programs)
	- G	(General audience)
	- PG	(Parental guidance suggested)
	- PG-13	(Parents strongly cautioned)
	- R	(Restricted)
	- NC-17	(No one 17 and under admitted)
	- X	(Adult only)

If you set PG-13 : G and PG movies will be available, PG-13, R, NC-17 and X will be blocked.

Ratings for Television programs including made-for-TV movies:

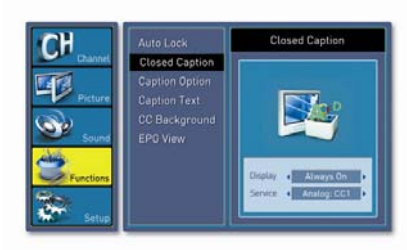
- TV-G (General audience)
- TV-PG (Parental guidance suggested)
- TV-14 (Parents strongly cautioned)
- TV-MA (Mature audience only)
- TV-Y (All children)
- TV-Y7 (Children 7 years older)

TV Rating Children:	- Age	(applies to TV-Y, TV-Y7)
	- Fantasy Violence	(applies to TV-Y7)

TV Rating General :	- Age	(applies to TV-G, TV-PG, TV-14, TV-MA)
	- Dialogue-sexual dialogue	(applies to TV-PG, TV-14)
	- U Language-adult language	(applies to TV-PG, TV-14, TV-MA)
	- Sex-sexual situations	(applies to TV-PG, TV-14, TV-MA)
	- Violence	(applies to TV-PG, TV-14, TV-MA)

❑ *Setting the Closed Caption*

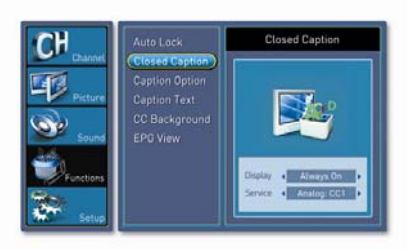
1. Select “Function” in the Menu



Press the MENU button.

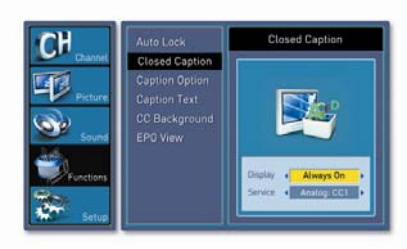
Press the ▲ or ▼ on the remote control to highlight the “Function” icon and press the ▶ or OK button.

2. Select “Closed Caption”



Press the ▲ or ▼ on the remote control to highlight the “Closedn Caption” icon and press the ▶ or OK button.

3. Caption



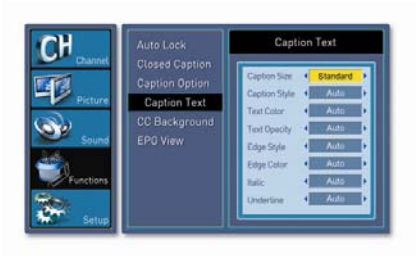
Display mode is highlighted.
Press the ◀ / ▶ buttons to select “Off” or ”Always On”.
If “Always on” was selected, press the ▼ button on the remote control to highlight the Service mode.
Press the ◀ / ▶ button to select the desired item. If “Off” was selected, you can’t select Service mode.

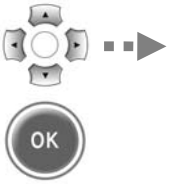
4. Caption Option

Press the ▲ / ▼ button on the remote control to highlight the “Caption option” icon and press the ▶ or OK button.

Press the ◀ / ▶ button to select “Option” or “Default” and press the OK button to make a selection.

5. CaptionText



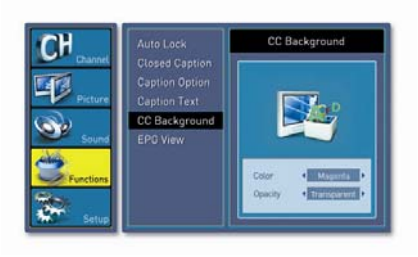


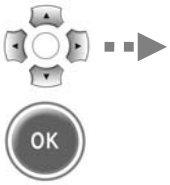
In caption option, if “Options” is selected, “Caption Text” is highlighted.

To select Caption Text, press the ▲ / ▼ button and press the ▶ or OK button.

Press the ▲ / ▼ button to select the Caption Size, Caption Style, Text Color, Text Opacity, Edge Style, Edge Color, Italic or Underline.

6. CC Background





In caption option, if “Options” is selected, “CC Background” is highlighted.

To select CC Background, press the ▲ / ▼ button and press the ▶ or OK button.

Press the ▲ / ▼ button to select the “Color” or “Opacity”.

Press the ◀ / ▶ button to select the item that you want.

❑ ***Viewing the Closed Caption***

Choices in the closed caption menu are: CC Mode, Priority (Analog caption or Digital caption), and Option.

1. CC MODE:

ON: Captioning information is always shown, when available.

OFF: No captioning information is displayed.

2. Priority:

You can choose whether the TV uses digital or analog captions for digital TV programs that have both or either.

- Analog (Caption) : You can select a closed caption mode, which is the mode, or source, used for displaying captioning information for analog channels or digital channels, if available.

• Caption :
The form for the words that scroll across the bottom of the TV screen : usually the audio portion of the program provided for the hearing impaired.
CC 1 : For video related information that can be displayed. Script can be in any language.
CC 2/3/4 : Other modes used for video related information.

• Text :
The term for the words that appear in a large black frame and almost cover the entire screen : Usually message provided by the broad caster.

T 1 : Blanks out a large portion of the picture on the television screen, and display program guide or any other information currently being transmitted.
T 2/3/4 : other modes that display information and blank out a large portion of the picture of the TV screen.

- Digital (caption) : You can select a closed caption, service mode(1-6) for digital channels.

- The service modes support MPEG-2 based transport sources Service 1 and Service2 are the primary and secondary languages, respectively.

- Service3 and service4, 5, 6 are additional caption sources that may be available.

3. Option:
Customized closed captioning for the digital caption by choosing the settings for the following options:

1) cc Background

Color: Set the color of the cc Background
Auto → Black → White → Red → Green → Blue → Yellow → Magenta → Cyan
Opacity: Specify the opacity.
Auto → Soled → Flashing → Translucent → Transparent

2) Caption Text

Caption Size: Set the size of the words - Auto → Small → Standard → Large

Caption Style: Set the style of the words - Auto → Style1 → Style2 → Style3 → Style4 → Style5 → Style6 → Style7

Text Color: Choose a color for the text - Auto → Black → White → Red → Green → Blue → Yellow → Magenta → Cyan

Text Opacity: Specify the opacity for the text - Auto → Solid → Flashing → Translucent → Transparent

Edge Style: Select Edge style for the text - Auto → None → Raised → Depressed → Uniform → Drop Shadow

Edge color: Select Edge color for the text - Auto → Black → White → Red → Green → Blue → Yellow → Magenta → Cyan

Italic: Convert the text in to italic - Auto → On → Off

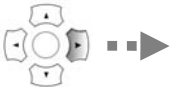
❑ *Setting the EPG View*

This service is only for Digital TV Model.

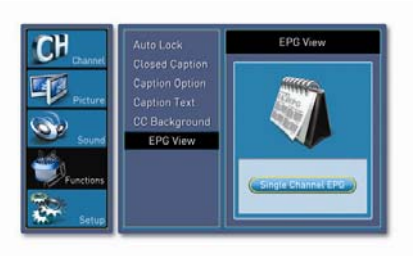
1. Select “Function” in the Menu

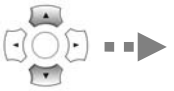
Press the MENU button.

Press the ▲ or ▼ on the remote control to highlight the “Function” icon and press the ▶ or OK button.



2. Select “EPG View”

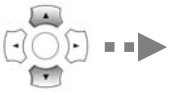




Press the ▲ or ▼ on the remote control to highlight the “EPG View” icon.

Press the ▶ or OK button.

3. Single Channel EPG



Press the ▶ or OK button to see the EPG Then you can get information on the broadcasting time and program.

TIP

The EPG displays the channel that is in channel list.
The EPG will only work when you are watching digital channel.
If current time and time zone are not set correctly, program information is not displayed.
EPG displays only the programs within 12 hours from current time.

Using the Menu

Set up

❑ ***Setting Date / Time***

❶ Yes can automatically turn on or off the TV at a present time, to do this, you must set the time it you wish to use the automatic on or off timers.

❷ Date/Time can be displayed differently as Auto mode because each broadcasting station may send different time information by channel.

1. Select “Setup” in the Menu

Press the MENU button.

Press the ▲ / ▼ on the remote control to highlight the “Setup” icon.

Press the ▶ or OK button.

2. Select “Date/Time”

Press the ▲ / ▼ on the remote control to highlight the “Date/Time” icon.

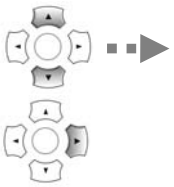
Press the ▶ or OK button.

3. Daylight Saving

Press the ▲ / ▼ button to move to “Daylight Saving”.

Press the ▶ or OK button to select “Daylight Saving”.
Press the ▲ / ▼ button to select “Observe” or “Do not observe”.

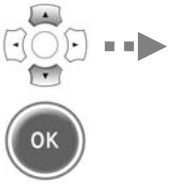
4. Setting the Time Zone



Press the ▲ / ▼ / ◄ / ► buttons on the remote control to set Time Zone.

Whenever you press the buttons, Time Zone is changed in following order Pacific, Mountain, Central, Eastern, Alaska, Hawaii, and Atalantic.

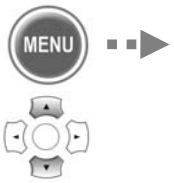
5. Manual



Press the ▲ / ▼ on the remote control to highlight the “Date/Time” icon.

Press the OK button to set the current date and time. Press the ▲ / ▼ / ◄ / ► buttons to set year, month, day, Hour, Minute and AM/PM.

6. Auto



“Auto” is only for DTV channel

TIP

Observe means daylight savings is dependent on broadcaster’s feed.
Manual time will be erased when power cord is unplugged or when power is not supplied.
Auto time function will work correctly only if broadcaster is transmitting the valid information.

❑ *Setting Power on Time*

1. Select “Power on Time”

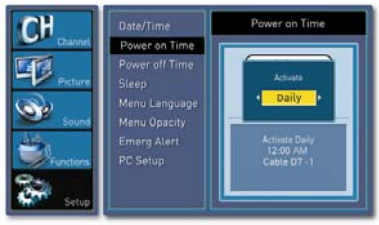
Press the MENU button.

Press the ▲ / ▼ on the remote control to highlight the “Setup” icon.

Press the ► or OK button.

Press the ▲ / ▼ on the remote control to highlight the “Power on Time” icon and press the ► or OK button.

2. Activate

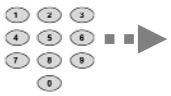


Press the OK button to activate power on time whenever you press the ◄ / ► button, the mode shifts in following order:
“Off”, “Daily”, “Once”.
If you select once or daliy in the “Activate” You can set time and channel.

3. Time

Press the ▲ / ▼ button to select the “Time”.
Press the OK button to set Time. Press numeric key to set Time. Press the OK button to set.
Press the ◄ / ► button to move between Hour, minute and AM/PM.

4. Channel



Press the ▲ / ▼ buttons to select channel.
Press the OK button to set channel.

Press numeric key to set channel number.
Press the OK button to set.

❑ *Setting Power off Time*

1. Select “Power off Time”

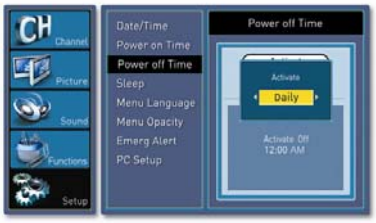
Press the MENU button.

Press the ▲ / ▼ on the remote control to highlight the “Setup” icon

Press the ► or OK button.

Press the ▲ / ▼ on the remote control to highlight the “Power off Time” icon and press the ► or OK button.

2. Activate



Press the OK button to activate power on time whenever you press the ◄ / ► button, the mode shifts in following order:
“Off”, “Daily”, “Once”.
If you select once or daliy in the “Activate” You can set time and channel.

3. Time

Press the ▲ / ▼ button to select time.
Press the OK button to set time.

Press the ◄ / ► button to move between Hour, minute and AM/PM.

Press the ▲ / ▼ buttons to set Hour, minute and AM/PM. Press the OK button to set.

❑ *Setting Sleep Time*

1. Select “Setup” in the Menu

Press the MENU button.

Press the ▲ / ▼ on the remote control to highlight the “Setup” icon.

Press the ▶ or OK button.

2. Select “Sleep”

Press the ▲ / ▼ on the remote control to highlight the “Sleep” icon.

Press the ▶ or OK button.

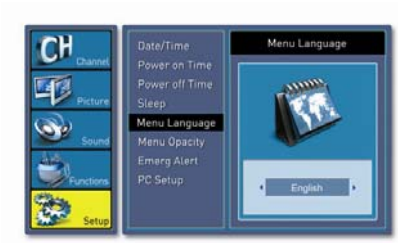
3. Sleep

Press the ▲ / ▼ button to select sleep time. Whenever you press up or down button the mode shifts in following order:
Off, 15 Minutes, 30 Minutes, 60 Minutes, 90 Minutes, 120 Minutes and press the OK button.

❑ *Selecting Menu Language*

Users can select their language preference in order to display main menus and sub menus, etc.

1. Select “Setup” in the Menu



Press the MENU button.

Press the ▲ / ▼ on the remote control to highlight the “Setup” icon.

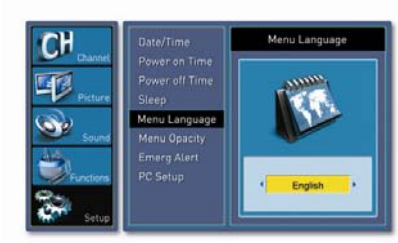
Press the ▶ or OK button.

2. Select “Menu Language”

Press the ▲ / ▼ on the remote control to highlight the “Menu Language” icon.

Press the ▶ or OK button.

3. Menu Language



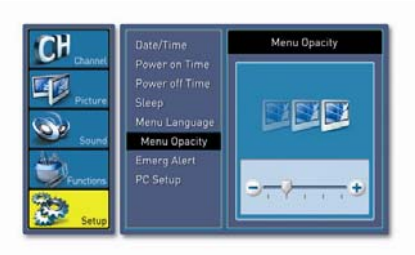
Press the ◀ / ▶ button to set the language, language shifts in following order:

ENGLISH, FRANÇAIS, ESPAÑOL

❑ *Setting Menu Opacity*

Users can select their language preference in order to display main menus and sub menus, etc.

1. Select “Setup” in the Menu

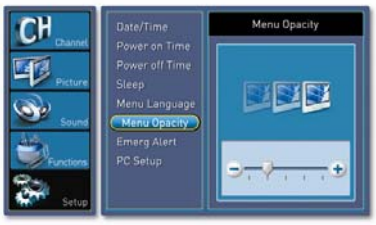


Press the MENU button.

Press the ▲ / ▼ on the remote control to highlight the “Setup” icon.

Press the ▶ or OK button.

2. Select “Menu Opacity”



Press the ▲ / ▼ on the remote control to highlight the “Menu Opacity” icon.

Press the ▶ or OK button.

3. Menu Opacity

Press the ◀ / ▶ button to set menu opacity you want.

❑ *Setting Emergency Alert*

1. Select “Setup” in the Menu

Press the MENU button.

Press the ▲ / ▼ on the remote control to highlight the “Setup” icon.

Press the ► or OK button.

2. Select “Emerg Alert”

Press the ▲ / ▼ on the remote control to highlight the “Emerg Alert” icon.

Press the ► or OK button.

3. Emergency Alert

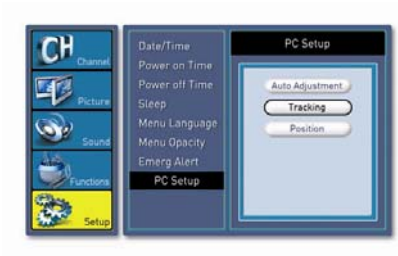
Press the ▲ / ▼ button to move to “Low” / “Medium”.

Press the ◄ / ► button to select “Present” / “Discard”.

❑ *Setting PC Mode*

This function is only available in PC mode.

1. Select “Setup” in the Menu

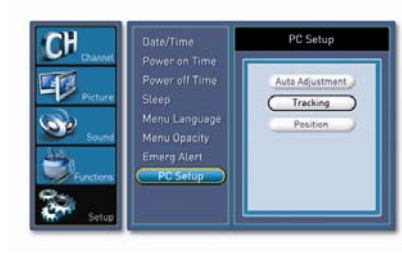


Press the MENU button.

Press the ▲ / ▼ on the remote control to highlight the “Setup” icon.

Press the ▶ or OK button.

2. Select “PC Setup”

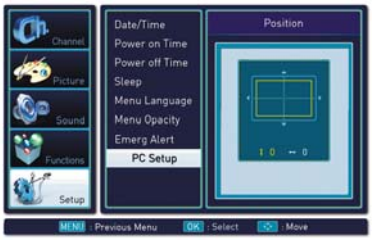


Press the ▲ / ▼ on the remote control to highlight the “PC Setup” icon.

Press the ▶ or OK button.

Press the ▲ / ▼ to move to “Auto Adjust” and press the ▶ or OK button to do auto adjustment.

3. PC Setup



Press the ▲ / ▼ button to move to position. Press the ▶ or OK button to select position.
Press the ▲ / ▼ button to adjust V-position.
Press the ◀ / ▶ button to adjust H-position. After setting press OK button to exit.

TIP

H. Position: To adjust the horizontal position of the picture.
V. Position: To adjust the vertical position of the picture.

Support Timing Table

YPbPr

#item	STD	Resolution	Pixel Frequency (MHz)	V. Frequency (Hz)	H. Frequency (KHz)	Remark
1	480i	704(720*480)	13.500	29.970	15.734	
2	480p	704(720*480)	27.000	59.940	31.470	
3	576i	720*576	50.000	15.625		
4	576p	720*576	50.000	31.250		
5	720p	1280*720	60.000	45.000		
6	720p	1280*720	59.940	45.000		
7	720p	1280*720	50.000	37.500		
8	1080i	1920*1080	60.000	33.750		
9	1080i	1920*1080	59.940	33.716		
10	1080i	1920*1080	50.000	31.250		
11	1080p	1920*1080	60.000	67.500		
12	1080p	1920*1080	59.940	67.433		
13	1080p	1920*1080	50.000	56.250		

HDMI (DVI)

#item	STD	Resolution	Pixel Frequency (MHz)	V. Frequency (Hz)	H. Frequency (KHz)	Remark
1	480i	704(720*480)	13.500	29.970	15.734	1440x480
2	480p	704(720*480)	27.000	59.940	31.470	
3	576i	720*576	13.500	50.000	15.625	1440x576
4	576p	720*576	27.000	50.000	31.250	
5	720p	1280*720	74.250	60.000	45.000	
6	720p	1280*720	74.176	59.940	45.000	
7	720p	1280*720	74.250	50.000	37.500	
8	1080i	1920*1080	74.250	60.000	33.750	
9	1080i	1920*1080	74.176	59.940	33.716	
10	1080i	1920*1080	74.250	50.000	31.250	
11	1080p	1920*1080	148.500	60.000	67.500	
12	1080p	1920*1080	148.352	59.940	67.433	
13	1080p	1920*1080	148.500	50.000	56.250	
14		640*400	25.175	59.940	31.469	
15		640*480	25.175	59.940	31.469	
16	VESA	640*480	25.200	60.000	31.500	
17	VESA	640*480	31.500	72.809	37.861	
18	VESA	640*480	31.500	75.000	37.500	
19	VESA	640*480	36.000	85.008	43.269	
20	IBM	720*400	28.322	70.087	31.469	
21	VESA	720*400	35.500	85.039	37.927	

22	VESA	800*600	36.000	56.250	35.156	
23	VESA	800*600	40.000	60.317	37.879	
24	VESA	800*600	50.000	72.188	48.077	
25	VESA	800*600	49.500	75.000	46.875	
26	VESA	800*600	56.250	85.061	53.674	
27	VESA	1024*768	65.000	60.000	48.363	
28	VESA	1024*768	75.000	70.069	56.476	
29	VESA	1024*768	78.750	75.025	60.023	
30	VESA	1024*768	94.500	84.997	68.677	
31	VESA	1152*864	108.000	75.000	67.500	
32	VESA	1280*960	108.000	60.000	60.000	
33	VESA	1280*960	148.500	85.002	85.938	
34	VESA	1280*1024	108.000	60.020	63.981	
35	VESA	1280*1024	135.000	75.025	79.976	
36	VESA	1280*1024	157.500	85.024	91.146	

VGA (Analog RGB & DVI to HDMI)

#item	STD	Resolution	Pixel Frequency (MHz)	V. Frequency (Hz)	H. Frequency (KHz)	Remark
1	VESA	640*350	31.500	85.080	37.861	
2		640*400	25.175	59.940	31.469	
3	VESA	640*400	31.500	85.080	37.861	
4		640*480	25.175	59.940	31.469	VGA
5	VESA	640*480	25.200	60.000	31.500	VGA
6	VESA	640*480	31.500	72.809	37.861	VGA
7	VESA	640*480	31.500	75.000	37.500	VGA
8	VESA	640*480	36.000	85.008	43.269	VGA
9	IBM	720*400	28.322	70.087	31.469	
10	VESA	720*400	35.500	85.039	37.927	
11	VESA	800*600	36.000	56.250	35.156	SVGA
12	VESA	800*600	40.000	60.317	37.879	SVGA
13	VESA	800*600	50.000	72.188	48.077	SVGA
14	VESA	800*600	49.500	75.000	46.875	SVGA
15	VESA	800*600	56.250	85.061	53.674	SVGA
16	VESA	1024*768	65.000	60.000	48.363	XGA
17	VESA	1024*768	75.000	70.069	56.476	XGA
18	VESA	1024*768	78.750	75.029	60.023	XGA
19	VESA	1024*768	94.500	84.997	68.677	XGA
20		1152*864	94.500	70.012	63.851	
21	VESA	1152*864	108.000	75.000	67.500	
22		1280*720	74.501	59.856	44.772	WXGA
23		1280*768	79.499	59.870	47.776	WXGA
24	VESA	1280*960	108.000	60.000	60.000	WXGA
25	VESA	1280*960	148.500	85.002	85.938	WXGA
26		1360*768	72.000	59.960	47.368	WXGA
27		1360*768	109.001	74.892	60.288	WXGA

28	VESA	1280*1024	108.000	60.020	63.981	
29	VESA	1280*1024	135.000	75.025	79.976	
30	VESA	1280*1024	157.500	85.024	91.146	
31		1680*1050	146.250	59.954	65.290	
32	VESA	1600*1200	162.000	60.000	75.000	UXGA
33		1920*1080	138.500	59.934	66.587	
34		1920*1080	148.500	60.000	67.500	1080p
35		1920*1080	148.352	59.940	67.433	1080p

In Auto, if position may not fit on the screen, select the “Position” and manually adjust the position.

❑ *Selecting PIP/Dual Screen*

1. Select "PIP ON/OFF" Button

This key enables/disables PIP/Dual Screen mode. When PIP is enabled, the TV shows a full screen of video with a pip window of video on top of it. When dual screen is selected, the TV splits the screen into equally sized screens.

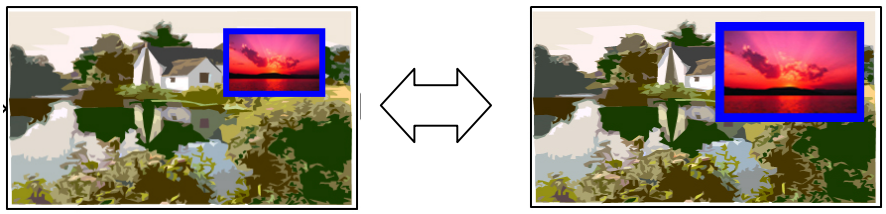
2. Select "PIP SOURCE" Button

You can change PIP/Dual Screen source. Below are all possible Main-PIP (Dual screen) combinations. (Sup: supported / No: not supported)

PIP / Main	NTSC RF	Digital RF	AV1 (CVBS)	AV2 (CVBS)	AV3 (S-video)	AV4 (YPbPr)	AV5 (YPbPr)	AV6 (VGA)	AV7 (HDMI)	AV8 (HDMI)
NTSC	N/A	No	Sup	Sup	Sup	Sup	Sup	Sup	Sup	Sup
Digital	No	N/A	Sup	Sup	Sup	Sup	Sup	Sup	Sup	Sup
AV1	Sup	Sup	N/A	Sup	Sup	Sup	Sup	Sup	Sup	Sup
AV2	Sup	Sup	Sup	N/A	No	Sup	Sup	Sup	Sup	Sup
AV3	Sup	Sup	Sup	No	N/A	Sup	Sup	Sup	Sup	Sup
AV4	Sup	Sup	Sup	Sup	Sup	N/A	Sup	Sup	Sup	Sup
AV5	Sup	Sup	Sup	Sup	Sup	Sup	N/A	Sup	Sup	Sup
AV6	Sup	Sup	Sup	Sup	Sup	Sup	Sup	N/A	Sup	Sup
AV7	Sup	Sup	Sup	Sup	Sup	Sup	Sup	Sup	N/A	No
AV8	Sup	Sup	Sup	Sup	Sup	Sup	Sup	Sup	No	N/A

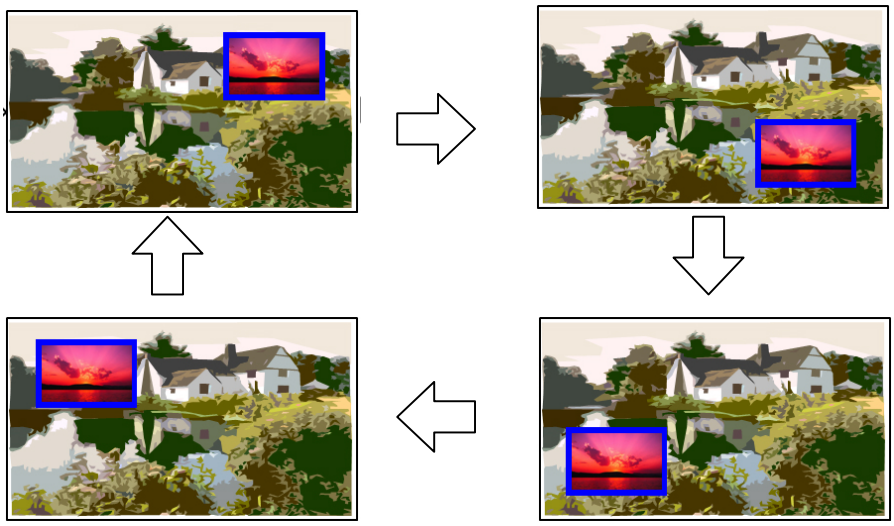
3. Select "PIP SIZE" Button

You can change PIP size in PIP state.



4. "PIP POSITION" Button

You can change PIP position in PIP state.



5. Select "PIP SWAP"

You can alter between the main source and the PIP source using this key.

Other Information

Trouble Shooting

If the TV seems to have a problem, first try the following list of possible problems and solutions before contacting a service center. If none of these troubleshooting tips apply, do not attempt to service the product by yourself. Call dealer or your nearest service center.
The following symptoms may happen even if the TV has no problem. First try the following list of possible problems and solutions before contacting a service center. First try the following list of possible problems and solutions. If the symptom continues, turn the TV off, and call dealer or your nearest service center.

Symptom	**Possible Problem**	**Possible Solution**
The power LED does not turn on.	Power connection problem.	Check the power cable connectivity to the power connector. Press the power switch again.
The TV is turned on, but there is no picture on the screen.	The brightness is adjusted too low. The fluorescent tube is out of order.	Adjust the brightness and the contrast so that a picture is displayed brightly. The florescent tube of a LCD TV has a lifetime of about 50,000 hours. To replace the fluorescent tube, contact a service center.
An afterimage is generated when continuously watching a still image.	This is caused by an inherent property of LCD panels. Depending on the number of valid pixels, there may be black or bright pixels. These will be less than 0.005% of the sum of all pixels. This is not a problem.	
No picture on the screen.	Discordance between the external device jack and the input switch button location	Adjust the input switch location.
A picture is displayed on the screen, but there is no audio.	The volume is adjusted to 0. Mute is active. The audio cable is disconnected.	Turn up the Volume button. Press the Mute button again. Check the audio cable connectivity.
Remote control malfunctions.	The polarity of the batteries installed in the remote control is wrong. The batteries installed in the remote control have not been discharged completely.	Reinstall the batteries properly. Replace the batteries with new ones.
Noise is heard on the radio.	This may happen when you use a radio near the TV.	Noise may occur when you use a radio near the TV. Keep some distance between any radios and the LCD TV.

No color in a color picture.	The Color density is adjusted to 0 or almost 0.	Adjust the Color density to CENTER.
Duplicated pictures on the screen.	This may be caused by reflected broadcasting signals when there is are mountains, buildings, or trees near your house.	Check if there are any tall objects such as skyscrapers near your house. Check that the direction of the antenna is adjusted correctly.
Blurred or snowy picture.	The direction of the antenna is not optimal. The antenna cable is disconnected.	Check that the direction of the antenna is correct. Check that the antenna cable is connected to the ANTENNA jack on the back of the LCD TV.
A “No input signal” message appears.	The Signal connection is incorrect.	Check the display cable connectivity. Check the supported input signal specifications.
	The input signal is not supported by the LCD TV.	Check the supported input signal specifications. Check the display cable specifications.
The entire screen flickers.		This product has been optimally set to watch TV channels in the factory. There may be flickering when you watch still images from a PC. This is not a problem of the product.

Specification

Model	ES470FHD
Safety Agency	
Display Feature	
Display technology	TFT-LCD
Screen size	47" 16:9
Display Resolution	1920 * 1080
Support resolution	1920 * 1080
Brightness	550 cd/m2
Contrast	10000:1
View angle	178 (H) / 178 (V)
Pixel pitch (H*V)	0.5415*0.5415 mm
Display color	1.07 Billion
Response time	6 ms
TV function	
Tuner	1(Air/Cable)
NTSC	VHF,UHF,CATV
ATSC	VSB & Clear QAM
Input Terminal	
Component video	2
Component audio	2
S-video	1
HDMI	2
VGA (D-Sub 15)	1
PC Audio	1
Composite (AV)	2
Composite (audio)	2
service port	for software upgrade
Output Terminal	
Composite (AV)	1
Composite (audio)	L/R (RCA)
Digital audio out (SPDIF)	Dolby digital, PCM
Audio Processor	
Speaker out (Max)	15W + 15W
MTS	Mono, Stereo, SAP
Tone control	Treble / Bass / Balance
Sound mode	Custom / STD / Movie / Music / Speech
SRS	TruSurround XT
Video Processor	
MPEG-2 video decoding	MP@ML, MP@HL
Progressive scan	Yes
NTSC 3D comb filter	Yes
Picture mode	Custom / STD / Mild / Vivid
Film mode detection	Yes
Noise reduction	Yes
HDTV compatibility	Yes
OSD Language	English, French, Spanish
Closed caption	DTV CC, Analog CC
V-chip	MPAA,TV rating, V-chip 2.0
Channel edit	Yes
EPG	Yes (single channel EPG for DTV)
Favorite channel	Yes
Sleep timing	Yes
OSD transparency setting	Yes
EAS	Yes (In-band EIA-814)
Channel lock	Yes
Auto channel scan	Yes
Time setting	Auto, manual
Power saving	Auto power off (If no input signal is continue 15 minutes)
Power on/off time	Yes
Backlight control	Yes
Power	
Voltage / Frequency	AC 110 - 220 V / 60 Hz
Power Consumption	250 W
Power Saving Mode	
Accessories	
Remote Control	
Stand / Stand bar	
Power Cord	
AV Cable	
USB Gender	
Packing List	
Dimension (W*H*D) (with pedestal)	47.24*34.51*2.46 inch
Dimension (W*H*D) (without pedestal)	47.24*35.49*11.81 inch
Carton (W*H*D)	51.18*38.19*10.63 inch
20 ft	72 Sets
40 ft	144 Sets
40 ft HQ	
G.W.	89.51 lbs
N.W.	75.18 lbs
Date of update	2008.02.19
Edition	