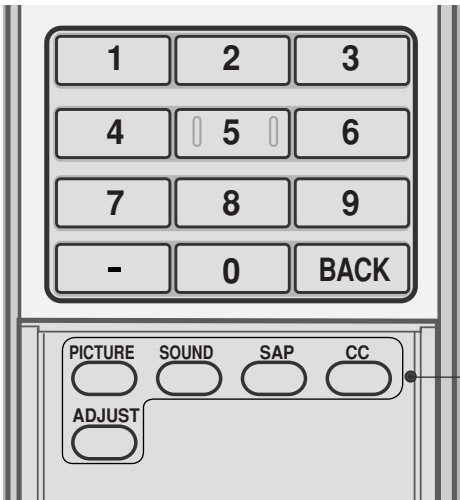


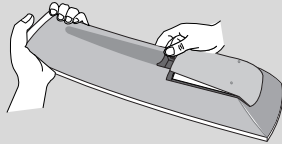
- POWER** Turns your TV or any other programmed equipment on or off, depending on the mode.
- TV INPUT** In AV 1-2, Component 1-2, RGB-PC (or RGB-DTV), HDMI1/DVI, and HDMI2 input sources, screen returns to the last TV channel.
- INPUT** External input modes rotate in regular sequence: Antenna, Cable, AV1-2, Component 1-2, RGB-PC (or RGB-DTV), HDMI1/DVI and HDMI2.  
(AV 1-2, Component 1-2, RGB-PC (or RGB-DTV), HDMI1/DVI, and HDMI2 input sources are linked automatically, only if these are connected.)

### Inside the Sliding Cover



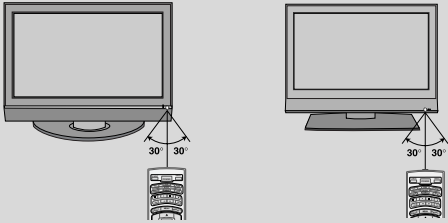
- PICTURE** Adjust the factory preset picture depend on the viewing environment. ▶ p.69
- SOUND** Select the appropriate type of sound for type of program. ▶ p.80
- SAP**
  - Analog mode: Selects MTS sound (Mono, Stereo, and a SAP)
  - DTV mode: Change the audio language.
- CC** Select a closed caption. ▶ p.94  
(\*In DTV/CADTV mode ▶ p.95)
- ADJUST** Adjust the screen position, size and phase in PC mode. ▶ p.

### Installing Batteries



- Open the battery compartment cover on the back side and install the batteries matching correct polarity (+with +,-with -).
- Install two 1.5V AA batteries. Don't mix old or used batteries with new ones.
- Close cover.

### Remote control effective range



- Use a remote control up to 7 meters distance and 30 degree (left/right) within the receiving unit scope.
- Dispose of used batteries in a recycle bin to preserve environment.

# WATCHING TV / CHANNEL CONTROL

## TURNING ON TV

- 1 First, connect power cord correctly.  
At this moment, the TV switches to standby mode.
  - In standby mode to turn TV on, press the  $\phi/|$ , **INPUT**, **CH** ( $\blacktriangle$  or  $\blacktriangledown$ ) button on the TV or press the **POWER**, **INPUT**, **TV INPUT**, **CH** ( $\blacktriangle$  or  $\blacktriangledown$ ), **Number (0~9)** button on the remote control.
- 2 Select the viewing source by using the **TV INPUT**, **INPUT** button on the remote control.
  - This TV is programmed to remember which power state it was last set to, even if the power cord is out.
- 3 When finished using the TV, press the **POWER** button on the remote control. The TV reverts to standby mode.



### ! NOTE

- ▶ If you intend to be away on vacation, disconnect the power plug from the wall power outlet.
- ▶ When the TV is turned on, the indicator will blink green before the picture is seen.

## CHANNEL SELECTION

- 1 Press the **CH**  $\blacktriangle$   $\blacktriangledown$  or **NUMBER** buttons to select a channel number.



## VOLUME ADJUSTMENT

Adjust the volume to suit your personal preference.

- 1 Press the **VOL**  $\blacktriangle$  or  $\blacktriangledown$  button to adjust the volume.
- 2 If you want to switch the sound off, press the **MUTE** button.
- 3 You can cancel the Mute function by pressing the **MUTE** or **VOL**  $\blacktriangle$  or  $\blacktriangledown$  button.



# ON-SCREEN MENUS SELECTION

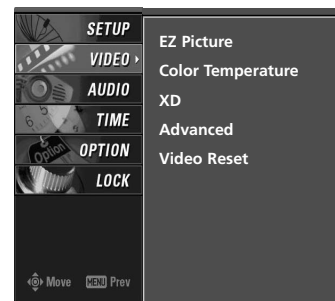
Your TV's OSD (On Screen Display) may differ slightly from what is shown in this manual.

- 1 Press the **MENU** button and then use **▲** or **▼** button to select the each menu.
- 2 Press the **▶** button and then use **▲ ▼ ◀ ▶** button to display the available menus.

## SETUP



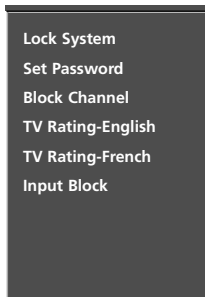
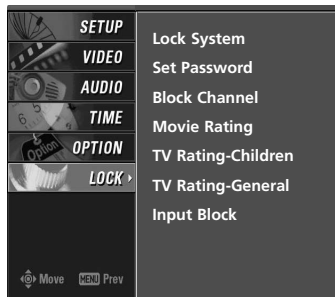
## VIDEO



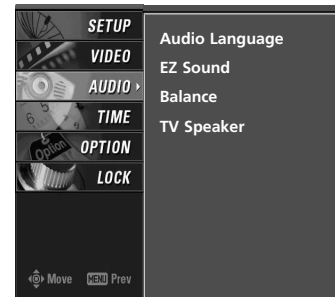
## LOCK

For USA

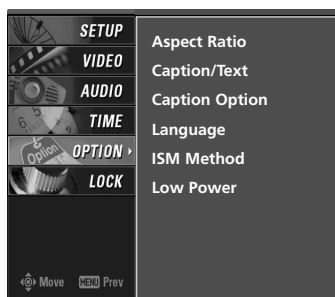
For Canada



## AUDIO



## OPTION



## TIME



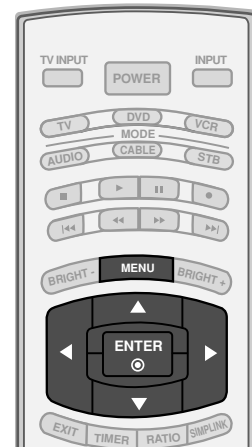
# WATCHING TV / CHANNEL CONTROL

## AUTO SCAN (EZ SCAN)

Automatically finds all channels available through antenna or cable inputs, and stores them in memory on the channel list.

Run EZ Scan again after any Antenna/Cable connection changes.

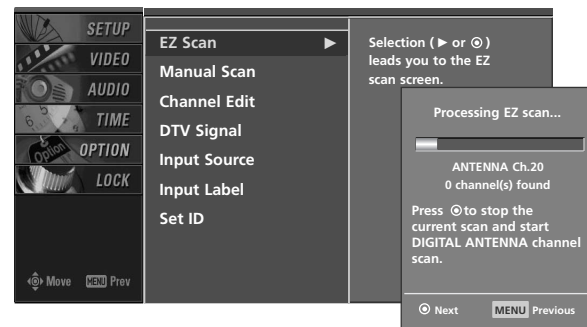
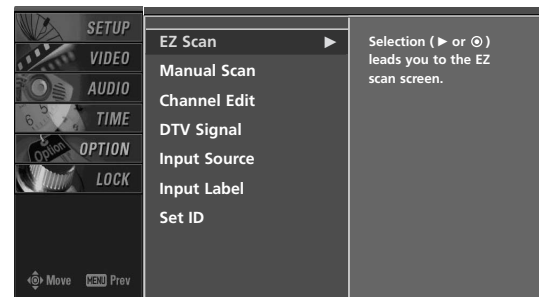
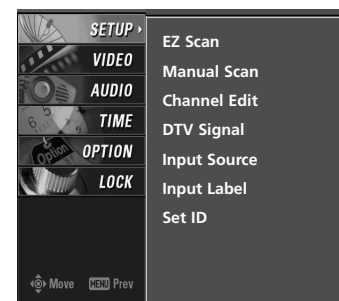
A password is required to gain access to EZ Scan menu if the Lock System is turned on.



1 Press the **MENU** button and then use ▲ or ▼ button to select the **SETUP** menu.

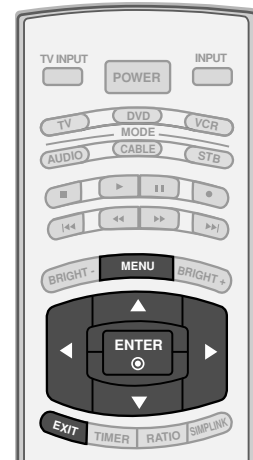
2 Press the ► button and then use ▲ or ▼ button to select **EZ Scan**.

3 Press the **ENTER** button to begin the channel search. Allow **EZ Scan** to complete the channel search cycle for **ANTENNA** and **CABLE**.



# ADD/DELETE CHANNEL (MANUAL SCAN)

A password is required to gain access to Manual Scan menu if the Lock System is turned on.



1 Press the **MENU** button and then use ▲ or ▼ button to select the **SETUP** menu.

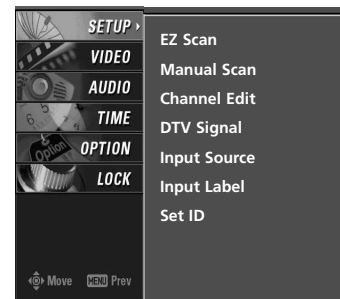
2 Press the ► button and then use ▲ or ▼ button to select **Manual Scan**.

3 Press the ► button and then use ▲ or ▼ button to select **TV, DTV, CATV, and CADTV**.

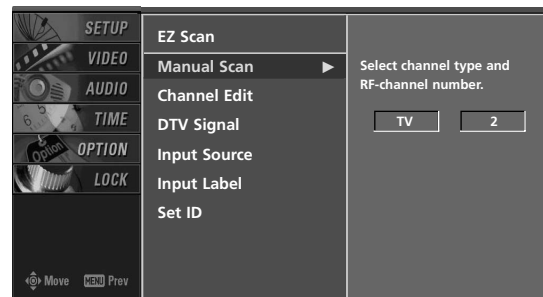
4 Press the ► button and then use ▲ or ▼ button to select channel you want to add or delete.

5 Press the **ENTER** button to add or delete the channel.

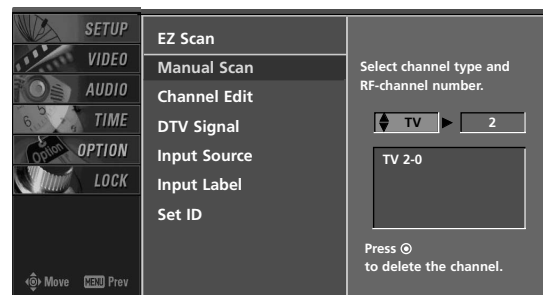
6 Press the **EXIT** button to return to TV viewing or press **MENU** button to return to the previous menu.



1



2



3 4 5

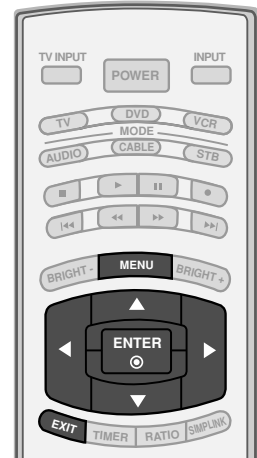
# WATCHING TV / CHANNEL CONTROL

## CHANNEL EDITING

There are two different ways in order to add or delete scanned channels. One is "Custom List" and the other is "Favorite List" in the channel list. Both of them are available after EZ Scan on the SETUP menu.

A Custom List can be created by toggling each channel on or off with ENTER button. The channels in the Custom List are displayed in black color, and the channels deleted from the Custom List are displayed in gray color. Once a channel is highlighted you can add or delete the channel by referring to the small window at the top-left corner of the screen.

You can create your own Favorite List. Use the FAV button on the remote control when a channel is highlighted and then add or delete the channel to/from your Favorite List.



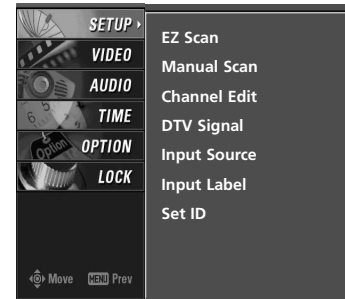
**1** Press the **MENU** button and then use ▲ or ▼ button to select the **SETUP** menu.

**2** Press the ► button and then use ▲ or ▼ button to select **Channel Edit**.

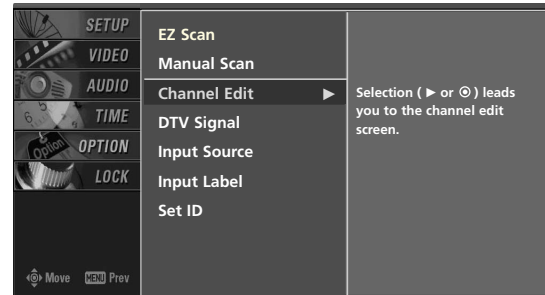
**3** Press the ► button. You will now see a screen filled with channel numbers and a preview picture.

**4** Use ▲ ▼ ◀ ▶ button to select a channel and then use the **ENTER** button to add or delete it. Press **FAV** button to add the channel to the Favorite List. The heart-mark will appear in front of that channel number.

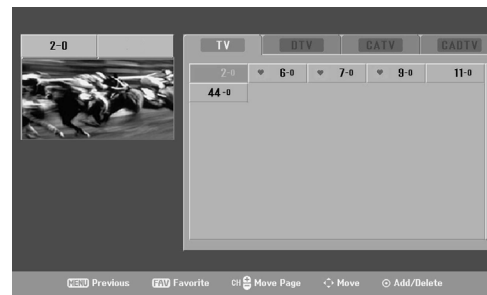
**5** Press **EXIT** button to return to TV viewing or press **MENU** button to return to the previous menu.



**1**



**2**

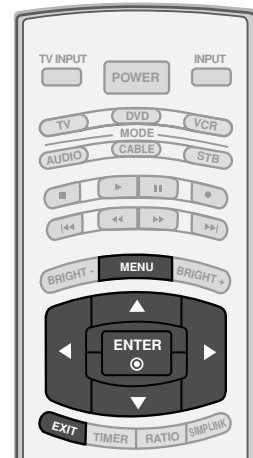


**3 4**

# DTV SIGNAL STRENGTH

This feature displays the DTV signal levels being received and indicates whether you need to adjust your antenna or digital cable input. The higher the signal strength, the less likely you are to experience picture degradation.

**DTV Signal:** This function is only available when the input signal is DTV or CADTV.

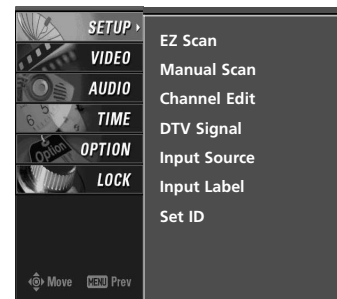


**1** Press the **MENU** button and then use **▲** or **▼** button to select the **SETUP** menu.

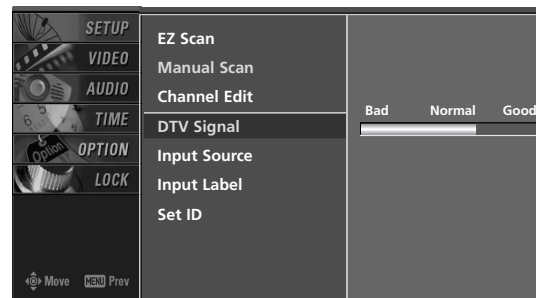
**2** Press the **▶** button and then use **▲** or **▼** button to select **DTV Signal**.

**3** View the on-screen signal strength monitor to see the quality of the signal being received.

**4** Press **EXIT** button to return to TV viewing or press **MENU** button to return to the previous menu.



**1**

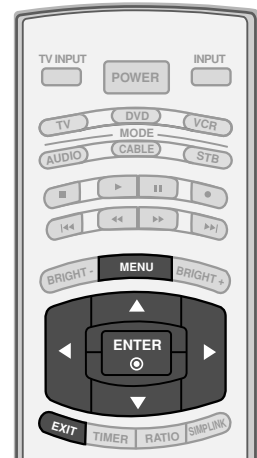


**2 3**

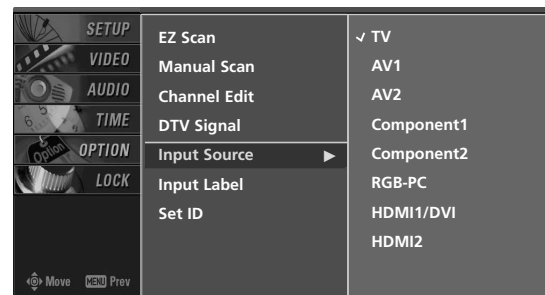
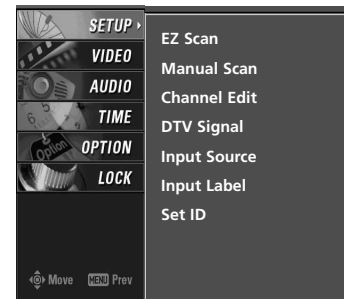
# WATCHING TV / CHANNEL CONTROL

## INPUT SOURCE SELECTION

Changes the picture source so you can watch your off-air TV, cable TV, VCR, DVD, or any other devices that are connected to your TV.



- 1 Press the **MENU** button and then use ▲ or ▼ button to select the **SETUP** menu.
- 2 Press the ► button and then use ▲ or ▼ button to select **Input Source**.
- 3 Press the ► button and then use ▲ or ▼ button to select the source: **TV, AV1, AV2, Component1, Component2, RGB-PC, HDMI1/DVI, or HDMI2.**
- 4 Press **EXIT** button to return to TV viewing or press **MENU** button to return to the previous menu.

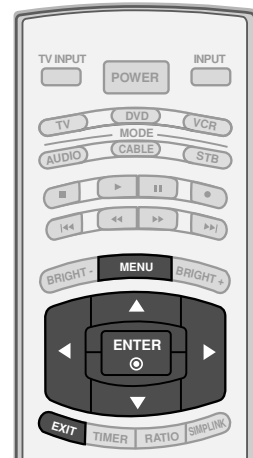


3



# INPUT LABEL

Sets a label to each input source which is not in use when you press the INPUT button.



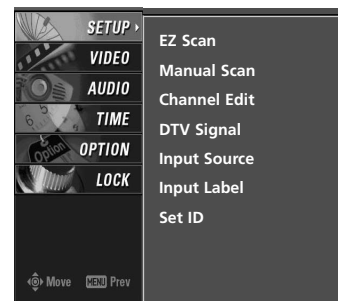
1 Press the **MENU** button and then use ▲ or ▼ button to select the **SETUP** menu.

2 Press the ► button and then use ▲ or ▼ button to select **Input Label**.

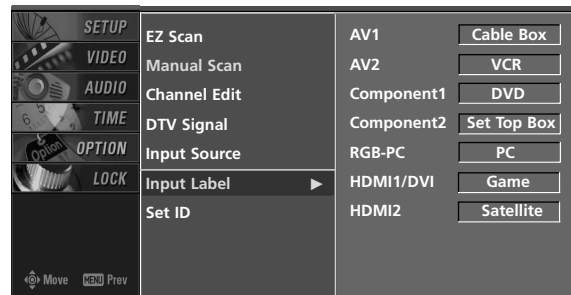
3 Press the ► button and then use ▲ or ▼ button to select the source: **AV1, AV2, Component1, Component2, RGB-PC, HDMI1/DVI or HDMI2**.

4 Press the ◀ or ▶ button to select the label.

5 Press **EXIT** button to return to TV viewing or press **MENU** button to return to the previous menu.



1



2 3 4

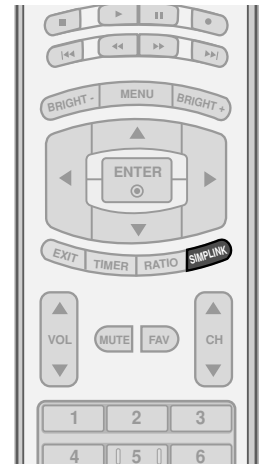
# WATCHING TV / CHANNEL CONTROL



This Enables you to control and play other AV devices connected to TV through HDMI cable without additional cables and settings.

In order to control AV devices connected to TV without Simplink, user had to switch the input mode of TV and use additional remote control bundled to the AV devices.

Simplink provides an easy solution to control all connected devices with one remote control.



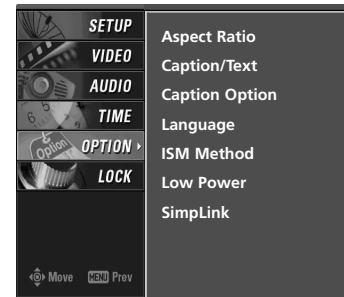
WATCHING TV / CHANNEL CONTROL

**1** Press the **MENU** button and then use **▲** or **▼** button to select the **OPTION** menu.

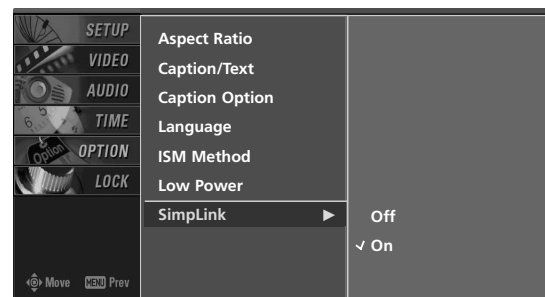
**2** Press the **▶** button and then use **▲** or **▼** button to select **SimpLink**.

**3** Press the **▶** button and then use **▲** or **▼** button to select **On** or **Off**.

**4** Press **EXIT** button to return to TV viewing or press **MENU** button to return to the previous menu.



**1**



**2 3 4**

## ! NOTE

- ▶ While Auto Tuning is proceeding, Simplink does not work.
- ▶ Except Auto Tuning, Simplink stops the current activity or clears Display OSD on the screen. After Simplink works, only Info. OSD resumes the display.
- ▶ While Menu, XSTUDIO is proceeding, Simplink does not work.


## Simplink Functions

- **Recording/Disc playback** : Control connected AV devices by pressing the ▲ ▼ ◀ ▶, ENTER buttons and buttons for play, stop, pause, fast reverse, fast forward, chapter skip.
- **Direct Play** : After connecting AV devices to TV, you can directly control the devices and play media without additional settings.
- **Select AV device** : Enables you to select one of AV devices connected to TV and play it.
- **Power off all devices** : When you power off TV, all connected devices are turned off.
- **Switch audio-out** : Offers an easy way to switch audio-out.  
(A device, which is connected to TV through HDMI cable but does not support Simplink, does not provide this function)

## AV devices supporting Simplink

- **DVD Player H/T** : DVD player embeddedH/T device.
- **HDD embedded DVD Recorder (RH)** : DVD recorder with HDD.
- **DVD Recorder Combo(R-Combi)** : DVD Recorder integrating VCR.
- **DVD Player** : Pre-recorded discs playback only.

## Simplink Menu



The screenshot shows the Simplink menu with five items, each with a number and a description:

- 1 TV
- 2 DISC HDD/DVD-R (Selected Device)
- 3 VCR 1 HD HT (When no device is connected (displayed in gray))
- 4 HDD Recorder
- 5 Speaker TV Speaker (When a device is connected (displayed in bright color))

1 **TV viewing**: Switch to the previous TV channel regardless of the current mode.

2 **DISC playback**: Select and play connected discs.  
When multiple discs are available, the titles of discs are conveniently displayed at the bottom of the screen.

3 **VCR playback**: Play and control the connected VCR.

4 **HDD Recordings playback**: Play and control recordings stored in HDD.

5 **Audio Out to Home theatre/Audio Out to TV**: Select Home theatre or TV speaker for Audio Out.

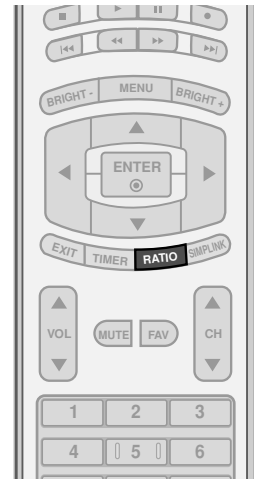
# PICTURE CONTROL

## PICTURE SIZE (ASPECT RATIO) CONTROL

This feature lets you choose the way an analog picture with a 4:3 aspect ratio is displayed on your TV. When you receive an analog picture with a 4:3 aspect ratio on your 16:9 TV, you need to specify how the picture is to be displayed.

- RGB-PC/DVI-PC input source use 4:3 or 16:9 aspect ratio.

- 1 Press the **RATIO** button repeatedly to select the desired picture format. You can also adjust **Aspect Ratio** in the **OPTION** menu.

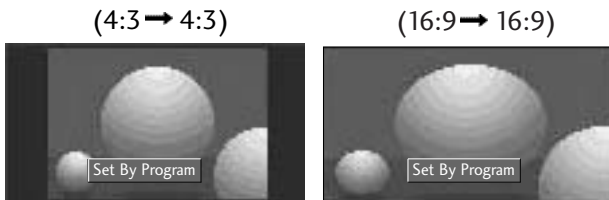


### NOTE

- ▶ If a fixed image is displayed on the screen for a long time, the image may become imprinted on the screen and remain visible. This phenomenon is common to all manufactures and in consequence the manufactures warranty does not cover the product bearing this phenomenon.

### Set by program

Selects the proper picture proportion to match the source's image.



### 4:3

Choose 4:3 when you want to view a picture with an original 4:3 aspect ratio.



### 16:9

Adjust the picture horizontally, in a linear proportion to fill the entire screen.



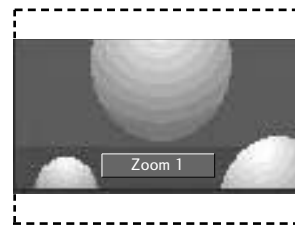
### Horizon

The screen size is, more enlarged at both sides, to create a spectacular view.



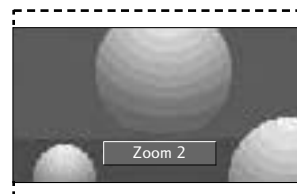
### Zoom 1

Choose Zoom 1 when you want to view the picture without any alteration. However, the top and bottom portions of the picture will be cropped.



### Zoom 2

Choose Zoom 2 when you want the picture to be altered, both vertically extended and cropped. The picture taking a halfway trade off between alteration and screen coverage.



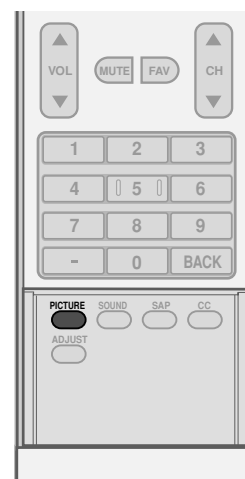
# PRESET PICTURE SETTINGS

## EZ Picture - Preset

EZ Picture adjusts the TV for the best picture appearance. Select the preset value in the EZ Picture menu based on the program category.

**Daylight, Normal, Night Time** Settings are preset for the optimum picture quality at the factory and are not adjustable.

In the **User1** and **User2** modes only, user can directly adjust the contrast, brightness, color, sharpness, tint.



- 1 Press the **PICTURE** button repeatedly to select the picture appearance setup option as below :  
**Daylight, Normal, Night Time, User1**, and **User2** (your own settings).

- 2 Press the **EXIT** button to save and return to TV viewing.

■ You can also use the **VIDEO** menu to adjust **EZ Picture**.

## Color Tone - Preset

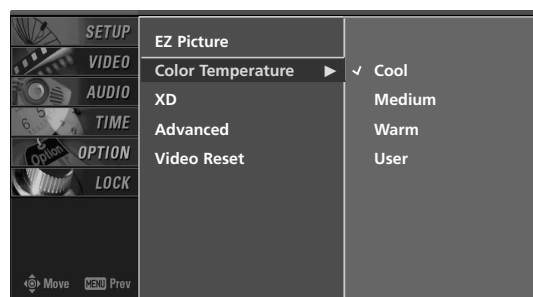
Choose one of three automatic color adjustments. Set to warm to enhance hotter colors such as red, or set to cool to see less intense colors with more blue.

- 1 Press the **MENU** button and then use ▲ or ▼ button to select the **VIDEO** menu.

- 2 Press the ► button and then use ▲ or ▼ button to select **Color Temperature**.

- 3 Press the ► button and then use ▲ or ▼ button to select either **Cool, Medium, Warm** or **User**.

- 4 Press **EXIT** button to return to TV viewing or press **MENU** button to return to the previous menu.

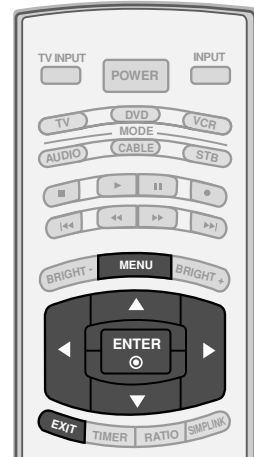


# PICTURE CONTROL

## MANUAL PICTURE ADJUSTMENT

### EZ Picture - User Mode

Adjust the picture appearance to suit your preference and viewing situations.



PICTURE CONTROL

**1** Press the **MENU** button and then use **▲** or **▼** button to select the **VIDEO** menu.

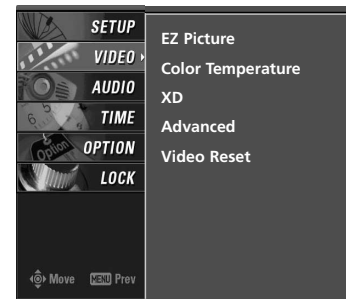
**2** Press the **▶** button and then use **▲** or **▼** button to select **EZ Picture**.

**3** Press the **▶** button and then use **▲** or **▼** button to select **User 1** or **User 2**.

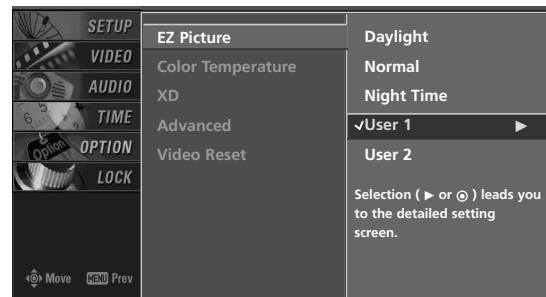
**4** Press the **▶** button and then use **▲** or **▼** button to select the desired picture option (**Contrast**, **Brightness**, **Color**, **Sharpness**, or **Tint**).

**5** Press the **▶** button and then use **◀** or **▶** button to make appropriate adjustments.

**6** Press **EXIT** button to return to TV viewing or press **MENU** button to return to the previous menu.



**1**



**2 3**



**4**



**5**

## Color Tone - User Mode

You can also adjust the detailed settings (Red, Green, Blue) by selecting the **Color Temperature-User** menu.

1 Press the **MENU** button and then use ▲ or ▼ button to select the **VIDEO** menu.

2 Press the ► button and then use ▲ or ▼ button to select **Color Temperature**.

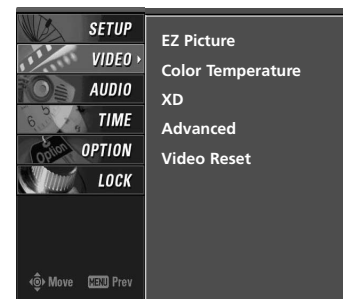
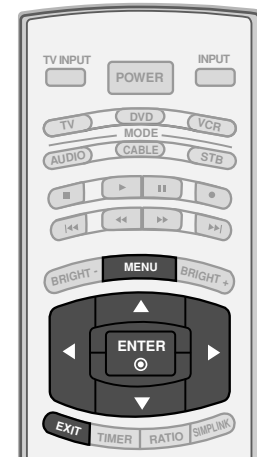
3 Press the ► button and then use ▲ or ▼ button to select **User**.

4 Press the ► button and then use ▲ or ▼ button to select **Red, Green, or Blue**.

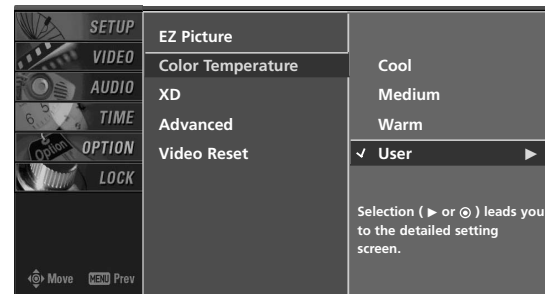
5 Press the ► button and then use ◀ or ▶ button to make appropriate adjustments.

- The adjustment range of **RGB, Green, or Blue** is -20~ +20.

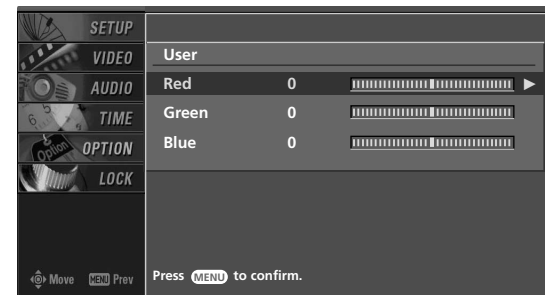
6 Press **EXIT** button to return to TV viewing or press **MENU** button to return to the previous menu.



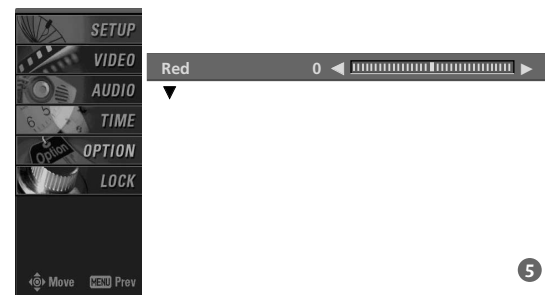
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# PICTURE CONTROL

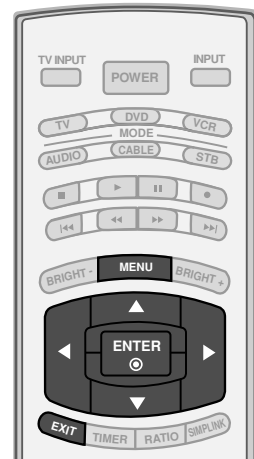
## XD - PICTURE IMPROVEMENT TECHNOLOGY

XD is LG Electronic's unique picture improving technology to display a real HD source through an advanced digital signal processing algorithm.

When selecting EZ Picture options (Daylight, Normal and Night time), XD is automatically changed to Auto.

When selecting EZ Picture options (User 1 and User 2), you can choose the Auto / Manual.

When selecting the Manual, you can adjust the XD Contrast, XD color and XD Noise.



**1** Press the **MENU** button and then use **▲** or **▼** button to select the **VIDEO** menu.

**2** Press the **▶** button and then use **▲** or **▼** button to select **XD**.

**3** Press the **▶** button and then use **▲** or **▼** button to select **Auto** or **Manual**.



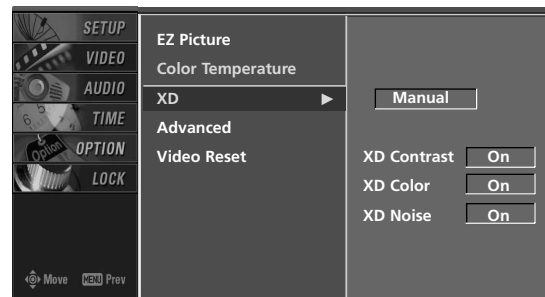
**1**

### Selecting the Manual

1. Press the **▶** button and then use **◀** or **▶** button to select **XD Contrast**, **XD Color** or **XD Noise**.

- **XD Contrast:** Optimizing the contrast automatically according to the brightness of the reflection.
- **XD Color:** Adjusting the colors of the reflection automatically to reproduce as closely as possible to the natural colors.
- **XD Noise :** Removing the noise up to the point where it does not damage the original picture.

2. Use the **▲** or **▼** button to select **On** or **Off**.



**2 3**

**4** Press **EXIT** button to return to TV viewing or press **MENU** button to return to the previous menu.



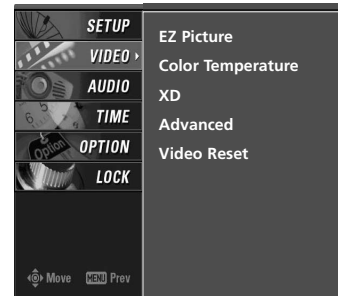
## ADVANCED - CINEMA 3:2 PULLDOWN MODE

Set up the TV for the best picture appearance for viewing movies.

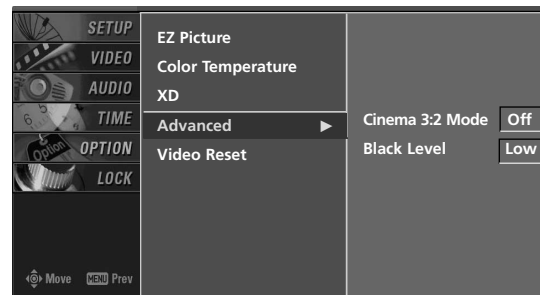
When you operate Cinema 3:2 Mode (3:2 Pull-Down Mode or Cinema Correction Mode), the TV will adjust 24 fps video from movies to 30 fps video for display.

This feature operates only in Analog, AV1, AV2, and Component 480i mode.

- 1 Press the **MENU** button and then use ▲ or ▼ button to select the **VIDEO** menu.
- 2 Press the ► button and then use ▲ or ▼ button to select **Advanced**.
- 3 Press the ► button and then use ▲ or ▼ button to select **Cinema 3:2 Mode**.
- 4 Press the ► button and then use ▲ or ▼ button to select **On** or **Off**.
- 5 Press **EXIT** button to return to TV viewing or press **MENU** button to return to the previous menu.



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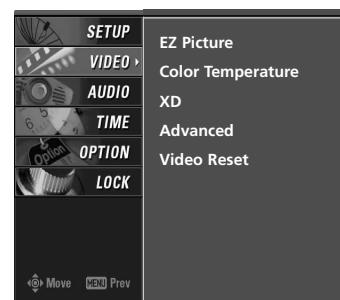
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## ADVANCED - BLACK (DARKNESS) LEVEL

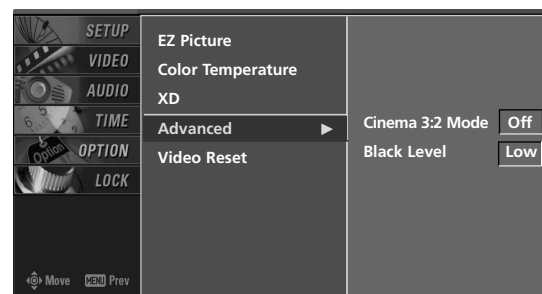
Adjusting the contrast and the brightness of the screen using the black level of the screen.

This feature operates only in AV1, AV2, HDMI1/DVI, or HDMI2 mode.

- 1 Press the **MENU** button and then use ▲ or ▼ button to select the **VIDEO** menu.
- 2 Press the ► button and then use ▲ or ▼ button to select **Advanced**.
- 3 Press the ► button and then use ▲ or ▼ button to select **Black level**.
- 4 Press the ► button and then use ▲ or ▼ button to select **Low** or **High**.
  - **Low**  
The screen gets darker.
  - **High**  
The screen gets brighter.
- 5 Press **EXIT** button to return to TV viewing or press **MENU** button to return to the previous menu.



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# PICTURE CONTROL

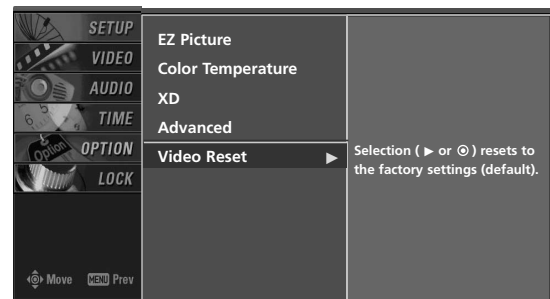
## PICTURE RESET

Use to quickly reset all the Video menu options to their original factory preset values.

- 1 Press the **MENU** button and then use ▲ or ▼ button to select the **VIDEO** menu.
- 2 Press the ► button and then use ▲ or ▼ button to select **Video Reset**.
- 3 Press the ► button to reset the Video menu options to original values.



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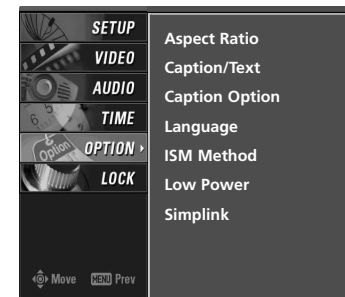


2 3

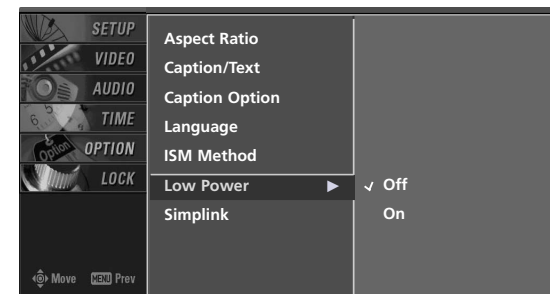
## LOW - POWER PICTURE MODE - Plasma TV only

Low power reduces the plasma display power consumption.

- 1 Press the **MENU** button and then use ▲ or ▼ button to select the **OPTION** menu.
- 2 Press the ► button and then use ▲ or ▼ button to select **Low Power**.
- 3 Press the ► button and then use ▲ or ▼ button to select **On** or **Off**.
  - When you select **On**, the screen darkens.
- 4 Press **EXIT** button to return to TV viewing or press **MENU** button to return to the previous menu.



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# IMAGE STICKING MINIMIZATION (ISM) METHOD - Plasma TV only

A frozen still picture from a PC/video game displayed on the screen for prolonged periods will result in a ghost image. Use our unique method to minimize any fixed image on the screen.

1 Press the **MENU** button and then use **▲** or **▼** button to select the **OPTION** menu.

2 Press the **▶** button and then use **▲** or **▼** button to select **ISM Method**.

3 Press the **▶** button and then use **▲** or **▼** button to select either **Normal**, **White Wash**, **Orbiter** or **Inversion**.

■ **Normal**

If image sticking is never a problem, ISM is not necessary - set to Normal.

■ **White Wash**

White Wash removes permanent images from the screen.

! **NOTE**

▶ An excessive permanent image may be impossible to clear entirely with White Wash. To return to normal viewing, press any button.

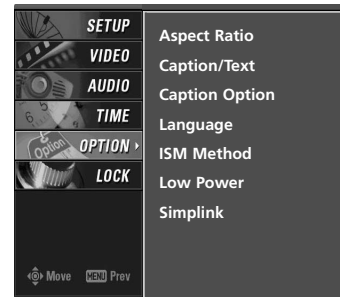
■ **Orbiter**

Orbiter may help prevent ghost images. However, it is best not to allow any fixed image to remain on the screen. To avoid a permanent image on the screen, the image will move once per 2 minutes : Left → Right → Upside → Downside → Right → Left → Downside → Upside.

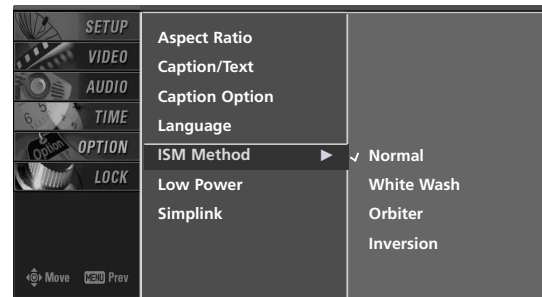
■ **Inversion**

Inversion will automatically invert the plasma display panel color every 30 minutes.

4 Press **EXIT** button to return to TV viewing or press **MENU** button to return to the previous menu.



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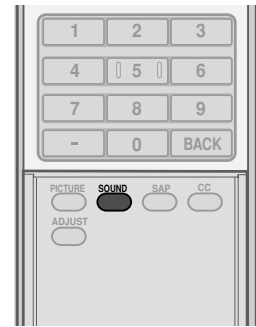
# SOUND & LANGUAGE CONTROL

## PRESET SOUND SETTINGS (EZ SOUND)

EZ Sound lets you enjoy the best sound without any special adjustment because the TV sets the appropriate sound options based on the program content.

Normal, Stadium, News, Music and Theater are preset for good sound quality at the factory and are not adjustable.

When you select the Stadium or Theater, the AUDIO menu-Balance option is disable and the Balance option is set to 0 automatically.



- 1 Press the **SOUND** button repeatedly to select the appropriate sound setup as below :  
**Normal, Stadium, News, Music, Theater, and User** (your own settings).

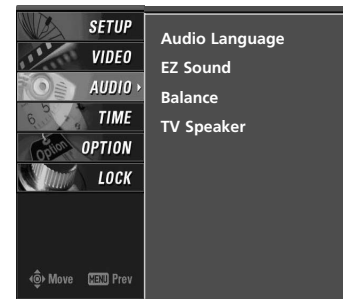
- 2 Press **EXIT** button to return to TV viewing.

■ You can also adjust **EZ Sound** in the **AUDIO** menu.

## BALANCE

Adjust the left/right sound of speaker to suit your taste and room situations.

When SRS is On, the Balance option is set to 0 automatically. And when you change the other modes, the balance is restored to the original value set the user.

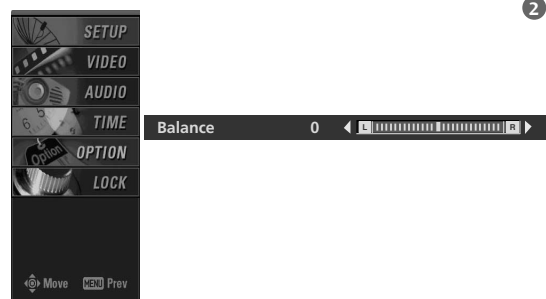
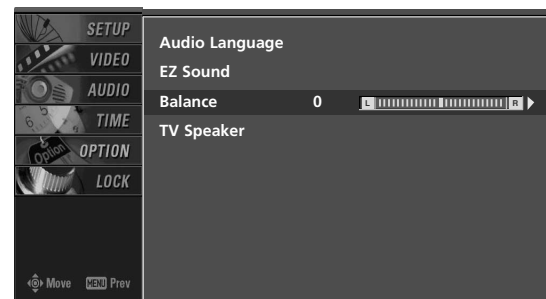


- 1 Press the **MENU** button and then use **▲** or **▼** button to select the **AUDIO** menu.

- 2 Press the **▶** button and then use **▲** or **▼** button to select **Balance**.

- 3 Press the **▶** button and then use **◀** or **▶** button to make appropriate adjustments.

- 4 Press **EXIT** button to return to TV viewing or press **MENU** button to return to the previous menu.



# SOUND SETTING ADJUSTMENT - USER MODE

Adjust the sound to suit your taste and room situations.

**1** Press the **MENU** button and then use **▲** or **▼** button to select the **AUDIO** menu.

**2** Press the **▶** button and then use **▲** or **▼** button to select **EZ Sound**.

**3** Press the **▶** button and then use **▲** or **▼** button to select **User**.

**4** Press the **▶** button and then use **▲** or **▼** button to select the desired sound option (**Treble**, **Bass**, or **Front Surround**).

**5** Press the **▶** button and then use **◀** or **▶** button to make appropriate adjustments.

## Selecting the Front surround

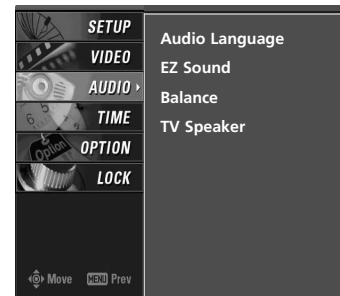
Press the **▶** button and then use **◀** or **▶** button to select **Off** or **SRS** (Sound Retrieval System) **TruSurround XT**.

- When **SRS** (Sound Retrieval System) **TruSurround XT** is selected, **Audio Balance** function is disabled and set to 0.
- When **Off** is selected, **Audio Balance** function is enabled and reset the balance as previous.

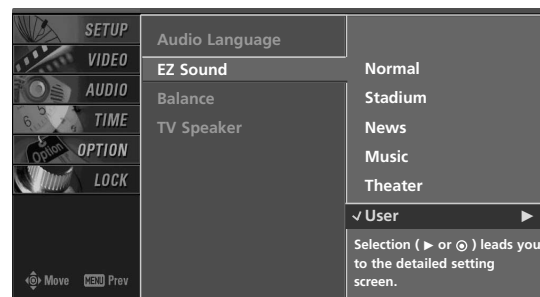
**6** Press **EXIT** button to return to TV viewing or press **MENU** button to return to the previous menu.

## SRS TruSurround XT

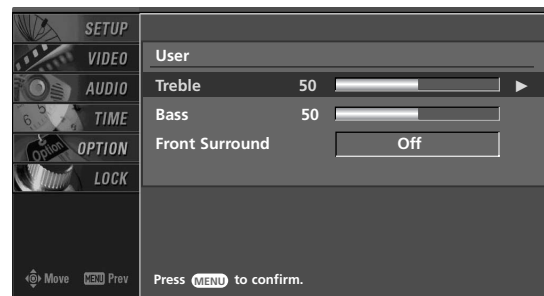
Takes advantage of any multi-channel format without needing to add extra speakers or equipment. Dialog clarity, bass enrichment, and the addition of stereo audio enhancement produces an immersive sound experience from standard stereo material.



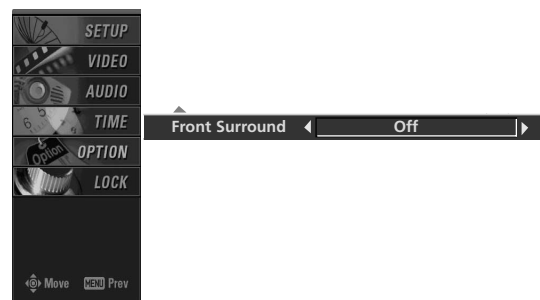
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# SOUND & LANGUAGE CONTROL

## STEREO/SAP BROADCAST SETUP

This TV can receive MTS stereo programs and any SAP (Secondary Audio Program) that accompanies the stereo program if the station transmits an additional sound signal as well as the original one and when you select Stereo or SAP on the remote control.

Mono sound is automatically received if the broadcast is only in Mono; even though Stereo or SAP has been selected.

Select Mono if you want to listen to the mono sound in remote areas during stereo/SAP broadcasting.

Stereo or SAP can be received in Analog channel.



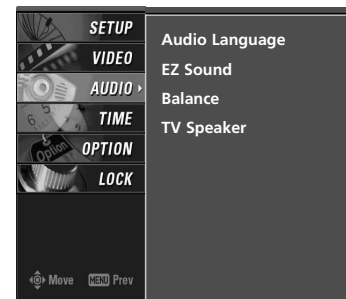
- 1 Use the **SAP** button to select your desired MTS mode in analog signal. Each time you press the **SAP** button, **Mono**, **Stereo**, or **SAP** appear in turn.
  - If other languages available on the digital signal, select them with the **SAP** button.

- 2 Press **EXIT** button to save and return to TV viewing.

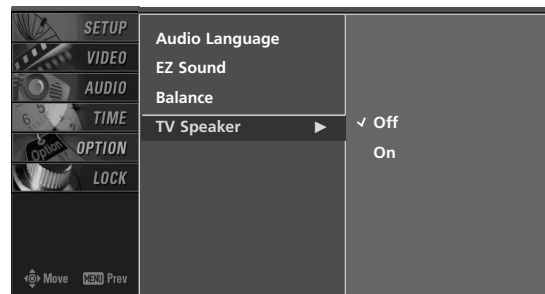
## TV SPEAKERS ON/OFF SETUP

Turn the TV speakers off if using external audio equipment. Feature turns the TV Speakers option On or Off.

- 1 Press the **MENU** button and then use ▲ or ▼ button to select the **AUDIO** menu.
- 2 Press the ► button and then use ▲ or ▼ button to select **TV Speaker**.
- 3 Press the ► button and then use ▲ or ▼ button to select **On** or **Off**.
- 4 Press **EXIT** button to return to TV viewing or press **MENU** button to return to the previous menu.



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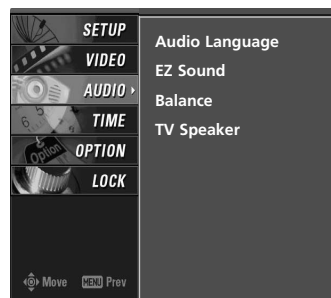


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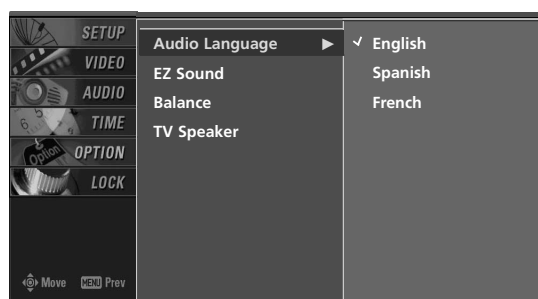
# AUDIO LANGUAGE

Other languages may be available if a digital signal is provided by the broadcasting station.  
 This feature operates only in DTV/CADTV mode.

- 1 Press the **MENU** button and then use ▲ or ▼ button to select the **AUDIO** menu.
- 2 Press the ► button and then use ▲ or ▼ button to select **Audio Language**.
- 3 Press the ► button and then use ▲ or ▼ button to select : **English, Spanish, or French**.
- 4 Press **EXIT** button to return to TV viewing or press **MENU** button to return to the previous menu.



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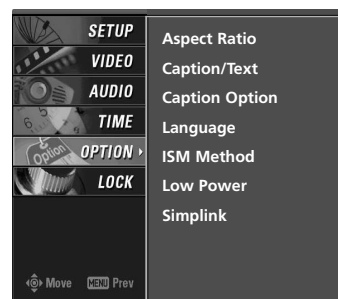


2 3

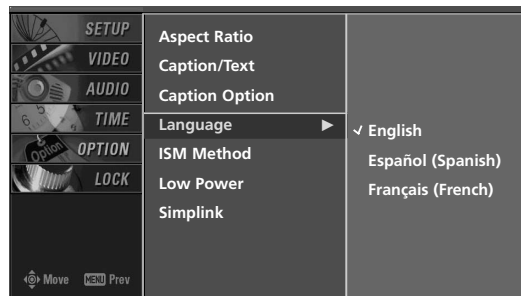
# ON-SCREEN MENUS LANGUAGE SELECTION

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

- 1 Press the **MENU** button and then use ▲ or ▼ button to select the **OPTION** menu.
- 2 Press the ► button and then use ▲ or ▼ button to select **Language**.
- 3 Press the ► button and then use ▲ or ▼ button to select your desired language.  
 From this point on, the on-screen menus will be shown in the selected language.
- 4 Press the **EXIT** button to return to TV viewing or press **MENU** to return to the previous menu.



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# SOUND & LANGUAGE CONTROL

## CAPTION / TEXT

### Analog Broadcasting System Captions

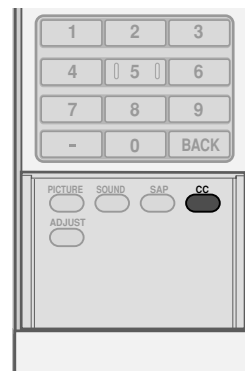
Select a caption mode for displaying captioning information if provided on a program. Analog caption displays information at any position on the screen and is usually the program's dialog.

Text displays information, usually at the bottom position and is used for a data service, generally not program related.

Caption/Text, if provided by the broadcaster, would be available for both digital and analog channels on the Antenna/Cable.

This TV is programmed to memorize the caption/text mode which was last set when you turn the power off.

When you select the CC1 ~ Text4, Caption option must be disabled.



- 1 Use the **CC** button repeatedly to select Caption **Off**, **CC1**, **CC2**, **CC3**, **CC4**, **Text1**, **Text2**, **Text3** or **Text4**.

- **CAPTION**

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.

- 2 Press **EXIT** to save and return to TV viewing.

- You can also use the **OPTION** menu to select **Caption/Text**.

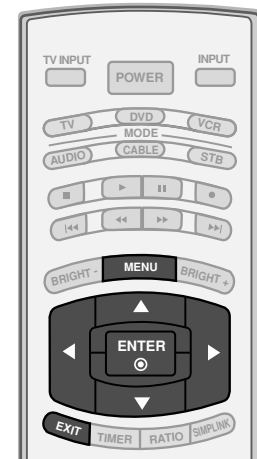


## Digital Broadcasting System Captions

Choose the language you want the DTV/CADTV Captions to appear in.

Other Languages can be chosen for digital sources only if they are included on the program.

Caption may not be available depends if the service is not provided by the digital broadcasting.

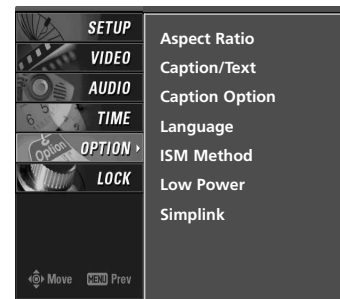


1 Press the **MENU** button and then use ▲ or ▼ button to select the **OPTION** menu.

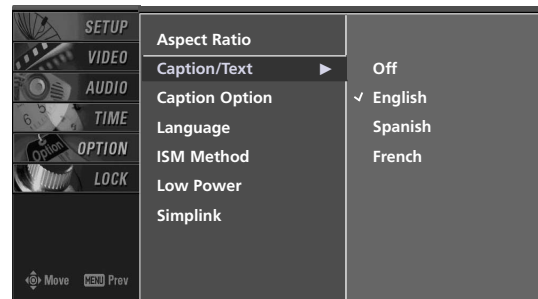
2 Press the ► button and then use ▲ or ▼ button to select **Caption/Text**.

3 Press the ► button and then use ▲ or ▼ button to select available caption languages : **English, Spanish or French**.

4 Press **EXIT** button to return to TV viewing or press **MENU** button to return to the previous menu.



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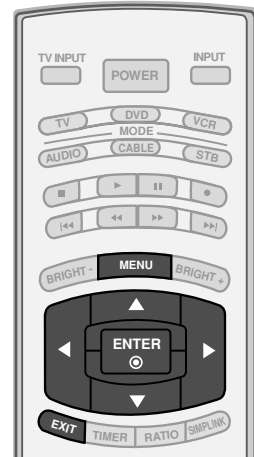


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# SOUND & LANGUAGE CONTROL

## CAPTION OPTION

Customize the DTV/CADTV captions that appear on your screen.



1 Press the **MENU** button and then use ▲ or ▼ button to select the **OPTION** menu.

2 Press the ► button and then use ▲ or ▼ button to select **Caption Option**.

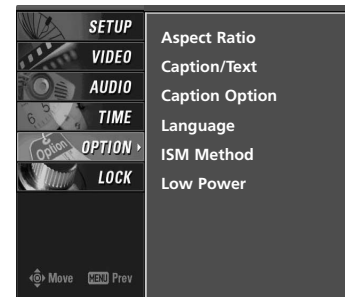
3 Press the ► button and then use ◀ or ▶ button to select **Custom**.

4 Use ▲ or ▼ button to customize the **Style, Font,** etc., to your preference.

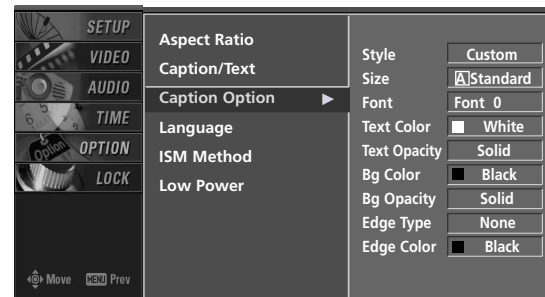
A preview icon is provided at the bottom of the screen, use it to see the caption language.

- ▶ **Size** : Set the word size.
- ▶ **Font** : Select a typeface for the text.
- ▶ **Text Color** : Choose a color for the text.
- ▶ **Text Opacity** : Specify the opacity for the text color.
- ▶ **Bg (Background) Color** : Select a background color.
- ▶ **Bg (Background) Opacity** : Select the opacity for the background color.
- ▶ **Edge Type** : Select an edge type.
- ▶ **Edge Color** : Select a color for the edges.

5 Press **EXIT** button to return to TV viewing or press **MENU** button to return to the previous menu.



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2 3 4

# TIME SETTING

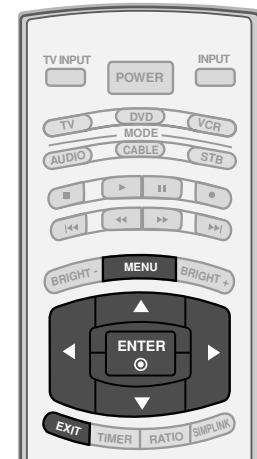
## CLOCK SETTING

### Auto Clock Setup

The time is set automatically from a digital channel signal. The digital channel signal includes information for the current time provided by the broadcasting station.

Set the clock manually if the current time is set incorrectly by the auto clock function.

The factory default value of the Auto Clock is Off, because a clock information sent each broadcasting station is different.



1 Press the **MENU** button and then use ▲ or ▼ button to select the **TIME** menu.

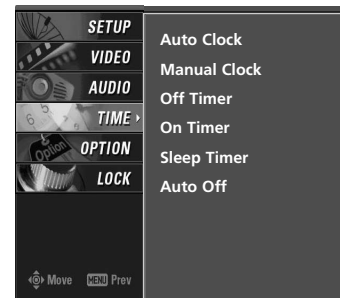
2 Press the ► button and then use ▲ or ▼ button to select **Auto Clock**.

3 Press the ► button and then use ▲ or ▼ button to select **On**.

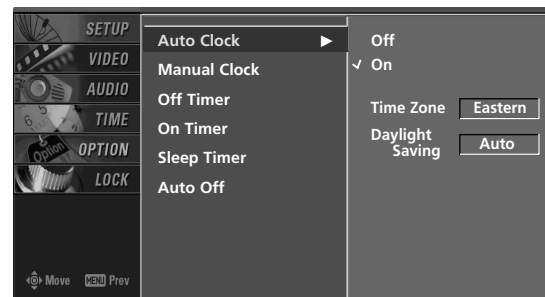
4 Press the ► button and then use ▲ or ▼ button to select your viewing area time zone:  
 U.S.A : **Eastern, Central, Mountain, Pacific, Alaska or Hawaii.**  
 Canada : **Eastern, Central, Mountain, Pacific, New F.land or Atlantic.**

5 Press the ► button and then use ▲ or ▼ button to select **Auto, Off, On**, depending on whether or not your viewing area observes Daylight Saving time.

6 Press **EXIT** button to return to TV viewing or press **MENU** button to return to the previous menu.



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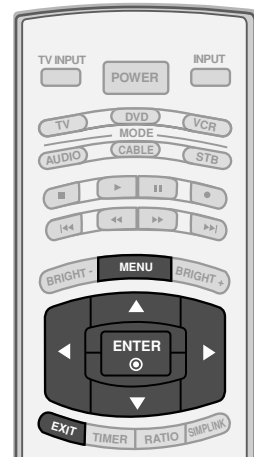


2 3 4 5

# TIME SETTING

## Manual Clock Setup

If the current time setting is wrong, reset the clock manually.



1 Press the **MENU** button and then use ▲ or ▼ button to select the **TIME** menu.

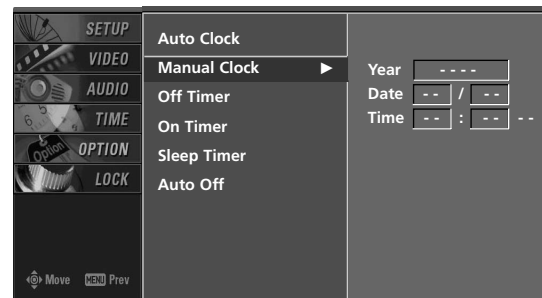
2 Press the ► button and then use ▲ or ▼ button to select **Manual Clock**.

3 Press the ► button and then use ◀ or ▶ to select either the year, date, or time option. Once selected, use the ▲ or ▼ button to set the year, date, and time options.

4 Press **EXIT** button to return to TV viewing or press **MENU** button to return to the previous menu.



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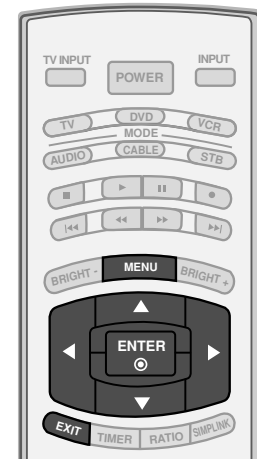
2 3

# AUTO ON/OFF TIMER SETTING

The timer function operates only if the current time has been set.

The Off-Timer function overrides the On-Timer function if they are both set to the same time.

The TV must be in standby mode for the On-Timer to work. If you do not press any button within 2 hours after the TV turns on with the On Timer function, the TV will automatically revert to standby mode.



**1** Press the **MENU** button and then use **▲** or **▼** button to select the **TIME** menu.

**2** Press the **▶** button and then use **▲** or **▼** button to select **Off Timer** or **On Timer**.

**3** Press the **▶** button and then use **▲** or **▼** button to select **On**.  
 ■ To cancel the **On/Off timer** function, select **Off**.

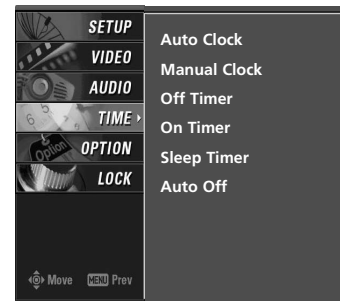
**4** Press the **▶** button and then use **▲** or **▼** button to set the hour.

**5** Press the **▶** button and then use **▲** or **▼** button to set the minutes.

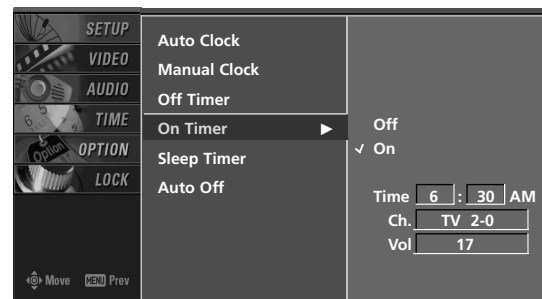
**6** **Only On timer**  
 Press the **▶** button and then use **▲** or **▼** to select the channel at turn-on.

Press the **▶** button and then use **▲** or **▼** to set the sound level at turn-on.

**7** Press **EXIT** button to return to TV viewing or press **MENU** button to return to the previous menu.



**1**



**2 3 4 5 6**

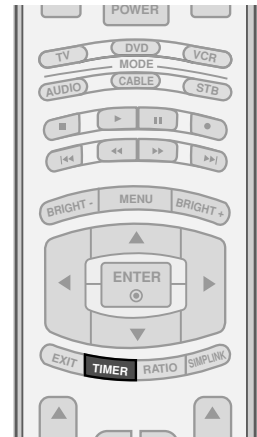
# TIME SETTING

## SLEEP TIMER SETTING

The Sleep Timer turns the TV off at the preset time.  
Note that this setting is cleared when the TV is turned off.

- 1 Press the **TIMER** button repeatedly to select the number of minutes. First the **Off** option appears on the screen, followed by the following sleep timer options : 10, 20, 30, 60, 90, 120, 180, and 240 minutes.
- 2 When the number of minutes you want is displayed on the screen, press the **ENTER** button. The timer begins to count down from the number of minutes selected.
- 3 To check the remaining minutes before the TV turns off, press the **TIMER** button once.
- 4 To cancel the Sleep Timer, press the **TIMER** button repeatedly to select **Off**.

■ You can also set up the **Sleep Timer** in the **TIME** menu.



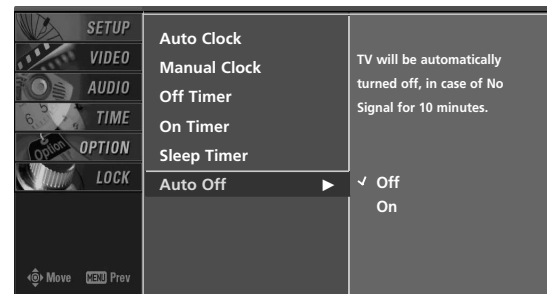
## AUTO SHUT-OFF SETTING

If set to on and there is no input signal, the TV turns off automatically after 10 minutes.

- 1 Press the **MENU** button and then use **▲** or **▼** button to select the **TIME** menu.
- 2 Press the **▶** button and then use **▲** or **▼** button to select **Auto Off**.
- 3 Press the **▶** button and then use **▲** or **▼** button to select **Off** or **On**.
- 4 Press **EXIT** button to return to TV viewing or press **MENU** button to return to the previous menu.



1



2 3

# PARENTAL CONTROL / RATINGS

Parental Control can be used to block specific channels, ratings and other viewing sources.

The Parental Control Function (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 choosing the type of the program and the categories. It is also possible to block all program viewing for a time period. To use this function, the following must be done :

1. Set ratings and categories to be blocked.
2. Specify a password
3. Enable the lock

## 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 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)

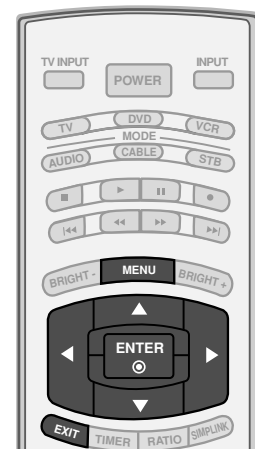
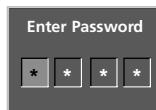
## SETTING UP YOUR PASSWORD

Set up blocking schemes to block specific channels, ratings, and external viewing sources.

A password is required to gain access to this menu.

- 1 Press the **MENU** button and then use the **▲** or **▼** button to select the **LOCK** menu. Then, press the **▶** button.

- Enter the password as requested.
- The TV is set up with the initial password "0-0-0-0".



## SET PASSWORD

Change the password by inputting a new password twice.

1 After inputting the password, use the ▲ or ▼ button to choose **Set password**.

2 Press the ► button and then choose any 4 digits for your new password.

As soon as the 4 digits are entered, re-enter the same 4 digits on the **Confirm**.

Then your changed password has been memorized.

3 Press **EXIT** to return to TV viewing or press **MENU** to return to the previous menu.

### ! NOTE

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

## LOCK SYSTEM

Enables or disables the blocking scheme you set up previously.

1 After inputting the password, use the ▲ or ▼ button to choose **Lock System**.

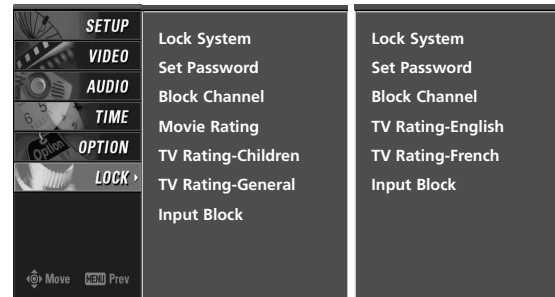
2 Press the ► button and then use the ▲ or ▼ button to select **On** or **Off**.

- When you select **On**, the Lock System is enable.

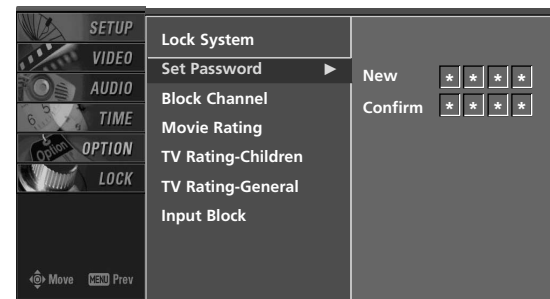
3 Press **EXIT** button to return to TV viewing or press **MENU** button to return to the previous menu.

For USA

For Canada



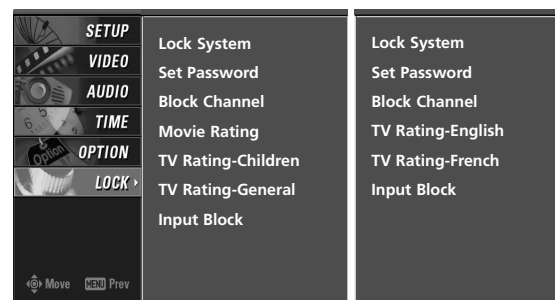
1



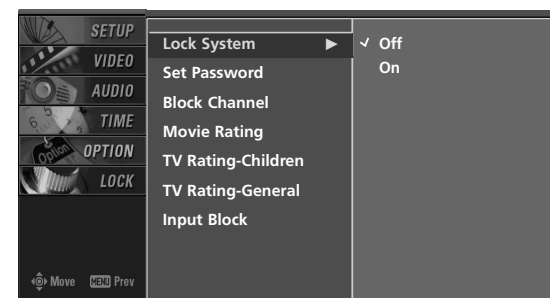
2

For USA

For Canada



1



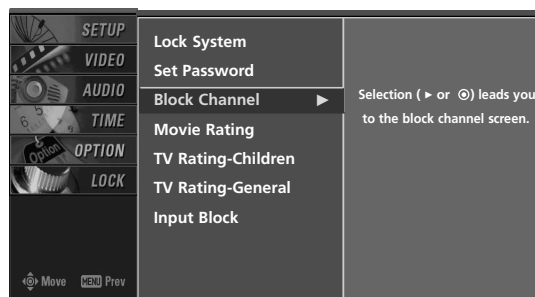
2



# CHANNEL BLOCKING

Blocks any channels that you do not want to watch or that you do not want your children to watch.

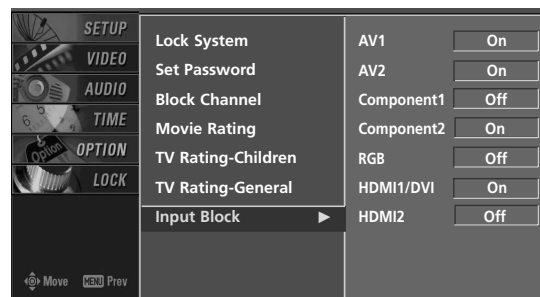
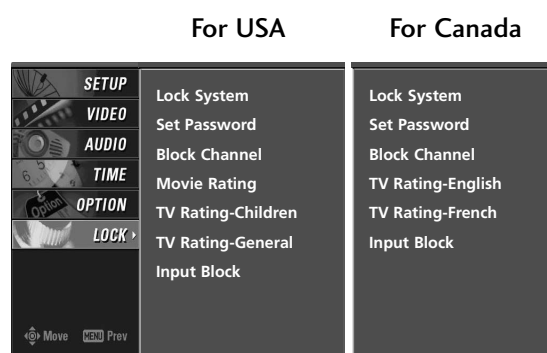
- 1 After inputting the password, use the ▲ or ▼ button to choose **Block Channel**.
- 2 Press the ► button. You will now see a screen filled with channel numbers and a preview picture.
- 3 Use ▲ ▼ ◀ ▶ button to select a channel and then use the **ENTER** button to block or unblock it.
- 4 Press **EXIT** button to return to TV viewing or press **MENU** button to return to the previous menu.



# EXTERNAL INPUT BLOCKING

Enables you to select a source to block from the external source devices you have hooked up.

- 1 After inputting the password, use the ▲ or ▼ button to choose **Input Block**.
- 2 Press the ► button and then use the ◀ or ▶ button to select a source.
- 3 Press the ► button and then use the ▲ or ▼ button to select **On** or **Off** on the each source.
- 4 Press **EXIT** button to return to TV viewing or press **MENU** button to return to the previous menu.



# PARENTAL CONTROL /RATINGS

## MOVIE & TV RATING

### MOVIE RATING (MPAA) - *for USA only*

Blocks movies according to the movie ratings limits specified, so children cannot view certain movies. You can set the ratings limit by blocking out all the movies with the ratings above a specified level. Keep in mind that the movie ratings limit only applies to movies shown on TV, not TV programs, such as soap operas.

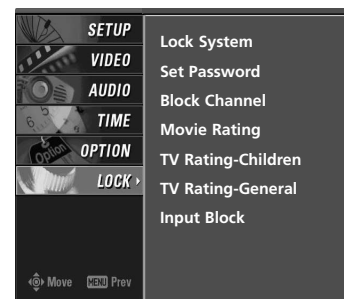
**1** After inputting the password, use the ▲ or ▼ button to choose **Movie Rating**.

**2** Press the ► button and then use the ▲ or ▼ button to select **G, PG, PG-13, R, NC-17** or **X**.

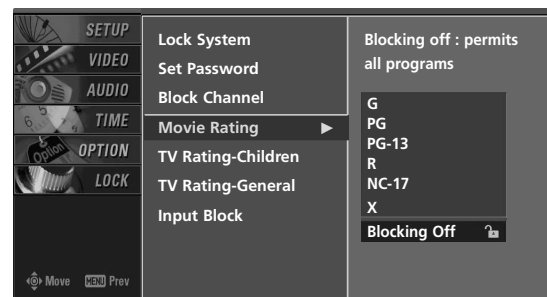
- G (General audience)
- PG (Parental guidance suggested)
- PG-13 (Parents strongly cautioned)
- R (Restricted)
- NC-17 (No one 17 and under admitted)
- X (Adult only)
- Blocking Off (Permits all programs)

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

**3** Press **EXIT** button to return to TV viewing or press **MENU** button to return to the previous menu.



1

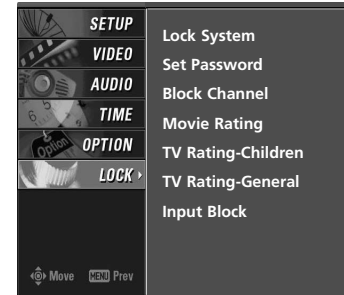


2

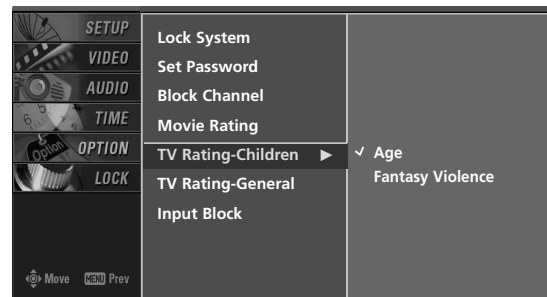
## TV RATING CHILDREN - for USA only

Prevents children from watching certain children's TV programs, according to the ratings limit set. The children rating does not apply to other TV programs. Unless you block certain TV programs intended for mature audiences in the TV Rating - sub menu, your children can view those programs.

- 1 After inputting the password, use the ▲ or ▼ button to choose **TV Rating-Children**.
- 2 Press the ► button and then use the ▲ or ▼ button to select **Age**, or **Fantasy Violence**.  
Press the ► button and then use the ▲ or ▼ button to select block options.
  - Age(applies to TV-Y, TV-Y7)
  - Fantasy Violence(applies to TV-Y7)
- 3 Press **EXIT** button to return to TV viewing or press **MENU** button to return to the previous menu.



1

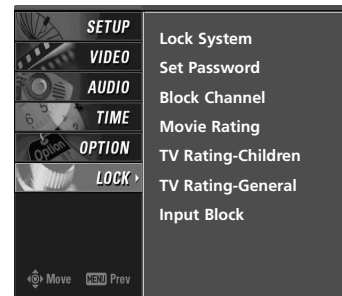


2

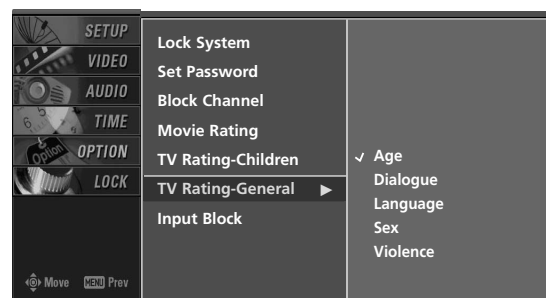
## TV RATING GENERAL - for USA only

Based on the ratings, blocks certain TV programs that you and your family do not want to view.

- 1 After inputting the password, use the ▲ or ▼ button to choose **TV Rating-General**.
- 2 Press the ► button and then use the ▲ or ▼ button to select **Age**, **Dialogue**, **Language**, **Sex** or **Violence**.  
Press the ► button and then use the ▲ or ▼ button to select block options.
  - Age(applies to TV-G,TV-PG,TV-14,TV-MA)
  - Dialogue-sexual dialogue (applies to TV-PG,TV-14)
  - 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)
- 3 Press **EXIT** button to return to TV viewing or press **MENU** button to return to the previous menu.



1



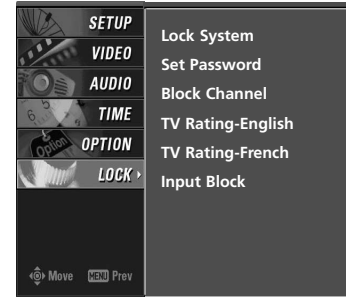
2

# PARENTAL CONTROL / RATINGS

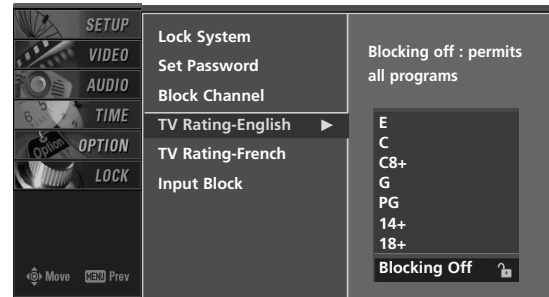
## TV RATING ENGLISH - *for CANADA only*

Selecting canadian english language rating system.

- 1 After inputting the password, use the ▲ or ▼ button to choose **TV Rating-English**.
- 2 Press the ► button and then use the ▲ or ▼ button to select **E, C, C8+, G, PG, 14+, 18+,** or **Blocking Off**.
  - E (Exempt)
  - C (Children)
  - C8+ (Children eight years and older)
  - G (General programming, suitable for all audiences)
  - PG (Parental Guidance )
  - 14+ (Viewers 14 years and older)
  - 18+ (Adult programming)
  - Blocking Off (Permits all programs)
- 3 Press **EXIT** button to return to TV viewing or press **MENU** button to return to the previous menu.



1

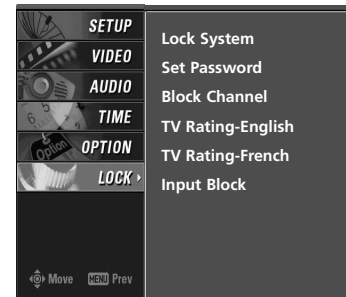


2

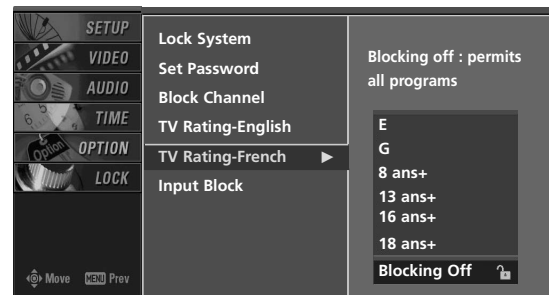
## TV RATING FRENCH - *for CANADA only*

Selecting canadian french language rating system.

- 1 After inputting the password, use the ▲ or ▼ button to choose **TV Rating-French**.
- 2 Press the ► button and then use the ▲ or ▼ button to select **E, G, 8ans+, 13ans+, 16ans+, 18ans+,** or **Blocking off**.
  - E(Exempt)
  - G(General)
  - 8ans+ (General-Not convenient for little children)
  - 13ans+ (Not convenient for children of 13 years and younger)
  - 16ans+ (Not convenient for children of 16 years and younger)
  - 18ans+ (This programs is only for adults)
  - Blocking off (Permits all programs)



1



2

- 3 Press **EXIT** button to return to TV viewing or press **MENU** button to return to the previous menu.

# APPENDIX

## TROUBLESHOOTING

### The operation does not work normally.

The remote control doesn't work	<ul style="list-style-type: none"><li>■ Check to see if there is any object between the product and the remote control causing obstruction. Ensure you are pointing the remote control directly at the TV.</li><li>■ Ensure that the batteries are installed with correct polarity (+ to +, - to -).</li><li>■ Ensure that the correct remote operating mode is set: TV, VCR etc.</li><li>■ Install new batteries.</li></ul>
Power is suddenly turned off	<ul style="list-style-type: none"><li>■ Is the sleep timer set?</li><li>■ Check the power control settings. Power interrupted.</li><li>■ No broadcast on station tuned with Auto off activated.</li></ul>

### The video function does not work.

No picture & No sound	<ul style="list-style-type: none"><li>■ Check whether the product is turned on.</li><li>■ Try another channel. The problem may be with the broadcast.</li><li>■ Is the power cord inserted into wall power outlet?</li><li>■ Check your antenna direction and/or location.</li><li>■ Test the wall power outlet, plug another product's power cord into the outlet where the product's power cord was plugged in.</li></ul>
Picture appears slowly after switching on	<ul style="list-style-type: none"><li>■ This is normal, the image is muted during the product startup process. Please contact your service center, if the picture has not appeared after five minutes.</li></ul>
No or poor color or poor picture	<ul style="list-style-type: none"><li>■ Adjust Color in menu option.</li><li>■ Keep a sufficient distance between the product and the VCR.</li><li>■ Try another channel. The problem may be with the broadcast.</li><li>■ Are the video cables installed properly?</li><li>■ Activate any function to restore the brightness of the picture.</li></ul>
Horizontal/vertical bars or picture shaking	<ul style="list-style-type: none"><li>■ Check for local interference such as an electrical appliance or power tool.</li></ul>
Poor reception on some channels	<ul style="list-style-type: none"><li>■ Station or cable product experiencing problems, tune to another station.</li><li>■ Station signal is weak, reorient antenna to receive weaker station.</li><li>■ Check for sources of possible interference.</li></ul>
Lines or streaks in pictures	<ul style="list-style-type: none"><li>■ Check antenna (Change the direction of the antenna).</li></ul>

# APPENDIX

## The audio function does not work.

Picture OK & No sound	<ul style="list-style-type: none"><li>■ Press the VOL or VOLUME button.</li><li>■ Sound muted? Press MUTE button.</li><li>■ Try another channel. The problem may be with the broadcast.</li><li>■ Are the audio cables installed properly?</li></ul>
No output from one of the speakers	<ul style="list-style-type: none"><li>■ Adjust Balance in menu option.</li></ul>
Unusual sound from inside the product	<ul style="list-style-type: none"><li>■ A change in ambient humidity or temperature may result in an unusual noise when the product is turned on or off and does not indicate a fault with the product.</li></ul>

APPENDIX

## There is a problem in PC mode. (Only PC mode applied)

The signal is out of range	<ul style="list-style-type: none"><li>■ Adjust resolution, horizontal frequency, or vertical frequency.</li><li>■ Check the input source.</li></ul>
Vertical bar or stripe on background & Horizontal Noise & Incorrect position	<ul style="list-style-type: none"><li>■ Work the Auto configure or adjust clock, phase, or H/V position. (Option)</li></ul>
Screen color is unstable or single color	<ul style="list-style-type: none"><li>■ Check the signal cable.</li><li>■ Reinstall the PC video card.</li></ul>

# MAINTENANCE

Early malfunctions can be prevented. Careful and regular cleaning can extend the amount of time you can enjoy your new TV.

**Caution:** Be sure to turn the power off and unplug the power cord before you begin any cleaning.

## Cleaning the Screen

- 1 Here's a great way to keep the dust off your screen for a while. Wet a soft cloth in a mixture of lukewarm water and a little fabric softener or dish washing detergent. Wring the cloth until it's almost dry, and then use it to wipe the screen.
- 2 Make sure the excess water is off the screen, and then let it air-dry before you turn on your TV.

## Cleaning the Cabinet

- To remove dirt or dust, wipe the cabinet with a soft, dry, lint-free cloth.
- Please be sure not to use a wet cloth.

## Extended Absence

### CAUTION

- ▶ If you expect to leave your TV dormant for a long time (such as a vacation), it's a good idea to unplug the power cord to protect against possible damage from lightning or power surges.

# APPENDIX

## PRODUCT SPECIFICATIONS

MODELS		42PC5D (42PC5D-UC)	50PC5D (50PC5D-UC)
Dimensions (Width x Height x Depth)	Including stand	44.4 x 29.6 x 15.0 inches 1129.0 x 752.5 x 380.0 mm	44.4 x 29.6 x 15.0 inches 1129.0 x 752.5 x 380.0 mm
	Excluding stand	44.4 x 27.4 x 3.9 inches 1129.0 x 695.0 x 98.5 mm	44.4 x 27.4 x 3.9 inches 1129.0 x 695.0 x 98.5 mm
Weight	including stand	64.6 pounds / 29.3 kg	64.6 pounds / 29.3 kg
	excluding stand	56.2 pounds / 25.5 kg	56.2 pounds / 25.5 kg
Power requirement		AC100-240V ~ 50/60Hz	
Television System		NTSC-M, ATSC, 64 & 256 QAM	
Program Coverage		VHF 2-13, UHF 14-69, CATV 1-135, DTV 2-69, CADTV 1-135	
External Antenna Impedance		75 ohm	
Environment condition	Operating Temperature	32 ~ 104°F (0 ~ 40°C)	
	Operating Humidity	Less than 80%	
	Storage Temperature	-4 ~ 140°F (-20 ~ 60°C)	
	Storage Humidity	Less than 85%	

- The specifications shown above may be changed without prior notice for quality improvement.



MODELS		32LC7D (32LC7D-UB)	37LC7D (37LC7D-UB)	42LC7D (42LC7D-UB)
Dimensions (Width x Height x Depth)	Including stand	31.9 x 24.8x 9.3 inches 811.0 x 630.0 x 235.0mm	36.5 x 27.3 x 11.0 inches 927.0 x 692.8 x 280.5 mm	41.5 x 32.0 x 11.9 inches 1054 x 813 x 302 mm
	Excluding stand	32.0 x 22.4 x 4.9 inches 811.0 x 566.8 x 123.5 mm	36.5 x24.8 x 3.5 inches 927.0 x 630.0 x 88.0 mm	41.5 x 29.4x 5.4 inches 1054.0 x 746.0 x 136.8 mm
Weight	including stand	48.2 pounds / 21.9kg	44.1 pounds / 20.0 kg	81.6 pounds / 37.0 kg
	excluding stand	40.8 pounds / 18.5 kg	35.3 pounds / 16.0 kg	67.0 pounds / 30.4 kg
Power requirement	AC100-240V ~ 50/60Hz			
Television System	NTSC-M, ATSC, 64 & 256 QAM			
Program Coverage	VHF 2-13, UHF 14-69, CATV 1-135, DTV 2-69, CADTV 1-135			
External Antenna Impedance	75 ohm			
Environment condition	Operating Temperature	32 ~ 104°F (0 ~ 40°C)		
	Operating Humidity	Less than 80%		
	Storage Temperature	-4 ~ 140°F (-20 ~ 60°C)		
	Storage Humidity	Less than 85%		

# APPENDIX

## PROGRAMMING THE REMOTE CONTROL

The provided universal remote control can be programmed to operate most remote-controllable devices. Note that the remote may not control all models of other brands.

### Programming a code into a remote mode

- 1** To find out whether your remote control can operate each device without programming, turn on the device (such as a VCR) and press the corresponding mode button on the remote. After that, press the **POWER** button. If the device is turned off and it responds properly the remote control need not be programmed. If not, the remote should be programmed to operate the device. The programming procedures are explained below.
- 2** Press the **MENU** and **MUTE** button continuously at the same time for two seconds; the currently selected device button is illuminated. If you don't press any button for 20 seconds, the light on the mode button will be turned off. In that case, you have to repeat from step 2.
- 3** Enter the appropriate code from the code table on the following pages. When pressing the button, the light blinks at a time. If the device turned off, the programming is successful.
- 4** Press the **MENU** button to store the code. After blinking twice, this code is stored.
- 5** Test the remote control functions to see if the device responds properly. If not, steps 2-5.

# Remote Control Code

## VCR

Brand	Codes	Brand	Codes	Brand	Codes
AIWA	034	MAGNAVOX	031 033 034 041	SAMSUNG	032 040 102 104
AKAI	016 043 046 124 125 146		067 068 012 031 033 067		105 107 109 112 113 115 120 122 125
AMPRO	072	MARANTZ	069	SANSUI	022 043 048 135
ANAM	031 033 103	MARTA	101	SANYO	003 007 010 014
AUDIO DYNAMICS	012 023 039 043	MATSUI	027 030		102 134
BROKSONIC	035 037 129	MEI	031 033	SCOTT	017 037 112 129
CANON	028 031 033	MEMOREX	003 010 014 031		131
CAPEHART	108		033 034 053 072	SEARS	003 008 009 010
CRAIG	003 040 135		101 102 134 139		013 014 017 020
CURTIS MATHES	031 033 041	MGA	045 046 059		031 042 073 081
DAEWOO	005 007 010 064 065 108 110 111 112 116 117 119	MINOLTA	013 020		101
DAYTRON	108	MITSUBISHI	013 020 045 046 049 051 059 061 151	SHARP	031 054 149
DBX	012 023 039 043	MTC	034 040	SHINTOM	024
DYNATECH	034 053	MULTITECH	024 034	SONY	003 009 031 052 056 057 058 076 077 078 149
ELECTROHOME	059	NEC	012 023 039 043 048	SOUNDESIGN	034
EMERSON	006 017 025 027 029 031 034 035 036 037 046 101 129 131 138 153	NORDMENDE	043	STS	013
FISHER	003 008 009 010	OPTONICA	053 054	SYLVANIA	031 033 034 059 067
FUNAI	034	PANASONIC	066 070 074 083 133 140 145	SYMPHONIC	034
GE	031 033 063 072 107 109 144 147	PENTAX	013 020 031 033 063	TANDY	010 034
GO VIDEO	132 136	PHILCO	031 034 067	TATUNG	039 043
HARMAN KARDON	012 045	PHILIPS	031 033 034 054 067 071 101	TEAC	034 039 043
HITACHI	004 018 026 034 043 063 137 150	PILOT	101	TECHNICS	031 033 070
INSTANTREPLAY	031 033	PIONEER	013 021 048	TEKNIKA	019 031 033 034 101
JCL	031 033	PORTLAND	108	THOMAS	034
JCPENNY	012 013 015 033 040 066 101	PULSAR	072	TMK	006
JENSEN	043	QUARTZ	011 014	TOSHIBA	008 013 042 047 059 082 112 131
JVC	012 031 033 043 048 050 055 060 130 150 152	QUASAR	033 066 075 145	TOTEVISION	040 101
KENWOOD	014 034 039 043 047 048	RCA	013 020 033 034 040 041 062 063 107 109 140 144 145 147	UNITECH	040
LG (GOLDSTAR)	001 012 013 020 101 106 114 123	REALISTIC	003 008 010 014 031 033 034 040 053 054 101	VECTOR RESEARCH	012
LLOYD	034	RICO	058	VICTOR	048
LXI	003 009 013 014 017 034 101 106	RUNCO	148	VIDEO CONCEPTS	012 034 046
MAGIN	040	SALORA	014	VIDEOSONIC	040
				WARDS	003 013 017 024 031 033 034 040 053 054 131
				YAMAHA	012 034 039 043
				ZENITH	034 048 056 058 072 080 101

# APPENDIX

## Cable Box

Brand	Codes	Brand	Codes	Brand	Codes
ABC	003 004 039 042 046 052 053	LG (GOLDSTAR)	074 001 106 101 005	REMBRANT	025
AJIN	112	M-NET	037	SAMSUNG	102 107 030 068
ANTRONIK	014	MACOM	033	SCIENTIFIC ATLANTA	003 011 041 042 043 045 046
ARCHER	005 007 014 024	MAGNAVOX	010 012 064 079	SHERITECH	022
CABLE STAR	026	MEMOREX	100	SIGNAL	030
CENTURION	092	MOVIE TIME	028 032	SIGNATURE	052
CENTURY	007	NSC	015 028 038 071 073	SL MARX	030
CITIZEN	007	OAK	016 031 037 053	SPRUCER	047 078
COLOUR VOICE	065 090	PANASONIC	044 047	STARCOM	002 004 008 009
COMBANO	080 081	PARAGON	100	STARGATE	008 030
COMTRONICS	019 030	PHILIPS	006 012 013 020 065 085 090	TADIRAN	030
DIAMOND	023	PIONEER	034 051 052 063 076	TAEKWANG	110
EAGLE	020 030 040	POST NEWS WEEK	016	TAIHAN	105
EASTERN	057 062 066	PRUCER	059	TANDY	017
ELECTRICORD	032	PTS	011 048 071 072 073 074	TEXSCAN	029
GE	072	PULSAR	100	TOCOM	039 040 056
GEMINI	008 022 025 054	RCA	047	TOSHIBA	100
GI	052 074	REGAL	049 050	UNIKA	007 014 024
GOLDEN CHANNEL	030	REGENCY	057	UNITED CABLE	004 053
HAMLIN	049 050 055			UNIVERSAL	005 007 014 024 026 027 032 035
HITACHI	052 055			VIEWSTAR	012 015 018 086 087 088 089
HOSPITALITY	070 077			ZENITH	100 114 060 093
JERROLD	002 003 004 008 009 010 052 069				

## HDSTB

Brand	Codes	Brand	Codes	Brand	Codes
ALPHASTAR DSR	123	HOUSTON TRACKER	033 037 039 051	PROSAT	072
AMPLICA	050	HUGHES	057 104	RCA	066 106
BIRDVIEW	051 126 129	JANIEL	068	REALISTIC	043 074
CHANNEL MASTER	013 014 015 018 036 055	JERROLD	060 147	SAMSUNG	123
CHAPARRAL	008 009 012 077	KATHREIN	061	SATELLITE SERVICE CO	028 035 047 057 085
CITOH	054	LEGEND	108	SCIENTIFIC ATLANTA	032 138
CURTIS MATHES	050 145	LG	057	SONY	103
DRAKE	005 006 007 010 011 052 112 116 141	LUTRON	001	STARCAST	041
DX ANTENNA	024 046 056 076	LUXOR	132	SUPER GUIDE	020 124 125
ECHOSTAR	038 040 057 058 093 094 095 096 097 098 099 100 122	MACOM	062 144 010 059 063 064 065	TEECOM	023 026 075 087 088 090 107 130 137
ELECTRO HOME	089	MEMOREX	010 059 063 064 065	TOSHIBA	002 127
EUROPLUS	114	NEXTWAVE	028 124 125	UNIDEN	016 025 042 043 044 045 048 049 078 079 080 086 101 135 136
FUJITSU	017 021 022 027 133 134	NORSAT	069 070	VIEWSTAR	115
GENERAL INSTRUMENT	003 004 016 029 031 059 101	PACE SKY SATELLITE	143	WINEGARD	128 146
HITACHI	139 140	PANASONIC	060 142	ZENITH	081 082 083 084 091 120
		PANSAT	121		
		PERSONAL CABLE	117		
		PHILIPS	071		
		PICO	105		
		PRESIDENT	019 102		
		PRIMESTAR	030 110 111		

## Audio

Brand	Codes	Brand	Codes	Brand	Codes
AIWA	014 028 070 096 125 129 139 229 230		157 158 159 160 189 207 222 224 225 226 227 243 247	RCX	092
AKAI	163			REALISTIC	103 106
ANAM	003 014 017 023 059 106 189 216 217 235 236	LOTTE	014 016 036 098 100 172 173 174 175 176 177 178 179 180 181 183 201 202 208 213 214 219 223 232 238 240	SAMSUNG	124 145 146 182 193 194 195 203 204 244 245 246
BURMECTER	252			SANSUI	011 135 138 144
CARVER	086			SANYO	019 083 234
CLARION	199			SCOTT	106 186
DAEWOO	027 053 060 084 102 148 198 221	LXI	103	SHARP	031 032 051 052 072 082 117 119 156 184 199 200 206 209
DENON	015 075 130 143	MAGNAVOX	111	SHERWOOD	005 006 158
FANTASIA	071	MARANTZ	002 018 020 025 034 041 081 090 097 112	SONY	044 045 109 114 118 126 248 249
FINEARTS	022			TAEKWANG	012 020 073 074 076 077 105 161 162 163 164 165 166 167 168 169 205 231 233 242
FISHER	089 099	MCINTOSH	049		
LG(GOLDSTAR)	001 021 024 029 087 107 108 110 190 191 192 210 211 212 239	MCS	104		
		MEMOREX	107		
		NAD	046		
HAITAI	034 035 188 222	ONKYO	013 040 041 047 048 056 057 132 133 140	TEAC	010 085 106 136 185 187 237
HARMAN/KARDON	068			TECHNICS	101 113 128 134 147 218
JVC	004 013 141	OPTIMUS	158	TOSHIBA	137
KEC	185 186 187	PANASONIC	007 033 064 113 142 220 241 251	THE	061
KOHEL	030	PENNEY	104	VICTOR	088 131
NAD	045 046	PHILIPS	026 112 143	WARDS	089
KENWOOD	038 050 067 089 170 171 197 206 215 222	PIONEER	039 042 043 063 065 091 093 094 115 123 127 250	YAMAHA	054 055 066 092 199
INKEL	037 058 062 069 078 079 095 121 122 149 150 151 152 153 154 155	QUASAR	113		
		RCA	080		

## DVD

Brand	Codes	Brand	Codes	Brand	Codes
APEX DIGITAL	022	mitsubishi	002	RCA	005 006
DENON	020 014	NAD	023	SAMSUNG	011 015
GE	005 006	ONKYO	008 017	SONY	007
HARMAN KARDON	027	PANASONIC	003 009	THOMPSON	005 006
JVC	012	PHILIPS	013	TOSHIBA	019 008
LG	001 010 016 025	PIONEER	004 026	YAMAHA	009 018
MAGNAVOX	013	PROCEED	021	ZENITH	010 016 025
MARANTZ	024	PROSCAN	005 006		

# APPENDIX

## IR CODES

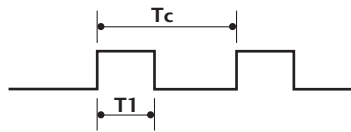
### 1. How to Connect

- Connect your wired remote control to the Remote Control port on the TV.

### 2. Remote Control IR Codes

#### ■ Output waveform

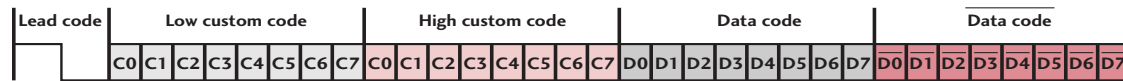
Single pulse, modulated with 37.917KHz signal at 455KHz



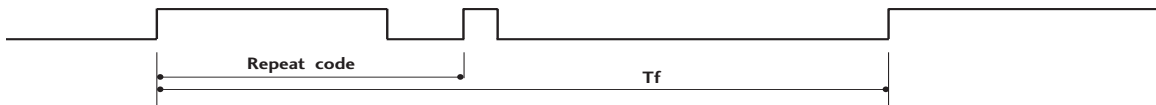
Carrier frequency  
 $FCAR = 1/TC = fOSC/12$   
 Duty ratio =  $T1/TC = 1/3$

#### ■ Configuration of frame

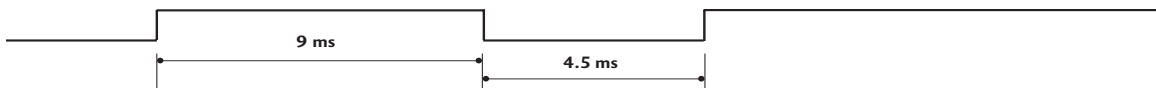
1st frame



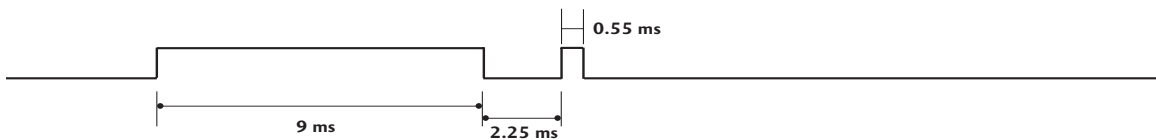
Repeat frame



#### ■ Lead code

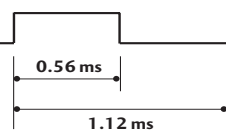


#### ■ Repeat code

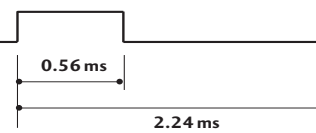


#### ■ Bit description

Bit "0"

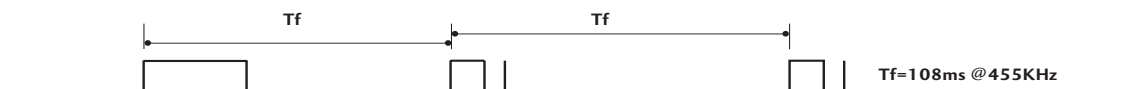


Bit "1"



#### ■ Frame interval: Tf

The waveform is transmitted as long as a key is depressed.



Code (Hexa)	Function	Note	Code (Hexa)	Function	Note
0F	TV INPUT	Remote control Button	BF	COMPONENT1	Discrete IR Code
0B	INPUT	Remote control Button			(Component1 Input Selection)
08	POWER	Remote control Button (Power On/Off)	D4	COMPONENT2	Discrete IR Code
79	RATIO	Remote control Button			(Component2 Input Selection)
0E	TIMER	Remote control Button	D5	RGB-PC	Discrete IR Code
10-19	Number Key 0-9	Remote control Button			(RGB-PC Input Selection)
4C	- (Dash)	Remote control Button	D7	RGB-DTV	Discrete IR Code
1A	FLASHBK	Remote control Button			(RGB-DTV Input Selection)
09	MUTE	Remote control Button	C6	HDMI1/DVI	Discrete IR Code
02	VOL ▲	Remote control Button			(HDMI1/DVI Input Selection)
03	VOL ▼	Remote control Button	CC	HDMI2	Discrete IR Code
00	CH ▲	Remote control Button			(HDMI2 Input Selection)
01	CH ▼	Remote control Button	76	Ratio 4:3	Discrete IR Code
1E	FAV	Remote control Button			(Only 4:3 Mode)
AA	INFO	Remote control Button	77	Ratio 16:9	Discrete IR Code
39	CC	Remote control Button			(Only 16:9 Mode)
40	▲	Remote control Button	AF	Ratio Zoom	Discrete IR Code
41	▼	Remote control Button			(Only Zoom1 Mode)
07	◀	Remote control Button	70	POP	Discrete IR Code
06	▶	Remote control Button			(Channel Search)
44	ENTER	Remote control Button	C4	POWER ON	Discrete IR Code
43	MENU	Remote control Button			(Only Power On)
52	EZ SOUND	Remote control Button	C5	POWER OFF	Discrete IR Code
4D	EZ PIC	Remote control Button			(Only Power Off)
5B	EXIT	Remote control Button	A9	TV GUIDE	Remote control Button
60	PIP	Remote control Button	92	APM	Remote control Button
72	PIPCH -	Remote control Button			
71	PIPCH +	Remote control Button			
61	PIP INPUT	Remote control Button			
63	SWAP	Remote control Button			
0A	SAP	Remote control Button			
CB	ADJUST	Remote control Button			
D6	TV	Discrete IR Code (TV Input Selection)			
5A	AV1	Discrete IR Code (AV1 Input Selection)			
D0	AV2	Discrete IR Code (AV2 Input Selection)			

# APPENDIX

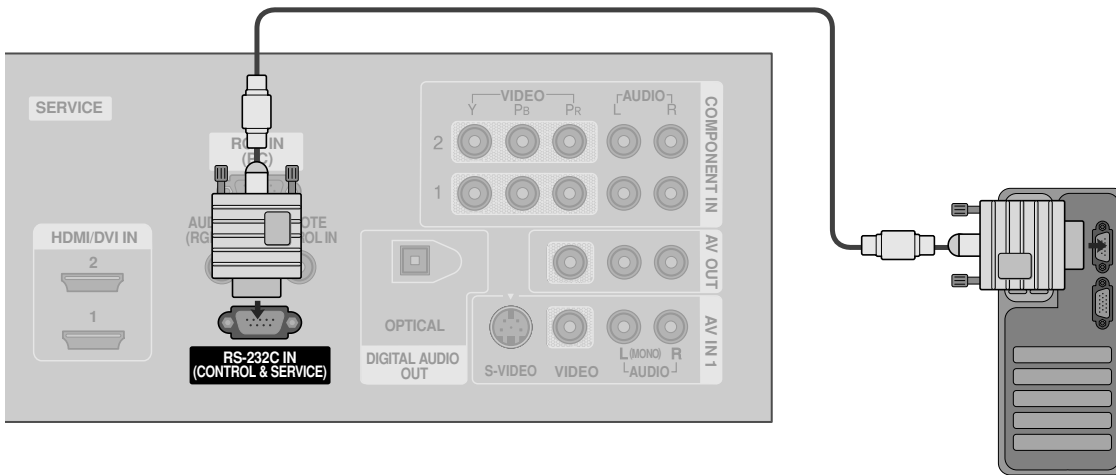
## EXTERNAL CONTROL THROUGH RS-232C

Connect the RS-232C (serial port) input jack to an external control device (such as a computer or an A/V control system) to control the product's functions externally.

Connect the serial port of the control device to the RS-232C jack on the product back panel.

Note: RS-232C connection cables are not supplied with the product.

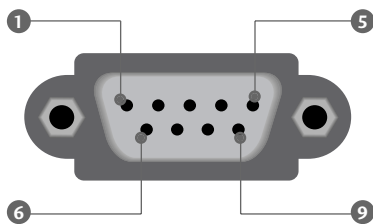
### RS-232C Setup



APPENDIX

### Type of Connector; D-Sub 9-Pin Male

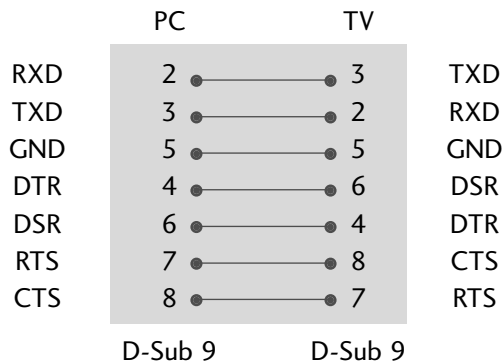
No.	Pin Name
1	No connection
2	RXD (Receive data)
3	TXD (Transmit data)
4	DTR (DTE side ready)
5	GND
6	DSR (DCE side ready)
7	RTS (Ready to send)
8	CTS (Clear to send)
9	No Connection



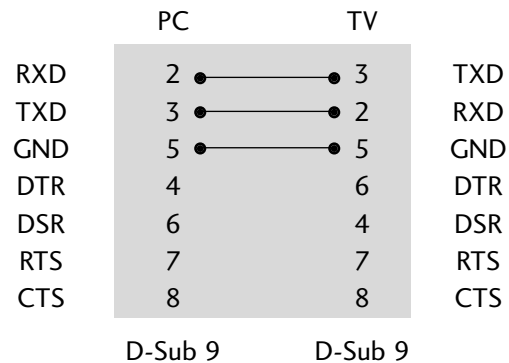


## RS-232C Configurations

### 7-Wire Configurations (Standard RS-232C cable)



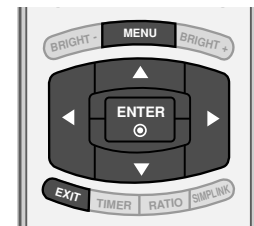
### 3-Wire Configurations (Not standard)



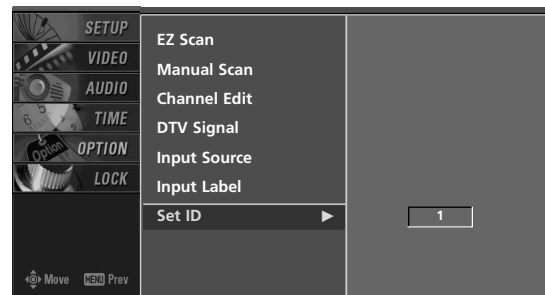
## Set ID

Use this function to specify a TV ID number.  
Refer to 'Real Data Mapping 1'. ▶ p.113.

- 1 Press the **MENU** button and then use ▲ or ▼ button to select the **SETUP** menu.
- 2 Press the ► button and then use ▲ or ▼ button to select **Set ID**.
- 3 Press the ► button and then use ▲ or ▼ button to adjust **Set ID** to choose the desired TV ID number. The adjustment range of Set ID is 1~99.
- 4 Press **EXIT** button to return to TV viewing or press **MENU** button to return to the previous menu.



1



2 3

## Communication Parameters

- Baud rate : 9600 bps (UART)
- Data length : 8 bits
- Parity : None
- Stop bit : 1 bit
- Communication code : ASCII code
- Use a crossed (reverse) cable.

# APPENDIX

## Command Reference List

	COMMAND1	COMMAND2	DATA (Hexadecimal)		COMMAND1	COMMAND2	DATA (Hexadecimal)
01. Power	k	a	0 ~ 1	11. Sharpness	k	k	0 ~ 64
02. Input Select	k	b	0 ~ 9	12. OSD Select	k	l	0 ~ 1
03. Aspect Ratio	k	c	(▶ p.113)	13. Remote Control Lock Mode	k	m	0 ~ 1
04. Screen Mute	k	d	0 ~ 1	14. Treble	k	r	0 ~ 64
05. Volume Mute	k	e	0 ~ 1	15. Bass	k	s	0 ~ 64
06. Volume Control	k	f	0 ~ 64	16. Balance	k	t	0 ~ 64
07. Contrast	k	g	0 ~ 64	17. Color Temperature	k	u	0 ~ 3
08. Brightness	k	h	0 ~ 64	18. ISM Method	j	p	(▶ p.115)
09. Color	k	i	0 ~ 64	19. Low Power	j	q	0 ~ 1
10. Tint	k	j	0 ~ 64				

	COMMAND1	COMMAND2	DATA0 (Hexadecimal)	DATA1 (Hexadecimal)	DATA2 (Hexadecimal)	DATA3 (Hexadecimal)	DATA4 (Hexadecimal)	DATA5 (Hexadecimal)
20. Channel Tuning	m	a	physical program high	major program low	major low	minor high	minor low	attribute
21. Channel Add/Del	m	b	0 ~ 1					
22. Key	m	c	(▶ p.116)					
23. Input Select	x	b	(▶ p.116)					

## Transmission / Receiving Protocol

### Transmission

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

[Command 1] : First command to control the set.(j, k, m or x)

[Command 2] : Second command to control the set.

[Set ID] : You can adjust the set ID to choose desired TV ID number in Setup menu. Adjustment range is 1 ~ 99. When selecting Set ID '0', every connected the TV is controlled. Set ID is indicated as decimal (1 ~ 99) on menu and as Hexa decimal (0x0 ~ 0x63) 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 TV 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 TV transmits ACK (acknowledgement) based on this format when receiving abnormal data from non-viable functions or communication errors.

Data1: Illegal Code

Data2: Not supported function

Data3: Wait more time

**01. Power (Command2:a)**

To control Power On/Off of the TV.

*Transmission* [k][a][ ][Set ID][ ][Data][Cr]

Data 0 : Power Off            Data 1 : Power On

*Acknowledgement* [a][ ][Set ID][ ][OK/NG][Data][x]

\* In a like manner, if other functions transmit 'FF' data based on this format, Acknowledgement data feedback presents status about each function.

**02. Input Select (Command2:b) (Main Picture Input)**

To select input source for the TV.

*Transmission* [k][b][ ][Set ID][ ][Data][Cr]

Data 0: DTV                    Data 5: Component 2

Data 1: Analog                Data 7: RGB-PC

Data 2: AV1                    Data 8: HDMI1/DVI

Data 3: AV1                    Data 9: HDMI2

Data 4: Component 1

*Acknowledgement* [b][ ][Set ID][ ][OK/NG][Data][x]

**03. Aspect Ratio (Command2:c) (Main picture format)**

To adjust the screen format.

You can also adjust the screen format using the RATIO button on remote control or in the Option menu.

*Transmission* [k][c][ ][Set ID][ ][Data][Cr]

Date 1: 4:3                    5: Zoom 2

2: 16:9                        6: Set by program

3: Horizon

4: Zoom 1

*Acknowledgement* [c][ ][Set ID][ ][OK/NG][Data][x]

**04. Screen Mute (Command2:d)**

To select screen mute on/off.

*Transmission* [k][d][ ][Set ID][ ][Data][Cr]

Data 0 : Screen mute off (Picture on)

Data 1 : Screen mute on (Picture off)

*Acknowledgement* [d][ ][Set ID][ ][OK/NG][Data][x]

**05. Volume Mute (Command2:e)**

To control volume mute on/off.

You can also adjust mute using the MUTE button on remote control.

*Transmission* [k][e][ ][Set ID][ ][Data][Cr]

Data 0 : Volume mute on (Volume off)

Data 1 : Volume mute off (Volume on)

*Acknowledgement* [e][ ][Set ID][ ][OK/NG][Data][x]

**06. Volume Control (Command2:f)**

To adjust volume.

You can also adjust volume with the volume buttons on remote control.

*Transmission* [k][f][ ][Set ID][ ][Data][Cr]

Data Min : 0 ~ Max : 64

Refer to 'Real data mapping1' as shown below.

*Acknowledgement* [f][ ][Set ID][ ][OK/NG][Data][x]

**07. Contrast (Command2:g)**

To adjust screen contrast.

You can also adjust contrast in the Video menu.

*Transmission* [k][g][ ][Set ID][ ][Data][Cr]

Data Min : 0 ~ Max : 64

Refer to 'Real data mapping1' as shown below.

*Acknowledgement* [g][ ][Set ID][ ][OK/NG][Data][x]

**08. Brightness (Command2:h)**

To adjust screen brightness.

You can also adjust brightness in the Video menu.

*Transmission* [k][h][ ][Set ID][ ][Data][Cr]

Data Min : 0 ~ Max : 64(\*transmit by Hexadecimal code)

Refer to 'Real data mapping1' as shown below.

*Acknowledgement* [h][ ][Set ID][ ][OK/NG][Data][x]

**09. Color (Command2:i)**

To adjust the screen color.

You can also adjust color in the Video menu.

*Transmission* [k][i][ ][Set ID][ ][Data][Cr]

Data Min : 0 ~ Max : 64

Refer to 'Real data mapping1' as shown below.

*Acknowledgement* [i][ ][Set ID][ ][OK/NG][Data][x]

\*Real data mapping 1

0 : Step 0

Å : Step 10 (SET ID 10)

ƒ : Step 15 (SET ID 15)

10 : Step 16 (SET ID 16)

6‡ : Step 99 (SET ID 99)

64 : Step 100

## 10. Tint (Command2:j)

To adjust the screen tint.

You can also adjust tint in the Video menu.

*Transmission* [k][j][ ][Set ID][ ][Data][Cr]

Data Red : 0 ~ Green : 64

\*Refer to 'Real data mapping1'. ► p.113.

*Acknowledgement* [j][ ][Set ID][ ][OK/NG][Data][x]

## 11. Sharpness (Command2:k)

To adjust the screen sharpness.

You can also adjust sharpness in the Video menu.

*Transmission* [k][k][ ][Set ID][ ][Data][Cr]

Data Min: 0 ~ Max: 64

\*Refer to 'Real data mapping1'. ► p.113.

*Acknowledgement* [k][ ][Set ID][ ][OK/NG][Data][x]

## 12. OSD Select (Command2:l)

To select OSD (On Screen Display) on/off.

*Transmission* [k][l][ ][Set ID][ ][Data][Cr]

Data 0: OSD off                      Data 1: OSD on

*Acknowledgement* [l][ ][Set ID][ ][OK/NG][Data][x]

## 13. Remote Control Lock Mode (Command2:m)

To lock the remote control and the front panel controls on the set.

*Transmission* [k][m][ ][Set ID][ ][Data][Cr]

Data 0: Lock off                      Data 1: Lock on

*Acknowledgement* [m][ ][Set ID][ ][OK/NG][Data][x]

If you're not using the remote control and front panel controls on the TV, use this mode. When main power is on/off, remote control lock is released.

## 14. Treble (Command2:r)

To adjust treble.

You can also adjust treble in the Audio menu.

*Transmission* [k][r][ ][Set ID][ ][Data][Cr]

Data Min: 0 ~ Max: 64(\*transmit by Hexadecimal code)

\*Refer to 'Real data mapping1'. ► p.113.

*Acknowledgement* [r][ ][Set ID][ ][OK/NG][Data][x]

## 15. Bass (Command2:s)

To adjust bass.

You can also adjust bass in the Audio menu.

*Transmission* [k][s][ ][Set ID][ ][Data][Cr]

Data Min: 0 ~ Max: 64(\*transmit by Hexadecimal code)

\*Refer to 'Real data mapping1'. ► p.113.

*Acknowledgement* [s][ ][Set ID][ ][OK/NG][Data][x]

## 16. Balance (Command2:t)

To adjust balance.

You can also adjust balance in the Audio menu.

*Transmission* [k][t][ ][Set ID][ ][Data][Cr]

Data Min: 0 ~ Max: 64(\*transmit by Hexadecimal code)

\*Refer to 'Real data mapping1'. ► p.113.

*Acknowledgement* [t][ ][Set ID][ ][OK/NG][Data][x]

## 17. Color Temperature (Command2:u)

To adjust color temperature.

You can also adjust color temperature in the Video menu.

*Transmission* [k][u][ ][Set ID][ ][Data][Cr]

Data 0: Medium    1: Cool    2: Warm    3: User

*Acknowledgement* [u][ ][Set ID][ ][OK/NG][Data][x]

## 18. ISM Method (Command2:p)

To avoid having a fixed image remain on screen.

*Transmission* [j][p][ ][Set ID][ ][Data][Cr]

Data 1: Inversion                      2: Orbiter

4: White Wash                      8: Normal

*Acknowledgement* [p][ ][Set ID][ ][OK/NG][Data][x]

## 19. Low Power (Command2:q)

To control the low power function on/off.

*Transmission* [j][q][ ][Set ID][ ][Data][Cr]

Data 0: Low power off                      1: Low power on

*Acknowledgement* [q][ ][Set ID][ ][OK/NG][Data][x]

## 20. Channel Tuning (Command: m a)

To tune channel to following physical/major/minor number.

*Transmission* [m][a][ ][Set ID][ ][Data0][ ][Data1][ ][Data2][ ][Data3][ ][Data4][ ][Data5][Cr]

Data 0: Physical Channel Number(Transmit by Hexadecimal code)

NTSC air: 02~45, NTSC cable: 01 ~87

ATSC air: 02~45, ATSC cable: 01 ~87

Data 1,Data2: Major Channel Number (two part) / Channel Number (One part)

Data 1: High byte                      Data2: Low byte

Two part channel number: Major number-Minor number

One part channel number: If the channel band is ATSC digital cable, it can be used. In case of using one part channel number, minor channel does not need.

Data3, Data 4: Minor Channel Number

Data3: High byte                      Data4: Low byte

7	Main/Sub Picture	6	Using Physical Channel	5	Two/One Part Channel	4	Reserved	3	2	1	0	Step
0	Main	0	Two	0	Use	x		0	0	0	0	NTSC Air
1	Sub	1	One	1	No Use	x		0	0	0	1	NTSC Cable
						x		0	0	1	0	ATSC Air
						x		0	0	1	1	ATSC Cable_std
						x		0	1	0	0	ATSC Cable_hrc
						x		0	1	0	1	ATSC Cable_irc
						x		0	1	1	0	ATSC cable_auto
						x		1	1	1	1	Reserved
						x		x	x	x	x	-
						x		1	1	1	1	Reserved

All data are transmitted by Hexadecimal code

\* Two/One part Channel: 6th bit

This bit is used in a cable-ready system.

\* Using physical channel: 5th bit

If the channel band is NTSC air or NTSC cable, channel tuning can be done by only physical channel. In this case, using physical channel bit must be low(0).

But if the channel band is ATSC air or ATSC cable, there are two cases that physical channel enable or disable.

If the physical channel sending is meaningful, you should set this bit low(0). If the physical channel sending is meaningless, you should set this bit high(1).

Example)

1. Analog channel: NTSC cable, channel number(35), main picture Command: ma 00 23 xx xx xx 01 attribute(0x01): main picture, two part(it's not mandatory), using physical channel, NTSC cable 'xx' data: don't care major and minor channel number in case analog channel tuning.
2. Digital channel: ATSC air, channel number(don't know physical channel, major(30), minor(3)), sub picture Command: ma 00 xx 00 1E 00 03 A2 attribute(0xA2): sub picture, two part, not using physical channel, ATSC air 'xx' data: don't care analog channel number in case digital channel tuning.
3. Digital channel: ATSC air, channel number(physical(20),major(20), minor(3)), sub picture Command: ma 00 14 00 14 00 03 82 attribute(0x82): sub picture, two part, using physical channel, ATSC air.

```
Acknowledgement[a][ ][Set ID][ ][OK][Data0][Data1][Data2][Data3][Data4][x][a][ ][Set ID][ ][NG][Data0][x]
```

## 21. Channel Add/Del (Command: m b)

To add and delete the channels

```
Transmission [m][b][ ][Set ID][ ][Data][Cr]
```

Data 0: Channel Delete      Data 1: Channel Add

```
Acknowledgement [b][ ][Set ID][ ][OK/NG][Data][x]
```

## 22. Key (Command: m c)

To send IR remote key code.

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

Data Key code: Refer to page 118.

```
Acknowledgement [c][ ][Set ID][ ][OK/NG][Data][x]
```

## 23. Input select(Command: x b) (Main Picture Input)

To select input source for TV.

```
Transmission [x][b][ ][Set ID][ ][Data][Cr]
```

Data 00 : DTV (Antenna)      Data 40 : Component 1

Data 01 : DTV (Cable)      Data 41 : Component 2

Data 10 : Analog (Antenna)      Data 60 : RGB PC

Data 11 : Analog (Cable)      Data 90 : HDMI1/DVI

Data 20 : AV1      Data 91 : HDMI2

Data 21 : AV2

```
Acknowledgement [b][ ][Set ID][ ][OK/NG][Data][x]
```