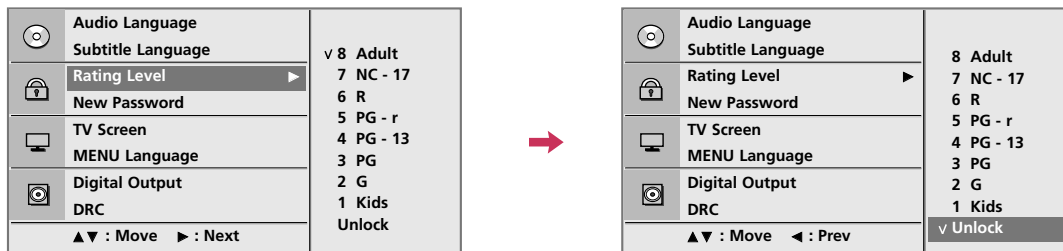


PARENTAL CONTROL / RATINGS



Parental Control Setup


Some movies contain scenes that may not be suitable for children to view. Many of these discs contain parental control information that applies to the complete disc or to certain scenes on the disc. Movies and scenes are rated from 1 to 8, depending on the country. Some discs offer more suitable scenes as an alternative.


The parental control feature allows you to block access to scenes above the rating you input, thereby preventing your children from being able to view material you believe is unsuitable.



1   Select **Rating Level**.

2   Input the password.

3  Set the restriction level from 1 to 8. Viewing becomes more restricted as the number increases.

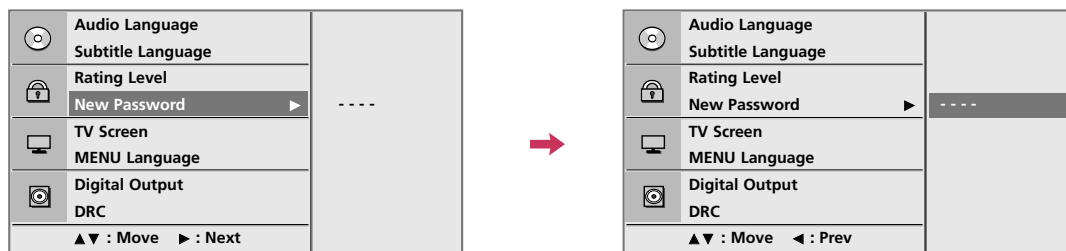
4  Return to normal playback.

- 1: Kids
- 2: G (General audience)
- 3: PG (Parental guidance suggested)
- 4: PG-13 (13 years and older)
- 5: PG-r
- 6: R (Restricted)
- 7: NC-17 (18 years and older)
- 8: Adult (Adults only)
- ▶ Enter the password as requested.
- ▶ The TV is set up with the initial password "0-0-0-0".
- ▶ If you ever forget your password, key in '7', '7', '7', '7' on the remote control.







- If you set a rating for the player, all disc scenes with the same rating or lower are played. Higher rated scenes are not played unless an alternate scene is available on the disc. The alternative must have the same rating or a lower one. If no suitable alternative is found, playback stops. You must enter the 4-digit password or change the rating level in order to play the disc.

DVD OPERATION

Changing the password

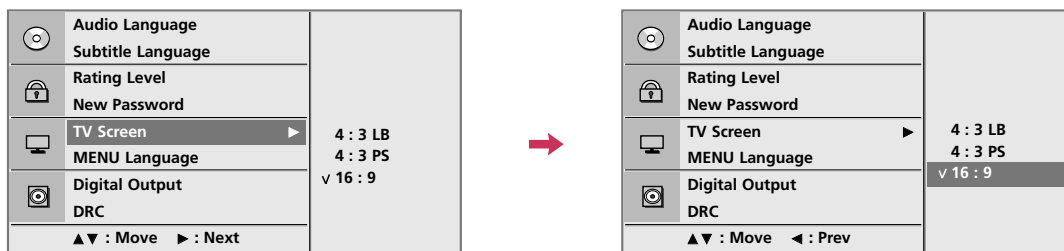


DVD OPERATION



-   Select **New Password**.
-   Input the password.
-  Enter it again when requested.
-  Return to normal playback.


PICTURE SIZE CONTROL

You can watch TV in various picture formats.



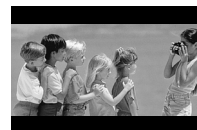
1   Select **TV Screen**.

2   Select **4:3 LB**, **4:3 PS**, or **16:9**.

3  Return to normal playback.

- Depending on the disc, the TV screen feature may not be available.

- 4:3 LB (Letter Box)



- 4:3 PS (Pan & Scan)



- 16:9



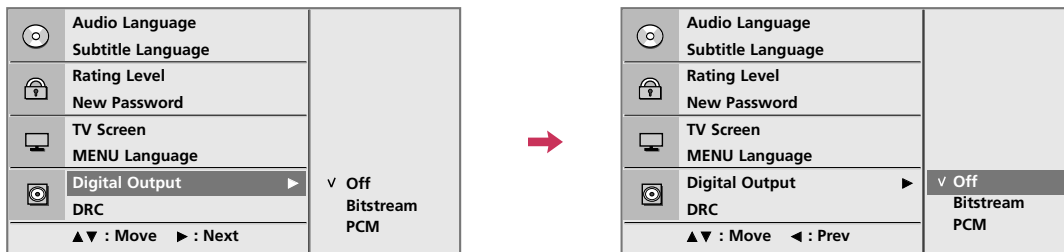
DVD OPERATION

DIGITAL AUDIO OUTPUT

You can select the output for SPDIF (Sony/Philips Digital Interface).


Each DVD disc has a variety of audio output options.

Set the player's AUDIO options according to the type of audio system you use.



1   Select **Digital Output**.

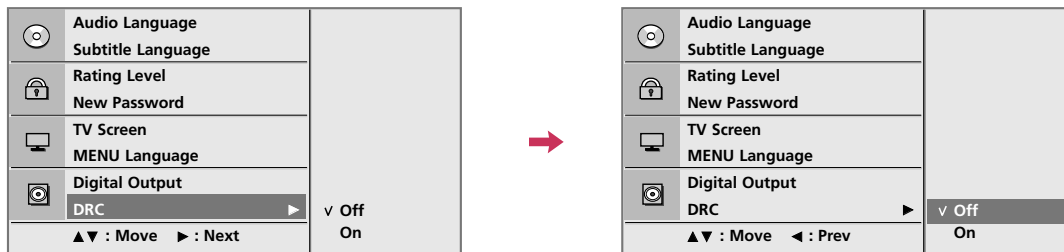
2   Select **Off, Bitstream, or PCM**.

3  Return to normal playback.



- Bitstream: Select Bitstream if you connect the DVD Player's DIGITAL OUT jack to an amplifier or other equipment with a Dolby Digital, or MPEG decoder.
- PCM (Pulse Code Modulation): Select when connected to a two-channel digital stereo amplifier. DVDs encoded in Dolby Digital, or MPEG will be automatically downmixed to two-channel PCM audio.


DYNAMIC RANGE COMPRESSION (DRC)

Confines the audio range to prevent excessively loud sound yet allows you to hear the low sounds clearly.



1   Select **DRC**.

2   Select **Off** (Decrease the DRC range) or **On** (Reset the DRC range to original values).



3  Return to normal playback.

- With the DVD format, you can hear a program's soundtrack in the most accurate and realistic presentation possible, thanks to digital audio technology. However, you may wish to compress the dynamic range of the audio output (the difference between the loudest sounds and the quietest ones).
- This allows you to listen to a movie at a lower volume without losing clarity of sound. Set DRC to On for this effect.




DVD OPERATION


PLAYING A DVD OR VIDEO CD

Basic Playback




-  Turn TV on.
-  Slide your chosen disc into the disc slot on the side panel. Be sure to face the top of the disc (with title etc.) toward the front of the screen. Playback starts.

Stop Playback/Ejection

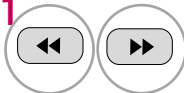

-  Stop playback. At this time, DVD/VCD player stops playback temporarily and maintains the current playback position. (At this time, if you press **play** button, Playback will resume from the location where you stopped playback.)
-  Press this button again to stop playback fully. (At this time, if you press **play** button, disc playback start from the beginning.)
-  Remove the disc.
The Disc will come out halfway.

- If you have a disc problem during playback, remove the disc by pressing and holding down the  button on the side panel for 5 seconds. The Disc will come out completely. After that, turn the TV off and then on again.

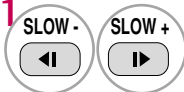

Pause Playback (Still Mode)

-  Press this button during playback.
-  or  Use this button again to return to normal playback.

Fast Forward/Backward



-  Press this button during playback. Select the required speed: X2, X4, X8, X16 or X32 (backward/forward).
-  Return to normal playback.

Slow Motion





-  Press this button during playback. Select the required speed: $\ll 1/2$, $\ll 1/4$, $\ll 1/8$, $\ll 1/16$ (backward), or $\gg 1/2$, $\gg 1/4$, $\gg 1/8$, $\gg 1/16$ (forward).
-  Return to normal playback.

- There is no sound during fast or slow playback for DVDs or Video CDs.
- Slow motion playback in reverse is not possible with Video CDs.

Skip a Chapter/Track






-  Press it briefly during playback to select the next chapter/track or to return to the beginning of the current chapter/track.
-  Press it twice briefly to step back to the previous chapter/track.

Still Picture and Frame-by-Frame Playback

- 1  Press this button during playback.
- 2   Press this button during playback. Press it repeatedly to advance the picture frame-by-frame.
- 3  Exit still motion mode.





Repeat Playback

You can play a specific title, chapter, track, or segment repeatedly.




- 1  Use this button during playback. Press it repeatedly to change the repeat mode.
DVD:  Chapter,  Title,  ALL, Repeat Off.
VCD:  Track,  ALL, Repeat Off.

- On a Video CD with PBC, you must set **PBC - Off** using **PBC** button to use the repeat function.

Disc Menu (DVD only)

- 1  Press this button during playback.
- 2   Select the desired menu option.
- 3  Return to normal playback.



Title Menu (DVD only)

- 1  Press this button during playback.
- 2   Select the desired item.

- The TV may not be able to select the disc or title menu depending on a sort of DVD disc.

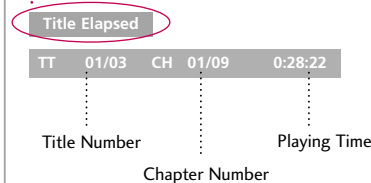
OSD (On-Screen Display)

You can display the playback status on TV screen as following; Title, Chapter number, Playing time.

- 1  Press this button during playback. Title, Chapter information appears on screen.
- 2  Press it repeatedly to change OSD.

DVD: Title Elapsed → Title Remain → Chapter Elapsed → Chapter Remain → Display off.

Audio CD: Single Elapsed → Single Remain → Total Elapsed → Total Remain.








- OSD display may differ depending on a sort of DVD disc.

DVD OPERATION



A-B Repeat Playback

A-B repeat playback allows you to repeat material between two selected points.

-  Select the start point during back. “ A” is displayed on TV screen and the starting point of your selected segment is set up.
-  Select the end point. “ AB” is displayed on TV screen and the ending point is set up. Playback starts at the point that you selected. Playback stops at the end point, returns to Point A automatically, then starts again.
-  Resume normal playback.


Camera Angle (DVD only)

If the scene was recorded from multiple angles, you can easily change the camera angle of the scene you are currently watching.

-  Press this button during playback.
-  Press it repeatedly to select the desired angle.




- You can only change the angle for DVDs that provide multiple angles of scenes.
- The angle function will not work on DVD video discs that do not contain scenes recorded at different angles.
- The number of angles varies from disc to disc.

Subtitles

-  Press it during playback to see the different subtitle languages.

Zoom

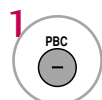
When enlarging the picture, it may become distorted.

-  Press this button during playback.
-  Press it repeatedly to change the TV screen in the sequence: 2x, 3x, 4x.
-  Adjust the main picture position while in the enlarged picture mode.

- Zoom may not work on some DVDs.

PBC

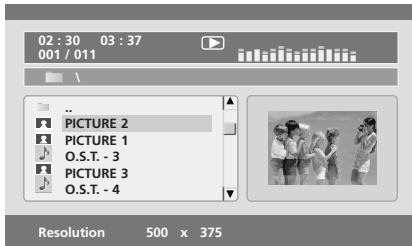
Set Playback Control (PBC) to On or Off.

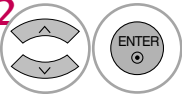
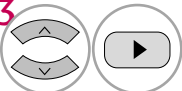
-  Select **On** or **Off**.
 - On: Video CDs with PBC are played according to the PBC.
 - Off: Video CDs with PBC are played the same way as Audio CDs.

MP3 OPERATION

MP3 Files Playback Options

- 1 When inserted, the MP3 menu screen appears automatically depending on the MP3 disc's folder (directory) structure.


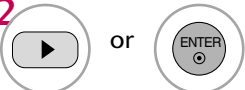


- 2  Select desired folder.
- 3  Select desired file and play the MP3 file.

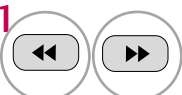

Stop Playback

- 1  Stop playback.

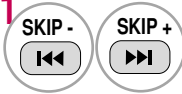
Pause Playback


- 1  Pause playback.
- 2  Use this button again to return to normal playback.

Fast Forward/Backward

- 1  Press this button during playback. Select the required speed: 2X, 4X, 8X, 16X or 32X.
- 2  Return to normal playback.


Move to another Track

- 1  Press it briefly during playback to go to the next track or to return to the beginning of the current track.

- 1  Press it twice briefly to go back to the previous track.




Repeat Playback

You can play a specific track repeatedly.

- 1  Use this button during playback. Press it repeatedly to change the repeat mode: Shuffle, Random, Repeat One, Repeat All, Repeat Off.

A-B Repeat Playback

A-B repeat playback allows you to repeat material between two selected points.


- 1  Select the start point during playback. "A" is displayed on TV screen and the starting point of your selected segment is set up.
- 2  Select the end point. "AB" is displayed on TV screen and the ending point is set up. Playback starts at the point that you selected. Playback stops at the end point, returns to Point A automatically, then starts again.
- 3  Resume normal playback.

DVD OPERATION

AUDIO CD OPERATION



On-Screen Display

You can display the Track, and Playback time status on the TV screen.




- 1  Press this button during playback. Press it repeatedly to change track information: Single Elapsed, Single Remain, Total Elapsed, or Total Remain.



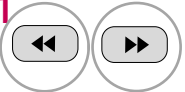

Stop Playback

- 1  Stop playback. At this time the CD player stops playback temporarily and maintains the current playback position.
- 2  Press it repeatedly to stop playback fully. (At this time if you press the ► button, disc playback starts from the beginning.)

Pause Playback (Still Mode)


- 1  Pause playback.
- 2  or  Return to normal playback.

Fast Forward/Backward



- 1  Press this button during playback. Select the required speed: 2X, 4X, 8X, 16X or 32X.
- 2  Return to normal playback.

Repeat Playback

You can play a specific track repeatedly.




- 1  Use this button during playback. Press it repeatedly to change the repeat mode: Track, All, Repeat Off.

Move to another Track

- 1   Use this button during playback. Press it repeatedly to skips to the next/previous track.

A-B Repeat Playback

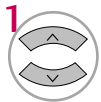
A-B repeat playback allows you to repeat material between two selected points.

- 1  Select the start point during playback. “A” is displayed on TV screen and the starting point of your selected segment is set up.
- 2  Select the end point. “AB” is displayed on TV screen and the ending point is set up. Playback starts at the point that you selected. Playback stops at the end point, returns to Point A automatically, then starts again.
- 3  Resume normal playback.

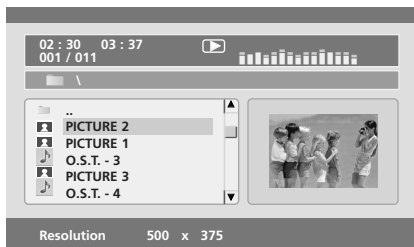
JPG FILE VIEWING OPTIONS

As a JPG file is loaded, the table of contents appears on the TV screen.

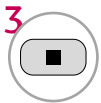
Picture Selection



1 Select the desired picture. The selected JPG file appears as shown.



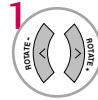
2 Start Slide show mode.



3 Return to play list.

- If you press the **ENTER** button while playing an MP3 disc, the slide show starts.

Rotation



1 Rotate a JPG file clockwise or counter clockwise during showing a picture.

Repeat Playback

You can show JPG files repeatedly.



Use this button during playback. Press it repeatedly to change the repeat mode: Shuffle, Random, Repeat One, Repeat All, Repeat Off.

- If you play MP3 and JPG slide show simultaneously, repeat function is applied to both MP3 and JPG files.

PICTURE CONTROL

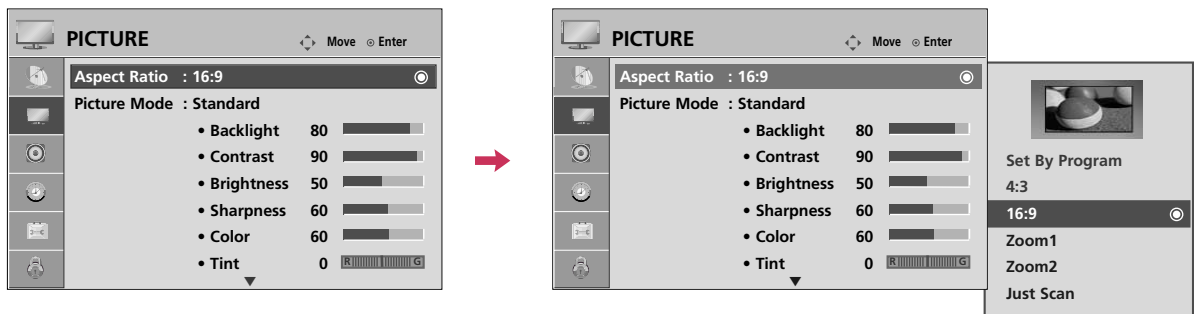
PICTURE SIZE (ASPECT RATIO) CONTROL









This feature lets you choose the way an analog picture with a 4:3 aspect ratio is displayed on your TV.

NOTE

- ▶ If a fixed image is displayed on the screen for very long time, the image could become imprinted on the screen and remain visible. This phenomenon is common to all manufacturers and is not covered by warranty. Normally it will dissipate after a few minutes.

PICTURE CONTROL



- 1 MENU/SET UP   Select **PICTURE**.
- 2 ENTER   Select **Aspect Ratio**.
- 3 ENTER   Select the desired picture format.
- 4 RETURN  Return to the previous menu.
- MENU/SET UP  Return to TV viewing.

■ You can also adjust **Aspect Ratio** in the **Q-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.



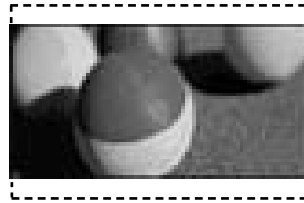
16:9

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



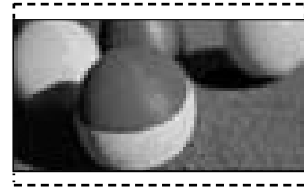
Zoom 1

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

Normally the edges of video signals are cropped 1-2%. Just Scan turns off this cropping and shows the complete video.

Notes: If there is noise on the edges of the original signal, it will be visible when Just Scan is activated.

Just Scan operates only in DTV/CADTV/Component/HDMI-DTV/DVI-DTV (720p/1080i/1080p) input source.

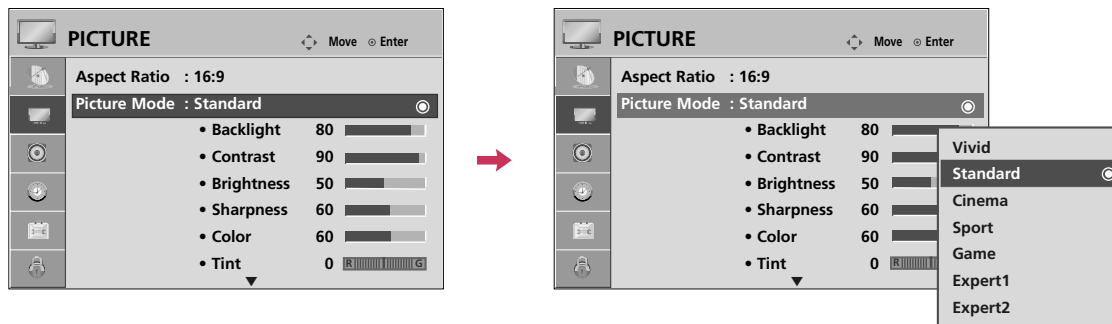










PICTURE CONTROL

PRESET PICTURE SETTINGS

Picture Mode - Preset

There are factory presets for picture settings available in the user menus. You can use a preset, change each setting manually.













-   Select **PICTURE**.
-   Select **Picture Mode**.
-   Select **Vivid, Standard, Cinema, Sport, or Game**.
-  Return to the previous menu.
-  Return to TV viewing.

- **Vivid, Standard, Cinema, Sport, and Game** Settings are preset for the optimum picture quality at the factory and are not adjustable.
- You can also adjust **Picture Mode** in the **Q. Menu**.

Color Tone - Preset

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



- 1   Select **PICTURE**.
- 2   Select **Advanced Control**.
- 3   Select **Color Temperature**.
- 4   Select **Cool, Medium, or Warm**.
- 5  Return to the previous menu.
-  Return to TV viewing.

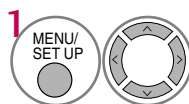
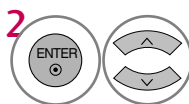
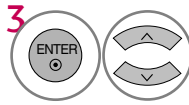
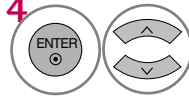
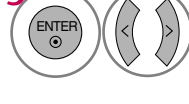


PICTURE CONTROL

MANUAL PICTURE ADJUSTMENT

Picture Mode - User Mode

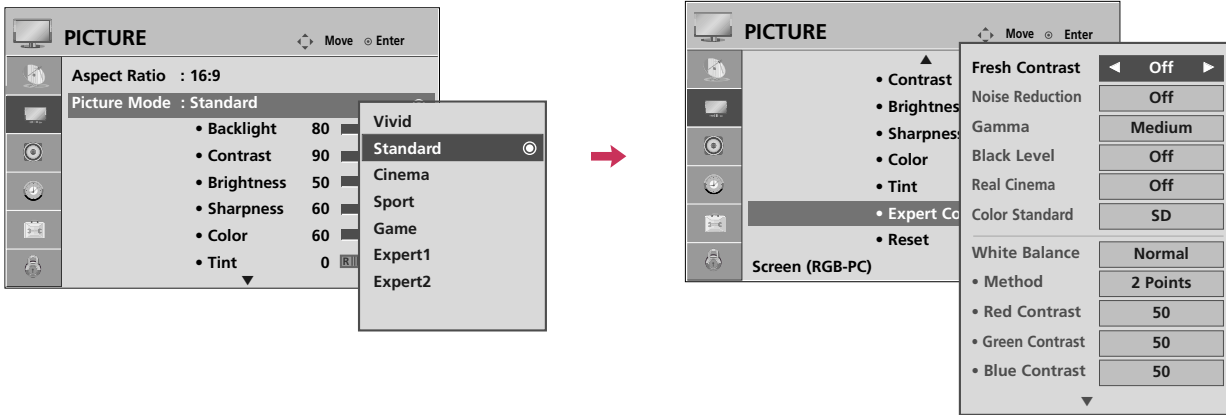
Adjust the picture appearance to suit your preference and viewing situations.
















-  Select **PICTURE**.
-  Select **Picture Mode**.
-  Select **Vivid, Standard, Cinema, Sport, or Game**.
-  Select **Backlight, Contrast, Brightness, Sharpness, Color, or Tint**.
-  Make appropriate adjustments.
-  Return to the previous menu.
-  Return to TV viewing.

Picture Mode - Expert Control

By segmenting categories, **Expert1** and **Expert2** provide more categories which users can set as they see fit, offering the optimal picture quality for users.



- 1   Select **PICTURE**.
- 2   Select **Picture Mode**.
- 3   Select **Expert1** or **Expert2**.
- 4   Select **Expert Control**.
- 5   Select your desired menu option.
- 6  Make appropriate adjustments.
- 7  Return to the previous menu.
-  Return to TV viewing.

PICTURE CONTROL

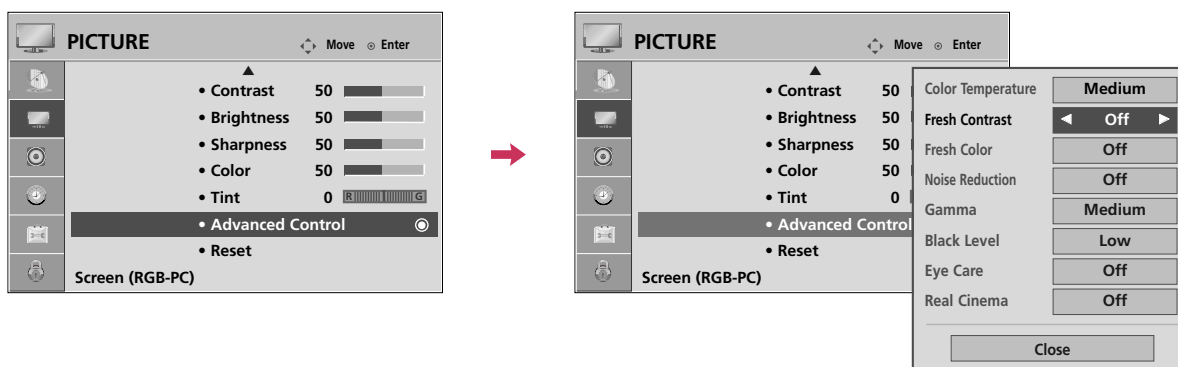
PICTURE IMPROVEMENT TECHNOLOGY




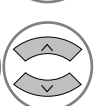

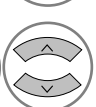

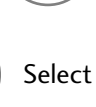

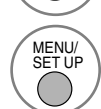
Fresh Contrast: Optimizes the contrast automatically according to the brightness of the reflection.

Fresh Color: Adjusts the color of the reflection automatically to reproduce as close as possible natural colors.

Noise Reduction: Removes interference up to the point where it does not damage the original picture.

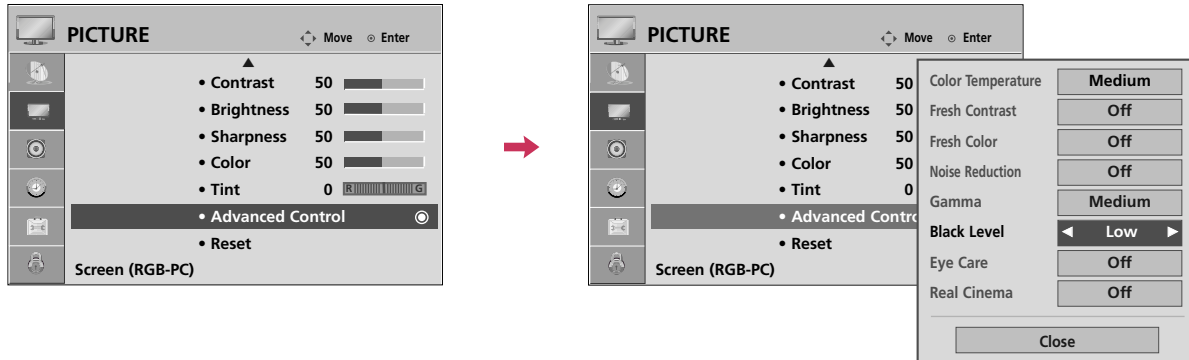
Gamma: High gamma values display whitish images and low gamma values display high contrast images.













-   Select **PICTURE**.
-   Select **Advanced Control**.
-   Select **Fresh Contrast, Fresh Color, Noise Reduction, or Gamma**.
-   Select your desired options.
-  Return to the previous menu.
-  Return to TV viewing.

ADVANCED CONTROL - BLACK (DARKNESS) LEVEL

Adjusting the contrast and the brightness of the screen using the black level of the screen. This feature is disable in DTV and RGB-PC mode.



- 1   Select **PICTURE**.
- 2   Select **Advanced Control**.
- 3   Select **Black Level**.
- 4   Select **Low** or **High**.
- 5  Return to the previous menu.
-  Return to TV viewing.

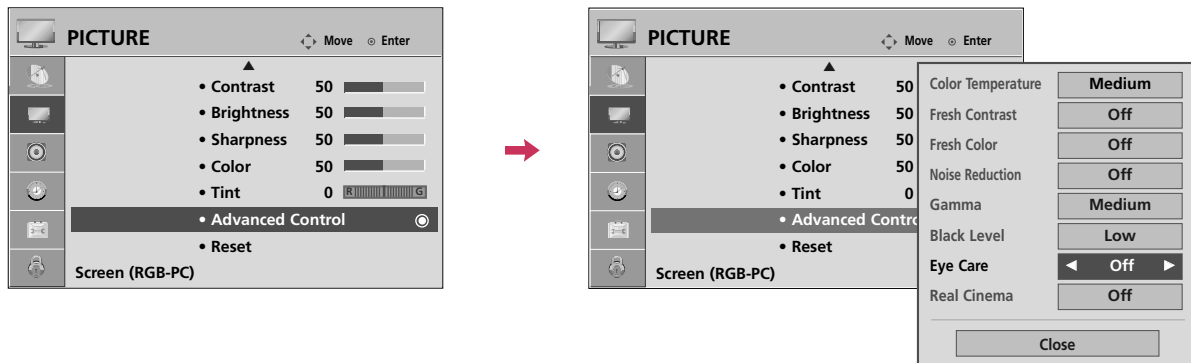
- **Low:** The reflection of the screen gets darker.
- **High:** The reflection of the screen gets brighter.
- **Auto:** Realizing the black level of the screen and set it to High or Low automatically.




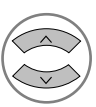

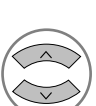
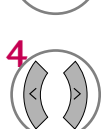

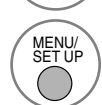
PICTURE CONTROL

ADVANCED CONTROL - EYE CARE

Dims extremely bright pictures.

This feature is disabled in “Picture Mode-Vivid, Cinema”.



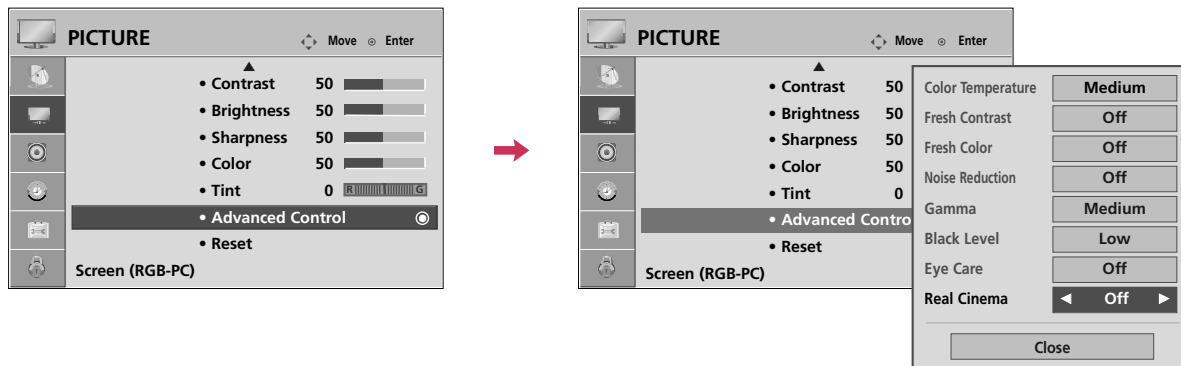
-   Select **PICTURE**.
-   Select **Advanced Control**.
-   Select **Eye Care**.
-  Select **On** or **Off**.
-  Return to the previous menu.
-  Return to TV viewing.











ADVANCED CONTROL - REAL CINEMA

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

When you operate Real Cinema (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 TV/CATV, Digital DTV/CADTV), AV1, AV2, Component 480i/1080i, and HDMI 1080i mode.

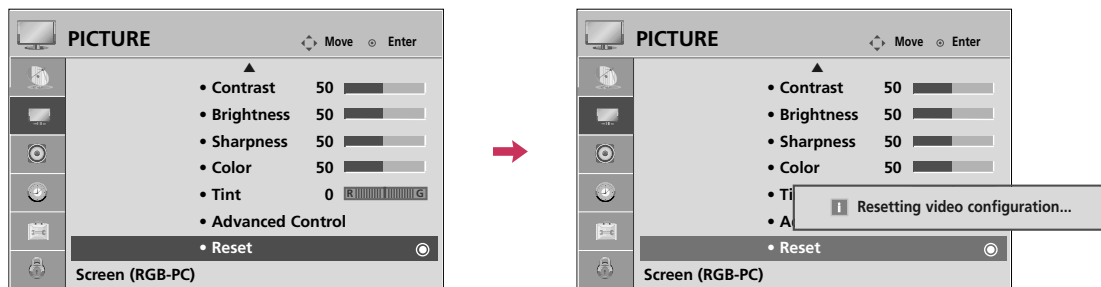


- 1   Select **PICTURE**.
- 2   Select **Advanced Control**.
- 3   Select **Real Cinema**.
- 4   Select **On** or **Off**.
- 5  Return to the previous menu.
-  Return to TV viewing.

PICTURE CONTROL


PICTURE RESET


Settings of the selected picture modes return to the default factory settings.



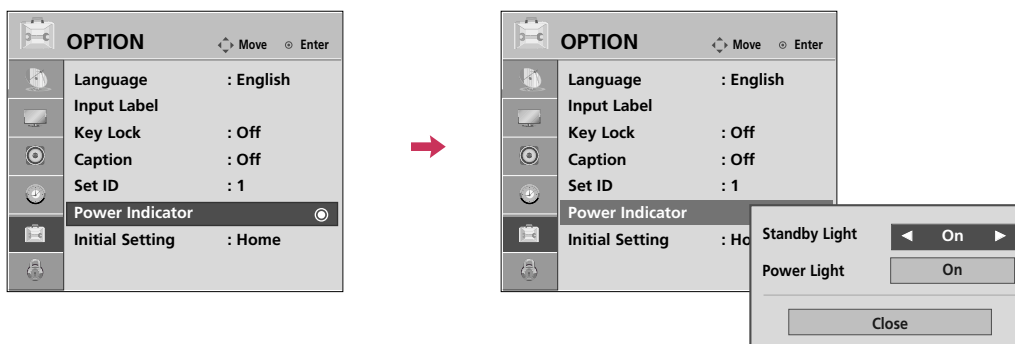
1   Select **PICTURE**.











2   Select **Reset**.

3  Initialize the adjusted value.

4  Return to TV viewing.

POWER INDICATOR



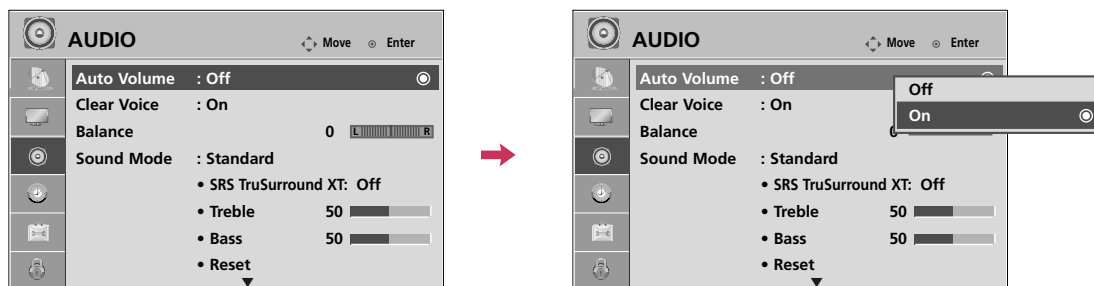
- 1   Select **OPTION**.
- 2   Select **Power Indicator**.
- 3   Select **Standby Light** or **Power Light**.
- 4   Select your desired options.
- 5  Return to the previous menu.
-  Return to TV viewing.


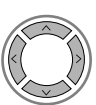

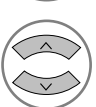

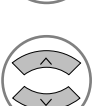

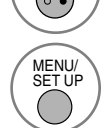
- **Standby Light:** You can set the brightness of the LED on the front side of the TV during power standby.
- **Power Light:** You can set the the LED on the front side of the TV to be turned on or off while watching the TV.

SOUND & LANGUAGE CONTROL

AUTO VOLUME LEVELER (AUTO VOLUME)

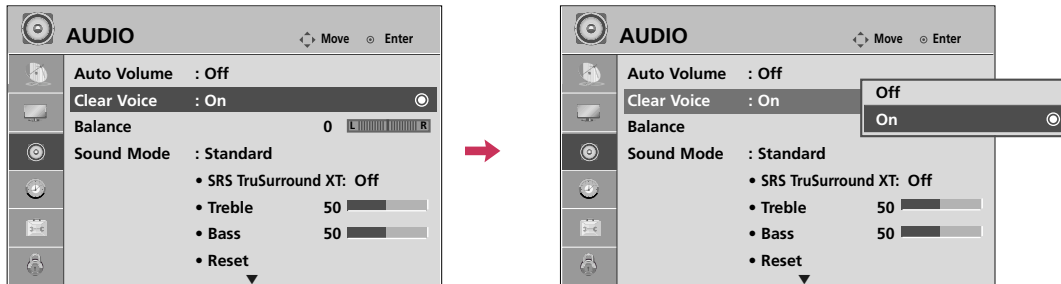
Auto Volume makes sure that the volume level remains consistent whether you are watching a commercial or a regular TV program.











-   Select **AUDIO**.
-   Select **Auto Volume**.
-   Select **On** or **Off**.
-  Return to the previous menu.
-  Return to TV viewing.

CLEAR VOICE

By differentiating the human sound range from others, it improves the sound quality of voices.



- 1   Select **AUDIO**.
- 2   Select **Clear Voice**.
- 3   Select **On** or **Off**.
- 4  Return to the previous menu.
-  Return to TV viewing.

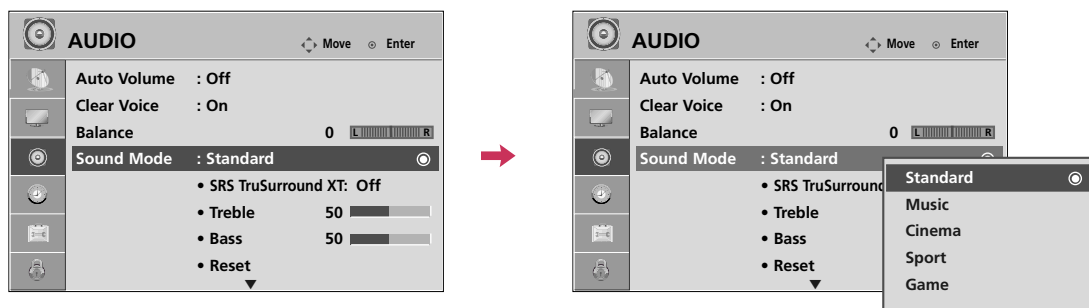
- If you select “Clear Voice-On”, SRS TruSurround XT feature will not work.
- You can also adjust **Clear Voice** in the **Q-Menu**.

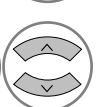
SOUND & LANGUAGE CONTROL

PRESET SOUND SETTINGS (SOUND MODE)

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

Standard, Music, Cinema, Sport, and Game are preset for optimum sound quality at the factory and are not adjustable.

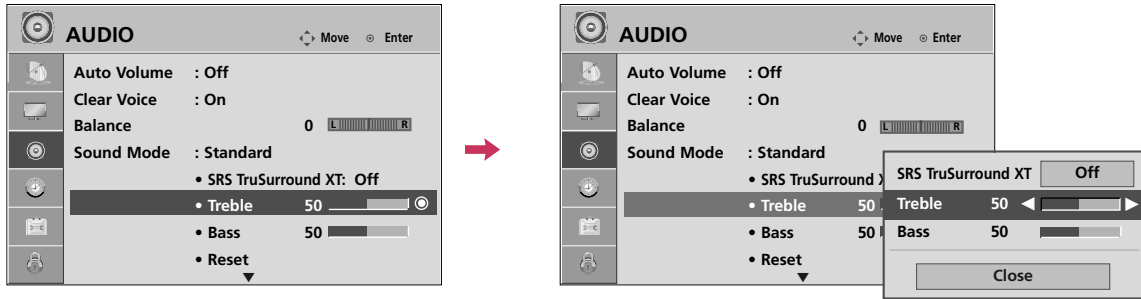










-   Select **AUDIO**.
-   Select **Sound Mode**.
-   Select **Standard, Music, Cinema, Sport, or Game**.
-  Return to the previous menu.
-  Return to TV viewing.





■ You can also adjust **Sound Mode** in the **Q. Menu**.

SOUND SETTING ADJUSTMENT - USER MODE









Adjust the sound to suit your taste and room situations.



- 1   Select **AUDIO**.
- 2   Select **Sound Mode**.
- 3   Select **Standard, Music, Cinema, Sport, or Game**.
- 4   Select **Treble or Bass**.

- 5   Make appropriate adjustments.
- 6  Return to the previous menu.
-  Return to TV viewing.

SRS TRUSURROUND XT

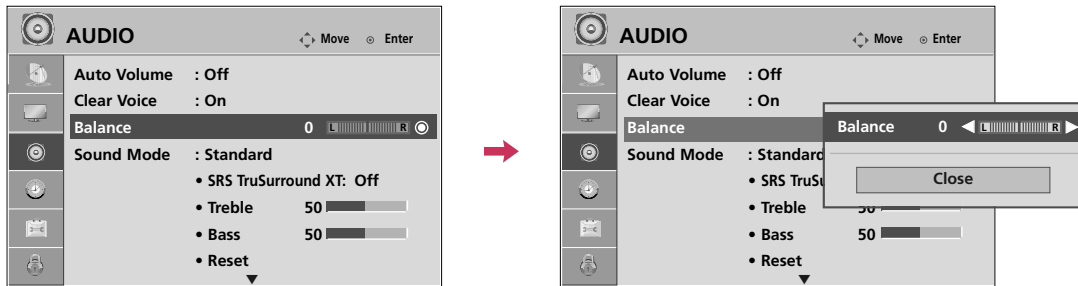
- 1   Select **AUDIO**.
- 2   Select **SRS TruSurround XT**.
- 3   Select **On or Off**.
- 4  Return to the previous menu.
-  Return to TV viewing.


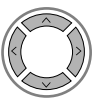

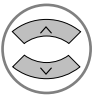

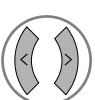


■ **SRS TruSurround XT:** Takes advantage of any multi-channel format without needing to add extra speakers or equipment. Dialog clarity, bass enrichment, and the addition of stereo audio enhancement produces an immersive sound experience from standard stereo material.

SOUND & LANGUAGE CONTROL

BALANCE

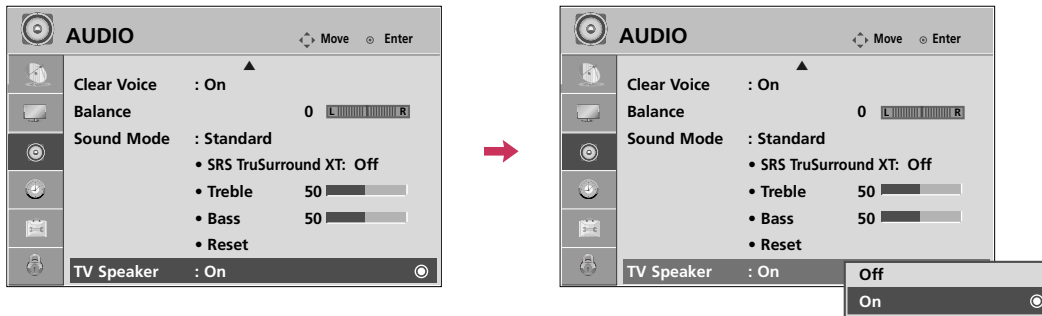
Adjust the left/right sound of speaker to suit your taste and room situations.











-   Select **AUDIO**.
-   Select **Balance**.
-   Make appropriate adjustments.
-  Return to the previous menu.
-  Return to TV viewing.

TV SPEAKERS ON/OFF SETUP

Turn the TV speakers off if using external audio equipment.

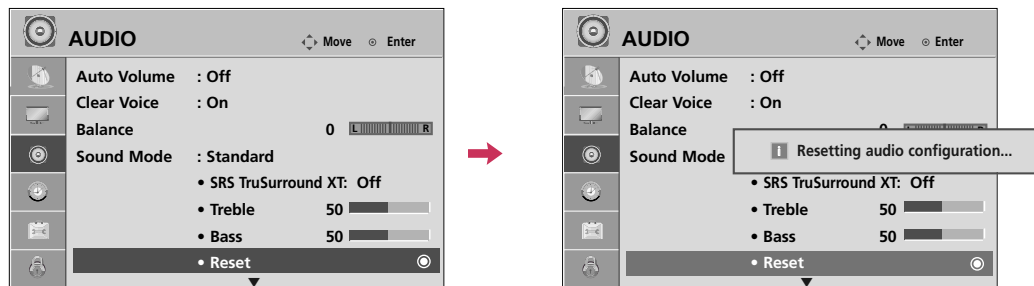



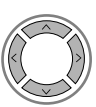
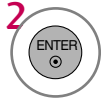



-   Select **AUDIO**.
-   Select **TV Speaker**.
-   Select **On** or **Off**.
-  Return to the previous menu.
-  Return to TV viewing.

SOUND & LANGUAGE CONTROL

AUDIO RESET

Settings of the selected Sound Mode return to the default factory settings.



-   Select **AUDIO**.
-   Select **Reset**.
-  Initialize the adjusted value.
-  Return to TV viewing.

STEREO/SAP BROADCAST SETUP


For Analog only: 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. Mono sound is automatically used if the broadcast is only in Mono.



Analog TV



1   Select **SAP**.


2   Select **Mono, Stereo, or SAP**.

3  Return to TV viewing.

Digital TV

1   Select **Multi Audio**.

2   Select other languages.

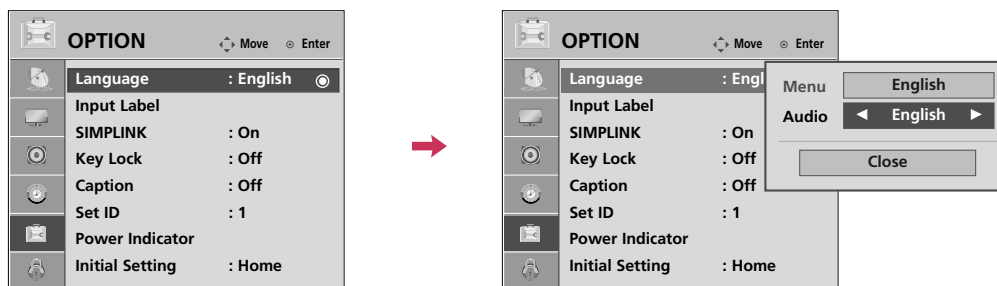
3  Return to TV viewing.

SOUND & LANGUAGE CONTROL

AUDIO LANGUAGE

Other languages may be available if a digital signal is provided by the broadcasting station.

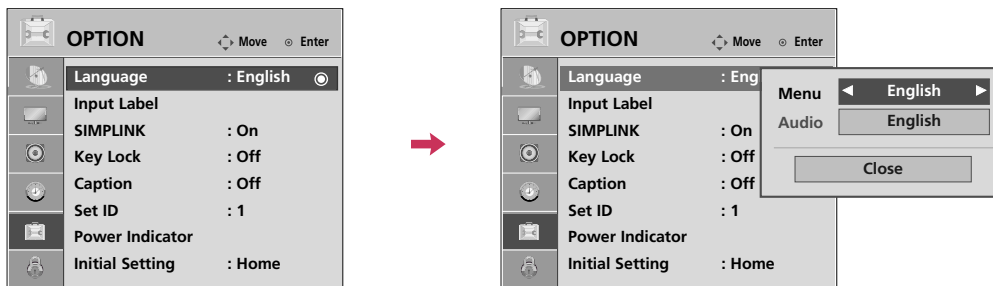
This feature operates only in DTV/CADTV mode.












-   Select **OPTION**.
-   Select **Language**.
-   Select **Audio**.
-  Select your desired language:
English, Spanish, or French
-  Return to the previous menu.
-  Return to TV viewing.

ON-SCREEN MENUS LANGUAGE SELECTION

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



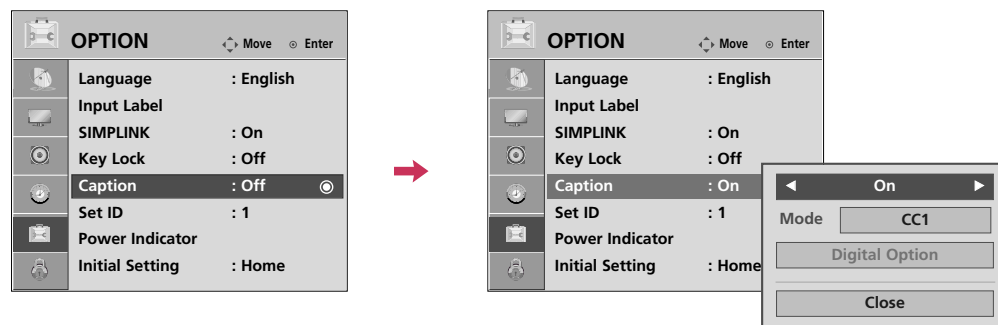
-   Select **OPTION**.
-   Select **Language**.
-   Select **Menu**.
-  Select your desired language.
From this point on, the on-screen menus will be shown in the selected language.
-  Return to the previous menu.
-  Return to TV viewing.


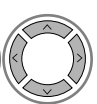

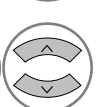

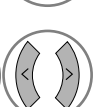

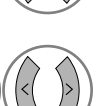

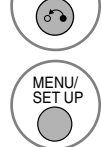
SOUND & LANGUAGE CONTROL

CAPTION MODE

Analog Broadcasting System Captions

Caption must be provided to help people with hearing loss watch TV. 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 turned the power off. This function is only available when **Caption Mode** is set **On**.



-   Select **OPTION**.
-   Select **Caption**.
-   Select **On**.
-   Select **CC1-4** or **Text1-4**.
-  Return to the previous menu.
-  Return to TV viewing.

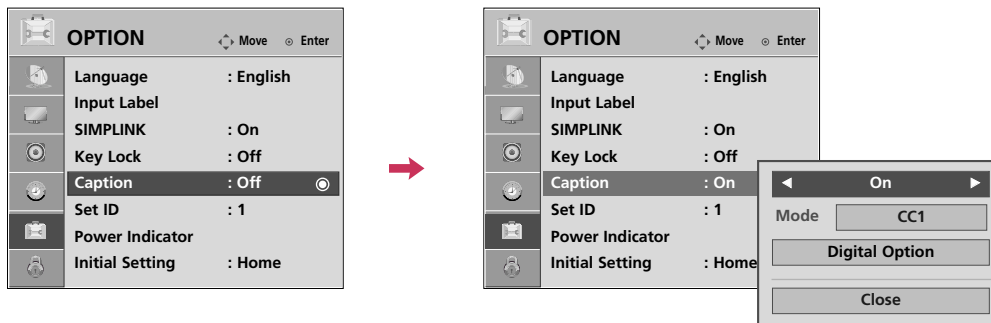
- When selecting **Off**, Sub-menus for Analog, DTV, and Digital Option become disabled.
- **CAPTION**
The term for the words that scroll across the bottom of the TV screen; usually the audio portion of the program provided for the hearing impaired.
- **TEXT**
The term for the words that appear in a large black frame and almost cover the entire screen; usually messages provided by the broadcaster.











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**.



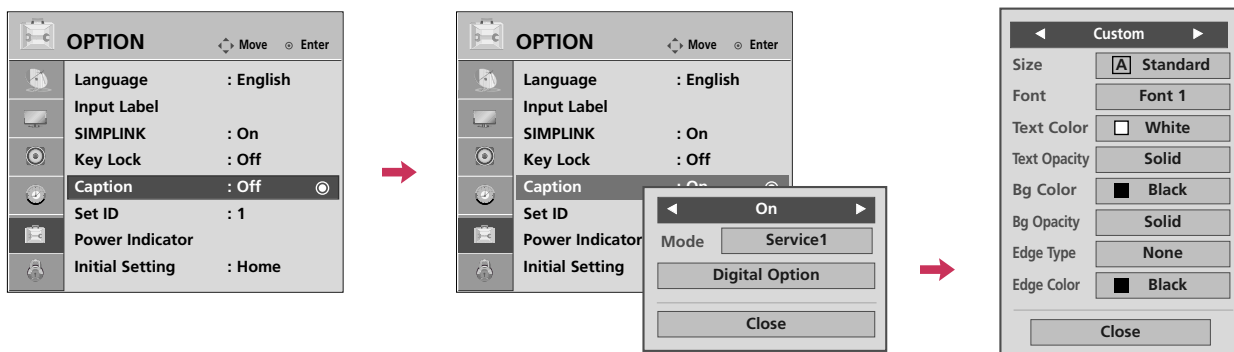
- 1   Select **OPTION**.
- 2   Select **Caption**.
- 3   Select **On**.
- 4   Select **CC1-4, Text1-4, or Service1 - 6**.
- 5  Return to the previous menu.
-  Return to TV viewing.















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   Select **OPTION**.
- 2   Select **Caption**.
- 3   Select **On**.
- 4   Select **Digital Option**.
- 5   Select **Custom**.
- 6   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.
- 7  Return to the previous menu.
-  Return to TV viewing.

- **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.

TIME SETTING

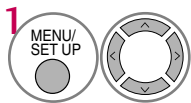
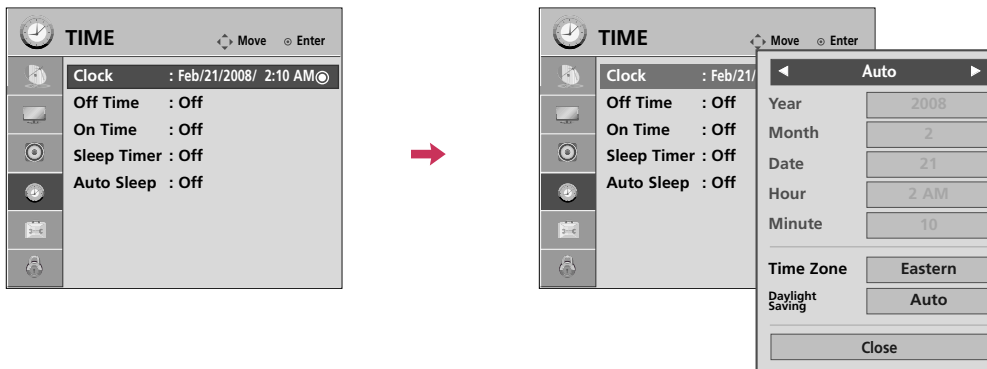
CLOCK SETTING

Auto Clock Setup

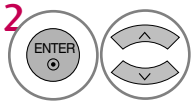
The time is set automatically from a digital channel signal.

The digital channel signal includes information for the current time provided by the broadcasting station.

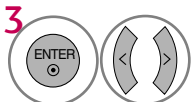
Set the clock manually if the current time is set incorrectly by the auto clock function.



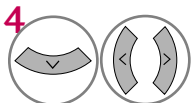
Select **TIME**.



Select **Clock**.

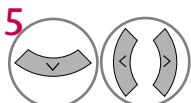


Select **Auto**.



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.**



Select **Auto, On, or Off** (depending on whether or not your viewing area observes Daylight Saving time).



Return to the previous menu.

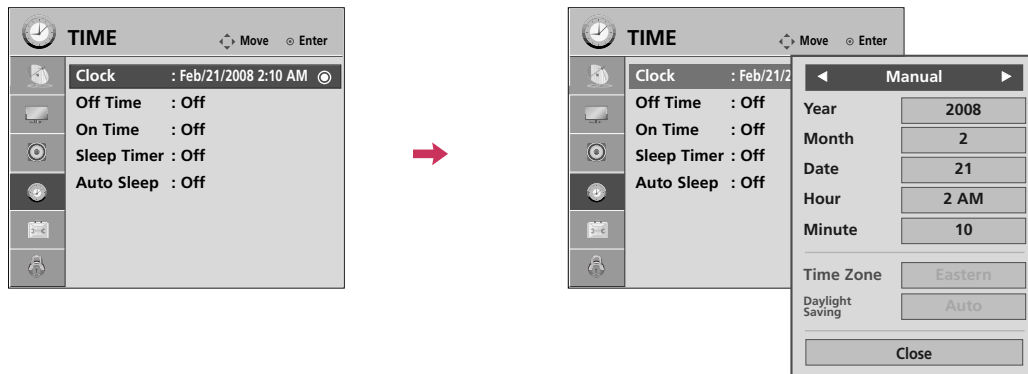





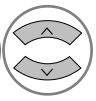
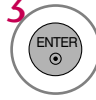
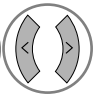




Return to TV viewing.

TIME SETTING

Manual Clock Setup

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



-   Select **TIME**.
-   Select **Clock**.
-   Select **Manual**.
-  Select the Year, Month, Date, Hour, or Minutes option.
-  Set the Year, Month, Date, Hour, or Minutes option.
-  Return to the previous menu.
-  Return to TV viewing.

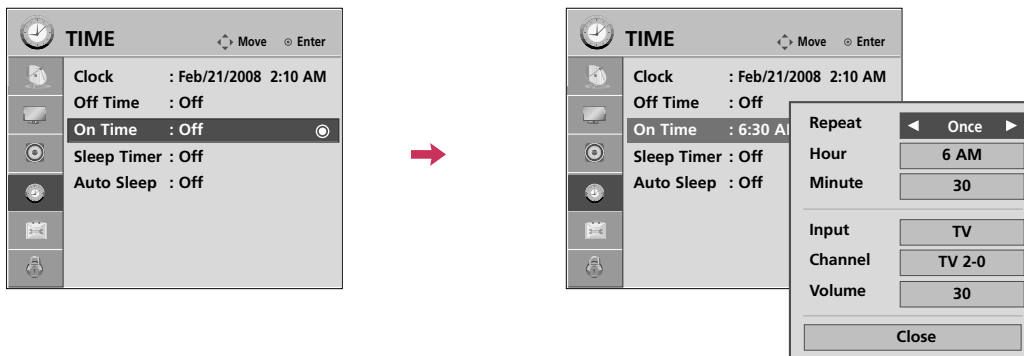
AUTO ON/OFF TIME SETTING

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.



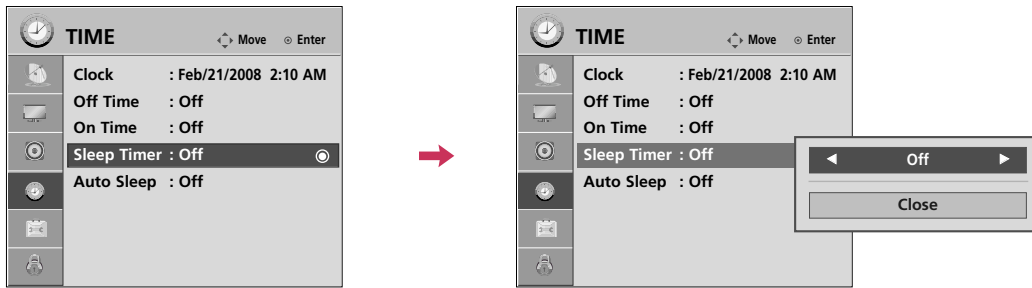
- 1 Select **TIME**.
- 2 Select **Off time** or **On time**.
- 3 Select **Repeat**.
- 4 Select **Off, Once, Everyday, Mon~Fri, Mon~Sat, Weekend, or Sunday**.
- 5 Select and set **Hour** or **Minute**.
- 6 Return to the previous menu.
- Return to TV viewing.




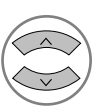

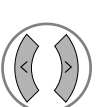

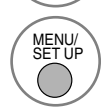
- To cancel **On/Off Time** function, select **Off**.
 - Only for **On Time** function
- 1 Select **Input**.
 - 2 Select **TV, AV1, AV2, Component, Built-In DVD, RGB-PC, HDMI1, HDMI2, or HDMI3**.
 - 3 When Selecting **TV**: set the channel at turn-on.
 - 4 Adjust to sound level at turn-on.

TIME SETTING

SLEEP TIMER SETTING

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

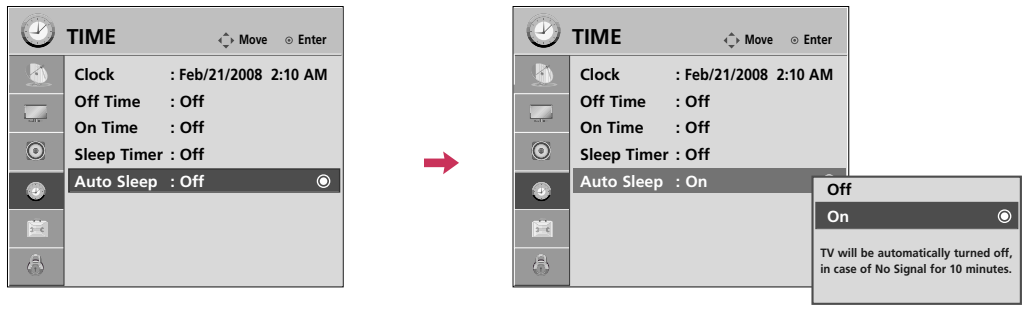










-   Select **TIME**.
-   Select **Sleep Timer**.
-   Select **Off, 10, 20, 30, 60, 90, 120, 180, or 240 minutes**.
-  Return to the previous menu.
-  Return to TV viewing.

■ You can also adjust **Sleep Timer** in the **Q.Menu**.

AUTO SHUT-OFF SETTING

TV will be automatically turned off, in case of no signal for 10 minutes.



- 1   Select **TIME**.
- 2   Select **Auto Sleep**.
- 3   Select **On** or **Off**.
- 4  Return to the previous menu.
-  Return to TV viewing.

PARENTAL CONTROL / RATINGS

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

The Parental Control Function (V-Chip) is used to block program viewing based on the ratings sent by the broadcasting station. The default setting is to allow all programs to be viewed. Viewing can be blocked by choosing the type of the program and the categories. It is also possible to block all program viewing for a time period. To use this function, the following must be done :

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

V-Chip rating and categories

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

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

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

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.



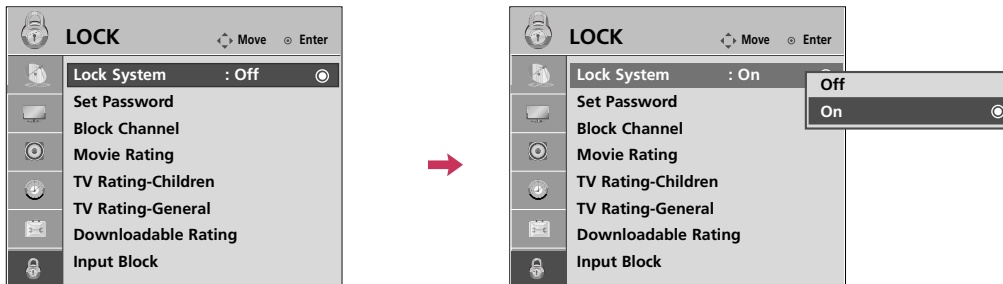
1 MENU/SET UP → [Navigation Pad] → ENTER Select LOCK.




2 [Number Pad] Input the password.


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

Lock System

Enables or disables the blocking scheme you set up previously.





1    Select **LOCK**.

2  Input the password.

3   Select **Lock System**.

4    Select **On** or **Off**.

5  Return to the previous menu.

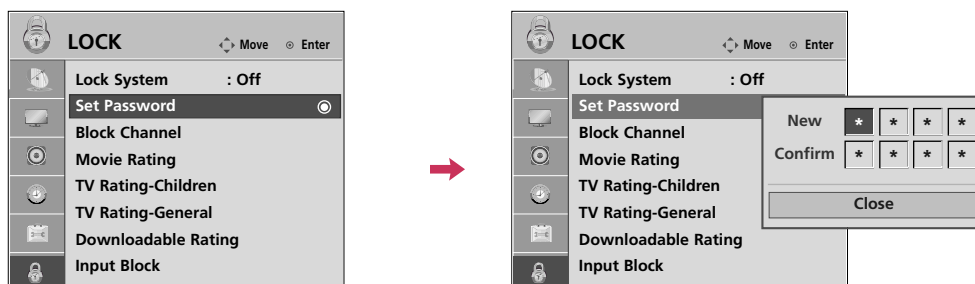
 Return to TV viewing.


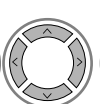

- When you select **On**, the Lock System is enable.


PARENTAL CONTROL / RATINGS

Set Password


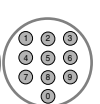
Change the password by inputting a new password twice.





1    Select **LOCK**.

2  Input the password.

3  Select **Set password**.

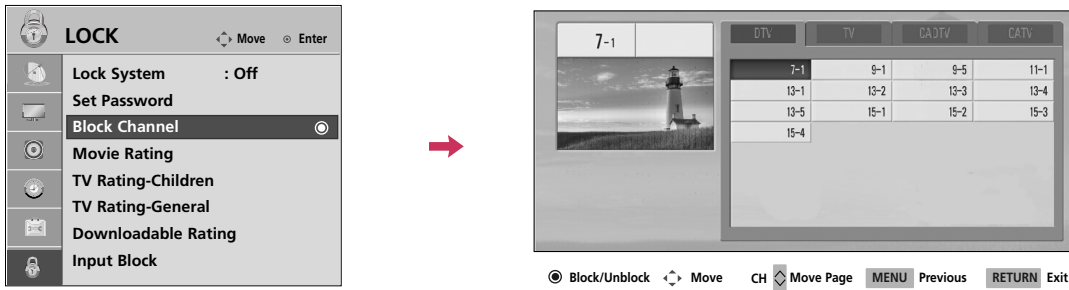
4   Choose any 4 digits for your new password.
As soon as the 4 digits are entered, re-enter the same 4 digits on the **Confirm**.











5  Return to the previous menu.

 Return to TV viewing.

CHANNEL BLOCKING

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



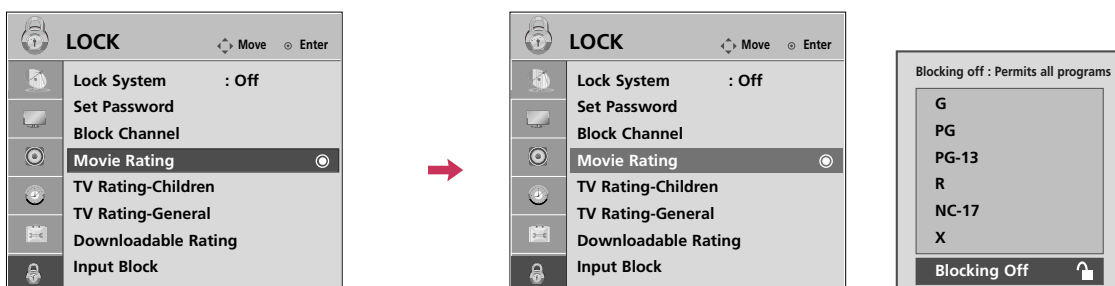
- 1    Select **LOCK**.
- 2  Input the password.
- 3  Select **Block Channel**.
- 4   Select a channel to block or unblock it.
- 5  Block or unblock a channel.
- 6  Return to the previous menu.
-  Return to TV viewing.

PARENTAL CONTROL / RATINGS

MOVIE & TV RATING

Movie Rating (MPAA) - *Only for USA*

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 MENU/SET UP Select LOCK.

2 Input the password.

3 Select **Movie Rating**.

4 Select **G, PG, PG-13, R, NC-17 or X**.

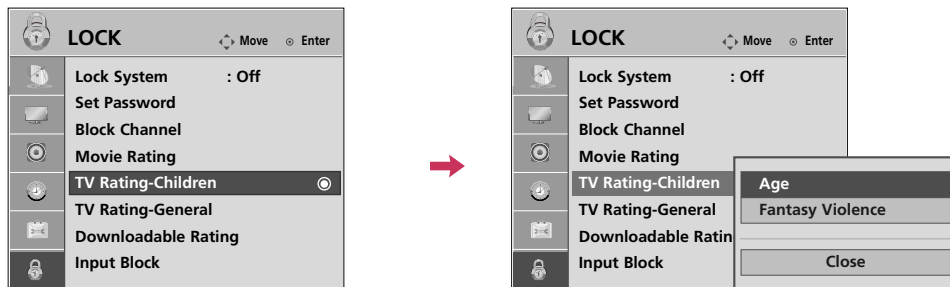
5 RETURN Return to the previous menu.




MENU/SET UP Return to TV viewing.


- 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.

TV Rating Children - Only for USA

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    Select **LOCK**.


2  Input the password.

3  Select **TV Rating-Children**.

4   Select **Age** or **Fantasy Violence**.

5   Select block options.

6  Return to the previous menu.

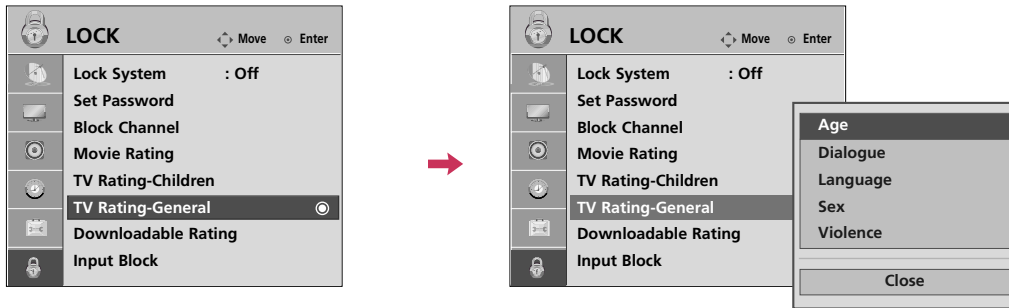
 Return to TV viewing.

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

PARENTAL CONTROL / RATINGS

TV Rating General - Only for USA

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



1 MENU/SET UP Select LOCK.

2 Input the password.

3 Select TV Rating-General.

4 Select Age, Dialogue, Language, Sex or Violence.

5 Select block options.

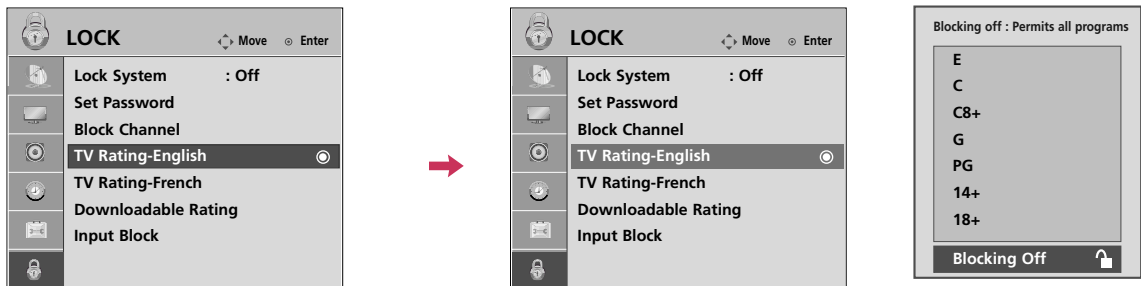
6 RETURN Return to the previous menu.




MENU/SET UP Return to TV viewing.


- 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).

TV Rating English - Only for CANADA



Selecting canadian english language rating system.





1    Select **LOCK**.

2  Input the password.

3  Select **TV Rating-English**.

4   Select **E, C, C8+, G, PG, 14+, 18+, or Blocking Off**.

5  Return to the previous menu.

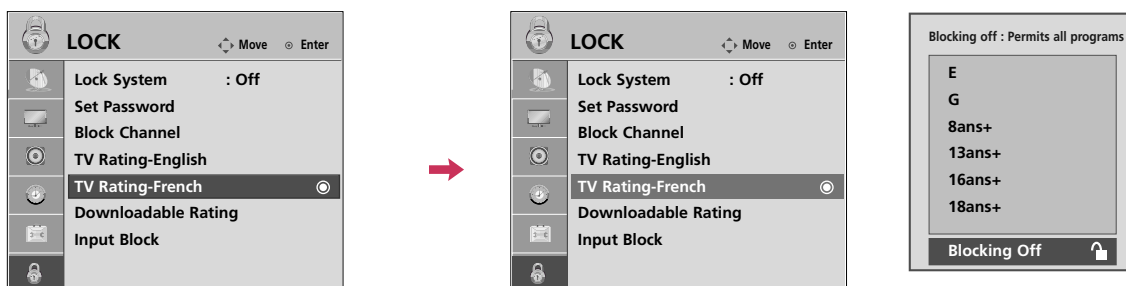
 Return to TV viewing.







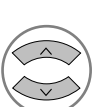

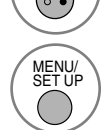
- E (Exempt)
- C (Children)
- C8+ (Children eight years and older)
- G (General programming, suitable for all audiences)
- PG (Parental Guidance)
- 14+ (Viewers 14 years and older)
- 18+ (Adult programming)
- Blocking Off (Permits all programs)

PARENTAL CONTROL / RATINGS

TV Rating French - *Only for CANADA*

Selecting canadian french language rating system.

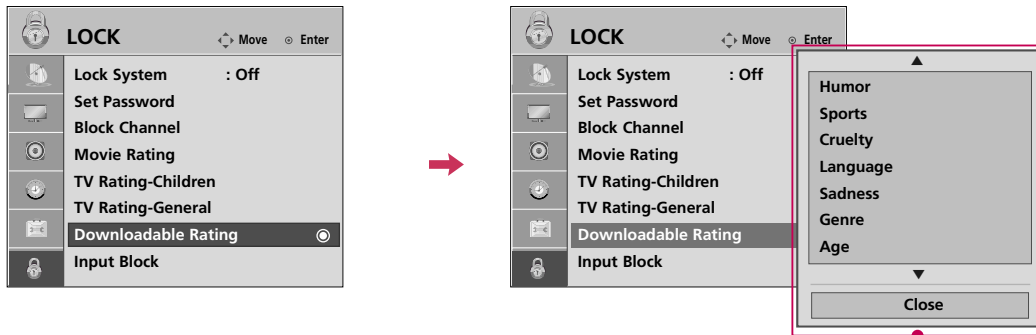


-    Select **LOCK**.
-  Input the password.
-  Select **TV Rating-French**.
-   Select **E, G, 8ans+, 13ans+, 16ans+, 18ans+, or Blocking off**.
-  Return to the previous menu.
-  Return to TV viewing.












- 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)

DOWNLOADABLE RATING

This function may become available in the future and will be available only for digital channel signals. This function operates only when TV has received Region5 Rating data.



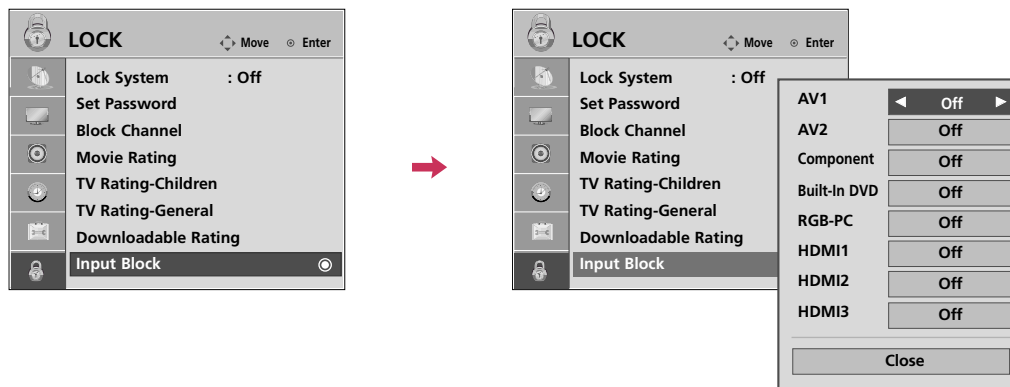
■ Based on rating table, your TV's OSD (On Screen Display) may differ slightly from what is shown in this manual.











- 1    Select **LOCK**.
 - 2  Input the password.
 - 3  Select **Downloadable Rating**.
 - 4   Select desired **Downloadable Rating** option.
 - 5   Select desired option and block it.
 - 6  Return to the previous menu.
-  Return to TV viewing.

PARENTAL CONTROL / RATINGS

EXTERNAL INPUT BLOCKING

Enables you to block an input.



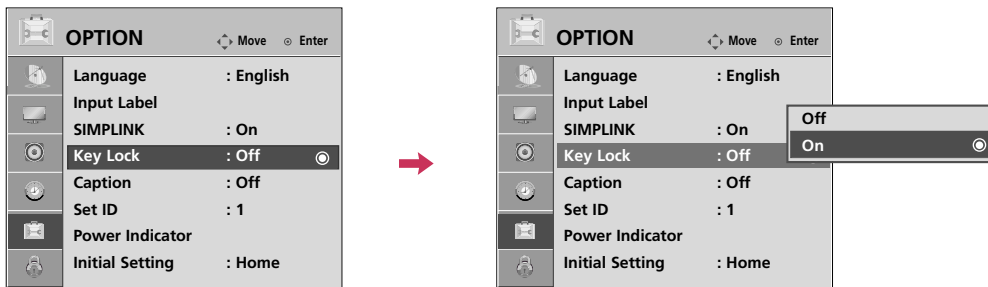
-    Select **LOCK**.
-  Input the password.
-  Select **Input Block**.
-   Select input source.
-  Select **On** or **Off**.
-  Return to the previous menu.
-  Return to TV viewing.









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   Select **OPTION**.
- 2   Select **Key Lock**.
- 3   Select **On** or **Off**.
- 4  Return to the previous menu.
-  Return to TV viewing.

- In **Key Lock 'On'**, if the TV is turned off, press the **⏻ / I**, **INPUT**, **CH ^ v** button on the TV or **POWER**, **INPUT**, **CH ^ v** or **NUMBER** buttons on the remote control.
- With the **Key Lock On**, the display **'⚠ Key Lock'** appears on the screen if any button on the front panel is pressed while viewing the TV.

APPENDIX

TROUBLESHOOTING

The operation does not work normally.

The remote control doesn't work

- 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.

Power is suddenly turned off

- Is the sleep timer set?
- Check the power control settings. Power interrupted.

The video function does not work.

No picture & No sound

- 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.

Picture appears slowly after switching on

- This is normal, the image is muted during the product startup process. Please contact your service center, if the picture has not appeared after a few minutes.

No or poor color or poor picture

- Adjust Color in menu option.
- Try unplugging any others electronics that are near by to see if interference is causing the problem.
- 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.

Horizontal/vertical bars or picture shaking

- Check for local interference such as an electrical appliance or power tool.

Poor reception on some channels

- Station or cable product experiencing problems, tune to another station.
- Station signal is weak, reorient antenna.
- Check for sources of possible interference.

Lines or streaks in pictures

- Check antenna (Change the direction of the antenna).

No picture when connecting HDMI

- Check HDMI cable over version 1.3.
If the HDMI cables don't support HDMI version 1.3, it can cause flickers or no screen display. In this case use the latest cables that support HDMI version 1.3.

The audio function does not work.

Picture OK but 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.
No sound when connecting HDMI or USB	<ul style="list-style-type: none"> ■ Check HDMI cable over version 1.3. ■ Check USB cable over version 2.0. <p style="text-align: right; font-size: small;">*This feature is not available for all models.</p>

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"> ■ Run 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. ■ Update video card drivers.

APPENDIX

MAINTENANCE

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

MODELS		26LG40 (26LG40-UA) (26LG40-UG)	32LG40 (32LG40-UA) (32LG40-UG)
Dimensions (Width x Height x Depth)	With stand	26.2 x 20.6 x 10.5 inches 666.8 x 524.5 x 267.0 mm	31.8 x 24.8 x 11.7 inches 808.8 x 630.3 x 299.2 mm
	Without stand	26.2 x 18.0 x 4.0 inches 666.8 x 457.8 x 103.0 mm	31.8 x 21.7 x 4.2 inches 808.8 x 551.6 x 108.0 mm
Weight	With stand	24.4 pounds / 11.1 kg	34.1 pounds / 15.5 kg
	Without stand	21.1 pounds / 9.6 kg	29.7 pounds / 13.5 kg
Power requirement Television System Program Coverage External Antenna Impedance Built-In DVD Video Format		AC100-240V ~ 50/60Hz NTSC-M, ATSC, 64 & 256 QAM VHF 2-13, UHF 14-69, CATV 1-135, DTV 2-69, CADTV 1-135 75 ohm 480i	
Environment condition	Operating Temperature Operating Humidity	32 ~ 104°F (0 ~ 40°C) Less than 80%	
	Storage Temperature Storage Humidity	-4 ~ 140°F (-20 ~ 60°C) Less than 85%	

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

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** Testing your remote control.
To find out whether your remote control can operate other components without programming, turn on a component such as a STB and press the corresponding mode button (such as **STB**) on the remote control, while pointing at the component. Test the **POWER** and **CH** \wedge \vee buttons to see if the component responds correctly. If the component does not operate correctly, the remote control requires programming to operate the device.
- 2** Turn on the component to be programmed, then press the corresponding mode button (such as **STB**) on the remote control. The remote control button of the desired device is illuminated.
- 3** Press the **MENU** and **MUTE** buttons simultaneously, and the remote control is ready to be programmed with the code.
- 4** Enter a code number using the number buttons on the remote control. Programming code numbers for the corresponding component can be found on the following pages. If the code is correct, the device will turn off.
- 5** Press the **MENU** button to store the code.
- 6** Test the remote control functions to see if the component responds correctly. If not, repeat from step 2.

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	PENTAX	013 020 031 033	TANDY	010 034
GE	031 033 063 072		063	TATUNG	039 043
	107 109 144 147	PHILCO	031 034 067	TEAC	034 039 043
GO VIDEO	132 136	PHILIPS	031 033 034 054	TECHNICS	031 033 070
HARMAN KARDON	012 045		067 071 101	TEKNIKA	019 031 033 034
HITACHI	004 018 026 034	PILOT	101		101
	043 063 137 150	PIONEER	013 021 048	THOMAS	034
INSTANTREPLAY	031 033	PORTLAND	108	TMK	006
JCL	031 033	PULSAR	072	TOSHIBA	008 013 042 047
JCPENNY	012 013 015 033	QUARTZ	011 014		059 082 112 131
	040 066 101	QUASAR	033 066 075 145	TOTEVISION	040 101
JENSEN	043	RCA	013 020 033 034	UNITECH	040
JVC	012 031 033 043		040 041 062 063	VECTOR RESEARCH	012
	048 050 055 060		107 109 140 144	VICTOR	048
	130 150 152		145 147	VIDEO CONCEPTS	012 034 046
KENWOOD	014 034 039 043	REALISTIC	003 008 010 014	VIDEOSONIC	040
	047 048		031 033 034 040	WARDS	003 013 017 024
LG (GOLDSTAR)	001 012 013 020		053 054 101		031 033 034 040
	101 106 114 123	RICO	058	YAMAHA	012 034 039 043
LLOYD	034	RUNCO	148	ZENITH	034 048 056
LXI	003 009 013 014	SALORA	014		058 072 080 101
	017 034 101 106				
MAGIN	040				

APPENDIX

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		

IR CODES

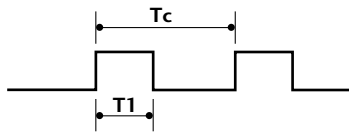
1. How to Connect

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

2. Remote Control IR Codes

Output waveform

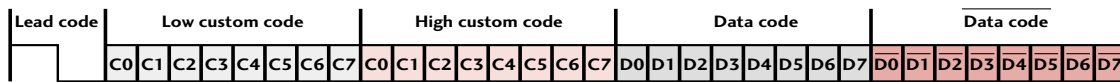
Single pulse, modulated with 37.917KHz signal at 455KHz



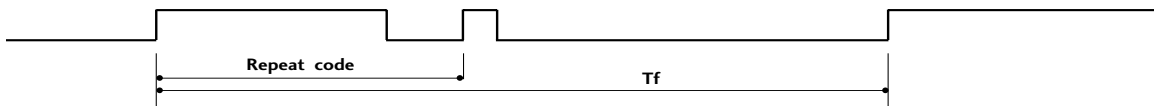
Carrier frequency
 $FCAR = 1/T_c = f_{OSC}/12$
 Duty ratio = $T_1/T_c = 1/3$

Configuration of frame

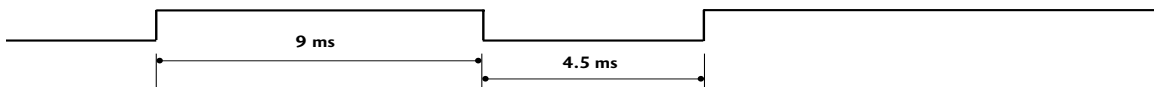
1st frame



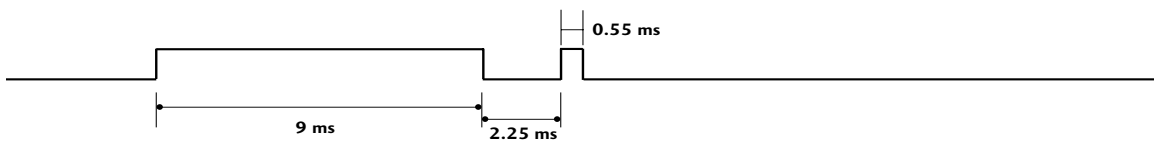
Repeat frame



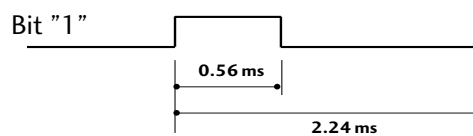
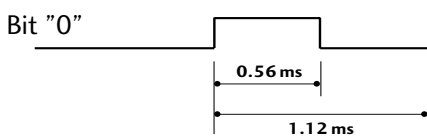
Lead code



Repeat code

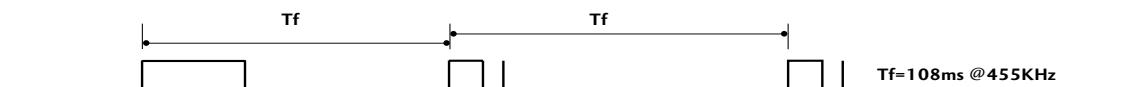


Bit description



Frame interval: T_f

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



APPENDIX

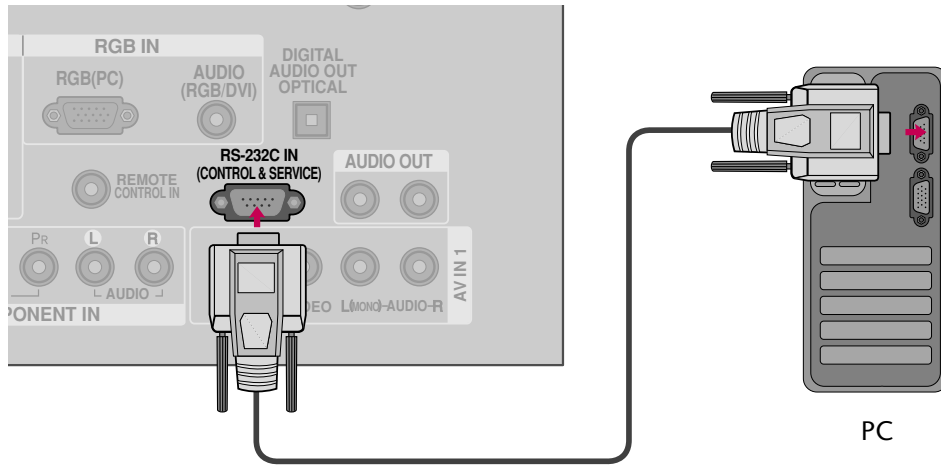
Code (Hexa)	Function	Note	Code (Hexa)	Function	Note
08	POWER	Remote control Button (Power On/Off)	D6	TV	Discrete IR Code (TV Input Selection)
45	Q.MENU	Remote control Button			
43	MENU	Remote control Button	C4	POWER ON	Discrete IR Code (Only Power On)
0B	INPUT	Remote control Button			
10-19	Number Key 0-9	Remote control Button	C5	POWER OFF	Discrete IR Code (Only Power Off)
4C	- (Dash)	Remote control Button			
1A	FLASHBK	Remote control Button	5A	AV1	Discrete IR Code (AV1 Input Selection)
09	MUTE	Remote control Button			
02	VOL +	Remote control Button	D0	AV2	Discrete IR Code (AV2 Input Selection)
03	VOL -	Remote control Button			
00	CH ^	Remote control Button	BF	COMPONENT	Discrete IR Code (Component Input Selection)
01	CH v	Remote control Button			
1E	FAV	Remote control Button	D4	Built-In DVD	Discrete IR Code (Built-In DVD Input Selection)
40	^	Remote control Button			
41	v	Remote control Button	D5	RGB-PC	Discrete IR Code (RGB-PC Input Selection)
07	<	Remote control Button			
06	>	Remote control Button	CE	HDMI1	Discrete IR Code (HDMI1 Input Selection)
44	ENTER	Remote control Button			
5B	RETURN	Remote control Button	CC	HDMI2	Discrete IR Code (HDMI2 Input Selection)
7E	SIMPLINK	Remote control Button			
30	AV MODE	Remote control Button	E9	HDMI3	Discrete IR Code (HDMI3 Input Selection)
B0	PLAY	Remote control Button			
BA	PAUSE	Remote control Button	76	Ratio 4:3	Discrete IR Code (Only 4:3 Mode)
B1	STOP	Remote control Button			
BD	REC	Remote control Button	77	Ratio 16:9	Discrete IR Code (Only 16:9 Mode)
8F	REW	Remote control Button			
8E	FF	Remote control Button	AF	Ratio Zoom	Discrete IR Code (Only Zoom1 Mode)
CA	EJECT	Remote control Button			
6B	DISC MENU	Remote control Button			
B3	SKIP +	Remote control Button			
B2	SKIP -	Remote control Button			
3C	SLOW +	Remote control Button			
3D	SLOW -	Remote control Button			

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.

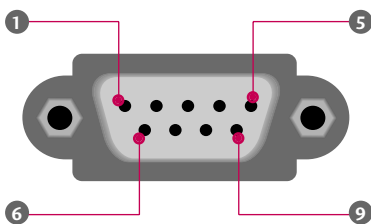
- Note: RS-232C on this unit is intended to be used with third party RS-232C control hardware and software. The instructions below are provided to help with programming software or to test functionality using telenet software.

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



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.

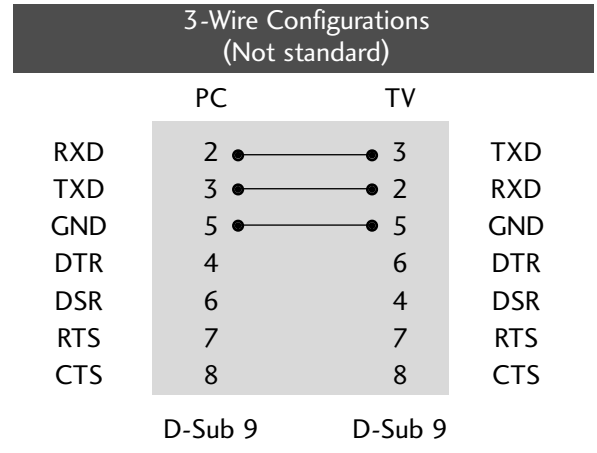
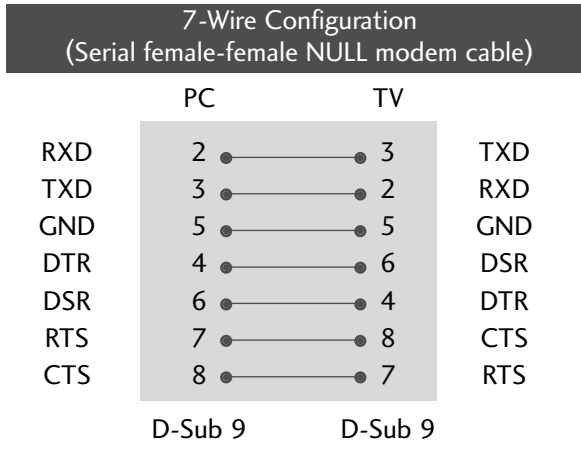
! NOTE

- ▶ This TV has command echo back.

APPENDIX

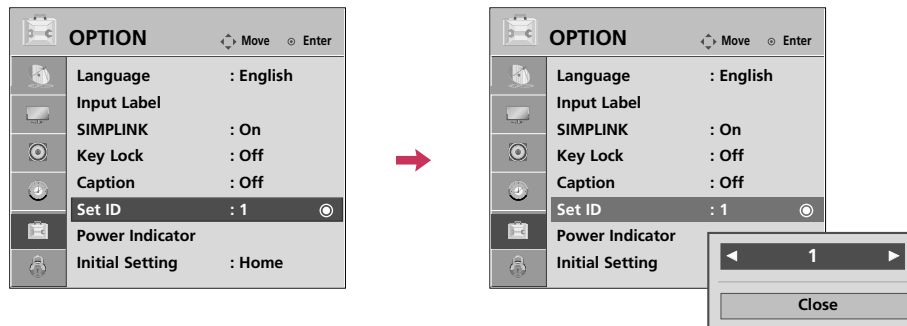
RS-232C Configurations

Either cable below can be used.



Set ID

Use this function to specify a TV ID number.
Refer to 'Real Data Mapping1'. ► **p.118**.



- 1 Select **OPTION**.
 - 2 Select **Set ID**.
 - 3 Choose the desired TV ID number.
The adjustment range of Set ID is 1 ~ 99.
 - 4 Return to the previous menu.
- Return to TV viewing

Command Reference List

	COMMAND1	COMMAND2	DATA (Hexadecimal)		COMMAND1	COMMAND2	DATA (Hexadecimal)
01. Power	k	a	00 ~ 01	14. Treble	k	r	00 ~ 64
02. Input Select	x	b	(▶ p.117)	15. Bass	k	s	00 ~ 64
03. Aspect Ratio	k	c	(▶ p.117)	16. Balance	k	t	00 ~ 64
04. Screen Mute	k	d	00 ~ 01	17. Color Temperature	k	u	00 ~ 02
05. Volume Mute	k	e	00 ~ 01	18. Auto Configuration	j	u	(▶ p.118)
06. Volume Control	k	f	00 ~ 64	20. Channel Add/Del	m	b	00 ~ 01
07. Contrast	k	g	00 ~ 64	21. Key	m	c	(▶ p.119)
08. Brightness	k	h	00 ~ 64	22. Backlight	m	g	00 ~ 64
09. Color	k	i	00 ~ 64				
10. Tint	k	j	00 ~ 64				
11. Sharpness	k	k	00 ~ 64				
12. OSD Select	k	l	00 ~ 01				
13. Remote Control Lock Mode	k	m	00 ~ 01				

	COMMAND1	COMMAND2	DATA00 (Hexadecimal)	DATA01 (Hexadecimal)	DATA02 (Hexadecimal)	DATA03 (Hexadecimal)	DATA04 (Hexadecimal)	DATA05 (Hexadecimal)
19. Channel Tuning	m	a	physical program high	major program low	major low	minor high	minor low	attribute

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 TV is controlled. Set ID is indicated as decimal (1~99) on menu and as Hexa decimal (0x0~0x63) on transmission /receiving protocol.

[DATA] : The data command. Responds with an acknowledgement after transmitting.

[Cr] : Carriage Return
ASCII code '0x0D'

[] : ASCII code 'space (0x20)'

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

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, the TV will not send the status during the standby mode.

* Data Format

[Command 2] : Use as command.

[Set ID] : Uses lower case, if set ID is 10, it will send the '0', 'a'.

[DATA] : Uses lower case, if data is 0 x ab, it will send the 'a', 'b'.

[OK] : Uses upper case.

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] : Uses lower case, if set ID is 10, it will send the '0', 'a'.

[DATA] : Uses lower case, if data is 0 x ab, it will send the 'a', 'b'.

[NG] : Uses upper case.

12. OSD Select (Command: k l)

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

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

Data 00: OSD off Data 01: OSD on

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

13. Remote Control Lock Mode (Command: k m)

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

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

Data 00: Lock off Data 01: 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 (Command: k r)

To adjust treble.

You can also adjust treble in the AUDIO menu.

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

Data Min: 00 ~ Max: 64 (*transmit by Hexadecimal code)

*Refer to 'Real data mapping' as shown.

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

15. Bass (Command: k s)

To adjust bass.

You can also adjust bass in the AUDIO menu.

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

Data Min: 00 ~ Max: 64 (*transmit by Hexadecimal code)

*Refer to 'Real data mapping' as shown.

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

16. Balance (Command: k t)

To adjust balance.

You can also adjust balance in the AUDIO menu.

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

Data Min: 00 ~ Max: 64 (*transmit by Hexadecimal code)

*Refer to 'Real data mapping' as shown.

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

17. Color Temperature (Command: k u)

To adjust color temperature.

You can also adjust color temperature in the PICTURE menu.

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

Data 00: Medium 01: Cool 02: Warm

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

18. Auto Configuration (Command: j u)

To adjust picture position and minimize image shaking automatically. Auto configuration only works in RGB-PC mode.

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

Data 01: To set

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

*Real data mapping

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

19. Channel Tuning (Command: m a)

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

Transmission [m][a][][Set ID][][Data00][][Data01][][Data02][][Data03][][Data04][][Data05][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 00: Physical Channel Number

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

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

Data 01 & 02: Major Channel Number

Data 01: High byte

Data 02: Low byte

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

Data 03 & 04: 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 00 = Physical of 35 = 23
 Data 01 & 02 = No Major = 00 00
 Data 03 & 04 = No Minor = 00 00
 Data 05 = 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 00 = Don't know Physical = 00
 Data 01 & 02 = Major is 30 = 00 1E
 Data 03 & 04 = Minor is 3 = 00 03
 Data 05 = 0010 0010 in binary = 22
 Total = ma 00 00 00 1E 00 03 22

```
Acknowledgement[a][ ][Set ID][ ][OK][Data00][Data01]
[Data02][Data03][Data04][x][a][ ][Set ID]
[ ][NG][Data00][x]
```

20. Channel Add/Del (Command: m b)

To add and delete the channels.

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

Data 00: Channel Delete Data 01: Channel Add

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

21. Key (Command: m c)

To send IR remote key code.

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

Data Key code: Refer to page 112.

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

22. Backlight (Command: m g)

To adjust screen backlight.

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

Data Min:00 ~ Max:64 (*transmit by Hexadecimal code)

*Refer to 'Real data mapping'. See page 118.

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

OPEN SOURCE LICENSE - *This feature is not available for all models.*

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Version 2, June 1991

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When we speak of free software, we are referring to freedom, not price. Our General Public Licenses are designed to make sure that you have the freedom to distribute copies of free software (and charge for this service if you wish), that you receive source code or can get it if you want it, that you can change the software or use pieces of it in new free programs; and that you know you can do these things.

To protect your rights, we need to make restrictions that forbid anyone to deny you these rights or to ask you to surrender the rights. These restrictions translate to certain responsibilities for you if you distribute copies of the software, or if you modify it.

For example, if you distribute copies of such a program, whether gratis or for a fee, you must give the recipients all the rights that you have. You must make sure that they, too, receive or can get the source code. And you must show them these terms so they know their rights.

We protect your rights with two steps: (1) copyright the software, and (2) offer you this license which gives you legal permission to copy, distribute and/or modify the software.

Also, for each author's protection and ours, we want to make certain that everyone understands that there is no warranty for this free software. If the software is modified by someone else and passed on, we want its recipients to know that what they have is not the original, so that any problems introduced by others will not reflect on the original authors' reputations.

Finally, any free program is threatened constantly by software patents. We wish to avoid the danger that redistributors of a free program will individually obtain patent licenses, in effect making

the program proprietary. To prevent this, we have made it clear that any patent must be licensed for everyone's free use or not licensed at all.

The precise terms and conditions for copying, distribution and modification follow.

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0. This license applies to any program or other work which contains a notice placed by the copyright holder saying it may be distributed under the terms of this General Public License. The "Program", below, refers to any such program or work, and a "work based on the Program" means either the Program or any derivative work under copyright law: that is to say, a work containing the Program or a portion of it, either verbatim or with modifications and/or translated into another language. (Hereinafter, translation is included without limitation in the term "modification".) Each licensee is addressed as "you".

Activities other than copying, distribution and modification are not covered by this license; they are outside its scope. The act of running the Program is not restricted, and the output from the program is covered only if its contents constitute a work based on the program (independent of having been made by running the program). Whether that is true depends on what the program does.

1. You may copy and distribute verbatim copies of the program's source code as you receive it, in any medium, provided that you conspicuously and appropriately publish on each copy an appropriate copyright notice and disclaimer of warranty; keep intact all the notices that refer to this license and to the absence of any warranty; and give any other recipients of the program a copy of this license along with the Program.

You may charge a fee for the physical act of transferring a copy, and you may at your option offer warranty protection in exchange for a fee.

2. You may modify your copy or copies of the program or any portion of it, thus forming a work based on the Program, and copy and distribute such modifications or work under the terms of section 1 above, provided that you also meet all of these conditions:

a) You must cause the modified files to carry prominent notices stating that you changed the files and the date of any change.

- b) You must cause any work that you distribute or publish, that in whole or in part contains or is derived from the Program or any part thereof, to be licensed as a whole at no charge to all third parties under the terms of this license.
- c) If the modified program normally reads commands interactively when run, you must cause it, when started running for such interactive use in the most ordinary way, to print or display an announcement including an appropriate copyright notice and a notice that there is no warranty (or else, saying that you provide a warranty) and that users may redistribute the program under these conditions, and telling the user how to view a copy of this license. (Exception: if the Program itself is interactive but does not normally print such an announcement, your work based on the Program is not required to print an announcement.)

These requirements apply to the modified work as a whole. If identifiable sections of that work are not derived from the Program, and can be reasonably considered independent and separate works in themselves, then this license, and its terms, do not apply to those sections when you distribute them as separate works. But when you distribute the same sections as part of a whole which is a work based on the Program, the distribution of the whole must be on the terms of this license, whose permissions for other licensees extend to the entire whole, and thus to each and every part regardless of who wrote it.

Thus, it is not the intent of this section to claim rights or contest your rights to work written entirely by you; rather, the intent is to exercise the right to control the distribution of derivative or collective works based on the program.

In addition, mere aggregation of another work not based on the program with the Program (or with a work based on the program) on a volume of a storage or distribution medium does not bring the other work under the scope of this license.

- 3. You may copy and distribute the program (or a work based on it, under section 2) in object code or executable form under the terms of sections 1 and 2 above provided that you also do one of the following:
 - a) Accompany it with the complete corresponding machine-readable source code, which must be distributed under the terms of sections 1 and 2 above on a medium customarily used for software interchange; or
 - b) Accompany it with a written offer, valid for at least three years, to give any third party, for a charge no more than your cost of physically performing source distribution, a complete machine-readable copy of the corresponding source code, to be distributed under the terms of sections 1 and 2 above on a medium customarily used for software interchange; or,

- c) Accompany it with the information you received as to the offer to distribute corresponding source code. (This alternative is allowed only for noncommercial distribution and only if you received the program in object code or executable form with such an offer, in accord with Subsection b above.)

The source code for a work means the preferred form of the work for making modifications to it. For an executable work, complete source code means all the source code for all modules it contains, plus any associated interface definition files, plus the scripts used to control compilation and installation of the executable. However, as a special exception, the source code distributed need not include anything that is normally distributed (in either source or binary form) with the major components (compiler, kernel, and so on) of the operating system on which the executable runs, unless that component itself accompanies the executable.

If distribution of executable or object code is made by offering access to copy from a designated place, then offering equivalent access to copy the source code from the same place counts as distribution of the source code, even though third parties are not compelled to copy the source along with the object code.

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This section is intended to make thoroughly clear what is believed to be a consequence of the rest of this license.

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one line to give the program's name and a brief idea of what it does.

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signature of Ty Coon, 1 April 1989
Ty Coon, President of Vice

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Version 2.1, February 1999

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Preamble

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This license, the Lesser General Public License, applies to some specially designated software packages - typically libraries - of the Free Software Foundation and other authors who decide to use it. You can use it too, but we suggest you first think carefully about whether this license or the ordinary General Public License is the better strategy to use in any particular case, based on the explanations below.

When we speak of free software, we are referring to freedom of use, not price. Our General Public Licenses are designed to make sure that you have the freedom to distribute copies of free software (and charge for this service if you wish); that you receive source code or can get it if you want it; that you can change the software and use pieces of it in new free programs; and that you are informed that you can do these things.

To protect your rights, we need to make restrictions that forbid distributors to deny you these rights or to ask you to surrender these rights. These restrictions translate to certain responsibilities for you if you distribute copies of the library or if you modify it.

For example, if you distribute copies of the library, whether gratis or for a fee, you must give the recipients all the rights that we gave you. You must make sure that they, too, receive or can get the source code. If you link other code with the library, you must provide complete object files to the recipients, so that they can relink them with the library after making changes to the library and recompiling it. And you must show them these terms so they know their rights.

We protect your rights with a two-step method: (1) we copyright the library, and (2) we offer you this license, which gives you legal permission to copy, distribute and/or modify the library.

To protect each distributor, we want to make it very clear that there is no warranty for the free library. Also, if the library is modified by someone else and passed on, the recipients should know that what they have is not the original version, so that the original author's reputation will not be affected by problems that might be introduced by others.

Finally, software patents pose a constant threat to the existence of any free program. We wish to make sure that a company cannot effectively restrict the users of a free program by obtaining a restrictive license from a patent holder. Therefore, we insist that any patent license obtained for a version of the library must be consistent with the full freedom of use specified in this license.

Most GNU software, including some libraries, is covered by the ordinary GNU General Public License. This license, the GNU Lesser General Public License, applies to certain designated libraries, and is quite different from the ordinary General Public License. We use this license for certain libraries in order to permit linking those libraries into non-free programs.

When a program is linked with a library, whether statically or using a shared library, the combination of the two is legally speaking a combined work, a derivative of the original library. The ordinary General Public License therefore permits such linking only if the entire combination fits its criteria of freedom. The Lesser General Public License permits more lax criteria for linking other code with the library.

We call this license the "Lesser" General Public License because it does less to protect the user's freedom than the ordinary General Public License. It also provides other free software developers less of an advantage over competing non-free programs. These disadvantages are the reason we use the ordinary General Public License for many libraries. However, the Lesser license provides advantages in certain special circumstances.

For example, on rare occasions, there may be a special need to encourage the widest possible use of a certain library, so that it becomes a de-facto standard. To achieve this, non-free programs must be allowed to use the library. A more frequent case is that a free library does the same job as widely used non-free libraries. In this case, there is little to gain by limiting the free library to free software only, so we use the Lesser General Public License.

In other cases, permission to use a particular library in non-free programs enables a greater number of people to use a large body of free software. For example, permission to use the GNU C Library in non-free programs enables many more people to use the whole GNU operating system, as well as its variant, the GNU/Linux operating system.

Although the Lesser General Public License is less protective of the users' freedom, it does ensure that the user of a program that is linked with the Library has the freedom and the wherewithal to run that program using a modified version of the Library.

The precise terms and conditions for copying, distribution and modification follow. Pay close attention to the difference between a "work based on the library" and a "work that uses the library". The former contains code derived from the library, whereas the latter must be combined with the library in order to run.

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0. This license agreement applies to any software library or other program which contains a notice placed by the copyright holder or other authorized party saying it may be distributed under the terms of this Lesser General Public License (also called "this license"). Each license is addressed as "you".

A "library" means a collection of software functions and/or data prepared so as to be conveniently linked with application programs (which use some of those functions and data) to form executables.

The "Library", below, refers to any such software library or work which has been distributed under these terms. A "work based on the Library" means either the Library or any derivative work under copyright law: that is to say, a work containing the library or a portion of it, either verbatim or with modifications and/or translated straightforwardly into another language. (Hereinafter, translation is included without limitation in the term "modification".)

"Source code" for a work means the preferred form of the work for making modifications to it. For a library, complete source code means all the source code for all modules it contains, plus any associated interface definition files, plus the scripts used to control compilation and installation of the library.

Activities other than copying, distribution and modification are not covered by this license; they are outside its scope. The act of running a program using the Library is not restricted, and output from such a program is covered only if its contents constitute a work based on the library (independent of the use of the Library in a tool for writing it). Whether that is true depends on what the library does and what the program that uses the library does.

1. You may copy and distribute verbatim copies of the library's complete source code as you receive it, in any medium, provided that you conspicuously and appropriately publish on

each copy an appropriate copyright notice and disclaimer of warranty; keep intact all the notices that refer to this license and to the absence of any warranty; and distribute a copy of this license along with the Library.

You may charge a fee for the physical act of transferring a copy, and you may at your option offer warranty protection in exchange for a fee.

2. You may modify your copy or copies of the Library or any portion of it, thus forming a work based on the Library, and copy and distribute such modifications or work under the terms of section 1 above, provided that you also meet all of these conditions:

- a) The modified work must itself be a software library.
- b) You must cause the files modified to carry prominent notices stating that you changed the files and the date of any change.
- c) You must cause the whole of the work to be licensed at no charge to all third parties under the terms of this license.
- d) If a facility in the modified Library refers to a function or a table of data to be supplied by an application program that uses the facility, other than as an argument passed when the facility is invoked, then you must make a good faith effort to ensure that, in the event an application does not supply such function or table, the facility still operates, and performs whatever part of its purpose remains meaningful.

(For example, a function in a library to compute square roots has a purpose that is entirely well-defined independent of the application. Therefore, Subsection 2d requires that any application-supplied function or table used by this function must be optional: if the application does not supply it, the square root function must still compute square roots.)

These requirements apply to the modified work as a whole. If identifiable sections of that work are not derived from the library, and can be reasonably considered independent and separate works in themselves, then this license, and its terms, do not apply to those sections when you distribute them as separate works. But when you distribute the same sections as part of a whole which is a work based on the library, the distribution of the whole must be on the terms of this license, whose permissions for other licenses extend to the entire whole, and thus to each and every part regardless of who wrote it.

Thus, it is not the intent of this section to claim rights or contest your rights to work written entirely by you; rather, the intent is to exercise the right to control the distribution of derivative or collective works based on the library.

In addition, mere aggregation of another work not based on the library with the library (or with a work based on the library) on a volume of a storage or distribution medium does not bring the other work under the scope of this license.

3. You may opt to apply the terms of the ordinary GNU General Public License instead of this License to a given copy of the Library. To do this, you must alter all the notices that refer to this License, so that they refer to the ordinary GNU General Public License, version 2, instead of to this License. (If a newer version than version 2 of the ordinary GNU General Public License has appeared, then you can specify that version instead if you wish.) Do not make any other change in these notices.

Once this change is made in a given copy, it is irreversible for that copy, so the ordinary GNU General Public License applies to all subsequent copies and derivative works made from that copy.

This option is useful when you wish to copy part of the code of the library into a program that is not a library.

4. You may copy and distribute the library (or a portion or derivative of it, under Section 2) in object code or executable form under the terms of Sections 1 and 2 above provided that you accompany it with the complete corresponding machine-readable source code, which must be distributed under the terms of sections 1 and 2 above on a medium customarily used for software interchange.

If distribution of object code is made by offering access to copy from a designated place, then offering equivalent access to copy the source code from the same place satisfies the requirement to distribute the source code, even though third parties are not compelled to copy the source along with the object code.

5. A program that contains no derivative of any portion of the Library, but is designed to work with the Library by being compiled or linked with it, is called a “work that uses the Library”. Such a work, in isolation, is not a derivative work of the Library, and therefore falls outside the scope of this license.

However, linking a “work that uses the library” with the Library creates an executable that is a derivative of the Library (because it contains portions of the library), rather than a “work that uses the library”. The executable is therefore covered by this license. Section 6 states terms for distribution of such executable.

When a “work that uses the library” uses material from a header file that is part of the library, the object code for the work may be a derivative work of the library even though the source code is not.

Whether this is true is especially significant if the work can be linked without the library, or if the work is itself a library. The threshold for this to be true is not precisely defined by law.

If such an object file uses only numerical parameters, data structure layouts and accessories, and small macros and small inline functions (ten lines or less in length), then the use of

the object file is unrestricted, regardless of whether it is legally a derivative work. (Executable containing this object code plus portions of the library will still fall under Section 6.)

Otherwise, if the work is a derivative of the library, you may distribute the object code for the work under the terms of Section 6. Any executable containing that work also fall under Section 6, whether or not they are linked directly with the library itself.

6. As an exception to the sections above, you may also combine or link a “work that uses the library” with the library to produce a work containing portions of the library, and distribute that work under terms of your choice, provided that the terms permit modification of the work for the customer’s own use and reverse engineering for debugging such modifications.

You must give prominent notice with each copy of the work that the library is used in it and that the Library and its use are covered by this license. You must supply a copy of this license. If the work during execution displays copyright notices, you must include the copyright notice for the library among them, as well as a reference directing the user to the copy of this license. Also, you must do one of these things:

- a) Accompany the work with the complete corresponding machine-readable source code for the library including whatever changes were used in the work (which must be distributed under Sections 1 and 2 above); and, if the work is an executable linked with the Library, with the complete machine-readable “work that uses the Library”, as object code and/or source code, so that the user can modify the library and then relink to produce a modified executable containing the modified library. (It is understood that the user who changes the contents of definitions files in the library will not necessarily be able to recompile the application to use the modified definitions.)
- b) Use a suitable shared library mechanism for linking with the library. A suitable mechanism is one that (1) uses at run time a copy of the library already present on the user’s computer system, rather than copying library functions into the executable, and (2) will operate properly with a modified version of the library, if the user installs one, as long as the modified version is interface-compatible with the version that the work was made with.
- c) Accompany the work with a written offer, valid for at least three years, to give the same user the materials specified in Subsection 6, above, for a charge no more than the cost of performing this distribution.
- d) If distribution of the work is made by offering access to copy from a designated place, offer equivalent access to copy the above specified materials from the same place.
- e) Verify that the user has already received a copy of these materials or that you have already sent this user a copy.

For an executable, the required form of the “work that uses the library” must include any data and utility programs needed for reproducing the executable from it. However, as a special exception, the materials to be distributed need not include anything that is normally distributed (in either source or binary form) with the major components (compiler, kernel, and so on) of the operating system on which the executable runs, unless that component itself accompanies the executable.

It may happen that this requirement contradicts the license restrictions of other proprietary libraries that do not normally accompany the operating system. Such a contradiction means you cannot use both them and the library together in an executable that you distribute.

7. You may place library facilities that are a work based on the library side-by-side in a single library together with other library facilities not covered by this license, and distribute such a combined library, provided that the separate distribution of the work based on the Library and of the other library facilities is otherwise permitted, and provided that you do these two things:
 - a) Accompany the combined library with a copy of the same work based on the Library, uncombined with any other library facilities. This must be distributed under the terms of the sections above.
 - b) Give prominent notice with the combined library of the fact that part of it is a work based on the library, and explaining where to find the accompanying uncombined form of the same work.
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Version 1.1

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