

AUDIO OUT SETUP

Send the TV's audio to external audio equipment via the Digital Audio Output (Optical) port.

Analog

1. How to connect

- 1 Connect audio outputs to the TV's **AUDIO OUT** jacks.
- 2 Set the "TV Speaker option - Off" in the AUDIO menu. (▶ p.69). See the external audio equipment instruction manual for operation.

Digital

1. How to connect

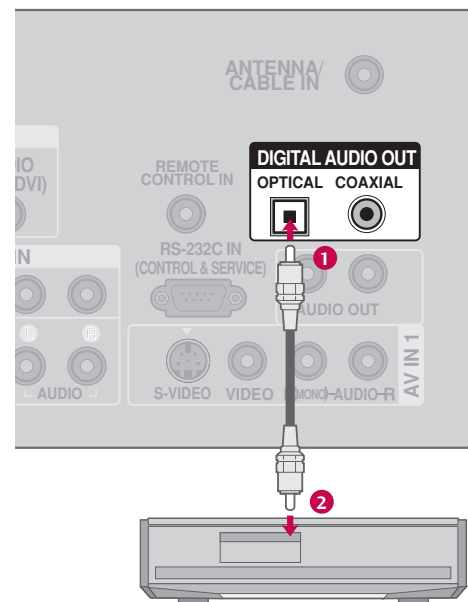
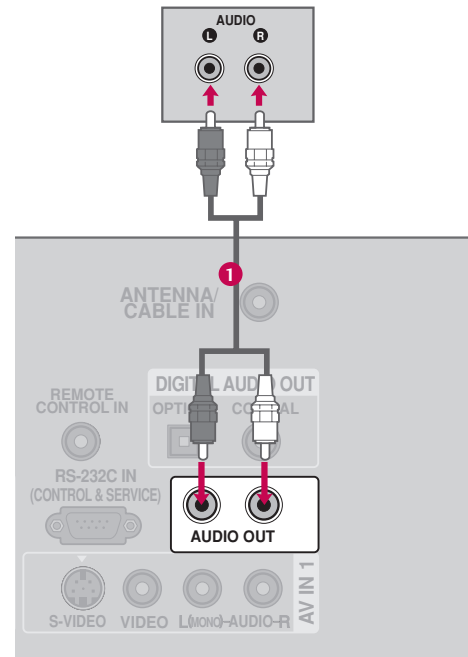
- 1 Connect one end of the optical or coaxial cable to the TV's **OPTICAL** or **COAXIAL** port of **DIGITAL AUDIO OUT**.
- 2 Connect the other end of the optical or coaxial cable to the digital audio input on the audio equipment.
- 3 Set the "TV Speaker option - Off" in the AUDIO menu. (▶ p.69). See the external audio equipment instruction manual for operation.

! NOTE

- ▶ When connecting with external audio equipments, such as amplifiers or speakers, please turn the TV speakers off. (▶ p.69)

⚠ CAUTION

- ▶ Do not look into the optical output port. Looking at the laser beam may damage your vision.
- ▶ Block the SPDIF out(optical/coaxial) about the contents with ACP(Audio Copy Protection) function.



WATCHING TV / CHANNEL CONTROL

REMOTE CONTROL FUNCTIONS

When using the remote control, aim it at the remote control sensor on the TV.

MODE Select the remote operating mode: TV, DVD, VCR, AUDIO, CABLE or STB. If the mode of another product is selected, a button on the remote control which is not used for the selected product can control the TV.

MEDIAHOST Enter to the **MEDIAHOST** mode.

MEDIAHOST , VCR/DVD buttons

- Controls the **MEDIAHOST** mode.
- Control video cassette recorders or DVD players.

MENU Displays the main menu.

BRIGHT +/-

- Adjust brightness on screen.
- It turns to the default settings brightness by changing mode source.

THUMBSTICK (Up/Down/Left Right/ENTER) Navigate the on-screen menus and adjust the system settings to your preference.

EXIT Clear all on-screen displays and return to TV viewing from any menu.

TIMER Select the amount of time before your TV turns off automatically. ▶ **p.80**

RATIO Change the aspect ratio. ▶ **p.53**

SIMPLINK See a list of AV devices connected to TV. When you toggle this button, the Simplink menu appears at the screen. ▶ **p.42**

VOLUME UP /DOWN Increase/decrease the sound level.

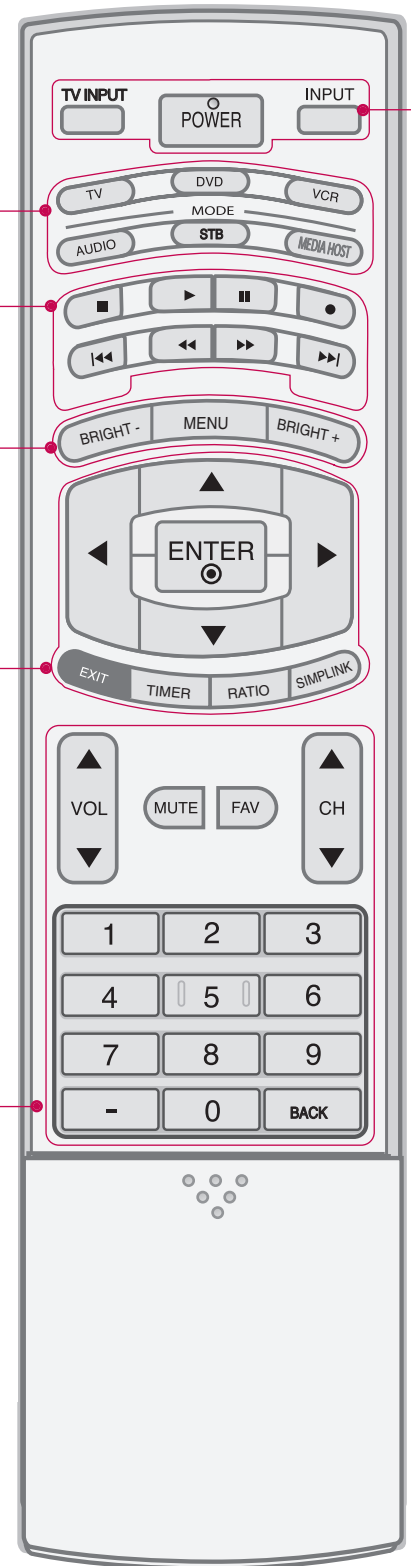
MUTE Switch the sound on or off. ▶ **p.36**

FAV Scroll through the programmed Favorite channels. ▶ **p.40**

CHANNEL UP/DOWN NUMBER button

— (DASH) Used to enter a program number for multiple program channels such as 2-1, 2-2, etc.

BACK Tune to the last channel viewed.

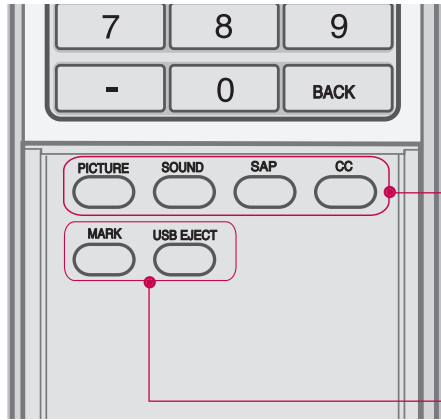


POWER Turns your TV or any other programmed equipment on or off, depending on the mode.

TV INPUT In AV 1-2, Component 1-2, RGB-PC, HDMI1, HDMI2 and HDMI3 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, HDMI1, HDMI2, HDMI3 (Antenna, Cable, AV 1-2, Component 1-2, RGB-PC, HDMI1, HDMI2, HDMI3 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.54

SOUND Select the appropriate type of sound for type of program. ► p.66

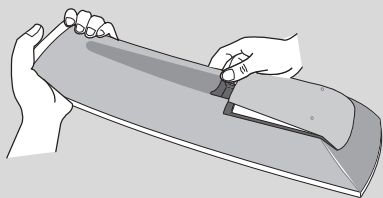
SAP Analog mode: Selects MTS sound (Mono, Stereo, or a SAP) ► p.70
DTV mode: Changes the audio language.

CC Select the Caption On/Off. ► p.73

MARK Enter the selected functions. ► p.48

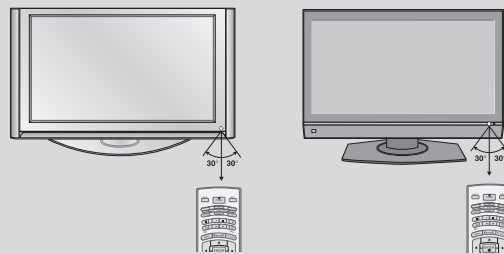
USB EJECT Remove the USB device. ► p.32

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.

CHANNEL SELECTION

- 1** Press the **CH** (\blacktriangle or \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.

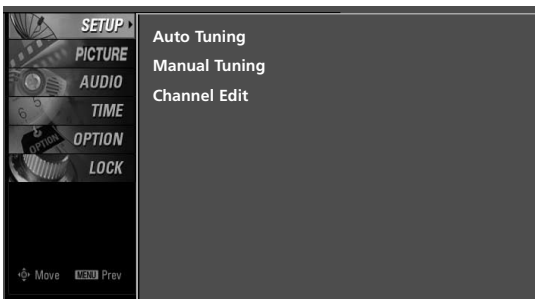


ON-SCREEN MENUS SELECTION

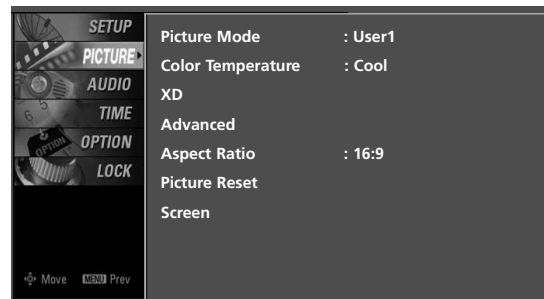
Your TV's OSD (On Screen Display) may differ slightly from what is shown in this manual.

- 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



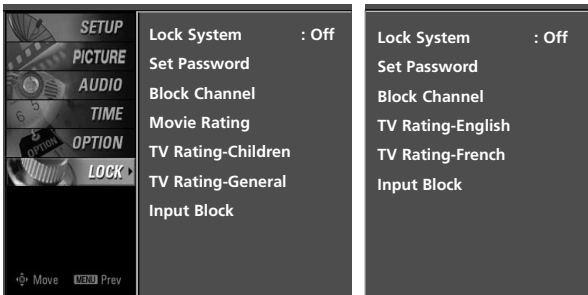
PICTURE



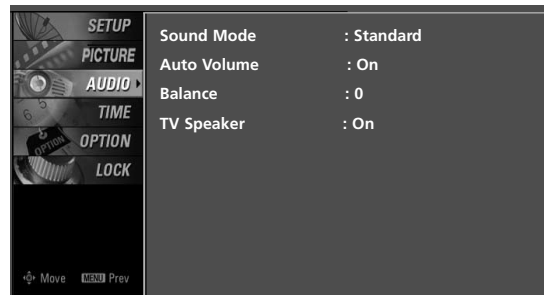
LOCK

For USA

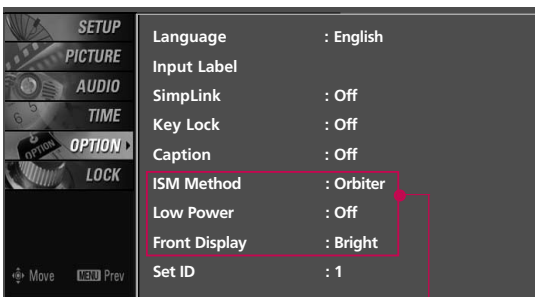
For Canada



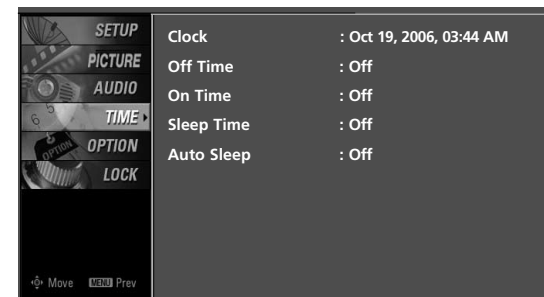
AUDIO



OPTION



TIME



Only Plasma TV model

WATCHING TV / CHANNEL CONTROL

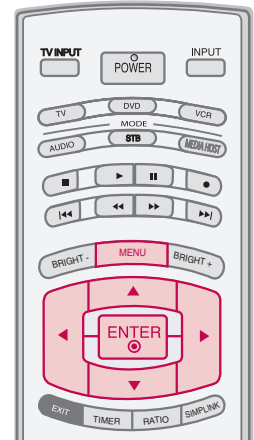
CHANNEL SETUP

Auto Scan (Auto Tuning)

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

Run Auto Tuning again after any Antenna/Cable connection changes.

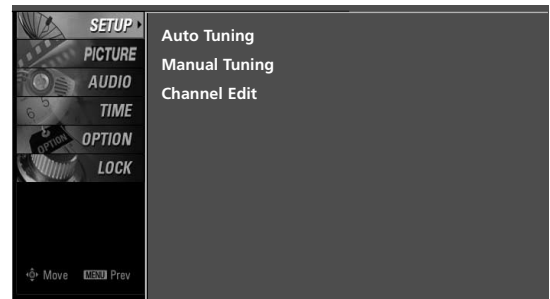
A password is required to gain access to Auto Tuning menu if the Lock System is turned on.



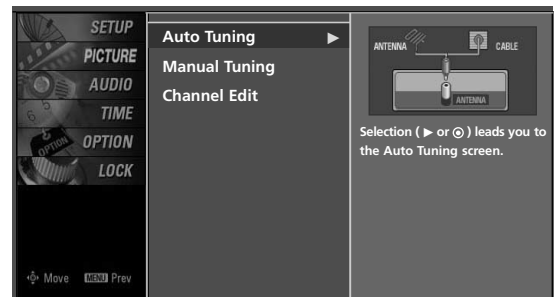
1 Press the **MENU** button and then use **▲** or **▼** button to select the **SETUP** menu.

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

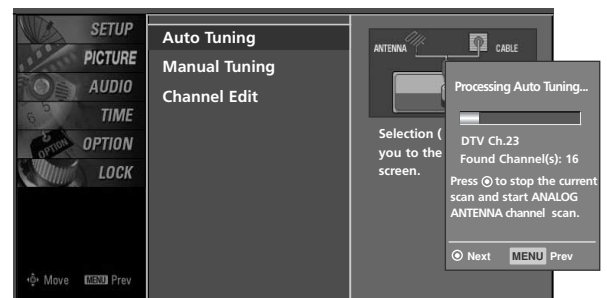
3 Press the **ENTER** button to begin the channel search. Allow **Auto Tuning** to complete the channel search cycle for **ANTENNA** and **CABLE**.



1



2



3

NOTE



- Analog TV antenna
- Digital DTV antenna
- Analog CATV cable
- Digital CADTV cable

Add/Delete Channel (Manual Tuning)

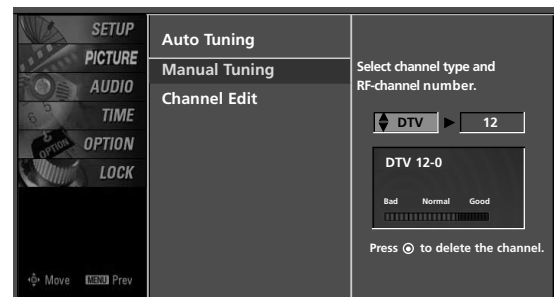
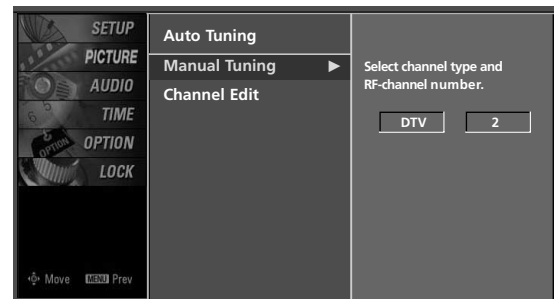
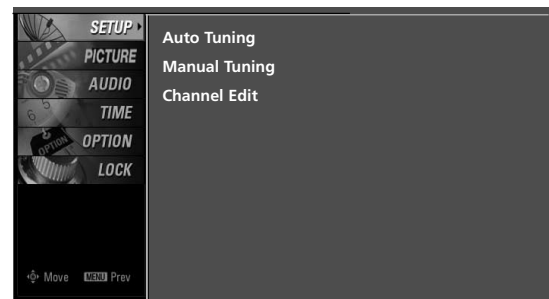
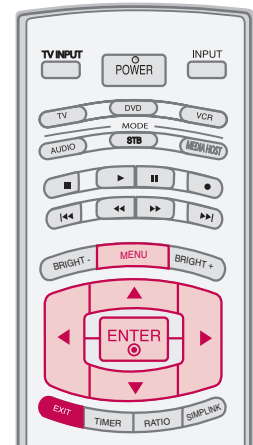
A password is required to gain access to Manual Tuning menu if the Lock System is turned on.

If selecting DTV or CADTV input signal, you can view the on-screen signal strength monitor to see the quality of the signal being received.

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

! NOTE

- ▶ This digital channel number is a physical channel number, which is different from the normal channel number shown in Channel Edit.



3 4 5

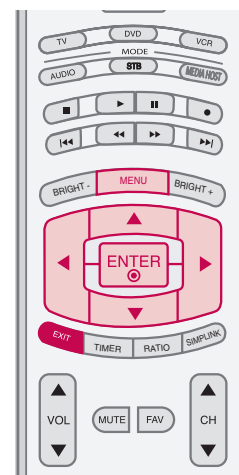
WATCHING TV / CHANNEL CONTROL

Channel Editing

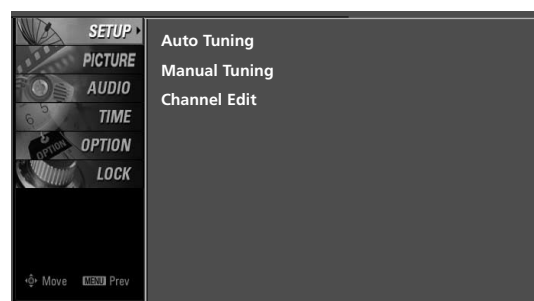
From the default channel list created from the Auto Tuning channel search, you can create two different types of channel lists in memory: “custom list” and “favorite channel list”.

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 and the channels deleted from the Custom List are displayed in gray. 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.

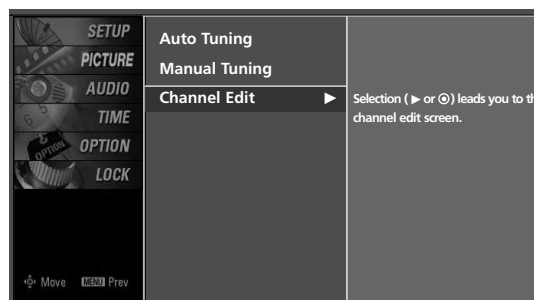
You can create your own Favorite List. Use the **FAV** button on the remote control when a channel is highlighted and then add or delete the channel to/from your Favorite List.



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.



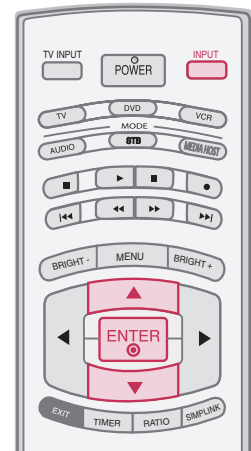
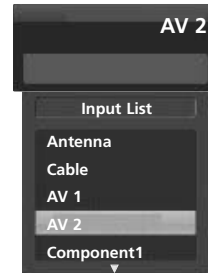
4 Use **▲ ▼ ◀ ▶** button to select a channel and then use the **ENTER** button to add or delete it. Press **FAV** button to add the channel to the Favorite List. The surfing icon will appear in front of that channel number.

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

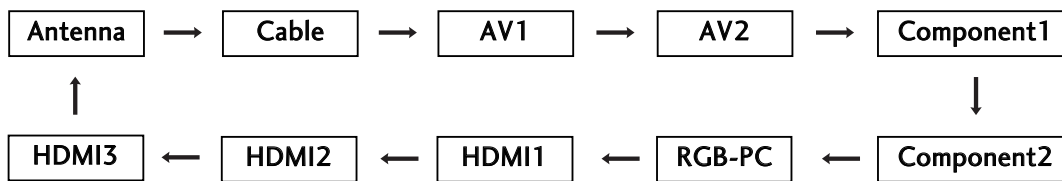
INPUT LIST

Press the **INPUT** button to display external device that is connected to the unit, on screen.

Press the **ENTER** button to change the input to the active external device. Use the **▲** or **▼** button to select the input source.



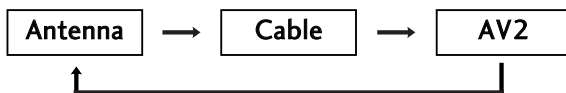
- 1 If all external input sources are connected:



- 2 If no external input sources are not connected:



- 3 If there is any external input source connected:
(ex: When connected only to AV 2)



Antenna : Select it when watching the DTV/TV.

Cable: Select it when watching the CADTV/CATV.

AV 1, AV 2 : Select it when watching the VCR or external equipment.

Component 1-2 : Select it when using the DVD or the Digital set-top box depend on connector.

RGB-PC: Select it when using PC depend on connector.

HDMI, HDMI2, HDMI3 : Select it when using DVD, PC or Digital set-top box depend on connector.

WATCHING TV / CHANNEL CONTROL



This operates only for the devices with the logo. Please check the logo.

This allows you to control and play other AV devices connected to the display through HDMI cable without additional cables and settings.

Simplink Preparations

- 1 Connect the HDMI/DVI IN 1, 2 or 3 terminal of the TV to the rear terminal (HDMI output) of the Simplink device with the HDMI cable.

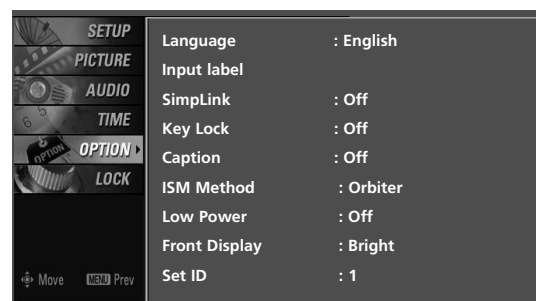
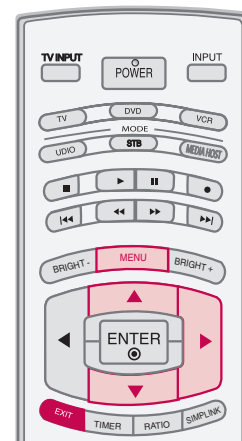
After connecting the HDMI jack for the home theater with simplink function in the above method, connect the DIGITAL AUDIO OUT OPTICAL on the back of the TV to the DIGITAL AUDIO IN terminal on the back of the simplink device with the Optical cable.

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

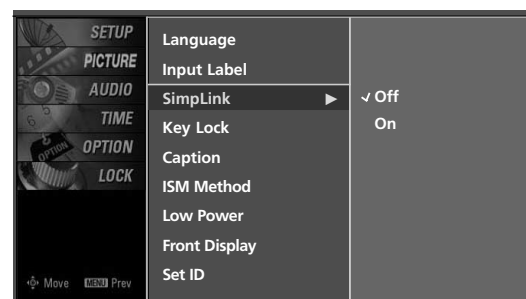
- 3 Press the **▶** button and then use **▲** or **▼** button to select **Simplink**.

- 4 Press the **▶** button and then use **▲** or **▼** button to select **On**.

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



2













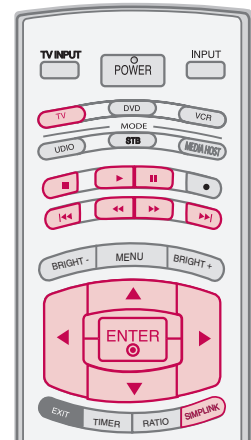
3 4

! NOTE















- ▶ When operating the external device with Simplink, press the TV button among the MODE button on the remote control.
- ▶ When you switch the Input source with the INPUT button on the remote control, you can stop the operation of device worked by Simplink.
- ▶ When you select or operate the media device with home theater function, the speaker automatically switches to home theater speaker (HT speaker).
- ▶ When you execute 'Photo List, Music List' function during DVD playback included in home theater supported the Simplink stops and the applicable function is executed after switching the input to TV.

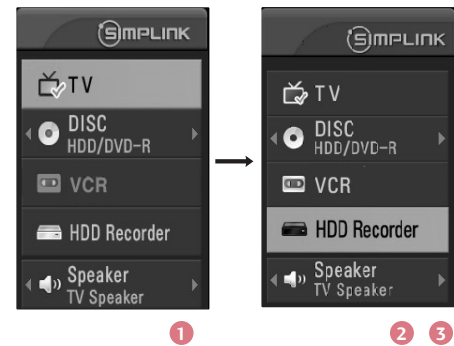
SimpLink Functions

- **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.
- **Disc playback:** Control connected AV devices by pressing the , , , , , , , , , , **ENTER** buttons and buttons for play, stop, pause, fast reverse, fast forward, chapter skip.
- **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)

- 1 After selecting the **TV** button of the MODE on the remote control, press the **SIMPLINK** button.
- 2 Use , , ,  button to select the desired device and then press the **ENTER** button.
- 3 Control connected AV devices by pressing the , , , , , , , , , , **ENTER** buttons.



SimpLink Menu

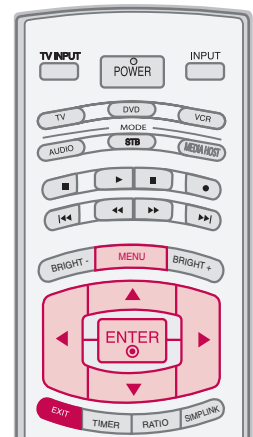
- 1 **TV viewing:** Switch to the previous TV channel regardless of the current mode.
- 2 **DISC playback:** Select and play discs. When multiple discs are available, the titles of discs are conveniently displayed at the bottom of the screen.
- 3 **VCR playback:** Play and control the connected VCR.
- 4 **HDD Recordings playback:** Play and control recordings stored in HDD.
- 5 **Audio Out to HT speaker/Audio Out to TV:** Select HT speaker or TV speaker for Audio Out.



WATCHING TV / CHANNEL CONTROL

INPUT LABEL

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



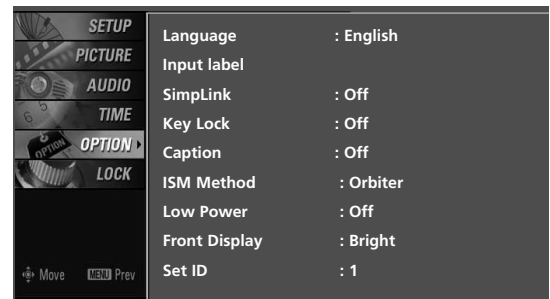
1 Press the **MENU** button and then use ▲ or ▼ button to select the **OPTION** menu.

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

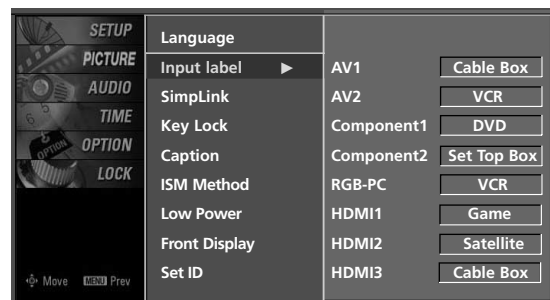
3 Press the ► button and then use ▲ or ▼ button to select the source: AV1, AV2, Component1, Component2, RGB-PC, HDMI1, HDMI2 or HDMI3.

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

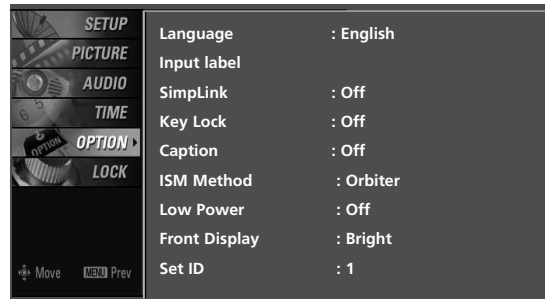
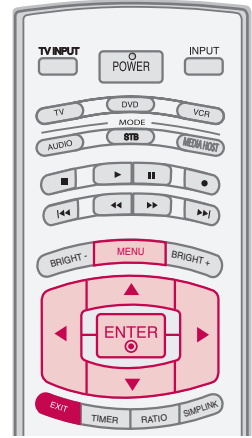
KEY LOCK

The TV can be set up so that it can only be used with the remote control.

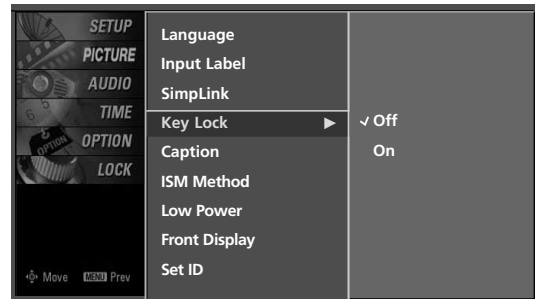
This feature can be used to prevent unauthorized viewing by locking out the front panel controls.

This TV is programmed to remember which option it was last set to even if you turn the TV off.

- 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 **Key Lock**.
- 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

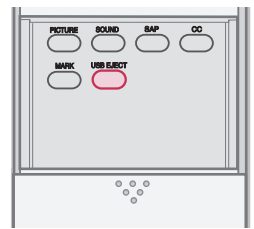
ENTRY MODES

When you connect a USB device or press the  button, this screen is displayed, automatically.

In USB device, you can not add a new folder or delete the existing folder.

- 1 Press the ▲ or ▼ button to select the desired item.
- 2 Press the **ENTER** button to move to **Photo List** or **Music List** of USB device.
- 3 Press the **USB EJECT** button of remote control before removing the USB device.

Media Host Menu



NOTE

- ▶ Press the **USB EJECT** button of remote control before removing the USB device.
- ▶ Only a USB storage device is recognizable.
- ▶ If the USB storage device is connected through a USB hub, the device is not recognizable.
- ▶ A USB storage device using an automatic recognition program may not be recognized.
- ▶ A USB storage device which uses its own driver may not be recognized.
- ▶ In case of a card reader, up to four memory cards are concurrently recognizable.
- ▶ The recognition speed of a USB storage device may depend on each device.
- ▶ Please do not turn off the TV or unplug the USB device when the connected USB storage device is working. When such device is suddenly separated or unplugged, the stored files or the USB storage device may be damaged. To unplug the USB storage device, please press the **USB EJECT** button on the remote control, and then unplug it safely.
- ▶ Please do not connect the USB storage device which was artificially maneuvered on the PC. The device may cause the product to malfunction or fail to be played. Never forget to use only a USB storage device which has normal music files or image files.
- ▶ Please use only a USB storage device which was formatted as a FAT or a NTFS file system provided with the Windows operating system. In case of a storage device formatted as a different utility program which is not supported by Windows, it may not be recognized.
- ▶ In case of a hard disk drive (HDD) formatted as NTFS, writing and deletion are not allowable.
- ▶ Please connect power to a USB storage device which requires an external power supply. If not, the device may not be recognized.
- ▶ Please connect a USB storage device with cable is offered by USB maker. If connected with cable is not offered by USB maker or an excessively long cable, the device may not be recognized.
- ▶ Some USB storage devices may not be supported or operated smoothly.
- ▶ If the name of a folder or file is too long, it will not be displayed or recognized.

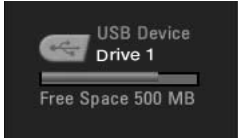
PHOTO LIST

It's available to playback the photo file(*.jpg) in the USB device.

The On Screen Display may be different from your set. Images are an example to assist with the TV operation.

Screen Components

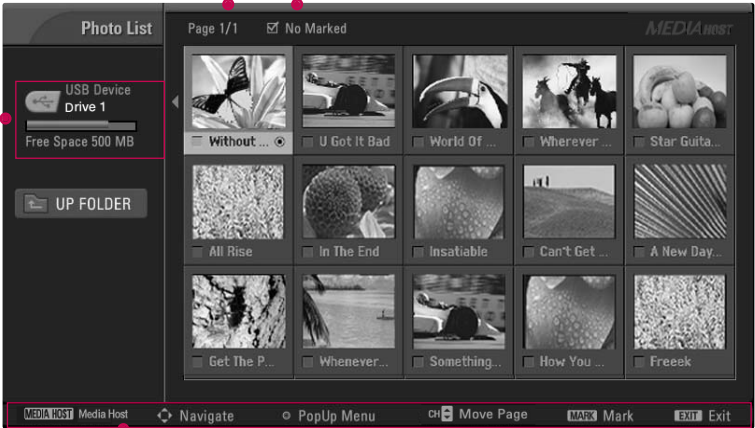
1 Usable USB memory



2 Current page/Total pages

3 Total number of marked thumbnail photos

4 Corresponding buttons on the remote control



MEDIA HOST

Photo Selection and PopUp Menu

As shown, up to 15 thumbnail photos are listed per page.

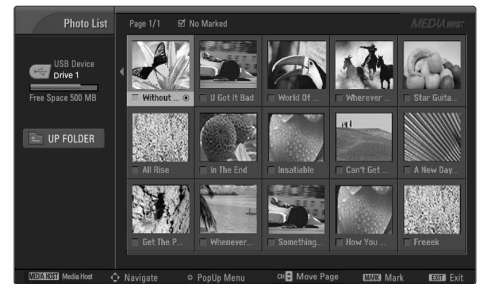
1 Use the **CH ▲** or **▼** button to navigate in the thumbnail photo page.

2 Use the **MARK** button to mark or unmark a photo. When one or more photos are marked, you can view individual photos or a slide show of the marked photos. If no photos are marked, you can view all photos individually or all photos in the folder in a slide show.

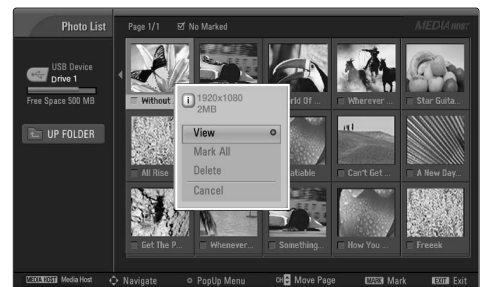
3 Use **▲ ▼ ◀ ▶** button to navigate the appropriate thumbnail photos, then press the **ENTER** button to show the PopUp menu.

- ▶ **View** : Display the selected item.
- ▶ **Mark All** : Mark all photos on the screen.
- ▶ **Delete** : Delete the selected photo item.
- ▶ **Cancel** : Close the pop-up menu.

4 Repeatedly, press **EXIT** button to return to TV viewing or press the **MEDIA HOST** button to return to the Media Host menu.



1 2



3

Set up the menu in Full-Sized Screen

You can change the settings to display photos stored on a USB device, on a full-sized screen.

Detailed operations are available on full-sized photo view screen.

- 1 Use the **CH ▲** or **▼** button to navigate the thumbnail photo page.

- 2 Use **▲ ▼ ◀ ▶** button to navigate the appropriate thumbnail photos, then press the **ENTER** button to show the PopUp menu.

- 3 Use **▲** or **▼** button to Move to the **View** menu, then press the **ENTER** button.

- 4 The selected photo is displayed in full size.



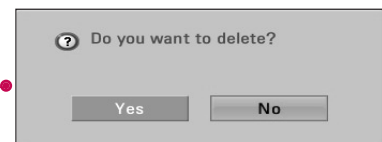
- 1
- 2
- 3

- ▶ **Slide Show:** When no picture is selected, all photos in the current folder are displayed during slide show. When selected, the selected photos are displayed during slide show. To start slide show, press **ENTER** button on **Slideshow**
 - Set the time interval of the slide show in **Option**.
 - A slide show continues for a maximum of 4 hours. After 4 hours, the slide show will end and go to TV mode or external input mode.
- ▶ **BGM:** Listen to music while viewing photos in full size. To start BGM, press **ENTER** button on **BGM**
 - Set the BGM device and album in **Option**.
- ▶ **⌛ (Rotate):** Rotate photos.
 - Rotates the photo 90°, 180°, 270°, 360° clockwise upon **ENTER** button on **⌛ (Rotate)**.
- ▶ **Delete:** Delete photos. Use **◀** or **▶** button to select **Delete** and press **ENTER** button.

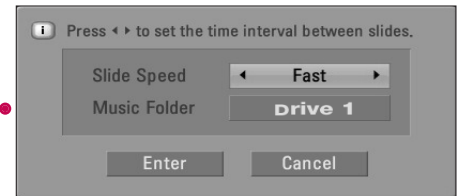



The aspect ratio of a photo may change the size of the photo displayed on the screen in full size.

- 4



- ▶ **Option:** Set values for **Slide Speed** and **Music folder**. Use ◀ or ▶ button to select **Option** and press **ENTER** button.
 - Use ◀ or ▶ button and **ENTER** button to set values. Then go to **Enter** and press **ENTER** to save the settings.
 - You cannot change **Music Folder** while BGM is playing.
- ▶ **Hide:** Hide the menu on the full-sized screen. Use ◀ or ▶ button to select **Hide** and press **ENTER** button.
 - To see the menu again on the full-sized screen, press **ENTER** button to display.



- 5 Use ▲ ▼◀▶ button to select the previous or next photo.
Use ▲ ▼◀▶ button to select and control the menu on the full-sized screen.
- 6 Use **EXIT** button to go back to the photo list from the full-sized screen.
- 7 Repeatedly, press **EXIT** button to return to TV viewing or press  button to return to the Media Host menu.

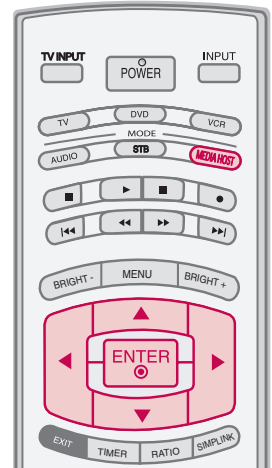
! NOTE

- ▶ If it is Progressive JPEG format, some photos may not be decoded.

MUSIC LIST


Purchased music files (*.MP3) may contain copyright restrictions. Playback of these files may not be supported by this model. Music file on your USB device can be played by this unit.

The On Screen Display may be different from your set. Images are an example to assist with the TV operation.



Screen Components

1 Usable USB memory

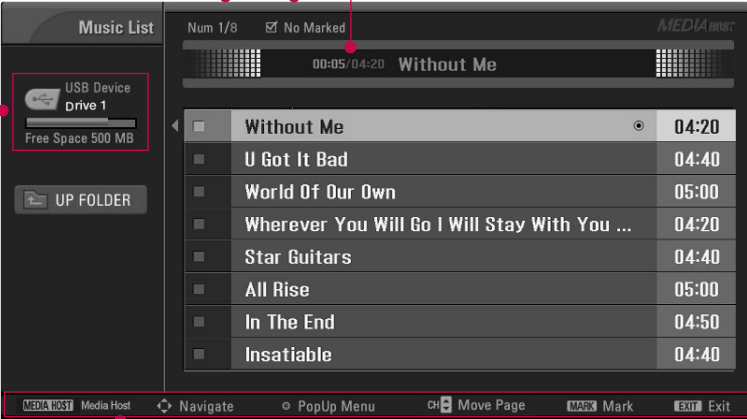


2 Current page/Total pages

3 Total number of marked music

4 Current playing time/Total playing time

5 Corresponding buttons on the remote control



Num	1/8	☑ No Marked	MEDIA HOST
00:05	04:20	Without Me	
▣		Without Me	04:20
▣		U Got It Bad	04:40
▣		World Of Our Own	05:00
▣		Wherever You Will Go I Will Stay With You ...	04:20
▣		Star Guitars	04:40
▣		All Rise	05:00
▣		In The End	04:50
▣		Insatiable	04:40

MEDIA HOST Media Host ◀ Navigate ○ PopUp Menu ▶ Move Page MARK Mark EXIT Exit

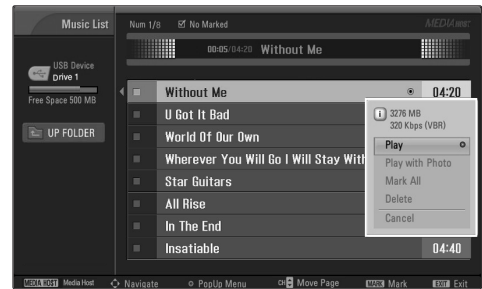
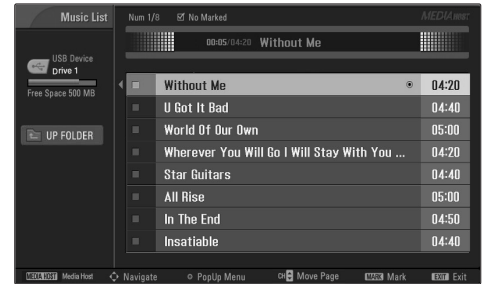
Music Selection and PopUp Menu

As shown , up to 8 music titles are listed per page.

- 1 Use the **CH ▲** or **▼** button to navigate in the music titles page.
- 2 Use **MARK** button to mark or unmark a music. When one or more music files are marked, the marked music will be played in sequence. For example, if you want to listen to only one music repeatedly, just mark the music only and play it. If no music is marked, all the music in the folder will be played in sequence.
- 3 Use **▲ ▼** button to navigate the appropriate music, then press the **ENTER** button to show up the pop-up menu.

- ▶ **Play** (During stop): Play the selected music.
Once a music finishes playing, the next selected one will be played. When there are no selected music to play, the next one in the current folder will be played. If you go to a different folder and press the **ENTER** button, the current music in playback will stop.
- ▶ **Stop Play** (During playback): Stop the playing music.
- ▶ **Play With Photo**: Start playing the selected music and then move to the Photo List.
- ▶ **Mark All**: Mark all music in the folder.
- ▶ **Delete**: Delete the selected music.
- ▶ **Cancel**: Close the pop-up menu.

- 4 Repeatedly, press **EXIT** button to return to TV viewing or press **MEDIA HOST** button to return to the Media Host menu.
 - If you don't press any button for a while during the playing, the play information box (as shown in the below) will float as a screen saver.
 - The 'Screen Saver'?
Screen saver is to prevent screen pixel damage due to an fixed image remaining on the screen for a extended period of time.



- 1
- 2
- 3

NOTE

- ▶ When music is playing, is displayed in front of the music title.
- ▶ A damaged or corrupted music does not play but displays 00:00 in playtime.
- ▶ A music downloaded from a paid service with copyright protection does not start but displays inappropriate information in playtime.
- ▶ If you press **ENTER**, , **EXIT** buttons, screen saver is stopped.
- ▶ The , , , , buttons on the remote control are also available in this mode.
- ▶ It's not available to play MP3 file under 16Kbyte.

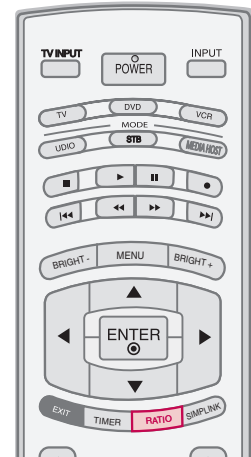


PICTURE CONTROL

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 input source use 4:3 or 16:9 aspect ratio.
- DTV, CADTV, HDMI, or DVI input source use **Just Scan**.



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.

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

Set by program

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

(4:3 → 4:3)

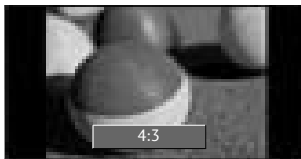


(16:9 → 16:9)



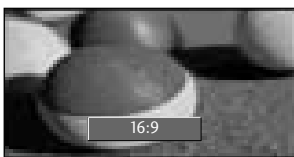
4:3

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



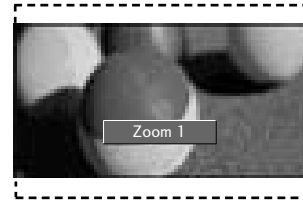
16:9

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



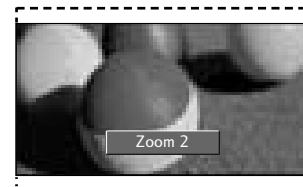
Zoom 1

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.



Just Scan

Following selection will lead to you view the picture of best quality without loss of original picture in high resolution image.



PICTURE CONTROL

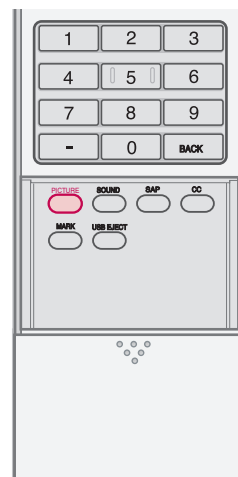
PRESET PICTURE SETTINGS

Picture Mode - Preset

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

Intelligent Eye, Dynamic, Standard, Mild Settings are pre-set 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.

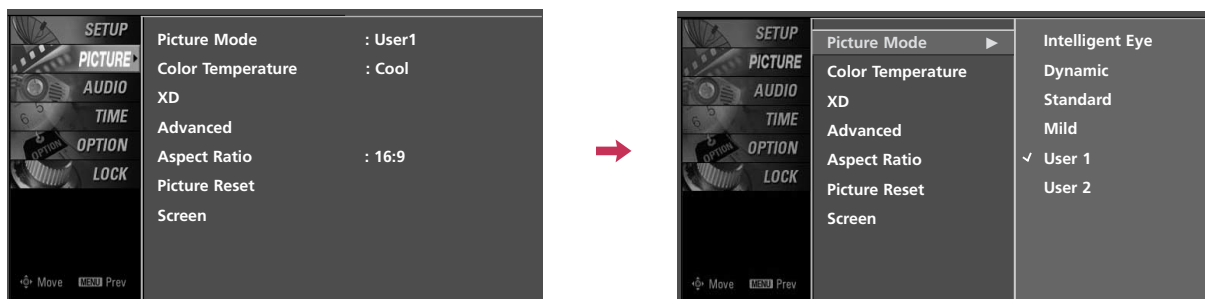


- 1 Press the **PICTURE** button repeatedly to select the picture appearance setup option as below :

Intelligent Eye (LCD TV only), **Dynamic, Standard, Mild, User1**, and **User2** (your own settings).

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

- You can also use the **PICTURE** menu to adjust **Picture Mode**.



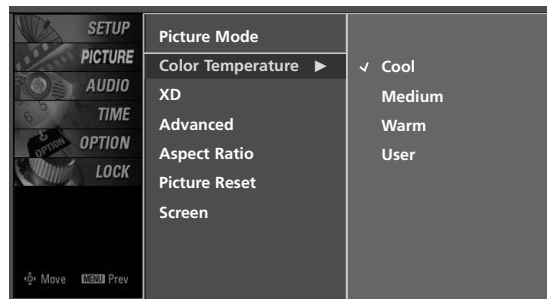
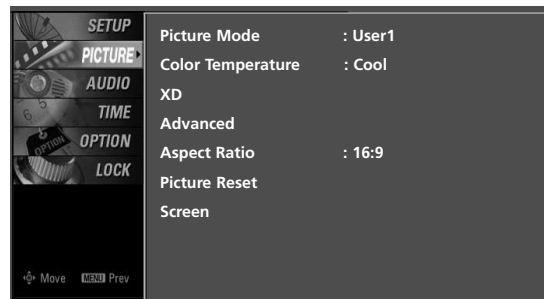
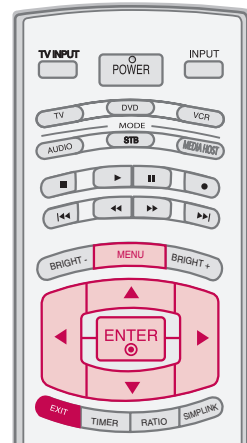
Color Tone - Preset

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.

When selecting Picture Mode options (Dynamic, Standard and Mild), Color Temperature is automatically change.

When selecting Picture Mode options (User 1 and User 2), you can choose the Color Temperature.

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



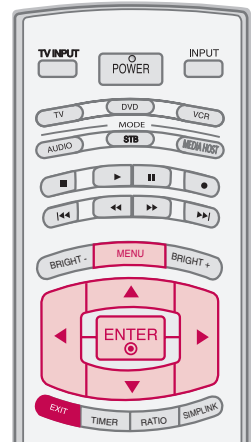
3

PICTURE CONTROL

MANUAL PICTURE ADJUSTMENT

Picture Mode - User Mode

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



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

2 Press the ► button and then use ▲ or ▼ button to select **Picture Mode**.

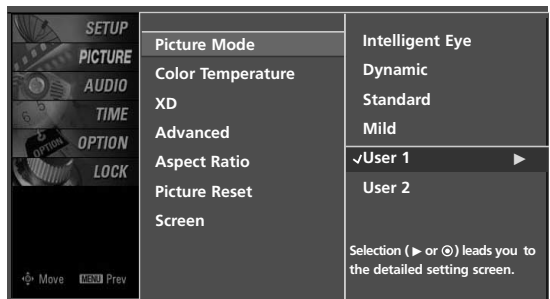
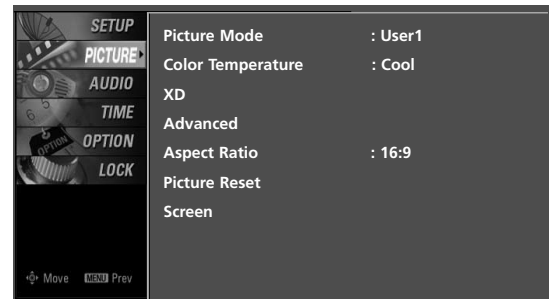
3 Press the ► button and then use ▲ or ▼ button to select **User 1** or **User 2**.

4 Press the ► button and then use ▲ or ▼ button to select the desired picture option (**Contrast**, **Brightness**, **Color**, **Sharpness**, **Tint**, or **Back Light** (LCD TV only)).

- **Back Light** (LCD TV only)
To control the brightness of the screen, adjust the brightness of LCD panel.

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.



Color Tone - User Mode

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

This feature operate only if the picture mode set **User 1** or **User 2**.

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

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

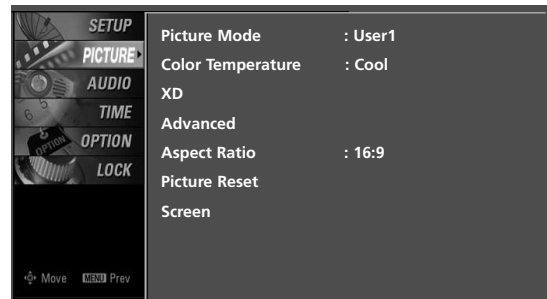
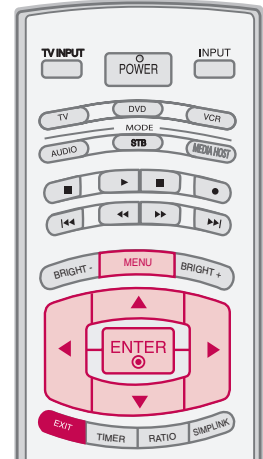
3 Press the ► button and then use ▲ or ▼ button to select **User**.

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

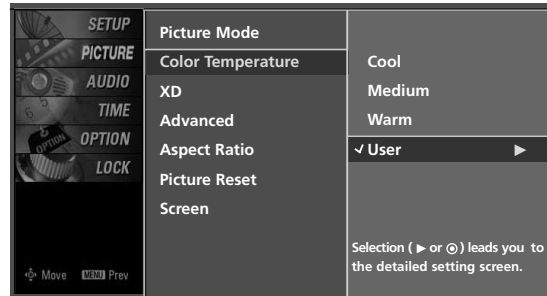
5 Press the ► button and then use ◀ or ▶ button to make appropriate adjustments.

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

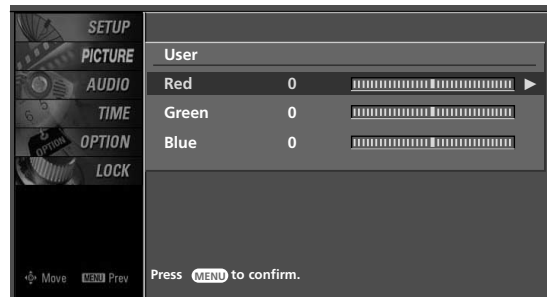
6 Press **EXIT** button to return to TV viewing or press **MENU** button to return to the previous menu.



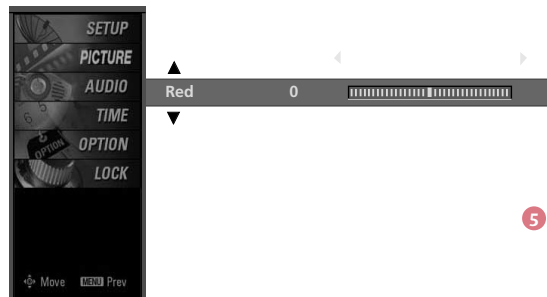
1



2 3



4



5

PICTURE CONTROL

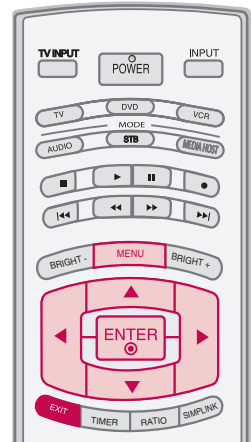
XD - PICTURE IMPROVEMENT TECHNOLOGY

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

When selecting Picture Mode options (Dynamic, Standard, and Mild), XD is automatically changed to Auto.

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

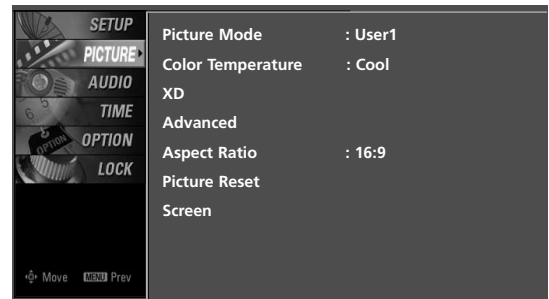
When selecting the Manual, you can adjust the XD Contrast, XD color and XD Noise.



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



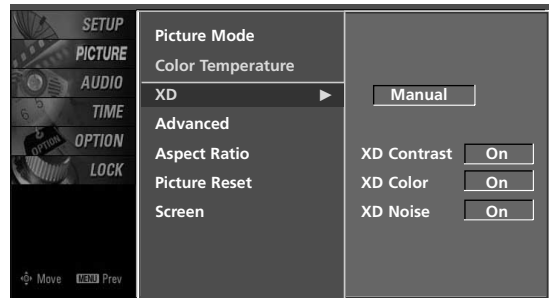
1

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

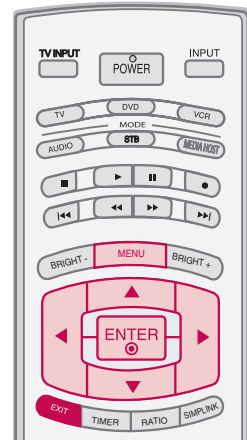
4 Press **EXIT** button to return to TV viewing or press **MENU** button to return to the previous menu.

ADVANCED - CINEMA 3:2 PULL DOWN 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 TV (Analog, DTV), AV1, AV2, and Component 480i mode.



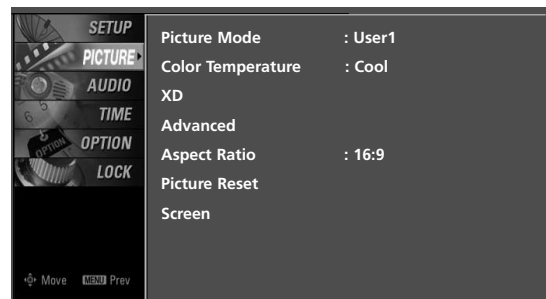
1 Press the **MENU** button and then use ▲ or ▼ button to select the **PICTURE** menu.

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

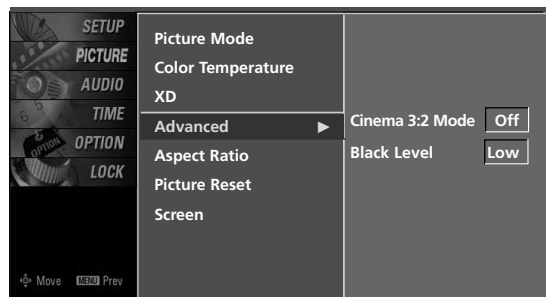
3 Press the ► button and then use ▲ or ▼ button to select **Cinema 3:2 Mode**.

4 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.



1



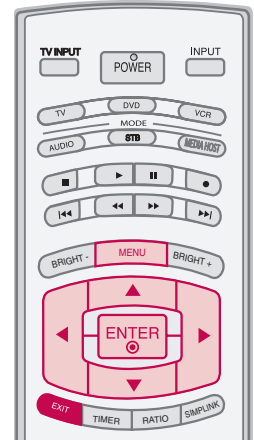
2 3 4

PICTURE CONTROL

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, HDMI2, or HDMI3 mode.



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

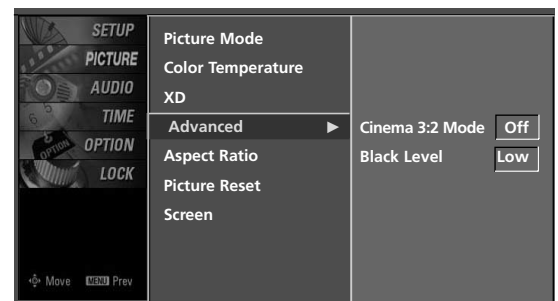
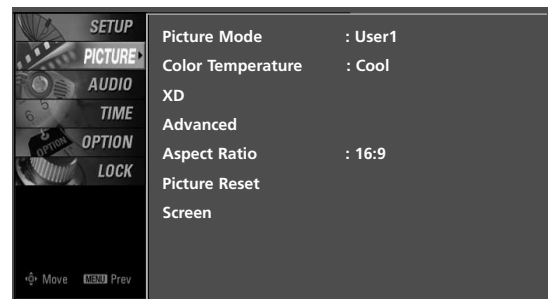
2 Press the ► button and then use ▲ or ▼ button to select **Advanced**.

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

4 Use ◀ or ▶ button to select **Low** or **High**.

- **Low**
The screen gets darker.
- **High**
The screen gets brighter.

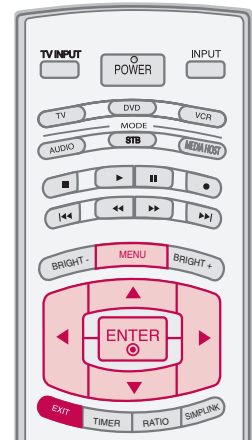
5 Press **EXIT** button to return to TV viewing or press **MENU** button to return to the previous menu.



3 4

PICTURE RESET

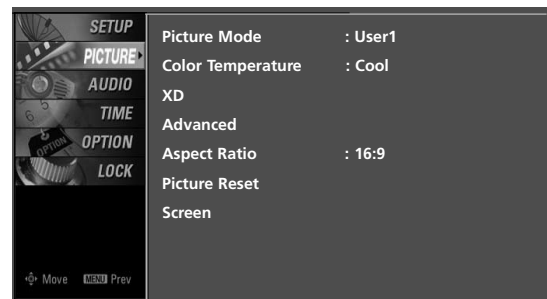
Use to quickly reset all the Picture menu options to their original factory preset values.



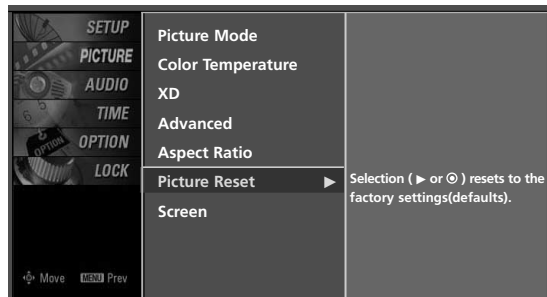
1 Press the **MENU** button and then use ▲ or ▼ button to select the **PICTURE** menu.

2 Press the ► button and then use ▲ or ▼ button to select **Picture Reset**

3 Press the ► button to reset the Picture menu options to original values.



1



2 3

PICTURE CONTROL

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**, **Orbiter**, **Inversion**, or **White Wash**.

■ Normal

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

■ 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 ghost 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.

■ White Wash

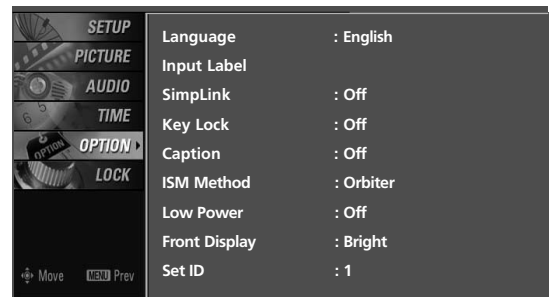
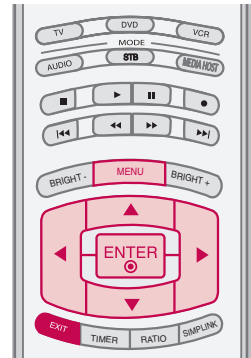
White Wash removes ghost images from the screen.

Use sparingly. Watch the TV normally for a while before using this feature to see if the ghost image disappears on its own.

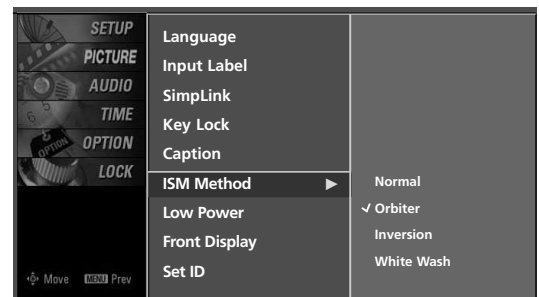
! NOTE

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

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



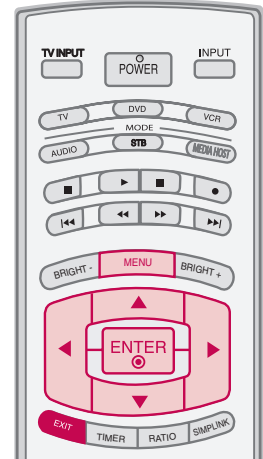
1



2 3

LOW - POWER PICTURE MODE - Plasma TV only

Low power reduces the plasma display power consumption.



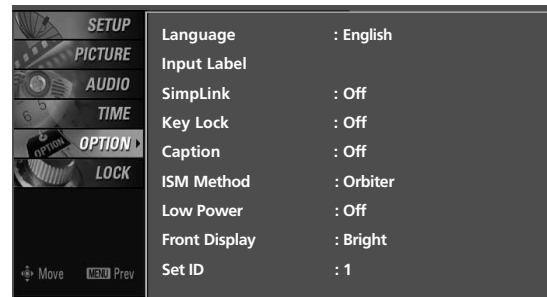
1 Press the **MENU** button and then use ▲ or ▼ button to select the **OPTION** menu.

2 Press the ► button and then use ▲ or ▼ button to select **Low Power**.

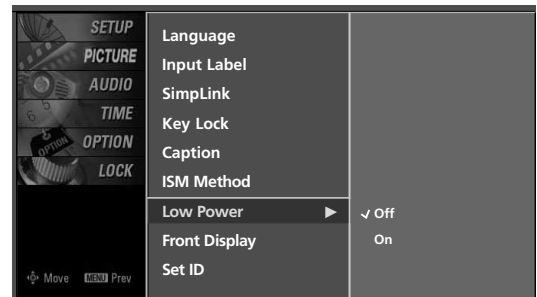
3 Press the ► button and then use ▲ or ▼ button to select **On** or **Off**.

- 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.



1

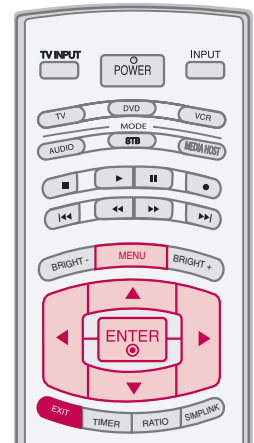


2 3

PICTURE CONTROL

FRONT DISPLAY - Plasma TV only

Illuminates brightly when the set is turned on. The LED displays current TV status.

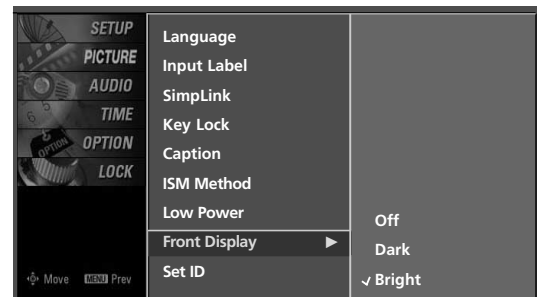
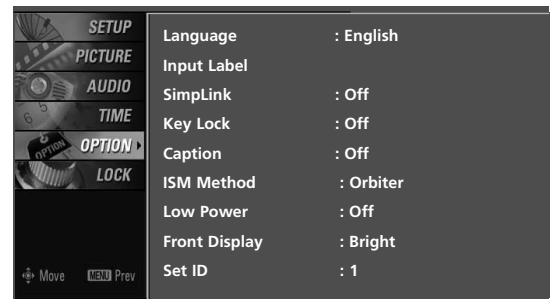


1 Press the **MENU** button and then use ▲ or ▼ button to select the **OPTION** menu.

2 Press the ► button and then use ▲ or ▼ button to select **Front Display**.

3 Press the ► button and then use ▲ or ▼ button to select **Off, Dark or Bright**.

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



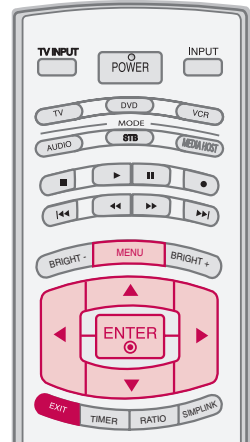
2 3 4

SOUND & LANGUAGE CONTROL

AUTO VOLUME LEVELLER (AUTO VOLUME)

Scans for changes in sound levels during commercials, then adjusts the sound to match the specified audio level.

Auto Volume makes sure that the volume level remains consistent whether you are watching a commercial or a regular TV program.

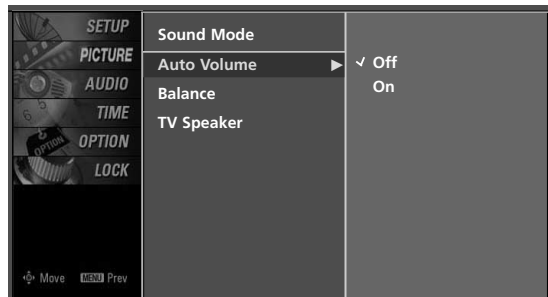
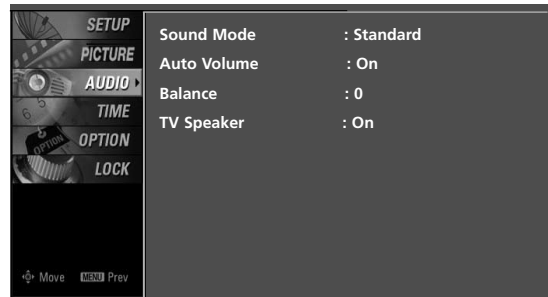


1 Press the **MENU** button and then use ▲ or ▼ button to select the **AUDIO** menu.

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

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.

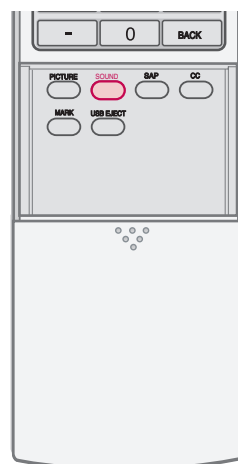


3

PRESET SOUND SETTINGS (SOUND MODE)

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

Standard, Music, Movie, and Sports are preset for good sound quality at the factory and are not adjustable.



1 Press the **SOUND** button repeatedly to select the appropriate sound setup as below :
Standard, Music, Movie, Sports, and User (your own settings).

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

■ You can also adjust **Sound Mode** in the **AUDIO** 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 **Sound Mode**.

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**, **3D EchoSound System** or **SRS (Sound Retrieval System) TruSurround XT**.

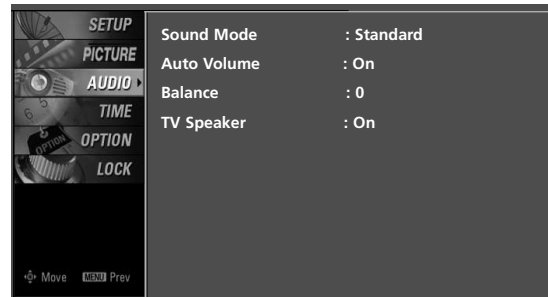
6 Press **EXIT** button to return to TV viewing or press **MENU** button to return to the previous menu.

SRS TruSurround XT

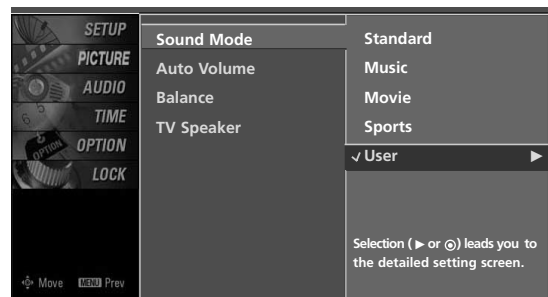
Takes advantage of any multi-channel format without needing to add extra speakers or equipment. Dialog clarity, bass enrichment, and the addition of stereo audio enhancement produces an immersive sound experience from standard stereo material.

3D EchoSound System

Creates a stunning simulated stereo effect from any mono sound and a realistic three-dimensional sound with a very wide and deep sound stage.



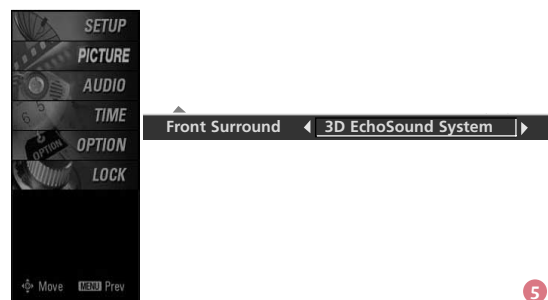
1



2 3



4

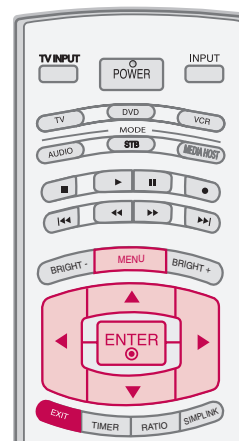


5

SOUND & LANGUAGE CONTROL

BALANCE

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

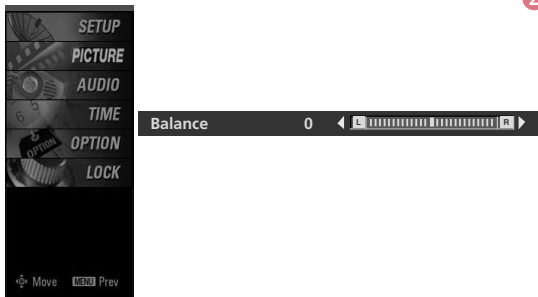
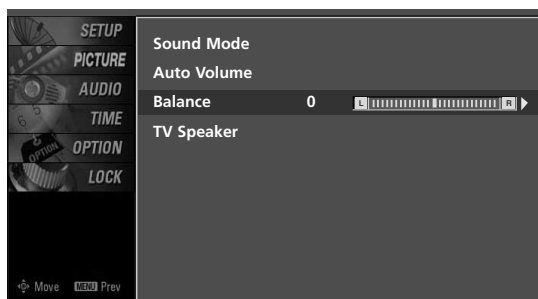
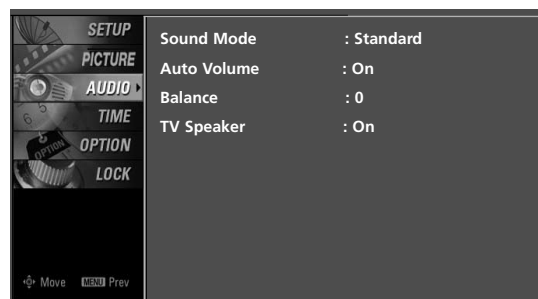


1 Press the **MENU** button and then use ▲ or ▼ button to select the **AUDIO** menu.

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

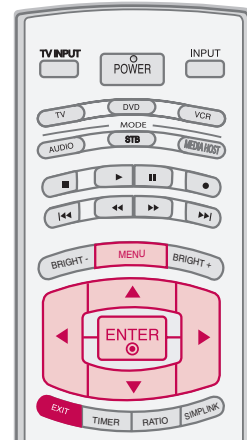
3 Press the ► button and then use ◀ or ▶ button to make appropriate adjustments.

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



TV SPEAKERS ON/OFF SETUP

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

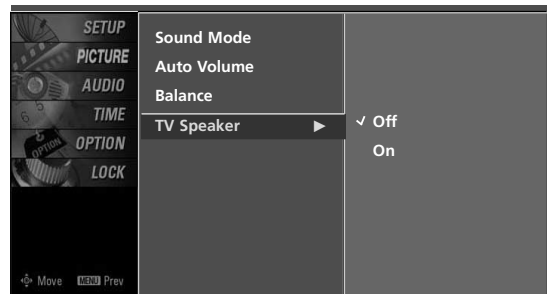
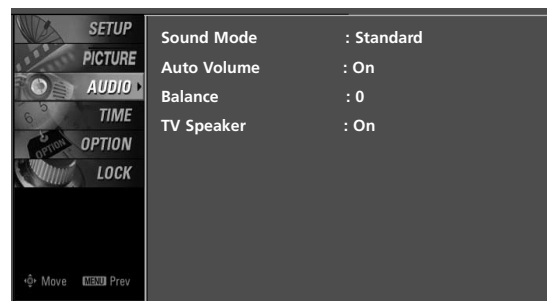


1 Press the **MENU** button and then use ▲ or ▼ button to select the **AUDIO** menu.

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.



3

SOUND & LANGUAGE CONTROL

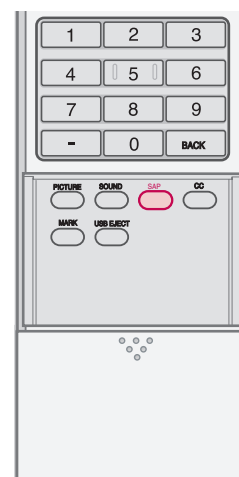
STEREO/SAP BROADCAST SETUP

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.

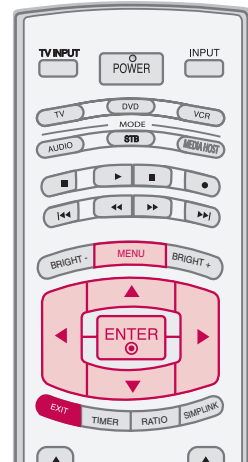
- If other languages available on the digital signal, select them with the **SAP** button.

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

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.



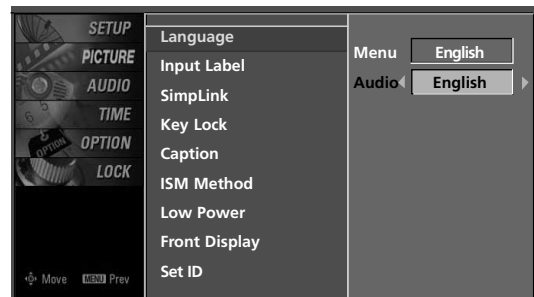
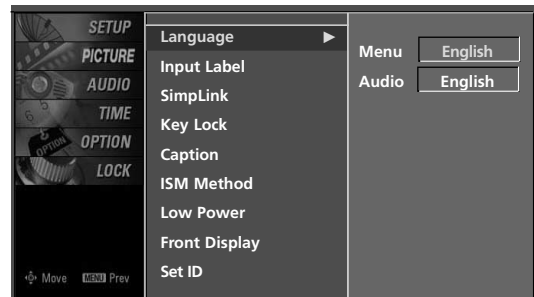
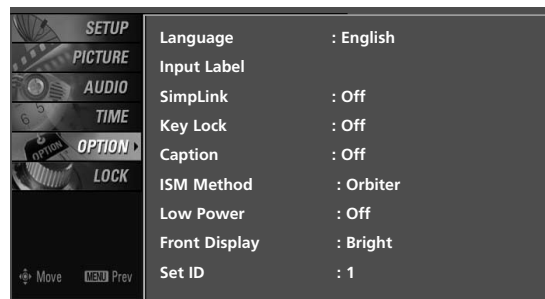
1 Press the **MENU** button and then use ▲ or ▼ button to select the **OPTION** menu.

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

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

4 Use ◀ or ▶ button to select : **English, Spanish, or French**.

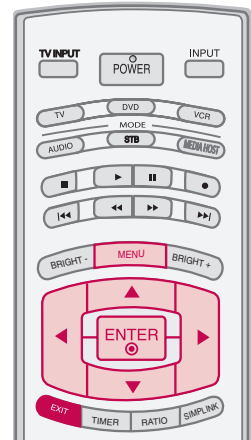
5 Press **EXIT** button to return to TV viewing or press **MENU** button to return to the previous menu.



SOUND & LANGUAGE CONTROL

ON-SCREEN MENUS LANGUAGE SELECTION

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



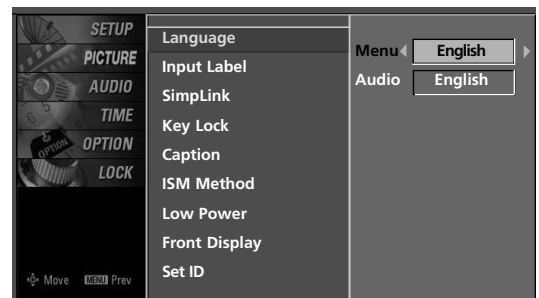
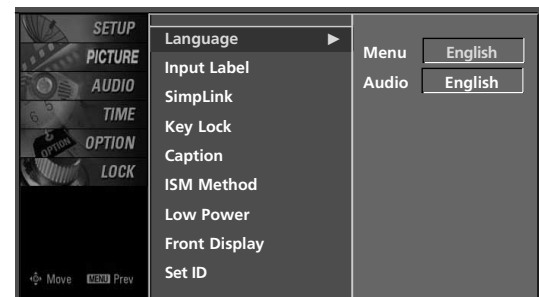
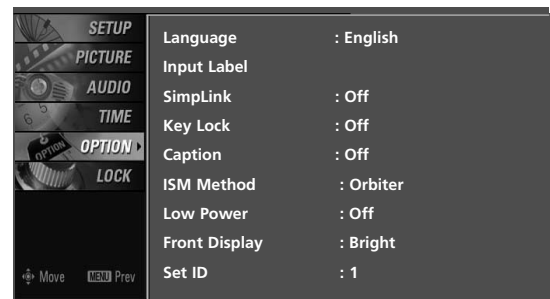
1 Press the **MENU** button and then use ▲ or ▼ button to select the **OPTION** menu.

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

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

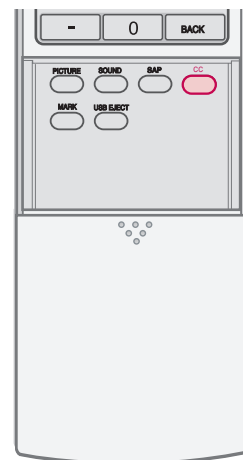
4 Use ◀ or ▶ button to select your desired language.
From this point on, the on-screen menus will be shown in the selected language.

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



CAPTION MODE

Caption must be provided to help people with hearing loss watch TV.



- 1 Use the **CC** button to select Caption **On** or **Off**.
 - When selecting **Off**, Sub-menus for Analog, DTV, and Digital Option become disabled.

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

- You can also adjust **Caption** in the **OPTION** menu.



SOUND & LANGUAGE CONTROL

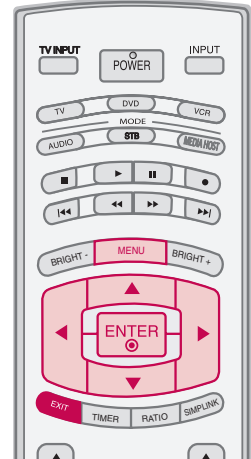
Analog Broadcasting System Captions

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.

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.

This function is only available when **Caption Mode** is set **On**.



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**.

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

4 Use **◀** or **▶** button to select **CC1**, **CC2**, **CC3**, **CC4**, **Text1**, **Text2**, **Text3** or **Text4**

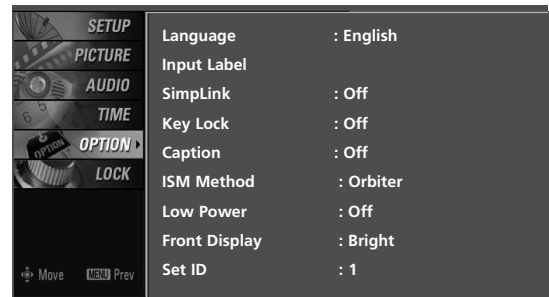
■ **CAPTION**

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.

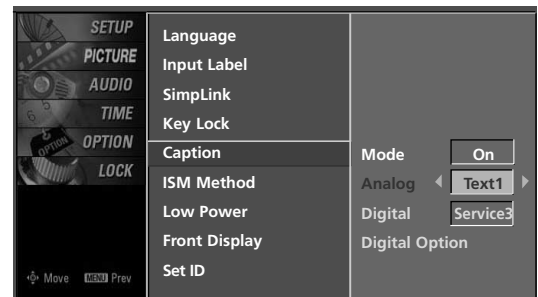
■ **TEXT**

The term for the words that appear in a large black frame and almost cover the entire screen; usually messages provided by the broadcaster.

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



1



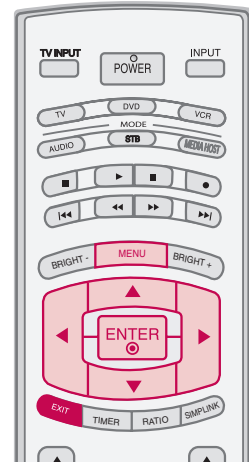
2 3 4

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.

This function is only available when **Caption Mode** is set **On**.



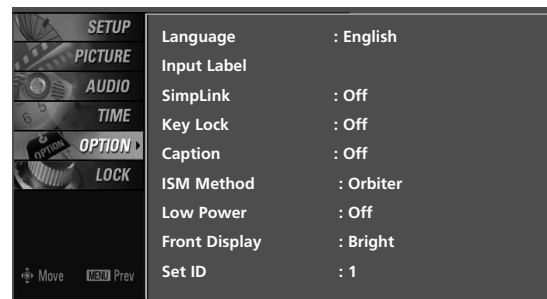
1 Press the **MENU** button and then use ▲ or ▼ button to select the **OPTION** menu.

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

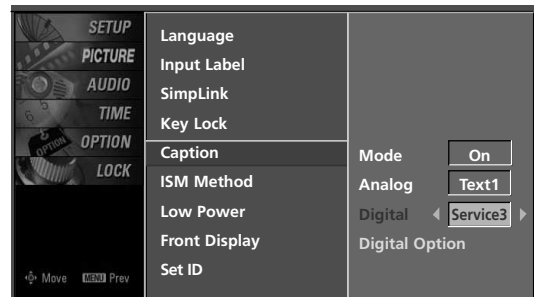
3 Press the ► button and then use ▲ or ▼ button to select **Digital**.

4 Use ◀ or ▶ button to select **Service1 ~ Service6**.

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



1



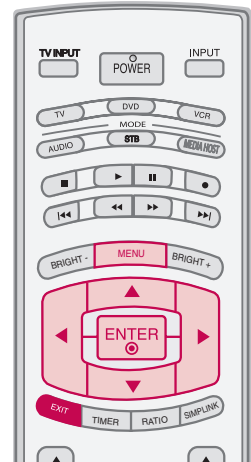
2 3 4

SOUND & LANGUAGE CONTROL

Caption Option

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

This function is only available when **Caption Mode** is set **On**.



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**.

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

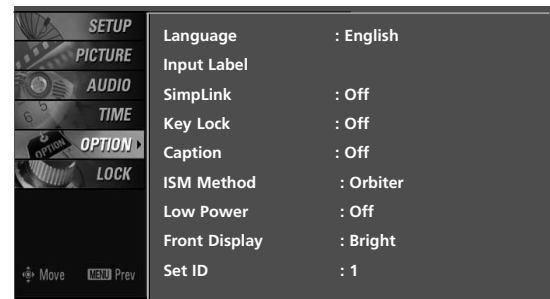
4 Press the **▶** button and then use **◀** or **▶** button to select **Custom**.

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

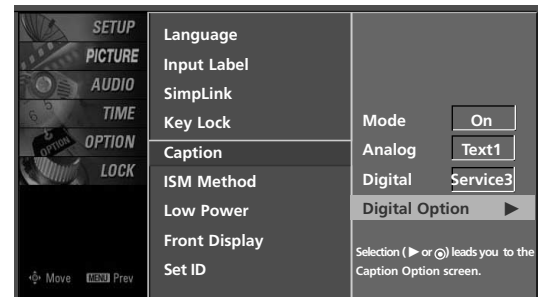
A preview icon is provided at the bottom of the screen, use it to see the caption language.

- **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.

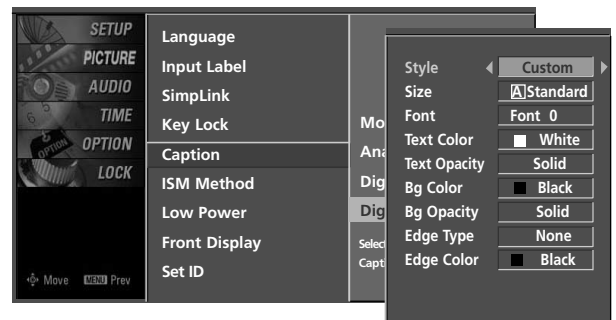
6 Press **EXIT** button to return to TV viewing or press **MENU** button to return to the previous menu.



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2 3



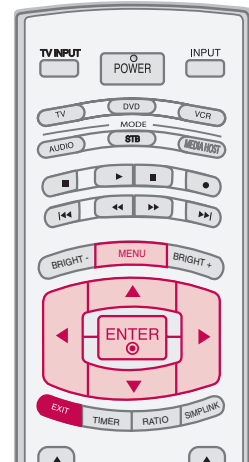
4 5

TIME SETTING

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.



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 **Clock**.

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

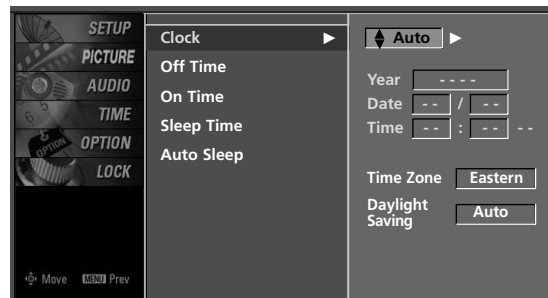
4 Press the ► button and then use ▲ or ▼ button to select your viewing area time zone:
U.S.A : **Eastern, Central, Mountain, Pacific, Alaska or Hawaii.**
Canada : **Eastern, Central, Mountain, Pacific, New F.land or Atlantic.**

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.

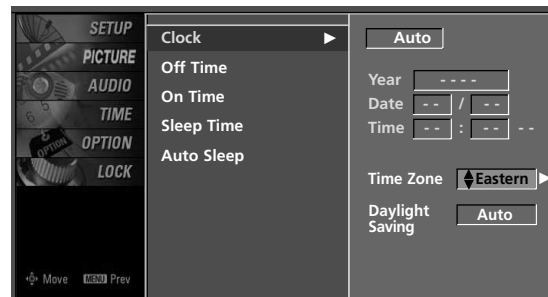
6 Press **EXIT** button to return to TV viewing or press **MENU** button to return to the previous menu.



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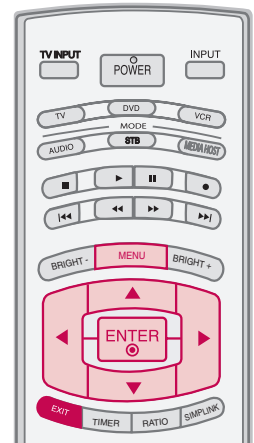
2 3



4 5

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 **Clock**.

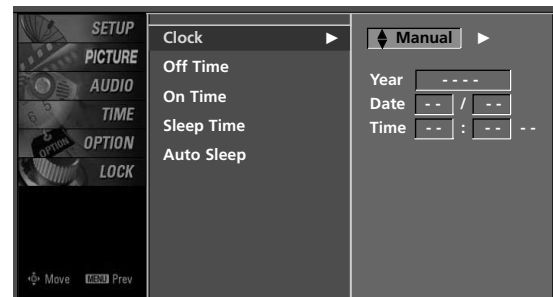
3 Press the ► button and then use ▲ or ▼ button to select **Manual**.

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

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



1

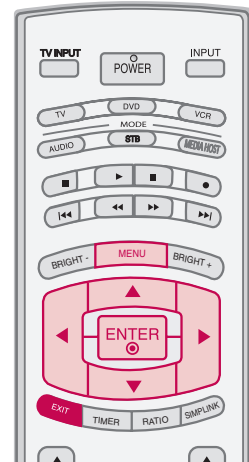


2 3

AUTO ON/OFF TIME SETTING

This function operates only if the current time has been set. The **Off Time** function overrides the **On Time** function if they are both set to the same time.

The TV must be in standby mode for the **On Time** to work. If you do not press any button within 2 hours after the TV turns on with the **On Time** 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 Time** or **On Time**.

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

4 Press the ► button and then use ▲ or ▼ button to the hour.

5 Press the ► button and then use ▲ or ▼ button to the minutes.

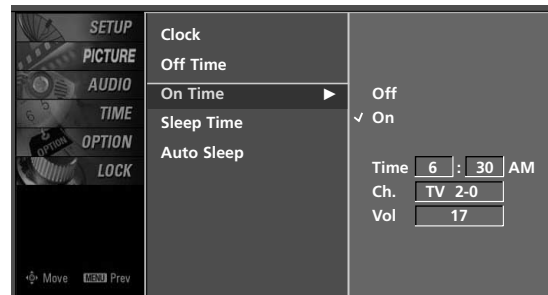
6 **Only On Time**
 Press the ► button and then use ▲ or ▼ button to select the channel at turn-on.

Press the ► button and then use ▲ or ▼ button to 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



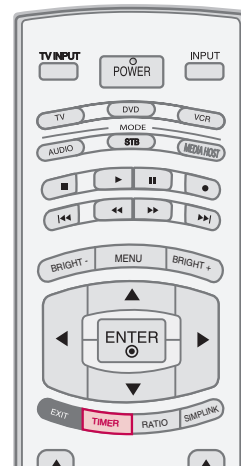
2 3 4 5 6

TIME SETTING

SLEEP TIME SETTING

The Sleep Time turns the TV off at the preset time.

Note that this setting is cleared when the TV is turned off.



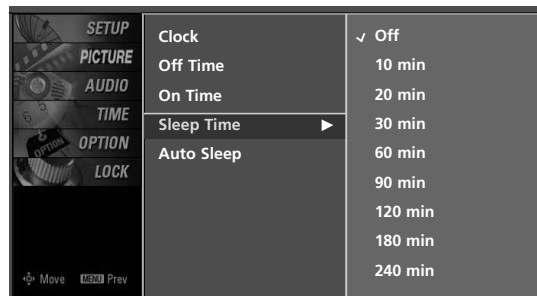
1 Press the **TIMER** button repeatedly to select the number of minutes. First the **Off** option appears on the screen, followed by the following sleep time options : 10, 20, 30, 60, 90, 120, 180, and 240 minutes.

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.

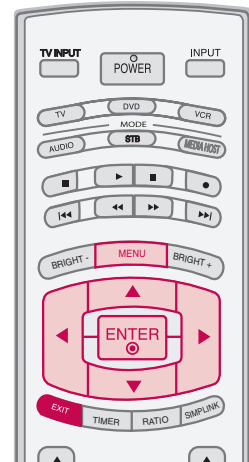
4 To cancel the Sleep Time, press the **TIMER** button repeatedly to select **Off**.

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



AUTO SHUT-OFF SETTING

TV will be automatically turned off, in case of No Signal for 10 minutes.



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

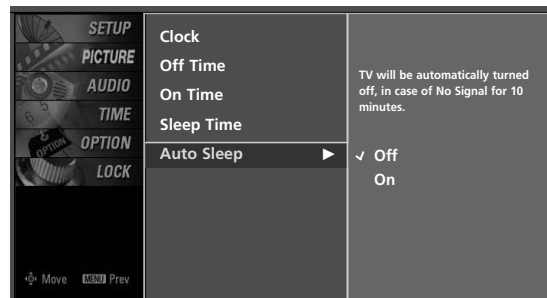
2 Press the ► button and then use ▲ or ▼ button to select **Auto Sleep**.

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

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

SET PASSWORD & LOCK SYSTEM

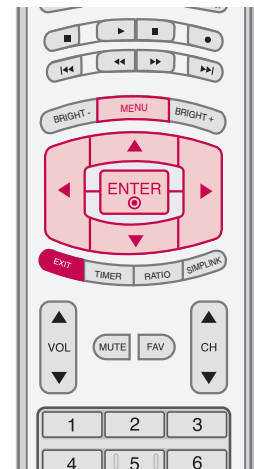
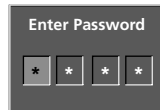
Setting up Your Password

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".



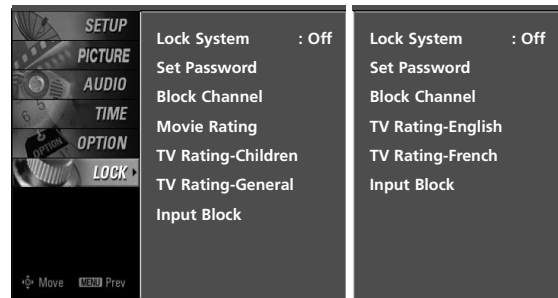
Set Password

Change the password by inputting a new password twice.

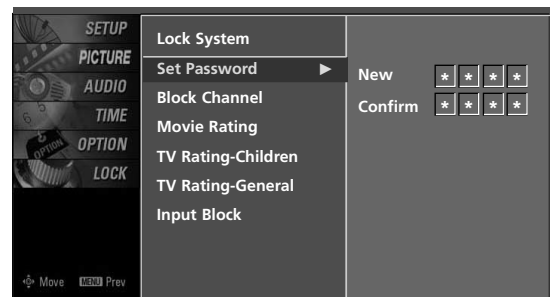
- 1 After inputting the password, use the ▲ or ▼ button to choose **Set password**.
- 2 Press the ► button and then choose any 4 digits for your new password.
As soon as the 4 digits are entered, re-enter the same 4 digits on the **Confirm**.
Then your changed password has been memorized.
- 3 Press **EXIT** button to return to TV viewing or press **MENU** button to return to the previous menu.

For USA

For Canada



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2

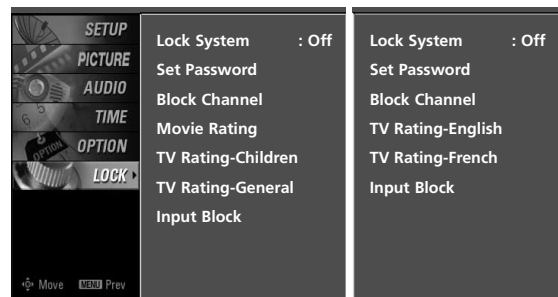
Lock System

Enables or disables the blocking scheme you set up previously.

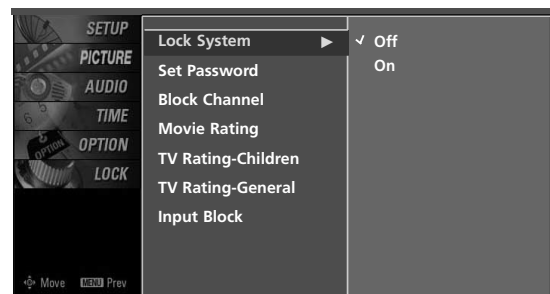
- 1 After inputting the password, use the ▲ or ▼ button to choose **Lock System**.
- 2 Press the ► button and then use the ▲ or ▼ button to select **On** or **Off**.
 - When you select **On**, the Lock System is enable.
- 3 Press **EXIT** button to return to TV viewing or press **MENU** button to return to the previous menu.

For USA

For Canada



1



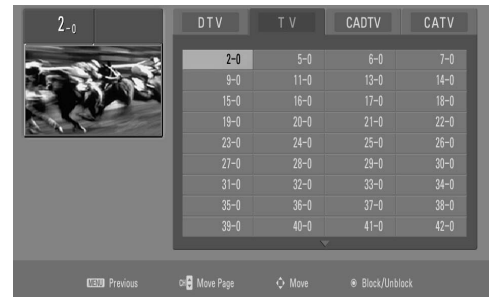
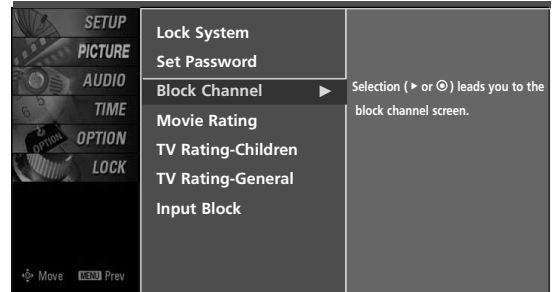
2

PARENTAL CONTROL /RATINGS

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.



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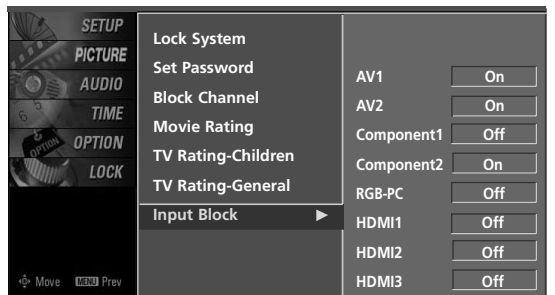
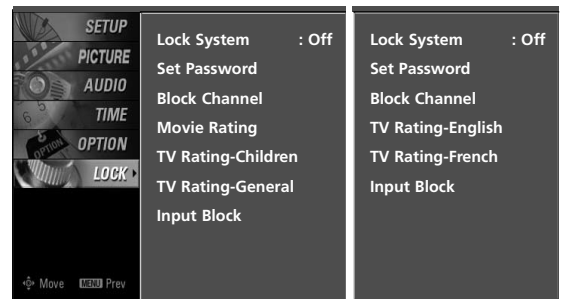
EXTERNAL INPUT BLOCKING

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 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.

For USA

For Canada

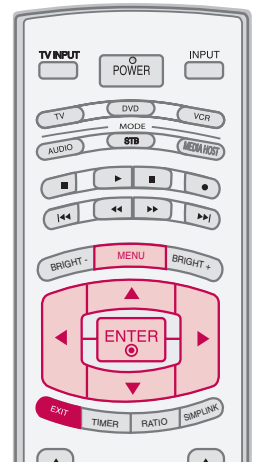


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MOVIE & TV RATING

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.



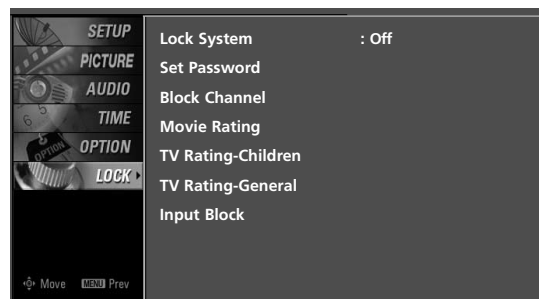
1 After inputting the password, use the ▲ or ▼ button to choose **Movie Rating**.

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

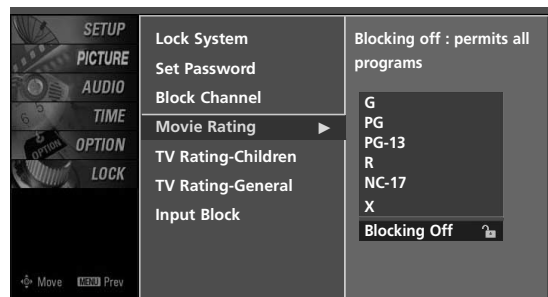
- G (General audience)
- PG (Parental guidance suggested)
- PG-13 (Parents strongly cautioned)
- R (Restricted)
- NC-17 (No one 17 and under admitted)
- X (Adult only)
- Blocking Off (Permits all programs)

► 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.



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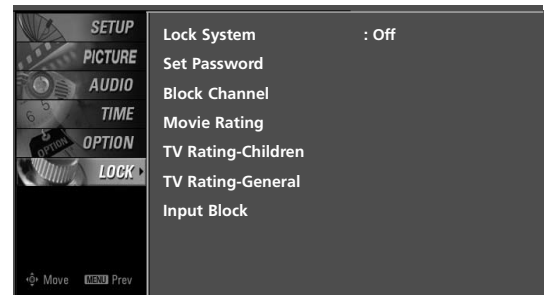
2

PARENTAL CONTROL /RATINGS

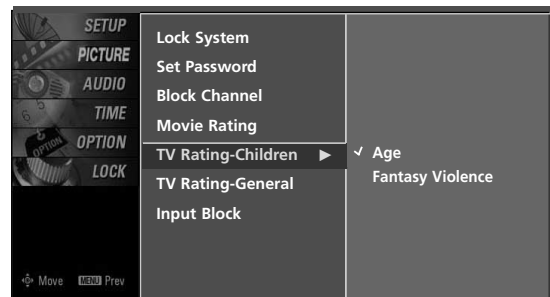
TV Rating Children - for USA only

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.



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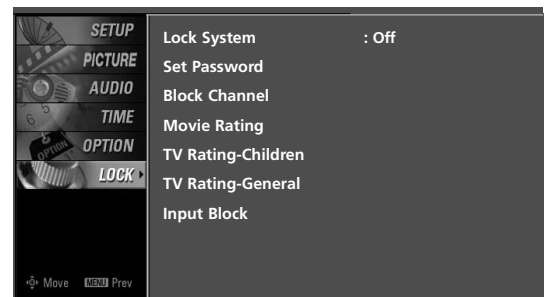


2

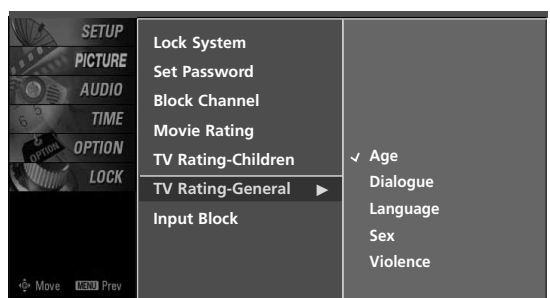
TV Rating General - for USA only

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.



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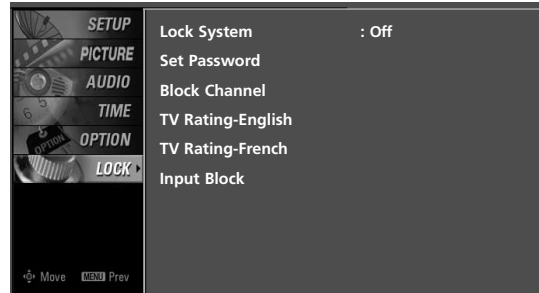
2

TV Rating English - for CANADA only

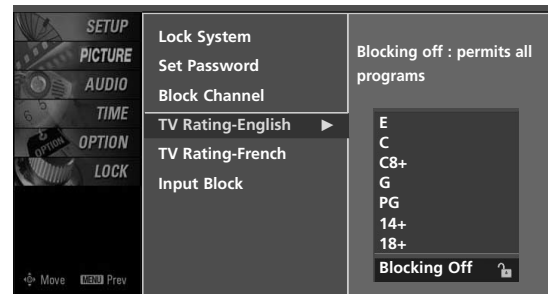
Selecting canadian english language rating system.

- 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.



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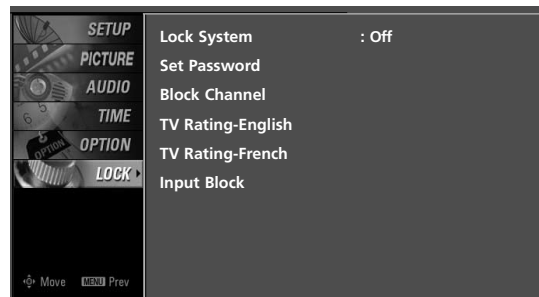
2

TV Rating French - for CANADA only

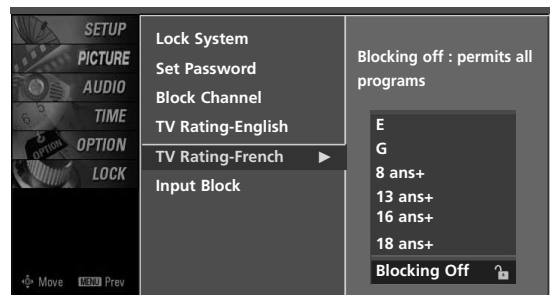
Selecting canadian french language rating system.

- 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)

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



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APPENDIX

TROUBLESHOOTING

The operation does not work normally.

<p>The remote control doesn't work</p>	<ul style="list-style-type: none"> ■ 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. ■ Ensure that the batteries are installed with correct polarity (+ to +, - to -). ■ Ensure that the correct remote operating mode is set: TV, VCR etc. ■ Install new batteries.
<p>Power is suddenly turned off</p>	<ul style="list-style-type: none"> ■ Is the sleep timer set? ■ Check the power control settings. Power interrupted. ■ No broadcast on station tuned with Auto off activated.

The video function does not work.

<p>No picture & No sound</p>	<ul style="list-style-type: none"> ■ Check whether the product is turned on. ■ Try another channel. The problem may be with the broadcast. ■ Is the power cord inserted into wall power outlet? ■ Check your antenna direction and/or location. ■ Test the wall power outlet, plug another product's power cord into the outlet where the product's power cord was plugged in.
<p>Picture appears slowly after switching on</p>	<ul style="list-style-type: none"> ■ 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.
<p>No or poor color or poor picture</p>	<ul style="list-style-type: none"> ■ Adjust Color in menu option. ■ Keep a sufficient distance between the product and the VCR. ■ Try another channel. The problem may be with the broadcast. ■ Are the video cables installed properly? ■ Activate any function to restore the brightness of the picture.
<p>Horizontal/vertical bars or picture shaking</p>	<ul style="list-style-type: none"> ■ Check for local interference such as an electrical appliance or power tool.
<p>Poor reception on some channels</p>	<ul style="list-style-type: none"> ■ Station or cable product experiencing problems, tune to another station. ■ Station signal is weak, reorient antenna to receive weaker station. ■ Check for sources of possible interference.
<p>Lines or streaks in pictures</p>	<ul style="list-style-type: none"> ■ Check antenna (Change the direction of the antenna).

The audio function does not work.

Picture OK & No sound	<ul style="list-style-type: none">■ Press the VOL or VOLUME button.■ Sound muted? Press MUTE button.■ Try another channel. The problem may be with the broadcast.■ Are the audio cables installed properly?
No output from one of the speakers	<ul style="list-style-type: none">■ Adjust Balance in menu option.
Unusual sound from inside the product	<ul style="list-style-type: none">■ 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.

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

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

APPENDIX

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.

PRODUCT SPECIFICATIONS

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

MODELS		47LC7DF (47LC7DF-UK)	50PY3D (50PY3DF-UJ)	60PY3D (60PY3DF-UJ)
Dimensions (Width x Height x Depth)	with stand	45.1 x 32.5 x 12.1 inches 1144.3 x 825.5 x 306.4mm	53.5 x 35.0 x 14.6 inches 1360.0 x 887.0 x 370.0 mm	63.5 x 40.8 x 17.8 inches 1613.6 x 1036.8 x 452.0 mm
	without stand	45.1 x 29.7 x 4.1 inches 1144.3 x 754.7 x 103.0 mm	53.5 x 32.4 x 3.8 inches 1360.0 x 822.8 x 95.5 mm	63.5 x 38.2 x 3.9 inches 1613.6 x 970.0 x 98.5 mm
Weight	with stand	82.9 pounds / 37.6 kg	126.8 pounds / 57.5kg	178.6 pounds / 81.0kg
	without stand	69.4 pounds / 31.5 kg	107.0 pounds / 48.5kg	143.3 pounds / 65.0kg
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

MODELS		37LB5D (37LB5DF-UL)	42LB5D (42LB5DF-UL)	47LB5D (47LB5DF-UL)	52LB5D (52LB5DF-UL)
Dimensions (Width x Height x Depth)	with stand	36.5 x 27.3 x 11.1 inches 927.0 x 692.8 x 283.2 mm	40.7 x 29.5 x 11.3 inches 1033.1 x 750.0 x 287.6 mm	45.1 x 32.5 x 13.0 inches 1144.5 x 825.6 x 331.0 mm	50.6 x 35.5 x 14.1 inches 1284.6 x 901.8 x 356.9 mm
	without stand	36.5 x 24.8 x 3.5 inches 927.0 x 630.0 x 88.0 mm	40.7 x 27.0 x 3.5 inches 1033.1 x 686.5 x 88.5 mm	45.1 x 29.7 x 4.1 inches 1144.5 x 754.9 x 103.0 mm	50.6 x 32.7 x 4.4 inches 1284.6 x 831.6 x 111.5 mm
Weight	with stand	44.1 lbs / 20.0kg	60.6 lbs / 27.5kg	82.7 lbs / 37.5kg	106.0 lbs / 48.1kg
	without stand	35.3 lbs / 16.0kg	50.7 lbs / 23.0kg	69.2 lbs / 31.4kg	89.3 lbs / 40.5kg
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%			

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.

APPENDIX

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

HDSTB

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

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

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		

IR CODES

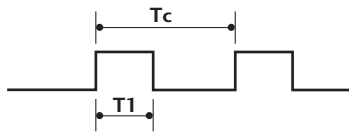
1. How to Connect

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

2. Remote Control IR Codes

Output waveform

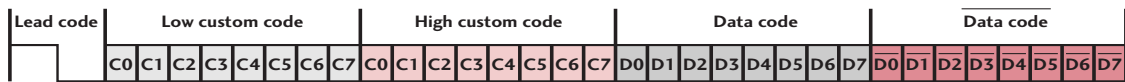
Single pulse, modulated with 37.917KHz signal at 455KHz



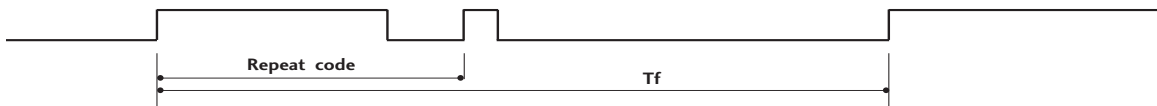
Carrier frequency
 $FCAR = 1/T_c = f_{OSC}/12$
 Duty ratio = $T_1/T_c = 1/3$

Configuration of frame

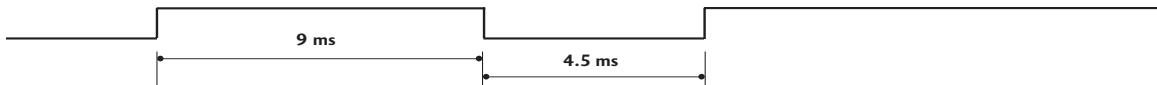
1st frame



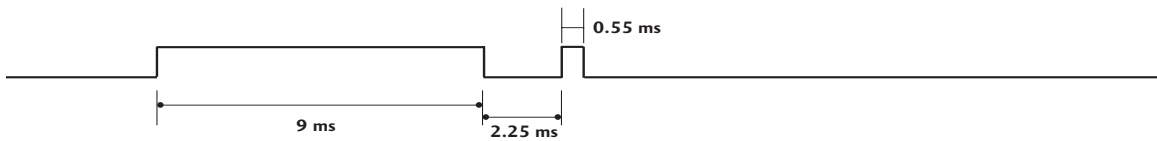
Repeat frame



Lead code

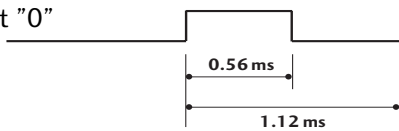


Repeat code

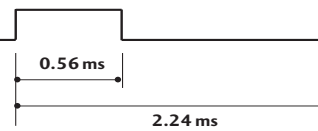


Bit description

Bit "0"

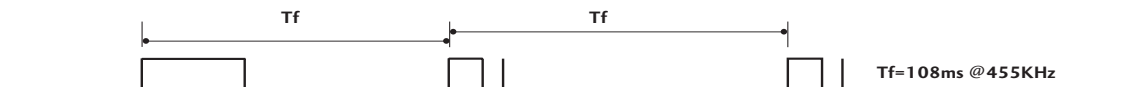


Bit "1"



Frame interval: T_f

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



APPENDIX

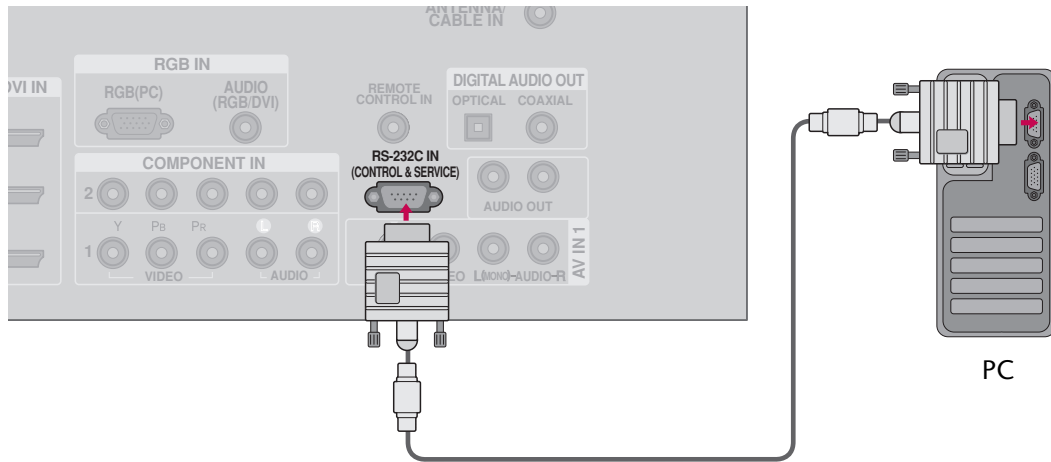
Code (Hexa)	Function	Note	Code (Hexa)	Function	Note
0F	TV INPUT	Remote control Button	BF	COMPONENT1	Discrete IR Code
0B	INPUT	Remote control Button			(Component1 Input Selection)
08	POWER	Remote control Button (Power On/Off)	D4	COMPONENT2	Discrete IR Code
79	RATIO	Remote control Button			(Component2 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	CE	HDMI1	Discrete IR Code
1A	BACK	Remote control Button			(HDMI1 Input Selection)
09	MUTE	Remote control Button	CC	HDMI2	Discrete IR Code
02	VOL ▲	Remote control Button			(HDMI2 Input Selection)
03	VOL ▼	Remote control Button	76	Ratio 4:3	Discrete IR Code
00	CH ▲	Remote control Button			(Only 4:3 Mode)
01	CH ▼	Remote control Button	77	Ratio 16:9	Discrete IR Code
1E	FAV	Remote control Button			(Only 16:9 Mode)
39	CC	Remote control Button	AF	Ratio Zoom	Discrete IR Code
40	▲	Remote control Button			(Only Zoom1 Mode)
41	▼	Remote control Button	C4	POWER ON	Discrete IR Code
07	◀	Remote control Button			(Only Power On)
06	▶	Remote control Button	C5	POWER OFF	Discrete IR Code
44	ENTER	Remote control Button			(Only Power Off)
E1	BRIGHT-	Remote control Button	B0	PLAY	Remote control Button
43	MENU	Remote control Button	BA	PAUSE	Remote control Button
E0	BRIGHT+	Remote control Button	B1	STOP	Remote control Button
52	SOUND	Remote control Button	BD	REC	Remote control Button
4D	PICTURE	Remote control Button	8F	REW	Remote control Button
5B	EXIT	Remote control Button	8E	FF	Remote control Button
7E	SIMPLINK	Remote control Button	B2	GO TO PREV	Remote control Button
0A	SAP	Remote control Button	B3	GO TO NEXT	Remote control Button
D6	TV	Discrete IR Code	7C	MEDIA HOST	Remote control Button
		(TV Input Selection)	7D	MARK	Remote control Button
5A	AV1	Discrete IR Code	CA	USB EJECT	Remote control Button
		(AV1 Input Selection)			
D0	AV2	Discrete IR Code			
		(AV2 Input Selection)			

EXTERNAL CONTROL THROUGH RS-232C

The RS-232C port allows you connect the RS-232C input jack to an external control device (such as a computer or an A/V control system) to control the TV's functions externally.

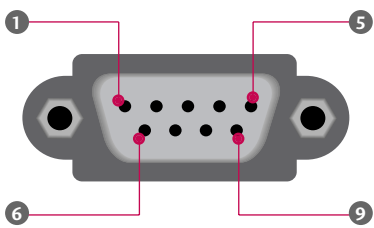
- Note: RS-232C on this unit is intended to be used with third party RS-232 control hardware and software. The instructions below are provided to help with programming software or to test functionality using telenet software.

RS-232C Setup



Type of Connector; D-Sub 9-Pin Male

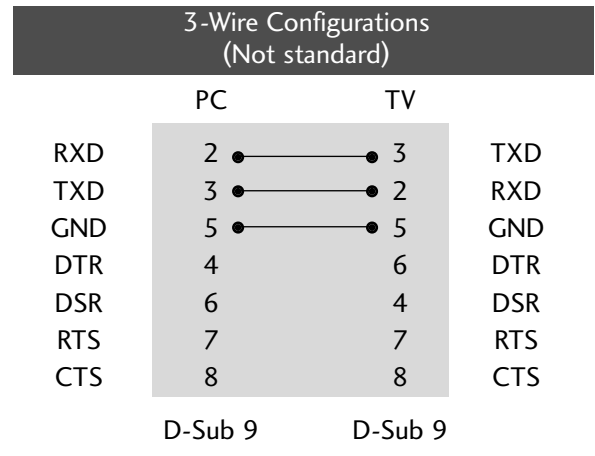
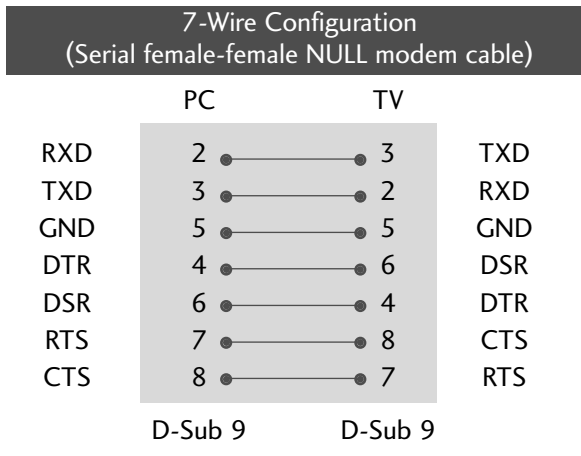
No.	Pin Name
1	No connection
2	RXD (Receive data)
3	TXD (Transmit data)
4	DTR (DTE side ready)
5	GND
6	DSR (DCE side ready)
7	RTS (Ready to send)
8	CTS (Clear to send)
9	No Connection



APPENDIX

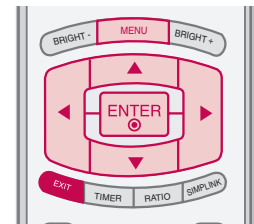
RS-232C Configurations

Either cable below can be used.

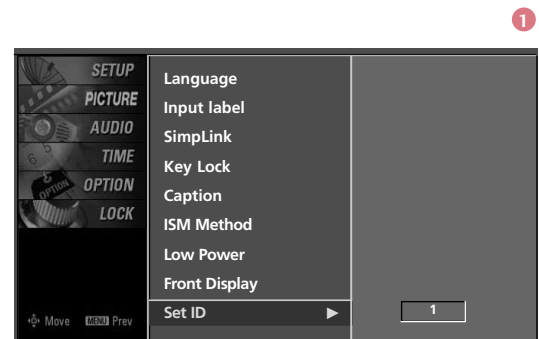
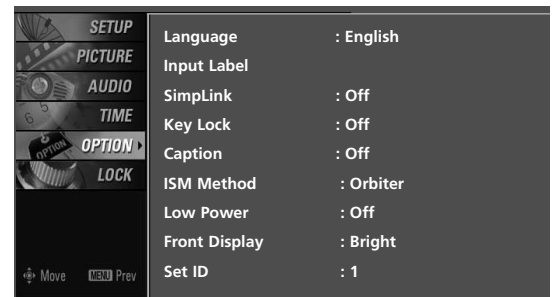


Set ID

Use this function to specify a TV ID number.
Refer to 'Real Data Mapping'. ▶ p.102.



- 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 **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.



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.

NOTE ▶ This product has command echo back in the RS-232C Command.

Command Reference List

	COMMAND1	COMMAND2	DATA (Hexadecimal)		COMMAND1	COMMAND2	DATA (Hexadecimal)
01. Power	k	a	0 ~ 1	13. Remote Control	k	m	0 ~ 1
02. Input Select	k	b	0 ~ 9	Lock Mode			
03. Aspect Ratio	k	c	(▶ p.102)	14. Treble	k	r	0 ~ 64
04. Screen Mute	k	d	0 ~ 1	15. Bass	k	s	0 ~ 64
05. Volume Mute	k	e	0 ~ 1	16. Balance	k	t	0 ~ 64
06. Volume Control	k	f	0 ~ 64	17. Color Temperature	k	u	0 ~ 3
07. Contrast	k	g	0 ~ 64	18. Red Adjustment	k	v	0 ~ C8
08. Brightness	k	h	0 ~ 64	19. Green Adjustment	k	w	0 ~ C8
09. Color	k	i	0 ~ 64	20. Blue Adjustment	k	\$	0 ~ C8
10. Tint	k	j	0 ~ 64	21. ISM Method	j	p	(▶ p.104)
11. Sharpness	k	k	0 ~ 64	22. Low Power	j	q	0 ~ 1
12. OSD Select	k	l	0 ~ 1				

Plasma TV Model Only

	COMMAND1	COMMAND2	DATA0 (Hexadecimal)	DATA1 (Hexadecimal)	DATA2 (Hexadecimal)	DATA3 (Hexadecimal)	DATA4 (Hexadecimal)	DATA5 (Hexadecimal)
23. Channel Tuning	m	a	physical program high	major program low	major low	minor high	minor low	attribute
24. Channel Add/Del	m	b	0 ~ 1					
25. Key	m	c	(▶ p.105)					
26. Input Select	x	b	(▶ p.105)					
27. Back Light	m	g	0~64					

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.

* In this model, TV will not send the status during the standby mode.

[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.

* In this model, TV will not send the status during the standby mode.

* Data Format

[Command 2] : Use as command.

[Set ID] : Use the small character, if set ID is 10, it will send the '0', 'a'.

[DATA] : Use the small character, if data is 0 x ab, it will send the 'a', 'b'.

[OK] : Use the large character.

* In this model, TV will send the echo, CR, LF with acknowledgement message.

* When it send the power on acknowledgement message, it will be like below.

ex) ka 01 01 (CR) (LF) a 01 OK 01 x (CR) (LF)

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

* In this model, TV will not send the status during the standby mode.

* Data Format

[Command 2] : Use as command.

[Set ID] : Use the small character, if set ID is 10, it will send the '0', 'a'.

[DATA] : Use the small character, if data is 0 x ab, it will send the 'a', 'b'.

[NG] : Use the large character

* In this model, TV will send the echo, CR, LF with acknowledgement message.

* When it send the power on acknowledgement message, it will be like below.

ex) ka 01 01 (CR) (LF) a 01 NG 01 x (CR) (LF)

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.

* Note: In this model, TV will send the Acknowledge after power on processing completion.

There might be a time delay between command and acknowledge.

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 1: Analog
Data 2: AV1	Data 3: AV2
Data 4: Component 1	Data 5: Component 2
Data 6: RGB-PC	Data 7: HDMI1
Data 8: HDMI2	Data 9: HDMI3

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

03. Aspect Ratio (Command2:c)

To adjust the screen format.

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

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

Data 1: 4:3	4: Zoom 1
2: 16:9	5: Zoom 2
	6: Set by program
	⋮
	Reserved

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 mapping 1' 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 Picture menu.

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

Data Min : 0 ~ Max : 64

*Refer to 'Real data mapping 1' 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 Picture menu.

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

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

*Refer to 'Real data mapping 1' as shown below.

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

*Real data mapping 1

0 : Step 0
⋮
A : Step 10 (SET ID 10)
⋮
F : Step 15 (SET ID 15)
10 : Step 16 (SET ID 16)
⋮
63 : Step 99 (SET ID 99)
64 : Step 100

09. Color (Command2:i)

To adjust the screen color.

You can also adjust color in the Picture menu.

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

Data Min : 0 ~ Max : 64

*Refer to 'Real data mapping 1'. See page 102.

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

10. Tint (Command2:j)

To adjust the screen tint.

You can also adjust tint in the Picture menu.

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

Data Red: 0 ~ Green: 64

*Refer to 'Real data mapping 1'. See page 102.

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

11. Sharpness (Command2:k)

To adjust the screen sharpness.

You can also adjust sharpness in the Picture menu.

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

Data Min: 0 ~ Max: 64

*Refer to 'Real data mapping 1'. See page 102.

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 mapping 1'. See page 104.

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 mapping 1'. See page 102.

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 mapping 1'. See page 102.

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 Picture 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. Red Adjustment (Command:v)

To adjust red in color temperature

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

Data Min:0 ~ Max:C8

*Refer to 'Real data mapping 2' as shown below.

Acknowledgement [v][][Set ID][][OK/NG][Data][x]

19. Green Adjustment (Command:w)

To adjust green in color temperature.

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

Max: C8

*Refer to 'Real data mapping 2' as shown below.

Acknowledgement [w][][Set ID][][OK/NG][Data][x]

*Real data mapping 2

0 : -20

5 : -19

A : -18

⋮

5F: -1

64: 0

69: +1

⋮

C3 : +19

C8 : +20

20. Blue Adjustment (Command:\$)

To adjust blue in color temperature.

Transmission [k][\$][][Set ID][][Data][Cr]

Data Min:0 ~ Max:C8

*Refer to 'Real data mapping 2'. See page 103.

Acknowledgement [\$][][Set ID][][OK/NG][Data][x]

21. ISM Method (Command2:p)

(Only Plasma TV model)

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]

22. Low Power (Command2:q)

(Only Plasma TV model)

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]

23. 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]

Digital channels have a Physical, Major, and Minor channel number. The Physical number is the actual digital channel number, the Major is the number that the channel should be mapped to, and the Minor is the sub-channel. Since the ATSC tuner automatically maps the channel to the Major number, the Physical number is not required when sending a command.

Data 0: Physical Channel Number

NTSC air: 02~45, NTSC cable: 01, 0E~7D

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

Data1 & 2: Major Channel Number

Data1: High byte Data2: Low byte

Two bytes are available for the Major and Minor, normally only the second byte is used.

Data3 & 4: Minor Channel Number

Not needed for NTSC.

Data5:

7	Main/Sub Picture	6	Two/One Part Channel	5	Using Physical 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		0	1	1	1	Reserved
						x		x	x	x	x	...
						x		1	1	1	1	Reserved

The table above lists the binary code which must be converted to Hexadecimal before sending. For example: The binary code to tune the sub source to an NTSC cable channel is "1000 0001", which translates to "81" in Hex.

- * 7th bit : For which source do you want to change the channel.
- * 6th bit: Use a two part or one part channel. Most cases just use 0 since it's ignored when using NTSC.
- * 5th bit: Use 0 with NTSC since it can only use the physical channel number. Normally use 1 for ATSC since most times it doesn't matter what the physical number is.
- * 4th bit: Set to 0.
- * 3-0 bits: Choose signal type.

* Tune Command Examples:

1. Tune to the analog (NTSC) cable channel 35.

Data 0 = Physical of 35 = 23
 Data 1 & 2 = No Major = 00 00
 Data 3 & 4 = No Minor = 00 00
 Data 5 = 0000 0001 in binary = 01
 Total = ma 00 23 00 00 00 00 01

2. Tune to the digital (ATSC) local channel 30-3.

Data 0 = Don't know Physical = 00
 Data 1 & 2 = Major is 30 = 00 1E
 Data 3 & 4 = Minor is 3 = 00 03
 Data 5 = 0010 0010 in binary = 22
 Total = ma 00 00 00 1E 00 03 22

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

24. 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]
```

25. Key (Command: m c)

To send IR remote key code.

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

Data Key code: Refer to page 100.

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

26. Input Select (Command: x b)

To select input source for TV.

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

Data 00 : DTV (Antenna) Data 01 : DTV (Cable)
 Data 10 : Analog (Antenna) Data 11 : Analog (Cable)
 Data 20 : AV1 Data 21 : AV2
 Data 40 : Component 1 Data 41 : Component 2
 Data 60 : RGB-PC Data 90 : HDMI1
 Data 91 : HDMI2 Data 92 : HDMI3

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

27. Back Light (Command: m g)

To adjust screen back light.

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

Data Min:0 ~ Max:64

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

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