LG
Life's Good

OWNER'S MANUAL

LED LCD TV / LCD TV / PLASMA TV

Please read this manual carefully before operating the set and retain it for future reference.

LED LCD TV MODELS

42LV3700	42LV5500	32LW5700	47LW6500
47LV3700	47LV5500	42LW5700	55LW6500
55LV3700	55LV5500	47LW5700	65LW6500
42LV5400	42LW5600	55LW5700	47LW9800
47LV5400	47LW5600		55LW9800
55LV5400	55LW5600		55LV9500

LCD TV MODELS

42LK530
47LK530
55LK530
42LK550
47LK550

PLASMA TV MODELS

50PZ750
60PZ750
50PZ950
60PZ950
50PZ950U
60PZ950U

P/NO : SAC34134226 (1110-REV06)

www.lg.com

LICENSES

Supported licenses may differ by model. For more information about licenses, visit www.lg.com.

Manufactured under license from Dolby Laboratories. “Dolby” and the double-D symbol are trademarks of Dolby Laboratories.

HDMI, the HDMI logo and High-Definition Multimedia Interface are trademarks or registered trademarks of HDMI Licensing LLC.

ABOUT DIVX VIDEO: DivX® is a digital video format created by DivX, Inc. This is an official DivX Certified® device that plays DivX video. Visit www.divx.com for more information and software tools to convert your files into DivX video.

ABOUT DIVX VIDEO-ON-DEMAND: This DivX Certified® device must be registered in order to play purchased DivX Video-on-Demand (VOD) movies. To obtain your registration code, locate the DivX VOD section in your device setup menu. Go to vod.divx.com for more information on how to complete your registration.

“DivX Certified® to play DivX® and DivX Plus ™ HD (H.264/MKV) video up to 1080p HD including premium content.”

“DivX®, DivX Certified® and associated logos are trademarks of DivX, Inc. and are used under license.”

“Covered by one or more of the following U.S. patents :
7,295,673; 7,460,668; 7,515,710; 7,519,274”

ENGLISH

NOTE

- Plasma : Plasma TV LCD : LED LCD TV, LCD TV
- Image shown may differ from your TV.
- Your TV’s OSD (On Screen Display) may differ slightly from that shown in this manual.
- The available menus and options may differ from the input source or product model that you are using.

IMPORTANT SAFETY INSTRUCTIONS

Always comply with the following precautions to avoid dangerous situations and ensure peak performance of your product.



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

The lightning flash with arrowhead symbol, within an equilateral triangle, is intended to alert the user to the presence of uninsulated "dangerous voltage" within the product's enclosure that may be of sufficient magnitude to constitute a risk of electric shock to persons.

The exclamation point within an equilateral triangle is intended to alert the user to the presence of important operating and maintenance (servicing) instructions in the literature accompanying the appliance.

WARNING/CAUTION

- TO REDUCE THE RISK OF FIRE AND ELECTRIC SHOCK, DO NOT EXPOSE THIS PRODUCT TO RAIN OR MOISTURE.

Read these instructions.
Keep these instructions.
Heed all warnings.
Follow all instructions.

- Do not use this apparatus near water.



- Clean only with a dry cloth.



- Do not block any ventilation openings. Install in accordance with the manufacturer's instructions.



- Do not install near any heat sources such as radiators, heat registers, stoves, or other apparatus (including amplifiers) that produce heat.



- Do not defeat the safety purpose of the polarized or grounding-type plug. A polarized plug has two blades with one wider than the other. A grounding type plug has two blades and a third grounding prong. The wide blade or the third prong are provided for your safety. If the provided plug does not fit into your outlet, consult an electrician for replacement of the obsolete outlet (Can differ by country).



ENGLISH

- Protect the power cord from being walked on or pinched particularly at plugs, convenience receptacles, and the point where they exit from the apparatus.



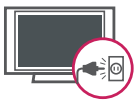
- Only use attachments/accessories specified by the manufacturer.



- Use only with a cart, stand, tripod, bracket, or table specified by the manufacturer, or sold with the apparatus. When a cart is used, use caution when moving the cart/apparatus combination to avoid injury from tip-over.



- Unplug this apparatus during lightning storms or when unused for long periods of time.



- Refer all servicing to qualified service personnel. Servicing is required when the apparatus has been damaged in any way, such as power-supply cord or plug is damaged, liquid has been spilled or objects have fallen into the apparatus, the apparatus has been exposed to rain or moisture, does not operate normally, or has been dropped.



- Never touch this apparatus or antenna during a thunder or lightning storm.
- When mounting a TV on the wall, make sure not to install the TV by hanging the power and signal cables on the back of the TV.
- Do not allow an impact shock or any objects to fall into the product, and do not drop anything onto the screen.
- CAUTION concerning the Power Cord (Can differ by country):
  It is recommended that appliances be placed upon a dedicated circuit; that is, a single outlet circuit which powers only that appliance and has no additional outlets or branch circuits. Check the specification page of this owner's manual to be certain. Do not connect too many appliances to the same AC power outlet as this could result in fire or electric shock. Do not overload wall outlets. Overloaded wall outlets, loose or damaged wall outlets, extension cords, frayed power cords, or damaged or cracked wire insulation are dangerous. Any of these conditions could result in electric shock or fire. Periodically examine the cord of your appliance, and if its appearance indicates damage or deterioration, unplug it, discontinue use of the appliance, and have the cord replaced with an exact replacement part by an authorized service. Protect the power cord from physical or mechanical abuse, such as being twisted, kinked, pinched, closed in a door, or walked upon. Pay particular attention to plugs, wall outlets, and the point where the cord exits the appliance. Do not move the TV with the power cord plugged in. Do not use a damaged or loose power cord. Be sure do grasp the plug when unplugging the power cord. Do not pull on the power cord to unplug the TV.



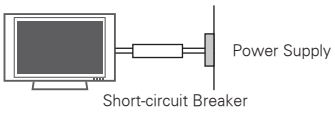
- **Warning** - To reduce the risk of fire or electrical shock, do not expose this product to rain, moisture or other liquids. Do not touch the TV with wet hands. Do not install this product near flammable objects such as gasoline or candles, or expose the TV to direct air conditioning.



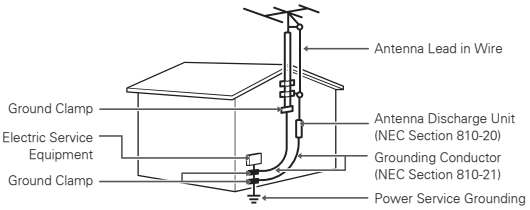
- Do not expose to dripping or splashing and do not place objects filled with liquids, such as vases, cups, etc. on or over the apparatus (e.g. on shelves above the unit).



- **Grounding**
  Ensure that you connect the earth ground wire to prevent possible electric shock (i.e. a TV with a three-prong grounded AC plug must be connected to a three-prong grounded AC outlet). If grounding methods are not possible, have a qualified electrician install a separate circuit breaker. Do not try to ground the unit by connecting it to telephone wires, lightening rods, or gas pipes.

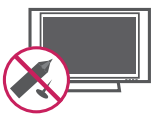


- **DISCONNECTING DEVICE FROM THE MAIN POWER**
  The power outlet must remain readily accessed in the event the device needs to be unplugged.
- As long as this unit is connected to the AC wall outlet, it is not disconnected from the AC power source even if the unit is turned off.
- Do not attempt to modify this product in any way without written authorization from LG Electronics. Unauthorized modification could void the user's authority to operate this product.
- **ANTENNAS Outdoor antenna grounding**
  (Can differ by country):
  If an outdoor antenna is installed, follow the precautions below. An outdoor antenna system should not be located in the vicinity of overhead power lines or other electric light or power circuits, or where it can come in contact with such power lines or circuits as death or serious injury can occur. Be sure the antenna system is grounded so as to provide some protection against voltage surges and built-up static charges. Section 810 of the National Electrical Code (NEC) in the U.S.A. provides information with respect to proper grounding of the mast and supporting structure, grounding of the lead-in wire to an antenna discharge unit, size of grounding conductors, location of antenna discharge unit, connection to grounding electrodes and requirements for the grounding electrode.
  Antenna grounding according to the National Electrical Code, ANSI/NFPA 70



NEC: National Electrical Code

- **Cleaning**
  When cleaning, unplug the power cord and wipe gently with a soft cloth to prevent scratching. Do not spray water or other liquids directly on the TV as electric shock may occur. Do not clean with chemicals such as alcohol, thinners or benzine.
- **Moving**
  Make sure the product is turned off, unplugged and all cables have been removed. It may take 2 or more people to carry larger TVs. Do not press or put stress on the front panel of the TV.
- **Ventilation**
  Install your TV where there is proper ventilation. Do not install in a confined space such as a bookcase. Do not cover the product with cloth or other materials while plugged. Do not install in excessively dusty places.
- If you smell smoke or other odours coming from the TV, unplug the power cord contact an authorized service center.
- Do not press strongly upon the panel with hand or sharp object such as nail, pencil or pen, or make a scratch on it.
- Keep the product away from direct sunlight.



- **Dot Defect**
  The Plasma or LCD panel is a high technology product with resolution of two million to six million pixels. In a very few cases, you could see fine dots on the screen while you're viewing the TV. Those dots are deactivated pixels and do not affect the performance and reliability of the TV.
- **Generated Sound**
  "Cracking" noise: A cracking noise that occurs when watching or turning off the TV is generated by plastic thermal contraction due to temperature and humidity. This noise is common for products where thermal deformation is required.
  Electrical circuit humming/panel buzzing: A low level noise is generated from a high-speed switching circuit, which supplies a large amount of current to operate a product. It varies depending on the product.
  This generated sound does not affect the performance and reliability of the product.
- Take care not to touch the ventilation openings. When watching the TV for a long period, the ventilation openings may become hot. This does not affect the performance of the product or cause defects in the product.
- **Viewing 3D Imaging (For 3D TV)**
  - If you watch the 3D imaging too closely or for a long period of time, it may harm your eyesight.
  - Watching the TV or playing video games that incorporate 3D imaging with the 3D glasses for a long period of time can cause drowsiness, headaches or fatigue to you and/or your eyes. If you have a headache, or otherwise feel fatigued or drowsy, stop watching the TV and have a rest.
  - Pregnant woman, seniors, persons with heart problems or persons who experience frequent drowsiness should refrain from watching 3D TV.
  - Some 3D imaging may cause you to duck or dodge the image displayed in the video. Therefore, it is best if you do not watch 3D TV near fragile objects or near any objects that can be knocked over easily.
  - Please prevent children under the age of 5 from watching 3D TV. It may affect their vision development.
  - Warning for photosensitization seizure: Some viewers may experience a seizure or epilepsy when exposed to certain factors, including flashing lights or images in TV or video games. If you or anybody from your family has a history of epilepsy or seizure, please consult with your doctor before watching 3D TV.
    Also certain symptoms can occur in unspecified conditions without any previous history. If you experience any of the following symptoms, immediately stop watching the 3D imaging and consult a doctor: dizziness or light-headedness, visual transition or altered vision, visual or facial instability, such as eye or muscle twitching, unconscious action, convulsion, loss of conscience, confusion or disorientation, loss of directional sense, cramps, or nausea. Parents should monitor their children, including teenagers, for these symptoms as they may be more sensitive to the effects of watching 3D TV.
    Risk of photosensitization seizure can be reduced with the following actions.
  - Take frequent breaks from watching 3D TV.
  - For those who have vision that is different in each eye, they should watch the TV after taking vision correction measures.
  - Watch the TV so that your eyes are on the same level as the 3D screen and refrain from sitting too closely to the TV.
  - Do not watch the 3D imaging when tired or sick, and avoid watching the 3D imaging for a long period of time.
  - Do not wear the 3D glasses for any other purpose than viewing 3D imaging on a 3D TV.
  - Some viewers may feel disoriented after watching 3D TV. Therefore, after you watch 3D TV, take a moment to regain awareness of your situation before moving.

- If the TV feels cold to the touch, there may be a small "flicker" when it is turned on. This is normal, there is nothing wrong with TV. Some minute dot defects may be visible on the screen, appearing as tiny red, green, or blue spots. However, they have no adverse effect on the TV's performance. Avoid touching the LCD screen or holding your finger(s) against it for long periods of time. Doing so may produce some temporary distortion effects on the screen.

DISPOSAL (Hg lamp only used in LCD TVs)

The fluorescent lamp used in this product contains a small amount of mercury. Do not dispose of this product with general household waste. Disposal of this product must be carried out in accordance to the regulations of your local authority.

For USA

NOTE TO CABLE/TV INSTALLER

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

TABLE OF CONTENTS

2 LICENSES

3 IMPORTANT SAFETY INSTRUCTIONS

8 TABLE OF CONTENTS

10 ASSEMBLING AND PREPARING

10 Unpacking
13 Optional Extras
14 Parts and buttons
22 Lifting and moving the TV
22 Setting up the TV
22 - Attaching the stand
28 - Mounting on a table
30 - Mounting on a wall
31 - Tidying cables

32 REMOTE CONTROL

36 Magic Motion Remote Control Functions
37 - Registering Magic Motion Remote Control
37 - How to use Magic Motion Remote Control
37 - Precautions to Take when Using the Magic Motion Remote Control

38 WATCHING TV

38 Connecting to an antenna or cable
38 - Connecting an antenna or basic cable
38 - Connecting a cable box
39 Turning the TV on for the first time
40 Watching TV
41 Accessing Home Menu
42 Managing channels
42 - Setting up channels
43 - Using favorite channels
44 - Checking current program info
45 Using additional options
45 - Adjusting aspect ratio
46 - Changing AV modes
46 - Using the input list
47 Using the quick menu

48 ENTERTAINMENT

48 Network Connection
48 - Connecting to a wired network
49 - Connecting to a wireless network
50 - When a security code is already set
53 - Network Status
54 Premium Account Function
54 - Notice
56 LG Apps function
56 - Registration LG Apps
57 - Sign in with LG Apps account
58 - Using LG Apps
59 - Using My Apps
60 Search
61 Web Browser Function
61 - Using Web Browser
62 - Browsing Favorite Websites
62 - Browsing Websites by Directly Entering Address
63 - Viewing Visited Website List
64 Smart Share Function
64 - Connecting USB storage devices
65 - Connecting DLNA DMP (Digital Living Network Alliance, Digital Media Player)
68 - Connecting DLNA DMR (Digital Living Network Alliance, Digital Media Render)
69 - Browsing files
70 - Viewing Videos
73 - DivX registration code
74 - Viewing Photos
76 - Listening to music

ENGLISH

78 Media Link Function
78 - Media Link Connection
79 - Using Media Link
79 - Viewing Movies
80 - Using Music Section
80 - Using TV Program Section
81 - Installing Plug-Ins

82 3D IMAGING (FOR 3D TV)

82 3D Technology
82 - When watching 3D imaging
83 - When using 3D Glasses
83 - 3D Imaging Viewing Range (Plasma)
84 Viewing 3D Imaging
84 - Setting 3D Imaging

86 CUSTOMIZING TV SETTINGS

86 The SETUP Menu
87 Customizing Settings
87 - CHANNEL Settings
88 - PICTURE Settings
93 - AUDIO Settings
95 - TIME Settings
96 - LOCK Settings
98 - OPTION Settings
101 - NETWORK Settings
102 - SUPPORT Settings

103 MAKING CONNECTIONS

104 Connection Overview
105 Connecting to a HD receiver, DVD, or VCR player
105 - HDMI Connection
106 - DVI to HDMI Connection
107 - Component Connection
108 - Composite Connection
110 Connecting to a PC
110 - HDMI Connection
111 - DVI to HDMI Connection
112 - RGB Connection
113 Connecting to an Audio System
113 - Digital Optical Audio Connection
115 Connecting to a USB
115 Connecting to a Headphone (LCD)
116 Connecting the Wireless Media Box
117 SIMPLINK Connection
117 - Activating and Using the SIMPLINK menus

118 MAINTENANCE

118 Updating the TV Firmware
119 Cleaning Your TV
119 - Screen and frame
119 - Cabinet and stand
119 - Power cord
119 Preventing “Image burn” or “Burn-in” on your TV screen

120 TROUBLESHOOTING

122 SPECIFICATIONS

130 IR CODES

132 EXTERNAL CONTROL DEVICE SETUP

140 OPEN SOURCE LICENSE

ENGLISH

ASSEMBLING AND PREPARING

Unpacking

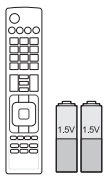
Check your product box for the following items. If there are any missing accessories, contact the local dealer where you purchased your product. The illustrations in this manual may differ from the actual product and item.

CAUTION

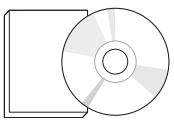
- Do not use any unapproved items to ensure the safety and product life span.
- Any damages or injuries by using unapproved items are not covered by the warranty.
- In case of some model, the thin film on screen is a part of TV, So don't take it off.

NOTE

- The items supplied with your product may vary depending on the model.
- Product specifications or contents of this manual may be changed without prior notice due to upgrade of product functions.
- New features may be added to this TV in the future.



Remote control,
Batteries (AAA)



Owner's manual,
CD manual



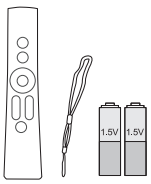
Nero MediaHome 4 Essentials
CD



Polishing cloth[1]
(Depending on model)



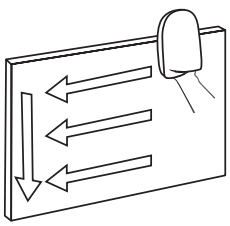
Cleansing Cloths (Mitt)[2]
(Depending on model)



Magic Motion Remote Control[3],
Strap,
Batteries (AA)
(Except LV3700, LV5400,
LW5700, LK530, LK550 series

1 Gently wipe the spots on the cabinet with the polishing cloth.
2 Wipe spots on the exterior only with the cleansing cloths.
Do not wipe roughly when removing stains. Excessive pressure may cause scratches or discoloration.
For cleaning front frame, please slowly wipe in one direction after spraying water 1-2 times on cleansing cloths. Please remove excessive moisture after cleaning. Excessive moisture may cause water stains on the frame.





3 Sold seperately for LV3700, LV5400, LW5700, LK530, LK550 series.

PZ750, PZ950, PZ950U series



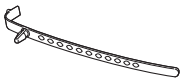
M4 x 26 M5 x 14.5

Screw for assembly
(50PZ750/950/950U)



M4 x 28 M5 x 14.5

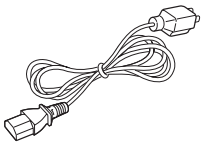
Screw for assembly
(60PZ750/950/950U)



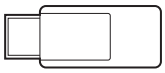
Cable holder



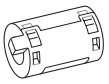
Power cord holder



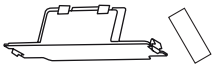
Power cord



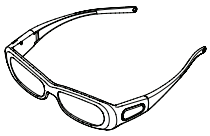
Wireless LAN for
Broadband/DLNA Adaptor
(AN-WF100)
(PZ950, PZ950U series)



Ferrite Core
(Depending on model)



Protection cover,
Tape



3D Glasses[1] (AG-S250)
(Depending on model)

LV3700, LV5400, LV5500, LV9500, LW5600, LW5700, LW6500, LW9800 series



M4 x 12

Screw for assembly
(LV3700, LV5400, LV5500,
LW5600, LW5700 series,
47/55LW6500)



M4 x 16

Screw for assembly
(65LW6500)

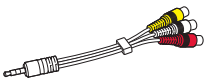


M4 x 16

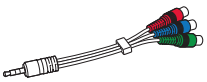
Screw for assembly
(LV9500, LW9800 series)



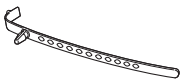
Screw for fixing
(32LW5700)



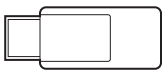
Composite gender cable



Component gender cable



Cable holder
(Depending on model)



Wireless LAN for
Broadband/DLNA Adaptor
(AN-WF100)
(Except LV9500/LW9800
series, 32LW5700)



FPR 3D Glasses[1]
(LW5600, LW5700, LW6500, LW9800 series)

1 The number of 3D glasses may differ depending on the model or country.

ENGLISH

LK530, LK550 series

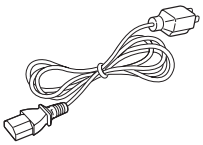

x 8

M4 x 20

Screw for assembly



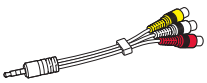
Protection cover



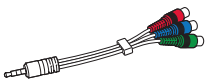
Power cord



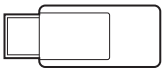
Screw for fixing
(42LK530, 42LK550)



Composite gender cable



Component gender cable



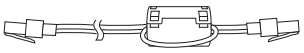
Wireless LAN for Broadband/DLNA Adaptor
(AN-WF100)

NOTE

- (Plasma) How to use the ferrite core

1 Use the ferrite core to reduce the electromagnetic interference in the LAN cable.
Wind the LAN cable on the ferrite core once. Place the ferrite core close to the TV.

[to an External device] [to the TV]



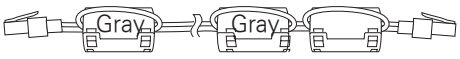
[Figure 1]



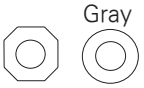
[Cross Section of Ferrite Core]

2 Use the ferrite core to reduce the electromagnetic interference in the LAN cable.
Wind the LAN cable on the ferrite core once. Place the ferrite core close to the TV.

[to an External device] [to the TV]



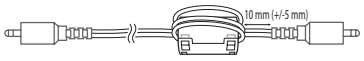
[Figure 2]



[Cross Section of Ferrite Core]

3 Use the ferrite core to reduce the electromagnetic interference in the PC audio cable.
Wind the PC audio cable on the ferrite core thrice. Place the ferrite core close to the TV.

[to an External device] [to the TV]



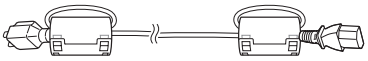
[Figure 3]



[Cross Section of Ferrite Core]

4 Use the ferrite core to reduce the electromagnetic interference in the power cable.
Wind the power cable on the ferrite core once. Place the ferrite core close to the TV and a wall plug.

[to a wall plug] [to the TV]



[Figure 4]

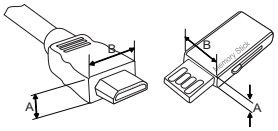


[Cross Section of Ferrite Core]

- If there is one ferrite core, follow as shown in Figure 1.
- If there are two ferrite cores, follow as shown in Figures 1 and 3.
- If there are three ferrite cores, follow as shown in Figures 1 and 4.
- If there are six ferrite cores, follow as shown in Figures 2, 3 and 4.

(Check the cross section of ferrite core and the ferrite core position.)

- (LCD) For an optimal connection, HDMI cables and USB devices should have bezels less than 10 mm (0.39 inch) thick and 18 mm (0.7 inch) width.

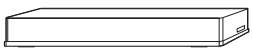


*A ≦ 10 mm (0.39 inch)
*B ≦ 18 mm (0.7 inch)

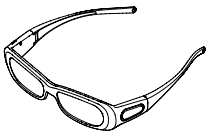
ENGLISH

Optional Extras

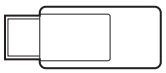
Optional extras can be changed or modified for quality improvement without any notification.
Contact your dealer for buying these items.
These device only works with compatible LG LED LCD TV, LCD TV, or Plasma TV.



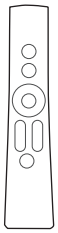
Wireless Media Box[1]
(AN-WL100W)



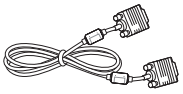
3D Glasses[2]
(AG-S230, AG-S250, AG-S270)



Wireless LAN for Broadband/DLNA Adaptor[3]
(AN-WF100)



Magic Motion Remote
(AN-MR200)



D-sub 15 pin signal cable[4]



FPR 3D Glasses[5]
(AG-F2**)

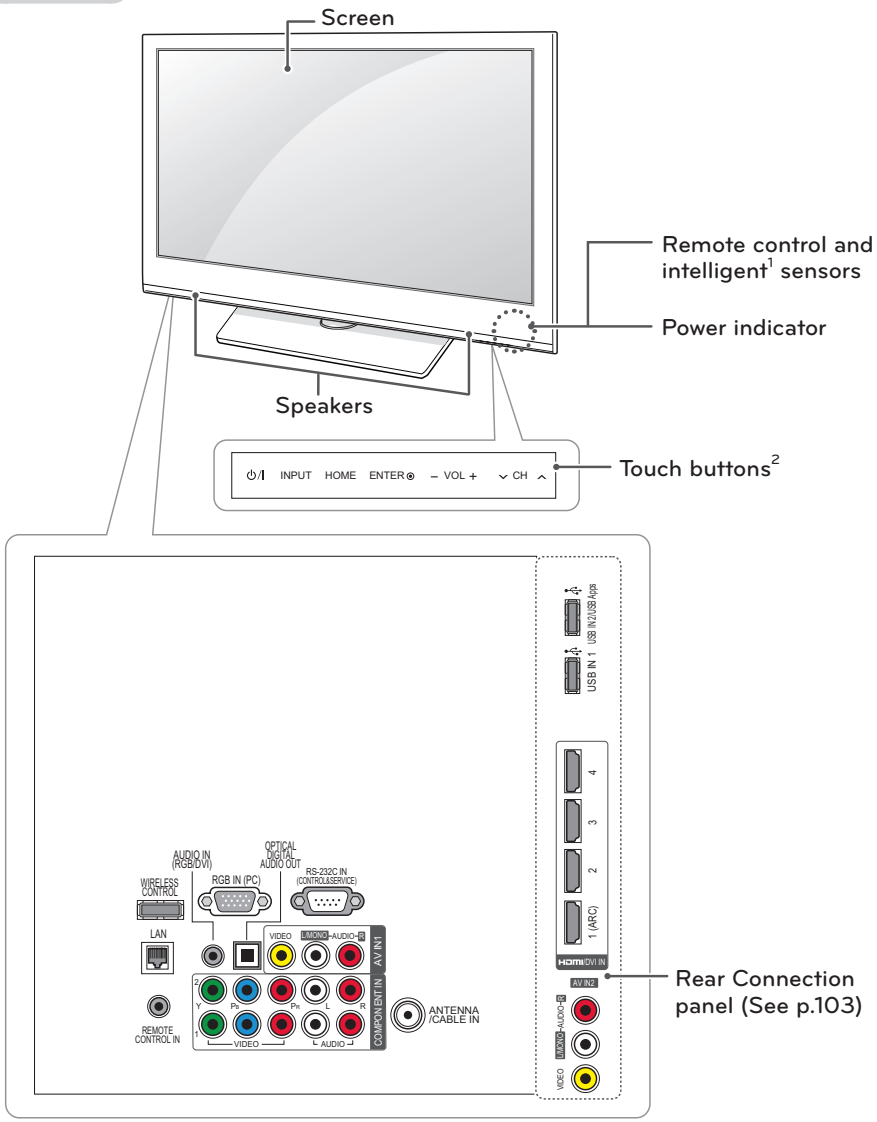


Video Call Camera[6]
(AN-VC300)
(Depending on model)

1 Supports for LV3700, LV5400, LV5500, LV9500, LW5600, LW5700, LW6500, LW9800, PZ750, PZ950, PZ950U series
2 Supports for PZ750, PZ950, PZ950U series
3 Unnecessary for LV9500, LW9800 series
4 When using the VGA (D-sub 15 pin signal cable) PC connection, use the shielded signal interface cable with a ferrite core to maintain standards compliance for the product.
5 Supports for LW5600, LW5700, LW6500, LW9800 series
The model name or design may be changed depending on the upgrade of product functions, manufacturer's circumstances or policies.
6 Video Call Camera can be used with some LG TVs.
Video Call Camera is not available in every country.

Parts and buttons

PZ750, PZ950, PZ950U series

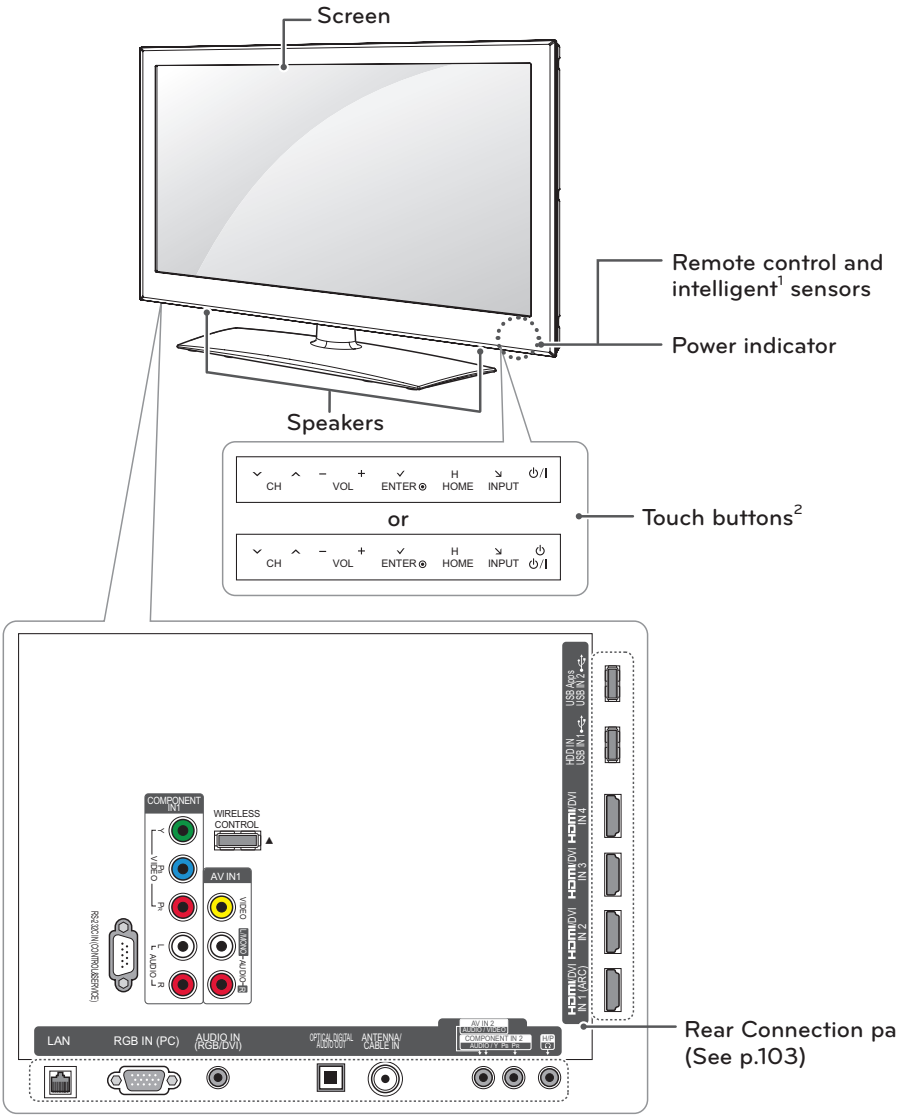


Touch button[2]	Description
⏻/I	Turns the power on or off.
INPUT	Changes the input source.
HOME	Accesses the Home menu, or saves your input and exits the menus.
ENTER ◉	Selects the highlighted menu option or confirms an input
- VOL +	Adjusts the volume level.
⌄ CH ⌃	Scrolls through the saved channels.

1 Intelligent sensor - Adjusts the image quality and brightness based on the surrounding environment.

2 All of the buttons are touch sensitive and can be operated through simple touch with your finger.

LV5400, LV5500, LW6500 series



Touch button[2]	Description
⏻ / I	Turns the power on or off.
INPUT	Changes the input source.
HOME	Accesses the Home menu, or saves your input and exits the menus.
ENTER ◉	Selects the highlighted menu option or confirms an input
- VOL +	Adjusts the volume level.
v CH ^	Scrolls through the saved channels.

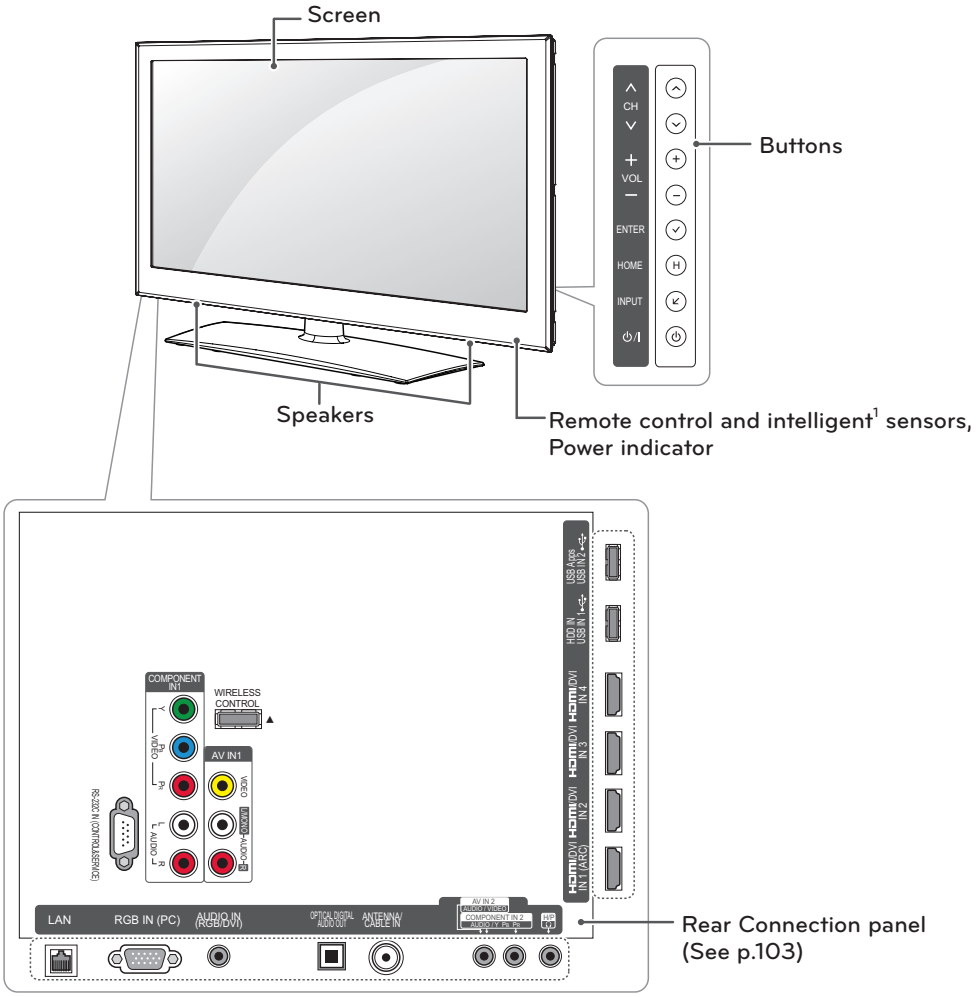
1 Intelligent sensor - Adjusts the image quality and brightness based on the surrounding environment.
2 All of the buttons are touch sensitive and can be operated through simple touch with your finger.

NOTE

- You can set the power indicator light to on or off by selecting **OPTION** in the Home menu - SETUP.

ENGLISH

LW5700 series



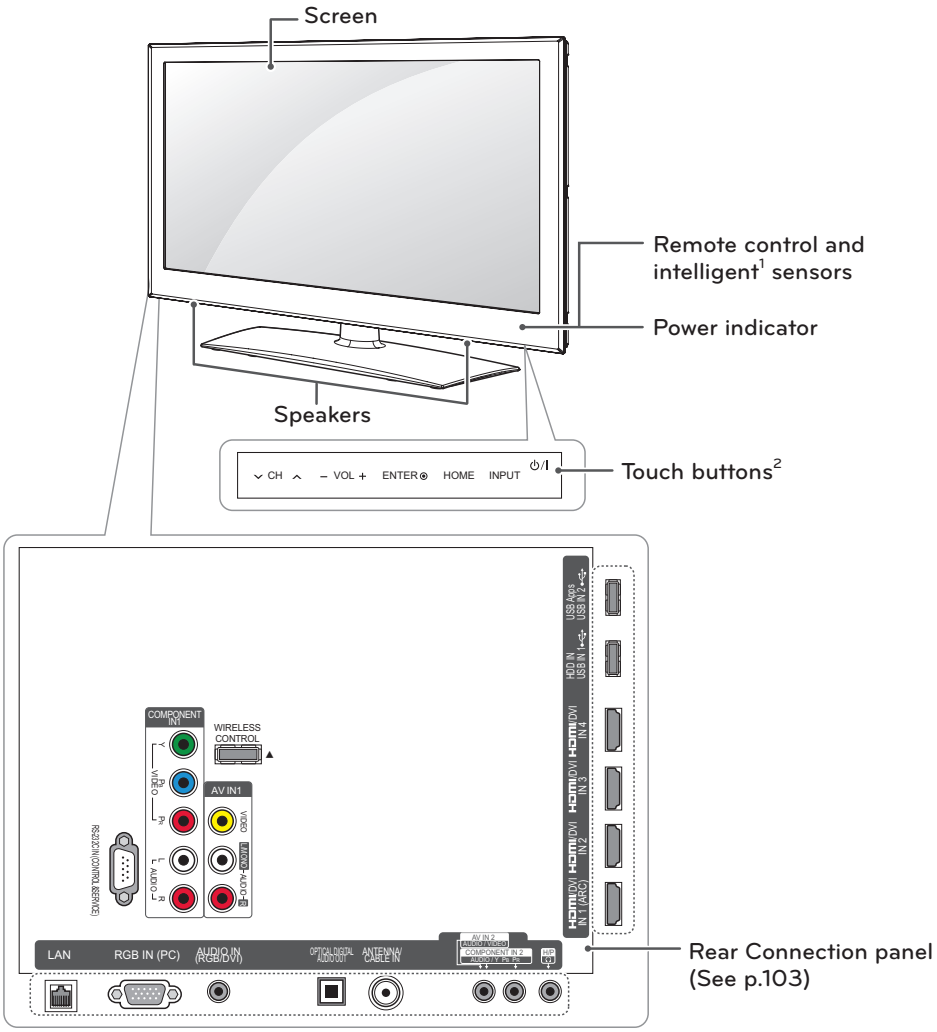
Button	Description
⏻ / I	Turns the power on or off.
INPUT	Changes the input source.
HOME	Accesses the Home menu, or saves your input and exits the menus.
ENTER ◉	Selects the highlighted menu option or confirms an input
- VOL +	Adjusts the volume level.
v CH ^	Scrolls through the saved channels.

1 Intelligent sensor - Adjusts the image quality and brightness based on the surrounding environment.

NOTE

- You can set the power indicator light to on or off by selecting **OPTION** in the Home menu - SETUP.

LW5600 series



Touch button[2]	Description
⏻ / I	Turns the power on or off.
INPUT	Changes the input source.
HOME	Accesses the Home menu, or saves your input and exits the menus.
ENTER ◉	Selects the highlighted menu option or confirms an input
- VOL +	Adjusts the volume level.
v CH ^	Scrolls through the saved channels.

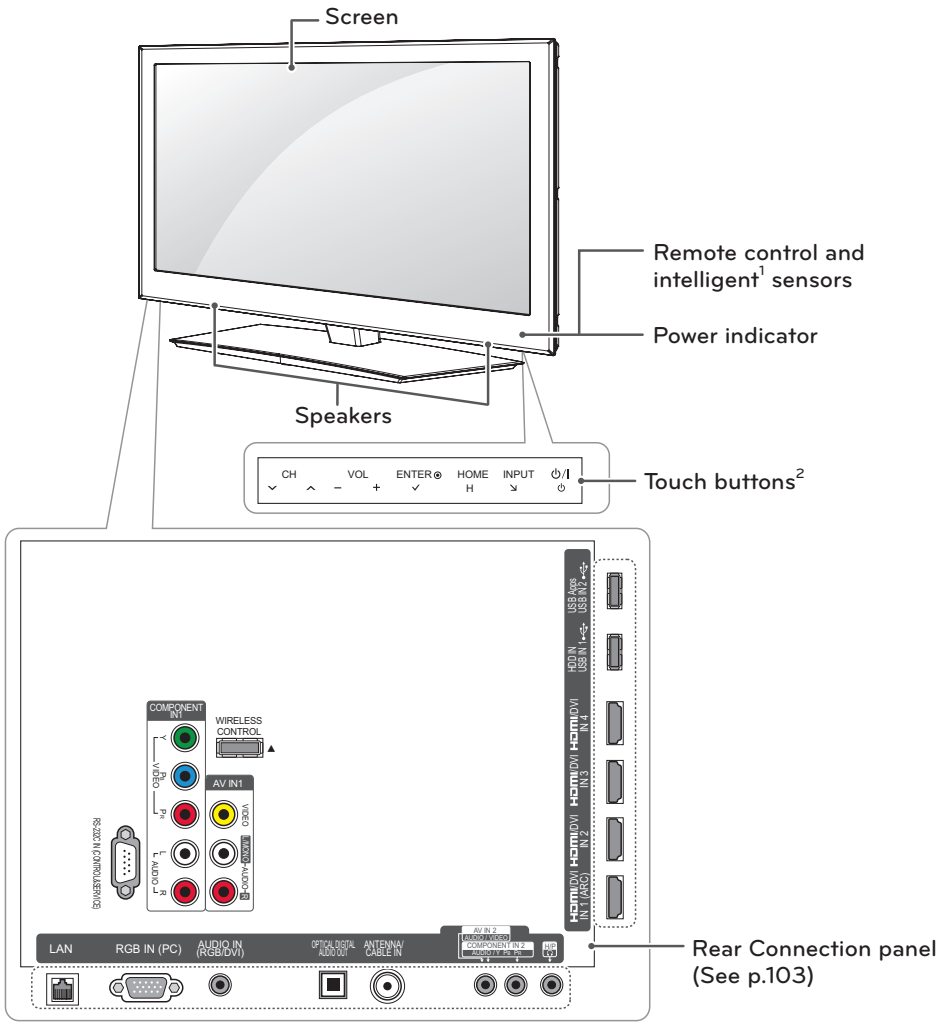
1 Intelligent sensor - Adjusts the image quality and brightness based on the surrounding environment.
2 All of the buttons are touch sensitive and can be operated through simple touch with your finger.

NOTE

- You can set the power indicator light to on or off by selecting **OPTION** in the Home menu - SETUP.

ENGLISH

LV9500, LW9800 series



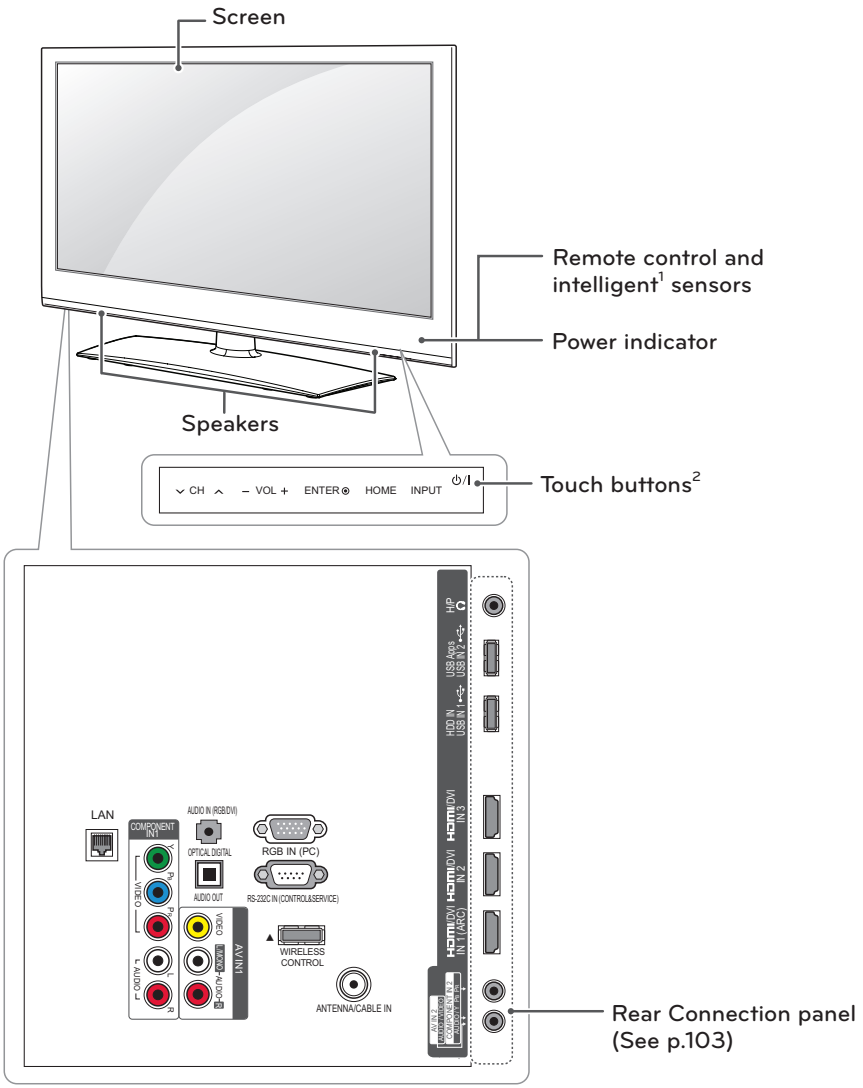
Touch button[2]	Description
⏻ / I	Turns the power on or off.
INPUT	Changes the input source.
HOME	Accesses the Home menu, or saves your input and exits the menus.
ENTER ◉	Selects the highlighted menu option or confirms an input
- VOL +	Adjusts the volume level.
v CH ^	Scrolls through the saved channels.

1 Intelligent sensor - Adjusts the image quality and brightness based on the surrounding environment.
2 All of the buttons are touch sensitive and can be operated through simple touch with your finger.

NOTE

- You can set the power indicator light to on or off by selecting **OPTION** in the Home menu - SETUP.

LV3700 series



Touch button[2]	Description
⏻ / I	Turns the power on or off.
INPUT	Changes the input source.
HOME	Accesses the Home menu, or saves your input and exits the menus.
ENTER ◉	Selects the highlighted menu option or confirms an input
- VOL +	Adjusts the volume level.
∨ CH ∧	Scrolls through the saved channels.

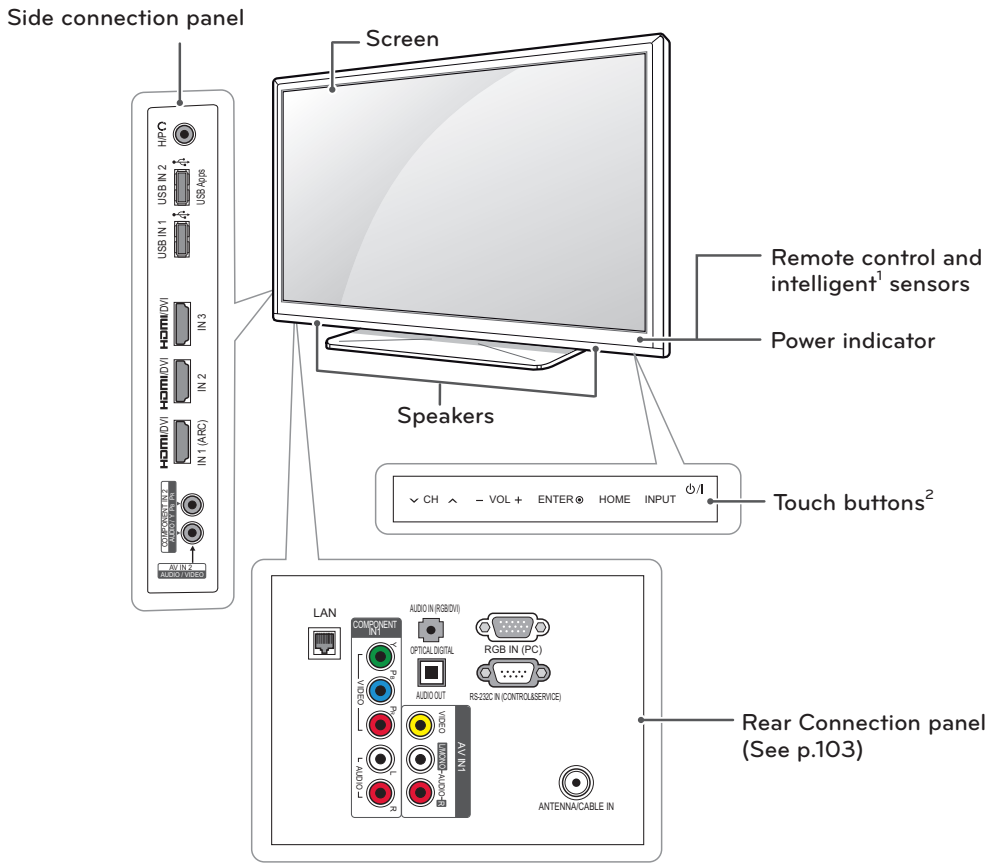
1 Intelligent sensor - Adjusts the image quality and brightness based on the surrounding environment.
2 All of the buttons are touch sensitive and can be operated through simple touch with your finger.

NOTE

- You can set the power indicator light to on or off by selecting **OPTION** in the Home menu - SETUP.

ENGLISH

LK550 series



Touch button[2]	Description
⏻ / I	Turns the power on or off.
INPUT	Changes the input source.
HOME	Accesses the Home menu, or saves your input and exits the menus.
ENTER ◉	Selects the highlighted menu option or confirms an input
- VOL +	Adjusts the volume level.
v CH ^	Scrolls through the saved channels.

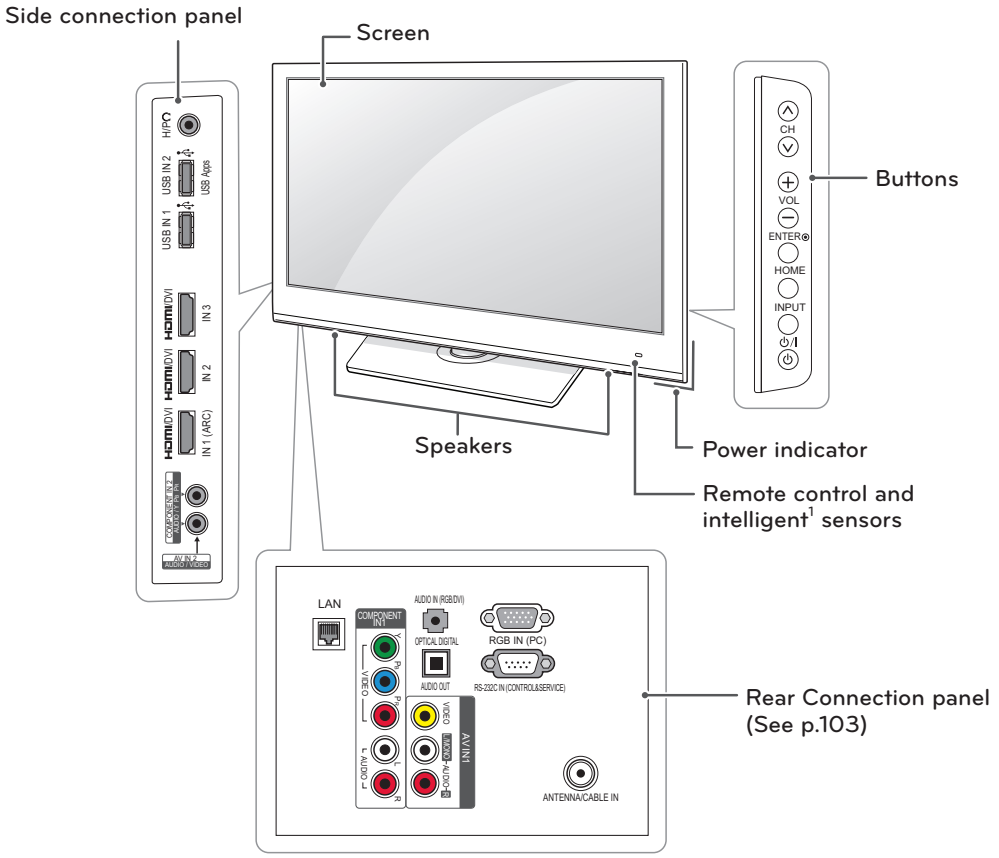
1 Intelligent sensor - Adjusts the image quality and brightness based on the surrounding environment.
2 All of the buttons are touch sensitive and can be operated through simple touch with your finger.

NOTE

- You can set the power indicator light to on or off by selecting **OPTION** in the Home menu - SETUP.

ENGLISH

LK530 series



Button	Description
⏻ / I	Turns the power on or off.
INPUT	Changes the input source.
HOME	Accesses the Home menu, or saves your input and exits the menus.
ENTER ◉	Selects the highlighted menu option or confirms an input
- VOL +	Adjusts the volume level.
v CH ^	Scrolls through the saved channels.

1 Intelligent sensor - Adjusts the image quality and brightness based on the surrounding environment.

Lifting and moving the TV

When moving or lifting the TV, read the following to prevent the TV from being scratched or damaged and for safe transportation regardless of its type and size.

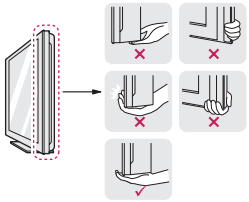
CAUTION

- Avoid touching the screen at all times, as this may result in damage to the screen.

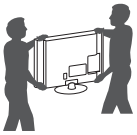
- It is recommended to move the TV in the box or packing material that the TV originally came in.
- Before moving or lifting the TV, disconnect the power cord and all cables.
- When holding the TV, the screen should face away from you to avoid damage.



- Hold the top and bottom of the TV frame firmly. Make sure not to hold the transparent part, speaker, or speaker grill area.



- When transporting a large TV, there should be at least 2 people.
- When transporting the TV by hand, hold the TV as shown in the following illustration.



- When transporting the TV, do not expose the TV to jolts or excessive vibration.
- When transporting the TV, keep the TV upright, never turn the TV on its side or tilt towards the left or right.

Setting up the TV

Put your TV on a pedestal stand and mount the TV on a table or wall.

Attaching the stand

If you are not mounting the TV to a wall, use the following instructions to attach the stand.

PZ750, PZ950, PZ950U series

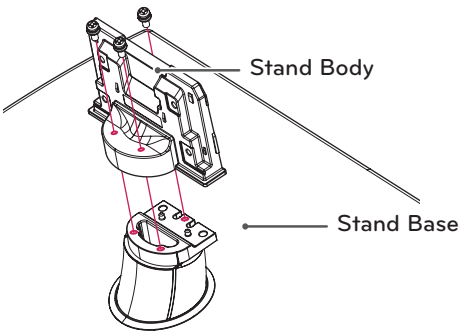
1 Lay the TV with the screen side down on a flat surface.

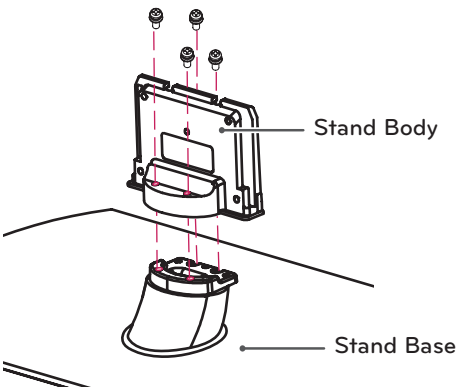
CAUTION

- Lay a foam mat or soft protective cloth on the surface to protect the screen from damage. Make sure no objects press against the screen.

2 Assemble the parts of the stand body with the stand base of the TV.

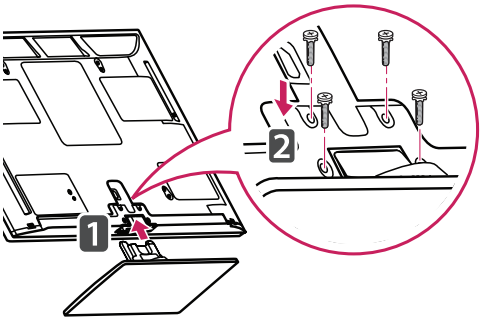
Model	Screw for assembly	Number of screws
50PZ750,50PZ950, 50PZ950U	M5 x 14.5	3
60PZ750, 60PZ950, 60PZ950U	M5 x 14.5	4





3 Secure the TV and the stand with the 4 screws.

Model	Screw for assembly	Number of screws
50PZ750, 50PZ950, 50PZ950U	M4 x 26	4
60PZ750, 60PZ950, 60PZ950U	M4 x 28	4



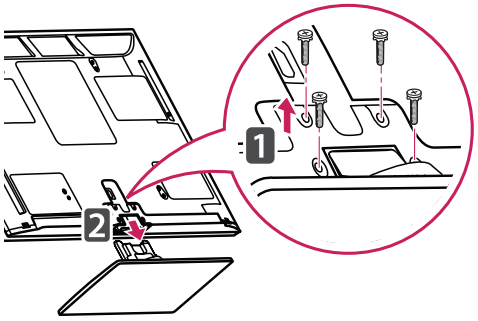
CAUTION

- Tighten the screws firmly to prevent the TV from tilting forward. Do not over tighten.

To detach the stand,

1 Lay the TV with the screen side down on a flat surface.

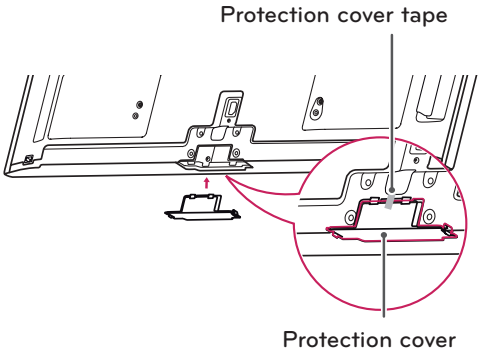
2 Remove the 4 screws and pull the stand away from the TV.



3 Push the supplied protection cover into the opening at the bottom of the TV until it locks in place.

Attach the protection cover tape.

- This will protect the opening from accumulating dust and dirt.
- When installing the wall mounting bracket, use the protection cover.



LV3700, LV5400, LV5500, LW5600, LW5700, LW6500 series

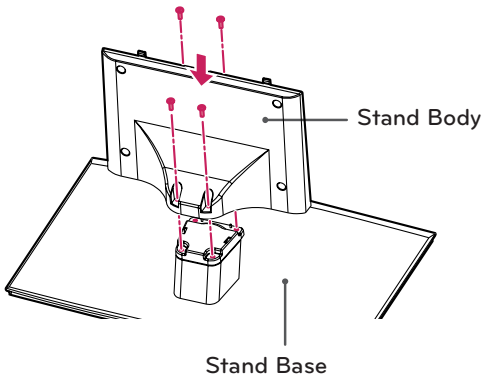
1 Lay the TV with the screen side down on a flat surface.

CAUTION

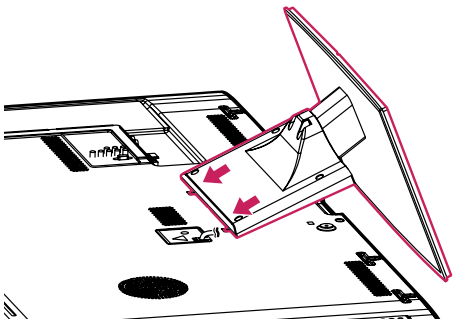
- Lay a foam mat or soft protective cloth on the surface to protect the screen from damage. Make sure no objects press against the screen.

2 Assemble the parts of the stand body with the stand base of the TV.

Model	Screw for assembly	Number of screws
LV3700, LV5400, LV5500, LW5600, LW5700 series, 47/55LW6500	M4 x 12	4
65LW6500	M4 x 16	4

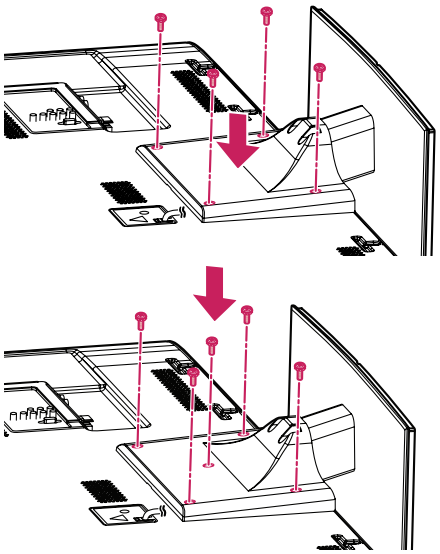


3 Assemble the TV as shown.



4 Secure the TV and the stand with the screws.

Model	Screw for assembly	Number of screws
LV3700, LV5400, LV5500, LW5600, LW5700 series, 47/55LW6500	M4 x 12	4
65LW6500	M4 x 16	5



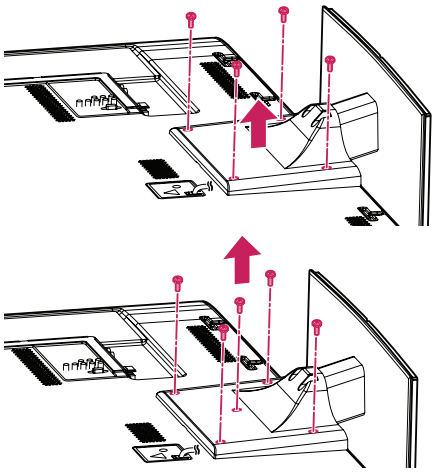
CAUTION

- Tighten the screws firmly to prevent the TV from tilting forward. Do not over tighten.

To detach the stand,

1 Lay the TV with the screen side down on a flat surface.

2 Remove the 4 screws and pull the stand away from the TV.



LV9500, LW9800 series

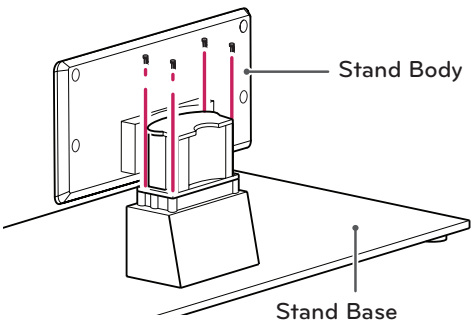
1 Lay the TV with the screen side down on a flat surface.

CAUTION

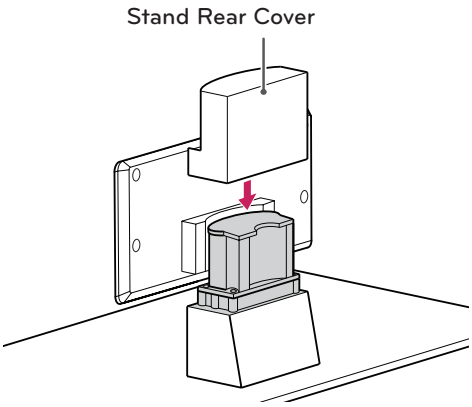
- Lay a foam mat or soft protective cloth on the surface to protect the screen from damage. Make sure no objects press against the screen.

2 Assemble the parts of the stand body with the stand base of the TV.

Screw for assembly	Number of screws
M4 x 16	4

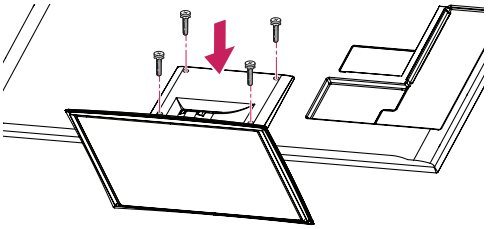


3 Assemble the parts of the stand rear cover with the TV.



4 Secure the TV and the stand with the 4 screws.

Screw for assembly	Number of screws
M4 x 16	4



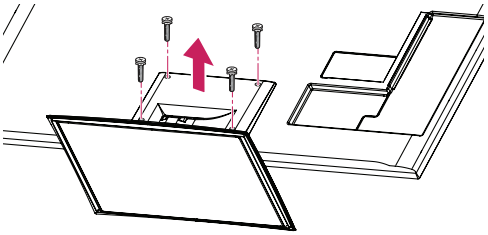
CAUTION

- Tighten the screws firmly to prevent the TV from tilting forward. Do not over tighten.

To detach the stand,

1 Lay the TV with the screen side down on a flat surface.

2 Remove the 4 screws and pull the stand away from the TV.



ENGLISH

LK530, LK550 series

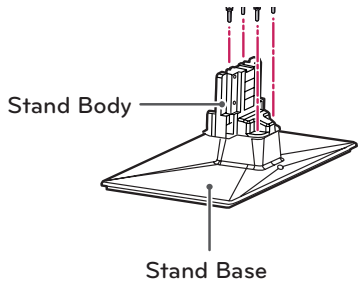
1 Lay the TV with the screen side down on a flat surface.

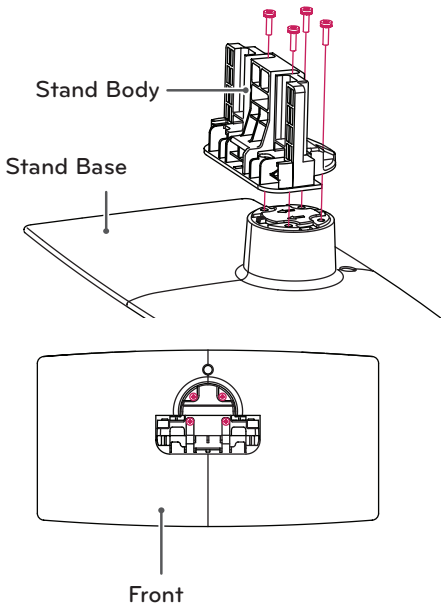
CAUTION

- Lay a foam mat or soft protective cloth on the surface to protect the screen from damage. Make sure no objects press against the screen.

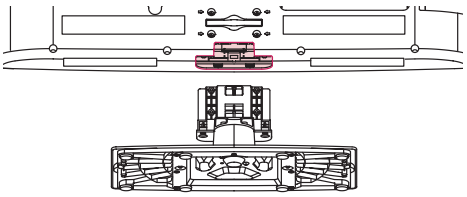
2 Assemble the parts of the stand body with the stand base of the TV.

Screw for assembly	Number of screws
M4 x 20	4



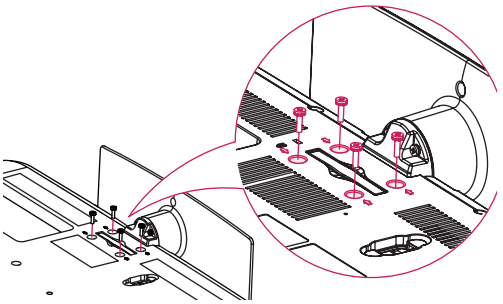


3 Assemble the TV as shown.



4 Secure the TV and the stand with the 4 screws.

Screw for assembly	Number of screws
M4 x 20	4



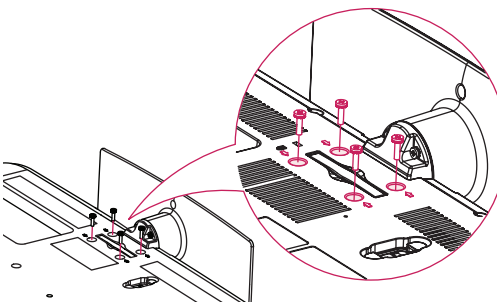
CAUTION

- Tighten the screws firmly to prevent the TV from tilting forward. Do not over tighten.

To detach the stand,

1 Lay the TV with the screen side down on a flat surface.

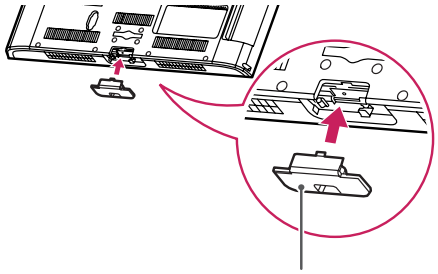
2 Remove the 4 screws and pull the stand away from the TV.



3 Push the supplied protection cover into the opening at the bottom of the TV until it locks in place.

This will protect the opening from accumulating dust and dirt.

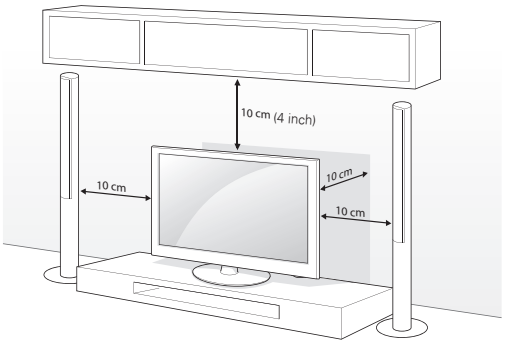
When installing the wall mounting bracket, use the Protection cover.



Protection cover

Mounting on a table

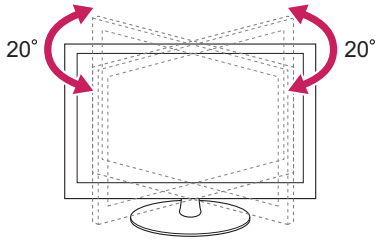
1 Lift and tilt the TV into its upright position on a table.
- Leave a 10 cm (4 inch) (minimum) space from the wall for proper ventilation.



2 Connect the power cord to a wall outlet.

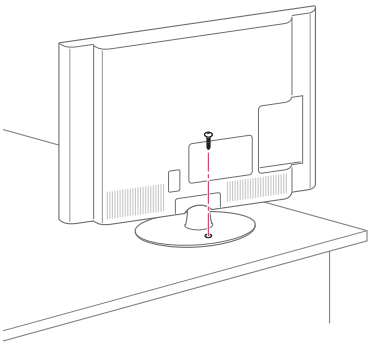
CAUTION
- Do not place the TV near or on sources of heat, as this may result in fire or other damage.

NOTE
- Swivel 20 degrees to the left or right and adjust the angle of the TV to suit your view.



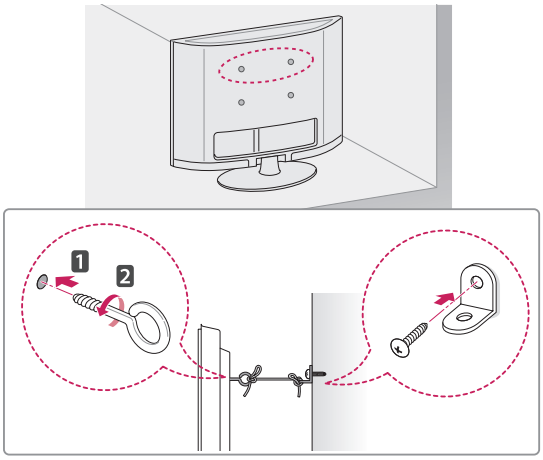
Securing the TV to a table

(For 32LW5700, 42LK530, 42LK550)
Fix the TV to a table to prevent from tilting forward, damage, and potential injury.
Mount the TV on a table, and then insert and tighten the supplied screw on the rear of the stand.



WARNING
- To prevent TV from falling over, the TV should be securely attached to the floor/wall per installation instructions. Tipping, shaking, or rocking the TV may cause injury.

Securing the TV to a wall (optional)



1 Insert and tighten the eye-bolts, or TV brackets and bolts on the back of the TV.
- If there are bolts inserted at the eye-bolts position, remove the bolts first.

2 Mount the wall brackets with the bolts to the wall.
Match the location of the wall bracket and the eye-bolts on the rear of the TV.

3 Connect the eye-bolts and wall brackets tightly with a sturdy rope.
Make sure to keep the rope horizontal with the flat surface.

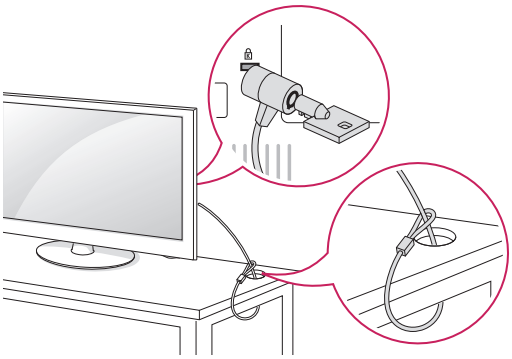
CAUTION
- Make sure that children do not climb on or hang on the TV.

NOTE
- Use a platform or cabinet that is strong and large enough to support the TV securely.
- Brackets, bolts and ropes are optional. You can obtain additional accessories from your local dealer.

Using the Kensington security system (optional)

The Kensington security system connector is located at the rear of the TV. For more information of installation and using, refer to the manual provided with the Kensington security system or visit *http://www.kensington.com*.

Connect the Kensington security system cable between the TV and a table.

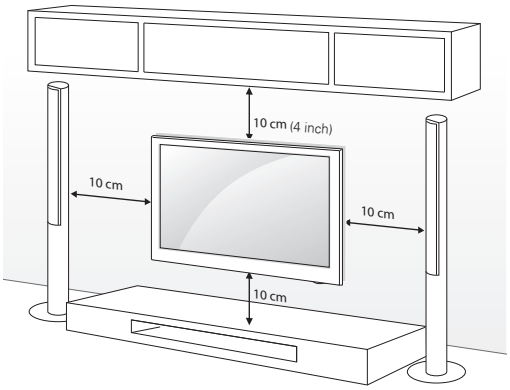


NOTE
- The Kensington security system is optional. You can obtain additional accessories from your local dealer.

ENGLISH

Mounting on a wall

Attach an optional wall mount bracket at the rear of the TV carefully and install the wall mount bracket on a solid wall perpendicular to the floor. When you attach the TV to other building materials, please contact qualified personnel. LG recommends that wall mounting be performed by a qualified professional installer.



Make sure to use screws and wall mount bracket that meet the VESA standard. Standard dimensions for the wall mount kits are described in the following table.

Model	50PZ750 50PZ950 50PZ950U	60PZ750 60PZ950 60PZ950U
VESA	400 x 400	600 x 400
Standard screw	M6	M8
Number of screws	4	4
Wall mount bracket (optional)	PSW400B, PSW400BG, DSW400BG	PSW600B, PSW600BG

Model	32LW5700	42/47LK550 42/47LK530
VESA	200 x 100	200 x 200
Standard screw	M4	M6
Number of screws	4	4
Wall mount bracket (optional)	LSW100B, LSW100BG	LSW200B, LSW200BG

Model	42/47/55LV3700 42/47/55LV5400 42/47/55LV5500 55LV9500 42/47/55LW5600 42/47/55LW5700 47/55LW6500 47/55LW9800 55LK530	65LW6500
VESA	400 x 400	600 x 400
Standard screw	M6	M8
Number of screws	4	4
Wall mount bracket (optional)	LSW400B, LSW400BG, DSW400BG	LSW600B

CAUTION

- Disconnect the power first, and then move or install the TV. Otherwise electric shock may occur.
- If you install the TV on a ceiling or slanted wall, it may fall and result in severe injury. Use an authorized LG wall mount bracket and contact the local dealer or qualified personnel.
- Do not over tighten the screws as this may cause damage to the TV and void your warranty.
- Use the screws and wall mount bracket that meet the VESA standard. Any damages or injuries by misuse or using an improper accessory are not covered by the warranty.

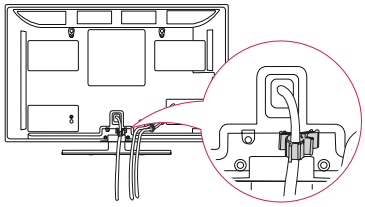
NOTE

- Use the screws that are listed on the VESA standard screw specifications.
- The wall mount kit includes an installation manual and necessary parts.
- The wall mount bracket is optional. You can obtain additional accessories from your local dealer.
- The length of screws may differ depending on the wall mount. Make sure to use the proper length.
- For more information, refer to the manual supplied with the wall mount bracket.

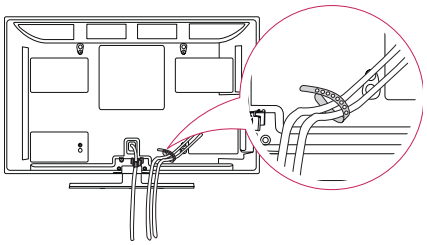
Tidying cables

PZ750, PZ950, PZ950U series

1 Install the power cord holder and power cord.
- It will help prevent the power cable from being removed by accident.



2 Gather and bind the cables with the cable holder.
Install the LAN cable as shown to reduce the electromagnetic wave.

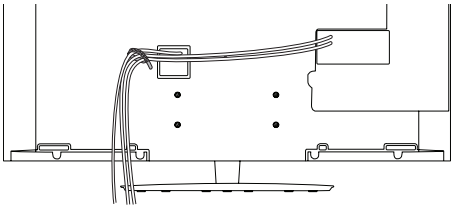


CAUTION

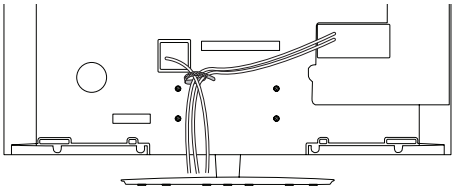
- Do not move the TV by holding the cable holder and power cord holder, as the cable holders may break, and injuries and damage to the TV may occur.

LV3700, LV5400, LV5500, LV9500, LW5600, LW5700, LW6500, LW9800 series

1 Gather and bind the cables with the cable holder on the TV back cover.



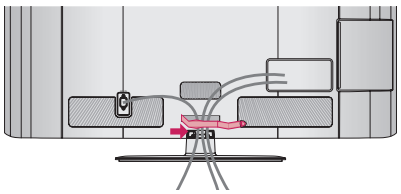
or



LK530, LK550 series

1 Gather and bind the cables with the cable management clip.

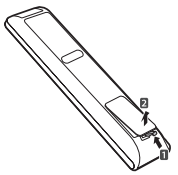
2 Fix the cable management clip firmly to the TV.



ENGLISH

REMOTE CONTROL

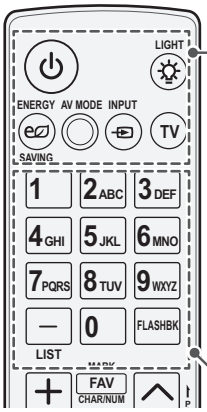
The descriptions in this manual are based on the buttons on the remote control.
Please read this manual carefully and use the TV correctly.
To replace batteries, open the battery cover, replace batteries (1.5 V AAA) matching the ⊕ and ⊖ ends to the label inside the compartment, and close the battery cover.
To remove the batteries, perform the installation actions in reverse.



CAUTION

- Do not mix old and new batteries, as this may damage the remote control.

Make sure to point the remote control toward the remote control sensor on the TV.



⏻ (POWER)
Turns the TV on or off.

LIGHT (Depending on model)
Illuminates the remote control buttons.

ENERGY SAVING (See p.88)
Adjusts the brightness of the screen to reduce energy consumption.

AV MODE (See p.46)
Selects an AV mode.

INPUT (See p.46)
Changes the input source; Turns the TV on.

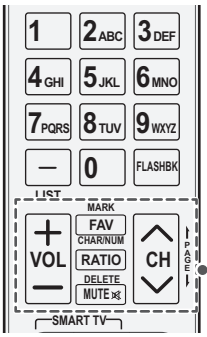
TV
Returns to the last TV channel.

Alphanumeric buttons
Enters letters and numbers.

LIST (See p.43)
Accesses the saved channel list.

- (Dash)
Inserts a dash between numbers such as 2-1 and 2-2.

FLASHBK
Alternates between the two last channels selected (pressing repeatedly).



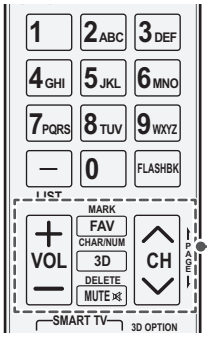
VOL
Adjusts the volume level.

MARK
Selects a menu or option.
FAV (See p.43)
Accesses your favorite channel list.
CHAR/NUM
Switches between Letter and Number input modes.

RATIO (See p.45)
Resizes an image.

MUTE
Mutes all sounds.
DELETE
Deletes letters and numbers.

CH
Scrolls through the saved channels.
PAGE
Moves to the previous or next screen.



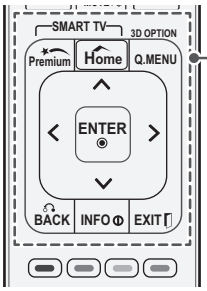
VOL
Adjusts the volume level.

MARK
Selects a menu or option.
FAV (See p.43)
Accesses your favorite channel list.
CHAR/NUM
Switches between Letter and Number input modes.

3D (for 3D TV) (See p.84)
Uses for viewing 3D video.

MUTE
Mutes all sounds.
DELETE
Deletes letters and numbers.

CH
Scrolls through the saved channels.
PAGE
Moves to the previous or next screen.



Premium
Accesses the Premium menus.

Home (See p.41)
Accesses the Home menu.

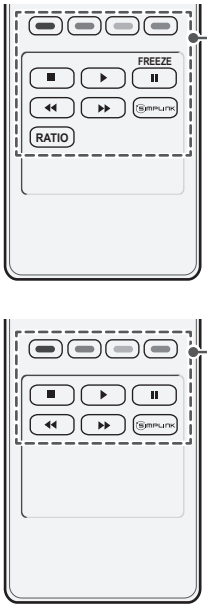
Q. MENU (See p.47)
Accesses the quick menu.
3D OPTION (for 3D TV)
Used for viewing 3D video.

Navigation buttons (up/down/left/right)
Scrolls through menus or options.
ENTER
Selects menus or options and confirms your input.

BACK
Returns to the previous level.

INFO
Views the information of the current program and screen.

EXIT
Clears all on-screen displays and returns to TV viewing.



Color buttons
These access special functions in some menus.

Control buttons
Controls the Premium contents, Smart Share menus, or the SIMPLINK compatible devices (USB, SIMPLINK).

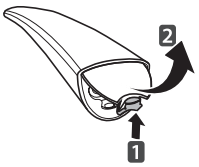
FREEZE (Plasma)
Freezes the current frame (Not supported when using USB Mode and Simplink).

SIMPLINK (See p.117)
Accesses the AV devices connected to the TV;
Opens the SIMPLINK menu.

RATIO (See p.45)
Resizes an image.

Magic Motion Remote Control Functions

LV3700, LV5400, LW5700, LK530, LK550 series: Supports the Magic Motion remote control, which is sold separately. Refer to the Magic Motion Remote Control manual for operating instructions.

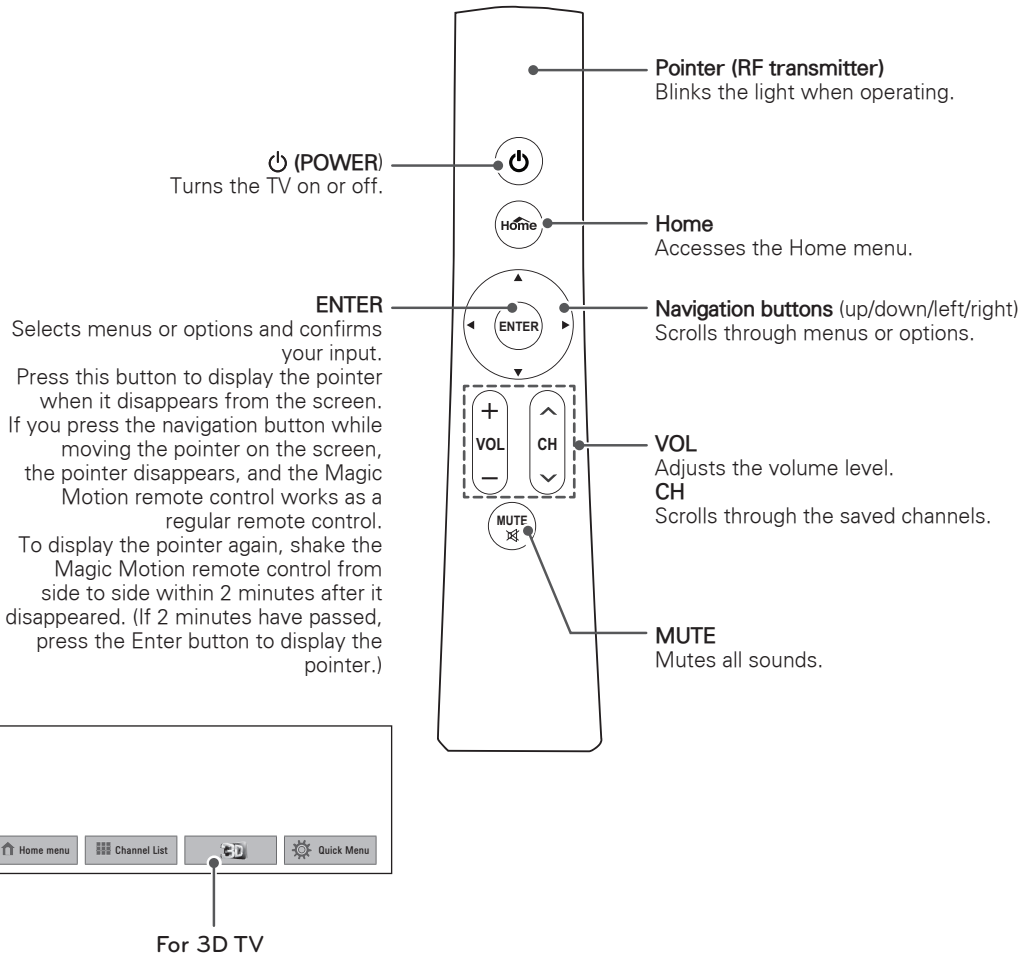


Please read this manual carefully and use the TV correctly.
When the message "Magic motion remote control battery is low. Change the battery." is displayed, replace the battery.
To replace batteries, open the battery cover, replace batteries (1.5 V AA) matching ⊕ and ⊖ ends to the label inside the compartment, and close the battery cover. Be sure to point the remote control at the remote control sensor on the TV.
To remove the batteries, perform the installation actions in reverse.

CAUTION

- Do not mix old and new batteries, as this may damage the remote control.

Make sure to point the remote control at the remote control sensor on the TV.



ENGLISH

Registering Magic Motion Remote Control

The Magic Motion Remote Control operates by pairing with your TV.
Register the Magic Motion Remote Control to use it.

How to register the Magic Motion Remote Control

To register the remote control, press the **ENTER** button on the remote control while aiming it at your TV.

How to Re-register the Magic Motion Remote Control after Registration Failure

Reset the remote control by pressing and holding both the **ENTER** and **MUTE** buttons for 5 seconds. (Once the reset is complete, the light on the Pointer blinks.) Then repeat the above procedure to register the remote control.

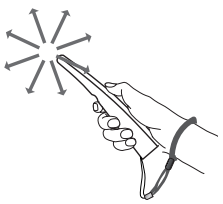
How to use Magic Motion Remote Control

1 Press **ENTER** button if there is no pointer on your TV screen. The pointer will then appear on the screen.
If the pointer has not been used for a certain period of time, it will disappear.

2 You can move the pointer by aiming the Pointer Receiver of the remote control at your TV then move it left, right, up or down.
If the pointer does not work properly after clicking the **ENTER** button, leave the remote control for 10 seconds then use it again.

Precautions to Take when Using the Magic Motion Remote Control

- Use the remote control within the maximum communication distance (10 m, 32.8ft). Using the remote control beyond this distance, or with an object obstructing it, may cause a communication failure.
- A communication failure may occur due to nearby devices. Electrical devices such as a microwave oven or wireless LAN product may cause interference, as this will use the same bandwidth (2.4 GHz) as the Magic Motion Remote Control.
- The Magic Motion Remote Control may be damaged or may malfunction if it is dropped or receives a heavy impact.
- When playing a game using the Magic Motion Remote Control, hold it securely by wrapping its strap around your wrist and adjusting the length with the adjustable ring.
- Take care not to bump into nearby furniture or other people when using the Magic Motion Remote Control.
- Manufacturer and installer cannot provide service related to human safety as the applicable wireless device has possibility of electric wave interference.
- It is recommended that an Access Point (AP) be located more than 1 m (3.28 ft) away from the TV. If the AP is installed closer than 1 m (3.28 ft), the magic motion remote control may not perform as expected due to frequency interference.



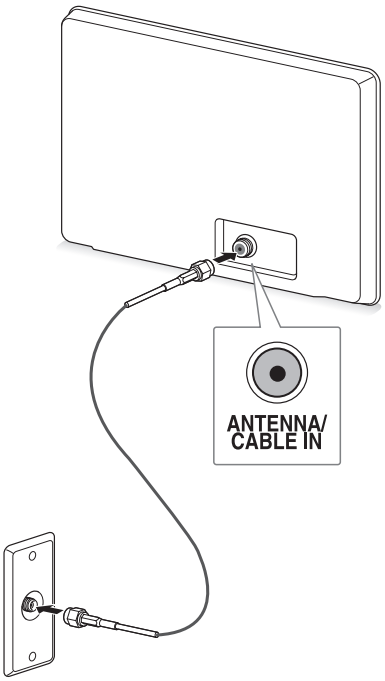
WATCHING TV

Connecting to an antenna or cable

Connect an antenna, cable, or cable box to watch TV while referring to the following. The illustrations may differ from the actual items and a RF cable is optional.

Connecting an antenna or basic cable

Connect the TV to a wall antenna socket with an RF cable (75 Ω).

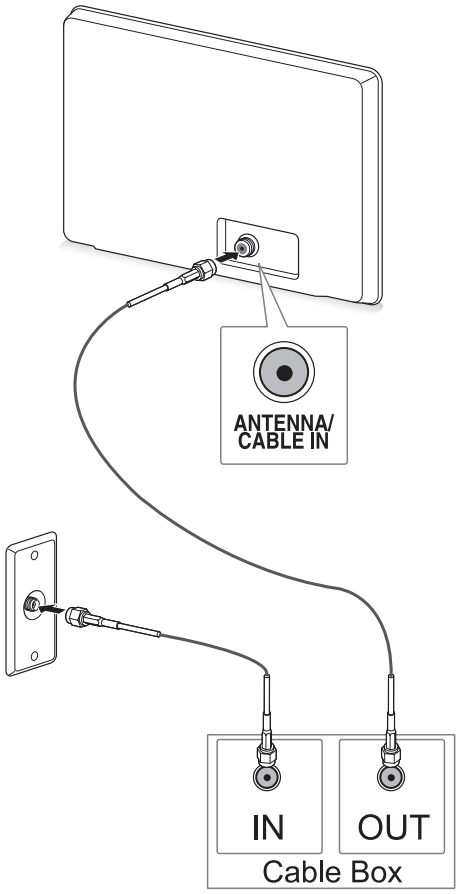


NOTE

- Use a signal splitter to use more than 2 TVs.
- Visit *http://lgknowledgebase.com* for more information about the antenna and cable connection. Search for antenna.

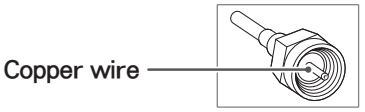
Connecting a cable box

Connect the TV to a cable box and the cable box to a wall antenna socket with 2 RF cables (75 Ω).



CAUTION

- Make sure not to bend the copper wire of the RF cable.



- Complete all connections between devices, and then connect the power cord to the power outlet to prevent damage to your TV.

ENGLISH

Turning the TV on for the first time

When you turn the TV on for the first time, the Initial setting screen appears. Select a language and customize the basic settings.

1 Connect the power cord to a power outlet.

2 In Standby mode, press the power button on the remote control to turn the TV on.
The Initial setting screen appears if you turn the TV on for the first time.

NOTE

- You can also access **Initial Setting** by accessing **OPTION** in the Home menu - SETUP.

3 Follow the on-screen instructions to customize your TV settings according to your preferences.

Language	Selects a language to display.
⇩	
Mode Setting	Selects **Home Use** for the home environment.
⇩	
Power Indicator	Sets the standby light. (For LED LCD TV)
⇩	
Time Zone	Selects the time zone and daylight saving.
⇩	
Network Setting	Sets your network to enable network-related feature on the TV. (For LV9500, LW9800 series)
⇩	
Auto Tuning	Scans and saves available channels automatically.

NOTE

- To display images in the best quality for your home environment, select **Home Use**.
- **Store Demo** is suitable for the retail environment.
- If you select **Store Demo**, the any customized settings will switch back to the default settings of **Store Demo** in 5 minutes.
- Power Indicator feature is disabled in Store Demo mode.

4 When the basic settings are complete, press **ENTER**.

NOTE

- If you do not complete the Initial setting, it will appear whenever the TV turns on.
- Disconnect the power cord from the power outlet when you do not use the TV for a long period of time.

5 To turn the TV off, press the power button on the remote control.

Watching TV

1 In Standby mode, press the power button on the remote control to turn the TV on.

2 Press **INPUT** and select **TV**.

3 Control the TV using the following buttons while you are watching TV.

Button	Description
CH (^, v)	Scrolls through saved channels.
LIST	Selects a channel on the saved or recent watched channel list.
0 - 9	Selects a channel by entering numbers.
VOL (+, -)	Adjusts the volume level.
MUTE	Mutes all sounds.
AV MODE[1]	Selects an AV mode (See p.46).
Q.MENU	Accesses the quick menus (See p.47).
FLASHBK	Alternates between the last two channels selected.
RATIO	Resizes an image (See p.45).
FREEZE (Plasma)	Freezes the current frame while you are watching TV

1 Each **AV mode** has the optimized image and sound settings. If you select **Off**, the image and sound settings will be restored to the previously customized settings.

4 To turn the TV off, press the power button on the remote control.
The TV switches to Standby mode.

Accessing Home Menu

1 Press **Home** to access the Home menu.

2 Press the Navigation buttons to scroll to one of the following menus and press **ENTER**.

3 Press the Navigation buttons to scroll to the setting or option you want and press **ENTER**.

4 When you are finished, press **EXIT**.



Option	Description
❶	Current Date, Time
❷	Channel program info
❸	Function card: You can enjoy various content files by selecting each card and you can edit the premium card by selecting 5 items.
❹	Function card position
❺	Sign In
❻	Exit
❼	Current watching channel screen
❽	INPUT, SETUP, FAVORITE menu.
❾	Launcher bar

ENGLISH

Managing channels

* The Digital broadcasting (DTV, Cable DTV) is not available for Philippines.

Setting up channels

Storing channels

To store channels automatically,

1 Press **Home** to access the Home menu.

2 Press the Navigation buttons to scroll to **SETUP** and press **ENTER**.

3 Press the Navigation buttons to scroll to **CHANNEL** and press **ENTER**.

4 Press the Navigation buttons to scroll to **Auto Tuning** and press **ENTER**.

5 Select **Start** to start automatic tuning.
The TV scans and saves available channels automatically.

6 When you are finished, press **EXIT**.
When you return to the previous menu, press **BACK**.

To store channels manually,

1 Press **Home** to access the Home menu.

2 Press the Navigation buttons to scroll to **SETUP** and press **ENTER**.

3 Press the Navigation buttons to scroll **CHANNEL** and press **ENTER**.

4 Press the Navigation buttons to scroll to **Manual Tuning** and press **ENTER**.

5 Scroll through the channel types, and then add or delete channels.

6 When you are finished, press **EXIT**.
When you return to the previous menu, press **BACK**.

NOTE

- If the TV scans a blocked channel, you will be prompted to enter your password to keep the channel scanned.
- You can store up to 1000 channels. The number of channels that you can store differs depending on the broadcasting signal environment.
- The channels are stored in the order of DTV, TV, Cable DTV and Cable TV.

Editing your channel list

1 Press **Home** to access the Home menu.

2 Press the Navigation buttons to scroll to **SETUP** and press **ENTER**.

3 Press the Navigation buttons to scroll to **CHANNEL** and press **ENTER**.

4 Press the Navigation buttons to scroll to **Channel Edit** and press **ENTER**.

5 Edit channels using the following buttons.

Button	Description	
^	Highlight the channel type (DTV, TV, Cable DTV, Cable TV).	
^, v, <, >	Scrolls through channel types or channels.	
ENTER	Edits channels.	
	Watch	Selects the highlighted channel to view.
	Set as Favorite	Registers or cancels the current channel in favorite channel list.
	Add/ Delete	Adds or deletes a channel. The deleted channel displays in blue.
	Block	Blocks or unblocks a channel.
CH (^, v)	Moves to the previous or next page.	
Red button	Selects your desired favorite channel group.	

6 When you are finished, press **EXIT**.
When you return to the previous menu, press **BACK**.

ENGLISH

Selecting a channel on the channel list

1 Press **LIST** to access the channel list.



Button	Description
<, >	Selects Channel list or Recent channel list.
^, v	Scrolls through channel.
ENTER	Selects the highlighted channel to view.
CH (^, v)	Moves to the previous or next page.
Red button	Edits Channel.
FAV	Moves to the favorite channel list.

2 When you are finished, press **EXIT**.
When you return to the previous menu, press **BACK**.

NOTE

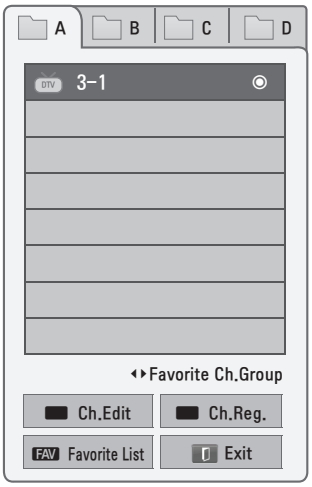
- If you select the blocked channel, you will be prompted to enter your password.

Using favorite channels

Add the channels that you watch frequently to the favorite list.

1 Select a channel to add to the favorite list.

2 Press **FAV**.



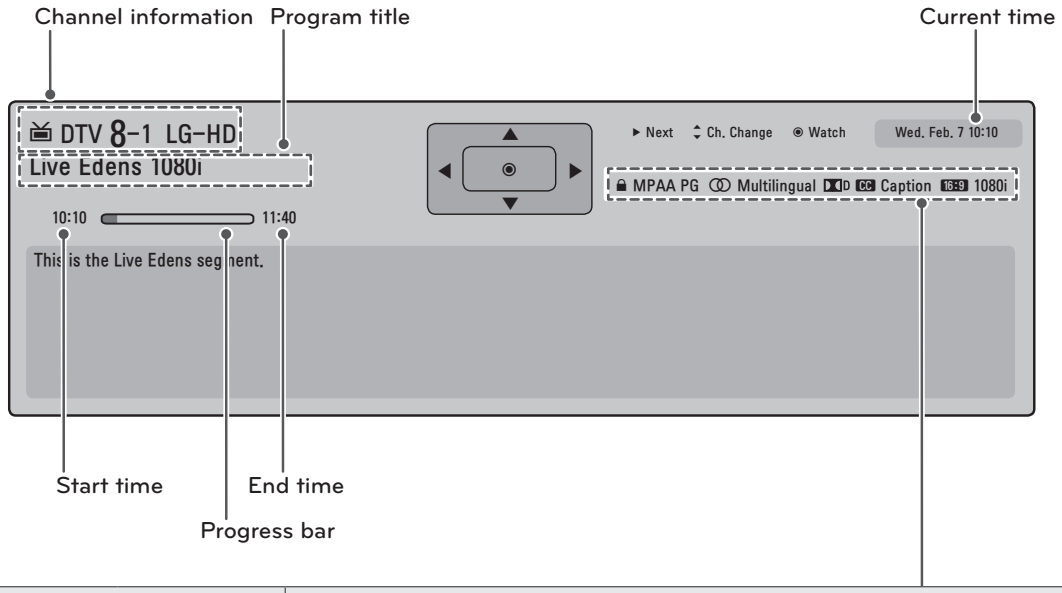
Button	Description
<, >	Selects a desired favorite channel group.
CH (^, v)	Moves to the previous or next page
Red button	Moves to the **Channel Edit**.
Green button	Registers or cancels the current channel.
FAV	Moves to the **Channel List**.

3 When you are finished, press **EXIT**.

ENGLISH

Checking current program info

Press **INFO** to view the information of the currently program while you are watching.
The following information appears at the bottom of the screen.



Icon		Description
Multilingual		The program contains two or more audio language services. You can change the audio language using the quick menu.
Dolby Digital	DD	The program contains a Dolby Digital audio signal in TV and HDMI input sources.
Dolby Digital Plus	DD+	The program contains a Dolby Digital Plus audio signal in TV and HDMI input sources.
Caption	CC	The program contains one or more language caption services. You can select a closed caption you want by using the quick menu.
Aspect ratio	4:3 16:9	The original aspect ratio of the video is 4:3. The original aspect ratio of the video is 16:9 (wide).
Resolution	480i 480p 720p 1080i 1080p	The video resolution is 720 x 480i. The video resolution is 720 x 480p. The video resolution is 1280 x 720p. The video resolution is 1920 x 1080i. The video resolution is 1920 x 1080p.
V-Chip		The program contains Lock information. Refer to the “TV Rating-General” (See p.97)

ENGLISH

Using additional options

Adjusting aspect ratio

Resize an image to view at its optimal size by pressing **RATIO** while you are watching TV.

NOTE

- You can also change the image size by pressing **Q. MENU** or accessing **Aspect Ratio** in the **PICTURE** menu.
- The available ratio varies depending on the input source.
  - The input sources: HDMI-PC and RGB-PC support 4:3 and 16:9.
  - The input sources: HDMI-PC 1920 X 1080 supports all of the aspect ratios.

- **16:9**: Resizes images to fit the screen width.



- **Just Scan**: Displays video images in the original size without cutting off the edges.



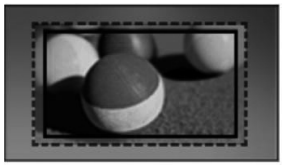
NOTE

- If you select Just Scan, you may see image noises at the edge or edges of the screen.
- The input sources: DTV, CADTV, Component, HDMI-DTV, and DVI-DTV (720p/1080i/1080p) support Just Scan.

- **Set By Program**: Displays images in the same aspect ratio as the original image.
- **4:3**: Resizes images to the previous standard.



- **Cinema Zoom**: Formats an image to the cinemascope ratio, 2.35:1.
  - To change the ratio of the cinema zoom, press < or > and its range is from 1 to 16.
  - To move the zoom focus up or down, press ∧ or ∨.



NOTE

- If you enlarge or reduce an image, the image may be distorted.

ENGLISH

Changing AV modes

Each **AV mode** has optimized image and sound settings.
Press **AV MODE** repeatedly to select an appropriate mode.

Mode	Description
Off	Changes to the previously customized settings
Cinema or THX Cinema	Use the optimized image and sound settings for the cinematic look
Sport ( )	Use the optimized image and sound settings for dynamic action sports.
Game	Use the optimized image and sound settings for fast gaming. When playing a video game using PlayStation or Xbox, it is recommended to use the Game mode. When in Game mode, functions related to picture quality will be optimized for playing games.

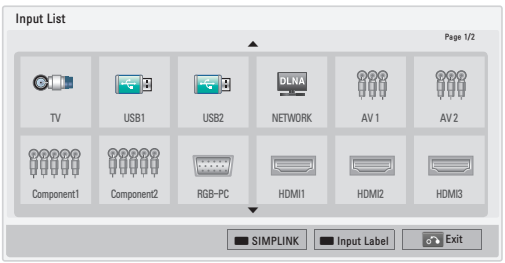
Using the input list

Selecting an input source

1 Press **INPUT** to access the input sources.
- The connected device displays on each input source.

NOTE
- You can also access the input source list by selecting **INPUT** in the **Home** menu.

2 Press the Navigation buttons to scroll to one of the input sources and press **ENTER**.



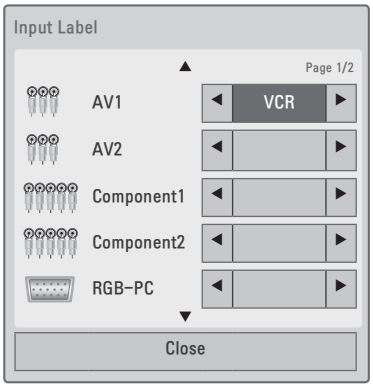
Input source	Description
TV	Watch TV over the air, cable, and digital cable broadcast.
USB	Play media files from a thumb drive.
NETWORK	Play media files from your home network.
AV	Watch video from a VCR or other external devices.
Component	Watch video from a DVD or other external devices, or through a digital set-top box.
RGB-PC	Use the TV as a computer monitor.
HDMI	Watch video from a HTS or other high definition devices.

The disconnected input sources will be gray.
- To add an input label, press the Green button. You can easily identify a device connected to each input source.
- If you connect a new external device to the TV, a pop-up window appears. Select **Yes** on the pop-up window to select an input source.
- To access the SIMPLINK, press the Red button. If you select "SIMPLINK and On", the pop-up window for the HDMI input will not display.

ENGLISH

Adding an Input label

Add a label to an input source so that you can easily identify a device connected to each input source.



1 Press **INPUT** to access the input sources.

2 Press the Green button.

3 Press the Navigation buttons to scroll to one of the input sources.

4 Press the Navigation buttons to scroll to one of the input labels.

5 When you are finished, press **EXIT**.
When you return to the previous menu, press **BACK**.

Using the quick menu

Customize frequently used menus.

1 Press **Q. MENU** to access the quick menus.

2 Press the Navigation buttons to scroll through the following menus and press **ENTER**.

Menu	Description
Aspect Ratio	Changes the image size.
Picture Mode	Changes the image mode.
Sound Mode	Changes the sound mode.
Sleep Timer	Sets the length of time until the TV to turns off.
Caption	Activates or deactivate the subtitles
Multi Audio	Changes the audio language (Digital signal)
SAP	Changes the MTS sound (Analog signal)
Energy Saving	Reduces the power consumption by adjusting the screen brightness.
AV Mode	Sets the optimized image and sound settings.
Del/Add	Edits the channels to add or delete the channel.
USB Device	Eject a USB device. The menu is displayed only when the USB device is connected.

NOTE

- The available menus and options may differ from the input source or product model that you are using.

3 Press the Navigation buttons to scroll to the option you want.

4 When you are finished, press **Q. MENU**.

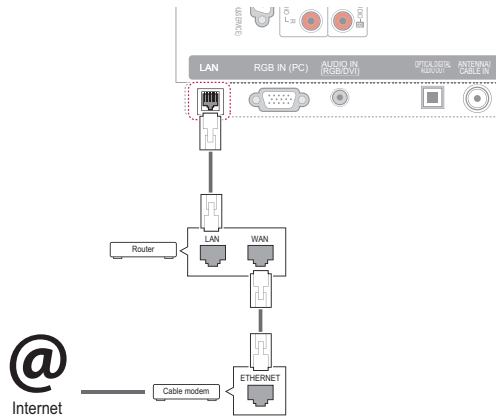
ENGLISH

ENTERTAINMENT

Network Connection

Connecting to a wired network

Connect the TV to a local area network (LAN) via the LAN port as shown in the following illustration and set up the network settings.
If wired and wireless networks are both available, wired is the preferred method.
After making a physical connection, a small number of home networks may require the TV network settings to be adjusted. For most home networks, the TV will connect to automatically without any adjustments.
For detail information, contact your internet provider or router manual.



CAUTION

- Do not connect a modular phone cable to the LAN port.
- Since there are various connection methods, please follow the specifications of your telecommunication carrier or internet service provider.
- After connecting the LAN port, use the Premium or LG Apps menu.

To set up the network settings: (Even if your TV has already connected automatically, running setup again will not harm anything)

1. Press **Home** to access the Home menu.
2. Press the Navigation buttons to scroll to **SETUP** and press **ENTER**.
3. Press the Navigation buttons to scroll to **NETWORK** and press **ENTER**.
4. Press the Navigation buttons to select **Network Setting** and press **ENTER**.
5. If wired and wireless are simultaneously connected, press the Navigation buttons to select **Wired** and press **ENTER**.
6. If you have already set the Network Setting, select **Resetting**. The new connection settings will reset the current network settings.
7. Select **IP Auto Setting** or **IP Manual Setting**.
   - If selecting **IP Manual Setting**, press the Navigation and Number buttons. IP addresses will need to be input manually.
   - **IP Auto Setting**: Select this if there is a DHCP server (Router) on the local area network (LAN) via wired connection, the TV will automatically be allocated an IP address. If you're using a broadband router or broadband modem that has a DHCP (Dynamic Host Configuration Protocol) server function. The IP address will automatically be determined.
   - **IP Manual Setting**: Select if there is no DHCP server on the network or you want to set the IP address manually.
8. When you are finished, press **EXIT**.

ENGLISH

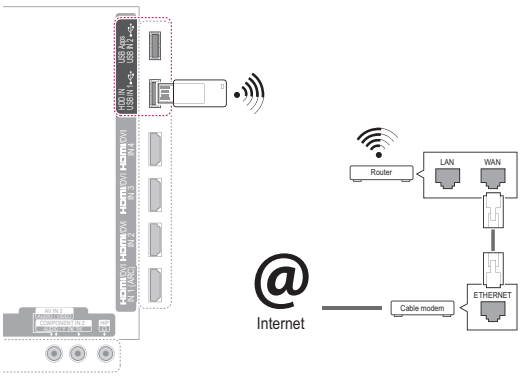
NOTE

- If you want to access the Internet directly on your TV, the broadband internet connection should always be on.
- If you cannot access the Internet, check the network conditions from a PC on your network.
- When you use **Network Setting**, check the LAN cable or check if DHCP in the router is turned on.
- If you do not complete the network settings, the network may not work properly.

Connecting to a wireless network

The LG Wireless LAN for Broadband/DLNA Adaptor allows the TV to connect to a wireless LAN network.
The network configuration and connection method may vary depending on the equipment in use and the network environment. Refer to the setup instructions supplied with your access point or wireless router for detailed connection steps and network settings.
Setting up the AP (Access Point) or the wireless router is required before connecting the TV to the network. The easiest method is the WPS button method (Third method in this section).

(LV9500, LW9800 series: Built-in the Wi-Fi Module, Unnecessary **Wireless LAN for Broadband/DLNA adaptor** setup)



NOTE

- For enjoying pictures, music, or video stored on a PC using the router, a wired connection is recommended.
- When the wireless port of the router is used, there may be restrictions on some functions.
- It is recommended that an Access Point (AP) be located more than 1 m (3.28 ft) away from the TV. If the AP is installed closer than 1 m, the magic motion remote control may not perform as expected due to frequency interference.

ENGLISH

To set up the network settings,

1 Press **Home** to access the Home menu.

2 Press the Navigation buttons to scroll to **SETUP** and press **ENTER**.

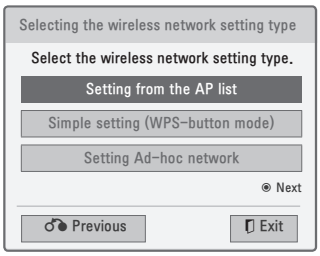
3 Press the Navigation buttons to scroll to **NETWORK** and press **ENTER**.

4 Press the Navigation buttons to select **Network Setting** and press **ENTER**.

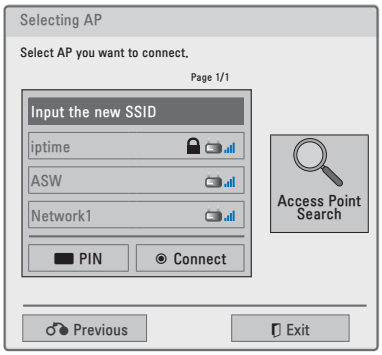
5 Press the Navigation buttons to select **Wireless** and press **ENTER**.

6 If you already set Network Setting, select **Resetting** and press **ENTER**.
The new connection settings resets the current network settings.

7 Press the Navigation buttons to select **Setting from the AP list** and press **ENTER**.
- Scan the all available AP (Access Point) or wireless routers within range and display them as a list.



8 Press the Navigation buttons to select an AP (Access Point) or wireless router on the list. (If your AP is secured, you will prompted for the key.) And press **ENTER**.



9 Press the Number buttons to Input the security key of AP and press **ENTER**.

When a security code is already set

PIN (Personal Identification Number)

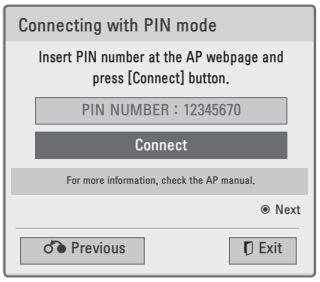
If your router is set to use a PIN, use the following instructions.

1 Repeat step 1-7 on "Connecting to a wireless network".

2 Press the Red button to connect the access point with **PIN** mode.

3 You can see the Network ID and Security Key on your TV screen.
Enter the PIN number to your device.
PIN number is the unique 8 digit number of the dongle.

4 Press **ENTER** to select **Connect**.



5 Repeat step 6-7 on "Connecting to a wired network".

WPS (Wi-Fi Protected Setup)

If your router or AP has a WPS button, it is the easiest connection method. You simply press the button on the router and then select the WPS on the TV within 120 seconds.

1 Repeat step 1-7 on "Connecting to a wireless network".

2 Press the Navigation buttons to select the **Simple setting (WPS-button mode)**.

3 Press the WPS button on your router.

4 Go back to the TV and select **Connect**.

5 Repeat step 6-7 on "Connecting to a wired network".

Ad-hoc Mode

Ad-hoc mode allows the TV to use a wireless to connect to a computer without using a router or access point.

1 Repeat step 1-5 on "Connecting to a wireless network".

2 Press the Navigation buttons to select **Setting** **Ad-hoc network** and press **ENTER**.

3 Press the Navigation buttons to select **Enter** and press **ENTER**.

4 Press **ENTER** to select **Connect** to connect Ad-hoc network.
- You can see the Network ID and Security Key on your TV screen.
- Enter this Network ID and Security Key to your device.
- When needed, you can change the setting information using the Red button.

NOTE

When searching for wireless networks on your PC using ad-hoc, the TV is named LGTV10.
- LGTV10 that appears in the list. (Select the same name as the network ID that appears on your TV screen.)

5 Press the Navigation buttons to type in an IP address and press **ENTER**.

Option	Description
PC Setting	• Internet Protocol(TCP/IP) of PC needs to be set manually. IP address, Subnet Mask, and default Gateway can be set with your own discretion. » e.g.) IP address: 192.168.0.1 / Subnet Mask: 255.255.255.0 / default Gateway: 192.168.0.10
TV Setting	• Verify IP address and gateway of PC. Input Gateway address of PC to IP Address, and IP Address of PC to Gateway, and select Enter. » e.g.) IP address: 192.168.0.10 / Subnet Mask: 255.255.255.0 / default Gateway: 192.168.0.1

6 Press the Navigation buttons to select **Close** after Network setting is completed.

7 Press the **ENTER**.

ENGLISH

Tips for Network setting

- Use a standard LAN cable with this TV. Cat5 or better with a RJ45 connector.
- Many network connection problems during set up can often be fixed by re-setting the router or modem. After connecting the player to the home network, quickly power off and/or disconnect the power cable of the home network router or cable modem. Then power on and/or connect the power cable again.
- Depending on the internet service provider (ISP), the number of devices that can receive internet service may be limited by the applicable terms of service. For details, contact your ISP.
- LG is not responsible for any malfunction of the TV and/or the internet connection feature due to communication errors/malfunctions associated with your broadband internet connection, or other connected equipment.
- LG is not responsible for problems within your internet connection.
- Some content available through the network connection may not be compatible with the TV. If you have questions about such content, please contact the producer of the content.
- You may experience undesired results if the network connection speed does not meet the requirements of the content being accessed.
- Some internet connection operations may not be possible due to certain restrictions set by the Internet service provider (ISP) supplying your broadband Internet connection.
- Any fees charged by an ISP including, without limitation, connection charges are your responsibility.
- A 10 Base-T or 100 Base-TX LAN port is required when using a wired connection to this TV. If your internet service does not allow for such a connection, you will not be able to connect the TV.
- A DSL modem is required to use DSL service and a cable modem is required to use cable modem service. Depending on the access method of and subscriber agreement with your ISP, you may not be able to use the internet connection feature contained in this TV or you may be limited to the number of devices you can connect at the same time. (If your ISP limits sub-scription to one device, this TV may not be allowed to connect when a PC is already connected.)
- The use of a "Router" may not be allowed or its usage may be limited depending on the policies and restrictions of your ISP. For details, contact your ISP directly.
- The wireless network operates at 2.4 GHz radio frequencies that are also used by other household devices such as cordless telephone, Bluetooth® devices, microwave oven, and can be affected by interference from them.It can be interrupted by the device using 5 Ghz radio frequencies. It is same device with LG wireless media box, cordless telephone, other Wi-Fi device.
- It may decrease the service speed using Wireless network by surrounding wireless condition.
- Turn off all unused network equipment in your local home network. Some devices may generate network traffic.
- In some instances, placing the access point or wireless router higher up away from the floor may improve the reception.
- The reception quality over wireless depends on many factors such as type of the access point, distance between the TV and access point, and the location of the TV.
- To connect wireless AP, an AP that supports the wireless connection is necessary, and the wireless connection function of the AP needs to be activated. Please enquire to the AP supplier for the possibility of AP wireless connections.
- Please verify the security settings of AP SSID for wireless AP connection, and enquire to the AP supplier for the AP SSID security settings.
- The TV can become slower or malfunction with wrong settings of network equipments (wired/wireless router, hub, etc). Please install correctly by referring to the manual of the equipment, and set the network.
- When AP is set to include 802.11 n, and if Encryption is designated as WEP(64/128bit) or WPA(TKIP/AES), the connection may not be possible. There may be different connection methods according to the AP manufacturers.

Network Status

1 Press **Home** to access the Home menu.

2 Press the Navigation buttons to scroll to **SETUP** and press **ENTER**.

3 Press the Navigation buttons to scroll to **NETWORK** and press **ENTER**.

4 Press the Navigation buttons to select **Network Status**.

5 Press **ENTER** to check the network status.

Option	Description
Setting	Return to the network setting menu or wireless network setting type menu.
Test	Test the current network status after setting the network.
Close	Return to the previous menu.

Premium Account Function

LG's Premium technology allows you to access a variety of online services or content directly on your TV. Your TV offers instant streaming of movies, weather, videos, and photo album services with a Premium account and an Internet connection.
Enjoy entertainment including not only entertainment content, but also up-to-the minute news, weather updates, photo management, and more by simply using the TV's remote control without a separate PC.

1 Press **Premium** to access the Premium option.

2 Press the Navigation buttons to scroll to the content you want and press **ENTER**.



Option	Description
❶	Moves to the weather setting screen.
❷	Sign into the premium service.
❸	Moves to the previous menu screen.
❹	Returns to TV viewing.
❺	Selects your desired online service. • If a service requires you to log in, you must first sign up for the service on your computer and then log into the service on the TV.
❻	Launcher bar

3 Enjoy the premium features.

Notice

- These services are provided by separate content providers.
- Please visit the content providers web site for specific information on their service.
- Premium menu can differ by country.
- Note that content may be updated automatically depending on the service provider, so the content layout or operation method may change without notice. Please refer to the help menu on the screen.
- All information, data, documents, communications, downloads, files, text, images, photographs, graphics, videos, webcasts, publications, tools, resources, software, code, programs, applets, widgets, applications, products and other content ("Content") and all services and offerings ("Services") provided or made available by or through any third party (each a "Service Provider") is the sole responsibility of the Service Provider from whom it originated.
- The availability of and access to Content and Services furnished by the Service Provider through the LGE Device are subject to change at any time, without prior notice, including, but not limited to the suspension, removal or cessation of all or any part of the Content or Services.
- Should you have any inquiry or problem related to the Content or Services, you may refer to the Service Provider's website for the most up-to-date information. LGE is neither responsible nor liable for customer service related to the Content and Services. Any question or request for service relating to the Content or Services should be made directly to the respective Content and Service Providers.
- Please note that LGE is not responsible for any Content or Services provided by the Service Provider or any changes to, removal of, or cessation of such Content or Services and does not warrant or guaranty the availability of or access to such Content or Services.

- Some content may be harmful to minors depending on the service provider. Parental guidance is necessary.
- The service may be interrupted if the Internet connection is unstable. Please check the connection status if you experience this problem.
- The videos list searched from the TV may different with the list searched from a web browser on PC.
- The playback of videos may pause, stop, or buffer depending on your broadband speed.
- For service that requires log in, join the applicable service on the website using a PC and log in through the TV to enjoy various additional functions.
- For Plasma TV: If there is no user action 2 minutes following freezing image or video on screen, the screensaver will activate itself preventing a fixed image remaining on screen.

Legal Notice

IMPORTANT NOTICE RELATING TO NETWORK SERVICE

All content and services accessible through this device belong to third parties and are protected by copyright, patent, trademark and/or other intellectual property laws. Such content and services are provided solely for your personal noncommercial use. You may not use any content or services in a manner that has not been authorized by the content owner or service provider. Without limiting the foregoing, unless expressly authorized by the applicable content owner or service provider, you may not copy, upload, post, transmit, translate, sell, modify, create derivative works, or distribute in any manner or medium any content or services displayed through this device.

YOU EXPRESSLY ACKNOWLEDGE AND AGREE THAT THE DEVICE AND ALL THIRD PARTY CONTENT AND SERVICES ARE PROVIDED "AS IS" WITHOUT WARRANTY OF ANY KIND, EITHER EXPRESS OR IMPLIED. LG ELECTRONICS EXPRESSLY DISCLAIMS ALL WARRANTIES AND CONDITIONS WITH RESPECT TO ANY CONTENT AND SERVICES, EITHER EXPRESS OR, IMPLIED, INCLUDING BUT NOT LIMITED TO, WARRANTIES OF MERCHANTABILITY, OF SATISFACTORY QUALITY, FITNESS FOR A PARTICULAR PURPOSE, AND NON-INFRINGEMENT OF THIRD PARTY RIGHTS. LG DOES NOT GUARANTEE THE ACCURACY, VALIDITY, TIMELINESS, LEGALITY, OR COMPLETENESS OF ANY CONTENT OR SERVICE MADE AVAILABLE THROUGH THIS DEVICE AND DOES NOT WARRANT THAT THE DEVICE OR SERVICES WILL MEET YOUR REQUIREMENTS, OR THAT OPERATION OF THE DEVICE OR SERVICES WILL BE UNINTERRUPTED OR ERROR-FREE. UNDER NO CIRCUMSTANCES, INCLUDING NEGLIGENCE, SHALL LG BE LIABLE, WHETHER IN CONTRACT OR TORT, FOR ANY DIRECT, INDIRECT, INCIDENTAL, SPECIAL OR CONSEQUENTIAL DAMAGES, OR ANY OTHER DAMAGES ARISING OUT OF, ANY INFORMATION CONTAINED IN, OR ANY CONTENT OR SERVICE ACCESSED BY YOU OR ANY THIRD PARTY, EVEN IF ADVISED OF THE POSSIBILITY OF SUCH DAMAGES.

Third party services may be changed, suspended, removed, terminated or interrupted, or access may be disabled at any time, without notice, and LG makes no representation or warranty that any content or service will remain available for any period of time. Content and services are transmitted by third parties by means of networks and transmission facilities over which LG has no control. LG may impose limits on the use of or access to certain services or content, in any case and without notice or liability. LG expressly disclaims any responsibility or liability for any change, interruption, disabling, removal of or suspension of any content or service made available through this device.

LG is neither responsible nor liable for customer service related to the content and services. Any question or request for service relating to the content or services should be made directly to the respective content and service providers.

LG Apps function

This feature is not available for all country.
Additional applications can be downloaded from the LG App Store.
These functions may be not available for a certain period of time depending on country or product model. In such cases, the buttons may be disabled.
They are enabled when the services are available.



Option		Description
❶	Sign In, Sign out	Sign in or sign out to the premium service.
❷	Exit	Returns to TV viewing.
❸	LG Apps	Moves to the LG Apps.
❹		Moves to the LG Apps you want directly.
❺	Search	These functions may be not available for a certain period of time depending on country or product model. In such cases, the buttons may be disabled. They are enabled when the services are available.
❻	Web Browser	
❼	Media Link	
❽	Quick Apps.	Stores the most frequently used apps among all downloads. To change the list of Quick Apps, see “Using My Apps”.
❾	My Apps.	Moves to My Apps. You can browse all apps installed, change the list of Quick Apps, and select and play the app you want.

Registration LG Apps

1 Press **Home** to access the Home menu.

2 Press Red button to register.
- You can only register as a free member from your TV.

3 Create your ID and password.
Press the Navigation buttons to select alphabet and number and select **OK**.

4 The registration is completed.

NOTE

- If you wish to become a paid member or change your information, please use your PC and visit *http://www.lgappstv.com*.

ENGLISH

Sign in with LG Apps account

To enjoy the LG Apps with your account, you need sign in with the LG Apps account.

1 Press **Home** to access the Home menu.

2 Press Red button to sign in.
It displays the keyboard menu for entering ID and password.
- If you are not a member, press **Red** button again. You can only register as a free member from your TV.

3 Press the Navigation buttons to scroll to the alphabet or number and press **ENTER**.
- If you check "Auto Sign In", you are automatically logged in whenever you turn on TV.

4 Enjoy the LG Apps.
You can enjoy Premium service, LG Apps, My Apps and much more.

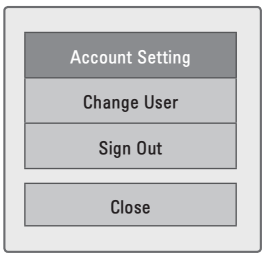
NOTE

- You can download a paid app on up to five TVs.

ID Management

1 After sign in, press **Red** button again.
A pop-up window will appear.

2 Press the Navigation buttons to scroll to the desired menu option and press **ENTER**.



3 Manage the ID by using following menu.

Option	Description
Account Setting	Checks basic information, apps you purchased and apps installed on your TV.
Change User	Changes your account.
Sign Out	Sign out the premium service.

Using LG Apps

1 Press **Home** to access the Home menu.

2 Sign in on your TV.

3 Press the Navigation buttons to scroll to the LG Apps and press **ENTER**.

4 Edit the Apps by using following menu.



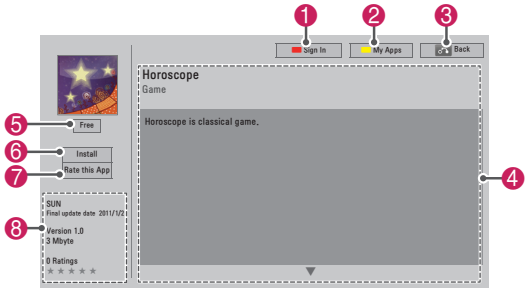
Option		Description
❶	**Sign in/out**	Sign in or out to use the LG Apps.
❷	**Search**	Search the LG Apps.
❸	**My Apps.**	Move to My Apps.
❹	**Back**	Move to the previous screen.
❺	**Exit**	Exit the LG Apps.
❻	**Apps Sorting**	• Hot: Most downloaded apps in the past 7 days • New: Most recently released apps • Top Paid: Most downloaded paid apps • Top Free: Most downloaded free apps • All: Alphabetical order • Moves to the previous or next page using CH (^, v) button.
❼	**Apps Category**	Shows the LG Apps category (All, Game, Entertainment, Life, Education, News/Info.)
❽	**Live TV**	Watches the current channel.

Purchasing and Installing Apps.

Log in first to purchase apps.

1 Press the Navigation buttons to select Apps you want and press **ENTER**.
You can see the information of the App.

2 Press **Purchase** to buy a App.



Option		Description
❶	**Sign in/out**	Sign in or out to use the LG Apps.
❷	**My Apps.**	Move to My Apps.
❸	**Back**	Move to the previous screen.
❹	**App description**	Shows the description of the current Apps.
❺	**Fee**	Shows the fee of the current app.
❻	**Install**	Install or purchase the App. You can purchase an app on either your PC or TV, but it can be installed and played only on the TV. • If you want to purchase a paid app, you need to sign up as a paid member on www.lgappstv.com. • If the available space of your TV is not enough, you can download apps in the USB storage device by connecting it to the USB IN 2 port. • You can play, delete or move the apps stored in the USB storage device on the My Apps screen.
❼	**Rate this App**	Rate the app you purchased with stars.
❽	**App info.**	Shows the creator/program version/update date/volume/ rating of the current Apps.

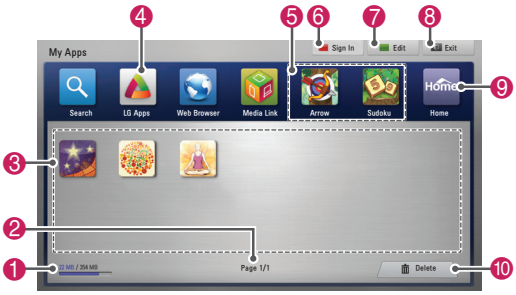
NOTE

- To store apps in the USB storage device, make sure that it is connected to the USB IN 2/USB Apps port.
- Up to 1000 apps can be stored as USB apps.
- The USB storage device containing apps cannot be used for storing other types of data.

Using My Apps

1 Enter the LG Apps after sign in.

2 Press the Navigation buttons to scroll to **My Apps.** and press **ENTER**.



Option	Description
❶	Shows the amount of used and available memories.
❷	Current page number/total number of pages of My Apps.
❸	Shows the downloaded apps. Moves to the previous or next page using CH (^, v) button.
❹	Moves the LG Apps.
❺	Quick Apps.
❻	Sign In the LG Apps. After sign in, manage the ID option (Account Setting, Change User, Sign Out).
❼	Edit the My Apps.
❽	Exit the My Apps.
❾	Move to the Home menu.
❿	Delete the Apps.

Search

(This feature is not available for all country.)
The search option supports LG apps and PLEX content. It will also work with some premium services that provide metadata.

1 Connect to the network.

2 Press **Home** to access the Home menu.

3 Press the Navigation buttons to scroll to **Search** and press **ENTER**.

4 Use the on-screen keyboard to type in your desired search term and press Q.



Option	Description
❶	Input the word you would like to search here.
❷	Show words similar to the input words. Select one of the similar words to enter it in the input field and search for it.
❸	Clear the search term.
❹	Move to the previous screen.
❺	Exit the search.
❻	On-screen keyboard.
❼	Start the search after inputting the search term.

5 Press the Navigation buttons to select the desired searched results.



Option	Description
❶	Show the searched results. This option is available only for LG apps, PLEX content and some premium services.
❷	Shows detailed information on the selected search result.
❸	Move to the previous screen.
❹	Exit the Search.

ENGLISH

Web Browser Function

(This feature is not available for all country.)
The Web Browser allows you to view Web pages on your TV.

More information about the Web Browser

- The web browser on this device supports Flash 8 and earlier.
- The web browser on this device does not support platform-dependent technologies such as ActiveX.
- The web browser on this device only supports preinstalled plug-ins.
- The web browser on this device may not support media formats other than the following: JPEG / PNG / GIF / WMV (ASF) / WMA / MP3 / MP4
- Some Web pages may exceed the memory allotment of the Web Browser. The Web Browser will close when this happens.
- The web browser on this device uses a single built-in font. Some text may not be displayed as intended.
- The web browser on this device does not support downloading of files or fonts.
- The web browser on this device is a TV browser. It may work differently to PC browsers.

Using Web Browser

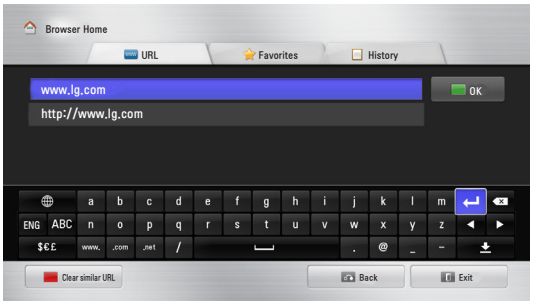
1 Connect to the network.

2 Press **Home** to access the Home menu.

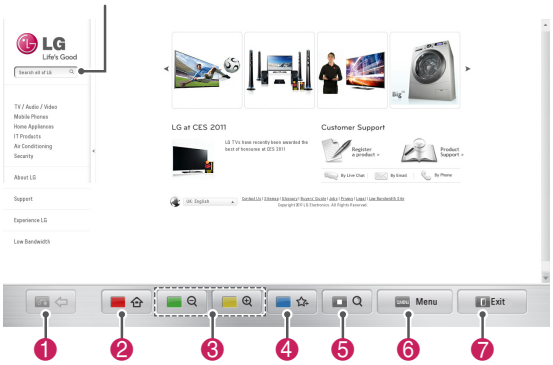
3 Press the Navigation buttons to scroll to the **Web Browser** and press **ENTER**.

4 Press the Navigation buttons to scroll to the **URL** and press **ENTER**.

5 Press the Navigation buttons to scroll to the desired the URL and press **ENTER**.



6 You can browse websites on your TV.
Select the browser input window to display the keyboard at the bottom of the screen.



Option	Description
❶	Move to the previous page.
❷	Move to the Favorites screen.
❸	Zoom the screen in or out.
❹	Add the current web page to Favorites.
❺	Move to the search screen.
❻	Move to the previous/next page in the list of recently viewed web pages. You can change the URL address to move to other websites. You can delete the list and cookies of recently viewed web pages.
❼	Exit the web browser.

ENGLISH

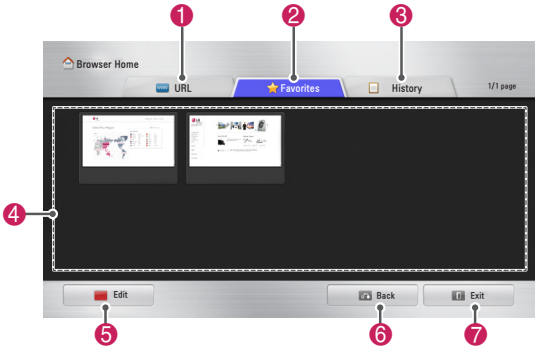
Browsing Favorite Websites

1 Connect to the network.

2 Press **Home** to access the Home menu.

3 Press the Navigation buttons to scroll to the **Web Browser** and press **ENTER**.

4 Press the Navigation buttons to scroll to the **Favorites** and press **ENTER**.
- By adding frequently visited websites to Favorites, you can browse them easily.



Option	Description
❶	Browse a website by directly entering the URL address.
❷	Select a website in Favorites.
❸	View the list of recently viewed web pages.
❹	Select a site to browse.
❺	Edit Favorites. • Move: Change the order in Favorites. • Rename: Rename the sites added to Favorites. • Delete: Remove the sites from Favorites.
❻	Move to the previous screen.
❼	Exit the web browser.

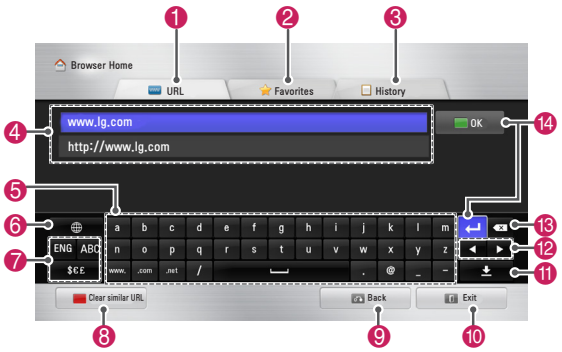
Browsing Websites by Directly Entering Address

1 Connect to the network.

2 Press **Home** to access the Home menu.

3 Press the Navigation buttons to scroll to the **Web Browser** and press **ENTER**.

4 Press the Navigation buttons to scroll to the **URL** and press **ENTER**.
- You can browse a website by directly entering the URL address.



Option	Description
❶	Browse a website by directly entering the URL address.
❷	Select a website in Favorites.
❸	View the list of recently viewed web pages.
❹	Enter the URL address. If the address entered is similar to any of the sites previously visited, a drop-down list will be displayed.
❺	Use the keyboard to enter the address. Select characters to enter.
❻	Select the keyboard language.
❼	Change the keyboard.
❽	Clear the similar addresses appearing below the address input field.
❾	Move to the previous page.
❿	Exit the web browser.
⓫	Hide the keyboard. Select the address input field to display the keyboard again.
⓬	Move the cursor left or right.
⓭	Delete the text before the cursor, one character at a time.
⓮	Press this after entering the address to go to the website.

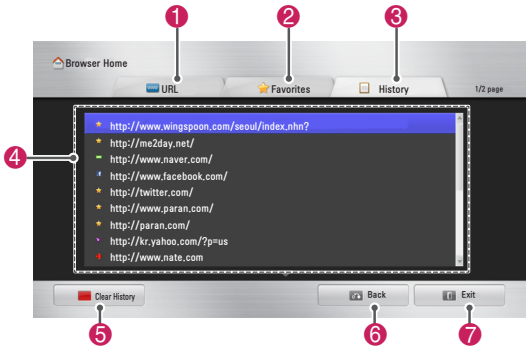
Viewing Visited Website List

1 Connect to the network.

2 Press **Home** to access the Home menu.

3 Press the Navigation buttons to scroll to the **Web Browser** and press **ENTER**.

4 Press the Navigation buttons to scroll to the history and press **ENTER**.
- You can view the addresses of the websites you visited previously. Select an item to move to the page.



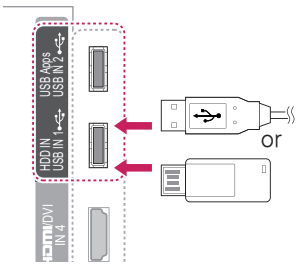
Option	Description
❶	Browse a website by directly entering the URL address.
❷	Select a website in Favorites.
❸	View the list of recently viewed web pages.
❹	Display a list of recently visited pages. Select an item to move to the page.
❺	Clear the visited website list.
❻	Move to the previous screen.
❼	Exit the web browser.

ENGLISH

Smart Share Function

Connecting USB storage devices

Connect USB storage devices such as a USB flash drive or external hard drive to the TV and use multimedia features (See "Browsing files"). Connect a USB flash drive or USB memory card reader to the TV as shown in the following illustration.



To disconnect a USB storage device, make sure to end the connection properly to prevent damages to the TV or files.

1 Press **Q.MENU** to access the quick menus.

2 Press the Navigation buttons to scroll to **USB Device** and press **ENTER**.

3 Disconnect the USB storage device only when the message says that it is safe to remove.

CAUTION

- Do not turn the TV off or remove a USB storage device while the USB storage device is connected to the TV, as this could result in loss of files or damage to the USB storage device.
- Back up your files saved on a USB storage device frequently, as you may lose or damage the files and this may be not covered by the warranty.

Tips for using USB storage devices

- The TV recognizes only a USB storage device.
- If you connect a USB storage device to the TV through a USB hub, your TV may not recognize the USB storage device.
- The TV may not recognize a USB storage device that requires a special driver.
- The recognition speed of a USB storage device may differ depending on the device.
- Only use a USB storage device which has normal music or image files.
- Use only USB storage devices that are formatted as a FAT 32 or NTFS file system.
- You may need to connect a USB storage device to an external power supply with a power adapter.
- If the TV does not recognize a connected USB storage device, replace the cable and try again. Do not use an excessively long cable.
- The TV does not support some USB storage devices properly.
- You can use a multi-partition (up to 4) USB storage device.
- You can use up to 4 USB storage devices at a time by using a USB multi-card reader.
- The file alignment method of a USB storage device is similar to the one of Window XP.
- You cannot create or delete a folder saved in a USB storage device directly on the TV.
- The number of characters for a file name is up to 100 English characters.
- Up to 1000 including folders and files can be recognized.
- If there are too many folders and files in one folder, it may not operate properly.
- The recommended capacity for a USB external hard disk is 1 TB or less and for a USB storage device is 32 GB or less.
- If a USB external hard disk with the Energy Saving feature does not work, turn the USB external hard disk off and on again to make it work properly. For more information, refer to the user manual of the USB external hard disk.
- USB storage devices below USB 2.0 are supported as well. But they may not work properly in the movie list.
- The electrostatic can cause USB device's malfunction. In this case, USB Device has to be plugged again.

Connecting DLNA DMP (Digital Living Network Alliance, Digital Media Player)

This TV can display and play many types of movie, photo and music files from your DLNA server and has been certified by DLNA.
The Digital Living Network Alliance (DLNA) is a cross-industry organization of consumer electronics, computing industry and mobile device companies. Digital Living provides consumers with easy sharing of digital media through a wired or wireless network in the home.
The DLNA certification logo makes it easy to find products that comply with the DLNA Interoperability Guidelines. This unit complies with DLNA Interoperability Guidelines v1.5. When a PC running DLNA server software or other DLNA compatible device is connected to this TV, some setting changes of software or other devices may be required. Please refer to the operating instructions for the software or device for more information.
Please refer to "Smart Share Function" for additional information on supported file types and other instructions.

NOTE

- The supplied Nero MediaHome 4 Essentials CD-ROM is a customized software edition only for sharing files and folders to this TV.
- The supplied Nero MediaHome 4 Essentials software does not support following functions: Transcoding, Remote UI, TV control, Internet services and Apple iTunes
- This manual explains operations with the English version of Nero MediaHome 4 Essentials as examples. Follow the explanation referring to the actual operations of your language version.
- If there are too many folders and files in one folder, it may not operate properly.
- For the DLNA option, use the Nero MediaHome program that is provided with the TV. However, we cannot guarantee that third party program will work perfectly.
- You can select a channel while viewing the small preview channel list on your TV screen.
- Check your network settings when the DLNA option does not work properly.
- If there is an abnormal operation or an error occurs in Nero Media Home, the DLNA option may not work properly. In this case, exit Nero Media Home and restart the program. You can download the latest version of Nero Media Home by clicking the question mark at the bottom-left of the program.
- When the network is unstable, the device may be slower or may need to load during playback.
- When playing a video in DLNA mode, the Multi Audio and Closed Caption features are not supported.
- When selecting Full Screen in DLNA mode, the ratio of the outputted screen may differ from the original.
- When more than one TV is connected to a single server in DLNA mode, a file may not play properly, depending on the server performance.
- If the play time information is not provided by the server, it is displayed as "- -."

Installing Nero MediaHome 4 Essentials

Nero MediaHome 4 Essentials is an easy to use DLNA server software for Windows.

Computer requirements for Nero MediaHome 4 Essentials

- Windows® XP (Service Pack 2 or higher), Windows Vista® (no Service Pack required), Windows® XP Media Center Edition 2005 (Service Pack 2 or higher), Windows Server® 2003 (Service Pack 1 or higher)
- Windows® 7 Home Premium, Professional, Enterprise or Ultimate (32 and 64-bit)
- Windows Vista® 64-bit edition (application runs in 32-bit mode)
- Windows® 7 64-bit edition (application runs in 32-bit mode)
- Hard drive space: 200 MB hard drive space for a typical installation of Nero MediaHome stand-alone
- 1.2 GHz Intel® Pentium® III or AMD Sempron™ 2200+ processors
- Memory: 256 MB RAM
- Graphics card with at least 32 MB video memory, minimum resolution of 800 x 600 pixels, and 16-bit color settings
- Windows® Internet Explorer® 6.0 or higher
- DirectX® 9.0c revision 30 (August 2006) or higher
- Network environment: 100 Mb Ethernet, WLAN (IEEE 802.11g), or faster

1 Start up your computer.

2 Close all Microsoft Windows programs and exit any anti-virus software that may be running.

3 Insert the Nero MediaHome 4 Essentials CD-ROM into your computer's CD-ROM drive.

4 Click **Nero MediaHome 4 Essentials**. The installation wizard will appear.

5 Click the **Next** button to display the serial number input screen. Click **Next** to go to the next step.

6 If you accept all conditions, click **I accept the License Conditions** check box and click **Next**. Installation is not possible without this agreement.

7 Click **Typical** and click **Next**. The installation process is started.

8 If you want to take part in the anonymous collection of data, select the check box and click the **Next** button.

9 Click the **Exit** button to complete the installation.

Sharing files and folders

After installing Nero MediaHome, you must add folders you wish to share.

1 Double-click the Nero MediaHome 4 Essentials icon on the desktop.

2 Click Network icon on the left and define your network name in the Network name field. The Network name you enter will be recognized by your TV.

3 Click Shares icon on the left.

4 Click Local Folders tab on the Shared screen.

5 Click Add icon to open the Browse Folder window.

6 Select the folder containing the files you want to share. The selected folder is added to the list of shared folders.

7 Click Start Server icon to start the server.

NOTE

- If the shared folders or files are not displayed on the TV, click the folder on the Local Folders tab and click **Rescan Folder** at the **More** button.
- Visit *http://www.nero.com* for more information and software tools.

Playing Shared Media

You can display and play movie, photo and music content stored on your computer or other DLNA media servers.

1 Press **Home** to access the Home menu.

2 Press the Navigation buttons to scroll to **Smart Share** and press **ENTER**.

3 Press the Navigation buttons to scroll to the device you want and press **ENTER**.

4 Press the Navigation buttons to select **DLNA**. Depending on the media server, this TV may need to get the permission from the server.

Tips for using DLNA DMP

- To play the file on the media server, the TV and the media server must be connected to the same access point.
- File requirements and playback functions on the Smart Share may differ depending on the media server used.
- There may be some restrictions by file features and the media server that restrict playback.
- Movie thumbnail is only supported when DLNA server supports a Movie thumbnail.
- If there is an unplayable music file in the Smart Share menu, the TV will skip the file and play next file.
- Files in a folder can be played only when they are of the same type.
- The file information indicated on the screen may not always correct for music and movie files in Smart Share menu
- This TV only supports movie subtitle files supplied by Nero MediaHome 4.
- The subtitle file name and movie file name have to be the same and located in the same folder.
- If subtitle files have been added after a directory has been indexed already, the user has to remove and re-add the folder to the list of shares.
- The DRM/*.tp/*.trp file in DLNA server is not played while Movie List is in operation.
- MPO files are not played when Photo List is in operation.
- The playback and operating quality of the Smart Share function may be affected by your home network condition.
- The files from removable media such as USB drive, DVD-drive etc. on your media server may not share properly.
- When playing the Media through DLNA connection, it does not support files protected by DRM.
- Up to 1000 including folders and files can be recognized.
- If there are too many folders and files in one folder, it may not operate properly.
- The DLNA function is not available in some routers which do not support multicasting. For more information, refer to your router manual or contact the manufacturer.

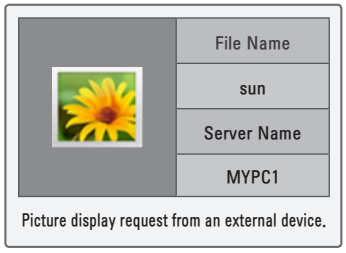
Connecting DLNA DMR (Digital Living Network Alliance, Digital Media Render)

This supports remote playing of media files. Media from a compatible device (Windows 7, Mobile Phone with PlayTo, or other compatible DLNA-DMC device) can be "pushed" to the TV.

The DMR function only works properly when the TV and PC are on the same local network.

1 To play a file, select the file by using the "Remote Play" feature in Windows 7.
To do this, right-click on the file you want to play.

2 You can play a file only on a single TV set or device even though multiple devices are connected. The playback speed depends on the network status.



NOTE

- Subtitle is supported only on some DMC devices.
- The DMR function may not work properly in a wireless network.
- The seek function of the DMC only works on video files.
- The DMR is not available when another function is operating (recording, playback or Smart Share work etc.).
- Refer to the owner's manual of the mobile phone or other device to find out how to use it to play a file.
- You can change the name of a connected TV by double-clicking the item you want to change in Control Panel > Network and Internet > View network computers and devices (For Windows 7).
- You cannot change the name of a TV while DMR media is playing. Change it when playback is stopped.

Browsing files

Access the photo, music, or movie lists and browse files.

1 Connect a USB storage device.

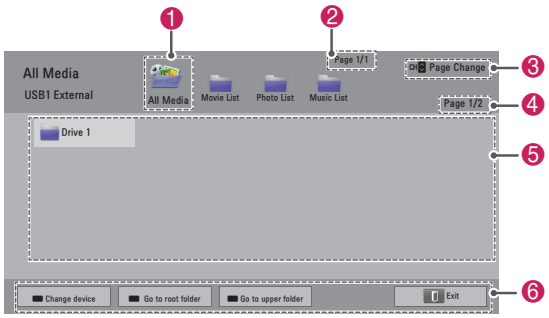
2 Press **Home** to access the Home menu.

3 Press the Navigation buttons to scroll to **Smart Share** and press **ENTER**.

4 Press the Navigation buttons to scroll to the device you want and press **ENTER**.

5 Press Navigation buttons to scroll to **All Media**, **Movie List**, **Photo List**, or **Music List** and press **ENTER**.
- **All Media**: Shows all files in the file list.
- **Movie List**, **Photo List**, or **Music List:** Shows only one type of file in the file list.

6 Press Navigation buttons to select a folder or file you want.



No.	Description
❶	Shows all media folders.
❷	Current page number/total number of pages.
❸	Moves to the previous or next page.
❹	Current page number/total number of pages.
❺	Files info or thumbnail.
❻	Available buttons on the remote control.

Thumbnail information

Type	Abnormal files	Non-supported files
Video		
Photo		
Music		

Tips for using USB storage devices

Type	Supported File Formats			
Video	• MPG, MPEG, DAT, TS, TRP, TP, VOB, MP4, MOV, MKV, DivX, AVI, ASF, WMV, M4V • Max bitrate of playable movie file: 20 Mbps (Mega bit per second) • Bit rate of audio format: within 32 kbps to 320 kbps (MP3) • Supported external subtitle format: *.smi, *.srt, *.sub (MicroDVD, SubViewer 1.0/2.0), *.ass, *.ssa, *.txt (TMPlayer), *.psb (PowerDivX) • Supported Internal subtitle format: only XSUB (It is the subtitle format made in DivX files), Text UTF- 8, SRT, ASS, SSA (It is the subtitle format used in DivX-Plus HD files)			
Photo	• Do not use the progressive option when saving JPG files on your PC. • It may take some time to open high-resolution images in full screen.			
		File Extensions	Item	Profile
	2D	jpeg jpg jpe	Supported file format	• SOF0: baseline • SOF1: Extend Sequential • SOF2: Progressive
			Photo size	• Min: 64 x 64 • Max - Normal Type: 15360 (W) x 8640 (H) • Progressive Type: 1920 (W) x 1440 (H)
	3D (For 3D TV)	mpo	Supported file format	• mpo
			Photo size	• 4:3 size: 3,648 x 2,736, 2,592 x 1,944, 2,048 x 1,536 • 3:2 size: 3,648 x 2,432
Music	• MP3 • Bit rate range: 32 Kbps - 320 Kbps • Sampling rate (Sampling Frequency) MPEG1 layer 3: 32 kHz, 44.1 kHz, 48 kHz MPEG2 layer 3: 16 kHz, 22.05 kHz, 24 kHz * A copy-protected file will not play.			

ENGLISH

Viewing Videos

Play video files on the TV. Your TV can display video files from a USB storage device.

1 Press **Home** to access the Home menu.

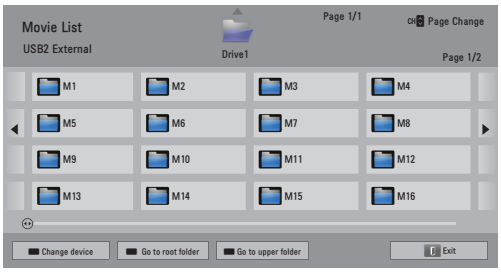
2 Press the Navigation buttons to scroll to **Smart Share** and press **ENTER**.

3 Press the Navigation buttons to scroll to the device you want and press **ENTER**.

4 Press the Navigation buttons to scroll to **Movie List** and press **ENTER**.

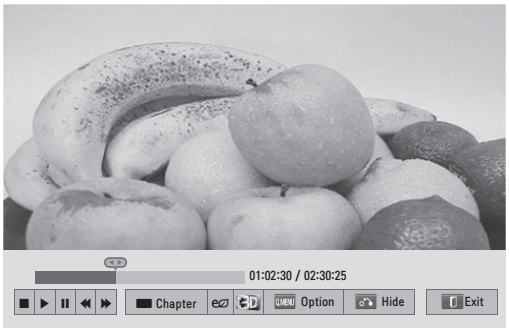
5 Press Navigation buttons to select a folder or file you want and press **ENTER**.

6 Play a movie by using the following menus/ buttons.



Button	Description
Navigation button	Scrolls through the files.
ENTER	Plays the highlighted file.
CH (∧, ∨)	Moves to the previous or next page.
Red button	Change device: Changes to a different input.
Green button	Go to root folder.
Yellow button	Go to upper folder.

7 Control playback by using the following buttons.



Button	Description
■	Stops the playback.
▶	Plays a video.
❚❚	Pauses or resumes the playback
◀◀	Scans backward in a file
▶▶	Scans forward in a file
❚❚ and ▶▶	Plays videos in slow motion
Red button and < or >	Selects the frame directly. The entire file is divided into 10 frames. Frames may not be displayed depending on the file.
ENERGY SAVING	Increases or decreases the brightness of your screen.
Q.MENU	Shows the Option menu (See p.72).
3D (For 3D TV)	Views the 3D imaging.
AV MODE	Select the desired source
BACK	Hides the menu on screen. To see the menu again, press **ENTER** button to display.
EXIT	Moves to the previous menu screen.

Tips for playing video files

- The TV does not support the files encoded in Motion JPEG.
- Some user-created subtitles may not work properly.
- Subtitles may not display some special characters or HTML tags.
- Changing font and color in subtitles is not supported.
- Subtitles in non-supported languages are unavailable.
- Video files with subtitle files of 1 MB or larger may not be played properly.
- The screen may suffer from temporary interruptions such as image stoppage or faster playback when you change the audio language.
- If you play a damaged video file, the video file may not be played correctly or some player functions may not be unavailable.
- The TV may not properly play the video files produced with certain encoders.
- If the recorded file does not have video or audio, either video or audio is not outputted.
- If the TV plays the recorded file without video or audio, either video or audio is not outputted.
- The TV may not smoothly play the video files with a resolution higher than the supported resolution for each frame.
- The TV may not properly play the video files not included on the specified type and format.
- The TV may not play the files encoded with GMC (Global Motion Compensation) or quarter-pel motion estimation.
- The TV supports the only 10,000 sync blocks within the subtitle file.
- The TV supports the H.264/AVC codec up to the profile level 4.1.
- The TV does not support DTS audio codec.
- The TV cannot play a video file whose size is larger than 30 GB.
- If you play a video file through the USB connection that does not support the high speed, the video player may not work properly.
- The video file and its subtitle should be in the same folder and the name of the video file and subtitle should be identical.
- The TV may not play the video files in the supported file format depending on the encoded condition.
- Trick Mode does not support other functions than ⏩ if video files do not have index information.
- Video file names that contain special characters may not be playable.
- For 3D WMV files encoded in dualstream, 3D mode is not supported. (For 3D TV)

Q.MENU options for movie list

1 Press **Q. MENU**.
A pop-up window will appear.

2 Press the Navigation buttons to scroll to the option and press **ENTER**.

3 Press the Navigation buttons to scroll to one of the following options and press **ENTER**.

Set Video Play.

Option	Description
Picture Size	Selects your desired picture format for videos. • **Full Mode**: Files are played in full screen mode according to the aspect ratio of video. • **Original Mode**: Files are played in their native size.
Audio Language	Changes the Language Group of the audio for video files. Files with a single audio track cannot be selected.
Subtitle Language	The subtitles can be turned on or off.
Language	Activated for SMI subtitles and can select the language within the subtitle.
Code Page	Subtitle font selection. When set to default, contents are displayed in the language set in "Option - Language - Menu Language."

Option	Description
Subtitle Language Group	Latin1: English, Spanish, French Korean: English, Korean
Sync	If the video is not synchronized with the captions, it can be adjusted by 0.5 second.
Position	Move the location of the subtitles.
Size	Changes the subtitle font size.

Repeat	Turn on/off repeat function of movie playback. When turned on, the file within the folder will be played back repeatedly. When turned off, if the next file name is similar to the previous file, it can be played sequentially.

NOTE

- Option values changed in Movie List does not affect Photo List and Music List.
- Option value changed in Photo List and Music List are changed likewise in Photo List and Music List excluding Movie List.
- When replaying a video file after stopping, select "Yes" to restart where it previously stopped.
- If continuous series files exist within the folder, the next file will automatically be played. But, this excludes cases when the Repeat function of Movie List Option is turned "On".

Set Video.

Allows you to change Video presets (Refer to "PICTURE Settings" on page 88).

Set Audio.

Allows you to change Audio presets (Refer to "AUDIO Settings" on page 93).

Set DivX PLUS HD

These options are enabled only when the movie file being played has the title, edition and authored chapter information.

Option	Description
Title	For files with more than one title, select the title you want to play.
Edition	For files with more than one edition, select the edition you want to play. • An edition refers to the playback order set based on the chapters.
Authored Chapter	Select and play the chapter you want.

DivX registration code

Registering the DivX code

The DivX registration code allows you to rent or purchase the latest movies at *www.divx.com/vod*. To play a rented or purchased DivX file, the file's registration code should be same as your TV's DivX registration code.

1 Press **Home** to access the Home menu.

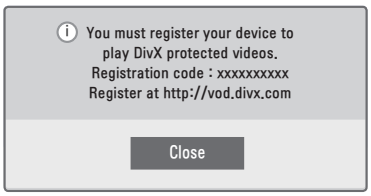
2 Press the Navigation buttons to scroll to **SETUP** and press **ENTER**.

3 Press the Navigation buttons to scroll to **OPTION** and press **ENTER**.

4 Press the Navigation buttons to scroll to **Smart Share Setting** and press **ENTER**.

5 Press the Navigation buttons to scroll to **DivX VOD Registration** and press **ENTER**.

6 View the registration code of your TV.



7 When you are finished, press **EXIT**.

NOTE

- While you are checking the registration code, some buttons may not work.
- If you use the DivX registration code of another device, you cannot play the rented or purchased DivX file. Make sure to use the DivX registration code assigned to your TV.
- The video or audio files that are not converted by the standard DivX codec may be corrupted or not be played.
- The DivX VOD code allows you to activate up to 6 devices under one account.

Deactivating the DivX feature

You can deactivate all of the devices through the web server and block devices from activating. Delete the existing authentication information to receive a new DivX user authentication for the TV. Once this function is executed, a DivX user authentication is required again to see DivX DRM files.

1 Press **Home** to access the Home menu.

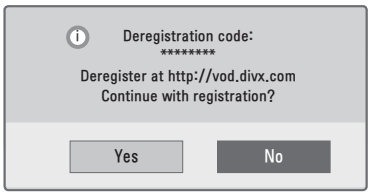
2 Press the Navigation buttons to scroll to **SETUP** and press **ENTER**.

3 Press the Navigation buttons to scroll to **OPTION** and press **ENTER**.

4 Press the Navigation buttons to scroll to **Smart Share Setting** and press **ENTER**.

5 Press the Navigation buttons to scroll to **DivX Deregistration** and press **ENTER**.

6 Select **Yes** to confirm.



7 When you are finished, press **EXIT**.

ENGLISH

Viewing Photos

You can view image files saved on a USB storage device. The displays on the screen may based on the from the model.

1 Press **Home** to access the Home menu.

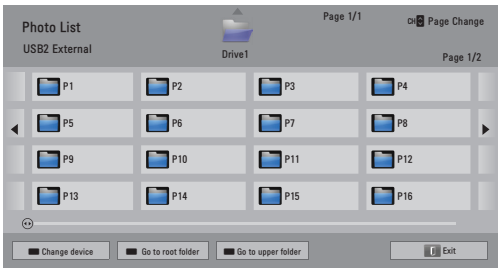
2 Press the Navigation buttons to scroll to **Smart Share** and press **ENTER**.

3 Press the Navigation buttons to scroll to the device you want and press **ENTER**.

4 Press the Navigation buttons to scroll to **Photo List** and press **ENTER**.

5 Press Navigation buttons to select a folder or file you want and press **ENTER**.

6 View a photo by using the following menus/ buttons.



Button	Description
Navigation button	Scrolls the file.
ENTER	Views the highlighted file.
CH (∧, ∨)	Moves to the previous or next page.
Red button	Change device: Changes to a different input.
Green button	Go to root folder.
Yellow button	Go to upper folder.

7 The following options are available while viewing photos.



Option	Description
Slideshow	• Starts or stops a slideshow. • All photos saved in the current folder display during a slideshow. • To set a slideshow speed, select Option.
BGM (Background Music)	• Turns the background music on or off. To set the background music folder, select Option.
( )	Displays the current photo in Original, Monotone, Sepia, Oil Painting and Vignetting.
↻ **(Rotate)**	Rotates photos clockwise (90°, 180°, 270°, 360°). **NOTE** • The supported photo size is limited. You cannot rotate a photo if the resolution of the rotated width is larger than the supported resolution size.
	Views the photo in full mode or original mode.
(ENERGY SAVING)	Increases or decreases the brightness of your screen.
3D (For 3D TV)	Views the 3D images.
Option	Shows the Option menu (See p.75).
Hide	Hides the option window. To display the options, press **ENTER**.
Exit	Moves to the previous menu screen.

Q.MENU options for photo list

1 Press **Q. MENU**.
A pop-up window will appear.

2 Press the Navigation buttons to scroll to the option and press **ENTER**.

3 Press the Navigation buttons to scroll to one of the following options and press **ENTER**.

Set Photo View.

Option	Description
Slide Speed	Selects a slideshow speed (Fast, Medium, Slow).
BGM	Selects a music folder for the background music. Select Repeat or Random option. **NOTE** • You cannot change the music folder while the background music is playing.

NOTE

- Option values changed in Photo List do not affect Movie List and Music List.
- Option values changed in Photo List or Music List are changed likewise in Photo List and Music List, but not Movie List

Set Video.

Allows you to change Video settings. (Refer to "PICTURE Settings" on page 88).

Set Audio.

Allows you to change Audio settings. (Refer to "AUDIO Settings" on page 93).

ENGLISH

Listening to music

1 Press **Home** to access the Home menu.

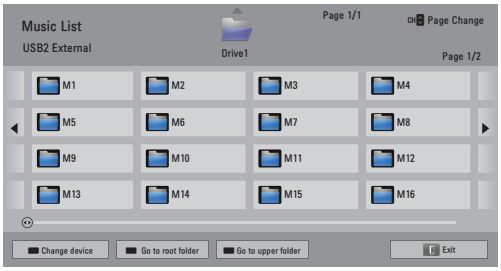
2 Press the Navigation buttons to scroll to **Smart Share** and press **ENTER**.

3 Press the Navigation buttons to scroll to the device you want and press **ENTER**.

4 Press the Navigation buttons to scroll to **Music List** and press **ENTER**.

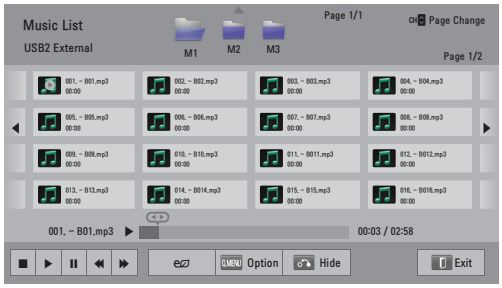
5 Press Navigation buttons to select a folder or file you want and press **ENTER**.

6 Play music by using the following menus/ buttons.



Button	Description
Navigation button	Scrolls through the files.
ENTER	Plays the highlighted file.
CH (∧, ∨)	Moves to the previous or next page.
Red button	Change device: Changes to a different input.
Green button	Go to root folder.
Yellow button	Go to upper folder.
Blue button	Open music player. It is enabled during palying music.

7 Control playback by using the following buttons.



Button	Description
■	Stops playback.
▶	Plays a music file.
❚❚	Pauses or resumes playback.
◀◀	Skips to the previous file.
▶▶	Skips to the next file.
< or >	Indicates a cursor.
e (ENERGY SAVING)	Increases or decreases the brightness of your screen.
Q.MENU	Shows the Option menu (See p.76).
BACK	Hides the option window. To display the options, press **ENTER**.
EXIT	Moves to the previous menu screen.

Tips for playing music files

- The TV cannot support the ID3 Tag embedded MP3 files.

Q.MENU options for music list

1 Press **Q. MENU**.
A pop-up window will appear.

2 Press the Navigation buttons to scroll to the option and press **ENTER**.

3 Press the Navigation buttons to scroll to one of the following options and press **ENTER**.

NOTE

- Option values changed in Movie List does not affect the Photo List and Music List.
- Option value changed in Photo List and Music List are changed likewise in Photo List and Music List.

Set Audio Play.

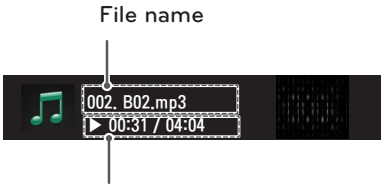
Select Repeat or Random option.

Set Audio.

Allows you to change Audio settings. (Refer to "AUDIO Settings" on page 93).

NOTE

- The TV will not play copy protected files.
- If the TV is not in use for some time during playback, the information box as a screensaver will appear to prevent image burn.
  To return to the Music list screen, press **ENTER**.



Media Link Function

(This feature is not available for all country.)
The Media Link program allows you to connect to a Plex Media Server. The Plex Media Server is free download from *www.plexapp.com*. It will allow to play media files and download Plex apps. The Plex apps download to your computer and do not use any space on the TV.

NOTE

- We recommend that you install version 0.9.1.14 or later of PLEX Media Server on your Mac or PC. (Download the installation file at http://www.plexapp.com/medialink)
- GUI is displayed in English and the data transmitted will not be displayed when using the following languages: Thai, Arabic, Persian, Hebrew, Kurdish.
- When using the video plug-in, initial buffering may take a while if the TV does not support a file to be played and conversion needs to be performed on the computer. The conversion performance may vary depending on the computer's performance and the network speed.
- When playing the files stored on the computer (movies, TV shows, music), the formats supported are the same as those for the DLNA function. The skip to content function is not supported when playing music. (Same for DLNA)
- You may experience problems when playing HD movies over Wi-Fi due to the network slowing down.
- When using a router, the TV may not detect the computer due to the router settings. (For example, when using the multicast forward function in some routers, TVs cannot detect computers via Wi-Fi.)
- Some plug-ins may not work, depending on the media format.
- Plug-ins are subject to change and may stop working without prior notice, at the providers' discretion.

Media Link Connection

1 Your TV must be connected to your home network. Either using a wired or wireless connection.

2 Download the Plex Media Server and install it.
- You can download it at *http://www.plexapp.com/medialink*.
- For more information on how to install it, please visit the website above.

3 When running PLEX for the first time, the wizard guides you through the steps to set up the program.
- For information on how to use the wizard, please visit the website above.

Using Media Link

1 Press **Home** to access the Home menu.

2 Press the Navigation buttons to scroll to the **Media Link** and press **ENTER**.

3 The Media Link sections of the connected computer are displayed. Select an icon to view the shared media in that category.



Option	Description
❶	This is a list of categories you set on the connected computer.
❷	This is a list of plug-ins for online content.
❸	Change the section sorting. • By server name: Sort the list by server name. • By item name: Sort the list by item name.
❹	Select another device.
❺	Using PLEX Online, you can install, remove or update applications on the computer.
❻	Move to the previous screen.
❼	Exit Media Link.

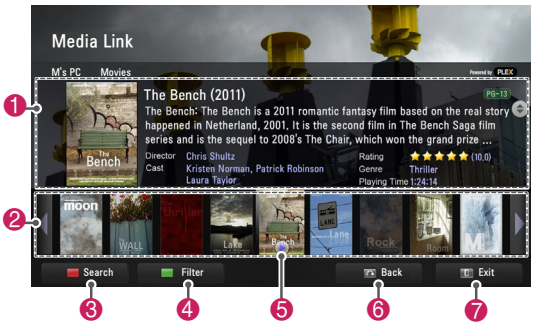
Viewing Movies

Media Link will retrieve information on shared movies as described below.

1 Press **Home** to access the Home menu.

2 Press the Navigation buttons to scroll to the **Media Link** and press **ENTER**.

3 Press the Navigation buttons to scroll to the Video and press **ENTER**.



Option	Description
❶	Show information for the selected movie.
❷	Show images captured from the movie file.
❸	Search movies within the section.
❹	Display the list according to the selected filter.
❺	Select to play the movie in full screen mode. If the movie has already been played, you can continue from the last scene.
❻	Move to the previous screen.
❼	Exit Media Link.

ENGLISH

Using Music Section

You can view information for the music files set for the Music section and enjoy them.

1 Press **Home** to access the Home menu.

2 Press the Navigation buttons to scroll to the **Media Link** and press **ENTER**.

3 Press the Navigation buttons to scroll to the Music section and press **ENTER**.



Option	Description
❶	Sort the music files in the selected section in the order of artist > album > song title.
❷	Select a folder or a song.
❸	Show the artist, album and information for the selected music.
❹	Search music files within the section.
❺	Display the list according to the selected filter.
❻	Move to the previous screen.
❼	Exit Media Link.

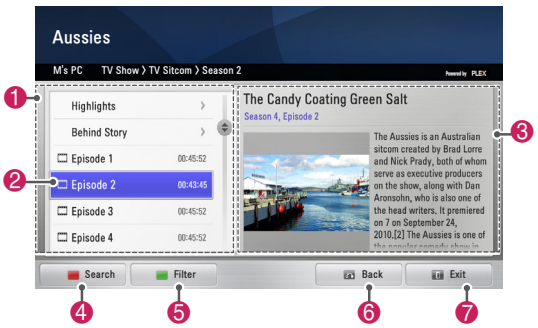
Using TV Program Section

You can view information for the programs contained in the TV Show section and enjoy them.

1 Press **Home** to access the Home menu.

2 Press the Navigation buttons to scroll to the **Media Link** and press **ENTER**.

3 Press the Navigation buttons to scroll to the TV Show section and press **ENTER**.



Option	Description
❶	Sort the TV program files in the selected section in the order of Program name > season > episode.
❷	Select a folder or a program.
❸	Show information for the selected program.
❹	Search TV Programs within the section.
❺	Display the list according to the selected filter.
❻	Move to the previous screen.
❼	Exit Media Link.

ENGLISH

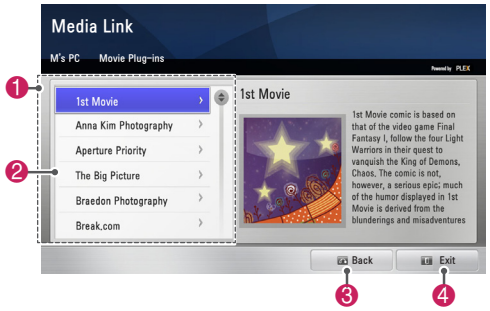
Installing Plug-Ins

Media Link allows you to install plug-ins to enjoy media content on the web.

1 Press **Home** to access the Home menu.

2 Press the Navigation buttons to scroll to the **Media Link** and press **ENTER**.

3 Press the yellow button to select **PLEX online**.



Option	Description
❶	Move the cursor to a plug-in to view the plug-in information on the right pane. Plug-ins already installed: You can run, update, reinstall or remove them. Plug-ins not yet installed: You can install them. Once installed, you can run the plug-in by selecting Video, Music or Picture Plug-in from the Media Link main screen.
❷	A list of plug-ins available for installation.
❸	Move to the previous screen.
❹	Exit Media Link.

3D IMAGING (FOR 3D TV)

3D Technology

This TV can display in 3D via 3D broadcasting or when the TV is connected to a compatible device, such as a Blu-ray 3D Player. The viewer must wear compatible 3D glasses in order to see these images in 3D format.

When watching 3D imaging

- To watch the TV in 3D, you must put on your 3D glasses. For best results, you should wear LG Brand 3D glasses. The 3D imaging may not display properly when using another brand of 3D glasses. Please see the 3D glasses manual for instructions on how to use the 3D glasses.
- When watching 2D images, it is recommended to take off the 3D glasses. If you watch 2D images with the 3D glasses on, you may see distorted images.

(LCD)

- We recommend that you maintain a distance of at least twice the screen diagonal length when watching 3D videos.

(Plasma)

- After powering on the TV, a few seconds may be needed for your TV to calibrate.
- The TV may flicker slightly if the 3D imaging is displayed under 3 wavelength fluorescent light (50 Hz - 60 Hz) or magnetic fluorescent lamp (50Hz - 60 Hz). In such instances, it is recommended to turn the lights off.
- If there is an obstacle between the TV and the 3D glasses, the 3D imaging may not display properly.
- Do not use the TV in close proximity to other electronic equipments and RF equipments.
- The 3D imaging may not display if it is viewed while you are lying down.
- It may take a moment for you to see the 3D imaging if you look away from the TV and then revert your eyes back to the 3D program.

NOTE

- If 3D TV broadcast standard changes in the future and it is not supported by this TV set, you may need a separate device, such as a set-top-box.

ENGLISH

When using 3D Glasses

- Do not use the 3D glasses to replace your corrective glasses, sunglasses or protective goggles.
- Do not store the 3D glasses in hot or cold locations.
- Do not drop objects onto the 3D glasses. Do not drop or bend the glasses.
- Since the lenses of the 3D glasses are easily scratched, make sure to clean only with a soft cloth. Shake off any dust before using the cloth since the glasses are easily scratched.
- A communication failure may occur if the glasses are near electronic devices that use the same bandwidth (2.4 GHz), such as a microwave oven or wireless LAN product.

3D Imaging Viewing Range (Plasma)

TV size, viewing angle & other circumstances may change the viewing distance and the angle of view.

Viewing Distance	Maximum Viewing Distance
2 m - 7 m (6.5 ft - 22.9 ft)	10 m (32.8 ft)

Viewing 3D Imaging

1 Play the video produced in 3D.

2 Press **3D** to watch 3D imaging.

3 Wear the 3D glasses.

4 Press the Navigation buttons to scroll the **OK** and press **ENTER**.

5 Press the Navigation buttons to select the shape and press **ENTER**.

Mode	Description
2D » 3D	Changed from 2D imaging to 3D imaging. 2D-to-3D converted videos may appear less realistic than titles originally produced as 3D videos. 
Side by Side	
Top & Bottom	
Checker Board	
Frame Sequential	

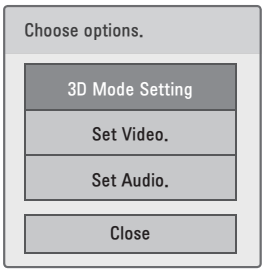
6 Press **3D** button to **2D Off** or **3D Off**.

Option	Description
3D -> 2D	Displays images in 2D without any 3D effects.
3D Off	Displays images in original format.
2D -> 3D	Displays images in 3D.
Cancel	Close the pop-up window.

Setting 3D Imaging

1 Press the **3D OPTION** while viewing 3D imaging.
A pop-up window will appear.

2 Press the Navigation buttons to scroll to one of the following options and press **ENTER**.



3D Mode Setting

Option (Depending on model)	Description
3D Picture Size	Cuts off the outer edges of the picture and stretch it to fit the full screen in 3D mode.
3D Picture Correction	Select **Left/Right** or **Right/Left**. Select the screen with 3D video with better visibility.
3D Depth	Adjusts the stereoscopic effect of the 3D image converted from 2D image.
3D Viewpoint	Moves the 3D image to front and back to adjust the 3D perspective view.
3D Picture Balance	Adjusts the color and brightness difference between the right and left sides of the picture in 3D mode.
3D Optimization	Optimizes the 3D image screen for the viewing environment.

Set Video.

Allows you to change Video settings (Refer to "PICTURE Settings" on page 88).

Set Audio.
Allows you to change Audio settings (Refer to "AUDIO Settings" on page 93).

CAUTION

- Some menus may not work while viewing 3D imaging.
- The 3D imaging is disabled automatically when switching input source or DTV channel.
- The screen may not be displayed properly if you view 2D images in 3D imaging mode.
- 3D effect can be seen when 3D Mode is selected appropriately for the 3D input signal supplied to the TV.
- For *mpo files (3D camera files), the 3D imaging mode is enabled automatically.

NOTE

(LCD)

- If viewing 3D imaging, "Power indicator" is turned off automatically.
- You can only choose "**Off** or **Cinema**" with the **AV MODE** button on the remote control.
- Energy Saving is disabled while playing in 3D.
- Home menu is not available while playing in 3D.
- You cannot enter the Home menu while watching 3D imaging.

ENGLISH

CUSTOMIZING TV SETTINGS

The SETUP Menu

1 Press **Home** to access the Home menu.

2 Press the Navigation buttons to select the **SETUP** menu and press **ENTER**.

3 Press the Navigation buttons to scroll to one of the following menus and press **ENTER**.

4 Press the Navigation buttons to scroll to the setting or option you want and press **ENTER**.

5 When you are finished, press **EXIT**.

Menu		Description
	CHANNEL	Sets up and edit channels.
	PICTURE	Adjusts the image size, quality, or effect.
	AUDIO	Adjusts the sound quality, effect, or volume level.
	TIME	Sets the time, date, or Timer feature.
	LOCK	Locks or unlocks channels and programs.
	OPTION	Customizes the general settings.
	NETWORK	Sets up the network setting.
	SUPPORT	Checks the customer information.

ENGLISH

Customizing Settings

CHANNEL Settings



1 Press **Home** to access the Home menu.

2 Press the Navigation buttons to scroll to **SETUP** and press **ENTER**.

3 Press the Navigation buttons to scroll to **CHANNEL** and press **ENTER**.

4 Press the Navigation buttons to scroll to the setting or option you want and press **ENTER**.
- To return to the previous level, press **BACK**.

5 When you are finished, press **EXIT**.

The available channel settings are described in the following.

Setting	Description
Auto Tuning	Tunes and stores all available channels through antennas or cable inputs (See p.42).
Manual Tuning	Tunes and stores the channels you want manually (See p.42).
Channel Edit	Adds or deletes channels (See p.42).

PICTURE Settings

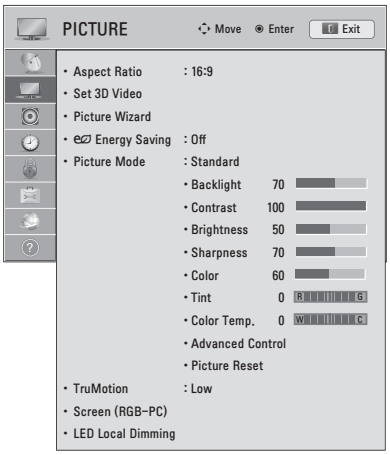
1 Press **Home** to access the Home menu.

2 Press the Navigation buttons to scroll to **SETUP** and press **ENTER**.

3 Press the Navigation buttons to scroll to **PICTURE** and press **ENTER**.

4 Press the Navigation buttons to scroll to the setting or option you want and press **ENTER**.
- To return to the previous level, press **BACK**.

5 When you are finished, press **EXIT**.



The available picture settings are described in the following.

Setting	Description	
Aspect Ratio	Changes the image size to view images at its optimal size (See p.45).	
Set 3D Video (For 3D TV)	Sets the 3D imaging option (See p.84).	
Picture Wizard	Adjusts the image quality and calibrates the screen. The customized options will be saved as **Expert1** in the **Picture Mode**. **NOTE** • If you use **Picture Wizard**, the **Energy Saving** feature will turn off automatically. • To reset changes made by **Picture Wizard**, operate **Picture Reset** when **Picture Mode** is on **Expert1**.	
Energy Saving	Reduces the power consumption by adjusting the screen brightness. **NOTE** • When selecting **Auto** or **Maximum**, **Backlight** will not work (LCD).	
	Option	
	Auto (LCD)	The backlight is adjusted automatically corresponding to the surroundings when selecting **Auto** using the **Intelligent sensor** feature.
	Intelligent sensor (Plasma)	The most suitable picture is automatically adjusted corresponding to the surroundings.
	Off	Select if this feature is not necessary.
	Minimum/ Medium/Maximum	Selects the brightness level.
	Screen off	The screen turns off in 3 seconds. Pressing any button of the remote control will turn on the screen again.

<table>
<tr><th>Setting</th><th colspan="2">Description</th></tr>
<tr><td>Picture Mode</td><td colspan="2">Selects one of the preset image or customizes options in each mode for the best TV screen performance. You are also able to customize advanced options of each mode.
The available preset picture modes vary depending on the TV.

NOTE
• (LCD) If you select Intelligent Sensor, the Energy saving feature will switch to Auto automatically .
• If you select THX Cinema or THX Bright Room, the Aspect ratio feature will switch to Just scan automatically.</td></tr>
<tr><td></td><td colspan="2">Mode (Depending on model)</td></tr>
<tr><td></td><td>Intelligent Sensor</td><td>Sets the TV to adjust the image settings, such as contrast, brightness, sharpness, color, or tint, automatically corresponding to the surrounding environments.</td></tr>
<tr><td></td><td>Vivid</td><td>Adjusts the video image for the retail environment by enhancing the contrast, brightness, color, and sharpness.</td></tr>
<tr><td></td><td>Standard</td><td>Adjusts the image for the normal environment.</td></tr>
<tr><td></td><td>APS</td><td>Maximizes video images reducing power consumption without hurting picture quality.</td></tr>
<tr><td></td><td>Cinema</td><td>Optimizes video image for a cinematic look to enjoy movies as if you are in a movie theater.</td></tr>
<tr><td></td><td>THX Cinema,
THX Bright Room</td><td>Provides a cinema experience while watching a movie at home. The user will be able enjoy the best level of screen quality without any separate adjustments.
» THX Cinema express the optimal screen quality when the room is dark.
» THX Bright Room express the optimal screen quality when the room is bright.

NOTE
• THX : THX (Thomlinson Holman’s Experiment) is an audio and video certification standard established by George Lucas and Thomlinson. A THX certified display guarantees screen quality that exceeds the display standard specification in both hardware and software.</td></tr>
<tr><td></td><td>Sport</td><td>Optimizes the video image for high and dynamic actions by emphasizing primary colors such as white, grass, or sky blue.</td></tr>
<tr><td></td><td>Game</td><td>Optimizes the video image for a fast gaming screen for PCs or games.</td></tr>
<tr><td></td><td>Photo</td><td>Optimizes the still image like a photo file in HDMI, USB mode (i.e, when connecting the external device like a DSLR)</td></tr>
<tr><td></td><td>Expert 1, 2 or
ISFccc Expert 1, 2</td><td>Adjusts the detailed video image settings for video experts as well as general viewers.

NOTE
• ISFccc (ISFccc: Imaging Science Foundation Certified Calibration Control) (Depending on model): This TV contains the detailed calibrations necessary for professional certification by the Imaging Science Foundation. The resulting ISF “day” and “night” modes will then be accessible by the user to experience the best their LG HDTV has to offer.
Sophisticated and detailed calibrations can be made through the ISFccc mode.
Detailed calibration requires a licensed technician. Please contact your local dealer to inquire about an ISF certified technician.</td></tr>
</table>

Setting	Description	
TruMotion (Depending on model)	Advance video technology that provides clearer, smoother images, even during fast action scenes creating a more stable structure for a crisper picture. TruMotion works with all inputs except PC mode. If you enable "TruMotion", noise may appear on the screen. If this occurs, set "TruMotion" to "Off". If you select "Picture Mode-Game ", set "TruMotion" to "Off".	
	Mode	
	High	Provides smoother picture movement.
	Low	Provides smooth picture movement. Use this setting for standard use.
	Off	Turn off TruMotion operation.
	User	De-Judder: Adjusts noise of the screen. De-Blur: Adjusts after-image of the screen.
SCREEN (RGB-PC)	Customizes the PC display options.	
	Option	
	Resolution	Selects a proper resolution.
	Auto Configure	Sets the TV to optimize the options automatically for the TV display.
	Position	Locates the image at the proper position.
	Size	Adjusts the image size.
	Phase	Eliminates horizontal streaking.
	Reset	Restores the options to the default setting.
LED Local Dimming (Depending on model)	After analysing the signal of the input video by areas of the screen, it adjusts the backlight to improve the contrast ratio.	
	Mode	
	Off	Turn off LED Local Dimming operation.
	Low	Brightens the picture and deepens black levels using the soft local dimming.
	Medium	Deepens black levels using the strong local dimming.
	High	Clears the picture and deepens black levels using the strong local dimming.

Basic Image Options

Setting	Description
Backlight (LCD)	Adjusts the brightness of the screen by controlling the LCD backlight. If you decrease the brightness level, the screen becomes darker and the power consumption will be reduced without any video signal loss. **NOTE** • If you use the "**Energy saving** - **Off**, **Minimum**, **Medium**", Backlight will be available.
Contrast	Increases or decreases the gradient of the video signal. You may use Contrast when the bright part of the picture is saturated.
Brightness	Adjusts the base level of the signal in the picture.
Sharpness	Adjusts the level of sharpness in the edges between the light and dark areas of the picture. The lower the level, the softer the image.
Color	Adjusts intensity of all colors.
Tint	Adjusts the balance between red and green levels.

Setting	Description
Color Temp.	Set to warm to enhance hotter colors such as red, or set to cool to enhance cooler colors such as blue.
Advanced Control or Expert Control	Customizes the advanced options.
Picture Reset	Restores the options of each mode to the factory default.

Advanced Image Options (Depending on model)

Setting	Description
Dynamic Contrast	Adjusts the contrast to keep it at the best level according to the brightness of the screen. The picture is improved by making bright parts brighter and dark parts darker.
Dynamic Color	Adjusts screen colors so that they look livelier, richer and clearer. This feature enhances hue, saturation and luminance so that red, blue and green white look more vivid.
Skin Color	It detects the skin area of video and adjusts it to express a natural skin color.
Noise Reduction	Reduces screen noise without compromising video quality.
MPEG Noise Reduction	Removes noise caused by compressing video.
Super Resolution	Provides a crystal-clear picture by improving the details in an area that has a blurry or unclear picture.
Gamma	You can adjust brightness of dark area and middle gray level area of the picture. » Low: Make the dark and middle gray level areas brighter. » Medium: Express the original picture level. » High: Make the dark and middle gray level area darker.
Black Level	Sets black level of the screen to proper level. This function is available in the following modes: TV(NTSC-M/J, PAL-M, PAL-N), AV (NTSC-M/J, PAL-M, PAL-N), HDMI or Component. » Auto: Realizing the black level of the screen and set it to High or Low automatically. » Low: The reflection of the screen gets darker. » High: The reflection of the screen gets brighter.
Clear White	Make the white area of screen brighter and more white.
Eye Care	Adjusts the brightness of the screen to prevent the screen from being too bright. Dims extremely bright pictures. This feature is enabled in “Picture Mode-Standard, Game”.
Real Cinema or Film Mode	Makes video clips recorded in film look more natural by eliminating judder effect. DVD and Blu-ray movies are filmed at 24 frames per second (fps). With LG Real Cinema, every frame is consistently processed 5 times in 1/24 of a second producing 120 fps with TruMotion or 2 times in 1/24 of a second producing 48 fps without TruMotion, thus totally eliminating the judder effect. This function can also work when TruMotion is off.
Color Gamut	Plasma: **Advanced Control, Expert Control** » Maximizes the utilization of color to increase color quality. » **Standard**: Displays standard set of colors. » **Wide**: Increases number of colors used. **Photo mode** » **Wide**: Increases number of colors used. » **sRGB**: Mode to display sRGB standard color gamut”
	LCD: **Advanced Control** » Maximizes the utilization of color to increase color quality. » **Standard**: Displays standard set of colors. » **Wide**: Increase number of colors used. **Expert Control** Displays color domain of the signal. » **Standard**: Displays standard set of colors. » **Wide**: Increase number of colors used. » **EBU**: Mode to display EBU standard color area. » **SMPTE**: Mode to display SMPTE standard color area. » **BT709**: Mode to display BT709 standard color area.

ENGLISH

Setting	Description	
Edge Enhancer	Shows clearer and distinctive yet natural edges of the video. This function works well over Sharpness UI 60 value.	
xvYCC	This is produces richer colors. This feature represents rich colors as much as a conventional video signal. This function is enabled in "**Picture mode** - **Cinema**, **Expert**" when **xvYCC** signal is inputted through HDMI.	
Color Filter	This is the function to filter the specific colors of the video. You can use the RGB filter to set color saturation and hue accurately.	
Expert Pattern	This is the pattern used for expert adjustment This function is enabled in "**Picture Mode** - **Expert**" when you watch DTV.	
Color Temperature	Adjusts the overall color of the screen by changing the white baseline.	
	Plasma	a. Method : 2 Points • Pattern: Inner, Outer • Red/Green/Blue Contrast, Red/Green/Blue Brightness: The adjustment range is -50 to +50. b. Method : 20 Point IRE • IRE (Institute of Radio Engineers) is the unit to display the size of the video signal and can be set among 0, 5, 10, 15 - 100 Plasma TV. You can adjust Red, Green or Blue according to each setting. • Red/Green/Blue: The adjustment range is -50 - +50. c. Apply to all inputs
	LCD	a. Gamma : Select 1.9, 2.2, 2.4 b. Method : 2 Points • Pattern: Inner, Outer • Red/Green/Blue Contrast, Red/Green/Blue Brightness c. Method : 10 Point IRE • Pattern: Inner, Outer • IRE (Institute of Radio Engineers) is the unit to display the size of the video signal and can be set among 10, 20, 30 - 100. You can adjust Red, Green or Blue according to each setting. • Luminance: This function displays calculated luminance value for 2.2 gamma. You can input luminance value you want at 100 IRE, than the target luminance value for 2.2 gamma is displayed at every 10 steps from 10 IRE to 90 IRE. • Red/Green/Blue: The adjustment range is -50 - +50. d. Apply to all inputs
Color Management System	As the tool used by the experts to make adjustments by using the test patterns, this does not affect other colors but can be used to selectively adjust the 6 color areas (Red/Green/Blue/Cyan/Magenta/Yellow). Color difference may not be distinctive even when you make the adjustments for the general video. Adjusts Red/Green/Blue/Yellow/Cyan/Magenta. » Red/Green/Blue/Yellow/Cyan/Magenta Color: The adjustment range is -30 - +30. » Red/Green/Blue/Yellow/Cyan/Magenta Tint: The adjustment range is -30 - +30. » This feature is disable in RGB-PC and HDMI-PC mode.	

AUDIO Settings

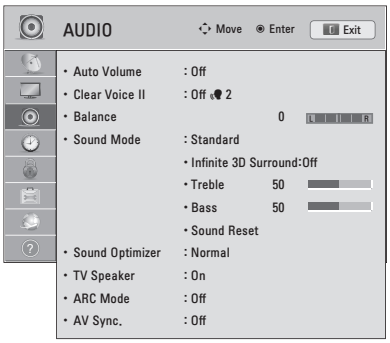
1 Press **Home** to access the Home menu.

2 Press the Navigation buttons to scroll to **SETUP** and press **ENTER**.

3 Press the Navigation buttons to scroll to **AUDIO** and press **ENTER**.

4 Press the Navigation buttons to scroll to the setting or option you want and press **ENTER**.
- To return to the previous level, press **BACK**.

5 When you are finished, press **EXIT**.



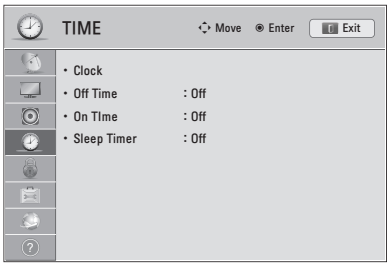
The available audio settings are described in the following.

Setting	Description	
Auto Volume	Activates the Auto Volume feature to keep the volume level consistent whenever you change channels. The volume level may not be consistent due to different signal conditions of broadcasting stations.	
Clear Voice II	Sets whether to enhance human voice clarity. You can adjust the level of clarity when you set this feature on.	
Balance	Adjust balance between the left and right speakers according to your room environment.	
Sound Mode	Selects one of the preset sound modes or customizes options in each mode.	
	Mode	
	Standard	Select when you want standard-quality sound.
	Music	Select when you listen to music.
	Cinema	Select when you watch movies.
	Sport	Select when you watch sports events.
	Game	Select when you play games.
	NOTE • If sound quality or volume is not at the level you want, it is recommended to use a separate home theater system or amplifier to cope with different user environments. • If the Clear Voice II feature is on, **Infinite 3D Surround** will not be activated.	
	Option	
	Infinite 3D Surround	Patents LG proprietary sound processing technology that strives immersive 5.1 surround sound with just two front speakers.
	Treble	Controls the dominant sounds in the output. When you turn up the treble, it will increase the output to the higher frequency range.
	Bass	Controls the softer sounds in the output. When you turn up the bass, it will increase the output to the lower frequency range.
	Sound Reset	Resets the sound mode to the default setting.

ENGLISH

<table>
<tr><th>Setting</th><th colspan="2">Description</th></tr>
<tr><td rowspan="5">Sound Optimizer</td><td colspan="2">Optimizes the sound depending on the environment in which the TV is installed.</td></tr>
<tr><td colspan="2">Option</td></tr>
<tr><td>Normal</td><td>Normal sound mode.</td></tr>
<tr><td>Wall Mount Type</td><td>Optimized sound mode for a wall-mounted TV.</td></tr>
<tr><td>Stand type</td><td>Optimized sound mode for a stand-type TV.</td></tr>
<tr><td>TV Speaker</td><td colspan="2">Turns on the internal speaker of the TV when using an external Hi-Fi system. You can use the TV speaker as an audio output device even if there is no video input.</td></tr>
<tr><td rowspan="4">ARC Mode (Audio Return Channel)</td><td colspan="2">When using an external audio device with the ARC (Audio Return Channel) feature, SPDIF can be output using only a High Speed HDMI cable without an additional optical cable.
NOTE
• Some HDMI cables may not support this mode (A High Speed HDMI cable is recommended).
• The ARC mode only works on the HDMI 1 input on the TV.
• Activates the SIMPLINK feature to use this feature.</td></tr>
<tr><td colspan="2">Option</td></tr>
<tr><td>On</td><td>If the device with the ARC feature is turned on, the device speaker is automatically used when SIMPLINK is enabled.</td></tr>
<tr><td>Off</td><td>Even if the device with the ARC feature is turned on and SIMPLINK is enabled, the device speaker is not automatically used.</td></tr>
<tr><td rowspan="5">AV Sync.</td><td colspan="2">If the video and sound are not synced, you can adjust it manually.
» (-) setting : Make audio output faster than the default.
» (+) setting : Make audio output slower than the default.</td></tr>
<tr><td colspan="2">Option</td></tr>
<tr><td>AV Sync.</td><td>Adjusts the sync of the TV speaker and SPDIF.</td></tr>
<tr><td>TV Speaker</td><td>Adjusts the sync of the sound from the TV's internal speaker.</td></tr>
<tr><td>SPDIF (Sony Philips Digital InterFace)</td><td>Adjusts the sync of the sound from an external speaker connected to the digital audio output port.</td></tr>
</table>

TIME Settings



1 Press **Home** to access the Home menu.

2 Press the Navigation buttons to scroll to **SETUP** and press **ENTER**.

3 Press the Navigation buttons to scroll to **TIME** and press **ENTER**.

4 Press the Navigation buttons to scroll to the setting or option you want and press **ENTER**.
- To return to the previous level, press **BACK**.

5 When you are finished, press **EXIT**.

The available time settings are described in the following.

Setting	Description
Clock	Sets the time, date, time zone, and daylight-saving time feature. The time will be set automatically according to a digital channel signal which includes time information provided by the broadcasting station. If not, set the time and date manually.
Off Time/On Time	Sets the time to turn on or off the TV automatically. To use this function, you should set the current time and date in advance. **NOTE** • If you do not press any button within 2 hours after the TV turns on by the On Time feature, the TV enters the Standby mode automatically. • If you set both Off time and On time features to the same time, the Off time feature overrides the On time feature.
Sleep Timer	Sets the length of time until the TV to turns off. When you turn the TV off and turn it on again, the Sleep timer feature will be set to off.

ENGLISH

LOCK Settings

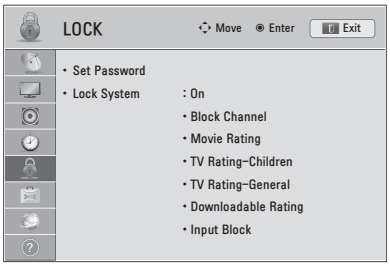
1 Press **Home** to access the Home menu.

2 Press the Navigation buttons to scroll to **SETUP** and press **ENTER**.

3 Press the Navigation buttons to scroll to **LOCK** and press **ENTER**.

4 Press the Navigation buttons to scroll to the setting or option you want and press **ENTER**.
- To return to the previous level, press **BACK**.

5 When you are finished, press **EXIT**.



The available lock settings are described in the following.

Setting	Description	
Set Password	Changes the 4-digit password. The default PIN is “0-0-0-0”. If you forget your password, press “0-3-2-5” on the remote control.	
Lock System	Activates or deactivates the lock system.	
Block Channel	Blocks the channels that contain inappropriate contents for children. The channels can be selected but the screen is blank and the audio is muted. To watch a locked channel, enter the password.	
Movie Rating	Blocks the movies that are only broadcasted on the TV and contain inappropriate contents, based on the Motion Picture Association of America (MPAA) rating.	
	Rating	
	G	General audiences – All ages admitted
	PG	Parental guidance suggested – Some material may not be suitable for children
	PG-13	Patents strongly cautioned – Some material may be inappropriate for children under 13
	R	Restricted – Under 17 requires accompanying parent or adult guardian
	NC-17	No one 17 and under admitted.
	X	Adults only
TV Rating-Children (Depending on model)	Blocks the children’s TV programs that parents do not want their children to watch. To block other TV programs, you should set the TV Rating-General feature.	
	Rating	
	Age	TV-Y (All children, including children from ages 2-6) TV-Y7 (Directed to older children, suitable for children age 6 and above)
	Fantasy Violence	TY-Y7 (Directed to older children – Fantasy violence, suitable for children age 6 and above, containing more intense or combative fantasy violence)

<table>
<tr><th>Setting</th><th colspan="2">Description</th></tr>
<tr><td>TV Rating-General (Depending on model)</td><td colspan="2">Blocks the TV programs that you want based on the ratings by using the Parental Control Function (V-Chip).

NOTE
• The V-Chip electronically reads TV program ratings and allows parents to block program that are unsuitable for children.</td></tr>
<tr><td></td><td colspan="2">Rating</td></tr>
<tr><td></td><td>Age</td><td>TV-G (General audience, suitable for all ages)
TV-PG (Parental guidance suggested, containing material that are unsuitable for younger children)
TV-14 (Parents strongly cautioned, containing material that are unsuitable for children age 14 and under)
TV-MA (Mature audience only, unsuitable for children age under 17)</td></tr>
<tr><td></td><td>Dialog (suggestive dialogue)</td><td>TV-PG or TV-14</td></tr>
<tr><td></td><td>Language (coarse language)</td><td>TV-PG, TV-14, or TV-MA</td></tr>
<tr><td></td><td>Sex (sexual situation)</td><td>TV-PG, TV-14, or TV-MA</td></tr>
<tr><td></td><td>Violence</td><td>TV-PG, TV-14, or TV-MA</td></tr>
<tr><td>TV Rating-English (Depending on model)</td><td colspan="2">Selecting Canadian English rating system.</td></tr>
<tr><td></td><td colspan="2">Rating</td></tr>
<tr><td></td><td>E</td><td>Exempt</td></tr>
<tr><td></td><td>C</td><td>Children</td></tr>
<tr><td></td><td>C8+</td><td>Children eight years and older</td></tr>
<tr><td></td><td>G</td><td>General programming, suitable for all audiences</td></tr>
<tr><td></td><td>PG</td><td>Parental Guidance</td></tr>
<tr><td></td><td>14+</td><td>Viewers 14 years and older</td></tr>
<tr><td></td><td>18+</td><td>Adult programming</td></tr>
<tr><td></td><td>Blocking Off</td><td>Permits all programs</td></tr>
<tr><td>TV Rating-French (Depending on model)</td><td colspan="2">Selecting Canadian French rating system.</td></tr>
<tr><td></td><td colspan="2">Rating</td></tr>
<tr><td></td><td>E</td><td>Exempt</td></tr>
<tr><td></td><td>G</td><td>General</td></tr>
<tr><td></td><td>8ans+</td><td>General-Not convenient for little children</td></tr>
<tr><td></td><td>13ans+</td><td>Not convenient for children of 13 years and younger</td></tr>
<tr><td></td><td>16ans+</td><td>Not convenient for children of 16 years and younger</td></tr>
<tr><td></td><td>18ans+</td><td>This programs is only for adults</td></tr>
<tr><td></td><td>Blocking Off</td><td>Permits all programs</td></tr>
<tr><td>Downloadable Rating</td><td colspan="2">This function operates only when TV has received Region5 Rating data.
The name of the rating option may differ.

NOTE
• This feature is available only for digital channels.</td></tr>
<tr><td>Input Block</td><td colspan="2">Block the input sources.</td></tr>
</table>

OPTION Settings

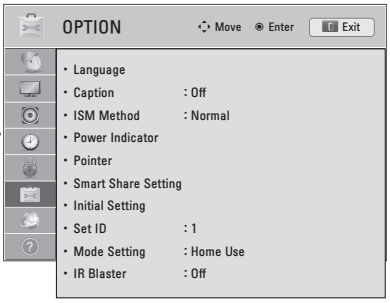
1 Press **Home** to access the Home menu.

2 Press the Navigation buttons to scroll to **SETUP** and press **ENTER**.

3 Press the Navigation buttons to scroll to **OPTION** and press **ENTER**.

4 Press the Navigation buttons to scroll to the setting or option you want and press **ENTER**.
- To return to the previous level, press **BACK**.

5 When you are finished, press **EXIT**.



The available general settings are described in the following.

Setting	Description	
Language	Selects a desired language.	
	Option	
	Menu Language	Selects a language for the display text.
	Audio Language	Selects an audio language for your program. This feature operates only in the DTV or CADTV mode.
Caption	Sets whether to display captions and customize your option in each mode.	
	Mode	
	CC 1-4 (Closed Captioning)	Displays the audio portion of a TV program as text on the TV screen. CC1 is the most common mode in use. - Field 1 data channels: two Captions (CC1, CC2) and two Text (T1, T2). - Field 2 data channels: two Captions (CC3, CC4) and two Text (T3, T4).
	Text 1-4	
	Service 1-6	This is only available for the digital broadcasting system.
	Option (For Digital Broadcasting)	
	Size	Selects the word size.
	Font	Selects a typeface for the text.
	Text Color	Selects a color for the text.
	Text Opacity	Adjusts the opacity for the text color.
	Bg Color	Selects a background color.
	Bg Opacity	Adjusts the opacity for the background color.
	Edge Type	Selects an edge type.
	Edge Color	Selects a color for the edges.
Power Indicator (Depending on model)	Sets to turn on or off the indicator light on the TV.	
	Option	
	Standby Light	Set to turn on or off the indicator light in Standby mode.
	Power Light	Set to turn on or off the indicator light when you turn on the power.

Setting	Description	
ISM Method (Plasma)	Prevents image sticking or removes a ghost image. A frozen still picture displayed on the screen for prolonged periods can result in a ghost image.	
	Mode	
	Normal	Sets it if image sticking is never a problem.
	Orbiter	Avoids a ghost image on the screen. The image will move every 2 minutes to help prevent ghost images. However, it is best not to allow any fixed image to remain on the screen.
	Color Wash	Removes a ghost image on the screen. The color block with the screen moved a little and the white pattern are alternately displayed. It is difficult to see the after image on all colors. Once it has been corrected it will not be visible in any color.
	White Wash	Removes a ghost image on the screen. Use sparingly. Watch the TV normally for a while before using this feature to see if the ghost image disappears on its own. **NOTE** • An excessive ghosted image may be impossible to clear entirely with **White Wash**. To return to normal viewing, press the any button.
Pointer (Depending on model)	Sets the pointer option of the magic motion remote control.	
	Option	
	Speed	Changes the pointer speed.
	Shape	Selects the pointer shape.
	Size	Changes the pointer size.
	Alignment	Align the remote control's direction with the pointer on your TV screen by shaking the remote control left and right. Then, the pointer automatically moves to the center of the screen.
Smart Share Setting	Sets the DivX and DLNA option.	
	Option	
	DivX VOD Registration	Registers your TV to play DivX protected videos (See p.73).
	DivX Deregistration	Deregisters your TV (See p.73).
	DMR	Activates or deactivates the DMR (Digital Media Render) connection.

<table>
<tr><th>Setting</th><th colspan="2">Description</th></tr>
<tr><td>Initial Setting</td><td colspan="2">Resets the TV to factory default and erases all stored channels.
Customizes the TV settings to suit your preference. The initial setup screen will appear when you turn on the TV for the first time.

NOTE
• When selecting “Lock System - On”in the LOCK menu, the message to enter the password appears.
• If you forget your password, press “0-3-2-5” on the remote control.</td></tr>
<tr><td></td><td>Setting</td><td></td></tr>
<tr><td></td><td>Language</td><td>Selects a desired language.</td></tr>
<tr><td></td><td>Mode Setting</td><td>Selects Home Use for the home environment.
Selects Store Demo for the retail environment.
Selects Demo Mode to set to show special features of the TV. You can cancel the demo mode by pressing any buttons except the Volume and Mute buttons.

NOTE
• When selecting Store Demo, Demo Mode will be activated.</td></tr>
<tr><td></td><td>Power Indicator (LED LCD TV)</td><td>Turns the power indicator light on or off.</td></tr>
<tr><td></td><td>Time Zone</td><td>Sets the time zone and daylight saving.</td></tr>
<tr><td></td><td>Auto Tuning</td><td>Scans and saves available channels automatically.</td></tr>
<tr><td>Set ID</td><td colspan="2">Adds an ID to the connected devices.</td></tr>
<tr><td>Mode Setting</td><td colspan="2">Default selection is “Home Use”. We recommend setting the TV to “Home Use” mode for the best picture in your home environment.</td></tr>
<tr><td></td><td>Option</td><td></td></tr>
<tr><td></td><td>Home Use</td><td>Selects it for the home environment.</td></tr>
<tr><td></td><td>Store Demo</td><td>Selects it for the retail environment.</td></tr>
<tr><td></td><td>Demo Mode</td><td>Sets to show special features of the TV. You can cancel the demo mode by pressing any buttons except the Volume and Mute buttons.</td></tr>
<tr><td>IR Blaster (Depending on model)</td><td colspan="2">Adjusts when connecting Wireless media box (sold seperate).
For futher information, refer to the optional "Wireless media box" manual for operating insturctions.</td></tr>
</table>

NETWORK Settings

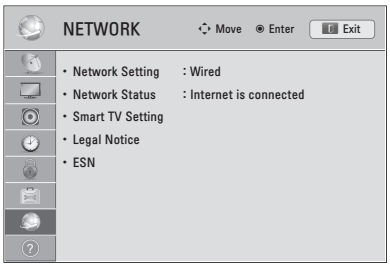
1 Press **Home** to access the Home menu.

2 Press the Navigation buttons to scroll to **SETUP** and press **ENTER**.

3 Press the Navigation buttons to scroll to **NETWORK** and press **ENTER**.

4 Press the Navigation buttons to scroll to the setting or option you want and press **ENTER**.
- To return to the previous level, press **BACK**.

5 When you are finished, press **EXIT**.



The available network settings are described in the following.

Setting	Description	
Network Setting	Configure the network settings (See p.48).	
Network Status	Display the network status (See p.53).	
Smart TV Setting	Set the region for which weather forecast is provided and manage the IDs added to the TV.	
	Setting	
	Country Setting	Set the country for premium services. Different premium services are provided depending on the country you set.
	Weather Effect	Sets the region for the weather to be displayed on the background of the premium service. Select your region.
	Premium Version	Display the version of the premium service.
	ID Management	Manage the login history of the IDs added to the TV.
	Reset	Delete all IDs added on the TV.
Legal Notice	Display the Legal notice (See p.55).	
ESN (Depending on model)	View the supplied Netfilx Electronic Serial Number (ESN)	

ENGLISH

SUPPORT Settings

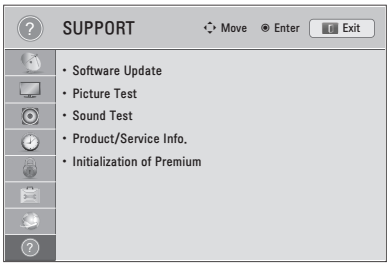
1 Press **Home** to access the Home menu.

2 Press the Navigation buttons to scroll to **SETUP** and press **ENTER**.

3 Press the Navigation buttons to scroll to **SUPPORT** and press **ENTER**.

4 Press the Navigation buttons to scroll to the setting or option you want and press **ENTER**.
- To return to the previous level, press **BACK**.

5 When you are finished, press **EXIT**.



The available support settings are described in the following.

Setting	Description
Software Update	Update the TV with the latest firmware.
Picture Test	Executes picture or built-in melody sound tests. » If this test has an error, select Yes. You will see product or service information. » If this test has no errors, check the connection status of external devices and refer to the manual of external devices.
Sound Test	
Product/Service Info.	Shows the product or service information. Customer Service Center can differ by country.
Initialization of Premium	Initialize the premium menu if an error occurs while updating the premium menu. Then, the TV automatically switches off and then back on.

MAKING CONNECTIONS

Connect various external devices to the TV and switch input modes to select an external device. For more information on external device's connection, refer to the manual provided with each device.
Available external devices are: HD receivers, DVD players, VCRs, audio systems, USB storage devices, PC, gaming devices, and other external devices.

NOTE

- If you record a TV program on a DVD recorder or VCR, make sure to connect the TV signal input cable to the TV through a DVD recorder or VCR. For more information on recording, refer to the manual provided with the connected device.
- The external device connection may differ from the model.
- Connect external devices to the TV regardless of the order of the TV port.

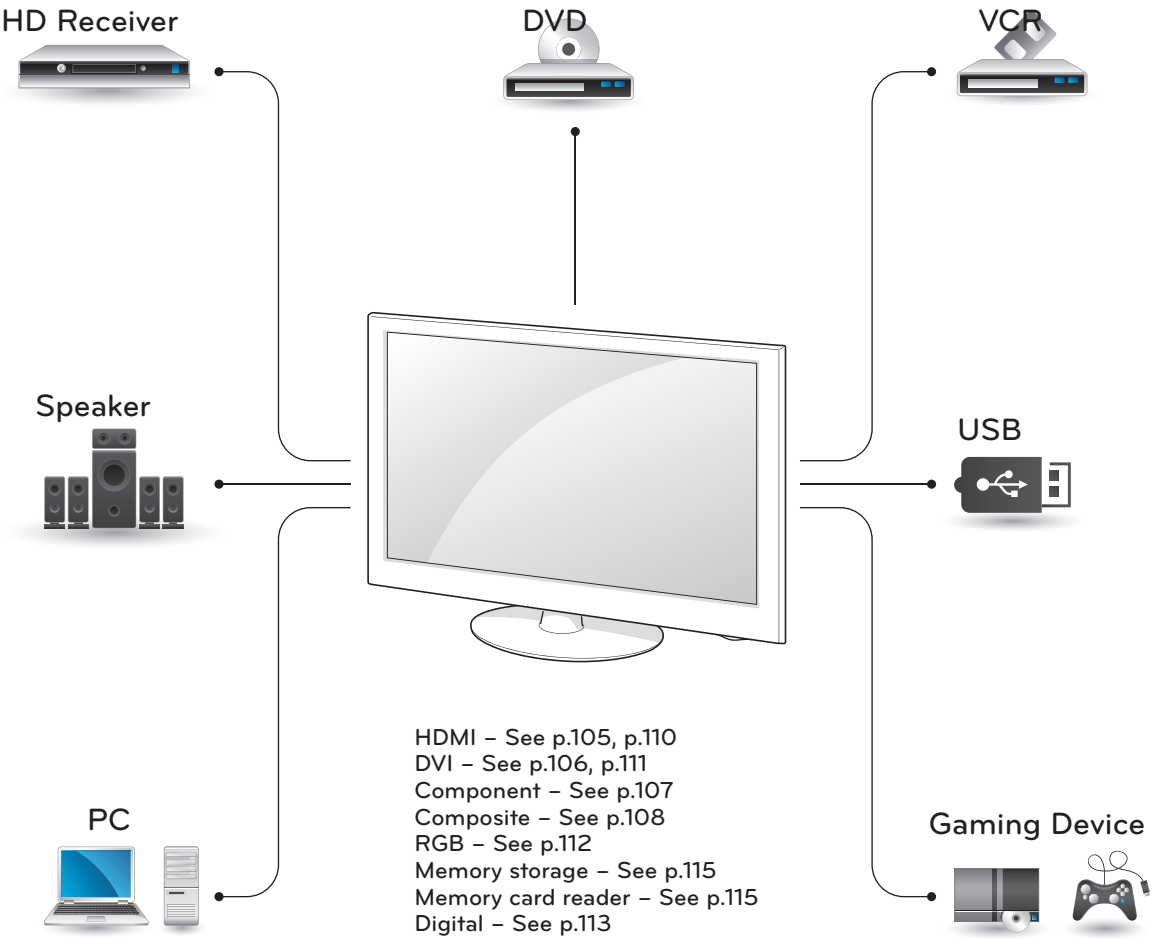
Connection Overview

Connect various external devices to the ports on the TV back panel.

1 Find an external device you want to connect to your TV as shown on the following illustration.

2 Check the connection type of the external device.

3 Go to the appropriate illustration and check the connection details.



NOTE

- If you connect a gaming device to the TV, use the cable supplied with the gaming device.
- Refer to the external equipment's manual for operating instructions.

Connecting to a HD receiver, DVD, or VCR player

Connect a HD receiver, DVD, or VCR player to the TV and select an appropriate input mode.

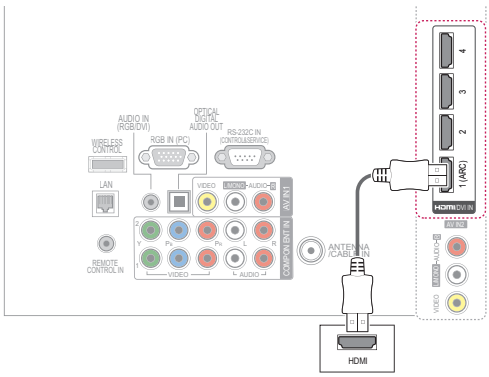
HDMI Connection

Transmits the digital video and audio signals from an external device to the TV. Connect the external device and the TV with the HDMI cable as shown in the following illustration.

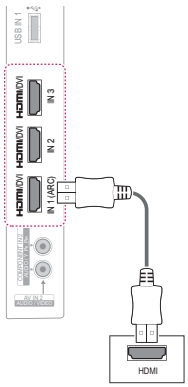
NOTE

- Use the latest High Speed HDMI™ Cable with CEC (Customer Electronics Control) function.
- High Speed HDMI™ Cables are tested to carry an HD signal up to 1080p and higher.

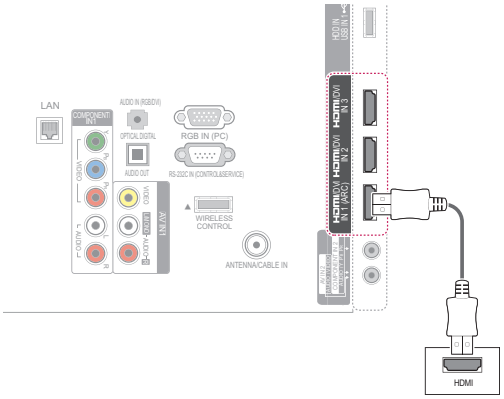
Plasma



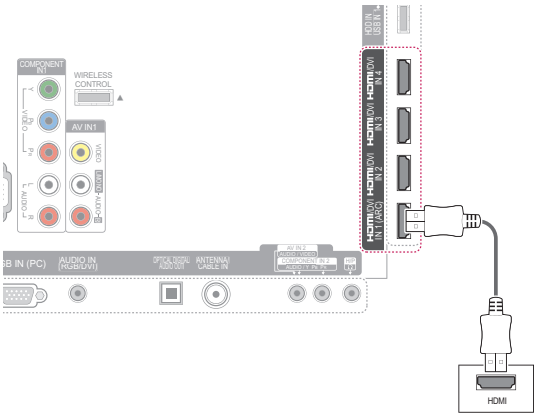
LK530, LK550 series



LV3700 series



Other models

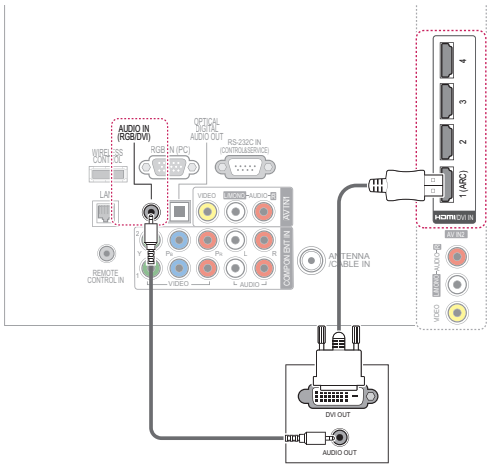


ENGLISH

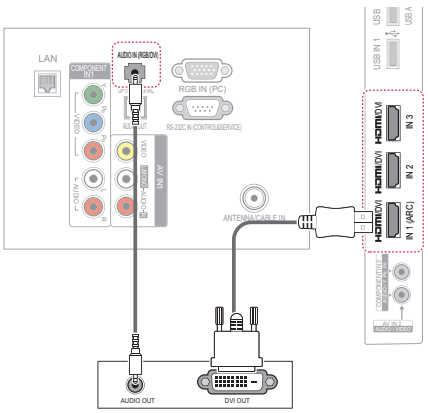
DVI to HDMI Connection

Transmits the digital video signal from an external device to the TV. Connect the external device and the TV with the DVI-HDMI cable as shown in the following illustration. To transmit an audio signal, connect an audio cable.

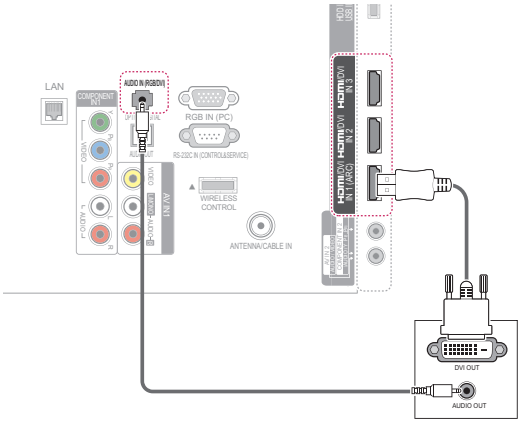
Plasma



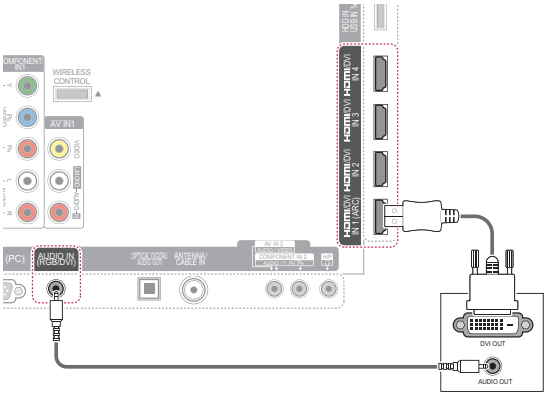
LK530, LK550 series



LV3700 series



Other models



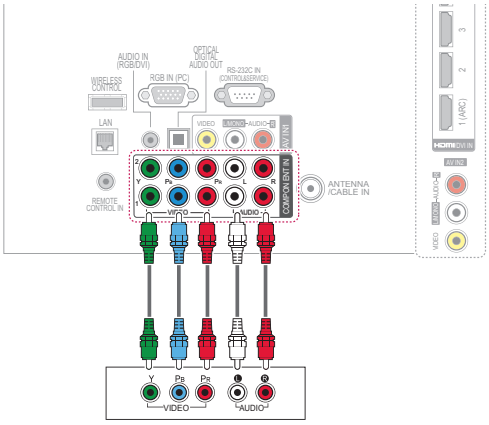
Component Connection

Transmits the analog video and audio signals from an external device to the TV. Connect the external device and the TV with the component cable as shown in the following illustration.

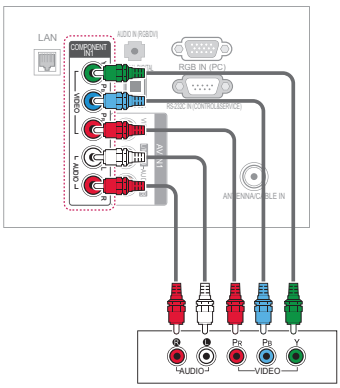
NOTE

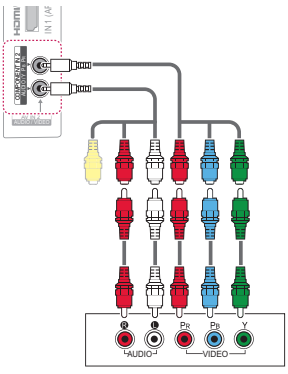
- If cables are installed incorrectly, it could case the image to display in black and white or with distorted color. Check to ensure the cable are matched with the corresponding color connection.

Plasma

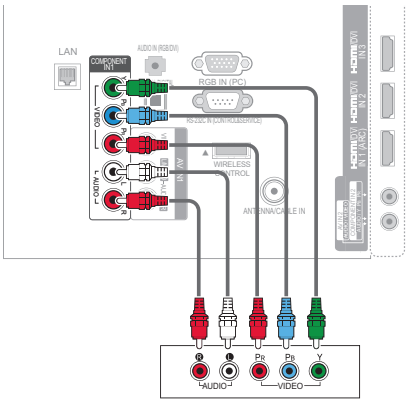


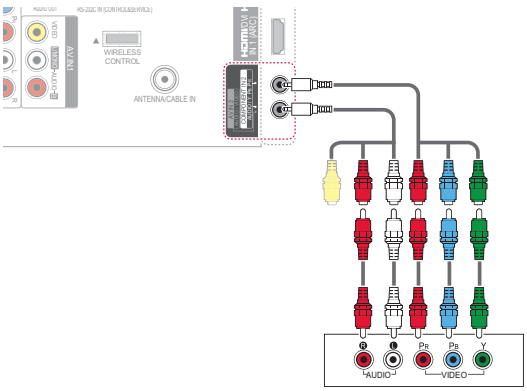
LK530, LK550 series





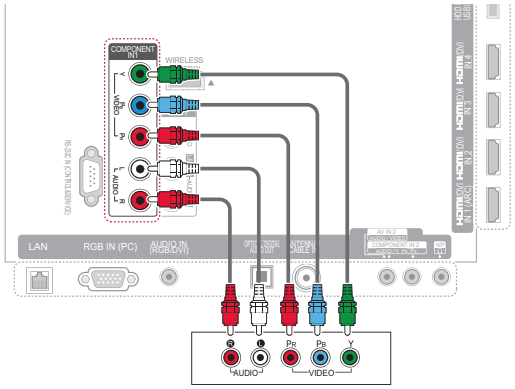
LV3700 series

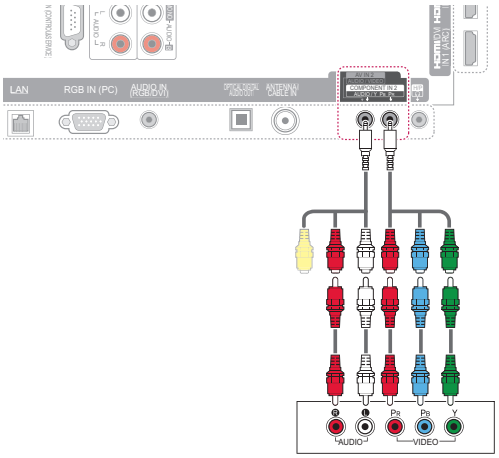




ENGLISH

Other models





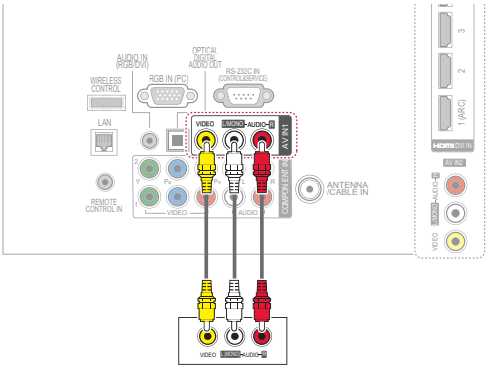
Composite Connection

Transmits the analog video and audio signals from an external device to the TV. Connect the external device and the TV with the composite cable as shown in the following illustration.

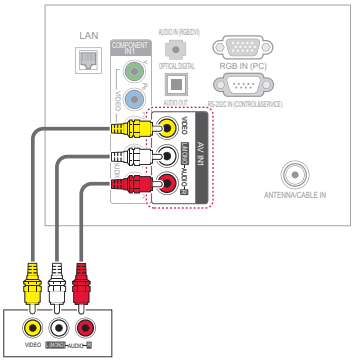
NOTE

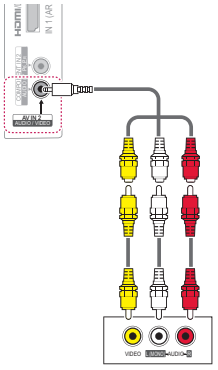
- If you have a mono VCR, connect the audio cable from the VCR to the AUDIO L/MONO jack of the TV.

Plasma

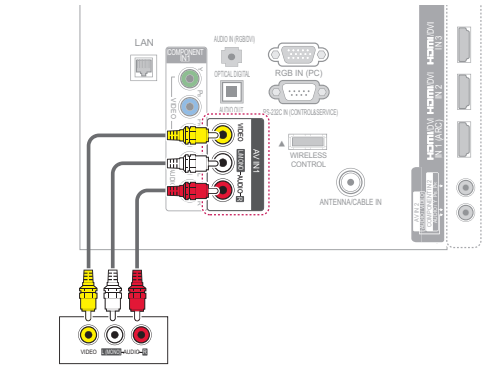


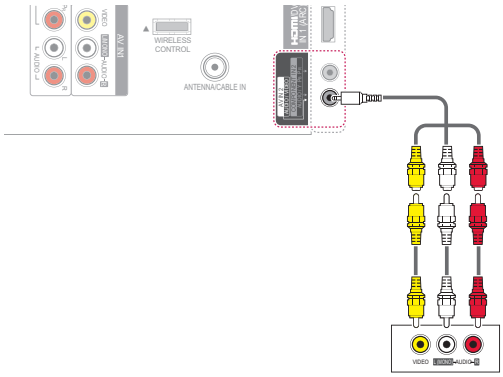
LK530, LK550 series



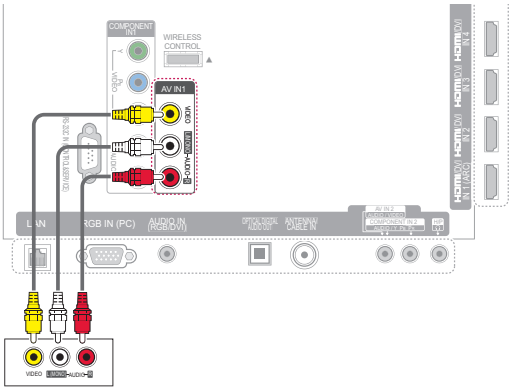


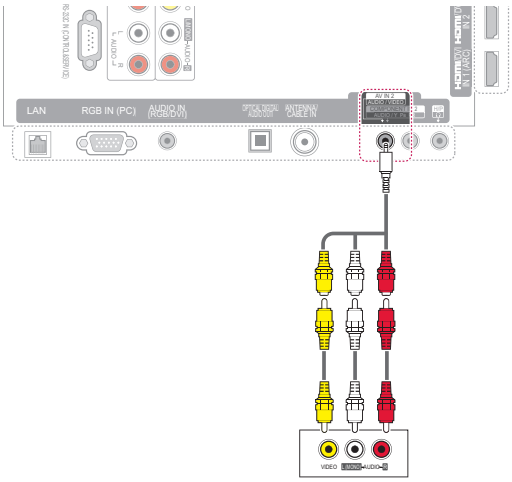
LV3700 series





Other models





ENGLISH

Connecting to a PC

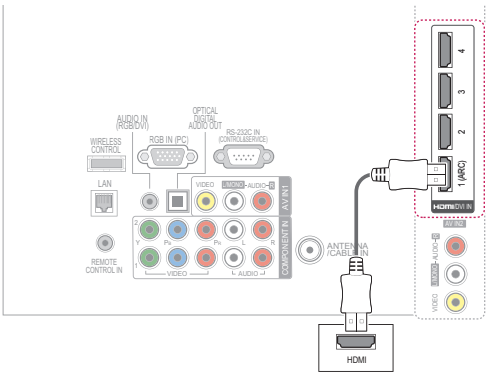
NOTE

- It is recommended to use the TV with the HDMI connection for the best image quality.

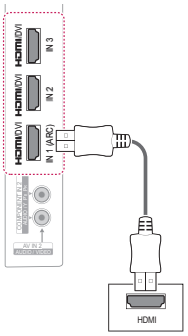
HDMI Connection

Transmits the digital video and audio signals from your PC to the TV. Connect the PC and the TV with the HDMI cable as shown in the following illustrations.

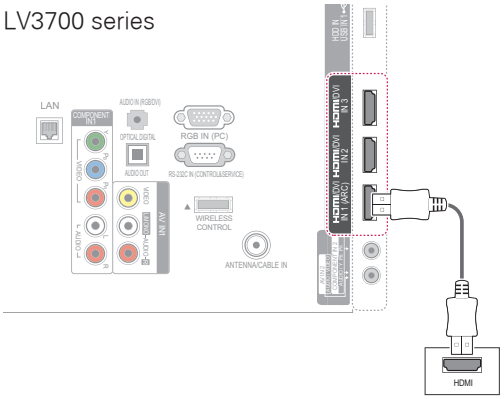
Plasma



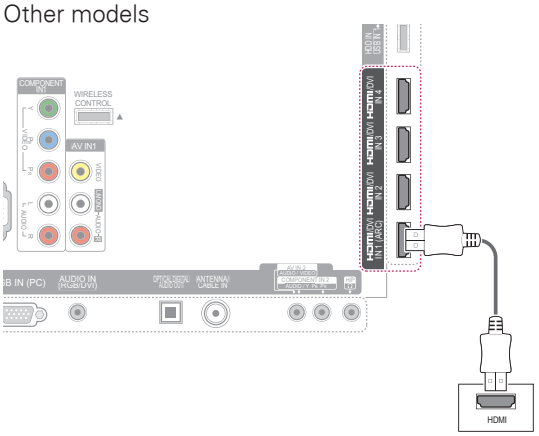
LK530, LK550 series



LV3700 series



Other models

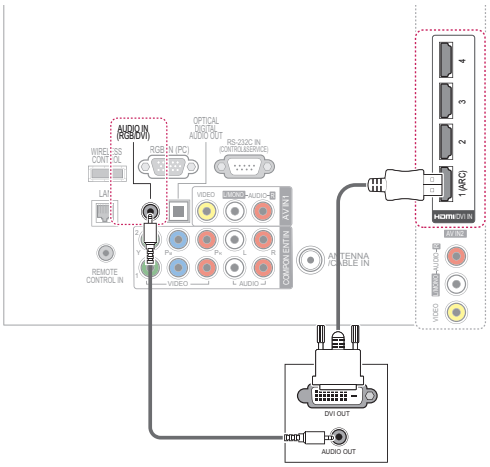


ENGLISH

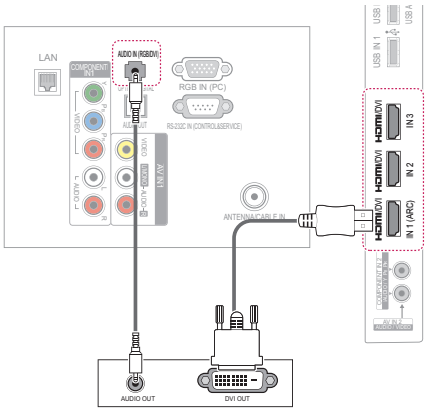
DVI to HDMI Connection

Transmits the digital video signal from your PC to the TV. Connect the PC and the TV with the DVI-HDMI cable as shown in the following illustration. To transmit an audio signal, connect an audio cable.

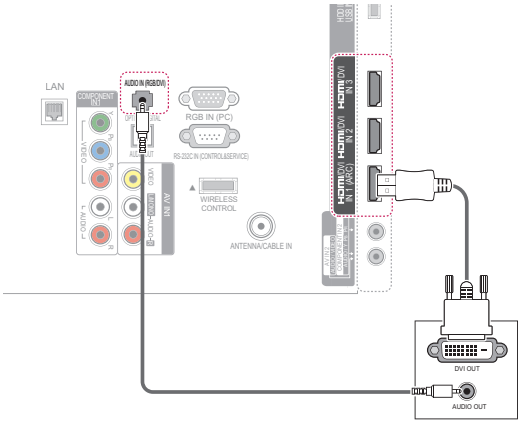
Plasma



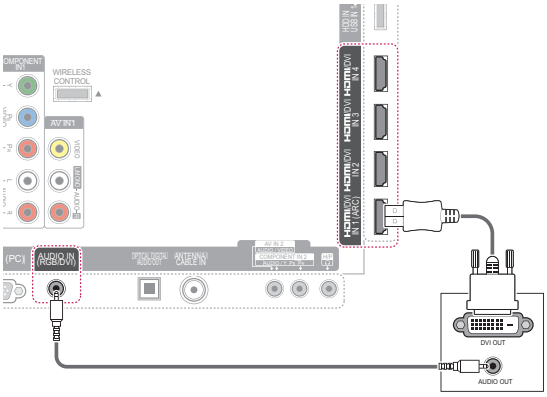
LK530, LK550 series



LV3700 series



Other models

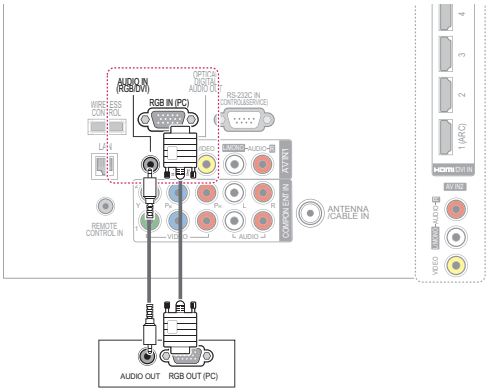


ENGLISH

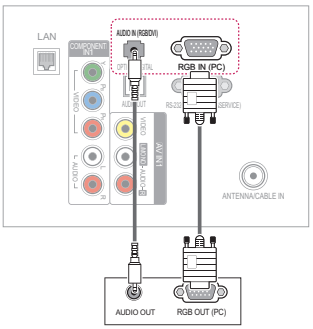
RGB Connection

Transmits the analog video signal from your PC to the TV. Connect the PC and the TV with the D-sub 15 pin signal cable as shown in the following illustrations. To transmit an audio signal, connect an audio cable.

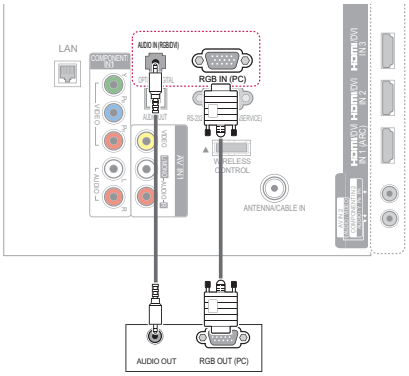
Plasma



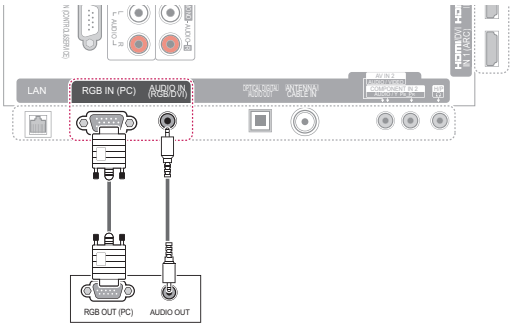
LK530, LK550 series



LV3700 series



Other models



NOTE

- 1920 x 1080 is the recommended PC resolution. If you use the TV in other video modes, afterimages or distorted images may appear on the screen.
- Depending on the graphics card, DOS mode may not work if a HDMI to DVI Cable is in use.
- In PC mode, there may be noise associated with the resolution, vertical pattern, contrast or brightness. If noise is present, change the PC output to another resolution, change the refresh rate to another rate or adjust the brightness and contrast on the PICTURE menu until the picture is clear.
- The synchronization input form for Horizontal and Vertical frequencies is separate.
- Depending on the graphics card, some resolution settings may not allow the image to be positioned on the screen properly.
- If you experience overscan issues when using HDMI-PC 1920x1080, change aspect ratio to Just scan.
- When selecting HDMI-PC, set the "Input Label - PC" in the INPUT menu.

Connecting to an Audio System

Use an optional external audio system instead of the built-in speaker.

NOTE

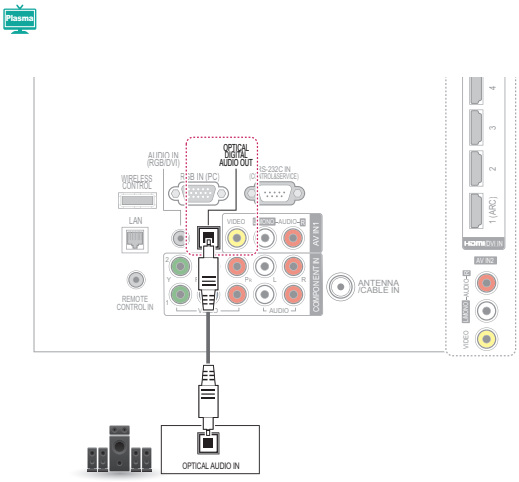
- If you use an optional external audio device instead of the built-in speaker, set the TV speaker feature to off (See p.94).

Digital Optical Audio Connection

Transmits the digital audio signal from the TV to an external device. Connect the external device and the TV with the optical audio cable as shown in the following illustration.

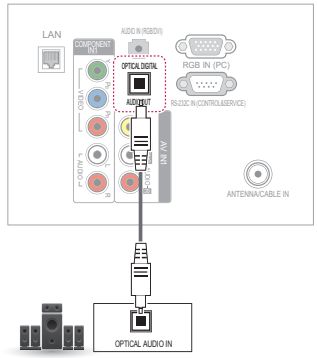
NOTE

- Do not look into the optical output port. Looking at the laser beam may damage your vision.
- Audio with ACP (Audio Copy Protection) function may block digital audio output.

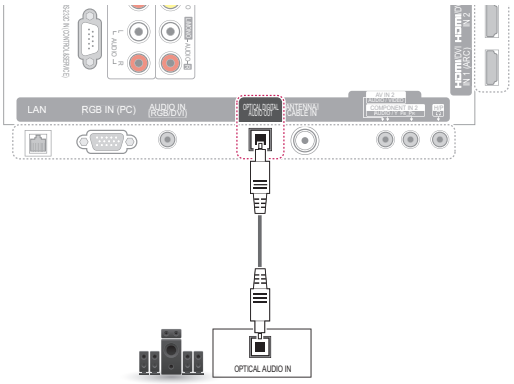


ENGLISH

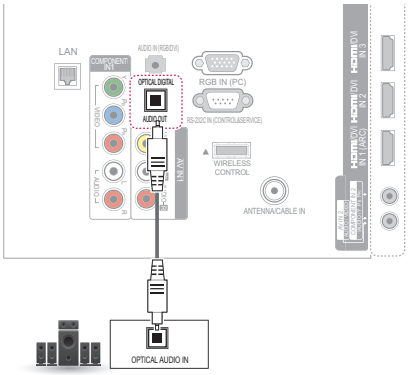
LK530, LK550 series



Other models



LV3700 series

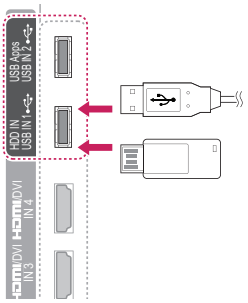


ENGLISH

Connecting to a USB

Connect a USB storage device such as a USB flash memory, external hard drive, or a USB memory card reader to the TV and access the Smart Share menu to use various multimedia files. See “Connecting USB storage devices” on page 64 and see “Browsing files” on page 69.

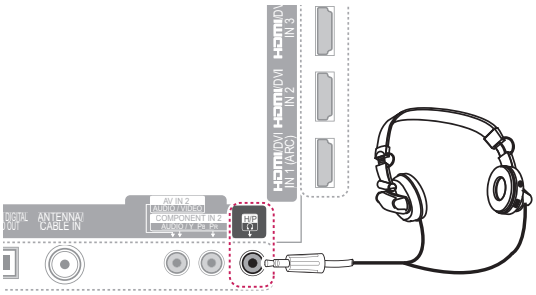
i.e)



Connecting to a Headphone

Listen to the sound through a headphone.

i.e)



NOTE

- AUDIO menu options are disabled when connecting a headphone.
- When changing AV MODE with a headphone connected, the change is applied to video but not to audio.
- Optical Digital Audio Out is not available when connecting a headphone.
- Headphone impedance: 16 Ω
- Max audio output: 10 mW to 15 mW
- Headphone jack size: 0.35 cm (0.13 inch)

ENGLISH

Connecting the Wireless Media Box

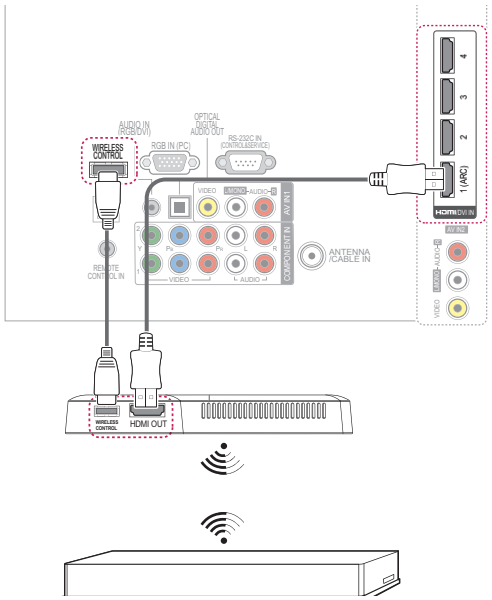
(Not support for LK530 and LK550 series)

LG TVs with a Wireless Control port support the LG Wireless Media Box, which is sold separately. When you connect the wireless ready dongle (included with the media box) to the TV, external devices can be connected to the LG Wireless Media Box and video and audio will be sent to the TV wirelessly.
Refer to the Wireless Media Box manual for operating instructions.

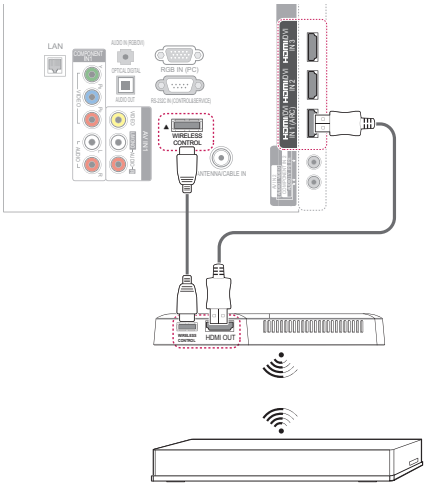
NOTE

- When using the external device connected to the Wireless Media Box, some functions of the TV menu may not work.

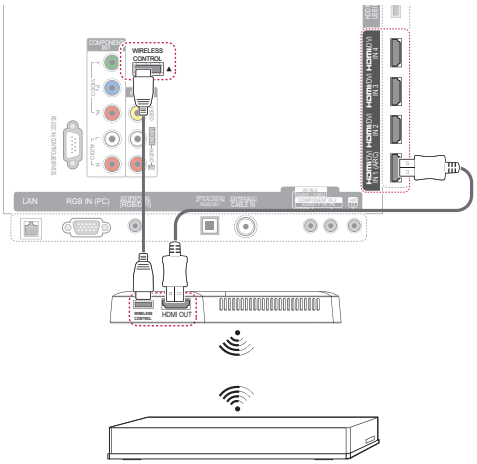
Plasma



LV3700 series



Other models



SIMPLINK Connection

Use the TV remote control to play and control the AV device connected with the HDMI cable through HDMI-CEC. This TV may work with the devices that support HDMI-CEC, but only devices with the SIMPLINK logo are fully supported.

Connect one end of the HDMI cable to the HDMI/DVI IN or HDMI IN terminal on the rear of the TV and the other end to the SIMPLINK device.

NOTE

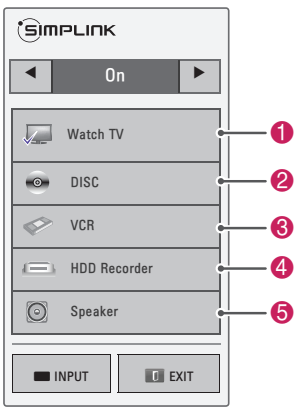
- If the connected device does not support HDMI-CEC, the SIMPLINK feature is unavailable.
- To operate SIMPLINK, you should use an High Speed HDMI cable with the CEC (Consumer Electronics Control) function.
- SIMPLINK may not work properly if you a third-party device that has an HDMI-CEC function.

Activating and Using the SIMPLINK menus

1 Press **SIMPINK** to access the SIMPLINK menus.

2 Press the Navigation buttons to select to **On**.

3 Press the Navigation buttons to scroll to one of the devices and press **ENTER**.



No.	Description
1	Displays the previously viewed TV channel.
2	Plays discs. When multiple discs are available, the title of the disc appears at the bottom of the screen.
3	Controls the connected VCR.
4	HDD recordings playback: Controls the recording stored in HDD.
5	Audio out to home theater speaker or Audio out to TV: Changes the audio output between Home theater speaker and TV speaker.

- A check mark appears in front of the selected device.
- Available devices display in a bright color.
- Unavailable devices display in grey.

3 Control the selected AV device.

Function	Description
Direct Play	After connecting AV devices to the TV, you can directly control the devices and play media without additional settings.
Select AV device	Enables you to select one of the AV devices connected to the TV.
Disc playback	Control connected AV devices by pressing the Navigation buttons, ENTER, ▶, ■, ⏸, ◀◀ and ▶▶.
Power off all devices	When you power off the TV, all connected devices are turned off.
Sync Power on	When the equipment with SIMPLINK function connected HDMI terminal starts to play, the TV will automatically turn on.
Switch audio-out	Offers an easy way to switch audio-out.

NOTE

- If you change the input source by pressing **INPUT**, the progressing function of the SIMPLINK device will stop.
- If you select a device that has the home theater feature, the sound output automatically switches to the home theater speaker and the TV speaker turns off.
- If a connected SIMPLINK home theater system does not play the audio from the TV, connect the DIGITAL AUDIO OUT terminal on the rear of the TV to the DIGITAL AUDIO IN terminal on the back of the SIMPLINK device with an optical cable.

ENGLISH

MAINTENANCE

Update and clean your TV regularly to keep the best performance and to extend the product lifespan.

Updating the TV Firmware

Download and install the latest firmware by connecting to the firmware update server to enhance or change the product function, or add new features.
The firmware update may not work properly depending on the Internet environment. If so, you may obtain the latest firmware update from the authorized LG Electronics service center.

To check the current firmware version or update the firmware,

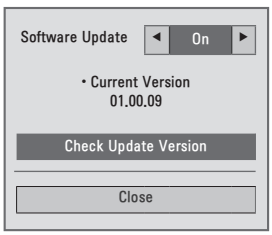
1 Press **Home** to access the Home menu.

2 Press the Navigation buttons to scroll to **SETUP** and press **ENTER**.

3 Press the Navigation buttons to scroll to **SUPPORT** and press **ENTER**.

4 Press the Navigation buttons to scroll to **Software Update** and press **ENTER**.
The current firmware version displays.

5 Select **Check Update Version** to check a new firmware version manually.



NSU (Network Software Update):
When software update is on, the TV will automatically check for software updates. A pop-up window will appear on the screen when an update is available.

NOTE
- While updating the firmware, do not disconnect the LAN cable, turn the TV off, or unplug the power cord.
- Premium service is disabled while the software is being updated through NSU.

6 When the update is complete, the TV will automatically restart in 5 seconds.
You may need to reset some **CHANNEL**, **PICTURE**, or **AUDIO** menus.

NOTE
- You cannot downgrade back to an older firmware version.
- The period of time for the firmware update may be different depending on the firmware size or network condition.
- If the firmware update download fails when using wireless, temporarily connect a cable directly to your router. If it still does not download, contact customer service.

ENGLISH

Cleaning Your TV

CAUTION

- Make sure to turn the power off and disconnect the power cord and all other cables first.
- When the TV is left unattended and unused for a long time, disconnect the power cord from the wall outlet to prevent possible damage from lightning or power surges.

Screen and frame

To remove dust or light dirt, wipe the surface with a dry, clean, and soft cloth.
To remove major dirt, wipe the surface with a soft cloth dampened in clean water or a diluted mild detergent. Then wipe immediately with a dry cloth.

CAUTION

- Do not push, rub, or hit the surface with your fingernail or a sharp object, as this may result in scratches on the screen and image distortions.
- Do not use any chemicals, such as waxes, benzene, alcohol, thinners, insecticides, air fresheners, lubricants, as these may damage the screen's finish and cause discoloration.

Cabinet and stand

To remove dust or light dirt, wipe the cabinet with a dry, clean, and soft cloth.
To remove major dirt, wipe the cabinet with a soft cloth dampened in a clean water or water containing a small amount of mild detergent. Then wipe immediately with a dry cloth.

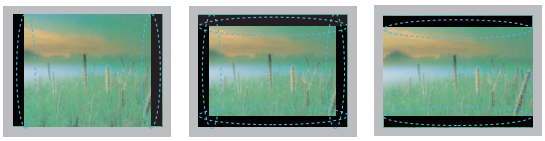
CAUTION

- Do not spray liquid onto the surface. If water enters the TV, it may result in fire, electric shock, or malfunction.
- Do not use any chemicals as this may deteriorate the surface.

Power cord

Remove the accumulated dust or dirt on the power cord regularly.

Preventing "Image burn" or "Burn-in" on your TV screen



- If a fixed image displays on the TV screen for a long period of time, it will be imprinted and become a permanent disfigurement on the screen. This is "image burn" or "burn-in" and not covered by the warranty.
- If the aspect ratio of the TV is set to 4:3 for a long period of time, image burn may occur on the letterboxed area of the screen.
- Avoid displaying a fixed image on the TV screen for a long period of time (2 or more hours for LCD, 1 or more hours for the Plasma TV) to prevent image burn.

TROUBLESHOOTING

General

Problem	Resolution
Cannot control the TV with the remote control.	• Check the remote control sensor on the product and try again. • Check if there is any obstacle between the product and the remote control. • Check if the batteries are still working and properly installed (⊕ to ⊕, ⊖ to ⊖). • Check if the appropriate input mode such as TV or VCR is set for using the remote control.
No image display and no sound is produced.	• Check if the product is turned on. • Check if the power cord is connected to a wall outlet. • Check if there is a problem in the wall outlet by connecting other products.
Image appears slowly when the TV turns on.	• The image is muted during the product startup process. This is normal. If the image does not appear in a few minutes, unplug the TV for 30 seconds and try again. If the image still does not appear, contact the authorized service center in your local area.
Cannot connect external devices.	• Refer to the "Connection overview" and connect an external device.
The TV turns off suddenly.	• Check the power control settings. The power supply may be interrupted. • Check if the Auto sleep feature is activated in the Time settings. Refer to the "Sleep Timer". • If there is no signal while the TV is on, the TV will turn off automatically after 15 minutes of inactivity.

Audio

Problem	Resolution
No sound is produced while images are displaying.	• Press **VOL +** or **-** button. • Check if the sound is muted by pressing **MUTE**. • Scroll to other channels. There may a problem with the broadcast. • Check if the audio cables are connected properly. • Check if the TV Speaker feature is activated in the menu option.
No output from one of the speakers	• Adjust Balance in the menu option.
Unusual sound from inside the TV is produced.	• A change in ambient humidity or temperature may result in an unusual noise when the product turns on or off. There is no problem with your product.

Video

Problem	Resolution
An image displays in black and white or the color quality is poor.	• Adjust the color setting in the menu option. • Keep a sufficient distance between this product and other electronic products. • Scroll to other channels. There may a problem with the broadcast.
Horizontal or vertical bars appears or images blur	• Check if there are local interferences such as an electrical appliance or power tool.
Lines or streaks appear on images	• Check the antenna or aim the antenna to the proper direction.
Afterimages (ghosts) appear when the product turns off	• Pixels may have been damaged from a fixed image displayed for a long time (image burn). Use a screen saver to prevent the pixel damage on the screen.
The power is on but the screen appears extremely dark.	• Adjust the brightness and contrast in the menu option.
"No Signal" appears on the screen.	• Check if the signal cable is connected between the TV and products properly. • Check the selected input source by pressing **INPUT**.
Black spots appear on the screen.	• Several pixels in red, green, white, or black may appear on the screen that can attribute to the characteristics of the LCD panel. This is normal.
The display offset is wrong.	• Adjust the position setting in the Picture menu. • Check if the video card resolution and frequency are supported by the product. If the frequency is out of range, set to the recommended resolution using the display settings on the external device.
Thin lines appear in the background of the screen.	• Check the video cable connections.
Horizontal noises appear or characters blur.	• Adjust the Phase setting in the menu option. Refer to the "SCREEN (RGB-PC)".
The reception on some channels is poor	• Scroll to other channels. There may a problem with the broadcast. • The station signal may be weak. Aim the antenna to the proper direction. • Check if there is local interference such as an electrical appliance or power tool.

Movie

Problem	Resolution
The file does not appear on the Movie List.	• Check whether the extension is supported.
Message is displayed saying "This file is invalid" or the audio is working normally but the video is not working normally.	• Check whether the file is playing normally on a PC. (Check whether the file is damaged.) • Check whether the resolution is supported. • Check whether the video/audio codec is supported. • Check whether the frame rate is supported.
Message is displayed saying "Unsupported Audio" or the video is working normally but the audio is not working normally.	• Check whether the file is playing normally on a PC. (Check whether the file is damaged.) • Check whether the audio codec is supported. • Check whether the bit rate is supported. • Check whether the sample rate is supported.
Subtitle is not working.	• Check whether the file is playing normally on a PC. (Check whether the file is damaged.) • Check whether the video file and subtitle file name are the same. • Check whether the video file and subtitle file are located in the same folder. • Check whether the subtitle file is supported. • Check whether the language is supported. (When you open the subtitle file in Memo Pad, you can check the language of the subtitle file.)

SPECIFICATIONS

Product specifications may be changed without prior notice due to upgrade of product functions.

Television System		NTSC-M, ATSC, 64 & 256 QAM
Program Coverage		VHF 2-13, UHF 14-69, CATV 1-135, DTV 2-69, CADTV 1-135
External Antenna Impedance		75 Ω
Environment condition	Operating Temperature	0 - 40°C
	Operating Humidity	Less than 80%
	Storage Temperature	-20 - 60°C
	Storage Humidity	Less than 85%

MODELS		50PZ750 (50PZ750-UG)	60PZ750 (60PZ750-UG)
Dimensions (W x H x D)	With stand	1185.2 mm x 782.6 mm x 317.2 mm (46.6 inch x 30.8 inch x 12.4 inch)	1404.0 mm x 911.4 mm x 364.4 mm (55.2 inch x 35.8 inch x 14.3 inch)
	Without stand	1185.2 mm x 714.0 mm x 49.6 mm (46.6 inch x 28.1 inch x 1.9 inch)	1404.0 mm x 837.8 mm x 49.6 mm (55.2 inch x 32.9 inch x 1.9 inch)
Weight	With stand	31.5 kg (69.4 lb)	46.3 kg (102.0 lb)
	Without stand	27.9 kg (61.5 lb)	40.3 kg (88.8 lb)
Current Value / Power consumption		3.7 A / 370 W	5.3 A / 530 W
Power requirement		AC 100 - 240 V ~ 50 / 60 Hz	

MODELS		50PZ950 (50PZ950-UA)	60PZ950 (60PZ950-UA)
		50PZ950U (50PZ950U-UA)	60PZ950U (60PZ950U-UA)
Dimensions (W x H x D)	With stand	1175.2 mm x 787.6 mm x 317.2 mm (46.2 inch x 31.0 inch x 12.4 inch)	1393.4 mm x 916.4 mm x 364.4 mm (54.8 inch x 36.0 inch x 14.3 inch)
	Without stand	1175.2 mm x 720.6 mm x 49.6 mm (46.2 inch x 28.3 inch x 1.9 inch)	1393.4 mm x 843.8 mm x 49.6 mm (54.8 inch x 33.2 inch x 1.9 inch)
Weight	With stand	32.5 kg (71.6 lb)	46.3 kg (102.0 lb)
	Without stand	28.9 kg (63.7 lb)	40.3 kg (88.8 lb)
Current Value / Power consumption		3.7 A / 370 W	5.3 A / 530 W
Power requirement		AC 100 - 240 V ~ 50 / 60 Hz	

MODELS		42LV3700 (42LV3700-UD)	47LV3700 (47LV3700-UD)	55LV3700 (55LV3700-UD)
Dimensions (W x H x D)	With stand	998.0 mm x 684.0 mm x 256.0 mm (39.2 inch x 26.9 inch x 10.0 inch)	1108.0 mm x 746.0 mm x 256.0 mm (43.6 inch x 29.3 inch x 10.0 inch)	1286.0 mm x 847.0 mm x 338.0 mm (50.6 inch x 33.3 inch x 13.3 inch)
	Without stand	998.0 mm x 615.0 mm x 30.4 mm (39.2 inch x 24.2 inch x 1.1 inch)	1108.0 mm x 677.0 mm x 30.4 mm (43.6 inch x 26.6 inch x 1.1 inch)	1286.0 mm x 778.0 mm x 30.4 mm (50.6 inch x 30.6 inch x 1.1 inch)
Weight	With stand	15.5 kg (34.1 lb)	20.9 kg (46.0 lb)	25.5 kg (56.2 lb)
	Without stand	13.3 kg (29.3 lb)	18.7 kg (41.2 lb)	21.4 kg (47.1 lb)
Current Value / Power consumption		Philippines : 1.3 A / 130 W Other Country : 1.1 A / 110 W	1.4 A / 140 W	1.6 A / 160 W
Power requirement		USA, Canada, Mexico: AC 120 V ~ 50 / 60 Hz Other Country: AC 100 - 240 V ~ 50 / 60 Hz		

MODELS		42LV5400 (42LV5400-UB)	47LV5400 (47LV5400-UB)	55LV5400 (55LV5400-UB)
		42LV5500 (42LV5500-UA) (42LV5500-UG)	47LV5500 (47LV5500-UA)	55LV5500 (55LV5500-UA)
Dimensions (W x H x D)	With stand	1012.0 mm x 683.0 mm x 256.0 mm (39.8 inch x 26.8 inch x 10.0 inch)	1121.0 mm x 746.0 mm x 256.0 mm (44.1 inch x 29.3 inch x 10.0 inch)	1298.0 mm x 849.0 mm x 338.0 mm (51.1 inch x 33.4 inch x 13.3 inch)
	Without stand	1012.0 mm x 617.0 mm x 29.9 mm (39.8 inch x 24.2 inch x 1.1 inch)	1121.0 mm x 678.0 mm x 29.9 mm (44.1 inch x 26.6 inch x 1.1 inch)	1298.0 mm x 778.0 mm x 29.9 mm (51.1 inch x 30.6 inch x 1.1 inch)
Weight	With stand	15.5 kg (34.1 lb)	20.7 kg (45.6 lb)	25.8 kg (56.8 lb)
	Without stand	13.2 kg (29.1 lb)	18.4 kg (40.5 lb)	21.7 kg (47.8 lb)
Current Value / Power consumption		1.4 A / 140 W	1.5 A / 150 W	1.7 A / 170 W
Power requirement		USA, Canada, Mexico: AC 120 V ~ 50 / 60 Hz Other Country: AC 100 - 240 V ~ 50 / 60 Hz		

MODELS		42LW5600 (42LW5600-UA)	47LW5600 (47LW5600-UA)	55LW5600 (55LW5600-UA)
Dimensions (W x H x D)	With stand	1005.0 mm x 688.0 mm x 256.0 mm (39.5 inch x 27.0 inch x 10.0 inch)	1115.0 mm x 750.0 mm x 256.0 mm (43.8 inch x 29.5 inch x 10.0 inch)	1293.0 mm x 851.0 mm x 338.0 mm (50.9 inch x 33.5 inch x 13.3 inch)
	Without stand	1005.0 mm x 621.0 mm x 29.9 mm (39.5 inch x 24.4 inch x 1.1 inch)	1115.0 mm x 683.0 mm x 29.9 mm (43.8 inch x 26.8 inch x 1.1 inch)	1293.0 mm x 785.0 mm x 29.9 mm (50.9 inch x 30.9 inch x 1.1 inch)
Weight	With stand	15.2 kg (33.5 lb)	20.7 kg (45.6 lb)	26.2 kg (57.7 lb)
	Without stand	13.0 kg (28.6 lb)	18.5 kg (40.7 lb)	22.0 kg (48.5 lb)
Current Value / Power consumption		1.4 A / 140 W	1.5 A / 150 W	1.7 A / 170 W
Power requirement		USA, Canada, Mexico: AC 120 V ~ 50 / 60 Hz Other Country: AC 100 - 240 V ~ 50 / 60 Hz		

MODELS		32LW5700 (32LW5700-UE)	42LW5700 (42LW5700-UE)
Dimensions (W x H x D)	With stand	766.0 mm x 545.0 mm x 240.0 mm (30.1 inch x 21.4 inch x 9.4 inch)	999.0 mm x 681.0 mm x 255.0 mm (39.3 inch x 26.8 inch x 10.0 inch)
	Without stand	766.0 mm x 491.0 mm x 41.0 mm (30.1 inch x 19.3 inch x 1.6 inch)	999.0 mm x 623.0 mm x 30.9 mm (39.3 inch x 24.5 inch x 1.2 inch)
Weight	With stand	10.7 kg (23.5 lb)	15.7 kg (34.6 lb)
	Without stand	8.9 kg (19.6 lb)	13.4 kg (29.5 lb)
Current Value / Power consumption		1.2A / 120 W	1.4 A / 140 W
Power requirement		USA, Canada, Mexico: AC 120 V ~ 50 / 60 Hz Other Country: AC 100 - 240 V ~ 50 / 60 Hz	

MODELS		47LW5700 (47LW5700-UE)	55LW5700 (55LW5700-UE)
Dimensions (W x H x D)	With stand	1109.0 mm x 744.0 mm x 255.0 mm (43.6 inch x 29.2 inch x 10.0 inch)	1286.0 mm x 848.0 mm x 338.0 mm (50.6 inch x 33.3 inch x 13.3 inch)
	Without stand	1109.0 mm x 684.0 mm x 30.9 mm (43.6 inch x 26.9 inch x 1.2 inch)	1286.0 mm x 784.0 mm x 30.9 mm (50.6 inch x 30.8 inch x 1.2 inch)
Weight	With stand	20.2 kg (44.5 lb)	26.2 kg (57.7 lb)
	Without stand	17.9 kg (39.4 lb)	22.1 kg (48.7 lb)
Current Value / Power consumption		1.5 A / 150 W	1.7 A / 170 W
Power requirement		USA, Canada, Mexico: AC 120 V ~ 50 / 60 Hz Other Country: AC 100 - 240 V ~ 50 / 60 Hz	

MODELS		47LW6500 (47LW6500-UA)	55LW6500 (55LW6500-UA)	65LW6500 (65LW6500-UA)
Dimensions (W x H x D)	With stand	1119.0 mm x 749.0 mm x 255.0 mm (44.0 inch x 29.4 inch x 10.0 inch)	1297.0 mm x 851.0 mm x 341.0 mm (51.0 inch x 33.5 inch x 13.4 inch)	1555.0 mm x 1012.0 x 341.0 mm (61.2 inch x 39.8 inch x 13.4 inch)
	Without stand	1119.0 mm x 684.0 mm x 29.9 mm (44.0 inch x 26.9 inch x 1.1 inch)	1297.0 mm x 785.0 mm x 29.9 mm (51.0 inch x 30.9 inch x 1.1 inch)	1555.0 mm x 940.0 mm x 38.1 mm (61.2 inch x 37.0 inch x 1.5 inch)
Weight	With stand	21.0 kg (46.2 lb)	27.0 kg (59.5 lb)	49.0 kg (108.0 lb)
	Without stand	18.2 kg (40.1 lb)	22.0 kg (48.5 lb)	42.0 kg (92.5 lb)
Current Value / Power consumption		1.5 A / 150 W	1.7 A / 170W	2.4 A / 240 W
Power requirement		USA, Canada, Mexico: AC 120 V ~ 50 / 60 Hz Other Country: AC 100 - 240 V ~ 50 / 60 Hz		

MODELS		47LW9800 (47LW9800-UA)	55LW9800 (55LW9800-UA) / 55LV9500 (55LV9500-UA)
Dimensions (W x H x D)	With stand	1095.0 mm x 735.0 mm x 235.0 mm (43.1 inch x 28.9 inch x 9.2 inch)	1265.0 mm x 831.0 mm x 285.0 mm (49.8 inch x 32.7 inch x 11.2 inch)
	Without stand	1095.0 mm x 665.0 mm x 27.9 mm (43.1 inch x 26.1 inch x 1.0 inch)	1265.0 mm x 760.0 mm x 27.9 mm (49.8 inch x 29.9 inch x 1.0 inch)
Weight	With stand	22.5 kg (49.6 lb)	29.0 kg (63.9 lb)
	Without stand	18.2 kg (40.1 lb)	23.8 kg (52.4 lb)
Current Value / Power consumption		2.1 A / 210 W	2.5 A / 250 W
Power requirement		USA, Canada, Mexico: AC 120 V ~ 50 / 60 Hz Other Country: AC 100 - 240 V ~ 50 / 60 Hz	

MODELS		42LK530 (42LK530-UC)	47LK530 (47LK530-UC)	55LK530 (55LK530-UC)
Dimensions (W x H x D)	With stand	1024.0 mm x 685.0 mm x 261.0 mm (40.3 inch x 26.9 x 10.2 inch)	1137.0 mm x 758.0 mm x 270.0 mm (44.7 inch x 29.8 inch x 10.6 inch)	1329.0 mm x 872.0 mm x 330.0 mm (52.3 inch x 34.3 inch x 12.9 inch)
	Without stand	1024.0 mm x 621.0 mm x 76.8 mm (40.3 inch x 24.4 inch x 3.0 inch)	1137.0 mm x 685.0 mm x 76.8 mm (44.7 inch x 26.9 inch x 3.0 inch)	1329.0 mm x 796.0 mm x 96.5 mm (52.3 inch x 31.3 inch x 3.7 inch)
Weight	With stand	15.5 kg (34.1 lb)	20.3 kg (44.7 lb)	33.0 kg (72.7 lb)
	Without stand	13.9 kg (30.6 lb)	18.3 kg (40.3 lb)	29.8 kg (65.6 lb)
Current Value / Power consumption		2.0 A / 200 W	2.5 A / 250 W	3.2 A / 320 W
Power requirement		AC 100 - 240V ~ 50 / 60 Hz		

MODELS		42LK550 (42LK550-UA) (42LK550-UG)	47LK550 (47LK550-UA)
Dimensions (W x H x D)	With stand	1019.0 mm x 698.0 mm x 265.0 mm (40.1 inch x 27.4 inch x 10.4 inch)	1132.0 mm x 762.0 mm x 265.0 mm (44.5 inch x 30.0 inch x 10.4 inch)
	Without stand	1019.0 mm x 631.0 mm x 76.5 mm (40.1 inch x 24.8 inch x 3.0 inch)	1132.0 mm x 695.0 mm x 76.5 mm (44.5 inch x 27.3 inch x 3.0 inch)
Weight	With stand	16.2 kg (35.7 lb)	19.0 kg (41.8 lb)
	Without stand	14.5 kg (31.9 lb)	17.3 kg (38.1 lb)
Current Value / Power consumption		1.9 A / 190 W	2.5 A / 250 W
Power requirement		AC 100 - 240V ~ 50 / 60 Hz	

RGB (PC), HDMI (PC) supported mode

Resolution	Horizontal Frequency (kHz)	Vertical Frequency (Hz)
640x350	31.468	70.09
720x400	31.469	70.08
640x480	31.469	59.94
800x600	37.879	60.31
1024x768	48.363	60.00
1360x768	47.712	60.015
1280x1024 (HDMI-PC)	63.981	60.02
1920x1080 (RGB-PC)	66.587	59.934
1920x1080 (HDMI-PC)	67.50	60.00

HDMI (DTV) supported mode

Resolution	Horizontal Frequency (kHz)	Vertical Frequency (Hz)
720x480p	31.47	59.94
	31.50	60.00
1280x720p	44.96	59.94
	45.00	60.00
1920x1080i	33.72	59.94
	33.75	60.00
1920x1080p	26.97	23.976
	27.00	24.00
	33.71	29.97
	33.75	30.00
	67.432	59.94
	67.50	60.00

Component supported mode

Resolution	Horizontal Frequency (kHz)	Vertical Frequency (Hz)
720x480i	15.73	59.94
	15.73	60.00
720x480p	31.47	59.94
	31.50	60.00
1280x720p	44.96	59.94
	45.00	60.00
1920x1080i	33.72	59.94
	33.75	60.00
1920x1080p	26.97	23.976
	27.00	24.00
	33.71	29.97
	33.75	30.00
	67.432	59.94
	67.500	60.00

Component port connecting information

Component ports on the TV	Y	P_B	P_R

Video output ports on DVD player	Y	P_B	P_R
	Y	B-Y	R-Y
	Y	Cb	Cr
	Y	Pb	Pr

DivX supported mode

File Extensions	Audio/ Video	Codec	Profile/Level Support	Explanation
.asf .wmv	Video	VC-1 Advanced Profile	Advanced Profile@Level 3 (e.g. 720p60, 1080i60, 1080p30)	Only streams compliant to SMPTE 421M VC-1 standard are supported.
		VC-1 Simple and Main Profiles	Simple Profile@Medium Level (e.g. CIF, QVGA) Main Profile@High Level (e.g. 1080p30)	
	Audio	WMA Standard		
		WMA 9 Professional		
.divx .avi	Video	DivX3.11		Global motion compensation or quarterpel motion estimation does not supported. Streams using this syntax are not supported.
		DivX4 DivX5 DivX6	Advanced Simple Profile (e.g. 720p/1080i)	
		XViD		
		H.264 / AVC	Main Profile@ Level 4.1 High Profile@ Level 4.1 (e.g. 720p60, 1080i60, 1080p30)	
	Audio	MPEG-1 Layer I, II MPEG-1 Layer III (MP3) Dolby Digital		
.mp4 .m4v .mov	Video	H.264 / AVC	Main Profile@ Level 4.1 High Profile@ Level 4.1 (e.g. 720p60, 1080i60, 1080p30)	Global motion compensation or quarterpel motion estimation does not supported. Streams using this syntax are not supported.
		MPEG-4 Part 2	Advanced Simple Profile (e.g. 720p/1080i)	
	Audio	MP3		
.mkv	Video	H.264 / AVC	Main Profile@ Level 4.1 High Profile@ Level 4.1 (e.g. 720p60, 1080i60, 1080p30)	Most of the MKV content available is encoded by the open source x264 codec.
	Audio	MP3		
		Dolby Digital		
.ts .trp .tp	Video	H.264 / AVC	Main Profile@ Level 4.1 High Profile@ Level 4.1 (e.g. 720p60, 1080i60, 1080p30)	
		MPEG-2	Main Profile@High Level (e.g. 720p60, 1080i60)	
		VC-1	Simple Profile@Medium Level (e.g. CIF, QVGA) Main Profile@High Level (e.g. 1080p30) Advanced Profile@Level3 (e.g. 720p60, 1080i60, 1080p30)	Only streams compliant to SMPTE 421M VC-1 standard are supported.
	Audio	MPEG-1 Layer I, II MPEG-1 Layer III (MP3) Dolby Digital Dolby Digital Plus		
		MP3		
.vob	Video	MPEG-1		
		MPEG-2	Main Profile@High Level (e.g. 720p60, 1080i60)	
	Audio	Dolby Digital MPEG-1 Layer I, II DVD-LPCM		
.mpg	Video	MPEG-1	Main Profile@High Level (e.g. 720p60, 1080i60)	Only streams compliant configured properly for TS, PS or ES
	Audio	MPEG-1 Layer I, II		

ENGLISH

3D supported formats

Input	Signal	Resolution	Horizontal Frequency (kHz)	Vertical Frequency (Hz)	Playable 3D video format
HDMI	720p	1280x720	45.00	60	» Side by Side » Top & Bottom » HDMI 3D Top & Bottom
			90.00	60	» HDMI 3D Frame Packing
	1080i	1920x1080	33.75	60	» Side by Side » Top & Bottom » HDMI 3D Side by Side (Half)
	1080p	1920x1080	67.50	60	» Side by Side » Top & Bottom » Checker Board » Single Frame Sequential
			27.00	24	» Side by Side » Top & Bottom » Checker Board » HDMI 3D Top & Bottom
			54.00	24	» HDMI 3D Frame Packing
			67.50 (LCD)	30	» HDMI 3D Frame Packing
			33.75	30	» Side by Side » Top & Bottom » Checker Board
Component (Plasma)	720p	1280x720	44.96	59.94	» Side by Side » Top & Bottom
			45.00	60.00	
	1080i	1920x1080	33.72	59.94	» Side by Side » Top & Bottom
			33.75	60.00	
RGB-PC	1080p	1920x1080	66.587	59.934	» Side by Side » Top & Bottom
USB	1080p	1920x1080	33.75	30	» Side by Side » Top & Bottom » Checker Board » MPO (Photo)
DLNA	1080p	1920x1080	33.75	30	» Side by Side » Top & Bottom » Checker Board
	Signal				Playable 3D video format
DTV	720p, 1080i				» Side by Side » Top & Bottom

- Media contents and a player need to support HDMI 3D Frame Packing, HDMI 3D Side by Side, HDMI 3D Top & Bottom to play in 3D.
- Video, which is input as HDMI 3D Frame Packing, HDMI 3D Side by Side, HDMI 3D Top & Bottom format, is switched into the 3D screen automatically.

Wireless LAN for Broadband/DLNA Adaptor SPEC (For LV9500, LW9800 series)

This device only works with compatible LG TV.

Standard	IEEE802.11a/b/g/n
Frequency Range	2402 to 2483 MHz 5150 to 5250 MHz 5725 to 5850 MHz
Modulation	CCK / OFDM / MIMO
Output Power (Typical)	802.11a: 14 dBm 802.11b: 17 dBm 802.11g: 14 dBm 802.11n: 13 dBm
Data rate	802.11a/g: 54 Mbps 802.11b: 11 Mbps 802.11n: 300 Mbps
Antenna Gain (Typical)	2402 to 2483 MHz: 1.17 dBi 5150 to 5250 MHz: 4.67 dBi 5725 to 5850 MHz: 3.30 dBi
Occupied bandwidth	802.11a/b/g: HT20 802.11n: HT20/40

Because band channel used by the country could be different, the user can not change or adjust the operating frequency and this product is set for the regional frequency table.

- FCC ID of Wi-Fi module inside TV
  FCC ID: BEJWN8522D1

CE

RF module (BM-LDS201) specification

For TV By using a 2.4 GHz bandwidth radio frequency(RF).

- Output: 1 dBm or lower
- Maximum Communication Distance: 10 m (30 ft) in an open space
- Bandwidth: 2.4 GHz (2.4035 GHz - 2.4783 GHz)
- Transfer Rate: 250 kbps
- FCC ID of RF module inside TV
  FCC ID: BEJLDS201

CE

IR CODES

(Depending on model)

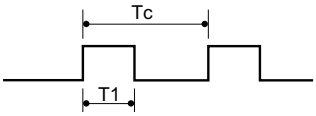
How to Connect

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

Remote Control IR Codes

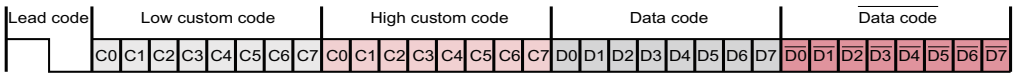
Output waveform

Single pulse, modulated with 37.917kHz signal at 455kHz

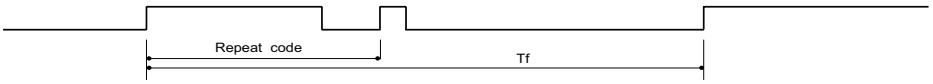


Frame configuration

1st frame



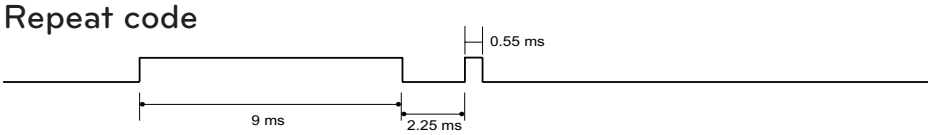
Repeat frame



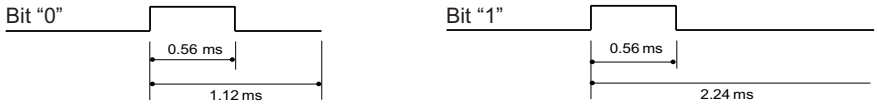
Lead code



Repeat code

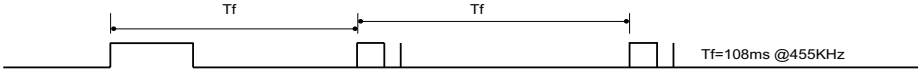


Bit description



Frame interval: Tf

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



ENGLISH

Code (Hexa)	Function	Note	Code (Hexa)	Function	Note
08	POWER	Remote control Button (Power On/Off)	0F	TV	Remote control Button
			DC	3D	Remote control Button
45	Q.MENU	Remote control Button	5B	EXIT	Remote control Button
43	Home	Remote control Button	D6	TV	Discrete IR Code (TV Input Selection)
0B	INPUT	Remote control Button			
10 - 19	Number Key 0-9	Remote control Button	C4	POWER ON	Discrete IR Code (Only Power Off)
4C	- (Dash)/LIST	Remote control Button			
1A	FLASHBK	Remote control Button	C5	POWER OFF	Discrete IR Code (Only Power Off)
09	MUTE/DELETE	Remote control Button			
02	VOL +	Remote control Button	5A	AV1	Discrete IR Code (AV1 Input Selection)
03	VOL -	Remote control Button			
00	CH ∧	Remote control Button	D0	AV2	Discrete IR Code (AV2 Input Selection)
01	CH ∨	Remote control Button			
1E	FAV/MARK	Remote control Button	BF	COMPONENT1	Discrete IR Code (Component1 Input Selection)
40	∧	Remote control Button			
41	∨	Remote control Button	D4	COMPONENT2	Discrete IR Code (Component2 Input Selection)
07	<	Remote control Button			
06	>	Remote control Button	D5	RGB-PC	Discrete IR Code (RGB-PC Input Selection)
44	ENTER	Remote control Button			
28	BACK	Remote control Button	CE	HDMI1	Discrete IR Code (HDMI1 Input Selection)
79	RATIO	Remote control Button			
BA (Plasma)	FREEZE	Remote control Button	CC	HDMI2	Discrete IR Code (HDMI2 Input Selection)
95	ENERGY SAVING	Remote control Button			
7E	SIMPLINK	Remote control Button	E9	HDMI3	Discrete IR Code (HDMI3 Input Selection)
AA	INFO	Remote control Button			
30	AV MODE	Remote control Button	DA	HDMI4	Discrete IR Code (HDMI4 Input Selection)
72	RED	Remote control Button			
71	GREEN	Remote control Button	76	Ratio 4:3	Discrete IR Code (Only 4:3 Mode)
63	YELLOW	Remote control Button			
61	BLUE	Remote control Button	77	Ratio 16:9	Discrete IR Code (Only 16:9 Mode)
B1	■	Remote control Button			
B0	▶	Remote control Button	AF	Ratio Cinema Zoom	Discrete IR Code (Only Cinema Zoom Mode)
BA	⏸	Remote control Button			
8E	▶▶	Remote control Button			
8F	◀◀	Remote control Button			

- Use the feature depending on your model.

EXTERNAL CONTROL DEVICE SETUP

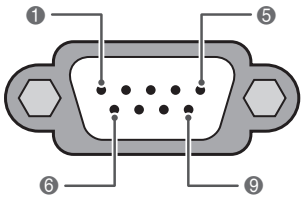
RS-232C Setup

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

NOTE

- RS-232C on this TV 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 connection cables are not supplied with the product.

Type of connector; D-Sub 9-Pin Male

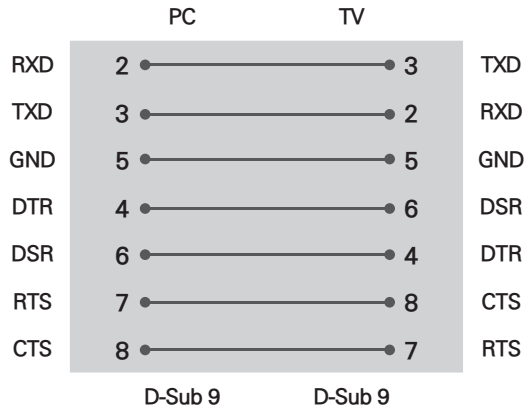


RS-232C IN
(CONTROL & SERVICE)

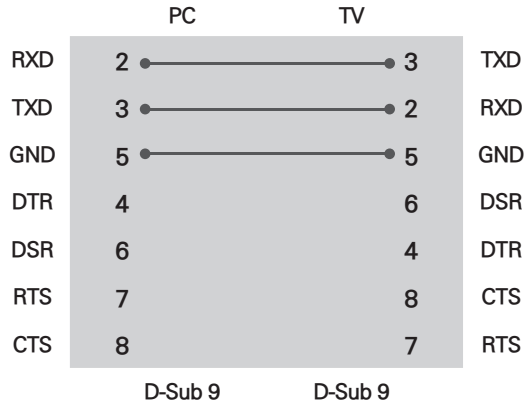
No.	Pin name
1	No connection
2	RXD (Receive data)
3	TXD (Transmit data)
4	DTR (DTE side ready)
5	GND
6	DSR (DCE side ready)
7	RTS (Ready to send)
8	CTS (Clear to send)
9	No Connection

RS-232C configurations

7-Wire Configuration
(Serial female-female NULL modem cable)

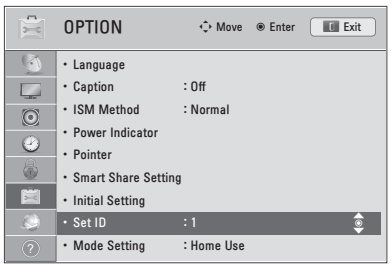


3-Wire Configurations(Not standard)



Set ID

Set ID number.



1 Press **Home** to access the Home menu.

2 Press the Navigation buttons to scroll to **SETUP** and press **ENTER**.

3 Press the Navigation buttons to scroll to **OPTION** and press **ENTER**.

4 Press the Navigation buttons to scroll to **Set ID** and press **ENTER**.

5 Scroll left or right to select a set ID number and select **CLOSE**. The adjustment range is 1-99.

6 When you are finished, press **EXIT**.

*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

ENGLISH

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.

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	(See p.136)	15. Bass	k	s	00 - 64
03. Aspect Ratio	k	c	(See p.136)	16. Balance	k	t	00 - 64
04. Screen Mute	k	d	00 - 01	17. 3D (For 3D TV)	x	t	(See p.137)
05. Volume Mute	k	e	00 - 01	18. Color Temperature	x	u	00 - 64
06. Volume Control	k	f	00 - 64	19.Extended 3D (For 3D TV)	x	v	(See p.137)
07. Contrast	k	g	00 - 64	20. ISM Method (Plasma)	j	p	(See p.138)
08. Brightness	k	h	00 - 64	21. Energy Saving	j	q	(See p.138)
09. Color	k	i	00 - 64	22. Auto Configuration	j	u	(See p.138)
10. Tint	k	j	00 - 64	24. Channel Add/Del	m	b	00 - 01
11. Sharpness	k	k	00 - 64	25. Key	m	c	(See p.138)
12. OSD Select	k	l	00 - 01	26. Backlight (LCD)	m	g	00 - 64
13. Remote Control Lock Mode	k	m	00 - 01				

	COMMAND1	COMMAND2	DATA00 (Hexadecimal)	DATA01 (Hexadecimal)	DATA02 (Hexadecimal)	DATA03 (Hexadecimal)	DATA04 (Hexadecimal)	DATA05 (Hexadecimal)
23. 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 set ID number in Option menu. Adjustment range is 1~ 99. When selecting Set ID '0', every connected the set is controlled. Set ID is indicated as decimal (1~ 99) on menu and as Hexa decimal (0x0~ 0x63) on transmission /receiving protocol.
[DATA] : To transmit the command data.
Transmit the 'FF' data to read status of command.
[Cr] : Carriage Return
ASCII code '0x0D'
[ ] : ASCII code 'space (0x20)'
* In this model, set will not send the status during the standby mode.

OK Acknowledgement

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

The set 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, set will not send the status during the standby mode.
* Data Format
[Command 2] : Use as command.
[Set ID] : Use the small character, if set ID is 10, it will send the '0', 'a'.
[DATA] : Use the small character, if data is 0 x ab, it will send the 'a', 'b'.
[OK] : Use the large character.

Error Acknowledgement

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

The set 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, set will not send the status during the standby mode.
* Data Format
[Command 2] : Use as command.
[Set ID] : Use the small character, if set ID is 10, it will send the '0', 'a'.
[DATA] : Use the small character, if data is 0 x ab, it will send the 'a', 'b'.
[NG] : Use the large character

01. Power (Command: k a)

To control Power On/Off of the set.

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

Data 00: Power Off Data 01: Power On

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

* In a like manner, if other functions transmit 'FF' data based on this format, Acknowledgement data feedback presents status about each function.
* Note: In this model, set will send the Acknowledge after power on processing completion.
There might be a time delay between command and acknowledge.

02. Input Select (Command: x b)

To select input source for set.

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

Data 00: DTV (Antenna) Data 01: DTV (Cable)
Data 10: Analog (Antenna) Data 11: Analog (Cable)
Data 20: AV or AV1 Data 21: AV2
Data 40: Component1 Data 41: Component2
Data 42: Component3 Data 60: RGB-PC
Data 90: HDMI1 Data 91: HDMI2
Data 92: HDMI3 Data 93: HDMI4

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

* Use the feature depending on your model.

03. Aspect Ratio (Command: k c)

To adjust the screen format.

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

Data 01: 4:3
Data 02: 16:9
Data 06: Set by program
Data 09: Just scan
Data 10: Cinema Zoom 1
⋮
Data 1F: Cinema Zoom16

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

04. Screen Mute (Command: k d)

To select screen mute on/off.

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

Data 00: Screen mute off (Picture on), Video-out Mute off
Data 01: Screen mute on (Picture off)
Data 10: Video-out Mute on

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

* In case of Video-out Mute on only, TV will display On Screen Display (OSD). But, in case of screen mute on, TV will not display On Screen Display (OSD).

05. Volume Mute (Command: k e)

To control volume mute on/off.
You can also adjust mute using the MUTE button on remote control.

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

Data 00: Volume mute on (Volume off)
Data 01: Volume mute off (Volume on)

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

06. Volume Control (Command: k f)

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

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

Data Min: 00 ~ Max: 64 (*transmit by Hexadecimal code)
*Refer to "Real data mapping".

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

07. Contrast (Command: k g)

To adjust screen contrast.
You can also adjust contrast in the PICTURE menu.

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

Data Min: 00 ~ Max: 64 (*transmit by Hexadecimal code)
*Refer to "Real data mapping".

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

08. Brightness (Command: k h)

To adjust screen brightness.
You can also adjust brightness in the PICTURE menu.

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

Data Min: 00 ~ Max: 64 (*transmit by Hexadecimal code)
*Refer to "Real data mapping".

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

09. Color (Command: k i)

To adjust screen color.
You can also adjust color in the PICTURE menu.

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

Data Min: 00 ~ Max: 64 (*transmit by Hexadecimal code)
*Refer to "Real data mapping".

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

10. Tint (Command: k j)

To adjust screen tint.
You can also adjust tint in the PICTURE menu.

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

Data Red: 00 ~ Green: 64 (*transmit by Hexadecimal code)
*Refer to "Real data mapping".

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

11. Sharpness (Command: k k)

To adjust screen sharpness.
You can also adjust sharpness in the PICTURE menu.

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

Data Min: 00 ~ Max: 64 (*transmit by Hexadecimal code)
*Refer to "Real data mapping".

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

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 Monitor set, use this mode. When main power is on/off, remote control lock is released. If Key Lock is on in the standby mode, TV will not turn on by POWER button of remote control and on the TV.

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".

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".

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".

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

17. 3D (Command: x t) (For 3D TV)

To change 3D mode for TV.

Transmission [x][t][ ][Set ID][ ][Data01]

[ ][Data02][ ][Data03][ ][Data04][Cr]

Data1
00: 3D On 01: 3D Off
02: 3D to 2D 03: 2D to 3D
Data2
00: Top and Bottom 01: Side by Side
02: Check Board 03: Frame Sequential
Data3
00: Right to Left 01: Left to Right
Data4
3D Depth: Min : 00 ~ Max : 14
(*transmit by Hexadecimal code)
*If data1 is 00 (3D On), data4 has no meaning.
*If data1 is 01 (3D off) or 02 (3D to 2D), data2, data3 and data4 have no meaning.
*If data1 is 03 (2D to 3D), data2 and data3 have no meaning.

Data 1	Data 2	Data 3	Data 4
00	o	o	x
01	x	x	x
02	x	x	x
03	x	x	o

x : Don't care

Acknowledgement [t][ ][OK][Data01][Data02][Data03][Data04][x][t][ ][NG][Data01][x]

18. Color Temperature (Command: x u)

To adjust color temperature.
You can also adjust color temperature in the PICTURE menu.

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

Data Min: 00 ~ Max: 64 (*transmit by Hexadecimal code)
*Refer to "Real data mapping".

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

19. Extended 3D (Command: x v) (For 3D TV)

To change 3D option for TV.

Transmission [x][v][ ][Set ID][ ][Data01][ ][Data02][Cr]

Data1: 3D option
00: 3D Picture Correction
01: 3D Depth (2D to 3D Only)
02: 3D Viewpoint
03: 3D Picture Size
04: 3D Picture Balance
05: 3D Optimization
Data2: It has own range for each 3D option determined by Data1.
1) When Data1 is 00
00: Right to Left 01: Left to Right
2) When Data1 is 01
Data Min: 00 ~ Max: 14 (*transmit by Hexadecimal code)
3) When Data1 is 02
Data Min: 00 ~ Max: 14 (*transmit by Hexadecimal code)
4) When Data1 is 03
00: Just Scan 01: 16:9
5) When Data1 is 04
00: Off 01: On
6) When Data1 is 05
Data Min: 00 ~ Max: 02 (*transmit by Hexadecimal code)

Acknowledgement [v][ ][OK][Data01][Data02][x]
[v][ ][NG][Data01][x]

* Use the feature depending on your model.

ENGLISH

20. ISM Method (Command: j p) (Plasma)

To avoid having a fixed image remain on screen.

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

Data 02: Orbiter
04: White Wash
08: Normal
20: Color Wash

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

21. Energy Saving (Command: j q)

To control the energy saving function.

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

Data 00: off
01: Minimum
02: Medium
03: Maximum
04: Auto (Depending on model)
05: Screen off

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

22. 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]

23. Channel Tuning (Command: m a)

To tune channel to following physical/major/minor number.
(This feature is not available for all models.)

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.
The table 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

24. 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]

25. Key (Command: m c)

To send IR remote key code.

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

See page 131.

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

When TV is in the standby mode, TV will turn on by POWER button of remote control only.

26. Backlight (Command: m g) (LCD)

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".

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

* Table List (Channel Tuning)

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

OPEN SOURCE LICENSE

Please be informed that LG Electronics products may contain open source software listed in the tables below.

License	Component
Apache license	bonjour
MIT license	cares curl fontconfig libcurl libxml2 libxslt lua interpreter
expat license	expat
Freetype license	freetype
JPEG license	libjpeg
OpenSSL license	openssl
Zlib/libpng license	libmng libpng zlib
portmap license	portmap
pixman license	pixman
X.net license	libicu
BSD license	netBSD Simple XML Parser xySSL
RSA Data security license	MD5
JSON license	JSON
MS92 license	snacc

LG Electronics products may also contain open source software listed as Components in the table below, and you may download the complete source code thereof free of charge, from LG Electronics website (http://opensource.lge.com) for a period of three (3) years from our last shipment of this product. Please be informed that the open source software is subject to the terms and conditions of the applicable open source licenses, which are provided to you hereinbelow.

License	Component
GNU GPL v2.0	Linux kernel 2.6 alsa busybox e2fsprogs gdbserver jfsutils lzo msdl 1.1 mtd-utils ntpclient procps
GNU LGPL v2.1	atk directFB ffmpeg glib gnuTLS gail GTK+ iconv libintl libgcrypt libgpg-error libgphoto2 libsoup pango pyenchant qt uClibc webkit
MPL 1.1	cairo nanox mozilla firefox zziplib

GNU GENERAL PUBLIC LICENSE

Version 2, June 1991
Copyright (C) 1989, 1991 Free Software Foundation, Inc.
51 Franklin Street, Fifth Floor, Boston, MA 02110-1301, USA
Everyone is permitted to copy and distribute verbatim copies of this license document, but changing it is not allowed.

Preamble

The licenses for most software are designed to take away your freedom to share and change it. By contrast, the GNU General Public License is intended to guarantee your freedom to share and change free software--to make sure the software is free for all its users. This General Public License applies to most of the Free Software Foundation's software and to any other program whose authors commit to using it. (Some other Free Software Foundation software is covered by the GNU Lesser General Public License instead.) You can apply it to your programs, too.

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.

TERMS AND CONDITIONS FOR COPYING, DISTRIBUTION AND MODIFICATION

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.

4. You may not copy, modify, sublicense, or distribute the Program except as expressly provided under this License. Any attempt otherwise to copy, modify, sublicense or distribute the Program is void, and will automatically terminate your rights under this License. However, parties who have received copies, or rights, from you under this License will not have their licenses terminated so long as such parties remain in full compliance.

5. You are not required to accept this License, since you have not signed it. However, nothing else grants you permission to modify or distribute the Program or its derivative works. These actions are prohibited by law if you do not accept this License. Therefore, by modifying or distributing the Program (or any work based on the Program), you indicate your acceptance of this License to do so, and all its terms and conditions for copying, distributing or modifying the Program or works based on it.

6. Each time you redistribute the Program (or any work based on the Program), the recipient automatically receives a license from the original licensor to copy, distribute or modify the Program subject to these terms and conditions. You may not impose any further restrictions on the recipients' exercise of the rights granted herein. You are not responsible for enforcing compliance by third parties to this License.

7. If, as a consequence of a court judgment or allegation of patent infringement or for any other reason (not limited to patent issues), conditions are imposed on you (whether by court order, agreement or otherwise) that contradict the conditions of this License, they do not excuse you from the conditions of this License. If you cannot distribute so as to satisfy simultaneously your obligations under this License and any other pertinent obligations, then as a consequence you may not distribute the Program at all. For example, if a patent license would not permit royalty-free redistribution of the Program by all those who receive copies directly or indirectly through you, then the only way you could satisfy both it and this License would be to refrain entirely from distribution of the Program.

   If any portion of this section is held invalid or unenforceable under any particular circumstance, the balance of the section is intended to apply and the section as a whole is intended to apply in other circumstances.

   It is not the purpose of this section to induce you to infringe any patents or other property right claims or to contest validity of any such claims; this section has the sole purpose of protecting the integrity of the free software distribution system, which is implemented by public license practices. Many people have made generous contributions to the wide range of software distributed through that system in reliance on consistent application of that system; it is up to the author/donor to decide if he or she is willing to distribute software through any other system and a licensee cannot impose that choice.

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

8. If the distribution and/or use of the Program is restricted in certain countries either by patents or by copyrighted interfaces, the original copyright holder who places the Program under this License may add an explicit geographical distribution limitation excluding those countries, so that distribution is permitted only in or among countries not thus excluded. In such case, this License incorporates the limitation as if written in the body of this License.

9. The Free Software Foundation may publish revised and/or new versions of the General Public License from time to time. Such new versions will be similar in spirit to the present version, but may differ in detail to address new problems or concerns.

   Each version is given a distinguishing version number. If the Program specifies a version number of this License which applies to it and "any later version", you have the option of following the terms and conditions either of that version or of any later version published by the Free Software Foundation. If the Program does not specify a version number of this License, you may choose any version ever published by the Free Software Foundation.

10. If you wish to incorporate parts of the Program into other free programs whose distribution conditions are different, write to the author to ask for permission. For software which is copyrighted by the Free Software Foundation, write to the Free Software Foundation; we sometimes make exceptions for this. Our decision will be guided by the two goals of preserving the free status of all derivatives of our free software and of promoting the sharing and reuse of software generally.

NO WARRANTY

11. BECAUSE THE PROGRAM IS LICENSED FREE OF CHARGE, THERE IS NO WARRANTY FOR THE PROGRAM, TO THE EXTENT PERMITTED BY APPLICABLE LAW. EXCEPT WHEN OTHERWISE STATED IN WRITING THE COPYRIGHT HOLDERS AND/OR OTHER PARTIES PROVIDE THE PROGRAM "AS IS" WITHOUT WARRANTY OF ANY KIND, EITHER EXPRESSED OR IMPLIED, INCLUDING, BUT NOT LIMITED TO, THE IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE. THE ENTIRE RISK AS TO THE QUALITY AND PERFORMANCE OF THE PROGRAM IS WITH YOU. SHOULD THE PROGRAM PROVE DEFECTIVE, YOU ASSUME THE COST OF ALL NECESSARY SERVICING, REPAIR OR CORRECTION.

12. IN NO EVENT UNLESS REQUIRED BY APPLICABLE LAW OR AGREED TO IN WRITING WILL ANY COPYRIGHT HOLDER, OR ANY OTHER PARTY WHO MAY MODIFY AND/OR REDISTRIBUTE THE PROGRAM AS PERMITTED ABOVE, BE LIABLE TO YOU FOR DAMAGES, INCLUDING ANY GENERAL, SPECIAL, INCIDENTAL OR CONSEQUENTIAL DAMAGES ARISING OUT OF THE USE OR INABILITY TO USE THE PROGRAM (INCLUDING BUT NOT LIMITED TO LOSS OF DATA OR DATA BEING RENDERED INACCURATE OR LOSSES SUSTAINED BY YOU OR THIRD PARTIES OR A FAILURE OF THE PROGRAM TO OPERATE WITH ANY OTHER PROGRAMS), EVEN IF SUCH HOLDER OR OTHER PARTY HAS BEEN ADVISED OF THE POSSIBILITY OF SUCH DAMAGES.

END OF TERMS AND CONDITIONS

GNU Lesser General Public License

Version 2.1, February 1999
Copyright (C) 1991, 1999 Free Software Foundation, Inc. 59 Temple Place, Suite 330, Boston, MA 02111-1307 USA Everyone is permitted to copy and distribute verbatim copies of this license document, but changing it is not allowed.

[This is the first released version of the Lesser GPL. It also counts as the successor of the GNU Library Public License, version 2, hence the version number 2.1.]

Preamble
The licenses for most software are designed to take away your freedom to share and change it. By contrast, the GNU General Public Licenses are intended to guarantee your freedom to share and change free software--to make sure the software is free for all its users.

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.

TERMS AND CONDITIONS FOR COPYING, DISTRIBUTION AND MODIFICATION

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 licensee 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 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 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 executables.

   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 accessors, 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. (Executables 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 executables 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 6a, 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.

8. You may not copy, modify, sublicense, link with, or distribute the Library except as expressly provided under this License. Any attempt otherwise to copy, modify, sublicense, link with, or distribute the Library is void, and will automatically terminate your rights under this License. However, parties who have received copies, or rights, from you under this License will not have their licenses terminated so long as such parties remain in full compliance.

9. You are not required to accept this License, since you have not signed it. However, nothing else grants you permission to modify or distribute the Library or its derivative works. These actions are prohibited by law if you do not accept this License. Therefore, by modifying or distributing the Library (or any work based on the Library), you indicate your acceptance of this License to do so, and all its terms and conditions for copying, distributing or modifying the Library or works based on it.

10. Each time you redistribute the Library (or any work based on the Library), the recipient automatically receives a license from the original licensor to copy, distribute, link with or modify the Library subject to these terms and conditions. You may not impose any further restrictions on the recipients' exercise of the rights granted herein. You are not responsible for enforcing compliance by third parties with this License.

11. If, as a consequence of a court judgment or allegation of patent infringement or for any other reason (not limited to patent issues), conditions are imposed on you (whether by court order, agreement or otherwise) that contradict the conditions of this License, they do not excuse you from the conditions of this License. If you cannot distribute so as to satisfy simultaneously your obligations under this License and any other pertinent obligations, then as a consequence you may not distribute the Library at all. For example, if a patent license would not permit royalty-free redistribution of the Library by all those who receive copies directly or indirectly through you, then the only way you could satisfy both it and this License would be to refrain entirely from distribution of the Library.

    If any portion of this section is held invalid or unenforceable under any particular circumstance, the balance of the section is

intended to apply, and the section as a whole is intended to apply in other circumstances.

It is not the purpose of this section to induce you to infringe any patents or other property right claims or to contest validity of any such claims; this section has the sole purpose of protecting the integrity of the free software distribution system which is implemented by public license practices. Many people have made generous contributions to the wide range of software distributed through that system in reliance on consistent application of that system; it is up to the author/donor to decide if he or she is willing to distribute software through any other system and a licensee cannot impose that choice.

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

12. If the distribution and/or use of the Library is restricted in certain countries either by patents or by copyrighted interfaces, the original copyright holder who places the Library under this License may add an explicit geographical distribution limitation excluding those countries, so that distribution is permitted only in or among countries not thus excluded. In such case, this License incorporates the limitation as if written in the body of this License.

13. The Free Software Foundation may publish revised and/or new versions of the Lesser General Public License from time to time. Such new versions will be similar in spirit to the present version, but may differ in detail to address new problems or concerns.

    Each version is given a distinguishing version number. If the Library specifies a version number of this License which applies to it and "any later version", you have the option of following the terms and conditions either of that version or of any later version published by the Free Software Foundation. If the Library does not specify a license version number, you may choose any version ever published by the Free Software Foundation.

14. If you wish to incorporate parts of the Library into other free programs whose distribution conditions are incompatible with these, write to the author to ask for permission. For software which is copyrighted by the Free Software Foundation, write to the Free Software Foundation; we sometimes make exceptions for this. Our decision will be guided by the two goals of preserving the free status of all derivatives of our free software and of promoting the sharing and reuse of software generally.

NO WARRANTY

15. BECAUSE THE LIBRARY IS LICENSED FREE OF CHARGE, THERE IS NO WARRANTY FOR THE LIBRARY, TO THE EXTENT PERMITTED BY APPLICABLE LAW. EXCEPT WHEN OTHERWISE STATED IN WRITING THE COPYRIGHT HOLDERS AND/OR OTHER PARTIES PROVIDE THE LIBRARY "AS IS" WITHOUT WARRANTY OF ANY KIND, EITHER EXPRESSED OR IMPLIED, INCLUDING, BUT NOT LIMITED TO, THE IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE. THE ENTIRE RISK AS TO THE QUALITY AND PERFORMANCE OF THE LIBRARY IS WITH YOU. SHOULD THE LIBRARY PROVE DEFECTIVE, YOU ASSUME THE COST OF ALL NECESSARY SERVICING, REPAIR OR CORRECTION.

16. IN NO EVENT UNLESS REQUIRED BY APPLICABLE LAW OR AGREED TO IN WRITING WILL ANY COPYRIGHT HOLDER, OR ANY OTHER PARTY WHO MAY MODIFY AND/OR REDISTRIBUTE THE LIBRARY AS PERMITTED ABOVE, BE LIABLE TO YOU FOR DAMAGES, INCLUDING ANY GENERAL, SPECIAL, INCIDENTAL OR CONSEQUENTIAL DAMAGES ARISING OUT OF THE USE OR INABILITY TO USE THE LIBRARY (INCLUDING BUT NOT LIMITED TO LOSS OF DATA OR DATA BEING RENDERED INACCURATE OR LOSSES SUSTAINED BY YOU OR THIRD PARTIES OR A FAILURE OF THE LIBRARY TO OPERATE WITH ANY OTHER SOFTWARE), EVEN IF SUCH HOLDER OR OTHER PARTY HAS BEEN ADVISED OF THE POSSIBILITY OF SUCH DAMAGES.

END OF TERMS AND CONDITIONS

How to Apply These Terms to Your New Libraries

If you develop a new library, and you want it to be of the greatest possible use to the public, we recommend making it free software that everyone can redistribute and change. You can do so by permitting redistribution under these terms (or, alternatively, under the terms of the ordinary General Public License).

To apply these terms, attach the following notices to the library. It is safest to attach them to the start of each source file to most effectively convey the exclusion of warranty; and each file should have at least the "copyright" line and a pointer to where the full notice is found.

> <one line to give the library's name and an idea of what it does.> Copyright (C) <year> <name of author>
>
> This library is free software; you can redistribute it and/or modify it under the terms of the GNU Lesser General Public License as published by the Free Software Foundation; either version 2.1 of the License, or (at your option) any later version.
>
> This library is distributed in the hope that it will be useful, but WITHOUT ANY WARRANTY; without even the implied warranty of MERCHANTABILITY or FITNESS FOR A PARTICULAR PURPOSE. See the GNU Lesser General Public License for more details.

You should have received a copy of the GNU Lesser General Public License along with this library; if not, write to the Free Software Foundation, Inc., 59 Temple Place, Suite 330, Boston, MA 02111-1307 USA

Also add information on how to contact you by electronic and paper mail.

You should also get your employer (if you work as a programmer) or your school, if any, to sign a "copyright disclaimer" for the library, if necessary. Here is a sample; alter the names:

> Yoyodyne, Inc., hereby disclaims all copyright interest in the library `Frob' (a library for tweaking knobs) written by James Random Hacker.
>
> signature of Ty Coon, 1 April 1990
> Ty Coon, President of Vice

That's all there is to it!

Mozilla Public License 1.1 (MPL 1.1)

1. Definitions.

1.0.1. "Commercial Use"
means distribution or otherwise making the Covered Code available to a third party.

1.1. ''Contributor''
means each entity that creates or contributes to the creation of Modifications.

1.2. ''Contributor Version''
means the combination of the Original Code, prior Modifications used by a Contributor, and the Modifications made by that particular Contributor.

1.3. ''Covered Code''
means the Original Code or Modifications or the combination of the Original Code and Modifications, in each case including portions thereof.

1.4. ''Electronic Distribution Mechanism''
means a mechanism generally accepted in the software development community for the electronic transfer of data.

1.5. ''Executable''
means Covered Code in any form other than Source Code.

1.6. ''Initial Developer''
means the individual or entity identified as the Initial Developer in the Source Code notice required by Exhibit A.

1.7. ''Larger Work''
means a work which combines Covered Code or portions thereof with code not governed by the terms of this License.

1.8. ''License''
means this document.

1.8.1. "Licensable"
means having the right to grant, to the maximum extent possible, whether at the time of the initial grant or subsequently acquired, any and all of the rights conveyed herein.

1.9. ''Modifications''
means any addition to or deletion from the substance or structure of either the Original Code or any previous Modifications. When Covered Code is released as a series of files, a Modification is:

(a) Any addition to or deletion from the contents of a file containing Original Code or previous Modifications.

(b) Any new file that contains any part of the Original Code or previous Modifications.

1.10. ''Original Code''
means Source Code of computer software code which is described in the Source Code notice required by Exhibit A as Original Code, and which, at the time of its release under this License is not already Covered Code governed by this License.

1.10.1. "Patent Claims"
means any patent claim(s), now owned or hereafter acquired, including without limitation, method, process, and apparatus claims, in any patent Licensable by grantor.

1.11. ''Source Code''
means the preferred form of the Covered Code for making modifications to it, including all modules it contains, plus any associated interface definition files, scripts used to control compilation and installation of an Executable, or source code differential comparisons against either the Original Code or another well known, available Covered Code of the Contributor's choice. The Source Code can be in a compressed or archival form, provided the appropriate decompression or de-archiving software is widely available for no charge.

1.12. "You'' (or "Your")
means an individual or a legal entity exercising rights under, and complying with all of the terms of, this License or a future version of this License issued under Section 6.1.For legal entities, "You'' includes any entity which controls, is controlled by, or is under common control with You. For

purposes of this definition, "control" means (a) the power, direct or indirect, to cause the direction or management of such entity, whether by contract or otherwise, or (b) ownership of more than fifty percent (50%) of the outstanding shares or beneficial ownership of such entity.

2. Source Code License.

2.1. The Initial Developer Grant.

The Initial Developer hereby grants You a world-wide, royalty-free, non-exclusive license, subject to third party intellectual property claims:

(a) under intellectual property rights (other than patent or trademark) Licensable by Initial Developer to use, reproduce, modify, display, perform, sublicense and distribute the Original Code (or portions thereof) with or without Modifications, and/or as part of a Larger Work; and

(b) under Patents Claims infringed by the making, using or selling of Original Code, to make, have made, use, practice, sell, and offer for sale, and/or otherwise dispose of the Original Code (or portions thereof).

(c) the licenses granted in this Section 2.1(a) and (b) are effective on the date Initial Developer first distributes Original Code under the terms of this License.

(d) Notwithstanding Section 2.1(b) above, no patent license is granted: 1) for code that You delete from the Original Code; 2) separate from the Original Code; or 3) for infringements caused by: i) the modification of the Original Code or ii) the combination of the Original Code with other software or devices.

2.2. Contributor Grant.

Subject to third party intellectual property claims, each Contributor hereby grants You a world-wide, royalty-free, non-exclusive license

(a) under intellectual property rights (other than patent or trademark) Licensable by Contributor, to use, reproduce, modify, display, perform, sublicense and distribute the Modifications created by such Contributor (or portions thereof) either on an unmodified basis, with other Modifications, as Covered Code and/or as part of a Larger Work; and

(b) under Patent Claims infringed by the making, using, or selling of Modifications made by that Contributor either alone and/or in combination with its Contributor Version (or portions of such combination), to make, use, sell, offer for sale, have made, and/or otherwise dispose of: 1) Modifications made by that Contributor (or portions thereof); and 2) the combination of Modifications made by that Contributor with its Contributor Version (or portions of such combination).

(c) the licenses granted in Sections 2.2(a) and 2.2(b) are effective on the date Contributor first makes Commercial Use of the Covered Code.

(d) Notwithstanding Section 2.2(b) above, no patent license is granted: 1) for any code that Contributor has deleted from the Contributor Version; 2) separate from the Contributor Version; 3) for infringements caused by: i) third party modifications of Contributor Version or ii) the combination of Modifications made by that Contributor with other software (except as part of the Contributor Version) or other devices; or 4) under Patent Claims infringed by Covered Code in the absence of Modifications made by that Contributor.

3. Distribution Obligations.

3.1. Application of License.

The Modifications which You create or to which You contribute are governed by the terms of this License, including without limitation Section 2.2. The Source Code version of Covered Code may be distributed only under the terms of this License or a future version of this License released under Section 6.1, and You must include a copy of this License with every copy of the Source Code You distribute. You may not offer or impose any terms on any Source Code

version that alters or restricts the applicable version of this License or the recipients' rights hereunder. However, You may include an additional document offering the additional rights described in Section 3.5.

3.2. Availability of Source Code.
Any Modification which You create or to which You contribute must be made available in Source Code form under the terms of this License either on the same media as an Executable version or via an accepted Electronic Distribution Mechanism to anyone to whom you made an Executable version available; and if made available via Electronic Distribution Mechanism, must remain available for at least twelve (12) months after the date it initially became available, or at least six (6) months after a subsequent version of that particular Modification has been made available to such recipients. You are responsible for ensuring that the Source Code version remains available even if the Electronic Distribution Mechanism is maintained by a third party.

3.3. Description of Modifications.
You must cause all Covered Code to which You contribute to contain a file documenting the changes You made to create that Covered Code and the date of any change. You must include a prominent statement that the Modification is derived, directly or indirectly, from Original Code provided by the Initial Developer and including the name of the Initial Developer in (a) the Source Code, and (b) in any notice in an Executable version or related documentation in which You describe the origin or ownership of the Covered Code.

3.4. Intellectual Property Matters

(a) Third Party Claims.
If Contributor has knowledge that a license under a third party's intellectual property rights is required to exercise the rights granted by such Contributor under Sections 2.1 or 2.2, Contributor must include a text file with the Source Code distribution titled "LEGAL" which describes the claim and the party making the claim in sufficient detail that a recipient will know whom to contact. If Contributor obtains such knowledge after the Modification is made available as described in Section 3.2, Contributor shall promptly modify the LEGAL file in all copies Contributor makes available thereafter and shall take other steps (such as notifying appropriate mailing lists or newsgroups) reasonably calculated to inform those who received the Covered Code that new knowledge has been obtained.

(b) Contributor APIs.
If Contributor's Modifications include an application programming interface and Contributor has knowledge of patent licenses which are reasonably necessary to implement that API, Contributor must also include this information in the LEGAL file.

(c) Representations.
Contributor represents that, except as disclosed pursuant to Section 3.4(a) above, Contributor believes that Contributor's Modifications are Contributor's original creation(s) and/or Contributor has sufficient rights to grant the rights conveyed by this License.

3.5. Required Notices.
You must duplicate the notice in Exhibit A in each file of the Source Code. If it is not possible to put such notice in a particular Source Code file due to its structure, then You must include such notice in a location (such as a relevant directory) where a user would be likely to look for such a notice. If You created one or more Modification(s) You may add your name as a Contributor to the notice described in Exhibit A. You must also duplicate this License in any documentation for the Source Code where You describe recipients' rights or ownership rights relating to Covered Code. You may choose to offer, and to charge a fee for, warranty, support, indemnity or liability obligations to one or more recipients of Covered Code. However, You may do so only on Your own behalf, and not on behalf of the Initial Developer or any Contributor You must make it absolutely clear than any such warranty, support, indemnity or liability obligation is offered by You alone, and You hereby agree to indemnify the Initial Developer and every Contributor for any liability incurred by the Initial Developer or such Contributor

as a result of warranty, support, indemnity or liability terms You offer.

3.6. Distribution of Executable Versions.
You may distribute Covered Code in Executable form only if the requirements of Section 3.1-3.5 have been met for that Covered Code, and if You include a notice stating that the Source Code version of the Covered Code is available under the terms of this License, including a description of how and where You have fulfilled the obligations of Section 3.2. The notice must be conspicuously included in any notice in an Executable version, related documentation or collateral in which You describe recipients' rights relating to the Covered Code. You may distribute the Executable version of Covered Code or ownership rights under a license of Your choice, which may contain terms different from this License, provided that You are in compliance with the terms of this License and that the license for the Executable version does not attempt to limit or alter the recipient's rights in the Source Code version from the rights set forth in this License. If You distribute the Executable version under a different license You must make it absolutely clear that any terms which differ from this License are offered by You alone, not by the Initial Developer or any Contributor. You hereby agree to indemnify the Initial Developer and every Contributor for any liability incurred by the Initial Developer or such Contributor as a result of any such terms You offer.

3.7. Larger Works.
You may create a Larger Work by combining Covered Code with other code not governed by the terms of this License and distribute the Larger Work as a single product. In such a case, You must make sure the requirements of this License are fulfilled for the Covered Code.

4. Inability to Comply Due to Statute or Regulation.
If it is impossible for You to comply with any of the terms of this License with respect to some or all of the Covered Code due to statute, judicial order, or regulation then You must: (a) comply with the terms of this License to the maximum extent possible; and (b) describe the limitations and the code they affect. Such description must be included in the LEGAL file described in Section 3.4 and must be included with all distributions of the Source Code. Except to the extent prohibited by statute or regulation, such description must be sufficiently detailed for a recipient of ordinary skill to be able to understand it.

5. Application of this License.
This License applies to code to which the Initial Developer has attached the notice in Exhibit A and to related Covered Code.

6. Versions of the License.

6.1. New Versions.
Netscape Communications Corporation (''Netscape'') may publish revised and/or new versions of the License from time to time. Each version will be given a distinguishing version number.

6.2. Effect of New Versions.
Once Covered Code has been published under a particular version of the License, You may always continue to use it under the terms of that version. You may also choose to use such Covered Code under the terms of any subsequent version of the License published by Netscape. No one other than Netscape has the right to modify the terms applicable to Covered Code created under this License.

6.3. Derivative Works.
If You create or use a modified version of this License (which you may only do in order to apply it to code which is not already Covered Code governed by this License), You must (a) rename Your license so that the phrases ''Mozilla'', ''MOZILLAPL'', ''MOZPL'', ''Netscape'', "MPL", ''NPL'' or any confusingly similar phrase do not appear in your license (except to note that your license differs from this License) and (b) otherwise make it clear that Your version of the license contains terms which differ from the Mozilla Public License and Netscape Public License. (Filling in the name of the Initial Developer, Original Code or Contributor in the notice described in Exhibit A shall not of

themselves be deemed to be modifications of this License.)

7. DISCLAIMER OF WARRANTY.
COVERED CODE IS PROVIDED UNDER THIS LICENSE ON AN "AS IS" BASIS, WITHOUT WARRANTY OF ANY KIND, EITHER EXPRESSED OR IMPLIED, INCLUDING, WITHOUT LIMITATION, WARRANTIES THAT THE COVERED CODE IS FREE OF DEFECTS, MERCHANTABLE, FIT FOR A PARTICULAR PURPOSE OR NON-INFRINGING. THE ENTIRE RISK AS TO THE QUALITY AND PERFORMANCE OF THE COVERED CODE IS WITH YOU. SHOULD ANY COVERED CODE PROVE DEFECTIVE IN ANY RESPECT, YOU (NOT THE INITIAL DEVELOPER OR ANY OTHER CONTRIBUTOR) ASSUME THE COST OF ANY NECESSARY SERVICING, REPAIR OR CORRECTION. THIS DISCLAIMER OF WARRANTY CONSTITUTES AN ESSENTIAL PART OF THIS LICENSE. NO USE OF ANY COVERED CODE IS AUTHORIZED HEREUNDER EXCEPT UNDER THIS DISCLAIMER.

8. TERMINATION.

8.1. This License and the rights granted hereunder will terminate automatically if You fail to comply with terms herein and fail to cure such breach within 30 days of becoming aware of the breach. All sublicenses to the Covered Code which are properly granted shall survive any termination of this License. Provisions which, by their nature, must remain in effect beyond the termination of this License shall survive.

8.2. If You initiate litigation by asserting a patent infringement claim (excluding declatory judgment actions) against Initial Developer or a Contributor (the Initial Developer or Contributor against whom You file such action is referred to as "Participant") alleging that:

(a) such Participant's Contributor Version directly or indirectly infringes any patent, then any and all rights granted by such Participant to You under Sections 2.1 and/or 2.2 of this License shall, upon 60 days notice from Participant terminate prospectively, unless if within 60 days after receipt of notice You either: (i) agree in writing to pay Participant a mutually agreeable reasonable royalty for Your past and future use of Modifications made by such Participant, or (ii) withdraw Your litigation claim with respect to the Contributor Version against such Participant. If within 60 days of notice, a reasonable royalty and payment arrangement are not mutually agreed upon in writing by the parties or the litigation claim is not withdrawn, the rights granted by Participant to You under Sections 2.1 and/or 2.2 automatically terminate at the expiration of the 60 day notice period specified above.

(b) any software, hardware, or device, other than such Participant's Contributor Version, directly or indirectly infringes any patent, then any rights granted to You by such Participant under Sections 2.1(b) and 2.2(b) are revoked effective as of the date You first made, used, sold, distributed, or had made, Modifications made by that Participant.

8.3. If You assert a patent infringement claim against Participant alleging that such Participant's Contributor Version directly or indirectly infringes any patent where such claim is resolved (such as by license or settlement) prior to the initiation of patent infringement litigation, then the reasonable value of the licenses granted by such Participant under Sections 2.1 or 2.2 shall be taken into account in determining the amount or value of any payment or license. 8.4. In the event of termination under Sections 8.1 or 8.2 above, all end user license agreements (excluding distributors and resellers) which have been validly granted by You or any distributor hereunder prior to termination shall survive termination.

9. LIMITATION OF LIABILITY.
UNDER NO CIRCUMSTANCES AND UNDER NO LEGAL THEORY, WHETHER TORT (INCLUDING NEGLIGENCE), CONTRACT, OR OTHERWISE, SHALL YOU, THE INITIAL DEVELOPER, ANY OTHER CONTRIBUTOR, OR ANY DISTRIBUTOR OF COVERED CODE, OR ANY SUPPLIER OF ANY OF SUCH PARTIES, BE LIABLE TO ANY PERSON FOR ANY INDIRECT, SPECIAL, INCIDENTAL, OR CONSEQUENTIAL DAMAGES OF ANY CHARACTER INCLUDING,

WITHOUT LIMITATION, DAMAGES FOR LOSS OF GOODWILL, WORK STOPPAGE, COMPUTER FAILURE OR MALFUNCTION, OR ANY AND ALL OTHER COMMERCIAL DAMAGES OR LOSSES, EVEN IF SUCH PARTY SHALL HAVE BEEN INFORMED OF THE POSSIBILITY OF SUCH DAMAGES. THIS LIMITATION OF LIABILITY SHALL NOT APPLY TO LIABILITY FOR DEATH OR PERSONAL INJURY RESULTING FROM SUCH PARTY'S NEGLIGENCE TO THE EXTENT APPLICABLE LAW PROHIBITS SUCH LIMITATION. SOME JURISDICTIONS DO NOT ALLOW THE EXCLUSION OR LIMITATION OF INCIDENTAL OR CONSEQUENTIAL DAMAGES, SO THIS EXCLUSION AND LIMITATION MAY NOT APPLY TO YOU.

10. U.S. GOVERNMENT END USERS.
The Covered Code is a ''commercial item,'' as that term is defined in 48 C.F.R. 2.101 (Oct. 1995), consisting of ''commercial computer software'' and ''commercial computer software documentation,'' as such terms are used in 48 C.F.R. 12.212 (Sept. 1995). Consistent with 48 C.F.R. 12.212 and 48 C.F.R. 227.7202-1 through 227.7202-4 (June 1995), all U.S. Government End Users acquire Covered Code with only those rights set forth herein.

11. MISCELLANEOUS.
This License represents the complete agreement concerning subject matter hereof. If any provision of this License is held to be unenforceable, such provision shall be reformed only to the extent necessary to make it enforceable. This License shall be governed by California law provisions (except to the extent applicable law, if any, provides otherwise), excluding its conflict-of-law provisions. With respect to disputes in which at least one party is a citizen of, or an entity chartered or registered to do business in the United States of America, any litigation relating to this License shall be subject to the jurisdiction of the Federal Courts of the Northern District of California, with venue lying in Santa Clara County, California, with the losing party responsible for costs, including without limitation, court costs and reasonable attorneys' fees and expenses. The application of the United Nations Convention on Contracts for the International Sale of Goods is expressly excluded. Any law or regulation which provides that the language of a contract shall be construed against the drafter shall not apply to this License.

12. RESPONSIBILITY FOR CLAIMS.
As between Initial Developer and the Contributors, each party is responsible for claims and damages arising, directly or indirectly, out of its utilization of rights under this License and You agree to work with Initial Developer and Contributors to distribute such responsibility on an equitable basis. Nothing herein is intended or shall be deemed to constitute any admission of liability.

13. MULTIPLE-LICENSED CODE.
Initial Developer may designate portions of the Covered Code as Multiple-Licensed. Multiple-Licensed means that the Initial Developer permits you to utilize portions of the Covered Code under Your choice of the MPL or the alternative licenses, if any, specified by the Initial Developer in the file described in Exhibit A.

EXHIBIT A -Mozilla Public License.
``The contents of this file are subject to the Mozilla Public License Version 1.1 (the "License"); you may not use this file except in compliance with the License. You may obtain a copy of the License at http://www.mozilla.org/MPL/

Software distributed under the License is distributed on an "AS IS"basis, WITHOUT WARRANTY OF ANY KIND, either express or implied. See the License for the specific language governing rights and limitations under the License.

The Original Code is _____.
The Initial Developer of the Original Code is _____.
Portions created by _____ are Copyright (C) _____.
All Rights Reserved.
Contributor(s): _____.

Alternatively, the contents of this file may be used under the terms of the _____ license (the [___] License), in which case the provisions of [_____]

License are applicable instead of those above.If you wish to allow use of your version of this file only under the terms of the [____] License and not to allow others to use your version of this file under the MPL, indicate your decision by deleting the provisions above and replace them with the notice and other provisions required by the [___] License. If you do not delete the provisions above, a recipient may use your version of this file under either the MPL or the [___] License."

[NOTE: The text of this Exhibit A may differ slightly from the text of the notices in the Source Code files of the Original Code. You should use the text of this Exhibit A rather than the text found in the Original Code Source Code for Your Modifications.]

Apache License Version 2.0

Apache License
Version 2.0, January 2004
http://www.apache.org/licenses/

TERMS AND CONDITIONS FOR USE, REPRODUCTION, AND DISTRIBUTION

1. Definitions.
"License" shall mean the terms and conditions for use, reproduction, and distribution as defined by Sections 1 through 9 of this document.
"Licensor" shall mean the copyright owner or entity authorized by the copyright owner that is granting the License.
"Legal Entity" shall mean the union of the acting entity and all other entities that control, are controlled by, or are under common control with that entity. For the purposes of this definition, "control" means (i) the power, direct or indirect, to cause the direction or management of such entity, whether by contract or otherwise, or (ii) ownership of fifty percent (50%) or more of the outstanding shares, or (iii) beneficial ownership of such entity.
"You" (or "Your") shall mean an individual or Legal Entity exercising permissions granted by this License.
"Source" form shall mean the preferred form for making modifications, including but not limited to software source code, documentation source, and configuration files.
"Object" form shall mean any form resulting from mechanical transformation or translation of a Source form, including but not limited to compiled object code, generated documentation, and conversions to other media types.
"Work" shall mean the work of authorship, whether in Source or Object form, made available under the License, as indicated by a copyright notice that is included in or attached to the work (an example is provided in the Appendix below).
"Derivative Works" shall mean any work, whether in Source or Object form, that is based on (or derived from) the Work and for which the editorial revisions, annotations, elaborations, or other modifications represent, as a whole, an

original work of authorship. For the purposes of this License, Derivative Works shall not include works that remain separable from, or merely link (or bind by name) to the interfaces of, the Work and Derivative Works thereof.
"Contribution" shall mean any work of authorship, including the original version of the Work and any modifications or additions to that Work or Derivative Works thereof, that is intentionally submitted to Licensor for inclusion in the Work by the copyright owner or by an individual or Legal Entity authorized to submit on behalf of the copyright owner. For the purposes of this definition, "submitted" means any form of electronic, verbal, or written communication sent to the Licensor or its representatives, including but not limited to communication on electronic mailing lists, source code control systems, and issue tracking systems that are managed by, or on behalf of, the Licensor for the purpose of discussing and improving the Work, but excluding communication that is conspicuously marked or otherwise designated in writing by the copyright owner as "Not a Contribution."
"Contributor" shall mean Licensor and any individual or Legal Entity on behalf of whom a Contribution has been received by Licensor and subsequently incorporated within the Work.

2. Grant of Copyright License. Subject to the terms and conditions of this License, each Contributor hereby grants to You a perpetual, worldwide, non-exclusive, no-charge, royalty-free, irrevocable copyright license to reproduce, prepare Derivative Works of, publicly display, publicly perform, sublicense, and distribute the Work and such Derivative Works in Source or Object form.

3. Grant of Patent License. Subject to the terms and conditions of this License, each Contributor hereby grants to You a perpetual, worldwide, non-exclusive, no-charge, royalty-free, irrevocable (except as stated in this section) patent license to make, have made, use, offer to sell, sell, import, and otherwise transfer the Work, where such license applies only to those patent claims licensable by such Contributor that are necessarily infringed by their Contribution(s) alone or by combination of their Contribution(s) with the Work to which such Contribution(s) was submitted. If You institute patent litigation against any entity (including a cross-claim or counterclaim in a lawsuit) alleging that the Work or a Contribution incorporated within the Work constitutes direct or contributory patent infringement, then any patent licenses granted to You under this License for that Work shall terminate as of the date such litigation is filed.

4. Redistribution. You may reproduce and distribute copies of the Work or Derivative Works thereof in any medium, with or without modifications, and in Source or Object form, provided that You meet the following conditions:

   (a) You must give any other recipients of the Work or Derivative Works a copy of this License; and
   (b) You must cause any modified files to carry prominent notices stating that You changed the files; and
   (c) You must retain, in the Source form of any Derivative Works that You distribute, all copyright, patent, trademark, and attribution notices from the Source form of the Work, excluding those notices that do not pertain to any part of the Derivative Works; and
   (d) If the Work includes a "NOTICE" text file as part of its distribution, then any Derivative Works that You distribute must include a readable copy of the attribution notices contained within such NOTICE file, excluding those notices that do not pertain to any part of the Derivative Works, in at least one of the following places: within a NOTICE text file distributed as part of the Derivative Works; within the Source form or documentation, if provided along with the Derivative Works; or, within a display generated by the Derivative Works, if and wherever such third-party notices normally appear. The contents of the NOTICE file are for informational purposes only and do not modify the License. You may add Your own attribution notices within Derivative Works that You distribute, alongside or as an addendum to the NOTICE text from the Work, provided that such additional attribution notices cannot be construed as modifying the License.

You may add Your own copyright statement to Your modifications and may provide additional or different license terms and conditions for use, reproduction, or distribution of Your modifications, or for any such Derivative Works as a whole, provided Your use, reproduction, and distribution of the Work otherwise complies with the conditions stated in this License.

5. Submission of Contributions. Unless You explicitly state otherwise, any Contribution intentionally submitted for inclusion in the Work by You to the Licensor shall be under the terms and conditions of this License, without any additional terms or conditions. Notwithstanding the above, nothing herein shall supersede or modify the terms of any separate license agreement you may have executed with Licensor regarding such Contributions.

6. Trademarks. This License does not grant permission to use the trade names, trademarks, service marks, or product names of the Licensor, except as required for reasonable and customary use in describing the origin of the Work and reproducing the content of the NOTICE file.

7. Disclaimer of Warranty. Unless required by applicable law or agreed to in writing, Licensor provides the Work (and each Contributor provides its Contributions) on an "AS IS" BASIS, WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied, including, without limitation, any warranties or conditions of TITLE, NON-INFRINGEMENT, MERCHANTABILITY, or FITNESS FOR A PARTICULAR PURPOSE. You are solely responsible for determining the appropriateness of using or redistributing the Work and assume any risks associated with Your exercise of permissions under this License.

8. Limitation of Liability. In no event and under no legal theory, whether in tort (including negligence), contract, or otherwise, unless required by applicable law (such as deliberate and grossly negligent acts) or agreed to in writing, shall any Contributor be liable to You for damages, including any direct, indirect, special, incidental, or consequential damages of any character arising as a result of this License or out of the use or inability to use the Work (including but not limited to damages for loss of goodwill, work stoppage, computer failure or malfunction, or any and all other commercial damages or losses), even if such Contributor has been advised of the possibility of such damages.

9. Accepting Warranty or Additional Liability. While redistributing the Work or Derivative Works thereof, You may choose to offer, and charge a fee for, acceptance of support, warranty, indemnity, or other liability obligations and/or rights consistent with this License. However, in accepting such obligations, You may act only on Your own behalf and on Your sole responsibility, not on behalf of any other Contributor, and only if You agree to indemnify, defend, and hold each Contributor harmless for any liability incurred by, or claims asserted against, such Contributor by reason of your accepting any such warranty or additional liability.

END OF TERMS AND CONDITIONS

MIT license

- cares

Copyright 1998 by the Massachusetts Institute of Technology.

Permission to use, copy, modify, and distribute this software and its documentation for any purpose and without fee is hereby granted, provided that the above copyright notice appear in all copies and that both that copyright notice and this permission notice appear in supporting documentation, and that the name of M.I.T. not be used in advertising or publicity pertaining to distribution of the software without specific, written prior permission. M.I.T. makes no representations about the suitability of this software for any purpose.
It is provided "as is" without express or implied warranty.

- curl

Copyright (C) 1998 - 2005, Daniel Stenberg, <daniel@haxx.se>, et al.

This software is licensed as described in the file COPYING, which you should have received as part of this distribution. The terms are also available at http://curl.haxx.se/docs/copyright.html. You may opt to use, copy, modify, merge, publish, distribute and/or sell copies of the Software, and permit persons to whom the Software is furnished to do so, under the terms of the COPYING file.

This software is distributed on an "AS IS" basis, WITHOUT WARRANTY OF ANY KIND, either express or implied.

- fontconfig

Copyright (c) 2000 Keith Packard
Copyright (c) 2005 Patrick Lam
Permission to use, copy, modify, distribute, and sell this software and its documentation for any purpose is hereby granted without fee, provided that the above copyright notice appear in all copies and that both that copyright notice and this permission notice appear in supporting documentation, and that the name of Keith Packard not be used in advertising or publicity pertaining to distribution of the software without specific, written prior permission. Keith Packard makes no representations about the suitability of this software for any purpose.
It is provided "as is" without express or implied warranty.

KEITH PACKARD DISCLAIMS ALL WARRANTIES WITH REGARD TO THIS SOFTWARE, INCLUDING ALL IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS, IN NO EVENT SHALL KEITH PACKARD BE LIABLE FOR ANY SPECIAL, INDIRECT OR CONSEQUENTIAL DAMAGES OR ANY DAMAGES WHATSOEVER RESULTING FROM LOSS OF USE, DATA OR PROFITS, WHETHER IN AN ACTION OF CONTRACT, NEGLIGENCE OR OTHER TORTIOUS ACTION, ARISING OUT OF OR IN CONNECTION WITH THE USE OR PERFORMANCE OF THIS SOFTWARE.

- libcurl

Copyright (c) 1996 - 2010, Daniel Stenberg, <daniel@haxx.se>.
All rights reserved.

Permission to use, copy, modify, and distribute this software for any purpose with or without fee is hereby granted, provided that the above copyright notice and this permission notice appear in all copies.

THE SOFTWARE IS PROVIDED "AS IS", WITHOUT WARRANTY OF ANY KIND, EXPRESS OR IMPLIED, INCLUDING BUT NOT LIMITED TO THE WARRANTIES OF MERCHANTABILITY, FITNESS FOR A PARTICULAR PURPOSE AND NONINFRINGEMENT OF THIRD PARTY RIGHTS. IN NO EVENT SHALL THE AUTHORS OR COPYRIGHT HOLDERS BE LIABLE FOR ANY CLAIM, DAMAGES OR OTHER LIABILITY, WHETHER IN AN ACTION OF CONTRACT, TORT OR OTHERWISE, ARISING FROM, OUT OF OR IN CONNECTION WITH THE SOFTWARE OR THE USE OR OTHER DEALINGS IN THE SOFTWARE.

Except as contained in this notice, the name of a copyright holder shall not be used in advertising or otherwise to promote the sale, use or other dealings in this Software without prior written authorization of the copyright holder.

- libxml2

Copyright (C) 1998-2003 Daniel Veillard. All Rights Reserved.

Permission is hereby granted, free of charge, to any person obtaining a copy of this software and associated documentation files (the "Software"), to deal in the Software without restriction, including without limitation the rights to use, copy, modify, merge, publish, distribute, sublicense, and/or sell copies of the Software, and to permit persons to whom the Software is furnished to do so, subject to the following conditions:

The above copyright notice and this permission notice shall be included in all copies or substantial portions of the Software.

THE SOFTWARE IS PROVIDED "AS IS", WITHOUT WARRANTY OF ANY KIND, EXPRESS OR IMPLIED, INCLUDING BUT NOT LIMITED TO THE WARRANTIES OF MERCHANTABILITY, FITNESS FOR A PARTICULAR PURPOSE AND NONINFRINGEMENT. IN NO EVENT SHALL THE DANIEL VEILLARD BE LIABLE FOR ANY CLAIM, DAMAGES OR OTHER LIABILITY, WHETHER IN AN ACTION OF CONTRACT, TORT OR OTHERWISE, ARISING FROM, OUT OF OR IN CONNECTION WITH THE SOFTWARE OR THE USE OR OTHER DEALINGS IN THE SOFTWARE.

Except as contained in this notice, the name of Daniel Veillard shall not be used in advertising or otherwise to promote the sale, use or other dealings in this Software without prior written authorization from him

- libxslt

Copyright (C) 2001-2002 Daniel Veillard.
Copyright (C) 2001-2002 Thomas Broyer, Charlie Bozeman and Daniel Veillard.

All Rights Reserved.

Permission is hereby granted, free of charge, to any person obtaining a copy of this software and associated documentation files (the "Software"), to deal in the Software without restriction, including without limitation the rights to use, copy, modify, merge, publish, distribute, sublicense, and/or sell copies of the Software, and to permit persons to whom the Software is furnished to do so, subject to the following conditions:

The above copyright notice and this permission notice shall be included in all copies or substantial portions of the Software.

THE SOFTWARE IS PROVIDED "AS IS", WITHOUT WARRANTY OF ANY KIND, EXPRESS OR IMPLIED, INCLUDING BUT NOT LIMITED TO THE WARRANTIES OF MERCHANTABILITY, FITNESS FOR A PARTICULAR PURPOSE AND NONINFRINGEMENT. IN NO EVENT SHALL THE AUTHORS OR COPYRIGHT HOLDERS BE LIABLE FOR ANY CLAIM, DAMAGES OR OTHER LIABILITY, WHETHER IN AN ACTION OF CONTRACT, TORT OR OTHERWISE, ARISING FROM, OUT OF OR IN CONNECTION WITH THE SOFTWARE OR THE USE OR OTHER DEALINGS IN THE SOFTWARE.

Except as contained in this notice, the name of Daniel Veillard shall not be used in advertising or otherwise to promote the sale, use or other dealings in this Software without prior written authorization from him.

- lua interpreter

Copyright © 1994–2010 Lua.org, PUC-Rio.
Permission is hereby granted, free of charge, to any person obtaining a copy of this software and associated documentation files (the "Software"), to deal in the Software without restriction, including without limitation the rights to use, copy, modify, merge, publish, distribute, sublicense, and/or sell copies of the Software, and to permit persons to whom the Software is furnished to do so, subject to the following conditions:

The above copyright notice and this permission notice shall be included in all copies or substantial portions of the Software.

THE SOFTWARE IS PROVIDED "AS IS", WITHOUT WARRANTY OF ANY KIND, EXPRESS OR IMPLIED, INCLUDING BUT NOT LIMITED TO THE WARRANTIES OF MERCHANTABILITY, FITNESS FOR A PARTICULAR PURPOSE AND NONINFRINGEMENT. IN NO EVENT SHALL THE AUTHORS OR COPYRIGHT HOLDERS

BE LIABLE FOR ANY CLAIM, DAMAGES OR OTHER LIABILITY, WHETHER IN AN ACTION OF CONTRACT, TORT OR OTHERWISE, ARISING FROM, OUT OF OR IN CONNECTION WITH THE SOFTWARE OR THE USE OR OTHER DEALINGS IN THE SOFTWARE.

Expat license

The source package was downloaded from <URL:http://expat.sourceforge.net>.

The original packager is Adam Di Carlo <aph@debian.org>.
The current maintainer is Ardo van Rangelrooij <ardo@debian.org>.

Copyright (c) 1998, 1999, 2000 Thai Open Source Software Center Ltd and Clark Cooper
Copyright (c) 2001, 2002, 2003, 2004, 2005, 2006 Expat maintainers.

Permission is hereby granted, free of charge, to any person obtaining a copy of this software and associated documentation files (the "Software"), to deal in the Software without restriction, including without limitation the rights to use, copy, modify, merge, publish, distribute, sublicense, and/or sell copies of the Software, and to permit persons to whom the Software is furnished to do so, subject to the following conditions:

The above copyright notice and this permission notice shall be included in all copies or substantial portions of the Software.

THE SOFTWARE IS PROVIDED "AS IS", WITHOUT WARRANTY OF ANY KIND, EXPRESS OR IMPLIED, INCLUDING BUT NOT LIMITED TO THE WARRANTIES OF MERCHANTABILITY, FITNESS FOR A PARTICULAR PURPOSE AND NONINFRINGEMENT. IN NO EVENT SHALL THE AUTHORS OR COPYRIGHT HOLDERS BE LIABLE FOR ANY CLAIM, DAMAGES OR OTHER LIABILITY, WHETHER IN AN ACTION OF CONTRACT, TORT OR OTHERWISE, ARISING FROM, OUT OF OR IN CONNECTION WITH THE SOFTWARE OR THE USE OR OTHER DEALINGS IN THE SOFTWARE.

The FreeType Project LICENSE

Copyright 1996-2002, 2006 by David Turner, Robert Wilhelm, and Werner Lemberg

Introduction

The FreeType Project is distributed in several archive packages; some of them may contain, in addition to the FreeType font engine, various tools and contributions which rely on, or relate to, the FreeType Project.

This license applies to all files found in such packages, and which do not fall under their own explicit license. The license affects thus the FreeType font engine, the test programs, documentation and makefiles, at the very least. This license was inspired by the BSD, Artistic, and IJG (Independent JPEG Group) licenses, which all encourage inclusion and use of free software in commercial and freeware products alike. As a consequence, its main points are that:

- We don't promise that this software works. However, we will be interested in any kind of bug reports. (`as is' distribution)
- You can use this software for whatever you want, in parts or full form, without having to pay us. (`royalty-free' usage)
- You may not pretend that you wrote this software. If you use it, or only parts of it, in a program, you must acknowledge somewhere in your documentation that you have used the FreeType code. (`credits')

We specifically permit and encourage the inclusion of this software, with or without modifications, in commercial products. We disclaim all warranties covering The FreeType Project and assume no liability related to The FreeType Project.

Finally, many people asked us for a preferred form for a credit/disclaimer to use in compliance with this license. We thus encourage you to use the following text:

> Portions of this software are copyright <year> The FreeType Project (www.freetype.org). All rights reserved.

Please replace <year> with the value from the FreeType version you actually use.

Legal Terms

0. Definitions

Throughout this license, the terms `package', `FreeType Project' and `FreeType archive' refer to the set of files originally distributed by the authors (David Turner, Robert Wilhelm, and Werner Lemberg) as the `FreeType Project', be they named as alpha, beta or final release.

`You' refers to the licensee, or person using the project, where `using' is a generic term including compiling the project's source code as well as linking it to form a `program' or `executable'. This program is referred to as `a program using the FreeType engine'.
This license applies to all files distributed in the original FreeType Project, including all source code, binaries and documentation, unless otherwise stated in the file in its original, unmodified form as distributed in the original archive. If you are unsure whether or not a particular file is covered by this license, you must contact us to verify this.

The FreeType Project is copyright (C) 1996-2000 by David Turner, Robert Wilhelm, and Werner Lemberg. All rights reserved except as specified below.

1. No Warranty

THE FREETYPE PROJECT IS PROVIDED `AS IS' WITHOUT WARRANTY OF ANY KIND, EITHER EXPRESS OR IMPLIED, INCLUDING, BUT NOT LIMITED TO, WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE. IN NO EVENT WILL ANY OF THE AUTHORS OR COPYRIGHT HOLDERS BE LIABLE FOR ANY DAMAGES CAUSED BY THE USE OR THE INABILITY TO USE, OF THE FREETYPE PROJECT.

2. Redistribution

This license grants a worldwide, royalty-free, perpetual and irrevocable right and license to use, execute, perform, compile, display, copy, create derivative works of, distribute and sublicense the FreeType Project (in both source and object code forms) and derivative works thereof for any purpose; and to authorize others to exercise some or all of the rights granted herein, subject to the following conditions:

- Redistribution of source code must retain this license file (`FTL.TXT') unaltered; any additions, deletions or changes to the original files must be clearly indicated in accompanying documentation. The copyright notices of the unaltered, original files must be preserved in all copies of source files.

- Redistribution in binary form must provide a disclaimer that states that the software is based in part of the work of the FreeType Team, in the distribution documentation. We also encourage you to put an URL to the FreeType web page in your documentation, though this isn't mandatory.

These conditions apply to any software derived from or based on the FreeType Project, not just the unmodified files. If you use our work, you must acknowledge us. However, no fee need be paid to us.

3. Advertising

Neither the FreeType authors and contributors nor you shall use the name of the other for commercial, advertising, or promotional purposes without specific prior written permission. We suggest, but do not require, that you use one or more of the following phrases to refer to this software in your documentation or advertising materials: `FreeType Project', `FreeType Engine', `FreeType library', or `FreeType Distribution'.

As you have not signed this license, you are not required to accept it. However, as the FreeType Project is copyrighted material, only this license, or another one contracted with the authors, grants you the right to use, distribute, and modify it. Therefore, by using, distributing, or modifying the FreeType Project, you indicate that you understand and accept all the terms of this license.

4. Contacts

There are two mailing lists related to FreeType:
freetype@nongnu.org
Discusses general use and applications of FreeType, as well as future and wanted additions to the library and distribution. If you are looking for support, start in this list if you haven't found anything to help you in the documentation.

freetype-devel@nongnu.org
Discusses bugs, as well as engine internals, design issues, specific licenses, porting, etc.
Our home page can be found at http://www.freetype.org

JPEG license

This software is copyright (C) 1991-1998, Thomas G. Lane.
All Rights Reserved except as specified below.

Permission is hereby granted to use, copy, modify, and distribute this software (or portions thereof) for any purpose, without fee, subject to these conditions:

(1) If any part of the source code for this software is distributed, then this README file must be included, with this copyright and no-warranty notice unaltered; and any additions, deletions, or changes to the original files must be clearly indicated in accompanying documentation.

(2) If only executable code is distributed, then the accompanying documentation must state that "this software is based in part on the work of the Independent JPEG Group".

(3) Permission for use of this software is granted only if the user accepts full responsibility for any undesirable consequences; the authors accept NO LIABILITY for damages of any kind.

OpenSSL License

Copyright (c) 1998-2008 The OpenSSL Project. All rights reserved.

Redistribution and use in source and binary forms, with or without modification, are permitted provided that the following conditions are met:

1. Redistributions of source code must retain the above copyright notice, this list of conditions and the following disclaimer.
2. Redistributions in binary form must reproduce the above copyright notice, this list of conditions and the following disclaimer in the documentation and/or other materials provided with the distribution.
3. All advertising materials mentioning features or use of this software must display the following acknowledgment: "This product includes software developed by the OpenSSL Project for use in the OpenSSL Toolkit. (http://www.openssl.org/)"
4. The names "OpenSSL Toolkit" and "OpenSSL Project" must not be used to endorse or promote products derived from this software without prior written permission. For written permission, please contact openssl-core@openssl.org.
5. Products derived from this software may not be called "OpenSSL" nor may "OpenSSL" appear in their names without prior written permission of the OpenSSL Project.
6. Redistributions of any form whatsoever must retain the following acknowledgment: "This product includes software developed by the OpenSSL Project for use in the OpenSSL Toolkit (http://www.openssl.org/)"

THIS SOFTWARE IS PROVIDED BY THE OpenSSL PROJECT ``AS IS'' AND ANY EXPRESSED OR IMPLIED WARRANTIES, INCLUDING, BUT NOT LIMITED TO, THE IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE ARE DISCLAIMED. IN NO EVENT SHALL THE OpenSSL PROJECT OR ITS CONTRIBUTORS BE LIABLE FOR ANY DIRECT, INDIRECT, INCIDENTAL, SPECIAL, EXEMPLARY, OR CONSEQUENTIAL DAMAGES (INCLUDING, BUT NOT LIMITED TO, PROCUREMENT OF SUBSTITUTE GOODS OR SERVICES; LOSS OF USE, DATA, OR PROFITS;

OR BUSINESS INTERRUPTION) HOWEVER CAUSED AND ON ANY THEORY OF LIABILITY, WHETHER IN CONTRACT, STRICT LIABILITY, OR TORT (INCLUDING NEGLIGENCE OR OTHERWISE) ARISING IN ANY WAY OUT OF THE USE OF THIS SOFTWARE, EVEN IF ADVISED OF THE POSSIBILITY OF SUCH DAMAGE.

This product includes cryptographic software written by Eric Young (eay@cryptsoft.com).
This product includes software written by Tim Hudson (tjh@cryptsoft.com).

Original SSLeay License
Copyright (C) 1995-1998 Eric Young (eay@cryptsoft.com) All rights reserved.

This package is an SSL implementation written by Eric Young (eay@cryptsoft.com).
The implementation was written so as to conform with Netscapes SSL.

This library is free for commercial and non-commercial use as long as the following conditions are aheared to. The following conditions apply to all code found in this distribution, be it the RC4, RSA, lhash, DES, etc., code; not just the SSL code. The SSL documentation included with this distribution is covered by the same copyright terms except that the holder is Tim Hudson (tjh@cryptsoft.com).

Copyright remains Eric Young's, and as such any Copyright notices in the code are not to be removed. If this package is used in a product, Eric Young should be given attribution as the author of the parts of the library used. This can be in the form of a textual message at program startup or in documentation (online or textual) provided with the package.

Redistribution and use in source and binary forms, with or without modification, are permitted provided that the following conditions are met:

1. Redistributions of source code must retain the copyright notice, this list of conditions and the following disclaimer.

2. Redistributions in binary form must reproduce the above copyright notice, this list of conditions and the following disclaimer in the documentation and/or other materials provided with the distribution.

3. All advertising materials mentioning features or use of this software must display the following acknowledgement:
"This product includes cryptographic software written by Eric Young (eay@cryptsoft.com)"
The word 'cryptographic' can be left out if the rouines from the library being used are not cryptographic related :-).
4. If you include any Windows specific code (or a derivative thereof) from the apps directory (application code) you must include an acknowledgement:
"This product includes software written by Tim Hudson (tjh@cryptsoft.com)"

THIS SOFTWARE IS PROVIDED BY ERIC YOUNG ``AS IS'' AND ANY EXPRESS OR IMPLIED WARRANTIES, INCLUDING, BUT NOT LIMITED TO, THE IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE ARE DISCLAIMED.
IN NO EVENT SHALL THE AUTHOR OR CONTRIBUTORS BE LIABLE FOR ANY DIRECT, INDIRECT, INCIDENTAL, SPECIAL, EXEMPLARY, OR CONSEQUENTIAL DAMAGES (INCLUDING, BUT NOT LIMITED TO, PROCUREMENT OF SUBSTITUTE GOODS OR SERVICES; LOSS OF USE, DATA, OR PROFITS; OR BUSINESS INTERRUPTION) HOWEVER CAUSED AND ON ANY THEORY OF LIABILITY, WHETHER IN CONTRACT, STRICT LIABILITY, OR TORT (INCLUDING NEGLIGENCE OR OTHERWISE) ARISING IN ANY WAY OUT OF THE USE OF THIS SOFTWARE, EVEN IF ADVISED OF THE POSSIBILITY OF SUCH DAMAGE.

The licence and distribution terms for any publically available version or derivative of this code cannot be changed. i.e. this code cannot simply be copied and put under another distribution licence [including the GNU Public Licence.]

zlib/libpng License

This product may contain open source software licensed under zlib/libpng License.

Libmng : Copyright © 2000-2008 Gerard Juyn (gerard@libmng.com)
Libpng : Copyright (c) 1998-2008 Glenn Randers-Pehrson
(Version 0.96 Copyright (c) 1996, 1997 Andreas Dilger)
(Version 0.88 Copyright (c) 1995, 1996 Guy Eric Schalnat, Group 42, Inc.)
Zlib : Copyright (C) 1995-2010 Jean-loup Gailly and Mark Adler

This software is provided 'as-is', without any express or implied warranty. In no event will the authors be held liable for any damages arising from the use of this software.
Permission is granted to anyone to use this software for any purpose, including commercial applications, and to alter it and redistribute it freely, subject to the following restrictions:

1. The origin of this software must not be misrepresented; you must not claim that you wrote the original software. If you use this software in a product, an acknowledgment in the product documentation would be appreciated but is not required.
2. Altered source versions must be plainly marked as such, and must not be misrepresented as being the original software.
3. This notice may not be removed or altered from any source distribution.

Jean-loup Gailly
Mark Adler

Portmap license

Most of the files, fall under the following copyright, and are distributable under the terms of the BSD license.

Copyright (c) 1983,1991 The Regents of the University of California. Il rights reserved.

Some of the RPC code, is copyrighted by Sun Microsystems, and is provided under the following terms:
Sun RPC is a product of Sun Microsystems, Inc. and is provided for unrestricted use provided that this legend is included on all tape media and as a part of the software program in whole or part. Users may copy or modify Sun RPC without charge, but are not authorized to license or distribute it to anyone else except as part of a product or program developed by the user or with the express written consent of Sun Microsystems, Inc.

SUN RPC IS PROVIDED AS IS WITH NO WARRANTIES OF ANY KIND INCLUDING THE WARRANTIES OF DESIGN, MERCHANTIBILITY AND FITNESS FOR A PARTICULAR PURPOSE, OR ARISING FROM A COURSE OF DEALING, USAGE OR TRADE PRACTICE.

Sun RPC is provided with no support and without any obligation on the part of Sun Microsystems, Inc. to assist in its use, correction, modification or enhancement.
SUN MICROSYSTEMS, INC. SHALL HAVE NO LIABILITY WITH RESPECT TO THE INFRINGEMENT OF COPYRIGHTS, TRADE SECRETS OR ANY PATENTS BY SUN RPC OR ANY PART THEREOF.

In no event will Sun Microsystems, Inc. be liable for any lost revenue or profits or other special, indirect and consequential damages, even if Sun has been advised of the possibility of such damages.

Sun Microsystems, Inc.
2550 Garcia Avenue

Pixman license

Copyright 1987, 1988, 1989, 1998 The Open Group
Copyright 1987, 1988, 1989 Digital Equipment Corporation
Copyright 1999, 2004, 2008 Keith Packard
Copyright 2000 SuSE, Inc.
Copyright 2000 Keith Packard, member of The XFree86 Project, Inc.
Copyright 2004, 2005, 2007, 2008 Red Hat, Inc.
Copyright 2004 Nicholas Miell
Copyright 2005 Lars Knoll & Zack Rusin, Trolltech
Copyright 2005 Trolltech AS
Copyright 2007 Luca Barbato
Copyright 2008 Aaron Plattner, NVIDIA Corporation
Copyright 2008 Rodrigo Kumpera
Copyright 2008 André Tupinambá
Copyright 2008 Mozilla Corporation
Copyright 2008 Frederic Plourde
Copyright 2009 Sun Microsystems, Inc.

Permission is hereby granted, free of charge, to any person obtaining a copy of this software and associated documentation files (the "Software"), to deal in the Software without restriction, including without limitation the rights to use, copy, modify, merge, publish, distribute, sublicense, and/or sell copies of the Software, and to permit persons to whom the Software is furnished to do so, subject to the following conditions:

The above copyright notice and this permission notice (including the next paragraph) shall be included in all copies or substantial portions of the Software.

THE SOFTWARE IS PROVIDED "AS IS", WITHOUT WARRANTY OF ANY KIND, EXPRESS OR IMPLIED, INCLUDING BUT NOT LIMITED TO THE WARRANTIES OF MERCHANTABILITY, FITNESS FOR A PARTICULAR PURPOSE AND NONINFRINGEMENT. IN NO EVENT SHALL THE AUTHORS OR COPYRIGHT HOLDERS BE LIABLE FOR ANY CLAIM, DAMAGES OR OTHER LIABILITY, WHETHER IN AN ACTION OF CONTRACT, TORT OR OTHERWISE, ARISING FROM, OUT OF OR IN CONNECTION WITH THE SOFTWARE OR THE USE OR OTHER DEALINGS IN THE SOFTWARE.

X.net license

Copyright (c) 1995-2001 International Business Machines Corporation and others
All rights reserved.

Permission is hereby granted, free of charge, to any person obtaining a copy of this software and associated documentation files (the "Software"), to deal in the Software without restriction, including without limitation the rights to use, copy, modify, merge, publish, distribute, and/or sell copies of the Software, and to permit persons to whom the Software is furnished to do so, provided that the above copyright notice(s) and this permission notice appear in all copies of the Software and that both the above copyright notice(s) and this permission notice appear in supporting documentation.

THE SOFTWARE IS PROVIDED "AS IS", WITHOUT WARRANTY OF ANY KIND, EXPRESS OR IMPLIED, INCLUDING BUT NOT LIMITED TO THE WARRANTIES OF MERCHANTABILITY, FITNESS FOR A PARTICULAR PURPOSE AND NONINFRINGEMENT OF THIRD PARTY RIGHTS. IN NO EVENT SHALL THE COPYRIGHT HOLDER OR HOLDERS INCLUDED IN THIS NOTICE BE LIABLE FOR ANY CLAIM, OR ANY SPECIAL INDIRECT OR CONSEQUENTIAL DAMAGES, OR ANY DAMAGES WHATSOEVER RESULTING FROM LOSS OF USE, DATA OR PROFITS, WHETHER IN AN ACTION OF CONTRACT, NEGLIGENCE OR OTHER TORTIOUS ACTION, ARISING OUT OF OR IN CONNECTION WITH THE USE OR PERFORMANCE OF THIS SOFTWARE.

Except as contained in this notice, the name of a copyright holder shall not be used in advertising or otherwise to promote the sale, use or other dealings in this Software without prior written authorization of the copyright holder.

BSD license

- netBSD

Copyright (c) 1998 The NetBSD Foundation, Inc.
All rights reserved.

This code is derived from software contributed to The NetBSD Foundation by Lennart Augustsson (lennart@augustsson.net) at Carlstedt Research & Technology.

Redistribution and use in source and binary forms, with or without modification, are permitted provided that the following conditions are met:

1. Redistributions of source code must retain the above copyright notice, this list of conditions and the following disclaimer.

2. Redistributions in binary form must reproduce the above copyright notice, this list of conditions and the following disclaimer in the documentation and/or other materials provided with the distribution.

3. All advertising materials mentioning features or use of this software must display the following acknowledgement:
   This product includes software developed by the NetBSD Foundation, Inc. and its contributors.

4. Neither the name of The NetBSD Foundation nor the names of its contributors may be used to endorse or promote products derived from this software without specific prior written permission.

THIS SOFTWARE IS PROVIDED BY THE NETBSD FOUNDATION, INC. AND CONTRIBUTORS ``AS IS'' AND ANY EXPRESS OR IMPLIED WARRANTIES, INCLUDING, BUT NOT LIMITED TO, THE IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE ARE DISCLAIMED. IN NO EVENT SHALL THE FOUNDATION OR CONTRIBUTORS BE LIABLE FOR ANY DIRECT, INDIRECT, INCIDENTAL, SPECIAL, EXEMPLARY, OR CONSEQUENTIAL DAMAGES (INCLUDING, BUT NOT LIMITED TO, PROCUREMENT OF SUBSTITUTE GOODS OR SERVICES; LOSS OF USE, DATA, OR PROFITS; OR BUSINESS INTERRUPTION) OWEVER CAUSED AND ON ANY THEORY OF LIABILITY, WHETHER IN CONTRACT, STRICT LIABILITY, OR TORT (INCLUDING NEGLIGENCE OR OTHERWISE) ARISING IN ANY WAY OUT OF THE USE OF THIS SOFTWARE, EVEN IF ADVISED OF THE POSSIBILITY OF SUCH DAMAGE.

- Simple XML Parser

Copyright (c) 2001-2002 Bruno Essmann
<essmann@users.sourceforge.net>
All rights reserved.

Redistribution and use in source and binary forms, with or without modification, are permitted provided that the following conditions are met:

1. Redistributions of source code must retain the above copyright notice, this list of conditions and the following disclaimer.

2. Redistributions in binary form must reproduce the above copyright notice, this list of conditions and the following disclaimer in the documentation and/or other materials provided with the distribution.

3. The name of the author may not be used to endorse or promote products derived from this software without specific prior written permission.

THIS SOFTWARE IS PROVIDED BY THE AUTHOR ``AS IS'' AND ANY EXPRESS OR IMPLIED WARRANTIES, INCLUDING, BUT NOT LIMITED TO, THE IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE ARE DISCLAIMED. IN NO EVENT SHALL THE AUTHOR BE LIABLE FOR ANY DIRECT, INDIRECT, INCIDENTAL, SPECIAL, EXEMPLARY, OR CONSEQUENTIAL DAMAGES (INCLUDING, BUT NOT LIMITED TO, PROCUREMENT OF SUBSTITUTE GOODS OR SERVICES; LOSS OF USE, DATA, OR PROFITS; OR BUSINESS INTERRUPTION) HOWEVER CAUSED AND ON ANY THEORY OF LIABILITY, WHETHER IN CONTRACT, STRICT LIABILITY, OR TORT (INCLUDING NEGLIGENCE OR OTHERWISE) ARISING IN ANY WAY OUT OF THE USE OF THIS SOFTWARE, EVEN IF ADVISED OF THE POSSIBILITY OF SUCH DAMAGE.

- xyssl

Copyright (C) 2006-2008 Christophe Devine
Copyright (C) 2009 Paul Bakker <polarssl_ maintainer at polarssl dot org>
All rights reserved.
Redistribution and use in source and binary forms, with or without modification, are permitted provided that the following conditions are met:

1. Redistributions of source code must retain the above copyright notice, this list of conditions and the following disclaimer.

2. Redistributions in binary form must reproduce the above copyright notice, this list of conditions and the following disclaimer in the documentation and/or other materials provided with the distribution.

3. Neither the names of PolarSSL or XySSL nor the names of its contributors may be used to endorse or promote products derived from this software without specific prior written permission.

THIS SOFTWARE IS PROVIDED BY THE COPYRIGHT HOLDERS AND CONTRIBUTORS "AS IS" AND ANY EXPRESS OR IMPLIED WARRANTIES, INCLUDING, BUT NOT LIMITED TO, THE IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE ARE DISCLAIMED. IN NO EVENT SHALL THE COPYRIGHT OWNER OR CONTRIBUTORS BE LIABLE FOR ANY DIRECT, INDIRECT, INCIDENTAL, SPECIAL, EXEMPLARY, OR CONSEQUENTIAL DAMAGES (INCLUDING, BUT NOT LIMITED TO, PROCUREMENT OF SUBSTITUTE GOODS OR SERVICES; LOSS OF USE, DATA, OR PROFITS; OR BUSINESS INTERRUPTION) HOWEVER CAUSED AND ON ANY THEORY OF LIABILITY, WHETHER IN CONTRACT, STRICT LIABILITY, OR TORT (INCLUDING NEGLIGENCE OR OTHERWISE) ARISING IN ANY WAY OUT OF THE USE OF THIS SOFTWARE, EVEN IF ADVISED OF THE POSSIBILITY OF SUCH DAMAGE.

RSA Data Security license

Copyright (C) 1991-2, RSA Data Security, Inc. Created 1991. All rights reserved.

License to copy and use this software is granted provided that it is identified as the "RSA Data Security, Inc. MD5 Message-Digest Algorithm" in all material mentioning or referencing this software or this function.

License is also granted to make and use derivative works provided that such works are identified as "derived from the RSA Data Security, Inc. MD5 Message-Digest Algorithm" in all material mentioning or referencing the derived work.

RSA Data Security, Inc. makes no representations concerning either the merchantability of this software or the suitability of this software for any particular purpose. It is provided "as is" without express or implied warranty of any kind.
These notices must be retained in any copies of any part of this documentation and/or software.

JSON license

Copyright (c) 2005 JSON.org

Permission is hereby granted, free of charge, to any person obtaining a copy of this software and associated documentation files (the "Software"), to deal in the Software without restriction, including without limitation the rights to use, copy, modify, merge, publish, distribute, sublicense, and/or sell copies of the Software, and to permit persons to whom the Software is furnished to do so, subject to the following conditions:

The above copyright notice and this permission notice shall be included in all copies or substantial portions of the Software.

The Software shall be used for Good, not Evil.

THE SOFTWARE IS PROVIDED "AS IS", WITHOUT WARRANTY OF ANY KIND, EXPRESS OR IMPLIED, INCLUDING BUT NOT LIMITED TO THE WARRANTIES OF MERCHANTABILITY, FITNESS FOR A PARTICULAR PURPOSE AND NONINFRINGEMENT. IN NO EVENT SHALL THE AUTHORS OR COPYRIGHT HOLDERS BE LIABLE FOR ANY CLAIM, DAMAGES OR OTHER LIABILITY, WHETHER IN AN ACTION OF CONTRACT, TORT OR OTHERWISE, ARISING FROM, OUT OF OR IN CONNECTION WITH THE SOFTWARE OR THE USE OR OTHER DEALINGS IN THE SOFTWARE.

MS92 license

Copyright (C) 1992 Michael Sample and the University of British Columbia

This library is free software; you can redistribute it and/or modify it provided that this copyright/ license information is retained in original form.

If you modify this file, you must clearly indicate your changes.

This source code is distributed in the hope that it will be useful, but WITHOUT ANY WARRANTY; without even the implied warranty of MERCHANTABILITY or FITNESS FOR A PARTICULAR PURPOSE.



The model and serial numbers of the TV is located on the back of the TV
Record it below should you ever need service.

MODEL _____

SERIAL _____